

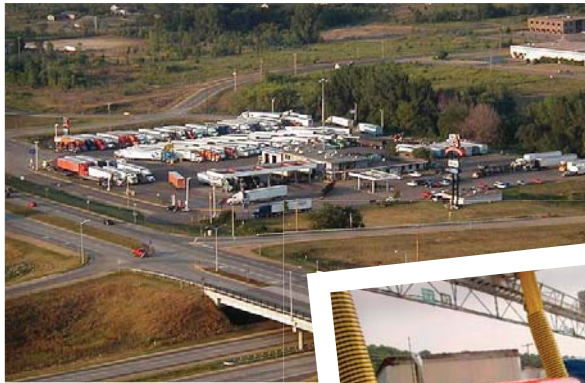
## APPENDICES

# #GPC IV-21

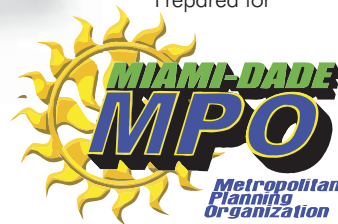
## Development of Truck Parking Facilities in Miami-Dade County Phase II



### Options for Implementation



Prepared for



Prepared by



Kimley-Horn  
and Associates, Inc.

# APPENDICES

# APPENDIX A: Meeting Notes

**FREIGHT TRANSPORTATION ADVISORY COMMITTEE  
MEETING NOTES  
Wednesday October 26, 2011**

The October meeting of FTAC was held at 2:30 pm in the FCBF Seminar Room

**The following individuals were in attendance:**

**FTAC Members**

Doug Tannehill  
Maria Fernandez Porrata  
Mariella Marrero  
Barbara Pimentel  
Joseph Witz  
Estrella Manso  
Linda Nunez  
Bill Arata  
Sylvia Bernstein  
Zac Gruber  
Felipe Munoz

**Guests**

Stephen Armellini	Armellini Trucking
Sherri Beregovy	DiGiacomo Group
Helen Brown	M-D Planning Dept.
Alissa Penaloza	POM
McKenna Frease	Miami River Marine Group
Joe Yesbeck	Miami Chamber of Commerce
Eric Olafson	POM
Rolando Jimenez	M-D DPW
Paul Zedeck	Florida 595 Truck Stop
Lenny Feldman	FCBF legal Council

**Staff**

Larry Foutz	Miami-Dade MPO
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**Consultants**

Adrian Dabkowski	Kimley Horn
Sorin Garber	TY Lin

After self-introduction the Chair asked for approval of the agenda.. The agenda was moved by Sylvia Bernstein seconded by Estrella Manso, and was approved unanimously. The Chair then asked everyone if they had looked at the September minutes to see if there were any comments or corrections. Staff advised the committee that the minutes they had today were different from the copy that was mailed out last month. The present copy had 3 minor revisions requested by Kornelia Tiede The minutes were moved as modified by Barbara Pimentel, seconded by Felipe Munoz and approved unanimously.



The chair then turned the meeting over to the consultant who distributed a truck parking memo and copies of the aerial photos of each site being considered for development of an overnight truck parking facility, then went straight into his presentation. The goal of this study is to identify and develop parking facilities for commercial trucking operations within Miami-Dade County. This study advances the previously prepared Comprehensive Parking Study for Freight Transport in Miami-Dade County, 2010.

The methodology determination was prepared based on summarizing the key findings from the Phase 1 study and establishing key questions that will be used to facilitate the plan development task.

#### Comprehensive Parking Study for Freight Transport in Miami-Dade County Summary

- Interstate trucking operations that transport loads that require overnight parking facilities between loads (focus of this study)
- Severe shortage of truck parking within Miami-Dade County
- Legal requirements for truck parking facilities within Miami-Dade County
  - Locations must be within Urban Development Boundary (UDB)
  - Sites must have “Industrial and Office” or “Business and Office” land use designation on the adopted year 2015 and 2025 land use plan maps
  - Locations within unincorporated areas of Miami-Dade County must be zoned as IU-1, IU-2, IU-3, or BU-3
  - Locations within incorporated areas of Miami-Dade County are regulated by local land development codes
- Parking requirement rule-of-thumb of 10 trucks per acre used
- Potential parcels for truck parking within entire Miami-Dade County
  - Four (4) eligible vacant parcels greater than 10 (greater than 9.50) acres within unincorporated Miami-Dade County
  - 19 eligible vacant parcels greater than 10 acres within incorporated Miami-Dade County
- Potential parcels for truck parking within 1-mile of interstate interchange
  - Four (4) eligible vacant parcels greater than 10 (greater than 9.50) acres within unincorporated Miami-Dade County
  - 10 eligible vacant parcels greater than 10 (greater than 9.50) acres within incorporated Miami-Dade County

Sites to be further examined include:

- Site A off 84<sup>th</sup> Street near the Palmetto and is a 9.5 acre site that can accommodate 94 trucks.
- Site B is adjacent to the HEFT and north of the Dolphin Mall and is 14.6 acres which will accommodate 145 trucks.
- Site C is a 43 acre site that will hold 430 trucks and is adjacent to the HEFT in Medley
- Site D is 11 acres and will hold 160 trucks. Although adjacent to the Coral Way bus facility it is near a residential area.
- Site E is 11.7 acres in the Doral Warehouse District.
- The Folio Number for site F could not be located.

- Site G,H, I, J and K are all in Hialeah Gardens and are contiguous north of US27 near the HEFT. each site is nearly 10 acres and some trucks are already parked on some of the sites.
- Site L is south of US 27 in Medley near the HEFT and is 7-8 acres.
- Lot M is 84 acres in Medley.
- Site N is in Medley off of US 27 it's a 9 acre site and can accommodate 72 trucks.

The portfolio number for Site F could not be found so it should be dropped. It was pointed out that site C TARMAC was already under contract and should be removed from consideration. Staff pointed out that he had provided 4 sites that FDOT considered excess property and they should be in the screening list. Barbara offered to get her truck committee to assist in screening the list. She stated there was also a need for parking for local trucks. Staff explained that the earlier study explored that issue and a 75 acre site had been approved for that purpose. Parking for local trucks is not a part of this study. We also need to get Stephen Armellini involved in this group. We need this project in place before 2014 when the Port expansion comes together. This element is as critical as any of the other elements. Zac pointed out that it was going to be hard to make this project work. Land in Doral was going for \$9-\$16/foot and warehouses yield about 4% profit on that level of investment. Is there any way that parking can work for the private sector. We need a public/private partnership to make it work. Staff pointed out that when he presented the first phase of the work to the TPC that the representative from the Airport had stated that a large number of trucks parked on the west side of the airport, but that area was only *ad hoc* since other uses were planned for that space. This needs to be verified and quantified.

The representative of the I-595 Truck Stop said that they offered a full service truck stop like had been described in the presentation. He was concerned that they were providing the service and that there was not a need for another facility. He said that it was a 3-4 year process to acquire the permits so it was unlikely that a new facility could be ready by 2014. The 595 facility is located at I-595 and 441, it opened in May. There are a total of 32 acres to be developed, 14 of which are currently developed on which they have parking for 45 trucks on asphalt and 120 on gravel. The recent grant that they received would allow them to expand to a total of 290 truck space on asphalt. Their build out size is about 400 trucks. The committee assured the representative that there was plenty of demand for a second large truck stop and that by the time that a new one got permitted the I-595 facility would be full.

The Chair moved to the next item on the agenda, the discussion of legislative issues and policies. Staff told the committee that he had distributed two items. The first was a 10-page table of content for the 490 page draft transportation bill that was forwarded to congress. The table of content shows the emphasis on freight. The second item was the notification that the senate had introduced a two-year transportation bill. Staff said that if anyone wanted a copy of the full first draft that he could email it to them. Lenny Feldman thanked the FTAC for passing the Resolution supporting the legislative program being backed by the Florida Custom Brokers and Forwarders Association. The legislative program includes: getting a new transportation reauthorization bill, customs

reauthorization bill, the export renewal act, and the USDA processing of perishable products. The free trade agreements with Colombia, Panama and South Korea have been signed by the president but there still needs to be local action to assure that the agreements and local issues are executed in Colombia and South Korea. A real pending issue is the renewal of trade preferences (duty free). This agreement with the Andean countries has expired and Customs had started collecting duty on imports. Although the legislation has not been passed Customs has agreed to stop collecting the duty and refund the money that had been collected. Congressman Mica from Florida is heavily involved in the transportation legislation. He is working to make sure that transportation user fees stay committed to transportation infrastructure. He wants a 2-year bill now rather than the continuing resolutions to renew the old legislation.

Eric Olafson from the Port of Miami stated that the transportation reauthorization was critical to Miami. The new legislation will not have earmarks so it needs a national strategy for focusing on commerce. For the first time the legislation will have sections on maritime and rail. Miami needs to take this opportunity to accomplish what Savannah did. Savannah moved itself from 18<sup>th</sup> place to 5<sup>th</sup> place among Ports by having a strong plan and marketing themselves to big shippers. A lengthy discussion of the type of warehouse space necessary for the distribution ensued. Most Miami warehouses are made for transshipment, not for storage and distribution, which is what is needed for things like WalMart and Home Depot. The FEC development is critical to attracting the big distribution centers as long as the new warehouses that are developed there are of the correct type. They must also allow for growth and reuse. There is only sufficient land in Miami to add 15% to the supply of warehousing. This is not nearly enough to support the anticipated growth in freight. There will need to be significant redevelopment of the 30-40 year warehouses which are obsolete.

With the end of earmarks, it would be useful to push for a National transportation strategy that focuses transportation investments in Gateway Cities, or like the SIS where transportation investments are funneled into areas to help stimulate business and economic growth. Miami could easily get a designation. It would be better if the transportation legislation is not structured to give something to everybody.

There are missing pieces to the freight picture that need pursuit: overnight truck parking, construction of a direct ramp from eastbound 826 to northbound I-95, and growth and modernization of the warehouse inventory.

Does the Port need to change its hours of operation? If the Airport can do it why can't the seaport? When there is sufficient demand it will happen. A lot of perishables are now being shipped by container and they need to be out of customs as quickly as possible and should not have to wait for the customs to open at the Port. Need legislation to free up USDA inspectors at both locations. Need to provide shifts rather than require overtime. Pierpass was raised again for the Port. It is an economic rationing of loading time. You pay more to use the Port during peak hours and less during off peak hours. The money from the Pierpass helps to defray the cost of the extra

man-hours. It was clarified that Pierpass was created by the California Legislature as an air quality measure and the State of California also contributes to program because it does not cover itself.

Joe Yesbeck from the Chamber of Commerce said that most of their issues have been discussed and that he regularly traveled to Washington with both groups here to lobby for transportation legislation. The Chamber has recently completed its annual goals conference and transportation workshop. Their focus is that South Florida needs to create a Common Regional Vision. He said that Congressman Mica was working toward a 6 year funding bill with decreased revenues, but now he favored a 2-year bill with maintained funding levels. Funds are down 35% and in order to keep transportation dollars up he is looking at using leases from oil companies on federal land to make up the gap. Since gas tax revenues are not leveraged for inflation it was pointed out that the gas tax should be shifted from an excise tax (per gallon) to a sales tax (per \$). Another revenue creator is to overturn the Federal Obligation limit imposed by Nixon which only allows Congress to spend 85% of the money in the trust fund.

At the state levels it is critical that the State protect the trust fund. In Florida it is legal for the legislature to use transportation trust fund dollars to balance the general fund. Collections are down a \$billion. Around the state there are a large number of locations trying to develop Intermodal Logistics Centers and Inland Ports. They are all fight for the same distributors and retailers. (Should there be some control on this?) There is legislation at the State level to provide an incentive for shipping out empty containers because of the huge trade imbalance in Florida. They are trying to find a way to offset the cost of shipping back all of the empties.

The issue of cold treatment for pests is not related to USDA rules. Although the concept of cold treatment was created to favor the shipment of stone fruit perishables to Philadelphia for treatment of Medfly. USDA has 5 zones for treatment and there are treatment facilities in 4 of the 5 zones. Southern Florida is in zone 5 and it is a matter for the State Department of Agriculture to allow cold treatment in South Florida.

To avoid both the Thanksgiving and Christmas holidays the November and December meetings will be merged. The next meeting of FTAC was set for Wednesday December 7, 2011 at 2:00. The meeting adjourned at 4:20.

## Opa Locka Property Discussion

02/02/12

(Location R and S)

1. Introduction to Study
  - a. Identify and develop parking facilities for commercial trucking operations within Miami-Dade County
  - b. Focused on Long Haul/overnight truck parking
  - c. Over 500 sites down to 11
2. Developed prototypes for 5 ac, 10 ac, and 40 ac
3. Business model questions
  - a. Pricing per acre to facilitate truck parking
  - b. What is need to get started with a truck parking facility
  - c. Facilitate public/private partnership → what information is needed
  - d. Getting a gas station involved
  - e. Hotel chain
  - f. Private ownership
    - i. Lease land/purchase land
    - ii. Does public need to get involved
    - iii. What incentives can the public sector offer

**FREIGHT TRANSPORTATION ADVISORY COMMITTEE  
MEETING NOTES  
Wednesday April 25, 2012**

The April meeting of FTAC was held at 2:00 pm at the MIA North Terminal Auditorium.

**The following individuals were in attendance:**

**FTAC Members**

Doug Tannehill  
Maria Fernandez Porrata  
Joseph Witz  
Estrella Manso  
Bill Arata  
Sylvia Bernstein  
Mariella Marrero

**Guests**

Alexander Gomez	Flagler Realty
Manny Gonzalez	MIA
Dionne Richardson	FDOT
Dari Vorce	FDOT
Saud Khan	FDOT
Debbie Greiner	PERA
Carlos Batiste	
Michael Silver	CBRE
Rolando Jimenez	PWWM
Diana Ospina	PWWM
Eric Carpenter	City of Doral
Juan Barreneche	DMSI

**Staff**

Larry Foutz	Miami-Dade MPO
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**Consultants**

Adrian Dabkowski	Kimley-Horn
Greg Kyle	Kimley Horn
Nelson Perez	APCTE
Juan Muniz	APCTE
Oscar Gonzalez	MRG
Jose Munoz	BCC Engineering

Manny Gonzalez welcomed FTAC to the Airport and announced that he had just returned from Haiti where an agreement was reached to provide technical assistance.

The Chair convened the meeting and asked for self-introduction. The Chair asked for approval of the agenda. The agenda was moved by Maria Fernandez Porrata, was seconded by Sylvia Bernstein, and approved unanimously. The Chair then asked everyone if they had looked at the March minutes to see if there were any comments or

corrections. The minutes were moved as written by Sylvia Bernstein, seconded by Maria Fernandez Porrata and approved unanimously.

The chair opened the floor to nominations for Vice-Chair after last month's resignation from the committee by the former Vice Chair, Kornelia Tiede. Mariella Morrero nominated Barbara Pimentel and Bill Arata nominated Maria Fernandez Porrata. The chair called for a vote by show of hands and Barbara Pimentel was elected the new Vice Chair by a 4 to 3 vote.

Adrian Dabkowski from Kimley Horn stated that the original Overnight Truck Parking Study identified 590 sites as having potential for truck parking. The phase II work had narrowed that down to 13 sites, but had added 4 private sites and 4 FDOT sites for a new total of 21 sites. These 21 sites were further screened by the following criteria:

- Verification of property location using appraiser's folio number
- Compatibility with surrounding land uses
- Usable site acres
- Adjacent to roadway network
- Adjacent to truck route
- Site located north of SW 8<sup>th</sup> Street
- Properties with the UDB
- Paved access to the site.

This screening eliminated the following sites

Address	Acres	Reason
5900 NW 84 <sup>th</sup> Avenue	9.58	Likely contamination so surface drainage would use too much of the site.
NW 177 Avenue @ 18 Street	14.6	Developer seeking class A office development
NW 122 Street at HEFT	42.96	Property already under contract for development
SW 71 Ave @ 24 Street	11.22	Property already under contract for development
NW 27 St @ 82 Ave	11.73	Site previously excavated for fill and would require substantial cost to return site to grade.
NW 97 Ave @ 90 St	7.19	Remote circuitous access
SW 177 @ 72 St	19.24	Outside the UDB
NW 25 <sup>th</sup> St @ HEFT	10	Owner has other plans for development

This screening left the following parcels for consideration:

Location	Usable Acres	Total Appraised Value
NW 112 Ave @ Okeechobee	10	\$697,750
NW 107 Ave @ 138 St	39.53	\$6,329,614
NW 106 St @ 97 Ave	84.56	\$11,903,819
NW 122 St @ South River Dr.	7.26	\$10,327,896
NW 12 St @ HEFT	6.18	\$4,330,640
Golden Glades Interchange	5.85	\$253,756
14200 LeJeune Rd	9.60	\$238,360
3052 NW 123 St	16.88	\$2,538,500
10350 NW 142 St	17.56	\$3,512,000

There are 6,000 overnight truck parking facilities in the US. There are 3 national operators – Travel Centers of America (237 locations), Pilot Flying J (550 locations) and Love's (287 locations). They were originally developed to provide fuel along the routes, but they now provide a wide range of amenities, such as, diesel fueling, maintenance facility, truck wash, leaky load containment, café/restaurant, convenience stores, restrooms, showers, truck electrification, site security and safety. At larger sites amenities also include: laundry, ATM, wifi, lounge, business center, retail, and truck scales. Florida was going to restrict truck idling for driver sleeping but on February 16, 2012 the law was appealed. The proposed truck parking facility should provide electrification. The consultant showed potential layouts for various size sites that increased in the number of amenities that could be provided. The final steps in the development of the truck overnight parking plan will be to coordinate with the property owners, to develop the cost and funding, to develop two business models- 1 public/private and 1 private partnership. The final step will be to recommend an implementation plan. The MPO is not an implementing agency. The plan can only recommend what needs to be done to develop truck parking in South Florida.

Oscar Gonzalez from MRG introduced the people who had worked on the projects. The second phase of the 25<sup>th</sup> Street Viaduct begins with the bridge over the Palmetto. The section of the project from the Palmetto to where the bridge touches down at 82<sup>nd</sup> Avenue includes the bridge, roadway widening, reconstruction, and water and sewer. From 82<sup>nd</sup> to 89<sup>th</sup> Avenue the project just includes roadway widening, reconstruction, and water and sewer. There are 5 phases of construction that include:

1. Construction on the north side of the project including the covering of the canal with a culvert, the widening of the roadway, and the construction of the foundation for the viaduct that are in that area of the project. The roadway configuration during this phase will be 2 lanes in each direction – 1 eastbound lane is lost. The eastbound to northbound turn lane from 25<sup>th</sup> to the Palmetto should not be impacted. This phase will last 18 months.
2. The traffic will be moved to the north side of the project area and the south side will be reconstructed. This phase will last 9 months. The 2 lane turn lane will be reduced to 1 lane and traffic will be impacted.
3. Traffic will be split and the median and columns will be constructed. The turn lane will remain at 1 lane and traffic will continue to be impacted.
4. And 5. The bridge will be constructed overhead from 8pm to 5:30 am. This phase will take 4-5 months.

The contractor is waiting until after Mother's Day to start work in order to accommodate the flower rush.

After the presentation the following comments were made:

- The stacking distance for turning trucks will be shortened during construction. As much as can be done will be done by adjusting the signal timing but it will still be bad.
- 12<sup>th</sup> Street can be a great reliever for traffic during the construction of the Viaduct. The group assured the committee that operations on 12<sup>th</sup> Street should not deteriorate beyond what it is today. The Air Cargo Group and the



Warehouse associations should get the word out for truckers to detour to 12<sup>th</sup> Street to avoid 25<sup>th</sup> Street.

Jose Munoz from BCC presented a draft plan for the MDX project, the flyover for 12<sup>th</sup> Street over NW 87<sup>th</sup> Avenue. The new plan responded completely with earlier FTAC comments. The westbound flyover to SR 836 would start west of NW 82<sup>nd</sup> Avenue. The SR 836 off-ramp would be relocated into the intersection of NW 84<sup>th</sup> Street. A new ramp from eastbound 12<sup>th</sup> Street to westbound 836 would also be relocated near the 84<sup>th</sup> Avenue intersection. A new circular ramp would be constructed for traffic from southbound 87<sup>th</sup> Avenue to westbound 836. The existing ramp to westbound 836 at the railroad tracks would be abandoned.

- Committee members expressed their enthusiasm for the plan and their gratitude to MDX and BCC for listening to their comments.
- Would there be an operational issue with traffic signals at NW 82<sup>nd</sup>, 84<sup>th</sup> and 87<sup>th</sup>? Those signals are there now and two mid-block signals are being removed (the existing off ramp and on-ramp that are being removed. Do the situation will be improved.
- NW 84<sup>th</sup> Avenue intersection with NW 12<sup>th</sup> Street will be greatly complicated. It will just be a 3 cycle phase to (1) allow traffic to flow from 84<sup>th</sup> to 12<sup>th</sup>, (2) westbound off 836, and (3) traffic to turn onto the westbound 836 onramp.
- The bridges are in place for the extension of NW 82<sup>nd</sup> Avenue. Public Works stated that the extension of 82<sup>nd</sup> is not programmed at all.
- NW 84<sup>th</sup> will become a busy street with the new ramps to and from 836. The City of Doral said it is currently under-utilized. The viaduct and the 836 ramp redesign should even out the traffic flow between 87<sup>th</sup>, 84<sup>th</sup> and 82<sup>nd</sup>. Also there are no east west roads connecting 84<sup>th</sup> and 82<sup>nd</sup> between NW 12<sup>th</sup> Street and 25<sup>th</sup> Street. However there are two east west roads that could easily be connected to provide movement between the two.

There is a problem with trucks turning south off of NW 25<sup>th</sup> Street onto SR 826. There is a lot of striped out pavement on SR 826 the eventual configuration of the facility. FDOT was asked to examine the potential for extending the onramp into that pavement to provide additional truck stacking space for trucks trying to merge onto the Palmetto. This extra lane length could clear up some of the truck back up on NW 25<sup>th</sup> Street.

- FDOT staff thought that it might be feasible to make this modification and thanked the committee for the suggestion.
- It was asked how long before 72<sup>nd</sup> would be finished. It can not be finished until all of the interchange bridges are finished, then it will be extended at grade under the new bridges. 2014-2015.
- The bridges in the interchange are being built using segmental box construction. It is using cantilever construction from column to column. The machine that is assembling each bridge was made in Italy to the precise curvature of the bridges.

Under New Business staff announced that items brought up last month, Countywide Freight Marketing and an update on the Cold Treatment Facility would be on next month's agenda. It was suggested by the chair that staff bring a resolution to the next meeting supporting the draft plan for the 87<sup>th</sup> Avenue flyover as presented by BCC.

The next meeting of FTAC was set for Wednesday May 23, 2012 at 2:00. The meeting adjourned at 3:40.

## APPENDIX B:

### Phase I Summary



**Memorandum**

■  
5200 NW 33<sup>rd</sup> Avenue  
Suite 109  
Fort Lauderdale, Florida  
33309

To: Freight Transportation Advisory Committee/  
Technical Advisory Committee

From: Larry Foutz, Miami-Dade County MPO  
Greg Kyle, AICP, Kimley-Horn and Associates, Inc. *Greg Kyle*  
Adrian Dabkowski, P.E. (LA), PTOE, Kimley-Horn and Associates, Inc. *AD*

Date: October 26, 2011

Subject: Development of Truck Parking Facilities in Miami-Dade County  
Phase II

The goal of this study is to identify and develop parking facilities for commercial trucking operations within Miami-Dade County. This study advances the previously prepared *Comprehensive Parking Study for Freight Transport in Miami-Dade County, 2010*.

The methodology determination was prepared based on summarizing the key findings from the Phase 1 study and establishing key questions that will be used to facilitate the plan development task.

*Comprehensive Parking Study for Freight Transport in Miami-Dade County*  
Summary

- Two types of trucking operations
  - Local trucking operations that deliver relatively small quantities of goods to a variety of customers throughout the region
  - Interstate trucking operations that transport loads that require overnight parking facilities between loads (focus of this study)
- Severe shortage of truck parking within Miami-Dade County
- Legal requirements for truck parking facilities within Miami-Dade County
  - Locations must be within Urban Development Boundary (UDB)
  - Sites must have "Industrial and Office" or "Business and Office" land use designation on the adopted year 2015 and 2025 land use plan maps
  - Locations within unincorporated areas of Miami-Dade County must be zoned as IU-1, IU-2, IU-3, or BU-3
  - Locations within incorporated areas of Miami-Dade County are regulated by local land development codes



- Parking requirement rule-of-thumb of 10 trucks per acre used
- Locations of over 10 acres preferred for full service truck parking facility
- Potential parcels for truck parking within entire Miami-Dade County
  - 30 eligible vacant parcels between two (2) to 10 acres within unincorporated Miami-Dade County
  - Four (4) eligible vacant parcels greater than 10 (greater than 9.50) acres within unincorporated Miami-Dade County
  - 71 eligible vacant parcels between two (2) to 10 acres within incorporated Miami-Dade County
  - 19 eligible vacant parcels greater than 10 acres within incorporated Miami-Dade County
- Potential parcels for truck parking within 1-mile of interstate interchange
  - 18 eligible vacant parcels between two (2) to 10 acres within unincorporated Miami-Dade County
  - Four (4) eligible vacant parcels greater than 10 (greater than 9.50) acres within unincorporated Miami-Dade County
  - 56 eligible vacant parcels between two (2) to 10 acres within incorporated Miami-Dade County
  - 10 eligible vacant parcels greater than 10 (greater than 9.50) acres within incorporated Miami-Dade County
- Key focus is interstate trucking operations
  - **Four (4) eligible vacant parcels greater than 10 (greater than 9.50) acres within unincorporated Miami-Dade County**
  - **10 eligible vacant parcels greater than 10 (greater than 9.50) acres within incorporated Miami-Dade County**
  - Truck parking allowed at these locations
  - Truck parking locations within 1-mile of interstate interchange
- Sites to be further examined include:

**Table 1: Truck Parking Potential Locations for Further Examination**

Truck Parking Location	Parcel Folio Number	Jurisdiction	Acreage	Potential Truck Parking Capacity	Land Use Category	Zoning District
A	3030150010410	Unincorporated	9.58	96	Industrial and Office	IU-3
B	2530310290014 (3030310290014)	Unincorporated	14.67	147	Industrial and Office	IU-1
C	3020310010040	Unincorporated	42.96	430	Industrial and Office	IU-3
D	3040140110010	Unincorporated	11.22	112	Industrial and Office	IU-3
E	3530270460060	Doral	11.73	117	Industrial and Office	I
F	421320390010	Hialeah	19.11	191	Industrial and Office	Communications, Utilities, Terminals, Plants
G	2720190010660	Hialeah Gardens	9.80	98	Industrial and Office	IN-1
H	2720190010580	Hialeah Gardens	10.03	100	Industrial and Office	IN-2
I	2720190010590	Hialeah Gardens	9.79	98	Industrial and Office	IN-2
J	2720190010600	Hialeah Gardens	10.06	101	Industrial and Office	IN-2
K	2720190010610	Hialeah Gardens	9.66	97	Industrial and Office	IN-2
L	2230050010510	Medley	15.04	150	Industrial and Office	M-1
M	2230050010010	Medley	83.82	838	Industrial and Office	M-1
N	2220320040310	Medley	9.73	97	Industrial and Office	M-1

Note: IU-1 and IU-3 = Industrial  
I = Industrial  
IN-1 = Light Industrial  
IN-2 = Heavy Industrial  
M-1 =



- Amenities to be provided and priority
  - Diesel fuel
  - Scales
  - Truck wash
  - Dining
  - Restrooms
  - Shower
  - Laundry
  - Wireless Internet Access (wifi)
  - Truck electrification
  - Banking facilities
  - Truck repairs
  - Other amenities

Based on this summary, several key questions have been developed in order to further progress in the development of this study.

