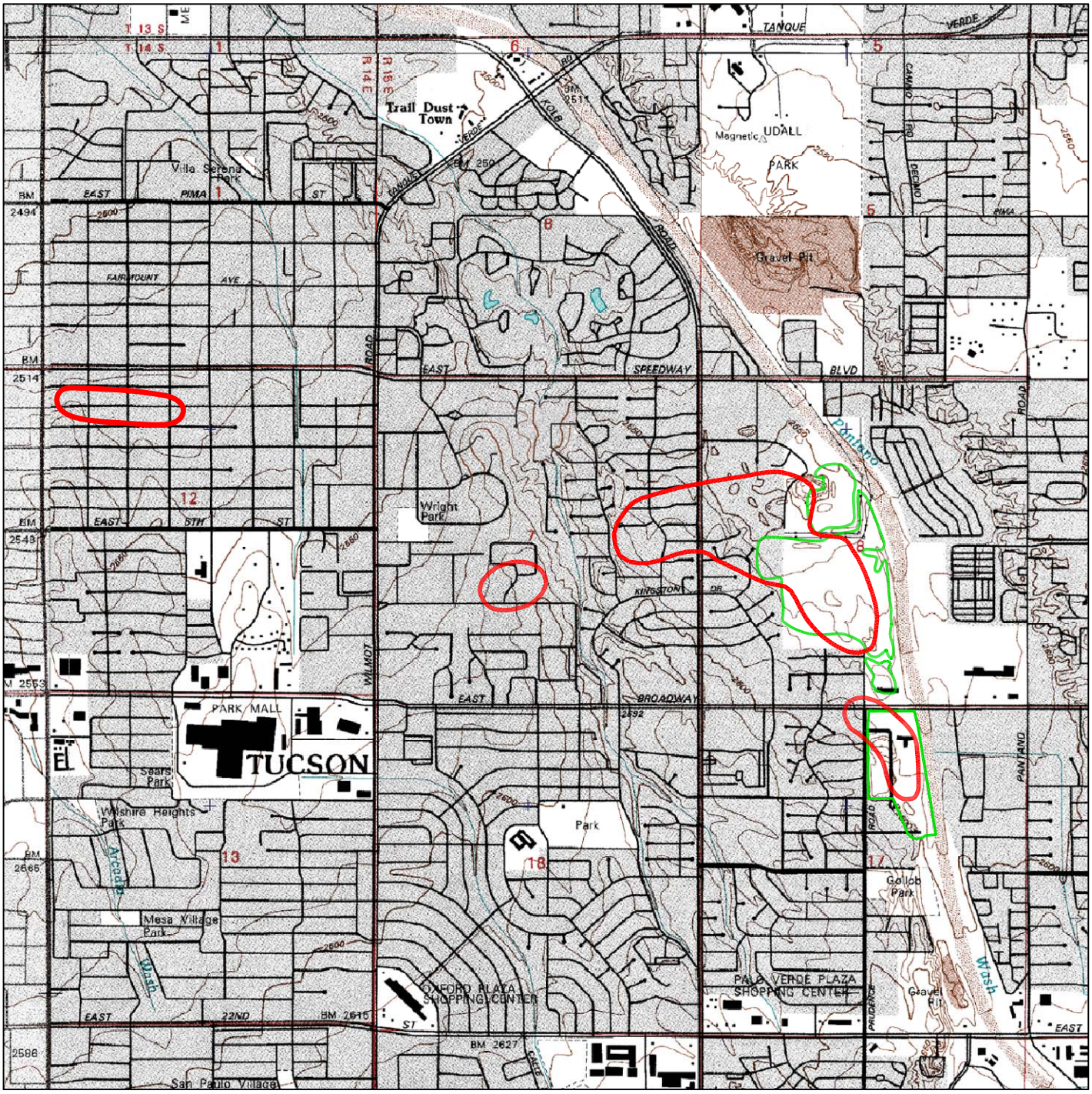
FIGURES
GROUNDWATER OPERABLE UNIT REMEDIAL INVESTIGATION REPORT—WRITTEN PUBLIC COMMENTS AND RESPONSIVENESS SUMMARY
REMEDIAL INVESTIGATION REPORT
GROUNDWATER OPERABLE UNIT
Arizona Department of Environmental Quality
Broadway-Pantano Water Quality Assurance Revolving Fund Site
June 1, 2012



REFERENCE: 3-D TopoQuads Copyright 1999 Delorme Yarmouth, ME 04096 Source Data: USGS Detail: 13-3 Datum: WGS84

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FOR:		FIGURE:
BROADWAY-PANTANO WQARF SITE TUCSON, ARIZONA	**SITE VICINITY MAP SEPTEMBER 2011**	**1**

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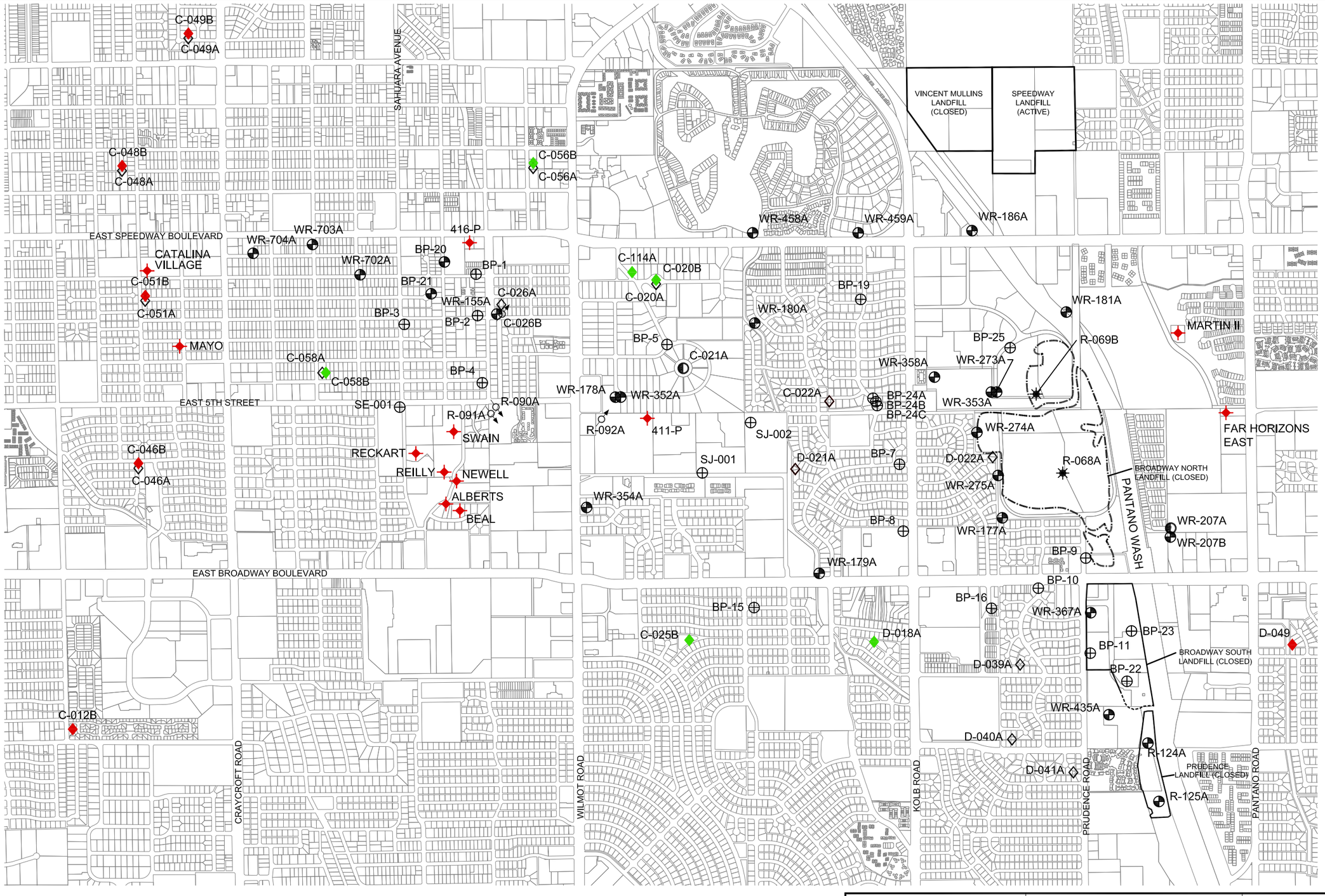
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 1-Site Vicinity.dwg | Layout Tab: Layout1 | Drafter: cjames | Jun 01, 2012 at 14:42



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FOR: BROADWAY-PANTANO WQARF SITE
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EXISTING GROUNDWATER MONITORING AND PRODUCTION WELLS - SEPTEMBER 2011

FIGURE: 2

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FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 2-Site Plan.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 06, 2012 at 14:22

Map provided by HydroGeologic, Inc.

LEGEND

PARCEL BOUNDARY (MULTI-COLORED TO DIFFERENTIATE PARCELS)

APPROXIMATE EXTENT OF LANDFILL OPERABLE UNIT.

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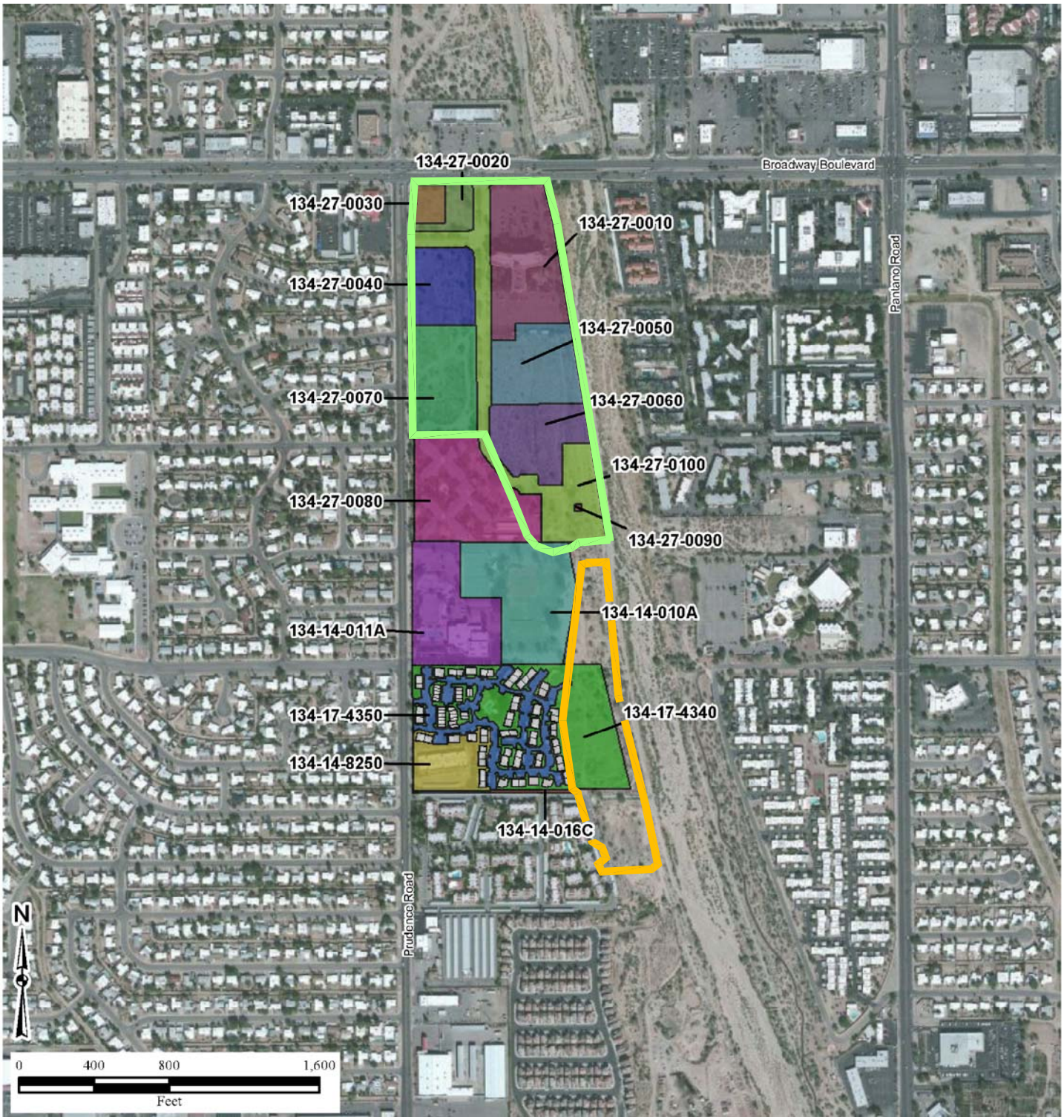
FOR:		PARCEL MAP BROADWAY NORTH LANDFILL BROADWAY-PANTANO WQARF REGISTRY SITE		FIGURE:
BROADWAY-PANTANO WQARF SITE TUCSON, ARIZONA				**3**
JOB NUMBER: 212202353	DRAWN BY: CMG	CHECKED BY: TAK	APPROVED BY: TAK	DATE: 1/19/2012

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 3.dwg|cjames|Jun 05, 2012 at 14:49|Layout: BNL



Map provided by HydroGeologic, Inc.

LEGEND

- PARCEL BOUNDARY (MULTI-COLORED TO DIFFERENTIATE PARCELS)
- RESIDENTIAL PARCEL SUBDIVIDED POST BSLF TIME FRAME
- APPROXIMATE EXTENT OF BROADWAY SOUTH LANDFILL OPERABLE UNIT
- APPROXIMATE EXTENT OF PRUDENCE LANDFILL

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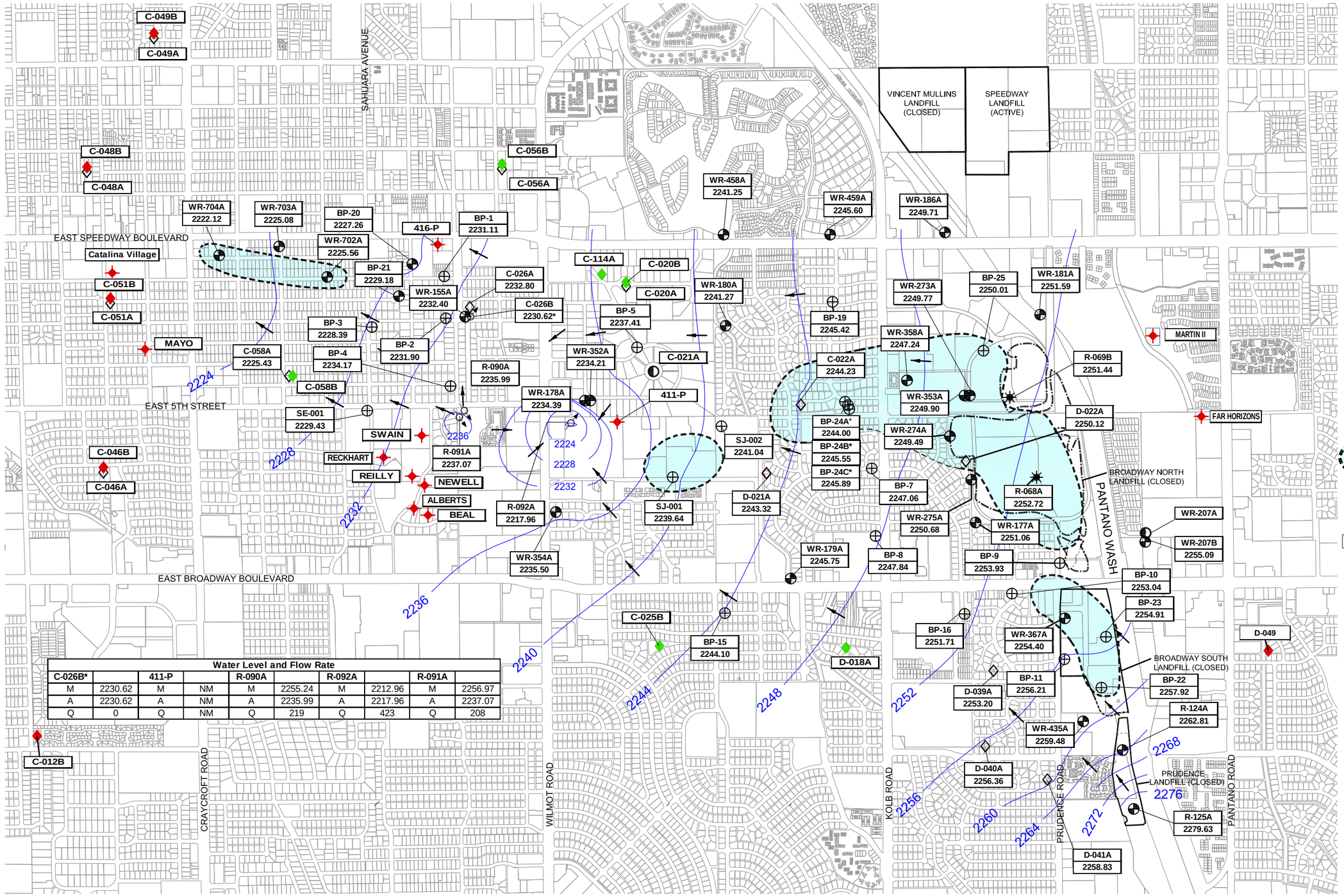
PARCEL MAP
BROADWAY SOUTH LANDFILL
BROADWAY-PANTANO
WQARF REGISTRY SITE

FIGURE: 4

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212202353	CMG	TAK	TAK	1/19/2012

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 4.dwg|cjames|Jun 06, 2012 at 10:33|Layout: BSL



Water Level and Flow Rate

C-026B*		411-P		R-090A		R-092A		R-091A	
M	2230.62	M	NM	M	2255.24	M	2212.96	M	2256.97
A	2230.62	A	NM	A	2235.99	A	2217.96	A	2237.07
Q	0	Q	NM	Q	219	Q	423	Q	208

LEGEND

- COT ABANDONED MONITORING WELL
- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
  - - WATER WELL IN PRODUCTION
  - - LAST-ON/FIRST-OFF WATER PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL (ACTIVE)
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE EXTENT OF PCE GREATER THAN 5.0 MICROGRAMS PER LITER. PCE RESULTS ARE FOR SAMPLES COLLECTED ON SEPTEMBER 19- 28, 2011. PLUME CONTOURS ARE CONFIGURED USING HIGHEST PCE CONCENTRATION FROM EACH WELL.
- D-021A — NOT GAUGED OR OTHERWISE MEASURED IF NO WATER LEVEL ELEVATION IS SHOWN
- 2230.63 — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL, AMSL)
- * DATA NOT USED IN CONTOURING

MEASURED	M	2272
ADJUSTED	A	2245
FLOW RATE	Q	404

Q = FLOW RATE IN GALLONS PER MINUTE (GPM)

N

0 1500 3000

SCALE IN FEET

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FOR: BROADWAY-PANTANO WQARF SITE
TUCSON, ARIZONA

SEPTEMBER 2011 GROUNDWATER ELEVATION CONTOUR MAP

FIGURE: 5

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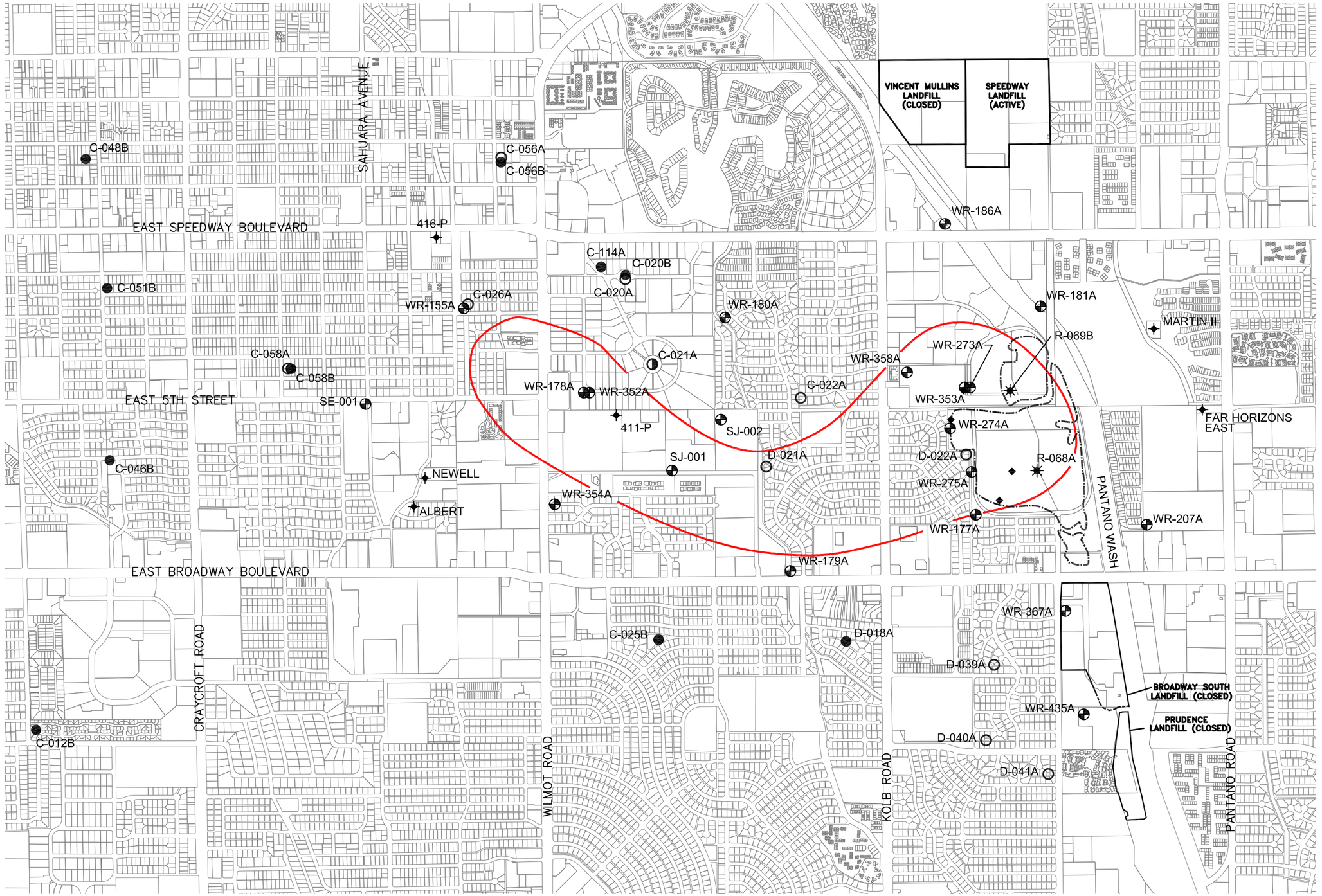
212202353	CMG	TAK	TAK	2/10/2012

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 5-GW MAPS SEPT 2011.dwg | Layout Tab: GW Contour Map | Drafter: cjames | Jun 01, 2012 at 14:51



LEGEND

- COT INACTIVE/ABANDONED PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- EXTENT OF GOU (AFTER URS, 2002a)
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL

NOTE:
GROUNDWATER OPERABLE UNIT BOUNDARIES AS SHOWN ARE TAKEN FROM URS (2002a) GOU RI REPORT, FIGURE 1-1.

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FOR:
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WQARF SITE
GROUNDWATER OPERABLE UNIT
TUCSON, ARIZONA

LOCATION OF MONITORING WELLS AND EXTENT OF GOU IN SEPTEMBER 2000 (URS, 2002a)

FIGURE: 6

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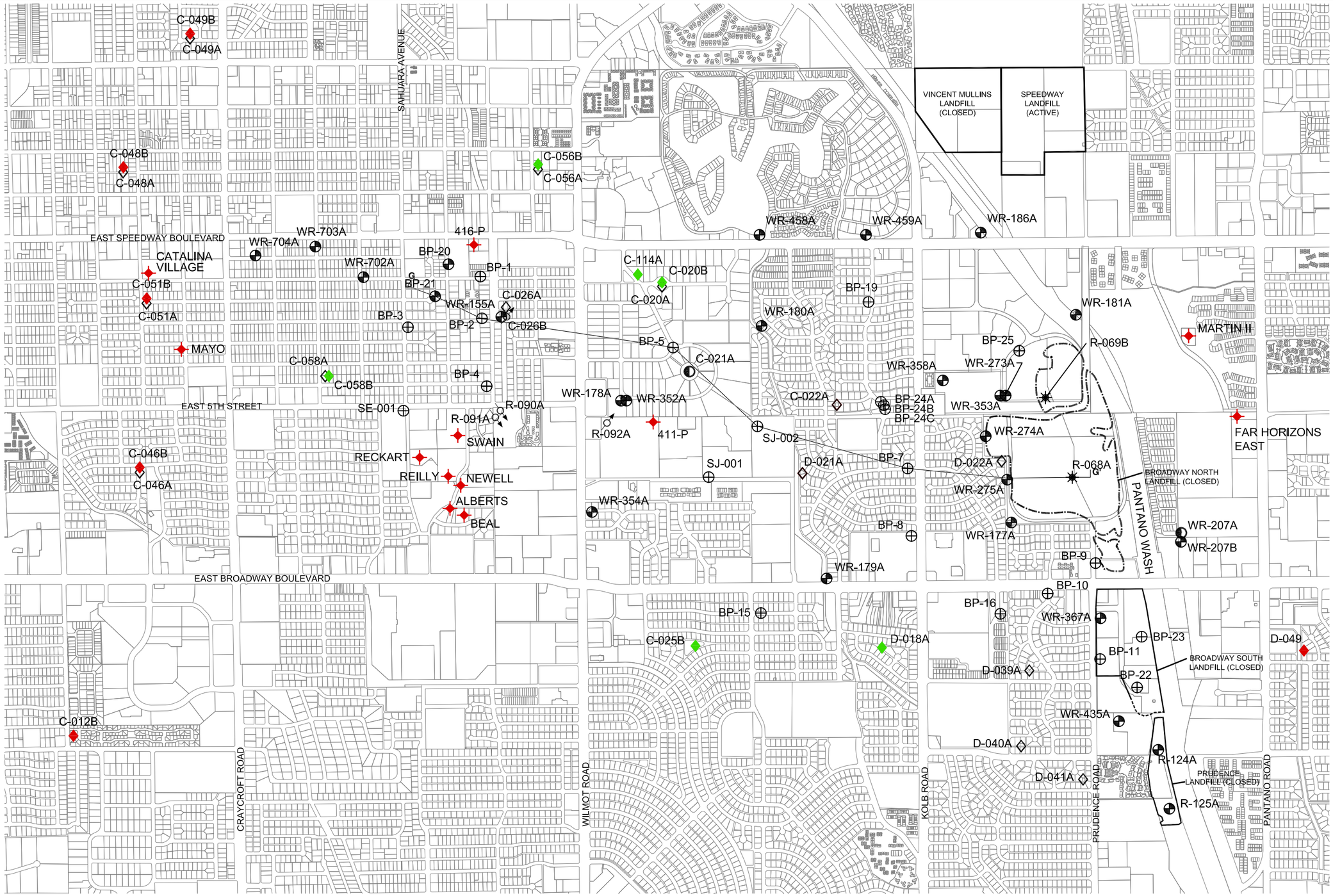
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 6-GOU and WELLS.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 05, 2012 at 15:07



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TUCSON, ARIZONA

EXISTING GROUNDWATER MONITORING AND PRODUCTION WELLS, SEPTEMBER 2011 AND STRATIGRAPHIC CROSS SECTION LINE G-G'

FIGURE: **7**

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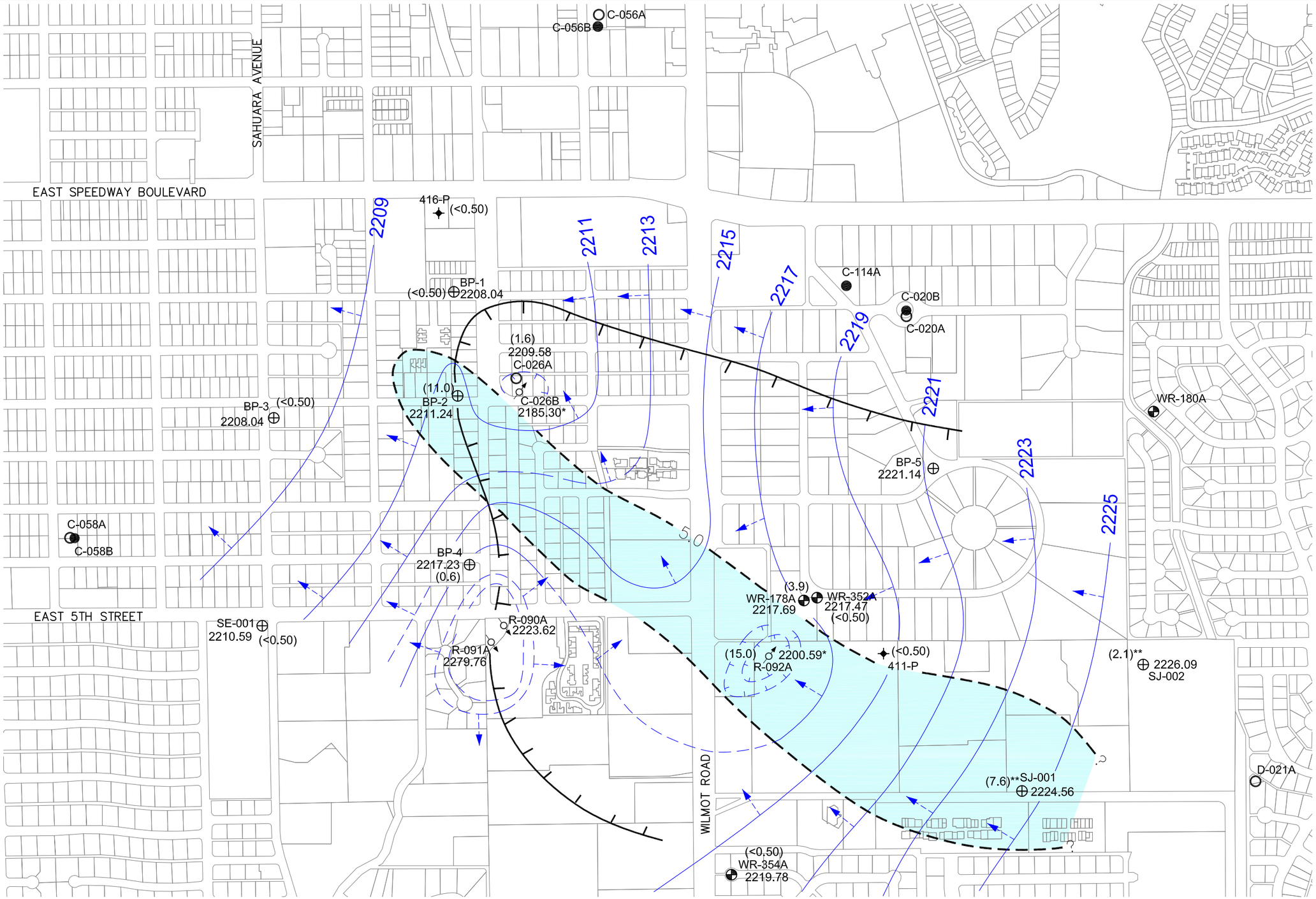
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 7-Exist GWM and Production Wells-SEPT 2011.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 05, 2012 at 14:57



LEGEND

- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 2220 GROUNDWATER CONTOURS DASHED WHERE INFERRED
- 2221.98 GROUNDWATER ELEVATION
- APPROXIMATE EXTENT OF DISSOLVED PHASE TETRACHLOROETHENE GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM MAY 20, 2003.
- * VALUE NOT USED IN CONTOURING
- ** SAMPLE DATE MARCH 19, 2003
- APPROXIMATE CAPTURE ZONE DASHED WHERE INFERRED.
- (2.2) MAXIMUM DISSOVLED-PHASE TETRACHLOROETHENE CONCENTRATION DETECTED DURING MAY 2003 SAMPLING EVENT.

