RANGER
ENVIRONMENTAL SERVICES, LLC

TCEQ EDWARDS AQUIFER PROTECTION PLAN
UST FACILITY PLAN - MODIFICATION

ZAPCO #4
2120 FM 1626
MANCHACA, TRAVIS COUNTY, TEXAS
RN 102673092

Prepared for:

BEAR CREEK 1626, LLC
6701 SANGIACOMO CV
AUSTIN, TEXAS 78759

APRIL 2023

Edwards Aquifer Application Cover Page

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Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Zapco #4				**2. Regulated Entity No.: 102673092**				
3. Customer Name: Bear Creek 1626, LLC				**4. Customer No.:**				
5. Project Type: **(Please circle/check one)**	New		Modification	Extension		Exception		
6. Plan Type: **(Please circle/check one)**	WPAP	CZP	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		Non-residential			**8. Site (acres):**		4.7099
9. Application Fee:	$1,950.00		**10. Permanent BMP(s):**			NA		
11. SCS (Linear Ft.):	NA		**12. AST/UST (No. Tanks):**			3 USTs		
13. County:	Travis		**14. Watershed:**			Onion Creek-Colorado River		

Application Distribution

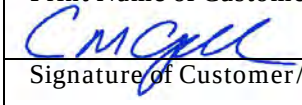
Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	__	_X_	__
Region (1 req.)	__	_X_	__
County(ies)	__	_X_	__
Groundwater Conservation District(s)	__Edwards Aquifer Authority __Barton Springs/ Edwards Aquifer __Hays Trinity __Plum Creek	_X_Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	__Austin __Buda __Dripping Springs __Kyle __Mountain City __San Marcos __Wimberley __Woodcreek	__Austin __Bee Cave __Pflugerville __Rollingwood __Round Rock __Sunset Valley __West Lake Hills	__Austin __Cedar Park __Florence __Georgetown __Jerrell __Leander __Liberty Hill __Pflugerville __Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	__	__	__	__	__
Region (1 req.)	__	__	__	__	__
County(ies)	__	__	__	__	__
Groundwater Conservation District(s)	__ Edwards Aquifer Authority __Trinity-Glen Rose	__Edwards Aquifer Authority	__Kinney	__EAA __Medina	__EAA __Uvalde
City(ies) Jurisdiction	__Castle Hills __Fair Oaks Ranch __Helotes __Hill Country Village __Hollywood Park __San Antonio (SAWS) __Shavano Park	__Bulverde __Fair Oaks Ranch __Garden Ridge __New Braunfels __Schertz	NA	__San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. Chad M. Copeland, P.G., PWS
Print Name of Customer/Authorized Agent
 4/27/2023
Signature of Customer/Authorized Agent Date

FOR TCEQ INTERNAL USE ONLY				
Date(s)Reviewed:		Date Administratively Complete:		
Received From:		Correct Number of Copies:		
Received By:		Distribution Date:		
EAPP File Number:		Complex:		
Admin. Review(s) (No.):		No. AR Rounds:		
Delinquent Fees (Y/N):		Review Time Spent:		
Lat./Long. Verified:		SOS Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):	
Core Data Form Complete (Y/N):			Signed (Y/N):	
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):	

Underground Storage Tank Facility Plan Application

Checkilst TCEQ-0590

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Modification of a Previously Approved Plan Checklist

X **Edwards Aquifer Application Cover Page (TCEQ-20705)**

X **General Information Form (TCEQ-0587)**

Attachment A - Road Map
Attachment B - USGS / Edwards Recharge Zone Map
Attachment C - Project Description

Exception **Geologic Assessment Form (TCEQ-0585)**

Attachment A - Geologic Assessment Table (TCEQ-0585-Table)
Attachment B - Stratigraphic Column
Attachment C - Site Geology
Attachment D - Site Geologic Map(s)

X **Modification of a Previously Approved Plan (TCEQ-0590)**

Attachment A - Original Approval Letter and Approved Modification Letters
Attachment B - Narrative of Proposed Modification
Attachment C - Current Site Plan of the Approved Project

X **Application Form (include any applicable to the proposed modification):**

Aboveground Storage Tank Facility Plan (TCEQ-0575)
Organized Sewage Collection System Application (TCEQ-0582)
X Underground Storage Tank Facility Plan (TCEQ-0583)
Water Pollution Abatement Plan Application (TCEQ-0584)
Lift Station / Force Main System Application (TCEQ-0624)

X **Temporary Stormwater Section (TCEQ-0602)**

Attachment A - Spill Response Actions
Attachment B - Potential Sources of Contamination
Attachment C - Sequence of Major Activities
Attachment D - Temporary Best Management Practices and Measures
Attachment E - Request to Temporarily Seal a Feature (if requested)
Attachment F - Structural Practices
Attachment G - Drainage Area Map
Attachment H - Temporary Sediment Pond(s) Plans and Calculations
Attachment I - Inspection and Maintenance for BMPs
Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices

NA **Permanent Stormwater Section (TCEQ-0600), if necessary**

Attachment A - 20% or Less Impervious Cover Declaration (if requested for multi-family, school, or small business site)
Attachment B - BMPs for Upgradient Stormwater

Attachment C - BMPs for On-site Stormwater
Attachment D - BMPs for Surface Streams
Attachment E - Request to Seal Features, if sealing a feature
Attachment F - Construction Plans
Attachment G - Inspection, Maintenance, Repair and Retrofit Plan
Attachment H - Pilot-Scale Field Testing Plan (if requested)
Attachment I -Measures for Minimizing Surface Stream Contamination

X **Agent Authorization Form (TCEQ-0599), if application submitted by agent**

X **Application Fee Form (TCEQ-0574)**

X **Check Payable to the "Texas Commission on Environmental Quality"**

X **Core Data Form (TCEQ-10400)**

General Information Form

TCEQ-0587

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General Information Form

Texas Commission on Environmental Quality

For Regulated Activities on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.4(b) & §213.5(b)(2)(A), (B) Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **General Information Form** is hereby submitted for TCEQ review. The application was prepared by:

Print Name of Customer/Agent: Mr. Chad M. Copeland, P.G., PWS

Date: 4/27/2023

Signature of Customer/Agent:

Project Information

1. Regulated Entity Name: Zapco #4
2. County: Travis County
3. Stream Basin: Colorado River-Little Bear Creek
4. Groundwater Conservation District (If applicable): Barton Springs/ Edwards Aquifer CD
5. Edwards Aquifer Zone:

   ☐ Recharge Zone
   ☒ Transition Zone

6. Plan Type:

   ☐ WPAP
   ☐ SCS
   ☒ Modification
   ☐ AST
   ☐ UST
   ☐ Exception Request

7. Customer (Applicant):
   Contact Person: Saif Momin
   Entity: Bear Creek 1626 LLC
   Mailing Address: 6701 Sangiacomo Cv
   City, State: Austin, Texas Zip: 78759
   Telephone: (512) 850-3061 FAX: _____
   Email Address: smomin942@gmail.com

8. Agent/Representative (If any):
   Contact Person: Mr. Chad M. Copeland, P.G., PWS
   Entity: Ranger Environmental Services, LLC
   Mailing Address: P.O.Box 201179
   City, State: Austin, Texas Zip: 78720
   Telephone: (512) 335-1785 x124 FAX: (512) 335-0527
   Email Address: chad @rangerenv.com

9. Project Location:

   ☐ The project site is located inside the city limits of _____.
   ☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of Austin, Texas.
   ☐ The project site is not located within any city's limits or ETJ.

10. ☒ The location of the project site is described below. The description provides sufficient detail and clarity so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

    2120 FM 1626, Manchaca, Texas 78652

11. ☒ **Attachment A – Road Map**. A road map showing directions to and the location of the project site is attached. The project location and site boundaries are clearly shown on the map.

12. ☒ **Attachment B - USGS / Edwards Recharge Zone Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') of the Edwards Recharge Zone is attached. The map(s) clearly show:

    ☒ Project site boundaries.
    ☒ USGS Quadrangle Name(s).
    ☒ Boundaries of the Recharge Zone (and Transition Zone, if applicable).
    ☒ Drainage path from the project site to the boundary of the Recharge Zone.

13. [X] **The TCEQ must be able to inspect the project site or the application will be returned**. Sufficient survey staking is provided on the project to allow TCEQ regional staff to locate the boundaries and alignment of the regulated activities and the geologic or manmade features noted in the Geologic Assessment.

☒ Survey staking will be completed by this date: Staking will not be in place because the site is previously developed.

14. ☒ **Attachment C – Project Description**. Attached at the end of this form is a detailed narrative description of the proposed project. The project description is consistent throughout the application and contains, at a minimum, the following details:

- ☒ Area of the site
- ☒ Offsite areas
- ☒ Impervious cover
- ☐ Permanent BMP(s)
- ☒ Proposed site use
- ☒ Site history
- ☒ Previous development
- ☐ Area(s) to be demolished

15. Existing project site conditions are noted below:

- ☒ Existing commercial site
- ☐ Existing industrial site
- ☐ Existing residential site
- ☐ Existing paved and/or unpaved roads
- ☐ Undeveloped (Cleared)
- ☐ Undeveloped (Undisturbed/Uncleared)
- ☐ Other: _____

Prohibited Activities

16. ☒ I am aware that the following activities are prohibited on the Recharge Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 of this title (relating to Underground Injection Control);

(2) New feedlot/concentrated animal feeding operations, as defined in 30 TAC §213.3;

(3) Land disposal of Class I wastes, as defined in 30 TAC §335.1;

(4) The use of sewage holding tanks as parts of organized collection systems; and

(5) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41(b), (c), and (d) of this title (relating to Types of Municipal Solid Waste Facilities).

(6) New municipal and industrial wastewater discharges into or adjacent to water in the state that would create additional pollutant loading.

17. ☒ I am aware that the following activities are prohibited on the Transition Zone and are not proposed for this project:

(1) Waste disposal wells regulated under 30 TAC Chapter 331 (relating to Underground Injection Control);

(2) Land disposal of Class I wastes, as defined in 30 TAC §335.1; and

(3) New municipal solid waste landfill facilities required to meet and comply with Type I standards which are defined in §330.41 (b), (c), and (d) of this title.

Administrative Information

18. The fee for the plan(s) is based on:

- ☐ For a Water Pollution Abatement Plan or Modification, the total acreage of the site where regulated activities will occur.
- ☐ For an Organized Sewage Collection System Plan or Modification, the total linear footage of all collection system lines.
- ☒ For a UST Facility Plan or Modification or an AST Facility Plan or Modification, the total number of tanks or piping systems.
- ☐ A request for an exception to any substantive portion of the regulations related to the protection of water quality.
- ☐ A request for an extension to a previously approved plan.

19. ☒ Application fees are due and payable at the time the application is filed. If the correct fee is not submitted, the TCEQ is not required to consider the application until the correct fee is submitted. Both the fee and the Edwards Aquifer Fee Form have been sent to the Commission's:

- ☐ TCEQ cashier
- ☒ Austin Regional Office (for projects in Hays, Travis, and Williamson Counties)
- ☐ San Antonio Regional Office (for projects in Bexar, Comal, Kinney, Medina, and Uvalde Counties)

20. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

21. ☒ No person shall commence any regulated activity until the Edwards Aquifer Protection Plan(s) for the activity has been filed with and approved by the Executive Director.

ATTACHMENT A

Road Map

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NOTES:
1.ALL PROPERTY BOUNDARIES ARE APPROXIMATE AND NOT TO BE USED FOR CONSTRUCTION PURPOSES.
2.IMAGERY IS UTILIZED AS A POINT OF REFERENCE; SITE DETAILS AND SCALE ARE APPROXIMATE.
3.AERIAL IMAGES ARE ARCHIVED AND MAY NOT REFLECT CURRENT CONDITIONS.
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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0 35 70 140 210 280 Feet

1:1,500

Street Map

2120 FM 1626, Manchaca
Ranger Project No. 6701

ATTACHMENT B

USGS / Edwards Recharge Zone Map

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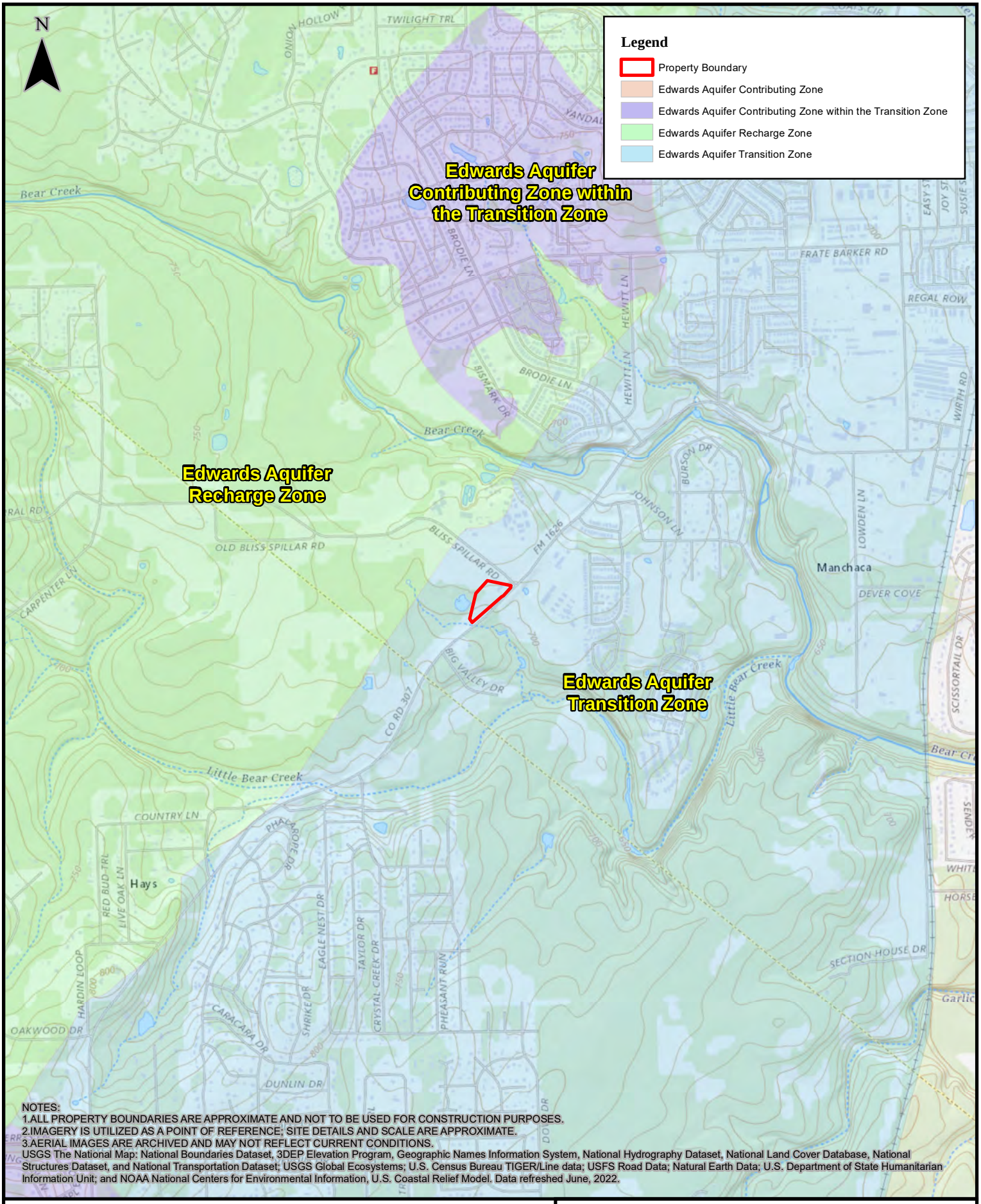

NOTES:
1.ALL PROPERTY BOUNDARIES ARE APPROXIMATE AND NOT TO BE USED FOR CONSTRUCTION PURPOSES.
2.IMAGERY IS UTILIZED AS A POINT OF REFERENCE; SITE DETAILS AND SCALE ARE APPROXIMATE.
3.AERIAL IMAGES ARE ARCHIVED AND MAY NOT REFLECT CURRENT CONDITIONS.
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2022.

RANGER ENVIRONMENTAL SERVICES, INC.

0 600 1,200 2,400 3,600 4,800 Feet

1:24,000

Topographic Map (Oak Hill Quadrangle)

2120 FM 1626, Manchaca
Ranger Project No. 6701

ATTACHMENT C

Project Description

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PROJECT DESCRIPTION

The subject site is located at 2120 FM 1626, Manchaca, Travis County, Texas. The site is located within the Edwards Aquifer Transition Zone. The subject site was constructed in 1985 before Edwards Aquifer rules were established. The areas surrounding the subject site supports mixed commercial and residential properties. The previous Approval of a Modification of an Existing Underground Storage Tank Facility Plan (UST) for 2120 FM 1626, Manchaca, Texas was approved in 2014. This modification replaced the existing piping with U. L. listed double walled piping and added sumps, connectors and leak detection equipment required by 30 TAC Chapter 334 to the UST system. According to the TCEQ Central Registry the tanks were removed from the site January 16, 2023.

The proposed underground storage tank system will include a 15,000-gallon Xerxes fiberglass triple wall tank containing gasoline (UL 1316, ULC S615), a 5,000-gallon Xerxes fiberglass triple wall tank containing gasoline (UL 1316, ULC S615), and a 5,000-gallon Xerxes fiberglass triple wall tank containing diesel (UL 1316, ULC S615). The corresponding underground storage tank sumps are Xerxes integrated sumps. Associated with these tanks will be two (2) new Gilbarco 700 S dispensers along with with new triple wall FRP piping.

The tanks storing gasoline will be equipped with 2 hp FE Petro submersible pumps. The tank storing diesel will be equipped with a 1.5 hp FE Petro submersible pump. Overfill prevention for each tank compartment will be provided by a valve assembly which will be installed in the tank below the vapor recovery fitting and will be set to shut off flow into the tank when the volume of liquid in the tank reaches no more than 95% of the tank capacity.

Product piping will be U.L. listed Dualoy 3000/LCX double wall fiberglass-reinforced plastic piping within Dualoy 3000/L fiberglass-reinforced plastic piping (creating tertiary containment). Dualoy 3000/LCX and Dualoy/L pipe are UL 971 listed. Dualoy 3000/LCX product lines are double-wall construction and will consist of a 2-inch diameter primary pipe surrounded by Dualoy 3000/L single-wall construction with a 3-inch diameter. Vent lines will be 2-inch diameter double-wall pipe. Under each dispenser for each product grade there will be a shear valve mounted to a rigid framework and installed at the dispenser island surface level to assure automatic shut-off of product flow during impact or fire emergencies. In addition, FLEX-ING flexible connectors will be installed at both ends of each product line in isolation sumps to connect to the dispenser unit and submersible pump.

Corrosion protection for the metallic components of the underground storage systems will be provided by electrical isolation. The submersible pump housings and pump-end flexible connectors will be installed within an integrated Xerxes piping sump, which will provide isolation from the backfill material while also providing secondary containment for any leaks from these components. The dispenser-end flexible connector will be similarly isolated by enclosure within an OPW fiberglass under dispenser sump. The vapor recovery riser and the fill tube riser will be thoroughly wrapped with a suitable dielectric material and are isolated from the tank by the use of isolation bushings.

The proposed tanks and piping will be monitored for leaks by means of inventory control, tank monitor CSLD release detection software, sump and interstitial leak detection, and

mechanical line leak detection. The tanks will be equipped with a liquid discrimination sensor which will be installed adjacent to the submersible pumps in the sumps and in all dispenser sumps. The tanks will also be equipped with an electronic automatic tank gauging inventory probe for inventory of the product volume in the tank.

The controller will be equipped with Continuous Statistical Leak Detection to meet TCEQ release detection requirements. Each product piping line will be equipped with mechanical line leak detection. The probes and sensors from all tanks will be connected to a Veeder-Root 450 TLS programmable control unit to be located in the store building. The tank interstitial is monitored with a Veeder Root interstitial sensor which will set off an alarm if liquid enters the tank interstitial. This central monitoring unit is designed to provide visual and audible alarms when hydrocarbon liquids or water is detected.

CONTACTS

OWNER:

7-ELEVEN, INC.
3200 HACKBERRY ROAD
IRVING, TEXAS 75063

ENGINEER:

SANDLIN SERVICES, LLC
4501 WHISPERING VALLEY DR. UNIT#27
AUSTIN, TEXAS 78727
(806)679-7303
CONTACT: NICHOLAS SANDLIN, P.E.

MANCHACA C-STORE REHABILITATION

SITE PLAN EXEMPTION

ADDRESS:

2120 FM 1626, MANCHACA, TX 78652

SUBMITTED BY:

I, NICHOLAS R. SANDLIN, PE #124404, DO HEREBY CERTIFY THAT THE ENGINEERING WORK BEING SUBMITTED HEREIN COMPLIES WILL ALL THE PROVISIONS OF THE TEXAS ENGINEERING PRACTICE ACT, INCLUDING 131.52 (E). I HEREBY ACKNOWLEDGE THAT ANY MISREPRESENTATION REGARDING THIS CERTIFICATION CONSTITUTES A VIOLATION OF THE ACT, AND MAY RESULT IN CRIMINAL, CIVIL AND/OR ADMINISTRATIVE PENALTIES AGAINST ME, AS AUTHORIZED BY THE ACT.

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED
PROFESSIONAL ENGINEER
4/26/2023

THIS PLAN SET FOR REVIEW ONLY, NOT FOR CONSTRUCTION.

NOTES:

1. THIS SITE IS LOCATED WITHIN THE CITY OF AUSTIN ETJ.
2. PER § 6-5-52 – TRAPS, CATCH BASINS, AND INTERCEPTORS, (B) THE DIRECTOR'S APPROVAL IS REQUIRED FOR THE DESIGN OF A TRAP, CATCH BASIN, OR INTERCEPTOR. APPROVAL OF THIS PLAN BY THE CITY OF AUSTIN CONSTITUTES ADEQUACY AND ACCEPTANCE OF THE DESIGN PROVIDED.
3. ACCORDING TO THE NATIONAL FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO 48453C0590J DATED 1/22/2020, THIS TRACT LIES WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE OF THE 500 YEAR FLOODPLAIN.
4. THE CONTRACTOR OR SURVEYOR WILL OBTAIN A DIGITAL COPY OF THE CAD FILES THAT REPRESENT THESE IMPROVEMENTS; SANDLIN SERVICES, LLC AND IT'S ASSOCIATES TAKE NO RESPONSIBILITY FOR THE LOCATION OF THESE IMPROVEMENTS IN ANY COORDINATE SYSTEM. DIGITAL FILES USED TO PRODUCE THESE PLANS WERE PARTIALLY CREATED BY PARTIES OTHER THAN SANDLIN SERVICES, LLC AND ARE NOT INTENDED FOR USE IN CONSTRUCTION STAKING. VERTICAL AND HORIZONTAL DATA SHALL BE INDEPENDENTLY VERIFIED BY CONTRACTOR'S R.P.L.S.
5. SANDLIN SERVICES, LLC HAS ENDEAVORED TO DESIGN THESE PLANS COMPLIANT WITH ADA/TDLR AND OTHER ACCESSIBILITY REQUIREMENTS. HOWEVER, THE CONTRACTOR SHALL NOT BE RELIEVED OF ANY RESPONSIBILITY FOR CONSTRUCTING THESE IMPROVEMENTS COMPLIANT WITH ALL APPLICABLE ACCESSIBILITY STANDARDS. IF THE CONTRACTOR NOTICES ANY DISCREPANCIES BETWEEN THESE PLANS AND ACCESSIBILITY LAWS/RULES, HE IS TO STOP WORK IN THE AREA OF CONFLICT AND NOTIFY THE ENGINEER IMMEDIATELY FOR A RESOLUTION AND/OR REVISION TO THESE PLANS. SANDLIN SERVICES, LLC SHALL NOT BE HELD RESPONSIBLE FOR CONSTRUCTING THIS SITE COMPLIANT WITH ACCESSIBILITY LAWS/RULES REGARDLESS OF WHAT IS SHOWN IN THESE PLANS.

PRE-CONSTRUCTION NOTES:

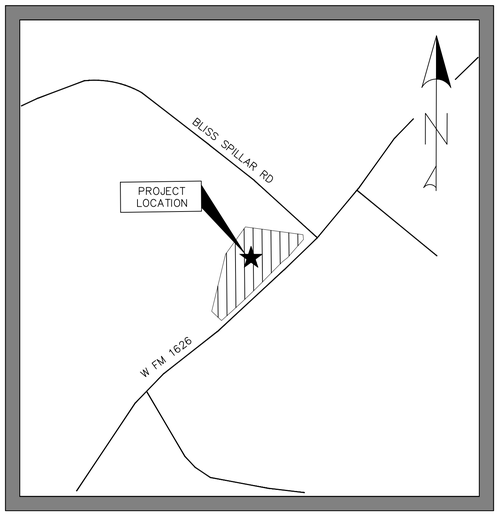
1. PRIOR TO SCHEDULING THE PRE-CONSTRUCTION MEETING ENSURE THAT ALL REQUIRED NOTICES AND PERMITS ARE POSTED AND THE CERTIFIED INSPECTOR FOR YOUR SITE HAS UPLOADED A SWP3 INSPECTION REPORT TO YOUR ACCOUNT THAT CONFIRMS THAT THE FIRST PHASE OF TEMPORARY ESC HAVE BEEN INSTALLED PER PLANS AND SPECIFICATIONS.
2. FAILURE TO FOLLOW THE PRE-CONSTRUCTION MEETING REQUIREMENTS MAY RESULT IN WORK STOPPAGE AND ADDITIONAL PERMIT FEES.
3. PROVIDE 48 HR. MINIMUM NOTICE TO SCHEDULE THE PRE-CONSTRUCTION MEETING.
4. PROVIDE A ½ SIZE SET OF PLANS FOR THE INSPECTOR AT THE PRE-CONSTRUCTION.
5. PROVIDE AN ANTICIPATED CONSTRUCTION SCHEDULE AT THE PRE-CONSTRUCTION.
6. BRING YOUR SWP3 FOR COMPLETENESS CHECK AT THE PRE-CONSTRUCTION.
7. ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE PLANS APPROVED BY TRAVIS COUNTY.
8. SCHEDULE YOUR PROJECTS PRE-CONSTRUCTION MEETING THROUGH THE MYPERMITNOW.ORG ACCOUNT AFTER THE INITIAL 3RD PARTY SWP3 INSPECTION REPORT HAS BEEN UPLOADED AND ALL PERMITS AND NOTICES HAVE BEEN POSTED, THEN FOLLOW UP WITH EMAILS TO THE ENVIRONMENTAL INSPECTOR AT ENV-INSPECTION@TRAVISCOUNTYTX.GOV

BENCHMARK NOTE:

ALL ELEVATIONS SHOWN HEREON ARE BASED ON THE FOLLOWING BENCHMARKS AND INFORMATION.

BENCHMARK NOTES:

1. CONTACT SURVEYOR PRIOR TO UTILIZING BENCHMARK



PROJECT LOCATION MAP
SCALE: 1"=500'

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES
3	TEMPORARY STORM AND SITE PLAN EXEMPTION SHEET
4	EROSION CONTROL DETAILS

APPROVED BY: DATE

CITY OF AUSTIN

PERMIT NUMBER

CONTRACTOR NOTES:

BY THE ACT OF SUBMITTING A BID FOR THIS PROPOSED CONTRACT, THE BIDDER WARRANTS THAT THE BIDDER, AND ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS HE INTENDS TO USE, HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM ANY AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED. THE BIDDER FURTHER WARRANTS THAT TO THE BEST OF HIS OR HIS SUBCONTRACTORS' AND MATERIAL SUPPLIERS' KNOWLEDGE, ALL MATERIALS AND PRODUCTS SPECIFIED OR INDICATED HEREIN ARE ACCEPTABLE FOR ALL APPLICABLE CODES AND AUTHORITIES.

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAS BEEN BASED UPON RECORD INFORMATION ONLY AND MAY NOT MATCH LOCATIONS AND/OR DEPTHS AS CONSTRUCTED. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM 1-800-245-4545, OR THE OWNER OF EACH INDIVIDUAL UTILITY, FOR ASSISTANCE IN DETERMINING EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO BEGINNING ANY CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITY CROSSINGS PRIOR TO BEGINNING ANY CONSTRUCTION.

ENVIRONMENTAL INSPECTION HAS THE AUTHORITY TO MODIFY/CHANGE EROSION AND SEDIMENTATION CONTROLS TO KEEP THE PROJECT IN COMPLIANCE.

DATE OF SUBMITTAL: 4/X/2023

WATERSHED: ONION CREEK-COLORADO RIVER

TRACT SIZE: 4.7099 ACRES

WATER QUALITY IS NOT PROVIDED FOR EXISTING I.C.

NO INCREASE IN I.C. IS PROPOSED

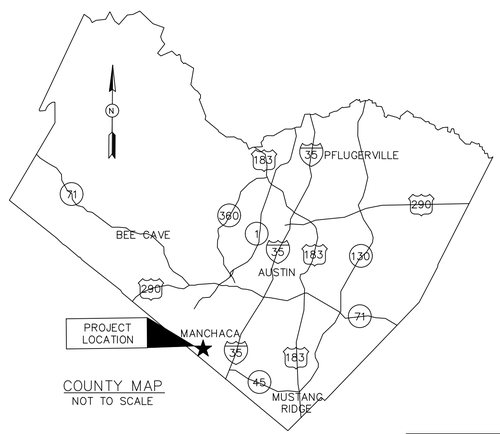
THIS PROPERTY IS NOT OVER THE EDWARDS AQUIFER

NO UTILITIES ARE PROPOSED

CORRECTIONS RECORD

NO.	DESCRIPTION	REVISE (R) ADD (D) VOID (V) SHEET NO.'s	TOTAL # SHEETS IN PLAN SET	NET CHANGE IMP. COVER (sq.ft.)	TOTAL SITE IMP. COVER (sq.ft.)/%	APPROVAL/ DATE	DATE IMAGED

ENGINEERING | CONSULTING
SANDLIN
SERVICES, LLC



COUNTY MAP
NOT TO SCALE

TEXAS 811 811 BEFORE YOU DIG

WARNING !!!! CONTRACTOR TO FIELD VERIFY ALL EXIST. UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO CONTACT ENGINEER IF ANY EXISTING UTILITY INFORMATION DIFFERS FROM DATA SHOWN IN THE PLANS. CALL 811 BEFORE YOU DIG.

ENGINEERING | CONSULTING
SANDLIN
SERVICES, LLC

TBPELS FIRM #21356
4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

COVER SHEET

MANCHACA C-STORE REHABILITATION

REV. NO.	BY	DATE	REVISION DESCRIPTION

SHEET 1 OF 4

GENERAL NOTES:

1. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING TYPE AND LOCATION OF UNDERGROUND, SURFACE, AND AERIAL UTILITIES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT TYPE AND LOCATION OF ALL UTILITIES AFFECTED BY CONSTRUCTION FOR THIS PROJECT IN ORDER TO AVOID DAMAGING THOSE UTILITIES. THE CONTRACTOR SHALL a) IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, AND b) PAY FOR SAME AT NO EXTRA COST TO THE OWNER.

2. CONTRACTOR SHALL TELEPHONE "ONE-CALL" SYSTEM @ 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS BEFORE BEGINNING CONSTRUCTION.

3. BEFORE BEGINNING ACTUAL EXCAVATION AND CONSTRUCTION OPERATION THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES HAVING FACILITIES IN THE AREA SO THESE COMPANIES CAN DETERMINE IF THE PROPOSED CONSTRUCTION WILL CONFLICT WITH THEIR FACILITIES. CONTRACTOR SHALL CONTACT THE FOLLOWING UTILITIES AT A MINIMUM:
   1. CITY OF AUSTIN WATER AND WASTEWATER UTILITY
   2. CITY OF AUSTIN ELECTRIC UTILITY
   3. AUSTIN GAS COMPANY
   4. AT&T TELEPHONE COMPANY

4. ALL EXCAVATION FOR THIS PROJECT SHALL BE UNCLASSIFIED.

5. THE BIDDER (CONTRACTOR AFTER AWARD) SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY UNREPORTED OBSTACLES OR DISCREPENCIES THAT MAY IMPEDE OR PREVENT THE PROPER CONSTRUCTION OF THIS PROJECT.

6. THE CONTRACTOR SHALL MAINTAIN CLEAR PASSAGE FOR LOCAL TRAFFIC AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROJECT.

7. ALL WORK AND MATERIAL MUST MEET THE APPLICABLE CITY OF AUSTIN STANDARD SPECIFICATIONS AND CITY OF AUSTIN STANDARDS, LATEST REVISIONS.

8. CONTRACTOR/REPAIR CREW MUST NOTIFY CITY INSPECTOR AT LEAST TEWNTYFOUR (24) HOURS PRIOR TO BEGINNING PERMANENT BACK FILL OPERATIONS.

9. BACK FILL DENSITY SHALL BE AS SPECIFIED IN ITEM 510 OF THE STANDARD SPECIFICATIONS. TEST METHODS SHALL BE AS SPECIFIED IN THE CITY STANDARD SPECIFICATIONS UNLESS INDICATED OTHERWISE IN WRITING BY THE ENGINEER.

10. HOT MIX ASPHALTIC CONCRETE (H.M.A.C.), WHEN REQUIRED, SHALL BE FURNISHED AND PLACED IN ACCORDANCE WITH ITEM 340 OF THE STANDARD SPECIFICATIONS. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS FOR CUTS IN PUBLIC RIGHT OF WAY.

11. FLEXIBLE BASE SHALL BE FURNISHED AND INSTALLED IN COMPLIANCE WITH ITEM 210 OF THE STANDARD SPECIFICATIONS AND IN COMPLIANCE WITH THE CITY OF AUSTIN STANDARDS AND STANDARD SPECIFICATIONS FOR CUTS IN PUBLIC RIGHT OF WAY.

12. CONTRACTOR SHALL NOT ALLOW TRAFFIC ON NEWLY PLACED CONCRETE FOR AT LEAST 72 HOURS UNLESS OTHERWISE APPROVED IN ADVANCE BY THE ENGINEER.

13. CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN SUCH A MANNER AS TO PROTECT ROADWAY FACILITIES AT ALL TIMES.

14. WHERE REMOVAL OF BASE AND PAVEMENT IS NECESSARY FOR THIS PROJECT ALL BASE AND PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, CITY'S STANDARD SPECIFICATIONS AND STANDARD SPECIFICATIONS FOR CUTS IN PUBLIC RIGHT OF WAY. ALL PAVEMENT CUTS SHALL BE SAW CUT PRIOR TO PLACEMENT OF H.M.A.C.

15. ALL WATER AND WASTEWATER SYSTEM IMPROVEMENTS, UTILITY CHANGES AND UTILITY RELOCATIONS MUST BE IN ACCORDANCE TO CITY OF AUSTIN WATER AND WASTEWATER SYSTEM DESIGN CRITERIA AND SPECIFICATIONS. ALL WATER AND WASTEWATER PLANS MUST BE PRESENTED TO THE CITY OF AUSTIN WATER AND WASTEWATER UTILITY FOR REVIEW AND APPROVAL. ALL WATER AND WASTEWATER CONSTRUCTION MUST BE INSPECTED BY THE CITY OF AUSTIN.

16. CONTRACTOR SHALL PROVIDE TEMPORARY DRIVEWAY ACCESS FOR ALL PROPERTY OWNERS ADJACENT TO CONSTRUCTION AREAS EXCEPT DURING PERIODS WHEN CONSTRUCTION IN THE AREA WOULD MAKE ACCESS UNSAFE. EMERGENCY ACCESS SHALL BE IMMEDIATELY PROVIDED TO DRIVEWAYS DURING CONSTRUCTION ON AN AS-NEEDED BASIS.

17. SLOPES OF ROADWAY CUTS AND EMBANKMENTS DAMAGED BY ANY OPERATION OF THE CONTRACTOR DURING THE EXECUTION OF THIS PROJECT SHALL BE REPAIRED AND RESTORED TO THE ORIGINAL PRE-CONSTRUCTION CONDITION IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE STANDARD SPECIFICATIONS. BACK FILL AND FILL PLACED DURING REMEDIAL GRADING SHALL BE COMPACTED TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE ORIGINAL CONDITIONS AND TO THE SATISFACTION OF THE ENGINEER AND GOVERNING AUTHORITIES.

18. NO EXPLOSIVES SHALL BE USED FOR THIS PROJECT WITHOUT A BLASTING PERMIT FROM THE CITY OF AUSTIN.

19. CONTRACTOR SHALL MAINTAIN THE JOB SITE IN A SAFE, NEAT AND WORKMANLIKE MANNER AT ALL TIMES. JOB SITE SAFETY SHALL NOT BE COMPROMISED. ANY UNATTRACTIVE NUISANCE SHALL BE REMOVED OR CAMOUFLAGED BY CONTRACTOR WHEN DIRECTED BY THE OWNER OR ENGINEER.

20. CONTRACTOR SHALL NOTIFY CONSTRUCTION INSPECTION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION AT 974-7180 TO A) ARRANGE A PRE-CONSTRUCTION MEETING NOT LESS THAN FOURTEEN (14) DAYS PRIOR TO BEGINNING CONSTRUCTION, B) NOTIFY INSPECTOR FORTY-EIGHT (48) HOURS IN ADVANCE OF BEGINNING ANY CONSTRUCTION IN THE R.O.W. OR IN EASEMENTS, C) NOTIFY INSPECTOR TWENTY-FOUR (24) HOURS IN ADVANCE OF MAKING ANY SUPPLEMENTARY CONNECTION OR CLOSING OFF ANY WATER AND WASTEWATER SERVICES TO PROPERTY OWNER.

21. BEFORE DISCONNECTING ANY WATER LINE OR GAS LINE, CONTRACTOR MUST PROVIDE TWENTY-FOUR (24) HOUR NOTICE TO THE OWNER EXCEPT IN THE CASE OF A BONA FIDE EMERGENCY.

22. ALL TRAFFIC CONTROL DEVICES, SIGNS, BARRICADES, WARNING SIGNS, AND FLAG MEN OPERATIONS SHALL BE PLACED, CONSTRUCTED, EXECUTED AND MAINTAINED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUDTC), THE CITY OF AUSTIN STANDARD SPECIFICATION SERIES 800, AND THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL. IF A CONFLICT ARISES, THEN THE SERIES 800 SPECIFICATIONS SHALL CONTROL UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER.

23. WHERE PORTABLE SIGNS REQUIRE THE USE OF WEIGHTS, SANDBAGS SHALL BE USED. THE USE OF SOLID OBJECTS SUCH AS CONCRETE, ROCKS, IRON, ETC. SHALL NOT BE PERMITTED.

24. INSTALLATION OF CONSTRUCTION BARRICADING AND SIGNING SHALL BE COORDINATED THROUGH THE TRANSPORTATION ENGINEERING AND SIGNALS DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION AT 974-7024.

25. ALL TRAFFIC CONTROL SIGNS SHALL REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS. IF SIGNS REQUIRE RELOCATION, CONTRACTOR SHALL CONTACT THE TRANSPORTATION ENGINEERING AND SIGNALS DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION AT 974-7024.

26. CONTRACTOR MUST RESTORE ALL PAVEMENT MARKINGS DISTURBED DURING CONSTRUCTION. CONTRACTOR SHALL OBSERVE ALL APPLICABLE MATERIALS, SPECIFICATIONS, AND INSTALLATION REQUIREMENTS INCLUDING SPECIAL ATTENTION TO MAINTAINING PROPER DIMENSIONS AND ALIGNMENT.

27. ALL HOLES, TRENCHES, AND OTHER HAZARDOUS AREAS SHALL BE ADEQUATELY PROTECTED BY BARRICADES, FENCING, LIGHTS, AND/OR OTHER PROTECTIVE DEVICES AT ALL TIMES.

28. CONTRACTOR SHALL NOTIFY PRINCIPLES OF EACH OF THE FOLLOWING ENTITIES OF THE CONSTRUCTION SCHEDULE AT LEAST TWO WEEKS IN ADVANCE OF PROPOSED CONSTRUCTION OPERATIONS.
   A. AUSTIN FIRE DEPARTMENT
   B. AUSTIN POLICE DEPARTMENT
   C. AUSTIN INDEPENDENT SCHOOL DISTRICT
   D. CAPITAL METRO TRANSPORTATION
   E. U.S. POSTAL SERVICE

29. REMOVAL OF EXCAVATED MATERIALS AND DAILY CLEANUP OPERATIONS SHALL BE PERFORMED TO THE SPECIFICATIONS AND TO THE SATISFACTION OT THE OWNER AND ENGINEER.

30. UNATTENDED TRENCHES MUST BE COVERED WITH STEEL PLATES CAPABLE OF SUPPORTING VEHICULAR TRAFFIC. THESE STEEL PLATES MUST BE ADEQUATELY ANCHORED TO PREVENT THEM FROM BECOMING DISLODGED.

31. ALL CONSTRUCTION AND TRENCHING OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). COPIES OF OSHA STANDARDS MAY BE PURCHASED FROM THE U.S. GOVERNMENT PRINTING OFFICE.

32. CONTRACTOR SHALL MAINTAIN A SUPERINTENDENT UPON THE PROJECT AT ALL TIMES WORK IS IN PROGRESS.

33. CONTRACTOR SHALL COMPLY WITH CONSTRUCTION SEQUENCING WHICH IS SPECIFIED ELSEWHERE IN THE PLANS.

34. FOR CONSTRUCTION IN THE RIGHT OF WAY, A CONCRETE PERMIT IS REQUIRED.

STANDARD SITE PLAN NOTES

COMPATIBILITY

1. HIGHLY REFLECTIVE MATERIALS WILL NOT BE USED. MATERIALS MAY NOT EXCEED 20% REFLECTIVITY. THIS REQUIREMENT SHALL NOT APPLY TO SOLAR PANELS OR TO COPPER OR PAINTED METAL ROOFS.
2. THE NOISE LEVEL OF MECHANICAL EQUIPMENT WILL NOT EXCEED 70 D.B.A. AT THE PROPERTY LINE ADJACENT TO RESIDENTIAL USES.
3. ALL EXTERIOR LIGHTING SHALL BE HOODED OR SHIELDED FROM THE VIEW OF ADJACENT RESIDENTIAL USES.
4. EXTERIOR LIGHTING ABOVE THE SECOND FLOOR IS PROHIBITED WHEN ADJACENT TO RESIDENTIAL PROPERTY.
5. ALL DUMPSTERS AND ANY PERMANENTLY PLACED REFUSE RECEPTACLES WILL BE LOCATED AT A MINIMUM OF TWENTY (20) FEET FROM A PROPERTY USED OR ZONED AS SF-5 OR MORE RESTRICTIVE.

FIRE DEPARTMENT

1. THE AUSTIN FIRE DEPARTMENT REQUIRES FINAL ASPHALT OR CONCRETE PAVEMENT ON REQUIRED ACCESS ROADS PRIOR TO THE START OF COMBUSTIBLE CONSTRUCTION. ANY OTHER METHOD OF PROVIDING "ALL-WEATHER DRIVING CAPABILITIES" SHALL BE REQUIRED TO BE DOCUMENTED AND APPROVED AS AN ALTERNATIVE METHOD OF CONSTRUCTION IN ACCORDANCE WITH APPLICABLE RULES FOR TEMPORARY ROADS OUTLINED IN THE CITY OF AUSTIN FIRE PROTECTION CRITERIA MANUAL.
2. FIRE HYDRANTS SHALL BE INSTALLED WITH THE CENTER OF THE FOUR (4) INCH OPENING (STEAMER) LOCATED AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE STEAMER OPENING OF FIRE HYDRANTS SHALL FACE THE APPROVED FIRE ACCESS DRIVEWAY OR PUBLIC STREET AND SET BACK FROM THE CURB LINE(S) AN APPROVED DISTANCE, TYPICALLY THREE (3) TO SIX (6) FEET. THE AREA WITHIN THREE (3) FEET IN ALL DIRECTIONS FROM ANY FIRE HYDRANT SHALL BE FREE OF OBSTRUCTIONS, AND THE AREA BETWEEN THE STEAMER OPENING AND THE STREET OR DRIVEWAY GIVING EMERGENCY VEHICLE ACCESS SHALL BE FREE OF OBSTRUCTIONS.
3. TIMING OF INSTALLATIONS: WHEN FIRE PROTECTION FACILITIES ARE INSTALLED BY THE CONTRACTOR, SUCH FACILITIES SHALL INCLUDE SURFACE ACCESS ROADS. EMERGENCY ACCESS ROADS OR DRIVES SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING THE TIME OF CONSTRUCTION. WHEN THE FIRE DEPARTMENT APPROVES AN ALTERNATE METHOD OF PROTECTION, THIS REQUIREMENT MAY BE MODIFIED AS DOCUMENTED IN THE APPROVAL OF THE ALTERNATE METHOD.
4. ALL EMERGENCY ACCESS ROADWAYS AND FIRE LANES, INCLUDING PERVIOUS/DECORATIVE PAVING, SHALL BE ENGINEERED AND INSTALLED AS REQUIRED TO SUPPORT THE AXLE LOADS OF EMERGENCY VEHICLES. A LOAD CAPACITY SUFFICIENT TO MEET THE REQUIREMENTS FOR HS-20 LOADING (16KIPS/WHEEL) AND A TOTAL VEHICLE LIVE LOAD OF 80,000 POUNDS IS CONSIDERED COMPLIANT WITH THIS REQUIREMENT.
5. FIRE LANES DESIGNATED ON SITE PLANS SHALL BE REGISTERED WITH THE CITY OF AUSTIN FIRE DEPARTMENT AND INSPECTED FOR FINAL APPROVAL.
6. THE MINIMUM VERTICAL CLEARANCE REQUIRED FOR EMERGENCY VEHICLES ACCESS ROADS OR DRIVES IS 14 FEET FOR THE FULL WIDTH OF THE ROADWAY OR DRIVEWAY.

AMERICANS WITH DISABILITIES ACT
THE CITY OF AUSTIN HAS REVIEWED THIS PLAN FOR COMPLIANCE WITH CITY DEVELOPMENT REGULATIONS ONLY. THE APPLICANT, PROPERTY OWNER, AND OCCUPANT OF THE PREMISES ARE RESPONSIBLE FOR DETERMINING WHETHER THE PLAN COMPLIES WITH ALL OTHER LAWS, REGULATIONS, AND RESTRICTIONS WHICH MAY BE APPLICABLE TO THE PROPERTY AND ITS USE

TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED.

2. IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN EMPLOYEES ARE REQUIRED TO BE IN TRENCHES 4 FOOT DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.

3. IF FOUND DURING CONSTRUCTION THAT TRENCHES ARE IN FACT GREATER THAN 5 FEET IN DEPTH, THE CONTRACTOR SHALL PROVIDE ACCEPTABLE TRENCH SAFETY PLANS DESIGNED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH U.S. OSHA REGULATIONS.

GENERAL CONSTRUCTION NOTES

1. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM IN REVIEWING THESE PLANS, THE CITY OF AUSTIN MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

2. CONTRACTOR SHALL CALL TEXAS 811 (811 OR 1-800-344-8377) FOR UTILITY LOCATIONS PRIOR TO ANY WORK IN CITY EASEMENTS OR STREET R.O.W.

3. CONTRACTOR SHALL NOTIFY THE CITY OF AUSTIN - SITE & SUBDIVISION DIVISION TO SUBMIT REQUIRED DOCUMENTATION, PAY CONSTRUCTION INSPECTION FEES, AND TO SCHEDULE THE REQUIRED SITE AND SUBDIVISION PRE-CONSTRUCTION MEETING. THIS MEETING MUST BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN THE R.O.W. OR PUBLIC EASEMENTS. PLEASE VISIT

HTTP://AUSTINTEXAS.GOV/PAGE/COMMERCIAL-SITE-AND-SUBDIVISION-INSPECTIONS FOR A LIST OF SUBMITTAL REQUIREMENTS, INFORMATION CONCERNING FEES, AND CONTACT INFORMATION.

4. FOR SLOPES OR TRENCHES GREATER THAN FIVE FEET IN DEPTH, A NOTE MUST BE ADDED STATING: "ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION." (OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 611 EAST 6TH STREET, AUSTIN TEXAS.)

5. ALL SITE WORK MUST ALSO COMPLY WITH ENVIRONMENTAL REQUIREMENTS.

6. UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS AND PRIOR TO THE FOLLOWING, THE ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DRAINAGE, FILTRATION AND DETENTION FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS:

RELEASE OF THE CERTIFICATE OF OCCUPANCY BY THE DEVELOPMENT SERVICES DEPARTMENT (INSIDE THE CITY LIMITS); OR

INSTALLATION OF AN ELECTRIC OR WATER METER (IN THE FIVE-MILE ETJ)

SPECIAL CONSTRUCTION TECHNIQUES ECM 3.5.4(D)

IN CONJUNCTION WITH REMEDIAL CARE, MITIGATION FOR TREES REMOVED MAY INCLUDE SPECIAL CONSTRUCTION TECHNIQUES NOT NORMALLY REQUIRED IN STANDARD SPECIFICATIONS. SOME OF THESE TECHNIQUES INCLUDE THE FOLLOWING:

- PRIOR TO EXCAVATION WITHIN TREE DRIPLINES OR THE REMOVAL OF TREES ADJACENT TO OTHER TREES THAT ARE TO REMAIN, MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT TO MINIMIZE ROOT DAMAGE.
- IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION WITH FENCING AND WHERE HEAVY VEHICULAR TRAFFIC IS ANTICIPATED, COVER THOSE AREAS WITH A MINIMUM OF 12 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. IN AREAS WITH HIGH SOIL PLASTICITY GEOTEXTILE FABRIC, PER STANDARD SPECIFICATION 620S, SHOULD BE PLACED UNDER THE MULCH TO PREVENT EXCESSIVE MIXING OF THE SOIL AND MULCH. ADDITIONALLY, MATERIAL SUCH AS PLYWOOD AND METAL SHEETS, COULD BE REQUIRED BY THE CITY ARBORIST TO MINIMIZE ROOT IMPACTS FROM HEAVY EQUIPMENT. ONCE THE PROJECT IS COMPLETED, ALL MATERIALS SHOULD BE REMOVED, AND THE MULCH SHOULD BE REDUCED TO A DEPTH OF 3 INCHES.
- PERFORM ALL GRADING WITHIN CRITICAL ROOT ZONE AREAS BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE.
- WATER ALL TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
- WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.

AUSTIN ENERGY NOTES:

1. AUSTIN ENERGY HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY AND OTHER OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP THE EASEMENTS CLEAR. AUSTIN ENERGY WILL PERFORM ALL TREE WORK IN COMPLIANCE WITH CHAPTER 25-8, SUBCHAPTER B OF THE CITY OF AUSTIN LAND DEVELOPMENT CODE.
2. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE AUSTIN ENERGY WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES. THESE EASEMENTS AND/OR ACCESS ARE REQUIRED TO PROVIDE ELECTRIC SERVICE TO THE BUILDING AND WILL NOT BE LOCATED SO AS TO CAUSE THE SITE TO BE OUT OF COMPLIANCE WITH CHAPTER 25-8 OF THE CITY OF AUSTIN LAND DEVELOPMENT CODE.
3. THE OWNER SHALL BE RESPONSIBLE FOR INSTALLATION OF TEMPORARY EROSION CONTROL, REVEGETATION AND TREE PROTECTION. IN ADDITION, THE OWNER SHALL BE RESPONSIBLE FOR ANY INITIAL TREE PRUNING AND TREE REMOVAL THAT IS WITHIN TEN FEET OF THE CENTER LINE OF THE PROPOSED OVERHEAD ELECTRICAL FACILITIES DESIGNED TO PROVIDE ELECTRIC SERVICE TO THIS PROJECT. THE OWNER SHALL INCLUDE AUSTIN ENERGY'S WORK WITHIN THE LIMITS OF CONSTRUCTION FOR THIS PROJECT.
4. THE OWNER OF THE PROPERTY IS RESPONSIBLE FOR MAINTAINING CLEARANCES REQUIRED BY THE NATIONAL ELECTRIC SAFETY CODE, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, CITY OF AUSTIN RULES AND REGULATIONS AND TEXAS STATE LAWS PERTAINING TO CLEARANCES WHEN WORKING IN CLOSE PROXIMITY TO OVERHEAD POWER LINES AND EQUIPMENT. AUSTIN ENERGY WILL NOT RENDER ELECTRIC SERVICE UNLESS REQUIRED CLEARANCES ARE MAINTAINED. ALL COSTS INCURRED BECAUSE OF FAILURE TO COMPLY WITH THE REQUIRED CLEARANCES WILL BE CHARGED TO THE OWNER.
5. ANY RELOCATION OF ELECTRIC FACILITIES WILL BE AT THE OWNERS/DEVELOPERS EXPENSE

SEQUENCE OF CONSTRUCTION:

1. TEMPORARY EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSTALLED AS INDICATED ON THE SITE PLAN OR APPROVED SUBDIVISION CONSTRUCTION PLAN AND IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) THAT IS REQUIRED TO BE POSTED ON THE SITE. INSTALL TREE PROTECTION AND INITIATE TREE MITIGATION MEASURES.
2. THE ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR MUST CONTACT THE WATERSHED PROTECTION DEPARTMENT, ENVIRONMENTAL INSPECTION, AT 512-974-2278, 72 HOURS PRIOR TO THE SCHEDULED DATE OF THE REQUIRED ON-SITE PRECONSTRUCTION MEETING.
3. THE ENVIRONMENTAL PROJECT MANAGER, AND/OR SITE SUPERVISOR, AND/OR DESIGNATED RESPONSIBLE PARTY, AND THE GENERAL CONTRACTOR WILL FOLLOW THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) POSTED ON THE SITE. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE REVISED, IF NEEDED, TO COMPLY WITH CITY INSPECTORS' DIRECTIVES, AND REVISED CONSTRUCTION SCHEDULE RELATIVE TO THE WATER QUALITY PLAN REQUIREMENTS AND THE EROSION PLAN.
4. ROUGH GRADE THE POND(S) AT 100% PROPOSED CAPACITY. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO DEVELOPMENT OF EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM MUST CONSIST OF A SUMP PIT OUTLET AND AN EMERGENCY SPILLWAY MEETING THE REQUIREMENTS OF THE DRAINAGE CRITERIA MANUAL AND/OR THE ENVIRONMENTAL CRITERIA MANUAL, AS REQUIRED. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL INSTALLATION OF THE PERMANENT WATER QUALITY POND(S).
5. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) POSTED ON THE SITE.
6. BEGIN SITE CLEARING/CONSTRUCTION (OR DEMOLITION) ACTIVITIES.
7. IN THE BARTON SPRINGS ZONE, THE ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR WILL SCHEDULE A MID-CONSTRUCTION CONFERENCE TO COORDINATE CHANGES IN THE CONSTRUCTION SCHEDULE AND EVALUATE EFFECTIVENESS OF THE EROSION CONTROL PLAN AFTER POSSIBLE CONSTRUCTION ALTERATIONS TO THE SITE. PARTICIPANTS SHALL INCLUDE THE CITY INSPECTOR, PROJECT ENGINEER, GENERAL CONTRACTOR AND ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR. THE ANTICIPATED COMPLETION DATE AND FINAL CONSTRUCTION SEQUENCE AND INSPECTION SCHEDULE WILL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR.
8. PERMANENT WATER QUALITY PONDS OR CONTROLS WILL BE CLEANED OUT AND FILTER MEDIA WILL BE INSTALLED PRIOR TO/CONCURRENTLY WITH REVEGETATION OF SITE.
9. COMPLETE CONSTRUCTION AND START REVEGETATION OF THE SITE AND INSTALLATION OF LANDSCAPING.
10. UPON COMPLETION OF THE SITE CONSTRUCTION AND REVEGETATION OF A PROJECT SITE, THE DESIGN ENGINEER SHALL SUBMIT AN ENGINEER'S LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT CONSTRUCTION, INCLUDING REVEGETATION, IS COMPLETE AND IN SUBSTANTIAL CONFORMITY WITH THE APPROVED PLANS. AFTER RECEIVING THIS LETTER, A FINAL INSPECTION WILL BE SCHEDULED BY THE APPROPRIATE CITY INSPECTOR.
11. UPON COMPLETION OF LANDSCAPE INSTALLATION OF A PROJECT SITE, THE LANDSCAPE ARCHITECT SHALL SUBMIT A LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT THE REQUIRED LANDSCAPING IS COMPLETE AND IN SUBSTANTIAL CONFORMITY WITH THE APPROVED PLANS. AFTER RECEIVING THIS LETTER, A FINAL INSPECTION WILL BE SCHEDULED BY THE APPROPRIATE CITY INSPECTOR.
12. AFTER A FINAL INSPECTION HAS BEEN CONDUCTED BY THE CITY INSPECTOR AND WITH APPROVAL FROM THE CITY INSPECTOR, REMOVE THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND COMPLETE ANY NECESSARY FINAL REVEGETATION RESULTING FROM REMOVAL OF THE CONTROLS. CONDUCT ANY MAINTENANCE AND REHABILITATION OF THE WATER QUALITY PONDS OR CONTROLS.

CONSTRUCTION SEQUENCE NOTES

INSTALL CONSTRUCTION ENTRANCE, SILT FENCE, AND OTHER BMP'S AS SHOWN ON THE PLANS. CONTACT THE DESIGN ENGINEER FOR A PRE-CONSTRUCTION MEETING. PEDERNALES ELECTRIC COOPERATIVE (PEC) AND ATMOS ENERGY (GAS COMPANY) ARE NOTIFIED BY THE TEXAS EXCAVATION SYSTEM (1-800-344-8377).

A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND THE CITY OF LEANDER REPRESENTATIVES AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION MEASURES AND PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT AT LEAST THREE (3) DAYS PRIOR TO THE MEETING DATE.

CONTACT TEXAS EXCAVATION SYSTEM FOR EXISTING UTILITY LOCATIONS.

CLEAR SITE OF ANY EXISTING MATERIALS, DEBRIS AND VEGETATION ALONG CONSTRUCTION ROUTES.

BEGIN CONSTRUCTION OF PROJECT AS FOLLOWS:

A) SET UP CONTRACTOR TRAILER/OFFICE AND TEMPORARY UTILITIES
B) ROUGH GRADE POND FOR DRAINGE CONTROL
C) BEGIN EXCAVATION (COMPLY WITH OSHA AND CODES, ETC.)
D) INSTALL INFRASTRUCTURE MATERIALS (PIPE, FITTINGS, AND BEDDING MATERIAL, ETC.)
E) BEGIN BUILDING PAD/SLAB CONSTRUCTION
F) COMPLETE PIPE LAYING AND TESTING (COMPLY WITH SPECIFICATIONS)
G) COMPLETE BACKFILL (COMPLY WITH SPECIFICATIONS)
H) INSTALL CURB AND GUTTER
I) FINALIZE BUILDING CONSTRUCTION
J) FINALIZE PAVEMENT INSTALLATION

TEST STREET AND DRAINAGE CONSTRUCTION AS SPECIFIED.

REVEGETATE DISTURBED AREAS AS REQUIRED.

UPON ACCEPTANCE OF FINAL CONSTRUCTION AND PROPER REVEGETATION PER SPECIFICATIONS; REMOVE TEMPORARY EROSION CONTROLS.

MAINTAIN, REPAIR, OR REPLACE INTEGRITY OF EXISTING FENCES, PROPERTY CORNERS, AND LANDSCAPING AS REQUIRED.

DUST CONTROL.

1. DESCRIPTION.
CONTROLLING DUST MOVEMENT ON CONSTRUCTION-SITES AND ROADS.
2. PURPOSE.
TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS AND IMPROVE TRAFFIC SAFETY.
3. CONDITIONS WHERE PRACTICE APPLIES.
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.
4. PROCEDURES
TEMPORARY METHODS.
- MULCHES - SEE SECTION 1.4.4. CHEMICAL MULCH BINDERS MAY BE USED INSTEAD OF ASPHALT TO BIND MULCH MATERIAL. BINDERS SUCH AS CURASOL OR TERRA TACK SHOULD BE USED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- VEGETATIVE COVER - SEE SECTION 1.4.4.
- SPRAY-ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.

TABLE 1-5
SPRAY-ON ADHESIVES

	WATER DILUTION	TYPE OF NOZZLE	APPLY- GALLONS/ACRE
ANIONIC ASPHALT EMULSION	7:1	FINE SPRAY	
LATEX EMULSION	12½ :1	FINE SPRAY	
RESIN-IN-WATER EMULSION	4:1	FINE SPRAY	

SOURCE: CITY OF SAN MARCOS

- TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING-TOOTHED HARROWS AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
- IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED.
- BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIALS CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 15 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.

PERMANENT METHODS.
- PERMANENT VEGETATION -- SEE SECTION 1.4.3 AND SECTION 1.4.4 E. TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION LEFT IN PLACE.
- TOPSOILING - COVERING WITH LESS EROSIVE SOIL MATERIAL. SEE 1.4.5 B.
- STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED PROFESSIONAL ENGINEER
4/26/2023

THIS PLAN SET FOR REVIEW ONLY, NOT FOR CONSTRUCTION.

TEXAS 811 BEFORE YOU DIG

WARNING !!!! CONTRACTOR TO FIELD VERIFY ALL EXIST. UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO CONTACT ENGINEER IF ANY EXISTING UTILITY INFORMATION DIFFERS FROM DATA SHOWN IN THE PLANS. CALL 811 BEFORE YOU DIG.

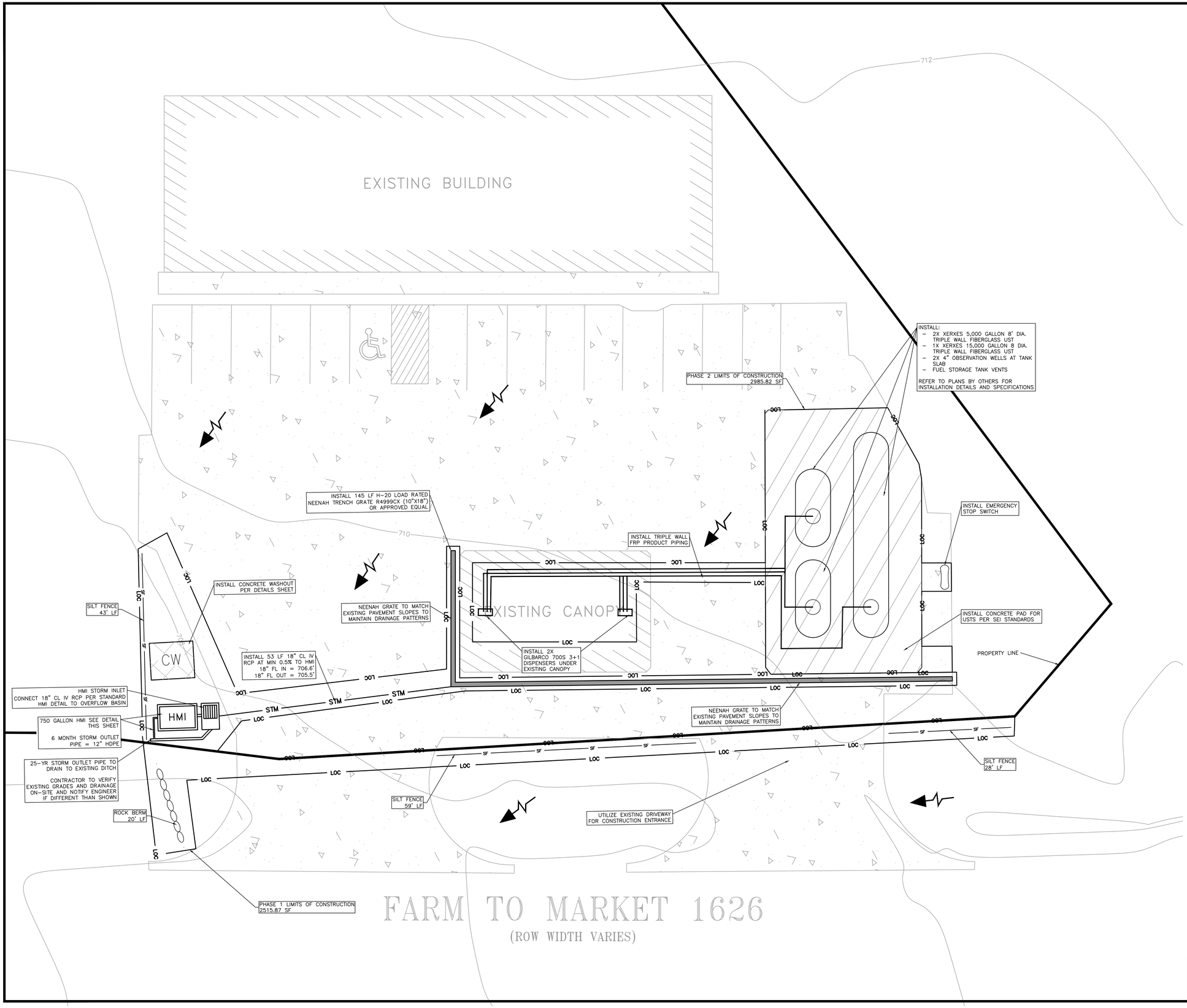
ENGINEERING | CONSULTING
SANDLIN
SERVICES, LLC

TBPELS FIRM #21356
4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

GENERAL NOTES

MANCHACA C-STORE REHABILITATION

REV. NO.	BY	DATE	REVISION DESCRIPTION



0 5' 10' 20'

SCALE: 1" = 10'

IF DRAWING BAR DOES NOT MEASURE 2" THIS PRINT IS NOT TO SCALE

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED
PROFESSIONAL ENGINEER

4/26/2023

THIS PLAN SET FOR REVIEW ONLY, NOT FOR CONSTRUCTION.

EROSION CONTROL LEGEND

- PROPOSED PROPERTY/ PROJECT BOUNDARY LINE
- EXISTING R.O.W./PROPERTY LINE
- EXISTING EASEMENT LINE
- PROPOSED CURB & GUTTER
- LOC — LOC — LOC — LIMITS OF CONSTRUCTION
- SF — SF — SF — SILT FENCE
- T — T — T — TREE PROTECTION FENCE
- STAGING & TEMPORARY SPOILS AREA
- STABILIZED CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- TEMPORARY ROCK BERM
- AREA INLET PROTECTION
- CURB INLET PROTECTION
- 750 EXISTING CONTOURS
- 755 PROPOSED CONTOURS
- 100 EXISTING TREE (TO REMAIN)
- 100 EXISTING TREE (TO BE REMOVED)

NOTE: ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY INSPECTOR AT TIME OF CONSTRUCTION.

NOTES:

1. PHASE 1 LIMITS OF CONSTRUCTION: 2,516 SF
2. PHASE 2 LIMITS OF CONSTRUCTION: 2,986 SF
3. LIMITS OF CONSTRUCTION SHALL NOT EXCEED 3,000 SF PER PHASE PER CITY OF AUSTIN SITE PLAN EXEMPTION REQUIREMENTS.
4. CONTRACTOR TO CUT AND REMOVE CONCRETE AS NECESSARY TO REMOVE ALL EXISTING PIPING. REFER TO PLANS BY OTHERS FOR EXACT LOCATION OF DISPENSERS AND PIPING.
5. ALL REQUIRED NOTICES AND PERMITS MUST BE PLACED IN A HIGHLY VISIBLE LOCATION ONSITE BEFORE THE COMMENCEMENT OF CONSTRUCTION.
6. ALL EROSION AND SEDIMENTATION CONTROLS (ESC) MUST BE INSTALLED PRIOR TO ANY DISTURBANCE TO THE PROJECT SITE.
7. INSTALL SILT FENCE ACCORDINGLY FOR RUN-ON DIVERSION OR OFFSITE SEDIMENT CONTROL DEPENDING ON UP OR DOWN SLOPE, FACING POST SIDE ON THE DOWN GRADIENT SIDE.
8. ALL ESC USED ONSITE MUST BE REGULARLY MONITORED AND MAINTAINED AS NEEDED.
9. MUD AND OR DIRT TRACKED INTO THE ROADWAY MUST BE IMMEDIATELY REMOVED UPON DISCOVERY.
10. EXCESS MATERIALS THAT WILL BE TRANSPORTED TO AN OFFSITE LOCATION MUST HAVE THAT LOCATION CLEARED BY COUNTY INSPECTOR.
11. LOOSE TRASH AND DEBRIS MUST BE DISPOSED OF PROPERLY ONSITE.
12. CONTRACTOR SHALL MAINTAIN AND UTILIZE DUST CONTROL FOR THE DURATION OF THE PROJECT.
13. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT PREVENTS TRACKING ONTO THE PUBLIC ROADWAY ON AN ONGOING/REGULAR BASIS.
14. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY UPON INLET INSTALLATION.
15. INITIATE TEMPORARY STABILIZATION WHEN CONSTRUCTION CEASES IN A DISTURBED AREA FOR 14 DAYS.
16. INITIATE PERMANENT STABILIZATION IMMEDIATELY ONCE WORK HAS CEASED AND FINAL GRADE HAS BEEN ACHIEVED.
17. ALL DISTURBED/BARE AREAS WILL REQUIRE PERMANENT STABILIZATION BEFORE FINAL ACCEPTANCE CAN BE ACHIEVED. AVOID DISTURBING AREAS OF THE PROJECT THAT ARE NOT NECESSARY FOR CONSTRUCTION.
18. COUNTY INSPECTOR MAY REQUEST ADDITIONAL CONTROLS BE INSTALLED ONSITE AS NEEDED.
19. TEMPORARY ESC'S SHALL REMAIN IN PLACE IN ALL DISTURBED AREAS UNTIL ADEQUATE STABILIZATION HAS BEEN ACHIEVED.
20. CONTRACTOR MUST REMOVE SEDIMENT FROM ALL STORM SEWER INLET BOXES, LINES, PIPES AND CULVERTS BEFORE CONDITIONAL/FINAL ACCEPTANCE CAN BE OBTAINED.
21. TRAVIS COUNTY REQUIRES CERTIFIED SWP3 INSPECTORS TO CONDUCT SWP3 INSPECTIONS AND REPORTING ON ALL PROJECTS WITH ONE ACRE OR DISTURBANCE AND LARGER.
22. PERMITTEE SHALL INSPECT ALL INLET PROTECTION DEVICES AS PART OF THE WEEKLY SWP3 REPORT, UPON RECEIVING A FORECAST CALLING FOR A RAIN EVENT FOR AN EXTENDED PERIOD, MODIFICATION OF INLET PROTECTION SHOULD BE MADE TO PREVENT FLOODING OR PONDING OF WATER IF TRAFFIC OR PROPERTY CONCERNS ARISE.
23. THE TECHNICAL SPECS OF ESC DEVICES AND BEST MANAGEMENT PRACTICES (BMP) MEET OR EXCEED THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL.

TEXAS 811 DIG RIGHT BEFORE YOU DIG

WARNING !!!! CONTRACTOR TO FIELD VERIFY ALL EXIST. UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO CONTACT ENGINEER IF ANY EXISTING UTILITY INFORMATION DIFFERS FROM DATA SHOWN IN THE PLANS. CALL 811 BEFORE YOU DIG.

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SERVICES, LLC

TBPELS FIRM #21356
4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

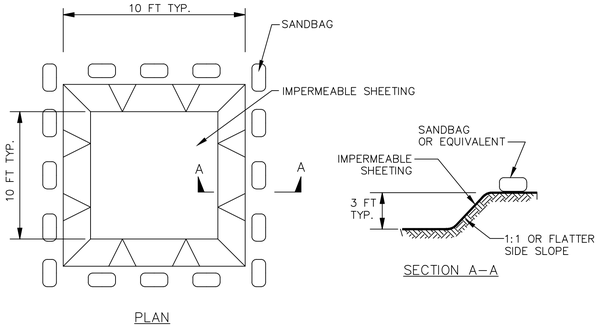
TEMPORARY STORM AND SITE PLAN EXEMPTION SHEET

MANCHACA C-STORE REHABILITATION

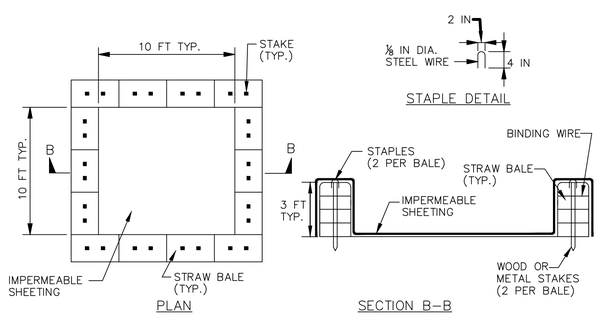
REV. NO.	BY	DATE	REVISION DESCRIPTION

SHEET 3 OF 4

ONSITE CONCRETE WASHOUT STRUCTURE

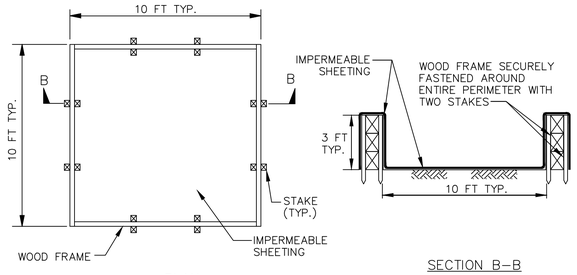


EXCAVATED WASHOUT STRUCTURE



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

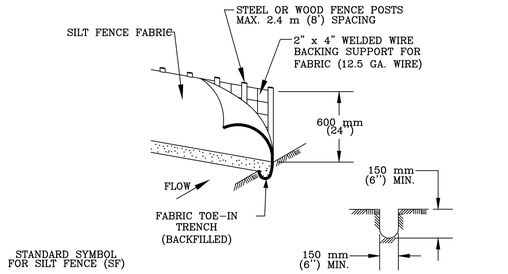
WASHOUT STRUCTURE WITH STRAW BALES



WASHOUT STRUCTURE WITH WOOD PLANKS

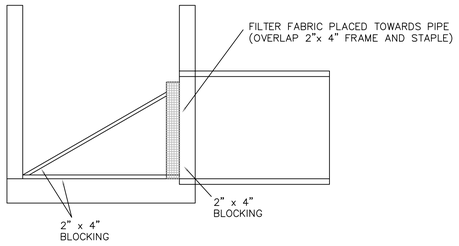
CONSTRUCTION SPECIFICATIONS

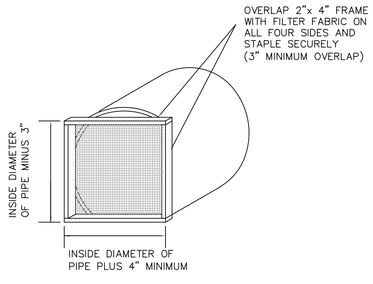
1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET–VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.



1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 inches) DEEP AND 150 mm (6 inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS	*09/01/2011* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1





NOTES:
STORM INLET SEDIMENT TRAPS SHALL BE PLACED IN ALL PROPOSED CURB INLETS AND AREA INLETS AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE LATERAL BRACING SHALL BE PLACED IN A MANNER AS TO ADEQUATELY SECURE THE FILTER FRAME TO THE SIDE OF THE INLET, INSURING THE PROPER FUNCTION OF THE SEDIMENT TRAP.

FILTER FABRIC MAY BE IDENTICAL TO THAT SPECIFIED AS "TEMPORARY SEDIMENT CONTROL FENCE". OTHER MATERIAL MAY BE USED UPON APPROVAL OF THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

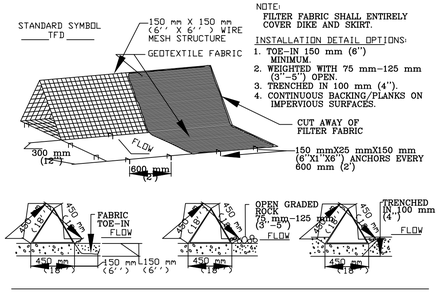
THE "STORM INLET SEDIMENT TRAPS" SHALL BE INSTALLED UPON COMPLETION OF THE PROPOSED INLET WALLS OR AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE CONTRACTOR WILL BE REQUIRED TO PERFORM PERIODIC MAINTENANCE OF THE SEDIMENT TRAP AND REMOVE ACCUMULATED SILT AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

"STORM INLET SEDIMENT TRAPS" SHALL REMAIN IN PLACE UNTIL CONSTRUCTION OF THE PROPOSED INLET DECK BEGINS.

ALL WOOD SHALL BE PRESSURE TREATED.

STORM INLET SEDIMENT TRAP



GENERAL NOTES
1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 75–125 mm (3–5") OPEN GRADED ROCK OR TOED–IN 150 mm (6") WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 100 mm (4").
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 150 mm (6") WIRE STAPLES ON 600 mm (2') CENTERS ON BOTH EDGES AND SKIRT, OR STAKE USING 10M (3/8 ") DIAMETER RE–BAR WITH TEE ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 150 mm (6") TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE MW40–150 mmX150 mm (6 GA. 6'X6") WIRE MESH, 450 mm (18") ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6") AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETLY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN GENERAL NOTE 8 ABOVE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		TRIANGULAR SEDIMENT FILTER DIKE	
RECORD COPY SIGNED BY J. PATRICK MURPHY	*3/27/00* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 628S

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED
PROFESSIONAL ENGINEER
4/26/2023

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ENGINEERING | CONSULTING
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SERVICES, LLC
TBPELS FIRM #21356
4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

EROSION CONTROL DETAILS

MANCHACA C–STORE REHABILITATION

REV. NO.	BY	DATE	REVISION DESCRIPTION

SHEET 4 OF 4

Geologic Assessment
TCEQ-0585

RANGER
ENVIRONMENTAL SERVICES, LLC

Geologic Assessment

REGULATED ENTITY NAME: Zapco #4
TYPE OF PROJECT: __ WPAP __ AST __ SCS _X_ UST

LOCATION OF PROJECT: __ Recharge Zone _X_ Transition Zone __ Contributing Zone within the Transition Zone

Ranger Environmental Services, LLC (Ranger) field personnel attempted to perform the required Geologic Assessment at the aforementioned facility located at 2120 FM 1626, Manchaca, Travis County, Texas on March 30, 2023. During the site visit, it was observed that the site has been previously developed and appeared to operate as a convenience store with retail fueling. The site was noted to be less than 5.0 acres in size with significant area under impervious cover. According to the TCEQ Central Registry, the former tanks at the site were installed in 1985. The tanks were reportedly removed from the site January 16, 2023. The previous Approval of a Modification of an Existing Underground Storage Tank Facility Plan (UST) for 2120 FM 1626, Manchaca, Texas was approved in 2014. This modification replaced the existing piping with new double walled piping required by 30 TAC Chapter 334. Based upon available information, no changes appear to have been made to the site that would have altered the geology since the previous modification was approved.

