

AIRPORT FUEL FARM DESIGN

Washington Group International

Integrated Engineering, Construction, and Management Solutions

BRUCE D. NIPP, P.E.

Director of Transportation
Infrastructure

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SAMUEL LUNDGREN

Project Manager
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Washington Group International, Inc.

John H. Bagnall, P.E.
Senior Mechanical Engineer
Fuel Systems Specialist

9400 Ward Parkway
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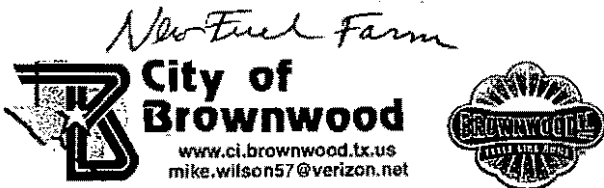
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www.ci.brownwood.tx.us
mike.wilson57@verizon.net

MIKE WILSON
Airport Manager

Brownwood Regional Airport
P.O. Box 1389
Hwy 183 N
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Phone: (325) 643-1482
Home: (325) 646-7088
Fax: (325) 643-3162

Enel Farm Design Review

8-16-04

NAME	ORG	PHONE
MARK ACEVEDO	TOA	972-450-2848
Jim Pierce	TOA	972-450-2879
LISA A. Pyles	Addison Airport	972-392-4855
Luis E. ELQUIZABAL	Addison Airport	972-392-4861
BILL DYER	AA	972-392-4856
Miguel Otero-Jimenez	WGI	972-385-1635 x205
BRUCE D. NIPP	WGI	972-385-1635 x208
Darci Neuzil	Addison Airport	972-392-4854
JOHN BAGWELL	BURKE McDONNELL	816-822-3524
SAM LUNDGREN	WGI	303-843-3596

HP LaserJet 3200se

HP LASERJET 3200

JUL-29-2004 12:58PM



Fax Call Report

Job	Date	Time	Type	Identification	Duration	Pages	Result
348	7/29/2004	12:57:35PM	Send	913038433133	0:49	3	OK

TOWN OF
ADDISON

PUBLIC WORKS

To: Sam Lundgren

From: Jim Pierce, P.E.
Asst. Public Wks. Dir.
Phone: 972/450-2879
FAX: 972/450-2837
jpierce@ci.addison.tx.us

Company: Washington

FAX #: 303-843-3133

Date: 7-29-04

16801 Westgrove
P.O. Box 9010
Addison, TX 75001-9010

of pages (including cover): 3

Re: Fuel Farm

Original in mail Per your request FYI Call me

Comments:

my "Bad Boy" list so far:

I consider the drawings sent
about 35% complete, not 60%

Jim

Airport Fuel Farm Plans Review

7-27-04

Need: Complete fence, gate layout
Area lighting

Structural drawings on reinf. concrete
Profile thru separator into storm drain

Roadway paving cross sections & details

Electric power supply plan

Water system details - meter, double check

Telephone SVC plan

Contractors lay down area

Demolition plan

Landscaping and irrigation design

Dummy sawed joints layout plan

Detail utilities that need to be relocated
prior to construction.

Traffic control plan

Genl note on dust control

Piping materials, supports, bracing, thrust blocks.

Anchor bolts

Location of electric service / load required

Electrical equipment suitable for the
environment its in

Convenience electrical outlets provided?

Tank Signage

Do we want a construction Notification sign

Site drainage plan

Show bench marks

Project stake-out / horizontal control plan

ADA ramps

7-27-04

Specs:

Complete description of system
operation

System Start-up ^{Testing} Training

Tank Point System

Spare Parts

O&M manuals

Survey control points

Bulk Fuel Storage and Dispensing System, Addison Airport
The “Bad Boy” list as of 7-26-04:

#	Item	Action	Who
1.	Need Airport Reference Point shown on all layout drawings		Miguel
2.	Need Phone # & Contact with Electrical Utility		Miguel
3.	Add primary power drop into plans		Sam
4.	Need Contact Info for Phone Co (Intercom & FD)		Sam
5.	Specs to Furnish & Install canopy/structure		Sam
6.	Catwalk layout and spec		Sam
7.	Elect Gate/Pin Pad/Intercom Spec		Sam
8.	Water line and tap location		Miguel
9.	Emergency Alarm to FD		Sam
10.	Storm Sewer tap & elevations		Miguel
11.	Mechanical/Electrical equipment listing		John B
12.	FAA 7460 write-up & submittal		Dave N.
13.	Coordination Letter with FAA ASW		Dave N
14.	Coordination with TXDOT & TRNCC		Sam
15.	Clean Specifications		Sam
16.	Secondary Containment section and details		Miguel
17.	Profiles on drainage and Oil Water Separator		Miguel
18.	Pavement Design & Sections		Miguel
19.	Review Existing USTs/sizes/status		Sam

The Post 95% Design Review list:

#	Item	Action	Who
1.	Traffic Control Plan		
2.	Storm Sewer Pollution Prevention Plan		
3.	Legal description of the site with facility map		



Washington Group International

Integrated Engineering, Construction, and Management Solutions

Infrastructure / Airport Services

7800 E. Union Avenue, Suite 100
Denver, Colorado 80237
PHONE: (303) 843-2000/FAX: (303) 843-3133

LETTER OF TRANSMITTAL

TO: Mr. Jim Pierce, P.E. Assistant Director of Public Works Town of Addison 16801 Westgrove Drive Addison, TX 75001-9010	DATE: Jul 23, 2004	JOB NO. 27514.000
	ATTENTION: Jim Pierce	
	RE: 60% Design Submittal Bulk Fuel Storage & Dispensing System	

- WE ARE SENDING YOU Attached Under separate cover via _____ the following items
- Shop Drawings Prints Documents Samples Specifications
 Copy of Letter Change Order Disks

COPIES	DATE	NO.	DESCRIPTION
4	7/23/04		60% Design Submittal
1	7/22/04		Draft Project Specifications

THESE ARE TRANSMITTED as checked below:

- For Approval Approved as Submitted Resubmit _____ Copies for Approval
 For Your Use Approved as Noted Submit _____ Copies for Distribution
 As Requested Returned for Corrections Return _____ Corrected Prints
 For Review and Comment For signatures
 For Bids Due _____ Prints Returned After Loan To Us

Remarks:

Jim

For your review and comment. I will start on the FAA 7460 and the CATEX concurrence letter to FAA on Monday, so that we will have responses at the 95% review.

Thanks again for your assistance.

Copy To: Lisa Pyles, Airport Manager

Signed: _____

Samuel G. Lundgren, P.E. Project Manager

If enclosures are not as noted, kindly notify us at once



letter of transmittal

to: City of Addison.
Department of Public Works
Addison, TX 75001
Attention: Jim Pierce, P.E.
Phone No. (972) 450-2879

Project no.: 27514.000
client project no.: _____
date: 7/23/04
Reference: Addison Airport
Addison Fuel
System Prelim

we are sending you: enclosed Under separate cover
via _____

item	no. copies	Date	Description
1	1	7/23/03	Full Size Set - Addison Airport Fuel System
			Preliminary Plans

transmitted as noted: for approval no exception taken
 for your use make revisions
 as requested revise and resubmit
 for review and comment _____

remarks: _____

Call Sam Lundgren (303) 843-3596 or me at (972) 385-1635 x 208 if you
have any questions.

copies to: Files/Sam Lundgren transmittal only
W:/Airport/Addison/Correspondence

Bruce D. Nipp
Office Manager



Washington Group International

Integrated Engineering, Construction, and Management Solutions

July 23, 2004

MEMORANDUM FOR: Mr. Jim Pierce, P.E., Assistant Public Works Director
Town of Addison
16801 Westgrove Drive
Addison, Texas 75001-9010

FROM: Samuel G. Lundgren, P.E. CO., Project Manager
Washington Group International, Inc.
7800 Union Avenue, Suite 100
Denver, CO 80237

SUBJECT: Updated Construction Estimate for the Bulk Fuel Storage and Dispensing System

Mr. Pierce:

Please accept this memorandum as an update on the estimated construction cost for the above listed project.

Updated Construction Estimate

Description: Bulk fuel storage and dispensing facility with 8- 25,000 gal horizontal Jet A storage tanks, 2-15,000 gal horizontal Jet A storage tanks, 4-15,000 gal horizontal LL AvGas storage tanks and one combo tank with Diesel and MoGas, connected to 6 dispensing units and off-load manifold. Project includes site work, secondary containment, oil/water separator, fire protection, overflow protection, weather protection canopy, electronic controls, meters and alarm systems. Fill stands are connected to the oil/water separator and electric controlled gates provide access control.

Site work, Pavement and Utilities	\$95,000.00	
Containment Structure and Pad	\$72,000.00	
Storage Tanks and Piping (@\$2.50/gal)	\$840,000.00	
Ballistics Rated Storage Tanks	\$136,500.00	
Fabric Canopy and Fire Rated Structure (\$24.00/sf)	\$322,608.00	
Controls and Equipment	\$265,000.00	
Landscape & Architectural Items	\$25,000.00	
Contingency (10%)	\$175,610.00	
Preliminary Construction Estimate Total	\$1,931,718.00	\$ 1,602,308
UST Removal, soil remediation & closure*	\$306,500.00	\$ 306,464
Adjusted Total for New System and UST Removal	\$2,238,218.00	\$ 1,908,722

7/28/03
Estimate
↓

* UST removal and engineering fees include planning and approval of UST removal and soil mitigation plan, land farming of contaminated soils and lab testing of samples.

An adjustment was made for the fabric canopy with a 2 hour fire rated structure and for the increased cost of steel for the fuel storage tanks.

Respectfully submitted,

Samuel G. Lundgren, P.E. CO.
Project Manager
Washington Group International, Inc.

Jim Pierce

From: Jim Pierce
Sent: Friday, July 02, 2004 9:06 AM
To: 'Samuel Lundgren'
Cc: Mark Acevedo; Lisa Pyles (E-mail)
Subject: RE: Fuel Farm Design

Sam: Looks good. Comments: #3.- How will the Oil/Water Separator drain into the storm sewer when it just contains clear water? I think it will be too low to drain by gravity and you may need a pump. Slope floors to a low point.

Jim Pierce, P.E.
Assistant Public Works Director
P.O. Box 9010
Addison, TX 75001-9010
972-450-2879

-----Original Message-----

From: Samuel Lundgren [mailto:samuel.lundgren@wgint.com]
Sent: Tuesday, June 29, 2004 5:24 PM
To: Jim Pierce
Subject: RE: Fuel Farm Design

Jim,

Happy Wednesday! Just to keep you up to speed, here are my comments to Miguel for the civil drawings. The large copy of the site plan shows two fire hydrants, one on the north side of Roscoe Turner lane at the entrance and one west of the pavement on the south side of the north driveway entrance. If there are any more in this area, I did not see them in the site plan information.

Anyway, I asked Miguel if he could shove the facility north a few feet and start on the civil design with the following comments.

1. The secondary containment wall should be 18" high and 8" wide. The interior curbs should be 6" high and 6" wide. Suggest a 1"=20' scale. Once you have your containment wall designed, we can show mounting of meters, controls, nozzle connections and hose cradles. The gas/diesel dispense unit is a standard type "gas pump"
2. I will get the location of the horizontal mount stationary tank saddles for your footing design, along with the weigh of the loaded tanks.
3. The Oil/Water separator should be 10,000 gal underground Kleerwater High Efficiency Oil/Water separator, with type I, double wall construction and coated with ACT-100U. It should have a high oil level shutoff valve on the inlet side. The off load and dispense pads should drain directly to the oil/water separator and each interior secondary containment area should have a manually operated normal close valve, near the edge, that can be opened if anything is in the containment area. Since we will get minimum rain into the secondary containment, the controlling factor for size is the off load stand with the over the road 8,000 gal tanker truck.
4. John and Mel will check on changing the distance between tanks from 5' to 4' even, which will save about 15' on secondary containment length and move the south end back a little. If you can move the facility about 25 or 30 feet north, assuming the roads still work, it will clear more of the south side for other development.
5. Please make the drive way in, to the electric control fence, 15' wide, and then widen it to 24' along the tanks. Only the section along the tanks should be concrete, all the rest of the pavements should be Asphalt.
6. On the south side, taper back to 15' and put the electric control gate into the existing fence along Roscoe Turner Lane. I assume we will show jersey barriers along the road all the way to the gate to control access by over the road tanker truck.
7. Please make the site plan match the attached conceptual plan, Alternative

"C" so that from Addison Road, we have an 8' masonry fence, with outriggers for barbed wire, then a 4' gravel space, then the 24' tanker truck depressed drive way, then curb and 4' sidewalk, the secondary containment, another 4' sidewalk and the 15' depressed refueler vehicle drive way.

8. I've asked Mel to rotate the electrical switch pad 90 degrees and place it next to the bollards so that it is out of the way for the refueler/airport vehicle pumps.

9. We need elevations and profiles of the secondary containment, pavements and oil/water to show drainage. Using the Kleerwater tank, I need access from the tanker truck side to pump out the oil water separator.

10. I will sketch out what I think would make sense for the fence line and send it to you as a pdf, so that you can draw or edit as necessary.

11. Please locate the power pole with the transformer so we can coordinate with the electric utility. It appears the drop to the switch pad will be about 50'

Thanks.

If you see any errors or problems, please call.

Respectfully,

Sam

-----Original Message-----

From: Jim Pierce [mailto:jpierce@ci.addison.tx.us]

Sent: Thursday, June 24, 2004 11:34 AM

To: Sam Lundgren (E-mail)

Cc: Lisa Pyles (E-mail); Mark Acevedo

Subject: Fuel Farm Design

Sam: The site plan that was submitted with the Engineer's Report did not have all of our comments incorporated in it. For example, the south end of the road does not have to be 24' wide. Also, the oil water separator is shown 8,000 gallons on the site plan and called out 10,000 gal in the report. The location of fire hydrants should be shown. I'm OK with the site plan as long as you include all of our comments.

According to the Flammable and Combustible Liquids Code, the minimum tank spacing should be 1/6 the sum of adjacent tank diameters but not less than 3 feet. Following that, with 10 foot diameter tanks, we would need 3.33 feet between tank shells, so 4 feet is good.

Jim Pierce, P.E.
Assistant Public Works Director
P.O. Box 9010
Addison, TX 75001-9010
972-450-2879

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Jim Pierce

From: Samuel Lundgren [samuel.lundgren@wgint.com]
Sent: Tuesday, June 29, 2004 5:24 PM
To: Jim Pierce
Subject: RE: Fuel Farm Design



Fence and road
sketch.pdf

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*Slope floor
to drains*

a lot

about 50'
Thanks.

