

From: bill.mader@gmail.com
Sent:
To:
Cc:
Subject: te

Hello Pam-

Yesterday I was able to identify, what I believe, is more than sufficient area for a primary and reserve septic system for a three bedroom residential house. The area is located in the NE corner of the property. Because of the existing slopes and soils conditions in the area (i.e. rocky soil conditions at 20-24 inches below ground surface), the proposed septic system will need to be a "Drip Irrigation System" (DIS) and will require a secondary treatment of the effluent.

Secondary treatment means that following the standard two-compartment septic tank, additional effluent treatment will be needed prior to dispersing the treated effluent into the DIS field area. In general this treatment can be achieved by use of:

- A. An approved sand filter unit.
- B. Approved filter units such as a peat or coco fiber filter following the septic tank.
- C. Or, alternatively, an approved aerobic treatment tank be used in the place of a septic tank and a secondary filter as referenced above.

DIS systems are relatively expensive to install and the secondary treatment unit requirement adds additional cost. Possibly utilizing option C above may be the most cost effective option.

In general, DIS's can be installed while preserving most of the existing trees, at least the larger trees.

I recommend that a professional survey be completed as soon as possible to locate the soil test pits (TPs) completed yesterday (13 total). This is urgent mainly so that the staked TPs are documented before they are potentially disturbed or lost. I recommend that the surveyor complete the following:

- (i) Survey completed test pits (TPs) 101-113.
- (ii) Provide surveyed elevations of each TP.
- (iii) Survey edges of existing forest trail that bisects the area.
- (iv) If available, import LIDAR topo into the survey drawing for the area of the proposed DIS fields, and adjacent area.
 - a. If no LIDAR topo is available, depending on cost, create survey contour elevations (2-foot contour interval) in the area of the DIS system

I would like to review a copy of the final survey drawing and incorporate the survey drawing into my soils report.

My soils report will be needed by the system designer to complete the DSI design. I think more importantly at this time, the survey drawing and soils report can be provided to a prospective buyer of the property as documentation that potential primary and reserve system exists. Of course, a buyer may want to have the property purchase contingent on obtaining a septic permit. If that is the case, a DIS system design would need to be prepared and submitted to the Sewage Enforcement Officer (SEO) for approval to obtain the septic permit.

If you decide to proceed with the recommended survey, I can provide a field sketch to your surveyor showing the approximate TP locations. If possible, I should probably talk to your surveyor to discuss items (i)-(iv) above. Please confirm if you will be proceeding with the survey and if so the approximate schedule.

Please call with any questions/concerns.

Thank you.
Best regards,
Bill Mader

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From: bill.mader@gmail.com
Sent: Friday, May 15, 2020 9:49 AM
To:
Cc:
Subject: late

Burgess-

Below is link that can provide some additional educational info.

As far as pricing, what I have heard recently is that pricing can be approximately \$25K for a residential system. Pricing depends on site conditions and access, proximity to available approved installers, need for secondary treatment (when rock soil conditions are present between 20-24 inches depth), and other factors.

Because shallow rocky soils conditions are present (i.e. between 20-24 inches depth for most of the test pits), the proposed area would require a secondary treatment filter which could increase costs approximate \$5-10K. Thus I would estimate that a drip irrigation system for this site for a 3 or 4 bedroom residential home would be closer to the \$35K price tag. Also, there is probably sufficient qualified area to gain approval for a four bedroom home.

Obviously this site has some challenges regarding access for both home building and septic system installation. If a house were to be built in the NE corner of the lot, which appears to be a great location for a home, this would require driveway access be completed to this area which would then allow easier access to install the drip system. I did not have time to do additional searching in the lower topographic areas for a potential system area.

<https://www.americanonsite.com/american/dripsystems.html>

Thank you.
Best regards,
Bill Mader, P.G., CPSS

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From: burgess@raystownrealty.com <burgess@raystownrealty.com>
Sent: Thursday, May 14, 2020 10:49 AM
To: bill.mader@gmail.com
Cc: 'Pamela Prosser' <pprosser@7pointsmarina.com>
Subject: RE: May 13, 2020 Soils Investigation Update

Thank you this is very encouraging. I have not dealt with a drip irrigation system. Can you give us a rough idea of what this would cost to install.

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