

Revised October 27, 2020
March 5, 2020



ENTECH
ENGINEERING, INC.

505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
PHONE (719) 531-5599
FAX (719) 531-5238

D. Stefano-Building & Restoration, Inc.
520 West 21st Street, G-2 #710
Norfolk, Virginia 23517

Attn: David Stefano

Re: OWTS – Site Evaluation
7765 Electronic Drive
El Paso County, Colorado

Dear Mr. Stefano:

As requested, personnel of Entech Engineering, Inc. observed two test pits at the address above. The test pits were excavated in the area of the proposed on-site wastewater treatment system (OWTS) absorption field. This letter presents the results of our testing.

Cherokee Metropolitan District normally does not allow septic systems within the District but the location of this property would make connection to existing sewer infrastructure unreasonable for a usage this low. Many of the lots in this area of the District use onsite septic systems and are generally light industrial businesses with low wastewater flows. If a residential subdivision or higher intensity industrial user builds in this area, a sewer line extension will be required at which point all businesses currently on septic will have the option to connect to the central wastewater system.

Test pits Nos. 1 & 2 were excavated on February 12, 2020, to approximately 8 feet deep. Soils encountered in the test pits consisted of sandy clay. The Test Pit Logs and Laboratory Test Results are shown in Figures 2 and 3. Bedrock was not encountered in the test pits. Signs of seasonally occurring groundwater were not observed in the test pits.

Visual and tactile evaluation of the soils was performed. The limiting layer encountered in the test pits is the sandy clay, which classifies as USDA Soil Type 4. The corresponding LTAR Value of 0.20 gallons per day per square foot is recommended for Treatment Level 1. An engineered system will be required. Installation of the system should be performed in accordance with El Paso County Health Department regulations and requirements.

We trust that this has provided you with the information you required. If you have any questions or need additional information, please do not hesitate to contact us.

Respectfully Submitted,

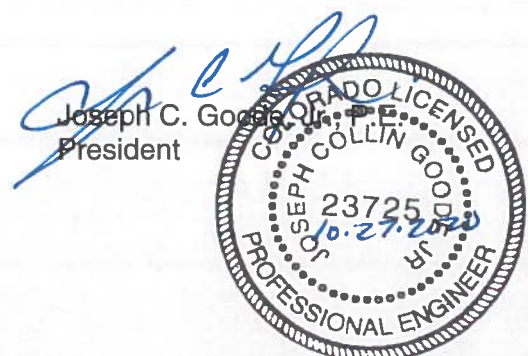
ENTECH ENGINEERING, INC.

