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Staff:	Tiffany S. Tauber
Staff Report:	September 22, 2006
Hearing Date:	October 13, 2006
Commission Action:	

STAFF REPORT: REGULAR CALENDAR

APPLICATION NO.:	**1-06-033**
APPLICANTS:	**BILL & SHERRY TILCH**
PROJECT LOCATION:	At 2838 Spears Road, east of Eureka, Humboldt County (APN 403-022-045)
PROJECT DESCRIPTION:	Replace an existing failing on-site sewage wastewater disposal system serving an existing single-family residence with a new system including a septic tank, pump chamber, pre-treatment system, and mound leachfield.
GENERAL PLAN DESIGNATION:	Rural Residential (RR)
ZONING DESIGNATION:	Rural Residential Agriculture (RA)
LOCAL APPROVALS REQUIRED:	Humboldt County Division of Environmental Health

OTHER APPROVALS REQUIRED: None

SUBSTANTIVE FILE DOCUMENTS: Humboldt County Local Coastal Program

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SUMMARY OF STAFF RECOMMENDATION:

Staff recommends that the Commission approve with conditions the coastal development permit for the proposed project. The proposed project involves the replacement of an existing on-site septic wastewater disposal system serving an existing residence by installing a new septic tank, pump chamber, pre-treatment system, and a primary and reserve mound leachfield in a new location.

The project site is approximately three and a half acres located in a rural residential area approximately one mile east of Eureka at 2838 Spears Road in Humboldt County (see Exhibits Nos. 1-3). The subject property is situated within a small forested valley and is located approximately ½ mile south of Freshwater Slough and nearly two miles from the Bay shoreline near the inland edge of the coastal zone. The site contains several wetland habitats including an unnamed creek along the eastern edge of the property and associated drainages along the northern and western edge of the southeast portion of the site.

The existing sewage disposal system serving the existing residence is one of many antiquated systems in Humboldt County which was installed prior to current Regional Water Quality Control Board (RWQCB) and Humboldt County Division of Environmental Health (DEH) regulations. According to DEH, often the installation of these systems did not take into account the high groundwater levels of the area. Soils on the subject property and surrounding area become completely saturated during the wet season and impair the soil's ability to absorb and treat sewage effluent. As a result, the existing septic system causes sewage effluent to be discharged into subsurface water or onto the ground surface during a significant period of the year causing degradation of ground and surface water quality and a public health hazard. The DEH has indicated to Commission staff that the condition of the existing septic system at the subject site is in violation of state and county regulations and necessitates correction.

Untreated wastewater discharge from failing septic systems can be the source of a variety of contaminants. Such contaminants include various kinds of bacteria such as e coli bacteria, ammonia, other nutrients, and parasitic diseases. These contaminants can foul receiving waters and make them unsafe for human contact and can also be deleterious to fish and other wildlife. The proposed project would reduce such degradation of water quality by (1) installing a pre-treatment component, and (2) by replacing a leachfield that is currently failing, thereby eliminating the current contamination problems associated with the current use and operation of the existing septic system. As a result, the quality of groundwater in the vicinity of the existing system and the water quality of the adjacent

creek and associated drainages will be improved, maintained, and restored, thereby maintaining and restoring biological productivity and protecting human health consistent with Coastal Act Sections 30231 and 30233.

The proposed project involves locating the approximately 3,400-square-foot primary and reserve leachfield in an area of the site that constitutes freshwater wetland inconsistent with the provisions of Section 30233 which require that only specific enumerated uses for filling and dredging shall be allowed within wetlands. However, staff believes that to deny the project would result in significant adverse impacts to water quality and public health that would be inconsistent with the mandate of Section 30231 of the Coastal Act to maintain and restore coastal water quality and biological productivity.

Staff further believes that no feasible alternative exists. Locating the new leachfield in the area of the existing leachfield in a manner that would avoid wetlands is not feasible because (1) the soils in the existing leachfield area are not adequate to effectively absorb the effluent, (2) there is not enough area to create a mound leachfield large enough to minimize the concentration of effluent and decrease the likelihood of system failure, and (3) this location would provide less of a setback between the leachfield and the adjacent coastal waters than the proposed leachfield location. Additionally, the leachfield cannot be located outside of wetlands anywhere further west of the existing residential development due to steep slopes and poor soils with high clay content that are unsuitable for leachfield development. The no project alternative would perpetuate the degradation of water quality and biological productivity inconsistent with Section 30231 that requires maintenance and improvement of water quality for the protection of biological productivity and human health. No other alternatives have been identified.

Therefore, staff believes the proposed project presents a true conflict between Sections 30233 and Section 30231 of the Coastal Act and it is appropriate for the Commission to invoke the conflict resolution policies of Section 30007.5 of the Coastal Act. This section states that when the Commission identifies a conflict among the policies in Chapter 3, such conflicts are to be resolved in a manner which on balance is the most protective of significant coastal resources. Staff believes that the impacts on coastal resources from not constructing the project would be more significant than the project's wetland habitat impacts. Denying the project because of its inconsistency with Section 30233 would avoid a net increase of wetland fill of approximately 3,400 square feet for the leachfield portion of the development. On the other hand, approving the development of the new mound septic system would eliminate the water quality and habitat degradation affects referred to above. In staff's opinion, the improvements to water quality and the elimination of avoidance of contamination of the area from raw sewage would be more protective of coastal resources than the impacts on wetland habitat from the construction of the leachfield.

To ensure that the water quality benefits of the project that would enable the Commission to use the balancing provision of Section 30007.5 are achieved, staff recommends Special Condition No. 1 which requires that the septic system be maintained in accordance with

applicable standards to minimize failures and unanticipated discharge of untreated effluent. Special Condition No. 2 requires the use of certain best management practices to mitigate erosion and sedimentation during the construction process.

As conditioned, staff believes the project is consistent with Sections 30240(b) and 30231 of the Coastal Act, as the project is sited and designed to protect public health and water quality and will prevent impacts which would significantly degrade the adjacent ESHA and is compatible with the continuance of the habitat. Therefore, staff believes the proposed development is fully consistent with the water quality, ESHA protection, and all other applicable policies of Chapter 3 of the Coastal Act.

The Motion to adopt the Staff Recommendation of Approval with Conditions is found on page 4 below.

STAFF NOTES:

1. Standard of Review

The proposed project is located in Humboldt County within the Commission's area of retained permit jurisdiction. Humboldt County has a certified LCP, but the proposed project is within an area shown on State Lands Commission maps over which the state retains a public trust interest. Therefore, the standard of review that the Commission must apply to the project is the Chapter 3 policies of the Coastal Act.

I. MOTION, STAFF RECOMMENDATION AND RESOLUTION:

The staff recommends that the Commission adopt the following resolution:

Motion:

I move that the Commission approve Coastal Development Permit No. 1-06-033 pursuant to the staff recommendation.

STAFF RECOMMENDATION OF APPROVAL:

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 THE 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 policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment.

II. STANDARD CONDITIONS: See Attachment A.

III. SPECIAL CONDITIONS:

1. Maintenance of Replacement Leach Field System

The permittee shall properly maintain all components of the replacement leach field system including the pre-treatment facility in accordance with the manufacturer's standards over the life of the project.

2. Best Management Practices and Construction Responsibilities

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

(a) No construction materials, debris, or waste shall be placed or stored where it may be subject to entering the creek on the property;

(b) No machinery shall be allowed at any time in the creek;

(c) Any and all excess excavated material resulting from construction activities shall be removed and disposed of at a disposal site outside the coastal zone or placed within the coastal zone pursuant to a valid coastal development permit;

(d) Straw bales, coir rolls, or silt fencing structures shall be installed prior to and maintained throughout the construction period to contain runoff from construction areas, trap entrained sediment and other pollutants, and prevent discharge of sediment and pollutants into the creek running through the property. These structures shall be placed between any construction on the project site and the top of the creek bank;

(e) On-site vegetation shall be maintained to the maximum extent possible during construction activities;

(f) Any disturbed areas shall be replanted or seeded with native vegetation following project completion. 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.

(g) All on-site stockpiles of construction debris shall be covered and contained at all times to prevent polluted water runoff; and

(h) Development authorized by this permit shall only be performed during the dry season, from April 15 through October 15.

IV. FINDINGS AND DECLARATIONS:

The Commission hereby finds and declares:

A. Site Description

The project site is approximately three and a half acres located in a rural residential area approximately one mile east of Eureka at 2838 Spears Road in Humboldt County (see Exhibits Nos. 1-3). The subject property is situated within a small forested valley and is located approximately ½ mile south of Freshwater Slough and nearly two miles from the shoreline of Humboldt Bay near the inland edge of the coastal zone. No views of the bay or coast are available from the property or the surrounding portions of the valley.

The eastern property boundary parallels Spears Road and an unnamed creek. The creek is a tributary of Freshwater Slough, which in turn is a tributary of Humboldt Bay. The northern portion of the parcel forms an "L" shape and extends westward toward a steep forested slope. A gravel driveway (West Wing Lane) follows up the slope on the northeastern side of the property and provides access to adjacent parcels. The site is developed with a two-bedroom, single-family residence, shop, and fenced garden area. The residence is served by a public water system but relies on an on-site septic system for wastewater disposal. The existing septic tank and leachfield to be replaced are located adjacent to the existing residential development.

The site contains large areas of wetland habitat and a narrow wetland riparian corridor along the banks of the unnamed creek. Wetland habitats occurring in the project area include seasonally flooded/well-drained freshwater emergent wetlands at the southeast portion of the site, freshwater drainage channels that border the south and west edge of

the southeast portion of the site and the northern property boundary, and the freshwater (unnamed) creek along the eastern property boundary (see Exhibit No. 3).

