

WHITE TANKS FRS #4 OUTLET FACILITY

FINAL DESIGN CONCEPT REPORT

FCD 2008 C013
Assignment No. 3

Prepared for



Prepared by



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Appendix G – Initial Alternatives Evaluation*

*Separate Bound 11x17 Conceptual Plans for each alignment evaluation



EXPIRES 12/31/2012

I. EXECUTIVE SUMMARY

The Flood Control District of Maricopa County (FCDMC) has contracted with Olsson Associates to prepare a Design Concept Report to develop a preferred alignment to discharge approximately 300 cfs from the FRS #4. Locations that have been evaluated as potential discharge points include the Gila River, the Roosevelt Irrigation District Canal (RID), the Buckeye Irrigation Canal (BID), and the Loop 303 channel.

The study area is generally bounded by Van Buren Street in the north, Watson Road to the west, Bullard Wash to the east, and the Gila River to the south. The study area encompasses approximately 110 square miles and is located within the Town of Buckeye, the City of Goodyear, and unincorporated Maricopa County. A Vicinity Map is shown in Figure 1.

A total of 9 alignments have been evaluated and are listed below and are shown in Figure 2;

Alternative 1: Facility from WT 4 to RID, west to WC14, identified in the ADMP, then south along the ADMP alignment.

Alternative 2: Facility following the ADMP alignment south on Tuthill, west at the BID canal, then south to the Watson Drain.

Alternative 3: Facility south along a Tuthill/Airport alignment to the Gila River.

Alternative 3A: Facility south along a Tuthill/Airport alignment to the BID.

Alternative 4: Facility south along Jackrabbit Trail to the Gila River.

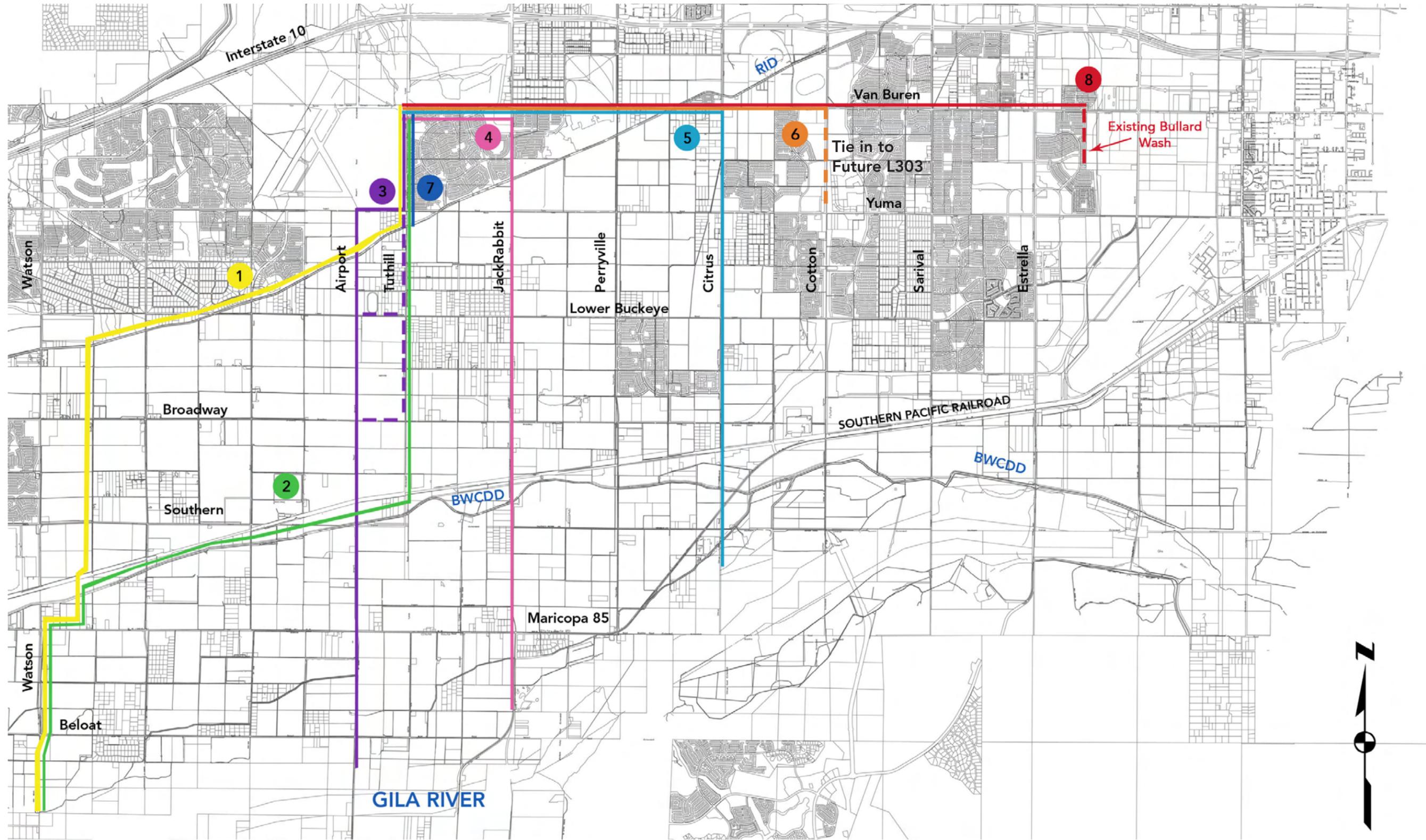
Alternative 5: Facility east along Van Buren Road, then south along Citrus Road to the Gila River.

Alternative 6: Facility east along Van Buren Road, then south within the Loop 303 drainage system.

Alternative 7: Facility south along Tuthill to discharge into the RID canal.

Alignment 8: Facility east along Van Buren Street to discharge into Bullard Wash.

An initial evaluation was done on each alignment and included costs, utility impacts, constructability, maintenance, and its ability to be integrated into recommended regional drainage solutions. Please see the separate bound Appendix G “Initial Alternatives Evaluation” for the conceptual plan and profiles for each alternative evaluated. Based on this initial evaluation Alternative 3A and 6 ranked the highest. The project team ultimately selected 6 as the recommended alternative and this alternative was further defined.



II. GENERAL DESCRIPTION OF EACH ALTERNATIVE

Alternative 1 (47,809 LF): This alternative was not evaluated due to discussions just before the kickoff meeting. The team agreed that due to its relative length as well as it not tying into any ADMP recommended alternatives that this Alternative not be evaluated. However, since the scope of work and other documents referred to this numbering the alternatives were not renumbered.

Alternative 2 (50,197 LF): This alternative does not appear to be advantages when compared to other alternatives due to grade issues at the downstream end of the alignment as well as the relatively long length.

Alternative 3 (37,188 LF): This alternative appears to have some merit when compared to other alternatives. However, the relatively long length and almost flat slope for the last 2 ½ miles results in this alternative to be less preferred than other alternatives.

Alternative 3A (24,188 LF): This alternative appears to be a relatively good alternative. However, there are issues with coordinating the tie in with the Buckeye Irrigation District.

Alternative 4 (35,759 LF): This alternative does not appear to be advantages when compared to other alternatives due to grade issues at the downstream end of the alignment. This alternative would result in a lowpoint along this alignment.

Alternative 5 (38,376 LF): This alternative does not appear to be advantages when compared to other alternatives due to its relatively long length and the grade challenges at the southern end of this alignment.

Alternative 6 (21,074 LF with potential to reduce to 17,074): This alternative appears to be a relatively good alternative. However, there are issues with coordinating and resizing the Loop 303 channel for the additional flow. It should be noted that by moving the outlet facility from the western end of the FRS #4 to the eastern end of FRS #4 the alignment length could be reduced to approximately 17,074 LF.

Alternative 7 (6,143 LF): This alternative is not feasible. During a meeting with the Roosevelt Irrigation District (RID) it was determined that this discharge would not be acceptable.

Alternative 8 (33,888 LF): This alternative does not appear to be advantages when compared to other alternatives. This is based on the relatively long length of this alternative, the requirement to construct past the Loop 303 (Alternative 6) for 2 ½ miles, and not allowing positive drainage to the outlet.

REPORT FORMAT

Each alternative has been evaluated to the extent necessary to determine its feasibility relative to the other alternatives. This report attempts to be concise enough to make it readable so that the major points are easy to find without it being so brief that it does not cover the important elements. While several technical elements of each alternative have been evaluated, alternatives that do not appear to be promising have not been investigated in as much detail as alternatives that appear to have more merit. Once a major flaw has been identified, additional effort has been redirected to more promising alignments. Each alignment has been evaluated for the following.

SYSTEM HYDRAULICS

Open channels, gravity storm drains, and pressure storm drains have been evaluated to determine which are technically feasible for each alignment. A pressure storm drain is defined for this DCR as a storm drain where the HGL is above the ground surface.

Fatal flaws;

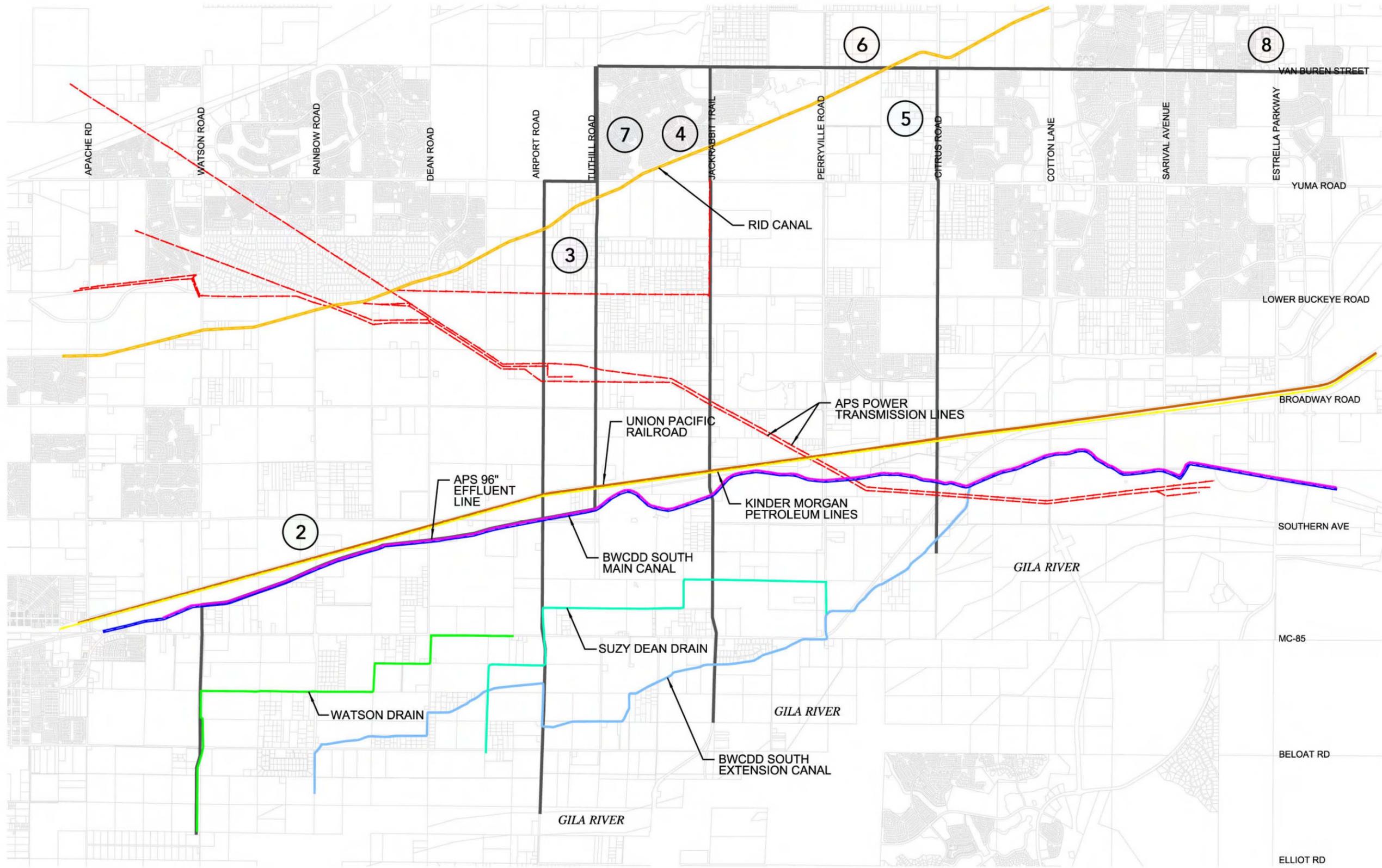
- In general an open channel has been determined to not be feasible if it needs to be perched significantly and requires acquiring improved parcels. This may not be enough to eliminate these options ordinarily, but appears to be reasonable where this occurs along alignments that are significantly longer than others.
- A gravity storm drain has been determined to be not feasible if cannot daylight into the outlet facility.
- A pressure storm drain has been determined to be not feasible if it results in a lowpoint along the alignment.

PROFILE

For each alignment a preliminary profile has been prepared. These have been prepared to provide a visual reference of each alternative and have been developed to the extent required to visually evaluate how the hydraulics would function along that alignment. These conceptual plan and profile sheets for each alternative evaluated have been included in a separately bound supplemental document entitled Appendix G "Initial Alternatives Evaluation". The preferred alignment has been refined to a 15% level of design as shown in Appendix D "Preferred Alternative 15% Design Plans" located within this Design Concept Report.

UTILITIES

Major utilities within the project area include the BID, the RID, the APS 96-inch storm drain effluent line, the Kinder Morgan petroleum line, and irrigation facilities. A schematic of the major utilities is shown on Figure 3. Utilities have been evaluated in an attempt to evaluate fatal flaws or issues that would distinguish one alignment from another.



UTILITY CONTACTS

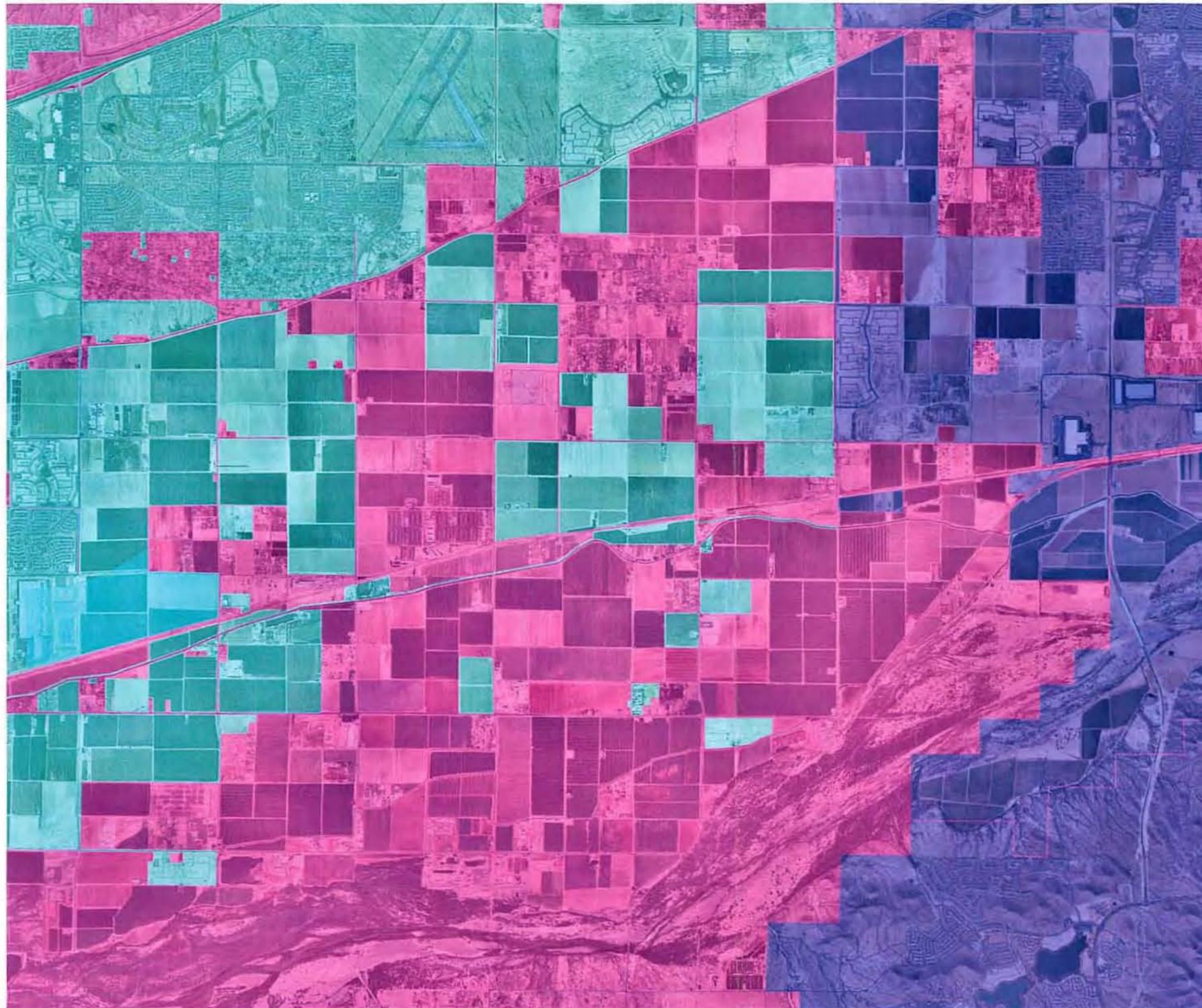
Company	Utility	Number	Name
AT&T	Coaxial cable & FO	800.241.3624 ext. 0	LSAC Group
-	-		
APS	Electric	602.493.4225	ELM Locating
	Water	602.493.4225	Tammy Malinak
AZ Water Company	Water	623.853.9302	Tom Seuberling
Buckeye Water Conservation & Drainage District	Electric & IRR	623.386.2196	Ed Gerak
Central Arizona Water Conservation District	Coaxial, Electric, FO, Water	623.869.2268	Doug Greffe
City of Goodyear	Effluent, FO, Reclaimed Water, Sewer, Traffic Signals, Water	623.932-3010	Public Works & Water Resources Dept
Cox Communications	Cable TV & FO	623.328.4073	Gwendalyn Garcia
Kinder Morgan Energy	Petroleum	602.278-8564	Dan Tarango
Level 3 Communications	FO	877.366.8344	Judy Henry
Maricopa Dept. of Transportation	Traffic Signals	602.506.8660	Steve Poole
MCI	FO	800.289.3427	Supervisor on duty
Qwest Communications Network	FO	303.707.3680	Tom Sturmer
Qwest Local Network	Coaxial cable & FO	623.869.0820	ELM Locating
Roosevelt Irrigation District	IRR	623.386.2046	Stan Ashby
Southwest Gas	Natural Gas	623.780.3350	ELM Locating
	HP Gas	602.484.5345	Andy Lugo
Sprint Communications	FO	800.521.0579	Dispatcher
Town of Buckeye	Water & Sewer	623.349-6800	Manual Alvarez
Valencia Water Company	Water	602.550.5200	Mark Duhamell
Water Utilities of Greater Buckeye	Water	623.882.4030	Rick Davis

COSTS

A cost estimate has been prepared for each alternative that has been determined to be feasible. These costs are for comparison and planning purposes. A 35% contingency has been added to each.

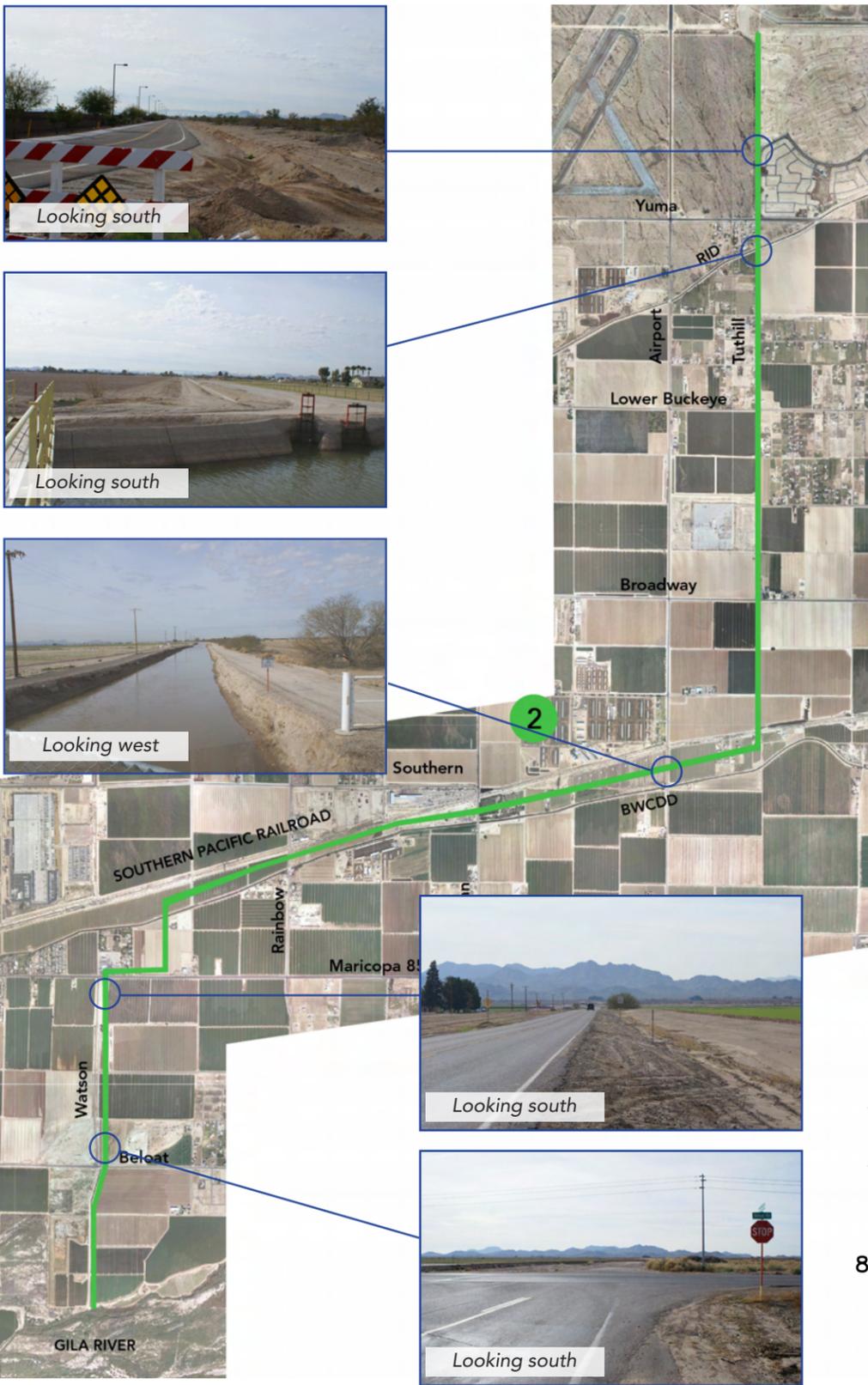
RIGHT OF WAY

The study area is located within the Town of Buckeye, the City of Goodyear, and within unincorporated Maricopa County. Determination of Rights of Way for this DCR have been based on GIS linework provided by the Flood Control District of Maricopa County (FCDMC) along with the Maricopa County Assessors website. Any strip parcels that do not provide ownership information have been classified as right of way under the jurisdiction of the agency above where it falls. Figure 4 shows the limits of the jurisdictions.



-  City of Goodyear
-  Town of Buckeye
-  Maricopa County





ALTERNATIVE 2 COST ESTIMATE - 50,197 LF

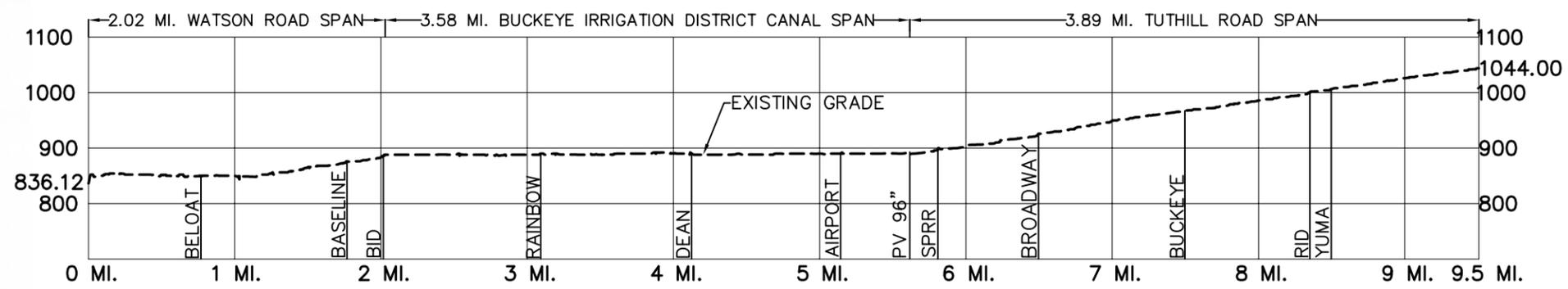
Open Channel - Not feasible
Gravity storm drain - Not feasible
Pressurized storm drain - \$40,545,441

Advantages

- No low point

Disadvantages

- High cost
- Long alignment
- Will cross RID, BID, Kinder Morgan, UPRR, APS effluent line



III. ALIGNMENT ANALYSIS

ALTERNATIVE 2:

Alternative 2: Facility from WT 4 to RID, west to WC14, identified in the ADMP, then south along the ADMP alignment.

Open Channel

There are significant grade issues with constructing a channel along the last 2 miles of this alignment as it discharges into the Gila River. The alignment continues slightly uphill for the last 5,400 linear feet, with an existing ground surface of 850 at station 54+00 with a ground surface of approximately 852 one mile downstream at the outlet. Additionally, the 100-yr WSE of the Gila River is approximately 851 at this point. It is important that the channel is constructed with banks well above the 100-year wse to ensure that flow does not reverse and flow out of the channel into low lying areas. This would require that the channel at this location be perched significantly.

Gravity Storm Drain

Existing grades make constructing a gravity storm drain within the last reach unfeasible because the slope for the last mile of this alignment has no fall and the invert of the pipe at the outlet would have to be buried and would require a bubble box into the Gila River.

Pressure Storm Drain

The ground surface elevation at FRS #4 is approximately 1044 and the outlet elevation is approximately 836. This results in an overall HGL of approximately 0.004 '/ft. This would require an 84-inch pipe.

Utilities

There are several major utilities to cross including the RID, the BID, UPRR, the Kinder Morgan pipeline just north of UPRR, and the APS 96-inch effluent line just north of the BID. There are other minor utilities throughout the corridor, but other than the utilities above there does not appear to be any utility impacts that would affect this alignment study.

Existing ROW

There are several reaches along this alignment with no dedicated roadway right of way. Discussion of the impacts will start at the FRS #4 outfall and progress along the alignment to the eventual outfall at the Watson Road alignment projection into the Gila River.

- ***For the first mile heading south from the FRS #4 outfall, no existing Right of Way exists for roadway. The adjacent development to the east is heavily subdivided and dictates that alignment of drainage infrastructure will need to be located along the west parcel.***

- South of Yuma Road, an existing 33' wide 203rd Avenue ROW exists for approximately 1400' and is bisected by the an 108' wide ROW for the Roosevelt Irrigation District Canal.
- The ROW widens to 66' wide for approximately 1190' to the Durango Street alignment, and then expands to 90' wide south of Durango Street.
- The 203rd Ave. ROW narrows back to 66' wide approximately 70' north of the Watkins Road intersection center line and remains this width south to the Buckeye Irrigation District Canal ROW (BID).
- ***The alignment diverges from 203rd avenue and runs north and adjacent to the BID for approximately 3.6 miles to Watson Road. In all but approximately 1400' of this reach, a 50' wide parcel owned by the Liberty or Buckeye School District is located at the proposed alignment of this alternative.***
- The alignment departs from the BID alignment and is directed south along the Watson Road alignment crossing an approximate 75' wide ROW of the BID. The ROW width for Watson Road to MC 85 is approximately 88' wide.
- South of MC 85, the Watson Road ROW widens to 110' with an 85' wide adjacent parcel to the east of the ROW owned by the Buckeye School District.
- South of the Monroe Ave intersection, the alignment of Watson Road adjusts eastward. The ROW is as wide as 245' and as narrow as 95' in at this eastward alignment adjustment.
- ***South of the Beloat Road intersection, a gap of approximately 105' with no identified ROW for Watson Road exists.***
- A ROW is identified south of this gap at approximately 100' wide and corrects back to the original north/south alignment.
- ***South of the gap, an 85' wide adjacent parcel owned by the Buckeye School District reappears and runs along the Watson Road alignment to the projected outfall of the drainage corridor.***

The jurisdictions of the ROW along 203rd Ave and Watson Road are managed at approximately a 50/50 split between Maricopa County Department of Transportation and the Town of Buckeye.

Alternative 2 - Advantages and Disadvantages

Advantages

- A pressure storm drain could be constructed with no low point.

Disadvantages

- High cost
- Long alignment
- Will cross RID, BID, Kinder Morgan, UPRR, and APS effluent line



ALTERNATIVE 3 COST ESTIMATE - 37,188 LF

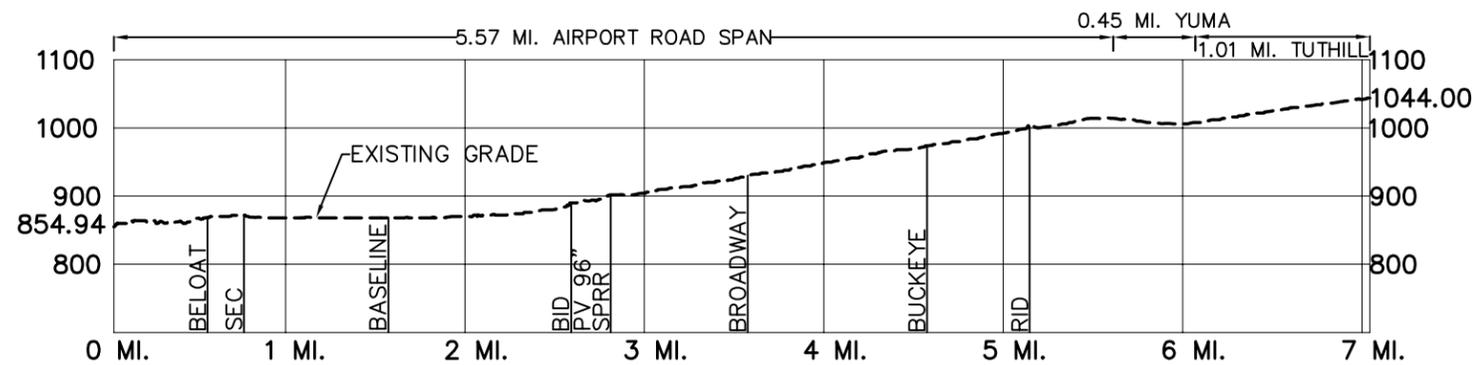
Open Channel - Not feasible
Gravity storm drain - Not feasible
Pressurized storm drain - \$25,157,878

Advantages

- No low point

Disadvantages

- Relatively longer length
- A depression at lower 1/3 of alignment creates flat pipe.
- Higher cost than other alternatives
- Will cross RID, BID, Kinder Morga, UPPR, APS effluent line.



ALTERNATIVE 3:

Alternative 3: Facility south along a Tuthill/Airport alignment to the Gila River.

Open Channel

There are significant grade issues with constructing a channel along this alignment from station 40+00 to station 110+00. The ground surface goes up approximately 4' over a 1 mile distance making this option unfeasible when compared to other alternatives.

Gravity Storm Drain

Constructing a gravity storm drain is not feasible because of the grade issues discussed above. This alignment has no fall at the downstream end of the alignment and the invert of the pipe could not drain into the Gila River.

Pressure Storm Drain

The ground surface elevation at FRS #4 is approximately 1044 and the outlet elevation is approximately 860. This results in a HGL of 0.005'/ft and a 78-inch storm drain. However, the APS 96-inch effluent line extends from a bottom of pipe elevation of approximately 879. This would result in an almost flat pipe slope at the southern end of the alignment, but it could be constructed without a lowpoint in the alignment.

Utilities

There are several major utilities to cross including the RID, the BID, UPRR, the Kinder Morgan pipeline just north of UPRR, and the APS 96-inch effluent line just north of the BID.

Existing ROW

Several reaches within this alignment are located outside of a dedicated roadway right of way and are highlighted below. Discussion of the impacts will start at the FRS #4 outfall and progress along the alignment to the eventual outfall at the Airport Road alignment projection into the Gila River.

- ***For the first mile heading south from the FRS #4 outfall, no existing Right of Way exists for roadway. The adjacent development to the east is heavily subdivided and dictates that alignment of drainage infrastructure will need to be located along the west parcel.***
- As the alignment turns to east/west there are three possibilities; (1) along Yuma Road for one mile to Airport Road, no existing ROW exists (2) along Lower Buckeye Road approximately 65' exists (3) along Broadway approximately 70' exists.
- As the alignment turns south along Airport Road at Yuma Road for approximately 290', existing ROW is estimated at 70'.



ALTERNATIVE 3A COST ESTIMATE - 24,188 LF
Open Channel - Not feasible ⁽¹⁾
Gravity storm drain - \$14,062,849 ⁽²⁾
Pressurized storm drain - \$16,875,418 ⁽²⁾

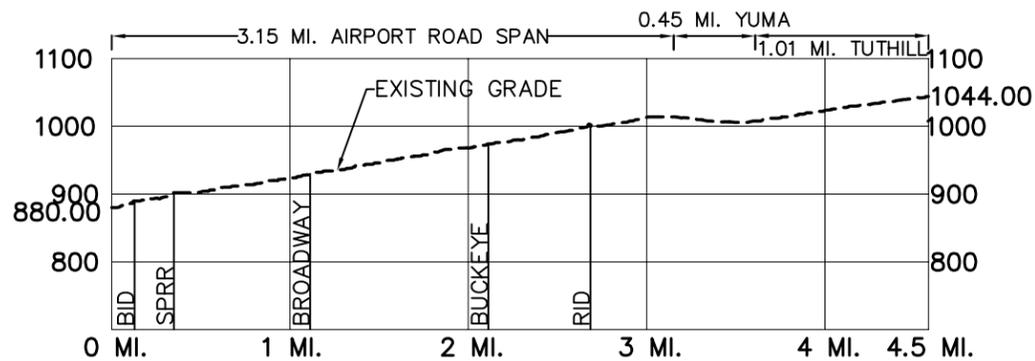
(1) Technically feasible, but would direct local stormwater runoff to BID.
 (2) Does not include costs to upsize BID.

Advantages

- Gravity storm drain
- Relatively shorter length
- No BID crossing

Disadvantages

- Require ROW
- Would not discharge into a District facility
- Would require evaluation of BID facilities to determine upgrade needs
- Costs of upgrading BID facilities unknown
- Will cross RID, UPRR, APS 96" effluent line, and Kinder Morgan



ALTERNATIVE 3A:

Alternative 3A: Facility south along a Tuthill/Airport alignment to the BID.

Open Channel

An open channel appears to be constructible from just downstream of the RID to the BID with a channel along the west side of Airport Road.. However, because local stormwater cannot be directed into the BID, this open channel would have to be constructed so that local stormwater could not flow into it. If this could be overcome, a channel along this reach would be approximately 11,000 lf with an average slope of 0.0082 '/ft. This would result in a channel width from top of bank to top of bank of approximately 68 feet and require approximately 80 feet of right of way.

Gravity Storm Drain

Constructing a gravity storm drain is feasible. The outlet of the FRS #4 is at an elevation of 1044 and the BID is at an elevation of approximately 900. This results in an average slope of 0.006 '/ft, and would require an approximately 72-inch storm drain.

Pressure Storm Drain

A pressure storm drain is viable but there are no advantages to it for this alignment since it would not allow the storm drain to be downsized. Costs for this will be approximately 20% higher than a gravity storm drain option.

Utilities

This facility would have to cross RID, UPRR, APS 96-inch effluent line, and Kinder Morgan petroleum line. It should be noted that the flow will likely need to be taken over the Kinder Morgan line and under the UPRR tracks. A floodplain exists to the northwest of Airport Road and UPRR which will require that the crossing occur east of Airport Road. However, there is a floodplain located to the northeast of the BID and Airport Road, so the tie in will need to occur just west of Airport Road.

Existing ROW

Several reaches within this alignment are located outside of a dedicated roadway right of way and are highlighted below. Discussion of the impacts will start at the FRS #4 outfall and progress along the alignment to the eventual outfall at the Airport Road alignment projection into the BID.

- ***For the first mile heading south from the FRS #4 outfall, no existing Right of Way exists for roadway. The adjacent development to the east is heavily subdivided and dictates that alignment of drainage infrastructure will need to be located along the west parcel.***
- As the alignment turns to east/west there are three possibilities; **(1) along Yuma Road for one mile to Airport Road, no existing ROW exists** (2) along Lower Buckeye Road approximately 65' exists (3) along Broadway approximately 70' exists. Yuma Road has been used for this alternative because of the existing infrastructure in the other two options. However, if this Alternative is selected these 3 should be further refined.

- As the alignment turns south along Airport Road at Yuma Road for approximately 290', existing ROW is estimated at 70'.
- Extending approximately 990' south, only a half street ROW is dedicated at 33' wide.
- From this point south to Durango Street, 90' of ROW is dedicated.
- For a distance of 690' south of Durango Street, the ROW narrows to approximately 77'.
- South of this point to 280' north of the Dunlap Road centerline, the ROW further narrows to 66' wide.
- The 280' section is limited to a half street ROW dedication of 33'.
- **Between Dunlap Road and Broadway Road, no ROW exists.**
- From Broadway south to the BID, an existing ROW of approximately 80' exists.

The jurisdiction of the ROW along Airport Road are managed predominantly by Maricopa County Department of Transportation with approximately 1 mile managed by the Town of Buckeye.

Alternative 3A – Advantages and Disadvantages

Advantages

- Gravity storm drain is a possibility
- Relatively shorter alignment length
- No BID crossing

Disadvantages

- Portions of the Airport Road alignment have limited ROW widths
- Would not discharge into a District controlled facility
- Would require evaluation of BID system to determine upgrade needs
- Costs of upgrading BID facilities not determined

Costs

DESCRIPTION	UNIT	PRICE	Alternative 3A	
			QTY	COST
Easement	Acre	\$15,000	12	\$180,000
72-inch RGRCP - Gravity	LF	\$340		\$0
78-inch RGRCP - Gravity	LF	\$400	24188	\$9,675,200
78-inch RGRCP - Pressure	LF	\$480		
84-inch RGRCP - Gravity	LF	\$480		\$0
84-inch RGRCP - Pressure	LF	\$580		\$0
Surface Paving	SY	\$75	823	\$61,725
Utility Crossings	EA	\$100,000	5	\$500,000
				\$10,416,925
				\$3,645,924
				\$14,062,849*

*This estimate does not include the costs of upgrading the BID facilities.



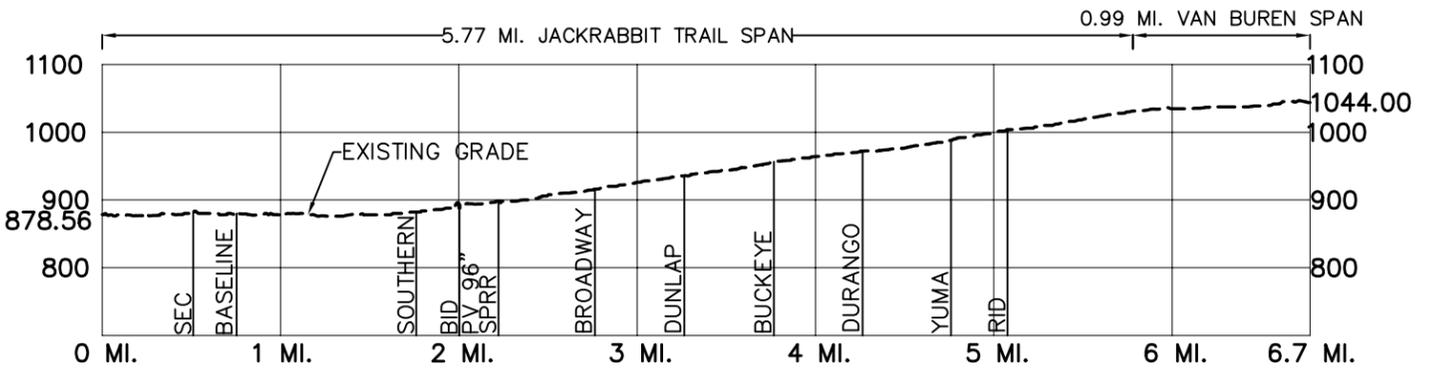
ALTERNATIVE 4 COST ESTIMATE - 35,759 LF	
Open Channel	- Not feasible
Gravity storm drain	- Not feasible
Pressurized storm drain	- Not feasible

Advantages

- Not feasible

Disadvantages

- Not feasible



ALTERNATIVE 4:

Alternative 4: Facility south along Jackrabbit Trail to the Gila River.

Open Channel

There are significant grade issues along the last 2 miles of this alignment. The elevation at the outlet is approximately 880 and the elevation approximately 8,500 feet upstream is approximately 878, resulting in the last section of this alignment being uphill. This eliminates the possibility of an open channel without significant perching of this channel.

Gravity Storm Drain

Constructing a gravity storm drain is not feasible because of the grade issues discussed above.

Pressure Storm Drain

This alternative is not considered feasible because it could not be constructed with continual slope to the outlet, resulting in a low point within the system.

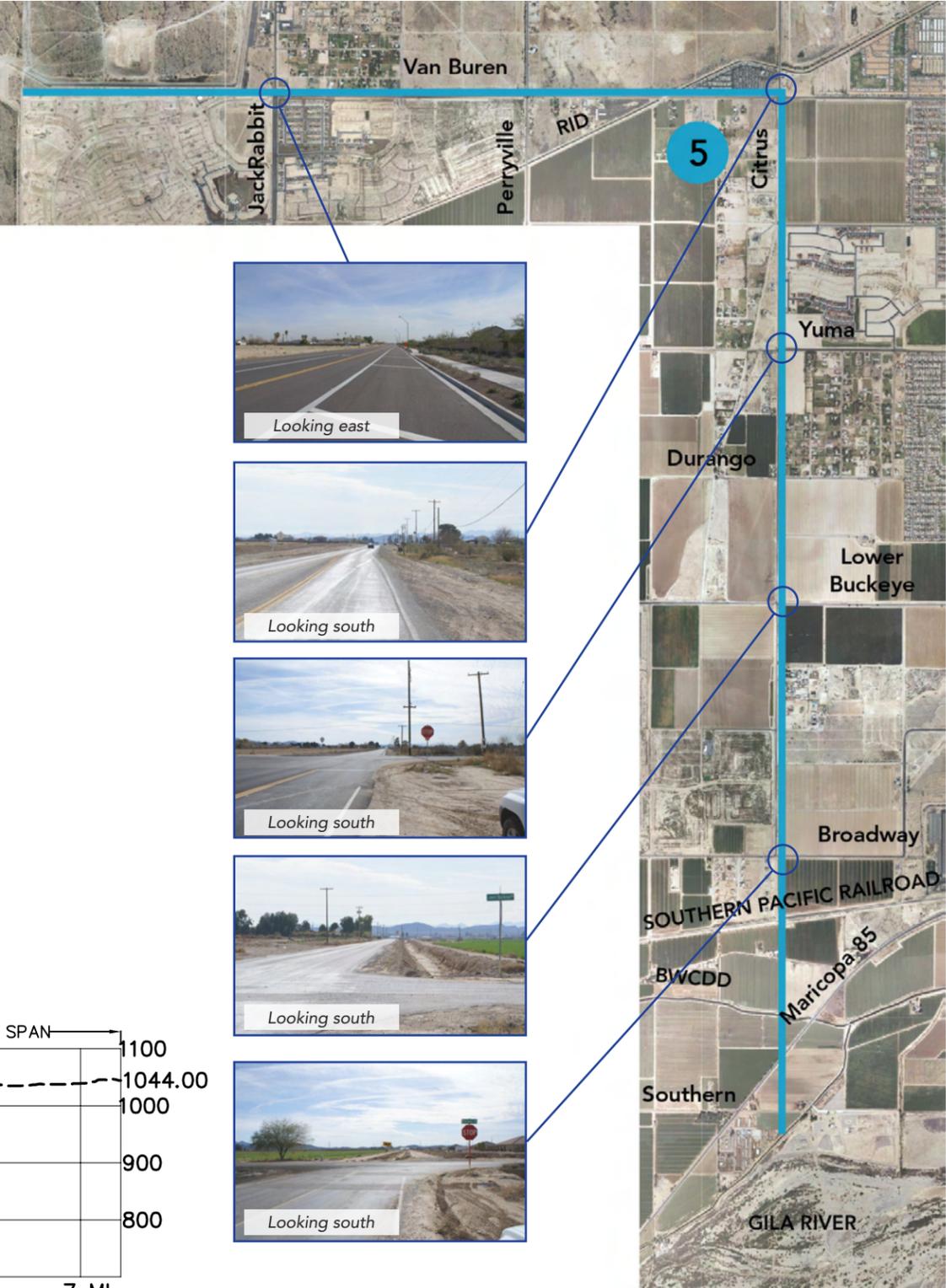
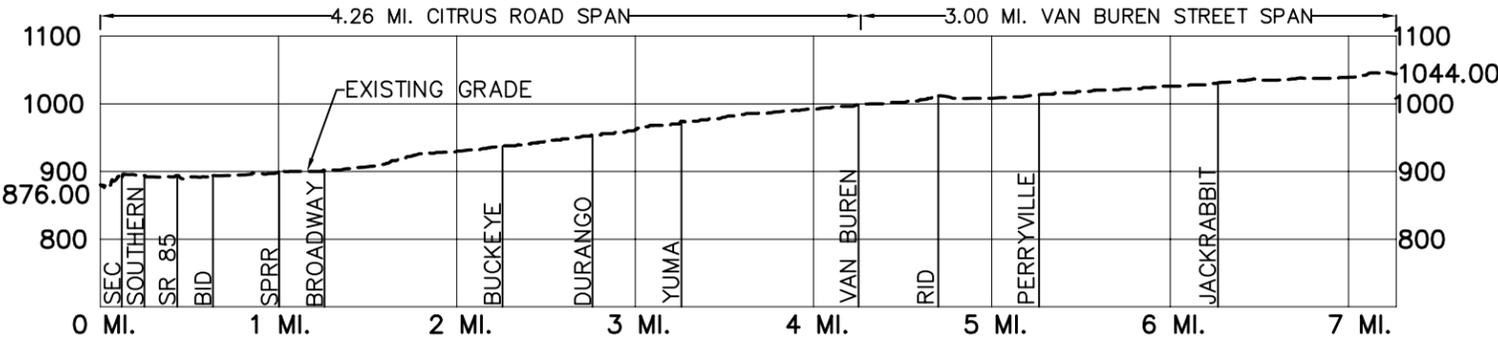
ALTERNATIVE 5 COST ESTIMATE - 38,376 LF	
Open Channel - Not feasible	
Gravity storm drain - Not feasible	
Pressurized storm drain - Not feasible	

Advantages

- Not feasible

Disadvantages

- Not feasible



ALTERNATIVE 5:

Alternative 5: Facility east along Van Buren Road, then south along Citrus Road to the Gila River.

