CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
1385 8th STREET • SUITE 130
ARCATA, CA 95521
VOICE (707) 826-8950
FAX (707) 826-8960

Click here to go to original staff report

W11b

MEMORANDUM

Date: **November 7, 2014**

To: Commissioners and Interested Persons

From: Alison Dettmer, Deputy Director
Bob Merrill, District Manager
Kasey Sirkin, Coastal Planner

Subject: **Addendum to Commission Meeting for Wednesday, November 12, 2014 North Coast District Item W11b, CDP Application 1-14-1030 (Crescent City Harbor District)**

This addendum presents certain revisions to the staff recommendation for approval of the project with conditions mailed on October 24, 2014, including changes to the project description and associated findings related to the installation of two oil-water separators, modifications to **Special Condition Nos. 1 and 11,** and the deletion of **Special Condition No. 5**. The addendum does not otherwise alter staff's recommendation of approval.

As originally described, the proposed stormwater treatment system included the installation of two oil-water separators into the existing drain inlets on the eastern side of the proposed building location to achieve treatment of the 85th percentile 24-hour storm flows. During the project review period the applicant changed the proposed project description to include installation of two permeable pavement areas that will treat stormwater quantities up to and including the 85th percentile 24-hour storm flows. The applicant had intended, but neglected to remove the oil-water separators from the project description at that time. Following receipt of the staff report, the applicant indicated that the oil-water separators would not be installed as the stormwater treatment system now includes the installation of the permeable pavement areas capable of treating 85th percentile storm flows. Accordingly, references to the oil and water separators in **Special Condition No. 1** and the findings are deleted.

In addition, staff is deleting **Special Condition No. 5** from the staff recommendation. The condition would have required submittal of evidence of a General Permit for Storm Water Discharges and a Stormwater Prevention Plan (SWPP) from the North Coast Water Quality Control Board (NCWQCB). Following receipt of the staff report, the applicant informed staff that the proposed project does not require either of these documents as a General Permit and

SWPP only apply to projects that are larger than one acre in area. The proposed Englund Marine project is well under an acre in area. Therefore, **Special Condition No. 5** is deleted and the following Special Conditions will be renumbered.

Special Condition No. 11 is being modified to change the word "may" to "shall" in the fifth line of the condition to clarify that changes to the intensity, density or use of the site require a CDP, as reflected in the requirements of Coastal Act Sections 30601, 30603, and 306610(b) and Section 13253(b)(7) of the Commission's regulations.

Text to be deleted is shown in **~~bold strikethrough~~**, text to be added appears in **bold double-underline.**

Modifications to Special Conditions.

- *Special Condition No.1 on pages 5-6 of the staff recommendation is modified as follows:*

1. Final Sediment and Runoff Control Plans. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-14-1030, the applicant shall submit, for review and approval of the Executive Director, final plans for sediment and run-off control. The final plans shall include a site plan(s) and Sediment and Runoff Control Plans.

A. The Plans shall include, at a minimum, the following:

(i) The sediment and runoff control plans shall demonstrate that:

(a) During construction, erosion and sediment on the site shall be controlled to avoid adverse impacts on adjacent properties and coastal resources;

(b) Runoff from the project shall not increase sedimentation into coastal waters;

(c) Runoff from building roofs and other impervious surfaces on the site shall be collected and conveyed into vegetated areas and permeable pavement to avoid sedimentation either on or off the site, and provide for bio-filtration treatment of pollutants entrained in runoff. The system shall treat or filter stormwater runoff from each storm, up to and including the 85th-percentile, 24-hour storm event in a manner that is in substantial conformance with the proposed preliminary stormwater runoff treatment system;

(d) At a minimum, the following temporary control measures, as described in detail within in the January 2012 "California Stormwater BMP Handbook – Construction, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force, shall be used during construction: *Scheduling* (EC-1), *Preservation of Existing Vegetation* (EC-2), *Stabilized Construction Roadway* (TC-2), and *Silt Fences* (SE1); *Sediment Basin* (SE2);*Sediment Traps* (SE3);*Check Dam* (SE4);*Fiber Rolls* (SE5);*Storm Drain inlet protection* (SE10);*Material Delivery and Storage* (WM-01), *Solid Waste Management* (WM-05), and *Vehicle and Equipment Fueling* (NS-9);

(e) Following construction, sediment and runoff on the site shall be controlled to avoid adverse impacts on adjacent properties and coastal resources;

~~(f) Two oil and water separators shall be installed as proposed within drop inlets in proximity to the eastern side of the development to treat runoff in excess of the runoff generated by the 85th percentile 24-hour storm that flows east and south from the development;~~

(**fg**) The plan shall be consistent with the requirements of Special Condition No. 2 and all other terms and conditions of the permit.

(**g~~h~~**) The stormwater runoff treatment system **~~and oil and water separators~~** shall be maintained to function as designed. **~~The oil and water separators shall be maintained in accordance with the manufacturer's recommended maintenance schedule. In addition, the permittee shall inspect the oil and water separators after the first large storm event each rainy season to ensure that the separators are not clogged and are functioning properly.~~**

(ii) The sediment and runoff control plans shall include, at a minimum, the following components:

(a) A narrative report describing all temporary sediment and runoff control measures to be used during construction and all permanent sediment and runoff control measures to be installed for permanent sediment and runoff control;

(b) A site plan(s) showing the location of all temporary and permanent control measures;

(c) A schedule for the installation, removal, and maintenance of the temporary and permanent control measures;

(d) A site plan showing finished grades (at 1-foot contour intervals) and drainage improvements; and

(e) A narrative report describing all necessary measures to maintain the stormwater runoff control system **~~and oil and water separators~~** and a schedule for providing needed maintenance.

B. The permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

Reasons for recommended changes: The changes to Special Condition No. 1 reflect that the oil-water separators will not be installed as installation of the permeable pavement system will be sufficient to provide treatment of stormwater runoff from up to and including the 85th percentile 24-hour storm.

- *Special Condition No. 5 on page 9 of the staff recommendation is deleted as follows:*

~~5. Regional Water Quality Control Board Approval. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-14-1030, the applicant shall submit to the Executive Director for review and written approval, evidence of a General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities and Storm Water Pollution Prevention Plan from the North Coast Water Quality Control Board (NCWQCB). The applicant shall inform the Executive Director of any changes to the project required by the Board. Such changes shall not be incorporated into the project until the applicant obtains an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.~~

Reasons for recommended changes: Special Condition No. 5 is deleted because a General Permit and Storm Water Pollution Prevention Plan are not required since the project size is less than one acre and no other NCRWQCB approval is required for the project.

- *Special Condition No. 11 on page 11 of the staff recommendation is modified as follows:*

11. Future Development Restriction. This permit is only for the development described in Coastal Development Permit Application No. 1-14-1030. All development authorized by Coastal Development Permit No. 1-14-1030 must occur in strict compliance with the proposal set forth in the application for the permit as modified by the special conditions. Changes in the intensity, density, or use of the site **shall** ~~**may**~~ require a new coastal development permit or an amendment to this permit, unless the Executive Director determines that no amendment is legally required. Pursuant to Title 14 California Code of Regulations section 13253(b)(6), the exemptions otherwise provided in Public Resources Code section 30610 (b) shall not apply to the subject site**.** Accordingly, any future improvements to the structure authorized by this permit, including but not limited to repair and maintenance identified as requiring a permit in Public Resources section 30610(d) and Title 14 California Code of Regulations sections 13252(a)-(b), shall require an amendment to Permit No. A-1-CRC-08-004 from the Commission or shall require an additional coastal development permit from the Commission or from the applicable certified local government.

Reasons for recommended changes: The changes clarify Special Condition No. 11 to reflect that changes to the intensity, density or use of the site require CDP authorization.

Modifications to Findings

- *On page 13 of the staff recommendation, the " North Coast Regional Water Quality Control Board" section of Finding D, "Other Approvals Necessary ,shall be modified as follows:*

North Coast Regional Water Quality Control Board

~~**The proposed project requires a General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (NPDES/SWPPP) from the North Coast Water Quality Control Board (NCWQCB). To ensure that the project ultimately approved by the NCWQCB is the same as the project authorized herein, the Commission attaches Special Condition No. 5, which requires the Harbor District to submit to the Executive Director evidence of NCWQCB approval of the project prior to the issuance of the permit. The condition requires that any project changes resulting from NCWQCB approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.**~~

Construction activities can introduce pollutants to stormwater runoff, including sediment, paints, solvents, pavement, construction debris and trash. These potential pollutants are subject to regulation by the North Coast Regional Water Quality Control Board (RWQCB) under the National Pollutant Discharge Elimination System (NPDES) General permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. The NPDES applies to construction activities that occur over an area greater than 1.0 acre. The proposed project, as designed, is approximately 0.5 acres in area and therefore the project construction activities are not subject to NPDES requirements and do not otherwise require RWQCB approval.

Reasons for recommended changes: The changes reflect the fact that Special Condition No. 5 has been deleted from the staff recommendation as the project does not require a NPDES permit or Stormwater Prevention Plan approval from the North Coast Regional Water Quality Control Board.

- *On pages 20-21 of the staff recommendation, beginning with the fourth paragraph of the "Stormwater Runoff," section of Finding G, "Protection of Environmentally Sensitive Habitat Areas and Quality of Coastal Waters," the findings shall be modified as follows:*

Stormwater Runoff

Under the proposed development, a stormwater treatment system will be installed to retain and treat stormwater that is generated by the proposed development and the associated increase in impervious surface area. The proposed stormwater treatment system will be designed and

constructed in accordance with the proposed Stormwater Treatment/Drainage plan (**Exhibit 5**). The new stormwater treatment system ~~**will utilize the existing berm and drain inlets adjacent to the site on Starfish Way and**~~ includes the installation of approximately 7,000 square feet of permeable asphalt~~,~~ **and** planting of approximately 2,000 square feet of landscaping~~.~~ ~~**, and installation of two oil-water separators on the eastern side of the proposed building site.**~~

The permeable asphalt will be installed in the parking lots on the north and south sides of the proposed building. To facilitate stormwater movement into permeable areas, all improved (impervious) areas on the site will be graded to slope towards the permeable asphalt parking lots, and the roof downspouts will be directed towards the permeable areas to capture roof runoff. In addition, Citizens Dock Road has a substantial crown along the center line that will redirect stormwater to the areas where permeable asphalt parking lots for treatment.

Each permeable asphalt parking lot will be comprised of a permeable asphalt surface placed over a granular working platform on top of a reservoir of large stone, which will act as a storage container to hold the stormwater. Each underground working platform will consist of well graded sand, and the infiltration rates will be approximately 4" per hour. Stormwater runoff that is directed to these areas will infiltrate through the permeable asphalt into the ground over a 24-hour period. The preliminary plan submitted for the proposed stormwater treatment system illustrates retention and treatment of the 85th Percentile, 24-hour storm event as calculated by using the volume-based BMP's in accordance with Commission water quality staff recommendations. The stormwater treatment system will be designed to retain and treat the increased volume of runoff expected from the greater amount of impervious surface that will be created as part of the development project. Therefore, although there will be an increase in impervious surfaces, given the construction of a new stormwater treatment system there will be an overall decrease in the quantity of polluted stormwater that is conveyed from the site into the harbor.

To ensure that the system is designed and installed as needed to function properly, the Commission attaches **Special Condition No. 2.** This special condition requires that the permeable asphalt is installed by a contractor that is trained in proper installation techniques, and that the Crescent City Harbor District establishes and follows a long term maintenance plan to ensure that the permeable areas continue to function as intended and remain in working order to capture and retain the planned quantities of stormwater and to prevent pollution from stormwater runoff from entering harbor waters. Regular inspection and maintenance of the permeable pavement is necessary to prevent it from becoming clogged with sediment and preventing the system from retaining and treating the runoff. ~~**Additionally, Special Condition No. 1 requires the permittee to establish and follow an inspection and maintenance plan for the proposed oil-water separators that will be placed in the existing drain inlets on the eastern side of the new building. Regular inspection and maintenance of the oil-water separators is necessary to prevent the separators from becoming clogged and preventing them from working adequately.**~~ **Special Condition Nos. 1 and 2** are also imposed to require the permittee to implement a stormwater management plan that incorporates the provisions of the applicant's proposed stormwater treatment system. **Special Condition No. 4** contains additional conditions related to the proper installation of all landscaping so as not to impact the areas where permeable

asphalt has been placed. The special condition includes restrictions on the depth of the landscaping areas and placement of staged equipment and landscaping materials.

~~**In the event of storms that are larger than the 85th Percentile, 24-hour storm event, excess stormwater that is generated from on the western side of the building will be directed to the permeable pavement areas by the crown in the road along Citizen's Dock Road. Once the stormwater reaches the permeable pavement areas it will be treated by the new stormwater treatment system.may be directed along the berm to the gutters and into the existing DI system. The berm and associated gutters will prevent excess stormwater that may be generated from the building and is not retained on site from entering coastal waters by directing stormwater along the length of the berm and into existing gutters. Stormwater that is generated on the eastern side of the proposed building will be treated and that is not retained on site will be directed to existing drain inlets where oil-water separators will be installed as part of the proposed drainage plan. As proposed, one oil-water separator will be installed in each of the two existing eastern drain inlets to provide for the treatment of excess stormwater that cannot be retained on site. The drain inlets are currently, and will continue to be, connected to the City of Crescent City's stormwater treatment system.**~~

For all of the reasons discussed above the Commission finds that the proposed project, as conditioned, will be carried out in a manner that will sustain the biological productivity and quality of coastal waters and consistent with Coastal Act Sections 30230 and 30231.

Reasons for recommended changes: The changes reflect that the oil and water separators originally proposed by the applicant have been deleted from the project description as the applicant has provided an alternative permeable pavement runoff treatment system that is adequate to treat runoff from up to and including the 85th percentile storm.

CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
1385 8TH STREET, SUITE 130
ARCATA, CA 95521
VOICE (707) 826-8950
FACSIMILE (707) 826-8960

W11b

Filed:	9/15/14
180th day:	3/14/15
Staff:	K. Sirkin-A
Staff Report:	10/24/14
Hearing Date:	11/12/14

STAFF REPORT: REGULAR CALENDAR

Application No:	**1-14-1030**
Applicant:	**Crescent City Harbor District**
Location:	191 Citizens Dock Road, Crescent City Harbor, Del Norte County.
Project Description:	Construct a 10,371-square-foot marine equipment and supply commercial building with parking and landscaping.
Staff Recommendation:	Approval with conditions

SUMMARY OF STAFF RECOMMENDATION

Commission staff recommends approval with conditions of coastal development permit (CDP) application 1-14-1030 for the construction of a new marine equipment and supply commercial development on the Crescent City Harbor.

Under the proposed CDP, the Crescent City Harbor District proposes to replace the existing Englund Marine building with a new concrete masonry building with a metal roof, storefront windows and entries and wooden accents. The new building would be located at the southwest corner of the intersection of Starfish Way and Citizens Dock Road and will be across Starfish Way from the present building location. The proposed building site was previously the location of a restaurant and is zoned for commercial use with all necessary public services and facilities currently existing at the site.

The primary Coastal Act issues associated with this development include protection of harbor-dependent uses, minimization of geologic and flood hazards, and protection of water quality.

Staff believes that the proposed use of the subject property for the retail sale of commercial fishing and marine supplies is consistent with the priority use policies of the Coastal Act. The proposed development, when leased to Englund Marine, will provide supplies for commercial and recreational fishing boats that use the Crescent City Harbor and other nearby marine areas. Staff recommends **Special Condition No. 11** to restrict future development and changes in use of the site so that the Commission will be able to evaluate in the future whether any proposed change in a legally authorized use is consistent with the priority use policies of the Coastal Act.

Staff also recommends that the Commission find that the project as proposed and conditioned with **Special Condition Nos. 1-3** to incorporate and maintain a stormwater runoff treatment system designed to retain and treat stormwater runoff from each storm, up to and including the 85th percentile, 24-hour storm event, to avoid discharges of runoff to adjacent coastal waters will protect the quality of coastal waters consistent with Sections 30230 and 30231 of the Coastal Act.

Finally, staff recommends **Special Condition Nos. 7-9** to minimize geologic and flood hazard risks. These conditions require final plans to conform to geotechnical recommendations, preparation and implementation of a tsunami safety plan, and assumption of risk.

The motion to adopt the staff recommendation of **approval** of the CDP with special conditions is found on page 4.

TABLE OF CONTENTS

APPENDICES

EXHIBITS

I. MOTION AND RESOLUTION

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve coastal development permit 1-14-1030 pursuant to the staff recommendation.

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment**: The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration**: If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation**: Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment**: The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land: These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. Final Sediment and Runoff Control Plans. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-14-1030, the applicant shall submit, for review and approval of the Executive Director, final plans for sediment and run-off control. The final plans shall include a site plan(s) and Sediment and Runoff Control Plans.

A. The Plans shall include, at a minimum, the following:

(i) The sediment and runoff control plans shall demonstrate that:

(a) During construction, erosion and sediment on the site shall be controlled to avoid adverse impacts on adjacent properties and coastal resources;

(b) Runoff from the project shall not increase sedimentation into coastal waters;

(c) Runoff from building roofs and other impervious surfaces on the site shall be collected and conveyed into vegetated areas and permeable pavement to avoid sedimentation either on or off the site, and provide for bio-filtration treatment of pollutants entrained in runoff. The system shall treat or filter stormwater runoff from each storm, up to and including the 85th-percentile, 24-hour storm event in a manner that is in substantial conformance with the proposed preliminary stormwater runoff treatment system;

(d) At a minimum, the following temporary control measures, as described in detail within in the January 2012 "California Stormwater BMP Handbook – Construction, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force, shall be used during construction: *Scheduling* (EC-1), *Preservation of Existing Vegetation* (EC-2), *Stabilized Construction Roadway* (TC-2), and *Silt Fences* (SE1); *Sediment Basin* (SE2);*Sediment Traps* (SE3);*Check Dam* (SE4);*Fiber Rolls* (SE5);*Storm Drain inlet protection* (SE10);*Material Delivery and Storage* (WM-01), *Solid Waste Management* (WM-05), and *Vehicle and Equipment Fueling* (NS-9);

(e) Following construction, sediment and runoff on the site shall be controlled to avoid adverse impacts on adjacent properties and coastal resources;

(f) Two oil and water separators shall be installed as proposed within drop inlets in proximity to the eastern side of the development to treat runoff in excess of the runoff generated by the 85th percentile 24-hour storm that flows east and south from the development;

(g) The plan shall be consistent with the requirements of Special Condition No. 2 and all other terms and conditions of the permit.

(h) The stormwater runoff treatment system and oil and water separators shall be maintained to function as designed. The oil and water separators shall be maintained in accordance with the manufacturer's recommended maintenance schedule. In addition, the permittee shall inspect the oil and water separators after the first large storm event each rainy season to ensure that the separators are not clogged and are functioning properly.

(ii) The sediment and runoff control plans shall include, at a minimum, the following components:

(a) A narrative report describing all temporary sediment and runoff control measures to be used during construction and all permanent sediment and runoff control measures to be installed for permanent sediment and runoff control;

(b) A site plan(s) showing the location of all temporary and permanent control measures;

(c) A schedule for the installation, removal, and maintenance of the temporary and permanent control measures;

(d) A site plan showing finished grades (at 1-foot contour intervals) and drainage improvements; and

(e) A narrative report describing all necessary measures to maintain the stormwater runoff control system and oil and water separators and a schedule for providing needed maintenance.

B. The permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

2. Permeable Pavement Maintenance and Installation. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-14-1030, the applicant shall submit, for review and approval of the Executive Director, final plans for the installation and maintenance of the permeable pavement to be installed pursuant to the sediment and runoff control plan required by Special Condition No. 1.

A. The Plans shall include, at a minimum, the following:

(i) The pervious concrete pavement (or other permeable pavement material) shall be installed by a contractor trained in the installation of permeable pavement consistent with industry standards, including those of the National Ready Mixed Concrete Association (NRMCA);

(ii) The pervious concrete pavement (or other permeable pavement material) shall be installed consistent with the manufacturer's recommended specifications for installation;

(iii) The pervious concrete pavement (or other permeable pavement material) shall be maintained for effective permeability throughout the life of the project, including but not limited to a minimum periodic annual vacuum sweeping in the late summer and early spring, and pressure washing as needed;

(iv) Infiltration Rate testing shall be completed twice annually, in October and again in May, following project completion. Testing methods shall be conducted in accordance with those presented in the "Pervious Pavements – Installation, Operations and Strength – Final Report" available at http://www.dot.state.fl.us/researchcenter/Completed_Proj/Summary_RD/FDOT_BDK78_977-01-2_rpt.pdf. If the calculated Infiltration Rate is greater than the Maintenance Rate by a safety factor of three or greater for each of three continuous years, testing shall be completed every third year thereafter, for the life of the development. Infiltration Rate test results shall be reported in writing to the Executive Director of the Coastal Commission by November 15th and June 15th of each year for the October and May testing respectively;

(v) If after the first three years of infiltration rate testing or at any time thereafter the Executive Director determines that the required measures are not successful at maintaining the performance of the pervious concrete pavement (or other permeable pavement material) consistent with the testing specifications described above , the applicant shall submit an amendment to the coastal development permit proposing additional maintenance measures to ensure all performance criteria are satisfied consistent with the terms and conditions of this permit. Additional special maintenance measures may include, but are not limited to, subscription to a maintenance program through local street sweeping companies, repairs to permeable material, and increased frequency of general maintenance;

(vi) The applicant shall maintain a log documenting all testing dates, observations, and maintenance activities. The log shall be available for inspection upon request by either the County of Del Norte Building Department or the Executive Director of the Coastal Commission;

(vii) At no time shall a seal coat be applied to the pervious concrete pavement (or other permeable pavement material); and

(viii) The maintenance plan shall include an identification of the party or entity(ies) responsible for maintaining the various drainage systems and pervious concrete pavement (or other permeable material) over its lifetime and shall include written acceptance of these responsibilities by the responsible entity(ies).

B. The permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

3. Best Management Practices and Construction Responsibilities. The project shall comply with the following construction-related requirements:

A. Sediment and runoff control products approved pursuant to the final approved plan required by Special Condition No. 1 shall be installed as proposed prior to and maintained throughout the construction period to minimize erosion and trap entrained sediment and other pollutants to prevent discharge of sediment and polluted runoff to coastal waters and wetlands;

B. To minimize wildlife entanglement and plastic debris pollution, temporary rolled erosion and sediment control products (such as fiber rolls, erosion control blankets, and mulch control netting) that incorporate plastic netting (such as polypropylene, nylon, polyethylene, polyester, or other synthetic fibers) shall not be used. Acceptable alternatives include products without netting, those made with loose-weave natural fiber netting, and unreinforced silt fences;

C. Any excess excavated material and other construction debris resulting from construction activities shall be removed immediately upon completion of component construction and shall be disposed of at an authorized disposal site outside the coastal zone or within the coastal zone pursuant to a valid coastal development permit;

D. On-site native vegetation shall be maintained to the maximum extent possible during construction activities;

E. Water quality Best Management Practices (BMPs) shall be implemented to minimize the discharge of pollutants resulting from staging, storage, use, and disposal of construction chemicals and materials (such as paints, solvents, vehicle fluids, asphalt and cement compounds, trash, and debris) into runoff or coastal waters. Maintenance and refueling of construction equipment and vehicles at the project site is prohibited;

F. Adequate supplies of hazardous materials spill prevention and clean-up supplies shall be kept on site at all times during construction;

G. All on-site stockpiles of soil and construction debris shall be contained at all times and shall be covered during storm events if necessary to minimize discharge of sediment and other pollutants; and

H. Concrete paving and grinding operations and storm drain inlet protection BMPs shall be employed to prevent concrete grindings, cutting slurry, and paving rinsate from entering drop inlets or sheet-flowing into coastal waters. Concrete delivery vehicle wash-out maintenance at the project site is prohibited.

4. Landscaping Restrictions. PRIOR TO COMMENCEMENT OF CONSTRUCTION, the applicant shall submit, for review and approval of the Executive Director, final plans for the installation and maintenance of landscaping. The Plans shall include the following provisions:

A. Only plant species native to northern coastal habitats obtained from local genetic stocks shall be planted as part of the project landscaping. If documentation is provided to the Executive Director prior to planting that demonstrates that native vegetation from local genetic stock is not available, native vegetation obtained from genetic stock outside of the local area may be used;

B. No plant species listed as problematic and/or invasive by the California Native Plant Society, the California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site (see http://www.cal-ipc.org/paf/). No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be planted within the property (see http://www.cdfa.ca.gov/plant/ipc/encycloweedia/encycloweedia_hp.htm, http://www.invasivespeciesinfo.gov/plants/main.shtml, and http://plants.usda.gov/java/noxious); and

C. Rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone or Diphacinone shall not be used.

D. The landscaping must be installed at a depth as to not cause sedimentation or obstruction of the adjacent areas where permeable asphalt has been installed.

E. Following installation, all landscaped areas must be maintained on a regular schedule as to ensure that the adjacent permeable areas are not being impacted by dirt and debris from landscaped areas.

F. No soil, mulch, yard debris, or other pore-clogging materials shall be stored or staged atop the pervious concrete (or other permeable pavement) areas, including the driveway, parking, and turnaround areas, at any time.

G. The applicant shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

5. Regional Water Quality Control Board Approval. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-14-1030, the applicant shall submit to the Executive Director for review and written approval, evidence of a General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities and Storm Water Pollution Prevention Plan from the North Coast Water Quality Control Board (NCWQCB). The applicant shall inform the Executive Director of any changes to the project required by the Board. Such changes shall not be incorporated into the project until the applicant obtains an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

6. Lighting Limitations. All exterior lighting attached to the authorized structures shall be low-wattage and downcast shielded such that no glare will be directed beyond the bounds of the property or into adjoining coastal waters.