- What are the major trucking routes
- What are the potential impacts on the trucking industry
- Is there a demand at the Miami International Airport as well as potential land to facilitate truck parking
- Business Model Questions
  - Are sites of less than ten acres feasible
  - What incentives would stimulate private sector participation
  - Should operators be contacted regarding interest
- Other components for consideration
  - Safety
  - Security
  - Wayfinding
  - ITS

# APPENDIX C:

## FDOT Count Station Information



# Truck Percentages by Facility

			2010	2009	2008	2007	Average
SR 924	Gratingy	1000' West of Lejeune Rd	2.02%	1.93%	1.44%	1.68%	1.77%
	Gratingy	200' East of NW 67th Avenue	1.75%	2.52%	2.04%	2.25%	2.14%
SR 826	Palmetto	1000' North of NW 12th Street	2.14%	0.35%	0.45%	N/A	0.98%
		2600' East of NW 67th Avenue	2.72%	2.76%	3.02%	N/A	2.83%
SR 821	HEFT	South of I-75 Interchange	2.58%	2.57%	2.95%	N/A	2.70%
		0.7 Miles South of NW 41st Street	1.74%	1.85%	1.90%	N/A	1.83%
I-75		0.78 Miles North of Broward County Line	1.83%	1.79%	1.72%	N/A	1.78%

Florida Department of Transportation  
Transportation Statistics Office  
2010 Vehicle Class History Data

County: 86 -- BROWARD  
Site: 0362 Description: SR-93/I-75 0.78 MI N OF DADE CO/L BROWARD CO

Year	AADT	Passenger Vehicles		Total Trucks		Single Unit Trucks		Combination Trailer Trucks		Multi Trailer Trucks	
		%	Volume	%	Volume	%	Volume	%	Volume	%	Volume
2010	150236	96.20	144,526	3.80	5,710	1.91	2,870	1.83	2,750	0.06	90
2009	148587	96.17	142,897	3.83	5,690	1.97	2,927	1.79	2,659	0.07	104
2008	145982	96.13	140,332	3.87	5,650	2.11	3,081	1.72	2,511	0.04	58
2007	150626	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
2 - Total Trucks = Vehicle Class 4-13  
3 - Single Unit Trucks = Vehicle Class 4-7  
4 - Combination Trailer Trucks = Vehicle Class 8-10  
5 - Multi Trailer Trucks = Vehicle Class 11-13

Florida Department of Transportation  
Transportation Statistics Office  
2010 Vehicle Class History Data

County: 97 -- FL. TURNPIKE  
Site: 9934 Description: HEFT/SR-821 M/L S. OF I-75 INTERCHANGE

		Passenger Vehicles		Total Trucks		Single Unit Trucks		Combination Trailer Trucks		Multi Trailer Trucks	
Year	AADT	%	Volume	%	Volume	%	Volume	%	Volume	%	Volume
2010	83411	93.81	78,247	6.19	5,164	3.47	2,895	2.58	2,152	0.14	117
2009	80502	93.55	75,309	6.45	5,193	3.75	3,019	2.57	2,069	0.13	105
2008	80657	92.64	74,720	7.36	5,937	4.28	3,452	2.95	2,380	0.13	105
2007	86449	95.27	82,359	4.73	4,090	2.69	2,326	1.96	1,695	0.08	69
2005	86277	93.24	80,444	6.76	5,833	3.64	3,141	3.01	2,597	0.11	95
2004	81727	92.20	75,352	7.80	6,375	4.40	3,596	3.28	2,681	0.12	98
2003	74755	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2002	67925	96.89	65,815	3.11	2,110	1.70	1,157	1.40	953	0.00	0
2001	54000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2000	52000	98.20	51,063	1.80	937	1.10	573	0.70	364	0.00	0
1999	50000	98.20	49,100	1.80	900	1.30	650	0.50	250	0.00	0
1998	48263	97.30	46,959	2.70	1,304	1.90	918	0.80	386	0.00	0
1997	45794	97.60	44,694	2.40	1,100	1.60	733	0.80	367	0.00	0
1996	44397	92.29	40,975	7.71	3,422	4.70	2,089	2.90	1,289	0.10	44
1995	45147	93.60	42,258	6.40	2,889	3.60	1,625	2.70	1,219	0.10	45

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
2 - Total Trucks = Vehicle Class 4-13  
3 - Single Unit Trucks = Vehicle Class 4-7  
4 - Combination Trailer Trucks = Vehicle Class 8-10  
5 - Multi Trailer Trucks = Vehicle Class 11-13

Florida Department of Transportation  
Transportation Statistics Office  
2010 Vehicle Class History Data

County: 97 -- FL. TURNPIKE  
Site: 0267 Description: HEFT/SR-821 M/L 0.7 MI S. OF NW 41ST STREET

Year	AADT	%	Passenger Vehicles Volume	%	Total Trucks Volume	%	Single Unit Trucks Volume	%	Combination Trailer Trucks Volume	%	Multi Trailer Trucks Volume
2010	100805	94.82	95,583	5.18	5,222	3.42	3,448	1.74	1,754	0.02	20
2009	96584	94.10	90,887	5.90	5,697	4.03	3,892	1.85	1,786	0.02	19
2008	96903	94.07	91,157	5.93	5,746	4.01	3,885	1.90	1,841	0.02	19
2007	107158	92.36	98,971	7.64	8,187	5.56	5,958	2.05	2,197	0.03	32
2005	103650	91.95	95,307	8.05	8,343	5.81	6,021	2.22	2,301	0.02	21
2004	96181	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2001	59500	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2000	57500	97.50	56,063	2.50	1,438	0.90	518	1.60	920	0.00	0
1999	55588	97.80	54,364	2.20	1,224	1.00	556	1.20	668	0.00	0
1998	50423	97.00	48,909	3.00	1,514	1.50	757	1.50	757	0.00	0
1997	47816	98.30	47,003	1.70	813	0.50	239	1.20	574	0.00	0
1996	44790	96.40	43,178	3.60	1,612	1.30	582	2.30	1,030	0.00	0
1995	44911	96.00	43,115	4.00	1,796	1.50	674	2.50	1,123	0.00	0

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
2 - Total Trucks = Vehicle Class 4-13  
3 - Single Unit Trucks = Vehicle Class 4-7  
4 - Combination Trailer Trucks = Vehicle Class 8-10  
5 - Multi Trailer Trucks = Vehicle Class 11-13

Florida Department of Transportation  
Transportation Statistics Office  
2010 Vehicle Class History Data

County: 87 -- MIAMI-DADE

Site: 0137 Description: SR-826/PALMETTO XPWY 2600 FT E OF NW 67TH AV DADE CO

		Passenger Vehicles		Total Trucks		Single Unit Trucks		Combination Trailer Trucks		Multi Trailer Trucks	
Year	AADT	%	Volume	%	Volume	%	Volume	%	Volume	%	Volume
2010	136407	94.11	128,372	5.89	8,035	3.14	4,284	2.72	3,711	0.03	41
2009	135889	93.87	127,558	6.13	8,331	3.33	4,526	2.76	3,751	0.04	54
2008	135111	93.50	126,329	6.50	8,782	3.44	4,648	3.02	4,080	0.04	54
2007	137362	94.18	129,367	5.82	7,995	3.15	4,327	2.63	3,613	0.04	55
2004	135467	92.99	125,970	7.01	9,497	3.71	5,026	3.26	4,417	0.04	54
2003	136326	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2002	132956	93.49	124,305	6.51	8,651	3.50	4,658	3.00	3,993	0.00	0
1996	102000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
1995	101000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
2 - Total Trucks = Vehicle Class 4-13  
3 - Single Unit Trucks = Vehicle Class 4-7  
4 - Combination Trailer Trucks = Vehicle Class 8-10  
5 - Multi Trailer Trucks = Vehicle Class 11-13

Florida Department of Transportation  
 Transportation Statistics Office  
 2010 Vehicle Class History Data

County: 87 -- MIAMI-DADE

Site: 0570 Description: SR 826/PALMETTO EXPWY, 1000' N NW 12 ST

Year	AADT	Passenger Vehicles		Total Trucks		Single Unit Trucks		Combination Trailer Trucks		Multi Trailer Trucks	
		%	Volume	%	Volume	%	Volume	%	Volume	%	Volume
2010	219000	93.72	205,248	6.28	13,752	3.98	8,715	2.14	4,686	0.16	350
2009	225000	97.98	220,455	2.02	4,545	1.55	3,488	0.35	788	0.12	270
2008	238000	97.74	232,622	2.26	5,378	1.64	3,903	0.45	1,071	0.17	405
2007	206000	89.51	184,393	10.49	21,607	4.06	8,363	6.20	12,771	0.23	474
2003	205000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2002	206000	94.89	195,483	5.11	10,517	3.50	7,217	1.60	3,299	0.00	0
2001	214000	95.10	203,514	4.90	10,486	3.50	7,490	1.40	2,996	0.00	0
2000	204000	93.90	191,556	6.10	12,444	3.90	7,956	2.20	4,488	0.00	0
1999	204000	95.10	194,014	4.90	9,986	3.10	6,318	1.60	3,261	0.20	408
1998	174000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
1997	170000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
1996	181500	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
1995	209500	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
 2 - Total Trucks = Vehicle Class 4-13  
 3 - Single Unit Trucks = Vehicle Class 4-7  
 4 - Combination Trailer Trucks = Vehicle Class 8-10  
 5 - Multi Trailer Trucks = Vehicle Class 11-13

Florida Department of Transportation  
 Transportation Statistics Office  
 2010 Vehicle Class History Data

County: 87 -- MIAMI-DADE

Site: 0187 Description: SR-836 0.8 MI E OF NW 107TH AVE UNDERPASS DADE CO

Year	AADT	Passenger Vehicles		Total Trucks		Single Unit Trucks		Combination Trailer Trucks		Multi Trailer Trucks	
		%	Volume	%	Volume	%	Volume	%	Volume	%	Volume
2003	131893	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2002	130966	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2001	126000	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2000	116996	97.60	114,188	2.40	2,808	1.90	2,223	0.50	585	0.00	0
1999	113091	97.70	110,490	2.30	2,601	1.80	2,036	0.50	565	0.00	0
1998	112366	97.50	109,557	2.50	2,809	2.00	2,247	0.50	562	0.00	0
1997	108926	97.60	106,312	2.40	2,614	1.90	2,070	0.50	545	0.00	0
1996	104558	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
1995	105626	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
 2 - Total Trucks = Vehicle Class 4-13  
 3 - Single Unit Trucks = Vehicle Class 4-7  
 4 - Combination Trailer Trucks = Vehicle Class 8-10  
 5 - Multi Trailer Trucks = Vehicle Class 11-13

Florida Department of Transportation  
Transportation Statistics Office  
2010 Vehicle Class History Data

County: 87 -- MIAMI-DADE

Site: 2512 Description: SR 924/GRATIGNY PKWY, 1000' W SR 953/LEJEUNE RD

Year	AADT	Passenger Vehicles		Total Trucks		Single Unit Trucks		Combination Trailer Trucks		Multi Trailer Trucks	
		%	Volume	%	Volume	%	Volume	%	Volume	%	Volume
2010	33000	92.66	30,578	7.34	2,422	5.10	1,683	2.02	667	0.22	73
2009	36500	92.56	33,784	7.44	2,716	5.38	1,964	1.93	704	0.13	47
2008	43000	93.23	40,089	6.77	2,911	5.22	2,244	1.44	619	0.11	47
2007	42000	92.91	39,022	7.09	2,978	5.33	2,239	1.68	706	0.08	34
2005	38500	87.21	33,576	12.79	4,924	5.62	2,164	5.88	2,264	1.29	497
2003	37500	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
2002	40000	92.69	37,077	7.31	2,923	5.31	2,122	1.90	761	0.10	40
2001	46000	93.01	42,783	6.99	3,217	4.90	2,252	2.00	919	0.10	46
2000	44000	93.09	40,961	6.91	3,039	5.21	2,290	1.70	749	0.00	0
1999	33500	92.11	30,856	7.89	2,644	5.39	1,807	2.00	669	0.50	167
1998	38500	95.21	36,656	4.79	1,844	3.19	1,230	1.40	538	0.20	77
1997	23000	90.99	20,928	9.01	2,072	6.21	1,427	2.70	622	0.10	23
1996	37500	94.50	35,438	5.50	2,063	2.80	1,050	2.50	938	0.20	75
1995	36500	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
2 - Total Trucks = Vehicle Class 4-13  
3 - Single Unit Trucks = Vehicle Class 4-7  
4 - Combination Trailer Trucks = Vehicle Class 8-10  
5 - Multi Trailer Trucks = Vehicle Class 11-13



Florida Department of Transportation  
 Transportation Statistics Office  
 2010 Vehicle Class History Data

County: 87 -- MIAMI-DADE  
 Site: 2511 Description: SR 924/GRATIGNY PKWY, 200' E NW 67 AV

Year	AADT	Passenger Vehicles % Volume	Total Trucks % Volume	Single Unit Trucks % Volume	Combination Trailer Trucks % Volume	Multi Trailer Trucks % Volume
2010	59500	93.57	55,674	6.43	3,826	4.56
2009	63000	91.64	57,734	8.36	5,266	5.70
2008	62000	89.04	55,205	10.96	6,795	8.86
2007	61500	92.96	57,171	7.04	4,329	4.69
2005	52500	88.54	46,483	11.46	6,017	5.85
2003	63500	0.00	0	0.00	0	0.00
2002	77000	94.81	73,000	5.19	4,000	3.30
2001	63000	93.41	58,850	6.59	4,150	3.79
2000	61000	95.20	58,072	4.80	2,928	3.30
1999	57500	93.20	53,590	6.80	3,910	4.00
1998	59500	0.00	0	0.00	0	0.00
1997	55500	0.00	0	0.00	0	0.00
1996	49500	0.00	0	0.00	0	0.00
1995	51500	0.00	0	0.00	0	0.00

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
 2 - Total Trucks = Vehicle Class 4-13  
 3 - Single Unit Trucks = Vehicle Class 4-7  
 4 - Combination Trailer Trucks = Vehicle Class 8-10  
 5 - Multi Trailer Trucks = Vehicle Class 11-13

Florida Department of Transportation  
Transportation Statistics Office  
2010 Vehicle Class History Data

County: 87 -- MIAMI-DADE

Site: 9947 Description: US-27, 0.7 MI N of SR932, MIAMI-DADE CO.

Year	AADT	Passenger Vehicles % Volume	Total Trucks % Volume	Single Unit Trucks % Volume	Combination Trailer Trucks % Volume	Multi Trailer Trucks % Volume					
2010	32611	85.88	28,006	14.12	4,605	8.75	2,854	5.33	1,738	0.04	13
2009	32783	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0

Note: 1 - Passenger Vehicles = Vehicle Class 1-3, 14, 15  
2 - Total Trucks = Vehicle Class 4-13  
3 - Single Unit Trucks = Vehicle Class 4-7  
4 - Combination Trailer Trucks = Vehicle Class 8-10  
5 - Multi Trailer Trucks = Vehicle Class 11-13

APPENDIX D:  
Excerpts from *Truck Route  
System for Miami-Dade County*

# Truck Route System for Miami-Dade County

Submitted to:

**Miami-Dade Metropolitan Planning Organization**



Submitted by:

**The Corradino Group, Inc.**

Figure 4-4  
2000 AADT Percent Trucks

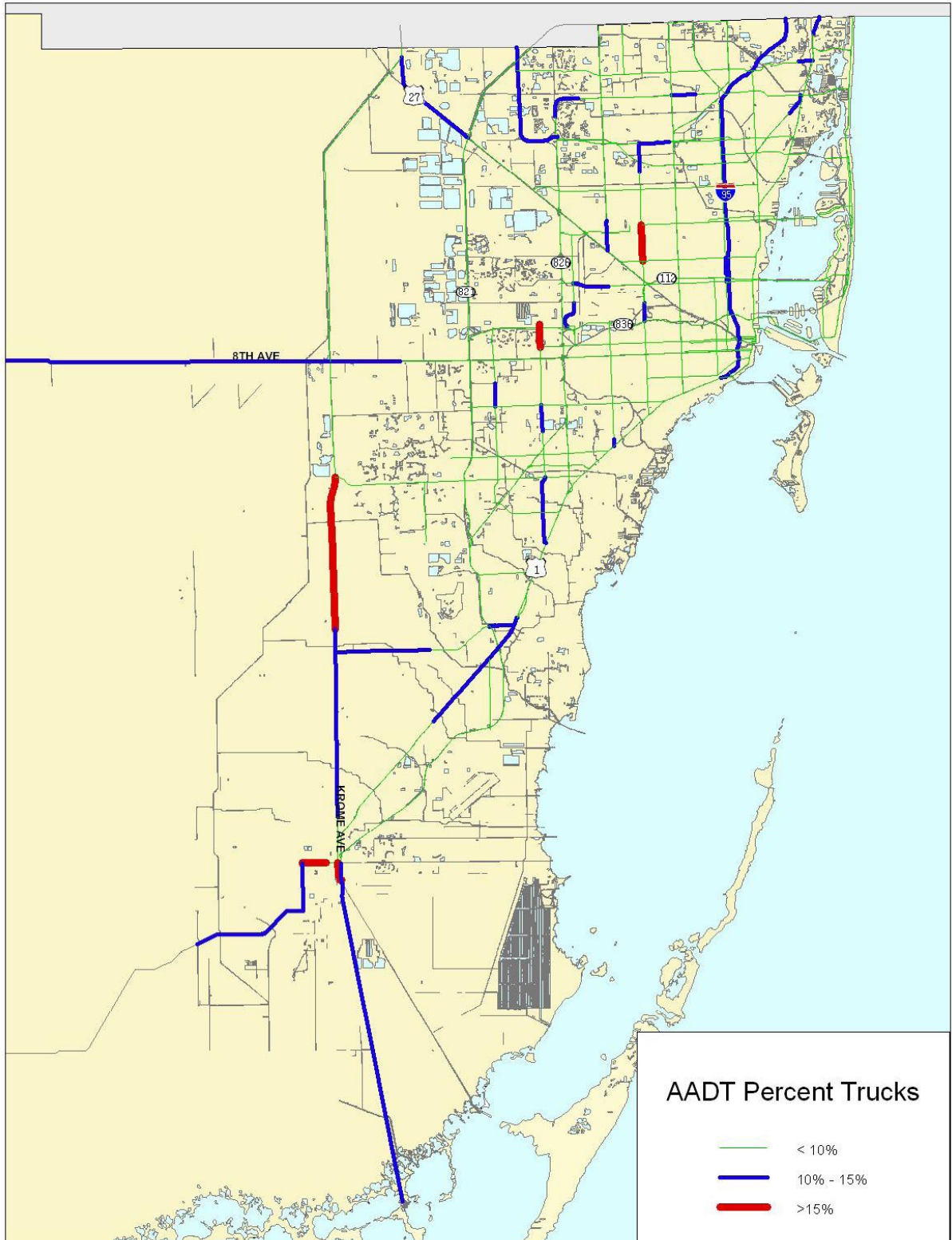




Figure 4-5  
2030 AADT Percent Trucks

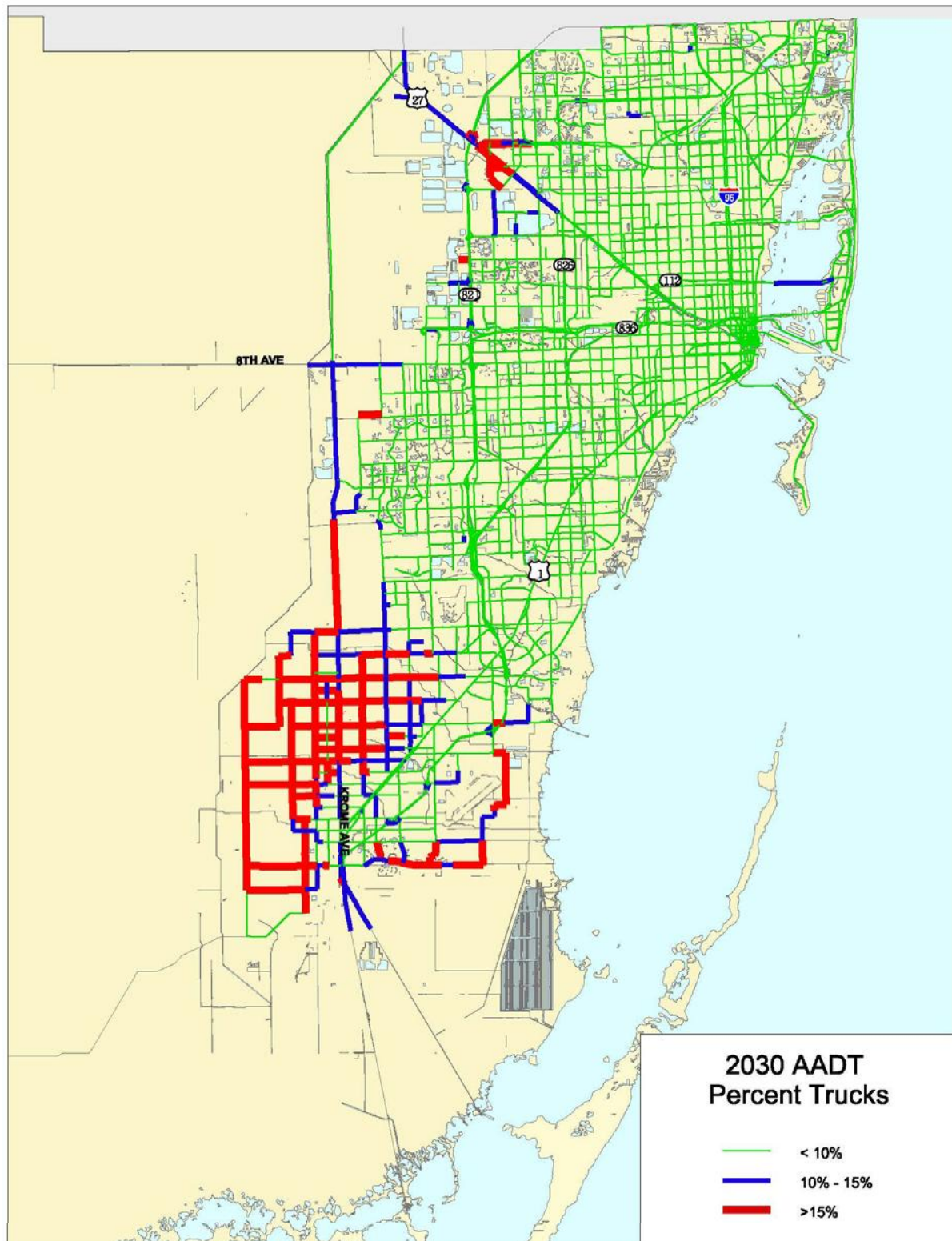


Figure 4-5  
2030 AADT Percent Trucks

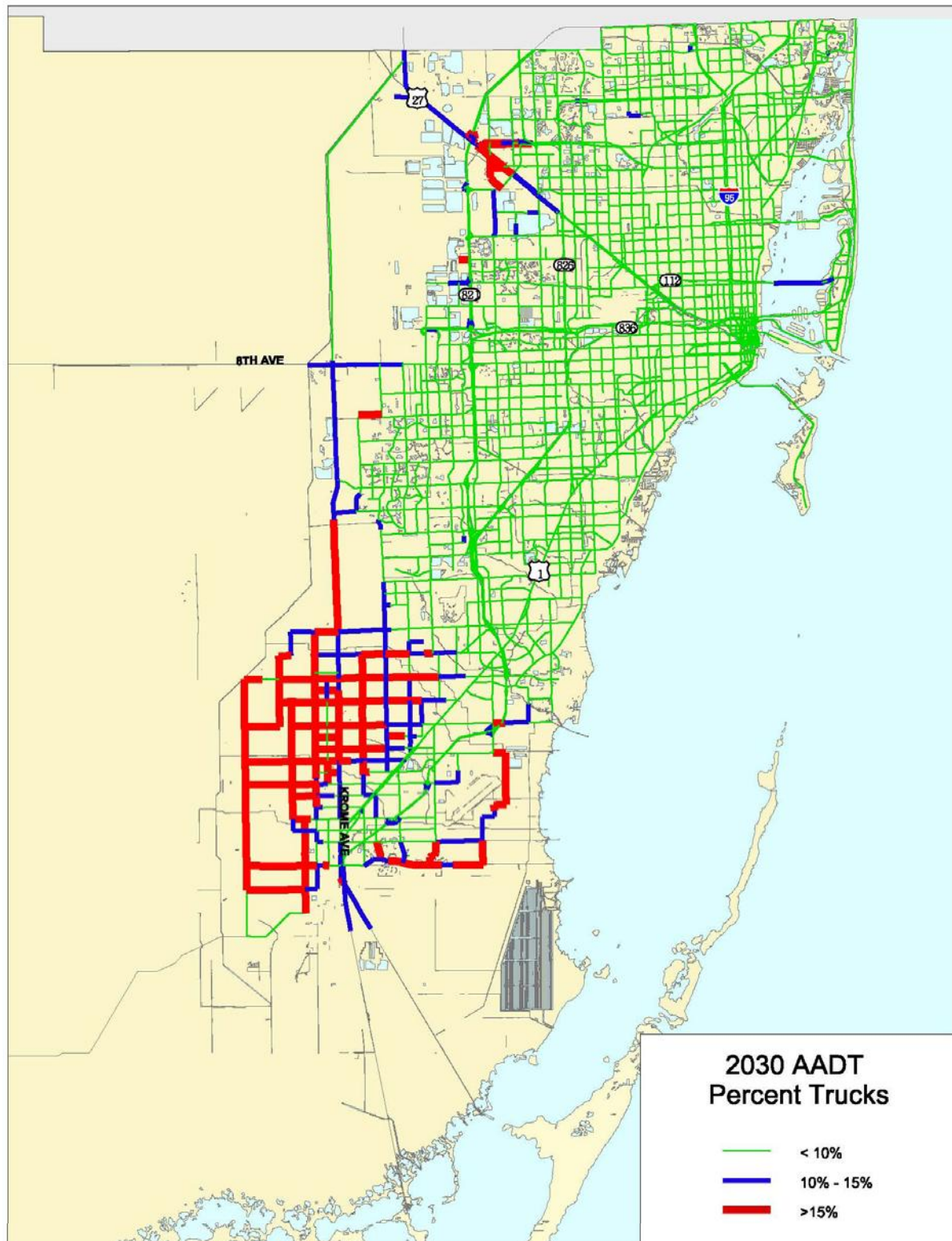
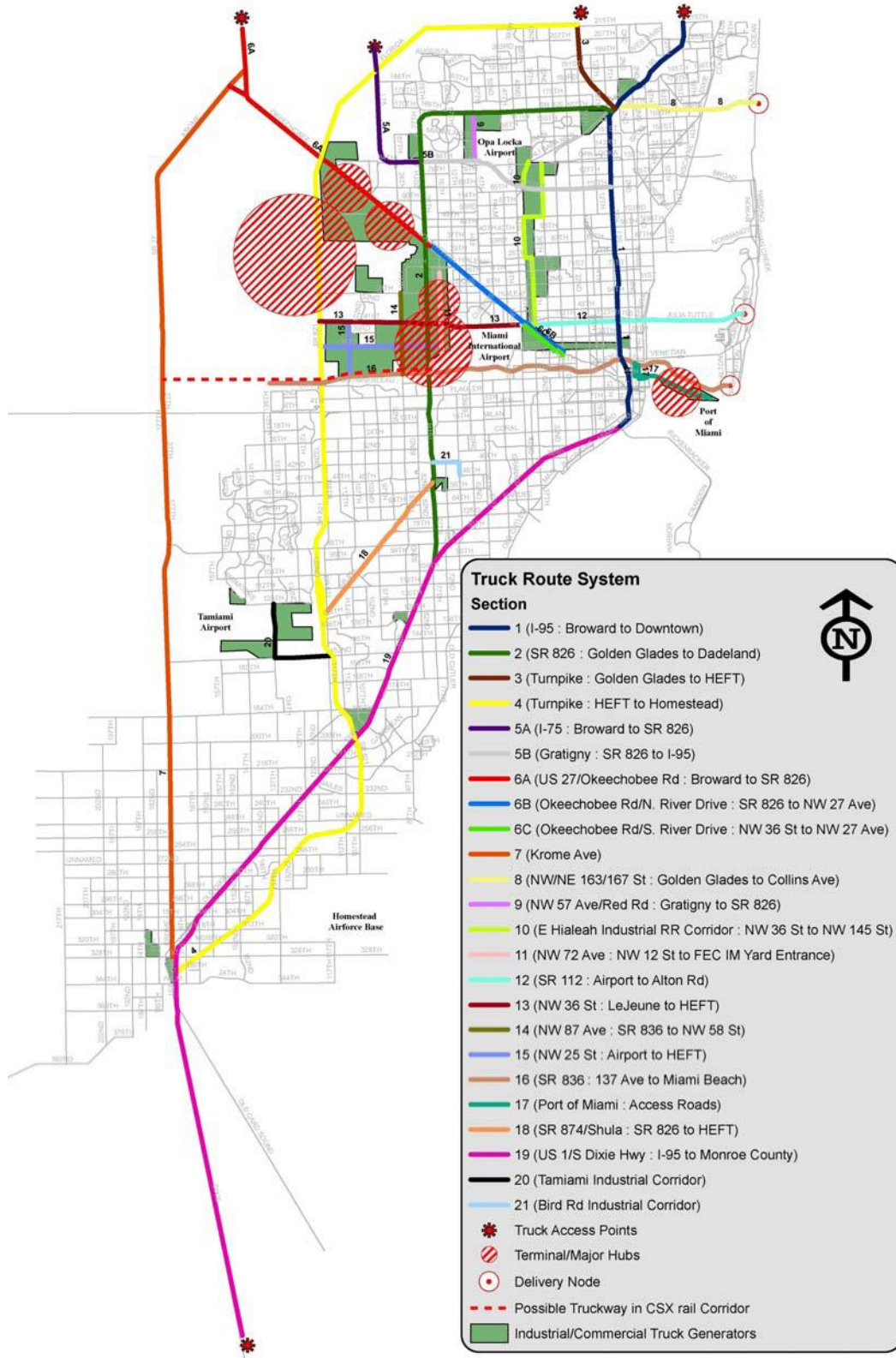