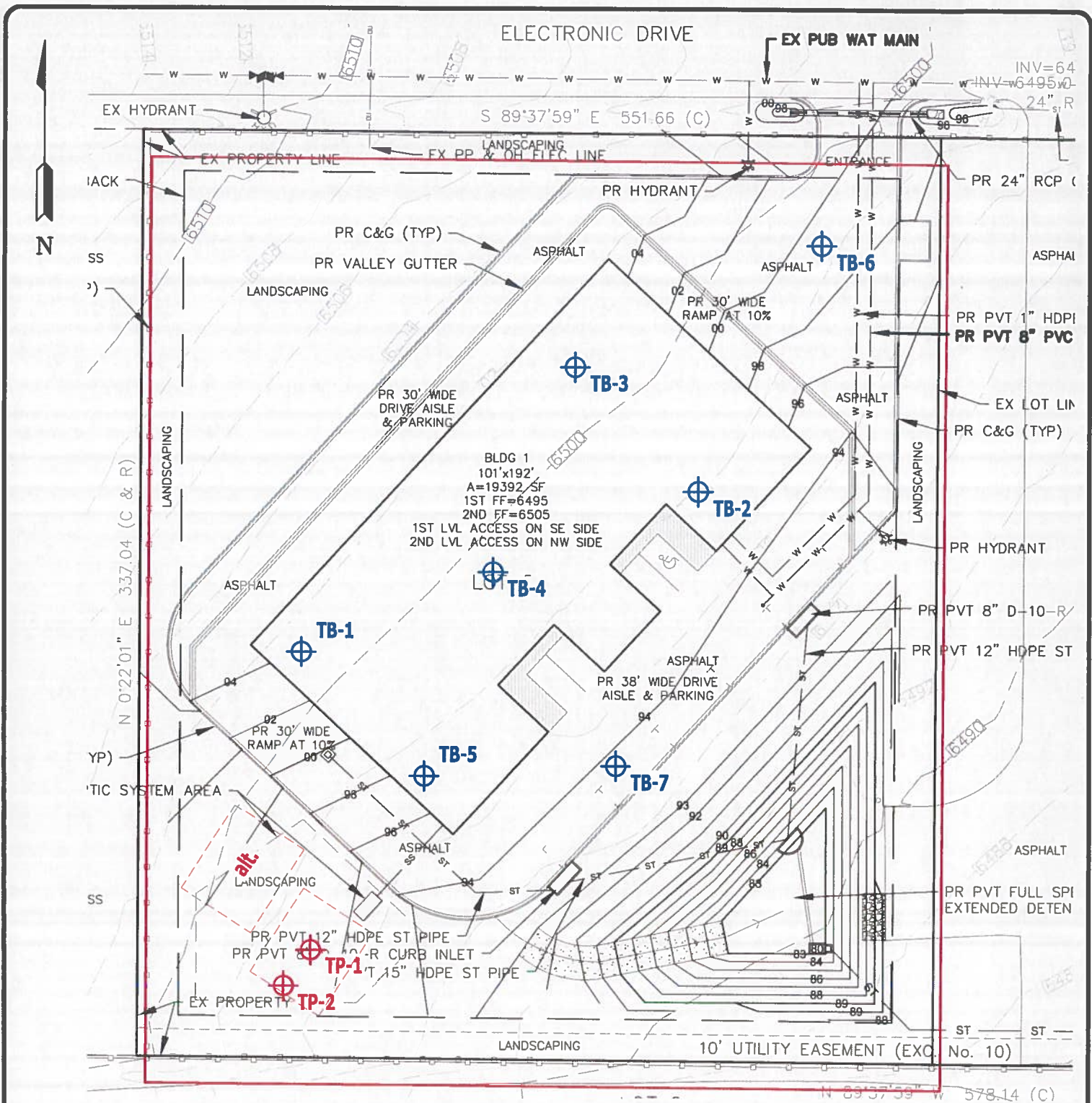
Reviewed by:

Robert P. Jaquet, E.I.

JCG/rpj

Entech Job No. 200127
AAprojects/2020/200127 owts-site evaluation REV





 **TP - APPROXIMATE TEST PIT LOCATION AND NUMBER**

- **TP-1** 38°52'22.21"N, 104°41'5.01"W
- **TP-2** 38°52'22.08"N, 104°41'5.31"W



ENTECH ENGINEERING, INC.
 525 ELKTON DRIVE
 COLORADO SPRINGS, CO. 80907 (719) 531-5599

TEST PIT LOCATION MAP
 7765 ELECTRONIC DRIVE
 EL PASO COUNTY, COLORADO
 FOR: DAVID STEFANO

DRAWN: RPJ	DATE: 10/27/20	CHECKED: JCG	DATE: 10/27/20
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JOB NO.:
200127

FIG NO.:
1

TEST PIT NO. 1
 DATE EXCAVATED 2/12/2020
 Job # 200127

TEST PIT NO. 2
 DATE EXCAVATED 2/12/2020
 CLIENT D. Stefano-Building & Restoration, Inc.
 LOCATION 7765 ELECTRONIC DRIVE

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type	REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
topsoil sandy loam, brown sandy clay, fine to medium grained, brown	1			gr	s	4	topsoil sandy loam, brown sandy clay, fine to medium grained, brown	1			gr	s	4
	2							2					
	3							3					
	4							4					
	5							5					
	6							6					
	7							7					
	8							8					
	9							9					
	10							10					

Soil Structure Shape
 granular - gr
 platy - pl
 blocky - bl
 prismatic - pr
 single grain - sg
 massive - ma

Soil Structure Grade
 weak - w
 moderate - m
 strong - s
 loose - l



ENTECH
ENGINEERING, INC.

