Greater Edwards Aquifer Alliance

Member Organizations

Act Now Comal
Alamo, Austin, and Lone Star chapters of the Sierra Club
ARK Ecological Consulting
Bexar Audubon Society
Bexar and Travis-Austin Green Parties
Bexar Grotto
Boerne Together
Bulverde Neighborhood Alliance
Bulverde Neighborhoods for Clean Water
Cibolo Center for Conservation
Citizens for the Protection of Cibolo Creek
Coalition for Responsible Environmental Aggregate Mining (CREAM)
ARK Ecological Consulting
Comal Conservation
Comfort Neighbors
Congregation of Divine Providence
Dry Comal Creek Neighbors
Environment Texas
First Universalist Unitarian Church of SA
Fitzhugh Neighbors
Friends of Canyon Lake
Friends of Castroville Regional Park
Friends of Government Canyon
Fuerza Unida
Green Society of UTSA
Guadalupe Riverkeepers
Guadalupe River Road Alliance
Guardians of Lick Creek
Hays Residents for Land & Water Protection
Headwaters at Incarnate Word
Helotes Heritage Association
Hill Country Alliance
Kerr County Water Alliance
Kendall County Well Owners Association
Las Moras Springs Association
Leon Springs Business Association
Llano River Watershed Alliance
Native Plant Society of Texas -- NB
Native Plant Society of Texas – SA
Northwest Interstate Coalition of Neighborhoods
Pedernales River Alliance – Gillespie Co.
Preserve Castroville
Preserve Lake Dunlop Association
Preserve Our Hill Country Environment
River Aid San Antonio
San Antonio Conservation Society
San Marcos Greenbelt Alliance
San Marcos River Foundation
Save Barton Creek Association
Save Our Springs Alliance
Scenic Loop/Boerne Stage Alliance
Securing a Future Environment (SAFE)
SEED Coalition
Signal Hill Area Alliance
Texans for Environmental Awareness
Texas Cave Management Association
Trinity Edwards Spring Protection Assoc.
Water Aid – Texas State University Watershed Association
Wildlife Rescue & Rehabilitation

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January 20, 2026

Texas Commission on Environmental Quality
Office of the Chief Clerk, MC 105
P.O. Box 13087
Austin, Texas 78711-3087

Submitted electronically at http://www14.tceq.texas.gov/epic/eComment/

Re: Comments and Contested Case Hearing Request Regarding Salado Creek Land Partners LLC and South Central Water Company's proposed wastewater direct discharge permit WQ0016658001

Please accept the attached comments on behalf of the sixty-three member groups of the Greater Edwards Aquifer Alliance (GEAA).

1. **Background.** Salado Creek Land Partners LLC and South Central Water Company, P.O. Box 570177, Houston, Texas 77257, have applied to the Texas Commission on Environmental Quality (TCEQ) for new Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0016658001, to authorize the discharge of treated domestic wastewater at a daily average flow not to exceed 700,000 gallons per day for the proposed The Reserve at Salado Creek development.

   The facility would be located approximately 6,900 feet west of the intersection of Dos Hermanas Road and Williamson Road, in Bell County, Texas 76571. The treated effluent would be discharged directly to Salado Creek in Segment No. 1243 of the Brazos River

2. **Greater Edwards Aquifer Alliance (GEAA).** GEAA submits the following comments on behalf of its sixty-three member organizations and requests a contested case hearing regarding this permit application. GEAA is a 501(c)(3) nonprofit organization that promotes effective, broad-based advocacy for the protection and preservation of the Edwards and Trinity Aquifers, their springs, watersheds, and the Texas Hill Country that sustains them. GEAA has multiple members who would be adversely affected by the proposed application by Salado Creek Land Partners LLC and South Central Water Company.

   GEAA's members have serious concerns regarding the permit application, relating to the degradation of Salado Creek, the Edwards Aquifer, and negative impacts on endangered species and area water

wells that would likely occur with the discharge of treated sewage in the proposed development area. We ask to be recognized with standing to contest this permit.

Specific areas of concern include concerns regarding high nutrient limits, concerns regarding no Beneficial Reuse requirement, concerns regarding negative impacts to Salado Creek and area groundwater, concerns regarding inadequate slope characteristics of Salado Creek to convey the flow of treated sewage, concerns regarding combined treated sewage discharge and stormwater runoff, concerns regarding cumulative impacts of area treated sewage discharges, concerns regarding flooding, concerns regarding threats to endangered species, and concerns regarding overall effluent volume.

3.0 Background – Salado Creek's Unique Hydrogeology and Inability to Absorb Treated Sewage

The proposed "receiving waters" for the Reserve at Salado Creek's 700,000 gallons per day of treated sewage do not exist for most of the year. Salado Creek does not typically flow above ground in this area for much of the year, due to the unique hydrogeology of the creek and its location over the Edwards Aquifer Recharge Zone, or EARZ (see Fig. 1 below). This makes Salado Creek ill-suited to receive the substantial stream of effluent that would be generated from the Reserve at Salado Creek development.

Fig. 1: The Reserve at Salado Creek wastewater plant would be located inside the environmentally-sensitive Edwards Aquifer Recharge Zone, potentially polluting Salado Creek, the Edwards Aquifer, and area wells.

TCEQ has stated that their philosophy for direct treated sewage discharges posits that the receiving waters and the channel's soils and vegetation will absorb treated sewage and associated nutrients (Nitrogen and Phosphorous). But if there are no receiving waters at the proposed effluent outfall location, treated sewage will simply flow into the dry creek bed and quickly cause eutrophic conditions, with excessive algae and possibly toxic algae, especially during warmer, sunnier months. From there, the effluent would enter the Edwards Aquifer through the many recharge features present in this area and across the EARZ. The Edwards Aquifer itself doesn't have the ability to adequately "clean" this treated sewage, as water flows through the limestone aquifer are relatively quick and there are minimal soils and vegetation to absorb the effluent nutrients.

Travelling the length of Salado Creek reveals the unique hydrogeology that is present in the area. From its head waters northwest of Florence, TX, to its pooling in the town of Salado 22 miles downstream where the largest artesian Salado Springs are located, the creek undergoes many changes due to its crossing of the Balcones Fault Zone.

Northwest of the town of Florence, the south fork of Salado Creek rises as a small, clear stream that flows through the town. The south fork is then joined by the north fork halfway between the towns of Florence and Jarrell. As the combined forks enter the EARZ, Salado Creek changes from steady flow to puddles and then to a completely dry creek bed, as the creek's surface water flows to groundwater through numerous fractures in the creek bed. (see Figs. 2 and 3).

Fig. 2: Salado Creek transitions from steady flow to large puddles (left) then to a dry creek bed (right) within just a few miles, inside the EARZ between Florence and Jarrell.

Salado Creek is mostly dry from the area northwest of Jarrell to the proposed Reserve at Salado Creek outfall location on the Willaimson/Bell County border, except during substantial rain events. Most precipitation falling into the Salado Creek watershed in this region flows to groundwater through numerous cracks, faults, and fissures in the EARZ.

Fig. 3: Salado Creek at the proposed outfall location is ill-suited to absorb treated sewage effluent due to its lack of adequate receiving waters most of the year (photo taken at proposed outfall area 10/13/25)

Just over a mile downstream (north) of the Reserve at Salado Creek's proposed treated sewage outfall area, the creek enters the Salado Creek Springshed. The springshed is an area of numerous springs which convey water flow from the underground Edwards Aquifer to the surface of Salado Creek (see Figs. 4 and 5).

The Salado Creek Springshed is one of the most environmentally-sensitive regions of Salado Creek and the entire Bell County as there is a two-way hydrological communication taking place within the springshed: precipitation and surface water flow to ground water through multiple recharge features, while numerous springs bubble up from the Edwards Aquifer to surface water/Salado Creek. Importantly, numerous private and public utility water wells are scattered around the springshed.