7. Conformance of Design and Construction Plans to Geotechnical Report. PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-14-1030, the applicant shall submit, for the Executive Director's review and approval, evidence that an appropriate licensed professional has reviewed and approved all final design and construction plans and certified that each of those final plans is consistent with all of the recommendations specified in the above-referenced geologic evaluation approved by the California Coastal Commission for the project and site.

A. All final design and construction plans, including foundations, grading and drainage plans, shall be consistent with all recommendations contained in pages 10 through 19 of the Geotechnical Investigation prepared by LACO Associates, dated January 23, 2014, “Geotechnical Report – New Retail/Warehouse Building Crescent City Harbor Assessor’s Parcel Number 117-020-016.”

B. The permittee shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a

Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

8. Tsunami Safety Plan. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 1-14-1030, the applicant shall submit, for the review and approval of the Executive Director, a plan for mitigating the hazards associated with tsunamis.

A. The plan shall demonstrate that: (i) the existence of the threat of tsunamis from both distant and local sources will be adequately communicated to all employees and customers; (ii) information will be made available to all customers and employees regarding personal safety measures to be undertaken in the event of a potential tsunami event in the area; (iii) efforts will be undertaken to facilitate physically less mobile customers in seeking evacuation from the site and/or sheltering-in-place during a potential tsunami event; and (iv) Englund Marine staff have been adequately trained to carry out the safety plan.

B. The plan shall include, at a minimum, the following components: (i) Tsunami Information Component, detailing the posting of placards or other notices at conspicuous locations throughout the store provided in English and Spanish explaining tsunami risks, the need for evacuation if strong earthquake motion is felt or alarms and/or sirens are sounded, and the location of evacuation routes; (ii) Tsunami Evacuation Assistance Component, detailing the efforts to be undertaken by staff to assist the evacuation of physically less mobile persons during a tsunami event; and (iii) Onsite Staff Training Component, detailing the instruction to be provided to all employees to assure that the Tsunami Safety Plan is effectively implemented.

C. The permittee shall undertake development in accordance with the approved final plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

9. Assumption of Risk. By acceptance of this permit, the applicant acknowledges and agrees: (A) that the site may be subject to hazards from waves, tidal inundation, tsunami, ground-shaking, and other geologic and flood hazards; (B) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (C) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (D) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

10. State Lands Commission Review. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT 1-14-1030, the applicant shall submit to the Executive Director, a written determination from the State Lands Commission that:

A. No State lands are involved in the development; or

B. State lands are involved in the development and all permits required by the State Lands Commission have been obtained; or

C. State lands may be involved in the development, but pending a final determination an agreement has been made with the State Lands Commission for the project to proceed without prejudice to that determination.

11. Future Development Restriction. This permit is only for the development described in Coastal Development Permit Application No. 1-14-1030. All development authorized by Coastal Development Permit No. 1-14-1030 must occur in strict compliance with the proposal set forth in the application for the permit as modified by the special conditions. Changes in the intensity, density, or use of the site may require a new coastal development permit or an amendment to this permit, unless the Executive Director determines that no amendment is legally required. Pursuant to Title 14 California Code of Regulations section 13253(b)(6), the exemptions otherwise provided in Public Resources Code section 30610 (b) shall not apply to the subject site**.** Accordingly, any future improvements to the structure authorized by this permit, including but not limited to repair and maintenance identified as requiring a permit in Public Resources section 30610(d) and Title 14 California Code of Regulations sections 13252(a)-(b), shall require an amendment to Permit No. A-1-CRC-08-004 from the Commission or shall require an additional coastal development permit from the Commission or from the applicable certified local government.

IV. FINDINGS AND DECLARATIONS

The Commission hereby finds and declares as follows:

A. PROJECT DESCRIPTION

Englund Marine and Industrial Supply (Englund Marine) is a marine and commercial fisheries supply company located at the southeast corner of Citizens Dock Road and Starfish Way on the Crescent City Harbor. The existing commercial development, consisting of 3,723 square feet of retail area and 892 square feet of warehouse, has been in continuous operation at the subject site since 1977. Englund Marine's core business is supplying the commercial fishing fleet with supplies and it is estimated that over 80% of their business at the current Crescent City location is ocean related. The Crescent City Harbor District, which owns the property, proposes to construct a new commercial structure, which will be leased by Englund Marine to allow for the expansion of the current retail and warehouse space. The proposed building will be located across Starfish Way from the present location at the southwest corner of the intersection of Starfish Way and Citizens Dock Road (**Exhibits 1-2**).

The proposed new one-story building would be approximately 10,371 square feet in area and contain 5,191 square feet of retail area, 3,731 square feet of warehouse, and 739 square feet of office space, restrooms and staff areas (**Exhibit 3**). The proposed building site is a previously developed site that is within the urban services boundary for the City of Crescent City (though the site is outside of the incorporated limits of the city). The building would be connected to existing utilities and services through existing lines and physical connections to the proposed

site. The existing Englund Marine Building will be retained by the Harbor District, and there are no plans for demolition or reuse of the building at this time.

B. ENVIRONMENTAL SETTING

Crescent City Harbor is located approximately 20 miles south of the California-Oregon border in west-central Del Norte County (**Exhibit 1**). Highway 101 is northeast of the harbor, and the harbor is situated between Huston Street and Sunset Circle to the northeast and Anchor Way and Whaler island breakwater to the south (**Exhibit 2**). The Crescent City Harbor is located immediately south of the main residential and commercial areas of Crescent City. Harbor elevations range from approximately 0 to 20 feet above mean sea level, and the topography is generally flat.

The harbor lies on the seaward edge of the broad coastal plain that extends from South Beach to the south to the lower Smith River floodplain to the north. The harbor lies within a crescent-shaped bay, with Battery Point as the up-coast (western) limit and the rocky causeway connecting the former offshore Whaler Island, approximately one mile to the southeast, as the down-coast (eastern) limit. A significant anadromous fish-bearing watercourse, Elk Creek, enters the harbor on its northeastern shoreline. The relative location of this south-facing cove, situated between the Ports of Humboldt Bay and Brookings (Oregon), makes it an important "harbor of refuge" from the predominantly northwesterly winds and seas in the area. In addition, the constructed outer breakwaters provide supplemental protection against westerly and southerly storms.

Facilities within the bounds of the harbor include a boat basin, launch areas, a repair and fabrication boatyard, associated marina fueling, lift hoist, drayage, stevedore, waste disposal services, a recreational vehicle park, and other ancillary visitor accommodations and harbor-related services. The harbor includes services for commercial fishing vessels and recreational boats, restaurants, one motel (privately owned) parking areas, and RV sites.

Two principal features of the Crescent City Harbor are the Inner Boat Basin and the Outer Boat Basin. The Inner Boat Basin, located northwest of Citizens Dock Road, comprises an approximately 17.5-acre rectangular area of water area partially enclosed by revetment covered shoreline embankment on most of three sides and an in-water breakwater along its seaward side. The Inner Boat Basin is the main berthing area for commercial fishing boats and recreational vessels at the harbor. The Outer Boat Basin, to the south and seaward of the Inner Boat Basin includes the waters of the harbor that are seaward of the shore-side industrial area and which are partially enclosed by (a) the approximately half-mile long narrow projection of filled land that extends perpendicular to the shoreline to Whaler Island and supports Anchor Way, and (b) a breakwater that extends northwest from Whaler Island parallel to the mainland (**Exhibit 2**).

The proposed building site is located approximately 250 feet from the nearest coastal waters and is separated physically and spatially from this area by Citizens Dock Road and an asphalt parking lot that is situated about 4.5 feet above the grade at which the building will be constructed. The elevated parking areas is separated from Citizens Dock Road by an approximately 4.5-foot-high, 550-foot-long grassy embankment that acts as a physical and spatial separation between the proposed building site and any coastal waters. Biological and

botanical surveys concluded that the proposed building site contains no wetlands, special status plants, sensitive habitat, or any other biological resources. The site is currently vacant and the substrate contains a mixture of pavement and compacted gravel and natural ground cover. In the areas where no pavement currently exists, the natural ground surface is severely compacted from years of previous use and loss of vegetation. Information provided by the applicant indicates that the current compaction rate of the natural areas on the site is close to 95%. There is no ESHA on the proposed project site and there is no ESHA on any of the adjacent areas.

C. STANDARD OF REVIEW

The site of the proposed project is adjacent to the semi-confined waters of the Crescent City Harbor, an embayment of the Pacific Ocean. The project is located in areas subject to the public trust within the Coastal Commission's area of original or retained jurisdiction. Therefore, the standard of review that the Commission must apply to the development is the Chapter 3 policies of the Coastal Act.

D. OTHER AGENCY APPROVALS

State Lands Commission

The project site is located in an area that was formerly State-owned waters but remains otherwise subject to the public trust. On July 13, 1963, by Senate Bill No. 1383, the State of California transferred all rights, title, and interest to portions of the submerged and tidelands within Crescent City Harbor and surrounding ocean waters to the District. In granting these ownership rights, the State Lands Commission (SLC) has retained authority over these former sovereign lands through both exempted and reserved rights to all deposits of minerals and its public trust responsibilities under the state Constitution. Granted lands are monitored by the SLC to ensure compliance with the terms of the issued statutory grant. These grants encourage development of tidelands consistent with the public trust while requiring grantees to re-invest revenues produced from the lands back into the lands where they are generated. To assure that the applicant has a sufficient legal property interest in the site to carry out the project consistent with the terms and conditions of this permit, the Commission attaches **Special Condition No. 10.** This special condition requires that the applicant submit evidence that any necessary authorization from the State Lands Commission has been obtained prior to issuance of the permit.

North Coast Regional Water Quality Control Board

The proposed project requires a General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (NPDES/SWPPP) from the North Coast Water Quality Control Board (NCWQCB). To ensure that the project ultimately approved by the NCWQCB is the same as the project authorized herein, the Commission attaches **Special Condition No. 5**, which requires the Harbor District to submit to the Executive Director evidence of NCWQCB approval of the project prior to the issuance of the permit. The condition requires that any project changes resulting from NCWQCB approval not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

E. LOCATING NEW DEVELOPMENT

Section 30250(a) of the Coastal Act states in applicable part that:

> *New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources…*

The intent of this policy is to direct development toward areas where community services are provided and potential impacts to resources are minimized.

While not the standard of review, the certified Local Coastal Plan (LCP) for Del Norte County designates the subject site as Harbor Dependent (HD) and Harbor Dependent Commercial (HDC), and the site is zoned Harbor Dependent Commercial. The land use designation provides a transition area between the more visitor-oriented area and the more industrial activities of the Harbor. The proposed development and use of the site by Englund Marine is consistent with the land use and zoning designations. The proposed development qualifies as a principal permitted use under both land use designations. As discussed in Finding H (Geologic Hazards) below, the development as conditioned to will minimize risks associated with tsunami hazards and other geologic and flood hazards consistent with the requirements of Section 30253 of the Coastal Act. Furthermore, as discussed in the below findings, the project as conditioned will protect water quality, public access, nearby environmentally sensitive habitat areas, and other coastal resources.

The proposed commercial redevelopment project is within the urban services boundary for the City of Crescent City. Utilities and services, including potable water and sanitary sewer collection and treatment, will be provided by the City through existing lines and connections. The existing water and sewer lines have sufficient capacity to continue to service the proposed project at the current capacity, and the proposed project will not increase demand for public services or sewer treatment, since the old building will be vacated once the new building is ready for occupancy. Additionally, the project will not increase traffic volume, since the old building will be vacated and the number of employees will remain the same.

Therefore, the Commission finds that as conditioned, the proposed development is consistent with Section 30250 of the Coastal Act, in that it is located in a developed area that can accommodate the proposed use, there will be adequate water, sewer, utility, transportation, and other public services to serve the development, and there will be no significant adverse effects, either individually or cumulatively, on coastal resources.

F. PROTECTION OF PRIORITY USES

Section 30101 of the Coastal Act states as follows:

> *'Coastal-dependent development or use' means any development or use which requires a site on, or adjacent to, the sea to be able to function at all.*

Section 30101.3 of the Coastal Act Section states as follows:

> *'Coastal-related development' means any use that is dependent on a coastal-dependent development or use.*

Section 30222 of the Coastal Act states as follows:

> *The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.*

Section 30223 of the Coastal Act states as follows:

> *Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

Section 30234 of the Coastal Act states as follows:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.*

Section 30255 of the Coastal Act states as follows:

> *Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.*

The Coastal Act establishes certain priority uses, which must be protected in favor of allowing other competing uses without such priority status. Generally, these priority land uses include uses that by their nature must be located on the coast to function, such as ports, and commercial fishing facilities, or uses that encourage the public's use of the coast, such as various kinds of visitor-serving facilities, and uses that protect existing coastal resources such as wetlands and other sensitive habitat and coastal agriculture. The policies require the protection and prioritization of sites suitable for siting priority uses and reservation of adequate land base for such uses. Coastal Act policies also establish a hierarchy of the priority uses themselves. For example, Section 30255 of the Coastal Act states that coastal-dependent developments shall have priority over other developments on or near the shoreline.

Other policies of the Coastal Act establish protections for certain uses over other uses regardless of whether the use proposed to displace the protected use is a priority use or coastal dependent use. One such policy with relevance to the proposed amendment is Section 30234 of the Coastal Act. Under this section, existing facilities serving commercial fishing and recreational boating must be protected.

The proposed use of the subject property involves the retail sale of commercial fishing supplies. The proposed development, when leased to Englund Marine, will provide fishing and marine supplies for commercial and recreational fishing boats that use the Crescent City Harbor and other nearby marine areas. As discussed above, Englund Marine's core business is supplying the commercial fishing fleet and recreational boaters with supplies for vessels. Approximately 80% of the company's business at the current Crescent City location is ocean related.

As indicated above, Section 30255 of the Coastal Act states that coastal-dependent developments shall have priority over other developments on or near the shoreline. To be coastal dependent, a use must require a location on or adjacent to the sea to be able to function at all. The proposed commercial store, while serving commercial fishing and other coastal dependent uses does not require a location on or adjacent to the sea to function, as fishing and marine supplies can be sold from inland locations. Therefore, the proposed use is not coastal-dependent. Although the proposed commercial use is not coastal dependent, the use is consistent with Section 30255 in that the use will not displace shoreline lands needed for coastal dependent uses. No coastal dependent use occupies the subject property. As noted above, the site is currently vacant and is located approximately 250 feet away from the actual shoreline of the Harbor. The subject property is separated from the waters of the Inner Harbor area by a shoreline promenade, a parking lot, and Citizens Dock Road.

The primary coastal dependent uses that have historically used the harbor make use of the Crescent City Harbor are (1) commercial fishing, (2) fish processing, (3) the loading of ships and barges with lumber, (4) the unloading of bulk fuels, and (5) vessel repair. None of these uses would be displaced or adversely affected by the proposed development. According to the Crescent City Harbor District, the harbor reasonably accommodates the present and projected future fishing fleet. The harbor has seen a dramatic decrease in the number of commercial vessels operating from the Harbor. Landings in Crescent City have declined by about 50% from the early 1980s to early 2000's, and a 2003 buyback program removed 17 of the 19 trawlers that were once operating from the Crescent City harbor. The primary berthing area in the harbor for commercial fishing vessels is the Inner Harbor, located near the subject property. The Inner harbor was completely rebuilt in 20112 and 2013 after being devastated by the May 2011 tsunami originating from Japan. The Inner Harbor contains berthing facilities for both commercial and recreational fishing vessels. In addition, other docking facilities are located within the Outer Harbor. To the extent that any additional commercial fishing vessel berthing facilities may be needed in the future, the Outer Harbor contains extensive shoreline and water area where such berthing facilities could be built. The subject property is not located where parking or other commercial fishing support facilities would be needed to serve any expansion of commercial fishing facilities.

The waterfront of the Harbor was planned to accommodate three fish processing plants. Two such facilities were constructed over the years, but only one of the two existing fish processors is in operation (Alber Seafood). The old Eureka Fisheries building is leased but not in operation. The site for the third processing plant remains empty.

Very little shipping activity currently occurs at the Harbor. The unloading of bulk fuels from barges no longer takes place within the Harbor, however the pipelines previously used for this

activity are still in place. Similarly, lumber is no longer shipped from the Harbor. The Outer Harbor contains extensive shoreline and water area where berthing facilities for commercial barging activities that might be needed in the future be built, and the subject property is not located where area for vessel loading and unloading activities would be required. The present vessel repair facility at the Harbor was constructed in 1977 and is still in operation. The level of activity at the facility is reduced from what it was previously, and the facility has capacity and area available if any expansion of vessel repair facilities may be needed in the future.

The proposed commercial use will also not displace area needed for recreational boating activities or otherwise adversely affect this use. According to the Harbor District, historically there were approximately 500 slips in use for recreation vessels, although with the down turn in fisheries, only 60 of the slips are currently being used for recreational vessels. Many existing boat slips are not utilized, and as mentioned above, extensive shoreline and water area exists within the Outer Harbor where additional berthing facilities could be installed in the future should demand for berthing facilities ever rise.

Not only will the proposed use not adversely affect Coastal Act priority uses, the proposed commercial fishing and marine supply store will help support priority commercial fishing and recreational boating activities at the Harbor. The proposed new development, when leased by Englund Marine, will continue to support priority commercial fishing and coastal-dependent industrial uses and provide support for commercial fishing and recreational boating uses. The development of a larger retail location to replace the existing undersized retail store and warehouse facility will upgrade service to the commercial fishing and recreational boating uses at Crescent City Harbor.

To ensure that in the future there is no introduction or substitution of new uses at the subject site which could adversely affect the support of commercial fishing or recreational boating opportunities or preclude the establishment of other priority uses at the site, the Commission attaches **Special Condition No. 11**. This condition notifies the applicant and current and future lessees that the introduction of new uses or any changes in the density or intensity in the use of the site is subject to the Commission's permitting authority. In its review of any coastal development permit application submitted for a change of use, the Commission will be able to review whether the proposed change in use is consistent with the priority use policies of the Coastal Act.

Therefore, as the development as conditioned will not displace or otherwise adversely affect shoreline lands needed for coastal dependent uses, other priority uses, or commercial fishing or recreational boating facilities, the Commission finds that the development, as conditioned, is consistent with Coastal Act Sections 30222, 30223, 30234 and 30255.

G. PROTECTION OF WATER QUALITY AND ESHA

Coastal Act Section 30107.5 defines "environmentally sensitive area" as:

> *…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.*

Coastal Act Section 30240 states that:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.*
>
> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Coastal Act Section 30230 states the following:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Coastal Act Section 30231 states the following:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Environmentally Sensitive Habitat Areas

The subject site is within a developed harbor, and according to information from two biological reports prepared for the proposed project, no wetlands, special-status plant or animal habitat, or other environmentally sensitive habitat areas (ESHA) occur within or adjacent to the project site. Coastal waters of the harbor are approximately 250 feet away at the nearest point and are physically and spatially separated from the proposed building site by a roadway and raised parking lot. However, the site is located approximately 1,200 feet from coastal marsh/wetland habitat (Crescent City Marsh Wildlife Area (CCMWA)), owned and managed by the California Department of Fish and Wildlife (CDFW), which is identified as ESHA in the Del Norte County certified LCP and is known to contain several species of rare and endangered plants.

Invasive Plants and Rodenticides

The nearby ESHA could be adversely affected if nonnative, invasive plant species were introduced in landscaping at the subject site. If any of the proposed landscaping were to include introduced invasive exotic plant species, the weedy landscaping plants could colonize (e.g., via wind or wildlife dispersal) the nearby ESHA over time and displace native vegetation, thereby disrupting the functions and values of the ESHA. The applicant has proposed to landscape the site with a variety of trees, shrubs, and ground cover, and the Commission attaches **Special**

Condition No. 4 to ensure that only native and/or non-invasive plant species are planted on the subject property. As conditioned, the proposed project will ensure that the ESHA near the site is not significantly degraded by any future landscaping that would contain invasive exotic species.

In addition, the Commission notes that certain rodenticides, particularly those utilizing blood anticoagulant compounds such as brodifacoum, bromadiolone and diphacinone, have been found to pose significant primary and secondary risks to non-target wildlife present in urban and urban/wildland interface areas. As these target species are preyed upon by raptors or other environmentally sensitive predators and scavengers, the pest control compounds can bio-accumulate in the animals that have consumed the rodents to concentrations toxic to the ingesting non-target species. To avoid this potential cumulative impact to environmentally sensitive wildlife species, **Special Condition No. 4** also contains a prohibition on the use of such anticoagulant-based rodenticides.

With the mitigation measures discussed above, which are designed to minimize any potential impacts to nearby ESHA, the project as conditioned will not significantly degrade nearby ESHA and will be compatible with the continuance of the habitat area. Therefore, the Commission finds that the project as conditioned is consistent with Section 30240(b) of the Coastal Act.

Stormwater Runoff

The proposed development will be located approximately 250 feet away from coastal waters. Construction activities associated with the project will result in the accumulation of soil and debris in close proximity to coastal waters. Grading to prepare the site for construction of the building may expose demolition debris and loosened soil to stormwater runoff, which then could entrain loose soil materials that could in turn drain into coastal waters, adversely affecting water quality. Unless appropriate protocols are followed, the proposed work could result in solid material entering coastal waters, improper storage of materials in or adjacent to sensitive areas, and other activities that could have adverse impacts on water quality and marine resources adjacent to the project site.

To ensure the protection of water quality from construction-related impacts, the Commission attaches **Special Condition Nos. 1 and 3**. **Special Condition No. 1** requires approval of final sediment and runoff plans prior to commencement of construction, incorporating various sediment and runoff control measures. The plans are required to ensure that appropriate best management practices (BMPs) to control runoff and prevent spills are implemented in light of expected precipitation events or construction mishaps. These BMPs include such measures as timing the construction to occur during times with low probability of storm events, use of earthen diking, straw bales and debris fencing barriers to intercept and divert any stormwater runoff that may occur away from the excavation area, mulching and re-seeding the area upon completion of demolition- and construction-related ground disturbing activities, and training of employees in the use of BMPs. Further, the Commission imposes **Special Condition No. 3,** which outlines general construction standards and responsibilities that must be adhered to during the course of the proposed construction work to further protect water quality from construction-related impacts.

Runoff from the completed development could also result in discharges into harbor waters of soil, debris, and oily wastes from vehicle use of project driveways and parking areas. The proposed building site is relatively flat, with ground surface elevations ranging from 10 to 12 feet. Although the proposed building site was previously developed, there currently are no stormwater treatment or retention areas on the site. The site contains a mixture of pavement, compacted gravel, and natural ground cover. In the areas where no pavement currently exists, the natural ground surface is severely compacted from years of previous use and loss of vegetation. Information provided by the applicant indicates that the current compaction rate of the natural areas on the site is close to 95%. This high level of compaction, in conjunction with the paved areas, does not allow for adequate infiltration of stormwater. Under the current conditions, it is likely that most of the stormwater and the pollutants contained within are being conveyed, rather than detained, away from the property and could be entering coastal waters.

Under the proposed development, a stormwater treatment system will be installed to retain and treat stormwater that is generated by the proposed development and the associated increase in impervious surface area. The proposed stormwater treatment system will be designed and constructed in accordance with the proposed Drainage Plan (**Exhibit 5**). The new stormwater treatment system will utilize the existing berm and drain inlets adjacent to the site on Starfish Way and includes the installation of approximately 7,000 square feet of permeable asphalt, planting of approximately 2,000 square feet of landscaping, and installation of two oil-water separators on the eastern side of the proposed building site.

The permeable asphalt will be installed in the parking lots on the north and south sides of the proposed building. To facilitate stormwater movement into permeable areas, all improved (impervious) areas on the site will be graded to slope towards the permeable asphalt parking lots, and the roof downspouts will be directed towards the permeable areas to capture roof runoff. In addition, Citizens Dock Road has a substantial crown along the center line that will redirect stormwater to the areas where permeable asphalt parking lots for treatment.

Each permeable asphalt parking lot will be comprised of a permeable asphalt surface placed over a granular working platform on top of a reservoir of large stone, which will act as a storage container to hold the stormwater. Each underground working platform will consist of well graded sand, and the infiltration rates will be approximately 4" per hour. Stormwater runoff that is directed to these areas will infiltrate through the permeable asphalt into the ground over a 24-hour period. The preliminary plan submitted for the proposed stormwater treatment system illustrates retention and treatment of the 85th Percentile, 24-hour storm event as calculated by using the volume-based BMP's in accordance with Commission water quality staff recommendations. The stormwater treatment system will be designed to retain and treat the increased volume of runoff expected from the greater amount of impervious surface that will be created as part of the development project. Therefore, although there will be an increase in impervious surfaces, given the construction of a new stormwater treatment system there will be an overall decrease in the quantity of polluted stormwater that is conveyed from the site into the harbor.

To ensure that the system is designed and installed as needed to function properly, the Commission attaches **Special Condition No. 2.** This special condition requires that the

permeable asphalt is installed by a contractor that is trained in proper installation techniques, and that the Crescent City Harbor District establishes and follows a long term maintenance plan to ensure that the permeable areas continue to function as intended and remain in working order to capture and retain the planned quantities of stormwater and to prevent pollution from stormwater runoff from entering harbor waters. Regular inspection and maintenance of the permeable pavement is necessary to prevent it from becoming clogged with sediment and preventing the system from retaining and treating the runoff. Additionally, **Special Condition No. 1** requires the permittee to establish and follow an inspection and maintenance plan for the proposed oil-water separators that will be placed in the existing drain inlets on the eastern side of the new building. Regular inspection and maintenance of the oil-water separators is necessary to prevent the separators from becoming clogged and preventing them from working adequately. **Special Condition Nos. 1 and 2** are also imposed to require the permittee to implement a stormwater management plan that incorporates the provisions of the applicant's proposed stormwater treatment system. **Special Condition No. 4** contains additional conditions related to the proper installation of all landscaping so as not to impact the areas where permeable asphalt has been placed. The special condition includes restrictions on the depth of the landscaping areas and placement of staged equipment and landscaping materials.