505 ELKTON DRIVE
 COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

DRAWN:

DATE:

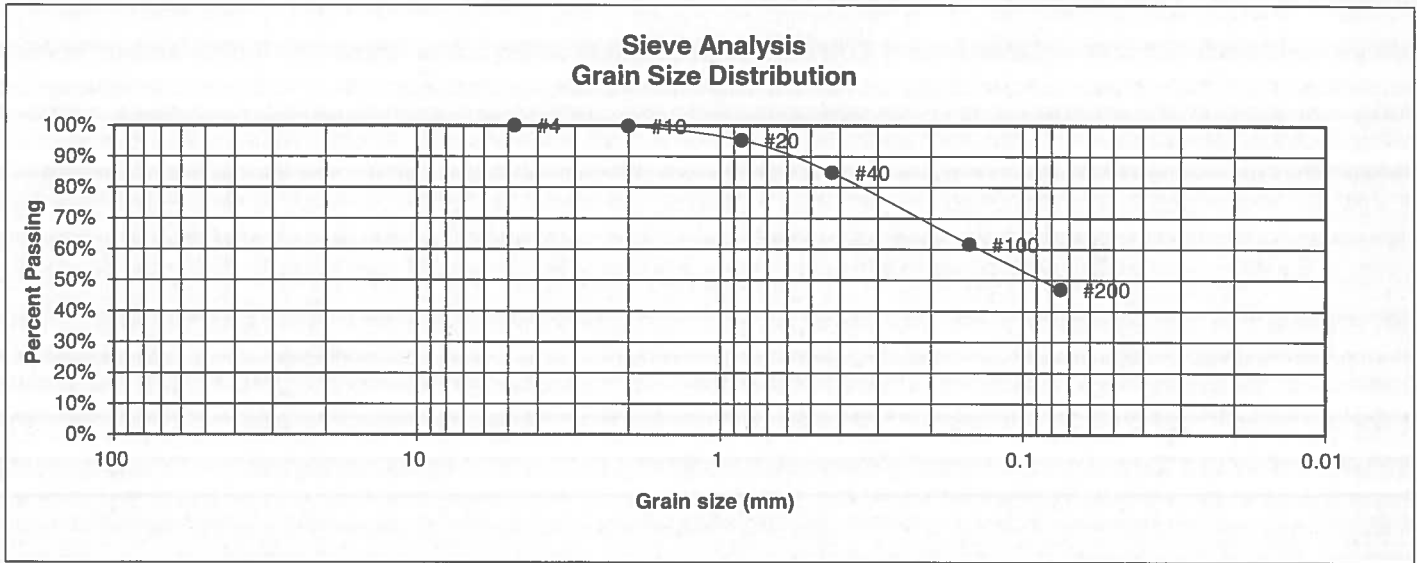
CHECKED:

DATE:

JOB NO.:
 200127

FIG NO.:

UNIFIED CLASSIFICATION	SC	CLIENT	D. STEFANO
SOIL TYPE #	1	PROJECT	7765 ELECTRONIC DRIVE
TEST BORING #	TP-1	JOB NO.	200127
DEPTH (FT)	4-6	TEST BY	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.8%
20	95.3%
40	84.7%
100	61.6%
200	47.0%

Atterberg Limits
 Plastic Limit
 Liquid Limit
 Plastic Index

Swell
 Moisture at start
 Moisture at finish
 Moisture increase
 Initial dry density (pcf)
 Swell (psf)



**ENTECH
ENGINEERING, INC.**

505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

**LABORATORY TEST
RESULTS**

DRAWN:

DATE:

CHECKED:

DATE:

JOB NO.:
200127

FIG NO.:



CHEROKEE METROPOLITAN DISTRICT

6250 Palmer Park Blvd., Colorado Springs, CO 80915-2842

Telephone: (719) 597-5080 Fax: (719) 597-5145

Water Provider's Report for proposed Electronic Drive Self Storage at Mountain States Pipe and Supply

October 23rd, 2020

Commitment 2020-02

This document has been prepared to satisfy the requirements of El Paso County for a Water Provider's Report in support of **Electronic Drive Self Storage at 7765 Electronic Drive** being undertaken by the current landowner, **Mountain States Pipe and Supply**.