Open Channel

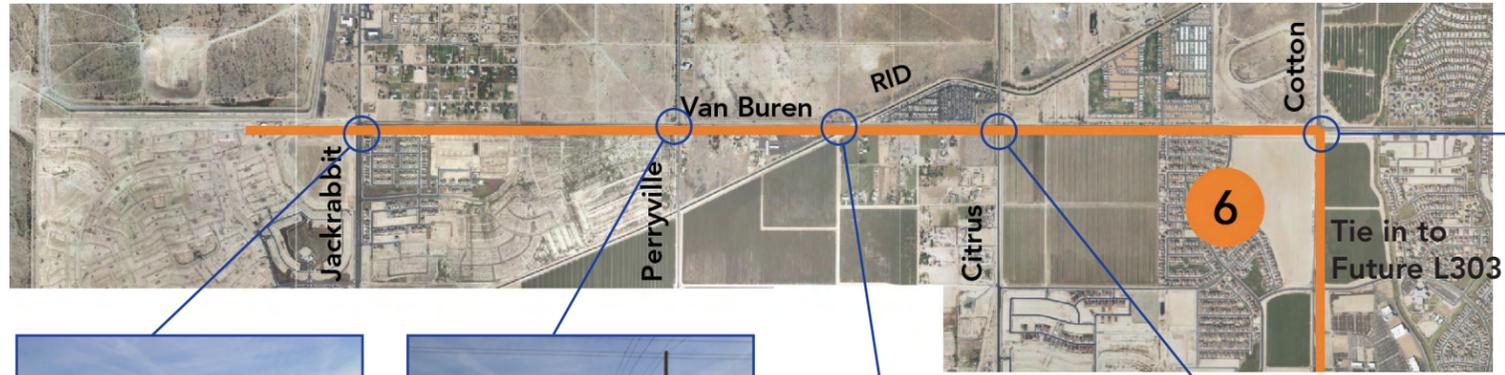
There are significant grade issues along the southern portion of this project. The bank of the Gila River at this location appear to be at an elevation of approximately 895 with a ground surface elevation of approximately 892 approximately 3,500 linear feet upstream. Additionally, the 100-yr wse is approximately 894 at this location, which would require a significant portion of this channel to be perched within the lower reach.

Gravity Storm Drain

Construction of a gravity storm drain does not appear to be feasible within this reach. The bottom of the APS 96-inch effluent line is at an elevation of 877 with a top of pipe elevation of 887 3,500 feet upstream makes this option difficult.

Pressure Storm Drain

A pressure storm drain would not be able to drain unless it could be constructed over the 96-inch effluent line which has approximately 4' of cover. This would require daylighting the SD into a channel much further upstream into an open channel, which would require right of way acquiring properties containing structures. This along with other items listed for this alternative was considered enough to determine that this option would not be advantageous when compared to other alternatives.



ALTERNATIVE 6 COST ESTIMATE - 17,074 LF
Open Channel - Not feasible
Gravity storm drain - 14,750,498 ⁽¹⁾
Pressurized storm drain - Not evaluated

(1) Does not include costs to upsize Loop 303 channel

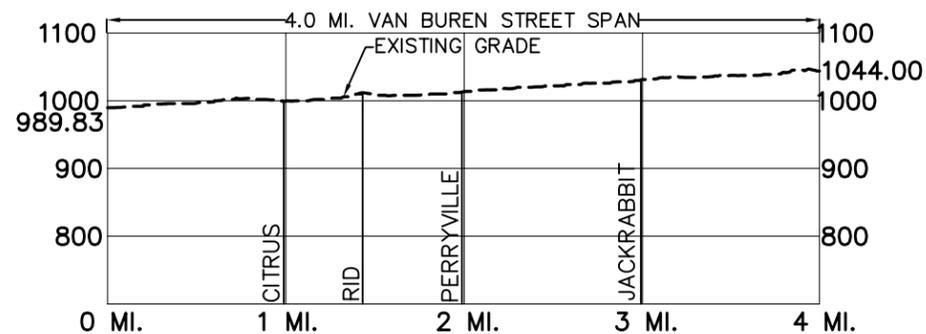
Advantages

- Gravity storm drain
- Potential to incorporate street drainage
- Fewest major utility impacts
- Potential for no new R/W
- Discharge to FCDMC facility

Disadvantages

- Costs of upsizing Loop 303 to accept the ST FRS discharge of 300cfs⁽²⁾
- Need to redo Loop 303 hydrology and resize channel
- Require upsizing of Loop 303 major utility crossings.
- Will cross RID

(2) The White Tanks FRS #4 is currently looking at utilizing two structures for discharge. The first structure would discharge 100 cfs through an un-gated structure. The second structure would be gated to provide a delay of one or two days for the release of the additional required 200 cfs allowing the Loop 303 drainage channel a couple of days to drawdown and provide capacity for the White Tanks FRS#4 flow. The NCRS requires a 10 day drawdown for the White Tanks FRS#4 facility. The final design will need to evaluate and assess the level of risk associated with the staged discharging of 100 cfs and 200 cfs versus the design capacity of the 303 drainage channel to determine if upsizing is required.



ALTERNATIVE 6:

Alternative 6: Facility east along Van Buren Road, then south within the Loop 303 drainage system.

Open Channel

The overall grade for this alignment is relatively good and consistent with approximately 0.0025'/ft along the length of the alignment. However, the RID is raised significantly, and more importantly, this reach is partially developed along both the north and the south side of the roadway which would require significant right of way acquisitions for a channel.

Gravity Storm Drain

Constructing a gravity storm drain appears to be a good option for this alternative. With a slope of 0.0025'/ft, a 84-inch storm drain would be required. One major advantage to this alternative is that this storm drain has the potential to provide roadway drainage along 3 miles of Van Buren. This should be reviewed as the Loop 303 channel hydrology is evaluated.

Pressure Storm Drain

A pressure storm drain is viable for this alternative and could potentially reduce the size of the storm drain by 6-inches to a 78-inch. However, costlier access (no manholes would be possible) and more expensive joints would likely not create any cost savings. Additionally, there would not be the option of collecting storm drainage along Van Buren.

Utilities

This facility would have to cross RID but would avoid the crossings associated with the other alternatives. The Loop 303 crossings of the BID, the APS 96-inch effluent line, the Kinder Morgan petroleum line, and UPRR will have to be upsized. However, these crossings will have to occur anyway and this route will eliminate one crossing for each of these utilities.

Existing ROW

Discussion of the impacts will start at the FRS #4 outfall and progress along the alignment to the eventual outfall at the Loop 303 alignment.

- ***For the first mile heading east from the FRS #4 outfall, no existing Right of Way exists for roadway. The adjacent development to the south is heavily subdivided and dictates that alignment of drainage infrastructure will need to be located along the north parcel owned by the Liberty School District. It should be noted that this lack of R/W could be eliminated if the discharge structure could be moved to the east end of FRS #4.***
- The alignment continues east and between Jackrabbit and 191st Avenue, with a ROW of approximately 116'. Existing development is located to the north and south in this area.
- Between 191st Ave and Perryville Road, the ROW expands to 150' wide.
- Between Perryville Road and the RID ROW, the ROW width varies depending upon adjacent parcel alignment but averages approximately 85' wide.
- Between the RID and Citrus Road, the ROW width averages 95' wide.

- Between Citrus Road and Cotton Lane RV Park Entry, the ROW width averages 124' wide.
- Between Cotton Lane RV Park Entry and the future Loop 303 alignment, the ROW width averages 86' wide.

The jurisdiction of the ROW along Van Buren Street is managed almost equally between Maricopa County Department of Transportation, City of Goodyear, Town of Buckeye. The Loop 303 ROW is managed by ADOT.

Alternative 6 – Advantages and Disadvantages

Advantages

- Gravity storm drain
- Principal Outlet at White Tanks FRS No. 4 is currently being designed on the east side
- Potential to incorporate street drainage
- Lowest overall cost
- Fewest major utility impacts
- Potential for no new right of way
- Discharges to FCDMC facility

Disadvantages

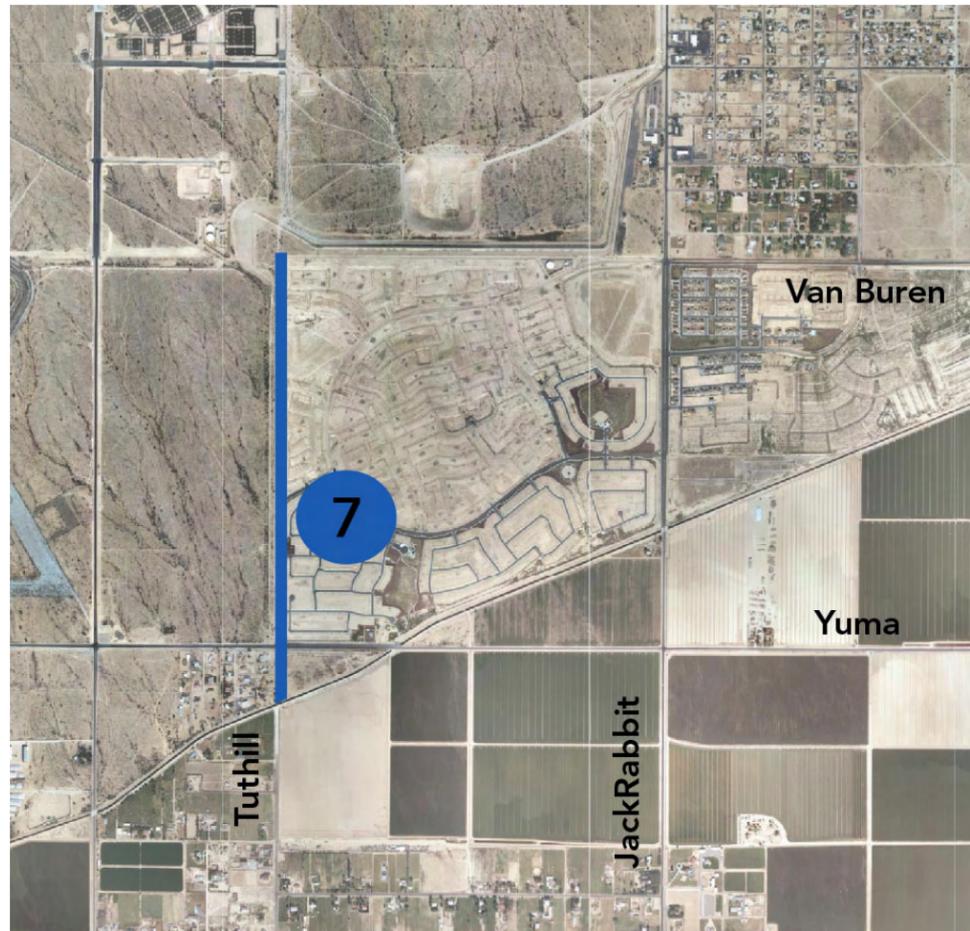
- Costs of upsizing Loop 303 to accept the WT FRS discharge of 300 cfs*
- Need to redo Loop 303 hydrology and resize channel
- Require upsizing major utility crossings

Costs

DESCRIPTION	UNIT	PRICE	Alternative 6	
			QTY	COST
Easement	Acre	\$15,000	3.7	\$55,500
84-inch RGRCP - Gravity	LF	\$480	21074	\$10,115,520
84-inch RGRCP - Pressure	LF	\$580		\$0
Surface Paving	SY	\$75	8737	\$655,275
Utility Crossings	EA	\$100,000	1	\$100,000
				\$10,926,295
				\$3,824,203
				\$14,750,498**

*The White Tanks FRS #4 is currently looking at utilizing two structures for discharge. The first structure would discharge 100 cfs through an un-gated structure. The second structure would be gated to provide a delay of one or two days for the release of the additional required 200 cfs allowing the Loop 303 drainage channel a couple of days to drawdown and provide capacity for the White Tanks FRS#4 flow. The NCRS requires a 10 day drawdown for the White Tanks FRS#4 facility. The final design will need to evaluate and assess the level of risk associated with the staged discharging of 100 cfs and 200 cfs versus the design capacity of the 303 drainage channel to determine if upsizing is required.

**Does not include a cost for the upsizing of the Loop 303 drainage channel.



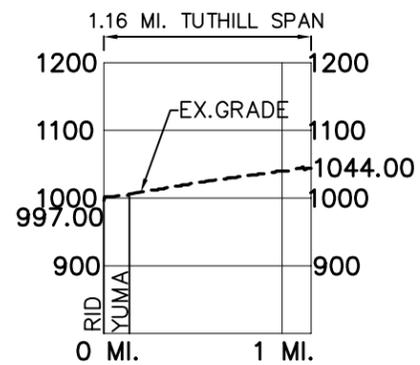
ALTERNATIVE 7 COST ESTIMATE -6,143 LF	
Open Channel	- Not feasible
Gravity storm drain	- Not feasible
Pressurized storm drain	- Not feasible

Advantages

- Not feasible

Disadvantages

- Not feasible

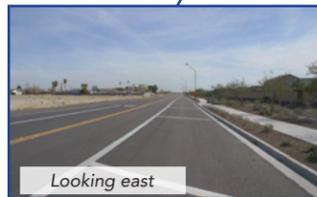
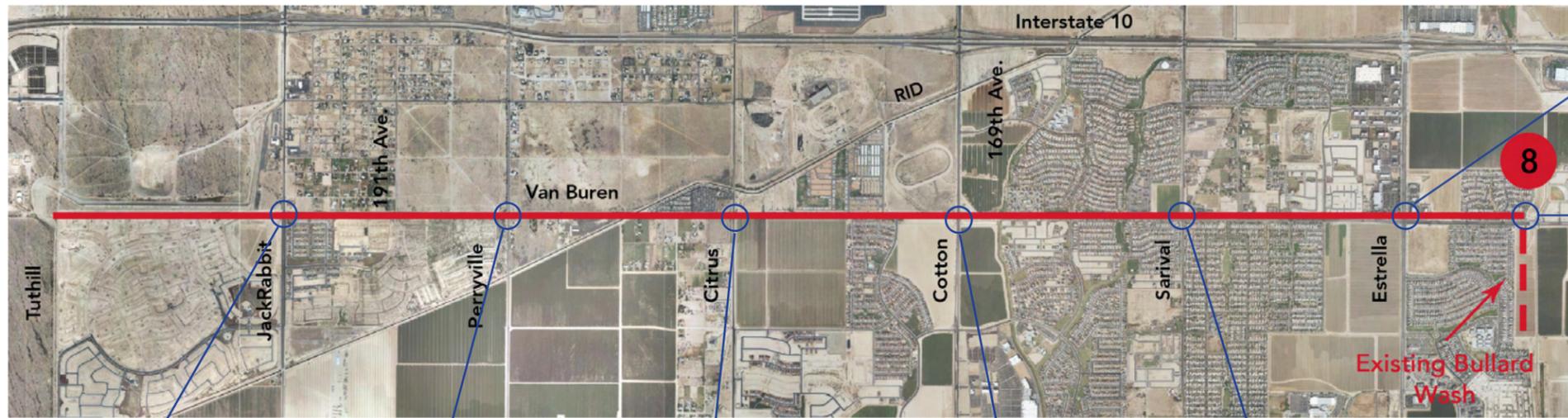


ALTERNATIVE 7:

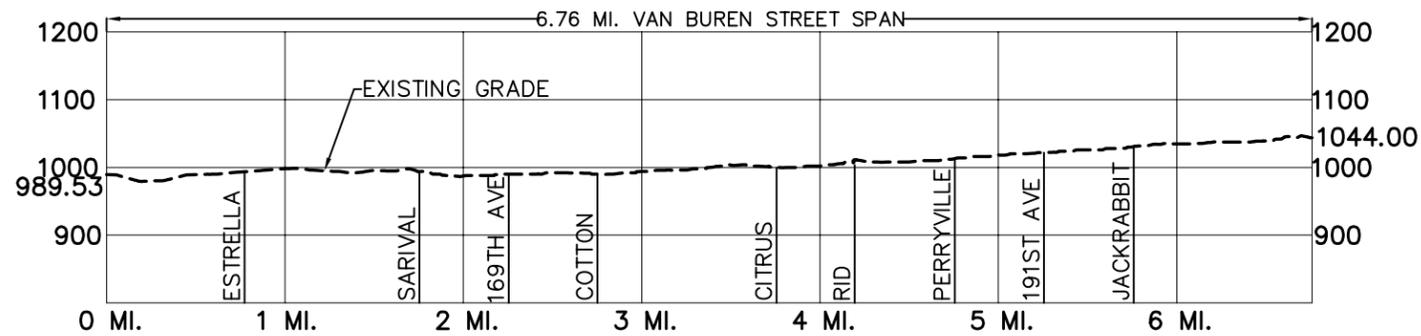
Alternative 7: Facility to discharge into the RID canal.

Introduction

A meeting was held with Roosevelt Irrigation District on Friday, January 29th in which RID indicated that they would not be able to accept discharge from FRS #4. Therefore, this alternative is not a viable option.



ALTERNATIVE 8 COST ESTIMATE - 33,888 LF	
Open Channel -	Not feasible
Gravity storm drain -	Not feasible
Pressurized storm drain -	Not feasible



Advantages

- Not feasible

Disadvantages

- Not feasible



ALTERNATIVE 8:

Alternative 8: Facility east along Van Buren street to discharge into Bullard Wash.

Introduction

This alternative was introduced during the January 21st progress meeting. Bullard Wash outlets at an elevation of 980. The existing ground elevation approximately 1 mile upstream is at 991, and with a 84" pipe size that would only allow 1' of cover, even to make the pipe flat. This would result in the pipe having a low point or being buried at the outlet making this option not feasible.

V. PREFERRED ALTERNATIVE

Alignment 6 has been selected as the preferred alternative. The preferred alternative alignment 15% design plans have been provided in Appendix D of this report.

Alignment 6 is approximately 17,074 LF and utilizes a gravity system from the east side of FRS #4 within Van Buren Street to Cotton Lane and the tie-in with the proposed Loop 303 drainage channel. The alignment is contained within existing Town of Buckeye, City of Goodyear and Maricopa County jurisdictional Rights of Way. No new additional Right of Way should be required at this point. Utility companies and agencies that have been contacted and utility potholing was a part of the 15% design plans. This utility information can be found in Appendix A of this report.

The FRS #4 Dam Rehabilitation and NRCS Riser plans are currently at the 60% design development stages. The NRCS Riser location was initially set at the west end of the FRS #4 facility near Tuthill Road. The FRS #4 project will design the NRCS Riser to the east end of the FRS #4 facility near the Van Buren Street and Jackrabbit Trail intersection. The outlet would connect to a structure / stilling basin located out the FRS #4 FRS. From this connection the outlet would continue to the east along Van Buren Street to Cotton Lane.

RIGHT OF WAY

Right of Way is available along the entire alignment except at the Blue Horizon Channel which is located along the northern frontage of the Blue Horizon residential development. The FRS #4 outlet alignment 6 requires approximately 443 feet of Right of Way in this area. The Blue Horizon Channel was constructed within a 55' wide land right granted to MCDOT in 1963 for a roadway easement. This MCDOT land right does not allow drainage channels or structures to be located within the 55' roadway easement area. The FCDMC was presented with two options by the Arizona State Land Department regarding the land acquisition of this MCDOT land right. This 55' wide MCDOT land right extends along the FRS 4 southern property frontage from Tuthill Road ending approximately 601.25' from the Jackrabbit Trail intersection. The remaining 601.25' of land west of the Jackrabbit Trail center line encompasses a 65 ft new right of way dedication south of the Van Buren Street alignment. This right of way was dedicated as a part of the Jackrabbit Crossing Final Plat and was recorded on July 30th, 2008.

HYDRAULICS

Storm CAD was used to evaluate the hydraulics for Alignment No 6. This software uses backwater analysis and calculates hydraulic grade line profiles based on the energy equation.

The storm drain alignment model was set up in Storm Cad using to project flow of 300 cfs. The preliminary Storm CAD analysis was performed with a tailwater elevation at the crown of pipe and a head loss coefficient of 0.2 at each straight run manhole. Please refer to Table 7-5a from HEC-22 manual for Head loss coefficients values for straight run manhole. 2-6 x 4 box transition structure was designed along the proposed alignment no.6 to avoid the obstruction due to the existing canal. One foot of head loss was used at each of the transition structures at the RID.

The result of the storm drain hydraulics shows that the majority of the storm drain pipe flows full at the design discharge with the hydraulic grade line (HGL) at least one foot below the rim elevation except one location at "Junction 9", where the HGL is only 0.5 ft below the rim elevation. Please refer to Appendix E for the Storm CAD output.

The White Tanks FRS #4 storm drain is a dedicated outlet system for the dam to the loop 303 drainage channel which has been sized based on NRCS requirements and regulations. The addition of catch basins to convey secondary street drainage along Van Buren Street into the White Tanks #4 storm drain may be considered for evaluation during final design. Any upsizing to this dedicated storm drain will be at the expense of the partnering City or others.

UTILITY CROSSING REQUIREMENTS

Water Line Crossing Requirements:

Water line crossings will require a minimum 2ft separation from bottom of water line. A concrete encasement as per MAG Standard Detail 404-1 & 404-2 will be required when the 2 ft minimum separation cannot be achieved. Since the proposed White Tanks #4 storm drain is below all existing water lines there will not be a need to dip any existing water lines around the proposed storm drain.

Sanitary Sewer Line Crossing Requirements:

Sanitary sewer line crossings will also require a minimum 2 ft separation from the bottom of the proposed storm drain pipe. When a storm drain crossing of an existing PVC sanitary sewer main does not meet the 2 ft separation clearance a replacement of the PVC sanitary sewer pipe segment with a ductile iron pipe segment will be required. This replacement ductile iron pipe segment within the sanitary sewer main will also require a concrete encasement at the pipe crossings.

Roosevelt Irrigation District Canal Crossing Requirements:

Crossing underneath the RID canal will need to be timed with the RID dry up season which is an 11 day window in November. Jack and Bore is acceptable for pipe. Open trench excavation requirements require 4 ft cover from the bottom of canal (nothing less than 2ft and slurry would be required).

ALIGNMENT

The alignment heads to the east along Van Buren Street resulting in the following intersection crossings:

Jackrabbit Trail

The northwest Corner is currently zoned for commercial development, but has not been developed at this time. This area of the alignment is within Town of Buckeye Jurisdiction and a proposed site plan has been developed for this seven acre commercial piece showing two driveway ingress/egress points west of the Jackrabbit Trail/Van Buren Street intersection. These driveways would be accessed by a private drive along the Van Buren Street alignment.

The northeast corner is home to Orangewood Farms an older residential development with larger home lots. The southwest corner is also zoned for commercial development and is part of the Blue Horizon residential subdivision development which is currently under construction. The southeast corner is a recently constructed residential development called Vista De Montana.

Jackrabbit Trail is currently at the ultimate street section with curb and gutter improvement south of the Van Buren Street intersection and continues to the north as a two lane asphalt edge roadway. Van Buren east of the intersection has half street improvements with curb and gutter along the south side and asphalt edge pavement along the north.

The proposed alignment is located along the north side of Van Buren Street within the right of way taking advantage of non paved, undeveloped area.

Utilities within this intersection include:

Arizona Water Company 12-Inch DIP Well Supply Line traveling east to west within Van Buren Street approximately 28' south of the Van Buren Street Center Line. This line ties into a water facility located within the Blue Horizon Development (just south of the FRS #4 area). The depth of this line is approximately six feet in depth. At the intersection of Jackrabbit Trail the Well Supply Line has an invert of 1024.53 with the pavement elevation around 1032+/-.

Arizona Water Company has a 12-inch DIP Water Line traveling east to west within Van Buren Street approximately 11' south of the Van Buren Street Center Line. The depth of this line is approximately four feet in depth. At the intersection of Jackrabbit Trail this water line has an invert of 1027 with the pavement elevation around 1032+/-.

Jackrabbit has a 12-inch DIP water line traveling to the north that is approximately 13 feet east of the Jackrabbit Trail Center Line. This line would need to be crossed by the proposed storm drain. The invert elevation of this 12-inch water line is approximately 1027.20 with pavement around 1035.

There is a 15-inch Sanitary Sewer within Jackrabbit that has a manhole 8 feet north of the Van Buren Street Center Line. The approximate invert is 1016.86 with the pavement elevation at the intersection around 1032-1033. This sanitary sewer line carries flows south and there are no sanitary sewer lines within Van Buren Street. This sewer line can be avoided as we have room north of Van Buren Street for the storm drain alignment.

Southwest Gas Company has a 12-inch diameter steel high pressure gas line that is within Jackrabbit Trail at a depth of 11 feet. This has been verified by potholing. A 4-inch PE gas line is also located within Jackrabbit Trail. The alignment crosses both of these gas lines. Southwest Gas also has a 1-1/4-inch steel gas line 20 feet south of the Van Buren Street Center Line starting from the Jackrabbit Trail/Van Buren intersection.

Cox Communications also has a series of 2-inch conduits that are within Van Buren Street and Jackrabbit Trail. These lines have been verified by potholing as well.

APS overhead power has been tiled underground along the Vista De Montana subdivision along the south side of Van Buren Street.

Street Light Poles have been installed along the south side of Van Buren Street.

Perryville Road

The northwest and southwest corners are undeveloped land that has been zoned for residential. The northeast and southeast corners are also undeveloped land that has been zoned for commercial development.

The Perryville intersection is an unimproved two lane intersection in both the north/south and east/west directions. The Town of Buckeye jurisdiction exists west of the intersection and Maricopa County jurisdiction is east of the intersection.

The proposed alignment is located along the north side of Van Buren Street within the right of way taking advantage of non paved, undeveloped area.

Utilities within this intersection include:

There is a 15-inch Sanitary Sewer line that is approximately 8 feet north of the Van Buren Street Center line. The proposed storm drain line can avoid crossing this sewer by staying north of Van Buren Street. The proposed storm drain alignment avoids crossing of this sanitary sewer line. The depth of the sewer line has been verified for future sanitary sewer improvements that would extend to the north.

Sprint/MCI has a Fiber Optic line that travels North/South along the west side of Perryville Road. This line is approximately six feet in depth and has been verified by potholing.

There are existing Cox Communications CATV conduits traveling North/South along the west side of Perryville Road. The depth of these lines is approximately 5 feet. These lines have been verified by potholing.

Southwest Gas has a gas line traveling North/South along the west side of Perryville Road. There is also a southwest gas line within Van Buren Street South of the Van Buren Street Center Line.

Roosevelt Irrigation District Canal

The Roosevelt Irrigation District canal crosses diagonally underneath Van Buren Street. The roadway rises up at the crossing of the canal. The top of bridge elevation at the center of the canal has been verified by survey forces at an elevation of 1009.31 with the bottom of canal at 997.81. The RID concrete canal lining consists of an 8-inch thick reinforced concrete section. The RID has a well monitoring station at the southwest corner of the intersection. The surrounding area within this intersection is undeveloped or existing residential. The right of way jurisdiction in this area is Maricopa County.

The proposed storm drain alignment travels along the north side of Van Buren Street north of the edge of pavement. The crossing of the RID canal occurs from the west to east with a perpendicular crossing prior to the bridge/box of Van Buren Street over the canal. Two transition structures would be required to transition from the 84-inch storm drain into and out of the two barrel 6'x4' box culvert. The alignment continues along the south side of Van Buren Street continuing to the east.

Utilities within this intersection include:

AT&T has two phone lines that cross Van Buren Street west of the RID canal which follow the canal alignment. The first line is the Phoenix to Buckeye Cable Phone Line which consists of five 2-inch conduits at a depth of 4.1' from existing grade. The second line is the transcontinental fiber optic Line which was verified by potholing to be a 3/4" direct buried cable with a 6.3' cover depth.

Citrus Road

The Citrus Road and Van Buren Street intersection is a four way stop intersection with two lanes and left hand turning lanes in each direction. The intersection is asphalt edge without curb and gutter improvements. The surrounding corners are all undeveloped, but zoned for commercial development. This intersection is within the City of Goodyear Right of Way and jurisdiction.

The alignment continues along the south side of Van Buren Street and is pushed into the street pavement due to an existing Southwest Gas meter and line and the existing irrigation canal.

Utilities within this intersection include:

A private concrete lined irrigation channel exists along the south side of Van Buren Street with a 30-inch concrete pipe culvert crossing along the east side of Citrus Road.

Qwest local network telephone has a 1-1/4-inch direct bury cable phone line along the south side of Van Buren Street. This telephone line was verified by potholing to be at a depth of 3.2 ft.

Southwest Gas has a 1-3/4-inch steel gas line south of Van Buren Street. This gas line was also verified by potholing and has a depth of 2.59 ft.

Cotton Lane

Cotton Lane is a fully improved signalized intersection with curb and gutter improvements at the intersection returns. The surrounding corners are undeveloped land as Cotton Lane is the future Loop 303 alignment. The jurisdictional right of way at the intersection is City of Goodyear.

The alignment continues within the Van Buren Street pavement along the south side of the street. The Canyon Trails residential subdivision development ends at 173rd Avenue which is approximately 1,300 ft from the Cotton Lane intersection.

Utilities within this intersection include:

The City of Goodyear does have a 24-inch DIP water line within Van Buren Street along the South Side of the Van Buren Street Centerline.

The City of Goodyear also has a 12-inch PVC sanitary sewer line along the south side of Van Buren Street. The horizontal and vertical information for this recently constructed sewer line was collected by Olsson surveyors.

Southwest Gas has a 1-3/4-inch steel gas line south of Van Buren Street. This gas line was also verified by potholing and has a depth of 2.59 ft.

Qwest local network telephone has a 1-1/4-inch direct bury cable phone line along the south side of Van Buren Street. This telephone line was verified by potholing to be at a depth of 3.2 ft.

A private concrete lined irrigation channel exists along the south side of Van Buren Street ending prior to the Cotton Lane intersection. This irrigation channel continues to the south along Cotton Lane.

VI. FINAL DESIGN

Design Flow

The White Tanks FRS#4 storm drain is a dedicated outlet system for the dam to the loop 303 drainage channel which has been sized based on NRCS requirements and regulations. The discharge rate of 300 cfs from White Tanks FRS No. 4 is an estimate and will be refined / finalized in the final design. The White Tanks FRS#4 outlet design team must verify the FRS #4 discharge rate with the FRS #4 rehab design team.

Catch Basin Evaluation

The evaluation of adding catch basins to convey secondary street drainage along Van Buren Street into the White Tanks #4 storm drain may be considered during final design. Any upsizing to this dedicated storm drain will be at the expense of the partnering City or developer.

Project Coordination

The White Tanks FRS #4 pipe outlet will require close project coordination between two key projects: The FRS #4 Facility Rehabilitation Design Team and the Loop 303 Drainage Design Team.

The FRS #4 facility rehab design team is currently at 60% design and has moved the principal spillway location from the west end of the FRS #4 near Tuthill Road to the east end closer to Jackrabbit Trail. The outlet team will need to coordinate the connection of the facility to the storm drain outlet including the drop structure location and pipe elevation with the FRS # 4 facility stilling basin location. The outlet team will need to know fairly early in the design process where the stilling basin location will be for the storm drain tie-in. Once this is provided by the FRS #4 rehab design team the outlet design team can determine an elevation range for the outlet storm drain based on cover requirements.

The White Tanks FRS #4 is currently looking at utilizing two structures for discharge. The first structure would discharge 100 cfs through an un-gated structure. The second structure would be gated to provide a delay of one or two days for the release of the additional required 200 cfs allowing the Loop 303 drainage channel a couple of days to drawdown and provide capacity for the White Tanks FRS#4 flow. The NCRS requires a 10 day drawdown for the White Tanks FRS #4 facility.

The final design will need to evaluate and assess the level of risk associated with the staged discharging of 100 cfs and 200 cfs versus the design capacity of the Loop 303 drainage channel to determine if upsizing of the Loop 303 drainage channel is required. Close coordination between the FRS #4 outlet design team and the Loop 303 drainage channel design team will also need to occur in order to verify the available capacity of the Loop 303 channel. Operational and maintenance coordination will also need to be coordinated between the two facilities to insure the NCRS 10 day drawdown requirements are met.

IV. SELECTION OF PREFERRED ALTERNATIVE

As a part of the Alternatives evaluation, Alternatives 3A and 6 were the two receiving the highest ranking. Additionally, Alternative 3 was also determined to have some merit. The project team met to discuss the initial evaluation.

The project team agreed that there was a substantial difference in the length of the Alternatives evaluated and that many of the longer alignments would not be economically feasible when compared to the preferred alternatives.

The two alternatives receiving the highest ranking (3A and 6) were both significantly shorter than the other alternatives. This was primarily due to the fact that these facilities discharge into the BID and the Loop 303 channel, and those facilities convey flow to the Gila River. A benefit is that discharge from FRS #4 will not need to begin for approximately 3 days to drain the FRS #4 in the 10 days required by NRCS. However, because this discharge will require capacity that is used for other flows coordination will need to occur before any discharge is allowed.

As the project team met to discuss the alignment alternatives and identify opportunities and constraints, optional alignment alternatives were considered. These options looked at refining alignments 2, 3 and 4 to utilize existing channels and drainage ways. Alignments 2 and 3 looked at utilizing a tie in to the Watson Drain alignment. Alignment 4 looked at tying into the Suzy Dean Drain alignment. During the refinement of alternatives, alignment 3A looked at tying into the Buckeye Water Conservation Drainage District Canal from Tuthill Road. This alignment emerged as a more cost effective alignment due to the length of run in comparison to alignments 2, 3 and 4 which utilized tie-ins with the Watson Drain and Suzy Dean Drain alignments.

The team discussed the two highest ranked alternatives including the following.

Alternative 3A would be a partial ADMP solution as there is an opportunity to utilize the Watson Drain as a storm water waste way. The idea of a combination storm drain and open channel was viewed as an option for this alternative. The storm drain would be utilized from the FRS #4 structure down and under the Roosevelt Irrigation District Canal into an open channel that would tie-into the BWCCD canal. The grades work well for an open channel in this area, however the open channel would allow direct stormwater flows into the BWCCD canal which is not allowed. Therefore a storm drain system would have to be utilized from the FRS #4 to the BWCCD canal.

The capacity of the BWCCD at this point in the canal is approximately 400 to 450 cfs. This alternative would require a gated structure at the FRS #4 as the BWCCD would need 3 to 4 hours to divert flows from the canal to the Agua Fria in order to provide capacity for the FRS #4 outlet.

The BWCCD would allow this system to be utilized; however it would likely require several improvements be made to their canal at the expense of the Flood Control District of Maricopa County. The canal is currently unlined and the BWCCD would require the FCDMC to line the portion of canal utilized for the FRS #4 outlet. Additional improvements to the BWCCD Canal would also be required. The BWCCD Irrigation

and Drainage System Relocation Guidelines have been included in Appendix F of this report. The decision to allow the FCDMC to utilize the canal for drainage purposes would ultimately come from the BWCDD Board of Directors.

Alternative 6 begins at the FRS #4 structure and continues east along Van Buren Street until reaching Cotton Lane where the alignment would tie-in with the Loop 303 drainage alignment. There are two options regarding taking flows to the Loop 303 system. One would be to increase the Loop 303 system by 300 cfs to accommodate White Tanks #4 flows. The second would be to gate or partially gate the White Tanks #4 outlet, such that flows could be released once the Loop 303 system has sufficient capacity. Regarding timing of construction for each project, we can assume the White Tanks #4 outlet will not be connected until the Loop 303 system is in place. Close coordination with the Loop 303 drainage channel project will be required to insure the 300 cfs from the FRS #4 outlet is included with the Loop 303 channel sizing.

Right of way was also a question in regards to the existing Blue Horizon drainage channel which is currently located within a 55 ft wide land right granted in 1962 to Maricopa County (MCDOT) along the Van Buren road alignment at White Tanks FRS #4. This existing land right document as verified with the Arizona State Land Department (ASLD) does not allow for the construction of a drainage channel within this 55 ft wide area. The Arizona State Land Department has suggested either having ASLD dedicate the land right to Buckeye or submitting a right-of-way application and pay for the land right that authorizes a drainage channel. If the FCDMC was to purchase this land this channel could potentially be upsized to accommodate 300 cfs and tie-in with the alternative 6 alignment.

The FRS #4 dam rehab project is currently in design and initially located the riser at the west end of the FRS; however the design team has moved the location to the east end. This eliminates approximately 4,000 LF of outfall infrastructure for this alignment. This alignment does allow the outlet system to utilize a gravity drain system from the FRS #4 structure to Cotton Lane.

Based on the Alignment Study and the discussions above, Alignment 6 was selected as the preferred alternative.

APPENDIX A
POTHOLE DATA SUMMARY
&
UTILITY INFORMATION COLLECTION METHODOLOGY

FRS #4 Utility Information Collection Methodologies

The White Tanks FRS #4 Outlet Alignment study utilized the following steps to acquire utility mapping and as-built plan information.

1. Bluestake Design Ticket Request for each specific alignment considered in the FRS #4 alignment outlet study.
2. Identification of Utility Company, type of utility, and contact with phone number.
3. Send out Utility Mapping / Conflict Requests to obtain mapping / as-built information. Collection of Utility Mapping from Utility companies identified from the Bluestake Design Ticket Request.
4. Meetings with Roosevelt Irrigation District, Buckeye Water Conservation & Drainage District, Town of Buckeye, W.C. Scoutten, and City of Goodyear to acquire as-built plans.

Step 1: Bluestake Design Ticket Request

The first step required individual Bluestake Design Ticket requests for each of the six alignments. Alignment 3A, Alignment 7, and Alignment 8 were new alignments added to the study which overlapped the original six alignments. Bluestake Design Tickets were generated for each specific alignment. Please see the appendix for copies of the Bluestake Design Tickets.

Step 2: Creation of Utility Contact Listings for each Alignment

This resulted in six individual Utility Contact spreadsheets providing utility, company, and contact/phone information for each alignment. These spreadsheets can be found at the end of this Utility Memo.

Step 3: Utility Mapping and Conflict Requests

Utility Mapping request letters were mailed to the utility companies identified in the Bluestake Design Ticket. Map information / as-built plan information collected is tracked within the Master Utility Information Spreadsheet. Utility Conflict review personnel and addresses are also collected and compiled within the Master Utility Information Spreadsheet. Please see the appendix to this Utility Memo for this spreadsheet.

Step 4: Meetings to acquire As-built Plan information

The project team has a series of meeting with the following agencies / utility companies to acquire as-built plan and utility crossing requirement information.

The RID and BWCCD both utilize Stantec Consultants for engineering services. Olsson associates and the FCD district met with both the RID and BWCCD on potential alignment opportunities as well as understanding of crossing requirements for both the RID and BID canals.

Olsson met with City of Goodyear's engineering and records department to request as-built plans for water and sanitary sewer within Van Buren Street to help further refine Alignment #6.

Olsson met with the Town of Buckeye and was referred to W.C. Scoutten for all Town engineering as-built information. As-built plans were provided from W.C. Scoutten.

As-built plans were received from APS for the Palo Verde 96" effluent water line which provide plan and profile information for this line.

Alignment #6 is currently being refined to help determine and identify potential utility pothole locations.

The following tables provide the utility information for the six individual alignments with corresponding bluestake tickets.

Alignment #1 corresponds to Bluestake Design Ticket #2010-011100345, 2010-011100365, & 2010-011100394.