In the event of storms that are larger than the 85th Percentile, 24-hour storm event, excess stormwater that is generated on the western side of the building may be directed along the berm to the gutters and into the existing DI system. The berm and associated gutters will prevent excess stormwater that may be generated from the building and is not retained on site from entering coastal waters by directing stormwater along the length of the berm and into existing gutters. Stormwater that is generated on the eastern side of the proposed building and that is not retained on site will be directed to existing drain inlets where oil-water separators will be installed as part of the proposed drainage plan. As proposed, one oil-water separator will be installed in each of the two existing eastern drain inlets to provide for the treatment of excess stormwater that cannot be retained on site. The drain inlets are currently, and will continue to be, connected to the City of Crescent City's stormwater treatment system.

For all of the reasons discussed above the Commission finds that the proposed project, as conditioned, will be carried out in a manner that will sustain the biological productivity and quality of coastal waters and consistent with Coastal Act Sections 30230 and 30231.

Lighting

Night sky light pollution is an emerging regional, national and even international concern. Commission staff research has determined that artificial night lighting can have a variety of significant direct and cumulative effects on flora and fauna, including disruption of light-dark photosynthesis cycles and circadian rhythms, disruption of foraging behaviors and increased risks of predation, and inference with vision and migratory orientation. These impacts can result in reductions in biological productivity, reduce the populations of sensitive species, elevate incidences of collisions between birds and structures, or cause large numbers of arthropods to fixate on the lighting source attraction to the point of fatal exhaustion, negatively affecting their populations and reproductive success as well as the food web they support. The Commission staff ecologists note that the effects of night lighting on sensitive habitat and species are both

complex and not well understood. Nonetheless new research supports the basis for concern and the need to limit light pollution to the extent feasible.

Part of the proposed building design includes the installation of exterior lighting. This area of the Harbor has substantial night time lighting for safety and security purposes. Given the proximity of the proposed development to coastal waters, there is the potential for the added light pollution to adversely affect aquatic species and marine mammals that utilize the inner harbor coastal waters.

The proposed building design contains several mitigation measures that will minimize artificial light impacts (**Exhibit 6**). In addition to the proposed building being located more than 250 feet from the nearest water source, the exterior lights on the proposed building will be placed in a way that no light from the building will illuminate the surrounding area. All exterior lighting will be designed and constructed to be shielded and focus light downwards. Illumination from the exterior lighting will be less than 0.5 foot-candles in strength at the outer limits of the landscaped areas. No light will reach further than the building footprint, which is approximately 250 feet from the nearest coastal waters. **Special Condition No. 6** is attached to require that all exterior lighting associated with the proposed development be low-wattage and downcast shielded such that no glare is directed beyond the bounds of the property or into adjoining coastal waters or nearby environmentally sensitive areas.

Finally, in accordance with the provisions of Section 13253(b)(6) of Title 14 of the California Code of Regulations, the Commission also attaches Special Condition No. 11. Section 30610(b) of the Coastal Act exempts certain additions to existing structures from coastal development permit requirements. Thus, once the permitted development has been constructed, certain additions that the applicant might propose in the future could be exempt from the need for a permit or permit amendment, including changes to the exterior lighting. Depending on its nature, extent, and location, such a change to the exterior lighting could result in impacts to the nearby coastal waters and ESHA. To avoid such impacts to coastal resources from the development of otherwise exempt additions to existing structures, Section 30610(b) requires the Commission to specify by regulation those classes of development which involve a risk of adverse environmental effects and require that a permit be obtained for such improvements. Pursuant to Section 30610(b) of the Coastal Act, the Commission adopted Section 13250 of Title 14 of the California Code of regulations. Section 13253(b)(6) specifically authorizes the Commission to require a permit for additions to structures that could involve a risk of adverse environmental effect by indicating in the development permit issued for the original structure that any future improvements would require a development permit. As noted above, certain additions or modifications to the approved exterior lighting system could involve a risk of creating impacts to wetland and environmentally sensitive habitats near the site. Therefore, in accordance with provisions of Section 13253 (b)(6) of Title 14 of the California Code of Regulations, the Commission attaches Special Condition No. 17 which requires that all future development on the subject parcel that might otherwise be exempt from coastal permit requirements requires an amendment or coastal development permit. This condition will allow future development to be reviewed by the Commission to ensure that future changes to the exterior lighting system will not be sited or designed in a manner that would result in impacts to habitat. Therefore the Commission finds that the proposed project, as conditioned, will be sited and designed to prevent

lighting impacts that would significantly degrade coastal waters, consistent with Coastal Act Section 30240(b).

Conclusion

The Commission finds that as conditioned to include the mitigation measures discussed above, the project will be carried out in a manner that (1) will sustain the biological productivity and quality of coastal waters and marine resources consistent with Coastal Act Sections 30230 and 30231; and (2) will not significantly degrade adjacent ESHA and will be compatible with the continuance of adjacent ESHA consistent with Coastal Act Section 30240(b).

H. GEOLOGIC HAZARDS

Section 30253 of the Coastal Act states in applicable part:

> *New development shall do all of the following:*
>
> *(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*
>
> *(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs…*

The proposed building site is situated on the Crescent City Harbor at an elevation of 10 to 12 feet above mean sea level (msl) (NGVD). The primary natural hazard issues pertinent to the project site include potential liquefaction and tsunami inundation.

Liquefaction

Although no active faults are identified within the immediate project area, the project is located within a seismically active region in which earthquakes do occur. Strong seismic shaking, subsidence, and tsunami inundation could result from local or distant earthquake activity. Based on the distance between the site and the closest active faults, the risk of surface rupture to occur within the proposed development site is estimated to be low. Given the proximity of significant active faults (the Cascadia Subduction Zone to the west [located approximately 42 miles south and 56 miles west] and the Trinidad fault to the south), as well as other active faults within and offshore of northern California, the risk is high that the site will experience strong ground shaking during the economic life span of the proposed development. The extent of ground shaking during an earthquake is controlled by the earthquake magnitude and intensity, distance to the epicenter and the geologic conditions in the area. The intensity of the earthquake ground motions will depend upon the characteristics of the generating fault, distance from the rupture, magnitude and duration of the earthquake, and specific subsurface conditions.

Cone penetration test (CPT) boring data was utilized to perform quantitative analysis of the liquefaction potential and related dynamic settlement of the site. The results of the liquefaction analysis indicate that the site has a high liquefaction risk, although the total dynamic settlement of the proposed building would be less than 3 inches. These results are further supported by CDMG Special Publication 115 Map S-3 (CDMG 1995), which show the vicinity to be near an area of moderate to high liquefaction potential. According to further information provided in the

geotechnical report, although the risk of liquefaction is high, the anticipated amounts of differential settlement is expected to only result in aesthetic damage to the structure and is not anticipated to pose a significant threat to the building occupants or the building structure. As recommended by LACO, to mitigate for the potential settlement, the proposed building will be designed with a shallow foundation design that will withstand settlement that may occur from a nearby earthquake resulting in liquefaction of the soils. The intent of this building foundation design is to reduce the potential for excessive differential and total structural settlement associated with the fill soils following a liquefaction event. As described in the LACO report, isolated foundation elements that are designed to support structural loads will be tied together with grade beams or the structural slab to reduce the magnitude of differential dynamic settlement and the potential for structural collapse.

Therefore, to further minimize risks to life and property from geologic hazards, assure stability and structural integrity, and neither create nor contribute significantly to geologic instability associated with liquefaction hazards at the site, the Commission attaches **Special Condition No. 7** incorporating the building foundation specifications outlined in the LACO geotechnical analysis. **Special Condition No. 7** requires that the applicant submit final foundation plans for the review and approval of the Executive Director that incorporate the various recommendations set forth in the geotechnical investigation including recommendations concerning site preparation, general foundation, building design, excavation, fill, and retaining wall criteria, groundwater, moisture, and drainage control, and erosion and runoff control, inspection, and documentation.

As the development has been conditioned to provide a foundation to withstand potential ground settlement and dislocation associated with soil liquefaction, the proposed building will be located and designed so as to minimize risks to life and property from liquefaction consistent with the above mentioned Coastal Act policies.

Tsunami Inundation

Crescent City is heavily affected by tsunamis from distant source seismic events. Recent evidence suggests that earthquakes may generate large tsunamis every 300 to 700 years along the Cascadia subduction zone, an area off of the Pacific Northwest coast from Cape Mendocino to Puget Sound, where a crustal plate carrying part of the Pacific Ocean is diving under North America. Crescent City has experienced at least six tsunamis in the last 54 years, the greatest occurring on March 28, 1964. On that date, a series of tsunamis generated from the Richter 9.2 earthquake near Anchorage, Alaska rolled into the harbor and inundated much of the waterfront and downtown area, killing eleven people. The fourth wave was the largest of the set, with a height of approximately 20 to 21 feet. The wave was preceded by a withdrawal of the water that left the inner harbor almost dry. This fast moving wave capsized 15 fishing boats. Three other boats disappeared, and eight more sunk in the mooring area. Several other boats were washed onto the beach. Extensive damage was inflicted to the piers. The wave covered the entire length of Front Street, and about thirty blocks of Crescent City were devastated. Overall damage was estimated at between $7.5-16 million (1964 dollars). Because of the ongoing risk of future tsunami events, much of the City’s harbor waterfront remains vacant or has been reserved for open space, parks, and other low-occupancy public facilities uses.

It is not practical to design a structure in this location that would position the habitable space of the building above maximum tsunami inundation levels. The flood risks from tsunami can best be minimized through warnings of imminent tsunamis and evacuation. The project site is located within the coverage area of the City's tsunami warning system, which in the event of such potentially dangerous events, will alert Englund Marine employees and customers to evacuate the immediate harbor area. The project site has adequate siren broadcast coverage from facilities located on the nearby Cultural Center building to the north, and within the Harbor complex. In addition, the City has developed a community tsunami readiness program. Signs clearly mark tsunami evacuation routes, and sheltering locations have been established on higher ground. Furthermore, as part of the 50th anniversary commemoration of the 1964 Gulf of Alaska Tsunami, the City of Crescent City plans to install throughout the city a series of temporary public informational kiosks with mobile device readable Quick Response (QR) matrix barcode strips containing addresses to internet website pages where interpretative information on the tsunami event may be accessed. Locations for the interpretative kiosks include placing a station in proximity to the project site along the Harbor Trail near the U.S. 101 crossing of Elk Creek, where five people lost their lives as a result of the 1964 tsunami.

Not all customers visiting the Englund Marine store will be local residents familiar with the tsunami evacuation routes and procedures. Additional education about tsunami evacuation routes and procedures is needed for customers to further minimize tsunami hazard risks. Therefore, the Commission attaches **Special Condition No. 8**, which requires that prior to issuance of the coastal development permit, the applicant must submit for the review and approval of the Executive Director, a tsunami safety plan. The plan would detail tsunami hazard response materials to be posted within and around the new building, including hazard zone maps, evacuation routes, and a summary of local warning plans as developed by the City of Crescent City and the Del Norte County Office of Emergency Services. As conditioned, the Commission finds that adequate tsunami related warning and evacuation information will be provided to minimize risks to visitors of the hazards of tsunami inundation.

Flooding From Storm Surge and Sea Level Rise

The Federal Emergency Management Agency's Flood Insurance Rate Map (FEMA-FIRM) Community Panel No. 06015C0331E, dated September 26, 2008 designates the area around the proposed building site as being within "Zone X," which is defined as areas being outside the 0.2 percent annual chance floodplain. Therefore, the risk of flooding from a 100-year storm event, with the potential to adversely affect the new development, is considered low to moderate. Additionally, the project is located more than 1,900 feet from exposed open waters of the Pacific Ocean with existing storm surge attenuation improvements located southerly and northerly of the project. Storm surge has not been observed at the project site due to the breakwaters and sand barriers in place. Storm surge carrying debris is regularly observed along the sand barrier and road known as Anchor Way from Highway 101 out to Whaler Island during southerly storms. This barrier is 1,900 feet from the project site and protects inland improvements of the Harbor. Storms from the north break on the outer breakwater, which is 4,600 feet from the site. Fetch between the breakwater and the inner breakwater and Citizens Dock is negligible. Storm surge has not been historically observed onshore in the project area and its impact risk is low.

Global sea level rise can influence the flooding risks from storm surge. Throughout the first half of the 21st-century, sea-level rise alone is not expected to cause significant flooding, inundation, or erosion, but rather the highest probability and most damaging events likely will take place when increasingly elevated sea-level occurs simultaneously with high tides and large waves (e.g., during El Niños). Between 2050 and 2100, the effects of sea level rise alone (flooding and inundation) and the combined effects of sea-level rise and large waves (e.g., damage to coastal structures, cliff erosion, beach loss) are projected to have much greater impacts.

The most recent National Academy of Science (NAS) report issued in 2012 takes into account estimates of vertical land movement resulting from tectonic activity and land subsidence along the west coast of the United States and projects somewhat lesser amounts of sea level rise than the State's 2010 sea level rise interim guidance document in areas of California north of Cape Mendocino. In 2013, following both the 2012 NAS report and the Commission's receipt of this application, the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT) published updated state sea level rise guidance and recommendations that reflect the updated science provided in the NAS report. The 2013 guidance states that the differences in sea-level rise projections north and south of Cape Mendocino are due mainly to vertical land movement. North of Cape Mendocino, geologic forces are causing much of the land to uplift, resulting in a lower rise in sea level, relative to the land, than has been observed farther south. This uplift is evidenced by a tide gauge location 65 miles north of Crescent City, which has recorded an annual drop in sea level of -0.21 feet per year. The proposed project is at an elevation of 10 to 12 feet. As such, sea level rise is not anticipated to cause substantial harm to the proposed project within the expected life of the project building. Risk of damage due to sea level rise over the design life of the project is low.

Conclusion

As discussed above, feasible mitigation measures necessary to minimize coastal flooding risks are required to be incorporated into the development. Therefore, the Commission finds that the proposed project as conditioned, will minimize risk to life and property from hazards, and assure stability and structural integrity, and neither creates nor contributes significantly to erosion, geologic instability, or destruction of the site or surrounding area, consistent with Section 30253 of the Coastal Act.

I. PUBLIC ACCESS

Section 30210 of the Coastal Act states:

> *In carrying out the requirements of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30211 of the Coastal Act states:

> *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to,*

the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30212 of the Coastal Act states, in applicable part:

(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:

(1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,

(2) Adequate access exists nearby, or,

(3)Agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

Section 30214 of the Coastal Act states:

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

(b) It is the intent of the Legislature that the public access policies of this article are carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution.

(c) In carrying out the public access policies of this article, the commission and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.

Projects located between the first public road and the sea, within the CDP jurisdiction of a local government, are subject to the coastal access policies of the Coastal Act. Coastal Act Sections 30210, 30211, 30212, and 30214 require the provision of maximum public access opportunities, with limited exceptions. In applying Sections 30210, 30211, 30212, and 30214, the Commission is also limited by the need to show that any denial of a permit application based on these

sections, or any decision to grant a permit subject to special conditions requiring public access, is necessary to avoid or offset a project's adverse impact on existing or potential access.

The project as proposed will have no significant adverse impact on public access. Crescent City Harbor provides a number of public access and recreational opportunities , including boat launching, berthing for commercial vessels and recreational boats, boat repair areas, marine-related retail/commercial businesses, sailing programs, yacht club and boat sales, and passive recreational pursuits, such as shoreline walking, beachcombing, and bird-watching. The proposed project does not include the closure of any shoreline or public access areas. The project site is set back approximately 250 feet from the shoreline of the Inner Harbor and is separated from the shoreline promenade by a parking lot and Citizens Dock Road. Public access to the adjacent shoreline and coastal waters will remain open at all of the public access areas in the nearby vicinity, including the Harbor Trail and Promenade, Beachfront Park, the inner harbor beach areas, the "B" Street Fishing Pier, and the Battery Point Lighthouse.

Therefore, the Commission finds that the proposed project will not have any significant adverse effect on public access, and that the project as proposed without new public access is consistent with the requirements of Coastal Act Sections 30210, 30211, and 30212.

J. VISUAL RESOURCES

Section 30251 of the Coastal Act states in applicable part:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance, and requires in applicable part that permitted development be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to restore and enhance where feasible the quality of visually degraded areas, and to be visually compatible with the character of surrounding areas.*

The Crescent City Harbor lies to the west of U.S. Highway 101. The coastal stretch of Highway 101 approaching the Harbor from the south offers exceptional views of the Pacific Ocean and its beaches. The views from Highway 101 through the harbor area itself, however, are mostly blocked by trees planted near the highway right-of-way and by commercial and harbor related structures. The proposed building site is within the interior developed area of the Harbor and the building will not be readily visible from Highway 101. Within the developed area of the Harbor, the proposed building, which will be one-story and a maximum of 28 feet above finished grade, will occupy a previously developed site and will have no effect on the limited views of the ocean currently available from Citizens Dock Road and Marine Way. As the building site is set back from the shoreline and the shoreline promenade, the building also will not block views of the water from public access areas within the harbor. In addition, the building will be designed in compliance with the development guidelines of the Harbor (**Exhibit 4**). Therefore, the proposed exterior design, walkways, grading and landscaping are designed to be compatible with the character of its setting.

In summary, the project as proposed involves low-lying, at-grade development that will not obstruct views to and along the shoreline of the Crescent City Harbor, will not entail significant

landform alteration. In addition, as the proposed project will be designed to comply with the Harbor Development Guidelines and therefore will be visually compatible with the character of the surrounding area. The Commission therefore finds that the proposed project, as conditioned, is consistent with Coastal Act Section 30251.

K. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The County Planning Commission approved a Mitigated Negative Declaration for the project on April 10, 2014 (SCH No. 2014042062).

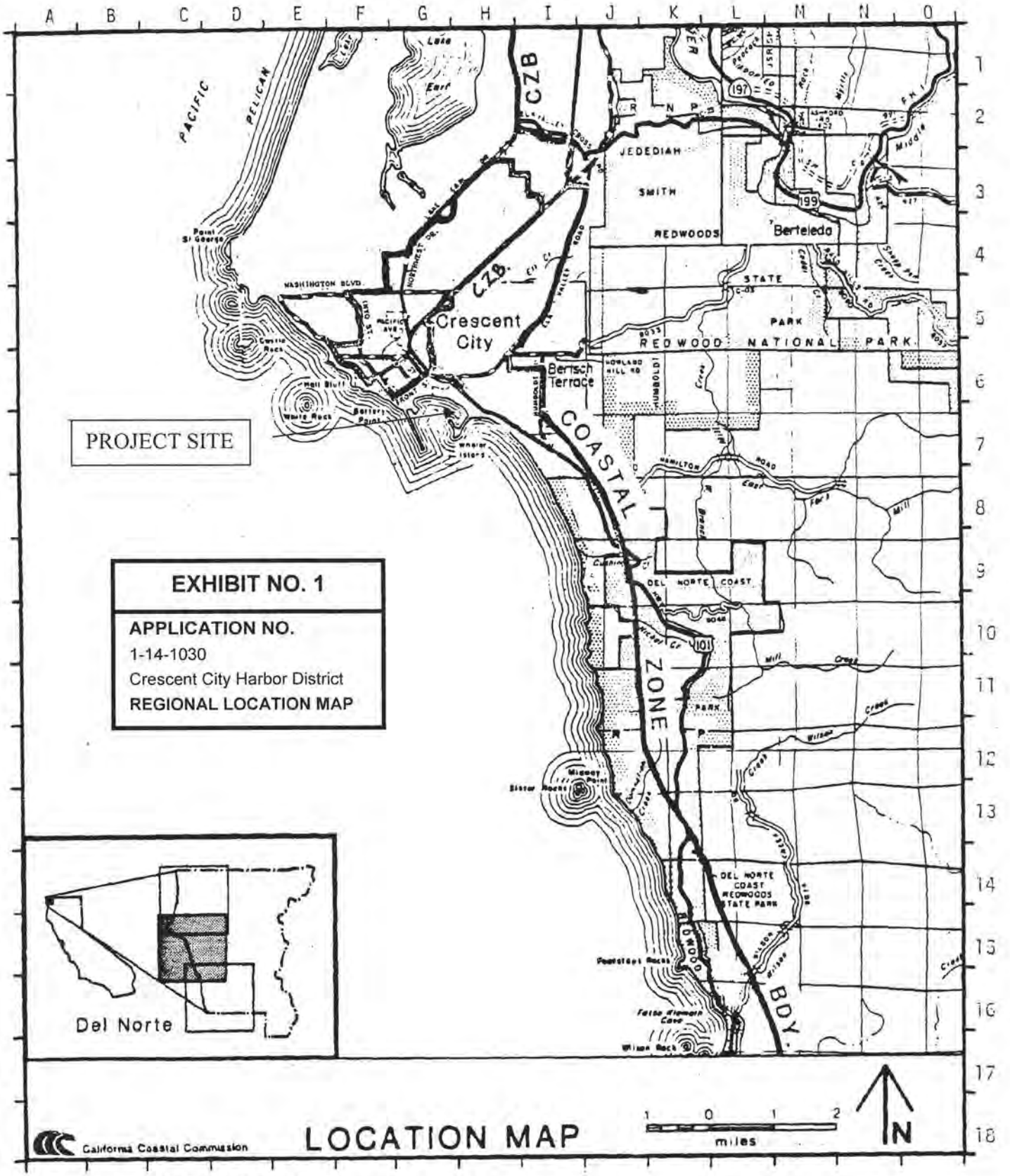
Section 13096 of the Commission's administrative regulations requires Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The Commission incorporates its findings on conformity with Coastal Act policies at this point as if set forth in full. These findings address and respond to all public comments regarding potential significant adverse environmental effects of the project that were received prior to preparation of the staff report. As discussed herein, in the findings addressing the consistency of the proposed project with the Coastal Act, the proposed project has been conditioned to be found consistent with the Coastal Act. Mitigation measures which will minimize all adverse environmental impacts have been made requirements of project approval. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity may have on the environment. Therefore, the Commission finds that the proposed project can be found to be consistent with the requirements of the Coastal Act to conform to CEQA.

APPENDIX A

SUBSTANTIVE FILE DOCUMENTS

Application File for Coastal Development Permit No. 1-14-1030



County of Del Norte

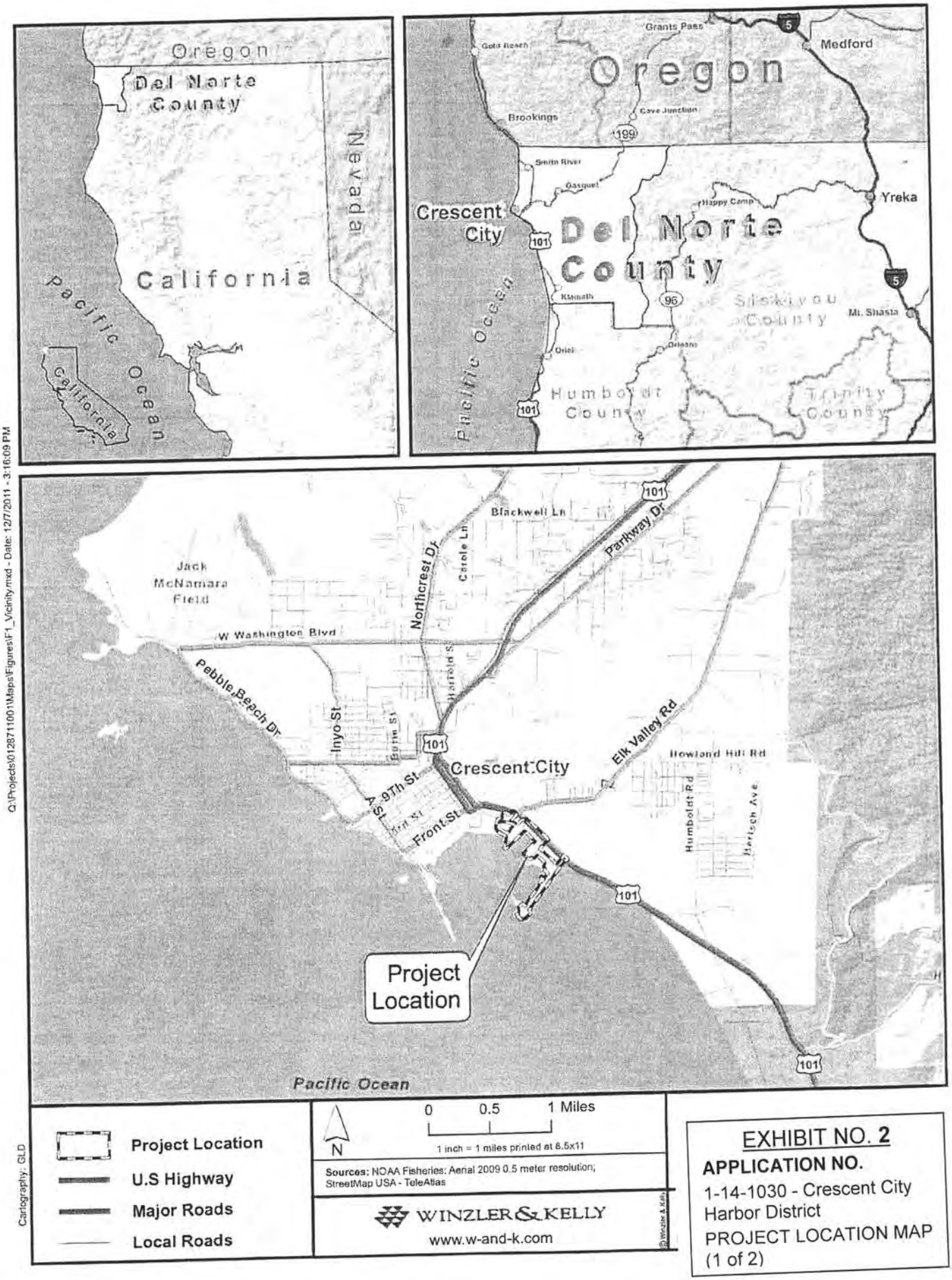


EXHIBIT NO. 2

APPLICATION NO.