Therefore, based on the site currently being developed with large portions under impervious cover and the site appearing to have not been altered or developed further since the most recent plan approval, it is requested that an exception to the Geologic Assessment requirement be granted.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Chad M. Copeland, PG, PWS

512/335-1785
Telephone

512/335-0527
Fax

Signature of Geoscientist

4/27/2023
Date

Representing: Ranger Environmental Services, LLC
(Name of Company)

4/27/2023

Modification of a Previously Approved Plan

TCEQ-0590

RANGER
ENVIRONMENTAL SERVICES, LLC

Modification of a Previously Approved Plan

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Transition Zone and Relating to 30 TAC 213.4(j), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This request for a **Modification of a Previously Approved Plan** is hereby submitted for TCEQ review and executive director approval. The request was prepared by:

Print Name of Customer/Agent: Chad M. Copeland, P.G., PWS

Date: 4/27/2023

Signature of Customer/Agent:

Project Information

1. Current Regulated Entity Name: 7-Eleven 40593 (to be changed to Zapco #4)
   Original Regulated Entity Name: Sac N Pac 701
   Regulated Entity Number(s) (RN): 102673092
   Edwards Aquifer Protection Program ID Number(s): 11-14041705
   ☐ The applicant has not changed and the Customer Number (CN) is: _____
   ☒ The applicant or Regulated Entity has changed. A new Core Data Form has been provided.

2. ☒ **Attachment A: Original Approval Letter and Approved Modification Letters**. A copy of the original approval letter and copies of any modification approval letters are attached.

3. A modification of a previously approved plan is requested for (check all that apply):
   - ☐ Physical or operational modification of any water pollution abatement structure(s) including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
   - ☒ Change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
   - ☐ Development of land previously identified as undeveloped in the original water pollution abatement plan;
   - ☐ Physical modification of the approved organized sewage collection system;
   - ☒ Physical modification of the approved underground storage tank system;
   - ☐ Physical modification of the approved aboveground storage tank system.

4. ☒ Summary of Proposed Modifications (select plan type being modified). If the approved plan has been modified more than once, copy the appropriate table below, as necessary, and complete the information for each additional modification.

WPAP Modification Summary	***Approved Project***	***Proposed Modification***
Acres	_____	_____
Type of Development	_____	_____
Number of Residential Lots	_____	_____
Impervious Cover (acres)	_____	_____
Impervious Cover (%	_____	_____
Permanent BMPs	_____	_____
Other	_____	_____

SCS Modification Summary	***Approved Project***	***Proposed Modification***
Linear Feet	_____	_____
Pipe Diameter	_____	_____
Other	_____	_____

AST Modification Summary	*Approved Project*	*Proposed Modification*
Number of ASTs	_____	_____
Volume of ASTs	_____	_____
Other	_____	_____

UST Modification Summary	*Approved Project*	*Proposed Modification*
Number of USTs	4 (removed)	3
Volume of USTs	4-10,000 gallon	2-5k & 1-15k gallon
Other	_____	_____

5. ☒ **Attachment B: Narrative of Proposed Modification**. A detailed narrative description of the nature of the proposed modification is attached. It discusses what was approved, including any previous modifications, and how this proposed modification will change the approved plan.

6. ☒ **Attachment C: Current Site Plan of the Approved Project**. A current site plan showing the existing site development (i.e., current site layout) at the time this application for modification is attached. A site plan detailing the changes proposed in the submitted modification is required elsewhere.
   - ☐ The approved construction has not commenced. The original approval letter and any subsequent modification approval letters are included as Attachment A to document that the approval has not expired.
   - ☒ The approved construction has commenced and has been completed. Attachment C illustrates that the site was constructed as approved.
   - ☐ The approved construction has commenced and has been completed. Attachment C illustrates that the site was **not** constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was constructed as approved.
   - ☐ The approved construction has commenced and has **not** been completed. Attachment C illustrates that, thus far, the site was **not** constructed as approved.

7. ☐ The acreage of the approved plan has increased. A Geologic Assessment has been provided for the new acreage.
   ☒ Acreage has not been added to or removed from the approved plan.

8. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

ATTACHMENT A

Original Letter and Approved Modification Letters.

RANGER
ENVIRONMENTAL SERVICES, LLC

COPY

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 13, 2014

Mr. Craig Scotton
Stripes LLC
4525 Ayers Street
Corpus Christi, Texas 78415

Re: Edwards Aquifer, Travis County

NAME OF PROJECT: Stripes #1548; Located 2120 FM 1626; Austin, Texas

TYPE OF PLAN: Request for Approval of a Modification of an Existing Underground Storage Tank Facility Plan (UST); 30 Texas Administrative Code (TAC) Chapter 213 Edwards Aquifer

Edwards Aquifer Protection Program ID No. 11-14041703; Investigation No. 1164933; Regulated Entity No. RN 102673092

Dear Mr. Craig Scotton:

The Texas Commission on Environmental Quality (TCEQ) has completed its review of the UST Application for the above-referenced project submitted to the Austin Regional Office by Ranger Environmental on behalf of Stripes #1548 on April 17, 2014. As presented to the TCEQ, the UST Facility Plan proposed in the application was prepared to be in general compliance with the requirements of 30 TAC Chapter 334, Underground Storage Tanks, and 30 TAC §213.5(d). Therefore, based on the applicant's concurrence of compliance, the planning materials for construction of the proposed project and pollution abatement measures are hereby approved subject to applicable state rules and the conditions in this approval letter. The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan. A motion for reconsideration must be filed no later than 23 days after the date of this approval letter. *This approval expires two (2) years from the date of this letter unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been requested.*

BACKGROUND

The proposed commercial project is located at an existing gas station that was constructed in 1985 before Edwards Aquifer rules were established.

PROJECT DESCRIPTION

The project site is located on the Edwards Aquifer Transition Zone. The proposed UST Facility Plan will consist of no new tanks. The site is previously developed and currently has a convenience store with three underground gasoline tanks and one diesel tank. The four existing tanks are single walled FRP and each have a capacity of 10,000 gallons. The current project will utilize the existing tanks. The proposed work consists of replacing all the piping starting at the top of the tanks and continuing to the shear valves. The piping material will be U.L. listed A.O. Smith Red Thread II double-wall fiberglass-reinforced plastic piping. Ancillary equipment will include: overfill prevention, spill containment, a double-wall fiberglass reinforced plastic piping system, stainless steel flexible connectors, piping sumps, dispenser-end flexible connector isolation sleeves, dispenser-end containment sump, an electronic continuous leak detection system to monitor the tank and piping interstices and capable of notifying the system's owner , and all other equipment as required by 30 TAC Chapter 334. The site will also include a Hazardous material interceptor as is required by the City of Austin.

GEOLOGY

The applicant has requested an exception from conducting a geological assessment. The request for an exception to the Geologic Assessment has been approved since the site was previously disturbed and developed in 1985 before Edwards Aquifer Rules took effect in Travis County in 1990.

STANDARD CONDITIONS

1. Pursuant to Chapter 7 Subchapter C of the Texas Water Code, any violations of the requirements in 30 TAC Chapter 213 may result in administrative penalties.
2. The holder of the approved Edwards Aquifer protection plan must comply with all provisions of 30 TAC Chapter 213 and all best management practices and measures contained in the approved plan. Additional and separate approvals, permits, registrations and/or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, UIC) can be required depending on the specifics of the plan.
3. In addition to the rules of the Commission, the applicant may also be required to comply with state and local ordinances and regulations providing for the protection of water quality.
4. Installation, testing, and operation of the tanks, piping, and all other components of the proposed storage and monitoring systems shall be in conformance with the manufacturer's specifications.
5. All installations, repairs, and removals must be conducted by a registered UST contractor who has a licensed installer or on-site supervisor at the site during all critical junctures, as required by 30 TAC Chapter 334 Subchapter I.
6. The owner of the proposed facility shall assure that the storage tank system is installed, operated, and maintained in full compliance with the applicable provisions of 30 TAC Chapter 334 which establishes the requirements for the design, installation, operation, corrosion protection, construction notification, registration, fee assessment, financial responsibility, release reporting, corrective action related to such system, and all applicable federal, state and local regulations.

Prior to Commencement of Construction:

7. Within 60 days of receiving written approval of an Edwards Aquifer Protection Plan, the applicant must submit to the Austin Regional Office, proof of recordation of notice in the county deed records, with the volume and page number(s) of the county deed records of the county in which the property is located. A description of the property boundaries shall be included in the deed recordation in the county deed records. A suggested form (Deed Recordation Affidavit, TCEQ-0625) that you may use to deed record the approved UST Facility Plan is enclosed.
8. All contractors conducting regulated activities at the referenced project location shall be provided a copy of this notice of approval. At least one complete copy of the approved UST Facility Plan and this notice of approval shall be maintained at the project location until all regulated activities are completed.
9. Prior to commencing construction, the applicant shall submit any modifications to this approved UST Facility Plan required by some other regulating authority or desired by the applicant.
10. Modification to the activities described in the referenced UST Facility Plan following the date of approval may require the submittal of an Edwards Aquifer protection plan application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval prior to initiating construction of the modifications.
11. The applicant must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the Austin Regional Office no later than 48 hours prior to commencement of the regulated activity. Written notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person. The executive director will use the notification to determine if the approved plan is eligible for an extension.
12. Temporary erosion and sedimentation (E&S) controls, i.e., silt fences, rock berms, stabilized construction entrances, or other controls described in the approved UST Facility Plan, must be installed prior to construction and maintained during construction. Temporary E&S controls may be removed when vegetation is established and the construction area is stabilized. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
13. All borings with depths greater than or equal to 20 feet must be plugged with a non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation. Voids may be filled with gravel.

During Construction:

14. During the course of regulated activities related to this project, the applicant or agent shall comply with all applicable provisions of 30 TAC Chapter 213, Edwards Aquifer. The applicant shall remain responsible for the provisions and conditions of this approval until such responsibility is legally transferred to another person or entity.
15. If any sensitive feature (caves, solution cavities, sink holes, etc.) is discovered during construction, all regulated activities near the feature must be suspended immediately. The

applicant or his agent must immediately notify the Austin Regional Office of the discovery of the feature. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality. The plan must be sealed, signed, and dated by a Texas Licensed Professional Engineer.

16. One well exists on site within 150 feet of the UST system. The well must be properly plugged and abandoned. Please note all water wells, including injection, dewatering, and monitoring wells must be in compliance with the requirements of the Texas Department of Licensing and Regulation under Title 16 TAC Chapter 76 (relating to Water Well Drillers and Pump Installers) and all other locally applicable rules, as appropriate.
17. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
18. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.
19. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.
20. Intentional discharges of sediment laden water during construction are not allowed. If dewatering of excavated areas becomes necessary, the discharge will be filtered through appropriately selected temporary best management practices. These may include vegetative filter strips, sediment traps, rock berms, silt fence rings, etc.

<u>After Completion of Construction:</u>

21. The leak detection system must provide continuous monitoring of the system and must be capable of immediately alerting the system's owner or their representative of possible leakages.

This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Ab Maamar-Tayeb, P.E. of the Edwards Aquifer Protection Program of the Austin Regional Office at 512-339-2929

Sincerely,

Carolyn D Runyon Water Section Manager
Austin Region Office
Texas Commission on Environmental Quality

CDR/abm

Enclosures: Deed Recordation Affidavit, Form TCEQ-0625

cc: Mr. Chad M. Copeland, CAPM, Ranger Environmental
Mr. David Johns, P.G., Watershed Protection Program, City of Austin
Honorable Sam Biscoe, Travis County Judge
TCEQ Central Records, Building F, MC 212

Deed Recordation Affidavit
Contributing Zone Plan

THE STATE OF TEXAS §

County of _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____ who, being duly sworn by me, deposes and says:

(1) That my name is _____and that I own the real property described below.

(2) That said real property is subject to an CONTRIBUTING ZONE PLAN which was required under the 30 Texas Administrative Code (TAC) Chapter 213.

(3) That the CONTRIBUTING ZONE PLAN for said real property was approved by the Texas Commission on Environmental Quality (TCEQ) on _____.

A copy of the letter of approval from the TCEQ is attached to this affidavit as Exhibit A and is incorporated herein by reference.

(4) The said real property is located in _____ County, Texas, and the legal description of the property is as follows:

_____
LANDOWNER-AFFIANT

SWORN AND SUBSCRIBED TO before me, on this __ day of _____, ____.

_____
NOTARY PUBLIC

THE STATE OF _____ §

County of _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____ known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this __ day of _____, _____.

_____
NOTARY PUBLIC

_____
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: _____

ATTACHMENT B

Narrative of Proposed Modification

RANGER
ENVIRONMENTAL SERVICES, LLC

PROJECT DESCRIPTION

The subject site is located at 2120 FM 1626, Manchaca, Travis County, Texas. The site is located within the Edwards Aquifer Transition Zone. The subject site was constructed in 1985 before Edwards Aquifer rules were established. The areas surrounding the subject site supports mixed commercial and residential properties. The previous Approval of a Modification of an Existing Underground Storage Tank Facility Plan (UST) for 2120 FM 1626, Manchaca, Texas was approved in 2014. This modification replaced the existing piping with U. L. listed double walled piping and added sumps, connectors and leak detection equipment required by 30 TAC Chapter 334 to the UST system. According to the TCEQ Central Registry the tanks were removed from the site January 16, 2023.

The proposed underground storage tank system will include a 15,000-gallon Xerxes fiberglass triple wall tank containing gasoline (UL 1316, ULC S615), a 5,000-gallon Xerxes fiberglass triple wall tank containing gasoline (UL 1316, ULC S615), and a 5,000-gallon Xerxes fiberglass triple wall tank containing diesel (UL 1316, ULC S615). The corresponding underground storage tank sumps are Xerxes integrated sumps. Associated with these tanks will be two (2) new Gilbarco 700 S dispensers along with with new triple wall FRP piping.

The tanks storing gasoline will be equipped with 2 hp FE Petro submersible pumps. The tank storing diesel will be equipped with a 1.5 hp FE Petro submersible pump. Overfill prevention for each tank compartment will be provided by a valve assembly which will be installed in the tank below the vapor recovery fitting and will be set to shut off flow into the tank when the volume of liquid in the tank reaches no more than 95% of the tank capacity.

Product piping will be U.L. listed Dualoy 3000/LCX double wall fiberglass-reinforced plastic piping within Dualoy 3000/L fiberglass-reinforced plastic piping (creating tertiary containment). Dualoy 3000/LCX and Dualoy/L pipe are UL 971 listed. Dualoy 3000/LCX product lines are double-wall construction and will consist of a 2-inch diameter primary pipe surrounded by Dualoy 3000/L single-wall construction with a 3-inch diameter. Vent lines will be 2-inch diameter double-wall pipe. Under each dispenser for each product grade there will be a shear valve mounted to a rigid framework and installed at the dispenser island surface level to assure automatic shut-off of product flow during impact or fire emergencies. In addition, FLEX-ING flexible connectors will be installed at both ends of each product line in isolation sumps to connect to the dispenser unit and submersible pump.

Corrosion protection for the metallic components of the underground storage systems will be provided by electrical isolation. The submersible pump housings and pump-end flexible connectors will be installed within an integrated Xerxes piping sump, which will provide isolation from the backfill material while also providing secondary containment for any leaks from these components. The dispenser-end flexible connector will be similarly isolated by enclosure within an OPW fiberglass under dispenser sump. The vapor recovery riser and the fill tube riser will be thoroughly wrapped with a suitable dielectric material and are isolated from the tank by the use of isolation bushings.

The proposed tanks and piping will be monitored for leaks by means of inventory control, tank monitor CSLD release detection software, sump and interstitial leak detection, and

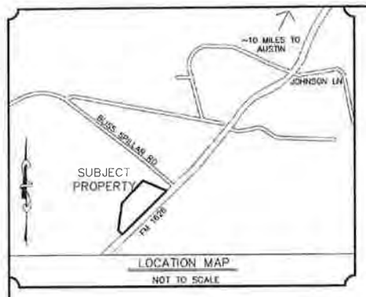
mechanical line leak detection. The tanks will be equipped with a liquid discrimination sensor which will be installed adjacent to the submersible pumps in the sumps and in all dispenser sumps. The tanks will also be equipped with an electronic automatic tank gauging inventory probe for inventory of the product volume in the tank.

The controller will be equipped with Continuous Statistical Leak Detection to meet TCEQ release detection requirements. Each product piping line will be equipped with mechanical line leak detection. The probes and sensors from all tanks will be connected to a Veeder-Root 450 TLS programmable control unit to be located in the store building. The tank interstitial is monitored with a Veeder Root interstitial sensor which will set off an alarm if liquid enters the tank interstitial. This central monitoring unit is designed to provide visual and audible alarms when hydrocarbon liquids or water is detected.

ATTACHMENT C

Current Site Plan of the Approved Project

RANGER
ENVIRONMENTAL SERVICES, LLC



LOCATION MAP
NOT TO SCALE

GENERAL NOTES

1. The Subject Property has direct ingress and egress to FM 1626, which is a paved, public right-of-way.
2. The basis of bearing for the purpose of this survey is the Texas State Plane Coordinate System per TXDOT document 201388184.
3. The address of 2120 was physically observed, posted on site of the Subject Property.
4. All field measurements matched record dimensions within the precision requirements of ALTA/ACSM specifications unless otherwise shown.
5. There is no visible evidence of earth moving on the Subject Property, current or proposed.
6. There is no visible evidence on site of use as a dump or sanitary landfill, currently or previously.
7. There is no visible evidence on site of use as a cemetery, currently or previously.
8. Surveyor is aware of no changes in street right-of-way lines, either completed or proposed. Surveyor observed no evidence of recent street or sidewalk construction or repairs.
9. Subject Property contains 205,165 SQ. FT. OR 4.7099 ACRES, more or less. Owner: WARREN JAMES BLAIR/WARREN REALTY, APN: 352068
10. This Survey Map correctly represents the facts found on the ground at the time of the survey.
11. There are discrepancies between the boundary lines of the Subject Property as shown on this Survey Map and as described in the legal description presented in the Title Commitment.
12. The boundary line dimensions as shown on this Survey Map form a mathematically closed figure within +/- 0.1 foot.
13. The boundary lines of the Subject Property are contiguous with the boundary lines of all adjoining streets, highways, right-of-way and easements, public or private, as described in their most recent respective legal descriptions of record.
14. Except as otherwise noted below, if the Subject Property consists of two or more parcels, there are no gaps or gores between said parcels.
15. No evidence of potential wetlands was observed on the Subject Property at the time the survey was conducted, nor did we receive any documentation of any wetlands being located on the subject property.
16. The intersection of FM 1626 AND BLISS SPILLAR ROAD is located at the Subject Property.
17. All utilities appear to enter the Subject Property via a public right-of-way except as shown hereon.
18. The Subject Property appears to drain into a public right-of-way except as shown hereon.

UTILITY NOTES

[11a] The aboveground utilities shown have been located from field survey information only. The surveyor makes no guarantee that the utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further certifies that they are located as accurately as possible from the field information obtained.

RED PLAINS SURVEYING COMPANY

Survey Prepared By:
Red Plains Surveying Company
1917 S Harvard Avenue, Oklahoma City, OK 73128
Phone: 405-603-7842 / Fax: 405-603-7852
Email: Comments@rpsurveying.com

NOTES CORRESPONDING TO SCHEDULE B

(F) f. Easement:
To: Public
Recorded: May 05, 2000 in County Clerk's File No 2000068503, of the Official Public Records, of Travis County, Texas.
Purpose: Sanitary Control Easement
AFFECTS, PLOTTED HEREON.

(G) g. Easement:
To: City of Austin, a municipal corporation
Recorded: May 18, 2011 in County Clerk's File No 2011071645, of the Official Public Records, of Travis County, Texas
Purpose: Waste Water Easement
AFFECTS, PLOTTED HEREON.

(H) h. Easement:
To: Pedernales Electric Cooperative, Inc
Recorded: January 24, 2013 in County Clerk's File No 2013013866, of the Official Public Records, of Travis County, Texas.
Purpose: Electric Utility Easement
AFFECTS, PLOTTED APPROXIMATELY HEREON.

(I) i. Easement:
To: The County of Hays
Recorded: May 15, 2013 in County Clerk's File No 2013088183, of the Official Public Records, of Travis County, Texas
Purpose: Drainage Easement for Highway Purposes
AFFECTS, PLOTTED HEREON.

ZONING INFORMATION

Source of Zoning Information: Heather Stuart, City of Austin, TX, 512-978-4000

The Current Zoning Classification is: The subject property is located within a jurisdiction which does not have zoning regulations

The observed use is allowed

-Parking Space Table

Type	Count
Regular parking spaces	14
Handicap parking spaces	1
Total parking spaces	15

The current parking requirements are: none

-Building Setback Requirements

Front: 0 Feet
Side: 0 Feet
Rear: 0 Feet

-Building Height Restrictions: none

Because there may be a need for interpretation of the applicable zoning codes, we refer you to the City of Austin, TX and the applicable zoning codes

STATEMENT OF ENCROACHMENTS

No visible encroachments or observed evidence of encroachments onto or over subject property's boundary line as of date of survey

AS SURVEYED LEGAL DESCRIPTION

BEING A TRACT OF LAND OUT OF THE WALKER WILSON LEAGUE SURVEY #2 IN TRAVIS COUNTY, TEXAS, AND BEING A PORTION OF A 71.45 ACRE TRACT, A PORTION OF THE WALKER WILSON LEAGUE SURVEY #2 AS DESCRIBED IN A DEED FROM IRA SAMPSON JENNINGS AND WIFE, JESSIE RUTH JENNINGS TO ROY LEE AND WIFE, EXA LEE AS RECORDED IN VOLUME 1212, PAGE 477, DEED RECORDS OF TRAVIS COUNTY, TEXAS, WHICH TRACT IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A FOUND 1" PIPE (BEING DESCRIBED IN GENERAL WARRANTY DEED INSTRUMENT NO 2002116792 AS AN IRON STAKE) FOR THE NORTHWEST CORNER OF THIS TRACT OF LAND HEREIN DESCRIBED, SAID BEGINNING IRON STAKE BEING 778.05 FEET S 02° 05' W AND 1175.77 FEET S 76° 58' E FROM AN IRON STAKE AND ROCK MOUND AT THE NORTHWEST CORNER OF A 71.45 ACRE TRACT, A PORTION OF THE WALKER WILSON LEAGUE SURVEY #2 AS DESCRIBED IN A DEED FROM IRA SAMPSON JENNINGS AND WIFE, JESSIE RUTH JENNINGS TO ROY LEE AND WIFE, EXA LEE AS RECORDED IN VOLUME 1212, PAGE 477, TRAVIS COUNTY DEED RECORDS;

(1) THENCE, S 40°12'47" W 241.79 FEET TO AN FOUND 1/2" IRON PIN;

(2) THENCE, S 15°19'47" W 415.42 FEET TO A FOUND 1/2" IRON PIN;

(3) THENCE, S 44°14'04" E 96.72 FEET TO A FOUND TXDOT MONUMENT WITH ALUMINUM CAP IN THE WEST RIGHT OF WAY LINE OF FM 1626;

(4) THENCE, N 50°37'53" W 31.81 FEET TO A FOUND BRASS TXDOT RIGHT OF WAY MARKER IN THE WEST RIGHT OF WAY LINE OF FM 1626;

(5) THENCE, N 50°37'53" E 80.00 FEET TO A FOUND BRASS TXDOT RIGHT OF WAY MARKER IN THE WEST RIGHT OF WAY LINE OF FM 1626;

(6) THENCE ON A CURVE TO THE LEFT WITH A RADIUS OF 4,875.22 FEET, A CHORD BEARING OF N 47°25'44" W, AND A CHORD DISTANCE OF 485.37 FEET, AND A LENGTH OF 485.57 FEET ON SAID CURVE TO A FOUND BRASS TXDOT RIGHT OF WAY MARKER;

(7) THENCE N 53°45'49" E 48.63 FEET TO A FOUND BRASS TXDOT RIGHT OF WAY MARKER;

(8) THENCE N 43°44'32" E 169.45 FEET TO A FOUND BRASS TXDOT RIGHT OF WAY MARKER;

(9) THENCE N 02°25'39" W 33.81 FEET TO A SET 1/2" IRON PIN;

(10) THENCE N 80°01'57" W 406.51 FEET TO THE POINT OF BEGINNING.

CONTAINING 205,165 SQ. FT. OR 4.7099 ACRES, more or less.

FLOOD NOTE

By graphic plotting only, this property is in Zone(s) "X" of the Flood Insurance Rate Map, Community Panel No. 48453C0590H, which bears an effective date of 9/26/2008 and is not in a Special Flood Hazard Area. By telephone call dated 1/14/2014 to the National Flood Insurance Program (800-638-6620) we have learned this community does currently participate in the program No field surveying was performed to determine this zone and an elevation certificate may be needed to verify this determination or apply for a variance from the Federal Emergency Management Agency.

LEGAL DESCRIPTION

BEING 5.0 ACRES OF LAND, MORE OR LESS, OUT OF THE WALKER WILSON LEAGUE SURVEY #2 IN TRAVIS COUNTY, TEXAS, AND BEING A PORTION OF A 71.45 ACRE TRACT, A PORTION OF THE WALKER WILSON LEAGUE SURVEY #2 AS DESCRIBED IN A DEED FROM IRA SAMPSON JENNINGS AND WIFE, JESSIE RUTH JENNINGS TO ROY LEE AND WIFE, EXA LEE AS RECORDED IN VOLUME 1212, PAGE 477, DEED RECORDS OF TRAVIS COUNTY, TEXAS, WHICH 5.0 ACRE TRACT IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON STAKE FOR THE NORTHWEST CORNER OF THIS TRACT OF LAND HEREIN DESCRIBED, SAID BEGINNING IRON STAKE BEING 778.05 FEET S 02° 05' W AND 1175.77 FEET S 76° 58' E FROM AN IRON STAKE AND ROCK MOUND AT THE NORTHWEST CORNER OF A 71.45 ACRE TRACT, A PORTION OF THE WALKER WILSON LEAGUE SURVEY #2 AS DESCRIBED IN A DEED FROM IRA SAMPSON JENNINGS AND WIFE, JESSIE RUTH JENNINGS TO ROY LEE AND WIFE, EXA LEE AS RECORDED IN VOLUME 1212, PAGE 477, TRAVIS COUNTY DEED RECORDS;
(1) THENCE, S 42° 58' W 241.4 FEET TO AN IRON STAKE;
(2) THENCE, S 18° 38' W 414.78 FEET TO AN IRON STAKE;
(3) THENCE, S 41° 04' E 135.23 FEET TO AN IRON STAKE IN THE WEST LINE OF THE BUDA-MANCHACA ROAD AS FENCED AND USED UPON THE GROUND;
THENCE WITH THE WEST LINE OF THE BUDA-MANCHACA ROAD AS FENCED AND USED UPON THE GROUND, COURSES NUMBERING 4-6 INCLUSIVE, AS FOLLOWS;
(4) N 48° 58 E 251.78 FEET TO AN IRON STAKE ;
(5) N 48° 39' E 231.53 FEET TO AN IRON STAKE;
(6) N 46° 42' E 371.43 FEET TO AN IRON STAKE;
(7) THENCE N 76° 58' W 437.0 FEET TO THE PLACE OF BEGINNING, CONTAINING 5.0 ACRES OF LAND.

SAVE AND EXCEPT THAT CERTAIN TRACT OF LAND CONVEYED TO THE COUNTY OF HAYS UNDER SPECIAL WARRANTY DEED FILED UNDER COUNTY CLERK'S FILE NO. 2013088184 IN THE OFFICIAL PUBLIC RECORDS OF TRAVIS COUNTY, TEXAS.

The property described hereon is the same property described in First American Title Insurance Company Commitment No. NCS-635566-48-HOU1, with an effective date of 12-02-2013.

ALTA/ACSM LAND TITLE SURVEY

2120 FM 1626
Austin, TX

Surveyor's Certification

To: Stripes, LLC, a Texas limited liability company, First American Title Insurance Company, The Matthews Company, Inc.

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2011 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 5, 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 10(a), 11(b), 13, 14, 16, 17, 18, 21 and 22 of Table A thereof. The field work was completed on 1-12-14

Date of Plat or Map: 4-11-14

James M Powers, PLS, RPLS, CFedS
RPLS No: 5593
IN THE STATE OF: Texas
DATE OF SURVEY: 1-12-14

STATE OF TEXAS
JAMES MICHAEL POWERS III
5593
REGISTERED PROFESSIONAL LAND SURVEYOR
4/11/2014

This Survey has been prepared solely for the benefit of the parties set forth in this Surveyor's Certification and may not be quoted or relied upon by, nor may copies be delivered to, any other party or used for any other purpose including, without limitation, the preparation of zoning reports or any other third party reports, without The Matthews Company, Inc. and Red Plains Surveying Company's prior written consent. The Matthews Company, Inc. and Red Plains Surveying Company expressly disclaims any duty or obligation towards any party that is not identified in this Surveyor's Certification.

Please be advised that The Matthews Company, Inc. and Red Plains Surveying Company will not include the providers of any third party reports in the Surveyor's Certification.

"ALTA/ACSM LAND TITLE SURVEY"
PREPARED FOR:

THE MATTHEWS COMPANY Inc®

17220 Newhope Street, Suites 108-110, Fountain Valley, CA 92708
Tel: (714) 979-7181 Fax: (714)-641-2840
www.livemathewscompany.com

MARK	DATE	REVISION	BY	APV'D
1	4-11-14	COMMENTS	LS	JMP

SUSSER HOLDINGS CORPORATION

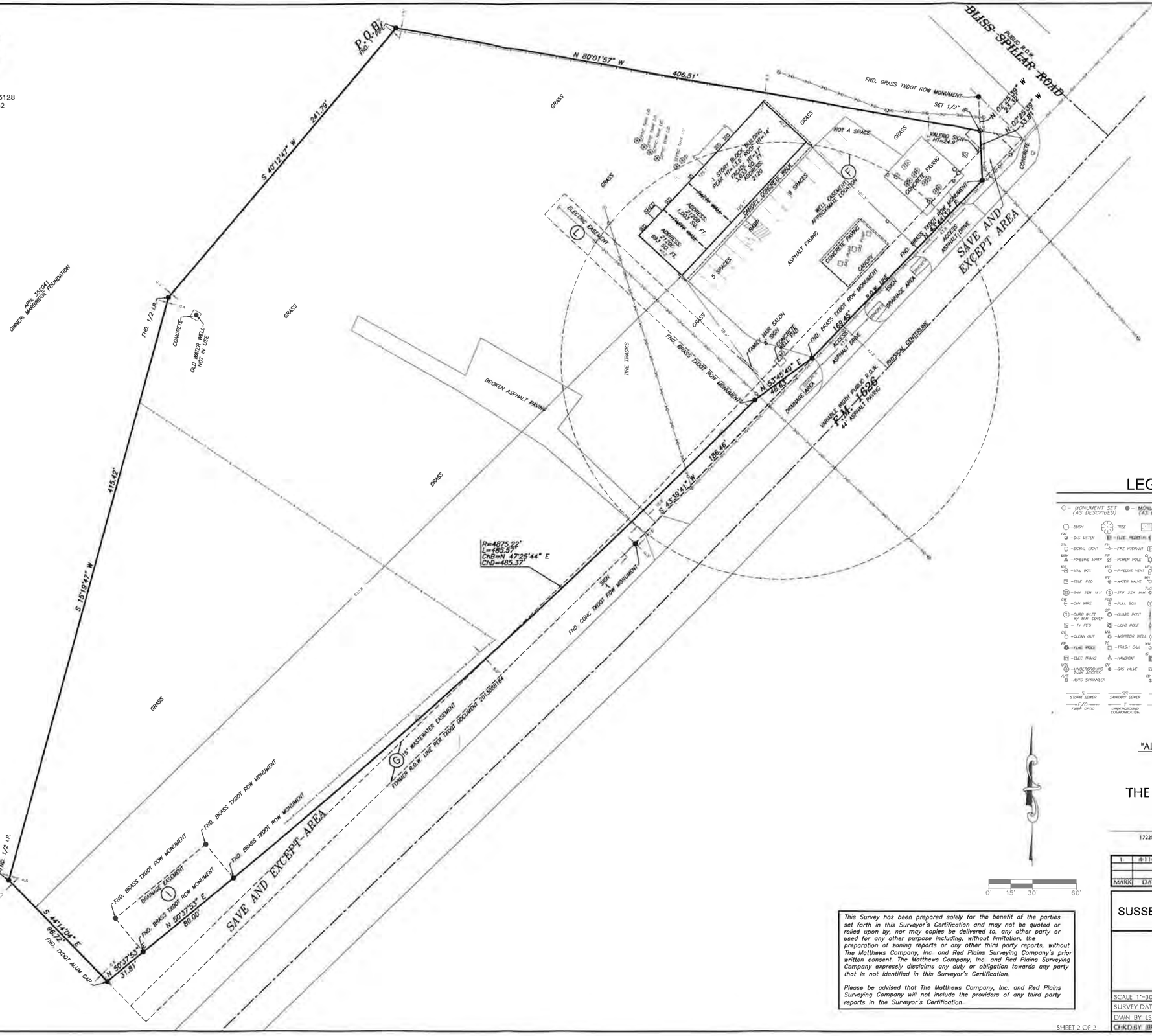
2120 FM 1626
Austin, TX

SCALE: 1"=30'	CHKD./APV'D: DK
SURVEY DATE: 1-12-14	APPROVED: JMP
DWN. BY: LS	STORE NO. 1548
CHKD.BY: JRP	

J.N.: 14-01-05-03008

RED PLAINS
SURVEYING COMPANY

Survey Prepared By:
Red Plains Surveying Company
1917 S. Harvard Avenue, Oklahoma City, OK 73128
Phone: 405-603-7842 / Fax: 405-603-7852
Email: Comments@rpsurveying.com



LEGEND

MONUMENT SET (AS DESCRIBED)	MONUMENT FOUND (AS DESCRIBED)	LIST OF ABBREVIATIONS
BUSH, TREE, CONCRETE		U/G = UNDERGROUND
GAS WATER, ELEC. PEDESTAL, POST SIGN		HC = HANDICAPPED
SIGNAL LIGHT, FIRE HYDRANT, POWER MANHOLE		CONC = CONCRETE
PIPELINE MARK, POWER POLE, GROUND LIGHT		MET = METAL/ING
MAIL BOX, PIPELINE VENT, UTILITY POLE		APPROX = APPROXIMATE
TELE PED, WATER VALVE, WATER HYDRANT		SAN = SANITARY
SAN SEW M.H., STM SEW M.H., TEL U/G MARK		ASPH = ASPHALT
GUY WIRE, PULL BOX, TELE MANHOLE		TYP = TYPICAL
CURB INLET W/ M.H. COVER, GUARD POST, BARB WIRE FCE		BLDG = BUILDING
TV PED, LIGHT POLE, STOCKADE FCE		PED = PEDESTAL
CLEAN OUT, MONITOR WELL, CHAIN LINK FCE		PLTR = PLANTER
FLAG POLE, TRASH CAN, WATER METER		G/W = GAS W/ELEASH
ELEC PANEL, HANDICAP, HIGH GRATE		TRANSF = TRANSFORMER
UNDERGROUND TANK ACCESS, GAS VALVE, TRAFFIC CONTROL BOX		F.F. = FINISHED FLOOR
AUTO SPRINKLER, FIRE RISER		C = CENTER LINE
STORM SEWER	SANITARY SEWER	Ø OR = INCHES-OF-RED
FIBER OPTIC	UNDERGROUND COMMUNICATION	FCE = FENCE
	OVERHEAD ELECTRIC	DIA = DIAMETER
		BLVD = BOULEVARD
		BLS = BUILDING SETBACK LINE
		EASMT = EASEMENT
		A/S = AUTO-SPRINKLER
		DIST = DISTANCE
		(BRG) = BEARING
		W/UGS = WITH UNDERGROUND SERVICE
		STAT = STATUTORY
		W = WIDE/WIDTH
		MON = MONUMENT
		D = PLAT DIMENSION
		M = MEASURED DIMENSION
		TOF = TOP OF RAIL
		FL = FLOW LINE
		RD = ROOF DRAIN
		POM = POINT OF MEASUREMENT

0' 15' 30' 60'

"ALTA/ACSM LAND TITLE SURVEY"
PREPARED FOR:

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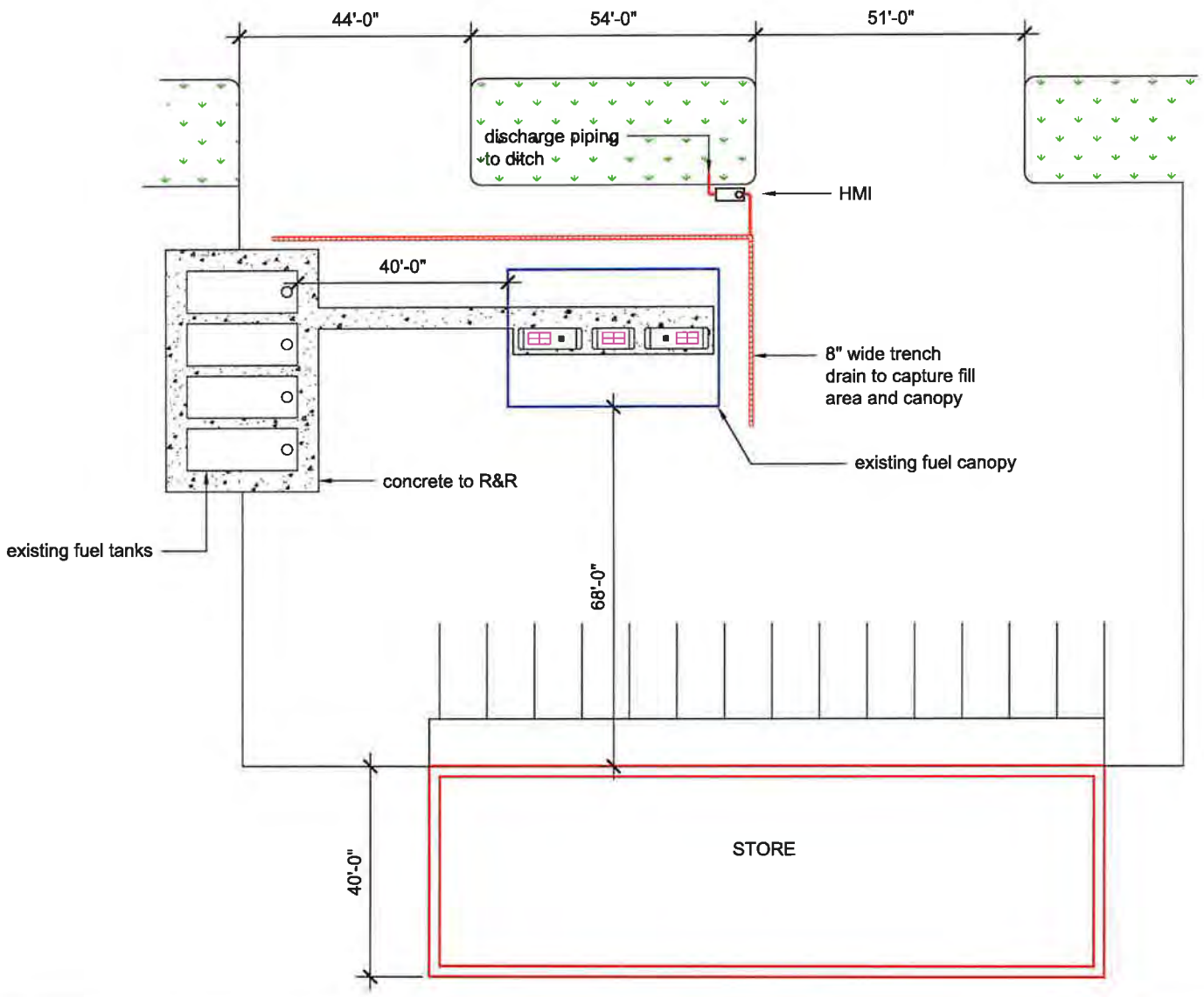
MARK	DATE	REVISION	BY	APV'D
1	4-11-14	COMMENTS	LS	JMP

SUSSER HOLDINGS CORPORATION

2120 FM 1626
Austin, TX

SCALE 1"=30'	CHKD /APV'D: DK
SURVEY DATE 1-12-14	APPROVED: JMP
DWN BY LS	STORE NO. 1548
CHKD.BY JBP	

J.N.: 14-01-05-03008



PSI Petroleum Solutions Inc.

Project
Stripes #1548
2120 FM 1626
Manchaca, Texas 78652

Date
3-8-14

Scale
NA

Drawn by
DD

Revision No.

Approved by

Drawing No.

Underground Storage Tank Facility Plan Application

TCEQ-0583

RANGER
ENVIRONMENTAL SERVICES, LLC

Underground Storage Tank Facility Plan Application

Texas Commission on Environmental Quality

for Storage on the Edwards Aquifer Recharge and Transition Zones and Relating to 30 TAC §213.5(d), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. All components used for this facility are U.L. listed or certified by a 3rd party and are compatible and will function pursuant to 30 TAC §213.5(d) and 30 TAC Chapter 334 Subchapter C. This **Underground Storage Tank Facility Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Mr. Chad M. Copeland, P.G., PWS

Date: 4/27/2023

Signature of Customer/Agent:

Regulated Entity Name: Zapco #4

Underground Storage Tank (UST) System Information

1. ☒ **Attachment A – Detailed Narrative of UST Facility**. A detailed narrative description of the proposed UST Facility is attached. Note: Example descriptions are provided in the instructions (TCEQ-0583-Instructions)
2. Tanks and substance to be stored:

Table 1 - Tanks and Substances Stored

UST Number	*Size(Gallons)*	*Substance to be Stored*	*Double-wall Tank Material*
1	5,000	Diesel	Xerxes Fiberglass Triple Wall Tank
2	5,000	Gasoline	Xerxes Fiberglass Triple Wall Tank
3	15,000	Gasoline	Xerxes Fiberglass Triple Wall Tank
4			
5			

3. Tanks:

☒ **Attachment B – Manufacturer Information for Tanks**. New or replacement systems for the underground storage of static hydrocarbons or hazardous substances must be double-walled or provide an equivalent method of protection approved by the executive director. Tanks must comply with technical standards as required by 30 TAC 334.45(b) relating to technical standards for new tanks. Manufacturer information is attached.

☐ **Attachment C – Alternative Design and Protection Method for Tanks**. Information required by 30 TAC 334.43, relating to variances and alternative procedures is attached.

4. Piping:

☒ **Attachment D – Manufacturer Information for Piping**. Piping must comply with technical standards as required by 30 TAC 334.45(c) relating to technical standards for new piping. Manufacturer information is attached.

☐ **Attachment E – Alternative Design and Protection Method for Piping**. Information required by 30 TAC 334.43, relating to variances and alternative procedures is attached.

5. ☒ Any new underground storage tank system that does not incorporate a method for tertiary containment shall be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature as required by 30 TAC §213.5(d)(1)(B).

☐ The UST system(s) will not be installed within 150 feet of a domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

☒ **Attachment F - Tertiary Containment Method**. The UST system(s) will be required to have tertiary containment provided. A description of the method proposed to provide tertiary containment is attached.

6. ☒ Corrosion protection equipment to be installed or type of non-corrodible materials:

Table 2 - Corrosion Protection

Equipment	*Corrosion Protection (Method)*
Tanks	Xerxes
Product Delivery Piping	Dualoy 3000/ LCX & Dualoy 3000/L
Vapor Recovery Piping	NA
Submersible Pumps	Isolated in sump
Flex Connector (dispenser end)	Isolated in sump
Flex Connector (pump end)	Isolated in sump
Riser	dielectric tape wrap

7. ☒ Overfill protection equipment to be installed:

   ☐ Overfill prevention restrictor positioned at 90% capacity.
   ☒ Overfill prevention valve positioned at 95% capacity.
   ☐ Overfill audible and visual alarm positioned at 90% capacity.

8. ☒ Methods for detecting leaks in the inside wall of a double-walled system must be included in the facility's design and construction. The leak detection system must provide continuous monitoring of the system and must be capable of immediately alerting the system's owner of possible leakages. Release detection equipment to be installed: (Check all that apply)

   ☒ Central on-site monitor
   ☒ Interstitial tank probes
   ☒ Automatic tank gauge
   ☒ Pump/manway sump probes
   ☐ Observation well probes
   ☒ Mechanical line leak detectors (for pressurized lines only)
   ☐ Automatic (electronic) line leak detectors

Excavation and Backfill

9. ☒ The depth of the tank excavation will be sufficient to accommodate piping fall requirements, tank diameter, bedding, and a minimum cover of three (3) feet [30 TAC §334.46].

   The depth of the tank excavation will be 16 feet.

10. ☒ The minimum thickness of the tank bedding will conform to 30 TAC §334.46(a)(5)(C and D).

    The tank bedding thickness will be 12 inches.

11. ☒ The material to be used as backfill will conform to 30 TAC §334.46(a)(5)(A and B) and will consist of:

☐ Clean washed non-corrosive sand
☒ Pea gravel
☐ Crushed rock
☐ Other: _____

12. ☒ The slope of the product delivery line(s) will conform to 30 TAC §334.46(c)(2) and will be 1/8" (1/8" per foot minimum).

Site Plan Requirements

Items 13 - 24 must be included on the Site Plan.

13. ☒ The Site Plan must have a minimum scale of 1" = 400'.

    Site Plan Scale: 1" = 10'.

14. 100-year floodplain boundaries:

    ☒ The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): FEMA's National Flood Hazard Layer Viewer (2020)

    ☐ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.
    ☒ No part of the project site is located within the 100-year floodplain.

15. ☐ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Show lots, recreation centers, buildings, roads, etc.

    ☒ The layout of the development is shown with existing contours. Finished topographic contours will not differ from the existing topographic configuration and are not shown.

16. All known wells (oil, water, unplugged, capped and/or abandoned, test holes, etc.):

    ☒ There are 0(#) wells present on the project site and the locations are shown and labeled. (Check all of the following that apply)

    ☐ The wells are not in use and have been properly abandoned.
    ☐ The wells are not in use and will be properly abandoned.
    ☐ The wells are in use and comply with 16 TAC §76.

    ☒ There are no wells or test holes of any kind known to exist on the project site.

17. Geologic or manmade features which are on the site:

    ☐ All sensitive geologic or manmade features identified in the Geologic Assessment are shown and labeled.
    ☐ No sensitive geologic or manmade features were identified in the Geologic Assessment.
    ☒ **Attachment G - Exception to the Geologic Assessment**. A request and justification for an exception to a portion of the Geologic Assessment is attached.

18. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

19. ☒ Areas of soil disturbance and areas which will not be disturbed.

20. ☒ Locations of major structural and nonstructural controls. These are the temporary best management practices.

21. ☒ Locations where soil stabilization practices are expected to occur.

22. ☐ Surface waters (including wetlands).

    ☒ N/A

23. ☐ Locations where stormwater discharges to surface water or sensitive features.

    ☒ There will be no discharges to surface water or sensitive features.

24. ☒ Legal boundaries of the site are shown.

UST System Profiles

25. ☒ **Attachment H - Profile Drawing(s)**. A profile drawing(s) of the proposed UST system with all components shown and labeled is attached.

Best Management Practices

26. ☒ **Attachment I - Initial and Continuing Training**. A description of the initial and continuing training of on-site personnel for operation of release detection equipment is attached. The description should include how personnel will respond to warning and alarm conditions of the leak detection monitoring system.

27. ☒ **Attachment J - Release Detection Maintenance**. A description of the program and schedule for maintaining release detection and cathodic protection equipment is attached. Any such equipment should be operated and maintained in accordance with the manufacturer's specifications and instructions.

Administrative Information

28. A Water Pollution Abatement Plan (WPAP) is required for construction of any associated commercial, industrial or residential project located on the Recharge Zone.

    ☐ The WPAP application for this project was approved by letter dated _____. A copy of the approval letter is attached at the end of this application.

    ☐ The WPAP application for this project was submitted to the TCEQ on _____, but has not been approved.

    ☐ A WPAP application is required for an associated project, but it has not been submitted.

    ☐ There will be no building or structure associated with this project. In the event a building or structure is needed in the future, the required WPAP will be submitted to the TCEQ.

    ☒ The proposed UST is located on the **Transition Zone** and a WPAP is not required. Information requested in 30 TAC 213.5 subsection (b)(4)(B) and (C) and (5) is provided with this application. (Forms TCEQ-0600 Permanent Stormwater Section and TCEQ-0602 Temporary Stormwater Section or Stormwater Pollution Prevention Plan/SW3P).

29. ☒ UST systems must be installed by a person possessing a valid certificate of registration in accordance with the requirements of 30 TAC Chapter 334 Subchapter I.

30. ☒ This facility is subject to and must meet the requirements of 30 TAC Chapter 334, including but not limited to the 30 day construction notification and reporting and cleanup of surface spills and overfills.

31. ☒ Upon completion of the tankhold excavation, a geologist must certify that the excavation was inspected for the presence of sensitive features. The certification must be submitted to the appropriate regional office. If sensitive features are found, then excavation near the feature may not proceed until the methods to protect the Edwards Aquifer are reviewed and approved by the executive director.

32. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions. The copies must be submitted to the appropriate regional office.

33. ☒ Any modification of this UST application will require TCEQ approval, prior to construction, and may require submission of a revised application, with appropriate fees.

ATTACHMENT A

Detailed Narrative of UST Facility

RANGER
ENVIRONMENTAL SERVICES, LLC

PROJECT DESCRIPTION

The subject site is located at 2120 FM 1626, Manchaca, Travis County, Texas. The site is located within the Edwards Aquifer Transition Zone. The subject site was constructed in 1985 before Edwards Aquifer rules were established. The areas surrounding the subject site supports mixed commercial and residential properties. The previous Approval of a Modification of an Existing Underground Storage Tank Facility Plan (UST) for 2120 FM 1626, Manchaca, Texas was approved in 2014. This modification replaced the existing piping with U. L. listed double walled piping and added sumps, connectors and leak detection equipment required by 30 TAC Chapter 334 to the UST system. According to the TCEQ Central Registry the tanks were removed from the site January 16, 2023.

The proposed underground storage tank system will include a 15,000-gallon Xerxes fiberglass triple wall tank containing gasoline (UL 1316, ULC S615), a 5,000-gallon Xerxes fiberglass triple wall tank containing gasoline (UL 1316, ULC S615), and a 5,000-gallon Xerxes fiberglass triple wall tank containing diesel (UL 1316, ULC S615). The corresponding underground storage tank sumps are Xerxes integrated sumps. Associated with these tanks will be two (2) new Gilbarco 700 S dispensers along with with new triple wall FRP piping.

The tanks storing gasoline will be equipped with 2 hp FE Petro submersible pumps. The tank storing diesel will be equipped with a 1.5 hp FE Petro submersible pump. Overfill prevention for each tank compartment will be provided by a valve assembly which will be installed in the tank below the vapor recovery fitting and will be set to shut off flow into the tank when the volume of liquid in the tank reaches no more than 95% of the tank capacity.

Product piping will be U.L. listed Dualoy 3000/LCX double wall fiberglass-reinforced plastic piping within Dualoy 3000/L fiberglass-reinforced plastic piping (creating tertiary containment). Dualoy 3000/LCX and Dualoy/L pipe are UL 971 listed. Dualoy 3000/LCX product lines are double-wall construction and will consist of a 2-inch diameter primary pipe surrounded by Dualoy 3000/L single-wall construction with a 3-inch diameter. Vent lines will be 2-inch diameter double-wall pipe. Under each dispenser for each product grade there will be a shear valve mounted to a rigid framework and installed at the dispenser island surface level to assure automatic shut-off of product flow during impact or fire emergencies. In addition, FLEX-ING flexible connectors will be installed at both ends of each product line in isolation sumps to connect to the dispenser unit and submersible pump.

Corrosion protection for the metallic components of the underground storage systems will be provided by electrical isolation. The submersible pump housings and pump-end flexible connectors will be installed within an integrated Xerxes piping sump, which will provide isolation from the backfill material while also providing secondary containment for any leaks from these components. The dispenser-end flexible connector will be similarly isolated by enclosure within an OPW fiberglass under dispenser sump. The vapor recovery riser and the fill tube riser will be thoroughly wrapped with a suitable dielectric material and are isolated from the tank by the use of isolation bushings.

The proposed tanks and piping will be monitored for leaks by means of inventory control, tank monitor CSLD release detection software, sump and interstitial leak detection, and

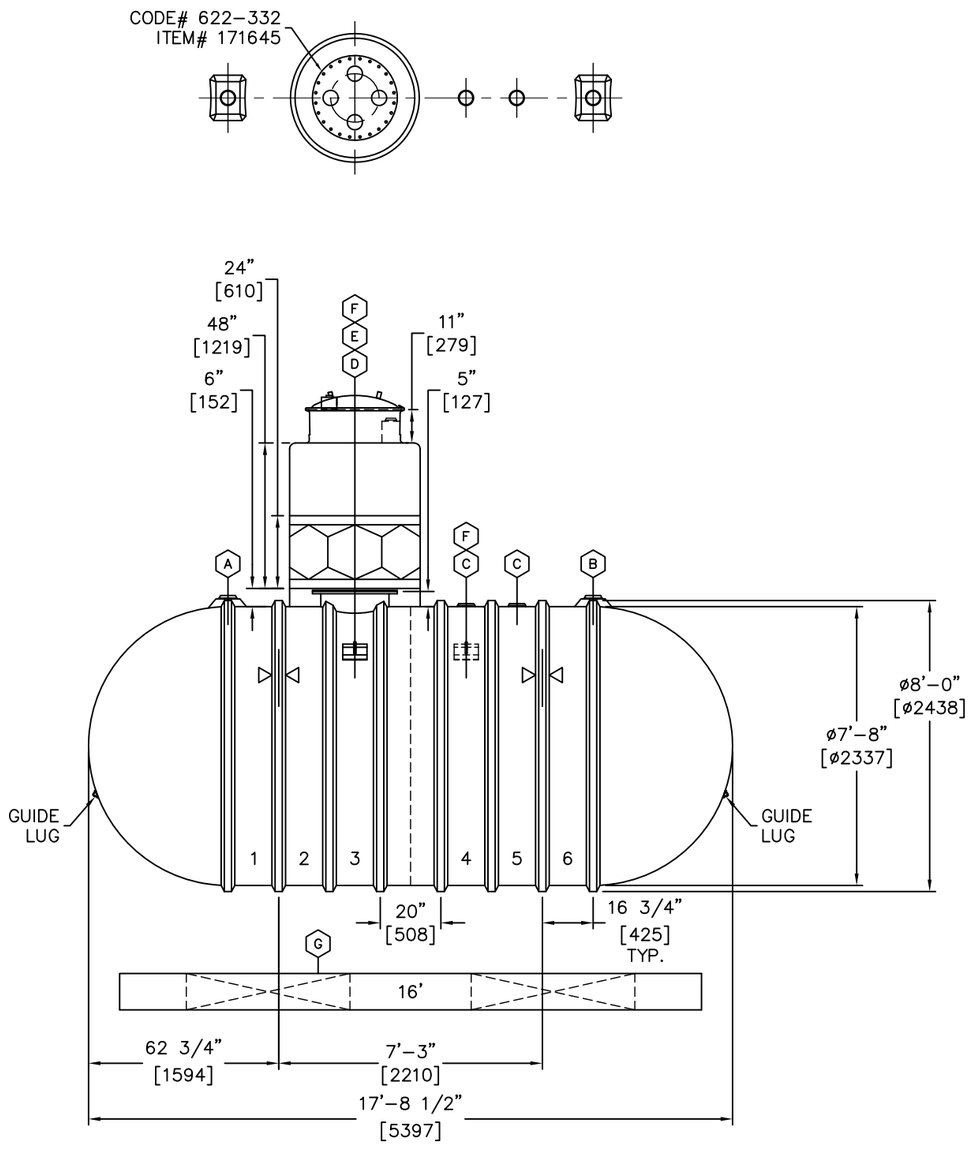
mechanical line leak detection. The tanks will be equipped with a liquid discrimination sensor which will be installed adjacent to the submersible pumps in the sumps and in all dispenser sumps. The tanks will also be equipped with an electronic automatic tank gauging inventory probe for inventory of the product volume in the tank.

The controller will be equipped with Continuous Statistical Leak Detection to meet TCEQ release detection requirements. Each product piping line will be equipped with mechanical line leak detection. The probes and sensors from all tanks will be connected to a Veeder-Root 450 TLS programmable control unit to be located in the store building. The tank interstitial is monitored with a Veeder Root interstitial sensor which will set off an alarm if liquid enters the tank interstitial. This central monitoring unit is designed to provide visual and audible alarms when hydrocarbon liquids or water is detected.

ATTACHMENT B

Manufacturer Information for Tanks

RANGER
ENVIRONMENTAL SERVICES, LLC



NOTES:

1. ALL DIMENSIONS SHOWN ARE IN FEET/INCHES. DIMENSIONS IN BRACKETS ARE IN mm.
2. TANK IS TRIPLE WALL CONSTRUCTION AND REQUIRES TWO MONITORING SYSTEMS.
3. ONLY MATERIALS THAT HAVE BEEN TESTED AND APPROVED BY XERXES SHOULD BE USED FOR BONDING OF CONTAINMENT SUMP COMPONENTS.
4. NOMINAL TANK WEIGHT : 4,700 lbs. [2,200 kg.].

ITEM	QTY	DESCRIPTION
A	1	4"NPT PRIMARY SERVICE FITTING
B	1	4"NPT SECONDARY SERVICE FITTING
C	2	4"NPT SERVICE FITTING WITH STRIKER PLATE
D	1	22"DIA MANWAY WITH 4–4"NPT FITTINGS IN COVER & STRIKER PLATE
E	1	42"DIA DW CONTAINMENT COLLAR & 48"HIGH 8 SIDED DW BRINE MONITORED SUMP WITH 30"DIA LEVER LOCK WATERTIGHT TOP & 4" OBSERVATION PORT
F	2	LIFTING LUG (10" x 8") 35" 35"
G	2	16' PREFABRICATED CONCRETE DEADMEN KIT
▷◁	2	HOLD DOWN STRAP LOCATION

00	REVISION DESCRIPTION				
DRN	DATE	CHK'D	DATE	APPR'D	DATE

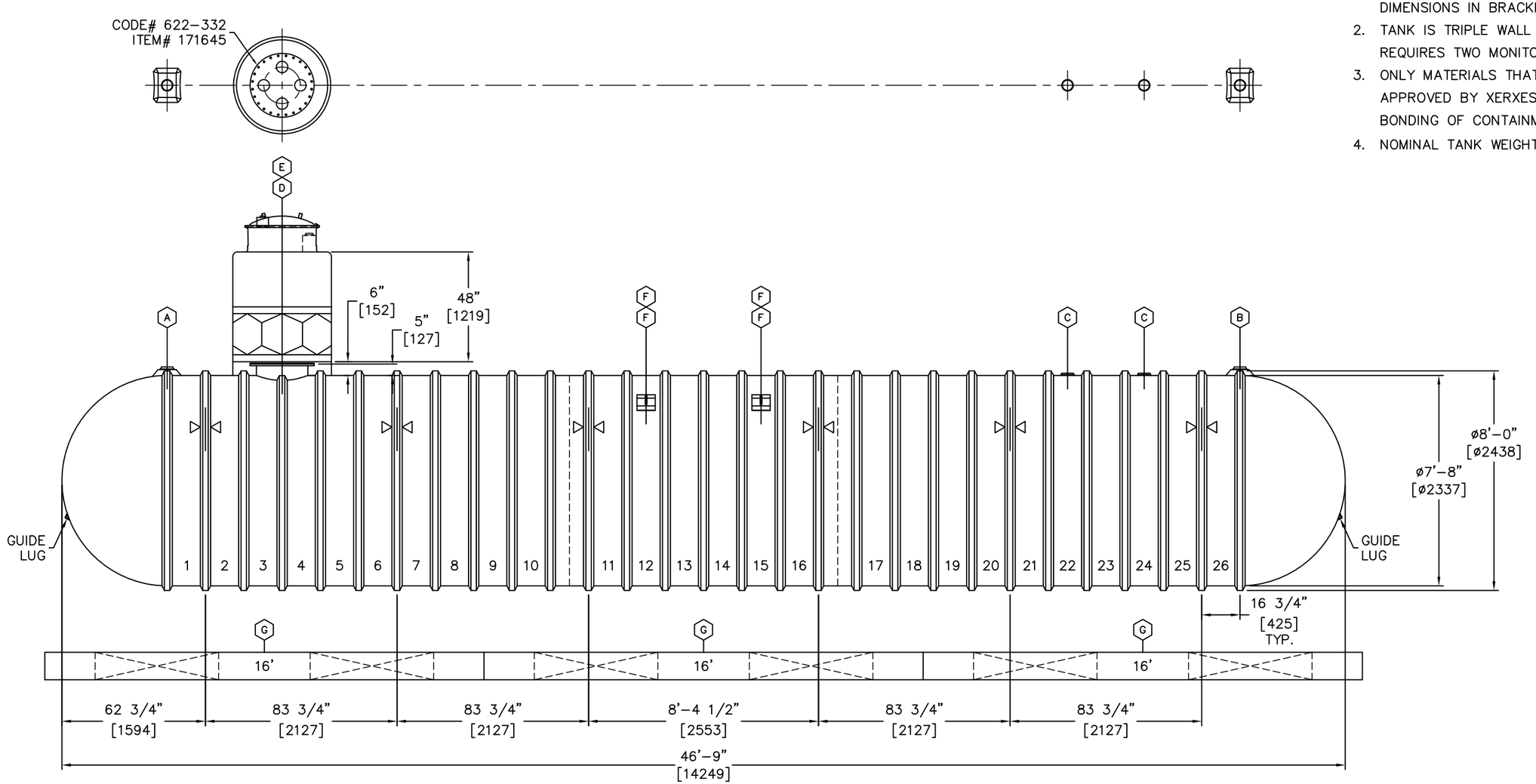
XERXES

DRN GDS	DATE 04–04–23	TITLE	8' DIA TW UL CAP. 5,000 GALLONS PRESTIGE TANK AND PUMP SERVICES
CHK'D PWM	DATE 04–04–23		
APPR'D —	DATE —		
SALES MANAGER Cary Etter		DR. SIZE B	DR. NUMBER XS–003745 REV 00
		SCALE: N.T.S.	SHT 1 OF 1

INDUSTRY TYPE: M101 Fuel Markets

NOTES:

1. ALL DIMENSIONS SHOWN ARE IN FEET/INCHES. DIMENSIONS IN BRACKETS ARE IN mm.
2. TANK IS TRIPLE WALL CONSTRUCTION AND REQUIRES TWO MONITORING SYSTEMS.
3. ONLY MATERIALS THAT HAVE BEEN TESTED AND APPROVED BY XERXES SHOULD BE USED FOR BONDING OF CONTAINMENT SUMP COMPONENTS.
4. NOMINAL TANK WEIGHT : 12,900 lbs. [5,900 kg.].



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E	1	42"DIA DW CONTAINMENT COLLAR & 48"HIGH 8 SIDED DW BRINE MONITORED SUMP WITH 30"DIA LEVER LOCK WATERTIGHT TOP & 4" OBSERVATION PORT
F	4	LIFTING LUG (10" x 8") 25" 25"
G	6	16' PREFABRICATED CONCRETE DEADMEN KIT
▷◁	6	HOLD DOWN STRAP LOCATION

00	REVISION DESCRIPTION				
DRN	DATE	CHK'D	DATE	APPR'D	DATE

XERXES

DRN: GDS	DATE: 04-04-23	TITLE: 8' DIA TW UL CAP. 15,000 GALLONS PRESTIGE TANK AND PUMP SERVICES	
CHK'D: PWM	DATE: 04-04-23		
APPR'D: -	DATE: -		
SALES MANAGER: Cary Etter	DR. SIZE: B	DR. NUMBER: XS-003746	REV: 00
	SCALE: N.T.S.	SHT 1 OF 1	

INDUSTRY TYPE: M101 Fuel Markets

ZCL | XERXES®
making a lasting difference®

Fiberglass Underground Storage Tanks

ZCL | XERXES
RELIABLE, CORROSION-RESISTANT TANKS

OVER **200,000** FIBERGLASS STORAGE TANKS MANUFACTURED AND SHIPPED IN NORTH AMERICA

A history of **innovation** in the **fuel industry**

When ZCL Composites Inc. and Xerxes Corporation joined in 2007, it brought together North America's two leading fiberglass tank brands: ZCL (founded in 1987) and Xerxes (founded in 1979). Today, ZCL | Xerxes is one of the world's leading innovators in composite tank engineering. Nearly 40 years of manufacturing experience and more than 200,000 tanks manufactured and shipped stand as proof of the reliability and quality of our products.

This solid track record provides our customers with peace of mind, which is why petroleum equipment distributors, fuel marketers and commercial accounts rely on our double-wall tanks for safe underground storage of fuel products. We have provided customers with durable and sustainable products that protect the environment for decades. Our proven track record along with our financial strength assures customers that we will be around to support our industry-leading products and warranties. Currently, 29 of the 30 top c-store marketers[1] choose E15-, E85- and ULSD-compatible, corrosion-resistant fiberglass storage tanks from industry leaders like ZCL | Xerxes.

1 CSP's Convenience Top 101, http://www.cspdailynews.com/industry-news-analysis/top-convenience-stores/archive/2015

Our history of **storage solutions** includes:

- developing the first UL-listed double-wall fiberglass tank
- incorporating our factory-installed hydrostatic monitoring system (TRUCHEK®)
- incorporating our unique 3D glass fabric (Parabeam®) into our tank design

WHY CHOOSE A FIBERGLASS TANK?

Best Product Investment

Fiberglass tanks have rapidly grown in popularity since they were first introduced more than 50 years ago as the corrosion-resistant alternative to underground steel tanks that were rusting, leaking and creating serious environmental damage. Major oil companies and large fuel marketers were the first to realize the benefits of fiberglass over steel for underground tanks. Today, a large majority of North American fuel marketers choose fiberglass, and the preference for fiberglass reaches all segments of the market, including industrial, commercial and government accounts who specify, install and own underground storage tanks. The growing understanding of fiberglass' benefits goes well beyond external corrosion protection with the recognition that fiberglass is corrosion-resistant, both inside and out.

FIBERGLASS OUTPERFORMS STEEL

CORROSION RESISTANCE

It's now common knowledge that fiberglass tanks are protected from external rusting due to corrosive soil environments. Today, the widespread use of ethanol-blended gasoline (E10, E15, E85), biodiesel fuels and ultra-low sulfur diesel (ULSD) has shifted the concern about corrosion to include internal protection. Most significantly, new ethanol-blended fuels raise questions about the compatibility of storage tank materials with stored fuel. When today's buyers compare fiberglass and steel tanks they see the clear advantage of our fiberglass tanks, which are not vulnerable to aggressive internal corrosion caused by storage of today's biofuels. The fact that fiberglass tanks are corrosion-resistant both inside and out give them a distinct advantage over steel tanks.

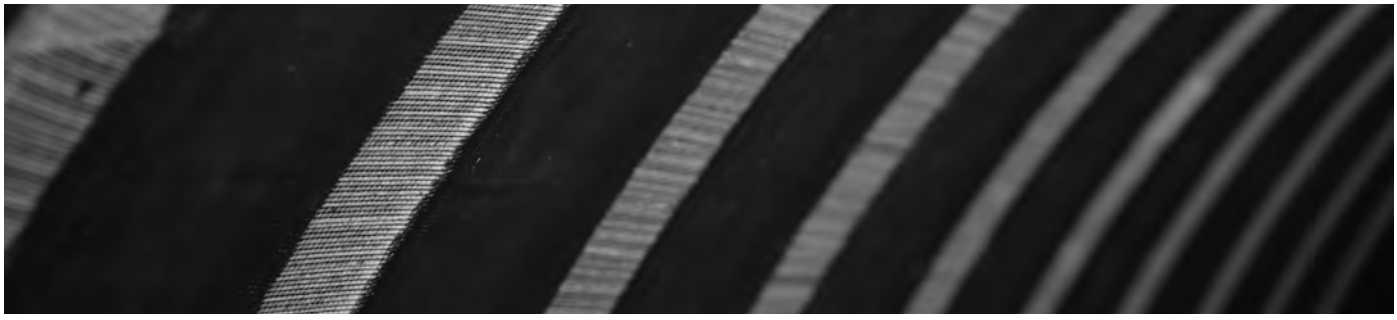
FUEL COMPATIBILITY

Customers today want to be confident that they are choosing a tank material that is compatible with the new fuels as well as traditional fuels. Our UL-listed (1316) and ULC-listed (S615) double-wall fiberglass tanks are UL-compatible with 0-100 percent ethanol storage. They are also warranted for the full range of ethanol-blended gasoline. The correlating UL listing (58) for steel fuel tanks does not require testing for ethanol compatibility. This third-party compatibility verification for fiberglass tanks – that steel tanks do not have – makes fiberglass the clear and superior choice for fuel tanks.

OUR FIBERGLASS TANKS PROVIDE **UNMATCHED BENEFITS**

The ZCL | Xerxes Advantage

ZCL | Xerxes double-wall underground storage tanks offer customers several significant design and performance differences that make them a superior choice to both steel tanks and other fiberglass tanks.



RIB DESIGN FOR STRUCTURAL INTEGRITY

As engineers, system designers and customers compare products, the rib geometry of our tanks is an important consideration in their analysis. Our uniform, high-profile ribs are fabricated directly into the tank cylinder. In some other tanks, ribs are incorporated as a separate step in the manufacturing process. Integrally constructed ribs increase the overall strength of the tank and create a structurally superior product.

30-YEAR WARRANTY

ZCL | Xerxes offers a 30-year limited warranty with no restrictions regarding water-bottom monitoring and removal. In contrast, many steel tank manufacturers now have a 10-year rather than 30-year warranty, and make ongoing maintenance and water-bottom removal a condition of warranty coverage.

PARABEAM®

Our proprietary 3D glass fabric, Parabeam®, also enhances the overall structural integrity of our tank by creating a bond between the tank walls, while providing a free-flowing interstitial space for monitoring capabilities. This technology also eliminates the potential for false alarms (created by fluctuating reservoir levels) that can occur in other hydrostatically monitored tanks.

MAINTENANCE-FREE

The presence of water in the bottom of fuel tanks is a common condition. Maintenance to remove it can be frequent and expensive. The requirement to do so, which is found in most steel-tank warranties, can leave a steel-tank owner vulnerable to a denied warranty claim should the tank corrode internally.

TRUCHEK® CONTINUOUS LEAK DETECTION

Our patented TRUCHEK® hydrostatic tank monitoring system for double-wall tanks is an easy, reliable method for true continuous leak detection and tank-tightness testing. Hydrostatic monitoring – now the industry standard for continuous monitoring – gives tank owners greater peace of mind than with a simple liquid sensor, which can fail to detect an outer-wall breach. (See p. 10 for more information.)

ZCL | XERXES
STORAGE TANK SOLUTIONS

Today, double-wall tanks are the industry standard in fuel applications. To meet the needs of our customers we also offer several other fiberglass tank options for a variety of applications and requirements. Our tank options include: double-wall tanks, multicompartment tanks, triple-wall tanks, diesel exhaust fluid tanks and oil-water separators. We also have a tank upgrade system when tank replacement is not viable.

DOUBLE-WALL TANKS

Tank owners and system designers of underground fuel systems need tanks that provide secure storage of fuel over time. ZCL | Xerxes fiberglass double-wall tanks are an excellent solution because they are corrosion-resistant, both inside and out. Our tanks have a proven record of compatibility with traditional petroleum fuel as well as with new biofuels, which are increasing in use. Our double-wall fiberglass tanks are not vulnerable to the corrosion problems inherent in storing ethanol-blended fuels (E10, E15, E85), biodiesel fuels and ultra-low sulfur diesel (ULSD). Nor are they vulnerable to rust caused by corrosive soil environments. Options such as protective coatings and cathodic protection don't guard entirely against external corrosion and rust. This makes ZCL | Xerxes fiberglass double-wall tanks a superior choice for a wider range of fuel applications.

FEATURES

- UL-listed (1316) & ULC-listed (S615) for alcohol fuels
- Secondary containment around full tank circumference
- Dry & hydrostatic monitoring options
- Capacities up to 50,000 gal. (USA)
- Capacities up to 155,000 L (Canada)

MULTICOMPARTMENT TANKS

These tanks are a popular choice among retail gasoline marketers and fleet fueling owners. The ability to store two or three grades or types of fuel in a single tank is particularly appealing when the amount of onsite space makes multiple tanks impossible or difficult. Customers may also find installation and insurance cost savings with a multicompartment tank.

The ZCL | Xerxes double-wall multicompartment tank comes standard with a double-wall bulkhead, while some other tank manufacturers require an upgrade to a double-wall bulkhead. Tanks are available in a wide range of capacities and in diameters of 6 to 10 feet.

FEATURES

- UL-Listed (1316) & ULC-listed (S615) for alcohol fuels
- Secondary containment around full tank circumference
- Dry & hydrostatic monitoring options
- Two- & three-compartment models
- Capacities up to 40,000 gal. (USA)
- Capacities up to 155,000 L (Canada)

TRIPLE-WALL TANKS

Some customers and regulatory agencies now require protection beyond secondary containment. Site conditions that could lead to a requirement for tertiary containment are the following: the presence of sensitive groundwater aquifers, lakes or streams. Our UL-listed triple-wall tank, with an additional Parabeam® interstice, is the innovative and cost-effective answer for this level of containment.

FEATURES

- UL-listed (1316) for alcohol fuels
- Tertiary containment around full tank circumference
- Dry & hydrostatic monitoring options
- Capacities up to 50,000 gal. (USA)
- Capacities up to 155,000 L (Canada)

DIESEL EXHAUST FLUID TANKS

ZCL | Xerxes has become a leading provider of diesel exhaust fluid (DEF) tanks in truck stops and vehicle fleet fuel facilities in the relatively short time DEF has been in demand in North America. Many fueling facilities now need to add bulk storage of DEF to meet the growing number of vehicles with diesel engines that require diesel exhaust fluid. A fiberglass underground storage tank has a number of benefits over the alternatives.

Since DEF cannot be exposed to carbon steel, a tank constructed of fiberglass is the clear choice. Using our fiberglass underground tank avoids the need for protective coatings or linings to protect the integrity of the product.

Underground storage of DEF has clear advantages over aboveground storage, in part because of the product's specific temperature requirements. An underground DEF tank also allows for storage of larger capacities than an aboveground tank and avoids an unsightly, space-consuming aboveground installation.

FEATURES

- Single-wall & double-wall models
- UL label available for future product storage flexibility
- Extensive third-party compatibility testing
- Capacities up to 50,000 gal. (USA)
- Capacities up to 155,000 L (Canada)

OIL-WATER SEPARATORS

With a fiberglass underground tank at the heart of the design, a ZCL | Xerxes oil-water separator incorporates unique refinements within the vessel to create a separator that removes free-floating oils and settleable solids from oil-water mixtures.

A properly sized coalescer is designed to produce effluent quality acceptable to most regulatory requirements for water runoff. Our oil-water separator is an excellent choice for managing water runoff from parking lots or equipment washdown stations.

This product is also available as a UL-listed (2215) and ULC-listed (S656) model.

FEATURES

- UL-listed (2215) & ULC-listed (S656) models available
- Single-wall & double-wall models
- Flexible design options
- Coalescer & gravity-flow models available
- Capacities up to 30,000 gal. (USA)
- Capacities up to 113,000 L (Canada)

ZCL | XERXES
STORAGE TANK SOLUTIONS

TANK UPGRADE SYSTEM

In a growing number of situations, secondary containment needs to be added to single-wall tanks, and site challenges make removal of existing tanks either cost-prohibitive or difficult. In instances where tanks are covered or surrounded by buildings, roads or rail lines, adding secondary containment to a single-wall fiberglass or steel tank can be accomplished with our Phoenix System®.

This upgrade system consists of two corrosion-resistant laminates with the proprietary Parabeam® glass fabric between the laminates creating an interstitial space. The interstice can be either dry or hydrostatically monitored. The Phoenix System®, applied onsite by trained installers, is compatible with biofuels, including ethanol-blended fuels and biodiesels.

FEATURES

- ULC/ORD-listed (C58)
- Corrosion-resistant fiberglass system
- Viable alternative in difficult tank replacement situations
- Suitable for both fiberglass & steel tanks

ZCL | XERXES
FUEL TANK ACCESSORIES

Your Complete Solution

Today's retail and commercial fueling facilities are sophisticated systems that are installed in a highly regulated environment. While the storage tank is the critical component in an underground fuel system, other important accessories are necessary to provide spill containment, tank anchoring, secondary pipe-drain collection, leak detection and other important functions. ZCL | Xerxes engineers have designed innovative, complementary products that provide system designers and installers with cost-effective, easy-to-install accessories. Very few tank manufacturers provide the wide range of accessories that we can supply. This is yet another example of how our innovative spirit benefits customers.