Figure 5-1  
Miami-Dade County Truck Route System





# APPENDIX E:

## Land Cost Feasibility Threshold

## TravelCenters of America Real Estate Feasibility Cost (National Average)

### Real Estate Feasibility Cost (per Acre) Annual Compounding Interest

Per Average Acre \$ (PMT)	\$	(13,000.00)
Interest Rate (RATE)		0.06 (assumes 6% APR)
Period (NPER)		15 (assumes 15 year loan)
Future Value (FV)		0
Present Value (Real Estate Feasibility Threshold Cost per Acre)		\$126,300.00

### Real Estate Feasibility Cost (per Acre) Monthly Compounding Interest

Per Average Acre \$ (PMT)	\$	(1,083.33)
Interest Rate (RATE)		0.005 (assumes 6% APR)
Period (NPER)		180 (assumes 15 year loan)
Future Value (FV)		0
Present Value (Real Estate Feasibility Threshold Cost per Acre)		\$128,400.00

TravelCenters of America Income Statement

			Acre Average Site: Number of Site:	23 237	23 228	23 233	23 233	23 236	23 236	23 236
			Average 2011, 2006, and 2005 (Profitable Years)	2011	2010	2009	2008	2007	2006	2005
	Per Average Site (based on Profitable Years)	Per Average Acre (based on Profitable Years)								
Revenues:										
Fuel	\$ 19,380,000.00	\$ 843,000.00	\$ 4,580,103,000.00	\$ 6,603,329,000.00	\$ 4,790,659,000.00	\$ 3,588,682,000.00	\$ 6,454,357,000.00	\$ 4,778,293,000.00	\$ 3,905,128,000.00	\$ 3,231,853,000.00
Nonfuel	\$ 4,193,000.00	\$ 182,000.00	\$ 990,988,000.00	\$ 1,271,085,000.00	\$ 1,158,343,000.00	\$ 1,097,279,000.00	\$ 1,189,597,000.00	\$ 1,023,126,000.00	\$ 868,380,000.00	\$ 833,500,000.00
Rent and royalties from franchisees	\$ 49,000.00	\$ 2,000.00	\$ 11,464,000.00	\$ 14,443,000.00	\$ 13,479,000.00	\$ 13,859,000.00	\$ 14,425,000.00	\$ 12,056,000.00	\$ 10,006,000.00	\$ 9,943,000.00
Total revenues	\$ 23,622,000.00	\$ 1,027,000.00	\$ 5,582,556,000.00	\$ 7,888,857,000.00	\$ 5,962,481,000.00	\$ 4,699,820,000.00	\$ 7,658,379,000.00	\$ 5,813,475,000.00	\$ 4,783,514,000.00	\$ 4,075,296,000.00
Cost of goods sold (excluding depreciation):										
Fuel	\$ 18,570,000.00	\$ 807,000.00	\$ 4,388,677,000.00	\$ 6,301,947,000.00	\$ 4,530,943,000.00	\$ 3,358,809,000.00	\$ 6,179,034,000.00	\$ 4,621,605,000.00	\$ 3,761,571,000.00	\$ 3,102,513,000.00
Nonfuel	\$ 1,775,000.00	\$ 77,000.00	\$ 419,411,000.00	\$ 548,092,000.00	\$ 488,687,000.00	\$ 463,468,000.00	\$ 499,172,000.00	\$ 434,596,000.00	\$ 361,873,000.00	\$ 348,267,000.00
Total cost of goods sold (excluding depreciation)	\$ 20,345,000.00	\$ 885,000.00	\$ 4,808,088,000.00	\$ 6,850,039,000.00	\$ 5,019,630,000.00	\$ 3,822,277,000.00	\$ 6,678,206,000.00	\$ 5,056,201,000.00	\$ 4,123,444,000.00	\$ 3,450,780,000.00
Operating expenses:										
Site level operating	\$ 2,120,000.00	\$ 92,000.00	\$ 501,103,000.00	\$ 677,958,000.00	\$ 625,979,000.00	\$ 597,493,000.00	\$ 638,534,000.00	\$ 525,772,000.00	\$ 415,868,000.00	\$ 409,483,000.00
Selling, general & administrative	\$ 287,000.00	\$ 12,000.00	\$ 67,865,000.00	\$ 89,196,000.00	\$ 80,562,000.00	\$ 78,642,000.00	\$ 97,057,000.00	\$ 98,829,000.00	\$ 61,347,000.00	\$ 53,051,000.00
Real estate rent	\$ 301,000.00	\$ 13,000.00	\$ 71,231,000.00	\$ 191,798,000.00	\$ 234,228,000.00	\$ 234,304,000.00	\$ 233,477,000.00	\$ 189,988,000.00	\$ 11,011,000.00	\$ 10,884,000.00
Depreciation and amortization	\$ 259,000.00	\$ 11,000.00	\$ 61,199,000.00	\$ 47,466,000.00	\$ 44,116,000.00	\$ 44,060,000.00	\$ 45,968,000.00	\$ 33,892,000.00	\$ 71,356,000.00	\$ 64,774,000.00
Impairment of goodwill	\$ 10,000.00	\$ -	\$ 2,473,000.00					\$ 15,390,000.00	\$ 4,946,000.00	\$ -
Total operating expenses	\$ 2,975,000.00	\$ 129,000.00	\$ 703,046,000.00	\$ 1,006,418,000.00	\$ 984,885,000.00	\$ 954,499,000.00	\$ 1,015,036,000.00	\$ 863,871,000.00	\$ 564,528,000.00	\$ 538,192,000.00
Income (loss) from operations	\$ 302,000.00	\$ 13,000.00	\$ 71,422,000.00	\$ 32,400,000.00	\$ (42,034,000.00)	\$ (76,956,000.00)	\$ (34,863,000.00)	\$ (106,597,000.00)	\$ 95,542,000.00	\$ 86,324,000.00
Income from equity investees	\$ 6,000.00	\$ -	\$ 1,464,000.00	\$ 1,169,000.00	\$ 757,000.00	\$ 386,000.00	\$ 1,383,000.00	\$ 887,000.00	\$ 1,250,000.00	\$ 1,974,000.00
Acquisition costs	\$ (56,000.00)	\$ (2,000.00)	\$ (13,337,000.00)	\$ (446,000.00)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (39,566,000.00)
Interest income	\$ 5,000.00	\$ -	\$ 1,190,000.00	\$ 835,000.00	\$ 1,127,000.00	\$ 2,071,000.00	\$ 7,013,000.00	\$ 19,128,000.00	\$ 2,155,000.00	\$ 579,000.00
Interest expense	\$ (152,000.00)	\$ (7,000.00)	\$ (35,913,000.00)	\$ (9,005,000.00)	\$ (25,653,000.00)	\$ (14,474,000.00)	\$ (12,999,000.00)	\$ (15,420,000.00)	\$ (49,637,000.00)	\$ (49,097,000.00)
Income (loss) before income taxes	\$ 105,000.00	\$ 5,000.00	\$ 24,826,000.00	\$ 24,953,000.00	\$ (65,803,000.00)	\$ (88,973,000.00)	\$ (39,466,000.00)	\$ (102,002,000.00)	\$ 49,310,000.00	\$ 214,000.00
Provision for income taxes	\$ 31,000.00	\$ 1,000.00	\$ 7,322,000.00	\$ 1,379,000.00	\$ 887,000.00	\$ 901,000.00	\$ 735,000.00	\$ (694,000.00)	\$ 18,277,000.00	\$ 2,309,000.00
Net income (loss):	\$ 74,000.00	\$ 3,200.00	\$ 17,504,000.00	\$ 23,574,000.00	\$ (66,690,000.00)	\$ (89,874,000.00)	\$ (40,201,000.00)	\$ (101,308,000.00)	\$ 31,033,000.00	\$ (2,095,000.00)
		Net Income per Site:	\$ 74,000.00	\$ 99,500.00	\$ (292,500.00)	\$ (385,700.00)	\$ (172,500.00)	\$ (429,300.00)	\$ 131,500.00	\$ (8,900.00)
		Net Income per Acre:	\$ 3,200.00	\$ 4,300.00	\$ (12,700.00)	\$ (16,800.00)	\$ (7,500.00)	\$ (18,700.00)	\$ 5,700.00	\$ (400.00)

# Pilot Flying J Land Purchase Prices

Site	Land Purchase Price	Acreages	Cost per Acre
SW 8th Street	\$ 2,400,000.00	3.48	\$ 689,655.17
Medley	\$ 1,788,300.00	1.43	\$ 1,250,559.44
	\$ 1,788,300.00	0.88	\$ 2,032,159.09
	\$ 421,900.00	0.88	\$ 479,431.82
	\$ 1,788,300.00	0.65	\$ 2,751,230.77
	\$ 1,788,300.00	0.95	\$ 1,882,421.05
Total	\$ 7,575,100.00	4.79	\$ 1,581,440.50

Average Real Estate Feasibility Cost per Acre \$ 1,135,500.00

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Close

#### Summary Details:

Folio No.:	<a href="#">30-4906-001-0100</a>
Property:	17696 SW 8 ST
Mailing Address:	SEVEN STARS HOLDING INC 17696 SW 8 ST MIAMI FL 33194-2702

#### Property Information:

Primary Zone:	6600 LIBERAL COMMERCIAL
CLUC:	0026 SERVICE STATION - AUTOMOTIVE
Beds/Baths:	0/0
Floors:	2
Living Units:	0
Adj Sq Footage:	16,888
Lot Size:	3.48 ACRES
Year Built:	1986
Legal Description:	6 54 39 3.485 AC M/L MIAMI EVGL LAND CO SUB PB 2-3 PORT TR 41 LYG S OF S R/W/L TAMIAMI TRAIL LESS E275FT THEREOF LOT SIZE 151828 SQ FT

#### Assessment Information:

Year:	2011	2010
Land Value:	\$3,036,560	\$3,036,560
Building Value:	\$657,326	\$657,517
Market Value:	\$3,693,886	\$3,694,077
Assessed Value:	\$3,693,886	\$3,694,077

#### Taxable Value Information:

Year:	2011	2010
Taxing Authority:	Applied Exemption/ Taxable Value:	Applied Exemption/ Taxable Value:
Regional:	\$0/ \$3,693,886	\$0/ \$3,694,077
County:	\$0/ \$3,693,886	\$0/ \$3,694,077
School Board:	\$0/ \$3,693,886	\$0/ \$3,694,077

#### Sale Information:

Sale Date:	3/1999
Sale Amount:	\$2,400,000
Sale O/R:	<a href="#">18528-1980</a>
Sales Qualification Description:	Other disqualified
<a href="#">View Additional Sales</a>	

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#### Summary Details:

Folio No.:	<a href="#">22-2029-024-0010</a>
Property:	12200 NW S RIVER DR
Mailing Address:	SOUTH FLORIDA TRUCK STOP INC
	12200 NW S RIVER DR MIAMI FL 33185-

#### Property Information:

Primary Zone:	7100 INDUSTRIAL
CLUC:	0026 SERVICE STATION - AUTOMOTIVE
Beds/Baths:	0/0
Floors:	1
Living Units:	0
Adj Sq Footage:	7,082
Lot Size:	62,393 SQ FT
Year Built:	2004
Legal Description:	SEABREEZE INDUSTRIAL PARK PB 154-46 T-19833 LOT 1 BLK 1 LOT SIZE 62393 SQ FT M/L FAU 22-2029-001-0410 0420 0440 & 0460

#### Assessment Information:

Year:	2011	2010
Land Value:	\$1,123,074	\$1,123,074
Building Value:	\$640,664	\$647,135
Market Value:	\$1,763,738	\$1,770,209
Assessed Value:	\$1,763,738	\$1,770,209

#### Taxable Value Information:

Year:	2011	2010
Taxing Authority:	Applied Exemption/ Taxable Value:	Applied Exemption/ Taxable Value:
Regional:	\$0/ \$1,763,738	\$0/ \$1,770,209
County:	\$0/ \$1,763,738	\$0/ \$1,770,209
City:	\$0/ \$1,763,738	\$0/ \$1,770,209
School Board:	\$0/ \$1,763,738	\$0/ \$1,770,209

#### Sale Information:

Sale Date:	4/2003
Sale Amount:	\$1,788,300
Sale O/R:	<a href="#">21217-0296</a>
Sales Qualification Description:	Deeds which include more than one parcel
<a href="#">View Additional Sales</a>	



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#### Summary Details:

Folio No.:	<a href="#">22-2029-024-0020</a>
Property:	
Mailing Address:	SOUTH FLORIDA TRUCK STOP INC
	12200 NW S RIVER DR
	MIAMI FL
	33185-

#### Property Information:

Primary Zone:	7100 INDUSTRIAL
CLUC:	0081 VACANT LAND
Beds/Baths:	0/0
Floors:	0
Living Units:	0
Adj Sq Footage:	0
Lot Size:	37,500 SQ FT
Year Built:	0
Legal Description:	SEABREEZE INDUSTRIAL PARK PB 154-46 T-19833 LOT 2 BLK 1 LOT SIZE 37500 SQ FT M/L FAU 22-2029-001-0410 0420 0440 & 0460

#### Assessment Information:

Year:	2011	2010
Land Value:	\$675,000	\$675,000
Building Value:	\$0	\$0
Market Value:	\$675,000	\$675,000
Assessed Value:	\$675,000	\$675,000

#### Taxable Value Information:

Year:	2011	2010
Taxing Authority:	Applied Exemption/ Taxable Value:	Applied Exemption/ Taxable Value:
Regional:	\$0/\$675,000	\$0/\$675,000
County:	\$0/\$675,000	\$0/\$675,000
City:	\$0/\$675,000	\$0/\$675,000
School Board:	\$0/\$675,000	\$0/\$675,000

#### Sale Information:

Sale Date:	4/2003
Sale Amount:	\$1,788,300
Sale O/R:	<a href="#">21217-0296</a>
Sales Qualification Description:	Deeds which include more than one parcel
	<a href="#">View Additional Sales</a>

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#### Summary Details:

Folio No.:	<a href="#">22-2029-024-0030</a>
Property:	
Mailing Address:	SOUTH FLORIDA TRUCK STOP INC
	12200 NW S RIVER DR
	MIAMI FL
	33185-

#### Property Information:

Primary Zone:	7100 INDUSTRIAL
CLUC:	0081 VACANT LAND
Beds/Baths:	0/0
Floors:	0
Living Units:	0
Adj Sq Footage:	0
Lot Size:	37,500 SQ FT
Year Built:	0
Legal Description:	SEABREEZE INDUSTRIAL PARK PB 154-46 T-19833 LOT 3 BLK 1 LOT SIZE 37500 SQ FT M/L FAU 22-2029-001-0410 0420 0440 & 0460

#### Assessment Information:

Year:	2011	2010
Land Value:	\$675,000	\$675,000
Building Value:	\$0	\$0
Market Value:	\$675,000	\$675,000
Assessed Value:	\$675,000	\$675,000

#### Taxable Value Information:

Year:	2011	2010
Taxing Authority:	Applied Exemption/ Taxable Value:	Applied Exemption/ Taxable Value:
Regional:	\$0/\$675,000	\$0/\$675,000
County:	\$0/\$675,000	\$0/\$675,000
City:	\$0/\$675,000	\$0/\$675,000
School Board:	\$0/\$675,000	\$0/\$675,000

#### Sale Information:

Sale Date:	4/2003
Sale Amount:	\$421,900
Sale O/R:	<a href="#">21217-0017</a>
Sales Qualification Description:	Sales which are qualified
	<a href="#">View Additional Sales</a>



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Close

#### Summary Details:

Folio No.:	<a href="#">22-2029-024-0130</a>
Property:	
Mailing Address:	SOUTH FLORIDA TRUCK STOP INC
	P O BOX 831675 MIAMI FL 33283-

#### Property Information:

Primary Zone:	7100 INDUSTRIAL
CLUC:	0081 VACANT LAND
Beds/Baths:	0/0
Floors:	0
Living Units:	0
Adj Sq Footage:	0
Lot Size:	28,242 SQ FT
Year Built:	0
Legal Description:	SEABREEZE INDUSTRIAL PARK PB 154-46 T-19833 LOT 13 BLK 1 LOT SIZE 28242 SQ FT M/L FAU 22-2029-001-0410 0420 0440 & 0460

#### Assessment Information:

Year:	2011	2010
Land Value:	\$423,630	\$423,630
Building Value:	\$0	\$0
Market Value:	\$423,630	\$423,630
Assessed Value:	\$423,630	\$423,630

#### Taxable Value Information:

Year:	2011	2010
Taxing Authority:	Applied Exemption/ Taxable Value:	Applied Exemption/ Taxable Value:
Regional:	\$0/\$423,630	\$0/\$423,630
County:	\$0/\$423,630	\$0/\$423,630
City:	\$0/\$423,630	\$0/\$423,630
School Board:	\$0/\$423,630	\$0/\$423,630

#### Sale Information:

Sale Date:	4/2003
Sale Amount:	\$1,788,300
Sale O/R:	<a href="#">21217-0296</a>
Sales Qualification Description:	Deeds which include more than one parcel
<a href="#">View Additional Sales</a>	

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#### Summary Details:

Folio No.:	<a href="#">22-2029-024-0120</a>
Property:	
Mailing Address:	SOUTH FLORIDA TRUCK STOP INC
	12200 NW S RIVER DR
	MIAMI FL
	33185-

#### Property Information:

Primary Zone:	7100 INDUSTRIAL
CLUC:	0081 VACANT LAND
Beds/Baths:	0/0
Floors:	0
Living Units:	0
Adj Sq Footage:	0
Lot Size:	41,365 SQ FT
Year Built:	0
Legal Description:	SEABREEZE INDUSTRIAL PARK PB 154-46 T-19833 LOT 12 BLK 1 LOT SIZE 41365 SQ FT M/L FAU 22-2029-001-0410 0420 0440 & 0460

#### Assessment Information:

Year:	2011	2010
Land Value:	\$620,475	\$620,475
Building Value:	\$0	\$0
Market Value:	\$620,475	\$620,475
Assessed Value:	\$620,475	\$620,475

#### Taxable Value Information:

Year:	2011	2010
Taxing Authority:	Applied Exemption/ Taxable Value:	Applied Exemption/ Taxable Value:
Regional:	\$0/\$620,475	\$0/\$620,475
County:	\$0/\$620,475	\$0/\$620,475
City:	\$0/\$620,475	\$0/\$620,475
School Board:	\$0/\$620,475	\$0/\$620,475

#### Sale Information:

Sale Date:	4/2003
Sale Amount:	\$1,788,300
Sale O/R:	<a href="#">21217-0296</a>
Sales Qualification Description:	Deeds which include more than one parcel
<a href="#">View Additional Sales</a>	

APPENDIX F:  
Newport Communications  
Group Survey



# Newport Communications Group

W H I T E P A P E R

May 2008

## TRUCKSTOPS & TRUCK DRIVERS – A CHANGING RELATIONSHIP

...

*Truckers' home away from home has moved  
and that is impacting truckstops.*

*By Tom Stanford  
With contributions from  
Jim Beach and Doug Condra*

**T**ruck drivers and truckstops have a long and storied history together. In the 1940s and '50s, the iconic truckstop cup of coffee and sassy (but kind-hearted) truckstop waitress became part of the nation's cultural fabric, celebrated in movies and songs. As the interstates became reality, long-haul trucking and truckstops grew together into major industries, each a vital part of the nation's transportation network. Truckstop operators built huge businesses, not only selling fuel, food and truck services, but also serving as a "home away from home." They grew to offer showers, laundries, movie rooms and a variety of entertainment offerings.



BETTE GARBER

There are now more trucks than ever on the nation's highways, and an ever-growing number of fueling stops to serve them. But the relationship between truck drivers and truckstops has evolved in recent years, just as truckstops themselves evolved. For a number of reasons the truckstop, with a few notable exceptions, is no longer so much a home away from home as it is a place to park.

Truckers still use truckstops to buy fuel and food. But research indicates that when parked at truckstops, drivers now spend the bulk of their time in their cab "homes," minimizing time spent inside the truckstops themselves. A number of factors contribute to this major shift in driver behavior. Consolidation in the truckstop and trucking industries, and growth of large warehouse/distribution facilities play key roles. So have new technologies, new hours of service rules and a

### DEFINING MAJOR CHAINS

**C**urrently, there are five nation wide truckstop chains (TA, Petro, Flying J, Pilot and Loves) operated by four entities (recently, Petro was acquired by TravelCenters of America).

About half are large facilities with a lot of parking space and many driver amenities. These locations also tend to include truck shops/garages. The other half are much smaller with few driver amenities and limited parking. They are mostly oriented to non-trucking traffic, although they are major diesel retailers to the trucking industry.



changing workforce. This new pattern of driver behavior should be of interest to any company seeking to market to truck drivers.

### CHANGING INDUSTRIES

The first truckstops sold fuel. They were truckstops because their facilities had room for trucks to park. Soon, operators added food and other offerings such as showers, bunk facilities and tire repair. Still, selling fuel was how a truckstop operator made his or her profit. But for many years now, fuel has been a commodity; the profit a truckstop can make on a gallon of diesel most often averages just a couple of cents at best.

To cope, truckstops added many other profit centers such as a variety of food, game rooms, movies, shops and a variety of driver services. This became the rite of survival for independent truckstop operators, as they faced stiff fuel price competition from expanding truckstop chains.

Consolidation has been the norm in

both trucking and truckstops. Large fleets have the buying power to negotiate low fuel prices with major truckstop chains, whose volume gives them buying power. To make these fuel deals work, fleets mandate where drivers stop for fuel. This drives traffic to chain locations. OPIS and other services have made fuel prices and transportation costs an open book to fleets, with crude, refined spot, wholesale rack, re-

tail and movement costs/pricing available to anyone. They've put truckstops in the difficult position of selling a commodity for which the large fleets know all the margins involved.

The Internet gives fleets additional tools: nationwide retail and rack fuel price information, updated daily or even hourly. A fleet manager now knows what price a truckstop paid for its fuel on a given day. That manager can plan fuel stops accordingly, totally depressing truckstop fuel sales margins. Owner-operators increasingly have access to some of the same truckstop fuel pricing information, so they, too can plan their stops based on prices.

Changes in fuel card transaction fees, led by ComData, created an unfair playing field. The big chains negotiated flat fees while independent truckstop operators were saddled with percentage fees that have increased as fuel prices have increased.

Independent truckstop operators, unable to compete for fleet fuel business on price, moved to attract drivers

for non-fuel stops. This became an important way to stay in business during the '90s. Offering game arcades, TV rooms, movie rooms, laundry services and 20 or more pay phone booths enabled independent truckstops to maintain profits.

For a number of years, independent truckstops were advised to continue expanding such profit centers to draw drivers into their facilities. They responded with bigger restaurants, more food offerings such as fast-food and delis, more truck services beyond tires and more offerings in their stores.

Meanwhile some chains were forging a different model – one predicated on selling fuel fast, and on smaller parcels of land, to satisfy their fleet customers. With their focus on selling fuel, these facilities resemble large convenience stores with fast food and truck parking, plus a minimal number of showers. For all chains, automobile traffic is an important part of their business; truck fueling islands are placed behind or alongside the building while the car fueling islands are in front.