If you see any errors or problems, please call.
Respectfully,

Sam

-----Original Message-----

From: Jim Pierce [mailto:jpierce@ci.addison.tx.us]
Sent: Thursday, June 24, 2004 11:34 AM
To: Sam Lundgren (E-mail)
Cc: Lisa Pyles (E-mail); Mark Acevedo
Subject: Fuel Farm Design

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Jim Pierce, P.E.
Assistant Public Works Director
P.O. Box 9010
Addison, TX 75001-9010
972-450-2879

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*How will
oil water separator
tank be emptied?*

Jim Pierce

From: Samuel Lundgren [samuel.lundgren@wgint.com]
Sent: Wednesday, June 16, 2004 4:33 PM
To: Jim Pierce
Cc: Lisa Pyles; Neil Rood; Mark Acevedo
Subject: RE: Fuel Farm Design

Jim,
Happy Wednesday!

Just to make sure we are good on the site plan, please verify that the site plan submitted with the Engineers' Report is acceptable and approved.

Also, could you verify with the Fire Department that our current plan showing 4 feet between tanks is OK, including the tanks with the intermediate dike wall. They could ask for 5 feet from the intermediate wall, which would substantially lengthen our facility. I don't believe this would add anything for safety purposes, just make the secondary containment and canopy much larger.

If the site is acceptable and approved, I should have 50% design documents ready in about two weeks, pending on the additional information on the fabric canopy.

Thanks,

Samuel Lundgren, P.E.
Program Manager
Washington Group International, Inc.
7800 E. Union Avenue, Suite 100
Denver, CO 80237
Phone (303) 843-3596, Fax (303) 843-3133, Cell (720) 530-7315

-----Original Message-----
From: Jim Pierce [mailto:jpierce@ci.addison.tx.us]
Sent: Wednesday, June 16, 2004 7:32 AM
To: Sam Lundgren (E-mail)
Subject: FW: Fuel Farm Design

FYI

Jim Pierce, P.E.
Assistant Public Works Director
P.O. Box 9010
Addison, TX 75001-9010
972-450-2879

> -----Original Message-----
> From: Mark Acevedo
> Sent: Tuesday, June 15, 2004 11:34 AM
> To: Jim Pierce; 'Lisa Pyles (E-mail)'
> Subject: RE: Fuel Farm Design
>
> Mr. Stern will be in.
>
> Mark
>
> Mark Acevedo
> Director of General Services
> 972-450-2848 Office

Table 4.3.2.1.5 Class IIIB Liquids

Tank Capacity (gal)	Minimum Distance (ft)	
	From Property Line that Is or Can Be Built Upon, Including the Opposite Side of a Public Way	From Nearest Side of Any Public Way or from Nearest Important Building on the Same Property
12,000 or less	5	5
12,001 to 30,000	10	5
30,001 to 50,000	10	10
50,001 to 100,000	15	10
100,001 or more	15	15

Note: For SI units, 1 ft = 0.3 m; 1 gal = 3.8 L.

4.3.2.1.6 Where two tank properties of diverse ownership have a common boundary, the authority having jurisdiction shall be permitted, with the written consent of the owners of the two properties, to substitute the distances provided in 4.3.2.2 for the minimum distances set forth in 4.3.2.1.

4.3.2.1.7 Where end failure of a horizontal pressure tank or vessel can expose property, the tank or vessel shall be placed with its longitudinal axis parallel to the nearest important exposure.

4.3.2.2 Shell-to-Shell Spacing Between Any Two Adjacent Aboveground Tanks.

4.3.2.2.1 Tanks storing Class I, Class II, or Class III stable liquids shall be separated by the distances given in Table 4.3.2.2.1.

Exception No. 1: Tanks storing crude petroleum that have individual capacities not exceeding 480 m³ (126,000 gal or 3000 bbl) and that are located at production facilities in isolated locations do not need to be separated by more than 0.9 m (3 ft).

Exception No. 2: Tanks used only for storing Class IIIB liquids need not be separated by more than 0.9 m (3 ft) provided they are not within the same diked areas, or within the drainage path of, a tank storing a Class I or Class II liquid.

Table 4.3.2.2.1 Minimum Tank Spacing (Shell-to-Shell)

Tank Diameter	Floating Roof Tanks	Fixed or Horizontal Tanks	
		Class I or II Liquids	Class IIIA Liquids
All tanks not over 45 m (150 ft) in diameter	$\frac{1}{2}$ x sum of adjacent tank diameters but not less than 0.9 m (3 ft)	$\frac{1}{2}$ x sum of adjacent tank diameters but not less than 0.9 m (3 ft)	$\frac{1}{2}$ x sum of adjacent tank diameters but not less than 0.9 m (3 ft)
Tanks larger than 45 m (150 ft) in diameter:			
If remote impounding is provided in accordance with 4.3.2.3.1	$\frac{1}{2}$ x sum of adjacent tank diameters	$\frac{1}{2}$ x sum of adjacent tank diameters	$\frac{1}{2}$ x sum of adjacent tank diameters
If diking is provided in accordance with 4.3.2.3.2	$\frac{1}{2}$ x sum of adjacent tank diameters	$\frac{1}{2}$ x sum of adjacent tank diameters	$\frac{1}{2}$ x sum of adjacent tank diameters

4.3.2.2.2 A tank storing unstable liquid shall be separated from any other tank containing either an unstable liquid or a Class I, II, or III liquid by a distance not less than one-half the sum of their diameters.

4.3.2.2.3 Where tanks are in a diked area containing Class I or Class II liquids or in the drainage path of Class I or Class II liquids and are compacted in three or more rows or in an irregular pattern, greater spacing or other means shall be permitted to be required by the authority having jurisdiction to make tanks in the interior of the pattern accessible for fire-fighting purposes.

4.3.2.2.4 The minimum horizontal separation between an LP-Gas container and a Class I, Class II, or Class IIIA liquid storage tank shall be 6 m (20 ft). Suitable measures shall be taken to prevent the accumulation of Class I, Class II, or Class IIIA liquids under adjacent LP-Gas containers such as by dikes, diversion curbs, or grading. Where flammable or combustible liquid storage tanks are within a diked area, the LP-Gas containers shall be outside the diked area and at least 3 m (10 ft) away from the centerline of the wall of the diked area.

Exception No. 1: If a tank storing a Class I, Class II, or Class IIIA liquid operates at pressures exceeding a gauge pressure of 17 kPa (2.5 psig) or is equipped with emergency relief venting that will permit pressures to exceed a gauge pressure of 17 kPa (2.5 psig), it shall be separated from an LP-Gas container by the distance given in 4.3.2.2.1.

Exception No. 2: The requirements of 4.3.2.2.4 shall not apply where LP-Gas containers of 475 L (125 gal) or less capacity are installed adjacent to fuel oil supply tanks of 2500 L (660 gal) or less capacity.

4.3.2.3 Control of Spills from Aboveground Tanks. Every tank that contains a Class I, Class II, or Class IIIA liquid shall be provided with means to prevent an accidental release of liquid from endangering important facilities and adjoining property or from reaching waterways. Such means shall meet the requirements of 4.3.2.3.1, 4.3.2.3.2, or 4.3.2.3.3, whichever is applicable.

4.3.2.3.1 Remote Impounding. Where control of spillage is by means of drainage to a remote impounding area, so that impounded liquid will not be held against tanks, such systems shall comply with the following:

- (1) A slope of not less than 1 percent away from the tank shall be provided for at least 15 m (50 ft) toward the impounding area.



Washington Group International

Integrated Engineering, Construction, and Management Solutions

June 8, 2004

MEMORANDUM FOR: Mr. Jim Pierce, P.E., Assistant Public Works Director
Town of Addison
16801 Westgrove Drive
Addison, Texas 75001-9010

FROM: Samuel G. Lundgren, P.E. CO., Project Manager
Washington Group International, Inc.
7800 Union Avenue, Suite 100
Denver, CO 80237

SUBJECT: Response to Addison Fire Department Memo on Airport Fuel Farm, Preliminary Design Review, dated May 27, 2004

Mr. Pierce:

This correspondence is in response to the numbered comments from Deputy Fire Chief Gordon Robbins on the above listed Memorandum.

Comment 1:

Automatic alarm and push button direct calls from this facility will go to the Addison Police Department Dispatch Center, at 4799 Airport Parkway.

Comment 2:

As a clarification, the canopy design will be based on a 2-hour fire rating as defined by Underwriters Laboratories (UL) and recognized by the Metal Building Manufacturers Association, Factory Mutual and the Steel Joist Institute. To my knowledge, this is the industry standard for this type of building and will provide the level of protection desired by the Fire Department.

Provide specs

Comment 3:

The bulk fuel storage tanks indicated are UL 2085 "Fireguard Protected" aboveground horizontal fuel storage tanks, as listed on the provided equipment cut sheet.

Comment 4:

Attachment #7, Preliminary Code Analysis, Draft Issue A, was written by Joe Galaska, P.E. and Frank Tagge, P.E., Fire Protection Engineers for Washington Group International, as a review of applicable and controlling codes for this project, including fire protection.

1. As stated in the analysis, Chapter 22 of the International Fire Code does apply to this installation as long as the motor fuels dispensing system is included in the facility.
 2. Sections 2201 through 2206 are applicable as long as the motor fuels dispensing system is included in the facility.
 3. The reference is to the applicable International Fire Code for "aviation bulk fuel storage tanks delivering fuel to an airport refueling vehicles, which then provides fuel to the aircraft" as Chapter 11, not Chapter 22, which is for "fuel dispensed in the fuel tanks of motor vehicles."
-

Items 4-6 are not code specific but are considerations for the selected site and jurisdiction agency.

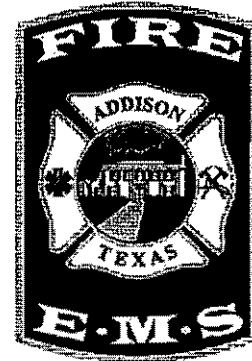
Other Comments:

- a) Appropriate setbacks and clear zones are observed, ~~and the area is not densely populated.~~ Reasonable and cost effective mitigation has been employed to increase safety and security.
- b) Safeguards and the ability to quickly and safely respond to any fire would prevent a catastrophic event.
- c) The Addison Fire Department and the Fire Chief are part of the design team for this facility. Risk analysis and risk reduction commensurate with system economics and operations for this facility is appropriate considerations in the design process. As with any design there will be trade offs to reach a system that is most mutually acceptable.
- d) Appropriate setbacks and clear zones are observed, ~~and the area is not densely populated.~~ Reasonable and cost effective mitigation has been employed to increase safety and security.
- e) Two hour fire rated tanks and canopy are reasonable mitigation methods
- f) No comment
- g) No comment
- h) We are designing and proposing to construct the most appropriate system for the selected location that is both economically reasonable and provides the appropriate level of safety and security.

Respectfully submitted,

Samuel G. Lundgren, P.E. CO.
Project Manager
Washington Group International, Inc.

Memorandum



To: Noel Padden, Fire Chief
From: Gordon Robbins, Deputy Fire Chief
Date: Thursday, May 27, 2004
Re: Airport Fuel Farm >> Preliminary Design Review

I've had an opportunity to look over the Preliminary Concept Design submittal for the Airport Fuel Farm. This memo details my comments on the submittal and attempts to resolve the ongoing confusion surrounding the fire protection requirements.

Comment 1:

Near the bottom third of page 2 is a statement indicating that any alarms or emergency calls originating at the fuel farm will be transmitted to the Fire Department at 4798 Airport Parkway. This should be changed to have the calls submitted to the Dispatch center at the Police Department – 4799 Airport Parkway.

Comment 2:

Several options are shown for a canopy over the tanks. I consulted with Chiefs Hall and Kellen on this and it is our opinion that none of the designs will allow us to fight a tank or containment pool fire in the manner preferred (i.e. apply foam to the tanks from as safe a distance as possible). However, the specs for the canopy indicate it would have a one-hour fire resistance rating. I'd like to see information verifying that means a one-hour exposure to a fuel fire (jet fuel free burns at approx. 1500°F) and not a standard one-hour structural fire test. If we can rely on the canopy to remain stable, and the proper tanks are installed it might be possible for us to safely get closer to the tanks and attack a fuel fire using different methods. In this case, alternatives C and E would appear to work best, although I'll reiterate that the safest and most effective design for firefighting would have no canopy over the tanks.

Comment 3:

In more than one part of the submittal there is reference to "ballistic" or "ballistic rated" tanks. It appears there is some misunderstanding as to the terminology. The type of tanks discussed for this facility are those compliant with Underwriter's Laboratory Standard 2085 – commonly referred to in the industry as "Protected Tanks". UL-2085 tanks are, in fact, resistant to ballistic impact, but that is only one of their many characteristics. The use of the term "ballistic" on its own is technically incorrect and should be changed to "Protected" or "UL-2085" where appropriate in future submittals.

Comment 4:

In the "Preliminary Code Analysis" section of the submittal, Mr. Lundgren makes several statements that should be clarified:

1. "Chapter 22 of the International Fire Code does not apply to this installation."
2. "Sections 2201 through 2206 of Chapter 22 are applicable to this project."
3. "Tanks used to deliver aircraft fuels are not fuel tanks."
4. "Fire detection and suppression is not required . . . for this installation. However there are extensive requirements within the IFC that pertain to this installation that have not been reviewed in any detail due to limited time."

May 28, 2004

5. "Cursory review . . . indicates 2-hour fire rated storage tanks are not required and may be an area of cost savings."
6. "The opportunity for cost savings by eliminating non-required fire protection features or the identification of the minimal set of fire protection requirements would be beneficial to the project."

These statements seem to indicate there is still some confusion surrounding fire protection for the project. By his own admission (item 4) Mr. Lundgren hasn't had time to review the Fire Code in any detail, nonetheless he reaches the conclusion that fire protection is not needed at all; and that cutting costs by minimizing safety considerations would be "beneficial" (items 5 & 6). Perhaps this is true from a short-term financial perspective. However, Addison must live with the tanks and their potential hazards for many years to come and we should evaluate the design from that perspective.

In a further attempt to reduce confusion, I list below the point-by-point chain of reasoning that I've put forth since my first meeting on this project in September 2003:

- a) Placing over 300,000 gallons of fuel aboveground in a densely populated area is an inherently risky thing to do.
- b) If it must be done, it is to the benefit of everyone that it be designed with as much regard for safety as possible. The results of a fire at this facility would be nothing short of catastrophic. (B.L.E.V.E.)
- c) The proposed fuel farm meets the definition of a bulk transfer facility and therefore comes under IFC Section 3404, which does not call for fire rated tanks. But, in that section, paragraph 3404.2.9.1.1 states: "When required by the fire code official, foam fire protection shall be provided for aboveground tanks . . . used for the storage of Class I or II liquids.
- d) If this bulk transfer facility were in a lightly populated industrial area, as most are, I would not require foam fire protection, but because it sits on an active airport in the middle of Town, right next to a major street and mere yards away from an apartment complex, a special event park and the location of a proposed aviation museum, there is simply no way that I, as the code official, could approve it without fire protection. How could I ever explain that decision to a jury?
- e) A foam fire system for a facility this large would be very costly and would probably make the project economically unfeasible. So, is there any other way to achieve an appropriate level of safety?
- f) It appears so. Chapter 22 (Motor Fuel Dispensing Facilities and Repair Garages) allows aboveground fuel storage tanks if they are "Protected" (i.e. UL-2085 compliant). Gas stations are often located in busy public areas, so it stands to reason that UL-2085 tanks would be acceptable under the Code in a location like the proposed fuel farm. Yes, they cost more than unprotected tanks, but are much less expensive than a foam system.
- g) UL-2085 tanks have the added benefits of being double walled, vehicle impact resistant, thermal shock resistant, ballistic resistant and electrically grounded against lightning strikes. Plus, their added structural strength makes them more likely to survive if the airport gets hit by a tornado.