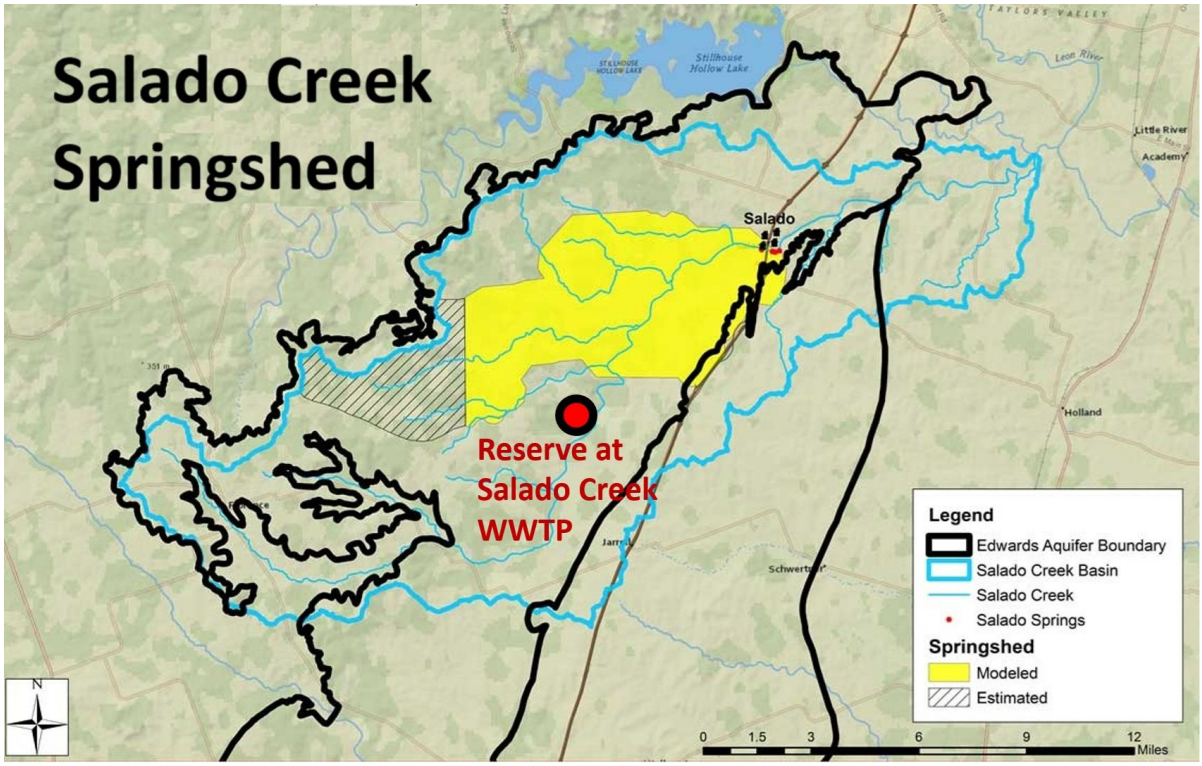


Fig. 4: The Salado Creek Springshed, shown primarily in yellow above, fills dry Salado Creek with clear, cold water from the Edwards Aquifer (source: Clearwater Underground Water Conservation District).

Fig. 5: This photo from the Salado Creek Springshed shows the drastic change that takes place in the creek as it flows north towards Salado and fills up with clear, cold water from the Edwards Aquifer.

Salado Creek enters the town of Salado as an extremely clear, pristine stream (Fig. 6). Here there are additional named springs that are home to the endangered Salado Springs Salamander.

Fig. 6: Salado Creek in the Village of Salado is one of the clearest pristine streams in Central Texas.

The introduction of treated sewage from the Reserve at Salado Creek wastewater treatment plant into this ecologically sensitive area of springs and pristine surface waters would be extremely harmful. And the addition of treated sewage from all the other wastewater plants TCEQ is currently authorizing in the area could lead to ecological catastrophe. The following sections outline GEAA's specific areas of concern regarding the draft Reserve at Salado Creek wastewater direct discharge permit.

3.0 Specific Areas of Concern Regarding the Proposed Reserve at Salado Creek Wastewater Permit.

GEAA has numerous concerns regarding TCEQ's ill-advised plan to authorize the Reserve at Salado Creek's direct discharge of up to 700,000 gallons per day of treated sewage.

3.1 Concerns Regarding High Pollution and Nutrient Limits

TCEQ has issued a draft wastewater permit for the Reserve at Salado Creek with the following pollution/nutrient limits for the initial phase of deployment:

Carbonaceous Biochemical Oxygen Demand (CBOD): 10 mg/l
Total Suspended Solids (TSS): 15 mg/l
Dissolved Oxygen (DO): 4 mg/l
Ammonia Nitrogen (NH3-N): 3 mg/l
Total Phosphorous (P): 0.15 mg/l
Total Nitrogen (N): 6 mg/l
E coli: 126 CFUs

These relatively lax pollution/nutrient limits apply to both the initial and second phase of deployment, up to 350,000 gallons per day discharge. In the final phase of deployment, a modest tightening of some limits has been applied by TCEQ to the draft permit:

Carbonaceous Biochemical Oxygen Demand (CBOD): from 10 mg/l to 7 mg/l
Total Suspended Solids (TSS): from 15 mg/l to 12 mg/l
Ammonia Nitrogen (NH3-N): from 3 mg/l to 2 mg/l

It is notable that even the slightly more stringent parameters of the third and final deployment phase do not meet TCEQ's own Chapter 210 Beneficial Reuse standards. And while these limits may be adequate for a much smaller discharge within the Edwards Aquifer Contributing Zone (EACZ), they are woefully inadequate for a discharge of 700,000 gallons per day in the environmentally-sensitive EARZ, especially considering the large number of water wells in this area, the multitude of important springs, and water quality requirements for the endangered Salado Salamanders currently living in those springs.

The Total Phosphorous limit of 0.15 mg/l (150 micrograms/l) may seem like a stringent limit, until the total volume of effluent is taken into consideration. 150 micrograms per liter of Phosphorous in a treated sewage discharge of 700,000 gallons per day translates into a Total Maximum Daily Load (TMDL) of .88 lbs. per day of Phosphorous being dumped into mostly dry Salado Creek - over 321 lbs. of Phosphorous during the course of a year.

The Total Nitrogen limit of 6 mg/l, when applied to a treated sewage volume of 700,000 gallons per day, translates into the dumping of over 35 lbs. per day and over 6 tons (12,848 lbs.) per year of Nitrogen into Salado Creek. While Nitrogen is typically not as big a contributor as Phosphorous to the proliferation of algae (and toxic algae) in a waterway, the sheer volume of Nitrogen proposed for discharge would contribute substantially to the ultimate ruin of Salado Creek from extensive eutrophication.

In addition to harmful effects from excess Nitrogen and Phosphorous, the relatively lax initial limits for Carbonaceous Biochemical Oxygen Demand (10 mg/l), Total Suspended Solids (15 mg/l), and Dissolved Oxygen (4 mg/l) would ensure a transformation of Salado Creek from a clear, pristine stream into one that is cloudy, polluted, and covered in algae. 700,000 gallons per day of effluent discharge with 15 mg/l Total Suspended Solids translates into the dumping of 88 lbs. of solids into

Salado Creek each day. How is this massive volume of solids going to be absorbed by a mostly dry creek bed?

The lax pollution limits for CBOD and DO are also quite problematic. Due to the lack of adequate receiving waters versus the amount of effluent being discharged, the creek would ultimately become starved of Oxygen and filled with suspended solids and low-oxygen effluent, choking the existing aquatic life downstream, including the endangered Salado Springs Salamander.

