

Comments to the Texas Commission on Environmental Quality Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0015688001

Stating the obvious right up front, the predilection of the Texas Commission on Environmental Quality demonstrated by this permit application to approve a discharge permit because it “must” approve a full-blown “disposal” system before the manner in which that water *resource* could be utilized can even be considered *must come to an end*. From all appearances, this practice creates pressure to approve discharge of water that has not been treated sufficiently to assure that the receiving waters will not be degraded. That appears to be the case here. This is anti-society behavior masquerading as serving society’s needs. So immediately it should be called to question if the proposed discharge is “needed” for any public purpose.

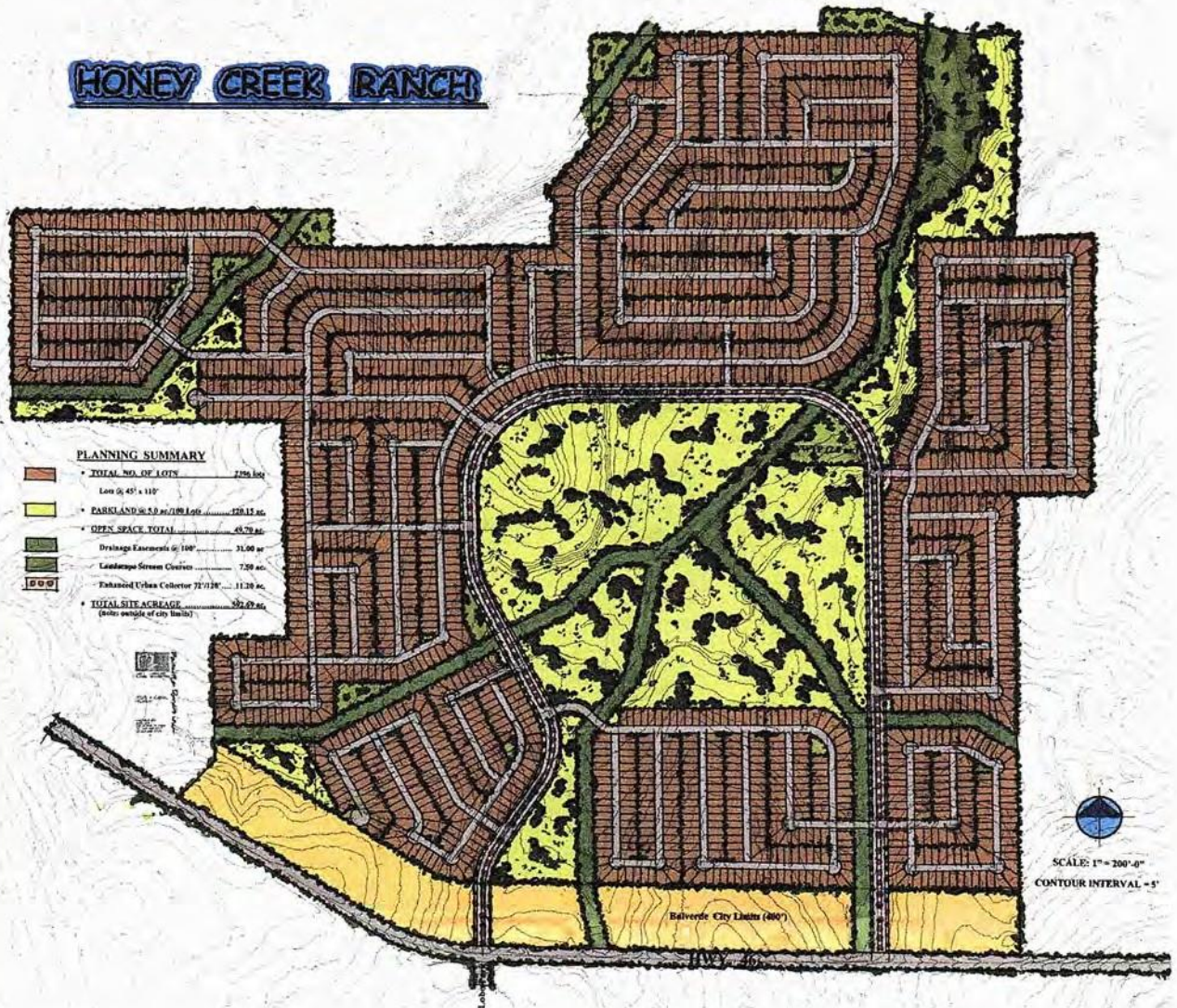
Silesia Properties is requesting to be authorized to be permitted to discharge up to 500,000 gallons/day of wastewater flow into a channel that would flow into Honey Creek, which is part of and flows through an extraordinarily unique and fragile ecosystem, which the state of Texas has recognized by setting it aside as a nature preserve. The proposed plan for this development, styled as Honey Creek Ranch, is shown below. Regarding water management, it is set forth in The Rivard Report, “Once the plant is up and running, treated wastewater would only be discharged to Honey Creek during heavy rains, real estate consultant Kelly Leach said. That’s because the subdivision would use recycled wastewater to irrigate its lawns and landscapes.” If that is indeed the intent of Silesia Properties, it may be readily called to question why it would be seeking a permit to discharge ALL of the wastewater to be generated on this development into the Honey Creek tributary.