Point (f), then, is how Chapter 22 and the "protected" tanks entered the conversation and apparently caused some confusion. Contrary to some suggestions, I was not recommending we buy a Cadillac (protected tank) when a Chevy (unprotected tank) would do. Rather, I was trying to save us from having to buy a Ferrari (foam system).

As with any large project of this type, it is difficult to find an appropriate balance between costs and safety. I believe that we can find that balance, however, and I look forward to reviewing future submittals as this project progresses. If you have any questions, please contact me.

Jim Pierce

From: Pyles, Lisa [Lisa.Pyles@wgint.com]
Sent: Monday, May 24, 2004 8:46 AM
To: Jim Pierce; Lundgren, Samuel; Mark Acevedo
Subject: Fuel Farm report

The airport staff has no comments on the fuel farm report.

Lisa A. Pyles A.A.E.
Addison Airport Director
972 392 4855

5/24/2004



Washington Group International

Integrated Engineering, Construction, and Management Solutions

Infrastructure / Airport Services

7800 E. Union Avenue, Suite 100
Denver, Colorado 80237
PHONE: (303) 843-2000/FAX: (303) 843-3133

Recd 5/17/04

LETTER OF TRANSMITTAL

TO: Mr. Jim Pierce, P.E. Assistant Director of Public Works Town of Addison 16801 Westgrove Drive Addison, TX 75001-9010	? →	DATE: Mar 14, 2004	JOB NO. 27514.000
		ATTENTION: Jim Pierce	
		RE: Preliminary Design & Engineer's Report Bulk Fuel Storage & Dispensing System	

- WE ARE SENDING YOU Attached Under separate cover via _____ the following items
- Shop Drawings Prints Documents Samples Specifications
 Copy of Letter Change Order Disks

COPIES	DATE	NO.	DESCRIPTION
4	5/12/04		Preliminary Concept Design & Engineer's Report
4	5/12/04		Preliminary Site Plan


THESE ARE TRANSMITTED as checked below:

- For Approval Approved as Submitted Resubmit _____ Copies for Approval
 For Your Use Approved as Noted Submit _____ Copies for Distribution
 As Requested Returned for Corrections Return _____ Corrected Prints
 For Review and Comment For signatures
 For Bids Due _____ Prints Returned After Loan To Us

Remarks:

Jim
For your review and final facility site approval.

Copy To:

Signed: 
 Samuel S. Lundgren, P.E. Project Manager

If enclosures are not as noted, kindly notify us at once

Addison!

JIM PIERCE, P.E.
Assistant Public Works Director
(972) 450-2879
(972) 450-2837 FAX
jpierce@ci.addison.tx.us

Town of Addison 16801 Westgrove Dr. P.O. Box 9010, Addison, Texas 75001-9010

5-18-04

Noel - Please review
and let us have your
comments as soon as
possible. Thanks!

Jim

Bulk Fuel Storage Prelim. Report



Client _____ Page _____ of _____

Project _____ Date 4/13/04 Made By _____

ADDISON AIRPORT FBO Checked By _____

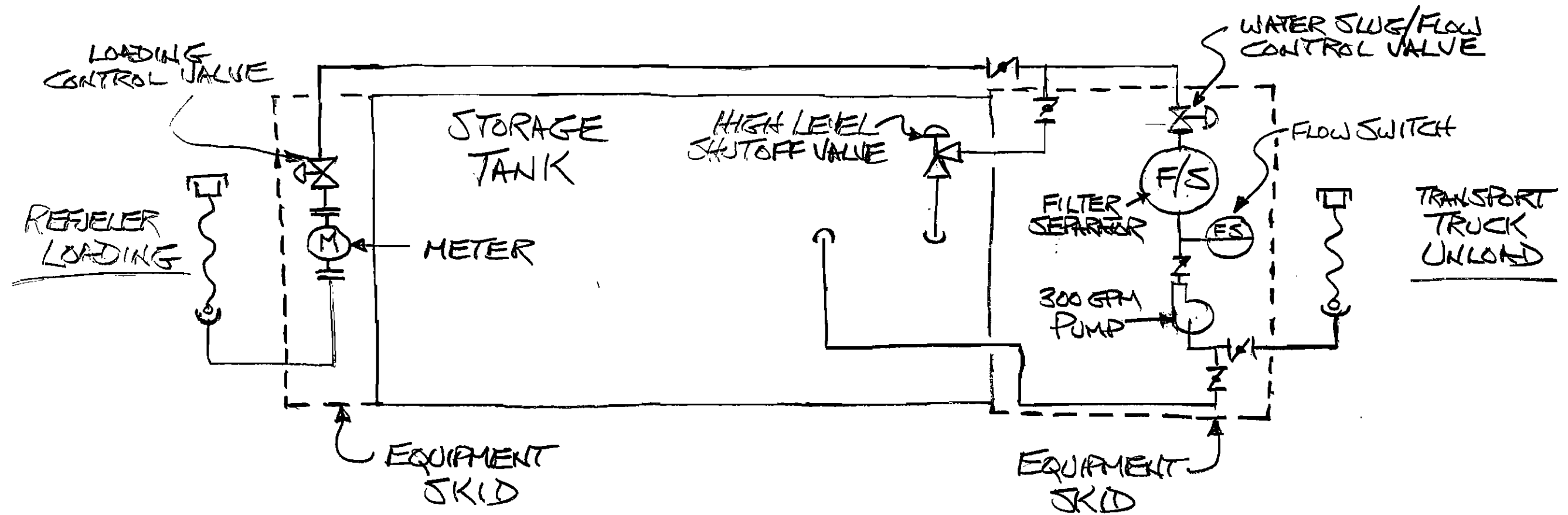
FUEL SYSTEM MEETING Preliminary _____ Final _____

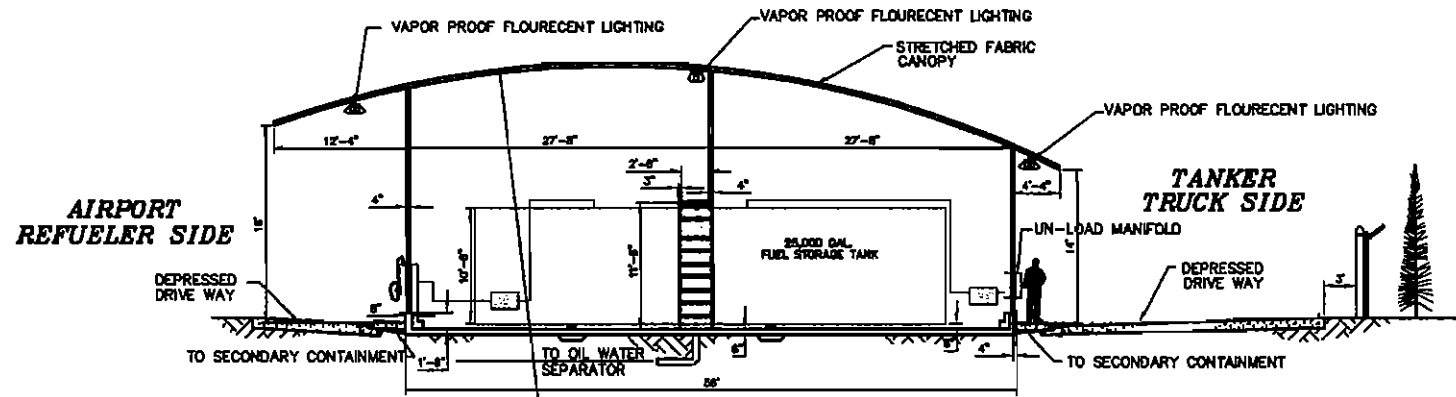
122199 Form GCO-28

<u>NAME</u>	<u>REPRESENTING</u>	<u>PHONE #</u>
JOHN BAGNALL	BURNS & McDONNELL	816-822-3524
Mel Schert	Burns & McDonnell	816-822-3058
Terry Lee	Cherry Air	972-248-1707
Josh Martin	Mercury Air Center	972-930-0216
RAY STERN	WORLDWIDE JET	214-707-9999
Cris Brooks	BASSCO *	214-352-4432
JEFF CARR	MILLION AIR	972-733-5802
JACK HOPKINS	MILLION AIR	972-733-5807
Miguel Otero-Simace	WGI	972-385-1635 x 203
BRUCE NIPP	WGI	972-385-1635 x 208
MARK ACEVEDO	TOA	972-450-2848
Bill Dyer	Addison Airport	972-392-4856
Jim Pierce	Town of Addison	972-450-2879
LISA Pyles	ADS	972-392-4855
SAUL LUNDGREN	WGI	303-843-3596

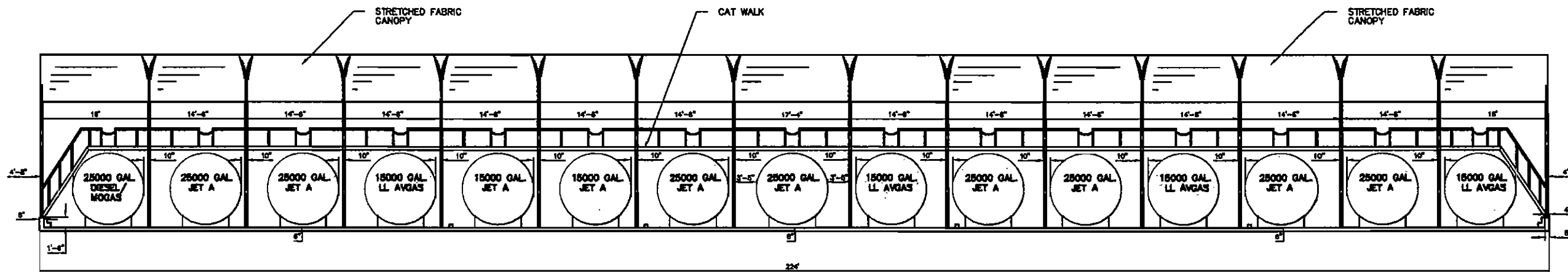
* Maintains Fuelers Equipment

TYPICAL TANK/EQUIPMENT ARRANGEMENT

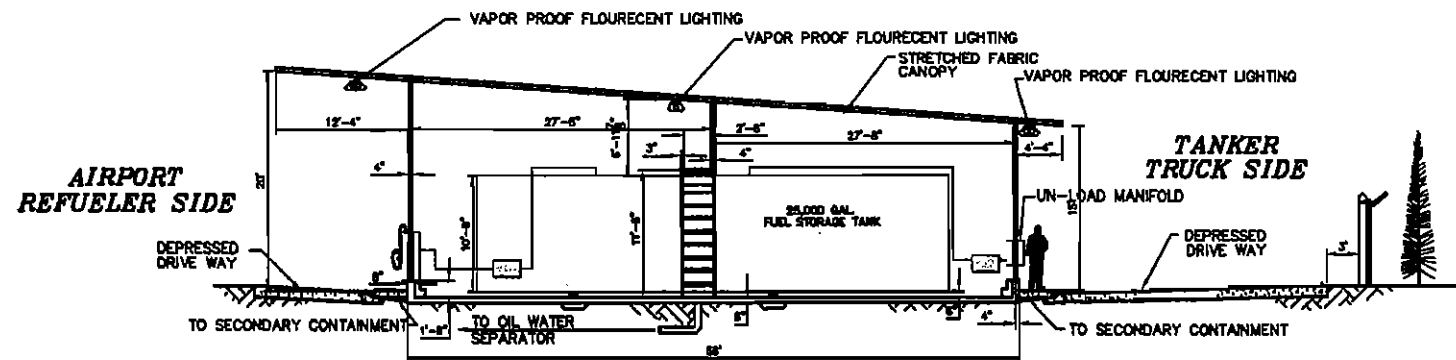




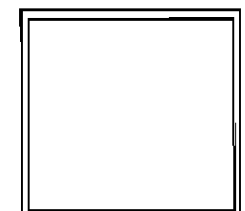
ALTERNATIVE "A"
SCALE: 1/8" = 1'-0"



EAST SECTION VIEW
SCALE: 1/8" = 1'-0"



ALTERNATIVE "B"
SCALE: 1/8" = 1'-0"



ADD - FUEL BLDG-CONCEPTB.dwg	PRELIMINARY	APP.
CADD FILE NO.	STAGE OF PLANS	
A.J.P. PROJ. NO.		DESCRIPTION
		REV. DATE

Washington Group International
Professional Engineering, Construction, and Management Solutions
PHONE: (817) 340-0000 FAX: (817) 340-0000

ADDISON REGIONAL AIRPORT
ADDISON, TEXAS

ADDISON FUEL FARM		APPROVED _____	
FACILITY CONCEPT		PROJ. LEAD	CHECKED
DESIGNER	CADD TECH.	S.C.L.	S.A.N.

DATE: APRIL 28, 2004
SHEET 1 OF 1

ADDISON AIRPORT FUEL SYSTEM**ISSUES FOR DISCUSSION**

1. Individual setup for tanks and piping.
2. One hose each end per tank.
3. Self-priming centrifugal pumps
4. Tank Gauging – Veeder-Root
5. Loading meters: Smith, Brodie or LC
Ticket printers? Temperature compensation?
6. Recommend Scully overfill and grounding protection
7. Load/Unload Identification and Security
Keypad, Card Readers, Keylock Unloading supervised?
8. Diesel dispensing location and type
Mogas? Potential combined tank?
9. Sump separators
10. Waste fuel/water
11. Unloading meters required?
12. Number of simultaneous truck operations – Loading/Unloading
13. One electrical enclosure for PLC, Veeder-Root panel, switchgear
14. EFSO to kill pumps and alarm
- 15.
- 16.
- 17.
- 18.

4-13-04

$$8797 \times 12 = 105,564$$

$$16 \times 25,336 = 405,376$$

$$12 \times 34,133 = 409,596$$

Addison Express ~~is~~ represented

Fuel Farm eligible for Fed Grant?