FRS #4 DCR - ALIGNMENT 1 UTILITY CONTACT LIST			
Company	Utility	Number	Name
AT&T	Coaxial cable & FO	800.241.3624 ext. 0	LSAC Group
APS	Electric	602.493.4225	ELM Locating
	Water	602.493.4225	Tammy Malinak
AZ Water Company	Water	623.853.9302	Tom Seuberling
Buckeye Water Conservation & Drainage District	Electric & IRR	623.386.2196	Larry Owens
Cox Communications	Cable TV & FO	623.328.4073	Gwendalyn Garcia
Kinder Morgan Energy	Petroleum	602.278-8564	Dan Tarango
Level 3 Communications	FO	877.366.8344	Judy Henry
MCI	FO	800.289.3427	Supervisor on duty
Qwest Communications Network	FO	303.707.3680	Tom Sturmer
Qwest Local Network	Coaxial cable & FO	623.869.0820	ELM Locating
Roosevelt Irrigation District	IRR	623.386.2046	Ken Craig
Southwest Gas	Natural Gas	623.780.3350	ELM Locating
	HP Gas	602.484.5345	Andy Lugo
Sprint Communications	FO	800.521.0579	Dispatcher
Valencia Water Company	Water	602.550.5200	Mark Duhamell
Water Utilities of Greater Buckeye	Water	623.882.4030	Rick Davis
Bluestake Request Date:	1/11/2010		
Bluestake Job Number:	2010-011100345	2010-011100365	2010-011100394

Alignment #2 corresponds to Bluestake Design Ticket #2010-011100421

FRS #4 DCR - ALIGNMENT 2			
UTILITY CONTACT LIST			
Company	Utility	Number	Name
AT&T	Coaxial cable & FO	800.241.3624 ext. 0	LSAC Group
APS	Electric	602.493.4225	ELM Locating
	Water	602.493.4225	Tammy Malinak
AZ Water Company	Water	623.853.9302	Tom Seuberling
Buckeye Water Conservation & Drainage District	Electric & IRR	623.386.2196	Larry Owens
Cox Communications	Cable TV & FO	623.328.4073	Gwendalyn Garcia
Kinder Morgan Energy	Petroleum	602.278-8564	Dan Tarango
Level 3 Communications	FO	877.366.8344	Judy Henry
MCI	FO	800.289.3427	Supervisor on duty
Qwest Communications Network	FO	303.707.3680	Tom Sturmer
Qwest Local Network	Coaxial cable & FO	623.869.0820	ELM Locating
Roosevelt Irrigation District	IRR	623.386.2046	Ken Craig
Southwest Gas	Natural Gas	623.780.3350	ELM Locating
	HP Gas	602.484.5345	Andy Lugo
Sprint Communications	FO	800.521.0579	Dispatcher
Bluestake Request Date:	1/11/2010		
Bluestake Job Number:	2010-011100421		

Alignment #3 corresponds to Bluestake Design Ticket #2010-011100437

FRS #4 DCR - ALIGNMENT 3			
UTILITY CONTACT LIST			
Company	Utility	Number	Name
AT&T	Coaxial cable & FO	800.241.3624 ext. 0	LSAC Group
APS	Electric	602.493.4225	ELM Locating
	Water	602.493.4225	Tammy Malinak
AZ Water Company	Water	623.853.9302	Tom Seuberling
Buckeye Water Conservation & Drainage District	Electric & IRR	623.386.2196	Larry Owens
Central Arizona Water Conservation District	Coaxial, Electric, FO, Water	623.869.2268	Doug Greffe
Cox Communications	Cable TV & FO	623.328.4073	Gwendalyn Garcia
Kinder Morgan Energy	Petroleum	602.278-8564	Dan Tarango
Level 3 Communications	FO	877.366.8344	Judy Henry
Maricopa Dept. of Transportation	Traffic Signals	602.506.8660	Steve Poole
MCI	FO	800.289.3427	Supervisor on duty
Qwest Communications Network	FO	303.707.3680	Tom Sturmer
Qwest Local Network	Coaxial cable & FO	623.869.0820	ELM Locating
Roosevelt Irrigation District	IRR	623.386.2046	Ken Craig
Southwest Gas	Natural Gas	623.780.3350	ELM Locating
	HP Gas	602.484.5345	Andy Lugo
Sprint Communications	FO	800.521.0579	Dispatcher
Water Utilities of Greater Buckeye	Water	623.882.4030	Rick Davis
Bluestake Request Date:	1/11/2010		
Bluestake Job Number:	2010-011100437		

Alignment #4 corresponds to Bluestake Design Ticket #2010-011100448

FRS #4 DCR - ALIGNMENT 4			
UTILITY CONTACT LIST			
Company	Utility	Number	Name
AT&T	Coaxial cable & FO	800.241.3624 ext. 0	LSAC Group
APS	Electric	602.493.4225	ELM Locating
	Water	602.493.4225	Tammy Malinak
AZ Water Company	Water	623.853.9302	Tom Seuberling
Buckeye Water Conservation & Drainage District	Electric & IRR	623.386.2196	Larry Owens
Central Arizona Water Conservation District	Coaxial, Electric, FO, Water	623.869.2268	Doug Greffe
City of Goodyear	Effluent, FO, Reclaimed Water, Sewer, Traffic Signals, Water	623.932-3010	Public Works & Water Resources Dept
Cox Communications	Cable TV & FO	623.328.4073	Gwendalyn Garcia
Kinder Morgan Energy	Petroleum	602.278-8564	Dan Tarango
Level 3 Communications	FO	877.366.8344	Judy Henry
MCI	FO	800.289.3427	Supervisor on duty
Qwest Communications Network	FO	303.707.3680	Tom Sturmer
Qwest Local Network	Coaxial cable & FO	623.869.0820	ELM Locating
Roosevelt Irrigation District	IRR	623.386.2046	Ken Craig
Southwest Gas	Natural Gas	623.780.3350	ELM Locating
	HP Gas	602.484.5345	Andy Lugo
Sprint Communications	FO	800.521.0579	Dispatcher
Valencia Water Company	Water	602.550.5200	Mark Duhamell
Water Utilities of Greater Buckeye	Water	623.882.4030	Rick Davis
Bluestake Request Date:	1/11/2010		
Bluestake Job Number:	2010-011100448		

Alignment #5 corresponds to Bluestake Design Ticket #2010-011100465

FRS #4 DCR - ALIGNMENT 5 UTILITY CONTACT LIST			
Company	Utility	Number	Name
AT&T	Coaxial cable & FO	800.241.3624 ext. 0	LSAC Group
APS	Electric	602.493.4225	ELM Locating
	Water	602.493.4225	Tammy Malinak
AZ Water Company	Water	623.853.9302	Tom Seuberling
Buckeye Water Conservation & Drainage District	Electric & IRR	623.386.2196	Larry Owens
Central Arizona Water Conservation District	Coaxial, Electric, FO, Water	623.869.2268	Doug Greffe
City of Goodyear	Effluent, FO, Reclaimed Water, Sewer, Traffic Signals, Water	623.932-3010	Public Works & Water Resources Dept
Cox Communications	Cable TV & FO	623.328.4073	Gwendalyn Garcia
Kinder Morgan Energy	Petroleum	602.278-8564	Dan Tarango
Level 3 Communications	FO	877.366.8344	Judy Henry
Maricopa Dept. of Transportation	Traffic Signals	602.506.8660	Steve Poole
MCI	FO	800.289.3427	Supervisor on duty
Qwest Communications Network	FO	303.707.3680	Tom Sturmer
Qwest Local Network	Coaxial cable & FO	623.869.0820	ELM Locating
Roosevelt Irrigation District	IRR	623.386.2046	Ken Craig
Southwest Gas	Natural Gas	623.780.3350	ELM Locating
	HP Gas	602.484.5345	Andy Lugo
Sprint Communications	FO	800.521.0579	Dispatcher
Cotton Lane RV Mobile Home Resort	Mobile Home Park	623.309.3023	Chip Jordan PO Box 74767, Phoenix, AZ 85087
Bluestake Request Date:	1/11/2010		
Bluestake Job Number:	2010-011100465		

Alignment #6 corresponds to Bluestake Design Ticket #2010-011100482

FRS #4 DCR - ALIGNMENT 6			
UTILITY CONTACT LIST			
Company	Utility	Number	Name
APS	Electric	602.493.4225	ELM Locating
	Water	602.493.4225	Tammy Malinak
Buckeye Water Conservation & Drainage District	Electric & IRR	623.386.2196	Larry Owens
Cox Communications	Cable TV & FO	623.328.4073	Gwendalyn Garcia
Kinder Morgan Energy	Petroleum	602.278-8564	Dan Tarango
Level 3 Communications	FO	877.366.8344	Judy Henry
MCI	FO	800.289.3427	Supervisor on duty
Qwest Communications Network	FO	303.707.3680	Tom Sturmer
Qwest Local Network	Coaxial cable & FO	623.869.0820	ELM Locating
Roosevelt Irrigation District	IRR	623.386.2046	Ken Craig
Southwest Gas	Natural Gas	623.780.3350	ELM Locating
	HP Gas	602.484.5345	Andy Lugo
Town of Buckeye	Water & Sewer	623.349-6800	Manual Alvarez
Valencia Water Company	Water	602.550.5200	Mark Duhamell
Bluestake Request Date:	1/11/2010		
Bluestake Job Number:	2010-011100482		

Appendix

Master Utility Tracking Spreadsheet

Bluestake Ticket Requests

	Utility Company	Utility	Locate Ph	Map Contact	Title	Phone	Address	Comment	Received Maps
1	AT&T	AT&T Phoenix to Blythe FTA Cable	1-800-241-3624	Walter Werstiuk	AT&T Cable Maintenance Engineer	925 977-2413	22311 Brookhurst Street, Ste: 203 Huntington Beach, CA 92646	Received Plan and Profile Plans dated 6-26-1985. Contact Mike McNeal, AT&T OSP Supervisor Ph: 480 827-6048, for Cable Location prior to construction.	1/25/2010
2	AT&T	AT&T Nextgen Link 13 Phoenix to Buckeye Conduit with Cable	1-800-241-3624	Walter Werstiuk	AT&T Cable Maintenance Engineer	925 977-2413	22311 Brookhurst Street, Ste: 203 Huntington Beach, CA 92646	Received As-Built Plans dated 07-2004 - Horizontal Alignment Only. Contact Mike McNeal, AT&T OSP Supervisor Ph: 480 827-6048, for Cable Location prior to construction.	1/25/2010
3	APS	Electric	602 493-4225 ELM Locators	Linda Park - Goodyear Sandl Greene - Buckeye	Customer Service Representative	623 975-5742 623 975-5747	Mail Station 3876 2133 W. Peoria Avenue, Phoenix, AZ 85040	Received Electronic Mapping Files showing Electrical Distribution, Transmission, PLSS, and Streets from Drew Tranberg on 01-19-2010	1/20/2010
4	Palo Verde Nuclear Generating Station	Water Reclamation Supply System Gravity Flow Pressure Pipe Line	602 493-4225 ELM Locators	Tammy Malmak	Palo Verde	602 493-4225		Received As-Built Plan and Profile Plans dated 06-26-2001.	2/4/2010
5	Arizona Water Company	Water	623 853-9302 602 240-6860	Tom Seuberling Charles Briggs	Mapping Services Engineering Department	623 853-9302 602 240 6860	Office: 3805 N. Black Canyon Highway Phoenix, AZ 85015-5351 Mailing: PO Box 29006 Phoenix, AZ 85038-9006	Received Water Quarter Section Maps. New WTPP plant for Blue Horizon Development at Van Buren and Jackrabbit Trail.	1/12/2010
6	Buckeye Water Conservation & Drainage District	BID Canal - Irrigation and Electrical	623 386-2196	Larry Owens	Buckeye Water Conservation & Drainage District		Stantec Consulting 8211 S. 48th Street Phoenix, AZ 85044	BWCDD utilizes Stantec for Engineering Services. Walt Cooper is the contact at Stantec, ph: 602 438-2200. Contacted for Maps and had meeting with BWCDD/Stantec/MCFCD regarding BID Canal Crossing Requirements on 2/2/2010. Stantec provided BID lateral maps to Olsson on 1/19/2010.	1/19/2010
7	City of Goodyear	Effluent, Fiber Optic, Reclaimed Water, Sanitary Sewer, traffic signals, Water	623 882-3110	Kelly	Engineering Records Dept.	623 882-3110	195 N. 145th Ave., Building D Goodyear, AZ 85338	Met with City of Goodyear Engineering and Records on 2/17/2010. Aquired Water and Sewer Quarter Section Maps. Received As-built plans on 2/23/2010 for water and sanitary sewer.	2/23/2010
8	Cox Communications	Cable TV and Fiber Optic	623 328-4073	Gwendolyn Garcia	Mapping Services	623 328-4073	Cox Communications 1550 W. Deer Valley Phoenix, AZ 85027	Received Electronic Maps from Cox showing CATV and Fiber Optic horizontal alignment locations	1/15/2010- 1/21/2010
9	Kinder Morgan Energy	High Pressure Petroleum 20-inch Pipeline	602 278-8564	Dan Tarango Greg Burnett	Mapping Services Engineering Contact	602 278-8564 909 873- 5174	1100 Town & Country Road Orange, CA 92868	Received 07-10-2001 updated plans depicting horizontal alignment of 20-inch HP Petroleum pipeline. Notify KM Area Manager Scott Manley, PH: 602 278 8565 2 weeks prior to start of construction. KM Engineering Contact is Greg Burnett, PH: 909 873 5174	3/2/2010
10	Level 3 Communications	Fiber Optic Cable within 12" KM pipe	720 888-2774	Keith Osborn	Engineering Contact for Level 3	720 888-2774	1025 Eldorado Blvd. Broomfield, CO 80021	Level 3 Communications currently leases the 12-inch KM pipeline and uses it as a fiber optic cable conduit. Mapping information was included with the KM plans.	3/2/2010
11	MCI/Verizon	Fiber Optic Cable	1-800 289-3427 972 729-6322	Dean Boyer Beth Seubert	Mapping Services	972 729-6322	OSP National Support / Investigations 2400 North Glenville Richardson, TX 75082	Verizon/MCI has assigned Andy Darnell as the Field Representative, PH: 505 346-4470. As Built Plans from 2-1988 show horizontal alignment only. 4-inch Galvanized Iron Pipe, 2 1/4 inch PVC, 1 cable at the intersection of Van Buren Street and Perryville.	1/15/2010

	Utility Company	Utility	Locate Ph	Map Contact	Title	Phone	Address	Comment	Received Maps
12	Maricopa County DOT	Traffic Signals	602 306-8660	Steve Poole	MCDOT			Verified with City of Goodyear as-built plans.	2/24/2010
13	Qwest Communications Network	Fiber Optic	303 707-3680	Tom Sturmer	Mapping Contact: Chris Lertique		135 W. Orion Street, RM 100 Tempe, AZ 85283	Maps were requested from Chris Lertique with Qwest on 01-22-2010. Verified with City of Goodyear plans and potholing.	2/24/2010 & 03/19/2010
14	Qwest Local Network	Fiber Optic / Coaxial	623 869-0820	ELM Locating	Mapping Contact: Chris Lertique		135 W. Orion Street, RM 100 Tempe, AZ 85283	Maps were requested from Chris Lertique with Qwest on 01-22-2010. Verified with City of Goodyear plans and potholing.	2/24/2010 & 03/19/2010
15	Roosevelt Irrigation District	Irrigation RID Canal	623 386-2046	Ken Craig	Roosevelt Irrigation District	602 438-2200	Stantec Consulting 8211 S. 48th Street Phoenix, AZ 85044	RID utilizes Stantec for Engineering Services. Walt Cooper is the contact at Stantec, ph: 602 438-2200. Contacted for Maps and had meeting with RID/Stanec/MCFCD regarding RID Canal Crossing Requirements on 01-29-2010.	1/19/2010
16	Southwest Gas	Natural Gas	623 780-3350	Summer Schmidt	Mapping Department		Office: 10851 North Black Canyon Highway Phoenix, AZ 85029-4755 Mailing: P.O. Box 52075 Phoenix, AZ 85072-2075	Received Electronic Maps dated 3-18-2005 showing horizontal locations of SWG Natural Gas Lines. Yvonne Aquirre, SWG Engineer, PH: 602 484-5338	1/14/2010
17	Southwest Gas	High Pressure Gas	602 484-5431	Andy Lugo	Mapping Department	602 484-5431	Office: 10851 North Black Canyon Highway Phoenix, AZ 85029-4755 Mailing: P.O. Box 52075 Phoenix, AZ 85072-2075	Potholing has verified existing high pressure line in Jackrabbit Trail and Van Buren Street.	3/19/2010
18	Sprint Communications	Fiber Optic	1 800 521-0579	Collin Sword	Mapping Department	602 430-3615	401 W. Harrison Street Phoenix, AZ 85282	Sprint has a Fiber Optic line running east-west along Yuma Road. The line is 3 to 7 feet deep. From Estrella Pkwy to Cotton Lane, the line is on the south side of the road. From Cotton Lane to Miller Road, the line is on the north side of the road. Line on the south side of Cotton Lane to 100 feet east of Jackrabbit Trail, then transitions to the north side. Pipe is 4-inch black iron pipe east of Perryville also orange conduit to the west. Depth of line is 3 to 4 feet. Line installed 25 years ago. Verified by potholing	3/19/2010
19	Global Water Resources	Water		Mark Duhamell	Mark.Duhamell@gwresources.com	602 550 5200	201 E. Coronado Street Buckeye, AZ 85026	Valencia Water Company and Water Utilities of Greater Buckeye have been purchased by Global Water Resources. Not in project area	Not in project area
20	Central Arizona Water Conservation District	Coaxial, Electric, Fiber Optic, Water	623 869-2268	Tom Fitzgerald Marilyn J. Thomas		623 869-2265	23636 N. 7th Street Phoenix, AZ 85024	Not within Project Limits	Not in project area
21	Cotton Lane RV Mobile Home Resort		623 309-3023	Chip Jordan		623 309-3023	PO Box 74767 Phoenix, AZ 85087	Not within Project Limits	Not in project area
22	Town of Buckeye	Water & Sanitary Sewer	623 349-6800	Manual Alvarez		623 547 4661 x 297	W.C. Scoutten 1626 N. Litchfield Rd. Ste. 310 Goodyear, AZ 85395	Received Water and Sewer Maps showing horizontal alignments. The Town of Buckeye utilizes W.C. Scoutten, Inc. for engineering / As-built records. Contacted Kristin Sayre, Ph: 623 547 4661 x 297 and received as-built plans for water / sanitary sewer / paving for the subdivisions along Van Buren Street.	2/19/2010

Ticket No: 2010011100345.000 DESIGN

Send To: Map Ref:

Original Due Date: / / Time: :
 Transmission Date: 01/11/2010 Time: 10:44 AM Op: SARAH.M
 Work Start Date: 01/27/2010 Time: 8:00 AM

Due Date: 01/26/2010 Time: 5:00 PM
 Location of Work: STREET ADDRESS: TUTHILL RD, CROSS STREET: W VAN BUREN ST
 : @ THE CRN OF TUTHILL RD & VAN BUREN ST CUST GAVE LEGALS: T1N R2W @
 : CRN OF SEC 5,6,7,8 LOC 60FT WD PATH USING THE C/L OF TUTHILL RD AS C/L OF
 : PATH STARTING FRM THE S/SD OF THE INTER OF TUTHILL RD & VAN BUREN ST
 : GOING S/ FOR 4 MI TO THE N/SD OF THE BUCKEYE CANAL
 Type of Work: LARGE SCALE ALIGNMENT STUDY FOR FOR DRAINAGE IMPROVEMENTS
 Hundred Block: Explosives: N Permit#: N
 ACCESS IS OPEN ADDRESS IS POSTED SITE WHITE LINED
 Overhead: N Job#: FRF4 ALIGN Offsets: Y

Remarks: ***Boring = NO
 : **DESIGN : PLS SEND ALL PRINTS AND PLANS TO OLSSON ASSOCIATES
 : ATTN: DUC DAO @ 7250 N 16TH S, SUITE 210, PHOENIX AZ 85020

Company: OLSSON ASSOCIATES Best Time: 8AM-5PM M-F
 Contact Name: DUC DAO Phone: (602) 748-1000
 Fax Phone: (602) 748-1001
 Alt. Contact Phone:

State: AZ County: MARICOPA City: BUCKEYE
 Address: Street: TUTHILL RD
 Twp: 1N Rng: 2W Sect-Qtr: 05-SW,06-SE,07-NE-SE,08-NW-SW
 Twp: 1N Rng: 2W Sect-Qtr: 17-NW-SW,18-NE-SE,19-NE-SE,20-NW-SW
 Twp: 1N Rng: 2W Sect-Qtr: 29-NW-SW,30-NE-SE

Lat/Lon: 33.4513280 -112.4983860 33.4513280 -112.4947150
 33.3926660 -112.4947150 33.3926660 -112.4983860

AMERICAN TELEPHONE & TELEGRAPH	Type: COAXIAL,FIBER
ARIZONA PUBLIC SERVICE - CONTRACT LOCATOR WE	Type: ELECTRIC
ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE	Type: WATER
ARIZONA WATER CO.	Type: WATER
BUCKEYE WATER CONSV. & DRAIN. DIST.	Type: ELECTRIC, IRRIGATION
COX COMMUNICATIONS- MARICOPA COUNTY	Type: CATV,FIBER
KINDER MORGAN ENERGY / PHX	Type: PETROLEUM
LEVEL 3 COMMUNICATIONS, LLC	Type: FIBER
MCI	Type: FIBER
QWEST COMMUNICATIONS NETWORK	Type: FIBER
QWEST LOCAL NETWORKS	Type: COAXIAL,FIBER
ROOSEVELT IRRIGATION DISTRICT	Type: IRRIGATION
SOUTHWEST GAS CONTRACT LOCATOR SW	Type: GAS
SPRINT COMMUNICATIONS COMPANY	Type: FIBER
WATER UTILITIES OF GREATER BUCKEYE, INC.	Type: WATER

Above, we have provided the names of underground facility owners affected by your excavation. If a telephone number is listed, you must contact that facility owner directly to notify them of your excavation (pursuant to A.R.S. Article 6.3, Section 40-360.32).

Status	Member Name	Facility Type (s)	Marking Color(s)	Contact	Phone Number (s)	Emergency Phone	Last Response	Service Area Code
Sent	American Telephone & Telegraph	COAXIAL, FIBER	Orange, Orange w/F	LSAC Group	(800) 241 - 3624 x0	(770) 929 - 4443	No Response	ATT01
	Arizona Public			ELM			Unmarked -	

Sent	Service - Contract Locator West Sid	ELECTRIC	RED	Locators/Recalls and Unknowns Call APS Rep:Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	No locate required contractually	APSCLW01
Sent	Arizona Public Service-Main State office	WATER	BLUE	Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSNUC01
Sent	Arizona Water Co.	WATER	Blue	Tom Seuberling	(623) 853 - 9302	(800) 547 - 4714	No Response	AZTANK01
Sent	Buckeye Water Conserv. & Drain. Dist.	ELECTRIC, IRRIGATION	Red, Blue	Larry Owens	(623) 386 - 2196	(602) 722 - 7251	No Response	BWCDD01
Sent	Cox Communications-Maricopa County	CATV, FIBER	Orange, Orange w/F	Gwendalyn Garcia	(623) 328 - 4073	(623) 322 - 7278	No Response	COXALL01
Sent	Kinder Morgan Energy / Phx	PETROLEUM	Yellow	Dan Tarango	(602) 278 - 8564	(602) 278 - 8564	Marked completely	KMEPGS01
Sent	Level 3 Communications, LLC	FIBER	Orange w/F	Judy Henry	(877) 366 - 8344	(877) 366 - 8344	No Response	LV3FBR01
Sent	MCI	FIBER	Orange w/F	Supervisor on duty	(800) 624 - 9675	(800) 289 - 3427	No Response	MCI01
Sent	Qwest Communications Network	FIBER	Orange w/F	Tom Sturmer (QLN)	(303) 707 - 3680	(800) 283 - 4237	No Response	QWEST
Sent	Qwest Local Networks	COAXIAL, FIBER	ORANGE, ORANGE w/F	ELM Locating Recalls and Unknowns: East	(623) 869 - 0820	(800) 283 - 4237	No Response	QLNAZ201
Sent	Roosevelt Irrigation District	IRRIGATION	Blue	KEN CRAIG	(623) 386 - 2046	(623) 386 - 2046	No Response	ROOSID01
Sent	Southwest Gas Contract Locator SW	GAS	YELLOW	ELM Locating Dispatch/ SWG-Unkn-Ric Torres 602-763-4542	(623) 780 - 3350	(602) 271 - 4277	No Response	SWGCLSW
Sent	Sprint Communications Company	FIBER	Orange w/F	Sprint Dispatch	(800) 521 - 0579	(800) 521 - 0579	No Response	SPRINT01
Sent	Water Utilities of Greater Buckeye, Inc.	WATER	Blue	Rick Davis	(623) 882 - 4030	(623) 386 - 4252	Marked completely	WTUTGB01

Ticket No: 2010011100365.000 DESIGN

Send To: Map Ref:

Original Due Date: / / Time: :
 Transmission Date: 01/11/2010 Time: 10:54 AM Op: SARAH.M
 Work Start Date: 01/27/2010 Time: 8:00 AM

Due Date: 01/26/2010 Time: 5:00 PM
 Location of Work: STREET ADDRESS: TUTHILL RD, CROSS STREET: SOUTHERN AVE
 : LOC 50FT WD PATH USING THE N/SD OF THE BUCKEYE CANAL AS S/SD OF PATH
 : STARTING FRM THE W/SD OF TUTHILL RD GOING W/ FOR APX 4 MI TO A PT 1/2 MI
 : W/ OF RAINBOW RD
 Type of Work: LARGE SCALE ALIGNMENT STUDY FOR FOR DRAINAGE IMPROVEMENTS
 Hundred Block: Explosives: N Permit#: N
 ACCESS IS OPEN ADDRESS IS POSTED SITE WHITE LINED
 Overhead: N Job#: FRF4 ALIGN Offsets: Y

Remarks: ***Boring = NO
 : **DESIGN : PLS SEND ALL PRINTS AND PLANS TO OLSSON ASSOCIATES
 : ATTN: DUC DAO @ 7250 N 16TH S, SUITE 210, PHOENIX AZ 85020

Company: OLSSON ASSOCIATES Best Time: 8AM-5PM M-F
 Contact Name: DUC DAO Phone: (602)748-1000
 Fax Phone: (602)748-1001
 Alt. Contact Phone:

State: AZ County: MARICOPA City: BUCKEYE
 Address: Street: TUTHILL RD
 Twp: 1N Rng: 2W Sect-Qtr: 29-SW,30-SE-SW,31-NW
 Twp: 1N Rng: 3W Sect-Qtr: 25-SE,34-NE-SE-SW,35-NE-NW,36-NE-NW

Lat/Lon: 33.3941860 -112.5509060 33.3941860 -112.4955670
 33.3816040 -112.4955670 33.3816040 -112.5509060

ARIZONA PUBLIC SERVICE - CONTRACT LOCATOR WE Type: ELECTRIC
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: WATER
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: ELECTRIC
 BUCKEYE WATER CONSV. & DRAIN. DIST. Type: ELECTRIC, IRRIGATION
 COX COMMUNICATIONS- MARICOPA COUNTY Type: CATV, FIBER
 KINDER MORGAN ENERGY / PHX Type: PETROLEUM
 LEVEL 3 COMMUNICATIONS, LLC Type: FIBER
 MCI Type: FIBER
 QWEST COMMUNICATIONS NETWORK Type: FIBER
 QWEST LOCAL NETWORKS Type: COAXIAL, FIBER
 ROOSEVELT IRRIGATION DISTRICT Type: IRRIGATION

Above, we have provided the names of underground facility owners affected by your excavation. If a telephone number is listed, you must contact that facility owner directly to notify them of your excavation (pursuant to A.R.S. Article 6.3, Section 40-360.32).

Status	Member Name	Facility Type (s)	Marking Color(s)	Contact	Phone Number (s)	Emergency Phone	Last Response	Service Area Code
Sent	Arizona Public Service - Contract Locator West Sid	ELECTRIC	RED	ELM Locators/Recalls and Unknowns Call APS Rep:Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSCLW01
Sent	Arizona Public Service-Main State office	WATER	BLUE	Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSNUC01

Sent	Arizona Public Service-Main State office	ELECTRIC	Red	ELM Locators/Recalls and Unknowns Call APS Rep:Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSBUC01
Sent	Buckeye Water Conserv. & Drain. Dist.	ELECTRIC, IRRIGATION	Red, Blue	Larry Owens	(623) 386 - 2196	(602) 722 - 7251	No Response	BWCDD01
Sent	Cox Communications-Maricopa County	CATV, FIBER	Orange, Orange w/F	Gwendalyn Garcia	(623) 328 - 4073	(623) 322 - 7278	No Response	COXALL01
Sent	Kinder Morgan Energy / Phx	PETROLEUM	Yellow	Dan Tarango	(602) 278 - 8564	(602) 278 - 8564	Marked completely	KMEPGS01
Sent	Level 3 Communications, LLC	FIBER	Orange w/F	Judy Henry	(877) 366 - 8344	(877) 366 - 8344	No Response	LV3FBR01
Sent	MCI	FIBER	Orange w/F	Supervisor on duty	(800) 624 - 9675	(800) 289 - 3427	No Response	MCI01
Sent	Qwest Communications Network	FIBER	Orange w/F	Tom Sturmer (QLN)	(303) 707 - 3680	(800) 283 - 4237	No Response	QWEST
Sent	Qwest Local Networks	COAXIAL, FIBER	ORANGE, ORANGE w/F	ELM Locating Recalls and Unknowns: East	(623) 869 - 0820	(800) 283 - 4237	No Response	QLNAZ201
Sent	Roosevelt Irrigation District	IRRIGATION	Blue	KEN CRAIG	(623) 386 - 2046	(623) 386 - 2046	No Response	ROOSID01

Ticket No: 2010011100394.000 DESIGN

Send To: Map Ref:

Original Due Date: / / Time: :
 Transmission Date: 01/11/2010 Time: 11:10 AM Op: SARAH.M
 Work Start Date: 01/27/2010 Time: 8:00 AM

Due Date: 01/26/2010 Time: 5:00 PM
 Location of Work: STREET ADDRESS: AZ RT 85, CROSS STREET: RAINBOW RD
 : LOC 60FT WD PATH USING THE 233RD AVE ALIGNMENT LOCATED APX 1/2 MI W/ OF
 : RAINBOW RD AS C/L OF PATH STARTING FRM THE N/SD OF THE BUCKEYE CANAL
 : XING THE CANAL & GOING S/ TO THE A PT 30FT S/ OF THE S/SD OF AZ RT 85
 : THEN LOC 50FT WD PATH USING A PT 30FT S/ OF THE AZ RT 85 C/L AS C/L OF
 : PATH GOING W/ FOR APX 30FT W/ OF WATSON RD THEN LOC 60FT WD PATH USING
 : THE C/L OF WATSON RD ALIGNMENT AS C/L OF PATH STARTING FRM THE S/SD OF AZ
 : RT 85 GOING S/ FOR APX 2MI TO TO THE N/SD OF THE GILA RIVER
 Type of Work: LARGE SCALE ALIGNMENT STUDY FOR FOR DRAINAGE IMPROVEMENTS
 Hundred Block: Explosives: N Permit#: N
 ACCESS IS OPEN ADDRESS IS POSTED SITE WHITE LINED
 Overhead: N Job#: FRF4 ALIGN Offsets: Y

Remarks: ***Boring = NO
 : **DESIGN : PLS SEND ALL PRINTS AND PLANS TO OLSSON ASSOCIATES
 : ATTN: DUC DAO @ 7250 N 16TH S, SUITE 210, PHOENIX AZ 85020

Company: OLSSON ASSOCIATES Best Time: 8AM-5PM M-F
 Contact Name: DUC DAO Phone: (602)748-1000
 Fax Phone: (602)748-1001
 Alt. Contact Phone:

State: AZ County: MARICOPA City: BUCKEYE
 Address: Street: AZ RT 85
 Twp: 1N Rng: 3W Sect-Qtr: 33-SE,34-SE-SW
 Twp: 1S Rng: 3W Sect-Qtr: 03-NE-NW-SW,04-NE-SE,09-NE-SE,10-NW
 Twp: 1S Rng: 3W Sect-Qtr: 16-NE

Lat/Lon: 33.3836070 -112.5576280 33.3836070 -112.5468020
 33.3440690 -112.5468020 33.3440690 -112.5576280

ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: ELECTRIC
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: WATER
 BUCKEYE WATER CONSV. & DRAIN. DIST. Type: ELECTRIC, IRRIGATION
 COX COMMUNICATIONS- MARICOPA COUNTY Type: CATV, FIBER
 KINDER MORGAN ENERGY / PHX Type: PETROLEUM
 QWEST LOCAL NETWORKS Type: COAXIAL, FIBER
 ROOSEVELT IRRIGATION DISTRICT Type: IRRIGATION
 SOUTHWEST GAS HIGH PRESSURE SW Type: HIGH PRESSURE GAS
 VALENCIA WATER COMPANY Type: WATER

Above, we have provided the names of underground facility owners affected by your excavation. If a telephone number is listed, you must contact that facility owner directly to notify them of your excavation (pursuant to A.R.S. Article 6.3, Section 40-360.32).

Status	Member Name	Facility Type (s)	Marking Color(s)	Contact	Phone Number (s)	Emergency Phone	Last Response	Service Area Code
Sent	Arizona Public Service-Main State office	ELECTRIC	Red	ELM Locators/Recalls and Unknowns Call APS Rep:Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSBUC01
	Arizona Public				(602)	(602) 371 -	Unmarked - No locate	

Sent	Service-Main State office	WATER	BLUE	Jolie Burow	493 - 4225	7171	required contractually	APSNUC01
Sent	Buckeye Water Consv. & Drain. Dist.	ELECTRIC, IRRIGATION	Red, Blue	Larry Owens	(623) 386 - 2196	(602) 722 - 7251	No Response	BWCDD01
Sent	Cox Communications- Maricopa County	CATV, FIBER	Orange, Orange w/F	Gwendalyn Garcia	(623) 328 - 4073	(623) 322 - 7278	No Response	COXALL01
Sent	Kinder Morgan Energy / Phx	PETROLEUM	Yellow	Dan Tarango	(602) 278 - 8564	(602) 278 - 8564	Marked completely	KMEPGS01
Sent	Qwest Local Networks	COAXIAL, FIBER	ORANGE, ORANGE w/F	ELM Locating Recalls and Unknowns: East	(623) 869 - 0820	(800) 283 - 4237	No Response	QLNAZ201
Sent	Roosevelt Irrigation District	IRRIGATION	Blue	KEN CRAIG	(623) 386 - 2046	(623) 386 - 2046	No Response	ROOSID01
Sent	Southwest Gas High Pressure SW	HIGH PRESSURE GAS	YELLOW	Andy Lugo	(602) 484 - 5345	(602) 271 - 4277	No Response	SWGHSW_4
Sent	Valencia Water Company	WATER	Blue	Mark Duhamell	(602) 550 - 5200	(602) 213 - 1308	Marked completely	VLNCWT01

Ticket No: 2010011100421.000 DESIGN

Send To: Map Ref:

Original Due Date: / / Time: :
 Transmission Date: 01/11/2010 Time: 11:23 AM Op: SARAH.M
 Work Start Date: 01/27/2010 Time: 8:00 AM

Due Date: 01/26/2010 Time: 5:00 PM
 Location of Work: STREET ADDRESS: TUTHILL RD, CROSS STREET: VANBUREN ST
 : LOC 60FT WD PATH USING A PT 30FT N/ OF THE C/L OF VANBUREN AS THE C/L OF
 : PATH STARTING FRM THE N/E CRN OF THE INTER OF TUTHILL RD ALIGNMENT &
 : VANBUREN ST GOING W/ FOR 1/2 MI TO THE C/L OF AIRPORT RD AKA VERRADO WAY
 : THEN LOC 60FT WD PATH USING A PT 30FT W/ OF C/L OF AIRPORT RD AS THE
 : E/EDGE OF PATH GOING S/ FOR APX 6MI TO THE GILA RIVER
 Type of Work: LARGE SCALE ALIGNMENT STUDY FOR FOR DRAINAGE IMPROVEMENTS
 Hundred Block: Explosives: N Permit#: N
 ACCESS IS OPEN ADDRESS IS POSTED SITE WHITE LINED
 Overhead: N Job#: FRF4 ALIGN Offsets: Y

Remarks: ***Boring = NO
 : **DESIGN : PLS SEND ALL PRINTS AND PLANS TO OLSSON ASSOCIATES
 : ATTN: DUC DAO @ 7250 N 16TH S, SUITE 210, PHOENIX AZ 85020

Company: OLSSON ASSOCIATES Best Time: 8AM-5PM M-F
 Contact Name: DUC DAO Phone: (602)748-1000
 Fax Phone: (602)748-1001
 Alt. Contact Phone:

State: AZ County: MARICOPA City: BUCKEYE
 Address: Street: TUTHILL RD
 Twp: 1N Rng: 2W Sect-Qtr: 05-SW,06-SE-SW,07-NE-NW-SW,08-NW
 Twp: 1N Rng: 2W Sect-Qtr: 18-NW-SW,19-NW-SW,30-NW-SW,31-NW-SW
 Twp: 1N Rng: 3W Sect-Qtr: 01-SE,12-NE-SE,13-NE-SE,24-NE-SE
 Twp: 1N Rng: 3W Sect-Qtr: 25-NE-SE,36-NE-SE
 Twp: 1S Rng: 2W Sect-Qtr: 06-NW-SW,07-NW-SW
 Twp: 1S Rng: 3W Sect-Qtr: 01-NE-SE,12-NE-SE

Lat/Lon: 33.4507530 -112.5052610 33.4507530 -112.4951740
 33.3510890 -112.4951740 33.3510890 -112.5052610

AMERICAN TELEPHONE & TELEGRAPH Type: COAXIAL,FIBER
 ARIZONA PUBLIC SERVICE - CONTRACT LOCATOR WE Type: ELECTRIC
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: WATER
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: ELECTRIC
 ARIZONA WATER CO. Type: WATER
 BUCKEYE WATER CONSV. & DRAIN. DIST. Type: ELECTRIC,IRRIGATION
 COX COMMUNICATIONS- MARICOPA COUNTY Type: CATV,FIBER
 KINDER MORGAN ENERGY / PHX Type: PETROLEUM
 LEVEL 3 COMMUNICATIONS, LLC Type: FIBER
 MCI Type: FIBER
 QWEST COMMUNICATIONS NETWORK Type: FIBER
 QWEST LOCAL NETWORKS Type: COAXIAL,FIBER
 ROOSEVELT IRRIGATION DISTRICT Type: IRRIGATION
 SOUTHWEST GAS CONTRACT LOCATOR SW Type: GAS
 SOUTHWEST GAS HIGH PRESSURE SW Type: HIGH PRESSURE GAS
 SPRINT COMMUNICATIONS COMPANY Type: FIBER

Above, we have provided the names of underground facility owners affected by your excavation. If a telephone number is listed, you must contact that facility owner directly to notify them of your excavation (pursuant to A.R.S. Article 6.3, Section 40-360.32).

Status	Member Name	Facility Type (s)	Marking Color(s)	Contact	Phone Number (s)	Emergency Phone	Last Response	Service Area Code

Sent	American Telephone & Telegraph	COAXIAL, FIBER	Orange, Orange w/F	LSAC Group	(800) 241 - 3624 x0	(770) 929 - 4443	No Response	ATT01
Sent	Arizona Public Service - Contract Locator West Sid	ELECTRIC	RED	ELM Locators/Recalls and Unknowns Call APS Rep:Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSCLW01
Sent	Arizona Public Service-Main State office	WATER	BLUE	Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSNUC01
Sent	Arizona Public Service-Main State office	ELECTRIC	Red	ELM Locators/Recalls and Unknowns Call APS Rep:Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSBUC01
Sent	Arizona Water Co.	WATER	Blue	Tom Seuberling	(623) 853 - 9302	(800) 547 - 4714	No Response	AZTANK01
Sent	Buckeye Water Conserv. & Drain. Dist.	ELECTRIC, IRRIGATION	Red, Blue	Larry Owens	(623) 386 - 2196	(602) 722 - 7251	No Response	BWCDD01
Sent	Cox Communications-Maricopa County	CATV, FIBER	Orange, Orange w/F	Gwendalyn Garcia	(623) 328 - 4073	(623) 322 - 7278	No Response	COXALL01
Sent	Kinder Morgan Energy / Phx	PETROLEUM	Yellow	Dan Tarango	(602) 278 - 8564	(602) 278 - 8564	Marked completely	KMEPGS01
Sent	Level 3 Communications, LLC	FIBER	Orange w/F	Judy Henry	(877) 366 - 8344	(877) 366 - 8344	No Response	LV3FBR01
Sent	MCI	FIBER	Orange w/F	Supervisor on duty	(800) 624 - 9675	(800) 289 - 3427	No Response	MCI01
Sent	Qwest Communications Network	FIBER	Orange w/F	Tom Sturmer (QLN)	(303) 707 - 3680	(800) 283 - 4237	No Response	QWEST
Sent	Qwest Local Networks	COAXIAL, FIBER	ORANGE, ORANGE w/F	ELM Locating Recalls and Unknowns: East	(623) 869 - 0820	(800) 283 - 4237	No Response	QLNAZ201
Sent	Roosevelt Irrigation District	IRRIGATION	Blue	KEN CRAIG	(623) 386 - 2046	(623) 386 - 2046	No Response	ROOSID01
Sent	Southwest Gas Contract Locator SW	GAS	YELLOW	ELM Locating Dispatch/ SWG-Unkn-Ric Torres 602-763-4542	(623) 780 - 3350	(602) 271 - 4277	No Response	SWGCLSW
Sent	Southwest Gas High Pressure SW	HIGH PRESSURE GAS	YELLOW	Andy Lugo	(602) 484 - 5345	(602) 271 - 4277	No Response	SWGHSW_4
	Sprint		Orange		(800)	(800) 521 -	No	

Sent	Communications Company	FIBER	w/F	Sprint Dispatch	521 - 0579	0579	Response	SPRINT01
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Ticket No: 2010011100437.000 DESIGN

Send To: Map Ref:

Original Due Date: / / Time: :
Transmission Date: 01/11/2010 Time: 11:34 AM Op: SARAH.M
Work Start Date: 01/27/2010 Time: 8:00 AM

Due Date: 01/26/2010 Time: 5:00 PM
Location of Work: STREET ADDRESS: TUTHILL RD, CROSS STREET: VANBUREN ST
: LOC 60FT WD PATH USING A PT 30FT N/ OF THE C/L OF VANBUREN & TUTHILL RD
: AS THE C/L OF PATH STARTING FRM THE N/E CRN OF THE INTER OF TUTHILL RD
: ALIGNMENT & VANBUREN ST GOING E/ FOR 1/2 MI TO THE C/L OF JACKRABBIT TRL
: THEN LOC 60FT WD PATH USING A PT 30FT E/ OF THE C/L ALIGNMENT OF
: JACKRABBIT TRL AS THE W/SD OF PATH GOING S/ FOR APX 6MI TO THE N/SD OF
: THE GILA RIVER
Type of Work: LARGE SCALE ALIGNMENT STUDY FOR FOR DRAINAGE IMPROVEMENTS
Hundred Block: Explosives: N Permit#: N
ACCESS IS OPEN ADDRESS IS POSTED SITE WHITE LINED
Overhead: N Job#: FRF4 ALIGN Offsets: Y

Remarks: ***Boring = NO
: **DESIGN : PLS SEND ALL PRINTS AND PLANS TO OLSSON ASSOCIATES
: ATTN: DUC DAO @ 7250 N 16TH S, SUITE 210, PHOENIX AZ 85020

Company: OLSSON ASSOCIATES Best Time: 8AM-5PM M-F
Contact Name: DUC DAO Phone: (602)748-1000
Fax Phone: (602)748-1001
Alt. Contact Phone:

State: AZ County: MARICOPA City: BUCKEYE
Address: Street: TUTHILL RD
Twp: 1N Rng: 2W Sect-Qtr: 04-SW,05-SE-SW,06-SE,07-NE
Twp: 1N Rng: 2W Sect-Qtr: 08-NE-NW-SE,09-NW-SW,16-NW-SW
Twp: 1N Rng: 2W Sect-Qtr: 17-NE-SE,20-NE-SE,21-NW-SW,28-NW-SW
Twp: 1N Rng: 2W Sect-Qtr: 29-NE-SE,32-NE-SE,33-NW-SW
Twp: 1S Rng: 2W Sect-Qtr: 05,08-NE-NW

Lat/Lon: 33.4507110 -112.4966980 33.4507110 -112.4769980
33.3556290 -112.4769980 33.3556290 -112.4966980

AMERICAN TELEPHONE & TELEGRAPH Type: COAXIAL,FIBER
ARIZONA PUBLIC SERVICE - CONTRACT LOCATOR WE Type: ELECTRIC
ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: WATER
ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: ELECTRIC
ARIZONA WATER CO. Type: WATER
BUCKEYE WATER CONSV. & DRAIN. DIST. Type: ELECTRIC,IRRIGATION
CENTRAL ARIZONA WATER CONSERV DISTR / ENGIN Type:
COAXIAL,ELECTRIC,FIBER
,WATER
COX COMMUNICATIONS- MARICOPA COUNTY Type: CATV,FIBER
KINDER MORGAN ENERGY / PHX Type: PETROLEUM
LEVEL 3 COMMUNICATIONS, LLC Type: FIBER
MARICOPA COUNTY DEPT OF TRANSP. Type: TRAFFIC SIGNALS
MCI Type: FIBER
QWEST COMMUNICATIONS NETWORK Type: FIBER
QWEST LOCAL NETWORKS Type: COAXIAL,FIBER
ROOSEVELT IRRIGATION DISTRICT Type: IRRIGATION
SOUTHWEST GAS CONTRACT LOCATOR SW Type: GAS
SOUTHWEST GAS HIGH PRESSURE SW Type: HIGH PRESSURE GAS
SPRINT COMMUNICATIONS COMPANY Type: FIBER
WATER UTILITIES OF GREATER BUCKEYE, INC. Type: WATER

Above, we have provided the names of underground facility owners affected
by your excavation. If a telephone number is listed, you must contact that
facility owner directly to notify them of your excavation (pursuant to
A.R.S. Article 6.3, Section 40-360.32).