Understanding that discharge *would* impart hazards to water quality in Honey Creek, and then on into the Guadalupe River. Degradation would be due to nutrients – total nitrogen would not be limited *at all*, so that something like 167 pounds of nitrogen may be discharged into the creek *each day* – and to contaminants of emerging concern – which appear to be not really regulated *at all* – that would be left in the water after treatment to the level that TCEQ appears willing to impose. Again, it must be called to question if there is any compelling reason to consider this discharge.

The reason Silesia Properties is seeking a discharge permit seems to have little to do with its stated intent and everything to do with the options it perceives that TCEQ offers, which in turn is due to the manner in which TCEQ believes this societal function is to be dealt with. TCEQ sees this function as being all about “disposal” of a perceived nuisance, which “should” be made to “go away” to be treated and then “disposed of”. Per the way TCEQ has set the rules for addressing this societal function, TCEQ expects a full-blown “disposal” system to be in place, and only then might some of that water be diverted from that “disposal” process to fulfill a “reuse” function. This 2-part process is simply accepted as how a development that – reportedly – intends to route this water resource to beneficial reuse, instead of “disposal”, does business with TCEQ. So it is that Silesia Properties perceives that they “need” a discharge permit, even though the stated intent is to route that water to beneficial reuse rather than to actually discharge it.

Digging more deeply into why this matter is seen in that manner, there is a “cultural expectation” that the way developments are to manage wastewater is indeed under a “disposal of a nuisance” approach, that the explicit function of the *wastewater* system is to make that “nuisance” to “go away” from the neighborhood to a remote treatment plant, which is presumed to need to be remote due to its characteristics, being noisy and odiferous. Thus it is simply an “article of faith” that the wastewater “needs” to be run down to the end of the pipe, to be managed solely and exclusively as if it were indeed a nuisance, and only there at the end of the pipe, after treatment in that large centralized treatment

plant receiving wastewater from the whole development, might it be considered that this water has a *resource* value.



At that point, being typically well away from the reuse opportunities that might use this water resource to defray demands on the potable water system, thus on our “original” water supplies – that is the very essence of “beneficial reuse” – it would typically require a large-scale redistribution system in order to route this water to those potential points of reuse. It appears to be the stated intention of Silesia Properties to install such a system to route the treated wastewater back to the very locations where this “waste” water was generated in the first place. Thus, after having invested a large majority of the total wastewater system cost in a set of pipes and pump stations to make this water resource “go away”, a similarly large investment would have to be dedicated to getting that water back to where it could realize its resource value. And this does not even start to address the costs of actually utilizing that water after it has been redistributed.