TCEQ has never provided any technical justification for the lax pollution limits they set for direct discharge permits, other than the vaguely-worded Implementation Procedures (IPs) shown in this document from more than 15 years ago. [1]

It is astonishing that the lives of so many Texas landowners are turned upside down on a regular basis by TCEQ officials who follow the vague guidelines of a document that is so indeterminate and out of date. Modern wastewater treatment plant technology including Enhanced Biological Nutrient Removal (EBNR) can now provide reliable and cost-effective Phosphorous removal to 15 micrograms per liter[2], 1/10 of that proposed by TCEQ in the draft Reserve at Salado Creek wastewater permit. Other lax pollution limits including 3 mg/l Ammonia Nitrogen and 6 mg/l Total Nitrogen can also be improved upon with relatively cost-effective modern wastewater treatment processes.

In addition to being outdated, TCEQ's IPs provide general guidelines for setting pollution limits on direct discharge permits but are notably short on specifics. For example, a table is provided on page 29 of the TCEQ IP document which correlates Total Phosphorous limits solely based on effluent volume, with no consideration provided for volume of receiving waters available, location of outfall (EACZ, EARZ, etc.), or background Phosphorous and Nitrogen concentrations in the receiving waters. Generalized verbiage in TCEQ's IPs states "Higher or lower limits may be recommended based on site-specific mitigating factors". This gives TCEQ the leeway to vary from the pollution limits listed in the IPs, but without providing any detail as to what "site-specific mitigating factors" would need to be present and how these would specifically impact pollution limits in TCEQ-issued draft permits.

TCEQ's IPs mention repeatedly the importance of establishing Total Maximum Daily Loads (TMDLs) for Phosphorous, yet there's no mention of how these TMDLs are calculated or even what general criteria is used in the calculation. As a result, we have the Reserve at Salado Creek draft permit, which allows for the dumping of substantial quantities of pollutants into a mostly-dry creek bed. This ill-defined and inconsistent methodology by TCEQ would be considered laughable by any environmental science professional if the potential consequences of polluting Salado Creek with treated sewage weren't so imminent and dire.

Several years ago, TCEQ set an identical 150 micrograms per liter Phosphorous limit for the City of Liberty Hill's wastewater permit, which resulted in a lengthy court battle where an administrative

[1] https://www.tceq.texas.gov/downloads/permitting/water-quality-standards-implementation/june-2010-ip.pdf
[2] https://www.epa.gov/sites/default/files/2019-02/documents/advanced-wastewater-treatment-low-concentration-phosphorus.pdf

law judge ruled against TCEQ, forcing a Phosphorous limit that was ultimately 7 ½ times lower than what TCEQ had originally authorized. Like the wastewater permit for the Reserve at Salado Creek, the primary issue was the large volume of effluent being released by the City of Liberty Hill (roughly 1 million gallons per day at the time) with the 150 micrograms per liter P limit.

Bombarding the relatively small South San Gabriel River with a high-nutrient effluent stream of nearly equal volume to the receiving waters completely ruined that waterway (see Fig. 7). Ultimately, courts imposed a modified P limit of just 20 micrograms per liter, but not before TCEQ had already authorized the pollution of the South San Gabriel River for well over a decade.

Given TCEQ's history with the City of Liberty Hill, and the fact that it happened just 20 miles away from the Reserve at Salado Creek proposed outfall location, one can only wonder why TCEQ would once again try to authorize a Phosphorous limit of 150 micrograms per liter, coupled with a massive volume of treated sewage discharge. The situation is especially perplexing given that the Reserve at Salado Creek proposed development is in a much more environmentally sensitive region within the EARZ, with an endangered species at risk, as well.

In scores of direct discharge permits, in Blanco, Travis, Hays, Williamson, Comal, Bexar, Bandera counties and more, TCEQ has repeatedly authorized lax pollution limits for direct discharge wastewater plants, only to be taken to court by affected landowners. In many cases, TCEQ has been forced by a state judge to tighten permit limits. But rather than issuing lax, problematic wastewater permits for so many Central Texas developments and then having to consistently defend these problematic permits in court, one wonders why TCEQ doesn't just issue more stringent permits to begin with, in order to avoid these lengthy and costly court cases?

Fig. 7: TCEQ seems to have learned nothing from the ecological disaster they allowed to occur by authorizing the City of Liberty Hill's dumping of large quantities of high-nutrient treated sewage into the relatively small South San Gabriel River, pictured above in 2018.

In order to lower effluent volumes, it is highly recommended that the developer incorporate a Beneficial Reuse program, reusing a portion of the 700,000 gallons per day of effluent for watering certain areas of the development. However, the current draft permit contains no pollution limits for Turbidity, and limits for E Coli and CBOD exceed TCEQ's Beneficial Reuse standards set forth in 30 TAC §210.33 (see Table 1 below).

Table 1: The Reserve at Salado Creek draft wastewater permit limits don't meet Texas state Chapter 210 Beneficial Reuse standards for these three pollution parameters.

Pollution Parameter	Beneficial Reuse Requirement per 30 TAC §210.33	Draft Wastewater Permit for Reserve at Salado Creek (initial limits)
CBOD	5 mg/l	**10 mg/l**
Turbidity	3 NTU	**No limit set**
E coli	20 CFU/l00 ml	**126 CFU/100 ml**

The next section discusses in more detail GEAA's concerns regarding the lack of a Beneficial Reuse requirement or plan for the Reserve at Salado Creek development.

3.2 Concerns Regarding No Beneficial Reuse Requirement

Perhaps the most problematic aspect of the proposed Reserve at Salado Creek wastewater permit is the sheer volume of effluent proposed, 700,000 gallons per day. This is equivalent to a small creek's worth of treated sewage, with a discharge/flow rate in excess of 1 cubic foot per second that would be discharged into an intermittently dry Salado Creek.

The logical approach for reducing this effluent volume would be to reuse the effluent for watering lawns and common areas in the Reserve at Salado Creek development, including parks, medians, and green spaces. If purple pipes were installed to each property for watering of lawns and individual landscaping, it could substantially reduce the amount of effluent being discharged into Salado Creek. The EPA estimates that up to 70% of water use during long Texas summers is used for outdoor watering. [3] Replacing this potable water with reused effluent would not only reduce Salado Creek pollution, but it would substantially reduce water demand on the Edwards Aquifer, which the developer has identified as their sole potential water source via three wells on their property.

TCEQ has made no such demand of the Reserve at Salado Creek developer to reuse their effluent. Furthermore, they have authorized a draft permit which fails to meet the pollution limits required by TCEQ for Type 1 Beneficial Reuse.

[3] https://www.epa.gov/watersense/when-its-hot

Beneficial Reuse of the Reserve at Salado Creek's effluent would help solve an important problem, which is that of water supply. There is no surface water supply within 20 miles of the development, which means the developer would have to fully rely on water from the limited Edwards Aquifer, adding further stress to already-stressed groundwater resources. It is ironic and extremely short-sighted that the developer has proposed and TCEQ has authorized polluting the very aquifer they will be relying on for their residents' drinking water.

Central Texas has experienced drought conditions on and off for more than 15 years, as climate change takes hold and precipitation patterns change, with longer droughts punctuated by more infrequent floods [4]. TCEQ should set a mandatory policy requiring large developments to beneficially reuse at least a portion of their effluent rather than polluting pristine waterways with it. This would have the dual benefits of preserving pristine creeks and rivers while lowering groundwater (and surface water) demand. TCEQ's current policy of converting potable water into disposable sewage with every new wastewater permit will have to come to an end sooner or later due to climate change effects and negative impacts on Texas waterways, so they might as well start right now.

3.3 Concerns Regarding Negative Impacts to Salado Creek and Area Groundwater

The proposed location for the Reserve at Salado Creek's wastewater treatment plant is in perhaps the worst possible location in terms of area well contamination potential, due to its location over the EARZ. The Edwards Aquifer groundwater in this area flows in roughly the same direction as Salado Creek, southwest to northeast, with both flows converging on the town of Salado (see Fig. 8).

