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TECHNICAL MEMORANDUM

Date:	August 26, 2021		
To:	James Mason, CM		
From:	Thomas D Dodson, PE TD	Proj.No.:	----
Re:	Bay City Regional Airport – Scoping for new public water well	Civil PEs Proj.No.:	21BYY_WellStudy
Cc:	File		

In accordance with the scope of services proposed in the study of a future public water well, below is a discussion of the criteria used and calculations resulting in a program-level project scale and cost estimate for capital improvement programming. This discussion is arranged into topics listed below:

Criteria

This well is intended to be a public water well. The Texas Administrative Code (TAC) outlines requirements for public water wells and their systems under Rule §290.41 and .45. The citations below are listed as 30 TAC §290.

The sizing for the well is also based on 300 Gallons per Day (GPD) per equivalent connection.

The well output and tank sizing criteria are broken into categories based on connections. This system will not have more than 50 equivalent connections. Therefore, the design criterion for the well output is 1.5 gallons per minute (gpm) per connection[1], while the criterion for the pressure tank is 50 gallons per connection[2].

Electronically Sealed
8/26/2021
STATE OF TEXAS
THOMAS D DODSON
83909
LICENSED
PROFESSIONAL ENGINEER

[1] 30 TAC § 290.45 (b)(1)(A)(i)
[2] 30 TAC § 290.45 (b)(1)(A)(ii)

Anticipated Demand

The existing water supply demand is 1,020 GPD. We understand the future well is to be sized based on anticipated need, exceeding the well's capacity. The future needs include a replacement terminal[3] with larger restrooms (with more fixtures), a kitchen, showers for customers, staff, first responders, and janitorial sinks. The future demand on the well also includes a maintenance barn[4] planned to be near the lighting vault. This barn is planned to have a janitorial sink and a large hose bib for filling water tanks on equipment and sprayers.

In addition to the terminal and maintenance barn, demand on the water system is also planned to include a restaurant. The planned size for this restaurant is 70 seats, with a forecasted water demand of 70 GPD per seat.

Anticipated growth in water demand also includes up to two ground lease tenants that include restrooms and flight kitchen support in their facilities. For these tenants, the anticipated water demand rate per tenant is estimated to be 250 gallons per day, inclusive of two bathrooms, a small kitchen, a lavatory, and external hose bibs for a typical hangar.

Lastly, to calculate water demand, the City has expressed interest in initiating bulk water sales. Though no information on current bulk water sales is available to forecast demand at the airport, a daily total of 6,000 gallons was provided. Relatedly, such a system could also be used by the Fire Department to support their trailer tanker. The Fire Department's trailer tanker is 6,000 gallons in size.

These inputs are summarized in Table 1 below, with the total demand in Gallons per Day.

Table 1 - Calculation of Demand for New Well

Fixture / Item	Location	Daily Demand (GPD)
Toilets	Terminal	600
Urinals	Terminal	50
Bathroom Sinks	Terminal	800
Janitorial Sinks	Terminal & Maintenance Barn	20
Kitchen Sinks	Terminal	80
Showers	Terminal	300
Hose Bibs	Terminal	100
High-flow Bibs	Maintenance Barn	300
Tenants (2)	Other	500
Restaurant (70 seats)	Other	4,900
Bulk Water Sales	Other	6,000
		13,650

[3] Capital Improvement Plan – line item for 2030 construction, May 2021 update
[4] Capital Improvement Plan – line item for 2025 construction, May 2021 update

A more detailed calculation of demands, including tabulation of fixtures, is included in Appendix A.

Equivalent Connections

The above shows a total daily water demand of 13,650 gallons. Based on the TCEQ rules[5], the 300 GPD per connection equals forty-six (46) equivalent connections. Within the TAC Rule, a divide of 50 equivalent connections changes the scale of the well capacity and storage requirements. The discussion below is based on the 46 connections.

Well Size

The well output capacity for 46 connections at 1.5 gpm/connection yields a resulting 69 gpm of output flow from the well. We recommend a well output of at least 70 gpm. However, to provide excess capacity for long-term growth at the airport without drilling another well, we recommend installing a 10-inch diameter well. The recommended pump in the bottom of the well is for 70 gpm flow. The capability of a 10-inch well to produce significantly more than 70 gpm is expected but is not known.