The options that TCEQ affords for the “disposal” process are a discharge permit or a Texas Land Application Permit (TLAP), a process that is most typically executed as “land dumping”, the “irrigation”

of an area dedicated solely to the “disposal” function explicitly to make that water “go away”. Typically the cost of land to be dedicated solely to that “disposal” function will become onerous. Particularly if the development really is able to route much of the treated effluent to reuse instead of “disposal”, so that much of this “land application” field would lie unused. So the developer would have a lot of money tied up in a property that would not be delivering much function.

That is why, it appears, Silesia Properties has chosen to pursue a permit to discharge the treated effluent into Honey Creek as the “disposal” system it presumes it “needs” to have in place before it can even start to think about how to reuse that water resource to defray demands on their “original” water supply. Again, this is an artifact of TCEQ seeing this societal function as being all about “disposal” of a perceived nuisance and offering only limited options for how to effectively manage the water *resource*.

All of this appears to be “justified” as being “needed” to support important economic or social development. Thus, a *reasonable question* about all this is if there may be another way for a development to address this societal function which could avoid the hazards of discharge. It is suggested that there is a strategy that could readily be employed, and that strategy is generally described below. A strategy that would deliver high quality water management in a manner that is *more fiscally reasonable, more societally responsible, and more environmentally benign* than the course Silesia Properties is presently on.

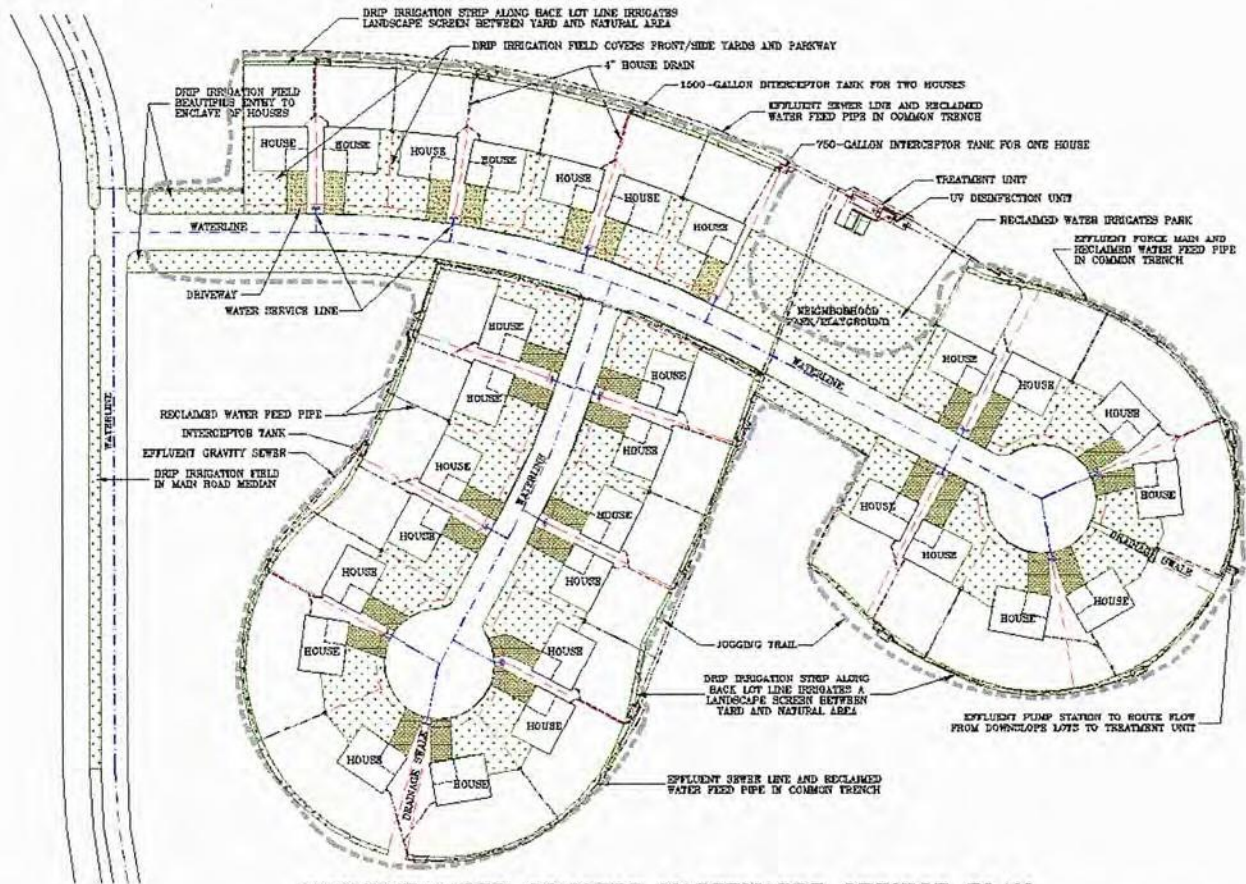
The “decentralized concept” is the generic name for this strategy, which basically holds that “waste” water is most effectively and efficiently managed, *as a water resource*, by treating it – and reusing it to the maximum extent practical – as close to where it is generated as practical. The degree of collectivization at any given treatment center is based on judgment of what is indeed most practical, taking into account the nature of the development being served, the topography, the site and soil conditions, etc., but typically it would be at a “neighborhood” level. It is important to understand, however, that regardless of how distributed or collectivized the system may be, *it is all one wastewater system, under one unified management system*. Indeed, it is suggested that the City of Bulverde become the owner-operator of all wastewater systems within its jurisdiction, to provide that unified management.