1-14-1030 - Crescent City Harbor District

PROJECT LOCATION MAP (1 of 2)

S:\4213 - ENGLUND MARINE - SURVEY\dwg\clg\20140408 NEW BUILDING EXHIBITS.dwg 4/8/2014 5:00 PM

STOVER ENGINEERING
Civil Engineers and Consultants
PO BOX 783 – 711 H STREET
CRESCENT CITY, CA 95531 707-465-6742

ENGLUND MARINE SUPPLY CRESCENT CITY, CA				NEW BUILDING
ONE INCH	NTS	04/08/14	4213	PROPOSED PROJECT LOCATION

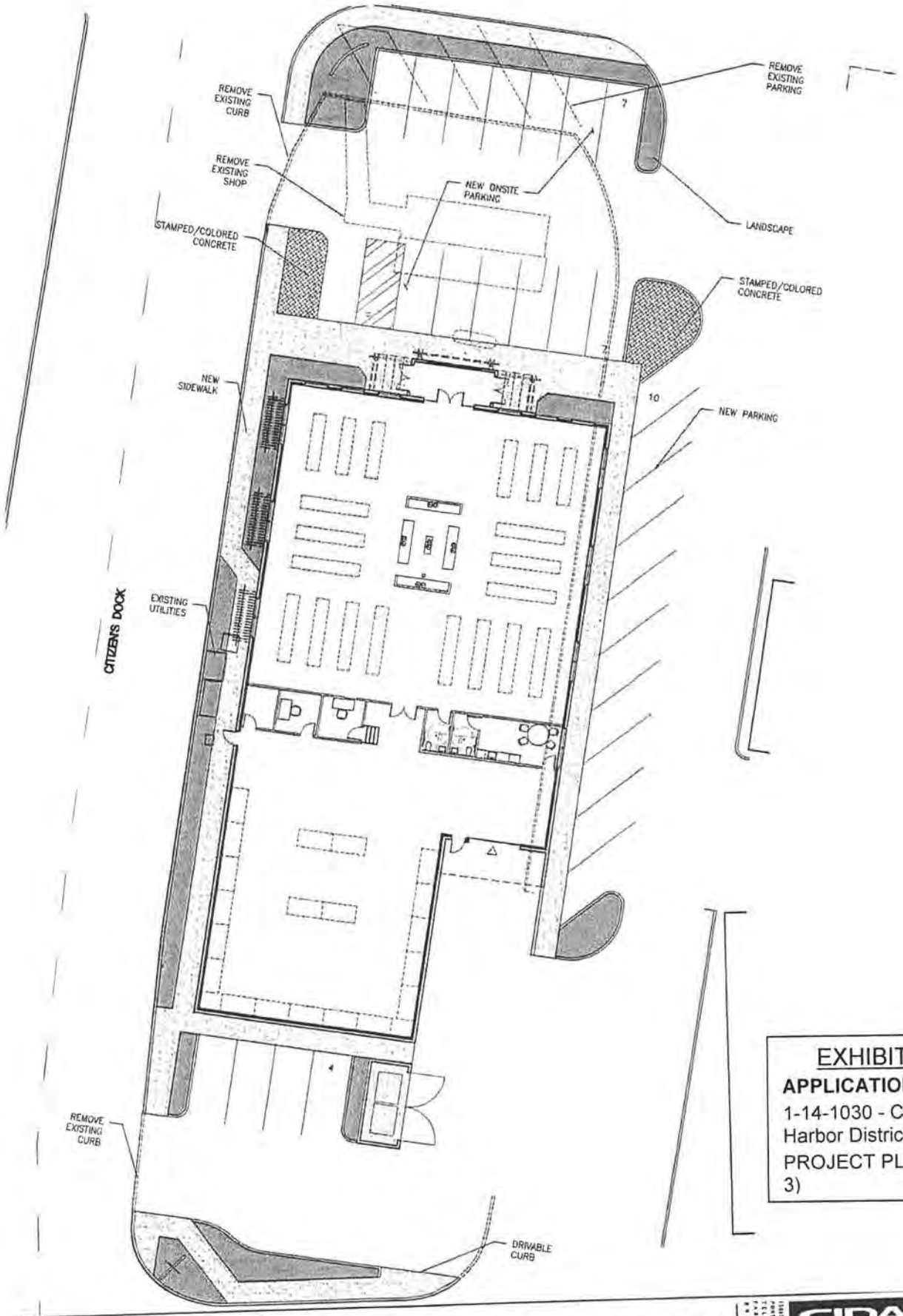


EXHIBIT NO. 3

APPLICATION NO.

1-14-1030 - Crescent City Harbor District

PROJECT PLANS (1 of 3)

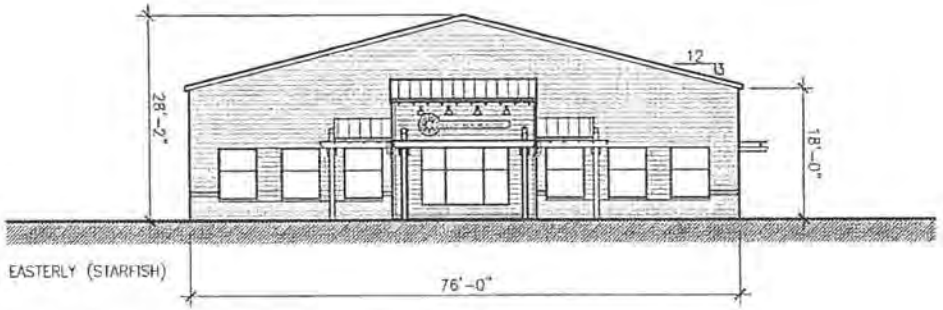
ENGLUND MARINE & INDUSTRIAL SUPPLY

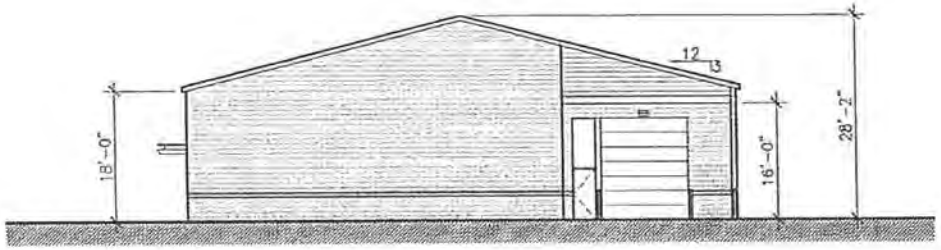
CRESCENT CITY, CA

MARCH 19, 2014

JOB NO. 13X203.01

CIDA





ELEVATIONS

1/16" = 1'

2 of 3

CIDA
ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
LANDSCAPE

ENGLUND MARINE & INDUSTRIAL SUPPLY

CRESCENT CITY, CA

MARCH 19, 2014

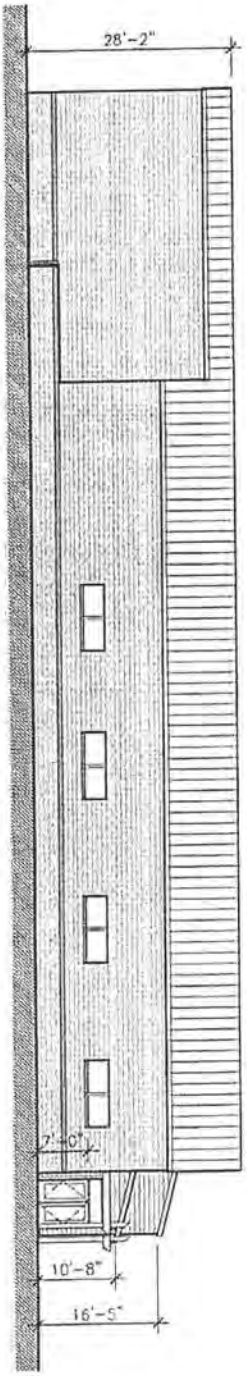
JOB NO. 130203.01

E 10 E

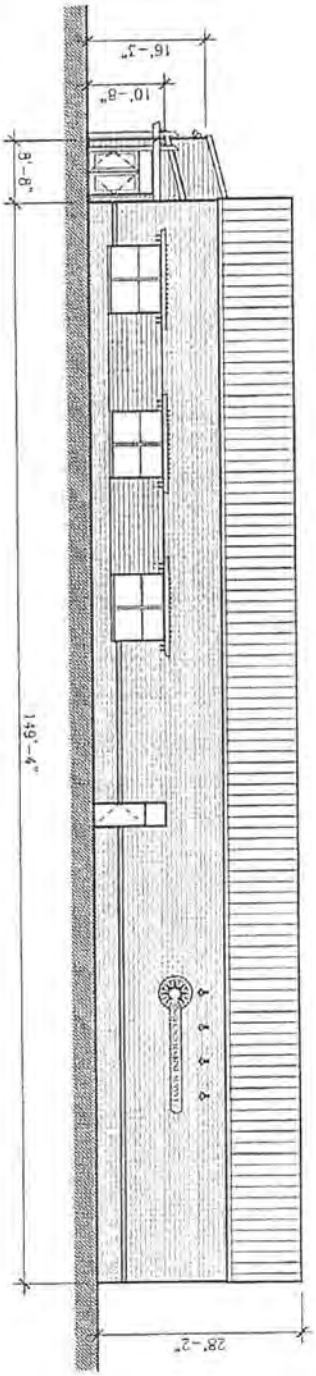
ELEVATIONS

1/16" = 1'

SOUTHERLY (ALLEY)



NORTHERLY (CITIZEN DOCK)



ENGLUND MARINE & INDUSTRIAL SUPPLY

CRESCENT CITY, CA

CIDA

MARCH 19, 2014

JOB NO. 13203.01

EXHIBIT NO. 4
APPLICATION NO.
1-14-1030 - Crescent City Harbor District
RUNOFF DRAINAGE PLAN

LEGEND:

PRE-DEVELOPED DIRECTION OF RUNOFF
POST-DEVELOPED DIRECTION OF RUNOFF
DRAINAGE BASIN BOUNDARY
PROPERTY LINE

DRAINAGE PLAN NOTES:

1. THE PURPOSE OF THIS DRAWING IS TO ILLUSTRATE THE CURRENT DRAINAGE PATTERNS AT 191 CITIZENS DOCK ROAD, CRESCENT CITY. PROPOSED DRAINAGE PATTERNS WILL REMAIN UNCHANGED.
2. DATA PERTAINING TO EXISTING UNDERGROUND FACILITIES AS INDICATED HEREON IS FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL AGENCIES INVOLVED AND SHALL LOCATE ALL FACILITIES PRIOR TO EXCAVATION IN ANY AREA. VERIFY LOCATIONS AND DEPTHS OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF NEW FACILITIES. NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES.

DRAINAGE BASIN

A = BASIN DESIGNATION
B = BASIN AREA (ACRES)
C = RUNOFF COEFFICIENT

FLOW SUMMARY

BASIN	AREA(AC)	10-YEAR STORMWATER RUNOFF (CFS)
A1	0.26	0.6
A2	0.15	0.3
OS1	0.31	0.8
OS3	0.40	0.3
OS4	0.25	0.5
TOTAL TO MARINE WAY INLET = 2.5 CFS		
B1	0.32	0.5
B2	0.09	0.2
OS2	0.22	0.5
TOTAL TO STARFISH WAY INLET = 1.2 CFS		

85th PERCENTILE NUMERIC DESIGN INFORMATION

$Q = (i)(A_i)(C_i)(F.S.)$
Q = STORM WATER RUNOFF GENERATED FROM 85th PERCENTILE 1-HOUR STORM EVENT (FLOW BASED BMP)
i = PRECIPITATION FROM 85th PERCENTILE 24-HOUR EVENT
A_i = TOTAL IMPERVIOUS AREA AFTER DEVELOPMENT
C_i = IMPERVIOUS AREA RUNOFF COEFFICIENT
F.S. = FACTOR OF SAFETY
$Q = (1.1\ in/24HR)(25,264\ SF)(0.90)(1FT/12IN)(2.0) = 2085\ FT^3/24HR$
PERMEABLE ASPHALT VOID RATIO = 0.35
$2085FT^3/24HR/0.30 = 595FT^3$
STRUCTURAL SECTION = $595/FT^3/7000SF = 0.81FT \approx$ 10 INCHES

VERTICAL BENCHMARK DATUM

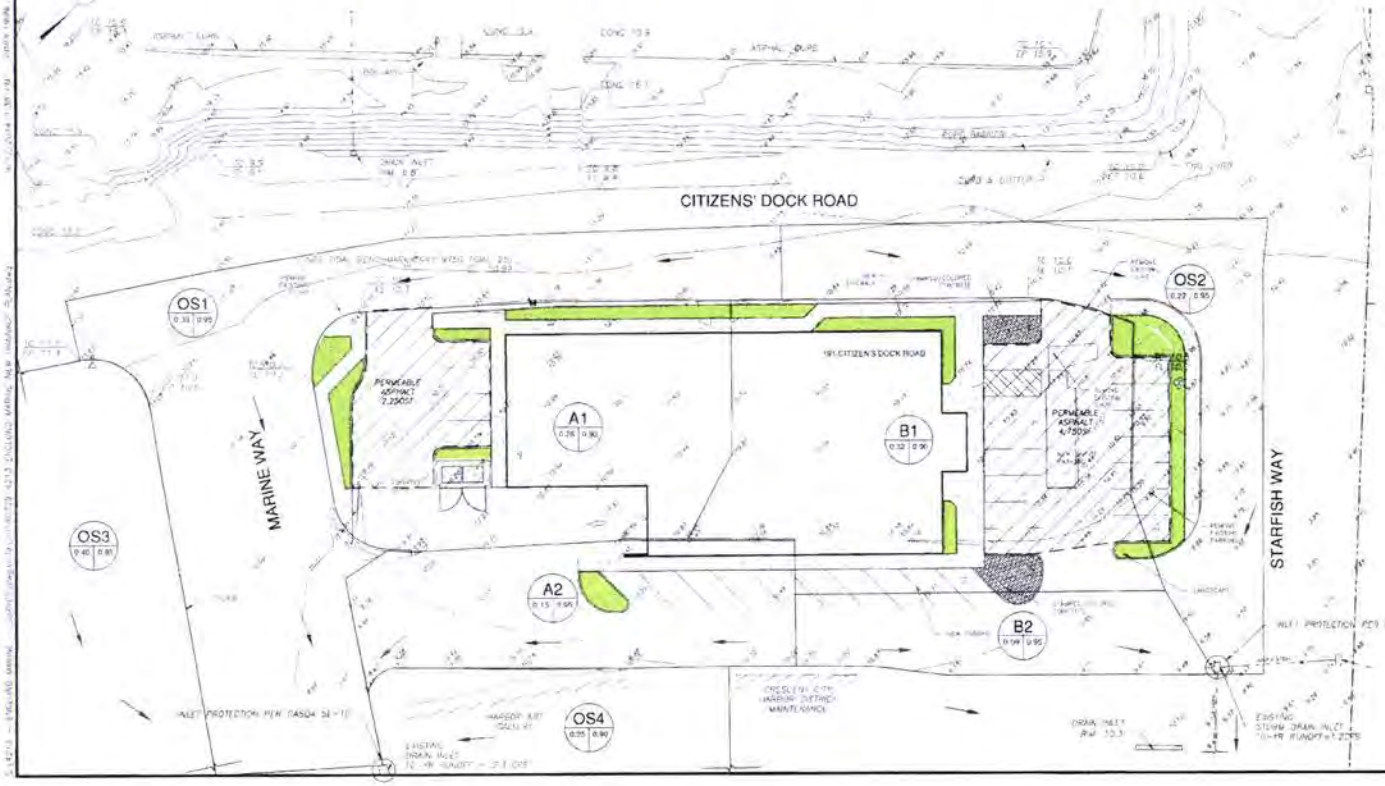
NATIONAL GEODETIC SURVEY TIDAL BENCHMARK DESIGNATED AS 941 9750 TIDAL 25 (PID LV0563). A BRASS DISK SET IN CONCRETE STAMPED: NO25 1972.
ELEVATION = 10.99 NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

CONSTRUCTION STORMWATER BMP's:

1. PROVIDE STORMDRAIN INLET PROTECTION IN ACCORDANCE WITH CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA) STANDARD PLAN SE-10.
2. VEHICLE TRACKING IN ACCORDANCE WITH CASQA STANDARD PLAN TC-1.

WATER QUALITY

1. AREAS OF PERMEABLE ASPHALT INDICATED ARE SIZED FOR DETENTION AND TREATMENT OF THE 85TH PERCENTILE, 24-HOUR STORM WATER VOLUME. THE PRELIMINARY DESIGN IS BASED ON A 10" STRUCTURAL SECTION. THE 85TH PERCENTILE, 24-HOUR VOLUME IS DETERMINED IN ACCORDANCE WITH CALIFORNIA COASTAL COMMISSION PUBLICATION DATED FEBRUARY 2003.
2. FINAL DESIGN OF PERMEABLE ASPHALT SHALL BE INCORPORATED IN THE FINAL CONSTRUCTION DRAWINGS.



CRESCENT CITY HARBOR

KEY MAP
1" = 800'

SYMBOL LEGEND

BENCHMARK AS DESCRIBED
SPOT ELEVATION
CABLE SERVICE BOX
GAS TANK
PHONE SERVICE BOX
POWER SERVICE BOX
CURB, GUTTER & SIDEWALK
STORM DRAIN INLET
STORM DRAIN MANHOLE
(E) BUILDING OUTLINE
CONIFEROUS TREE
SHRUB

LINE TYPE LEGEND

GRAVEL ROAD OR PATH
EDGE OF PAVEMENT
TRAFFIC MARKINGS/STRIPING
STORM DRAIN DITCH FLOW LINE
STORM DRAIN PIPE
(N) BUILDING FOOT PRINT
CHAIN LINK FENCE
WOODEN FENCE
SURFACE TOE OF SLOPE
SURFACE TOP OF BANK

ABBREVIATIONS

(E)	EXISTING
(N)	NEW
CONC	CONCRETE
C.Y.	CUBIC YARD
EP	EDGE OF PAVEMENT
FL	GUTTER FLOW LINE
SSMH	SANITARY SEWER MANHOLE
TC	TOP FACE OF CURB (ELEV)

NO.	DATE	Revision	APVD
DRAWING INFO: DESIGNED BY: RCS DRAWN BY: CAT CHECKED BY: MLS			
BAR IS TRUE 1" TO THIS, NOT ON ORIGINAL DRAWING. ADJUST SCALES IF DISTANCE VARIES ACCORDINGLY.			
0 1"			

NOT FOR CONSTRUCTION

STOVER ENGINEERING
Civil Engineers and Consultants
PO BOX 283 • 211 H STREET
CRESCENT CITY, CA 95531 • 707-465-6742

ENGLUND MARINE
191 CITIZENS' DOCK ROAD
CRESCENT CITY, CA

PRELIMINARY DRAINAGE PLAN

JOB NO: 4213
SCALE: 1" = 20'
DATE: 09/11/14
SHEET 1 OF 1

Project Memorandum

Date:	8/7/14
Subject:	Representative Light Fixtures
Project Title:	Englund Marine & Industrial Supply
Project No:	130203.01
By:	Chris Walker
To:	Ernie Perry

15895 SW 72ND AVE
SUITE 200
PORTLAND, OR 97224
PHONE: 503.226.1285
FAX: 503.226.1670
INFO@CIDAINC.COM
WWW.CIDAINC.COM

The following are representative light fixtures for the new Englund Marine and Industrial Supply store in the Crescent City Harbor District. These fixtures will be the basis of design for the design/build electrical design to be coordinated with the electrical contractor. See the diagrammatic lighting plan for anticipated footcandles.

Sign Light – Galvanized Gooseneck Style:
The following light will be used to highlight the two sign boards on the exterior of the walls. This light will be positioned above the sign and position to shine back against the wall to illuminate the sign face. The majority of the light throw is at the sign face with minimal light projected to the ground surface immediately adjacent to the wall.

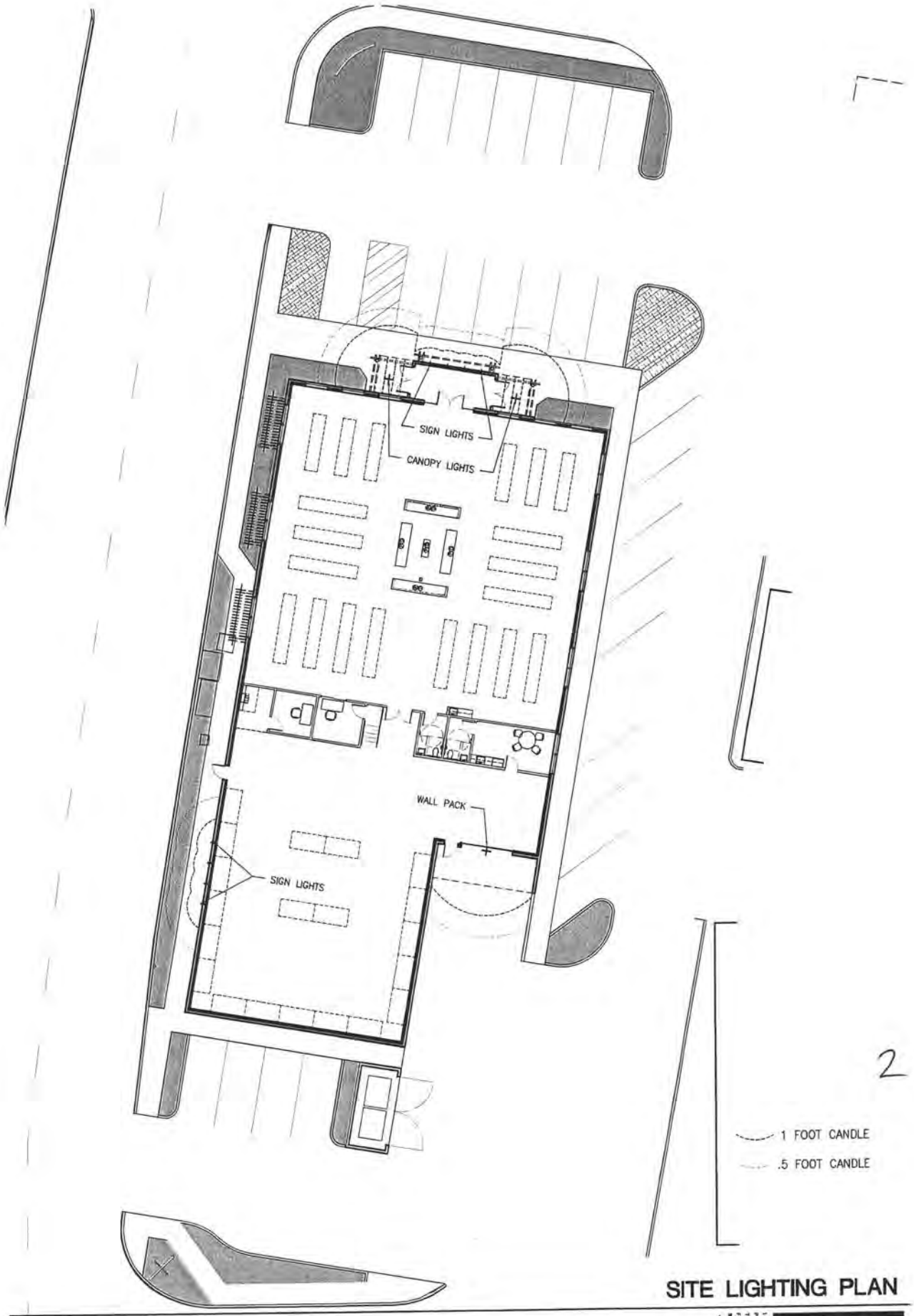
Canopy Light:
The following light will be used at the two covered entries. The light fixture housing will be positioned between framing members minimizing exposure of the housing with the light positioned to shine directly down and illuminate the walking surface immediately adjacent to the entry doors.

Wall Pack Light:
The following light will be used at the receiving door (overhead door and exit door) to illuminate the truck door and dock area. The light will shine down and out to illuminate the covered portion of the shipping/receiving dock.

Note: Final lamping and housing colors to be confirmed with manufacturer standards

ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
LANDSCAPE

EXHIBIT NO. 5
APPLICATION NO.
1-14-1030 - Crescent City Harbor District
LIGHTING PLAN (1 of 2)



2 of 2

SITE LIGHTING PLAN

ENGLUND MARINE & INDUSTRIAL SUPPLY

CRESCENT CITY, CA

8/6/14

JOB NO. 132203.01

CIDA
ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS
LANDSCAPE
15983 SW 72ND AVE SUITE 200
PORTLAND, OREGON 97224
TEL: 503-226-1285
FAX: 503-226-1870
WWW.CIDAINC.COM

HARBOR VISION & DESIGN GUIDELINES

CRESCENT CITY HARBOR DISTRICT

101 Citizens Dock Road
Crescent City, California 95531

September 2012

EXHIBIT NO. **6**
APPLICATION NO. 1-14-1030
Crescent City Harbor District
EXCERPT FROM HARBOR VISION & GUILDELINES (1 of 21)

IV. DESIGN GUIDELINES

4.1 Purpose

The purpose of design guidelines is to compliment the Zoning Districts applicable to the Harbor. These include zone districts contained in the current Local Coastal Plan of either the City of Crescent City or the County of Del Norte for areas within the Harbor under each entities jurisdiction. The Harbor proposed zoning districts of Harbor Dependent Recreation (HDR), Harbor Dependent Marine Commercial (HDMC), and Harbor Greenery (HG) will be used by the Harbor to determine the category of application within the Harbor so that the design guidelines will be used in a manner that will encourage the continuation of marine commercial and marine industrial activities and maintain the working harbor theme and character of the Harbor. Appropriate physical and visual access within the Harbor will be encouraged and provided for the general public.

The intent of the design guidelines is to build on the opportunities provided by the Local Coastal Plan and carry out the Harbor District vision that is described in Section II, HARBOR VISION. Design guidelines describe specific features for developing structures, business sites and amenities. By incorporating these design features, business owners and the Harbor Commission's appointed Design Review Committee will contribute to developing the Harbor in a cohesive and consistent manner over time. Use of design guidelines will help promote partnerships among the Harbor Commission and the businesses and organizations that operate within the Harbor.

