

CARL RITTIMAN & ASSOCIATES, INC.

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James A. Martin
NSCR
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Date: 12/16/08

Re: Navarro-by-the-Sea Center, Task 3 final report; Conduct Septic System Study, Report of existing conditions/options

James,

As has been pointed out in our previous correspondence, the opportunities for developing on-site wastewater disposal systems for the Navarro by the Sea Center are quite limited. After our 12/12/07 meeting with California Department of State Parks and representatives of the Mendocino County Department of Building and Planning, we have refined our approach to addressing this issue.

We do not see any portion of the property meeting the current codes for on-site wastewater disposal systems. This eliminates the construction of any new structures that require wastewater disposal systems. We do see an opportunity, under our understanding of the Mendocino County Division of Environmental Health (DEH) repair policy, to develop a repair wastewater disposal system to serve the existing uses at the Mill House. The repair policy acknowledges the ability to develop repair wastewater disposal systems for structures that were developed prior to the current regulations and for those sites that cannot meet the current regulations.

We visited the site on 3/27/08 to evaluate the repair possibilities for the Mill House. Several soil profiles were examined in areas that we feel have potential for use for wastewater disposal systems. Descriptions of the soil profiles and a site sketch are attached. We believe that we can develop an acceptable wastewater disposal system to repair the system currently serving the Mill House but the room for the system and therefore the amount of wastewater that could be accommodated by the system is very limited. At this point, we are estimating that we have room for a system that could accommodate somewhere between 300 and 450 gallons of wastewater per day. County standards suggest estimated daily wastewater flows of 0.15 gallons per day per square foot of office space, 75 gallons per day per person for residential use and approximately 22 gallons per day per parking space at the facility. Any combination of uses can be proposed to use the total available wastewater disposal system capacity except that any residential use typically must consider two persons (150 gal/day) per assigned bedroom space.

Applying the standards of the repair code to the conditions that we found at the site will result in a fairly complex disposal system. The system would incorporate a septic tank, an effluent treatment system, an effluent pumping system, and up to three distinct zones for effluent disposal; two within the front lawn area of the house and one across the roadway. The three effluent disposal areas would be served through an automatic distributing valve. The effluent disposal zones will probably be within the riparian/wetland setback buffer areas and the disposal zone across the roadway will probably be within the floodplain. We will need to address these issues with both the Planning Department and Environmental Health Department before preparing any actual system design. If it is determined that the portion of the disposal system located across the roadway is in an area that becomes inundated, it will probably not be feasible to use this area. Eliminating this area from the disposal system would result in the capacity of the disposal system to fall to about 150 to 200 gallons per day.

The options for wastewater disposal to serve uses in the Inn building are limited to a contained vault system. This type of system would use a waterproof vault to accept all wastewater generated in the Inn structure. There would be no leachfield aspect to this type of system. The vault would be fitted with an alarm system that would indicate when the vault is full. At that time a septic tank pumper would come to the site and empty the tank. The potential drawbacks to this type of system are the cost of the pump outs and being in the position of being dependant on a third, independent party for the service. However, the existing outhouse facilities at Navarro Beach require this type of third party disposal and are routinely serviced. Another possibility would be to install a waterless restroom facility with the vault system. This would eliminate all or most of the gray water associated with flushing toilets, and reduce the frequency of having the vault pumped out. With the vault design there is a possibility that the vault could not be completely pumped out in the wintertime when the watertable is high due to the possibility that the vault could float out of the ground. This potential problem could be fully addressed during final design of the vault structure to prevent this from occurring.

We will continue to explore creative options for wastewater disposal in order to provide for the desired toilet facilities in the Inn before beginning any system design work.

At this point we have concluded our tasks in the Phase One portion of our agreement. As we discussed on the telephone, we may be able to complete the Phase Two portion of our agreement for somewhat less than the original estimated figure. Please call me so that we can discuss this issue further.

Sincerely,

A handwritten signature in black ink, appearing to read 'Carl Rittiman', with a long horizontal flourish extending to the right.