By distributing the overall wastewater system in this manner, much of the cost of the collection system is obviated, largely blunting if not eliminating the facilities that compose a large majority of the total cost of the conventional centralized system, the large trunk mains and lift stations. And by making the treated effluent available on a highly distributed basis, much of the cost of the system to redistribute this water resource to points of reuse are similarly avoided. In short, the developer’s resources are focused on the job it asserts it really wants to accomplish, beneficial reuse of this water resource, rather than dedicating a large majority of the money to just moving the water from place to place. Thus, *this decentralized concept strategy would provide a much better, much more cost efficient way to serve important economic or social development than the conventional strategy*.

Then too, distributing the system in that manner would blunt, indeed would likely eliminate, the need for lift stations in the collection system. Examining the terrain over Honey Creek Ranch, it appears certain that there would need to be several lift stations to route the wastewater to the location shown for the wastewater treatment plant. Each of these lift stations would be a point of high vulnerability to overflows/spills. *Lift stations fail every day*. And indeed, the conventional collection system lines themselves, along with the many manholes that this sort of collection system would entail, is itself a water quality threat, as these lines chronically leak, with the leakage increasing as the system ages, and the manholes may overflow in wet weather, exactly because these lines leak and introduce rainwater into the sewer system. It appears that TCEQ turns an entirely blind eye to these factors, apparently just

presuming that the collection system would operate “perfectly”, while experience shows that is simply not so. *This anti-society behavior on the part of TCEQ must end.*

At <https://waterblogue.com/2014/09/24/this-is-how-we-do-it/> (deemed to be part and parcel of this comment) is a general overview of the decentralized concept strategy, as it might be applied to a neighborhood in what appears to be a fairly typical Hill Country subdivision, the sort that may be expected to populate the area where Honey Creek Ranch is located. A schematic of the system described in that piece is shown below. That the plan being proposed by Silesia Properties is of very different character will be addressed below.



