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Appeals Filed:	January 28, 2008 and February 7, 2008
49th Day:	March 17, 2008
Staff:	James R. Baskin AICP
Staff Report:	October 22, 2009
Hearing Date:	November 4, 2009
Commission Action:	

STAFF REPORT: APPEAL
HEARING *DE NOVO*

APPEAL NO.:	**A-1-CRC-08-004**
APPLICANT:	**Randy Baugh DBA: Development Consultants, Inc.**
OWNER:	**Baugh Corporation**
LOCAL GOVERNMENT:	City of Crescent City
DECISION:	Approval with Conditions
PROJECT LOCATION:	200 "A" Street, Crescent City, Del Norte County; APN 118-020-34.
PROJECT DESCRIPTION: (as approved by the City)	*Coasta Norte* Mixed-Use Development: 40,060-sq.-ft. building envelope, 98,755-sq-ft. floor area, three-story, 44-unit condominim/time-share/vacation rental residential development with medical/sales professional offices and sub-grade parking structure.
PROJECT DESCRIPTION: (as amended *de novo*)	*Coasta Norte* Condominiums: ±35,306-sq.ft. building envelope, ±70,612-sq.-ft. floor area, two-story, 37-unit condominim complex with ground level enclosed 62-stall parking structure and associated site improvements and coastal access amenities.

APPELLANTS:	**1. Kirk Roberts and Natalie Fahning; and** **2. Commissioners Wan and Reilly**
SUBSTANTIVE FILE: DOCUMENTS	1) City of Crescent City Coastal Development and Conditional Use Permits, and Design Review Approval Nos. CDP-07-06, UP 07-08, & AR 07-11; and 2) City of Crescent City Local Coastal Program.

SUMMARY OF STAFF RECOMMENDATION *DE NOVO*: APPROVAL WITH CONDITIONS

Staff recommends that the Commission approve with conditions the coastal development permit for the proposed project. Staff believes that as conditioned, the development, as amended for purposes of the Commission's *de novo* hearing, is consistent with the City of Crescent City LCP and the public access policies of the Coastal Act

During the Substantial Issue portion of the appeal hearing in March, 2008, the Commission found that the project, as approved by the City, raised a substantial issue of conformance with the policies and standards of the City's certified LCP, particularly with regard to the permissibility of the proposed residential uses given the site's medical-related land use designation, the development's consistency with the prescriptive standards of the zoning districts in which the project was located, and its consistency with requirements for avoiding and minimizing exposure of persons and property to geologic and flooding hazards, the protection of environmentally sensitive habitat areas, coastal water quality, and visual resources, and the public access and recreation policies of both the LCP and the Coastal Act.

Since the March 2008 hearing on the Substantial Issue determination, the City has locally adopted amendments to its LCP to change the land use plan and zoning designations for the site and other provisions within its Land Use Plan and Implementation Program to better address the proposed development of the site for residential uses. The *de novo* portion of the appeal hearing was continued from the March 2008 meeting to allow the amendment to be adopted locally and certified by the Commission prior to action on the de novo portion of the appeal. On June 12, 2009, the Commission certified LCP Amendment No. CRC-MAJ-1-09 with suggested modifications. The City has adopted a resolution accepting the Commission's modifications and the staff anticipated that the Commission would be able to concur at the November, 2009 Commission meeting that the actions taken by the City were sufficient to accept and implement the suggested modifications adopted by the Commission. However, the City has not yet completed actions to adopt the necessary zoning ordinances to implement the suggested modifications, and thus the LCP amendment has not yet been effectively certified. Effective certification of LCP Amendment No. CRC-MAJ-1-09 as modified by the Commission is essential for the proposed development to be consistent with the LCP. To

enable the hearing on the appeal to go forward at the November hearing even though the LCP amendment has not yet been effectively certified, staff is recommending that the Commission approve the permit with a condition requiring that LCP Amendment No. CRC-MAJ-1-09 be effectively certified prior to issuance of the permit. Staff believes this approach is acceptable in this situation as the City has taken action to accept the Commission's modifications and need only adopt the implementing ordinances.

Concurrent with these efforts to amend the LCP, the applicant has revised the project and provided considerable additional information on the effects of the proposed project on coastal resources.

For the purposes of *de novo* review by the Commission, the applicants submitted a revised project description and revised plans (See Exhibit No. 5) that make changes to the development originally approved by the City. The revised project description involves redeveloping the site of a former medical clinic complex with a 37-unit condominium complex. The total area proposed structural improvements development on the 1.24-acre site was reduced to an approximately 35,306 square-feet building envelope, extending to height of 32 feet (excluding roof parapets), containing roughly 70,612 square-feet of occupied floor-area on two floors above a 62-space enclosed ground-level parking facility. Exterior improvements would include curbs, gutters and sidewalks along the parcels street frontages, a four-space exterior parking lot and public-accessible access facilities, including trail connections to the adjoining beach and an elevated view platform.

The principal issues raised by the application concern: (1) the exposure of persons and property to flooding risks associated with coastal flooding, particularly tsunami inundation; (2) the provision of coastal access; (3) the protection of coastal water quality; (4) development adjacent to environmentally sensitive habitat areas; and (5) the effects of the development on the visual resources of the area.

The development site is located on a parcel along the City's open ocean shoreline at a relatively low elevation. As such, the structural improvements and occupants would be exposed to potential risks from coastal flooding hazards, including tsunami inundation. The project has been revised to incorporate features to mitigate these risks to less than significant levels, including setting the floor elevation of all permanent residential units to be a minimum of one foot above the depth of modeled tsunami inundation runup, and identifying structural criteria for the building such that it would be resilient to tsunami wave strike and back scour to prevent a catastrophic failure that could interfere with the evacuation of its occupants.

Dating back to its days as a medical clinic adjacent to the County hospital, the project site has a history of access after-hours use to the adjoining beach across its southern parking lot. The applicant has included in the project proposal the dedication and construction of a paved twenty-foot-wide vertical access easement across the southern side of the lot in approximately the same location as the informal unimproved parking lot accessway. In addition, the applicant proposes to develop a publicly accessible viewing platform

structure on the northwestern portion of the site. As a result, facilities would be provided to meet both the existing access use through the site as well as to offset the increased demand for additional facilities the creation of the new residences would engender.

With respect to water quality, although the majority of the site is presently developed with buildings and paved parking areas, the development would involve both ground-disturbing construction and the addition of impervious surface area, the runoff from which could have adverse impacts on adjoining ocean waters. The project design has incorporated a variety of construction phases and permanent water quality best management practices, including rain garden, landscaping, and bio-swale infiltration areas, perimeter drainage controls, and conveyance of onsite pre-treated stormwater into the municipal drainage system to prevent erosion, sedimentation and other entrained pollutants from impacting coastal waters.

To prevent impacts to adjacent environmentally sensitive areas, the project has been designed to provide the LCP-mandated 50-foot buffer between site improvements and the intertidal wetland reaches along the adjoining upper beach areas. In addition, the project includes a restoration proposal for replacing non-ESHA marine riparian vegetated areas associated with the construction of the viewing platform.

Finally, as regards the development's effects on visual resources, the project as revised for purposes of the Commission's *de novo* hearing, the applicant has submitted a revised project description and revised plans that make changes to the development originally approved by the City. These changes include: (1) reducing the overall size and density of the development in terms of floor area and height of the building, (2) reducing the number of residential units from 44 to 37; and (3) including a view corridor within a portion of the adjoining vacated street right-of-way to break up the bulk of structural development of the area.

The applicant has also provided Commission staff with supplemental information consisting of: 1) a geo-technical analysis of the site addressing whether any portions of the proposed resort facility would be located within geologically unstable areas with respect to coastal erosion, liquefaction, and tsunami hazards, to assure that the project site is suitable and adequate for the proposed use; (2) a delineation of all wetlands on or in proximity to the site; (3) preliminary drainage and runoff control plans; and (4) a mitigation program for replacing non-wetland Hooker willows removed in the construction of the proposed elevated viewing platform. This supplemental information addresses issues raised by the appeal and provides additional information that was not a part of the record when the City originally acted to approve the coastal development permit.

To help the Commission assess the visual impacts of the development and the consistency of the proposed development with the visual policies of the certified LCP, the applicant has provided for purposes of the Commission's *de novo* review a visual impact study, attached as Exhibit 11. The study includes a compendium of aerial and views of the site from various vantages, comparing existing views with views from the same

locations showing superimposed simulations of the proposed development as revised for purposes of the Commission's *de novo* review. The photos show how the development will establish a more compact building configuration on the site than that initially authorized by the City. In addition, seaward open sky views currently afforded from adjoining streets through the Western Second Street right-of-way / former clinic parking lot would be preserved through the provision of a view corridor in this location. With these modifications, the development as proposed for the Commission's *de novo* review would not significantly affect views to and along the ocean and would be subordinate to the character of its setting.

To ensure that the proposed development's adverse effects relating to coastal flooding hazards, public access, water quality, environmentally sensitive areas, and visual resources are reduced to levels of insignificance, staff is recommending the attachment of 17 special conditions to the approval of the coastal development permit, as follows:

Special Condition Nos**.** 1 through 3 require the applicant to record offers of dedication for public use for the various proffered vertical and lateral coastal accessways and viewing platform access support facilities.

Special Condition No**.** 4 requires the applicant to submit a set of revised final construction plans detailing the design of the site improvements in full conformance with the standards of the LCP as further adjusted by the conditions of the permit's approval.

Special Condition No. 5 requires that all final design and construction plans for the structural site improvements, comply with all recommendations within the geotechnical report prepared for the project.

Special Condition No. 6 requires the applicant record a deed restriction waiving all rights to the future construction of shoreline protective structures.

Special Condition No. 7 requires the applicant to record a deed restriction accepting all risks, and defending and holding the Commission harmless from all claims associated the inherent risks of development at the site.

Special Condition No. 8 requires the applicant to construct the permanent residential units comprising the main condominium structure consistent with building design standards intended for reducing exposure of persons and property to risks associated with tsunami inundation, including occupied floor minimum elevation datum, and structural resiliency features to prevent catastrophic structural collapse from wave-strike and back-scour.

Special Condition No. 9 requires the applicant to prepare and submit for the Executive Director's approval a tsunami safety plan detailing how information and assistance regarding evacuation to safe high ground would be provided to the project occupants.

Special Condition No. 10 requires the applicant to submit prior to issuance of the coastal development permit and for the review and approval of the Executive Director an erosion and stormwater runoff control plan to prevent impacts to coastal water quality during both temporarily during the construction phase and permanently over the life of the condominium development.

Special Condition No. 11 sets various additional construction performance standards for the ensuring that impacts to coastal resources do no result.

Special Condition No. 12 establishes specific design standards for exterior building materials, glazing, and illumination to minimize light and glare, and other impacts to coastal visual resources.

Special Condition No. 13 requires the applicant to submit for approval of the Executive Director prior to permit issuance a landscape plan, detailing the use of native, locally obtained plant stocks, setting performance and maintenance criteria, and prohibiting the use of exotic/invasive species or the use of bio-accumulating rodenticides.

Special Condition No. 14 sets specific standards for the installation of the marine riparian vegetation restoration plantings.

Special Condition No. 15 requires the applicant to maintain the West Second Street view corridor free of obstructions.

Special Condition No. 16 requires that the applicant submit, prior to the recordation of the final subdivision map and/or condominium pan for the development, a copy of the map and/or plan for the review of the Executive Director to determine its substantial conformance with the terms and conditions of the subject coastal development permit and whether a permit amendment is required for any changes to the project.

Special Condition No. 17 requires the applicant to record a deed restriction in title restricting the exemptions otherwise provided under the Coastal Act for certain future improvements to the structures authorized by the permit, including but not limited to substantive repair and maintenance work, and requiring that a permit amendment or additional coastal development permit from the Commission or from the applicable certified local government shall be obtained.

As discussed above, Special Condition No. 18 requires that prior to the issuance of the coastal development permit that the Commission has concurred by the Executive Director's determination that the City of Crescent City has taken all legal measures necessary to accept the suggested modifications attached to the associated project-initiated LCP amendment conditionally certified by the Commission.

Special Condition No. 19 requires the applicant to record a deed restriction imposing the special conditions of this permit as covenants, conditions, and restrictions on the use and enjoyment of the property.

Finally, Special Condition No. 20 sets restrictions on the types of plants that may be installed on the site after the initial construction-phase site landscaping, limiting them to native species obtained from local stocks, and prohibits the use of certain bio-accumulating rodenticides.

As conditioned, staff recommends that the Commission find that the development as conditioned is consistent with the certified City of Crescent City LCP and the public access policies of the Coastal Act.

The motion to adopt the staff recommendation of approval with conditions is on pages 7 and 8.

STAFF NOTES:

1. Procedure.

On March 7, 2008, the Coastal Commission found that the appeal of the City of Crescent City's approval raised a substantial issue with respect to the grounds on which the appeal had been filed, pursuant to Section 13115 of the Title 14 of the California Code of Regulations. As a result, the City's approval is no longer effective, and the Commission must consider the project *de novo*. The Commission may approve, approve with conditions (including conditions different than those imposed by the City), or deny the application. Since the proposed project is within: (a) an area for which the Commission has certified a Local Coastal Program (LCP); and (b) between the first public road and the sea, the applicable standard of review for the Commission to consider is whether the development is consistent with the City's certified LCP and the public access and public recreation policies of the Coastal Act. Testimony may be taken from all interested persons at the *de novo* hearing.

2. Incorporation of Substantial Issue Findings.

The Commission hereby incorporates by reference the Substantial Issue Findings contained in the Commission staff report, dated February 22, 2008.

I. MOTION, STAFF RECOMMENDATION *DE NOVO*, AND RESOLUTION:

Staff has determined that with the recommended conditions, the project is consistent with the certified LCP and the Coastal Act public access and recreation policies. Therefore, staff recommends that the Commission adopt the following resolution and findings.

Motion:

I move that the Commission approve Coastal Development Permit No. A-1-CRC-08-004 pursuant to the staff recommendation.

Staff Recommendation of Denial:

Staff recommends a **YES** vote. 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 to Approve Permit:

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 certified City of Crescent City LCP. 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.

III. STANDARD CONDITIONS: See Attachment A.

III. SPECIAL CONDITIONS:

1. Vertical Beach Access Condition

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, AND CONSISTENT WITH THE APPLICANT'S REVISED PROJECT DESCRIPTION, the applicant shall execute and record a document in a form and content acceptable to the Executive Director, offering to dedicate to a public agency or non-profit entity, approved by the Executive Director, of an easement for public vertical access through the 20-foot-width portion of the vacated West Second Street right-of-way. The recorded offer of dedication document shall include a formal legal description of the entire property; and a metes and bounds legal description and graphic depiction, prepared by a licensed surveyor, of the vertical access area. The offer of dedication shall provide that the vertical access area shall be open for public use from sunrise to sunset. The offer of dedication shall be recorded free of prior liens and encumbrances (other than existing easements for roads, trails, and utilities) which the Executive Director determines may affect the interest being conveyed, and shall run with the land in favor of the accepting entity on behalf of the people of the State of California, binding all successors and assigns.

2. Lateral Blufftop Access Condition

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, AND CONSISTENT WITH THE APPLICANT'S REVISED PROJECT DESCRIPTION, the applicant shall execute and record a document in a form and content acceptable to the Executive Director, offering to dedicate to a public agency or non-profit entity, approved by the Executive Director, of an easement for public lateral access from the vertical beach accessway northward to the view platform access support facility that connects to the vertical beach accessway alongside the adjacent *Hampton Inns and Suites* site. The recorded offer of dedication document shall include a formal legal description of the entire property; and a metes and bounds legal description and graphic depiction, prepared by a licensed surveyor, of the lateral access area. The offer of dedication shall provide that the lateral access area shall be open for public use from sunrise to sunset. The offer of dedication shall be recorded free of prior liens and encumbrances (other than existing easements for roads, trails, and utilities) which the Executive Director determines may affect the interest being conveyed, and shall run with the land in favor of the accepting entity on behalf of the people of the State of California, binding all successors and assigns.

3. View Platform Public Access Support Facility Condition

PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, AND CONSISTENT WITH THE APPLICANT'S REVISED PROJECT DESCRIPTION, the applicant shall execute and record a document in a form and content acceptable to the Executive Director, offering to dedicate to a public agency or non-profit entity, approved by the Executive Director, of an easement for public access to, and use of, an elevated view platform access support facility. The recorded offer of dedication document shall include a formal legal description of the entire property; and a metes and bounds legal description and graphic depiction, prepared by a licensed surveyor, of the access area and the location of the elevated view platform access support facility. The offer of dedication shall provide that the access area and the view platform and connecting trail improvements shall be open for public use from sunrise to sunset. The offer of dedication shall be recorded free of prior liens and encumbrances (other than existing easements for roads, trails, and utilities) which the Executive Director determines may affect the interest being conveyed, and shall run with the land in favor of the accepting entity on behalf of the people of the State of California, binding all successors and assigns.

4. Revised Design and Construction Plans

A. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-CRC-08-004**, the applicant shall submit to the Executive Director for review and approval: (1) final design and construction plans which are consistent with the approved preliminary plans prepared by Ian Birchall and Associates and

Murray Duncan, Architects, attached as Exhibit No. 5, including site plans, floor plans, building elevations, roofing plans, foundation plans, structural plans, final material specifications, signage, drainage facilities, and lighting plans, consistent with Special Condition Nos. 5, 6, 12, and 15; and (2) a revised parking plan demonstrating conformity with Coastal Zone Zoning Regulations Chapter 17.76, including but not limited to the minimum number of spaces, minimum stall width and depth dimensions, minimum aisle widths, minimum wall-to-wall dimensions; and development, operation, and management parameters, consistent with the Commission's action on Coastal Development Permit No. A-1-CRC-08-004.

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 site plan shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is required.

5. <u>Conformance of Design and Construction Plans to Geotechnical Report</u>

A. All final design and construction plans, including foundations, grading and drainage plans shall be consistent with all recommendations contained in pages 47 through 62 of the Geotechnical Investigation prepared by Busch Geotechnical Consultants, dated April 30, 2008. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-CRC-08-004**, 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.

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.

6. <u>No Future Construction or Expansion of Bluff or Shoreline Protective Device</u>

A. By acceptance of this permit, the applicant agrees, on behalf of themselves and all successors and assigns, that no bluff or shoreline protective device(s) shall ever be constructed to protect the development approved pursuant to Coastal Development Permit No. A-1-CRC-08-004, including, but not limited to, the structures, foundations, decks, pathways, driveways, drainage facilities or the sewage disposal system and any other future improvements in the event that the development is threatened with damage or destruction from waves, erosion, storm conditions, bluff retreat, landslides, or other natural hazards in the future. The applicant also agrees, on behalf of themselves and all successors and assigns, that

no future repair or maintenance, enhancement, reinforcement, or any other activity affecting the existing shoreline revetment shall be undertaken. By acceptance of this permit, the applicant hereby waives, on behalf of themselves and all successors and assigns, any rights to construct or modify such devices that may exist under Public Resources Code Section 30235 or under City of Crescent City LUP Chapter 5 – "Diking, Dredging, Filling and Shoreline Structures" Policy No.4.

B. By acceptance of this permit, the applicant further agrees, on behalf of themselves and all successors and assigns, that the landowner shall remove the development authorized by this permit, including the structures, foundations, and septic system, if any government agency has ordered that the structures are not to be occupied due to any of the hazards identified above. In the event that portions of the development fall to the beach before they are removed, the landowner shall remove all recoverable debris associated with the development from the beach and ocean and lawfully dispose of the material in an approved disposal site. Such removal shall require a coastal development permit.

C. In the event the edge of the bluff recedes to within ten (10) feet of any of the new buildings authorized by the permit, but no government agency has ordered that the structures not be occupied, a geo-technical investigation shall be prepared by a licensed coastal engineer and geologist retained by the applicant, that addresses whether any portions of the structures are threatened by wave, erosion, storm conditions, or other natural hazards. The report shall be submitted to the Executive Director and shall identify all those immediate or potential future measures that could stabilize the buildings without shore or bluff protection, including but not limited to removal or relocation of portions of the buildings. If the geo-technical report concludes that a building or any portion of the building is unsafe for occupancy, the permittee shall immediately obtain authorization from the Commission to remove the threatened portion of the structure.

7. <u>Assumption of Risk, Waiver of Liability and Indemnity Agreement</u>

By acceptance of this permit, the applicant, on behalf of: (1) themselves; (2) their successors and assigns and (3) any other holder of the possessory interest in the development authorized by this permit, acknowledges and agrees: (i) that the site may be subject to hazards from waves, storm waves, flooding and erosion; (ii) 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; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; (iv) 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; and (v) to agree to include a provision in any subsequent sublease or assignment of the development

authorized by this permit requiring the sublessee or assignee to submit a written agreement to the Commission, for the review and approval of the Executive Director, incorporating all of the foregoing restrictions identified in (i) through (iv).

8. Conformance of Design and Construction Plans to Tsunami Inundation and Elevation and Structural Resiliency Design

A. All final building plans shall be consistent with: (1) the elevation plan depicted on Plan A1.5, as prepared by Ian Birchall and Associates, dated July 8, 2009, notating the lowest floor elevation of permanent residential units being constructed at an elevation of 34 feet above mean sea level; and (2) the structural design calculations for buoyant, surge, drag, and hydrostatic forces, as identified in the letter-report prepared by Stover Engineering, dated August 6, 2009. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-CRC-08-004**, 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 design recommendations.

C. 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.

9. Tsunami Safety Plan

A. **PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-CRC-08-004,** the applicant shall submit, for the review and approval of the Executive Director, a plan for mitigating the hazards associated with tsunamis.

1. The plan shall demonstrate that: (a) the existence of the threat of tsunamis from both distant and local sources will be adequately communicated to all owners; (b) information will be made available to all owners and regarding personal safety measures to be undertaken in the event of a potential tsunami event in the area; (c) efforts will be undertaken to facilitate physically less mobile residents in seeking evacuation from the site and/or sheltering-in-place during a potential tsunami event; and (d) owners' association onsite operational staff have been adequately trained to carry out the safety plan.

2. The plan shall include, at a minimum, the following components:

- Tsunami Information Component, detailing the posting of placards, flyers, or other materials at conspicuous locations within

each condominium unit and within the lobby, provided in an appropriate variety of languages and formats (e.g., English, Spanish, embossed Braille, tape recordings, etc.) 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;

- 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
- Onsite Staff Training Component, detailing the instruction to be provided to all employees to assure that the Tsunami Safety Plan is effectively implemented.

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.

10. <u>Erosion and Run-Off Control Plan</u>

A. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-CRC-08-004,** the applicant shall submit, for review and approval of the Executive Director, a plan for erosion and run-off control.

1) <u>EROSION CONTROL PLAN COMPONENT</u>

a. The erosion control plan shall demonstrate that:

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

(2) The following temporary erosion control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force, shall be used during construction: Structure Construction and Painting (CA3), Material Delivery and Storage (CA10), Scheduling (ESC1), Mulching (ESC11), Stabilized Construction Entrance (ESC24), Silt Fences (ESC50), Straw Bale Barriers (ESC51), and Storm Drain Inlet Protection (ESC53);

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

(4) The following permanent erosion control measures, as described in detail within in the "California Storm Water Best Management Construction Activity Handbook, developed by Camp, Dresser &

McKee, *et al.* for the Storm Water Quality Task Force, shall be installed: Preservation of Existing Vegetation (ESC2), and Seeding and Planting (ESC10).

b. The plan shall include, at a minimum, the following components:

(1) A narrative report describing all temporary run-off and erosion control measures to be used during construction and all permanent erosion control measures to be installed for permanent erosion control;
(2) A site plan showing the location of all temporary erosion control measures;
(3) A schedule for installation and removal of the temporary erosion control measures;
(4) A site plan showing the location of all permanent erosion control measures; and
(5) A schedule for installation and maintenance of the permanent erosion control measures.

2) RUN-OFF CONTROL PLAN COMPONENT

a. The runoff control plan shall demonstrate that:

(1) Runoff from the project shall not increase sedimentation into coastal waters;
(2) Runoff from all roofs, patios, driveways and other impervious surfaces and slopes on the site shall be collected and discharged into an infiltration interceptor to avoid ponding or erosion either on or off the site. The system shall be designed to treat or filter stormwater runoff from each storm, up to and including the 85^{th} percentile, 24-hour storm event;
(3) An on-site infiltration interceptor or retention basin system shall be installed to capture any pollutants contained in the run-off from parking lots and other paved areas. The system shall be designed to treat or filter stormwater runoff from each storm, up to and including the 85^{th} percentile, 24-hour storm event;
(4) Site drainage shall be directed away from the bluff;
(5) The following temporary runoff control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force, shall be used during construction: Paving Operations (CA2), Structure Construction and Painting (CA3), Material Delivery and Storage (CA10), Solid Waste Management (CA20); Hazardous Waste Management (CA21), Concrete Waste Management (CA23), Sanitary/Septic Waste Management (CA24),

Vehicle and Equipment Cleaning (CA30), Vehicle and Equipment Fueling (CA31), and Employee/Subcontractor Training (CA40); and

(6) The following permanent runoff control measures, as described in detail within in the "California Storm Water Best Management Commercial-Industrial and Construction Activity Handbooks, developed by Camp, Dresser & McKee, *et al.* for the Storm Water Quality Task Force, shall be installed: Non-Stormwater Discharges to Drains (SC1), Buildings and Grounds Maintenance (SC10), Employee Training (SC14), Extended Detention Basins (TC5), Media Filtration (TC6), Oil/Water Separators and Water Quality Inlets (TC7), Material Use (CA11), and Spill Prevention and Control (CA12).

b. The plan shall include, at a minimum, the following components:

(1) A narrative report describing all temporary runoff control measures to be used during construction and all permanent runoff control measures to be installed for permanent runoff control;
(2) A site plan showing the location of all temporary, construction-phase erosion and runoff control measures;
(3) A schedule for installation and removal of the temporary runoff control measures;
(4) A site plan showing the location of all permanent runoff control measures;
(5) A schedule for installation and maintenance of the roof and parking lot drainage conveyance systems, and rain garden, tree box, swale and bio-filtration galleries, and perimeter stormwater diking and berming controls; and
(6) A site plan showing finished grades (at 1-foot contour intervals) and stormwater drainage improvements.

B. The revised plans shall, prior to submittal to the Executive Director, be reviewed and certified by a qualified professional to ensure that they are consistent with the Commission's approval of the applicant's preliminary plans and with the drainage recommendations of the letter-report from the applicant's civil engineer (Stover Engineering), dated March 10, 2009, attached as Exhibit No. _.

C. 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.

11. <u>Construction Responsibilities and Debris Removal</u>.

The permittee shall comply with the following construction-related requirements:

- No construction materials, debris, or waste shall be placed or stored where it may be subject to wave erosion and dispersion;
- Any and all debris resulting from construction activities shall be removed from the site within one week of completion of construction;
- No construction equipment or machinery shall be allowed at any time on the beach or intertidal zone;
- Sand from the beach, cobbles, or shoreline rocks shall not be used for construction or landscaping materials;
- Concrete trucks and tools used for construction of the approved development shall be rinsed at the specific wash-out area(s) described within the approved Erosion and Runoff Control Plan approved by the that Commission;
- Staging and storage of construction machinery or materials and storage of debris shall not take place on the beach or within public street rights-of-way.

12. <u>Design Restrictions</u>.

All exterior materials, including the roofing materials and windows, shall be non-reflective to minimize glare. All exterior lights, including lights attached to the outside of any structures, shall be low-wattage, non-reflective and have full cut-off shielding, hooding, or sconces to cast lighting in a downward direction and not beyond the boundaries of the property. All signage shall conform to the standards of Section 17.74 of the Crescent City Coastal Zone Zoning Regulations.

13. <u>Landscape Plan</u>.

A. **PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-CRC-08-004**, the applicant shall submit, for the review and approval of the Executive Director, a plan for landscaping to soften the appearance of the commercial visitor-serving facility, while assuring that the landscaping materials are located and sized so as not to obstruct views to and along the coast from designated view corridors and vista points. The plan shall be prepared by a licensed landscape architect.

1) The plan shall demonstrate that:

a. Only native plant species shall be planted. All proposed plantings shall be obtained from local genetic stocks within Del Norte County. If documentation is provided to the Executive Director 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. 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. No plant species listed as a 'noxious weed' by the governments of the State of California or the United States shall be utilized within the property.

b. All planting will be completed by within 60 days after completion of construction;

c. All required plantings will be maintained in good growing conditions through-out the life of the project, and whenever necessary, shall be replaced with new plant materials to ensure continued compliance with the landscape plan;

d. Plantings within the West Second Street view corridor area shall be limited to seeded grass lawns, sodded turf, or other low-growing groundcovers whose height at maturity will not exceed one foot (1′) above finished grade;

e. Plantings placed along the "A" and Third Street frontages conform with the standards of Coastal Zone Zoning Regulations Section 17.76.120.M, regarding street frontage landscaping;

f. Except for clearing for site improvements and marine riparian vegetation restoration activities otherwise authorized by Coastal Development Permit No. A-1-CRC-08-004, all existing mature native vegetation (i.e., willows on the beach bluff edge, within the shoreline revetment materials) shall be retained; and

g. The use of bio-accumulating rodenticides containing any anticoagulant compounds, including, but not limited to, Bromadiolone, Brodifacoum or Diphacinone, shall not be used.

2. The plan shall include, at a minimum, the following components:

a. A map showing the type, size, and location of all plant materials that will be on the developed site, the irrigation system, topography of the developed site, and all other landscape features; and

b. A schedule for installation of plants.

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.

14. Marine Riparian Vegetation Restoration Standards

The marine riparian vegetation enhancement site shall be revegetated as proposed and comply with the following standards and limitations:

a. Hooker willow cuttings shall comply with the following:

(1) Cuttings shall be taken from nearby willow trees and planted during the period of November 1 to March 1;

(2) The stakes shall be obtained from long, upright branches taken off the parent plant by cutting the branch at an angle, so that it makes a point. Live stakes shall be between 18 and 24 inches long and at least three-eighths inch (⅜″) in diameter;

(3) Leaves and small branches shall be removed from the stakes as soon as possible after cutting them, to keep the stakes from drying out;

(4) Stakes shall be planted within 24 hours of their cutting for best results. The cuttings shall be kept moist and wet by storing them in buckets or wet burlap sacks. The cuttings shall be kept in the shade until they are planted; and

(5) The stakes shall be inserted angle-cut end down a minimum of one foot deep into the streambank, with three to six inches of the cutting exposed above the ground surface to allow for leaf sprouting.

15. Retention of View Corridor.

A 20-ft.-wide view corridor, co-terminus with the 20-ft-wide vertical access easement described and depicted in Exhibit No. 5 of this staff report shall be maintained open and unobstructed for the life of the project authorized by Coastal Development Permit No. A-1-CRC-08-004. No structural improvements, except as specifically provided for herein (i.e., upper floor balcony and architectural projections and public access improvements), or large materials shall be placed or stored within the view corridor or in a manner that would obstruct views through the corridor.

16. Review of Final Subdivision Map and/or Condominium Plan

PRIOR TO THE RECORDATION OF ANY FINAL SUBDIVISION MAP AND/OR CONDOMINIUM PLAN, the permittee shall submit a copy of the final map and/or condominium plan for review by the Executive Director. If the Executive Director determines that the development has been substantively changes from that conditionally

authorized by Coastal Development Permit No. A-1-CRC-MAJ-08-004, the permittee shall secure a coastal development permit or permit amendment from the Commission prior to the recordation of the final map and/or condominium plan.

17. Future Development Deed Restriction.

This permit is only for the development described in Coastal Development Permit No. A-1-CRC-08-004. 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.

18. Effective Certification of LCP Amendment No. CRC-MAJ-1-09.

PRIOR TO THE ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-CRC-08-004, concurrence shall be obtained from the Commission with a determination by the Executive Director that the City of Crescent City acceptance of the Commission's certification Local Coastal Program Amendment No. CRC-MAJ-1-09 (Coasta Norte) is legally adequate.

19. Deed Restriction.

PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. A-1-CRC-08-004, the applicant shall submit for the review and approval of the Executive Director, documentation demonstrating that the applicant has executed and recorded against the parcel(s) governed by this permit a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to terms and conditions that restrict the use and enjoyment of that property; and (2) imposing the Special Conditions of this permit as covenants, conditions, and restrictions on the use and enjoyment of the property. The deed restriction shall include a legal description of the entire parcel or parcels governed by this permit. The deed restriction shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the terms and conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes, or any part, modification, or amendment thereof, remains in existence on or with respect to the subject property.

20. Landscaping Restrictions

Plantings throughout the project site shall be limited to native vegetation. Only those plants that are native to northern coastal habitats of Del Norte County may be planted;

A. All proposed plantings shall be obtained from local genetic stocks within Del Norte County. If documentation is provided to the Executive Director that demonstrates that native vegetation from local genetic stock is not available, native vegetation obtained from genetic stock outside the local area, but from within the adjacent region of the floristic province, may be used. 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. No plant species listed as a "noxious weed" by the governments of the State of California or the United States shall be utilized within the property that is the subject of CDP No. A-1-CRC-08-004.

B. No rodenticides of any kind shall be utilized within the property that is the subject of CDP No. A-1-CRC-08-004.

IV. FINDINGS AND DECLARATIONS:

The Commission hereby finds and declares:

A. Project History / Background.

In June 2007, the City of Crescent City accepted for filing Coastal Development Permit, Conditional Use Permit, and Variance Application Nos. CDP 07-06, UP-07-02, and V-07-08 from Randy Baugh DBA: Development Consultants, Inc., to demolish the existing Del Norte Community Health Center complex located at 200 A Street, between Second and Third Streets (APN 118-020-34) and construct a 51-unit condominium and time-share residential project together with sales/professional office space. The project would encompass 104,320 square feet of structural improvements and extend to three stories. Other proposed improvements include underground parking areas, exercise and gazebo common open space areas, public access trail facilities, landscaping, walkways, signage and exterior lighting.

Following the receipt of agency and public comments on the project, on June 14, 2007 the City Planning Commission held an informational presentation and public input meeting on the project and took no action with respect to the requested permit authorizations.

In September 2007, the City received an amended coastal development and use permit application for a revised mixed-use project (see Exhibit No. 4). Included among the modifications made to the project in response to the comments received at the June

meeting were: (1) a reduction number of residential units from 51 to 44 dwellings; (2) reducing overall floor area by 5,560 square-feet; (3) increasing on-site parking by 19 percent; (4) adding a 2,172 square-foot medical office component; (5) situating the building further from Third and A Street; and (6) making a number of architectural changes to the building. As a result of these project changes, a variance was no longer required and, instead, a concurrent architectural review (AR-07-11) was included for the project.

Following completion of the planning staff's review of the project, the preparation of a staff report, and requisite circulation of a public hearing notice, City staff set the coastal development and use permits for a hearing before the Planning Commission for December 13, 2007. The Planning Commission subsequently approved with conditions the subject development. The Council attached ten special conditions.

On December 28, 2007, the City received written correspondence from Glen Tiffany of his intent to appeal the Planning Commission decision on CDP-07-06, UP 07-08, and AR 07-11 to the City Council. On January 22, 2008, the City Council denied Mr. Tiffany's local appeal, reinstating the coastal development permit approved by its Planning Commission on December 13, 2007 and adding an eleventh project condition requiring the applicant, prior to permit issuance, to submit proof that his title to the property is not clouded by the City's 1961 abandonment of the West Second Street right-of-way.

The decision of the City Council regarding the conditional approval of the permits for the mixed use project was final. The City then issued a *Notice of Final Local Action* on January 23, 2008 that was received by Commission staff on January 24, 2008. The appellants filed their appeals to the Commission in a timely manner on January 28, 2008 and February 7, 2008, within 10 working days after receipt by the Commission of the *Notice of Final Local Action.*

On March 7, 2008, the Commission determined that the project as approved by the City raised a substantial issue of conformance with the City's certified LCP regarding: (1) the protection and provision of coastal access; (2) the permissible use, development density, minimum lot area, and lot-area-per-dwelling standards of the "Medical Related" (MR) land use designation and the implementing "Coastal Zone Residential-Professional" (CZ-RP) zoning district; (3 avoidance and minimizing exposure of persons and property to geologic and flooding hazards; (4) the protection of environmentally sensitive habitat areas; (5) protection of coastal water quality; and (6) visual resources.

The Commission also continued the *de novo* hearing and requested specific information from the applicant to assist the Commission in evaluating the consistency of the project with the LCP, including: (1) an analysis of public access uses on and near the site; (2) geotechnical evaluation of site stability and structure integrity in terms of seismic, liquefaction, subsidence, and coastal erosion, tsunami, floodwater, or storm surge inundation, and groundwater infiltration; (3) preliminary hydrologic information addressing management of erosion and stormwater, identifying water quality best management practices (BMPs) to treat, infiltrate or filter runoff and measures to be

employed during both the construction phase and permanently installed to prevent impacts to receiving coastal waters; (4) a wetlands delineation, assessment of wildlife habitat utilization, and impact analyses for the adjoining intertidal ESHA and vegetated areas; and (5) a comprehensive visual resources impact analysis evaluating the effects the project would have on views to and along the ocean and scenic areas from the principal public vantage points in the project vicinity. Copies of these items are provided in Exhibit Nos. 6 through 11.

The applicant provided this information between April 2008 and August 2009. These materials were circulated for review by the Commission's technical services unit staff geologist, coastal engineer, and biologist, who concluded that the various reports and analyses adequately addressed the coastal resources issues relating to avoidance and minimization of geologic and flooding hazards, and the protection of environmentally sensitive habitat areas.

Together with the submittal of the requested additional information, the applicant amended the proposed project, for purposes of the Commission's de novo review, making a series of significant changes to the development in response to the concerns raised by the appeals. These changes, as further described in Finding Section II.B. 2, below: (1) reduced the overall height and bulk of the structure; (2) replaced the former proposed basement parking structure with a partially at-grade facility; (3) includes dedications and improvement of public accessible vertical and lateral accessways, and access support amenities; (4) provides a view corridor within an adjoining vacated street right-of-way; (5) set the elevation of the floors of all residential units at a minimum height of one foot above the modeled depth for tsunami runup at the site, taking into account sea level rise; (6) proposed specific design criteria to ensure that catastrophic structural failure of the residential building from wave-strike and back scour from potential tsunami inundation; and (7) incorporated on-site water quality stormwater treatment features into the design of the site improvements to prevent impacts to receiving coastal waters.

Concurrent with the applicant's collation of additional information and revisions to the project design, the City undertook amending the LCP permissible use provisions and development standards with which the proposed condominium project would not comport. On April 30, 2009, the City submitted LCP Application No CRC-MAJ-1-09 for the Commission's consideration for certification. On June 12, 2009, the Commission conditionally certified the LCP amendment recommending that nine suggested modifications to bring the land use plan amendments into conformance with the Chapter 3 policies of the Coastal Act and to ensure that the amendments to the implementation programs would be consistent with, and adequately carried out, the policies of the amended LUP. On October 19, 2009, the City adopted Resolution 2009-38, accepting the Commission's nine suggested modifications. However, the City has not yet completed actions to adopt the necessary zoning ordinances to implement the suggested modifications, and thus the LCP amendment has not yet been effectively certified.

B. <u>Project and Site Description</u>.

1. Project Setting

The subject site is located along the ocean shoreline within the incorporated limits of the City of Crescent City, at 200 "A" Street between Second and Third Streets, approximately 1,000 feet northeast of the Battery Point Lighthouse. The subject property encompasses approximately 1.24-acre and extends across the width of one city block between Second and Third Streets, westerly of "A" Street, at the former site of the Del Norte Community Health Clinic (see Exhibit Nos. 1-3). Elevations at the property range from 20 to 24 feet above mean sea level. Following relocation of the clinic to a location in the vicinity of the Sutter Coast Hospital on Washington Boulevard in northern Crescent City, use of the project site for medical facilities was discontinued. The site was subsequently sold to the applicant in 2007.

The project site's primary frontage is along "A" Street, which functions as a sub-collector route, conveying vehicular and other modes of traffic from the residential areas to the north to and from the open space and public facility areas adjacent to the Crescent City Harbor to the southeast. Land uses in the immediate vicinity of the property to the north are primarily single-family residential in character, with a hotel and future phased restaurant development located directly to the south of the project site between Second and Front Streets, at the former site of the Seaside Hospital, razed in 1994.

The subject property is designated with a "Multi Family" residential designation (MF) on the certified land use plan map. The MF land use designation provides for common wall residential development, such as apartment buildings, condominiums, townhouses, and row houses, at greater than six units per acre, to be implemented by duplex residential and mixed residential-professional office zoning. Compatible visitor-serving commercial and recreational uses, including vacation rental units and other transient overnight accommodations, may also be developed on oceanfront sites provided they are of a type and intensity so as to not detract from the intended primary residential character of the designation. In addition to identifying sites for dwelling group-based housing, the purpose of the Multi Family land use designations is stated as intended for to establish a transition to between one-family residential areas and adjoining commercially-zoned properties. The project parcel is situated between the Hall's Bluff single-family residential neighborhood area to the northwest and a commercial waterfront district to the southeast, developed with a *Hampton Inns and Suites*.

The property is zoned Coastal Zone – Residential Professional (CZ-RP). Adjoining residentially developed properties are zoned CZ-RP and Coastal Zone – Single-Family District (CZ-R1), with the adjoining phased hotel/restaurant complex having "Coastal Zone Commercial Waterfront" (CZ-CW) zoning.

The subject property is currently developed with a one-story, approximately 10,000-square-foot, one-story former medical clinic building and an additional approximately 25,000 square-feet of paved exterior off-street parking areas. The easterly ⅔ of the site is generally flat with the rear ⅓ of the lot sloping slightly downward toward the adjoining

beach. Vegetative cover across the undeveloped northwesterly ⅓ of the parcel consists of a mixture of native coastal willow (*Salix hookeriana*), Pacific wax-myrtle (*Myrica californica*), non-native shrubs and vines, including Himalaya blackberry (*Rubis discolor*), iceplant (*Carpobrotus* sp.), and upland grasses and ruderal forbs, including velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), common vetch (*Vicia sativa*), California aster (*Aster chilensis*), and white clover (*Trifolium repens*), grading seaward into wild radish (*Raphanus sativus*), and native dunegrass (*Leymus mollis*). Although the project site is located immediately landward of an open beach and rocky intertidal area containing a low diversity of sensitive marine organisms including rockweed and encrusting brown algae (*Fucus* sp.) scattered clusters of barnacles (*Balanus, Chthalamus,* and *Pollicipes* sp.), and limpets (*Acmea* sp.), there is no environmentally sensitive habitat on the property.

The parcel is not located within a formally designated highly scenic area, as the City's LCP does not make that distinction for any specific sites, but focuses instead on the "scenic highway corridor" visible from Highway 101 at the City's southern entrance. Nevertheless, views from the project site are spectacular, consisting of nearby headlands, the Battery Point Lighthouse, and numerous offshore sea stacks. Due to the terrain of the property and the presence of adjoining residential-profession development, views to and along the coast from immediately in front of the project site from public streets and other vista points are somewhat constrained.

Along the western low bluff edge, an approximately three-foot-high, eight-foot-wide vegetated revetment, composed of greenstone quarry rock, concrete demolition riprap, soil, and wrack debris separates the upper terraced portion of the property from the open beach face. This shoreline protection structure was erected at the request of the Del Norte Local Hospital District by the County Road Department in April-June, 1964, prior to passage of the Coastal Initiative, to stabilize the bluff from damage caused by the tsunami generated from the March 28, 1964 Anchorage Alaska great earthquake.

Seaward from the toe of the revetment, the beach face consists of a narrow, approximately 100-ft.-wide sand and cobble covered area grading into a rocky intertidal zone. The immediately adjacent sandy beach area is considered a "marine / intertidal /sandy unconsolidated shore / regularly-flooded" (M2US2N) wetlands, and is depicted as such on the U.S. Fish and Wildlife Service's National Wetland Inventory maps.[1] The immediate offshore area is occupied by numerous partially submerged rocks and stacks. To the south of the property, the beach passes in front of the adjoining hotel and future restaurant sites then narrows into a steep cliff along the flanks of the Battery Point headland. No sensitive habitat is present on the property itself.

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[1] Refer to U.S. Fish and Wildlife Service - Office of Biological Services' Publication No. FWS/OBS-79/31 "Classification of Wetlands and Deepwater Habitats of the United States" (Lewis M. Cowardin, et al, USGPO December 1979) for a further discussion of the definition of the extent of wetland habitats.

The project site lies within the incorporated boundaries of the City of Crescent City, completely within the City's certified permitting area. Thus, the development is subject to the policies and standards of the City of Crescent City certified Local Coastal Program (LCP).

2. Project Description

The proposed development, as amended for purposes of the Commission's *de novo* review, consists of a 37-unit residential condominium complex, comprised of that would entail the construction of approximately 35,306 square-feet of building floor area and outdoor yard improvements, together with associated off-street parking, walkways, landscaping, and other related amenities. In addition to the main residential building other site improvements would include the construction of paved and flagstone vertical and lateral accessways, an approximately 800-square-foot gazebo-covered coastal viewing platform, deck, and patio, the installation of a biofiltration-based stormwater drainage collection, conveyance, and pre-treatment system, and the planting of approximately 1,000 square-feet of marine riparian Hooker willow shrubs at a 2:1 replacement ration to compensate for the area cleared to construct the proposed viewing platform amenities (see Exhibit No. 5).

The proposed condominium units are identified as a principally permissible use under both site's land use and zoning designations as being a form of common-wall residential development. The viewing platform is considered a subordinate, ancillary accessory structure.

Domestic water supplies and sewage disposal services would be provided to the development from the City of Crescent City's municipal water and wastewater systems.

C. Public Access.

1. Summary of Coastal Act and LCP Provisions

a. Coastal Act Access Policies

Projects located within the coastal development permit jurisdiction of a local government are subject to the coastal access policies of both the Coastal Act and the LCP. Coastal Act Sections 30210, 30211, and 30212 require the provision of maximum public access opportunities, with limited exceptions. Section 30210 states that maximum access and recreational opportunities shall be provided 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 states that 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 states that public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where it is inconsistent with public safety, military security

needs, or the protection of fragile coastal resources, adequate access exists nearby, or agriculture would be adversely affected.

b. LCP Provisions

Policy No. 1 of Chapter 1 – "Public Access" of the City of Crescent City Land Use Plan (LUP)states, in applicable part:

> *The City recognizes the importance of access to and along the shoreline… If, in the future, the City finds that existing public accessways are inadequate to meet recreational needs, it shall encourage the development of additional accessways consistent with the City's ability to pay maintenance costs and obtain adequate funding to develop said areas.*

Policy No. 3 of Chapter 1 – "Public Access" of the City of Crescent City Land Use Plan (LUP) reads as follows:

> *For any new development at the former Del Norte Community Health Center site (APN 118-020-34), including any multi-family residential, recreational, or visitor serving commercial development, the City, or the Commission on appeal, shall require, if consistent with the criteria identified below: (a) an offer of dedication to the City or other public or private association acceptable to the Executive Director of the California Coastal Commission of a vertical public accessway to the beach following the alignment of the Second Street public right-of-way, extending west of A Street and including the portions of the existing informal trail down onto the adjoining beach; and/or (b) the development of public access support facilities, such as viewing platforms or vehicular parking spaces reserved for coastal access users. The configuration of the accessway shall be designed in a manner such that it may be connected to the Wendell Street right-of-way for possible future extension of a trail northwesterly to the Third Street accessway, and may be connected to the southwest to the adjacent Hampton Inn and Suites accessway. The accessway and/or support facilities shall be required if the approving authority finds that the proposed development would either create significant adverse individual or cumulative impacts on existing access facilities or would result in an increase in public demand for public access facilities and that the offer of dedication and/or public access support facilities would alleviate the impacts and be reasonably related to the impacts in nature and extent. Either the City or another agency or nonprofit entity approved by the Executive Director of the Coastal Commission, may accept any offers of dedication.*

Policy No. 4 of Chapter 1 – "Public Access" of the City of Crescent City Land Use Plan (LUP) states, in applicable part:

> *The City shall assure that the public can easily locate existing access points… The present access points are identified in the General Conditions section of this element and are again identified as: Preston Island, Sixth Street, Third Street, Fifth Street, Battery Point, Howe Drive, and Sunset Circle.* [Emphasis added.]

In its application of these policies, the Commission is limited by the need to show that any denial of a permit application based on this section, 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.

2. Discussion

The LUP identifies eight coastal access points within the bounds of Crescent City. Table 1, below, summarizes the location and features of these beach access points:

Table 1: Inventory of Crescent City Coastal Access Points

Facility Name	Location	Distance from Project Site	Features
Preston Island	Northwest Oceanfront	1¼ mi. to northwest	Paved vertical accessway leading to ½-¾ mi. of lateral access along Pebble Beach, developed with numerous off-street parking spaces, picnic tables, and litter receptacles
Sixth Street	Western Street End	±⅜ mi. to northwest	Improved footpath providing access to beach below Halls Bluff with limited on-street parking (4 spaces)
Fifth Street	Western Street End	±¼ mi. to northwest	Unimproved footpath entry to ¾-1 mi. lateral access to beach areas between Halls Bluff and Battery Point with very limited on-street parking (1-2 spaces)
Fourth Street	Western Street End	±⅛ mi. to northwest	Unimproved footpath entry to ¾-1 mi. lateral access to beach areas between Halls Bluff and Battery Point with very limited on-street parking (1-2 spaces)
Third Street	Western Street End	±500 ft. to northwest	Unimproved footpath entry to ¾-1 mi. lateral access to beach areas between Halls Bluff and Battery Point with very limited on-street parking (1-2 spaces)

Facility Name	Location	Distance from Project Site	Features
Hampton Inn Beach and Blufftop Trails	Hotel Perimeter	Adjacent to southwest	Paved vertical/lateral access loop to and along low blufftop edge with two spur trails leading to adjoining beach below hotel and former medical clinic.
Battery Point	Southwest Oceanfront	±⅛ mi. to southwest	Paved accessway to Battery Point Lighthouse and Museum, and "B" Street Pier developed with approximately 40 off-street parking spaces, restrooms, picnic tables, and interpretive displays.
Howe Drive	Northwest of Harbor	±¼ mi. to southeast	Public road along southern side of Beachfront Park providing 2,000 feet of direct unimproved access to the Crescent City Harbor
Sunset Drive	Northeast of Harbor	±¾ mi. to southeast	Public road along eastern side of southern side of Crescent City Harbor providing access the mouth of Elk Creek and harbor through a dedicated 50-ft-wide right-of-way across private RV park

Six of these beach access points are available for use within a reasonably short distance (±¼ mile) from the project site. In addition, an informal trail, starting at the parking lot on the adjacent medical clinic, runs across the north side of the property down to the western beachfront. The beach areas west of the project site are subject to a public trust easement. Moreover, as the site is unfenced along the former clinic's southern parking lot, it is physically possible to walk across the lot.

Dedicated Public Access Facilities

As proposed under the amended project description, the applicant would dedicate two public accessways and a viewing platform access support facility to the City of Crescent City or another appropriate nonprofit entity as part of the project improvements:

(1) Vertical Beach Access – a 20′ wide public trail access easement from "A" St along the 240 lineal-foot southeastern side of the property comprising the southeast third of the vacated West Second Street right-of-way, connecting to the lateral beach accesses described in (2) below, The proposal includes constructing a landscaped, roughly five-foot-wide sidewalk from "A" St to the lateral bluff top trails in (2) below. A roughly

four-foot-wide stairway improvement would be made at the western terminus of the vertical accessway down onto the beach.

(2) Lateral Bluff Top Trail Access – two four-foot-wide flag-stone public trails would diverge off from the vertical accessway, one running southerly to the southwestern property line to connect to the adjoining Hampton Inn loop accessway, and one running northward along the rear of the project property, leaving the 20-foot-wide vertical easement and continuing approximately 80 lineal-feet within a coterminus easement to the viewing platform described in (3) below.

(3) View Platform Access Support Facility – a roughly 800-square-foot, public accessible viewing platform amenity, consisting of an uncovered patio with barbeque grill with stairs and a ramp up to an elevated deck. This facility would be available for use by the public from one hour before sunrise to one hour after sunset, before and afterwhich the facility would be gated off from the lateral trail leading up to the platform.

The above accessways are proposed to be dedicated to the City of Crescent City in a manner consistent with the standards to typically applied by the Commission and including the following dedication and recordation procedures:

- The provision of legal descriptions of both the entire project site and the area of dedication shall be provided at the time of recordation;
- The dedications shall be recorded free of prior liens and any other encumbrances which the Executive Director determines may affect the interest being conveyed;
- The dedications shall require that any future development that is proposed to be located either in whole or in part within the area described in the recorded dedication shall require a Commission amendment, approved pursuant to the provisions of 14 CCR Sec 13166; and
- The dedications shall be submitted for the review and approval of the Executive Director.

The project developer would also be responsible for building the specified trail improvements. Given the adequacy of both on-street parking spaces and the presence of six dedicated spaces within the adjoining hotel/restaurant parking lot, no additional dedicated parking spaces are needed to serve the vertical/lateral accessways and viewing platform uses.

These access facilities have been proposed by the applicant in the interest of complying with the above-cited LUP Chapter 1 Policy No. 3. The policy requires that for approval of any new residential or visitor serving commercial development at the project site, the development shall require an offer of dedication be made for public access to an appropriate grantee if the proposed development would create significant adverse individual or cumulative impacts on the public's demand for and use of public access

facilities, and the offer of dedication would alleviate the impacts and be reasonably related to the impacts in nature and extent. LUP Chapter 2 Policy No. 3 further set minimum criteria for the location and design of any access facilities that may be required of new development at the project site as follows: (1) any lateral accessways to the beach must be a minimum of 20 feet in width and be located within the southeasterly third of the West Second Street right-of-way extending from "A" Street to the mean high tide line along the property's western property line and include the existing informal access path that leads down to the adjoining beach; (2) any associated access support facilities must allow for use by the public; (3) the vertical and associated lateral accessway dedications must be sited as to allow for connection to the adjoining southerly Hampton Inn Loop Trail, and provide for future connection to Wendell Street to the northwest; and (4) such dedications may only be required if the approving authority finds that the proposed development would either create significant adverse individual or cumulative impacts on existing access facilities or would result in an increase in public demand for public access facilities and that the offer of dedication and/or public access support facilities would alleviate the impacts and be reasonably related to the impacts in nature and extent.

The proposed offers of dedication meet the design and location, and sanctioned public use standards set forth in Public Access Policy No. 4. With respect to the connection and proportionality of the offers in terms of being a require of permit issuance, the proposed development would result in the creation of 37 new 1-, 2-, and 3-bedroom condominium units which would attract new residents to this area of the Crescent City oceanfront. As occupancy rates within the timeshare portions of the complex would vary, depending upon the time of year, the amount of occupants would similarly fluctuate, likely peaking during the summer and fall tourist season with a lull during the winter-spring off-season. Regardless of these annual variations in occupancy patterns, the development would significantly increase access activity at the project site and at the adjoining access facilities compared to that currently generated by the shuttered former medical clinic.

However, as the applicant has proposed offers to dedicate vertical, lateral, and viewing platform and trail improvement easements for vertical public access as described above, the proposed development as conditioned would not adversely affect any public access that may exist. Therefore, the Commission need not perform an exhaustive evaluation of the impacts of the project on public access as public access to the sea would be protected consistent with these provisions. The dedicated easements would provide new vertical and lateral accessways to the beach area and blufftop in front of the condominium site, resulting in a increase in the overall number of beach access points within the City. Both condominium residents as well as the general public would be afforded an additional access point to the Hall's Bluff to Battery Point beach areas. Additionally, the proposed blufftop path would provide approximately 80 lineal feet of lateral access and an elevated viewing facility, which would serve to offset the loss of views to and along the coast from "A" and Third Streets, and through the vacated West Second Streets right-of-way and former clinic parking lot.

In addition, 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. 16,

which requires recordation of a deed restriction stating 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 to ensure that the project will not be sited where it might have significant adverse impacts on public access resources.

Consistent with the provisions of LUP Chapter 1 Policy No.3, the applicant has included the dedication of public access within the proposed project description. The Commission attaches Special Condition Nos. 1 through 3. Special Condition Nos. 1 through 3 requiring the applicant to execute and record offers of dedication of the easements consistent with the applicant's revised project description, prior to issuance of the coastal development permit in conformance with LUP Chapter 1 Policy No. 3. The Commission further finds that the proposed dedicated accessways conforms to the design and location criteria enumerated within LUP Chapter 1 Policy No. 3.

3. Conclusion

Therefore, the Commission finds that the project as proposed is consistent with the certified City of Crescent City LCP and the public access and recreation policies of the Coastal Act

D. Planning and Location of New Development.

1. Relevant LCP Provisions and Standards:

LUP Growth and New Development Policy 4 states, in applicable part:

> …*New urban development should be located in existing urbanized areas to achieve economics in the provision of public services and facilities.*

Section 17.63 of the Coastal Zone Zoning Regulations (CZZR) directs, in applicable part, that:

> *A. A building shall only be erected, converted, reconstructed, or structurally altered, and any building or land shall only be used for any purpose as permitted in the district in which such building or land is located.*
> *B. A building shall only be erected, reconstructed, or structurally altered which complies with the height or bulk limits established in these regulations for the district in which such building is located.*
> *C. The lot area shall be so preserved that the yards or other open spaces shall be as prescribed in these regulations…*

Section 17.76.010 of CZZR Chapter 17.76 – Coastal Zone Off-Street Parking states, in applicable part:

> *…It is unlawful for any person, firm or corporation who owns, leases, or controls a building or structure to fail, neglect or refuse to provide and maintain off-street parking and loading facilities as required in this chapter.*

2. Discussion:

The *Coasta Norte* development project would be located in a transitional mixed-use area of the City within its urban services boundary. The site abuts three improved public streets with existing subsurface domestic water supply, wastewater collection, and stormwater conveyance infrastructure. Emergency response, public safety, and other public services and utilities are available to serve the density of proposed residential uses. The site abuts Second and "A" Streets, classified under the City's circulation system as a local street and a collector route, respectively.

With respect to conformance with permissible use restrictions height, bulk, and other development regulations of the Multi Family land use designation and Coastal Zone Residential-Professional Zoning District in which the project site is located, and other prescriptive standards within the zoning code, Table 1 below summarizes the proposed development's compliance with these requirements:

Table 1: Project Conformance with Multi Family Land Use Designation and Coastal Zone Residential-Professional Zoning District Prescriptive Standards and City Development Regulations

Development Parameter	Standard or Requirement	Proposed	Consistent	Inconsistent
Permitted Uses (LUP *Multi Family* category; CZZR §17.67.020)	Various	Condominiums AKA: "Townhouses"	✓	
Maximum Residential Density (LUP *Multi Family* category)	> 6 d.u./ac.	±30 d.u./ac.	✓	
Maximum Building Height (CZZR §17.67.030.A)	35′	32′ (excluding parapet)	✓	
Minimum Front Yard (CZZR §17.67.030.B.1)	20′	20′ 4″	✓	
Minimum Side Yards (CZZR §17.67.030.B.2)	5′	±5′ (main building) ±7′ 6″ (viewing platform)	✓	
Minimum Rear Yard (CZZR §17.67.030.B.3)	10′	35′ (main building)	✓	
		<1′ (viewing platform)	✓*	
Lot Area (CZZR §17.67.030.B.4)	6,000 sq.-ft.	1.24 ac.	✓	
Lot Area per Dwelling Unit (CZZR §17.67.030.B.5)	1,250 sq.-ft. / d.u.	±1,460 sq.-ft. / d.u.	✓	
Maximum Lot Coverage	"same as required in	65%	✓	

Development Parameter	Standard or Requirement	Proposed	Consistent	Inconsistent
(CZZR §17.67.030.B.6)	most restrictive zone first permitted" (i.e., 65% in inland RP district)			
Off-street Parking Facilities				
• Spaces Required (CZZR §17.76.040.B)	56 (1½ spaces / d.u.)	66	✓	
• Location (CZZR §17.76.090.A.3)	≤300 ft of use	All spaces ≤300 ft from dwelling units	✓	
• Stall, Aisle, Lot Dimensions (CZZR §§17.76.120, 17.76.170, & 17.76.180)	Various	Numerous stalls and aisles with substandard widths and/or depths;		✓**
• Stall Accessibility (CZZR §§17.76.120.E)	Independently accessible	16 tandem stalls		✓**
• Landscaping (CZZR §§17.76.120.M)	a. Planter ≥ 36″ width with acceptable irrigation system planted/maintained with evergreen shrubs b. One tree for every five spaces, minimum ≥ ¾″ caliper in size at time of planting, placed in tree wells provided with a means of irrigation and maintained in a living condition	Not specified		✓**
Signage (CZZR Chapter 17.74)	Various	None specified	✓***	
Fencing (CZZR Chapter 17.75)	Various	None specified	✓***	

* Per the building placement standards of CZZR Section 17.67.040, covered patio and accessory structures (e.g., viewing platform deck, stairs, and ramp) may encroach into rear yard setback provided they do not exceed 50% of required yard area, a minimum five-foot-wide area is provided between the side yard and between the accessory structure and the main building, and the accessory structure is not constructed until the main building has been roofed and sided.
** Revised parking lot plan in conformance with CZZR Chapter 17.76 required by Special Condition No. 4.
*** Any subsequently identified fencing or signage is required to be consistent with applicable standards under Special Condition No. 4.

