

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF DECEMBER 4-5, 2008

Prepared on November 6, 2008

ITEM NUMBER: 26

SUBJECT: Waiver of Waste Discharge Requirements for Engineered Onsite Disposal System, Moeller Residence, 194 San Remo Road, Carmel, Monterey County, Resolution No. R3-2008-0061

KEY INFORMATION

Location: 194 San Remo Road, Carmel Highlands, Monterey County
Lot Size & Type: Approximately 0.85 acre; Residential
Type of Discharge: Treated domestic wastewater
Type of Treatment: Secondary via package filtration system with ultraviolet disinfection
Disposal Method: Primary drip dispersal area and secondary shallow pressurized trenches
Design Flow: 450 gallons per day (gpd) - average and 900 gpd - peak daily
Land Owner/Discharger: Michael Moeller
Local Oversight Agency: Monterey County Department of Health

This Action: Adopt Resolution No. R3-2008-0061 for Waiver of Waste Discharge Requirements

SUMMARY

The proposed Resolution (Attachment 1) is a Waiver of Waste Discharge Requirements for an engineered (or advanced treatment) onsite domestic wastewater treatment and disposal system for a residential lot located in the Carmel Highlands at 194 San Remo Road. The residential lot is within the Carmel Riviera Mutual Water Company service area and an onsite domestic water supply well is therefore not required for the development of the lot.

An engineered system is being proposed to replace a conventional system design previously approved by the County of Monterey. The engineered system is being proposed in response to the concerns of neighboring property owners. The proposed project is not subject to Monterey County Ordinance No. 5086 and No. 5093 [which limits the number of new projects that impact septic density in the Carmel Highlands] because the standard system design was approved by Monterey County prior to the adoption of these ordinances. This issue is clarified in a June 30, 2008, Monterey County letter (Attachment 2). The Discharger is also seeking approval for a project on the adjacent lot at 192 San Remo Road which is subject to Ordinance No. 5086 and No. 5093. The proposed project at 192 San Remo Road is being addressed under a separate action/agenda item regarding Resolution No. R3-2008-0060.

The proposed system consists of an advanced treatment system with ultraviolet disinfection and subsurface drip irrigation as the primary disposal system. A secondary backup disposal system, superimposed on the primary disposal system area, is also being proposed pursuant to county

requirements that consists of shallow pressurized rock-filled dispersal trenches. Both disposal systems are designed to handle 100% of the design flow from the proposed residence.

The subject property and proposed system design meet or exceed all applicable Basin Plan numeric criteria for siting a conventional "septic system" with the exception of variances from the recommended "System Design" criteria for disposal system loading rate for the secondary disposal system and recommended "Site Suitability" criteria for setback distances from cuts (retaining wall, swale and foundation footing). These issues are discussed in further detail within the Comments & Changes section of this staff report and the findings of the proposed Resolution.

The Basin Plan and existing July 1979 Memorandum of Understanding between the County of Monterey and Water Board prohibit the county from approving engineered onsite wastewater systems. The engineered system and variances from Basin Plan recommended criteria require a Basin Plan exemption. Water Board staff reviewed the Discharger's application and approved the Basin Plan exemption for the loading criteria in a letter dated July 21, 2008 (Attachment 3). Water Board staff identified the additional excursions from the recommended setback criteria in follow-up review of the project based on comments received. Adoption of the proposed Resolution will act as the Basin Plan exemption for this deviation from the criteria. Pursuant to Water Code Section 13269, the waiver policy that formerly covered onsite wastewater systems sunsetted on January 1, 2003. Consequently, a waiver of waste discharge requirements is also required along with the Basin Plan exemption. The July 21, 2008 letter served as the public notification for the proposed Resolution.

The hearing date for the proposed Resolution was originally scheduled for October 16-17, 2008 in Santa Barbara. Due to the large number of comment letters (Attachments 4-9) from neighboring property owners [or agents thereof] concerned about various aspects of the project, the public comment period was extended to September 30, 2008 and the public hearing was rescheduled for December 4-5, 2008 in San Luis Obispo to provide for the project applicant and opponents to attend the hearing (Attachment 10).

If the proposed onsite disposal system is properly operated and maintained in accordance with Monterey County ordinances and permit conditions and the conditions of this Resolution, a waiver of waste discharge requirements is in the public interest and is consistent with applicable water quality control plans, including the Water Quality Control Plan, Central Coast Region.