Pressure Tanks

The water pulled from the well is required to be contained in a hydro-pneumatic pressure tank to put the water under pressure. Following the pressure tank requirements, the day-one demand to size the pressure tank for 3 connections at 50 gallons/connection yields a minimum tank size of 150 gallons. However, such a small tank is generally not favored in the permitting of the well and system. We recommend a 500-gallon pressure tank. On average, such a tank will "turn over" the stored water in the tank twice a day and should not have issues with the water becoming stale. However, as noted in the flow rates forecast in Table 1 above, the system needs a future required capacity of 46 connections at 50 gallons/connection resulting in an ultimate pressure tank need of 2,300 gallons, which can be achieved by the future procurement of the needed 1,800 additional gallons. There can only be a maximum of three (3) pressure tanks[6] allowed on the well.

The proposed water well and pressure tanks are <u>not</u> capable of providing adequate fire flows or pressures. If the airport terminal or future clients require a fire suppression system, those systems must be designed separately with their storage and service pumps to provide their required flows and pressures. The proposed well can fill those system's tank(s) as needed during non-peak hours.

Non-Domestic (Bulk) Water

Additionally, the City has expressed interest in selling bulk water from a location at the airport. Since the well output is rated at 70gpm, the well needs to run less than 14% of the time to meet

[5] TAC Rule §290.45.(b)(1)(A).
[6] TAC Rule §290.4(d)(9)

the average forecast demand of 13,650 GPD of domestic water. The excess production capability can fill other non-potable needs at the airport. As mentioned above, this excess is available to fill fire suppression tanks for those tenants that may need to provide foam discharge or fire suppression in hangars to meet fire code needs, and similarly for a sprinkler system likely needed in a Terminal building replacement.

Within the site of the well and pressure tanks, additional space can be set aside to include a storage tank for bulk water sales. This is NOT groundwater storage associated with the public domestic (potable) water system. Since the method to discharge water from the bulk storage can be via a pump and metering system (much like a self-serve fueling system), there is no pressure tank need for the bulk water system. The self-serve bulk water purchase equipment (including pump(s) and meter(s)) are programmed into costs for this system.

Also, this bulk water is an available resource for the local fire departments. The City has a 6,000-gallon tanker trailer for use in remote area firefighting. Also, each of the City of Bay City's fire department's apparatuses can draw water to fill its tanks. To accommodate the Fire Department, we recommend including an 8,000-gallon bulk water tank in the proposed improvements. Since the City's fire apparatuses each have suction pumps capable of drawing water from a source, we recommend a fire department connection (much like a fire-thread Siamese connection) on the bulk water tank for the exclusive use of the fire department. This connection is inside the perimeter fence of the tank yard and is not accessible to the general public.

Well Location

It is desirable to place the new well close to the facilities needing it. An existing well is located at the northeast corner of the property, and a new well must be separated from it. Per TCEQ requirements, the well must be at least 150 feet from the following:

- Septic tank perforated drainfield
- Areas irrigated by low dosage, low-angle-spray on-site sewage facilities
- Absorption or evapotranspiration bed
- Improperly constructed water wells
- Underground petroleum and chemical storage tank
- Liquid petroleum or chemical transmission pipeline project

The recommended location of the well is in the same location as the bulk water sales, placing the well southeast of the airport beacon in an area that is not otherwise highly valuable for aeronautical use. The location of the well is shown in Exhibit 1. The well is recommended to be located inside the tank yard, surrounded by pavement with site drainage to protect the wellhead. The tank yard is also inside a perimeter fence surrounding the yard and tying to the airport perimeter fence. The well's location is outside the 150-foot buffer (Sanitary Control Easement (SCE)) of any limiting elements listed above. The extent of the SCE is predominantly located on airport property, with a portion extending into the right-of-way of FM2540 – controlled by the Texas Department of Transportation (TxDOT). Such a location requires an exemption on the SCE for the TxDOT right-of-way.