Status	Member Name	Facility Type (s)	Marking Color(s)	Contact	Phone Number (s)	Emergency Phone	Last Response	Service Area Code
Sent	American Telephone & Telegraph	COAXIAL, FIBER	Orange, Orange w/F	LSAC Group	(800) 241 - 3624 x0	(770) 929 - 4443	No Response	ATT01
Sent	Arizona Public Service - Contract Locator West Sid	ELECTRIC	RED	ELM Locators/Recalls and Unknowns Call APS Rep:Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSCLW01
Sent	Arizona Public Service-Main State office	WATER	BLUE	Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSNUC01
Sent	Arizona Public Service-Main State office	ELECTRIC	RED	Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSSUB01
Sent	Arizona Water Co.	WATER	Blue	Tom Seuberling	(623) 853 - 9302	(800) 547 - 4714	No Response	AZTANK01
Sent	Buckeye Water Conserv. & Drain. Dist.	ELECTRIC, IRRIGATION	Red, Blue	Larry Owens	(623) 386 - 2196	(602) 722 - 7251	No Response	BWCDD01
Sent	Central Arizona Water Conserv Distr / Engineering	COAXIAL, ELECTRIC, FIBER, WATER	Orange, Red, Orange w/F, Blue	Doug Greffe	(623) 869 - 2268	(623) 323 - 5413	No Conflict of facilities in described location	CAWCD01
Sent	Cox Communications-Maricopa County	CATV, FIBER	Orange, Orange w/F	Gwendalyn Garcia	(623) 328 - 4073	(623) 322 - 7278	No Response	COXALL01
Sent	Kinder Morgan Energy / Phx	PETROLEUM	Yellow	Dan Tarango	(602) 278 - 8564	(602) 278 - 8564	Marked completely	KMEPGS01
Sent	Level 3 Communications, LLC	FIBER	Orange w/F	Judy Henry	(877) 366 - 8344	(877) 366 - 8344	No Response	LV3FBR01
Sent	Maricopa County Dept of Transp.	TRAFFIC SIGNALS	Red	STEVE POOLE	(602) 506 - 8660	(602) 723 - 6748	No Response	MCPACO01
Sent	MCI	FIBER	Orange w/F	Supervisor on duty	(800) 624 - 9675	(800) 289 - 3427	No Response	MCI01
Sent	Qwest Communications Network	FIBER	Orange w/F	Tom Sturmer (QLN)	(303) 707 - 3680	(800) 283 - 4237	No Response	QWEST
Sent	Qwest Local Networks	COAXIAL, FIBER	ORANGE, ORANGE w/F	ELM Locating Recalls and Unknowns: East	(623) 869 - 0820	(800) 283 - 4237	No Response	QLNAZ201
Sent	Roosevelt Irrigation District	IRRIGATION	Blue	KEN CRAIG	(623) 386 - 2046	(623) 386 - 2046	No Response	ROOSID01

Sent	Southwest Gas Contract Locator SW	GAS	YELLOW	ELM Locating Dispatch/ SWG- Unkn-Ric Torres 602-763-4542	(623) 780 - 3350	(602) 271 - 4277	No Response	SWGCLSW
Sent	Southwest Gas High Pressure SW	HIGH PRESSURE GAS	YELLOW	Andy Lugo	(602) 484 - 5345	(602) 271 - 4277	No Response	SWGHSW_4
Sent	Sprint Communications Company	FIBER	Orange w/F	Sprint Dispatch	(800) 521 - 0579	(800) 521 - 0579	No Response	SPRINT01
Sent	Water Utilities of Greater Buckeye, Inc.	WATER	Blue	Rick Davis	(623) 882 - 4030	(623) 386 - 4252	Marked completely	WTUTGB01

Ticket No: 2010011100448.000 DESIGN

Send To: Map Ref:

Original Due Date: / / Time: :
 Transmission Date: 01/11/2010 Time: 11:42 AM Op: SARAH.M
 Work Start Date: 01/27/2010 Time: 8:00 AM

Due Date: 01/26/2010 Time: 5:00 PM
 Location of Work: STREET ADDRESS: TUTHILL RD, CROSS STREET: VANBUREN ST
 : LOC 60FT WD PATH USING A PT 30FT N/ OF THE C/L OF VANBUREN & TUTHILL RD
 : AS THE C/L OF PATH STARTING FRM THE N/E CRN OF THE INTER OF TUTHILL RD
 : ALIGNMENT & VANBUREN ST GOING E/ FOR APX 2 1/2MI TO THE E/SD OF CITRUS RD
 : THEN LOC 60FT WD PATH USING A PT 30FT E/ OF THE C/L OF CITRUS RD AS C/L
 : OF PATH GOING S/ FOR APX 4 1/2 MI TO THE N/SD OF THE GILA RIVER
 Type of Work: LARGE SCALE ALIGNMENT STUDY FOR DRAINAGE IMPROVEMENTS
 Hundred Block: Explosives: N Permit#: N
 ACCESS IS OPEN ADDRESS IS POSTED SITE WHITE LINED
 Overhead: N Job#: FRF4 ALIGN Offsets: Y

Remarks: ***Boring = NO
 : **DESIGN : PLS SEND ALL PRINTS AND PLANS TO OLSSON ASSOCIATES
 : ATTN: DUC DAO @ 7250 N 16TH S, SUITE 210, PHOENIX AZ 85020

Company: OLSSON ASSOCIATES Best Time: 8AM-5PM M-F
 Contact Name: DUC DAO Phone: (602) 748-1000
 Fax Phone: (602) 748-1001
 Alt. Contact Phone:

State: AZ County: MARICOPA City: BUCKEYE
 Address: Street: TUTHILL RD
 Twp: 1N Rng: 2W Sect-Qtr: 02-SW,03-SE-SW,04-SE-SW,05-SE-SW
 Twp: 1N Rng: 2W Sect-Qtr: 06-SE,07-NE,08-NE-NW,09-NE-NW
 Twp: 1N Rng: 2W Sect-Qtr: 10-NE-NW-SE,11-NW-SW,14-NW-SW
 Twp: 1N Rng: 2W Sect-Qtr: 15-NE-SE,22-NE-SE,23-NW-SW,26-NW-SW
 Twp: 1N Rng: 2W Sect-Qtr: 27-NE-SE,34-NE-SE,35-NW-SW
 Twp: 1S Rng: 2W Sect-Qtr: 03-NW

Lat/Lon: 33.4508030 -112.4968240 33.4508030 -112.4433500
 33.3767800 -112.4433500 33.3767800 -112.4968240

AMERICAN TELEPHONE & TELEGRAPH Type: COAXIAL, FIBER
 ARIZONA PUBLIC SERVICE - CONTRACT LOCATOR WE Type: ELECTRIC
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: WATER
 ARIZONA WATER CO. Type: WATER
 BUCKEYE WATER CONSV. & DRAIN. DIST. Type: ELECTRIC, IRRIGATION
 CENTRAL ARIZONA WATER CONSERV DISTR / ENGIN Type:
 COAXIAL, ELECTRIC, FIBER
 , WATER
 CITY OF GOODYEAR Type:
 EFFLUENT, FIBER, RECLAIM
 ED WATER, SEWER, TRAFFIC
 SIGNALS, WATER
 COX COMMUNICATIONS- MARICOPA COUNTY Type: CATV, FIBER
 KINDER MORGAN ENERGY / PHX Type: PETROLEUM
 LEVEL 3 COMMUNICATIONS, LLC Type: FIBER
 MCI Type: FIBER
 QWEST COMMUNICATIONS NETWORK Type: FIBER
 QWEST LOCAL NETWORKS Type: COAXIAL, FIBER
 ROOSEVELI IRRIGATION DISTRICT Type: IRRIGATION
 SOUTHWEST GAS CONTRACT LOCATOR SW Type: GAS
 SOUTHWEST GAS HIGH PRESSURE SW Type: HIGH PRESSURE GAS
 SPRINT COMMUNICATIONS COMPANY Type: FIBER
 VALENCIA WATER COMPANY Type: WATER
 WATER UTILITIES OF GREATER BUCKEYE, INC. Type: WATER

Above, we have provided the names of underground facility owners affected by your excavation. If a telephone number is listed, you must contact that facility owner directly to notify them of your excavation (pursuant to A.R.S. Article 6.3, Section 40-360.32).

Status	Member Name	Facility Type (s)	Marking Color(s)	Contact	Phone Number (s)	Emergency Phone	Last Response	Service Area Code
Sent	American Telephone & Telegraph	COAXIAL, FIBER	Orange, Orange w/F	LSAC Group	(800) 241 - 3624 x0	(770) 929 - 4443	No Response	ATT01
Sent	Arizona Public Service - Contract	ELECTRIC	RED	ELM Locators/Recalls and Unknowns	(602) 493 -	(602) 371 - 7171	Unmarked - No locate required	APSCLW01

	Locator West Sid			Call APS Rep:Jolie Burow	4225		contractually	
Sent	Arizona Public Service-Main State office	WATER	BLUE	Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSNUC01
Sent	Arizona Water Co.	WATER	Blue	Tom Seuberling	(623) 853 - 9302	(800) 547 - 4714	No Response	AZTANK01
Sent	Buckeye Water Conserv. & Drain. Dist.	ELECTRIC, IRRIGATION	Red, Blue	Larry Owens	(623) 386 - 2196	(602) 722 - 7251	No Response	BWCDD01
Sent	Central Arizona Water Conserv Distr / Engineering	COAXIAL, ELECTRIC, FIBER, WATER	Orange, Red, Orange w/F, Blue	Doug Greffe	(623) 869 - 2268	(623) 323 - 5413	No Conflict of facilities in described location	CAWCD01
Sent	City of Goodyear	EFFLUENT, FIBER, RECLAIMED WATER, SEWER, TRAFFIC SIGNALS, WATER	PURPLE, GREEN, BLUE, ORANGE w/F, RED	Public Works & Water Resources	(623) 932 - 3010	(623) 932 - 3010	No Response	GDYALL01
Sent	Cox Communications-Maricopa County	CATV, FIBER	Orange, Orange w/F	Gwendalyn Garcia	(623) 328 - 4073	(623) 322 - 7278	No Response	COXALL01
Sent	Kinder Morgan Energy / Phx	PETROLEUM	Yellow	Dan Tarango	(602) 278 - 8564	(602) 278 - 8564	Marked completely	KMEPGS01
Sent	Level 3 Communications, LLC	FIBER	Orange w/F	Judy Henry	(877) 366 - 8344	(877) 366 - 8344	No Response	LV3FBR01
Sent	MCI	FIBER	Orange w/F	Supervisor on duty	(800) 624 - 9675	(800) 289 - 3427	No Response	MCI01
Sent	Qwest Communications Network	FIBER	Orange w/F	Tom Sturmer (QLN)	(303) 707 - 3680	(800) 283 - 4237	No Response	QWEST
Sent	Qwest Local Networks	COAXIAL, FIBER	ORANGE, ORANGE w/F	ELM Locating Recalls and Unknowns: East	(623) 869 - 0820	(800) 283 - 4237	No Response	QLNAZ201
Sent	Roosevelt Irrigation District	IRRIGATION	Blue	KEN CRAIG	(623) 386 - 2046	(623) 386 - 2046	No Response	ROOSID01
Sent	Southwest Gas Contract Locator SW	GAS	YELLOW	ELM Locating Dispatch/ SWG-Unkn-Ric Torres 602-763-4542	(623) 780 - 3350	(602) 271 - 4277	No Response	SWGCLSW
Sent	Southwest Gas High Pressure SW	HIGH PRESSURE GAS	YELLOW	Andy Lugo	(602) 484 - 5345	(602) 271 - 4277	No Response	SWGHSW_4
Sent	Sprint Communications Company	FIBER	Orange w/F	Sprint Dispatch	(800) 521 - 0579	(800) 521 - 0579	No Response	SPRINT01
Sent	Valencia Water Company	WATER	Blue	Mark Duhamell	(602) 550 - 5200	(602) 213 - 1308	Marked completely	VLNCWT01
Sent	Water Utilities of Greater Buckeye, Inc.	WATER	Blue	Rick Davis	(623) 882 - 4030	(623) 386 - 4252	Marked completely	WTUTGB01

Ticket No: 2010011100465.000 DESIGN

Send To: Map Ref:

Original Due Date: / / Time: :
 Transmission Date: 01/11/2010 Time: 11:50 AM Op: SARAH.M
 Work Start Date: 01/27/2010 Time: 8:00 AM

Due Date: 01/26/2010 Time: 5:00 PM
 Location of Work: STREET ADDRESS: TUTHILL RD, CROSS STREET: VANBUREN ST
 : LOC 60FT WD PATH USING A PT 30FT N/ OF THE C/L OF VANBUREN & TUTHILL RD
 : AS THE C/L OF PATH STARTING FRM THE N/E CRN OF THE INTER OF TUTHILL RD
 : ALIGNMENT & VANBUREN ST GOING E/ FOR APX 3 1/2MI TO THE W/SD OF AZ RT 303
 : AKA COTTON LN THEN LOC 60FT WD PATH USING A PT 30FT W/ OF THE C/L OF
 : COTTON LN AKA AZ RT 303 AS C/L OF PATH GOING S/ FOR APX 4 MI TO THE N/SD
 : OF THE GILA RIVER
 Type of Work: LARGE SCALE ALIGNMENT STUDY FOR FOR DRAINAGE IMPROVEMENTS
 Hundred Block: Explosives: N Permit#: N
 Overhead: N ACCESS IS OPEN ADDRESS IS POSTED SITE WHITE LINED
 Job#: FRP4 ALIGN Offsets: Y

Remarks: ***Boring = NO
 : **DESIGN : PLS SEND ALL PRINTS AND PLANS TO OLSSON ASSOCIATES
 : ATTN: DUC DAO @ 7250 N 16TH S, SUITE 210, PHOENIX AZ 85020

Company: OLSSON ASSOCIATES Best Time: 8AM-5PM M-F
 Contact Name: DUC DAO Phone: (602)748-1000
 Fax Phone: (602)748-1001
 Alt. Contact Phone:

State: AZ County: MARICOPA City: BUCKEYE
 Address: Street: TUTHILL RD
 Twp: 1N Rng: 2W Sect-Qtr: 01-SW,02-SE-SW,03-SE-SW,04-SE-SW
 Twp: 1N Rng: 2W Sect-Qtr: 05-SE-SW,08-NE-NW,09-NE-NW,10-NE-NW
 Twp: 1N Rng: 2W Sect-Qtr: 11-NE-NW-SE,12-NW-SW,13-NW-SW
 Twp: 1N Rng: 2W Sect-Qtr: 14-NE-SE,23-NE-SE,24-NW-SW,25-NW-SW
 Twp: 1N Rng: 2W Sect-Qtr: 26-NE-SE,35-NE,36-NW

Lat/Lon: 33.4508680 -112.4961020 33.4508680 -112.4252680
 33.3846420 -112.4252680 33.3846420 -112.4961020

AMERICAN TELEPHONE & TELEGRAPH Type: COAXIAL,FIBER
 ARIZONA PUBLIC SERVICE - CONTRACT LOCATOR WE Type: ELECTRIC
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: WATER
 ARIZONA WATER CO. Type: WATER
 BUCKEYE WATER CONSV. & DRAIN. DIST. Type: ELECTRIC,IRRIGATION
 CENTRAL ARIZONA WATER CONSERV DISTR / ENGIN Type:
 COAXIAL,ELECTRIC,FIBER
 ,WATER
 CITY OF GOODYEAR Type:
 EFFLUENT,FIBER,RECLAIM
 ED WATER,SEWER,TRAFFIC
 SIGNALS,WATER
 COX COMMUNICATIONS- MARICOPA COUNTY Type: CATV,FIBER
 KINDER MORGAN ENERGY / PHX Type: PETROLEUM
 LEVEL 3 COMMUNICATIONS, LLC Type: FIBER
 MARICOPA COUNTY DEPT OF TRANSP. Type: TRAFFIC SIGNALS
 MCI Type: FIBER
 QWEST COMMUNICATIONS NETWORK Type: FIBER
 QWEST LOCAL NETWORKS Type: COAXIAL,FIBER
 ROOSEVELT IRRIGATION DISTRICT Type: IRRIGATION
 SOUTHWEST GAS CONTRACT LOCATOR SW Type: GAS
 SOUTHWEST GAS HIGH PRESSURE SW Type: HIGH PRESSURE GAS
 SPRINT COMMUNICATIONS COMPANY Type: FIBER
 *COTTON LANE RV MH RESORT Type: EXCAV NOTIFY BY
 CERTIFIED MAIL
 Phone: (602)309-3023

Above, we have provided the names of underground facility owners affected by your excavation. If a telephone number is listed, you must contact that facility owner directly to notify them of your excavation (pursuant to A.R.S. Article 6.3, Section 40-360.32).

Status	Member Name	Facility Type (s)	Marking Color(s)	Contact	Phone Number (s)	Emergency Phone	Last Response	Service Area Code
Sent	American Telephone & Telegraph	COAXIAL, FIBER	Orange, Orange w/F	LSAC Group	(800) 241 - 3624 x0	(770) 929 - 4443	No Response	ATT01
	Arizona Public			ELM Locators/Recalls	(602)		Unmarked -	

Sent	Service - Contract Locator West Sid	ELECTRIC	RED	and Unknowns Call APS Rep:Jolie Burow	493 - 4225	(602) 371 - 7171	No locate required contractually	APSCLW01
Sent	Arizona Public Service-Main State office	WATER	BLUE	Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSNUC01
Sent	Arizona Water Co.	WATER	Blue	Tom Seuberling	(623) 853 - 9302	(800) 547 - 4714	No Response	AZTANK01
Sent	Buckeye Water Conserv. & Drain. Dist.	ELECTRIC, IRRIGATION	Red, Blue	Larry Owens	(623) 386 - 2196	(602) 722 - 7251	No Response	BWCCDD01
Sent	Central Arizona Water Conserv Distr / Engineering	COAXIAL, ELECTRIC, FIBER, WATER	Orange, Red, Orange w/F, Blue	Doug Greffe	(623) 869 - 2268	(623) 323 - 5413	No Conflict of facilities in described location	CAWCD01
Sent	City of Goodyear	EFFLUENT, FIBER, RECLAIMED WATER, SEWER, TRAFFIC SIGNALS, WATER	PURPLE, GREEN, BLUE, ORANGE w/F, RED	Public Works & Water Resources	(623) 932 - 3010	(623) 932 - 3010	No Response	GDYALL01
Sent	Cox Communications-Maricopa County	CATV, FIBER	Orange, Orange w/F	Gwendalyn Garcia	(623) 328 - 4073	(623) 322 - 7278	No Response	COXALL01
Sent	Kinder Morgan Energy / Phx	PETROLEUM	Yellow	Dan Tarango	(602) 278 - 8564	(602) 278 - 8564	Marked completely	KMEPGS01
Sent	Level 3 Communications, LLC	FIBER	Orange w/F	Judy Henry	(877) 366 - 8344	(877) 366 - 8344	No Response	LV3FBR01
Sent	Maricopa County Dept of Transp.	TRAFFIC SIGNALS	Red	STEVE POOLE	(602) 506 - 8660	(602) 723 - 6748	No Response	MCPACO01
Sent	MCI	FIBER	Orange w/F	Supervisor on duty	(800) 624 - 9675	(800) 289 - 3427	No Response	MCI01
Sent	Qwest Communications Network	FIBER	Orange w/F	Tom Sturmer (QLN)	(303) 707 - 3680	(800) 283 - 4237	No Response	QWEST
Sent	Qwest Local Networks	COAXIAL, FIBER	ORANGE, ORANGE w/F	ELM Locating Recalls and Unknowns: East	(623) 869 - 0820	(800) 283 - 4237	No Response	QLNAZ201
Sent	Roosevelt Irrigation District	IRRIGATION	Blue	KEN CRAIG	(623) 386 - 2046	(623) 386 - 2046	No Response	ROOSID01
Sent	Southwest Gas Contract Locator SW	GAS	YELLOW	ELM Locating Dispatch/ SWG-Unkn-Ric Torres 602-763-4542	(623) 780 - 3350	(602) 271 - 4277	No Response	SWGCLSW
Sent	Southwest Gas High Pressure SW	HIGH PRESSURE GAS	YELLOW	Andy Lugo	(602) 484 - 5345	(602) 271 - 4277	No Response	SWGHSW_4
Sent	Sprint Communications Company	FIBER	Orange w/F	Sprint Dispatch	(800) 521 - 0579	(800) 521 - 0579	No Response	SPRINT01
LBP	Cotton Lane RV MH Resort	EXCAV NOTIFY BY CERTIFIED MAIL	EXCAVATOR MUST NOTIFY LANDLORD	Chip Jordan, Roles Inn of America, P.O. Box 74767 Phoenix, AZ 85087, 602-309-3023, 623-465-	(602) 309 - 3023		No Response	CLRMHP01

Ticket No: 2010011100482.000 DESIGN

Send To: Map Ref:

Original Due Date: / / Time: :
 Transmission Date: 01/11/2010 Time: 12:05 PM Op: SARAH.M
 Work Start Date: 01/27/2010 Time: 8:00 AM

Due Date: 01/26/2010 Time: 5:00 PM

Location of Work: STREET ADDRESS: TUTHILL RD, CROSS STREET: W YUMA RD
 : LOC 60FT WD PATH USING A PT 30FT N/ OF THE C/L OF ROOSEVELT IRRIGATION
 : CANAL LOCATED APX 1/4 MI S/ OF YUMA RD AS C/L OF PATH STARTING @ THE N/W
 : CRN OF THE INTER OF TUTHILL RD & ROOSEVELT IRRIGATION CANAL GOING W/
 : ALONG CANAL TO A PT APX 1/2 MI W/ OF RAINBOW WHICH IS 233RD AVE TO INCL
 : 60FT WD PATH USING 30FT W/ OF THE C/L OF 233RD AVE AS C/L OF PATH GOING
 : S/ FOR APX 3MI TO THE N/SD OF AZ RT 85

Type of Work: LARGE SCALE ALIGNMENT STUDY FOR FOR DRAINAGE IMPROVEMENTS

Hundred Block: ACCESS IS OPEN ADDRESS IS POSTED SITE WHITE LINED
 Explosives: N Permit#: N
 Overhead: N Job#: FRF4 ALIGN Offsets: Y

Remarks: ***Boring = NO
 : **DESIGN : PLS SEND ALL PRINTS AND PLANS TO OLSSON ASSOCIATES
 : ATTN: DUC DAO @ 7250 N 16TH S, SUITE 210, PHOENIX AZ 85020

Company: OLSSON ASSOCIATES Best Time: 8AM-5PM M-F
 Contact Name: DUC DAO Phone: (602)748-1000
 Alt. Contact Fax Phone: (602)748-1001
 Phone:

State: AZ County: MARICOPA City: BUCKEYE
 Address: Street: TUTHILL RD
 Twp: 1N Rng: 2W Sect-Qtr: 17-NW,18-NE-NW
 Twp: 1N Rng: 3W Sect-Qtr: 13-NE-SE-SW,14-SE,22-NE-NW-SW
 Twp: 1N Rng: 3W Sect-Qtr: 23-NE-NW,27-NW-SW,34-NW-SW
 Twp: 1S Rng: 3W Sect-Qtr: 03-NW

Lat/Lon: 33.4341020 -112.5535890 33.4341020 -112.4952680
 33.3771360 -112.4952680 33.3771360 -112.5535890

ARIZONA PUBLIC SERVICE - CONTRACT LOCATOR WE Type: ELECTRIC
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: WATER
 ARIZONA PUBLIC SERVICE-MAIN STATE OFFICE Type: ELECTRIC
 BUCKEYE WATER CONSV. & DRAIN. DIST. Type: ELECTRIC, IRRIGATION
 COX COMMUNICATIONS- MARICOPA COUNTY Type: CATV, FIBER
 KINDER MORGAN ENERGY / PHX Type: PETROLEUM
 LEVEL 3 COMMUNICATIONS, LLC Type: FIBER
 MCI Type: FIBER
 QWEST COMMUNICATIONS NETWORK Type: FIBER
 QWEST LOCAL NETWORKS Type: COAXIAL, FIBER
 ROOSEVELT IRRIGATION DISTRICT Type: IRRIGATION
 SOUTHWEST GAS HIGH PRESSURE SW Type: HIGH PRESSURE GAS
 TOWN OF BUCKEYE Type: SEWER, WATER
 VALENCIA WATER COMPANY Type: WATER

Above, we have provided the names of underground facility owners affected by your excavation. If a telephone number is listed, you must contact that facility owner directly to notify them of your excavation (pursuant to A.R.S. Article 6.3, Section 40-360.32).

Status	Member Name	Facility Type (s)	Marking Color(s)	Contact	Phone Number (s)	Emergency Phone	Last Response	Service Area Code
Sent	Arizona Public Service -	ELECTRIC	RED	ELM Locators/Recalls and Unknowns	(602) 493 -	(602) 371 -	Unmarked - No locate	APSCLW01

	Contract Locator West Sid			Call APS Rep:Jolie Burow	4225	7171	required contractually	
Sent	Arizona Public Service-Main State office	WATER	BLUE	Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSNUC01
Sent	Arizona Public Service-Main State office	ELECTRIC	Red	ELM Locators/Recalls and Unknowns Call APS Rep:Jolie Burow	(602) 493 - 4225	(602) 371 - 7171	Unmarked - No locate required contractually	APSBUC01
Sent	Buckeye Water Consv. & Drain. Dist.	ELECTRIC, IRRIGATION	Red, Blue	Larry Owens	(623) 386 - 2196	(602) 722 - 7251	No Response	BWCDD01
Sent	Cox Communications- Maricopa County	CATV, FIBER	Orange, Orange w/F	Gwendalyn Garcia	(623) 328 - 4073	(623) 322 - 7278	No Response	COXALL01
Sent	Kinder Morgan Energy / Phx	PETROLEUM	Yellow	Dan Tarango	(602) 278 - 8564	(602) 278 - 8564	Marked completely	KMEPGS01
Sent	Level 3 Communications, LLC	FIBER	Orange w/F	Judy Henry	(877) 366 - 8344	(877) 366 - 8344	No Response	LV3FBR01
Sent	MCI	FIBER	Orange w/F	Supervisor on duty	(800) 624 - 9675	(800) 289 - 3427	No Response	MCI01
Sent	Qwest Communications Network	FIBER	Orange w/F	Tom Sturmer (QLN)	(303) 707 - 3680	(800) 283 - 4237	No Response	QWEST
Sent	Qwest Local Networks	COAXIAL, FIBER	ORANGE, ORANGE w/F	ELM Locating Recalls and Unknowns: East	(623) 869 - 0820	(800) 283 - 4237	No Response	QLNAZ201
Sent	Roosevelt Irrigation District	IRRIGATION	Blue	KEN CRAIG	(623) 386 - 2046	(623) 386 - 2046	No Response	ROOSID01
Sent	Southwest Gas High Pressure SW	HIGH PRESSURE GAS	YELLOW	Andy Lugo	(602) 484 - 5345	(602) 271 - 4277	No Response	SWGHSW_4
Sent	Town of Buckeye	SEWER, WATER	Green, Blue	Manuel Alvarez	(623) 349 - 6800	(623) 694 - 5824	No Response	BKEYUT01
Sent	Valencia Water Company	WATER	Blue	Mark Duhamell	(602) 550 - 5200	(602) 213 - 1308	Marked completely	VLNCWT01

APPENDIX B
MEETING MINUTES



**WHITE TANKS FRS #4
OUTLET FACILITY DESIGN CONCEPT REPORT
FCD 2008 C013
ASSIGNMENT NO. 3**

**Kickoff Meeting Minutes
January 7, 2010
3:00 pm**

ATTENDEES

See attached list.

INTRODUCTION

The meeting began with self introduction of the project team members.

PROJECT OVERVIEW

Jeff Ford, Olsson Associates, began by giving a project overview to the group for the White Tanks FRS #4 Outlet Alignment Alternative DCR project. The project is to evaluate six alignments to determine the best route for the FRS #4 outlet. The FRS #4 outlet flow rate is to be 300 cfs. Part of the alignment analysis is to include potential tie-ins with the Future Buckeye and White Tanks ADMP study improvements. The outlet system will consider both open channel and storm drain or a combination system. Alignments #2 thru #6 outlet at the Gila River and Alignment #7 would consider tying into the Roosevelt Irrigation District Canal. Alignment #1 was eliminated prior to the kickoff meeting by the District and will not be considered in this DCR.

Jeff presented a draft Table of Contents for the DCR to the team. The following sections will be included with the DCR.

- I. Introduction
- II. Alternatives (Six Alignment Alternatives)
- III. Alternative Evaluation
- IV. Recommended Alternative (Final DCR)

The Alternative Evaluation will explain the evaluation criteria for each alignment and will include the following information:

Utility Impacts
Right of Way Impacts

Opportunities for ADMP alignment tie-ins
Cost Analysis

The Final DCR will include 15% Preferred Alternative Plans as well as exhibit alternatives for the six alignments considered.

PROJECT SCHEDULE

Draft DCR

The next milestone for the project is the submittal of the Draft DCR for review to the District on February 4th, 2010. Comments from the District to Olsson will be due on February 26th, 2010. Olsson will compile the comments and a comment resolution meeting with the project stakeholders will be held at the District on March 4th, 2010.

Preferred Alternative Preparation

After the comment resolution meeting Olsson will Finalize the DCR which will be submitted to the District for review on March 25th, 2010. Comments from the District will be due back to Olsson on April 9th, 2010. Comments will be compiled and distributed by Olsson for the second comment resolution meeting which will be held at the District on April 15th, 2010.

Any updates and changes as per the second comment resolution meeting will be incorporated and the Final DCR will be submitted to the district on April 29th, 2010.

EVALUATION MATRIX

The evaluation matrix will be a narrative based matrix which will include advantages and disadvantages for each of the six alignments. A cost analysis/comparison will also be included for each of the six alignments.

The team has looked at the following criteria for each of the six alignments.

- ADMP Overlaps
- Pipe vs. Channel – Challenges with low point areas
- Overall Alignment Lengths
- Right of Way
- Utilities Crossings

Scott also mentioned that the team will want to include alternative pipe material options because of cost. Two materials to be considered include non reinforced pipe and concrete lined corrugated metal pipe.

Jeff presented Slope/Pipe analysis for 60", 66" and 72" diameter pipe.

Jeff went over the six alignments.

Greg Jones, MCFCD, spoke about how advantages and disadvantages should be determined for the six alignments. For example alignment #2 has potential to build full outfall improvements with the Town of Buckeye to pay for half the costs to the north since the alignment matches an

ADMP alignment. Greg also had concerns with alignments 2 & 3 around the Buckeye Canal area as there is a seven foot depression (Dean's Drain Area).

Alignment 6 is along the ADOT Future 303 corridor. ADOT would implement improvements to Van Buren Street and the District would be responsible from Van Buren Street to the Gila River. The 303 system is a series of basin which currently handle 175 cfs, outleting 300 cfs would require the district to upsize the 303 system north of Van Buren Street. Jeff asked Scott how he would like Olsson to evaluate alignment 6 with the upsizing impacts. Do we look at the HEC model peak for the upsizing? Scott said to include the cost to take the outlet to Alignment #6 and upsize the 303 drainage improvements. Olsson does not need to look at the hydrology for the upsizing at this point. The 303 drainage needs to be completed prior to 2015. The dam construction is scheduled to begin in 2011. Spill ways will come after the dam (2012), outlets will be part of phase 1 construction.

Currently the provisional plan is for a 100 cfs outlet utilizing the Blue Horizon Channel in lieu of the 300 cfs outlet.

Utility Crossings

All five alignments will have utility crossings with the following utilities:

Roosevelt Irrigation District Canal
Buckeye Irrigation District Canal
APS Effluent Palo Verde Water Line (96" Diameter)
Fiber Optics
Kinder Morgan – Gas

Alignment #7 discharge flows from the dam to the Roosevelt Irrigation District Canal. Overflow from the dam is currently going to the RID today. The ultimate outflow from the dam will be 300 cfs, the interim is 100 cfs. This RID option would require agreements and coordination with the RID as well as operations plan. The RID Canal outlets into the Hassayampa River.

Need to also look at Right of Way constraints for each alignment. MCDOT and City Roadway would require installation by permit and private roads would require acquisition of easements. Jeff asked if URS or the FCD could provide the utility electronic base file information to Olsson. Greg said that he doubts URS has that information anymore, but he would check the District to see if that information was available.

Scott brought up the option or idea to also look at a pressure outlet system vs. a non-pressurized storm drain system. This could potential help in the depressed, flat area.

The final main dam plans are scheduled to be submitted in October 2010.

Meeting Minutes prepared by:

If these Meeting Minutes do not accurately affect your understanding of the meeting or if something is missing, please notify us.



**WHITE TANKS FRS #4
OUTLET FACILITY DESIGN CONCEPT REPORT
FCD 2008 C013
ASSIGNMENT NO. 3**

**Progress Meeting No. 1 Meeting Minutes
January 21, 2010
3:00 pm**

ATTENDEES

See attached list.

INTRODUCTION

The meeting began with self introductions of the project team members.

PROJECT OVERVIEW

Jeff Ford, Olsson Associates, began by outlining the approach to the meeting, the first 30 minutes would be an overall discussion on the progress that has occurred since the initial kickoff meeting 2 weeks ago on January 7th, 2010. The second half of the meeting would allow the team to take a closer in depth look at the opportunities and constraints for the identified six alignments.

The White Tanks FRS#4 Outlet DCR originally included seven alignments (alignments #1 thru #7) for study and evaluation. Alignment #1 was eliminated by the District before the kickoff meeting. Thus, the White Tanks #4 Outlet DCR will not include Alignment #1 in the alignment study evaluation. However, the naming convention used to denote Alignments #2 thru #7 will remain.

A cost estimate as well as advantages and disadvantages will be listed for each alternative. Utilities, constructability, right of way requirements, and opportunities to incorporate the ADMP solutions into White Tanks FRS #4 outlet will also be evaluated.

PROJECT SCHEDULE

Draft DCR

The next milestone for the project is the submittal of the Draft DCR for review to the District on February 4th, 2010. Comments from the District to Olsson will be due on February 26th, 2010. Olsson will compile the comments and a comment resolution meeting with the project stakeholders will be held at the District on March 4th, 2010.

Preferred Alternative Preparation

After the comment resolution meeting Olsson will Finalize the DCR which will be submitted to the District for review on March 25th, 2010. Comments from the District will be due back to Olsson on April 9th, 2010. Comments will be compiled and distributed by Olsson for the second comment resolution meeting which will be held at the District on April 15th, 2010.

Any updates and changes as per the second comment resolution meeting will be incorporated and the Final DCR will be submitted to the district on April 29th, 2010.

ALIGNMENT ALTERNATIVE ANALYSIS

The team has looked at the following criteria for each of the six alignments.

- ADMP Overlaps
- Pipe vs. Channel – Challenges with low point areas
- Overall Alignment Lengths
- Right of Way
- Utilities Crossings

ADMP Overlaps

Alignment #2 Buckeye ADMP

In looking at potential joint ADMP alignment solutions, Alignment #2 shares the same alignment routing as shown in the Buckeye ADMP. Alignment #2 begins at the FRS structure continues south on Tuthill Avenue to the Buckeye Irrigation District Canal where the alignment heads west to Watson Road crossing the BID Canal and continuing south to the Gila River reaching the final outlet.

Alignment #2 White Tanks ADMP

Alignment #2 also shares the same alignment as shown in the White Tanks ADMP, however the ADMP alignment continued on south along Tuthill Avenue at the BID Canal. The White Tanks ADMP shows an open channel resulting in a perched channel that is approximately 6 ft high at the Gila River Outlet.

Alignment #6 White Tanks ADMP

The future loop 303 corridor alignment #6 starts at the FRS #4 outlet heading east along Van Buren Street and continues south along Cotton Lane where it reaches the Gila River Outlet. This alignment is similar to the open channel alignment shown in the White Tanks ADMP.

Pipe vs. Channel

The team has looked at integrating combinations of open channel and storm drain solutions for each of the six alignment alternatives. The team created six profiles showing the grade challenges for each of the six alignment alternatives.

Alignments #2, #3, & #4

The profiles show low spots around the *Dean Depression* area making an open channel option difficult. In looking at a storm drain solution Alignments 2 & 3 would require a pressurized pipe solution to help utilize head to push conveyance through the low spot area. The team has looked at a couple of different pipe materials, joint/fittings, and manhole options.

Alignment #6

The proposed L303 channel is currently designed with a minimum flow depth of 3.8 ft, thus requiring an additional 10 ft channel width to accommodate the 300 cfs if the flow is concurrent. Valerie mentioned the 303 channel would be a 2:1 slope. The FCD has purchased land for the Basin. The Loop 303 channel is designed for between 150 cfs to 250 cfs. Mike Duncan is the Project Manager for that project and Jeff will coordinate with Mike to review the availability here.

Scott asked that a discussion regarding the applicability of channels, pressurized storm drain, and non-pressurized storm drain be provided for each alternative. Alignments 2, 3, & 4 will not work for a non-pressurized storm drain system due to the depression / low spot area.

Overall Alignment Lengths

Jeff provided an initial cost estimate for a storm drain solution based on the Alignment length. Below are the alignment lengths for the six alternatives.

- Alignment 02 - 9.5 Miles
- Alignment 03 - 7 Miles
- Alignment 04 - 6.7 Miles
- Alignment 05 - 7.2 Miles
- Alignment 06 - 8.2 Miles
- Alignment 07 - 1.2 Miles

Alignment #2 & #3 as previously discussed do not work well with the ADMP channelized solution because of the Dean Depression / low spot. When looking at the storm drain solution which would require a pressurized storm drain the additional length of pipe along the BID Canal puts these two alternatives in the not feasible category.

Alignment #4 is also in the category for the pressurized storm drain solution is a more direct alignment that avoids traveling along the canal.

Alignment #5 & #6 both have longer runs along Van Buren Street prior to heading south to reach the Gila River.

Alignment #7 would require coordination between the MCFCD and the Roosevelt Irrigation District, RID, prior to discharge. Scott also mention that a meeting with the RID would need to occur to fully understand the RID canal capacity and if 300 cfs could be accommodated by the district's canal. The Stantec contacts are Mike Gurlock and Walt Cooper. Valerie has contact information for Stan Ashbe at the RID. Scott would like to see this information in the DCR in regards to pro/con for the Alignment #7 option.

Right of Way

In looking at the Right of Way analysis the value of property used in the previous studies approximately four years ago was \$200K per acre, however due to current market conditions a value of \$60K per acre is being used. The DCR will include ROW impact within the alignment studies along with structure vs. land without structure acquisition.

Utilities Crossings

The six alignment alternatives all have the same utility crossings constraints (with the exception of Alternative #7 ending at the RID).

The following utility crossings exist for alignments #2 thru #6.

- Roosevelt Irrigation District Canal
- Kinder Morgan Gas Line
- APS – Palo Verde 96” diameter Effluent Discharge line
- Southern Pacific Railroad
- Buckeye Irrigation District Canal

Due to the close proximity of the APS 96” diameter Effluent line and the BID Canal a siphon might have to be considered between these two utilities. In looking at the White Tanks ADMP the APS crossings show cover of 6, 8, and 10 ft. The BID canal is higher and further south of the APS effluent line.

Olsson has completed a blue stake request for identification of utilities along each of the alignments. Olsson has contacted APS in regards to the 96” diameter Palo Verde Effluent line in regards to as-built information, but have not acquired this information from APS. The APS representative did not acknowledge the Palo Verde Effluent line. Valerie said she will send an email with a contact for the APS Palo Verde line. Security issues and concerns might be a factor in acquiring this information.

Bullard Wash Outlet

Gary Shapiro asked if continuing the outlet to the east 2 miles and out letting into Bullard Wash was an option. This alignment will avoid many of the utility crossings and will be added as alignment #8.

Bullard Wash has a capacity of approximately 3,200 cfs.

Meeting Minutes prepared by:

If these Meeting Minutes do not accurately affect your understanding of the meeting or if something is missing, please notify us.



WHITE TANKS FRS #4
OUTLET FACILITY DESIGN CONCEPT REPORT
PROGRESS MEETING NO. 1
SIGN IN SHEET
January 21, 2010, 3:00 pm

PRESENT	NAME	TITLE	ADDRESS	Phone / e-mail:
<i>CSV</i>	Scott Vogel	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-4771 csv@mail.maricopa.gov
<i>GS</i>	Gary Shapiro	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-3076 ghs@mail.maricopa.gov
<i>VS</i>	Valerie Swick	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-2929 vas@mail.maricopa.gov
	Doug Williams	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-8743 daw@mail.maricopa.gov
	Tom Renckly	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 508-8610 trr@mail.maricopa.gov
<i>DD</i>	Dave Degerness	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-4730 did@mail.maricopa.gov
<i>X</i>	Jeff Ford	Project Manager Olsson Associates	7250 N. 16th Street, Suite 210 Phoenix, AZ 85020	(480) 333-4325; (602) 402-9909 (cell) jford@oaconsulting.com
<i>X</i>	Sean Wozny	Project Engineer Olsson Associates	7250 N. 16th Street, Suite 210 Phoenix, AZ 85020	(480) 333-4326 swozny@oaconsulting.com
<i>X</i>	<i>Jul DAO</i>	<i>Olsson</i>	<i>^</i>	<i>ddao@oaconsulting.com</i>
<i>X</i>	<i>Don Berick</i>	<i>FCDMC</i>		



**WHITE TANKS FRS #4
OUTLET FACILITY DESIGN CONCEPT REPORT
FCD 2008 C013
ASSIGNMENT NO. 3**

**Roosevelt Irrigation District Coordination Meeting Minutes
January 29, 2010
9:00 AM**

ATTENDEES

See attached list.

INTRODUCTION

The meeting began with self introductions of the project team members.

PROJECT OVERVIEW

Jeff Ford, Olsson Associates, provided a quick project overview outlining the objective of this assignment from the MCFCD is to evaluate alignments to outlet 300 cfs from the White Tanks FRS #4 to the Gila River. The alignment corridors range from 7 to 9 miles. The 7th alignment is an option to discharge 300 cfs to the Roosevelt Irrigation District Canal. The purpose of this meeting is to discuss the feasibility of this option with the RID.

ALIGNMENT #7 DISCUSSION

Stan Ashby, Roosevelt Irrigation District, was represented by Walt Cooper and Melody Zyburt, Stantec Consulting. Stan began the discussion by saying this does not work and he referred back to his first hand experience on August 15th, 1990 when the FRS #4 overflowed down Tuthill Road to the RID Canal.

Walt Cooper, Stantec, spoke about the capacity of the RID Canal being around 450 cfs in this area. The FRS #4 300 cfs would have to be a regulated into the RID Canal. The RID is currently having capacity issues due to the urbanization upstream. During the summer they are right at capacity and having to shift water downstream. Adding the 300 cfs especially during the summer would mean 700 – 750 cfs which would not currently work with the current canal. Accepting the FRS 300 cfs would require the RID to shut off water upstream to accommodate the FRS outlet flow while still maintaining delivery of irrigation water to RID customers downstream.

Valerie Swick, MCFCD, spoke about the possibility of transferring flows down to the Buckeye Irrigation Canal by Watson Road.

The FRS #4 is currently in design and will carry initial discharges through the principal spillway. The outlet from the FRS will be a pipe through the dam and not over the top of the facility. The NRCS Riser is not gated.

Jeff Ford, Olsson, spoke about the 303 corridor south of the I-10 and how the District could carry/divert additional flows here prior to Tuthill Road. Bullard Wash would also be an option and has a larger capacity.

Walt spoke about the current canal requirements as the RID canal carries flow at 1 fps and has 3 hours to clear water. The canal is not designed for flood control structures and would require improvements. The canal gate and check valves are manually operated.

Dave Degerness, MCFCD, spoke about the controlling storm event for the FRS #4 being the 6 hr, 100 year PMF event which would produce 10 to 11 inches requiring 2 to 3 hours discharge.

The minimum requirement for total capacity discharge of the FRS #4 dam structure is 10 days. The 300 cfs accomplishes this within 7 to 8 days meeting the 10 day requirement.

The sediment pool is 95 ac ft and the dam is designed to hold the sediment as the NRCS inlet is 4 to 6 feet above this floor of the dam.

Walt spoke about the balancing act for the RID to maintain delivery to downstream customers even when a storm event occurs. The canal would require modifications to existing structures and new automated controls to accommodate the FRS #4 300 cfs discharge. The RID would need automated gate and check controls to maintain upstream water elevation in order to let FRS #4 discharge flows pass downstream.

Trash management would be an issue as the canal is too large for manually cleaning trash racks, but automatic trash racks would still require maintenance to collect and haul trash away.

Scott Vogel, MCFCD, asked Stan about water quality issues and if the irrigation water required NPDES permitting. Stan said the RID would need a NPDES permit to discharge stormwater into the RID canal. The RID's mission is to deliver irrigation water to its customers. These customers make up the board as they have ownership of the RID and ultimately have a voice in how water is provided. The RID is also looking at future potable water uses in their canal.