At the outfall location, effluent would first enter the creek bed, which is dry most of the year. Due to the high volume of effluent, pooling would occur in the shallow, wide creek bed before the effluent gradually seeps into the Edwards Aquifer through numerous recharge features in the area. As the strong Texas sun evaporates water content from the effluent stream and pools, what remains as surface water would become more concentrated, with higher levels of nutrients and bacteria developing over time in the slow-moving effluent stream and associated pools. Salado Creek would change from an ephemeral stream into a permanent stream of treated sewage running down the middle of the creek bed, heavily eutrophied and potentially toxic.

These high levels of ever-increasing nutrient/pollutant concentrations would create ideal conditions for algae proliferation and, given the excessive TMDLs of Phosphorous and Nitrogen in the effluent, toxic algae proliferation. Central Texas officials have found numerous instances of toxic algae proliferation in warm, still, Phosphorous-rich waters that receive plenty of sunlight; precisely the conditions that would occur in Salado Creek from treated sewage discharge.

[4] https://www.austingeosoc.org/new-events/2021/3/1/catastrophic-floods-and-temporal-increases-in-catastrophic-floods-in-central-texas

Due to the low slope of Salado Creek in this area (discussed in more detail in Section 3.4), the 700,000 gallons per day of effluent would not move rapidly downstream but rather create multiple stagnant pools in the Salado Creek bed, even when the creek is completely dry just upstream.

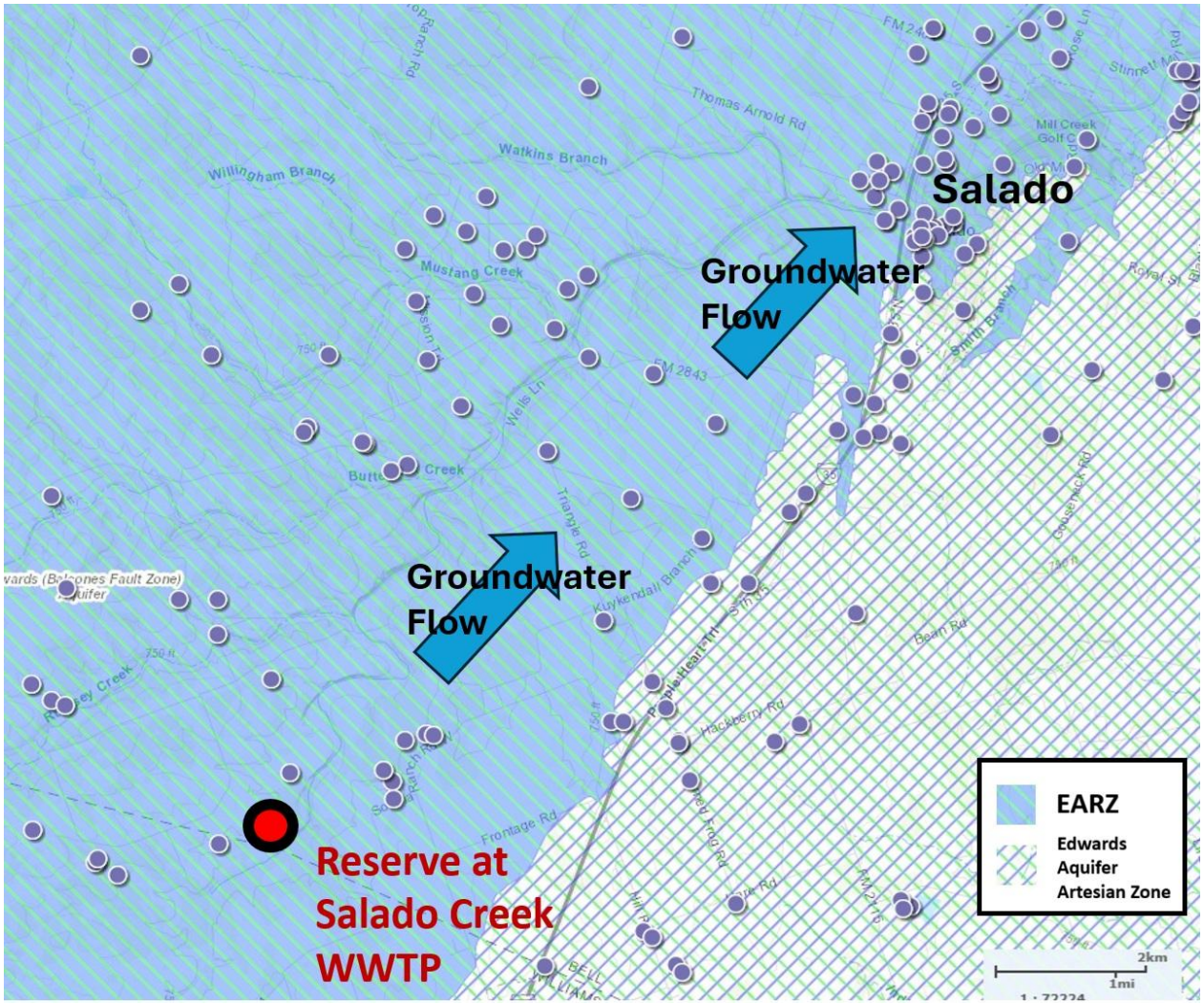


Fig. 8: A large number of water wells (shown as small purple circles) populate the area along Salado Creek between the proposed Reserve at Salado Creek WWTP and the town of Salado (source: Clearwater UWCD).

Much of the effluent would then drain into the Edwards Aquifer through seeps, faults, and fractures, while the remainder would flow very slowly along the surface channel. Both surface water and groundwater would become simultaneously polluted with the accumulated amounts of Phosphorous, Nitrogen, solids, and bacteria present in the evaporating effluent stream.

Once the effluent enters the Salado Creek Springshed, it would mix with clear groundwater to create bacteria and nutrient-rich polluted springflows. From this point northward, both the surface water that local ranchers rely on to water their livestock and the groundwater residents rely on for

their own drinking water could become dangerous to consume due to high levels of bacteria, phosphates, nitrates, and potential cyanotoxins from toxic algae proliferation.

Of those threats to Bell County surface and groundwater, cyanotoxins are the most serious. At the present time, the Salado Water Supply Corporation, who oversee eight public water supply wells in the Village of Salado, does not test for cyanotoxins in the public water supply.

Harmful Algal Blooms (HABs) and Harmful Algal Mats (HAMs) began appearing in Central Texas in 2019 and have since impacted major waterways including Barton Creek, the Colorado River, several of the Highland Lakes, and nearby Stillhouse Hollow Lake [5], just a few miles from Salado Creek. Scientists have identified the primary cause to be a combination of climate change (higher ambient temperatures that translate into higher water temperatures) and increased nutrient levels in the water column, particularly Phosphorous levels. A low-slope, dry creek bed that gets filled with treated sewage high in Phosphorous content and subject to extensive evaporation over time would be the ideal aquatic environment for the proliferation of toxic algae. The next section discusses GEAA's concerns relating to Salado Creek's low-slope characteristics and its corresponding inability to adequately convey treated sewage discharge.

3.4 Concerns Regarding Inadequate Salado Creek Slope to Convey the Flow of Treated Sewage

The slope of Salado Creek between the proposed Reserve at Salado Creek treated sewage outfall and the FM 2843 bridge 5.6 km downstream (5600 m) is just 0.34%, inadequate to convey the flow of treated sewage [6] (see Figs. 9 and 10). The slope calculation is as follows:

Slope = (Elevation at Outfall – Elevation at FM2843 bridge) / Distance
= (217m – 198m) / 5600m
= 19 m / 5600 m
= 0.34%

[5] https://www.kwtx.com/2021/08/23/blue-green-algae-nay-be-linked-dogs-death-another-central-texas-lake/
[6] https://codes.iccsafe.org/s/IRC2021P3/chapter-4-foundations/IRC2021P3-Pt03-Ch04-SecR401.3

Fig. 9: Salado Creek at the proposed outfall is dry, flat and ill-suited for the conveyance of treated sewage

Most sources recommend the minimum slope over land for adequate drainage to be at least 2% [7]. If the slope is less than this, pooling may take place in the channel, and the lower the slope, the greater the pooling. A slope of just 0.34%, which is just 1/6 of the recommended slope for adequate conveyance of water over land, would result in substantial pooling and the backup of treated sewage in the channel.