N

0 600 1200

SCALE IN FEET

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APPROXIMATE EXTENT OF WESTERN CONTAINMENT SYSTEM CAPTURE AREA SEPTEMBER 23, 2003

FIGURE: **8**

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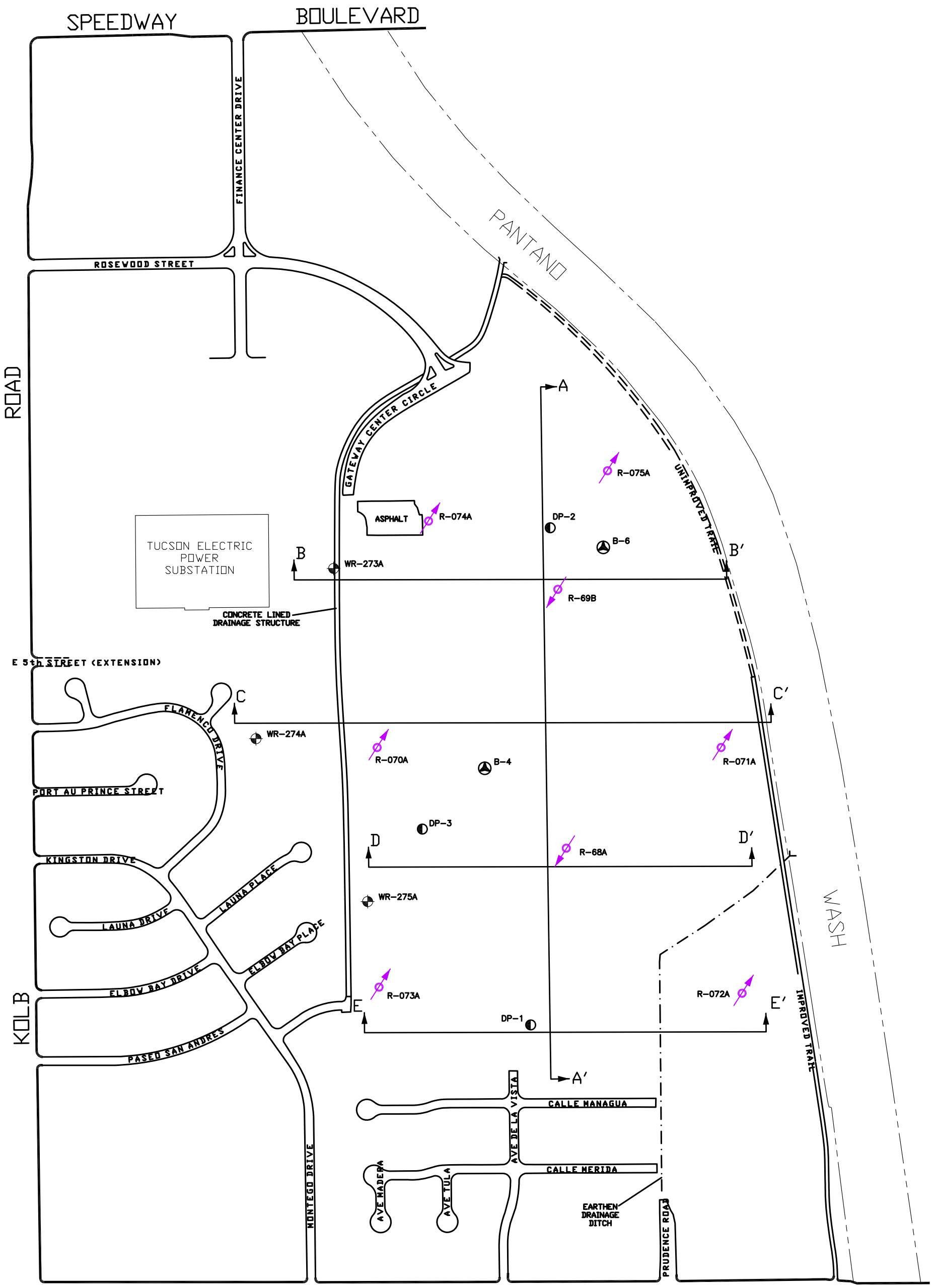
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 8-APPROX CAPTURE AREA SEP 2003.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 14:55



LEGEND

- WR-274A — GROUNDWATER MONITORING WELL/NESTED SOIL VAPOR MONITORING PROBES
- DP-3 — NESTED SOIL VAPOR MONITORING PROBE
- B-4 — SOIL BORING
- AIR INJECTION WELL
- SOIL VAPOR EXTRACTION WELL
- A — A′ — STRATIGRAPHIC CROSS SECTION

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FOR: BROADWAY-PANTANO WQARF SITE
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LOCATION OF STRATIGRAPHIC CROSS SECTIONS BROADWAY NORTH LANDFILL

FIGURE: **9**

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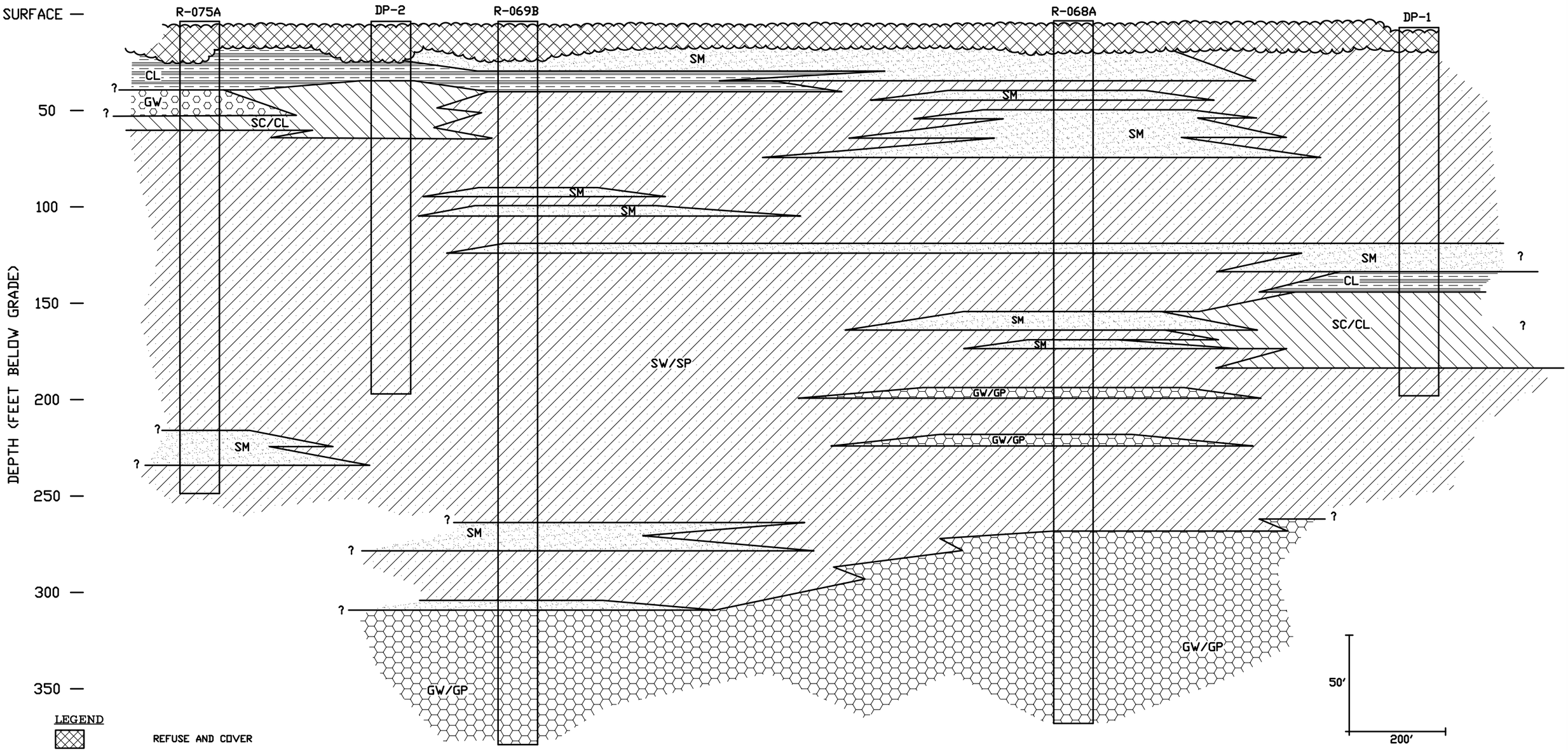
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 9-STRATIGRAPHIC CROSS SECTION - BNL.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 14:56

A (NORTH)

A' (SOUTH)



LEGEND

		REFUSE AND COVER
	SW/SP	SAND WELL TO POORLY GRADED
	SC/CL	CLAYEY SAND/SANDY CLAY
	CL	CLAY
	GW/GP	GRAVEL WELL TO POORLY GRADED
	SM	SILTY SAND
	GW	GRAVEL

HORIZONTAL SCALE 1′ = 200′
VERTICAL SCALE 1′ = 50′

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FOR: BROADWAY-PANTANO WQARF SITE LANDFILL OPERABLE UNIT TUCSON, ARIZONA

CROSS SECTION A-A'
BROADWAY NORTH LANDFILL

FIGURE: 10

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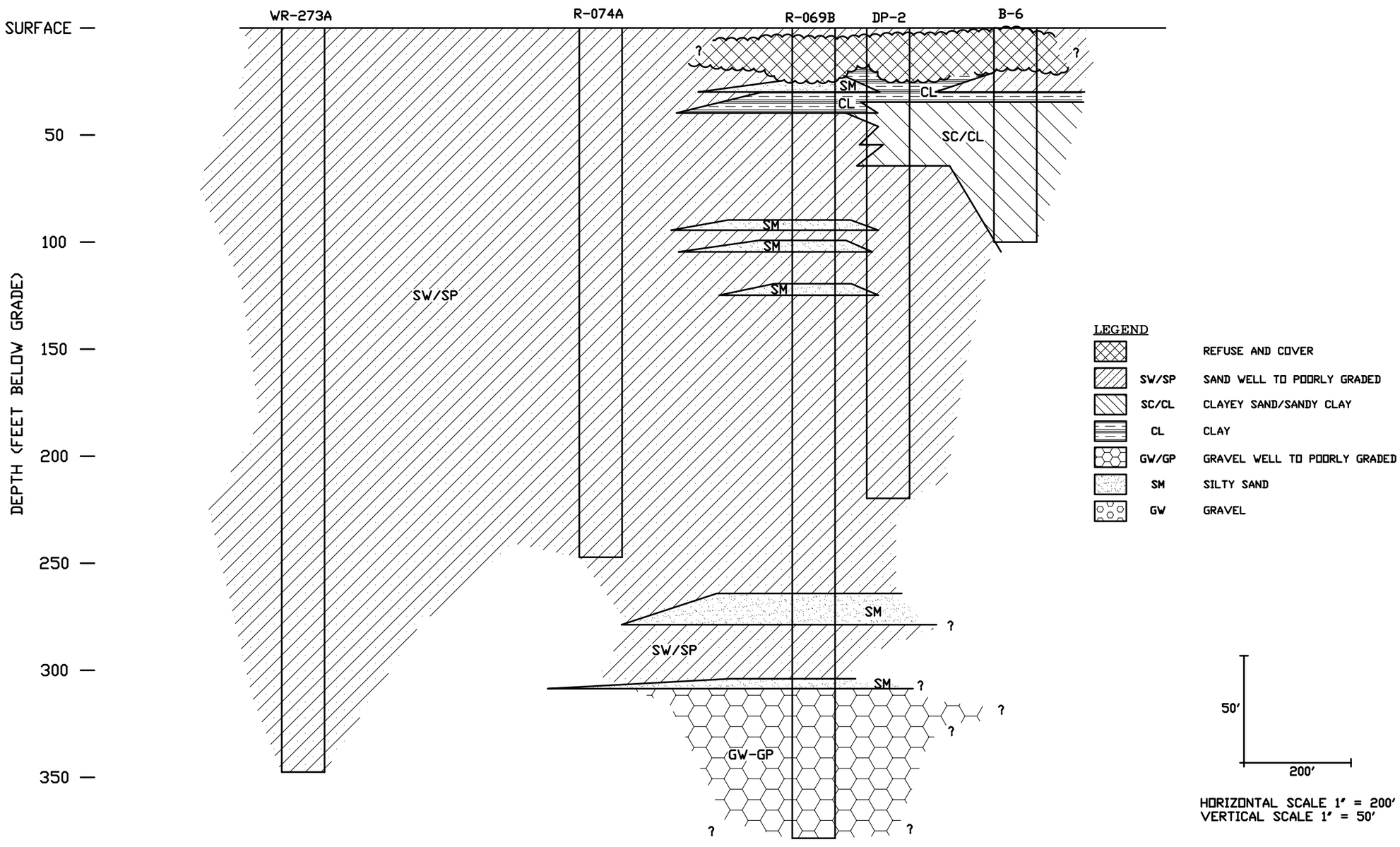
B (WEST)

B' (EAST)



LEGEND

		REFUSE AND COVER
	SW/SP	SAND WELL TO POORLY GRADED
	SC/CL	CLAYEY SAND/SANDY CLAY
	CL	CLAY
	GW/GP	GRAVEL WELL TO POORLY GRADED
	SM	SILTY SAND
	GW	GRAVEL

HORIZONTAL SCALE 1" = 200'
VERTICAL SCALE 1" = 50'

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WQARF SITE
LANDFILL OPERABLE UNIT
TUCSON, ARIZONA

CROSS SECTION B-B'
BROADWAY NORTH LANDFILL

FIGURE: **11**

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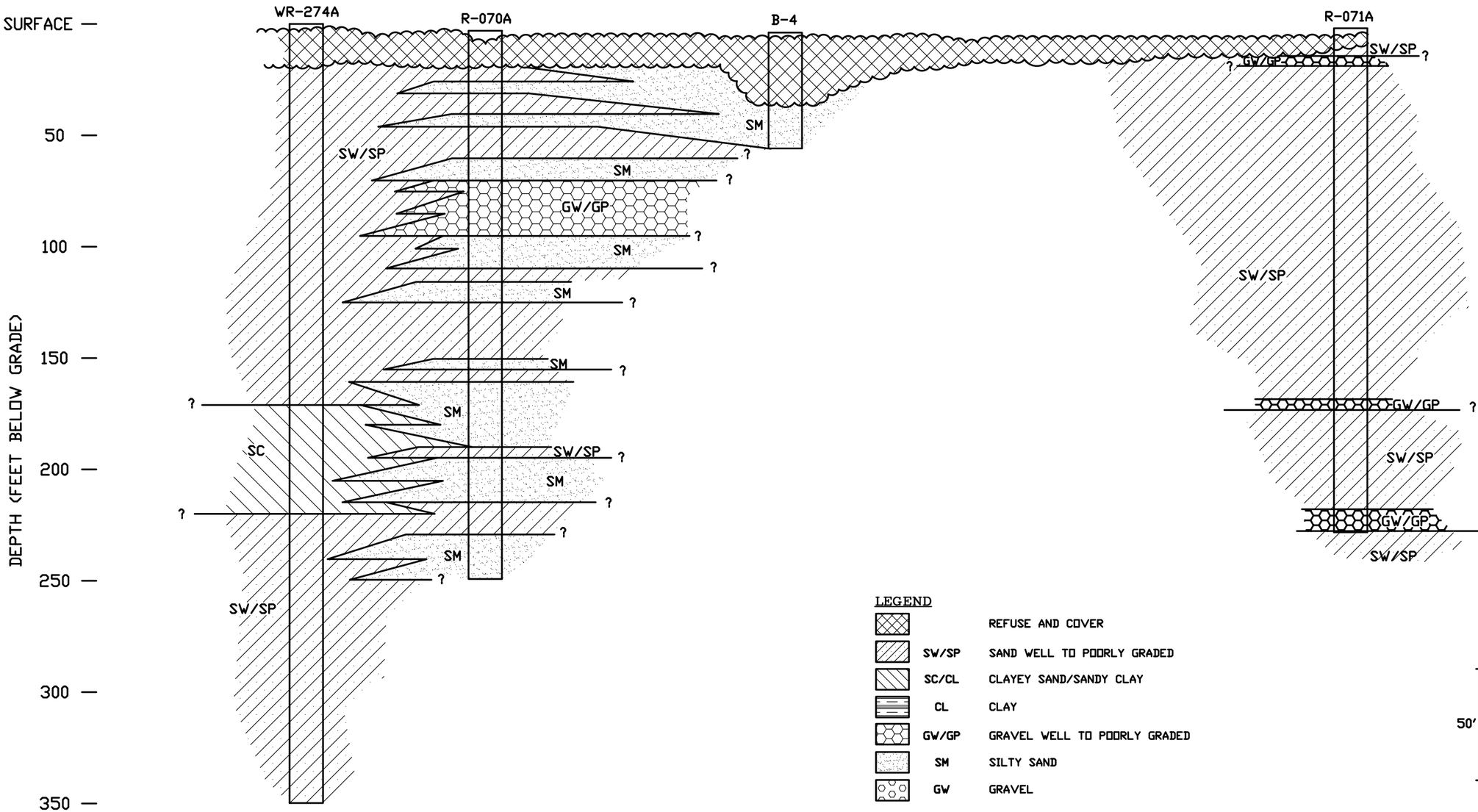
C (WEST)

C (EAST)



LEGEND

		REFUSE AND COVER
	SW/SP	SAND WELL TO POORLY GRADED
	SC/CL	CLAYEY SAND/SANDY CLAY
	CL	CLAY
	GW/GP	GRAVEL WELL TO POORLY GRADED
	SM	SILTY SAND
	GW	GRAVEL

50′

200′

HORIZONTAL SCALE 1′ = 200′
VERTICAL SCALE 1′ = 50′

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FOR: BROADWAY-PANTANO WQARF SITE
LANDFILL OPERABLE UNIT
TUCSON, ARIZONA

CROSS SECTION C-C'
BROADWAY NORTH LANDFILL

FIGURE: **12**

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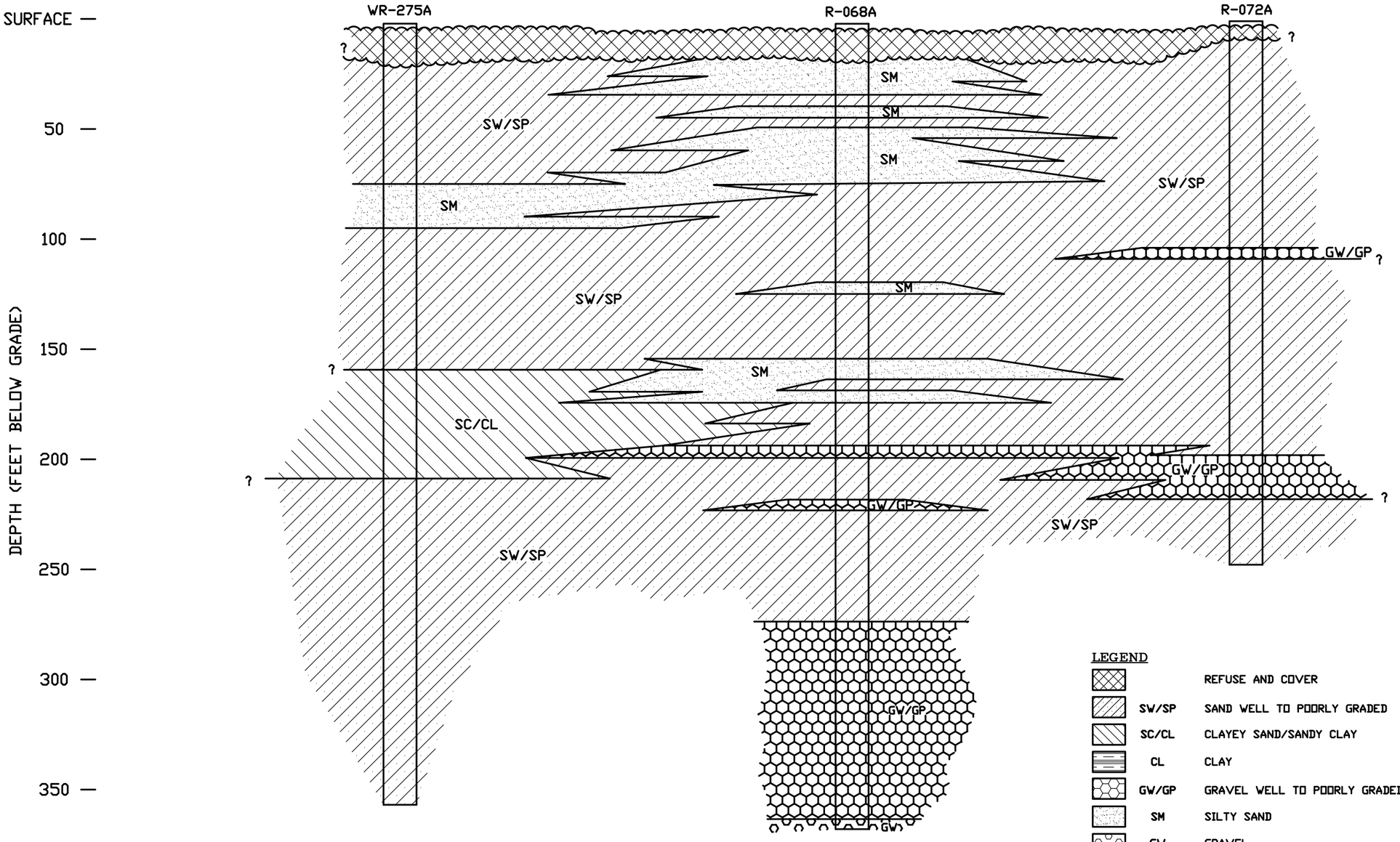
D (WEST)

D' (EAST)



LEGEND

		REFUSE AND COVER
	SW/SP	SAND WELL TO POORLY GRADED
	SC/CL	CLAYEY SAND/SANDY CLAY
	CL	CLAY
	GW/GP	GRAVEL WELL TO POORLY GRADED
	SM	SILTY SAND
	GW	GRAVEL