As indicated in Table 1, several aspects of the proposed development's enclosed off-street parking facility would not meet the prescriptive standards of the coastal zoning code. According, to ensure that the development is consistent with Section 17.76.010 of the coastal zoning regulations, the Commission includes within Special Condition No. 4 that a revised parking plan consistent with all off-street parking facility standards to be submitted for the review and approval of the Executive Director.

Therefore, for the reasons stated above the Commission finds that proposed development amendment with the imposition of Special Condition No. 4, is consistent with CZZR

Section 17.63 and Chapter 17.76 to the extent that the residential uses that would result from development of the proposed condominium project are permitted by the LCP, would be located in an urbanized area with adequate services, and the project would meet all development regulations of the land use plan and zoning designations in which they would be located. Thus, the Commission finds that the proposed LCP amendment as conditioned is consistent with planning and location of new development policies of the LCP.

E. Geologic and Flooding Hazards.

1. Summary of LCP Provisions

LUP Chapter 5 – *Diking, Dredging, Filling and Shoreline Structures*, Policy No. 3 states:

> *The City shall require that new development minimize risks to life and property in areas of high geologic hazard, 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.*

LUP Chapter 5 – *Diking, Dredging, Filling and Shoreline Structures*, Policy No. 4 states, in applicable part:

> *4.b. New residential subdivisions situated within historic and modeled tsunami inundation hazard areas, such as depicted on the tsunami hazard maps described in 2.a. above, shall be designed and sited such that the finished floor elevation of all new permanent residential units are constructed with one foot of freeboard above the maximum credible runup elevation as depicted on the most recent government prepared Tsunami Hazards Maps, or as developed by local agency modeling, whichever elevation is greater, taking into account sea level rates of three to six feet per century. Additionally, all such structures containing permanent residential units shall be designed to withstand the hydrostatic and hydrodynamic loads and effects of buoyancy associated with inundation by storm surge and tsunami waves up to and including the tsunami runup depicted on the Tsunami Hazard Maps, without experiencing a catastrophic structural failure. For tsunami resilient design purposes, a minimum sea level rise rate of 3 feet per century shall be used when combined with a maximum credible tsunami condition. For purposes of administering this policy, "permanent residential units" comprise residential units intended for occupancy as the principal domicile of their owners, and do not include timeshare condominiums, visitor-serving overnight facilities, or other transient accommodations.*

LUP Chapter 5 – *Diking, Dredging, Filling and Shoreline Structures*, Policy No. 5 states:

> *All new development entailing the construction of structures intended for human occupancy, situated within historic, modeled, or mapped tsunami inundation hazard areas, shall be required to prepare and secure approval of a tsunami safety plan. The safety plan shall be prepared in coordination with the Del Norte County Department of Emergency Services, Sheriff's Office, and City Police Department, and shall contain information relaying the existence of the threat of tsunamis from both distant- and local-source seismic events, the need for prompt evacuation upon the receipt of a tsunami warning or upon experience seismic shaking for a local earthquake, and the evacuation route to take from the development site to areas beyond potential inundation. The safety plan information shall be conspicuously posted or copies of the information provided to all occupants. No new residential land divisions shall be approved unless it be demonstrated that timely evacuation to safe higher ground, as depicted on adopted tsunami hazard maps, can feasibly be achieved before the predicted time of arrival of tsunami inundation at the project site.*

LUP Chapter 5 – *Diking, Dredging, Filling and Shoreline Structures*, Policy No. 6 states:

> *The best available and most recent scientific information with respect to the effects of long-range sea level rise shall be considered in the preparation of findings and recommendations for all requisite geologic, geo-technical, hydrologic, and engineering investigations. Residential and commercial development at nearshore sites shall undertake a design sensitivity analysis utilizing a range of potential sea level rise scenarios, from a minimum of two to three feet per one hundred years and including higher rise rates of rise of five to six feet, as well as 10 feet in one hundred years. The analysis shall also consider localized uplift or subsidence. A similar sensitivity analysis shall be performed for all critical facilities, energy production and distribution infrastructure, and other development projects of major community significance using a minimum rise of 4.5 feet of sea level rise in 100 years. The analysis shall identify sea level rise thresholds after which limitations in the development's design and siting would cause the improvements to become significantly less stable. These sensitivity analyses shall be used to identify unanticipated site hazards and to help guide site design and hazards mitigation.*

LUP Chapter 5 – "*Diking, Dredging, Filling, and Shoreline Structures*" Policy No. 7 states:

> *The City shall include a condition in the approval of all new development on ocean fronting parcels that no shoreline protective structure shall be*

allowed in the future to protect the development from bluff erosion. Prior to the issuance of a coastal development permit for the development, a deed restriction acceptable to the Planning Director shall be recorded memorializing the prohibition on future shoreline protective structures.

2. Discussion

The applicant is proposing to construct a new 37-unit residential condominium project on a ocean-fronting low blufftop parcel. Along the western margin of the project site, an approximately three-foot-high, four to twenty-foot-wide vegetated revetment, composed of greenstone quarry rock, concrete demolition riprap, soil, and wrack debris separates the upper terrace portion of the property from the open beach face. This shoreline protection structure was erected at the request of the Del Norte Local Hospital District by the County Road Department in April-June, 1964 to stabilize the bluff from damage caused by the tsunami generated from the March 28, 1964 Anchorage Alaska great earthquake. As discussed further below, available evidence demonstrates that the stretch of coastal bluff that includes the subject property has experienced very low rates of bluff retreat at least during the last forty years. Nevertheless, due to its oceanfront location and the composition of underlying materials, the project site is subject to exposure to three principal types of geologic hazards: (1) coastal bluff erosion from direct wave and wind attack; (2) liquefaction associated seismic shaking of soils with low shear strength; and (3) potential tsunami inundation from both distant and nearby seismic events.

Coastal Bluff Erosion

The coastal bluffs adjacent to the Pacific Ocean in this area are subject to erosion from dynamic and changing conditions. The rate of erosion over any given span is dependent upon a number of complex variables, including the composition of the beachfront materials, the degree of their exposure to erosional forces, the height of tides, the severity of storms and storm surges, and the seasonal variation in the amount of material on the beach. The potential exposure of persons and property to significant geologic hazards during the economic life of the project, and the potential for future construction shoreline protective devices to protect the development were among the substantial issues of the appeal filed on the City's approval of the project. To further address these issues, the applicant hired a consultant to prepare a detailed geo-technical analysis (see Exhibit No. 6).

A literature review conducted by the applicant's geologist, Bob Busch, CEG, found that there is contradictory information as to the rate and severity of coastal erosion of the shoreline in the vicinity of the project site. Although some documents identified this portion of the oceanfront to be undergoing coastal erosion which "has been progressive, (and) is now critical along several areas of the beach" (U.S. Army Corps of Engineers), other studies concluded extremely low rates of bluff retreat, or concluded that "in some areas the shoreline has actually seemed to 'grow' outward" (Richard B. Davis Company).

An examination of aerial photography and beach cross-sectional logs indicates that, with the exception of minor changes possibly related to the clean-up of debris along the beachfront following the 1964 tsunami, the position of the project site bluff top has remained constant. This observation would indicate an effective bluff retreat rate of 0 feet per year, at least over the past 38 years. The negligible observed rate of retreat is due in part from the presence of the apparently unengineered revetment materials placed in 1964. With respect to the estimated rate of bluff retreat, Dr Busch concluded:

> Based on an analysis of stereo pairs of aerial photographs of the site vicinity flown between 1963 and 2000, we conclude that, within the limits of our mapping accuracy (about 5 ft ±), the position of the back beach-land contact, as defined by the presence of the rip-rap, has remained constant on the site since at least 1963. We conclude that the average erosion rate at the site, with the rip-rap in place, has been 0″ /yr. for this interface.

The applicant's geologist surmised that several site specific factors may account for the low recent retreat rate, such as the presence of energy dissipating offshore rocks, the cobble-armored beachfront which further absorbs wave energy and reduces the amount of seasonal movement of beach materials, and the relative outpacing of sea-level rise (1.8 mm/yr) by tectonic uplift along this section of the coast (~2.6 mm/yr). However, Dr. Busch conceded to the limitations on available information on which to base a long-range bluff retreat rate. Furthermore, in consideration of other coastal erosive forces, Dr. Busch stated:

> At the DCI site, where there is no bluff but there is outcropping Franciscan sandstone on the beach and boulder rip-rap at the interface between the back-beach and land, there is no indication that there has been erosion since 1964. The continuity of the sandstone outcrops on the beach and between the beach outcrops and the site subsurface is unknown, but only KJfs bedrock lithologies are exposed in the base of the bluff between Battery Point and 9th Street. Although the Saint George Formation is present on the DCI site above Franciscan lithologies, it apparently is only a few feet thick.
>
> Although erosion-resistant Franciscan lithologies with top-of-rock elevations between about 17 ft MSL (on the beach) and 8 ft MSL underground (see Table 1) reduce the erosion potential at the site, to be conservative we calculated a setback using a 3"/year erosion rate (rather than the 4"/yr rate reported for Kampf Park) because the DCI site is protected by offshore rocks, onshore rocks, rip-rap, a headland to the north-northwest, and harbor breakwaters to the southwest… Using a rate of 3"/yr and a project lifespan of 75 years yields a setback of 18.75 ft from the landward edge of the back-beach. The DCI development plan (Figures 3A and 3B) indicates that the most seaward part of the structure will be set back 44 feet, a factor-of-safety of 2.4.

Accordingly, based upon the applicant's geologists conclusions, the previous layout of the proposed condominium building at a proposed 44-ft. setback would provide a factor-of-safety of approximately 2.4 based upon an estimated 3"/yr erosion rate.

The Commission's staff geologist generally concurred with the study methodology and approach taken by the applicant's geologist in preparing the geo-technical analysis. However, as was reflected in his review memorandum regarding his evaluation of the adjoining hotel project in 2001, with respect to the concluded erosion resistance of the bluff at the site, Dr. Johnsson stated:

> A long-term erosion rate of zero is clearly not supportable for any coastal bluff, regardless of lithology — unsupported slopes simply cannot persist indefinitely in the presence of even the most modest erosion, much less that expected at a coastal bluff. The rate of three inches per year arrived at for the top of the bluff is somewhat low, based on Commission experience elsewhere on the California coast. Nevertheless, unambiguous site-specific data do not contradict this low rate… Accordingly, in the absence of more compelling data, the value of 3 inches/year proposed in the Busch report is acceptable. Assuming a 75-year design life for the structure, this translates to a 19 foot structural setback. To this should be added a buffer to offer an increased factor of safety to protect foundation elements at the end of the 75 year design life. Although this buffer may be determined by the project engineer, a default value of 5 feet, given the low height of the coastal bluff, is recommended. Thus, I recommend a minimum of 24 feet for a structural setback for the development. Given the inherent uncertainty in predicting geologic processes into the future, the Commission rarely has approved less than a 25 foot setback. Accordingly, a 25 foot setback is probably appropriate, and a 30-foot setback would provide a small [FS = 1.2] additional margin of safety.

As the development: (1) provides for a greater setback from the bluff edge than that recommended by both the applicant's geologist and the Commission's Staff Geologist; and (2) does not allow for the construction of shoreline protective devices except those which would protect principal structures that existed on March 14, 2001, the proposed hotel structure will be designed and located so as to minimize risks to life and property from bluff retreat consistent with LUP Chapter 5, Policy No. 3.

To assure that the proposed new development minimize risks to life and property in areas of high geologic hazard, 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 Commission attaches Special Condition Nos. 4 and 5. Special Condition Nos. 4 and 5 requires that the final design and construction plans, including foundations, grading and drainage plans, be consistent with all recommendations of the geotechnical report. In addition, prior to the

issuance of the permit, the permittee must submit for the review and approval of the Executive Director 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 approved geologic evaluation.

The applicant is proposing to construct a residential that would be located adjacent to a low bluff top that is gradually eroding. Thus, the development would be located in an area of high geologic hazard. The new development can only be found consistent with the above-referenced provisions if the risks to life and property from the geologic hazards are minimized and if a protective device would not be needed in the future. The applicant has submitted information from a geologist which states that if the new development is set back as little as 19 feet from the bluff edge, it would be safe from erosion and would not require any devices to protect the proposed development during its useful economic life. To compensate for potential variations in the rate of retreat, particularly the possibility for accelerated erosion the setback, a factor-of-safety coefficient is applied to the setback, ranging from 1.5 to 2.0, depending upon site characteristics. With the proposed development sited at 44 feet from the bluff edge, a de facto factor-of-safety of approximately 2.4 would be realized.

Although a comprehensive geotechnical evaluation is a necessary and useful tool that the Commission relies on to determine if proposed development is appropriate at all on any given blufftop site, the Commission finds that a geotechnical evaluation alone is not a guarantee that a development will be safe from bluff retreat. It has been the experience of the Commission that in some instances, even when a thorough professional geotechnical analysis of a site has concluded that a proposed development will be safe from bluff retreat hazards, unexpected bluff retreat episodes that threaten development during the life of the structure sometimes still do occur. Examples of this situation include:

- The Kavich home at 176 Roundhouse Creek Road in the Big Lagoon Area north of Trinidad (Humboldt County). In 1989 the Commission approved the construction of a new house on a vacant blufftop parcel (Permit No. 1-87-230). Based on the geotechnical report prepared for the project it was estimated that bluff retreat would jeopardize the approved structure in about 40 to 50 years. In 1999 the owners applied for a coastal development permit to move the approved house from the blufftop parcel to a landward parcel because the house was threatened by 40 to 60 feet of unexpected bluff retreat that occurred during a 1998 El Nino storm event. The Executive Director issued a waiver of coastal development permit (No. 1-99-066-W) to authorize moving the house in September of 1999.

- The Denver/Canter home at 164/172 Neptune Avenue in Encinitas (San Diego County). In 1984 the Commission approved construction of new house on a vacant blufftop lot (Permit 6-84-461) based on a positive geotechnical report. In 1993, the owners applied for a seawall to protect the home (Permit Application

No. 6-93-135). The Commission denied the request. In 1996 (Permit Application 6-96-138), and again in 1997 (Permit Application No. 6-97-90) the owners again applied for a seawall to protect the home. The Commission denied the requests. In 1998, the owners again requested a seawall (Permit Application No.6-98-39) and submitted a geotechnical report that documented the extent of the threat to the home. The Commission approved the request on November 5, 1998.

- The Bennett home at 265 Pacific Avenue, Solana Beach (San Diego County). In 1995, the Commission approved a request to construct a substantial addition to an existing blufftop home (Permit No. 6-95-23). The minimum setback for the area is normally 40 feet. However, the applicants agreed to waive future rights to shore/bluff protection if they were allowed to construct 25 feet from bluff edge based on a favorable geotechnical report. The Commission approved the request on May 11, 1995. In 1998, a substantial bluff failure occurred, and an emergency permit was issued for a seawall. The follow-up regular permit (No. 6-99-56) was approved by Commission on May 12, 1999. On August 18, 1999, the Commission approved additional seawall and upper bluff work on this and several other properties (Permit No. 6-99-100).

- The McAllister duplex at 574 Neptune Avenue, Encinitas (San Diego County). In 1988, the Commission approved a request to construct a duplex on a vacant blufftop lot (Permit No. 6-88-515) based on a favorable geotechnical report. By October 1999, failure of the bluff on the adjoining property to the south had spread to the bluff fronting 574 Neptune. An application is pending for upper bluff protection (Permit No. 6-99-114-G).

- The Arnold project at 3820 Vista Blanca in San Clemente (Orange County). Coastal development permit (Permit No. 5-88-177) for a blufftop project required protection from bluff top erosion, despite geotechnical information submitted with the permit application that suggested no such protection would be required if the project conformed to 25-foot blufftop setback. An emergency coastal development permit (Permit No. 5-93-254-G) was later issued to authorize blufftop protective works.

The Commission emphasizes that the examples above are not intended to be absolute indicators of bluff erosion on the subject parcel, as coastal geology can vary significantly from location to location. However, these examples do illustrate that site specific geotechnical evaluations cannot always accurately account for the spatial and temporal variability associated with coastal processes and therefore cannot always absolutely predict bluff erosion rates. Collectively, these examples have helped the Commission form its opinion on the vagaries of geotechnical evaluations with regard to predicting bluff erosion rates.

In this case, the uncertainty of the conclusions of the geotechnical analysis is heightened because the geotechnical reports that have been prepared have been based upon site-specific data derived over a relatively short period of time or interpolated from other

studies performed in the general region. The geotechnical report prepared by BGC, indicates that the estimated 0-inch per year erosion rate was based on the review of aerial photographs taken over a 37-year period between 1963 and 2000 and on a comparison of file reports, photographs and current site conditions. However, the bluff retreat rates in the cited geotechnical reports range from 0 to 6 inches-per-year. Furthermore, while the BGC geotechnical report states that their geological and engineering services and review of the proposed development was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities, the report conclusions were stated with several caveats.

With regard to the amount of the veracity of bluff retreat rates derived from U.S. Army Corps of Engineers cross-sectional profiles of the beach and bluff which formed a major component of the literature review:

> A second issue is that ultimately the profiles were prepared to evaluate the beach nourishment concept, not bluff erosion, and thus the survey protocol emphasized changes in the beach profile, not the bluff profile. Finally, because the rip-rap was in place during the entire study, the "zero net bluff erosion" conclusion serves only to comment on the effectiveness of the rip-rap between 1965 and 1975. In conclusion, the generalizations cited in the 1978 USACOE report about the bluff retreat rate between Battery Point and 4Ih Street are suspect due to the 1964 disturbances of the bluff face, a survey protocol that emphasized changes in the beach profile, and the presence of rip-rap on the hospital and DCI sites.

As regards the methodology used in a particular cited study:

> Anderson (1977) presents a thoughtful discussion and the first qualitative erosion-rate estimate for the Seaside Hospital site, his use of an oblique photograph (in which the scale changes drastically and rapidly over short distances) makes his estimate (0.6 ft/yr) suspect as best.

With respect to the accuracy of groundwater through-flow volumes extrapolated for the site from model parameters:

> Per standard formulae and assumptions in Driscoll (1986) we made a preliminary estimate of the possible transmissivity (T) of the site, ignoring the pedogenic soils and using a nominal thickness (b) of 10 feet for the permeable sand and gravel units; hydraulic conductivity (K) of 10^4 to 10^2 gpd/ft^2; a nominal gradient of 0.026 ft/ft; and an aquifer unit width of 300 feet. Using these numbers we calculate that between about 8,000 and 800,000 gallons of groundwater could move through the site per when the groundwater table is high. Specific tests would be necessary to refine this estimate range.

In structuring the findings derived from aerial photography analysis, BGC states:

> Similarly, we conclude that, within the limits of our mapping accuracy (estimates at ~5 ft.), the position of the top-of-bluff remained constant on the site between 1963 and 2000.

With respect to the long-term implications of the observed favorable difference between rates of tectonic uplift and global sea level rise at the site, BGC states:

> That is, all other things held equal, each year the risk of shoreline erosion decreases slightly at the project site. Presumably, this will remain true until the next Csz earthquake.

Finally, in closure to presenting the conclusions and recommendations within the report, BGC states:

> All parties --- the project owner, his agents and consultants, future owners of the condominiums, and City and State regulators --- must acknowledge the possibility of a catastrophic event.

This language in the report itself is indicative of the underlying uncertainties of this and any geotechnical evaluation and supports the notion that no guarantees can be made regarding the safety of the proposed development with respect to bluff retreat. Geologic hazards are episodic, and bluffs that may seem stable now may not be so in the future. Therefore, the Commission finds that the subject lot is an inherently hazardous piece of property, that the bluffs are eroding, albeit at a currently unmeasured rate, and that the proposed new development will be subject to geologic hazard and may someday require a bluff or shoreline protective device, inconsistent with LUP Diking, Dredging, Filling and Shoreline Structures Policies No. 3 and No. 7. Based upon the geologic report and the recommendations of its staff geologist, the Commission finds that the risks of geologic hazard are minimized if the resort improvements are set back 30 feet from the bluff edge. However, given that the risk cannot be eliminated and the geologic report does not assure that shoreline protection will never be needed to protect the residence, the Commission finds that the proposed residence is consistent with the certified LCP only if it is conditioned to provide that shoreline protection will not be constructed.

Thus, the Commission further finds that due to the inherently hazardous nature of this lot, the fact that no geology report can conclude with any degree of certainty that a geologic hazard does not exist, the fact that the approved development and its maintenance may cause future problems that were not anticipated, and because new development shall not engender the need for shoreline protective devices, it is necessary to attach Special Conditions No. 6 requiring a deed restriction prohibiting the construction and repair of seawalls and Special Condition No. 7 requiring a deed restriction waiving liability.

These requirements are consistent with LUP Policy 3 of Chapter 5, which states that new development shall minimize risk to life and property in areas of high geologic, flood, and fire hazard, assure structural integrity and stability, and neither create nor contribute

significantly to erosion, geologic instability, or destruction of the site or surrounding areas, nor in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. The Commission finds that the proposed development could not be approved as being consistent with LUP Policy No. 3 of Chapter 5 if projected bluff retreat would affect the proposed development and necessitate construction of a seawall to protect it.

In addition, LUP Policies Nos. 5 and 7 of Chapter 5 allow the construction of shoreline protective devices only for the protection of existing development. The site is proposed to be completely razed and developed with new structural improvements. The construction of a new shoreline protective device or the repair of the existing shoreline protective device to protect new development is not permitted by the LCP. In addition, as discussed further below, the construction of a protective device to protect new residential development would also conflict with the visual policies of the certified LCP.

As noted above, some risks of an unforeseen natural disaster, such as an unexpected landslide, massive slope failure, erosion, etc. could result in destruction or partial destruction of the house or other development approved by the Commission. In addition, the development itself and its maintenance may cause future problems that were not anticipated. When such an event takes place, public funds are often sought for the clean up of structural debris that winds up on the beach or on an adjacent property. As a precaution, in case such an unexpected event occurs on the subject property, the Commission attaches Special Condition No.7, which requires the landowner to accept sole responsibility for the removal of any structural debris resulting from landslides, slope failures, or erosion on the site, and agree to remove the structures should the bluff retreat reach the point where a government agency has ordered that the structure not be occupied.

The Commission finds that Special Condition No. 7 is required to ensure that the proposed development is consistent with the LCP and that recordation of the deed restriction will provide notice of potential hazards of the property and help eliminate false expectations on the part of potential buyers of the property, lending institutions, and insurance agencies that the property is safe for an indefinite period of time and for further development indefinitely into the future, or that a seawall could be constructed to protect the development.

Additionally, the Commission attaches Special Condition No. 7, which requires the landowner to assume the risks of extraordinary erosion and geologic hazards of the property and waive any claim of liability on the part of the Commission. Given that the applicants have chosen to implement the project despite these risks, the applicant must assume the risks. In this way, the applicant is notified that the Commission is not liable for damage as a result of approving the permit for development. The condition also requires the applicant to indemnify the Commission in the event that third parties bring an action against the Commission as a result of the failure of the development to withstand hazards. In addition, the condition ensures that future owners of the property

will be informed of the risks, the Commission's immunity from liability, and the indemnity afforded the Commission.

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. 17 which requires recordation of a future development deed restriction. 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. Depending on its nature, extent, and location, such an addition or accessory structure could contribute to geologic hazards at the site. For example, installing a landscape irrigation system on the property in a manner that leads to saturation of the bluff would increase the potential for landslides or catastrophic bluff failure. Another example would be development of a building addition within the recommended bluff setback. An addition in the bluff setback area would be at risk of damage from bluff retreat. 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 improvements to the approved structure could involve a risk of creating geologic hazards at 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 improvements will not be sited or designed in a manner that would result in a geologic hazard. Special Condition No. 17 also requires recordation of a deed restriction to ensure that all future owners of the property are aware of the requirement to obtain a permit for development that would otherwise be exempt. This will reduce the potential for future landowners to make improvements to the structures without first obtaining a permit as required by this condition.

The Commission thus finds that the proposed development, as conditioned, is consistent with the policies of the certified LCP regarding geologic hazards, including Diking, Dredging, Filling and Shoreline Structures Policies Nos.3, 4, and 7, as the proposed development will not result in the creation of any geologic hazards, will not have adverse impacts on the stability of the coastal bluff or on erosion, and the Commission will be able to review any future additions to ensure that development will not be located where it might result in the creation of a geologic hazard. Only as conditioned is the proposed development consistent with the LCP policies on geologic hazards.

Liquefaction Hazard

The second form of geologic hazard affecting the project site is building damage caused by the liquefaction of underlying soils. Liquefaction is a process by which sediments below the water table temporarily lose strength and behave as a viscous liquid rather than a solid reducing the bearing strength of the soil;. When liquefaction is accompanied by some form of ground displacement or ground failure it can be destructive to the built environment. Adverse effects of liquefaction to structures can take many forms, including lateral spreading of foundations, uneven building settlement, and increased lateral pressure on retaining walls. Buildings subjected to liquefaction-related damages can shift, tilt, or be displaced off of their foundations, resulting in partial or full structural collapse, and the overturning of heavy furniture and major appliances that can be injurious or fatal to occupants.

With respect to liquefaction hazards, the geo-technical investigation conducted by the applicant's geologist found no records of liquefaction having occurred at the site. Neither was any liquefaction risk assigned for the site in the "Planning Scenario in Humboldt and Del Norte Counties, California for a Great Earthquake on the Cascadia Subduction Zone," prepared by the California Department of Conservation, Division of Mines and Geology in 1995. Furthermore, an assessment of the materials overlying the site and the depth to groundwater did not reveal conditions where soil liquefaction typically would occur. Dr. Busch concluded:

> Using a decision tree that considers the age of the deposit and the depth to groundwater (e.g., Youd and Perkins, 1978; Hitchcock et al., 1999), the liquefaction potential of the site sediments is LOW. However, because pore water can move laterally, we believe the liquefaction potential of the site is VERY LOW…
>
> In conclusion, our quantitative evaluation is that the liquefaction-induced ground failure potential is NEGLIGIBLE to LOW on the site.

Accordingly, to minimize risks to life and property in areas of high geologic hazard, assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area associated with liquefaction hazards at the site as required by Policy No. 3 of LUP Chapter 5, the Commission attaches Special Condition No. 4 incorporating the building foundation specifications outlined in the geotechnical analysis. Special Condition No. 4 requires that the applicant submit final foundation plans for the review and approval of the Executive Director that include the various 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 recommendations set forth in he geotechnical investigation.

As the development has been conditioned to provide a foundation to withstand potential ground settlement and dislocation associated with soil liquefaction, the proposed residential condominiums structure will be located and designed so as to minimize risks to life and property from liquefaction consistent with LUP Policy No. 3.

Tsunami Exposure

The third type of geologic hazard associated with the project site is exposure to tsunamis, the series of waves of extremely long length and period generated in a body of water by an impulsive disturbance that displaces the water, usually associated with earthquakes in oceanic and coastal regions. These waves may be generated from both nearby and distant 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 Crescent City 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. It 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. Lumber, automobiles, and other objects carried by the waves were responsible for a good portion of the damage to the buildings in the area. Fires started when the wave picked up a gasoline tank truck and slammed it against electrical wires. The fire spread quickly to the nearby fuel tank farm, which burned for three days. 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. Despite its location on the open ocean and the previously noted damage along the beachfront, the project site was subject to little inundation from the 1964 event. Tsunami inundation did not overtop the bluff in this location, although tsunami inundation reached the northeast corner of the property (on its inland side) from other parts of the harbor. The Flood Insurance Rate Map prepared in 1986 for Crescent City by the Federal Emergency Management Agency (FEMA) indicates the tsunami run-up was confined to the 100- and 500-year flood boundaries, representing elevations of +13.1 ft. msl and +16.4 ft. msl, respectively.

With respect to the risk of exposure of persons and property to tsunami inundation associated with distant seismic events, the applicant's geologist states:

> The risk is HIGH that Crescent City will be struck by one or more distant source tsunamis during the design project lifespan (75 years). However, the risk that any part of the project site will be inundated by one of these is LOW because the site elevation exceeds the predicted maximum run-up height of -13.2 ft (for a 100-yr event; the predicted 500-year event run-up is -25 ft). The risk of damage to the proposed structure also is NEGLIGIBLE because the design first-floor habitable elevation of the lowest elevation structure [would be greater than] 22 ft MSL.

As regards the risk of exposure of persons and property to tsunami inundation associated with nearby seismic events, the applicant's geologist further concludes:

> The run-up height predicted for a near-source tsunami generated by a great (8.4 to 9.0 M) Cascadia subduction zone (Csz) earthquake is much higher (33 ft MSL or higher). A Csz-generated near-source tsunami would damage the project structures. The risk of damage due to a near-source tsunami is essentially the same as the risk of a Csz earthquake (currently believed to be 1% to 45% during the next 50 years, depending upon modeling variables). It is impossible to mitigate the risk of near-source tsunami damage except by not building or by building a significantly reinforced structure with a first-floor design elevation much higher than currently allowed by City regulations. It is possible to mitigate the risk of loss of life by posting warning notices to educate the future owners and the public. Because the entire down-town area of Crescent City is exposed to the same level of risk from a nearsource tsunami, yet development is being allowed to proceed by local and state regulators, it is inappropriate to expect the project proponents to be subjected to development criteria that are not being applied elsewhere in at-risk areas of the city.

While the Commission's geologist and coastal engineer concur with Dr. Busch's recommendation that appropriate warning signs be placed at the project site to alert guests to the hazards present and give appropriate instructions for evacuation during strong earthquake events, Technical Services staff do not agree that constructing minimum floor elevations above the modeled 33 ft MSL runup depth would be infeasible. In fact, as prompted by recent changes to the City land use plan's hazards policies, LUP Chapter 5 – *Diking, Dredging, Filling and Shoreline Structures*, Policy No. 5 requires that the floor heights of new permanent residence be designed to one foot above the modeled inundation depth, and include building design features that would prevent catastrophic structural failure from tsunami wave strike and back scour. Moreover, the applicant's engineer has accommodated this requirements into the project design, setting the minimum height of the floors at 34 feet MSL and identifying specific building design criteria to be incorporated into the structure (see Exhibit No. 4, page 24 and Exhibit No. 6).

To assure that the proposed new development minimize risks to life and property in areas of high geologic hazard, specifically to tsunami inundation, the Commission attaches

Special Condition Nos. 8 and 9. Special Condition No. 8 requires that prior to issuance of the coastal development permit, the applicant submit for the review and approval of the Executive Director, verification from an appropriately licensed professional that the final construction plans have incorporated the residentially occupied floor height and building resiliency standards proposed by the applicant and required by *Diking, Dredging, Filling and Shoreline Structures*, Policy No. 5. Special Condition No. 9 requires that prior to issuance of the coastal development permit, the applicant submits for the review and approval of the Executive Director, a tsunami safety plan. The plan would detail tsunami hazard response materials to be provided to condominium residents including hazard zone maps, evacuation routes, and include a summary of local warning plans as developed by the City of Crescent City and the Del Norte County Office of Emergency Services.

As the development has been conditioned to provide a minimum floor height and structural design that would withstand potential tsunami runup to modeled depths, taking into account future projections of sea level rise, and develop a tsunami safety plan for aiding the evacuation of residents, the proposed resort project will be designed so as to minimize risks to life and property from tsunami inundation consistent with LUP *Diking, Dredging, Filling and Shoreline Structures,* Policies Nos. 3 through 7.

3. Conclusion

The proposed development can only be found consistent with the above-referenced LCP provisions if: (1) the risks to life and property from the geologic hazards are minimized; (2) the design of the development would assure stability and structural integrity for the expected economic lifespan and not create or contribute to geologic instability, and preclude the need for a shoreline protective device to protect the development in the future; and (3) the project approval has been conditioned to preclude the construction of future shoreline protective devices.

The residential building is proposed to be setback 44 feet from the edge of the bluff. This is a somewhat small setback relative to other bluff-top setbacks commonly required along the coast statewide. However, as noted above, although the site is a geologically hazardous area due to the potential for bluff retreat and the proximity of the site to open wave attack, the conditions affecting the rate of erosion and retreat of the subject bluff are unique to the site and available information indicates that the proposed setback will be sufficient to minimize geologic risks and provide stability for the site and its improvements for the 75-year economic lifespan of the project. Furthermore, special conditions have been attached to preclude the future construction of new shoreline protective devices, the repair or maintenance, enhancement, or reinforcement of the existing shoreline protective device, and requiring the landowner to assume all liability associated with development of the project in light of the recognized geologic risks inherent to the site.

With respect to liquefaction hazards, the project has been conditioned to be constructed on an end-bearing pile foundation. This feature will insulate site improvements and

occupants from potential damages and injurious associated with the potential soil liquefaction during strong seismic events.

Finally, as regards potential tsunami inundation, the project has been proposed or conditioned to comply with all current building design criteria relating to this type of geologic hazard, including the minimum occupied floor elevation. In addition, to minimize the exposure of persons to avoidable tsunami hazards, the applicant is required to develop a tsunami safety plan to provide information to residents and evacuation response assistance in the event of a tsunami threat to the area.

Therefore, the Commission finds that the project as proposed and conditioned is consistent with the geologic hazards policies of the certified City of Crescent City LCP because: (1) exposure to all significant risks to life and property from geologic hazards have been minimized consistent with Policies No. 3 of LUP Chapter 5; (2) the project improvements have been designed and sited so as not to require future construction of shoreline protective devices consistent with Policy No. 4 of LUP Chapter 5; (3) building floor heights and structural elements would be designed to avoid inundation and structural failure from modeled tsunami runup, taking into account project global sea level rise, as required by LUP Chapter 5 Policies Nos. 5 and 6; and (4) deed restrictions prohibiting the construction of future shoreline protective devices have been made a condition of permit approval consistent with Policy No. 7 of LUP Chapter 5.

F. Protection of Coastal Water Quality and Environmentally Sensitive Habitat Areas from Storm Water and Polluted Runoff Impacts

1. Summary of LCP Provisions

Policy No. 2 of LUP Chapter 7 – "Public Works" reads as follows:

> *The City shall require that best management practices (BMPs) for controlling stormwater runoff and maintaining water quality be incorporated into development design and operation. All post-construction structural BMPs (or suites of BMPs) for new development, including but not limited to, recreational or visitor-serving commercial development within Coastal Zone - Commercial Waterfront zoning districts, shall be designed to treat, infiltrate or filter stormwater runoff from each storm event, up to and including the 85th percentile, 24-hour storm event for volume-based BMPs, and/or the 85th percentile, 1-hour storm event, with an appropriate safety factor, for flow-based BMPs.*

Policy No. 2 of LUP Chapter 4 – *Environmentally Sensitive Habitat Areas / Water and Marine Resources* states, in applicable part:

> *The City shall protect those areas that are designated as environmentally sensitive so that these habitats and their resources are maintained and*

> *development shall be consistent with adjacent areas and with Section 30240 et seq. of the California Coastal Act…*

Referenced Coastal Act Section 30240 reads as follows:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those 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.*

LUP Chapter 4 – "Environmentally Sensitive Habitat Areas / Water and Marine Resources," includes within its list of environmental sensitive habitats, "*Inter-tidal areas (Preston Island to North Breakwater).*"

2. Discussion

The project site is located adjacent to the inter-tidal areas between Preston Island and the North Breakwater of the Crescent City Harbor. This nearshore area is listed as an environmentally sensitive habitat area within the certified LCP. This area was the subject of a marine wildlife impact evaluation was conducted for the adjacent hotel/restaurant project. The evaluation found the project site to be "immediately adjacent to a rocky intertidal habitat with nearshore inlets, and a relatively pristine coastal environment." However, an assessment of marine life in the intertidal range found a low diversity of organisms to be present, primarily consisting of rockweed (*Fucus distichus*), encrusting brown algae (*Dictyota* sp.), with small scattered colonies of barnacles (*Balanus*, *Chthalmus*, and *Pollicipes* sp.) and limpets (*Acmea* sp.). Sculpins, eel, hermit crabs and other predator/scavengers were similarly found to be in low abundance. The report found that the offshore inlet provides nesting habitat for one pair of nesting Black Oystercatchers (*Haematopus bachmani*) as well as roosting habitat for cormorants and gulls. Harbor seals are also known to use the isolated reef at the north end of the beach reach as a haul-out area and may pup there from March to May.

The report concluded that lack of diversity and depressed populations may be due to the unstable and physically harsh habitat provided by the cobble and sand substrate and heavy surf exposure. Though acknowledging that its effects were not known, the study noted the presence of a nearby stormdrain outfall, inferring that it may also have some impact on marine organism productivity in the area.

In addition to physical intrusion by humans in or near biologically sensitive areas, the introduction of non-point source pollution in the form of stormwater runoff, siltation from ground disturbing construction activities, and potential accidental releases of

hazardous materials are other ways in which environmentally sensitive habitat and water quality may be adversely impacted by the project.

Drainage at the project site currently flows toward the northwest corner of the property where it sheet flows into a small draw before discharging onto the adjoining beachfront. Once developed, drainage from the site, especially that from impervious surfaces such as rooftops, sidewalks, and parking lots, will be collected into gutters and drop-inlets and discharged into the City's stormwater sewer. The closest storm drain to the subject property is located within Second Street to the north of the site. This 30-inch-diameter line passes under the parking lot of the adjoining medical clinic and discharges into sub-tidal waters to the northwest of the project site approximately 200 meters offshore.

Coastal Water Quality

Pollutants within stormwater runoff from commercial visitor-serving facility uses have the potential to degrade water quality of the nearshore environment. Parking lots contain pollutants such as heavy metals, oil and grease, and polycyclic aromatic hydrocarbons that deposit on these surfaces from motor vehicle traffic. In addition, outdoor maintenance equipment, routine washing and steam-cleaning have the potential to contribute metals, oil and grease, solvents, phosphates, and suspended solids to the stormwater conveyance system.

The proposed project identifies a series of measures to mitigate stormwater runoff impacts through a combination of green building features, including installation of an infiltration interceptor bio-filtration system. All roof drainage would be collected and conveyed into a series of rain garden, tree box, and other landscaped areas designed to accommodate the volume of runoff generated from up to the 85th percentile storm for Crescent City area (see Exhibit No. 10). For the Crescent City area, this rainfall amount is approximately one inch per hour, based upon long-term precipitation rates recorded at the City's wastewater treatment plant, two blocks southeast from the project site. With the mitigation measures proposed by the applicant and sized to accommodate the 85th percentile of the volume of flows from a 24-hour storm that would be generated from these impervious surfaces (see Exhibit No. 10), the project would mitigate the potential impacts of storm water runoff on coastal waters as required by Policy No. 2 of LUP Chapter 7.

To ensure that these mitigation measures will be implemented as proposed, the Commission includes within the scope of attached Special Condition No. 4 a requirement that final revised development drainage plans include construction engineering details for the installation of the two infiltration interceptors. In addition, to further ensure that water quality is protected from numerous other potential pollutants during construction of the project and its on-going operations, the Commission attaches Special Condition No. 10. Special Condition No. 10 requires that the development be performed consistent with an erosion and runoff control plan designed to prevent, intercept, and/or treat a variety of potential pollutants, including sediment, oils and grease, cleaning solvents, and solid wastes.

In addition, the Commission attaches Special Condition No. 10. Special Condition No. 11 requires that the permittee comply with various construction-related standards designed to protect the site from habitat and water quality impacts, including: (1) prohibiting the placing and storage of materials outside of areas subject to wave erosion and dispersion; (2) requiring that construction debris be removed promptly removed from the site upon the completion of construction; (3) excluding construction equipment or machinery from the beach or intertidal zone at any time; (4) prohibiting the use of sand from the beach, cobbles, or shoreline rocks used for construction or landscaping materials; (5) limiting the rinsing of concrete trucks and tools used for construction only at the specific wash-out area(s) described within the approved Erosion and Runoff Control Plan; and (6) requiring that staging and storage of construction machinery or materials and storage of debris not take place on the beach or within public street rights-of-way.

As conditioned, the Commission finds that the project is consistent with LUP Chapter 7, Policy No. 2, as the project is required to include best management practices (BMPs) for controlling stormwater runoff and maintaining water quality. The Commission further finds that with the BMPs for controlling stormwater runoff and maintaining water quality, and with the other provisions required by Special Conditions 4, 10, and 11, the project as conditioned will protect the adjacent inter-tidal habitat from the impacts of the development and maintain habitat values consistent with Policy No. 2 of LUP Chapter 4.

Intertidal Wetlands

With respect to the protection of other environmentally sensitive habitat areas, the site of the proposed condominium development lies adjacent to "marine / intertidal / sandy unconsolidated shore / regularly-flooded" (M2US2N) wetlands as depicted on the U.S. Fish and Wildlife Service's National Wetland Inventory maps.[2] The upper extent of this intertidal area, as delineated by the Extreme Higher High Water (EHHW) line, corresponding roughly to the back-of-beach base of the short bluff at the southwesternmost corner of the parcel. As noted above, this area is listed as environmentally sensitive habitat within the LCP, as being part of the inter-tidal areas between Preston Island and the Crescent City Harbor's northern breakwater. Consequently, pursuant to LUP Chapter 4 – *Environmentally Sensitive Habitat Areas / Water and Marine Resources* Policy No. 2, these intertidal areas are to be protected consistent with the provisions of Coastal Act Section 30240. To this end, LUP Chapter 4 – *Environmentally Sensitive Habitat Areas / Water and Marine Resources* Policy No. 4 directs that a 50-foot-wide buffer around their upland exterior boundary be established. Based upon information provided by the applicant's wetlands biological consultant, a buffer of approximately 70 feet in width would be provided between the intertidal

[2] Refer to Classification of Wetlands and Deepwater Habitats of the United States, U.S. Fish and Wildlife Service - Office of Biological Services' Publication No. FWS/OBS-79/31, Lewis M. Cowardin, et al, USGPO December 1979, for a further discussion of the definition and the extent of wetland habitats;
http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm

wetlands and the site buildings, with the only encroachments being the at-grade vertical and lateral trail improvements (see Exhibit No. 8, page 5). Accordingly, the development is consistent with the requirements of LUP Chapter 4 – *Environmentally Sensitive Habitat Areas / Water and Marine Resources* Policy No. 4 with respect to providing a minimum 50-foot-wde buffer between the intertidal wetlands and the site improvements.

Notwithstanding the provision of an adequately wide buffer between the wetlands and the development site, secondary impacts to environmentally sensitive resources in the project vicinity could result if inappropriate plantings are included in the landscaping on the project site. To prevent such adverse impacts, the Commission attaches Special Condition No. 13. Special Condition No. 13 requires the applicant prior to permit issuance to submit for the review and approval of the Executive Director, a landscaping plan detaling the plant species to be installed on the project site. The condition includes specific criteria for an acceptable landscaping plan, such as requiring the use of native species, setting prohibitions on the use of exotic/invasive plants and the use of bio-accumulating rodenticides, and sourcing plantings from local nursery stocks to maintain the genetic integrity of the surrounding plant communities.

Marine Riparian Vegetation

To the north, the intertidal strand trends off tangentially away from the former clinic property. These marine wetlands are fringed on their landward side by a band of vegetation dominated by Hooker willow (*Salix hookeriana*), a facultative wetland species, that extends approximately 30 to 50 onto the northwestern quadrant of the subject property. Given the prevalence of hydrophytic vegetation, this area on first viewing would appear to constitute wetlands. However, as further discussed within the wetlands delineation report, notwithstanding the presence of this marine riparian species, the applicant's biological consultant concluded that the area does not constitute wetlands for the following given the presence of the following factors:

- Although both large and small driftwood was found throughout the northwest corner of the property, with smaller driftwood mixed into the sandy soil several inches deep beneath the willows, there was no indication of regular tidal flooding into the willow vegetated areas.

- At the time of the site visit during a high tide exceeding the local mean higher high water datum, the wetted portion of the beach was approximately 6 to10 feet below the willow vegetated area .

- At all locations examined within the willow vegetated area soils consisted of a dark gray or dark grayish brown fine loamy sand with no redoximorphic features or other hydric soil indicators.

- Pit excavations to an approximate 20-inch depth revealed the soils to be too sandy in texture to retain water, with no restrictive pan layer encountered at depth.

- As is typical of habitats along the immediate coastline, the subject vegetation area is dominated by facultative (FAC and FACW) species even on dry upland slopes, due to the influence of fog and sea spray rather than surface or subsurface hydrology.

The Commission staff biologist, John Dixon PhD, has reviewed the wetlands delineation and generally concurs with the findings of the consulting biologist regarding the non-wetland status of the subject Hooker willow thicket. Dr. Dixon noted that, in addition to the factors cited above, the presence of these hydrophytes should not be considered neither wetlands or ESHA for the following additional site specific reasons: (1) the thicket is a relatively small, discontinuous shrub layer fragment, situated as the southerly end of a band of Hooker willows that extends northward along the coast is a much more congruent form and density and provides no habitat corridor complex role as no willows exist further to the south for a distance of over 1,000 feet (Battery Point area); (2) the low diversity and simplified structure of the subject vegetated area; and (3) the lack of herb and form strata members with similar hydrophytic characteristics; and (5) the close presence of human activity and developments. The Commission concurs with these observations and finds that the area does not represent wetlands or ESHA for purposes of use limitations and buffer requirements of LUP Chapter 4 – *Environmentally Sensitive Habitat Areas / Water and Marine Resources* Policy Nos. 2 and 4.

Notwithstanding the lack of wetlands or ESHA status, the vegetated area does represent a component on the local area's marine riparian biota, and helps define the visual character of the area. The applicant has included in the project a proposal to restore the roughly 500 square-feet of willows that would be removed in the construction of the view platform patio, decking, and ramp by planting additional willows, at a 2:1 replacement ratio along the western side of the property between the view platform and the vertical beach accessway (see Exhibit No. 9). To ensure the success of this restoration effort, the Commission attaches Special Condition No. 14. Special Condition No. 14 sets specific planting criteria to be used to maximize the likelihood of establishment of willow cuttings in the restoration area, and directing that they be obtained from prunings taken from the portions of the adjoining willow thicket slated for removal for construction of the view platform.

Conclusion

Therefore, the Commission finds that, as proposed and conditioned by Special Condition Nos. 10, 11, 13, and 15, the development would be consistent with the policies and standards of the LCP regarding the protection of coastal water quality and environmentally sensitive habitat areas, including intertidal wetlands.

G. Visual Resources

1. Summary of LCP Provisions

Policy No. 4 of LUP Chapter 3 – "Coastal Visual Resources and Special Communities" states, in applicable part:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall 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 be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in designated highly scenic areas shall be subordinate to the character of its setting… Any future development at the former Del Norte Community Health Center site (APN 118-020-34), including any multi-family residential, recreational or visitor-serving commercial development, shall provide for a view corridor oriented from the vantage point of the intersection of Second and A Streets. The Second and A Streets view corridor shall be located within the southeasterly third of the vacated sixty-foot-wide West Second Street right-of-way and comprise a minimum of twenty feet (20'), extending southwesterly from A Street to the adjoining beach. The view corridor from ground level to a height of ten feet (10') shall be kept clear of obstructions, including physical development and/or storage of materials that would obstruct views through the corridor. Landscaping in the corridor shall be limited to seeded grass lawns, sodded turf, or other low growing groundcovers whose height at maturity will not exceed one foot (1') above finished grade. Balconies, bay windows, and other architectural features on upper floors (10 feet or more above grade) may extend a maximum of three feet (3') into the view corridor.*

2. Discussion.

Although the parcel is not located within a formally designated Highly Scenic Area (the City's LCP does not make that distinction for any specific sites, but focuses instead on protecting views within the "scenic highway corridor" visible from Highway 101 at the City's southern entrance), the oceanfront site for the proposed condominium complex is an area of notable visual interest and scenic qualities. This fact is reflected in the Crescent City LCP, which sets forth in both general and very specific language as cited above, requirements for the protection of these scenic values and views. Though the site is presently developed with a relatively low profile building, its demolition and redevelopment with the proposed multi-story residential complex would introduce a significant new urban-appearing structure into the viewshed of this scenic area. The proposed condominium complex would be highly visible from several public streets within the city and harbor, as well from recreational areas, and would affect views to and along ocean.

a. Existing Visual Resources in the Project Vicinity

As the project site includes a vacated 60-foot-wide city street right-of-way, viewing opportunities currently exist across the former medical clinic's exterior parking lots. Though impressive where they can be observed, coastal views for motorists through the project site from "A" Street are somewhat fleeting due to the presence of adjoining residential and commercial visitor-serving structures in the area which limit the expanse of ocean vistas to the open spaces between buildings. In addition, due to the seaward up-sloping terrain of the site, the range of distance to views to and along the coast are limited to the immediate public street frontage of the project site, primarily directly seaward from the "A" and Second Street intersection and up Second Street to the northeast. From the fixed vantage point of the intersection of Second and "A" Streets oriented seaward, the project site's coastal viewshed consists of an approximately 30° arc encompassing the, sea stacks and ocean waters directly offshore.

b. Effects of the Project on Visual Resources in the "A" Street Between Third and Second Streets Area

The proposed new development at the site would consist of an L-shaped main residential building with enclosed ground level parking, spanning nearly the full width of the 300-ft.-wide parcel and extending to a two-story height of 32 feet, 7 inches (see Exhibit No. 4). The Craftsman-style building would be oriented along the long axis of the parcel between Second and Third Streets and consist of 37 condominium units and a small street entry lobby.

With the exception of the proposed 20-ft.-wide open area between the project building, site developments would extend nearly the full block width of the project parcel. With the project improvements in place, additional portions of the limited views to and along the ocean from along "A" and Second Streets would be further obstructed by the development. As a result, coastal viewing opportunities would be limited to the intersection of Second and "A" Streets area in immediate proximity to the opening between the buildings.

Furthermore, at over 31,000 square feet and extending in height to just under 33 feet, together with the adjoining phased three-story hotel/restaurant complex, the development would constitute one of the largest structural development in this portion of Crescent City. Most of the western oceanfront of the City along "A" Street and in the surrounding to the north along Pebble Beach Drive is developed with one to two-story single family residences ranging from 1,500 to 2,500 sq. ft. in size. Much of the immediate area to the east and south of the project site within the adjoining Commercial Waterfront, General Commercial, and Open Space zoning districts is vacant. Notable exceptions include the cluster of five, approximately 28-ft.-height storage tanks at the commercial fuel depot on "B" Street between Front and Battery Streets, and the City's Wastewater Treatment Plant comprising a one-story complex covering roughly 1½-acres on the east side of "B" Street south of Battery Street. Other than the adjoining hotel, the closest structure having approximately the same bulk and scale as that of the proposed condominium complex is the Surf Apartments building. This four-story, approximately 30,000-sq.ft. multi-family

residential structure is located seven blocks east of the project site at the corner of Front and "H" Streets within the City's commercial core area.

c. Conformance with LUP Coastal Visual Resources and Special Communities Policy No. 4

Although any additional above-ground development of the site would inevitably result in a loss of some coastal views, in order for the proposed project to be approved, the Commission must find that the development is consistent with the applicable visual resources policies and standards of the City's certified LCP. LUP Chapter 3 Policy No. 4 requires that *"the scenic and visual qualities of the coastal areas"* be considered and protected by siting and designing permitted development to:

- protect views to and along the ocean, and provide a substantial view corridor oriented from the vantage point of the vicinity of the intersection of Front and "A" Streets toward the offshore rocky areas northwest of the site;
- minimize natural landform alteration;
- restore and enhance the quality of visually degraded areas where feasible;
- be visually compatible with the character of surrounding areas; and
- in designated highly scenic areas, be subordinate to the character of its setting. [3]

Determinations Regarding the "Scenic and Visual Qualities of Coastal Areas"

As discussed above, views directly seaward compromised by the presence of the existing structural and topographic obstructions. Accordingly, for purposes of determining conformance with Visual Resources and Special Communities Policy No. 4, the primary "scenic and visual qualities" along this portion of the City's western oceanfront that need to be considered and protected are the limited existing views through the vacated street right-of-way. As previously noted, these views consist of distant horizon and open sky vista, with glimpses of the tops of the offshore sea stacks. While this vantage is both laterally and horizontally limited, it serves to bear up the bulk between the building edifices of the adjoining hotel and that of the former clinic site.

Siting to Protecting Coastal Views and Providing a "Substantial View Corridor"

With regard to siting and designing new development to protect views to and along the ocean and scenic coastal areas, the applicant proposes to retain some of the limited ocean

[3] The project site is not located within a designated highly scenic area. Subsequently a finding regarding the project being subordinate to the character of the setting is not applicable to this project.

views in the design of the current project proposal. As originally proposed, the project consisted of one three-story building that effectively spanned nearly the entire 300-foot width of the property. In the interest of conforming to the LUP visual resources policies of the LUP, notably Policy No. 4 of LUP Chapter 3 which requires the dedication of a minimum 20-foot wide view corridor comprising southeastern third of the vacated West Third Street right-of-way, the applicant modified the project reducing the overall width of the building. This open area was incorporated into the project design to both help break-up the overall structural bulk of the development, and, in combination with the east-west orientation of the southern wing of the condominium building, provide the view corridor oriented toward the offshore areas to the west.

Despite the view corridor, the facility would not fully maintain the full scope of coastal views currently afforded at the project site. The Commission notes that although alternative layouts of the site improvements would provide for increased visibility of this area from the public street frontage, the benefits of such increased views would be limited to vehicles traveling along the "A" Street from the Battery Point Lighthouse area or seaward along Third Street. In addition, although views directly to the ocean through the opening between the buildings from Front Street would continue to be blocked by the up-sloping of the bluff edge, the open area between the hotel and proposed condominium buildings would nonetheless provide offshore sky views and announce the presence of the ocean just behind the residential complex to persons traveling down "A" or Second Streets toward the site. Moreover, by co-locating the proposed lateral blufftop trail entry point in this location and with the inclusion of the proposed view platform amenity, coastal visitors would be readily afforded a coastal accessway leading to a vista point that would provide a fuller panorama of views to and along the coast. This improvement would further offset the loss of views from along the project's street frontage.

To ensure that the view corridor is protected in perpetuity, the Commission attaches Special Condition No. 15, which requires recordation of a deed restriction stating that the landowner shall not construct any bluff or shoreline protective devices to protect the residence, garage, septic system, or other improvements in the event that these structures are subject to damage, or other natural hazards in the future. This condition will ensure that in the future, no seawall will be constructed that would have significant adverse impacts on visual resources.

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. 17, which requires recordation of a deed restriction stating 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 to ensure that the project will not be sited where it might have significant adverse impacts on visual and scenic resources.

Accordingly, the Commission concludes that the proposed new development as conditioned has been sited and designed to protect views to and along the coast.

Furthermore, the Commission concludes that, as conditioned by Special Conditions Nos. 13, 15, and 17 to: (1) ensure that landscaping is not placed or allowed to grow to such size as to obstruct coastal views through the corridor; (2) retain the opening between the buildings providing scenic views of the offshore rocks, ocean, and wildlife; and (3) allow future development to be reviewed to ensure it will not be sited where it will have significant adverse effects on visual resources. The proposed project provides a substantial view corridor oriented from the vantage point of the vicinity of the intersection of Front and A Streets and directed toward the offshore rocky areas northwest of the site as required by Visual Resources and Special Communities Policy No. 4.

Minimizing Landform Alteration / Restoring and Enhancing Visually Degraded Areas

Some minor alterations of natural landforms would result from development of the proposed residential project. Establishing building sites, accessways, parking facilities, installing utilities, and constructing the various outdoor stormwater treatment, accessway, and view platform amenities require the clearing of grasses and shrubs, and grading that would result in observable modifications to the current terrain at the site. However, as described in Project Setting Finding IV. A. 2, with its nondescript former medical clinic building and parking lot expanses, and generally featureless minor sloped terrain, there are no remarkable landform features or notable site improvements present. Furthermore, given that the subject property is situated on terrain that is at a slightly lower elevation of that of the adjoining lots, the grading performed in the construction of site improvements would result in the site more closely matching the generally flat terrain of surrounding parcels. Therefore, the Commission concludes that construction of the project as proposed would both minimize landform alteration, and restore and enhance the visually degraded site.

Visual Compatibility of New Development

Finally, Policy No. 4 requires that new development be found to be visually compatible with the character of surrounding areas. With respect to making this finding, the character of the area surrounding the project site may best be described as "diverse." The property lies at the junction of several zoning districts, including single- and multi-family residential, mixed residential – professional office, waterfront commercial, general commercial, and open space. Given the wide variety of building types, styles, sizes, heights, and coverages that currently exist or would be allowed on adjoining properties by the City's zoning regulations, the construction of the proposed residential complex cannot, from a strictly architectural point of view, be determined to be out of character with the surrounding area.

However, the Commission notes that the descriptions of the site's land use and zoning designations identify the area as being "*a transition between one-family residential areas and adjoining commercially-zoned properties*," and "*where it is necessary and desirable to encourage the full development of properties which lie between existing residential and nonresidential districts and which, because of existing conditions, cannot be practi-*

cally included within residential districts," The Commission find these descriptions as referring to the intended uses for the area as well as the recognized physical form development in such designations should take.

Accordingly the proposed 32′ 7″ height for the condominium building would be less than that of the adjoining 34′4″ hotel but somewhat greater than that of the nearby single-family homes to the north and west. Thus, as designed, the proposed multi-unit residential complex would provide both a functional and stylistic transition between the flanking multi-story commercial and the detached residential areas as intended in the description of the site's land use and zoning designations. Accordingly, the Commission finds the development to be visually compatible with the character of the surrounding area

To lessen the visual prominence of the development, the Commission attaches Special Condition Nos. 12 and 13. Special Condition No. 12 requires that all exterior lights, including lights attached to the outside of any structures must be low-wattage, non-reflective and be mounted and shielded so as to cast their illumination downward to minimize glare and lighting impacts. Special Condition No. 13 requires the applicant to submit for the review and approval of the Executive Director, a landscaping plan for the resort site. The condition requires that the plan include landscaping to soften the appearance of the development, while assuring that the landscaping materials are located and sized so as not to obstruct views to and along the coast from designated view corridors and vista points.

Conclusion

The Commission therefore finds that as: (1) views to and along the ocean have been protected through provision of a substantial view corridor oriented from the vantage point of the vicinity of the intersection of Second and "A" Streets toward the offshore rocky areas west of the site and by the proposed creation of a viewing platform along the lateral blufftop pathway seaward of the condominium complex; (2) natural landform alteration would be minimized; (3) the quality of visually degraded areas would be restored and enhanced where feasible; (4) the project has been conditioned so that future development will be reviewed to ensure it will not be sited where it would have significant adverse effects on visual resources; and (5) the new development would be visually compatible with the character of surrounding areas, the proposed project as conditioned is consistent with LUP Chapter 2, Policy No. 4.