Conditions of the proposed Resolution are primarily based on the Basin Plan and nonstandard Monterey County permit conditions attached to the proposed Resolution. The nonstandard county permit conditions consist of operations and maintenance contract and deed notification requirements for the advanced treatment system.

The findings of the proposed Resolution and *Comments & Changes* discussion below contain more detailed information regarding the proposed project.

COMMENTS & CHANGES

The substantive comments contained within the letters presented as Attachments 4 through 9 that are germane to the proposed Resolution and Water Board authority are generally consistent with each other and pertain to the following issues:

- Density
- Treatment system design
- Siting of disposal systems on or adjacent to steep slopes

- Disposal system design
- Cut and fill slopes and subsurface drainage systems in the vicinity of the proposed disposal area
- Geology
- Ongoing maintenance and inspection
- Third party review

All of the submitted letters contained comments regarding a tentative lot line adjustment for the subject property. Although not within Water Board authority, a discussion regarding the tentative lot line adjustment is also included below for clarification purposes.

The project applicant's agent submitted a package of documents responding to most of the issues contained within the project opponent's comment letters (Attachment 11). A follow-up slope stability evaluation report was also provided by the project applicant (Attachment 12). Two letters from Monterey County are also attached (Attachments 13 and 14) that address various issues as outlined above.

In lieu of addressing each letter individually comment-by-comment, staff is presenting the following synopsis and discussion of each of the identified issues outlined above in an effort to avoid redundant discussions and responses.

Water Board staff will not attempt to address access, traffic, easement, landscaping or surface drainage concerns contained within the comment letters because they are within the purview of the local permitting authority and not that of the Water Board (unless they specifically impact the ability of the proposed onsite wastewater system to operate safely).

Lot line adjustment

The project application is for a residential lot based on a tentative lot line adjustment (LLA) for two adjacent lots owned by the project applicants, Michael and Patricia Moeller. The proposed LLA consists of an equal exchange of land between the two existing legal residential lots of record (i.e., lot sizes would remain exactly the same). The proposed LLA would change the existing north - south lot configuration to one that divides the aggregate area of the two lots into east - west oriented lots (with the property line between them running north and south). The proposed LLA requires a Coastal Development Permit subject to California Coastal Commission appeal pursuant to Monterey County's Local Coastal Plan. A LLA for the two properties was originally referred to the Carmel Highlands Land Use Advisory Committee for review on April 5, 2004 and the new single family residence for the proposed project at 194 San Remo Road was approved April 19, 2005 on appeal to the Monterey County Board of Supervisors. The LLA was later appealed to the CCC in August 2005 due to concerns regarding emergency access and how development on the proposed lots would impact slopes and vegetation. The Coastal Commission subsequently approved the single family residence at 194 San Remo Road but removed the LLA from the Coastal Development Permit pending further review of the access, slope and vegetation issues for the adjacent lot at 192 San Remo Road. A new application for a Coastal Development Permit consisting of a proposed single family residence on the lot at 192 San Remo Road and revised LLA was submitted on April 13, 2006, that is currently under review by the county pending Water Board approval of the proposed resolution [for an onsite wastewater disposal system] for the single family residence at 192 San Remo Road.

The project opponents question the legality of the proposed LLA pursuant to the Subdivision Map Act, how the Water Board could approve an onsite wastewater system for a lot that does not currently exist, and raise some of the same issues that were the basis for the Coastal Commission appeal of the original LLA proposed in 2004.

