



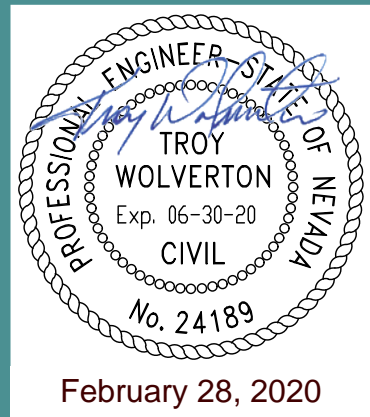
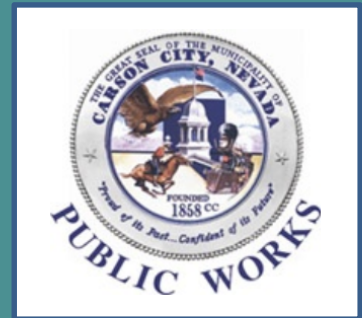
Late Material

Item#: 20A

Meeting Date: 09/17/20

Carson City Public Works Fuel Station

Feasibility Study



February 28, 2020

Prepared For:

Carson City Public Works
3505 Butti Way
Carson City, Nevada 89701

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Date: February 28, 2020

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1.0 INTRODUCTION AND STUDY PURPOSE

1.1 Project Overview & Location

The purpose of this study is to determine the feasibility of constructing an onsite fueling station adjacent to the existing Carson City Public Works (CCPW) offices located at 3505 Butti Way in Carson City, Nevada. A determination of the project feasibility will be based on a quantitative assessment of the City's fuel needs and of the financial viability of the stand-alone fuel station construction. The City desires to ultimately achieve two main goals with the proposed fuel station:

- Provide fuel storage for City vehicles and operations during a prolonged emergency situation
- Promote a higher Commercial Fueling Network (CFN) site usage by City vehicles, thus reducing City fuel expenditures

A preliminary site plan layout exhibit and vicinity map are included in Appendix A for reference. The fuel station will include aboveground tanks, dispensers and dispenser islands, and associated concrete/asphalt paving improvements.

1.2 Emergency Fuel Storage

City public services and utilities are generally expected to make sure they can provide service to all customers and citizens, regardless of emergency situations that may arise. It is foreseeable that a future emergency or natural disaster in the area would kick a large portion of the City onto backup (generator) power. In that event, emergency fuel storage will be critical to ensure that backup generators can continue to function and City services can continue uninterrupted.

Based on the City's projected fuel usage, the aboveground fuel storage tanks were sized in order to provide a minimum of a week's worth of emergency fuel storage for the City-wide vehicle fleet. Reference Section 2 of this study for additional explanation of the fuel storage tank sizing. While having emergency storage on hand during an emergency is a great benefit to the City, its importance is not easily quantifiable in monetary terms. A financial savings analysis is also provided in this report, but the City will need to weigh the value of the additional fuel storage in terms of its responsibilities during an unforeseen emergency, as the costs of disaster mitigation/prevention usually outweigh the costs associated with a lack of emergency preparedness. These non-financial benefits are excluded from the hard fuel savings detailed in Section 5 of this study.

1.3 Explanation of CFN Sites

The CFN network provides discount fueling locations to companies, jurisdictional agencies, and other entities by offering (in the case of Carson City) cost-plus pricing. This means that the Daily Oil Price

Information Services (OPIS) Rack Average price is then increased slightly for freight and profit margin prior to sale. This discounted price can be significantly lower than retail pricing.

Thomas Petroleum, LLC is the contractor/distributor that currently supplies the discounted fuel to local CFN sites. The City has four CFN sites in the Carson City area – a Shell gas station, two Flyers gas stations, and a Carson Valley Oil Company fuel center near the northern edge of City limits. City vehicles are able to obtain discounted fuel pricing when fueling at any of these locations. If City vehicles fuel at non-CFN locations or non-state-owned facilities, the price paid reverts back to the posted pump retail price. With the construction of the proposed CCPW fuel station, the City would gain another local CFN site available for use by City vehicles. Section 5 of this study contains additional information related to the City’s current CFN site usage.

2.0 FUEL USAGE & TANK SIZING

2.1 Fuel Usage Data

The City has provided its fuel usage data from 2015-2019 for all City vehicles. The data was sorted by fuel type, with a summary of results provided in Appendix B.

2.2 Fuel Storage Tank Sizing

The fuel usage data was used to determine the peak monthly fuel usage for each relevant fuel type. The monthly usage was then divided by four to get the approximate peak weekly fuel consumption. As stated in Section 1.2, the fuel tank sizing was based on a desire to provide a minimum of a week’s worth of emergency fuel storage (assuming weekly fuel deliveries). As such, the aboveground fuel tank capacities were set at approximately twice the City’s peak weekly consumption. This will allow the fuel tanks to consistently maintain the required emergency fuel storage volume based on a weekly delivery schedule.

At the City’s request, all unleaded, midgrade, and premium fuel usage has been combined into a lump sum usage that will be designated as solely midgrade (no separate aboveground fuel tanks for unleaded or premium fuel). The midgrade fuel tank could easily switch to unleaded fuel without impacting any of this report’s conclusions.

A separate fuel tank will be dedicated to clear diesel, with a third fuel tank for dyed diesel (non-taxed diesel fuel for equipment and offroad vehicles). A diesel exhaust fluid (DEF) tank will also be provided, but will be located in a cabinet next to the DEF dispenser, separate from the other aboveground fuel tanks. Explanations of the individual tank sizes and configurations is provided below.

2.2.1 Midgrade Storage Tank

For the purposes of this study, “midgrade” fuel usage will refer to the sum of unleaded/midgrade/premium fuel use as explained in Section 2.2. Per the data usage spreadsheets provided in Appendix B, the peak monthly midgrade fuel usage was in August 2019, with 14,352 gallons used. The average weekly usage in August 2019 was therefore approximately 3,588 gallons.

For most months out of the year, an 8,000 gallon midgrade tank will require deliveries every other week at the City’s current usage rate. An 8,000 gallon tank also provides capacity for future City growth requiring weekly deliveries, as the City’s average weekly demand starts to approach the peak weekly demand.

2.2.2 Clear Diesel Storage Tank

The City’s vehicle fleet currently uses clear diesel, although Nevada statutes allow for dyed diesel use by state and local government highway vehicles. It should be noted that a portion of the City’s vehicle fleet could make the switch to dyed diesel, if desired. This option is not considered in the financial savings analysis (as it is unclear the exact percentage of City vehicles able to make the switch), but the switch would increase the City’s project annual savings. A more detailed analysis of the City’s vehicle fleet would be required in order to specify the exact savings available with this option.

Per the data usage spreadsheets provided in Appendix B, the peak monthly clear diesel fuel usage was in February, with 12,167 gallons used. The average weekly usage in August 2019 was therefore approximately 3,042 gallons.