B. Project Description

The proposed project involves the replacement of the existing on-site wastewater disposal system serving the existing residence by installing a new septic tank, pump chamber, pre-treatment system, and a primary and reserve mound leachfield in a new location.

The new system is designed for a three bedroom residence to accommodate the applicants' desire to add on to the existing residence in the future. According to Humboldt County sewage disposal regulations, a three-bedroom residence requires a 1,500-gallon septic tank and would have an expected daily sewage flow of 450 gallons per day (gpd).

Due to high groundwater and the proximity and configuration of the unnamed creek and associated drainages at the site, replacement of the existing failing leachfield with a conventional leachfield system is not feasible. The soils around the existing failing leachfield are no longer suitable to accommodate a replacement conventional leachfield. Therefore, the applicants propose a modified mound system leachfield that would be equipped with an innovative pretreatment system known as an AdvanTEX™ AX Treatment System.

A new 1,500-gallon septic tank, pump basin, and AdvanTEX™ treatment system, would be installed adjacent to the residence in the northern portion of the site in the vicinity of the existing septic tanks and leachfield. The new septic tank and pump chamber would be tightlined to the proposed new leachfield via a 2-inch-diameter PVC pipe. The primary and reserve leachfield would each consist of a 96-foot-long by 18-foot-wide mound containing approximately 40-foot-long, 1-1/4-inch leachline laterals (approximately 3,400-square-foot total area). The mound would have a depth of approximately 3-1/4 feet below the ground surface.

The proposed new leachfield is proposed to be located in the relatively flat, grassy lawn area that comprises the southeastern portion of the site. According to a wetland delineation and biological assessment prepared for the property (*"Biological Assessment and Wetland Delineation for 2838 Spears Road, Eureka, APN 403-022-45"* prepared by Gedik BioLOGICAL Associates, dated March 29, 2005), this area constitutes a two-factor Palustrine emergent persistent wetland. Although this area is actively maintained by mowing, maintenance activities do not preclude development of wetland conditions at the site. Dominant vegetation in this area was determined to be hydrophytic and wetland hydrology indicators include saturated soil within the upper 12 inches (depth to saturated soil was 1 inch from the soil surface) and free-standing water occurring at a depth of eight inches.

The proposed leachfield system was designed based on an on-site septic wastewater disposal repair evaluation prepared by a consulting engineering firm (See Exhibit No. 5). The evaluation and proposed replacement septic mound leachfield system have been reviewed by the Humboldt County Division of Environmental Health (DEH) in accordance with current regulatory requirements (See Exhibit No. 6). DEH found the system to be suitable for the specific site conditions and has no objection to the installation of the wastewater treatment system as proposed.

C. Water Quality

The project has been proposed, in major part, to resolve groundwater and coastal water contamination problems associated with wastewater discharges from the existing septic system. The project is thereby proposed to protect and enhance water quality and adjacent environmentally sensitive habitat areas.

Section 30231 of the Coastal Act states:

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

Section 30231 of the Coastal Act requires the protection of coastal waters to ensure biological productivity and the protection of public health and water quality. New development must not adversely affect these values and should help to restore them when possible.

The existing sewage disposal system serving the existing residence is one of many antiquated systems in Humboldt County which was installed prior to current Regional Water Quality Control Board (RWQCB) and Humboldt County Division of Environmental Health (DEH) regulations. According to DEH, often the installation of these systems did not take into account the high groundwater levels of the area. Soils on the subject property and surrounding area become completely saturated during the wet season and impair the soil's ability to absorb and treat sewage effluent. As a result, the existing septic system causes sewage effluent to be discharged into subsurface water and/or onto the ground surface during a significant period of the year causing degradation of ground and surface water quality and a public health hazard. DEH indicates that this saturated soil condition has been well documented, as DEH has monitored groundwater levels on the subject property and other neighboring properties over the past several years.

Additionally, according to the DEH, many of the sewage disposal systems in the project vicinity, including the existing system at the subject site, were installed in what is now designated by the RWQCB as a "Waiver Prohibition Area." This designation was imposed for specific areas in which discharges from onsite sewage disposal systems are resulting in or threatening to result in health hazards or water quality impairment. According to DEH, an onsite sewage disposal system which allows sewage effluent to flow or seep onto the ground or into surface/subsurface waters meets both the Regional Water Quality Control Board and DEH definition of a sewage disposal system failure. The use of such a system constitutes a violation of California State Health and Safety code and Humboldt County code. The DEH has indicated to Commission staff that the condition of the existing septic system at the subject site is in violation of state and county regulations and necessitates correction.

Untreated wastewater discharge from failing septic systems can be the source of a variety of contaminants. Such contaminants include various kinds of bacteria such as e coli bacteria, ammonia, other nutrients, and parasitic diseases. These contaminants can foul receiving waters and make them unsafe for human contact and can also be deleterious to fish and other wildlife. For example, ammonia can be toxic to wildlife and nutrients can cause an over abundance of algae to develop in receiving waters, resulting in reductions of dissolved oxygen levels which can lead to kills of other organisms that rely on the oxygen in the water to survive.

The proposed project would reduce such contamination of ground and surface waters in several ways. First, the project would eliminate the contamination emanating from the existing septic system. The applicant proposes to replace and abandon the existing failing septic system. Second, the proposed new septic system would include a pre-treatment component designed to provide effective wastewater treatment in areas of high groundwater. With the proposed AdvanTEX™ AX Treatment System, wastewater would percolate through the textile media, wherein the complex fiber structure provides tremendous water-holding capacity and offers an extremely large surface area for biomass attachment, thus reducing Biological Oxygen Demand (BOD^5) and Total Suspended Solids (TSS) almost immediately. According to the DEH, this proposed pre-treatment system is the most sophisticated wastewater treatment system in the County.

The existing failing leachfield is located approximately 10 feet from the northern drainage that flows to the unnamed creek. The proposed leachfield would be located approximately 40 to 60 feet from the creek and approximately 35 feet from the western drainage.

The RWQCB and DEH typically require a 100-foot buffer between a septic leachfield and a watercourse. However, in this case, due to the configuration of the site relative to the adjacent creek and drainages, it is not feasible to locate the new replacement leachfield further away from the creek. The failing existing leachfield and residential development occupies the only other relatively flat area of the property. According to

investigations by the applicants' consulting engineer and DEH, the leachfield cannot be located anywhere further west of the existing residential development due to steep slopes and poor soils with high clay content that are unsuitable for leachfield development.

The DEH recognizes there are existing developed parcels of land which due to limitations in size, unsuitable soils, and/or high groundwater cannot accommodate an onsite sewage disposal system that meets current standards. In such cases the "repair" permit issued by DEH allows system corrections to be made which conform as much as possible to current standards. Thus, although the proposed new leachfield location does not meet the typical 100-foot setback requirement, the proposed new leachfield is sited and designed in a manner that is in greater conformance with the requirements than the existing location while providing a larger area for effluent absorption and a decreased risk of system failure. Regarding the proposed location of the proposed wastewater treatment system, the DEH indicated in a letter to Commission staff that, "*The primary goal of the DEH is eliminating potential health hazards and protecting water quality. After completing a review of the sewage disposal system design proposal (prepared by Pacific Watershed Associates) for the Tilch residence, this office has concluded that the proposed location of the system is optimal for achieving this goal and correcting an existing violation*."

Furthermore, as discussed above, the proposed system includes a pre-treatment component and would replace a leachfield that is currently failing, thereby eliminating the current contamination problems associated with the current use and operation of the existing septic system. As a result, the water quality and habitat value of the adjacent drainages would be improved and protected from wastewater discharges consistent with Coastal Act Section 30231.

The combination of these measures would eliminate the current contamination problems plaguing the use and operation of the existing septic system. As a result, the quality of groundwater in the vicinity of the existing system and the water quality of the adjacent creek and associated drainages will be improved, maintained, and restored, thereby maintaining and restoring biological productivity and protecting human health consistent with Coastal Act Section 30231.

To ensure that system failures and unanticipated discharge of untreated effluent are minimized, the Commission attaches Special Condition No. 1, which requires that the replacement septic system be properly maintained.

Although the proposed project will improve water quality and will help restore biological productivity and better protect human health when completed and operational, construction of the proposed project could have short-term impacts on water quality and biological productivity. During site clearance, grading, and construction, erosion of exposed soils, and the discharge of construction-related debris could result in water quality impacts to nearby wetlands and coastal waters.

The erosion of exposed soils during construction activities will result in the potential for increased sediment loads to the adjacent creek and wetland areas. The increased sediment loads may adversely affect aquatic habitats by increasing turbidity, which can alter feeding behaviors, respiration, and reproductive functions of aquatic organisms. To ensure that best management practices (BMPs) are implemented to control the erosion of exposed soils and minimize sedimentation of adjoining coastal waters during construction, the Commission attaches Special Condition No. 2. This condition requires the implementation of Best Management Practices (BMPs) to control erosion and sedimentation during and following construction. These required BMPs include (1) confining earthwork activities to the non-rainy season; (2) placing construction materials and equipment where they will not enter the creek; (3) preserving existing vegetation surrounding the construction areas as much as possible; (4) installing silt fences, fiber rolls, and weed-free rice straw barriers on the down slope side of the construction areas between the construction areas and the creek bank and maintaining these barriers in place throughout the construction period; (5) stabilizing and containing stockpiles of materials; and (6) reseeding areas disturbed by construction with native vegetation.