Carl Rittiman, CPSS

Soil Profile A1

- 0-4" Dark brown gravelly sandy loam
- 4-13" Very dark brown sandy clay loam
- 13" Inaugerable due to rock fragments
End of observation

Soil Profile A2

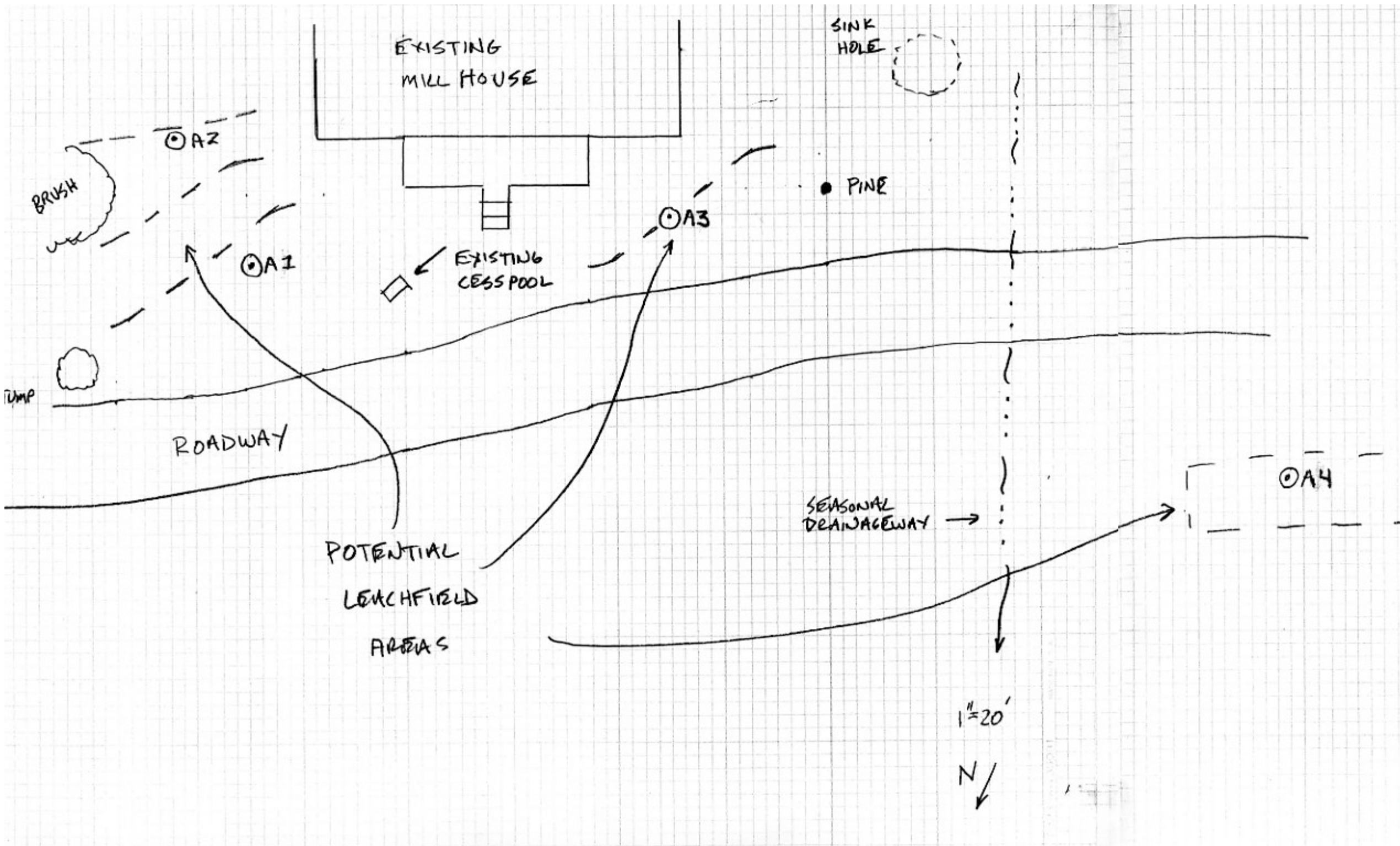
- 0-6" Dark brown sandy loam
- 6-13" Yellowish brown sandy clay loam
- 13-24" Yellowish brown and gray mottled clay
- 24" End of observation