CHANNEL CROSSING REQUIREMENTS WITH THE RID

The RID canal does not have much fall. Crossing underneath the RID has to be timed with the RID dry up season which is an 11 day window in November. Jack and Bore is acceptable for pipe crossings however not sure this is feasible with a 72" or 78" pipe diameter. Open trench excavation requirements require 4 ft cover from the bottom of canal (nothing less than 2ft and slurry would be required).

Walt also added that the Buckeye Canal would have similar constraints for crossings. BID on the same dry up schedule as the RID – 2nd or 3rd week in November for dry up.

Any improvements or teaming would require RID Board approval.

The three crossing options include:

- Siphon
- Box
- Pipe

Crossing improvements with the BID canal would require lining improvements (shotcrete) 50 ft of center line as it is not currently lined.

Walt spoke about the Susie Dean Drain, but that area is so flat the size of the storage is needed to push drainage to the river.

The MCFCD will not pursue Alignment #7. Scott explained that the FCD is at the DCR phase and needs to evaluate all the options to determine the best alignment. Scott appreciated the information provided by the RID and learned a lot regarding the RID's canals and the delivery of irrigation water.

Meeting Minutes prepared by:

If these Meeting Minutes do not accurately affect your understanding of the meeting or if something is missing, please notify us.



WHITE TANKS FRS #4
OUTLET FACILITY DESIGN CONCEPT REPORT
RID COODINATION MEETING
SIGN IN SHEET
January 29, 2010, 9:00 am

PRESENT	NAME	TITLE	ADDRESS	Phone / e-mail:
CSV	Scott Vogel	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-4771 csv@mail.maricopa.gov
MSK	Gary Shapiro	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-3076 gsh@mail.maricopa.gov
VAS	Valerie Swick	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-2929 vas@mail.maricopa.gov
	Doug Williams	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-8743 dsw@mail.maricopa.gov
	Tom Renckly	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-8610 trr@mail.maricopa.gov
DJD	Dave Degerness	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-4730 djd@mail.maricopa.gov
JCF	Jeff Ford	Project Manager Olsson Associates	7250 N. 16th Street, Suite 210 Phoenix, AZ 85020	(480) 333-4325; (602) 402-9909 (cell) jford@oaconsulting.com
SW	Sean Wozny	Project Engineer Olsson Associates	7250 N. 16th Street, Suite 210 Phoenix, AZ 85020	(480) 333-4326 swozny@oaconsulting.com
	WALT COOPER	MANTEC		602 438 2200 WALT.COOPER@MANTEC.COM
	Melody Zupar	Stantec	8211 S 48th St Phoenix, AZ 85044	602-438-2200 melody.zupar@stantec.com
	Stann Hshby	R.I.D	103 W. Baseline Rd Chandler, AZ 85326	623-386-1046



**WHITE TANKS FRS #4
OUTLET FACILITY DESIGN CONCEPT REPORT
FCD 2008 C013
ASSIGNMENT NO. 3**

**Draft DCR Comment Resolution Meeting
March 4th, 2010
3:00 PM**

ATTENDEES

See attached list.

COMMENT RESOLUTION

Jeff Ford, Olsson Associates, distributed the compiled comments for the White Tanks FRS #4 project. Comments were received from Scott Vogel, FCDMC, and Mike Duncan, FCDMC. Gary Shapiro, FCDMC, also submitted comments to Jeff Ford at the meeting.

The following comments were discussed and resolution was provided as follows:

Comment #1: We discussed an option like Alternative 2, but that would use the Watson Drain or similar outfall to the Gila River. Information on the feasibility of this would be helpful.

Resolution: Alternative no. 2 in the Draft DCR does include and document an alignment along Watson. During the refinement of alternatives, alignment 3A would tie-into the BID canal resulting in a more cost effective alignment due to the length of run. Scott wanted to make sure that this was considered, evaluated and documented in the DCR.

Comment #2: On Alternative 3, the existing grade elevation at the Gila River does not match the dashed line shown as existing grade on the P&P. This seems to occur in a few places. We just need to ensure that the information used to investigate the alternatives was accurate, as we are tossing out some alternatives based on the rise back to the river.

Resolution: A QA/QC will be conducted to verify the existing profile grades for all the alternatives.

Comment #3: How was the data collection for the utilities performed? I want to make sure we have captured the entirety of the critical utilities.

Resolution: Jeff provided Scott a copy of the Olsson Utility Memo that has documented the process of how the existing utility information was obtained. Scott provided the Olsson Utility Memo to Gary Maiers, FCDMC. Jeff also distributed a preliminary copy of the pothole exhibit plans identifying the proposed pothole locations. The finalized pothole exhibit will be submitted to the FCD on Monday March 8th, 2010. Olsson survey crew forces will verify existing sanitary sewer invert information, irrigation canal culvert crossing inverts and sizes, and the depth of the RID Canal next week. Stantec said to assume the canal to be at most six feet in depth. Scott wanted to also note that the pothole exhibits add information regarding the top and the bottom of the utility be identified.

Comments #4 - #6 were submitted by Mike Duncan, FCDMC

Comment #4: Jurisdictional Map of draft DCR, the Town of Buckeye and Unincorporated labels in legend need to be swapped; see attachment.

Comment #5: The shading is incomplete at the upper left; see attachment.

Comment #6: At Appendix F for Alt. 6, what are the two dashed lines with long dashes? See attachment. If they are for Hydraulic Grade line and Energy Grade line, a difference of 19 ft. between them would correspond to 35 fps, which would be unreasonable. I would expect a velocity of 8 or 10 or so fps.

Resolution: Jeff acknowledged Mike's comments with an 'A' response of will comply.

Gary Shapiro, FCDMC, provided a copy of his comments to Jeff Ford. Jeff read through the comments and provide Gary with an all 'A's' response as the majority of Gary's comments dealt with further refinement of Alignment #6 to identify any fatal flaws. Jeff said we are currently tracking down and updating utility information and have started to refine the horizontal alignment and begin looking at the profile and tie-in with the 303 drainage improvements at Cotton Lane.

Mike Duncan, FCDMC, said that his drainage channel for the 303 will start 250 feet south of Van Buren Street.

Jeff spoke about the right-of-way and 55ft wide Maricopa County Street easement provided in 1962 from the AZ State Land Department. The Blue Horizon drainage channel is currently within this 55 ft wide street easement. Drainage facilities are not allowed in the street easement.

Dave provided the legal information that he tracked down from Ken Anderssohn – property management specialist with Maricopa County Public Works.

Valerie Swick, FCDMC, spoke about Buckeye having a plan for the commercial area on the northwest corner of Jackrabbit and Van Buren Street. Valerie did provide this information to Jeff at the end of the meeting.

Dave Degerness, FCDMC, said the principal outlet being moved to the east end is not as deep as the west end. Scott asked if Jeff could provide an elevation at the outlet tie-in based on the minimum pipe cover. Jeff asked if the pipe needed to be at the lowest point. Dave said the pipe from the dam would outlet to a stilling basin. The outfall pipe could connect to the stilling basin, thus setting the elevation range for the outfall pipe outlet. Jeff said a optimum / variable depth range could be determined.

Jeff asked if a pressurized pipe system should be re-evaluated for Alignment #6. Dave said that he would prefer to avoid a pressurized pipe situation for the outlet based on some of the previous discussions with NRCS. Jeff spoke about the cost differential for the pressurized pipe system resulted in minimal changes in pipe diameter (six inch diameter reduction).

Scott said to proceed with the gravity system, but reference how the pressurized system was investigated and evaluated.

Jeff asked if anyone had any objections to proceeding with the Alignment #6 alignment.

Scott said to continue on with the development of the Alignment #6 alignment.

Olsson to finalize the pothole exhibit for the FCD on Monday.

DCR is due on March 25th, 2010.

The tie-in at the ADOT channel, Mike said he can work with Jeff in regards to the tie-in elevation which could be between six to 10 feet deep.

HGL to be six inches below grade line, do not include any storm drain inlets along Van Buren Street in the DCR.

Jeff was planning on going through the FCD on-call for the pothole contractor.

This is the last meeting before the final DCR on March 25th, 2010.

Meeting Minutes prepared by: Olsson Associates

**White Tanks FRS #4
Outlet Study**

**Meeting #4 RID Coordination
March 4, 2010**

If these Meeting Minutes do not accurately affect your understanding of the meeting or if something is missing, please notify us.



**WHITE TANKS FRS #4
OUTLET FACILITY DESIGN CONCEPT REPORT
Comment Resolution Meeting
SIGN IN SHEET
March 4, 2010, 3:00 pm**

PRESENT	NAME	TITLE	ADDRESS	Phone / e-mail:
CSV	Scott Vogel	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-4771 csv@mail.maricopa.gov
GH	Gary Shapiro	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-3076 ghs@mail.maricopa.gov
VS	Valerie Swick	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-2929 vas@mail.maricopa.gov
	Doug Williams	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-8743 daw@mail.maricopa.gov
MD	Mike Duncan	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-4732 mwd@mail.maricopa.gov
	Tom Renckly	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-8610 tr@mail.maricopa.gov
DD	Dave Degerness	FCDMC	2801 W. Durango St. Phoenix, AZ 85009	(602) 506-4730 djd@mail.maricopa.gov
JCF	Jeff Ford	Project Manager Olsson Associates	7250 N. 16th Street, Suite 210 Phoenix, AZ 85020	(480) 333-4325; (602) 402-9909 (cell) ford@oaconsulting.com
SW	Sean Wozny	Project Engineer Olsson Associates	7250 N. 16th Street, Suite 210 Phoenix, AZ 85020	(480) 333-4326 swozny@oaconsulting.com
	GARY MAISE	FCDMC		gsm@mail.maricopa.gov
	Amir Mohamed	FCDMC	Same as above	amir@mail.maricopa.gov
	Ken Rieker	FCDMC	Same	kenr@mail.maricopa.gov



**WHITE TANKS FRS #4
OUTLET FACILITY DESIGN CONCEPT REPORT
FCD 2008 C013
ASSIGNMENT NO. 3**

**Progress Meeting #3
April 14th, 2010
11:00 AM**

ATTENDEES

See attached list.

COMMENT RESOLUTION

Jeff Ford, Olsson Associates, distributed the compiled comments for the White Tanks FRS #4 project. Comments were received from Scott Vogel, Mike Duncan, Gary Shapiro, Kenneth Rakestraw, Gary Maiers, and John Holmes of the FCDMC. Scott Vogel passed out comments from Tom Renckly, FCDMC.

Jeff began by addressing Tom Renckly's comments.

Comment #1 Discharge rate of 300 cfs from White Tanks FRS No. 4 is an estimate and will be refined / finalized in the Phase II design of the White Tanks 4 FRS. Recommend indicating in the report that the WT#4 Outlet Design team must verify the WT#4 FRS discharge rate with the WT#4 FRS Rehab design team.

OA Response: A final design section will be inserted into the DCR report identifying the next steps and considerations for the final design.

Comment #2 Based on current discussions the new principal outlet at White Tanks FRS No. 4 is currently being designed on the east side to match be consistent with Alternative 6A. Recommend indicating this in the report.

OA Response: We will include the new location of the principal outlet within the report.

Comment #3 Recommend indicating in the report that the White Tanks FRS No. 4 Drainage Pipeline must be a dedicated system for the dam to the loop 303 drainage channel and must not allow "post construction drainage ties ins" from other sources. This should be so stated in the final design report.

OA Response: We will include a statement identifying this storm drain line is a dedicated storm drain line for the FRS#4 to the 303 drainage channel. We will also included a statement regarding the evaluation of catch basins will be considered during final design and any upsizing of the line will be at the expense of the partnering City or others.

Comment #4 Reference page 26 “advantages” second bullet. Note that any “potential to incorporate street drainage” must be in reference to the original design of the pipeline and appropriate cost share by others and not post design/construction (see comment 3).

OA Response: We will include a statement identifying this storm drain line is a dedicated storm drain line for the FRS#4 to the 303 drainage channel. We will also included a statement regarding the evaluation of catch basins will be considered during final design and any upsizing of the line will be at the expense of the partnering City or others.

Comment #5 Reference page 26 “disadvantages” first bullet – “Costs of upsizing loop 303 channel unknown.” Recommend expanding this somewhat to indicate what the current thinking is i.e. increasing Loop 303 drainage channel by 100 cfs to 300 cfs and having discharges from WT#4 FRS as 100 cfs ungated and 200 cfs gated. Note that the WT#4 design team will still need to determine if this will work for WT#4 FRS for issues such as meeting NRCS requirements and storm/runoff/discharge timing issues.

OA Response: We will add the additional language regarding the discharge of flows from the FRS #4 by an ungated structure at 100 cfs and a gated structure at 200 cfs. We will talk about the need for the final design to evaluate and assess the level of risk associated with the discharging of 100 cfs as well as the additional 200 cfs (300 cfs) to the 303 drainage channel. This will require close coordination with the 303 design team and the FRS #4 Structure team as well as operational coordination.

Comment #6 Page 26 – Recommend a footnote on the total in the cost table that specifically indicates that the cost of upgrading loop 303 channel required by this alternative is not included in the estimate (same comment for similar tables in the report). Otherwise just by looking at the table it looks like \$12.08 million is the total cost of alternative 6A for example, which it is not.

OA Response: We will add the additional footnote regarding the cost of the 303 channel upsizing has not been considered.

Comment #7 Recommend describing in the report the connecting facility that will be required between the dam and the outlet pipeline and which design teams will be designing which portions. Right now I assume it will need to be some sort of energy dissipater structure and drop structure. Will WT#4 design team design the stilling basin with in WT#4 Phase II and the drop structure by the WT#4 pipeline design team? Recommend this be decided now and appropriate write up included in the report including the need for close coordination of the design efforts.

OA Response: We will add text identifying the design responsibilities for the connecting facility between the FRS #4 structure and outlet storm drain. We will also include text regarding the coordination required for this design effort.

Comments from Scott Vogel for the 15% design plans

1. Plan and profile should show the existing RID irrigation pipe crossing Van Buren immediately east of Citrus Road.

OA Response: We will add the RID pipe crossing to the profile.

2. Plan view should show the existing irrigation turnout structure in the side of the canal just west of the proposed storm drain crossing of the RID canal.

OA Response: We will add the irrigation turnout structure on the plans.

3. Plans should show the results of Pothole #5 of the CATV, near Station 113+00.

OA Response: We will include the Pothole #5 results for the CATV on the plans.

4. There is an existing Qwest manhole on the southwest corner of Van Buren and Perryville, near the location on the plans where the three CATV lines coming east on Van Buren "T" into the CATV coming north on Perryville. This appears to mix the Qwest and Cox facilities. Please reconcile.

OA Response: We will field and plan verify the utilities and reconcile prior to the final submittal.

Comments from Gary Maiers regarding the 15% design plans

1. Telephone appears to stop at Citrus Road, verify.

OA Response: We will field and plan verify the utilities and reconcile prior to the final submittal.

2. A second cable belonging to AT&T was not found but is still believed to exist. A meeting has been scheduled with AT&T to verify this information is correct.

OA Response: This utility is currently being re-potholed (April 14th, 2010).

3. 120+00 to 120+60 Four or more CATV cables are shown on one side of the road, two of which appear to stop at Vista de Montana Parkway. There are also multiple ducts on the opposite side of Van Buren which is unusual and should be verified.

OA Response: We will field and plan verify the utilities and reconcile prior to the final submittal.

4. 145+00 to Power is shown from these two stations and appears to end at Sta. 130+95. Has this been verified?

OA Response: We will field and plan verify the utilities and reconcile prior to the final submittal.

5. 130+95 to Gas is shown from Sta. 130+95 to Sta. 145+00 where it appears to end. Verify that this is accurate.

OA Response: We will field and plan verify the utilities and reconcile prior to the final submittal.

6. Stationing on these two pages is identical. Sheet 9 should start with Sta. 145+00 and go to 170+00.

OA Response: We will correct the stationing.

7. Typo - Open Channel - Second sentence does not make sense as written.

OA Response: We will make the correction.

8. Typo - Utilities - Last sentence should read: However, these crossing(s) will have to occur anyway (remove "s")

OA Response: We will make the correction.

9. Typo - Fourth paragraph under Selection of Preferred Alternative should read: Alignment 4 looked at (remove "a") tying into the Suzy Dean Drain alignment.

OA Response: We will make the correction.

10. Typo - This section may need to be re-written following a second attempt to locate and verify the AT&T cable information anticipated to occur the week of April 12, 2010.

OA Response: We will include the updated potholing results in this section.

Comments from John Holmes regarding the 15% design plans

1. Of the 15% Plans has incorrect stationing, shortening the distance of the storm drain by 2,500 linear feet. Please correct the stationing.

OA Response: We will verify the stationing however the length of storm drain quantities on the plans is correct.

Comments from Mike Duncan regarding the 15% design plans

1. Slope of Pipe Segments P-13, P-14, P-15, P-16 are less than the minimum of 0.001 of Section 4.2.2.3 of Design Approval II. Scott Vogel would like Olsson to look at the criteria identified by Mike.

OA Response: The storm drain design and slope meets the minimum velocity requirements. We will look at the requirements identified by Mike Duncan.

Comments from Gary Shapiro regarding the 15% design plans

1. At the basin site show the existing outlet and the new outlet with relative Q's.

OA Response: The FRS #4 phase two structure location will be in the east corner of the dam. The current pipe outlet location was viewed as acceptable.

2. One thing lacking is the 1-foot of freeboard between the HGL and ground. Or provide bolt down manhole covers. Identify manhole locations.

OA Response: We have two areas that provide 6-inches of freeboard between the HGL and ground. We will add the manhole locations and look at providing bolt down manhole covers as well.

3. The outlet at the 303 is about 250-feet south of Van Buren.

OA Response: We will show the FCD 303 channel location as requested.

4. Need to see White Tanks FRS # 4 outlet structure and stilling basin. Need to see 303 structure.

OA Response: In terms of the FRS #4 structure, Dave Degerness, confirmed that the structure is in design and he does not have an exact location, but the pipe outlet as shown on the design plans is the area where the connection point to the stilling basin will occur.

5. Is there a way to provide for future catch basins along Van Buren without jeopardizing the 300 cfs capacity?

OA Response: We will include a statement identifying this storm drain line is a dedicated storm drain line for the FRS#4 to the 303 drainage channel. We will also included a statement regarding the evaluation of catch basins will be considered during final design and any upsizing of the line will be at the expense of the partnering City or others.

Comments by Kenneth Rakestraw, FCDMC

1. P24 – Total L Feet shown should be 21074 not 210740

OA Response: We will make the correction.

Comments by Scott Vogel regarding the DCR text portion

1. See text redlines. Delete sentences circled.

OA Response: We will make the corrections as noted.

2. Move 2nd paragraph after 3rd paragraph

OA Response: We will make the corrections as noted.

3. Remove sentences as indicated and add

CSV Comments:

There are two options regarding taking flows to the Loop 303 system. One would be to increase the Loop 303 system by 300cfs to accommodate WT4 flows. The other would be to gate (or partially gate) the W4T outlet, such that flows could be released once the Loop 303 system has sufficient capacity. Regarding timing of constriction for each project. We can assume the WT4 outlet will not be connected until Loop 303 system is in place.

OA Response: We will make the corrections as noted

4. Add Blue Horizons where indicated

OA Response: We will make the corrections as noted

5. After paragraph 1:

Discuss the potential land general criteria related to; using storm strain along Van Buren for street drainage. Is there a way to ensure street drainage does not reduce capacity required for WT4 outflow?

OA Response: We will include a statement identifying this storm drain line is a dedicated storm drain line for the FRS#4 to the 303 drainage channel. We will also included a statement regarding the evaluation of catch basins will be considered during final design and any upsizing of the line will be at the expense of the partnering City or others.

6. After ALIGNMENT paragraph:

Include a general state regarding standard clearances required to each of the utilities.

OA Response: We will make the corrections as noted

7. Where indicated: Identify approximate thickness of canal invert lining.

OA Response: The concrete lining has a thickness of 8-inches as per RID meeting with Walt Cooper, Stantec, RID Engineer.

8. Paragraph 2. Have we tried again? This is a critical facility... can't find it !?! Need to follow up.

OA Response: This utility is currently being re-potholed (April 14th, 2010).

9. Appendix D

Please include a set of exhibits, in color, with the background aerial and the utilities shown in color.

OA Response: We will include with the final submittal.

10. Qwest? Does not appear to have any clearance. Please address and describe requirements on page 34. (Typical for many utilities).

OA Response: There are four City of Goodyear Sanitary Sewer lines that will require either adjustment to the storm drain vertical alignment or a slurry pipe backfill with DIP section replacement of the sanitary sewer line. We will look at the profile and make adjustments and include text regarding how the sanitary sewer lines will be addressed.

11. The MCDOT city limits map indicates that most of Van Buren is MCDOT, not Goodyear R/W.

OA Response: We will reconcile the information we utilized from the assessor's page with the MCDOT city limits map and update the plans.

12. Pothole 7 - Do we know the size? I'm concerned that we did not locate because it was very deep (?)

OA Response: This utility is currently being re-potholed (April 14th, 2010). We believe the depth of this cable to be between 48-inches and 84-inches in this location.

Schedule:

Scott would like to have the final submittal occur two weeks prior to May 14th, 2010.

Jeff will look at the original schedule and confirm the final submittal date with Scott.

Meeting Minutes prepared by: Olsson Associates

If these Meeting Minutes do not accurately affect your understanding of the meeting or if something is missing, please notify us.

APPENDIX C
COST ESTIMATES
ALL ALTERNATIVES
&
PREFERRED ALIGNMENT 15% DESIGN PLAN ESTIMATE

WHITE TANKS FRS #4 ALTERNATIVES																	
NO	DESCRIPTION	UNIT	PRICE	Alternative 2		Alternative 3		Alternative 3A		Alternative 4		Alternative 5		Alternative 6		Alternative 7	
				QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST
	Easement	Acre	\$15,000	23	\$345,000	12	\$180,000	12	\$180,000		\$0		\$0		\$0		\$0
	72-inch RGRCP - Gravity	LF	\$340	0	\$0	0	\$0		\$0	35759	\$12,158,060	38376	\$13,047,840		\$0	6143	\$0
	78-inch RGRCP - Gravity	LF	\$400		\$0		\$0	24188	\$9,675,200						\$0		
	78-inch RGRCP - Pressure	LF	\$480			37188	\$17,850,240										
	84-inch RGRCP - Gravity	LF	\$580				\$0		\$0					11589	\$6,721,620		
	84-inch RGRCP - Pressure	LF	\$680	50197	\$34,133,960		\$0		\$0						\$0		
	90-inch RGRCP - Gravity	LF	\$620				\$0		\$0					5287	\$3,277,940		
	Surface Paving	SY	\$75	992	\$74,400	1403	\$105,225	823	\$61,725					8737	\$655,275		
	Utility Crossings	EA	\$100,000	5	\$500,000	5	\$500,000	5	\$500,000					1	\$100,000		
	SUB-TOTAL				\$35,053,360		\$18,635,465		\$10,416,925		\$12,158,060		\$13,047,840		\$10,754,835		\$0
	Mark-up		35%		\$12,268,676		\$6,522,413		\$3,645,924		\$4,255,321		\$4,566,744		\$3,764,192		\$0
	TOTAL				\$47,322,036		\$25,157,878		\$14,062,849*		\$16,413,381		\$17,614,584		\$14,519,027**		\$0
<p>*This estimate does not include the costs for improvements to the BID Canal. This alternative requires further evaluation of of the BID Canal to determine the necessary improvements to the Canal.</p> <p>**This estimate does not costs associated with the upsizing of the 303 drainage channel. The final design will need to evaluate and assess the level of risk associated with the staged discharging of 100 cfs and 200 cfs verses the design capacity of the 303 drainage channel to determine if upsizing is required.</p>																	

**WHITE TANKS FRS #4 OUTLET FACILITY
FCD PROJECT NO. 2008 C013
PREFERRED ALTERNATIVE
QUANTITY SUMMARY COST ESTIMATE**

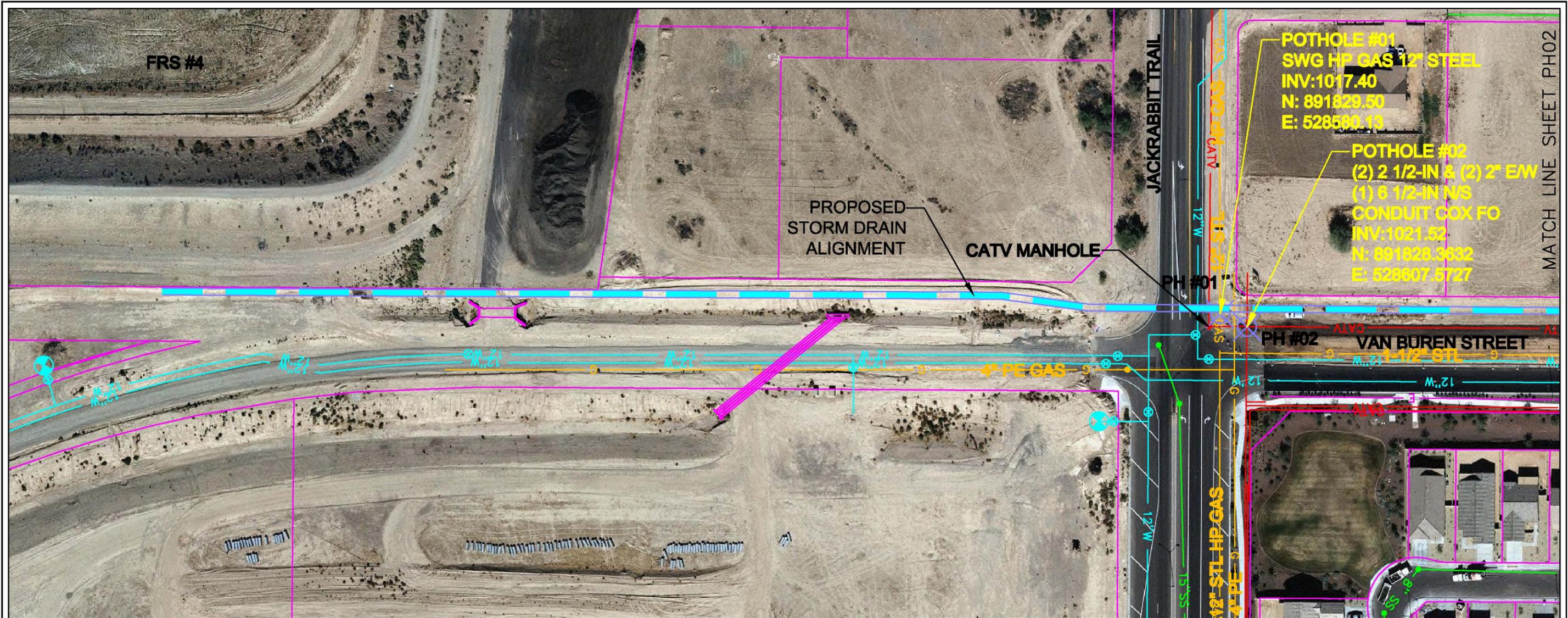
4/30/2010

Item No.	Item Description	Unit	Total Quantity	Unit Cost	Total Cost
1	Permanent Pavement Replacement	SY	5,170	\$ 75.00	\$ 387,723.00
2	Remove Existing AC Pavements	SY	5,170	\$ 7.00	\$ 36,187.48
3	Relocate Existing Cox (2) 2-in & (2) 2-1/2" CATV Conduit	EACH	2	\$ 5,000.00	\$ 10,000.00
4	Relocate Existing Qwest Local Phone Conduit	EACH	2	\$ 5,000.00	\$ 10,000.00
5	Relocate Existing Southwest Gas 4-in PE Line	EACH	1	\$ 5,000.00	\$ 5,000.00
6	Traffic Control	LS	1	\$ 50,000.00	\$ 50,000.00
7	Pre-cast (2) 6'x4" Reinforced Concrete Box Culvert	LF	46	\$ 900.00	\$ 41,400.00
8	84-Inch RGRCP	LF	11,589	\$ 580.00	\$ 6,721,817.20
9	90-Inch RGRCP	LF	5,287	\$ 620.00	\$ 3,277,921.40
10	Pre-Fabricated 84" Dia. Pipe To Double 6'x4' BC Transition	EACH	2	\$ 40,000.00	\$ 80,000.00
11	45° Bend for 84" Pipe with Thrust Block per MAG Det. 380	EACH	2	\$ 25,000.00	\$ 50,000.00
12	Storm Drain Manhole (MAG Det. 521)	EACH	24	\$ 20,000.00	\$ 480,000.00
	SUBTOTAL				\$ 11,150,049.08
	Miscellaneous Contingency (10%)	L.S.	1	\$ 3,345,015.00	\$ 3,345,015.00
	TOTAL				\$ 14,495,064.08*

*This does not include upsizing of the 303 drainage channel. The final design will need to evaluate and assess the level of risk associated with the staged discharging of 100 cfs and 200 cfs versus the design capacity of the 303 drainage channel to determine if upsizing is required.

APPENDIX D

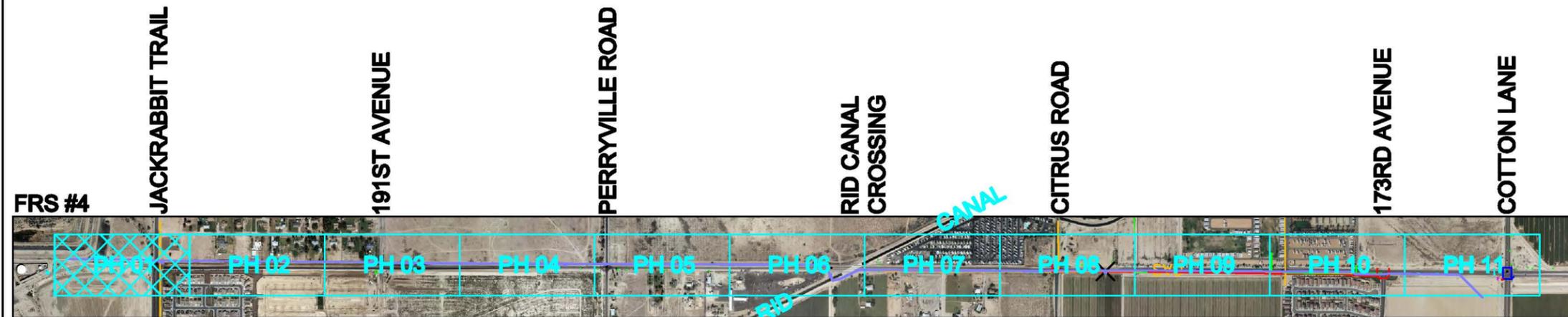
PREFERRED ALTERNATIVE 15% DESIGN PLANS



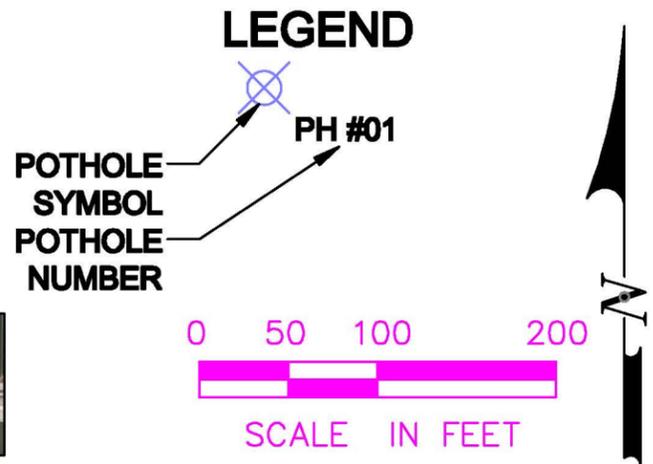
MATCH LINE SHEET PH02

POTHOLE #01
 SWG HP GAS 12" STEEL
 INV:1017.40
 N: 891829.50
 E: 528588.13

POTHOLE #02
 (2) 2 1/2-IN & (2) 2" E/W
 (1) 6 1/2-IN NS
 CONDUIT COX FO
 INV:1021.52
 N: 891828.3632
 E: 528607.5727



KEY MAP SCALE: 1"=1,500'



PROJECT NO: 009-2519
 DRAWN BY: SRW
 DATE: 03-10-2010

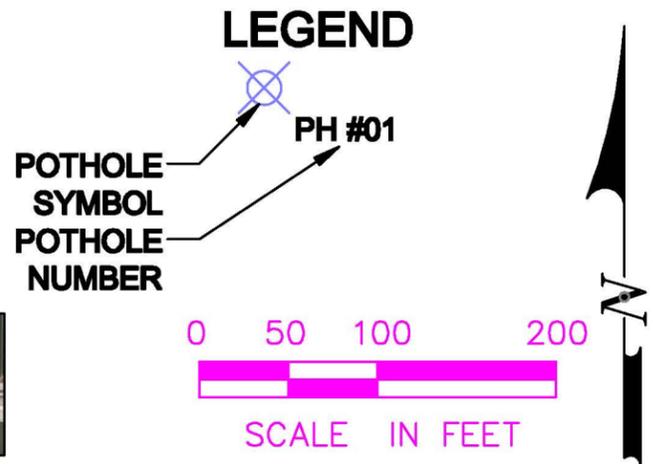
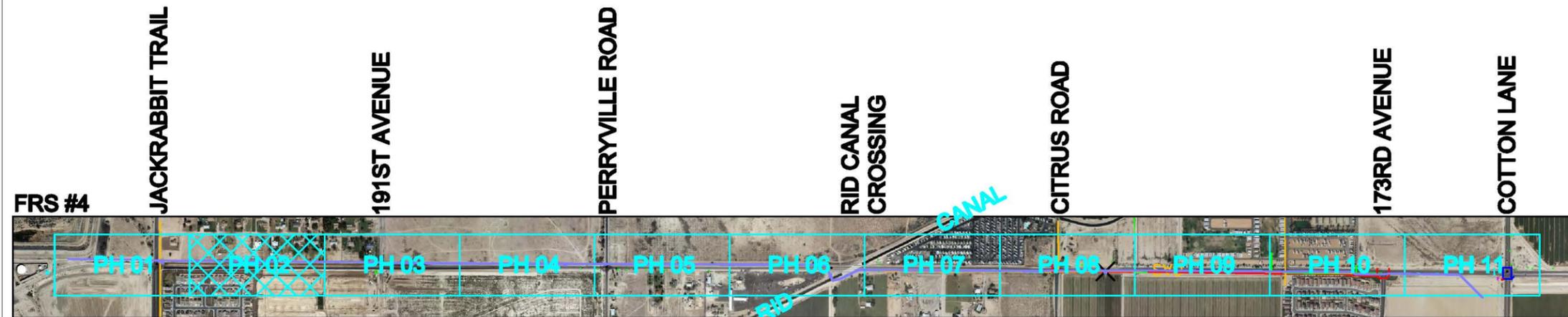
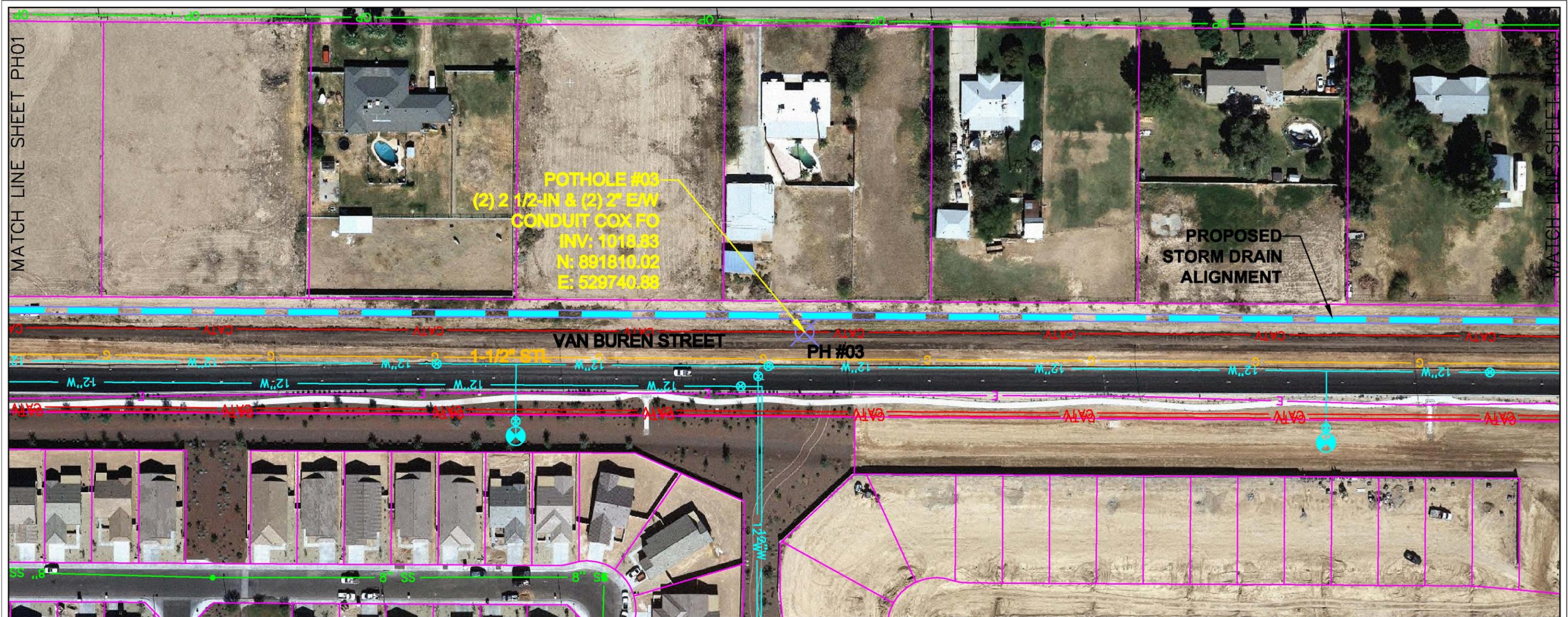


WHITE TANKS FRS #4
OUTLET ALIGNMENT STUDY
 FCD 2008 C013

POTHOLE REQUEST MAP
VAN BUREN STREET



Figure
 PH 01



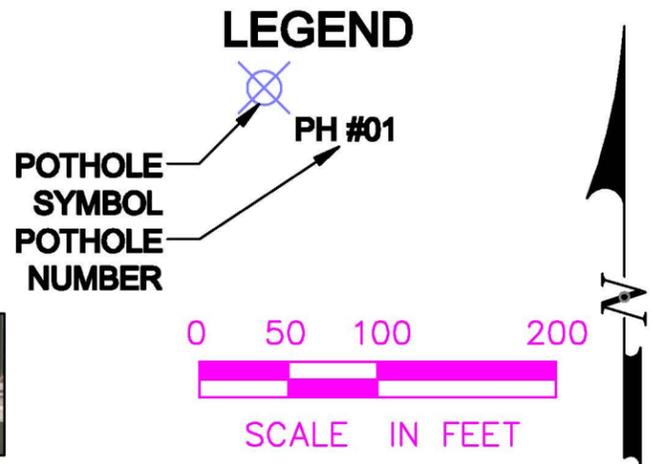
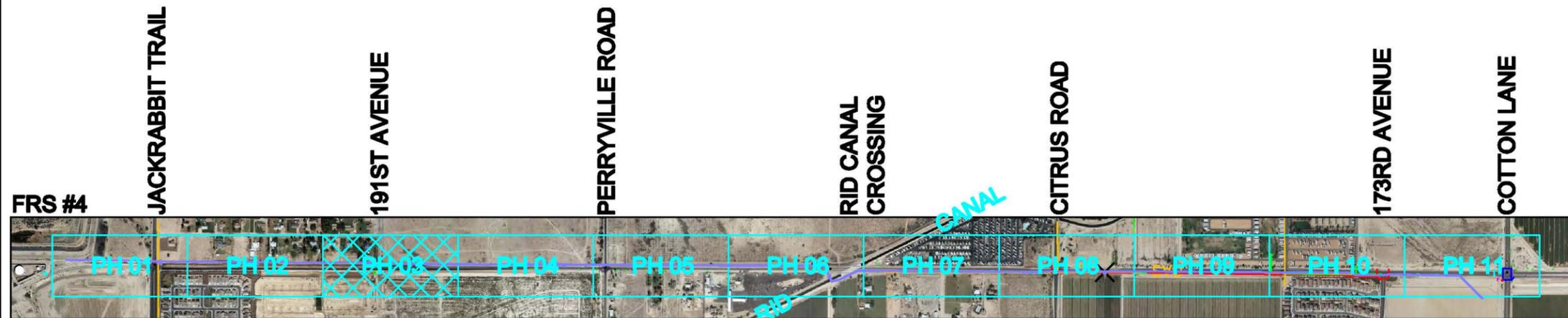
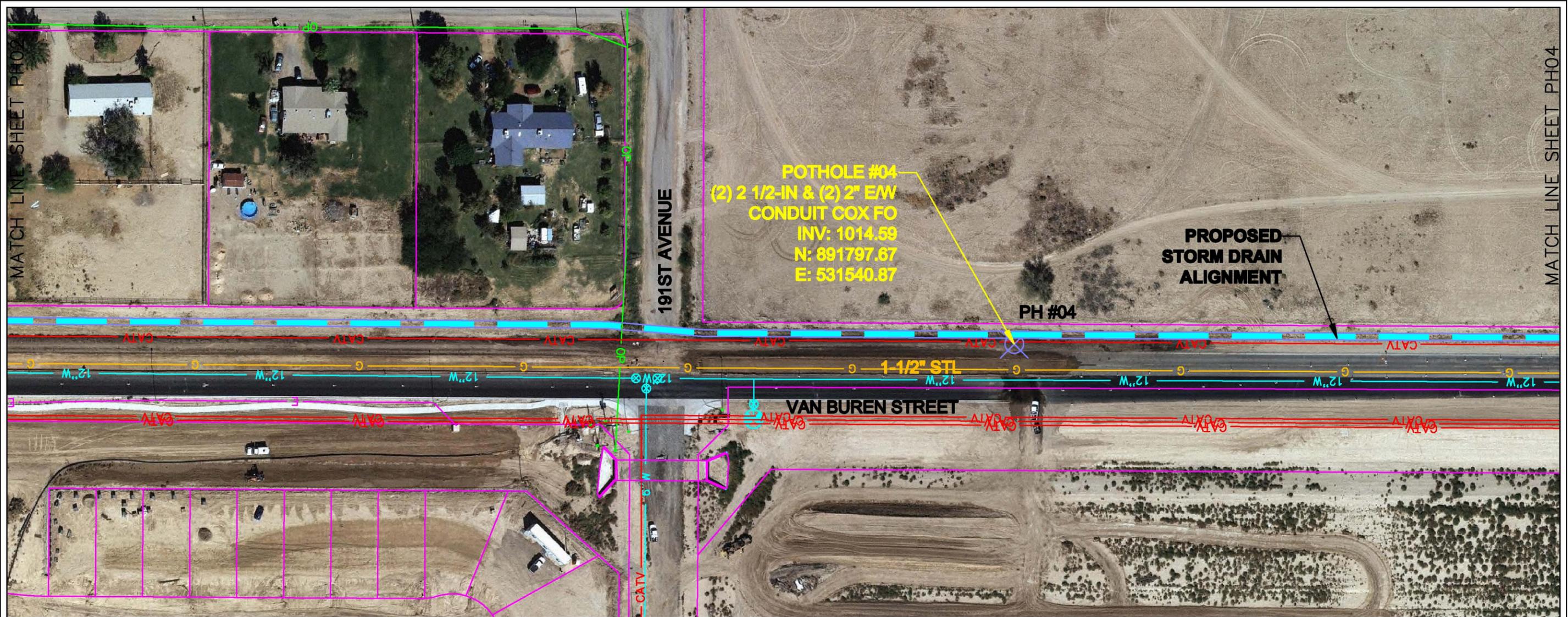
PROJECT NO: 009-2519
 DRAWN BY: SRW
 DATE: 03-10-2010