With the implementation of the storm water BMPs during and after construction, including erosion control measures, the project as conditioned will minimize the potential for construction related pollutants to be carried by storm water runoff into nearby coastal waters and wetlands, thereby protecting the water quality and biological productivity of these areas. Therefore, as the adverse impacts of construction on water quality will be reduced to levels of insignificance, and as the proposed project will restore the biological productivity and quality of coastal waters and protect human health by minimizing the adverse effects of wastewater discharges, the Commission finds that the proposed project as conditioned is consistent with Section 30231 of the Coastal Act.

D. Permissible Use for Filling and Dredging of Coastal Wetlands

The proposed project involves locating the approximately 3,400-square-foot primary and reserve leachfield in an area of the site that constitutes freshwater wetland.

Section 30233 of the Coastal Act states that the diking, filling, or dredging of wetlands shall be permitted only when there is no feasible less environmentally damaging alternative, and only when feasible mitigation measures have been provided to minimize adverse environmental effects. Section 30233 also specifies that diking, filling, or dredging are allowed in wetlands only for limited uses.

Section 30233(a) provides as follows, in applicable part:

> (a) *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource dependent activities.

(*C) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary…*

The above policies set forth a number of different limitations on what types of projects may be allowed in coastal wetlands. For analysis purposes, the limitations applicable to the subject project can be grouped into four general categories or tests. These tests are:

1. The purpose of the filling, diking, or dredging is for one of the eight uses allowed under Section 30233;

2. that feasible mitigation measures have been provided to minimize adverse environmental effects;

3. that the project has no feasible less environmentally damaging alternative; and

4. that the biological productivity and functional capacity of the habitat shall be maintained and enhanced where feasible.

The first test set forth above is that any proposed filling, diking or dredging must be for an allowable purpose as specified under Section 30233 of the Coastal Act. The proposed project is not consistent with Section 30233, as a septic system for private residential development is not one of the eight enumerated uses allowable under Section 30233(a). Although 30233(a)(5) refers to burying pipes, such facilities are only allowable as fill when serving an incidental public service purpose. The proposed fill would not be placed by a public agency and is not being undertaken for a public purpose. Therefore, the Commission finds that the project does not meet the requirement of Coastal Act Section 30233 for permissible uses for fill of wetlands.

E. Conflict Resolution

As noted above, the proposed new septic system would encroach into wetlands, inconsistent with the provisions of Section 30233 which require that only specific enumerated uses for filling and dredging shall be allowed within wetlands. However, as also noted above, to not approve the project would result in significant adverse impacts to water quality and public health that would be inconsistent with the mandate of Section 30231 of the Coastal Act to maintain and restore coastal water quality and biological productivity.

i.) The Identification of a Conflict is a Condition Precedent to Invoking a Balancing Approach

As is indicated above, the standard of review for the Commission's decision whether to approve a coastal development permit in the Commission's retained jurisdiction is whether the project as proposed is consistent the Chapter 3 policies of the Coastal Act. In general, a proposal must be consistent with all relevant policies in order to be approved. Put differently, consistency with each individual policy is a necessary, but not sufficient, condition for approval of a proposal. Thus, if a proposal is inconsistent with one or more policies, it must normally be denied (or conditioned to make it consistent with all relevant policies).

However, the Legislature also recognized that conflicts can occur among those policies (Coastal Act Section 30007.5). It therefore declared that, when the Commission identifies a conflict implementing the policies in Chapter 3, such conflicts are to be resolved "in a manner which on balance is the most protective of significant coastal

resources (Coastal Act Sections 30007.5 and 30200(b)).” That approach is generally referred to as the “balancing approach to conflict resolution.” Balancing allows the Commission to approve proposals that conflict with one or more Chapter 3 policies, based on a conflict among the Chapter 3 policies as applied to the proposal before the Commission. Thus, the first step in invoking the balancing approach is to identify a conflict among the Chapter 3 policies.

ii.) Identification of a Conflict

For the Commission to use the balancing approach to conflict resolution, it must establish that a project presents a substantial conflict between two statutory directives contained in Chapter 3 of the Coastal Act. The fact that a proposed project is consistent with one policy of Chapter 3 and inconsistent with another policy does not necessarily result in a conflict. Virtually every project will be consistent with some Chapter 3 policy. This is clear from the fact that many of the Chapter 3 policies prohibit specific types of development. For example, 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 . . .,” and subdivision (2) of section 30253 states that new development “shall . . . neither create nor contribute significantly to erosion . . . or in any way require the construction of protective devices . . . .” Almost no project would violate every such prohibition. A project does not present a conflict between two statutory directives simply because it violates some prohibitions and not others.

In order to identify a conflict, the Commission must find that, although approval of a project would be inconsistent with a Chapter 3 policy, the denial of the project based on that inconsistency would result in coastal zone effects that are inconsistent with some other Chapter 3 policy. In most cases, denial of a proposal will not lead to any coastal zone effects at all. Instead, it will simply maintain the status quo. The reason that denial of a project can result in coastal zone effects that are inconsistent with a Chapter 3 policy is that some of the Chapter 3 policies, rather than prohibiting a certain type of development, affirmatively mandate the protection and enhancement of coastal resources, such as sections 30210 (“maximum access . . . and recreational opportunities shall be provided . . .”), 30220 (“Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses”), and 30230 (“Marine resources shall be maintained, enhanced, and where feasible, restored”). If there is ongoing degradation of one of these resources, and a proposed project would cause the cessation of that degradation, then denial would result in coastal zone effects (in the form of the continuation of the degradation) inconsistent with the applicable policy. Thus, the only way that denial of a project can have impacts inconsistent with a Chapter 3 policy, and therefore the only way that a true conflict can exist, is if: (1) the project will stop some ongoing resource degradation and (2) there is a Chapter 3 policy requiring the Commission to protect and/or enhance the resource being degraded. Only then is the denial option rendered problematic because of its failure to fulfill the Commission’s protective mandate.

With respect to the second of those two requirements, though, there are relatively few policies within Chapter 3 that include such an affirmative mandate to enhance a coastal resource. Moreover, because the Commission's role is generally a reactive one, responding to proposed development, rather than affirmatively seeking out ways to protect resources, even policies that are phrased as affirmative mandates to protect resources more often function as prohibitions. For example, section 30240's requirement that environmentally sensitive habitat areas "shall be protected against any significant disruption of habitat values" generally functions as a prohibition against allowing such disruptive development, and its statement that "only uses dependent on those resources shall be allowed within those areas" is a prohibition against allowing non-resource-dependent uses within these areas." Similarly, section 30251's requirement to protect "scenic and visual qualities of coastal areas" generally functions as a prohibition against allowing development that would degrade those qualities. Section 30253 begins by stating that new development shall minimize risks to life and property in certain areas, but that usually requires the Commission to condition projects to ensure that they are not unsafe. Even section 30220, listed above as an affirmative mandate, can be seen more as a prohibition against allowing non-water-oriented recreational uses (or water-oriented recreational uses that could be provided at inland water areas) in coastal areas suited for such activities. Denial of a project cannot result in a coastal zone effect that is inconsistent with a prohibition on a certain type of development. As a result, there are few policies that can serve as a basis for a conflict.

Similarly, denial of a project is not inconsistent with Chapter 3, and thus does not present a conflict, simply because the project would be less inconsistent with a Chapter 3 policy than some alternative project would be, even if approval of the proposed project would be the only way in which the Commission could prevent the more inconsistent alternative from occurring. For denial of a project to be inconsistent with a Chapter 3 policy, the project must produce tangible enhancements in resource values over existing conditions, not over the conditions that would be created by a hypothetical alternative. In addition, the project must be fully consistent with the Chapter 3 policy requiring resource enhancement, not simply less inconsistent with that policy than the hypothetical alternative project would be. If the Commission were to interpret the conflict resolution provisions otherwise, then any proposal, no matter how inconsistent with Chapter 3, that offered even the smallest, incremental improvement over a hypothetical alternative project would necessarily result in a conflict that would justify a balancing approach. The Commission concludes that the conflict resolution provisions were not intended to apply based on an analysis of different potential levels of compliance with individual policies or to balance a proposed project against a hypothetical alternative.

In addition, if a project is inconsistent with at least one Chapter 3 policy, and the essence of that project does not result in the cessation of ongoing degradation of a resource the Commission is charged with enhancing, the project proponent cannot "create a conflict" by adding on an essentially independent component that does remedy ongoing resource degradation or enhance some resource. The benefits of a project must be inherent in the essential nature of the project. If the rule were to be otherwise, project proponents could

regularly “create conflicts” and then demand balancing of harms and benefits simply by offering unrelated “carrots” in association with otherwise-unapprovable projects. The balancing provisions of the Coastal Act could not have been intended to foster such an artificial and manipulatable process. The balancing provisions were not designed as an invitation to enter into a bartering game in which project proponents offer amenities in exchange for approval of their projects.

Finally, a project does not present a conflict among Chapter 3 policies if there is at least one feasible alternative that would accomplish the essential purpose of the project without violating any Chapter 3 policy. Thus, an alternatives analysis is a condition precedent to invocation of the balancing approach. If there are alternatives available that are consistent with all of the relevant Chapter 3 policies, then the proposed project does not create a true conflict among Chapter 3 policies.

In sum, in order to invoke the balancing approach to conflict resolution, the Commission must conclude all of the following with respect to the proposed project before it: (1) approval of the project would be inconsistent with at least one of the policies listed in Chapter 3; (2) denial of the project would result in coastal zone effects that are inconsistent with at least one other policy listed in Chapter 3, by allowing continuing degradation of a resource the Commission is charged with protecting and/or enhancing; (3) the project results in tangible resource enhancement over the current state, rather than an improvement over some hypothetical alternative project; (4) the project is fully consistent with the resource enhancement mandate that requires the sort of benefits that the project provides; (5) the benefits of the project are a function of the very essence of the project, rather than an ancillary component appended to the project description in order to “create a conflict; ” and (6) there are no feasible alternatives that would achieve the objectives of the project without violating any Chapter 3 policies.