Given the lack of adequate receiving waters, it is likely that the entire Salado Creek waterway would be predominantly effluent in this area for most of the year. Salado Creek would transform from a mostly dry creek bed into a slow-moving stream of treated sewage, filled with excessive concentrations of Phosphorous, Nitrogen, bacteria, and other treated sewage contaminants such as pharmaceuticals, hormones, personal care products, and other contaminants of emerging concern.

Animals in the area that attempt to drink from the creek, including livestock, could be sickened or worse, especially if the effluent stream forms toxic algae. The steady flow of discharged effluent at a rate of over 1 cubic foot per second would ensure a never-ending supply of treated sewage to fill and contaminate both Salado Creek and the Edwards Aquifer.

[7] https://codes.iccsafe.org/s/IRC2021P3/chapter-4-foundations/IRC2021P3-Pt03-Ch04-SecR401.3

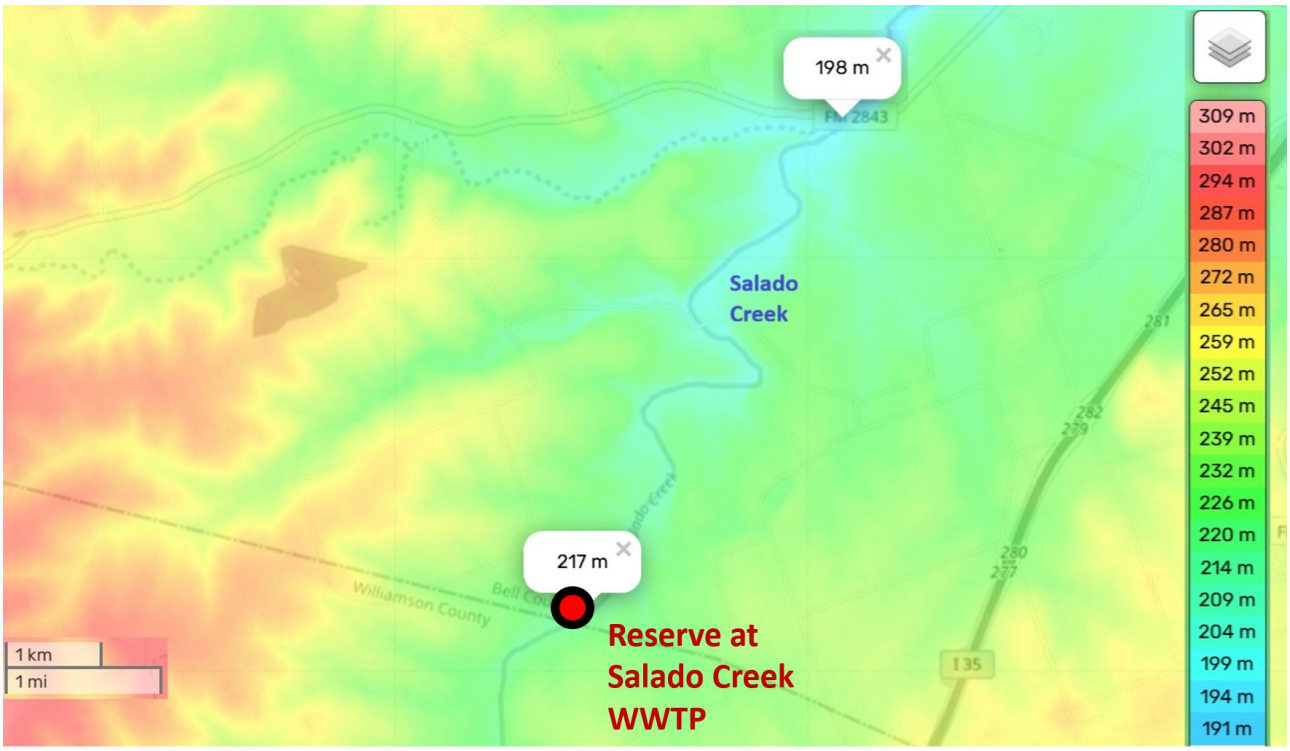


Fig. 10: Salado Creek between the proposed outfall location and the FM 2483 bridge inside the springshed has a very low slope, as the creek runs parallel to (and not across) the Balcones Escarpment to the west.

3.5 Concerns Regarding Combined Treated Sewage Discharge and Stormwater Runoff

Fig. 11 shows the site plan for Reserve at Salado Creek, provided by the developer. The plan shows 889 homes on predominantly 1/7 acre to 1/10 acre lots. There are 231 acres allocated to residential units with an additional 45 acres allocated for mixed use in the development area. Other than setbacks for Karst features and floodplain, there is no green space or parks to be found on the plan, with virtually every acre allocated to high impervious cover structures.

The developer did not provide a calculation of total impervious cover for the development. However, assuming an average lot size of 1/8 acre and an average home footprint of 1500 square feet, which the developer confirmed, we can calculate the impervious cover of each lot as follows:

Lot Area: 5,445 sq ft (1/8 acre)
House Footprint: 1,500 sq ft
Driveway: 500 sq ft
Patio: 200 sq ft
Total Impervious Area: 1,500 + 500 + 200 = 2,200 sq ft
% Impervious Cover: (2,200 / 5,445) * 100 = 40.4%

Looking at the site plan, the roads, sidewalks, and mixed-use impervious structures would likely constitute at least 40% of the remaining area, so we can conclude that the overall impervious cover of the development is at least 40%. This is extremely high for a rural area in the EARZ; the maximum impervious cover allowed over the EARZ between Austin and San Antonio is just 15% (from the Save Our Springs Ordinance). A 2020 study, "Causal Effect of Impervious Cover on Annual Flood Magnitude for the United States" [8], found that for every 1% increase in the area of impervious cover the annual flood magnitude in nearby waterways increases by 3.3%. This is especially true in karst landscapes such as the Edwards Aquifer Recharge and Contributing zones.

Combined with a treated sewage discharge of up to 700,000 gallons per day, the stormwater runoff for the Reserve at Salado Creek would pollute Salado Creek and the Edwards Aquifer during even minor rainfall events. The pollutants generated by more than 1000 vehicles, including motor oil, gasoline, antifreeze, and other automobile fluids, would combine with lawn fertilizers and high-nutrient treated sewage discharge to create a "flush" of polluted water every time it rains.

Fig. 11: The developer's high density site plan allocates almost nothing for green spaces, with impervious cover likely in excess of 40%, even though the surrounding area is rural in nature and located in the EARZ.

3.6 Concerns Regarding Cumulative Impacts of Area Treated Sewage Discharges

TCEQ is currently processing applications for 8 new permits that would allow treated sewage to be discharged into Salado Creek in Bell and Williamson Counties. TCEQ has previously approved four wastewater discharge permits on the creek. Most of the pending and existing permits are for wastewater treatment plants serving residential subdivisions near the towns of Florence, Jarrell, and Salado, a popular tourist destination (Fig. 12). The wastewater treatment plants for these twelve pending and existing permits could cumulatively discharge up to 8 million gallons of treated sewage into Salado Creek every day — a much higher volume than what's discharged by most big-city wastewater treatment plants.