WHITE TANKS FRS #4
 OUTLET ALIGNMENT STUDY
 FCD 2008 C013

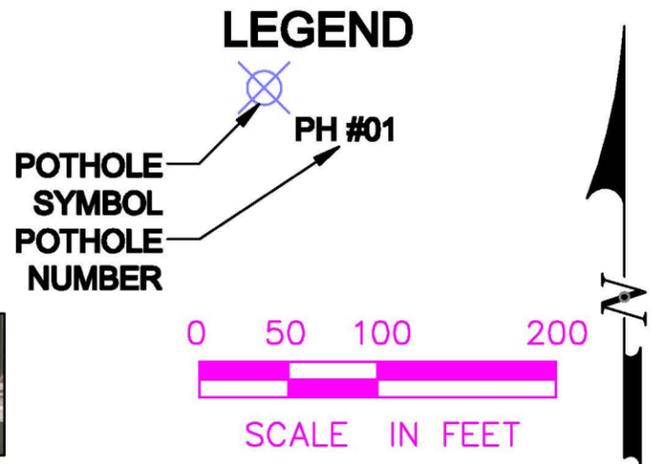
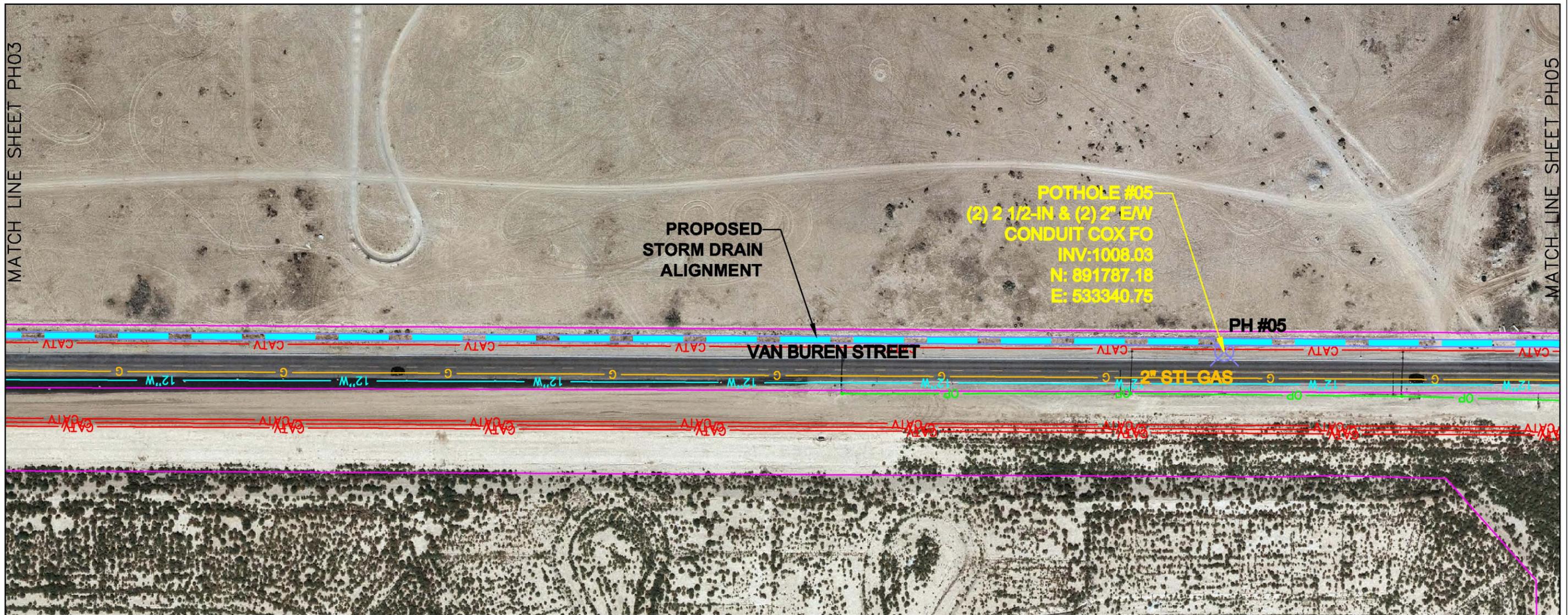
POTHOLE REQUEST MAP
 VAN BUREN STREET

OLSSON ASSOCIATES
 7250 North 16th Street
 Suite 210
 Phoenix, AZ 85020
 TEL: 802.748.1000
 FAX: 802.748.1001

Figure
 PH 02



PROJECT NO: 009-2519 DRAWN BY: SRW DATE: 03-10-2010		WHITE TANKS FRS #4 OUTLET ALIGNMENT STUDY FCD 2008 C013		POTHOLE REQUEST MAP VAN BUREN STREET		 <small>7200 North 19th Street Suite 210 Phoenix, AZ 85020 TEL: 602.748.1000 FAX: 602.748.1001</small>		Figure PH 03
--	--	--	--	---	--	--	--	------------------------



KEY MAP SCALE: 1"=1,500'

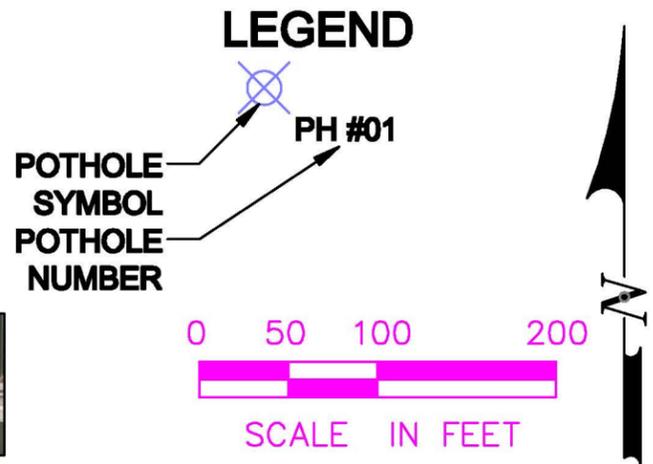
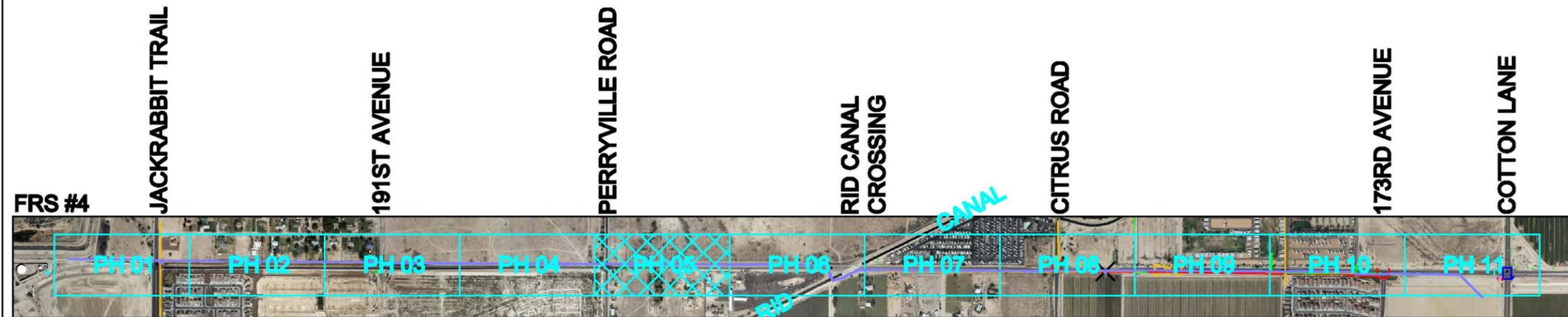
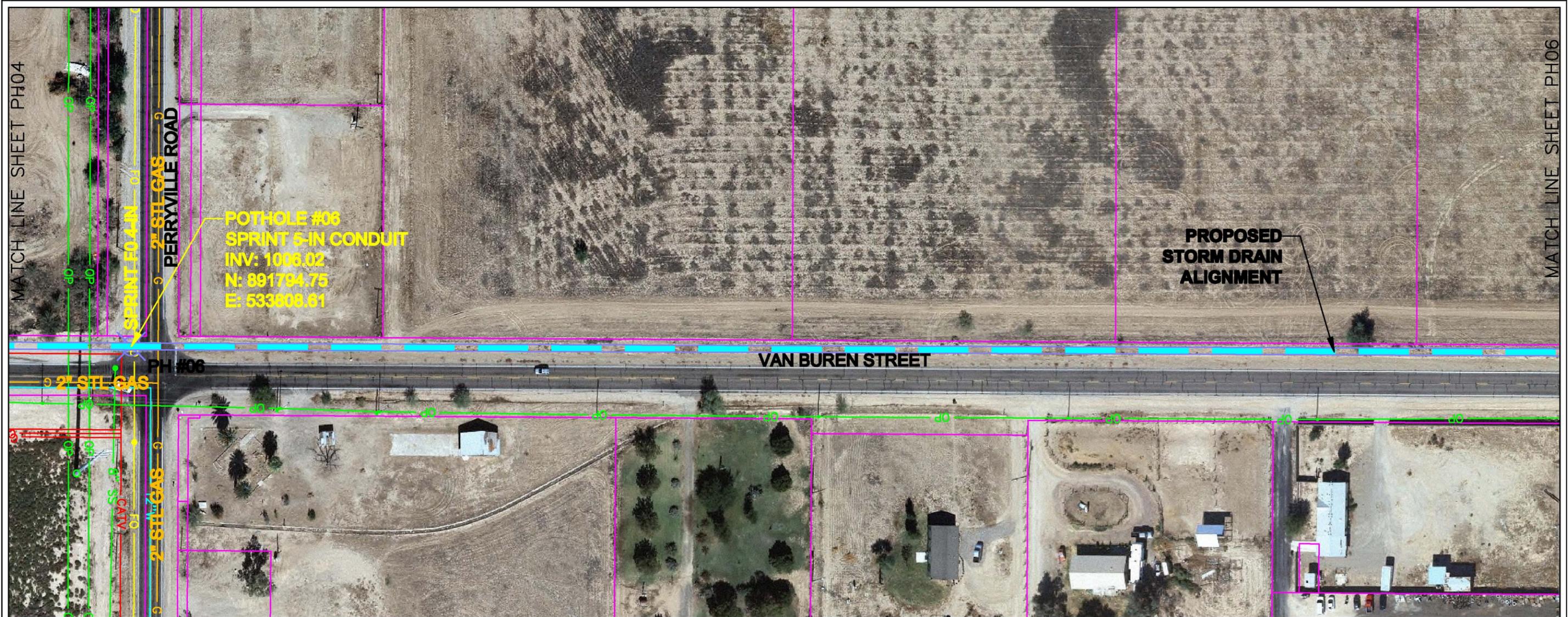
PROJECT NO: 009-2519
 DRAWN BY: SRW
 DATE: 03-10-2010

**WHITE TANKS FRS #4
 OUTLET ALIGNMENT STUDY
 FCD 2008 C013**

**POTHOLE REQUEST MAP
 VAN BUREN STREET**

OLSSON ASSOCIATES
 7250 North 18th Street
 Suite 210
 Phoenix, AZ 85020
 TEL: 802.748.1000
 FAX: 802.748.1001

Figure
PH 04



KEY MAP SCALE: 1"=1,500'

PROJECT NO: 009-2519
 DRAWN BY: SRW
 DATE: 03-10-2010

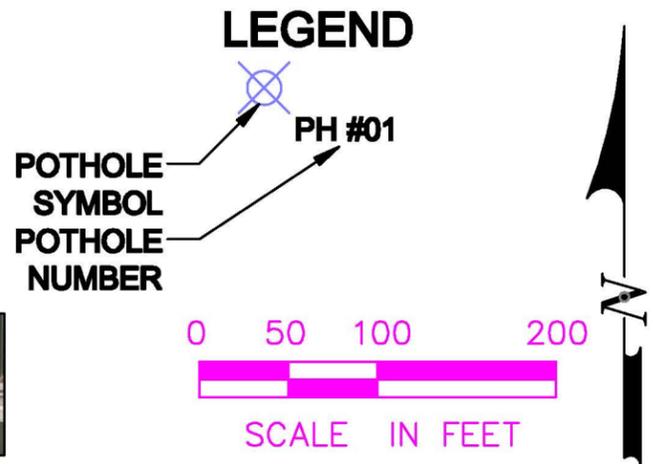
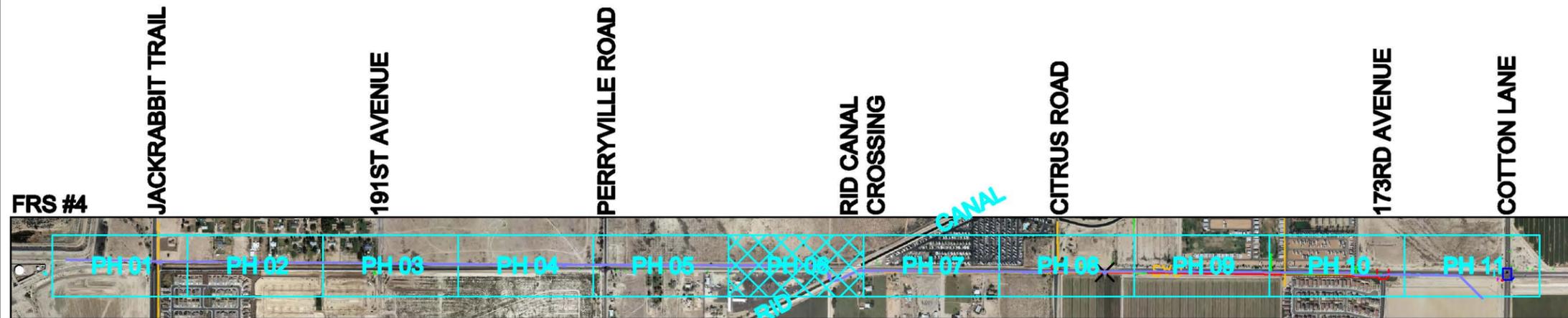
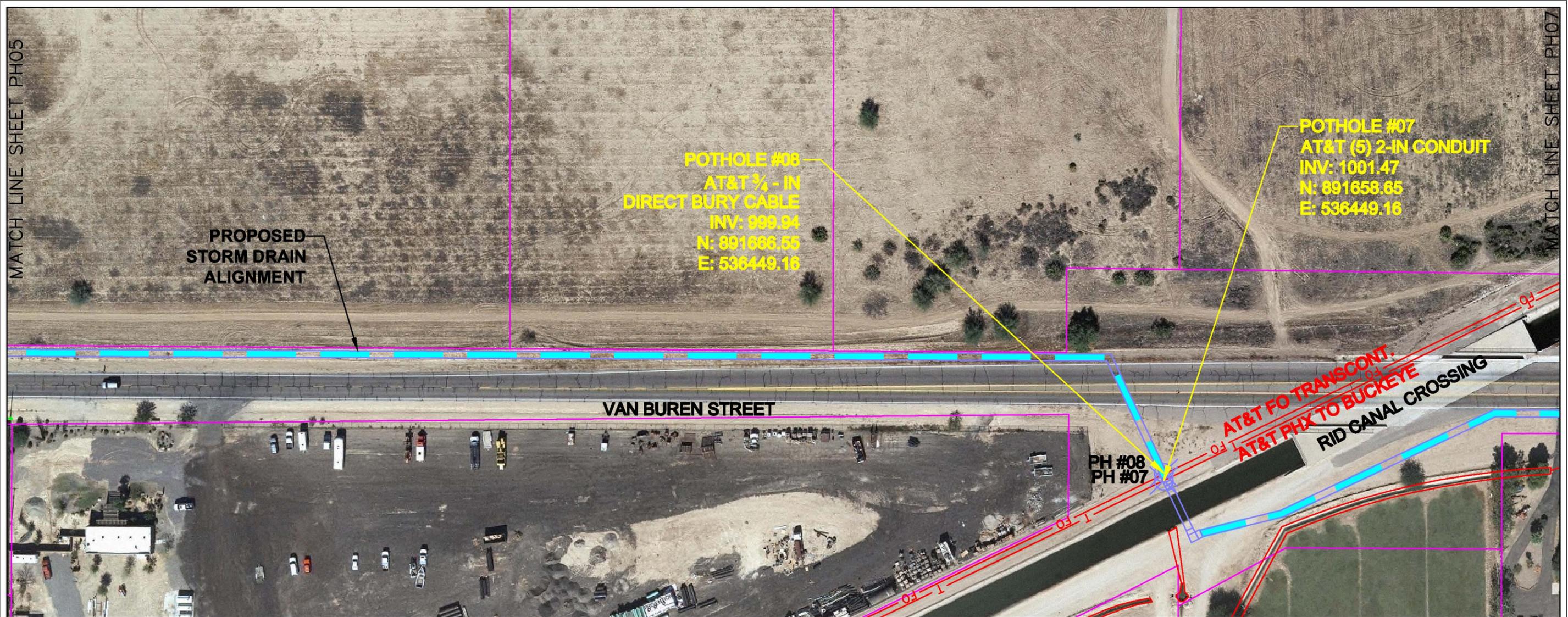
WHITE TANKS FRS #4
 OUTLET ALIGNMENT STUDY
 FCD 2008 C013

POTHOLE REQUEST MAP
 VAN BUREN STREET

OLSSON
 ASSOCIATES

7200 North 19th Street
 Suite 210
 Phoenix, AZ 85020
 TEL: 602.748.1000
 FAX: 602.748.1001

Figure
 PH 05



KEY MAP SCALE: 1"=1,500'

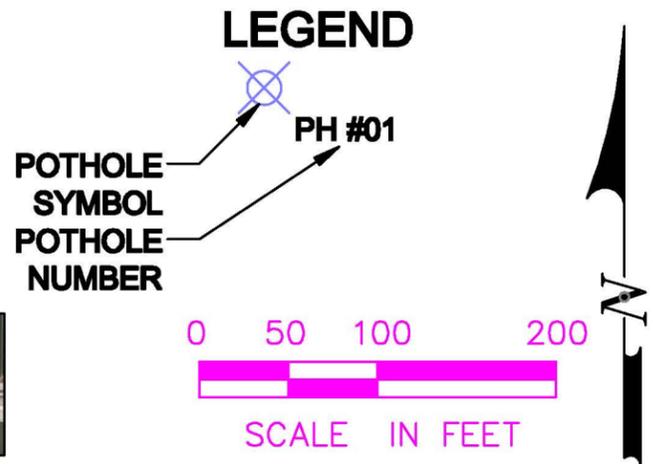
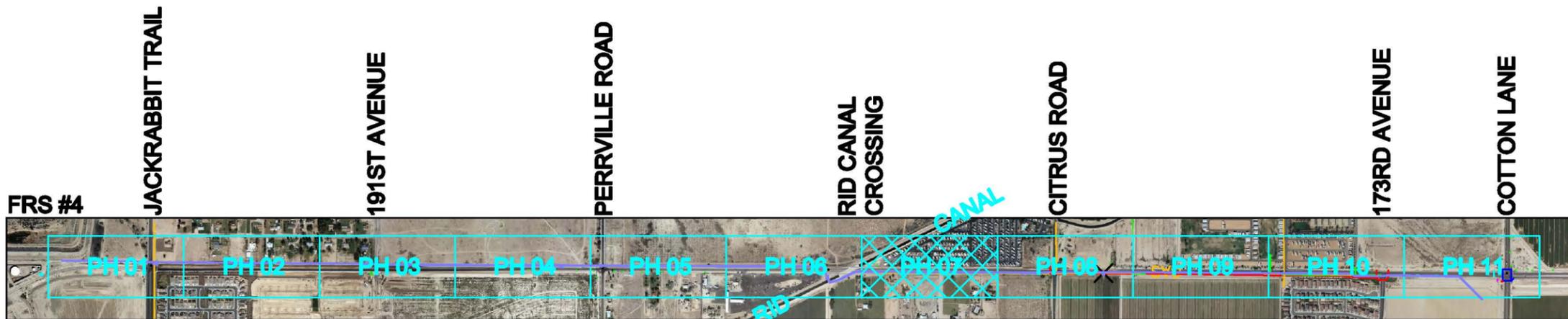
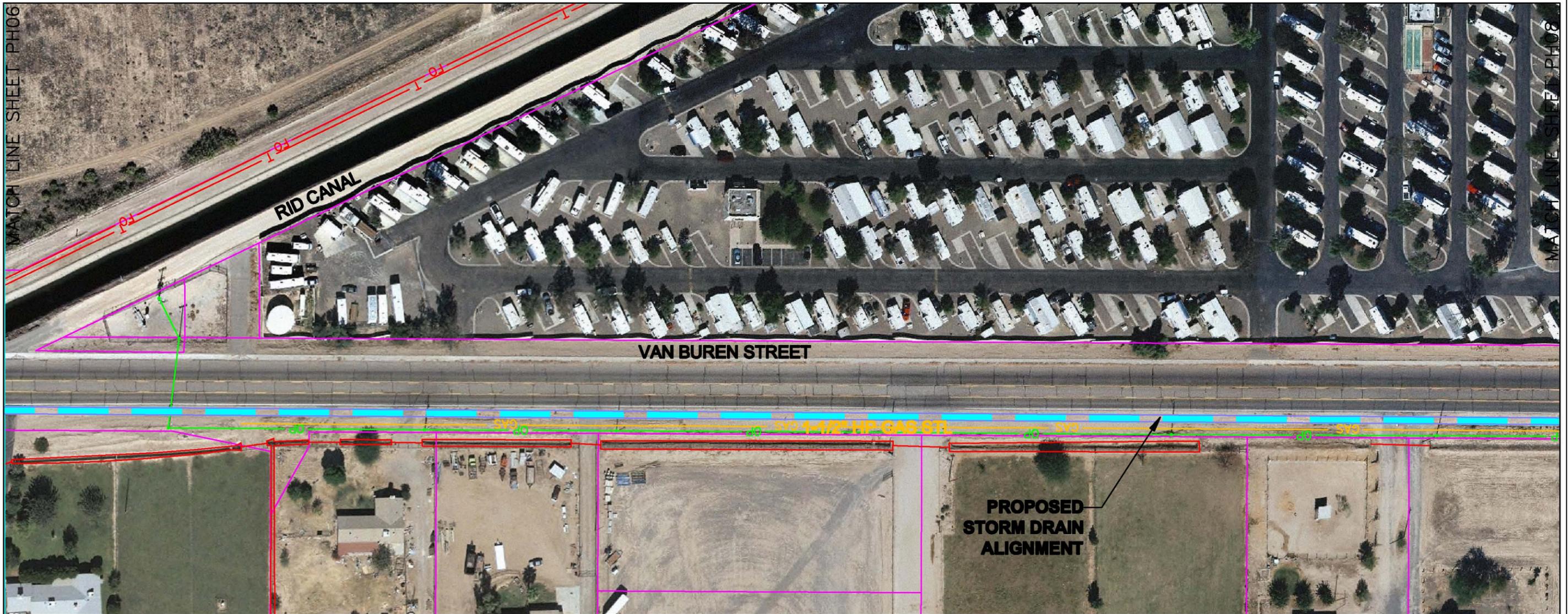
PROJECT NO: 009-2519
DRAWN BY: SRW
DATE: 03-10-2010

WHITE TANKS FRS #4
OUTLET ALIGNMENT STUDY
FCD 2008 C013

POTHOLE REQUEST MAP
VAN BUREN STREET

OLSSON ASSOCIATES
7250 North 18th Street
Suite 210
Phoenix, AZ 85020
TEL: 802.748.1000
FAX: 802.748.1001

Figure
PH 06



KEY MAP SCALE: 1"=1,500'

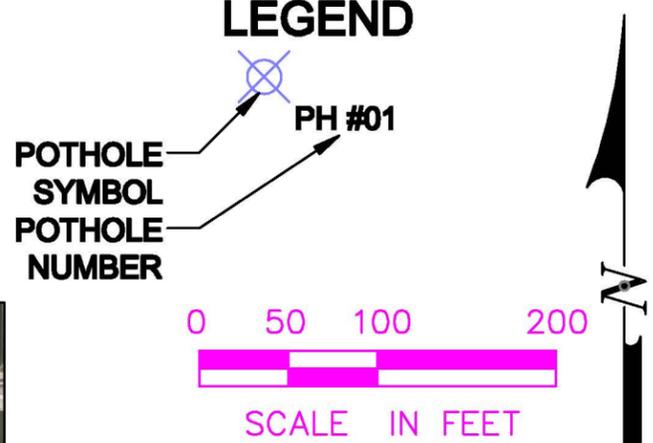
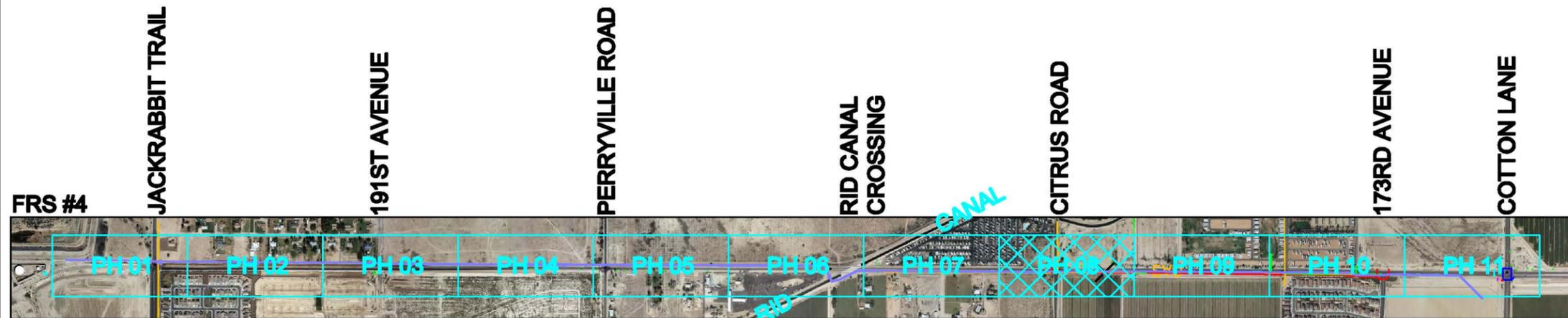
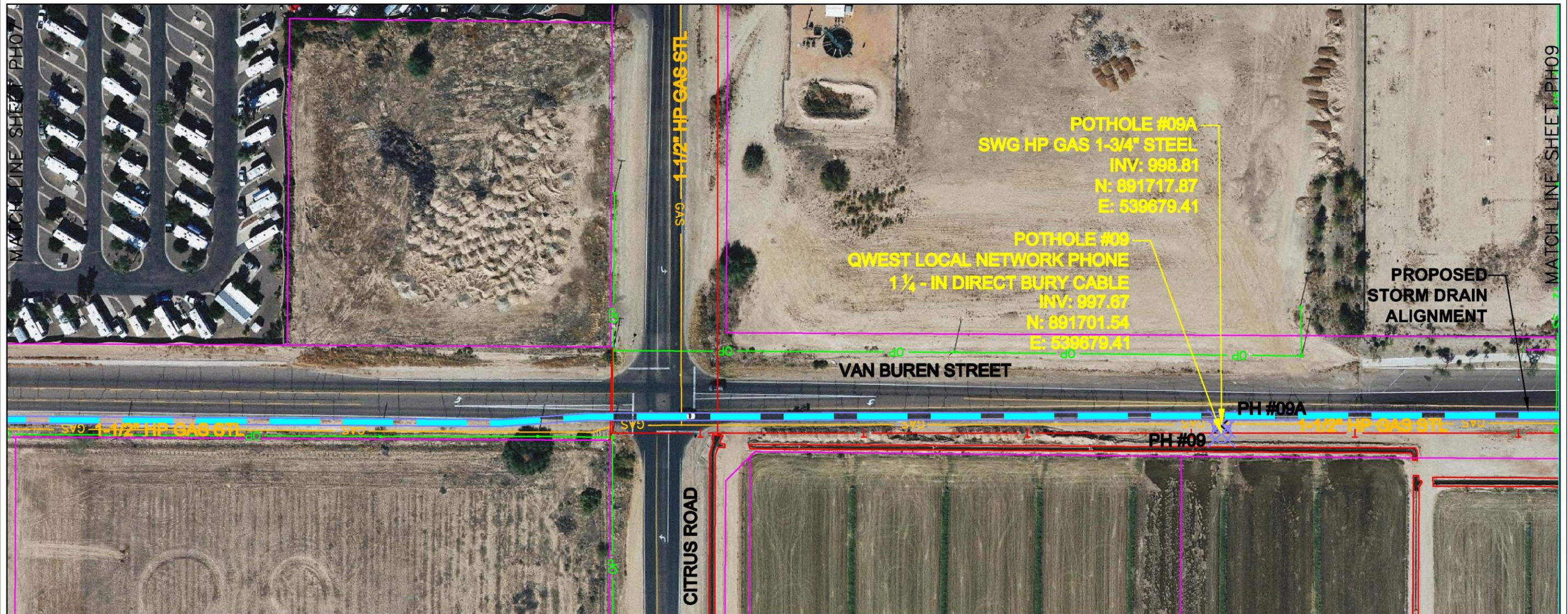
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 DRAWN BY: SRW
 DATE: 03-10-2010

WHITE TANKS FRS #4
 OUTLET ALIGNMENT STUDY
 FCD 2008 C013

**POTHOLE REQUEST MAP
 VAN BUREN STREET**

OLSSON ASSOCIATES
 7200 North 19th Street
 Suite 210
 Phoenix, AZ 85020
 TEL: 602.748.1000
 FAX: 602.748.1001

Figure
PH 07



KEY MAP SCALE: 1"=1,500'

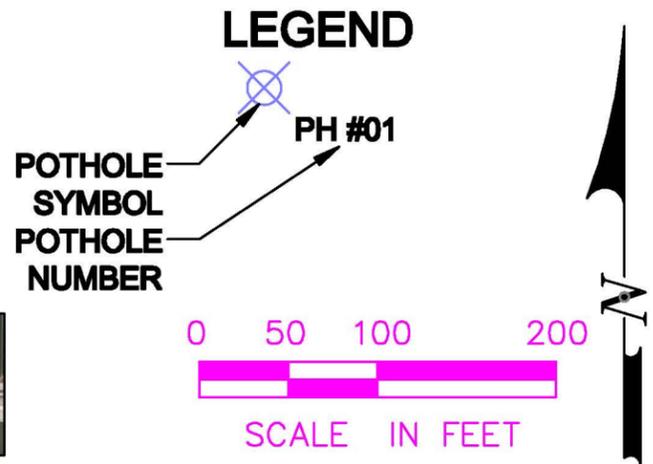
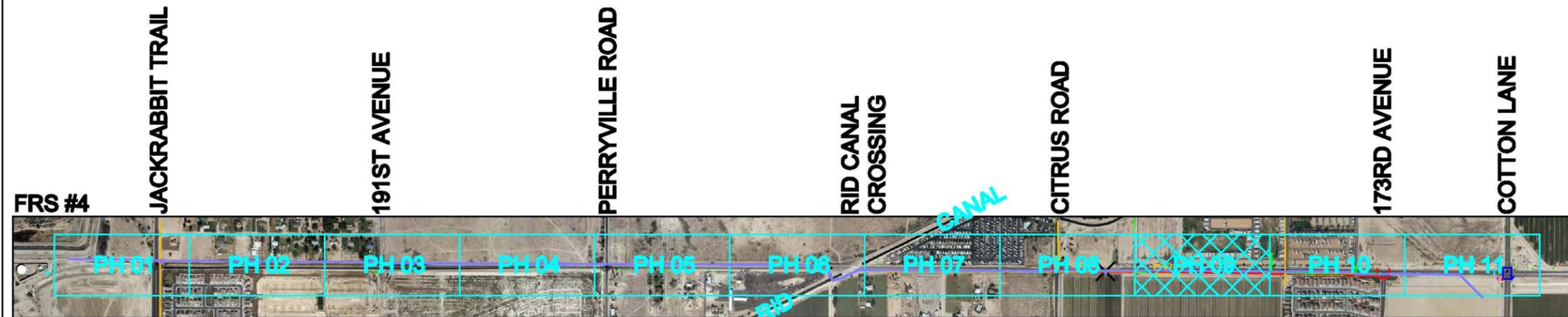
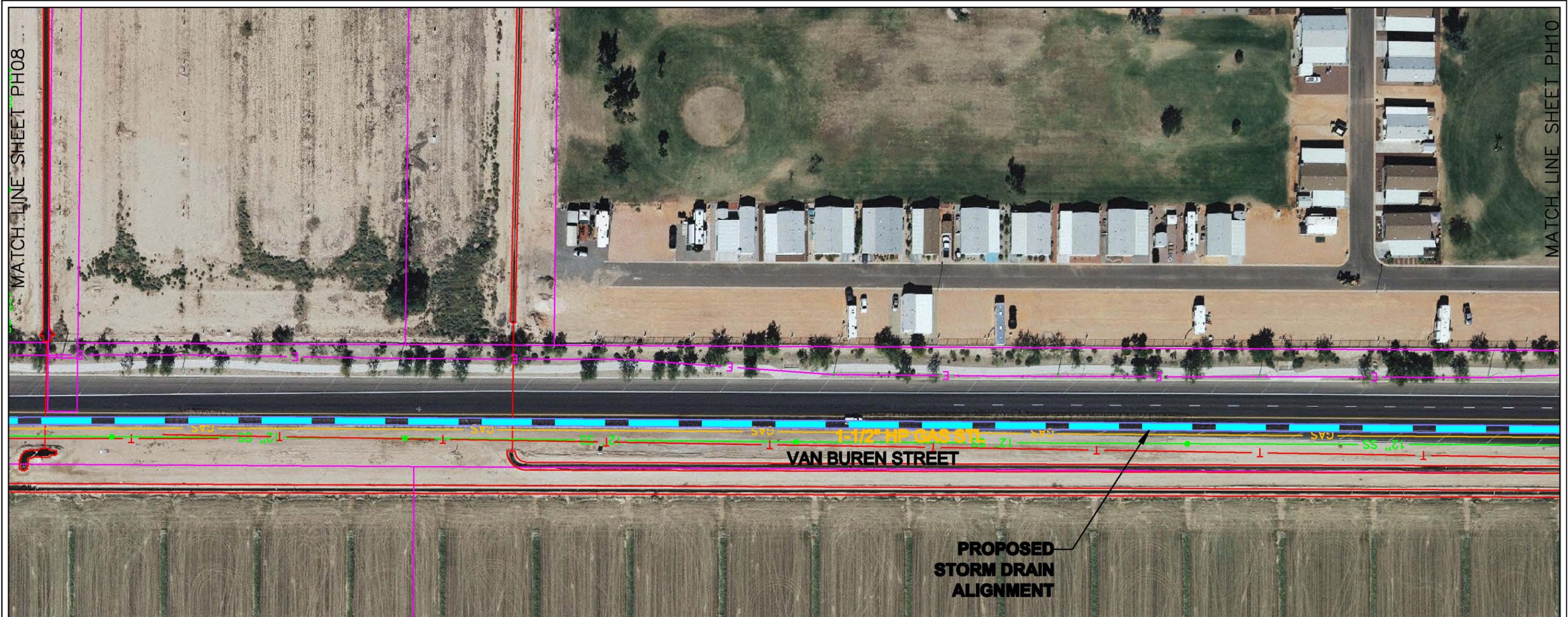
PROJECT NO: 009-2519
 DRAWN BY: SRW
 DATE: 03-10-2010

**WHITE TANKS FRS #4
 OUTLET ALIGNMENT STUDY
 FCD 2008 C013**

**POTHOLE REQUEST MAP
 VAN BUREN STREET**

OLSSON ASSOCIATES
 7250 North 16th Street
 Suite 210
 Phoenix, AZ 85020
 TEL: 802.748.1000
 FAX: 802.748.1001

Figure
PH 08



KEY MAP SCALE: 1"=1,500'

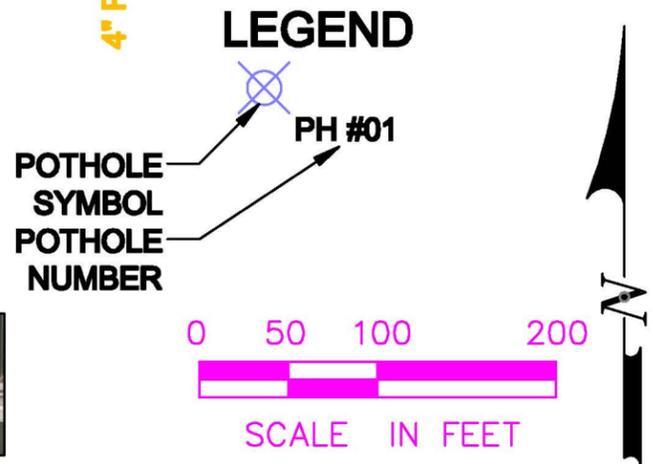
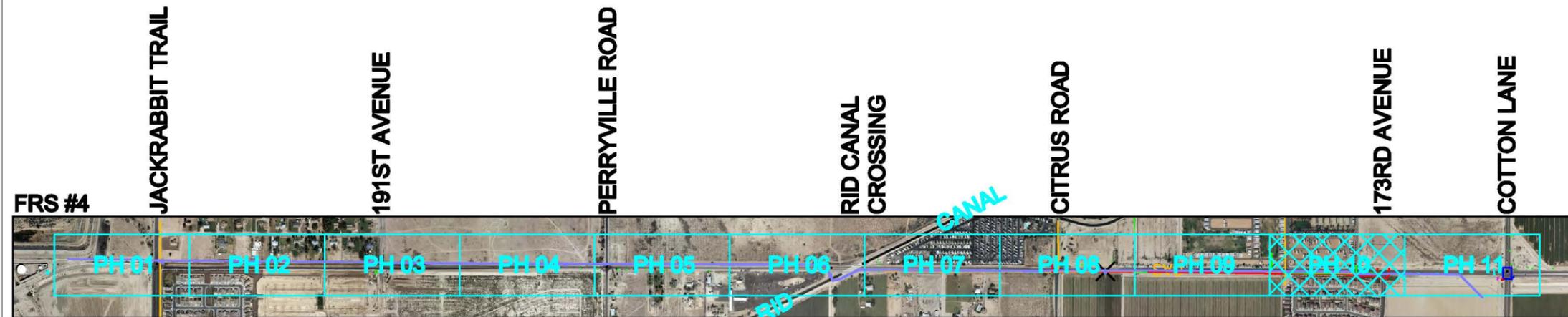
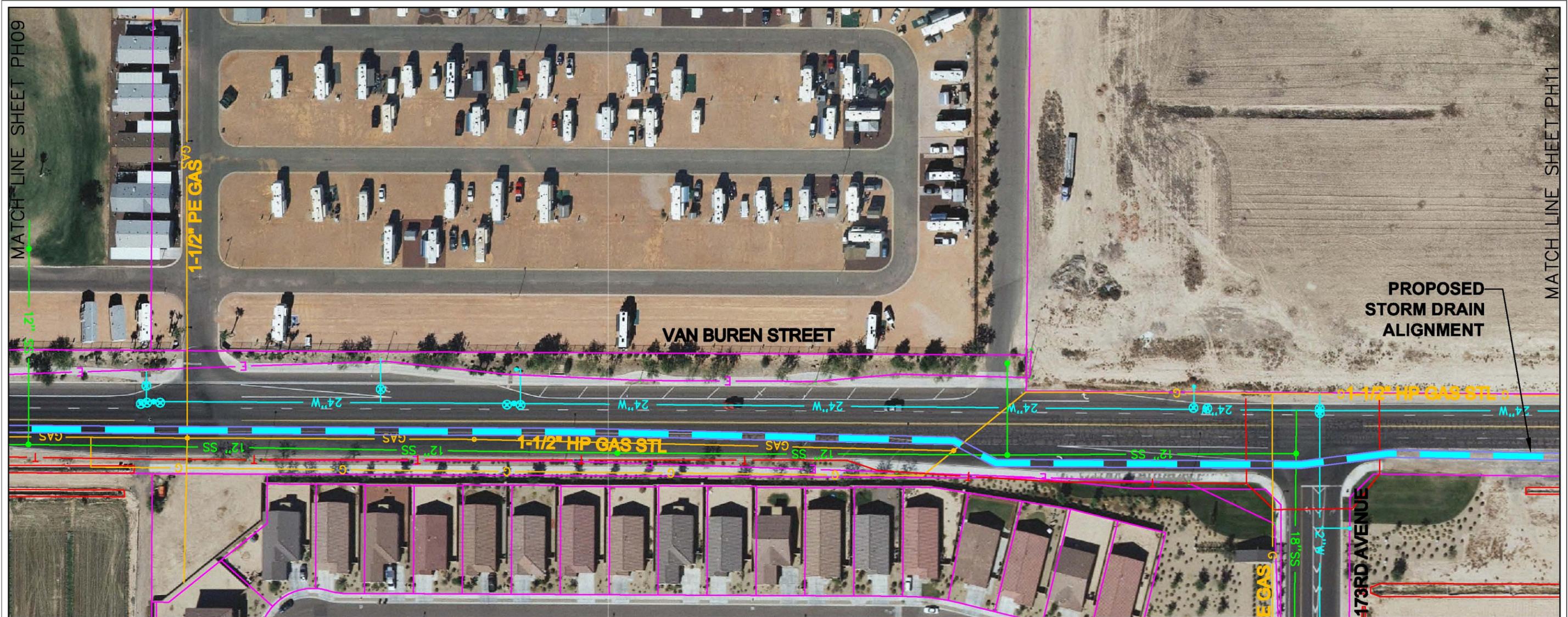
PROJECT NO: 009-2519
 DRAWN BY: SRW
 DATE: 03-10-2010

WHITE TANKS FRS #4
 OUTLET ALIGNMENT STUDY
 FCD 2008 C013

POTHOLE REQUEST MAP
VAN BUREN STREET

OLSSON ASSOCIATES
 7200 North 19th Street
 Suite 210
 Phoenix, AZ 85020
 TEL: 602.748.1000
 FAX: 602.748.1001

Figure
PH 09



KEY MAP SCALE: 1"=1,500'

VAN BUREN STREET

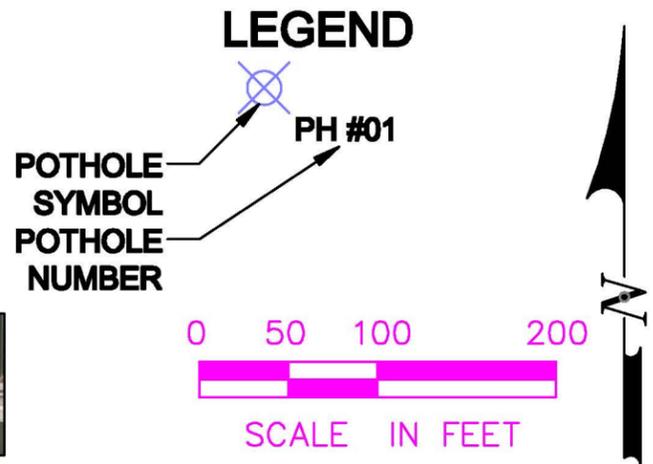
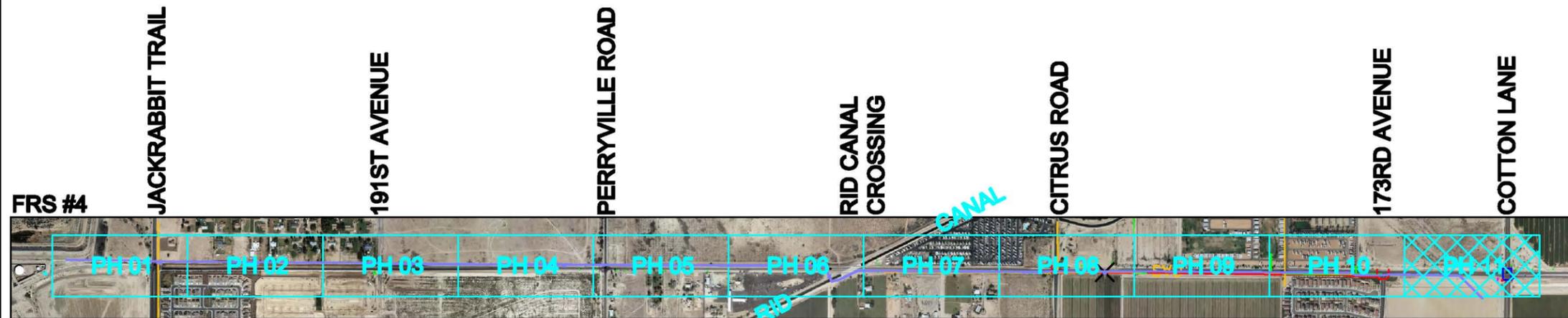
PROJECT NO: 009-2519
 DRAWN BY: SRW
 DATE: 03-10-2010

WHITE TANKS FRS #4
 OUTLET ALIGNMENT STUDY
 FCD 2008 C013

POTHOLE REQUEST MAP
 VAN BUREN STREET

OLSSON ASSOCIATES
 7250 North 18th Street
 Suite 210
 Phoenix, AZ 85020
 TEL: 802.748.1000
 FAX: 802.748.1001

Figure
 PH 10



KEY MAP SCALE: 1"=1,500'

PROJECT NO: 009-2519
 DRAWN BY: SRW
 DATE: 03-10-2010

WHITE TANKS FRS #4
 OUTLET ALIGNMENT STUDY
 FCD 2008 C013

POTHOLE REQUEST MAP
 VAN BUREN STREET

OLSSON ASSOCIATES
 7200 North 19th Street
 Suite 210
 Phoenix, AZ 85020
 TEL: 602.748.1000
 FAX: 602.748.1001