H. California Environmental Quality Act.

Section 13906 of the Commission's administrative regulation requires Coastal Commission approval of Coastal Development Permit applications to be supported by a finding showing the application, as modified by any conditions of approval, is 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 any feasible alternatives or feasible mitigation measures available,

which would substantially lessen any significant adverse effect the proposed development may have on the environment.

The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. Those 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 above, the proposed project has been conditioned to be consistent with the policies of the Coastal Act. As specifically discussed in these above findings, which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been required. As conditioned, there are no other feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impacts, which the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, can be found consistent with the requirements of the Coastal Act and to conform to CEQA.

III. EXHIBITS:

1. Regional Location Map
2. Vicinity Map
3. Project Site Aerial Photograph
4. Project Site Oblique Aerial Photograph
5. Project Narrative, and Site, Floor, Floor Height, and Elevation Plans
6. Excerpts, Geotechnical Investigation
7. Proposed Building Resiliency Structural Design Standards
8. Wetland Delineation, Sensitive Species Surveys, and Habitat Analyses
9. Preliminary Marine Riparian Vegetation Restoration Plan
10. Preliminary Drainage and Stormwater Treatment Control Plans
11. Visual Resources Impact Analysis

ATTACHMENT A:

STANDARD CONDITIONS

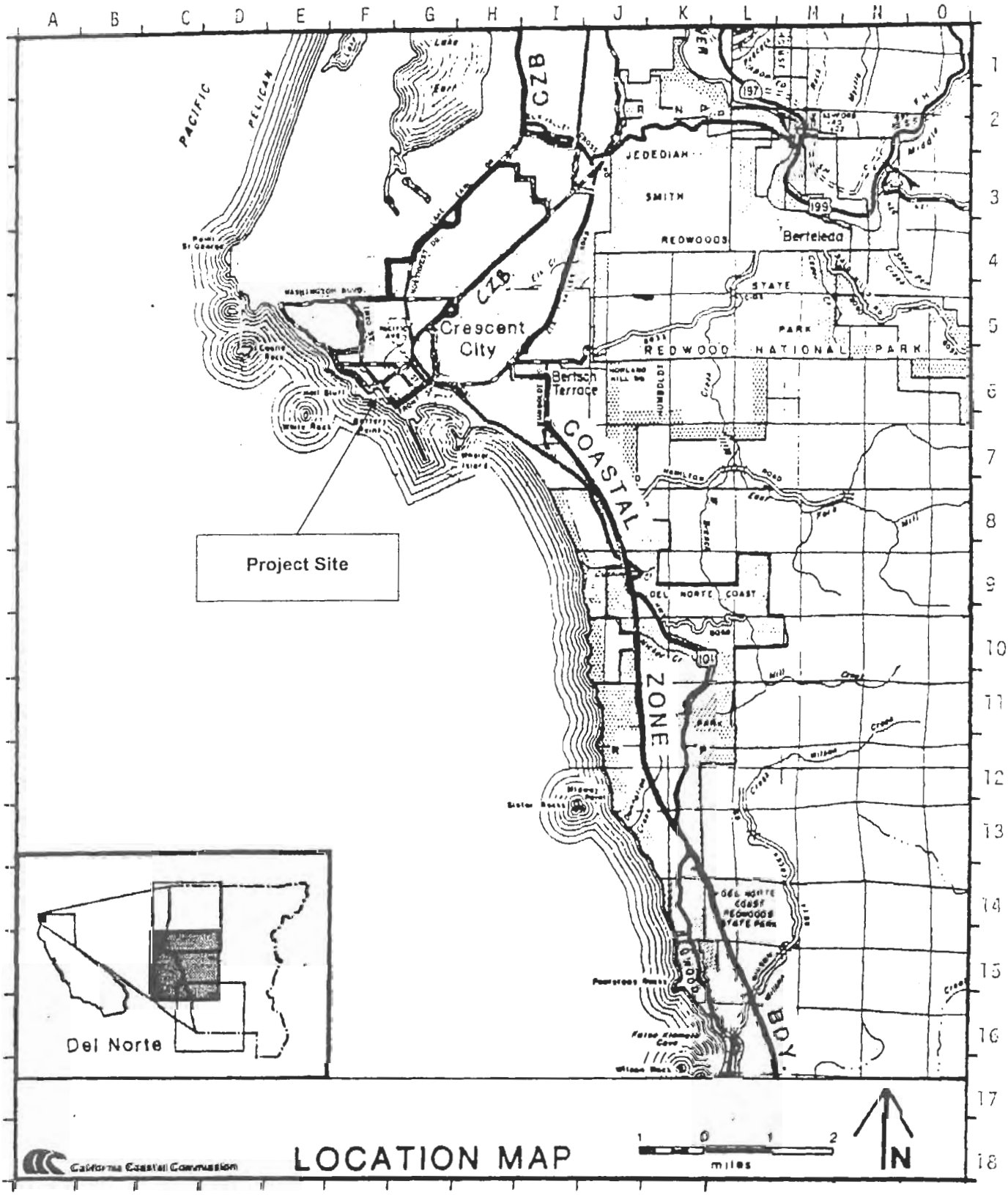
1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

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 or interpretation of any condition will be resolved by the Executive Director of 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.



County of Del Norte

EXHIBIT NO. 1

APPLICATION NO.

A-1-CRC-08-004

BAUGH dba DEVELOPMENT CONSULTANTS, INC.

REGIONAL LOCATION MAP

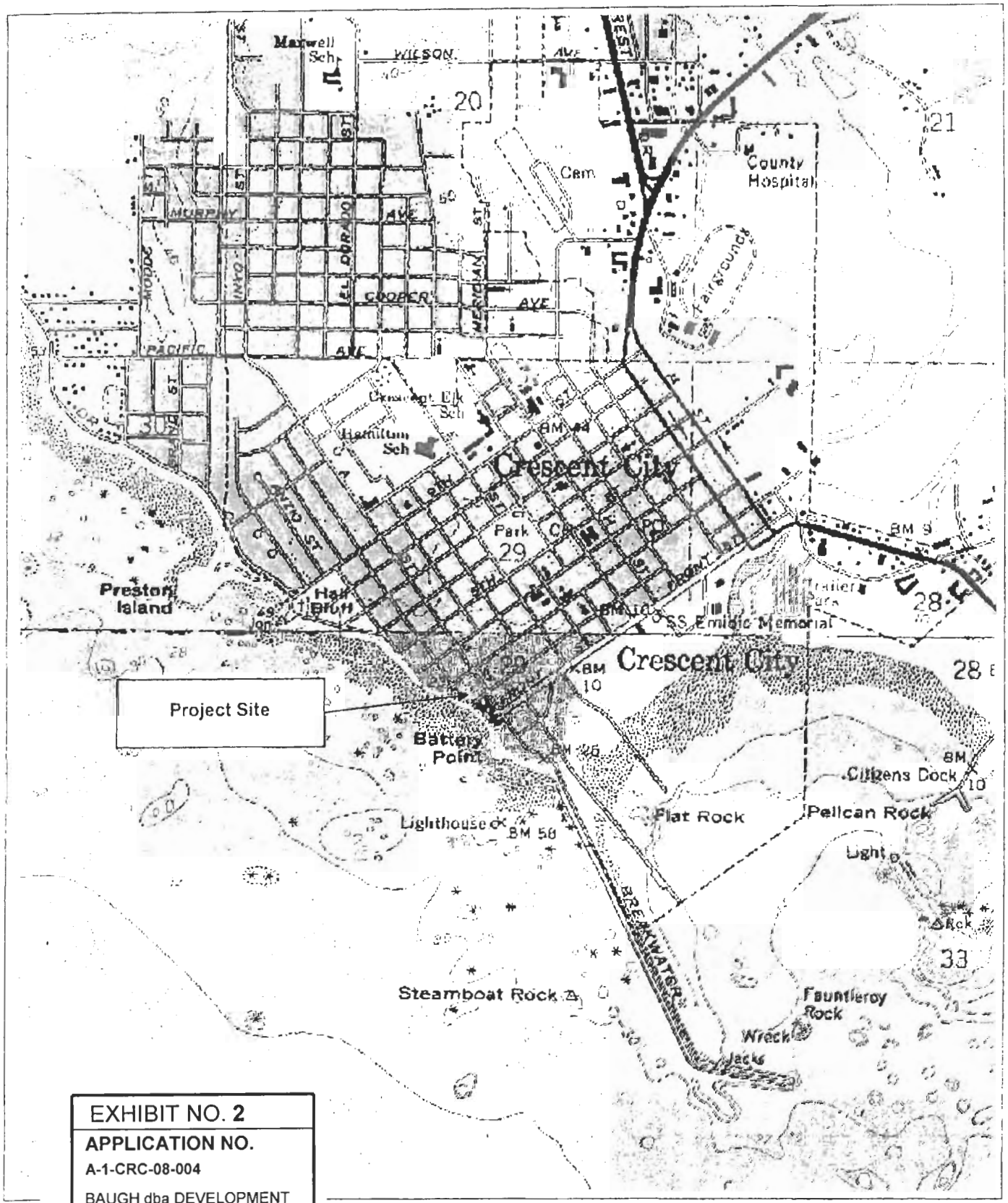


EXHIBIT NO. **2**

APPLICATION NO.

A-1-CRC-08-004

BAUGH dba DEVELOPMENT CONSULTANTS, INC.

VICINITY MAP

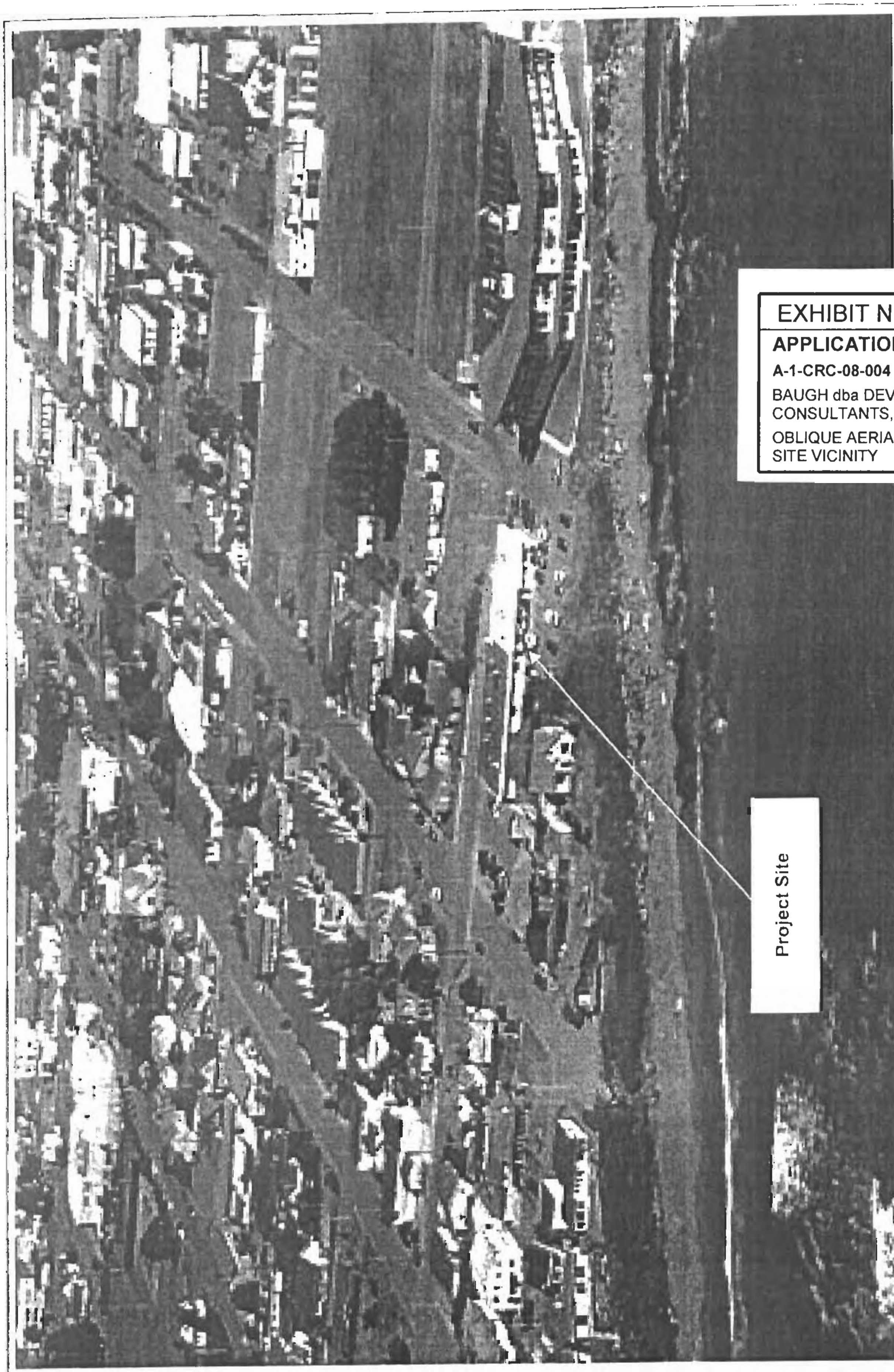


EXHIBIT NO. **3**

APPLICATION NO.

A-1-CRC-08-004

BAUGH dba DEVELOPMENT CONSULTANTS, INC.

OBLIQUE AERIAL, PROJECT SITE VICINITY

EXHIBIT NO. 4
APPLICATION NO.
A-1-CRC-08-004
BAUGH dba DEVELOPMENT CONSULTANTS, INC.
PROJECT NARRATIVE, & SITE, FLOOR, FLOOR HEIGHT, & ELEVATION PLANS (1 of 30)

February 2, 2009

RECEIVED
FEB 0 4 2009
CALIFORNIA
COASTAL COMMISSION

D.C.I.

James R. Baskin, Coastal Planner
California Coastal Commission
P.O. Box 4908
Eureka, CA 95502

Re: Project Narrative Coasta Norte: CDP 07-06, UP07-02, & V07-08

Dear Jim:

Architecturally Coasta Norte is planned as a warm, inviting and appropriate architectural style for the area in which it is to be built. It will consist of two floors of residential and fractional ownership and timeshare units, above a single level podium parking structure. The project will have dedicated public access trails and viewing platforms.

Situated at 200 "A" street on the site of the vacant "A" street clinic, the project will be designed to USGBC "gold " certification level and replace the abandon clinic with an environmentally sound project designed as an appropriate transition from the commercial properties to the South and East to the vacation rental and residential properties to the North and West.

Coasta Norte will total up to forty three units of which of which 84% (36 units) will be owner occupied and 16% (7 units) will be available for fractional or time share ownership. Based solely on a factional ownership of seven weeks per share the (seven owners per unit) a minimum visitor component would be approximately 49 families. Based solely on a time share component of one week per year ownership per unit, this would provide a maximum visitor component of approximately 364 families. Given the location and proximity to natural visitor attractions it is anticipate that the final mix will be approximately 40% fractional and 60% timeshare, giving the project the opportunity to provide approximately 238 family vacation weeks per year or 1,665 annual room nights of tourist serving occupancy.

The project, sales and administration of the owner occupied units, fractional and timeshare units will be handled by professional sales and management staff tasked with maintaining operational integrity under the project proponents management until the project has reached sufficient maturity to allow the transfer of administration of the ownership interest to a duly formed Home Owners Association to oversee the ongoing professional management, operational duties and administration of the project.

Situated on a 1.24 acre site the building footprint will be approximately 65% of the site (35,306 sq. ft.), which is a decrease of 9% from the existing clinic use of over 40,060 sq. ft. of impervious surface on the site. The total building will be approximately 70,612 sq. ft. with a minimum parking ratio to code of 1.5 stalls per unit.

DEVELOPMENT CONSULTANTS INC.
3941 Park Drive, Ste. 20-338 • El Dorado Hills, CA 95762
916-934-0106 • FAX 916-934-0107

The site is moderately sloped from approximately from 26.31 MSL on the North to 15.11 MSL to the South allowing the parking structure to be set approximately ten feet below grade at the North end of the site, transitioning to on grade at the South end. Utilization of the natural slope allows for an overall reduction in building height and minimized the risk of flooding to no more than the existing parking lot. Given the sub grade nature of the parking structure at the North end of the project the above ground portion of the project for this area will consist of approximately two floors of residential to twenty feet and approximately seven feet of pitched roof and equipment screening mansards for a total building height of approximately twenty seven (27'0") feet at this end. Given the moderate slope of the property and the semi sub-grade nature of the parking area, the building height is calculated to be approximately 32'7".

Public Access:

This immediate area around the site has seven identified coastal view and access areas (fig.1). Coasta Norte will provide for both dedicated coastal access and views by means of a recorded twenty foot easement (fig.2) in an area that connects to the adjoining Hampton Inn trial, and existing coastal pathway. As a condition of approval the project proponent would agree to the expansion of the access easement (fig 3) to provide for connection to the Wendell street right of way, thereby creating a continuous coastal trail from the Battery street to third street.

Maintenance of the trail system would be handled by the deeded owners of the underlying land as each owner would have a vested interest in maintaining grounds fronting its property to the highest possible standards.

Geotechnical Analysis:

A full Geotechnical analysis (April 30, 2008) with ground water monitoring and analysis has previously been provided to Staff that shows:

- No liquefaction Potential
- The risk of damage from a distant source Tsunami is NEGLIGIBLE
- Minimum Stet back should be 19' from back of beach (the project is 44' at it nearest point with an average set back of 74'. A factor –of –safety of 2.4.
- Global sea level rise "The risk of shoreline erosion theoretically decreases slightly each year" do to the uplift rate.
- No physiographic condition that would suggest that the risk of wave throw is higher on the project site than the adjacent Hampton Inn site.

Please see the complete Geotechnical Analysis for supporting documentation.

Preliminary Drainage and Water Pollution Control Plan:

The exiting clinic development on site has no discernable storm water treatment or pollution control measure in place. Storm water drains directly off of the roof, through the uncovered trash enclosure and across the surface parking lot directly into an on site storm drain that gravity feeds approximately 100 yard to the west and empties directly into the ocean (fig 4).

The project will be built to USGBC "gold" certification and Leeds standards. All storm water will be treated on site using BMP's as outlined in the Storm water Pollution Prevention Plan (SWPPP) and Water pollution Control Program (WPCP) to incorporate the requirements of the State Water Resources Control Board (SWRCB) (fig 5) using:

- Swales to prevent mixing of onsite and offsite storm water.
- Artificial stream bed to move water to and from parking areas
- Tree box filters and rain gardens to treat storm water
- Roof top drains tied directly in to treatment areas.
- Drip edges to direct storm water to treatment areas.

Biological Assessment:

A Biological Report (August 13, 2007) to identifying any rare, threatened, endangered, or special status plant and animal species has previously been provided to Staff:

- Botanical Species: None of the target species were found in the project area.
- Animal Species: None of the target species were found in the project area.
- Sensitive Habitats: None of the DFG listed sensitive coastal habitats were encountered on the subject parcel.

Visual Resources Impacts Analysis:

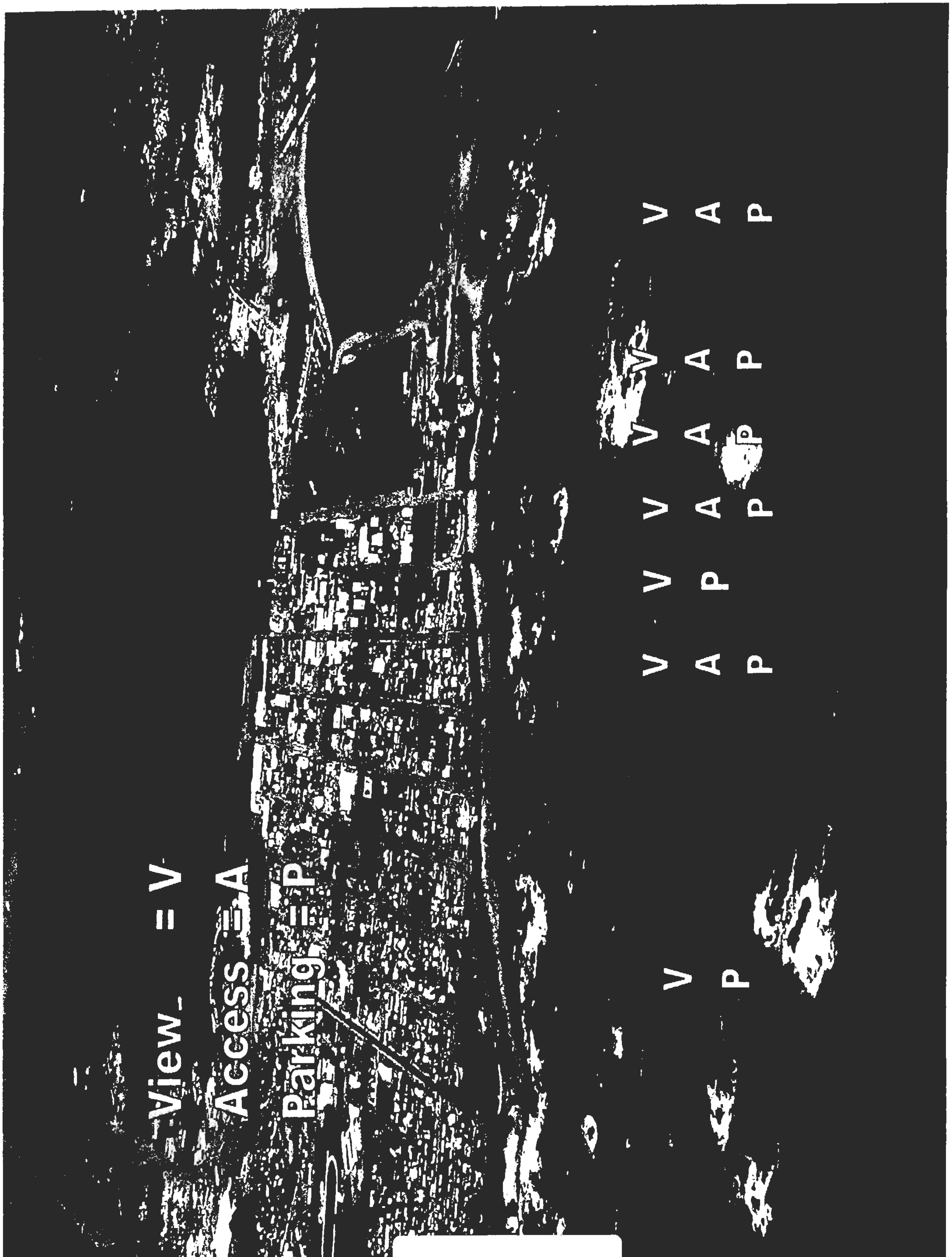
The comprehensive visual resources impact analysis prepared for the project analyzed eleven key viewpoints and determined that:

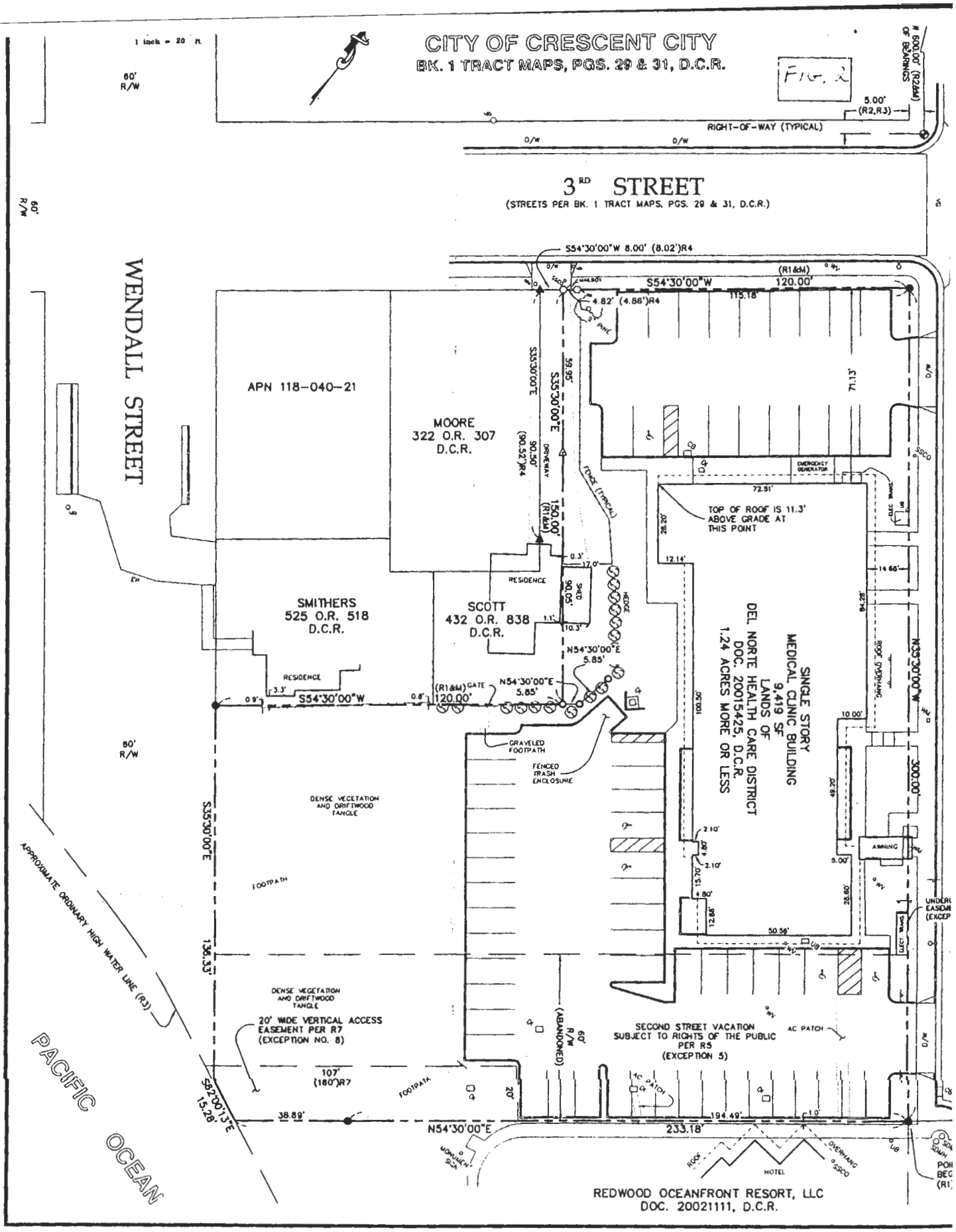
- No viewpoint had a High impact rating
- One viewpoint had a Moderate impact to a non coastal asset
- Four viewpoints had a Low impact
- Four Viewpoints had no impact

The one moderate and four low ratings were mitigated per the report to less than significant. Additional it was found that the project upon completion will created approximately 22 high value coastal views.

Sincerely,

Randy Baugh
D.C.I.


View = V
Access = A
Parking = P


CITY OF CRESCENT CITY
BK. 1 TRACT MAPS, PGS. 29 & 31, D.C.R.
FIG. 2
1 inch = 20 ft.
N 600.00' (R2&M) OF BEARINGS
5.00' (R2,R3)
RIGHT-OF-WAY (TYPICAL)
3RD STREET
(STREETS PER BK. 1 TRACT MAPS, PGS. 29 & 31, D.C.R.)
WENDALL STREET
60' R/W
APN 118-040-21
MOORE
322 O.R. 307
D.C.R.
SMITHERS
525 O.R. 518
D.C.R.
SCOTT
432 O.R. 838
D.C.R.
S54°30'00"W 8.00' (8.02')R4
S54°30'00"W
(R1&M) 120.00'
115.18'
4.82' (4.86')R4
S35°30'00"E
59.95'
90.50' (90.52')R4
DRIVEWAY
150.00' (R1&M)
FENCE (TYPICAL)
RESIDENCE
SHED
HEDGE
N54°30'00"E 5.85'
GATE
GRAVELED FOOTPATH
FENCED TRASH ENCLOSURE
DENSE VEGETATION AND DRIFTWOOD TANGLE
FOOTPATH
APPROXIMATE ORDINARY HIGH WATER LINE (R3)
PACIFIC OCEAN
136.33'
20' WIDE VERTICAL ACCESS EASEMENT PER R7 (EXCEPTION NO. 8)
107' (180')R7
S82°00'13"E 15.28'
38.89'
N54°30'00"E
233.18'
194.49'
(ABANDONED)
SECOND STREET VACATION SUBJECT TO RIGHTS OF THE PUBLIC PER R5 (EXCEPTION 5)
AC PATCH
SINGLE STORY MEDICAL CLINIC BUILDING 9,419 SF
LANDS OF DEL NORTE HEALTH CARE DISTRICT
DOC. 20015425, D.C.R.
1.24 ACRES MORE OR LESS
TOP OF ROOF IS 11.3' ABOVE GRADE AT THIS POINT
EMERGENCY GENERATOR
72.91'
71.13'
28.20'
12.14'
14.66'
94.28'
100.50'
49.25'
300.00'
N35°30'00"W
10.00'
AWNING
5.00'
15.70'
4.80'
12.88'
28.60'
50.56'
2.10'
4.80'
UNDERG EASEM (EXCEP
UTILITY TRANS
OVERHANG
ROOF
HOTEL
SSCO
REDWOOD OCEANFRONT RESORT, LLC
DOC. 20021111, D.C.R.

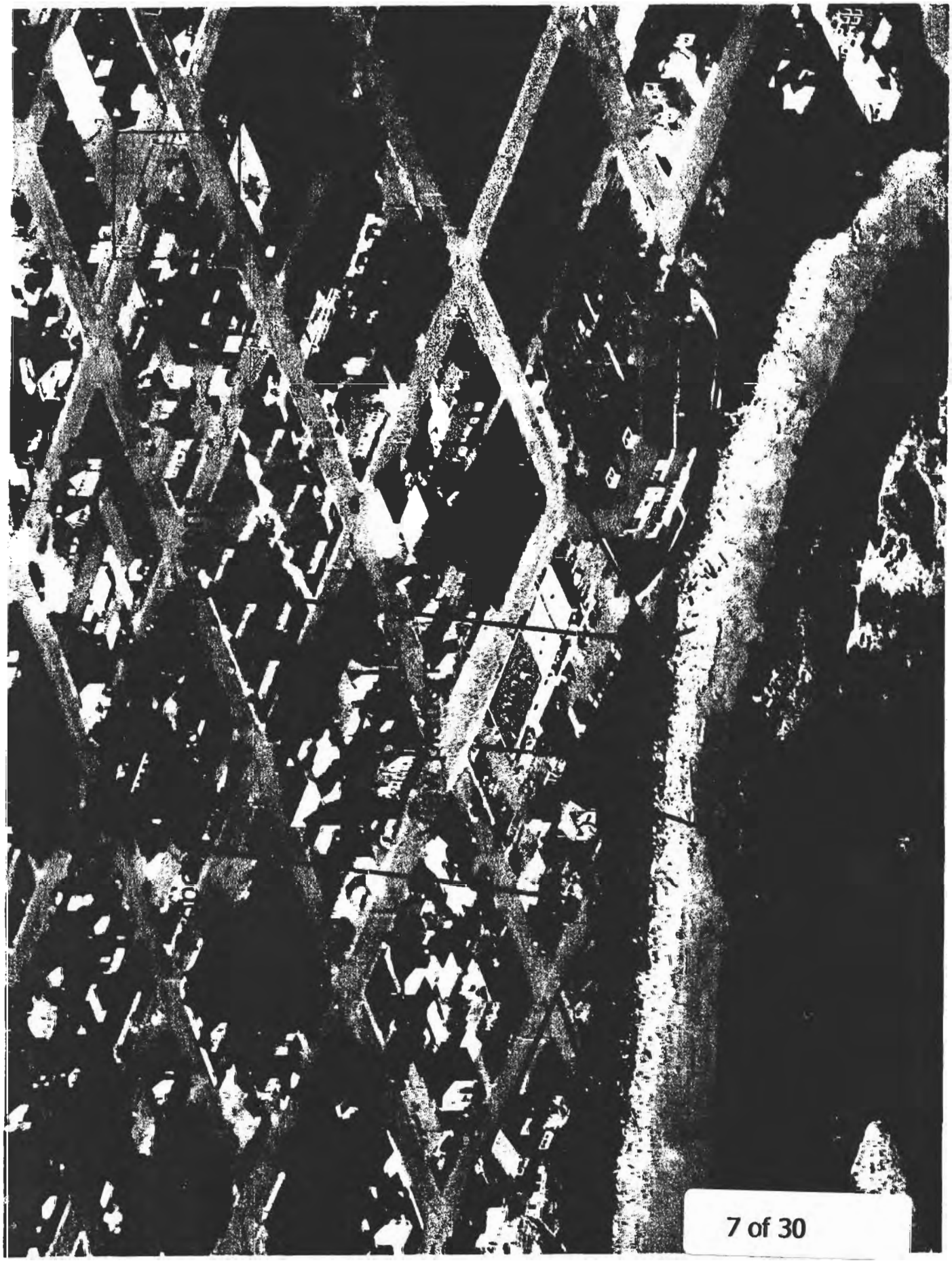
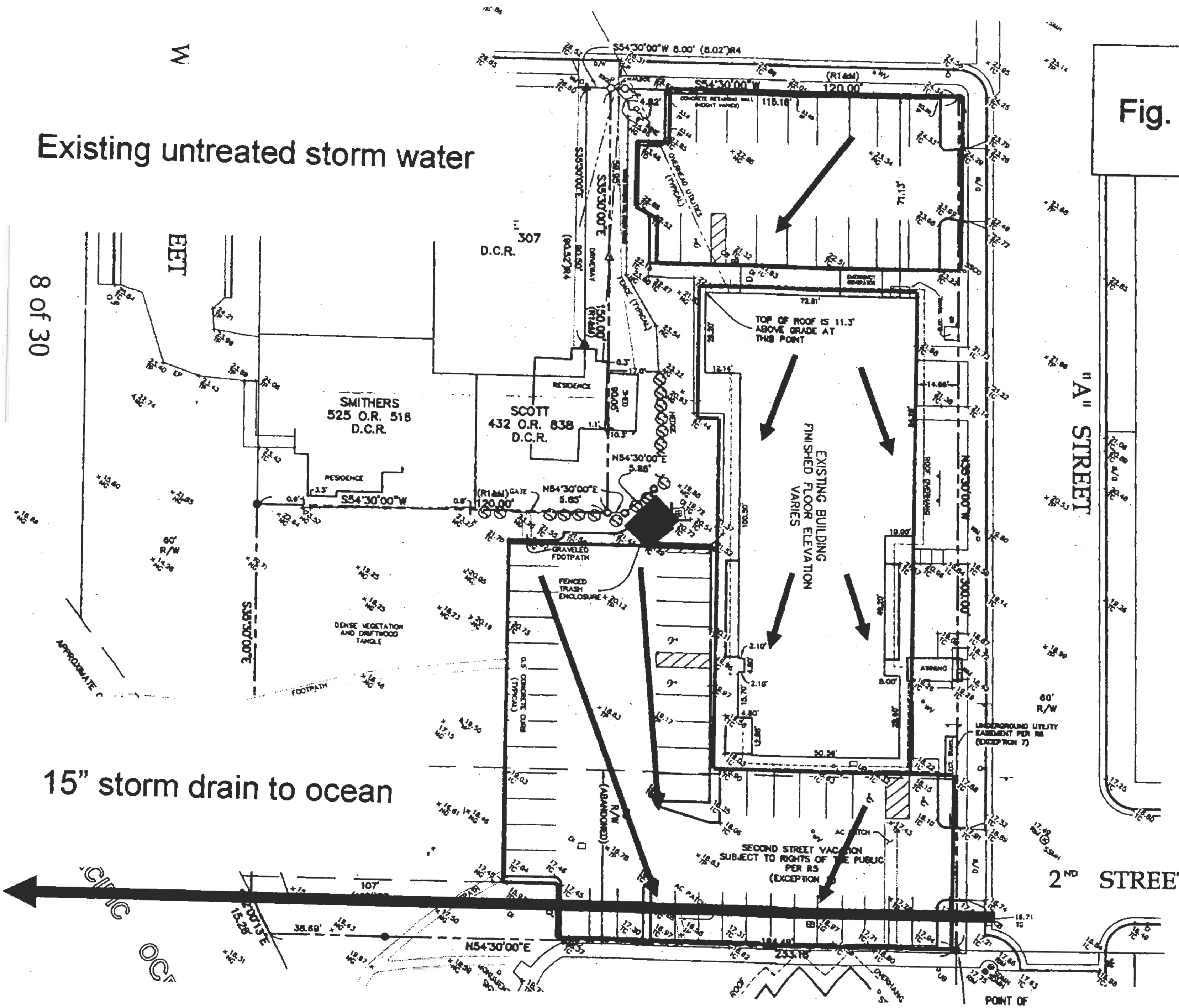
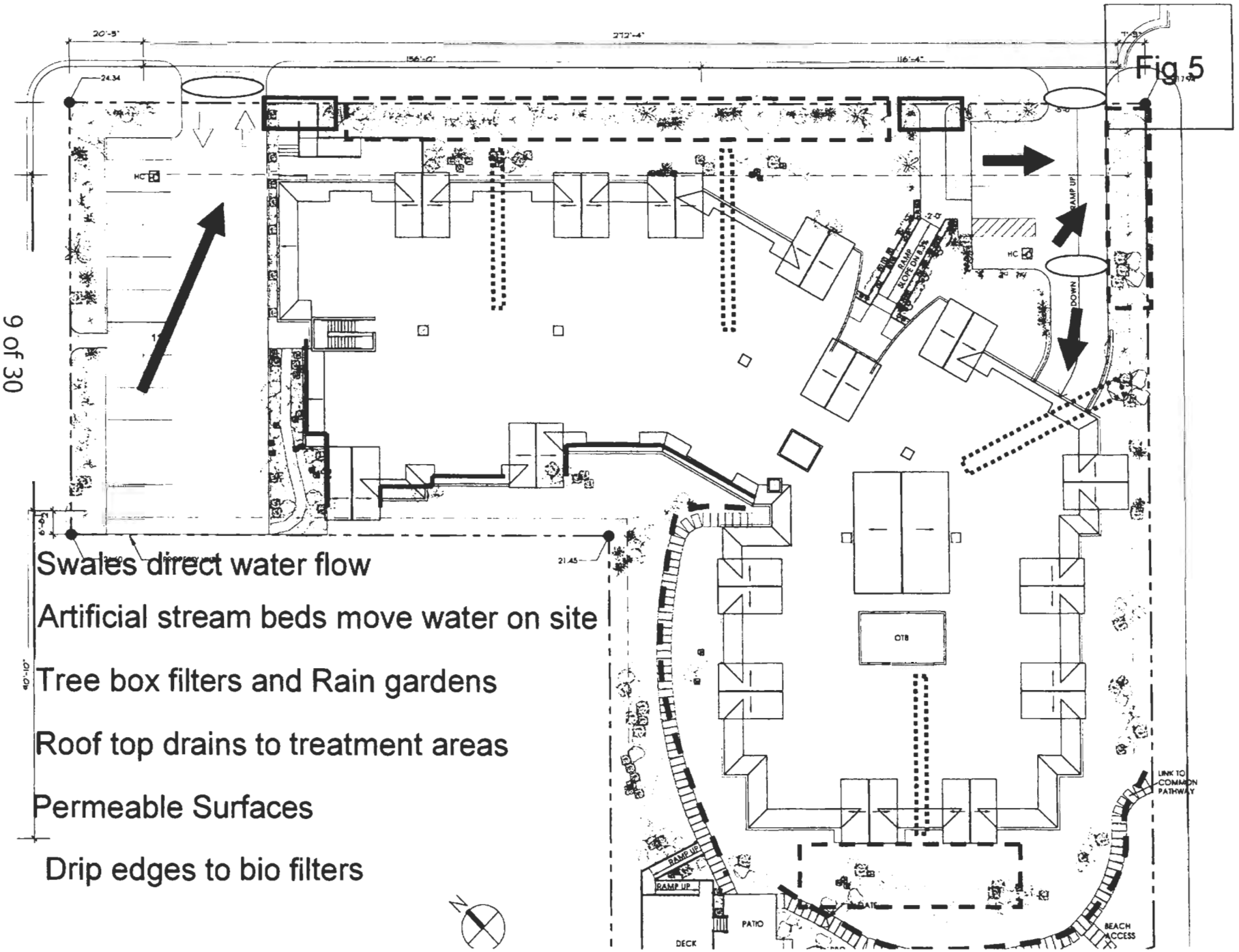


Fig. 4



Existing untreated storm water
15" storm drain to ocean
"A" STREET
2ND STREET
EXISTING BUILDING
FINISHED FLOOR ELEVATION
VARIES
TOP OF ROOF IS 11.3' ABOVE GRADE AT THIS POINT
SMITHERS
525 O.R. 518
D.C.R.
SCOTT
432 O.R. 838
D.C.R.
307
D.C.R.
RESIDENCE
SHED
GRAVELED FOOTPATH
FENCED TRASH ENCLOSURE
DENSE VEGETATION AND DRIFTWOOD TANGLE
FOOTPATH
0.5' CONCRETE CURB (TYPICAL)
R/W (ABANDONED)
SECOND STREET VACATION SUBJECT TO RIGHTS OF THE PUBLIC PER R5 (EXCEPTION
UNDERGROUND UTILITY EASEMENT PER R8 (EXCEPTION 7)
60' R/W
S54°30'00"W 8.00' (8.02')R4
S54°30'00"W
120.00'
N35°30'00"W
300.00'
S35°30'00"E
150.00'
N54°30'00"E
233.18'
S54°30'00"W

Fig 5


Swales direct water flow
Artificial stream beds move water on site
Tree box filters and Rain gardens
Roof top drains to treatment areas
Permeable Surfaces
Drip edges to bio filters
HC
RAMP UP
DOWN
RAMP SLOPE DN 8.3%
OTB
LINK TO COMMON PATHWAY
RAMP UP
RAMP UP
PATIO
DECK
GATE
BEACH ACCESS

August 31, 2009

Robert S. Merrill
California Coastal Commission
P.O. Box 4908
Eureka, CA 95502

Re: Pedestrian Easement CDP 07-06, UP07-02, & V07-08

Dear Bob:

Attached find the legal description of the proposed 20 foot wide easement area across the proposed Coasta Norte development site located at 200 A Street, Crescent City, CA APN: 118-020-034. The purpose of this letter is to clarify and memorialized our understanding with regards to the proposed easement, and the procedural steps to be followed concerning the offer of dedication:

It is our understanding that

1. The applicant shall submit the proposed offer to dedicate an easement for the review and approval of the executive director prior to recordation and prior to issuance of the Coastal Development permit;

2. The grant of easement shall require that any future development other than the initial development of underground services, access facilities and landscaping, that is proposed to be located either in whole or in part within the area described in the recorded easement shall require a Commission amendment to the subject Coastal Development Permit;

3. The grant of easement shall include the legal description of the entire property as well as the area of dedication;

4. The grant of easement shall be recorded after approval, and subject to issuance of the Coastal Development Permit; and

5. If this offer of dedication is acceptable, we ask that a letter of acceptance the offer be signed to memorialize our agreement regarding the Dedication.

Sincerely,

Randy Baugh
President D.C.I.

DEVELOPMENT CONSULTANTS INC.
3941 Park Drive, Ste. 20-338 • El Dorado Hills, CA 95762
916-933-4752 • FAX 916-934-0107

August 6, 2009

James R. Baskin, Coastal Planner
California Coastal Commission
P.O. Box 4908
Eureka, CA 95502

Re: View Platform Access

Dear Jim

Per our discussion and separate to the required Public access easement to be recorded against the property. The access paths to and from the viewing platform will be accessible by the public. The pathway to the East of the platform that leads to a stair entrance to the building will not be public access.

Limitation on the public access area will be subject to such reasonable rules and regulations and hours of use as determined by the project and HOA board; however those hours of use shall not be more restrictive than the hours of us of the occupants of the project.

Sincerely,

Randy Baugh
President D.C.I.

CC Michele Rambo

RECORDING REQUESTED BY:
Development Consultants, Inc.

WHEN RECORDED RETURN TO:
DEVELOPMENT CONSULTANTS, INC.
3941 PARK DR., STE 20-338
EL DORADO HILLS, CA 95762
ATTENTION: RANDY BAUGH

APN: 128-020-28

DEED OF EASEMENT

This Agreement made this ____ day of _____, 2009, by and between Baugh Corp., a California Corporation, hereinafter referred to as "Grantor," and City of Crescent City, its successors and assigns hereinafter referred to as "Grantee."

RECITALS

WHEREAS, Grantor is the owner of certain real property commonly known as 200 A Street, Crescent City, California, hereinafter referred to as the "Servant Tenement," and more particularly described as the Grant deed, attached as Exhibit "A," recorded on _____, as Document _____, Del Norte County Records.

WHEREAS, Grantee desires to acquire certain rights in the Servant Tenement;

WHEREAS, the California Coastal Commission approved permit No. _____, on _____, and adopted the findings attached as Exhibit B and approved Special Condition No. _____-, which states: "PRIOR TO ISSUANCE FO THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and approval evidence that the applicant has executed and recorded a dedication to the City of Crescent City of an easement for public vertical access in accordance with the terms of the Project Description as proposed by the applicant and attached as Exhibit _____."

NOW, THEREFORE, it is agreed as follows:

1. Grant of Easement. For valuable consideration, Grantor hereby grants to Grantee an easement as hereinafter described.

2. Character of Easement. The easements granted herein are affirmative and "in gross" to the incorporated territory of Grantee and of its successors in interest, from time to time extant.

3. Description of Easement. The easements granted by the Grantor to Grantee are described as follows:

   3.1 Easement _____: See Exhibit "C."

   3.2 The easements granted herein are nonexclusive and shall run perpetuity.

   3.3 It shall be for public access (ingress and egress) along designated appurtenant facilities, across the Servient Tenement., and subject to the reasonable rules and regulations as established from time to time by the owner of the Servient Tenement.

   3.4 Description of Servant Tenement. The Servant Tenement is the real property located in the County of Del Norte, State of California, and more particularly described as the Grant deed recorded on _____, as Document _____, Del Norte County Records, and is legally described as attached in Exhibit "A." The easement shall be located as described in Exhibit "C" and incorporated by this referenced as if fully set forth at length herein. Grantor shall maintain the public access in accordance with applicable federal, state, and local ordinances and statutes.

4. Entire agreement. This instrument contains the entire agreement between the parties relating to the rights herein granted and the obligations herein assumed. Any oral representations or modifications concerning this instrument shall be of no force and effect excepting a subsequent modification in writing, signed by the party to the charged.

5. Attorney's Fees. In the event of any controversy, claim, or dispute relating to this instrument or the breach thereof, the prevailing party shall be entitled to recover from the losing party reasonable expenses, attorney's fees and costs.

6. Binding Effect. This instrument shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors, and assigns of Grantor and Grantee.

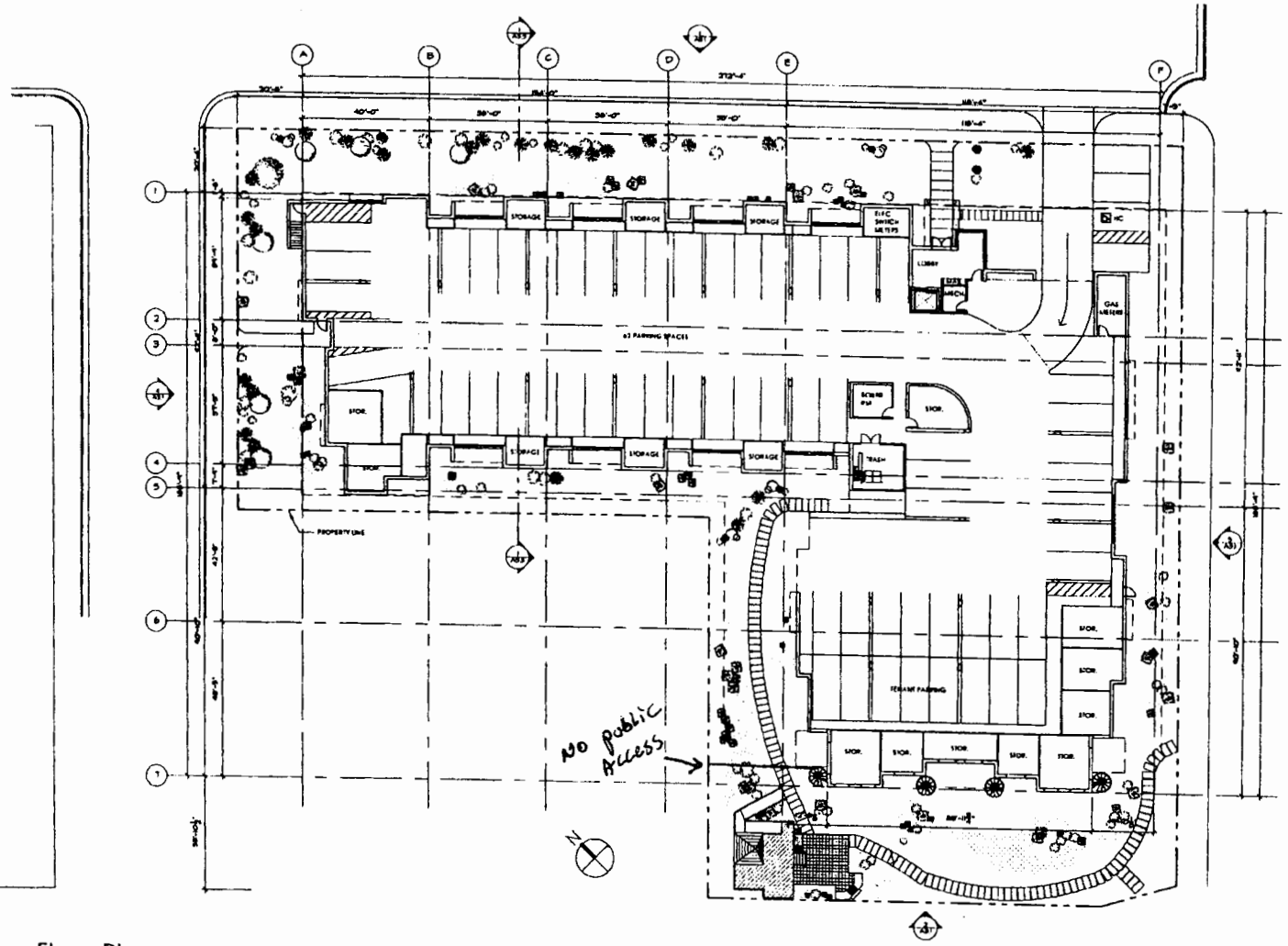
Executed on the date last shown below, at Crescent City, Del Norte County California.

GRANTOR:
BAUGH CORP, a California Corporation

Dated:_____ By: _____
Randy Baugh, President

GRANTEE:
CITY OF CRESCENT CITY

Dated:_____ By: _____
Rod Butler, City Manager



Garage Floor Plan

0710 - Crescent City

A1.1

SCALE: 1/32" = 1'-0"

ian birchall + associates architecture - interiors - planning 300 beale street, suite o san francisco, ca 94105 t: 415.512.9660 f: 415.512.9663 www.ibadesign.com

01/15/09

ib + a

COASTA NORTE CONDOMINIUMS

ARTIST'S CONCEPTUAL RENDERING

12/10/ A

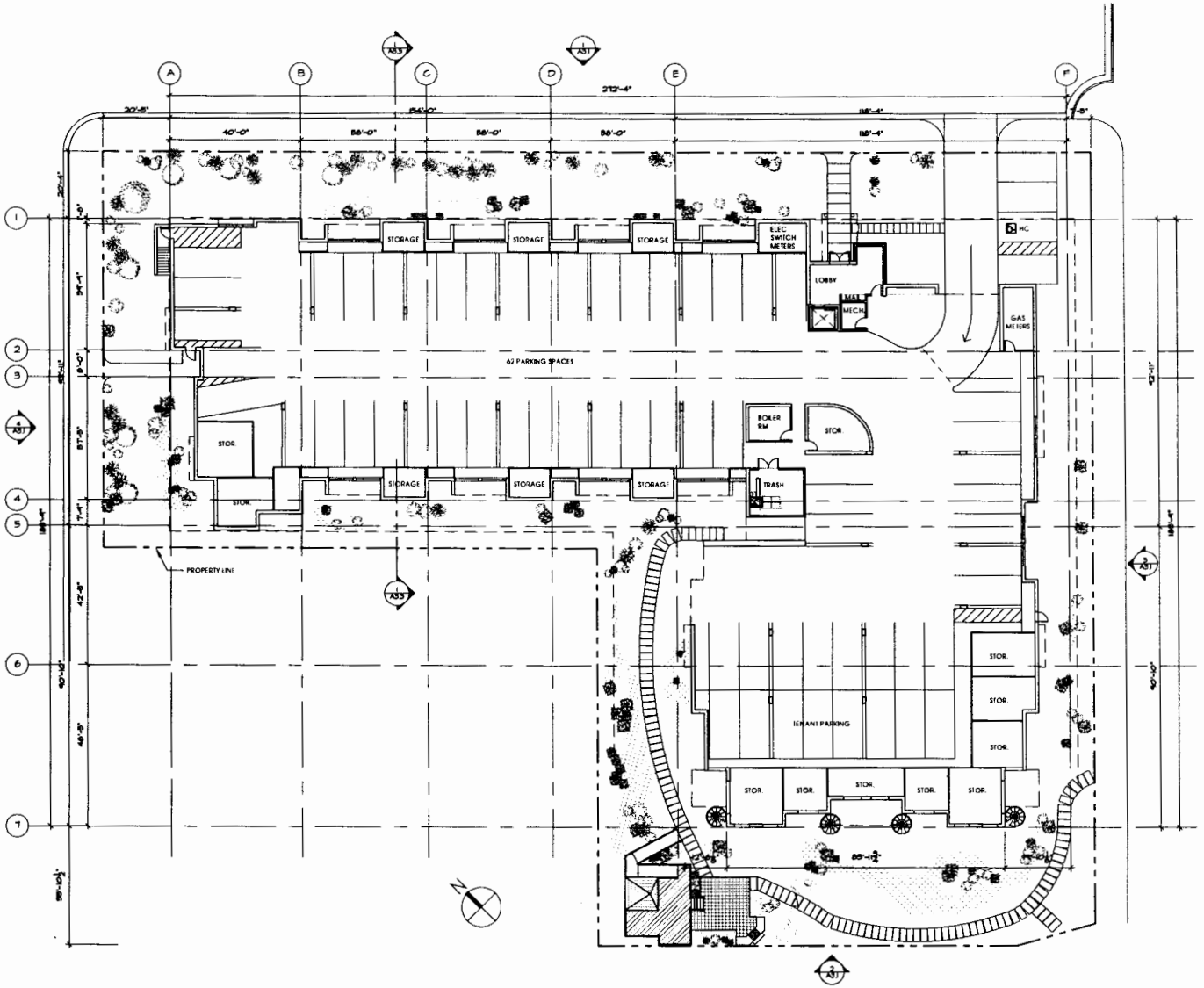
MURRAY DUNCAN ARCHITECTS

CRESCENT CITY CONDOMINIUMS

ARTIST'S CONCEPTUAL RENDERING

11/20/18

MURRAY DUNCAN ARCHITECTS



Garage Floor Plan

0710 - Crescent City

A1.1

SCALE: 1/32" = 1'-0"

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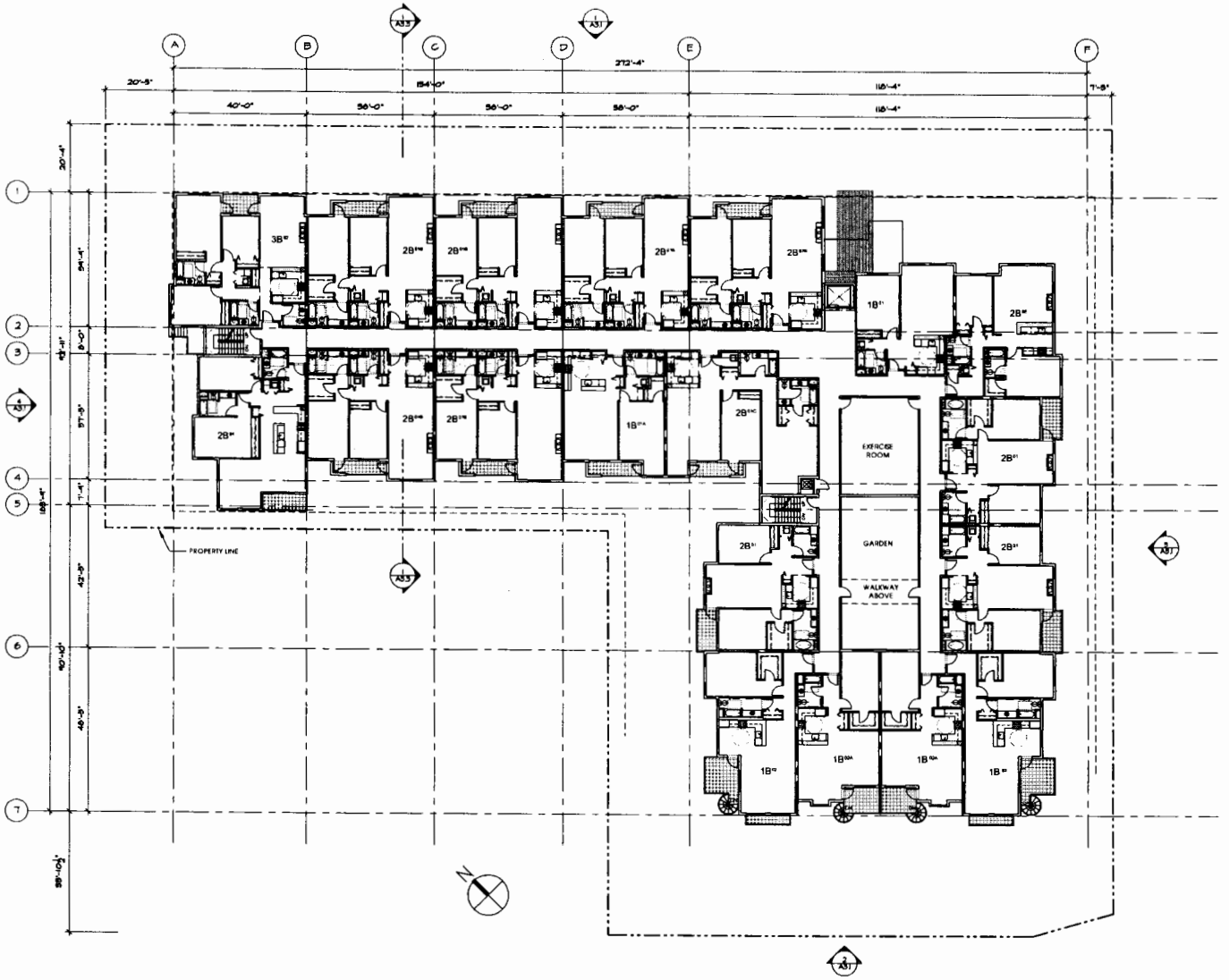

Floor Plan Level 1

0710 - Crescent City

A1.2

SCALE: 1/32" = 1'-0"