4.2 Applicability

Design guidelines are applicable throughout the Harbor District in order to develop a unified and cohesive Harbor theme.

a. All of the guidelines apply within the HDR and HVSC zones because these zones are intended to be pedestrian and visitor friendly.

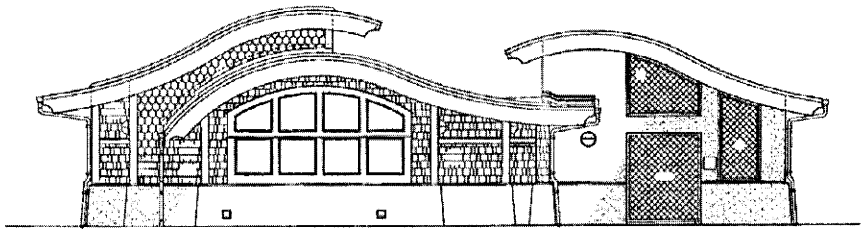
b. The Design Review Committee has flexibility to use the guidelines or waive the guidelines within the HDMC zone because of the marine commercial and industrial nature of the zone; pedestrian and visitor amenities are not always appropriate at these sites.

c. Uses within the HG zone are limited, and design guidelines will not always apply.

4.3 Architecture

a. New non industrial development within the Harbor should draw upon the marine setting of the Harbor for inspiration, design features, materials and colors.

b. Structures should contribute to the overall visual quality of the Harbor's marine environment through well thought out designs that are compatible with and compliment the scenic resources of the Harbor that attract visitors to the Harbor area.

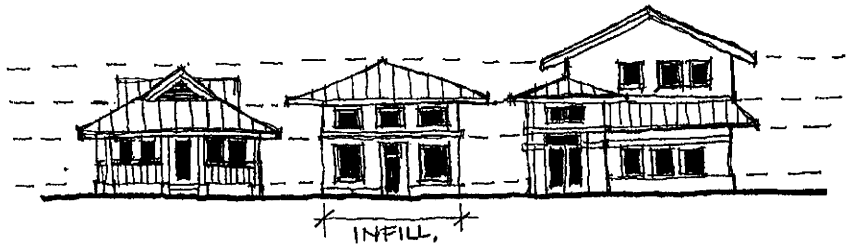


4.3.1 Building Height and Scale

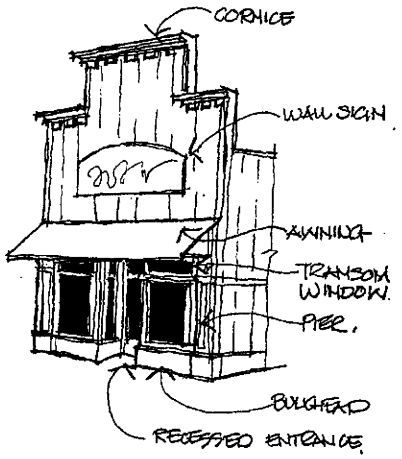
4.3.1.1 Height and set back restrictions on buildings are governed by the applicable County or City Zoning Ordinance and Building Code and/or by an action of the Harbor Commission.

4.3.1.2 Retail, restaurants and specialty buildings. Maximum height of window sill above adjacent grade is 3' – 0" unless otherwise dictated by a mitigation measure to address flood flows.

4.3.1.3 Infill buildings between buildings previously approved by the Harbor Design Review Committee. When new infill building is proposed to be located adjacent to a building previously approved by the Harbor Design Review Committee, the new building shall compliment the common horizontal elements (trim, parapets, cornices, window and door heights) on the neighboring buildings/structures as approved by the Harbor Design Review Committee.



4.3.1.4 Covered, sheltered, well lit entrances identified with an overhanging canopy or other architectural feature designed to give the entrance prominence in the façade are encouraged.



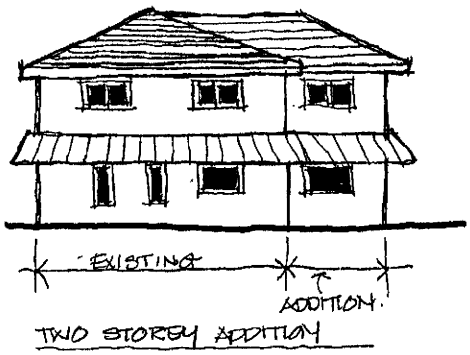
4.3.1.5 Architectural features such as gables, parapets, dormers, overhanging eaves, decorative features such as cornices and corbels are encouraged.

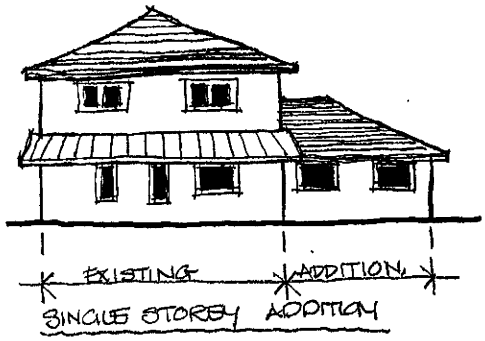
4.3.1.6 Side and rear building facades should have a level of design detail and finish compatible with the front façade.

4.3.1.7 Clear glazing is recommended, unless a stained glass design is proposed as a feature/detail.

4.3.1.8 Details such as wall mounted light fixtures, planters etc., are encouraged.

4.3.1.9 Additions to buildings should follow the general scale, proportion, massing and detailing of the original structure.





4.3.1.10 Portions of a building proposed to front on the Promenade, may be set back to provide clear pedestrian circulation along the promenade, especially where outdoor seating for customers or clients is to be provided.

4.3.2 Building Materials and Colors

4.3.2.1 Select building colors as recommended in Appendix A Color Palette.

4.3.2.2 Select materials that are durable, low maintenance and suitable for a marine environment.

4.3.2.3 Use similar, the same or complimentary materials to adjacent buildings.

Preferred materials:

- Fiber cement siding.
- Metal siding and/or roofing should have a specific warranty for the Harbor location.
- Prefinished storefront systems, with a specific warrantee for Harbor location.
- Concrete, detailed and/or textured as appropriate for the building use.
- Stucco faced concrete or CMU (Concrete Masonry Unit).
- Stainless Steel
- Single Ply Roofing.
- Composition Asphalt Shingles with 40 year warranty.
- Brick
- Wood shingles
- Rock veneer
- Exposed heavy timber framing

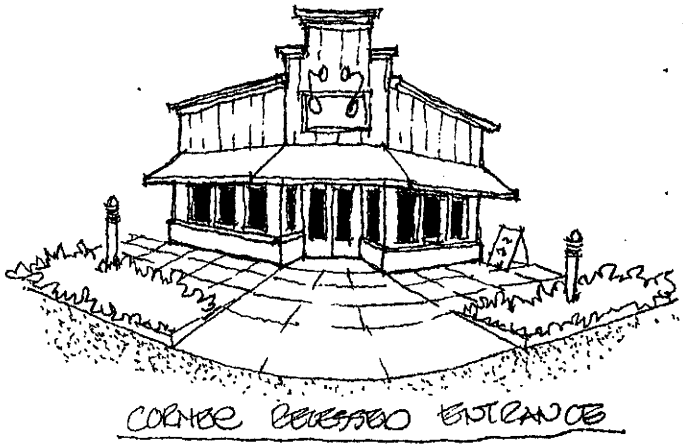
Materials Not Allowed:

- Composite wood siding/finger jointed wood.
- Vinyl siding.
- Galvanized metal.
- Imitation brick.
- Highly tinted, reflective or opaque glass.

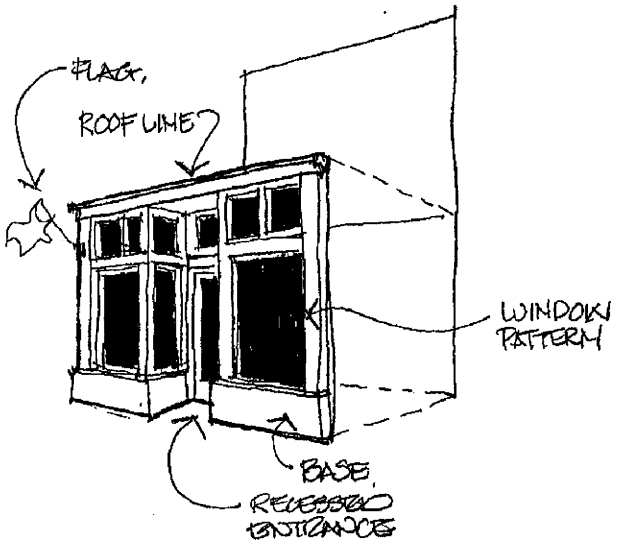
4.4 Entrances, Windows

4.4.1 Primary entrances should provide direct convenient access to a sidewalk that is linked with other pedestrian improvements either in existence or planned in the future (Eg. Promenade).

4.4.2 Corner buildings should have corner entrances whenever possible, or be oriented to one of the streets with direct convenient pedestrian access to a sidewalk.



4.4.3 Each storefront (whether a single business or multi-tenant building) should be treated like an individual building with its own base, roof line, and door & window pattern.

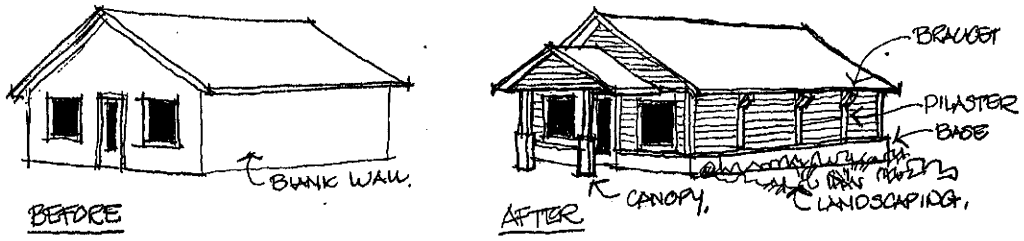


4.4.3.1 Each storefront should have its own entry door(s) and be substantially well detailed and match the materials, design & character of the display window framing. Recessed doors are encouraged.

4.4.3.2 Unless otherwise required as part of the flood flow mitigation, each storefront shall have a display window that is a minimum of 24 inches and a maximum of 36 inches above the elevation of the pedestrian sidewalk or promenade.

4.4.3.3 Each storefront shall provide for placement of a flag or banner pole.

4.4.4 Blank windowless walls are discouraged. If windowless walls exist or are proposed, architectural features, art and/or landscaping that provide articulation should be incorporated into the design to provide interest from streets, parking lots and open space areas.

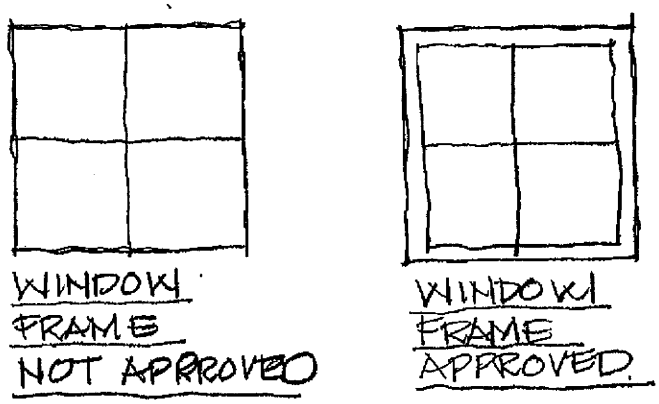


4.4.5 In a structure organized to serve one business, the primary entrance shall open directly into the building's lobby, reception or sales area.

4.4.6 In the case of a multi-tenant building, each tenant's entrance is to be designed as a primary entrance.

4.4.7 Windows

4.4.7.1 Window frame profiles should be proportionate to the size of window.



4.4.7.2 Window frame styles with inset glass are encouraged.

4.4.7.3 Decorative window mullions are encouraged in windows in non retail buildings and in windows above the first floor.

4.4.7.4 The use of security grills is discouraged. If necessary, security grills should be installed inside the building on the interior face of the window opening.

4.5 Structural Canopies and Awnings

4.5.1 Canopies and awnings help establish the business identity, and convey the mood and style of the business, providing protection from weather at building entrances and protection for merchandise from sun fading at windows.

(Note: Canopies and awnings are overhead structures attached to a building which provide shade and shelter. Canopies may also be post supported.)

Canopy

4.5.2 Canopies and awnings should be designed to enhance the architecture and character of the building and the business and should not cover or conceal architectural features.

4.5.3 Canopies and awnings should be designed to withstand structural loads (Eg. winds and seismic) that are particular to the Harbor location.

4.6 Lighting

4.6.1 Exterior lighting should be designed as part of the overall architectural style of the building, and should highlight interesting architectural features. An exterior lighting plan that does not produce glare or spill over to adjacent buildings, should be provided for each project. The exterior lighting plan should include but not be limited to the following elements.

4.6.1.1 Applicants are encouraged to provide, where appropriate to the architectural style of the building, light fixtures from or similar to the Harbor District's standard range. See Appendix E.

4.6.1.2 Entrances should provide lighting for safety and identification.

4.6.1.3 Pathways, outdoor seating or viewing areas and patio areas should be lighted.

4.6.1.4 Night lighting and security lighting should be shielded to insure that there is no off-site glare or skyward illuminations. Directed upward lighting on art objects, design features or shrubbery is permitted and encouraged.

4.6.1.5 Energy conservation should be considered and incorporated where feasible for all lighting plans.

4.7 Signage

4.7.1 Introduction

The general public is drawn to the Harbor by its marine environment, its open vistas of the ocean and harbor, and the activity of the local commercial fishing fleet. For commercial activities, signs communicate something about the goods and services being offered at a particular establishment. The quality of the sign can also communicate something about the quality of the businesses and the image of the Harbor in general. Signs can play a major role in how people perceive the Harbor's image. Well-designed signs that communicate their message clearly will help create a more pleasing visual environment for the Harbor.

4.7.2 Applicability

The guidelines in this section apply to all new signs and the modification or reconstruction of existing signs within the Harbor's area of authority. The harbor area is also regulated by the applicable Sign Ordinances of the City of Crescent City and Del Norte County. Sign size is governed by these underlying ordinances. The Harbor will seek to establish a sign ordinance for the Harbor area that would be adopted by the City and County respectively. Conflicts between these guidelines and the Sign Ordinances in effect will defer to the applicable Sign Ordinance, but only in the instances where these Guidelines are more permissive than the applicable Sign Ordinance and where the application of the Guidelines is demonstrated to potentially result in a code violation.

4.7.3 Message and Composition

4.7.3.1 Use a brief message. The fewer the words, the more effective the sign's message. A sign with a brief, succinct message is simpler and faster to read, looks cleaner, and is generally more attractive.

4.7.3.2 An effective sign should communicate its message clearly and be easy to read. The most significant influence on legibility is lettering style and spacing.

Colt Signs Inc.

4.7.3.3 Use easy to read lettering styles and avoid typefaces that are hard to read at a glance. Avoid typefaces that are difficult to read and can reduce the sign's ability to communicate.

4.7.3.4 Avoid spacing letters and words too close together. Crowding of letters, words, or lines will make any sign more difficult to read. Conversely, over-spacing these elements causes the viewer to read each item individually, again obscuring the message. Lettering should not occupy more than 75 percent of the sign face.

4.7.3.5 Limit the number of lettering styles in order to increase legibility. A general rule to follow is to limit the number of different letter types to no more than two for small signs (generally up to 10 square feet) and three for larger signs.

4.7.3.6 Encourage unique signs, but avoid typefaces that will not stand the test of time. Faddish or bizarre may look good today, but may soon go out of style. The image conveyed may quickly become that of a dated and unfashionable business.

4.7.3.7 Use contrast to increase legibility. If there is little contrast between the brightness or hue of the message of a sign and its background, it will be difficult to read. Generally, light colored letters and a darker, contrasting background presents the most visible and best-looking image.

4.7.3.8 Signs may not conflict, obstruct, or detract from signs placed by the Harbor District.

4.7.3.9 Avoid signs with strange shapes that are unnecessarily narrow or oddly shaped. If an unusual shape is not symbolic in nature, it will probably be confusing to the viewer.

4.7.3.10 Use symbols and logos. Pictographic images will usually register more quickly in the viewer's mind than a written message. If the nature of the business suggests a particular symbol or logo to identify the business, this should be incorporated into the sign.

4.7.3.11 The use of international symbols is encouraged.

4.7.4 Sign Placement

4.7.4.1 The location and extent of signs and advertising should not obstruct scenic views.

4.7.4.2 Signs should be designed to relate to the architectural features of the building on which they are located and create visual continuity with other storefronts on the same or adjacent buildings.

4.7.4.3 Signs should be placed at or near the public entrance to a building or main parking area to indicate the most direct access to the business and be proportionate to the placement site.

4.7.4.4 Signs should not be located so that they cover or interrupt the architectural details or ornamentation of a building's façade.

4.7.4.5 Signs should not project above the edge of the rooflines and should not obstruct windows and/or doorways.

4.7.5 Sign Color

4.7.5.1 Sign colors should relate to and complement the materials or color scheme of the buildings, including accent and trim colors. Bright fluorescent colors should be avoided as they are distracting and do not blend well with other background colors.

Colt Signs Inc.

4.7.5.2 Too many colors overwhelm the basic function of communication. The colors compete with the sign's content for the viewer's attention. Limited use of the accent colors can increase legibility, while large areas of competing colors tend to confuse and disturb. Colors should be limited on a single sign.

4.7.5.3 Contrast is an important influence on the legibility of signs. The most aesthetic and effective graphics are produced when light colored letters and images are placed on a dark contrasting colored background.

4.7.6 Sign Materials

4.7.6.1 Given the exposure to the elements of the sea and winter storms, permanently placed signs should be made of materials that can tolerate these marine conditions.

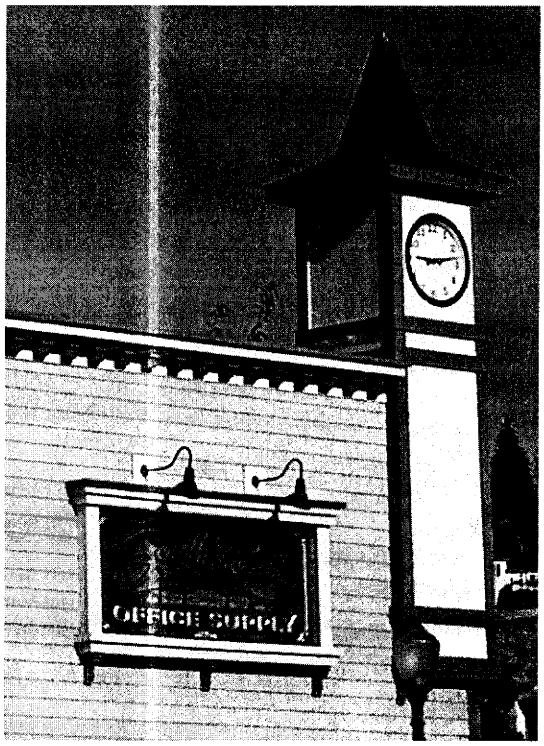
4.7.6.2 Sign materials should be selected with consideration for the architectural design of the building's façade. Sign materials should complement the materials on the façade and should contribute to the legibility of the sign.

4.7.6.3 Wooden signs including carved, sandblasted, and etched wooden signs, should be properly sealed and painted, or stained. Metal (formed, etched, cast, and engraved) should be primed and painted or factory coated to protect against corrosion.

4.7.6.4 Subtle custom neon tubing may be incorporated into an exterior sign when the tubing is complementary to the overall sign and/or reminiscent of a historic sign. Neon signs in general should not be allowed. Small neon signs acknowledging when a business is open may be allowed on a one per business basis.

4.7.7 Sign Illumination

4.7.7.1 Indirect Light Source - Light fixtures supported in front of a sign cast light on the sign and generally a portion of the building as well. Indirect lighting emphasizes the continuity of the building's surface and signs become an integral part of the facade. Whenever indirect lighting fixtures are used, care shall be taken to properly shield the light source to avoid glare beyond the building and casting lighting upward into the night sky.



4.7.7.2 Internally illuminated cabinet signs are discouraged. Internally illuminated signs stand out and do not usually

appear integrated with the building's facade. If internally illuminated cabinet signs are used, their sign panels should be opaque so that when illuminated only the lettering, not the background, is illuminated. The background or field should have a non-gloss, non-reflective finish.

4.7.7.3 Signs that have individually illuminated letters, either internally illuminated or back-lighted solid letters (reverse channel), are a preferred alternative to internally illuminated plastic-faced cabinet signs. Signs comprised of individual letters will be better integrated with the building because they use the building's façade as their background.

4.7.7.4 The use of backlit, individually cut letter signs is strongly encouraged for all types of business and signs, including monument-type signs.

4.7.7.5 Blinking, rotating, flashing, or reflecting lights are highly discouraged.

4.7.7.6 All exposed conduit and junction boxes should be appropriately concealed from public view.

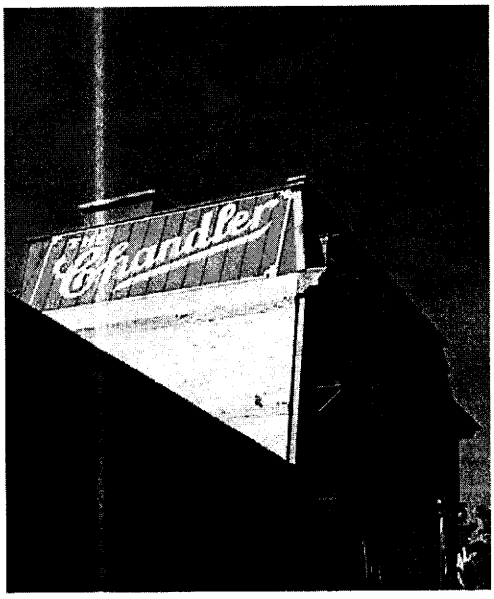
4.7.7.7 The use of energy-efficient, high intensity lamps is encouraged.

4.7.8 Wall Signs

4.7.8.1 A wall sign should be located where the architectural features or details of the building suggest a location, size, or shape for the sign.

4.7.8.2 Wall signs should not project from the surface upon which they are attached more than that required for construction purposes and in no case more than 12 inches.

4.7.8.3 Wall signs and "ghost" signs painted directly on a structure may be appropriate in some cases when these types of signs lend an air of age and authenticity to the building on which they are located.



4.7.8.4 Internally-illuminated cabinet-type signs are discouraged. Internally-illuminated, individually cut channel letters are permissible.

4.7.9 Projecting Signs

4.7.9.1 The use of small, pedestrian-oriented signs is strongly encouraged. Projecting

signs should be hung at a 90-degree angle from the face of the building. Projecting signs should not be hung to high on the building and should be oriented to be readily visible to the pedestrian.

4.7.9.2 The recommended minimum distance between projecting signs is 25 feet.

4.7.9.3 Sign supports and brackets should be compatible with the design and scale of the sign and the architectural design of the building. Decorative iron with a protective coating and wood brackets are encouraged.

4.7.9.4 The scale of projecting signs should not detract from the architectural character of the building.

4.7.10 Hanging Signs Placed Under Overhangs, Covered Walkways, or Structural Canopies

4.7.10.1 Where overhangs, covered walkways or structural canopies exist, pedestrian-oriented hanging signs will be considered.

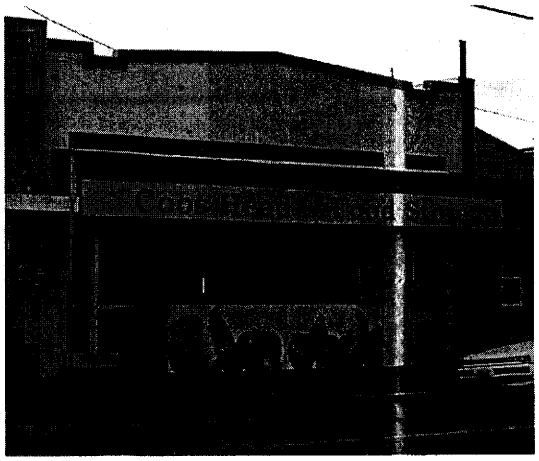
4.7.10.2 Hanging signs should be simple in design and not used to compete with any existing signage at the site, such as wall signs.

4.7.10.3 Hanging signs shall not interfere or cause difficulties for the movement of pedestrians.

4.7.11 Advertising/Signs on Structural Canopies and Awnings

4.7.11.1 Signs on structural canopies and awnings should generally be limited to ground floor uses only.

4.7.11.2 The text lettering should be located only on the front portion of the canopy or awning. Letter color should be compatible with the color of the building.



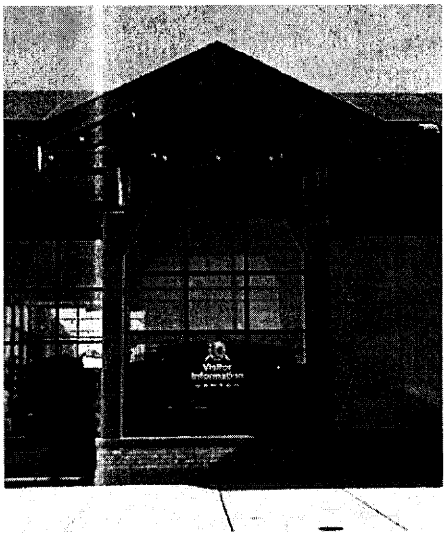
4.7.11.3 The shape, design, and color of an awning should be carefully designed to coordinate with, and not dominate, the architectural style of the building. Where multiple awnings are used on a building, the design and color of the sign awnings should be consistent with all other awnings.

4.7.11.4 Signs on awnings should be painted directly on the awning. The use of adhesive/press lettering is strongly discouraged.

4.7.12 Window Signs

4.7.12.1 Window signs (permanent or temporary) should not cover more than 25-percent of the area of each window.

4.7.12.2 Window signs should be primarily individual letters placed on the interior surface of the window and intended to be viewed from outside. Glass mounted graphic logos may also be applied, however such logos shall be included in the 25-percent area limitation.