[8] https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2019GL086480

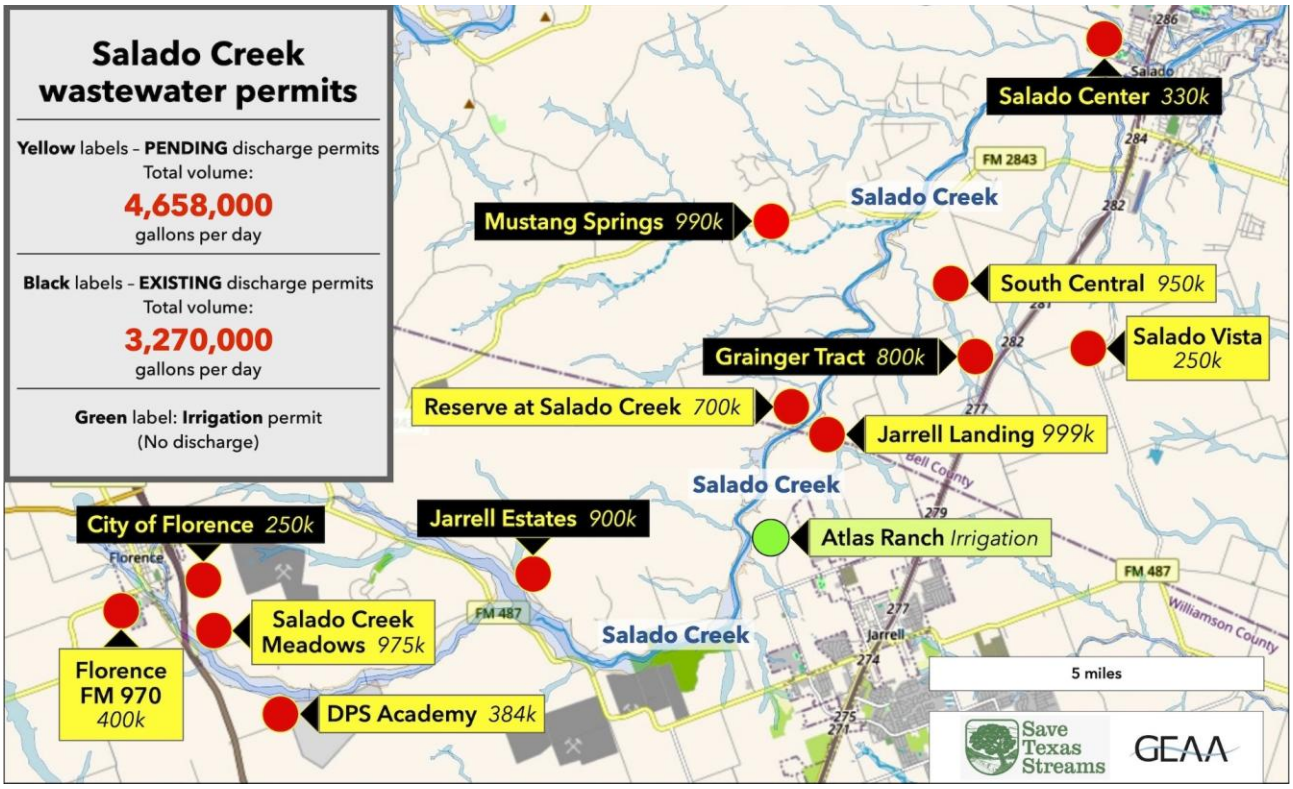


Fig. 12: TCEQ has authorized multiple direct discharge wastewater treatment plants without considering the cumulative impacts of treated sewage discharges on Salado Creek and the Edwards Aquifer.

On page 63 of the TCEQ IPs, it states "The cumulative effect from multiple discharges… **may require** additional screening evaluation." [9] Yet, despite the fact that many of these wastewater plants are in the EARZ, it appears that no additional screening evaluation has taken place. Instead, TCEQ has issued multiple permits for substantial treated sewage discharges with almost identical pollution limits and without regard to cumulative impacts of so many discharges in one watershed. Once again, the vague language in TCEQ's IPs ("may require") gives TCEQ cover to issue identical lax permit limits in a critically environmentally sensitive area, polluting Salado Creek and the Edwards Aquifer in the process.

A closer look at the area immediately surrounding the proposed Reserve at Salado Creek tract reveals startling details. TCEQ has not only authorized the Reserve at Salado Creek to discharge up to 700,000 gallons per day of treated sewage at the property line of the contiguous landowner to the east, Michael Klepac - they've also authorized the Jarrell Landing development (permit number WQ0016207001) to run a 1.6 mile pipe to discharge that development's 999,000 gallons per day of treated sewage at the exact same spot (Fig. 13). This would create a permanent effluent stream of almost 1.6 million gallons per day of treated sewage at a local landowner's property line, where Salado Creek is dry most of the year.

[9] https://aquiferalliance.org/wp-content/uploads/2023/05/Procedures-to-Implement-Texas-Surface-Water-Quality-Standards-prepared-by-Water-Quality-Div-June-2010.pdf

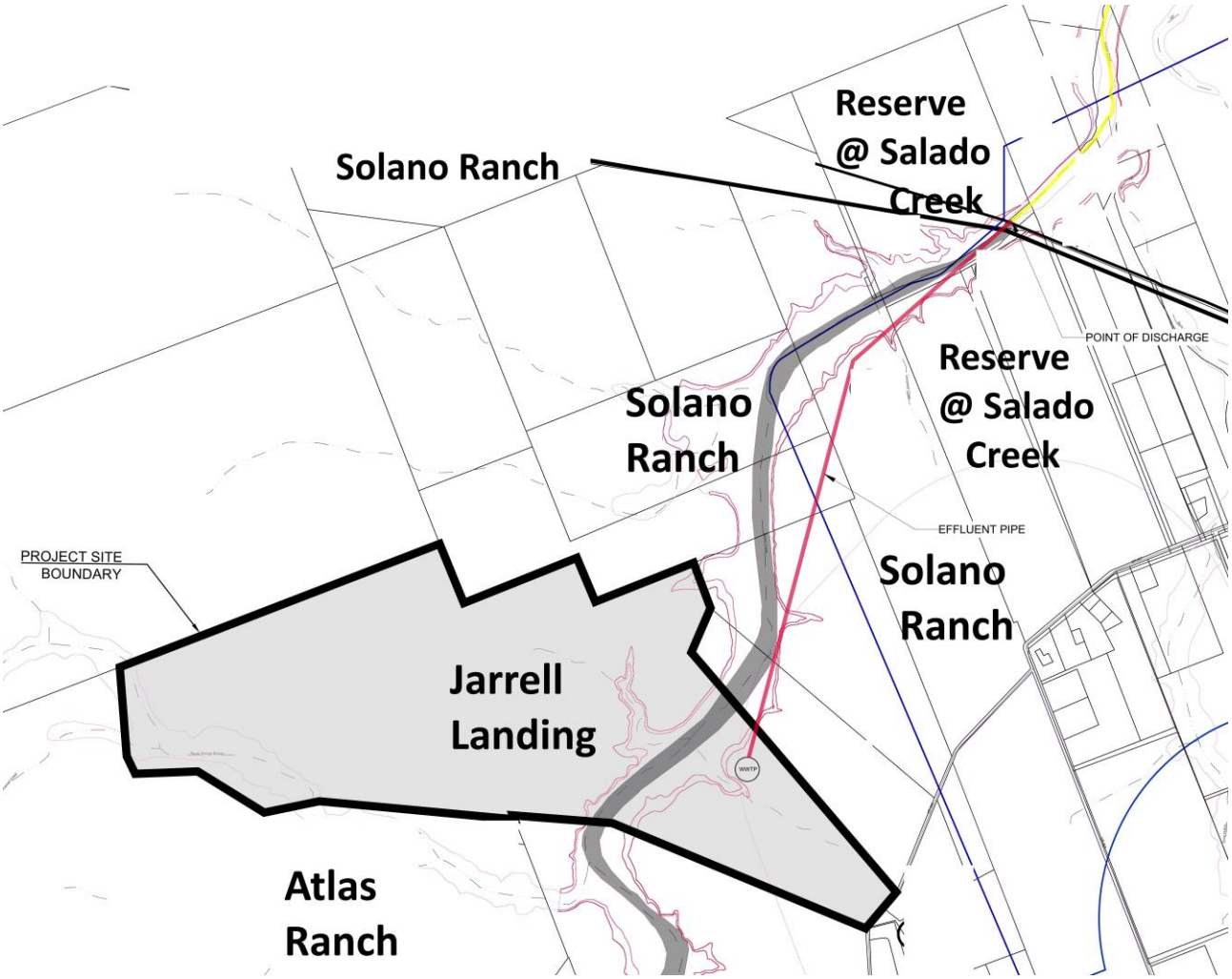


Fig. 13: Jarrell Landing plans to run a 1.6 mile pipeline to discharge their 999,000 gallons per day of treated sewage at the exact same location as the Reserve at Salado Creek (source: JTX permit application)