Nov 04 Start Const

End Summer '05 - fuel farm in operation

AV Fuel

Ray Stem 25K Jet A 12K lo lead

2-25% ~~of~~ 1-15 is the "Standard" for an FBO

Non-Public - 2 15k Tanks

PLC = Programmable Logic Controller

Organization or Company	Name & Title/Function	Phone	Email: Office, Home
ADS Bulk Fuel System Design Personnel Contact List			
Washington Group Int.	Sam Lundgren Project Manager	W: 303-843-3596 Cell: 720-530-7315 H: 303-979-1575	samuel.lundgren@wgint.com
Washington Group Int.	Neil Rood, Manager Airport Services	W: 303-843-3514 Cell: 303-809-6752	neil.rood@wgint.com
Washington Group Int.	Steve Van Winkle, Lead Architect	W: 303-843-2511 Cell: 303-475-9424	steve.van.winkle@wgint.com
Washington Group Int.	Ken Castellano AutoCAD Mgr	W: 303-843-3177 C:	ken.castellano@wgint.com
Burns & McDonnell	Ted Born, Av Fuels Managing Director	W: 816-822-4236 Cell: 816-225-6874	tborn@burnsmcd.com
Burns & McDonnell	John Bagnall, Senior Mech Engineer	W: 816-822-3524 Cell: 816-260-0204	jbagnal@burnsmcd.com
Burns & McDonnell	Dave Van Fleet Asso Electrical Engr	W: 816-822-3367 Cell: 816-510-8425	dvanfleet@burnsmcd.com
Burns & McDonnell	Mel Sehr Project Manager	W: 816-822-3058 Cell: 816-679-6270	msehr@burnsmcd.com
Washington Group Int.	Bruce Nipp, Office Manager, Dallas	W: (972) 385-1635 Ext 208 Cell: (972) 743-2124	bruce.nipp@wgint.com
Washington Group Int.	Miguel Otero- Jimenez, Civil Engr	W: 972-385-1635 Ext 205 Cell: 214-536-4717	miguel.otero@wgint.com
Washington Group Int.	Ron Bowlin Environmental Engr	W: 281-529-2704 Cell: 832-465-5996	ron.bowlin@wgint.com
ECS, Ltd.	Chris Eddy, Geotechnical Engr	W: 972-392-3222 Cell: 972-741-9761	ceddy@ecslimited.com
DAL-TECH Engineering.	Alan Moore, RPLS	W: 972-250-2727 Cell: 214-850-0617	alan@dal-tech.com
Washington Group Int.	D.U. Kini, Contracts Mgr	W: 303-843-3329 Cell: 303-810-0123	d.kini@wgint.com
Addison Airport	Lisa Pyles, Airport Director	W: 972-392-4855 Cell: 214-683-9814	lisa.pyles@wgint.com
Town of Addison	Mark Acevedo, Facilities & Fleet Administrator	W: 972-450-2848 Cell:	macevedo@ci.addison.tx.us
Town of Addison	Jim Pierce, P.E. Assistant Public Works Director	W: 972-450-2879 Cell:	jpierce@ci.addison.tx.us
Town of Addison	Gordon Robbins Deputy Fire Chief	W: 972-450-7220 Cell:	grobbins@ci.addison.tx.us
Million Air	Jack Hopkins Manager	W: 972-248-1600 Cell:	jhopkins@millionairdallas.com
Mercury	Bob Wernersbach Manager	W: 972-735-7905 Cell:	bwernersbach@MercuryAir.com
Cherry Air	Kenny Donaldson Manager	W: 972-248-1707 Cell:	kenny@cherryair.com
Addison Express	Kevin Lacey Manager	W: 972-713-7707 Cell:	av8nkev@airmail.net
BASSCO	Phil Brooks VP	W: 214-352-4432 Cell: 214-906-2373	alliedoilpb@sbcglobal.net

Addison!

JIM PIERCE, P.E.
Assistant Public Works Director
(972) 450-2879
(972) 450-2837 FAX
jpierce@ci.addison.tx.us

Town of Addison 16801 Westgrove Dr. P.O. Box 9010, Addison, Texas 75001-9010

3-26-04

Sam -

Recent comments.

I'm a little concerned about
the quality of the plans so
far.

Please return these comments
to us for the next review.

Jim

Jim Pierce

From: Gordon Robbins
Sent: Friday, March 26, 2004 9:52 AM
To: Mark Acevedo
Cc: Jim Pierce; Noel Padden; Mark Metdker
Subject: RE: Bulk Fuel Storage and Dispensing Facility Site Plan

Mark:

I've reviewed the material from Mr. Lundgren and find that, unfortunately, the tanks he refers to are not acceptable for this application. As I mentioned in my email of 9-03-2003, tanks selected for this application must be compliant with U.L. Standard 2085 (i.e. classified as a "protected" tank). The tanks specified in Mr. Lundgren's attachment appear to be compliant only with U.L. Standard 2080 and are therefore classified as "fire resistant" tanks.

In short, while the specified tanks are double walled and do have a limited fire resistance rating, they are not resistant to vehicular impact, projectile (ballistic) penetration or fire hose stream effects. Additionally their heat transfer rate makes them undesirable for the type of firefighting operations we would have to conduct at the fuel farm.

The extra protection is necessary in this case due to the tanks' proximity to a major roadway, large multi-family housing development, municipal special event area, proposed aviation museum and the operations of the airport itself.

I appreciate the opportunity to review this information and will be pleased to answer any questions you may have.

Gordon C. Robbins
Deputy Fire Chief
Addison TX Fire Dept.
972-450-7220

-----Original Message-----

From: Mark Acevedo
Sent: Thursday, March 25, 2004 10:32 AM
To: Gordon Robbins
Cc: Noel Padden
Subject: FW: Bulk Fuel Storage and Dispensing Facility Site Plan

Gordon,

This arrived yesterday. I believe we are planning to meet with Sam Lundgren on April 13 in the A.M. We'll let you know an exact time once it is nailed down so that you can join us. Thanks!

Mark

Mark Acevedo
Director of General Services
972-450-2848 Office
972-450-2825 Fax
macevedo@ci.addison.tx.us

-----Original Message-----

From: Samuel Lundgren [mailto:samuel.lundgren@wgint.com]
Sent: Wednesday, March 24, 2004 2:10 PM

Folks,

Per our last meeting, I have obtained some cost information for various

sizes of fuel storage tanks. The Town desires fire rated tanks, so in addition to Modern Welding, I am obtaining information on similar rated tanks from two other firms.

The tank size/price information we have received from Modern Welding Company of Texas is as follows:

- 25,000 gal double wall UL142 Flameshield STI-P3 tank on Saddles (120" diameter) \$25,336.
- 20,000 gal double wall UL142 Flameshield STI-P3 tank on Saddles (120" diameter) \$21,175.
- 15,000 gal double wall UL142 Flameshield STI-P3 tank on Saddles (120" diameter) \$17,942.
- 10,000 gal double wall UL142 Flameshield STI-P3 tank on Skids (96" diameter) \$11,280.

The Flameshield Tank is a 2 hr fire rated fuel storage tank, as indicated in the attached description, which I feel will provide the type of protection desired by the Fire Department. I am obtaining competitive information from HTM and Smith Tank Co. for similar tanks.

Respectfully,

Samuel Lundgren, P.E.
Program Manager
Washington Group International, Inc.
7800 E. Union Avenue, Suite 100
Denver, CO 80237
Phone (303) 843-3596, Fax (303) 843-3133, Cell (720) 530-7315

Jim Pierce

From: Samuel Lundgren [samuel.lundgren@wgint.com]
Sent: Wednesday, March 24, 2004 2:10 PM
To: av8nkev@airmail.net; kenny@cherryair.com; bwernersbach@MercuryAir.com; jhopkins@millionairdallas.com
Cc: Mark Acevedo; John Bagnall; Jim Pierce; Lisa Pyles
Subject: FW: Bulk Fuel Storage and Dispensing Facility Site Plan



ADD-GR2.pdf



Flameshield Tanks
by Modern.do...

Folks,

Per our last meeting, I have obtained some cost information for various sizes of fuel storage tanks. The Town desires fire rated tanks, so in addition to Modern Welding, I am obtaining information on similar rated tanks from two other firms.

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- 10,000 gal double wall UL142 Flameshield STI-P3 tank on Skids (96" diameter) \$11,280.

The Flameshield Tank is a 2 hr fire rated fuel storage tank, as indicated in the attached description, which I feel will provide the type of protection desired by the Fire Department. I am obtaining competitive information from HTM and Smith Tank Co. for similar tanks.

With a focus on current and future needs, request your comments and feedback on the number of tanks and size of tanks you desire for your operation. I would like to see if we can reach consensus on the size and number of tanks combination required for each FBO, keeping in mind that additional tanks installed later will be difficult. I would also like your thoughts on having separate MoGas and Diesel tanks for FBO vehicles.

John Bagnall, from Burns & McDonnell, is collecting information/cut sheets on dispensing units and the off-load manifold set-up which will be sent in a week or so for your review and comment.

Please plan on a meeting with us, to review your tank, dispense and offload equipment, the afternoon of April 13, at 2 PM, in the Airport Conference Room. We will also review the project preliminary plans to verify the facility layout, tank type and fire safety issues. Please call if you have any questions.

Respectfully,

Samuel Lundgren, P.E.
Program Manager
Washington Group International, Inc.
7800 E. Union Avenue, Suite 100
Denver, CO 80237
Phone (303) 843-3596, Fax (303) 843-3133, Cell (720) 530-7315



Washington Group International

Integrated Engineering, Construction, and Management Solutions

Infrastructure / Airport Services

7800 E. Union Avenue, Suite 100
Denver, Colorado 80237
PHONE: (303) 843-2000/FAX: (303) 843-3133

LETTER OF TRANSMITTAL

TO: Mr. Jim Pierce, P.E. Assistant Director of Public Works Town of Addison 16801 Westgrove Drive Addison, TX 75001-9010	DATE: Mar 15, 2004	JOB NO. 27514.000
	ATTENTION: Jim Pierce	
	RE: Bulk Fuel Storage & Dispensing System	

WE ARE SENDING YOU Attached Under separate cover via _____ the following items

Shop Drawings Prints Documents Samples Specifications

Copy of Letter Change Order Disks

COPIES	DATE	NO.	DESCRIPTION
4	3/15/04		Final Facility Location for Approval

THESE ARE TRANSMITTED as checked below:

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> For Approval | <input type="checkbox"/> Approved as Submitted | <input type="checkbox"/> Resubmit _____ Copies for Approval |
| <input type="checkbox"/> For Your Use | <input type="checkbox"/> Approved as Noted | <input type="checkbox"/> Submit _____ Copies for Distribution |
| <input type="checkbox"/> As Requested | <input type="checkbox"/> Returned for Corrections | <input type="checkbox"/> Return _____ Corrected Prints |
| <input type="checkbox"/> For Review and Comment | <input type="checkbox"/> For signatures | |
| <input type="checkbox"/> For Bids Due _____ | | <input type="checkbox"/> Prints Returned After Loan To Us |

Remarks:

Jim
For your final review and approval.

Copy To:

Signed: 
 Samuel G. Lundgren, P.E. Project Manager

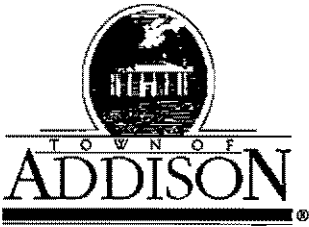
If enclosures are not as noted, kindly notify us at once

Fuel Farm coord meeting 3-8-04
Gordon, Mark, Lisa, Lou C.

* Need 20' ROW along Addison Rd
Fuel access road intersects prop parking
How many tanks?

Jul Sam - Get Tank & pump info to Lisa for
transmittal to fuelers
Get an array of cost
Fuelers to pay for
Revise Dwg

Plan a visit after fuelers have rec'd info



Public Works / Engineering
 16801 Westgrove • P.O. Box 9010
 Addison, Texas 75001
 Telephone: (972) 450-2871 • Fax: (972) 450-2837

LETTER OF TRANSMITTAL

DATE	3-4-04	JOB NO.	
ATTENTION			
RE:	Airport Fuel Farm of		
	Cavanaugh Flight Museum		

TO Carmen Moran
Town Hall

GENTLEMAN:

- WE ARE SENDING YOU**
- Shop Drawings
 - Copy of letter
 - Attached
 - Prints
 - Change order
 - Under separate cover via _____ the following items:
 - Plans
 - Samples
 - Specifications
 - _____

COPIES	DATE	NO.	DESCRIPTION
1			Concept Site Plan Cavanaugh Flight Museum

THESE ARE TRANSMITTED as checked below:

- For approval
- For your use
- As requested
- For review and comment
- FOR BIDS DUE _____ 19_____
- Approved as submitted
- Approved as noted
- Returned for corrections
- _____
- Resubmit _____ copies for approval
- Submit _____ copies for distribution
- Return _____ corrected prints
- PRINTS RETURNED AFTER LOAN TO US

REMARKS The purpose of this site plan is to show how the fuel farm might fit in with a proposed Cavanaugh Flight Museum. Accordingly, Washington Group is looking for approval of the location of the fuel farm. Lets get together & discuss.

COPY TO Mark Acevedo, Lisa Pyles

SIGNED: J. Pyle

If enclosures are not as noted, please notify us at once.



Washington Group International

Integrated Engineering, Construction, and Management Solutions

Infrastructure / Airport Services

7800 E. Union Avenue, Suite 100
Denver, Colorado 80237
PHONE: (303) 843-2000/FAX: (303) 843-3133

LETTER OF TRANSMITTAL

TO: Mr. Jim Pierce, P.E., Assistant Director of Public Works Town of Addison 16801 Westgrove Drive Addison, TX 75001-9010	DATE: March 3, 2004	JOB NO. 27514
	ATTENTION: Jim Pierce	
	RE: Bulk Fuel Facility Site Plans	

- WE ARE SENDING YOU Attached Under separate cover via _____ the following items
- Shop Drawings Prints Documents Samples Specifications
 Copy of Letter Change Order Disks

COPIES	DATE	NO.	DESCRIPTION
4			Site Plan for Bulk Fuel Storage Facility

THESE ARE TRANSMITTED as checked below:

- For Approval Approved as Submitted Resubmit _____ Copies for Approval
 For Your Use Approved as Noted Submit _____ Copies for Distribution
 As Requested Returned for Corrections Return _____ Corrected Prints
 For Review and Comment For signatures
 For Bids Due _____ Prints Returned After Loan To Us

Remarks: Jim

Here is the site plan for your consideration and approval of the final location for the new Bulk Fuel Storage System.

Thanks

Copy To:

Signed: 

If enclosures are not as noted, kindly notify us at once

Jim Pierce

From: Samuel Lundgren [samuel.lundgren@wgint.com]
Sent: Thursday, March 04, 2004 6:22 PM
To: Kenneth A Castellano; Mark Acevedo; Alan Moore; Chris Eddy; Lisa Pyles; Jim Pierce; Mel Sehr; Bruce Nipp
Cc: Jerry. Haliw; Neil Rood; miguel.otero@wgint.com; Heather Hatcher; Ted Born
Subject: Bulk Fuel Storage and Dispensing System Project Status Report



Addison Design
Schedule1.pdf



ADS Fuel System
Design POC lis...

Bulk Fuel Storage and Dispensing System for Addison Airport

Project Status Report for 3-04-04:

1. The survey data has been received and process into the Airport coordinate plan, so we have correlated data.
2. Produced a site plan from the survey data to provide an exact location of the new bulk fuel storage and dispensing facility for approval by the Town of Addison Public Works. Once the facility location is approved, the information will be provided to the GeoTechnical Engineer for soils sample and engineering.
3. A revised design schedule (attached) has been submitted to the Town of Addison, after coordination with project consultants.
4. The Civil-Site plan will also start after approval of the site, along with the CATEX request.
5. Obtaining specific tank size information and additional options to meet fire protection requirements.
6. The project contact list is also attached.