01/15/09

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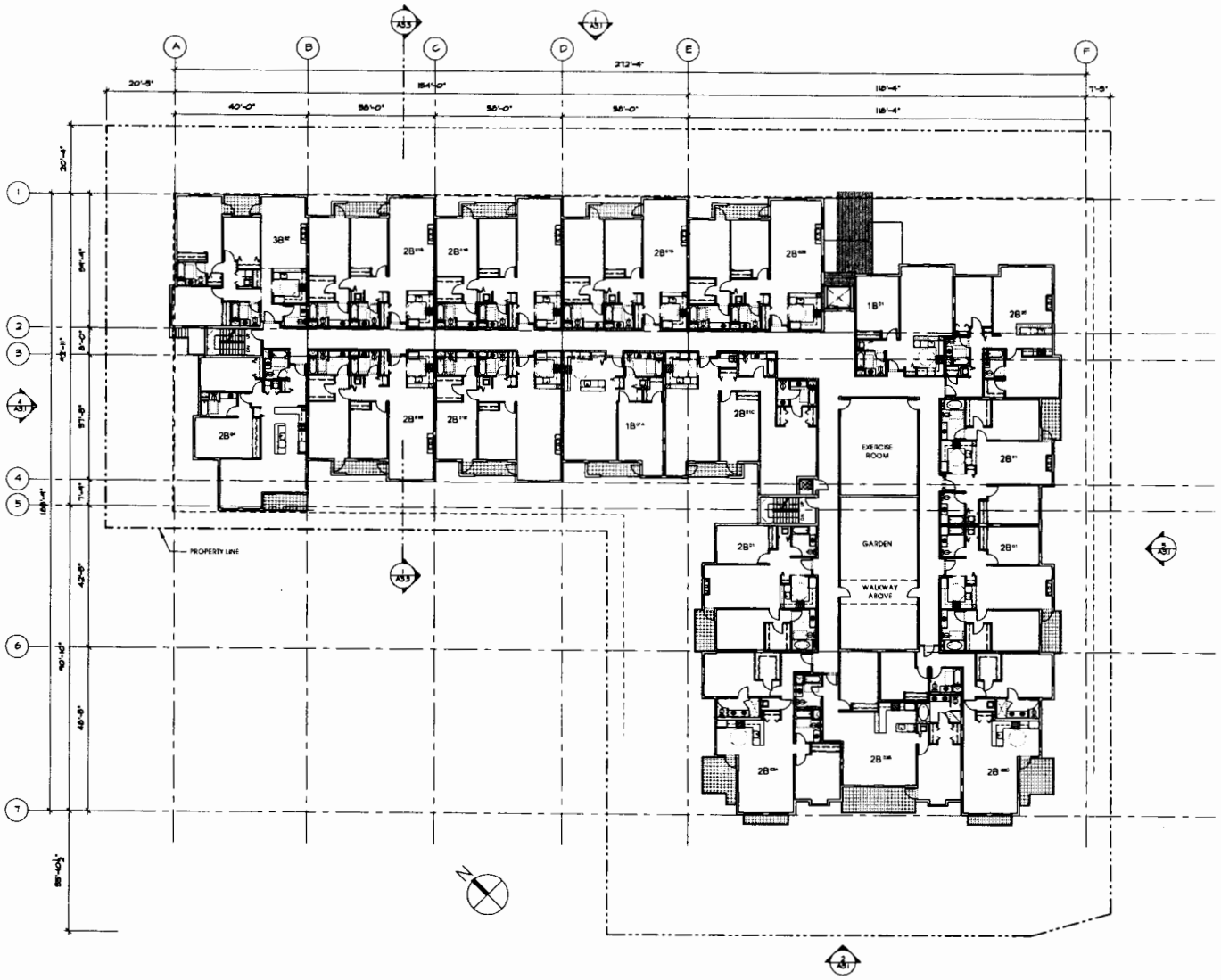

Floor Plan Level 2

0710 - Crescent City

A1.3

SCALE: 1/32" = 1'-0"

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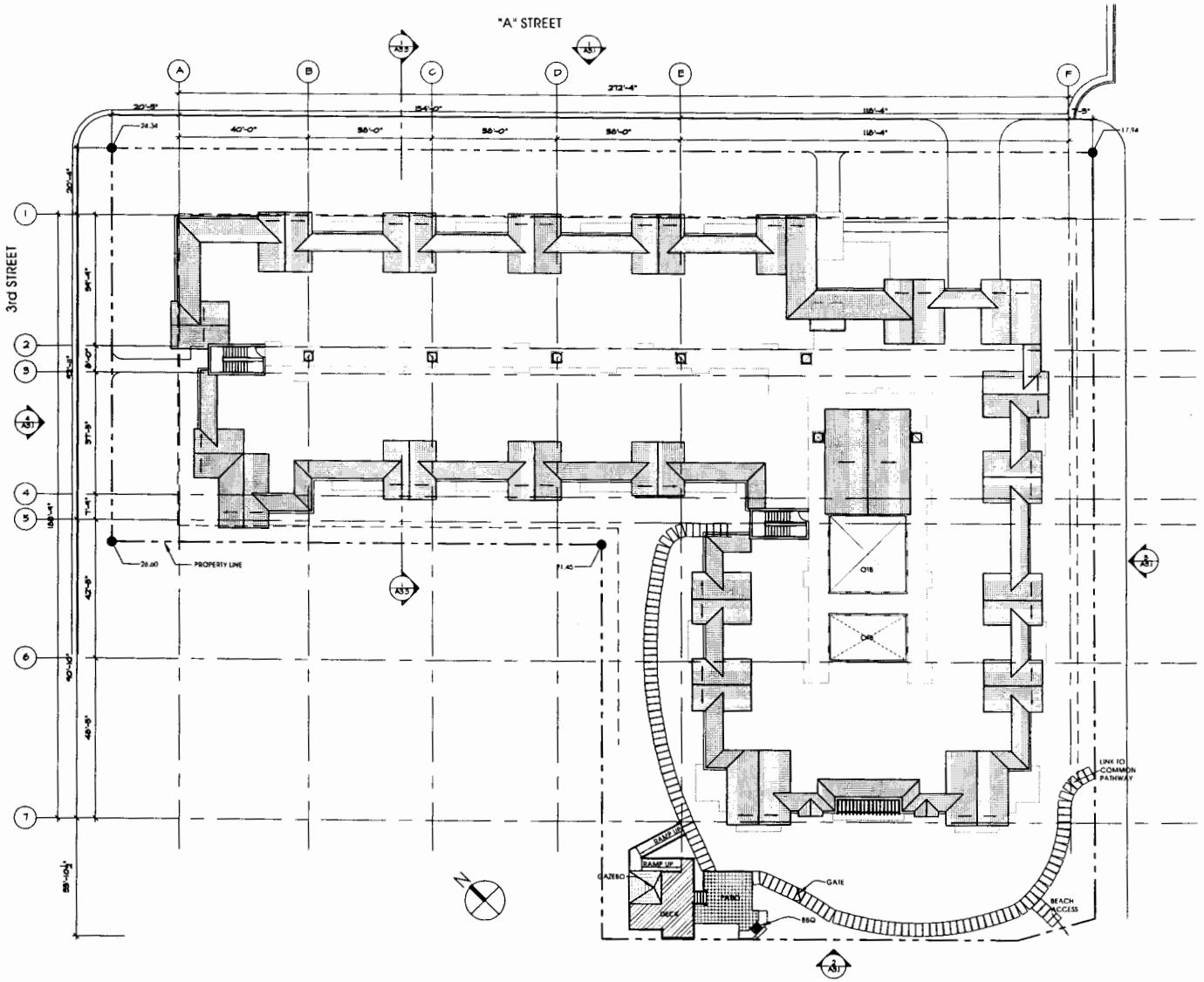

Roof Plan

0710 - Crescent City

A1.4

SCALE: 1/32" = 1'-0"

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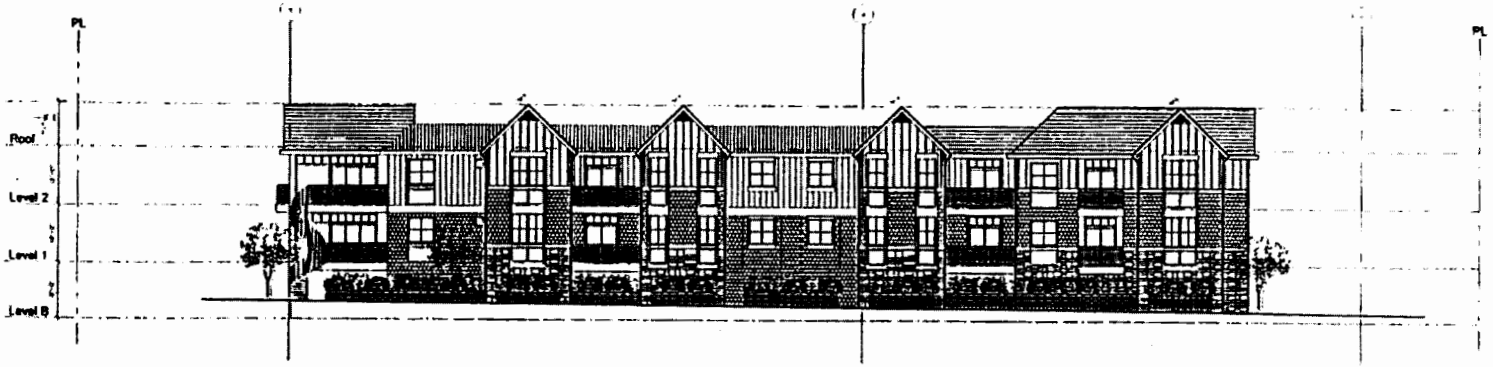
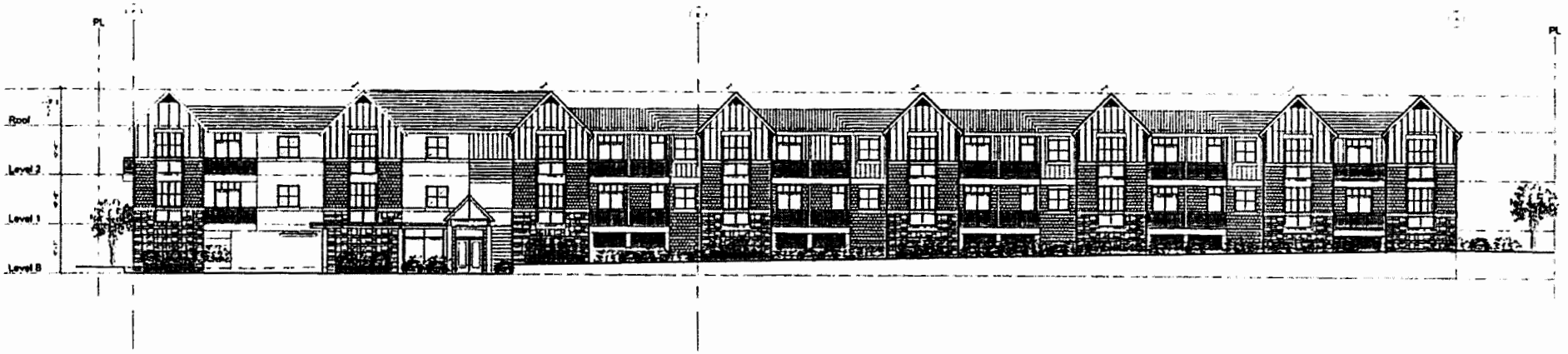


2ND STREET ELEVATION



'A' STREET ELEVATION

A1.6

ELEVATIONS

0710 - Crescent City

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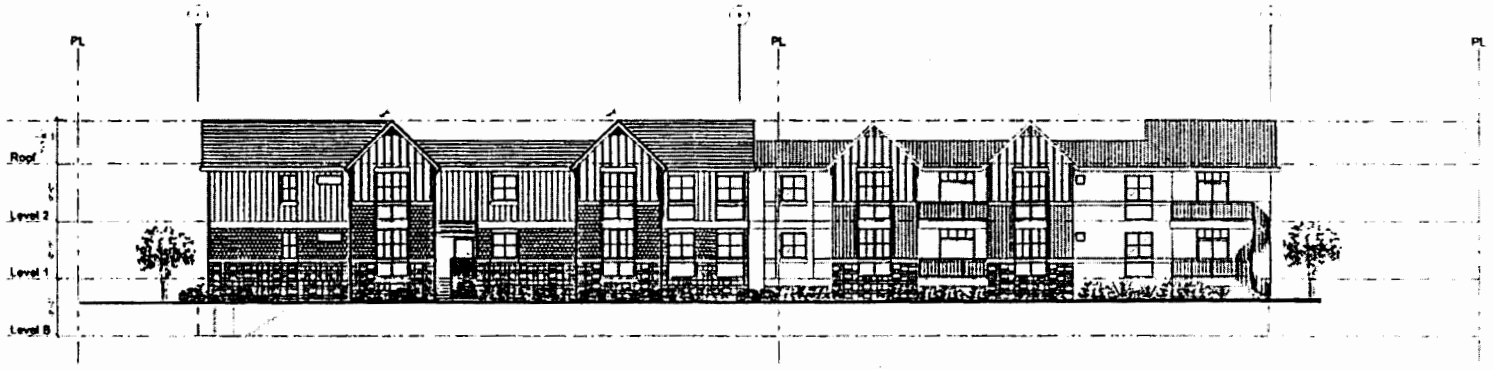
SCALE: 1" = 20'-0" 11/11/08

bia

OCEAN ELEVATION



3RD STREET ELEVATION

A1.5

ELEVATIONS

0710 - Crescent City

SCALE 1" = 20'-0" 11/11/08
ian bitchell + associates architecture · interiors · planning 300 bebe street, suite a san francisco, ca 94105 t 415.512.9660 f 415.512.9663 www.iadesign.com

OCEAN ELEVATION

3RD STREET ELEVATION

A1.5

ELEVATIONS

0710 - Crescent City

SCALE: 1" = 20'-0" 07/08/09

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August 31, 2009

D.C.I.

Robert S. Merrill
California Coastal Commission
P.O. Box 4908
Eureka, CA 95502

Re: Pedestrian Easement CDP 07-06, UP07-02, & V07-08

Dear Bob:

Attached find the legal description of the proposed 20 foot wide easement area across the proposed Coasta Norte development site located at 200 A Street, Crescent City, CA APN: 118-020-034. The purpose of this letter is to clarify and memorialized our understanding with regards to the proposed easement, and the procedural steps to be followed concerning the offer of dedication:

It is our understanding that

1. The applicant shall submit the proposed offer to dedicate an easement for the review and approval of the executive director prior to recordation and prior to issuance of the Coastal Development permit;

2. The grant of easement shall require that any future development other than the initial development of underground services, access facilities and landscaping, that is proposed to be located either in whole or in part within the area described in the recorded easement shall require a Commission amendment to the subject Coastal Development Permit;

3. The grant of easement shall include the legal description of the entire property as well as the area of dedication;

4. The grant of easement shall be recorded after approval, and subject to issuance of the Coastal Development Permit; and

5. If this offer of dedication is acceptable, we ask that a letter of acceptance the offer be signed to memorialize our agreement regarding the Dedication.

Sincerely,

Randy Baugh
President D.C.I.

DEVELOPMENT CONSULTANTS INC.
3941 Park Drive, Ste. 20-338 • El Dorado Hills, CA 95762
916-933-4752 • FAX 916-934-0107

August 6, 2009

James R. Baskin, Coastal Planner
California Coastal Commission
P.O. Box 4908
Eureka, CA 95502

Re: View Platform Access

Dear Jim

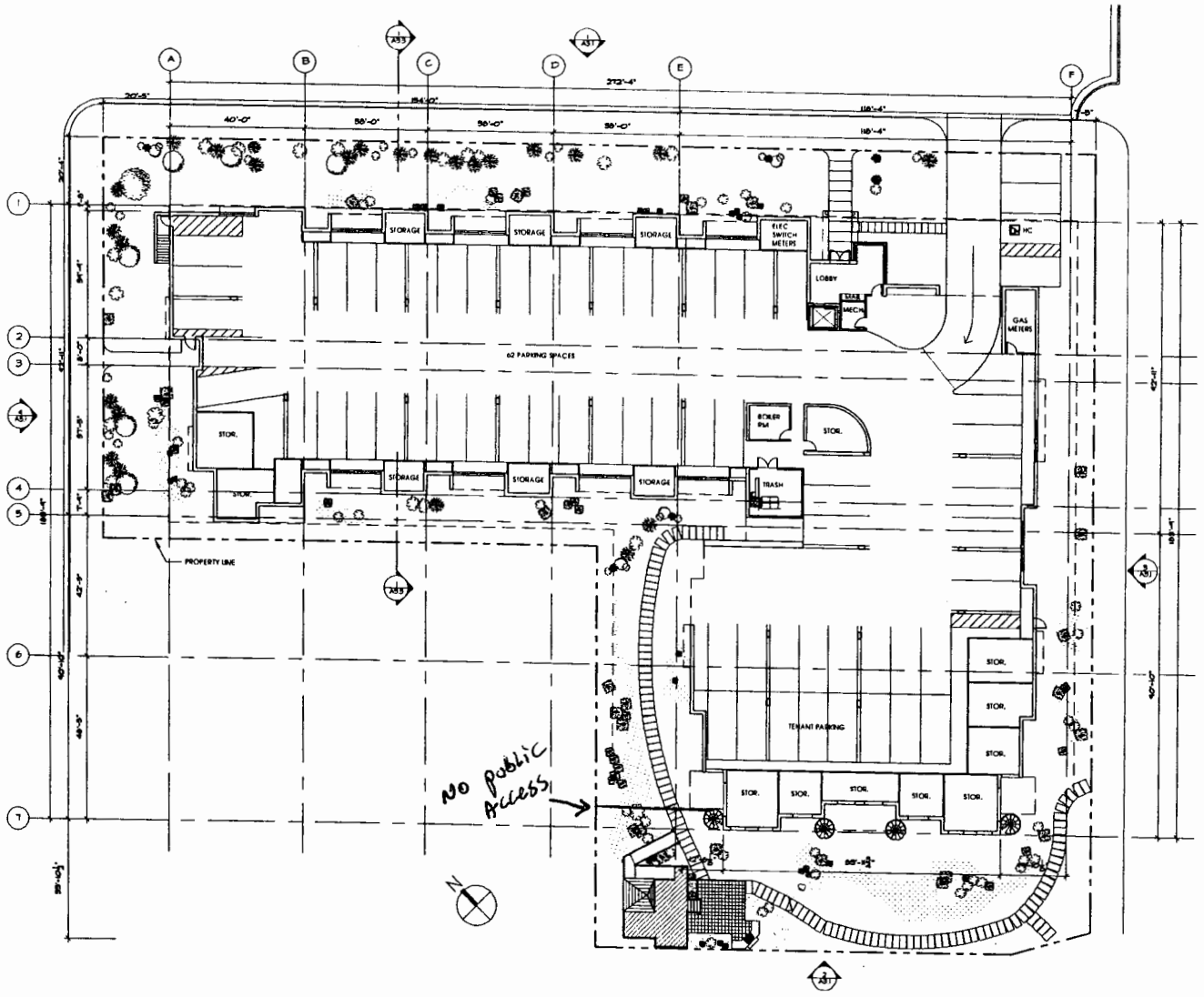
Per our discussion and separate to the required Public access easement to be recorded against the property. The access paths to and from the viewing platform will be accessible by the public. The pathway to the East of the platform that leads to a stair entrance to the building will not be public access.

Limitation on the public access area will be subject to such reasonable rules and regulations and hours of use as determined by the project and HOA board; however those hours of use shall not be more restrictive than the hours of us of the occupants of the project.

Sincerely,

Randy Baugh
President D.C.I.

CC Michele Rambo



Garage Floor Plan

0710 - Crescent City

A1.1

SCALE: 1/32" = 1'-0"

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RECORDING REQUESTED BY:
Development Consultants, Inc.

WHEN RECORDED RETURN TO:
DEVELOPMENT CONSULTANTS, INC.
3941 PARK DR., STE 20-338
EL DORADO HILLS, CA 95762
ATTENTION: RANDY BAUGH

APN: 128-020-28

DEED OF EASEMENT

This Agreement made this ____ day of _____, 2009, by and between Baugh Corp., a California Corporation, hereinafter referred to as "Grantor," and City of Crescent City, its successors and assigns hereinafter referred to as "Grantee."

RECITALS

WHEREAS, Grantor is the owner of certain real property commonly known as 200 A Street, Crescent City, California, hereinafter referred to as the "Servant Tenement," and more particularly described as the Grant deed, attached as Exhibit "A," recorded on _____, as Document _____, Del Norte County Records.

WHEREAS, Grantee desires to acquire certain rights in the Servant Tenement;

WHEREAS, the California Coastal Commission approved permit No. _____, on _____, and adopted the findings attached as Exhibit B and approved Special Condition No. _____-, which states: "PRIOR TO ISSUANCE FO THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and approval evidence that the applicant has executed and recorded a dedication to the City of Crescent City of an easement for public vertical access in accordance with the terms of the Project Description as proposed by the applicant and attached as Exhibit _____."

NOW, THEREFORE, it is agreed as follows:

1. Grant of Easement. For valuable consideration, Grantor hereby grants to Grantee an easement as hereinafter described.

2. Character of Easement. The easements granted herein are affirmative and "in gross" to the incorporated territory of Grantee and of its successors in interest, from time to time extant.

3. Description of Easement. The easements granted by the Grantor to Grantee are described as follows:

   3.1 Easement _____: See Exhibit "C."

   3.2 The easements granted herein are nonexclusive and shall run perpetuity.

   3.3 It shall be for public access (ingress and egress) along designated appurtenant facilities, across the Servient Tenement., and subject to the reasonable rules and regulations as established from time to time by the owner of the Servient Tenement.

   3.4 Description of Servant Tenement. The Servant Tenement is the real property located in the County of Del Norte, State of California, and more particularly described as the Grant deed recorded on _____, as Document _____, Del Norte County Records, and is legally described as attached in Exhibit "A." The easement shall be located as described in Exhibit "C" and incorporated by this referenced as if fully set forth at length herein. Grantor shall maintain the public access in accordance with applicable federal, state, and local ordinances and statutes.

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5. Attorney's Fees. In the event of any controversy, claim, or dispute relating to this instrument or the breach thereof, the prevailing party shall be entitled to recover from the losing party reasonable expenses, attorney's fees and costs.

6. Binding Effect. This instrument shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors, and assigns of Grantor and Grantee.

Executed on the date last shown below, at Crescent City, Del Norte County California.

GRANTOR:
BAUGH CORP, a California Corporation

Dated:_____

By: _____
Randy Baugh, President

GRANTEE:
CITY OF CRESCENT CITY

Dated:_____

By: _____
Rod Butler, City Manager

BUSCH GEOTECHNICAL CONSULTANTS

Results of Geotechnical Investigation, Site for Proposed 44-Unit Oceanfront Costa Norte Condominium Complex, "A" Street, Crescent City, Del Norte County, California [DCI]

FINAL

April 30, 2008

P.O. BOX 222 • ARCATA, CA 95518-0222 • 707-822-7300 • FAX 707-822-9011
Geotechnical and Geologic Studies for Land Development and Resource Management
Please visit our website at buschgeotech.com

TABLE OF CONTENTS

4/30/2008

BUSCH GEOTECHNICAL CONSULTANTS

Randy Baugh
Development Consultants Incorporated
3941 Park Drive #20338
El Dorado Hills, CA 95762

Results of Geotechnical Investigation for Proposed 44-Unit Oceanfront Costa Norte Condominium Complex, "A" Street, Crescent City, Del Norte County, California [DCI]

EXECUTIVE SUMMARY

This report provides a technical geologic description of the site (with many interlinear definitions and comments for the lay reader). It also provides the geotechnical recommendations necessary to support the design of the earthworks and condominium complex buildings. Our conclusions and recommendations are based on a thorough site-specific subsurface investigation program (11 boreholes; 25 bulk samples; 35 undisturbed samples; 5 groundwater table monitoring wells), review of a lengthy report we previously prepared for the adjacent Hampton Inn site, and review of other pertinent materials. Specifically, the report provides:

- discussion of the geologic, geomorphic, and seismic settings, including recommended design accelerations and comments on the risk of a great Cascadia subduction zone earthquake and consequent near-source tsunami;
- a qualitative evaluation of the liquefaction potential and liquefaction-induced ground failure potential of the marine terrace sediments overlying the bedrock;
- a geologic and geotechnical description of the two types of bedrock at the site;
- information about local geodetics, the global sea level rise rate, and the predicted acceleration of the rise rate as they relate to the estimated erosion rate at the site and the potential for future marine flooding;

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Geotechnical and Geologic Studies for Land Development and Resource Management
Please visit our website at buschgeotech.com

- a recommended setback based on the estimated erosion rate; a statement about the predicted run-up heights and the risk of inundation from a distant-source and near-source tsunami;
- a discussion about other geologic hazards and risks (such as coseismic settlement and marine flooding);
- references, geologic cross-sections, other supporting figures, lab data, explanatory appendices; and
- geotechnical recommendations.

The site is an uplifted late Pleistocene (Ice-Age) marine terrace. The bedrock surface on which the terrace sediments rest is ~105,000 years old. There are two types of bedrock: dense siltstone of the Miocene-Pliocene (~23- to 5- million-year-old) Saint George Formation and dense, fractured lithologies—notably sandstone, volcanics, and interbedded argillite and siltstone—of the Jura-Cretaceous (150 million-year-old) Franciscan Complex. The marine terrace sediments are mostly medium dense silty fine to medium sands grading downward to medium dense, "clean," poorly graded sands overlying a loose to medium dense basal lag deposit composed of sandy gravels with cobbles. The bedrock surface, a nearly planar abrasion platform, is present at about 8 to 9 feet ft MSL; bedrock (or a structural fill resting on bedrock) is the target foundation-bearing material for the project structures.

The site occupies the left lateral flank of a broad southeast-opening swale. The approximate axis of the swale is on the lower-elevation portion of the property. The elevation of the site varies from about 24 feet MSL along the northwestern property line to 20 feet MSL along the southeastern line. The head of the swale is at the landward edge of the back-beach and there is no bluff at the site. Sparse boulder rip-rap borders the beach-land interface.

Based on ~7 weeks of groundwater table monitoring between February 7 and March 30, 2008, the groundwater table slopes to the southeast, converging with the ground surface in the southeastern part of the lot. During the monitoring period it rose to within 0.2 foot from the ground surface in the southern part of the site and to 2.1 feet below ground in the northern part of the site during the wet season. The gradient, where calculated, varied from 0.022 to 0.026 ft/ft. We infer that groundwater occasionally will rise to the surface over the entire site. Because the project proposes underground parking, the effective control of groundwater using aggressive water-control structures is mandatory. However, because the bottom of

the slab will be several feet above the bedrock surface (we estimate ~1 to ~3 feet as typical), groundwater will move below the underground parking garage as well as around it unless cut-off drains and/or an impermeable fill pad are constructed.

The project site is located in a tectonically active region. Many structures are capable of generating strong motion at the site. Design for CBC Seismic Zone 4 is required. The design-basis earthquake (DBE) for the region (the earthquake with a 10% probability of exceedance in 50 years) is an 8.0 to 8.5 M_w earthquake. The spectral response accelerations (SMs & SM1) and seismic design accelerations (SDs & SD1) for the 0.2-sec and 1.0-sec intervals are, respectively, 1.52 g & 0.94 g and 1.01 g & 0.63 g. Seismic amplification (or attenuation) is unlikely at the site because of the shallow depth to bedrock.

Although the accelerations of the DBE are high, the liquefaction potential of the late Pleistocene marine terrace sands is LOW to VERY LOW and the liquefaction-induced ground failure potential of the present site surface is LOW to NEGLIGIBLE. Liquefaction is a moot point because the project structures will bear on bedrock or a structural fill on bedrock. The bedrock has NO liquefaction potential.

The risk is HIGH that Crescent City will be struck by one or more distant-source tsunamis during the design project lifespan (75 years). However, the risk that any part of the project site will be inundated by one of these is LOW because the site elevation exceeds the predicted maximum run-up height of ~13.2 ft (for a 100-yr event; the predicted 500-year event run-up is ~25 ft). The risk of damage to the proposed structure also is NEGLIGIBLE because the design first-floor habitable elevation of the lowest elevation structure is ~22 ft MSL. A distant source tsunami with a higher-than-predicted run-up could flood the underground garage.

The run-up height predicted for a near-source tsunami generated by a great (8.4 to 9.0 M) Cascadia subduction zone (Csz) earthquake is much higher (33 ft MSL or higher). A Csz-generated near-source tsunami would damage the project structures. The risk of damage due to a near-source tsunami is essentially the same as the risk of a Csz earthquake (currently believed to be 1% to 45% during the next 50 years, depending upon modeling variables). It is impossible to mitigate the risk of near-source tsunami damage except by not building or by building a significantly reinforced structure with a first-floor design elevation much higher than currently allowed by City regulations. It is possible to mitigate the risk of loss of life by posting

warning notices to educate the future owners and the public. Because the entire down-town area of Crescent City is exposed to the same level of risk from a near-source tsunami, yet development is being allowed to proceed by local and state regulators, it is inappropriate to expect the project proponents to be subjected to development criteria that are not being applied elsewhere in at-risk areas of the city.

Based on an analysis of stereo pairs of aerial photographs of the site vicinity flown between 1963 and 2000, we conclude that, within the limits of our mapping accuracy (about 5 ft +/-), the position of the back beach-land contact, as defined by the presence of the rip-rap, has remained constant on the site since at least 1963. We conclude that the average erosion rate at the site, with the rip-rap in place, has been 0"/yr for this interface. At the Hampton Inn site we estimated a 0"/yr erosion rate for the base of the low bluff that is present there, and <1"/yr for the top of that bluff. Based on all considerations (erosion rate, tectonic uplift rate, and global sea level rise rate and acceleration rate), and assuming a 75-year project lifespan as required by the California Coastal Commission, we recommend a minimum setback of 19 ft from the landward edge of the back-beach. The development proposal indicates that the nearest structure will be setback ~44 ft.

INTRODUCTION

Purpose of the Report and Contract Information

The purpose of this report is to provide our client and regulatory authorities including the California Coastal Commission (CCC) with a geologic description of the site, a qualitative evaluation of its liquefaction potential, an estimate of the erosion rate at the site and a setback based on a 75-year project design lifespan, and geotechnical recommendations to support the design of the structure and the redevelopment of the site. The report provides background information on the tectonic and seismic settings; design seismic and soils parameters; predicted distant-source and near-source tsunami run-up heights; discussion about the risk of a Cascadia subduction zone earthquake; discussion about other geologic hazards and risks (such as coseismic settlement); information about site vicinity erosion rates; discussion about the groundwater dynamics; geologic cross-sections and other figures; plus references and appendices.

To prepare this report we over-wrote the geotechnical report we previously prepared for the contiguous Hampton Inn site to the south (BGC, 2000), updating the seismic information, design parameters, recommendations, and other information as necessary to address the site-specific conditions at the DCI site and to be in compliance with the 2007 edition of the California Building Code (CBC). Although that report is on file with Crescent City and the California Coastal Commission (CCC), we have reiterated much of the pertinent information and have republished several relevant figures to better characterize the DCI project site. We explored and sampled the Hampton Inn subsurface using a backhoe, hand-auger, and manual sampler, and we explored the DCI site using a geotechnical drill-rig (details follow). The different methodologies yield certain different types of data*.

We are delivering this report under the terms of BGC contract #08-004 dated 18 January 2008. **The report text and figures supersede all information we previously included in a "bullet summary" and draft report we prepared for our client** (BGC, 2008a, 2008b).

The DCI project developer, Randy Baugh, initially hired Busch Geotechnical Consultants (BGC) to provide a condensed report to support the engineering design work. However, in response to a request from the CCC, our client expanded our scope-of-work to include providing the same types of additional information we previously provided in the Hampton Inn report (BGC, 2000) plus an analysis of the groundwater dynamics at the site.

BGC principal Bob Busch, CEG, Staff Engineering Geologist Beau Whitney, PG, and Staff Geologist Martha Woodward worked on this project. Beau and Martha completed the subsurface exploration program and installed the groundwater table monitoring wells under Bob's direction. Our descriptions of the subsurface conditions are based on data from 11 geotechnical boreholes drilled for the project (1 functional continuous core, 7 SPT [Standard Penetration Test], and three modified SPT); groundwater table monitoring of five wells between 7 February and 30 March, 2008; the testing and inspection of retrieved soil samples; and the review of subsurface data from nearby sites. During March Martha completed laboratory testing and finalized the borehole logs. BGC staff and others took groundwater table readings.

*Note for CCC geologist Mark Johnsson, Ph.D.: When we did the fieldwork for the Hampton Inn project in 2000 we shot a video tape of the site for you. Some of the views are toward the DCI site, so reviewing that tape might be helpful. Also, we took digital photographs of the site, beach, and back-beach and can provide them to you upon request.

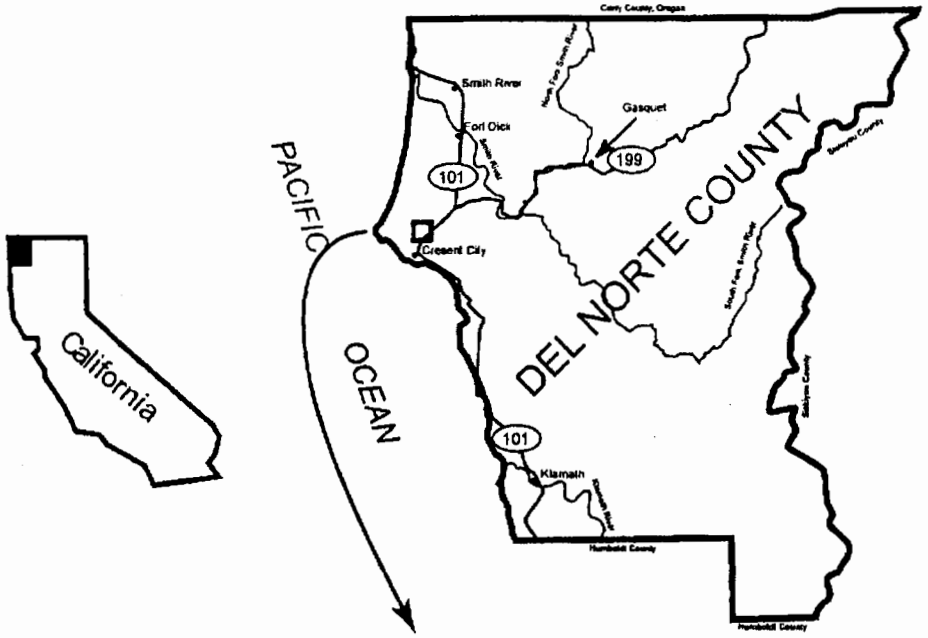
Site Location and Development Plan

The project site is a developed, backwards-facing, capital "L"-shaped parcel located in the southwesternmost part of Crescent City west of the termination of "A" Street and immediately north of the Hampton Inn (see Figure 1). The ascender of the backwards "L" parallels "A" Street and the foot of the backwards "L" juts seaward. For about the last three decades this site was the location of a one-story, wood-frame medical office (the Del Norte Community Health Center) and asphalt-paved parking lots to the northwest, southwest, and southeast, plus underground utilities (see Figure 2).

We did not research the details of the development history of the property, but we note that a home sat on the northeast corner of the parcel and another sat on the southeast corner from at least 1924 to 1964 or later. On an undated "early 1970s" photograph a home is present on the northeast corner but not the southeast. A small creek flowed north-south through the western portion of the lot (Scott, pers. comm., 2008). The topography of the watercourse is visible on some aerial photographs and old topographic maps of the area. It is likely that to build the medical office the channel was filled without diverting the stream. Today, homes built on strike with the channel must run sump pumps to remove emergent water (ibid.). The existing medical office building and the associated improvements are to be demolished and replaced with the proposed project improvements.

Our client proposes to build three-story wood-frame condominiums located over an underground parking garage that will be accessed from the lowest-elevation corner of the property at the corner of 2nd and "A" Streets (see Figure 3A). Based on the recommendations we deliver herein, the structure will bear on either reinforced cast-in-place concrete piers embedded into bedrock or on a structural fill (compacted aggregate baserock) resting on bedrock. The piers in turn will support grade beams, retaining walls, and structural slabs. This will support the superstructure. A detached sales / complex manager's office is proposed for an interior courtyard area, and a raised free-standing deck will be seaward of the southernmost units (See Figure 3B). There are no permanent walkways planned to access the back-beach. Details of the foundation design have not yet been developed.

Figure 1. Nested Site Location Map. The topographic maps are portions of the USGS Crescent City and Sister's Rocks 7.5' quadrangle maps. Various scales.



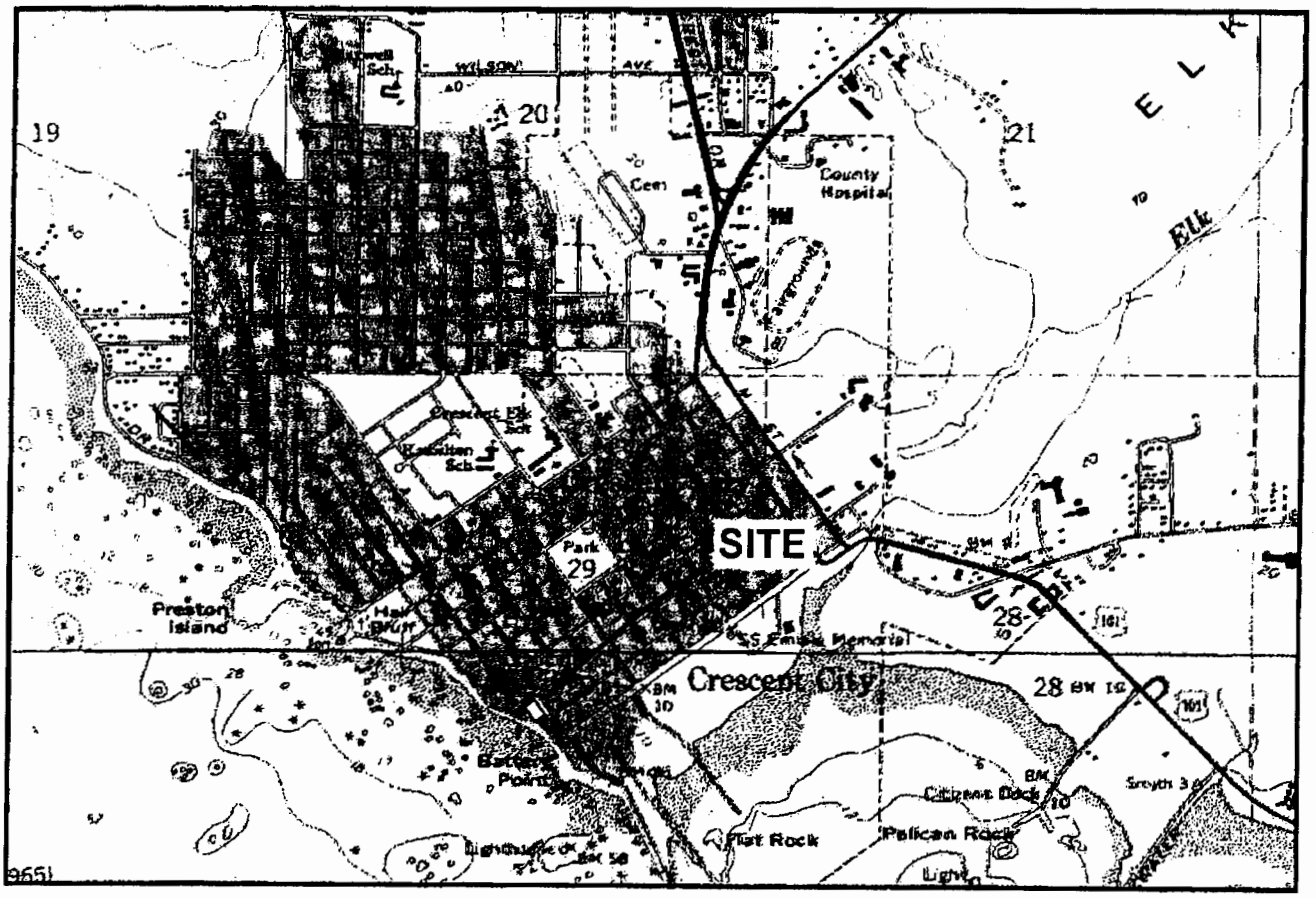


Figure 2. Map of the site by others showing exisiting structures and modified by BGC to show all borehole locations (⊕) and numbers and profile line A-A' (see Figure 3 for geologic cross-section). Boreholes 3, 5, 7, 10, and 11 have monitoring wells.

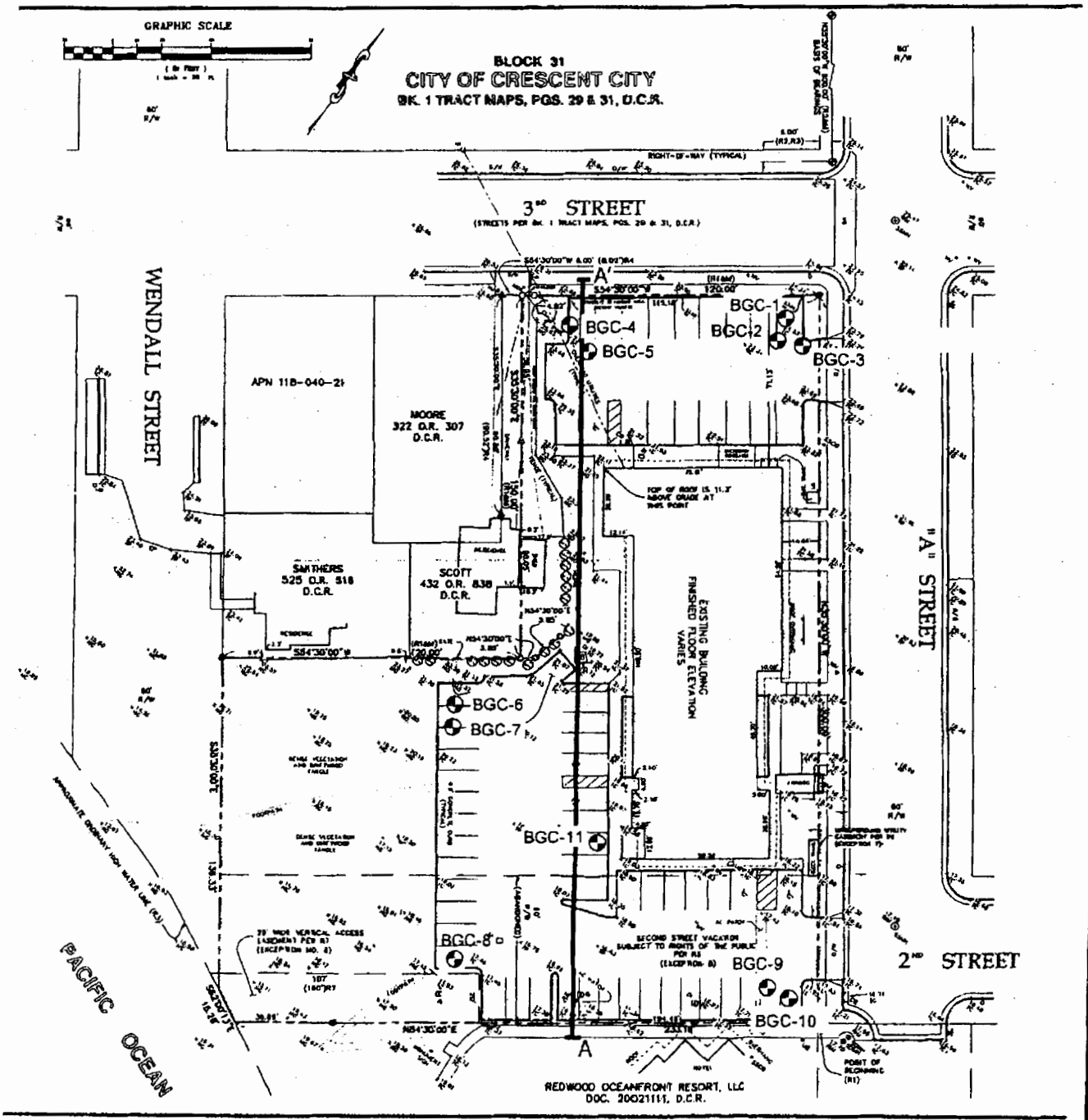


Figure 3A. Proposed Costa Norte condominium complex underground garage floor plan (ib+a architecture, sheet A2.0). Figure greatly reduced. "A" Street is to the right. Access to the underground garage is from "A" Street at the southeast corner of property (lower right hand corner of figure; see "RAMP UP").

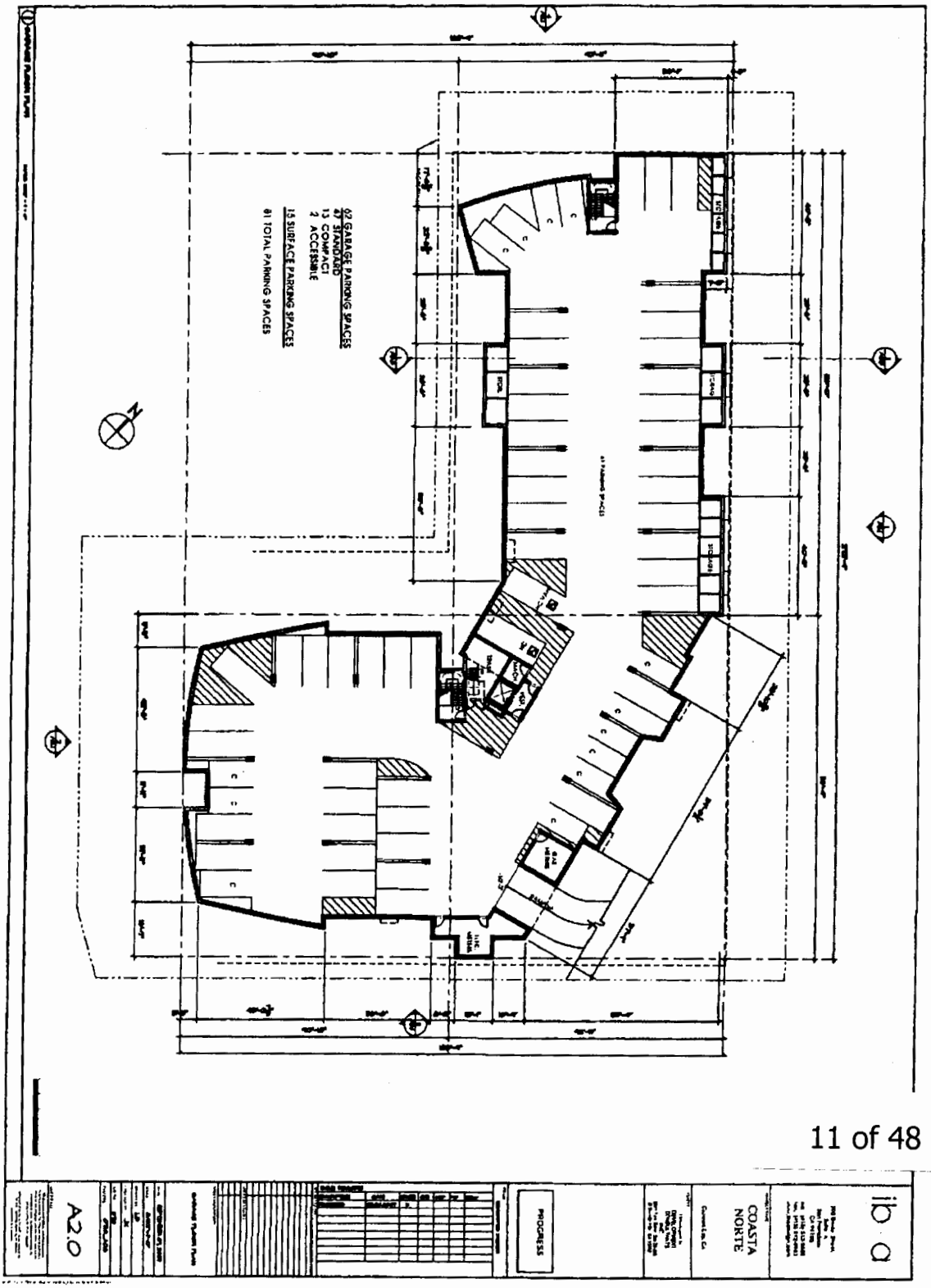
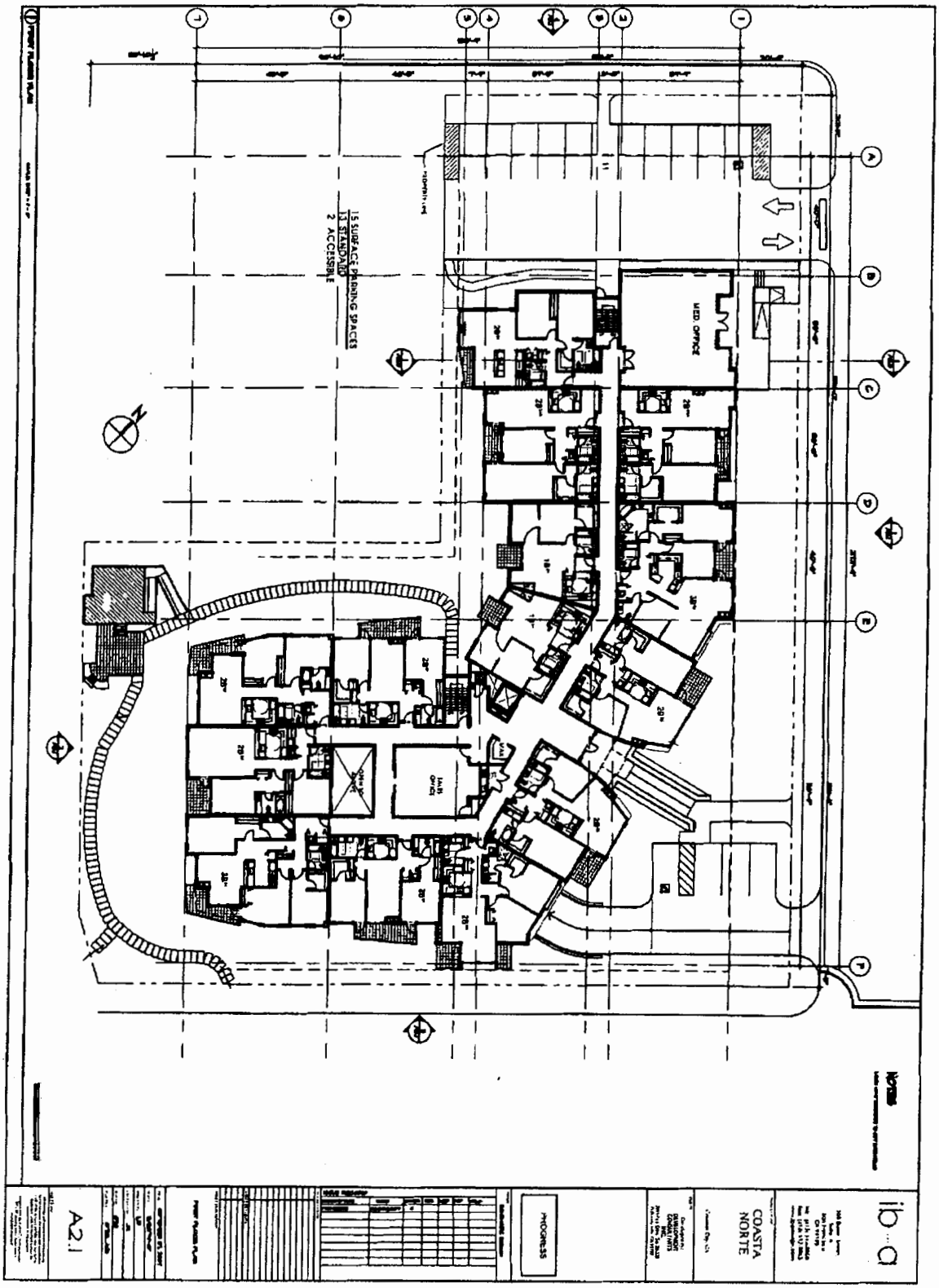


Figure 3B. Proposed Costa Norte condominium complex ground floor plan (ib+a architecture, sheet A2.1). Figure greatly reduced. "A" Street is to the right. Note the sales office in the middle of the complex, paths, and the elevated deck with a handicap ramp (unlabelled structure near north arrow).



Scope of Work and Investigation Methods

Our scope of work included the following tasks:

- Interacting with the client and others to understand the development plan;
- developing an appropriate scope of work, then increasing it to include installing five (5) groundwater wells, monitoring them throughout the rest of the 2007-2008 wet-weather period, and analyzing the data to develop a preliminary understanding of the groundwater dynamics;
- reviewing pertinent in-house reports, reports by other consultants, professional papers, aerial photographs, regulatory documents, and maps (as available with the time frame; references cited herein);
- using a drill rig to conduct a subsurface exploration program to describe the site soils (using the Unified Soils Classification System), to determine the site stratigraphy (i.e., unit layer sequence) and the age of the uplifted marine terrace at the site, and to determine the depth to bedrock;
- collecting representative samples of native soils for standard soils index tests and reviewing bedrock data from other nearby sites, as available;
- synthesizing historic bluff retreat data, providing an estimate of the erosion rate, and recommending a setback;
- developing geologic cross-sections and other supporting figures; and
- preparing this report.

BGC principal R. E. (Bob) Busch, Jr., Ph.D., made a reconnaissance inspection of the site and selected borehole and monitoring well locations on 21 January 2008. Subsequently, on 02/06 and 02/07/2008, two BGC field geologists completed the subsurface investigation using a Mobile B-59 geotechnical drill rig subcontracted from Diamond Core Drilling of Redding, California. The geologists supervised the drilling of eleven (11) 8"-diameter boreholes and the installation of five (5) groundwater table monitoring wells (see Figure 2 for the locations of the boreholes and wells). They collected subsurface data using two different sampling tools: a Standard Penetration Testing [SPT] split-barrel sampler (n=7) and a modified split-barrel sampler with thin-wall brass liners (n=3). They developed one functional continuous core using the modified split-barrel sampler (a methodology discussion follows). They extended all but one of the boreholes to or into bedrock; they logged all holes.

The project survey-control was provided by others (KLS, 2007). Due to budgetary constraints, neither the project surveyor nor we returned to the site to survey the precise location of our boreholes. However, during drilling the field geologists plotted the location of our boreholes on a copy of the base map to a tape-and-compass accuracy of a few feet. We are confident that our estimate of the elevation of the boreholes is accurate within 0.25 +/- ft.

We collected both disturbed (bulk) and "undisturbed" (tube) samples of selected soils, marine terrace sediments, and Saint George Formation bedrock. We collected the bulk samples in a Standard Penetration Testing (SPT) 2.0"-O.D. / 1.5"-I.D. split barrel sampler (ASTM D-1586) and we collected the tube samples in a 3"-O.D. / 2.5"-I.D. modified split barrel sampler with thin-wall brass liners (ASTM D-3550). We achieved the functional intent of a continuous core sampler by collecting consecutive tube samples. During sampling we recorded the SPT blow count for each 6" of the sample interval (per ASTM D 1586). An N-value is the combined blow count of the bottom two (last two) 6" samples in an 18" long sampler. We collected the "undisturbed" tube samples in 6"-long, 2.365"-I.D. brass liners. Due to the saturated low cohesion soils, we used a plastic retention cap in the tip of the sampler when necessary. We did not normalize the blow counts because the development plan calls for the removal of the soils.

We ran selected standard soils index (SSI) tests on the undisturbed samples in our Arcata, CA, soils lab. The SSI tests we ran include field density (or moist density, γ_m), dry density (γ_d), moisture content (w), percent saturation, void ratio (e), quick (undrained) shear strength by Torvane (s_u), and unconfined compressive (uniaxial) strength by pocket penetrometer (U_c). We reviewed all samples in the lab to verify and "flesh out" our field descriptions. We present the results of the SSI tests, soil information from the adjacent Hampton Inn site, and information on the bedrock gathered from other sources in tables in Appendix IC. The Unified Soils Classification System (USCS) is Appendix IB1.

Of the bedrock samples we collected and reviewed, 15 were samples of the St. George Formation (n=9 bulk; n=6 undisturbed) and 2 were samples of the Franciscan Complex (n=1 bulk; n=1 undisturbed). Both of these units are bedrock at the site.

borehole B-9 from the investigation of the Crescent City sewage plant site records interbedded siltstone and sandstone up to ~41.5 feet thick, but the hole was terminated before it reached Franciscan Complex rocks (GDI, 2004). Borehole B-1 recorded ~29 feet of siltstone overlying 5 feet of fine-grained sandstone overlying 2 feet of gravel (abrasion platform tools) overlying Franciscan Complex shale (ibid.).

Figure 10 is a northwest-southeast geologic cross-section through the DCI site, passing near boreholes BGC-DD4, -DD5, and -DD11 (see Figure 2 for the profile location). The top part of the figure shows the relationship between the stratigraphic units and the site topography. It illustrates that the St. George Fm. is only a few feet thick on the site, has an upper surface (the 105 ka abrasion platform) with only a few feet of relief, and covers a lower cut surface in the Franciscan Fm. (the Miocene abrasion platform). The figure also shows the late Pleistocene marine terrace sediments and overlying soils. The lower two figures show the subsurface with the underground parking garage schematically drawn (the subgrade is at 9 ft MSL) and two alternative construction methods. Both sections are drawn to scale based on our borehole data and elevations. We do not show the basal lag deposit.

Geologic Hazards and Risks

Groundwater

Based on ~7 weeks of groundwater table monitoring between February 7 and March 30, 2008, the surface of the groundwater table is complex, possibly because of the buried stream channel on the property. This channel runs from offsite to the north, trending southerly and passing down the western part of the northern part of the property and the central part of the southern part of the property. The stream channel is visible on old aerial photographs (e.g., 1948).

Typically, a near-surface groundwater table in a partially dissected marine terrace slopes in about the same direction as the ground surface at about the same slope, thus the groundwater gradient is similar to the slope gradient in both magnitude and direction. On this site, because of the past ground disturbances, the precise slope direction of the original ground is unknown. However, it was generally to the southeast, toward Crescent City beach. Today the parking lots drain to the south but the storm drain system reportedly empties to the west beneath the berm.

During the monitoring period the groundwater table rose to within 0.2 foot of the ground surface in the southeastern part of the site (at monitoring well MW-10), and it rose to ~2.1 feet below ground in the northern part of the site at MW-5. To simplify somewhat, the groundwater table appears to slope south-southwest (toward the buried channel) in the northern part of the site, but it turns to the southeast in the southern part of the site. As noted previously, the site occupies a geomorphic feature interpretable as the head region of a southeast-draining swale. Thus the overall drainage almost certainly is to the south-southeast.

The maximum slope gradient during the monitoring period was about 0.026 ft/ft to the south-southeast (S10°E) in the northern part of the site (triangulated between MW-3, -5, -and -10) and 0.022 ft/ft to the southeast (S30°E) in the central part of the site (triangulated between MW-3, -7, and -10). The gradient cannot ever be much steeper in any direction because the water table was close to the ground surface at its highest measured level. However, we infer that groundwater occasionally will rise to the surface over the entire site, possibly creating artesian conditions in the southern part of the property, and that flow lines turn more to the east by the southeast corner of the property.

Per standard formulae and assumptions in Driscoll (1986) we made a preliminary estimate of the possible transmissivity (T) of the site, ignoring the pedogenic soils and using a nominal thickness (b) of 10 feet for the permeable sand and gravel units; hydraulic conductivity (K) of 10^4 to 10^2 gpd/ft^2; a nominal gradient of 0.026 ft/ft; and an aquifer unit width of 300 feet. Using these numbers we calculate that between about 8,000 and 800,000 gallons of groundwater could move through the site per day when the groundwater table is high. Specific tests would be necessary to refine this estimate range.

In summary, based on limited monitoring and calculations using assumed parameters, we believe that the groundwater moves progressively more to the southeast as it flows through the property. We estimate that roughly 8,000 to 800,000 gallons of groundwater could move through the permeable basal marine terrace sediments on the site. Because the project proposes underground parking, the effective control of groundwater is necessary (see **RECOMMENDATIONS, *Section 6.0***).