An example of a project that presented such a conflict is a project approved by the Commission in 1999 involving the placement of fill in a wetland in order to construct a barn atop the fill, and the installation of water pollution control facilities, on a dairy farm in Humboldt County (CDP #1-98-103, O’Neil). In that case, one of the main objectives of the project was to create a more protective refuge for cows during the rainy season. However, another primary objective was to improve water quality by enabling the better management of cow waste. The existing, ongoing use of the site was degrading water quality, and the barn enabled consolidation and containment of manure, thus providing the first of the four necessary components of an effective waste management system. Although the project was inconsistent with Section 30233, which limits allowable fill of wetlands to eight enumerated purposes, the project also enabled the cessation of ongoing resource degradation. The project was fully consistent with Section 30231’s mandate to maintain and restore coastal water quality and offered to tangibly enhance water quality over existing conditions, not just some hypothetical alternative. Thus, denial would have resulted in impacts that would have been inconsistent with Section 30231’s mandate for improved water quality. Moreover, it was the very essence of the project, not an ancillary amenity offered as a trade-off, that was both inconsistent with certain Chapter 3 policies

and yet also provided benefits. Finally, there were no alternatives identified that were both feasible and less environmentally damaging.

iii.) The Proposed Project Presents a Conflict

The Commission finds that the proposed replacement of the septic system and leachfield presents a true conflict between Chapter 3 policies of the Coastal Act. The proposed primary and replacement leachfield involves fill of approximately 3,400 square feet of freshwater wetland. This encroachment into wetlands is inconsistent with Section 30233 of the Coastal Act which requires, among other things, that only specific enumerated uses for filling and dredging be allowed within wetlands. However, to not approve the project would result in significant adverse impacts to water quality and public health that would be inconsistent with the mandate of Section 30231 of the Coastal Act to maintain and restore coastal water quality and biological productivity.

As discussed in section (C)(i) above, the existing failing sewage disposal system causes sewage effluent to be discharged into subsurface water and/or onto the ground surface during a significant period of the year causing degradation of ground and surface water quality and a public health hazard in violation of state and county regulations.

Untreated wastewater discharge from failing septic systems can be the source of a variety of contaminants. Such contaminants can foul receiving waters and make them unsafe for human contact and can also be deleterious to fish and other wildlife. The proposed project would reduce such contamination of ground and surface waters by (1) eliminating the contamination emanating from the existing septic system by replacing and abandoning the existing system, and (2) installing a new system designed for the specific high groundwater conditions of the site including a pretreatment component.

The combination of these measures will eliminate the current contamination problems plaguing the use and operation of the existing septic system. As a result, the quality of groundwater in the vicinity of the existing system and the water quality of the adjacent creek and associated drainages will be improved, maintained, and restored, thereby maintaining and restoring biological productivity and protecting human health consistent with Coastal Act Section 30231.

Although the proposed project is inconsistent with the requirements of Section 30233 that do not allow wetland fill for residential septic systems, the project would enable the cessation of ongoing resource degradation. The project is fully consistent with the mandate of Section 30231 to maintain and restore coastal water quality and is proposed to tangibly enhance water quality over existing conditions, not just some hypothetical alternative. Thus, denial of the project would result in impacts that would be inconsistent with the Section 30231 requirements for protecting and improving water quality and biological productivity. Moreover, it is the very essence of the project, not an ancillary amenity offered as a trade-off, that is both inconsistent with certain Chapter 3 policies

and yet also provides benefits. Finally, as discussed below, there are no alternatives identified that were both feasible and less environmentally damaging.

iv). Alternatives Analysis

As noted above, a true conflict among Chapter 3 policies would not exist if there are feasible alternatives available that are consistent with all of the relevant Chapter 3 policies. Several alternatives have been identified, including (a) the no project alternative, (b) replacing the leachfield in the existing location, and (c) locating the leachfield outside of wetlands. These various alternatives are discussed below.

(a) No Project Alternative

The no project alternative would mean not replacing the existing failing septic system and maintaining the status quo. As discussed above, soils on the subject property and surrounding area become completely saturated during the wet season and impair the soil's ability to absorb and treat sewage effluent. As a result, the existing failing septic system causes sewage effluent to be discharged into subsurface water and/or onto the ground surface during a significant period of the year causing degradation of ground and surface water quality and a public health hazard. According to the DEH, an onsite sewage disposal system which allows sewage effluent to flow or seep onto the ground or into surface/subsurface waters meets both the Regional Water Quality Control Board and DEH definition of a sewage disposal system failure. The use of such a system constitutes a violation of California State Health and Safety code and Humboldt County code. DEH has indicated to Commission staff that the condition of the existing septic system at the subject site is in violation of state and county regulations and necessitates correction.

Untreated wastewater discharge from failing septic systems can be the source of a variety of contaminants. Such contaminants can foul receiving waters and make them unsafe for human contact and can also be deleterious to fish and other wildlife. As discussed above, such contaminants include various kinds of bacteria such as e coli bacteria, ammonia, other nutrients, and parasitic diseases. These contaminants can foul receiving waters and make them unsafe for human contact and can also be deleterious to fish and other wildlife. For example, ammonia can be toxic to wildlife and nutrients can cause an over abundance of algae to develop in receiving waters, resulting in turn in reductions of dissolved oxygen levels which can lead to kills of other organisms that rely on the oxygen in the water to survive.

The no project alternative would perpetuate the degradation of water quality and biological productivity inconsistent with Section 30231 that requires maintenance and improvement of water quality for the protection of biological productivity and human health. Therefore, the no project alternative is not a less environmentally damaging feasible alternative that is consistent with all relevant Chapter 3 policies.

(b) Replacing the Leachfield in the Existing Location

Another alternative would be to utilize the area of the existing leachfield located adjacent to the residential development for the proposed replacement leachfield.

This alternative was investigated by the applicants' engineering consultant and DEH and it was determined that it is not feasible to locate the replacement leachfield in this area for several reasons. First, the soils in this area are not adequate to effectively treat sewage effluent because of the historic long-term use of the area for the existing leachfield, which has reduced the soil's ability to absorb and treat effluent. The applicants' consulting engineer indicated that when designing for a mound system in areas of high groundwater such as the subject site, it is necessary to spread the effluent over the largest possible area to decrease effluent concentration and minimize the risk of system failure. The existing leachfield location does not provide sufficient area to locate a new mound leachfield large enough to effectively absorb the effluent in a manner that would ensure proper functioning of the system. Second, the existing leachfield location provides less separation from the adjacent creek and drainage than the proposed new leachfield site.

Thus, although this alternative would avoid locating the leachfield in wetlands, it would not meet the project objective of improving water quality because (1) the soils in the existing leachfield area are not adequate to effectively absorb the effluent, (2) there is not enough area to create a mound leachfield large enough to minimize the concentration of effluent and decrease the likelihood of system failure, and (3) this location would provide less of a setback between the leachfield and the adjacent coastal waters than the proposed leachfield location.

Therefore, utilizing the area of the existing leachfield located adjacent to the residential development for the proposed replacement leachfield is not a less environmentally damaging feasible alternative.

(c) Locating the Leachfield Outside of Wetlands

Consideration has been given to locating the leachfield in a different location on the property in an area outside of wetlands. Alternative locations for siting a new leachfield are limited by the location and configuration of the existing unnamed creek and associated drainages which border all sides of the southeastern portion of the site. Additionally, the entire undeveloped, relatively flat, southeastern portion of the site constitutes freshwater wetland. The failing existing leachfield and residential development occupies the only other relatively flat area of the property. According to investigations by the applicants' consulting engineer and DEH, the leachfield cannot be located anywhere further west of the existing residential development due to steep slopes and poor soils with high clay content that are unsuitable for leachfield development.

Therefore, locating the leachfield in a different location on the property in an area outside of wetlands is not a less environmentally damaging feasible alternative.

(d) Conclusion

As discussed above, none of the identified alternatives to the proposed project would be both feasible and consistent with all relevant Chapter 3 policies. Therefore, the Commission finds that the project as conditioned is the least environmentally damaging feasible alternative consistent with the alternatives test of Section 30233(a) of the Coastal Act. Furthermore, the Commission finds that a true conflict between the use provisions of Section 30233 and the water quality provisions of Section 30231, as there are no feasible alternatives available that are consistent with both Chapter 3 policies.

(v). Conflict Resolution

After establishing a conflict among Coastal Act policies, Section 30007.5 requires the Commission to resolve the conflict in a manner that is on balance most protective of coastal resources.

In this case, the Commission finds that the impacts on coastal resources from not constructing the project would be more significant than the project's wetland impacts. Denying the project because of its inconsistency with the allowable use provisions Section 30233 would avoid placing fill in wetlands. On the other hand, approving the development of the replacement mound septic system would eliminate the on-going water quality and habitat degradation resulting from the use and operation of the existing septic system. The Commission finds that the improvements to water quality and the elimination of contamination of the area from septic system failure would be more protective of coastal resources than the impacts on wetlands from the new mound septic system.

Furthermore, in this case, the Commission finds that additional wetland mitigation is not required to mitigate for any adverse impacts to the seasonal wetlands. As discussed previously, the proposed location of the mound leachfield is a manicured lawn that is actively mowed and maintained and provides minimal habitat value to wildlife. Although the area supports wetland vegetation due to high groundwater, the primary function of the wetland is to provide flood control and filtration of storm water runoff that drains to the valley from the surrounding hillsides. Installation of the proposed leachfield would involve excavating the native soils and placing sand and other suitable fill material to create the mound. The mound area would be reseeded and would recolonize with vegetation that comprises the surrounding area. Thus, the leachfield would not create an area of impervious surface in a manner that would minimize the flood control and filtration functions of the wetland area.