Figure
 PH 11



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

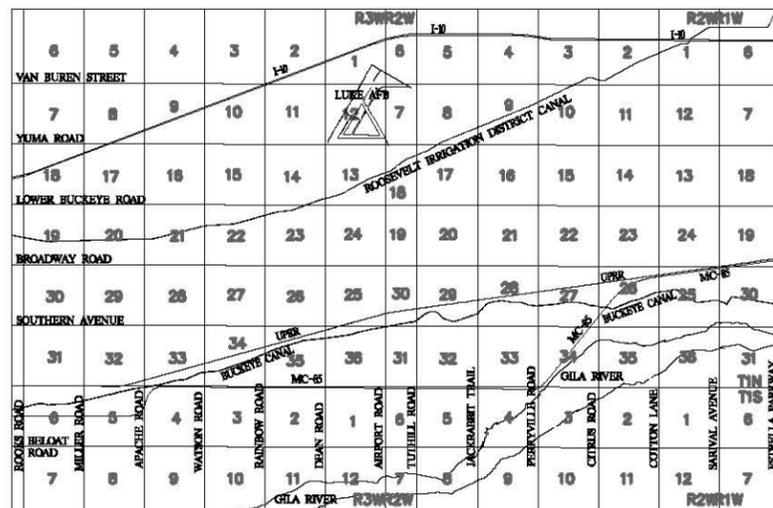
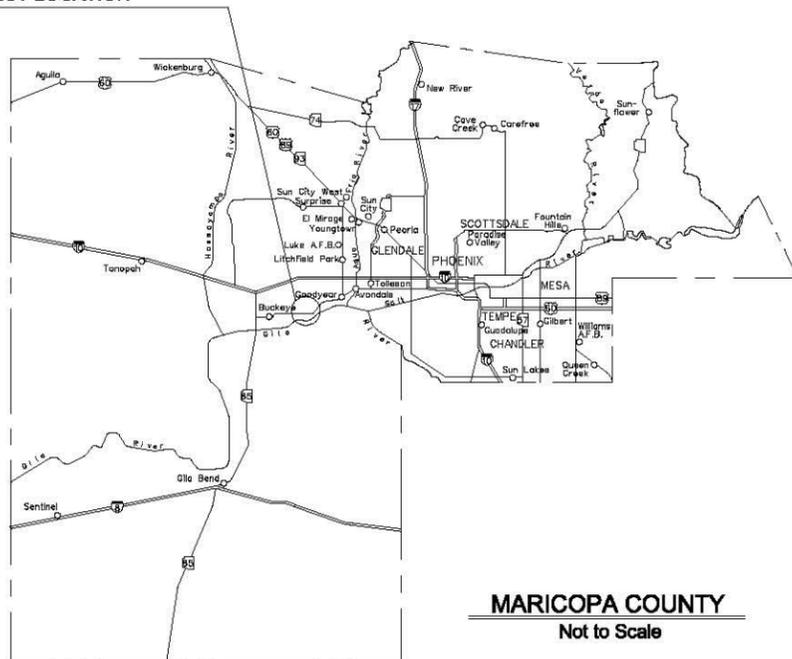
PRELIMINARY PLAN AND PROFILE
WHITE TANKS FRS 4 OUTLET FACILITY
FCD PROJECT NO. FCD 2008 C013

FINAL - LEVEL III
15% CONCEPTUAL DESIGN PLANS
PREFERRED ALTERNATIVE

SHEET INDEX

- SHEET 01 COVER SHEET
- SHEET 02 KEY MAP
- SHEET 03 PLAN AND PROFILE
- SHEET 04 PLAN AND PROFILE
- SHEET 05 PLAN AND PROFILE
- SHEET 06 PLAN AND PROFILE
- SHEET 07 PLAN AND PROFILE
- SHEET 08 PLAN AND PROFILE
- SHEET 09 PLAN AND PROFILE

PROJECT LOCATION



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUED RECOMMENDED BY:

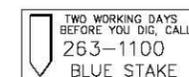
PROJECT MANAGER _____ DATE _____

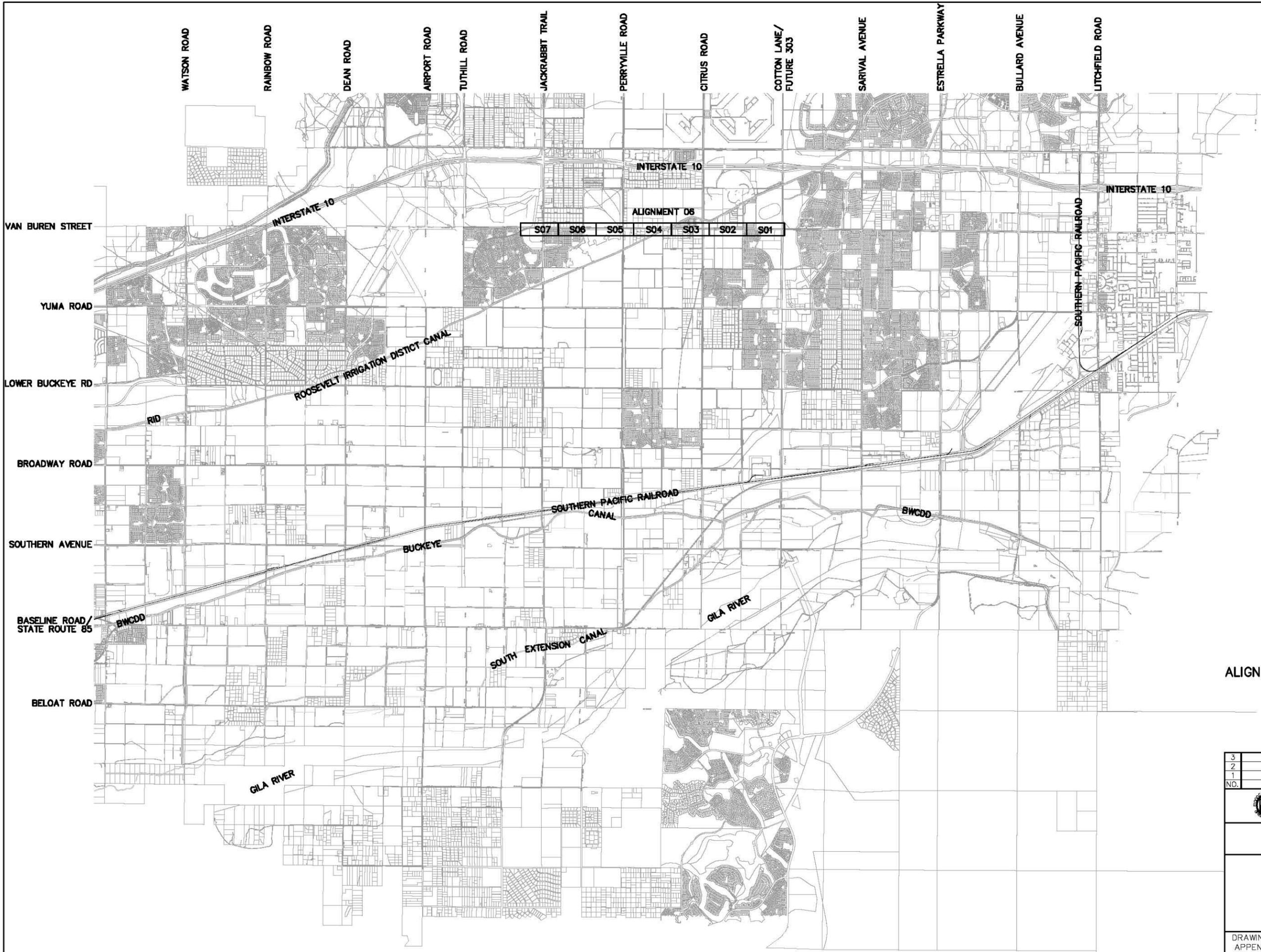
ISSUED FOR PUBLIC BIDDING BY:

CHIEF ENGINEER & GENERAL MANAGER _____ DATE _____

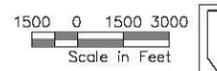
**BOARD OF DIRECTORS OF
THE FLOOD CONTROL DISTRICT**

- | | |
|------------|------------------|
| DISTRICT 1 | FULTON BROCK |
| DISTRICT 2 | DON STAPLEY |
| DISTRICT 3 | ANDY KUNASEK |
| DISTRICT 4 | MAX WILSON |
| DISTRICT 5 | MARY ROSE WILCOX |





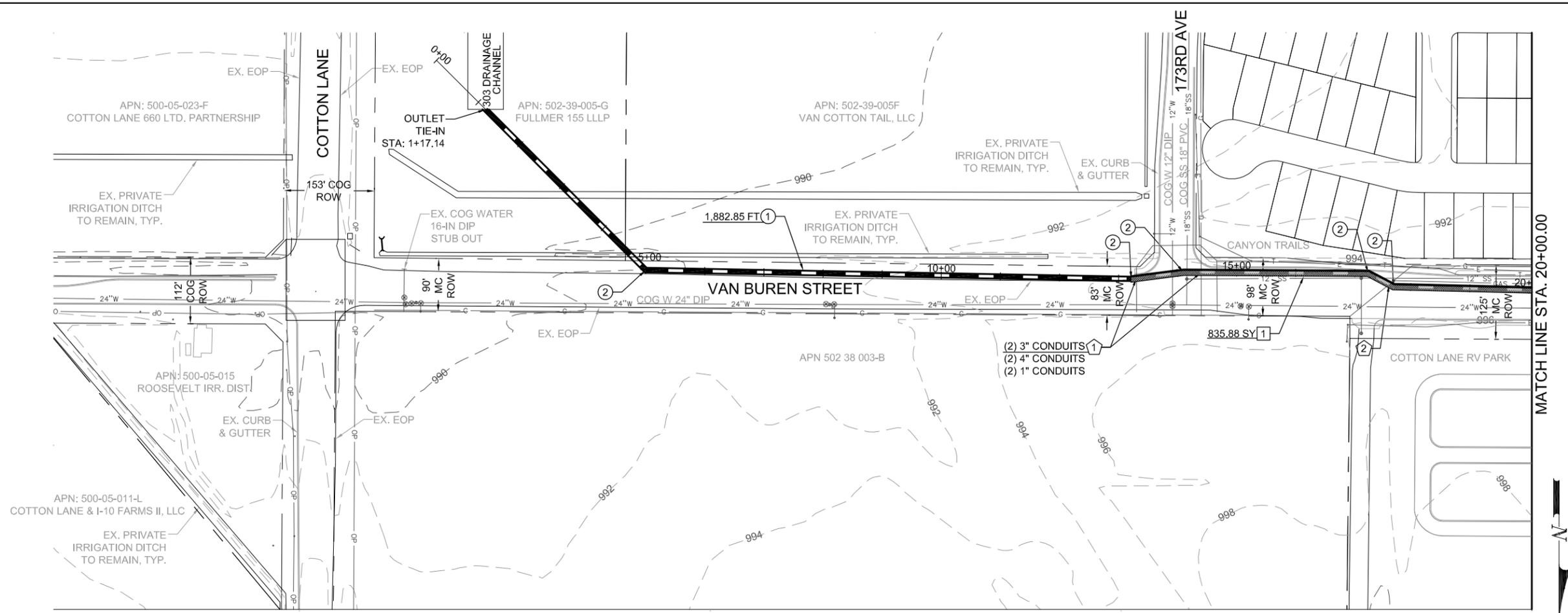
ALIGNMENT NO. 6 KEY MAP



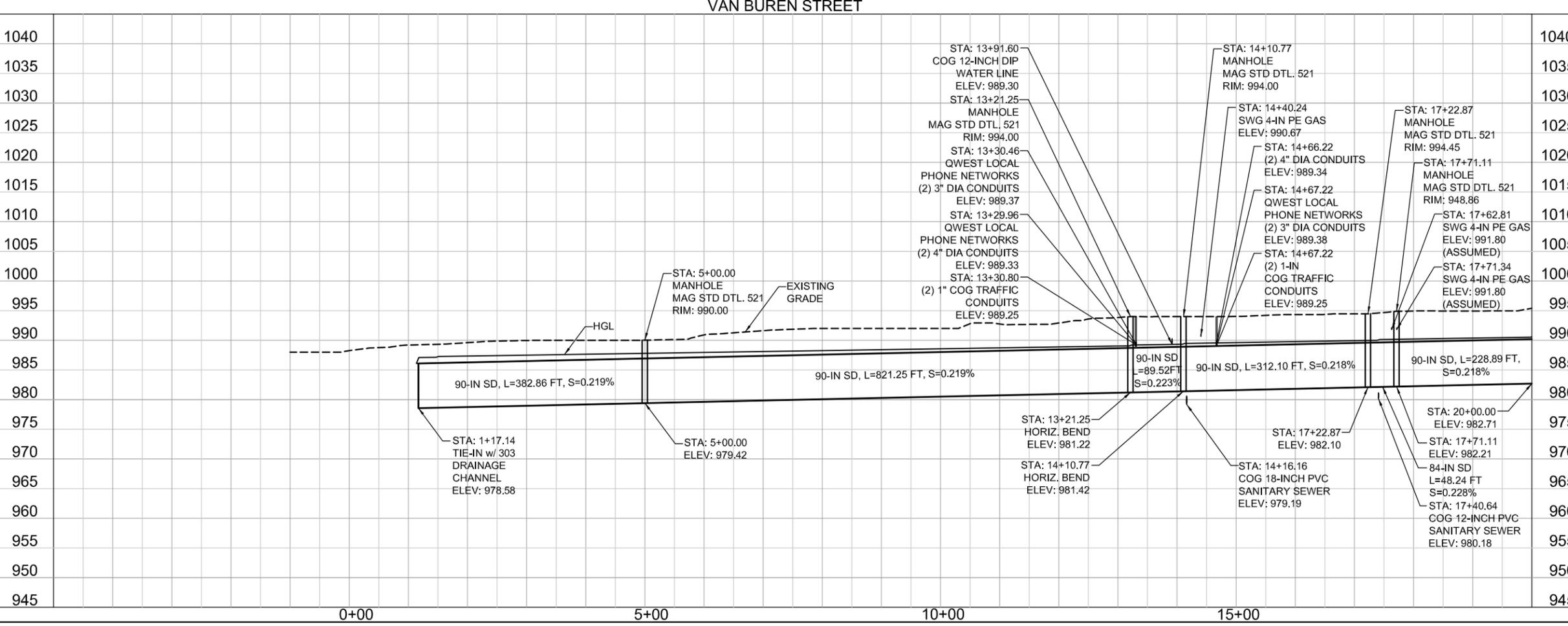
TWO WORKING DAYS
BEFORE YOU DIG, CALL
263-1100
BLUE STAKE



3			
2			
1			
NO.	REVISION	BY	DATE
 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION WHITE TANKS FRS #4 OUTLET ALIGNMENT #6 FCD 2008 C013			
		BY	DATE
	DESIGNED	SW	4/30/10
	DRAWN	WH	4/30/10
	CHECKED	JCF	4/30/10
 MOLSSON ASSOCIATES <small>7200 North 102nd Street Suite 210 Phoenix, AZ 85028-6262 TEL: 602-946-1000 FAX: 602-946-1001</small>			
DRAWING NO. APPENDIX D	PLAN & PROFILE KEY MAP		SHEET 02 OF 09



REMOVE	QTY
1 SAWCUT, REMOVE & REPLACE EXISTING PAVEMENT PER MAG STD. DTL. 200, "T" TOP. APPLY TACK COAT AND JOIN NEW AC PAVEMENT.	836 SY
RELOCATE	QTY
1 QWEST LOCAL NETWORK TELEPHONE AND ELECTRICAL CONDUITS TO BE RELOCATED. (2) 4-IN CONDUITS, (2) 3-IN CONDUITS, (2) 1-IN CONDUITS.	2 EA
2 SWG 4-IN PE GAS LINE TO BE RELOCATED	1 EA
RELOCATE BY OTHERS	
CONSTRUCT	QTY
1 INSTALL 90-INCH RGRCP, CLASS III STORM DRAIN	1,882.85 FT
2 INSTALL STORM DRAIN MANHOLE AS PER MAG STD DTL. 521, TYP.	5 EA



GENERAL NOTES:
 PRELIMINARY PLANS, NOT FOR CONSTRUCTION
 PLANS ARE FOR CONCEPTUAL USE ONLY.

UTILITY LOCATIONS ARE SCHEMATIC, CULVERT LOCATIONS AND DEPTH ARE APPROXIMATE.

THE HORIZONTAL DATUM USED WAS NAD 83.
 THE VERTICAL DATUM USED WAS NGVD 29.

Scale in Feet
 Vertical Scale: 1" = 10'
 Horizontal Scale: 1" = 50'

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
3			
2			
1			

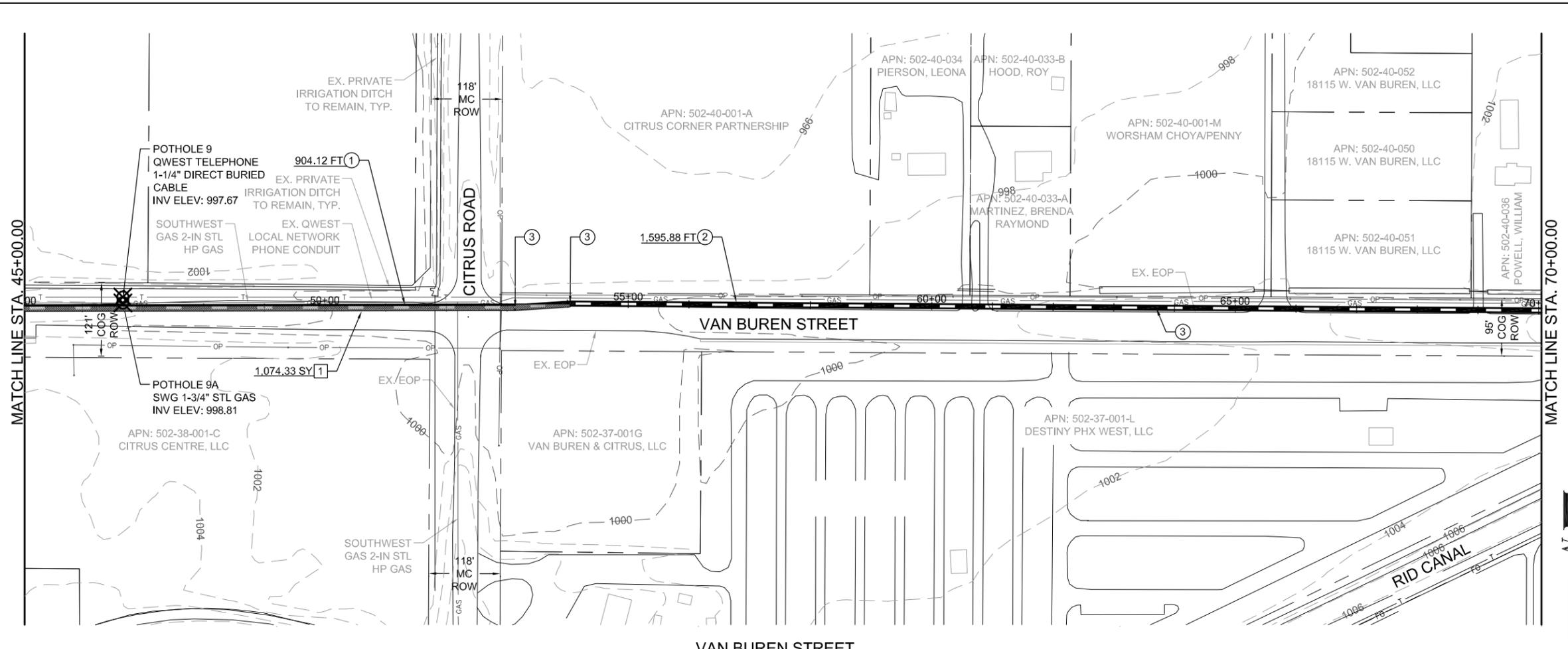
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 ENGINEERING DIVISION

WHITE TANKS FRS #4 OUTLET
 ALIGNMENT #6
 FCD 2008 C013

	BY	DATE
DESIGNED	SW	4/30/10
DRAWN	WH	4/30/10
CHECKED	JCF	4/30/10

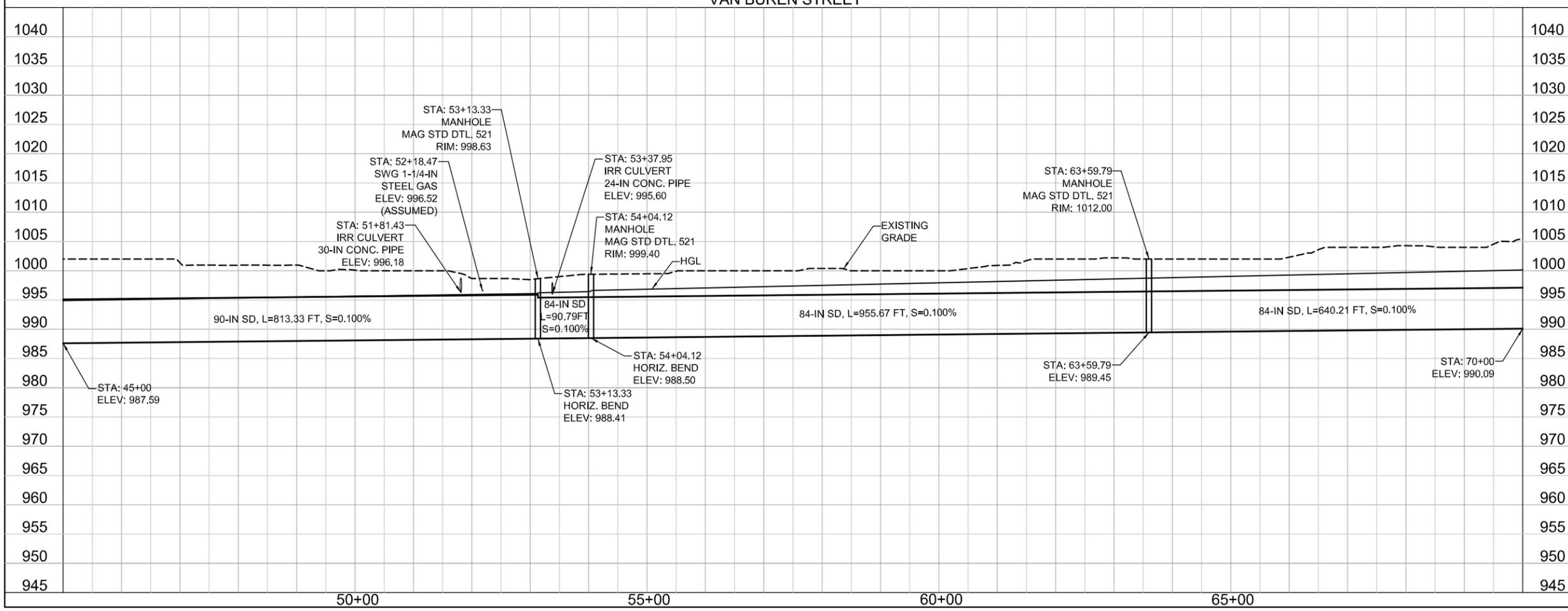
MOLSSON ASSOCIATES
 7250 North 16th Street, Suite 210, Phoenix, AZ 85020-5282, TEL: 602.748.1000, FAX: 602.748.1001

DRAWING NO. APPENDIX D	PLAN & PROFILE STA 0+00.00 TO STA 20+00.00	SHEET 03 OF 09
------------------------	--	----------------



REMOVE	QTY
①	SAWCUT, REMOVE & REPLACE EXISTING PAVEMENT PER MAG STD. DTL. 200, "T" TOP. APPLY TACK COAT AND JOIN NEW AC PAVEMENT.
②	RELOCATE
③	RELOCATE BY OTHERS

CONSTRUCT	QTY
①	INSTALL 90-INCH RGRCP, CLASS III STORM DRAIN 904.12 FT
②	INSTALL 84-INCH RGRCP, CLASS III STORM DRAIN 1,595.88 FT
③	INSTALL STORM DRAIN MANHOLE AS PER MAG STD DTL. 521, TYP. 3 EA



GENERAL NOTES:
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THE HORIZONTAL DATUM USED WAS NAD 83.
 THE VERTICAL DATUM USED WAS NGVD 29.

Scale in Feet Vertical Scale
 Scale in Feet Horizontal Scale

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
3			
2			
1			

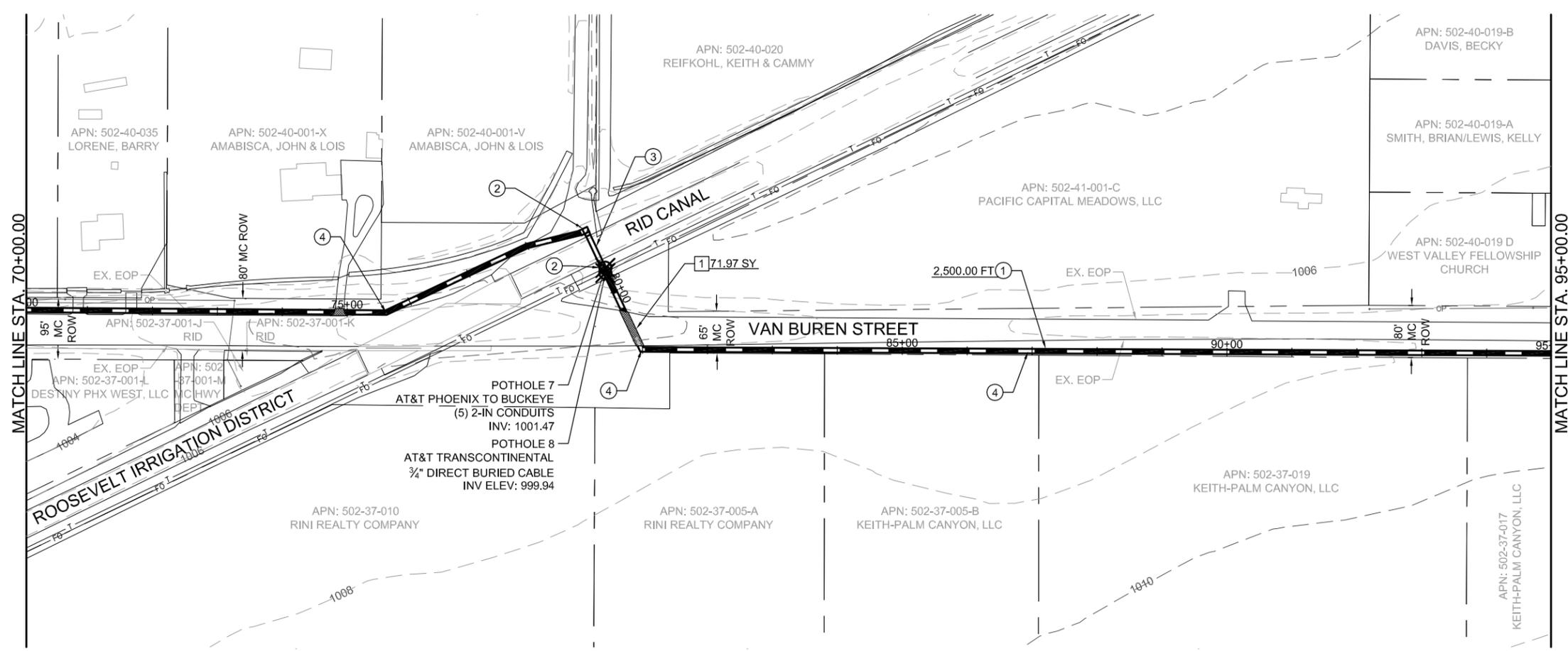
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 ENGINEERING DIVISION

WHITE TANKS FRS #4 OUTLET
 ALIGNMENT #6
 FCD 2008 C013

DESIGNED	BY	DATE
SW	SW	4/30/10
DRAWN	WH	4/30/10
CHECKED	JCF	4/30/10

MOLSSON ASSOCIATES
 7250 North 16th Street
 Suite 210
 Phoenix, AZ 85020-5282
 TEL 602.748.1000
 FAX 602.748.1001

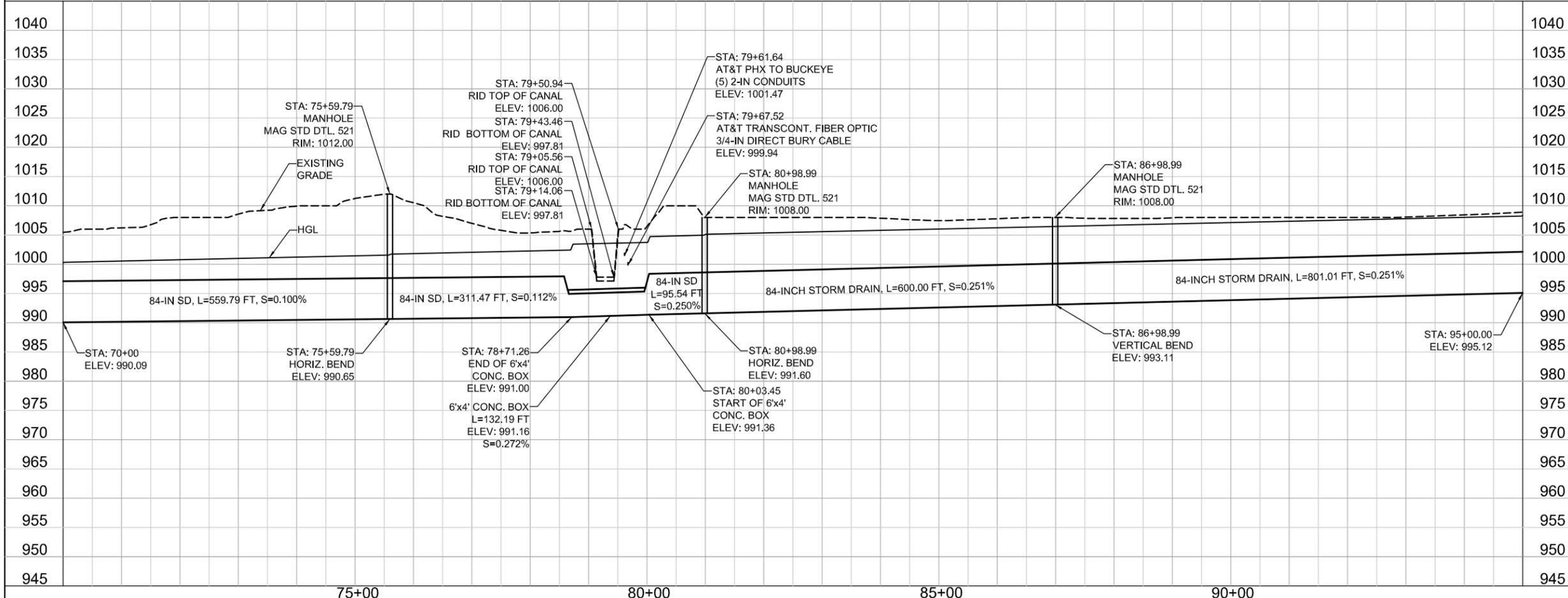
DRAWING NO.	PLAN & PROFILE	SHEET
APPENDIX D	STA 45+00.00 TO STA 70+00.00	05 OF 09



MATCHLINE STA. 70+00.00

MATCHLINE STA. 95+00.00

VAN BUREN STREET



REMOVE	QTY
① SAWCUT, REMOVE & REPLACE EXISTING PAVEMENT PER MAG STD. DTL. 200, "T" TOP. APPLY TACK COAT AND JOIN NEW AC PAVEMENT.	71.97 SY

RELOCATE	QTY
◇ RELOCATE BY OTHERS ◇	

CONSTRUCT	QTY
① INSTALL 84-INCH RGRCP, CLASS III STORM DRAIN	2,500.00 FT
② INSTALL STRUCTURE FOR PIPE TRANSITION TO CONCRETE BOX	2 EA
③ INSTALL (2) 6"W x 4'H CONCRETE BOXES	46 LF
④ INSTALL STORM DRAIN MANHOLE AS PER MAG STD DTL. 521, TYP.	3 EA

GENERAL NOTES:
 PRELIMINARY PLANS, NOT FOR CONSTRUCTION
 PLANS ARE FOR CONCEPTUAL USE ONLY.

UTILITY LOCATIONS ARE SCHEMATIC, CULVERT LOCATIONS AND DEPTH ARE APPROXIMATE.

THE HORIZONTAL DATUM USED WAS NAD 83.
 THE VERTICAL DATUM USED WAS NGVD 29.

Scale in Feet
 Vertical Scale: 1" = 5'
 Horizontal Scale: 1" = 50'

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
3			
2			
1			

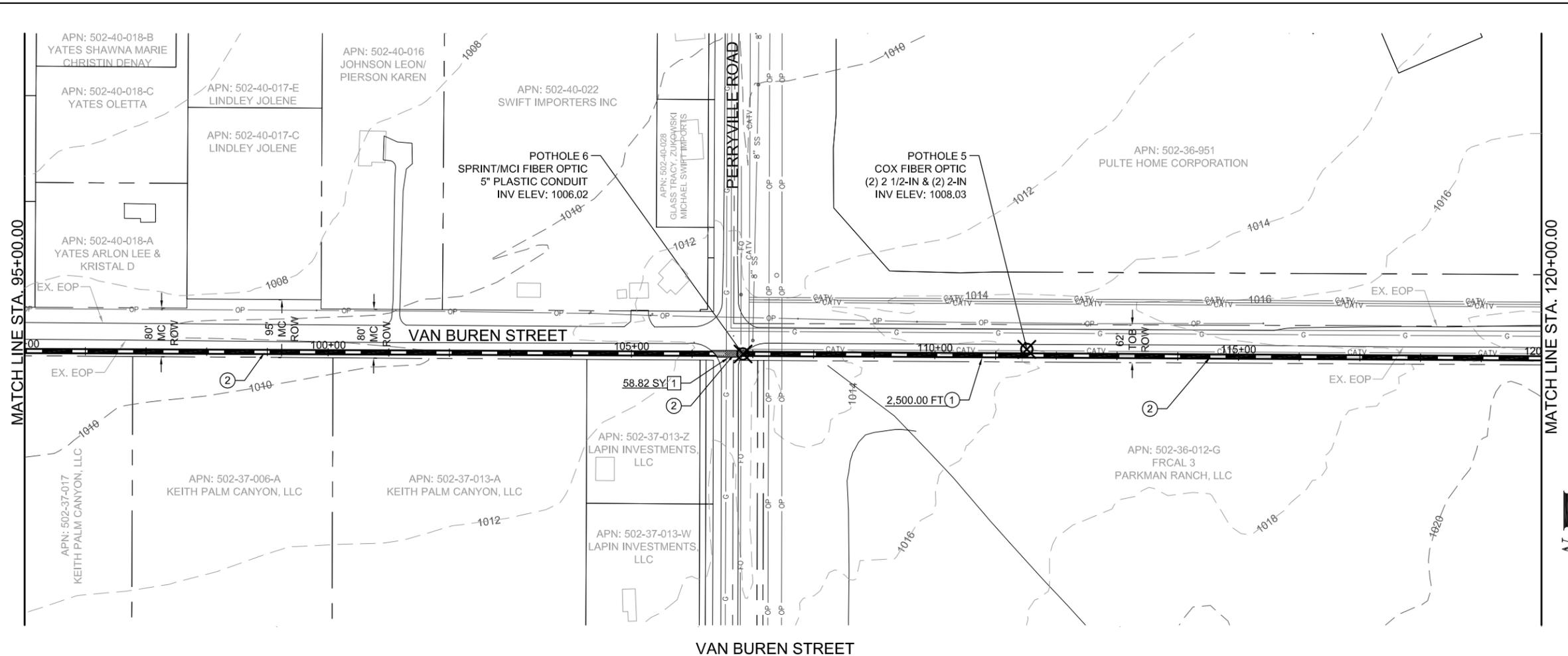
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 ENGINEERING DIVISION

WHITE TANKS FRS #4 OUTLET
 ALIGNMENT #6
 FCD 2008 C013

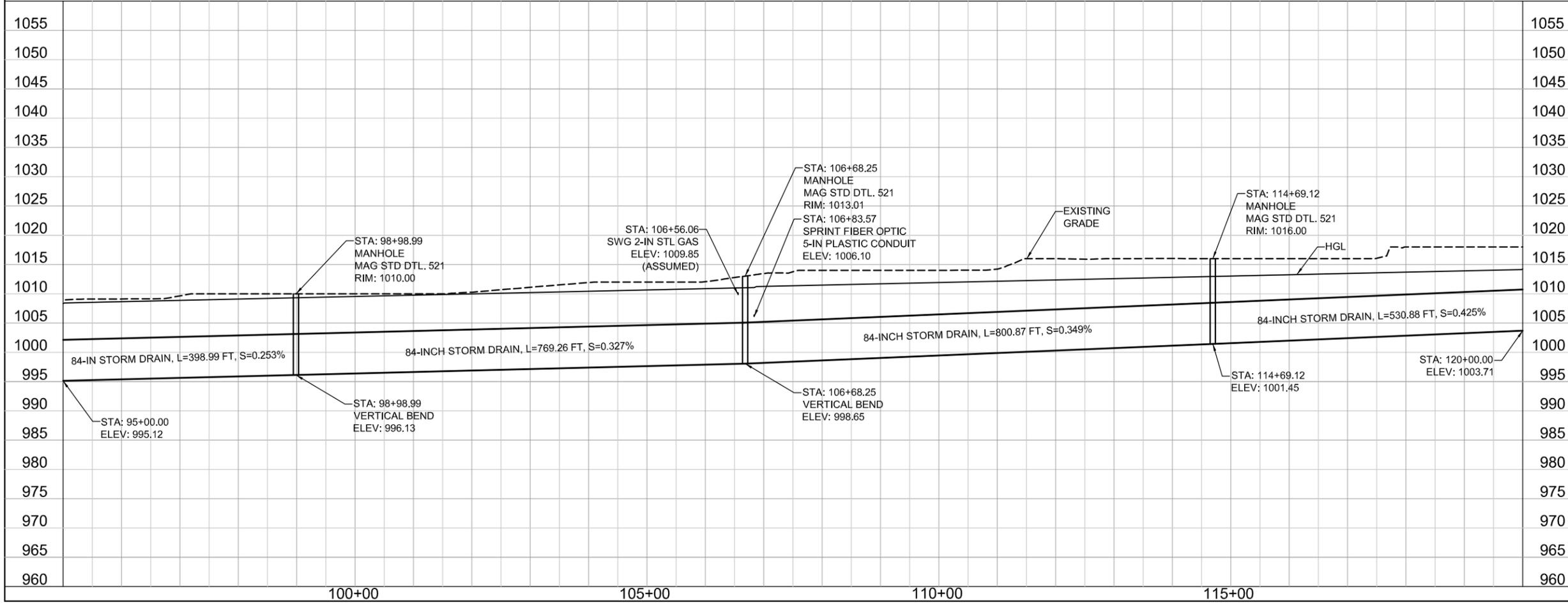
	BY	DATE
DESIGNED	SW	4/30/10
DRAWN	WH	4/30/10
CHECKED	JCF	4/30/10

MOLSSON ASSOCIATES
 7225 North 16th Street, Suite 210, Phoenix, AZ 85020-5282
 Phone: 602.748.1000, Fax: 602.748.1001

DRAWING NO.	PLAN & PROFILE	SHEET
APPENDIX D	STA 70+00.00 TO STA 95+00.00	06 OF 09



<input type="checkbox"/>	REMOVE	<input type="checkbox"/>	QTY
1	SAWCUT, REMOVE & REPLACE EXISTING PAVEMENT PER MAG STD. DTL. 200, "T" TOP. APPLY TACK COAT AND JOIN NEW AC PAVEMENT.		58.82 SY
<input type="checkbox"/>	RELOCATE	<input type="checkbox"/>	
<input type="checkbox"/>	RELOCATE BY OTHERS	<input type="checkbox"/>	
<input type="checkbox"/>	CONSTRUCT	<input type="checkbox"/>	QTY
1	INSTALL 84-INCH RGRCP, CLASS III STORM DRAIN		2,500.00 FT
2	INSTALL STORM DRAIN MANHOLE AS PER MAG STD DTL. 521, TYP.		3 EA



3			
2			
1			
NO.	REVISION	BY	DATE

GENERAL NOTES:
 PRELIMINARY PLANS, NOT FOR CONSTRUCTION
 PLANS ARE FOR CONCEPTUAL USE ONLY.

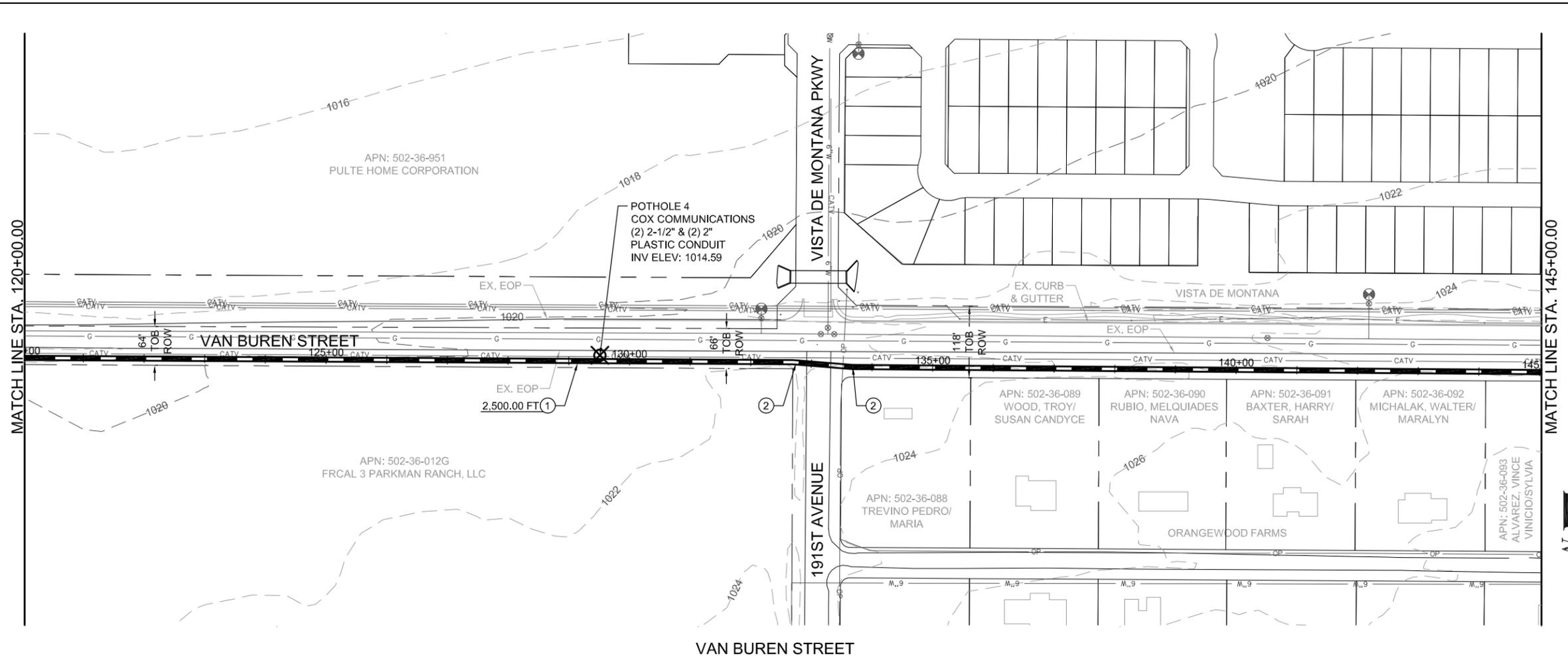
UTILITY LOCATIONS ARE SCHEMATIC, CULVERT LOCATIONS AND DEPTH ARE APPROXIMATE.

THE HORIZONTAL DATUM USED WAS NAD 83.
 THE VERTICAL DATUM USED WAS NGVD 29.

