

Summary Results of Graywater Issues Poll

Issues for Further Discussion

Summary of Issues for Further Discussion

Issue No.	Issue	# Support	# No Opinion	# Stand Aside	# Need More Discussion
2	Single Res. Toilet Flushing	7	2	1	1
4	Approving Authority & Designee	5	0	4	1
5	Plumbing Code Reg. Statement	9	0	0	2
11	Wastewater Strength	8	2	0	1
9	Site & Soil Evaluations	5	1	4	1
10	Drop Type 2 GW Quality, Keep Placeholder	9	1	0	1
14	Storage Tank Overflow - by Gravity	8	1	1	1

Elaboration on issues for Further Discussion

2. Proposal: Enable single residential use of graywater for toilet flushing as generally described in Version 2 Reg, Sec. .07.A.1 (Does not include an operating permit)

Background: Maryland currently has no prohibition on the reuse of graywater for toilet flushing in the single residential setting. Plumbing code adopted by the State in 2020 requires the use of NSF 350 standard treatment systems when reusing graywater for toilet flushing, which is echoed in the Version 2 graywater regulation. The intent is to generally follow the State of Oregon model on this: <https://www.oregon.gov/deq/FilterPermitsDocs/grayPermitsQA.pdf> (p. 2)

Disagree - Comment 1: Health risks are too great; costs of the approvable systems are too great; these smaller residential systems may be problematic/odorous; highly likely a significant percentage will not be maintained to an acceptable level. Concern that cheaper, un-approved units (sink to toilet tank), may appeal to many once word spreads if Residential Graywater systems are okayed for toilet flushing in Maryland.

4. Proposal: Approving Authority is the MDE Secretary or designee. Designee is envisioned to be Local Environmental Health Authority, analogous to duties, powers and functions associated with onsite wastewater disposal in the MDE/MDH 2014 MOU). These approval functions apply to approving irrigation discharges and approving the installation of NSF 350 compliant treatment systems in a multi-residential setting. These functions do not include approvals required for plumbing and electrical aspects of graywater systems.

Disagree - Comment 1: Local Health in no way should be the approving authority for NSF 350 systems inside of buildings. That is plumbing code enforcement and delegation of the plumbing code enforcement is not additional duties that local health is able to assume. The exterior septic system part of the system that receives NSF 350 wastewater discharged by the internal plumbing is delegated to local health by MDE.

Stand-Aside -

Comment 1: Considering that there is no funding available for the additional duties that local Health Departments will be responsible for, I cannot support this concept on principle. However, I am willing to stand aside but ask that the Department consider the impact and burden that these regulations will have on local Health Departments and look for ways to possibly mitigate those impacts.

Comment 2: I have serious reservations about local health departments being able to take on this additional responsibility.

Comment 3: Input from County Health Departments is warranted to get their input on this new responsibility prior to submitting the proposed regulation for public comment.

Comment 4: This is unclear about who our local authority would be. In the case of the City of Frederick, would we be the local designee or would we defer to the County for their approval? (Response - Irrigation Systems: County Env. Health; Plumbing: who ever inspects plumbing for the City).

5. Proposal: Include a general statement in the regulation to require local governments and utilities to evaluate and secure the necessary plumbing code elements to enable implementation of graywater reuses included in the State graywater regulation.

Disagree -

Comment 1: More clarification needed. Leery of general statements.

Comment 2: At the surface this sounds logical. However, within Chapters 13 & 14 of the International Plumbing Code (IPC) are provisions that go beyond the scope of a typical plumbing inspections office and its staff expertise. If left un-corrected, other trade inspection offices will take easy road and profess that it is the Plumbing Inspection's office mess to contend with because it is the plumbing code. This regulation (at State level), needs to clearly delineate what belongs to who and where; each County or jurisdiction cannot be left to sort this out.

9. Proposal: Site and Soil Evaluations. Proposal: Require soil evaluations, e.g., determination of seasonal depth to groundwater or confining layer, perc tests, and soil suitability as part of the site evaluation for setbacks, etc. The evaluations would be conducted at the expense of the permit applicant who may use private consulting services if acceptable to the Approving Authority. The information would be included as part of the design during the permit application process.