Introduction

Cherokee Metropolitan District (CMD) is a Title 32 special District which provides water and wastewater to an 800-acre enclave of unincorporated El Paso county surrounded by the City of Colorado Springs. Currently CMD serves approximately 7000 residential taps and 600 commercial taps in addition to bulk users in eastern El Paso County including Schriever Air Force Base and several small developments located along State Highway 94.

CMD water is sourced entirely from groundwater in two regions. The majority is recovered from the alluvial Upper Black Squirrel (UBS) Aquifer in eastern El Paso County through 20 wells. The remainder is sourced from two wells in deep bedrock aquifers in the northern part of the county on the “Sundance Ranch” property. Water from eight of the 20 wells in the eastern part of the county can only be used to serve a fixed list of customers. Water for the main service area of CMD comes only from the remaining 12 wells in UBS along with the two wells in Black Forest.

Calculation of Anticipated water Demand

The development is expected to be an enclosed self-storage center which is not plumbed for water consumption through the vast majority of its floor area. There are currently three self-storage centers in the District and over the past three years the average annual consumption for each was 0.12 Acre-Feet per Year (AFY) including separately metered outdoor sprinkler systems. This is about half of the average single family home demand in the District. CMD assigns a higher value water use value of 0.31 AFY per single family equivalent (SFE) during water demand planning to account for high irrigation years and system losses. To be conservative, the District committed one SFE or 0.31 AFY to this development.

Water Supplies

Cherokee has eight wells that are restricted to serving a maximum of 653 AFY to specified in-basin customers. Excess allocation for these wells is unavailable for new developments, even if they are inside the Basin, so this water is tracked separately from CMD’s general supply portfolio. CMD’s other alluvial wells are available for export outside the UBS basin. The total annual volume available to CMD from these exportable supplies is 3,985 AFY (Table 1). The physical yield of these wells is significantly higher than their annual appropriation, allowing flexibility in satisfying summer peak demand.

Table 1: Water rights and tributary status of Exportable Wells

Well Number	Water Right (AFY)	2019 Use (AFY)	Permit Number	Aquifer	Aquifer Status
Well 9	176	132	14145-FP-R	UBS Alluvium	Tributary
Well 10	176	108	14146-FP-R	UBS Alluvium	Tributary
Well 11	244	161	6821-FP-R	UBS Alluvium	Tributary
Well 12	244	149	11198-FP	UBS Alluvium	Tributary
Well 13	1268	975	49988-F	UBS Alluvium	Tributary
Well 14	0	0	52429-F	UBS Alluvium	Tributary
Well 15*	281	145	54070-F	UBS Alluvium	Tributary
Well 16*	219	123	54069-F	UBS Alluvium	Tributary
Well 17*	175	151	63094-F	UBS Alluvium	Tributary
Well 18	225	138	16253-RFP-R	UBS Alluvium	Tributary
Well 19	95	79	20567-RFP-R	UBS Alluvium	Tributary
Well 20	400	38	4332-RFP	UBS Alluvium	Tributary
Well 21	290	0	81782-F	UBS Alluvium	Tributary
DN-4**	110	110	78315-F	Denver Aquifer	Non-Tributary
AR-1***	147.7	155	75881-F	Arapahoe Aquifer	Non-Tributary
Total	3984.7	2464			

*Wells 15-17 can produce a total of 609 AFY instead of their nominal total of 675 AFY. This limitation is reflected in the 3984.7 AFY total available production

**CMD holds additional water rights in the Denver Aquifer associated with the Sundance Ranch property but this particular well has a maximum annual recorded yield of 110 AFY

***As of December 2019 AR-1 has 2040 AF of banked water which allows actual pumping to exceed allocation on a limited basis

CMD is developing owned water supplies to increase available water and improve flexibility in provision of summer peak flows. By the end of 2020, these new wells will contribute 458 AFY of capacity to the CMD system (Table 2) for a total of 4,443.0 AFY. Since 2011, actual demand from CMD customers has fallen 30-35% below commitments, partially due to some currently committed developments being incomplete but largely due to water saving measures undertaken by CMD customers.