Please call if you have questions or comments.

Respectfully,

Samuel Lundgren, P.E.
Program Manager
Washington Group International, Inc.
7800 E. Union Avenue, Suite 100
Denver, CO 80237
Phone (303) 843-3596, Fax (303) 843-3133, Cell (720) 530-7315



Washington

5220 Spring Valley Road, Suite 204
Dallas, TX 75254
(972) 385-1635 phone (972) 385-1639 fax

letter of transmittal

to: City of Addison.
Department of Public Works
Addison, TX 75001
Attention: Jim Pierce, P.E.
Phone No. (972) 450-2879

Project no.: 27514.000
client project no.: _____
date: 3/3/04
Reference: Addison Airport
Addison Fuel
System Prelim

we are sending you: enclosed under separate cover via Plan

item	no. copies	Date	Description
1	4	2/25/03	Full Size PDF File - Addison Airport Fuel System
			Preliminary Plan for utility verification

transmitted as noted:

<input checked="" type="checkbox"/>	for approval	<input type="checkbox"/>	no exception taken
<input checked="" type="checkbox"/>	for your use	<input type="checkbox"/>	make revisions
<input type="checkbox"/>	as requested	<input type="checkbox"/>	revise and resubmit
<input type="checkbox"/>	for review and comment	<input type="checkbox"/>	_____

remarks: _____

Call Sam Lundgren (303) 843-3596 or me at (972) 385-1635 x 208 if you
have any questions.

copies to: Files/Sam Lundgren transmittal only
W:/Airport/Addison/Correspondence

Bruce D. Nipp
Office Manager

Addison!

JIM PIERCE, P.E.
Assistant Public Works Director
(972) 450-2879
(972) 450-2837 FAX
jpierce@ci.addison.tx.us

Town of Addison 16801 Westgrove Dr. P.O. Box 9010, Addison, Texas 75001-9010

3-3-04

Mark :

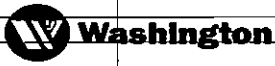
Lisa :

Copy of preliminary site
plan for your review. Lets
get together & discuss


Jim

Fuel Farm

Organization or Company	Name & Title/Function	Phone	Email: Office, Home
ADS Bulk Fuel System Design Personnel Contact List			
Washington Group Int.	Sam Lundgren Project Manager	W: 303-843-3596 Cell: 720-530-7315 H: 303-979-1575	samuel.lundgren@wgint.com
Washington Group Int.	Neil Rood, Manager Airport Services	W: 303-843-3514 Cell: 303-809-6752	neil.rood@wgint.com
Washington Group Int.	Steve Van Winkle, Lead Architect	W: 303-843-2511 Cell: 303-475-9424	steve.van.winkle@wgint.com
Washington Group Int.	Ken Castellano AutoCAD Mgr	W: 303-843-3177 C:	ken.castellano@wgint.com
Burns & McDonnell	Ted Born, Av Fuels Managing Director	W: 816-822-4236 Cell: 816-225-6874	tborn@burnsmcd.com
Burns & McDonnell	John Bagnall, Senior Mech Engineer	W: 816-822-3524 Cell: 816-260-0204	jbagnal@burnsmcd.com
Burns & McDonnell	Dave Van Fleet Asso Electrical Engr	W: 816-822-3367 Cell: 816-510-8425 H: 816-650-3613	dvanfleet@burnsmcd.com
Burns & McDonnell	Mel Sehrt Project Manager	W: 816-822-3058 Cell: 816-679-6270	msehrt@burnsmcd.com
Washington Group Int.	Bruce Nipp, Office Manager, Dallas	W: (972) 385-1635 Ext 208 Cell: (972) 743-2124	bruce.nipp@wgint.com
Washington Group Int.	Miguel Otero- Jimenez, Civil Engr	W: 972-385-1635 Ext 205 Cell: 214-536-4717	miguel.otero@wgint.com
Washington Group Int.	Ron Bowlin Environmental Engr	W: 281-529-2704 Cell: 832-465-5996	ron.bowlin@wgint.com
ECS, Ltd.	Chris Eddy, Geotechnical Engr	W: 972-392-3222 Cell: 972-741-9761	ceddy@ecslimited.com
DAL-TECH Engineering.	Alan Moore, RPLS	W: 972-250-2727 Cell: 214-850-0617	alan@dal-tech.com
Washington Group Int.	D.U. Kini, Contracts Mgr	W: 303-843-3329 Cell: 303-810-0123	d.kini@wgint.com
Addison Airport	Lisa Pyles, Airport Director	W: 972-392-4855 Cell: 214-683-9814	lisa.pyles@wgint.com
Town of Addison	Mark Acevedo, Facilities & Fleet Administrator	W: 972-450-2848 Cell:	macevedo@ci.addison.tx.us
Town of Addison	Jim Pierce, P.E. Assistant Public Works Director	W: 972-450-2879 Cell:	jpierce@ci.addison.tx.us
Town of Addison	Gordon Robbins Deputy Fire Chef	W: 972-450-7220 Cell:	grobbins@ci.addison.tx.us
Million Air	Jack Hopkins Manager	W: 972-248-1600 Cell:	jhopkins@millionairdallas.com
Mercury	Bob Wernersbach Manager	W: 972-735-7905 Cell:	bwernersbach@MercuryAir.com
Cherry Air	Kenny Donaldson Manager	W: 972-248-1707 Cell:	kenny@cherryair.com
Addison Express	Kevin Lacey Manager	W: 972-713-7707 Cell:	av8nkev@airmail.net

Title: Replace Bulk Fuel Storage and Dispensing Facility and UST Removal Project									
Project Number: 27514									
Date: 7/28/2003		Fee Revision Date 2/25/2004							
Ref: WGI Fee Proposal									
Estimated Maximum Construction Cost (including design) :							\$2,063,648.00		
Washington Group Design Costs									
			Planning & Studies		Engineering & Design		Constr. Mgmt Svcs		
			Hourly	Services	Services	Services	Services	Services	
Description			Rate	Hours	Cost	Hours	Cost	Hours	Cost
CIVIL									
Principal			\$160.00	0	\$0.00	4	\$640.00	0	\$0.00
Project Manager			\$125.00	32	\$4,000.00	52	\$6,500.00	24	\$3,000.00
Senior Engineer/Planner			\$90.00	8	\$720.00	12	\$1,080.00	0	\$0.00
Civil Engineer			\$70.00	0	\$0.00	72	\$5,040.00	38	\$2,660.00
Environmental Engineer*			\$70.00	16	\$1,120.00	64	\$4,480.00	42	\$2,940.00
CAD Operator*			\$57.00	0	\$0.00	24	\$1,368.00	12	\$684.00
Environmental Lab/sample*			\$50.00					90	\$4,500.00
CAD Operator			\$57.00	20	\$1,140.00	86	\$4,902.00	24	\$1,368.00
Estimator			\$59.00	8	\$472.00	16	\$944.00	0	\$0.00
Surveyor, PLS			\$85.00	8	\$680.00	0	\$0.00	0	\$0.00
3 Man Survey Crew			\$170.00	30	\$5,100.00	0	\$0.00	0	\$0.00
2 Man Survey Crew			\$120.00		\$0.00	0	\$0.00	0	\$0.00
Clerical			\$52.00	8	\$416.00	32	\$1,664.00	12	\$624.00
SUBTOTAL				122	\$13,648.00	330	\$26,618.00	242	\$15,776.00
GEOTECHNICAL									
Principal			\$125.00	0	\$0.00	0	\$0.00	0	\$0.00
Engineer			\$90.00	12	\$1,080.00	0	\$0.00	0	\$0.00
Project Manager			\$85.00	24	\$2,040.00	8	\$680.00	0	\$0.00
Lab Tech			\$53.00	12	\$636.00	4	\$212.00	0	\$0.00
CAD Operator			\$57.00	4	\$228.00	0	\$0.00	0	\$0.00
Drilling Rig & Crew			\$180.00	8	\$1,440.00	0	\$0.00	0	\$0.00
SUBTOTAL				60	\$5,424.00	12	\$892.00	0	\$0.00
Electrical (Burns & McDonnell Subcontract)									
Principal			\$150.00	2	\$300.00	0	\$0.00	0	\$0.00
Project Manager			\$115.50	8	\$924.00	8	\$924.00	2	\$231.00
Project Engineer			\$112.50	16	\$1,800.00	24	\$2,700.00	16	\$1,800.00
Senior Engineer			\$100.00	24	\$2,400.00	126	\$12,600.00	0	\$0.00
Electrical Engineer			\$89.00	16	\$1,424.00	76	\$6,764.00	0	\$0.00
CAD Operator			\$53.25	20	\$1,065.00	80	\$4,260.00	0	\$0.00
Clerical			\$48.25	8	\$386.00	40	\$1,930.00	8	\$386.00
SUBTOTAL				94	\$8,299.00	354	\$29,178.00	26	\$2,031.00

Description	Hourly Rate	Planning & Studies		Engineering & Design		Constr. Mgmt Svcs	
		Services Hours	Services Cost	Services Hours	Services Cost	Services Hours	Services Cost
Architctural							
Prncipal	\$160.00	0	\$0.00	0	\$0.00	0	\$0.00
Project Manager	\$125.00	0	\$0.00	10	\$1,250.00	0	\$0.00
Architect	\$95.00	20	\$1,900.00	45	\$4,275.00	10	\$950.00
CAD Operator	\$57.00	16	\$912.00	56	\$3,192.00	8	\$456.00
Designer	\$65.00	0	\$0.00	0	\$0.00	0	\$0.00
Clerical (Wordprocessor)	\$52.00	0	\$0.00	18	\$936.00	0	\$0.00
SUBTOTAL		36	\$2,812.00	129	\$9,653.00	18	\$1,406.00
Mechanical Engineer (Burns & McDonnell Subcontract)							
Prncipal	\$150.00	2	\$300.00	0	\$0.00	0	\$0.00
Project Manager	\$115.50	8	\$924.00	12	\$1,386.00	2	\$231.00
Project Engineer	\$112.50	16	\$1,800.00	54	\$6,075.00	16	\$1,800.00
Senior Engineer	\$100.00	10	\$1,000.00	41	\$4,100.00	0	\$0.00
Mechanical Engineer	\$89.00	12	\$1,068.00	48	\$4,272.00	0	\$0.00
Fire Protection Engineer	\$104.00	0	\$0.00	0	\$0.00	0	\$0.00
CAD Operator	\$53.25	16	\$852.00	60	\$3,195.00	0	\$0.00
Clerical	\$48.25	10	\$482.50	42	\$2,026.50	8	\$386.00
SUBTOTAL		74	\$6,426.50	257	\$21,054.50	26	\$2,031.00
Structural							
Prncipal	\$125.00	0	\$0.00	0	\$0.00	0	\$0.00
Senior Engineer	\$95.00	0	\$0.00	0	\$0.00	0	\$0.00
Structural Engineer	\$75.00	0	\$0.00	24	\$1,800.00	8	\$600.00
CAD Operator	\$57.00	0	\$0.00	21	\$1,197.00	0	\$0.00
SUBTOTAL		0	\$0.00	45	\$2,997.00	8	\$600.00

Description	Hourly Rate	Planning & Studies		Engineering & Design		Constr. Mgmt Svcs	
		Services Hours	Services Cost	Services Hours	Services Cost	Services Hours	Services Cost
Reimbursable Expenses							
3.5" HDDS Cp Disk, ea	\$2.50		\$0.00			0	\$0.00
BlueLine 36" x24",ea	\$2.08		\$0.00			0	\$0.00
Mylar, Sepias, ea			\$0.00			0	\$0.00
Paper 8 1/2" x 11", ea	\$0.10		\$0.00			0	\$0.00
AirFare (DEN to DFW)	\$500.00	1	\$500.00	3	\$1,500.00	3	\$1,500.00
AirFare (MCI to DFW)	\$500.00	1	\$500.00			1	\$500.00
Mileage rate per mile	\$0.36		\$0.00			0	\$0.00
Car rental per day	\$65.00		\$0.00			0	\$0.00
Support Vehicle per mile			\$0.00			0	\$0.00
Support Vehicle per day	\$35.00		\$0.00		\$0.00		\$0.00
Per Diem Rate per day	\$90.00	3	\$270.00	6	\$540.00	8	\$720.00
Survey Equipment GPS			\$0.00			0	\$0.00
CADD per hour			\$0.00			0	\$0.00
CADD plots per hour			\$0.00			0	\$0.00
SUBTOTAL			\$1,270.00		\$2,040.00		\$2,720.00
Section Totals			\$37,879.50		\$92,432.50		\$24,564.00
Project Design Total					\$154,876.00		
Construction Estimate							
Description: Bulk fuel storage and dispensing facility with 16- 25,000 gal horizontal storage tanks connected to 4 dispensing units and one central off-load manifold. Project includes site work, secondary containment, oil/water separator, fire protection, overflow protection, electronic controls and alarm systems.							
Site work, Pavement and Utilities			\$95,000.00				
Containment Structure and Pad			\$72,000.00				
Storage Tanks and Piping (@\$2.00/gal)			\$800,000.00				
Fire Rated Storage Tanks			\$136,500.00				
Roof Canopy and Structure (\$20.50/sf)			\$196,308.00				
Controls and Equipment			\$285,000.00				
Architectural and Structure			\$25,000.00				
Contingency (10%)			\$12,500.00				
Preliminary Construction Estimate Total			\$1,602,308.00				
UST Removal, soil remediation & closure			\$306,464.00				
Adjusted Total for New System and UST Removal			\$1,908,772.00				
* UST removal and engineering fees include planning and approval of UST removal and soil mitigation plan, land farming of contaminated soils and lab testing of samples.							
Submitted by:							
							
Samuel G. Lundgren, P.E. Project Manager							
Washington Group International							
Off (303) 843-3596, Cell (720) 530-7315							

Addison Airport Fuel Farm – Addison, Texas**1. Removal of 29 USTs**

- 24 – 12,000 gallon
- 3 - 4,000 gallon
- 1 - 5,000 gallon
- 1 – 17,000 gallon

Removal includes:

- Permits, reports and records
- Pumping & disposal of residual product, empty, clean and purge USTs
- Disconnect & remove all connected piping & ancillary equipment
- Transportation & disposal of USTs
- Collection and analysis of soil samples / water samples collected at removal
- Backfill material for removed USTs

Removal assumptions:

- Four inches of product remain in each UST
- All piping is directly ancillary to individual USTs
- There is no fuel farm infrastructure piping to be removed
- USTs are steel and surface of fuel farm is not paved
- No overhead utilities
- Vehicular access
- Staging area for removed USTs immediately available
- UST soil overburden averages four foot

Removal Costs:

Excavation, clean, remove, transport, sample and analysis	\$5,600 per UST x 29 =	\$162,400
Backfill for removed USTs	2,310 tons @ 8.75 ton =	<u>\$ 20,212</u>
		\$182,612
	15% contingency =	<u>\$ 27,392</u>
		\$210,004

2. Remediation of Fuel Farm

Including land farming with removal soils beneath the USTs and 48' above UST profile. The above tank contamination assumption derived from the EBS Phase II.