It's clear why the Jarrell Landing developer wants the treated sewage discharge to occur as far away from their tract as possible; they don't want treated sewage discharge to foul the Salado Creek frontage in their development. What's unclear is why TCEQ would authorize such a dubious scheme that effectively combines large treated sewage discharges onto one spot at a local landowner's property line. After all, Jarrell Landing has almost a half mile of Salado Creek frontage where their effluent could be discharged. Why allow a 1.6 mile pipeline, which will more than double pollution/nutrient loads at a single combined discharge point on Salado Creek?

Just upstream of Jarrell Landing, TCEQ has authorized a Texas Land Application Permit (TLAP) for up to 725,000 gallons per day for the Atlas Ranch development (permit number WQ0016228001). Despite the fact that Atlas Ranch is located over the EARZ, TCEQ has issued one of the most lax TLAP permits ever (20 mg/l BOD and 20 mg/l TSS), with no other pollution or nutrient limits.

Alas, Jarrell Landing's pipeline attempt to keep Salado Creek from being fouled as it runs through their development may ultimately be in vain, as Atlas Ranch's lax TLAP permit just upstream will likely ensure negative impacts to Salado Creek immediately downstream from Atlas Ranch at the Jarrell Landing tract. Such a large TLAP permit (725,000 gallons per day) with lax pollution limits and no nutrient limits is a recipe for substantial eutrophication from TLAP runoff into Salado Creek and the Edwards Aquifer. This nutrient pollution would carry downstream through the Jarrell Landing property, the Solana Ranch properties, and the Reserve at Salado Creek property.

Between the Reserve at Salado Creek, Jarrell Landing, and Atlas Ranch, TCEQ has authorized the discharge or land application of over 2.3 million gallons per day of treated sewage onto a 1.5 mile stretch of dry Salado Creek. And there's a much larger development coming in DMB Development's Solana Ranch. While DMB has yet to apply for a direct discharge permit with TCEQ, they are currently planning 14,000 new homes for the area, with potentially multiple wastewater treatment plants. At what point will TCEQ begin taking into account the cumulative impacts from all of these developments and start issuing tighter wastewater permits that require Beneficial Reuse of effluent?

3.7 Concerns Regarding Flooding

Despite the fact that Salado Creek is usually dry at the proposed outfall location, the creek is subject to major flooding during significant rainfall events (see Fig. 14). This is due to the fact that the watershed is quite large at 170 square miles and drains a portion of the Balcones Escarpment [10]. The current discharge/flow rate of Salado Creek in the Village of Salado is 7.3 cubic feet per second, according to the United States Geological Service website. The treated sewage discharge of the Reserve at Salado Creek would add an additional 1.1 cubic feet per second, a 15% increase in base flow. While this is significant, the cumulative treated sewage discharges of all twelve existing and in-process wastewater permits along Salado Creek (including the Reserve at Salado Creek) would add an additional 8 million gallons per day, or 12.4 cubic feet per second, more than doubling Salado Creek's base flow at the Village of Salado.

The net impact from this 169% increase in base flow due to treated sewage discharges is that the creek would flood more frequently and with lower amounts of precipitation than it currently does. There would also be more frequent floods of greater intensity as a result of the additional treated sewage discharges, and this doesn't even take into account future developments along Salado Creek like Solano Ranch that may add to the cumulative discharges in the future. Climate change,

[10] https://www.tceq.texas.gov/waterquality/tmdl/33-middlebrazos.html

Fig. 14: This flash flood from May 6, 2025 occurred in Salado with less than 1.5 inches of rain [11] upstream over a short time period.

which has created longer drought periods punctuated by less frequent but more intense floods [12] will only add to the problem over time.

Despite the fact that Salado Creek flows substantially to groundwater in the area of the proposed Reserve at Salado Creek outfall, then flows back to surface water in the Salado Creek Springshed, the increased flow from cumulative treated sewage discharges would be continuous; the additional flow doesn't "get lost" in the Edwards Aquifer. It would ultimately flow through the aquifer and then back to surface water. 12.4 cubic feet per second of additional base flow from treated sewage discharges would be mostly maintained through the surface water to groundwater to surface water cycle, except for some evaporation that would occur in the surface water portions of the creek. Adding 12.4 cubic feet per second of additional base flow from treated sewage discharges to a creek with current discharge of just 7.3 cubic feet per second in Salado could be disastrous, in terms of potential flooding.

If TCEQ required developers to submit a Chapter 210 Beneficial Reuse plan as part of their direct discharge permit application, it would reduce flooding concerns considerably. Instead of a 169% increase in Salado Creek base flow as a result of multiple treated sewage discharges, even modest Beneficial Reuse of effluent could reduce that increase by as much as half, helping to mitigate

[11] https://www.weather.gov/wrh/Climate?wfo=fwd

[12] https://www.austingeosoc.org/new-events/2021/3/1/catastrophic-floods-and-temporal-increases-in-catastrophic-floods-in-central-texas

potential flooding problems. And yet TCEQ continues issuing very high discharge wastewater permits along Salado Creek, none of which have a Beneficial Reuse plan, with seemingly no regard for potential flooding that would result.

3.8 Concerns Regarding Threats to Endangered Species

Beginning inside the Salado Creek Springshed (just a mile downstream of the proposed Reserve at Salado Creek outfall location) and continuing into the Village of Salado Creek, there are numerous small and large springs which are home to the Salado Springs Salamander (*Eurycea chisholmensis,* Fig. 15*)*, currently classified by the International Union for Conservation of Nature (IUCN) as "Endangered". The Salado Springs Salamander is referred to in U.S. Fish and Wildlife Reports as the "Salado Salamander".

Fig. 15: Salado salamander populations could be threatened by the many treated sewage discharges TCEQ is authorizing along Salado Creek, including the Reserve at Salado Creek.

IUCN-classified Endangered species are those which have are very likely to become extinct in their known native ranges in the near future. On the IUCN Red List, endangered is the second-most severe conservation status for wild populations in the IUCN's schema (Fig. 16).

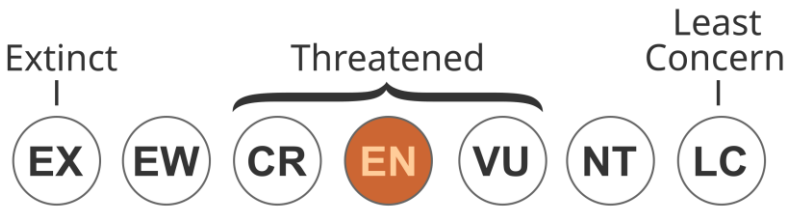


Fig. 16: The IUCN classification system lists the Salado Salamander as classification EN (Endangered)

EX (Extinct): No known individuals remaining.
EW (Extinct in the Wild): Survives only in captivity or cultivation.
CR (Critically Endangered): Extremely high risk of extinction in the wild.
EN (Endangered): Very high risk of extinction in the wild.
VU (Vulnerable): High risk of extinction in the wild.
NT (Near Threatened): Close to qualifying for a threatened category.
LC (Least Concern): Lowest risk; widespread and abundant.