For most months out of the year, a 6,000 gallon clear diesel tank will require deliveries every other week at the City’s current usage rate and provide capacity for future City growth. Future growth would require weekly deliveries as the City’s average weekly demand starts to approach the peak weekly demand.

2.2.3 Dyed Diesel Storage Tank

The City anticipates using dyed diesel (non-taxed) for equipment and offroad (non-highway) vehicles. The current dyed diesel usage rate is fairly minimal, requiring at most a 500 gallon storage tank (with deliveries ranging from monthly to every other month, depending on usage). Per the data usage spreadsheets provided in Appendix B, the peak monthly dyed diesel fuel usage was in May 2015, with 1,254 gallons used. However, the monthly usage for dyed diesel varies widely due to the nature of its use. Because 550 gallons is a more typical tank size, a 550 gallon aboveground storage tank was considered for this fuel type.

2.2.4 DEF Storage

Diesel exhaust fluid is composed of approximately one-third urea and two-thirds deionized water, and is used to break down and remove certain emissions from the exhaust of diesel vehicles. As a result of its composition, DEF has the potential to freeze at lower temperatures, and will require power to the tank cabinet in order to provide the heat necessary to avoid freezing. At the usage rates typical for the City over the past five years, a standalone DEF dispenser w/ cabinet (typically ranging from 500 to 750 gallons of storage capacity) is shown on the site plan layout, which should easily meet City needs. Appendix B contains DEF usage totals, which demonstrate that 2019 was the only year that contained any DEF use. As DEF use becomes more common (and more mandatory per environmental regulations), the City can expect the usage to grow to more closely match the storage volume provided.

3.0 PRELIMINARY SITE LAYOUT

3.1 Conceptual Site Plan Layout

The preliminary site plan found in Appendix A details the proposed configuration of the tanks, dispensers, and other related components of the fuel station. The four dispenser islands will be located south of the fuel storage tanks, with underground fuel piping connecting the dispensers to the tanks. A single dispenser island is provided for midgrade dispensers, which yields two midgrade fueling positions. Two dispenser islands are provided for diesel dispensing. However, only two diesel fueling positions are associated with this configuration, as one dispenser will be designated a satellite or “slave” pump, which will allow vehicles with tanks on each side of the vehicle to fill each tank simultaneously.

The fourth dispenser is shown as an elongated dispenser island for DEF. In the case of the DEF dispenser, the tank cabinet is typically provided alongside the dispenser components, as DEF is non-hazardous and the DEF storage tank itself is not required to be stored with the other aboveground tanks (behind the pipe bollards for impact protection). “U-shaped” hoop bollards will be located on either end of the dispenser rows to provide impact protection of the dispenser islands.

Dimensions of the proposed asphalt are generally based on truck turning templates, ensuring that the largest anticipated vehicle can enter and exit the fuel station properly. In Appendix A, a truck turn exhibit is provided that shows a WB-62 vehicle (approximately matching the 65-foot overall length specified) making a turn in and out of the fuel station within the asphalt paving limits. The remainder of the unimproved area around the fuel station (generally to the east) will not be paved with this project.

No underground storm drain is proposed with this layout. Any storm water treatment (including in the event of a fuel spill) will be handled either onsite using absorbent kits or with storm water quality measures at an existing storm drain catch basin to the east of the site.

The site layout also includes a 26' wide by 56' long overhead canopy. The canopy will provide weather protection during fueling. The costs associated with the canopy construction are broken out separately in the project cost estimate, should the City ultimately decide to forgo a canopy.

4.0 PROJECT COST ESTIMATE

4.1 Cost Estimate Assumptions & Exclusions

The cost estimate for the fuel station construction contains several assumptions:

- An overhead canopy is included in the cost estimate, and the cost includes the canopy lighting. No other exterior lighting is accounted for, and if the canopy is removed from the estimate, additional lighting will need to be provided in the fueling area.
- Power and data, as coordinated previously with the City, is available within 100 feet of the project location. Additional trenching and electrical costs will be necessary otherwise.
- All costs have been obtained from vendors/suppliers/contractors familiar with work in the Carson City area. Construction prices are subject to change, but care has been taken to provide the City with a conservative estimate based on prevailing wage.
- This study's conclusions (and the cost estimate) assume that the fuel station electrical service will be connected to an electrical panel with a backup generator or will in some other manner be safeguarded against a power outage that would render the dispensers unusable. The cost of the backup generator for the fuel station is omitted from the estimate total.
- Storm drain and waterline improvements are also excluded as they are not anticipated to be necessary with the proposed site configuration. Aesthetic/architectural additions to the overhead canopy (such as column cladding) are also excluded.
- The preliminary cost estimate is provided at the City's request and as an opinion of probable quantities and costs, is provided as a guide only. Since AWA has no control over the cost of labor and materials or over competitive bidding and market conditions, AWA does not guarantee that the preliminary cost estimate will not vary from contractor bids or actual costs associated with this project.

4.2 Cost Estimate Summary

The cost estimate (provided in Appendix C) breaks out the anticipated costs into four main categories (civil, electrical, fueling and dispensing, and canopy). Projected labor and installation costs are both included in the unit costs listed. Design fees and testing/inspection costs, and a 10% contingency were included prior to providing a total design and construction estimate of \$736,436.80.

5.0 CFN USAGE & ANNUAL SAVINGS ANALYSIS

5.1 CFN Site Usage Data & Assumptions

For this study, the City produced complete fuel consumption and pricing data for the month of January 2020. This data (separate from the fuel usage data discussed in Section 2.0) lists price paid for each instance of refueling. Based on the noticeable price difference between retail pricing and CFN site pricing, CFN site use was determined as a percentage of overall City vehicle fuel consumption. An average CFN price along with an average retail price was calculated for each fuel product (specific to the January 2020 timeframe). A summary of this data (and associated calculations) can be found in Appendix D.

The City's existing CFN site usage was calculated to be approximately 67.5% for unleaded fuel, which was also taken as the City's CFN site usage for midgrade fuel for purposes of this study. This means that approximately 67.5% of the City's unleaded fuel consumption by volume occurred at CFN sites, with the remaining volume obtained from retail gas stations. For diesel, the average CFN site usage was calculated to be approximately 82.0% for the entire month.

The average price difference in January 2020 from retail unleaded to CFN site unleaded was estimated to be \$0.47/gal. The price difference for clear diesel was also estimated to be \$0.47/gal, although diesel prices were generally \$0.25/gal cheaper on average than unleaded prices. Per coordination with the City, the projected savings associated with the proposed fuel station will be based on the assumption that CFN site usage will be 100% (for both unleaded/midgrade and diesel) once the fuel station is finished and operational.

5.2 Projected Annual Savings

It is important to note that the difference between retail pricing and CFN site pricing will remain relatively stable (increases in the OPIS price straight from a distributor generally lead to a 1:1 increase in the retail price). This means that the approximate \$0.47/gal gap between CFN and retail pricing can safely be used to estimate future savings with a change in the City's CFN site usage.