- Land farming estimated cost: \$65.00 per cubic yard
- Contaminated soil beneath USTs-632 cubic yards \$41,080
- Soil above USTs - 852 cubic yards \$55,380
- Total of 1484 cubic yards **\$96,460**
- Replace soils upon completion of land farming.

UST Project Total \$306,464

Fuel Farm

2-25-04 - Call placed to Sam re fueler questions
& fire dept questions



Washington

5220 Spring Valley Road, Suite 204
Dallas, TX 75254
(972) 385-1635 phone (972) 385-1639 fax

letter of transmittal

to: City of Addison.
Department of Public Works
Addison, TX 75001
Attention: Jim Pierce, P.E.
Phone No. (972) 450-2879

Project no.: 27514.000
client project no.: _____
date: 2/25/04
Reference: Addison Airport
Addison Fuel
System Prelim

we are sending you: enclosed under separate cover via Plan

item	no. copies	Date	Description
1	4	2/25/03	Copy of Addison Airport Fuel System Preliminary Plan

transmitted as noted:

<input checked="" type="checkbox"/>	for approval	<input type="checkbox"/>	no exception taken
<input checked="" type="checkbox"/>	for your use	<input type="checkbox"/>	make revisions
<input type="checkbox"/>	as requested	<input type="checkbox"/>	revise and resubmit
<input type="checkbox"/>	for review and comment	<input type="checkbox"/>	_____

remarks: _____

Call Sam Lundgren (303) 843-3596 or me at (972) 385-1635 x 208 if you
have any questions.

copies to: Files/Sam Lundgren transmittal only
W:/Airport/Addison/Correspondence

Bruce D. Nipp
Office Manager

Jim Pierce

From: Samuel Lundgren [samuel.lundgren@wgint.com]
Sent: Wednesday, February 25, 2004 1:32 PM
To: Jim Pierce
Cc: Lisa Pyles; Bruce Nipp; Mark Acevedo
Subject: RE: Bulk Fuel Storage and Dispensing System Site Plan



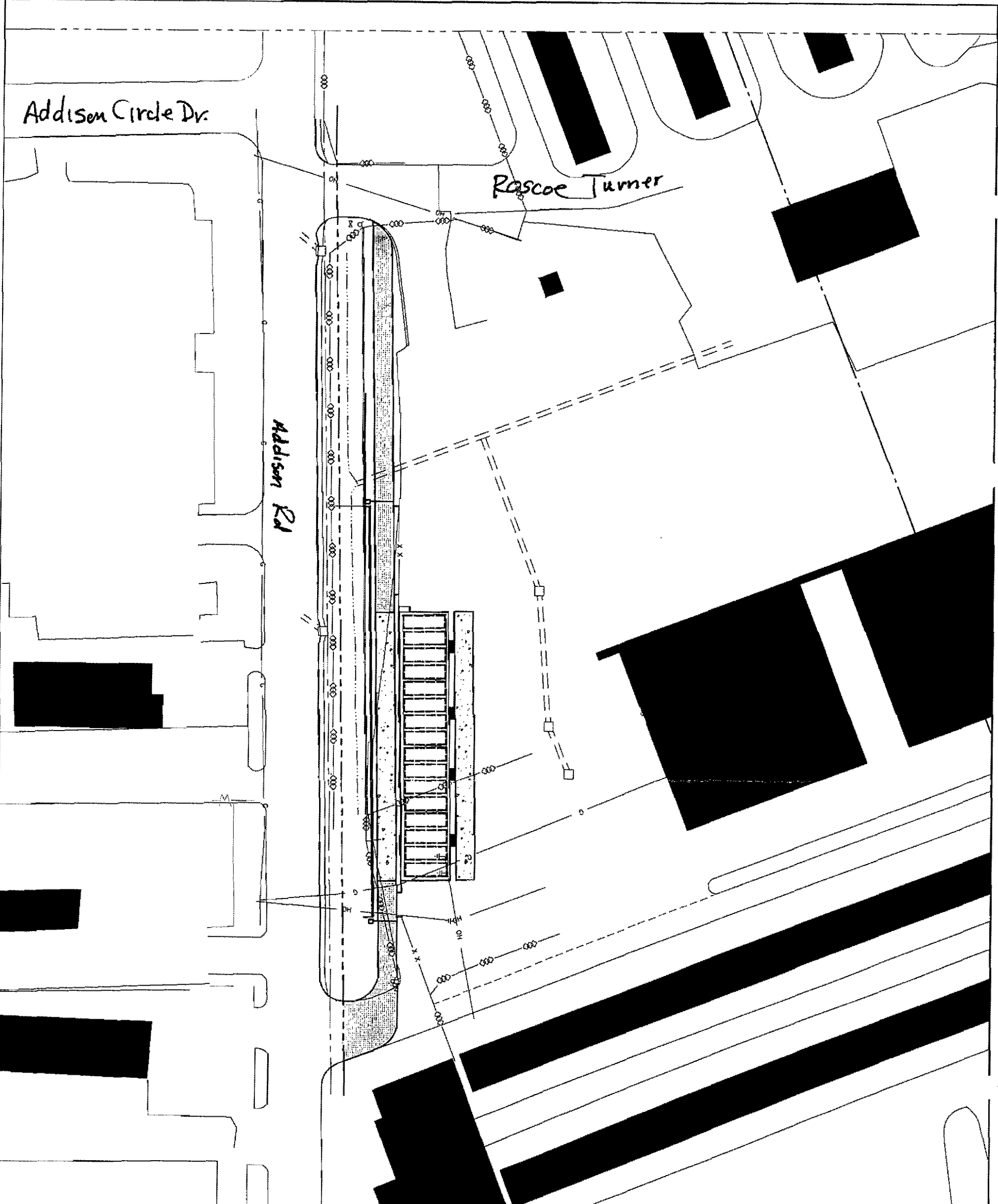
Bulk Fuel & Disp Addison Airport UST Addison Design
Facility & US... Removal.do... Schedule1.pdf

Jim and Mark,

Please find attached the our revised project estimate, that incorporates UST removal, including planning, approvals and lab work on samples, the frame structure and standing seam metal roof over the facility and the new 2 hour rated fuel storage tanks. I have indicated all of the changes in Red, which I hope you can print, for comparison with the previous design and project estimate. The intent on this estimate is to cover all items required for the new system and to clear the old area, ready for development. I have included the UST removal estimate sheet and a new design schedule for the bulk fuel storage and dispensing system, for your consideration and approval. Please call if you need this information in a different format.

Thanks,

Samuel Lundgren, P.E.
Program Manager
Washington Group International, Inc.
7800 E. Union Avenue, Suite 100
Denver, CO 80237
Phone (303) 843-3596, Fax (303) 843-3133, Cell (720) 530-7315




Need 20' each side
 Space -
 I need to know
 if we plan to
 take any fuel
 from the airport
 along Addison
 Rd when we
 go to S
 please you
 should have a
 set of plans that
 get to please
 show first.
 Jim




DATE: FEB. 25, 2004
 SHEET OF

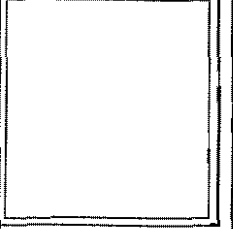
**ADDISON FUEL SYSTEM
PRELIMINARY SITE PLAN**

DESIGNER	PROJ. LEAD	APPROVED
CADD TECH.	CHECKED	

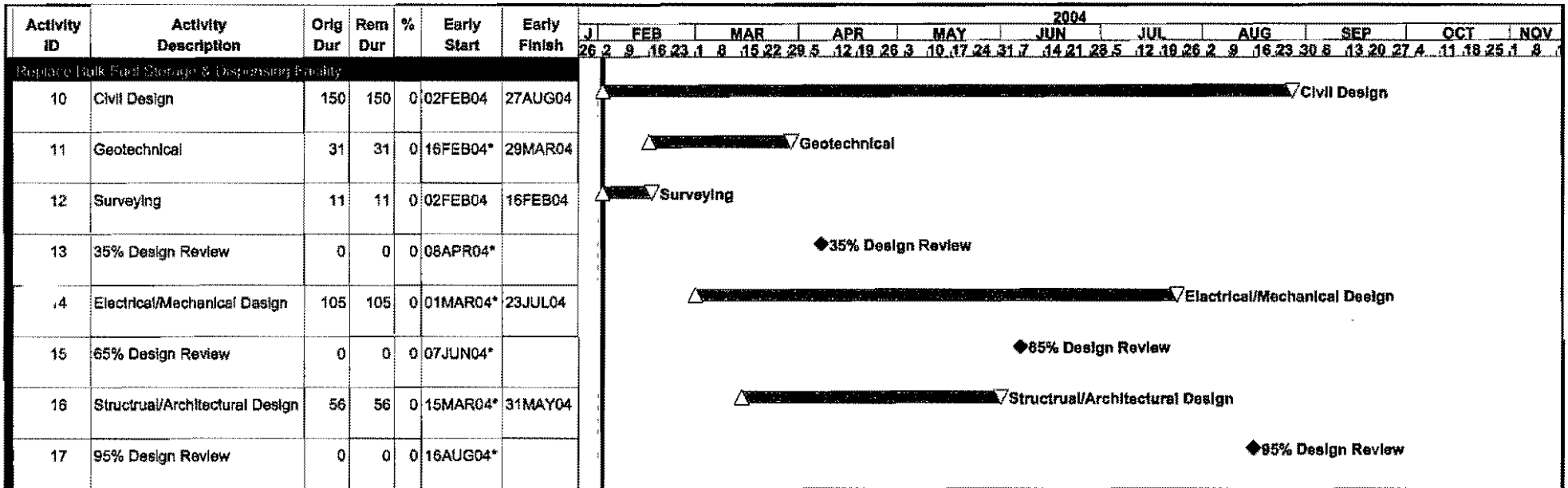

Washington Group International
 Integrated Engineering, Construction, and Management Solutions
 PHONE (303) 843-2000 FAX (303) 843-3133


ADDISON REGIONAL AIRPORT
 ADDISON, TEXAS

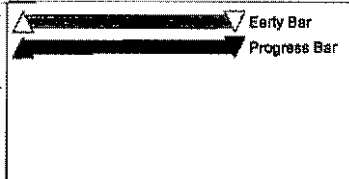
ADD-FEUL	ADDISALP-BASEGR2.dwg	PRELIMINARY
	CADD FILE NO.	STAGE OF PLANS
A.I.P. PROJ. NO.		
REV.	DATE	DESCRIPTION
		APP.



I:\addison\fuel\facility\3000\ADDISALP-BASEGR2.dwg
 Feb 25, 2004 - 8:41am Dan M...



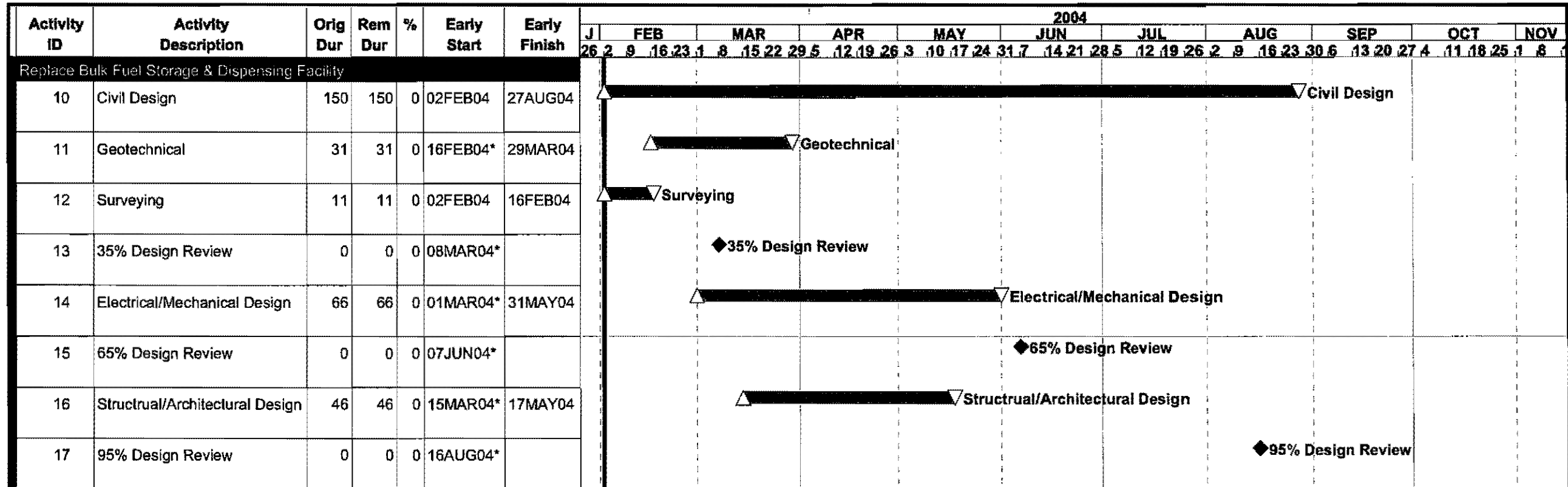
Start Date 02FEB04
 Finish Date 27AUG04
 Data Date 02FEB04
 Run Date 26FEB04 07:01



ADAP Washington Group International, Inc.
 ADDISON AIRPORT
FUEL FARM DESIGN

Sheet 1 of 1

Date	Revision	Checked	Approved



*Notice to proceed sent via e-mail 1-28-04
 Contract allows 200 days for design
 Completion Date Aug 16, 2004*

Start Date	02FEB04		Early Bar	ADAP	Washington Group International, Inc. ADDISON AIRPORT	Sheet 1 of 1			
Finish Date	27AUG04		Progress Bar			Date	Revision	Checked	Approved
Data Date	02FEB04								
Run Date	04FEB04 13:45								
© Primavera Systems, Inc.									