Installation & Technical Support

ZCL | Xerxes provides a comprehensive Installation Manual and Operating Guidelines (IMOG) document that outlines the proper – yet easy – steps necessary for a successful installation.

LEARN MORE ONLINE

Search our online database (zcl.com) for hundreds of resources for our fuel tanks and accessories, including:

- a pdf version of the Installation Manual
- a video of our Installation Manual
- technical drawings (available in CAD, DWG & BIM)
- guide specifications
- typical installation drawings

CONTAINMENT SUMPS AND COLLARS

Sumps and collars are common accessories found on virtually all double-wall tanks installed today. ZCL | Xerxes offers factory-installed containment collars that provide secondary containment around tank fittings and manways.

Designed to be a custom-match to the collar, our containment sump comes in a variety of models and sizes, all engineered to accommodate different customer preferences and needs. Our sumps and collars are also available in double-wall models, which are growing in popularity given changes to tank regulations.

FEATURES

- Flat-sided & round models for various piping layouts
- Watertight or friction-fit cover & open top options
- Diameters of 42 & 48 inches
- Heights of 36-72 inches
- Field-adjustable heights
- Custom options

ANCHORING SYSTEM

Site-specific installation conditions generally dictate whether a tank-anchoring system is necessary. Some customers choose to anchor all their tanks.

ZCL | Xerxes offers a complete tank-anchoring system, including reinforced precast concrete deadmen (designed to American Concrete Institute standards), fiberglass anchoring straps and galvanized turnbuckles.

Each component is engineered to specific tank sizes and for ease of installation. In most cases, concrete deadmen can be delivered on the same trailer as the tank, which minimizes the shipping cost and assures that deadmen are ready when the tank is set.

FEATURES

- Deadmen sizes for tank diameters 6-12 feet
- Corrosion-resistant anchor straps
- Optional man-out-of-hole straps available
- Galvanized turnbuckles

TRUCHEK® CONTINUOUS MONITORING

TRUCHEK® is the ideal solution to the growing regulatory interest in leak-detection methods that provide true continuous leak detection. Unlike dry interstitial monitoring methods, TRUCHEK® is able to monitor both walls of a tank 24/7 in all installation conditions.

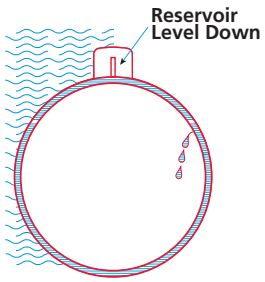
When you order our double-wall tank with the TRUCHEK® option, the interstice is filled at the factory with a calcium-chloride fluid that also partially fills a reservoir, creating an interstitial hydrostatic pressure. An electronic probe placed in the tank's reservoir alarms when the fluid level falls below or rises above the acceptable level.

FEATURES

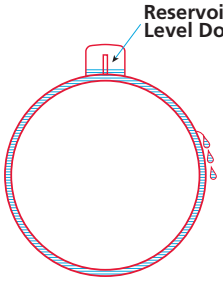
- 24/7 continuous tank monitoring regardless of installation conditions
- UL-verified as meeting the EPA criteria for tank-tightness testing
- Designed for dry-hole & wet-hole installations

How TRUCHEK® Works

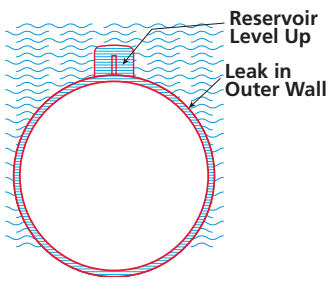
Primary-Tank Leak in Wet Hole or Dry Hole



Secondary-Tank Leak in Dry Hole



Secondary-Tank Leak in Wet Hole



TANK-TIGHTNESS TESTING

Besides providing true continuous monitoring of both tank walls – regardless of site conditions – TRUCHEK® also provides a simple and precise method to perform tank-tightness tests. A 10-hour tightness-test procedure meets the strict NFPA329 criteria. A 4-hour test (while product is dispensing) exceeds EPA's criteria for a tank-tightness test.

ZCL | Xerxes

Underground Double-Wall Tank Data

	Nominal Capacity (gallons)	Tank Length (feet/inches)	Nominal Shipping Weights (lbs) (dry interstitial)	Nominal Shipping Weights (lbs) (wet interstitial)	Number of Anchor Straps Required	Nominal Capacity (liters)	Tank Length (mm)	Nominal Shipping Weights(Kg) (dry interstitial)	Nominal Shipping Weights (Kg) (wet interstitial)	Number of Anchor Straps Required
4′	600	7′-3 1/2″	900	1,100	2	2,500	2,303	400	500	2
	1,000	11′-7 1/2″	1,100	1,300	2	3,900	3,395	500	600	2
	2,000	22′ -3 5/8″	2,800	3,400	2	5,000	4,380	600	700	2
6′	2,500	13′-5 3/4″	2,200	2,800	2	10,000	4,520	900	1,100	2
	3,000	16′-4 1/4″	2,600	3,300	2	15,000	6,604	1,300	1,600	4
	4,000	20′-8″	3,600	4,400	2	20,000	8,465	1,700	2,000	4
	5,000	26′-5″	4,300	5,200	4	25,000	10,420	2,200	2,500	4
	6,000	30′-8 3/4″	5,000	6,100	4					
8′	4,000	15′- 1/2″	2,700	3,600	2	15,000	3,994	900	1,100	2
	5,000	17′-8 1/2″	3,200	4,200	2	20,000	5,137	1,200	1,500	2
	6,000	20′-6 1/2″	3,700	4,900	2	25,000	6,090	1,400	1,700	2
	8,000	26′- 1/2″	4,800	6,200	4	30,000	7,264	1,700	2,100	4
	10,000	31′-6 1/2″	5,900	7,500	4	35,000	8,185	2,000	2,300	4
	12,000	37′- 1/2″	7,000	8,800	4	40,000	9,392	2,300	2,700	4
	15,000	46′- 9″	9,100	11,200	6	45,000	10,363	2,500	3,000	4
						50,000	11,328	2,700	3,200	4
						60,000	13,500	3,400	3,900	6
						65,000	14,522	3,700	4,300	6
10′	10,000	21′-5 1/4″	4,900	6,400	4	50,000	7,449	2,900	3,300	4
	12,000	24′- 1/4″	5,600	7,200	4	55,000	8,280	3,200	3,600	4
	15,000	29′-5 3/4″	7,000	8,900	4	60,000	8,827	3,300	3,800	5
	20,000	37′-8 3/4″	9,000	11,300	6	65,000	9,576	3,600	4,200	5
	25,000	47′-6 3/4″	11,800	14,600	8	70,000	10,395	3,900	4,500	6
	30,000	55′-9 3/4″	14,000	17,200	10	75,000	10,903	4,100	4,700	6
	35,000	64′- 3/4″	16,500	20,100	12	80,000	11,582	4,400	4,900	6
	40,000	73′-8 1/4″	19,000	23,100	14	85,000	12,268	4,700	5,300	7
						90,000	13,068	5,000	5,600	7
						100,000	14,345	5,400	6,100	8
						110,000	15,723	5,900	6,700	9
12′	20,000	29′ -4″	14,000	16,700	6					
	25,000	35′ -7″	16,600	19,700	8					
	30,000	43′ -1″	19,900	23,500	10					
	35,000	49′ -4″	22,500	26,500	12					
	40,000	54′ -4″	24,600	28,900	12					
	45,000	60′ -7″	27,400	32,100	16					
	48,000	65′ -7″	29,500	34,500	18					
	50,000	68′ -1″	30,500	35,700	18					

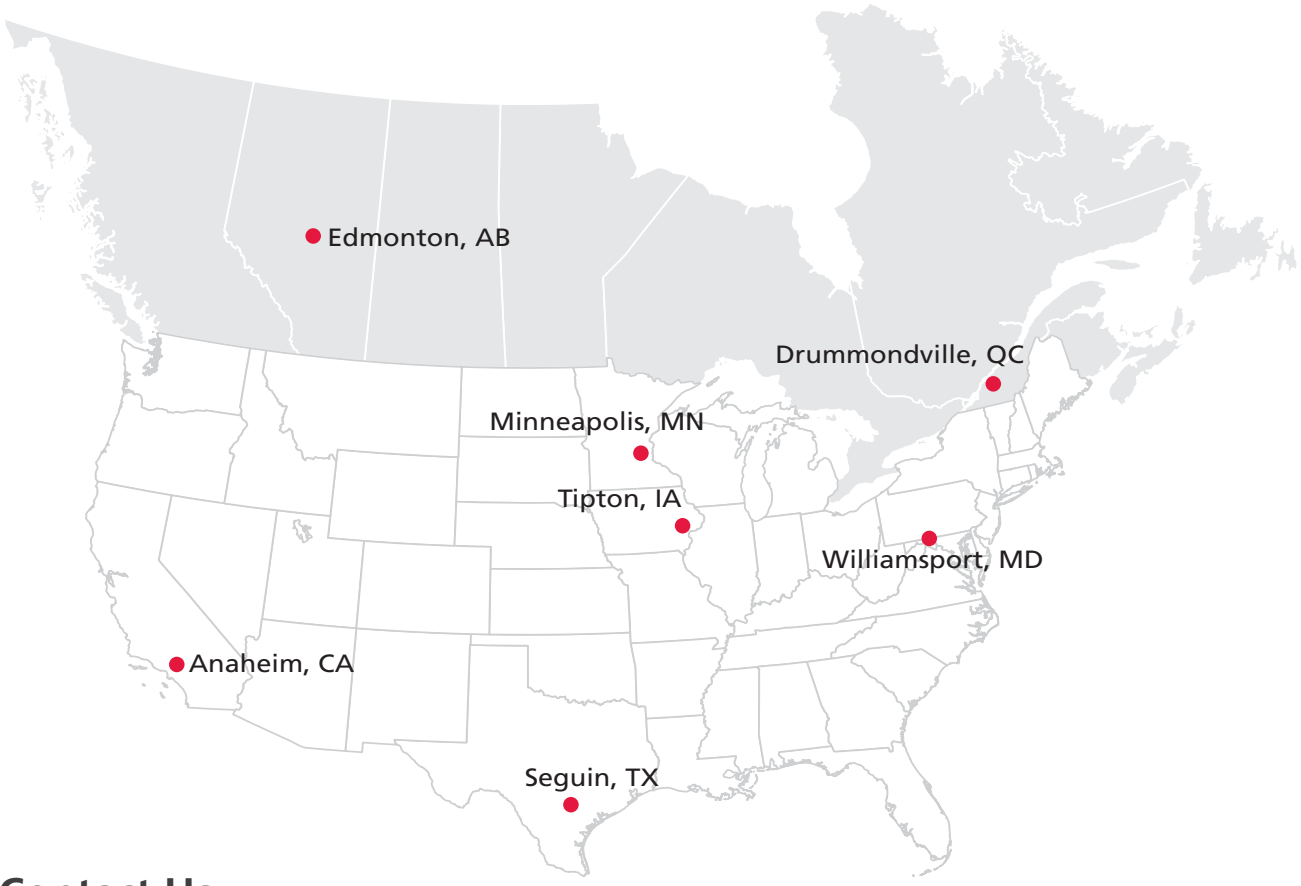
Notes:

1. Tank data for multicompartment tank models is available at www.zcl.com.
2. Actual height of the tank may be greater than the actual diameter due to fittings and accessories. Load height during shipping may vary due to tank placement on the shipping trailer.
3. If an overfill-protection device is installed in the tank, the actual capacity will be reduced.

Multiple Facilities

Customers Can Rely on Timely Manufacturing and Delivery of Tanks and Accessories.

With six manufacturing facilities – four in the United States and two in Canada – no matter where customers need fiberglass tanks and accessories shipped, a ZCL | Xerxes manufacturing facility is not far away. No other tank producer offers this kind of manufacturing capability in North America. All our facilities are either UL-listed or ULC-listed.



Contact Us

We're ready to design a double-wall tank, multi-compartment tank, triple-wall tank, diesel exhaust fluid tank or oil-water separator for your next project.

On the Web:
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Seguin, TX
Tipton, IA
Williamsport, MD

UST12/17PP

ZCL | XERXES®
making a lasting difference®

ATTACHMENT D

Manufacturer Information for Piping

RANGER
ENVIRONMENTAL SERVICES, LLC

Dualoy® 3000/LCX Product Data

Applications

Rigid fiberglass coaxial fuel handling systems requiring Underwriters Laboratories Listing for integral primary and containment piping conveying the following fuels:

- Motor Vehicle (MV)
- Aviation and Marine A&M)
- High Blend (HB)
- Bio-Diesel
- Concentrated (CT)
- Diesel Exhaust Fluid

Description

Dualoy 3000/LCX rigid fiberglass coaxial piping is a cost-effective solution for contained piping systems. LCX is used for product delivery lines in underground fuel handling systems to convey fuel from the tank to the dispensers. Dualoy 3000/LCX pipe is UL Listed for use with motor vehicle (MV), high blend (HB), concentrated (CT) and aviation and marine (A&M) fuels. Based on currently known tests, NOV Fiber Glass Systems found this product to be suitable for conveying all blends of biodiesel and ethanol type fuels and the conveyance of DEF.

The LCX pipe is manufactured as an integral unit. The primary is made of chemically inert, non-permeable, fiberglass reinforced epoxy resin which is inherently resistant to deterioration due to water and microbial attack. This layer is covered with a porous layer to provide the small volume interstitial space, which facilitates rapid leak detection. Then, the containment layer, comprised of the same material as the primary, is wound over the primary and porous layers.

The containment system is installed with custom designed clamshell containment fittings. Both the primary and containment systems are bonded for long-term, reliable performance.

- Dualoy 3000/LCX containment fittings are typically bolted in place while the adhesive cures.
- Dualoy 3000/LCX reduces installation and inspection time dramatically, retaining system integrity.
- Dualoy 3000/LCX double wall design significantly improves impact resistance over single wall pipe.
- Dualoy 3000/LCX systems provide true double wall design which permits rapid communication through the interstice.

Listings and Approvals

The rigid fiberglass piping used in Dualoy 3000/LCX is Listed in the United States with Underwriters Laboratories for nonmetallic underground piping for MV, HB, CT and A&M fuels under File No. MH9162. Dualoy 3000/LCX pipe and fittings are also Listed with Underwriters Laboratories of Canada for Petroleum Products and Oxygenated Fuels (File CMH715). Underwriters Laboratories has also approved Dualoy 3000/L and Dualoy 3000/LCX for use with MTBE fluids.

Performance

Primary operating pressures to 200 psig (13.8 bar)

Continuous operating temperature to 150°F (66°C)

Containment system pressures to 50 psig (3.45 bar)

Individual system components may not have the same ratings as the pipe. Refer to the detailed product information for the specific components to determine the pressure rating for the system as a whole.

Composition

Primary pipe: Filament-wound fiberglass reinforced epoxy pipe with integral epoxy liner. When classified in accordance with ASTM D2310 and ASTM D2996, the pipe meets the following cell limits: RTRP 11CF1-5420.

Pipe containment: Filament-wound fiberglass reinforced epoxy pipe.

Interstitial space: Dry, graded glass beads secured in place with adhesive backed tape.

Fittings: Compression molded or filament-wound fiberglass reinforced epoxy primary fittings. Containment fittings are molded.

Adhesive: PSX™ •20 or PSX™ •34 ambient-cure, two-part epoxy for all services (including alcohols and MTBE).

Joining System

Primary:

Bell and spigot taper/taper adhesive-bonded joint

Containment:

Adhesive-bonded clamshell fittings. Parts are compression molded for exact fit and match. Material is identical to primary fittings and is UL Listed for all services, including use in MTBE fluids.

Pipe Lengths

Standard 20 ft. (6.1 m) random lengths 17 to 21 ft. (5.2 to 6.4 m)
and 30 ft. (9.1 m) random lengths 27 to 32 ft. (8.2 to 9.7 m)

Other lengths up to 42 ft. (12.8 m) available upon request.

Fittings

Primary	Adapters: bell x NPT male[1]	Flange stub ends[1]
	Adapters: bell x NPT female[2]	Isolation bushings[1]
	Adapters: spigot x NPT female[2]	Nipples[2]
	Adapters: spigot x NPT male[2]	Reducer bushings[1]
	45° elbows[1]	Repair couplings[1]
	90° elbows[1]	Sleeve couplings[2]
	End caps[1]	Tees[1]
	Flange rings[1]	Dispenser pan penetration fittings[1]
Containment	45° elbows[1]	Couplings[1]
	90° elbows[1]	Tees[1]
	Termination sleeves[1], [3]	

[1] Molded fitting
[2] Filament-wound fitting
[3] 2" (50 mm) available with or without test valve. 3" and 4" (80 and 100 mm) available only with test valve

Typical Pipe Dimensions and Weights

Pipe Size		Primary Pipe ID		Primary Pipe OD[1]		Primary Wall Thickness		Containment OD		Capacity		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	gal/ft	l/m	lb/ft	kg/m
2	50	2.21	56	2.37	60	0.080	2.03	2.59	66	0.20	0.76	0.90	1.34
3	80	3.32	84	3.50	89	0.085	2.16	3.70	94	0.45	1.70	1.30	1.93
4	100	4.33	110	4.50	114	0.087	2.21	4.70	119	0.77	2.92	1.74	2.59

[1] Typical outside diameters of 2"-4" (50 -100 mm) pipe are within API, ASTM and ANSI fiberglass and steel pipe dimensions.

Typical Primary Pipe Performance

Pipe Size		Pressure Rating[1]		Ultimate Internal Pressure[1]		Ultimate Collapse Pressure[2]	
in	mm	psig	MPa	psig	MPa	psig	MPa
2	50	200	2.07	1500	10.3	153	1.05
3	80	200	1.38	1000	6.9	90	0.62
4	100	175	1.21	750	5.2	39	0.27

[1] At 80°F (27°C)
[2] At 80°F (27°C) For continuous service do not exceed 75% of these values.

Fittings Pressure Performance

Pipe Size		Primary All Fittings		Containment Clamshell Fittings	
in	mm	psig	MPa	psig	kPa
2	50	200	1.38	50[1]	345
3	80	125	0.86	50[1]	345
4	100	100	0.69	20	138

[1] With reinforcing rings

For dimensions of primary fittings, consult Dualoy 3000/L Fittings Dimensions document. Pressure ratings of fittings without UL Listing are available on request.

Dualoy 3000/LCX piping systems are designed to function at temperatures ranging from -40 to 150°F (-40 to 66°C) at service pressures between -1 and 13.8 bar. Dualoy 3000/LCX pipe conforms to ASTM D2310, D2517 and D2996.

Typical Physical Properties of Primary Pipe

Pipe Property	Units	Value	ASTM
Thermal conductivity	Btu-in/(h•ft²•°F) W/m•°C	1.7 7.6	C177
Linear thermal expansion	10^{-6} in/in/°F 10^{-6} cm/cm/°C	8.5 15.3	D696
Friction factor	Hazen-Williams	150.0	—
Absolute roughness	10^{-6} ft 10^{-6}m	15.0 4.6	—
Specific gravity	—	1.81	D792
Barcol Hardness	Impressor 934-1	65.0	D2583

Typical Mechanical Properties of Primary Pipe

Pipe Property[1]	Units	Value[1]	ASTM
Tensile strength			
Longitudinal	10^3 psi MPA	35.0 241.0	D2105
Circumferential	10^3 psi MPA	70.0 483.0	D1599
Tensile modulus			
Longitudinal	10^6 psi GPa	2.5 17.2	D2105
Circumferential	10^6 psi GPa	3.8 26.2	FGSTM
Compressive strength			
Longitudinal	10^3 psi MPa	24.5 168.9	FGSTM
Compressive modulus			
Longitudinal	10^6 psi GPa	2.6 17.8	FGSTM
Cyclic	10^3 psi MPa	8.0 55.0	D2992(A)
Poisson's Ratio[2]			
ν_{xy}	—	0.16	FGSTM
ν_{yx}	—	0.17	FGSTM

(1) Based on structural wall thickness.

(2) The first subscript denotes the direction of applied stress and the second that of measured contraction
x denotes longitudinal direction.
y denotes circumferential direction.

Bending Radius

Pipe Size		Minimum Bending Radius[1]		Maximum Deflection per 20 ft Joint	Minimum Length Required for 10° Change	
in	mm	ft	m	deg	ft	m
2	50	75	23	15	13	4
3	80	100	38	9	22	7
4	100	150	46	7.5	27	8

[1] At rated pressure. Sharper bends may create excessive stress concentrations. Do not bend pipe until adhesive has cured.

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NOV Fiber Glass Systems

FH3600 September 2012

Dualoy™ 3000/L Fiberglass Pipe

(Product Data)

FUEL HANDLING

Applications

- Service Station
- Vent/Vapor Recovery
- Bulk Plant Terminals
- Fueling Terminals
- Central Fuel Oil Systems
- Marinas Terminals
- Ethanol Fuel Blends
- Diesel Exhaust Fluid
- UL/ULC Systems that require MV, HB, CT, A&M Fuels

Materials and Construction

Filament-wound fiberglass reinforced epoxy pipe with integral epoxy liner and exterior coating. When classified in accordance with ASTM D2310 and ASTM D2996, the pipe meets the following cell limits: RTRP 11CXF1-5420. The operating pressure of the pipe is up to 200 psig (13.8 bar) with continuous operating temperature to 150°F (66°C).

Dualoy 3000/L is Listed with Underwriters Laboratories Standard 971-2004 for nonmetallic underground piping for motor vehicle (MV), high blend (HB), concentrated (CT) and aviation and marine (A&M) fuels (File MH9162). Dualoy 3000/L pipe and fittings are also Listed with Underwriters Laboratories of Canada (File CMH 715). In Great Britain the Dualoy 3000/L system has been tested and accepted by the London Fire and Civil Defence Authority. Dualoy 3000/L has been issued a Certificate of Compliance to the Institute of Petroleum (IP) Specification by ERA Technology, Ltd.

Performance

Individual system components may not have the same ratings as the pipe. Refer to the detailed product information for the specific components to determine the pressure rating for the system as a whole.

Fittings

Compression-molded and filament-wound fiberglass reinforced epoxy.

For dimensions of fittings, consult publication Dualoy 3000/L Fittings Dimensions.

Pressure ratings of fittings without UL listing are available on request

Joining System

- **Bell & Spigot** - The primary joining method for fitting joints.

Nominal Dimensional Data

Pipe Size		Inside Diameter		Outside Diameter[1]		Wall Thickness				Capacity		Weight		Max. Deflection per 20 ft Joint	Min. Length Req. for 10° Change		Stiffness Factor[2]	
						Total		Structual										
in	mm	in	mm	in	mm	in	mm	in	mm	gal/ft	l/m	lb/ft	kg/m	deg	ft	m	lb•in³/in²	N•m
2	50	2.21	56	2.37	60	0.080	2.03	0.060	1.5	0.20	2.50	0.47	0.70	15	13	4	45	5.1
3	80	3.32	84	3.50	89	0.085	2.16	0.065	1.6	0.45	5.60	0.72	1.07	9	22	7	75	8.5
4	100	4.33	110	4.50	114	0.087	2.21	0.070	1.8	0.77	2.92	1.00	1.49	7.5	27	8	60	6.8
6	150	6.39	162	6.63	168	0.120	3.10	0.100	2.5	1.67	6.35	2.10	3.13	5	40	12	275	31.1

[1] Typical outside diameters of 2 through 6-inch pipe are within API, ASTM and ANSI fiberglass and steel pipe dimensions.

[2] At 5% deflection.

View of Joint Illustrations (Joint illustration only depicts type of connetion available, not type of pipe featured in data sheet)

Bell & Spigot

Typical Pipe Performance

Nominal Pipe Size		Pressure Rating[1]		Ultimate Internal Pressure [1]		Ultimate Collapse Pressure[2]	
in	mm	psig	MPa	psig	MPa	psig	MPa
2	50	200	2.07	3200	22.1	153	1.05
3	80	200	1.38	2400	16.5	90	0.62
4	100	175	1.21	2000	13.8	39	0.27
6	150	175	1.21	2000	13.8	38	0.26

[1] At 80°F (27°C).

[2] At 80°F (27°C). For continuous service do not exceed 75% of these values.

Typical Mechanical Properties

Pipe Property[1]			Method
Tensile Strength			
Longitudinal	35,000 psi	241.3 MPa	ASTM D2105
Circumferential	70,000 psi	482.7 MPa	ASTM D1599
Poisson's Ratio ν_{ha}[2] - ν_{ha}[3]	0.16 - 0.26		FGSTM
Tensile Modulus			
Longitudinal	25,000 psi	172.4 Mpa	ASTM D2105
Circumferential	38,000 psi	262.0 MPa	FGSTM
Compressive Strength			
Longitudinal	24,500 psi	168.9 MPa	FGSTM
Compressive Modulus			
Longitudinal	26,000 psi	179.3 MPa	FGSTM
Cyclic	8,000 psi	55.2 MPa	ASTM D2992 Procedure A

Typical Physical Properties

Pipe Property	Value	Value	Method
Thermal Conductivity	1.7 BTU-in/hr•ft²•°F	7.6 W/m-°C	ASTM C177
Thermal Expansion	8.5 x 10^{-6} in/in °F	15.3 x 10^{-6} cm/cm °C	ASTM D696
Friction Factor	Hazen-Williams 150.0		-
Absolute Roughness	0.00021 in	0.00053 mm	
Specific Gravity	1.8		ASTM D792
Barcol Hardness	65.0 (Impressor 934-1)		ASTM D2583

[1] Based on structural wall thickness.

[2] ν_{ha} = The ratio of axial strain to hoop strain resulting from stress in the hoop direction.

[3] ν_{ah} = The ratio of hoop strain to axial strain resulting from stress in the axial direction.

Pipe Length

Size		Standard		Random	
in	mm	ft	m	ft	m
2-6	50-150	20	6.1	17-21	5.2 - 6.4

Minimum Bending Radius

Size		Minimum Bending Radius[1]	
in	mm	ft	m
2	50	75	23
3	80	100	38
4	100	150	46
6	150	200	61

[1] At rated pressure. Sharper bends may create excessive stress concentrations. **Do not** bend pipe until adhesive has cured.

Fiber Glass Systems
17115 San Pedro Avenue, Ste 200
San Antonio, Texas 78232 USA
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FH3500ENG August 2016

Dualoy® 3000/LCX Secondary Containment Fittings

Uses and Applications

- Service station product, vent and vapor recovery piping
- Bulk plant terminals and fueling terminals
- Central fuel oil systems
- Marinas and marine terminals (onshore only)
- All underground piping systems requiring UL or ULC Listing for MV, HB, CT and A&M fuels
- Containment piping for all of the above
- Designed for use with pressure, vacuum or hydrostatic monitoring systems

Description

Dualoy 3000/LCX systems employ a coaxial construction for the pipe wall and specially designed primary and containment fittings. The system provides a complete double-wall enclosure for all product, vent and vapor recovery lines. The "LCX" contained system has been designed for providing a compact profile and easy, fast and reliable installation. "LCX" can be installed in either parallel or series patterns, taking advantage, where possible, of the reduced cost and number of buried fittings afforded by the series pattern. See details below.

Features of Dualoy 3000/LCX containment systems include:

- Filament-wound, fiberglass-reinforced pipe with integral liner;
- Compact fittings dimensions to minimize trench excavation;
- Smooth exterior pipe surface that eliminates the need for special end preparation tools;
- Ready accessibility to and complete inspectability of primary fittings prior to closure of the containment;
- Complete testability during installation and at any time thereafter;
- Rapid joint makeup with pre-inserted nuts and ambient cure adhesive.

Listings

Dualoy 3000/LCX is Listed in the United States with Underwriters Laboratories for nonmetallic underground piping for motor vehicle (MV), high blend (HB), concentrated (CT) and aviation and marine (A&M) under File MH9162. Dualoy 3000/LCX pipe and fittings are also Listed with Underwriters' Laboratories of Canada (File CMH715)

Performance

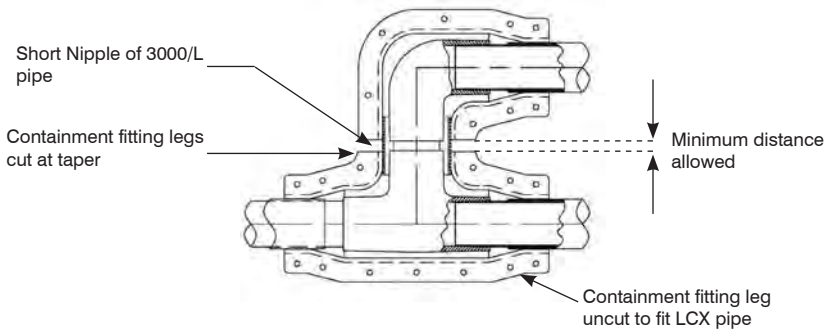
Containment pressure rated to 50 psig

Continuous operating temperatures to 150°F (66°C)

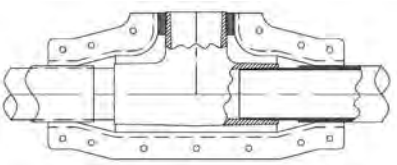
Individual system components may not have the same ratings as the pipe. Refer to the detailed product information for the specific components to determine the pressure rating for the system as a whole.

Piping System Features

Low Profile Crossovers - Dualoy 3000/LCX clamshell fittings are specifically designed to allow the minimum distance between primary fittings to be maintained when crossovers or offsets are needed. The center portion of the fitting is designed to fit the next-size-larger single wall pipe size. When distance between primary fittings is critical, simply cut off the corresponding tapered legs of the clamshell fittings and connect them with single wall pipe. (Reference dimension E on part drawings.) The distance between center lines shown in the drawing below is exactly the same as it would be for a single-wall system.

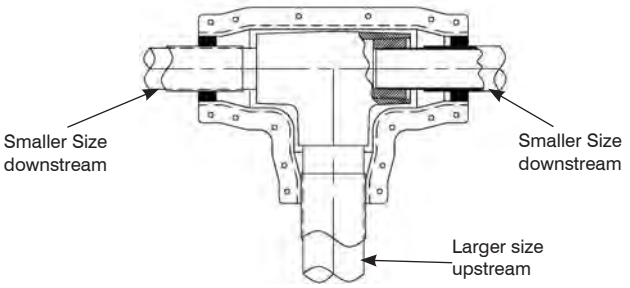


Branch Termination for Series Installation - Dualoy 3000/LCX piping can be installed in series with the pipe coming in on one side of the sump and exiting the other side. To maintain the containment continuity through the sump, the system can be configured with a termination ring on the branch of the tee or leg of an elbow. To do this, the tapered portion of the clamshell fitting leg is cut off and a termination ring is bonded between the primary fitting and the clamshell. A bushing or pipe nipple can be bonded into the primary bell as needed.



Size Reductions - For large systems where larger diameter trunk lines are used, pipe diameter reductions are easily made with the Dualoy 3000/LCX system at fittings. Single piece bushings are used in the primary fitting to reduce the primary pipe size. The containment pipe size is reduced by bonding a 2-piece reducer ring between the clamshell and the smaller pipe jacket. No cutting of clamshell fitting tapers is involved.

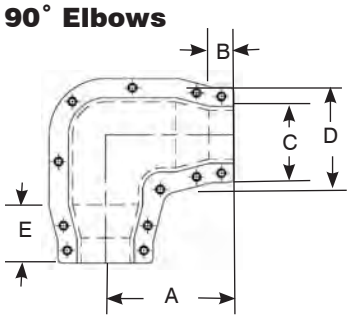
Size reduction can be done on any fitting leg or legs (as on a tee).



Continuous Monitoring - The Dualoy 3000/LCX system has exceptional performance in continuously monitored systems. Due to its small interstitial space, it is very reliable in detecting leaks in systems monitored by pressure, vacuum or hydrostatic methods. False alarms are eliminated by the lesser sensitivity to external conditions while detection capability of actual leaks is increased. Consult NOV Fiber Glass Systems Engineering for details and design of monitoring methods.

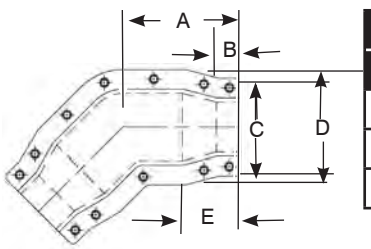
LCX Fittings Dimensions

90˚ Elbows



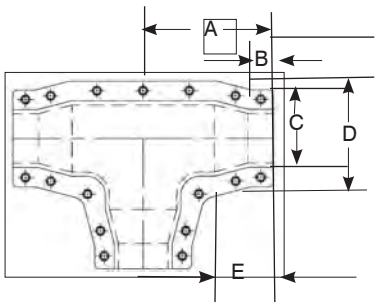
Size		A	B	C	D	E	Weight
(in)	(mm)						lbs
2	50	6.88	1.34	5.12	6.04	3.00	3.55
3	80	7.75	1.38	6.32	7.13	3.00	4.70
4	100	8.75	1.35	7.23	9.19	3.50	7.50

45˚ Elbows



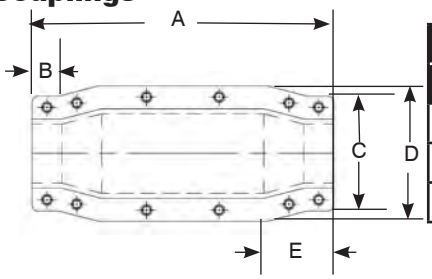
Size		A	B	C	D	E	Weight
(in)	(mm)						lbs.
2	50	6.25	1.34	5.12	6.04	3.00	3.30
3	80	6.75	1.38	6.32	7.13	3.00	4.15
4	100	7.50	1.35	7.23	9.19	3.50	6.50

Tees



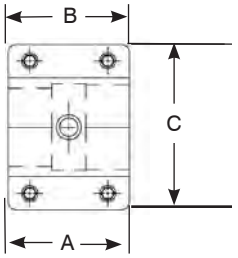
Size		A	B	C	D	E	Weight
(in)	(mm)						lbs.
2	50	6.88	1.34	5.12	6.04	3.00	4.30
3	80	7.75	1.38	6.32	7.13	3.00	6.00
4	100	8.75	1.35	7.23	9.19	3.50	9.95

Containment-Couplings



Size		A	B	C	D	E	Weight
(in)	(mm)						lbs.
2	50	13.50	1.34	5.12	6.04	3.00	3.12
3	80	12.81	1.38	6.32	7.13	3.00	2.95
4	100	12.25	1.38	7.23	9.19	3.50	3.44

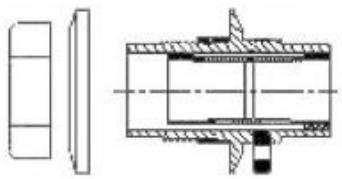
Termination



Size		A	B	C	Weight
(in)	(mm)				lbs.
2	50	3.75	1.34	5.12	1.00
3	80	3.75	1.38	6.32	1.35
4	100	3.75	1.35	7.23	1.45

Sump Penetration Fittings

Sump penetration fittings (SPF) can be used on straight sumps. Dualoy 3000/LCX pipe can pass through or be terminated at the SPF. Ends are closed by bonding half-sections of 2-inch coupling clamshells between the SPF and the pipe jacket. Shrader valves can be supplied for testing or monitoring. SPF is not open to mid-wall of double wall sump, as provided. Field drilling of SPF body near flange can be done to open interstice between SPF and pipe to sump interstice.



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NOV Fiber Glass Systems

FH3610 - September 2012

ATTACHMENT F

Tertiary Containment Method

RANGER
ENVIRONMENTAL SERVICES, LLC

During the former UST removal process, it was reported to Ranger Environmental Services, LLC (Ranger), that groundwater (tankpit water) was encountered. As Ranger was not contracted during the time of the removal nor was Ranger able to observe the reported groundwater (tankpit water per 30TAC334), Ranger recommended that the USTs and piping be constructed with tertiary containment. Therefore, this plan proposes that the USTs and piping will be as follows:

- Triple wall Xerxes tanks
- Dualoy 3000/LCX double wall piping within Dualoy 3000/L piping (tertiary containment)

During the new installation, if groundwater is encountered, Ranger will supply a Solution Feature Discovery Report, however, the newly proposed UST system will meet the tertiary requirements for 30TAC213.

ATTACHMENT G

Exception to the Geologic Assessment

RANGER
ENVIRONMENTAL SERVICES, LLC

Geologic Assessment

REGULATED ENTITY NAME: Zapco #4
TYPE OF PROJECT: __ WPAP __ AST __ SCS _X_ UST

LOCATION OF PROJECT: __ Recharge Zone _X_ Transition Zone __ Contributing Zone within the Transition Zone

Ranger Environmental Services, LLC (Ranger) field personnel attempted to perform the required Geologic Assessment at the aforementioned facility located at 2120 FM 1626, Manchaca, Travis County, Texas on March 30, 2023. During the site visit, it was observed that the site has been previously developed and appeared to operate as a convenience store with retail fueling. The site was noted to be less than 5.0 acres in size with significant area under impervious cover. According to the TCEQ Central Registry, the former tanks at the site were installed in 1985. The tanks were reportedly removed from the site January 16, 2023. The previous Approval of a Modification of an Existing Underground Storage Tank Facility Plan (UST) for 2120 FM 1626, Manchaca, Texas was approved in 2014. This modification replaced the existing piping with new double walled piping required by 30 TAC Chapter 334. Based upon available information, no changes appear to have been made to the site that would have altered the geology since the previous modification was approved.

Therefore, based on the site currently being developed with large portions under impervious cover and the site appearing to have not been altered or developed further since the most recent plan approval, it is requested that an exception to the Geologic Assessment requirement be granted.

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. My signature certifies that I am qualified as a geologist as defined by 30 TAC Chapter 213.

Chad M. Copeland, PG, PWS

512/335-1785
Telephone

512/335-0527
Fax

Signature of Geoscientist

Date

Representing: Ranger Environmental Services, LLC
(Name of Company)

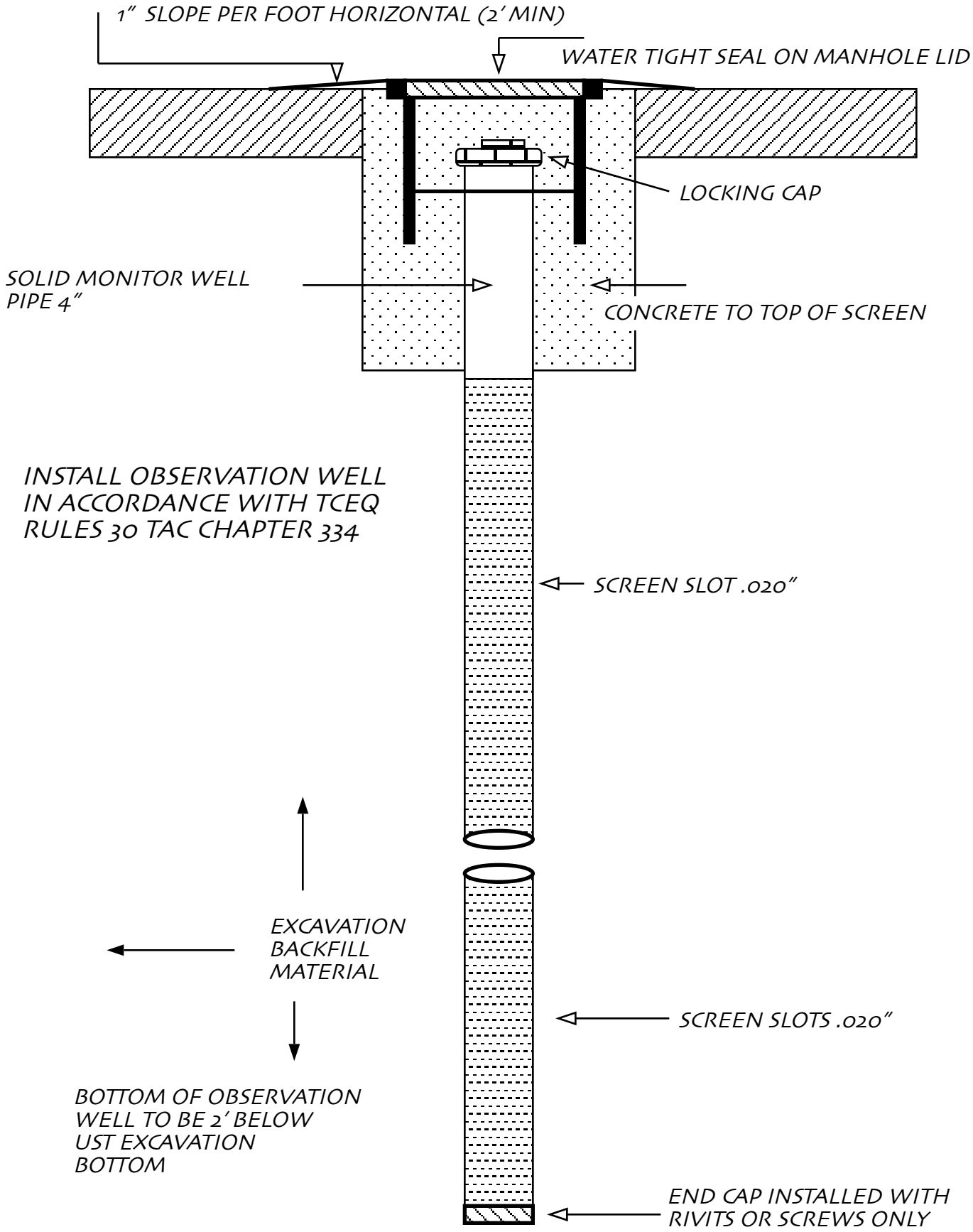
STATE OF TEXAS
CHAD M. COPELAND
SOIL SCIENCE
12668
LICENSED
PROFESSIONAL GEOSCIENTIST

4/27/2023

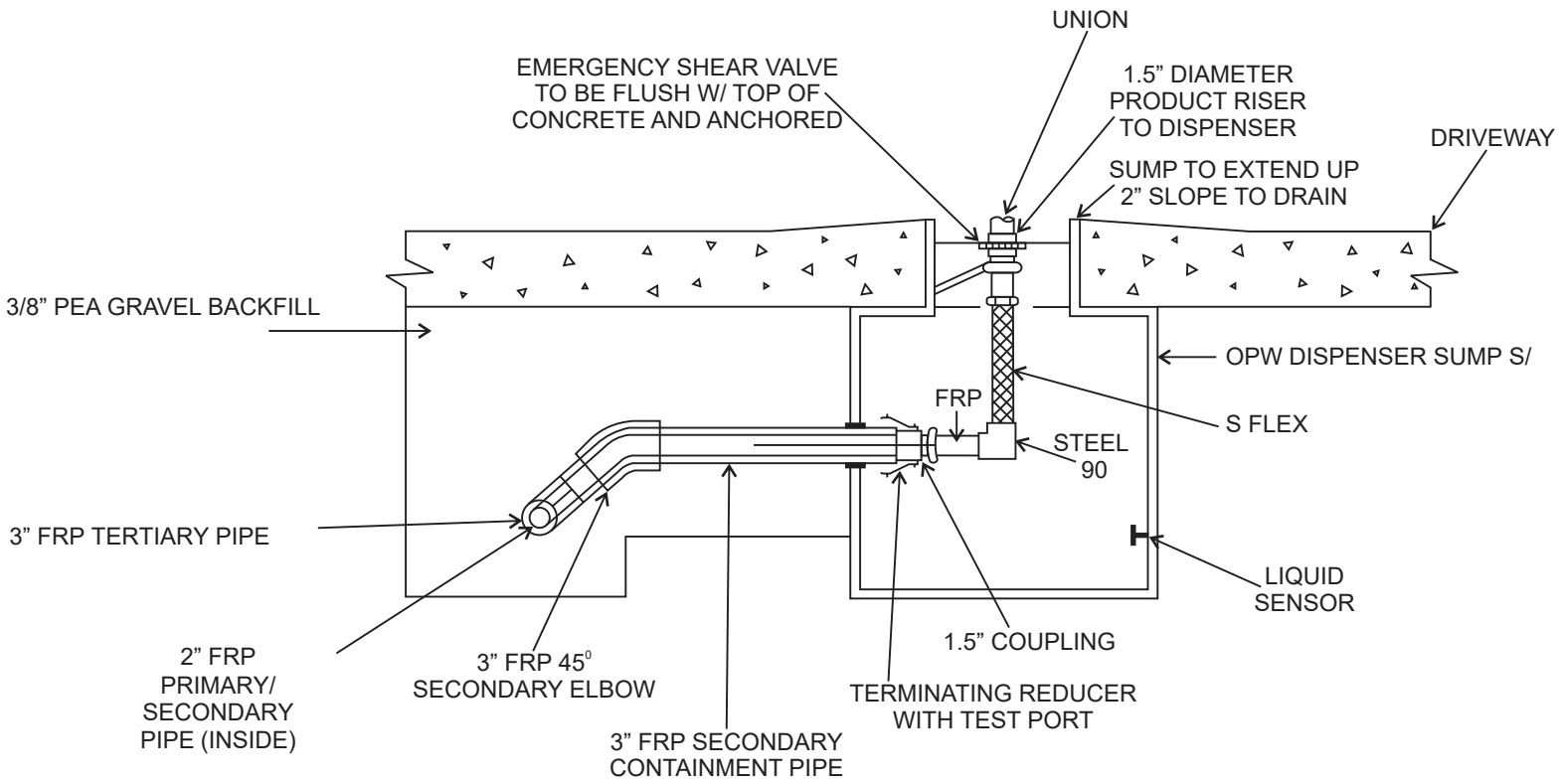
ATTACHMENT H

Profile Drawings

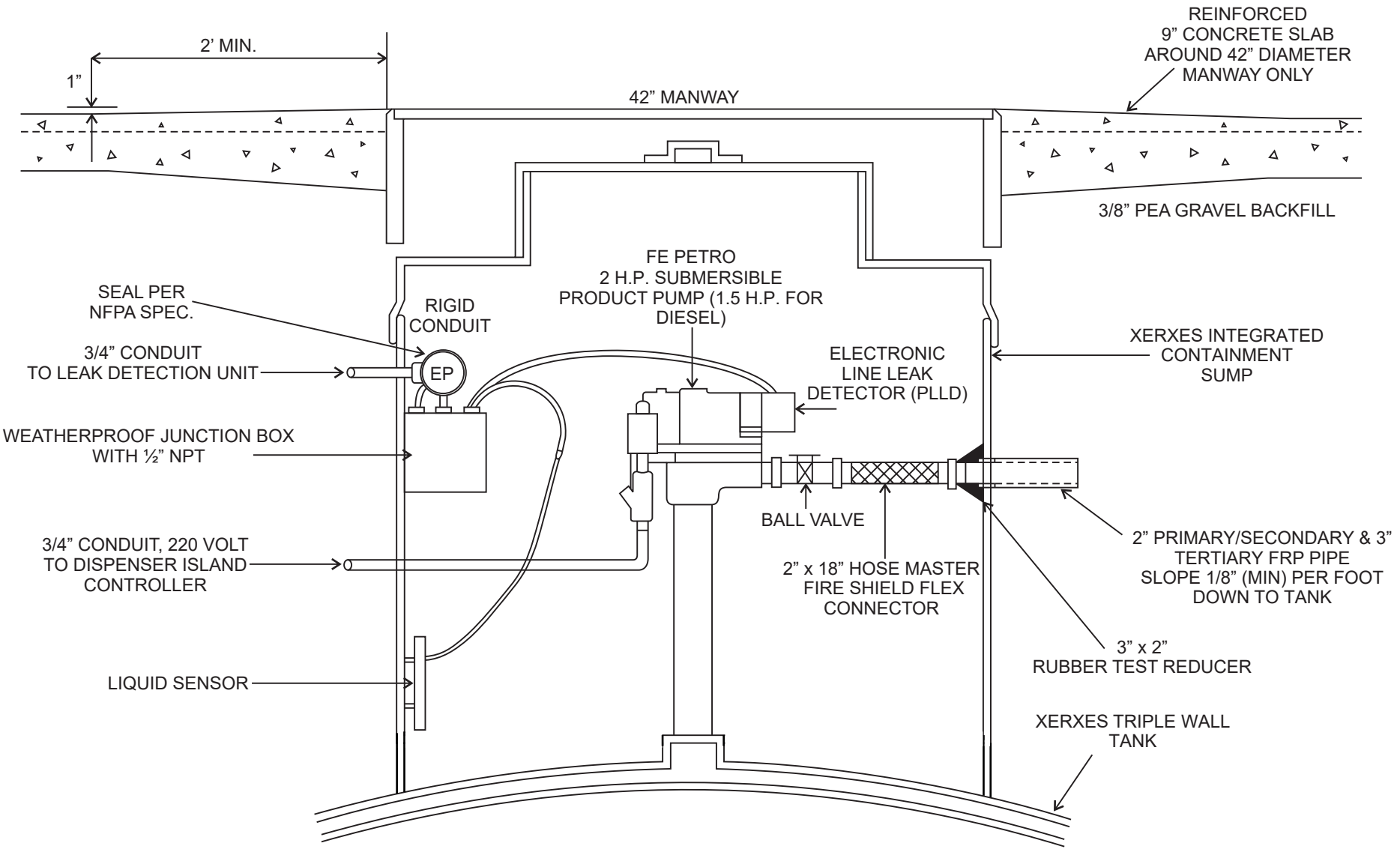
RANGER
ENVIRONMENTAL SERVICES, LLC



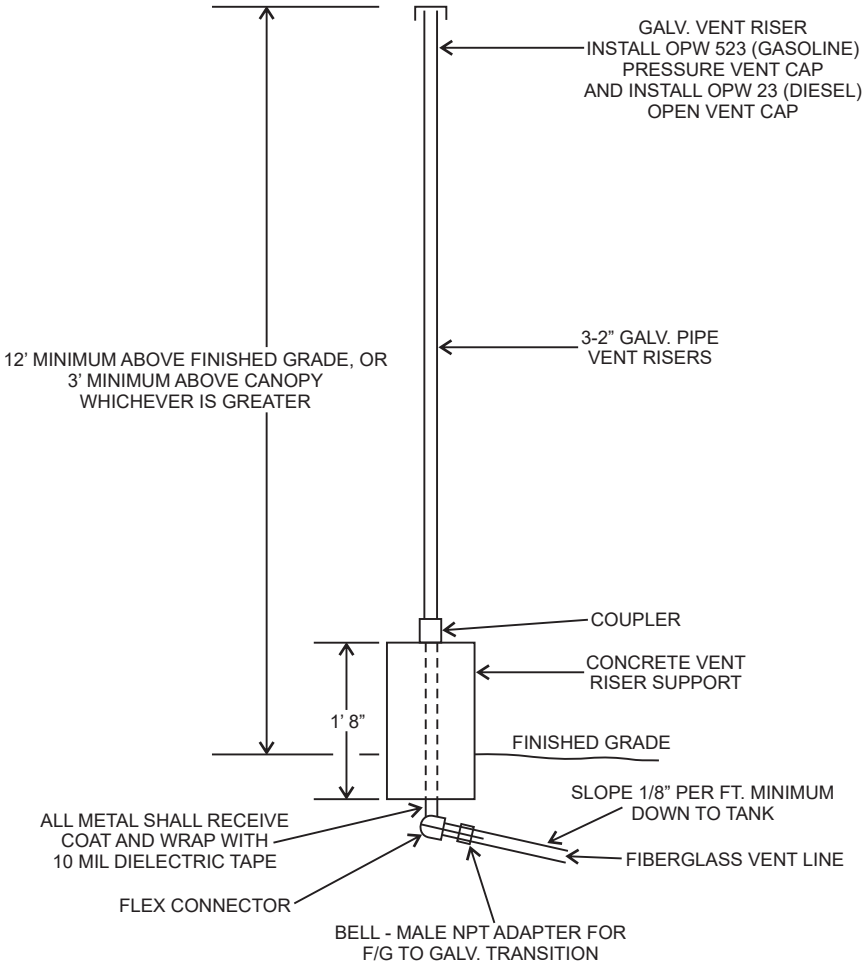
OBSERVATION WELL



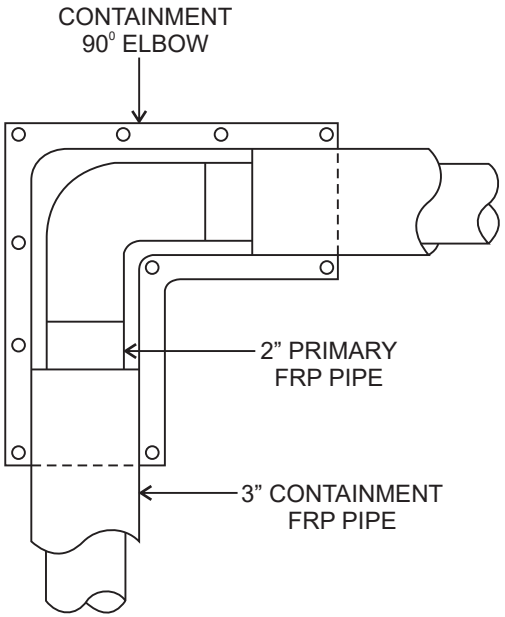
DISPENSER PIPING
NOT TO SCALE



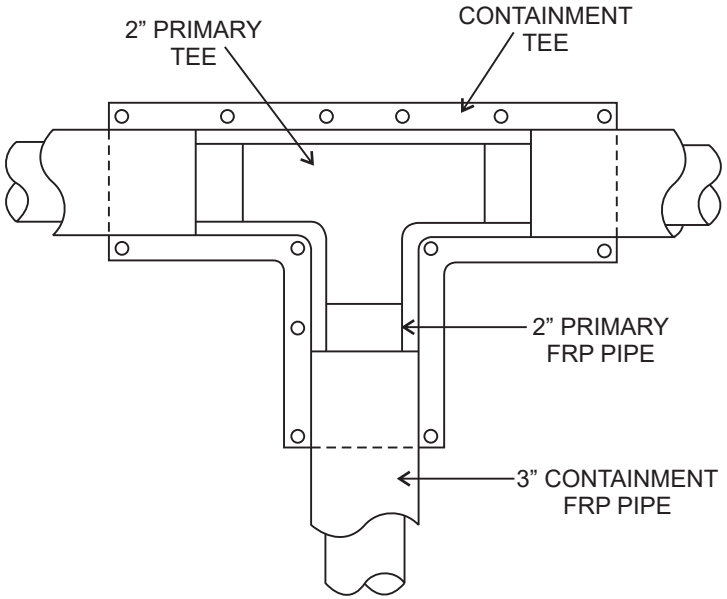
TYPICAL SUBMERSIBLE PUMP ASSEMBLY
NOT TO SCALE



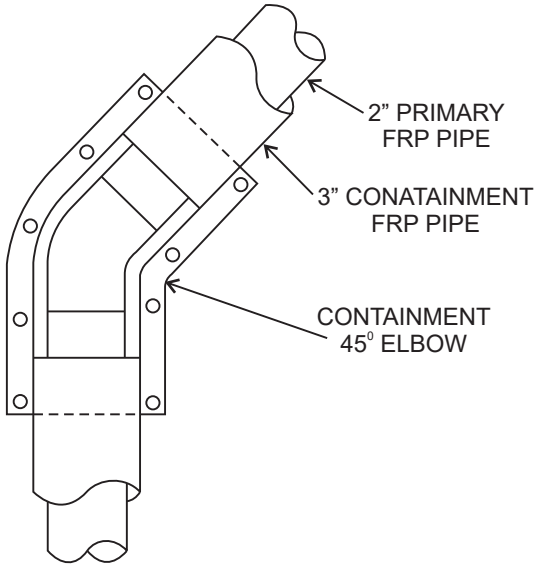
TANK VENT RISER
NOT TO SCALE



TYPICAL 90⁰ ELBOW



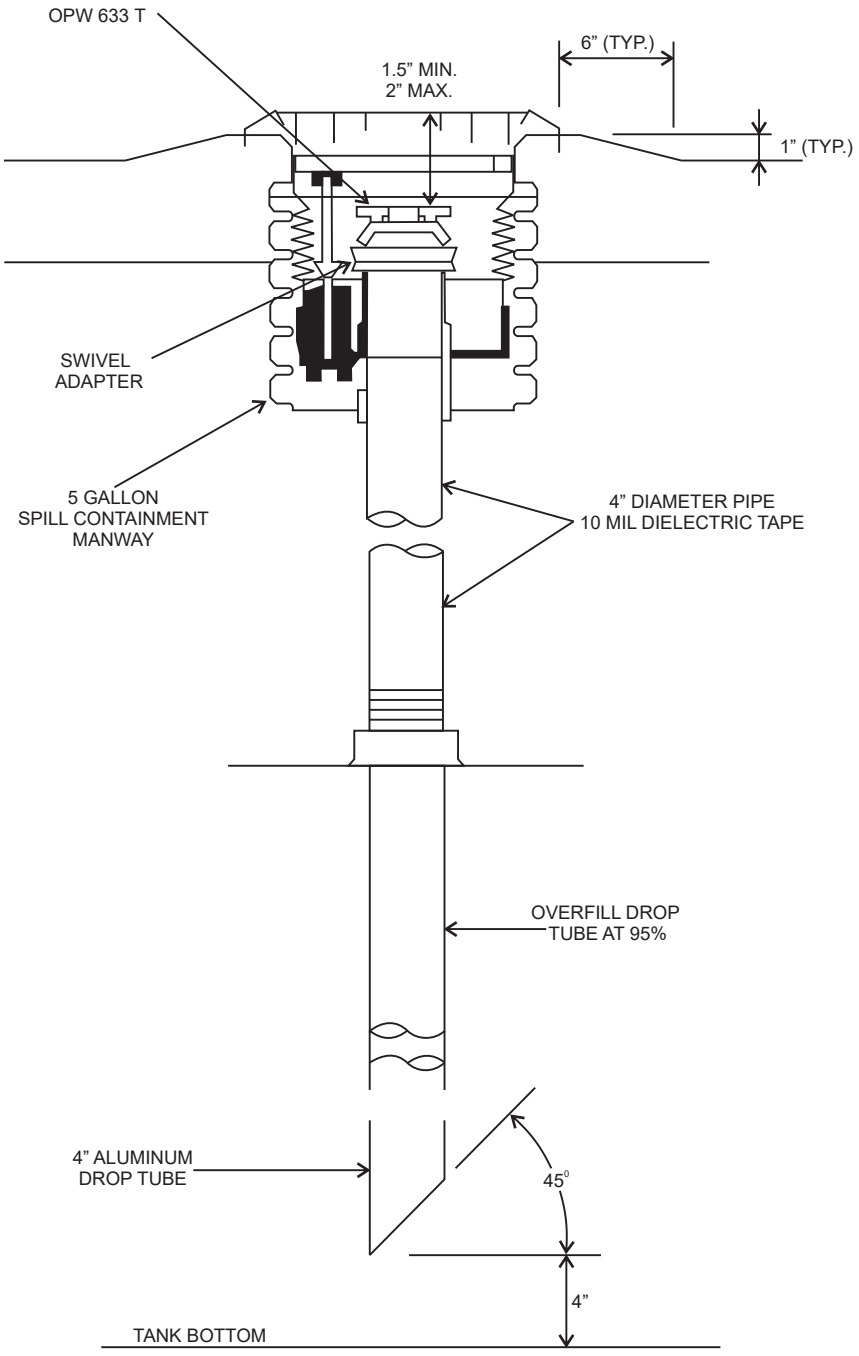
TYPICAL THREE WAY TEE



TYPICAL 45⁰ ELBOW

AMERON 3000/LCX & 3000/L FIBERGLASS PIPING

PIPING PLAN NOT TO SCALE



FILL RISER DETAIL
NOT TO SCALE

TLS-450PLUS Automatic Tank Gauge

Console Description

The TLS-450PLUS Automatic Tank Gauge (ATG) is a powerful tool that allows fueling operations to run at peak efficiency, with an easy to understand navigation, streamlined inventory and compliance reporting, and powerful business analytics. It can monitor up to 64 tanks, or 32 tanks with BIR. Frequent releases of operating software for the TLS-450PLUS tank gauge assures that data is secure and software features are routinely updated and enhanced.

TLS-450PLUS Consoles, Standard Hardware & Software

Part # & Description	Standard Hardware & Application Software
1. 860091-301 TLS-450PLUS Console with 8" WVGA Color Touch Screen Display, Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232, UL/cUL 2. 860091-302 TLS-450PLUS Console with 8" WVGA Color Touch Screen Display, Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232/RS-485, UL/cUL 3. 860091-401 TLS-450PLUS Console with 8" WVGA Color Touch Screen Display, No Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232, UL/cUL 4. 860091-402 TLS-450PLUS Console with 8" WVGA Color Touch Screen Display, No Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232/RS-485, UL/cUL 5. 860091-001 TLS-450PLUS Console, No Display, No Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232, UL/cUL 6. 860091-002 TLS-450PLUS Console, No Display, No Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232/RS-485, UL/cUL	**Software** – 333545-001 Application Software (must be ordered with Console) includes Web-enabled, Custom Alarm, On-Console Help, Extended Storage, TLS-Expansion, Static Leak Dection, 3GPH DPLLD **Hardware** – 3 Port Ethernet Module (Comm Slot 4), 2-Port USB Module (Comm Slot 5), 3 module compartments

TLS-450PLUS Device & Communications Module Compatibility

Devices

Module Compatibility	Inputs per Module	POWER MODULES	iButton Req'd?	Console Slots 1	2	3	4	TLS-XB 1 Slots 1	2	3	4	TLS-XB 2 Slots 1	2	3	4	TLS-XB 3 Slots 1	2	3	4	Modules per System
TLS-450PLUS System																				
USM	16			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UIOM	14[1]			●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	●	16
10-Amp Relay	6						●				●				●				●	4
MDIM	12			●	●	●	●	●												5
LVDIM	12			●	●	●	●	●												5

[1]=(14) total inputs include (5) AC Inputs, (5) Relay Contacts, (4) 12VDC Inputs

Communications

Module	COMMUNICATION MODULES	Console 1[4] P1	P2	2 P1	P2	3 P1	P2	4 P1	P2	5 P1	P2	Modules per System	Type
TLS-450PLUS													
RS-232			●		●		●	Ethernet Module (3 Ports) (Fixed)		USB Module (2 Ports) (Fixed)		3	Hardware
Dual RS-232		●	●	●	●							3	Hardware
RS-485			●		●		●					3	Hardware
Dual RS-485[1]		●	●	●	●							3	Hardware
RS-232/RS-485[1]		●	●	●	●							3	Hardware
Internal Modem			●		●		●					3	Hardware
CDIM		●		●								2	Hardware
EDIM[2]		●	●	●	●		●					3	Software
IFSF LON[3]			●		●		●					1	Hardware

[1]=When placed in Slot 3, only Position 2 will be functional

[2]=EDIM can be programmed in any position with an RS-232 port - up to 3 per system

[3]=Can be combined with EDIM

[4]=Console ships standard with dual RS-232 or dual RS-232/RS-485 card in Slot 1

	Part # & Description		Maximum # of Modules per Console	# of Inputs per Module	Availability
TLS-450PLUS Device Modules	Universal Sensor Module (USM) Interface for all Probes, Sensors, and DPLLD	332812-001 – Factory Installed Module 330020-619 – Spare Part Module	Up to 4 for each TLS-450PLUS and/or TLS-XB or a maximum of 16 modules per system	16	Sold Separately (either Factory Installed or as a Spare Part Module)
	Universal Input/Output Interface Module (UIOM) for Relay Control and Input Signal Monitoring	332813-001 – Factory Installed Module 330020-620 – Spare Part Module	Up to 4 for each TLS-450PLUS and/or TLS-XB or a maximum of 16 modules per system	5 dry contact output relays / 4 low voltage dry contact inputs / 5 high voltage inputs (<=240 VAC)	
	10-Amp Relay Module has 6 high power outputs / 6 low voltage inputs / must be installed in slot 4 of TLS-450 PLUS and TLS-XB	333564-001 – Factory Installed Module 330020-814 – Spare Part Module	Up to 1 for each TLS-450PLUS and/or TLS-XB or a maximum of 4 modules per system — **Only installed in slot 4*	4	
	BIR/AccuChart LVDIM for TLS-450PLUS, 12 Inputs	333581-001 – Factory Installed Module 330020-800 – Spare Part Module			
	BIR/AccuChart MDIM for TLS-450PLUS, 12 Inputs	333582-001 – Factory Installed Module 330020-799 – Spare Part Module			

	Part # & Description		Maximum # of Modules per System	Availability
TLS-450PLUS Communications Modules	SiteFax™ Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	332818-001 – Factory Installed Module 330020-612 – Spare Part Module	Up to 3 per System	Sold Separately (either Factory Installed or as a Spare Part Module) For Spare Part "upgrade" kits, the BIR/AccuChart Feature Enhancement will be shipped on a Veeder-Root iButton adapter – P/N 330020-659
	Single RS-232 Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	332866-001 – Factory Installed Module 330020-613 – Spare Part Module		
	RS-232 Dual Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	332868-001 – Factory Installed Module 330020-617 – Spare Part Module		
	Single RS-232/RS-485 Dual Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	332870-001 – Factory Installed Module 330020-618 – Spare Part Module		
	BIR/AccuChart EDIM for TLS-450PLUS	333149-001 – Factory Installed Module 330020-801 – Spare Part Module	1 per System	
	BIR/AccuChart CDIM for TLS-450PLUS, 3 Inputs	333580-001 – Factory Installed Module 330020-802 – Spare Part Module		
	IFSF LON Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	333659-001 – Factory Installed Module 330020-828 – Spare Part Module		

	Part # & Description	
TLS-450PLUS Optional Software	Continuous Statistical Leak Detection (CSLD) for TLS-450PLUS	332972-006
	Ultimate Testing: Digital Line Leak Detection for TLS-450PLUS	332972-007
	Risk Management: Digital Line Leak Detection for TLS-450PLUS	332972-008
	Base Compliance: Digital Line Leak Detection for TLS-450PLUS	332972-009
	Timed Sudden Loss Detection for TLS-450PLUS	332972-018
	Vapor Collection Monitor for TLS-450PLUS	332972-021
	DEF Recirculation Software Feature for TLS-450PLUS & DEF Temperature Sensor Installation Kit	332972-026 – Software 794380-210 – Install Kit

VEEDER-ROOT

TLS-450PLUS Automatic Tank Gauge

Specifications	
Operating Temperature	+32 to +104°F (0 to +40°C)
Storage Temperature	-40 to +158°F (-40 to +70°C)
Installation Location	NEMA 4 or indoors
Relative Humidity	0-90% (non-condensing)
External Dimensions	18.4" x 11" x 8.8" (46.74cm x 27.94cm x 22.35cm)
Construction	16GA (0.060 in/0.1524 cm) powder coated steel
Console Power Wiring Requirements	AC Power Wiring – Wires carrying 120 or 240 VAC from power panel to the console should be #14 AWG (or larger) wire for line, neutral & chassis ground (3) ; and 4 sq. mm, rated for at least 90C for barrier ground.
Probe & Sensor to Console Wiring Requirements	1. Wire Type – Shielded cable required regardless of conduit material or application. It must be rated less than 100 picofarad per ft manufactured with a suitable material such as Carol C2534 or Belden 88760, 8760, or 8770. 2. Wire Length – Maximum 1,000ft (304.8m) to meet intrinsic safety requirements. Improper system operation could result for runs over 1,000ft (304.8m). 3. Wire Gauges – Color coded – shielded cable used in all installations. Wires should be #14 - #18 AWG stranded copper wire and installed as Class 2 circuits. As an alternate method when approved by the local authority having jurisdiction, #22 AWG wire such as 88761 may be suitable with the following requirements: Wire run is less than 750ft (228.6m), Capacitance does not exceed 100 pF/ft; Inductance does not exceed 0.2 uH/ft.
System Power Requirements	AC Input – Universal AC power supply: 100 to 249 VAC, 50/60Hz, 2A max.
Display Specifications	8” (20.32cm) Color WVGA LCD touch screen display
Connectivity Methods	Ethernet, Web Browser, Modem, Fax, Serial
Data Storage Features	SD card
Software Security Features	Centralized Device Management to protect your network of TLS-4XX consoles
Custom User Access	Front Panel Display control through user specific log-in; User defined roles to restrict access / functionality. Screen permissions can be limited to view, edit, perform
System Security	1. Partitioned Ethernet Ports that can be used to separate user network from the internet 2. Port availability control: SSH Port (22), HTTPS Port (443), Serial Command Port (10001) 3. Reassign Port Numbers (i.e., HTTPS on 50443) 4. System Integrator CVE Scans & Fixes 5. Periodic System Updates to protect against persistent threats
Customized Alarm Features	Customizable for all alarms
Approvals	UL cUL, ATEX, IECEx, NEPSI, FCC, FMC, PESO, ANZEx, ULC, INMETRO, IQC, EAC, NWGLDE, and CEN
Third Party Evaluations	http://www.nwglde.org/evals/veeder_root_zf.html
Product Installation Guide	https://www.veeder.com/us/technical-document-library

VEEDER-ROOT

TLS-450PLUS Automatic Tank Gauge

System Compatibilities Guide

Feature/Console	TLS-450PLUS
CONSOLE DESIGN	
Modular/Expandable Features	•
LCD with Touch Screen (optional)	8" WVGA Color
Integral Roll Printer	Optional
Universal Power Supply	•
INVENTORY CONTROL	
Graphical Inventory Status	•
Complete Inventory Reports	•
Programmable Auto Report Times	•
Inventory Increase Report	•
Timed Sudden Loss Detection	Optional
BUSINESS INVENTORY RECONCILIATION	
Shift-Based Reconciliation	Optional
Reconciliation by Tank	Optional
TANK CALIBRATION	
Multi-Pass Tank Calibration	Optional
Single-Pass / Metered Drop	Optional
Limited Range Calibration	Optional
Supports Multiple Tank Charts per Tank	Optional
Supports Multiple Line Manifold Tanks	Optional
Graphical / Text Calibration Diagnostics	Optional
Automatic and Manual Meter Mapping	Optional
IN-TANK LEAK TEST	
0.1 GPH Tank Tightness Testing	•
0.2 GPH Tank Tightness Testing	•
Continuous Statistical Leak Detection	Optional
Selectable Test Rates	•
Programmable Automatic Test Schedules	•
PASS, FAIL, or INVALID Indicators	•
LINE LEAK DETECTION	
Integral Line Leak Detector	Optional
Programmable Line Test Features	Optional
INTERSTITIAL/SUMP LEAK SENSING	
Tank Annulus	•
Sump	•
Dispenser Pan	•
Mag Sump	•
Sensor Location Identifiers	•
VAPOR WELL MONITORING	
Hydrocarbon Vapor Detection	•
High Water Level Alarm	•
GROUNDWATER MONITORING	
Hydrocarbon Liquid Detection	•
Low Water Alarm	•
AIR VAPOR MONITORING	
Vapor Collection Monitor	Optional
ALARMS	
Leak	•
Overfill	•
High Level	•
Sudden Loss	•
High Water	•
Low Inventory	•
Programmable Alarm Limits	•

Feature/Console	TLS-450PLUS	TLS-450PLUS with TLS-XB**
DATA COMMUNICATIONS		
RS-232	5	5
RS-485	3	3
Fax Transmittal (SiteFax)	Optional	Optional
External USB 2.0	2	2
Ethernet Ports	3	3
International Forecourt Standards Forum (IFSF)	1	1
SYSTEM CAPABILITIES		
Manifold Tank Capability (Line & Siphon)	•	•
Height-Based Pump Priority Control for Manifolded Tanks	•	•
Pump Alternate on the Fly	•	•
Self-Diagnostics	•	•
Emergency Generator Capability	•	•
Up to 3 Years Data Storage	•	•
FAX Notification On-Time or Event	Optional	Optional
Email Notification On-Time or Event	•	•
LCD with Touch Screen	Optional	Optional
On-Board Help	•	•
Custom Help	•	•
Custom Alarms	•	•
Environmental Reports (Compliance Reports Summary)	•	•
Sensor Reports	•	•
Sensor History Report by Period, Month, Week or Custom	•	•
Web-Enabled	•	•
System Duplicate	•	•
SYSTEM CAPACITIES*		
Inputs	64	256
In-Tank Probes (Including Density)	64	64
In-Tank Probes with BIR	32	32
Digital Pressurized Line Leak Detectors (Additional Software Req'd)	15	16
2-WIRE SENSORS		
Magnetostrictive Discriminating Level Indicating Sump Sensor	64	99
Discriminating Dispenser Pan & Containment Sensors	64	99
Solid-State Non-Discr. Dispenser Pan & Containment Sensors	64	99
Sump Sensors	64	99
Position Sensitive Pan/Sump Sensor	64	99
Interstitial Sensor for Fiberglass Tanks	64	99
Solid-State Discr. Interstitial Sensors for Fiberglass Tanks	64	99
Alt. Ethanol Fluid Interstitial Sensors for Fiberglass Tanks	64	99
Interstitial Sensors for Steel Tanks	64	99
Microsensors	64	99
Position Sensitive Interstitial Sensor for Steel Tanks	64	99
Alt. Ethanol Fluid Solid-State Interstitial Sensor for Steel Tanks	64	99
Hydrostatic Sensors for Brine-Filled Double-Wall Tanks	64	99
Hydrostatic Sensor for Brine-Filled Double-Wall Sumps	64	99
Oil Water Separator Sensor	64	99
3-WIRE SENSORS		
Solid-State Discr. Dispenser Pan & Containment Sump Sensors	32	99
Groundwater Sensor	32	99
Vapor Sensor for Monitoring Wells	32	99
INPUT & OUTPUT		
Output Relays	21	32
External Inputs Low Voltage	16	64
External Inputs High Voltage	20	32
10-amp Relay	4	16

* Indicates the maximum number of devices the system can handle if all slots/ positions are filled with that type of device.

** TLS-450PLUS with (3) three TLS-XB boxes

www.veeder.com
1.888.561.7942

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Veeder-Root reserves the right to change system options or features, or the information contained in this publication.

Example Illustrations

Illustrations used in this guide for example sensor installations may contain components that are customer supplied and not included with the sensor. Please check with your Veeder-Root Distributor for recommended installation accessories.

Third Party Evaluations

Third party evaluations of the Veeder-Root sensors contained in this application guide can be found under the Veeder-Root vendor name on the National Work Group on Leak Detection Evaluations (NWGLDE) website:

http://www.nwglde.org

Franklin Fueling Systems

4" SUBMERSIBLE TURBINE PUMPS

Since hitting the market in 1988, FE PETRO® brand submersible pumps have developed a reputation as the standard in performance, quality and dependability with innovative features only available from Franklin Fueling Systems. It is, and always will be about filling cars faster. With best-in-class flow rates and backed by a long history of dependability, FE PETRO® pumps are responsible for delivering fuel to thousands of customers around the globe, day in and day out.

TECHNICAL ADVANTAGES

Variable Speed

With faster fill times during peak hours and power savings during non-peak hours, variable speed submersible pumping systems allow you to maximize profits with consistent flow rates while mitigating operating expenses.

MagShell®

The patented stainless steel MagShell® ,available on 2 Hp and 4 Hp pumps, is designed to maximize flow rate capabilities, potential throughput, and profits. By expanding the pump motor shell, the MagShell® increases the area for product flow by 45%.

Biofuel Compatibility

FE PETRO® Alcohol-Gas (AG) and Advanced Protection (AP) pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

FEATURE SELECTION

	4 HP	2 HP	1½ HP	¾ HP
Variable Speed	✓	✓		
Fixed Speed		✓	✓	✓
MagShell®	✓	✓		
Biofuel Compatibility*	✓	✓	✓	✓
Variable Length	✓	✓	✓	✓
Advanced Protection	✓	✓	✓	✓
Turbine Pump Interface**	✓	✓	✓	✓
Intake Filter Screen	✓	✓	✓	✓

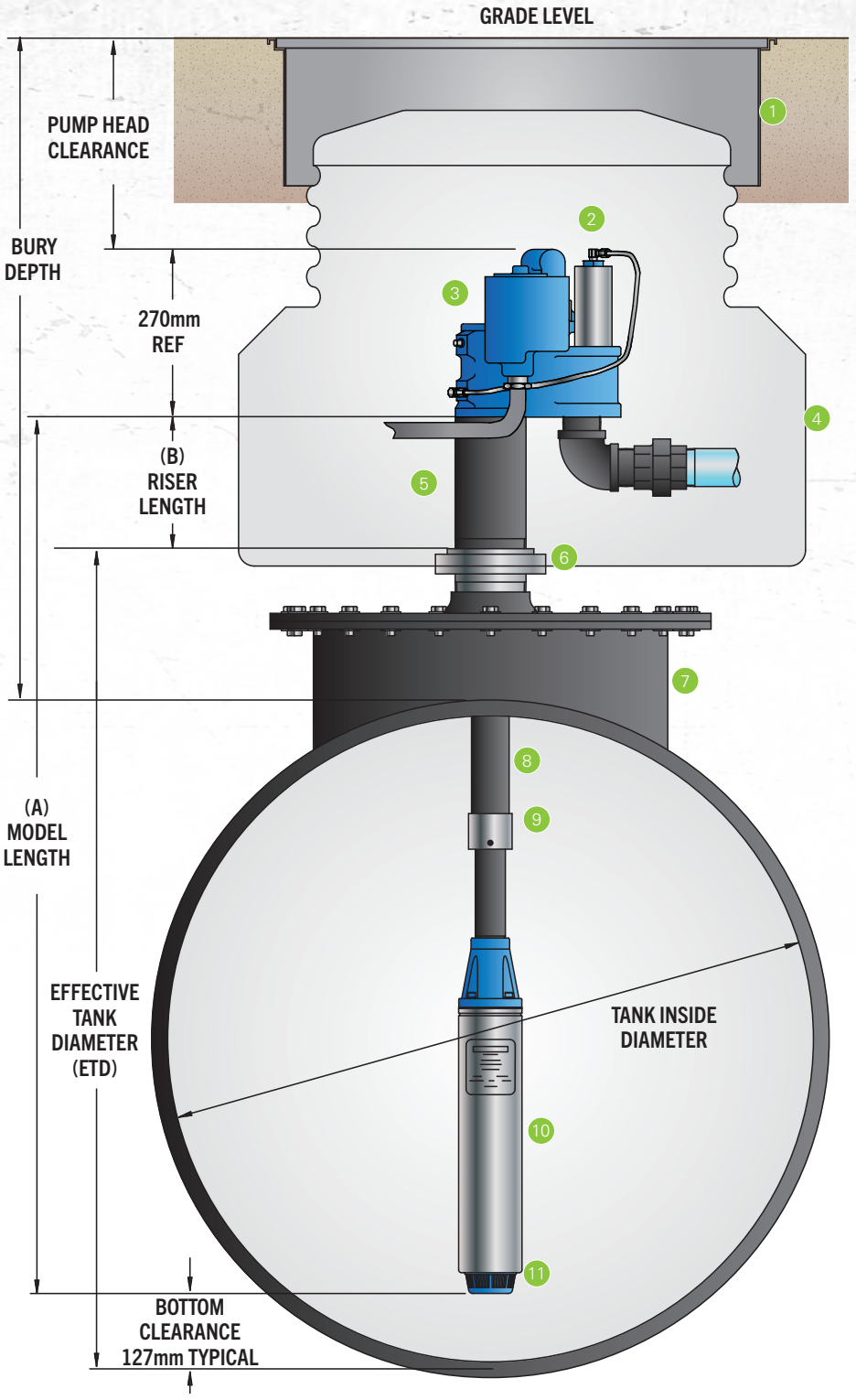
*Up to 85% Ethanol and up to 20% or 100% Biodiesel.