Summary of Ultimate Condition Well Components

While 2300 gallons of pressure storage is not needed starting day one, we recommend setting the yard size for future needs. Research on pressure tank sizing shows that a 500-gallon tank needs a footprint of 3 feet by 10 feet, and a 2000-gallon tank needs 5 feet by 16 feet[7]. Also, an 8,000-gallon metal storage tank requires up to a 12-foot diameter. Using a rule of providing 3 feet of clearance around these tanks and a single well control and chemical storage building of 8 by almost 17 feet, the site plan has included these tanks into a secure tank yard measuring almost 26 feet by over 30 feet.

Backup Power

Per the requirements for emergency preparedness[8], a backup power supply or hardening of the power supply is needed. Since hardening the supply is not likely and out of control of the City, backup power for the well is the recommended solution. Fortunately, such capacity likely exists in the capability of the 1250kW generator. Though no disconnect was constructed for the well, the vault power needs were half (~75 Amps[9]) of the power demand set up for the vault (150 Amps) in the diagram below.

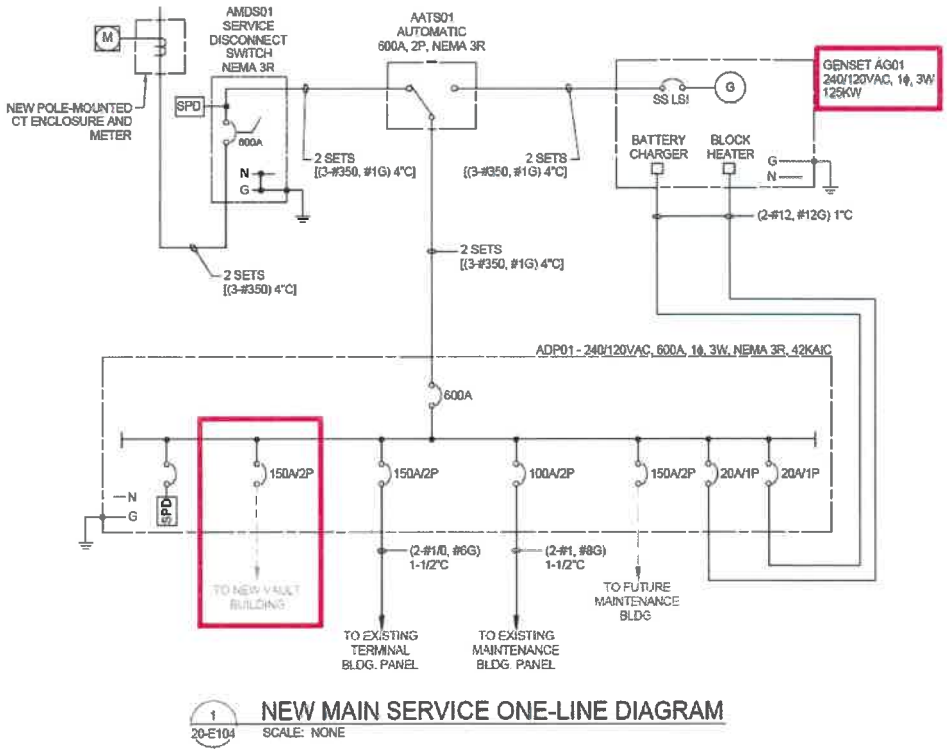


Figure 1 - One-line Diagram from Generator Project

[7] Hanson Tank Website – Hanson Hydro Pneumatic Tanks Drawing WK-864-B, 8/10/21

[8] TAC Rule §290.39 (c)(4)

[9] Project 1813BAYCY – Plans Sheet E-302

Security

Two gates are recommended to access the tank yard, one as a pedestrian gate adjacent to the control room access door of the storage and control vault. Another double gate is recommended into the tank yard to provide access for tank maintenance, wellhead access, etc. We recommend a concrete building to enclose controls and chemical storage. A precast building meeting the size needed can be manufactured by either EASI-Set Buildings, AES Precast (the airfield lighting vault building), or other manufacturers. The building must have an internal wall separating the controls from the chemical storage and have separate external doors. The site plan sets the building where chemical storage could have access from outside the perimeter fence of the tank yard, while the controls could have access from inside the fence for additional security.