### CHANGING TECHNOLOGIES

The past 10 years have seen the truckstop business model change dramatically. Drivers no longer have to go inside a truckstop to make a call, be entertained or eat a hot meal. More of them travel with laptop computers, TVs, DVD players and microwave ovens in their cabs. They can eat, sleep, pay bills, write home, be entertained and even have shower/restroom breaks in their trucks. Truck and engine OEMs help make that possible by offering auxiliary power options to power even more creature comforts inside the truck. One truckstop operator noted that

### EXCEPTION TO THE RULE: TERMINAL TRUCKSTOPS

**T**he Introduction to this report stated that there are exceptions to the big picture changes in the trucker-truckstop relationship. Some of those exceptions are a select number of truckstops located in relatively close proximity to major U.S. freight pickup or delivery locations.

Other exceptions are truckstops with both a history of good business and such outstanding offerings that drivers look forward to the visit. In total, there about 68 such truckstops out of approximately 6,000 retail heavy truck fueling locations nationwide.

In one example, the driver needs to wait to pick up or deliver his load and the truckstop provides the most convenient location to do so. At such locations, drivers tend to take care of delayed maintenance, scheduled maintenance, etc., as they have time on their hands. They buy extra meals and make store purchases as a result of this waiting time.

In a second example, great offerings, expanded sales/service, superior employee teamwork and progressive and active management make the truckstop a “must stop” if a driver’s freight schedule permits.

trucks are becoming just like RVs.

In an effort to raise revenue and provide additional services, some truckstops added new parking lot amenities such as IdleAire, WiFi and shorepower plug-ins similar to features found in RV parks. The results are mixed, since these technologies restrict selected parking areas which may alienate some drivers. In addition, these in-cab services encourage drivers to stay in their trucks, depressing traffic inside the truckstop.

The advent of satellite communications systems and cell phones rendered the truckstop pay phone virtually obsolete. Where truckstops once offered banks of pay phones and phone rooms – in the past, the driver’s only link to his dispatcher – today’s driver may find only one or two public phones remaining in most locations. One truckstop operator reported that since this onset, his income

from pay phones dropped from several thousand dollars a month to a few hundred dollars.

The story is the same in his game room. Its revenue has dropped more than 50% over the last 10 years. Other operators report similar numbers. While their parking lots may be full, such inside profit centers have declined significantly or disappeared altogether. In an effort to recoup such losses, some truckstops began to charge truckers for parking unless they buy a certain amount of fuel – a move that discourages some truckers from stopping.

Also on the endangered list are 24-hour, full-service truckstop restaurants. At one time, truckstops were widely known for good quality food. But many truckstop operators now report declining restaurant sales and customer counts. Even very successful, long-time terminal locations with

24-hour sit-down restaurants say their customer counts are decreasing and only menu price increases have allowed them to show small revenue growth in their food business.

One truckstop operator along the I-80 corridor says he plans to reduce the size of his full-service restaurant and add one or more fast food outlets. This comes after the decline of a long and successful run with the full-service concept. Another operator closed his restaurant and converted the space into a gift shop to attract tourists.

Some major chains continue with full menus of driver services. But in some cases, they offer fewer than some independent truckstops. While the big chains have parking, showers and convenience stores, none offer full-service dining in every location. The others offer one or more quick-serve food outlets. There's little reason for drivers to spend time inside these locations, except to pay for fuel, buy take-out food or shop in the convenience stores.

## CUSTOMER TYPE

Historically, truckstops were classified as focusing on a customer mix of truckers, travelers and/or locals. Truckstops on interstate highways catered primarily to long-haul truckers and locals, later adding travelers. At the same time local and intrastate truckers fueled at their terminal or nearby off-the-interstate fuel stops. Industry consolidation has changed that. Truckstops today, whether located on an interstate or not, target either interstate trucking customers or intrastate truckers.

Since most independent truckstops cannot compete with the large chains on fuel prices offered to long-haul fleets, many of them now focus on lo-

## CHANGES IN DRIVER STOPPING HABITS

A landmark national study done by Newport Communications Group in 1987 and a follow-up in 1990 provided the first complete picture regarding why patrons stopped at truckstops. A new national survey is nearly complete. Preliminary results of that survey are noted in the chart below, along with figures from the 1987 survey.

### Question: Which reasons contributed to you making this stop?

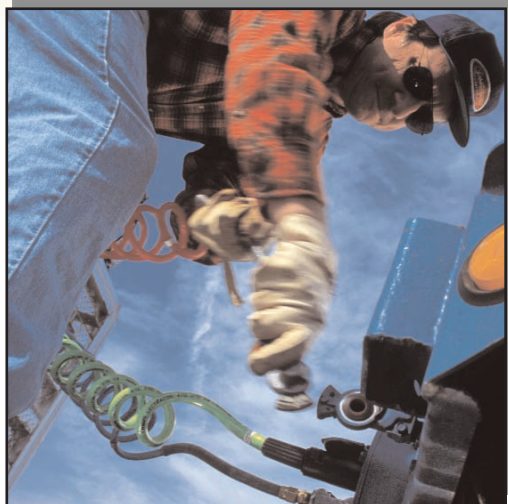
(Truckers Responses: Respondents asked to list all reasons.)

	2008	1987	% Change in usage 1987 to 2008
Food .....	73%	66%	10%
Restaurant Full Service .....	35%	66%	-47%
Fast Food/QSR <sup>1</sup> .....	38%	N/A	N/A
Restroom .....	87%	59%	47%
Telephone .....	12%	59%	-80%
Rest/Relax .....	47%	51%	-8%
Fuel <sup>2</sup> .....	65%	46%	41%
Shower .....	31%	28%	11%
General Store/C-Store <sup>3</sup> .....	68%	33%	106%
Find a Load .....	13%	15%	-13%
Maintenance .....	11%	8%	38%
Games .....	4%	8%	-50%
Scales <sup>4</sup> .....	27%	7%	286%
Laundry .....	10%	6%	67%
Vending Machines .....	7%	4%	75%
Permit Services .....	1%	2%	-50%
Other: .....	10%	2%	400%

#### Notes:

- 1) Fast food was largely non-existent at truckstops in 1987.
- 2) The higher percentage of fuel purchasers reflects the reduced number of stops truckers make daily.
- 3) General stores have been merged into C-stores since the first study. In 1987, truckstops had general stores or convenience store offerings, vs. the Full-scales C-stores found in truckstops today.
- 4) Will Moon, of CAT scale and Iowa 80 Group, notes that truckstop scales were not as common in 1987 as now. A demand for more certified scales led to more truckstop scales, particularly near pickup points.





cal and regional business where service outweighs price. For example, a longtime Midwest operator on a major East-West interstate said he was able to deliver holiday cookies to 25 of his 27 top fuel customers in one day – underscoring how close in proximity his major customers are to his operation.

A local trucker does not need many of the traditional driver services offered, since he/she goes home every night. He/she stops for fuel, uses the restroom, grabs a snack and a drink and gets back on the road. That driver may also buy items from the general store.

An interstate trucker will spend more time at a truckstop and make at least two stops each day. But even these drivers are spending less time inside truckstops for the reasons previously outlined. Plus, many over-the-road truckers are owner-operators. As business owners, they must do more with less to reduce expenses. Living in their trucks serves their profit goals.

Changes in driver hours of service rules may also play a role in reducing the amount of time drivers spend at truckstops. One truckstop operator says he noticed that drivers are not around as much during the day. He

thinks the new rules allow them to operate on a more traditional schedule, driving during the day and sleeping at night. He believes that under the old rules, drivers tended to drive at all hours and often found themselves out of hours in the middle of the day, which led them to spend more daylight hours at truckstops.

As mentioned earlier, large distribution warehousing facilities, built near major urban areas, have changed the face of long-haul trucking. They have resulted in overall shorter trips, and dedicated trips to and from their facilities. Additionally, the best of these long-haul drivers are moving to such dedicated hauls, primarily to get more time at home. Recent data shows that the average long haul has dropped by 300 miles over the past decade, according to a major truckstop research firm.

## DRIVER DEMOGRAPHICS

Driver turnover for over-the-road long-haul fleets averages more than 120% per year, according to recent figures from the American Trucking Associations. High turnover has been an industry dilemma for many years. Many new drivers entering the profession are immigrants, often non-English-speaking. Virgil Coffee, with TVC Pro-Driver, provider of driver services (i.e. health, legal, etc.), reports that English is not the native language for 50% of the drivers calling his company's customer service line. The breakdown is: 30% Spanish-speakers, 10% Russian-speakers, 5% India-Hindu/Urdu speakers and 5% Eastern European or other.

## ACKNOWLEDGMENTS

The following truckstop operators and industry experts sat for interviews, reviewed early drafts and offered critiques and suggestions for this report.

• • • •

Steve Allen, Ambest  
 Dan Alsaker, Broadway Flying J  
 Jim Anderson,  
 Truck N Travel TA  
 Forrest Baker, Transportation  
 Research & Marketing  
 Jerry Beaton, TA Amarillo  
 Chuck Bosselman,  
 Bosselman Travel Center  
 Larry Bowman, Jubitz  
 Travel Center  
 Bill Byers, Brazil 70 Travel  
 Center  
 Kevin Cassidy, Sapp Bros.  
 Virgil Coffee, TVC Pro-Driver  
 Justin Coffee, TVC Pro-Driver  
 Stan Cooper, DAS  
 Robert DeVoss, National  
 Truckstop Directory  
 Luke Dinsdale, Ambest  
 Fred Jubitz, Jubitz Travel Center  
 Fred Kirschner, Petro franchise  
 Pat Marchbanks, Bear  
 Mountain Travel Stop  
 Jim Miller, Sacramento  
 49er Truck Stop  
 Will Moon, Iowa 80 TA  
 Truckstop  
 Burt Newman, PTP  
 Chet Reiley, Broadway Flying J  
 Dave Shoemaker,  
 Shoemaker's Truck Station  
 Roger Smith, Morton's  
 Flying J Travel Plaza  
 Bill Vollenweider,  
 Detroit Truck Stop



### About The Authors



Tom Stanford is President of Newport Poster Network and a leading authority on research, marketing, advertising sales and truckstop management. He is a former publisher of *NATSO Truckers News*, *RoadStar* and *Truckstop Travel Plaza* magazines. A former truckstop operator, Tom also spent eight years at Union 76 Auto/Truck Stops and has personally visited nearly every truckstop in North America.

Jim Beach is Technology Editor for *Heavy Duty Trucking* magazine and former editor of *Truckstop Travel Plaza* magazine. He has 20 years industry experience, including past service as editor of *NATSO Truckers News*, *GO-West* and *Light & Medium Truck* magazines. He has written for several other industry publications including *Transport Topics*, *Fleet Owner* and *Fleet Maintenance*.



Doug Condra directed editorial operations of the Newport Communications Group for 30 years before becoming President in 2002.

He has been named the nation's top business press editorial writer 8 times in American Business Media competition, and has won numerous other awards for journalism excellence. He holds the ABM lifetime Crain Award for distinguished career in the business press.

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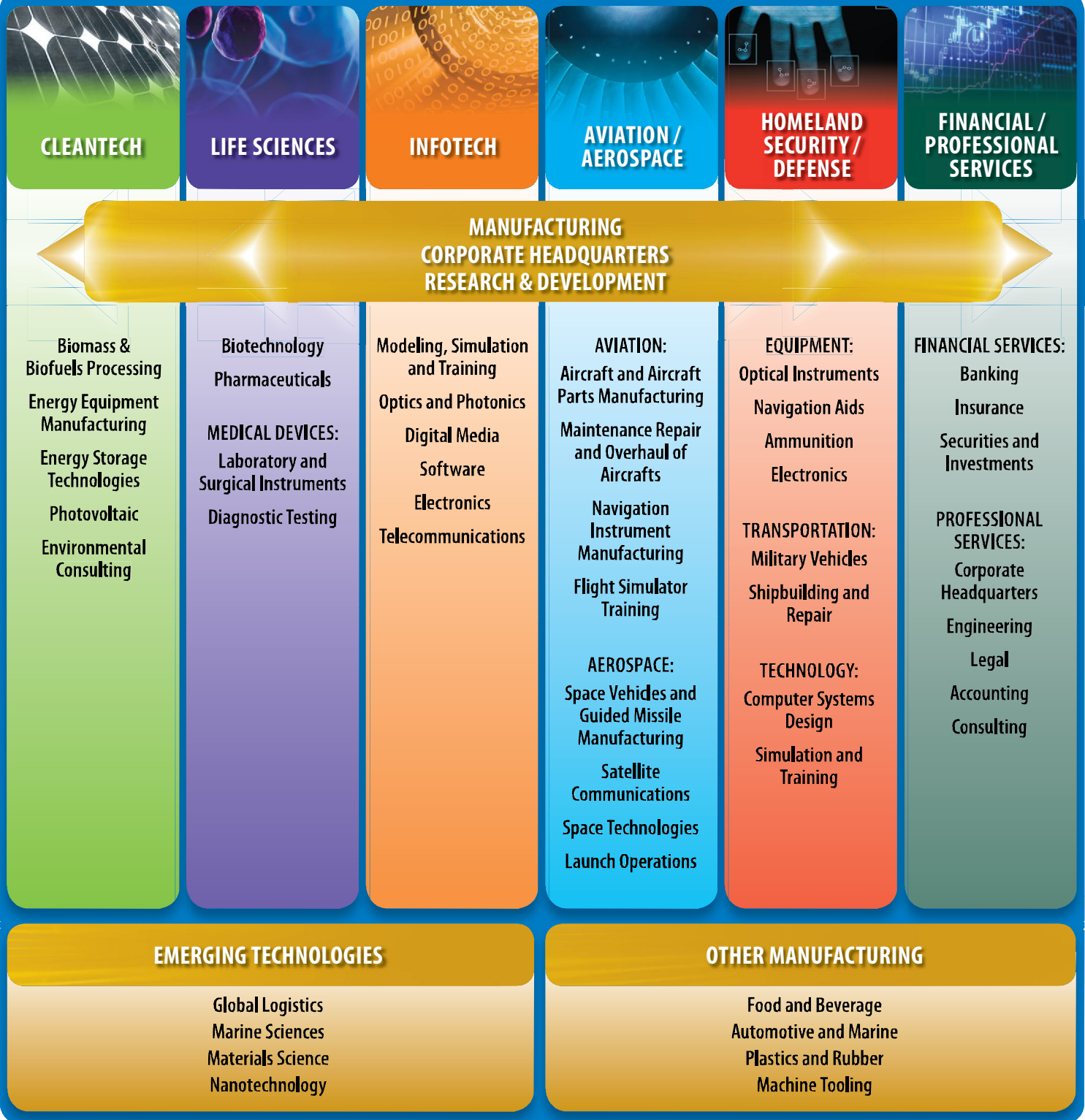
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# APPENDIX G: QTI Industries

# QUALIFIED TARGETED INDUSTRIES FOR INCENTIVES



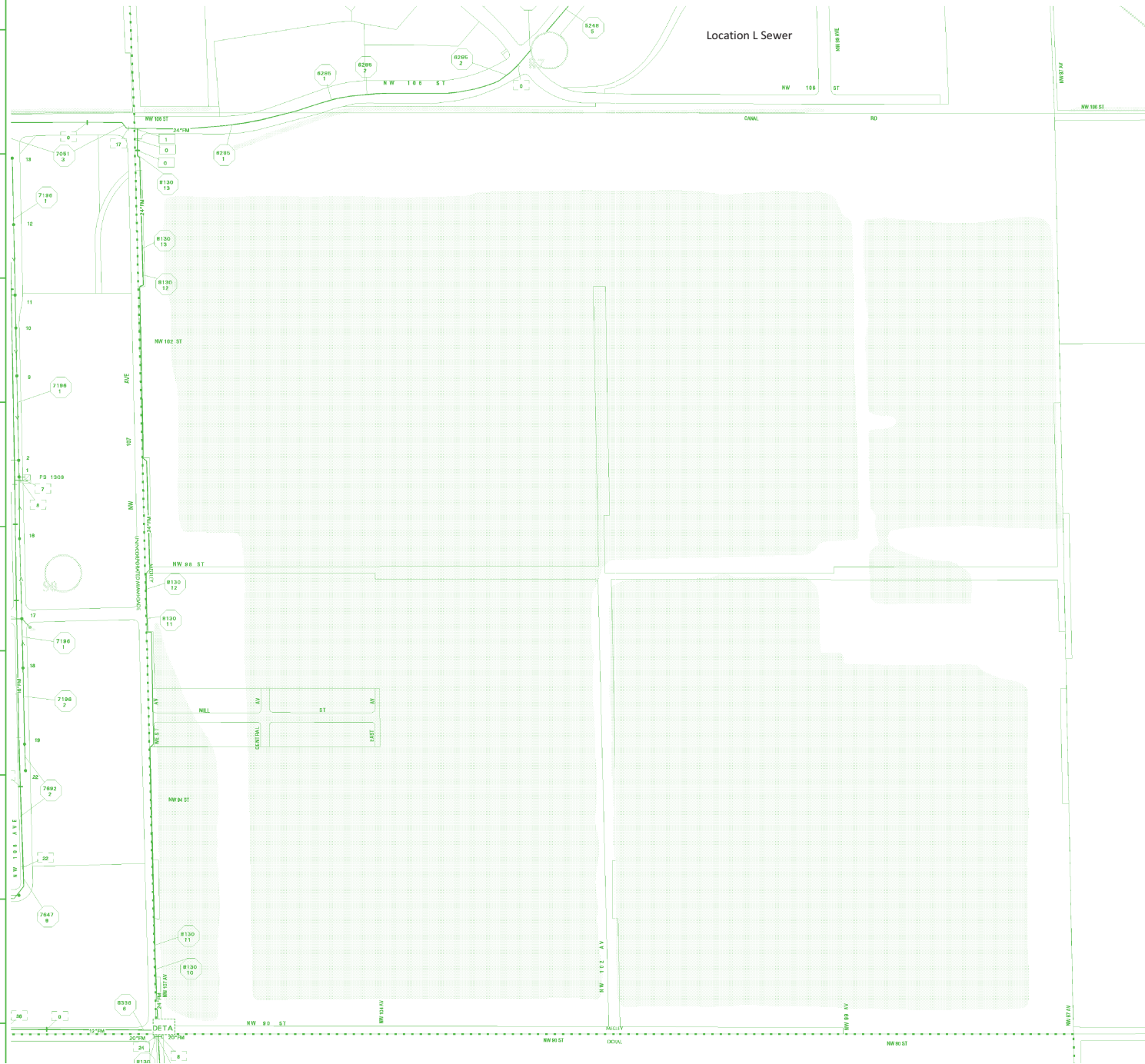
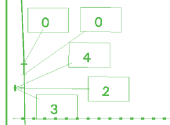
Businesses able to locate in other states and serving multi-state and/or international markets are targeted. Call Centers and Shared Service Centers may qualify for incentives if certain economic criteria are met. Retail activities, utilities, mining and other extraction or processing businesses, and activities regulated by the Division of Hotels and Restaurants of the Department of Business and Professional Regulation are statutorily excluded from consideration. All projects are evaluated on an individual basis and therefore operating in a target industry does not automatically indicate eligibility.

For additional information about Florida's business advantages,  
please visit Enterprise Florida's website at [www.eflora.com](http://www.eflora.com)  
or call 407.956.5600.

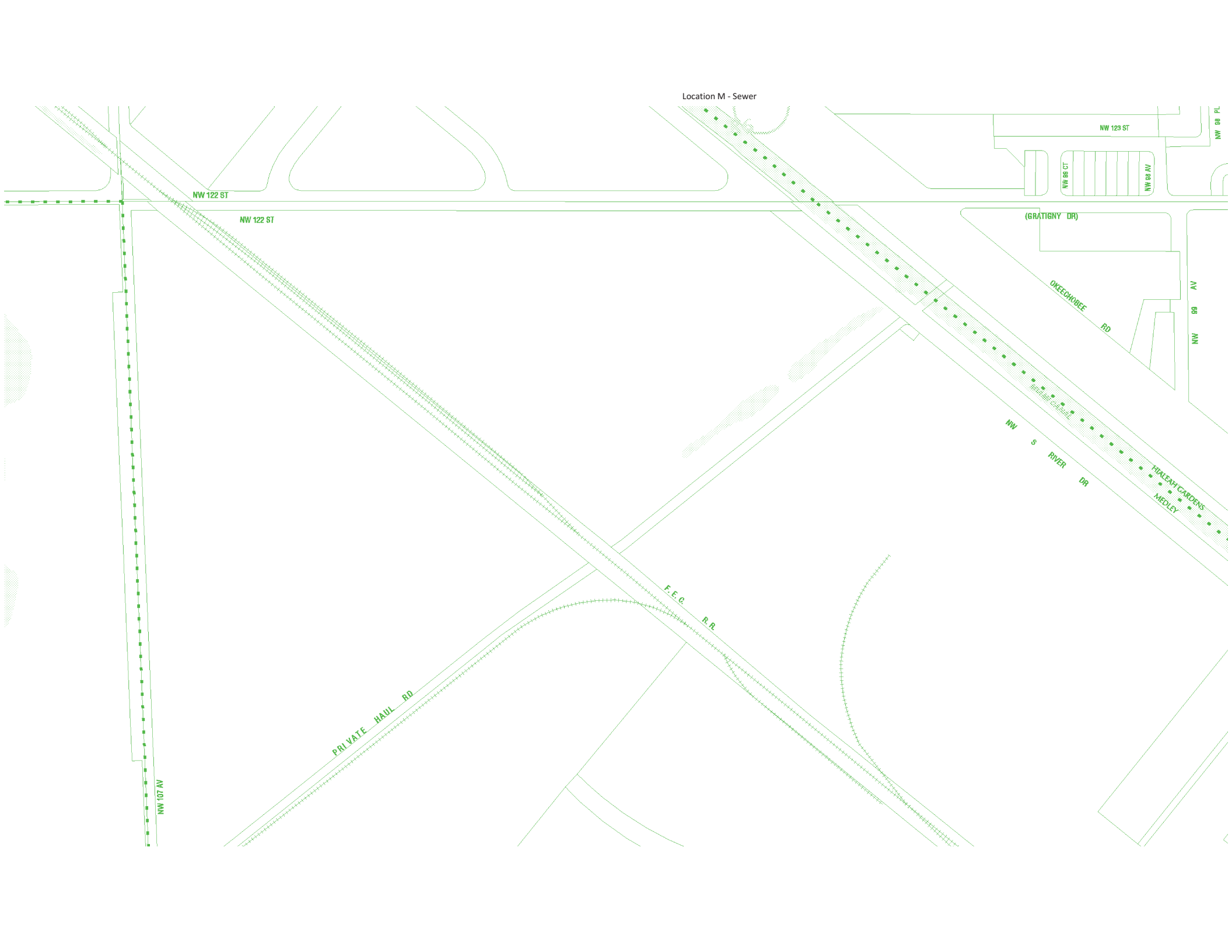
APPENDIX H:  
Water and Sewer Atlas  
Information

DETAILS

DETA Scale 1" = 50'







Location M - Sewer

NW 122 ST

NW 122 ST

NW 123 ST

NW 98 PL

NW 98 AV

(GRATIGNY DR)

OKEECHOBEE RD

NW 98 PL

NW S RIVER DR

HALEART GARDENS  
MEDLEY

F.E.G. R.R.