*Fixed speed models require a Guardian Series™ Single Phase Smart Controller (SPGC-220) to network with EVO™ Series Automatic Tank Gauges.

SPECIFICATIONS

4" Submersible Pump Components & Key Dimensions

1. Manhole
2. Leak Detector
3. Manifold
4. Containment Sump
5. 4" Riser
6. Tank Adapter
7. Tank Manway
8. Column Pipe
9. Variable Length Coupler
10. Pump Motor Assembly (PMA)
11. End bell



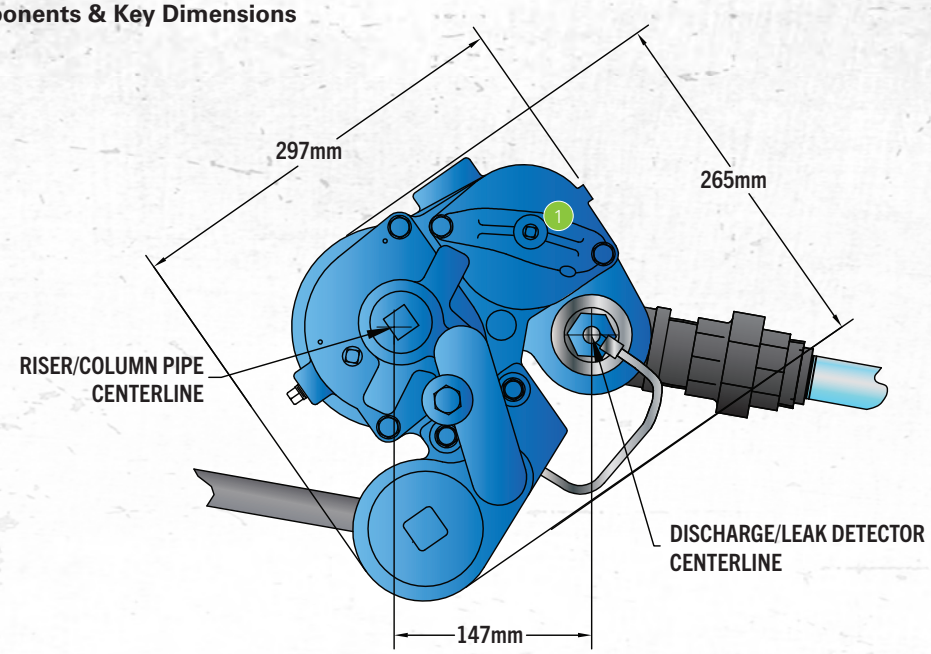
Notes:

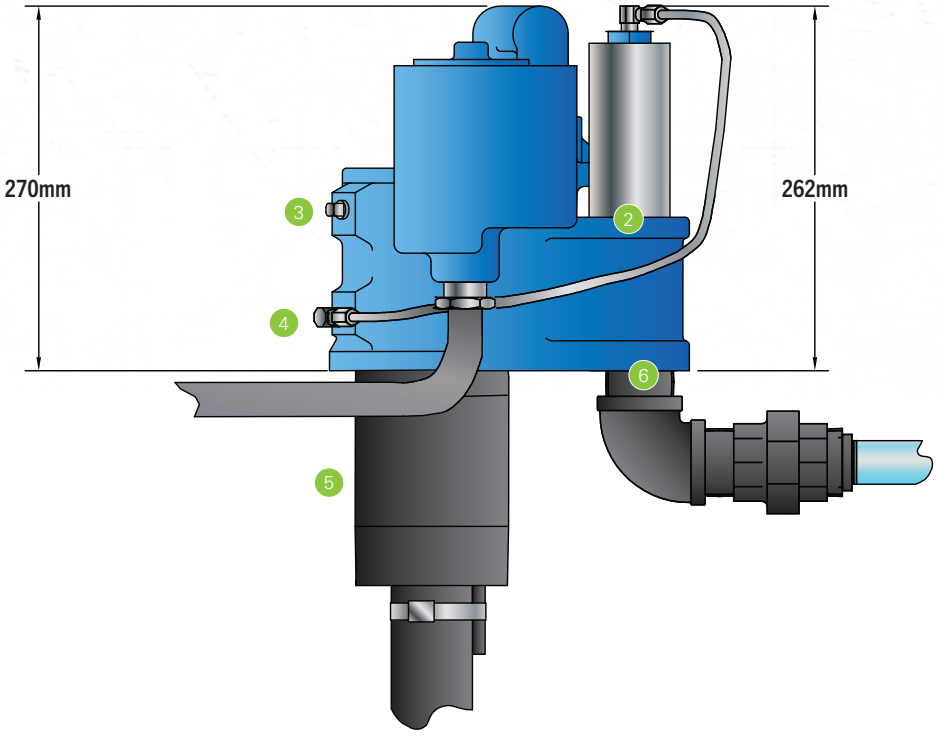
1. Effective tank diameter (ETD) = Inside tank diameter (to top of 4" bung), including tank manway and/or sump adapter.
2. Model length (A) = ETD plus riser length minus bottom clearance minus 25mm thread engagement.
3. Riser length (B) = Bury depth (to top of tank) minus pump head clearance minus tank manway and/or minus sump adapter.

SPECIFICATIONS

4" Submersible Pump Manifold Components & Key Dimensions

1. Line Test Port, ¼" NPT
2. Leak Detector Port, 2" NPT
3. Syphon Port, ¼" NPT
4. Tank Port, ¼" NPT
5. Riser Pipe, 4" NPT
6. Discharge Outlet, 2" NPT





Franklin Fueling Systems

4 HP SUBMERSIBLE TURBINE PUMPS

With faster fill times during peak hours and power savings during non-peak hours, FE PETRO® 4 Hp variable speed submersible pumps deliver maximized profits while mitigating operating expenses.

TECHNICAL ADVANTAGES

OPTIONAL FEATURES

Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

STANDARD FEATURES

Variable Speed

With faster fill times during peak hours and power savings during non-peak hours, variable speed submersible pumping systems allow you to maximize profits with consistent flow rates while mitigating operating expenses.

MagShell®

The patented stainless steel MagShell® is designed to maximize flow rate capabilities, potential throughput, and profits. By expanding the pump motor shell, the MagShell® increases the area for product flow by 45%.

Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

Active Air Eliminator

FE PETRO® STPs come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance

FE PETRO® STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapors into the sump when servicing FE PETRO® submersible products.

Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Manual Pressure Relief

As a standard FE PETRO® feature, a vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Outlast, Outperform with Franklin Electric Inside

FE PETRO® STPs are powered by the legendary Franklin Electric motor and built for long term performance. Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

SPECIFICATIONS

General

- Variable speed models are available in variable lengths only.
- Check valve: 70mm diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.8 bar and resets above 2.4 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Pump Motor

- 4 Hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. pressure: selectable operating pressure on EcoVFC™ between 1.65 bar and 2.90 bar deadhead.
- Available with MagShell® which results in 45% increased flow area around motor.

Approvals

- cULus listed.
- Consult factory for applicable approvals.

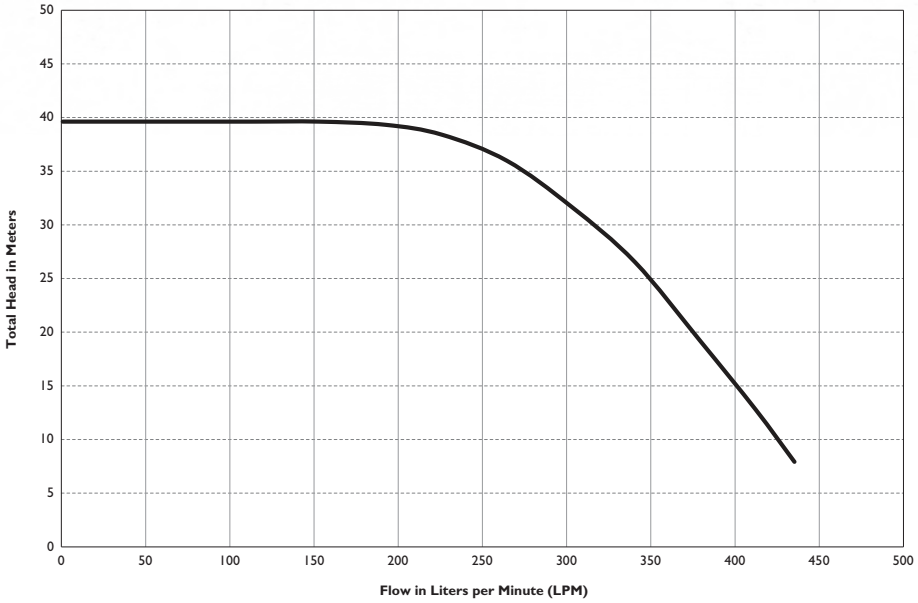
Power Requirements

- Variable speed pumps can only be controlled by a MagVFC™ or EcoVFC™ variable frequency controller.
- VS4 models require three-phase incoming power supply to the EcoVFC™ for proper operation.
- Incoming power supply to the EcoVFC™ must be 360-440 VAC, 50 Hz.
- EcoVFC™ outputs a three-phase, variable frequency signal, valid for FE PETRO® variable speed pumps only.
- EcoVFC™ max. line draw: 20 Amps.
- Max motor draw: 15 Amps.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP variable speed models are UL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- IST/ISTAP variable speed models are UL and cUL listed for fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All variable speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

4 Hp Variable Speed Pump Performance Chart



Note: Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. ISTMVS4 and STPMVS4 turbines can only be powered by a MagVFC with three phase incoming power

ORDERING INFORMATION

4 Hp Submersible Pump Ordering Guide

A typical turbine model designation has up to five components to define the pump being supplied as follows:

XXX YYYYY Z - A - B

XXX = Basic Model Designation

STP = These standard variable speed and variable length models are capable of up to 10% ethanol with gasoline

IST = These variable speed and variable length models include alcohol-gasoline compatibility (up to 85% ethanol, up to 20% Biodiesel, or 100% Biodiesel).

ISTAP = These variable speed and variable length models include alcohol-gasoline compatibility (up to 85% ethanol, up to 20% Biodiesel, or 100% Biodiesel) and Advanced Protection with powder-coated, e-coated, and stainless steel components.

YYYYY = Factory Installed Options

Model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell® (flow enhancing, expanded PMA shell)

R* = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

W* = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

Z = Pump Motor Horsepower Rating

VS4 = 4 Hp variable speed

A = Model Length (see table)

VL1 = STP variable length range #1

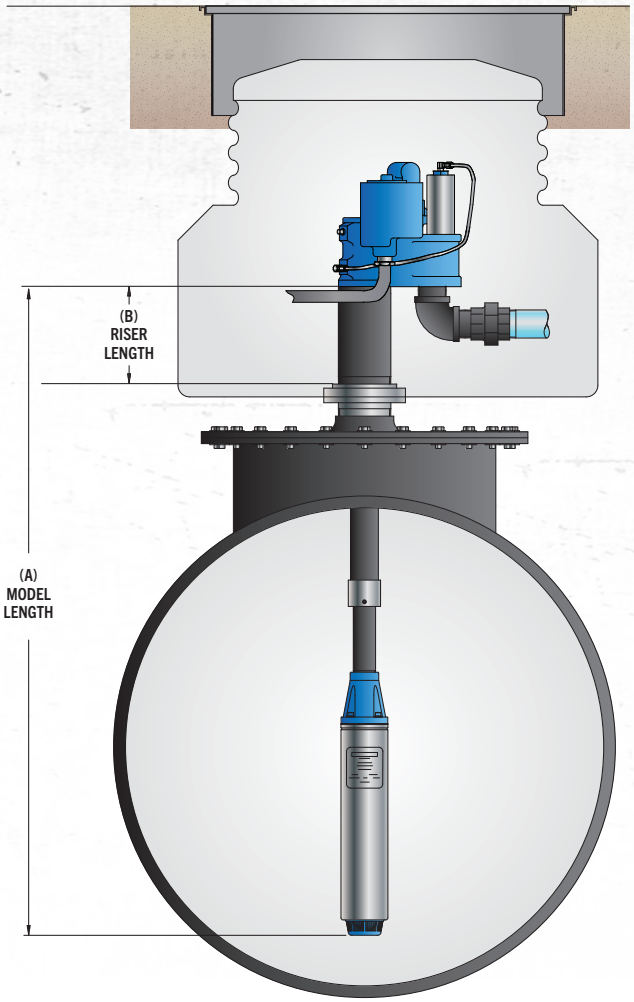
VL2 = STP variable length range #2

VL3 = STP variable length range #3

B = Riser Pipe Length (see diagram)

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1524mm in 25mm increments (additional charge for risers 787mm or longer).

Notes:
*If not otherwise specified, all models are supplied with standard model check valve (2.8 bar relief / 2.4 bar reset for MLD, TS-LS300, and TS-LS500).



Model Length (A)

STP Horsepower	Model Length Range	Model Length Designation
4 Hp	1613mm – 2355mm	VL1
	2401mm – 3962mm	VL2
	3214mm – 5556mm	VL3

ORDERING INFORMATION

4 Hp Variable Speed Submersible Turbine Pumps

Variable speed, variable length.

Model	Description	Model Length Range Number	Model Length Range*
STPMVS4-VL1	4 Hp variable speed with MagShell®	VL1	1613mm – 2355mm
STPMVS4-VL2	4 Hp variable speed with MagShell®	VL2	2401mm – 3962mm
STPMVS4-VL3	4 Hp variable speed with MagShell®	VL3	3214mm – 5556mm

4 Hp Variable Speed Intelligent Submersible Turbine Pumps

Variable speed, variable length, and AG compatible.

Model	Description	Model Length Range Number	Model Length Range*
ISTMVS4-VL1	4 Hp AG variable speed with MagShell®	VL1	1613mm – 2355mm
ISTMVS4-VL2	4 Hp AG variable speed with MagShell®	VL2	2401mm – 3962mm
ISTMVS4-VL3	4 Hp AG variable speed with MagShell®	VL3	3214mm – 5556mm
ISTAPMVS4-VL1	4 Hp AG variable speed with Advanced Protection, and MagShell®	VL1	1613mm – 2355mm
ISTAPMVS4-VL2	4 Hp AG variable speed with Advanced Protection, and MagShell®	VL2	2401mm – 3962mm
ISTAPMVS4-VL3	4 Hp AG variable speed with Advanced Protection, and MagShell®	VL3	3214mm – 5556mm

Notes:

1. Remove "M" from model number for non-MagShell® pump motor assembly.
2. All STP models are UL and cUL listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% Biodiesel with diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
3. All IST/ISTAP models are compatible with fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
4. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
5. All above models can only be powered by a MagVFC™. 4 hp models require three-phase incoming power supply, 2 hp models can be supplied with single- or three-phase incoming power.
6. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
7. For riser pipe length 787mm to 1524mm, additional charge applies (call Customer Service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals

Specified in model number at time of STP order.

Model	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult factory for local approvals.

Factory Installed Options

Specified in model number at time of STP order.

Model	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket PPM4000 Line Leak

Field Installed Options

Intelligent submersible turbine pump specific accessories.

Model	Description
5874202900	EcoVFC™, 4 Hp variable frequency controller, one required per STP or IST
400137937	Syphon check valve, alcohol-gasoline compatible
402459931	Model 65 psi (4.5 bar) check valve AG compatible, (for slave of manifolded STP or IST with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STPM or VS4)
5800300200	STP-DHIB dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

Franklin Fueling Systems

2 HP SUBMERSIBLE TURBINE PUMPS

With faster fill times during peak hours and power savings during non-peak hours, FE PETRO® 2 Hp variable speed submersible pumps deliver maximized profits while mitigating operating expenses. 2 Hp submersible pumps are also available in fixed speed models.

TECHNICAL ADVANTAGES

OPTIONAL FEATURES

Variable Speed

With faster fill times during peak hours and power savings during non-peak hours, variable speed submersible pumping systems allow you to maximize profits with consistent flow rates while mitigating operating expenses.

Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

STANDARD FEATURES

MagShell®

The patented stainless steel MagShell® is designed to maximize flow rate capabilities, potential throughput, and profits. By expanding the pump motor shell, the MagShell® increases the area for product flow by 45%.

Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

Active Air Eliminator

FE PETRO® STPs come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance

FE PETRO® STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapors into the sump when servicing FE PETRO® submersible products.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Manual Pressure Relief

As a standard FE PETRO® feature, a vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Outlast, Outperform with Franklin Electric Inside

FE PETRO® STPs are powered by the legendary Franklin Electric motor and built for long term performance. Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

SPECIFICATIONS

General

- Variable speed models are available in variable lengths only.
- Fixed speed models are available in variable length and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.8 bar and resets above 2.4 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Variable Speed Pump Motor

- 2 Hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. pressure: selectable operating pressure on MagVFC™ between 1.65 bar and 2.90 bar deadhead.
- Available with MagShell® which results in 45% increased flow area around motor.

Fixed Speed Pump Motor

- 2 Hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Standard pressure (three-stage) model, max. pressure = 2.55 bar.
- High pressure (four-stage) model, max. pressure = 3.03 bar.
- Available with MagShell™ for 45% increased flow area around motor.

Approvals

- cULus listed.
- Consult factory for applicable approvals.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- STP variable speed models are UL and cUL listed for fuel mixtures containing up to 10% ethanol, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG (AG compatible) models are UL listed for fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All variable speed (non-AG) models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- 2 Hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Variable Speed Power Requirements

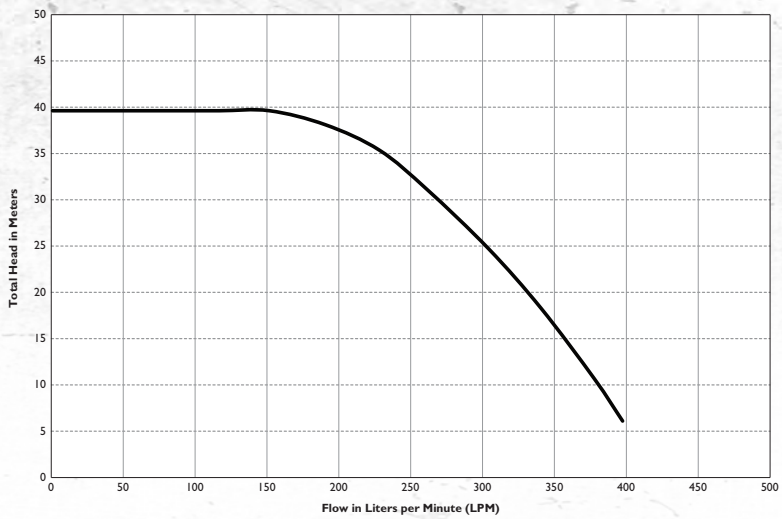
- Variable speed pumps can only be controlled by a MagVFC™ or EcoVFC™ variable frequency controller.
- VS2 models can operate with single-phase incoming power supply to the MagVFC™ or three-phase to EcoVFC™.
- Incoming power supply to the MagVFC™ is 200-250 VAC, 50 Hz and 360-440 VAC, 50 Hz to the EcoVFC™.
- MagVFC™ or EcoVFC™ outputs a three-phase, variable frequency signal, valid for FE PETRO® variable speed pumps only.
- MagVFC™ or EcoVFC™ max. line draw: 20 Amps.
- Max motor draw: VS2 7 Amps.

Fixed Speed Power Requirements

- 200B models require single-phase, 200-250 VAC, 50 Hz incoming power and 200C models require three-phase 380-415 VAC 50 Hz incoming power.
- 200B models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 40 microfarad.
- SPGC-220 single-phase Guardian™ Series controllers and STP-CBBS single-phase control boxes are available for 200B pump control.
- STP-SCIIIC three phase smart controller and STP-CBB3C three-phase magnetic starter are available for 200C contol.
- Max. motor draw: 200B 10 Amps, 200C 5 Amps.

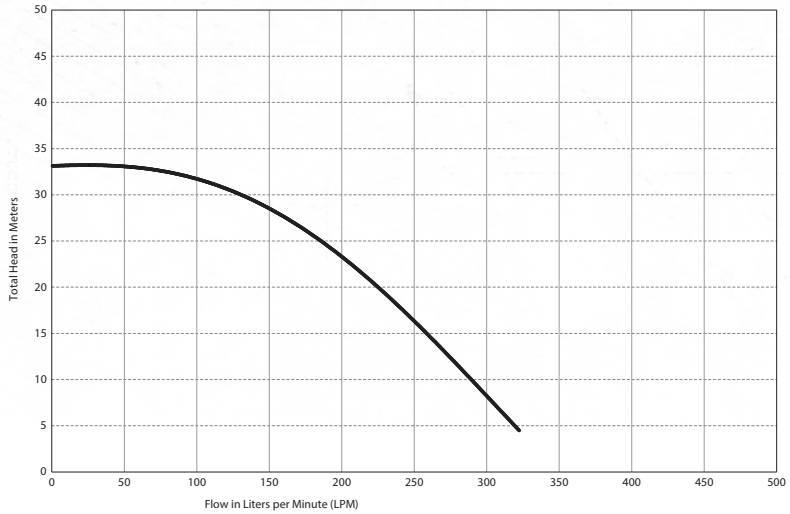
SPECIFICATIONS

2 Hp Variable Speed Pump Performance Charts (STPMVS2)



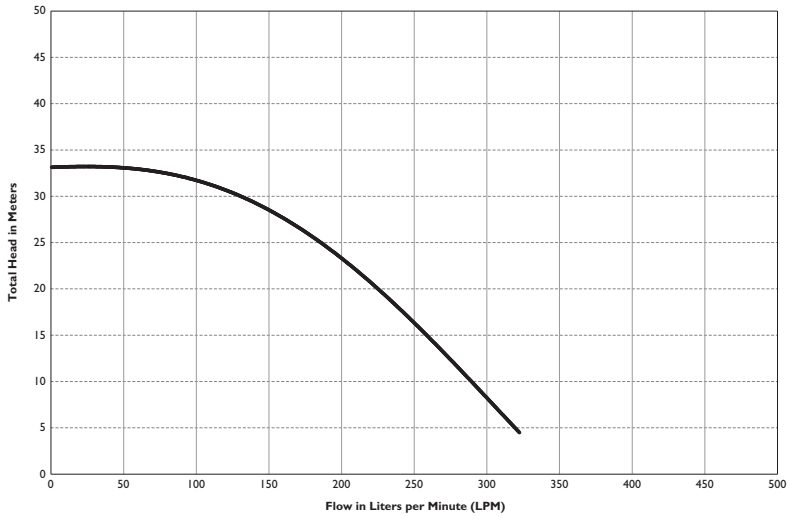
Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. MagShell® Variable Speed 2 hp was powered by MagVFC™ with Single-Phase, 50 Hz, 220 Volt incoming supply or Eco VFC™ with Three-Phase, 50 Hz, 410 Volt incoming power supply.

2 Hp Single-Phase Fixed Speed Pump Performance Chart (STP200B)



Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 2.00 HP was powered by Single-Phase, 50 Hz, 250 Volt incoming supply.

2 Hp Three-Phase Fixed Speed Pump Performance Chart (STP200C)



Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 2.00 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

ORDERING INFORMATION

2 Hp Variable Speed Submersible Pump Ordering Guide

A typical model designation has up to five components to define the pump being supplied as follows:

XXX YYYYY Z - A - B

XXX = Basic Model Designation

STP = These standard variable speed and variable length models are capable of up to 10% ethanol with gasoline

IST** = These variable speed and variable length models include alcohol-gasoline compatibility (up to 85% ethanol, up to 20% Biodiesel, or 100% Biodiesel).

ISTAP** = These variable speed and variable length models include alcohol-gasoline compatibility (up to 85% ethanol, up to 20% Biodiesel, or 100% Biodiesel) and Advanced Protection with powder-coated, e-coated, and stainless steel components.

YYYYY = Factory Installed Options

Model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell® (flow enhancing, expanded PMA shell)

R* = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

W* = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

Z = Pump Motor Horsepower Rating

VS2 = 2 Hp variable speed

A = Model Length (see table)

VL1 = STP variable length range #1

VL2 = STP variable length range #2

VL3 = STP variable length range #3

B = Riser Pipe Length (see diagram)

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 7" to 60" in 1" increments (additional charge for risers 31" or longer).

Notes:
*If not otherwise specified, all models are supplied with standard model check valve (2.8 bar relief / 2.4 bar reset for MLD, TS-LS300, and TS-LS500).

**If not otherwise specified, 2 Hp variable speed pump motor horsepower rating is implied for IST models.

2 Hp Fixed Speed Submersible Pump Ordering Guide

A typical model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options (Model designations may include one or more of the following characters in alphabetical order.)

AP = Advanced Protection with powder-coated, e-coated, and stainless steel components, alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

AG = Alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell® (flow enhancing, expanded PMA shell)

*R = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

*W = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

Y = Pump Motor Horsepower Rating

200B = 2 Hp fixed speed, 50 Hz, single-phase

200C = 2 Hp fixed speed, 50 Hz, three-phase

A = Model Length (see table)

VL1 = Variable length range #1

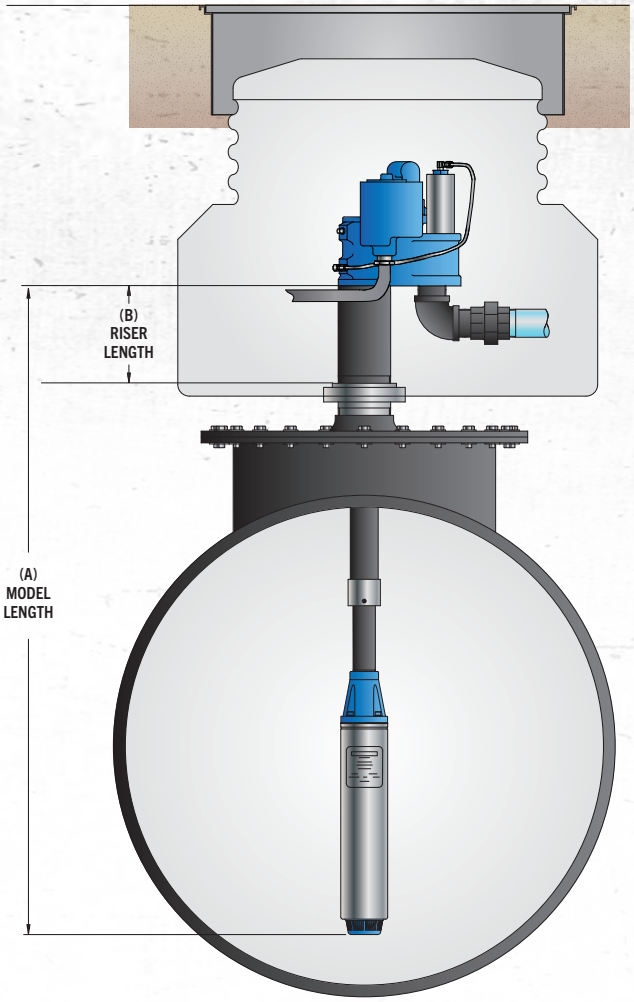
VL2 = Variable length range #2

VL3 = Variable length range #3

(Note VL2 models fit 94% of all known installations)

B = Riser Pipe Length (see diagram)

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1524mm in 25mm increments (additional charge for risers 787mm or longer).



Model Length (A)

STP Horsepower	Model Length Range	Model Length Designation
2 Hp Variable Speed	1486mm – 2228mm	VL1
	2274mm – 3835mm	VL2
	3087mm – 5429mm	VL3
200B 2 Hp Fixed Speed	1632mm – 2374mm	VL1
	2420mm – 3981mm	VL2
	3233mm – 5575mm	VL3
200C 2 Hp Fixed Speed	1575mm – 2317mm	VL1
	2363mm – 3924mm	VL2
	3175mm – 5518mm	VL3

Note: High pressure option adds about 15mm to PMA and model length.

Notes: *If not otherwise specified, all STP models are supplied with standard model check valve (2.8 bar relief / 2.4 bar reset for MLD, TS-LS300, and TS-LS500).

ORDERING INFORMATION

2 Hp Variable Speed Submersible Turbine Pumps

Variable speed, variable length.

Model	Description	Model Length Range Number	Model Length Range*
STPMVS2-VL1	2 Hp variable speed with MagShell®	VL1	1486mm – 2228mm
STPMVS2-VL2	2 Hp variable speed with MagShell®	VL2	2274mm – 3835mm
STPMVS2-VL3	2 Hp variable speed with MagShell®	VL3	3087mm – 5429mm

2 Hp Variable Speed Intelligent Submersible Turbine Pumps

Variable speed, variable length, and AG compatible.

Model	Description	Model Length Range Number	Model Length Range*
ISTM-1	2 Hp AG variable speed with MagShell®	VL1	1486mm – 2228mm
ISTM-2	2 Hp AG variable speed with MagShell®	VL2	2274mm – 3835mm
ISTM-3	2 Hp AG variable speed with MagShell®	VL3	3087mm – 5429mm
ISTAPM-1	2 Hp AG variable speed with Advanced Protection, and MagShell®	VL1	1486mm – 2228mm
ISTAPM-2	2 Hp AG variable speed with Advanced Protection, and MagShell®	VL2	2274mm – 3835mm
ISTAPM-3	2 Hp AG variable speed with Advanced Protection, and MagShell®	VL3	3087mm – 5429mm

Single-Phase 2 Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPM200B-VL1	2 Hp fixed speed with MagShell®	VL1	1632mm – 2374mm
STPM200B-VL2	2 Hp fixed speed with MagShell®	VL2	2420mm – 3981mm
STPM200B-VL3	2 Hp fixed speed with MagShell®	VL3	3233mm – 5575mm
STPHM200B-VL1	2 Hp high pressure fixed speed with MagShell®	VL1	1647mm – 2389mm
STPHM200B-VL2	2 Hp high pressure fixed speed with MagShell®	VL2	2435mm – 3996mm
STPHM200B-VL3	2 Hp high pressure fixed speed with MagShell®	VL3	3248mm – 5590mm

Three-Phase 2 Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPM200C-VL1	2 Hp fixed speed with MagShell®	VL1	1575mm – 2317mm
STPM200C-VL2	2 Hp fixed speed with MagShell®	VL2	2363mm – 3924mm
STPM200C-VL3	2 Hp fixed speed with MagShell®	VL3	3175mm – 5518mm
STPHM200C-VL1	2 Hp high pressure fixed speed with MagShell®	VL1	1590mm – 2332mm
STPHM200C-VL2	2 Hp high pressure fixed speed with MagShell®	VL2	2378mm – 3939mm
STPHM200C-VL3	2 Hp high pressure fixed speed with MagShell®	VL3	3190mm – 5533mm

Single-Phase Alcohol-Gas (AG) 2 Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPAGM200B-VL1	2 Hp AG fixed speed with MagShell®	VL1	1632mm – 2374mm
STPAGM200B-VL2	2 Hp AG fixed speed with MagShell®	VL2	2420mm – 3981 mm
STPAGM200B-VL3	2 Hp AG fixed speed with MagShell®	VL3	3233mm – 5575mm
STPAGHM200B-VL1	2 Hp AG high pressure fixed speed with MagShell®	VL1	1647mm – 2389mm
STPAGHM200B-VL2	2 Hp AG high pressure fixed speed with MagShell®	VL2	2435mm – 3996mm
STPAGHM200B-VL3	2 Hp AG high pressure fixed speed with MagShell®	VL3	3248mm – 5590mm
STPAPM200B-VL1	2 Hp fixed speed with Advanced Protection, and MagShell®	VL1	1632mm – 2374mm
STPAPM200B-VL2	2 Hp fixed speed with Advanced Protection, and MagShell®	VL2	2420mm – 3981mm
STPAPM200B-VL3	2 Hp fixed speed with Advanced Protection, and MagShell®	VL3	3233mm – 5575mm
STPAPHM200B-VL1	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL1	1647mm – 2389mm
STPAPHM200B-VL2	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL2	2435mm – 3996mm
STPAPHM200B-VL3	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL3	3248mm – 5590mm

Notes:

1. Remove "M" from model number for non-MagShell® pump motor assembly.
2. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% Biodiesel with diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG/ STPAP models are compatible with fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
3. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
4. All above 200B models require single-phase, 200-250 VAC, 50 Hz incoming power. All above 200C models require three-phase, 380-415 VAC, 50 Hz incoming power.
5. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
6. For riser pipe lengths 787mm to 1524mm, additional charges apply (call Customer Service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

ORDERING INFORMATION

Three-Phase Alcohol-Gas (AG) 2 Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPAGM200C-VL1	2 Hp AG fixed speed with MagShell®	VL1	1575mm – 2317mm
STPAGM200C-VL2	2 Hp AG fixed speed with MagShell®	VL2	2363mm – 3924mm
STPAGM200C-VL3	2 Hp AG fixed speed with MagShell®	VL3	3175mm – 5518mm
STPAGHM200C-VL1	2 Hp AG high pressure fixed speed with MagShell®	VL1	1590mm – 2332mm
STPAGHM200C-VL2	2 Hp AG high pressure fixed speed with MagShell®	VL2	2378mm – 3939mm
STPAGHM200C-VL3	2 Hp AG high pressure fixed speed with MagShell®	VL3	3190mm – 5533 mm
STPAPM200C-VL1	2 Hp fixed speed with Advanced Protection, and MagShell®	VL1	1575mm – 2317mm
STPAPM200C-VL2	2 Hp fixed speed with Advanced Protection, and MagShell®	VL2	2363mm – 3924mm
STPAPM200C-VL3	2 Hp fixed speed with Advanced Protection, and MagShell®	VL3	3175mm – 5518mm
STPAPHM200C-VL1	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL1	1590mm – 2332mm
STPAPHM200C-VL2	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL2	2378mm – 3939mm
STPAPHM200C-VL3	2 Hp high pressure fixed speed with Advanced Protection, and MagShell®	VL3	3190mm – 5533mm

Notes:
1. Remove "M" from model number for non-MagShell® pump motor assembly.
2. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% Biodiesel with diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG/ STPAP models are compatible with fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
3. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
4. All above 200B models require single-phase, 200-250 VAC, 50 Hz incoming power. All above 200C models require three-phase, 380-415 VAC, 50 Hz incoming power.
5. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
6. For riser pipe lengths 787mm to 1524mm, additional charges apply (call Customer Service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals

Specified in model number at time of STP order.

Model	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult factory for local approvals.

Factory Installed Options

Specified in model number at time of STP order.

Model	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket PPM4000 Line Leak

Field Installed Options

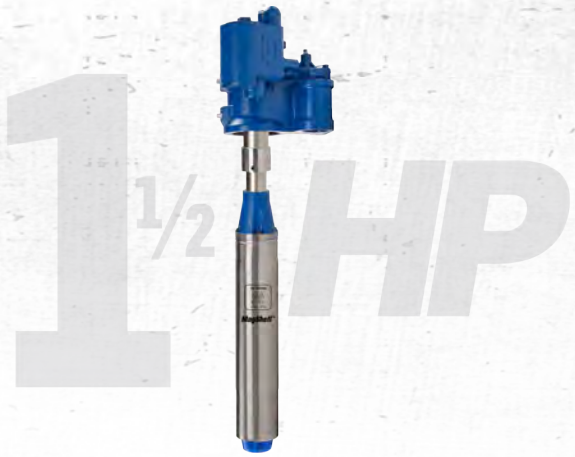
2 Hp submersible pump specific accessories.

Model	Description
400137937	Syphon check valve, alcohol-gasoline compatible
5874202800	MagVFC™, 2 hp or 4 hp variable frequency controller, one required per VS2 or IST
5874202900	EcoVFC™, 2 hp variable frequency controller, one required per VS2 or IST
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312932	STP-DHIB + SPGC-220 Guardian Series™ Single Phase Smart Controller bundle
402313922	STP-DHIB-CBBS, combo DHI with factory-wired STP-CBBS single-phase control box
402459931	Model 65 psi (4.5 bar) check valve AG compatible, (for slave of manifolded STPs with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800100220	SPGC-220 Guardian Series™ Single Phase Smart Controller
401220965	STP-CBB3C three-phase, 380-415 VAC magnetic starter
5800103300	STP-SCIIIC three-phase, 380-415 VAC smart controller
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

Franklin Fueling Systems

1½ HP SUBMERSIBLE TURBINE PUMPS

FE PETRO® 1½ Hp fixed speed submersible pumps deliver consistent flow rates for medium throughput fuels.



TECHNICAL ADVANTAGES

OPTIONAL FEATURES

Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

STANDARD FEATURES

Active Air Eliminator

FE PETRO® STPs come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance

FE PETRO® STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapors into the sump when servicing FE PETRO® submersible products.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Manual Pressure Relief

As a standard FE PETRO® feature, a vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Outlast, Outperform with Franklin Electric Inside

FE PETRO® STPs are powered by the legendary Franklin Electric motor and built for long term performance. Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

SPECIFICATIONS

General

- 1½ Hp fixed speed models are available in variable length and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.8 bar and resets above 2.4 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Pump Motor

- 1½ Hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Standard pressure (three-stage) model, max. pressure = 2.62 bar.
- High pressure (four-stage) model, max. pressure = 3.31 bar.

Approvals

- cULus listed.
- Consult factory for applicable approvals.

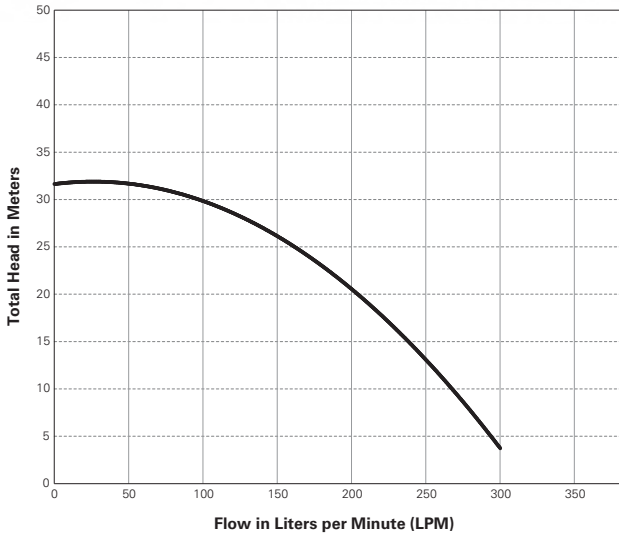
Power Requirements

- 150B fixed speed models require single-phase, 200-250 VAC, 50 Hz incoming power. 150C fixed speed models require three-phase 380-415 VAV, 50 Hz incoming power.
- 150B fixed speed models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 15 microfarad.
- SPGC single-phase Guardian™ Series Controllers and STP-CBBS single-phase control boxes are available for 150B pump control.
- STP-SCIIC three phase controllers and STP-CBB3C three-phase magnetic starters are available for 150C control.
- Max. motor draw: 150B 9 Amps, 150C 3 Amps.

Liquid Compatibility

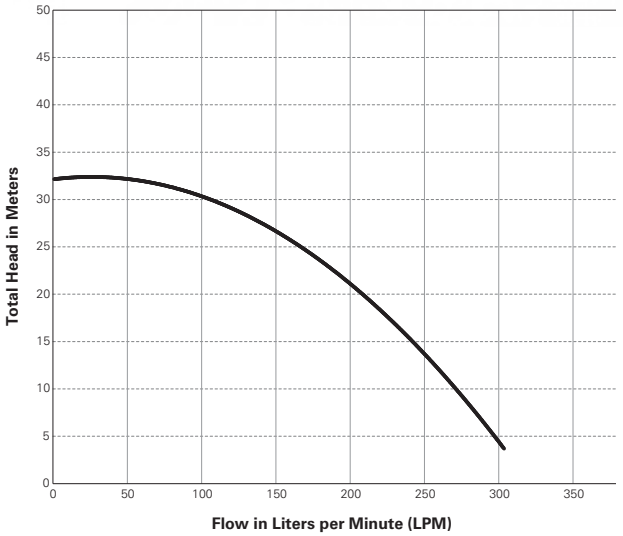
- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Standard STP models are UL and cUL listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAP/STPAG (AG compatible) models are UL listed for fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 1½ Hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas, and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

1½ Hp Single-Phase Fixed Speed Pump Performance Chart (STP150B)



Note: Performance based on pumping gasoline (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. 150B models are powered by a 250 Volt power supply.

1½ Hp Three-Phase Fixed Speed Pump Performance Chart (STP150C)



Note: Performance based on pumping gasoline (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. 150C models are powered by a 415 Volt power supply.

ORDERING INFORMATION

1½ Hp Fixed Speed Submersible Pump Ordering Guide

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options (Model designations may include one or more of the following characters in alphabetical order.)

AP = Advanced Protection with powder-coated, e-coated, and stainless steel components, alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

AG = Alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

*R = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

*W = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

Y = Pump Motor Horsepower Rating

150B = 1½ hp fixed speed, 50 Hz, single-phase

150C = 1½ hp fixed speed, 50 Hz, three-phase

A = Model Length (see table)

VL1 = Variable length range #1.

VL2 = Variable length range #2.

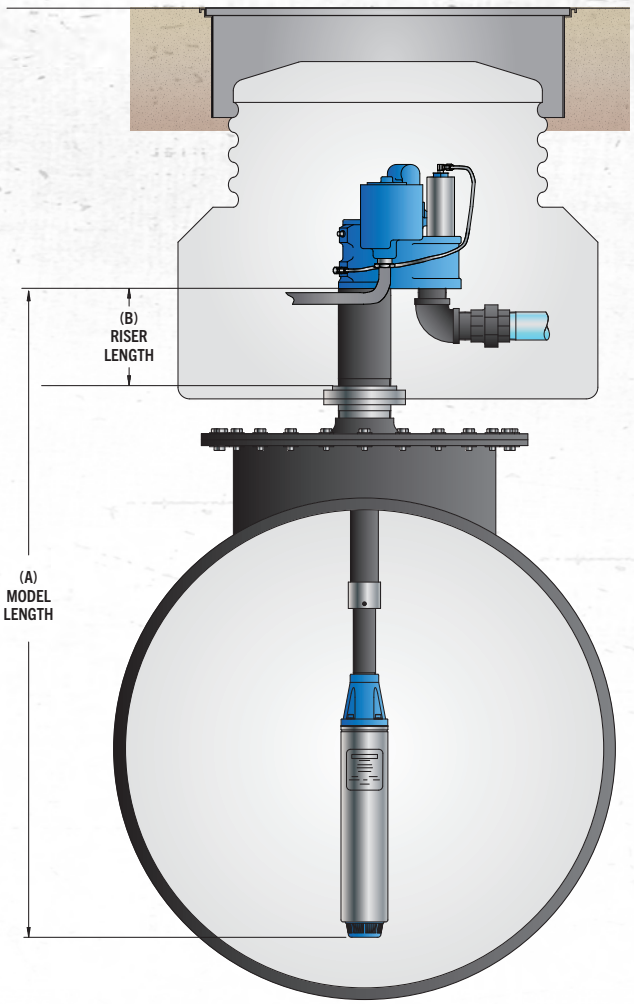
VL3 = Variable length range #3.

(Note VL2 models fit 94% of all known installations)

B = Riser Pipe Length (see diagram)

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1524mm in 25mm increments (additional charge for risers 787mm or longer).

Notes: *If not otherwise specified, all STP models are supplied with standard model check valve (2.8 bar relief / 2.4 bar reset for MLD, TS-LS300, and TS-LS500).



Model Length (A)

STP Horsepower	Model Length Range	Model Length Designation
150B 1½ Hp Fixed Speed	1556mm – 2298mm	VL1
	2344mm – 3905mm	VL2
	3156mm – 5499mm	VL3
150C 1½ Hp Fixed Speed	1531mm – 2273mm	VL1
	2318mm – 3879mm	VL2
	3131mm – 5473mm	VL3

Note: High pressure option adds about 13mm to PMA and model length.

ORDERING INFORMATION

Single-Phase 1½ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STP150B-VL1	1½ Hp fixed speed	VL1	1556mm – 2298mm
STP150B-VL2	1½ Hp fixed speed	VL2	2344mm – 3905mm
STP150B-VL3	1½ Hp fixed speed	VL3	3156mm – 5499mm
STPH150B-VL1	1½ Hp high pressure fixed speed	VL1	1569mm – 2311mm
STPH150B-VL2	1½ Hp high pressure fixed speed	VL2	2357mm – 3918mm
STPH150B-VL3	1½ Hp high pressure fixed speed	VL3	3169mm – 5512mm

Three-Phase 1½ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STP150C-VL1	1½ Hp fixed speed	VL1	1531mm – 2273mm
STP150C-VL2	1½ Hp fixed speed	VL2	2318mm – 3879mm
STP150C-VL3	1½ Hp fixed speed	VL3	3131mm – 5473mm
STPH150C-VL1	1½ Hp high pressure fixed speed	VL1	1544mm – 2286mm
STPH150C-VL2	1½ Hp high pressure fixed speed	VL2	2331mm – 3892mm
STPH150C-VL3	1½ Hp high pressure fixed speed	VL3	3144mm – 5486mm

Single-Phase Alcohol-Gas (AG) 1½ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPAG150B-VL1	1½ Hp AG fixed speed	VL1	1556mm – 2298mm
STPAG150B-VL2	1½ Hp AG fixed speed	VL2	2344mm – 3905mm
STPAG150B-VL3	1½ Hp AG fixed speed	VL3	3156mm – 5499mm
STPAGH150B-VL1	1½ Hp AG high pressure fixed speed	VL1	1569mm – 2311mm
STPAGH150B-VL2	1½ Hp AG high pressure fixed speed	VL2	2357mm – 3918mm
STPAGH150B-VL3	1½ Hp AG high pressure fixed speed	VL3	3169mm – 5512mm
STPAP150B-VL1	1½ Hp fixed speed with Advanced Protection	VL1	1556mm – 2298mm
STPAP150B-VL2	1½ Hp fixed speed with Advanced Protection	VL2	2344mm – 3905mm
STPAP150B-VL3	1½ Hp fixed speed with Advanced Protection	VL3	3156mm – 5499mm
STPAPH150B-VL1	1½ Hp high pressure fixed speed with Advanced Protection	VL1	1569mm – 2311mm
STPAPH150B-VL2	1½ Hp high pressure fixed speed with Advanced Protection	VL2	2357mm – 3918mm
STPAPH150B-VL3	1½ Hp high pressure fixed speed with Advanced Protection	VL3	3169mm – 5512mm

Three-Phase Alcohol-Gas (AG) 1½ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPAG150C-VL1	1½ Hp AG fixed speed	VL1	1531mm – 2273mm
STPAG150C-VL2	1½ Hp AG fixed speed	VL2	2318mm – 3879mm
STPAG150C-VL3	1½ Hp AG fixed speed	VL3	3131mm – 5473mm
STPAGH150C-VL1	1½ Hp AG high pressure fixed speed	VL1	1544mm – 2286mm
STPAGH150C-VL2	1½ Hp AG high pressure fixed speed	VL2	2331mm – 3892mm
STPAGH150C-VL3	1½ Hp AG high pressure fixed speed	VL3	3144mm – 5486mm
STPAP150C-VL1	1½ Hp fixed speed with Advanced Protection	VL1	1531mm – 2273mm
STPAP150C-VL2	1½ Hp fixed speed with Advanced Protection	VL2	2318mm – 3879mm
STPAP150C-VL3	1½ Hp fixed speed with Advanced Protection	VL3	3131mm – 5473mm
STPAPH150C-VL1	1½ Hp high pressure fixed speed with Advanced Protection	VL1	1544mm – 2286mm
STPAPH150C-VL2	1½ Hp high pressure fixed speed with Advanced Protection	VL2	2331mm – 3892mm
STPAPH150C-VL3	1½ Hp high pressure fixed speed with Advanced Protection	VL3	3144mm – 5486mm

Notes:
1. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% Biodiesel with diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG/STPAP models are compatible with fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.

2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.

3. All above 150B models require single-phase, 200-250 VAC, 50 Hz incoming power. All above 150C models require single-phase, 380-450 VAC, 50 Hz incoming power.

4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.

5. For riser pipe lengths 787mm to 1524mm, additional charges apply (call Customer Service for lead times).

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals

Specified in model number at time of STP order.

Model	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult factory for local approvals.

Factory Installed Options

Specified in model number at time of STP order.

Model	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket PPM4000 Line Leak

Field Installed Options

1½ Hp fixed speed specific accessories.

Model	Description
400137937	Syphon check valve, alcohol-gasoline compatible
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312932	STP-DHIB + SPGC-220 Guardian Series™ Single Phase Smart Controller bundle
402313922	STP-DHIB-CBBS, combo DHIB with factory-wired STP-CBBS single-phase control box
402459931	Model 65 psi (4.5 bar) check valve AG compatible, (for slave of manifolded STPs with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800100220	SPGC-220 Guardian Series™ Single Phase Smart Controller
401220965	STP-CBB3C three-phase, 380-415 VAC magnetic starter
5800103300	STP-SCIIIC three-phase, 380-415 VAC smart controller
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

Franklin Fueling Systems

¾ HP SUBMERSIBLE TURBINE PUMPS

FE PETRO® 1½ Hp fixed speed submersible pumps deliver consistent flow rates for low throughput fuels.

TECHNICAL ADVANTAGES

OPTIONAL FEATURES

Biofuel Compatibility

FE PETRO® pumps are UL listed with both UL79A (up to 85% Ethanol) and UL79B (up to 20% or 100% Biodiesel).

Variable Length

The patented telescoping pump shaft lets installers adjust the length of the pump onsite for the perfect fit.

Advanced Protection

Stop corrosion in its tracks. Special powder-coated, e-coated, and stainless steel components defend your pump in the tank and in the sump from accelerated corrosion.

Turbine Pump Interface

Remote enhanced pump monitoring and control including pump-in-water automation, clogged intake escalation, tank leveling, and tank priority.

Intake Filter Screen

Avoid system damage, pumping slowdowns, and reduce filter changes by keeping harmful tank debris, sediment, and corrosion from entering the pumping system with this factory-installed option.

STANDARD FEATURES

Active Air Eliminator

FE PETRO® STPs come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance

FE PETRO® STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapors into the sump when servicing FE PETRO® submersible products.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Manual Pressure Relief

As a standard FE PETRO® feature, a vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Outlast, Outperform with Franklin Electric Inside

FE PETRO® STPs are powered by the legendary Franklin Electric motor and built for long term performance. Franklin Electric-powered submersible pumps provide maximum uptime and a proven track record in the fueling industry that spans more than four decades. They feature best-in-class flow rates and a long history of dependability.

Quality Certification

Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

SPECIFICATIONS

General

- ¾ Hp fixed speed models are available in variable length and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed with cast aluminum body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.8 bar and resets above 2.4 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Pump Motor

- ¾ Hp fixed speed, 2875 rpm, two-stage centrifugal type pump motor with integral, automatic thermal overload protection.
- ¾ Hp models have a max. pressure of 2.55 bar.

Approvals

- cULus listed.
- Consult factory for applicable approvals.

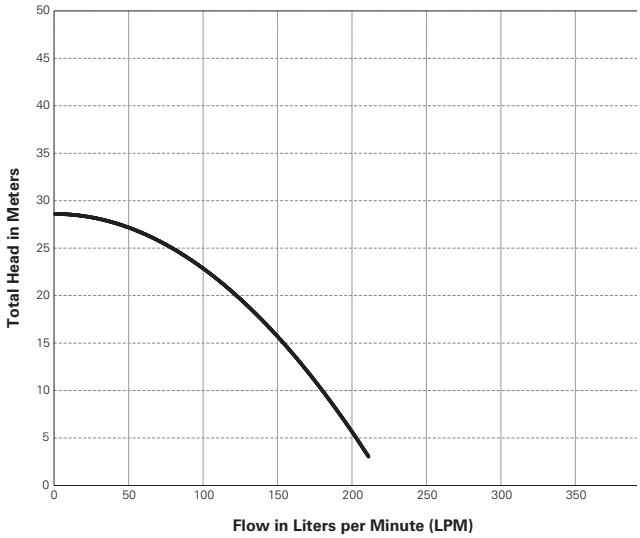
Power Requirements

- 75B fixed speed models require single-phase, 200-250 VAC, 50 Hz incoming power. 75C fixed speed models require three-phase, 380-415 VAC, 50 Hz incoming power
- 75B fixed speed models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 15 microfarad.
- SPGC-220 single-phase Guardian™ Series Controllers and STP-CBBS single-phase control boxes are available for 75B pump control.
- STP-SCIIIC three-phase smart controller and STP-CBB3C three-phase magnetic starter are available for 75C control
- ¾ Hp max. motor draw: 75B 6 Amps, 75C 3 Amps.

Liquid Compatibility

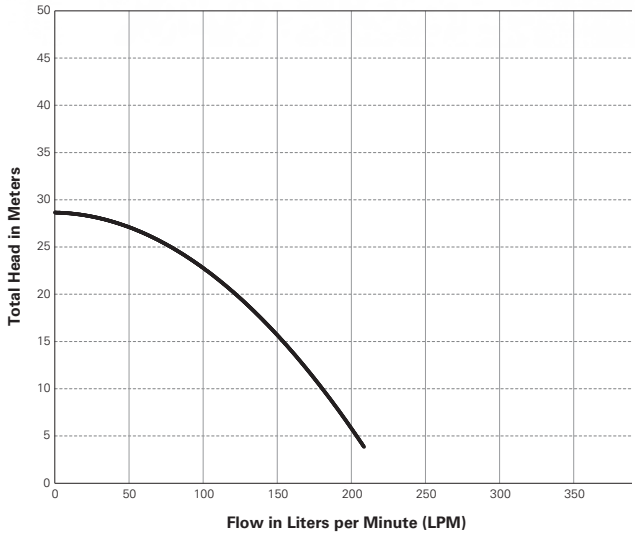
- Max. liquid viscosity: 70 SSU at 60 °F (15 °C).
- Standard STP models are UL and cUL listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG/STPAP (AG compatible) models are UL listed for fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- ¾ Hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas, and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

¾ Hp Single-Phase Fixed Speed Pump Performance Chart (STP75B)



Note: Performance based on pumping gasoline (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. 75B models are powered by a single-phase, 250 Volt power supply.

¾ Hp Three-Phase Fixed Speed Pump Performance Chart (STP75C)



Note: Performance based on pumping gasoline (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. 75C models are powered by a single-phase, 415 Volt power supply.

ORDERING INFORMATION

¾ Hp Fixed Speed Submersible Pump Ordering Guide

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options (Model designations may include one or more of the following characters in alphabetical order.)

AP = Advanced Protection with powder-coated, e-coated, and stainless steel components, alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

AG = Alcohol-gasoline compatible (up to E85, up to B20, and B100) (Note standard models up to 10% ethanol capable)

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

*R = Model R check valve (1.7 bar relief / 1.5 bar reset for PLLD)

*W = Model W check valve (1.1 bar relief / 0.9 bar reset for PPM4000)

Y = Pump Motor Horsepower Rating

75B = ¾ Hp fixed speed, 50 Hz, single-phase

75C = ¾ Hp fixed speed, 50 Hz, three-phase

A = Model Length (see table)

VL1 = Variable length range #1.

VL2 = Variable length range #2.

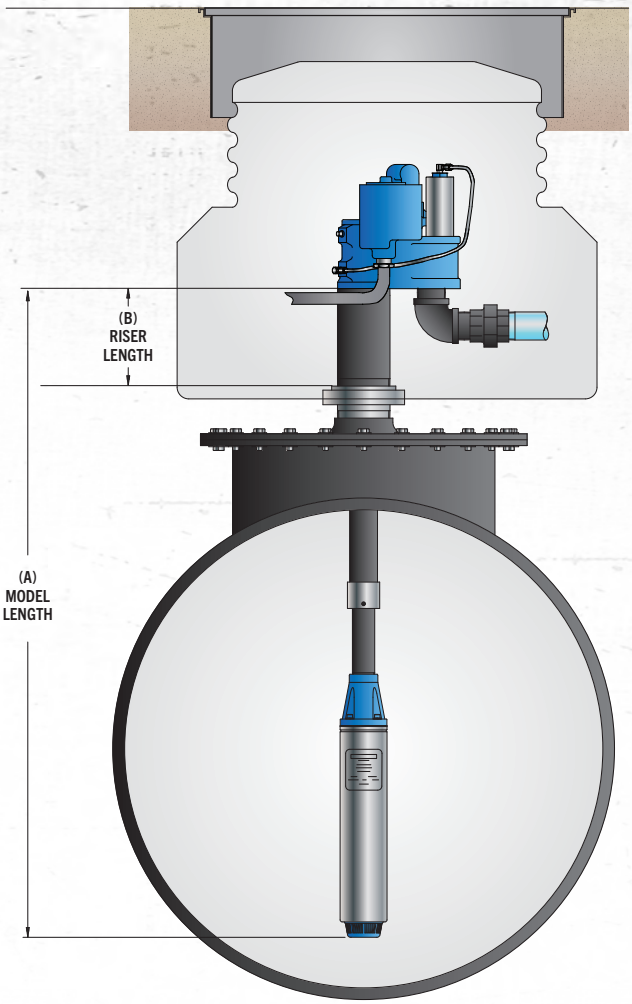
VL3 = Variable length range #3.

(Note VL2 models fit 94% of all known installations)

B = Riser Pipe Length (see diagram)

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1524mm in 25mm increments (additional charge for risers 787mm or longer).

Notes: *If not otherwise specified, all STP models are supplied with standard model check valve (2.8 bar relief / 2,4 bar reset for MLD, TS-LS300, and TS-LS500).



Model Length (A)

STP Horsepower	Model Length Range	Model Length Designation
75B ¾ Hp Fixed Speed	1499mm – 2241mm	VL1
	2286mm – 3848mm	VL2
	3099mm – 5441mm	VL3
75C ¾ Hp Fixed Speed	1480mm – 2222mm	VL1
	2267mm – 3829mm	VL2
	3080mm – 5422mm	VL3

ORDERING INFORMATION

Single-Phase ¾ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STP75B-VL1	¾ Hp fixed speed	VL1	1499mm – 2241mm
STP75B-VL2	¾ Hp fixed speed	VL2	2286mm – 3848mm
STP75B-VL3	¾ Hp fixed speed	VL3	3099mm – 5441mm

Three-Phase ¾ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STP75C-VL1	¾ Hp fixed speed	VL1	1480mm – 2222mm
STP75C-VL2	¾ Hp fixed speed	VL2	2267mm – 3829mm
STP75C-VL3	¾ Hp fixed speed	VL3	3080mm – 5422mm

Single-Phase Alcohol-Gas (AG) ⅓ and ¾ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPAG75B-VL1	¾ Hp AG fixed speed	VL1	1499mm – 2241mm
STPAG75B-VL2	¾ Hp AG fixed speed	VL2	2286mm – 3848mm
STPAG75B-VL3	¾ Hp AG fixed speed	VL3	3099mm – 5441mm
STPAP75B-VL1	¾ Hp fixed speed with Advanced Protection	VL1	1499mm – 2241mm
STPAP75B-VL2	¾ Hp fixed speed with Advanced Protection	VL2	2286mm – 3848mm
STPAP75B-VL3	¾ Hp fixed speed with Advanced Protection	VL3	3099mm – 5441mm

Three-Phase Alcohol-Gas (AG) ⅓ and ¾ Hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length Range*
STPAG75C-VL1	¾ Hp AG fixed speed	VL1	1480mm – 2222mm
STPAG75C-VL2	¾ Hp AG fixed speed	VL2	2267mm – 3829mm
STPAG75C-VL3	¾ Hp AG fixed speed	VL3	3080mm – 5422mm
STPAP75C-VL1	¾ Hp fixed speed with Advanced Protection	VL1	1480mm – 2222mm
STPAP75C-VL2	¾ Hp fixed speed with Advanced Protection	VL2	2267mm – 3829mm
STPAP75C-VL3	¾ Hp fixed speed with Advanced Protection	VL3	3080mm – 5422mm

Notes:
1. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, up to 5% Biodiesel with diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG/STPAP models are compatible with fuel mixtures containing diesel fuel with up to 20% Biodiesel, 100% Biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.

2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.

3. All above 75B models require single-phase, 200-250 VAC, 50 Hz incoming power. All above 75C models require three-phase, 380-415 VAC, 50 Hz incoming power.

4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.

5. For riser pipe lengths 787mm to 1524mm, additional charges apply. (Call Customer Service for lead times.)

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals

Specified in model number at time of STP order.

Model	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult factory for local approvals.

Factory Installed Options

Specified in model number at time of STP order.

Model	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder-Root® PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket PPM4000 Line Leak

Field Installed Options

¾ Hp fixed speed specific accessories.

Model	Description
400137937	Syphon check valve, alcohol-gasoline compatible
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312932	STP-DHIB + SPGC-220 Guardian Series™ Single Phase Smart Controller bundle
402313922	STP-DHIB-CBBS, combo DHIB with factory-wired STP-CBBS single-phase control box
402459931	Model 65 psi (4.5 bar) check valve AG compatible, (for slave of manifolded STPs with Veeder-Root® PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800100220	SPGC-220 Guardian Series™ Single Phase Smart Controller
401220965	STP-CBB3C three-phase, 380-415 VAC magnetic starter
5800103300	STP-SCIIIC three-phase, 380-415 VAC smart controller
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

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GILBARCO VEEDER-ROOT

ENCORE® SERIES

FUEL DISPENSERS

GILBARCO VEEDER-ROOT

CONTENTS

ENCORE® SERIES

FUEL DISPENSERS

Welcome to the line of Encore fueling dispensers, the most reliable and time-tested fueling technology on the market. In fact, Encore is the most popular dispenser in North America – with more pumps installed than any of the competition! Whether you're looking for industry-leading security, the highest reliability, a better alternative fuel offering, or a whole new way to market your brand, Encore has it.

Encore dispensers offer a broad range of products to accommodate all types of fuels from gasoline to diesel to alternative fuels and beyond:

- Encore 700 S
- Encore Flex Fuel
- Encore CNG
- Encore Ultra-Hi + DEF

As the technology leader, we've designed the Encore family to grow with you. Our modular approach provides the greatest runway to adapt to rapidly evolving forecourt technologies. We offer state-of-the-art options such as EMV-certified FlexPay™ Hybrid Card Reader, 10.4" color screens, and Applause™ Media at the pump. And, of course, our Passport® POS is fully integrated to work with your Encore® dispensers.*

So no matter which model or combination you choose, your investment will keep paying off for years to come. For more information call your local distributor or visit www.gilbarco.com.

*US ONLY


Encore 700 S
GILBARCO VEEDER-ROOT
$
13.08
5.430
REGULAR
PLUS
PREMIUM
87
89
93
GILBARCO VEEDER-ROOT

TRUSTED

ENCORE® 700S

DISPENSERS

The industry's most trusted dispenser

Secure your competitive advantage and increase profits with Gilbarco Veeder-Root's Encore® 700 S – your best dispenser investment for today and tomorrow.

Highly secure, powerful CRIND® electronics build a flexible and innovative platform for your changing forecourt marketing and payment needs. Enjoy peace of mind with a leading foundation that is highly secure today and upgradeable to meet the payment security and technology needs of tomorrow.

RELIABLE	Gilbarco's proven and time-tested design guarantees most forecourts and widest range of conditions
FLEXIBILITY	Encore® 700 S offers most configurations and options to fit your forecourt
EMV-READY	The industry's most secure Encore 700 S is the cornerstone of Gilbarco's EMV® suite of products
EASY SERVICE	Engineered with easy access and quick turntime for servicing and maintenance
RICH MEDIA	Encore® 700 S runs a variety of marketing and rich multimedia programs including Applause TV at the pump.

NOTE: The dispenser shown on the left is the Encore 700S (3+0 Blender) dispenser


Encore 700 S
GILBARCO VEEDER-ROOT
13.08
5.430
E-85
Diesel
93
89
87
Flex Fuel Dispenser
GILBARCO VEEDER-ROOT

FLEXIBLE

ENCORE® FLEX FUEL

FLEX FUEL DISPENSERS

Encore® Flexible Fuel Dispensers

Your customers are demanding more and more alternative fuel options. Encore Flexible Fuel Dispensers help broaden your fuel offering while keeping the fueling experience simple and safe. With the industry's broadest set of flexible fuel options, the Encore NF Series offers up to five product selections from one fueling position. It's a smart investment that lets you maximize branding and sales opportunities, while keeping the number of tanks needed to a minimum. All with the unmatched durability and reliability you expect from the industry leader in flexible fuels. The NF4 is a Multi-Hose Hybrid Blender, allowing you to offer three grades of blended gasoline, as well as two additional blended grades of alternative fuel that blend through their own individual hoses. Combined with clear signage, this feature prevents mis-fueling at the pump.

The Encore Flexible Fuel dispenser comes with all the same selling tools and value-added options as a traditional Encore unit:

OPTIONS	Four different model configurations available
EMV-READY	No EMV worries with the Encore® Flex Fuel Dispensers
RICH MEDIA	Applause™ TV or Applause Media System on 10.4" color screen is available.

NOTE: The dispenser shown on the left is the Encore 700S (3+1+1 Blender) with Flex Fuel Option. May not be available in all areas.

SEAMLESS

ENCORE® CNG

CNG DISPENSERS

Encore CNG Alternative Fueling

Offering alternative fuels? Look no further than the Encore® Dispenser line. With our Encore® CNG, It's never been easier to bring compressed natural gas (CNG) to your forecourt. Encore® CNG offers a familiar interface to your customers, a seamless experience from gasoline to CNG fueling, and provides you a seamless integration with your existing forecourt controller. It provides a safe, fast and complete fill with maximum flexibility and connectivity to the ANGI compression system.

SAFE, FAST, AND COMPLETE FILL	Temperature-compensated fill rate with optimized, electronically controlled software. Positive shut-off, actuated ball valves with hydrocarbon and motion sensors provide industry-leading safety.
SEAMLESS INTEGRATION	Ties to your existing forecourt controller — minimizes impact to your site payment network and saves the cost of a separate POS system.
REMOTE CONNECTIVITY	Integrates with the ANGI compression system to provide three possible tiers of remote monitoring and configuration capabilities. Increase your site uptime with our connectivity.
FAMILIAR INTERFACE	Increase throughput, streamline transactions, shorten wait time, and enhance your customer's experience with Encore's familiar interface and intuitive design. Available in 1- or 2-sided models.
MAXIMUM FLEXIBILITY	Configurable for 3-Bank or Direct-fill site configurations. One dispenser for hi-flow and standard flow applications — fill cars or buses from the same dispenser and increase throughput for your site.


GILBARCO
VEEDER-ROOT
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THIS SALE
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13.08
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GASOLINE GALLON EQUIVALENT
Price Per
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Start
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DIESEL
EXHAUST
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FASTER

ENCORE® ULTRA-HI + DEF

DIESEL DISPENSERS

Encore Master & Satellite Dispensers

Pump up to 60 gpm (227 lpm)* combined flow rate when using a master and satellite simultaneously – with all the convenience of pay-at-pump. It's the fastest way to pump and pay!

The truck stop environment requires rugged solutions that are both durable and reliable, because time is money to you and your customers. Gilbarco Veeder-Root's Ultra-Hi flow masters and satellites for retail truck stops are made to last and they cut in half the amount of time it takes to pump and pay. You can sell more fuel during busy periods and your customers get back on the road faster. Our Encore® models combine to offer the most rugged, economical and flexible choices for truck stop fueling.

FLEXIBLE CHOICES	A variety of configurations to provide many options for your fuel island layout
SAFE, FAST, AND COMPLETE FILL	Cuts in half the amount of time to pump and pay
SEAMLESS INTEGRATION	Familiar Encore® interface and fueling experience
EASY MODULAR UPGRADES	Encore® modular dispenser electronics make it easy to upgrade in the future

*Assumes 30 psi inlet pressure. Flow rate for master and satellite used separately is about 30 gpm (113 lpm) each. Actual results may vary.


Store Promo
News
Product
Sports
Movie Trailer
2 MINUTE LOOP
MSNBC
SCRATCHERS
freedom


20oz
Coca-Cola
2 for $2.00
or one at regular price of $1.49
A Stores
Your First Choice

APPLAUSE™ MEDIA SYSTEM

MEDIA AT THE PUMP

Applause™ TV*

GROW IN-STORE SALES:

Applause™ TV brings multiple tools to drive consumers into the store through Gilbarco's partnership with GSTV Media. To grow in-store sales, you will benefit from:

- On-demand couponing – proven to show a 7% print rate
- Retailer-specific, customizable advertising by day part and location
- National advertising promotions
- Case studies have shown over 30% sales lift on promoted items

DIFFERENTIATE A SITE:

Applause™ TV differentiates a site from other sites by improving the site profile and providing an engaging fueling experience.

- Localized weather forecasts, news and sports updates
- 10.4" color screen with full-motion video and rich audio
- Connect with the community with amber alerts

Applause Media

Utilizing the same tools as Applause TV, Applause Media drives additional in-store sales and differentiates your brand by taking total control of your content loop. Engage directly with your customers through promotional giveaways, charity campaigns, targeted loyalty ads, local event promotion, and much more.

*May not be available in all areas.


CATLOW
CAM TWIST
ContiTech
FUTURA

CATLOW HANGING HARDWARE

DO YOU NEED A NO-HASSLE SOLUTION TO HANGING HARDWARE ASSEMBLIES?

Catlow products are supported with world class customer service with 40 years of industry experience, making Catlow the best choice for your hanging hardware assembly needs.

- Bundled with Gilbarco Dispenser
- Full and Lower Cat-tail Assemblies Now Available

WHY USE CATLOW FOR YOUR HANGING HARDWARE ASSEMBLIES?

- Customized bundling with dispenser
- Fewer touches and logistics = cost savings. Save on Shipping. Save labor on assembling.
- No need to source with separate providers. Save on inventory management.
- Factory pre-assembled. Ease of making one connection into the outlet casting of the dispenser upon startup.
- Prevent accident due to installation error. Sold as a bundle with Dispenser to ensure compatibility. Pressure and Leak tested to avoid leaking over 5% saving with reduced failure rate.

FEATURES:

- 3/4" 1" Nozzle - Catlow offers a full line of nozzle products to suit your needs.
- CamTwist Magnetic Breakaway - Patented technology allows the breakaway to be twisted apart for maintenance & inspection which eliminates the need for a "remove by" date.
- Twister Swivel - Provides you with the benefits of both fuel weather compatibility, and has two 360-degree planes of rotation.