Background: Although the irrigation rate will be based on plant uptake, we have several rationales for requiring soil evaluations as part of the site evaluation. First, we seek to avoid failures that cause

DRAFT

nuisances or health risks by ensuring the soils are suitable. Second, we anticipate that many people will not divert their graywater to sewage disposal systems during wet weather conditions. Therefore, it is important that the soil be able to absorb the combined graywater and rainwater in a manner similar to that expected of an OSDS.

Disagree -

No Comment -

Stand Aside -

Comment 1: Stand Aside: If the irrigation rate is based on plant uptake as shown in Comment 8, no need to conduct soil evaluation.

Comment 2: I support soil evaluations for design purposes conducted by qualified private consultants (the statute essentially requires it with the 5 foot treatment zone requirement). Percolation testing may not be advisable as it would create a quantifiable absorption rate that would then need to be factored into the design criteria which would only complicate matters. Determining basic soil capacity for absorption could be accomplished by reviewing USDA soil characteristics (most importantly texture, structure, moisture and consistence) without perc tests.

Comment 3: Some places require that the characteristics of the soil to be considered. Some require a DIY perc test. Requiring both, and that the perc test be done by an approved contractor seems like overkill for a system designed on the basis of plant uptake. Again, the system can be regulated, whereas an OSDS cannot.

Comment 4: Will be a significant impediment to single residential use due to cost. Makes sense for larger multi-residential applications.

Comment 5: Systems discussed during the committee deliberations would have an automatic overflow path to that would prevent the above concern.

Comment 6: Local health barely has the staff to accomplish routine permitting of septic systems. Although the site evaluation is necessary, it seems hard to take on additional delegation without additional staff to do the work.

10. Proposal: Drop Type 2 graywater, but reserve the term and section for potential future use. Reflected in Ver 2 Reg Sec. .05Background: Type 1 graywater is effectively untreated; whereas, Type 3 is highly treated and disinfected. Type 2 is reserved as an intermediate level of treatment if a need is identified in the future.

Disagree -

Comment 1: Type 2 should be included at this time. Septic and Advanced Wastewater treatment with higher levels of pathogens and viruses are currently discharging into shallow at grade mound, trench and drip dispersal systems. It is generally recognized that the soil treats viruses and pathogens. (Treatment in Soil)

11. Proposal: Wastewater strength: Proposal: Presume that waste effluent directed to an onsite waste disposal system (OSDS) will not be too strong if laundry water is not included in the graywater that is diverted for reuse. Background: OSDS systems may not function properly if the solids and organic matter in the wastewater entering them is too concentrated. See COMAR 26.04.02.05.K <http://www.dsd.state.md.us/comar/comarhtml/26/26.04.02.05.htm>

Comment 1: Support but: Higher flow systems with operating permits that utilize OSDS should be required to sample the OSDS effluent yearly to ensure that it does not exceed 300 mg/l BOD or TSS.

14. Proposal: Storage Tanks Overflow to Sewer. Proposal: Require the ability of graywater storage tank overflows to divert to the sewage system by gravity. Background: It is important that a storage tank not be reliant on a pump or uninterrupted power to divert excess water to the sewage system, otherwise a basement could be flooded. See Ver 2 Reg. Sec. .06.F.2.

Comment 1: Stand Aside, Pump should be allowed for flow diversion to sewer if a gate valve at very beginning of the flow diagram to turn off gray water inflow is installed. This will increase gray water reuse for residential homes located in lower elevation area.

Comment 2: As previously provided comment, so many homes have basements and that is an ideal location for water reuse equipment. Basements that do not have gravity flow, at that level, already have one too many pumps; pumping is not that taboo.

New point: per IPC 1302.8.1, the system shall have a by-pass valve(s), to allow the graywater source fixtures to divert to sanitary by gravity when the system is down for extended service.

Compromise: require pumping system to be outfitted with a high-level alarm system.