A discussion of the legality of the proposed LLA is not relevant to the Water Board's authority as this issue is subject to the oversight of the Coastal Commission and Monterey County Planning Department pursuant to the Local Coastal Plan. Regardless, Monterey County Planning Department staff response to this issue contained within Attachment 11 indicates the proposed LLA is exempt from discretionary review pursuant to the Subdivision Map Act and is consistent with the Local Coastal Plan. Water Board approval of the proposed Resolution has no bearing on the proposed LLA because the configuration of the residence [currently under construction] and proposed onsite wastewater system fit both the existing and proposed lot configurations for 194 San Remo Road. In addition, Monterey County is withholding final review and approval of the revised LLA, as well as other permits for the contiguous lot owned by the project applicants at 192 San Remo Road, pending Water Board approval of a separate proposed resolution [No. R3-2008-0060] for the onsite system at 192 San Remo Road. Based on oral communication with Monterey County staff, the proposed LLA sufficiently addresses the issues that were the basis for the Coastal Commission appeal of the former LLA as would be required for it to warrant a Coastal Development Permit. According to the written comments provided by Monterey County (Attachments 13 and 14) and as documented within Agenda Item No. 2 for a May 8, 2008, Monterey County Minor Subdivision Committee meeting (Attachment 15), the proposed LLA configuration provides for reduced development on slopes which is more consistent with Local Coastal Plan policies and provides for more suitable areas for onsite wastewater disposal. Water Board staff is in agreement with this determination based on visual inspection of available documents showing the existing and proposed lot configurations with regard to site topography and proposed locations of the single family residences and onsite wastewater disposal systems. In addition, the Coastal Commission appeal action on the first home [at 194 San Remo Road] included a condition recognizing there would be a home on the second lot [at 192 San Remo Road] and limiting that home to three bedrooms due to onsite wastewater system limitations. Consequently, the pending Coastal Development Permit consists of a revised LLA and three bedroom single family dwelling for the 192 San Remo Road property.

Density

The Basin Plan and Monterey County Ordinance prohibit siting onsite wastewater disposal systems on new divisions of land of less than one acre. Consequently, some of the project opponents are claiming the property is a substandard lot of less than one acre that is not entitled to development via an onsite wastewater disposal system. Although the subject parcel in question is only approximately 0.85 acres for both the existing lot configuration and proposed LLA, it is an existing lot of record and is therefore not subject to these requirements because it is a legal lot entitled to the development of a single family residence pursuant to the Local Coastal Plan. Development of the parcel is dependent on the implementation of an onsite wastewater treatment and disposal system because it is not within a sewer service area or within a reasonable distance to one. As evidenced by the recent adoption of Monterey County Ordinance No. 5086 and No. 5093, onsite wastewater disposal system density, particularly in conjunction with high domestic well densities, is a significant concern for the Carmel Highlands area. However, the Water Board cannot deny this project based on density concerns alone because it is an existing lot of record. Furthermore, as noted previously the lot is within the Carmel Riviera Mutual Water Company service area.

Treatment system design

A number of the project opponents expressed concern regarding the viability of the proposed treatment system. One of the comment letters in particular (Attachment 6), claims the proposed engineered onsite wastewater treatment disposal system is "a cutting edge experimental, unproven and not an adequately tested design." Contrary to this belief, the treatment system being proposed has been approved by the National Sanitation Foundation pursuant to rigorous testing and is being successfully implemented for residential, municipal and commercial applications throughout

California and the United States as well as in Canada, Australia, New Zealand and parts of Europe. The proposed treatment system has been designed, tested and manufactured by one of the largest and most reputable suppliers of onsite wastewater systems in the country, Orenco Systems Incorporated. The proposed system has repeatedly been shown to provide consistent and reliable treatment that approaches tertiary levels. Notwithstanding the viability and proven track record of the proposed system, short-term failure of the treatment system would likely only result in the subsurface discharge of domestic wastewater consistent with the conventional septic tank effluent currently being discharged by the majority of the existing residences in the Carmel Highlands area. Prolonged failure would also be consistent with that of a prolonged failure of a conventional septic system resulting in surfacing effluent or the back up of sewage within the residence it serves.

The same project opponent suggests (Attachment 6) that a back up power generator should be required to support the electrical treatment and disposal system components during potential power outages. The proposed treatment system has over 13 hours of excess storage capacity in the event of a power failure based on the average design flow rate of 450 gallons per day. The design average daily flow of 450 gallons per day for the proposed system is a very conservative [high] number for the proposed three bedroom single family residence that is currently under construction. Based on published values (Metcalf and Eddy, 3rd Edition) for typical water use in the United States¹, average daily per capita domestic water use is 60 gallons. Assuming one person per bedroom, this would equate to an average daily wastewater flow of 180 gallons per day and over 33 hours of excess storage capacity during a power outage. It should be noted that the published numbers used in this example have likely decreased due to the advent of water conserving plumbing fixtures and appliances since these numbers were developed. Please note that paragraph 1.i of the proposed Resolution requires:

The Discharger shall install and use low flow plumbing fixtures on all appurtenances such as toilets, showers and faucets. Low flow dishwashers and frontloading clothes washing machines are also strongly recommended.