CONFIGURATIONS

OPTIONS

		Encore 700S	Encore S
Quality that lasts	Standard 2-year warranty includes labor	S	S
	4-year corrosion protection	S	S
	Angled hose outlets	S	S
	No pulse, no flow	S	S
	Encrypted Pulser	O	O
	Progressive lighting cues	S	S
	LED display lighting	S	S
	Brand View canopy	O	O
	Rounded and rectangular canopies	O	O
	Stainless steel sheathing	O	O
Better, brighter forecourt merchandising	5.7" Color display	S	N
	5.7" Monochrome display	N	S
	10.4" Color display	O	N
	Applause™ TV / Applause Media System	O	N
Industry-leading security	Hidden security clasp for pad lock	S	S
	Security door switches	O	O
	FlexPay™ Encrypting PIN Pad (EPP)	S	O
	FlexPay Secure Card Reader (SCR)	N	O
	FlexPay Hybrid Card Reader (HCR)	O	O
	Bar code scanner	O	N
	Contactless card reader	O	O
	Cash acceptor *(US currency only)**	O	O
More flexible dispensing options	DEF + Diesel dispenser models	O	O
	Ultra-Hi Flow models	Y	Y
	Flex Fuel dispensers and blenders	Y	Y
	Up to 8 hoses (4 per side)	O	O

S = Standard Feature, O = Optional Feature, R = Available as Retrofit only, N = Not Available, Y = Available
* Not available on all model configurations

Type	Encore S	Encore 700S	Model	Description	Product Inlet	Grade Dispensed	Hoses Per Side	Activation Method	CIM Location Encore 700S Encore S	Meters
MPD	•	•	NA0	Dispenser 1-Grade	1	1	1	Lever	Center	2
	•	•	NA1	Dispenser 2-Grade	2	2	2	Lever	Center	4
	•	•	NA2	Dispenser 3-Grade	3	3	3	Lever	Center	6
	•	•	NA3	Dispenser 4-Grade	4	4	4	Lever	Center	8
	•	•	NC0	Pump 1-Grade	1	1	1	Lever	Center	2
	•	•	NC1	Pump 2-Grade	2	2	2	Lever	Center	4
	•	•	NC2	Pump 3-Grade	3	3	3	Lever	Center	6
	•	•	NC3	Pump 4-Grade	4	4	4	Lever	Center	8
Single Hose MPD	•	•	NG4	Dispenser 2-Grade	2	2	1	Grade Button	Center	4
	•	•	NG0	Dispenser 3-Grade	3	3	1	Grade Button	Center	6
	•	•	NG1	Single Hose + 1 Dispenser 4-Grade	4	4	2	Grade Button	Center	8
	•	•	NG5	Pump 2-Grade	2	2	1	Grade Button	Center	4
	•	•	NG2	Pump 3-Grade	3	3	1	Grade Button	Center	6
	•	•	NG3	Single Hose + 1 Pump 4-Grade	4	4	2	Grade Button	Center	8
X+0 Blender	•	•	NN1	Dispenser 3+0	2	3	1	Grade Button	Center	4
	•	•	NN2	Dispenser 4+0	2	4	1	Grade Button	Center	4
	•	•	NN3	Dispenser 5+0	2	5	1	Grade Button	Center	4
	•	•	NN5	Pump 3+0	2	3	1	Grade Button	Center	4
	•	•	NN6	Pump 4+0	2	4	1	Grade Button	Center	4
	•	•	NN7	Pump 5+0	2	5	1	Grade Button	Center	4
X+1 Blender	•	•	NL0	Dispenser 2+1	3	3	2	Grade Button	Center	6
	•	•	NL1	Dispenser 3+1	3	4	2	Grade Button	Center	6
	•	•	NL2	Dispenser 4+1	3	5	2	Grade Button	Center	6
	•	•	NL3	Blender Dispenser 3+1+1	4	5	3	Grade Button	Center	8
	•	•	NL4	Pump 2+1	3	3	2	Grade Button	Center	6
	•	•	NL5	Pump 3+1	3	4	2	Grade Button	Center	6
	•	•	NL6	Pump 4+1	3	5	2	Grade Button	Center	6
Multi-Hose Blender	•	•	NJ0	Dispenser	2	3	3	Lever	Center	4
	•	•	NJ2	Multi-Hose + 1 Dispenser	3	4	4	Lever	Center	6
	•	•	NJ1	Pump	2	3	3	Lever	Center	4
	•	•	NJ3	Multi-Hose + 1 Pump	3	4	4	Lever	Center	6
	•	•	NJ4	Multi-Hose Hybrid Blender 3+2	4	5	3	Lever	Center	8
Ultra-Hi Flow	•	•	NP3	Master Dispenser 1-Grade	1 or 2	1	1	Lever	Center	1 or 2
	•	•	NP4	Combo Dispenser 1-Grade	2	1	1	Lever	Center	1
	•	•	NP5	Satellite Dispenser 1-Grade	1 or 2	1	1	Lever	Center	0
	•	•	NP6	Master Dispenser 2-Grade	2	2	2	Lever	Center	2
	•	•	NP8	Satellite Dispenser 2-Grade	2	2	2	Lever	Center	0
DEF	•	•	NA4	MPD Dispenser 1-Grade, Single-Side	1	1	1	Grade Button	Center	1
	•	•	NPA	Ultra-Hi DEF +1, Master for Diesel	2	2	2	Grade Button	Center	2
	•	•	NPB	Ultra-Hi Master/Satellite, Combo & DEF	2	2	2/1	Grade Button	Center	2
	•	•	NPC	Master Diesel 2-Grade, DEF 1-Side only	3	3	3/0	Grade Button	Center	3
Flexible Fuel Models for E85 and/or Biodiesel	•	•	NA0	MPD Dispenser 1-Grade	1	1	1	Lever	Center	1
	•	•	NA1	MPD Dispenser 2-Grade (1 or 2 alt)	2	2	2	Lever	Center	2
	•	•	NA2	MPD Dispenser 3-Grade (1 alt)	3	3	3	Lever	Center	3
	•	•	NA3	MPD Dispenser 4-Grade (1 or 2 alt)	4	4	4	Lever	Center	8
	•	•	NG0*	Single-Hose MPD Dispenser 3-Grade (1 alt)	3	3	2	Grade Button	Center	6
	•	•	NG1	Single-Hose + 1 MPD Dispenser 4-Grade (1 or 2 alt)	4	4	2	Grade Button	Center	8
	•	•	NL0*	2+1 Blender Dispenser (1 alt)	3	3	2	Grade Button	Center	6
	•	•	NJ2*	Multi-Hose Blender Dispenser +1	3	4	4	Grade Button	Center	6
	•	•	NJ4	Multi-Hose Hybrid Blender 3+2	4	5	3	Lever	Center	8
	•	•	NL1*	3+1 Blender Dispenser (1 alt)	3	4	2	Grade Button	Center	6
	•	•	NL2*	4+1 Blender Dispenser (1 alt)	3	5	2	Grade Button	Center	6
	•	•	NL3	Blender Dispenser 3+1+1	4	5	3	Grade Button	Center	8
	•	•	NN1*	Dispenser 3+0	2	3	1	Grade Button	Center	4
	•	•	NN2*	Dispenser 4+0	2	4	1	Grade Button	Center	4
	•	•	NN3*	Dispenser 5+0	2	5	1	Grade Button	Center	4

† Standard fuel can not be dispensed through the same hose as flexible fuels. ^ Pending UL Approval * UL Approved for E85

CONFIGURATIONS

OPTIONS

Type	Encore S	Encore 700 S	Model	Description	Product Inlet	Grade Dispensed	Hoses Per Side	Activation Method	CIM Location Encore 700 S Encore S	Meters
Ultra-Hi Flow	•	•	NP3	Master Dispenser 1-Grade	1 or 2	1	1	Lever	Center	1 or 2
	•	•	NP4	Combo Dispenser 1-Grade	2	1	1	Lever	Center	1
	•	•	NP5	Satellite Dispenser 1-Grade	1 or 2	1	1	Lever	Center	0
	•	•	NP6	Master Dispenser 2-Grade	2	2	2	Lever	Center	2
	•	•	NP8	Satellite Dispenser 2-Grade	2	2	2	Lever	Center	0
DEF	•	•	NA4	MPD Dispenser 1-Grade, Single-Side	1	1	1	Grade Button	Center	1
	•	•	NPA	Ultra-Hi DEF +1, Master for Diesel	2	2	2	Grade Button	Center	2
	•	•	NPB	Ultra-Hi Master/Satellite, Combo & DEF	2	2	2/1	Grade Button	Center	2
	•	•	NPC	Master Diesel 2-Grade, DEF 1-Side only	3	3	3/0	Grade Button	Center	3
Flexible Fuel Models for E85 and/or Biodiesel	•	•	NA0	MPD Dispenser 1-Grade	1	1	1	Lever	Center	1
	•	•	NA1	MPD Dispenser 2-Grade (1 or 2 alt)	2	2	2	Lever	Center	2
	•	•	NA2	MPD Dispenser 3-Grade (1 alt)	3	3	3	Lever	Center	3
	•	•	NA3	MPD Dispenser 4-Grade (1 or 2 alt)	4	4	4	Lever	Center	8
	•	•	NG0*	Single-Hose MPD Dispenser 3-Grade (1 alt)	3	3	2	Grade Button	Center	6
	•	•	NG1	Single-Hose + 1 MPD Dispenser 4-Grade (1 or 2 alt)	4	4	2	Grade Button	Center	8
	•	•	NL0*	2+1 Blender Dispenser (1 alt)	3	3	2	Grade Button	Center	6
	•	•	NJ2*	Multi-Hose Blender Dispenser +1	3	4	4	Grade Button	Center	6
	•	•	NJ4	Multi-Hose Hybrid Blender 3+2	4	5	3	Lever	Center	8
	•	•	NL1*	3+1 Blender Dispenser (1 alt)	3	4	2	Grade Button	Center	6
	•	•	NL2*	4+1 Blender Dispenser (1 alt)	3	5	2	Grade Button	Center	6
	•	•	NL3	Blender Dispenser 3+1+1	4	5	3	Grade Button	Center	8
	•	•	NN1*	Dispenser 3+0	2	3	1	Grade Button	Center	4
	•	•	NN2*	Dispenser 4+0	2	4	1	Grade Button	Center	4
	•	•	NN3*	Dispenser 5+0	2	5	1	Grade Button	Center	4

† Standard fuel can not be dispensed through the same hose as flexible fuels. ^ Pending UL Approval * UL Approved for E85

NOTES

GILBARCO VEEDER-ROOT

www.gilbarco.com

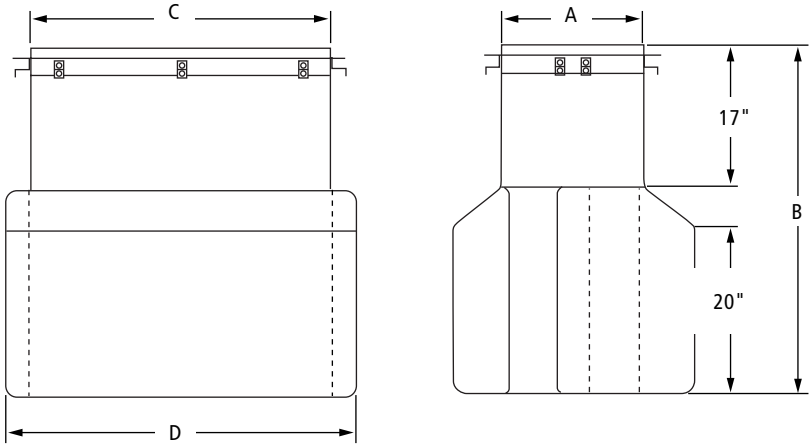
P-2435B | 0119 | Gilbarco Veeder-Root | 7300 W. Friendly Ave., Greensboro, NC 27410

Fiberglass Dispenser Sumps

FlexWorks Fiberglass Dispenser Sumps allow the supply piping to enter and/or exit out of the sidewall of the containment sump at a very low elevation. Ideal for pressure piping systems requiring indirect slope back to the tank.

Features & Benefits:

- **Structural Integrity** – engineered with thick side walls to withstand backfill and high water table forces.
- **Full Access Working Area** – frame is attached after plumbing is complete.
- All three models have an external conduit channel.



Ordering Specifications* - Fiberglass Dispenser Sumps**

Model #	A		B		C		D		Weight	
	in.	cm	in.	cm	in.	cm	in.	cm	lbs.	kg
FDS-4021	17	43	42	106	36	91	42	106	102	46.27
FDS-4319	15	38	42	106	39	99	39	99	107	48.53

Refer to FlexWorks Dispenser Sump Selection Chart (See Pages 42 - 43 of this catalog) to select sumps for particular dispensers.
*All models are designed with conduit-less frames. All models have an external conduit channel.
**Add –DW" for double-wall version.

Ordering Specifications - FlexWorks Dispenser Sump Selection Chart

Dispenser Manufacturer & Model	Dispenser Footprint Dimensions		FlexWorks One-Piece Polyethylene Sump	FlexWorks Wide-Access Polyethylene Sump	FlexWorks One-Piece Polyethylene Pan	FlexWorks One-Piece Fiberglass Sump	FlexWorks Wide-Access Fiberglass Sump	Stabilizer Bar Kit
GILBARCO	**in.**	**cm**						
Commercial 625, 650, 684 Series (21" / 53" cm Frame)	15 11/16" x 21"	40 x 53	DS-1117F	---	DP-1117F	---	---	SBK-1100J
Salesmaker-2 Series (21" / 53 cm Frame)	15 11/16" x 21"	40 x 53	DS-1117F	---	DP-1117F	---	---	SBK-1100J
Highline 11B Series (21" Frame / 53 mm)	15 11/16" x 21"	40 x 53	DS-1117F	---		---	---	SBK-1100J
Highline 111B Series (27" / 69 cm Frame)	15 11/16" x 27"	40 x 53	DS-1123F	DSW-1123F	DP-1123F	---	---	SBK-1100J
Trimline 251, 252, 261, 262 (27" / 69 cm Frame)	15 11/16" x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Trimline 154, 164, 251, 262 (27" / 69 cm Frame)	15 11/16" x 21"	40 x 69	DS-1117F	---	---	---	---	SBK-1100J
Commercial 650 Series (27" / 69 cm Frame)	15 11/16" x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Highline Salesmaker Series	15 11/16" x 21"	40 x 69	DS-1117F	---	DP-1117F	---	---	SBK-1100J
Highline Salesmaker Series (27" / 69 cm Frame)	15 11/16" x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Salesmaker-4 Series (27" / 69 cm Frame)	15 11/16" x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Legacy Series	15 11/16" x 27"	40 x 69	DS-1123F	DSW-1123F	DP-1123F	---	DSF-1123F	SBK-1100J
Encore Series LOOP SYSTEM-READY	23 1/2" x 40 9/16"	60 x 103	DS-1836	DSW-1836 DSW-1836CL	DP-1836	FDS-4021	DSF-1836 DSF-1836C	SBK-1800*
Advantage (36" / 91 cm Frame Models)	21 1/2" x 36"	55 x 91	DS-1630	DSW-1630	DP-1630	---	DSF-1630	SBK-1600
Quad or Dual	---	---	---	---	---	---	---	---
Blender X + O (36" / 91 cm)	---	---	---	---	---	---	---	---
Advantage (48" / 122 cm Frame Models)	211/2" x 48"	55 x 122	DS-1642	---	---	---	---	SBK-1600*
Blender Six-Hose	---	---	---	---	---	---	---	---
Blender Single-Hose	---	---	---	---	---	---	---	---
Blender X + O (48" / 122 cm) or X + 1 (48" / 122 cm)	---	---	---	---	---	---	---	---
MPD-1, MPD-2, MPD-3	16" x 48"	41 x 122	DS-1036	---	---	---	---	SBK-1000J
MPD Fixed Blender	16" x 48"	41 x 122	DS-1036	---	---	---	---	SBK-1000J
	---	---	---	---	---	---	---	---
BENNETT								
Bennett Pacific LOOP SYSTEM-READY	19 1/2" x 43 1/2"	49 x 110	DS-1543A	---	---	---	---	SBK-1500
Bennett 3000 Series	20" x 30"	51 x 76	DS-1123B	---	---	---	---	SBK-1100J
PD MCLAREN								
RDR HSx (Single Product, Single Hose)	21" x 17.75"	53 x 45	---	DSW-1922	---	---	---	SBK-1900
RDR HSx-D1 (Single Product, Dual Hose)	21" x 17.75"	53 x 45	---	DSW-1922	---	---	---	SBK-1900
RDR HSx-D2 (Dual Product, Dual Hose)	21" x 17.75"	53 x 45	---	DSW-1922	---	---	---	SBK-1900
RDR HSx-SAT (Master Unit and Satellites)	21" x 17.75"	53 x 45	---	DSW-1922	---	---	---	SBK-1900
RDR HSx-X2 (Single Product, Dual Hose, One at a Time)	21" x 17.75"	53 x 45	---	DSW-1922	---	---	---	SBK-1900

* For FDS-4021 Models, use Stabilizer Bar SBK-1800.

9393 Princeton-Glendale Road ◆ Hamilton, Ohio USA 45011 ◆ Phone: (800) 422-2525 ◆ Fax: (800) 421-3297

Ordering Specifications - FlexWorks Dispenser Sump Selection Chart

Dispenser Manufacturer & Model	Dispenser Footprint Dimensions		FlexWorks One-Piece Polyethylene Sump	FlexWorks Wide-Access Polyethylene Sump	FlexWorks One-Piece Polyethylene Pan	FlexWorks One-Piece Fiberglass Sump	FlexWorks Wide-Access Fiberglass Sump	Stabilizer Bar Kit
GASBOY	in.	cm						
0215A, 216A (19 7/8" Frame / 50.5 mm)	17 1/4" x 19 7/8"	49 x 50.5	DS-1117F	---	DP-1117F	----	---	SBK-1100J
52 and 53 Series	17" x 19 7/8"	44 x 50.5	DS-1117F	---	DP-1117F	----	---	SBK-1100J
8700, 8800, 9100, 9800 Series	17 1/4" x 25"	44 x 63.5	DS-1120	----	----	----	----	SBK-1100J
25" Frame 63.5 mm	17 1/4" x 25"	44 x 63.5	----	----	----	----	----	----
8700, 8800, 9100, 9800 Series (28 1/4" Frame / 72 mm)	17 1/4" x 28"	44 x 71	DS-1123	DSW-1123	DP-1123	----	DSF-1123F	SBK-1100J
9850A	15 11/16" x 21"	40 x 69	DS-1120	DSW-1120	----	----	DSF-1120	SBK-1100J
* Stabilizer bar is installed widthwise in dispenser sump								
DRESSER / WAYNE								
350, 357, 358, 360, 370 Series	15" x 25 7/8"	30 x 66	DS-1123F	DSW-1123F	DP-1123F	----	DSF-1123F	SBK-1100J
Vista 380 Series (387, 389)	20" x 35"	51 x 89	DS-1229	---	----	----	---	SBK-1200J
Vista 590 Series (590, 595)	20" x 48"	51 x 122	DS-1242	---	----	----	---	SBK-1200J
Vista 390 Series (395, 399)	20" x 48"	51 x 122	DS-1242	---	----	----	---	SBK-1200J
Vista 490 Series	20" x 48"	51 x 122	DS-1242	---	----	----	---	SBK-1200J
DL390, 395, 399 Series	20" x 48"	51 x 122	DS-1242	---	----	----	---	SBK-1200J
HS1 Satellite / 287 Series	20" x 35"	51 x 89	DS-1229	---	----	----	---	SBK-1200J
Ovation LOOP SYSTEM-READY	19 1/2" x 43 1/2"	50 x 110	DS-1543A**	DSW-1543 DSW-1543C	DP-1543	FDS-4319*	DSF-1543 DSF-1543C	SBK-1500
Select	19 3/8" x 32 5/16"	49 x 82	DS-1928	----	----	----	DSF-1630	SBK-1500
Global Century	19 3/8" x 32 5/16"	49 x 82	DS-1928	----	----	----	DSF-1630	SBK-1500
Reliance	19 3/8" x 32 5/16"	49 x 82	DS-1928	----	----	----	DSF-1630	SBK-1500
HS4 / HS3 / Vista	19 3/8" x 32 5/16"	49 x 82	DS-1630	DSW-1630***	DP-1630	----	DSF-1630***	SBK-1600
Narrow Frame Helix (2000, 4000)	20" x 33"	51 x 84	DS-1630	----	----	----	----	SBK-1600
Wide Frame Helix (5000) LOOP SYSTEM-READY	26" x 44"	51 x 112	DS-1741	----	----	----	----	SBK-1700
TOKHEIM								
1200, 1248, 1250 Series	17 1/4" x 25"	44 x 64	DS-1120	DSW-1120	----	----	DSF-1120	SBK-1100J
330B, 333B Series	17 1/4" x 44"	44 x 112	DS-1642	---	----	----	---	SBK-1600

* For FDS-4319 Model use Stabilizer Bar SBO-0250.

Franklin Electric
FUELING SYSTEMS

FLEXIBLE CONNECTORS

FLEX-ING™ Flexible Connectors have become the industry standard and benchmark for quality as a means to easily connect a pipework system to other system components such as submersible pumps or shear valves. As an integral part of any system, installers enjoy how easy they make connections in tight spaces while station owners have come to depend on their durability and their simplification of regular maintenance.

HIGHLIGHTS

- End fittings are available in either nickel plated steel or stainless steel construction.
- Multiple diameter and length options available as well as a wide offering of end fitting connections (including tees, elbows, and fiberglass transitions) to create the right flexible connector to fit virtually any application.
- Standard on all flexible connectors, the stainless steel corrugated fuel contact layers feature a thick construction and gain flexibility from having more corrugations per foot rather than thinner walls.
- Enclosing the corrugated fuel contact layer is a high-grade stainless steel braid.
- All metal construction means one flexible connector for both above and below ground applications (may not be direct buried).
- Schedule 80 hex end fittings protect against deformation of the ends during installation.
- The EZ FIT union style coupling system is specifically designed to make connections in confined spaces simple and tight. EZ FIT union style couplings come complete with couplers and gaskets (flange only fittings excluded).

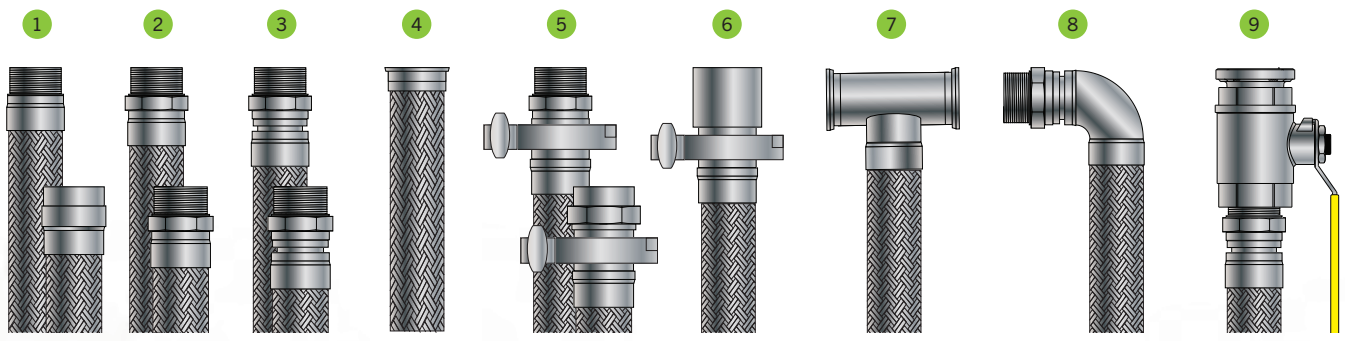
Common End Fitting Options

See Ordering Information for a complete listing of options.

1. Non-hex male/female
2. Hex male/female
3. Male/female swivel
4. EZ Fit flange only
5. EZ Fit male/female
6. EZ Fit fiberglass pipe
7. EZ Fit tee
8. Male swivel 90° elbow
9. Ball valve

SPECIFICATIONS

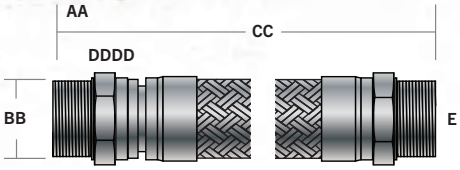
Outer shell	304 stainless steel
Inner core	321 stainless steel
End fittings	Nickel plated steel or stainless steel
Pressure testing	100% pressure tested to 100 PSI to assure quality
Approvals/ certifications	– Meets USA NFPA 30-A fire code requirements – UL 2039 listed for 50 psi working pressure – UL 2039 listed: Only those fuels formulated in accordance with 40CFR80, “Regulation of Fuels and Fuel Additives,” and meeting the following ASTM fuel specifications and blend limits: – Diesel with or without biodiesel blends up to 5% (B5) – Diesel with biodiesel blends between 6% - 20% (B6 - B20) – Gasoline with ethanol blends up to 10% (E10) – High-blend ethanol, with ethanol/gasoline blends from 51% to 83% (E51 - E83) commercially sold as E85 Diesel with or without biodiesel blends up to 5% (B5) – Mid-range ethanol, with ethanol/gasoline blends from 11% to 50% (E11 - E50)



ORDERING INFORMATION

Ordering Guide

Complete flexible connector model numbers have a specific order and are created using the following guidelines. Use the diagrams and table to build a model number.



AA BB X CC DDDD X E FFFF

AA = Product Type

FF = FLEX-ING™ flexible connector

BB = Hose Diameter

07 = ¾"	20 = 2"
10 = 1"	30 = 3"
15 = 1½"	40 = 4"

CC = Overall Length in Inches

Use two-digit format: 06 = 6", 24 = 24", etc. Maximum length of 108".

DDDD = End Fitting First End

Use End Fitting Options below.

E = End Fitting Second End if Alternating Diameter (optional)

Optional: Second end fitting alternate diameter. Only one end can be a different size than the hose diameter and it can only be one size larger than hose diameter.

FFFF = End Fitting Second End

Use End Fitting Options below.

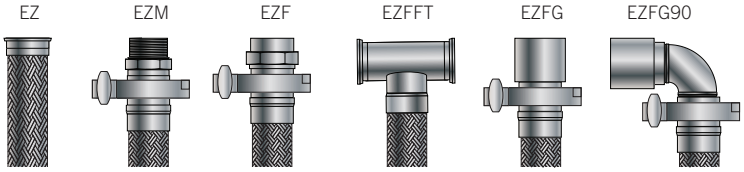
Example:

FF20X18EZMX15HM = Flexible connector with 2" hose diameter, 18" overall length, one 2" EZ fit male NPT end fitting, and one 1½" Hex male fixed end fitting.

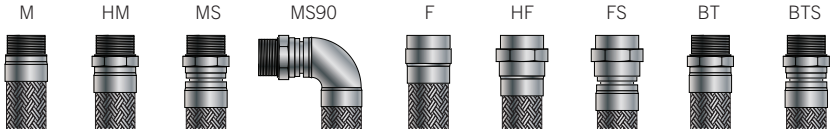
End Fitting Options

Use the diagrams below along with the Ordering Guide to help build flexible connector model numbers.

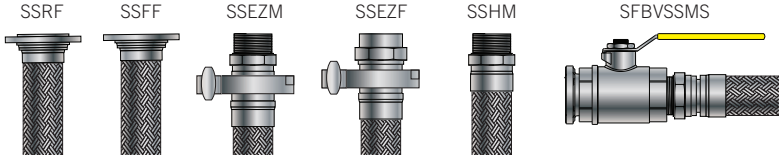
EZ Fit System



Nickel Plated Steel



Stainless Steel



	Model	Description	¾"	1"	1½"	2"	3"	4"
EZ Fit System	EZ	EZ Fit flange only	✓	✓		✓	✓	
	EZM	EZ Fit with male NPT		✓	✓	✓	✓	
	EZF	EZ Fit with female NPT		✓	✓	✓	✓	
	EZFFT	EZ Fit tee			✓	✓		
	EZFG	EZ Fit with fiberglass glue pipe			✓	✓	✓	
	EZFG90	EZ Fit with fiberglass glue pipe 90° elbow			✓	✓	✓	
Nickel Plated Steel	M	Male fixed non-hex NPT					✓	✓
	HM	Male fixed hex NPT	✓	✓	✓	✓		
	MS	Male swivel hex NPT	✓	✓	✓	✓		
	MS90	Male swivel hex 90° elbow NPT			✓	✓		
	F	Female fixed non-hex NPT	✓	✓	✓	✓	✓	
	HF	Female fixed hex NPT			✓	✓		
	FS	Female swivel hex NPT			✓	✓		
	BT	Hex Male Fixed BSPT			✓	✓		
	BTS	Male Swivel BSPT			✓	✓	✓	
Stainless Steel	SSRF	Raised face flange, stainless steel		✓	✓	✓	✓	✓
	SSFF	Flat face flange, stainless steel			✓	✓	✓	✓
	SSEZM	EZ Fit with male NPT, stainless steel		✓	✓	✓	✓	
	SSEZF	EZ Fit with female NPT, stainless steel			✓	✓	✓	
	SSHM	Male fixed hex NPT, stainless steel	✓	✓	✓	✓		
	SFBVSSMS	Flat face flange ball valve with male swivel, stainless steel				✓		

✓ = Available

ORDERING INFORMATION CONTINUED

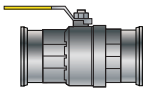
Flexible Connector Common Models

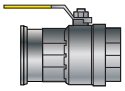
Model	Description
FF15X12HMXEZ	1½" diameter flexible connector, hex male by EZ Fit flange, 12" OAL
FF15X18HMXEZ	1½" diameter flexible connector, hex male by EZ Fit flange, 18" OAL
FF15X24HMXEZ	1½" diameter flexible connector, hex male by EZ Fit flange, 24" OAL
FF20X12HMXEZ	2" diameter flexible connector, hex male by EZ Fit flange, 12" OAL
FF20X18HMXEZ	2" diameter flexible connector, hex male by EZ Fit flange, 18" OAL
FF20X24HMXEZ	2" diameter flexible connector, hex male by EZ Fit flange, 24" OAL
FF30X12MXEZ	3" diameter flexible connector, male coupler x EZ Fit flange, 12" OAL
FF30X18MXEZ	3" diameter flexible connector, male coupler x EZ Fit flange, 18" OAL
FF30X24MXEZ	3" diameter flexible connector, male coupler x EZ Fit flange, 24" OAL
FF15X12MSXEZM	1½" diameter flexible connector, male swivel by EZ Fit male NPT, 12" OAL
FF15X18MSXEZM	1½" diameter flexible connector, male swivel by EZ Fit male NPT, 18" OAL
FF15X24MSXEZM	1½" diameter flexible connector, male swivel by EZ Fit male NPT, 24" OAL
FF20X12MSXEZM	2" diameter flexible connector, male swivel by EZ Fit male NPT, 12" OAL
FF20X18MSXEZM	2" diameter flexible connector, male swivel by EZ Fit male NPT, 18" OAL
FF20X24MSXEZM	2" diameter flexible connector, male swivel by EZ Fit male NPT, 24" OAL
FF20X12MSXF	2" diameter flexible connector, male swivel by female coupler, 12" OAL
FF20X18MSXF	2" diameter flexible connector, male swivel by female coupler, 18" OAL
FF20X24MSXF	2" diameter flexible connector, male swivel by female coupler, 24" OAL
FF30X12MXEZM	3" diameter flexible connector, male coupler by EZ Fit male NPT, 12" OAL
FF30X18MXEZM	3" diameter flexible connector, male coupler by EZ Fit male NPT, 18" OAL
FF30X24MXEZM	3" diameter flexible connector, male coupler by EZ Fit male NPT, 24" OAL
FF15X12EZXSSHM	1½" diameter flexible connector, EZ Fit flange by SS hex male, 12" OAL
FF15X18MSXSSHM	1½" diameter flexible connector, male swivel by SS hex male, 18" OAL
FF20X12SSHMXSSHM	2" diameter flexible connector, hex male by SS hex male, 12" OAL
FF20X18SSEZMXSSHM	2" diameter flexible connector, SS EZ Fit male NPT by SS hex male, 18" OAL

EZ Fit Accessories

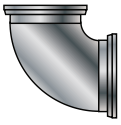
Model	Description
EZFITXEZFIT	2" EZ Fit × EZ Fit connector, stainless steel

Model	Description
EZBLANK	2" EZ Fit blank, stainless steel
EZ30BLANK	3" EZ Fit blank, stainless steel

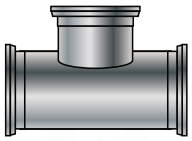




Model	Description
EZXEZX20BV	2" EZ Fit × 2" EZ Fit ball valve
EZX20BV	2" EZ Fit × 2" ball valve, brass
EZXEZX20BVSS	2" EZ Fit × 2" EZ Fit ball valve, stainless steel
EZX20BVSS	2" EZ Fit × 2" ball valve, stainless steel
EZ30XEZ30X30BV	3" EZ Fit × 3" EZ Fit ball valve, brass
EZ30XEZ30X30SSBV	3" EZ Fit × 3" EZ Fit ball valve, stainless steel

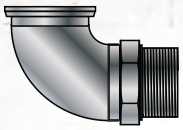


Model	Description
EZXEZ90	2" EZ Fit × 2" EZ Fit 90° elbow, stainless steel
EZ30XEZ3090	3" EZ Fit × 2" EZ Fit 90° elbow, stainless steel

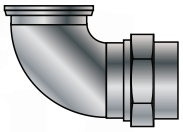


Model	Description
EZXEZXEZTEE	2" EZ Fit × 2" EZ Fit × 2" EZ Fit 1½" tee, stainless steel
EZ20XEZ20TEEFF	2" EZ Fit × 2" EZ Fit × 2" EZ Fit, 2" tee, stainless steel
EZ30XEZ30XEZ30T	3" EZ Fit × 3" EZ Fit × 3" EZ Fit tee, stainless steel

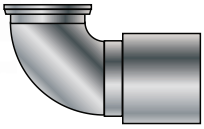
ORDERING INFORMATION CONTINUED



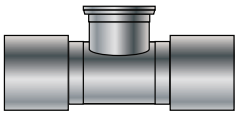
Model	Description
EZX15HM90	2" EZ Fit × 1½" hex male 90° elbow, nickel plated
EZX20HM90	2" EZ Fit × 2" hex male 90° elbow, nickel plated
EZX20HM90SS	2" EZ Fit × 2" hex male 90° elbow, stainless steel
EZX30M90	3" EZ Fit × 3" male 90° elbow, nickel plated



Model	Description
EZX20HF90	2" EZ Fit × 2" female 90° elbow, nickel plated
EZX30F90	3" EZ Fit × 3" female 90° elbow, nickel plated

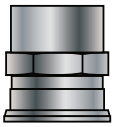


Model	Description
EZX20FG90	2" EZ Fit × 2" fiberglass glue pipe 90° elbow, nickel plated
EZX30FG90	3" EZ Fit × 3" fiberglass glue pipe 90° elbow, nickel plated

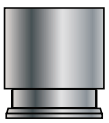


Model	Description
EZX20FGTEE	2" EZ Fit × 2" fiberglass glue pipe tee, nickel plated
EZX30FGTEE	3" EZ Fit × 3" fiberglass glue pipe tee, nickel plated

Model	Description
EZX15HMPL	2" EZ Fit × 1½" hex male, nickel plated
EZX15HMSS	2" EZ Fit × 1½" hex male, stainless steel
EZX20HMPL	2" EZ Fit × 2" hex male, nickel plated
EZX20HMSS	2" EZ Fit × 2" hex male, stainless steel
EZX30MP	3" EZ Fit × 3" male, nickel plated



Model	Description
EZX15HFSS	2" EZ Fit × 1½" hex female, stainless steel
EZX20HFPL	2" EZ Fit × 2" hex female, nickel plated
EZX20HFSS	2" EZ Fit × 2" hex female, stainless steel



Model	Description
EZX20FGPL	2" EZ Fit × 2" fiberglass glue pipe, nickel plated
EZX20FGSS	2" EZ Fit × 2" fiberglass glue pipe, stainless steel
EZX30FGSS	3" EZ Fit × 3" fiberglass glue pipe, nickel plated

Model	Description
EZ10CLAMP	1" EZ Fit clamp
EZCLAMP	2" EZ Fit clamp
EZ30CLAMP	3" EZ Fit clamp

Model	Description
407493001	1" EZ Fit gasket
407493002	2" EZ Fit gasket
407493003	3" EZ Fit gasket

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ATTACHMENT I

Initial and Continuing Training

RANGER
ENVIRONMENTAL SERVICES, LLC

Initial and Continuing Training

The release detection system at the facility will be a Veeder Root TLS-450 Plus. The system will also be equipped with CSLD Release Detection Software and inventory reconciliation. The system will have sump sensors installed in the submersible sump containment area to monitor sub pump, sump sensors installed in the dispenser sumps and tank interstitial sensors. The system will be equipped with electronic line leak detection for the product delivery lines. The system will be installed by a Veeder Root certified technician. The system will be installed in accordance with Veeder Root specifications and instructions. The system is UL listed and is third party certified for release detection under USEPA guidelines. The system has self- diagnostic programs to test and warn of failures of the external devices as well as internal electronics. The system has been tested by a Third Party and found to be compliant with USEPA requirements for release detection.

Annual maintenance of the system will be conducted to certify the function of all modules in the system.

On-site employees will monitor the system condition locally and remotely on a daily basis, with particular emphasis on any sensor alarms or release detection alarms as indicated on the panel of the system. In the case of any sensor or inventory alarm, employees will notify the Owner or General Manager who will make the determination of a proper course of action. Site employees are not authorized to reset of disable any alarm conditions on the system.

New facility employees will be trained in the proper operation and functional modes of the system. Ongoing reviews of the system operation will be presented to all employees to ensure operation and function status is understood.

Ongoing maintenance will be conducted by Prestige Tank and Pump Services, Inc. personnel.

Operating And Maintaining Underground Storage Tank Systems

Practical Help And Checklists

Printed on Recycled Paper

Contents

DISCLAIMER

This document provides information on operating and maintaining underground storage tank (UST) systems. The document is not a substitute for U.S. Environmental Protection Agency regulations nor is it a regulation itself — it does not impose legally binding requirements.

For regulatory requirements regarding UST systems, refer to the federal regulations governing UST systems (40 CFR Part 280).

How To Use This Booklet

Who Should Read This Booklet?

This booklet is for owners and operators of underground storage tank systems (USTs).

You are responsible for making sure your USTs do not leak. This booklet can help you meet your UST responsibilities.

Key Terms Used In This Booklet

An **UST** is an **underground storage tank and underground piping connected to the tank** that has at least 10 percent of its combined volume underground. The federal regulations apply only to USTs storing petroleum or certain hazardous substances.

O&M stands for **operation and maintenance procedures** that must be followed to keep USTs from causing leaks and creating costly cleanups.

What Can This Booklet Help You Do?

- Identify and understand the operation and maintenance (O&M) procedures you need to follow routinely to make sure your USTs don't have leaks that damage the environment or endanger human health.
- Identify good O&M procedures you can use to avoid cleanup costs and liability concerns.
- Maintain useful records of your O&M.

Your UST System Is New Or Upgraded — Is That Enough?

Being new or upgraded is not enough. New and upgraded USTs are made of a complex collection of mechanical and electronic devices that can fail under certain conditions. These failures can be prevented or quickly detected by following routine O&M procedures. Having a new or upgraded UST system is a good start, but the system must be properly operated and continuously maintained to ensure that leaks are avoided or quickly detected.

What Should You Do With Each Section Of This Booklet?

Read through each section carefully and use the checklists to help you establish clear O&M procedures.

By identifying and understanding the O&M tasks you need to perform routinely, you will ensure timely repair or replacement of components when problems are identified.

How Can You Use The Following Checklists Effectively?

This booklet's pages are 3-hole punched and unbound so you can put all the materials in a handy 3-ring binder. You can easily remove any of the following checklists from the binder, reproduce them, and then fill them out.

You can select the specific mix of checklists that matches your UST facility. Once you have your select group of checklists together, make several copies that you can fill out periodically over time.

In this way you can keep track of your O&M activities and know that you've done what was necessary to keep your UST site safe and clean, avoiding any threats to the environment or nearby people as a result of costly and dangerous UST releases.

Use This Booklet Often — Effective O&M Requires Constant Vigilance.

Note: This booklet describes quality O&M practices put together by a work group of state and federal environmental regulators. This booklet is not a federal regulation nor legally binding, but it does provide useful information on effective O&M procedures. You should check with your state UST program for information on any additional or different O&M practices that may be required in your state.
See Section 7 for contact information.

Section 1 — Identifying The Equipment At Your UST Facility

Determine what UST equipment you have at your facility by completing the checklist below. Note that each part of the checklist below refers you to the appropriate section of this O&M booklet for relevant information. After you have identified your equipment, proceed to the following sections to identify the O&M actions necessary for your specific UST system.

General Facility Information (optional)

Facility Name	
Facility ID #	

Release Detection (See Section 2 for information on release detection)

A. Release Detection for Tanks

Check at least one for each tank:	Tank #1	Tank #2	Tank #3	Tank #4
Automatic Tank Gauging System				
Interstitial Monitoring (with secondary containment)				
Groundwater Monitoring				
Vapor Monitoring				
Inventory Control and Tank Tightness Testing (TTT)*				
Manual Tank Gauging Only **				
Manual Tank Gauging and Tank Tightness Testing (TTT)***				
Other Release Detection Method, such as SIR (please specify)				

* Allowed only for 10 years after upgrading or installing tank with corrosion protection. TTT required every 5 years.
** Allowed only for tanks of 1,000 gallon capacity or less.
*** Allowed only for tanks of 2,000 gallon capacity or less and only for 10 years after upgrading or installing tank with corrosion protection. TTT required every 5 years.

B. Release Detection for Pressurized Piping

Check at least one from A & B for each tank's piping:		Tank #1	Tank #2	Tank #3	Tank #4
A (Automatic Line Leak Detectors)	Automatic Flow Restrictor				
	Automatic Shutoff Device				
	Continuous Alarm				
B	Annual Line Tightness Test				
	Monthly Monitoring*				

* Monthly Monitoring for piping includes Interstitial Monitoring, Vapor Monitoring, Groundwater Monitoring, and other accepted methods (such as SIR and Electronic Line Leak Detectors)

C. Release Detection for Suction Piping

Check at least one for each tank's piping:	Tank #1	Tank #2	Tank #3	Tank #4
Line Tightness Testing Every Three Years				
Monthly Monitoring*				
No Release Detection Required For Safe Suction **				

* Monthly Monitoring for piping includes Interstitial Monitoring, Vapor Monitoring, Groundwater Monitoring, and SIR
** No release detection required only if it can be verified that you have a safe suction piping system with the following characteristics:

1) Only one check valve per line located directly below the dispenser;
2) Piping sloping back to the tank; and
3) System must operate under atmospheric pressure.

Spill and Overfill Protection (See Section 4 for more information)

Check for each tank:	Tank #1	Tank #2	Tank #3	Tank #4
Spill Catchment Basin/ Spill Bucket				
Check at least one overfill device for each tank:				
Automatic Shutoff Device				
Overfill Alarm				
Ball Float Valve				

Corrosion Protection (See Section 5 for more information)

A. Corrosion Protection for Tanks

Check at least one for each tank:	Tank #1	Tank #2	Tank #3	Tank #4
Coated and Cathodically Protected Steel				
Noncorrodible Material (such as Fiberglass Reinforced Plastic)				
Steel Jacketed or Clad with Noncorrodible Material				
Cathodically Protected Noncoated Steel*				
Internally Lined Tank*				
Cathodically Protected Noncoated Steel and Internally Lined Tank*				
Other Method Used to Achieve Corrosion Protection (please specify):				

* These options may be used only for tanks installed before December 22, 1988.

B. Corrosion Protection for Piping

Check at least one for each:	Tank #1	Tank #2	Tank #3	Tank #4
Coated and Cathodically Protected Steel				
Noncorrodible Material (such as Fiberglass Reinforced Plastic or Flexible Plastic)				
Cathodically Protected Noncoated Metal*				
Other Method Used to Achieve Corrosion Protection (please specify):				

* This option may be used only for piping installed before December 22, 1988.

Any Problems Filling Out This Checklist?

If you have trouble filling out this checklist or any following checklist, remember these sources of assistance you can contact:

- Your UST contractor, the vendor of your equipment, and the manufacturer of your UST equipment should be ready to help you. Look through your records for contact information. You may also want to use some of the industry contacts and other contact information provided in Section 7.

- Your state regulatory agency may be able to help you identify equipment or sources of information about your UST equipment. You should, in any event, make yourself aware of any ways in which your state may have additional or different O&M procedures than those presented in this booklet. See Section 7 for state agency contact information.

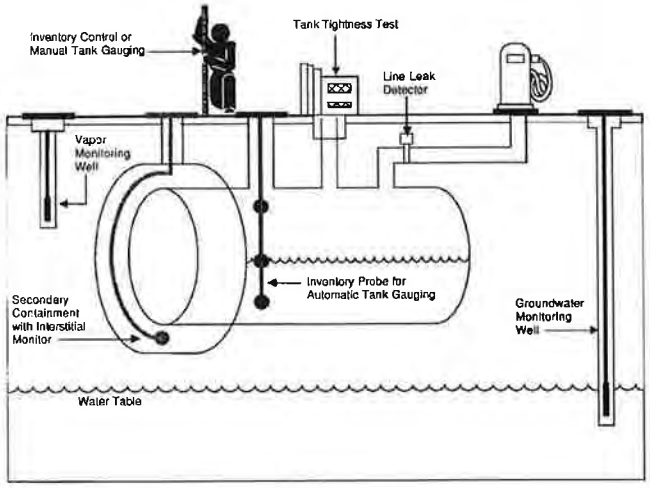
Section 2 — Release Detection

What Is Release Detection?

You must be able to determine at least every 30 days whether or not your tank and piping are leaking by using proper release detection methods.

Your release detection method must be able to detect a release from any portion of the tank and connected underground piping that routinely contains product.

Release detection must be installed, calibrated, operated, and maintained according to the manufacturer's instructions.



Do You Know If Your Release Detection Is Certified To Work At Your UST Site?

Release detection must meet specific performance requirements. You should have documentation from the manufacturer, vendor, or installer of your release detection equipment showing certification that it can meet performance requirements.

Some vendors or manufacturers supply their own certification, but more often an impartial "third party" is paid to test the release detection equipment and certify that performance requirements are met. An independent workgroup of release detection experts periodically evaluates all third-party certifications, thus providing a free and reliable list of evaluations of third-party certifications for various release detection equipment. Frequently updated, this list is available on the Internet at **http://www.nwglde.org/** (the publication's title is ***List Of Leak Detection Evaluations For Underground Storage Tank Systems***). If you can't find the certification anywhere, contact your state regulatory agency (see Section 7 for contact information).

By checking the certification, you may discover the method you use has not been approved for use with the type of tank or piping you have or the type of product being stored. For example, you may learn from the certification that your method won't work with manifolded tanks, certain products, high throughput, or with certain tank sizes.

That's why you need to make sure your release detection method has clear certification that it will work effectively at your site with its specific characteristics.

How Can You Make Sure Your Leak Detection Method Is Working At Your UST Site?

If you don't understand your O&M responsibilities and don't know what O&M tasks you must routinely perform, you may allow your UST site to become contaminated — then you will face cleanup costs and associated problems.

To avoid these problems use the checklists on the following pages that describe each type of leak detection method, discuss actions necessary for proper O&M, and note the records you should keep.

Locate the methods of release detection you are using at your facility, review these pages, and periodically complete the checklist. You might want to copy a page first and periodically fill out copies later.

If you have questions about your release detection system, review your owner's manual or call the vendor of your system. Your state or local regulatory agency may be able to provide assistance as well.

You will find leak detection recordkeeping forms in the following pages of this Section. Keeping these records increases the likelihood that you are conducting good O&M and providing effective release detection at your UST site. For example, see page 20 for a 30-Day Release Detection Monitoring Record.

If you ever suspect or confirm a leak, refer to Section 3. **Never ignore leak detection alarms or failed leak detection tests. Treat them as potential leaks**!

Automatic Tank Gauging (ATG) Systems (for tanks only)	
Description Of Release Detection	**An automatic tank gauging (ATG) system consists of a probe permanently installed in a tank and wired to a monitor to provide information on product level and temperature. ATG systems automatically calculate the changes in product volume that can indicate a leaking tank.**
Have Certification For Your Release Detection Method	❑ **Make sure your ATG system is certified for the types of tanks and stored contents on which the ATG system is used.** Most manufacturers have their leak detection devices tested and certified by a third party to verify that their equipment meets specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the manufacturer provide them to you.
Perform These O&M Actions	❑ **Use your ATG system to test for leaks at least every 30 days.** Most systems are already programmed by the installer to run a leak test periodically. If your system is not programmed to automatically conduct the leak test, refer to your ATG system manual to identify which buttons to push to conduct the leak test. Testing more often than monthly can catch leaks sooner and reduce cleanup costs and problems. ❑ **Make sure that the amount of product in your tank is sufficient to run the ATG leak test.** The tank must contain a minimum amount of product to perform a valid leak detection test. One source for determining that minimum amount is the certification for your leak detection equipment (as discussed above). ❑ **Frequently test your ATG system according to the manufacturer's instructions to make sure it is working properly.** Don't assume that your release detection system is working and never needs checking. Read your owner's manual, run the appropriate tests, and see if your ATG system is set up and working properly. Most ATG systems have a test or self-diagnosis mode that can easily and routinely run these checks. ❑ **If your ATG ever fails a test or indicates a release, see Section 3 of this booklet for information on what to do next.** ❑ **Periodically have a qualified UST contractor, such as the vendor who installed your ATG, service all the ATG system components according to the manufacturer's service instructions.** Tank probes and other components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least annually. ❑ **Check your ATG system owner's manual often to answer questions and to make sure you know the ATG's operation and maintenance procedures.** Call the ATG manufacturer or vendor for a copy of the owner's manual if you don't have one. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep results of your ATG system tests for at least 1 year.** Your monitoring equipment may provide printouts that can be used as records. Unless you are recording actual release detection results at least every 30 days and maintaining records for at least 1 year, you are not doing leak detection right. ❑ **Keep all records of calibration, maintenance, and repair of your release detection equipment for at least 1 year.** ❑ **Keep all performance claims supplied by the installer, vendor, or manufacturer for at least 5 years.** These records include the certification of your leak detection equipment described above.

Secondary Containment With Interstitial Monitoring (for tanks & piping)	
Description Of Release Detection	**Secondary containment is a barrier between the portion of an UST system that contains product and the outside environment. Examples of secondary containment include an outer tank or piping wall, an excavation liner, and a bladder inside an UST. The area between the inner and outer barriers — called the interstitial space — is monitored manually or automatically for evidence of a leak.**
Have Certification For Your Release Detection Method	❑ **Make sure your interstitial monitoring equipment and any probes are certified for the types of tanks, piping, and stored contents on which the release detection system is used.** Most manufacturers have their leak detection devices tested and certified by a third party to verify that their equipment meets specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the manufacturer provide them to you.
Perform These O&M Actions	❑ **Use your release detection system to test for leaks at least every 30 days.** Testing more often than monthly can catch leaks sooner and reduce cleanup costs and problems. ❑ **Frequently test your release detection system according to the manufacturer's instructions to make sure it is working properly.** Don't assume that your release detection system is working and never needs checking. Read your owner's manual, run the appropriate tests, and see if your system is set up and working properly. Some interstitial monitoring systems have a test or self-diagnosis mode that can easily and routinely run these checks. ❑ **If your interstitial monitoring ever fails a test or indicates a release, see Section 3 of this booklet for information on what to do next.** ❑ **Periodically have a qualified UST contractor, such as the vendor who installed your release detection system, service all the system components according to the manufacturer's service instructions.** Tank probes and other components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least annually. ❑ **Keep interstitial monitoring access ports clearly marked and secured.** ❑ **Check your interstitial monitoring system owner's manual often to answer questions and to make sure you know the system's O&M procedures.** Call the system's vendor or manufacturer for a copy of the owner's manual if you don't have one. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep results of your release detection system tests for at least 1 year.** Your monitoring equipment may provide printouts that can be used as records. Unless you are recording actual release detection results at least every 30 days and maintaining records for at least 1 year, you are not doing leak detection right. ❑ **Keep all records of calibration, maintenance, and repair of your release detection equipment for at least 1 year.** ❑ **Keep all performance claims supplied by the installer, vendor, or manufacturer for at least 5 years.** These records include the certification of your leak detection equipment described above.

Statistical Inventory Reconciliation (SIR) (for tanks & piping)	
Description Of Release Detection	**SIR is typically a method in which a trained professional uses sophisticated computer software to conduct a statistical analysis of inventory, delivery, and dispensing data. You must supply the professional with data every month. There are also computer programs that enable an owner/operator to perform SIR. In either case, the result of the analysis may be pass, inconclusive, or fail.**
Have Certification For Your Release Detection Method	❑ **Make sure your SIR vendor's methodology is certified for the types of tanks, piping, and product on which you use SIR.** Most vendors have their leak detection methodology tested and certified by a third party to verify that their equipment meets specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the vendor provide them to you.
Perform These O&M Actions	❑ **Supply daily inventory data to your SIR vendor (as required) at least every 30 days.** The vendor will provide you with your leak detection results after the statistical analysis is completed. Otherwise, use your computer software at least every 30 days to test your tank for leaks. ❑ **See Section 3 of this manual if your UST system fails a leak test.** ❑ **If you receive an inconclusive result, you must work with your SIR vendor to correct the problem and document the results of the investigation.** An inconclusive result means that you have not performed leak detection for that month. If you cannot resolve the problem, treat the inconclusive result as a suspected release and refer to Section 3. ❑ **If you use an ATG system to gather data for the SIR vendor or your software, periodically have a qualified UST contractor, such as the vendor who installed your ATG, service all the ATG system components according to the manufacturer's service instructions.** Tank probes and other components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least annually. Do this according to manufacturer's instructions. See the checklist for ATG systems on page 7. ❑ **If you stick your tank to gather data for the SIR vendor or your software, make sure your stick can measure to one-eighth of an inch and can measure the level of product over the full range of the tank's height.** You should check your measuring stick periodically to make sure you can read the markings and numbers and that the bottom of the stick is not worn. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep results of your SIR tests for at least 1 year.** Unless you are keeping records of the 30-day release detection results and maintaining those records for at least 1 year, you are not doing leak detection right. ❑ **Keep all vendor performance claims for at least 5 years.** This includes the certification of the SIR method discussed above. ❑ **If you use an ATG system, keep all records of calibration, maintenance, and repair of your release detection equipment for at least 1 year.** ❑ **Keep the records of investigations conducted as a result of any monthly monitoring conclusion of inconclusive or fail for at least 1 year.** This may include the results of a tightness test performed during the investigation or a re-evaluation based on corrected delivery or dispenser data.

Vapor Monitoring (for tanks & piping)	
Description Of Release Detection	**Vapor monitoring measures product vapors in the soil at the UST site to check for a leak. A site assessment must determine the number and placement of monitoring wells that make sure a release is detected. NOTE: vapor monitors will not work well with substances that do not easily vaporize (such as diesel fuel).**
Have Certification For Your Release Detection Method	❑ **Make sure your vapor monitoring equipment is certified for the types of stored contents on which the release detection system is used.** Most manufacturers have their leak detection devices tested and certified by a third party to verify that their equipment meets specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the manufacturer provide them to you.
Perform These O&M Actions	❑ **Use your release detection system to test for leaks at least every 30 days.** Testing more often than monthly can catch leaks sooner and reduce cleanup costs and problems. **Be sure you check all of your vapor monitoring wells.** ❑ **See Section 3 of this manual if your UST system fails a leak test.** ❑ **Frequently test your release detection system according to the manufacturer's instructions to make sure it is working properly.** Don't assume that your release detection system is working and never needs checking. Some electronic vapor monitoring systems have a test or self-diagnosis mode. If you have components (such as monitoring equipment, probes or sensors) for your vapor monitoring system, read your manual and test your equipment to see if it is working properly. ❑ **Periodically have a qualified UST contractor, such as the vendor who installed your release detection system, service all the system components according to the manufacturer's service instructions.** Probes and other components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least annually. ❑ **Keep your vapor monitoring wells clearly marked and secured.** ❑ **Check your vapor monitoring system owner's manual often to answer questions and to make sure you know the system's operation and maintenance procedures.** Call the system's vendor or manufacturer for a copy of the owner's manual if you don't have one. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep results of your release detection system tests for at least 1 year.** Your monitoring equipment may provide printouts that can be used as records. Unless you are recording actual release detection results at least every 30 days and maintaining records for at least 1 year, you are not doing leak detection right. ❑ **Keep all records of calibration, maintenance, and repair of your release detection equipment for at least 1 year.** ❑ **Keep all performance claims supplied by the installer, vendor, or manufacturer for at least 5 years.** These records include the certification of your leak detection equipment described above.

Groundwater Monitoring (for tanks & piping)	
Description Of Release Detection	**Groundwater monitoring looks for the presence of liquid product floating on the groundwater at the UST site. A site assessment must determine the number and placement of monitoring wells that make sure a release is detected. NOTE: this method cannot be used at sites where groundwater is more than 20 feet below the surface.**
Have Certification For Your Release Detection Method	❑ **Make sure any automated groundwater monitoring equipment is certified for the types of stored contents on which the release detection system is used.** Most manufacturers have their leak detection devices tested and certified by a third party to verify that their equipment meets specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the manufacturer provide them to you. (Manual devices such as bailers are not generally certified.)
Perform These O&M Actions	❑ **Use your release detection system to test for leaks at least every 30 days.** Testing more often than monthly can catch leaks sooner and reduce cleanup costs and problems. **Be sure you check all of your groundwater monitoring wells.** ❑ **See Section 3 of this manual if your UST system fails a leak test.** ❑ **Frequently test your automated release detection system according to the manufacturer's instructions to make sure it is working properly.** Don't assume that your release detection system is working and never needs checking. Some electronic groundwater monitoring systems have a test or self-diagnosis mode. If you have.components (such as monitoring equipment, probes or sensors) for your groundwater monitoring system, read your manual and test your equipment to see if it is working properly. Manual devices should be periodically checked to make sure they are working properly. ❑ **Periodically have a qualified UST contractor, such as the vendor who installed your release detection system, service all the system components according to the manufacturer's service instructions.** Probes and other components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least annually. ❑ **Keep your groundwater monitoring wells clearly marked and secured.** ❑ **Check your groundwater monitoring system owner's manual often to answer questions and to make sure you know the system's operation and maintenance procedures.** Call the system's vendor or manufacturer for a copy of the owner's manual if you don't have one. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep results of your release detection system tests for at least 1 year.** Your monitoring equipment may provide printouts that can be used as records. Unless you are recording actual release detection results at least every 30 days and maintaining records for at least 1 year, you are not doing leak detection right. ❑ **Keep all records of calibration, maintenance, and repair of your release detection equipment for at least 1 year.** ❑ **Keep all performance claims supplied by the installer, vendor, or manufacturer for at least 5 years.** These records include the certification of your leak detection equipment described above.

Inventory Control And Tank Tightness Testing (for tanks only)	
Description Of Release Detection	**This temporary method combines monthly inventory control with periodic tank tightness testing. Inventory control involves taking measurements of tank contents and recording the amount of product pumped each operating day, measuring and recording tank deliveries, and reconciling all this data at least once a month. This combined method also includes tightness testing, a sophisticated test performed by trained professionals.** ***NOTE: This combination method can only be used temporarily for up to 10 years after installing a new UST or for up to 10 years after your tank meets the corrosion protection requirements.***
Have Certification For Your Release Detection Method	❑ **Make sure your tank tightness testing method is certified for the types of tanks and stored contents on which the tightness test is used.** Most tightness test methods are certified by a third party to verify that they meet specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the tightness tester provide them to you.
Perform These O&M Actions	❑ **Take inventory readings and record the numbers at least each day that product is added to or taken out of the tank.** You may want to use the Daily Inventory Worksheet provided for you on the next page. ❑ **Reconcile the fuel deliveries with delivery receipts by taking inventory readings before and after each delivery.** Record these readings on a Daily Inventory Worksheet (see next page). ❑ **Reconcile all your data at least every 30 days.** Use a Monthly Inventory Record (see page 14 for an example). ❑ **Have a tank tightness test conducted at least every 5 years. This testing needs to be conducted by a professional trained in performing tank tightness testing.** ❑ **See Section 3 of this manual if your tank fails a tightness test or if fails two consecutive months of inventory control.** ❑ **Ensure that your measuring stick can measure to the nearest one-eighth inch and can measure the level of product over the full range of the tank's height.** You should check your measuring stick periodically to make sure that you can read the markings and numbers and that the bottom of the stick is not worn. ❑ **Ensure that your product dispenser is calibrated according to local standards or to an accuracy of 6 cubic inches for every 5 gallons of product withdrawn.** ❑ **Measure the water in your tank to the nearest one-eighth inch at least once a month and record the results on the reconciliation sheet.** You can use a paste that changes color when it comes into contact with water. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep results of your release detection system tests for at least 1 year.** Your monitoring equipment may provide printouts that can be used as records. Unless you are recording actual release detection results at least every 30 days and maintaining records for at least 1 year, you are not doing leak detection right. ❑ **Keep the results of your most recent tightness test.** ❑ **Keep all certification and performance claims for tank tightness test performed at your UST site for at least 5 years.**

Daily Inventory Worksheet

Facility Name: _____

Your Name: _____

Date: _____

Tank Identification					
Type Of Fuel					
Tank Size In Gallons					
End Stick Inches					
Amount Pumped	↓	↓	↓	↓	↓
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Today's Sum Of Totalizers					
Previous Day's Sum Of Totalizers					
Amount Pumped Today					
Delivery Record	↓	↓	↓	↓	↓
Inches of Fuel Before Delivery					
Gallons of Fuel Before Delivery (from tank chart)					
Inches of Fuel After Delivery					
Gallons of Fuel After Delivery (from tank chart)					
Gallons Delivered (Stick) [Gallons After - Gallons Before]					
Gross Gallons Delivered (Receipt)					

Monthly Inventory Record

Month/Year :_____/_____

Tank Identification & Type Of Fuel:_____

Facility Name:_____

Date Of Water Check: _____ Level Of Water (Inches):_____

Date	Start Stick Inventory (Gallons)		Gallons Delivered		Gallons Pumped		Book Inventory (Gallons)	End Stick Inventory (Inches)	End Stick Inventory (Gallons)	Daily Over (+) Or Short (-) [End - Book]	Initials
1		(+)		(-)		(=)					
2		(+)		(-)		(=)					
3		(+)		(-)		(=)					
4		(+)		(-)		(=)					
5		(+)		(-)		(=)					
6		(+)		(-)		(=)					
7		(+)		(-)		(=)					
8		(+)		(-)		(=)					
9		(+)		(-)		(=)					
7		(+)		(-)		(=)					
8		(+)		(-)		(=)					
9		(+)		(-)		(=)					
10		(+)		(-)		(=)					
11		(+)		(-)		(=)					
12		(+)		(-)		(=)					
13		(+)		(-)		(=)					
14		(+)		(-)		(=)					
15		(+)		(-)		(=)					
16		(+)		(-)		(=)					
17		(+)		(-)		(=)					
18		(+)		(-)		(=)					
19		(+)		(-)		(=)					
20		(+)		(-)		(=)					
21		(+)		(-)		(=)					
22		(+)		(-)		(=)					
23		(+)		(-)		(=)					
24		(+)		(-)		(=)					
25		(+)		(-)		(=)					
26		(+)		(-)		(=)					
27		(+)		(-)		(=)					
28		(+)		(-)		(=)					
29		(+)		(-)		(=)					
30		(+)		(-)		(=)					
31		(+)		(-)		(=)					

Total Gallons Pumped > _____ **Total Gallons Over Or Short >** _____

Leak Check:
Drop the last two digits from the **Total Gallons Pumped** number and enter here: _____ + 130 =

Compare these numbers

_____ gallons

Is the total gallons over or short **larger** than leak check result? **Yes** **No** (circle one)

If your answer is Yes for 2 months in a row, **notify the regulatory agency** as soon as possible.

Keep This Piece Of Paper On File For At Least 1 Year

Manual Tank Gauging (for tanks 1,000 gallons or less only)	
Description Of Release Detection	**<u>This method may be used only for tanks of 1,000 gallons or less capacity</u> meeting certain requirements. These requirements (tank size, tank dimension, and test time) are found in the manual tank gauging record on the next page. Manual tank gauging involves taking your tank out of service for the testing period (at least 36 hours) each week, during which time the contents of the tank are measured twice at the beginning and twice at the end of the test period. The measurements are then compared to weekly and monthly standards to determine if the tank is tight.**
Have Certification For Your Release Detection Method	**None required.**
Perform These O&M Actions	❑ **Once a week, record two inventory readings at the beginning of the test, allow the tank to sit undisturbed for the time specified in the Manual Tank Gauging Record on the next page, and record two inventory readings at the end of the test (use any form comparable to the one on the following page).** ❑ **Reconcile the numbers weekly and record them on a Manual Tank Gauging Record (see the next page).** ❑ **See Section 3 of this manual if your tank fails the weekly standard.** ❑ **At the end of 4 weeks, reconcile your records for the monthly standard and record the result on a Manual Tank Gauging Record (see the next page).** ❑ **See Section 3 of this manual if your tank fails the monthly standard.** ❑ **Ensure that your measuring stick can measure to the nearest one-eighth inch and can measure the level of product over the full range of the tank's height.** You should check your measuring stick periodically to make sure that you can read the markings and numbers and that the bottom of the stick is not worn. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep your manual tank gauging records for at least 1 year.** Unless you are recording actual release detection results weekly and at least every 30 days and maintaining records for at least 1 year, you are not doing leak detection right.

Manual Tank Gauging Record

Month _____ Year _____
Tank Identification: _____
Person Completing Form: _____
Facility Name: _____

Circle your tank size, test duration, and weekly/monthly standards in the table below:

Tank Size	Minimum Duration Of Test	Weekly Standard (1 test)	Monthly Standard (4-test average)
up to 550 gallons	36 hours	10 gallons	5 gallons
551-1,000 gallons (when tank diameter is 64")	44 hours	9 gallons	4 gallons
551-1,000 gallons (when tank diameter is 48")	58 hours	12 gallons	6 gallons
551-1,000 gallons (also requires periodic tank tightness testing)	36 hours	13 gallons	7 gallons
1,001-2,000 gallons (also requires periodic tank tightness testing)	36 hours	26 gallons	13 gallons

Compare your weekly readings and the monthly average of the 4 weekly readings with the standards shown in the table on the left.

If the calculated change exceeds the weekly standard, the UST may be leaking. Also, the monthly average of the 4 weekly test results must be compared to the monthly standard in the same way.

If either the weekly or monthly standards have been exceeded, the UST may be leaking. As soon as possible, call your implementing agency to report the suspected leak and get further instructions.

Start Test (month, day, and time)	First Initial Stick Reading	Second Initial Stick Reading	Average Initial Reading	Initial Gallons (convert inches to gallons) [a]	End Test (month, day, and time)	First End Stick Reading	Second End Stick Reading	Average End Reading	End Gallons (convert inches to gallons) [b]	Change In Tank Volume In Gallons + or (—) [a—b]	Tank Passes Test (circle Yes or No)
Date: Time: AM/PM					Date: Time: AM/PM						Y N
Date: Time: AM/PM					Date: Time: AM/PM						Y N
Date: Time: AM/PM					Date: Time: AM/PM						Y N
Date: Time: AM/PM					Date: Time: AM/PM						Y N
								To see how close you are to the monthly standard, divide the sum of the 4 weekly readings by 4 and enter result here >			Y N

Keep This Piece Of Paper On File For At Least 1 Year

Manual Tank Gauging And Tank Tightness Testing (for tanks 2,000 gallons or less only)	
Description Of Release Detection	**This temporary method combines manual tank gauging with periodic tank tightness testing. <u>It may be used only for tanks of 2,000 gallons or less capacity.</u> Manual tank gauging involves taking your tank out of service for the testing period (at least 36 hours) each week, during which the contents of the tank are measured twice at the beginning and twice at the end of the test period. The measurements are then compared to weekly and monthly standards to determine if the tank is tight. This combined method also includes tightness testing, a sophisticated test performed by trained professionals.** ***NOTE: This combination method can only be used temporarily for up to ten years after installing a new UST or for up to 10 years after your tank meets the corrosion protection requirements.***
Have Certification For Your Release Detection Method	❑ **Make sure your tank tightness testing is certified for the types of tanks and stored contents on which the tightness test is used.** Most tightness test methods are certified by a third party to verify that they meet specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the tightness tester provide them to you.
Perform These O&M Actions	❑ **Once a week, record two inventory readings at the beginning of the test, allow the tank to sit undisturbed for the time specified in the Manual Tank Gauging Record on page 16, and record two inventory readings at the end of the test (use any form comparable to the one on page 16).** ❑ **Reconcile the numbers weekly and record them on a Manual Tank Gauging Record (see page 16).** ❑ **See Section 3 of this manual if your tank fails the weekly standard.** ❑ **At the end of 4 weeks, reconcile your records for the monthly standard and record the result on a Manual Tank Gauging Record (see page 16).** ❑ **See Section 3 of this manual if your tank fails the monthly standard.** ❑ **Conduct a tank tightness test at least every 5 years.** This testing needs to be conducted by a professional trained in performing tank tightness testing. ❑ **See Section 3 of this manual if your tank fails the tightness test.** ❑ **Ensure that your measuring stick can measure to the nearest one-eighth inch and can measure the level of product over the full range of the tank's height.** You should check your measuring stick periodically to make sure that you can read the markings and numbers and that the bottom of the stick is not worn. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep your manual tank gauging records for at least 1 year.** Unless you are recording actual release detection results at least weekly and every 30 days and maintaining records for at least 1 year, you are not doing leak detection right. ❑ **Keep the results of your most recent tightness test.** ❑ **Keep all certification and performance claims for tank tightness test performed at your UST site for at least 5 years.**

Automatic Line Leak Detection (for pressurized piping only)	
Description Of Release Detection	**Automatic line leak detectors (LLDs) are designed to detect a catastrophic release from pressurized piping. Automatic LLDs must be designed to detect a leak at least as small as 3 gallons per hour at a line pressure of 10 psi within 1 hour. When a leak is detected, automatic LLDs must shut off the product flow, restrict the product flow, or trigger an audible or visual alarm. NOTE: Mechanical automatic LLDs need to be installed and operated as close as possible to the tank (LLDs are designed to detect a leak, restrict flow, etc. only between the detector and the dispenser).**
Have Certification For Your Release Detection Method	❑ **Make sure your release detection equipment is certified for the types of piping and stored contents on which the release detection system is used.** Most manufacturers have their leak detection devices tested and certified by a third party to verify that their equipment meets specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the manufacturer provide them to you.
Perform These O&M Actions	❑ **Frequently test your automatic LLDs according to the manufacturer's instructions to make sure it is working properly.** Don't assume that your release detection system is working and never needs checking. Some monitoring systems have a test or self-diagnosis mode. ❑ **Periodically have a qualified UST contractor, such as the vendor who installed your release detection system, service all the system components according to the manufacturers' service instructions.** Components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least annually. ❑ **See Section 3 of this manual if your LLD detects a leak.** ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **For at least a year, keep the annual test that demonstrates that the LLD is functioning properly.** ❑ **If used for monthly monitoring, keep results of your release detection system tests for at least 1 year.** Your monitoring equipment system may provide printouts that can be used as records. Unless you are recording actual release detection results at least every 30 days and maintaining records for at least 1 year, you are not doing leak detection right. ❑ **Keep all records of calibration, maintenance, and repair of your release detection equipment for at least 1 year.** ❑ **Keep all performance claims supplied by the installer, vendor, or manufacturer for at least 5 years.** These records include the certification of your leak detection equipment described above.

Line Tightness Testing (for piping only)	
Description Of Release Detection	**This method uses a periodic line tightness test to determine if your piping is leaking. Tightness testing can be performed by either a trained professional or by using a permanently installed electronic system (sometimes connected to an automatic tank gauging system).**
Have Certification For Your Release Detection Method	❑ **Make sure your line tightness testing or permanently installed electronic system is certified for the types of piping and stored contents on which the release detection system is used.** Most tightness test methods and release detection equipment have been tested and certified by a third party to verify that the equipment or services meet specific performance requirements set by regulatory agencies. If you don't have certified performance claims, have the tightness tester or equipment manufacturer provide them to you.
Perform These O&M Actions	❑ **If line tightness testing is used for pressurized piping, the test must be conducted at least annually.** ❑ **If line tightness testing is used for suction piping, the test must be conducted at least every three years.** Safe suction piping as described at the bottom of page 3 may not need release detection testing. ❑ **This tightness testing must be conducted by a professional trained in performing line tightness testing or by using a permanently installed electronic system.** ❑ **See Section 3 of this manual if your piping fails the tightness test or if the electronic system indicates a leak.** ❑ **Periodically have a qualified UST contractor, such as the vendor who installed your release detection system, service all the system components according to the manufacturers' service instructions.** Components can wear out and must be checked periodically. Many vendors recommend or require this maintenance activity at least annually. ❑ **Make sure employees who run, monitor, or maintain the release detection system know exactly what they have to do and to whom to report problems.** Develop and maintain regular training programs for all employees.
Keep These O&M Records	❑ **Keep results of your release detection system tests for at least 1 year.** Your monitoring equipment may provide printouts that can be used as records. Unless you are recording actual release detection results at least every 30 days and maintaining records for at least 1 year, you are not doing leak detection right. ❑ **If you use a permanently installed electronic system, keep all records of calibration, maintenance, and repair of your equipment for at least 1 year.** ❑ **Keep all performance claims supplied by the installer, vendor, or manufacturer for at least 5 years.** These records include the certification of your leak detection equipment described above.

30-Day Release Detection Monitoring Record

(May be used for monitoring wells, interstitial monitoring, and automatic tank gauging)

Release Detection Method: _____

Facility Name: _____

Date	Your Name	UST System (Tank & Piping) (Enter N for No Release Detected or Y for a Suspected Or Confirmed Release)			
		UST #	UST #	UST #	UST #

Keep This Piece Of Paper And Any Associated Printouts On File For At Least 1 Year From The Date Of The Last Entry

Section 3 — Suspected Or Confirmed Releases

You need to be fully prepared to respond to releases **before** they may occur. You need to know what to do when release detection methods indicate a suspected or confirmed release. Be ready to take the following steps, as appropriate.

Stop The Release

- Take immediate action to prevent the release of more product.
- Turn off the power to the dispenser and bag the nozzle.
- Make sure you know where your emergency shutoff switch is located.
- Empty the tank, if necessary, without further contaminating the site. You may need the assistance of your supplier or distributor.

Contain The Release

Contain, absorb, and clean up any surface spills or overfills. You should keep enough absorbent material at your facility to contain a spill or overfill of petroleum products until emergency response personnel can respond to the incident. The suggested supplies include, but are not limited to, the following:

- Containment devices, such as containment booms, dikes, and pillows.
- Absorbent material, such as kitty litter, chopped corn cob, sand, and sawdust. (Be sure you properly dispose of used absorbent materials.)
- Mats or other material capable of keeping spill or overfill out of nearby storm drains.
- Spark-free flash light.
- Spark-free shovel.
- Buckets.
- Reels of caution tape, traffic cones, and warning signs.
- Personal protective gear.

Also, identify any fire, explosion, or vapor hazards and take action to neutralize these hazards.

Call For Help

Contact your local fire or emergency response authority. Make sure you have these crucial telephone numbers prominently posted where you and your employees can easily see them. See the next page for a form you can copy and post.

Report To Authorities

If you observe any of the following, contact your state's underground storage tank regulatory authority to report a suspected or confirmed release as soon as possible (within 24 hours):

- Any spill or overfill of petroleum that exceeds 25 gallons or that causes a sheen on nearby surface water. (Spills and overfills under 25 gallons that are contained and immediately cleaned up do not have to be reported. If they can't be quickly cleaned up they must be reported to your regulatory agency.)

- Any released regulated substances at the UST site or in the surrounding area — such as the presence of liquid petroleum; soil contamination; surface water or groundwater contamination; or petroleum vapors in sewer, basement, or utility lines.

- Any unusual operating conditions you observe — such as erratic behavior of the dispenser, a sudden loss of product, or an unexplained presence of water in the tank. However, you are not required to report if:

    - The system equipment is found to be defective, but not leaking, and is immediately repaired or replaced.

- Results from your release detection system indicate a suspected release. However, you are not required to report if:

    - The monitoring device is found to be defective and is immediately repaired, recalibrated, or replaced and further monitoring does not confirm the initial suspected release, or

    - In the case of inventory control, a second month of data does not confirm the initial result.

The next page contains a blank list for names and phone numbers of important contacts. Fill out this information for your facility so that you will know who to call in case of an emergency. Remove this page from the manual, copy it, fill it out, and post it in a prominent place at your facility.

Copy the next page and update it often. Make sure everyone at your UST facility is familiar with this list of contacts.

Release Response
Important Contact Information

	Contact Name	Phone #
State UST Agency:		
Local UST Agency:		
Fire Department:		
Ambulance:		
Police Department:		
Repair Contractor:		
Other Contacts:		

✔ Release Response Checklist

- ❑ **Stop the release:** Take immediate action to prevent the release of more product. Turn off the power to the dispenser and bag the nozzle. Make sure you know where your emergency shutoff switch is located. Empty the tank, if necessary, without further contaminating the site.
- ❑ **Contain the release:** Contain, absorb, and clean up any surface releases. Identify any fire, explosion, or vapor hazards and take action to neutralize these hazards.
- ❑ **Call for help and to report suspected or confirmed releases:** Contact your local fire or emergency response authority. Contact your state's underground storage tank regulatory authority within 24 hours.

Section 4 — Spill And Overfill Protection

The purpose of spill and overfill protection equipment is to eliminate the potential for a release during fuel deliveries. The equipment must be in working order and used properly to provide adequate protection from spills and overfills.

Even the best spill and overfill protection equipment can become faulty over time if not properly operated and maintained.

Only one gallon of fuel leaking each week from a poorly maintained spill bucket can result in up to 195 tons of contaminated soil in a year.

Improper maintenance of the spill bucket at the UST site pictured below contributed to significant contamination of soil and groundwater.

What's The Difference?

Spill Protection:
A spill bucket is installed at the fill pipe to contain the drips and spills of fuel that can occur when the delivery hose is uncoupled from the fill pipe after delivery.

Overfill Protection:
Equipment is installed on the UST that is designed to stop product flow, reduce product flow, or alert the delivery person during delivery **before** the tank becomes full and begins releasing petroleum into the environment.

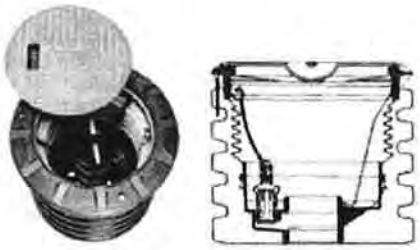
The following pages in this section focus on how you can routinely make sure your spill and overfill equipment is operating effectively.

What Are The Basics Of Spill Protection?

Your USTs must have catchment basins — also called spill buckets — installed at the fill pipe to contain spills that may occur as a result of fuel deliveries.

- The spill bucket is designed to temporarily contain product spills that might occur during fuel delivery. To contain a spill, the spill bucket must be liquid tight.
- **The spill bucket is not designed to contain fuel for long periods of time.** After each delivery, empty and dispose of contents properly.
- Spill buckets need to be large enough to contain any fuel that may spill when the delivery hose is uncoupled from the fill pipe. Spill buckets typically range in size from 5 gallons to 25 gallons.
- If you use a checklist for correct delivery practices (see page 33), spills should be eliminated or reduced to very small volumes that your spill bucket can easily handle.

If your UST ***never*** receives deliveries of more than 25 gallons at a time, the UST does not need to meet the spill protection requirements. Many used oil tanks fall into this category. Even though these USTs are not required to have spill protection, you should consider using spill protection as part of good UST system management.



Examples Of Spill Buckets

How Do You Maintain Your Spill Bucket?

The checklist below provides information on properly maintaining your spill bucket.

✔ Spill Bucket O&M Checklist

- ❑ **Keep your spill bucket empty of liquids.**
  Some spill buckets are equipped with a valve that allows you to drain accumulated fuel into your UST. Others may be equipped with a manual pump so fuel can be put into your UST by pumping it through the fill pipe. However, keep in mind that when you pump out or drain your spill bucket into your UST, any water and debris may also enter the UST. If a basin is not equipped with drain valve or pump, then any accumulated fuel or water must be removed manually and disposed of properly.
- ❑ **Periodically check your spill bucket to remove any debris.**
  Debris could include soil, stones, or trash.
- ❑ **Periodically check to see if your spill bucket is still liquid tight.**
  Have a qualified UST contractor inspect your spill bucket for signs of wear, cracks, or holes. Based on this inspection, the contractor may suggest a test to determine if the spill bucket is tight or needs repair or replacement.

What Are The Basics Of Overfill Protection?

Your USTs must have overfill protection installed to help prevent the overfilling of tanks.

Three types of overfill protection devices are commonly used:

- Automatic shutoff devices
- Overfill alarms
- Ball float valves

Each of these forms of overfill protection is discussed in detail on the following pages.

If your UST ***never*** receives deliveries of more than 25 gallons at a time, the UST does not need to meet the overfill protection requirements. Many used oil tanks fall into this category. Even though these USTs are not required to have overfill protection, you should consider using overfill protection as part of good UST system management.

How Can You Help The Delivery Person Avoid Overfills?

To protect your business, you must make every effort to help the delivery person avoid overfilling your UST.

Use A Checklist On Correct Filling Practices

If correct filling practices are used, you will not exceed the UST's capacity — see page 33 for a checklist on correct filling procedures. Overfills are caused when the delivery person makes a mistake, such as ignoring an overfill alarm.

Use Signs, Alert Your Delivery Person

The delivery person should know what type of overfill device is present on each tank at your facility and what action will occur if the overfill device is triggered — such as a visual and/or audible alarm or that the product flow into the tank will stop or slow significantly.

Educate and alert your delivery person by placing a clear sign near your fill pipes, in plain view of the delivery person. An example of such a sign follows on the next page.

Delivery Person — Avoid Overfills

- An **overfill alarm** is used for overfill protection at this facility.
- Do not tamper with this alarm in any attempt to defeat its purpose.
- When the tank is 90% full, the overfill alarm whistles and a red light flashes.
- **If you hear the alarm whistle or see the red light flashing,**

Stop The Delivery Immediately!