Qualitative Evaluation of Liquefaction-Induced Ground Failure Potential

(Updated from BGC 2000)

Liquefaction is the temporary partial or total loss of shear strength of a soil in response to cyclic loading, typically earthquake shaking. Saturated, geologically young (Holocene), unconsolidated, cohesionless, fine-grained sediments are particularly susceptible to liquefaction (CEE, 1985). There are no written records of liquefaction in the site vicinity (Youd and Hoose, 1978), and the Humboldt and Del Norte Planning Scenario (Toppozada et al., 1995. Map S-3) assigns no liquefaction potential to the site area for a great (8.4 M_{max}) earthquake on the Gorda segment of the Csz. That is, the liquefaction potential is considered to be NEGLIGIBLE for this low-probability, extreme event.

The qualitative approach to evaluating the liquefaction potential of a site is based on a consideration of the seismic setting (i.e., on the probable accelerations), the site geology, the age of the sediments, the physical characteristics of the sediments, and the groundwater conditions. Low potential seismic accelerations, more dense sediments, preHolocene sediments, fine-grained cohesive sediments, and a deeper groundwater table all reduce the potential for liquefaction and consequent liquefaction-induced ground failure. The following paragraphs briefly discuss each of these factors at the site and present our evaluation.

The project site is located in a tectonically active region subject to moderate and strong earthquakes (it is in CBC Seismic Zone 4). The design basis earthquake (the earthquake that causes the dominant hazard for peak ground acceleration with a 10% probability of exceedance in 50 years) is an 8.0 to 8.5 M_w earthquake originating within 10 to 20 miles of the site (Petersen et al., 1996) (see Table 2 of **RECOMMENDATIONS, *Section 3.1***). Seismic amplification (or attenuation) is unlikely at the site because of the shallow depth to bedrock.

As discussed previously, the DCI site is an eroded and culturally modified, uplifted, late Pleistocene marine terrace resting on an abrasion platform cut into the regional bedrock. The terrace sediments are all <105 ka to <83 ka in age. None are younger than 18 ka below the aeolian soil cap. Below the clayey soil cap, poorly graded medium dense yellow-brown silty sands become mottled, then blue-gray and clean at depth. Based on the color and mottling of the soils and marine terrace

sands, on the site topography and location in a broad swale at the edge of the terrace, and on our groundwater table monitoring data, it is highly probable that the groundwater table remains high (<5 feet deep) year around (or nearly so) in the southern, lower elevation part of the site and that it fluctuates between the ground surface and ~10 to 13 feet deep year around in the northern part of the site (see **Groundwater**, preceding). **Using a decision tree that considers the age of the deposit and the depth to groundwater (e.g., Youd and Perkins, 1978; Hitchcock et al., 1999), the liquefaction potential of the site sediments is LOW. However, because pore water can move laterally, we believe the liquefaction potential of the site is VERY LOW.** Our opinion is supported by the observation that, in California, Pleistocene deposits have not been known to liquefy in modern times (Youd, 1994; Dwyer and Borchardt, 1994).

In conclusion, our qualitative evaluation is that the risk of liquefaction-induced ground failure potential is NEGLIGIBLE to LOW on the site. Regardless of the liquefaction potential, the foundation, if constructed as recommended, will completely mitigate any actual (vs. theoretical) risk of damage due to liquefaction-induced ground failure because it will carry design loads down into the bedrock. Only improvements such as flatworks and utilities would be exposed to some level of risk if an unexpected liquefaction-induced ground failure were to occur.

Tsunami Run-Up Predictions

A tsunami is a seismically generated sea wave. Crescent City has suffered at least six tsunamis (1946, 1952, 1957, 1960, 1964, and 1992) (Kilbourne and Mualchin, 1981; Oppenheimer et al., 1993). The greatest tsunami rise, just over 13 feet, struck Crescent City about 1:45 a.m. on March 28, 1964, reaching about elevation 16.3 ft MSL. This was a distant-source tsunami generated by the M 9.2 Good Friday Alaska earthquake. The waves did not reach the Seaside Hospital (= the Hampton Inn), but they inundated the hospital parking lot east of "A" Street, crossed "A" Street, and lapped up onto the northeasternmost corner of the hospital lawn and the southeastern corner of the DCI site, arriving not from the ocean to the southwest but from the bay margin to the southeast (Griffin, 1984; Scott, 2008, pers. commun.; see Figure 11). The tsunami did an estimated $16,000,000 worth of damage to the city (in 1964 dollars) (Griffin, 1984). The flood insurance rate map that includes the site (FEMA, 1986) indicates the tsunami was approximately a 500-year event (the tsunami run-up

was confined to Zones A and B and did not cross into Zone C, which is above the 500-year boundary). Currently, elevation 13.1 ft MSL is defined as the 100-year flood boundary and elevation 16.4 ft MSL is the 500-year flood boundary (ibid.), and 25.1 ft is the modeled distant-source 500-yr run-up (Houston and Garcia, 1978).

Although the past belief was that locally generated tsunamis present less of a hazard than distant-source tsunamis to Pacific Northwest coastal communities (e.g., Kilbourne et al., 1980; Kilbourne and Mualchin, 1981), the recognition of the seismic capability of the Cascadia subduction zone (Heaton and Kanamori, 1984; Atwater, 1987; Grant and McLaren, 1987; Vick, 1988; Darienzo and Peterson, 1990; Darienzo, 1991; Clarke and Carver, 1992; Peterson et al., 1993) indicates that this is not true. Empirical observations from other subduction zones (e.g., Heaton and Hartzell, 1986) and models of tsunami excitation and shoreward propagation (Hebenstriet, 1988; Bernard et al., 1994) suggest that a M 8.5 Csz earthquake along the northern California coast could generate a near-source tsunami with a run-up of over 10 m (>33 ft) in low-lying coastal areas. Evidence of paleo-tsunami inundation has been discovered in more than a dozen bays in the Pacific Northwest (Peterson et al., 1992), and evidence for paleo-tsunami run-up heights of >6 meters (>20 ft) has been reported for mid-coastal Oregon (Gallaway et al., 1992). The M 7.0 25 April 1992 Cape Mendocino earthquake, interpreted as a Csz earthquake (Oppenheimer et al., 1993), generated a tsunami that arrived at Crescent City about 47 minutes after the earthquake (Gonzales and Bernard, 1992). Tsunami waves arrived at Crescent City for about 10 hours, the largest wave arriving about 4 hours after the earthquake with a maximum height of 53 cm (1.7 ft) (Gonzales and Bernard, 1992).

In summary, a large magnitude distant earthquake with an epicenter offshore can be expected to generate a tsunami, especially if the causative earthquake triggers a large undersea landslide or causes the flank of a marine volcano to fail. The size of the tsunami is a function of the magnitude and location of the causative earthquake, the fault mechanism as it interacts with the seafloor in the epicentral region, the bathymetry and configuration of the coast at the inundation site, and other variables. The greatest damage from a distant-source tsunami is caused when the tsunami arrives at high tide.

The run-up predicted for a near-source tsunami generated by a Csz event would do far more damage to Crescent City. The Humboldt-Del Norte County planning scenario (Toppozada et al., 1995, Figure S-3, p. 21) predicts tsunami wave

damage between the shore and 8th Street with the waves arriving from the ocean as well as the harbor (see Figure 11). The project site, along with most of the developed area of Crescent City near the port and old-town area, plus the unincorporated area south of the City, will be inundated. Because the most probable near-source tsunami is a Csz-generated tsunami, the risk of damage from a near-source tsunami is the same as the risk of a Csz earthquake (somewhere between 1% and 45% during the next 50 years, depending upon whether the Pacific Northwest is in a "clustered" or "extended" Csz recurrence interval [per Mazzotti and Adams, 2004]). **It is impossible to mitigate the risk of near-source tsunami damage at the site except by not building on it or by building a significantly reinforced structure with a first floor design elevation much higher than is currently allowed by City regulations.**

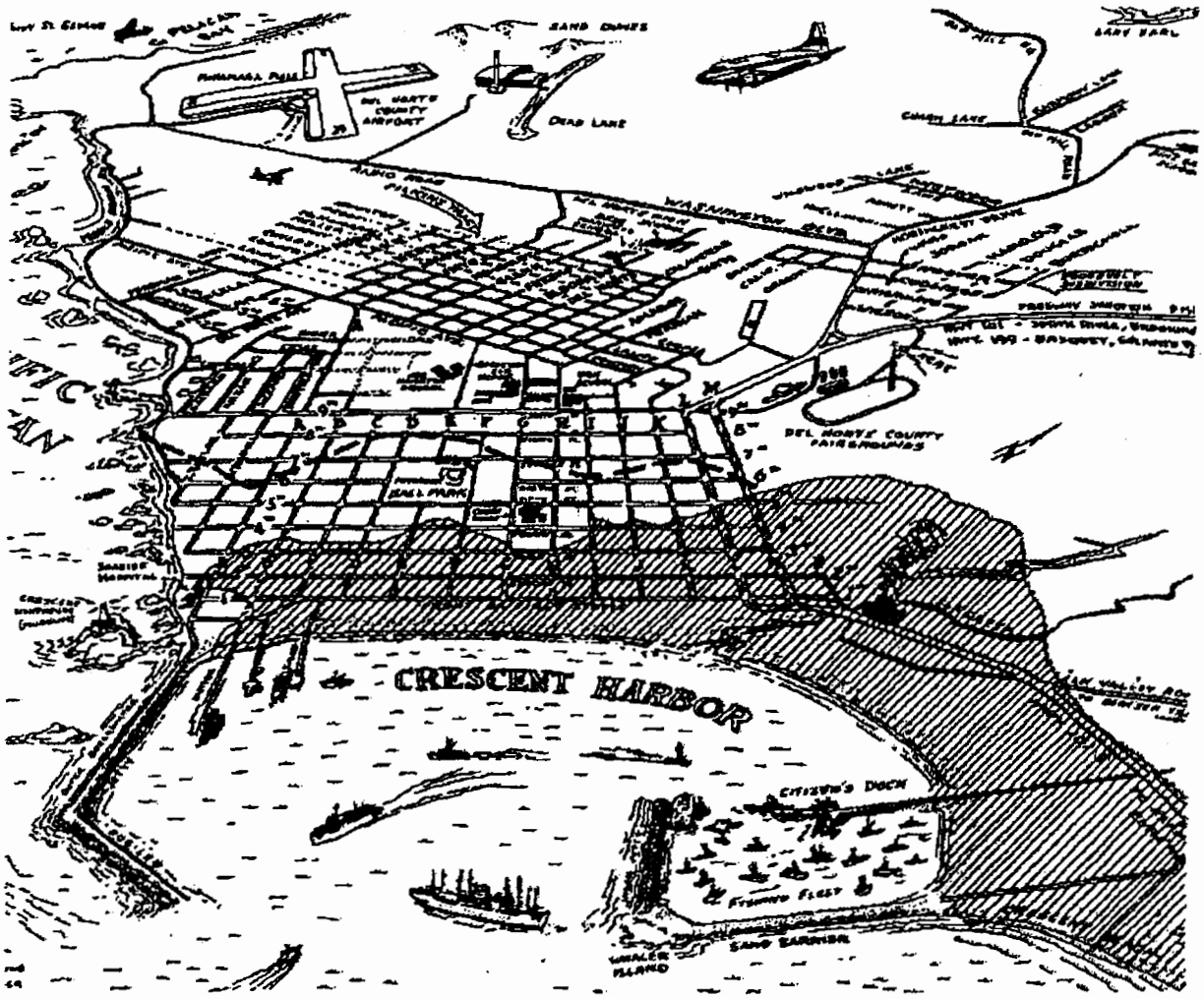
In conclusion:

A. Although the risk is HIGH that Crescent City will be struck by a distant-source tsunami during the design project lifespan (75 years), the risk that the DCI site will be inundated by one of these tsunamis is LOW because the site elevation exceeds the predicted maximum run-up height of a distant-source tsunami.

B. The risk of inundation of the DCI site by a near-source tsunami is the about the same as the risk of a Cascadia subduction zone earthquake (~1 to 45% within the next 50 years). If a Csz-generated tsunami were to arrive, significant damage is certain at the site. Because the rest of Crescent City that is below ~33 ft MSL is exposed to the same level of risk, yet development is being allowed to proceed by regulators, it is inappropriate to expect the project owners to be subjected to development criteria that are not being applied elsewhere in at-risk areas of the city. In short, no additional mitigation is available to reduce the risk of damage by a near-source tsunami. However, it should be possible to reduce the loss of life due to the arrival of the tsunami by posting conspicuous warning notices in common areas of the condominium complex (see **RECOMMENDATIONS**).

C. The risk of liquefaction-induced damage to the DCI condominium complex is NEGLIGIBLE because the structure will bear on bedrock. The surrounding flatworks will be exposed to a NEGLIGIBLE to LOW risk of damage because the pedogenic soils are not liquefiable and the marine terrace sands are late Pleistocene.

Figure 11. Perspective map showing the extent of flooding (shaded) in Crescent City from the March, 1964, distant-source tsunami and from a postulated flooding event from an 8.4M Gorda segment Csz earthquake-event near-source tsunami as modeled in the Humboldt-Del Norte planning scenerio (Toppozada et al., 1995). Figure modified from Griffen, 1984. Postulated run-up from the near-source tsunami is shown as a dashed line.



Estimate of Bluff Erosion Rate

(Shortened from BGC, 2000)

Literature Review

Our geotechnical report for the Hampton Inn provided a lengthy researched discussion about the Crescent City shoreline between Battery Point and Point St. George. Reiterating the discussion is not merited because none of the reports contain a quantitative treatment of the erosion rate. Also, rip-rap has been present on the Seaside Hospital site (and probably the DCI site) since early in 1964. We refer the interested reader to our Hampton Inn report (BGC, 2000) for a review of the applicable written records. In this section we simplify and summarize the highlights of the conclusions from our work for that job as they pertain to the DCI site. Our conclusions are based on a review of the Crescent City Local Coastal Plan (CC LCP; CC, 1983); numerous Corps of Engineers reports (USACOE, 1965, 1972, 1978); other area-specific studies (Roberts et al., 1967; Roberts and Dolan, 1968, Roberts et al., 1970; Anderson, 1977); the National Shoreline Study (USACOE, 1971, p. 26.); a California Division of Mines and Geology (now California Geological Survey) planning report (Kilbourne and Mualchin, 1981); and a popular book (Savoy and Rust, 1985).

Our review of the interim and final USACOE reports on the harbor confirmed that neither report contains a quantitative estimate of the erosion rate of the shoreline north of Battery Point, and the qualitative comments in both reports state or imply that there is not an erosion problem on the stretch of coast between Battery Point and Point St. George. The final report explained the general lack of sand beaches north of the harbor as caused by the removal of longshore drift sand and locally derived sand to deep offshore waters by high energy waves.

Other area-specific reports written prior to the issuance of the final USACOE report on the harbor also did not provide either a qualitative or quantitative estimate of the erosion rate north of the harbor (Roberts et al., 1967; Roberts and Dolan, 1968, Roberts et al., 1970).

The National Shoreline Study, prepared by the Corps of Engineers and issued prior to the issuance of the final harbor report, provides qualitative assessments only. It reaches the contrary conclusion that the reach of rocky coast between Point St. George and the Crescent City harbor (Del Norte Co. mile 15.5 to

21.0) includes 2.3 miles of shoreline [north of Battery Point] experiencing "critical erosion" (USACOE, 1971, p. 26.)

Anderson (1977) presents thoughtful discussion and the first quantitative erosion-rate estimate for the Seaside Hospital site. However, his use of an oblique photograph (in which the scale changes drastically and rapidly over short distances) makes his estimate (0.6 ft/yr) suspect at best.

The USACOE report on bluff erosion, which is the report from which the LCP quotes were excerpted, ostensibly is a useful research document. Among other information it provides six transverse profiles of the beach between Battery Point and 4th Street, including two west of the Seaside Hospital [Hampton Inn], done in 1965, 1975, 1977, and April 1974(?), the later made just after an estimated 600,000 yds^3 of dredge spoils were placed on the beach to conduct a beach nourishment study. Unfortunately, the magnitude of the changes of the base and top of the bluff, if any, cannot be read from the profiles because of their scale, and there is no profile-specific data tabulation nor geology discussion. Three of the profiles (Range 1A, 2, 2A) show no change in the position of the top of the bluff; one (Range 3) shows the bluff top moved seaward, one (Range 3A) was not surveyed each year so provides no data, and one (Range 4) indicates a net recession of the top of the bluff of about 5 ft. The profiles of the hospital site show no bluff-top erosion between 1965 and 1975. During that time rip-rap was present on that site and the DCI site.

In conclusion, the quantitative generalizations about the bluff erosion rate that are cited in the Corps report (USACOE, 1978, p. 13) and reproduced in the Crescent City LCP (p. 34) cannot be verified from data in the Corps report. [We do not comment on the report generalizations about the beach erosion rate.] The worth of the profiles in establishing the bluff erosion rate at the Hampton Inn site is further diminished because the USACOE damaged (over-steepened the face of) the bluff at several locations during their removal of the March, 1964, tsunami debris (DNCLHD, 1964ff). Thus changes in the profiles of the bluff might reflect the 1964 debris clean-up activities, not natural marine erosion. A second issue is that ultimately the profiles were prepared to evaluate the beach nourishment concept, not bluff erosion, and thus the survey protocol emphasized changes in the beach profile, not the bluff profile. Finally, because the rip-rap was in place during the entire study, the "zero net bluff erosion" conclusion serves only to comment on the effectiveness of the rip-rap between 1965 and 1975.

In conclusion, the generalizations cited in the 1978 USACOE report about the bluff retreat rate between Battery Point and 4th Street are suspect due to the 1964 disturbances of the bluff face, a survey protocol that emphasized changes in the beach profile, and the presence of rip-rap on the hospital and DCI sites.

Our review of minutes of the Del Norte County Local Hospital District (DNCLCD, 1964ff) indicates that, acting on a recommendation from the USACOE, the Del Norte County Road Department placed rip-rap at the base of the bluff on the Seaside Hospital (and DCI) site sometime between April 21 and May 19, 1964. The rip-rap is primarily 2 ½ ton and large angular boulders of Franciscan Fm. sandstone and greenstone (altered basalt). On the DCI site the boulders typically are widely spaced and rest on the back beach, sometimes near bedrock outcrops.

Estimate of DCI Shoreline Erosion Rate Using Aerial Photographs (With Comments on Beach Changes between 1963 and 2000)

We estimated the erosion rate at the Hampton Inn site with and without the rip-rap present. Because the base of the bluff on Hampton Inn site and the equivalent beach-land interface on the DCI site have been protected by rip-rap since early 1964, we believe our conclusions about the Hampton Inn site are applicable to the DCI site.

To estimate the erosion rate we reviewed the same set of stereo pairs of photographs previously used by local aerial photogrammatist R. B. Davis to prepare his report (RBD, 1992) (flight years 1963, '66, '69, '75, '76, and '89), plus new (9/6/00) photographs. We used a Sokkisha M-27 stereoscope with 3x and 8x oculars to study the photos.

To estimate the rate between 1963 and 2000 we made an acetate overlay of one photo of each flight year using obvious control points (such as street corners) to register the acetate overlay to the photographs. We then measured the distance between the top-of-bluff on the Hampton Inn site and "A" Street on three different profile lines on each photo, one in the northern portion of the site, one in the midportion, and one in the south. This method is not quite as accurate as the method RBD used. In addition to measuring the street-to-bluff-top distances we made observations about adjacent properties and the beach, bluff top, and bluff face on the site.

As did RBD (1992), **we concluded that, within the limits of our mapping accuracy, the position of the top-of-bluff remained constant on the Sutter Coast Hospital site between 1963 and 2000.** Although the appearance of the bluff face changed in the photographs over time due to the growth and removal or death of vegetation, we could not tell when the rip-rap was placed on the bluff. That is, the placement of the rip-rap in 1964 did not markedly change the character of the bluff face or shoreline as interpretable from the 1963 and 1966 aerial photographs.

The greatest and most obvious change on the Hampton Inn site (excluding the removal of the hospital) was in the nature and width of the beach. In the 1963, '66, and '69 photos the beach is narrow, rocky, and steep, and tidepools are abundant, but in the 1976 photos the beach is wide, sandy, and contains more driftwood than in any other flight year. Records show that the Crescent City Harbor District placed about 600,000 yds^3 of dredge spoil [silty sand and sandy silt] on the beach beginning in 1973 and ending in April, 1974 (USACOE, 1978), then made successive profiles of the beach to study the sand loss. The 1989 photographs record a moderately wide sand beach and fewer logs, and the 2000 photographs again record a steep rocky beach with few logs. On March 9, 2008, when we photographed the beach seaward of the southern part of the DCI site, the beach was steep and rocky with a large accumulation of driftwood on the back-beach (digital photos available upon request).

The changes in the width and character of the beach between 1976 and 1989 and between 1989 and 2000 are explained by the affects of normal sea conditions as well as the excessive sea conditions during the 1982-83 and 1997-98 El Nino winters. That is, the natural beach at the site apparently is a rocky steep beach year around, with minimal to no summer sand accretion due to local sources or longshore drift. In 1965, the beach was coarse sand, shingle, gravel, and cobbles with an occasional boulder (USACOE, 1978). The coarse texture of the beach sediments reflects the general lack of a nearby abundant sand source, the availability of rocks, and a vigorous winter energy regime (that moves fine sand offshore and rounds and piles rocks). In 2000 and 2008 the beach also was primarily coarse sand and gravel (plus abundant wood).

A more detailed explanation is that, although north of Battery Point the longshore transport is to the south, the water is deep off of the Point St. George headland. Consequently, the winter waves that move the sand around the headland carry it offshore, thereby permanently removing it from the littoral cell (Roberts and

Dolan, 1968). Thus the sand on the beaches between Point St. George and Battery Point must come from the weathering of the rocks and terrace sediments in that stretch of coast. However, any sand that is generated and is available to accumulate on the beach also is susceptible to permanent removal by winter waves. In conclusion, the rocky beaches present between Point St. George and Battery Point are explained by a dearth of sand, the presence of nearby offshore deep water, and the availability of rocks and rock fragments (from fractured Franciscan Fm. bedrock).

Estimate of the Shoreline Erosion Rate without Rip-Rap

To estimate the erosion rate at the Hampton Inn site assuming that the rip-rap was not present we reviewed numerous documents (Anderson, 1977; USACOE, 1965, 1971, 1972, 1978; Roberts and Dolan, 1968; Roberts et al., 1970; Kilbourne and Mualchin, 1981; and Savoy and Rust, 1985). Of these, the most useful is Savoy and Rust (1985). This popular book presents the estimated mean annual erosion rate (in inches per year) for coastal areas for which the data were available at the time the book was written. In general, the authors' estimates were based on work by others. The precise origin of any specific estimate is unclear.

We paid particular attention to the relative degree of exposure, the beach aspect, and the bedrock type at the locations for which erosion rates are cited. In the Crescent City area, although there are multiple locations cited along Pebble Beach Drive and on Point St. George, which is about three miles north of the project site just beyond the north end of Pebble Beach Drive, the bedrock at these sites is the St. George Fm., which is comparatively erodible. No information is provided for Battery Point, which is just over one block to the south of the DCI site and is composed of Franciscan Complex sandstone overlain by terrace sediments. The closest documented location north of the site is at the west end of 7th Street where the cited mean rate is 7"/yr. The bedrock at this location is Franciscan Complex lithologies (primarily dense sandstone), the shoreline typically is cliff-backed, and the bedrock base of the cliffs is about 15 ft high. We assume that this near-vertical bedrock base has a mean erosion rate of <¼"/yr, and infer that the cited 7"/yr rate represents a measurement of the rate of back-wasting of a specific slope failure located in the top-of-bluff, which is composed of late Pleistocene marine terrace sediments. This measured rate is not appropriate to apply to the DCI site. Other more northerly locations along Pebble Beach drive have reported mean rates of 4" to

12"/yr, and locations on the Point St. George headland have reported rates of 4" to 25"/yr, but all of these sites are either erodible Saint George bedrock or marine terrace lithologies on a promontory or headland at the water's edge. That is, none of these rates is appropriate to use at the project site because its geology is different.

Our review of the information on the rest of the shoreline of Del Norte and Humboldt Counties (as discussed in Savoy and Rust, 1985) indicates that the sites with published erosion rates typically are located in areas of active erosion where roads and homes have been damaged. There are only four locations on this entire two-county stretch of coast where we are certain that erosion-resistant Franciscan Complex rocks (typically sandstones, conglomerates, or volcanics) are exposed at the shore. Two of these are between Moonstone Beach and Trinidad Head (on the central Humboldt Co. coast) and two are on the Point Delgada headland north of Shelter Cove (on the southern Humboldt Co. coast). All of these reported rates are 0"/yr. All other bedrock locations with cited rates have rates >4"/yr but are erosion-prone Franciscan bedrock (i.e., argillaceous melange or melange in an earthflow).

The average erosion rate of the <u>top</u> of any unprotected part of a soil and sediment bluff with a bedrock base will be higher than 0"/yr if only due to the effects of raindrop impact, grain detachment, erosion by sheet wash and deflation (wind erosion), soil creep, and bioturbation by burrowing animals. Unfortunately, there are no nearby sites in marine terrace sediments for which the erosion rate has been measured, but at a cliff-backed open (unprotected) coastline site just north of Kamph Memorial Park near the California-Oregon border, an uplifted late Pleistocene marine terrace has a published erosion rate of 4" to 6"/yr (Savoy and Rust, 1985). Because that site, like the Crescent City region, also is rising faster than global sea level in response to Csz interseismic strain accumulation (Mitchell et al., 1994), it is likely that even the low rate of these estimated rates is high. We have done numerous studies for home construction along this open stretch of coast (BGC, 1988a, b, 1989a, b, 1994a, b, 1999) and have observed the edge of bluff and beach annually since then. With rare localized exception, the position of the top-of-bluff over this stretch of shoreline has remained stable (the annualized erosion rate has been 0" - <1"/yr) over the past 10-years-plus we have observed the cliff). Although this is an <u>extremely</u> short period of time from which to draw even tentative conclusions, a climatic extreme (El Nino) occurred during this time (during the winter of 1997-98) (Cannon et al., 1998), causing significant erosion to some areas of the coastline of Humboldt, Del Norte, and Curry (OR) counties.

At the DCI site, where there is no bluff but there is outcropping Franciscan sandstone on the beach and boulder rip-rap at the interface between the back-beach and land, there is no indication that there has been any erosion since 1964. The continuity of the sandstone outcrops on the beach and between the beach outcrops and the site subsurface is unknown, but only KJfs bedrock lithologies are exposed in the base of the bluff between Battery Point and 9th Street. Although the Saint George Formation is present on the DCI site above Franciscan lithologies, it apparently is only a few feet thick.

Although erosion-resistant Franciscan lithologies with top-of-rock elevations between about 17 ft MSL (on the beach) and 8 ft MSL underground (see Table 1) reduce the erosion potential at the site, to be conservative we calculated a setback using a 3"/year erosion rate (rather than the 4"/yr rate reported for Kampf Park) because the DCI site is protected by offshore rocks, onshore rocks, rip-rap, a headland to the north-northwest, and harbor breakwaters to the southwest (see **RECOMMENDATIONS, *Section 1.6***). Using a rate of 3"/yr and a project lifespan of 75 years yields a setback of 18.75 ft from the landward edge of the back-beach. The DCI development plan (Figures 3A and 3B) indicates that the most seaward part of the structure will be set back 44 feet, a factor-of-safety of ~2.4.

Rate and Acceleration of Rate of Global Sea Level Rise, and Geodetics

Global sea level has risen since 1961 at an average rate of 1.8 mm/hr [1.3 to 2.3 mm/yr is the 95% confidence interval] (IPCC, 2007; Douglas, 1991). However, between 1993 and 2003 it rose at 3.1 mm/yr [2.4 to 3.8 mm/yr is the 95% confidence interval] (IPCC, 2007). Although it currently is unknown whether the increased 1993 to 2003 rate reflects decadal variation or an increase in the long-term trend, it is clear that the rate of sea level rise is accelerating due to contributions from thermal expansion of seawater and melting glaciers, ice caps, and polar ice sheets (IPCC, 2007). Models that predict rise rates do not currently take into account the possibility of a failure or partial failure of the Greenland and Antarctic ice caps into the sea due to reduced basal friction, a concern of glaciologists.

The implications of global sea level rise vary from coastline to coastline. Geodetic research[1] over the past half-century has documented that the coastline in northernmost California is uplifting faster than global sea level rise (Komar, 1992). The data suggest that the Crescent City area currently is rising about 0.8 mm/yr faster than sea level (Vincent, 1989; Mitchell et al., 1994). That is, sea level is rising at 1.8 mm/yr but the land is rising at 2.6 mm/yr. This net uplift, however small, theoretically causes the ocean to be less likely to erode the shoreline each year. **That is, other things held equal, the risk of shoreline erosion theoretically decreases slightly each year at the DCI site. Presumably, this will remain true until the rate of sea level rise accelerates to equal the uplift rate, or until the next Csz earthquake down-drops the Crescent City area and the uplift rate changes (see following text-section).**[2]

[1]Geodetics is the study of changes in the elevation of the earth's crust using survey and global positioning methods. Geodetic research provides great information about local tectonics.

[2]This statement does not take into account the possibility that some storms will be stronger (have higher swell heights and lower barometric pressures) in response to greater available thermal energy from warmer seas.

Magnitude of Possible Coseismic Settlement

To date, geologic investigations that predict the possible magnitude of coseismic subsidence that could occur in the Crescent City area during a Csz event have not been done. The most applicable work to address the subject for the Oregon and Washington coasts (Peterson et al., 2000) did not address southern Oregon or northern California. However, based on work by Vick (1988) in the Humboldt Bay area and Peterson et al. (2000) for the central Oregon coast, coseismic subsidence of up to ~2 m (~ 6 ft) might be possible at the Crescent City study site. Were such subsidence to occur, catastrophic beach retreat and shoreline erosion would begin. The magnitude of the shoreline retreat can be predicted using the Bruun relation (Komar et al., 1991). Note that Peterson and others (2000) predict no subsidence and beach retreat for some areas of the Oregon coast.

Summary Conclusion About Potentially Significant Hazards and Risks

Because of site-specific conditions at the DCI site, including the presence of protecting structures, erosion-resistant Franciscan lithologies, and boulder rip-rap, and a geodetic uplift rate that exceeds the rate of global sea level rise, steady-state erosion of the shoreline is likely to be insignificant for the next 75 years in place. Currently the risk of shoreline erosion theoretically is less each year because there is net uplift (the uplift rate exceeds the rate of sea level rise). This will hold true until the next Csz event. Then, if the site experiences coseismic subsidence, rapid-rate erosion of the shoreline is likely to begin, even with the rip-rap in place.

Description of Beach Berm Crest and Risk of Wave Throw

The elevation of the berm crest on the back beach is relatively constant. Work we did for the Hampton Inn site (in 2000) indicates that then the elevation of the berm crest in the northern part of the site (which is contiguous with the DCI beach) was ~14 ft MSL. There the crest was separated from the base of the rip-rap by up to about 25 feet of back beach. In early April, 2008 the crest of the DCI berm varied from ~14 to 15 ft MSL. (Its elevation is a moot point seaward of the northern part of the site because other properties are between the site and the sea.)

A review of wave refraction diagrams prepared by the USACOE (1965, 1972) and of aerial photographs indicates that wave refraction dynamics are controlling the configuration of the beach berm crest. We could find no historic anecdotal evidence that debris from waves ever damaged the Seaside Hospital or the medical offices on the DCI site, and there is no physiographic condition that would suggest that the risk of wave throw is higher on the DCI site than the adjacent Hampton Inn site.

Vertical Beach Access and Lateral Walkway

Vertical access to the beach is from the southern part of the property where the elevation of the ground is approximately the same as the elevation of the back-beach. A stairway or ramp is unnecessary (unless ADA requirements so dictate).

Strength Characteristics of the Bedrock

Because others have done numerous tests on the St. George Formation bedrock, we limited our laboratory testing to standard soils index (SSI) tests of the soils and marine terrace sediments. We present our lab data (Table 5A), equivalent data from the Hampton Inn site (Table 5B), and bedrock data by others (Table 6) in Appendix IC.

To summarize, the St. George Formation includes both siltstone and fine-grained sandstone, but our boreholes encountered only siltstone. Based on our logs and a review of logs by others, we believe that regionally a siltstone member typically overlies a sandstone member. As noted previously, we infer that, where present on the DCI site, the siltstone varies from about 5 to 10 ft thick. Tests by others (see Table 6) suggest that the dry density (γ_d) of the siltstone varies from an anomalous low of γ_d = 79 pcf (pounds per cubic foot) to a high of about 113 pcf where the unit is sandy; nominal values range from about 86 to 94 pcf. SPT blow-counts (per ASTM D 1586) vary dramatically from a low of about 20 (for 12") to a high of about 76/6" where the unit is unsaturated, and are as low as 4/6" in the saturated zone at the upper surface of the formation.[1] Percent-saturation averages about 25% except in the saturated top few inches of the formation. Unconfined compressive strength (UC), as measured in 2004 per ASTM D 2938, varies greatly from a low of ~23 tsf (tons per square foot) to 96 tsf (but a 1971 study reported UC = 1.3, 4.1, and 7.5 tsf). In contrast, in underlying Franciscan Complex mudstone, shale, and sandstone the UC can range from a low of about 16 tsf in fractured zones to a high of ~850 tsf.

[1]In our opinion, a field call of the relative density based on blow-counts can be misleading because the siltstone commonly plugs the tip of the sampler causing artificially high blow-counts in the second 6"-long sample (and third, if one is done). For example, blow counts recorded on the borehole logs for the Crescent City sewage plant expansion project general are approximately 20-40-75 in the upper siltstone member of the formation.

GEOTECHNICAL RECOMMENDATIONS

Discussion

From a geotechnical perspective, the project is feasible, but geologic hazards and materials strength concerns must be mitigated through excavations, appropriate engineering design, and aggressive long-term water control. Two basic earthworks-foundation systems are most practical at this site to achieve the lowest risk: either (A) reinforced cast-in-place concrete piers embedded in bedrock supporting grade beams, retaining walls, above-ground piers, and structural slabs or (B) retaining walls and a conventional slab bearing on a structural fill in turn resting on bedrock. In the first case, several feet of liquefiable, permanently saturated sands would underlie the garage slab. In the second, a compacted crushed aggregate baserock would. It is possible that a slurry wall system could be designed to keep the baserock from become saturated. Regardless which foundation-earthworks system is used, the foundation must be designed to resist seismic moments and the underground garage must have aggressive water control. **Adherence to our recommendations will reduce—but not entirely eliminate—the level of risk associated with the identified hazards.**

Formal Recommendations

Section 1.0 Site Preparation

1.1 ***Minimize unnecessary ground disturbance during demolition, debris clearing, and earth-working.*** The existing medical office, concrete flatworks, asphalt driveway, parking areas, and underground utilities must be demolished and removed from the site before the site earthworks (excavations) for the DCI structure can be completed.

1.2 ***Protect the groundwater monitoring wells during demolition activities and then keep them in place as long as possible (see Section 6.1).***

1.3 ***Haul debris generated by demolition activities to a recycling site and/or an otherwise approved location.*** Obtain necessary City and/or County disposal permits for the concrete, asphalt, and all other materials (if any are

required). Prior to beginning demolition, verify whether asbestos products are present. If they are, be certain to follow current removal and disposal protocols. In the event an underground storage tank (UST) is unexpectedly discovered, stop work, notify Del Norte County officials and us, and do not proceed until authorized to do so by the County.

1.4 ***Haul excavated soils to a stable storage or disposal site away from a watercourse and use appropriate best management practices for erosion-control at the site (see Section 7.0).*** If it is possible and reasonable to "high grade" the spoils during the excavation process (by separating topsoils, clayey fills [if any], and clayey subsoils from "clean" or silty sandy and gravelly marine terrace sediments), the sands and gravels could be sold for use in certain structural fill applications. (Sand and gravel can be compacted to specifications.)

1.5 ***Our understanding of the development plan indicates that it might be necessary to shore certain excavation walls for safety and to keep cutbank failures from progressing across property lines and/or into City easements and improvements.*** See ***Section 4.0*** for additional information.

1.6 ***Adhere to the recommended setback.*** Use a minimum foundation setback of 19 feet for habitable areas from the southwest corner of the property (functionally the approximate landward edge of the back-beach).

Section 2.0 General Foundation

2.1 ***Have an engineer registered in California design the foundation.***

2.2 ***Do cost estimates for the main alternatives before deciding which foundation-earthworks strategy to use.*** See pertinent comments in ***Section 2.3.1*** and ***2.3.2***.

2.3.1 ***Option A: Bear load-bearing foundation elements on bedrock.*** One option to achieve the lowest risk is to rest all load-bearing foundation elements on or within bedrock. Reinforced cast-in-place concrete piers logically could support structural slabs, retaining walls, and interior piers,

and—if the excavation for the underground garage were to expose local bedrock highs (for example, "hard" Franciscan Complex lithologies poking up through St. George Fm. siltstones)—certain retaining walls or slab sections could bear directly on bedrock itself. However, because the surface of the bedrock (excluding possible localized highs) has an elevation of about 8 to 10 ft MSL and the bottom of the garage slab will be at about elevation 11.5 ft MSL, it would be possible to calculate the pier lengths (and embedment depths into bedrock) well enough to facilitate accurate foundation-cost estimating by bidding contractors. That is, "as-built" construction cost increases for longer pier depths are unlikely.

To construct a pier, grade beam, and structural slab foundation (plus retaining walls), dig the excavation for the slab, dig the trenches for the grade beams and retaining walls into the slab subgrade, and then drill boreholes within the trenches where shown on the engineer's drawings for the structure. Unless the project engineer shows a different embedment depth on the plans, extend the boreholes through the remaining marine terrace sediments so that each pier extends 10 feet into bedrock. Clean the drilling spoils from the trench and slab excavation and hang a rebar cage in the borehole (hang it to keep it from resting on the bottom of the hole). Use concrete spacers to keep the cage from touching the sides of the hole. Secure the top of each rebar cage to the grade beam and/or structural slab rebar framework as specified on the engineer's drawings. Pour the piers one at a time but do a monolithic pour for the grade beams and slab unless the project engineer directs otherwise.

Note 1: Because the bottom few feet of the sands and fine gravels above the bedrock are likely to be loose and saturated regardless of when construction occurs, it is likely that boreholes would have to be cased.

Note 2: If groundwater fills the boreholes, tremie the concrete into the holes; do not pour it into the holes from the top.

Note 3: The boreholes will pass through the St. George Fm. siltstones, which are blue-gray, into Franciscan mudstones, sandstones, or other rock types. The different lithologies will be reflected in the drilling rate, bit chatter, torque required to advance the boring, and/or cuttings.

2.3.2 Option B: Bear the foundation on a structural fill bearing on bedrock and constructed per the project engineer's specifications or the general guidelines of Section 5.4.

Option B1: Remove all of the "unsuitable soils" (per the following definition) from within the entire building footprint plus two feet or more in each direction, establish a subgrade in undisturbed bedrock of either type, raise the subgrade to design grade by placing layers of engineered fill on the prepared subgrade, and then build the foundation on a capillary break and moisture barrier constructed per ***Section 6.1*** placed on the surface of the engineered fill.

Option B2: Plan to use a structural slab supported by a perimeter footing and interior grade beams in a linear strip or grid-pattern. Complete the excavation for the underground garage to the design "bottom of slab underlayment" elevation (about 11 to 11.5 ft MSL). Excavate perimeter and interior trenches a minimum of 18" wider than the foundation element, down to undisturbed bedrock of either type. Fill the trenches to design "base of footing" grade with either "3-bag slurry" (a uniform-density flowable fill) or a compacted aggregate fill (both per ***Section 5.4***). Allow a slurry backfill to harden for a minimum of three days before forming and pouring concrete.

NOTE: Because the bottom few feet of sands and gravels above the bedrock might be loose and saturated regardless of when construction occurs, the excavation cutbanks probably will fail if the bottom of the cutbank extends into the saturated zone. In the case of **OPTION B2**, the trench walls could collapse forming wide V-shaped trenches that could require double to triple the amount of structural backfill. Under the worst-case scenario, the sands might flow, thereby preventing the excavation of trenches.

CAUTION: Failing to support all load-bearing portions of the structure on bedrock or a structural fill bearing on bedrock will expose the structure to a MODERATE or higher risk of damage due to differential settlements and a LOW risk of damage due to liquefaction-induced ground failure. Both types of ground failures can cause cracking, separations, and tilting of foundation elements, the separation of utilities lines, and the deformation of a superstructure over time.

Section 3.0 Design Requirements

3.1 Use appropriate seismic design. The site is in Seismic Zone 4 (ICBO, 2007). Seismic design for structures is necessary. Design to the guidelines of the 2007 California Building Code (CBC). See Table 2. Please call if you have questions.

TABLE 2. Seismic Design Parameters

(Latitude 41.902° N, Longitude 124.204° W)

Parameter	Short Period (T_s = 0.2 seconds)	1-Second Period (T1 = 1.0 second)
Maximum Credible Earthquake Spectral Acceleration, S	S_s = 1.483 g	S_1 = 0..718 g
Site Class	B	
Site Coefficient, F	F_a = 1.00	F_v = 1.30
Adjusted Spectral Acceleration, S_M	S_{MS} = 1.483 g	S_{M1} = 0.934 g
Design Spectral Response Acceleration Parameters, S_D	S_{DS} = 0.988 g	S_{D1} = 0.623 g
Design PGA, S_{aPGA}	0.55 g	

3.2. Use CBC Presumptive Allowable Lateral Pressures for the design of retaining walls 10 ft high and less. (See Table 4, following).

3.3 Use standard formulae and appropriate parameters to calculate allowable bearing values for reinforced CIP piers (if a CIP pier system is used per Section 2.3.1., Option A, preceding). Based on our understanding of the development plan and site stratigraphy, we anticipate that it will be most cost effective to embed all piers that are designed to carry the same load (+/- 5 kips) the same depth into bedrock.

If the piers are embedded 10 feet into bedrock and the bottom of the grade beams / retaining wall footings is at 11 ft MSL, most piers would be ~13 feet long and the longest ones should not exceed 18 feet in length (see Table 1). At 10 ft embedment into bedrock, all piers will pass through the St. George Fm.

TABLE 3 (INCOMPLETE). Parameters for Bedrock

(Per discussion with the client relevant to budgetary considerations and the earthworks-foundation options, we did not complete this table because CIP piers are unlikely to be used. Contact us if the plan changes.)

Design Consideration	Based On
Bedrock type = Kjf sandstone / mudstone / argillite	(BGC field data onsite and nearby)
Dry unit weight (γ_d) = __ pcf	(Average of tests by BGC and others)
Moist unit weight (γ_m) = __ pcf	(Average of tests by BGC and others)
Cohesion (c) = ___ psf	
Effective stress envelope (ϕ') = __°	
Unconfined compressive strength (Uc) = ___ psf	
Limiting skin friction value (CIP pier) = 1.4 kips/sq ft	(per Kulhawy, 1991)
Lateral load (active earth pressures) = 60 psf	(per ICCI, 2003)
Lateral load (passive earth pressures) = 100 psf	(per ICCI, 2003)
Coefficient of permeability (k) = ___ ft/min	(per Hunt, 2005)
Drag-down force = None	(BGC field data)
Set groundwater table at existing grade	(BGC field data)
Soil class for A. B. Chance helical anchors = __	(per ABC, 1990)
Allowable vertical end-bearing pressure = _____ psf	(per NAVFAC, 1986**)
Lateral sliding resistance = 130 psf x contact area***	(per ICCI, 2003)

*Parameters are for the weakest bedrock likely to be encountered, i.e., sheared argillite or mudstone.
**May be increased by 1/3 for short-term dynamic conditions (wind and earthquake); this value is higher than the CBC value.
***As limited by the 2003 IBC.

TABLE 3, NOTE 1: Engineering design for pier embedment within Franciscan Complex bedrock may assume an allowable end-bearing pressure of ___ tsf (per USDT, 1991).

TABLE 3, NOTE 2. The program Unipile (see www.unisoftltd.com) facilitates pile design calculations. Useful references include NAVFAC, 1986, pp. 7.2-209-212; Fellenius, 1984, 1991, 1998; Goudreault and Fellenius, 1995; and, especially, Kulhawy, 1991.

Section 4.0 Cuts and Retaining Walls

4.1 ***Determine the depth to the groundwater table across the site prior to beginning construction (see Section 6.1).*** When the groundwater conditions are known, determine the best temporary shoring strategy.

4.2 ***Slope all low temporary cutbanks in moist to dry soils appropriately.*** To reduce the risk of hazardous and damaging cutbank failures during construction, slope all temporary cuts over 3 feet and less than 10 feet high in moist to dry soils at 1:2 (H:V) or flatter. If soils are damp to dry during construction, and the soils in the base of the cutbank are not saturated, they probably will hold a cutbank face this steep long enough to complete the work.

4.3 ***If an excavation will encounter the groundwater table and extend one foot or more beneath it, choose one of the following options (4.3.1, 4.3.2, or 4.3.3).*** See Figure 12 if you elect to use temporary shoring.

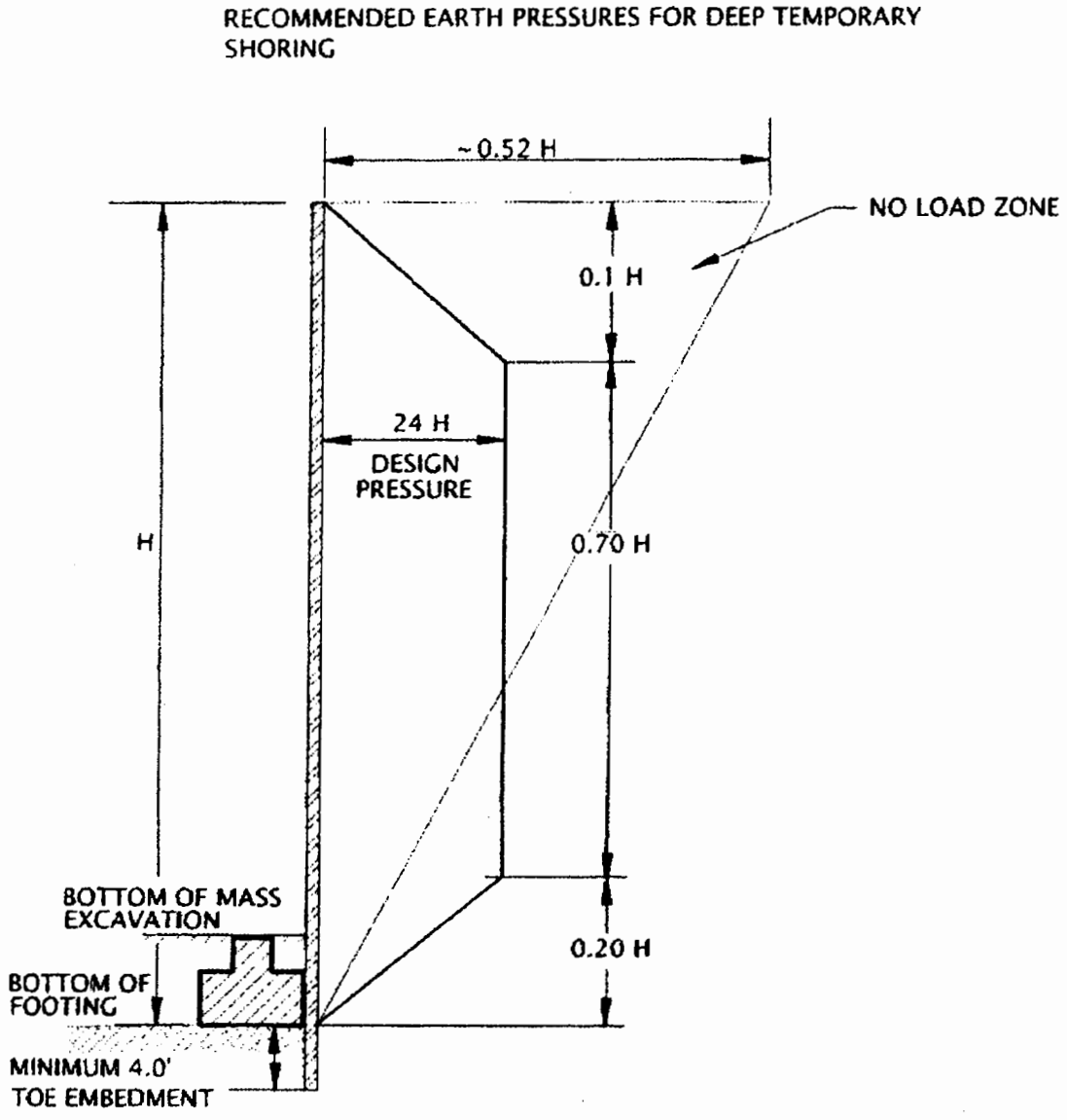
4.3.1 Initially slope the excavation wall at 1:1 (if possible). Use extreme caution when making an excavation into wet sands: saturated sands will flow and calve rapidly. This will create lengthy arched voids in the base of the cut. These in turn are likely to cause the entire cutbank to fail repeatedly. If cutbanks begin to fail, contact us immediately.

4.3.2 Prior to beginning excavations below the water table, remove the soils above the water table to within about two feet of it. Then drive sheet piling through the saturated soils and into the bedrock as deep as necessary to maintain the piling in place without temporary tiebacks (if possible). It will be necessary to enclose the entire construction area. (Alternative temporary shoring methods are available and might be practical; consult an experienced contractor.)

4.3.3 Contact us prior to beginning excavations to supervise the excavation of test trenches and to review construction options.

4.4 ***If winter rains are approaching, do not excavate for the underground garage until the construction schedule is known.***

Figure 12. Recommended Lateral Earth Pressures for Deep Temporary Shoring. Figure reproduced from GDI (2004) report for Crescent City Sewage Plant upgrade study. The geologic units are identical so this figure is directly applicable.



4.6 ***Retain all permanent cutbanks over 3 feet high.*** For the design of retaining walls less than 10 ft high use the presumptive passive or active lateral pressures (as appropriate for the specific wall) for sands (SM, SP) cited in the 2007 California Building Code (CBC). However, see ***Section 3.3, 4.8,*** and ***4.9.***

4.7.1 ***Use drained backfill behind all retaining walls.*** Compact retaining wall backfill to 90% of the maximum dry density (MDD) per the compaction specifications of ***Section 5.4*** unless a structure bears on the backfill. If a structure bears on the backfill, compact the backfill to 95% of the MDD (per ***Section 5.4*** guidelines) and to minimize compaction-induced stress on the wall, place fills within 3 horizontal feet of the back of the wall in 6" thick or less lifts compacted to 90% of the MDD of the fill. Use manual equipment such as a "jumping jack" or vibratory plate compactor. If a sidewalk, pavement, or slab for a structure bears on the backfill, compact the upper 3 vertical feet of fill to 95% of the MDD.

4.7.2 ***Place a perforated rigid drainpipe wrapped in a permeable geotextile embedded in drainrock at the base of the footing of each retaining wall.*** Discharge the drainpipe to the appropriate design location in compliance with ***Section 6.3*** and ***6.4.***

4.7.3 ***Design aggressive subsurface drainage-control structures to minimize the risk of groundwater intrusion into the underground parking garage.*** For example, you could design an on-demand sump pump system to drain a network of retaining wall drainpipes and slab under-drains if gravity flow is infeasible. Such a system would require an auxiliary generator to power the pumps during power outages.

4.8 ***Plan for settlement adjacent to retaining walls.*** Settlement of up to ~1% of the height of the wall occurs along a free-standing retaining wall founded on soil as the wall tilts in response to active lateral earth pressures. To minimize damage to flatworks, construct them at least four weeks after the completion date of the retaining wall unless survey data indicate that settlement is complete earlier. Flatworks bearing on grade beams supported by CIP piers may be constructed penecontemporaneously with the construction of the wall.

Walls founded on bedrock, on grade beams bearing on piers in bedrock, and on structural fill will settle much less, if at all.

4.9 ***Design to the site conditions.*** Design each retaining wall based on the soil parameters of Table 5, Appendix IC, as long as the wall is restrained from rotation, is 10 feet high or less, and the backfill is level. If the backfill slopes, design per Table 4. If the wall backfill supports a road, apply a live load of 250 psf.

Table 4. Lateral Earth Pressure Increase Factors*

Gradient of Slope (°) Above Wall	Increase Factor
0	1.00
5	1.06
10	1.12
20	1.33
25	1.52
30	2.27

*Factors from GDI, 2005, for retaining walls on similar site soils.

Section 5.0 Fills (Not all of the following generic recommendations apply to this site.)

5.1 ***Place landscaping fills less than 3 feet thick on a prepared surface cleared of organic debris and trash.*** Slopes that will receive 3 feet or less of landscaping fill do not have to be treated in an extraordinary manner. However, when placing soils over about 1 foot thick, use compactive effort to reduce the potential for settlement, cracking, and void formation. Be advised that regardless of the effort expended, silts and clays will not compact well so some deformation is to be expected in the fills. Provided the fills are constructed as specified, settlement is no cause for alarm.

5.2 ***Cut a toe-key into slopes of 20% and greater that will receive landscaping fills 3 feet or more thick.*** Cut a notch (toe-key) into the base of the slope area that will receive the fill. Drain the toe key using any conventional system. Please contact us if you would like specifics.

5.3 ***Clear organic debris, topsoils, existing fill soils, and trash from all areas that will receive structural fills or be paved.*** The project engineer should design the structural fill (provide texture and compaction specifications) and call-out compaction testing requirements. (See ***Section 5.4*** for our standard specifications for a structural fill.) Bench slopes over 5:1 (H:V) prior to placing a structural fill. **For this project, do NOT use the native soils for structural fills (import crushed aggregate baserock for all structural fills).**

5.4 ***Definition and examples of structural fill.*** Use a controlled density flowable fill (CDFF) (for example, "2- or 3-bag sand slurry") or an engineered fill for structural fill applications. An engineered fill is a well-graded nonplastic or low plasticity granular material compacted to specifications. If it will have a free face, it should have about 35% binder (silt + clay) by volume. Otherwise, it can be free-draining. It should contain no organics, no trash, and no clasts over 6" in diameter (3" is preferable). The liquid limit of the binder should be <35, its plasticity index, <16, as determined by plasticity testing (ASTM D 4318). An engineered fill with binder should be compacted to 90% or better of its maximum dry density (MDD) as determined by a "modified proctor curve" test (ASTM D 1557) of representative samples and verified by field compaction testing (ASTM D 1556 or 2922). The engineered fill must rest directly on undisturbed competent subsoils. Suitable engineered fills include "river run" sand and gravel and crushed aggregate baserock. Loose, free draining fills should be flooded with water during placement to compact them.

NOTE: We do not recommend using slurry-filled trenches along contour where the slope is 15% or greater. This is because the predicted soil failure mechanism would place the slurry walls in tension, and such unreinforced walls might be at unacceptably great risk of failing. We believe a slurry trench is appropriate only where lateral forces are minimal, e.g., on a gently sloping site where potential vertical settlements are the main concern.

5.5 ***BGC boreholes.*** The borehole backfill will settle over time. At present there is a HIGH risk of localized damage to any paving built on top of a borehole. As time passes, the risk of damage will decrease. To reduce the risk of damage to pavement due to settlement of borehole backfill, identify the boreholes that plot within an on-grade parking area, dig out the top 3 feet or more of the bentonite clay sealant, and compact a crushed aggregate

baserock into the cleaned-out borehole. Use a "breaker bar" with a tamping head to manually compact the baserock.

5.6 ***Plan for fill-induced settlements at any location where fills over three feet thick will be added to the existing ground surface to raise the grade.*** New fills placed on native soils often will cause the underlying soils to consolidate and settle. If new fills that will raise existing grades are planned, either have the project engineering geologist complete consolidation potential testing to predict the settlement amounts and rates, or have the project surveyor monitor the settlement. Delay the construction of flatworks and structures on the fills until settlement is complete. **To our knowledge, there is no current plan to raise the grade of any portion of the site.**

Section 6.0 Groundwater / Moisture / Drainage Control

6.1 ***If construction does not occur until 2009 or thereafter, monitor the wells during late summer / early fall, 2008, to see how low the groundwater table drops.*** Understanding the groundwater table dynamics will facilitate selecting the best excavation / shoring approach and accurate cost estimating.

6.2 **Have an experienced engineer review our geologic and hydrologic data and select appropriate water-control measures for the underground parking garage.** The following considerations apply.

Our standard recommendation for a site on silty or clayey soil that might become saturated seasonally due to rising groundwater is: "To reduce the potential for groundwater intrusion with consequent water damage over time, over-excavate to create a lower-than-typical subgrade elevation (to create more space beneath the bottom of the slab). Then place an additional 6" or more of drainrock on the subgrade (relevant to the "norm"). This will provide a drain-blanket below the slab which will help keep the ground beneath the slab dewatered. In this context, "drainrock" is any locally available, clean (silt- and clay-free), well-rounded gravel within specific sizes, e.g., ¾"-1 ½" or 1 /2" to 3"." The DCI subgrade, unless altered, would be high permeability granular soils that might be saturated year-around. As such, conventional subfoundation drain systems are unlikely to function.

Our standard recommendation for a slab underlayment is: "Construct a moisture break and vapor barrier beneath all slabs in habitable areas, as follows: Place 4 to 6 inches of "river-run" (sand and gravel less than 3" in diameter) or Class 2 aggregate base compacted to 95% of ASTM 1557-78 on a prepared subgrade. Place a plastic sheet on top of the compacted material and place 1 to 2 inches of clean sand on top of that. Carefully lap and tape all seams and utility pipe openings. Avoid puncturing the sheet during construction."

For the DCI site, the least expensive and most effective construction method, as suggested previously and discussed with our client, probably will be to over-excavate to bedrock, import a crushed aggregate fill, and then construct the slab and other foundation elements on it. Because the underground garage functionally will be a boat for each water-year (if not always) unless the entire site is dewatered, a capillary break would be a high-permeability water-bearing unit and a vapor barrier would not work.

For the preceding reasons we recommend that an experienced engineer reviews our site data and select appropriate water-control measures.

6.3 ***Use an engineered back-drain behind the garage retaining walls.*** We suggest over-excavating behind the walls to create additional space for a gravel drainrock back-fill. Even if you seal the walls and affix some type of plastic wall back-drain to them, we suggest you also use a redundant drainrock-filled back-drain as a component of the aggressive water-control system. The wall drains should have a permeable geotextile placed against the excavation wall and a rigid 4" PVC pipe, perforations down, slightly below the elevation of the footings of the retaining walls. If you would like more detail, please contact us.

6.4 ***Control surface drainage.***

- Fill utility trenches that run steeply downslope (if any) with a slurry or clay plug across the trench every twenty five feet (alternatively, fill the utilities trenches with a weak (1-bag) slurry;
- Finish-grade or develop water control structures so that surface water flows away from the structure and does not pond against foundations;

- Collect roof and parking area run-off and direct it away from the structure;
- Place energy dissipation structures below all surface outlets of concentrated water that drain onto the ground (if any);
- Use a gravel back-drain behind all exterior retaining walls; and
- Do not discharge gutter downspouts into perforated pipes that pass through any back-drain of a retaining wall for a habitable area (if any).

Section 7.0 Erosion- and Sediment-Control

7.1 During clearing, grading, and construction, use standard "Best Management Practices" (BMPs) to minimize the potential for sediment to leave the site. Typical examples are to place silt fences and/or straw "burritos" below bare slopes that will generate runoff; immediately seed, straw, and lightly water bare slopes that will not be developed; wash off muddy trucks before they pull onto the service street; cover each temporary spoils pile with a tarp and surround it with a silt fence; etc. If you would like to know additional BMPs or are required to provide Crescent City with a site-specific erosion- and sediment-control plan and would like us to prepare it, please call.