50′

200′

HORIZONTAL SCALE 1′ = 200′
VERTICAL SCALE 1′ = 50′

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WQARF SITE
LANDFILL OPERABLE UNIT
TUCSON, ARIZONA

CROSS SECTION D-D'
BROADWAY NORTH LANDFILL

FIGURE: **13**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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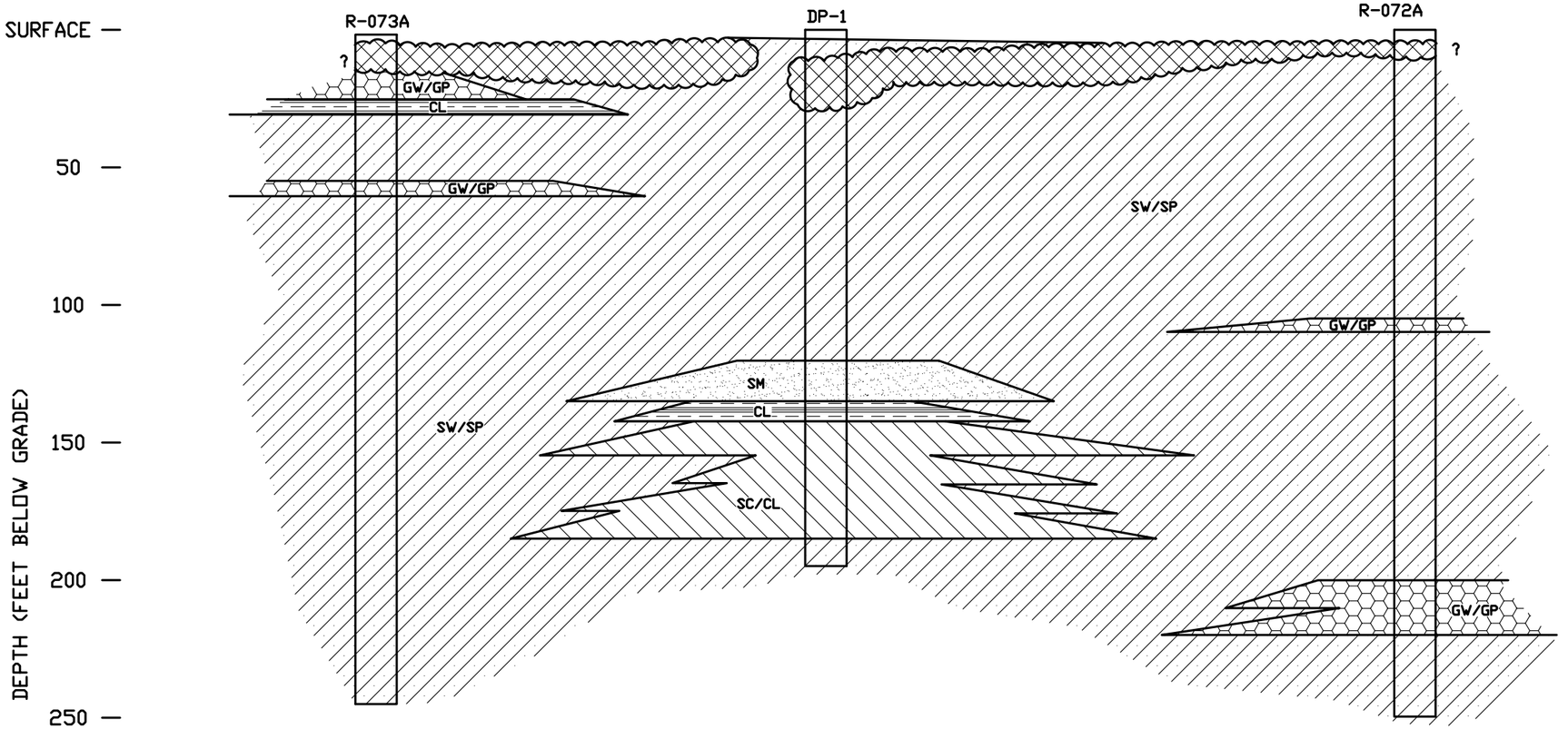
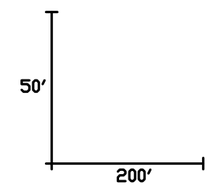
B (WEST)

B′ (EAST)



LEGEND

		REFUSE AND COVER
	SW/SP	SAND WELL TO POORLY GRADED
	SC/CL	CLAYEY SAND/SANDY CLAY
	CL	CLAY
	GW/GP	GRAVEL WELL TO POORLY GRADED
	SM	SILTY SAND
	GW	GRAVEL



HORIZONTAL SCALE 1′ = 200′
VERTICAL SCALE 1′ = 50′

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FOR: BROADWAY-PANTANO WQARF SITE LANDFILL OPERABLE UNIT TUCSON, ARIZONA

CROSS SECTION E-E'
BROADWAY NORTH LANDFILL

FIGURE: 14

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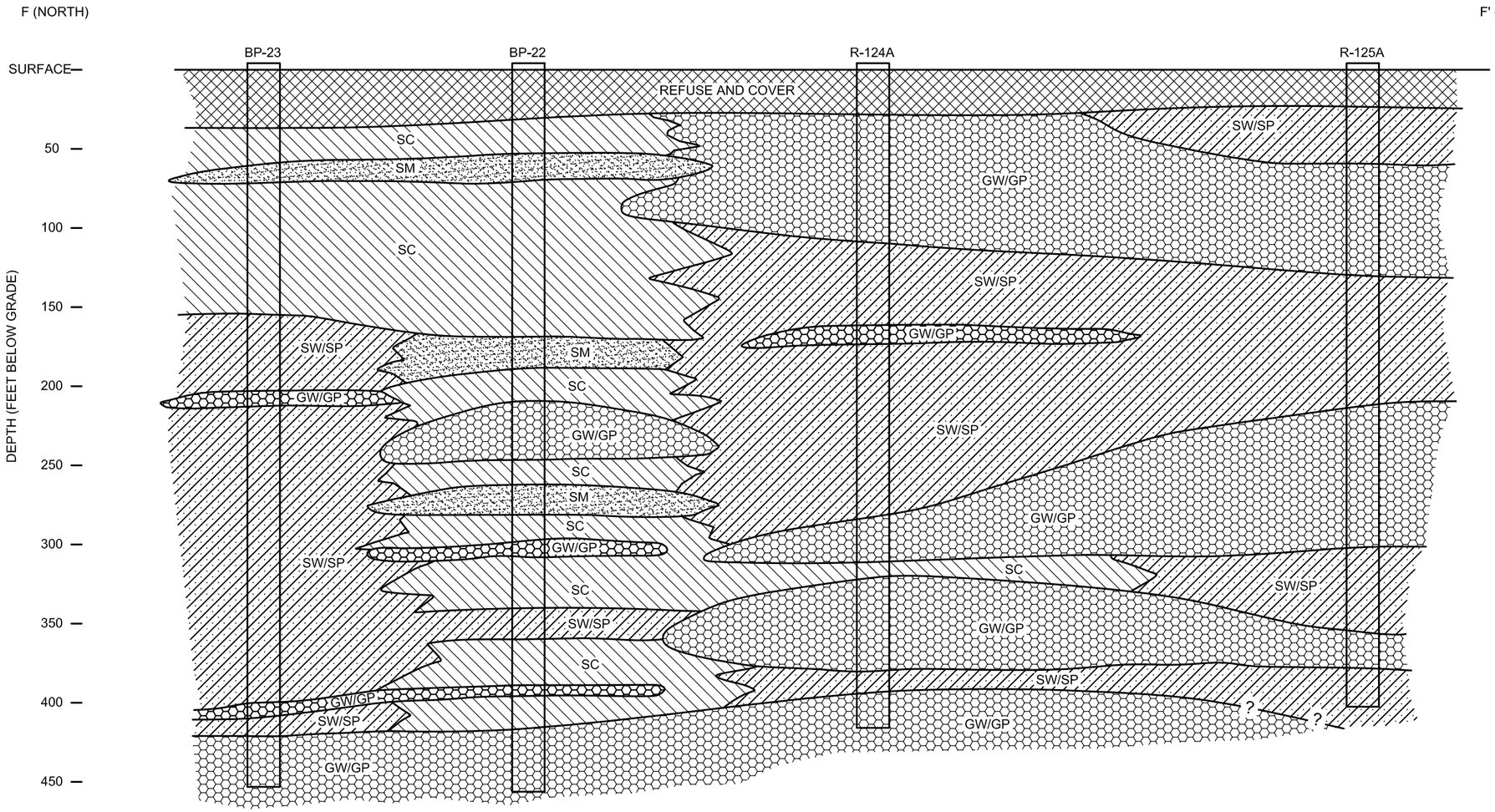
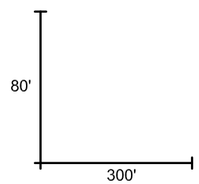
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 14-CROSS SECTION E-E - BNL.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:00



LEGEND

		REFUSE AND COVER
	SW/SP	SAND WELL TO POORLY GRADED
	SC	CLAYEY SAND
	CL	CLAY
	GW/GP	GRAVEL WELL TO POORLY GRADED
	SM	SILTY SAND
	GW	GRAVEL



HORIZONTAL SCALE 1" = 300'
VERTICAL SCALE 1" = 80'

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FOR: BROADWAY-PANTANO WQARF SITE
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CROSS SECTION F-F'
BROADWAY SOUTH LANDFILL

FIGURE: 15

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E BROADWAY BOULEVARD

E CALLE SINALOA

S BROADWAY PL

S PRUDENCE ROAD

PANTANO WASH

HILTON

BROADWAY PROPER

YMCA

GOLLOB PARK

RESIDENTIAL

RESIDENTIAL

WR-367A

BSDP-1

BSDP-2

BP-11

BP-23
BSDP-4

BP-22
BSDP-3

WR-435A

WR-434A

R-124A

R-125A

F

F'

LEGEND

B-22	SOIL GAS MONITOR WELL
R-125A	GROUNDWATER MONITOR/ SOIL GAS WELL
BP-11	GROUNDWATER MONITOR WELL
— · —	APPROXIMATE EXTENT OF PRUDENCE LANDFILL AREA
F — F'	STRATIGRAPIC CROSS SECTION

N

0 300 600

SCALE IN FEET

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Phoenix, Arizona 85044
PHONE:(602) 438-2200 FAX:(602) 431-9562

FOR:
BROADWAY SOUTH LANDFILL
PRUDENCE LANDFILL
TUCSON, ARIZONA

**LOCATION OF STRATIGRAPHIC CROSS SECTION F - F'
BROADWAY SOUTH LANDFILL**

FIGURE: **16**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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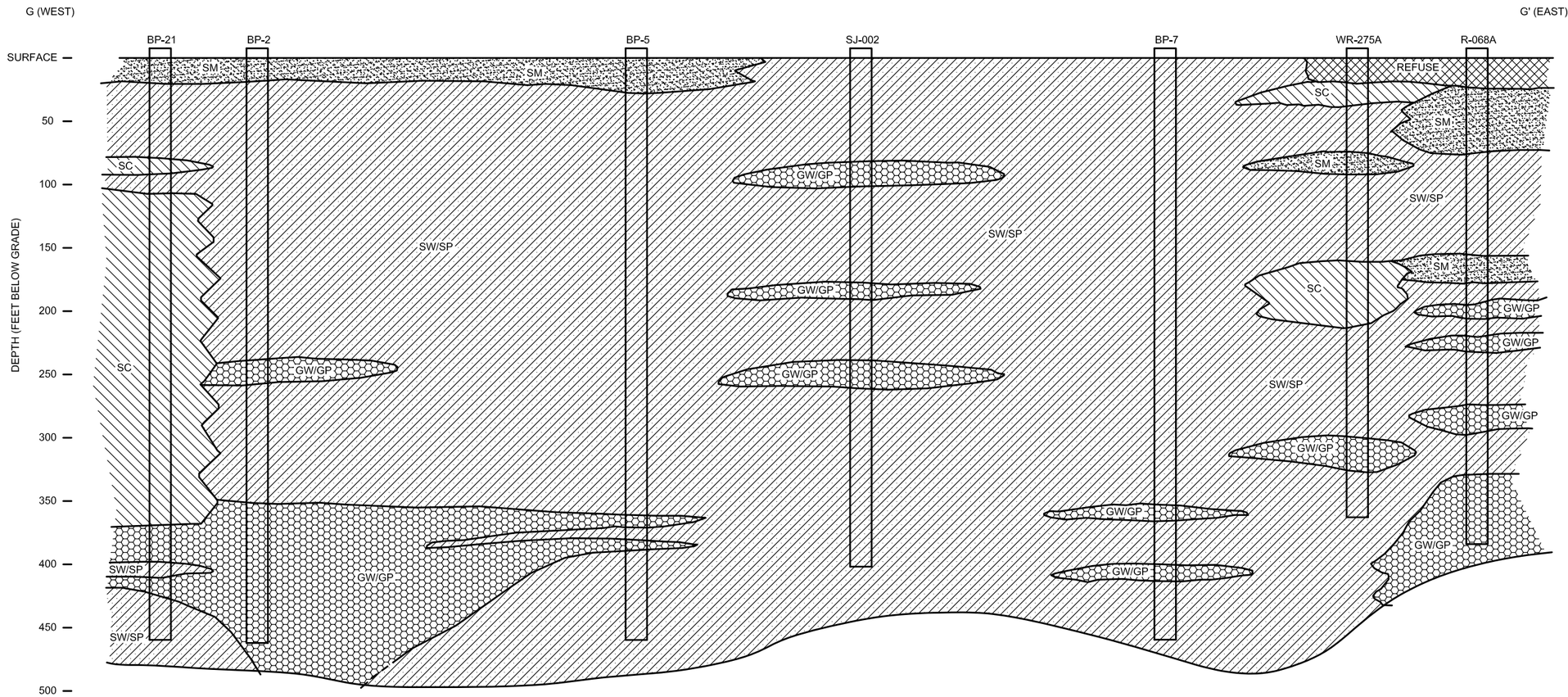
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 16-STRATIGRAPHIC CROSS SECTION - BSL.dwg | Layout Tab: 8x11 | Drafter: cjames | Jun 01, 2012 at 15:02



LEGEND

		REFUSE AND COVER
	SW/SP	SAND WELL TO POORLY GRADED
	SC	CLAYEY SAND
	CL	CLAY
	GW/GP	GRAVEL WELL TO POORLY GRADED
	SM	SILTY SAND
	GW	GRAVEL

100'

1,000'

HORIZONTAL SCALE 1" = 1,000'
VERTICAL SCALE 1" = 100'

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WQARF SITE
GROUNDWATER OPERABLE UNIT
TUCSON, ARIZONA

CROSS SECTION G-G'
GROUNDWATER OPERABLE UNIT

FIGURE: **17**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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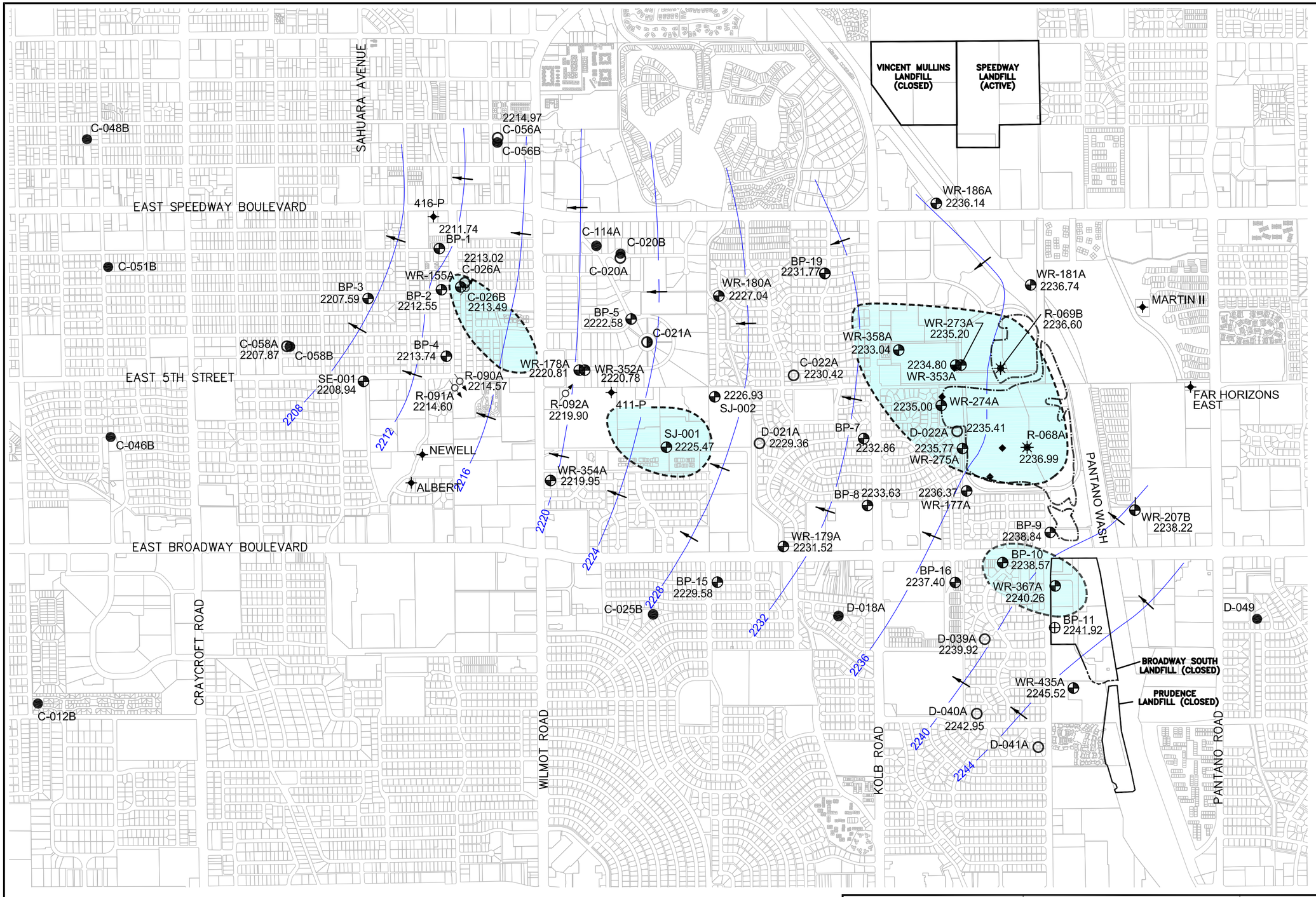
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 17-CROSS SECTION G-G' - GOU.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:03



LEGEND

- COT INACTIVE/ABANDONED PRODUCTION WELL
- COT ABANDONED PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 2220 GROUNDWATER CONTOURS DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- 2221.98 GROUNDWATER ELEVATION
- APPROXIMATE EXTENT OF DISSOLVED PHASE TETRACHLOROETHENE GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM MARCH, 2003. SAMPLE RESULTS ARE FOR THE 5 FOOT BELOW WATER TABLE SAMPLES.
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL

NOTE:
C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

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FOR:
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WQARF SITE
GROUNDWATER OPERABLE UNIT
TUCSON, ARIZONA

GROUNDWATER ELEVATION CONTOUR MAP MARCH 2003

FIGURE: 18

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 18-GW ELEV-MARCH 2003.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:04

SPEEDWAY

BOULEVARD

FINANCE CENTER DRIVE

ROSEWOOD STREET

ROAD

PANTANO

GATEWAY CENTER CIRCLE

ASPHALT

TUCSON ELECTRIC POWER SUBSTATION

CONCRETE LINED DRAINAGE STRUCTURE

UNIMPROVED TRAIL

E 5th STREET (EXTENSION)

FLAMENCO DRIVE

PORT AU PRINCE STREET

KINGSTON DRIVE

LAUNA PLACE

LAUNA DRIVE

ELBOW BAY PLACE

ELBOW BAY DRIVE

PASEO SAN ANDRES

KOLB

MONTEGO DRIVE

AVE DE LA VISTA

CALLE MANAGUA

CALLE MERIDA

AVE MADERA

AVE TULA

EARTHEN DRAINAGE DITCH

PRUDENCE ROAD

IMPROVED TRAIL

FENCE AROUND DROSS

WASH

BROADWAY BOULEVARD

LEGEND

- APPROXIMATE HISTORICAL DATA POINT LOCATION
- (12) REFUSE THICKNESS (FEET)
- 10 REFUSE THICKNESS CONTOURS
- APPROXIMATE EXTENT OF MUNICIPAL WASTE
- APPROXIMATE EXTENT OF CONSTRUCTION DEBRIS

N

0 400 800

SCALE IN FEET

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FOR: BROADWAY-PANTANO WQARF SITE

TUCSON, ARIZONA

ESTIMATED LATERAL EXTENT AND THICKNESS OF REFUSE BROADWAY NORTH LANDFILL

FIGURE: 19

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 19-REFUSE EXTENT AND THICKNESS - BNL.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:05

SPEEDWAY

BOULEVARD

ROAD

KOLB

BROADWAY
BOULEVARD

FINANCE CENTER DRIVE

ROSEWOOD STREET

PANTANO

GATEWAY CENTER CIRCLE

IMPROVED TRAIL

WASH

TUCSON ELECTRIC POWER SUBSTATION

ASPHALT

CONCRETE LINED DRAINAGE STRUCTURE

E 5th STREET (EXTENSION)

FLAMENCO DRIVE

PORT AU PRINCE STREET

KINGSTON DRIVE

LAUNA PLACE

LAUNA DRIVE

ELBOW BAY PLACE

ELBOW BAY DRIVE

PASEO SAN ANDRES

MONTEGO DRIVE

AVE DE LA VISTA

CALLE MANAGUA

CALLE MERIDA

AVE MADERA

AVE TULA

PRUDENCE ROAD

EARTHEN DRAINAGE DITCH

FENCE AROUND DROSS

LEGEND

- APPROXIMATE HISTORICAL DATA POINT LOCATION
- (12) COVER THICKNESS (FEET)
- 10 COVER THICKNESS CONTOUR
- APPROXIMATE EXTENT OF MUNICIPAL WASTE
- APPROXIMATE EXTENT OF CONSTRUCTION DEBRIS

N

0 400 800

SCALE IN FEET

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FOR: BROADWAY-PANTANO WQARF SITE

TUCSON, ARIZONA

HISTORICAL COVER THICKNESS BROADWAY NORTH LANDFILL

FIGURE: 20

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
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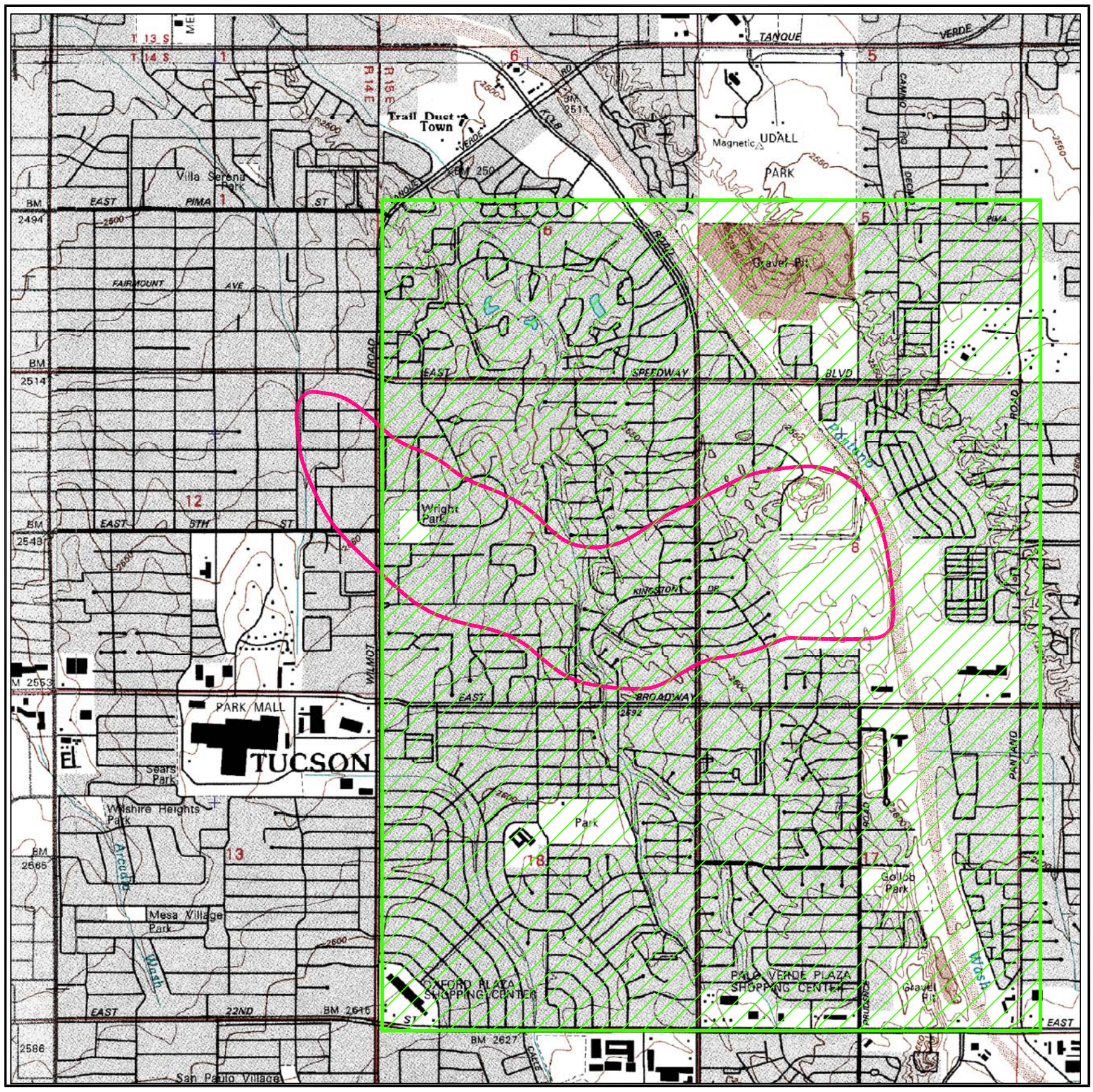
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 20-HISTORICAL COVER THICKNESS - BNL.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:05



3-D TopoQuads Copyright 1999 Delorme Yarmouth, ME 04096 Source Data: USGS Detail: 13-3 Datum: WGS84

AREA COVERED BY SECOR's REGULATORY DATABASE AND HISTORICAL RECORDS REVIEW CONDUCTED IN 2001.

APPROXIMATE EXTENT OF LANDFILL OPERABLE UNIT AND GROUNDWATER OPERABLE UNIT, BROADWAY-PANTANO WQARF SITE (URS, 2002A). SAMPLE DATE SEPTEMBER 2000.