Issues on which Some Committee Members Disagreed, but Stood Aside:

6. Proposal: Average Flow for Subsurface Irrigation. Proposal: The number of residential occupants shall be determined by the actual number of occupants, but not less than two occupants for one bedroom and one occupant for each additional bedroom. Residential flow of graywater will be estimated at 25 gallons per day (94.6 lpd) per occupant for showers, bathtubs and lavatory sinks.

Comment 1: Stand Aside: The number of occupants of a dwelling is in constant flux and there is absolutely no way to control that element. I personally don't agree with occupants as the best means of determining flow, however that is the most widely accepted. With the regulation requiring a minimum of 2 people per bedroom or (50 gallons per bedroom), I believe that this makes for a more conservative estimate of flow. I am willing to stand aside as I do not have a suggestion for a better means of determining flow to offer. However, the Department (particularly Nony) should be prepared to discuss how separation of flow will impact the design for those sites which also utilize OSDS in addition to the graywater system. We have discussed waste strength, but not design flow for OSDS. If the home has 4 bedrooms, the graywater system design will be 200 gpd (typically). Does that mean that the OSDS (blackwater) will be designed for 400 gpd (typically 600 gpd per COMAR 26.04.02.05)?

Comment 2: Stand Aside: Using the actual number of occupants would require the "average flow" to be changed with new owners or renters. I assume that would also require a redesign of the

system. I don't think that's realistic. I also don't think "too much flow" for a small family would be a very serious problem. The system could be regulated just as it is when there's too much rain.

Comment 3: (No Opinion) Of course, the number of occupants can change. One must ask should the design accommodate the maximum design flow that could occur when families expand or property ownership changes.

Comment 4 (No Opinion) - What County/City agency is going to approving graywater irrigation systems? Note, as more stringent plumbing and green construction codes mandate ultra-low flow fixtures, expected use per person may be lower than 25 gallons per day.

Comment 5 (Support) - Strongly feel that dishwasher and clothes washer discharges be included.

7. Proposal: Peak Flow for Subsurface Irrigation. Proposal: Allow a peak daily flow rate equal to twice the average daily flow reflected in the irrigation system design. E.g., Low flow systems with a maximum allowed average 150 gpd would be allowed to have a peak of 300 gpd. See Definitions for Low Flow and Higher Flow irrigation systems.

Comment 1: Stand Aside: This is appropriate for septic and treated wastewater flows which have to discharge 365 days per year. The standard for graywater should be based on flow needed for lawn or garden irrigation that meet agriculture standards/requirements. Requiring oversized systems is overkill and will result in fewer graywater systems which is counter to the program. See next question. (Response: Sizing is intended to be based on average flow. Peak flow is "allowed," which is another reason for ensuring soils are suitable).

8. Proposal: Discharge Rate/Area. Proposal: The methodology for setting the graywater discharge rate per unit area is based on plant uptake, as opposed to soil absorption capacity. The rate does not account for precipitation. Therefore, it relies on people not irrigating with graywater during periods when plants have sufficient rainfall.

Background: One rationale for this approach is that plant uptake represents a beneficial use; whereas, soil absorption may be solely motivated by the need for water disposal. However, soil absorption can be viewed as beneficially recharging groundwater. Another rationale for this approach is that it allows lower graywater flows, which are less likely to cause nuisance or health problems.

Comment 1: Stand Aside: This provision should take into account that there likely will be no maintenance of the system, turning of valves in response to rainfall, etc....

13. Proposal: Maximum Slope for Irrigation. Proposal: Maximum of 25% slope with terracing recommended.

Background: Although some state graywater regulations allow a 30% slope, Maryland's COMAR 26.04.02 allows OSDS on slopes not exceeding >25%. The proposal seeks to maintain consistency.

Comment 1: Although the MDE Land Application/Reuse Guidelines (Page 7) indicating the maximum slope for a Drip irrigation site is not to exceed 15% on cropland, or 25% for forestland. 30% is too steep for system installation and can cause seepage in the sloping area.