PRIVATE HAUL RD

NW 107 AV

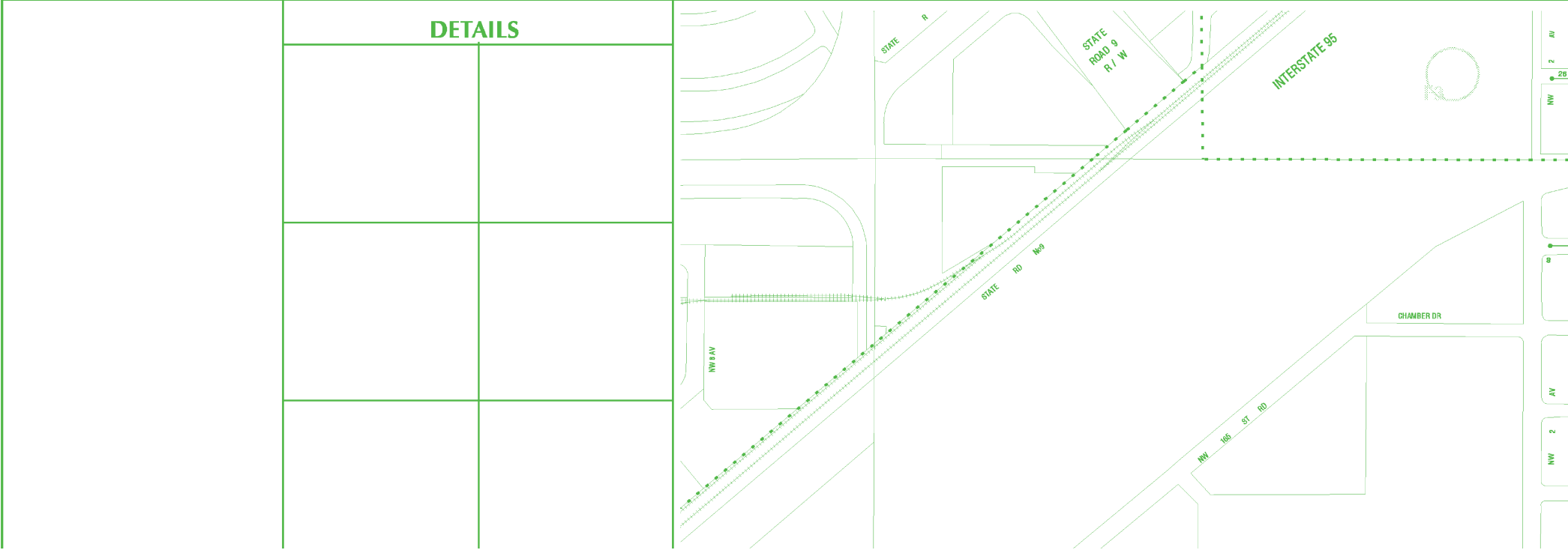


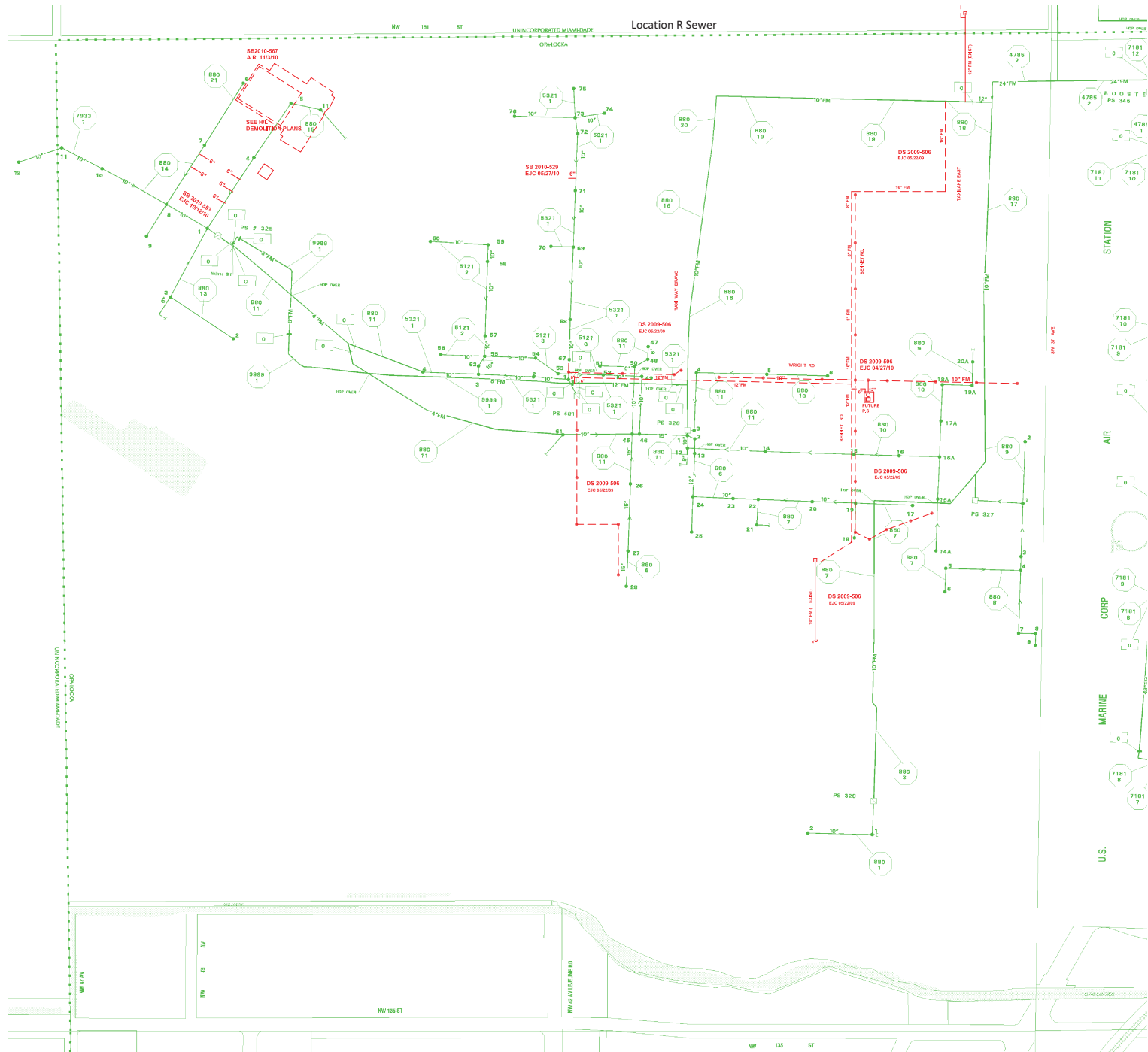
## Location N and O Sewer

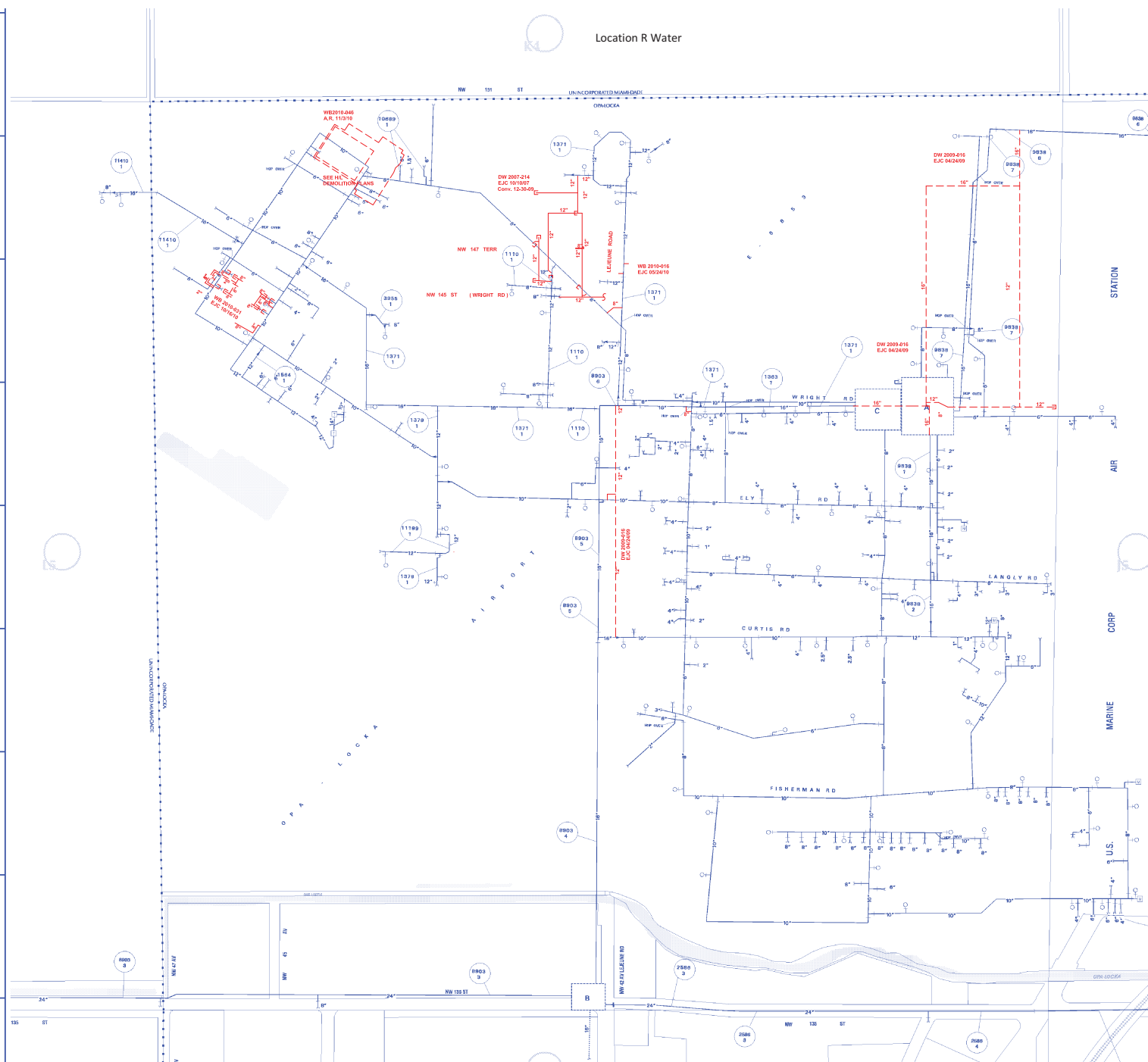
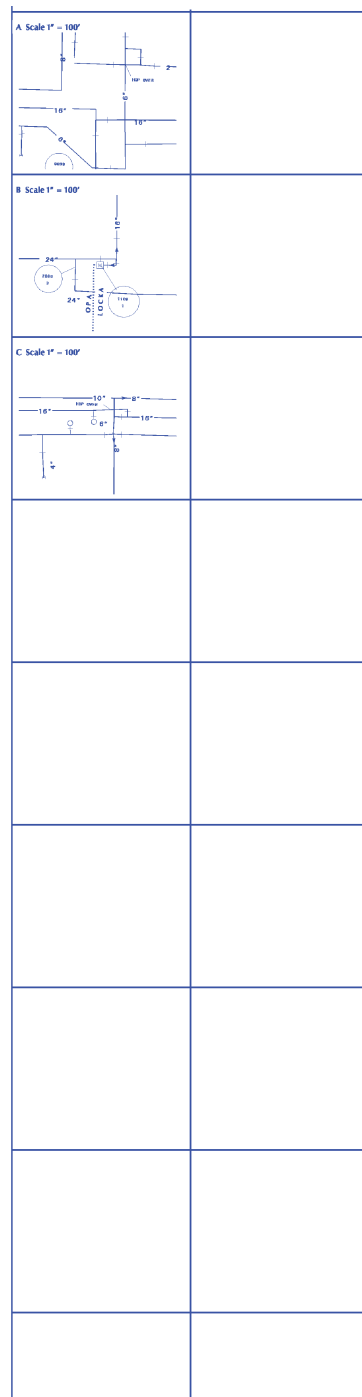




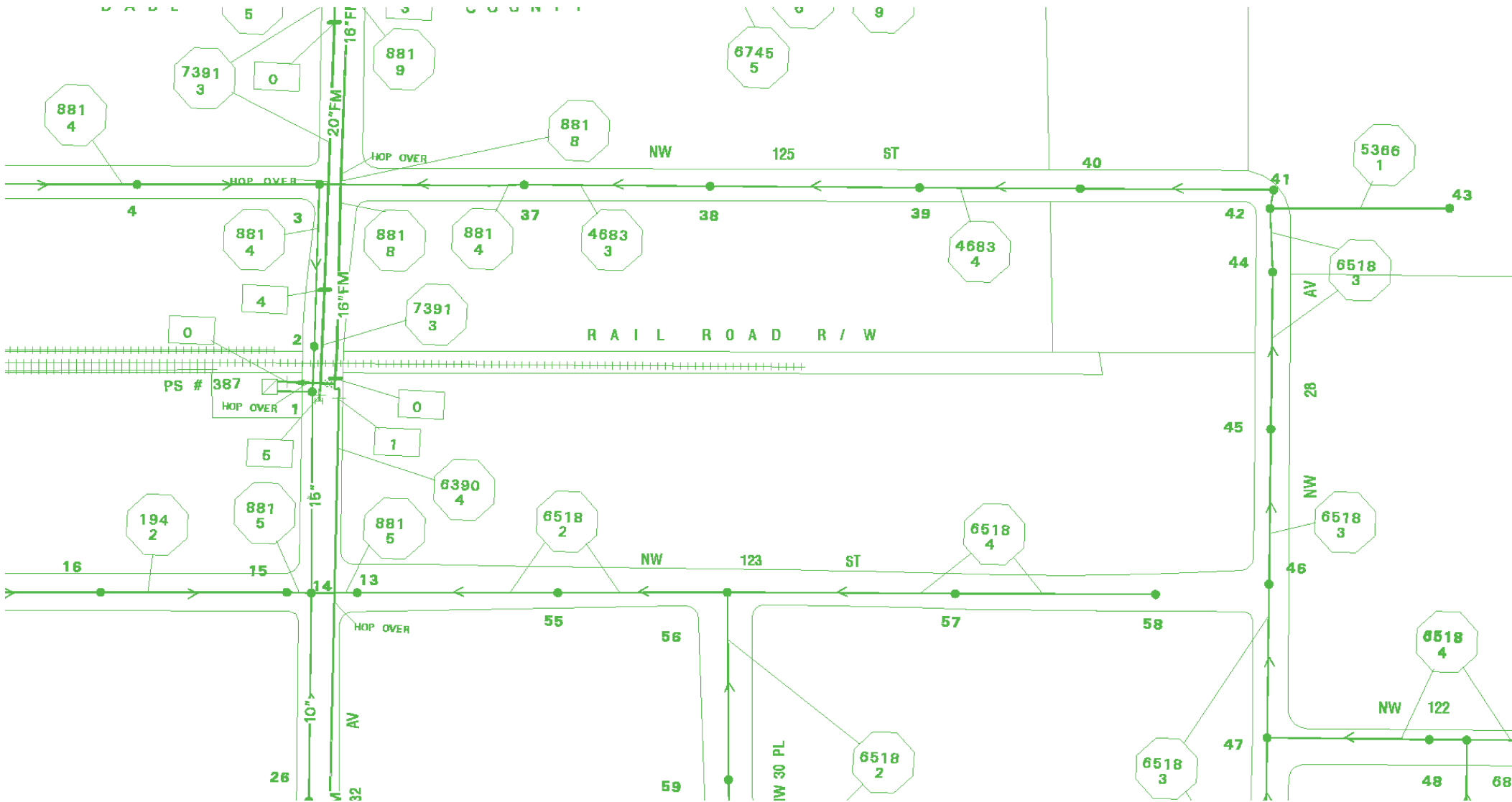
Location Q Sewer

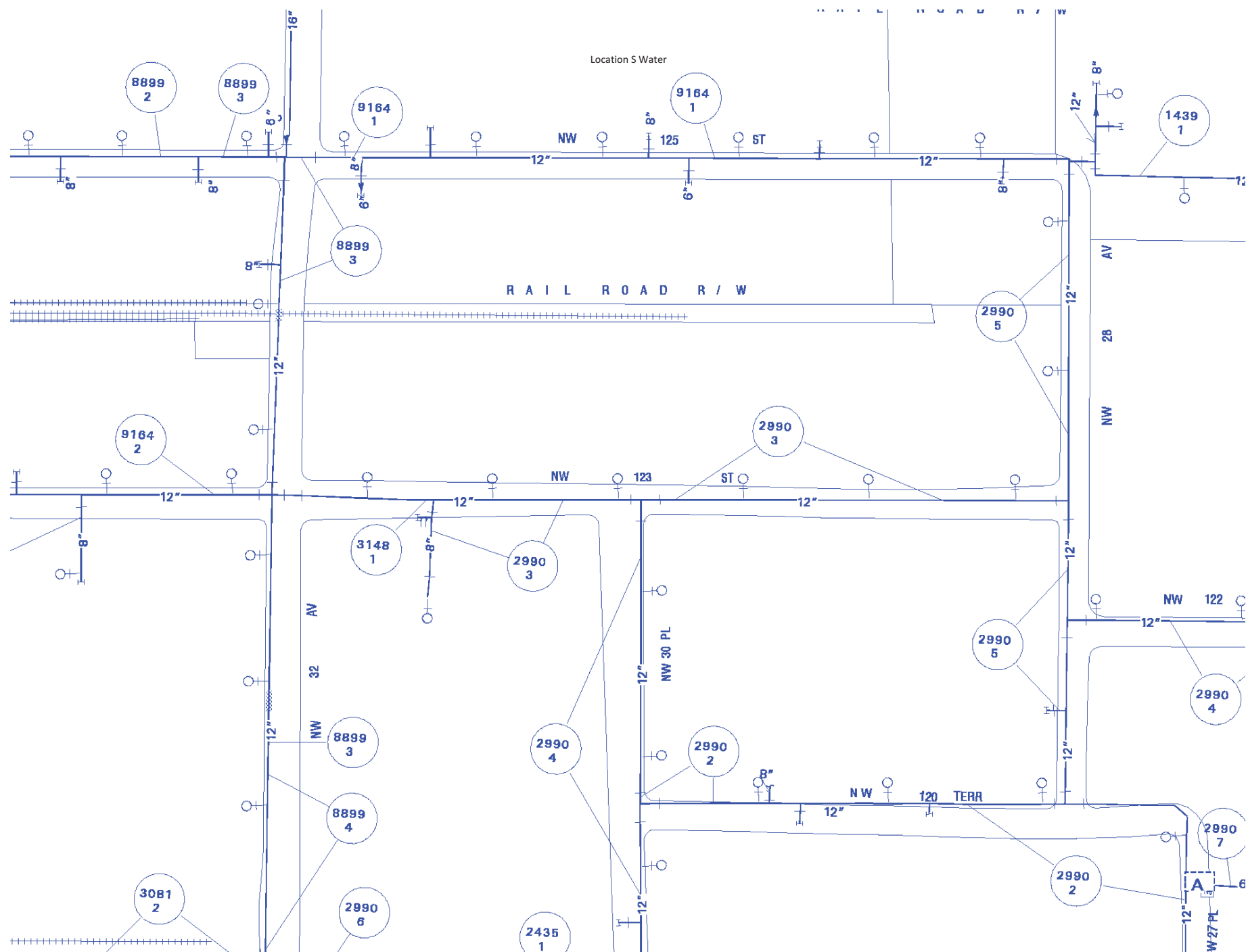






Location S Sewer





# APPENDIX I:

## Site Development Cost



Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**5 Acre Site - 100% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	5	\$5,000.00
2	Earthwork - Cut Material	CY	\$4.00	7,500	\$30,000.00
3	Earthwork - Fill Material	CY	\$7.00	7,500	\$52,500.00
4	Silt Fence	LF	\$1.00	2,000	\$2,000.00
5	Turbidity Barrier	LF	\$13.00	30	\$390.00
<b>Subtotal</b>					<b>\$89,890.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	100	\$2,500.00
2	18" HDPE Pipe	LF	\$28.50	200	\$5,700.00
3	18" Exfiltration Trench	LF	\$100.00	330	\$33,000.00
4	24" HDPE Pipe	LF	\$60.00	100	\$6,000.00
5	Drainage Structures	EA	\$2,800.00	5	\$14,000.00
6	Headwall	EA	\$2,500.00	1	\$2,500.00
<b>Subtotal</b>					<b>\$63,700.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	600	\$3,000.00
2	1" Watermeter	EA	\$130.00	1	\$130.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	1,500	\$60,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	1	\$1,650.00
15	6" x 1" PVC Tee	EA	\$105.00	2	\$210.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	3	\$2,355.00
23	Fire Hydrant Assembly	EA	\$3,600.00	2	\$7,200.00
24	6" Siamese Connection	EA	\$1,800.00	1	\$1,800.00
25	3/4" Hose Bibb	EA	\$250.00	4	\$1,000.00
28	Sample Point	EA	\$350.00	2	\$700.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	0	\$0.00
<b>Subtotal</b>					<b>\$81,545.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	1,000	\$36,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	200	\$5,200.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	3	\$10,800.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	2	\$700.00
<b>Subtotal</b>					<b>\$53,500.00</b>



Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
5 Acre Site - 100% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	2,000	\$8,000.00
2	8" Limerock Base	SY	\$6.00	2,000	\$12,000.00
3	12" Stabilized Subgrade	SY	\$1.00	2,000	\$2,000.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	1,000	\$12,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	300	\$5,400.00
8	Handicap Ramps	EA	\$500.00	6	\$3,000.00
9	Bollards	EA	\$45.00	20	\$900.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$7,500.00	1	\$7,500.00
<b>Subtotal</b>					<b>\$50,800.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	1,500	\$75,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	4	\$1,200.00
4	Dumpster Enclosure	EA	\$3,000.00	1	\$3,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$182,200.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Building	LS	\$150,000.00	1	\$150,000.00
<b>Subtotal</b>					<b>\$650,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	6	\$192,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	3	\$60,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	3	\$132,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$630,800.00</b>





Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
5 Acre Site - 100% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$5,000.00	1	\$5,000.00
2	Bahia Sod	SY	\$1.35	7,500	\$10,125.00
3	Irrigation	LS	\$3,000.00	1	\$3,000.00
<b>Subtotal</b>					<b>\$18,125.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	12	\$60,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	4	\$20,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$14,600.00	36	\$525,600.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$638,600.00</b>
<b>5 Acre Site Project Summary Total</b>					<b>\$2,459,160.00</b>
<b>Mobilization (10%)</b>					<b>\$246,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$123,000.00</b>
<b>Testing (2.5%)</b>					<b>\$62,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$123,000.00</b>
<b>Contingency (20%)</b>					<b>\$492,000.00</b>
<b>P.E. Design (5%)</b>					<b>\$123,000.00</b>
<b>Contingency (5%)</b>					<b>\$123,000.00</b>
<b>5 Acre Site Project Summary Grand Total</b>					<b>\$3,751,160.00</b>
<b>List of Assumptions</b>					

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
10 Acre Site - 100% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	10	\$10,000.00
2	Earthwork - Cut Material	CY	\$4.00	20,000	\$80,000.00
3	Earthwork - Fill Material	CY	\$7.00	20,000	\$140,000.00
4	Silt Fence	LF	\$1.00	3,000	\$3,000.00
5	Turbidity Barrier	LF	\$13.00	0	\$0.00
<b>Subtotal</b>					<b>\$233,000.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	150	\$3,750.00
2	18" HDPE Pipe	LF	\$28.50	300	\$8,550.00
3	18" Exfiltration Trench	LF	\$100.00	660	\$66,000.00
4	36" HDPE Pipe	LF	\$77.00	50	\$3,850.00
5	Drainage Structures	EA	\$2,800.00	15	\$42,000.00
<b>Subtotal</b>					<b>\$124,150.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	600	\$3,000.00
2	1" Watermeter	EA	\$130.00	0	\$0.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	1,200	\$48,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	1	\$1,650.00
15	6" x 1" PVC Tee	EA	\$105.00	1	\$105.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	3	\$2,355.00
23	Fire Hydrant Assembly	EA	\$3,600.00	3	\$10,800.00
24	6" Siamese Connection	EA	\$1,800.00	1	\$1,800.00
25	3/4" Hose Bibb	EA	\$250.00	3	\$750.00
28	Sample Point	EA	\$350.00	2	\$700.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	1	\$115.00
<b>Subtotal</b>					<b>\$72,775.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	500	\$18,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	100	\$2,600.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	3	\$10,800.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	2	\$700.00
<b>Subtotal</b>					<b>\$32,900.00</b>

**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**10 Acre Site - 100% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	5,000	\$20,000.00
2	8" Limerock Base	SY	\$6.00	5,000	\$30,000.00
3	12" Stabilized Subgrade	SY	\$1.00	5,000	\$5,000.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	1,500	\$18,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	500	\$9,000.00
8	Handicap Ramps	EA	\$500.00	6	\$3,000.00
9	Bollards	EA	\$45.00	20	\$900.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$15,000.00	1	\$15,000.00
<b>Subtotal</b>					<b>\$100,900.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	3,100	\$155,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	5	\$1,500.00
4	Dumpster Enclosure	EA	\$3,000.00	1	\$3,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$262,500.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Facility	LS	\$150,000.00	1	\$150,000.00
<b>Subtotal</b>					<b>\$650,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	7	\$224,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	4	\$80,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	4	\$176,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$726,800.00</b>

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
10 Acre Site - 100% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$10,000.00	1	\$10,000.00
2	Bahia Sod	SY	\$1.35	10,000	\$13,500.00
3	Irrigation	LS	\$7,500.00	1	\$7,500.00
<b>Subtotal</b>					<b>\$31,000.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	5	\$25,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	5	\$25,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$13,600.00	99	\$1,346,400.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$1,429,400.00</b>
<b>10 Acre Site Project Summary Total</b>					<b>\$3,663,425.00</b>
<b>Mobilization (10%)</b>					<b>\$367,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$184,000.00</b>
<b>Testing (2.5%)</b>					<b>\$92,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$184,000.00</b>
<b>Contingency (20%)</b>					<b>\$733,000.00</b>
<b>P.E. Design (5%)</b>					<b>\$184,000.00</b>
<b>CEI (5%)</b>					<b>\$184,000.00</b>
<b>10 Acre Site Project Summary Grand Total</b>					<b>\$5,591,425.00</b>
<b>List of Assumptions</b>					



**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
40 Acre Site - 100% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	40	\$40,000.00
2	Earthwork - Cut Material	CY	\$4.00	50,000	\$200,000.00
3	Earthwork - Fill Material	CY	\$7.00	50,000	\$350,000.00
4	Silt Fence	LF	\$1.00	5,000	\$5,000.00
5	Turbidity Barrier	LF	\$13.00	0	\$0.00
<b>Subtotal</b>					<b>\$595,000.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	500	\$12,500.00
2	18" HDPE Pipe	LF	\$28.50	1,500	\$42,750.00
3	18" Exfiltration Trench	LF	\$100.00	2,640	\$264,000.00
4	36" HDPE Pipe	LF	\$77.00	100	\$7,700.00
5	Drainage Structures	EA	\$2,800.00	40	\$112,000.00
<b>Subtotal</b>					<b>\$438,950.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	1,200	\$6,000.00
2	1" Watermeter	EA	\$130.00	1	\$130.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	4,400	\$176,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	2	\$3,300.00
15	6" x 1" PVC Tee	EA	\$105.00	2	\$210.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	5	\$3,925.00
23	Fire Hydrant Assembly	EA	\$3,600.00	9	\$32,400.00
24	6" Siamese Connection	EA	\$1,800.00	2	\$3,600.00
25	3/4" Hose Bibb	EA	\$250.00	10	\$2,500.00
28	Sample Point	EA	\$350.00	6	\$2,100.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	1	\$115.00
<b>Subtotal</b>					<b>\$233,780.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	1,000	\$36,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	200	\$5,200.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	6	\$21,600.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	4	\$1,400.00
<b>Subtotal</b>					<b>\$65,000.00</b>



**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
40 Acre Site - 100% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	14,500	\$58,000.00
2	8" Limerock Base	SY	\$6.00	14,500	\$87,000.00
3	12" Stabilized Subgrade	SY	\$1.00	14,500	\$14,500.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	5,000	\$60,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	1,000	\$18,000.00
8	Handicap Ramps	EA	\$500.00	10	\$5,000.00
9	Bollards	EA	\$45.00	50	\$2,250.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$294,750.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	5,000	\$250,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	20	\$6,000.00
4	Dumpster Enclosure	EA	\$3,000.00	2	\$6,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$365,000.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Building	LS	\$250,000.00	1	\$250,000.00
3	35,000 S.F. Building	LS	\$750,000.00	1	\$750,000.00
<b>Subtotal</b>					<b>\$1,500,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	7	\$224,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	4	\$80,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	4	\$176,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$726,800.00</b>



**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**40 Acre Site - 100% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$25,000.00	1	\$25,000.00
2	Bahia Sod	SY	\$1.35	50,000	\$67,500.00
3	Irrigation	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$117,500.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	12	\$60,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	12	\$60,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$13,100.00	499	\$6,536,900.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$6,689,900.00</b>
<b>40 Acre Site Project Summary Total</b>					<b>\$11,026,680.00</b>
<b>Mobilization (10%)</b>					<b>\$1,103,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$552,000.00</b>
<b>Testing (2.5%)</b>					<b>\$276,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$552,000.00</b>
<b>Contingency (20%)</b>					<b>\$2,206,000.00</b>
<b>PE Design (5%)</b>					<b>\$552,000.00</b>
<b>CEI (5%)</b>					<b>\$552,000.00</b>
<b>40 Acre Site Project Summary Grand Total</b>					<b>\$16,819,680.00</b>
<b>List of Assumptions</b>					



Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
5 Acre Site - 25% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	5	\$5,000.00
2	Earthwork - Cut Material	CY	\$4.00	7,500	\$30,000.00
3	Earthwork - Fill Material	CY	\$7.00	7,500	\$52,500.00
4	Silt Fence	LF	\$1.00	2,000	\$2,000.00
5	Turbidity Barrier	LF	\$13.00	30	\$390.00
<b>Subtotal</b>					<b>\$89,890.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	100	\$2,500.00
2	18" HDPE Pipe	LF	\$28.50	200	\$5,700.00
3	18" Exfiltration Trench	LF	\$100.00	330	\$33,000.00
4	24" HDPE Pipe	LF	\$60.00	100	\$6,000.00
5	Drainage Structures	EA	\$2,800.00	5	\$14,000.00
6	Headwall	EA	\$2,500.00	1	\$2,500.00
<b>Subtotal</b>					<b>\$63,700.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	600	\$3,000.00
2	1" Watermeter	EA	\$130.00	1	\$130.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	1,500	\$60,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	1	\$1,650.00
15	6" x 1" PVC Tee	EA	\$105.00	2	\$210.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	3	\$2,355.00
23	Fire Hydrant Assembly	EA	\$3,600.00	2	\$7,200.00
24	6" Siamese Connection	EA	\$1,800.00	1	\$1,800.00
25	3/4" Hose Bibb	EA	\$250.00	4	\$1,000.00
28	Sample Point	EA	\$350.00	2	\$700.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	0	\$0.00
<b>Subtotal</b>					<b>\$81,545.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	1,000	\$36,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	200	\$5,200.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	3	\$10,800.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	2	\$700.00
<b>Subtotal</b>					<b>\$53,500.00</b>





Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
5 Acre Site - 25% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	2,000	\$8,000.00
2	8" Limerock Base	SY	\$6.00	2,000	\$12,000.00
3	12" Stabilized Subgrade	SY	\$1.00	2,000	\$2,000.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	1,000	\$12,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	300	\$5,400.00
8	Handicap Ramps	EA	\$500.00	6	\$3,000.00
9	Bollards	EA	\$45.00	20	\$900.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$7,500.00	1	\$7,500.00
<b>Subtotal</b>					<b>\$50,800.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	1,500	\$75,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	4	\$1,200.00
4	Dumpster Enclosure	EA	\$3,000.00	1	\$3,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$182,200.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Building	LS	\$150,000.00	1	\$150,000.00
<b>Subtotal</b>					<b>\$650,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	6	\$192,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	3	\$60,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	3	\$132,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$630,800.00</b>



Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
5 Acre Site - 25% Truck Electrification**

**Prepared by:**

**Kimley-Horn and Associates**

**Engineer: SFV      Checked by: AD**

**KHA Project # 040829025**

**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$5,000.00	1	\$5,000.00
2	Bahia Sod	SY	\$1.35	7,500	\$10,125.00
3	Irrigation	LS	\$3,000.00	1	\$3,000.00
<b>Subtotal</b>					<b>\$18,125.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	12	\$60,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	4	\$20,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$14,600.00	9	\$131,400.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$244,400.00</b>
<b>5 Acre Site Project Summary Total</b>					<b>\$2,064,960.00</b>
<b>Mobilization (10%)</b>					<b>\$207,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$104,000.00</b>
<b>Testing (2.5%)</b>					<b>\$52,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$104,000.00</b>
<b>Contingency (20%)</b>					<b>\$413,000.00</b>
<b>P.E. Design (5%)</b>					<b>\$104,000.00</b>
<b>Contingency (5%)</b>					<b>\$104,000.00</b>
<b>5 Acre Site Project Summary Grand Total</b>					<b>\$3,152,960.00</b>
<b>List of Assumptions</b>					

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
10 Acre Site - 25% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	10	\$10,000.00
2	Earthwork - Cut Material	CY	\$4.00	20,000	\$80,000.00
3	Earthwork - Fill Material	CY	\$7.00	20,000	\$140,000.00
4	Silt Fence	LF	\$1.00	3,000	\$3,000.00
5	Turbidity Barrier	LF	\$13.00	0	\$0.00
<b>Subtotal</b>					<b>\$233,000.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	150	\$3,750.00
2	18" HDPE Pipe	LF	\$28.50	300	\$8,550.00
3	18" Exfiltration Trench	LF	\$100.00	660	\$66,000.00
4	36" HDPE Pipe	LF	\$77.00	50	\$3,850.00
5	Drainage Structures	EA	\$2,800.00	15	\$42,000.00
<b>Subtotal</b>					<b>\$124,150.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	600	\$3,000.00
2	1" Watermeter	EA	\$130.00	0	\$0.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	1,200	\$48,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	1	\$1,650.00
15	6" x 1" PVC Tee	EA	\$105.00	1	\$105.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	3	\$2,355.00
23	Fire Hydrant Assembly	EA	\$3,600.00	3	\$10,800.00
24	6" Siamese Connection	EA	\$1,800.00	1	\$1,800.00
25	3/4" Hose Bibb	EA	\$250.00	3	\$750.00
28	Sample Point	EA	\$350.00	2	\$700.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	1	\$115.00
<b>Subtotal</b>					<b>\$72,775.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	500	\$18,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	100	\$2,600.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	3	\$10,800.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	2	\$700.00
<b>Subtotal</b>					<b>\$32,900.00</b>

**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**10 Acre Site - 25% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	5,000	\$20,000.00
2	8" Limerock Base	SY	\$6.00	5,000	\$30,000.00
3	12" Stabilized Subgrade	SY	\$1.00	5,000	\$5,000.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	1,500	\$18,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	500	\$9,000.00
8	Handicap Ramps	EA	\$500.00	6	\$3,000.00
9	Bollards	EA	\$45.00	20	\$900.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$15,000.00	1	\$15,000.00
<b>Subtotal</b>					<b>\$100,900.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	3,100	\$155,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	5	\$1,500.00
4	Dumpster Enclosure	EA	\$3,000.00	1	\$3,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$262,500.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Facility	LS	\$150,000.00	1	\$150,000.00
<b>Subtotal</b>					<b>\$650,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	7	\$224,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	4	\$80,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	4	\$176,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$726,800.00</b>

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
10 Acre Site - 25% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$10,000.00	1	\$10,000.00
2	Bahia Sod	SY	\$1.35	10,000	\$13,500.00
3	Irrigation	LS	\$7,500.00	1	\$7,500.00
<b>Subtotal</b>					<b>\$31,000.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	5	\$25,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	5	\$25,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$13,600.00	25	\$340,000.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$423,000.00</b>
<b>10 Acre Site Project Summary Total</b>					<b>\$2,657,025.00</b>
<b>Mobilization (10%)</b>					<b>\$266,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$133,000.00</b>
<b>Testing (2.5%)</b>					<b>\$67,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$133,000.00</b>
<b>Contingency (20%)</b>					<b>\$532,000.00</b>
<b>P.E. Design (5%)</b>					<b>\$133,000.00</b>
<b>CEI (5%)</b>					<b>\$133,000.00</b>
<b>10 Acre Site Project Summary Grand Total</b>					<b>\$4,054,025.00</b>
<b>List of Assumptions</b>					



**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**40 Acre Site - 25% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	40	\$40,000.00
2	Earthwork - Cut Material	CY	\$4.00	50,000	\$200,000.00
3	Earthwork - Fill Material	CY	\$7.00	50,000	\$350,000.00
4	Silt Fence	LF	\$1.00	5,000	\$5,000.00
5	Turbidity Barrier	LF	\$13.00	0	\$0.00
<b>Subtotal</b>					<b>\$595,000.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	500	\$12,500.00
2	18" HDPE Pipe	LF	\$28.50	1,500	\$42,750.00
3	18" Exfiltration Trench	LF	\$100.00	2,640	\$264,000.00
4	36" HDPE Pipe	LF	\$77.00	100	\$7,700.00
5	Drainage Structures	EA	\$2,800.00	40	\$112,000.00
<b>Subtotal</b>					<b>\$438,950.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	1,200	\$6,000.00
2	1" Watermeter	EA	\$130.00	1	\$130.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	4,400	\$176,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	2	\$3,300.00
15	6" x 1" PVC Tee	EA	\$105.00	2	\$210.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	5	\$3,925.00
23	Fire Hydrant Assembly	EA	\$3,600.00	9	\$32,400.00
24	6" Siamese Connection	EA	\$1,800.00	2	\$3,600.00
25	3/4" Hose Bibb	EA	\$250.00	10	\$2,500.00
28	Sample Point	EA	\$350.00	6	\$2,100.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	1	\$115.00
<b>Subtotal</b>					<b>\$233,780.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	1,000	\$36,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	200	\$5,200.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	6	\$21,600.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	4	\$1,400.00
<b>Subtotal</b>					<b>\$65,000.00</b>



**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
40 Acre Site - 25% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	14,500	\$58,000.00
2	8" Limerock Base	SY	\$6.00	14,500	\$87,000.00
3	12" Stabilized Subgrade	SY	\$1.00	14,500	\$14,500.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	5,000	\$60,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	1,000	\$18,000.00
8	Handicap Ramps	EA	\$500.00	10	\$5,000.00
9	Bollards	EA	\$45.00	50	\$2,250.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$294,750.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	5,000	\$250,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	20	\$6,000.00
4	Dumpster Enclosure	EA	\$3,000.00	2	\$6,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$365,000.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Building	LS	\$250,000.00	1	\$250,000.00
3	35,000 S.F. Building	LS	\$750,000.00	1	\$750,000.00
<b>Subtotal</b>					<b>\$1,500,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	7	\$224,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	4	\$80,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	4	\$176,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$726,800.00</b>





**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**40 Acre Site - 25% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$25,000.00	1	\$25,000.00
2	Bahia Sod	SY	\$1.35	50,000	\$67,500.00
3	Irrigation	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$117,500.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	12	\$60,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	12	\$60,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$13,100.00	125	\$1,637,500.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$1,790,500.00</b>
<b>40 Acre Site Project Summary Total</b>					<b>\$6,127,280.00</b>
<b>Mobilization (10%)</b>					<b>\$613,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$307,000.00</b>
<b>Testing (2.5%)</b>					<b>\$154,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$307,000.00</b>
<b>Contingency (20%)</b>					<b>\$1,226,000.00</b>
<b>PE Design (5%)</b>					<b>\$307,000.00</b>
<b>CEI (5%)</b>					<b>\$307,000.00</b>
<b>40 Acre Site Project Summary Grand Total</b>					<b>\$9,348,280.00</b>
<b>List of Assumptions</b>					



Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**5 Acre Site - 50% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	5	\$5,000.00
2	Earthwork - Cut Material	CY	\$4.00	7,500	\$30,000.00
3	Earthwork - Fill Material	CY	\$7.00	7,500	\$52,500.00
4	Silt Fence	LF	\$1.00	2,000	\$2,000.00
5	Turbidity Barrier	LF	\$13.00	30	\$390.00
<b>Subtotal</b>					<b>\$89,890.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	100	\$2,500.00
2	18" HDPE Pipe	LF	\$28.50	200	\$5,700.00
3	18" Exfiltration Trench	LF	\$100.00	330	\$33,000.00
4	24" HDPE Pipe	LF	\$60.00	100	\$6,000.00
5	Drainage Structures	EA	\$2,800.00	5	\$14,000.00
6	Headwall	EA	\$2,500.00	1	\$2,500.00
<b>Subtotal</b>					<b>\$63,700.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	600	\$3,000.00
2	1" Watermeter	EA	\$130.00	1	\$130.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	1,500	\$60,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	1	\$1,650.00
15	6" x 1" PVC Tee	EA	\$105.00	2	\$210.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	3	\$2,355.00
23	Fire Hydrant Assembly	EA	\$3,600.00	2	\$7,200.00
24	6" Siamese Connection	EA	\$1,800.00	1	\$1,800.00
25	3/4" Hose Bibb	EA	\$250.00	4	\$1,000.00
28	Sample Point	EA	\$350.00	2	\$700.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	0	\$0.00
<b>Subtotal</b>					<b>\$81,545.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	1,000	\$36,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	200	\$5,200.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	3	\$10,800.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	2	\$700.00
<b>Subtotal</b>					<b>\$53,500.00</b>



Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**5 Acre Site - 50% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	2,000	\$8,000.00
2	8" Limerock Base	SY	\$6.00	2,000	\$12,000.00
3	12" Stabilized Subgrade	SY	\$1.00	2,000	\$2,000.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	1,000	\$12,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	300	\$5,400.00
8	Handicap Ramps	EA	\$500.00	6	\$3,000.00
9	Bollards	EA	\$45.00	20	\$900.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$7,500.00	1	\$7,500.00
<b>Subtotal</b>					<b>\$50,800.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	1,500	\$75,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	4	\$1,200.00
4	Dumpster Enclosure	EA	\$3,000.00	1	\$3,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$182,200.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Building	LS	\$150,000.00	1	\$150,000.00
<b>Subtotal</b>					<b>\$650,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	6	\$192,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	3	\$60,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	3	\$132,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$630,800.00</b>



Kimley-Horn  
and Associates, Inc.

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
5 Acre Site - 50% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$5,000.00	1	\$5,000.00
2	Bahia Sod	SY	\$1.35	7,500	\$10,125.00
3	Irrigation	LS	\$3,000.00	1	\$3,000.00
<b>Subtotal</b>					<b>\$18,125.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	12	\$60,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	4	\$20,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$14,600.00	18	\$262,800.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$375,800.00</b>
<b>5 Acre Site Project Summary Total</b>					<b>\$2,196,360.00</b>
<b>Mobilization (10%)</b>					<b>\$220,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$110,000.00</b>
<b>Testing (2.5%)</b>					<b>\$55,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$110,000.00</b>
<b>Contingency (20%)</b>					<b>\$440,000.00</b>
<b>P.E. Design (5%)</b>					<b>\$110,000.00</b>
<b>Contingency (5%)</b>					<b>\$110,000.00</b>
<b>5 Acre Site Project Summary Grand Total</b>					<b>\$3,351,360.00</b>
<b>List of Assumptions</b>					

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
10 Acre Site - 50% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	10	\$10,000.00
2	Earthwork - Cut Material	CY	\$4.00	20,000	\$80,000.00
3	Earthwork - Fill Material	CY	\$7.00	20,000	\$140,000.00
4	Silt Fence	LF	\$1.00	3,000	\$3,000.00
5	Turbidity Barrier	LF	\$13.00	0	\$0.00
<b>Subtotal</b>					<b>\$233,000.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	150	\$3,750.00
2	18" HDPE Pipe	LF	\$28.50	300	\$8,550.00
3	18" Exfiltration Trench	LF	\$100.00	660	\$66,000.00
4	36" HDPE Pipe	LF	\$77.00	50	\$3,850.00
5	Drainage Structures	EA	\$2,800.00	15	\$42,000.00
<b>Subtotal</b>					<b>\$124,150.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	600	\$3,000.00
2	1" Watermeter	EA	\$130.00	0	\$0.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	1,200	\$48,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	1	\$1,650.00
15	6" x 1" PVC Tee	EA	\$105.00	1	\$105.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	3	\$2,355.00
23	Fire Hydrant Assembly	EA	\$3,600.00	3	\$10,800.00
24	6" Siamese Connection	EA	\$1,800.00	1	\$1,800.00
25	3/4" Hose Bibb	EA	\$250.00	3	\$750.00
28	Sample Point	EA	\$350.00	2	\$700.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	1	\$115.00
<b>Subtotal</b>					<b>\$72,775.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	500	\$18,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	100	\$2,600.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	3	\$10,800.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	2	\$700.00
<b>Subtotal</b>					<b>\$32,900.00</b>

**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**10 Acre Site - 50% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	5,000	\$20,000.00
2	8" Limerock Base	SY	\$6.00	5,000	\$30,000.00
3	12" Stabilized Subgrade	SY	\$1.00	5,000	\$5,000.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	1,500	\$18,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	500	\$9,000.00
8	Handicap Ramps	EA	\$500.00	6	\$3,000.00
9	Bollards	EA	\$45.00	20	\$900.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$15,000.00	1	\$15,000.00
<b>Subtotal</b>					<b>\$100,900.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	3,100	\$155,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	5	\$1,500.00
4	Dumpster Enclosure	EA	\$3,000.00	1	\$3,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$262,500.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Facility	LS	\$150,000.00	1	\$150,000.00
<b>Subtotal</b>					<b>\$650,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	7	\$224,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	4	\$80,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	4	\$176,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$726,800.00</b>

**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
10 Acre Site - 50% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$10,000.00	1	\$10,000.00
2	Bahia Sod	SY	\$1.35	10,000	\$13,500.00
3	Irrigation	LS	\$7,500.00	1	\$7,500.00
<b>Subtotal</b>					<b>\$31,000.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	5	\$25,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	5	\$25,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$13,600.00	50	\$680,000.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$763,000.00</b>
<b>10 Acre Site Project Summary Total</b>					<b>\$2,997,025.00</b>
<b>Mobilization (10%)</b>					<b>\$300,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$150,000.00</b>
<b>Testing (2.5%)</b>					<b>\$75,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$150,000.00</b>
<b>Contingency (20%)</b>					<b>\$600,000.00</b>
<b>P.E. Design (5%)</b>					<b>\$150,000.00</b>
<b>CEI (5%)</b>					<b>\$150,000.00</b>
<b>10 Acre Site Project Summary Grand Total</b>					<b>\$4,572,025.00</b>
<b>List of Assumptions</b>					



**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**40 Acre Site - 50% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>General Site Development</b>					
1	Clearing & Grubbing (6")	AC	\$1,000.00	40	\$40,000.00
2	Earthwork - Cut Material	CY	\$4.00	50,000	\$200,000.00
3	Earthwork - Fill Material	CY	\$7.00	50,000	\$350,000.00
4	Silt Fence	LF	\$1.00	5,000	\$5,000.00
5	Turbidity Barrier	LF	\$13.00	0	\$0.00
<b>Subtotal</b>					<b>\$595,000.00</b>
<b>Drainage</b>					
1	15" HDPE Pipe	LF	\$25.00	500	\$12,500.00
2	18" HDPE Pipe	LF	\$28.50	1,500	\$42,750.00
3	18" Exfiltration Trench	LF	\$100.00	2,640	\$264,000.00
4	36" HDPE Pipe	LF	\$77.00	100	\$7,700.00
5	Drainage Structures	EA	\$2,800.00	40	\$112,000.00
<b>Subtotal</b>					<b>\$438,950.00</b>
<b>Water System</b>					
1	1.5" Polyethylene Pipe	LF	\$5.00	1,200	\$6,000.00
2	1" Watermeter	EA	\$130.00	1	\$130.00
6	1.5" Backflow Preventor	EA	\$750.00	2	\$1,500.00
10	6" DIP Pipe	LF	\$40.00	4,400	\$176,000.00
13	6" Double Detector Check Valve	EA	\$1,650.00	2	\$3,300.00
15	6" x 1" PVC Tee	EA	\$105.00	2	\$210.00
16	8" PVC Pipe	LF	\$36.00	0	\$0.00
17	8" 45 Degree Bend	EA	\$1,000.00	0	\$0.00
18	8" 22.5 Degree Bend	EA	\$1,000.00	0	\$0.00
19	6" Gate Valve	EA	\$785.00	5	\$3,925.00
23	Fire Hydrant Assembly	EA	\$3,600.00	9	\$32,400.00
24	6" Siamese Connection	EA	\$1,800.00	2	\$3,600.00
25	3/4" Hose Bibb	EA	\$250.00	10	\$2,500.00
28	Sample Point	EA	\$350.00	6	\$2,100.00
29	Connect to Exist. Watermain	EA	\$2,000.00	1	\$2,000.00
30	5/8" Watermeter	EA	\$115.00	1	\$115.00
<b>Subtotal</b>					<b>\$233,780.00</b>
<b>Sanitary Sewer System</b>					
1	8" PVC San. Sewermain	LF	\$36.00	1,000	\$36,000.00
2	6" PVC San. Sewer Lateral	LF	\$26.00	200	\$5,200.00
3	4" Dia. Manhole 0'-6' Cut	EA	\$3,600.00	6	\$21,600.00
4	Connect to Exist. Manhole	EA	\$800.00	1	\$800.00
5	6" San. Sewer Cleanout	EA	\$350.00	4	\$1,400.00
<b>Subtotal</b>					<b>\$65,000.00</b>





**WO #21 Dev Truck Parking Facility  
Engineer's Opinion of Probable Cost  
for the  
40 Acre Site - 50% Truck Electrification  
Prepared by:  
Kimley-Horn and Associates  
Engineer: SFV      Checked by: AD  
KHA Project # 040829025  
May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Paving</b>					
1	1 1/2" Type S-III in Two 3/4" Lifts	SY	\$4.00	14,500	\$58,000.00
2	8" Limerock Base	SY	\$6.00	14,500	\$87,000.00
3	12" Stabilized Subgrade	SY	\$1.00	14,500	\$14,500.00
4	Type "F" Curb	LF	\$10.00	0	\$0.00
5	Type "D" Curb	LF	\$12.00	5,000	\$60,000.00
6	12" Header Curb	LF	\$20.00	0	\$0.00
7	4" Concrete Sidewalk	SY	\$18.00	1,000	\$18,000.00
8	Handicap Ramps	EA	\$500.00	10	\$5,000.00
9	Bollards	EA	\$45.00	50	\$2,250.00
10	Remove Exist. Offsite Striping	LS	\$2,000.00	0	\$0.00
11	Striping	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$294,750.00</b>
<b>Miscellaneous</b>					
1	Entrance Sign	EA	\$10,000.00	1	\$10,000.00
2	Secured fence w/ gate (Entire Site)	LF	\$50.00	5,000	\$250,000.00
3	Trash Receptacle/ Recycle Bins	EA	\$300.00	20	\$6,000.00
4	Dumpster Enclosure	EA	\$3,000.00	2	\$6,000.00
5	Transformer Pad w/ Wing Walls	SF	\$18.00	1,000	\$18,000.00
6	Truck Wash Facilities	LS	\$25,000.00	1	\$25,000.00
7	Leaky Load Containment	LS	\$50,000.00	1	\$50,000.00
<b>Subtotal</b>					<b>\$365,000.00</b>
<b>Buildings</b>					
1	Convenience Building (10,000 S.F.)	LS	\$500,000.00	1	\$500,000.00
2	Maintenance Building	LS	\$250,000.00	1	\$250,000.00
3	35,000 S.F. Building	LS	\$750,000.00	1	\$750,000.00
<b>Subtotal</b>					<b>\$1,500,000.00</b>
<b>Gas Station</b>					
1	Diesel Fueling Pumps (Master and Slave w/ DEF)	EA	\$32,000.00	7	\$224,000.00
2	Unleaded Fueling Pumps	EA	\$24,700.00	4	\$98,800.00
3	Diesel Fueling Tanks	EA	\$20,000.00	4	\$80,000.00
4	DEF Fueling Tanks	EA	\$20,000.00	1	\$20,000.00
5	Unleaded Fueling Tanks	EA	\$20,000.00	2	\$40,000.00
6	Diesel Fueling Canopy	EA	\$44,000.00	4	\$176,000.00
7	Unleaded Fueling Canopy	EA	\$44,000.00	2	\$88,000.00
<b>Subtotal</b>					<b>\$726,800.00</b>



**WO #21 Dev Truck Parking Facility**  
**Engineer's Opinion of Probable Cost**  
**for the**  
**40 Acre Site - 50% Truck Electrification**  
**Prepared by:**  
**Kimley-Horn and Associates**  
**Engineer: SFV      Checked by: AD**  
**KHA Project # 040829025**  
**May 23, 2012**

Item No.	Description	Unit	Unit Cost	Quantity	Total
<b>Landscaping &amp; Irrigation</b>					
1	Landscaping	LS	\$25,000.00	1	\$25,000.00
2	Bahia Sod	SY	\$1.35	50,000	\$67,500.00
3	Irrigation	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$117,500.00</b>
<b>Electrical Services</b>					
1	CCTV Cameras	EA	\$5,000.00	12	\$60,000.00
2	Parking Lot Lighting Double - Installation	EA	\$5,000.00	12	\$60,000.00
3	Irrigation Pump Wiring	LS	\$5,000.00	1	\$5,000.00
4	Entry Sign Lighting	EA	\$3,000.00	1	\$3,000.00
5	Truck Electrification	EA	\$13,100.00	250	\$3,275,000.00
6	Service	LS	\$25,000.00	1	\$25,000.00
<b>Subtotal</b>					<b>\$3,428,000.00</b>
<b>40 Acre Site Project Summary Total</b>					<b>\$7,764,780.00</b>
<b>Mobilization (10%)</b>					<b>\$777,000.00</b>
<b>Maintenance Of Traffic (5%)</b>					<b>\$389,000.00</b>
<b>Testing (2.5%)</b>					<b>\$195,000.00</b>
<b>Survey Layout and As-Builts (5%)</b>					<b>\$389,000.00</b>
<b>Contingency (20%)</b>					<b>\$1,553,000.00</b>
<b>PE Design (5%)</b>					<b>\$389,000.00</b>
<b>CEI (5%)</b>					<b>\$389,000.00</b>
<b>40 Acre Site Project Summary Grand Total</b>					<b>\$11,845,780.00</b>
<b>List of Assumptions</b>					



**R.J.Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY: CAA

CHECKED BY: JHV

2/14/2012

**FD SUMMARY TABLE REQUIREMENTS**

PROPOSED LAYOUT AREA (AC)	REQUIRED FRENCH DRAIN (FD) LENGTH							
	PARCEL A (FT)	PARCEL F (FT)	PARCEL G (FT)	PARCEL H (FT)	PARCEL I (FT)	PARCEL J (FT)	PARCEL D (FT)	PARCELS G, H, I & J (FT)
5	666	330	330	330	330	330	1716	N/A
10	1331	660	660	660	660	660	N/A	N/A
40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2640

- ASSUMPTIONS:**
1. Required length includes a 10% contingency.
  2. Exfiltration values were obtained from researching available permit files for the project in the vicinity of the parcel and soil studies in the area.
  3. Water table information obtained from Miami-Dade County maps.
  4. System are assumed to be self contained with no outfalls.
  5. Site elevations were assumed based on available surveys near the subject parcels.





**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY: CAA  
CHECKED BY: JHV  
2/14/2012

**Location and description:** 5 ACRE LAYOUT  
TRUCK PARKING FACILITY  
PARCEL Q: Folio N0. 27-2019-001-0610 T53S R40E S19

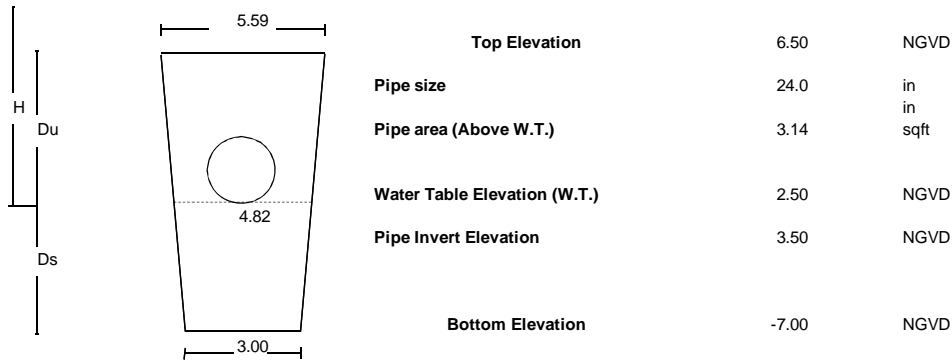
Test Location : Hydraulic Conductivity [K15] = (cfs/ft<sup>2</sup> of Head /ft of Trench) **NOTE: K value obtained from ERP N0. 13-01750-P (K= 1.0e-04).**

Hydraulic Conductivity 10 foot [K<sub>10</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.00E-04

Hydraulic Conductivity 15 foot [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.00E-04

Ground Elevation 8.00 NGVD

Weir / max. hydraulic gradient 7.50 NGVD



#### Storage capacity per linear foot

Storage =  $\left[ \left( \frac{\text{Top-w} + \text{Bott-w} @ \text{W-Elv}}{2} \right) * (\text{Top\_Elv} - \text{W\_Elv}) - (\text{Pipe area}) \right] * 0.5 + \text{Pipe area}$

Storage = **11.98 CF/FT**

#### Exfiltration capacity per linear foot

Exfiltration =  $\left[ 2 * K_{10} * \left( \frac{\text{Top\_Elv} - \text{W\_Elv}}{2} \right) * (\text{Weir\_Elv} - \text{W\_Elv}) + (10 - (\text{Ground\_Elv} - \text{W\_Elv})) * (\text{Weir\_Elv} - \text{W\_Elv}) \right] + 2 * K_{15} * 5 * (\text{Weir\_Elv} - \text{W\_Elv})$

Exfiltration = **0.0119 CFS/ FT**

**Contributing drainage areas:** Assumptions: (1) The stormwater treatment system is a closed system, thus no positive outfall is proposed.