N

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FOR: BROADWAY-PANTANO WQARF SITE LANDFILL OPERABLE UNIT TUCSON, ARIZONA

DATABASE AND HISTORICAL RECORDS REVIEWS AREA

FIGURE: **21**

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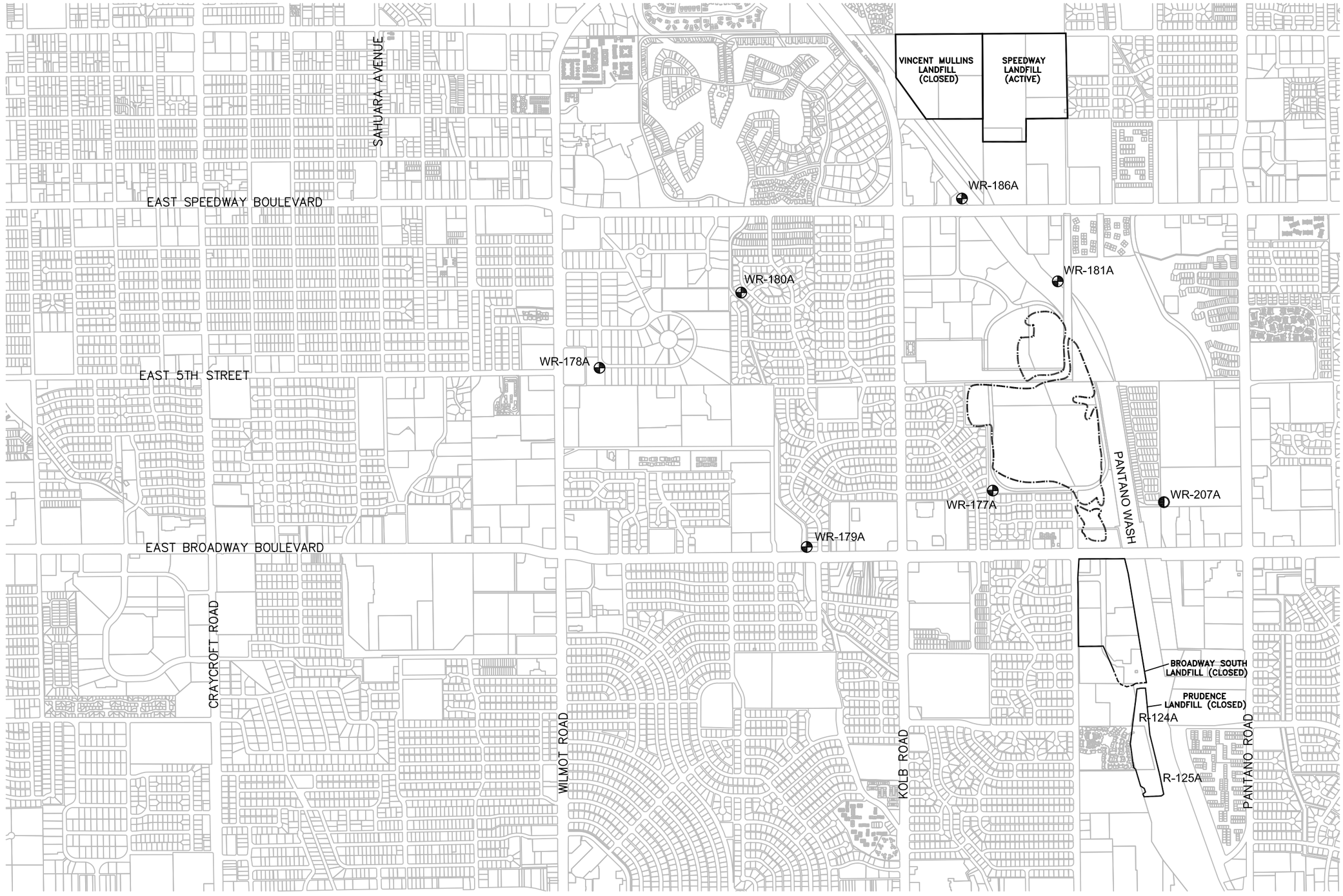
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 21-historical records review area.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:06



LEGEND

- COT MONITOR WELL
- APPROXIMATE BROADWAY NORTH LANDFILL BOUNDARY

N

0 1500 3000

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TUCSON, ARIZONA

GROUNDWATER MONITOR WELLS INSTALLED FOR 1992 COT RI REPORT

FIGURE: **22**

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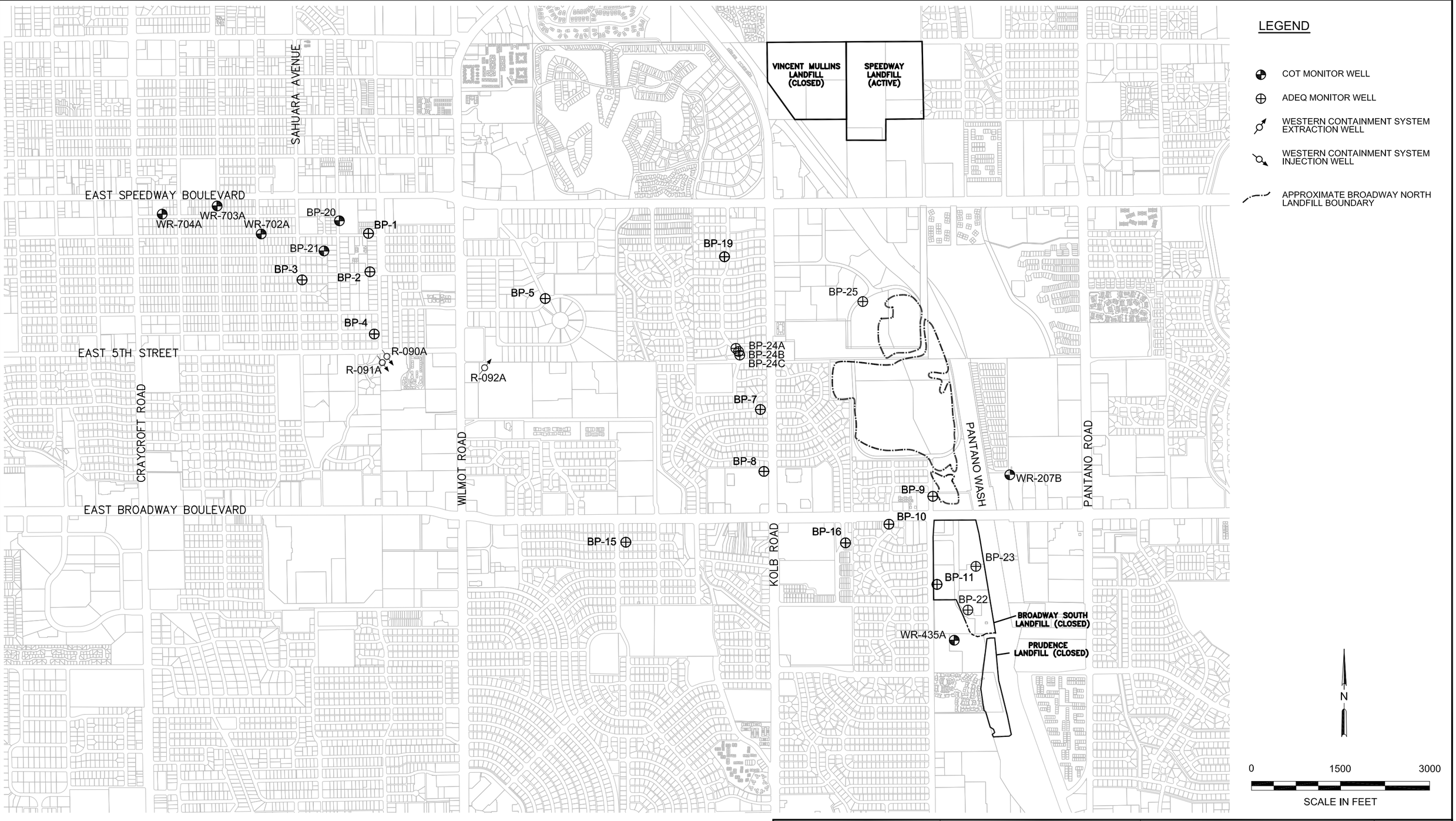
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 22-GWMWs 92 COT.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 08, 2012 at 9:26



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FOR: BROADWAY-PANTANO WQARF SITE
TUCSON, ARIZONA

WELLS INSTALLED BY ADEQ AND COT 2001 THROUGH 2006

FIGURE: 23

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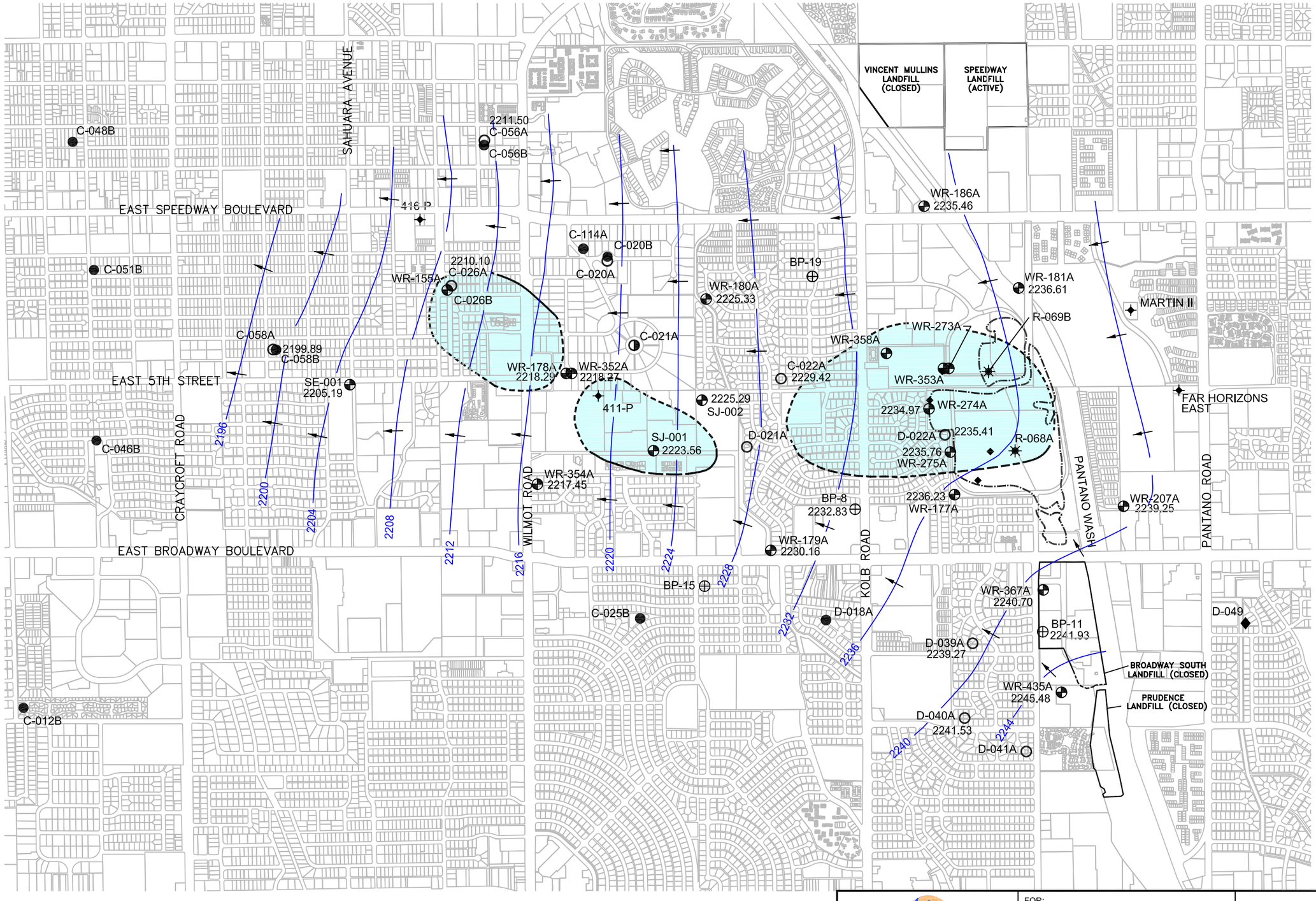
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 23-GWMWs 01 THRU 11 ADEQ - COT.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 06, 2012 at 14:21



LEGEND

- COT INACTIVE PRODUCTION WELL
- COT ABANDONED PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL

2220 GROUNDWATER CONTOURS DASHED WHERE INFERRED

2221.98 GROUNDWATER ELEVATION

APPROXIMATE EXTENT OF DISSOLVED PHASE TETRACHLOROETHENE GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM NOVEMBER 5, 2001. PLUME CONTOURS WERE CONFIGURED USING HIGHEST PCE CONCENTRATION FROM EACH WELL, OR FOR SOME NON-SAMPLED WELLS (R-068A, R069B, WR-273A) ON HISTORICAL SAMPLING RESULTS.

APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL

C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

N

0 1500 3000

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FOR: BROADWAY-PANTANO WQARF SITE

TUCSON, ARIZONA

GROUNDWATER ELEVATION CONTOUR MAP NOVEMBER 2001

FIGURE: 24

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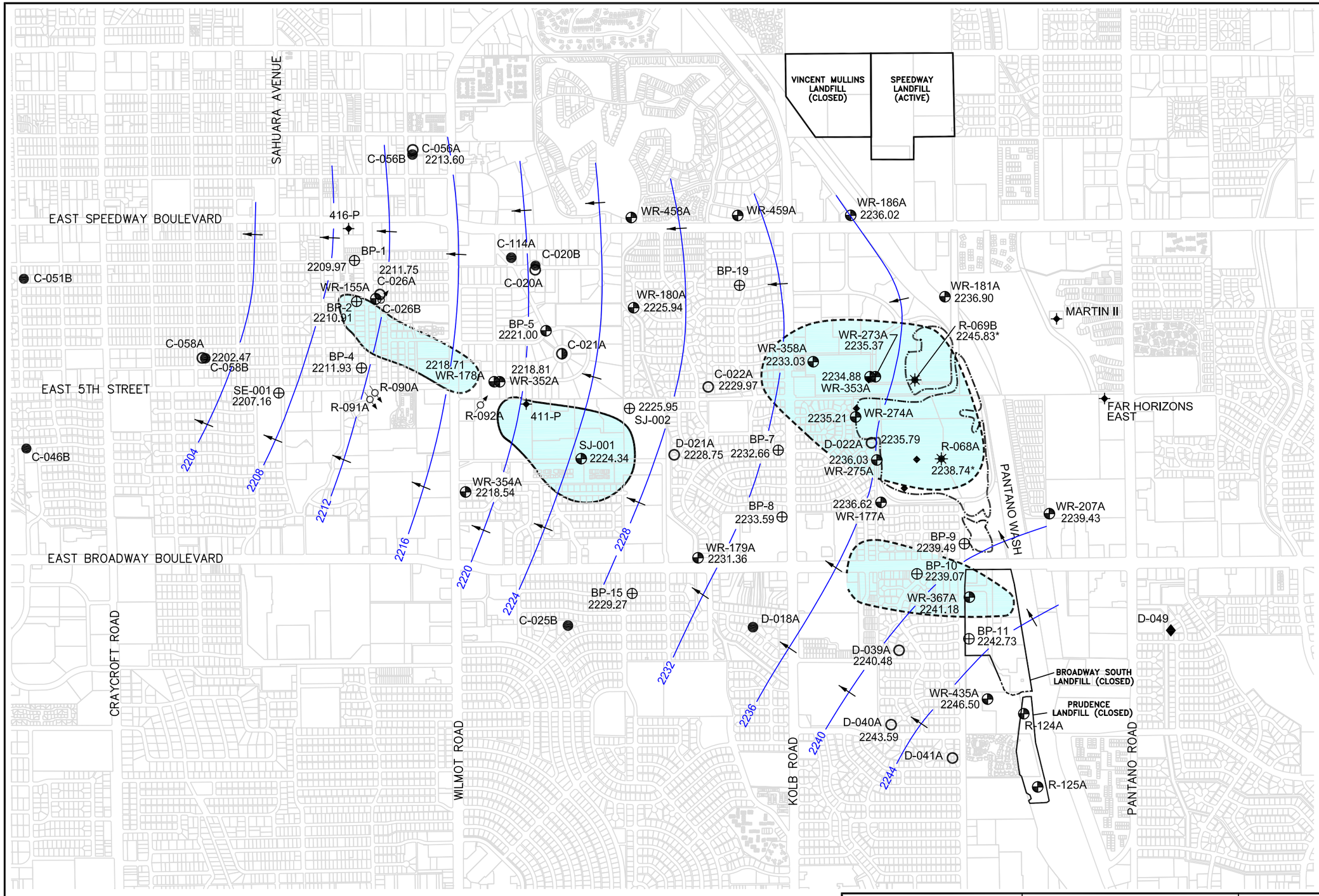
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 24-GWC NOV 2001.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:09



LEGEND

- COT INACTIVE PRODUCTION WELL
- COT ABANDONED PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 2220 GROUNDWATER CONTOURS DASHED WHERE INFERRED
- 2221.98 GROUNDWATER ELEVATION
- APPROXIMATE EXTENT OF DISSOLVED PHASE TETRACHLOROETHENE GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM MAY 6-7, 2002. SAMPLE RESULTS ARE FOR THE 5 FOOT BELOW WATER TABLE SAMPLES.
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL

C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

N

0 1500 3000

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FOR: BROADWAY-PANTANO WQARF SITE
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GROUNDWATER ELEVATION CONTOUR MAP MAY 2002

FIGURE: 25

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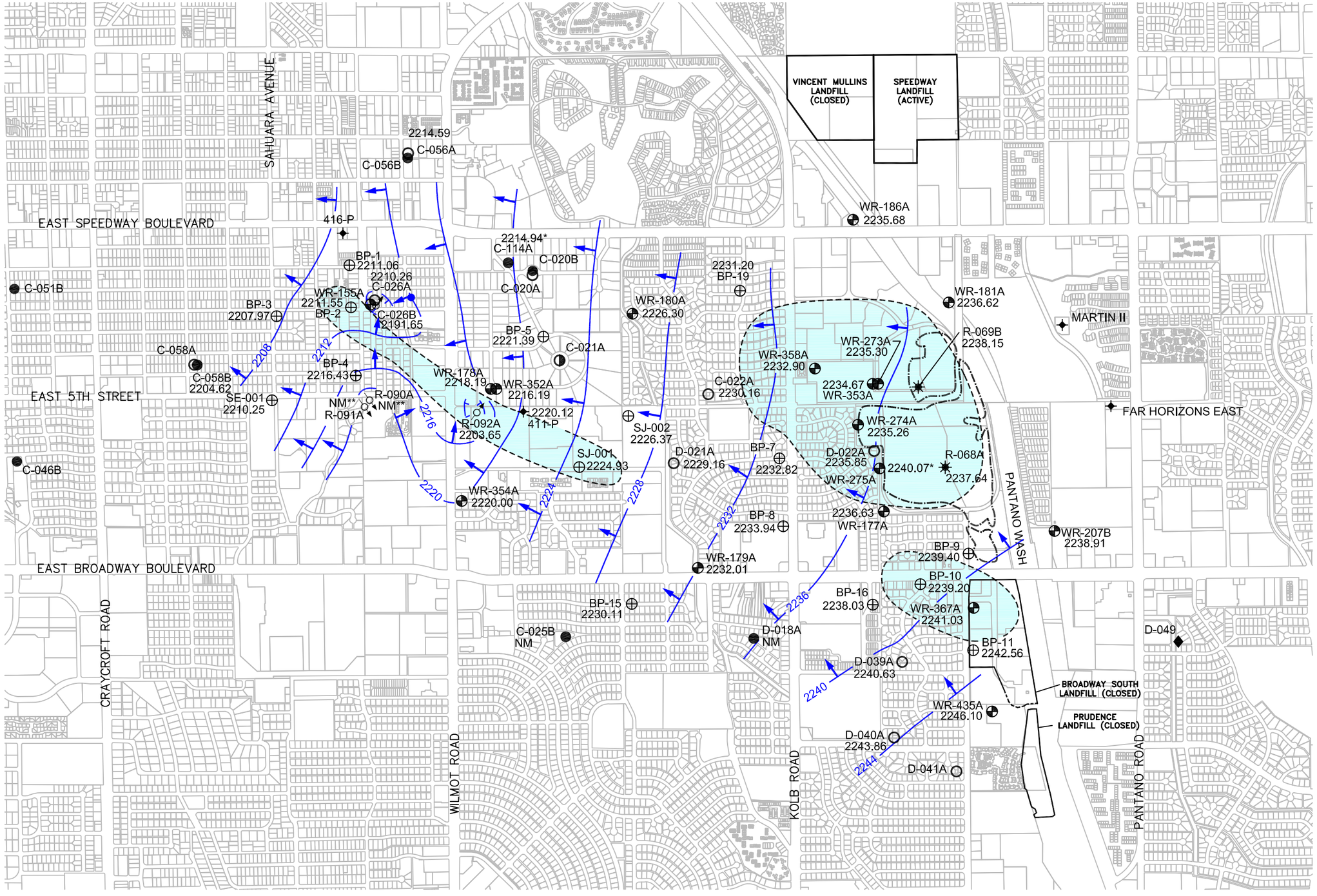
FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 25-GW ELEV- MAY 2002.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:10



LEGEND

- COT INACTIVE PRODUCTION WELL
- COT ABANDONED PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 2220 — GROUNDWATER CONTOURS DASHED WHERE INFERRED
- 2221.98 — GROUNDWATER ELEVATION
- NM — NOT MEASURED
- ND — NO DATA
- * — DATA POINT NOT USED IN CONTOURING
- ** — ESTIMATED MEASUREMENT BASED ON HISTORICAL DATA
- APPROXIMATE EXTENT OF TETRACHLOROETHENE (PCE) GREATER THAN 5.0 MICROGRAMS PER LITER. PCE RESULTS DEPICTED ARE FROM DECEMBER 2, 2003 SAMPLING EVENT.
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL

NOTES:

WELLS R-090A AND R-091A WERE NOT GAUGED IN DECEMBER 2003 DUE TO MAINTENANCE ACTIVITIES BEING PERFORMED ON EACH WELL.

WELLS WITHOUT A GROUNDWATER ELEVATION VALUE WERE NOT USED FOR CONTOURING THIS MAP.

PCE PLUME EXTENT IS BASED ON MAXIMUM CONCENTRATION ANALYTICAL DATA OBTAINED FROM DISCRETE-DEPTH SAMPLING.

C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

N

0 1500 3000

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FOR: BROADWAY-PANTANO WQARF SITE
TUCSON, ARIZONA

GROUNDWATER ELEVATION CONTOUR MAP DECEMBER 2003

FIGURE: 26

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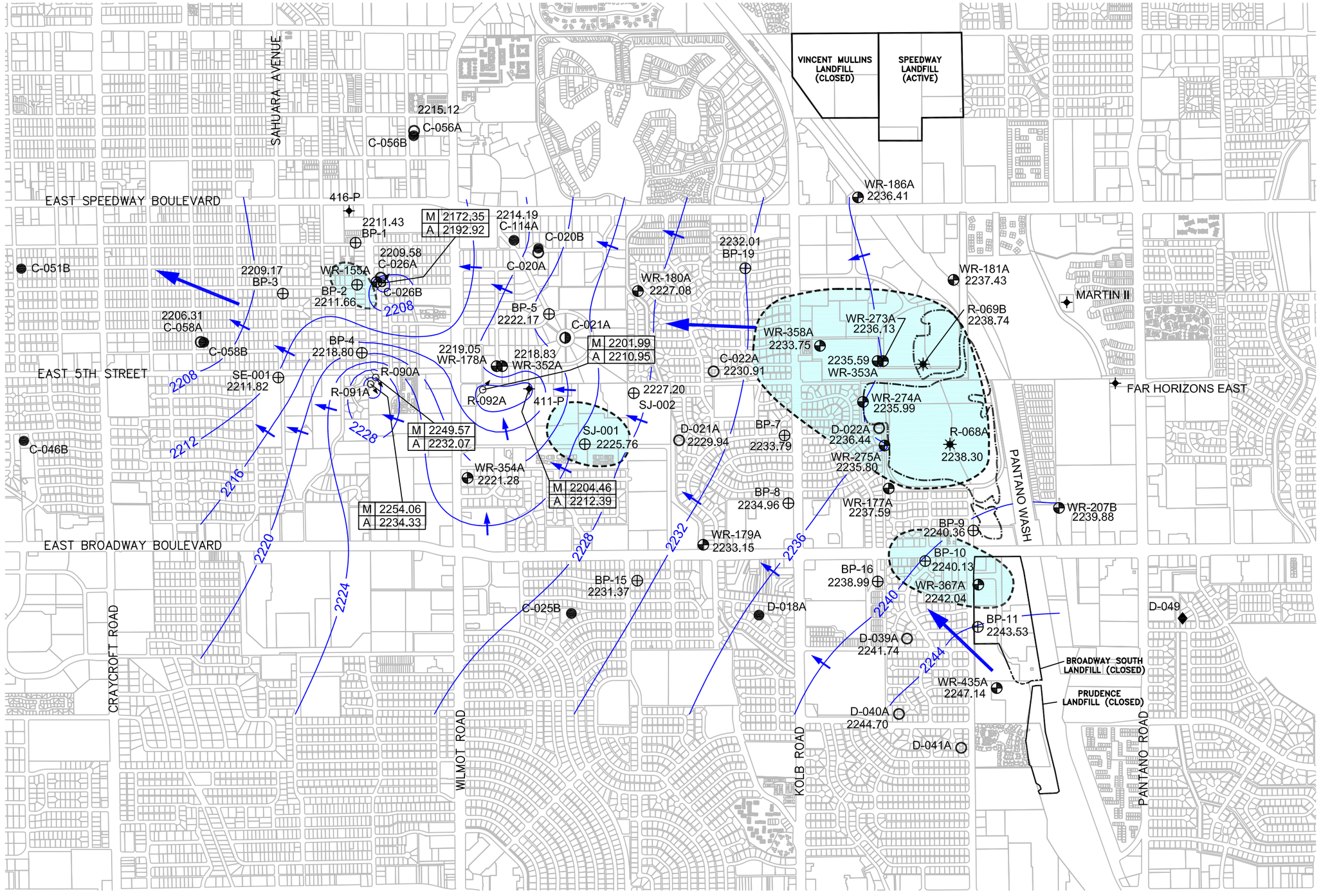

LEGEND

- COT ABANDONED PRODUCTION WELL
- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 2322 — GROUNDWATER CONTOURS DASHED WHERE INFERRED. 4 FT CONTOUR INTERVAL.
- 2211.22 — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- APPROXIMATE EXTENT OF TETRACHLOROETHENE (PCE) IN GROUNDWATER CONCENTRATIONS GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM MAY 11-13, 2004.
- * VALUE NOT USED IN CONTOURING
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE GROUNDWATER FLOW DIRECTION

MEASURED GROUNDWATER EXTRACTION RATES:
C-026B 400 GPM
R-092A 390 GPM
411-P 320 GPM (PRIVATE WELL, OPERATES INTERMITTENTLY, NOT PART OF WCS)

MEASURED TREATED EFFLUENT INJECTION RATES:
R-090A 330 GALLONS PER MINUTE (GPM)
R-091A 460 GPM

NOTE

GROUNDWATER ELEVATION ADJUSTED FROM MARCH 2003 BASELINE AND FOR WELL INEFFICIENCY ESTIMATED AT 50%.

MEASURED	2254.06
ADJUSTED	2234.33

ALL CONTOUR LINES ARE NOT SHOWN AROUND EXTRACTION WELLS C-026B AND R-091A, FOR CLARITY REASONS.

C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

PCE PLUME EXTENT IS BASED ON MAXIMUM CONCENTRATION ANALYTICAL DATA OBTAINED FROM DISCRETE-DEPTH SAMPLING.

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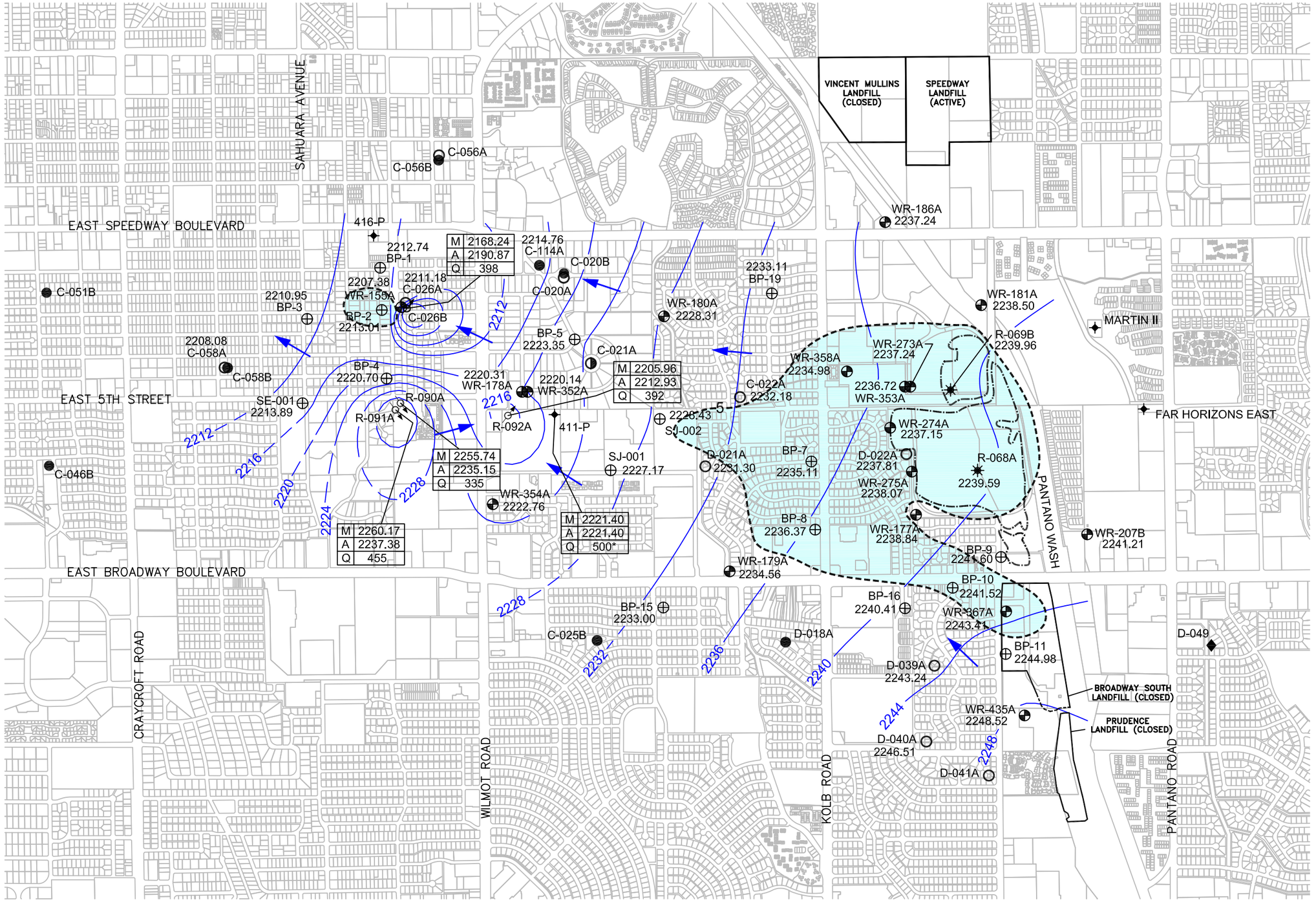
FOR: BROADWAY-PANTANO WQARF SITE
TUCSON, ARIZONA

GROUNDWATER ELEVATION CONTOUR MAP MAY 2004

FIGURE: 27

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 27-GW ELEV- MAY 2004.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:12



LEGEND

- COT ABANDONED PRODUCTION WELL
- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 2322 — GROUNDWATER CONTOURS DASHED WHERE INFERRED. 4 FT CONTOUR INTERVAL.
- 2211.22 — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- APPROXIMATE EXTENT OF TETRACHLOROETHENE (PCE) IN GROUNDWATER CONCENTRATIONS GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM MAY 17-18, 2005.
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTE

GROUNDWATER ELEVATION ADJUSTED FROM MARCH 2003 BASELINE AND FOR WELL INEFFICIENCY ESTIMATED AT 50%.