Implementation

The following requirements must be incorporated into the well construction contract:

During construction:

- Water used in any drilling operation is to meet a safe water quality standard. Water used to mix drilling fluids shall contain a chlorine residual of at least 0.5 milligrams per liter (mg/L).
- The slush pit shall be constructed and maintained to minimize contamination of the drilling mud. There is an alternate in the cost estimate for removing the drilling mud from the site.
- The contractor must provide at least a 150-foot separation from the well location to any temporary toilet(s) – "Port-o-Lets."
- The casing material used in public well construction shall be new carbon steel, high-strength low-alloy steel, stainless steel, or plastic that conforms to AWWA standards. The casing is to extend a minimum of 18 inches above the elevation of the natural ground surface and a minimum of one inch above the sealing block or pump motor foundation block when provided. The casing is to extend at least to the depth of the shallowest water formation to be developed and deeper, if necessary, to eliminate all undesirable water-bearing strata.
- Well construction materials can contain no more than 0.25% lead.
- A concrete sealing block extending at least three feet from the well casing in all directions, with a minimum thickness of six inches and sloped to drain away at not less than 0.25 inches per foot is to be provided around the wellhead. The tank yard pavement meets this requirement so long as the wellhead is inside the tank yard.

The final operational well requires:

- A flow-measuring device the well to measure production yield and provide for the accumulation of water production data. These devices shall be located to facilitate daily reading. This is accomplished with the well control and reporting system.

If it becomes the intention to be a water wholesaler, TAC Rule §290.45(e) requirements apply.

Program Level Estimates of Capital Project

An estimate of the probable project cost of the day-one public well system totals to $1,132,200. This includes:

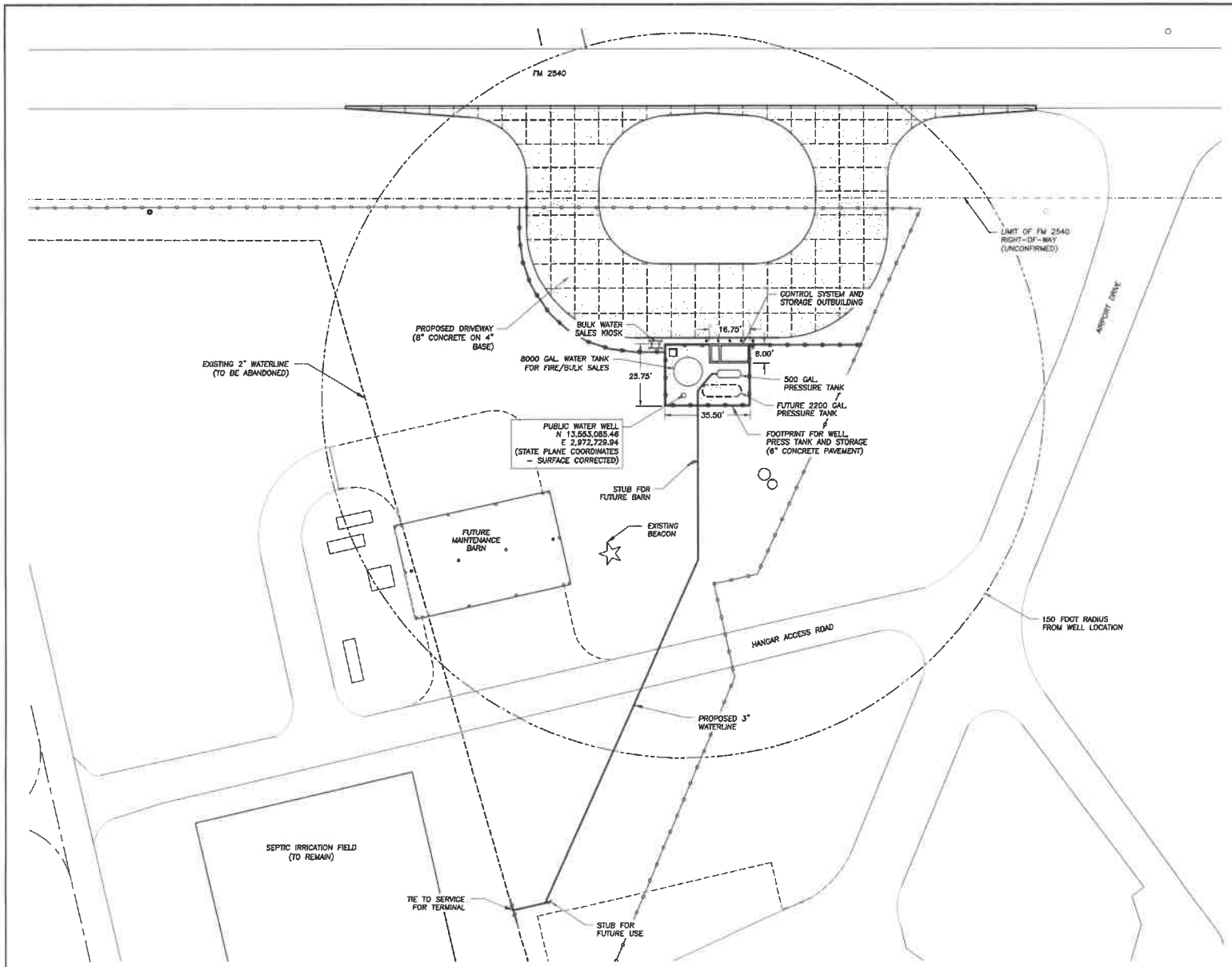
Description	Cost
Base Construction	$ 793,200
Construction Contingency	$79,400
Professional Services	$259,600
Total	$1,132,200