Organization or Company	Name & Title/Function	Phone	Email: Office, Home
ADS Bulk Fuel System Design Personnel Contact List			
Washington Group Int.	Sam Lundgren Project Manager	W: 303-843-3596 Cell: 720-530-7315 H: 303-979-1575	samuel.lundgren@wgint.com
Washington Group Int.	Neil Rood, Manager Airport Services	W: 303-843-3514 Cell: 303-809-6752	neil.rood@wgint.com
Washington Group Int.	Steve Van Winkle, Lead Architect	W: 303-843-2511 Cell: 303-475-9424	steve.van.winkle@wgint.com
Burns & MacDonnell	Ted Born, Av Fuels Managing Director	W: 816-822-4236 Cell: 816-225-6874	tborn@burnsmcd.com
Burns & MacDonnell	John Bagnall, Senior Mech Engineer	W: 816-822-3524 Cell: H: 913-829-8124	jbagnal@burnsmcd.com
Burns & MacDonnell	Dave Van Fleet Asso Electrical Engr	W: 816-822-3367 Cell: H: 816-650-3613	dvanfleet@burnsmcd.com
Washington Group Int.	Bruce Nipp, Office Manager, Dallas	W: (972) 385-1635 Ext 208 Cell: (972) 743-2124	bruce.nipp@wgint.com
Washington Group Int.	Miguel Otero- Jimenez, Civil Engr	W: 972-385-1635 Ext 205 Cell: 214-536-4717	miguel.otero@wgint.com
Washington Group Int.	Ron Bowlin Environmental Engr	W: 281-529-2704 Cell: 832-465-5996	ron.bowlin@wgint.com
ECS, Ltd.	Chris Eddy, Geotechnical Engr	W: 972-392-3222 Cell: 972-741-9761	ceddy@ecslimited.com
DAL-TECH Engineering.	Alan Moore, RPLS	W: 972-250-2727 Cell: 720-272-7907 H: 303-805-9339	alan@dal-tech.com
Washington Group Int.	D.U. Kini, Contracts Mgr	W: 303-843-3329 Cell: 303-810-0123	d.kini@wgint.com
Addison Airport	Lisa Pyles, Airport Director	W: 972-392-4855 Cell: 214-683-9814	lisa.pyles@wgint.com
Town of Addison	Mark Acevedo, Facilities & Fleet Administrator	W: 972-450-2848 Cell:	macevedo@ci.addison.tx.us
Town of Addison	Jim Pierce, P.E. Assistant Public Works Director	W: 972-450-2879 Cell:	jpierce@ci.addison.tx.us
Town of Addison	Gordon Robbins Deputy Fire Chef	W: 972-450-7220 Cell:	grobbins@ci.addison.tx.us
Million Air	Jack Hopkins Manager	W: 972-248-1600 Cell:	
Mercury	Bob Wernersbach Manager	W: 972-735-7905 Cell:	
Cherry Air	Kenny Donaldson Manager	W: 972-248-1707 Cell:	
Addison Express	Kevin Lacey Manager	W: 972-713-7707 Cell:	



Fuel Farm

Meeting with

Gordon/Hisa

Ron, Mark, Chief Padden

9/2/03

400,000 gal fuel above ground

F.D. prefers double walled insulated tanks
Evacuation 1/2 mile radius if one tank is
breached.

Pole Barn "Roof" Protects tanks but
does not allow foam to be lobbed onto
the tanks

Gordo likes concrete vaulted tanks

Can a foam distribution system be designed?

Look at Concrete Vaulted tanks, uncovered
as an option, covered too

Jim Pierce

From: Gordon Robbins
Sent: Wednesday, August 27, 2003 2:34 PM
To: Jim Pierce
Cc: Noel Padden
Subject: Fuel farm (proposed) >> Fire protection requirements

Jim:

As we recently discussed, I wanted to take a more detailed look at the Fire Code requirements for the proposed fuel farm. I appreciate you allowing me some time to do that.

As you know, there are numerous general requirements in the International Fire Code regarding electrical wiring, venting, overfill protection etc. These can be considered "standard" for any installation of this type, and it will be necessary for the Washington Group to familiarize themselves with these regulations, as compliance will be necessary for approval. However, the purpose of this correspondence is to point out those salient requirements which will impact the design process of this particular project. These requirements are listed below. Please contact me if you require clarification or additional information.

Relevant fuel properties:

AvGas: Flashpoint = -50F (Class IA flammable liquid)

Jet-A: Flashpoint = 120F (Class II combustible liquid)

2000 International Fire Code

Sec 2704.2.2.4

Secondary containment for outdoor storage areas shall be designed to contain a spill from the largest individual vessel. If the area is open to rainfall, secondary containment shall be designed to include the volume of a 24-hour rainfall as determined by a 25-year storm and provisions shall be made to drain accumulations of groundwater and rainwater.

Sec 3404.2.9.1

Foam fire protection systems shall be provided for above ground tanks used for the storage of Class I or Class II liquids or those posing an unusual exposure hazard because of topographical conditions, nature of occupancy or proximity to adjoining properties.

NOTE: As an alternative to foam fire protection it will be acceptable to install protected aboveground tanks that are concrete vaulted and/or which comply with UL-2085.

Table 3405.3.4(2)

Minimum distance from lot line, including the opposite side of a public way, for a 25,000 gallon tank is 20-feet.

Sec 3406.5.1.2

Weather protection canopies shall not be located within 25-feet of lot lines, public streets or public ways.

General fire protection issues

I am unable to determine from your preliminary drawing if the "pole barn" covering the tanks is intended to have sides on it. Please note that we cannot approve any design that impedes our ability to deploy a remote master stream on the tanks. In a fire situation it will be extremely critical that we be able to attack the fire and cool the tanks from a safe distance.

Addison Airport Fuel Farm
Design Kick-off 8:30 AM

8-20-03

Name	Company	Phone
Jim Pierce	Town of Addison	972-450-2879
David Van Fleet	Burns & McDonnell	816-822-3367
JOHN BARNALL	BURNS & McDONNELL	816-822-3524
MARK ACEVEDO	TOWN OF ADDISON	972-450-2878
SAMUEL LUNDGREN	WGI	303 843-3596
Alan Moore	Dal-Tech Engineering	972-250-2727
BRUCE NIPP	WGI	972-385-1635 x208
Luis ELGUEZABAL	ADDISON AIRPORT	972-392-4861
Darci Neuzzi	"	972-392-4854
Gordon Robbins	ADDISON FIRE DEPT	972-450-7220
Lisa Ryks	Addison Airport	972-392-4855
Chris Eddy	ECS, Ltd.	972-392-3222
Robert Ray	" "	" " "

Fuel Farm Fuel Farm Design Kickoff 8-20-03
 Sign in Sheet 1:30 PM

<u>Name</u>	<u>Company</u>	<u>Phone</u>
Jim Pierce	Town of Addison	972-450-2879
MARK ACEVEDO	TOWN OF ADDISON	972-450-2848
Kenny Donaldson	Cherry-Air	972-248-1707
JEFF CARR	MILLION AIR.	972-733-5802.
Miguel Otero-Simenez	WIS/WGI	972-385-1635 x 205
BRUCE NIPP	WGI	972-385-1635 x 208
SAMUEL WINDGREN	WGI	303-843-3335
KEVIN LACEY	ADDISON EXPRESS	(972) 713-7707
Bill Duff	Exxon/Mobil	281 9981994
Josh Martin	Mercury	972-930-0216
BOB WERNERSBACH	MERCURY	972-735-7905
Phillip Brooks	Bassco / Allied oil	214-352-4432
JACK HOPKINS	MILLION AIR	972-248-1600
LISA A. Pyles	Addison Airport	972 392-4855
Rox STRAY	/	972-980-2803

1/2

8-20-03

Fuel Farm Kickoff

Staff/Design Team: 08:30 AM

Consider ROAD ROW, Future ROW with widening of Addison Rd, Future intersection? @ Addison
4 FBO's that use fuel

Will be able to contain any leak.

Oil water Separator will be upsized to include fire dept water, foam, etc

Code shall be used to open both gates

Looking at Fire protection syst. V.S. double wall insulated tanks (4hr fire rating).

Get storm, water, Sanitary locations,

Staff/Fuelers 1:30 PM

15,000 gal tanks instead of 75K?

What tankage is wanted?

million air { 2-25K & 15K
 ↳ jet ↳ av gas

(Much discussion)

Fuel farm a bomb?

Off load system 20 min offload - truck will be there about 1 hour - Need static Relaxation.

Need 2 drop points. Pump type questions

Ideal - 3 drop stations with ability ^{for trucks} to pass.

FBO's would also like no gas & diesel Super card system

↓
2-25K
1-15K

cherry air
2-12k tanks

(more discussion of tank capacities)

8-20-03

2/2

Fuelers would like to be able to use 5K trucks

Build only for present needs? Provide for some future tank capacity? Fuelers think this will provide ultimate

Public & Private standards will be set

2 Jet A 25K

1 av-gas 12 to 15K

Capacity needed

Team will build infrastructure

Fuelers will be responsible for tanks

look entire cost package. Can flowage fee be reduced?

Walkway on roof to check vents?

Use 300gpm pumps. Same pump to load, unload each tank

A small plane fueling facility is not practical and not safe and not recommended by fuelers

Sam to get tank & pump package pricing to fuelers so they can make decisions on the tanks they want.



August 20, 2003

Bulk Fuel Storage and Dispensing System For Addison Airport

Design Kickoff Meeting

Meeting Agenda:

8:30 AM, Town of Addison Service Center

1. Introductions
2. Project review
3. Technical considerations
4. Reports, permits and studies
5. Design and Construction schedule
6. Public Works Department site plans and information
7. Fire Department information and guidelines
8. Operational considerations
9. Town concerns and issues
10. Site visit and located utilities

11:30 AM, Lunch and continued discussion

1:30 PM, Addison Airport Office

1. Introductions
2. Project Review
3. Operation Plans
4. Equipment Options
5. Design and construction schedule
6. Issues and concerns

Jim Pierce

From: Samuel Lundgren [samuel.lundgren@wgint.com]
Sent: Friday, August 08, 2003 9:13 AM
To: Jim Pierce; Mark Acevedo
Cc: Neil Rood; Lisa Pyles; Heather Hatcher
Subject: Revised Concept Site Plan



Bulk Fuel Storage &
Disp Facil...

Folks,

Please find attached my revised concept site plan for you review and consideration. This PDF is set to be approximately half size when printed on 11" x 17" paper. The site plan is for discussion and planning purposes only, and I will bring full size drawings to mark the Addison Road ROW, storm and sewer lines, utilities and other pertinent information until the surveyor completes the site topographic work. We will use the surveyors information for our site and utility connection plans. The secondary containment is the concrete basin in which I have mounted the fuel storage tanks. I show the basin with 18" stem walls and I plan on mounting dispensing and offload equipment on that stem wall so that the sidewalk on each side is clear and defines the concrete driveway for the trucks. The depressed driveways drain into the secondary containment; however, if we cover the tanks and equipment, we may want to drain the driveways directly to the oil/water separator.

Call if you have questions.

Respectfully,

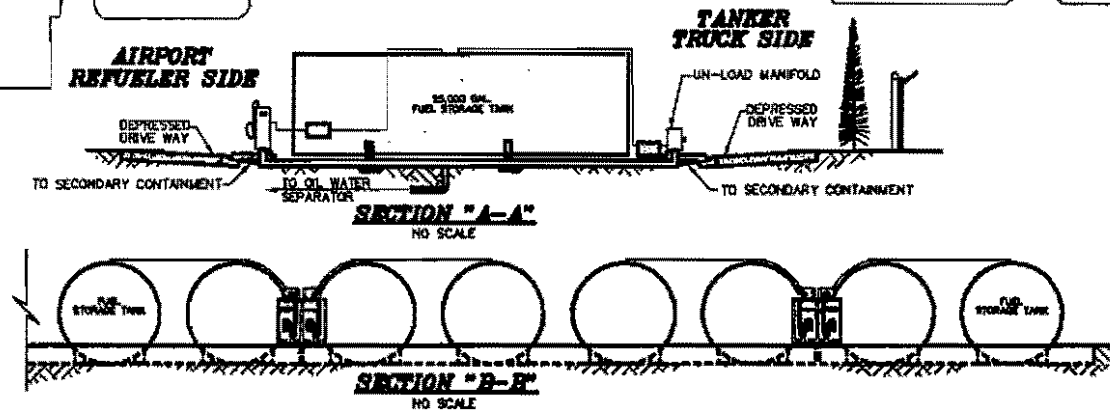
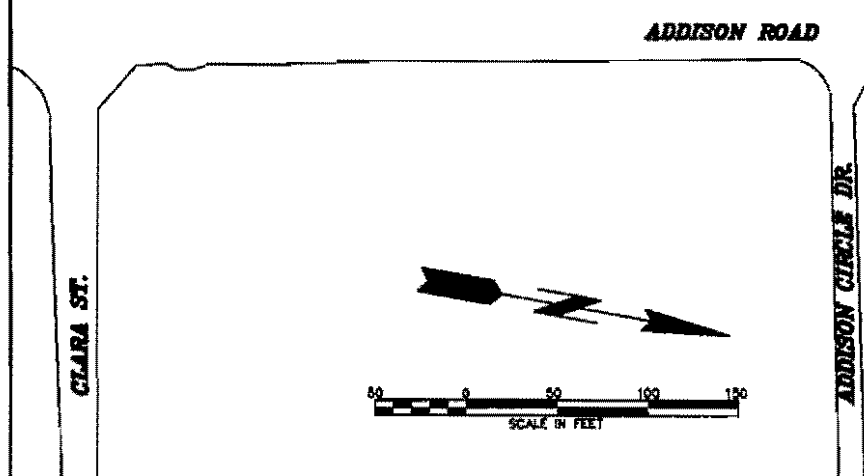
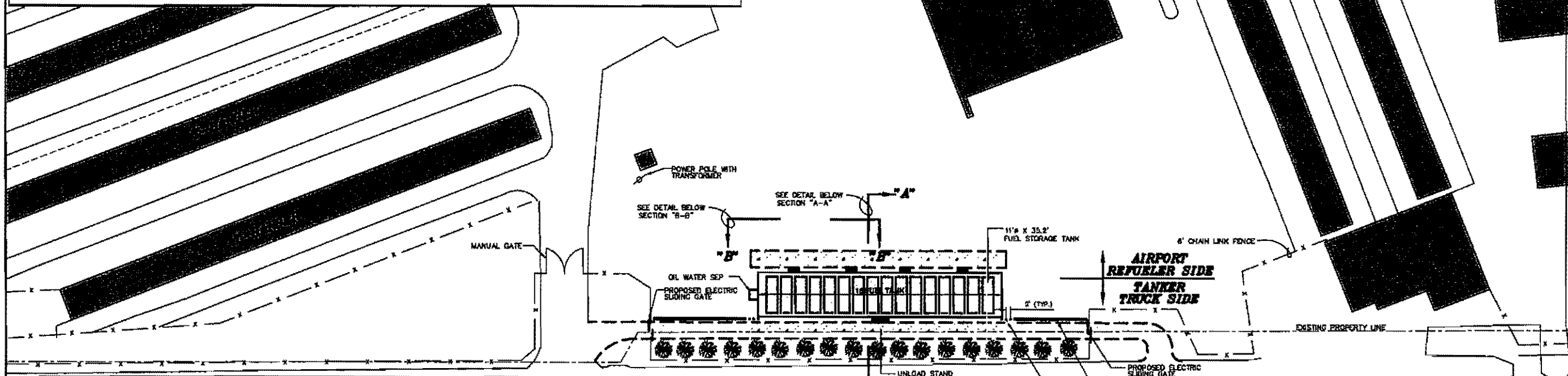
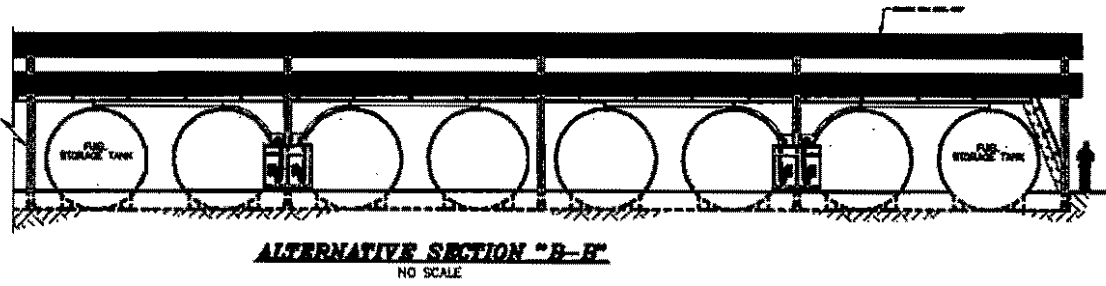
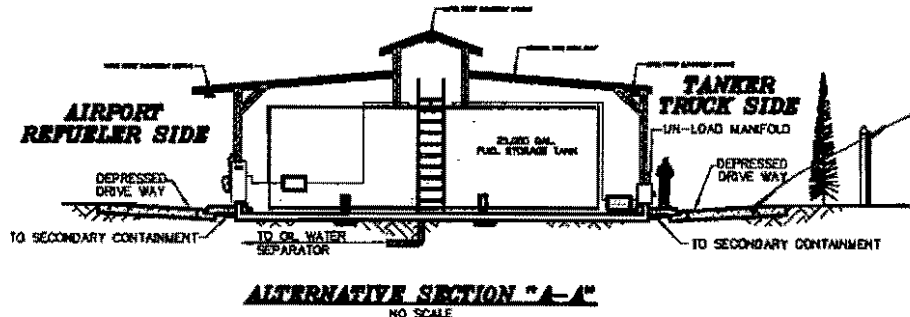
↳ No