Soil Profile A3

- 0-10" Dark brown loam
- 10-20" Very dark brown gravelly sandy clay loam
- 20-26" Dark brown and brown gravelly sandy clay loam
- 26-36" Brown and dark brown gravelly sandy clay loam, saturated and free water observed
- 36" End of observation

Soil Profile A4

- 0-6" Brown sandy loam
- 6-14" Dark brown gravelly sandy loam, saturated
- 14-24" Brown and dark brown gravelly sandy loam, saturated
- 24" End of observation



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James A. Martin
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Date: 10/11/07

Re: Navarro-by-the-Sea Center, Phase I- Opportunities and Constraints Analysis for wastewater disposal

James,

We have begun our analysis of the opportunities and constraints present for wastewater disposal at the Navarro by the Sea Center. Our analysis focused on the approximately 8.5 acre parcel identified on the maps that you provided. This area basically extends from the active beach eastward to the water tower structure east of the historic Mill Company House.

Many factors affect the ability of a site to support on-site sewage disposal systems. Some of these factors are physical while others are jurisdictional. Additionally, the quality and volume of wastewater to be disposed of must be addressed. These variables are all interrelated and any analysis of constraints and opportunities for sewage disposal for the project must necessarily have some limits established in order to reach any conclusions.

JURISDICTION / PERMITTING AGENCIES

We need to have identified which agencies will be reviewing any on-site sewage disposal system proposal. Typically, a proposal for an on-site sewage disposal system is submitted to the Mendocino County Division of Environmental Health (DEH), which administers the California Regional Water Quality Boards "Policy on the Control of Water Quality with Respect to On-Site Waste Treatment and Disposal Practices". Some projects must be submitted directly to the Regional Water Board. Each agency interprets the policy slightly differently which may lead to different opportunities for the project depending on which interpretations are used in the review of a proposal.

In order to effectively evaluate the opportunities available for the NSCR project we will need to identify the permitting agencies and work closely with their representatives. Also, we will need to interface with all other consultants to ensure that their needs are considered as wastewater disposal options are considered. **Due to the many constraints identified at this site, this step is crucial for this project to have a chance of success.**

WASTEWATER QUALITY AND QUANTITY

In order to determine the feasibility of developing a wastewater disposal system for this site we must know the quantity and quality of the wastewater to be disposed of. From your letter of 12/11/06 I glean that the wastewater generated from this project will be dominantly residential type wastewater quality and that no commercial food preparation is planned. The proposed volume of wastewater to be generated can be calculated if more detail regarding each facility is provided. Will the Mill House be used as a residence or as a visitor-serving unit with overnight accommodations? If so how many persons (maximum) will be housed in this unit in any one-day? What is the planned use of the bungalows? Will these be used as residences or as visitor serving units? How many persons might stay in each unit for one day? What will be the use of the Inn building? What is the purpose of the kitchen in this building? Will the toilets be for public use? How much parking and for whom is planned at each of the structures? The amount of wastewater calculated for these proposed uses will be used to evaluate the potential of the site to support an on-site sewage disposal system. It may be that not all of these uses can be accommodated by wastewater disposal facilities at the site.

NATURAL PHYSICAL SITE CONSTRAINTS

This site is situated between the floodplain of the Navarro River and the steep surrounding hill slopes. The Regional Water Board requires that on-site wastewater disposal systems be located out of the active floodplain and at least 100 feet away from the 10-year frequency flood line. The 10-year frequency flood line will need to be identified by a surveyor. We suspect that most of the flat area near the existing structures will be within 100 feet of the 10-year flood frequency line.

The steep hill slopes are in excess of 30 percent slopes. The Regional Water Board limits slopes for effluent disposal to less than 30 percent. Some slopes appear to be somewhat unstable as evidenced by the creep occurring behind the existing retaining wall behind the Inn building. The Regional Water Board requires that all soils to be utilized for effluent disposal shall be stable.

There are several watercourses that drain water off of the hill slopes down to the Navarro River. The watercourses are identified by distinct channels that transmit water from the hill slopes to the river system apparently after rainfall events as they do not have water in them year around. Some of these watercourses may have been created during the construction of the old County roadway above the site and some may be from drainage features installed to serve the current Highway One. The Regional Water Board requires a 50-foot setback between these ephemeral streams and areas of effluent disposal.