4.7.12.3 The text or sign copy of a window sign should be limited to the business name, and brief messages identifying the product or service or other pertinent information. In all cases the 25-percent limitation applies on a collective basis.

4.7.13 A-board and Other Portable Sidewalk Signs

4.7.13.1 Each business may be allowed to display one A-board or other portable sign. A-board or other sidewalk signs shall be separated by a minimum of 75 feet from another similar sign. The Design Committee may reduce the separation width where locations of existing signs on adjacent properties or leased areas would make the 75 feet separation impractical.

4.7.13.2 Sign dimensions should not exceed a width of 2-foot 6 inches. Sign height should be limited to four feet. Sign height would be measured perpendicular from the sidewalk surface to the highest point of the A-board sign.

4.7.13.3 A portable sidewalk sign would be placed within the boundaries of the applicable business' street or sidewalk or walkway frontage, and would be positioned so that it would not obstruct required ADA sidewalk clearance or impede any line of sight for motorists at vehicular public right-of-way intersection. A portable sidewalk sign may not interfere with people exiting and entering parked cars.

4.7.13.4 The Design Committee may approve an A-frame sign only if it first determines that the design of the sign is attractive and complies with the applicable provisions of the sign guidelines in appearance and function, and that the sign will be durable and stable when in place.

4.7.13.5 The sign shall be stabilized to withstand wind gusts or shall be removed during windy conditions.

4.7.13.6 The sign shall be removed at the close of business each day.

4.7.13.7 The sign shall be continuously maintained in good condition with no peeling paint or other deterioration.

4.7.13.8 Portable signs identifying commercial vessels with catch for sale to the general public would be governed by these standards except that the placement would be at the head of the gangway for the Dock at which the vessel is moored.

4.7.14 Individual Business Monument Style Signs

4.7.14.1 Freestanding monument-style signs (on ground) are strongly encouraged over signs mounted on poles.

Alta Planning + Design

4.7.14.2 Monument signs may be internally illuminated; however, the sign copy should be the only portion of the sign face that is illuminated. The sign background or field should be opaque with a non-gloss, non-reflective finish.

4.7.14.3 The sign area and height of the sign should be in proportion to the site and surrounding buildings. Signs should not be overly large so as to be the dominant feature of the site.

4.7.14.4 Monument signs should be placed perpendicular to the street or travel-way.

4.7.14.5 Monument signs should be placed so that sight lines at entry driveways and circulation aisles are not blocked.

4.7.14.6 Monument signs should incorporate materials and colors into the sign and its support structure to match or be compatible with materials and colors of the development the sign serves so it does not appear out of scale with its adjacent building(s).

4.7.14.7 Monument signs should incorporate landscaping at their base.

4.7.15 Pole Signs

4.7.15.1 Pole-mounted signs are discouraged. When allowed, pole signs will be supported by 2 poles not a single pole.

4.7.15.2 Pole signs are to incorporate architectural elements into the sign portion of the sign as well as the supporting structure.

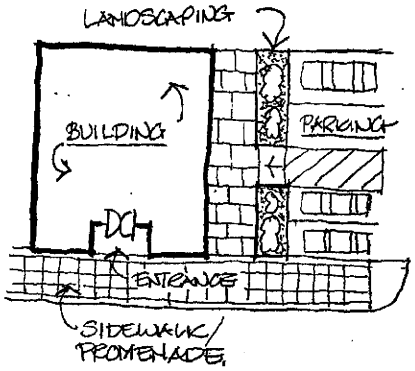
Alta Planning + Design

4.7.15.3 When the physical area of placement allows, a pole sign should incorporate a landscaped area at the base of the sign equal to one to two times the size of the sign face.

4.8 Parking Areas

4.8.1 Parking in general will be provided through shared parking of the Harbor owned parking areas. Projects that use the public parking areas may be required to make improvements to the public parking proportional to the project being proposed. Use of the public parking lots and private parking lots may be required to meet parking standards of the applicable zoning codes as well as the Design Guidelines of the Harbor.

4.8.2 Parking should be designed so that buildings on properties adjacent to a street should not have parking located between the building entrance and the sidewalk.



4.8.3 Parking should be well lit for public safety.

4.8.4 Private parking lots should comply with the following design recommendations:

4.8.4.1 Site access should promote safety by providing an adequate stacking distance for vehicles between the back of the sidewalk and the first parking stall or circulation aisle.

4.8.4.2 Site access locations should be coordinated with existing or planned median openings and driveways on the opposite side of the roadway, street, or driveway.

4.8.4.3 Conflicts between pedestrians, cyclists, and vehicles should be avoided and/or minimized.

4.8.4.4 Provide landscaping and/or landscape elements on the basis of 200 sq. ft. of planter bed or one garden element (bench, public art) per 20 parking spaces.

4.9 Loading Access

4.9.1 Loading areas should be screened from public view by using portions of the building, freestanding wall and/or landscaping/planting.

4.9.2 Loading vehicles should not block the street or pedestrian walkway.

4.9.3 Loading and delivery service areas should be located and designed to minimize their visibility, circulation conflicts, and displacement of public and private public parking spaces to the extend feasible and practical.

4.10 Driveways and Sidewalks

4.10.1 Access drives should be located to allow for safe maneuvering in and around loading areas.

4.10.2 Access drives should be designed to provide exiting vehicles with an unobstructed view of oncoming vehicles and pedestrians.

4.10.3 Driveways shall be built to Harbor specifications with paved or approved all weather surface and signage designating any restrictions on access (e.g., one-way, exit-only, etc.). Where joining sidewalks, driveway aprons will be required to meet accessibility requirements.

4.11 Outdoor Display

4.11.1 Outside display for sales and services are encouraged for uses including, but not limited to farmer's or fish markets, food vendor carts, surf shops, marine sales and services. All temporary vendors must have a written approval to be operating within the Harbor from the Harbor Commission or its designee.

4.11.2 Outside display of merchandise should not obstruct pedestrian or vehicular traffic, access to neighboring businesses or views of neighboring signs or businesses except where community events are sanctioned by the Harbor District.

4.12 Building Connectivity, Circulation, Pedestrian Space

4.12.1 Buildings, sidewalks and plazas, should be linked together by landscaping, sidewalks and passages, providing an outdoor pedestrian ambiance that connects with and celebrates the natural environment.

4.12.2 Wind protection and natural sunlight should be key elements for design of all pedestrian areas, due to climate factors.

4.12.3 Pedestrian oriented space including plazas, courtyards, dining areas with clear windscreen walls, canopied roofs, or other connections with the outdoors, and landscaped open space areas are encouraged.

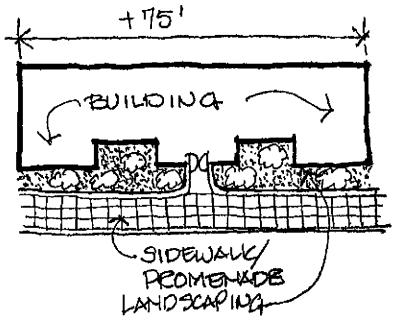
4.12.4 The route of the Coastal Trail may not be obstructed by new development. Relocation of the Coastal Trail may be allowed, however such relocation shall be at the expense of the project proposed and the route of the relocation must maintain the connectivity of the Coastal Trail through the Harbor.

4.13 Landscaping, Landscape Lighting, Outdoor Elements

4.13.1 Proportionate to the scale and size of the project proposed new Businesses will be expected to provide landscaping including plantings, benches and garden elements in public spaces such as pedestrian pathways, sidewalks or space that is not occupied by structures or driveways.

4.13.2 Landscaping lighting should be low to the ground to reduce glare and illuminate pathways and foliage. Landscaping, lighting and outdoor elements shall provide for clear vision for vehicular traffic on corner lots.

4.13.3 Large (exceeding 75' wide x 75' long) buildings that front on a street or sidewalk should provide a landscaped area separating the structure from the street and/or sidewalk. Use of raised planters to separate vehicular traffic and pedestrian travel paths and/or foundation plants to soften the building façade and provide a buffer between pedestrian and vehicular traffic areas are recommended.



4.13.4 The use of non-invasive plants is encouraged in general and required in proximity to environmentally sensitive habitat areas.

4.13.5 Landscape furniture should be selected from the following range to be consistent with the Harbor's overall appearance. See Appendix D.

4.13.6 See Appendix B for recommended plant list and more detailed standards.

4.14 Fencing, Screening

4.14.1 Except in the HDMC Zone, wherever feasible mechanical equipment including, but not limited to heating and cooling equipment should be concealed from view of streets, pedestrian ways, parking lots and open space areas.

4.14.2 Utilities should be buried when ground conditions permit.

4.14.3 Utility meters that are required to be mounted on or adjacent to a building should be located in the least visible location permitted by the utility.

4.14.4 Except in the HDMC zone, wherever feasible all mechanical units, propane gas tanks, dumpster and trash receptacles should be screened from view with walls or fences that match the adjacent building materials and/or replicate the style of the standard Harbor District trash and utility enclosures. (See Appendix C).

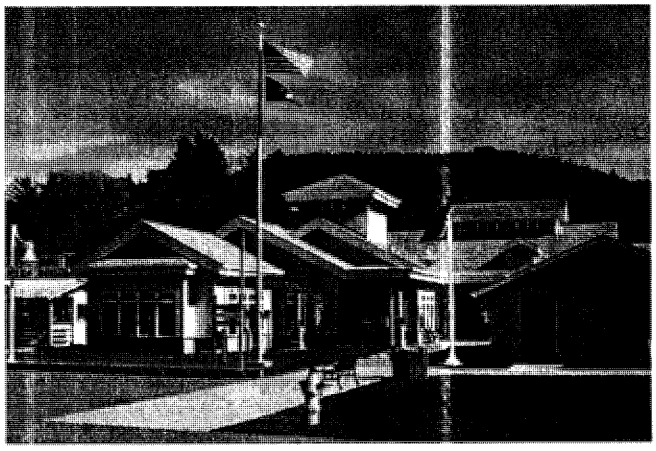
4.14.5 Trash receptacles must be accessible for trash pick-up.

4.14.6 A dedicated screened area should be provided for separation, collection and storage of recyclables inside or outside business structures.

4.15 Hotels and Motels

4.15.1 The design of hotels and motels should draw upon the marine setting of the Harbor for inspiration, design features, materials, and colors, and be compatible with the surroundings.

4.15.2 Each building should be designed with a base, mid section or body and a top story or roof line.



Geotechnical Report

New Retail/Warehouse Building
Crescent City Harbor
Assessor's Parcel Number 117-020-016

January 23, 2014

Prepared For:
CIDA Inc.

Prepared By:
LACO Associates, Inc.
21 W. 4th Street
Eureka, California 95501
707 443-5054

Project No. 7934.00

LACO

advancing the
quality of life for
generations to come

Design
Planning
Engineering
Geology and Geotechnical
Environmental Science
Materials Testing
Survey
Drilling

800 515-5054
www.lacoassociates.com
Eureka | Ukiah | Santa Rosa

EXHIBIT NO. 7
APPLICATION NO. 1-14-1030
Crescent City Harbor District
GEOTECHNICAL REPORT (1 of 37)

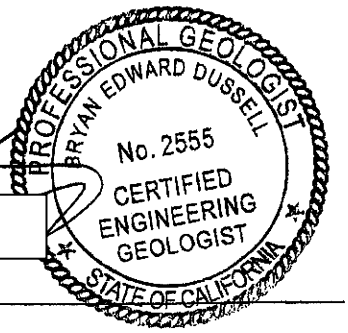
Geotechnical Report

New Retail/Warehouse Building
Crescent City Harbor
Assessor's Parcel Number 117-020-016

January 23, 2014

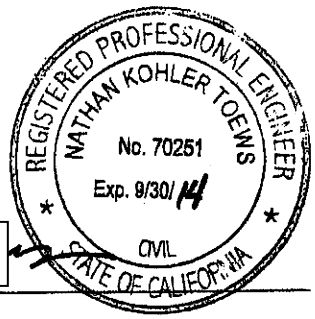
Prepared For:
CIDA Inc.

LACO Project No. 7934.00



Signature on File

Bryan E. Dussell
CEG 2555, Exp. 6/30/15



Signature on File

Nathan K. Toews
PE 70251, Exp. 9/30/14

Signature on File

Matthew R. Love, EIT

LACO

TABLE OF CONTENTS

FIGURES

ATTACHMENT 1

ATTACHMENT 2

ATTACHMENT 3

ATTACHMENT 4

1.0 INTRODUCTION

In accordance with our Engineering Service Agreement, dated November 19, 2013, LACO Associates (LACO) has prepared this Geotechnical Report in support of the design and construction of a new approximately 10,000-square-foot retail/warehouse building at the subject property. The subject property (Site) is identified as Assessor's Parcel Number 117-020-016, and is located near the intersection of Starfish and Citizens Dock Road in Crescent City, California (Figure 1). The planned new building is anticipated to be a one-story metal and/or wood frame structure with a concrete slab-on-grade foundation. As we understand, CIDA Inc. (Client) is assuming that deep foundations or shallow foundation on engineered fill will be used to mitigate a known liquefaction hazard that exists for the area.

Our scope of services for this project was limited to:

- Review existing published geologic maps pertinent to the site and available unpublished soils and geologic reports
- Obtain boring permits with the Del Norte County Environmental Health Department
- Mark site and notify USA North
- Field exploration program utilizing Cone Penetration Testing (CPT)
- Prepare this 2013 California Building Code (CBC) compliant Geotechnical Soils Report documenting the results of the exploration with recommendations to support design and construction of the proposed building. The report also includes pavement design recommendations and quantitative liquefaction analysis, as stated as requirements in the RFP dated November 19, 2013.

Our scope of services did not include an environmental assessment for the presence of hazardous materials.

1.1 Previous Geotechnical Explorations

Previous geotechnical explorations reviewed by LACO for sites within the project vicinity include the following;

- GeoDesign Inc. completed a geotechnical exploration and report in December 2004, for proposed improvements at the Crescent City Waste Water Treatment Plant. The geotechnical exploration consisted of the installation of 11 geotechnical borings advanced to depths ranging from 7 to 94 feet below ground surface (bgs) and a seismic refraction survey.
- Treadwell & Rollo completed a geotechnical exploration and report in June 2011, for the rehabilitation of Crescent City Harbor from tsunami damages. The geotechnical exploration consisted of six geotechnical borings advanced to depths ranging from 28 to 51 feet bgs. A supplemental geotechnical report was prepared for the site in October 2011.
- LACO Associates performed a geotechnical exploration and report in February 2012, to support design and construction of a pedestrian promenade and restroom at Crescent City Harbor. The geotechnical exploration consisted of five geotechnical borings advanced to depths ranging from 17 to 31.5 feet bgs.
- SHN Consulting Engineers & Geologists, Inc., performed a geotechnical exploration and report in January 2013, for the proposed Visitor Center at the intersection of Highway 101 and Citizens Dock Road in Crescent City, California. The geotechnical exploration consisted of the installation of six borings (4 CPT, 2 continuous-core) and four backhoe pits.

2.0 LIMITATIONS

This Report has been prepared for the exclusive use of CIDA Inc. (Client), their contractors and consultants, and appropriate public authorities for specific application to Client's proposed development of the site. The extent and accuracy of LACO's exploration and report are consistent with the standard of care of other geoscience professionals practicing in the area at this time. A brochure prepared by Association of Firms Practicing in the Geosciences (ASFE) has been included as Attachment 1 of this Report. We recommend that all individuals reading this Report also read this brochure to gain an understanding of the scope and accuracy that can be reasonably expected from this investigation.

Data generated for this Report represents information gathered at that time and at the indicated locations. Subsurface conditions may change with time and under anthropologic influences. As such, the recommendations included in this Report are based, in part, on assumptions about subsurface conditions that may only be checked through observations and/or testing during subsequent project earthwork and foundation installation operations. Accordingly, the validity of these recommendations is contingent upon review of the subsurface conditions exposed during construction in order to check that they are consistent with those characterized in this Report. Upon request, LACO can discuss the extent of (and fee for) observations and tests required to check the validity of the recommendations presented herein.

LACO disclaims any and all liability for any errors, omissions, or inaccuracies in the information and data presented in this Report and/or any consequences arising therefrom, whether attributable to inadvertence or otherwise. LACO makes no representations or warranties of any kind including, but not limited to, any implied warranties with respect to the accuracy or interpretations of the data furnished. This Report is valid solely for the purpose, site, and project described in this document. Any alteration, unauthorized distribution, or deviation from this description will invalidate this Report. LACO also assumes no responsibility for any third-party reliance on the data presented. Additionally, the data presented should not be utilized by any third party to represent data for any other time or location.

3.0 FIELD EXPLORATION

3.1 Methods

To assess the in-situ soil conditions at the subject site, LACO performed subsurface exploration on August 2, 2013, consisting of Cone Penetration Test (CPT) and continuous core borings at locations denoted on Figure 2. CPT borings near the eastern edge of the proposed building were met with refusal on concrete debris within 2.5 feet of the ground surface. The continuous core boring CC-2 was located adjacent to CPT-2 to visually compare the soils to those interpreted by the CPT data. The continuous core borings CC-3 and CC-4 were installed in lieu of CPT borings, due to refusal of CPT equipment on shallow concrete debris. Boring CC-5 was installed in the proposed parking lot area southwest of the proposed building to characterize shallow soils within the parking lot.

Continuous core borings were logged in the field, in accordance with the Unified Soil Classification System (USCS) ASTM D2488 (Visual-Manual Procedure), by a LACO Staff Geologist. A computer-generated log of subsurface conditions was generated for each CPT boring. Boring logs and CPT logs for this exploration are provided as Attachments 2 and 3, respectively.

4.0 SITE AND SUBSURFACE CONDITIONS

4.1 Topography and Site Conditions

The project site is adjacent to the southern edge of the Crescent City Harbor inner boat basin, extending from Marine Way to Starfish Way on the southerly side of Citizens Dock Road. The topography at the Site is gently sloped with a westerly grade toward the ocean. The closest slopes to the site are approximately 200 feet northwesterly in the inner boat basin slopes. Slopes within the inner boat basin descend at gradients greater than 1H:1V in the harbor waters and are covered with rock slope protection.

The site is currently mainly vacant and covered with grass and gravel. A small restaurant in a mobile trailer occupies the northeastern edge of the site. A representative of the existing Englund Marine facility reported that the site was previously developed with a building.

4.2 Geologic Setting

Based on a review of the site and published geologic maps (CDMG 1987), the undisturbed native soils beneath the site consist of loose to dense sand (beach sand and Battery Formation) overlying stiff siltstone/mudstone "bedrock" (St. George Formation). A veneer of the fill soils placed during construction of the harbor covers the native soils. Where explored, the fill soils were encountered to a depth of 15 feet bgs and contained concrete debris near the eastern edge of the proposed building.

The Battery Formation is a Pleistocene-age terrace that is composed of marine nearshore sand and sand dune deposits over an abrasion platform cut into the St. George Formation.

The St. George Formation is primarily composed of marine-deposited grey siltstone and shale, with thin beds of sand and scattered pebbles. Based on soils observed in borings CPT-1, CPT-2, CC-2, and CC-4, siltstone interpreted to be St. George Formation is located approximately 28 feet bgs.

4.3 Seismic Setting

This project site is located within a seismically-active region in which large earthquakes are expected to occur during the economic life span (50 years) of the development. North of the Mendocino Triple Junction, the regional tectonic framework is controlled by the Cascadia Subduction Zone (CSZ), wherein oceanic crust of the Juan de Fuca/Gorda plate is being actively subducted beneath the leading edge of the North American plate. The CSZ in its entirety extends from the Mendocino Triple Junction to British Columbia. Plate convergence along the Gorda segment of the CSZ is occurring at a rate of approximately 30 to 40 millimeters per year (mm/yr) (Heaton & Kanamori 1984). Rupture along the entire CSZ boundary may produce an earthquake with a maximum moment magnitude (Mw) of 9.0 or greater (Satake 2003).

The project site is located in proximity to the late Quaternary-aged Big Lagoon Bald Mountain fault, which is a north-northwest trending thrust fault. Currently, the Big Lagoon Bald Mountain fault is not recognized by the State of California as being active within the past 11,000 years (CGS 2007). The Trinidad fault is the closest recognized active fault, located about 75 kilometers (km) to the south-southwest of the project site (CDMG 1983). The Trinidad fault is a northwest-striking, northeast dipping, low-angle thrust fault. The upper-bound earthquake considered likely to occur on the Trinidad fault has an estimated Mw of 7.3 (ICBO 1998).

Based on the record of historical earthquakes (approximately 150 years), faults within the plate boundary zone and internally deforming Gorda Plate have produced numerous small-magnitude and several moderate to large (i.e., magnitude greater than 6) earthquakes affecting the local area. Several active regional seismic sources in addition to those described above are proximal to the project site and have the potential to produce strong ground motions. These seismic sources include:

- The northern segment of the San Andreas Transform fault that represents the boundary between the stable North American plate and the northwest-migrating Pacific plate;
- The Mendocino fault, an offshore, high-angle, east-west-trending, right-lateral strike-slip fault that forms the boundary between the Gorda and Pacific plates; and
- Faults within the internally-deforming Gorda plate consisting of high-angle, northeast-trending, left-lateral, strike-slip faults.

4.4 Site Soils

Review of the subsurface exploration results previously conducted in the vicinity of the Site (GeoDesign 2004; Treadwell & Rollo 2011; LACO 2012; SHN 2013) and the subsurface data obtained during our current exploration indicate that the shallow soils underlying the Site primarily consist of sand and silty sand fills (to a maximum depth of 15 feet bgs) overlying poorly-graded marine sands and siltstone rock to the maximum depth explored (~30 feet).

LACO has not received any information documenting the construction of the fills; therefore, we are considering them non-structural fill. Concrete debris was encountered in three of the borings (CC-2 through CC-4). Additional debris may be present at other locations within the proposed development area.

4.5 Groundwater Conditions

Due to the proximity to the ocean and low elevation of the site, the groundwater elevation is likely tidally influenced. All four boring locations recorded saturated conditions at a depth of approximately 5 feet bgs. Previous geotechnical exploration adjacent to the Site recorded groundwater at depths ranging from 3.5 to 12 feet bgs (LACO 2012; SHN 2013). Based on the information provided above, groundwater should be anticipated within 5 feet of the ground surface.

5.0 GEOLOGIC AND SOIL HAZARDS

Potential geologic and soil hazards assessed for the subject Site include seismic ground shaking, surface fault rupture, liquefaction and related phenomena, settlement, flooding and high groundwater, tsunami inundation, and swelling or shrinking soils. The assessments for these potential hazards are presented below.

5.1 Seismic Ground Shaking

As noted in Section 4.3 of this report, the project site is situated within a seismically active area proximal to multiple seismic sources capable of generating moderate to strong ground motions. Given the proximity of significant active faults (the Cascadia Subduction Zone to the west and the Trinidad fault to the south), as well as other active faults within and offshore of northern California. The risk is high that the site will experience strong ground shaking during the economic life span of the proposed development.

Site-specific spectral response accelerations are presented in the subsequent recommendations section of this report (Section 5.3, Table 2).

5.2 Surface Fault Rupture

The closest recognized active faults to the site are the Trinidad fault and the Cascadia Subduction zone, located approximately 42 miles south (offshore segment) and 56 miles west, respectively. The project site is not located within an Alquist-Priolo earthquake fault hazard zone.

Based on the distance between the site and the closest active faults, and the lack of evidence indicating active faults traverse the site, the risk of surface fault rupture to occur within the proposed development area is estimated to be low.

5.3 Liquefaction

CPT boring data was utilized to perform quantitative analysis of the liquefaction potential and related dynamic settlement of the Site using the liquefaction analysis program CLiq Version 1.5.1.26 by Geologismiki. The calculations assumed a magnitude 7.3 earthquake with a peak acceleration of 0.623g (ASCE 7-10 Equation 11.8-1). Table 1 presents the method and seismic parameters used in the liquefaction analysis.

Table 1 - Liquefaction Analysis Input Parameters

Calculation Method	NCEER 1998
Maximum Moment Magnitude	7.3
Maximum Ground Acceleration	0.623
Soil Aging Correction Factor (Kaf)	1.52

Notes: 1. NCEER = Northwestern Center for Engineering Education Research
2. Adapted from Mw of Trinidad fault as described in Section 4.3
3. Maximum ground acceleration equal to calculated using ASCE 7-10 Equation 11.8-1
4. Soil aging factor only applied to Pleistocene age deposits (~15 – 30 feet bgs) using Hayati et al. (2008)

The calculation method used for the liquefaction analysis compares the Cyclic Stress Ratio (CSR) to the Cyclic Resistance Ratio (CRR), which is a comparison of the seismic driving force to the resistance provided by each soil layer. The CRR is divided by the CSR to find the Factor of Safety (FS), which is used to interpret the potential for the Site to liquefy. When the CSR exceeds the CRR (FS<1), the soil is considered to have a high liquefaction potential.

Our liquefaction analysis, based on the date presented in Table 2 and soil data from borings CPT-1 through CPT-2, indicates the Site has a high liquefaction risk. Possible dynamic settlement and lateral spreading as a consequence of liquefaction occurring at the Site was also determined using the CLiq software. Table 2 presents the CLiq software analysis results for liquefaction potential, dynamic settlement, and lateral spreading at the Site. The output from the CLiq software analysis is included in Attachment 4.

Table 2 - Liquefaction and Related Movement Analysis Results

Boring Location	Liquefaction Potential	Potentially Liquefiable Soil Depth (feet bgs)	Estimated Dynamic Settlement (inches)	Estimated Lateral Displacement (inches)
CPT-1	High	16 - 28	1.3	7
CPT-2	High	15 - 29	2.7	15

These results are further supported by CDMG Special Publication 115 Map S-3 (CDMG 1995), which show the vicinity to be near an area of moderate to high liquefaction potential. Therefore, from a quantitative and qualitative standpoint, we determine that the risk of liquefaction to occur at the Site to be high.