To ensure that the water quality benefits of the project that would enable the Commission to use the balancing provision of Section 30007.5 are achieved, the Commission attaches Special Condition No. 1, which requires that the septic system be maintained in accordance with applicable standards. Additionally, Special Condition No. 2 requires

implementation of erosion and sedimentation control measures to minimize the impacts of construction on water quality and wetland habitat. The Commission finds that without Special Condition Nos. 1 & 2, the proposed project could not be approved pursuant to Section 30007.5 of the Coastal Act. The Commission further finds that as conditioned, feasible mitigation measures have been provided to minimize adverse environmental effects consistent with Section 30233(a) of the Coastal Act.

F. California Environmental Quality Act

Section 13906 of the California Code of Regulation requires Coastal Commission approval of a coastal development permit application to be supported by findings showing that the application, as modified by any conditions of approval, is consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Public Resources Code Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available, which would significantly lessen any significant effect that the activity may have on the environment.

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

EXHIBITS:

1. Regional Location Map
2. Vicinity Map
3. Site Plan
4. Mound Details
5. Septic Evaluation
6. DEH Correspondence

ATTACHMENT A.

Standard Conditions:

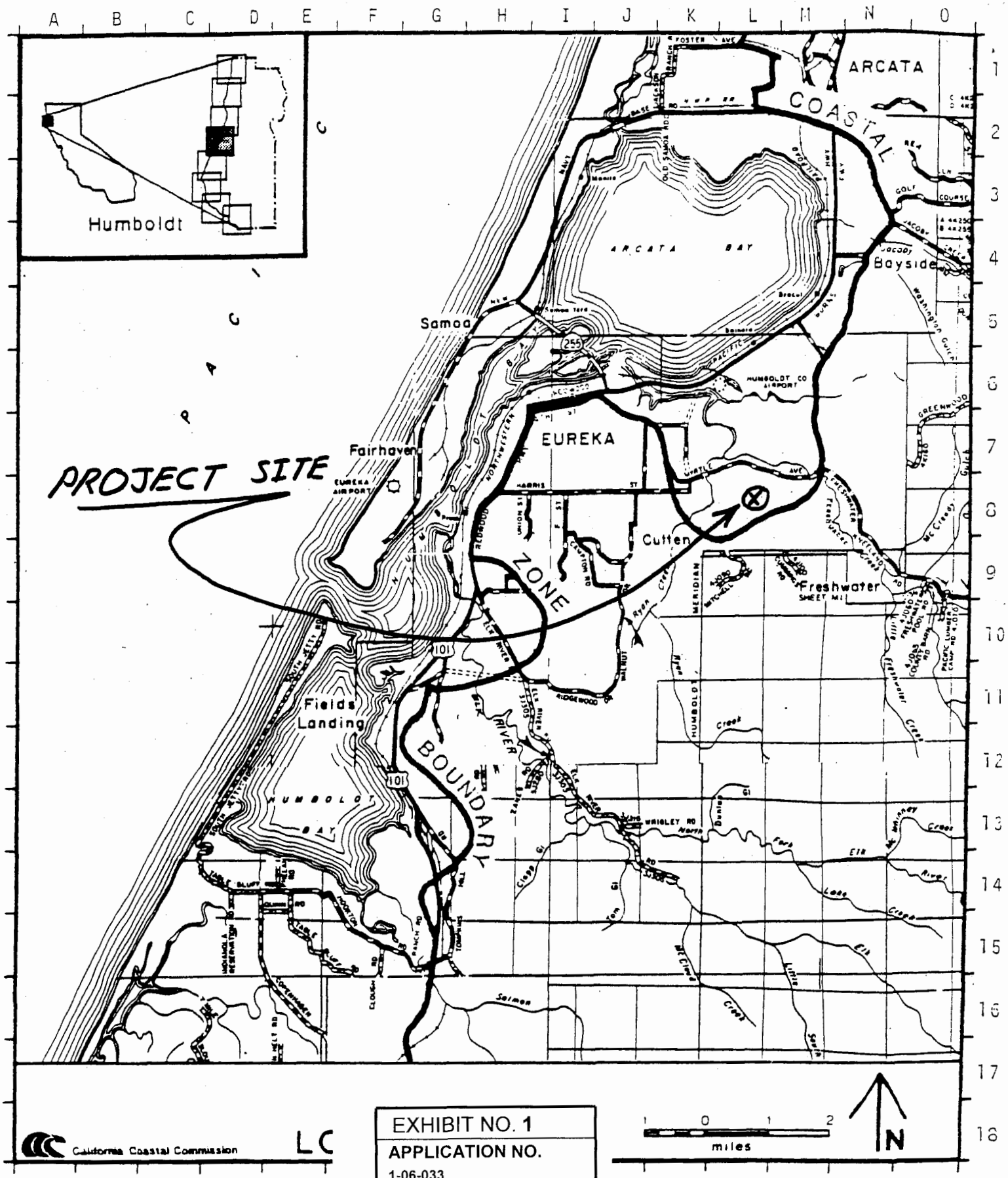
1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

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

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

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



California Coastal Commission LC

EXHIBIT NO. 1

APPLICATION NO.