Section 8.0 Conformance Reviews and Inspections

8.1.1 Have the project engineering geologist (CEG) or his representative review the draft foundation, grading, and drainage-control plans. The CEG should inspect the draft (intended final) foundation, grading, and drainage-control plans and interact with the project engineer / architect to achieve conformance with the intent of our recommendations. If necessary, we will discuss any less-than-optimal situations with the engineer / designer to effect positive design changes.

8.1.2 Have the project CEG review the final foundation, grading, and drainage-control plans. The CEG should inspect the final foundation, grading, and drainage-control plans and issue a letter certifying that they are in conformance with the intent of our recommendations.

Note: The letter can be combined with the certification letter required by ***Section 8.2***.

8.2 ***Have the project CEG or his representative inspect the open excavation (subgrade and excavation walls) and, if CIP piers are used, monitor the drilling of some of the CIP pier boreholes to verify the completion depths and bedrock type and also that the earthworks and drilling contractors are following our recommendations.***

8.3 ***Have the project CEG provide certification documents.*** After the project CEG has reviewed the final plans (per ***Section 8.1.2***) and completed all of the subgrade inspections and borehole monitoring work (per ***Section 8.2***), he should issue a certification letter to document the geotechnical as-built construction specifics and confirm that construction was in conformance with the intent of the recommendations in the project soils report (this document).

Section 9.0 Documentation, Records, and Disclosure:

9.1 ***Have the project CEG review changes to the development plan.*** If the proposed development plan changes substantially from the version we address in this report, contact us to review the new plan for conformance with our recommendations and intent. Revised recommendations might be necessary.

9.2 ***Retain report.*** Retain a copy of this report and the certification report required by ***Section 8.3*** and keep them on file with your deed for use in possible future realty transactions.

9.3 ***Provide geotechnical disclosure.*** Make an original copy of this project soils report available for review by potential buyers of the condominiums. Also, provide a quality copy to all buyers, if requested.

Section 10.0 Public Warning

10.1 Post a public warning. In conspicuous public places in the complex post permanent warning notices that read as follows (or similar):

> "In the event of strong earthquake shaking, immediately leave the building and move to higher ground northeast of 8th Street. Do not delay! Walk or run if roads are blocked. Within 20 minutes of the beginning of the earthquake a tsunami will flood Crescent City south of 8th Street."

CLOSURE and AUTHENTICATION

Because Crescent City is located in a tectonically active region that could be struck by a catastrophic earthquake followed minutes later by a tsunami, nothing written in this report should be construed to state or imply a guarantee of safety. All parties—the project owner, his agents and consultants, future owners of the condominiums, and City and State regulators—must acknowledge the possibility of a catastrophic event. The risk of this event, and of damage and loss of life due to the event, is no higher at this site than at many other nearby low-lying sites in Crescent City (and along the coast of the Pacific Northwest in general). The only way to eliminate the risk of damage and loss-of-life due to this low-probability event is to not build on this site, but this mitigation option currently is not the preferred option (due to the relatively low probability of occurrence of a Cascadia subduction zone earthquake). Consequently, construction need only mitigate the risks associated with higher probability geohazards.

Similarly, all parties must acknowledge that when the rate of global sea level rise (currently ~1.8 mm/yr) increases to a rate above the local geodetic uplift rate of ~2.6 mm/yr, the risk of marine flooding and damage by wave throw theoretically will increase (if not before). A slow, gradual increase in the risk levels associated with these marine hazards cannot be considered as a catastrophic "act of God," yet at some future time the effects of sea level rise in fact might have catastrophic implications for the project site (as for elsewhere in the world). Although it probably would not now be cost effective to do so at this time, project engineers could

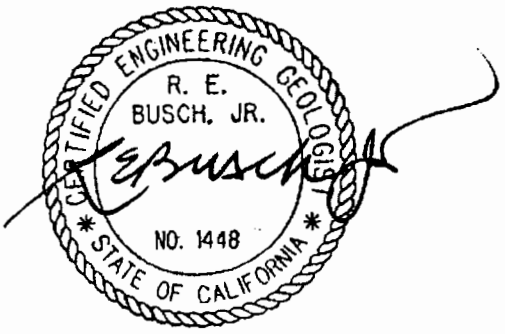
mitigate the anticipated rise in the risk level by designing structures that can be raised, or by designing a levee system.

Finally, please be advised that if we do not complete the plan review and onsite construction monitoring inspections recommended in ***Section 8.0, Conformance Reviews and Inspections***, we will accept no liability for our work.

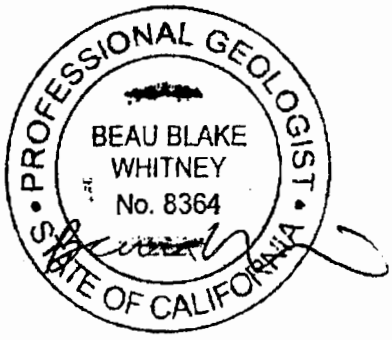
We thank you for hiring us and very much look forward to helping you complete your project.

Respectfully submitted,

Busch Geotechnical Consultants



R. E. Busch, Jr., Ph.D.
C.E.G. #1448
Principal



Beau Whitney
P. G. # 8364
Staff Engineering Geologist

Attached: **REFERENCES CITED** (pp. 64 - 70)
LIST OF ATTACHMENTS (p. 70)
Attachments (pp. 71 - 97)

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DRAFT

RANDY BAUGH
D.C.I
3941 PARK DRIVE #20338
EL DORADO HILLS, CA 95762

Job Number: 4030

6 August 2009

RE: Tsunami Design Loads

Dear Randy,

This letter addresses conditions of approval set by the California Coastal Commission associated with the proposed Costa Norte building to be located at 200 A Street, Crescent City, CA. The California Coastal Commission is requiring that the structure be designed such that a catastrophic failure does not result from the inundation of a tsunami wave. A specific analysis is required for hydrostatic, hydrodynamic, and buoyancy forces associated with the most recent model scenario or mapped run-up height of a tsunami wave that includes accounting for a 3-foot additional rise in sea level. We have determined through research that very limited resources exist for determining forces resulting from tsunami waves striking buildings and structures. The City and County of Honolulu Building Code (CCH, 2000) is the only source which provides codified structural requirements for resistance to tsunami wave forces. In our opinion, adhering to specific provisions of this code for design and analysis of the proposed structure's resistance to tsunami wave forces will comply with the required analysis.

The CCH Building Code references the 1980 Dames & Moore report entitled "Design and Construction Standards for Residential Construction in Tsunami-Prone Areas in Hawaii". Section numbers from the CCH Building code that will be adhered to in determining the tsunami design forces that the structure will be subject to are as follows:

1. Sec. 16-11.5(f)(7) – Buoyant Force
2. Sec. 16-11.5(f)(8) – Surge Force
3. Sec. 16-11.5(f)(9) – Drag Force
4. Sec. 16-11.5(f)(11) – Hydrostatic Force

Section 16-11.5(f)(3) of the CCH Building Code states that tsunami design forces are to be factored in the same manor as wind or earthquake loads when combined with gravity design loads.

We recommend that the structure design calculations and drawings be prepared in accordance with the listed sections of the City and County of Honolulu Building code with respect to tsunami wave forces. I trust this letter provides the information you requested. Please feel free to contact me if you have any questions.

EXHIBIT NO. 6
APPLICATION NO.
A-1-CRC-08-004
BAUGH dba DEVELOPMENT CONSULTANTS, INC.
PROPOSED BUILDING RESILIENCY STRUCTURAL DESIGN STANDARDS (1 of 5)

Very truly yours,

STOVER ENGINEERING

Ward Stover, P.E.
Principal

(a) Natural Terrain. The following shall be applicable to buildings on natural terrain:
  (1) Foundation design shall take into consideration the effects of soil saturation on the performance of the foundation.
  (2) The effects of floodwaters on slope stability and erosion shall be investigated.
  (3) All utility service lines shall be designed and constructed as provided in the plumbing and electrical codes.

(b) Building on Stilts. Where a building is to be constructed so that the lowest floor is to be elevated above the regulatory flood elevation, the building may be supported on columnar type members, such as columns, piers and in certain cases, walls. Clear spacing of support members, measured perpendicular to the general direction of flood flow shall not be less than eight feet apart at the closest point. The stilts shall, as far as practicable, be compact and free from unnecessary appendages which would tend to trap or restrict free passage of debris during a flood. Solid walls or walled-in columns are permissible if oriented with the longest dimension of the member parallel to the flow. Stilts shall be capable of resisting all applied loads as required by this code and all applicable flood-related loads as required herein. Bracing, where used to provide lateral stability, shall be of a type that causes the least obstruction to the flow and the least potential for trapping floating debris. Foundation supports for the stilts may be of any approved type capable of resisting all applied loads, such as spread footings, mats, piles and similar types. In all cases, the effect of submergence of the soil and additional floodwater-related loads shall be recognized. The potential of surface scour around the stilts shall be recognized and protective measures provided, as required.

(c) Building on Fill.
  (1) Except in districts where fill is specifically prohibited as structural support for buildings by Section 21-7.10, as amended, buildings may be constructed on fill material.
  (2) The fill shall not adversely affect the capacity of the floodway or any tributary or any other drainage facility or system, and shall be performed in accordance with Chapter 14, ROH 1990, as amended.

(Sec. 16-7.4, R.O. 1978 (1983 Ed.); Sec. 16-5.4, R.O. 1978 (1987 Supp. to 1983 Ed.); Am. Ord. 90-57

Sec. 16-11.5 Structural requirements.

(a) General. All buildings and structures to be constructed under the provisions of this article shall be capable of resisting all loads required under this chapter and, in addition, all loads prescribed in this section.

(b) Stability.
  (1) Overturning or Sliding. All buildings and structures to be constructed under the provisions of this article shall be designed and constructed to provide a minimum factor of safety of 1.50 against failure by sliding or overturning when subjected to combined loads as specified in subsection (d) of this section.
  (2) Flotation. All buildings and structures to be constructed under the provisions of this article shall be designed and constructed to resist flotation from floodwater at the regulatory flood elevation with a safety factor of 1.33.

(c) Loads. The following loads shall be considered in the design and construction of buildings and structures subject to the provisions of this article:
  (1) Hydrostatic loads;
  (2) Hydrodynamic loads;
  (3) Impact Loads. Assume concentrated load acting horizontally at the regulatory flood elevation or at any point below it, equal to the impact force produced by a 1,000-pound mass traveling at the velocity of the flood water and acting on a one-square-foot surface of the structure;
  (4) Soil Loads. Consideration shall be given to loads or pressures resulting from soils against or over the structure. Computation shall be in accordance with accepted engineering practice with proper consideration for effect of water on the soil. Special consideration shall be given in the design of structures when expansive soils are present;
  (5) Tsunami. Structural design of buildings and structures subject to tsunamis shall be in accordance with subsection (f) of this section.

(d) Combined Loads. All loads stipulated in this chapter and all flood-related loads specified under subsection (c) of this section shall be applied on the structure and on structural components, alone and in combination, in such manner that the combined effect will result in maximum loads and stresses on the structure and members. Application of these loads shall be as follows:
  (1) Dead Loads. Use at full intensity.
  (2) Live Loads. Use at reduced intensity as provided in this chapter for design of columns, piers, walls, foundation, trusses, beams and flat slabs. Live loads on floors at or below the regulatory flood elevation and particularly in basement slabs, shall not be used if their omission results in greater loading or stresses on such floors. Similarly, for storage tanks, pools and other similar structures designed to contain and store materials, which may be full or empty when a flood occurs, both conditions shall be investigated in combination with flood-related loads of the containing structure being full or empty.
  (3) Wind Load. Use at full intensity as required in this chapter on areas of the building and structure above the regulatory flood elevation.
  (4) Earthquake Load. Combined earthquake and flood-related loads need not be considered.

(e) Allowable Soil Pressures. Under flood conditions, the bearing capacity of submerged soils is affected and reduced by the buoyancy effect of the water on the soil. For foundations of buildings and structures covered by this article, the bearing capacity of soils shall be evaluated by a recognized acceptable method. Expansive soils should be investigated with special care. Soils which lose all bearing capacity when saturated, or become "liquefied" shall not be used for supporting foundations.

(f) Coastal Flood Water Design.*

(1) Buildings or structures shall be designed to resist the effects of coastal floodwaters due to tsunamis. The regulatory flood elevation due to tsunamis is considered to result from a non-bore condition, except where a bore condition is shown on the flood insurance maps or in the flood study adopted for the county.

(2) Habitable space in building structures must be elevated above the regulatory flood elevation by such means as posts, piles, piers or shear walls parallel to the expected direction of flow of the tsunami wave. The forces and effects of floodwaters on the structure shall be fully considered in the design.

(3) Allowable stresses (or load factors in the case of ultimate strength or limit design) for the building materials used shall be the same as the building code provides for wind or earthquake loads combined with gravity loads, i.e., treat loads and stresses due to tsunamis in the same fashion as for earthquake loadings.

(4) The main building structure shall be adequately anchored and connected to the elevating substructure system to resist all lateral, uplift and downward forces. In wood construction, toenailing is not allowed.

(5) Scour of soil from around individual piles and piers shall be provided for in the design in the coastal flood hazard district. Shallow foundation types are not permitted unless the natural supporting soils are protected on all sides against scour by a shore protection structure, preferably a bulkhead. Shallow foundations may be permitted beyond 300 feet from the shoreline, provided they are founded on natural soil and at least two feet below the anticipated depth of scour, and provided not more than three feet of scour is expected at the structure. The table below gives estimated minimum depths of soil scour below existing grade as a percentage of the depth (h) of water at the location.

Estimated Minimum Scour

	Distance from Shoreline	
	Up to 300 Feet[1]	**Greater than 300 Feet[2]**
Loose sand	80% h	60% h
Dense sand	50% h	35% h
Soft silt	50% h	25% h
Stiff silt	25% h	15% h
Soft clay	25% h	15% h
Stiff clay	10% h	5% h

[1] Values may be reduced by 40% if a substantial dune or berm higher than the regulatory flood elevation protects the building site.
[2] Values may be reduced 50% if the entire region is essentially flat.

(6) Forces which must be considered in the design of structures elevated to resist floodwaters include:

(A) Buoyant forces -- uplift caused by partial or total submergence of a structure.

(B) Surge forces -- caused by the leading edge of a surge of water impinging on a structure.

(C) Drag forces -- caused by velocity of flow around an object.

(D) Impact forces -- caused by debris such as driftwood, small boats, portions of houses, etc., carried in the flood currents and colliding with a structure.

(E) Hydrostatic forces -- caused by an imbalance of pressure due to a differential water depth on opposite sides of a structure or structural member.

(7) Buoyant Force. The buoyant force on a structure or structural member subject to partial or total submergence will act vertically through the center of mass of the displaced volume and is calculated from the following equation:

$$F_B = pgV$$

where F_B = buoyant force acting vertically
p = density of water (2.0 lb-s^2/ft^4 for salt water)
g = gravitational acceleration (32.2 ft/s^2)
V = displaced volume of water (ft^3)

*Reference is made to the January 31, 1980 report by Dames & Moore entitled "Design and Construction Standards for Residential Construction in Tsunami-Prone Areas in Hawaii" prepared for the Federal Emergency Management Agency for a more detailed study and analysis of tsunami wave forces.

(8) Surge Force. The total force per unit width on a vertical wall subjected to a surge from the leading edge of a tsunami which approaches the structure as a bore or bore-like wave is calculated from the equation below. The resultant force acts at a distance approximately h above the base of the wall. (Note: This equation is applicable for walls with heights equal to or greater than 3h. Walls whose heights are less than 3h require surge forces to be calculated using the appropriate combination of hydrostatic and drag force equations for the given situation.)

$$F_S = 4.5\ pgh^2$$

where F_S = total force per unit width of wall
p = density of water (2.0 lb-s^2/ft^4 for salt water)
g = gravitational acceleration (32.2 ft/s^2)
h = surge height (ft)

(9) Drag Force.

$$F_D = \frac{p C_D A u^2}{2}$$

where F_D = total drag force (lbs) acting in the direction of flow
p = density of water (2.0 lb-s^2/ft^4 for salt water)
C_D = drag coefficient (nondimensional) (1.0 for circular piles, 2.0 for square piles, 1.5 for wall sections)
A = projected area of the body normal to the direction of flow (ft^2)
u = velocity of flow relative to body (ft/s) (estimated as equal in magnitude to depth in feet of water at the structure)

The flow is assumed to be uniform, so the resultant force will act at the centroid of the projected area immersed in the flow.

(10) Impact Force.

$$F_I = \frac{mdU_b}{dt}$$

where F_I = impact force (lb)
m = mass of the water displaced by the body impacting the structure (slugs)
U_b = velocity of the body (ft/s) (estimated as equal in magnitude to depth in feet of water at the structure)
t = time (s)
$\frac{dU_b}{dt}$ = acceleration (deceleration) of the body at (ft/s^2)

This single concentrated load acts horizontally at the regulatory flood elevation or at any point below it and is equal to the impact force produced by a 1000-pound weight of debris traveling at the velocity of the flood water and acting on a one square-foot surface of the structural material where impact is postulated to occur. The impact force is to be applied to the structural material at a most critical or vulnerable location determined by the designer. It is assumed that the velocity of the body goes from U_b to zero over some small finite time interval (Δt) so the following approximation can be made:

$$F_I = \frac{31U_b}{\Delta t}$$

For structural material of wood construction, assume Δt, the time interval over which impact occurs, is one second. For structural material of reinforced concrete construction, use Δt of 0.1 second and for structural material of steel construction, use $\Delta t = 0.5$ second.

(11) Hydrostatic Force.

$$F_H = \frac{1}{2} pg \left\{ h + \frac{u_p^2}{2g} \right\}^2$$

where F_H = hydrostatic force (lb/ft) on a wall, per unit width of wall
p = density of water (2.0 lb-s^2/ft^4 for salt water)
g = gravitational acceleration (32.2 ft/s^2)
h = water depth (ft)
u_p = component of velocity of flood flow perpendicular to the wall (ft/s) (total velocity, u, estimated as equal in magnitude to depth in feet of water at the structure)

The resultant force will act horizontally at a distance of

$$\frac{1}{3} \left\{ h + \frac{u_p^2}{2g} \right\}$$

above the base of the wall.

(Sec. 16-7.5, R.O. 1978 (1983 Ed.); Sec. 16-5.5, R.O. 1978 (1987 Supp. to 1983 Ed.); Am. Ord. 90-57)

Sec. 16-11.6 Violations--Penalty.

For violation and penalty provisions of this article, see Article 10 of this chapter. (Added by Ord. 90-57)

wra
ENVIRONMENTAL CONSULTANTS

August 11, 2009

James Baskin
California Coastal Commission
North Coast District Office
710 E Street, Suite 200
Eureka, CA 95501

RE: Wetland Delineation for A-1-CRC-09-004, 200 A Street, Crescent City, California

Dear Mr. Baskin,

On July 27, 2009, I visited 200 A Street (APN 118-020-34) to delineate the extent of any marine intertidal wetlands or other wetlands present. This work was done on behalf of Randy Baugh of Development Consultants, Inc. in response to your email communication dated May 15, 2009 requesting additional biological information for the subject parcel. Specifically, the email requests delineation of the "extreme higher high water" (EHHW), and correlates this to the "extreme high water of spring tides" described in the U.S. Fish and Wildlife Service's *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). The email also requests investigation of areas dominated by coastal willow (*Salix hookeriana*, FACW) for potential wetland ESHAs as defined by the California Coastal Commission.

Wetland investigation

The topography of unpaved portions of the parcel is generally a single depression draining neighboring parcels and leading to a steep beach. A cobble and driftwood pile lines the edge of vegetation, creating a shelf at approximately the same elevation as the lowest vegetated areas. Both large and small driftwood was found throughout the northwest corner of the unpaved area, with smaller driftwood mixed into the sandy soil several inches deep beneath the willows. While there was no indication of regular tidal flooding into the vegetated areas, the driftwood indicates one or more infrequent storm surge events have extended into the small vegetated basin on the subject parcel. The site visit was conducted during a particularly high tide of approximately 3.4 feet above Mean Sea Level (MSL), which is slightly above Mean Higher High Water for Crescent City (MHHW = 3.16 feet above MSL). At the time of the site visit, the wetted portion of the beach was approximately 6 to10 feet below the vegetated area.

A map showing sample points and corresponding wetland data sheets are provided following this letter with additional details on soils, hydrology, and vegetation conditions observed. Several low points in the topography and areas dominated by hydrophytic vegetation were examined in addition to the sample points described in the data sheets. At all locations examined, soils consisted of a dark gray or dark grayish brown fine loamy sand with no redoximorphic features or other hydric soil indicators. The soils appeared to be too sandy to retain water, and a pit approximately 20 inches deep was dug to confirm that there was no restrictive layer present.

No potential wetland ESHAs were found in or near the subject parcel. All vegetated areas were located well above the active beach. The vegetated portion of the site generally supported three different communities: an exotic-dominated ruderal grassland, a dense stand of Himalayan

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blackberry (*Rubus discolor*, FAC+), and a dense stand of coastal willow extending to the north and west along the shoreline. The willows still showed evidence of being sheared to a height of approximately five feet. As is typical of habitats along the immediate coastline, vegetation was dominated by facultative (FAC and FACW) species even on dry upland slopes, due to the influence of fog and sea spray. The subject parcel is relatively disturbed by small trails and exotic invasive species, although native coastal bluff species do persist in smaller numbers. No vegetation adapted to tidal inundation was observed.

Most of the vegetated areas were dominated by facultative wetland species and therefore met the hydrophytic vegetation criteria for wetlands. The eastern vegetated areas were dominated by exotic upland grasses such as sweet vernal grass (*Anthoxanthum odoratum*, FACU) and common native weedy species, particularly giant horsetail (*Equisetum telmateia*, OBL), which is assigned an "obligate" wetland indicator but typically grows in both wetlands and uplands on the coast. Wetland sample points were located in two areas dominated by facultative wetland plants: one dominated by coastal willow (P1 and P2) and another by Himalayan blackberry (P3).

All species observed growing beneath the dominant willow and blackberry are often found on coastal bluffs where fog supplements soil moisture, and no species were strong indicators of wetland conditions. Species found within the coastal willow patch both within and outside the parcel were sparse and included facultative species such as Himalayan blackberry, cape ivy (*Delairea odorata*, NL), white clover (*Trifolium repens*, FAC), sweet vernal grass, and velvet grass (*Holcus lanatus*, FAC). No evidence of wetland hydrology or changes in vegetation communities based on topography that might indicate wetland conditions were observed. No indicators of regular flooding, seasonal ponding, or soil saturation were observed within the parcel or adjacent coastal willow patches.

Marine intertidal wetlands

The extent of marine intertidal wetlands was identified based on visible indicators of tidal inundation and extreme wave events. The shoreline adjacent to the subject parcel is parallel to the open ocean with site conditions indicating frequent high energy wave conditions and occasional extreme storm events. Substrate consisted of very large (average 5 inch) cobbles and driftwood at elevations high above the active beach. A finer sandy substrate was observed at lower elevations where tides were active at the time of the site visit. The slope of the beach was relatively steep, and transitions between different substrates and vegetated areas were abrupt and all located within a short horizontal distance (Photo 1).

As mentioned above, the predicted and preliminary observed tide level for the time of the site visit was approximately 3.4 feet above MSL, which is slightly above MHHW for Crescent City. A wrack line of aquatic plant debris was present and the upper edge was mapped a few horizontal feet above the extent of the current tide. The wrack line could be a more accurate site-specific indicator of the approximate MHHW. Above the wrack line on adjacent parcels, the cobble beach and small driftwood extended across a gradual slope for approximately 15 feet to the vegetated areas. In contrast, in front of the subject parcel a large pile of driftwood mixed with cobble created a steeper slope. On the top of this pile, vegetation was absent for approximately eight horizontal feet, until plants such as wild radish (*Raphanus sativus*), Himalayan blackberry, and coastal willow began to grow. The dense driftwood extended into the vegetated areas.

Photo 1. Beach directly west of subject parcel, with approximate EHHW line delineated by WRA shown in red. The highest wrack line can be seen below this line, and large driftwood pile mixed with large cobbles above this line. The top of the pile is approximately the same elevation as vegetation to the east.

Photo 2. Looking towards subject parcel and hotel to the south, with delineated EHHW line shown in red.

Topographic data provided to WRA covers the subject parcel but not the unvegetated beach. Based on this data (see map attached), elevations at the edge of vegetation range from 16 to 17 feet in the Crescent City datum. This corresponds to 8.6 to 9.6 feet above MSL. Based on the visible topography, wrack line, and high tide observed during the site visit, it can be inferred that the elevation requested by the Coastal Commission (EHHW over the period of record at Crescent City = 6.95 ft above MSL in 1983) as well as the highest predicted tide for 2009 (EHHW in 2009 = 4.99 ft above MSL) would be located below the top of the driftwood shelf shown in Photo 1. Therefore, the base of the dense driftwood pile was mapped as an approximate EHHW. In adjacent areas where the shelf is not so pronounced, this delineated line continued to follow the lower edge of a dense concentration of driftwood (Photo 2). No wrack other than driftwood was observed near this line, which helped to verify that this is significantly above the mean high water line.

In conclusion, a line representing approximate EHHW was mapped at the base of the driftwood shelf using GPS onsite as shown on the attached map. Storm surges have clearly flooded beyond this line in the past, extending into the subject parcel, but this does not appear to occur often. No vegetated wetlands were found on or near the subject parcel, so we believe the boundary of the coastal waters (also known as unvegetated "marine intertidal wetlands") would be the only jurisdictional wetland ESHA affecting development of the parcel. We can provide additional data and photos showing the location of the wrack line and edge of vegetation if you require more information to determine the appropriate ESHA boundary.

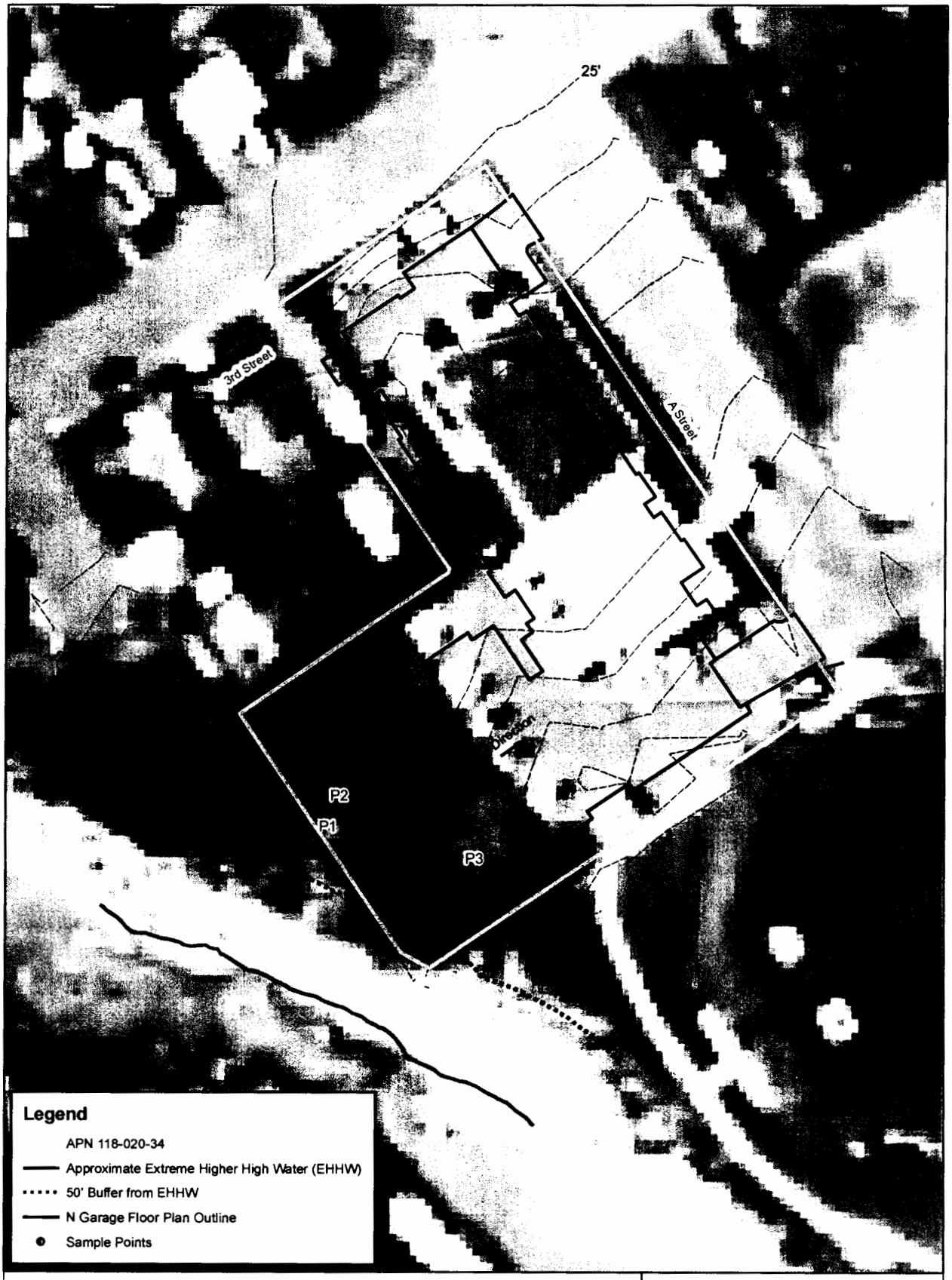
Please do not hesitate to contact me or the project manager Phil Greer (greer@wra-ca.com) if you need further clarification on this delineation.

Thank you,

Jennifer Adler
Biologist
adler@wra-ca.com

cc: Randy Baugh, Development Consultants, Inc.

Encl.



Marine Intertidal Delineation

5 of 30

200 A Street
Crescent City, California

N
W E
S

0 25 50 100 Feet

wra
ENVIRONMENTAL CONSULTANTS

Map Date: July 2009
Map By: Derek Chan
Base Source: NAIP, 2005
Filepath: L:\Acad 2000 Files\19000\19109\GIS\ArcMap\IntertidalDelinAug09.mxd

California Coastal Act Wetland Data Sheet

Project Name: 200 A Street (APN 118-020-34)
City/Location: Crescent City
Applicant/Owner: Development Consultants, Inc.
WRA Investigator(s): J. Adler
Date: 7/27/2009

County: Del Norte County
LCP (if applicable): Crescent City
☑ LRR A (Western Mts., Valley, and Coast [WMVC])
☐ LRR C (Arid West)
SAMPLE POINT ID: P1
HABITAT: upland

CCC/LCP WETLAND DETERMINATION

Meets CCC or LCP vegetation criteria? ☑ Yes ☐ No
Meets CCC or LCP hydric soil criteria? ☐ Yes ☑ No
Meets CCC or LCP hydrology criteria? ☐ Yes ☑ No
CCC/LCP WETLAND? ☐ Yes ☑ No

Comments [include evidence of upland conditions (if one or more criteria met but area determined to be upland)]:
Located several feet from a trail passing through a willow and blackberry thicket, at approximate lowest point on property.

VEGETATION

*indicator status from the USFWS 1996 National List of wetland species

TREES - Plot size:	% Cover	Status*	Dominant?
TOTAL			

50% of stratum cover = *20% =*

SAPLING/SHRUBS - Plot size: 5' radius	% Cover	Status*	Dominant?
Salix hookeriana	60	FACW	YES
TOTAL	60.0		1

50% of stratum cover = *30.0* *20% =* *12.0*

HERBACEOUS - Plot size: 5' radius	% Cover	Status*	Dominant?
Rubus discolor	15	FAC+	YES
Equisetum telmateia	5	OBL	YES
Aster chilensis	5	FAC	YES
Agrostis aff. stolonifera	5	FACW	YES
Anthoxanthum odoratum	5	FACU	YES
Melilotus indicus	5	FAC	YES
Vicia sativa	3	FACU	NO
Medicago polymorpha	1	FACU-	NO
Sonchus asper	1	FAC	NO
TOTAL	45.0		6

50% of stratum cover = *22.5* *20% =* *9.0*

Dominance Test:

Total # of dominant species across all strata: 7

Total # of dominants that are hydrophytic (status of OBL, FACW, or FAC): 6

Percentage of dominants that are hydrophytic: 86%
[Meets dominance test if >50%]

Prevalence Index:

Total % cover of species across all strata:

OBL: _____ x 1 = _____
FACW: _____ x 2 = _____
FAC: _____ x 3 = _____
FACU: _____ x 4 = _____
UPL: _____ x 5 = _____

Total: _____ (A) _____ (B)

Prevalence Index (B/A) = _____
[Hydrophytic vegetation dominant if B/A ≤ 3.0]

Meets CCC or LCP hydrophytic vegetation criteria? ☑ Yes ☐ No

Comments: Vegetation consists of only faculative species that are commonly found along coastal bluffs in both wetlands and uplands - they do not require saturated soils. Fragaria chiloensis, a sandy bluff species which would not occur in saturated soils, was also dominant in the trail nearby.

Project Name: 200 A Street, Crescent City Sample Point ID: P1

SOILS Slope (%): 0 Soil map unit: not available

SOIL PROFILE

Depth	Matrix Color	Redox Color	% and contrast	Redox type	Texture	Comments
0-12"	10YR 4/1	none			fine loamy sand	small driftwood

All soils:
- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) *[Arid West only]*
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ **Other (explain below)**

Loamy and clayey soils only:
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9) *[Arid West only]*

Sandy soils only:
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

Meets CCC or LCP hydric soil criteria? ☐ Yes ☑ No

Comments: A few small pieces driftwood are incorporated in the soil matrix.

HYDROLOGY (indicators from Corps Regional Supplements, applicable to coastal California only)

Primary indicators (only 1 needed to meet criteria):
- ☐ Surface water (A1) *Depth (in.):* _____
- ☐ High water table (A2) *Depth (in.):* _____
- ☐ Soil saturation (A3) *Depth (in.):* _____
- ☐ Water marks (B1) *[if in Arid West: Nonriverine only]*
- ☐ Sediment deposits (B2) *[if in Arid West: Nonriverine only]*
- ☐ Drift deposits (B3) *[if in Arid West: Nonriverine only]*
- ☐ Algal mat or crust (B4) *[WMVC only; see B12]*
- ☐ Iron deposits (B5) *[WMVC only]*
- ☐ Surface soil cracks (B6)
- ☐ Inundation visible on aerial imagery (B7)
- ☐ Sparsely vegetated concave surface (B8) *[WMVC only]*
- ☐ Water-stained leaves (B9) *[Arid West and MLRA 5 only]*
- ☐ Salt crust (B11)
- ☐ Biotic Crust (B12) *[Arid West only; see B4]*
- ☐ Aquatic invertebrates (B13)
- ☐ Hydrogen sulfide odor (C1)
- ☐ Oxidized rhizospheres (C3)
- ☐ Presence of reduced iron (C4)
- ☐ Recent iron reduction in tilled soils (C6)
- ☐ Stunted or stressed plants (D1) *[WMVC only]*

Secondary indicators (need 2+ to meet criteria):
- ☐ Water marks (B1) *[Arid West riverine only]*
- ☐ Sediment deposits (B2) *[Arid West riverine only]*
- ☐ Drift deposits (B3) *[Arid West riverine only]*
- ☐ Water-stained leaves (B9) *[WMVC:MLRA 4B only]*
- ☐ Drainage patterns (B10)
- ☐ Dry-season water table (C2)
- ☐ Thin muck surface (C7) *[Arid West only]*
- ☐ Crayfish burrows (C8) *[Arid West only]*
- ☐ Saturation visible on aerial imagery (C9)
- ☐ Geomorphic position (D2) *[WMVC only]*
- ☐ Shallow aquitard (D3)
- ☐ Frost-heave hummocks (D4) *[WMVC only]*
- ☐ Raised ant mounds (D6) *[WMVC only]*
- ☑ **FAC-neutral test (D5)** ☐ (Does not meet test)

☐ **Other (explain below)**

Meets CCC or LCP wetland hydrology criteria? ☐ Yes ☑ No

Comments: No wetland hydrology indicators observed except vegetation meets the FAC-neutral test (typical of coastal bluffs due to fog and ocean spray). Scattered driftwood indicates rare tidal flooding throughout the western vegetated portion of the property. However, no regular or annual tidal influence is apparent. Seaweed, wrack only present on unvegetated beach.

California Coastal Act Wetland Data Sheet

Project Name: 200 A Street (APN 118-020-34)
City/Location: Crescent City
Applicant/Owner: Development Consultants, Inc.
WRA Investigator(s): J. Adler
Date: 7/27/2009

County: Del Norte County
LCP (if applicable): Crescent City
☑ LRR A (Western Mts., Valley, and Coast [WMVC])
☐ LRR C (Arid West)
SAMPLE POINT ID: P2
HABITAT: upland

CCC/LCP WETLAND DETERMINATION

Meets CCC or LCP vegetation criteria? ☑ Yes ☐ No
Meets CCC or LCP hydric soil criteria? ☐ Yes ☑ No
Meets CCC or LCP hydrology criteria? ☐ Yes ☑ No
CCC/LCP WETLAND? ☐ Yes ☑ No

Comments: Located on a slope near a faint trail through willows. Meets wetland vegetation criteria with common coastal faculative species. No other indicators observed; located on a slope with sandy soils that would not retain water. A layer of driftwood on soil surface and in upper horizons throughout this area indicate previous flood event(s).

VEGETATION

*indicator status from the USFWS 1996 National List of wetland species

TREES - Plot size:	% Cover	Status*	Dominant?
TOTAL			

50% of stratum cover = *20% =*

SAPLING/SHRUBS - Plot size: 10' radius	% Cover	Status*	Dominant?
Salix hookeriana	80	FACW	YES
TOTAL	80.0		1

50% of stratum cover = *40.0* *20% =* *16.0*

HERBACEOUS - Plot size: 5' radius	% Cover	Status*	Dominant?
Rubus discolor	20	FAC+	YES
Trifolium repens	5	FAC	NO
Anthoxanthum odoratum	2	FACU	NO
Agrostis aff. stolonifera	2	FACW	NO
Holcus lanatus	1	FAC	NO
Geranium dissectum	1	NL	NO
Vicia sativa	1	FACU	NO
TOTAL	32.0		1

50% of stratum cover = *16.0* *20% =* *6.4*

Dominance Test:

Total # of dominant species across all strata: 2

Total # of dominants that are hydrophytic (status of OBL, FACW, or FAC): 2

Percentage of dominants that are hydrophytic: 100%

[Meets dominance test if >50%]

Prevalence Index:

Total % cover of species across all strata:

OBL: _____ x 1 = _____
FACW: _____ x 2 = _____
FAC: _____ x 3 = _____
FACU: _____ x 4 = _____
UPL: _____ x 5 = _____

Total: _____ (A) _____ (B)

Prevalence Index (B/A) = _____

[Hydrophytic vegetation dominant if B/A ≤ 3.0]

Meets CCC or LCP hydrophytic vegetation criteria? ☑ Yes ☐ No

Comments: Meets wetland veg. criteria, but with facultative species commonly found in both wetlands and uplands on coastal bluffs. In densest willow thicket near this sample point, almost no understory plants were observed, except scattered cape ivy (*Delairea odorata*). This point near a small trail was examined to see if additional wetland indicator species occur. Understory is a mix of weedy facultative species, no strong wetland indicators.

Project Name: 200 A Street, Crescent City Sample Point ID: P2

SOILS Slope (%): 5 Soil map unit: not available

SOIL PROFILE

Depth	Matrix Color	Redox Color	% and contrast	Redox type	Texture	Comments
0-1	10YR 2/2	none			duff/ fine loamy sand	mostly driftwood, with duff and soil
1-12	10YR 4/2	none			fine loamy sand	upper 5" is mostly driftwood

All soils:
- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) *[Arid West only]*
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ **Other (explain below)**

Loamy and clayey soils only:
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9) *[Arid West only]*

Sandy soils only:
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

Meets CCC or LCP hydric soil criteria? ☐ Yes ☑ No

Comments: No hydric soil indicators observed. At least one large tidal event indicated by upper 6" of soil, which is mixed with lots of small driftwood. Pile of driftwood on soil surface 2" thick. Upper inch of soil is darker (more organic matter) and contains lots of duff/thatch.

HYDROLOGY (indicators from Corps Regional Supplements, applicable to coastal California only)

Primary indicators (only 1 needed to meet criteria):
- ☐ Surface water (A1) *Depth (in.):* _____
- ☐ High water table (A2) *Depth (in.):* _____
- ☐ Soil saturation (A3) *Depth (in.):* _____
- ☐ Water marks (B1) *[if in Arid West: Nonriverine only]*
- ☐ Sediment deposits (B2) *[if in Arid West: Nonriverine only]*
- ☐ Drift deposits (B3) *[if in Arid West: Nonriverine only]*
- ☐ Algal mat or crust (B4) *[WMVC only; see B12]*
- ☐ Iron deposits (B5) *[WMVC only]*
- ☐ Surface soil cracks (B6)
- ☐ Inundation visible on aerial imagery (B7)
- ☐ Sparsely vegetated concave surface (B8) *[WMVC only]*
- ☐ Water-stained leaves (B9) *[Arid West and MLRA 5 only]*
- ☐ Salt crust (B11)
- ☐ Biotic Crust (B12) *[Arid West only; see B4]*
- ☐ Aquatic invertebrates (B13)
- ☐ Hydrogen sulfide odor (C1)
- ☐ Oxidized rhizospheres (C3)
- ☐ Presence of reduced iron (C4)
- ☐ Recent iron reduction in tilled soils (C6)
- ☐ Stunted or stressed plants (D1) *[WMVC only]*

Secondary indicators (need 2+ to meet criteria):
- ☐ Water marks (B1) *[Arid West riverine only]*
- ☐ Sediment deposits (B2) *[Arid West riverine only]*
- ☐ Drift deposits (B3) *[Arid West riverine only]*
- ☐ Water-stained leaves (B9) *[WMVC:MLRA 4B only]*
- ☐ Drainage patterns (B10)
- ☐ Dry-season water table (C2)
- ☐ Thin muck surface (C7) *[Arid West only]*
- ☐ Crayfish burrows (C8) *[Arid West only]*
- ☐ Saturation visible on aerial imagery (C9)
- ☐ Geomorphic position (D2) *[WMVC only]*
- ☐ Shallow aquitard (D3)
- ☐ Frost-heave hummocks (D4) *[WMVC only]*
- ☐ Raised ant mounds (D6) *[WMVC only]*
- ☑ **FAC-neutral test (D5)** ☐ (Does not meet test)

☐ **Other (explain below)**

Meets CCC or LCP wetland hydrology criteria? ☐ Yes ☑ No

Comments: No wetland hydrology indicators observed except vegetation meets the FAC-neutral test (typical of coastal bluffs due to fog and ocean spray). Scattered driftwood indicates rare tidal flooding throughout the western vegetated portion of the property.

California Coastal Act Wetland Data Sheet

Project Name: 200 A Street (APN 118-020-34)
City/Location: Crescent City
Applicant/Owner: Development Consultants, Inc.
WRA Investigator(s): J. Adler
Date: 7/27/2009

County: Del Norte County
LCP (if applicable): Crescent City
☑ LRR A (Western Mts., Valley, and Coast [WMVC])
☐ LRR C (Arid West)
SAMPLE POINT ID: P3
HABITAT: upland

CCC/LCP WETLAND DETERMINATION

Meets CCC or LCP vegetation criteria? ☑ Yes ☐ No
Meets CCC or LCP hydric soil criteria? ☐ Yes ☑ No
Meets CCC or LCP hydrology criteria? ☐ Yes ☑ No
CCC/LCP WETLAND? ☐ Yes ☑ No

Comments: Located in the disturbed grassy southwest corner of the property. A large thicket of Himalayan blackberry is present, with all vegetation weedy faculative species typically found on the coast. This area was deemed uplands despite meeting the wetland vegetation criteria due to the slight slope, sandy soils, and no indicators of ponding or saturated soils.

VEGETATION

*indicator status from the USFWS 1996 National List of wetland species

TREES - Plot size:	% Cover	Status*	Dominant?
TOTAL			

50% of stratum cover = *20% =*

SAPLING/SHRUBS - Plot size:	% Cover	Status*	Dominant?
TOTAL			

50% of stratum cover = *20% =*

HERBACEOUS - Plot size:	% Cover	Status*	Dominant?
Rubus discolor	50	FAC+	YES
Holcus lanatus	30	FAC	YES
Equisetum telmateia	20	OBL	YES
TOTAL	100.0		3

50% of stratum cover = *50.0* *20% =* *20.0*

Dominance Test:

Total # of dominant species across all strata: 3

Total # of dominants that are hydrophytic (status of OBL, FACW, or FAC): 3

Percentage of dominants that are hydrophytic: 100%

[Meets dominance test if >50%]

Prevalence Index:

Total % cover of species across all strata:

OBL: _____ x 1 = _____
FACW: _____ x 2 = _____
FAC: _____ x 3 = _____
FACU: _____ x 4 = _____
UPL: _____ x 5 = _____

Total: _____ (A) _____ (B)

Prevalence Index (B/A) = _____

[Hydrophytic vegetation dominant if B/A ≤ 3.0]

Meets CCC or LCP hydrophytic vegetation criteria? ☑ Yes ☐ No

Comments: Common weedy exotic and native species dominate this disturbed portion of the site.

Project Name: 200 A Street, Crescent City Sample Point ID: P3

SOILS Slope (%): 2 Soil map unit: not available

SOIL PROFILE

Depth	Matrix Color	Redox Color	% and contrast	Redox type	Texture	Comments
0-12"	10YR 4/2	none			fine loamy sand	

All soils:
- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) *[Arid West only]*
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ **Other (explain below)**

Loamy and clayey soils only:
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9) *[Arid West only]*

Sandy soils only:
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

Meets CCC or LCP hydric soil criteria? ☐ Yes ☑ No

Comments: No hydric soil indicators observed. Very sandy soils that would not retain water.

HYDROLOGY (indicators from Corps Regional Supplements, applicable to coastal California only)

Primary indicators (only 1 needed to meet criteria):
- ☐ Surface water (A1) *Depth (in.):* _____
- ☐ High water table (A2) *Depth (in.):* _____
- ☐ Soil saturation (A3) *Depth (in.):* _____
- ☐ Water marks (B1) *[if in Arid West: Nonriverine only]*
- ☐ Sediment deposits (B2) *[if in Arid West: Nonriverine only]*
- ☐ Drift deposits (B3) *[if in Arid West: Nonriverine only]*
- ☐ Algal mat or crust (B4) *[WMVC only; see B12]*
- ☐ Iron deposits (B5) *[WMVC only]*
- ☐ Surface soil cracks (B6)
- ☐ Inundation visible on aerial imagery (B7)
- ☐ Sparsely vegetated concave surface (B8) *[WMVC only]*
- ☐ Water-stained leaves (B9) *[Arid West and MLRA 5 only]*
- ☐ Salt crust (B11)
- ☐ Biotic Crust (B12) *[Arid West only; see B4]*
- ☐ Aquatic invertebrates (B13)
- ☐ Hydrogen sulfide odor (C1)
- ☐ Oxidized rhizospheres (C3)
- ☐ Presence of reduced iron (C4)
- ☐ Recent iron reduction in tilled soils (C6)
- ☐ Stunted or stressed plants (D1) *[WMVC only]*

Secondary indicators (need 2+ to meet criteria):
- ☐ Water marks (B1) *[Arid West riverine only]*
- ☐ Sediment deposits (B2) *[Arid West riverine only]*
- ☐ Drift deposits (B3) *[Arid West riverine only]*
- ☐ Water-stained leaves (B9) *[WMVC:MLRA 4B only]*
- ☐ Drainage patterns (B10)
- ☐ Dry-season water table (C2)
- ☐ Thin muck surface (C7) *[Arid West only]*
- ☐ Crayfish burrows (C8) *[Arid West only]*
- ☐ Saturation visible on aerial imagery (C9)
- ☐ Geomorphic position (D2) *[WMVC only]*
- ☐ Shallow aquitard (D3)
- ☐ Frost-heave hummocks (D4) *[WMVC only]*
- ☐ Raised ant mounds (D6) *[WMVC only]*
- ☑ **FAC-neutral test (D5)** ☐ (Does not meet test)

☐ **Other (explain below)**

Meets CCC or LCP wetland hydrology criteria? ☐ Yes ☑ No

Comments: No wetland hydrology indicators observed except vegetation meets the FAC-neutral test (typical of coastal bluffs due to fog and ocean spray). Located on a slight slope in an area with rolling topography and no indicators of collecting water.

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March 6, 2009

Randy Baugh
D. C. I.
3941 Park Drive # 20338
El Dorado Hills, CA 95762

RE: Coasta Norte Biological Supplement: Sensitive Species Surveys

Dear Mr. Baugh,

This letter serves to address your recent request to provide supplemental biological information for your proposed project at 200 A Street in Crescent City (assessor parcel number 118-020-34). Specifically, this letter focuses on the requirement for seasonally appropriate surveys for Oregon coast Indian paintbrush (*Castilleja affinis* ssp. *litoralis*), black crowberry (*Empetrum nigrum* ssp. *hermaphroditum*), Humboldt Bay wall-flower (*Erysimum menziesii* ssp. *eurekense*), and the Western snowy plover (*Charadrius alexandrinus nivosus*) that were previously considered potentially present for your site by NRM (August 2007).

I visited your site on February 16, 2009. As per your description, your parcel consists of a 1.25 acre lot, of which 1.1 acres have been developed (currently as a business complex with adjoining parking lot) since 1972 (refer to Attachment 1 for site photo). You indicated that the remaining parcel was low-cut/mowed in the past year. The parcel currently consists of predominantly-ruderal species such as velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), creeping buttercup (*Ranunculus repens*), wild mustard (*Raphanus sativus*), and Himalayan berry (*Rubus discolor*). Refer to site photo 3 in Attachment 2. Young Hooker willows (*Salix hookeriana*) occur in the northwestern portion of the property, southeast of the terminus of Wendell Street and downslope and southeast of a residential unit (Attachment 2, photos 1 and 2). A couple older, more established willows occur at the southeast corner (and possibly oustide) of the parcel boundary.

The undeveloped portion of the property is bowl-shaped, with adjacent lands sloping 10-15% downward into the undeveloped area (Attachment 2, photo 4). A relatively-new hotel (Hampton Inn) abuts the parcel to the southeast (Attachment 2, photo 5), and residential development abuts the parcel to the west, north, and northeast (Attachment 1). The parcel is abutted to the southwest by a right-of-way (for Wendell Road) that adjoins the coastline, with an approximately 4-foot tall "wall" of driftwood bordering between the shoreline and the adjacent right-of-way (Attachment 2, photos 6 and 7). Native dunegrass (*Leymus mollis*), invasive iceplant (*Carpobrotus sp.*), and a couple of evening primrose (*Oenothera cf. wolfii*) occur in this area. The adjacent coastline consists of a narrow swath (approximately 30-40 feet) of coastal strand habitat with what appears to be a predominance of alluvial-run rock leading seaward to a rocky shoreline (Attachment 2, photos 8-10).

Based upon these habitat characteristics, there does not appear to be suitable habitat for the sensitive species listed above. Specifically, Indian paintbrush is found in sea bluffs and dry places in chaparral (Hickman 1993) and coastal bluff scrub/ sandy coastal dunes (CNPS. 2001). The established ruderal composition of species at your site, combined with a lack of sandy dune, scrub, or chaparral habitats at this location does not appear suitable to support this species. Similarly, Humboldt Bay wall-flower- as its name suggests- is solely found within the Humboldt Bay vicinity, in Humboldt County, and primarily on foredune habitat,

which does not occur at your site. While this species may have been listed by the California Natural Diversity Database as a result of the standard methodology "nine quad query" search utilized by professional botanists, it is my professional opinion that suitable habitat for this species does not occur at your site. Black crowberry is another species typically found in habitat that does not match your site. This species most commonly occurs on rocky sea cliffs in coastal scrub (Hickman 1993). Therefore, while it may be located in the vicinity, such as nearby offshore rocks and/or rocky cliffs, suitable habitat does not appear to be present on your site nor the adjacent coastal strand. Lastly, Western snowy plovers most commonly utilize open sandy beaches, not tidally-inundated rocky shorelines such as those located adjacent to the Wendell Road right-of-way and your parcel.

Therefore, based upon my professional opinion and 10 years of experience working in coastal and dune habitats in Humboldt and Del Norte counties, I do not see a need for conducting additional surveys for the species listed above because the habitat characteristics at your site are not suitable for these species.

Please do not hesitate to contact me if you have any other questions or if I can be of further assistance.

Sincerely,

Tamara L. Gedik
Principal Biologist
Certified Associate Ecologist
(Ecological Society of America)

Attachments

REFERENCES

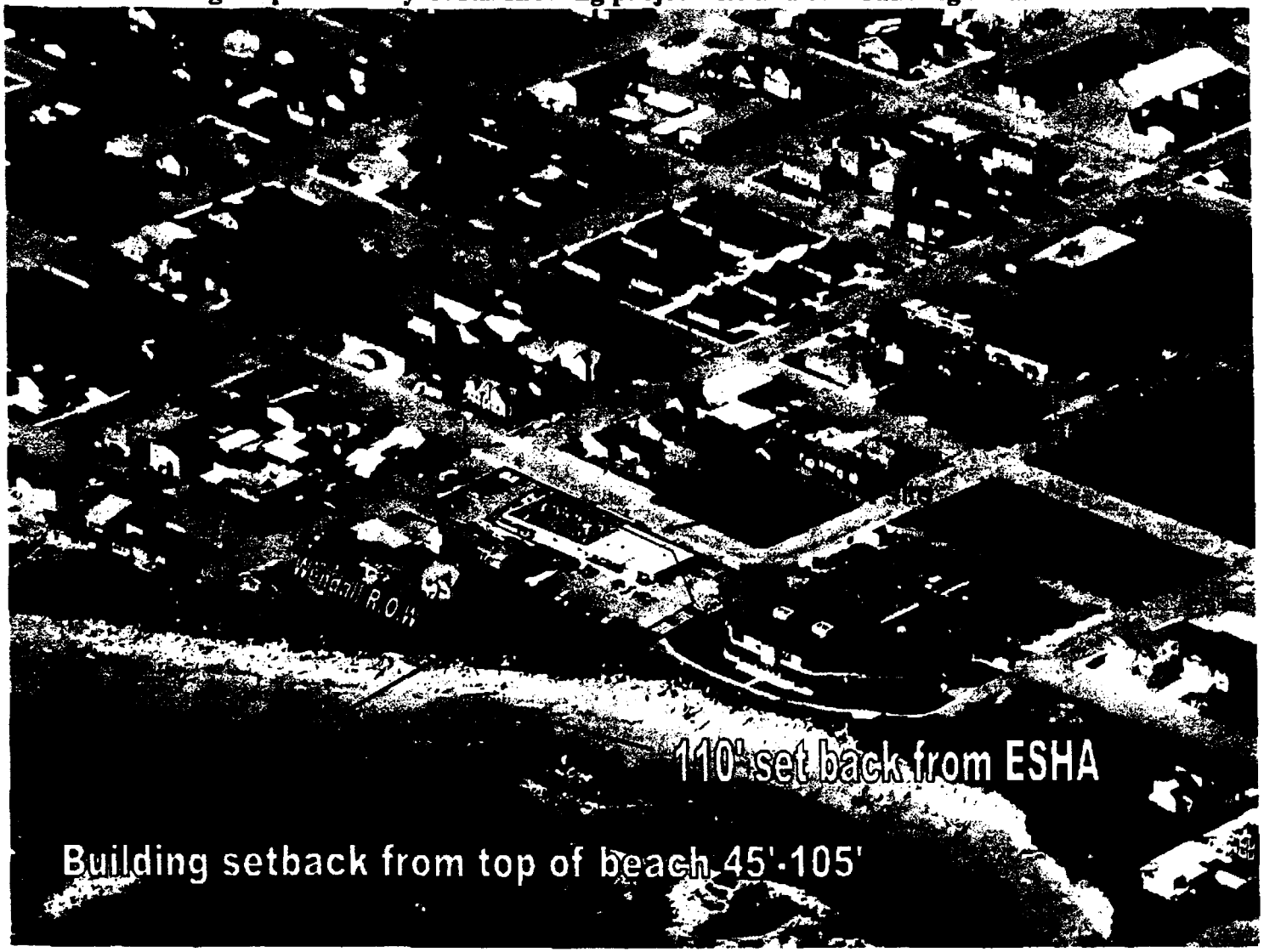
California Coastal Commission. Letter to Randy Baugh. 4 February 2009.

CNPS. 2001. Inventory of Rare and Endangered Plants of California (sixth edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, CA . x + 388pp.

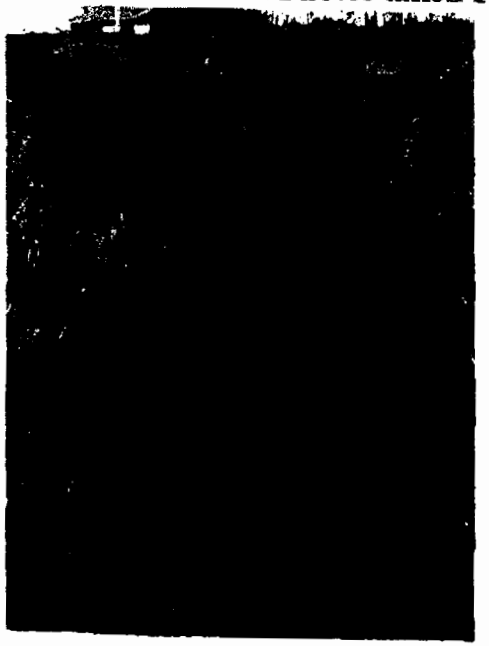
Hickman, James C., Ed. 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, CA.

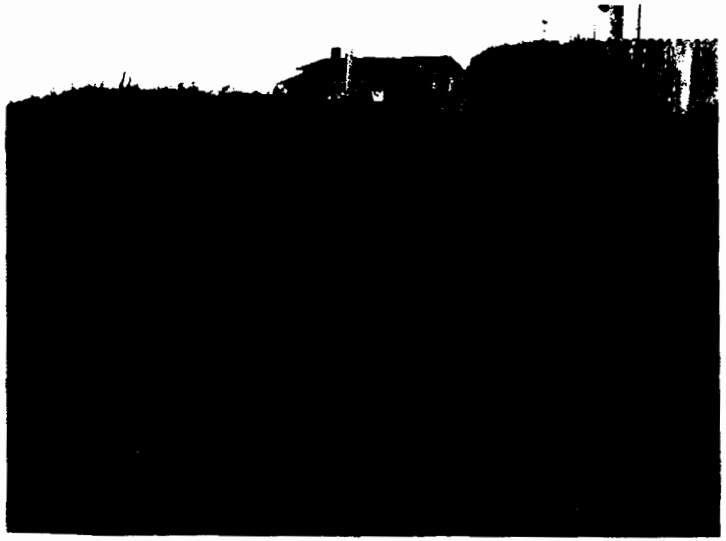
NRM. 2007. Biological report: state and federal listed species survey of 200 "A" Street in Crescent City, California. Unpublished report prepared for Randy Baugh, Development Consultants Inc., by Birgit Semsrott and David Loya. Eureka, CA.

Attachment 1. Figure provided by D.C.I. showing project site and surrounding area.



Attachment 2. Site Photos taken February 16, 2009 by T. Gedik.