Although the Carmel Highlands area is subject to strong coastal winds and storms, electrical service within the Carmel Highlands is underground and therefore less subject to frequent or prolonged power interruptions due to downed lines and poles as a result of strong winds, fallen trees or automobile accidents. Electrical service to the Carmel Highlands area via overhead power lines along the Coast Highway is subject to downed lines, but will generally be responded to in a more timely manner because of the larger service area.

In addition, the proposed system includes a web-based telemetry monitoring system that will alert [via phone line] the service provider (see discussion below regarding *ongoing maintenance and inspection*) when the power goes on or off. Prolonged power outages will result in the service provider either 1) calling the home owner for them to schedule a pumping event, 2) scheduling a pumping event with a local septic pumping contractor on the behalf of the home owner, or 3) scheduling a pumping event (one of the local service providers is Peninsula Septic Tank Service, which is the primary septic pumping company in the area).

Based on the above discussion, requiring a back up generator for the proposed system is not reasonable given power outages will not likely cause an overflow event from the onsite wastewater treatment and disposal system.

Siting of disposal systems on or adjacent to steep slopes

¹ U.S. Department of Housing and Urban Development: Residential Water Conservation Projects, Summary Report, June 1984.

The Basin Plan prohibits siting onsite wastewater disposal areas on slopes exceeding 30% and recommends against siting them on slopes exceeding 20%. In addition, the Basin Plan also recommends establishing appropriate setbacks from disposal areas to slopes exceeding 30%.

The proposed disposal areas are cited on portions of the property with slopes approaching 18%. This meets the recommended Basin Plan criteria and prohibitions for siting disposal systems on slopes. Staff evaluated the recommended setback distance from the disposal areas to the natural slopes in excess of 30% using the analysis outlined in Section VIII.D.3.a.4 of the Basin Plan. Staff did this evaluation in two transects starting at the proposed disposal areas, one to the north-northwest and one to the west in the direction of the natural slopes. Staff conducted this analysis for both the primary and secondary disposal systems. The primary and secondary disposal system setbacks from slopes of 30% or greater are approximately 85 feet and greater than 95 feet, respectively, along the north-northwest transect. In the westerly direction, the primary and secondary disposal systems are approximately 93 feet and 113 feet from slopes exceeding 30%, respectively. In some cases the disposal areas are located slightly less than the Basin Plan recommended setback criteria of 100 feet from the steep slopes. However, these setbacks are more than sufficient because the proposed disposal systems are designed to mitigate localized loading and saturated subsurface soil conditions generally consistent with conventional disposal system designs. Deep and localized gravel filled leachfield trenches or seepage pits, that under certain conditions are more likely to impact slope stability or result in daylighting effluent on adjacent slopes, have historically been utilized to address a lack of available site area and slope setback constraints in the Carmel Highlands. These types of conventional disposal systems could have been applied for the proposed project (note: the county formerly approved a conventional septic tank and deeper gravel filled trenches for this project). The proposed disposal systems are shallower and spread out over a larger area. This will accomplish three primary objectives. The first is to increase the vertical separation between the bottom of the disposal systems to any impervious layers, fractured granite or groundwater. Note: vertical separation is not an issue for this project with regard to Basin Plan prohibitions or recommended criteria based on the provided site geology. The second is to increase the amount of soil treatment because of the increased depth of the soil column beneath the disposal system and the presence of a more active biological consortium within the first couple feet of the soil column near the ground surface. This is something of a moot point given the high level of treatment the effluent will undergo prior to disposal. The third, and most relevant mitigating effect with regard to this discussion, is to decrease the hydraulic loading rate per square foot area into the subsurface by spreading the effluent out over a larger area and increasing the amount of evapotranspiration [of the effluent] near the ground surface. The proposed disposal systems should therefore sufficiently mitigate any potential slope stability or daylighting effluent issues associated with locating them on or adjacent to steep slopes.

In addition, the project applicant hired a geotechnical engineering firm to conduct a slope stability evaluation (Attachment 12) in response to a Water Board staff's request for the proposed project on the adjacent lot at 192 San Remo Road. The subsurface geology of the [proposed] 192 San Remo Road lot is very similar to that of the subject property at 194 San Remo Road as noted in the report. The proposed project at 192 San Remo Road is much more constrained because the disposal area slopes approach 28% and setbacks to slopes exceeding 30% are only between approximately 10 feet to 25 feet. The slope stability evaluation for the 192 San Remo Road project indicates "there is a low probability that the proposed septic system, if properly designed, constructed, and operated, will induce slope instability." The project applicant's geotechnical engineering firm subsequently submitted an October 30, 2008 addendum to the slope stability evaluation making the same determination for the subject site (Attachment 16).