5.4 Static Settlement

The soils at the Site are primarily composed of loose to dense granular material. Generally, the soils exposed in our borings were relatively uniform. However, a thick fill soil containing concrete debris were observed within the borings.

Using the CPT data and an assumed 24-inch square footing with a bearing pressure of 2,000 pounds per square foot, static settlement for a shallow foundation founded 24 inches below the existing grade is anticipated to be less than one half of an inch.

5.5 Slope Instability / Landsliding

Geomorphic mapping of the area by the State of California indicates that there are no active or dormant landslides in the immediate vicinity of the site (CDMG 1983). The closest slopes to the Site are the descending fill slopes that are covered with RSP, located over 150 feet to the West of the Site.

Performing a quantitative slope instability analysis of the descending slopes along the barrier is specifically excluded from our scope of services for this project. However, Treadwell & Rollo performed a quantitative slope instability evaluation of similar slopes within adjacent harbor development areas, and concluded that the slopes were relatively stable under static condition, but potentially unstable under seismic conditions. In the absence of a site-specific slope instability analysis, LACO assumes that the risk static slope instability along the descending slopes is low.

5.6 Flooding, Tsunami, and High Groundwater

Flooding

The Del Norte County Flood Insurance Rate Map (Panel 06015C0331E, effective September 26, 2008) indicates that the Site is within flood hazard "Zone X" defined as areas being outside of the 0.2 percent annual chance floodplain. Therefore, based on the currently available published data, the risk of future flooding from a 100-year storm event, with the potential to adversely affect the new development should be considered low to moderate.

Tsunami

The most recent tsunami hazard maps published by the State of California (Sister Rocks Quadrangle, CGS 2009) indicate the site is within a predicated tsunami inundation zone. The site was inundated during the 1964 tsunami.

On the basis of the mapping by the state and historical tsunami occurrence for the area, the risk of tsunami inundation at the site is considered very high.

High Groundwater

As noted above, groundwater at the Site should be considered within 5 feet of the ground surface. Therefore, the risk of encountering groundwater in relatively shallow utility trenches or other required earthwork excavations is high.

5.7 Soil Swelling or Shrinkage Potential

Expansion potential represents a significant structural hazard to buildings founded on plastic clay soils that can undergo volume change where site conditions cause a seasonal fluctuation in soil moisture. Due to the presence of primarily non-plastic granular soils (see boring logs in Attachment 2), the risk of expansive soil movement (shrink or swell) at this site is considered negligible.

6.0 DISCUSSION AND CONCLUSIONS

Based on the results of this exploration and evaluation, we conclude construction of the proposed development is feasible, provided the recommendations of this report are incorporated into the project design and construction. Further, we judge the project will be subject to the following main engineering geologic/geotechnical considerations:

- Strong seismic ground shaking
- Potential liquefaction and resulting dynamic settlement and lateral spreading of underlying soils
- Potential tsunami inundation
- Presence of shallow groundwater levels during construction phase
- Presence of concrete and debris within the shallow subsurface, presumably from previous developments on the site

The level of mitigation to reduce the consequences resulting from the dynamic settlement and liquefaction hazards associated with strong earthquake ground shaking is at the discretion of the developer. Mitigation for a liquefaction hazard can range from minor structural improvements to extensive site preparation and specialized foundation design. In the following sections we provide recommendations for both end-bearing pile foundations and shallow foundation system options. Pile foundations should be used if Client determines that the potential dynamic settlement (estimated to be up to 2.7 inches) is not acceptable.

7.0 RECOMMENDATIONS

7.1 Foundation

Discussion

As noted above, the site is underlain by deep fill soils that may experience liquefaction and both static and dynamic settlement. Additionally, the site is located within an area that has been inundated by tsunami. A seismic event capable of inducing liquefaction and dynamic settlement will likely result in a tsunami that will inundate the site and cause significant damage to buildings within the inundation area. A deep foundation system designed to mitigate liquefaction and dynamic settlement may not necessarily ensure continued use of the building following liquefaction because of the risk of damage associated with a tsunami.

Given the risk of damage associated with tsunami inundation and the intended use of the proposed building as a warehouse/commercial structure, a shallow foundation system may be appropriate for this site if the stakeholders can accept the settlement related risks associated with a shallow foundation system.

LACO recommends two foundation design alternatives depending on the risk tolerances of the project stakeholeders:

- Option 1 is a shallow foundation design consisting of a structural mat slab supported on a 2.0-foot thick (minimum, below the base of the slab) section of controlled (structural) fill reinforced with woven geotextile.
- Option 2 is a reinforced concrete mat foundation supported on a deep foundation to reduce the risk of slab deformation, settling, and/or tilting during a liquefaction event.

The intent behind the structural mat slab foundation is to reduce the potential for excessive differential and total structural settlement associated with settlement of the fill soils following a liquefaction event. Utilization of a deep pile or pier foundation is intended to minimize settlements and preserve the functionality and utility of the structure following seismically-induced liquefaction.

In either option, flexible utility lines and utility line connections are recommended where underground utilities enter the building.

Structural Mat Foundation on Structural Fill (Option 1)

To mitigate the hazards from settlement and liquefaction-induced structural damage, a structural mat slab foundation supported on a reinforced structural fill may be utilized. Isolated foundation elements supporting structural loads should be tied together with grade beams or the structural slab to reduce the magnitude of differential dynamic settlement and the potential for structural collapse.

Due to the presence of deep fill soils, the structural fill beneath the mat slab should be reinforced with geogrid (Tensar TX1200, or equivalent). The structural fill under the rigid mat foundation should be a minimum of 24 inches thick as measured from the base of the rigid mat, and should extend a minimum of 5 feet beyond the rigid mat exterior.

Foundations bearing in the above-recommended reinforced fill can be designed for: (1) allowable bearing pressure of 2,000 pounds per square foot (psf) for static loads; (2) an allowable lateral bearing pressure of 150 pounds per cubic foot per foot of footing depth below the lowest adjacent soil grade; and (3) an allowable coefficient of friction of 0.25 for granular bearing soils at the base of the footings. From experience with similar materials and published values (Das 2009), we recommend a subgrade modulus of 150 pci.

Resistance to lateral forces may be computed using friction along or passive pressure against foundation elements. Friction between the undersurface of concrete footings and the supporting soil is available, as well as passive pressure acting against the sides of foundations. In computations, if friction and passive pressures are combined, the lesser value should be reduced by 50 percent.

Footing concrete should generally be placed neat against a firm soil surface that is relatively free of loose debris material. If backfill against formed footings is required, the backfill should be a structural fill material that is placed and compacted in accordance with the recommendations contained in this report.

Be advised that this type of foundation design may not preserve the function and utility of the structure following a liquefaction event as well as a deep foundation system (Option 2).

Mat Foundation Supported on Piers/Piles (Option 2)

To increase the potential for continued use following a liquefaction event, support the foundation with either prestressed, precast concrete piles or timber piles that are tied together with grade beams and gain support from the siltstone rock located at a depth of approximately 28 feet bgs. The mat foundation should be designed to span between the supporting piles without relying on any support from the subgrade soils. Pile design should be based solely upon end-bearing capacity; the contribution of the side friction to the overall pile axial load capacity should be neglected.

Allowable end-bearing capacities for driven piles ranging from 12 to 24 inches square at an expected refusal embedment depth of 30 feet bgs (2 feet into the siltstone rock located beneath the Site) are presented in Table 3. Calculations were performed using the Table 1 soil properties in Kulhawy's equation for toe-bearing resistance in sandy soils (Kulhawy et al. 1983).

Table 3 - Allowable End-Bearing Capacities
(Estimated using Kulhawy et al, 1983)

Square Pile Size (inches)	Allowable End-Bearing Capacity Per Pile (kips)
12	48
18	110
24	195

Note: A Factor of Safety of 3.5 is incorporated into the end-bearing values presented above

Design stresses of the piles should not exceed those presented in Table 1810.3.2.6 of the 2013 California Building Code. Piles should be spaced no closer than three times the width of each pile, measured center-to-center. Buckling capacity of the piles shall be determined by the engineer without relying on resistance from the potentially liquefiable soils.

Criteria for driven pile refusal will depend on pile size and design capacity, and on the Contractor's equipment. Refusal criteria should be established just prior to driving when these factors are known. Indicator piles should be driven at pre-selected locations to aid the Contractor in selecting his production pile lengths. LACO should provide consultation during the selection of locations, which should be near test borings to allow correlation of driving data with known subsurface conditions. Some variation in driving conditions should be expected, which could result in some pile cut-off and or deepened pile caps. Since the existing fill may contain obstructions, which could affect pile driving and alignment, the Contractor should consider pre-drilling, or spudding through, the existing fill. The pre-drilled hole diameter should not exceed 80 percent of the diagonal width of the pile.

Specific lateral load analysis and recommendations can be provided as an Addendum to this report if a deep foundation system is selected for use at the Site.

Where continued use of the development is desired following a liquefaction event, flatwork areas outside of the deep foundation supported structure should be designed to accommodate settlements and/or allow for repair.

7.2 Moisture Control for Concrete Slab Foundations

All concrete slabs intended for habitable space should be underlain by at least 4 inches of clean, ¾-inch, drain rock (slab base rock) to act as a capillary moisture break. To reduce the possibility of moisture migration through the floor slab, a 15-mil plastic membrane (vapor retarder) such as Stego Wrap (or equivalent) should be placed on the compacted base rock. To help protect the membrane against puncture during steel and concrete placement, and to provide for a more uniform curing of the concrete, the membrane should be covered with at least 2 inches of clean sand. These recommendations are intended to reduce the potential for moisture to infiltrate through the concrete. Flooring consultants and/or flooring manufacturers should be consulted for slab design where slab finishes require stringent moisture control.

7.3 Seismic Design Parameters

Based on the Site conditions encountered within the geotechnical borings, we have classified the Site as Site Class F consisting of "soils requiring site response analysis" (ASCE 7-10 – Table 20.3-1). However, the Site Class Definition Standards (ASCE 7- 20.3, 2010) provide an exemption to the requirement for a site response analysis for structures having fundamental periods of vibration equal to, or less than, 0.5 seconds. Since the structure is proposed to be less than three stories high, we assume the structure will have a fundamental period of less than 0.5 seconds. As such, the redefined Seismic Design Category for the Site is Class E, which consists of a "soft soil profile".

The design spectral response accelerations S_S, S_1, Fa, Fv, S_{MS}, S_{M1}, S_{DS}, and S_{D1} were determined using the USGS U.S. Seismic Design Map application (version 3.1.0, July 11, 2013), and based on the American Society of Civil Engineers (ASCE) Standard 7-10, Minimum Design Loads for Buildings and Other Structures analysis option. Calculated values are presented in Table 4.

Table 4 – Summary of Seismic Design Factors

Site Class	F_a	F_v	S_s	S_1	S_{MS}	S_{M1}	S_{DS}	S_{D1}
E	0.9	2.4	1.407	0.682	1.267	1.637	0.844	1.091

*Latitude and longitude are 41.7478° north and -124.1821° west.

These design spectral response accelerations are further defined as follows:

- F_a Short period coefficient to modify 0.2-second period of mapped spectral response accelerations for Site Class E.
- F_v Long period coefficient to modify 1.0-second period of mapped spectral response accelerations for Site Class E.
- S_s Mapped spectral response acceleration, 5 percent damped, at 0.2-second period for Site Class B (%g).
- S_1 Mapped spectral response acceleration, 5 percent damped, at 1.0-second period for Site Class B (%g).
- S_{MS} Maximum considered earthquake spectral response acceleration, 5 percent damped, at 0.2-second for Site Class effects (%g).
- S_{M1} Maximum considered earthquake spectral response acceleration, 5 percent damped, at 1.0-second period for Site Class effects (%g).
- S_{DS} Design spectral response acceleration, 5 percent damped, at 0.2-second period (%g).
- S_{D1} Design spectral response acceleration, 5 percent damped, at 1.0-second period (%g).

7.4 Retaining Walls

Retaining walls, where needed, will be subjected to lateral loads from the adjacent soil. Where walls are unrestrained and free to deflect at the top, they may be designed for "active" soil pressures. If walls are restrained from movement at the top, soil pressures will approach "at-rest" pressures. To design for the lateral earth loads, we recommend using a friction angle of 30 degrees and a moist unit weight of 130 pounds per cubic foot to calculate soil pressures. Walls that have a drainage system constructed as recommended below, can be designed for the drained wall pressures, otherwise, undrained walls should be designed for the drained pressures plus hydrostatic water forces. In addition, if vehicle surcharges are anticipated adjacent to the walls, equivalent 2 feet of retained height should be added to the actual retained height during design.

Walls designed using the pressures presented above, should be constructed with a back drainage system consisting of a 1-foot-wide zone of drain rock extending from the base of the wall to at least 3 feet below the top of the wall backfill. The wall backfill can consist of either native soil or imported granular material; the upper 12 inches (minimum) of the wall backfill should consist of compacted native soil to reduce the potential for surface water to infiltrate into the granular backfill or back drain. A 4-inch-diameter, perforated, rigid PVC drainage pipe should be installed at the base of the wall back drain. The pipe should be laid to drain by gravity to a suitable drainage swale or site storm drain system. Rock for the back drain should meet the requirements of the Caltrans Standard Specifications (Section 68) for Class 2 Permeable Material or, alternatively, consist of clean, free-draining, ¾-inch gravel. The permeable backdrain material should be separated from the adjacent soils by a layer of non-woven filter fabric (Mirafi 140 or equivalent).

In lieu of the 12-inch-wide back drain, a prefabricated wall drain board (Tensar DCF100 or equivalent) may be used.

Resistance to the wall sliding can be calculated using friction between the base of the foundation and the underlying soil, and passive resistance on the sides of walls and footings. Recommendations for calculating lateral resistance, and for designing wall foundations, are presented in the Shallow Foundations section, above.

Section 1803.5.12 of the 2010 CBC requires a determination of lateral pressures on retaining walls due to earthquake motions for structures in Seismic Design Categories D, E, and F. We understand some jurisdictions are not requiring seismic loads to be applied to isolated retaining structures that are not connected to buildings. The seismic lateral force presented herein, if needed, was estimated using Mononobe-Okabe analysis (1929). Using a pseudo-static horizontal ground acceleration of 0.623g (ASCE Equation 11.8-1), the seismic lateral force equal to an equivalent fluid density of 70 pcf (rectangular distribution) should be used. In contrast to the static force, which is assumed to have a triangular distribution with resultant at a height of H/3 above the base of the wall, the resultant of the seismic lateral pressure should be assumed to act at a height of 0.6H above the base of the wall.

7.5 Flexible Pavement Design

The pavement structural section should be selected by the project design team to withstand the anticipated traffic loads over the design life of the pavement. A flexible pavement system may be used for this site consisting of Asphalt Concrete (AC) placed over compacted State of California Department of Transportation (CalTrans) Class 2 Aggregate Base (AB) which, in turn, rests on a properly prepared subgrade soil.

Resistance (R-) Value

Due to the presence of deep fills and the potential for lateral variation within the fills, an R-Value test was not conducted for this project. To be conservative and account for the potential for fine grain soils within the fill, we recommend that an R-value of 25 pounds per square inch (psi) exudation pressure be used for flexible and rigid pavement design at the Site.

Pavement Thicknesses

Our thickness recommendations presented herein are based on the assumption that the pavement subgrade soils will consist of the on-site fill soils with a design R-value of 25. Due to the potential for lateral variation within fill soils, exposed subgrade soils should be reviewed during construction to verify that the recommended R-value of 25 is appropriate. In some situations, it may be feasible to increase the R-value and decrease the thickness of the recommended pavement sections.

We selected a Traffic Index (T.I.) range of 5.5 to 7.0 (5 to 50 three axel trucks per day for a 20-year design life). The Caltrans Flexible Pavement Design Method was used to provide the recommended pavement sections presented in Table 5. These pavement section thicknesses and corresponding T.I.s should be checked by the project Civil Engineer for their applicability prior to final design and use.

Table 5 – Recommended Pavement Sections

Trucks Per Day	Traffic Index	AC	AB
.5	5.5	2.0	10.0
10	6.0	3.0	10.0
25	6.5	3.0	11.0
50	7.0	3.0	13.0

AC = Type B Asphalt Concrete; Minimum thickness recommended = 2.0 inches
AB = Class 2 Aggregate Base (Minimum R-Value = 78)

Pavement Subgrade Preparation

Areas to receive pavement should be prepared per Sections 8.2 and 8.4 of this Report. However, the upper 6 inches of the subgrade should be scarified and recompacted to a minimum of 95 percent relative compaction per CalTrans Test Methods Cal 216 and 231. Following preparation of the pavement subgrade, the surface should be proof rolled with a loaded 10 yard dump truck prior to placement and compaction of aggregate base to check that the surface is firm and unyielding.

Pavement Structural Fill and Compaction Standard

Aggregate Base (AB) used within the pavement sections should be compacted to 95 percent relative compaction per CalTrans Test Methods Cal 216 and 231. Unless directed otherwise by the project Civil Engineer or local codes, structural fill below the AB should be compacted to at least 90 percent relative compaction, except for the upper 6 inches of subgrade which should be compacted to a minimum of 95 percent relative compaction. For convenience, compaction testing may be performed using ASTM methods (D-1557) in lieu of CalTrans methods provided the specified relative compaction noted in the preceding paragraphs are adhered to.

7.6 Rigid Pavement Design

A rigid Portland Cement Concrete (PCC) pavement section can be used in lieu of a flexible pavement section for added resistance to heavy vehicular loads. PCC pavement sections presented below are based on Portland Cement Association (PCA) design procedures using a computer program titled PCAPAV 2.10 and the design parameters listed in Table 6. These assumptions should be reviewed by the project design team to evaluate their suitability for this project. Changes in the assumptions will affect the corresponding pavement section design thickness.

- Modulus of Subgrade Reaction = 150 pounds per cubic inch (pci)
- Modulus of Rupture of Concrete = 410 psi
- Aggregate Interlock Joints (No Dowels)
- No Concrete Shoulders
- 20-year Design Life
- Load Safety Factor = 1.0 & Light Axle Wheel Load Category

Table 6 – Rigid Pavement Thicknesses

Average Daily Truck Traffic	Portland Cement Concrete (inches)
5	7.5
10	8.0
25	8.0
50	8.5

PCC pavement section thicknesses provided above are further contingent on the following:

- Subgrade soils should be scarified to a minimum depth of 6 inches below the finished subgrade elevation; moisture conditioned at, or within, 2 percent of the optimum moisture, and compacted to at least 95 percent relative compaction.
- Aggregate base (if used) should be compacted to at least 95 percent relative compaction.
- Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils are not allowed to become wet.
- PCC should have a minimum 28-day compressive strength of 3,000 psi. The concrete slump should be between 3 and 4 inches. The concrete should be properly cured in accordance with PCA recommended procedures, and vehicular automobile traffic should not be allowed on the pavement for three days or seven days for truck traffic.
- To help offset plastic shrinkage, concrete pavement may be reinforced with at least No. 3 bars at 24 inches on-center each way or 6 by 6-W2.0 by W2.0 wire mesh located within the middle one-third of the slab. Actual reinforcement needs for shrinkage should be determined by the project Engineer.
- Construction joint spacing (in feet) should not exceed twice the slab thickness in inches (e.g., 12 by 12 feet for a 6-inch slab thickness) with a maximum spacing of 15 feet. Joints should be laid out to form square panels. When not practical, rectangular panels can be laid out if the long dimension is no more than one and a half times the short dimension. The actual joint pattern should be determined by the project Engineer.
- Generally, control joints should have a depth of at least one-fourth the slab thickness (e.g., 1-inch-deep for a 4-inch-thick slab). The actual joint depth should be determined by the project Engineer.
- Unless otherwise recommended by the project Engineer, isolation (expansion) joints should extend the full depth of the slab and should be used only to isolate fixed objects abutting or within paved areas.
- Unless otherwise recommended by the project Engineer, thickened edges should be used along outside edges of concrete pavements. The edge thickness should be at least 2 inches greater than the concrete pavement thickness and taper to the actual concrete pavement thickness 36 inches inward from the edge. Integral curbs may be used in lieu of thickened edges.

7.7 Site Preparation

The proposed building area was reportedly previously developed. Any existing asphalt concrete pavement, concrete foundations, building rubble, sod, topsoil, and/or other debris encountered at, or below the existing ground surface, should be removed from the proposed building and adjacent flatwork areas. All earthwork, including, but not limited to, site clearing, grubbing, and stripping should be conducted during dry-weather conditions, as wet-weather construction could result in excessive rutting and/or mixing of debris materials with the underlying soils.

7.8 Cut and Fill Slopes

The current development plans do not include permanent un-retained cut or fill slopes. In the event that un-retained cut and/or fill slopes greater than 3 feet high are required, the slopes should be constructed in accordance with the Current Building Code.

7.9 Subgrade Preparation

Areas to receive fill should be cleared of any existing asphalt concrete pavement, concrete foundations, building rubble, sod, topsoil, and any other debris. The subgrade surface should be sloped at 10 percent or less. Vertical sides or steps may be necessary in some situations to achieve the required maximum slope. The exposed subgrade should be prepared as follows:

1. Scarify and recompact the upper 6 inches to a minimum of 90 percent of the maximum relative dry density as determined by ASTM D1557 method; and
2. Proof roll under the supervision of the Geotechnical Engineer or their representative. Proof rolling should be conducted with a fully-loaded, 10-yard dump truck with a minimum rear axle load of 8 tons or equivalent. The subgrade surface should provide a firm and unyielding surface under the load of the dump truck. Unsuitable soils identified during proof rolling should either be removed and replaced or addressed through supplemental recommendations from the Geotechnical Engineer.

7.10 Structural Fill

Structural fill materials used to support foundations, floor slabs, sidewalks, and pavements should be composed of non-expansive, low-plasticity material free of organic material, debris, and other deleterious material. Structural fills should be placed on a prepared subgrade as specified above. The material should contain no rocks larger than 3 inches in greatest dimension, nor more than 15 percent larger than 2 inches. Additionally, the material should meet the following specifications:

Plasticity index:	<15 percent
Liquid Limit:	<40 percent
Percent passing No. 200 sieve:	50 maximum, 5 minimum

Compaction Standard

Unless directed otherwise by the project Engineer or their representative, structural fill should be compacted to a minimum of 90 percent of the maximum relative dry density as determined by the ASTM D1557 method. A qualified Field Technician should be present to observe fill placement and perform field density tests per ASTM D-6938 at random locations throughout each lift to verify that the specified compaction is being achieved by the contractor. The structural fill should be placed on a prepared subgrade as specified above in loose lifts less than 8 inches thick.

7.11 Utility Trenches

Utility trench excavations should anticipate encountering saturated soils at depths less than 5 feet bgs. Utility lines should be designed to accommodate the saturated conditions. Additionally, trench dewatering may be necessary. Where trenches closely parallel a footing and the trench bottom is within a two horizontal to one vertical plane, projected outward and downward from any structural element, concrete slurry should be utilized to backfill that portion of the trench below this plane. The use of slurry backfill is not required where a narrow trench crosses a footing at or near a right angle.

7.12 Drainage

The Site should be graded to provide positive drainage away from foundations. A minimum gradient of 3 percent should be maintained for all hardscaped areas. A 5 percent gradient should be maintained for landscaped areas within 10 feet of a structure. The grading or landscaping design and construction should be such that no water is allowed to pond on the Site, nor to migrate beneath any structure. Runoff from hardscaped areas, roofs, patios, and other impermeable surfaces should be contained, controlled, and collected, and tight-lined to the storm drainage system.

7.13 Observation and Testing

To assure conformance with the specific recommendations contained within this report, and to assure that assumptions made in the preparation of this report are valid, LACO should be retained for the following:

- Monitor site grading and inspect exposed subgrade prior to placement of structural fills and/or pavement sections;
- Observe foundation excavations prior to placement of any forms or reinforcing steel; and
- Monitor the placement of structural fill, and test all structural fill to verify the required relative compaction is achieved.

8.0 REFERENCES

CBC [California Building Code], 2010, California Code of Regulations, Title 24, Part 2, Volume 2. California Building Standards Commission.

CGS, 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps, Special Publication 42, Interim Revision 2007.

CGS (California Geologic Survey), (2009), Tsunami Inundation Map for Emergency Planning, State of California~County of Humboldt, Sister Rocks Quadrangle, Del Norte County, California.

CDMG [California Division of Mines and Geology], 1987, Geologic Map of the Weed Quadrangle, Regional Geologic Map No. 4A, 1:250,000 scale.

CDMG [California Division of Mines and Geology], 1983, State of California Special Studies Zones, Sisters Rock 7.5' Quadrangle, Del Norte County, California.

CDMG [California Division of Mines and Geology], 1995, Planning Scenario in Humboldt and Del Norte Counties, California, for a Great Earthquake on the Cascadia Subduction Zone, Special Publication 115.

Das, B. M., 2009, Principals of Geotechnical Engineering, September 8, 2009.

GeoDesign Inc., 2004, Report of Geotechnical Engineering Services – Crescent City Waste Water Treatment Plant, GeoDesign Project Reference: BrownCald-15-01, December 3, 2004.

Heaton, T. H., Kanamori, H., 1984, Seismic potential associated with subduction in the northwestern United States, Bulletin of the Seismological Society of America; June 1984; v. 74; no. 3; p. 933-941.

Hayati et al., 2008, "Correcting Liquefaction Resistance for Aged Sands Using Measured to Estimated Velocity Ratio", ASCE Journal of Geotechnical and Geoenvironmental Engineering, February 13, 2008.

International Conference of Building Officials, 1998, Maps of Known Active Fault near Source Zones in California and Adjacent Portions of Nevada.

Kulhawy F.H., Trautmann C.H., Beech J.F., O'Rourke T.D., McGuire W., Wood W.A., Capano C. (1983). Transmission line structure foundations for uplift-compression loading. Report EL-2870, Electric Power Research Institute, Palo Alto.