1-06-033

TILCH

REGIONAL LOCATION MAP

County of Humboldt

Sheet 4 of 8

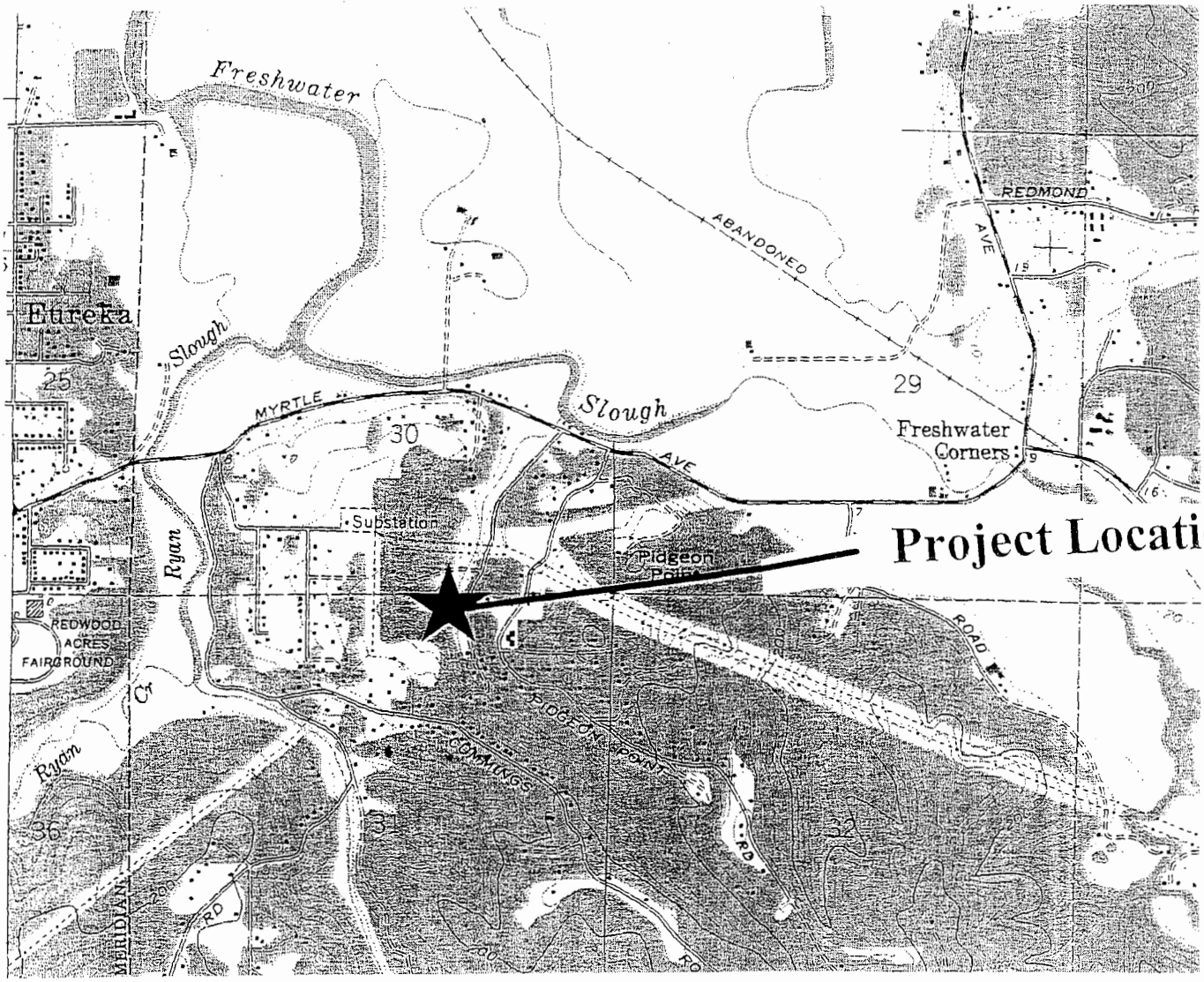


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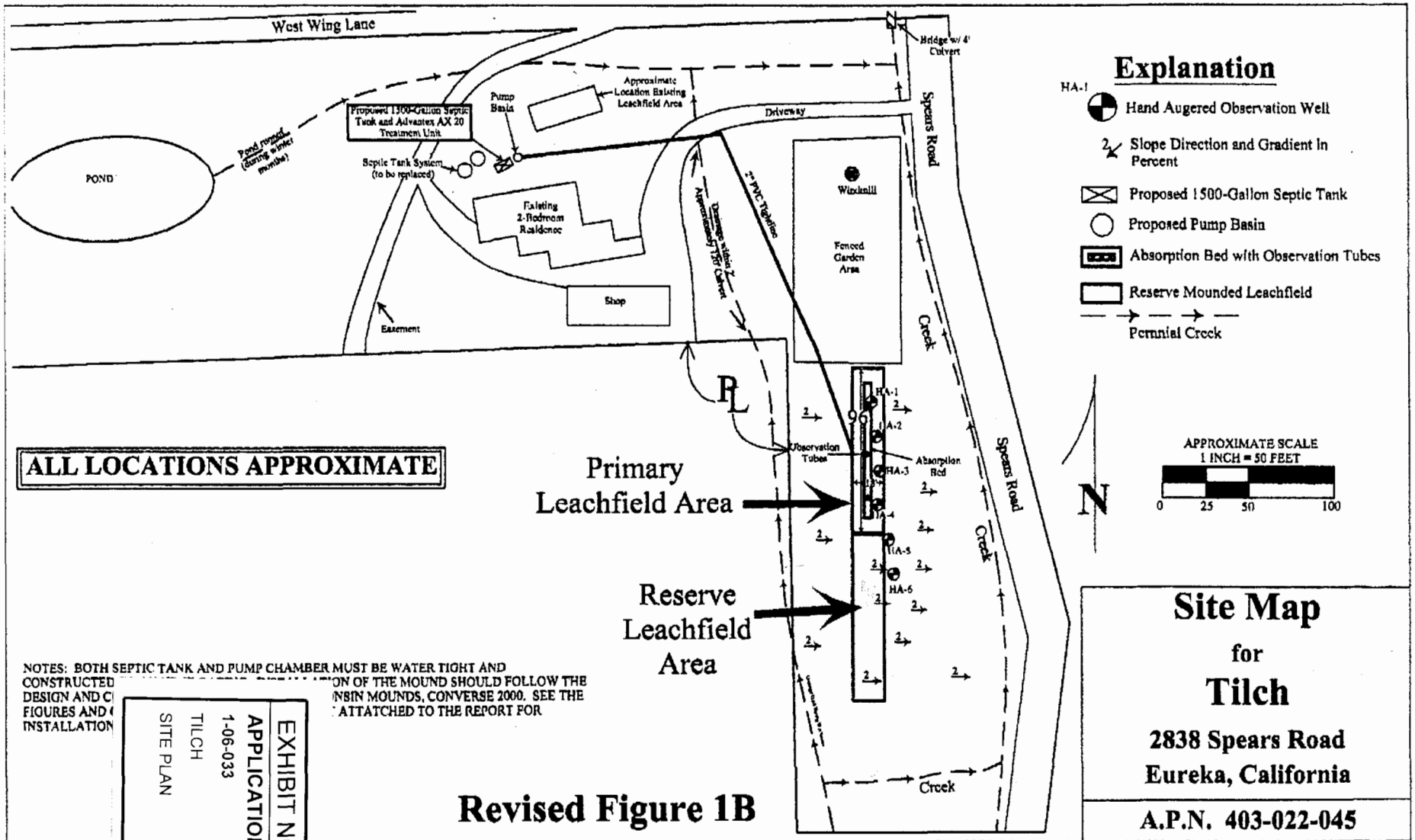
EXHIBIT NO. **2**

APPLICATION NO.

1-06-033

TILCH

VICINITY MAP



NOTES: BOTH SEPTIC TANK AND PUMP CHAMBER MUST BE WATER TIGHT AND CONSTRUCTED ... ON OF THE MOUND SHOULD FOLLOW THE DESIGN AND C... NSIN MOUNDS, CONVERSE 2000. SEE THE FIGURES AND ... ATTATCHED TO THE REPORT FOR INSTALLATION

EXHIBIT NO. 3
APPLICATION NO.
1-06-033
TILCH
SITE PLAN

Revised Figure 1B

Site Map
for
Tilch
2838 Spears Road
Eureka, California

A.P.N. 403-022-045

ONSIT ... EATMENT EVALUATION

SITE MAP PREPARED BY:
T. ZUROWESTE & K. MOLEY, PACIFIC WATERSHED ASSOCIATES, P.O. Box 4433, Arcata, California 95518 Ph: (707) 839-5130, Fx (707) 839- 8168

Feb 2006
July 2004

Figure 1B

DISTRIBUTION SYSTEM OF MOUND

Project Name: Tilch A.P. No.: 403-022-045

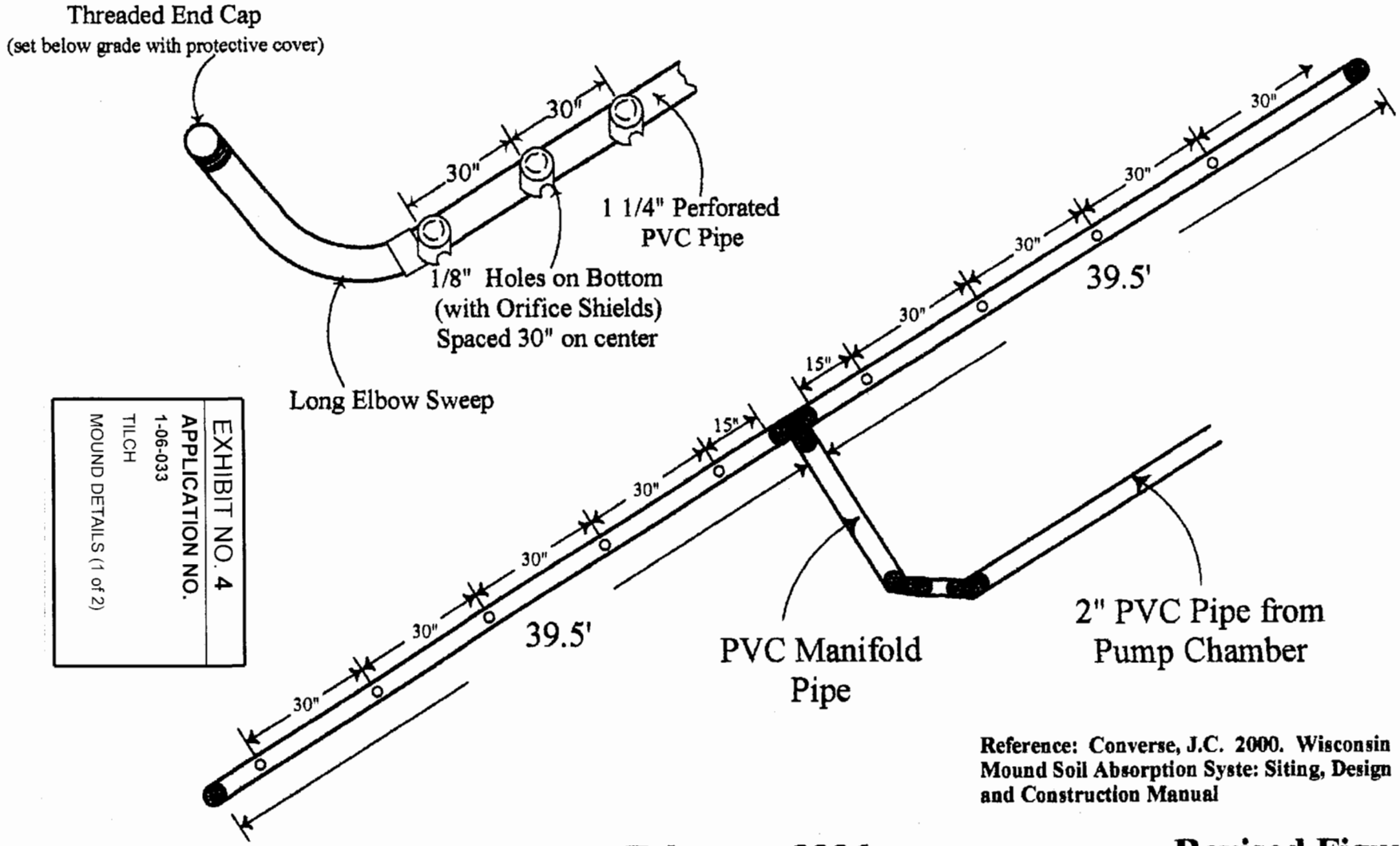


EXHIBIT NO. 4
APPLICATION NO.
1-06-033
TILCH
MOUND DETAILS (1 of 2)

Reference: Converse, J.C. 2000. Wisconsin Mound Soil Absorption Syste: Siting, Design and Construction Manual