Disposal system design

One of the comment letters (Attachment 9) questions the ability of the engineered system to perform under worst case conditions without any specific points as to what would constitute a worst case condition. Water Board staff assumes this comment is related to a other statements in the letter and the attached annotated comments for the proposed Resolution regarding what influence heavy rainfall would have on the [disposal] system.

The project applicant's treatment system designer, Andrew Brownstone of Biosphere Consulting Inc., specifically addressed this comment in his September 25, 2008 letter regarding: *Results of Additional Soil Testing and Discussion of Potential Influence of Rainfall*, provided as Exhibit B of Attachment 10 to this staff report. Mr. Brownstone's response indicates rainfall events will not affect the functionality of the system or result in surfacing effluent based on four points. First, the proposed system is watertight and equipped with both onsite and telemetric alarm systems that would alert any surface or groundwater infiltration into the treatment system. Second, the nature of the site soils and topography do not promote accelerated infiltrative recharge because most of the rainfall would sheet-flow off of the site due to the slopes and based on USDA empirical maximum rainfall percolation rates for observed site soil and vegetation conditions (i.e., heavy rainfall would not inundate the disposal area soils and result in surfacing effluent). Third, the limited amount of rainfall that does infiltrate the surface soils and percolate through the disposal area will help flush the effluent vertically downward through the shallow soils and dilute it. Lastly, similar applications of these types of shallow disposal system have been shown to function properly under similar site conditions under heavy rainfall. Water Board staff concurs with Mr. Brownstone's response as outlined above and also agrees the proposed disposal systems are based on a combination of site specific data and conservative design assumptions that provide sufficient factors of safety (see loading rate discussion below and discussion above regarding *treatment system design*).

The comment letter provided as Attachment 9 also implies that an additional backup disposal system consisting of conventional [deep] rock filled trenches should be required and that the proposed LLA would result in a lack of sufficient area to install conventional backup disposal systems on both properties. The Basin Plan (section VIII.D.3.b.11) recommends dual disposal fields (200% of calculated disposal area based on appropriate design assumptions) and the county generally requires them as is the case for this project. For new divisions of land the Basin Plan also requires an area set aside for dual leachfields (100% replacement area). As previously noted, this is not a new division of land. The proposed disposal system is for dual disposal areas that likely exceed the recommended 200% disposal area criterion based on the loading rate discussion below. Although the two systems are superimposed over each other they are distinctly different system designs that will complement each other under varying conditions and will allow for regular maintenance (backflushing) of the [primary] subsurface drip irrigation disposal system without any interruption in treatment or disposal activities.

The commenter (Attachment 9) also questions whether the proposed secondary disposal system consisting of shallow rock filled trenches is adequate to handle 100% of the flow. Based on the results of the standard percolation tests conducted on the subject site and adjacent property, a lower loading rate, and subsequently larger secondary disposal system, would appear to be required. However, the secondary disposal system was originally designed based on physical observation of site soil conditions (as is allowable) and more specific 24-hour soil infiltration tests [for shallow trenches] conducted for an approved project on another property in the Carmel Highland with similar soil conditions as noted in the proposed Resolution. In response to the submitted comments, the project applicant had the treatment system designer conduct additional onsite testing to validate the secondary disposal system design loading rates. The results and discussion of the additional onsite percolation and 24-hour infiltration tests are presented in Exhibit B of Attachment 10. As with the previous data used to design the disposal system, deeper percolation test data indicate that lower

loading rates would be required for deeper conventional disposal trenches. However, the 24-hour infiltration tests that more closely approximate actual loading conditions for shallow trenches resulted in acceptable loading rates (long term acceptance rates) of between 2 and 5 gallons per day per square foot. This is over four times greater than the design loading rate used for the proposed secondary system resulting in a disposal area between 2.5 and 6.2 times larger than required per empirical data collected via onsite testing within the proposed disposal area. An additional safety factor in the disposal system design is also inherent in the likelihood the system will never see flows approaching the average daily design flow rate [used to size the disposal area] of 450 gallons per day as discussed in the *treatment system design* discussion above. Based on this evaluation, staff believes the proposed secondary disposal system can sufficiently handle 100% of the flow from the single family residence.