The detailed cost estimate is included in Appendix B.

The Base construction cost includes a well depth of 660 feet. Due to the preliminary design status, a contingency of 20% is in the base construction cost. Using a unit price contract, only the depth needed to get to the needed bearing water layer(s) is paid to the contractor.

A construction contingency of 10% is included as a construction budget line item for unforeseen issues during construction. This amount is not to be included in the construction contract.

With the exception of environmental services in anticipation of a Phase 1 assessment for federal agency review, professional services are estimated as a percentage of construction. Design services include efforts associated with obtaining plan approvals and TCEQ regulatory approvals in advance of bidding and construction. Construction phase services include construction phase and closeout services and 8 weeks (two months) of full-time project representation on the project. Prior to beginning design, professional service agreements will be formed and executed, setting the actual price.



GENERAL NOTES

1. DRIVEWAY FILLETS ARE MODIFIED TxDOT STANDARD PER ROADWAY DESIGN MANUAL 2020--1; POSTED ONLINE ON 5/3/21. TAPERS ARE ADDED FOR TRAILER OFF-TRACKING.
2. PROPOSED PUBLIC WELL SANITARY CONTROL EASEMENT IS PARTIALLY WITHIN PROPERTY OWNED BY THE CITY OF BAY CITY, DEED RECORD XXXXXXX--XX, DATED XXXXX; PORTION IS WITHIN RIGHT-OF-WAY OF FM2540.
3.

NOTES

1. .

ISSUED 8/26/21

REVISIONS

THIS DOCUMENT IS RELEASED FOR INTERIM REVIEW UNDER THE AUTHORITY OF THOMAS D DODSON, PE ON 8/26/2021. IT IS NOT TO BE USED FOR BIDDING, PERMITTING, OR CONSTRUCTION.

CIVIL PEs
Professional • Engineers
TEXAS FIRM F-16997

BAY CITY REGIONAL AIRPORT

21BYY_WELLSTUDY:

PUBLIC WATER WELL STUDY

PROJ MGR	TDD
DRAWN BY	TDD
CHECKED BY	--
PROJ NO	--
CIVIL PEs PROJ NO	21BYY_WELLSTUDY

TITLE

SITE PLAN

SHEET

EX. 1

2021-08-26
siteplan.dwg

Appendix A - Detailed Calculation of Water Demand

Bay City Regional Airport
Calculation of Demand for New Well
Existing Condition

	Terminal	Maint Barn	Others	Counts	Gals per Use	Gals per Day
Toilets	4			20	5	400
Urinals	1			20	2	40
Bathroom Sinks	3			50	1	150
Janitorial Sinks	2		0	2	5	20
Kitchen Sinks	1			10	1	10
Showers	1			1	10	10
Hose Bibs	4			1	25	100
High-flow Bibs			1	2	60	120
Escalation						170
					Total Use	**1020**