Samuel Lundgren, P.E.
Project Manager, Airport Services
Washington Group International, Inc.
7800 E. Union Avenue, Suite 100
Denver, CO 80237
Phone (303) 843-3596, Fax (303) 843-3133, Cell (720) 530-7315

Description	Hourly Rate	Planning & Studies		Engineering & Design		Constr. Mgmt Svcs	
		Services	Services	Services	Services	Services	Services
		Hours	Cost	Hours	Cost	Hours	Cost
Architectural							
Principal	\$160.00	0	\$0.00	0	\$0.00	0	\$0.00
Project Manager	\$125.00	0	\$0.00	0	\$0.00	0	\$0.00
Architect	\$95.00	8	\$760.00	36	\$3,420.00	12	\$1,140.00
CAD Operator	\$57.00	4	\$228.00	46	\$2,622.00	8	\$456.00
Designer	\$65.00	0	\$0.00	12	\$780.00	0	\$0.00
Clerical (Wordprocessor)	\$52.00	0	\$0.00	18	\$936.00	0	\$0.00
SUBTOTAL		12	\$988.00	112	\$7,758.00	20	\$1,596.00
Mechanical							
Principal	\$125.00	0	\$0.00	6	\$750.00	0	\$0.00
Senior Engineer	\$95.00	8	\$760.00	22	\$2,090.00	12	\$1,140.00
Mechanical Engineer	\$75.00	12	\$900.00	96	\$7,200.00	36	\$2,700.00
Fire Protection Engineer	\$104.00	4	\$416.00	36	\$3,744.00	12	\$1,248.00
SUBTOTAL		24	\$2,076.00	160	\$13,784.00	60	\$5,088.00
Structural							
Principal	\$125.00	0	\$0.00	0	\$0.00	0	\$0.00
Senior Engineer	\$95.00	0	\$0.00	0	\$0.00	0	\$0.00
Structural Engineer	\$75.00	12	\$900.00	28	\$2,100.00	8	\$600.00
CAD Operator	\$57.00	4	\$228.00	16	\$912.00	16	\$912.00
SUBTOTAL		16	\$1,128.00	44	\$3,012.00	24	\$1,512.00
Reimbursable Expenses							
3.5" HDDS Cp Disk, ea			\$0.00			0	\$0.00
Blueline 36" x24",ea			\$0.00			0	\$0.00
Mylar, Sepias, ea			\$0.00			0	\$0.00
Paper 8 1/2" x 11", ea			\$0.00			0	\$0.00
Mileage rate per mile	\$0.32		\$0.00			0	\$0.00
Support Vehicle per mile			\$0.00			0	\$0.00
Support Vehicle per day	\$35.00	15	\$525.00	8	\$280.00	12	\$420.00
Per Diem Rate per day	\$95.00	15	\$1,425.00	8	\$760.00	12	\$1,140.00
Survey Equipment GPS			\$0.00			0	\$0.00

8-8-03

Doesn't roadway need to be higher than containment wall for post leakage into containment?



REV.	DATE	DESCRIPTION	APP.

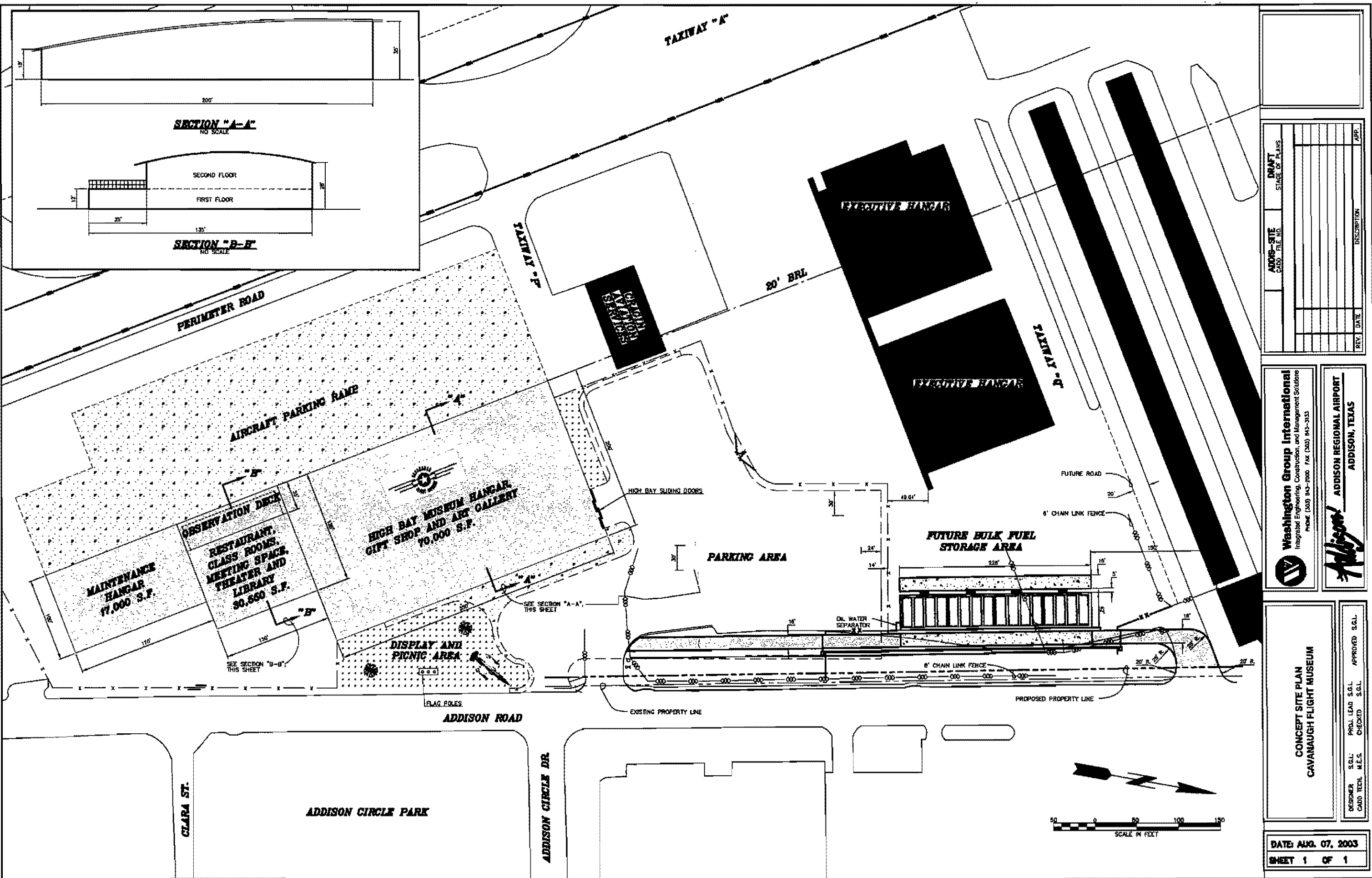
washington
 Infrastructure Services, Inc.
 PHONE (202) 944-3000 FAX (202) 944-3155

Addison
 ADDISON REGIONAL AIRPORT
 ADDISON, TEXAS

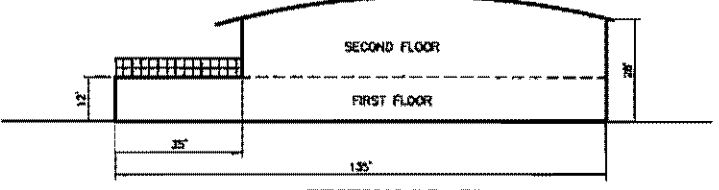
CONCEPT SITE PLAN
BULK FUEL STORAGE AND DISPOSING SYSTEM

DESIGNER S.C.L. PROJ. LEAD S.O.L. APPROVED S.G.L.
 CARD TECH. M.E.S. CHECKED S.G.L.

DATE: AUG. 07, 2003
 SHEET 1 OF 1



SECTION "A-A"
NO SCALE



SECTION "B-B"
NO SCALE

REV.	DATE	DESCRIPTION	APP.

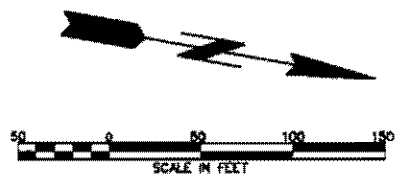
Washington Group International
 Integrated Engineering, Construction, and Management Solutions
 PHONE (303) 943-2000 FAX (303) 943-3133

Addison! ADDISON REGIONAL AIRPORT
 ADDISON, TEXAS

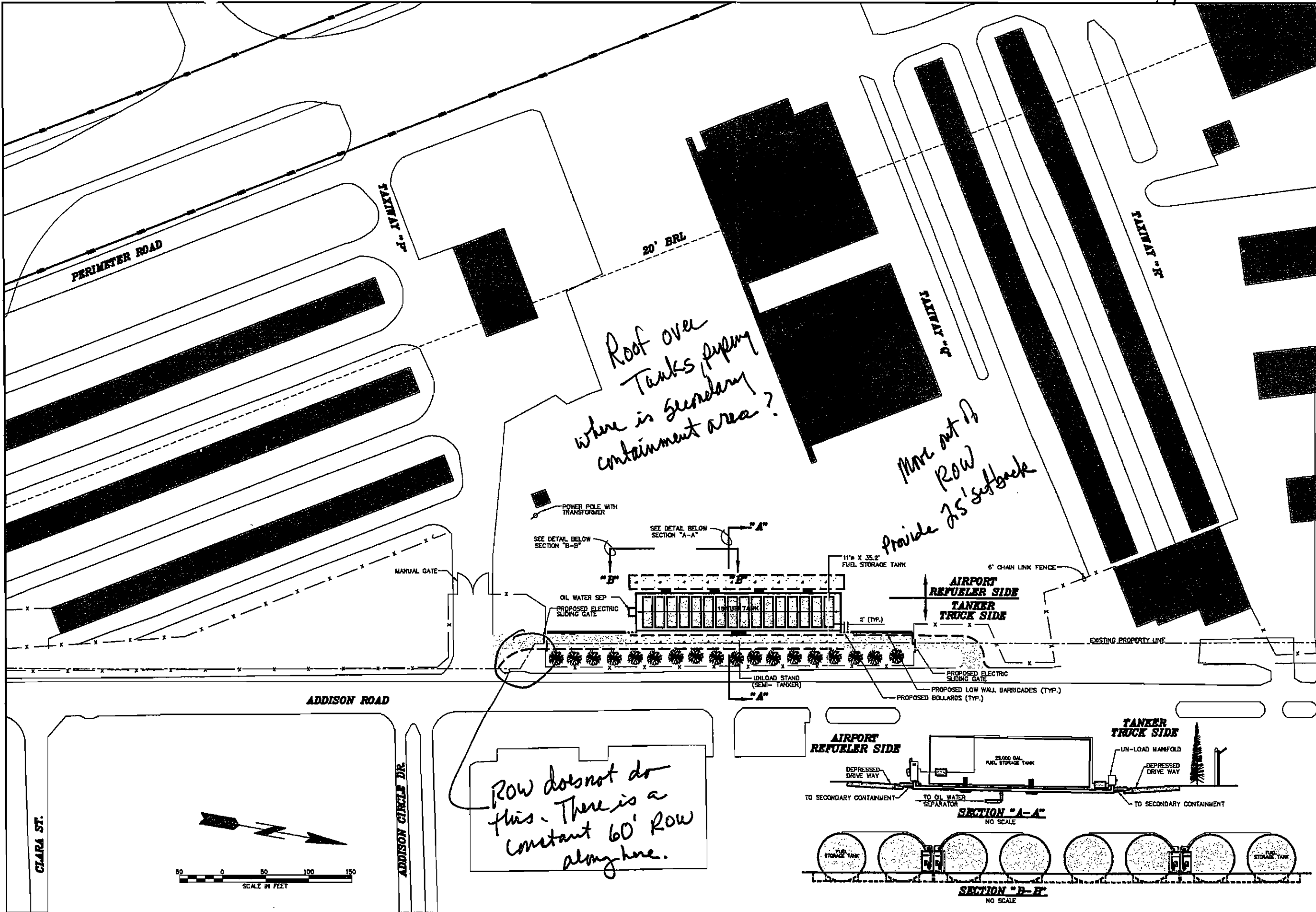
CONCEPT SITE PLAN
CAVANAUGH FLIGHT MUSEUM

DESIGNER: S.G.L. PROJ. LEAD: S.G.L. APPROVED: S.G.L.
 CADD TECH: M.E.S. CHECKED: S.G.L.

DATE: AUG. 07, 2003
 SHEET 1 OF 1



8/1/03



ADDIS-SITE CAD FILE NO.	DESCRIPTION	REV	DATE	APP.

DRAFT STAGE OF PLANS	

washington
 Infrastructure Services, Inc.
 PHONE (303) 943-2000 FAX (303) 943-2131

Addison
 ADDISON REGIONAL AIRPORT
 ADDISON, TEXAS

CONCEPT SITE PLAN
BULK FUEL STORAGE AND DISPOSING SYSTEM

DESIGNER CADD TECH	S.G.L. M.E.S.	PROJ. LEAD S.G.L.	CHECKED S.G.L.	APPROVED S.G.L.
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DATE: JULY 30, 2003
 SHEET 1 OF 1