Table 2: New water supplies slated for completion in 2020

Well Number	Water Right (AFY)	Permit Number	Aquifer	Aquifer Status
Albrecht Well	153.5	27571-FP	UBS Alluvium	Tributary
DA-1	40.3	83604-F	Dawson	Not Non-Tributary
DA-4	64.5	83603-F	Dawson	Not Non-Tributary
AR-1 Expansion	200	75881-F	Arapahoe	Non-Tributary
Total	458.3			

By the end of 2020, CMD will have at total of 4,443 AFY of exportable water supplies sourced from alluvial and deep bedrock aquifers. Further development in the Denver Basin is not planned at this time and instead CMD is focusing on acquiring new renewable supplies proximate to existing infrastructure.

Water Commitments

CMD's water commitments stand at 4,033 AFY before the addition of the proposed development. These commitments are broken down below in Table 3. The Tipton and Kane commitments are related to an arrangement from the mid-2000's where developers reserved commitments on two new wells. The water from these wells is considered fully committed to these developers even if they have not yet begun the projects associated with the reserved commitments. Due to a complex legal history, the "Kane" water right was not tied to a specific physical water well but instead operates as a commitment served from CMD's general supply portfolio. The "Tipton" water right corresponds to CMD's Well 18.

Table 3: CMD Commitments before addition of new development

Commitments	AFY
In-District (2015)	2693
Committed Since 2015	328
Schriever Air Force Base	537
Kane	200
Tipton	225
Construction	25
Parks	25
Total	4033

Water Balance

With 4,443.0 AFY of exportable supply and 4,033 AFY of commitments, CMD has a water balance of 410.0 AFY before the subject development. After commitment of 0.31 AFY to this development, the District will have 410.7 AFY remaining for additional commitments.

Table 4: Water balance with new development

Water Balance Before New Commitment	410.0 AFY
New Commitment: Electronic Dr. Self Storage	0.31
Water Balance Remaining	409.7 AFY

Wastewater Treatment

Onsite Septic System

Cherokee Metropolitan District normally does not allow septic systems within the District but the location of this property would make connection to existing sewer infrastructure unreasonable for a usage this low. Many of the lots in this area of the District use onsite septic systems and are generally light industrial businesses with low wastewater flows. If a residential subdivision or higher intensity industrial user builds in this area, a sewer line extension will be required at which point all businesses currently on septic will have the option to connect to the central wastewater system.

Other Relevant District Information

Recent Water Acquisitions/Losses

CMD has not acquired any new water rights since 2015 but has been developing owned water rights into production wells. CMD has not engaged in any water trades nor lost any water rights in the last year. The District is not currently under contract to purchase new water rights although CMD is investigating purchases of renewable water rights proximate to its existing infrastructure on an ongoing basis.

New Augmentation Plans

CMD is currently pursuing a replacement plan in partnership with Meridian Service Metropolitan District (MSMD) in order to maximize the efficiency of its water supplies.

Major Water System Capital Improvements

CMD has been actualizing owned water by drilling wells and beginning production on several well sites. In February of 2020 CMD brought the Sweetwater 5 well (81782-F) online after a year of planning and construction. In the next 6 months it is expected that the “Albrecht Well” (27554-FP) will be brought online providing an additional 153.5 AFY of water.

CMD is currently preparing to increase pump capacity in well AR-1 (75881-F), its only well in the Arapahoe aquifer, and to install pumps in two existing wells in the Dawson Aquifer (83603-F & 83604-F). Beyond these projects, additional well construction in the Denver Basin is not anticipated at this time, although CMD has a substantial amount of undeveloped water rights in the Denver Basin Aquifers.

Existing CMD wells have had a series of upgrades to improve quality and efficiency within in the last year. The screen and pump on Well 11 (6821-FP-R) were replaced to improve water flow and several in-district potable water tanks have been cleaned and rehabilitated. More incremental improvements in the distribution system to improve reliability and resiliency include deeper computer integration, upgrades to treatment systems, and emergency generator refurbishment.