The calculations provided in Appendix D demonstrate that the City, with full CFN site participation, could expect just over \$31,800 in annual savings. While this annual savings number is less than 4.5% of the projected total one-time design and construction costs, the annual savings will grow as the City's total fuel consumption increases.

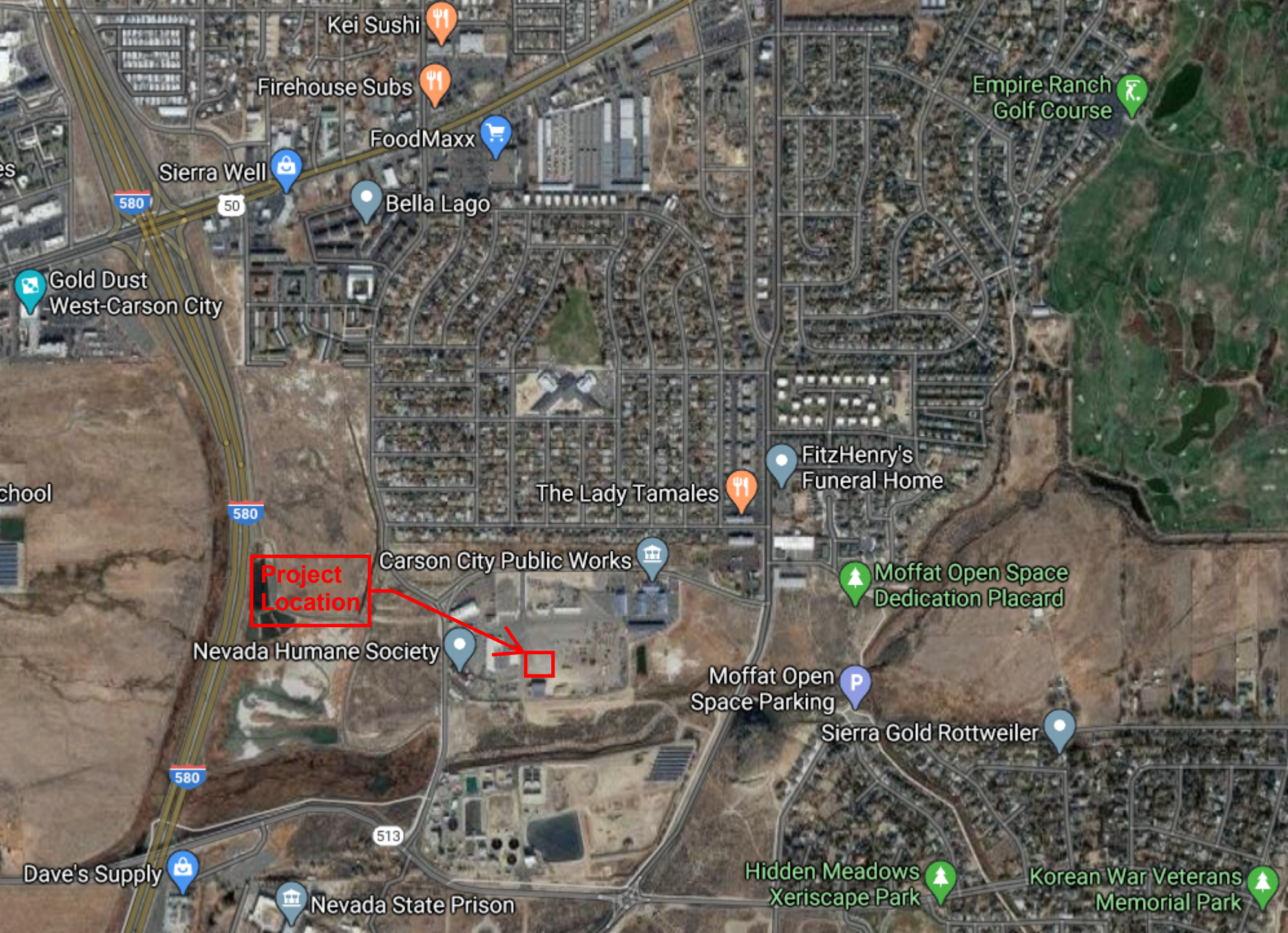
6.0 CONCLUSIONS

The proposed CCPW fuel station would provide City vehicles with another CFN fueling site option in the Carson City area, increasing the percentage of the City-wide fleet purchasing discounted fuel. The project would have several non-monetary benefits, such as emergency fuel storage and convenience of use for City employees leaving or returning from the City Public Works yard for the day. To this end, the fuel storage tanks were sized to provide adequate emergency fuel storage (assuming weekly fuel deliveries), and the fuel station layout is designed to maximize ease of use.