MEASURED	2254.06
ADJUSTED	2234.33
FLOW RATE	400

Q = FLOW RATE IN GALLONS PER MINUTE (GPM)

ALL CONTOUR LINES ARE NOT SHOWN AROUND WELLS C-026B, R-091A AND R-092A, FOR CLARITY REASONS.

* WELL 411-P PUMP CYCLES ON DEMAND WATER LEVEL MAY NOT REPRESENT PUMPING CONDITIONS.

C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

PCE PLUME EXTENT IS BASED ON MAXIMUM CONCENTRATION ANALYTICAL DATA OBTAINED FROM DISCRETE-DEPTH SAMPLING.

N

0 1500 3000

SCALE IN FEET

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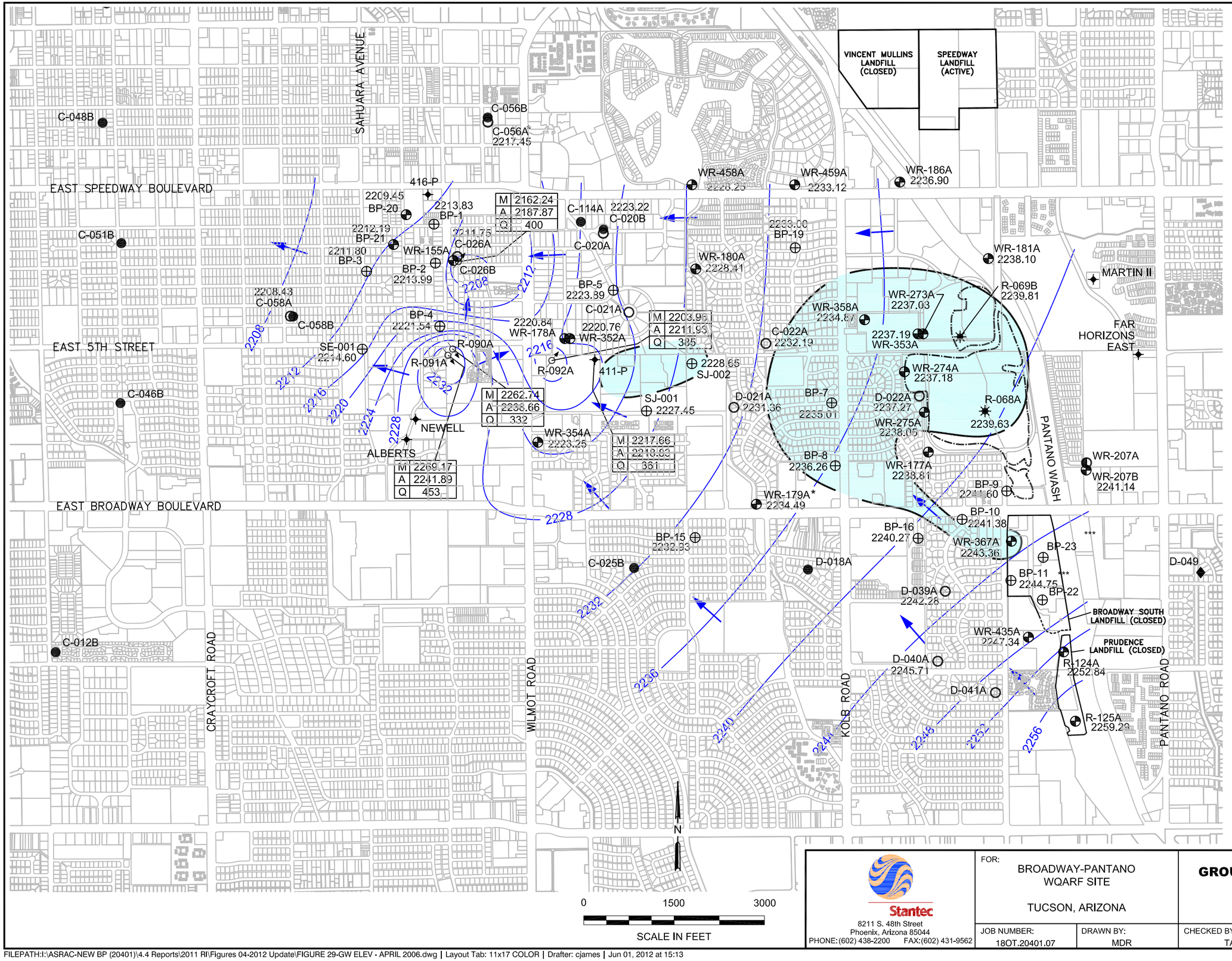
FOR: BROADWAY-PANTANO WQARF SITE
TUCSON, ARIZONA

GROUNDWATER ELEVATION CONTOUR MAP MAY 2005

FIGURE: **28**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006



LEGEND

- COT INACTIVE PRODUCTION WELL
- COT ABANDONED PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 2322 — GROUNDWATER CONTOURS DASHED WHERE INFERRED. 4 ft CONTOUR INTERVAL.
- 2220.88 — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE EXTENT OF TETRACHLOROETHENE (PCE) IN GROUNDWATER >5.0 ppb. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM APRIL 3-7, 2006. PLUME CONTOURS WERE CONFIGURED USING HIGHEST PCE CONCENTRATION FROM EACH WELL.
- APPROXIMATE EXTENT OF BROADWAY NORTH LANDFILL MATERIAL

NOTE

GROUNDWATER ELEVATION ADJUSTED FROM MARCH 2003 BASELINE AND FOR WELL INEFFICIENCY ESTIMATED AT 50%.

MEASURED	M	2254.06
ADJUSTED	A	2234.33
FLOW RATE	Q	400

Q = FLOW RATE IN GALLONS PER MINUTE (GPM)

ALL CONTOUR LINES ARE NOT SHOWN AROUND WELLS C-026B, R-090A, R-091A AND R-092A FOR CLARITY REASONS.

* C-056A WAS NOT USED FOR CONTOURING

** 411-P NOT PUMPING

*** BP-22 AND BP-23 WERE INSTALLED IN MAY 2006

C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

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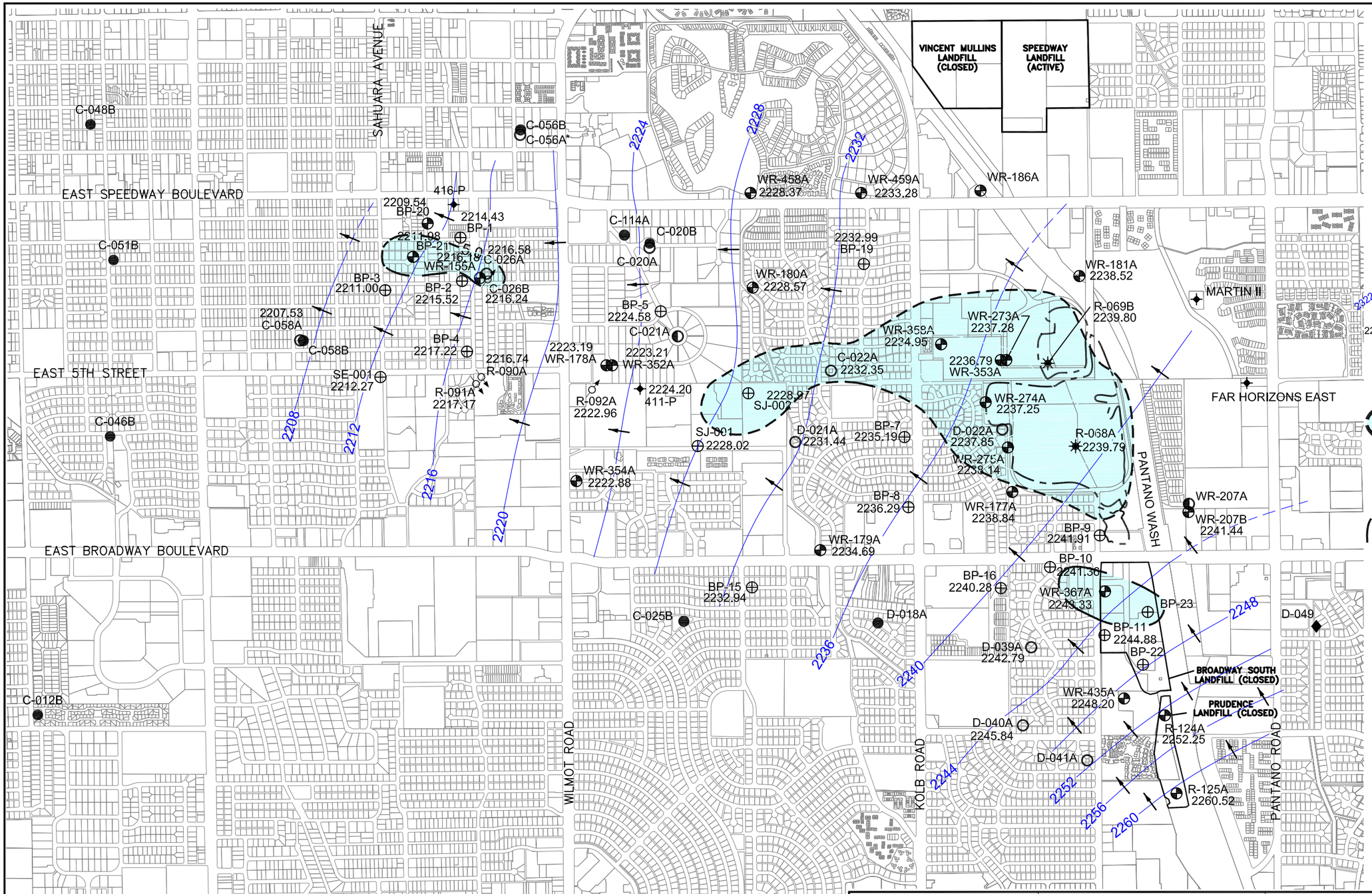
FOR: BROADWAY-PANTANO WQARF SITE, TUCSON, ARIZONA

GROUNDWATER ELEVATION CONTOUR MAP APRIL 2006

FIGURE: 29

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 29-GW ELEV - APRIL 2006.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 01, 2012 at 15:13



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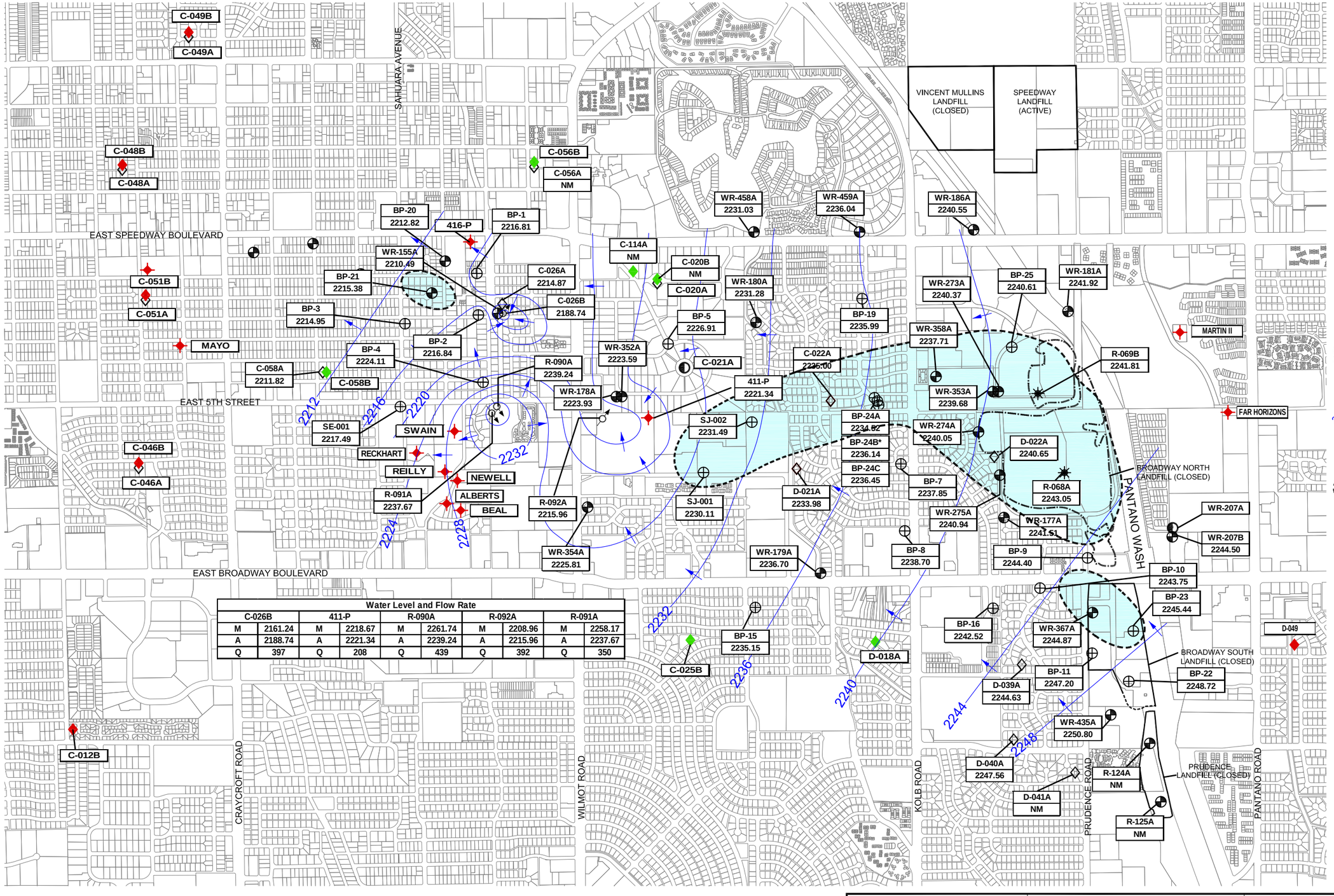
GROUNDWATER ELEVATION CONTOUR MAP APRIL 2007

FIGURE: 30

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	KJG	TAK	TAK	06/14/2007

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 30-GW ELEV - APRIL 07.dwg|cjames|Jun 05, 2012 at 15:11|Layout: GW ELEV APRIL 2007



Water Level and Flow Rate									
C-026B		411-P		R-090A		R-092A		R-091A	
M	2161.24	M	2218.67	M	2261.74	M	2208.96	M	2258.17
A	2188.74	A	2221.34	A	2239.24	A	2215.96	A	2237.67
Q	397	Q	208	Q	439	Q	392	Q	350

LEGEND

- COT ABANDONED MONITORING WELL
- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
  - - WATER WELL IN PRODUCTION
  - - LAST-ON/FIRST-OFF WATER PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL (ACTIVE)
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- 2240.40 GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL, AMSL)
- 2227 GROUNDWATER ELEVATION CONTOUR LINE, 4 FOOT CONTOUR INTERVALS IN FEET AMSL; DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE EXTENT OF PCE GREATER THAN 5.0 MICROGRAMS PER LITER. PCE RESULTS ARE FOR SAMPLES COLLECTED ON OCTOBER 29 - 31, 2008 AND NOVEMBER 3 - 6, 2008. PLUME CONTOURS ARE CONFIGURED USING HIGHEST PCE CONCENTRATION FROM EACH WELL.

MEASURED	M	2272
ADJUSTED	A	2245
FLOW RATE	Q	404

* WELL BP-24B WAS USED FOR CONTOURING.

N

0 1500 3000

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FOR: BROADWAY-PANTANO WQARF SITE
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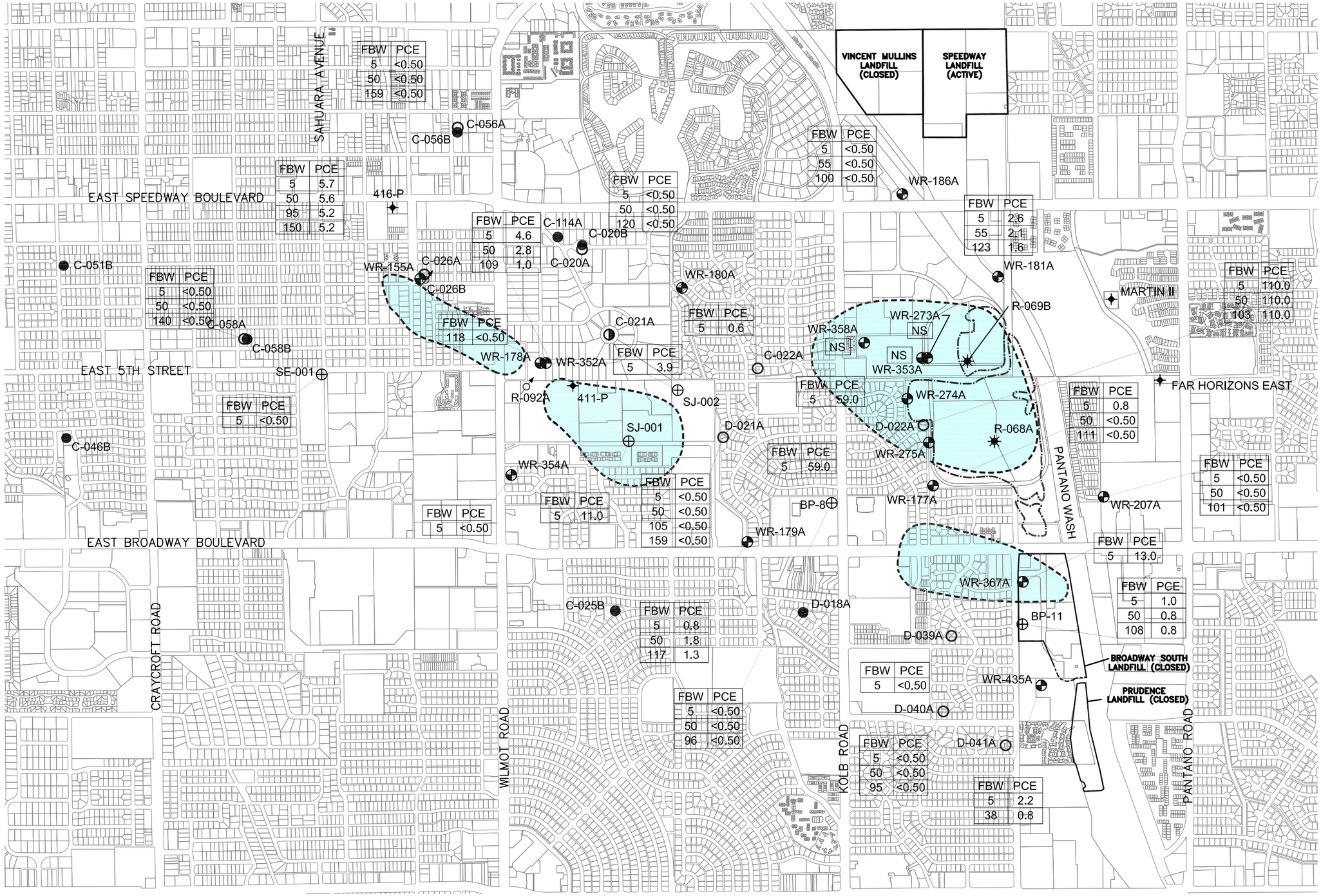
GROUNDWATER ELEVATION CONTOUR MAP OCTOBER AND NOVEMBER 2008

FIGURE: 31

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
185901026	KJG	TAK	TAK	04/02/2009

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 31-GW ELEV - OCT NOV 08.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 05, 2012 at 15:14



LEGEND

- COT INACTIVE PRODUCTION WELL
- COT ABANDONED PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- APPROXIMATE EXTENT OF DISSOLVED PHASE TETRACHLOROETHENE GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM MAY 6-7, 2002. SAMPLE RESULTS ARE FOR THE 5 FOOT BELOW WATER TABLE SAMPLES.
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL

NOTES:

<0.5 DISSOLVED PHASE PCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER. <0.5 COMPOUND NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT.

FBW SAMPLE DEPTH (FEET BELOW WATER).

NS NOT SAMPLED

PCE = TETRACHLOROETHENE

REFER TO FIGURE 22 FOR THE PCE GROUNDWATER PLUME CONFIGURATION

C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

N

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FOR: BROADWAY-PANTANO WQARF SITE
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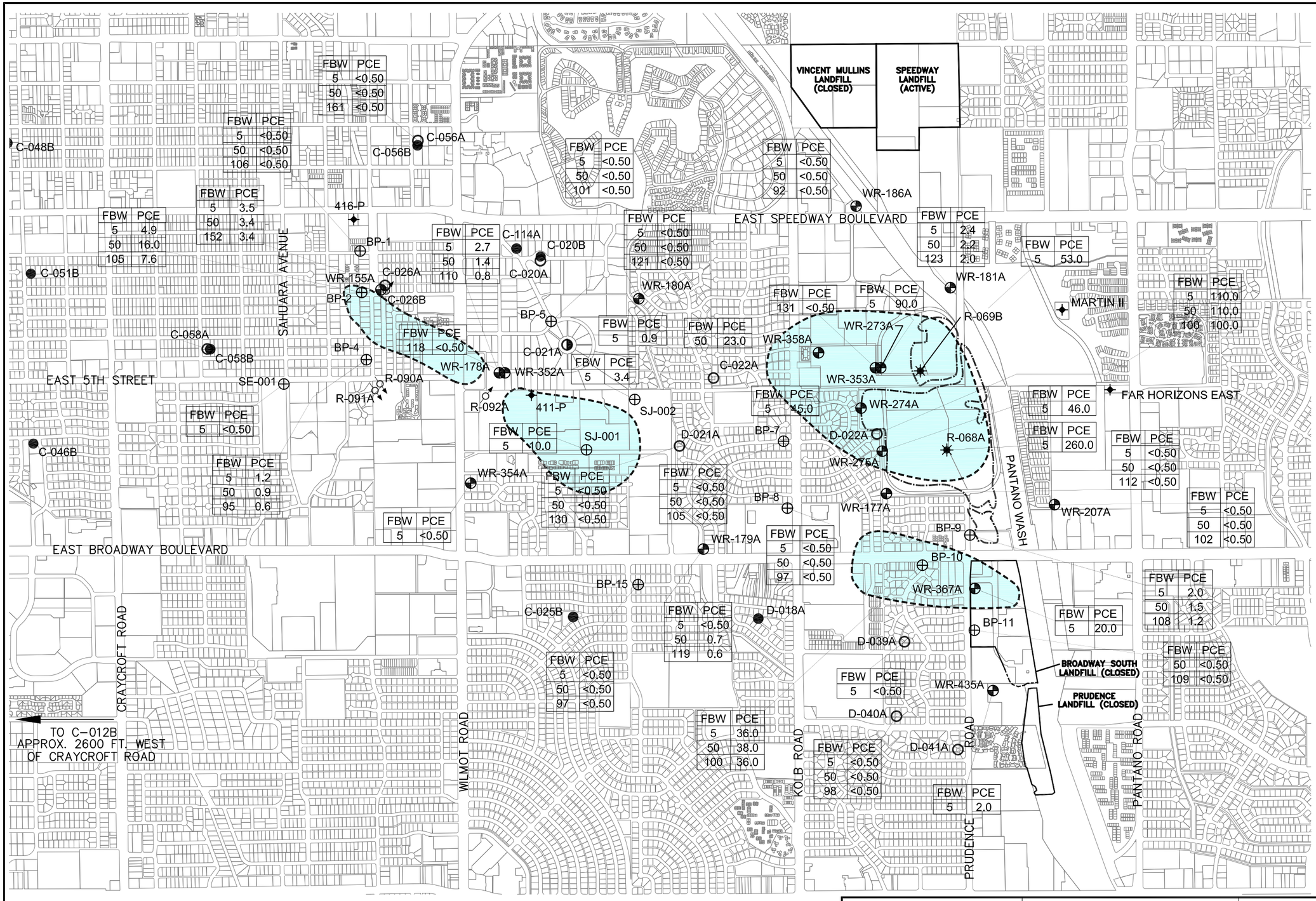
PCE GROUNDWATER CONCENTRATIONS NOVEMBER 2001

FIGURE: **32**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 32-PCE GW - NOV 2001.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:16



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FOR: BROADWAY-PANTANO WQARF SITE
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PCE GROUNDWATER CONCENTRATIONS MAY 2002

FIGURE: 33

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	3/3/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 33-PCE GW - MAY 2002.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:18

LEGEND

- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ABANDONED PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE TRICHLOROETHENE (TCE) GREATER THAN 5.0 MICROGRAMS PER LITER. TCE RESULTS DEPICTED ARE FROM MAY 6-7, 2002 SAMPLING EVENT.

NOTES:

- 3.5 — DISSOLVED-PHASE TCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 — COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW — SAMPLE DEPTH (FEET BELOW WATER).

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF THEIR PROXIMITY TO PCE GROUNDWATER PLUME.