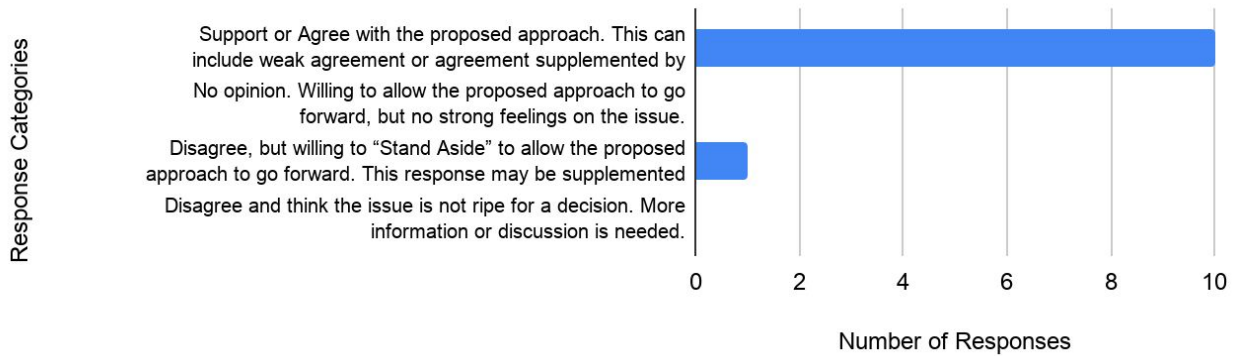
Comment 2: Drip irrigation has been successfully utilized on steeper slopes. Willing to stand aside because the variance provision is written to allow for discretion of the approving authority.

Summary Graphs for All Poll Questions

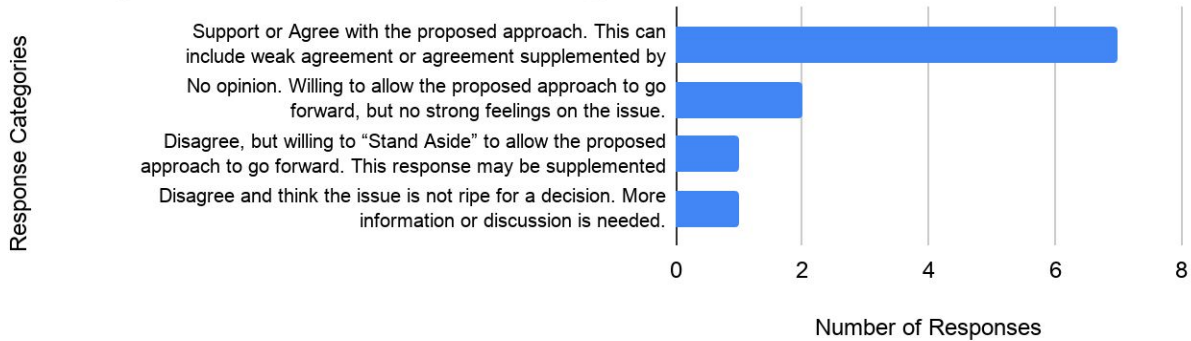
Full questions may be retrieved directly from the poll:

https://docs.google.com/forms/d/e/1FAIpQLSfH08HFLx0IWSZjAl8vXyNz5j0C1T_D0ZUBxW2_fkPqOMJxWw/viewform?usp=sf_link