Appendix A - Detailed Calculation of Water Demand

Bay City Regional Airport
Calculation of Demand for New Well
Future Demand

	Terminal	Maint Barn	Others		Uses per Day	Gals per Use	Gals per Day
Toilets	6				50	2	600
Urinals	3				30	0.5	50
Bathroom Sinks	5				80	2	800
Janitorial Sinks	1	1			2	5	20
Kitchen Sinks	2				20	2	80
Showers	3				10	10	300
Hose Bibs	4				1	25	100
High-flow Bibs		1			2	150	300
Tenants				2	1	250	500
Restaurant (70 seats)				1	70	70	4,900
Bulk Water Sales		1			2	3,000	6,000
Fire Flows				1		10,000	
					Total Daily Demand		**13,650**

Appendix B - Detailed Estimate of Probable Construction Costs

Bay City Regional Airport
Public Water Well with Anticipated Fire Support

Description	Unit	Quantity	Unit Cost	Extension
Base Items				
Mobilization	LS	1	$ 37,800	$ 37,800
Well Construction				
Pilot Hole	VF	660	$ 100	$ 66,000
Electric Log	VF	660	$ 15	$ 9,900
Ream Well	VF	660	$ 45	$ 29,700
18" Casing	VF	275	$ 60	$ 16,500
10" Blank Liner	VF	220	$ 45	$ 9,900
10" SS Screen	VF	165	$ 150	$ 24,800
Well Gravel	VF	385	$ 75	$ 28,900
Well Cementing	VF	275	$ 35	$ 9,700
70 GPM Well Pump and Motor	LS	1	$ 30,000	$ 30,000
Water Samples and Testing	LS	1	$ 3,500	$ 3,500
Chlorine Disinfection System	LS	1	$ 3,000	$ 3,000
Well Control/Reporting System	LS	1	$ 5,000	$ 5,000
Yard Piping	LS	1	$ 4,500	$ 4,500
500 Gal Pressure Tank	LS	1	$ 5,000	$ 5,000
Storage and Control Vault	SF	135	$ 650	$ 87,800
Site Electrical	LS	1	$ 15,000	$ 15,000
Tank Yard (6" Concrete)	SY	90	$ 105	$ 9,500
Parking Area (8" PCC on 4" Base)	SY	1110	$ 132	$ 146,600
Fence Removal	LF	230	$ 5	$ 1,200
Fencing (8' Chain Link)	LF	250	$ 30	$ 7,500
4' Swing Gate	Ea	2	$ 2,500	$ 5,000
12' Sliding Gate	Ea	1	$ 10,000	$ 10,000
8000 Gal Bulk Water Tank	LS	1	$ 28,000	$ 28,000
Fire Department Connection	LS	1	$ 7,500	$ 7,500
Self-Serve Kiosk	LS	1	$ 18,000	$ 18,000
Self-Serve Dispensing Pump	LS	1	$ 3,500	$ 3,500
Bollards for kiosk	Ea	10	$ 1,500	$ 15,000
1" Waterline	LF	10	$ 40	$ 400
3" Waterline	LF	250	$ 75	$ 18,800
1" Isolation Valve	Ea	1	$ 300	$ 300
3" Isolation Valve	Ea	3	$ 500	$ 1,500
Cut repair across Hangar Rd	SY	10	$ 250	$ 2,500
Haul-off of Drilling Mud	LS	1	$ 5,000	$ 5,000
Design Contingency	LS	1	$ 125,900	$ 125,900
Total for Well with Bulk Water Supply				**$ 793,200**
Construction Contingency	LS	1	$ 79,400	**$ 79,400**

Appendix B - Detailed Estimate of Probable Construction Costs

Bay City Regional Airport
Public Water Well with Anticipated Fire Support

Professional Services				
Design Fees	LS	1	$ 89,400	$ 89,400
Environmental Services for HHS NEPA	LS	1	$ 80,000	$ 80,000
Construction Services	LS	1	$ 90,200	$ 90,200
	Total Professional Services			**$ 259,600**

Combined Totals	
Construction	$ 793,200
Construction Contingency	$ 79,400
Professional Services	$ 259,600
Grand Total	$ 1,132,200

1. Purpose

The Bay City Airport is looking to construct a public water supply facility to service the existing and future needs. The airport currently receives water from an onsite water well constructed in 1986. This water well does not have a dedicated sanitary control easement per the Texas Commission on Environmental Quality (TCEQ) requirements and will not be used for the future potable water supply.