N

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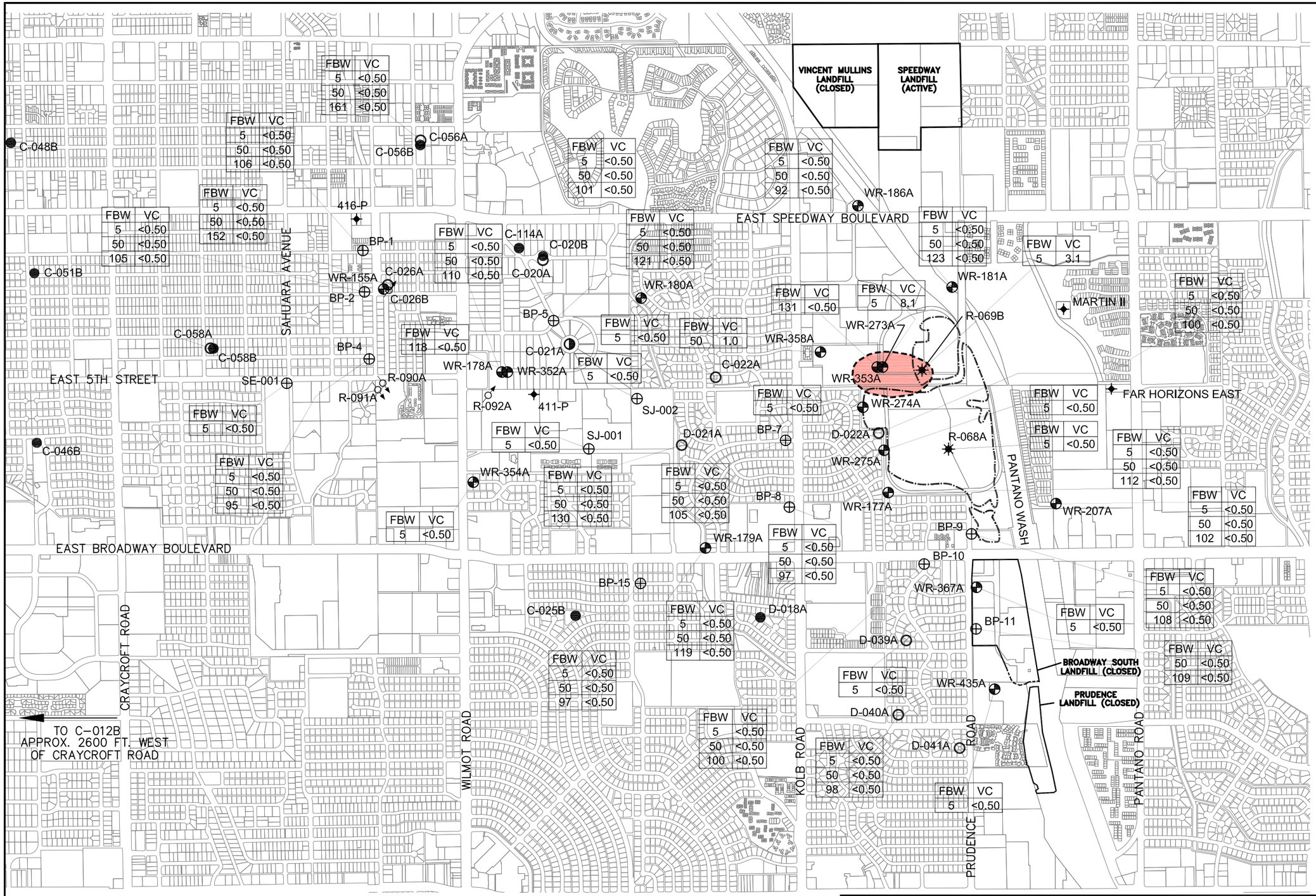
TCE GROUNDWATER CONCENTRATIONS MAY 2002

FIGURE: 34

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	2/11/2008



LEGEND

- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ABANDONED PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE VINYL CHLORIDE (VC) GREATER THAN 2.0 MICROGRAMS PER LITER. RESULTS DEPICTED ARE FROM MAY 6-7, 2002 SAMPLING EVENT.

NOTES:

- 3.1 DISSOLVED-PHASE VC ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW SAMPLE DEPTH (FEET BELOW WATER).

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF THEIR PROXIMITY TO PCE GROUNDWATER PLUME.

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FOR: BROADWAY-PANTANO WQARF SITE
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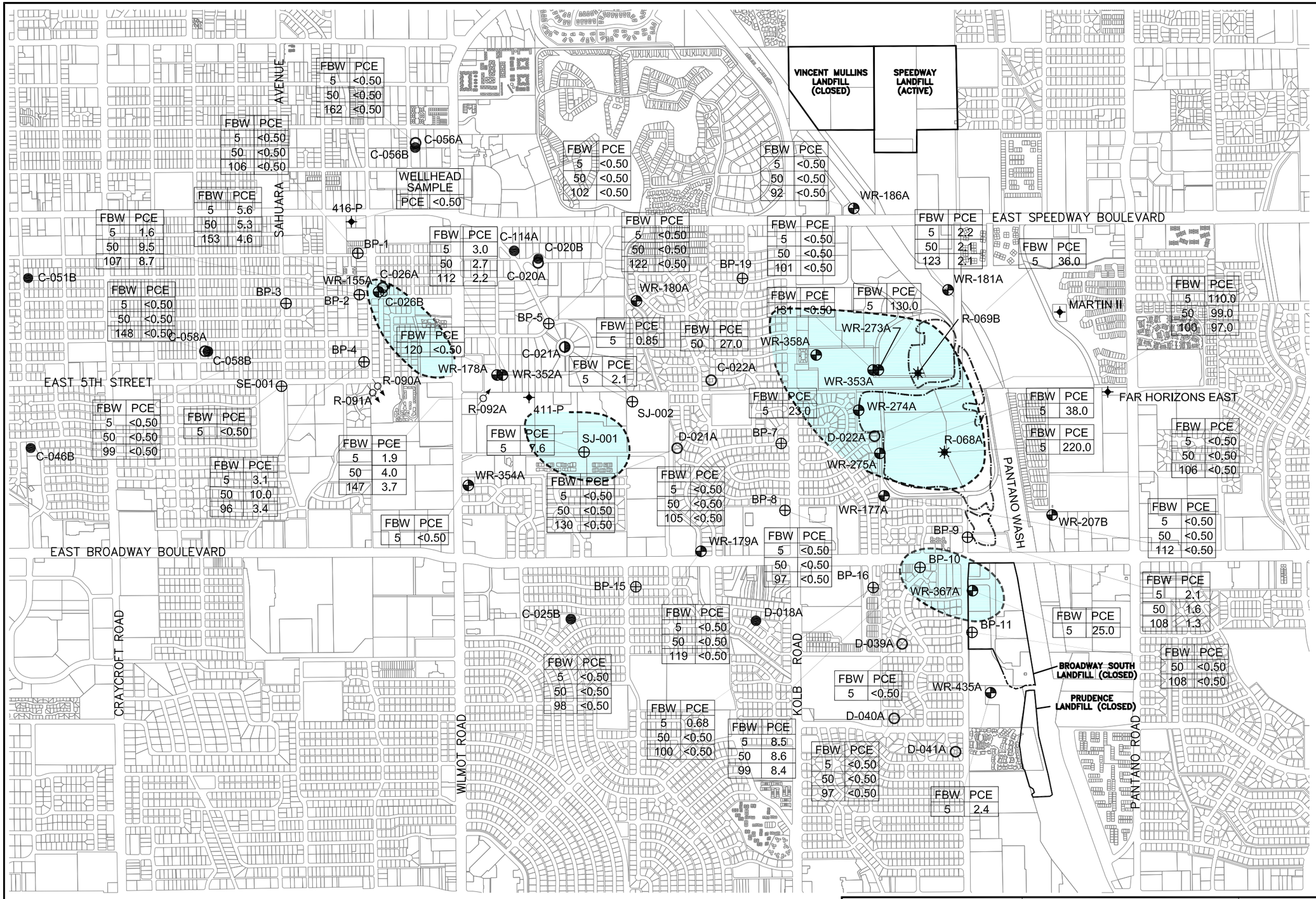
VC GROUNDWATER CONCENTRATIONS MAY 2002

FIGURE: 35

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	2/11/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 35-VC GW - MAY 2002.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:22



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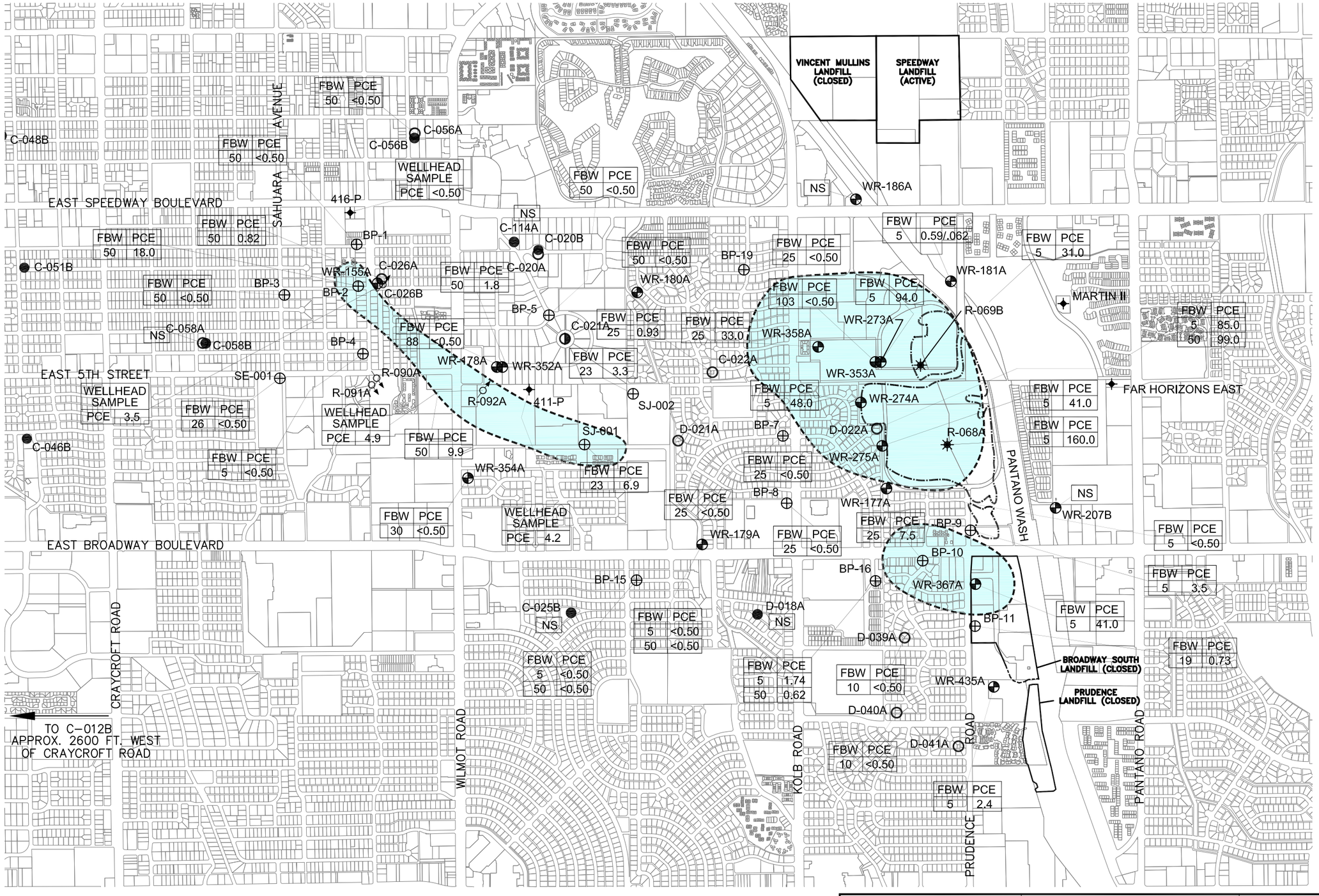
PCE GROUNDWATER CONCENTRATIONS MARCH 2003

FIGURE: 36

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 36-PCE GW - MAR 2003.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:23



LEGEND

- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ABANDONED PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE PCE GREATER THAN 5.0 MICROGRAMS PER LITER. PCE RESULTS DEPICTED ARE FROM DECEMBER 2, 2003 SAMPLING EVENT.

NOTES:

- 3.3 — DISSOLVED-PHASE PCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 — COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW — SAMPLE DEPTH (FEET BELOW WATER).
- NS — NOT SAMPLED
- PCE = TETRACHLOROETHENE

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

N

0 1500 3000

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FOR: BROADWAY-PANTANO WQARF SITE
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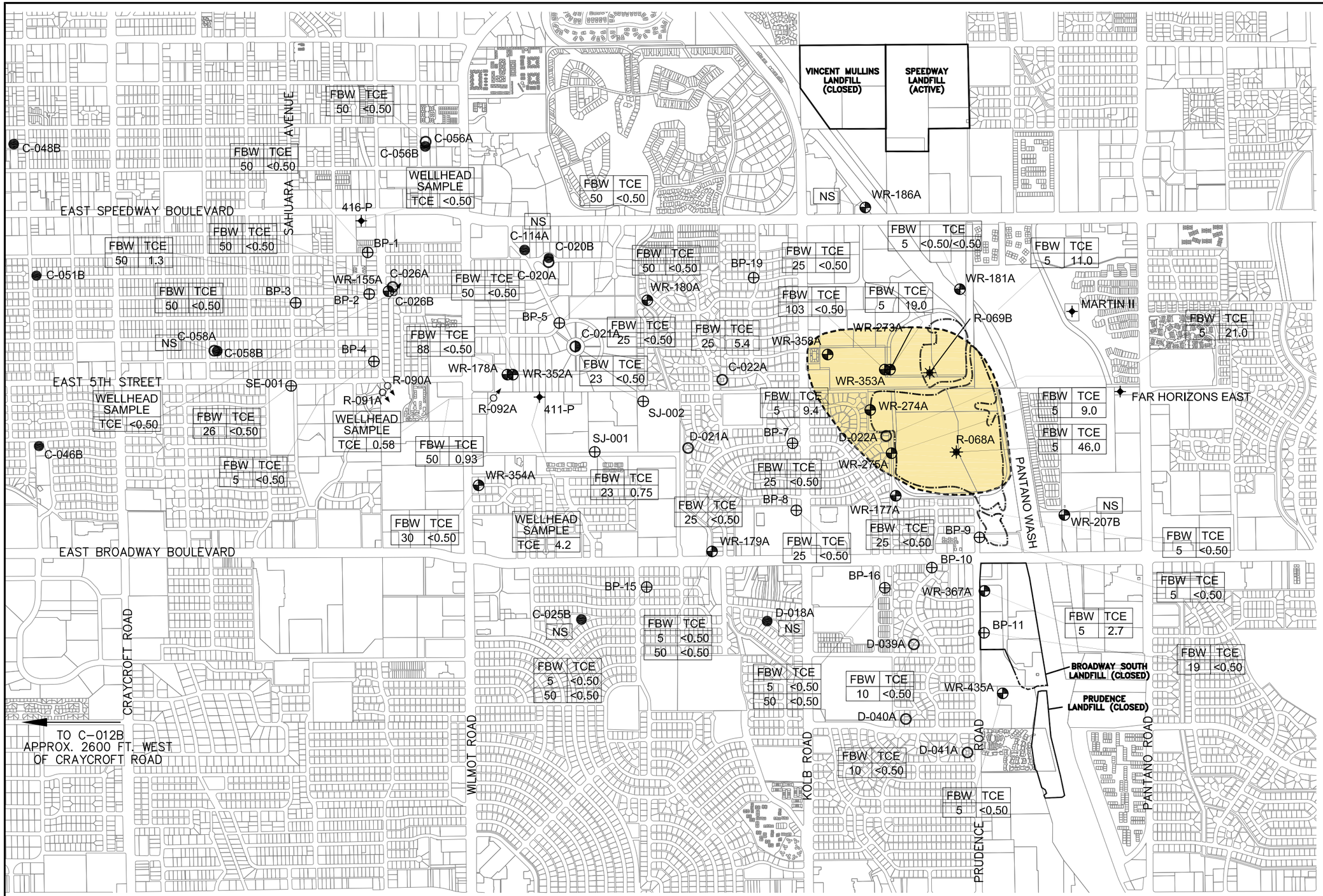
PCE GROUNDWATER CONCENTRATIONS DECEMBER 2003

FIGURE: 37

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	2/11/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 37-PCE GW - DEC 2003.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:24



LEGEND

- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ABANDONED PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE TRICHOLORETHENE (TCE) GREATER THAN 5.0 MICROGRAMS PER LITER. RESULTS DEPICTED ARE FROM DECEMBER 2, 2003 SAMPLING EVENT.

NOTES:

- 5.4 — DISSOLVED-PHASE TCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 — COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW — SAMPLE DEPTH (FEET BELOW WATER).
- NS — NOT SAMPLED

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

N

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FOR: BROADWAY-PANTANO WQARF SITE
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TCE GROUNDWATER CONCENTRATIONS DECEMBER 2003

FIGURE: 38

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	2/11/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 38-TCE GW - DEC 2003.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:25

LEGEND

- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ABANDONED PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE VINYL CHLORIDE (VC) GREATER THAN 2.0 MICROGRAMS PER LITER. RESULTS DEPICTED FROM DECEMBER 2, 2003 SAMPLING EVENT.

NOTES:

- 3.1 DISSOLVED-PHASE VC ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW SAMPLE DEPTH (FEET BELOW WATER).

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF THEIR PROXIMITY TO PCE GROUNDWATER PLUME.

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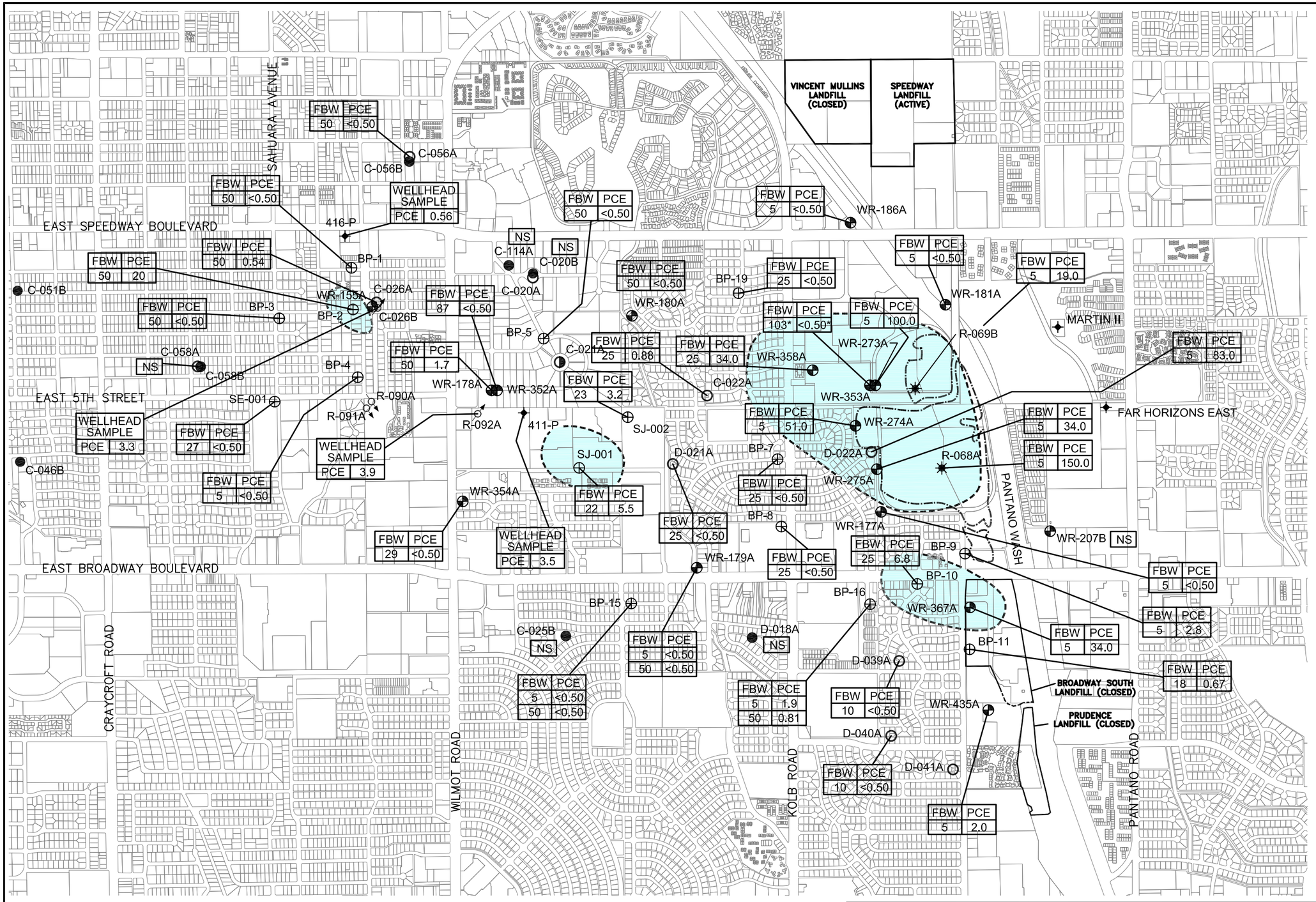
FOR: BROADWAY-PANTANO WQARF SITE

TUCSON, ARIZONA

VC GROUNDWATER CONCENTRATIONS DECEMBER 2003

FIGURE: 39

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	3/3/2008



LEGEND

- COT ABANDONED PRODUCTION WELL
- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE EXTENT OF TETRACHLOROETHENE (PCE) IN GROUNDWATER CONCENTRATIONS GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM MAY 11-13, 2004
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL

NOTES:

- <0.5 — DISSOLVED PHASE PCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER. <0.5 COMPOUND NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT.
- FBW — SAMPLE DEPTH (FEET BELOW WATER).
- NS — NOT SAMPLED
- PCE = TETRACHLOROETHENE
- * VALUE NOT USED TO ILLUSTRATE APPROXIMATE EXTENT OF PCE.

C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

PCE PLUME EXTENT IS BASED ON MAXIMUM CONCENTRATION ANALYTICAL DATA OBTAINED FROM DISCRETE-DEPTH SAMPLING.

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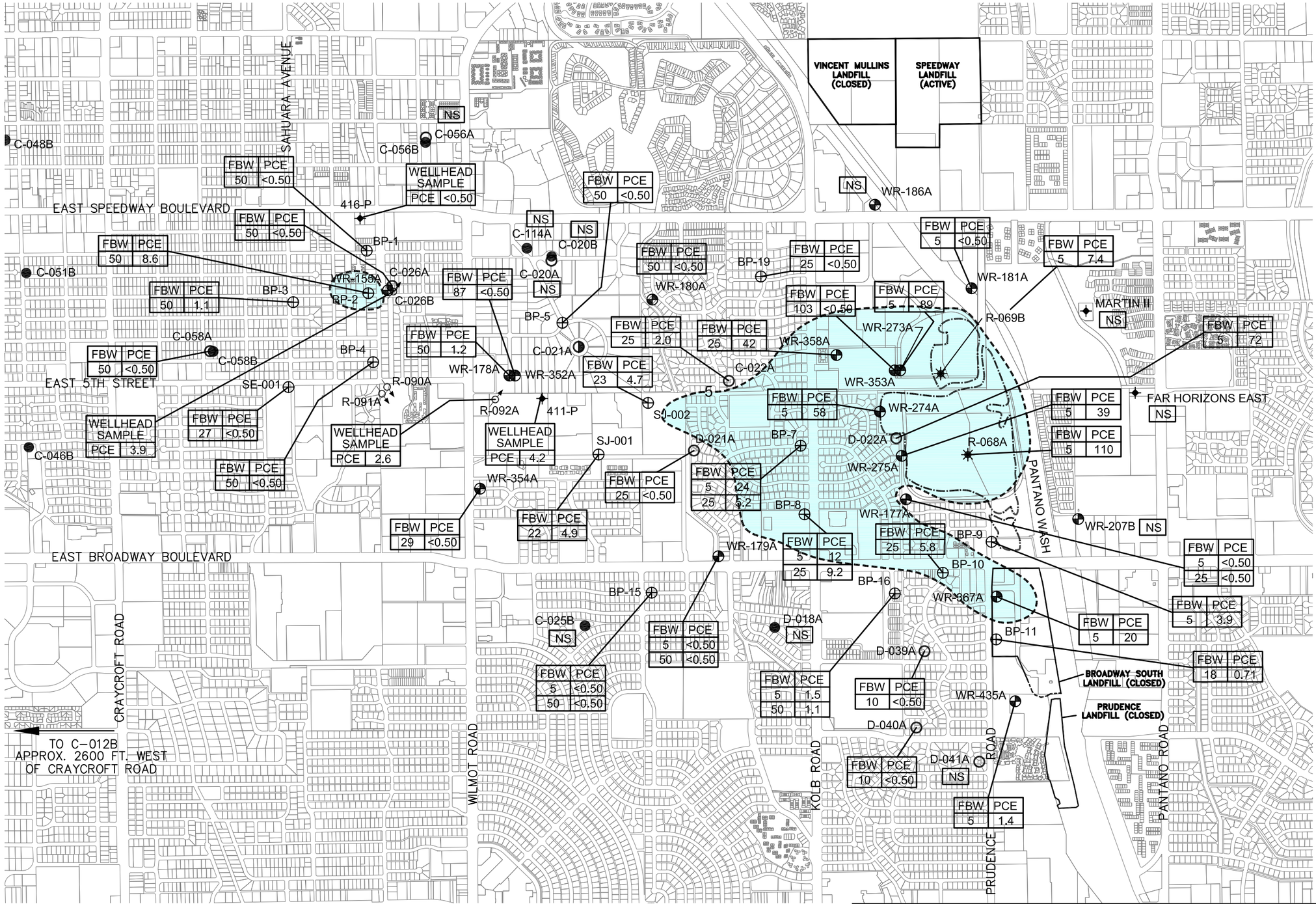
FOR: BROADWAY-PANTANO WQARF SITE
TUCSON, ARIZONA

PCE CONCENTRATIONS IN GROUNDWATER MAY 2004

FIGURE: 40

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006



LEGEND

- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ABANDONED PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE PCE GREATER THAN 5.0 MICROGRAMS PER LITER. PCE RESULTS DEPICTED ARE FROM MAY 17-18, 2005 SAMPLING EVENT.

NOTES:

- 3.3 DISSOLVED-PHASE PCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW SAMPLE DEPTH (FEET BELOW WATER).
- NS NOT SAMPLED
- PCE = TETRACHLOROETHENE

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF PROXIMITY TO PCE GROUNDWATER PLUME. OR RESTRICTED USE WELLS BECAUSE OF

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FOR: BROADWAY-PANTANO WQARF SITE
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PCE CONCENTRATIONS IN GROUNDWATER MAY 2005

FIGURE: **41**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	3/4/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 41-PCE GW - MAY 2005.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 08, 2012 at 11:57

LEGEND

- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ABANDONED PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE TRICHOLORETHENE (TCE) GREATER THAN 5.0 MICROGRAMS PER LITER. TCE RESULTS DEPICTED ARE FROM MAY 17-18, 2005 SAMPLING EVENT.