APPENDIX A

SITE MAPS & EXHIBITS

SITE VICINITY MAP



Kei Sushi

Firehouse Subs

FoodMaxx

Sierra Well

Bella Lago

Empire Ranch
Golf Course

Gold Dust
West-Carson City

The Lady Tamales

FitzHenry's
Funeral Home

**Project
Location**

Carson City Public Works

Moffat Open Space
Dedication Placard

Nevada Humane Society

Moffat Open
Space Parking

Sierra Gold Rottweiler

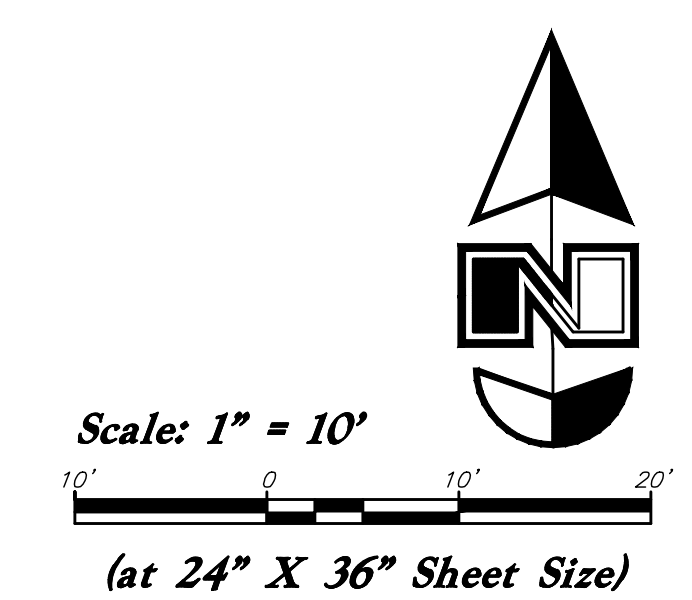
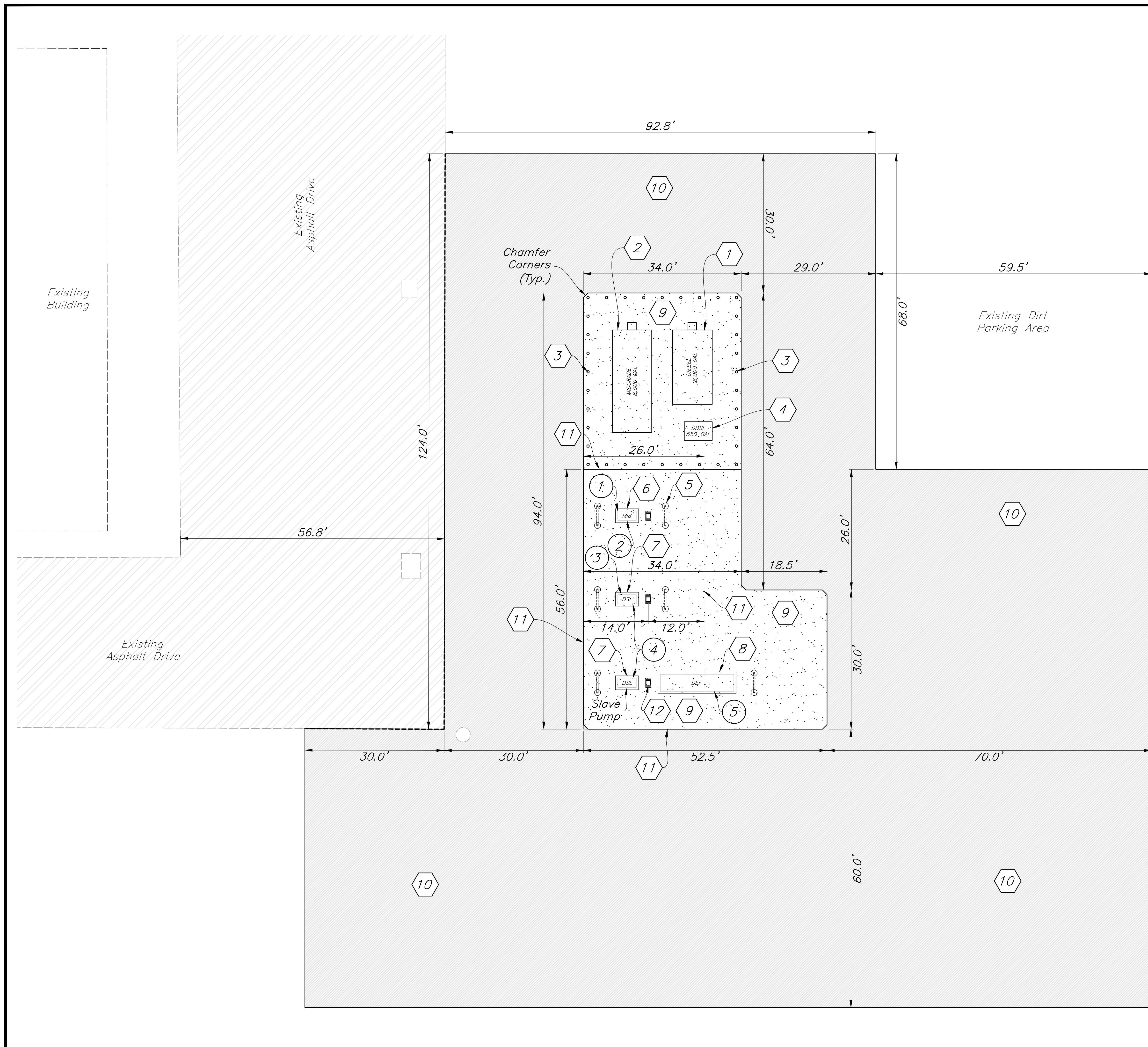
Dave's Supply

Nevada State Prison

Hidden Meadows
Xeriscape Park

Korean War Veterans
Memorial Park

PRELIMINARY SITE LAYOUT



Site Construction Keynotes:

- 1 Proposed 6,000 Gallon Ultra Diesel Storage Tank
- 2 Proposed 8,000 Gallon UL-2085 Midgrade Storage Tank
- 3 6" Diameter Steel Bollard (Typ.)
- 4 Proposed 550 Gallon Ultra Dyed Diesel Storage Tank
- 5 Hoop Bollard (Typ.)
- 6 Midgrade Dispenser Island
- 7 Diesel Dispenser Island
- 8 Proposed 1,000 Gallon DEF Storage Tank and Dispenser Island
- 9 Proposed Concrete Paving
- 10 Proposed Asphalt Paving
- 11 Proposed Overhead Canopy (26'x56')
- 12 Canopy Column (Typ.)

Site Fueling Keynotes:

- 1 Midgrade Fueling Position
- 2 Midgrade Fueling Position
- 3 Diesel Fueling Position
- 4 Diesel (w/ Slave Pump) Fueling Position
- 5 DEF Fueling Position