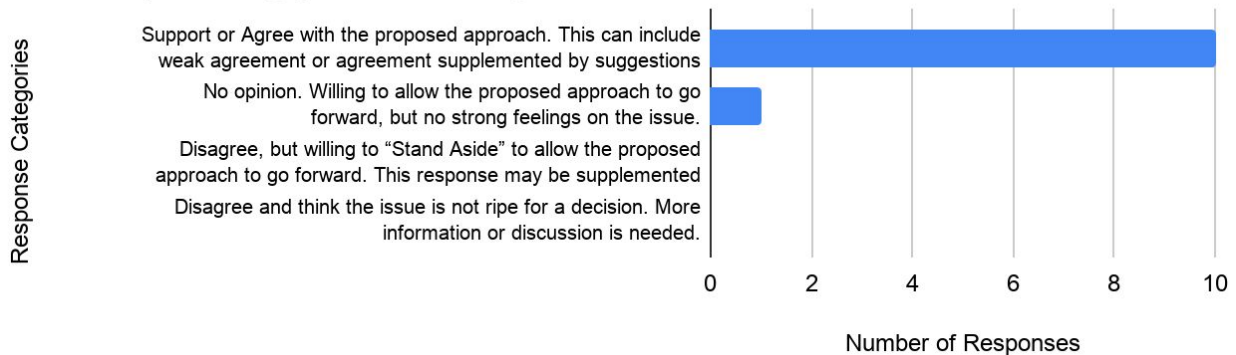
1. Enable multi-unit residential use



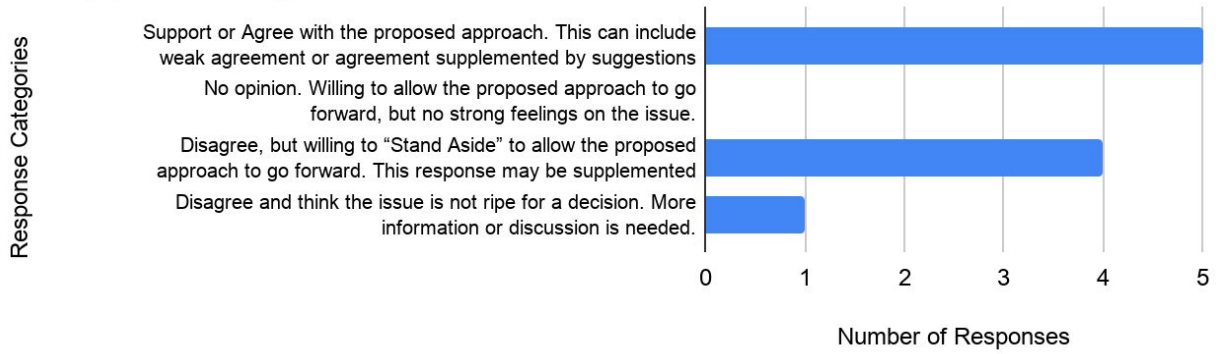
2. Single-Res use for toilet flushing



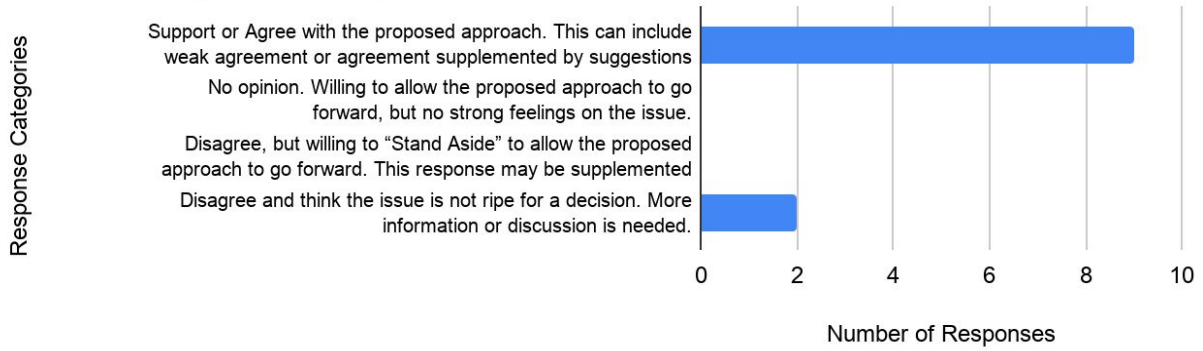
3. No operating permits - Irrigation



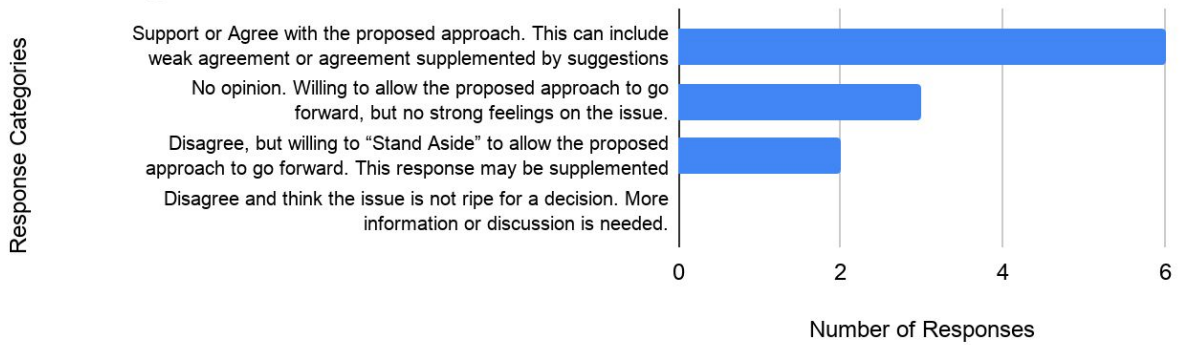