2. Site Location

The proposed water well will be located on the existing airport property. The site has yet to be determined but it will meet all the site requirements as per Title 30 of the Texas Administrative Code (TAC) §290.41.

3. Sanitary Control Easement

The sanitary control easement is required by Title 30 of the Texas Administrative Code (TAC) §290.41(c)(1)(F). The Bay City Airport will acquire an appropriate easement and/or request an exception to a sanitary sewer control easement.

4. Project Design Criteria

The criteria used for determining the water usage is per the existing and future requirements of the Bay City Airport.

The existing water supply demand is 1,020 gallons per day (gpd). Using 300 gpd per connection this equates to three (3) equivalent connections.

The future water supply demand is 13,650 gpd. Using 300 gpd per connection this equates to forty-six (46) equivalent connections.

The proposed water well and water plant are not capable of providing adequate fire flows or pressures. If future clients of the airport require a fire suppression system, they will be designed separately with their own storage tanks and service pumps to provide the required flows and pressures. The proposed well will fill these tanks as needed during non-peak hours.

5. Proposed Water Community Water System Requirements

Well Requirements (For Communities with less than 50 connections)

Total Number of Existing Connections = 3

Total Number of Future Connections = 46

Design Criteria = 1.5 gpm/connection (30 TAC § 290.45 (b)(1)(A)(i))

Existing Required Well Capacity = 3 connections x 1.5 gpm/connection = 6 gpm

Future Required Well Capacity = 46 connections x 1.5 gpm/connection = 69 gpm

Recommend a well of at least 70 gpm capacity.

Pressure Tank Requirements (For Communities with less than 50 connections)

Total Number of Existing Connections = 3

Total Number of Future Connections = 46

Design Criteria = 50 gallons/connection (30 TAC § 290.45 (b)(1)(A)(ii))

Existing Required Pressure Tank Capacity = 3 connections x 50 gallons/connection = 150 gallons

Future Required Pressure Tank Capacity = 46 connections x 50 gallons/connection = 2,300 gallons

Recommend an interim pressure tank of 500-gallons for the existing airport facility. Recommend future pressure tank(s) to be added to the water plant site as needed to serve future needs. The anticipated additional pressure tank capacity is 1,800-gallons and the TCEQ only allows a maximum of three (3) pressure tanks (30 TAC § 290.4(d)(9)).

Transient Noncommunity Water Systems: Compliance Resources

Find out if your public water system is regulated as a transient noncommunity system, how to establish a new system or get help for an existing one, and what your requirements are for public notifications, operations, sampling, monitoring, and reporting.

Am I a transient noncommunity public water system?

How do I get a new or existing public water system approved?

Your public water system must have a Texas-licensed professional engineer (P.E.) prepare and submit plans and specifications for your system. This includes information about your water source, distribution system, and any equipment that is part of your system.

Find more information in the following pages and resources:

- NEW **Public Water System Activation and Inactivation (/downloads/assistance/water/pdws/rg-550.pdf)** (RG-550) – guidance on how to update an approved system's status to active or inactive.
- **Establishing a New Public Water System (/assistance/water/pdws/transient-noncommunity-systems-tnc/drinkingwater/newsystems.html)** – requirements that new water systems must meet before construction may begin.
- **Submit PWS Plans for Review (/assistance/water/pdws/transient-noncommunity-systems-tnc/drinkingwater/planrev.html)** – how to submit PWS plans to TCEQ for review.
- **Forms and Checklists for PWS Plans (/drinkingwater/udpubs.html)** – documents with guidelines for wells, pressure tanks, and distribution systems to assist you and your engineer.
- **Requesting an Exception to Rules and Regulations for PWS (/drinkingwater/trot/exception)** – information on requesting exceptions if you cannot obtain all the necessary information.
- **Evaluating Regionalization (/goto/rg-551)** (RG-551) – guidance on requesting service and connecting to a neighboring system or combining existing systems into one regional water system.
- **Requirements for Water Haulers (/assets/public/permitting/watersupply/pdw/Water-Hauler-Guidance.pdf)** – if you distribute drinking water for human consumption by tank truck or trailer and serve 25 people or more at least 60 days out of the year, you must obtain approval for your system and meet the requirements of 30 TAC § 290.44(i).