Cut and fill slopes and subsurface drainage systems in the vicinity of the proposed disposal areas

The Basin Plan recommended setback criteria from slopes exceeding 30% also applies to cuts or embankments. The proposed subsurface drip irrigation [primary disposal] system is approximately two feet upslope from a retaining wall and graded swale designed to divert surface water drainage around the proposed residence. The primary disposal system is also within approximately 15 feet of the building foundation footing which requires a significant cut into the natural grade. Water Board staff originally did not consider these setbacks as a considerable issue because of the proposed shallow disposal system designs (see above discussion regarding *disposal system design*). Comments contained within Attachment 6 alluded to curtain and subsurface drains being implemented to carry subsurface water away from the proposed residence that were not clearly noted on the submitted site plans. Water Board staff conducted an additional review of the submitted site plans and determined that subsurface drainage systems immediately downslope of the proposed disposal systems could result in capture and surface discharge of the onsite system effluent. Basin Plan section VIII.D.3.b.4 recommends separation requirements from disposal systems to curtain drains that could not be met based on the proposed site plan configuration. Staff requested this issue be addressed in an August 26, 2008 electronic correspondence to the project applicant and his legal and technical consultants. This issue was not addressed in their September 30, 2008 response to the project opponent's comment letters and staff's August 26 request for clarification. In response to revisiting this issue during an October 23, 2008 teleconference, the project applicant proposed installing a subsurface concrete dam between the disposal areas and residence to prevent the lateral movement of the disposed effluent towards the retaining wall, swale and foundation and redesigned the retaining wall for saturated conditions (with no back drain, rock or seep holes). An existing curtain drain is in place above two sides of the deeper portions of the garage footings (behind the upslope north-northwest and south-southwest foundation stem walls). The existing curtain drain system is approximately 35 feet and 45 feet downslope from the proposed primary and secondary disposal systems, respectively. The Basin Plan recommended downslope setback to curtain drains is 50 feet. The proposed subsurface dam precludes the need for additional subsurface drainage systems behind the retaining wall and around the remaining exterior portions of the building foundation and should sufficiently mitigate potential subsurface flow to the existing garage foundation curtain drain. These design changes were submitted to the Water Board by the project designer on October 28, 2008 and are provided as Attachment 17.

Staff also identified a utility trench for water, electrical and telephone/cable service within approximately two feet of the proposed disposal areas that could act as a potential conduit for the disposed effluent. This issue was also addressed during the October 23, 2008 conference call and subsequent design changes submitted on October 28, 2008. To meet the minimum county setback for disposal systems from potable water lines of ten feet and address potential channeling of effluent, the project applicants technical consultants moved the utility trench to the east and are proposing to backfill it pursuant to [pending] geotechnical engineer's specifications. Consequently, staff added provisions to the proposed Resolution 1) requiring utility trenches in the vicinity of the

disposal areas be backfilled pursuant to geotechnical engineering specifications to prevent channeling of effluent and 2) prohibiting the installation of additional subsurface drains (french or curtain) within 50 feet downslope and 20 feet upslope of the disposal areas.

Attachment 4 also calls into question a fill slope immediately adjacent to and upgradient of the proposed disposal areas. It should be noted that neither Basin Plan criteria/prohibitions or county ordinances specify appropriate setback distances from disposal systems to uphill slopes or fill slopes as they generally have no bearing on the effectiveness of subsurface disposal systems. The upslope fill embankment is not anticipated to have an adverse effect on the operation of the proposed disposal system design.

Geology

Comments contained within Attachments 6 and 9 allude to observations of subsurface soil conditions [shallow non-permeable soils] that are not conducive to the siting of an onsite wastewater disposal system or that would result in surfacing effluent. Water Board staff has reviewed four independent sets of soil investigation data (boring logs and percolation tests) for the project site and adjacent property at 192 San Remo Road collected and prepared by three separate registered professionals - professional geologist, registered professional geotechnical engineer and certified engineering geologist – that all indicate the site soil conditions are conducive to onsite wastewater disposal systems and are consistent with the Basin Plan criteria and prohibitions for onsite systems. As noted in the *disposal system design* discussion above, deeper percolation testing on the two adjacent lots (192 and 194 San Remo Road) generally resulted in slower percolation rates associated with denser less permeable soils. However, of the twelve percolation tests conducted by two separate registered professionals at various depths, only one [on the subject site] exceeded the 120 minute per inch Basin Plan criteria defining impervious material. All other available percolation tests for the two adjacent properties resulted in acceptable percolation rates of between 3 to 83 minutes per inch (50 minutes per inch average). It should also be noted that only between one and three percolation tests are generally recommended for any onsite disposal system design.