LACO, 2012, Geotechnical Exploration – Proposed Promenade and Restroom Building, Crescent City Harbor District, LACO Project No. 5260.07, February 10, 2012.

Mononobe, N., and Okabe, S., 1929, General theory of earth pressure, Journal of the Japanese Society of Civil Engineers, Tokyo, Japan.

Treadwell & Rollo, 2011a, Geotechnical Exploration, Crescent City Harbor Rehabilitation, Crescent City, California, Unpublished report for Stover Engineering dated June 13, 2011.

Treadwell & Rollo, 2011b, Crescent City Harbor, Supplemental Geotechnical Consultation, Crescent City, California, Unpublished report for Stover Engineering dated October 7, 2011.

Satake, K., K. Wang, and B. F. Atwater, 2003, Fault slip and seismic moment of the 1700 Cascadia earthquake inferred from Japanese tsunami descriptions, Journal of Geophysical Research, Vol. 108(B11), 2535, doi: 10.1029/203JB002521, 2003.

SHN Consulting Engineers and Geologists, Inc., 2013, Geotechnical Investigation – Proposed Inter-agency Visitor Center, SHN Project Reference No. 012226, January 2013

FIGURES

LACO

Project New Retail\Warehouse Bldg By BED

Client CIDA Inc. Date 1/20/2014

Proj. No. 7934.00 Figure 1

SITE VICINITY MAP

1" = 2,000'

Source: lat 41.747446 long -124.182364 . Google Earth Image dated April 24, 2010. Accessed January 20, 2014.

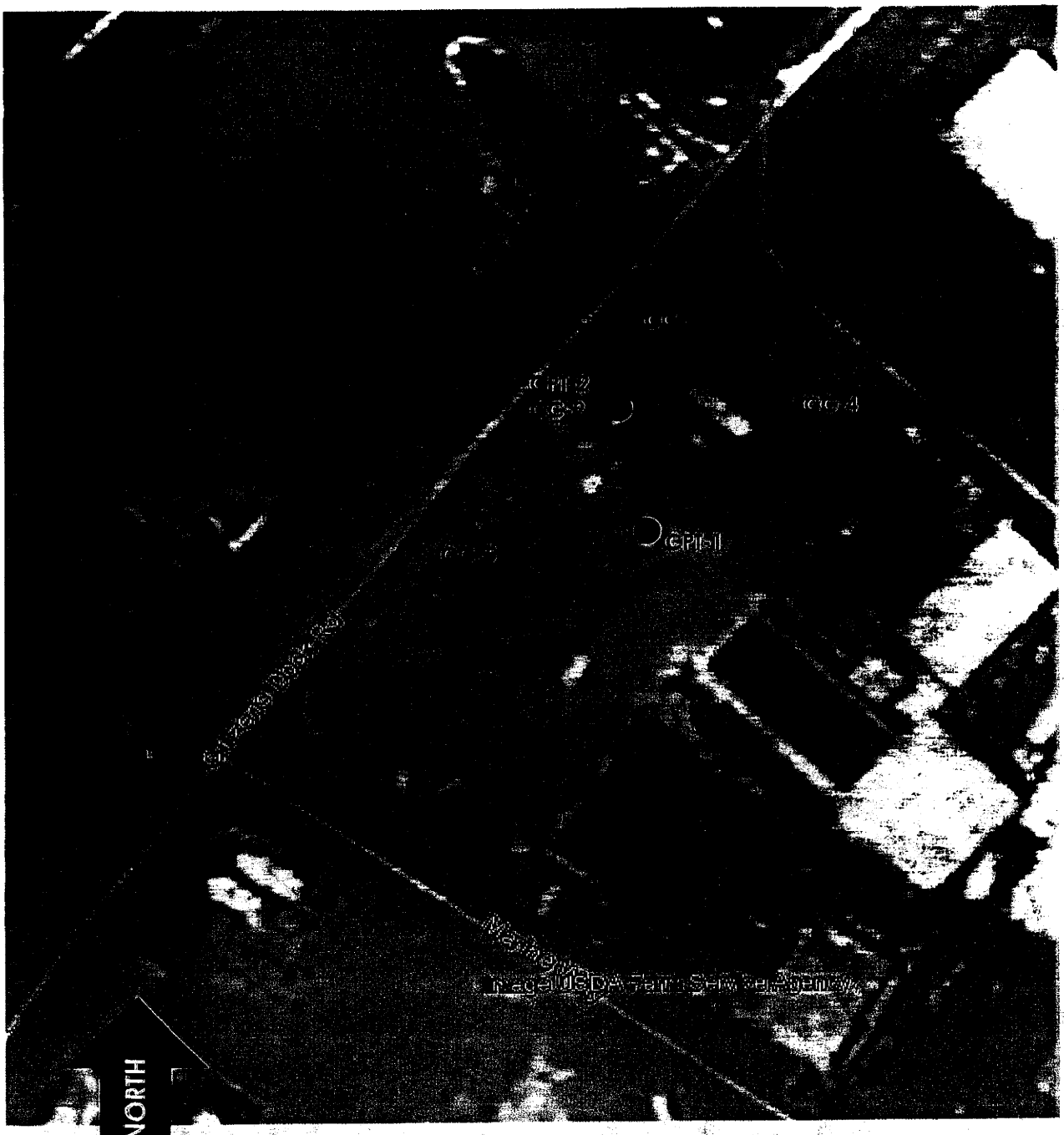
LACO

Project New Retail\Warehouse Bldg By BED

Client CIDA Inc. Date 1/20/2014

Proj. No. 7934.00 Figure 2

SITE MAP



● CPT-1 = Boring location and number

All locations area approximate

1" = 75'

Source: lat 41.747446 long -124.182364 . Google Earth Image dated April 24, 2010. Accessed January 20, 2014.

ATTACHMENT 1

ASFE Brochure

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you —* should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE
THE BEST PEOPLE ON EARTH
8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

ATTACHMENT 2

Boring Logs

LACO

BORING CC-2

CLIENT CIDA Inc.
PROJECT NAME New Retail/Warehouse Building
PROJECT NUMBER 7934.00
PROJECT LOCATION Crescent City Harbor, CA
DATE STARTED 12/20/13 COMPLETED 12/20/13
GROUND ELEVATION HOLE SIZE inches
DRILLING CONTRACTOR Fisch Drilling
GROUND WATER LEVELS:
DRILLING METHOD GeoProbe 6600 DT
▽ AT TIME OF DRILLING 5.00 feet
LOGGED BY JMW CHECKED BY MRL
AT END OF DRILLING ---
NOTES Boring installed adjacent to CPT-2

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0			
			0.5 FILL: Poorly graded sand with gravel and silt, coarse angular gravel, moist brown
			0.7 CONCRETE DEBRIS
			POORLY GRADED SAND WITH SILT: Yellow brown, loose to medium dense, moist, fill (?)
5			▽ Becomes gray, saturated
10			Increase in shell fraction
			14.0
15			15.0 GRAVEL LENS
			POORLY GRADED SAND WITH SILT: Gray to yellow brown, loose to medium dense, saturated
			17.5
			SILTY SAND: Yellow brown, medium dense, saturated
20			21.0
			POORLY GRADED MEDIUM SAND: Brown, loose, saturated
25			26.5
			POORLY GRADED SAND WITH SILT: Gray, loose to medium dense, saturated, abundant shell fragments, fine grained sand
			28.0
			29.0 SILTSTONE ROCK: St. George Formation (?)

Bottom of borehole at 29.0 feet.

LACO

BORING CC-3
PAGE 1 OF 1

CLIENT CIDA Inc.
PROJECT NAME New Retail/Warehouse Building
PROJECT NUMBER 7934.00
PROJECT LOCATION Crescent City Harbor, CA
DATE STARTED 12/20/13 **COMPLETED** 12/20/13
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR Fisch Drilling
GROUND WATER LEVELS:
DRILLING METHOD GeoProbe 6600 DT
▽ **AT TIME OF DRILLING** 5.40 feet
LOGGED BY JMW **CHECKED BY** MRL
AT END OF DRILLING ---
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0			
		0.5	TOPSOIL
		0.9	MIXED FILL: Coarse angular gravel, sand, silt and clay
		2.0	CONCRETE DEBRIS
			MIXED FILL: Coarse angular gravel, sand, silt and clay, moist
		3.9	
5			POORLY GRADED SAND WITH SILT: Yellow brown, loose to medium dense, moist, fill (?)
			▽ Becomes gray, saturated
10			
		11.5	
		12.0	Halt in same at 12 feet bgs due to heaving sands

Bottom of borehole at 12.0 feet.

LACO

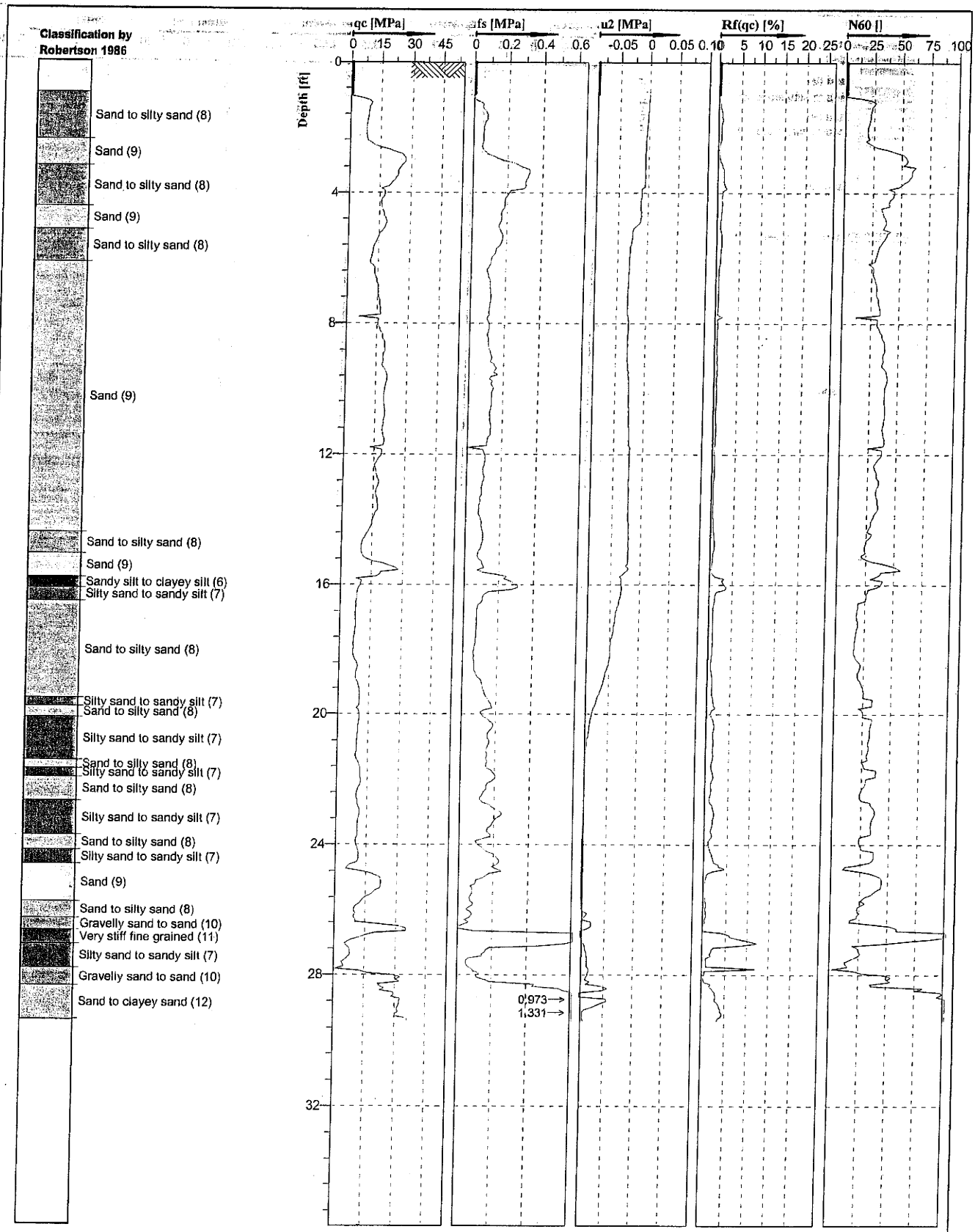
BORING CC-4

CLIENT CIDA Inc.
PROJECT NAME New Retail/Warehouse Building
PROJECT NUMBER 7934.00
PROJECT LOCATION Crescent City Harbor, CA
DATE STARTED 12/20/13 **COMPLETED** 12/20/13
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR Fisch Drilling
GROUND WATER LEVELS:
DRILLING METHOD GeoProbe 6600 DT
▽ **AT TIME OF DRILLING** 5.00 feet
LOGGED BY JMW **CHECKED BY** MRL
AT END OF DRILLING ---
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION
0			
			0.5 TOPSOIL
			CONCRETE DEBRIS
			3.0 POORLY GRADED SAND: Yellow brown, loose to medium dense, moist, fill (?)
5			▽ Becomes gray, saturated
10			Increase in shell fraction
15			15.5
			16.0 GRAVEL LENS
			POORLY GRADED SAND WITH SILT: Yellow brown, medium dense, saturated
20			
			23.5 POORLY GRADED MEDIUM SAND: Yellow brown, medium dense, saturated, slight oxidation
25			26.0 SILTY SAND WITH GRAVEL: Brown, medium dense to dense, saturated, abundant shell fragments
			28.0
			28.5 SILTSTONE ROCK: St. George Formation (?)
			Bottom of borehole at 28.5 feet.

ATTACHMENT 3

CPT Logs

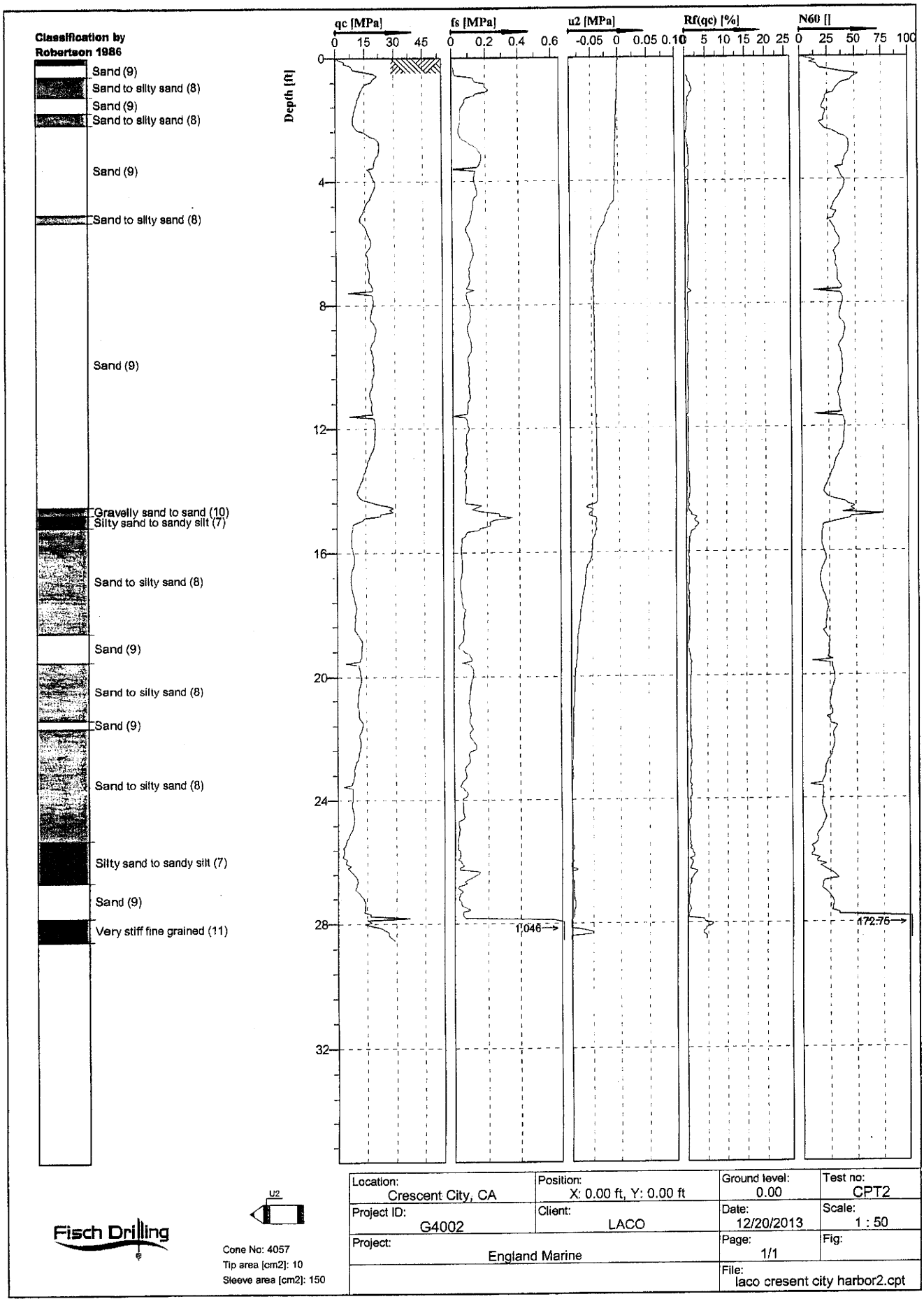


Location: Crescent City, Ca	Position: X: 0.00 ft, Y: 0.00 ft	Ground level: 0.00	Test no: CPT1
Project ID: G4002	Client: LACO	Date: 12/20/2013	Scale: 1 : 50
Project: England Marine		Page: 1/1	Fig:
		File: laco cresent city harbor1.cpd	

Fisch Drilling

U2

Cone No: 4057
Tip area [cm2]: 10
Sleeve area [cm2]: 150


Classification by
Robertson 1986
Sand (9)
Sand to silty sand (8)
Sand (9)
Sand to silty sand (8)
Sand (9)
Sand to silty sand (8)
Sand (9)
Gravelly sand to sand (10)
Silty sand to sandy silt (7)
Sand to silty sand (8)
Sand (9)
Sand to silty sand (8)
Sand (9)
Sand to silty sand (8)
Silty sand to sandy silt (7)
Sand (9)
Very stiff fine grained (11)
qc [MPa]
fs [MPa]
u2 [MPa]
Rf(qc) [%]
N60 []
Depth [ft]
1.046
172.76
U2
Cone No: 4057
Tip area [cm2]: 10
Sleeve area [cm2]: 150
Fisch Drilling
Location: Crescent City, CA
Position: X: 0.00 ft, Y: 0.00 ft
Ground level: 0.00
Test no: CPT2
Project ID: G4002
Client: LACO
Date: 12/20/2013
Scale: 1 : 50
Project: England Marine
Page: 1/1
Fig:
File: laco cresent city harbor2.cpt

ATTACHMENT 4

Liquefaction Analysis

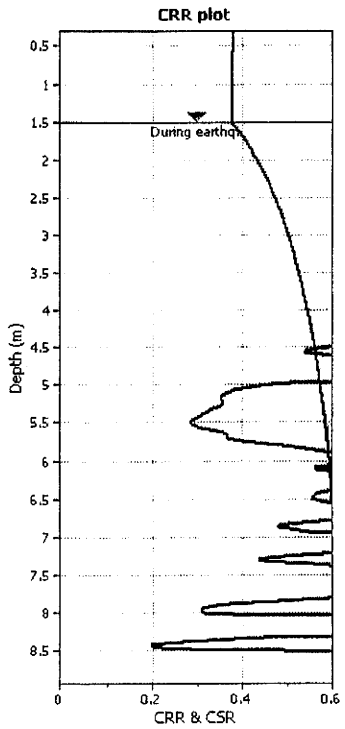
LACO

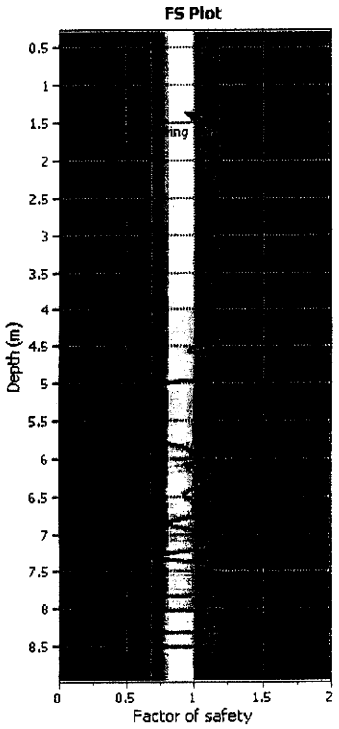
Project New Retail/Warehouse Building By MRL

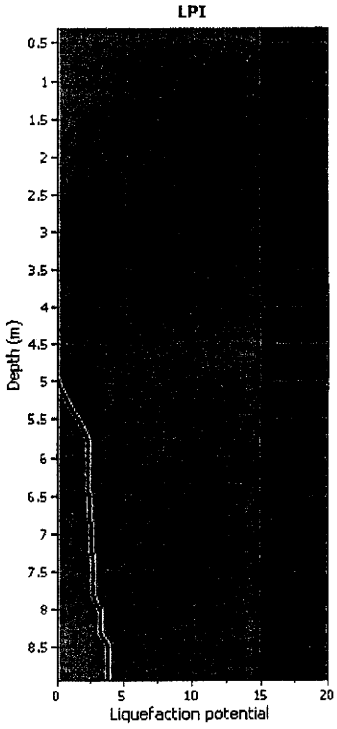
Client CIDA Inc. Date 1/5/2013

Proj. No. 7934 Page 1 of 2

Liquefaction Analysis (CPT-1)

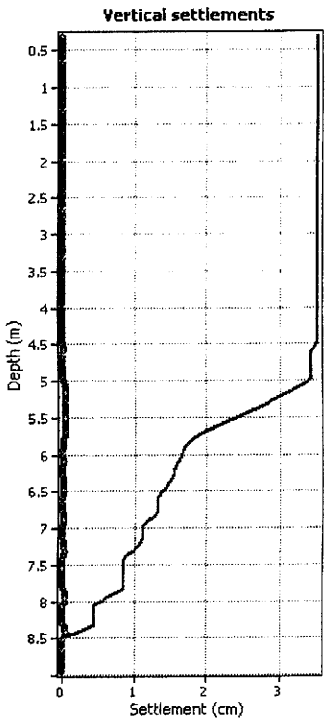


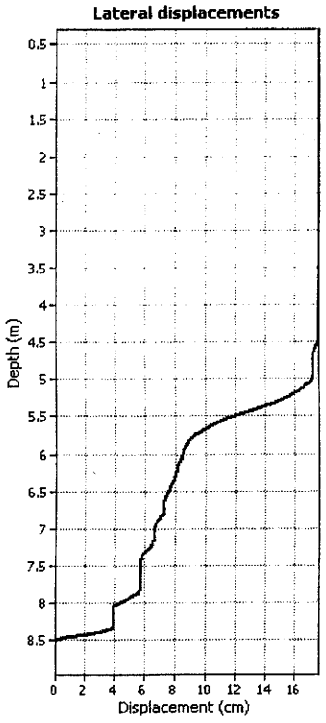




Cliq (version 1.7.5.27)

PGA	0.62 g
E.Q. Magnitude	7.3
CRR Aging Factor	1.5





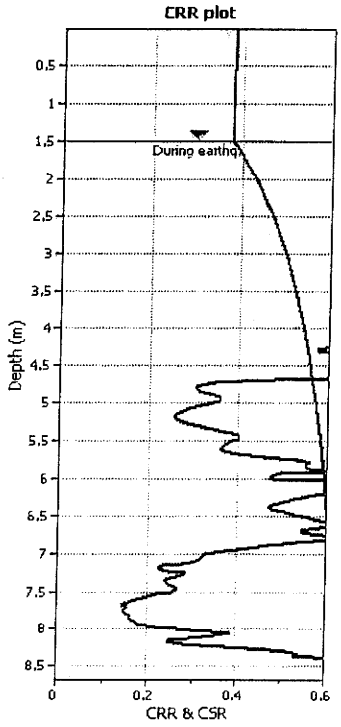
LACO

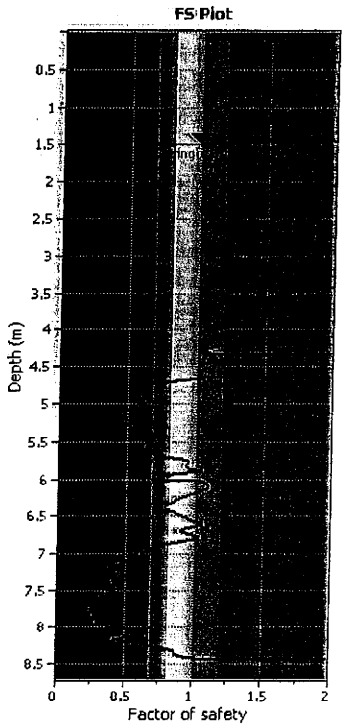
Project New Retail/Warehouse Building By MRL

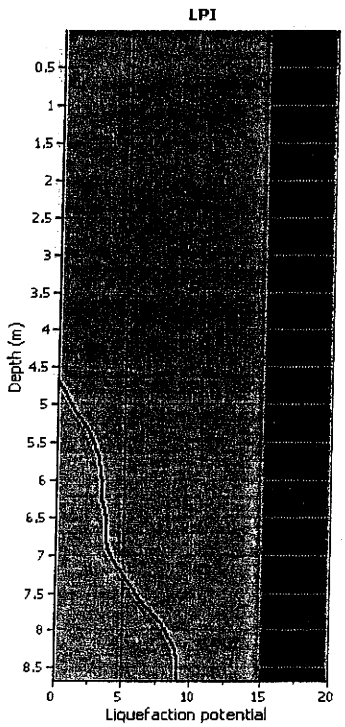
Client CIDA Inc. Date 1/5/2013

Proj. No. 7934 Page 2 of 2

Liquefaction Analysis (CPT-2)







Cliq (version 1.7.5.27)

PGA	0.62 g
E.Q. Magnitude	7.3
CRR Aging Factor	1.5