Make Sure You Order The Right Amount Of Product

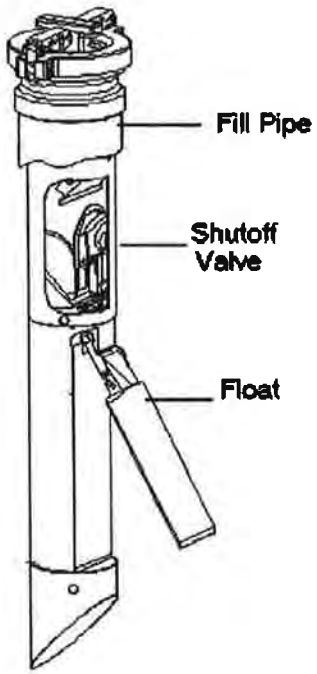
Also, you need to **make sure you've ordered the right amount of product for delivery**. Order only the quantity of fuel that will fit into 90% of the tank. For example, if you have a 10,000 gallon tank with 2,000 gallons already in the tank, you would order at the most a 7,000 gallon delivery (90% of 10,000 is 9,000 gallons; subtracting the 2,000 gallons already in the tank leaves a maximum delivery of 7,000 gallons). Use the checklist formula on page 33. Do your homework right and you reduce the chance of overfills.

What Should You Do To Operate And Maintain Your Automatic Shutoff Device?

The automatic shutoff device is a mechanical device installed in line with the drop tube within the fill pipe riser. It slows down and then stops the delivery when the product has reached a certain level in the tank. It should be positioned so that the float arm is not obstructed and can move through its full range of motion.

When installed and maintained properly, the shutoff valve will shut off the flow of fuel to the UST at 95% of the tank's capacity or before the fittings at the top of the tank are exposed to fuel.

You should not use an automatic shutoff device for overfill protection if your UST receives pressurized deliveries.



✔ Basic O&M Checklist For Automatic Shutoff Devices

- ❑ A qualified UST contractor periodically checks to make sure that the automatic shutoff device is functioning properly and that the device will shut off fuel flowing into the tank at 95% of the tank capacity or before the fittings at the top of the tank are exposed to fuel:
  - Make sure the float operates properly.
  - Make sure there are no obstructions in the fill pipe that would keep the floating mechanism from working.
- ❑ You have posted signs that the delivery person can easily see and that alert the delivery person to the overfill warning devices and alarms in use at your facility.

What Should You Do To Operate And Maintain Your Electronic Overfill Alarm?

This type of overfill device activates an audible and/or visual warning to delivery personnel when the tank is either 90% full or is within one minute of being overfilled. **The alarm *must* be located so it can be seen and/or heard from the UST delivery location.** Once the electronic overfill alarm sounds, the delivery person has approximately one minute to stop the flow of fuel to the tank.

Electronic overfill alarm devices have no mechanism to shut off or restrict flow. Therefore, the fuel remaining in the delivery hose after the delivery has been stopped will flow into the tank as long as the tank is not yet full.

✔ Basic O&M Checklist For Overfill Alarms

- ❑ A qualified UST contractor periodically checks your electronic overfill alarm to make sure that it is functioning properly and that the alarm activates when the fuel reaches 90% of the tank capacity or is within one minute of being overfilled:
  - Ensure that the alarm can be heard and/or seen from where the tank is fueled.
  - Make sure that the electronic device and probe are operating properly.
- ❑ You have posted signs that the delivery person can easily see and that alert the delivery person to the overfill warning devices and alarms in use at your facility.

What Should You Do To Operate And Maintain Your Ball Float Valve?

The ball float valve — also called a float vent valve — is installed at the vent pipe in the tank and restricts vapor flow in an UST as the tank gets close to being full. The ball float valve should be set at a depth which will restrict vapor flow out of the vent line during delivery at 90% of the UST's capacity or 30 minutes prior to overfilling.

As the tank fills, the ball in the valve rises, restricting the flow of vapors out of the UST during delivery. The flow rate of the delivery will decrease noticeably and should alert the delivery person to stop the delivery.

For ball float valves to work properly, the top of the tank must be air tight so that vapors cannot escape from the tank. Everything from fittings to drain mechanisms on spill buckets must be tight and be able to hold the pressure created when the ball float valve engages.

You should not use a ball float valve for overfill protection if any of the following apply:

- **Your UST receives pressurized deliveries.**
- **Your UST system has suction piping.**
- **Your UST system has single point (coaxial) stage 1 vapor recovery.**

✔ Basic O&M Checklist For Ball Float Valves

❑ A qualified UST contractor periodically checks to make sure that the ball float valve is functioning properly and that it will restrict fuel flowing into the tank at 90% of the tank capacity or 30 minutes prior to overfilling:

- Ensure that the air hole is not plugged.
- Make sure the ball cage is still intact.
- Ensure the ball still moves freely in the cage.
- Make sure the ball still seals tightly on the pipe.

❑ You have posted signs that the delivery person can easily see and that alert the delivery person to the overfill warning devices and alarms in use at your facility.

✔ Spill And Overfill O&M Checklist	
Spill Bucket	❑ **Keep your spill bucket empty of liquids.** Some spill buckets are equipped with a drainage valve which allows you to drain accumulated fuel into your UST. Others can be equipped with a manual pump so fuel can be put into your UST by pumping it through the fill pipe. However, keep in mind that when you pump out or drain your spill bucket into your UST, any water and debris may also enter the UST. If a spill bucket is not equipped with a drain valve or pump, then any accumulated fuel or water must be removed manually and disposed of properly. ❑ **Periodically check your spill bucket to remove any debris.** Debris could include soil, stones, or trash. ❑ **Periodically check to see if your spill bucket is still liquid tight.** Have a qualified UST contractor inspect your spill bucket for signs of wear, cracks, or holes. Based on this inspection, the contractor may suggest a test to determine if the spill bucket is tight or needs repair or replacement.
Automatic Shutoff Devices	❑ A qualified UST contractor periodically checks to make sure that the automatic shutoff device is functioning properly and that the device will shut off fuel flowing into the tank at 95% of the tank capacity or before the fittings at the top of the tank are exposed to fuel: • Make sure the float operates properly. • Make sure that there are no obstructions in the fill pipe that would keep the floating mechanism from working. ❑ You have posted signs that the delivery person can easily see and that alert the delivery person to the overfill warning devices and alarms in use at your facility.
Overfill Alarms	❑ A qualified UST contractor periodically checks your electronic overfill alarm to make sure that it is functioning properly and that the alarm activates when the fuel reaches 90% of the tank capacity or is within one minute of being overfilled: • Ensure that the alarm can be heard and/or seen from where the tank is fueled. • Make sure that the electronic device and probe are operating properly. ❑ You have posted signs that the delivery person can easily see and that alert the delivery person to the overfill warning devices and alarms in use at your facility.
Ball Float Valves	❑ A qualified UST contractor periodically checks to make sure that the ball float valve is functioning properly and that it will restrict fuel flowing into the tank at 90% of the tank capacity or 30 minutes prior to overfilling: • Ensure that the air hole is not plugged. • Make sure the ball cage is still intact. • Ensure the ball still moves freely in the cage. • Make sure the ball still seals tightly on the pipe. ❑ You have posted signs that the delivery person can easily see and that alert the delivery person to the overfill warning devices and alarms in use at your facility.

What Are Your Responsibilities For Correct Filling Practices?

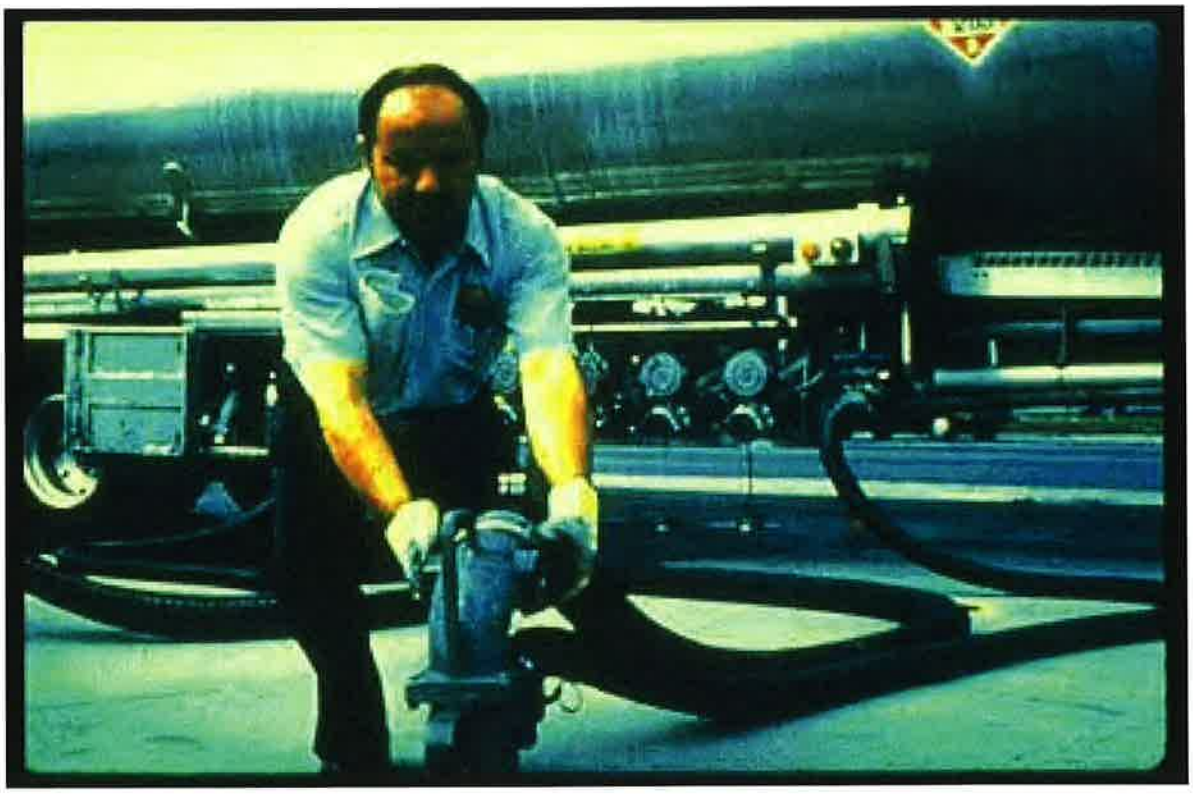
As an owner or operator you are responsible for ensuring that releases due to spilling or overfilling do not occur during fuel delivery.

As part of this responsibility, you must:

- Ensure the amount of product to be delivered will fit into the available empty space in the tank; and

- Ensure the transfer operation is monitored constantly to prevent overfilling and spilling.

One way help ensure the above requirements are met is to follow the checklist on the next page. The checklist describes activities to perform before, during, and after a fuel delivery.



✔ Correct Filling Checklist

What To Do Before Your USTs Are Filled	❑ Post clear signs that alert delivery persons to the overfill devices and alarms in use at your facility. ❑ Make and record accurate readings for product and water in the tank before fuel delivery. ❑ Order only the quantity of fuel that will fit into 90% of the tank. **Remember, the formula for determining the maximum amount of gasoline to order is:** (Tank capacity in gallons X 90%) — Product currently in tank = Maximum amount of fuel to order **Example:** (10,000 gal X 0.9) — 2,000 gal = 7,000 gal maximum amount to order ❑ Ensure fuel delivery personnel know the type of overfill device present at the tank and what actions to perform if it activates. For example, use sample sign on page 27 of this chapter. ❑ Review and understand the spill response procedures. ❑ Verify that your spill bucket is empty, clean, and will contain spills.
What To Do While Your USTs Are Being Filled	❑ Keep fill ports locked until the fuel delivery person requests access. ❑ Have an accurate tank capacity chart available for the fuel delivery person. ❑ The fuel delivery person makes all hook-ups. The person responsible for monitoring the delivery should remain attentive and observe the entire fuel delivery, be prepared to stop the flow of fuel from the truck to the UST at any time, and respond to any unusual condition, leak, or spill which may occur during delivery. ❑ Have response supplies readily available for use in case a spill or overfill occurs (see Section 3). ❑ Provide safety barriers around the fueling zone. ❑ Make sure there is adequate lighting around the fueling zone.
What To Do After Your USTs Are Filled	❑ Following complete delivery, the fuel delivery person is responsible for disconnecting all hook-ups. ❑ Return spill response kit and safety barriers to proper storage locations. ❑ Make and record accurate readings for product and water in the tank after fuel delivery. ❑ Verify the amount of fuel received. ❑ Make sure fill ports are properly secured. ❑ Ensure the spill bucket is free of product and clean up any small spills.

Section 5 — Corrosion Protection

To prevent leaks, all parts of your UST system that are underground and routinely contain product need to be protected from corrosion. The UST system includes the tank, piping, and ancillary equipment, such as flexible connectors, fittings, and pumps. Unprotected metal UST components can deteriorate and leak when underground electrical currents act upon them.

One way to protect UST components from corrosion is to **make them with nonmetallic, noncorrodible materials**, such as USTs made of (or clad or jacketed with) fiberglass reinforced plastic (FRP) or other noncorrodible materials — as illustrated by the FRP tank on the right. Noncorrodible USTs like these do not require O&M for corrosion protection.

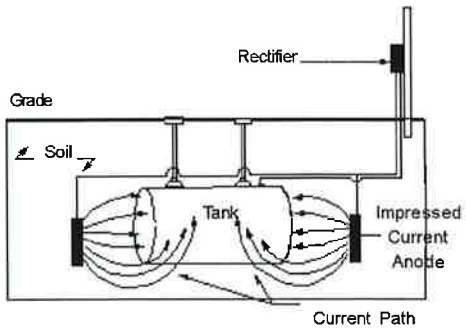
UST components made from metal, however, that routinely contain product and are in direct contact with the ground need corrosion protection provided by cathodic protection or (in some cases) lining the interior of the tank, as described below. These options require O&M.

Note: Metal tanks or piping installed after December 22, 1988 must have a dielectric coating (a coating that does not conduct electricity) in addition to the cathodic protection described below.

Cathodic Protection Using Sacrificial Anode Systems

Sacrificial anodes are buried and attached to UST components for corrosion protection — as illustrated on the right by an anode attached to a tank. Anodes are pieces of metal that are more electrically active than steel, and thus they suffer the destructive effects of corrosion rather than the steel they are attached to.

Cathodic Protection Using Impressed Current Systems



An impressed current system — as shown on the right — uses a rectifier to provide direct current through anodes to the tank or piping to achieve corrosion protection. The steel is protected because the current going to the steel overcomes the corrosion-causing current flowing away from it. **The cathodic protection rectifier must always be on and operating to protect your UST system from corrosion.**

Corrosion Protection Using Internal Lining Of The Tank

This corrosion protection option applies only to tanks installed before December 22, 1988. These older tanks can be internally lined by trained professionals to meet the corrosion protection requirements — as shown on the right, in which a professional follows industry codes to safely and effectively line a tank's interior.

It may help you to see your corrosion protection options displayed in the following table.

Corrosion Protection Choices	
Option	**Description**
Noncorrodible Material	The tank or piping is constructed of noncorrodible material.
Steel Tank Clad Or Jacketed With A Noncorrodible Material	Examples of cladding or jacket material include fiberglass and urethane. Does not apply to piping.
Coated And Cathodically Protected Steel Tanks Or Piping	Steel tank and piping is well-coated with a dielectric material and cathodically protected.
Cathodically Protected Noncoated Steel Tanks Or Piping	*This option is only for steel tanks and piping installed before December 22, 1988.* Cathodic protection is usually provided by an impressed current system.
Internal Lining Of Tanks	*This option is only for steel tanks installed before December 22, 1988.* A lining is applied to the inside of the tank. Does not apply to piping.
Combination Of Cathodically Protected Steel And Internal Lining Of Tanks	*This option is only for steel tanks installed before December 22, 1988.* Cathodic protection is usually provided by an impressed current system. Does not apply to piping.
Other Methods Used To Achieve Corrosion Protection	If you have tanks or piping that do not meet any of the descriptions above, check with your state UST agency to see if your UST system meets the requirements for corrosion protection. You also will need to ask about the operation, maintenance, and record keeping requirements applicable to this type of UST system.

Note: In addition to tanks and piping, all other metal components in direct contact with the ground that routinely hold product — such as flexible connectors, swing joints, fittings, and pumps — must also be cathodically protected.

Use the O&M checklist on the next page. Following the checklist look for record keeping forms and discussions of special corrosion protection situations.

✔ Basic O&M Checklist For Corrosion Protection

Sacrificial Anode Cathodic Protection Systems	**You need to have a periodic test conducted by a qualified corrosion tester to make sure your cathodic protection system is adequately protecting your UST system. This test needs to be conducted:** ❑ Within 6 months of installation. ❑ At least every 3 years after the previous test. ❑ Within 6 months after any repairs to your UST system. • Make sure the professional tester is qualified to perform the test and follows a standard code of practice to determine that test criteria are adequate. • If any test indicates your tanks are not adequately protected, you need to have a corrosion expert examine and fix your system. • Testing more frequently can catch problems before they become big problems. ❑ **You need to keep the results of at least the last two tests on file.** See the next page for a cathodic protection test record keeping form.
Impressed Current Cathodic Protection Systems	**You need to have a periodic test conducted by a qualified corrosion tester to make sure your cathodic protection system is adequately protecting your UST system. This test needs to be conducted:** ❑ Within 6 months of installation. ❑ At least every 3 years after the previous test. ❑ Within 6 months after any repairs to your UST system. • Make sure the professional tester is qualified to perform the test and follows a standard code of practice to determine that test criteria are adequate. • If any test indicates your tanks are not adequately protected, you need to have a corrosion expert examine and fix your system. • Testing more frequently can catch problems before they become big problems. ❑ **You need to keep the results of at least the last two tests on file.** See next page for a cathodic protection test record keeping form. ❑ **You need to inspect your rectifier at least every 60 days to make sure that it is operating within normal limits.** • This inspection involves reading and recording the voltage and amperage readouts on the rectifier. You or your employees can perform this periodic inspection. • Make sure your cathodic protection professional provides you with the rectifier's acceptable operating levels so you can compare the readings you take with an acceptable operating level. If your readings are not within acceptable levels, you must contact a cathodic protection professional to address the problem. ❑ **You need to keep records of at least the last 3 rectifier readings.** See page 39 for a 60-Day Inspection Results record keeping form. ❑ **You should have a trained professional periodically service your impressed current system.** ❑ **Never turn off your rectifier!**
Internally Lined Tanks	❑ Within 10 years after lining and at least every 5 years thereafter, the lined tank must be inspected by a trained professional and found to be structurally sound with the lining still performing according to original design specifications. Make sure the professional performing the inspection follows a standard code of practice. ❑ **Keep records of the inspection (as specified in industry standards for lining inspections).**

Record For Periodic Testing Of Cathodic Protection Systems

(for use by a qualified cathodic protection tester)

Test Date:____/____/____ Facility Name/ID:_____

Note: Provide site sketch as directed on the back of this page.

Cathodic Protection (CP) Tester Information:

Name: _____ Phone Number:_____

Address: _____

Testing must be conducted by a qualified CP tester. Indicate your qualifications as a CP tester:

Identify which of the following testing situations applies:

- ❑ Test required within 6 months of installation of CP system (installation date was __/__/__)
- ❑ Test required at least every 3 years after installation test noted above
- ❑ Test required within 6 months of any repair activity – note repair activity and date below:

Indicate which industry standard you used to determine that the cathodic protection test criteria are adequate: _____

	Cathodic Protection Test Method Used (check one)
	100 mV Cathodic Polarization Test
	-850 mV Test (Circle 1 or 2 below) 1) Polarized Potential (instant off) 2) Potential with CP Applied, IR Drop Considered **Note: All readings taken must meet the -850 mV criteria to pass**
	Other Accepted Method (please describe):

Is the cathodic protection system working properly? Yes No (circle one)

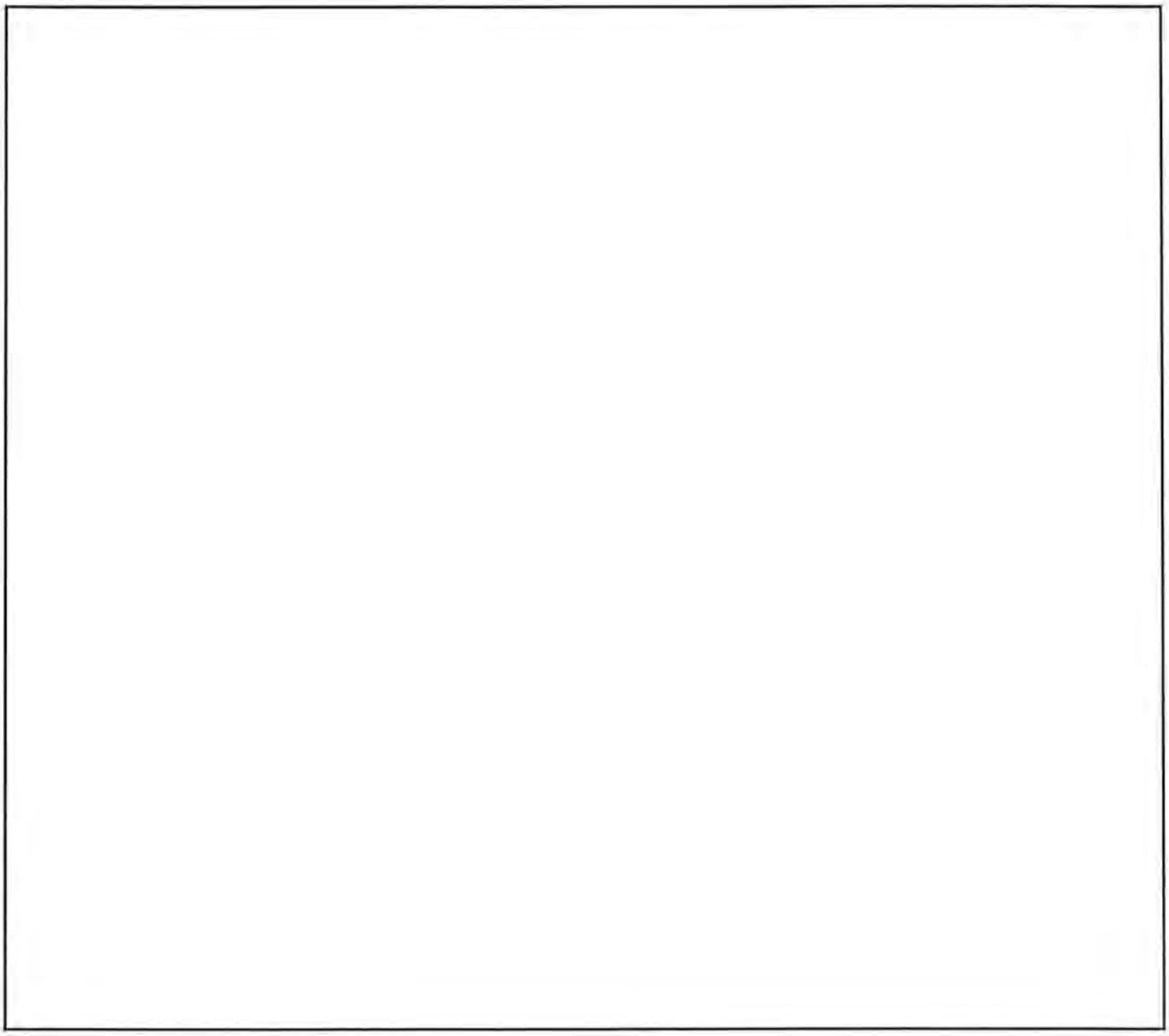
If answer is no, go to the directions at the bottom on the back of this page.

My signature below affirms that I have sufficient education and experience to be a cathodic protection tester; I am competent to perform the tests indicated above; and that the results on this form are a complete and truthful record of all testing at this location on the date shown.

CP Tester Signature: _____ Date:_____

Keep This Paper On File For At Least Six Years

Site Sketch: Provide a rough sketch of the tanks and piping, the location of each CP test, and each voltage value obtained (use space below or attach separate drawing). Voltage readings through concrete or asphalt do not provide accurate readings and are not acceptable. Perform sufficient testing to evaluate the entire UST system.



If CP system fails test, you must have a corrosion expert fix the system.

If the answer was no, indicating that your CP system is not working, you must have a ***corrosion expert*** investigate and fix the problem. A corrosion expert has additional training, skills, and certification beyond the corrosion tester who filled out the bulk of this form. A corrosion expert must be:

- Accredited/certified by NACE International (The Corrosion Society) as a corrosion specialist or cathodic protection specialist, or
- Be a registered professional engineer with certification or licensing in corrosion control.

As long as you have the UST, be sure you keep a record that clearly documents what the corrosion expert did to fix your CP system.

Keep This Paper On File For At Least Six Years

60-Day Inspection Results For Impressed Current Cathodic Protection Systems

Facility Name: _____

Amp Range Recommended: _____

Voltage Range Recommended: _____

Date	Your Name	Voltage Reading	Amp Reading	Is Your System Running Properly? (Yes/No)

- **If the rectifier voltage and/or amperage output(s) are outside the recommended operating levels, contact a cathodic protection expert to address the problem.**
- **Never turn off your rectifier.**
- **Keep this record for at least 6 months after the date of the last reading.**

Some Special Corrosion Protection Situations

What If You Have An STI-P3 Tank With A PP4 Test Station?

If you have a PP4 test station installed with an STI-P3 tank, you may perform the periodic testing of your cathodic protection system by using the meter provided to you with the PP4 test station.

- Don't forget to record the result of the reading and keep at least the last two results.
- If your test readings do not pass, you must take action to correct the problem. Call your installer and ask that the corrosion expert who designed the system examine it and correct the problem.

What If You Combine Internal Lining And Cathodic Protection?

If you chose the combination of internal lining and cathodic protection for meeting corrosion protection requirements on your UST, you may not have to meet the periodic inspection requirement for the lined tank. However, you must always meet the requirements for checking and testing your cathodic protection system as described in the basic O&M checklist for corrosion protection on page 36. The 10-year and subsequent 5-year inspections of the lined tank are not required if the integrity of the tank was ensured when cathodic protection was added. You should be able to show an inspector documentation of the passed integrity assessment.

Example 1:
If you have cathodic protection and internal lining applied to your tank at the same time, periodic inspections of the lined tank **are not** required because an integrity assessment of the tank is required prior to adding the cathodic protection and internal lining.

Example 2:
If you had cathodic protection added to a tank in 1997 that was internally lined in 1994 and the contractor did not perform an integrity assessment of the tank at the time cathodic protection was added (or you cannot show an inspector documentation of the passed integrity assessment), then periodic inspections of the lined tank **are** required because you cannot prove that the tank was structurally sound and free of corrosion holes when the cathodic protection was added. The lined tank needs to be periodically inspected because the lining may be the only barrier between your gasoline and the surrounding environment.

What If You Have A Double Walled Steel UST With Interstitial Monitoring And Cathodic Protection?

If you have a cathodically protected double walled steel tank and you use interstitial monitoring capable of detecting a breach in both the inner and outer wall or ingress of product and water as your method of leak detection, then you should monitor your cathodic protection system within six months of installation and following any activity that could affect the CP system.

If you are using impressed current cathodic protection, you still need to perform the 60-day checks of your rectifier to make sure it is operating within normal limits.

- Testing the cathodic protection system more frequently may help catch problems quicker.
- If your test readings do not pass, you must take action to correct the problem. Call your installer and ask that the corrosion expert who designed the system examine it and correct the problem.
- Don't forget to keep at least the last two results of your cathodic protection testing.

Do All UST Sites Need Corrosion Protection?

A corrosion expert may be able to determine the soil at an UST site is not conducive to corrosion and will not cause the tank or piping to have a release during its operating life. If so, you must keep a record of that corrosion expert's analysis for the life of the tank or piping to demonstrate why your UST has no corrosion protection.

Section 6 — Frequent Walk-Through Inspections

You should conduct basic walk-through inspections of your facility **at least monthly** to make sure your essential equipment is working properly and you have release response supplies on hand.

These inspections would not be as thorough as following the O&M checklists presented earlier in this booklet, but they can provide a quick overview you can do more often than the longer checklists. You might think of this level of inspection as similar to automobile dashboard indicators that provide us with status warnings like low battery.

When you perform your walk-through inspection you should quickly check at least the following:

- **Release Detection System:** Is your release detection equipment working properly? For example, did you run a quick self-test of the ATG to verify it's working properly? Or did you check your manual dip stick to make sure it's not warped or worn?
- **Spill Buckets:** Are spill buckets clean, empty, and in good condition?
- **Overfill Alarm (if you have one):** Is your overfill alarm working and easily seen or heard?
- **Impressed Current Cathodic Protection System (if you have one):** Is your cathodic protection system turned on? Are you checking your rectifier at least every 60 days?
- **Fill And Monitoring Ports:** Are covers and caps tightly sealed and locked?
- **Spill And Overfill Response Supplies:** Do you have the appropriate supplies for cleaning up a spill or overfill?

In addition, good UST site management should also include the following quick visual checks:

- **Dispenser Hoses, Nozzles, And Breakaways:** Are they in good condition and working properly?
- **Dispenser And Dispenser Sumps:** Any signs of leaking? Are the sumps clean and empty?
- **Piping Sumps:** Any signs of leaking? Are the sumps clean and empty?

If you find any problems during the inspection, you or your UST contractor need to take action quickly to resolve these problems and avoid serious releases.

A frequent walk-through checklist is provided for your use on the next page.

✔ Frequent Walk-Through Inspection Checklist						
Date Of Inspection						
Release Detection System: Inspect for proper operation.						
Spill Buckets: Ensure spill buckets are clean and empty.						
Overfill Alarm: Inspect for proper operation. Can a delivery person hear or see the alarm when it alarms?						
Impressed Current System: Inspect for proper operation.						
Fill And Monitoring Ports: Inspect all fill/monitoring ports and other access points to make sure that the covers and caps are tightly sealed and locked.						
Spill And Overfill Response Supplies: Inventory and inspect the emergency spill response supplies. If the supplies are low, restock the supplies. Inspect supplies for deterioration and improper functioning.						
Dispenser Hoses, Nozzles, And Breakaways: Inspect for loose fittings, deterioration, obvious signs of leakage, and improper functioning.						
Dispenser And Dispenser Sumps: Open each dispenser and inspect all visible piping, fittings, and couplings for any signs of leakage. If any water or product is present, remove it and dispose of it properly. Remove any debris from the sump.						
Piping Sumps: Inspect all visible piping, fittings, and couplings for any signs of leakage. If any water or product is present, remove it and dispose of it properly. Remove any debris from the sump.						

Your initials in each box below the date of the inspection indicate the device/system was inspected and OK on that date.

Section 7 — For More Information

This section identifies UST program contacts and other resources to help answer your questions and provide you with information about good UST management.

Internet Resources

Government Links

Directory of State UST Program Contacts: http://www.epa.gov/oust/states/statcon1.htm
Directory of State UST Program Internet Sites: http://www.epa.gov/oust/states/stateurl.htm
U.S. Environmental Protection Agency's Office of Underground Storage Tanks Home Page: http://www.epa.gov/oust. To go directly to the compliance assistance section of the Home page go to: http://www.epa.gov/swerust1/cmplastc/index.htm
Tanks Subcommittee of the Association of State and Territorial Solid Waste Management Officials (ASTSWMO): http://www.astswmo.org/programs_tanks.htm
New England Interstate Water Pollution Control Commission (NEIWPCC): http://www.neiwpcc.org

Professional And Trade Association Links

American Petroleum Institute (API): http://www.api.org
American Society of Testing and Materials (ASTM): http://www.astm.org
Fiberglass Tank and Pipe Institute (FTPI): http://www.fiberglasstankandpipe.com
NACE International - The Corrosion Society: http://www.nace.org
National Fire Protection Association (NFPA) : http://www.nfpa.org
Petroleum Equipment Institute (PEI): http://www.pei.org
Steel Tank Institute (STI): http://www.steeltank.com
Underwriters Laboratories (UL): http://www.ul.com

Free Informative Publications Available

The publications listed below are free and available from the U.S. Environmental Protection Agency (EPA). You can access these publications in the following ways.

Go to EPA's web site at http://www.epa.gov/oust/pubs/index.htm to order, read, or download documents online.
Write and ask for **free** publications by addressing your request to EPA's publication distributor: National Service Center for Environmental Publications (NSCEP), Box 42419, Cincinnati, OH 45242.
For **free** copies, call EPA's publication distributor's **toll-free** number at (800) 490-9198. Or go to http://www.epa.gov/nscep/ordering.htm for additional ordering methods.

Catalog Of EPA Materials On USTs
An annotated list of UST materials, including ordering information. Most of the leaflets, booklets, videos, and software items listed provide UST owners and operators with information to help them comply with federal UST requirements (32 pages).

Musts For USTs: A Summary Of Federal Regulations For Underground Storage Tank Systems
Plain language summary of federal UST requirements for installation, release detection, spill, overfill, and corrosion protection, corrective action, closure, reporting and recordkeeping. Updated & revised 1995 (36 pages).

Model Underground Storage Tank Environmental Results Program Workbook
Workbook, which states can modify to reflect their laws, helps improve owner and operator compliance with UST regulations. Contains general information about ERP; instructions on how to use the workbook; regulatory requirements, best management practices, and compliance checklists for USTs; and draft forms and worksheets in the appendices (164 pages). (Available on web only)

UST Systems: Inspecting And Maintaining Sumps And Spill Buckets – Practical Help And Checklist
Manual presents recommended inspection guidelines and best management practices for UST system sumps and spill buckets. Includes safety considerations; a general introduction to the kinds of sumps; basic maintenance procedures for sumps and spill buckets; and a sump and spill bucket inspection checklist (16 pages).

Straight Talk On Tanks: Leak Detection Methods For Petroleum Underground Storage Tanks
Explains federal regulatory requirements for leak detection and briefly describes allowable leak detection methods. Updated & revised 2005 (28 pages).

Getting The Most Out Of Your Automatic Tank Gauging System
Trifold leaflet provides UST owners and operators with a basic checklist they can use to make sure their automatic tank gauging systems work effectively and provide compliance with federal leak detection requirements.

Doing Inventory Control Right: For Underground Storage Tanks
Booklet describes how owners and operators of USTs can use inventory control and periodic tightness testing to temporarily meet federal leak detection requirements. Contains recordkeeping forms (16 pages).

Manual Tank Gauging: For Small Underground Storage Tanks
Booklet provides simple, step-by-step directions for conducting manual tank gauging for tanks 2,000 gallons or smaller. Contains recordkeeping forms (12 pages).

List Of Leak Detection Evaluations For UST Systems
A summary of specifications, based on third-party certifications, for over 275 systems that detect leaks from USTs and their piping. Each summary provides information on such items as certified detectable leak rate/threshold, test period duration, product applicability, calibration requirements, restrictions on the use of the device, and so on. (Available on web only)

List Of Integrity Assessment Evaluations For USTs
A list of integrity assessment procedures that have been successfully evaluated and certified by a qualified independent third party to meet specified performance criteria. (Available on web only)

Introduction To Statistical Inventory Reconciliation: For Underground Storage Tanks
Booklet describes how Statistical Inventory Reconciliation (SIR) can meet federal leak detection requirements (12 pages).

Closing Underground Storage Tanks: Brief Facts
Trifold leaflet presents "brief facts" on properly closing USTs in order to comply with federal closure requirements.

Underground Storage Tanks: Requirements And Options
Trifold leaflet alerts UST owners and operators who are "nonmarketers" (who do not sell stored petroleum) that they need either to find alternatives to managing their USTs or to make decisions about UST compliance.

Dollars And Sense: Financial Responsibility Requirements For Underground Storage Tanks
Booklet summarizes the "financial responsibility" required of UST owners and operators (16 pages).

List Of Known Insurance Providers For Underground Storage Tanks
Provides UST owners and operators with a list of insurance providers who may be able to help them comply with financial responsibility requirements by providing suitable insurance mechanisms (12 pages). (Available on web only)

Financing Underground Storage Tank Work: Federal And State Assistance Programs
Booklet identifies potential sources of financial assistance to cover the costs of upgrading, replacing, or closing an UST, or of cleaning up an UST release. Updated and revised March 1999 (23 pages).

State Regulatory Agency Contacts

See EPA's web site at http://www.epa.gov/oust/states/statcon1.htm for state underground storage tank program contact information.

United States
Environmental Protection
Agency

Solid Waste And
Emergency Response
5401G

EPA 510-B-05-002
September 2005
www.epa.gov

Getting The Most Out Of Your Automatic Tank Gauging System

As an owner or operator of an underground storage tank, you have invested a lot of money in your automatic tank gauging system to detect leaks—but are you getting your money's worth?

If you don't operate your automatic tank gauging system (ATGS) effectively, you may be letting stored product leak into the environment. If so, you may face costly cleanups and liability actions. Also, you can be cited and fined for not meeting the federal requirements for properly operating and maintaining an ATGS to detect leaks from underground storage tanks (USTs).

Note that a simple ATGS will detect leaks only from tanks. To detect leaks from piping, you will need an ATGS that supports connection to line leak detectors.

The checklist that follows can help you avoid some common problems and make sure your ATGS is working as required:

Know your ATGS. Insist that your ATGS installer trains you and provides clear instructions in the proper operation and maintenance of the ATGS.

Make sure your ATGS is constantly "on" and plugged into a power source. This may sound obvious, but inspectors have written many citations when they discovered that the ATGS was "off" and not monitoring for leaks.

Respond to alarms. Ignoring an alarm defeats the purpose for having the ATGS. Don't ignore the "FAIL" alarm. Large leaks have gone undetected when operators ignored an alarm or turned their ATGS off.

Run your ATGS in its "test mode" at least once a month. You must test when tank is relatively full. Since an ATGS does not detect leaks above the product level, test when the tank is as full as it typically gets (try testing soon after delivery, but after product settles). Also, you should test frequently. The more frequently you test, the greater the likelihood you will detect leaks as quickly as possible. The earlier you detect a leak, the easier and less costly the cleanup.

Have your ATGS maintained and calibrated according to manufacturers' instructions. Make sure you read the directions in the manual that came with your ATGS. Use the manufacturer or installer representative's phone number to get answers to any questions you have about using the ATGS correctly. Don't hesitate to contact the manufacturer or installer for help.

Report problems. You must report test results indicating a leak to your implementing agency (usually your state environmental agency), generally within 24 hours. You do not need to report if the ATGS is found to be defective, is repaired immediately, recalibrated or replaced, and subsequent monitoring shows tank is tight. You must immediately investigate and confirm all suspected leaks. When in doubt, report.

Keep records. Federal regulations require you to keep the following records:

Keep for at least one year:

- Monthly test results.
- Documentation of all calibration, maintenance, and repair.

Keep for at least five years:

- Any written performance claim for your ATGS. This will usually be an evaluation document signed by a third-party evaluator showing how a sample ATGS performed under test conditions.
- Manufacturer-supplied schedules for calibration and maintenance.

Keep records either at the UST site or at a readily available alternative site, and provide them for inspection upon request.

Put ATGS monitoring in the most responsible hands. Do not rely on the vigilance of part-time or under-trained employees. If necessary, have ATGS alarms go to a central, 24-hour contact or use other mechanisms that put ATGS monitoring in the most responsible hands.

Check state and local regulations. State or local regulations may differ from the federal requirements, so find out which requirements apply to your UST. Check with your implementing agency.

Please note: You may need to continue doing monthly inventory control as you use your ATGS. If your ATGS was installed after December 22, 1990 and does not meet performance standards for minimum leak detection rates, you must continue to perform proper inventory control. Check the third-party evaluation of your ATGS to see if it meets the performance standard requiring ATGS to detect a leak of 0.2 gallons per hour with 95% probability of detection and 5% probability of false alarm. ***If you are not sure, check with your implementing agency.***

Need More Information?

EPA can provide free, plain-English publications that concisely describe all aspects of federal UST requirements.

To order free publications, determine if your tanks need to meet federal UST requirements, get more information about UST requirements, or identify state regulatory authorities, please call **EPA's toll-free Hotline at 800-424-9346**. Remember, requirements and deadlines may be different in some states, so check with your state UST program office.

You can also find UST publications, links to state regulatory authorities, and other UST information at EPA's Office of Underground Storage Tanks Web site at **http://www.epa.gov/OUST/**

Remember, it's in your best interest that your ATGS works and detects leaks as soon as possible—

before leaks become big cleanup and liability problems.

Protect your ATGS investment by making sure your ATGS installer:

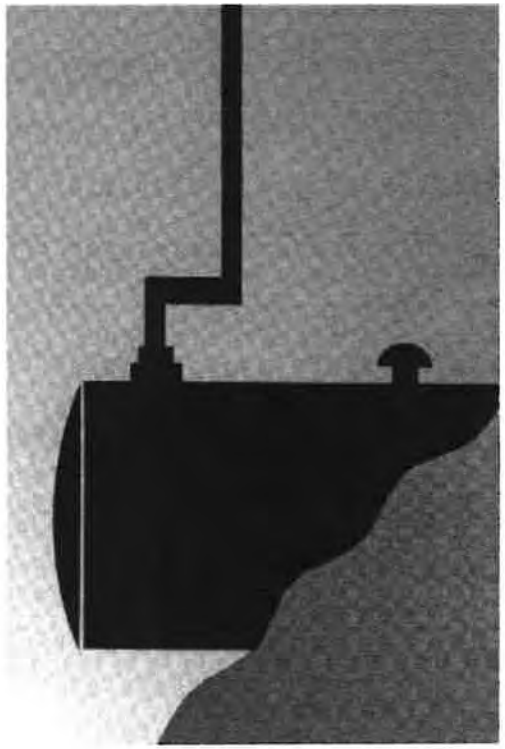
- Trains you in proper operation of the ATGS.
- Demonstrates that the ATGS has been correctly installed and programmed for the tank it monitors.
- Gives you an operation manual, schedules and documentation for calibration/maintenance, third-party evaluation, and phone numbers for technical support.
- Schedules maintenance with you as required by manufacturers' instructions.

United States Environmental Protection Agency
EPA 510-F-98-011
March 1998
www.epa.gov

Solid Waste and Emergency Response (5401G)

EPA

Getting The Most Out Of Your Automatic Tank Gauging System



Printed on Recycled Paper

UST Systems: Inspecting And Maintaining Sumps And Spill Buckets

Practical Help And Checklist

Printed on recycled paper

Contents

This document provides information on inspecting and maintaining sumps and spill buckets. The information provided in this manual is not intended to replace or contradict your specific manufacturer's instructions for maintaining your sumps. Nothing in this manual is intended to endorse or criticize any specific type of equipment or any manufacturer. Photographs of common sump problems are provided for instructional purposes only. This document does not replace existing federal or state regulations, nor is it a regulation itself - it does not impose legally binding requirements. For regulatory requirements regarding UST systems, refer to the federal regulations governing underground storage tank systems (40 CFR Part 280) or corresponding state regulations.

Additional copies of this manual are available at no cost by calling EPA's toll-free distribution center at 800-490-9198. Or you can download a color copy by going to OUST's World Wide Web Home Page at http://www.epa/gov/oust/pubs

Introduction

Who Should Read This Manual?

This manual is intended for owners and operators of underground storage tank (UST) systems; specifically, anyone who oversees the operation and maintenance of UST systems that contain and dispense petroleum products. UST owners/operators should ensure that only qualified personnel conduct inspection and maintenance activities.

After reading this manual, you should be able to identify the different types of sumps associated with your UST system and be familiar with how to identify some common sump-related problems.

How Will This Manual Help You?

This manual covers recommended inspection guidelines and best management practices for sumps associated with your UST system. This manual will:

- Help you identify and inspect the sumps associated with your UST system, including the equipment in your sumps.
- Explain some simple steps you can take to maintain your sumps and the equipment in your sumps, as well as identify potential problems.
- Provide you with tips for fixing common problems before they cause a release to the environment.

For more complete guidance on how to operate and maintain your UST system, refer to the U.S. Environmental Protection Agency (EPA) document, *Operating And Maintaining Underground Storage Tank Systems, Practical Help And Checklists (EPA 510-B-05-002, May 2005)*.

The average cleanup cost for a leaking UST is about $100,000. The cost can be more than $1,000,000 if groundwater is affected.

Why Should You Care About Sump Maintenance?

Despite advances that have greatly reduced the threat of petroleum releases from UST systems into the environment, some UST systems continue to experience releases. Inadequate operation and maintenance is one reason these systems continue to experience releases.

Sumps, including the sumps beneath dispensers, sumps around the submersible pump (turbine) head[1], transition/intermediate sumps, and spill buckets are common sources of releases. Releases of even small volumes of product can seep into the ground and contaminate soil and groundwater. Inspecting and maintaining your sumps is generally simple and can prevent or minimize such releases.

While this manual addresses a number of issues related to sump maintenance, it may not cover some details specific to your particular sumps. Keep in mind the information provided in this manual is not intended to replace or contradict your specific manufacturer's instructions for maintaining your sumps and the equipment in your sumps.

This manual presents practical help and a checklist for inspecting and maintaining sumps. State and local agencies may require these or other activities. Please check with your state or local agency to determine their specific requirements.

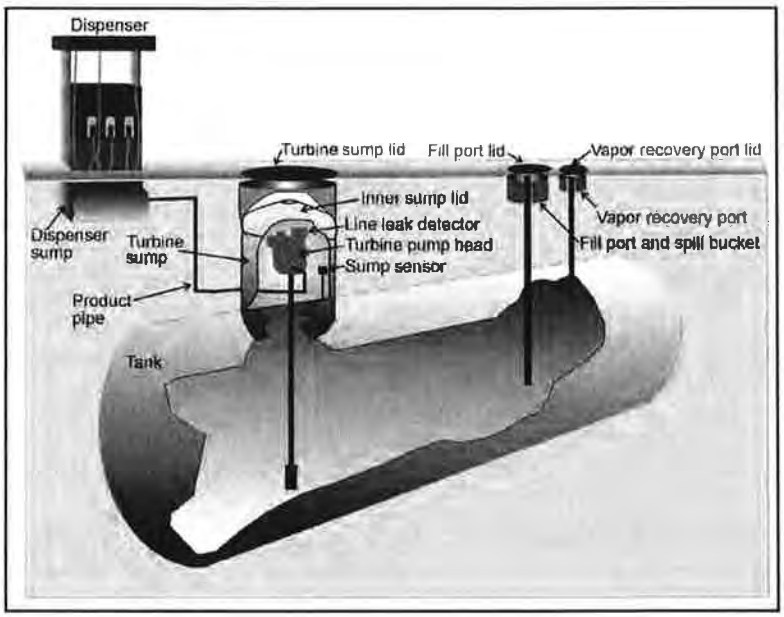


Diagram of an UST system

[1] Submersible turbine pumps are often known by their acronym STP.

Safety Considerations

If you perform sump inspection and maintenance activities, you should be experienced and aware of hazards and safety issues. Chances are you will be working in a high-traffic area, such as a gas station. You should properly mark off your work area and take appropriate steps to protect yourself. You should have the following items:

- Safety barriers, such as traffic cones or yellow plastic tape to mark off your work area
- Orange safety vest
- Hard hat (for construction sites)
- Steel-toed boots
- First-aid kit
- Chemical resistant gloves

Person wearing safety gear while inspecting a sump

You should consider these additional safety precautions:

- Sump lids may be large and very heavy and may require more than one person to lift. Use caution when lifting large steel lids.

- Be aware of the possibility of explosive or harmful vapors when inspecting and maintaining sumps. Avoid breathing in petroleum vapors.

- Please note that OSHA designates some sumps as confined spaces. See OSHA's standard on confined spaces in Title 29 of the *Code of Federal Regulations,* Part 1910.146. http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9797

Person removing a sump lid within a marked inspection area

Getting To Know Your Sumps

What Is A Sump?

A sump is a subsurface area (pit) designed to provide access to equipment located below ground and, when contained, to prevent liquids from releasing into the environment.


Uncontained turbine sump

Sumps may or may not be contained. Contained sumps have sides and a bottom, are designed to be liquid tight, and may have a special cover designed to keep out water. Uncontained sumps generally do not have a bottom and are not designed to prevent liquid from entering or exiting the sump. These sumps may use wooden or metal sheeting to restrict the slumping of soil or crushed rock onto the equipment and to prevent the surface pavement from buckling or caving.

What Kinds Of Sumps Are Associated With My UST System And Where Are They Located?

The types of sumps likely to be associated with your UST system are:

Turbine Sumps – Turbine sumps are designed to provide access to the turbine area above the tank. The turbine area may house the submersible turbine pump head, piping, line leak detectors, interstitial monitoring devices, wiring, and other equipment. You generally will find turbine sumps directly above your USTs. Turbine sump lids generally range from 3 to 4 feet in diameter and can be round, oval, square, or rectangular in shape.


Contained turbine sump

Dispenser Sumps – Dispenser sumps are designed to provide access to piping, flex connectors, shear valves, and other equipment located beneath the dispenser. Dispenser sumps are found directly under your dispensers.


Contained dispenser sump

Transition/Intermediate Sumps – Transition/intermediate sumps are less common than other sumps, but can be found along the piping runs that connect the tanks to the dispensers, and are designed to provide access to the piping. Transition sumps are used to transition from above-ground piping to below-ground piping or, in some cases, to transition between different types of piping. Intermediate sumps are located at key points in the piping system (e.g., low spots, branches, tees). Transition/intermediate sump lids generally range from 3 to 4 feet in diameter and can be round, oval, square, or rectangular in shape.

Transition/intermediate sump

Spill Buckets – Spill buckets are contained sumps installed at the fill and/or vapor recovery connection points to contain drips and spills of fuel that can occur during delivery. Spill buckets are located where the delivery driver connects the product and/or vapor recovery hoses to your tank. Spill buckets can be found directly above your UST, at a location that is away from your UST (remote), or both. They typically range in size from 5 to 25 gallons, and lids range from 1 to 2 feet in diameter. Spill buckets may also be installed within a larger sump, similar in construction to a turbine sump, for secondary containment. In this case, you will only need to open your smaller lids to access your spill buckets.

Spill bucket

Fill and vapor recovery lids installed within a larger sump lid

View of sump lids

Did You Know?
Most UST systems must have spill buckets at each fill pipe where fuel is delivered into the UST. Some facilities also may have a second spill bucket around the Stage I vapor recovery line.

How Do You Access Your Sumps And Spill Buckets?

Circular steel sump lid pulled back to show the inner lid covering the turbine sump

You may need tools such as a large screwdriver, pry bar, wrench, or hammer to open your sump lids. Composite lids may require a specialized tool that you probably have on site. Have someone help you in lifting large lids, as they may be very heavy. Use caution when opening the lids and be aware of the following:

- Square, rectangular, or oval sump lids can fall through the opening and damage the piping, submersible pump, or tank.
- Round lids, while not typically capable of falling into the sump, may swing down and damage the turbine head or line leak detector.
- If applicable, follow your equipment manufacturer's recommendations if special instructions are necessary to open the sump lids.
- You may need a key to remove the dispenser cover in order to access the dispenser sumps.

Square steel sump lid pulled up to show the inside of an uncontained turbine sump

Circular spill bucket lid pulled back to show the fill port with a spill bucket

Generally, sumps will have a traffic load rated lid, beneath which may be either direct access to the equipment or, if contained, an inner lid covering the contained area.

Dispenser cover pulled off to show the dispenser piping and equipment

Basic Maintenance Procedures For Sumps And Spill Buckets

What Can You Do To Ensure Your Sumps and Spill Buckets Are In Good Condition?

Maintaining your sumps and spill buckets will involve gaining access to them, inspecting them on a regular basis, assessing whether any problems exist, and ensuring any problems are addressed. For serious problems (e.g., obvious leaks occurring on the piping and equipment, cracked spill buckets or sidewalls, cracked or missing seal around the lid), it's best to contact your UST contractor or the manufacturer of your UST equipment to have the problem fixed. Appendix A contains a sample checklist you may want to use to guide your sump inspections.

Note: To avoid accumulation of surface water, you should check the seals of your sumps' lids more frequently if they are located at a low point on the property or in the path of surface water runoff.

If you identify or suspect a release of fuel to the environment, report this to your implementing agency. For a list of state UST websites, go to: http://www.epa.gov/oust/states/statcon1.htm

What Should You Look For When You Inspect Your Turbine, Dispenser, And Transition/Intermediate Sumps?

Are The Lids Tight And Sealed Correctly? Check to ensure the lids to the turbine, transition, and intermediate sumps create a tight seal when closed and are securely fastened. The seals of the sump lids often dry out, crack, and require replacement; so you need to ensure they are in good condition. Water in your sumps may be an indication of a bad seal.

Are The Sump Walls Intact? Check to ensure the walls of your sump are intact and are not slumping or warping. If your sump is not contained, check the sidewalls to ensure there is no caving.

Contained turbine sump full of liquid

Is The Sump Free Of Debris, Liquid, Or Ice? Debris, liquid, and ice can damage equipment, reduce capacity (if contained), and interfere with your equipment's ability to operate correctly. For example, water in your sump will reduce capacity and may cause metal equipment in your sump to corrode. Fuel in your sump will also reduce capacity and may damage some plastic sumps and other components not designed for long term contact with petroleum. Similarly, used dispenser filters may contain small amounts of petroleum, so they should not be left inside your sump. You should carefully remove and properly dispose of any debris, liquid, or ice in your sumps.

Did You Know?
Some sensors may alarm only when in contact with petroleum. If covered completely with water, they will not alarm, even in the event of a petroleum leak.

Dry, debris-free contained turbine sump

Contained sump with liquid and debris

Is The Sump Free Of Cracks Or Holes? Examine your contained sumps for signs of damage (e.g., cracks or holes). Check to ensure no cracks are present around the areas where components, such as wiring conduit and piping, enter your sumps. Cracks and holes mean your sump will no longer contain product or prevent releases to the environment.

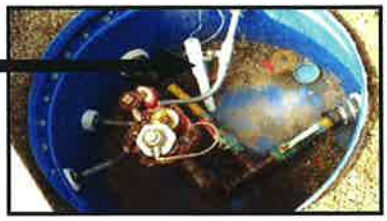
Are Sump Components Leak-Free? Check to ensure the piping, fittings, and connections in your sump are not leaking or dripping fuel.

Is The Sump Free Of Staining/New Staining? Check to ensure no new stains are present since your last inspection. New staining indicates a drip or spill has occurred.

Staining

Are The Sensors Positioned Correctly?[2] If you have sensors, check to ensure they are positioned properly in the lowest part of your sump and below the piping entry. Sensors should not be raised as the result of false alarms or for any other reason. Raised or disabled sensors will take longer or fail to detect a leak and could violate regulatory requirements.

Sump sensor



Sump sensor in contained turbine sump

Float sump sensor

Liquid sump sensor

Did You Know?
A crack or hole in your sump below the sump sensor will not allow liquid to accumulate in the sump to a level necessary to activate the sensor. As a result, liquid may be released undetected. Such cracks or holes need to be repaired immediately.

Are All Penetrations Into The Sump In Good Condition?[2]
Check to ensure all areas where electrical wires, conduits, and piping enter the sump are sealed. Cracked or loose seals around the penetrations can allow liquids to enter the sump and can allow fuel to be released into the surrounding soils if a release occurs inside the sump.

Sump penetration seals in poor condition

Sump penetration seals in good condition

Did You Know?
Some plastic flexible piping is installed within a larger pipe (or chase). There may be a seal between the primary pipe and the chase. Check with the piping maker to determine the proper position of the seal.

[2] Only for contained sumps

Are The Test Boots Positioned Correctly And In Good Condition?[3] A test boot is found on secondarily-contained piping and is a flexible sleeve usually made of rubber with a valve located either at the entry to the sump or on the piping in the sump. It is used to test the space between the inner and outer piping walls for tightness. Check to ensure the test boots are in good condition, not cracked or torn, and positioned correctly in the sump.

To ensure a leak can be detected by your leak detection equipment, test boots should be positioned so they allow product to enter your sump if a leak from the primary piping occurs. There are a variety of different configurations for test boots. If you are unsure of the appropriate configuration, check with your contractor.

Test boot located in a sump

Test boots positioned at sump wall, right test boot is torn

Is The Piping And Other Equipment In Good Condition? Sumps may contain various types of piping and equipment such as leak detection equipment, turbine motors, line leak detectors, sensors, conduits, and flex connectors.

Contained turbine sumps and equipment in good condition

Did You Know?
If your metal piping, including metal flex connectors, is in contact with the ground, it must be protected from corrosion.

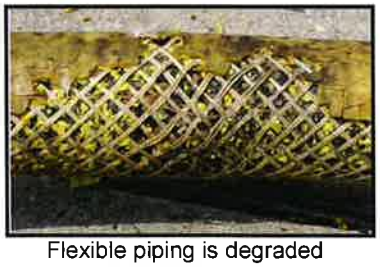
[3] Typically only for contained sumps

When inspecting the piping and equipment in your sumps, you should watch for the following conditions:

- For metal piping, check to ensure the piping is not severely corroded, in contact with the ground if it does not have corrosion protection, or otherwise degraded.
- For fiberglass piping, check to ensure the piping is not cracked, delaminated, or otherwise degraded.
- For flexible piping, check to ensure the piping does not have abnormal bends, breaks, cracks, or kinks; is not bulging, swelling, or growing; has not become soft, spongy, or discolored; and is not otherwise distorted or degraded.
- Check to ensure the fittings and flexible connectors are not twisted or misaligned and the flexible connectors are not cracked, kinked, etc.
- Check to ensure other pieces of equipment, including pump head, line leak detector, and sensors, are not visibly damaged, severely corroded, etc.

Equipment and metal piping covered with dirt in uncontained sump

Fiberglass piping is cracked



Flexible piping is degraded due to microbial growth

Flexible piping is cracked

Flexible piping is kinked

Metal flexible connector is twisted due to growth of flexible plastic piping

Flexible piping is bulging

What Should You Look For When You Inspect Your Spill Buckets?

Are The Lids To Your Spill Buckets In Good Condition? Check to ensure the lids to your spill buckets are in good condition so they will keep water out when the lid is closed. Ensure that when the lids to your spill buckets are in the closed position, they create a good seal and are secured tightly. Some spill buckets contain a rubber gasket inside the cover; check to ensure the rubber gasket is in good condition and creates a proper seal when the lid is closed.

A missing or damaged spill bucket lid may be a safety hazard. Replace it as soon as possible. Until the lid is replaced, cover and barricade the area to prevent potential accidents.

Cracked spill bucket lid

Spill bucket lid gasket

Check to ensure the lid is not touching the fill cap. This situation should be repaired because it could potentially damage the fill pipe and the tank if it is in an area where vehicles drive over the lid.

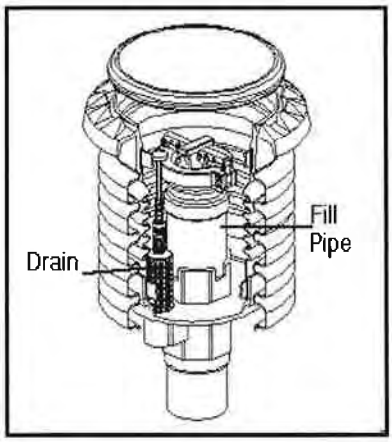
Is The Spill Bucket Free Of Debris, Liquid, Or Ice? Examine your spill buckets to determine whether they contain debris, liquid, or ice. For example, water in your spill bucket will reduce capacity and may cause metal equipment in your sump to corrode. Fuel in your spill bucket will also reduce capacity and may damage some plastic spill buckets not designed for long term contact with petroleum. You should carefully remove and properly dispose of any debris, liquid, or ice found in your spill buckets during your inspections. You should also check for and remove any liquid and debris present in your spill buckets before and after every delivery.

Spill bucket that contains liquid

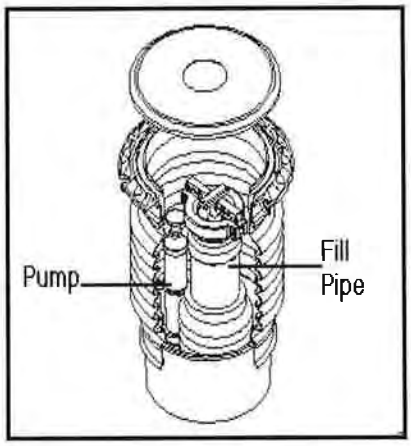
Some spill buckets are equipped with a valve that allows you to drain accumulated liquid into your UST. Others may be equipped with a manual pump so fuel can be transferred to your UST system by pumping it through the fill pipe or removing the fuel and disposing of it properly. However, keep in mind that when you pump out or drain your spill bucket into your UST, any water and debris present also will enter the UST. This could lead to internal corrosion, dispensing problems, and the need to remove contaminated water from the tank. If your spill bucket is not equipped with a drain valve or pump, you can still remove the liquid and debris and dispose of them appropriately. Liquid can be removed with a portable pump, such as the one on the right.

Portable pump

If your spill bucket is always dry, this may be an indication that it is not able to contain product. You may need to test to ensure it is liquid tight.



Spill bucket with a drain valve



Spill bucket with a manual pump

Is The Spill Bucket Free Of Cracks Or Holes? Examine the spill buckets for evidence of cracks or holes. If you have a metal bucket, check for corrosion and rust. Also check for deformations in the spill buckets or separation of the spill bucket from the fill pipe.

Spill bucket in poor condition – note the gap between the spill bucket and the fill pipe

Are The Drain Valves Operational? Some spill buckets have drain valves. Check to ensure the drain valve is free of debris and operational (e.g., it can close tightly and be opened to drain fuel in the spill bucket). If the drain valve is left open:

- It will act as a vent
  - Possibly affecting the ability of your overfill device to function properly;
  - Allowing potentially dangerous vapors to build up in the spill bucket or to be released to the soil or groundwater;
  - Possibly affecting the operation of the Stage II vapor recovery system.
- It can allow water and debris to enter your tank.

Spill bucket drain valve

***Never* pump fuel from your spill buckets into storm or sewer drains as a method of disposal. Improper disposal can contaminate surface and groundwater, result in vapor/explosion hazards, damage sewage treatment plants, and may be in violation of state or federal law.**

Where Can You Get More Information On This Topic?

Federal Agencies

U.S. EPA
Office of Underground Storage Tanks
http://www.epa.gov/oust

U.S. Department of Labor
Occupational Safety and Health Administration
http://www.osha.gov
1-800-321-OSHA (6742)

Organizations

API - American Petroleum Institute
www.api.org
(202) 682-8000

FTPI - Fiberglass Tank and Pipe Institute
www.fiberglasstankandpipe.com
(281) 568-4100

NACE International - Formerly National Association of Corrosion Engineers
www.nace.org
(281) 228-6200

NFPA - National Fire Protection Association
www.nfpa.org
(617) 770-3000

PEI - Petroleum Equipment Institute
www.pei.org
(918) 494-9696

STI - Steel Tank Institute
www.steeltank.com
(847) 438-8265

Publications

The publications listed below are free and available from the U.S. EPA. You can access these publications via EPA's website or you can call, write to, or fax EPA.

- You can download, read, or order documents from http://www.epa.gov/oust/pubs/index.htm
- To order free copies or ask questions, call EPA's publication distribution toll-free number at 800-490-9198 or fax301-604-3408. You can also write and ask for free publications by addressing your request to EPA's publication distributor: National Service Center for Environmental Publications (NSCEP), Box 42419, Cincinnati, OH 45242.

Operating and Maintaining Underground Storage Tank Systems: Practical Help and Checklists, U.S. EPA, Office of Underground Storage Tanks, Washington DC, EPA 510-B-05-002, May 2005.

Musts for USTs: A Summary of the New Regulations for Underground Storage Tank Systems, U.S. EPA, Solid Waste and Emergency Response, Washington DC, EPA-510-K-95-002, July 1995.

Model Underground Storage Tank Environmental Results Program Workbook, U.S. EPA, Solid Waste and Emergency Response, Washington DC, EPA R-04-003, June 2004.

Other Sources

For additional information on UST system operation and maintenance, go to U.S. EPA Office of Underground Storage Tanks, List of Operation and Maintenance Tools
http://www.epa.gov/oust/ustsystm/tanko&m.htm

For links to state UST websites go to
http://www.epa.gov/oust/states/statcon1.htm

Appendix A

Note: Federal UST regulations do not require you to report your maintenance activities, use this form, or keep any specific records of your sump inspection and maintenance practices.

Sample Underground Storage Tank Sump And Spill Bucket Inspection Checklist

Name: _____ Date/Time Of Inspection: _____

Comments/Follow-Up Needed: _____

Choose yes or no for each question that applies.
Choosing no on any item indicates a problem that should be corrected.
When you have corrected the problem, check the fixed box.

Turbine/Transition/Intermediate Sumps	Sump No.: ____			Sump No.: ____			Sump No.: ____			Sump No.: ____		
	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?
Are The Lids Tight And Sealed Correctly?			☐			☐			☐			☐
Are The Sump Walls Intact?			☐			☐			☐			☐
Is The Sump Free Of Debris, Liquid, Or Ice?			☐			☐			☐			☐
Is The Sump Free Of Cracks Or Holes?*			☐			☐			☐			☐
Are Sump Components Leak-Free (No Leak Or Drips)?			☐			☐			☐			☐
Is The Sump Free Of Staining/New Staining?			☐			☐			☐			☐
Are The Sensors Positioned Correctly?*			☐			☐			☐			☐
Are All Penetrations Into The Sump In Good Condition?*			☐			☐			☐			☐
Are The Test Boots Positioned Correctly And In Good Condition?*			☐			☐			☐			☐
Is The Piping And Other Equipment In Good Condition?			☐			☐			☐			☐
Dispenser Sumps	Dispenser No.: ___			Dispenser No.: ___			Dispense No.: ___			Dispenser No.:___		
	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?
Is The Sump Free Of Debris, Liquid, Or Ice In The Sump?			☐			☐			☐			☐
Is The Sump Free Of Cracks Or Holes?			☐			☐			☐			☐
Are Sump Components Leak-Free (No Leak Or Drips)?			☐			☐			☐			☐
Is The Sump Free Of Staining/New Staining?			☐			☐			☐			☐
Are The Sensors Positioned Correctly?			☐			☐			☐			☐
Are All Penetrations Into The Sump In Good Condition?			☐			☐			☐			☐
Are The Test Boots Positioned Correctly And In Good Condition?			☐			☐			☐			☐
Is The Piping And Other Equipment In Good Condition?			☐			☐			☐			☐
Spill Buckets	Bucket No.: ____			Bucket No.: ____			Bucket No.: ____			Bucket No.: ____		
	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?
Are The Lids To Your Spill Buckets In Good Condition?			☐			☐			☐			☐
Is The Spill Bucket Free Of Debris, Liquid, Or Ice?			☐			☐			☐			☐
Is The Spill Bucket Free Of Cracks Or Holes?			☐			☐			☐			☐
Are The Drain Valves Operational?			☐			☐			☐			☐

*Only for contained sumps

Helpful Hints For Maintaining Spill Buckets

United States Environmental Protection Agency
Solid Waste And Emergency Response 5401G
EPA 510-R-05-001
May 2005
www.epa.gov/oust/pubs

United States
Environmental Protection
Agency

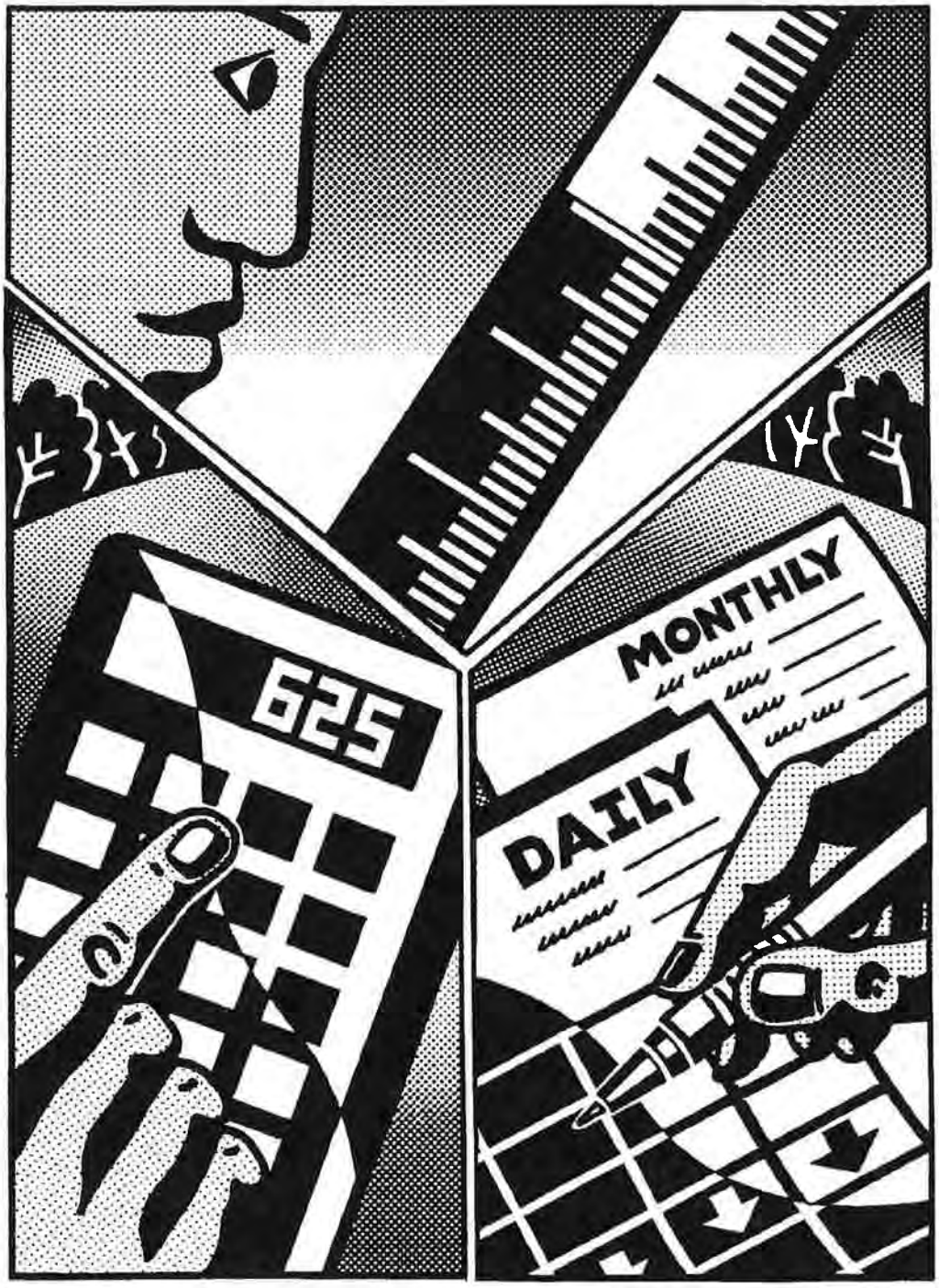
Solid Waste And
Emergency Response
5403W

EPA 510-B-93-004
November 1993

EPA

Doing Inventory Control Right

For Underground Storage Tanks



CONTENTS

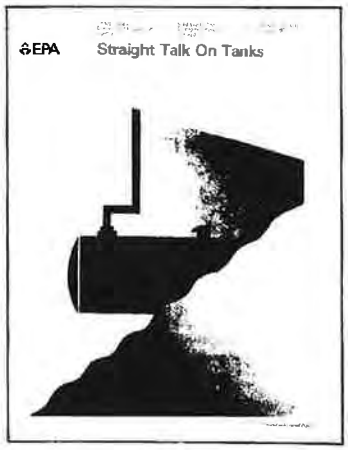
Why You Should Read This Booklet If You Use Inventory Control

Federal and state laws require underground storage tanks (USTs) to have leak detection.

If your USTs do not have leak detection, you can be cited for violations and fined. Leak detection violations can also keep you from getting legally required insurance coverage and reimbursement for cleanup costs. Without leak detection, you constantly risk discovering a leak only after it becomes a major financial burden for yourself and an environmental problem for everyone.

If inventory control is part of your leak detection, then this booklet can help you make sure you do inventory control correctly.

Inspections conducted nationwide indicate that most people who think they are doing inventory control are not doing it in a way that is likely to find leaks and meet the law's requirements for leak detection. So even if you are SURE you are doing inventory control right, read this booklet carefully—it could save you a lot of grief and money.



If you need information on federal leak detection requirements and the various methods of leak detection available to you, see "Straight Talk On Tanks." Call EPA's toll-free Hotline at 800 424-9346 and order this free publication by number: EPA 530/UST-90/012.

How Does Inventory Control Work?

This booklet helps you use inventory control to meet federal regulatory leak detection requirements by showing you how to do three important tasks:

- ! Good sticking
- ! Good math
- ! Good recordkeeping

Without these three, you may fail to meet the leak detection requirements. To do inventory control right, you have to spend time to make sure that you consistently measure the tank's contents correctly, that you don't let math errors creep into your daily and monthly calculations, and that you keep complete, easy-to-read records on file for at least a year.

Basically, inventory control requires daily measurements of tank contents and math calculations that let you compare your **"stick" inventory** (what you've measured) to your **"book" inventory** (what your recordkeeping indicates you should have). Some people call this process "inventory reconciliation." If the difference between your **"stick"** and **"book"** inventory is too large, your tank may be leaking.

Be sure you read about several important restrictions on the use of inventory control that are described on the next page.

To use INVENTORY CONTROL correctly,

follow Steps 1—5 starting on page 6.

Please note these important restrictions on the use of inventory control as leak detection:

- **Inventory control can never be used alone.** Inventory control must always be used in combination with tank tightness testing. Tanks must be tightness tested every 12 months if they do not have corrosion protection and spill/overfill devices. Tanks with corrosion protection and spill/overfill devices must be tested every 5 years.

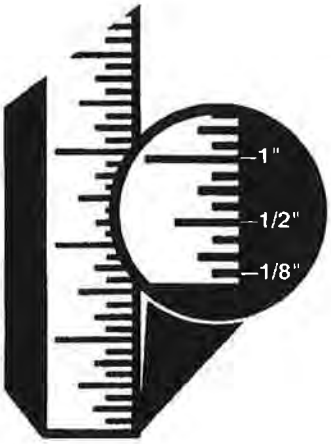
- **Inventory control is a TEMPORARY leak detection method.** You can use inventory control only for 10 years after installing a new tank that has corrosion protection and spill/overfill devices or for 10 years after upgrading an old tank with corrosion protection and spill/overfill devices. After the 10-year period, you must use a monthly monitoring method, such as groundwater monitoring or interstitial monitoring.

  Tanks without corrosion protection and spill/overfill devices can use inventory control only until December 1998, when these tanks must be upgraded or closed. (See "Straight Talk On Tanks.")

- **The combined use of inventory control and tank tightness testing does not meet your tank system's leak detection requirements for piping.** Pressurized and some suction piping must use other methods of leak detection, such as interstitial monitoring. (See "Straight Talk On Tanks.")

If you don't pay careful attention to these restrictions, you will fail to meet the leak detection requirements.

Do You Have The Right Equipment?



Gauge Stick Or Other Gauges

The gauge stick used to measure the depth of liquid in an underground tank must be marked or notched to the ⊂ inch, starting with zero at the bottom end. Check your stick to be sure the end has not been worn or cut off and that the stick is not warped. The stick should be made of non-sparking material, such as wood, and varnished to minimize the creeping of fuel above the actual fuel level in the tank. Instead of using a gauge stick, you may use a mechanical or electronic tank level monitor. Whatever measuring device you use must be capable of measuring the level of product over the full range of the tank's height to the nearest ⊂ inch.

Pastes For Finding Water Or Fuel

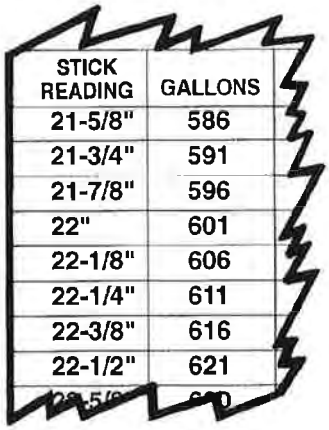
You must check for water in the bottom of the tank at least once each month by smearing a water-finding paste along the bottom of the gauge stick. The paste changes color when it comes in contact with water. Many operators improve their stick readings by smearing a fuel-finding paste on about 6 inches of the stick where they expect the fuel level to be. Fuel-finding paste changes color when it comes in contact with fuel.

Forms

The instructions in this booklet are keyed to two forms: the "DAILY INVENTORY WORKSHEET" and the "MONTHLY INVENTORY RECORD." You will find filled-in sample copies of these forms on the last two pages of this booklet. These samples are on perforated pages, so tear them out and refer to them while you read through the directions that are keyed alphabetically to the sample forms. Also, **near the back of the booklet, you will find "masters" you can copy repeatedly to provide forms for use in your recordkeeping.** If these forms are filled out according to the instructions in this booklet, you will be in compliance with federal regulations for inventory control. You should find out if state or local requirements have limitations on the use of inventory control or have requirements that are different from those presented in this booklet. You can use other standard recordkeeping forms, as long as they are clear, consistent, and contain all the information required by the federal and state leak detection regulations.

Tank Chart

A tank chart is a table that converts the number of inches of liquid in the tank into the number of gallons. You need a tank chart that exactly matches your storage tank (tank manufacturers usually provide charts for their tanks). If you have more than one tank, you will need a chart for each tank unless the tanks are identical. The tank chart must show conversion to gallons for each ⊂ inch stick reading. If your tank chart does not convert each ⊂ inch reading into gallons, contact the tank manufacturer, or, if you have a steel tank, the Steel Tank Association (708 438-8265) to get an appropriate chart.



STICK READING	GALLONS
21-5/8"	586
21-3/4"	591
21-7/8"	596
22"	601
22-1/8"	606
22-1/4"	611
22-3/8"	616
22-1/2"	621

You always need to convert inches into gallons in order to fill out the forms correctly and to do the necessary math. To convert inches into gallons, find your stick's reading to the nearest ⊂ inch on the tank chart, then simply read across to the gallons column to find the number of gallons. If you cannot get a tank chart showing conversion to gallons for each ⊂ inch reading, you must do the additional math explained on page 9.