4. App Authority MDE/Local-Health



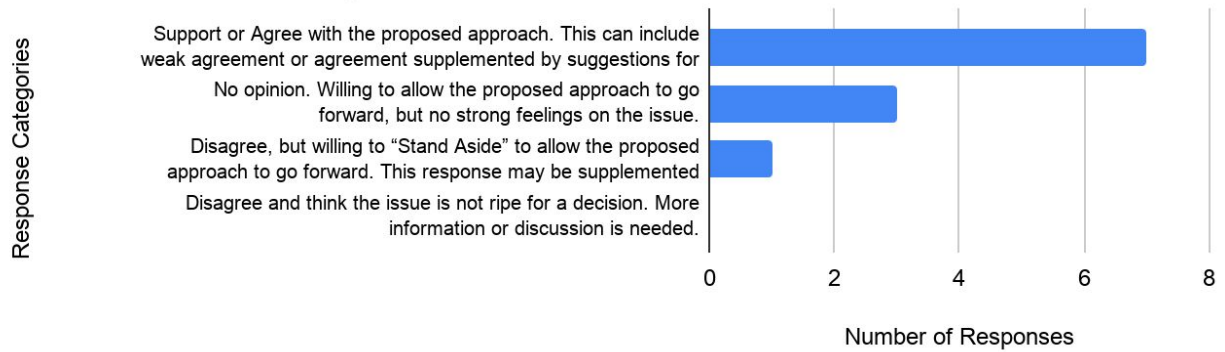
5. Plumbing Code Reg Statement



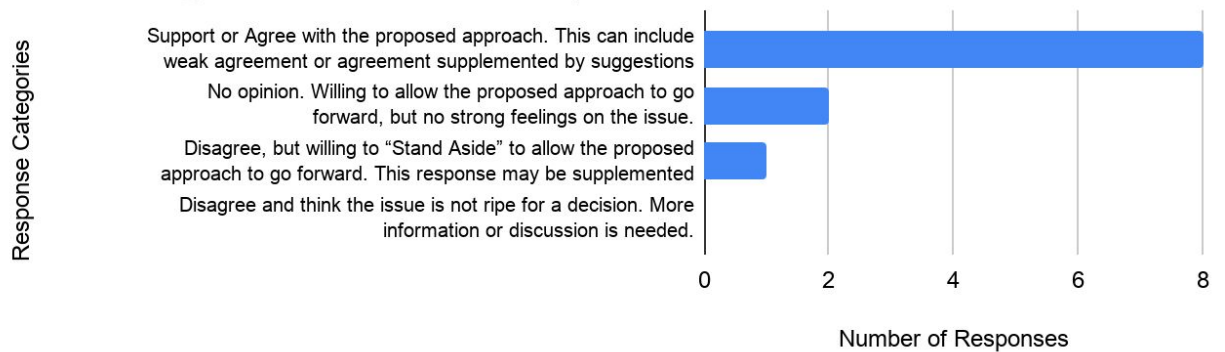
6. Average Flow Estimate



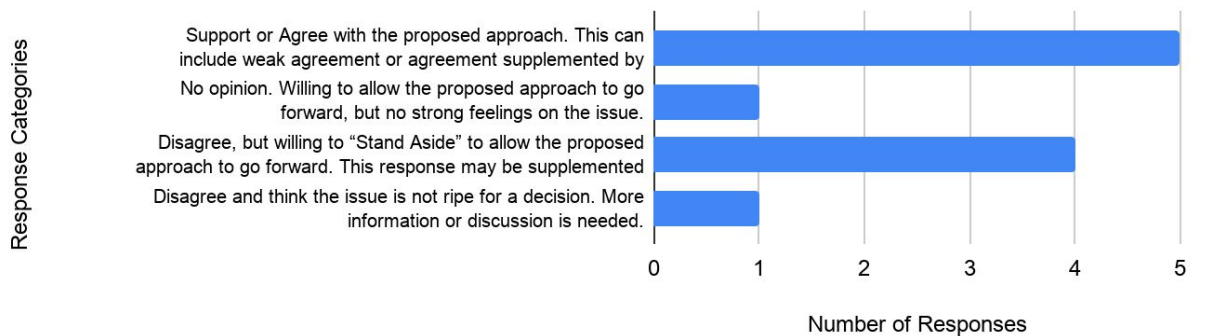
7. Peak Flow for Irrigation: 2xAve