DECENTRALIZED CONCEPT WASTEWATER SERVICE PLAN

This decentralized concept strategy would feature effluent sewerage collection systems, which would greatly blunt, if not eliminate altogether, the hazards inherent in the conventional collection system. It would also feature distributed “fail-safe” treatment plants – which are *not* noisy and odiferous and so could be deployed at a neighborhood scale, while not incurring an untenable operations and maintenance liability. The scheme also includes dispersal of the treated effluent in *subsurface drip irrigation fields, arrayed to the maximum extent practical over areas that would be irrigated as a matter of course*, whether the effluent were available to supply that irrigation or not. Again, that is the very essence of “beneficial reuse”.

This strategy, being what might be termed a “modified TLAP”, would put in place the “disposal” field and the reuse system in one fell swoop. Those drip irrigation fields – formally they may be called TLAP fields – can be loaded 24/7/365, as specified in Chapter 222, providing beneficial irrigation through the

large majority of the year when irrigation is beneficial, and very responsibly “disposing” of the effluent into a robust soil system during the small part of the year when the “irrigation” would be a “disposal process”. Thus, *the resource value of this water would be practically, cost efficiently maximized, right there in the neighborhood where that “waste” water was generated.*

While the details of how a decentralized concept strategy may be executed in the particular circumstances of Honey Creek Ranch should be deferred to a planning process that Silesia Properties, in concert with the City of Bulverde, is urged to convene, <https://waterblogue.com/2016/09/26/lets-compare/> (deemed to be part and parcel of this comment) offers a review of the ways in which the decentralized concept strategy would be *more fiscally reasonable, more societally responsible, and more environmentally benign* than the conventional centralized strategy would be in providing wastewater service to new development in the urban hinterlands, which is the setting of Honey Creek Ranch. As reviewed there, a decentralized concept system can be expected to have a far lower global life-cycle cost than would a conventional centralized system. Again, since the water would be routed to beneficial reuse just as a result of the way the system is designed and run, it would practically maximize the beneficial utilization of this water resource.

Regarding the idea that the proposed wastewater system would be implemented and run in a manner that would route the water resource to beneficial irrigation of “lawns and landscapes” rather than being discharged, the nature of the proposed land plan must be examined. What we see is a layout much more relevant to an area with gentle relief within an urbanized area, with densely-packed small lots laid over the area without much apparent consideration of the landforms, other than to provide for drainage easements. While the business aspects of this are indeed the business of Silesia Properties – it appears that the aim is to maximize lot yield without much regard to the character of the area – what we see does bear on how realistic it would be to accomplish much beneficial reuse.

Per the graphic showing the development plan – see above – it is proposed to place 2,396 lots on this land. The proposed design flow rate to be permitted is 500,000 gallons/day. The statutory design hydraulic application rate onto a subsurface drip field is 0.1 gallons/sq. ft./day, so this implies that there would need to be at least 5,000,000 sq. ft. of drip field area. (Note that if it were proposed to spray this water over the irrigated areas instead, the required area would be greater, and even then the instances of discharge would be “frequent” unless a large storage volume were to be provided, which would be rather costly.) That implies there would need to be an average irrigated area per lot of $5,000,000/2,396 = 2,087$ sq. ft. With the lots being only 45 feet wide, and presumably needing to accommodate about a 20-foot wide driveway, there would be precious little area in the front yards and parkways to provide this irrigated area, *way short* of the needed area.

So it is called to question where any beneficially irrigated area would be on this project. Other than drainage channels, which will not provide any area appropriate for this irrigation, there is no dedicated green space within the neighborhoods. The vast majority of the open space on this land plan is the large “central park”. The function of that area is entirely undefined, so the prospects for any irrigation within that area to be “beneficial” is entirely opaque at this point. Thus, the actual prospects for actually reusing, instead of discharging, the effluent remains entirely opaque. The assertion of the developer’s representative reported in The Rivard Report is entirely without any rational substantiation.