Drop Tube

The fill pipe through which the fuel is delivered into the tank must have a drop tube extending to within 1 foot of the bottom of the tank. Stick measurements should be made through a drop tube in the fill pipe or gauging port. If your fill pipe does not have a drop tube, call your petroleum equipment supplier to have one installed.

Calibrated Dispensing Meters

Meters must be calibrated according to local standards.

Manifolded Tanks

If you have manifolded tanks or dispensers that blend fuel, consider these tanks as one tank system if they share a common inventory of stored fuel. As you follow the directions on the following pages, you will need to combine your measurements and calculations for all the tanks manifolded into one system.

Step 1—Measure The Tank's Contents

You must measure the tank every day that fuel is added or removed. You may take measurements using a gauge stick or a mechanical or electronic tank level monitor.

No fuel can be added or removed from the tank while you are performing Step 1 or Step 2.

Every day you measure the tank, you should fill out a "DAILY INVENTORY WORKSHEET." As you go through the following directions, refer to the sample DAILY INVENTORY WORKSHEET you will find on the last pages of this booklet. For easy reference, the sample is on a perforated page so you can tear it out and keep it handy as you read through the directions. Also, near the back of the booklet is a "master copy" on a perforated page you can tear out to make copies of the DAILY INVENTORY WORKSHEET for your recordkeeping.

Use the sample "DAILY INVENTORY WORKSHEET" from the last two pages of the booklet to see where you put the information from letters "A" through "M" in the following directions.

Ⓐ Fill in the identifying information at the top of the worksheet.

Ⓑ Next to the "TANK IDENTIFICATION" box are empty vertical columns. Each column represents one tank—consistently enter all information on that one tank in the same vertical column. NOTE: Once you have filled in the tank identification boxes, make copies of the worksheet so you won't have to repeatedly enter the same information.

USE GOOD STICKING PRACTICES: Slowly lower the gauge stick to the tank's bottom. Let the stick gently touch the bottom, then quickly bring it back up. Read the depth of fuel indicated by the wet mark to the closest ⅛ inch division on the stick. Use of fuel-finding paste will make your stick readings more accurate.

Ⓒ Write your measurement in the box labeled "END STICK INCHES" for the tank you measured.

NOTE: If your tank is equipped with an automatic tank gauge (ATG), you may record the inches of product and gallons of product directly from the ATG's printed tape or simply staple the tape with this information to the worksheet.

Step 2—Record The Amount Pumped

At the same time you measure the tank contents (Step 1), you must record on the DAILY INVENTORY WORKSHEET the amount of fuel pumped. **No fuel can be added or removed from the tank while you are sticking the tank and recording the amount pumped.**

D Locate the box labeled "AMOUNT PUMPED" on the left side of the worksheet. Copy the numbers from each dispenser's totalizer onto the worksheet. **Be very careful that you write all the meter readings for a tank in the same column**. You may have several dispensers and totalizers for one tank, so the worksheet provides boxes in which you can enter several readings in any order.

E Add up the totalizer meter readings in each column and write the result in the box labeled "TODAY'S SUM OF TOTALIZERS."

F Find the last DAILY INVENTORY WORKSHEET you completed. Copy "TODAY'S SUM OF TOTALIZERS" from that worksheet into the "Previous Day's Sum of Totalizers" box of the worksheet you are working on today.

G On today's worksheet, subtract "Previous Day's Sum of Totalizers" from "TODAY'S SUM OF TOTALIZERS" and write the result in the box labeled "AMOUNT PUMPED TODAY."

If you pumped fuel through a dispenser and back into a tank, for example during a test, subtract the number of gallons you pumped from "AMOUNT PUMPED TODAY."

You may have an alternative to reading totalizers. If you have a self-service fueling operation where the cashier can authorize fuel sales from inside the facility, you can probably print out a daily report that gives you the total sales for each type of fuel. **NOTE: You can use the sales volumes from this report instead of reading your totalizer meters only if no fuel sales are made between the time you print the report from the cash register and the time you measure your tanks (Step 1).**

H If you are using cash register reports to record the amount pumped, enter the amount of each type of fuel pumped in the box labeled "AMOUNT PUMPED TODAY" or staple the printout to the worksheet.

Step 3—Record Fuel Deliveries

You must check how much fuel has been delivered every time any amount of fuel is delivered to your tank. **NOTE: You should not pump any fuel during the time it takes to do items "I" and "J" below.**

Before the delivery begins, the liquid level in the tank must be measured. Always use good sticking practices: slowly lower the gauge stick, gently touch the stick to the bottom of the tank, then quickly bring the stick back up. Read the depth of fuel indicated by the wet mark to the nearest ⅛ inch division on the stick.

I Write your measurement in the box labeled "Inches of Fuel Before Delivery" for each tank you measured.

The delivery person can now deliver fuel into the tank. After the delivery, wait at least 5 minutes for the fuel level in the tank to stabilize, and then measure again as described above.

J Record fuel level in the box labeled "Inches of Fuel After Delivery."

K Using your tank chart with ⅛ inch readings, convert both delivery readings to the correct number of gallons. Record these numbers in the boxes labeled "Gallons of Fuel Before Delivery" and "Gallons of Fuel After Delivery." (If necessary, see page 9 on converting inches into gallons.)

An automatic tank gauge (ATG) can usually print a delivery report. If your tank has an ATG that prints such a report, you may simply staple the ATG's delivery report to the DAILY INVENTORY WORKSHEET.

L Subtract "Gallons of Fuel Before Delivery" from "Gallons of Fuel After Delivery." Record the result in the box labeled "GALLONS DELIVERED (STICK)."

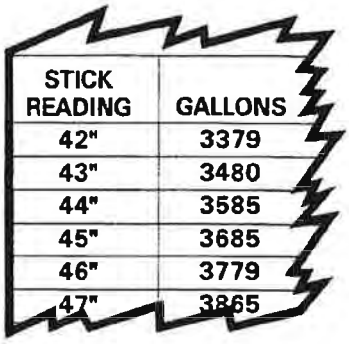
Now look at the delivery receipt and find the volume of each type of product that was delivered. If two volumes are given, one labeled "net" and the other "gross," use the gross gallons as the volume of product delivered.

M For each type of fuel delivered, copy the gross gallons delivered from the delivery receipt onto the worksheet in the box labeled "GROSS GALLONS DELIVERED (RECEIPT)." The gallons in items "L" and "M" should roughly match. If they don't, contact your supplier.

Using Tank Charts Without c Inch Conversions

If your tank chart does not list direct conversions from inches to gallons for every c inch, then you must **do the additional math described below every time you stick your tank**.

The easiest way to explain this procedure is with an example. Let's say you have a stick reading of 43d inches and you need to figure how many gallons are in your tank.



STICK READING	GALLONS
42"	3379
43"	3480
44"	3585
45"	3685
46"	3779
47"	3865

1. Look on your tank chart and find the inch measurements that are just above and below your stick reading and write down the number of gallons for these inch readings. Subtract the gallon readings to find the difference between the two readings:

   Chart reading at 44 inches: 3,585 gallons
   Chart reading at 43 inches: 3,480 gallons

   Difference: 105 gallons

2. Dividing 105 by 8 will give you the number of gallons per c inch, which in this example is 13. (More exactly it is 13.125, but do round off the number to the nearest whole number.) Because your fraction is d, multiply 13 gallons by 3, which gives you 39 gallons as the volume represented by d inch.

   CAUTION: The gallons represented by each c inch will vary from top to bottom of the tank and must be calculated for each conversion.

3. Take the number of gallons you have just calculated and add it to the inch reading just below your actual stick reading:

   Chart reading at 43 inches: 3,480 gallons
   Gallons at d inch: + 39 gallons

   Sum: 3,519 gallons

Thus, your stick reading of 43d inches converts to 3,519 gallons.

NOTE: If your tank chart is in half or quarter inches, you must still use this procedure so that your gallon readings are accurate to c inch.

After all of this math, you can see why it pays to have the correct tank chart that indicates gallons for each c inch.

Step 4—Calculate Daily Changes In Inventory

In this step, you will copy information from the DAILY INVENTORY WORKSHEET onto the **MONTHLY INVENTORY RECORD**. You will then do some math to determine your daily inventory. You need one MONTHLY INVENTORY RECORD for each tank that you have.

As you go through the following directions, refer to the sample MONTHLY INVENTORY RECORD you will find on the reverse side of the DAILY INVENTORY WORKSHEET sample you have already been using. For easy reference, the sample is on a perforated page so you can tear it out and keep it handy as you read through the directions. Also, near the back of the booklet is a "master copy" on a perforated page you can tear out to make copies of the MONTHLY INVENTORY RECORD for your recordkeeping.

Use the sample "MONTHLY INVENTORY RECORD" from the last two pages of the booklet to see where you put the information from letters "N" through "Z" in the following directions.

N Fill in the identifying information at the top of the MONTHLY INVENTORY RECORD.

If this is the very first day of your inventory recordkeeping, convert the "END STICK INCHES" from the DAILY WORKSHEET into gallons and enter on the MONTHLY RECORD under "END STICK INVENTORY (GALLONS)" for that starting date. (If necessary, see page 9 on converting inches into gallons.) This is all you can do today. Starting tomorrow, follow all of the instructions listed below.

O Find the line in the left column on the MONTHLY RECORD with today's date listed. Copy the previous day's "END STICK INVENTORY (GALLONS)" number into the box for today's "START STICK INVENTORY (GALLONS)."

P Enter the amount of fuel delivered from the DAILY INVENTORY WORKSHEET. If you were NOT pumping fuel during the time when the delivery was taking place, then use the "GALLONS DELIVERED (STICK)" number. However, if you had to pump fuel while the delivery was taking place, then use the "GROSS GALLONS DELIVERED (RECEIPT)" number as your delivery amount.

Q Copy the "AMOUNT PUMPED TODAY" number from the DAILY INVENTORY WORKSHEET into the "GALLONS PUMPED" column of the MONTHLY INVENTORY RECORD.

R Add the "START STICK INVENTORY (GALLONS)" and the "GALLONS DELIVERED" columns; then subtract the "GALLONS PUMPED" column. Enter the result in the column labeled "BOOK INVENTORY (GALLONS)."

S Copy the "END STICK INCHES" number from the DAILY WORKSHEET into the column labeled "END STICK INVENTORY (INCHES)" on the MONTHLY RECORD. Convert inches into gallons and enter the result in the column on the MONTHLY RECORD labeled "END STICK INVENTORY (GALLONS)." (If necessary, see page 9 on converting inches into gallons.)

GOOD ADVICE: If you are "over" for 5 days in a row (or "under" for 5 days in a row), you should check for problems with your math and your UST.

T Subtract the "BOOK INVENTORY (GALLONS)" from the "END STICK INVENTORY (GALLONS)." Enter the difference into today's "DAILY OVER OR SHORT" box. This number will usually be a positive or negative number (only rarely will it be zero).

U Enter your initials to show who entered today's information.

At least once each month, you must also measure for water in the tank. Smear water-finding paste on the bottom few inches of the gauge stick. Open the fill pipe and **slowly** lower the stick to the tank's bottom. Hold the stick on the bottom for 10 seconds for gasoline (30 seconds for diesel). Then remove the stick. If there is water in the bottom of the tank, the water-finding paste will change color. Read the depth of water indicated by the line where the water-finding paste has changed color to the closest ⅛ inch division on the stick. **Do not use this stick reading to measure the amount of fuel in the tank**, because the fuel will creep up the stick and will give you an inaccurate reading.

V If you checked the tank for water today, enter the number of inches of water in the tank on the line under "Facility Name" at the top of the monthly record. If there is no water present, enter a zero to indicate that you in fact checked for water but found none. If you find more than 1 inch of water, you should arrange for its immediate removal, notify the product supplier, and conduct further tests to ensure that the tank is not leaking.

Step 5—Calculate Monthly Changes In Inventory

At the end of each month, follow the directions below to see if the difference between "stick" and "book" inventory indicates a possible leak.

W Add all of the month's "GALLONS PUMPED" numbers and write this total at the bottom of the column in the box labeled "TOTAL GALLONS PUMPED."

X Add all the month's "DAILY OVER OR SHORT" numbers: pay careful attention to positive and negative numbers to get an accurate total. For example, adding +4 and +3 and -2 should equal +5. Enter the total at the bottom of the column in the box labeled "TOTAL GALLONS OVER OR SHORT."

Y Fill out the "LEAK CHECK" line at the bottom of the MONTHLY INVENTORY RECORD as follows:

- Take the "TOTAL GALLONS PUMPED" number and drop the last two digits to get 1% (for example: 6594 becomes 65).
- Add 130 (for example: 65 + 130 = 195).

Enter the result of this calculation at the end of the "LEAK CHECK" line. This number is the **maximum change in inventory allowed** by federal regulations (1% of throughput plus 130 gallons).

Z At the bottom of the MONTHLY INVENTORY RECORD, circle "YES" or "NO" to show whether your "TOTAL GALLONS OVER OR SHORT" number is **LARGER** than the "LEAK CHECK" number you identified in the previous item. Even if your "TOTAL GALLONS OVER OR SHORT" is a negative number, treat it as a positive number for the purpose of this comparison. For example, -74 would become +74.

If you circle "YES" for 2 months in a row, you must notify your regulatory agency as soon as possible (usually within 24 hours) that your tank may be leaking.

NOTE: Keep your inventory control records on file for at least 1 year. Your state, however, may have different rules about when you have to report a leak or how long you must keep the inventory records. Be sure you know the rules that apply to you.

DAILY INVENTORY WORKSHEET

FACILITY NAME: _____

YOUR NAME: _____

DATE: _____

TANK IDENTIFICATION					
Type of Fuel					
Tank Size in Gallons					
END STICK INCHES					
AMOUNT PUMPED	↓	↓	↓	↓	↓
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
Totalizer Reading					
TODAY'S SUM OF TOTALIZERS					
Previous Day's Sum of Totalizers					
AMOUNT PUMPED TODAY					
DELIVERY RECORD	↓	↓	↓	↓	↓
Inches of Fuel Before Delivery					
Gallons of Fuel Before Delivery (from tank chart)					
Inches of Fuel After Delivery					
Gallons of Fuel After Delivery (from tank chart)					
GALLONS DELIVERED (STICK) [Gallons "After" Gallons "Before"]					
GROSS GALLONS DELIVERED (RECEIPT)					

MONTHLY INVENTORY RECORD

TANK IDENTIFICATION & TYPE OF FUEL: _____

MONTH/YEAR: ____/____

FACILITY NAME: _____

DATE OF WATER CHECK: _____ LEVEL OF WATER (INCHES): _____

DATE	START STICK INVENTORY (GALLONS)	GALLONS DELIVERED	GALLONS PUMPED	BOOK INVENTORY (GALLONS)	END STICK INVENTORY (INCHES)	END STICK INVENTORY (GALLONS)	DAILY OVER (+) OR SHORT ( ) ["End" "Book"]	INITIALS
1	(+)	( )	(=)					
2	(+)	( )	(=)					
3	(+)	( )	(=)					
4	(+)	( )	(=)					
5	(+)	( )	(=)					
6	(+)	( )	(=)					
7	(+)	( )	(=)					
8	(+)	( )	(=)					
9	(+)	( )	(=)					
10	(+)	( )	(=)					
11	(+)	( )	(=)					
12	(+)	( )	(=)					
13	(+)	( )	(=)					
14	(+)	( )	(=)					
15	(+)	( )	(=)					
16	(+)	( )	(=)					
17	(+)	( )	(=)					
18	(+)	( )	(=)					
19	(+)	( )	(=)					
20	(+)	( )	(=)					
21	(+)	( )	(=)					
22	(+)	( )	(=)					
23	(+)	( )	(=)					
24	(+)	( )	(=)					
25	(+)	( )	(=)					
26	(+)	( )	(=)					
27	(+)	( )	(=)					
28	(+)	( )	(=)					
29	(+)	( )	(=)					
30	(+)	( )	(=)					
31	(+)	( )	(=)					

TOTAL GALLONS PUMPED > _____ **TOTAL GALLONS OVER OR SHORT >** _____

DROP THE LAST 2 DIGITS from the **PUMPED** number and enter on the **TOTAL GALLONS** line below

Compare these numbers

LEAK CHECK: _____ **+ 130 =** _____ **gallons**

Is "TOTAL GALLONS OVER OR SHORT" **LARGER** than "LEAK CHECK" result? **YES NO** (circle one)

If answer is "YES" for 2 MONTHS IN A ROW, **notify regulatory agency** as soon as possible.

KEEP THIS PIECE OF PAPER ON FILE FOR AT LEAST 1 YEAR

SAMPLE

DAILY INVENTORY WORKSHEET

A FACILITY NAME: LAST CHANCE #2

YOUR NAME: JUAN DOE

DATE: 9/22/93

	TANK IDENTIFICATION	1	2	3	4	
	Type of Fuel	REG UNL	PREM UNL	DIESEL	MID UNL	
	Tank Size in Gallons	6000	6000	6000	10,000	
C	END STICK INCHES	41 1/4	58 7/8	69	86 1/2	
D	AMOUNT PUMPED	↓	↓	↓	↓	↓
	Totalizer Reading	24383	30798	92485	44013	
	Totalizer Reading	55138	11017	70178	38974	
	Totalizer Reading					
	Totalizer Reading					
	Totalizer Reading					
	Totalizer Reading					
	Totalizer Reading					
	Totalizer Reading					
E	TODAY'S SUM OF TOTALIZERS	79521	41815	162663	82987	
F	Previous Day's Sum of Totalizers	78271	40260	161663	82584	
G H	AMOUNT PUMPED TODAY	1250	1555	1000	403	
	DELIVERY RECORD	↓	↓	↓	↓	↓
I	Inches of Fuel Before Delivery	13 7/8			49 7/8	
K	Gallons of Fuel Before Delivery (from tank chart)	537			5246	
J	Inches of Fuel After Delivery	41 1/4			86 1/2	
K	Gallons of Fuel After Delivery (from tank chart)	2672			9423	
L	GALLONS DELIVERED (STICK) (Gallons "After" – Gallons "Before")	2135			4177	
M	GROSS GALLONS DELIVERED (RECEIPT)	2100			4200	

SAMPLE

MONTHLY INVENTORY RECORD

(N) TANK IDENTIFICATION & TYPE OF FUEL: 4 MIDGRADE UNL

MONTH/YEAR: 9/93

FACILITY NAME: LAST CHANCE #2

DATE OF WATER CHECK: 9/1 LEVEL OF WATER (INCHES): 0 (V)

DATE	(O) START STICK INVENTORY (GALLONS)	(P) GALLONS DELIVERED	(Q) GALLONS PUMPED	(R) BOOK INVENTORY (GALLONS)	(S) END STICK INVENTORY (INCHES)	(S) END STICK INVENTORY (GALLONS)	(T) DAILY OVER (+) OR SHORT (−) ["End" − "Book"]	(U) INITIALS
1	4047 (+)	—	(−) 333	(=) 3714	38 1/4	3690	−24	JD
2	3690 (+)	—	(−) 44	(=) 3646	38	3658	+12	JD
3	3658 (+)	—	(−) 329	(=) 3329	35 3/8	3323	−6	JD
4	3323 (+)	—	(−) 60	(=) 3263	35	3275	+12	JD
5	3275 (+)	—	(−) 145	(=) 3130	33 3/4	3117	−13	JD
6	3117 (+)	—	(−) 238	(=) 2879	31 1/8	2790	−89	JD
7	2790 (+)	6134	(−) 117	(=) 8807	80	8844	+37	JD
8	8844 (+)	—	(−) 127	(=) 8717	78 7/8	8732	+15	JD
9	8732 (+)	—	(−) 182	(=) 8550	77 1/2	8591	+41	JD
10	8591 (+)	—	(−) 205	(=) 8386	75 1/2	8379	−7	JD
11	8379 (+)	—	(−) 204	(=) 8175	73 5/8	8173	−2	JD
12	8173 (+)	—	(−) 166	(=) 8007	72	7991	−16	JD
13	7991 (+)	—	(−) 320	(=) 7671	69 3/4	7730	+59	JD
14	7730 (+)	—	(−) 307	(=) 7423	67	7402	−21	JD
15	7402 (+)	—	(−) 76	(=) 7326	66 1/2	7342	+16	JD
16	7342 (+)	—	(−) 224	(=) 7118	64 1/8	7050	−68	JD
17	7050 (+)	—	(−) 390	(=) 6660	61	6657	−3	JD
18	6657 (+)	—	(−) 296	(=) 6361	58 5/8	6354	−7	JD
19	6354 (+)	—	(−) 78	(=) 6276	58 1/8	6290	+14	JD
20	6290 (+)	—	(−) 424	(=) 5866	54 3/8	5869	+3	JD
21	5869 (+)	—	(−) 205	(=) 5664	53 1/8	5639	−25	JD
22	5639 (+)	4177	(−) 403	(=) 9413	86 1/2	9423	+10	JD
23	9423 (+)	—	(−) 87	(=) 9336	85 1/2	9343	+7	JD
24	9343 (+)	—	(−) 311	(=) 9032	82	9036	+4	JD
25	9036 (+)	—	(−) 239	(=) 8797	79 1/8	8757	−40	JD
26	8757 (+)	—	(−) 256	(=) 8501	76 7/8	8526	+25	JD
27	8526 (+)	—	(−) 264	(=) 8262	74 1/2	8270	+8	JD
28	8270 (+)	—	(−) 263	(=) 8007	72	7991	−16	JD
29	7991 (+)	—	(−) 185	(=) 7806	69	7811	+5	JD
30	7811 (+)	—	(−) 116	(=) 7695	68	7690	−5	JD
31	(+)		(−)	(=)				

(W) TOTAL GALLONS PUMPED > 6594 TOTAL GALLONS OVER OR SHORT > −74 (X)

DROP THE LAST 2 DIGITS from the PUMPED number and enter on the TOTAL GALLONS line below

Compare these numbers

(Y) LEAK CHECK: 65 + 130 = 195 gallons

Is "TOTAL GALLONS OVER OR SHORT" LARGER than "LEAK CHECK" result? YES (NO) (circle one) (Z)

If answer is "YES" for 2 MONTHS IN A ROW, notify regulatory agency as soon as possible

KEEP THIS PIECE OF PAPER ON FILE FOR AT LEAST 1 YEAR

>>>Copy and post this reminder where employees who measure tanks can see it!<<<

GET GOOD INVENTORY CONTROL MEASUREMENTS!

- ! **Measure each tank every operating day**

- ! **Use gauge sticks that are**
  - ✓ **marked to the ⊂ inch**
  - ✓ **not cut off or worn off at the "0" end**
  - ✓ **varnished and not warped**

- ! **Measure through the same drop tube each time**

- ! **Use good sticking practices**
  - ✓ **SLOWLY lower stick**
  - ✓ **GENTLY touch stick on tank bottom**
  - ✓ **QUICKLY pull stick out**

- ! **Measure just before each delivery**

- ! **Wait at least 5 minutes after delivery, then measure again**

- ! **Read and record totalizer meters carefully**

- ! **Check for water at least once a month using water-finding paste**

Developed in cooperation with...

Fiberglass
Petroleum Tank & Pipe Institute

INTERNATIONAL ASSOCIATION OF TANK TESTING PROFESSIONALS

PEI
PETROLEUM EQUIPMENT INSTITUTE

PMAA
PETROLEUM MARKETERS ASSOCIATION OF AMERICA

SSDA
SERVICE STATION DEALERS OF AMERICA

SIGMA
SOCIETY OF INDEPENDENT GASOLINE MARKETERS OF AMERICA

STI
Steel Tank Institute

ATTACHMENT J

Release Detection Maintenance

RANGER
ENVIRONMENTAL SERVICES, LLC

Release Detection

The release detection system to be used at the facility is a Veeder Root TLS-450 Plus. The system will have inventory probes installed in the tanks, sump sensors installed in the submersible sump containment areas to monitor sub pump, sump sensors installed in the dispenser sumps and tank interstitial sensors. The system will be installed by a Veeder Root certified technician. The system will be installed in accordance with Veeder Root specifications and instructions. The system is UL listed and is third party certified for release detection under USEPA guidelines. The system has self- diagnostic programs to test and warn of failures of the external devices as well as internal electronics. The system has been tested by a Third Party and found to be compliant with USEPA requirements for release detection.

Ongoing maintenance will be conducted by Prestige Tank and Pump Services, Inc. personnel.

TLS-450PLUS Automatic Tank Gauge

Console Description

The TLS-450PLUS Automatic Tank Gauge (ATG) is a powerful tool that allows fueling operations to run at peak efficiency, with an easy to understand navigation, streamlined inventory and compliance reporting, and powerful business analytics. It can monitor up to 64 tanks, or 32 tanks with BIR. Frequent releases of operating software for the TLS-450PLUS tank gauge assures that data is secure and software features are routinely updated and enhanced.

TLS-450PLUS Consoles, Standard Hardware & Software

Part # & Description	Standard Hardware & Application Software
1. 860091-301 TLS-450PLUS Console with 8" WVGA Color Touch Screen Display, Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232, UL/cUL 2. 860091-302 TLS-450PLUS Console with 8" WVGA Color Touch Screen Display, Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232/RS-485, UL/cUL 3. 860091-401 TLS-450PLUS Console with 8" WVGA Color Touch Screen Display, No Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232, UL/cUL 4. 860091-402 TLS-450PLUS Console with 8" WVGA Color Touch Screen Display, No Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232/RS-485, UL/cUL 5. 860091-001 TLS-450PLUS Console, No Display, No Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232, UL/cUL 6. 860091-002 TLS-450PLUS Console, No Display, No Printer, 3 Ethernet and Dual USB/Expansion, Dual RS-232/RS-485, UL/cUL	**Software** – 333545-001 Application Software (must be ordered with Console) includes Web-enabled, Custom Alarm, On-Console Help, Extended Storage, TLS-Expansion, Static Leak Dection, 3GPH DPLLD **Hardware** – 3 Port Ethernet Module (Comm Slot 4), 2-Port USB Module (Comm Slot 5), 3 module compartments

TLS-450PLUS Device & Communications Module Compatibility

Devices

Module Compatibility	Inputs per Module	POWER MODULES	iButton Req'd?	Console Slots 1	2	3	4	TLS-XB 1 Slots 1	2	3	4	TLS-XB 2 Slots 1	2	3	4	TLS-XB 3 Slots 1	2	3	4	Modules per System
TLS-450PLUS System																				
USM	16			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	16
UIOM	14[1]			●	●	●	●	●	●	●	●	●	●	●	●	●	●	■	●	16
10-Amp Relay	6						●				●				●				●	4
MDIM	12			●	●	●	●	●												5
LVDIM	12			●	●	●	●	●												5

[1]=(14) total inputs include (5) AC Inputs, (5) Relay Contacts, (4) 12VDC Inputs

Communications

Module	COMMUNICATION MODULES	Console 1[4] P1	P2	2 P1	P2	3 P1	P2	4 P1	P2	5 P1	P2	Modules per System	Type
TLS-450PLUS													
RS-232			●		●		●	Ethernet Module (3 Ports) (Fixed)		USB Module (2 Ports) (Fixed)		3	Hardware
Dual RS-232		●	●	●	●							3	Hardware
RS-485			●		●		●					3	Hardware
Dual RS-485[1]		●	●	●	●							3	Hardware
RS-232/RS-485[1]		●	●	●	●							3	Hardware
Internal Modem			●		●		●					3	Hardware
CDIM		●		●								2	Hardware
EDIM[2]		●	●	●	●		●					3	Software
IFSF LON[3]			●		●		●					1	Hardware

[1]=When placed in Slot 3, only Position 2 will be functional

[2]=EDIM can be programmed in any position with an RS-232 port - up to 3 per system

[3]=Can be combined with EDIM

[4]=Console ships standard with dual RS-232 or dual RS-232/RS-485 card in Slot 1

	Part # & Description		Maximum # of Modules per Console	# of Inputs per Module	Availability
TLS-450PLUS Device Modules	Universal Sensor Module (USM) Interface for all Probes, Sensors, and DPLLD	332812-001 – Factory Installed Module 330020-619 – Spare Part Module	Up to 4 for each TLS-450PLUS and/or TLS-XB or a maximum of 16 modules per system	16	Sold Separately (either Factory Installed or as a Spare Part Module)
	Universal Input/Output Interface Module (UIOM) for Relay Control and Input Signal Monitoring	332813-001 – Factory Installed Module 330020-620 – Spare Part Module	Up to 4 for each TLS-450PLUS and/or TLS-XB or a maximum of 16 modules per system	5 dry contact output relays / 4 low voltage dry contact inputs / 5 high voltage inputs (<=240 VAC)	
	10-Amp Relay Module has 6 high power outputs / 6 low voltage inputs / must be installed in slot 4 of TLS-450 PLUS and TLS-XB	333564-001 – Factory Installed Module 330020-814 – Spare Part Module	Up to 1 for each TLS-450PLUS and/or TLS-XB or a maximum of 4 modules per system — **Only installed in slot 4*	4	
	BIR/AccuChart LVDIM for TLS-450PLUS, 12 Inputs	333581-001 – Factory Installed Module 330020-800 – Spare Part Module			
	BIR/AccuChart MDIM for TLS-450PLUS, 12 Inputs	333582-001 – Factory Installed Module 330020-799 – Spare Part Module			

	Part # & Description		Maximum # of Modules per System	Availability
TLS-450PLUS Communications Modules	SiteFax™ Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	332818-001 – Factory Installed Module 330020-612 – Spare Part Module	Up to 3 per System	Sold Separately (either Factory Installed or as a Spare Part Module) For Spare Part "upgrade" kits, the BIR/AccuChart Feature Enhancement will be shipped on a Veeder-Root iButton adapter – P/N 330020-659
	Single RS-232 Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	332866-001 – Factory Installed Module 330020-613 – Spare Part Module		
	RS-232 Dual Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	332868-001 – Factory Installed Module 330020-617 – Spare Part Module		
	Single RS-232/RS-485 Dual Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	332870-001 – Factory Installed Module 330020-618 – Spare Part Module		
	BIR/AccuChart EDIM for TLS-450PLUS	333149-001 – Factory Installed Module 330020-801 – Spare Part Module	1 per System	
	BIR/AccuChart CDIM for TLS-450PLUS, 3 Inputs	333580-001 – Factory Installed Module 330020-802 – Spare Part Module		
	IFSF LON Interface Module (Comm. Slots 1,2,3), for TLS-450PLUS	333659-001 – Factory Installed Module 330020-828 – Spare Part Module		

	Part # & Description	
TLS-450PLUS Optional Software	Continuous Statistical Leak Detection (CSLD) for TLS-450PLUS	332972-006
	Ultimate Testing: Digital Line Leak Detection for TLS-450PLUS	332972-007
	Risk Management: Digital Line Leak Detection for TLS-450PLUS	332972-008
	Base Compliance: Digital Line Leak Detection for TLS-450PLUS	332972-009
	Timed Sudden Loss Detection for TLS-450PLUS	332972-018
	Vapor Collection Monitor for TLS-450PLUS	332972-021
	DEF Recirculation Software Feature for TLS-450PLUS & DEF Temperature Sensor Installation Kit	332972-026 – Software 794380-210 – Install Kit

VEEDER-ROOT

TLS-450PLUS Automatic Tank Gauge

Specifications	
Operating Temperature	+32 to +104°F (0 to +40°C)
Storage Temperature	-40 to +158°F (-40 to +70°C)
Installation Location	NEMA 4 or indoors
Relative Humidity	0-90% (non-condensing)
External Dimensions	18.4" x 11" x 8.8" (46.74cm x 27.94cm x 22.35cm)
Construction	16GA (0.060 in/0.1524 cm) powder coated steel
Console Power Wiring Requirements	AC Power Wiring – Wires carrying 120 or 240 VAC from power panel to the console should be #14 AWG (or larger) wire for line, neutral & chassis ground (3) ; and 4 sq. mm, rated for at least 90C for barrier ground.
Probe & Sensor to Console Wiring Requirements	1. Wire Type – Shielded cable required regardless of conduit material or application. It must be rated less than 100 picofarad per ft manufactured with a suitable material such as Carol C2534 or Belden 88760, 8760, or 8770. 2. Wire Length – Maximum 1,000ft (304.8m) to meet intrinsic safety requirements. Improper system operation could result for runs over 1,000ft (304.8m). 3. Wire Gauges – Color coded – shielded cable used in all installations. Wires should be #14 - #18 AWG stranded copper wire and installed as Class 2 circuits. As an alternate method when approved by the local authority having jurisdiction, #22 AWG wire such as 88761 may be suitable with the following requirements: Wire run is less than 750ft (228.6m), Capacitance does not exceed 100 pF/ft; Inductance does not exceed 0.2 uH/ft.
System Power Requirements	AC Input – Universal AC power supply: 100 to 249 VAC, 50/60Hz, 2A max.
Display Specifications	8” (20.32cm) Color WVGA LCD touch screen display
Connectivity Methods	Ethernet, Web Browser, Modem, Fax, Serial
Data Storage Features	SD card
Software Security Features	Centralized Device Management to protect your network of TLS-4XX consoles
Custom User Access	Front Panel Display control through user specific log-in; User defined roles to restrict access / functionality. Screen permissions can be limited to view, edit, perform
System Security	1. Partitioned Ethernet Ports that can be used to separate user network from the internet 2. Port availability control: SSH Port (22), HTTPS Port (443), Serial Command Port (10001) 3. Reassign Port Numbers (i.e., HTTPS on 50443) 4. System Integrator CVE Scans & Fixes 5. Periodic System Updates to protect against persistent threats
Customized Alarm Features	Customizable for all alarms
Approvals	UL cUL, ATEX, IECEx, NEPSI, FCC, FMC, PESO, ANZEx, ULC, INMETRO, IQC, EAC, NWGLDE, and CEN
Third Party Evaluations	http://www.nwglde.org/evals/veeder_root_zf.html
Product Installation Guide	https://www.veeder.com/us/technical-document-library

VEEDER-ROOT

TLS-450PLUS Automatic Tank Gauge

System Compatibilities Guide

Feature/Console	TLS-450PLUS
CONSOLE DESIGN	
Modular/Expandable Features	•
LCD with Touch Screen (optional)	8" WVGA Color
Integral Roll Printer	Optional
Universal Power Supply	•
INVENTORY CONTROL	
Graphical Inventory Status	•
Complete Inventory Reports	•
Programmable Auto Report Times	•
Inventory Increase Report	•
Timed Sudden Loss Detection	Optional
BUSINESS INVENTORY RECONCILIATION	
Shift-Based Reconciliation	Optional
Reconciliation by Tank	Optional
TANK CALIBRATION	
Multi-Pass Tank Calibration	Optional
Single-Pass / Metered Drop	Optional
Limited Range Calibration	Optional
Supports Multiple Tank Charts per Tank	Optional
Supports Multiple Line Manifold Tanks	Optional
Graphical / Text Calibration Diagnostics	Optional
Automatic and Manual Meter Mapping	Optional
IN-TANK LEAK TEST	
0.1 GPH Tank Tightness Testing	•
0.2 GPH Tank Tightness Testing	•
Continuous Statistical Leak Detection	Optional
Selectable Test Rates	•
Programmable Automatic Test Schedules	•
PASS, FAIL, or INVALID Indicators	•
LINE LEAK DETECTION	
Integral Line Leak Detector	Optional
Programmable Line Test Features	Optional
INTERSTITIAL/SUMP LEAK SENSING	
Tank Annulus	•
Sump	•
Dispenser Pan	•
Mag Sump	•
Sensor Location Identifiers	•
VAPOR WELL MONITORING	
Hydrocarbon Vapor Detection	•
High Water Level Alarm	•
GROUNDWATER MONITORING	
Hydrocarbon Liquid Detection	•
Low Water Alarm	•
AIR VAPOR MONITORING	
Vapor Collection Monitor	Optional
ALARMS	
Leak	•
Overfill	•
High Level	•
Sudden Loss	•
High Water	•
Low Inventory	•
Programmable Alarm Limits	•

Feature/Console	TLS-450PLUS	TLS-450PLUS with TLS-XB**
DATA COMMUNICATIONS		
RS-232	5	5
RS-485	3	3
Fax Transmittal (SiteFax)	Optional	Optional
External USB 2.0	2	2
Ethernet Ports	3	3
International Forecourt Standards Forum (IFSF)	1	1
SYSTEM CAPABILITIES		
Manifold Tank Capability (Line & Siphon)	•	•
Height-Based Pump Priority Control for Manifolded Tanks	•	•
Pump Alternate on the Fly	•	•
Self-Diagnostics	•	•
Emergency Generator Capability	•	•
Up to 3 Years Data Storage	•	•
FAX Notification On-Time or Event	Optional	Optional
Email Notification On-Time or Event	•	•
LCD with Touch Screen	Optional	Optional
On-Board Help	•	•
Custom Help	•	•
Custom Alarms	•	•
Environmental Reports (Compliance Reports Summary)	•	•
Sensor Reports	•	•
Sensor History Report by Period, Month, Week or Custom	•	•
Web-Enabled	•	•
System Duplicate	•	•
SYSTEM CAPACITIES*		
Inputs	64	256
In-Tank Probes (Including Density)	64	64
In-Tank Probes with BIR	32	32
Digital Pressurized Line Leak Detectors (Additional Software Req'd)	15	16
2-WIRE SENSORS		
Magnetostrictive Discriminating Level Indicating Sump Sensor	64	99
Discriminating Dispenser Pan & Containment Sensors	64	99
Solid-State Non-Discr. Dispenser Pan & Containment Sensors	64	99
Sump Sensors	64	99
Position Sensitive Pan/Sump Sensor	64	99
Interstitial Sensor for Fiberglass Tanks	64	99
Solid-State Discr. Interstitial Sensors for Fiberglass Tanks	64	99
Alt. Ethanol Fluid Interstitial Sensors for Fiberglass Tanks	64	99
Interstitial Sensors for Steel Tanks	64	99
Microsensors	64	99
Position Sensitive Interstitial Sensor for Steel Tanks	64	99
Alt. Ethanol Fluid Solid-State Interstitial Sensor for Steel Tanks	64	99
Hydrostatic Sensors for Brine-Filled Double-Wall Tanks	64	99
Hydrostatic Sensor for Brine-Filled Double-Wall Sumps	64	99
Oil Water Separator Sensor	64	99
3-WIRE SENSORS		
Solid-State Discr. Dispenser Pan & Containment Sump Sensors	32	99
Groundwater Sensor	32	99
Vapor Sensor for Monitoring Wells	32	99
INPUT & OUTPUT		
Output Relays	21	32
External Inputs Low Voltage	16	64
External Inputs High Voltage	20	32
10-amp Relay	4	16

* Indicates the maximum number of devices the system can handle if all slots/ positions are filled with that type of device.

** TLS-450PLUS with (3) three TLS-XB boxes

www.veeder.com
1.888.561.7942

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Example Illustrations

Illustrations used in this guide for example sensor installations may contain components that are customer supplied and not included with the sensor. Please check with your Veeder-Root Distributor for recommended installation accessories.

Third Party Evaluations

Third party evaluations of the Veeder-Root sensors contained in this application guide can be found under the Veeder-Root vendor name on the National Work Group on Leak Detection Evaluations (NWGLDE) website:

http://www.nwglde.org

Temporary Stormwater Section

TCEQ-0602

RANGER
ENVIRONMENTAL SERVICES, LLC

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

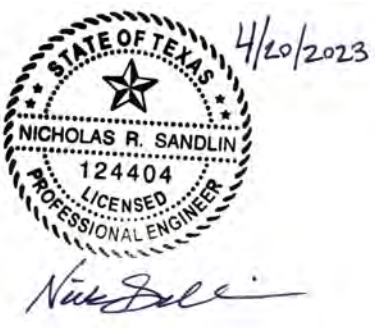
Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: NICK SANDLIN, P.E. (SANDLIN SERVICES, LLC)

Date: 4/20/2023

Signature of Customer/Agent:



Regulated Entity Name: MANCHACA GAS STATION

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

   ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: BEAR CREEK - ONION CREEK

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

☒ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☒ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☒ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☒ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☐ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

   ☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

   ☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

    ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

    ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

    ☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

    ☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☒ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

    ☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. ☒ Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. ☒ Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. ☒ All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. ☒ If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. ☒ Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

Temporary Stormwater Section (TCEQ-0602)

Attachment A: Spill Response Actions

Spill Response Actions

In the event of an accidental spill, immediate action shall be undertaken by the General Contractor to contain and remove the spilled material. All hazardous materials, including contaminated soil and liquid concrete waste (if applicable), shall be disposed of by the Contractor in the manner specified by Federal, State and Local regulations and by the manufacturer of such products. As soon as possible, the spill shall be reported to the appropriate agencies. As required under the provisions of the Clean Water Act, any spill or discharge entering waters of the United States shall be properly reported. The General Contractor shall prepare a written record of any spill and associated clean-up activities of petroleum products or hazardous materials in excess of 1 gallon or reportable quantities, whichever is less. The General Contractor shall provide notice to the Owner immediately upon identification of a reportable spill.

All spills of petroleum products or hazardous materials in excess of Reportable Quantities as defined by EPA or the State or Local agency regulations, shall be immediately reported within 24 hours to the EPA National Response Center (1-800-424-8802), TCEQ (1-800-832-8224), and local Fire Department (911).

The reportable quantity for hazardous materials can be found in 40 CFR 302:

Reportable Quantities		
Material	**Media Released to**	**Reportable Quantities**
Engine Oil, Fuel, Hydraulic & Brake Fluid	Land	25 gallons
Engine Oil, Fuel, Hydraulic & Brake Fluid	Water	Visible sheen
Antifreeze	Land	100 lbs (13 gal.)
Battery Acid	Land, Water	100 lbs
Refrigerant	Air	1 lb
Gasoline	Air, Land, Water	100 lbs
Engine Degreasers	Air, Land, Water	100 lbs

For more information, please visit https://www.tceq.texas.gov/response/spills/spill_rq.html

In order to minimize the potential for a spill of petroleum product or hazardous materials to come in contact with stormwater, the following steps shall be implemented.

a) All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids paints, paint solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) shall be stored in a secure location, under cover and in appropriate, tightly sealed containers when not in use.

b) The minimum practical quantity of all such materials shall be kept on the job site and scheduled for delivery as close to the time of use as practical. Post Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

c) A spill control and containment kit (containing for example: absorbent material such as kitty litter or sawdust, acid neutralizing agent, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) shall be provided on the construction site and construction employees shall be trained in when and how to use spill containment materials.

d) The contractor personnel will immediately clean up any oil, fuel or hydraulic fluid if observed being released from equipment or vehicles. Vehicles or equipment will cease operation until required repairs are made to the equipment.

e) All of the product in a container shall be used before the container is disposed of. All such containers shall be triple rinsed with water prior to disposal. The rinse water used in these containers shall be disposed of in a manner in compliance with State and Federal regulations and shall not be allowed to mix with stormwater discharges.

f) All products shall be stored in and used from the original container with the original product label.

g) All products shall be used in strict compliance with instructions on the product label.

h) The disposal of the excess or used products shall be in strict compliance with instructions on the products label.

Spill Prevention and Control

Education

1.) Be aware that different materials pollute in different amounts. Make sure that each employee knows what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills. Employees should also be aware of when spill must be reported to the TCEQ. Information available in 30 TAC 327.4 and 40 CFR 302.4.

2.) Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.

3.) Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).

4.) Establish a continuing education program to indoctrinate new employees.

5.) Have contractor's superintendent or representative oversee and enforce proper spill prevention and control measures.

General Measures

1.) To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110,117, and 302, and sanitary and septic wastes should be contained and cleaned up immediately.

2.) Store hazardous materials and wastes in covered containers and protect from vandalism.

3.) Place a stockpile of spill cleanup materials where it will be readily accessible.

4.) Train employees in spill prevention and cleanup.

5.) Designate responsible individuals to oversee and enforce control measures.

6.) Spills should be covered and protected from stormwater runon during rainfall to the extent that it doesn't compromise cleanup activities.

7.) Do not bury or wash spills with water.

8.) Store and dispose of used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose in conformance with the provisions in applicable BMPs.

9.) Do not allow water used for cleaning and decontamination to enter storm drains or watercourses. Collect and dispose of contaminated water in accordance with applicable regulations.

10.) Contain water overflow or minor water spillage and do not allow it to discharge into drainage facilities or watercourses.

11.) Place Material Safety Data Sheets (MSDS), as well as proper storage, cleanup, and spill reporting instructions for hazardous materials stored or used on the project site in an open, conspicuous, and accessible location.

12.) Keep waste storage areas clean, well-organized, and equipped with ample cleanup supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers, and liners should be repaired or replaced as needed to maintain proper function.

Cleanup

1.) Clean up leaks and spills immediately.

2.) Use a rag for small spills on paved surfaces, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be disposed of as hazardous waste.

3.) Never hose down or bury dry material spills. Clean up as much of the material as possible and dispose of properly. See the waste management BMPs in this section for specific information.

Minor Spills

1.) Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill.

2.) Use absorbent materials on small spills rather than hosing down or burying the spill.

3.) Absorbent materials should be promptly removed and disposed of properly.

4.) Follow the practice below for a minor spill:

5.) Contain the spread of the spill.

6.) Recover spilled materials.

7.) Clean the contaminated area and properly dispose of contaminated materials.

Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities. Spills should be cleaned up immediately:

1.) Contain spread of the spill.

2.) Notify the project foreman immediately.

3.) If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.

4.) If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.

5.) If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

Significant/Hazardous Spills

For significant or hazardous spills that are in reportable quantities:

1.) Notify the TCEQ by telephone as soon as possible and within 24 hours at 512- 339-2929 (Austin) or 210-490-3096 (San Antonio) between 8 AM and 5 PM. After hours, contact the Environmental Release Hotline at 1-800-832-8224. It is the contractor's responsibility to have all emergency phone numbers at the construction site.

2.) For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor should notify the National Response Center at (800) 424-8802.

3.) Notification should first be made by telephone and followed up with a written report.

4.) The services of a spills contractor or a Haz-Mat team should be obtained immediately. Construction personnel should not attempt to clean up until the appropriate and qualified staffs have arrived at the job site.

5.) Other agencies which may need to be consulted include, but are not limited to, the City Police Department, County Sheriff Office, Fire Departments, etc.

More information on spill rules and appropriate responses is available on the TCEQ website at: http://www.tnrcc.state.tx.us/enforcement/emergency_response.html.

Vehicle and Equipment Maintenance

1.) If maintenance must occur onsite, use a designated area and a secondary containment, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.

2.) Regularly inspect onsite vehicles and equipment for leaks and repair immediately.

3.) Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment onsite.

4.) Always use secondary containment, such as a drain pan or drop cloth, to catch spills or leaks when removing or changing fluids.

5.) Place drip pans or absorbent materials under paving equipment when not in use.

6.) Use absorbent materials on small spills rather than hosing down or burying the spill. Remove the absorbent materials promptly and dispose of properly.

7.) Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around.

8.) Oil filters disposed of in trashcans or dumpsters can leak oil and pollute stormwater. Place the oil filter in a funnel over a waste oil-recycling drum to drain excess oil before disposal. Oil filters can also be recycled. Ask the oil supplier or recycler about recycling oil filters.

9.) Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Vehicle and Equipment Fueling

1.) If fueling must occur on site, use designated areas, located away from drainage courses, to prevent the runon of stormwater and the runoff of spills.

2.) Discourage "topping off" of fuel tanks.

3.) Always use secondary containment, such as a drain pan, when fueling to catch spills/ leaks.

SPILL REPORT FORM

Notes to General Contractor:

- Control and contain the spill.
- Contact the appropriate regulatory agencies if the spill exceeds the applicable reportable quantity.
- Clean up the spill and dispose of waste according to federal, state and local regulations.
- Complete the Spill Report Form in full for each spill that exceeds the applicable reportable quantity and submit to the Owner.
- Call the Owner.
- Resolve as appropriate and as required by regulatory authorities.

SPILL REPORT FORM

DATE:
PROJECT:
PROJECT ADDRESS:

Spill Reported By: _____

Date / Time of Spill: _____

Describe spill location and events leading to spill: _____

_____

Material Spilled: _____

Source of Spill: _____

Amount Spilled: _____

Amount Spilled to Waterway (Name Waterway): _____

Containment or Clean up Action: _____

_____

Approximate depth (yards) of soil excavation: _____

List injuries or Personal Contamination: _____

Action to be taken to prevent future spills:
_____

Agencies notified of spill:
_____

_____

_____ _____
Contractor Signature and Printed Name **Date**

AFTER NOTIFYING GOVERNING AUTHORITIES, IMMEDIATELY COMPLETE THIS FORM AND CONTACT THE OWNER IF THE SPILL EXCEEDS THE REPORTABLE QUANTITY FOR THE GOVERNING AGENCY

Temporary Stormwater Section
(TCEQ-0602)

Attachment B:
Potential Sources of Contamination

Potential Sources of Contamination and Preventive Measures:

Potential Source: Concrete and concrete products used on-site during construction.
Preventive Measures: Concrete washout structure will be used if necessary.

Potential Source: Oil, grease, fuel, and hydraulic fluid contamination from construction equipment and vehicle dripping.
Preventative Measures: Vehicle maintenance will be performed at a local maintenance shop.

Potential Source: Miscellaneous trash and litter from construction workers and material wrappings.
Preventative Measures: Trash containers will be placed throughout the site to encourage proper disposal of trash.

Potential Source: Silt leaving the site.
Preventative Measures: Contractor will install all temporary best management practices prior to start of construction including the stabilized construction entrance to prevent tracking onto adjoining streets.

Potential Source: Construction debris
Preventative Measures: Construction debris will be monitored daily by contractor. Debris will be collected weekly and placed in disposal bins. Situations requiring immediate attention will be addressed on a case-by-case basis.

Potential Source: Soil and mud from construction vehicle tires as they leave the site.
Preventative Measures: a stabilized construction exit shall be utilized as vehicles leave the site. And soil, mud, etc. carried from the project onto public roads shall be cleaned up within 24 hours.

Potential Source: Sediment from soil, sand, gravel, and excavated materials stockpiled on site.
Preventative Measures: Silt fence shall be installed on the down gradient side of the stockpiled materials. Reinforced rock berms shall be installed at all downstream discharge locations.

Potential Source: Portable toilet spill
Preventative Measures: Toilets on the site will be emptied on a regular basis by the contracted toilet company.

Temporary Stormwater Section (TCEQ-0602)

Attachment C: Sequence of Major Activities

The installation of erosion and sedimentation controls shall occur prior to any excavation of materials or major disturbances on the site. The sequence of major construction activities will be as follows. Approximate acreage (AC) expected to be disturbed is listed in parentheses next to each activity.

Intended Schedule or Sequence of Major Activities:

1. Submit written notice of construction to TCEQ regional office at least 48 hours prior to the start of any regulated activities.

2. A pre-construction conference prior to commencement of construction. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan (WPAP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.

3. Contractors must follow requirements as outlined in TCEQ General Construction Notes for the Water Pollution Abatement Plan (WPAP). WPAP Construction Notes are included on the Construction Plan sheets (See Permanent Stormwater Section – Attachment F).

4. Prior to beginning any construction activity, all temporary erosion and sedimentation BMPs and control measures must be properly installed and maintained in accordance with the approved plans and manufacturers specifications (0.07 AC).

5. Evaluate temporary erosion control installation. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.

6. Review construction schedule and the Water Pollution Abatement Plan (WPAP) requirements.

7. Topsoil, Irrigation and Landscaping: Revegetate all disturbed areas according to plan.

8. Site cleanup and removal of temporary erosion/sedimentation BMP controls. (0.07 AC)

The maximum total construction time is not expected to exceed 9 months.

Temporary Stormwater Section
(TCEQ-0602)

Attachment D:
Temporary Best Management Practices and Measures

1. There are 0.0 AC of storm water that originate up gradient from the site and flow across the site through an onsite BMP.

2. Temporary BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the down-gradient sides of the property and limits of construction to prevent silt from escaping the construction area during construction.

3. A gravel construction entrance exists on site to reduce vehicle "tracking" onto adjoining streets. A concrete washout pit may be used to collect all excess concrete during construction, if needed.

4. Temporary BMPs for this project will protect surface water or groundwater from turbid water, phosphorus, sediment, oil and other contaminants, which may mobilize in stormwater flows by slowing the flow of runoff to allow sediment and suspended solids to settle out of the runoff.

5. Practices may also be implemented on site for interim and permanent stabilization. Stabilization practices may include but are not limited to establishment of temporary vegetation; establishment of permanent vegetation; mulching; geotextiles; sod stabilization; vegetative buffer strips; protection of existing trees and vegetation; and other similar measures.

6. There are no sensitive features or surface streams within the boundaries of the project that would require temporary BMPs. The temporary onsite BMPs will be used to treat stormwater runoff before it leaves the project and prevent pollutants from entering into surface streams or any sensitive features down gradient of the site.

Temporary Stormwater Section
(TCEQ-0602)

Attachment E:
Request to Temporarily Seal a Feature
(NOT APPLICABLE)

Temporary Stormwater Section (TCEQ-0602)

Attachment F: Structural Practices

Structural BMPs will be used to limit runoff discharge of pollutants from exposed areas of the site. BMPs will be installed prior to soil disturbing construction activity. Silt fencing will be placed along the down-gradient sides of the property to prevent silt from escaping the construction area. A temporary construction entrance will be placed at the site entry/exit point to reduce tracking onto adjoining streets. A construction staging area will be used onsite to perform all vehicle maintenance and for equipment and material storage. A concrete truck washout pit will be placed on site to provide containment and easier cleanup of waste from concrete operations. The location of all structural temporary BMPs are shown within the Site Plans.

Description of Temporary BMPs

Construction Entrance/Exit:
The purpose of a gravel construction entrance is to provide a stable entrance/exit condition from the construction site and keep mud and sediment off public roads. A stabilized construction entrance is a stabilized pad of crushed stone located at any point traffic will be entering or leaving the construction site from a public right-of-way. This practice should be used at all point of construction ingress and egress. Excessive amounts of mud can also present a safety hazard to roadway users. To minimize the amount of sediment loss to nearby roads, access to the construction site should be limited to as few points as possible and vegetation around the perimeter should be protected where access is not necessary. A rock stabilized construction entrance exists and will be used at all designated access points.

Silt Fence:
The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow.

Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

Triangular Sediment Filter Dikes
Triangular sediment filter dikes (18"x18"x18" filter material with 6" square folded wire mesh frame) will be installed downgradient of the AST construction area with filter cloth placed over any existing stormwater

collection drains. The dike and filter cloth will be held in place with cloth sandbags. The facility existing topography will not change as the AST will be placed on existing crushed rock.

Concrete Washout Area

The purpose of concrete washout areas is to prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout offsite, performing onsite washout in a designated area, and training employees and subcontractors.

The following steps will help reduce stormwater pollution from concrete wastes:

- Incorporate requirements for concrete waste management into material supplier and subcontractor agreements.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks in designated areas only.
- Do not wash out concrete trucks into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped onsite, except in designated areas.
- For onsite washout:
- Locate washout area at least 50 feet from sensitive features, storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out waste into the temporary pit where the concrete can set, be broken up, and then disposed properly.

Temporary Stormwater Section
(TCEQ-0602)

Attachment G:
Drainage Area Map

No upstream drainage currently exists that flows on-site.

Temporary Stormwater Section
(TCEQ-0602)

Attachment H:
Temporary Sediment Pond(s) Plans and Calculations
(NOT APPLICABLE)

Temporary Stormwater Section (TCEQ-0602)

Attachment I: Inspection and Maintenance for BMPs

Inspection and Maintenance Guidelines for Construction BMPs

Silt Fence – Section 1.4.3
(1) Inspect all fencing weekly, and after any rainfall.
(2) Remove sediment when buildup reaches 6 inches.
(3) Replace any torn fabric or install a second line of fencing parallel to the torn section.
(4) Replace or repair any sections crushed or collapsed in the course of construction activity. If a section of fence is obstructing vehicular access, consider relocating it to a spot where it will provide equal protection, but will not obstruct vehicles. A triangular filter dike may be preferable to a silt fence at common vehicle access points.
(5) When construction is complete, the sediment should be disposed of in a manner that will not cause additional siltation and the prior location of the silt fence should be revegetated. The fence itself should be disposed of in an approved landfill.

Inlets – Section 1.4.11
(1) Inspection should be made weekly and after each rainfall. Repair or replacement should be made promptly as needed by the contractor.
(2) Remove sediment when buildup reaches a depth of 3 inches. Removed sediment should be deposited in a suitable area and in such a manner that it will not erode.
(3) Check placement of device to prevent gaps between device and curb.
(4) Inspect filter fabric and patch or replace if torn or missing.
(5) Structures should be removed and the area stabilized only after the remaining drainage area has been properly stabilized.

Temporary Construction Entrance/Exit – Section 1.4.2
(1) The entrance should be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment.
(2) All sediment spilled, dropped, washed or tracked onto public rights-of-way should be removed immediately by contractor.
(3) When necessary, wheels should be cleaned to remove sediment prior to entrance onto public right-of-way.
(4) When washing is required, it should be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin.

(5) All sediment should be prevented from entering any storm drain, ditch or water course by using approved methods.

Personnel Responsible for Inspections

The agent that performs the inspections should be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWPPP for the site. Documentation of the inspector's qualifications is to be included in the attached Inspector Qualifications Log.

Inspection Schedule

The primary operator is required to choose one of the two inspections listed below.

☐ **Option 1:** Once every seven calendar days. If this alternative schedule is developed, then the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

☐ **Option 2:** Once every 14 calendar days and within 24 hours of the end of a storm event of two inches or greater.

The inspections may occur on either schedule provided that documentation reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented (e.g., end of "dry" season and beginning of "wet" season).

If option 2 is the chosen frequency of inspections a rain gauge must be properly maintained on site or the storm event information from a weather station that is representative of the site location. For any day of rainfall during normal business hours that measures 0.25 inches or greater, proper documentation of the total rainfall measured for that day must be recorded.

Personnel provided by the permittee must inspect:

- disturbed areas of the construction site that have not been finally stabilized,
- areas used for storage of materials that are exposed to precipitation,
- structural controls (for evidence of, or the potential for, pollutants entering the drainage system),
- sediment and erosion control measures identified in the SWP3 (to ensure they are operating correctly), and
- locations where vehicles enter or exit the site (for evidence of off-site sediment tracking).

Reductions in Inspection Frequency

Where sites have been finally or temporarily stabilized or where runoff is unlikely due to winter conditions (e.g., site is covered with snow, ice, or frozen ground exists), inspections must be conducted at least once every month. In arid, semi-arid, or drought-stricken areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater. A record of the total rainfall measured, as well as the approximate beginning and ending dates of winter or drought conditions resulting in monthly frequency of inspections in the attached Rain Gauge Log.

In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.

Inspection Report Forms

Use the Inspection Report Forms given as a checklist to ensure that all required areas of the construction site are addressed. There is space to document the inspector's name as well as when the inspections regularly take place. The tables will document that the required area was inspected. (If there were any areas of concern, briefly describe them in this space with a more detailed description in the narrative section. Use the last table to document any discharges found during the inspections).

Describe how effective the installed BMPs are performing. Describe any BMP failures that were noted during the investigation and describe any maintenance required due to the failure. If new BMPs are needed as the construction site changes, the inspector can use the space at the bottom of the section to list BMPs to be implemented before the next inspection.

Describe the inspector's qualifications, how the inspection was conducted, and describe any areas of non-compliance in detail. If an inspection report does not identify any incidents of non- compliance, then it must contain a certifying signature stating that the facility or site is in compliance. The report must be signed by a person and in a manner required by 30 TAC 305.128. There is space at the end of the form to allow for this certifying signature.

Whenever an inspection shows that BMP modifications are needed to better control pollutants in runoff, the changes must be completed within seven calendar days following the inspection. If existing BMPs are modified or if additional BMPs are needed, you must describe your implementation schedule, and wherever possible, make the required BMP changes before the next storm event.

The Inspection Report Form functions as the required report and must be signed in accordance with TCEQ rules at 30 TAC 305.128.

Corrective Action

Personnel Responsible for Corrective Actions

Both Primary and Secondary Operators are responsible for maintaining all necessary Corrective Actions. If an individual is specifically identified as the responsible party for modifying the contact information for that individual should be documented in the attached Inspector Qualifications Log.

Corrective Action Forms

The Temporary BMPs must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the attached forms and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable. Actions taken as a result of inspections must be properly documented by completing the corrective action forms given.

Inspector Qualifications Log*

Inspector Name: ____________________
Qualifications (Check as appropriate and provide description):
☐ Training Course ____________________
☐ Supervised Experience ____________________
☐ Other ____________________

Inspector Name: ____________________
Qualifications (Check as appropriate and provide description):
☐ Training Course ____________________
☐ Supervised Experience ____________________
☐ Other ____________________

Inspector Name: ____________________
Qualifications (Check as appropriate and provide description):
☐ Training Course ____________________
☐ Supervised Experience ____________________
☐ Other ____________________

Inspector Name: ____________________
Qualifications (Check as appropriate and provide description):
☐ Training Course ____________________
☐ Supervised Experience ____________________
☐ Other ____________________

Inspector Name: ____________________
Qualifications (Check as appropriate and provide description):
☐ Training Course ____________________
☐ Supervised Experience ____________________
☐ Other ____________________

Inspector Name: ____________________
Qualifications (Check as appropriate and provide description):
☐ Training Course ____________________
☐ Supervised Experience ____________________
☐ Other ____________________

*The agent that performs the inspections should be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWPPP for the site. The contractor is to provide an inspector with a CPESC, CESSWI, or CISEC certification.

Amendment Log

No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

Construction Activity Sequence Log*

Name of Operator	Projected Dates Month/Year	Activity Disturbing Soil clearing, excavation, etc.	Location on-site where activity will be conducted	Acreage being disturbed

*Construction activity sequences for linear projects may be conducted on a rolling basis. As a result, construction activities may be at different stages at different locations in the project area. The Contractor is required to complete and update the schedule and adjust as necessary.

Stormwater Control Installation and Removal Log

Stormwater Control	Location On-Site	Installation Date	Removal Date

Stabilization Activities Log*

Date Activity Initiated	Description of Activity	Description of Stabilization Measure and Location	Date Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated

*Stabilization and erosion control practices may include, but are not limited to, establishing temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, and protecting existing trees and vegetation. List practices used where they are located, when they will be implemented, and whether they are temporary (interim) or permanent.

Inspection Frequency Log

Date	Frequency

Rain Gauge Log

Date	Location of Rain Gauge	Gauge Reading

General Information					
Name of Project		**Tracking Number**		**Inspection Date**	
Inspector Name, Title & Contact Information					
Present Phase of Construction					
Inspection Location (if multiple inspections are required, specify location where this inspection is being conducted)					

Inspection Frequency

Standard Frequency: ☐ Weekly ☐Every 14 days and within 24 hours of a 0.25" rain

Increased Frequency: ☐ Every 7 days and within 24 hours of a 0.25" rain

Reduced Frequency:

☐ Once per month (for stabilized areas)

☐ Once per month and within 24 hours of a 0.25" rain (for arid, semi-arid, or drought-stricken areas during seasonally dry periods or during drought)

☐ Once per month (for frozen conditions where earth-disturbing activities are being conducted)

Was this inspection triggered by a 0.25" storm event? ☐ Yes ☐ No

If yes, how did you determine whether a 0.25" storm event has occurred?

☐ Rain gauge on site ☐Weather station representative of site. Specify weather station source.

Total rainfall amount that triggered the inspection (in inches):

Unsafe Conditions for Inspection

Did you determine that any portion of your site was unsafe for inspection? ☐ Yes ☐No

If "yes," complete the following:

- Describe the conditions that prevented you from conducting the inspection in this location:

- Location(s) where conditions were found:

Condition and Effectiveness of Erosion and Sediment (E&S) Controls				
Type / Location of E&S Control	**Repairs or Other Maintenance Needed?**	**Corrective Action Required?**	**Date on Which Maintenance of Corrective Action First Identified?**	**Notes**
1.	☐ Yes ☐ No	☐ Yes ☐ No		
2.	☐ Yes ☐ No	☐ Yes ☐ No		
3.	☐ Yes ☐ No	☐ Yes ☐ No		
4.	☐ Yes ☐ No	☐ Yes ☐ No		
5.	☐ Yes ☐ No	☐ Yes ☐ No		
6.	☐ Yes ☐ No	☐ Yes ☐ No		
7.	☐ Yes ☐ No	☐ Yes ☐ No		
8.	☐ Yes ☐ No	☐ Yes ☐ No		
9.	☐ Yes ☐ No	☐ Yes ☐ No		

Condition and Effectiveness of Pollution Prevention (P_2) Practices				
Type / Location of P_2 Practices	**Repairs or Other Maintenance Needed?**	**Corrective Action Required?**	**Identification Date**	**Notes**
1.	☐ Yes ☐ No	☐ Yes ☐ No		
2.	☐ Yes ☐ No	☐ Yes ☐ No		
3.	☐ Yes ☐ No	☐ Yes ☐ No		
4.	☐ Yes ☐ No	☐ Yes ☐ No		
5.	☐ Yes ☐ No	☐ Yes ☐ No		
6.	☐ Yes ☐ No	☐ Yes ☐ No		
7.	☐ Yes ☐ No	☐ Yes ☐ No		
8.	☐ Yes ☐ No	☐ Yes ☐ No		
9.	☐ Yes ☐ No	☐ Yes ☐ No		

Stabilization of Exposed Soil			
Stabilization Area	**Stabilization Method**	**Have you Initiated Stabilization?**	**Notes**
1.		☐ YES ☐ NO If yes, provide date:	
2.		☐ YES ☐ NO If yes, provide date:	
3.		☐ YES ☐ NO If yes, provide date:	
4.		☐ YES ☐ NO If yes, provide date:	

Description of Discharges	
Was a stormwater discharge or other discharge occurring from any part of your site at the time of the inspection? ☐ YES ☐ NO **If "YES," provide the following information for each point of discharge:**	
Discharge Locations	**Observations**
1.	Describe the discharge: At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and / or sediment accumulation that can be attributed to your discharge? ☐ YES. ☐ NO If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:
2.	Describe the discharge: At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and / or sediment accumulation that can be attributed to your discharge? ☐ YES. ☐ NO If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:
3.	Describe the discharge: At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and / or sediment accumulation that can be attributed to your discharge? ☐ YES. ☐ NO If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:

Contractor or Subcontractor Certification and Signature

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information, submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am, aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Contractor or Subcontractor: _____ Date**:**

Printed Name and Affiliation:

Certification and Signature by Permittee

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information, submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am, aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Permittee or
"Duly Authorized Representative": _____ **Date:**

Printed Name and Affiliation:

Section A – Initial Report **(Complete this section within 24 hours of discovering the condition that triggered corrective action.)**		
Name of Project:	Tracking Number:	Today's Date
Date Problem First Discovered:	Time Problem First Discovered:	
Name of Individual Completing this Form:	Contact Information:	

What site conditions triggered the requirement to conduct corrective action:

☐ A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 2 and/or Part 3

☐ The stormwater controls that have been installed and maintained are not effective enough for the discharge to meet applicable water quality standards

☐ A prohibited discharge has occurred or is occurring

Provide a description of the problem:

Deadline for completing corrective action (Enter date that is either: (1) no more than 7 calendar days after the date you discovered the problem, or (2) if it is infeasible to complete work within the first 7 days, enter the date that is as soon as practicable following the 7th day):

If your estimated date of completion falls after the 7-day deadline, explain (1) why you believe it is infeasible to complete work within 7 days, and (2) why the date you have established for making the new or modified stormwater control operational is the soonest practicable timeframe:

Section B – Corrective Action Progress

(Complete this section no later than 7 calendar days after discovering the condition that triggered corrective action.)

Section B.1 – Why the Problem Occurred

Cause(s) of Problem (Add an additional sheet if necessary)	How This Was Determined and the Date You Determined the Cause
1.	1.
2.	2.

Section B.2 – Stormwater Control Modifications to be Implemented to Correct the Problem

List of Stormwater control Modification(s) Needed to Correct Problem (Add an additional sheet if necessary)	Completion Date	SWPPP Update Necessary?	Notes
1.		☐ Yes ☐ No Date:	
2.		☐ Yes ☐ No Date:	

Section A – Initial Report **(Complete this section within 24 hours of discovering the condition that triggered corrective action.)**		
Name of Project:	Tracking Number:	Today's Date
Date Problem First Discovered:	Time Problem First Discovered:	
Name of Individual Completing this Form:	Contact Information:	

What site conditions triggered the requirement to conduct corrective action:

☐ A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 2 and/or Part 3

☐ The stormwater controls that have been installed and maintained are not effective enough for the discharge to meet applicable water quality standards

☐ A prohibited discharge has occurred or is occurring

Provide a description of the problem:

Deadline for completing corrective action (Enter date that is either: (1) no more than 7 calendar days after the date you discovered the problem, or (2) if it is infeasible to complete work within the first 7 days, enter the date that is as soon as practicable following the 7th day):

If your estimated date of completion falls after the 7-day deadline, explain (1) why you believe it is infeasible to complete work within 7 days, and (2) why the date you have established for making the new or modified stormwater control operational is the soonest practicable timeframe:

Section B – Corrective Action Progress

(Complete this section no later than 7 calendar days after discovering the condition that triggered corrective action.)

Section B.1 – Why the Problem Occurred

Cause(s) of Problem (Add an additional sheet if necessary)	How This Was Determined and the Date You Determined the Cause
1.	1.
2.	2.

Section B.2 – Stormwater Control Modifications to be Implemented to Correct the Problem

List of Stormwater control Modification(s) Needed to Correct Problem (Add an additional sheet if necessary)	Completion Date	SWPPP Update Necessary?	Notes
1.		☐ Yes ☐ No Date:	
2.		☐ Yes ☐ No Date:	

Contractor or Subcontractor Certification and Signature

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information, submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am, aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Contractor or Subcontractor: _____ **Date:**

Printed Name and Affiliation:

Certification and Signature by Permittee

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information, submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am, aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Permittee or
"Duly Authorized Representative": _____ **Date:**

Printed Name and Affiliation:

Temporary Stormwater Section
TCEQ-0602)

Attachment J:
Schedule of Interim and Permanent
Soil Stabilization Practices

Interim Vegetative Stabilization

Interim soil stabilization will not be required.

Permanent Vegetative Stabilization

Construction practices shall disturb the minimal amount of existing ground cover as required for land clearing, grading, and construction activity for the shortest amount of time possible to minimize the potential of erosion and sedimentation from the site. Existing vegetation shall be maintained and left in place until it is necessary to disturb construction activity. For this project, the following stabilization practices will be implemented:

1. Hydraulic Mulch and Seeding: Disturbed areas subject to erosion shall be stabilized with hydraulic mulch and/or seeded and watered to provide interim stabilization.

2. Sodding and Wood Mulch: As per the project landscaping plan, sodding and wood mulch will be applied to landscaped areas to provide permanent stabilization prior to project completion.

Records of the following shall be maintained:

1. The dates when major grading activities occur,

2. The dates when construction activities temporarily or permanently cease on a portion of the site, and

3. The dates when stabilization measures are initiated.

Stabilization measures must be initiated as soon as practical in portions of the site where construction activities have temporarily or permanently ceased, and except as provided in the following, must be initiated no more than fourteen (14) days after the construction activity in that portion of the site has temporarily or permanently ceased:

Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practical.

Where construction activity on a portion of the site is temporarily ceased and earth disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures do not have to be initiated on that portion of the site.

In arid areas (areas with an average rainfall of 0-10 inches), semiarid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonably arid conditions, stabilization measures must be initiated as soon as practical.

CONTACTS

OWNER:

7-ELEVEN, INC.
3200 HACKBERRY ROAD
IRVING, TEXAS 75063

ENGINEER:

SANDLIN SERVICES, LLC
4501 WHISPERING VALLEY DR. UNIT#27
AUSTIN, TEXAS 78727
(806)679-7303
CONTACT: NICHOLAS SANDLIN, P.E.

MANCHACA C-STORE REHABILITATION

SITE PLAN EXEMPTION

ADDRESS:

2120 FM 1626, MANCHACA, TX 78652

SUBMITTED BY:

I, NICHOLAS R. SANDLIN, PE #124404, DO HEREBY CERTIFY THAT THE ENGINEERING WORK BEING SUBMITTED HEREIN COMPLIES WILL ALL THE PROVISIONS OF THE TEXAS ENGINEERING PRACTICE ACT, INCLUDING 131.52 (E). I HEREBY ACKNOWLEDGE THAT ANY MISREPRESENTATION REGARDING THIS CERTIFICATION CONSTITUTES A VIOLATION OF THE ACT, AND MAY RESULT IN CRIMINAL, CIVIL AND/OR ADMINISTRATIVE PENALTIES AGAINST ME, AS AUTHORIZED BY THE ACT.

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED
PROFESSIONAL ENGINEER
4/26/2023

THIS PLAN SET FOR REVIEW ONLY, NOT FOR CONSTRUCTION.

NOTES:

1. THIS SITE IS LOCATED WITHIN THE CITY OF AUSTIN ETJ.
2. PER § 6-5-52 – TRAPS, CATCH BASINS, AND INTERCEPTORS, (B) THE DIRECTOR'S APPROVAL IS REQUIRED FOR THE DESIGN OF A TRAP, CATCH BASIN, OR INTERCEPTOR. APPROVAL OF THIS PLAN BY THE CITY OF AUSTIN CONSTITUTES ADEQUACY AND ACCEPTANCE OF THE DESIGN PROVIDED.
3. ACCORDING TO THE NATIONAL FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO 48453C0590J DATED 1/22/2020, THIS TRACT LIES WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE OF THE 500 YEAR FLOODPLAIN.
4. THE CONTRACTOR OR SURVEYOR WILL OBTAIN A DIGITAL COPY OF THE CAD FILES THAT REPRESENT THESE IMPROVEMENTS; SANDLIN SERVICES, LLC AND IT'S ASSOCIATES TAKE NO RESPONSIBILITY FOR THE LOCATION OF THESE IMPROVEMENTS IN ANY COORDINATE SYSTEM. DIGITAL FILES USED TO PRODUCE THESE PLANS WERE PARTIALLY CREATED BY PARTIES OTHER THAN SANDLIN SERVICES, LLC AND ARE NOT INTENDED FOR USE IN CONSTRUCTION STAKING. VERTICAL AND HORIZONTAL DATA SHALL BE INDEPENDENTLY VERIFIED BY CONTRACTOR'S R.P.L.S.
5. SANDLIN SERVICES, LLC HAS ENDEAVORED TO DESIGN THESE PLANS COMPLIANT WITH ADA/TDLR AND OTHER ACCESSIBILITY REQUIREMENTS. HOWEVER, THE CONTRACTOR SHALL NOT BE RELIEVED OF ANY RESPONSIBILITY FOR CONSTRUCTING THESE IMPROVEMENTS COMPLIANT WITH ALL APPLICABLE ACCESSIBILITY STANDARDS. IF THE CONTRACTOR NOTICES ANY DISCREPANCIES BETWEEN THESE PLANS AND ACCESSIBILITY LAWS/RULES, HE IS TO STOP WORK IN THE AREA OF CONFLICT AND NOTIFY THE ENGINEER IMMEDIATELY FOR A RESOLUTION AND/OR REVISION TO THESE PLANS. SANDLIN SERVICES, LLC SHALL NOT BE HELD RESPONSIBLE FOR CONSTRUCTING THIS SITE COMPLIANT WITH ACCESSIBILITY LAWS/RULES REGARDLESS OF WHAT IS SHOWN IN THESE PLANS.

PRE-CONSTRUCTION NOTES:

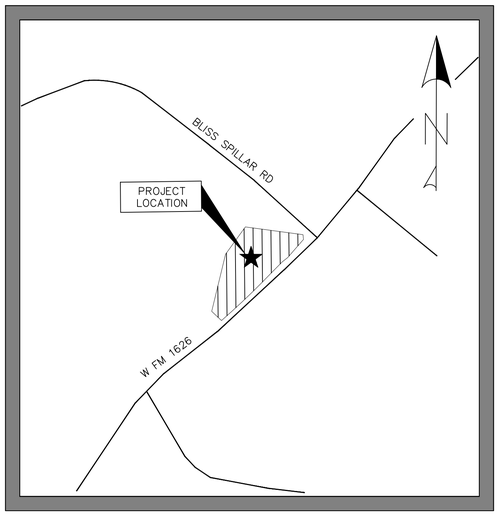
1. PRIOR TO SCHEDULING THE PRE-CONSTRUCTION MEETING ENSURE THAT ALL REQUIRED NOTICES AND PERMITS ARE POSTED AND THE CERTIFIED INSPECTOR FOR YOUR SITE HAS UPLOADED A SWP3 INSPECTION REPORT TO YOUR ACCOUNT THAT CONFIRMS THAT THE FIRST PHASE OF TEMPORARY ESC HAVE BEEN INSTALLED PER PLANS AND SPECIFICATIONS.
2. FAILURE TO FOLLOW THE PRE-CONSTRUCTION MEETING REQUIREMENTS MAY RESULT IN WORK STOPPAGE AND ADDITIONAL PERMIT FEES.
3. PROVIDE 48 HR. MINIMUM NOTICE TO SCHEDULE THE PRE-CONSTRUCTION MEETING.
4. PROVIDE A ½ SIZE SET OF PLANS FOR THE INSPECTOR AT THE PRE-CONSTRUCTION.
5. PROVIDE AN ANTICIPATED CONSTRUCTION SCHEDULE AT THE PRE-CONSTRUCTION.
6. BRING YOUR SWP3 FOR COMPLETENESS CHECK AT THE PRE-CONSTRUCTION.
7. ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE PLANS APPROVED BY TRAVIS COUNTY.
8. SCHEDULE YOUR PROJECTS PRE-CONSTRUCTION MEETING THROUGH THE MYPERMITNOW.ORG ACCOUNT AFTER THE INITIAL 3RD PARTY SWP3 INSPECTION REPORT HAS BEEN UPLOADED AND ALL PERMITS AND NOTICES HAVE BEEN POSTED, THEN FOLLOW UP WITH EMAILS TO THE ENVIRONMENTAL INSPECTOR AT ENV-INSPECTION@TRAVISCOUNTYTX.GOV

BENCHMARK NOTE:

ALL ELEVATIONS SHOWN HEREON ARE BASED ON THE FOLLOWING BENCHMARKS AND INFORMATION.