Photos 1 and 2. Looking northwest from nearby parking lot towards Wendell Road, showing young willows (note: parcel was cleared/low-cut mowed within past 2 years)

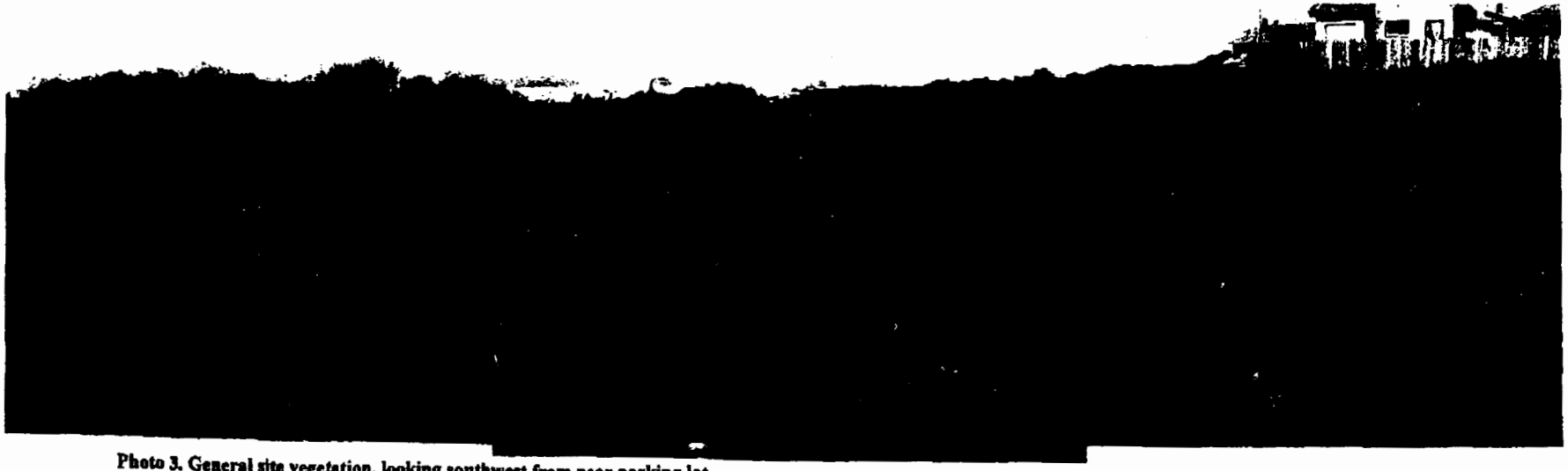
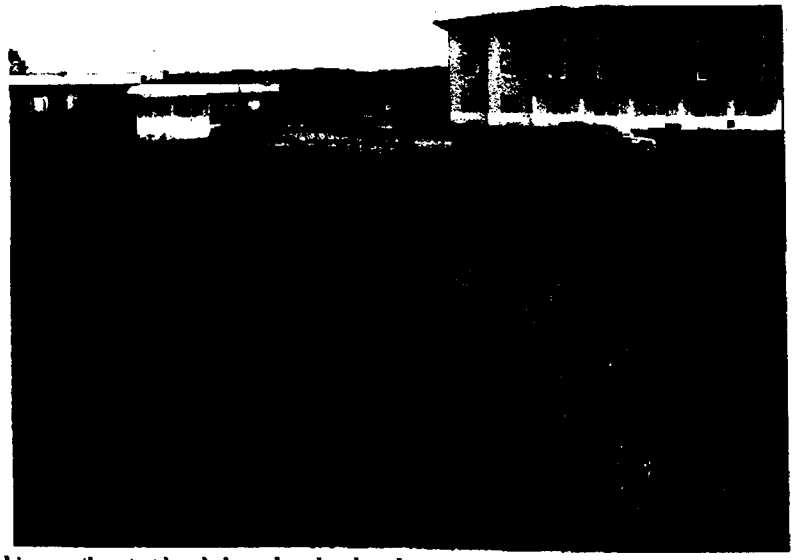
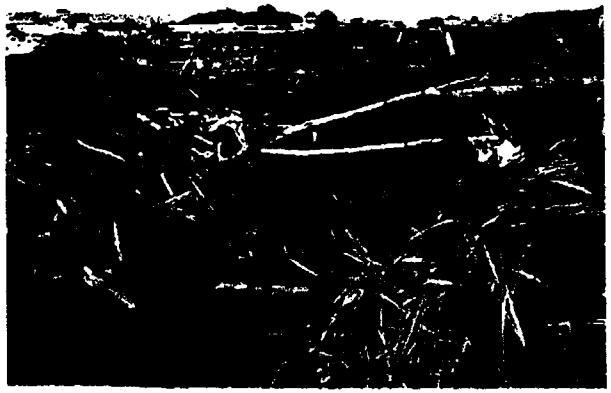


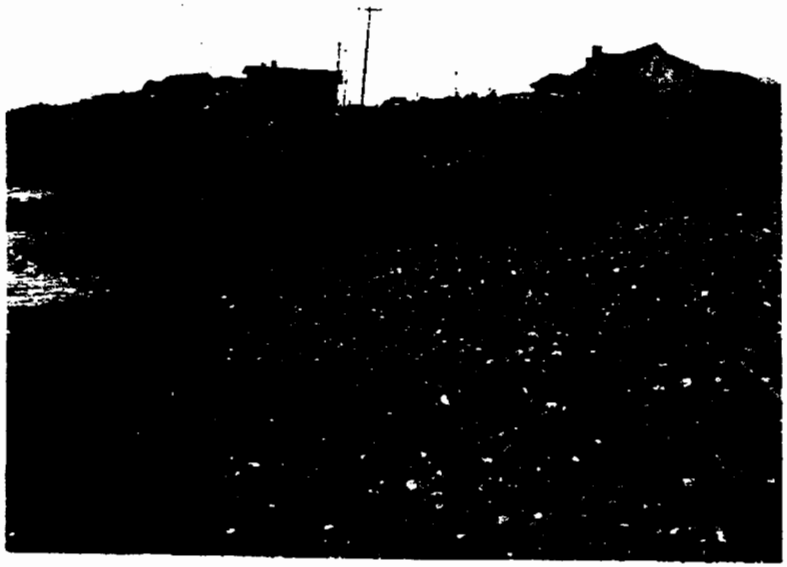
Photo 3. General site vegetation, looking southwest from near parking lot.



Photos 4 and 5. View from northwestern parcel boundary near adjacent residence, looking southeast at bowl-shaped undeveloped area, existing development onsite (parking lot and business complex), and adjacent hotel development.



Photos 6 and 7. Views of driftwood "wall" bordering Wendell Road right-of-way and adjacent shoreline.



Photos 9-11. Views of coastal strand (with driftwood and alluvial rock) abutting Wendell Road right-of-way, and adjacent rocky shoreline.

NRM
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CORPORATION

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Biological Report: State & Federal Listed Species Survey of 200 "A" Street, Crescent City, California

Prepared by: Birgit Semsrott, Staff Botanist & David Loya, Plant Ecologist
Natural Resources Management Corporation
1434 Third Street, Eureka CA 95501

Prepared for: Development Consultants, Inc.
Randy Baugh
3941 Park Drive, Ste. 20338
El Dorado Hills, CA 95762

Submitted on: August 13, 2007

1.0 Introduction

This report documents findings regarding the presence of rare, threatened, or endangered plant and animal species and sensitive habitats on the subject parcel. At the request of the project proponent, this report is a only a documentation of findings. As such, this targeted biological report does not provide recommendations and is not a biological assessment. The report findings are based on a survey of the vegetated portion of 200 "A" Street in Crescent City, California.

2.0 Project Location and Environmental Setting

The subject parcel is located in Del Norte County at 200 "A" Street, Crescent City, California (Figure 1). The property is on section 29 of Township 16 North, Range 1 West on the Sister Rocks U.S.G.S. 7.5 minute quadrangle. The parcel is approximately 1.25 acres, and an area of approximately 0.25 acres (136 x 85 ft) on the western 1/3 or the property is vegetated. This vegetated portion is referred to herein as the "project area."

The project area is bordered by development on three sides and abuts the strand of Pebble Beach on its southwestern boarder. The upper beach consists of rocks, and large woody debris. The soils are sand, and the project area is more or less flat, with gentle slopes (less than 5%).

Land use on the site includes a building, an asphalt parking lot, and remnant stabilized strand vegetation (Figure 2). The developed footprint is roughly 1.00 acre. The stabilized strand vegetation is composed of an open grass-predominated vegetation type (0.15 acres), a Hooker's willow scrub (0.05 acres), a patch of Himalayan blackberry (*Rubus discolor*; 0.05 acres), and a roughly 0.01 acre patch of a cultivated hedge. The Hooker's willow is contiguous with a remnant patch of coastal scrub in the Hooker willow series (Sawyer and Keeler-Wolf 1995), consisting of a dense stand of Hooker's willow (*Salix hookerina*). The vegetation types are depicted in Figures 3-5.

3.0 Survey Methods

3.1 Botanical Survey Methods

Prior to field work, we consulted the current inventories of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants of California* (CNPS 2007) and the DFG California Natural Diversity Database (CNDDB 2007) to determine which rare plant species are reported to occur within the project area. I used this information to compile a target species list (Table 1). We queried the Sister Rocks USGS 7.5' quadrangle and all contiguous quadrangles to develop the target species list. Species for which habitat does not exist in the project area (e.g., coniferous forest) were not included to the target species list. Furthermore, since the database queries only result in those species that have been recorded in the specified quadrangle, we added any species lacking such records but may occur in the area. We also checked the *Inventory of Rare and Endangered Plants of California* (CNPS 2007) for uncommon but not endangered List 4 plants and included them in the survey.

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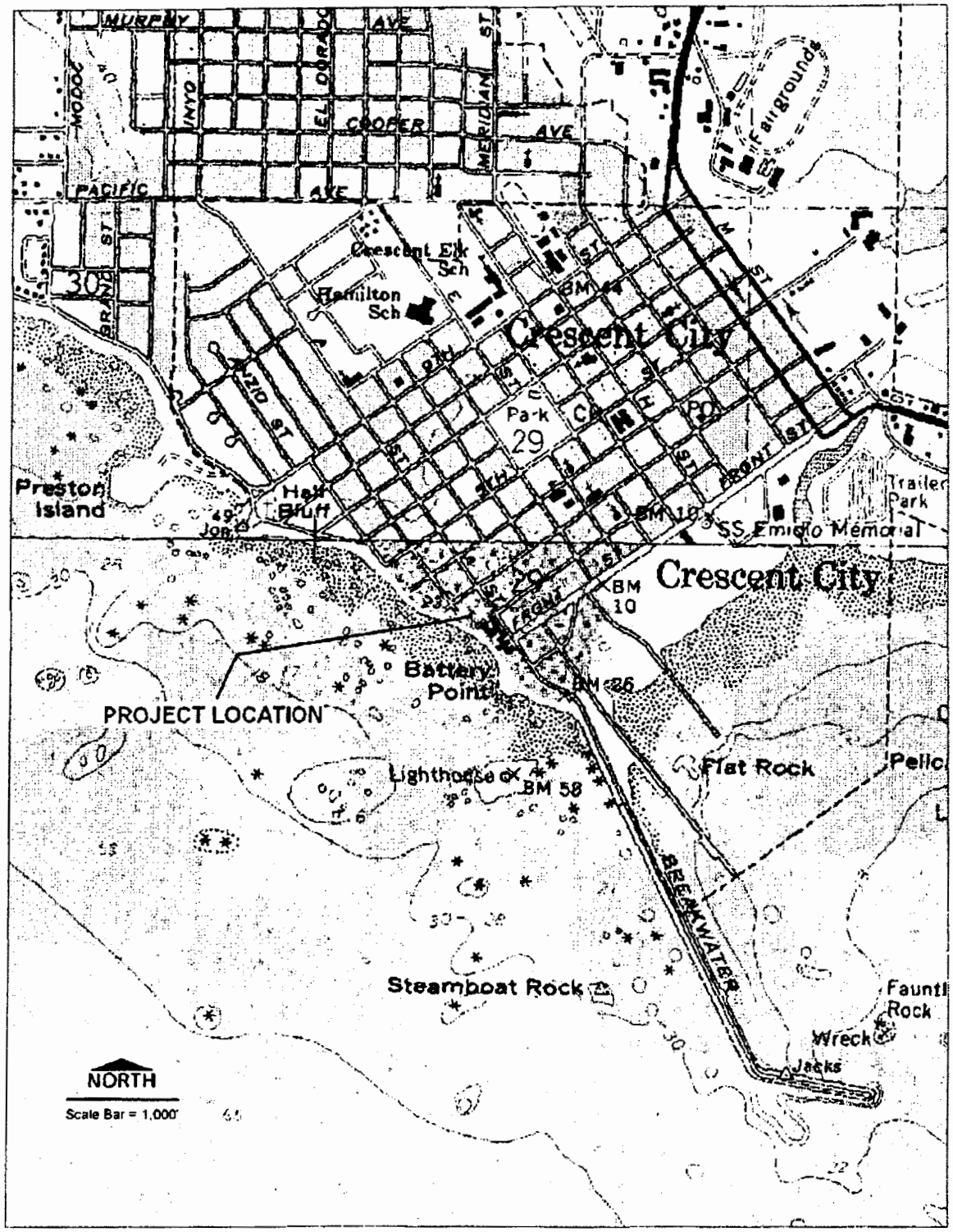
MURRAY
AVE
INYO
EL DORADO
COOPER
MERIDIAN
PACIFIC
AVE
Fairgrounds
Crescent Elk Sch
Hamilton Sch
Crescent City
Park
29
Preston Island
Half Bluff
FRONT ST
Trailer Park
SS Emidio Memorial
Crescent City
BM 10
Battery Point
PROJECT LOCATION
Lighthouse
BM 58
Flat Rock
BREAKWATER
Steamboat Rock
Wreck
Jacks
NORTH
Scale Bar = 1,000'


NORTH
Legend
Bramble
Cult Hedge
Development
Grass
Willow

Figure 3. Hooker's willow in the NW part of the property.

Figure 4. A dense patch of Himalayan blackberry in the south of the property.

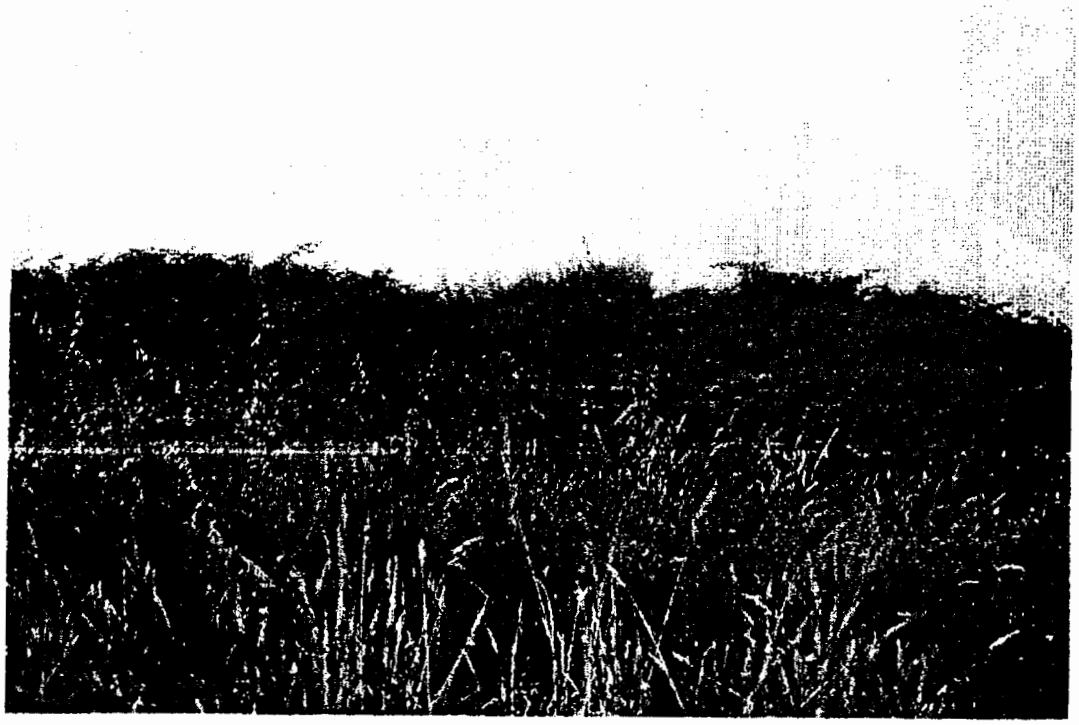

Figure 5. Herbaceous vegetation covers approximately half of the project area adjacent to the parking lot.

Ms. Semsrott, who is qualified to conduct rare plant surveys having a Master's of Arts in Biology (botany emphasis) as well as experience surveying for the target species, visited the site on August 2, 2007. The total number of field survey hours was 1.5 hours. She used an intuitively controlled survey method and covered the project area intensively. The survey was not seasonally appropriate (i.e., conducted during the species blooming period) for all of the target species. Those species for which the survey was not seasonally appropriate are identified in the results table.

We identified all vascular plants encountered to at least the lowest taxonomic level necessary for a rare species determination and recorded a species list (Table 5). Unless specified otherwise, the taxonomic nomenclature used follows Hickman (1993).

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Table 1. Target plant species list and results table for 200 "A" Street, Crescent City

Plant Species	Listing[1]	Blooms	Habitat and Elevation	Species Present / Habitat Present
Abronia umbellata ssp. breviflora-pink sand-verbena	List 1B.1	Jun-Oct	Coastal dunes;0-10m	No/Marginal habitat present, but no dunes
Calamagrostis crassiglumis-Thurber's reed grass	List 2.1	May-Jul	Coastal scrub(mesic), Marshes and swamps(freshwater);10-45m	No/Marginal habitat present
Carex lenticularis var. *limnophila*-lakeshore sedge	List 2.2	Jun-Aug	Bogs and fens, Marshes and swamps, North Coast coniferous forest/shores, beaches; often gravelly;0-6m	No/No
Carex viridula var. *viridula*-green sedge	List 2.3	(Jun)Sep-Aug	Bogs and fens, Marshes and swamps(freshwater), North Coast coniferous forest(mesic);0-1600m	No/No
Castilleja affinis ssp. *litoralis*-Oregon coast Indian paintbrush	List 2.2	Jun	Coastal bluff scrub, Coastal dunes, Coastal scrub/sandy;15-100m	**No/ habitat present – survey was not seasonally appropriate – This plant may be present on the property.**
Castilleja miniata ssp. *elata*-Siskiyou Indian paintbrush	List 2.2	May-Aug	Bogs and fens, Lower montane coniferous forest(seeps)/often serpentinite;0-1750m	No/No
Cochlearia officinalis var. *arctica*-arctic spoonwort	List 2.3	May-Jul	Coastal bluff scrub(on basaltic sea stack);0-50m	No/No
Coptis laciniata-Oregon goldthread	List 2.2	Mar-Apr	Meadows and seeps, North Coast coniferous foreststreambanks/mesic;0-1000m	No/No
Empetrum nigrum ssp. *hermaphroditum*-black crowberry	List 2.2	Apr-Jun	Coastal bluff scrub, Coastal prairie;10-200m	**No/ habitat present – survey was not seasonally appropriate, but plant is an evergreen shrub.**
Eriogonum nudum var. *paralinum*-Del Norte buckwheat	List 2.2	Jun-Sep	Coastal bluff scrub, Coastal prairie;5-80m	No/Yes
Erysimum menziesii ssp. *eurekense*-Humboldt Bay wallflower	List 1B.1	Mar-Apr	Coastal dunes;0-10m	**No/ habitat present – survey was not seasonally appropriate. This plant may be present on the property.**
Gilia capitata ssp. *pacifica*-Pacific gilia	List 1B.2	Apr-Aug	Coastal bluff scrub, Chaparral(openings), Coastal prairie, Valley and foothill grassland;5-869m	No/Yes
Gilia millefoliata-dark-eyed gilia	List 1B.2	Apr-Jul	Coastal dunes;2-30m	No/Yes

[1] Listing includes federal, state, and CNPS listed rare, threatened and/or endangered taxa. CNPS inventory quadrangle data include only CNPS list 1-3 plants (CNPS list 4 plants were only considered if they were also state- or federally-listed). **CNPS 1A** = presumed extinct in CA; **CNPS 1B** = rare, threatened, or endangered in CA and elsewhere; **CNPS 2** = rare, threatened, or endangered in CA, but more common elsewhere; **CNPS 3** = plants about which more information is needed—a review list; **CNPS 4** = Uncommon plants—a watch list; **FE or FT** = Federally-listed Endangered or Threatened; **CE or CT** = State-listed Endangered or Threatened; **SC** = State-listed Species of Concern. The Threat Code Extension that follows the CNPS List Code (e.g., 1B.1) is defined as follows: **.1** - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); **.2** – Fairly endangered in California (20-80% occurrences threatened); **.3** – Not very endangered in California (<20% of occurrences threatened or no current threats known).

Table 1. Target plant species list and results table for 200 "A" Street, Crescent City

Plant Species	Listing[1]	Blooms	Habitat and Elevation	Species Present / Habitat Present
Hesperevax sparsiflora var. *brevifolia*-short-leaved evax	List 2.2	Mar-Jun	Coastal bluff scrub(sandy), Coastal dunes;0-215m	No/Yes
Lathyrus japonicus-sand pea	List 2.1	May-Aug	Coastal dunes;1-30m	No/Yes
Lathyrus palustris-marsh pea	List 2.2	Mar-Aug	Bogs and fens, Coastal prairie, Coastal scrub, Lower montane coniferous forest, Marshes and swamps, North Coast coniferous forest/mesic;1-100m	No/No
Lilium occidentale-western lily	List 1B.1	Jun-Jul	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps(freshwater), North Coast coniferous forest(openings);2-185m	No/No
Oenothera wolfii-Wolf's evening-primrose	List 1B.1	May-Oct	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest/sandy, usually mesic;3-800m	Yes/**Not on property, but ~20' from property line beachward.**
Packera bolanderi var. *bolanderi*-seacoast ragwort	List 2.2	(Apr)May-Jul	Coastal scrub, North Coast coniferous forest/sometimes roadsides;30-650m	No/Yes
Phacelia argentea-sand dune phacelia	List 1B.1	Jun-Aug	Coastal dunes;3-25m	No/Yes
Romanzoffia tracyi -Tracy's romanzoffia	List 2.3	Mar-May	Coastal bluff scrub, Coastal scrub/rocky;15-30m	No/Yes
Sidalcea malviflora ssp. *patula*-Siskiyou checkerbloom	List 1B.2	May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest/often roadcuts;15-815m	No/No

3.2 Animal Species Assessment Methods

Prior to the on-site investigation, we compiled a list of special status animal species from the CNDDB *RareFind* 3 (DFG 2007). A query based on USGS 7.5' Sister Rocks and Crescent City quadrangles and coastal habitats (coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub) resulted in 14 animal species (Table 2).

The project area was surveyed for the presence of each target species' required habitat. No animal species were encountered in the field, so no species list is included here.

3.3 Sensitive Habitats

The following habitats are listed as sensitive with the DFG: Coastal and Valley Freshwater Marsh, Coastal Brackish Marsh, and Northern Coastal Salt Marsh. During the field investigation, we assessed the presence of these habitats based on their characteristic plant species.

Table 2. The animal target species list. for 200 A ST, Crescent City

Scientific Name / Common Name	Federal (F) or State (S) Status[1]	Global (G); State (S) Rank	habitat requirements	habitat present
Branta hutchinsii leucoparela cackling (=Aleutian Canada) goose	delisted	G5T4; S2	forages on natural pasture or that cultivated to grain; loafs on lakes, reservoirs, ponds	no
Cerorhinca monocerata rhinoceros auklet		G5; S3	nests on off-shore islands and rocks	no; co cliff caves present
Charadrius alexandrinus nivosus Western snowy plover	Threatened	G4T3; S2	sandy beaches	**Not on subject property; however, habitat present on adjacent beach**
Coenonympha tullia yontocketi Yontocket satyr		G5T1T2; S1	coastal dunes; grassy areas among dunes with coniferous lee, or grassy exposed slopes	**Marginal habitat present**
Elanus leucurus white-tailed kite		G5; S3	rolling foothills and valley margins with scattered oak and river bottomlands and marshes next to deciduous woodlands	no; no open grass lands, meadows; no dense-topped trees for nesting and perching
Eucyclogobius newberryi tidewater goby	Endangered	G3; S2S3	brackish water	no; no open water
Eumetopias jubatus Steller sea-lion		G5; S2	hauls out on islands and rocks	no
Fratercula cirrhata tufted puffin		G5; S2	open ocean; nests along the coast on islands or rarely on mainland cliffs	no
Limnephilus atercus Fort Dick limnephilus caddisfly		G4; S1	not well known; known only from Fort Dick in Del Norte County	no lentic habitat, streams, or cold springs
Martes Americana humboldtensis Humboldt marten		G4G5T1; S1	coastal redwood zone	no
Monadenia fidelis pronotis rocky coast Pacific sideband		G4G5T1; S1	coastal habitat; rocky, moist habitat with seashore plants	Marginal habitat present in rocky area to the west.
Rana aurora aurora northern red-legged frog		G4T4; S2	usually near dense riparian cover	Possible low quality foraging habitat in willows
Rhyacotriton variegatus southern torrent salamander		G3G4; S2S3	forests with streams and seepages	no
Speyeria zerene hippolyta Hippolyta frittilary	threatened	G5T1; S1	coastal meadows in Del Norte County; larvae feed only on the foliage of Western Dog Violet (Viola adunca)	no; no Western Dog Violet observed

[1] Global & State Ranking: The global rank (G-rank) is a reflection of the overall condition of an element throughout its global range. The state rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank. **G1** = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres; **G2** = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres; **G3** = 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres; **G4** = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat; **G5** = Population or stand demonstrably secure to ineradicable due to being commonly found in the world. Subspecies receive a T-rank attached to the G-rank. With the subspecies, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety; **S1** = Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres; *S1.1* = very

4.0 Results

4.1 Botanical Species

The survey was not seasonally appropriate for all target species, and none of the target species were found in the project area. However, we found two Wolf's evening primrose (*Oenothera wolfii*) plants approximately 20 feet from the property line along the edge of the upper beach (Figure 6). Survey results for the target species are summarized in Table 1.

Of the 33 plants species encountered eight are native to California. The patch of Hooker's willow is a remnant of a fragmented coastal scrub community and a plant common to coastal wetlands. Himalayan blackberry is an exotic bramble native to Eurasia. The majority of the species in the grassy area were exotic species.

4.2 Animal Species

Survey results for the animal species are summarized in Table 2. None of the target species listed in Table 2 were encountered in the project area; however, the survey coverage was focused on habitat, and protocol level surveys were not conducted for any species.

There is potential habitat for snowy plovers on the beach adjacent to the property. There is also very marginal habitat for northern red-legged frog in the willow scrub, as well as habitat for the rocky coast Pacific sideband snail in near the strand.

4.3 Sensitive Habitats

None of the DFG listed sensitive coastal habitats were encountered on the subject parcel. The vegetation present is remnant coastal scrub. The scrub habitat was historically impacted with the development of the Crescent City coastline, and the entire community along Pebble Beach has been affected. The remnant coastal scrub habitat is present along the entire interface between Crescent City and the Coast.

This report did not consider the presence of wetlands on the property.

5.0 Conclusion/Recommendations

At the time of this writing, we were not apprised of a project. Lacking a project description, we cannot assess potential impacts to sensitive species and habitats. In addition, at the project proponent's request, this report has focused on the investigation findings without reference to biological opinion or recommendation. For this reason, we do not present recommendations here.

Figure 6. Wolf's evening primrose grows along the upper beach margin on Crescent City property.

Table 3. Overall list of all vascular plants noted on 200 A Street, Crescent City, CA on August 2, 2007. Plants listed with an asterisk (*) are native to California.

	Scientific Name	CommonName
Trees		
	*Salix hookeriana**	Hooker's willow
Shrubs		
	*Myrica californica**	wax myrtle
	Rosa sp.	rose
	Rubus discolor	Himalayan blackberry
Herbaceous		
	Agrostis sp.	bent grass
	*Ambrosia chamissonis**	beach-bur
	*Aster chilensis**	common California aster
	Avena sp.	Oatgrass
	Bromus sp.	brome
	Carpobrotus edulis	Fig-marigold
	Cirsium arvense	Canada thistle
	Convolvulus arvensis	field bindweed
	Crocosmia sp.	crocosmia
	Daucus carota	wild carrot or Queen Anne's lace
	*Equisetum arvense**	common horsetail
	Fragaria chiloensis	beach strawberry
	Holcus lanatus	common velvet grass
	Hypochaeris glabra	smooth cat's-ear
	Hypochaeris radicata	hairy cat's-ear
	Leymus mollis	
	Lolium multiflorum	Italian ryegrass
	Lotus corniculatus	birdfoot trefoil
	Melilotus alba	white sweetclover
	Mentha pulegium	pennyroyal
	Plantago lanceolata	English plantain
	*Potentilla anserina ssp. Pacifica**	cinquefoil
	Ranunculus repens	creeping buttercup
	Raphanus raphanistrum	Jointed Charlock
	Rumex crispus	curly dock
	Sonchus sp.	sow thistle
	Vicia sp.	vetch
	Trifolium repens	white clover

References

CNDDB (California Natural Diversity Database). *RareFind 3.* Wildlife and Habitat Data Analysis Branch, Department of Fish and Game. Commercial Version dated April 2007.

CNPS (California Native Plant Society). 2007. *Inventory of Rare and Endangered Plants.* (on-line edition, v7-06a). California Native Plant Society, Sacramento, CA. (accessed on-line at www.cnps.org/inventory)

Hickman, J.C. 1993. *The Jepson Manual: Higher Plants of California.* University of California Press, Berkeley, CA. 1400 pp.

Sawyer, J.O., & T. Keeler-Wolf 1995. *A Manual of California Vegetation.* California Native Plant Society, Sacramento, CA. 471 pp.

Linda Thomas

From: Jim Baskin
Sent: Wednesday, October 21, 2009 1:43 PM
To: Linda Thomas
Subject: FW: Willow relocation

-----Original Message-----
From: Randy Baugh [mailto:randybaugh@comcast.net]
Sent: Thu 9/17/2009 9:50 AM
To: Jim Baskin; Bob Merrill
Cc: Peter Douglas
Subject: Willow relocation

Jim, Bob, Peter

Thank you for taking the time to outline the proposed relocation of a portion of the fragmented willows that encroach on my property from the adjacent bluff.

Attached find our willow relocation plan. The viewing platform and associated trail will require the relocation of willows from an area of approximately 500 sq. ft. (of which the willows comprise less than 50% of the vegetation). We will relocate willows from the affected area to an area immediately to the South (at the western end of the property). The relocation area will be approximately twice the size (1,000 sq. ft.) affected area. The relocation area is comprised of mix of bramble and grasses.

Please review the attached plan and get back to me with any comments or suggestion on the relocation.

Also please let me know if any other items are required in order to place us on the November agenda for the LCP acceptance and De Novo.

Thank you.

Randy Baugh
D. C. I.
3941 Park Drive # 20338
El Dorado Hills, CA 95762

randybaugh@comcast.net

Phone (916) 934 - 0106
Fax (916) 934 - 0107

EXHIBIT NO. **8**
APPLICATION NO.
A-1-CRC-08-004
BAUGH dba DEVELOPMENT CONSULTANTS, INC.
PRELIMINARY MARINE RIPARIAN VEGETATION RESTORATION PLAN (1 of 2)


Approximately 500 sq. ft. of area comprised of less than 50% willows will be relocated to an area of approximately 1,000 sq. ft.
NORTH
Scale Bar = 40'
Legend
Bramble
Cut Hedge
Development
Grass
Willow
Willow relocation area

STOVER ENGINEERING

Civil Engineers and Consultants

PO Box 783 - 711 H Street
Crescent City CA 95531
Tel: 707.465.6742
Fax: 707.465.5922
info@stovereng.com

MEMORANDUM Reference: 4030

To: Randy Baugh

From: Ryan C. Young, PE

Date: 11 March 2009

Subject: Preliminary Water Quality Calculations

Included with this memo is our preliminary storm water quality analysis for the subject property on A Street. The analysis is based on the 85th Percentile Runoff procedure for flow through oil water separation. It is assumed that the site will be constructed to drain to the existing inlet on A Street at the southeast corner of the property. This analysis provides the required size of future treatment facilities. The specific device will need to be illustrated on the final construction plans.

I trust this provides the information you require. Please feel free to contact me with any questions.

EXHIBIT NO. 9
APPLICATION NO.
A-1-CRC-08-004
BAUGH dba DEVELOPMENT CONSULTANTS, INC.
PRELIMINARY DRAINAGE & STORMWATER TREATMENT CONTROL PLANS (1 of 17)

STOVER ENGINEERING
711 H Street
Crescent City, CA 95531
(707) 465-6742 Fax (707) 465-5922

JOB 4030
SHEET NO. 1 OF 2
CALCULATED BY R. YOUNG DATE 3/10/09
CHECKED BY DATE
SCALE

PROFESSIONAL ENGINEER RYAN YOUNG C 67604 EXP 6/30/09 CIVIL STATE OF CALIFORNIA 3/16/09

REDWOOD OCEAN FRONT RESORT

STORMWATER QUALITY TREATMENT DESIGN

85TH PERCENTILE NUMERIC SIZING CRITERIA

THE STORMWATER QUALITY DESIGN IS BASED ON THE ATTACHED MEMO FROM THE CALIFORNIA COASTAL COMMISSION.

SIZE TREATMENT FACILITIES FOR OIL/WATER SEPERATION PER THE FOLLOWING FORMULA:

$$Q = (i)(A_i)(C_i)$$

WHERE: Q = STORMWATER RUNOFF GENERATED FROM THE 85TH PERCENTILE 1-HOUR STORM EVENT. (FLOW BASED BMP'S)

i = PRECIPITATION FROM 85TH PERCENTILE 1-HR EVENT

A_i = TOTAL IMPERVIOUS AREA, POST-DEVELOPMENT

C_i = IMPERVIOUS AREA RUNOFF COEFFICIENT

DETERMINE i, PRECIPITATION

i = .09 IN/HR (85TH PERCENTILE HOURLY RAINFALL FROM NEAREST RAIN GAUGE STATION)

2 of 7

STOVER ENGINEERING
711 H Street
Crescent City, CA 95531
(707) 465-6742 Fax (707) 465-5922

JOB 4030
SHEET NO. 2 OF 2
CALCULATED BY E. YOUNG DATE 3/10/09
CHECKED BY DATE
SCALE

DETERMINE AREA

TOTAL IMPERVIOUS AREA = 32,853 SF

DETERMINE RUNOFF COEFFICIENT, C

IMPERVIOUS AREA IS COMPOSED OF ROOFTOP AND ASPHALT
C = .95

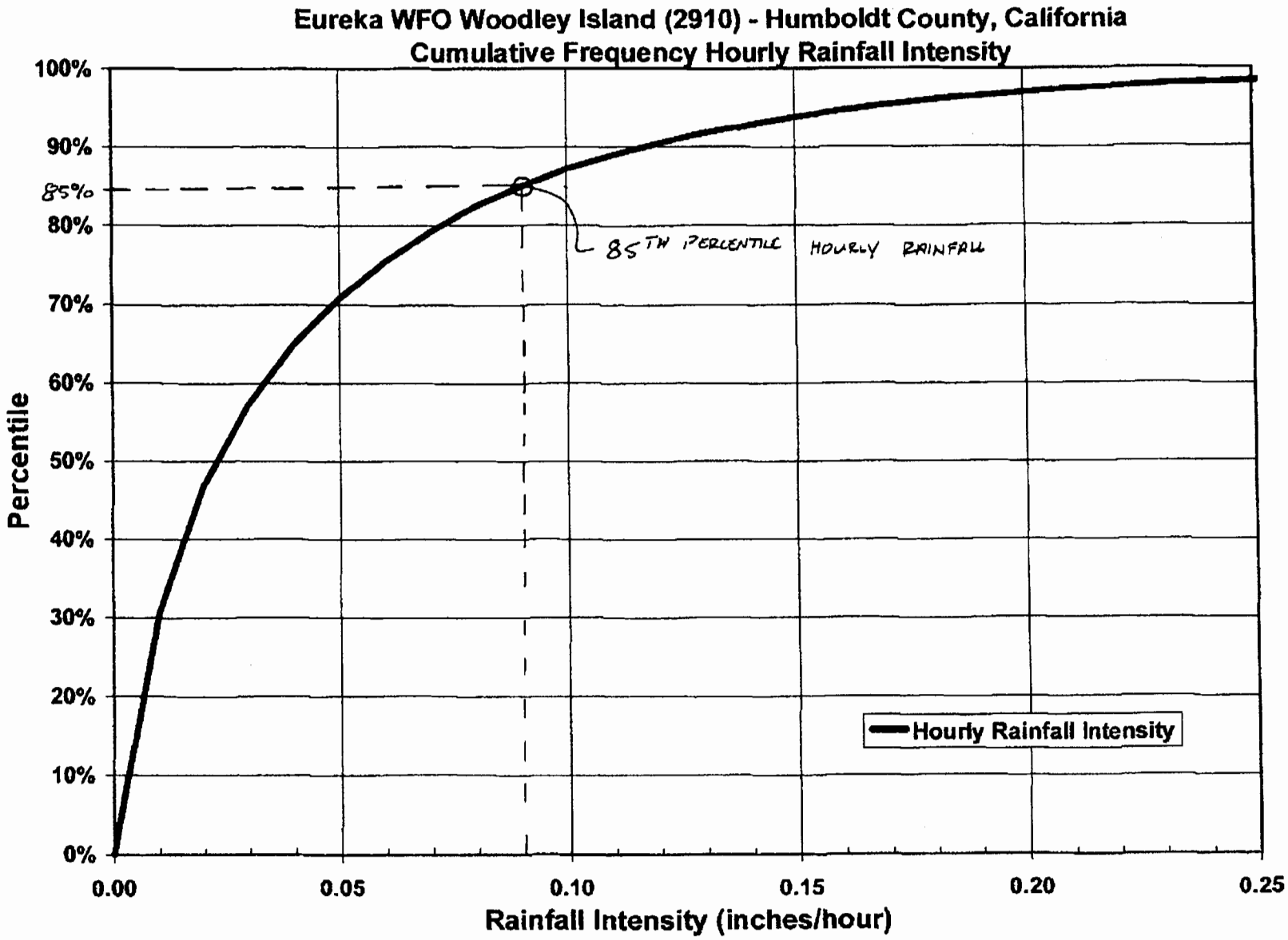
FOR FLOW BASED BMP

$Q = (0.09\ ^{IN}/_{HR})(1\ ^{FT}/_{12\ IN})(32,853\ SF)(0.95) = 234.1\ cf/HR$

FOR FLOW BASED BMP USE 2.0 SAFETY FACTOR

$2 \times 234.1\ ^{CF}/_{HR} = 468.2\ ^{CF}/_{HR}$

$(468.2\ ^{CF}/_{HR})(1\ ^{HR}/_{3600s}) = 0.13$ cfs min.


Eureka WFO Woodley Island (2910) - Humboldt County, California
Cumulative Frequency Hourly Rainfall Intensity
100%
90%
85%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percentile
85TH PERCENTILE HOURLY RAINFALL
Hourly Rainfall Intensity
0.00
0.05
0.10
0.15
0.20
0.25
Rainfall Intensity (inches/hour)

L197

Water Quality Lesson o' the Month

Volume 2, Issue 2 "Topic 12: The 85th Percentile Standard" February 2003

Deciphering 85th Percentile Numeric Design Criteria

Many CDPs now require structural BMPs to be sized to accommodate the 85th percentile storm—but what exactly does this mean? How can one determine if a proposed BMP meets this criteria?

Brought to you by the Water Quality Unit

In August 2000, the Coastal Commission adopted the 85th percentile numeric sizing criteria for structural BMPs. At about the same time, the Los Angeles Regional Water Quality Control Board established the 85th percentile requirement as their structural BMP numeric sizing criteria, and most Regional Boards have followed suit or are planning to do so in the near future.

"Numeric sizing criteria" describe how much water a structural BMP should be able to treat. In adopting the 85th percentile numeric sizing criteria, the Commission essentially established a goal for pollutant removal efficiency of structural BMPs. Ultimately, the Commission decides whether structural BMPs that meet the 85th percentile design goal are necessary to address the water quality impacts of individual developments. It is free to decide that a different approach for limiting water quality impacts is appropriate in any specific instance."

Since the 85th percentile requirement is fairly technical and abstruse, this Lo'M details exactly what the requirement means and how it can be applied.

Applying the 85th Percentile Numeric Sizing Criteria

In the most basic sense, when reviewing a development, an analyst should look at the size of the BMP—if it's a filter, make sure the model chosen is large enough to treat the 85th percentile storm event. If it's a detention pond or vegetated system, for instance, make sure that its dimensions can hold that amount of water for the time in which it takes hold or treat the 85th% runoff. The 85th percentile design goal only applies to structural BMPs designed to treat stormwater runoff after construction is completed. It does not apply to BMPs implemented to prevent or control runoff during construction. Post construction non-structural BMPs such as safe storage of chemicals or sweeping should always be considered and implemented as appropriate but do not count toward fulfilling the numeric design goal. Analysts should consider encouraging local governments to incorporate the design goal into their LCPs and to apply the goal to new and re-developments on a case-by-case basis.

Not every development needs post-construction structural BMPs. And, not every post-construction structural BMP (or suite of BMPs) needs to be sized according to the design goal. Where site-specific factors appear to make the 85th percentile design goal inappropriate, for example, the site doesn't appear to be large enough to accommodate structural BMPs, consult with Water Quality Unit staff. Analysts should consider applying the design goal to developments that change the amount, rate, or quality of surface runoff after construction. Consult other sources (e.g., BMP fact sheets and the monthly NPS lessons) for additional considerations applicable to agricultural developments.

85th percentile design goal considerations typically are not necessary in single family residence developments and any other small-scale developments limited in land disturbance. 85th percentile is generally not necessary where development meets criteria such as the following: (These conditions are more likely to be true for small developments in a rural setting.)

- No post-construction stormwater runoff discharges directly into any surface water bodies or stormwater conveyance structures;
- The intervening pervious areas between any impervious areas on-site and surface water bodies/stormwater conveyance structures are at least half the size of the impervious areas generating runoff and at least half the width of the widest part of the impervious draining surface; and
- The intervening pervious areas between any impervious areas and surface water bodies or stormwater conveyance structures are of appropriate location, slope and design. (i.e., a grassy area on a steep slope does not offer the same degree of pollutant settling and filtration during a storm due to an increased runoff velocity.)

Inside This Issue

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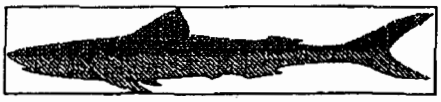
Defining the 85th Percentile Storm in Your Region

A discussion of the connections between rainfall, the 85th percentile storm, and structural BMP designs.

What is the 85th percentile storm event?

Considering the long-term historical records of local storm events in a 24-hour period, **the rainfall of the 85th percentile event is larger than or equal to that of 85% of storms that have occurred in that locale.** *Reviewing local precipitation data or relying on* estimates by other regulatory agencies can determine the 85th percentile storm. For example, the Los Angeles Regional Water Quality Control Board has determined that 0.75-inch is an adequate estimate of the 85th percentile, 24-hour storm event for typical municipal land uses within its jurisdiction.

Those of you savvy hydrologists or engineers may recognize that 85th percentile method departs from traditional means of describing storms. Typically, one might refer to a two-year or ten-year storm event (i.e. that amount of rainfall has the probability of occurring once every two or ten years, respectively). Applicants claim that they are more accustomed to dealing with design storms in terms of two-year or ten-year storm events (common in flood control approaches) and that storm events vary in duration and cannot be confined to a certain established time period such as 24 hours. Nevertheless, published rainfall data is often based on precipitation over the 24-hour period from midnight to midnight, and the CCC and RBs used this data to develop design standards. In fact in many areas, the 85th percentile, 24-hour storm event is equivalent to the six-month, 24-hour storm event.



Taking this alternative approach is reasonable because it's directly applicable to designing structural BMPs. Instead of treating storms as discrete and independent events with various recurrence frequencies, the 85th percentile design goal defines distinct time frames in order to rank storm events to determine a desired treatment volume. Runoff volume during a particular period of time relates directly to the size of a treatment BMP, and thus the level of pollutant removal.

For instance, one inch of rain can fall within a day or three days. A BMP sized to accommodate the resulting runoff in three days may not treat adequately the same amount of runoff passing through in just one day. Furthermore, the 85th percentile is chosen, rather than 70th or 90th percentile, because treatment of the 85th percentile storm event is relatively equivalent to the point of diminishing returns. In other words, treatment of larger storms (e.g. sizing the BMP to capture the runoff from the 90th % storm) would result in insignificant increases in pollutant removal relative to the additional costs.

Where to find 85th percentile data

The Water Quality Unit has compiled two lists of weather data, available on its Intranet site. The shorter list, titled "Hourly and Daily Rainfall Data in California," has the 85th percentile daily and hourly precipitation data from 238 rain stations across the state. Analysts can locate a rain station of interest by county or latitude and longitude. The second list, entitled "Extensive Daily Precipitation Data", contains data from 782 stations; however, only the 85th percentile, 24-hour precipitation data are available. On both lists the relevant numbers for analysts' use *are highlighted.*

The project proponents should be responsible for proposing an appropriate precipitation amount for sizing the BMPs. The analysts should then confirm the proposed figure with that from the closest rain station using either of the two lists. When doing so, *analysts should take into account any elevation* difference between the proposed project site and the rain station. A significant variation can lead to vastly different precipitation figures, as areas at a higher elevation tend to receive more rain.

If applicants do not have the 85th percentile storm event precipitation information for a particular location, they should try to acquire raw daily or hourly rainfall data from the Western Regional Climate Center. The data can then be sorted to arrive at the 85th percentile storm event. Since this can be a time-consuming and costly process, CCC analysts are not encouraged to undertake such a task.

Analysts may encounter opposition to application of this design in certain areas. The most frequent objection expressed concern that it is neither fair nor feasible to implement such a numeric design target statewide, because while Los Angeles may receive annually a measly 11.6" of precipitation, northern California locations such as Eureka and Crescent City average 37.53 and 65.21" per year, respectively. However, such an argument ignores that fact that the overwhelming majority of storm events are relatively small in most areas. The 85th percentile, 24-hour storm events for Los Angeles, Eureka, and Crescent *City are, in fact, 0.75, 0.66, and 1.13 inches,* respectively! The differences are not as significant as one would expect. Certain areas may be wetter overall mostly because of a higher frequency of rain events, even if the majority of the storms are small.

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The formula!

The "85th percentile, 24-hr" design goal is applicable to volume-based BMPs such as detention and infiltration basins, wet ponds, and constructed wetlands. The "85th percentile, 1-hr" design goal (with an appropriate safety factor[1]) is applicable to flow-based BMPs that remove pollutants primarily through filtering and limited settling. These include media filters such as filter inserts in catch basins, oil/water separators, and biofilters such as vegetated filter strips and grassy swales. However, if swales are constructed primarily to contain and then induce infiltration, they should be subject to the "85th percentile, 24-hr" design goal.

Only stormwater runoff generated from man-made impervious areas, but NOT that from the undisturbed or pervious areas, in a development should be considered when calculating runoff volume for treatment pursuant to the design goal. This means applying the following formula or its equivalent:

$$Q = i \cdot A_I \cdot C_I \cdot (\text{Safety factor of 2 } \textit{for flow-through BMPs only})$$

Q: Stormwater runoff generated from the 85th percentile, 24-hr (or 1-hr) storm event. *This is the runoff volume that the BMPs (suites of BMPs) are expected to handle.* [ft^3/24hours or ft^3/hour]
i: Precipitation from the 85th percentile, 24-hr (or 1-hr) storm event [Inches/24-hrs or Inches/hour]
A_I: Total impervious area after development [ft^2]
C_I: Impervious area runoff coefficient (~ 0.9)[2]

EXAMPLE: Volume-based BMPs
Development on a Previously Undeveloped Lot

Total lot size = 4,000 ft^2
A_I = 2,500 ft^2
i = 0.6 in/24 hrs

Q = (0.6 in/24 hrs)(1 ft/12 in)(2,500 ft^2)(0.9) = **112.5 ft^3/24 hrs**

*** The structural BMPs implemented should be capable of handling 112.5 cubic feet of runoff in 24 hours***

EXAMPLE: Flow-based BMPs
Development on a Previously Undeveloped Lot

Total lot size = 4,000 ft^2
A_I = 2,500 ft^2
i = 0.1 in/hr Safety Factor = 2

Q = (0.1 in/hr)(1 ft/12 in)(2,500 ft^2)(0.9)(2) = **37.5 ft^3/hr**

*** The structural BMPs implemented should be capable of handling 37.5 cubic feet of runoff in one hour***

Where one wishes to treat runoff from the entire site, including pervious and impervious areas, the equation would become: $Q=iA_IC$ and $C=C_IF_I+C_PF_P$ [Where A_I=Total area of the development; C= Composite runoff coefficient for the entire development; F_I= Fraction of the development that is impervious; F_P= Fraction of the development that is pervious; C_P: Pervious area's runoff coefficient] In this case, the total runoff volume to be treated would be larger than when only runoff from impervious areas is considered. An approximate composite runoff coefficient, C, can also be obtained from readily available literature without going through the calculations for "C" above. This is the standard runoff coefficient for impervious surface but may vary depending on hydrology, topography, precipitation, and the exact surface type. The same applies for pervious surfaces. See table below.

[1] The San Diego RWQCB has adopted a safety factor of "2" for their flow-based BMP design standard. This means doubling the runoff treatment capacity necessary to handle the local 85th percentile hourly rainfall intensity. The safety factor is meant to deal with the reduced efficiency that occurs with flow-through BMPs that are not adequately maintained.

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More Info about Runoff Coefficient ("C") and Checking for 85th % Condition Compliance

The Runoff Coefficient ("C") is one of the variables considered in the 85th percentile formula and represents a numerical means of expressing particular characteristics of a project site's ground surfaces. Values for runoff coefficients for a particular location take into account such factors as surface covers, soil permeability, ground surface slope, and rainfall intensities, all of which can make a significant difference in the ratio of rainfall that will infiltrate or will flow by sheet-flow across the ground surface.

This table presents some of the commonly used runoff coefficients. Keep in mind that the coefficient for a specific development type needs to be applied to the entire development area, including both pervious and impervious areas. The reason is that the number has already considered the average proportions of the different surface types in that particular type of development. For a more full discussion of when to pick numbers from the table, please discuss with a water quality analyst.

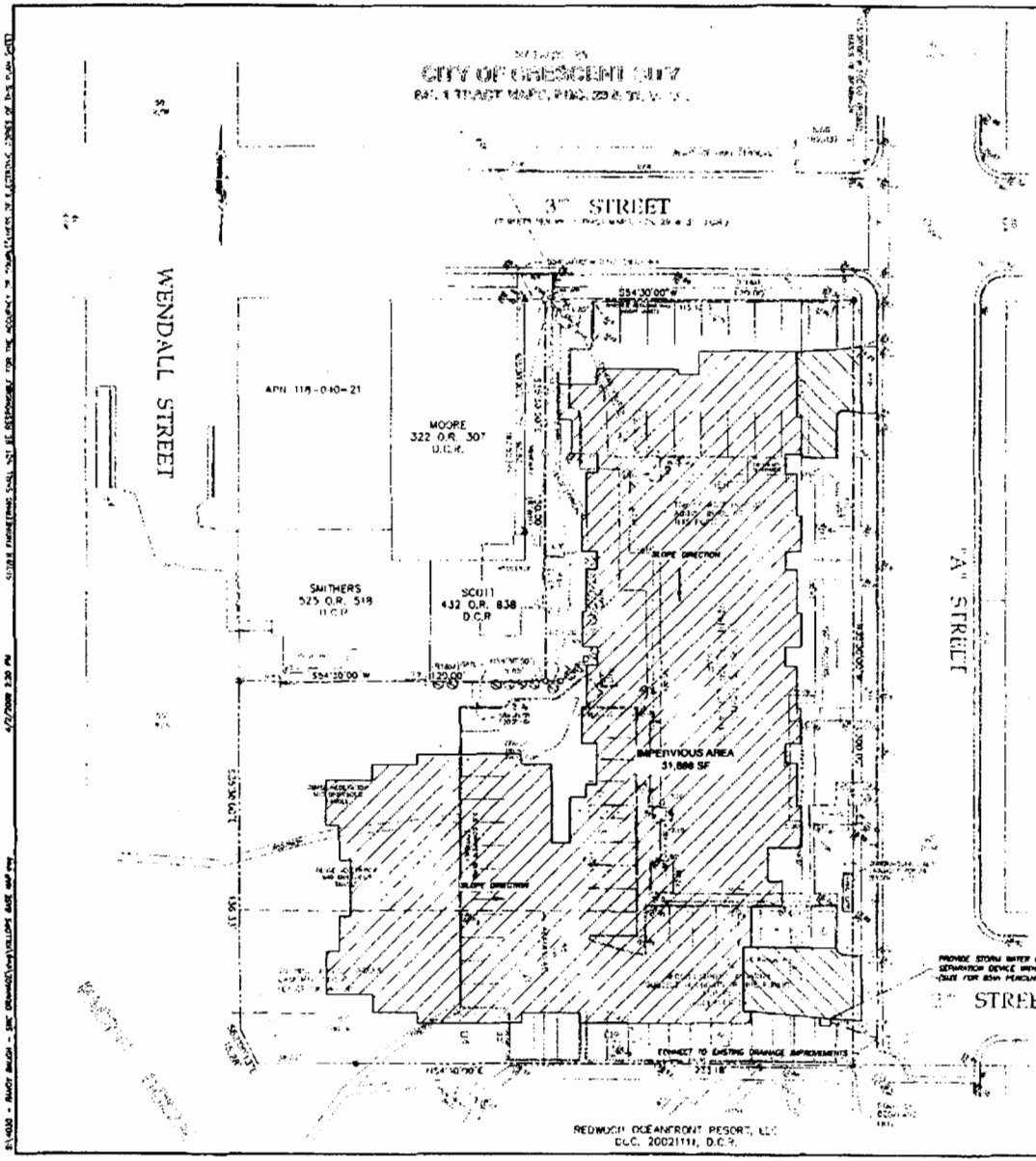
Type of Area or Development	"C"
TYPE OF DEVELOPMENT	
Urban business	0.70—0.95
Commercial office	0.50—0.70
Residential development	
Single-family homes	0.30—0.50
Condominiums	0.40—0.60
Apartments	0.60—0.80
Suburban residential	0.25—0.40
Industrial development	
Light industry	0.50—0.80
Heavy industry	0.60—0.90
Parks, greenbelts, cemeteries	0.10—0.30
Railroad yards, playgrounds	0.20—0.40
Unimproved grassland or pasture	0.10—0.30
TYPE OF SURFACE AREAS	
Asphalt or concrete pavement	0.70—0.95
Brick paving	0.70—0.80
Roofs of buildings	0.80—0.95
Grass-covered sandy soil	
Slopes 2% or less	0.05—0.10
Slopes 2% to 8%	0.10—0.16
Slopes over 8%	0.16—0.20
Grass-covered clay soils	
Slopes 2% or less	0.10—0.16
Slopes 2% to 8%	0.17—0.25
Slopes over 8%	0.26—0.36

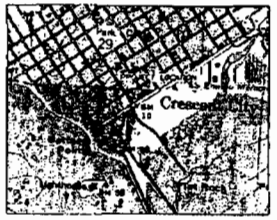
85th Percentile Condition Compliance

First, ensure all information has been submitted. Information should include: (1) project plans illustrating location of structural BMPs and any necessary details, (2) hydrology calculations determining stormwater runoff from developed project site from the 85th percentile storm and (3) proof demonstrating BMPs were sized to meet 85th percentile requirements. It is the project proponent's responsibility to determine the appropriate precipitation amount and runoff coefficient to arrive at a runoff volume for treatment. The analysts should evaluate the validity of the arrived figure using available information provided in this fact sheet and other relevant sources.

Only on a conceptual level should analysts attempt the involved process of assessing exactly whether or not the proposed BMPs or suites of BMPs are designed to the desired capacities. Items to double check: (1) ensure rainfall numbers used are correct for that area, (2) ensure a safety factor of 2 was used for flow through BMPs, (3) make a rough estimate of the percent impervious surface on the development and ensure it meshes with the surface area numbers used in applicant's calculations, and (4) cross-check that the BMPs are sized large enough to accommodate the stormwater runoff from the 85th percentile storm. In addition to other compliance questions (maintenance, etc.) determine whether or not the BMPs are strategically located to receive the runoff and that the BMPs will treat the particular pollutants generated by this development.

8 of 17





VICINITY MAP
NTS

GENERAL NOTES

1. EXISTING TOPOGRAPHIC INFORMATION IS PROVIDED BY HILLIS LAND SURVEYING (PROJECT NO. 07-107) DATED FEBRUARY 2007.
2. PROPOSED BUILDING FOOTPRINT IS BASED ON PROPOSED GARAGE FLOOR PLAN BY IAN BRAUNER + ASSOCIATES DATED 11/13/08. BUILDING IS APPROXIMATE BASED ON DIMENSIONS GIVEN AND SCALING FROM PDF.

85th PERCENTILE NUMERIC DESIGN INFORMATION

Q = (I)(A,)(C,)(F.S.)
Q = STORM WATER RUNOFF GENERATED FROM 85th PERCENTILE 1 HOUR STORM EVENT (FLOW BASED BMP)
I = PRECIPITATION FROM 85th PERCENTILE 1 HOUR EVENT
A, = TOTAL IMPERVIOUS AREA AFTER DEVELOPMENT
C, = IMPERVIOUS AREA RUNOFF COEFFICIENT
F.S. = FACTOR OF SAFETY
Q = (0.09 IN/HR)(31,886 SF)(1.00)(1/12)(1/3600)(2.0) = 468.2 FT³/HR

WATER QUALITY NOTES

1. THIS PRELIMINARY STORM WATER QUALITY PLAN IS FOR THE PURPOSE OF DETERMINING THE 85th PERCENTILE VOLUMETRIC WATER QUALITY FLOW RATE ONLY. FINAL CONSTRUCTION PLANS SHALL INCORPORATE STORM WATER POLLUTION PREVENTION BEST MANAGEMENT PRACTICES.
2. PERMANENT OIL WATER SEPARATION OR INTERCEPTOR SHALL BE SIZED TO ACCOMMODATE 468.2 FT³/HR. THE OIL WATER SEPARATION DEVICE SHALL INTERCEPT RUNOFF FROM ROOF TOPS AND PARKING AREAS.
3. FINAL LOCATION OF STORM WATER TREATMENT FACILITIES SHALL BE INCORPORATED IN THE FINAL CONSTRUCTION PLANS.
4. ADDITIONAL WATER BREAKWATER MEASURES SUCH AS BIO-FILTRATION SWALES, PERMEABLE SURFACES, AND DRIP LOCKS MAY BE INCORPORATED AS NECESSARY ONCE DETAILED GRADING PLANS ARE COMPLETED.

PROVIDE STORM WATER QUALITY FLOW THROUGH OIL WATER SEPARATION DEVICE WITH MINIMUM CAPACITY OF 468.2 FT³/HR (SIZE FOR 85th PERCENTILE 1-HOUR STORM WITH 2.0 SAFETY FACTOR)

STOVER ENGINEERING
Civil Engineers and Consultants
PO BOX 780 · 711 H STREET
CRESCENT CITY, CA 95531 · 707-465-6742

COASTA NORTE
CRESCENT CITY, CA

PRELIM. WATER POLLUTION CONTROL PLAN

JOB NO 4030
SCALE: 1"=20'
DATE: 04/02/09
SHEET 1 OF 1

9917

STORM WATER POLLUTION PREVENTION PLAN

October 22, 2008

FOR

Coasta Norte

200 A Street

Crescent City, CA 95531

Del Norte County, California

PREPARED FOR:

Development Consultants, Inc.