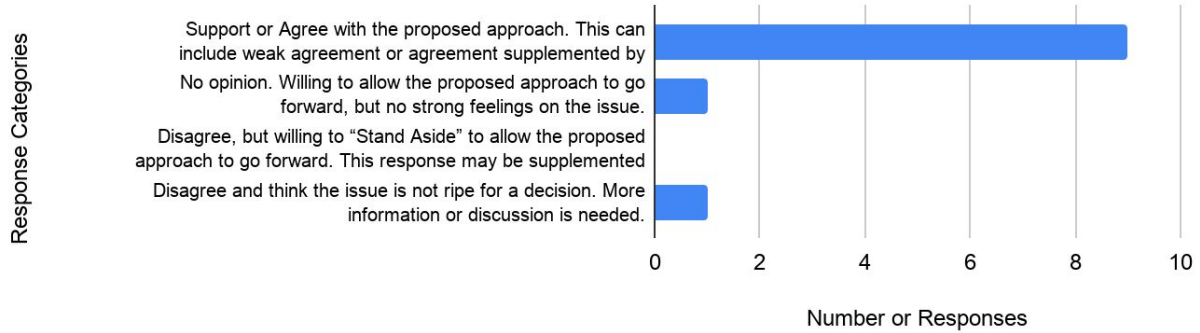
8. Discharge Rate/Area - Plant Uptake



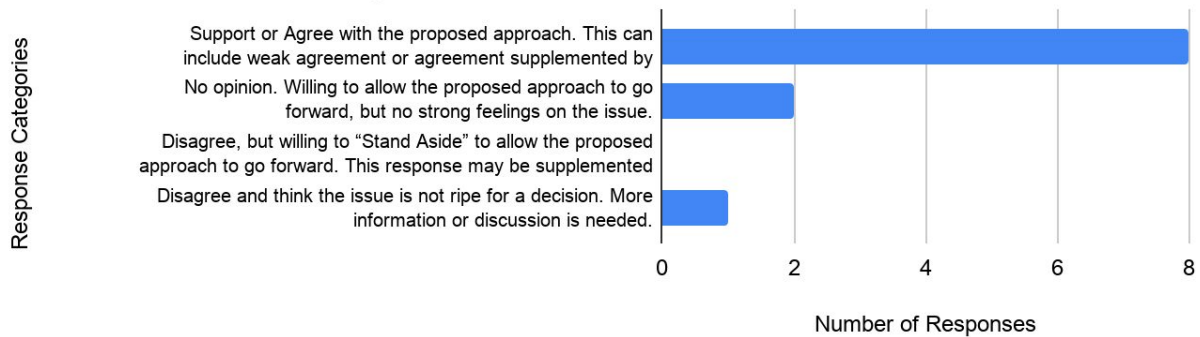
9 Site and Soil Evaluations -



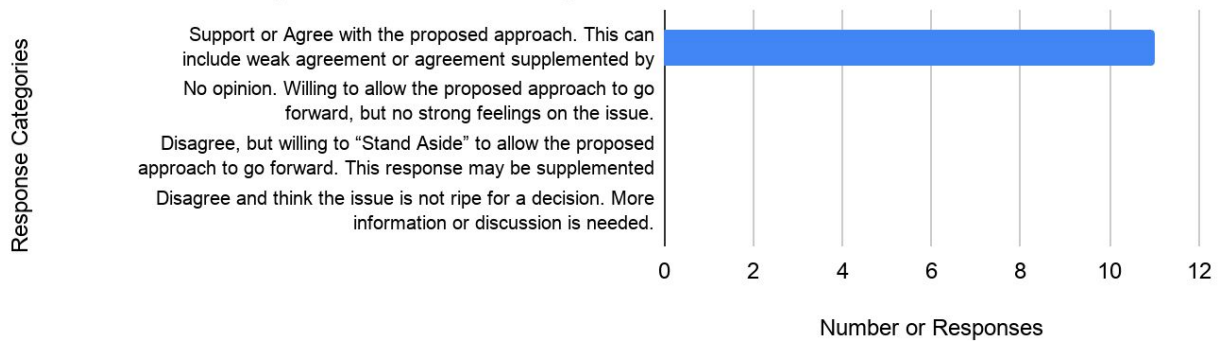
10. Drop Type 2 graywater, but reserve the term and section for