REV	DATE	DESCRIPTION

Designed by: JC
 Drafted by: JW
 Client Name: CCPW
 20-006CSP

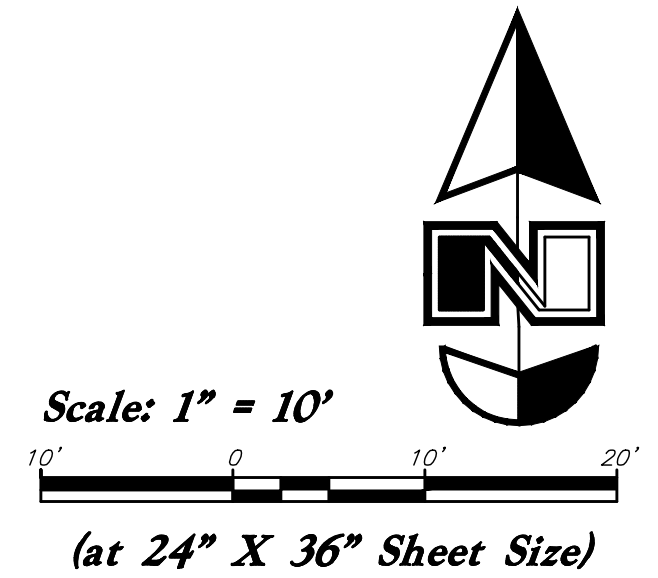
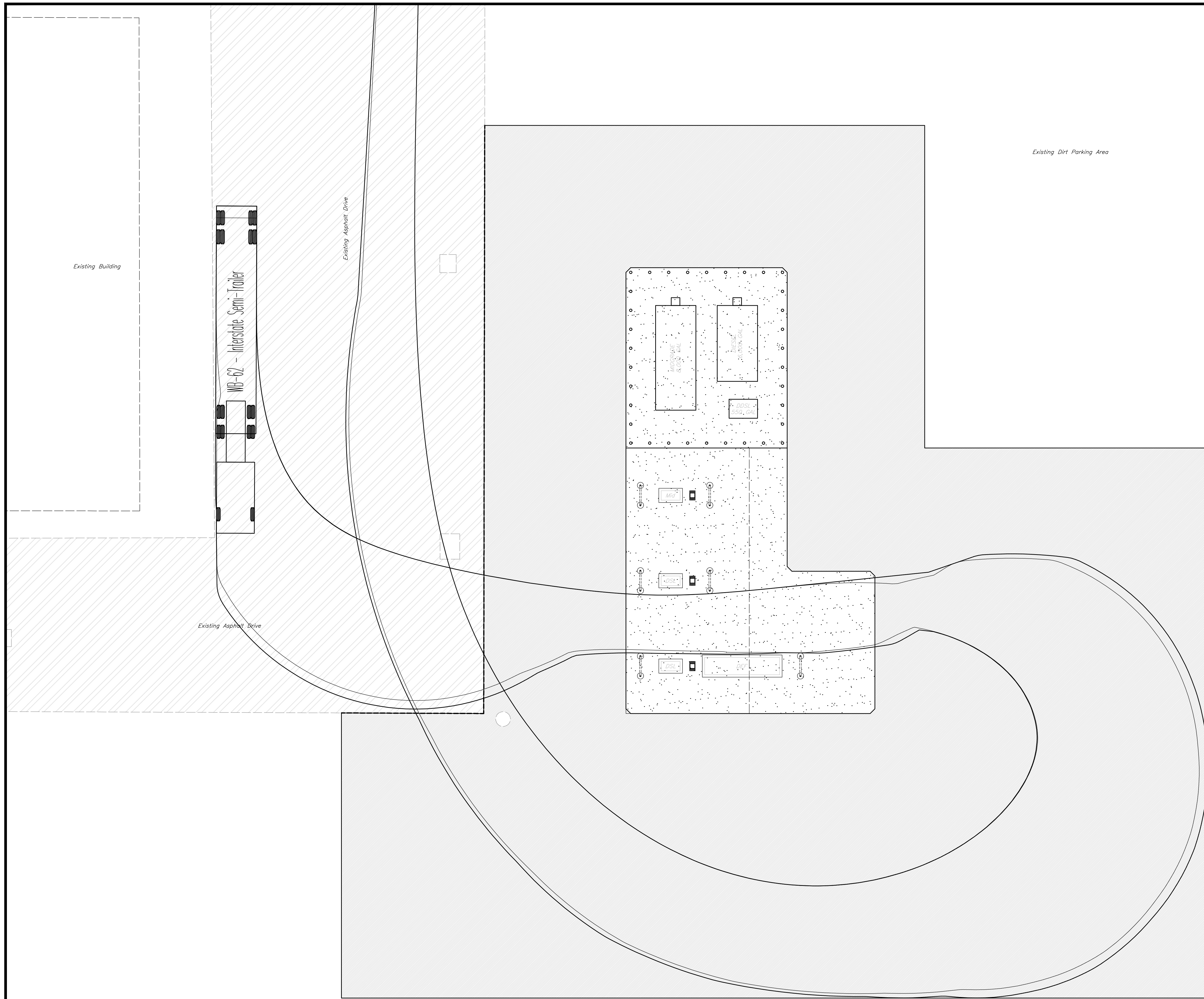
ANDERSON WAHLEN & ASSOCIATES
 2010 North Riverside Road, Salt Lake City, Utah 84116
 (801) 521-8529 - awaengineering.net

Preliminary Site Plan

Carson City Public Works Fuel Station
 3501 Bufti Way
 Carson City, Nevada

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TRUCK TURN TEMPLATE



REV	DATE	DESCRIPTION

Designed by: JC
 Drafted by: JW
 Client Name: CCPW
 20-006CSP

ANDERSON WAHLEN & ASSOCIATES
 2010 North Rockwood Road, Salt Lake City, Utah 84116
 (801) 521-8529 - awengineering.net

Preliminary Site Plan
Carson City Public Works Fuel Station
 3501 Bufti Way
 Carson City, Nevada

21 Feb, 2020

SHEET NO.
EX

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APPENDIX B

CITY FUEL USAGE DATA

MONTHLY PEAK FUEL USAGE SUMMARY



Carson City Public Works Fuel Usage Data

Company: Anderson Wahlen & Associates

By: Adam Dalton

Date: 2020/02/21

Project Name: Carson City Public Works Feasibility Study

Description: Fuel Usage In Gallons By Year And Fuel Type

File Name: CCPW Midgrade 5 Year Fuel Usage Data

Fuel Type By Year: Midgrade

All Values in Gallons

2019

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
MID 10%E	104.5	29.9	54.7	28.8	34.9	10.9	90.4	40.7	55.7	120.4	173.8	93.3	838.2
PRE 10%E	86.6	90.5	109.8	213.5	218.3	232.0	232.2	219.1	146.8	181.8	119.5	84.4	1934.4
UNL 10%E	13204.8	11850.6	11500.6	12651.5	12468.3	12369.9	12926.3	14092.9	11929.5	13415.7	11806.7	12011.7	150228.5
Grand Total	13395.9	11971.1	11665.1	12893.7	12721.5	12612.8	13248.9	14352.6	12132.0	13718.0	12100.1	12189.4	153001.1
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2018

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
MID 10%E					106.3	34.7							141.0
MID GRADE UNLEADED	106.2	96.5	109.4	145.8			51.9	98.9	104.1	118.9	125.9	134.2	1091.7
MIDGRADE		14.9		168.0			62.3	50.3	100.2	53.2	20.4	44.4	513.6
PRE 10%E					287.8	273.8							561.6
PREMIUM	16.1	37.8	29.3	30.1			29.8	104.4	39.6	10.1	5.1	21.7	324.0
PREMIUM UNLEADED	75.7	90.9	84.1	124.8			166.4	236.1	211.9	209.0	86.8	78.9	1364.4
REG PREMIUM							12.5	7.3	36.0				55.8
REG UNL (5.7% Ethanol)	7732.4	6907.3	8254.1	7815.2			8080.8	9065.1	7076.0	8480.4	7951.5	7414.3	78777.0
REGULAR UNLEADED	4324.2	4408.5	4442.2	3707.2		11.8	4029.8	4178.2	3030.2	4044.6	3440.3	4053.2	39670.1
UNL 10%E					12690.2	13001.4							25691.5
Grand Total	12254.4	11555.8	12919.1	11991.1	13084.3	13321.7	12433.3	13740.2	10598.0	12916.2	11629.9	11746.6	148190.7
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2017