The Salado Salamander lives entirely in water, under rocks, in gravel, and in vegetation [13]. This species only occupies spring outflows, which offer clear water, stable temperatures, and stable water chemistry. The introduction of treated sewage into this habitat is very concerning, not just due to the increase in pollution and nutrients from the discharged effluent, but also the increased temperature of discharged wastewater that has been sitting under the sun in collection tanks. For example, a measurement of the Liberty Hill treated sewage discharge in 2018 by GEAA's Technical Director indicated an effluent temperature of 91 degrees F, more than 8 degrees warmer than the receiving waters of the South San Gabriel River at the time.

The Salado Salamander is listed as Federally Threatened by the U.S. Fish and Wildlife Service (USFWS) due to the limited size or reach as well as the decline of its habitat. In 2024, USFWS provided a Designation of Critical Habitat for the Salado Salamander under the Endangered Species Act of 1973 [14]. A total of approximately 1,315 acres of critical habitat was designated in Bell and Williamson Counties. Most of this land is sited in the area surrounding the Reserve at Salado Creek proposed outfall location. Fig. 17 shows the USFWS monitoring locations in relation to the proposed outfall location [15].

[13] https://brazos.org/about-us/environmental/species/species-of-interest/threatened-species/salado-creek-salamander
[14] https://www.fws.gov/species-publication-action/endangered-and-threatened-wildlife-and-plants-designation-critical-185#:~:text=We%2C%20the%20U.S.%20Fish%20and,2021%2D17600.pdf5.66%20MB
[15] https://cuwcd.org/wp-content/uploads/2025/04/Salado-Salamander-Monitoring-Final-Report-2024.pdf

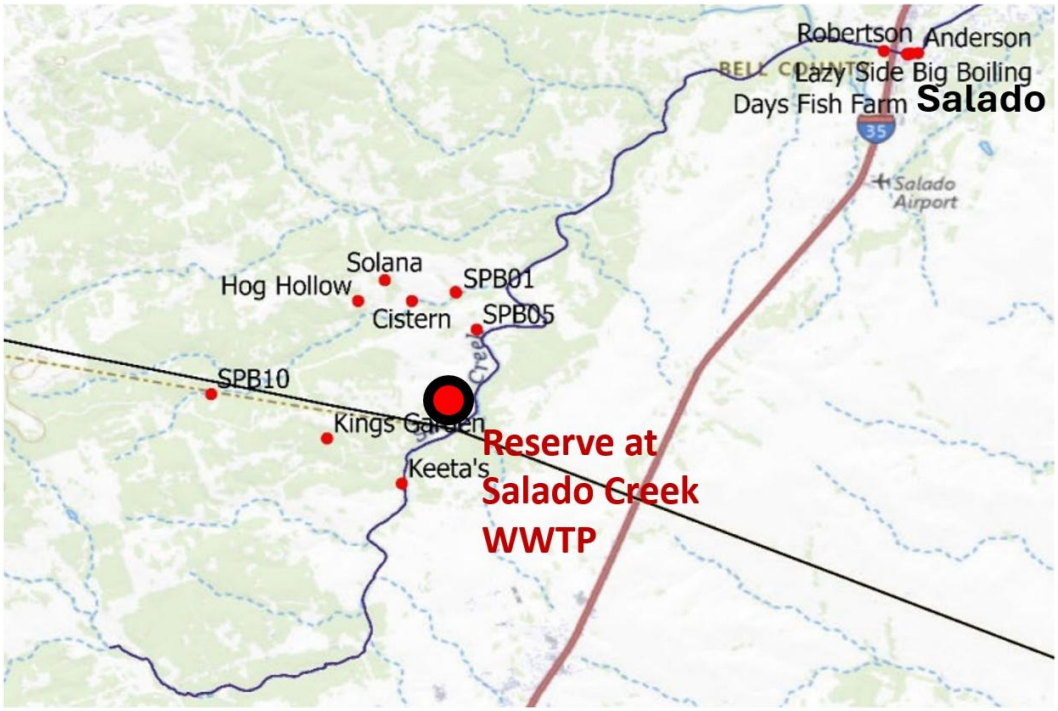


Fig. 17: Salado salamander monitoring locations are shown as red dots on the map. In 2024, numerous adult and juvenile salamanders were found in most of the locations shown.

Of particular concern is the negative impact on the productive Solana Ranch Springs Complex, shown in Fig. 17, to the north and northwest of the proposed wastewater plant less than 2 miles away.

3.9 Concerns Regarding Eflluent Volume

The developer's site plan shown in Section 3.5 of these comments stipulates 889 residential LUEs and an additional 45-acre mixed use area of the development. A typical number of LUEs per acre for a mixed-use development is 8.5 LUEs per acre [16]. Over 45 acres, this translates into an additional 382.5 LUEs for the mixed-use portion of the development. The total number of LUEs for the development would therefore be approximately 1271.5 LUEs (889 LUEs residential plus 382.5 LUEs mixed use).

Using the developer's 300 gallons per day wastewater generated per LUE assumption given in their technical package, 1271.5 LUEs would generate 381,450 gallons per day of wastewater, just over half of the 700,000 gallons per day specified in the draft permit. In a recent meeting between a GEAA representative and the developer, no explanation was provided for this large discrepancy in effluent volume.

[16] https://www.roundrocktexas.gov/wp-content/uploads/2024/09/Wastewater-Capacity-Analysis-Packet.pdf

The relatively high effluent volume in the draft permit is of primary concern, as this affects TMDLs for Phosphorous, Nitrogen, and other pollution parameters. Given the environmentally-sensitive nature of this area, TCEQ should ask the developer for justification of their proposed 700,000 gallons per day effluent for Reserve at Salado Creek. If no justification is provided, the effluent volume should be reduced in order to reflect the actual number of LUEs proposed.

4.0 Conclusions and Recommendations. In summary, GEAA believes there are enough areas of concern to more than justify the denial of the Reserve at Salado Creek wastewater permit by TCEQ. Any issuance of a wastewater permit to the developer should be contingent upon the following modifications, due to the proposed facility's location on the EARZ and the environmentally sensitive nature of this area, including the presence of the endangered Salado salamander:

a) Tighter Permit Limits. The Phosphorous limit should be reduced from 150 mcg/l to 20 mcg/l, consistent with the recent modifications made by TCEQ to the Liberty Hill wastewater permit. Total Nitrogen should be reduced from 6 mg/l to 3 mg/l and Ammonia Nitrogen should be reduced from 3 mg/l to 1 mg/l through all 3 phases of the wastewater plant deployment in order to minimize eutrophication in Salado Creek. CBOD should be reduced from 10 mg/l (7 mg/l in later phases) to 5 mg/l through all phases, in order to comply with TCEQ Chapter 210 Beneficial Reuse standards. E coli should also be reduced from 126 CFUs/100ml to 20 CFUs/100 ml to comply with Beneficial Reuse standards, and a Turbidity limit of 3 NTUs should be established for Beneficial Reuse compliance.

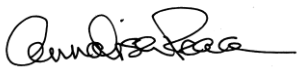
b) Disinfection Method. Given the threats to sensitive and endangered aquatic life in this area, UV disinfection should be mandated in the permit instead of Chlorine disinfection.

c) Beneficial Reuse Requirement. For the many reasons stated in Section 3.2 of these comments, a Chapter 210 Beneficial Reuse application should be required of the developer, and a TCEQ-approved Beneficial Reuse plan should be submitted by the developer and approved by TCEQ, prior to the final issuance of the developer's wastewater permit.

d) Lower Effluent Volumes. Given the location of the proposed WWTP in the EARZ, every effort should be made to reduce the 700,000 gallon per day proposed effluent volume. As discussed in Section 3.9 of these comments, the developer has only justified an effluent volume of 381,450 gallons per day, not 700,000 gallons per day. The implementation of a comprehensive Beneficial Reuse plan should reduce this volume even further, thereby lessening pollution and nutrient loads on Salado Creek and the Edwards Aquifer.

Thank you for the opportunity to submit these comments.

Respectfully,



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