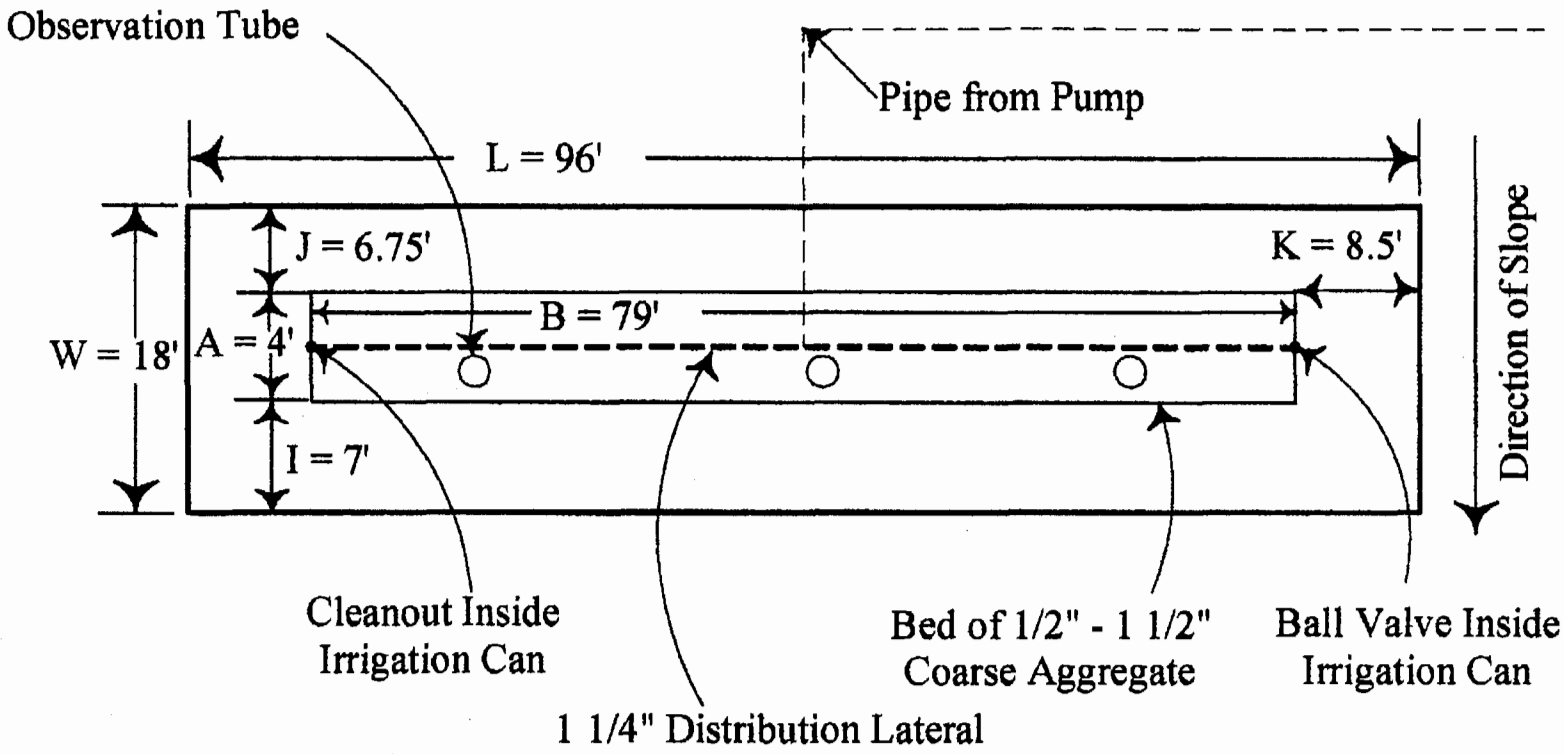
NOT TO SCALE

February 2006

Revised Figure 4

PLAN VIEW OF MOUND

Project Name: Tilch **A.P. No.: 403-022-045**



NOT TO SCALE

Reference: Converse, J.C. 2000. Wisconsin Mound Soil Absorption Syste: Siting, Design and Construction Manual

February 2006

Revised Figure 6

PACIFIC WATERSHED ASSOCIATES

Bill Tilch
2838 Spears Road
Eureka, CA 95503

February 15, 2006

RE: Addendum to Onsite Sewage Treatment Evaluation of A.P. No. 403-022-045, located at 2838 Spears Road, Eureka, Humboldt County, California.

Dear Bill,

INTRODUCTION

This addendum presents a revision of the onsite sewage treatment system design for A.P. No. 403-022-045, located at 2838 Spears Road, Eureka, Humboldt County, California. At your request, the purpose of this addendum is to document a change in system design specifications from the previously designed 2-bedroom onsite wastewater treatment system (OWTS) to one sized for a 3-bedroom system.

We understand that there currently exists a 2-bedroom residence which is served by two older concrete tanks which gravity flow to a leachfield of uncertain size. We also understand that this parcel is served by a public water system. Due to high groundwater on this site as well as the close proximity of streams, the Humboldt County Division of Environmental Health (DEH) will consider a conservative design for this parcel. Additionally, based on the conservative nature of the originally proposed design, we understand that DEH is willing to accept a design for a 3-bedroom residence. This addendum presents a mounded leachfield design with pre-treatment of effluent utilizing Orenco's AdvanTEX^{tm} AX Treatment System.

For the purpose of this OWTS design modification, all specifications for the Orenco's AdvanTEX^{tm} AX Treatment System will remain the same. The changes presented in this addendum reflect the sizing of the mound dimensions. See Revised Site Map (Revised Fig. 1B).

EXHIBIT NO. 5
APPLICATION NO.
1-06-033
TILCH
SEPTIC EVALUATION (1 of 6)

DISCUSSION AND SPECIFICATIONS

Current Humboldt County and State of California regulations do not allow construction of conventional in-ground onsite sewage treatment systems where saturated soil conditions are found in the upper 3 feet of the soil horizon or where less than 3 feet of suitable soils exist below the bottom of the system. A mounded leachfield will allow treatment and dispersal where ground water is 2 feet below the ground surface (Revised Figure 1B). Commonly, groundwater is less than 12-inches below the ground surface during the wet season on this site. To increase the health and safety of groundwater on this site we propose pre-treating effluent before dispersal to a mounded leachfields. Specifically, we propose utilizing the AdvanTEX ™ Treatment System to pre-treat effluent from this 3-bedroom residence prior to dispersal in the mounded leachfield on this property.

Waste Water Load: The size of the system is based on expected daily wastewater load and site characteristics for a 3-bedroom residence. The expected flow for a 3-bedroom residence is 450-gallons per day (gpd).

Septic Tank: Both the Humboldt County DEH and the manufactures of the AdvanTEX™ AX Treatment System require that a 3-bedroom treatment system with pre-treatment using the AdvanTEX™ AX Treatment System utilize a 1500-gallon septic tank. The septic tank and risers must be water tight and heavy enough not to float when empty. PWA recommends that a new 1500-gallon septic tank be installed and that the tank be leak tested both at the manufacture's location and on site. If the septic tank is not water tight this system may overload and fail.

The septic tank must be setback at least 5 feet from building foundations and 10 feet from the leachfield. Risers for tank access should be installed to final grade. An effluent filter should be placed at the outlet side of the septic tank.

Pump Basin: Once effluent has been treated it will gravity flow into the pump basin. The pump basin must be water tight. If the pump basin is not water tight, then leakage into the pump basin, because of high water conditions in the wet season on this site, will result in system overloading and failure. The dosing volume should be 30-gallons per dose or at least five times the lateral void volume within the mounded leachfield, whichever is greater. The pump basin should be equipped with proper switches, inlets, outlets, pump pedestal, vents, overflow alarm, and must be able to provide the necessary dose volume. Ample weight should be placed in the pump basin to prevent the vault from floating in case of excessively high water table conditions. See Figure 3 of original report for Pump basin construction.

Pump, Pump Control, and Alarm Panel: Using manufacturer's Pump Selection Curve, we recommend utilizing an Orenco® P300511 or equivalent half horse pump which best matches the required flow rate at the calculated total dynamic head. See the pump performance curve attached for details on parameters and calculations. A pump test should be conducted while the

laterals are exposed to ensure a minimum 3 feet of head is achieved at the distal ends of the laterals. Select pump controls that provide flexibility in adjusting the on and off depth in each dosing chamber. The control box should be equipped with an elapsed time meter and dose counter. Use mercury control switches if possible. They are the most reliable and trouble free. Electrical controls should be placed outside the dosing chamber if possible. An overflow or high-water alarm should be located inside the residence or other observable location.

MOUND SYSTEM DESIGN

Design of the Disposal System: A mounded distribution system is proposed for this site. Since a mound system is planned, the proposed system can be a single field design. Based on the most limiting soil texture, a clay loam, a maximum loading rate of 0.4 gpd/ft^2 is used for this site. By pre-treating effluent, current DEH policy allows for a 30% reduction of the absorption bed.

Distribution Piping System: Uniform distribution in the mound is important. Piping should be constructed as shown in the pipe distribution detail on Revised Figure 4. Each 1 ¼ -inch diameter PVC lateral will be 39.5 feet in length. Clean-outs should be installed at the end of each lateral. 1/8-inch perforations will be on 30-inch centers as shown in perforated pipe detail on Revised Figure 4. Make sure plumbing from pump into manifold does not act as a conduit for water.

Dimensions of the Mound: The dimensions of the mound are based on the quantity of wastewater generated by the proposed residence and site conditions. As indicated above, the design flow rate (DFR) for a 3-bedroom residence is 450 gpd. The site conditions include the soil profile, soil loading rate and the slope gradient. Design and size of the mound incorporates estimating the sand fill loading rate, the soil (basal) loading rate, and the linear loading rate.

SAND FILL LOADING RATE AND FILL SPECIFICATIONS: The purpose of sand fill, in combination with natural surface soils, is to adequately treat the effluent. The sand fill loading rate is based on the quality and type of fill material placed on the native soil and under the aggregate mound bed. According to the mound design and construction manual, the sand fill must meet specific guidelines based on sieve analysis (Fig. 5). The total sample contains 20 percent or less material larger than 2.0 mm and 5 percent or less material finer than 0.053 mm (silt and clay). Use sand with an effective diameter of 0.15 to 0.3 and a uniformity coefficient between 4 and 6. The sand fill must be approved by the Health Department prior to installation. The recommended design sand loading rate (SLR) for a sand fill meeting the above guidelines is 1.0 gpd/ft^2 for typical residential effluent.