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
MID GRADE UNLEADED	30.7		11.0	42.3	63.8	100.0	37.8				39.1	10.5	335.2
MIDGRADE	12.8	10.4	168.4	126.8	34.7	9.2	226.6	79.5	41.0	30.6	24.5	21.2	785.9
PREMIUM	199.2	258.1	126.9	92.8	31.6	85.3	88.6	50.6	51.6	24.4	39.2	261.3	1309.5
PREMIUM UNLEADED	96.3	141.1	211.4	133.1	188.3	136.4	133.0	196.7	210.4	158.2	132.1	65.8	1802.8
REG PREMIUM			12.6					9.7	43.2				65.5
REG UNL (5.7% Ethanol)	6739.5	6114.6	5958.2	5307.4	6676.1	6258.2	6828.4	7635.4	6549.1	5936.5	5766.1	5834.3	75603.5
REGULAR UNLEADED	3189.5	2951.7	3276.9	2910.8	2827.0	2810.5	3089.0	3482.0	2988.3	2990.4	2707.4	2904.0	36127.6
Grand Total	10267.9	9475.9	9765.4	8613.2	9821.6	9399.7	10403.3	11453.9	9883.6	9140.0	8708.4	9096.9	116029.9
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2016

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
MID GRADE UNLEADED	7.5	8.2	71.0	27.9	8.2	85.0	39.2	55.7	57.7	8.7			369.1
MIDGRADE	13.7	39.4	164.4	98.1	290.5	295.7	15.1	11.6	60.5	8.6		8.1	1005.7
PREMIUM	8.0	1.8	47.4	74.9	67.4	90.8	27.4	23.0	20.3	40.1	20.3	18.0	439.3
PREMIUM UNLEADED	70.6	152.7	182.1	126.9	177.4	248.4	131.4	144.1	132.6	168.4	41.3	23.8	1599.8
REG PREMIUM							19.7		6.7				26.4
REG UNL (5.7% Ethanol)	7479.5	7166.4	7888.7	7782.4	7614.9	8841.5	9103.0	8586.6	8038.3	8263.4	7184.0	7729.0	95677.7
REGULAR UNLEADED	3410.2	3184.1	3304.7	3417.2	3733.6	3899.5	3953.2	3795.0	3866.5	3347.2	3304.6	3692.9	42908.9
Grand Total	10989.6	10552.5	11658.3	11527.4	11892.1	13461.0	13289.1	12615.9	12182.7	11836.3	10550.2	11471.7	142026.8
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2015

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
MID GRADE UNLEADED	16.4	63.9	3.4			11.0		31.4	10.1		10.4	55.1	201.6
MIDGRADE	32.3	52.8		12.3	12.4	28.8	4.8	7.9			17.3	8.7	177.3
PREMIUM	44.8	41.7	77.4	20.1	38.3	17.4	115.6	87.4	87.2	66.5	54.9	62.0	713.2
PREMIUM UNLEADED	41.4	49.0	93.6	108.9	101.8	92.7	122.0	92.1	75.3	147.8	104.5	20.6	1049.7
REG MID									4.2				4.2
REG PREMIUM							13.4	12.8	4.2				30.4
REG UNL (5.7% Ethanol)	6937.8	6522.0	7444.4	7363.3	7159.8	8716.4	9558.3	8350.5	8523.7	8359.2	6239.3	7381.3	92556.1
REGULAR UNLEADED	3462.3	3256.1	3754.1	3412.3	3520.1	3836.7	3609.2	3527.0	3294.7	3108.0	3019.4	3322.1	41122.0
Grand Total	10535.0	9985.4	11372.9	10916.9	10832.4	12703.0	13423.2	12109.2	11999.4	11681.5	9445.8	10849.8	135854.6
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total



Carson City Public Works Fuel Usage Data

Company: Anderson Wahlen & Associates
By: Adam Dalton
Date: 2020/02/21

Project Name: Carson City Public Works Feasibility Study
Description: Fuel Usage In Gallons By Year And Fuel Type
File Name: CCPW Clear Diesel 5 Year Fuel Usage Data

Fuel Type By Year: Clear Diesel

All Values in Gallons

2019

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
DSL #2 C				74.1			19.8						93.9
ULSD #2	9282.6	12167.1	8126.7	8940.4	8956.7	9271.9	10017.3	10840.1	8573.4	9382.9	8067.3	8514.9	112141.4
Grand Total	9282.6	12167.1	8126.7	9014.6	8956.7	9271.9	10037.1	10840.1	8573.4	9382.9	8067.3	8514.9	112235.3
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2018

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
DDSL #2					52.6	394.5							447.1
DSL #2 C					24.4								24.4
ULSD #2					8858.1	9858.8							18716.8
ULTRA LO-DIESEL	7661.8	7602.7	10273.4	8151.5			8937.5	10710.4	8061.6	9704.0	8370.6	7174.8	86648.3
Grand Total	7661.8	7602.7	10273.4	8151.5	8935.0	10253.3	8937.5	10710.4	8061.6	9704.0	8370.6	7174.8	105836.6
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2017

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
CARB DIESEL			28.1	24.0			64.8	15.7					132.6
TX EXM CARB DSL									20.4				20.4
ULTRA LO-DIESEL	11454.9	7193.3	8732.0	6296.5	7144.5	7124.8	8454.1	10224.3	8336.8	9181.0	7601.9	7263.6	99007.6
Grand Total	11454.9	7193.3	8760.0	6320.6	7144.5	7124.8	8518.8	10240.0	8357.1	9181.0	7601.9	7263.6	99160.5
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2016

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
CARB DIESEL								42.1					42.1
ULTRA LO-DIESEL	9076.2	8880.0	9886.0	8896.5	8825.3	10038.7	10586.5	10602.6	9166.3	9300.3	9420.7	10486.1	115165.3
Grand Total	9076.2	8880.0	9886.0	8896.5	8825.3	10038.7	10586.5	10644.7	9166.3	9300.3	9420.7	10486.1	115207.4
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2015

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
CARB DIESEL					30.2	47.7		95.7	26.8				200.3
ULTRA LO-DIESEL	8378.0	8154.5	8953.8	9914.9	8831.0	10101.1	10703.7	11440.9	10465.9	9571.8	8245.3	8847.7	113608.6
Grand Total	8378.0	8154.5	8953.8	9914.9	8861.2	10148.8	10703.7	11536.6	10492.7	9571.8	8245.3	8847.7	113808.9
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total



Carson City Public Works Fuel Usage Data

Company: Anderson Wahlen & Associates
 By: Adam Dalton
 Date: 2020/02/21

Project Name: Carson City Public Works Feasibility Study
 Description: Fuel Usage In Gallons By Year And Fuel Type
 File Name: CCPW Dyed Diesel 5 Year Fuel Usage Data

Fuel Type By Year: Dyed Diesel

All Values in Gallons

2019

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
DDSL #2	87.4	302.5	38.8	119.4	71.4	66.9	281.2	386.3	212.5	121.1	27.7	201.8	1917.1
Grand Total	87.4	302.5	38.8	119.4	71.4	66.9	281.2	386.3	212.5	121.1	27.7	201.8	1917.1
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2018

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
DDSL #2					52.6	394.5							447.1
ULTRA LS DYED DIESEL	97.6	124.4	191.8	35.4			202.6	163.6	274.6	55.4	216.0	87.5	1448.8
Grand Total	97.6	124.4	191.8	35.4	52.6	394.5	202.6	163.6	274.6	55.4	216.0	87.5	1895.9
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2017