NOTES:

- 5.4 — DISSOLVED-PHASE TCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 — COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW — SAMPLE DEPTH (FEET BELOW WATER).
- NS — NOT SAMPLED

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

N

0 1500 3000

SCALE IN FEET

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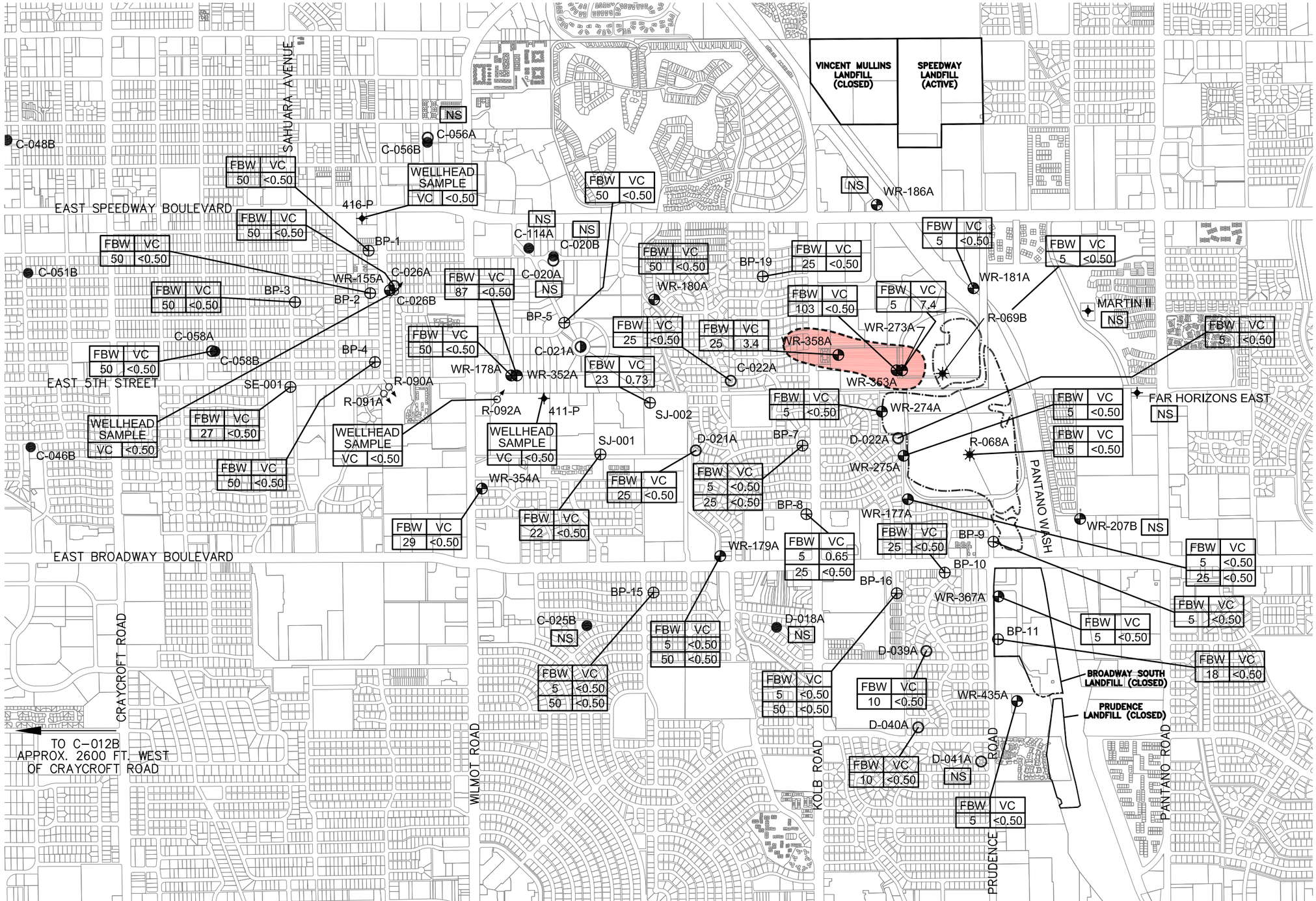
FOR: BROADWAY-PANTANO WQARF SITE

TUCSON, ARIZONA

TCE CONCENTRATIONS IN GROUNDWATER MAY 2005

FIGURE: 42

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	3/4/2008



LEGEND

- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ABANDONED PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE VINYL CHLORIDE (VC) GREATER THAN 2.0 MICROGRAMS PER LITER. VC RESULTS DEPICTED ARE FROM MAY 17-18, 2005 SAMPLING EVENT.

NOTES:

- 3.1 DISSOLVED-PHASE VC ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW SAMPLE DEPTH (FEET BELOW WATER).

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF THEIR PROXIMITY TO PCE GROUNDWATER PLUME.

N

0 1500 3000

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FOR: BROADWAY-PANTANO WQARF SITE
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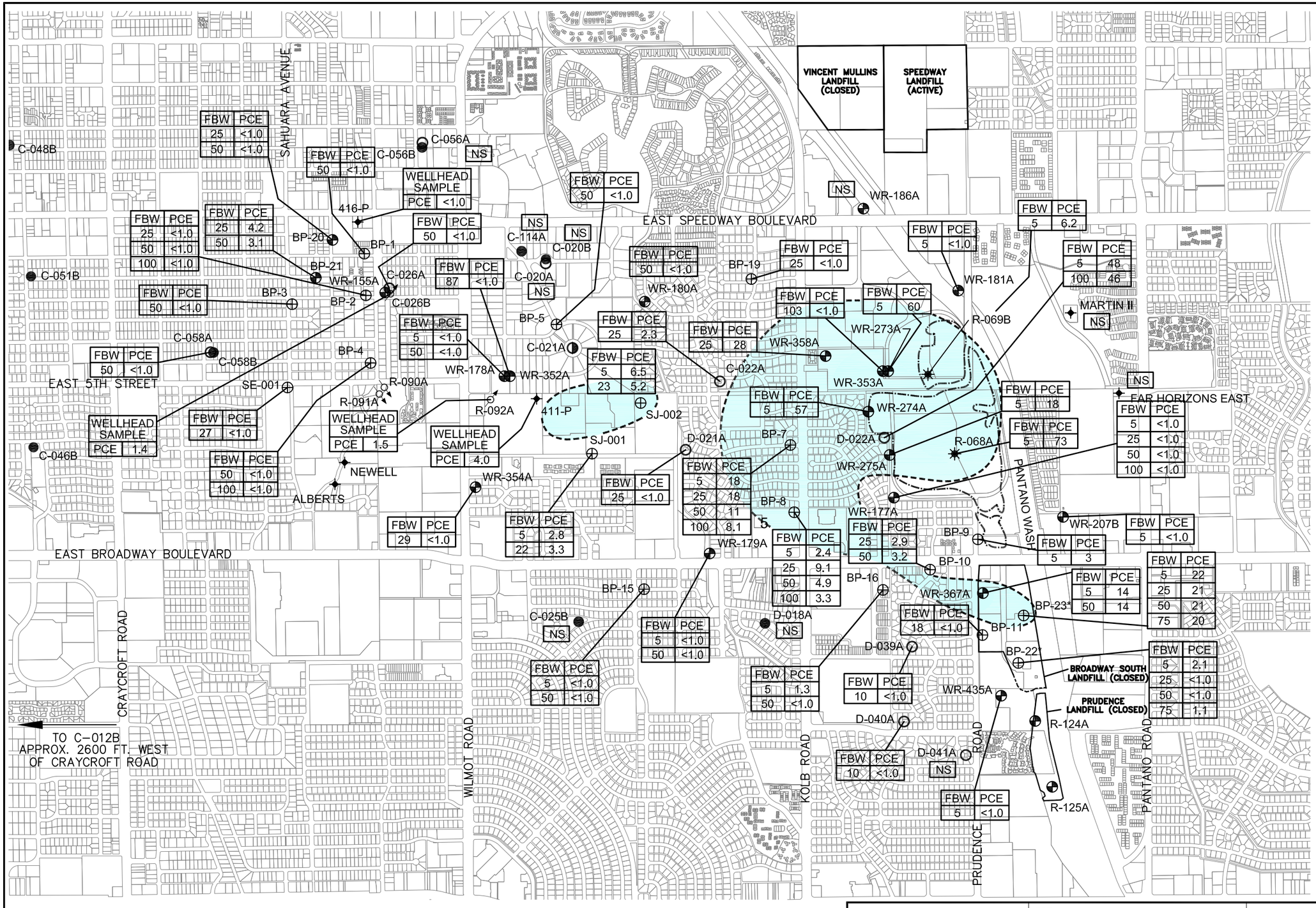
VC CONCENTRATIONS IN GROUNDWATER MAY 2005

FIGURE: 43

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	3/4/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 43-VC GW - MAY 2005.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:31



LEGEND

- COT/TW ABANDONED PRODUCTION WELL
- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF TETRACHLOROETHENE (PCE) IN GROUNDWATER >5.0 ppb. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM APRIL 3-7, 2006 PLUME CONTOURS WERE CONFIGURED USING HIGHEST PCE CONCENTRATION FROM EACH WELL.

NOTES:

- 3.3 DISSOLVED-PHASE PCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW SAMPLE DEPTH (FEET BELOW WATER).
- NS NOT SAMPLED
- PCE = TETRACHLOROETHENE

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

* BP-22 AND BP-23 WERE INSTALLED IN MAY 2006 AND SAMPLED ON MAY 24, 2006.

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FOR: BROADWAY-PANTANO WQARF SITE
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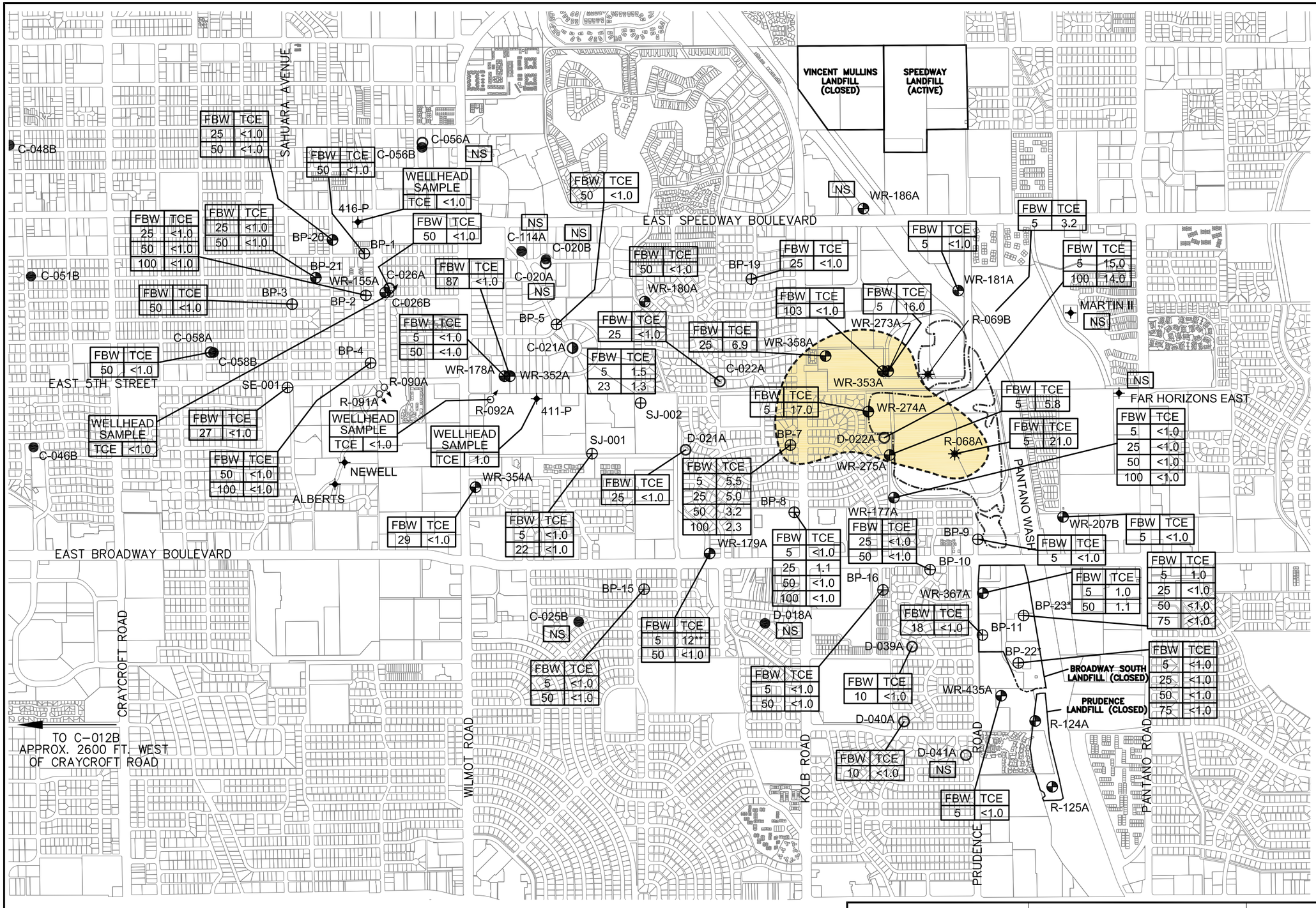
PCE CONCENTRATIONS IN GROUNDWATER APRIL 2006

FIGURE: 44

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	2/12/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 44-PCE GW - APR 2006.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:34



LEGEND

- COT/TW ABANDONED PRODUCTION WELL
- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE TRICHLORETHENE (TCE) GREATER THAN 5.0 MICROGRAMS PER LITER. TCE RESULTS DEPICTED ARE FROM APRIL 3-7, 2006 SAMPLING EVENT.

NOTES:

- 5.4 — DISSOLVED-PHASE TCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 — COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW — SAMPLE DEPTH (FEET BELOW WATER).
- NS — NOT SAMPLED

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF PROXIMITY TO PCE GROUNDWATER PLUME.

* BP-22 AND BP-23 WERE INSTALLED IN MAY 2006 AND SAMPLED ON MAY 24, 2006.

** ANOMALOUS RESULT NEVER REPEATED; ONLY TCE DETECTION EVER REPORTED.

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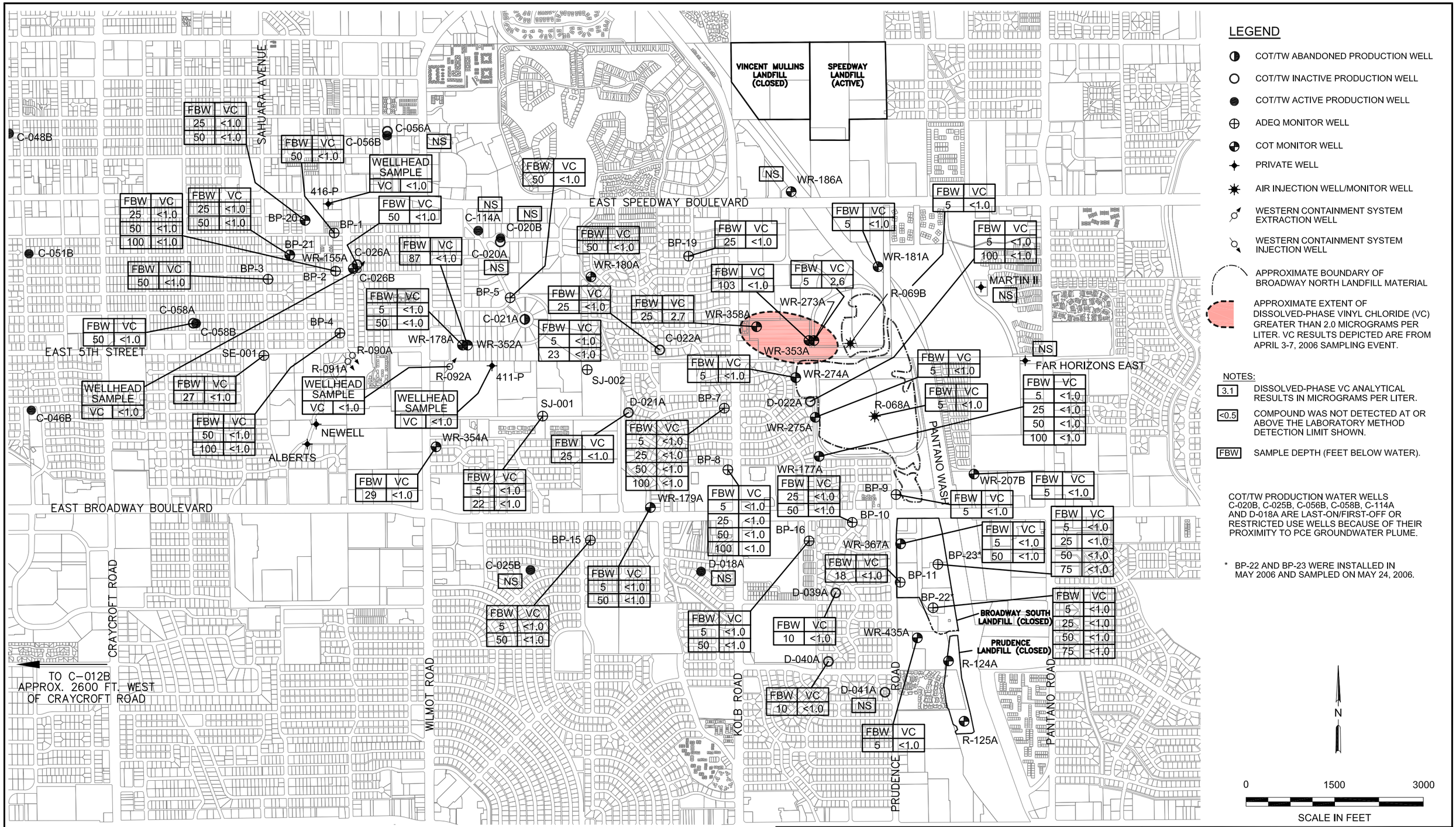
TCE CONCENTRATIONS IN GROUNDWATER APRIL 2006

FIGURE: 45

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	KJG	CRP	TAK	2/12/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 45-TCE GW - APR 2006.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:41



LEGEND

- COT/TW ABANDONED PRODUCTION WELL
- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF DISSOLVED-PHASE VINYL CHLORIDE (VC) GREATER THAN 2.0 MICROGRAMS PER LITER. VC RESULTS DEPICTED ARE FROM APRIL 3-7, 2006 SAMPLING EVENT.

NOTES:

- 3.1 DISSOLVED-PHASE VC ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
- <0.5 COMPOUND WAS NOT DETECTED AT OR ABOVE THE LABORATORY METHOD DETECTION LIMIT SHOWN.
- FBW SAMPLE DEPTH (FEET BELOW WATER).

COT/TW PRODUCTION WATER WELLS C-020B, C-025B, C-056B, C-058B, C-114A AND D-018A ARE LAST-ON/FIRST-OFF OR RESTRICTED USE WELLS BECAUSE OF THEIR PROXIMITY TO PCE GROUNDWATER PLUME.

* BP-22 AND BP-23 WERE INSTALLED IN MAY 2006 AND SAMPLED ON MAY 24, 2006.

N

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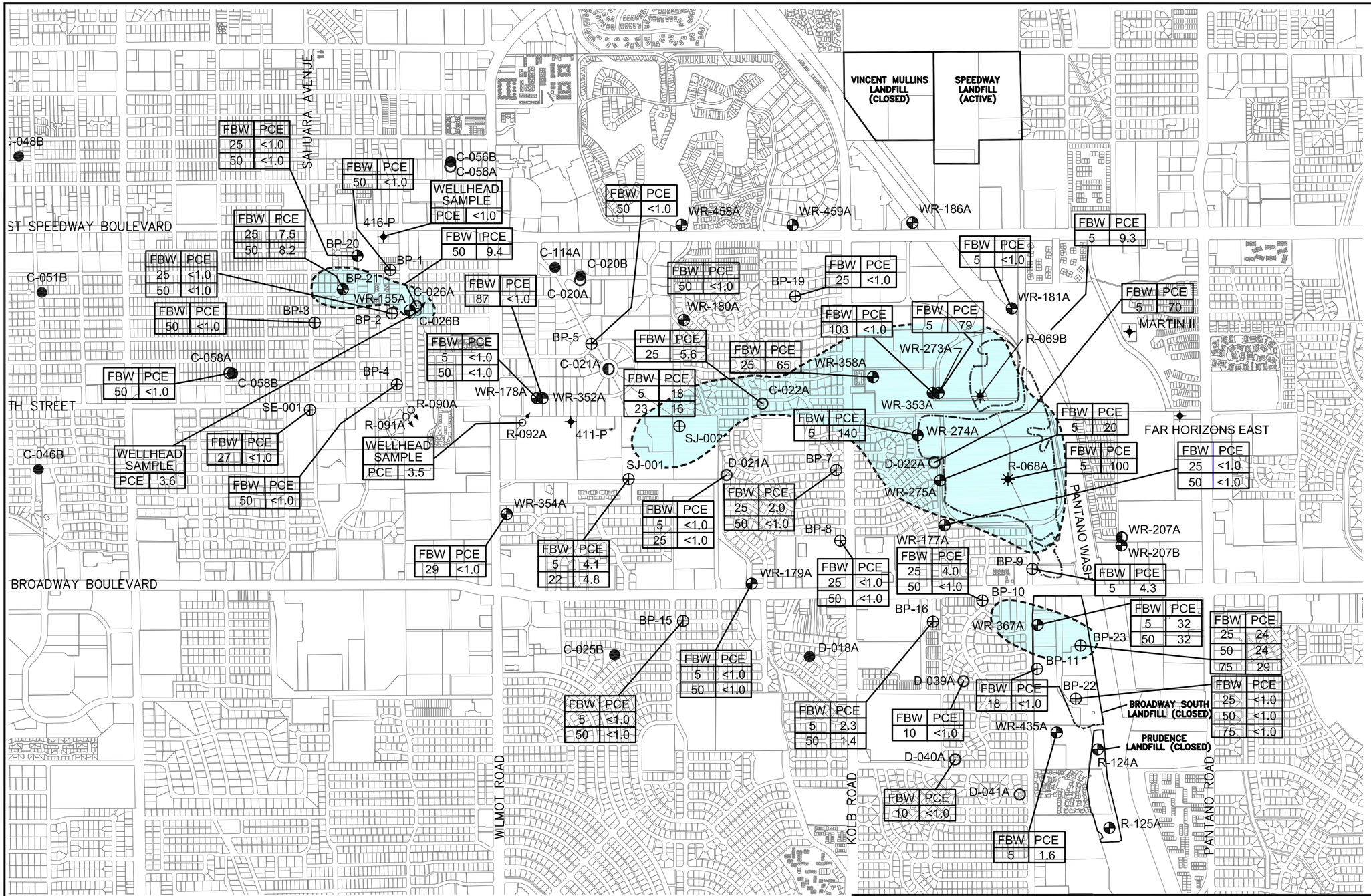
FOR:				FIGURE:
BROADWAY-PANTANO WQARF SITE TUCSON, ARIZONA		VC CONCENTRATIONS IN GROUNDWATER APRIL 2006		46
JOB NUMBER: 18OT.20401.08	DRAWN BY: KJG	CHECKED BY: CRP	APPROVED BY: TAK	DATE: 2/12/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 46-VC GW - APR 2006.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 05, 2012 at 15:42



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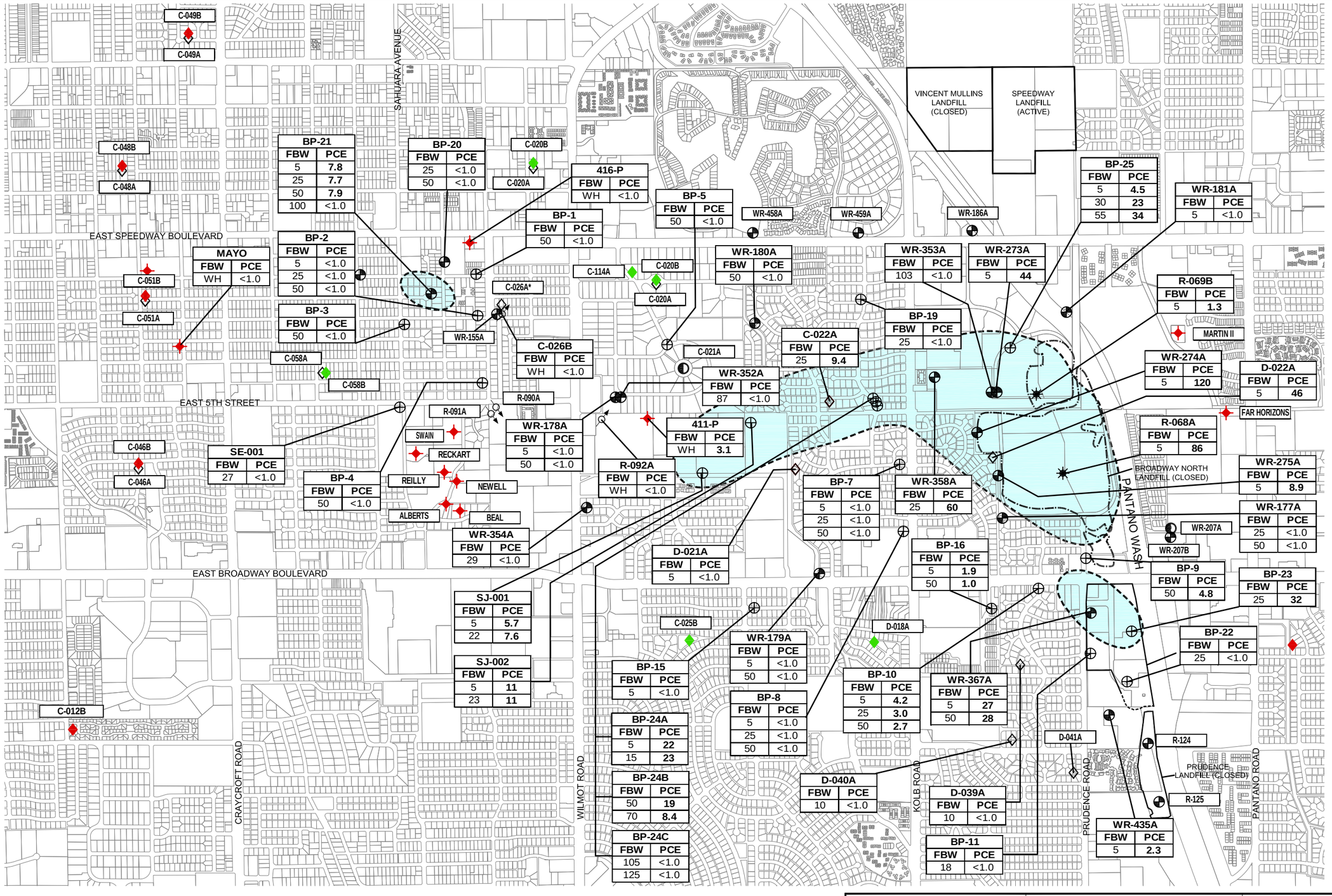
FOR: BROADWAY-PANTANO WQARF SITE, TUCSON, ARIZONA

PCE CONCENTRATIONS IN GROUNDWATER APRIL 2007

FIGURE: **47**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	KJG	TAK	TAK	06/14/2007

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 47-PCE GW - APRIL 2007.dwg|cjames|Jun 05, 2012 at 15:43|Layout: 11X17



LEGEND

- COT ABANDONED MONITORING WELL
- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
  - - WATER WELL IN PRODUCTION
  - - LAST ON/FIRST-OFF WATER PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL (ACTIVE)
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL

* C-026A WAS SAMPLED AT 10 FT INTERVALS FROM 10 FT TO 190 FT AND AT 196 FT. RESULTS FROM ALL DEPTHS WERE <1.0

- APPROXIMATE EXTENT OF PCE GREATER THAN 5.0 MICROGRAMS PER LITER. PCE RESULTS ARE FOR SAMPLES COLLECTED ON OCTOBER 29 - 31, 2008 AND NOVEMBER 3 - 6, 2008. PLUME CONTOURS ARE CONFIGURED USING HIGHEST PCE CONCENTRATION FROM EACH WELL.