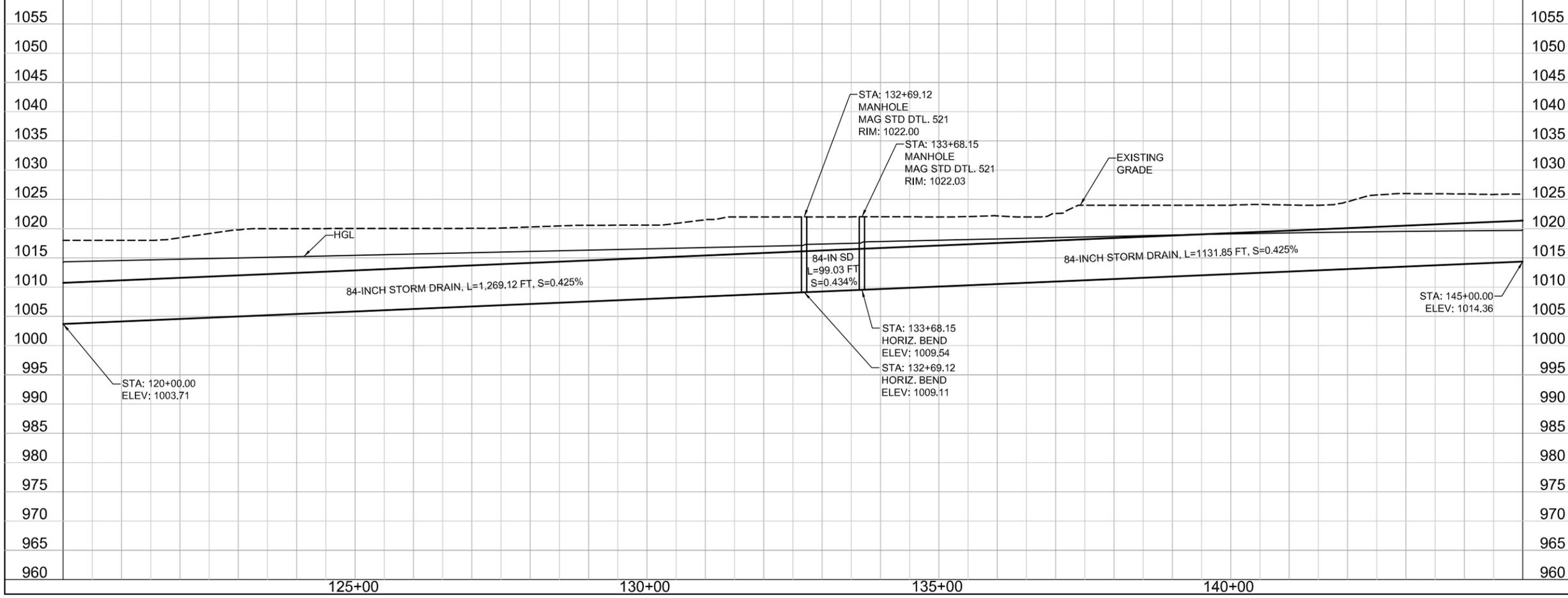
Scale in Feet
 Vertical Scale: 1" = 5' (0, 5, 10)
 Horizontal Scale: 1" = 50' (0, 50, 100)

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION		
WHITE TANKS FRS #4 OUTLET ALIGNMENT #6 FCD 2008 C013		
	BY	DATE
DESIGNED	SW	4/30/10
DRAWN	WH	4/30/10
CHECKED	JCF	4/30/10
7250 North 16th Street Suite 210 Phoenix, AZ 85020-5282 TEL: 602.748.1000 FAX: 602.748.1001		
DRAWING NO. APPENDIX D	PLAN & PROFILE STA 95+00.00 TO STA 120+00.00	SHEET 07 OF 09



<input type="checkbox"/>	REMOVE	<input type="checkbox"/>	QTY
1	SAWCUT, REMOVE & REPLACE EXISTING PAVEMENT PER MAG STD. DTL. 200, "T" TOP. APPLY TACK COAT AND JOIN NEW AC PAVEMENT.		0.00 SY
<input type="checkbox"/>	RELOCATE	<input type="checkbox"/>	
<input type="checkbox"/>	RELOCATE BY OTHERS	<input type="checkbox"/>	
<input type="checkbox"/>	CONSTRUCT	<input type="checkbox"/>	QTY
1	INSTALL 84-INCH RGRCP, CLASS III STORM DRAIN		2,500.00 FT
2	INSTALL STORM DRAIN MANHOLE AS PER MAG STD DTL. 521, TYP.		2 EA



GENERAL NOTES:
PRELIMINARY PLANS, NOT FOR CONSTRUCTION
PLANS ARE FOR CONCEPTUAL USE ONLY.

UTILITY LOCATIONS ARE SCHEMATIC, CULVERT LOCATIONS
AND DEPTH ARE APPROXIMATE.

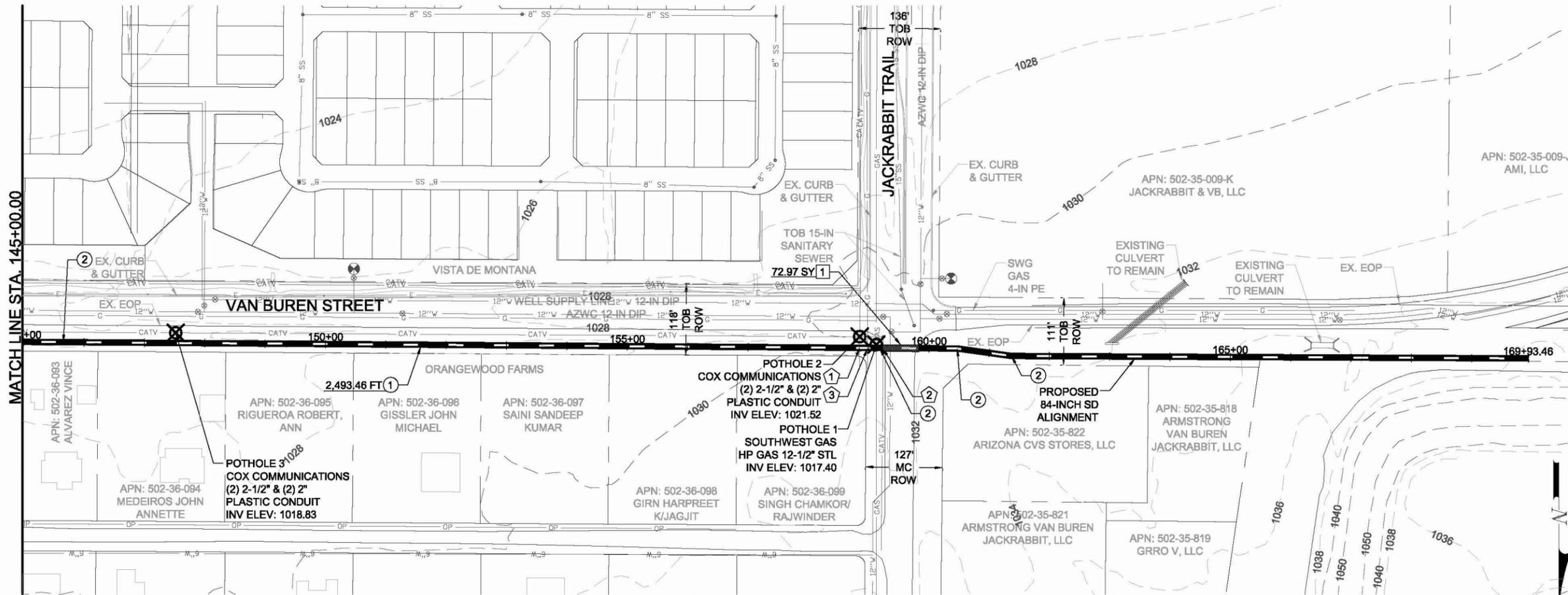
THE HORIZONTAL DATUM USED WAS NAD 83.
THE VERTICAL DATUM USED WAS NGVD 29.

Scale in Feet
Vertical Scale

Scale in Feet
Horizontal Scale

TWO WORKING DAYS
BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

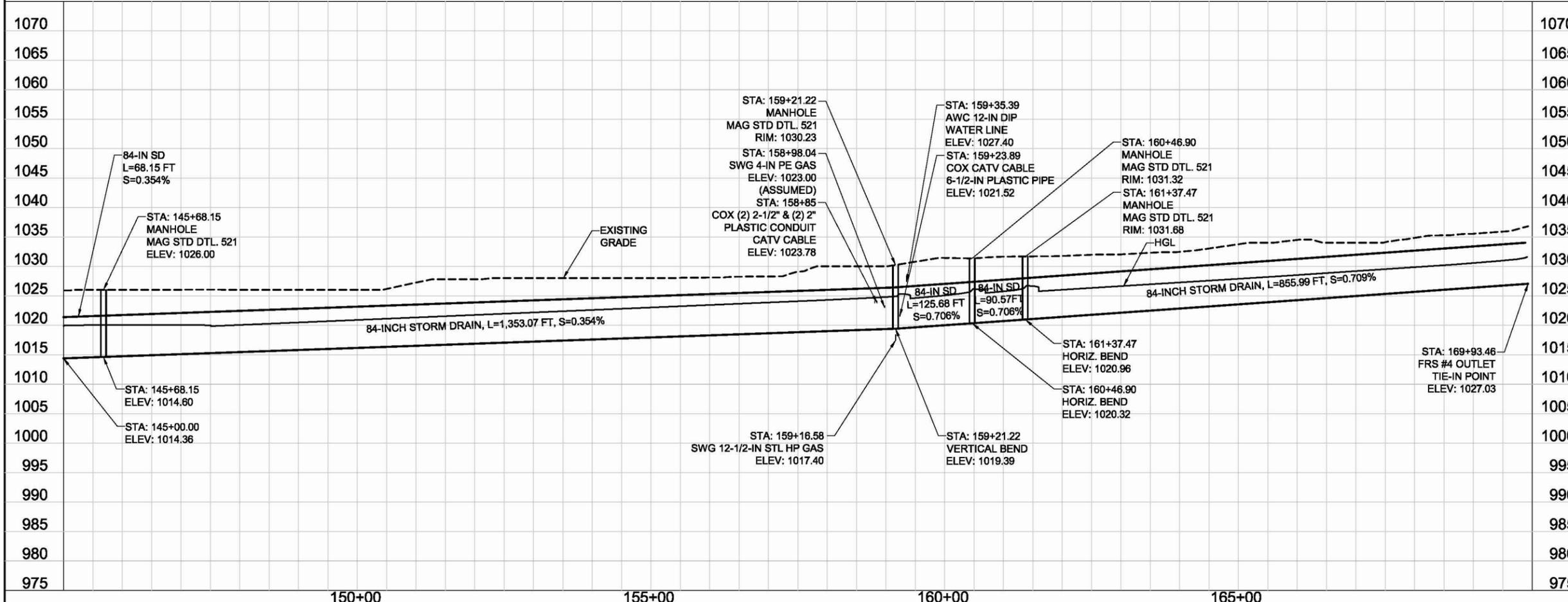
3			
2			
1			
NO.	REVISION	BY	DATE
<p>FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION</p> <p>WHITE TANKS FR5 #4 OUTLET ALIGNMENT #6 FCD 2008 C013</p>			
	DESIGNED	SW	4/30/10
	DRAWN	WH	4/30/10
	CHECKED	JCF	4/30/10
	DRAWING NO.	PLAN & PROFILE	SHEET
	APPENDIX D	STA 120+00.00 TO STA 145+00.00	08 OF 09



MATCH LINE STA. 145+00.00

VAN BUREN STREET

	REMOVE	QTY
① SAWCUT, REMOVE & REPLACE EXISTING PAVEMENT PER MAG STD. DTL. 200, 1" TOP. APPLY TACK COAT AND JOIN NEW AC PAVEMENT.	72.97 SY	
RELOCATE		
RELOCATE BY OTHERS		
① COX COMMUNICATIONS CATV (2) 2-IN CONDUITS & (2) 2-1/2-IN CONDUITS TO BE RELOCATED	1 EA	
② COX COMMUNICATIONS 6-1/2-IN CONDUIT TO BE RELOCATED	1 EA	
③ SOUTHWEST GAS 4-IN PE GAS LINE TO BE RELOCATED	1 EA	
CONSTRUCT		
① INSTALL 84-INCH RGRCP, CLASS III STORM DRAIN	2,493.46 FT	
② INSTALL STORM DRAIN MANHOLE AS PER MAG STD DTL. 521, TYP.	4 EA	



GENERAL NOTES:
 PRELIMINARY PLANS, NOT FOR CONSTRUCTION
 PLANS ARE FOR CONCEPTUAL USE ONLY.

UTILITY LOCATIONS ARE SCHEMATIC, CULVERT LOCATIONS AND DEPTH ARE APPROXIMATE.

THE HORIZONTAL DATUM USED WAS NAD 83.
 THE VERTICAL DATUM USED WAS NGVD 29.

Scale in Feet
 Vertical Scale: 1" = 5'
 Horizontal Scale: 1" = 100'

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
3			
2			
1			
 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY ENGINEERING DIVISION WHITE TANKS FRS #4 OUTLET ALIGNMENT #6 FCD 2008 C013			
	DESIGNED	SW	4/30/10
	DRAWN	WH	4/30/10
	CHECKED	JCF	4/30/10
	 MOLSSON ASSOCIATES		DATE
			4/30/10
DRAWING NO. APPENDIX D	PLAN & PROFILE STA 145+00.00 TO STA 169+93.46	SHEET 09 OF 09	

APPENDIX E
HYDRAULICS

Node Report

Label	Headloss Coefficient	Absolute Headloss (ft)	Sump Elevation (ft)	Rim Elevation (ft)	Total System Flow (cfs)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)	Rim Elev-HGL
I-1		0.5	1,027.03	1,036.82	300	1,032.09	1,031.59	4.73
J-1	0.2		1,021.75	1,031.65	300	1,026.70	1,026.31	4.95
J-2	0.2		1,021.20	1,031.33	300	1,026.15	1,025.76	5.18
J-3	0.2		1,020.39	1,030.23	300	1,025.34	1,024.95	4.89
J-4	0.2		1,014.36	1,025.88	300	1,019.98	1,019.70	5.90
J-5	0.2		1,009.54	1,022.04	300	1,017.72	1,017.53	4.32
J-6	0.2		1,009.11	1,021.99	300	1,017.31	1,017.13	4.68
J-7	0.2		1,003.71	1,018.00	300	1,014.33	1,014.14	3.67
J-8	0.2		998.1	1,013.22	300	1,011.24	1,011.05	1.98
J-9	0.2		995.12	1,008.92	300	1,008.43	1,008.25	0.49
J-10	0.2		991.6	1,007.99	300	1,005.16	1,004.97	2.83
J-11		1	991.36	1,006.91	300	1,004.76	1,003.76	2.15
J-12		1	991	1,005.68	300	1,003.45	1,002.45	2.23
J-13	0.2		990.7	1,012.00	300	1,001.76	1,001.57	10.24
J-14	0.2		990.2	1,005.45	300	1,000.34	1,000.15	5.11
J-15	0.2		988.84	999.4	300	996.63	996.44	2.77
J-16	0.2		988.76	998.64	300	996.24	996.09	2.40
J-17	0.2		987.28	1,002.00	300	994.9	994.75	7.10
J-18	0.2		986.97	1,002.96	300	994.49	994.35	8.47
J-19	0.2		983.21	997.29	300	991.91	991.77	5.38
J-20	0.2		981.72	995.4	300	990.67	990.53	4.73
J-21	0.2		981.18	994.61	300	990.13	989.99	4.48
J-22	0.2		980.65	994	300	989.48	989.34	4.52
J-23	0.2		980.5	994	300	989.2	989.06	4.80
J-24	0.2		978.45	988.71	300	987.09	986.95	1.62
J-25		1	978.4	988.26	300	986.9	985.9	1.36
O-1			978.4	988.26	300	978.4	978.4	9.86

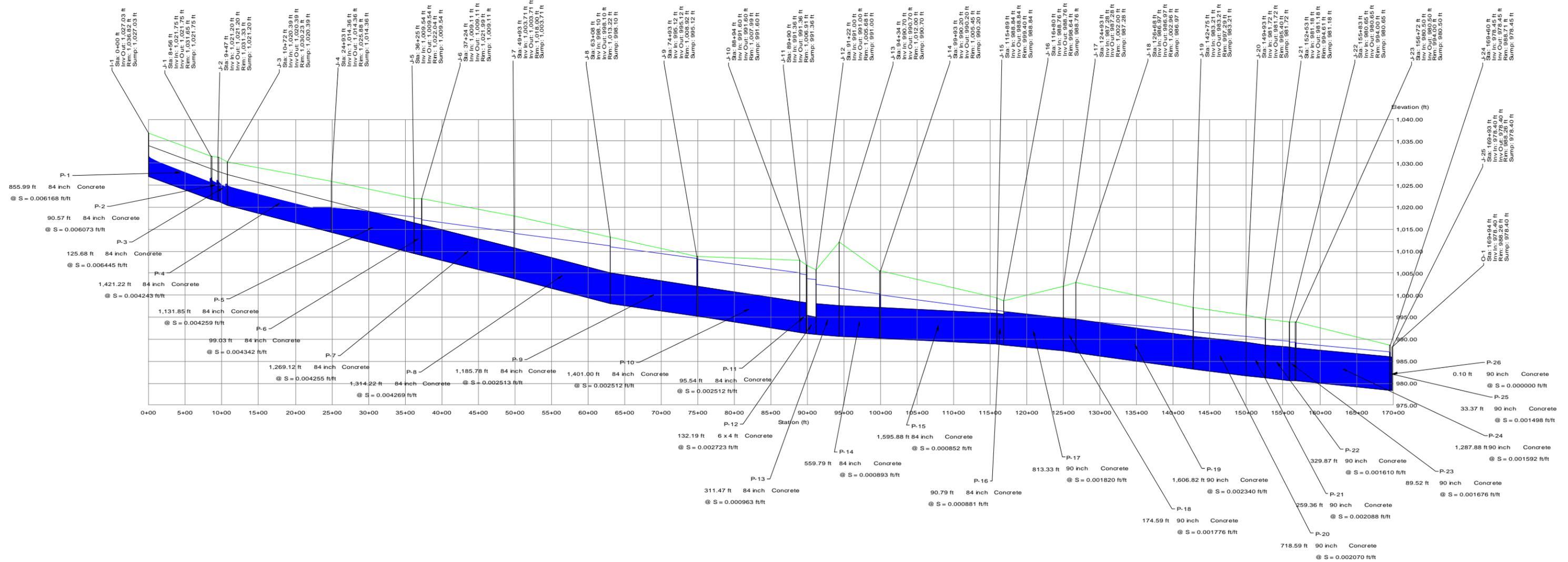
Scenario: Base

Pipe Report

Label	Upstream Node	Downstream Node	Total System Flow (cfs)	Length (ft)	Constructed Slope (ft/ft)	Section Size	Mannings n	Average Velocity (ft/s)	Full Capacity (cfs)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream Cover (ft)	Downstream Cover (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)	Energy Grade Line In (ft)	Energy Grade Line Out (ft)	Hydraulic Slope (ft/ft)	Energy Slope (ft/ft)	Description
P-1	I-1	J-1	300.00	855.99	0.006168	84 inch	0.013	13.62	501.70	1,027.03	1,021.75	1,036.82	1,031.65	2.79	2.90	1,031.59	1,026.70	1,033.57	1,028.35	.005704	.006099	
P-2	J-1	J-2	300.00	90.57	0.006073	84 inch	0.013	13.53	497.80	1,021.75	1,021.20	1,031.65	1,031.33	2.90	3.13	1,026.31	1,026.15	1,028.29	1,027.80	.001684	.005421	
P-3	J-2	J-3	300.00	125.68	0.006445	84 inch	0.013	13.85	512.83	1,021.20	1,020.39	1,031.33	1,030.23	3.13	2.84	1,025.76	1,025.34	1,027.74	1,026.99	.003282	.005975	
P-4	J-3	J-4	300.00	1,421.22	0.004243	84 inch	0.013	11.77	416.09	1,020.39	1,014.36	1,030.23	1,025.88	2.84	4.52	1,024.95	1,019.98	1,026.93	1,021.26	.003493	.003995	
P-5	J-4	J-5	300.00	1,131.85	0.004259	84 inch	0.013	11.79	416.86	1,014.36	1,009.54	1,025.88	1,022.04	4.52	5.50	1,019.70	1,017.72	1,021.11	1,018.67	.001748	.002159	
P-6	J-5	J-6	300.00	99.03	0.004342	84 inch	0.013	7.80	420.93	1,009.54	1,009.11	1,022.04	1,021.99	5.50	5.88	1,017.53	1,017.31	1,018.48	1,018.26	.002206	.002206	
P-7	J-6	J-7	300.00	1,269.12	0.004255	84 inch	0.013	7.80	416.69	1,009.11	1,003.71	1,021.99	1,018.00	5.88	7.29	1,017.13	1,014.33	1,018.07	1,015.27	.002206	.002206	
P-8	J-7	J-8	300.00	1,314.22	0.004269	84 inch	0.013	7.80	417.36	1,003.71	998.10	1,018.00	1,013.22	7.29	8.12	1,014.14	1,011.24	1,015.08	1,012.18	.002206	.002206	
P-9	J-8	J-9	300.00	1,185.78	0.002513	84 inch	0.013	7.80	320.24	998.10	995.12	1,013.22	1,008.92	8.12	6.80	1,011.05	1,008.43	1,011.99	1,009.38	.002206	.002206	
P-10	J-9	J-10	300.00	1,401.00	0.002512	84 inch	0.013	7.80	320.20	995.12	991.60	1,008.92	1,007.99	6.80	9.39	1,008.25	1,005.16	1,009.19	1,006.10	.002206	.002206	
P-11	J-10	J-11	300.00	95.54	0.002512	84 inch	0.013	7.80	320.17	991.60	991.36	1,007.99	1,006.91	9.39	8.55	1,004.97	1,004.76	1,005.91	1,005.70	.002206	.002206	
P-12	J-11	J-12	300.00	132.19	0.002723	6 x 4 ft	0.013	6.25	323.32	991.36	991.00	1,006.91	1,005.68	11.55	10.68	1,003.76	1,003.45	1,004.36	1,004.05	.002345	.002345	
P-13	J-12	J-13	300.00	311.47	0.000963	84 inch	0.013	7.80	198.25	991.00	990.70	1,005.68	1,012.00	7.68	14.30	1,002.45	1,001.76	1,003.39	1,002.70	.002206	.002206	
P-14	J-13	J-14	300.00	559.79	0.000893	84 inch	0.013	7.80	190.91	990.70	990.20	1,012.00	1,005.45	14.30	8.25	1,001.57	1,000.34	1,002.51	1,001.28	.002206	.002206	
P-15	J-14	J-15	300.00	1,595.88	0.000852	84 inch	0.013	7.80	186.48	990.20	988.84	1,005.45	999.40	8.25	3.56	1,000.15	996.63	1,001.09	997.57	.002206	.002206	
P-16	J-15	J-16	300.00	90.79	0.000881	84 inch	0.013	7.80	189.62	988.84	988.76	999.40	998.64	3.56	2.88	996.44	996.24	997.38	997.18	.002206	.002206	
P-17	J-16	J-17	300.00	813.33	0.001820	90 inch	0.013	8.41	327.54	988.76	987.28	998.64	1,002.00	2.38	7.22	996.09	994.90	996.82	995.61	.001472	.001481	
P-18	J-17	J-18	300.00	174.59	0.001776	90 inch	0.013	8.32	323.55	987.28	986.97	1,002.00	1,002.96	7.22	8.49	994.75	994.49	995.47	995.21	.001503	.001506	
P-19	J-18	J-19	300.00	1,606.82	0.002340	90 inch	0.013	9.36	371.43	986.97	983.21	1,002.96	997.29	8.49	6.58	994.35	991.91	995.07	992.63	.001516	.001519	
P-20	J-19	J-20	300.00	718.59	0.002070	90 inch	0.013	6.79	349.34	983.21	981.72	997.29	995.40	6.58	6.18	991.77	990.67	992.48	991.39	.001527	.001527	
P-21	J-20	J-21	300.00	259.36	0.002088	90 inch	0.013	6.79	350.84	981.72	981.18	995.40	994.61	6.18	5.93	990.53	990.13	991.24	990.85	.001527	.001527	
P-22	J-21	J-22	300.00	329.87	0.001610	90 inch	0.013	6.79	308.06	981.18	980.65	994.61	994.00	5.93	5.85	989.99	989.48	990.70	990.20	.001527	.001527	
P-23	J-22	J-23	300.00	89.52	0.001676	90 inch	0.013	6.79	314.30	980.65	980.50	994.00	994.00	5.85	6.00	989.34	989.20	990.06	989.92	.001527	.001527	
P-24	J-23	J-24	300.00	1,287.88	0.001592	90 inch	0.013	6.79	306.34	980.50	978.45	994.00	988.71	6.00	2.76	989.06	987.09	989.78	987.81	.001527	.001527	
P-25	J-24	J-25	300.00	33.37	0.001498	90 inch	0.013	6.79	297.22	978.45	978.40	988.71	988.26	2.76	2.36	986.95	986.90	987.67	987.62	.001527	.001527	
P-26	J-25	O-1	300.00	0.10	0.000000	90 inch	0.013	6.79	0.00	978.40	978.40	988.26	988.26	2.36	2.36	985.90	985.90	986.62	986.62	.001527	.001527	

Profile
Scenario: Base

White Tanks FRS#4 Outlet Facility Design Concept Report (DCR)
Alternative Layout No.6



APPENDIX F
BUCKEYE WATER CONSERVATION DRAINAGE DISTRICT
DEVELOPMENT GUIDELINES

Buckeye Water Conservation & Drainage District

205 ROOSEVELT AVENUE
P.O. BOX 1726
BUCKEYE, ARIZONA 85326-0160
PH: (623) 386-2196
FAX: (623) 386-7789

June 2006

**Reference: Irrigation and Drainage System Relocation Guidelines
For Land Development and/or Street Improvements**

1. Introduction

The following Buckeye Water Conservation and Drainage District (District) policies and standards are provided as guidelines for Developers and Planners involved in projects impacting existing District irrigation and drainage facilities.

These guidelines are presented as generalized criteria only; the District reserves the right to modify policies, specifications and/or design requirements for each project on a case-by-case basis.

Independent, professional planners, engineers, attorneys, or other consultants whose professional expertise is appropriate for a particular project will assist the District. All costs and fees associated with the review of development plans and/or the modification of District facilities are the responsibility of the Developer. These costs are typically incurred for, but not limited to, pre-design engineering planning and analysis, engineering survey and design, legal work, construction, construction inspection and project administration.

An independent engineer selected by the District will design all necessary modifications to the District's irrigation and drainage facilities. All District facilities modified to accommodate a development project will be designed and constructed to current applicable District standards.

Generally, a licensed contractor selected by the Developer will complete the construction of relocated District facilities. However, the District reserves the right to selectively determine that some, or all of the relocated facilities will be constructed by the District. A construction observer selected by the District will monitor the construction of all District facilities.

Prior to the commencement of work by the District beyond the initial planning and coordination stage of a development project, the Developer must sign a Participation Agreement Letter with the District and provide advance funds covering the estimated cost of the work.

The following general topics are discussed in these guidelines:

- District Funding Requirements
- General Procedure for the Relocation of District Facilities
- District Easements
- Placement of Relocated District Facilities
- Utilities
- District Landscaping Restrictions

**Irrigation and Drainage System Relocation Guidelines
For Land Development and/or Street Improvements**

- Acceptance of Surface Drainage
- District Irrigation Wells
- Gates for Irrigation Delivery Structures
- Frames and Covers for Irrigation Manholes
- Maintenance of District Irrigation Service

2. District Funding Requirements

All costs, directly or indirectly, associated with the relocation of District irrigation and/or drainage facilities are the sole responsibility of the Developer or payor. The District will not share in the costs of funding a relocation project.

Typical costs incurred by the District that must be funded by the Developer in association with a relocation project include, but are not limited to: engineering planning and design, construction coordination and observation, as-constructed survey; project management, legal costs, coordination and plan review with utility companies, utility location services, governmental and/or municipal plan review fees, and project administration and overhead costs.

In general, the Developer's Contractor will complete the physical construction of the District facilities for a relocation project. The District does not typically incur costs for the labor and materials directly associated with the construction of their relocated facilities.

The District requires the Developer to provide funds for the expected estimated costs that will be incurred by the District for a specific relocation project prior to the commencement of any substantial work by the District. In this regard the District will typically provide the Developer with separate funding requirement notifications for the pre-design, design and post design (construction) phases of the project.

The District will place these funds in a special account to be applied against costs incurred by the District in association with the relocation project. Once these funds are depleted, the District has no obligation to incur further costs or to proceed further with the design, modification or relocation of its facilities until the Developer provides subsequent funds in the amount(s) requested by the District.

Any funds remaining in the project account at the end of the design phase of the relocation project will be credited towards the subsequent post design phase of the project. Funds remaining in the project account after post design and the final acceptance by the District of the adequacy of the relocated facilities will be refunded to the payor.

3. General Procedure for the Relocation of District Facilities

3.1 General

The procedure for the relocation of District facilities is a multi-step process divided into three distinct phases; pre-design, design and post-design. The District will provide a separate notification of the funding requirement for each phase of the project to the Developer at an appropriate time.

Irrigation and Drainage System Relocation Guidelines For Land Development and/or Street Improvements

3.2 Pre-Design Phase

The pre-design phase of a District relocation project includes the initial meetings with the Developer, and typically the Developer's Engineer, to discuss the details of the development project, District procedures and requirements, and the District's preparation of a scope-of-work and budget for the subsequent design phase.

The Developer should arrange to meet with the District and the District's Engineer as early as possible during the planning phase of the development project in order to obtain information concerning the District's rights, responsibilities, and requirements prior to the preparation of a preliminary plat and/or final plans. At this meeting the Developer should provide a plan or plat depicting the location of streets, lands dedicated for public use, open space, retention areas, lot layouts, utility locations, etc.

The District and the District's Engineer will review the Developer's preliminary plans to determine the impact the development will have on the integrity and operational flexibility of the District's facilities. If it is determined that relocation of District facilities is required for the development project and that relocating the District's facilities is in the District's best interest, the District and the District's Engineer will work with the Developer to determine the general scope and breadth of the relocations, identify potential alignment alternatives and note potential complications in the design process. The approval of a new alignment, and/or the location of any new District facility, is solely the responsibility of the District.

At the Developer's request, the District will prepare and submit a scoping package for the design phase of the project. This package will include a detailed scope of work, an engineering budget and a Participation Agreement Letter (PAL). To initiate the preparation of this package the Developer must provide a non-refundable fee of \$10,000 to the District. The District will provide a written notification of the fee requirement to the Developer when requested.

The estimated scope of work and budget for the design phase will be based on the alternatives and features discussed with the Developer and the Developer's Engineer and will typically include a schematic layout of the proposed RID facilities. The PAL is the standardized contractual agreement between the District and the Developer. Any changes proposed by the Developer to this document must be reviewed by the District's Attorney and may require approval of the District's Board of Directors.

The Developer should carefully review the scoping package for the design phase to ensure that it will meet the requirements of the development project. The scoping package is valid for 90-days from the date of its transmittal letter.

3.3 Design Phase

The design phase of the relocation project includes the engineering design of the District's facilities, the preparation of construction plans, and the procurement of any municipal and/or governmental approvals required for the plans.

To initiate the design phase the Developer must return a signed PAL to the District along with the required funding as detailed in the scoping package. Once the PAL and funds have been received, the District will issue a notice to proceed with the project to the District's Engineer.

Ideally, the paving and grading design for the development should be approximately 60% complete prior to the commencement of the District's relocation design. This will provide the

**Irrigation and Drainage System Relocation Guidelines
For Land Development and/or Street Improvements**

best opportunity for the Developer's Engineer and the District's Engineer to effectively coordinate and accommodate elements of the interdependent design projects.

The Developer's Engineer will need to provide all pertinent CADD files and preliminary plans for the development project. The District's Engineer will typically utilize the same horizontal coordinate system and vertical datum established for the development project by the Developer's Engineer to facilitate both the coordination of the design process and the construction of the District facilities. To avoid a duplication of effort, the District's Engineer, to the extent practicable, will utilize the provided CADD files for the preparation of the District's construction plans.

The Developer is solely responsible for the accuracy of the plans and/or CADD files supplied by the Developer's Engineer. The District and/or the District's Engineer will not be responsible for any costs resulting from errors and/or emissions in the plans and/or CADD files provided by the Developer.

The District's Engineer will schedule and perform any surveying required to complete the hydraulic design of the relocated facilities. To the extent possible, any survey information provided by the Developer's Engineer will be utilized for this purpose.

The District's Engineer will evaluate and identify the need for locating existing underground utilities that may be in conflict with the relocated facilities. If utility locating is required, the District's Engineer will provide a detailed request to the Developer identifying these locations for the Developer to obtain. If requested, the District's Engineer will obtain a cost estimate from a licensed Contractor for these services and provide this information to the Developer for funding.

The completed preliminary plans will be submitted to both the Developer and any appropriate municipal agencies for review and comment. The Developer is solely responsible for any review fees levied by municipal agencies and any notification for payment of these fees received by the District's Engineer will be forwarded to the Developer for payment directly to the appropriate agency.

When the review comments have been addressed and any necessary approvals granted by the municipal agencies involved have been secured, the approved plans will be released by the District to the Developer. The release of the approved plans effectively ends the design phase of the relocation project.

Prior to the release of the approved plans, any outstanding costs incurred by the District during the design phase of the project that exceed the funds provided by the Developer must be paid in full. Any excess funds remaining in the project account at the end of the design phase are generally applied toward the estimated costs of the post design phase of the project.

The District's approved plans are valid for one year from their date of release. If the construction of the project has not commenced within that period the District reserves the right to reevaluate the plans for conformance to current applicable District standards and specifications and any other changes that may affect the design and/or proposed location of District facilities. The determination of the suitability for construction of expired plans, and any modifications needed to bring the plans into conformance with the current standards, is solely at the discretion of the District.

Irrigation and Drainage System Relocation Guidelines For Land Development and/or Street Improvements

3.4 Post-Design Phase

The post design phase of the relocation project covers the construction, testing and final acceptance of the relocated District facilities.

Prior to the commencement of any construction of District facilities the Developer must fund the estimated costs and expenses that will be incurred by the District during this phase of the relocation project. The Developer or the Developer's Contractor must also obtain a License to Construct from the District before beginning any work.

When a general schedule for the construction of the District facilities has been determined, the Developer should request the District to provide a scoping package for the post design phase of the relocation project. The scoping package will include an estimated scope of work and budget for items including construction observation, as-constructed survey, post-design engineering support and the completion of record drawings and mapping updates for the District's records.

The package will typically also include a License to construct for the project. The license must be signed by the Developer or the Developer's Contractor and returned to the District's office, along with the \$500 license fee, for approval signature by the District. A copy of the signed license must be available at the construction site at all times. A signed License to Construct will not be issued by the District until the post-design funding has been provided.

4. District Easements

The District's Engineer will determine appropriate dimensions and limits for the creation of these legal descriptions. These dimensions will be provided to the Developer for the preparation of the respective legal descriptions.

The Developer will submit the completed easement documents for the termination and/or definition, including the sealed legal descriptions, to both the District's Engineer and Attorney for review and approval. Once the documents have been approved, the District's Attorney will have them recorded.

Once the District accepts the relocated facilities as adequate, a defined easement can then be recorded, and the easement for the facilities that are being abandoned can be terminated.

An easement for a District pipeline may contain, or be used for among other things, driveways, limited parking, sidewalks, lawns or alleys. While the easement is typically centered along the pipeline, it may be offset to accommodate specific features of a particular project. District easements for open ditch facilities are typically exclusive; the inclusion of any other public or private facilities within these easements is solely at the District's discretion.

A District easement for a pipeline and appurtenant structures may be located either wholly or partially within a City, Town or County right-of-way based on the consenting approval of the jurisdictional municipal agency. District easements for an open ditch and an adjacent operations and maintenance road are typically located wholly outside of municipal rights-of-way and public utility easements.

5. Placement of Relocated District Facilities

5.1 Open Ditch Facilities

The District has no requirement that existing open ditch facilities be piped (tiled) as part of a relocation project. However, the governing municipality generally requires the piping of the

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District's facilities within the boundary of the development project as part of the development agreement.

In general, most of the District's existing lateral canals follow an approximate alignment along section or mid-section lines. Rarely do the existing facilities exactly parallel these boundary lines, and in many instances the alignment may meander from one side of the boundary line to the other.

The District's existing open ditch facilities include not only the prism of the ditch, but also the adjacent operations and maintenance (O&M) road(s). Even when the prism of the existing ditch is located wholly outside of the development area boundary, the District's Engineer must assess the impact of the development project on the District's ability to access, maintain and operate their facility and potential impacts to neighboring properties.

Should the Developer wish to accommodate an existing District ditch without relocation, the District may require that the property wall or other permanent features constructed for the development project be offset from the boundary line of the property to provide sufficient clearance for District facilities. The District's Engineer will determine the width required to accommodate the existing facilities and provide this information to the Developer.

Typical cross-sections for lined and unlined District ditches and O&M roads are shown on Figure 1. In general, the width requirement for these facilities is approximately 40 feet, but contributing factors such as vertical grades and accessibility can extend this requirement to 50 feet or more.

The construction of an unlined ditch as a relocation of a District facility is not allowed. Any existing unlined District ditch that will be relocated as part of a development project must be constructed as a concrete lined ditch or pipeline.

5.2 Piped Facilities

Typical requirements for placement of a District pipeline are illustrated on Figures 2 and 3.

As shown on Figure 2, the preferred location for a District pipeline is behind the proposed curb and gutter and beneath the sidewalk. This location will generally maximize the area that can be landscaped within the right-of-way while protecting the pipeline. Alignments placing a District pipeline within the paved section of a roadway are not preferred and are generally only considered along small residential streets. If a pipe must be located under the street, a minimum horizontal clearance of two feet is required from the lip of the gutter to the outside wall of the pipe. District pipelines may not be located beneath drainage channels or retention basins.

Minimum clearances from the outside wall of a District pipe to any permanent above-grade structure such as a building or wall are illustrated in Figure 3. A four-foot minimum clearance is required around all sides of a District delivery structure.

6. Utilities

The District facilities have senior prior rights over most municipal and public service utility lines within their service area. All proposed and existing utility lines must cross beneath the District facilities and the relocation of District facilities will often require that existing utility lines be lowered to resolve conflicts.

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Requests by the Developer to lower a District pipeline to avoid the relocation of an existing utility line, or to accommodate the installation of a new utility line, will be reviewed by the District on a case-by-case basis. Unless the crossing utility holds a more senior prior right, the determination regarding the lowering of a District pipeline is solely at the discretion of the District.

Restrictions for utility pipelines, conduits and/or ducts that cross, or run parallel to, a District pipeline are illustrated on Figure 4. All underground utilities paralleling a District pipeline must maintain a minimum two-foot horizontal clearance between the outside of the District pipe and the open excavation for the utility. All utilities crossing a District pipeline must pass beneath the pipe with a minimum vertical clearance of one foot. Sanitary sewer conflicts will be evaluated on a case-by-case basis.

Single service residential utility lines of 1" or less, street light electrical lines and traffic signal lines may over-cross a District pipeline with a 6" minimum clearance. All proposed over-crossings of a District pipeline by a utility line larger than 1" would be reviewed on a case-by-case basis. Prior written approval from the District must be obtained before any over-crossing utility is installed.

The Developer is solely responsible for the coordination and relocation of all conflicting utilities.

The District's Engineer will make all reasonable efforts to identify conflicting utilities on the District's construction plans. To aid in this task, the District requires that all known utilities crossing the District's proposed alignment be potholed to determine their actual location and elevation. However, the utilities identified on the plans may not represent all existing and/or proposed conflicting utilities within the project limits. Neither the District, nor the District's Engineer, guarantees the location and/or the elevation of utilities, and neither will be responsible for their relocation.

7. District Landscaping Restrictions

Restrictions concerning landscape plantings adjacent to a District pipeline are shown on Figure 5. A minimum clearance of four feet between the outside wall of the pipeline and a tree trunk is required. Mature tree canopies must not overhang a District pipeline. The spacing between trees along the alignment must provide at least 16 feet of clearance both longitudinally and transversely. Plant groupings are limited to a maximum length of 16 feet as measured along the pipeline alignment. Spacing requirements between plant groupings are identical to those for tree spacing.

Landscape plantings within a District easement containing a lateral canal or ditch are not permitted. Canopies of mature trees planted adjacent to a District easement containing a lateral canal or drainage ditch may not encroach into the easement.

Landscaping plans for the development project must be submitted to the District for review and approval.

8. Acceptance of Surface Drainage

The District may accept agricultural return flows at historically established points of inflow into their system. Under no circumstance will the District allow a proposed commercial, industrial or residential development to discharge storm water, surface water flows, or flood flows into District facilities.

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9. District Irrigation Wells

District irrigation well sites are typically located upon deeded property owned by the District. The site boundaries can generally be adjusted to meet the needs of the development provided the total area of the site remains the same.

There are a number of minimum requirements regarding the location of the well pad relative to the site enclosure and the accessibility to the site for District equipment. The Developer should discuss these requirements with the District's Engineer on a case-by-case basis.

The District requires that all of their well sites be fully enclosed, and all construction plans prepared by the District's Engineer will specify 6' chain link fence topped with 1' of barbed wire per MAG standards. However, the Developer may arrange for some other type of approved enclosure such as a decorative block wall. In this regard the Developer must provide detailed construction plans for the alternative enclosure to the District's Engineer for review and approval. All designs for alternative enclosures must include:

- A total minimum height of 7' including a feature designed to prohibit entrance by scaling the enclosure. A 6' high block wall topped with outwardly curved wrought iron bars is an example of an acceptable alternative.
- A feature providing visibility into the site from the main point of access and/or adjacent roadways such as one or more panels of wrought iron bars set within a block wall.

10. Gates for Irrigation Delivery Structures

For operational and maintenance continuity throughout their system, the District specifies the installation of mild steel gates fabricated by Fresno Valves and Castings, Inc. (Fresno) at their delivery structures. The dimensions of the individual gates are unique to each delivery structure and must be designed and fabricated accordingly.

The lead-time for procurement of these gates can be substantial (3 to 4 months) and the Developer should consider the impact this may have on construction scheduling and sequencing for the project.

To expedite the delivery of the gates the District's Engineer can initiate the shop drawing review process and purchase of the gates provided the Developer pre-funds the purchase of the gates to the District.

In this regard, the District's Engineer will provide the specific dimensions and specifications of the gates to Fresno for a cost quote. The Fresno quote will then be provided to the Developer for consideration. Once the District has received funds for the gates, the District's Engineer will accept the Fresno quote on behalf of the District and initiate Fresno's preparation of shop drawings. The completed gates will be shipped to the District's Buckeye maintenance yard where the Developer's Contractor can pick them up. Any additional costs incurred by the District during the manufacturing or shipping in excess of the original quoted cost will need to be reimbursed prior to the Contractor taking delivery of the gates.

Shop drawings for any gates purchased directly by the Developer or the Developer's Contactor must be reviewed and approved by the District's Engineer. The installation of unapproved gates is not acceptable and is at the Developer's sole risk. Any gates rejected by the District under this circumstance must be removed and replaced with approved gates at the discretion of the District.

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11. Frames and Covers for Irrigation Manholes

The District maintains an inventory of manhole frames and covers as specified in their construction plans. The Developer's Contractor is encouraged to purchase these items directly from the District at their cost. The District Construction Observer and/or Engineer must approve the use of frames and covers not purchased directly from the District. Any frames or covers installed without District approval is at the Developer's own risk and may require removal and replacement at the District's discretion.

12. Maintenance of District Irrigation Service

Existing District facilities must remain operational, and may not be disturbed or rendered inaccessible to the District until the construction of the relocated District facilities have been completed, tested and accepted as adequate by the District.

The scheduling for an irrigation outage to complete a tie-in between new and existing facilities must be coordinated with the District Superintendent and the District Construction Observer. The District schedules an annual, district-wide "dry-up" for approximately two weeks during the month of November. The availability and duration of an unscheduled irrigation outage during any other time period will be determined solely at the discretion of the District.

The Developer should be aware that the construction of new facilities along the same alignment as the existing facilities will likely increase the irrigation outage time required for construction.

Temporary irrigation by-pass facilities may be constructed to facilitate the demolition of the existing District facilities prior to the completion of the proposed permanent facilities. The District must grant prior approval for the use of a temporary irrigation by-pass. At the discretion of the District, sealed engineering plans for the by-pass facilities may be required. These plans must be submitted to the District for review and approval prior to construction. The abandonment and demolition of the existing District facilities replaced by the temporary by-pass may proceed only after the constructed temporary facilities have been field verified and accepted as adequate by the District.

BUCKEYE WATER CONSERVATION AND DRAINAGE DISTRICT

Jackie Meck

General Manager