Unfortunately, it appears that TCEQ finds this matter to be of no interest to it. Once again, the attitude of TCEQ is that it only consider the discharge permit, in a vacuum, and it has no interest in regard to adjudication of that permit what the actual fate of the water may be. This basically denies the whole idea that options to the proposed action, that would obviate even considering a discharge, are to be

examined, in regard to supporting important economic or social development. Here again, this anti-society behavior *must stop*. TCEQ must *require* that a bona fide examination of the full range of options be pursued before it may even consider a discharge permit, especially in a case like this, where discharge would threaten high quality environmental values.

That is *demand*ed because it is understood that the Clean Water Act requires that all “reasonable” options to discharge be considered prior to approving a permit to discharge. In the TCEQ document RG-194, “Procedures to Implement the Texas Surface Water Quality Standards” that requirement is explicitly stated: “An analysis of alternatives to the proposed discharge that could eliminate or reduce the anticipated degradation, and an assessment of cost and feasibility for reasonable alternatives.” In the decentralized concept, we have one such reasonable alternative. So TCEQ should be motivated to have this option considered, and should require *all* applicants for a discharge permit to give due consideration to it. To date it does not appear that TCEQ has required consideration of *any* options to the requested discharge permit. *This must change*.

Then too there is the matter of the pollution that would be generated due to the placement of so much development, so much impervious surface, onto this land. The proposed land plan does not appear to provide any means of blunting the polluted runoff. The means by which that might be accomplished are reviewed in <https://waterblogue.com/2014/10/14/and-stormwater-too/> (deemed to be part and parcel of this comment). But there must be spaces designed into the development plan where the stormwater runoff management facilities could be placed, and/or arrangements made to house them on the lots. Neither is apparent in the proposed land plan. But here too TCEQ turns a blind eye to all of that, deeming the “secondary” impacts of development that would be actuated by granting a wastewater permit to be “irrelevant”. So it is denying the very idea that it must require “[a]n analysis of alternatives to the proposed discharge that could eliminate or reduce the anticipated degradation, and an assessment of cost and feasibility for reasonable alternatives.” Again, this consideration of the permit application in a vacuum is anti-society behavior that *must stop*.

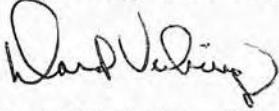
In any case, it is noted that the proposed 45-foot wide lots do not conform with the City of Bulverde subdivision ordinance. Which highlights that the land plan will have to be revisited in any case, since this development must be run through the City’s subdivision process. It is called to question whether it is relevant and proper for TCEQ to consider a permit application that is predicated on a development plan that is so obviously unrealistic. This is another aspect of TCEQ’s process that must be called to question. Its actions *should support, rather than degrade*, such intertwining societal processes.

It is understood that there are a number of institutional challenges to implementing the decentralized concept strategy, not the least being that it runs counter to the manner which TCEQ has set forth it expects to see wastewater management executed. Again, organized and run to essentially “dispose” of a perceived nuisance. So it is understood that Silesia Properties would have to explore the decentralized concept strategy in concert with TCEQ, and with the City of Bulverde. Regarding TCEQ, the explicit scheme as it is set forth in <https://waterblogue.com/2014/09/24/this-is-how-we-do-it/>, basically the scheme shown in the graphic above, has been reviewed with agency personnel, who have stated that the concept *could be permitted* under its current rules.

But as reviewed, without regard to that evaluation, there are plenty of reasons to consider the decentralized concept strategy. Given the potential to put in place a “waste” water management system that would avoid any discharge, *ever*, that would be much more globally cost efficient, that would practically maximize the resource value of this water, and that would circumvent the environmental liabilities inherent in the conventional centralized system, it would indeed seem reasonable to consider

the decentralized concept strategy. Silesia Properties is urged to pull back its request to be permitted to discharge into Honey Creek and to engage in a planning process, in concert with TCEQ and the City of Bulverde, to transition its wastewater service plan throughout the City's hinterlands to a decentralized concept strategy. This will save the developer and the community money and will better husband this region's precious water resources.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David Venhuizen". The signature is written in a cursive style with a large initial "D" and a long, sweeping underline.

David Venhuizen, P.E.
September 13, 2018