3941 Park Dr Ste 20-338

El Dorado Hills, CA 95762

ID 417

SITE DESCRIPTION

Project Name:	Coasta Norte Condominiums
Project Location:	200 A Street
	Crescent City, CA 95531
Contact Phone #:	Randy Baugh (916)934-0106

PROJECT DESCRIPTION

Development Consultants, Inc. (D.C.I.) is proposing to replace the existing A Street Clinic, an outdated medical facility located at 200 A Street with a new two story condominium and timeshare project. The major components of the project include the following;

- An approximately 70,000 SF new building containing 43 livable units.
- Construction of a semi-sub grade podium parking structure with associated electrical and mechanical facilities, located below the residential units.
- Demolition of the existing clinic building, surface parking lot and trash enclosure.
- Dedication and improvement to existing and new coastal trails and access points.

SITE AREA

The property consists of approximately 1.24 +/- acres of which the entire site will be accessed during construction of the project. To minimize the impact, the project will be developed in a single phase with all required storm water prevention activities provided and monitored throughout construction.

SEQUENCE OF MAJOR ACTIVITIES WILL BE AS FOLLOWS:

1. Installation of stabilized entrance
2. Demolition, clearing and grubbing of the site areas
3. Installation of utilities serving the building such as electrical and fire service
4. Installation of recommended drainage system and shallow turf lined swales
5. Preparation of the building pad
6. Installation of the building

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7. Construct new driveway and parking areas
8. Complete Landscaping

Name of receiving waters (indirect):

Existing County of Del Norte Flood Control District storm drain system.

CONTROLS

Temporary Stabilization Practices:

The site has moderate slopes around the entire building area. Temporary stabilization methods that will be implemented on this project will be the use of straw wattles on the slopes to prevent the transportation of soil via runoff. Silt fences will also be installed around the site (In accordance with the erosion control plan) to prevent the transport of material across the property during storms.

Permanent Stabilization Practices

The construction of the new parking areas and landscaping will provide the permanent stabilization required for the site.

STRUCTURAL PRACTICES:

Due to the moderate grades and existing high density infill, significant soil erosion is not anticipated. The erosion control plan calls for the installation of temporary water control dams at all new and existing storm drain inlets.

STORM WATER MANAGEMENT:

Storm water collection in the project area will be distributed, via a combination of surface flow and an enclosed storm drain systems, into new storm water treatment facilities located throughout the site, using BMP's to treat, infiltrate or filter storm water runoff from each storm event, up to and including the Eighty Fifth (85^{th}) percentile.

12417

SOLID WASTE HANDLING:

The disposal and handling of constriction debris shall be in accordance with the county of Del Norte recycling guidelines.

OFFSITE VEHICLE TRACKING:

The construction entrances, as placed, will provide for a sufficient reduction of transported sediments. The general contractor shall arrange for any mud, excess dirt or rocks to be removed from the pavement and City streets on a daily basis.

TIMING OF CONTROLS AND MEASURES:

All required storm water controls shall be installed prior to grading operations. They shall remain fully functional throughout the life of the project. The general contractor shall periodically review all storm water control measures and make any necessary repairs to ensure that they function properly.

CERTIFICATION OF FEDERAL STATE AND LOCAL REGULATIONS:

This Storm Water Pollution Prevention Plan reflects the Crescent City requirements for storm water management and erosion and sediment control, as establishment by the Del Norte Storm Water Management Agencies Association Design Guidelines, and The Erosion and Sediment Control field Manual.

MAINTENANCE/INSPECTION PROCEDURES

Erosion and Sediment Control Inspection and Maintenance Procedures:

The following maintenance practices will be incorporated to maintain the erosion and sediment controls (to be performed by the general contractor).

1. All control measures will be maintained in good working order. If a repair is necessary it will be initiated within 24 hours of its discovery.
2. Loose debris from construction will be collected and contained in a specific location so as not to impact to mitigation measures being implemented.
3. Daily inspections of the control measures will be implemented and a report is to be generated on a weekly basis until the project is complete.

4. Built up sediment will be removed from silt fence when it reaches 1/3 height of the erosion control silt fence or wattle.

5. Silt fences and straw waddles will be inspected for depth of sediment, tears, broken stakes or loosely anchored posts.

6. Built up sediment in the concrete wash out area will be removed when it reaches 1/3 the height of the surrounding berm. All sediment shall be disposed of at an appropriate landfill. The general contractor shall provide the hospital with dump tags certifying that the debris has been correctly identified and disposed of in accordance with all applicable regulations.

7. A maintenance report will be maintained and will be available for inspection by County building officials. This and all reports with respect to these procedures shall be kept onsite in the construction office in a three ring binder.

8. The general contractor shall be responsible for all inspections, maintenance and repair activities and for keeping appropriate documentation.

9. During rain events sediment traps and silt fences will be inspected, and necessary adjustments will be made to maintain acceptable performance.

Non-Storm Water Discharges:

There are no known "non-storm water" discharges associated with this project.

INVENTORY FOR A POLLUTION PLAN

The following materials are expected to be present during the construction of these condominiums.

- Concrete as delivered by transport
- Diesel fuel/ petroleum products contained in operating equipment
- Construction adhesives/ sealants (latex based)
- Cleaning solvents
- Wood
- Building demolition debris
- Normal Construction debris

SPILL PREVENTION/MATERIAL MANAGEMENT PRACTICES:

14917

Good Housekeeping

The General Contractor will utilize the following good housekeeping practices during the construction of this project;

1. Efforts will be made to only store enough products/material as necessary for the task at hand
2. All materials will be stored in a neat and organized manner so as to allow for accurate assessments of the job site for compliance.
3. Substances will be stored in containers appropriate for their use and not mixed with other chemicals unless ordered by the manufacturer to do so.
4. Manufacturer's recommendations for disposal of the container's shall be followed
5. The on-site superintendent of contractor's representative will be responsible for the daily inspection of all activities as well as the response of all potentially hazardous situations and the property use and disposal of materials onsite.

Hazardous Products:

There are no hazardous materials that have been identified as being used in the construction of the project. In the event that solvents or chemicals will be used in any portion of the construction of the project then a Material Safety Data Sheet (MSDS) shall be retained; and the appropriate methods of care and use shall be implemented per the manufacturer's recommendations.

Surplus building materials shall be disposed of in accordance with the County of Del Norte Waste Management guidelines and/or the State of California recommended methods for proper disposal of construction waste may be substituted. All surplus material will be the sole responsibility of the contractor and shall be removed at the completion of construction.

Product Specific Practices:

Petroleum Products

Vehicles shall be inspected routinely for leaks and receive their routine maintenance to reduce the chance of leakage. Storage of any petroleum-based products shall be stored in tightly sealed containers, which are clearly labeled.

Concrete and Delivery Trucks

Concrete trucks are allowed to wash out or discharge surplus concrete or discharge drum wash water on in the concrete wash-out area only.

Spill Control Practices:

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In addition to the practices outlines earlier in this plan, the following guidelines shall be followed;

1. Manufacturer's recommendations for spill cleanup of materials shall be clearly posted and all personnel shall be made aware of the location of the information.
2. Materials and equipment necessary for cleanup will be kept within a reasonable proximity to the storage area. Items such as gloves, goggles, shovels, brooms, kitty litter and plastic containers shall be made readily accessible to onsite workers for rapid deployment during a spill situation.
3. All spills are to be cleaned up immediately.
4. All spills are to be reported to the onsite superintendent and to the appropriate state or local governmental agencies, regardless of size.
5. All personnel shall wear appropriate protective clothing to prevent any injuries or coming in contact with hazardous materials.
6. Spill prevention plans will modify to prevent the reoccurrence of spills, descriptions of spills will be maintained in the log, what caused it and the cleanup measures used will be included.
7. The designated General Contractor will be the responsible organization for the day-to-day operations on the site. The General Contractor will act as the clean up coordinator and spill prevention entity onsite. The General Contractor will be made aware of any activity that required the use of emergency personnel, during their absence on the site they will designate a minimum of three (3) individuals for the spill prevention and clean up training. Each of these individuals will become responsible for spill responses. The name of the responsible people will be posted in the construction trailer and in the material storage area onsite.

STORM WATER POLLUTION PREVENTION PLAN CERTIFICATION

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Developer's Statement

I state to the best of my knowledge that this document and any attachments were prepared under my direct supervision and are true and accurate.

Randy G. Baugh

_____

President of Development Consultants, Inc.

Date_____

Contractor's Statement

I certify that I understand the terms and conditions of the General National Pollutant Discharge Elimination System (NDPES) guidelines that authorize the storm water discharges associated with the construction activity from the construction site identified as a part of this certification.

_____

Date_____

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Analysis of the Visual Resources impact of the Coasta Norte Condominiums

200 A Street

Crescent City, CA 95531

Del Norte County, California

January 9, 2009

PREPARED FOR:

Development Consultants, Inc.

3941 Park Dr Ste 20-338

El Dorado Hills, CA 95762

SITE DESCRIPTION

Project Name:	Coasta Norte Condominiums
Project Location:	200 A Street
	Crescent City, CA 95531
Contact Phone #:	Randy Baugh (916)934-0106

EXHIBIT NO. **10**
APPLICATION NO.
A-1-CRC-08-004
BAUGH dba DEVELOPMENT CONSULTANTS, INC.
VISUAL RESOURCES IMPACT ANALYSIS (1 of 27)

Purpose and Scope of the Analysis

As described in the revised Application submitted to the California Coastal Commission Development Consultants Inc. (D. C. I.) seeks to develop a new two story condominium and timeshare project, on an approximately 1.24 acre site currently occupied by the vacant "A" Street Clinic property at 200 A Street Crescent City California. The project will entail the construction of approximately 43 residential condominiums and timeshare in a two story building located on top of podium parking structure that is semi sub grade.

The current project design represents a scaling back of the project that had originally been proposed and approved by the City of Crescent City. The project as originally proposed would have entailed the construction of up to 54 units in a three story building located on the podium parking structure. The intent in developing the project layout now being proposed was to reduce the massing and scale as Visual impacts were previously determined to be less than significant.

This technical analysis provides a focused analysis of the visual resources impacts of the revised project, as well as its aesthetics light and glare impacts. The boundaries of the lands included in the project site, the location of the proposed project units and the location of the viewpoints that have been selected for the analysis are indicated on Figure 1.

Analysis Approach

The procedure followed in evaluating the impacts of the project on these viewpoints was based on an assessment of the existing level of scenic quality and visual sensitivity. Each viewpoint was reviewed for potential modifications as it relates to visual corridors and the project as a backdrop to coastal assets. Review of images provided a basis for identifying the project's degree of visibility from each of the viewpoints for assessing the implications of the visual change that the project would bring about.

The assessment of the existing scenic quality of the views evaluated was made based on the professional judgment that took a broad spectrum of factors into consideration, including:

- Natural features, including topography, rock outcrops, natural vegetation, coastal views, and views to and from scenic vistas:
- The positive and negative effects of modifications on the project site from the existing structure and development:

The rating assigned to each view fit within the rating scale summarized on Table Vis-1. Development of this builds on a scale developed for use with an artificial intelligence system for evaluation of Landscapes visual quality (buhyoff et al., 1994) and incorporates landscape assessments concepts applied by the U.S. Forest Services and the U. S. Department of Transportation.

Table Vis -1

- Outstanding Visual Asset:

  A rating reserved for Landscapes with exceptionally high visual quality.

- High Visual Asset:

  Landscapes that have High quality scenic value.

- Moderately High visual Asset:

  Landscapes which have above average scenic value but are not of High scenic value.

- Moderate Visual Asset:

  Landscapes that are common or typical landscapes which have average scenic value.

- Moderately Low Visual Asset:

  Landscapes that have below average scenic value.

- Low Visual Asset:

  Landscapes that have below average scenic value.

*Note: Rating scale based on Buhyoff et al., 1994 U. S. DOT Federal Highway Administration, 1988 and United States Department of Agriculture Forest Services. 1995

The analysis of views, viewing conditions and viewer sensitivity in each viewing area was structured to consider recreational viewers, residential viewers and to the extent to which they are present roadway viewers. To summarize the insights developed through the analysis of viewer sensitivity, overall levels of visual sensitivity at the various viewpoints were identified as being High, Moderate, or Low. In general, High levels of sensitivity were assigned in situations were the project would potentially block, or impact an open scenic vista to a High or moderately high visual Quality view. Moderate levels of sensitivity were assigned to areas where the project would be would potentially block or impact an existing scenic corridor to a coastal asset. Low levels of sensitivity were assigned to areas where the project would not

have the potential to negatively impact views to coastal assets given topography or existing developments both on and off site.

Short-Term Construction Period Impact

During the construction period, earth moving equipment, trucks and other equipment will be highly evident features in the views adjacent to the Project site from nearby areas. Because of the construction-related demolition and grading activities, areas of exposed soil and fresh gravel which contrast with the colors of the surrounding undisturbed landscape will be visible. In a close–at-hand view from nearby properties the visual changes associated with the construction activities will be highly visible and will have a moderate to high level of visual impact, on moderate and Low visual assets. From more distant viewing location and High Visual Assets the visual impact will be relatively minor and will have little or no impact on the quality of views. It is important to note that because the Project construction activities will take place of a period of approximately 12 months, the construction impact will be relatively short in duration. After construction is complete, all construction related debris will be removed from the site and any other non-developed areas will be replanted to recreate natural vegetative cover.

Long Term impacts during the Project Operational Phase

The analysis conducted for D. C. I. looked at the project's potential aesthetic effects on a total of eleven viewpoints. From four of these viewpoints the analysis found the projects aesthetic impacts on coastal assets would be **none**. These viewpoints were:

2. Brother Jonathan
5. "A" Street
6. 3rd Street
9. Adjacent vacation rentals and residential

From four viewpoints the level of visual impact was found to be **low**. These viewpoints were:

1. Battery Point
3. Hampton Inn
4. 2nd Street
8. Beach
10. Vacation Rental

From one viewpoint the level of visual impact was found to be **moderate**. This viewpoint was:

11. Scott Property

No viewpoints were found with a **High** impact.

Narrative discussion of Low impact viewpoints:

Battery Point (Fig 1) was listed as a low impact as opposed to no impact due to the projects visibility from Battery point as a coastal backdrop. From this viewpoint the project will modify a landward view by replacing the existing clinic building with the main project structure, but not limits any view points from Battery point to coastal assets.

Hampton Inn (Fig 3) was listed as a low impact due to the projects impact on the six Northern most units of the hotel. It is noted that original development of the hotel was designed and built in anticipation of these impacts, as they mirror the impact to the Southern end of the hotel as contemplated by the Hampton Phase II. The project will maintain similar view corridors from and across the property between project and hotel, as is approved between the hotel phase I and II (fig 3a).

2nd street (Fig 4) was listed as a low impact due to the projects structure being placed approximately 20' south of the existing structure, thus narrowing the distance between structures and limiting a "blue sky" view. This is mitigated by the projects setback and siteting of the buildings on compatible axis to maximize the view angle from 2nd street.

Beach (Fig 8) was listed as a low impact as opposed to no impact due to the projects visibility from Beach as a coastal backdrop. From this viewpoint the project will modify a landward view by replacing the existing clinic building with the main project structure. It is noted that the due to the exiting slope of the beach the clinic is not viable from this viewpoint, however the projects top one third will be visible, but will not limit any view points from beach to coastal assets.

Vacation Rental (fig 10) was listed as a low impact due the vacation rentals proximity to the project as it relates to the curvature of the coastline to the South, as this vacation rental has three primary viewpoints from its upper floor West to the ocean, Southwest to Battery point, and South across the property. The project will limit views across the project site to the South, but is set back to allow views to the West and Southwest.

Narrative discussion of moderate impact viewpoints:

The Scott property (Fig 11) is surrounded on two sides by the project with a one story house that encroaches on the project site. Given the lack of appropriate setback from the property line the Scott property will be impacted with an impact of "blue sky" views to the East, and a reduction of coastal views to the South. The property will maintain its coastal views to the

Southwest and West. It is noted that the project proponent is in discussions to purchase this property.

Light and Glare

The project facilities will modify the existing sources of light on the subject property. While the exiting clinic building is currently ringed by high intensity area flood lights exterior lighting of the project will be significantly reduced by the use of low voltage lighting at walkways and paths, with exterior building lighting being directionally oriented so as to provide appropriate safe levels of lighting without being directed offsite. Lighting will not be highly visible offsite and will not produce offsite glare effects because lighting will be restricted by specifications of non-glare fixtures and placement of light to direct illumination into only those areas where it is needed.

Mitigation Measures

Mitigation measures that have been made and integral part of the Project's design include:

- The current Projects layout substantially reduced the height, scale and massing of the building providing a more appropriate architectural design for the area.
- During the construction period, areas being graded will be watered down frequently to minimize any fugitive dust.
- When construction is complete, areas disturbed during the construction process will be restored to natural appearing conditions.
- The project will use a natural earth tone finish to minimize contrast with the sky backdrop, and increase project aesthetics
- Hip and parapet roof elements will be used to screen any roof top equipment.
- Trash and recycling facilities will be designed into the parking structure so as not to be visible from outside the project.
- Exterior lighting will be low voltage or non-glare fixtures directionally oriented away from adjacent properties.
- Appropriate building setbacks and view corridors maximize Blue Sky views.
- New coastal trails and viewing platforms provide for increase views to High value visual assets.

- The Project provides approximately 22 new residential and timeshare units with High value views.

Summary of impact and mitigating measures:

The Coasta Norte project represents an opportunity to redevelop and exiting abandon building while concurrently reducing or having a low to minimal impact on less than significant viewpoints. The project's design and construction to USGBC "Gold" standards combined with the mitigation measures as herein outlined result in determination of this analysis that the project will have little to no impact on the coastal visual resources of the area.

Analysis of Impact to Visual Resources

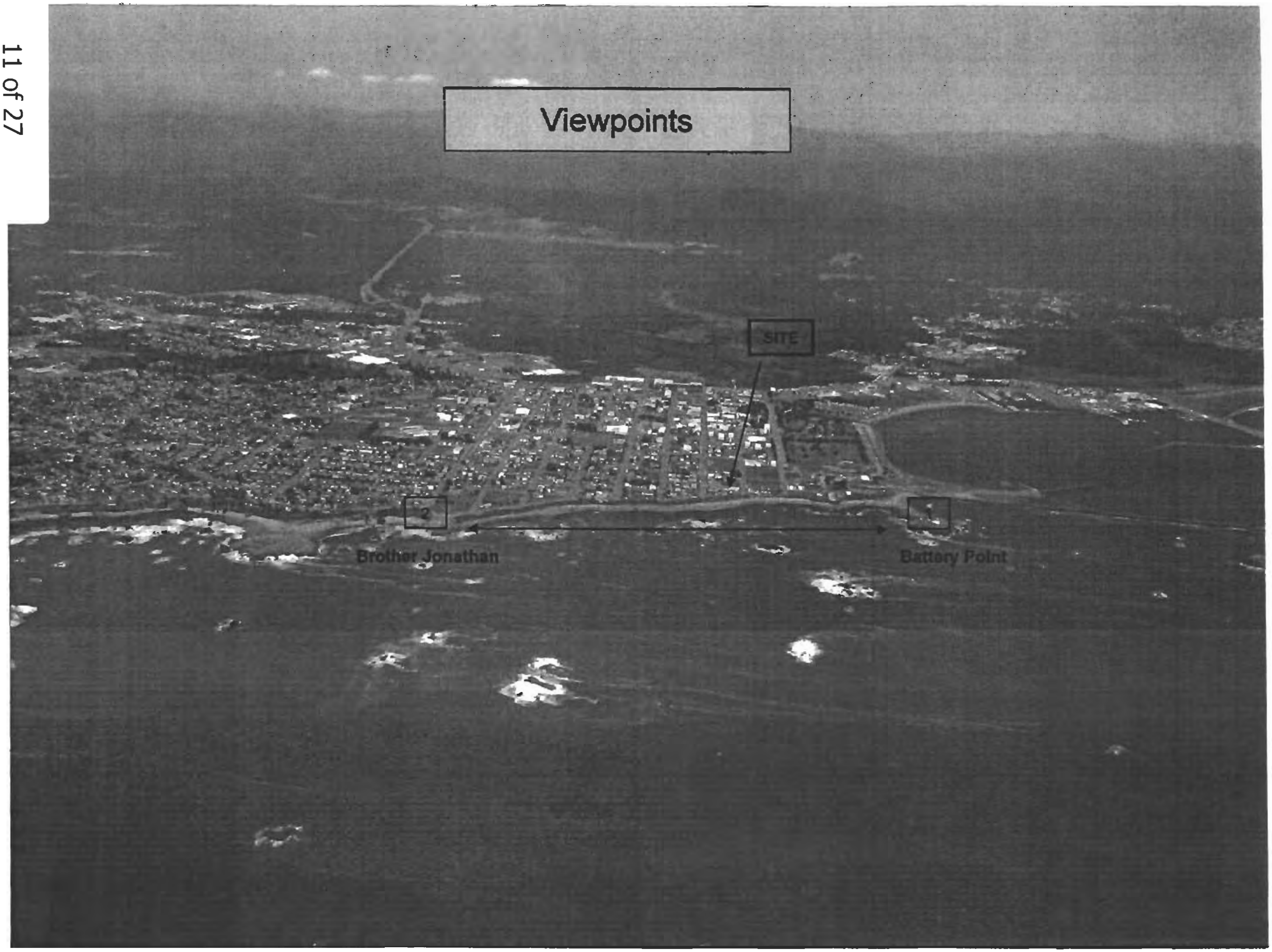
	Analysis Views	Existing level of Visual Quality	Level of Visual Sensitivity	Assessment of Visual Change	Potential level of visual impact
1	Battery Point Lighthouse	High	High	Battery Point lighthouse is located approximately 1/4 mile from the project site and is situated with the back side of the lighthouse and Battery point island (North) as the only location on battery point from which the project can be seen. This area is limited to viewers as it contains the mechanical areas of the lighthouse and unguarded cliffs. While the project will be visible from this area its location behind the Wendell street right of way places the project as a backdrop to the coastal assets, and will replace the abandon clinic thereby replacing an eyesore from this area.	Low
2	Brother Jonathan	High	High	Brother Jonathan is located approximately 1.5 miles from the project. The project is not visible from Brother Jonathan, and Brother Jonathan is not visible from the project.	None
3	Hampton Inn	Moderate	Moderate	The Hampton Inn is located directly adjacent to the South of the site. The Hampton inn itself is not a visual asset, but does provide coastal views to people staying at the Inn. Given the Inn's beach fronting location all rooms, common area, and trail will maintain unobstructed beach views. Approximately six rooms (without balconies) on the Northern most portion of the building will have a partial view modification to adjacent coast properties, but will maintain direct ocean frontage views.	Low

Analysis of Impact to Visual Resources

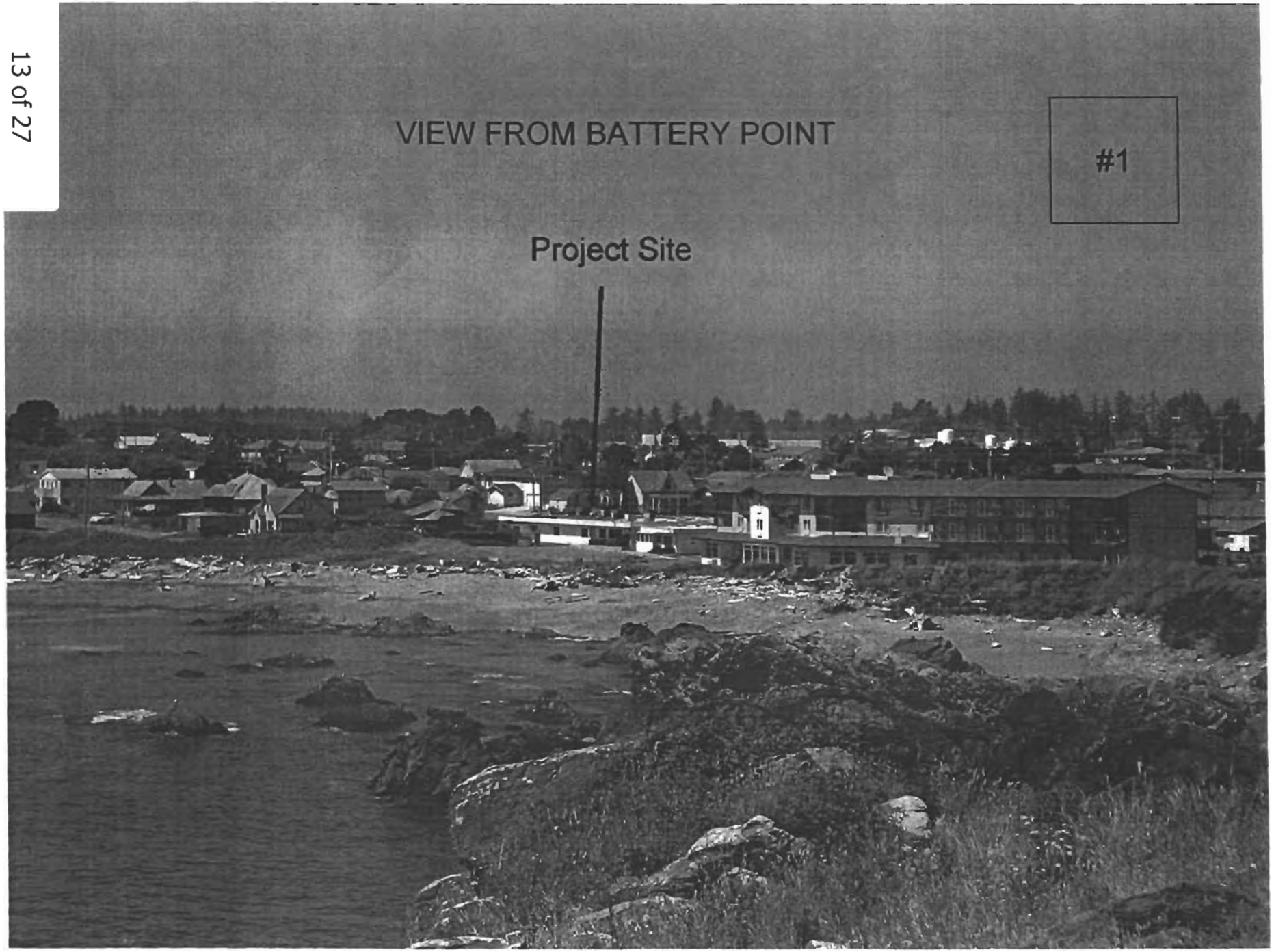
	Analysis Views	Existing level of Visual Quality	Level of Visual Sensitivity	Assessment of Visual Change	Potential level of visual impact
4	2nd Street	Moderate	Moderate	From Second street there are "blue sky" views between the existing Hampton Inn and the vacant Clinic building. No beach, rocks, ocean or coastal areas are visible from this point. The Project has been redesigned to increase setback from the adjacent property and angled to work with the Hampton in to provide comparable "blue sky" views to the maximum amount feasible on site.	Low
5	"A" Street	Low	Low	There are no coastal views from "A" street due to existing structures	None
6	3rd Street	Low	Low	There are no coastal views from 3rd street due to existing structures	None
7	Wendell Street	High	High	Wendell Street has a High Visual Scenic Corridor at it terminus just South of 3rd street, due to existing residences, vacation rentals and the projects location East of Wendell Street the project does not impact these corridors	None
8	Beach	High	High	The project is set back approximately 40' from the property line and due to the Wendell Street right of way the project sets back from 45"- 105' feet from the back of beach. The beach in this area is sloped to a top of bank approximately 15'msl, the significant setback and sloped bank make only the top 1/3 of the project visible from the beach, only marginally affecting "Blue Sky" views from the beach. This low impact if further mitigated by non-coastal properties directly east of the site having a zoning that allows a 70' height limit. Analysis shows that while a small amount of "blue sky" will be impacted, however the relatively low height of the project will provide a more appealing transition to properties that allow higher development to the East.	Low

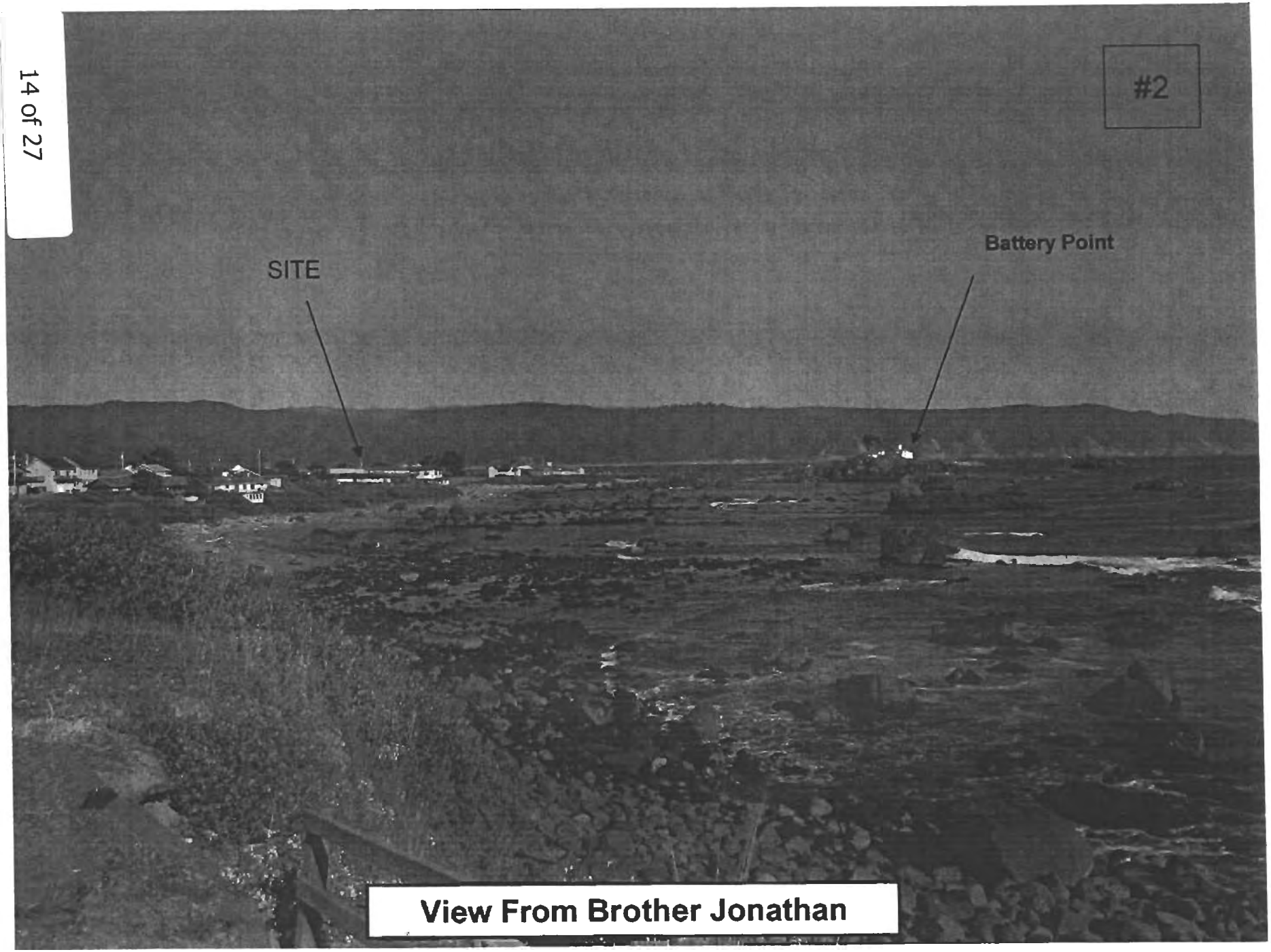
Analysis of Impact to Visual Resources

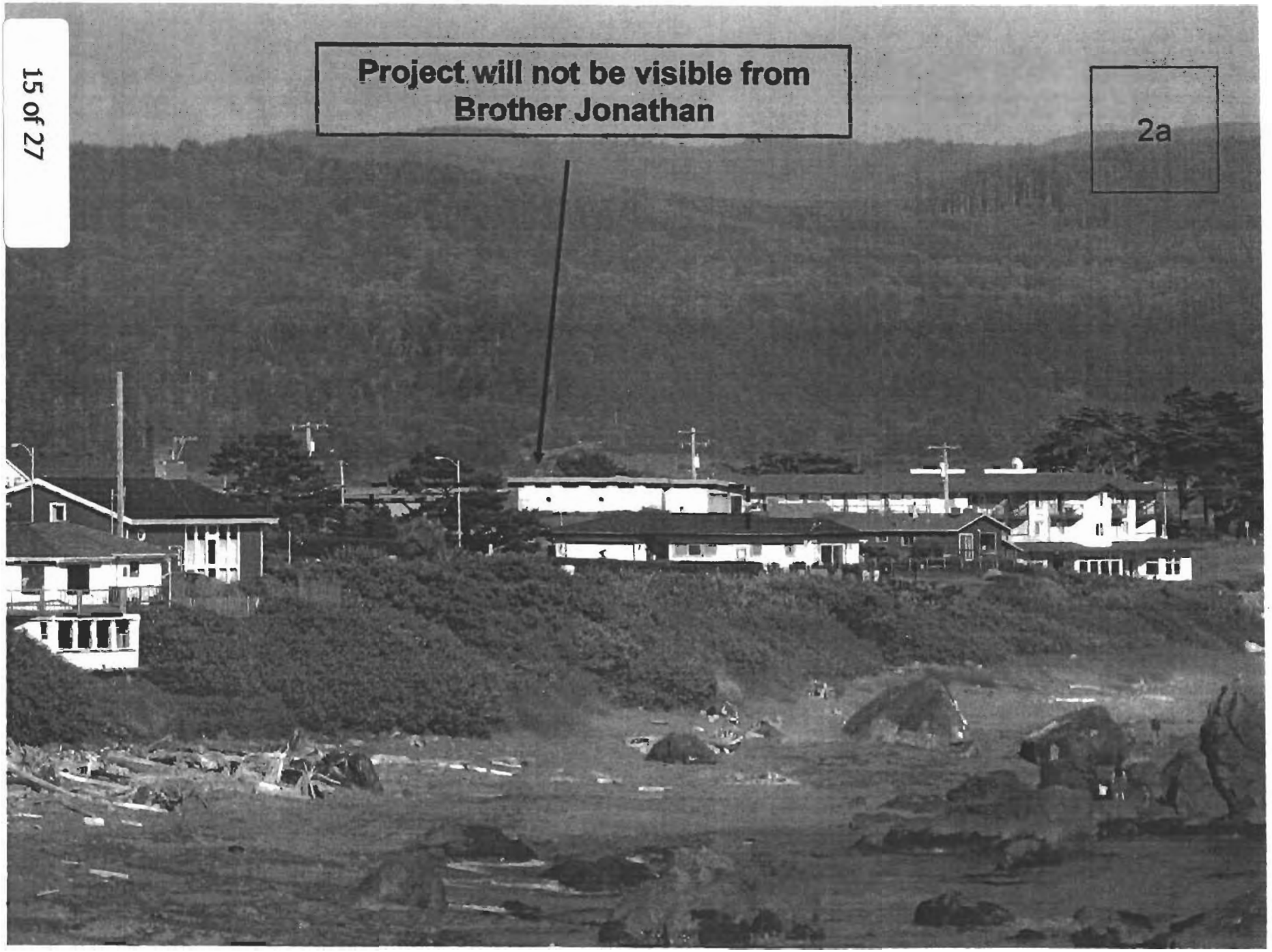
	Analysis Views	Existing level of Visual Quality	Level of Visual Sensitivity	Assessment of Visual Change	Potential level of visual impact
9	Adjacent Properties	Moderate	Moderate	The project is set back from the coast East of the Wendell Street right of way. Two residential properties and one vacation rentals are closer to the coast than the project. On these three properties there will be no coastal view impact.	None
10	Vacation Rental	low	low	Due the vacation rentals proximity to the project as it relates to the curvature of the coastline to the South, as this vacation rental has three primary viewpoints from its upper floor West to the ocean, Southwest to Battery point, and South across the property. The project will limit views across the project site to the South toward the Hampton Inn. The project is siturated so that the vacation rental will maintain veiws the West and Southwest.	Low
11	Scott Property	Low	Low	The Scott Property a one story house that encroaches on the project site is boarderd on two sides by the project site. Given the Scott properties lack of appropriate setback from the property line it will sustain an impact to non-coastal "blue sky" views to the East, and a reduction of coastal views to the South. The property will maintain its coastal views to the Southwest and West. It is noted that the project proponent is in discussions to purchase this property.	


Viewpoints
SITE
2
1
Brother Jonathan
Battery Point

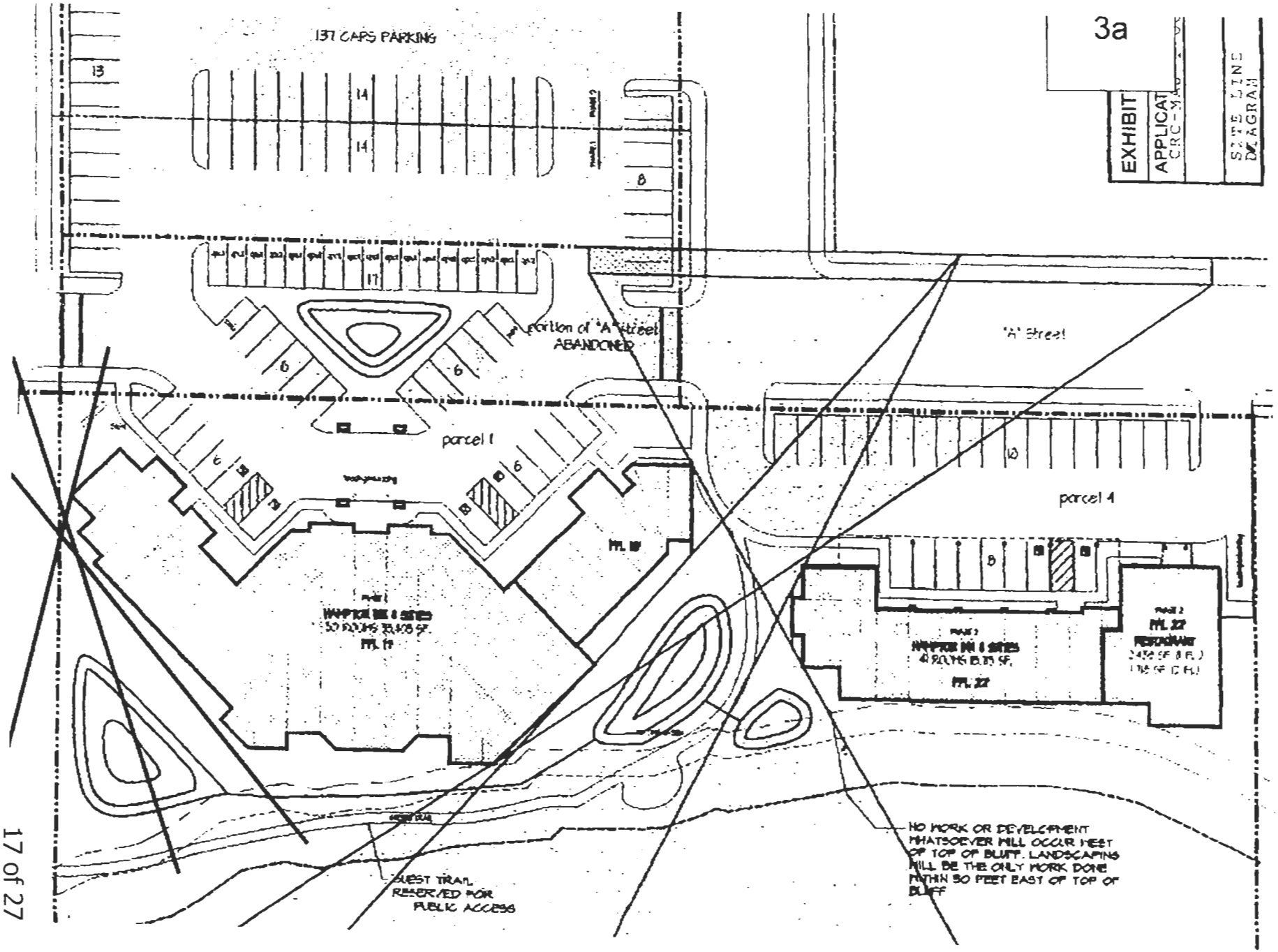

Viewpoints
3
4
5
6
7
8
9
10
F

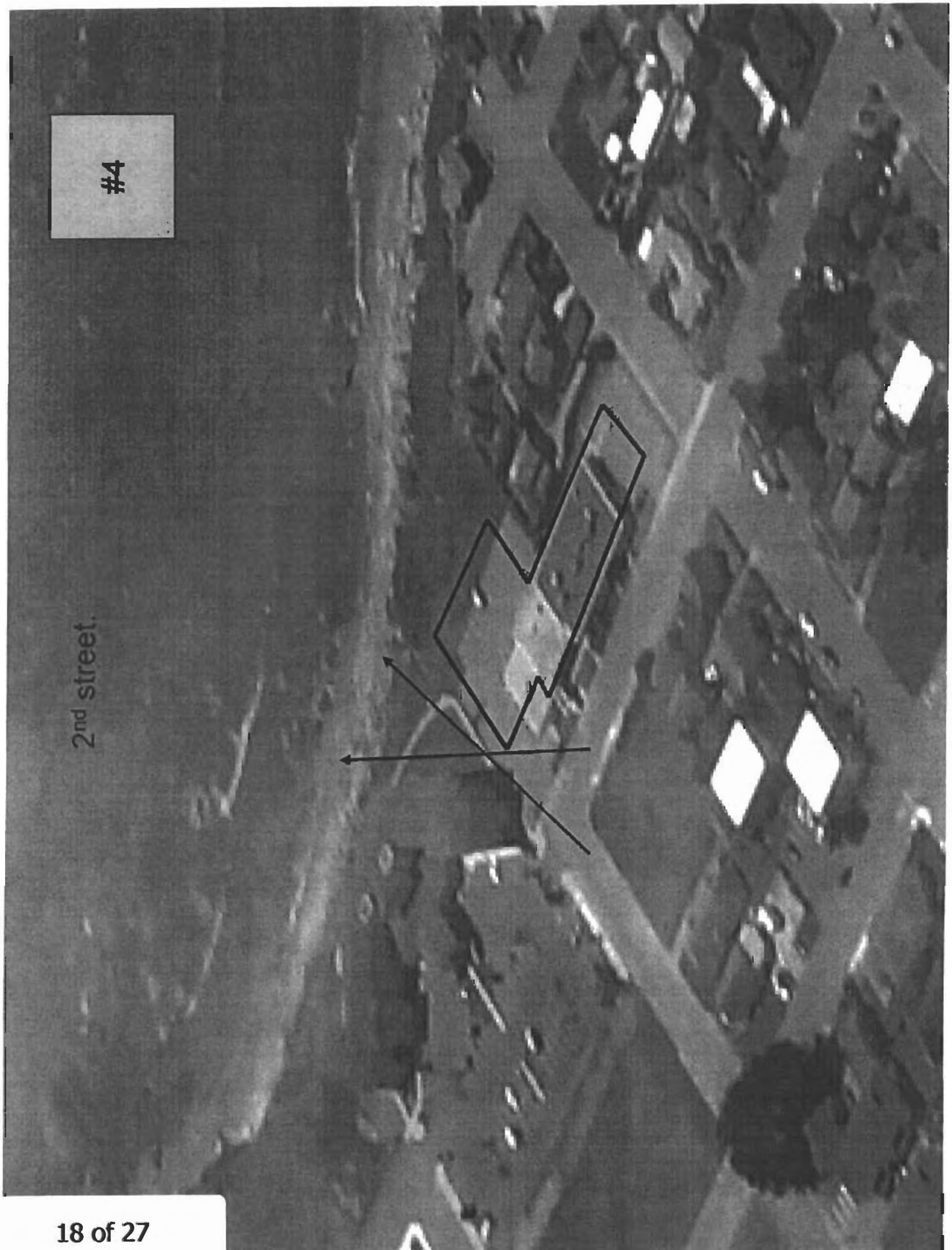

VIEW FROM BATTERY POINT
#1
Project Site


#2
SITE
Battery Point
View From Brother Jonathan


Project will not be visible from
Brother Jonathan
2a


#3
Hampton Inn


137 CARS PARKING
13
14
14
8
17
6
6
6
6
8
10
portion of "A" Street ABANDONED
"A" Street
parcel 1
parcel 4
QUEST TRAIL RESERVED FOR PUBLIC ACCESS
NO WORK OR DEVELOPMENT WHATSOEVER WILL OCCUR WEST OF TOP OF BLUFF. LANDSCAPING WILL BE THE ONLY WORK DONE WITHIN 50 FEET EAST OF TOP OF BLUFF
3a
EXHIBIT
APPLICAT
CRC-MA
SITE LINE DIAGRAM


#4
2nd street.

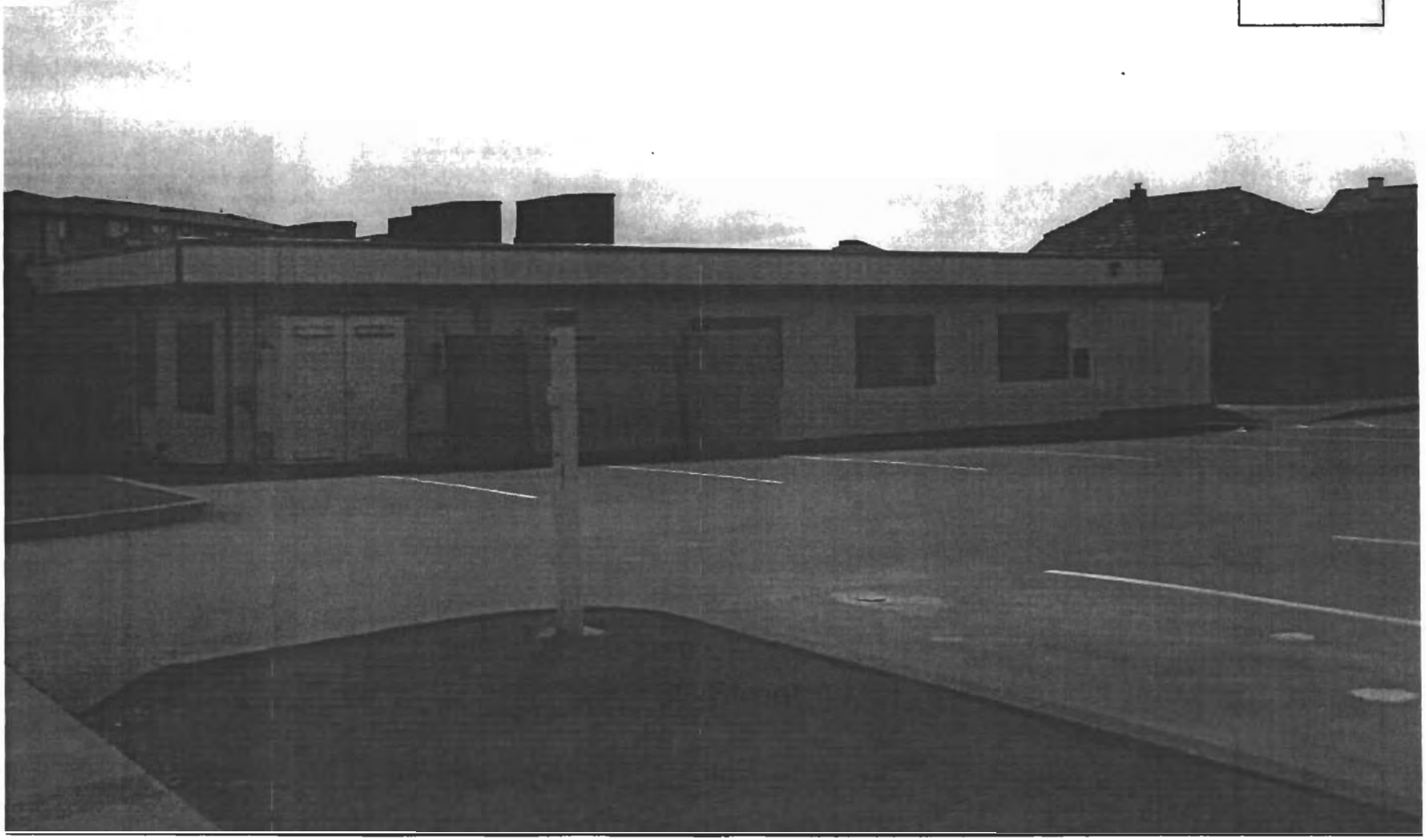
"A" street

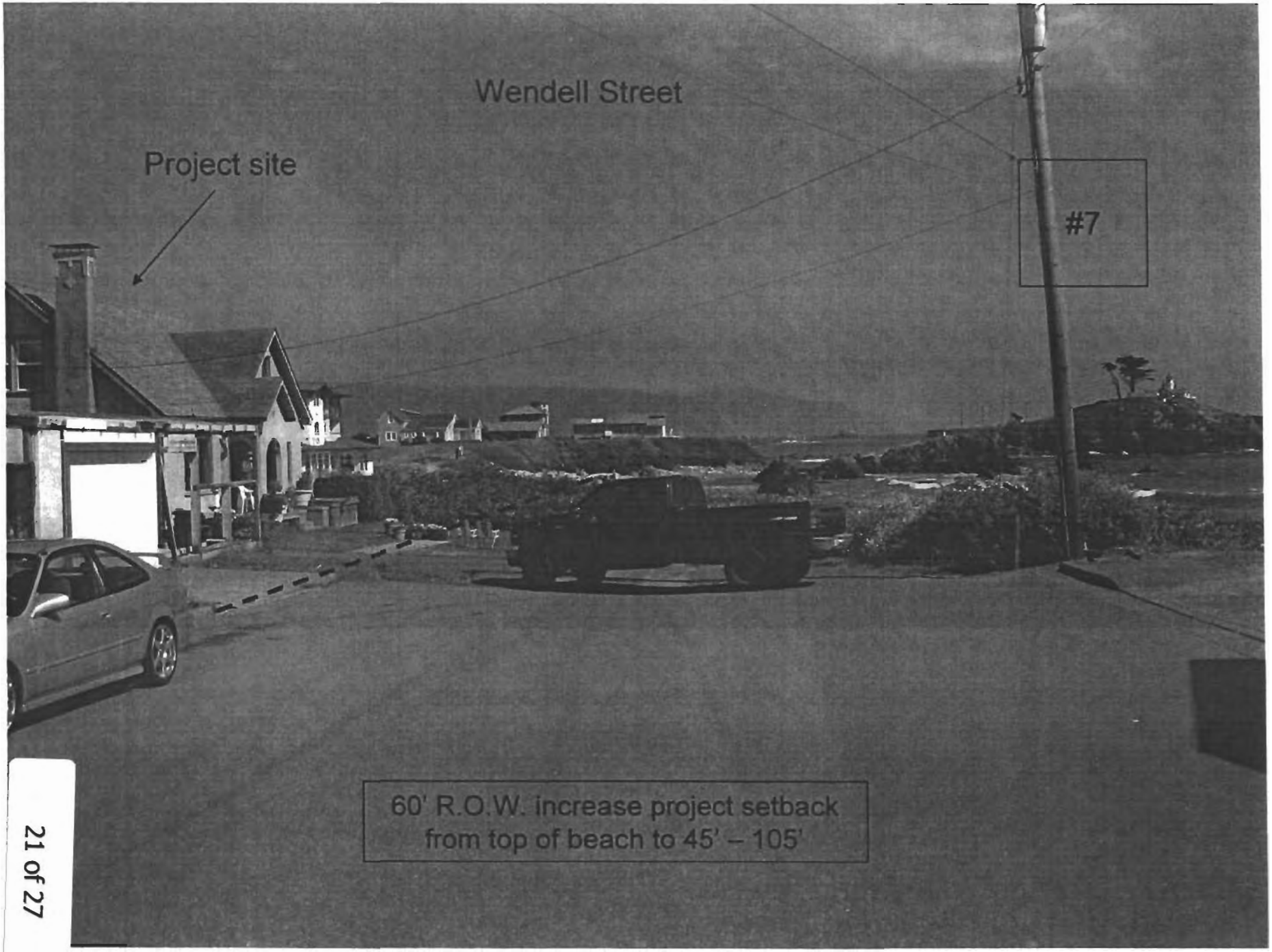
No exiting views

#5

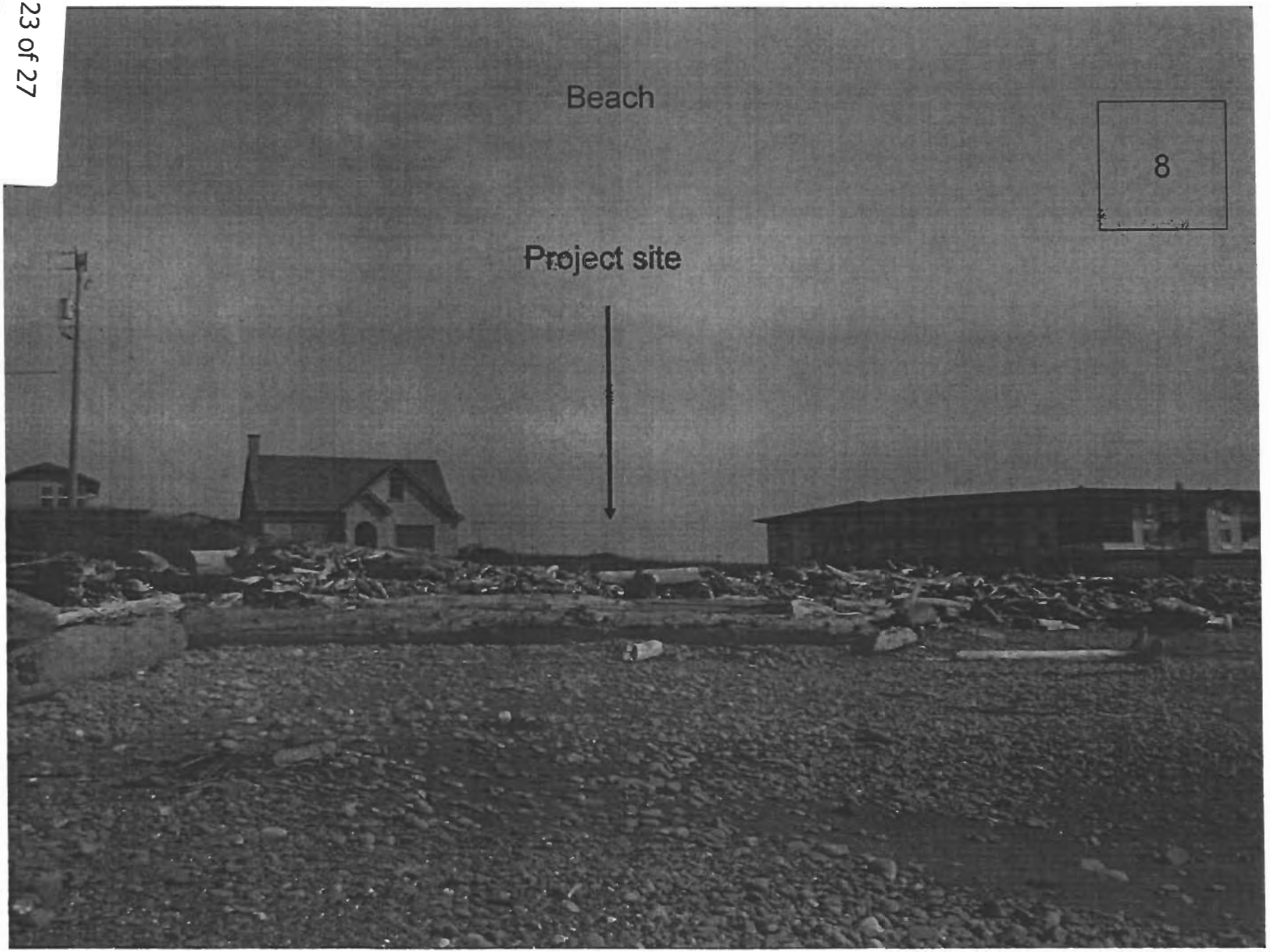
3rd Street

#6




Wendell Street
Project site
#7
60' R.O.W. increase project setback
from top of beach to 45' – 105'

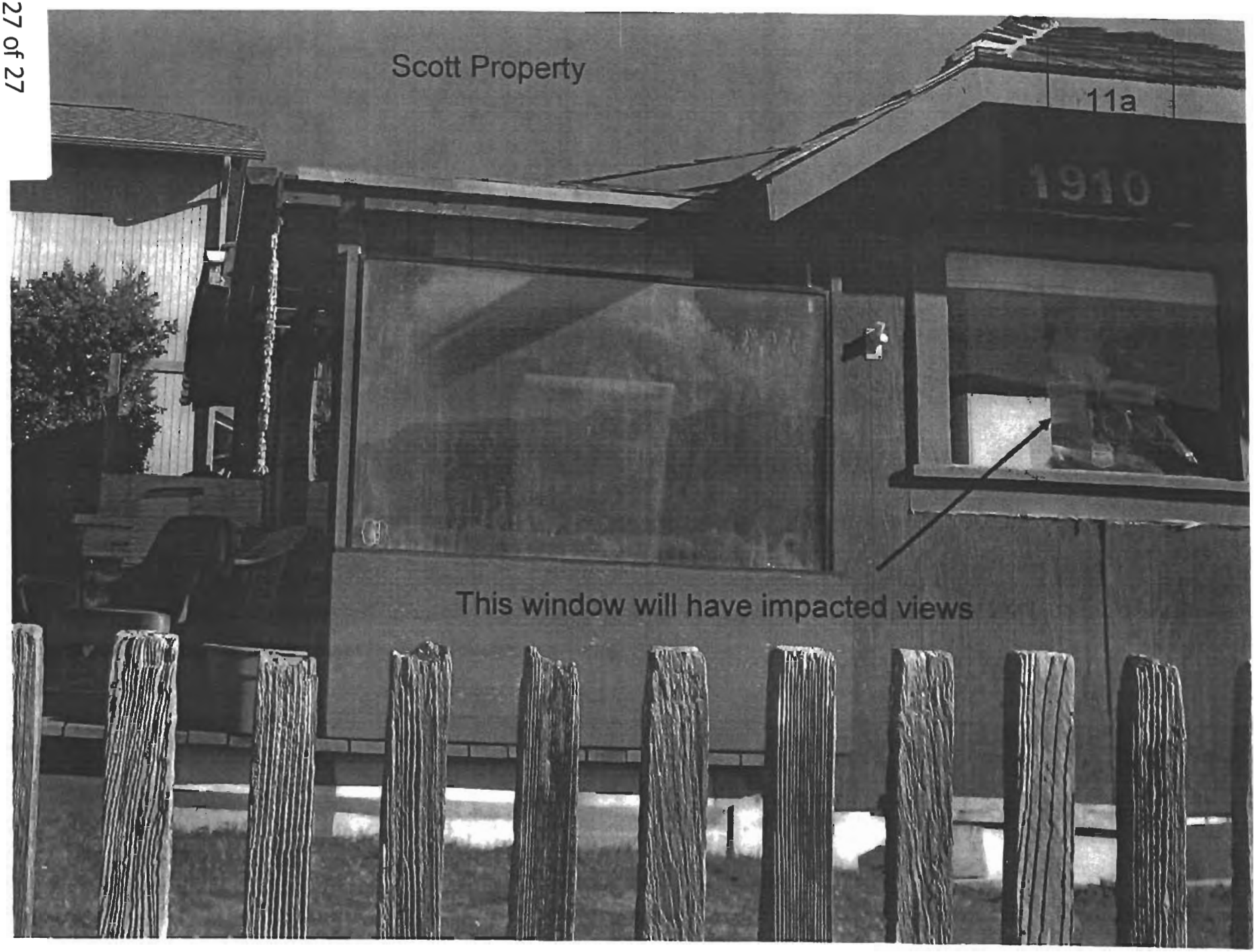

#7A
Project site
Wendell Street


Beach
8
Project site


Adjacent properties


10
Vacation Rental


Scott Property
11


Scott Property
11a
1910
This window will have impacted views