Most of the onsite disposal system failures we see for residences in the Carmel Highlands are due to old and undersized leachfields. If soil conditions were not favorable as indicated by comments regarding the observed site conditions, more frequent and widespread disposal system failures would be commonplace given soil conditions are generally consistent within the Carmel Highlands area.

Ongoing maintenance and inspection

On several occasions Attachment 9 calls into question the inspection, monitoring and maintenance oversight of the propose onsite wastewater treatment and disposal system. To the commenter's point, Water Board and Monterey County staff do not have the resources available to regularly inspect and oversee the operation of a large number of onsite systems within their local jurisdictions, let alone the limited number of engineered systems like the one being proposed. If properly designed, constructed and maintained, conventional systems require very little oversight. Due to the inherent complexity of an advanced or engineered system, additional controls and oversight are generally required to ensure they are working properly. To address this issue, the proposed Resolution includes a requirement pursuant to Monterey County's nonstandard permit requirements for engineered systems (also included as a county permitting condition for the proposed system) for an operations and maintenance contract and deed notification to guarantee ongoing operations and maintenance oversight of the system by an appropriately qualified professional. In addition, Monterey County's forthcoming onsite wastewater management plan for the Carmel Highlands will likely include a formal program for monitoring these types of systems.

The manufacturer, Orenco Systems Inc., of the proposed system also requires a service contract and biannual maintenance servicing of the system. In addition to the proposed treatment system components being very well designed, these types of systems have a high rate of reliability and performance due to Orenco's comprehensive service program. The service program is integral with a telemetry system [VeriComm] that communicates directly with a local service provider via a web-based interface. The VeriComm system is included as part of the proposed system and enables the local service provider to remotely monitor and control the system. There are currently two service providers within Monterey County, the local Orenco vendor in Santa Cruz and Peninsula Septic Tank Service in Carmel Valley. The VeriComm system also sends messages to the service provider in the event of system alert conditions (pre failure/alarm) and system alarm conditions. For example, in the event of steady flows to the system that will result in high water level conditions or prolonged pump run times within the treatment system, an alert message will be sent to the service provider. The service provided will initially respond by contacting the home owner to see if there is a leaking fixture or stuck toilet within the residence. The VeriComm system is designed to prevent alarm conditions by alerting the service provider before they occur.

The Monterey County non-standard permit conditions and manufacturer required service program go above and beyond what has historically been required for onsite wastewater treatment and disposal systems, engineered or otherwise.

Third party review

Attachment 6 recommends third party review of the onsite system design and third party inspection during construction by qualified professionals at the project applicant's expense. The commenter questions the validity of the design and the ability of Monterey County and Water Board staff to review the proposed project in sufficient detail to ensure the system will function properly.

All design, site evaluation, agency review, installation, inspection and maintenance activities were or will be conducted by appropriately certified professionals. The onsite wastewater treatment and disposal system was designed by a professional geologist with requisite experience in the design of such systems. The primary design assumptions are based on Monterey County Ordinances, Basin Plan criteria, soil data and the best professional judgment of the designer. The soil data used as the basis for the disposal system design were collected and reviewed by the designer in addition to a professional geotechnical engineer. Additional geotechnical evaluations regarding slope stability were conducted by a third party certified engineering geologist hired by the project applicant.

Contrary to the opinion of the commenter, both Monterey County and Water Board staff conducted an extensive review of the proposed project design. Monterey County and Water Board staff who reviewed the proposed project are also appropriately certified and work directly under the supervision of an appropriately certified professional such as a registered professional engineer, professional geologist or registered environmental health specialist with requisite experience in the design, review and operation of onsite systems. The design specifications and system manufacturer require construction of the proposed system by a licensed installer. The design specifications and proposed Resolution also require installation of the system under the coordinated oversight of the designer or local product vendor and Monterey County. Almost without exception, all parties noted above participating in the design, review and construction of the proposed onsite system are bound by the professional conduct of their respective licenses to act in accordance with best professional judgment and standard practice. Failure to do so could result in suspension or revocation of their license and loss of their livelihood. Although substandard work or questionable professional conduct are not without question in any circumstance, the experience and professionalism of the above noted parties is not in question and it is safe to assume the proposed system has been designed and will be installed in a manner consistent with the requisite level of professional judgment and standard practice.