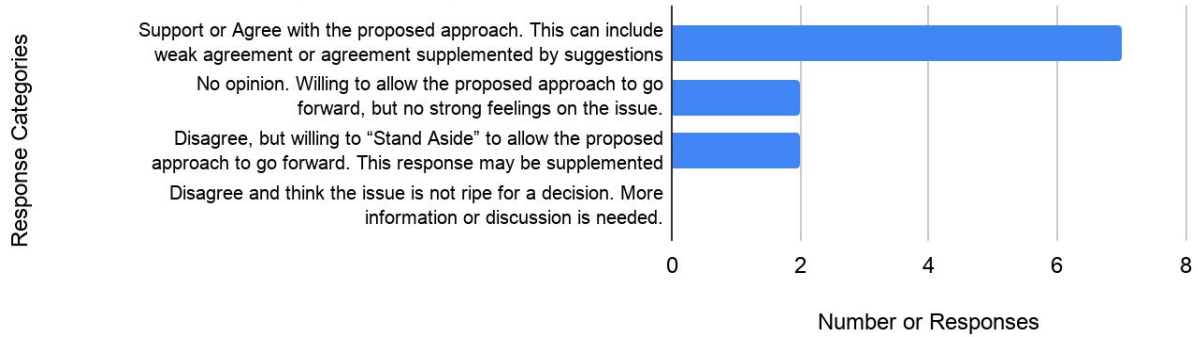
11. Wastewater Strength



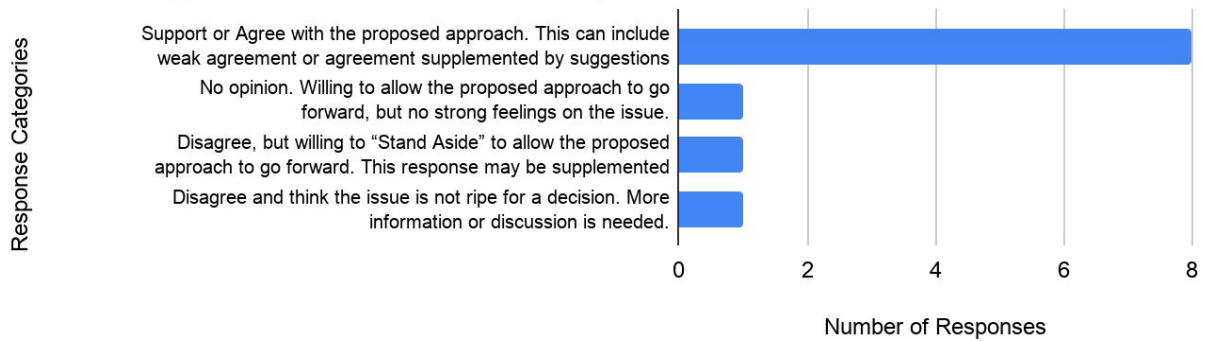
12. When to require PE cert design?



13. Maximum Slope for Irrigation.



14. Storage Tank Overflow - Gravity



15. Definition of Sewage