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
ULTRA LS DYED DIESEL	109.0	175.8	330.5	154.0	59.3	43.1	261.7	104.4	367.2	138.2	53.1	82.5	1878.8
Grand Total	109.0	175.8	330.5	154.0	59.3	43.1	261.7	104.4	367.2	138.2	53.1	82.5	1878.8
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2016

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
ULTRA LS DYED DIESEL	198.1	121.1	209.8	178.0	169.6	119.2	100.0	151.4	81.2	74.1	242.0	42.8	1687.4
Grand Total	198.1	121.1	209.8	178.0	169.6	119.2	100.0	151.4	81.2	74.1	242.0	42.8	1687.4
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2015

Row Labels	Sum of Jan	Sum of Feb	Sum of Mar	Sum of Apr	Sum of May	Sum of Jun	Sum of Jul	Sum of Aug	Sum of Sep	Sum of Oct	Sum of Nov	Sum of Dec	Sum of Grand Total
ULTRA LS DYED DIESEL	233.7	897.4	361.9	107.3	1253.8	397.0	324.4	99.5	62.6	12.5	26.5	89.4	3865.9
Grand Total	233.7	897.4	361.9	107.3	1253.8	397.0	324.4	99.5	62.6	12.5	26.5	89.4	3865.9
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total



Carson City Public Works Fuel Usage Data

Company: Anderson Wahlen & Associates
By: Adam Dalton
Date: 2020/02/21

Project Name: Carson City Public Works Feasibility Study
Description: Fuel Usage In Gallons By Year And Fuel Type
File Name: CCPW DEF 5 Year Fuel Usage Data

Fuel Type By Year: DEF

2019

Row Labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total	
DEF BULK		0.8	9.4	9.4	11.6	11.7	9.9		3.0		4.3	5.8	7.9	73.7
Totals (Gal)	0.8	9.4	9.4	11.6	11.7	9.9	0.0	3.0	0.0	4.3	5.8	7.9	73.7	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total	

2018

Row Labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
DEF-Bulk													
Totals (Gal)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2017

Row Labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
DEF-Bulk													
Totals (Gal)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2016

Row Labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
DEF-Bulk													
Totals (Gal)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total

2015

Row Labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total	
DEF-Bulk													0.0	0.0
Totals (Gal)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total	

JANUARY 2020 FUEL USAGE & COST DATA



Page 43
 Invoice: 102237
 Account Number: 18098
 Date: 01/15/20

TOTALS BY VEHICLE	PRICE	QUANTITY	FET	SET	MET	SST	AMOUNT
6431 6431	154.51	66.790	0.00	0.00	0.71	0.00	155.22
6432 6432	313.45	136.500	0.00	0.00	1.44	0.00	314.89
6600 6600	63.15	29.548	0.00	6.80	3.28	0.00	73.23
6603 6603	176.75	74.396	0.00	0.00	0.80	0.00	177.55
6604 6604	308.31	132.567	0.00	0.00	1.42	0.00	309.73
6608 6608	41.55	19.107	0.00	4.39	2.12	0.00	48.06
6618 6618	56.57	24.150	0.00	0.00	0.26	0.00	56.83
6619 6619	113.12	48.418	0.00	0.00	0.51	0.00	113.63
6622 6622	153.01	64.940	0.00	0.00	0.70	0.00	153.71
6624 6624	83.40	35.550	0.00	0.00	0.37	0.00	83.77
7012 7012	119.58	50.427	0.00	0.00	0.54	0.00	120.12
7013 7013	265.51	108.998	0.00	28.43	1.13	0.74	295.81
7014 7014	206.16	84.693	0.00	5.78	0.87	0.79	213.59
8117 8117	87.75	36.650	0.00	0.00	0.39	0.00	88.14
8303 8303	329.88	142.889	0.00	0.00	1.53	0.00	331.41
8307 8307	463.81	197.676	0.00	0.00	2.13	0.00	465.94
8403 8403	186.87	79.690	0.00	0.00	0.88	0.00	187.75
8409 8409	247.94	103.126	0.00	0.00	1.09	0.00	249.03
8411 8411	56.41	23.079	0.00	0.00	0.24	0.00	56.65
9027 9027	14.32	6.640	0.00	1.53	0.73	0.00	16.58
9205 9205	76.68	35.808	0.00	8.23	3.98	0.00	88.89
9206 9206	171.74	72.770	0.00	6.12	1.58	0.00	179.44
9213 9213	204.70	83.950	0.00	0.00	0.89	0.00	205.59
9220 9220	74.41	32.533	0.00	0.00	0.34	0.00	74.75
23,295.71	9,980.173	0.00	1,519.73	728.08	3.90	25,547.41	

SUMMARY BY STATE BY FUEL PRODUCT	QUANTITY	FET	SET	MET	SST	AMOUNT
NV Nevada						
34 UNL 10%E	5,964.867	0.00	1,371.90	678.66	0.00	15,821.31
36 PRE 10%E	68.138	0.00	15.67	7.49	0.00	217.58
38 DDSL #2	10.500	0.00	0.00	0.11	0.00	25.76
53 ULSD #2	3,917.105	0.00	132.16	41.82	0.00	9,426.86
59 DEF BULK	19.563	0.00	0.00	0.00	3.90	55.90
	9,980.173	0.00	1,519.73	728.08	3.90	25,547.41

SITE LEGEND

Site	Name	Address	City	State
201	CARSON CITY - NV	1700 N.CARSON ST	CARSON CITY	NV

Disputed charges must be identified by the customer within 30 days of the invoice date.
 After 30 days, all charges are considered valid.



Page **48**
 Invoice: **104718**
 Account Number: **18098**
 Date: **01/31/20**

SUMMARY BY STATE BY FUEL PRODUCT	QUANTITY	FET	SET	MET	SST	AMOUNT
CA California						
34 UNL 10%E	23.204	0.00	11.09	0.07	2.52	81.81
	23.204	0.00	11.09	0.07	2.52	81.81
NV Nevada						
34 UNL 10%E	6,334.145	0.00	1,456.87	712.49	0.00	16,647.42
36 PRE 10%E	93.714	0.00	21.54	10.37	0.00	293.52
53 ULSD #2	4,953.463	0.00	168.56	52.79	0.00	11,062.59
59 DEF BULK	12.160	0.00	0.00	0.00	1.85	33.45
	11,393.482	0.00	1,646.97	775.65	1.85	28,036.98