(2) Ground elevation to be 8.0 ft. NGVD.

(3) K value was obtained from the nearest available project with geotechnical data.

**5 ACRE LAYOUT**  
**DRAINAGE CALCULATIONS OF FRENCH DRAIN: PARCEL Q**

**Drainage Areas:**

- 1 Total Contribution Area (See plans) = 5.00 Acres
- a. Impervious (Off-site and Roadway) drainage area (A1) 5.00 Acres
- b. Pervious (Off-site and Roadway) drainage area (A2) 0.00 Acres

	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)	IMPERVIOUS AREA (Ac)	PERVIOUS AREA (Ac)
5.00Ac	100%	0%	5.00	0.00
			5.00	0.00
			Total Area (Ac):	5.00

2 Weighted runoff coefficient

Runoff coefficient (Impervious) ; (C1) 0.950  
Runoff coefficient (Pervious) ; (C2) 0.250  
[(A1)\*(C1)+(A2)\*(C2)]/[(A1)+(A2)] ; C = 0.950

**Time of Concentration Calculation (t):**

- 3 Time Required to generate One inch of runoff  
(DERM Water Control - Section D-4)

Where, Intensity =  $308.5 / (48.6F^{0.11} + t(0.5895 + F^{2/3}))$   
Frequency 5 years - Frequency Curve From Table I Miami-Dade County Public Works Manua, Part 2.

$Q = C \times I \times A$  ,  $V = Q \times t$  ;  $V(1in) = Q \times t$  &  $t$  = Time to generate 1in of runoff

$V(1in) = C \times I \times A \times t$   
 $1" \times A = C \times I \times A \times t$   
Solving for t,  $t = 1" / I \times C$

Time to Generate one inch of run-off t(in)  
Time to reach the inlet (tc.) 10.40 Min.  
**Total Time required to generate 1 in of runoff:** 10.00 Min.  
20.40 Min.



**R.J.Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY CAA

CHECKED BY: JHV

2/14/2012

## 5 ACRE LAYOUT

### EXFILTRATION TRENCH DESIGN: PARCEL Q

#### Inflow Volumes

TIME		CxA	I (In/hr)	Q (cfs)	INFLOW (Cu ft)
(Min)	(Sec)				
8	480	4.75	6.405	30.42	14,603.09
10	600	4.75	6.166	29.29	17,574.13
15	900	4.75	5.641	26.80	24,116.12
<b>20.40</b>	1224	4.75	5.166	24.54	30,039.94
30	1800	4.75	4.493	21.34	38,416.81
40	2400	4.75	3.956	18.79	45,103.29
50	3000	4.75	3.534	16.79	50,362.70
60	3600	4.75	3.193	15.17	54,607.84
90	5400	4.75	2.477	11.77	63,533.37
120	7200	4.75	2.023	9.61	69,187.66
180	10800	4.75	1.480	7.03	75,946.69

Frequency	<b>5</b>	Years	
Tc	10.00	Minutes	
Tl(min.)	10.40	Minutes	
<b>Total Tc</b>	<b>20.40</b>		
Area=	5.00		
Imperv	5.00		
Perv.	0.00		

C Coef.= 0.950

#### Exfiltrated Volumes

Test	Location	Exf/ft (cfs/ft)	Trench Length + 10% Contingency (ft)	Q EXF (cfs)
		0.0119	1716.0	20.42
			1,716.00	20.42

#### Available Storage

11.98 Storage/ft (1)	Storage/ft (2)	Storage/ft (3)	Storage/ft (5)	Storage/ft (6)
1,716 Trch Lgth (1)	0 Trch Lgth (2)	0 Trch Lgth (3)	0 Trch Lgth (5)	0 Trch Lgth (6)

0.00  
Volume in Inlets

20,563.84  
Trench Storage

CALCULATED BY CAA

CHECKED BY: JHV

2/14/2012

## 5 ACRE LAYOUT

### EXFILTRATION TRENCH DESIGN: PARCEL Q

#### Cummulative Exfiltration (Outflow Mass Diagram)

TIME		Exfiltr Rate (Cfs)	Exf. volume (Cu ft)	Trench Storage (Cu ft)	Outflow/Trench (Cu ft)
(Min)	(Sec)				
8	480	20.42	9,802	20,564	30,365.64
10	600	20.42	12,252	20,564	32,816.08
15	900	20.42	18,378	20,564	38,942.20
20.40	1224	20.42	25,000	20,563.84	45,564.08
30	1800	20.42	36,757	20,564	57,320.56
40	2400	20.42	49,009	20,564	69,572.80
50	3000	20.42	61,261	20,564	81,825.04
60	3600	20.42	73,513	20,564	94,077.28
90	5400	20.42	110,270	20,564	130,834.00
120	7200	20.42	147,027	20,564	167,590.72
180	10800	20.42	220,540	20,564	241,104.16

#### Excess stormwater runoff above the available trench storage

TIME (Min)	INFLOW (cu ft)	Total Outflow (cu ft)	Overflow (cu ft)
8	14,603.09	30,365.64	-15,763
10	17,574.13	32,816.08	-15,242
15	24,116.12	38,942.20	-14,826
20.40	30,039.94	45,564.08	-15,524
30	38,416.81	57,320.56	-18,904
40	45,103.29	69,572.80	-24,470
50	50,362.70	81,825.04	-31,462
60	54,607.84	94,077.28	-39,469
90	63,533.37	130,834.00	-67,301
120	69,187.66	167,590.72	-98,403
180	75,946.69	241,104.16	-165,157

TIME (Min)	INFLOW (cu ft)	Trench Storage (cu ft)	Excess runoff Vol. (cu ft)
8	14,603.09	20,564	0.00
10	17,574.13	20,564	0.00
15	24,116.12	20,564	3,552.27
20.40	30,039.94	20,563.84	9,476.09
30	38,416.81	20,564	17,852.96
40	45,103.29	20,564	24,539.45
50	50,362.70	20,564	29,798.86
60	54,607.84	20,564	34,044.00
90	63,533.37	20,564	42,969.53
120	69,187.66	20,564	48,623.81
180	75,946.69	20,564	55,382.84

**S.F.: 2.64**





- [illegible]



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY: CAA

CHECKED BY: JHV

2/14/2012

**Location and description:** 10 ACRE LAYOUT  
TRUCK PARKING FACILITY  
PARCEL G: NW 112 AVE. & 140 ST. Folio NO. 27-2019-001-0660 T53S R40E S19

Test Location : Hydraulic Conductivity [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench)

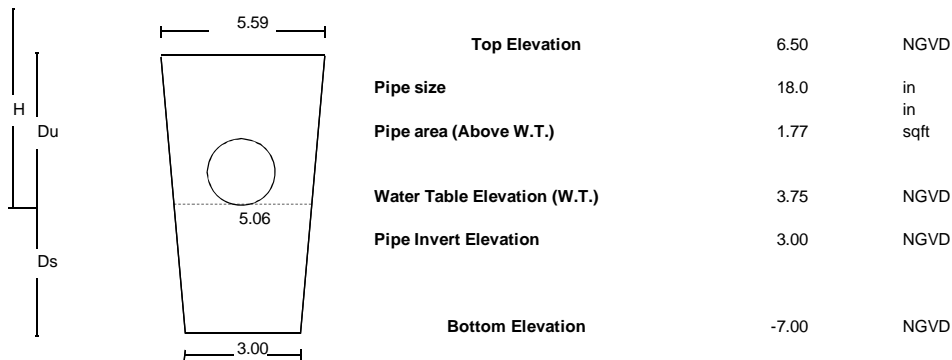
**NOTE: K value obtained from ERP NO. 13-00161-S-03 (K = 1.61e-03).**

Hydraulic Conductivity 10 foot [K<sub>10</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Hydraulic Conductivity 15 foot [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Ground Elevation 8.00 NGVD

Weir / max. hydraulic gradient 7.50 NGVD



### Storage capacity per linear foot

Storage =  $\left[ \left( \frac{\text{Top-w} + \text{Bott-w} @ \text{W-Elv}}{2} \right) (\text{Top\_Elv} - \text{W\_Elv}) - (\text{Pipe area}) \right] * 0.5 + \text{Pipe area}$

Storage = **8.21 CF/FT**

### Exfiltration capacity per linear foot

Exfiltration =  $2 * K_{10} * ((\text{Top\_Elv} - \text{W\_Elv}) * ((\text{Weir\_Elv} - \text{W\_Elv}) - (\text{Top\_Elv} - \text{W\_Elv}) / 2) + (10 - (\text{Ground\_Elv} - \text{W\_Elv})) * (\text{Weir\_Elv} - \text{W\_Elv})) + 2 * K_{15} * 5 * (\text{Weir\_Elv} - \text{W\_Elv})$

Exfiltration = **0.1508 CFS/ FT**

**Contributing drainage areas:** Assumptions: (1) The stormwater treatment system is a closed system, thus no positive outfall is proposed.

(2) Ground elevation to be 8.0 ft. NGVD.

(3) K value was obtained from the nearest available project with geotechnical data.

**10 ACRE LAYOUT**

**DRAINAGE CALCULATIONS OF FRENCH DRAIN: PARCEL F**

**Drainage Areas:**

- 1 Total Contribution Area (See plans) = 10.00 Acres
- a. Impervious (Off-site and Roadway) drainage area (A1) 10.00 Acres
- b. Pervious (Off-site and Roadway) drainage area (A2) 0.00 Acres

	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)	IMPERVIOUS AREA (Ac)	PERVIOUS AREA (Ac)
10.00Ac	100%	0%	10.00	0.00
			10.00	0.00
Total Area (Ac):			10.00	

2 Weighted runoff coefficient

Runoff coefficient (Impervious) ; (C1) 0.950  
Runoff coefficient (Pervious) ; (C2) 0.250  
[(A1)\*(C1)+(A2)\*(C2)]/[(A1)+(A2)] ; C = 0.950

**Time of Concentration Calculation (t):**

- 3 Time Required to generate One inch of runoff  
(DERM Water Control - Section D-4)

Where, Intensity =  $308.5 / (48.6F^{0.11} + t(0.5895 + F^{2/3}))$   
Frequency 5 years - Frequency Curve From Table I Miami-Dade County Public Works Manua, Part 2.

$Q = C \times I \times A$  ,  $V = Q \times t$  ;  $V(1in) = Q \times t$  &  $t$  = Time to generate 1in of runoff

$V(1in) = C \times I \times A \times t$   
 $1" \times A = C \times I \times A \times t$   
Solving for t,  $t = 1" / I \times C$

Time to Generate one inch of run-off t(in)  
Time to reach the inlet (tc.) 10.40 Min.  
**Total Time required to generate 1 in of runoff:** 10.00 Min.  
20.40 Min.



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY CAA

CHECKED BY: JHV

2/14/2012

## 10 ACRE LAYOUT

### EXFILTRATION TRENCH DESIGN: PARCEL G

#### Inflow Volumes

TIME		CxA	I (In/hr)	Q (cfs)	INFLOW (Cu ft)
(Min)	(Sec)				
8	480	9.50	6.405	60.85	29,206.19
10	600	9.50	6.166	58.58	35,148.27
15	900	9.50	5.641	53.59	48,232.24
<b>20.40</b>	1224	9.50	5.166	49.07	60,079.88
30	1800	9.50	4.493	42.69	76,833.62
40	2400	9.50	3.956	37.59	90,206.59
50	3000	9.50	3.534	33.58	100,725.40
60	3600	9.50	3.193	30.34	109,215.69
90	5400	9.50	2.477	23.53	127,066.74
120	7200	9.50	2.023	19.22	138,375.31
180	10800	9.50	1.480	14.06	151,893.37

Frequency	<b>5</b>	Years
Tc	10.00	Minutes
T1(min.)	10.40	Minutes
<b>Total Tc</b>	<b>20.40</b>	
Area=	10.00	
Imperv	10.00	
Perv.	0.00	
		C Coef.= 0.950

#### Exfiltrated Volumes

Test	Location	Exf/ft (cfs/ft)	Trench Length + 10% Contingency (ft)	Q EXF (cfs)
		0.1508	660.0	99.55
			660.00	99.55

#### Available Storage

8.21 Storage/ft (1)	Storage/ft (2)	Storage/ft (3)	Storage/ft (5)	Storage/ft (6)
660 Trch Lgth (1)	0 Trch Lgth (2)	0 Trch Lgth (3)	0 Trch Lgth (5)	0 Trch Lgth (6)

0.00 Volume in Inlets
--------------------------

5,416.64 Trench Storage
----------------------------

**10 ACRE LAYOUT**
**EXFILTRATION TRENCH DESIGN: PARCEL G**
**Cummulative Exfiltration (Outflow Mass Diagram)**

TIME		Exfiltr Rate (Cfs)	Exf. volume (Cu ft)	Trench Storage (Cu ft)	Outflow/Trench (Cu ft)
(Min)	(Sec)				
8	480	99.55	47,785	5,417	53,201.76
10	600	99.55	59,731	5,417	65,148.04
15	900	99.55	89,597	5,417	95,013.74
20.40	1224	99.55	121,880	5,416.64	127,296.34
30	1800	99.55	179,194	5,417	184,610.85
40	2400	99.55	238,926	5,417	244,342.25
50	3000	99.55	298,657	5,417	304,073.65
60	3600	99.55	358,388	5,417	363,805.05
90	5400	99.55	537,583	5,417	542,999.26
120	7200	99.55	716,777	5,417	722,193.47
180	10800	99.55	1,075,165	5,417	1,080,581.88

**Excess stormwater runoff above the available trench storage**

TIME (Min)	INFLOW (cu ft)	Total Outflow (cu ft)	Overflow (cu ft)
8	29,206.19	53,201.76	-23,996
10	35,148.27	65,148.04	-30,000
15	48,232.24	95,013.74	-46,782
20.40	60,079.88	127,296.34	-67,216
30	76,833.62	184,610.85	-107,777
40	90,206.59	244,342.25	-154,136
50	100,725.40	304,073.65	-203,348
60	109,215.69	363,805.05	-254,589
90	127,066.74	542,999.26	-415,933
120	138,375.31	722,193.47	-583,818
180	151,893.37	1,080,581.88	-928,689

TIME (Min)	INFLOW (cu ft)	Trench Storage (cu ft)	Excess runoff Vol. (cu ft)
8	29,206.19	5,417	23,789.55
10	35,148.27	5,417	29,731.63
15	48,232.24	5,417	42,815.60
20.40	60,079.88	5,416.64	54,663.24
30	76,833.62	5,417	71,416.98
40	90,206.59	5,417	84,789.95
50	100,725.40	5,417	95,308.76
60	109,215.69	5,417	103,799.05
90	127,066.74	5,417	121,650.10
120	138,375.31	5,417	132,958.67
180	151,893.37	5,417	146,476.73

**S.F.: 2.23**



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY: CAA

CHECKED BY: JHV

2/14/2012

**Location and description:** 10 ACRE LAYOUT  
TRUCK PARKING FACILITY  
PARCEL H: NW 112 AVE. & 142 ST. Folio NO. 27-2019-001-0590 T53S R40E S19

Test Location : Hydraulic Conductivity [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench)

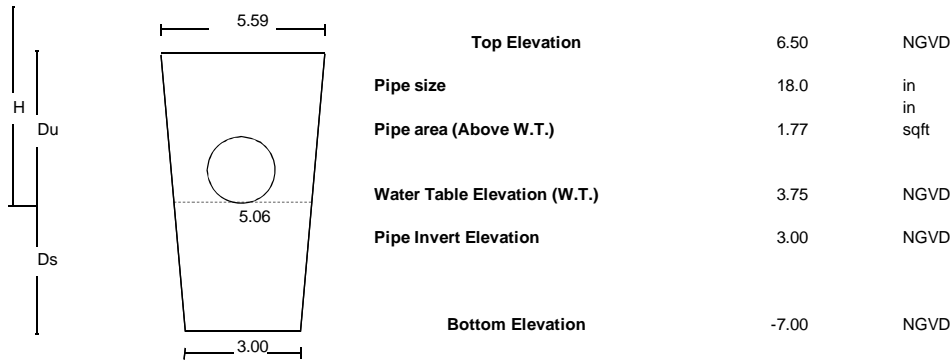
**NOTE: K value obtained from ERP NO. 13-00161-S-03 (K = 1.61e-03).**

Hydraulic Conductivity 10 foot [K<sub>10</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Hydraulic Conductivity 15 foot [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Ground Elevation 8.00 NGVD

Weir / max. hydraulic gradient 7.50 NGVD



Storage capacity per linear foot

Storage =  $\left[ \left( \frac{\text{Top-w} + \text{Bott-w} @ \text{W-Elv}}{2} \right) * (\text{Top\_Elv} - \text{W\_Elv}) - (\text{Pipe area}) \right] * 0.5 + \text{Pipe area}$

Storage = **8.21 CF/FT**

Exfiltration capacity per linear foot

Exfiltration =  $\left[ 2 * K_{10} * \left( \frac{\text{Top\_Elv} - \text{W\_Elv}}{2} \right) * (\text{Weir\_Elv} - \text{W\_Elv}) + (10 - (\text{Ground\_Elv} - \text{W\_Elv})) * (\text{Weir\_Elv} - \text{W\_Elv}) + 2 * K_{15} * 5 * (\text{Weir\_Elv} - \text{W\_Elv}) \right]$

Exfiltration = **0.1508 CFS/ FT**

**Contributing drainage areas:** Assumptions: (1) The stormwater treatment system is a closed system, thus no positive outfall is proposed.

(2) Ground elevation to be 8.0 ft. NGVD.

(3) K value was obtained from the nearest available project with geotechnical data.

**10 ACRE LAYOUT**

**DRAINAGE CALCULATIONS OF FRENCH DRAIN: PARCEL H**

**Drainage Areas:**

- 1 Total Contribution Area (See plans) = 10.00 Acres
- a. Impervious (Off-site and Roadway) drainage area (A1) 10.00 Acres
- b. Pervious (Off-site and Roadway) drainage area (A2) 0.00 Acres

	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)	IMPERVIOUS AREA (Ac)	PERVIOUS AREA (Ac)
10.00Ac	100%	0%	10.00	0.00
			10.00	0.00
			Total Area (Ac):	10.00

2 Weighted runoff coefficient

Runoff coefficient (Impervious) ; (C1) 0.950  
Runoff coefficient (Pervious) ; (C2) 0.250  
[(A1)\*(C1)+(A2)\*(C2)]/[(A1)+(A2)] ; C = 0.950

**Time of Concentration Calculation (t):**

- 3 Time Required to generate One inch of runoff  
(DERM Water Control - Section D-4)

Where, Intensity =  $308.5 / (48.6F^{0.11} + t(0.5895 + F^{2/3}))$   
Frequency 5 years - Frequency Curve From Table I Miami-Dade County Public Works Manua, Part 2.

$Q = C \times I \times A$  ,  $V = Q \times t$  ;  $V(1in) = Q \times t$  &  $t$  = Time to generate 1in of runoff

$V(1in) = C \times I \times A \times t$   
 $1" \times A = C \times I \times A \times t$   
Solving for t,  $t = 1" / I \times C$

Time to Generate one inch of run-off t(in)  
Time to reach the inlet (tc.)

**Total Time required to generate 1 in of runoff:**

10.40 Min.  
10.00 Min.  
**20.40 Min.**



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

# 10 ACRE LAYOUT EXFILTRATION TRENCH DESIGN: PARCEL H

CALCULATED BY CAA

CHECKED BY: JHV

2/14/2012

## Inflow Volumes

TIME		CxA	I (In/hr)	Q (cfs)	INFLOW (Cu ft)
(Min)	(Sec)				
8	480	9.50	6.405	60.85	29,206.19
10	600	9.50	6.166	58.58	35,148.27
15	900	9.50	5.641	53.59	48,232.24
<b>20.40</b>	1224	9.50	5.166	49.07	60,079.88
30	1800	9.50	4.493	42.69	76,833.62
40	2400	9.50	3.956	37.59	90,206.59
50	3000	9.50	3.534	33.58	100,725.40
60	3600	9.50	3.193	30.34	109,215.69
90	5400	9.50	2.477	23.53	127,066.74
120	7200	9.50	2.023	19.22	138,375.31
180	10800	9.50	1.480	14.06	151,893.37

Frequency	<b>5</b>	Years		
Tc	10.00	Minutes		
T1(min.)	10.40	Minutes		
<b>Total Tc</b>	<b>20.40</b>		C Coef.=	0.950
Area=	10.00			
Imperv	10.00			
Perv.	0.00			

## Exfiltrated Volumes

Test	Location	Exf/ft (cfs/ft)	Trench Length + 10% Contingency (ft)	Q EXF (cfs)
		0.1508	660.0	99.55
			660.00	99.55

## Available Storage

8.21 Storage/ft (1)	Storage/ft (2)	Storage/ft (3)	Storage/ft (5)	Storage/ft (6)
660 Trch Lgth (1)	0 Trch Lgth (2)	0 Trch Lgth (3)	0 Trch Lgth (5)	0 Trch Lgth (6)

0.00 Volume in Inlets
--------------------------

5,416.64 Trench Storage
----------------------------



**10 ACRE LAYOUT**
**EXFILTRATION TRENCH DESIGN: PARCEL H**
**Cummulative Exfiltration (Outflow Mass Diagram)**

TIME		Exfiltr Rate (Cfs)	Exf. volume (Cu ft)	Trench Storage (Cu ft)	Outflow/Trench (Cu ft)
(Min)	(Sec)				
8	480	99.55	47,785	5,417	53,201.76
10	600	99.55	59,731	5,417	65,148.04
15	900	99.55	89,597	5,417	95,013.74
20.40	1224	99.55	121,880	5,416.64	127,296.34
30	1800	99.55	179,194	5,417	184,610.85
40	2400	99.55	238,926	5,417	244,342.25
50	3000	99.55	298,657	5,417	304,073.65
60	3600	99.55	358,388	5,417	363,805.05
90	5400	99.55	537,583	5,417	542,999.26
120	7200	99.55	716,777	5,417	722,193.47
180	10800	99.55	1,075,165	5,417	1,080,581.88

**Excess stormwater runoff above the available trench storage**

TIME (Min)	INFLOW (cu ft)	Total Outflow (cu ft)	Overflow (cu ft)
8	29,206.19	53,201.76	-23,996
10	35,148.27	65,148.04	-30,000
15	48,232.24	95,013.74	-46,782
20.40	60,079.88	127,296.34	-67,216
30	76,833.62	184,610.85	-107,777
40	90,206.59	244,342.25	-154,136
50	100,725.40	304,073.65	-203,348
60	109,215.69	363,805.05	-254,589
90	127,066.74	542,999.26	-415,933
120	138,375.31	722,193.47	-583,818
180	151,893.37	1,080,581.88	-928,689

TIME (Min)	INFLOW (cu ft)	Trench Storage (cu ft)	Excess runoff Vol. (cu ft)
8	29,206.19	5,417	23,789.55
10	35,148.27	5,417	29,731.63
15	48,232.24	5,417	42,815.60
20.40	60,079.88	5,416.64	54,663.24
30	76,833.62	5,417	71,416.98
40	90,206.59	5,417	84,789.95
50	100,725.40	5,417	95,308.76
60	109,215.69	5,417	103,799.05
90	127,066.74	5,417	121,650.10
120	138,375.31	5,417	132,958.67
180	151,893.37	5,417	146,476.73

**S.F.: 2.23**



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY: CAA

CHECKED BY: JHV  
2/14/2012

**Location and description:** 10 ACRE LAYOUT  
TRUCK PARKING FACILITY  
PARCEL I: 14100 NW 107 AVE. Folio NO. 27-2019-001-0600 T53S R40E S19

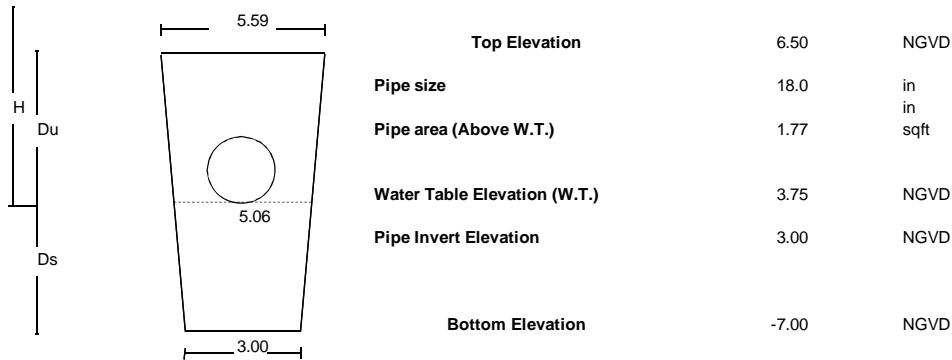
Test Location : Hydraulic Conductivity [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) **NOTE: K value obtained from ERP NO. 13-00161-S-03 (K = 1.61e-03).**

Hydraulic Conductivity 10 foot [K<sub>10</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Hydraulic Conductivity 15 foot [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Ground Elevation 8.00 NGVD

Weir / max. hydraulic gradient 7.50 NGVD



#### Storage capacity per linear foot

Storage =  $\left[ \left( \frac{\text{Top-w} + \text{Bott-w} @ \text{W-Elv}}{2} \right) (\text{Top\_Elv} - \text{W\_Elv}) - (\text{Pipe area}) \right] \times 0.5 + \text{Pipe area}$

Storage = **8.21 CF/FT**

#### Exfiltration capacity per linear foot

Exfiltration =  $\left[ 2 \times K_{10} \left( \frac{\text{Top\_Elv} - \text{W\_Elv}}{2} \right) (\text{Weir\_Elv} - \text{W\_Elv}) - (\text{Top\_Elv} - \text{W\_Elv}) \right] + \left( 10 - (\text{Ground\_Elv} - \text{W\_Elv}) \right) (\text{Weir\_Elv} - \text{W\_Elv}) + 2 \times K_{15} \times 5 (\text{Weir\_Elv} - \text{W\_Elv}) \right]$

Exfiltration = **0.1508 CFS/ FT**

**Contributing drainage areas:** Assumptions: (1) The stormwater treatment system is a closed system, thus no positive outfall is proposed.

(2) Ground elevation to be 8.0 ft. NGVD.

(3) K value was obtained from the nearest available project with geotechnical data.

**10 ACRE LAYOUT**

**DRAINAGE CALCULATIONS OF FRENCH DRAIN: PARCEL I**

**Drainage Areas:**

- 1 Total Contribution Area (See plans) = 10.00 Acres
- a. Impervious (Off-site and Roadway) drainage area (A1) 10.00 Acres
- b. Pervious (Off-site and Roadway) drainage area (A2) 0.00 Acres

	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)	IMPERVIOUS AREA (Ac)	PERVIOUS AREA (Ac)
10.00Ac	100%	0%	10.00	0.00
			10.00	0.00
Total Area (Ac):			10.00	

2 Weighted runoff coefficient

Runoff coefficient (Impervious) ; (C1) 0.950  
Runoff coefficient (Pervious) ; (C2) 0.250  
[(A1)\*(C1)+(A2)\*(C2)]/[(A1)+(A2)] ; C = 0.950

**Time of Concentration Calculation (t):**

- 3 Time Required to generate One inch of runoff  
(DERM Water Control - Section D-4)

Where, Intensity =  $308.5 / (48.6F^{0.11} + t(0.5895 + F^{2/3}))$   
Frequency 5 years - Frequency Curve From Table I Miami-Dade County Public Works Manua, Part 2.