We noted several areas that may meet the definition of wetlands or riparian areas. While we do not conduct those types of determinations, if such areas are present (within the jurisdiction of the California Coastal Commission) they are afforded a 50-foot buffer from any area used for effluent disposal.

Given the historical use of the site there could be significant areas of archeological significance. In past projects we have been required to afford a buffer area between any significant archeological resources and areas used for effluent disposal. This could be a restriction in the area available for effluent disposal.

DEVELOPMENT INDUCED SITE CONSTRAINTS

The development at the site may introduce constraints to the amount of area available for effluent disposal. The Regional Water Board requires a 100-foot setback between any well or water source and an area used for effluent disposal.

Should any type of building drainage be required, either at the foundation of a building or behind any required retaining wall, the Regional Water Board requirement is for a 50-foot setback between the drainage system and any area used for effluent disposal.

Any parking that is developed to serve the Inn, the bungalows or Mill House will remove that area for use for effluent disposal. Driving or parking areas are not allowed over areas used for effluent disposal per Regional Water Board requirements.

The Regional Water Board also requires that each wastewater disposal system proposed have a 100 percent replacement area identified. The disposal system is not constructed in the replacement area until such time as it is needed, but uses incompatible with using the area for effluent disposal (parking, roadways, structures etc.) are not permitted.

POTENTIAL OPPORTUNITIES

Several potential opportunities for wastewater disposal for the project have been identified.

The old county/state roadbed above the structures may have potential to be used for effluent disposal. Soils in this area will likely be very rocky and, as such, have minimal effluent filtering capabilities. Disposal systems that incorporate secondary or tertiary effluent treatment may be required prior to disposing any effluent in this area. The orientation of the roadbed in relation to the natural slopes may limit the area available for use for effluent disposal.

There is an area between the two bungalow structures that may be able to be used for effluent disposal. This area is under an existing platform structure and appears to be above the 10-year frequency flood line. Drainageway, riparian, and cultural setback requirements may impact the usefulness of this area.

It may be possible to obtain an easement for sewage disposal on an adjoining property. This would require the consent of the owner of the easement area as well as having the soil and site conditions evaluated to ensure that the area could support an on-site sewage disposal system.

It may be possible to develop a holding tank system where the sewage generated at the site is contained within a watertight chamber. The chamber would need to be emptied when full by a licensed wastewater hauler. The ongoing expense of this haul away option could be calculated once the actual wastewater flow is calculated.

The historical use of the site may have some significance in the wastewater disposal system options, not so much for the bungalows or the Inn site but perhaps for the Mill House. Current Mendocino County DEH policies suggest that wastewater system repairs to existing, occupied structures that were either constructed with appropriate permits or were constructed prior to the need for permits, not be held to the same standards as for disposal systems serving new structures. We may be able to justify that the Mill House was recently occupied and be able to develop some sort of wastewater disposal system to accommodate that use. Wastewater disposal systems for the bungalows or Inn might be required to meet all current standards, again depending on which agency or agencies have jurisdiction over the wastewater disposal aspect of the project.

Any final plan for accommodating the wastewater generated from this planned development will likely utilize a combination of these potential opportunities.

While a gravity system with a leachfield in the vicinity of the 1960's era motel building may be preferable as mentioned in your letter, I seriously doubt that this is a viable option. This area will most likely have floodplain and/or stream setback issues for use for sewage disposal. If the floodplain issues can be mitigated, the extremely sandy nature of the soils in this area probably would require any sewage disposal system to utilize secondary sewage effluent treatment system as well as pressure distribution from a pumping system.

At this point I suggest that we schedule a preliminary meeting with the State Park Personnel that will be conducting **Phase 1 task 6, wetland delineations** and **task 7, biological assessment**. This will allow us to refine the wastewater disposal opportunities with regards to these issues. It would be most efficient if we could also meet at that time with the State Park personnel who will be leading the **Phase 2, task 10, complete environmental review**, for the same reasons. After this meeting we could begin the actual process of specifically evaluating the areas available at the site for use for on-site wastewater disposal with knowledge of the constraints present.

Please contact me after you have had a chance to review this initial analysis. We can discuss the process of setting up the meetings that we have suggested and get a timeframe established for moving this process along.

Sincerely,



Carl Rittiman, CPSS