How do I prepare for an investigation?

What are my operational requirements?

Do I need an emergency preparedness plan?

Do I need a nitrification action plan (NAP)?

Do I need a monitoring plan? How do I develop one?

Do I have bacteriological sampling and reporting requirements?

Do I have chemical sampling and monitoring requirements?

Do I need to monitor the disinfectant residual in my water system?

What are my public notice requirements?

What rules and regulations may apply to my PWS?

Where can I find more information and assistance?

Am I a "Public Water System"?

If you supply water to other people, even if it's bottled, you might be a public water system (PWS). Find out if you are a PWS and, if so, what requirements you must meet.

Definition of a Public Water System

If you provide water to the public, you may be a public water system (PWS). State and federal regulations define PWSs [30 TAC §290.38(71), Fed Ref]

A PWS provides potable water for the public's use. A system must be a certain size to be considered public:

- it must have at least 15 service connections

OR

- serve at least 25 individuals for at least 60 days out of the year.

This includes folks that live in houses served by a system, but can also include people that don't live there. For instance, people served could include employees, customers, or students.

There are three basic types of public water systems.

Community water system (C)

– A public water system which has a potential to serve at least 15 residential service connections on a year-round basis or serves at least 25 residents on a year-round basis [30 TAC §290.38(15)]. Most municipalities meet this definition, so do some boarding schools and prisons.

Nontransient noncommunity water system (NTNC)

– A public water system that is not a community water system and regularly serves at least 25 of the same persons at least six months out of the year [30 TAC §290.38(58)]. Many factories, schools, camps, recreational vehicle parks with long-term residents, and other businesses are NTNCs. Businesses that purchase and redistribute potable water may fall under the regulations for PWSs if the utility that provides them with water does not have sanitary control over their facilities [30 TAC 290.102(a)].

Transient noncommunity water system (TNC)

– A public water system that is not a community water system and serves at least 25 persons at least 60 days out of the year, yet by its characteristics, does not meet the definition of a nontransient noncommunity water system.[30 TAC §290.38(84)] Parks, recreation parks, convenience stores, and other businesses often are TNCs.

Public water systems are assigned seven-digit PWS IDs. All of the Public Drinking Water Section correspondence and documentation references this PWS ID. The first three digits in the PWS ID represent the Texas county that the facility is located in. Texas' 254 counties are numbered alphabetically from Anderson (001) to Zavala (254). You can find documents about a PWS by using its PWS ID.

Related content

- **Rules and Guidance for Public Water Systems (https://www.tceq.texas.gov/drinkingwater/pdw_rulesGuide.html)**
- **Operating a Public Water System (https://www.tceq.texas.gov/drinkingwater/operating-public-water-system)**

Transient Noncommunity Water Systems: Compliance Resources

Find out if your public water system is regulated as a transient noncommunity system, how to establish a new system or get help for an existing one, and what your requirements are for public notifications, operations, sampling, monitoring, and reporting.

Am I a transient noncommunity public water system?

A transient noncommunity (TNC) public water system (PWS) meets **all** of these criteria:

- Provides water for human consumption.
- Has at least 15 service connections or serves 25 people or more at least 60 days out of the year.
- Does not meet the definition of a **community or nontransient noncommunity water system. (/drinkingwater/pws.html)**

Human consumption includes, but is not limited to, drinking, cooking, brushing teeth, bathing, washing hands, washing dishes, and preparing foods.

Parks, recreational vehicle (RV) parks, convenience stores, restaurants, and other businesses are often TNC public water systems.

How do I get a new or existing public water system approved?

How do I prepare for an investigation?

What are my operational requirements?

Do I need an emergency preparedness plan?

Do I need a nitrification action plan (NAP)?

Do I need a monitoring plan? How do I develop one?

Do I have bacteriological sampling and reporting requirements?

Do I have chemical sampling and monitoring requirements?

Do I need to monitor the disinfectant residual in my water system?