SOIL (BASAL) LOADING RATE: The soil basal loading rate (BLR) for the basal area is dependent on the soil properties of the soil horizon in contact with the basal area of the mound. For a loam with a weak to moderate structure, we recommend using a loading rate 0.4 gpd/ft^2. Therefore, a loading rate 0.4 gpd/ft^2 was used for this design.

LINEAR LOADING RATE: The linear loading rate (LLR) is the amount of effluent applied per day per linear foot of the system and is a function of the effluent movement rate and direction (horizontal vs. vertical) of movement away from the system. Groundwater after a storm event is high on this site, and effluent movement is estimated to have a moderate to slow degree of vertical movement. Therefore the linear loading rate is estimated to be 4 gpd/lf.

Design of the Wisconsin Mound Soil Absorption System: According to the Wisconsin Mound Soil Absorption System Siting, Design and Construction Manual (Converse and Tyler, 2000), the calculations for dimensioning the mound for this site are presented below.

Absorption Area Width (A): A = LLR/SLR = 4 gpd/lf / 1.0 gpd/ft^2 = 4 ft

Absorption Area Length (B): B = DFR/LLR = 450 gpd / 4 gpd/lf = 112.5 ft*

Due to the pre-treatment of effluent, current DEH allow for a 30% reduction in length for the mounded leachfield on this site. Therefore:

*Absorption Area Length (B): B = DFR/LLR = 450 gpd / 4 gpd/lf = 112.5 ft x 0.7 = 79 ft
79 feet of absorption area length will be required, B = 79 ft.

Basal Width (A+I): Basal width includes the absorption area width (A) plus the downslope width (I) (see Figure 4) LLR / BLR = 4 gpd/lf / 0.4 gpd/ft^2 = 10 ft.

Since A = 4 ft, then I = 6 ft. However, I can be calculated two ways. The I used in the final design should be the larger of the two values. See Revised Figure 6 for absorption bed dimensions.

Mound Fill Depth (D, E, F, G and H): Refer to Original Figure 7 for the mound depths indicated on the mound cross-section. Mound fill depth (D) is determined by depth of suitable soil to a limiting condition such as high water table or impermeable soil. On this site, the limiting condition is high groundwater as measured after significant storm events. Code requires 3 feet of separation. In order to provide protection to groundwater on this site, a fill depth (D) of 12" is suggested on this site. D = 12"

Fill depth (E) is the depth of fill on the downslope side of the absorption area and depends on the natural slope gradient. The slope on the site is approximately 2%. E = D + 0.02(A) = 12" + 0.02(4'). E = 12.96" or 13"

Fill depth (F) is the aggregate depth which includes 6" below pipe plus 1" for the pipe plus 2" above pipe for a total of 9". F = 9"

Fill depths (G) and (H) for this climate is recommended by the mound manual to be 6" and 12" respectively. G = 6" and H = 12"

4 of 6

Upslope Width of Mound (J): Width (J) = 3(D+F+G) = 3(12"+9"+6") = 6.75 ft

End Slope (K): (K) = 3((D+E)/2+F+H) = 3((12"+13")/2"+9"+12") = 8.37 or 8.5 ft

Downslope Width (I): Width (I) = 3(E+F+G) = 3(13"+9"+6")= 7 ft
Based on basal width calculations above, I will be 7 feet.

Overall Length (L): Length (L) = B+2K =79' + 2(8.5') = 96 ft

Overall Width (W): Width (W) = A+I+J = 4+7' +6.75' = 17.75 or 18 ft

Overall Mound Dimensions: For this site, the mound height will be approximately 3.25 feet. The mound width will be 18 feet and the mound length will be 96 feet. See Revised Figures 6 and Original Figure 7 attached.

Gravel Drainage Bed: The bed must be located as close as possible to the contour of the slope and the bottom of the bed must be level. In this case, the bed width will be 4 feet and the bed length will be 79 feet. See "Plan View of Mound", Revised Figure 6. The bed depth will be 9-inches with a minimum of 6-inches of aggregate below the pipe and 2-inches of aggregate over the distribution pipe. Clean durable ½-inch to 1 ½-inch drainrock should be used. See "Cross-Section of Mound", Original Figure 7.

Cap and Top Soil: The capping fill above the gravel bed should be a fine grained fertile soil. Sands are not preferred, as they allow more infiltration into the absorption area. The cap can be the same as the topsoil used to cover the entire mound. A good quality topsoil should be placed at least 6-inches deep over the entire mound to promote vegetation cover. See Figure 7 for cap fill and topsoil cover depth.

Observation Tubes: Observation Tubes are installed from the aggregate/sand interface to or above the mound surface for the monitoring of possible ponding at the infiltrative surface. The tubes should be 3-inch or 4-inch plastic pipe (or equivalent) and equipped with a locking removable cap or screw-on type cap. The tubes must be anchored securely. Place the tubes at 1/6, ½ and 5/6 points along the length of the absorption area (Figures 6 & 7).

Mound Construction Procedures: For mound construction procedures see "Mound Construction Techniques" attached. The construction of the mound disposal system must conform to current Humboldt County Health Department sewage disposal regulations. This system is based on the "Design and Construction Manual for Wisconsin Mounds" by J.C. Converse, 1978 and "Wisconsin Mound Soil Absorption System Siting, Design and Construction Manual" by Converse and Tyler, 2000.

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LIMITATIONS

The project site was evaluated in accordance with Humboldt County Health Department and the California Water Quality Control Board regulations and standards. Investigations and treatment system design presented in this report are based on inherently limited field data. Subsurface conditions, shown on the Subsurface Exploration Logs attached, apply only at the specific excavation location and at the date indicated and is not warranted to be representative of subsurface conditions at other locations at other times.

Evaluation and design are based on technical information available today. Furthermore, there is no guarantee that this system will work or continue to work since the performance of all onsite sewage treatment systems depends on a variety of factors that include: amount and frequency of effluent discharge; composition of effluent; site conditions (soil, slope, drainage, vegetation, etc); climate; system design; proper installation of the system; user habits and system maintenance; and age of system. The onsite wastewater design presented in this report will require maintenance by a qualified individual with knowledge of the treatment system. The Humboldt County Health Department will grant final approval of the suitability of the information, leachfield design, and interpretations provided in this report.

If you have any questions regarding the information provided in this report, or need further assistance, please contact us.

Sincerely,

PACIFIC WATERSHED ASSOCIATES

Kathy Moley
Professional Geologist #7594

Enclosures

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Humboldt County Department of Health and Human Services
DIVISION OF ENVIRONMENTAL HEALTH
100 H Street - Suite 100 - Eureka, CA 95501
Voice: 707-445-6215 - Fax: 707-441-5699 - Toll Free: 800-963-9241
envhealth@co.humboldt.ca.us

July 26, 2006

Tiffany Tauber
California Coastal District Office
PO Box 4908
Eureka, CA 95502-4908

RE: Onsite Sewage Disposal System Repair/Replacement at:
2838 Spears Rd., Eureka, CA; A.P. # 403-022-045

Dear Ms. Tauber

An onsite sewage disposal system which allows sewage effluent to flow or seep onto the ground or into surface/subsurface waters meets both the Regional Water Quality Control Board and Humboldt County Division of Environmental Health (DEH) definition of a sewage disposal system failure. The use of such a system constitutes a violation of California State Health and Safety code and Humboldt County Code.

The existing sewage disposal system serving the Tilch residence (A.P. # 403-022-045) is one of many antiquated systems in Humboldt County which was installed prior to current regulations (established in 1980). Often the installation of these systems did not take into consideration groundwater levels. Also, many of these systems, including the system serving the Tilch residence, were installed in what is now designated as a "Waiver Prohibition" area. This designation was made by the Regional Water Quality Control Board for specific areas in which discharges from onsite sewage disposal systems are resulting in or threatening to result in health hazards or water quality impairment.

The sewage disposal system currently in use at the Tilch residence causes sewage effluent to be discharged into subsurface water or onto the ground surface during a significant period of the year. Soils on the Tilch property (A.P. # 403-022-045 & 46) and many surrounding areas become completely saturated during the wet season. This saturated condition has been well documented by the Division of Environmental Health having monitored groundwater levels on the Tilch property and many other neighboring properties over the past several years. Saturated soils are unable to absorb and treat sewage effluent. This results in sewage discharge onto the ground or into groundwater causing degradation of ground/surface water quality and a health hazard. As stated previously, such conditions are in violation of California Health and Safety code and Humboldt County code and necessitate correction.

It is not the normal practice of the Division of Environmental Health to seek out substandard failing sewage disposal systems. Many such systems are brought to the attention of this office

by various means. When the Division of Environmental Health learns of a failing onsite sewage disposal system property owners are required to obtain "repair" permits through this office and take corrective action. In some cases a legal process must be initiated to achieve required system corrections however, it is always preferable to work with cooperative property owners.

The Humboldt County Division of Environmental Health recognizes there are existing developed parcels of land which due to limitations in size, unsuitable soils, and/or high groundwater cannot accommodate an onsite sewage disposal system meeting current standards. In such cases the "repair" permit issued from this office allows system corrections to be made which conform as near as possible to current standards.

The primary goal of the Division of Environmental Health is eliminating potential health hazards and protecting water quality. After completing a review of the sewage disposal system design proposal (prepared by Pacific Watershed Associates) for the Tilch residence, this office has concluded that the proposed location of the system is optimal for achieving this goal and correcting an existing violation.

If you have any questions regarding this matter please contact me at (707) 268-2209.

David Spinosa, Senior Environmental Health Specialist
Land Use Program

cc: Bill Tilch 2838 Spears Rd., Eureka, CA 95501

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