BENCHMARK NOTES:

1. CONTACT SURVEYOR PRIOR TO UTILIZING BENCHMARK



PROJECT LOCATION MAP
SCALE: 1"=500'

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL NOTES
3	TEMPORARY STORM AND SITE PLAN EXEMPTION SHEET
4	EROSION CONTROL DETAILS

APPROVED BY: DATE

CITY OF AUSTIN

PERMIT NUMBER

CONTRACTOR NOTES:

BY THE ACT OF SUBMITTING A BID FOR THIS PROPOSED CONTRACT, THE BIDDER WARRANTS THAT THE BIDDER, AND ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS HE INTENDS TO USE, HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM ANY AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED. THE BIDDER FURTHER WARRANTS THAT TO THE BEST OF HIS OR HIS SUBCONTRACTORS' AND MATERIAL SUPPLIERS' KNOWLEDGE, ALL MATERIALS AND PRODUCTS SPECIFIED OR INDICATED HEREIN ARE ACCEPTABLE FOR ALL APPLICABLE CODES AND AUTHORITIES.

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAS BEEN BASED UPON RECORD INFORMATION ONLY AND MAY NOT MATCH LOCATIONS AND/OR DEPTHS AS CONSTRUCTED. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM 1-800-245-4545, OR THE OWNER OF EACH INDIVIDUAL UTILITY, FOR ASSISTANCE IN DETERMINING EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO BEGINNING ANY CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITY CROSSINGS PRIOR TO BEGINNING ANY CONSTRUCTION.

ENVIRONMENTAL INSPECTION HAS THE AUTHORITY TO MODIFY/CHANGE EROSION AND SEDIMENTATION CONTROLS TO KEEP THE PROJECT IN COMPLIANCE.

DATE OF SUBMITTAL: 4/X/2023

WATERSHED: ONION CREEK-COLORADO RIVER

TRACT SIZE: 4.7099 ACRES

WATER QUALITY IS NOT PROVIDED FOR EXISTING I.C.

NO INCREASE IN I.C. IS PROPOSED

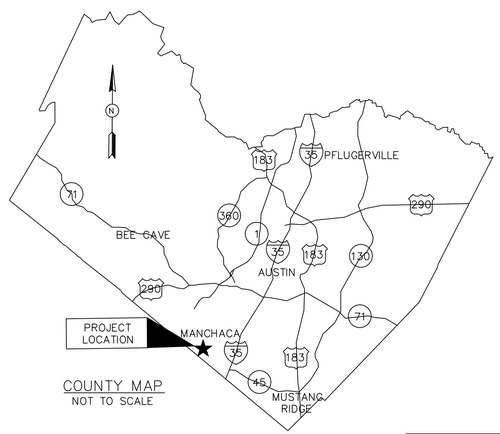
THIS PROPERTY IS NOT OVER THE EDWARDS AQUIFER

NO UTILITIES ARE PROPOSED

CORRECTIONS RECORD

NO.	DESCRIPTION	REVISE (R) ADD (D) VOID (V) SHEET NO.'s	TOTAL # SHEETS IN PLAN SET	NET CHANGE IMP. COVER (sq.ft.)	TOTAL SITE IMP. COVER (sq.ft.)/%	APPROVAL/ DATE	DATE IMAGED

ENGINEERING | CONSULTING
SANDLIN
SERVICES, LLC



COUNTY MAP
NOT TO SCALE

TEXAS 811 811 BEFORE YOU DIG

WARNING !!!! CONTRACTOR TO FIELD VERIFY ALL EXIST. UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO CONTACT ENGINEER IF ANY EXISTING UTILITY INFORMATION DIFFERS FROM DATA SHOWN IN THE PLANS. CALL 811 BEFORE YOU DIG.

ENGINEERING | CONSULTING
SANDLIN
SERVICES, LLC

TBPELS FIRM #21356
4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

COVER SHEET

MANCHACA C-STORE REHABILITATION

REV. NO.	BY	DATE	REVISION DESCRIPTION

SHEET 1 OF 4

GENERAL NOTES:

1. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING TYPE AND LOCATION OF UNDERGROUND, SURFACE, AND AERIAL UTILITIES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT TYPE AND LOCATION OF ALL UTILITIES AFFECTED BY CONSTRUCTION FOR THIS PROJECT IN ORDER TO AVOID DAMAGING THOSE UTILITIES. THE CONTRACTOR SHALL a) IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF CONTRACTOR-DAMAGED UTILITIES, AND b) PAY FOR SAME AT NO EXTRA COST TO THE OWNER.

2. CONTRACTOR SHALL TELEPHONE "ONE-CALL" SYSTEM @ 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS BEFORE BEGINNING CONSTRUCTION.

3. BEFORE BEGINNING ACTUAL EXCAVATION AND CONSTRUCTION OPERATION THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES HAVING FACILITIES IN THE AREA SO THESE COMPANIES CAN DETERMINE IF THE PROPOSED CONSTRUCTION WILL CONFLICT WITH THEIR FACILITIES. CONTRACTOR SHALL CONTACT THE FOLLOWING UTILITIES AT A MINIMUM:
   1. CITY OF AUSTIN WATER AND WASTEWATER UTILITY
   2. CITY OF AUSTIN ELECTRIC UTILITY
   3. AUSTIN GAS COMPANY
   4. AT&T TELEPHONE COMPANY

4. ALL EXCAVATION FOR THIS PROJECT SHALL BE UNCLASSIFIED.

5. THE BIDDER (CONTRACTOR AFTER AWARD) SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY UNREPORTED OBSTACLES OR DISCREPENCIES THAT MAY IMPEDE OR PREVENT THE PROPER CONSTRUCTION OF THIS PROJECT.

6. THE CONTRACTOR SHALL MAINTAIN CLEAR PASSAGE FOR LOCAL TRAFFIC AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROJECT.

7. ALL WORK AND MATERIAL MUST MEET THE APPLICABLE CITY OF AUSTIN STANDARD SPECIFICATIONS AND CITY OF AUSTIN STANDARDS, LATEST REVISIONS.

8. CONTRACTOR/REPAIR CREW MUST NOTIFY CITY INSPECTOR AT LEAST TEWNTYFOUR (24) HOURS PRIOR TO BEGINNING PERMANENT BACK FILL OPERATIONS.

9. BACK FILL DENSITY SHALL BE AS SPECIFIED IN ITEM 510 OF THE STANDARD SPECIFICATIONS. TEST METHODS SHALL BE AS SPECIFIED IN THE CITY STANDARD SPECIFICATIONS UNLESS INDICATED OTHERWISE IN WRITING BY THE ENGINEER.

10. HOT MIX ASPHALTIC CONCRETE (H.M.A.C.), WHEN REQUIRED, SHALL BE FURNISHED AND PLACED IN ACCORDANCE WITH ITEM 340 OF THE STANDARD SPECIFICATIONS. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS FOR CUTS IN PUBLIC RIGHT OF WAY.

11. FLEXIBLE BASE SHALL BE FURNISHED AND INSTALLED IN COMPLIANCE WITH ITEM 210 OF THE STANDARD SPECIFICATIONS AND IN COMPLIANCE WITH THE CITY OF AUSTIN STANDARDS AND STANDARD SPECIFICATIONS FOR CUTS IN PUBLIC RIGHT OF WAY.

12. CONTRACTOR SHALL NOT ALLOW TRAFFIC ON NEWLY PLACED CONCRETE FOR AT LEAST 72 HOURS UNLESS OTHERWISE APPROVED IN ADVANCE BY THE ENGINEER.

13. CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN SUCH A MANNER AS TO PROTECT ROADWAY FACILITIES AT ALL TIMES.

14. WHERE REMOVAL OF BASE AND PAVEMENT IS NECESSARY FOR THIS PROJECT ALL BASE AND PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, CITY'S STANDARD SPECIFICATIONS AND STANDARD SPECIFICATIONS FOR CUTS IN PUBLIC RIGHT OF WAY. ALL PAVEMENT CUTS SHALL BE SAW CUT PRIOR TO PLACEMENT OF H.M.A.C.

15. ALL WATER AND WASTEWATER SYSTEM IMPROVEMENTS, UTILITY CHANGES AND UTILITY RELOCATIONS MUST BE IN ACCORDANCE TO CITY OF AUSTIN WATER AND WASTEWATER SYSTEM DESIGN CRITERIA AND SPECIFICATIONS. ALL WATER AND WASTEWATER PLANS MUST BE PRESENTED TO THE CITY OF AUSTIN WATER AND WASTEWATER UTILITY FOR REVIEW AND APPROVAL. ALL WATER AND WASTEWATER CONSTRUCTION MUST BE INSPECTED BY THE CITY OF AUSTIN.

16. CONTRACTOR SHALL PROVIDE TEMPORARY DRIVEWAY ACCESS FOR ALL PROPERTY OWNERS ADJACENT TO CONSTRUCTION AREAS EXCEPT DURING PERIODS WHEN CONSTRUCTION IN THE AREA WOULD MAKE ACCESS UNSAFE. EMERGENCY ACCESS SHALL BE IMMEDIATELY PROVIDED TO DRIVEWAYS DURING CONSTRUCTION ON AN AS-NEEDED BASIS.

17. SLOPES OF ROADWAY CUTS AND EMBANKMENTS DAMAGED BY ANY OPERATION OF THE CONTRACTOR DURING THE EXECUTION OF THIS PROJECT SHALL BE REPAIRED AND RESTORED TO THE ORIGINAL PRE-CONSTRUCTION CONDITION IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE STANDARD SPECIFICATIONS. BACK FILL AND FILL PLACED DURING REMEDIAL GRADING SHALL BE COMPACTED TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE ORIGINAL CONDITIONS AND TO THE SATISFACTION OF THE ENGINEER AND GOVERNING AUTHORITIES.

18. NO EXPLOSIVES SHALL BE USED FOR THIS PROJECT WITHOUT A BLASTING PERMIT FROM THE CITY OF AUSTIN.

19. CONTRACTOR SHALL MAINTAIN THE JOB SITE IN A SAFE, NEAT AND WORKMANLIKE MANNER AT ALL TIMES. JOB SITE SAFETY SHALL NOT BE COMPROMISED. ANY UNATTRACTIVE NUISANCE SHALL BE REMOVED OR CAMOUFLAGED BY CONTRACTOR WHEN DIRECTED BY THE OWNER OR ENGINEER.

20. CONTRACTOR SHALL NOTIFY CONSTRUCTION INSPECTION DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION AT 974-7180 TO A) ARRANGE A PRE-CONSTRUCTION MEETING NOT LESS THAN FOURTEEN (14) DAYS PRIOR TO BEGINNING CONSTRUCTION, B) NOTIFY INSPECTOR FORTY-EIGHT (48) HOURS IN ADVANCE OF BEGINNING ANY CONSTRUCTION IN THE R.O.W. OR IN EASEMENTS, C) NOTIFY INSPECTOR TWENTY-FOUR (24) HOURS IN ADVANCE OF MAKING ANY SUPPLEMENTARY CONNECTION OR CLOSING OFF ANY WATER AND WASTEWATER SERVICES TO PROPERTY OWNER.

21. BEFORE DISCONNECTING ANY WATER LINE OR GAS LINE, CONTRACTOR MUST PROVIDE TWENTY-FOUR (24) HOUR NOTICE TO THE OWNER EXCEPT IN THE CASE OF A BONA FIDE EMERGENCY.

22. ALL TRAFFIC CONTROL DEVICES, SIGNS, BARRICADES, WARNING SIGNS, AND FLAG MEN OPERATIONS SHALL BE PLACED, CONSTRUCTED, EXECUTED AND MAINTAINED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUDTC), THE CITY OF AUSTIN STANDARD SPECIFICATION SERIES 800, AND THE CITY OF AUSTIN TRANSPORTATION CRITERIA MANUAL. IF A CONFLICT ARISES, THEN THE SERIES 800 SPECIFICATIONS SHALL CONTROL UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER.

23. WHERE PORTABLE SIGNS REQUIRE THE USE OF WEIGHTS, SANDBAGS SHALL BE USED. THE USE OF SOLID OBJECTS SUCH AS CONCRETE, ROCKS, IRON, ETC. SHALL NOT BE PERMITTED.

24. INSTALLATION OF CONSTRUCTION BARRICADING AND SIGNING SHALL BE COORDINATED THROUGH THE TRANSPORTATION ENGINEERING AND SIGNALS DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION AT 974-7024.

25. ALL TRAFFIC CONTROL SIGNS SHALL REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS. IF SIGNS REQUIRE RELOCATION, CONTRACTOR SHALL CONTACT THE TRANSPORTATION ENGINEERING AND SIGNALS DIVISION OF THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION AT 974-7024.

26. CONTRACTOR MUST RESTORE ALL PAVEMENT MARKINGS DISTURBED DURING CONSTRUCTION. CONTRACTOR SHALL OBSERVE ALL APPLICABLE MATERIALS, SPECIFICATIONS, AND INSTALLATION REQUIREMENTS INCLUDING SPECIAL ATTENTION TO MAINTAINING PROPER DIMENSIONS AND ALIGNMENT.

27. ALL HOLES, TRENCHES, AND OTHER HAZARDOUS AREAS SHALL BE ADEQUATELY PROTECTED BY BARRICADES, FENCING, LIGHTS, AND/OR OTHER PROTECTIVE DEVICES AT ALL TIMES.

28. CONTRACTOR SHALL NOTIFY PRINCIPLES OF EACH OF THE FOLLOWING ENTITIES OF THE CONSTRUCTION SCHEDULE AT LEAST TWO WEEKS IN ADVANCE OF PROPOSED CONSTRUCTION OPERATIONS.
   A. AUSTIN FIRE DEPARTMENT
   B. AUSTIN POLICE DEPARTMENT
   C. AUSTIN INDEPENDENT SCHOOL DISTRICT
   D. CAPITAL METRO TRANSPORTATION
   E. U.S. POSTAL SERVICE

29. REMOVAL OF EXCAVATED MATERIALS AND DAILY CLEANUP OPERATIONS SHALL BE PERFORMED TO THE SPECIFICATIONS AND TO THE SATISFACTION OT THE OWNER AND ENGINEER.

30. UNATTENDED TRENCHES MUST BE COVERED WITH STEEL PLATES CAPABLE OF SUPPORTING VEHICULAR TRAFFIC. THESE STEEL PLATES MUST BE ADEQUATELY ANCHORED TO PREVENT THEM FROM BECOMING DISLODGED.

31. ALL CONSTRUCTION AND TRENCHING OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). COPIES OF OSHA STANDARDS MAY BE PURCHASED FROM THE U.S. GOVERNMENT PRINTING OFFICE.

32. CONTRACTOR SHALL MAINTAIN A SUPERINTENDENT UPON THE PROJECT AT ALL TIMES WORK IS IN PROGRESS.

33. CONTRACTOR SHALL COMPLY WITH CONSTRUCTION SEQUENCING WHICH IS SPECIFIED ELSEWHERE IN THE PLANS.

34. FOR CONSTRUCTION IN THE RIGHT OF WAY, A CONCRETE PERMIT IS REQUIRED.

STANDARD SITE PLAN NOTES

COMPATIBILITY

1. HIGHLY REFLECTIVE MATERIALS WILL NOT BE USED. MATERIALS MAY NOT EXCEED 20% REFLECTIVITY. THIS REQUIREMENT SHALL NOT APPLY TO SOLAR PANELS OR TO COPPER OR PAINTED METAL ROOFS.
2. THE NOISE LEVEL OF MECHANICAL EQUIPMENT WILL NOT EXCEED 70 D.B.A. AT THE PROPERTY LINE ADJACENT TO RESIDENTIAL USES.
3. ALL EXTERIOR LIGHTING SHALL BE HOODED OR SHIELDED FROM THE VIEW OF ADJACENT RESIDENTIAL USES.
4. EXTERIOR LIGHTING ABOVE THE SECOND FLOOR IS PROHIBITED WHEN ADJACENT TO RESIDENTIAL PROPERTY.
5. ALL DUMPSTERS AND ANY PERMANENTLY PLACED REFUSE RECEPTACLES WILL BE LOCATED AT A MINIMUM OF TWENTY (20) FEET FROM A PROPERTY USED OR ZONED AS SF-5 OR MORE RESTRICTIVE.

FIRE DEPARTMENT

1. THE AUSTIN FIRE DEPARTMENT REQUIRES FINAL ASPHALT OR CONCRETE PAVEMENT ON REQUIRED ACCESS ROADS PRIOR TO THE START OF COMBUSTIBLE CONSTRUCTION. ANY OTHER METHOD OF PROVIDING "ALL-WEATHER DRIVING CAPABILITIES" SHALL BE REQUIRED TO BE DOCUMENTED AND APPROVED AS AN ALTERNATIVE METHOD OF CONSTRUCTION IN ACCORDANCE WITH APPLICABLE RULES FOR TEMPORARY ROADS OUTLINED IN THE CITY OF AUSTIN FIRE PROTECTION CRITERIA MANUAL.
2. FIRE HYDRANTS SHALL BE INSTALLED WITH THE CENTER OF THE FOUR (4) INCH OPENING (STEAMER) LOCATED AT LEAST 18 INCHES ABOVE FINISHED GRADE. THE STEAMER OPENING OF FIRE HYDRANTS SHALL FACE THE APPROVED FIRE ACCESS DRIVEWAY OR PUBLIC STREET AND SET BACK FROM THE CURB LINE(S) AN APPROVED DISTANCE, TYPICALLY THREE (3) TO SIX (6) FEET. THE AREA WITHIN THREE (3) FEET IN ALL DIRECTIONS FROM ANY FIRE HYDRANT SHALL BE FREE OF OBSTRUCTIONS, AND THE AREA BETWEEN THE STEAMER OPENING AND THE STREET OR DRIVEWAY GIVING EMERGENCY VEHICLE ACCESS SHALL BE FREE OF OBSTRUCTIONS.
3. TIMING OF INSTALLATIONS: WHEN FIRE PROTECTION FACILITIES ARE INSTALLED BY THE CONTRACTOR, SUCH FACILITIES SHALL INCLUDE SURFACE ACCESS ROADS. EMERGENCY ACCESS ROADS OR DRIVES SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING THE TIME OF CONSTRUCTION. WHEN THE FIRE DEPARTMENT APPROVES AN ALTERNATE METHOD OF PROTECTION, THIS REQUIREMENT MAY BE MODIFIED AS DOCUMENTED IN THE APPROVAL OF THE ALTERNATE METHOD.
4. ALL EMERGENCY ACCESS ROADWAYS AND FIRE LANES, INCLUDING PERVIOUS/DECORATIVE PAVING, SHALL BE ENGINEERED AND INSTALLED AS REQUIRED TO SUPPORT THE AXLE LOADS OF EMERGENCY VEHICLES. A LOAD CAPACITY SUFFICIENT TO MEET THE REQUIREMENTS FOR HS-20 LOADING (16KIPS/WHEEL) AND A TOTAL VEHICLE LIVE LOAD OF 80,000 POUNDS IS CONSIDERED COMPLIANT WITH THIS REQUIREMENT.
5. FIRE LANES DESIGNATED ON SITE PLANS SHALL BE REGISTERED WITH THE CITY OF AUSTIN FIRE DEPARTMENT AND INSPECTED FOR FINAL APPROVAL.
6. THE MINIMUM VERTICAL CLEARANCE REQUIRED FOR EMERGENCY VEHICLES ACCESS ROADS OR DRIVES IS 14 FEET FOR THE FULL WIDTH OF THE ROADWAY OR DRIVEWAY.

AMERICANS WITH DISABILITIES ACT
THE CITY OF AUSTIN HAS REVIEWED THIS PLAN FOR COMPLIANCE WITH CITY DEVELOPMENT REGULATIONS ONLY. THE APPLICANT, PROPERTY OWNER, AND OCCUPANT OF THE PREMISES ARE RESPONSIBLE FOR DETERMINING WHETHER THE PLAN COMPLIES WITH ALL OTHER LAWS, REGULATIONS, AND RESTRICTIONS WHICH MAY BE APPLICABLE TO THE PROPERTY AND ITS USE

TRENCH SAFETY NOTES:

1. IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ALL TRENCHES OVER 5 FEET IN DEPTH IN EITHER HARD AND COMPACT OR SOFT AND UNSTABLE SOIL SHALL BE SLOPED, SHORED, SHEETED, BRACED OR OTHERWISE SUPPORTED. FURTHERMORE, ALL TRENCHES LESS THAN 5 FEET IN DEPTH SHALL ALSO BE EFFECTIVELY PROTECTED WHEN HAZARDOUS GROUND MOVEMENT MAY BE EXPECTED.

2. IN ACCORDANCE WITH THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, WHEN EMPLOYEES ARE REQUIRED TO BE IN TRENCHES 4 FOOT DEEP OR MORE, ADEQUATE MEANS OF EXIT, SUCH AS A LADDER OR STEPS, MUST BE PROVIDED AND LOCATED SO AS TO REQUIRE NO MORE THAN 25 FEET OF LATERAL TRAVEL.

3. IF FOUND DURING CONSTRUCTION THAT TRENCHES ARE IN FACT GREATER THAN 5 FEET IN DEPTH, THE CONTRACTOR SHALL PROVIDE ACCEPTABLE TRENCH SAFETY PLANS DESIGNED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH U.S. OSHA REGULATIONS.

GENERAL CONSTRUCTION NOTES

1. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM IN REVIEWING THESE PLANS, THE CITY OF AUSTIN MUST RELY ON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER.

2. CONTRACTOR SHALL CALL TEXAS 811 (811 OR 1-800-344-8377) FOR UTILITY LOCATIONS PRIOR TO ANY WORK IN CITY EASEMENTS OR STREET R.O.W.

3. CONTRACTOR SHALL NOTIFY THE CITY OF AUSTIN - SITE & SUBDIVISION DIVISION TO SUBMIT REQUIRED DOCUMENTATION, PAY CONSTRUCTION INSPECTION FEES, AND TO SCHEDULE THE REQUIRED SITE AND SUBDIVISION PRE-CONSTRUCTION MEETING. THIS MEETING MUST BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN THE R.O.W. OR PUBLIC EASEMENTS. PLEASE VISIT

HTTP://AUSTINTEXAS.GOV/PAGE/COMMERCIAL-SITE-AND-SUBDIVISION-INSPECTIONS FOR A LIST OF SUBMITTAL REQUIREMENTS, INFORMATION CONCERNING FEES, AND CONTACT INFORMATION.

4. FOR SLOPES OR TRENCHES GREATER THAN FIVE FEET IN DEPTH, A NOTE MUST BE ADDED STATING: "ALL CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH APPLICABLE REGULATIONS OF THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION." (OSHA STANDARDS MAY BE PURCHASED FROM THE GOVERNMENT PRINTING OFFICE; INFORMATION AND RELATED REFERENCE MATERIALS MAY BE PURCHASED FROM OSHA, 611 EAST 6TH STREET, AUSTIN TEXAS.)

5. ALL SITE WORK MUST ALSO COMPLY WITH ENVIRONMENTAL REQUIREMENTS.

6. UPON COMPLETION OF THE PROPOSED SITE IMPROVEMENTS AND PRIOR TO THE FOLLOWING, THE ENGINEER SHALL CERTIFY IN WRITING THAT THE PROPOSED DRAINAGE, FILTRATION AND DETENTION FACILITIES WERE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS:

RELEASE OF THE CERTIFICATE OF OCCUPANCY BY THE DEVELOPMENT SERVICES DEPARTMENT (INSIDE THE CITY LIMITS); OR

INSTALLATION OF AN ELECTRIC OR WATER METER (IN THE FIVE-MILE ETJ)

SPECIAL CONSTRUCTION TECHNIQUES ECM 3.5.4(D)

IN CONJUNCTION WITH REMEDIAL CARE, MITIGATION FOR TREES REMOVED MAY INCLUDE SPECIAL CONSTRUCTION TECHNIQUES NOT NORMALLY REQUIRED IN STANDARD SPECIFICATIONS. SOME OF THESE TECHNIQUES INCLUDE THE FOLLOWING:

- PRIOR TO EXCAVATION WITHIN TREE DRIPLINES OR THE REMOVAL OF TREES ADJACENT TO OTHER TREES THAT ARE TO REMAIN, MAKE A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW OR SIMILAR EQUIPMENT TO MINIMIZE ROOT DAMAGE.

- IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION WITH FENCING AND WHERE HEAVY VEHICULAR TRAFFIC IS ANTICIPATED, COVER THOSE AREAS WITH A MINIMUM OF 12 INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. IN AREAS WITH HIGH SOIL PLASTICITY GEOTEXTILE FABRIC, PER STANDARD SPECIFICATION 620S, SHOULD BE PLACED UNDER THE MULCH TO PREVENT EXCESSIVE MIXING OF THE SOIL AND MULCH. ADDITIONALLY, MATERIAL SUCH AS PLYWOOD AND METAL SHEETS, COULD BE REQUIRED BY THE CITY ARBORIST TO MINIMIZE ROOT IMPACTS FROM HEAVY EQUIPMENT. ONCE THE PROJECT IS COMPLETED, ALL MATERIALS SHOULD BE REMOVED, AND THE MULCH SHOULD BE REDUCED TO A DEPTH OF 3 INCHES.

- PERFORM ALL GRADING WITHIN CRITICAL ROOT ZONE AREAS BY HAND OR WITH SMALL EQUIPMENT TO MINIMIZE ROOT DAMAGE.

- WATER ALL TREES MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES DEEPLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.

- WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.

AUSTIN ENERGY NOTES:

1. AUSTIN ENERGY HAS THE RIGHT TO PRUNE AND/OR REMOVE TREES, SHRUBBERY AND OTHER OBSTRUCTIONS TO THE EXTENT NECESSARY TO KEEP THE EASEMENTS CLEAR. AUSTIN ENERGY WILL PERFORM ALL TREE WORK IN COMPLIANCE WITH CHAPTER 25-8, SUBCHAPTER B OF THE CITY OF AUSTIN LAND DEVELOPMENT CODE.
2. THE OWNER/DEVELOPER OF THIS SUBDIVISION/LOT SHALL PROVIDE AUSTIN ENERGY WITH ANY EASEMENT AND/OR ACCESS REQUIRED, IN ADDITION TO THOSE INDICATED, FOR THE INSTALLATION AND ONGOING MAINTENANCE OF OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES. THESE EASEMENTS AND/OR ACCESS ARE REQUIRED TO PROVIDE ELECTRIC SERVICE TO THE BUILDING AND WILL NOT BE LOCATED SO AS TO CAUSE THE SITE TO BE OUT OF COMPLIANCE WITH CHAPTER 25-8 OF THE CITY OF AUSTIN LAND DEVELOPMENT CODE.
3. THE OWNER SHALL BE RESPONSIBLE FOR INSTALLATION OF TEMPORARY EROSION CONTROL, REVEGETATION AND TREE PROTECTION. IN ADDITION, THE OWNER SHALL BE RESPONSIBLE FOR ANY INITIAL TREE PRUNING AND TREE REMOVAL THAT IS WITHIN TEN FEET OF THE CENTER LINE OF THE PROPOSED OVERHEAD ELECTRICAL FACILITIES DESIGNED TO PROVIDE ELECTRIC SERVICE TO THIS PROJECT. THE OWNER SHALL INCLUDE AUSTIN ENERGY'S WORK WITHIN THE LIMITS OF CONSTRUCTION FOR THIS PROJECT.
4. THE OWNER OF THE PROPERTY IS RESPONSIBLE FOR MAINTAINING CLEARANCES REQUIRED BY THE NATIONAL ELECTRIC SAFETY CODE, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, CITY OF AUSTIN RULES AND REGULATIONS AND TEXAS STATE LAWS PERTAINING TO CLEARANCES WHEN WORKING IN CLOSE PROXIMITY TO OVERHEAD POWER LINES AND EQUIPMENT. AUSTIN ENERGY WILL NOT RENDER ELECTRIC SERVICE UNLESS REQUIRED CLEARANCES ARE MAINTAINED. ALL COSTS INCURRED BECAUSE OF FAILURE TO COMPLY WITH THE REQUIRED CLEARANCES WILL BE CHARGED TO THE OWNER.
5. ANY RELOCATION OF ELECTRIC FACILITIES WILL BE AT THE OWNERS/DEVELOPERS EXPENSE

SEQUENCE OF CONSTRUCTION:

1. TEMPORARY EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSTALLED AS INDICATED ON THE SITE PLAN OR APPROVED SUBDIVISION CONSTRUCTION PLAN AND IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) THAT IS REQUIRED TO BE POSTED ON THE SITE. INSTALL TREE PROTECTION AND INITIATE TREE MITIGATION MEASURES.
2. THE ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR MUST CONTACT THE WATERSHED PROTECTION DEPARTMENT, ENVIRONMENTAL INSPECTION, AT 512-974-2278, 72 HOURS PRIOR TO THE SCHEDULED DATE OF THE REQUIRED ON-SITE PRECONSTRUCTION MEETING.
3. THE ENVIRONMENTAL PROJECT MANAGER, AND/OR SITE SUPERVISOR, AND/OR DESIGNATED RESPONSIBLE PARTY, AND THE GENERAL CONTRACTOR WILL FOLLOW THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) POSTED ON THE SITE. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE REVISED, IF NEEDED, TO COMPLY WITH CITY INSPECTORS' DIRECTIVES, AND REVISED CONSTRUCTION SCHEDULE RELATIVE TO THE WATER QUALITY PLAN REQUIREMENTS AND THE EROSION PLAN.
4. ROUGH GRADE THE POND(S) AT 100% PROPOSED CAPACITY. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO DEVELOPMENT OF EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM MUST CONSIST OF A SUMP PIT OUTLET AND AN EMERGENCY SPILLWAY MEETING THE REQUIREMENTS OF THE DRAINAGE CRITERIA MANUAL AND/OR THE ENVIRONMENTAL CRITERIA MANUAL, AS REQUIRED. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL INSTALLATION OF THE PERMANENT WATER QUALITY POND(S).
5. TEMPORARY EROSION AND SEDIMENTATION CONTROLS WILL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) POSTED ON THE SITE.
6. BEGIN SITE CLEARING/CONSTRUCTION (OR DEMOLITION) ACTIVITIES.
7. IN THE BARTON SPRINGS ZONE, THE ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR WILL SCHEDULE A MID-CONSTRUCTION CONFERENCE TO COORDINATE CHANGES IN THE CONSTRUCTION SCHEDULE AND EVALUATE EFFECTIVENESS OF THE EROSION CONTROL PLAN AFTER POSSIBLE CONSTRUCTION ALTERATIONS TO THE SITE. PARTICIPANTS SHALL INCLUDE THE CITY INSPECTOR, PROJECT ENGINEER, GENERAL CONTRACTOR AND ENVIRONMENTAL PROJECT MANAGER OR SITE SUPERVISOR. THE ANTICIPATED COMPLETION DATE AND FINAL CONSTRUCTION SEQUENCE AND INSPECTION SCHEDULE WILL BE COORDINATED WITH THE APPROPRIATE CITY INSPECTOR.
8. PERMANENT WATER QUALITY PONDS OR CONTROLS WILL BE CLEANED OUT AND FILTER MEDIA WILL BE INSTALLED PRIOR TO/CONCURRENTLY WITH REVEGETATION OF SITE.
9. COMPLETE CONSTRUCTION AND START REVEGETATION OF THE SITE AND INSTALLATION OF LANDSCAPING.
10. UPON COMPLETION OF THE SITE CONSTRUCTION AND REVEGETATION OF A PROJECT SITE, THE DESIGN ENGINEER SHALL SUBMIT AN ENGINEER'S LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT CONSTRUCTION, INCLUDING REVEGETATION, IS COMPLETE AND IN SUBSTANTIAL CONFORMITY WITH THE APPROVED PLANS. AFTER RECEIVING THIS LETTER, A FINAL INSPECTION WILL BE SCHEDULED BY THE APPROPRIATE CITY INSPECTOR.
11. UPON COMPLETION OF LANDSCAPE INSTALLATION OF A PROJECT SITE, THE LANDSCAPE ARCHITECT SHALL SUBMIT A LETTER OF CONCURRENCE TO THE WATERSHED PROTECTION AND DEVELOPMENT REVIEW DEPARTMENT INDICATING THAT THE REQUIRED LANDSCAPING IS COMPLETE AND IN SUBSTANTIAL CONFORMITY WITH THE APPROVED PLANS. AFTER RECEIVING THIS LETTER, A FINAL INSPECTION WILL BE SCHEDULED BY THE APPROPRIATE CITY INSPECTOR.
12. AFTER A FINAL INSPECTION HAS BEEN CONDUCTED BY THE CITY INSPECTOR AND WITH APPROVAL FROM THE CITY INSPECTOR, REMOVE THE TEMPORARY EROSION AND SEDIMENTATION CONTROLS AND COMPLETE ANY NECESSARY FINAL REVEGETATION RESULTING FROM REMOVAL OF THE CONTROLS. CONDUCT ANY MAINTENANCE AND REHABILITATION OF THE WATER QUALITY PONDS OR CONTROLS.

CONSTRUCTION SEQUENCE NOTES

INSTALL CONSTRUCTION ENTRANCE, SILT FENCE, AND OTHER BMP'S AS SHOWN ON THE PLANS. CONTACT THE DESIGN ENGINEER FOR A PRE-CONSTRUCTION MEETING. PEDERNALES ELECTRIC COOPERATIVE (PEC) AND ATMOS ENERGY (GAS COMPANY) ARE NOTIFIED BY THE TEXAS EXCAVATION SYSTEM (1-800-344-8377).

A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER/PERMIT APPLICANT AND THE CITY OF LEANDER REPRESENTATIVES AFTER INSTALLATION OF THE EROSION/SEDIMENTATION CONTROLS AND TREE PROTECTION MEASURES AND PRIOR TO BEGINNING ANY WORK. THE CONTRACTOR SHALL NOTIFY THE CITY OF LEANDER PUBLIC WORKS DEPARTMENT AT LEAST THREE (3) DAYS PRIOR TO THE MEETING DATE.

CONTACT TEXAS EXCAVATION SYSTEM FOR EXISTING UTILITY LOCATIONS.

CLEAR SITE OF ANY EXISTING MATERIALS, DEBRIS AND VEGETATION ALONG CONSTRUCTION ROUTES.

BEGIN CONSTRUCTION OF PROJECT AS FOLLOWS:

A) SET UP CONTRACTOR TRAILER/OFFICE AND TEMPORARY UTILITIES
B) ROUGH GRADE POND FOR DRAINGE CONTROL
C) BEGIN EXCAVATION (COMPLY WITH OSHA AND CODES, ETC.)
D) INSTALL INFRASTRUCTURE MATERIALS (PIPE, FITTINGS, AND BEDDING MATERIAL, ETC.)
E) BEGIN BUILDING PAD/SLAB CONSTRUCTION
F) COMPLETE PIPE LAYING AND TESTING (COMPLY WITH SPECIFICATIONS)
G) COMPLETE BACKFILL (COMPLY WITH SPECIFICATIONS)
H) INSTALL CURB AND GUTTER
I) FINALIZE BUILDING CONSTRUCTION
J) FINALIZE PAVEMENT INSTALLATION

TEST STREET AND DRAINAGE CONSTRUCTION AS SPECIFIED.

REVEGETATE DISTURBED AREAS AS REQUIRED.

UPON ACCEPTANCE OF FINAL CONSTRUCTION AND PROPER REVEGETATION PER SPECIFICATIONS; REMOVE TEMPORARY EROSION CONTROLS.

MAINTAIN, REPAIR, OR REPLACE INTEGRITY OF EXISTING FENCES, PROPERTY CORNERS, AND LANDSCAPING AS REQUIRED.

DUST CONTROL.

1. DESCRIPTION.
CONTROLLING DUST MOVEMENT ON CONSTRUCTION-SITES AND ROADS.
2. PURPOSE.
TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS AND IMPROVE TRAFFIC SAFETY.
3. CONDITIONS WHERE PRACTICE APPLIES.
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.
4. PROCEDURES
TEMPORARY METHODS.
- MULCHES - SEE SECTION 1.4.4. CHEMICAL MULCH BINDERS MAY BE USED INSTEAD OF ASPHALT TO BIND MULCH MATERIAL. BINDERS SUCH AS CURASOL OR TERRA TACK SHOULD BE USED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- VEGETATIVE COVER - SEE SECTION 1.4.4.
- SPRAY-ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.

TABLE 1-5
SPRAY-ON ADHESIVES

	WATER DILUTION	TYPE OF NOZZLE	APPLY- GALLONS/ACRE
ANIONIC ASPHALT EMULSION	7:1	FINE SPRAY	
LATEX EMULSION	12½ :1	FINE SPRAY	
RESIN-IN-WATER EMULSION	4:1	FINE SPRAY	

SOURCE: CITY OF SAN MARCOS

- TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING-TOOTHED HARROWS AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
- IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED.
- BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIALS CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 15 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.

PERMANENT METHODS.
- PERMANENT VEGETATION -- SEE SECTION 1.4.3 AND SECTION 1.4.4 E. TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION LEFT IN PLACE.
- TOPSOILING - COVERING WITH LESS EROSIVE SOIL MATERIAL. SEE 1.4.5 B.
- STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED
PROFESSIONAL ENGINEER
4/26/2023

THIS PLAN SET FOR REVIEW ONLY, NOT FOR CONSTRUCTION.

WARNING !!!! CONTRACTOR TO FIELD VERIFY ALL EXIST. UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO CONTACT ENGINEER IF ANY EXISTING UTILITY INFORMATION DIFFERS FROM DATA SHOWN IN THE PLANS. CALL 811 BEFORE YOU DIG.

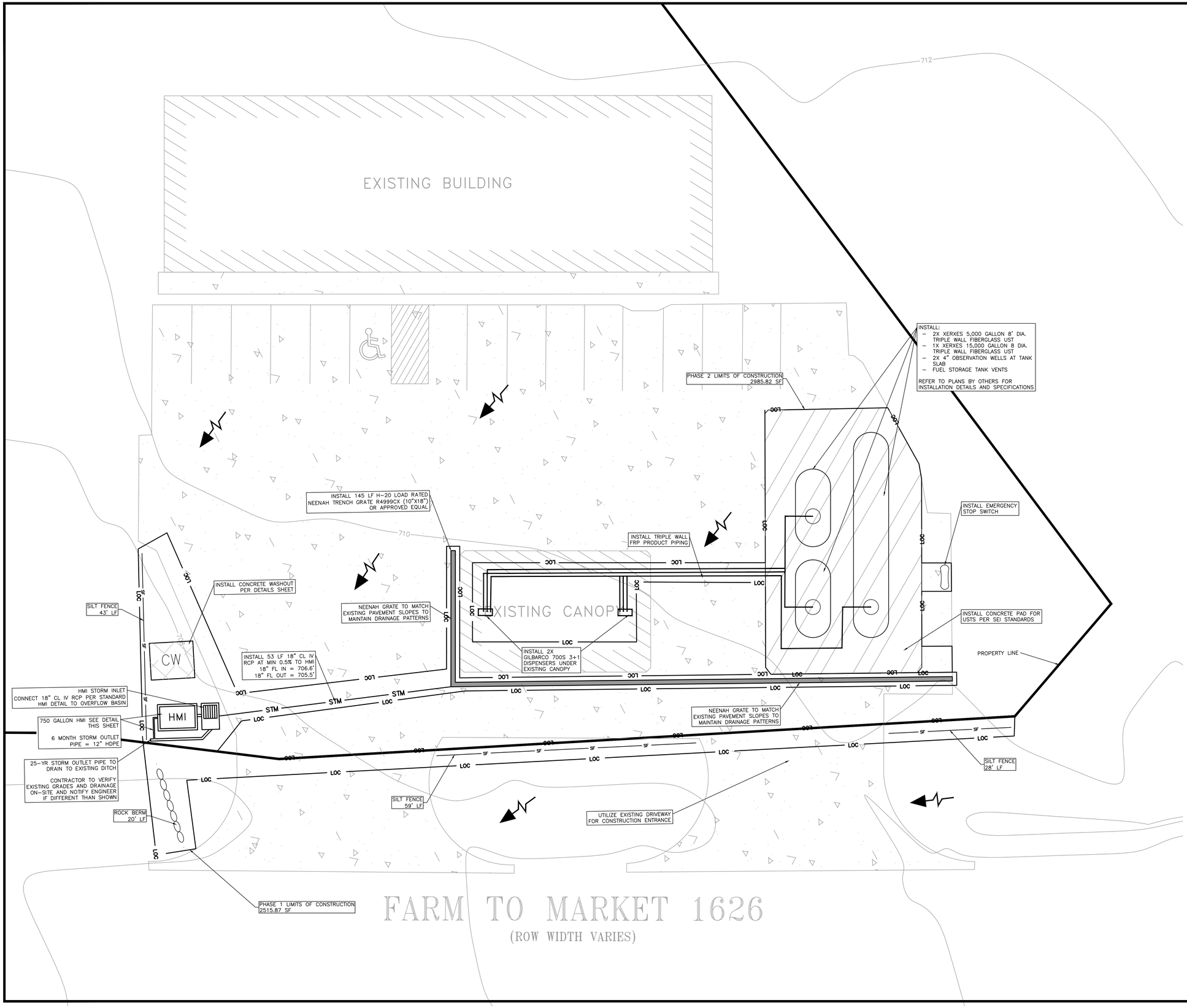
ENGINEERING | CONSULTING
SANDLIN
SERVICES, LLC

TBPELS FIRM #21356
4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

GENERAL NOTES

MANCHACA C-STORE REHABILITATION

REV. NO.	BY	DATE	REVISION DESCRIPTION



0 5' 10' 20'

SCALE: 1" = 10'

IF DRAWING BAR DOES NOT MEASURE 2" THIS PRINT IS NOT TO SCALE

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED
PROFESSIONAL ENGINEER

4/26/2023

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EROSION CONTROL LEGEND

- PROPOSED PROPERTY/ PROJECT BOUNDARY LINE
- EXISTING R.O.W./PROPERTY LINE
- EXISTING EASEMENT LINE
- PROPOSED CURB & GUTTER
- LOC — LOC — LOC — LIMITS OF CONSTRUCTION
- SF — SF — SF — SILT FENCE
- T — T — T — TREE PROTECTION FENCE
- STAGING & TEMPORARY SPOILS AREA
- STABILIZED CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- TEMPORARY ROCK BERM
- AREA INLET PROTECTION
- CURB INLET PROTECTION
- 750 EXISTING CONTOURS
- 755 PROPOSED CONTOURS
- 100 EXISTING TREE (TO REMAIN)
- 100 EXISTING TREE (TO BE REMOVED)

NOTE: ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY INSPECTOR AT TIME OF CONSTRUCTION.

NOTES:

1. PHASE 1 LIMITS OF CONSTRUCTION: 2,516 SF
2. PHASE 2 LIMITS OF CONSTRUCTION: 2,986 SF
3. LIMITS OF CONSTRUCTION SHALL NOT EXCEED 3,000 SF PER PHASE PER CITY OF AUSTIN SITE PLAN EXEMPTION REQUIREMENTS.
4. CONTRACTOR TO CUT AND REMOVE CONCRETE AS NECESSARY TO REMOVE ALL EXISTING PIPING. REFER TO PLANS BY OTHERS FOR EXACT LOCATION OF DISPENSERS AND PIPING.
5. ALL REQUIRED NOTICES AND PERMITS MUST BE PLACED IN A HIGHLY VISIBLE LOCATION ONSITE BEFORE THE COMMENCEMENT OF CONSTRUCTION.
6. ALL EROSION AND SEDIMENTATION CONTROLS (ESC) MUST BE INSTALLED PRIOR TO ANY DISTURBANCE TO THE PROJECT SITE.
7. INSTALL SILT FENCE ACCORDINGLY FOR RUN-ON DIVERSION OR OFFSITE SEDIMENT CONTROL DEPENDING ON UP OR DOWN SLOPE, FACING POST SIDE ON THE DOWN GRADIENT SIDE.
8. ALL ESC USED ONSITE MUST BE REGULARLY MONITORED AND MAINTAINED AS NEEDED.
9. MUD AND OR DIRT TRACKED INTO THE ROADWAY MUST BE IMMEDIATELY REMOVED UPON DISCOVERY.
10. EXCESS MATERIALS THAT WILL BE TRANSPORTED TO AN OFFSITE LOCATION MUST HAVE THAT LOCATION CLEARED BY COUNTY INSPECTOR.
11. LOOSE TRASH AND DEBRIS MUST BE DISPOSED OF PROPERLY ONSITE.
12. CONTRACTOR SHALL MAINTAIN AND UTILIZE DUST CONTROL FOR THE DURATION OF THE PROJECT.
13. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT PREVENTS TRACKING ONTO THE PUBLIC ROADWAY ON AN ONGOING/REGULAR BASIS.
14. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY UPON INLET INSTALLATION.
15. INITIATE TEMPORARY STABILIZATION WHEN CONSTRUCTION CEASES IN A DISTURBED AREA FOR 14 DAYS.
16. INITIATE PERMANENT STABILIZATION IMMEDIATELY ONCE WORK HAS CEASED AND FINAL GRADE HAS BEEN ACHIEVED.
17. ALL DISTURBED/BARE AREAS WILL REQUIRE PERMANENT STABILIZATION BEFORE FINAL ACCEPTANCE CAN BE ACHIEVED. AVOID DISTURBING AREAS OF THE PROJECT THAT ARE NOT NECESSARY FOR CONSTRUCTION.
18. COUNTY INSPECTOR MAY REQUEST ADDITIONAL CONTROLS BE INSTALLED ONSITE AS NEEDED.
19. TEMPORARY ESC'S SHALL REMAIN IN PLACE IN ALL DISTURBED AREAS UNTIL ADEQUATE STABILIZATION HAS BEEN ACHIEVED.
20. CONTRACTOR MUST REMOVE SEDIMENT FROM ALL STORM SEWER INLET BOXES, LINES, PIPES AND CULVERTS BEFORE CONDITIONAL/FINAL ACCEPTANCE CAN BE OBTAINED.
21. TRAVIS COUNTY REQUIRES CERTIFIED SWP3 INSPECTORS TO CONDUCT SWP3 INSPECTIONS AND REPORTING ON ALL PROJECTS WITH ONE ACRE OR DISTURBANCE AND LARGER.
22. PERMITTEE SHALL INSPECT ALL INLET PROTECTION DEVICES AS PART OF THE WEEKLY SWP3 REPORT, UPON RECEIVING A FORECAST CALLING FOR A RAIN EVENT FOR AN EXTENDED PERIOD, MODIFICATION OF INLET PROTECTION SHOULD BE MADE TO PREVENT FLOODING OR PONDING OF WATER IF TRAFFIC OR PROPERTY CONCERNS ARISE.
23. THE TECHNICAL SPECS OF ESC DEVICES AND BEST MANAGEMENT PRACTICES (BMP) MEET OR EXCEED THE CITY OF AUSTIN ENVIRONMENTAL CRITERIA MANUAL.

TEXAS 811 DIG RIGHT BEFORE YOU DIG

WARNING !!!! CONTRACTOR TO FIELD VERIFY ALL EXIST. UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO CONTACT ENGINEER IF ANY EXISTING UTILITY INFORMATION DIFFERS FROM DATA SHOWN IN THE PLANS. CALL 811 BEFORE YOU DIG.

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SERVICES, LLC

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4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

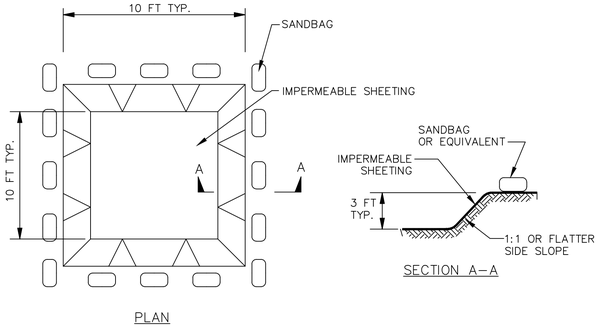
TEMPORARY STORM AND SITE PLAN EXEMPTION SHEET

MANCHACA C-STORE REHABILITATION

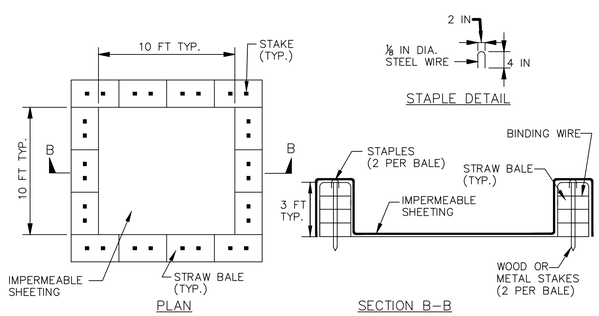
REV. NO.	BY	DATE	REVISION DESCRIPTION

SHEET 3 OF 4

ONSITE CONCRETE WASHOUT STRUCTURE

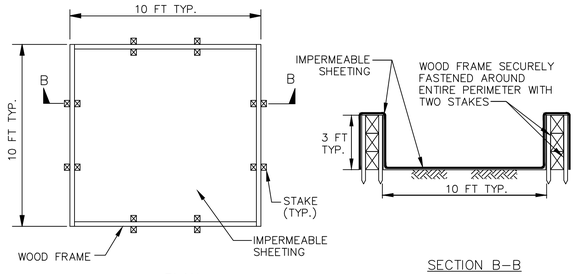


EXCAVATED WASHOUT STRUCTURE



NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

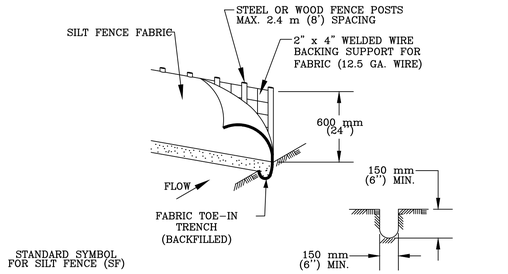
WASHOUT STRUCTURE WITH STRAW BALES



WASHOUT STRUCTURE WITH WOOD PLANKS

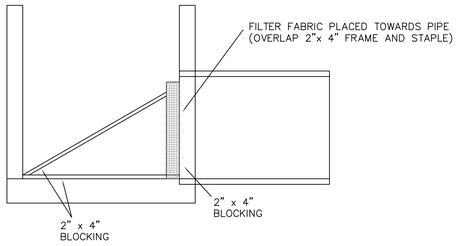
CONSTRUCTION SPECIFICATIONS

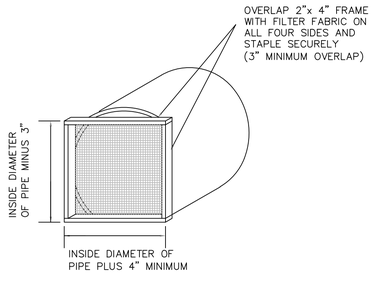
1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET–VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.



1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 inches) DEEP AND 150 mm (6 inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.
5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		SILT FENCE	
RECORD COPY SIGNED BY MORGAN BYARS	*09/01/2011* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 642S-1





NOTES:
STORM INLET SEDIMENT TRAPS SHALL BE PLACED IN ALL PROPOSED CURB INLETS AND AREA INLETS AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE LATERAL BRACING SHALL BE PLACED IN A MANNER AS TO ADEQUATELY SECURE THE FILTER FRAME TO THE SIDE OF THE INLET, INSURING THE PROPER FUNCTION OF THE SEDIMENT TRAP.

FILTER FABRIC MAY BE IDENTICAL TO THAT SPECIFIED AS "TEMPORARY SEDIMENT CONTROL FENCE". OTHER MATERIAL MAY BE USED UPON APPROVAL OF THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

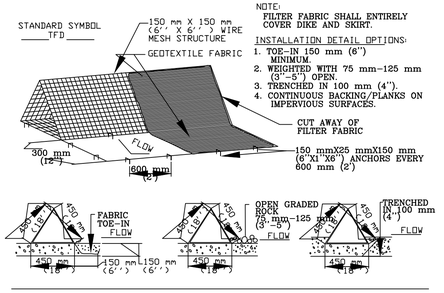
THE "STORM INLET SEDIMENT TRAPS" SHALL BE INSTALLED UPON COMPLETION OF THE PROPOSED INLET WALLS OR AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

THE CONTRACTOR WILL BE REQUIRED TO PERFORM PERIODIC MAINTENANCE OF THE SEDIMENT TRAP AND REMOVE ACCUMULATED SILT AS DIRECTED BY THE CITY OF CEDAR PARK'S PROJECT REPRESENTATIVE.

"STORM INLET SEDIMENT TRAPS" SHALL REMAIN IN PLACE UNTIL CONSTRUCTION OF THE PROPOSED INLET DECK BEGINS.

ALL WOOD SHALL BE PRESSURE TREATED.

STORM INLET SEDIMENT TRAP



GENERAL NOTES
1. DIKES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT DIKE.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF GEOTEXTILE. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM FACE.
3. THE SKIRT SHALL BE WEIGHTED WITH A CONTINUOUS LAYER OF 75–125 mm (3–5") OPEN GRADED ROCK OR TOED–IN 150 mm (6") WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE, THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 100 mm (4").
4. DIKES AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 150 mm (6") WIRE STAPLES ON 600 mm (2') CENTERS ON BOTH EDGES AND SKIRT, OR STAKE USING 10M (3/8 ") DIAMETER RE–BAR WITH TEE ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 150 mm (6") TO COVER DIKE TO DIKE JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE DIKE STRUCTURE SHALL BE MW40–150 mmX150 mm (6 GA. 6'X6") WIRE MESH, 450 mm (18") ON A SIDE.
7. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
8. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6") AND DISPOSED OF IN A MANNER WHICH WILL NOT CAUSE ADDITIONAL SILTATION.
9. AFTER THE DEVELOPMENT SITE IS COMPLETLY STABILIZED, THE DIKES AND ANY REMAINING SILT SHALL BE REMOVED. SILT SHALL BE DISPOSED OF AS INDICATED IN GENERAL NOTE 8 ABOVE.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT		TRIANGULAR SEDIMENT FILTER DIKE	
RECORD COPY SIGNED BY J. PATRICK MURPHY	*3/27/00* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 628S

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED
PROFESSIONAL ENGINEER
4/26/2023

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ENGINEERING | CONSULTING
SANDLIN
SERVICES, LLC
TBPELS FIRM #21356
4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

EROSION CONTROL DETAILS

MANCHACA C–STORE REHABILITATION

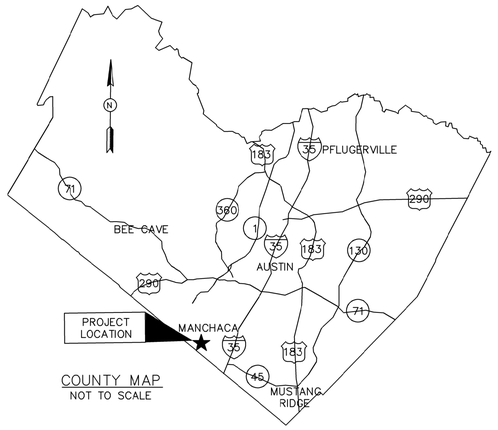
REV. NO.	BY	DATE	REVISION DESCRIPTION

SHEET 4 OF 4

MANCHACA C-STORE
HAZARDOUS MATERIAL INTERCEPTOR

ADDRESS:

2120 FM 1626, MANCHACA, TX 78652



COUNTY MAP
NOT TO SCALE

SPECIFICATIONS

CONCRETE : CLASS 1/II CONCRETE WITH DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

REINFORCEMENT: GRADE 60 REINFORCED WITH STEEL REBAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

C.I. CASTINGS: MANHOLE FRAMES, COVERS OR GRATES ARE MANUFACTURED OF GREY CAST IRON CONFORMING TO ASTM A48-76 CLASS 30. MANHOLE SHALL BE TRAFFIC DUTY.

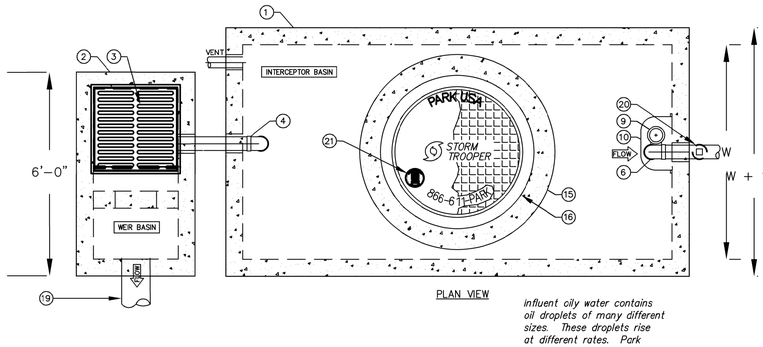
ENGINEERING DATA

INTERCEPTOR IS STRUCTURALLY AND HYDRAULICALLY ENGINEERED CONFORMING TO REGULATORY STANDARDS. NOMINAL TOTAL LIQUID CAPACITY AND OIL HOLDING CAPACITY AS INDICATED. FIELD EXCAVATION AND PREPARATION SHALL BE COMPLETED PRIOR TO DELIVERY OF INTERCEPTOR. USE DIMENSIONAL DATA AS SHOWN.

STORMWATER INTERCEPTOR ARE UTILIZED TO REDUCE NON-POINT SOURCE POLLUTION ASSOCIATED WITH OIL AND SEDIMENT. THE INTERCEPTOR IS DESIGNED TO ALLOW FOR THE DETAINMENT OF SETTLABLE & FLOATABLE SOLIDS & LIQUIDS. THE INTERCEPTOR SHOULD BE INSPECTED ON A REGULAR BASIS TO DETERMINE PROPER OPERATION AND CLEANING.

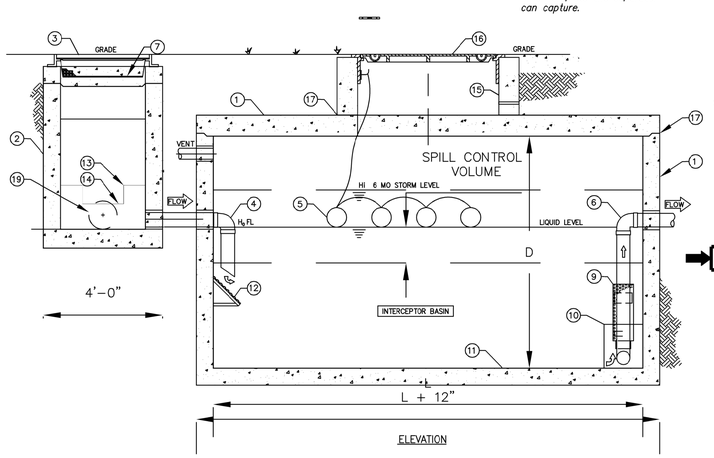
NOTES:

1. THIS SITE IS LOCATED WITHIN THE CITY OF AUSTIN ETJ.
2. PER § 6-5-52 – TRAPS, CATCH BASINS, AND INTERCEPTORS, (B) THE DIRECTOR'S APPROVAL IS REQUIRED FOR THE DESIGN OF A TRAP, CATCH BASIN, OR INTERCEPTOR. APPROVAL OF THIS PLAN BY THE CITY OF AUSTIN CONSTITUTES ADEQUACY AND ACCEPTANCE OF THE DESIGN PROVIDED.
3. ACCORDING TO THE NATIONAL FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO 48453C0590J DATED 1/22/2020, THIS TRACT LIES WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE OF THE 500 YEAR FLOODPLAIN.
4. THE CONTRACTOR OR SURVEYOR WILL OBTAIN A DIGITAL COPY OF THE CAD FILES THAT REPRESENT THESE IMPROVEMENTS; SANDLIN SERVICES, LLC AND IT'S ASSOCIATES TAKE NO RESPONSIBILITY FOR THE LOCATION OF THESE IMPROVEMENTS IN ANY COORDINATE SYSTEM. DIGITAL FILES USED TO PRODUCE THESE PLANS WERE PARTIALLY CREATED BY PARTIES OTHER THAN SANDLIN SERVICES, LLC AND ARE NOT INTENDED FOR USE IN CONSTRUCTION STAKING. VERTICAL AND HORIZONTAL DATA SHALL BE INDEPENDENTLY VERIFIED BY CONTRACTOR'S R.P.L.S.
5. SANDLIN SERVICES, LLC HAS ENDEAVORED TO DESIGN THESE PLANS COMPLIANT WITH ADA/TDLR AND OTHER ACCESSIBILITY REQUIREMENTS. HOWEVER, THE CONTRACTOR SHALL NOT BE RELIEVED OF ANY RESPONSIBILITY FOR CONSTRUCTING THESE IMPROVEMENTS COMPLIANT WITH ALL APPLICABLE ACCESSIBILITY STANDARDS. IF THE CONTRACTOR NOTICES ANY DISCREPANCIES BETWEEN THESE PLANS AND ACCESSIBILITY LAWS/RULES, HE IS TO STOP WORK IN THE AREA OF CONFLICT AND NOTIFY THE ENGINEER IMMEDIATELY FOR A RESOLUTION AND/OR REVISION TO THESE PLANS. SANDLIN SERVICES, LLC SHALL NOT BE HELD RESPONSIBLE FOR CONSTRUCTING THIS SITE COMPLIANT WITH ACCESSIBILITY LAWS/RULES REGARDLESS OF WHAT IS SHOWN IN THESE PLANS.



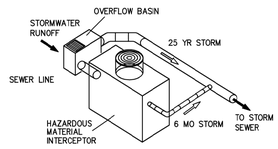
PLAN VIEW

KEYED NOTES		
MARK	QTY	DESCRIPTION
1	1	INTERCEPTOR BASIN
2	1	WEIR BASIN
3	1	INLET CAST IRON FRAME & GRATE, H-20 RATED
4	1	INLET PIPING
6	1	6 MONTH STORM OUTLET PIPE
7	1	REMOVABLE DEBRIS BASKET STAINLESS STEEL
9	1	AUTOMATIC OIL STOP VALVE
10	1	SLUDGE BAFFLE
11	–	BITUMASTIC INTERIOR LINER
12	1	DIFFUSION BAFFLE
13	1	25YR STORM OVERFLOW WEIR
14	1	STORM EVENT OVERFLOW WEIR
15	–	MANWAY EXTENSIONS AS REQ'D
16	1	GALVANIZED BOLT DOWN RING & COVER, H-20 RATED
17	–	ALL JOINTS TO BE SEALED W/ PLASTIC FLEXIBLE GASKET
19	1	OVERFLOW PIPING
20	1	OUTLET PIPE CLEAN-OUT (BY OTHERS)
21	1	NAMEPLATE INDICATING: MFG: PARKUSA.COM TEL 888-611-PARK MODEL: HMI-1 DATE MANUFACTURED



ELEVATION

influent oily water contains oil droplets of many different sizes. These droplets rise at different rates. Park utilizes a statistical program that divides the droplets into ranges of sizes and calculates the rise rates of each range. This calculation determines which droplets the separator can capture.

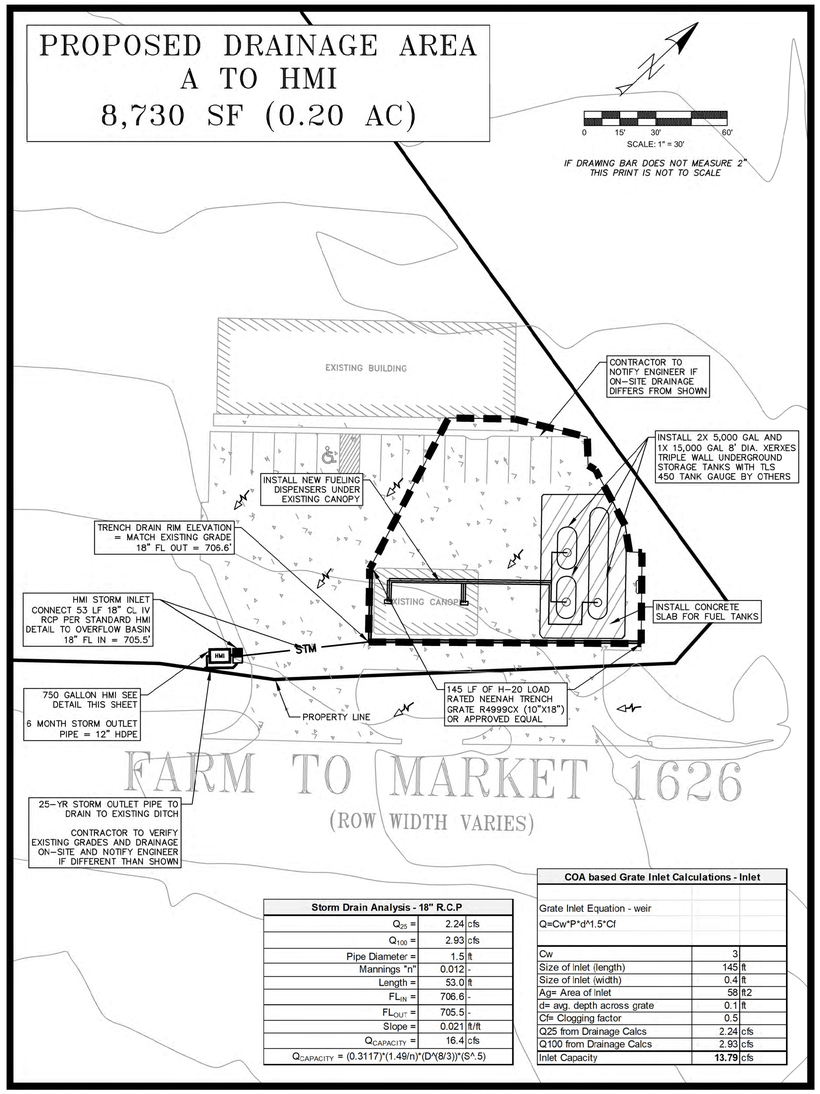


STORMTROOPER HMI						
MODEL NO.	W, WIDTH (FT)	L, LENGTH (FT)	D, DEPTH (FT)	VOLUME (GAL)	Q (GPM)
	IF	IF	IF	IF	
HMI-100	5.0	8.0	5.0	1,496	126
	JS	JS	JS	JS	
HMI-125	6.0	12.0	6.0	3,231	158
HMI-150	6.0	12.0	7.5	4,039	190
HMI-165	6.0	15.0	6.0	4,039	221
HMI-175	7.5	15.0	7.0	5,891	253
HMI-200	7.6	15.0	7.6	6,481	284
HMI-225	7.5	15.0	9.0	7,574	316
HMI-250	8.0	17.0	9.5	9,664	348
HMI-275	8.0	17.0	10.5	10,681	379
HMI-300	10.0	20.0	9.0	13,464	411
HMI-325	10.0	20.0	9.8	14,586	442
HMI-350	10.0	20.0	10.5	15,708	474
HMI-375	10.0	20.0	11.3	16,830	506
HMI-400	10.0	20.0	12.5	18,700	537

STORMTROOPER HMI-100 STORMWATER INTERCEPTOR

PARK USA
www.parkusa.com 888-611-PARK

HAZARDOUS MATERIAL INTERCEPTOR
STORMTROOPER MODELS HMI-100 THRU 400



Storm Drain Analysis - 18" R.C.P		
Q_{25} =	2.24	cfs
Q_{100} =	2.93	cfs
Pipe Diameter =	1.5	ft
Mannings "n"	0.012	-
Length =	53.0	ft
FL_{IN} =	706.6	-
FL_{OUT} =	705.5	-
Slope =	0.021	ft/ft
$Q_{CAPACITY}$ =	16.4	cfs
$Q_{CAPACITY}$ = (0.3117)*(1.49/n)*(D^(8/3))*(S^.5)		

COA based Grate Inlet Calculations - Inlet		
Grate Inlet Equation - weir		
Q=Cw*P*d^1.5*Cf		
Cw	3	
Size of Inlet (length)	145	ft
Size of Inlet (width)	0.4	ft
Ag= Area of Inlet	58	ft2
d= avg. depth across grate	0.1	ft
Cf= Clogging factor	0.5	
Q25 from Drainage Calcs	2.24	cfs
Q100 from Drainage Calcs	2.93	cfs
Inlet Capacity	**13.79**	cfs

Drainage Area	Drainage Area	T_c*	25-year			100-year			2-year		
	(Ac)	(min)	C	I** (in/hr)	Q (cfs)	C	I** (in/hr)	Q (cfs)	C	I** (in/hr)	Q (cfs)
Trench DA-1	0.20	5.00	0.95	11.79	2.24	0.95	15.42	2.93	0.95	7.39	1.40

*Most conservative Tc value of 5.0 minutes was assumed for each drainage area
**City of Austin Atlas 14 IDF curve coefficients used to calculate intensity values

DATE OF FUELING SITE PLAN SHOWN: 4/9/2021

CONTRACTOR SHALL NOTIFY ENGINEER SHOULD SITE PLAN SCHEMATICS NOT MATCH APPROVED FUELING SITE LAYOUT PLAN. SHOULD AREA NOT DRAIN TO HMI PER SITE PLAN, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY

STATE OF TEXAS
NICHOLAS R. SANDLIN
124404
LICENSED
PROFESSIONAL ENGINEER
4/26/2023

THIS PLAN SET FOR REVIEW ONLY, NOT FOR CONSTRUCTION.

CONTRACTOR NOTES:

BY THE ACT OF SUBMITTING A BID FOR THIS PROPOSED CONTRACT, THE BIDDER WARRANTS THAT THE BIDDER, AND ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS HE INTENDS TO USE, HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM ANY AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED. THE BIDDER FURTHER WARRANTS THAT TO THE BEST OF HIS OR HIS SUBCONTRACTORS' AND MATERIAL SUPPLIERS' KNOWLEDGE, ALL MATERIALS AND PRODUCTS SPECIFIED OR INDICATED HEREIN ARE ACCEPTABLE FOR ALL APPLICABLE CODES AND AUTHORITIES.

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAS BEEN BASED UPON RECORD INFORMATION ONLY AND MAY NOT MATCH LOCATIONS AND/OR DEPTHS AS CONSTRUCTED. THE CONTRACTOR SHALL CONTACT THE AUSTIN AREA "ONE CALL" SYSTEM 1-800-245-4545, OR THE OWNER OF EACH INDIVIDUAL UTILITY, FOR ASSISTANCE IN DETERMINING EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO BEGINNING ANY CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITY CROSSINGS PRIOR TO BEGINNING ANY CONSTRUCTION.

ENVIRONMENTAL INSPECTION HAS THE AUTHORITY TO MODIFY/CHANGE EROSION AND SEDIMENTATION CONTROLS TO KEEP THE PROJECT IN COMPLIANCE.

CONTACTS

OWNER:

7-ELEVEN, INC.
3200 HACKBERRY ROAD
IRVING, TEXAS 75063

ENGINEER:

SANDLIN SERVICES, LLC
4501 WHISPERING VALLEY DR. UNIT#27
AUSTIN, TEXAS 78727
(803)679-7303
CONTACT: NICHOLAS SANDLIN, P.E.

BENCHMARK NOTE:

ALL ELEVATIONS SHOWN HEREON ARE BASED ON THE FOLLOWING BENCHMARKS AND INFORMATION.

BENCHMARK NOTES:

1. CONTACT SURVEYOR PRIOR TO UTILIZING BENCHMARK

DATE OF SUBMITTAL: 4/XX/2023

WATERSHED: ONION CREEK-COLORADO RIVER

TRACT SIZE: 4.7099 ACRES

WATER QUALITY IS NOT PROVIDED FOR EXISTING I.C.

NO INCREASE IN I.C. IS PROPOSED

TEXAS 811 DIG RIGHT YOU DIG

WARNING !!!! CONTRACTOR TO FIELD VERIFY ALL EXIST. UTILITIES VERTICALLY AND HORIZONTALLY PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO CONTACT ENGINEER IF ANY EXISTING UTILITY INFORMATION DIFFERS FROM DATA SHOWN IN THE PLANS. CALL 811 BEFORE YOU DIG.

ENGINEERING | CONSULTING
SANDLIN
SERVICES, LLC

TBPELS FIRM #21356
4501 WHISPERING VALLEY DRIVE UNIT 27 AUSTIN, TX 78727

HAZARDOUS MATERIALS INTERCEPTOR PLAN

MANCHACA C-STORE REHABILITATION

REV NO.	BY	DATE	REVISION DESCRIPTION

SHEET 1 OF 1

Agent Authorization

TCEQ-0599

RANGER
ENVIRONMENTAL SERVICES, LLC

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Zoolfikar Momin,
Print Name

Owner/ Manager,
Title - Owner/President/Other

of Bear Creek 1626, LLC,
Corporation/Partnership/Entity Name

have authorized Nick Sandlin, P.E.
Print Name of Agent/Engineer

of Sandlin Services, LLC
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

03-31-2023
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Zoofiker Momin known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 31 day of March, 2023.

NOTARY PUBLIC

Aafsar Dhuka
Typed or Printed Name of Notary

AAFSAR DHUKA
Notary ID #133309114
My Commission Expires
September 1, 2025

MY COMMISSION EXPIRES: 09/1/25

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I Zoolfikar Momin,
Print Name

Owner/ Manager,
Title - Owner/President/Other

of Bear Creek 1626, LLC,
Corporation/Partnership/Entity Name

have authorized Chad M. Copeland, P.G., PWS
Print Name of Agent/Engineer

of Ranger Environmental Services, LLC
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

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SIGNATURE PAGE:

Applicant's Signature

03/31/2023
Date

THE STATE OF Texas §

County of Travis §

BEFORE ME, the undersigned authority, on this day personally appeared Zoelfikar Manji known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 31 day of March, 2023.

NOTARY PUBLIC

AAFSAR DHUKA
Notary ID #133309114
My Commission Expires
September 1, 2025

Aafsar Dhuka
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 09/01/2025

Application Fee Form

TCEQ-0574

RANGER
ENVIRONMENTAL SERVICES, LLC

Application Fee Form

Texas Commission on Environmental Quality
Name of Proposed Regulated Entity: Zapco #4
Regulated Entity Location: 2120 FM 1626, Manchaca, Texas 78652
Name of Customer: Bear Creek 1626 LLC
Contact Person: Saif Momin Phone: (512) 850-3061
Customer Reference Number (if issued):CN _____
Regulated Entity Reference Number (if issued):RN 102673092

Austin Regional Office (3373)

☐ Hays ☒ Travis ☐ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde
☐ Comal ☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment**. This payment is being submitted to:

☒ Austin Regional Office
☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office
☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☐ Recharge Zone ☐ Contributing Zone ☒ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	Acres	$
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	3 Tanks	$ 1,950
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: 

Date: 4/27/2023

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

Core Data Form

TCEQ-10400

RANGER
ENVIRONMENTAL SERVICES, LLC

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☐ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal (*Core Data Form should be submitted with the renewal form*) ☒ Other **EAPP Modification**

2. Customer Reference Number (*if issued*)	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** (*if issued*)
CN		**RN 102673092**

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	03/30/2023

☒ New Customer ☐ Update to Customer Information ☒ Change in Regulated Entity Ownership

☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name (*If an individual, print last name first: eg: Doe, John*) *If new Customer, enter previous Customer below:*

Bear Creek 1626, LLC

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** (*if applicable*)
804763405	32086710210	884181274	

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☒ Limited

Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees ☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated? ☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator ☐ Other:

☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:	6701 Sangiacomo Cv						
	City	Austin	**State**	TX	**ZIP**	78759	**ZIP + 4**

16. Country Mailing Information (*if outside USA*)	**17. E-Mail Address** (*if applicable*)
	smomin942@gmail.com

18. Telephone Number	**19. Extension or Code**	**20. Fax Number** (*if applicable*)
(512) 850-3061		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information (*If 'New Regulated Entity" is selected, a new permit application is also required.*)

☐ New Regulated Entity ☒ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name (*Enter name of the site where the regulated action is taking place.*)

Zapco #4

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2120 FM 1626							
	City	Manchaca	**State**	TX	**ZIP**	78652	**ZIP + 4**	4505
24. County	Travis							

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	The subject site is located southwest of the intersection of Bliss Spillar Road and FM 1626 in Manchaca, Texas				
26. Nearest City			**State**	**Nearest ZIP Code**	
Manchaca			Tx	78652	

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	30.134461		**28. Longitude (W) In Decimal:**	-97.853728	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	08	04.06	-97	51	13.42

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
5541		447110	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Retail fueling facility

34. Mailing Address:	**6701 Sangiacomo Cv**							
	City	**Austin**	**State**	**TX**	**ZIP**	**78759**	**ZIP + 4**	
35. E-Mail Address:	**smomin942@gmail.com**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(512) 850-3061		**( ) -**

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
		11-14041705		
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☒ Petroleum Storage Tank	☐ PWS
			18178	
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

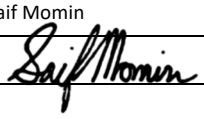
SECTION IV: Preparer Information

40. Name:	Chad M. Copeland, P.G., PWS	**41. Title:**	Senior Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512 **)** 335-1785	124	**(** 512 **)** 335-0527	chad@rangerenv.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Bear Creek 1626, LLC	**Job Title:**	Manager	
Name *(In Print):*	Saif Momin		**Phone:**	**(** 512 **)** 850- **3061**
Signature:			**Date:**	3/30/2023