SITE LEGEND

Site	Name	Address	City	State
201	CARSON CITY - NV	1700 N.CARSON ST	CARSON CITY	NV
232	CARSON CITY - NV	5907 US HWY 50 EAST	CARSON CITY	NV
710	MINDEN - NV	1571 HWY 395	MINDEN	NV
1162	CARSON CITY - NV	1462 S. CARSON ST.	CARSON CITY	NV
1482	CARSON CITY - NV	4551 GONI ROAD	CARSON CITY	NV
5485	8731-PTLCRSNCITY MTRPOOL	750 E KING ST	CARSON CITY	NV
5522	SPARKS - NV	2095 BRIERLY WAY	SPARKS	NV
6975	CARSON CITY, NV	4551 GONI RD	CARSON CITY	NV
27484	MAVERIK STORE #412	245 RIVERBOAT RD	DAYTON	NV
32370	MAVERIK STORE 560	3922 HWY 50 EAST	CARSON CITY	NV
43683	ARCO NOW 340695	4340 N CARSON ST	CARSON CITY	NV
135288	JERRYS SERVICE	880 FRONT ST	CALIENTE	NV
243019	CARSON CI NV	1451 COLLEGE PKWY	CARSON CITY	NV
249537	NEW BKM CORP	1102 N CARSON ST	CARSON CITY	NV
252045	GUSTINE, CA	12801 STATE HIGHWAY 33	GUSTINE	CA
252128	TERRIBLE HERBST	4640 SOUTH CARSON ST	CARSON CITY	NV
252296	JFS #139	1615 E FIFTH ST	CARSON CITY	NV
256094	JACKSONS FOOD ST	1400 RAND AVE	CARSON CITY	NV
256951	TONOPAHO-NV	1206 US HWY 95	TONOPAHO	NV
263479	SOUTH LAKE TAHOE, CA	2986 US HIGHWAY 50	SOUTH LAKE TAHOE	CA

INVOICE TOTALS

QUANTITY: 11,416.686

AMOUNT DUE: \$ 28,118.79

Disputed charges must be identified by the customer within 30 days of the invoice date.
 After 30 days, all charges are considered valid.

APPENDIX C

PRELIMINARY COST ESTIMATE



CCPW Fuel Station Engineer's Preliminary Cost Estimate

Company: Anderson Wahlen & Associates
By: James Copeland
Date: 2020/03/02

Project Name: Carson City Public Works Fuel Station
Description: Fuel Station Preliminary Cost Estimate

Item	Description	Quantity	Unit	Price	Amount
Civil					
1	Concrete Dispenser Islands	4	EA	\$2,000.00	\$8,000.00
2	Concrete Slab 6" Thick w/ #4 Bar @ 18" o.c.	3,750	SF	\$8.00	\$30,000.00
3	Signs, Fire Extinguisher, Trash Bins, Spill Kits, etc.	1	LS	\$1,500.00	\$1,500.00
4	Steel Pipe Bollard, Concrete Filled w/ Footing & Paint	34	EA	\$500.00	\$17,000.00
5	Hoop Bollards at Dispenser Islands	6	EA	\$1,200.00	\$7,200.00
6	Asphalt Pavement	22,100	SF	\$3.00	\$66,300.00
Subtotal					\$130,000.00

Electrical					
1	Provide and Install of All Electrical (Includes All Conduit, Boxes, and Conductors, Fuel Panel, E-Stop and Overfill Alarm, 100' of Conduit and Trenching for Power and Data)	1	LS	\$85,749.00	\$85,749.00
Subtotal					\$85,749.00

Fueling & Dispensing					
1	8000 Gallon UL-2085 Aboveground Tank - MID	1	EA	\$28,750.00	\$28,750.00
2	6000 Gallon Ultra Storage Tank - DSL	1	EA	\$24,550.00	\$24,550.00
3	1000 Gallon Ultra Storage Tank for DEF, Heated w/ All Fittings for Dispenser, Hoses and Nozzles Complete	1	EA	\$45,455.00	\$45,455.00
4	550 Gallon Ultra Storage Tank - Dyed Offroad DSL	1	EA	\$7,500.00	\$7,500.00
5	Crane to Set Tanks	1	LS	\$4,500.00	\$4,500.00
6	Tank Top Hardware	1	LS	\$14,565.00	\$14,565.00
7	Dispenser Island Equipment (3 Single Product Disp.) w/ All Hanging Hardware	1	LS	\$28,043.00	\$28,043.00
8	Underground Pipe, Fittings and Dispenser Sumps OPW Doublewall Flex Pipe	1	LS	\$23,390.00	\$23,390.00
9	Veeder-Root TLS 450 Leak Detection System w/ All Sensors and Probes for 3 Tanks	1	LS	\$33,936.00	\$33,936.00
10	Misc. Steel 2", 3", and 4" Pipe and Fittings	1	LS	\$6,500.00	\$6,500.00
11	Installation and Labor	1	LS	\$51,500.00	\$51,500.00
12	Petro-Vend Card System Complete w/ Software	1	LS	\$50,950.00	\$50,950.00
13	Startup of Dispensers	1	LS	\$7,600.00	\$7,600.00
14	Inspections and Testing - Tanks & Fueling	1	LS	\$5,000.00	\$5,000.00
15	FOB Jobsite (Tanks and All Hardware)	1	LS	\$8,500.00	\$8,500.00
Subtotal					\$340,739.00

Canopy					
1	26'x56' Fueling Canopy. Includes Engineering, Lighting (2 Lights per Fueling Lane), Canopy Fascia, Fabrication, Installation, etc.	1	LS	\$49,500.00	\$49,500.00
2	Canopy Footings	3	EA	\$2,500.00	\$7,500.00
Subtotal					\$57,000.00

Subtotal	\$613,488.00
Civil, Electrical, & Fueling Design/Engineering (Includes Permitting & Construction Administration)	\$41,000.00
Testing & Inspections (Non-Tanks)	\$15,000.00
Subtotal	\$669,488.00
10% Contingency	\$66,948.80
Grand Total	\$736,436.80

APPENDIX D

ANNUAL COST SAVINGS PROJECTION



ANDERSON WAHLEN & ASSOCIATES

2010 North Redwood Road, Salt Lake City, Utah 84116
801 521-8529 - AWEngineering.net

Carson City Public Works - Fuel Center Cost Savings Calculations

Company: Anderson Wahlen & Associates

By: James Copeland

Date: 2020/02/13

Project Name: Carson City Public Works Fuel Center

Description: Annual CFN Savings Projection

File Name: CCPW Fuel Center Yearly Savings Calculations

	Input Variables					Yearly Cost by Alternative		Projected Savings
	X% CFN Site Usage	100% CFN Site Usage	Average Retail Price (\$/gal)	Average CFN Price (\$/gal)	Average Monthly Fuel Usage (gal)	Alternative 1 100% CFN Site Usage	Alternative 2 Current CFN Site Usage	Annual Savings
Unleaded	67.5%	100.0%	\$2.96	\$2.49	12460	\$372,304.80	\$395,143.98	\$22,839.18
Diesel	82.0%	100.0%	\$2.71	\$2.24	8871	\$238,441.73	\$247,447.16	\$9,005.43
Totals					21331	\$610,746.53	\$642,591.14	\$31,844.61