$Q = C \times I \times A$  ,  $V = Q \times t$  ;  $V(1in) = Q \times t$  &  $t$  = Time to generate 1in of runoff

$V(1in) = C \times I \times A \times t$   
 $1" \times A = C \times I \times A \times t$   
Solving for t,  $t = 1" / I \times C$

Time to Generate one inch of run-off t(in)  
Time to reach the inlet (tc.) 10.40 Min.  
**Total Time required to generate 1 in of runoff:** 10.00 Min.  
20.40 Min.



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

# 10 ACRE LAYOUT EXFILTRATION TRENCH DESIGN: PARCEL I

CALCULATED BY CAA

CHECKED BY: JHV

2/14/2012

## Inflow Volumes

TIME		CxA	I (In/hr)	Q (cfs)	INFLOW (Cu ft)
(Min)	(Sec)				
8	480	9.50	6.405	60.85	29,206.19
10	600	9.50	6.166	58.58	35,148.27
15	900	9.50	5.641	53.59	48,232.24
<b>20.40</b>	1224	9.50	5.166	49.07	60,079.88
30	1800	9.50	4.493	42.69	76,833.62
40	2400	9.50	3.956	37.59	90,206.59
50	3000	9.50	3.534	33.58	100,725.40
60	3600	9.50	3.193	30.34	109,215.69
90	5400	9.50	2.477	23.53	127,066.74
120	7200	9.50	2.023	19.22	138,375.31
180	10800	9.50	1.480	14.06	151,893.37

Frequency	<b>5</b>	Years	
Tc	10.00	Minutes	
T1(min.)	10.40	Minutes	
<b>Total Tc</b>	<b>20.40</b>		
Area=	10.00	C Coef.=	0.950
Imperv	10.00		
Perv.	0.00		

## Exfiltrated Volumes

Test	Location	Exf/ft (cfs/ft)	Trench Length + 10% Contingency (ft)	Q EXF (cfs)
		0.1508	660.0	99.55
			660.00	99.55

## Available Storage

8.21 Storage/ft (1)	Storage/ft (2)	Storage/ft (3)	Storage/ft (5)	Storage/ft (6)
660 Trch Lgth (1)	0 Trch Lgth (2)	0 Trch Lgth (3)	0 Trch Lgth (5)	0 Trch Lgth (6)

0.00 Volume in Inlets
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5,416.64 Trench Storage
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**10 ACRE LAYOUT**
**EXFILTRATION TRENCH DESIGN: PARCEL I**
**Cummulative Exfiltration (Outflow Mass Diagram)**

TIME		Exfiltr Rate (Cfs)	Exf. volume (Cu ft)	Trench Storage (Cu ft)	Outflow/Trench (Cu ft)
(Min)	(Sec)				
8	480	99.55	47,785	5,417	53,201.76
10	600	99.55	59,731	5,417	65,148.04
15	900	99.55	89,597	5,417	95,013.74
20.40	1224	99.55	121,880	5,416.64	127,296.34
30	1800	99.55	179,194	5,417	184,610.85
40	2400	99.55	238,926	5,417	244,342.25
50	3000	99.55	298,657	5,417	304,073.65
60	3600	99.55	358,388	5,417	363,805.05
90	5400	99.55	537,583	5,417	542,999.26
120	7200	99.55	716,777	5,417	722,193.47
180	10800	99.55	1,075,165	5,417	1,080,581.88

**Excess stormwater runoff above the available trench storage**

TIME (Min)	INFLOW (cu ft)	Total Outflow (cu ft)	Overflow (cu ft)
8	29,206.19	53,201.76	-23,996
10	35,148.27	65,148.04	-30,000
15	48,232.24	95,013.74	-46,782
20.40	60,079.88	127,296.34	-67,216
30	76,833.62	184,610.85	-107,777
40	90,206.59	244,342.25	-154,136
50	100,725.40	304,073.65	-203,348
60	109,215.69	363,805.05	-254,589
90	127,066.74	542,999.26	-415,933
120	138,375.31	722,193.47	-583,818
180	151,893.37	1,080,581.88	-928,689

TIME (Min)	INFLOW (cu ft)	Trench Storage (cu ft)	Excess runoff Vol. (cu ft)
8	29,206.19	5,417	23,789.55
10	35,148.27	5,417	29,731.63
15	48,232.24	5,417	42,815.60
20.40	60,079.88	5,416.64	54,663.24
30	76,833.62	5,417	71,416.98
40	90,206.59	5,417	84,789.95
50	100,725.40	5,417	95,308.76
60	109,215.69	5,417	103,799.05
90	127,066.74	5,417	121,650.10
120	138,375.31	5,417	132,958.67
180	151,893.37	5,417	146,476.73

**S.F.: 2.23**



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY: CAA

CHECKED BY: JHV

2/14/2012

**Location and description:** 10 ACRE LAYOUT  
TRUCK PARKING FACILITY  
PARCEL J: Folio NO. 27-2019-001-0610 T53S R40E S19

Test Location : Hydraulic Conductivity [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench)

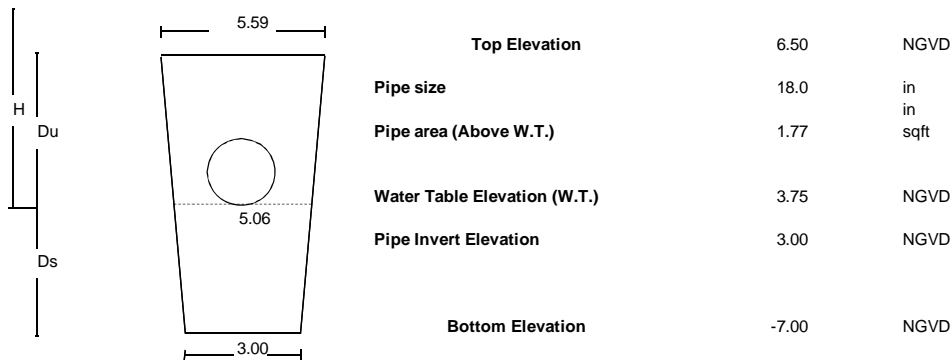
**NOTE: K value obtained from ERP NO. 13-00161-S-03 (K = 1.61e-03).**

Hydraulic Conductivity 10 foot [K<sub>10</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Hydraulic Conductivity 15 foot [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Ground Elevation 8.00 NGVD

Weir / max. hydraulic gradient 7.50 NGVD



### Storage capacity per linear foot

Storage =  $\left[ \left( \frac{\text{Top-w} + \text{Bott-w} @ \text{W-Elv}}{2} \right) (\text{Top\_Elv} - \text{W\_Elv}) - (\text{Pipe area}) \right] * 0.5 + \text{Pipe area}$

Storage = **8.21 CF/FT**

### Exfiltration capacity per linear foot

Exfiltration =  $2 * K_{10} * \left( \frac{\text{Top\_Elv} - \text{W\_Elv}}{2} \right) * (\text{Weir\_Elv} - \text{W\_Elv}) + (10 - (\text{Ground\_Elv} - \text{W\_Elv})) * (\text{Weir\_Elv} - \text{W\_Elv}) + 2 * K_{15} * 5 * (\text{Weir\_Elv} - \text{W\_Elv})$

Exfiltration = **0.1508 CFS/ FT**

**Contributing drainage areas:** Assumptions: (1) The stormwater treatment system is a closed system, thus no positive outfall is proposed.

(2) Ground elevation to be 8.0 ft. NGVD.

(3) K value was obtained from the nearest available project with geotechnical data.

**10 ACRE LAYOUT**

**DRAINAGE CALCULATIONS OF FRENCH DRAIN: PARCEL J**

**Drainage Areas:**

- 1 Total Contribution Area (See plans) = 10.00 Acres
- a. Impervious (Off-site and Roadway) drainage area (A1) 10.00 Acres
- b. Pervious (Off-site and Roadway) drainage area (A2) 0.00 Acres

	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)	IMPERVIOUS AREA (Ac)	PERVIOUS AREA (Ac)
10.00Ac	100%	0%	10.00	0.00
			10.00	0.00
Total Area (Ac):			10.00	

2 Weighted runoff coefficient

Runoff coefficient (Impervious) ; (C1) 0.950  
Runoff coefficient (Pervious) ; (C2) 0.250  
[(A1)\*(C1)+(A2)\*(C2)]/[(A1)+(A2)] ; C = 0.950

**Time of Concentration Calculation (t):**

- 3 Time Required to generate One inch of runoff  
(DERM Water Control - Section D-4)

Where, Intensity =  $308.5 / (48.6F^{0.11} + t(0.5895 + F^{2/3}))$   
Frequency 5 years - Frequency Curve From Table I Miami-Dade County Public Works Manua, Part 2.

$Q = C \times I \times A$  ,  $V = Q \times t$  ;  $V(1in) = Q \times t$  &  $t$  = Time to generate 1in of runoff

$V(1in) = C \times I \times A \times t$   
 $1" \times A = C \times I \times A \times t$   
Solving for t,  $t = 1" / I \times C$

Time to Generate one inch of run-off t(in)  
Time to reach the inlet (tc.) 10.40 Min.  
**Total Time required to generate 1 in of runoff:** 10.00 Min.  
20.40 Min.



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

# 10 ACRE LAYOUT EXFILTRATION TRENCH DESIGN: PARCEL J

CALCULATED BY CAA

CHECKED BY: JHV

2/14/2012

## Inflow Volumes

TIME		CxA	I (In/hr)	Q (cfs)	INFLOW (Cu ft)
(Min)	(Sec)				
8	480	9.50	6.405	60.85	29,206.19
10	600	9.50	6.166	58.58	35,148.27
15	900	9.50	5.641	53.59	48,232.24
<b>20.40</b>	1224	9.50	5.166	49.07	60,079.88
30	1800	9.50	4.493	42.69	76,833.62
40	2400	9.50	3.956	37.59	90,206.59
50	3000	9.50	3.534	33.58	100,725.40
60	3600	9.50	3.193	30.34	109,215.69
90	5400	9.50	2.477	23.53	127,066.74
120	7200	9.50	2.023	19.22	138,375.31
180	10800	9.50	1.480	14.06	151,893.37

Frequency	<b>5</b>	Years	
Tc	10.00	Minutes	
T1(min.)	10.40	Minutes	
<b>Total Tc</b>	<b>20.40</b>		
Area=	10.00	C Coef.=	0.950
Imperv	10.00		
Perv.	0.00		

## Exfiltrated Volumes

Test	Location	Exf/ft (cfs/ft)	Trench Length + 10% Contingency (ft)	Q EXF (cfs)
		0.1508	660.0	99.55
			660.00	99.55

## Available Storage

8.21 Storage/ft (1)	Storage/ft (2)	Storage/ft (3)	Storage/ft (5)	Storage/ft (6)
660 Trch Lgth (1)	0 Trch Lgth (2)	0 Trch Lgth (3)	0 Trch Lgth (5)	0 Trch Lgth (6)

0.00 Volume in Inlets
--------------------------

5,416.64 Trench Storage
----------------------------



**10 ACRE LAYOUT**
**EXFILTRATION TRENCH DESIGN: PARCEL J**
**Cummulative Exfiltration (Outflow Mass Diagram)**

TIME		Exfiltr Rate (Cfs)	Exf. volume (Cu ft)	Trench Storage (Cu ft)	Outflow/Trench (Cu ft)
(Min)	(Sec)				
8	480	99.55	47,785	5,417	53,201.76
10	600	99.55	59,731	5,417	65,148.04
15	900	99.55	89,597	5,417	95,013.74
20.40	1224	99.55	121,880	5,416.64	127,296.34
30	1800	99.55	179,194	5,417	184,610.85
40	2400	99.55	238,926	5,417	244,342.25
50	3000	99.55	298,657	5,417	304,073.65
60	3600	99.55	358,388	5,417	363,805.05
90	5400	99.55	537,583	5,417	542,999.26
120	7200	99.55	716,777	5,417	722,193.47
180	10800	99.55	1,075,165	5,417	1,080,581.88

**Excess stormwater runoff above the available trench storage**

TIME (Min)	INFLOW (cu ft)	Total Outflow (cu ft)	Overflow (cu ft)
8	29,206.19	53,201.76	-23,996
10	35,148.27	65,148.04	-30,000
15	48,232.24	95,013.74	-46,782
20.40	60,079.88	127,296.34	-67,216
30	76,833.62	184,610.85	-107,777
40	90,206.59	244,342.25	-154,136
50	100,725.40	304,073.65	-203,348
60	109,215.69	363,805.05	-254,589
90	127,066.74	542,999.26	-415,933
120	138,375.31	722,193.47	-583,818
180	151,893.37	1,080,581.88	-928,689

TIME (Min)	INFLOW (cu ft)	Trench Storage (cu ft)	Excess runoff Vol. (cu ft)
8	29,206.19	5,417	23,789.55
10	35,148.27	5,417	29,731.63
15	48,232.24	5,417	42,815.60
20.40	60,079.88	5,416.64	54,663.24
30	76,833.62	5,417	71,416.98
40	90,206.59	5,417	84,789.95
50	100,725.40	5,417	95,308.76
60	109,215.69	5,417	103,799.05
90	127,066.74	5,417	121,650.10
120	138,375.31	5,417	132,958.67
180	151,893.37	5,417	146,476.73

**S.F.: 2.23**





**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

CALCULATED BY: CAA

CHECKED BY: JHV

2/14/2012

**Location and description:** 40 ACRE LAYOUT  
TRUCK PARKING FACILITY  
PARCELS G, H, I & J: FolioS NO. 27-2019-001-0660, 27-2019-001-0590, 27-2019-001-0600 & 27-2019-001-0610 T53S R40E S19

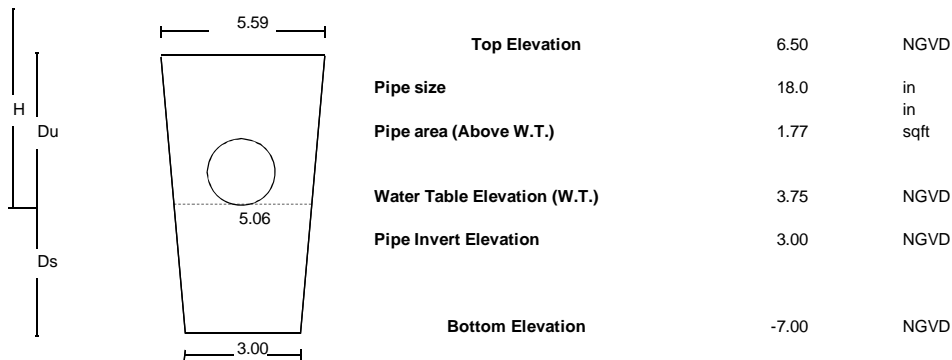
Test Location : Hydraulic Conductivity [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) **NOTE: K value obtained from ERP NO. 13-00161-S-03 (K = 1.61e-03).**

Hydraulic Conductivity 10 foot [K<sub>10</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Hydraulic Conductivity 15 foot [K<sub>15</sub>] = (cfs/ft<sup>2</sup> of Head /ft of Trench) 1.61E-03

Ground Elevation 8.00 NGVD

Weir / max. hydraulic gradient 7.50 NGVD



### Storage capacity per linear foot

Storage =  $\left[ \left( \frac{\text{Top-w} + \text{Bott-w} @ \text{W-Elv}}{2} \right) * (\text{Top\_Elv} - \text{W\_Elv}) - (\text{Pipe area}) \right] * 0.5 + \text{Pipe area}$

Storage = **8.21 CF/FT**

### Exfiltration capacity per linear foot

Exfiltration =  $\left[ 2 * K_{10} * \left( \frac{\text{Top\_Elv} - \text{W\_Elv}}{2} \right) * (\text{Weir\_Elv} - \text{W\_Elv}) + (10 - (\text{Ground\_Elv} - \text{W\_Elv})) * (\text{Weir\_Elv} - \text{W\_Elv}) + 2 * K_{15} * 5 * (\text{Weir\_Elv} - \text{W\_Elv}) \right]$

Exfiltration = **0.1508 CFS/ FT**

**Contributing drainage areas:** Assumptions: (1) The stormwater treatment system is a closed system, thus no positive outfall is proposed.

(2) Ground elevation to be 8.0 ft. NGVD.

(3) K value was obtained from the nearest available project with geotechnical data.

# 40 ACRE LAYOUT

## DRAINAGE CALCULATIONS OF FRENCH DRAIN: PARCELS G, H, I & J

### Drainage Areas:

- 1 Total Contribution Area (See plans) = 40.00 Acres
- a. Impervious (Off-site and Roadway) drainage area (A1) 40.00 Acres
- b. Pervious (Off-site and Roadway) drainage area (A2) 0.00 Acres

	IMPERVIOUS AREA (%)	PERVIOUS AREA (%)	IMPERVIOUS AREA (Ac)	PERVIOUS AREA (Ac)
40.00Ac	100%	0%	40.00	0.00
			40.00	0.00
Total Area (Ac):			40.00	

### 2 Weighted runoff coefficient

Runoff coefficient (Impervious) ; (C1) 0.950

Runoff coefficient (Pervious) ; (C2) 0.250

$[(A1) \times (C1) + (A2) \times (C2)] / [(A1) + (A2)]$  ; C = 0.950

### Time of Concentration Calculation (t):

- 3 Time Required to generate One inch of runoff  
(DERM Water Control - Section D-4)

Where, Intensity =  $308.5 / (48.6F^{-0.11} + t(0.5895 + F^{-2/3}))$   
Frequency 5 years - Frequency Curve

From Table I Miami-Dade County Public Works Manua, Part 2.

$Q = C \times I \times A$  ,  $V = Q \times t$  ;  $V(1in) = Q \times t$  &  $t$  = Time to generate 1in of runoff

$V(1in) = C \times I \times A \times t$

$1" \times A = C \times I \times A \times t$

Solving for t,  $t = 1" / I \times C$

Time to Generate one inch of run-off t(in)

Time to reach the inlet (tc.)

10.40 Min.

Total Time required to generate 1 in of runoff:

10.00 Min.

20.40 Min.



**R.J. Behar & Company, Inc.**  
Engineers • Planners

JOB: RJB 12005

## 40 ACRE LAYOUT

### EXFILTRATION TRENCH DESIGN: PARCELS G, H, I & J

CALCULATED BY CAA

CHECKED BY: JHV

2/14/2012

#### Inflow Volumes

TIME		CxA	I (In/hr)	Q (cfs)	INFLOW (Cu ft)
(Min)	(Sec)				
8	480	38.00	6.405	243.38	116,824.75
10	600	38.00	6.166	234.32	140,593.06
15	900	38.00	5.641	214.37	192,928.95
<b>20.40</b>	1224	38.00	5.166	196.29	240,319.51
30	1800	38.00	4.493	170.74	307,334.47
40	2400	38.00	3.956	150.34	360,826.34
50	3000	38.00	3.534	134.30	402,901.60
60	3600	38.00	3.193	121.35	436,862.75
90	5400	38.00	2.477	94.12	508,266.98
120	7200	38.00	2.023	76.88	553,501.24
180	10800	38.00	1.480	56.26	607,573.50

Frequency	<b>5</b>	Years
Tc	10.00	Minutes
T1(min.)	10.40	Minutes
<b>Total Tc</b>	<b>20.40</b>	
Area=	40.00	
Imperv	40.00	
Perv.	0.00	
		C Coef.= 0.950

#### Exfiltrated Volumes

Test	Location	Exf/ft (cfs/ft)	Trench Length + 10% Contingency (ft)	Q EXF (cfs)
		0.1508	2640.0	398.21
			2,640.00	398.21

#### Available Storage

8.21				
Storage/ft (1)	Storage/ft (2)	Storage/ft (3)	Storage/ft (5)	Storage/ft (6)
2,640	0	0	0	0
Trch Lgth (1)	Trch Lgth (2)	Trch Lgth (3)	Trch Lgth (5)	Trch Lgth (6)

0.00
Volume in Inlets

21,666.56
Trench Storage

**40 ACRE LAYOUT**
**EXFILTRATION TRENCH DESIGN: PARCELS G, H, I & J**
**Cummulative Exfiltration (Outflow Mass Diagram)**

TIME		Exfiltr Rate (Cfs)	Exf. volume (Cu ft)	Trench Storage (Cu ft)	Outflow/Trench (Cu ft)
(Min)	(Sec)				
8	480	398.21	191,140	21,667	212,807.05
10	600	398.21	238,926	21,667	260,592.17
15	900	398.21	358,388	21,667	380,054.97
20.40	1224	398.21	487,519	21,666.56	509,185.36
30	1800	398.21	716,777	21,667	738,443.39
40	2400	398.21	955,702	21,667	977,369.00
50	3000	398.21	1,194,628	21,667	1,216,294.61
60	3600	398.21	1,433,554	21,667	1,455,220.22
90	5400	398.21	2,150,330	21,667	2,171,997.05
120	7200	398.21	2,867,107	21,667	2,888,773.88
180	10800	398.21	4,300,661	21,667	4,322,327.54

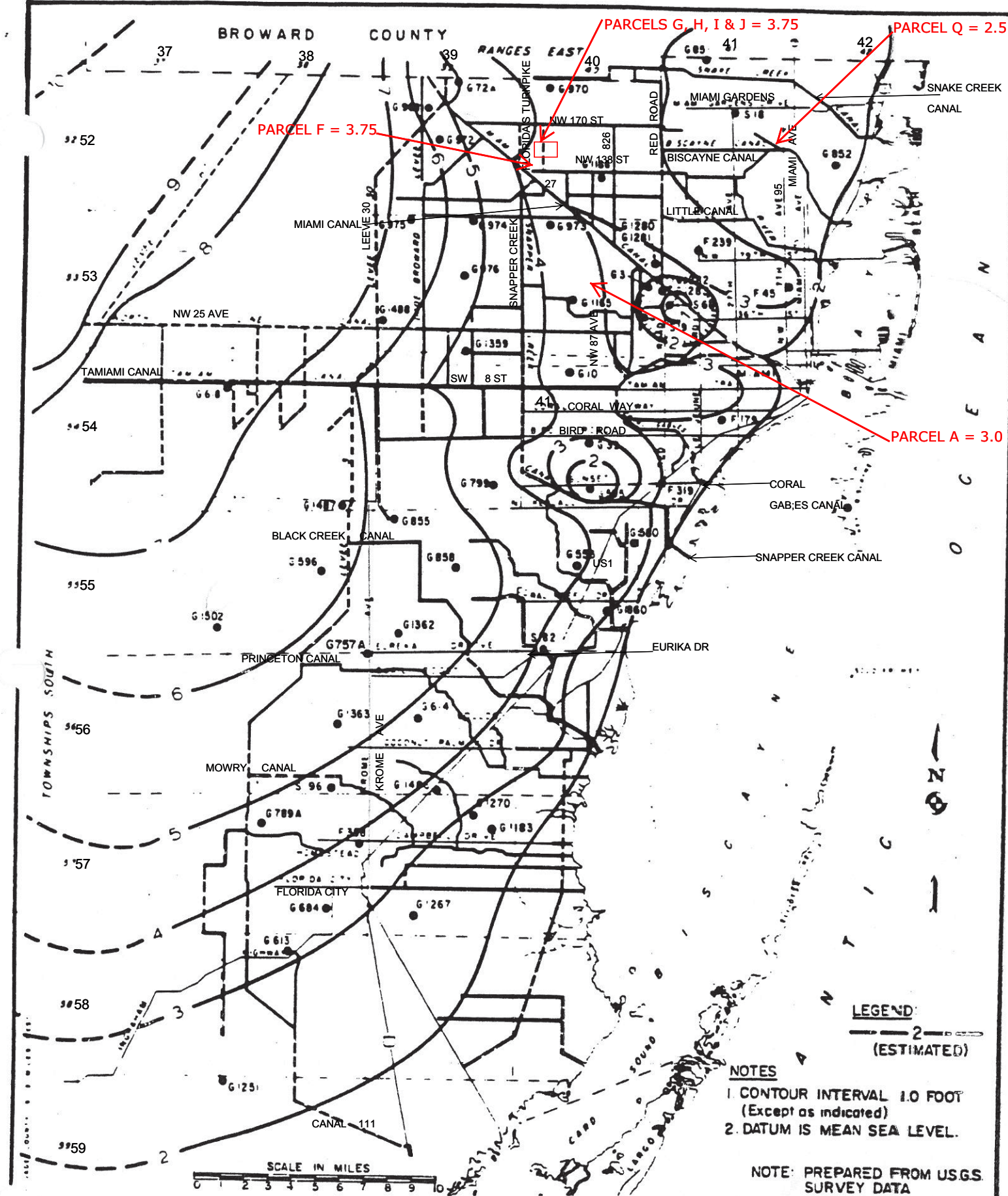
**Excess stormwater runoff above the available trench storage**

TIME (Min)	INFLOW (cu ft)	Total Outflow (cu ft)	Overflow (cu ft)
8	116,824.75	212,807.05	-95,982
10	140,593.06	260,592.17	-119,999
15	192,928.95	380,054.97	-187,126
20.40	240,319.51	509,185.36	-268,866
30	307,334.47	738,443.39	-431,109
40	360,826.34	977,369.00	-616,543
50	402,901.60	1,216,294.61	-813,393
60	436,862.75	1,455,220.22	-1,018,357
90	508,266.98	2,171,997.05	-1,663,730
120	553,501.24	2,888,773.88	-2,335,273
180	607,573.50	4,322,327.54	-3,714,754

TIME (Min)	INFLOW (cu ft)	Trench Storage (cu ft)	Excess runoff Vol. (cu ft)
8	116,824.75	21,667	95,158.19
10	140,593.06	21,667	118,926.50
15	192,928.95	21,667	171,262.39
20.40	240,319.51	21,666.56	218,652.95
30	307,334.47	21,667	285,667.91
40	360,826.34	21,667	339,159.78
50	402,901.60	21,667	381,235.04
60	436,862.75	21,667	415,196.19
90	508,266.98	21,667	486,600.42
120	553,501.24	21,667	531,834.68
180	607,573.50	21,667	585,906.94

**S.F.: 2.23**





**METROPOLITAN  
DADE COUNTY  
PUBLIC WORKS  
DEPARTMENT**

**APPROVED**

4/5 72

**REVISED**

2/9/75

4/14/77

**DESIGN STANDARDS**

**AVERAGE OCTOBER  
GROUND WATER LEVEL**

**1960-75**

**W.C.**

**2.2**

**SHEET 1 OF 1**

TABLE I

<u>DESIGN STORM FREQUENCIES AND FLOOD LIMITS</u>		
Type of Area	Rainfall Frequency	Flood Limit
1. Residential and Commercial Areas	5-year	To crown of street, or to within 15' of a dwelling or other occupied building, whichever is lower
2. 2-Lane roads in Residential and Commercial Areas	5-year, except 10-year for a bridge or culvert in the canal system	To crown of street
3. 4-Lane roads in high density, high traffic areas	10-year	To outer edge of traffic lanes
4. Private parking lots and similar paved areas	2-year	(See South Florida Building Code 4611)