RECOMMENDATION

Adopt Resolution No. R3-2008-0061 as proposed.

ATTACHMENTS

1. Proposed Waiver No. R3-2008-0061 and associated exhibits
2. June 30, 2008, Monterey County Department of Health letter regarding: Moeller Alternative Treatment Application for 192 & 194 San Remo Road
3. July 21, 2008, Regional Water Quality Control Board letter regarding: 194 San Remo Road, Carmel (APN: 243-181-006), Monterey County; Proposed Waiver of Waste Discharge Requirements for Alternative Wastewater Disposal System (Resolution R3-2008-0061)
4. August 18, 2008, Monterey Bay Engineers, Inc. letter regarding: Proposed Resolution Nos. R3-2008-0060 and R3-2008-0061; 192 and 194 San Remo Road, Carmel Highlands, CA etc.
5. August 18, 2008, Dr. Russell & Anne Hoxie letter regarding: Proposed Resolution Nos. R3-2008-0060 and R3-2008-0061; 192 and 194 San Remo Road, Carmel Highlands, CA
6. August 22, 2008, Grunsky, Ebey, Farrar & Howell letter regarding: 192 San Remo Drive, Carmel Highlands, Resolution R3-2008-0060; 194 San Remo Drive, Carmel Highlands, Resolution R3-2008-0061
7. August 22, 2008, Brian D. Call letter regarding: 194 San Remo Road, Carmel Highlands, Monterey County; APN 243-181-006; Proposed Waiver of Waste Discharge Requirements for Alternative Onsite Wastewater Disposal System (Resolution R3-2008-0061)
8. August 22, 2008, Heisler, Stewart & Daniels, Inc. letter regarding: 194 San Remo Road, Carmel Highlands (APN: 243-181-006) and 192 San Remo Road, Carmel Highlands (APN: 243-181-005)
9. August 20, 2008, Leland Lewis letter regarding: Michael Moeller – 194 San Remo Road, Carmel Highlands (APN 243-181-006) Monterey County; Proposed Waiver of Waste Discharge Requirements for Alternative Wastewater Disposal System (Resolution R3-2008-0061)
10. August 26, 2008 (incorrectly dated September 25, 2008), Regional Water Quality Control Board letter regarding: 192 & 194 San Remo Road, Carmel (APN: 243-181-005 & 243-181-006), Monterey County; Public Hearing for Proposed Waiver of Waste Discharge Requirements for Alternative Wastewater Disposal System (Resolution Nos. R3-2008-0060 & R3-2008-0061)
11. September 30, 2008, Horan, Lloyd, Karachale, Dyer, Schwartz, Law & Cook Incorporated letter with associated attachments regarding: Application for Proposed Waiver of Waste Discharge Requirements for Alternative Wastewater Disposal Systems – 192 & 194 San Remo Road, Carmel Highlands
12. October 9, 2008, Pacific Geotechnical Engineering report regarding: Slope Stability Evaluation, Proposed Alternative Septic System, 192 San Remo Road, APN 243-181-005, Monterey County, California
13. October 15, 2008, Monterey County Resource Management Agency; Planning Department letter regarding: 192/194 San Remo, Carmel Highlands, Monterey County; Lot Line Adjustment
14. October 15, 2008, Monterey County Department of Health letter regarding: Applications for Waiver of Waste Discharge Requirements for Alternative Disposal Systems for 192 & 194 San Remo Road, Carmel Highlands – Moeller Projects
15. May 8, 2008, Monterey County Minor Subdivision Committee agenda item No. 2 (less exhibits D through F) regarding: Coastal Development Permit for a Lot Line Adjustment consisting of an equal exchange of land between two legal lots of record resulting in no change of area for 192 and 194 San Remo Road, Carmel Highlands
16. October 30, 2008, Pacific Geotechnical Engineering report regarding: Slope Stability Evaluation - Addendum, Proposed Alternative Septic System, 194 San Remo Road, APN 243-181-006, Monterey County, California

17. May 14, 2008 (revised October 28, 2008), Biosphere Consulting, Inc. site plan for: 194 San Remo Road, Carmel Highlands, California.

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