NOTES:

- <1.0 — DISSOLVED-PHASE PCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER. <1.0 COMPOUND NOT DETECTED AT OR ABOVE THE LABORATORY METHOD REPORTING LIMIT SHOWN.
- FBW — SAMPLE DEPTH (FEET BELOW WATER).
- PCE — TETRACHLOROETHENE

N

0 1500 3000

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FOR: BROADWAY-PANTANO WQARF SITE
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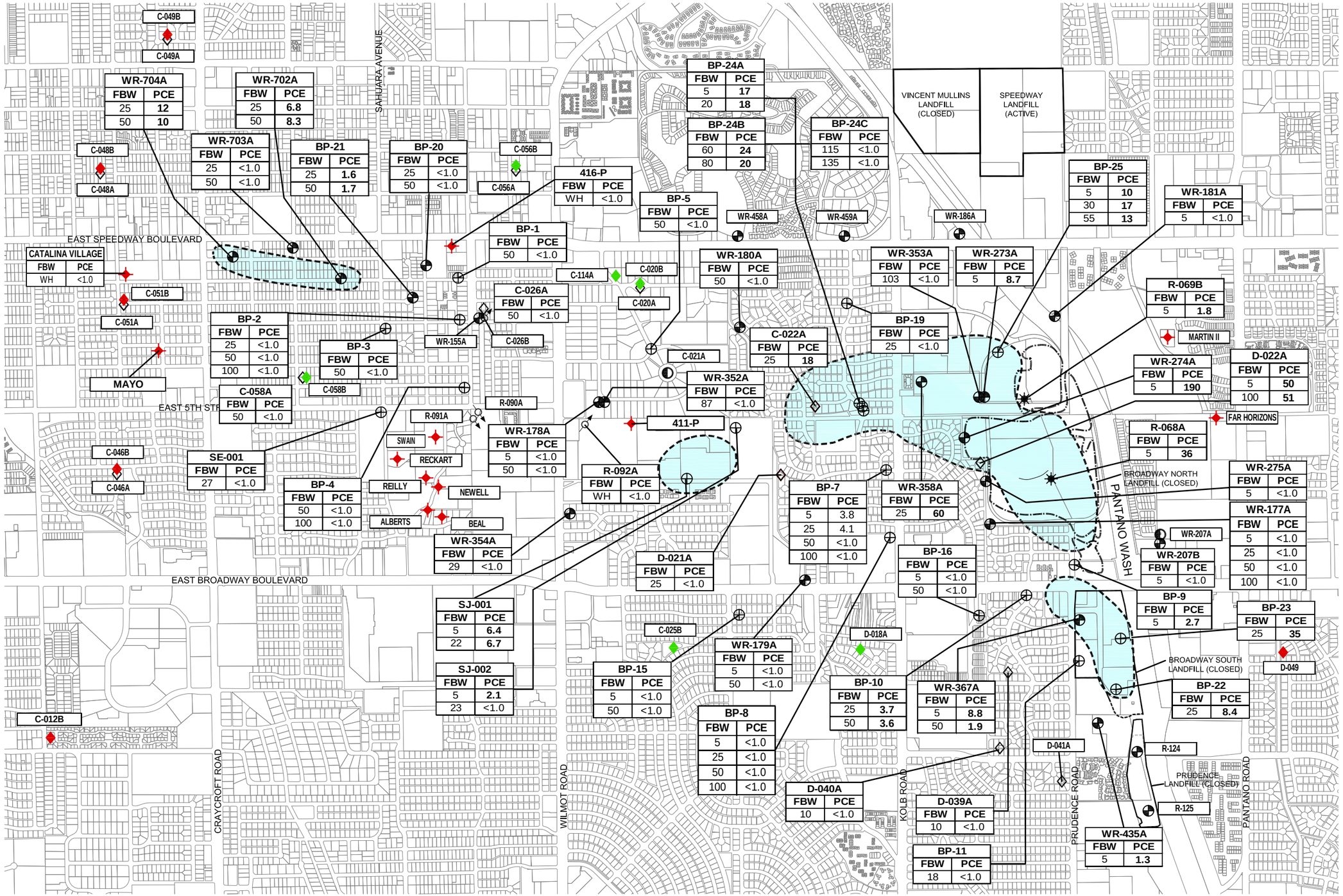
PCE CONCENTRATIONS IN GROUNDWATER OCTOBER 2008 NOVEMBER 2008

FIGURE: 48

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.09	CG/KG	TAK	TAK	12/26/2008

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 48-PCE GW - OCT NOV 08.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 05, 2012 at 15:46



LEGEND

- COT ABANDONED MONITORING WELL
- COT/TW INACTIVE PRODUCTION WELL
- COT/TW ACTIVE PRODUCTION WELL
- - WATER WELL IN PRODUCTION
- - LAST ON/FIRST-OFF WATER PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL (ACTIVE)
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF BROADWAY NORTH LANDFILL MATERIAL
- APPROXIMATE EXTENT OF PCE GREATER THAN 5.0 MICROGRAMS PER LITER. PCE RESULTS ARE FOR SAMPLES COLLECTED ON SEPTEMBER 19 - 29, 2011. PLUME CONTOURS ARE CONFIGURED USING HIGHEST PCE CONCENTRATION FROM EACH WELL.

NOTES:

- <1.0 DISSOLVED-PHASE PCE ANALYTICAL RESULTS IN MICROGRAMS PER LITER. <1.0 COMPOUND NOT DETECTED AT OR ABOVE THE LABORATORY METHOD REPORTING LIMIT SHOWN.
- FBW SAMPLE DEPTH (FEET BELOW WATER).
- PCE TETRACHLOROETHENE

N

0 1500 3000

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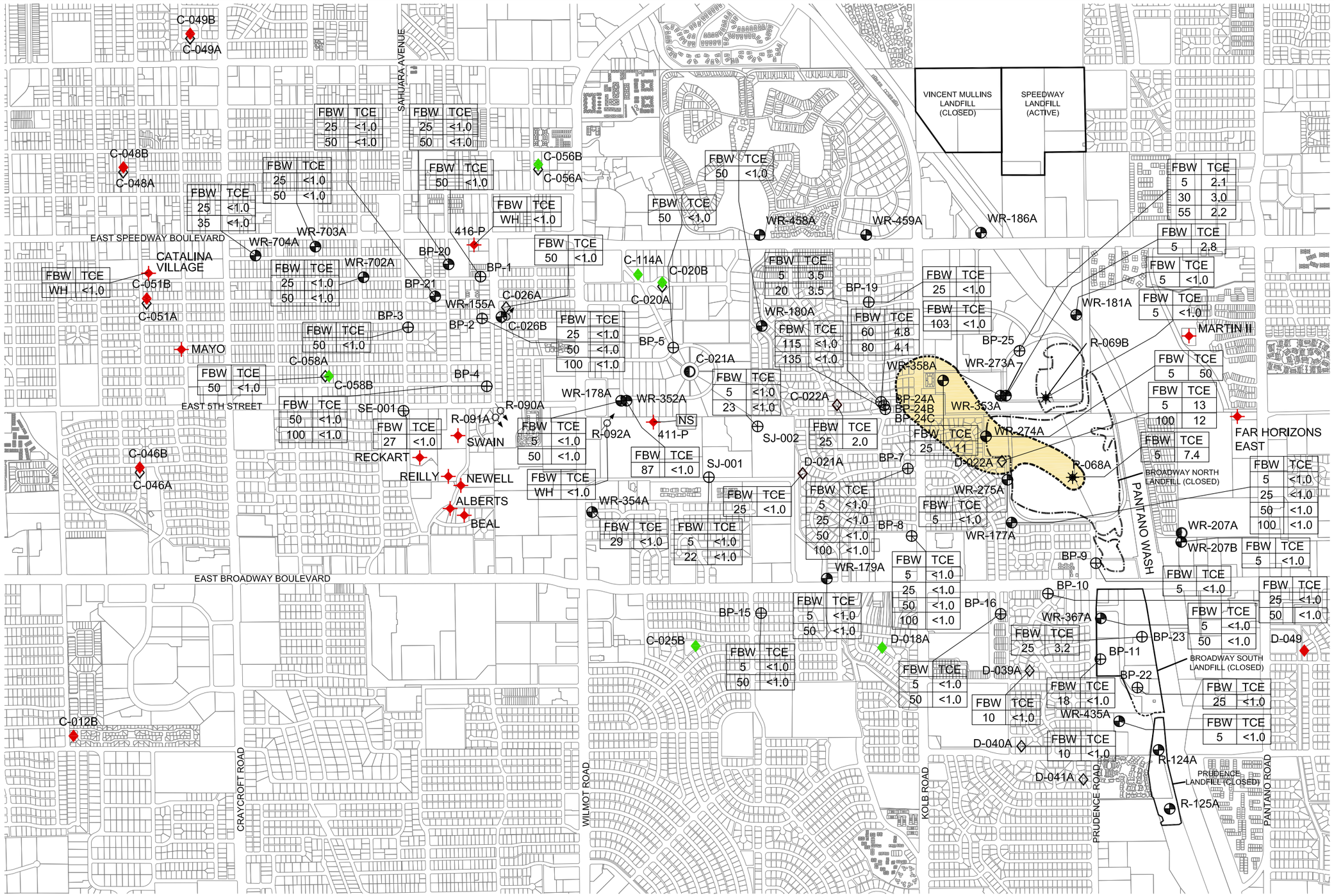
FOR: BROADWAY-PANTANO WQARF SITE
TUCSON, ARIZONA

PCE CONCENTRATIONS IN GROUNDWATER MAP SEPTEMBER 2011

FIGURE: 49

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212202353	CG	TAK	TAK	02/10/2012

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 49 -PCE GW - SEPT 2011.dwg | Layout Tab: Site Wide | Drafter: cjames | Jun 05, 2012 at 15:48



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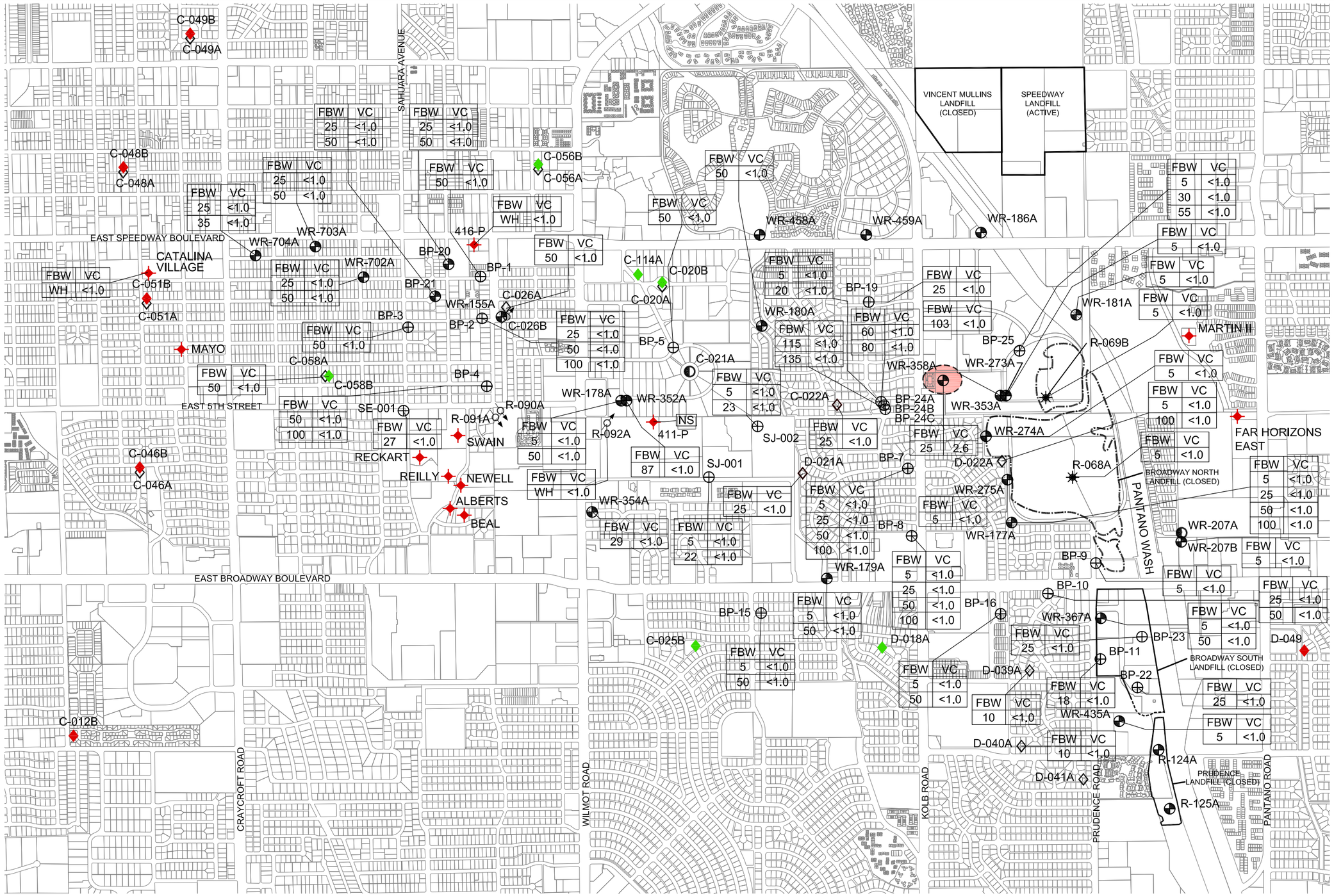
TCE CONCENTRATIONS IN GROUNDWATER SEPTEMBER 2011	FIGURE: **50**
JOB NUMBER: 18OT.20401.07	DRAWN BY: MDR
CHECKED BY: TAK	APPROVED BY: CRP
DATE: DECEMBER 2006	

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 50-TCE GW - SEPT 2011.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 05, 2012 at 15:49



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FOR: BROADWAY-PANTANO WQARF SITE
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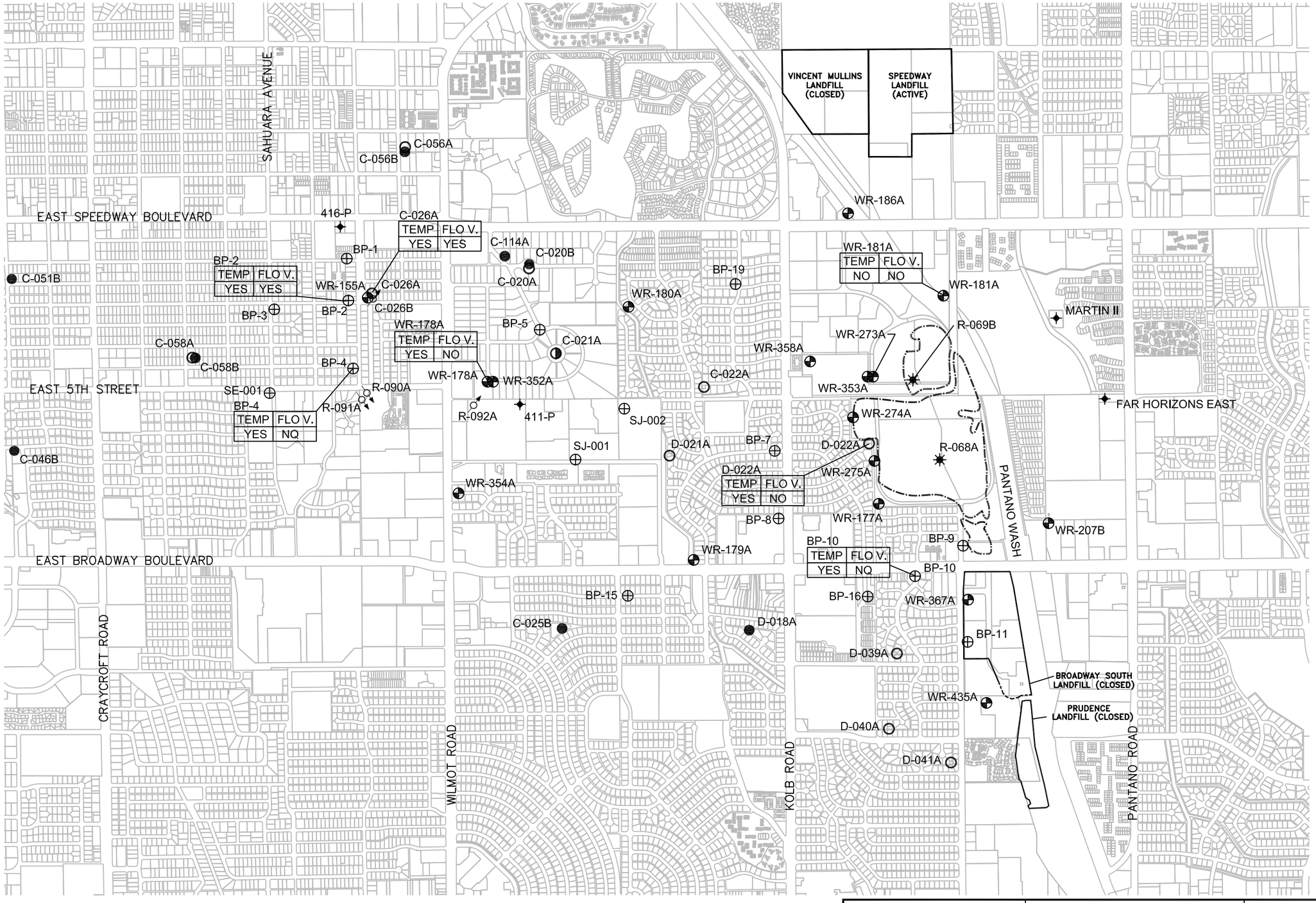
VC CONCENTRATIONS IN GROUNDWATER SEPTEMBER 2011

FIGURE: 51

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 51-VC GW SEPT 2011.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 05, 2012 at 15:50



LEGEND

- COT ABANDONED PRODUCTION WELL
- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- APPROXIMATE BOUNDARY OF LANDFILL MATERIAL

NOTES:

TEMP — TEMPERATURE SURVEYED, YES INDICATES MEASURABLE VERTICAL FLOW.

FLO V. — FLO VISION SURVEY, YES INDICATES MEASURABLE VERTICAL FLOW. NO INDICATES NO MEASURABLE VERTICAL FLOW. NQ INDICATES NON-QUANTIFIABLE VERTICAL FLOW.

ALL VERTICAL FLOWS MEASURED WERE DOWNWARD.

N

0 1500 3000

SCALE IN FEET

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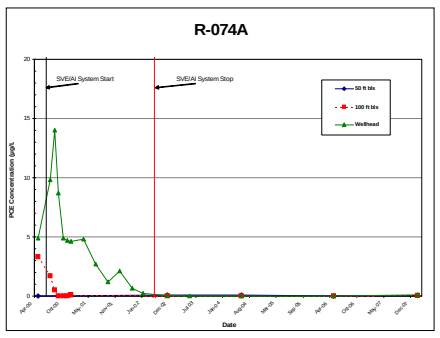
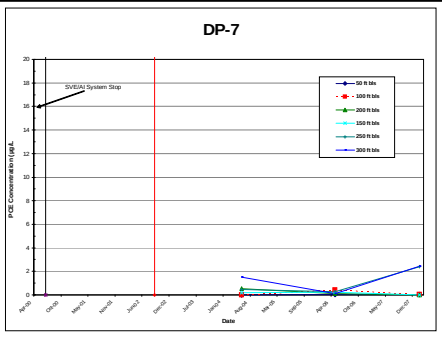
FOR: BROADWAY-PANTANO WQARF SITE
TUCSON, ARIZONA

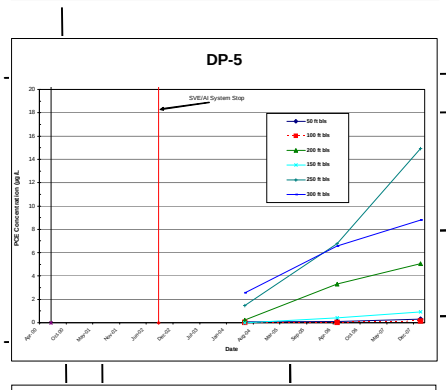
TEMPERATURE AND FLOVISION™ SURVEYS MAY 2003

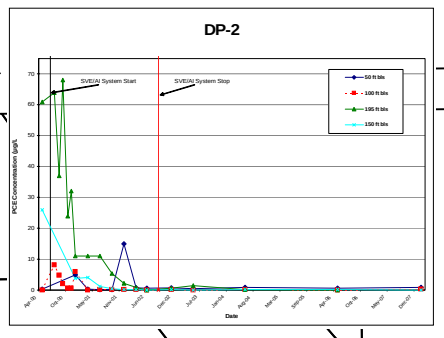
FIGURE: 52

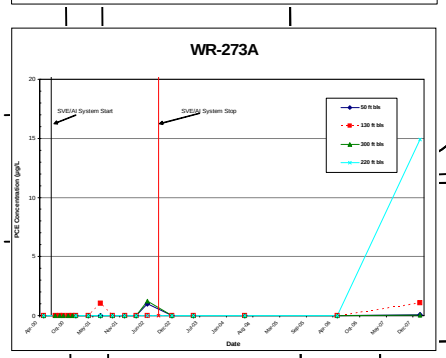
JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

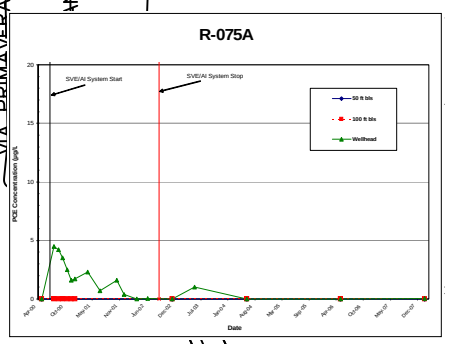


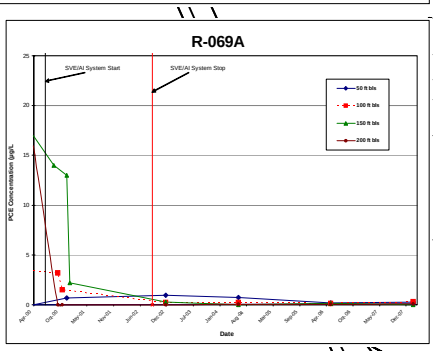


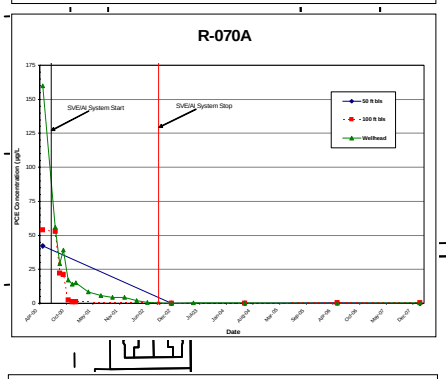


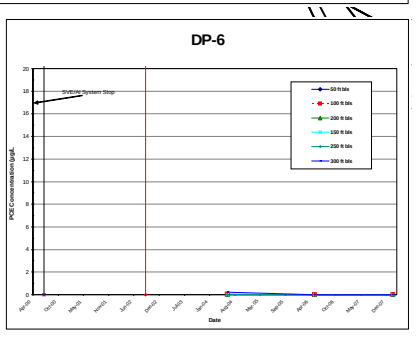


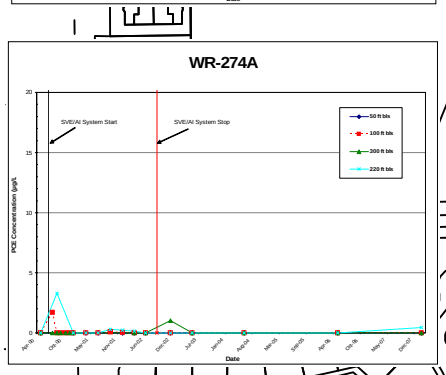


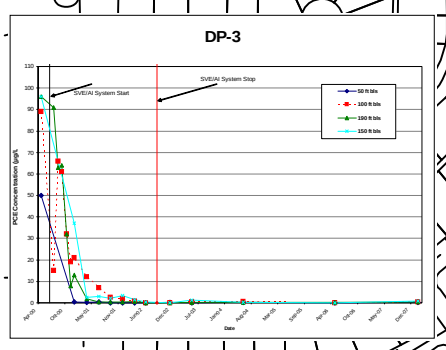


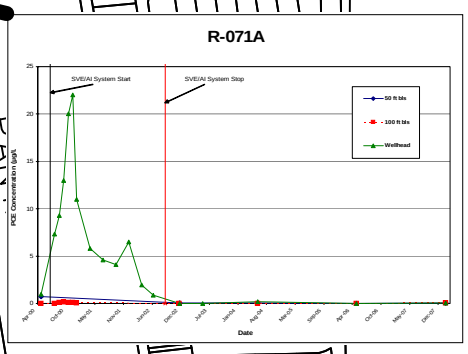


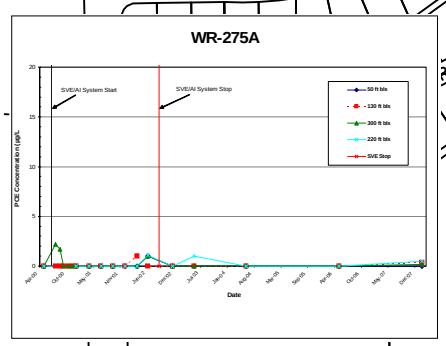


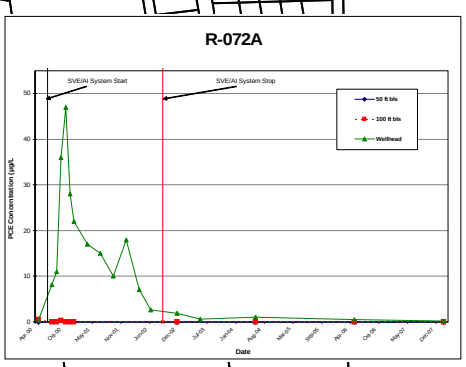


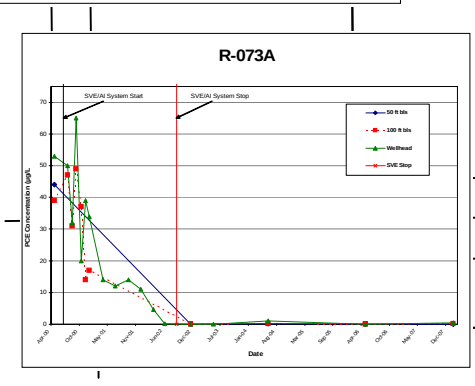


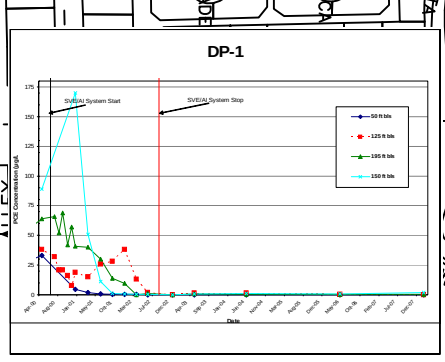


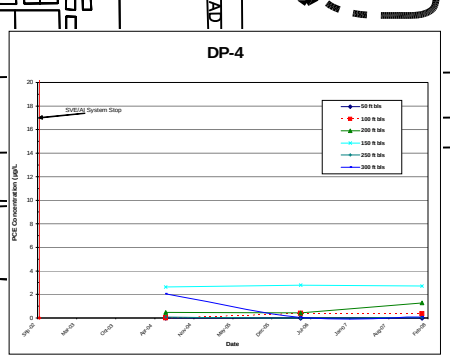


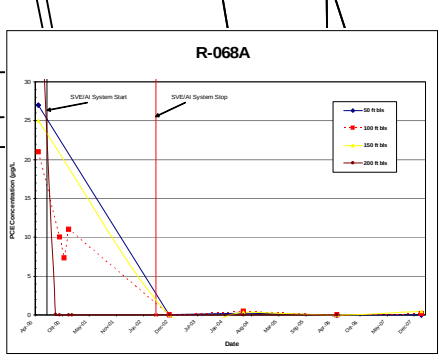












LEGEND

- INJECTION WELL
- EXTRACTION WELL
- INJECTION LINE
- EXTRACTION LINE
- B–1 SOIL BORING/SOIL VAPOR SAMPLE
- DP–1 NESTED SOIL VAPOR MONITORING PROBES
- WR–273A MONITORING WELL/NESTED SOIL VAPOR MONITORING PROBES
- LANDFILL BOUNDARY

BLVD.
VIA TERRADO
VIA PRIMAVERA
FINANCE CENTER DRIVE
STREET
CIRCLE
GATEWAY
PANTANO WASH FLOOD CONTROL R/W
DRIVE
Broadway North Landfill
INJECTION AND EXTRACTION COMPOUND
LINEAR PARK
ELBOW BAY DRIVE
ELBOW BAY PL.
MONTEBAY
PASEO SAN ANDRES
(PRIVATE)
CALLE
AVENIDA DE LA MADERA
AVENIDA DE LA TUCA
AVENIDA DE LA VISTA
MANAGUA
MERIDA
PRUDENCE
ROAD
ALLEY
LUANA PLACE

DP-7 R-075A R-074A DP-2 DP-5 WR-273A B-6 R-69B R-69A EXISTING TEP SERVICE #26 WR-274A B-3 DP-3 R-070A DP-6 R-071A R-68A WR-275A DP-4 R-073A DP-1 R-072A

641' 426.6' 177' 290' 290' 1106' 990' 763' 782' 518' 877' 903'

0 100 200 300 400 500 600
SCALE IN FEET

N

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FOR: BROADWAY - PANTANO WQARF SITE
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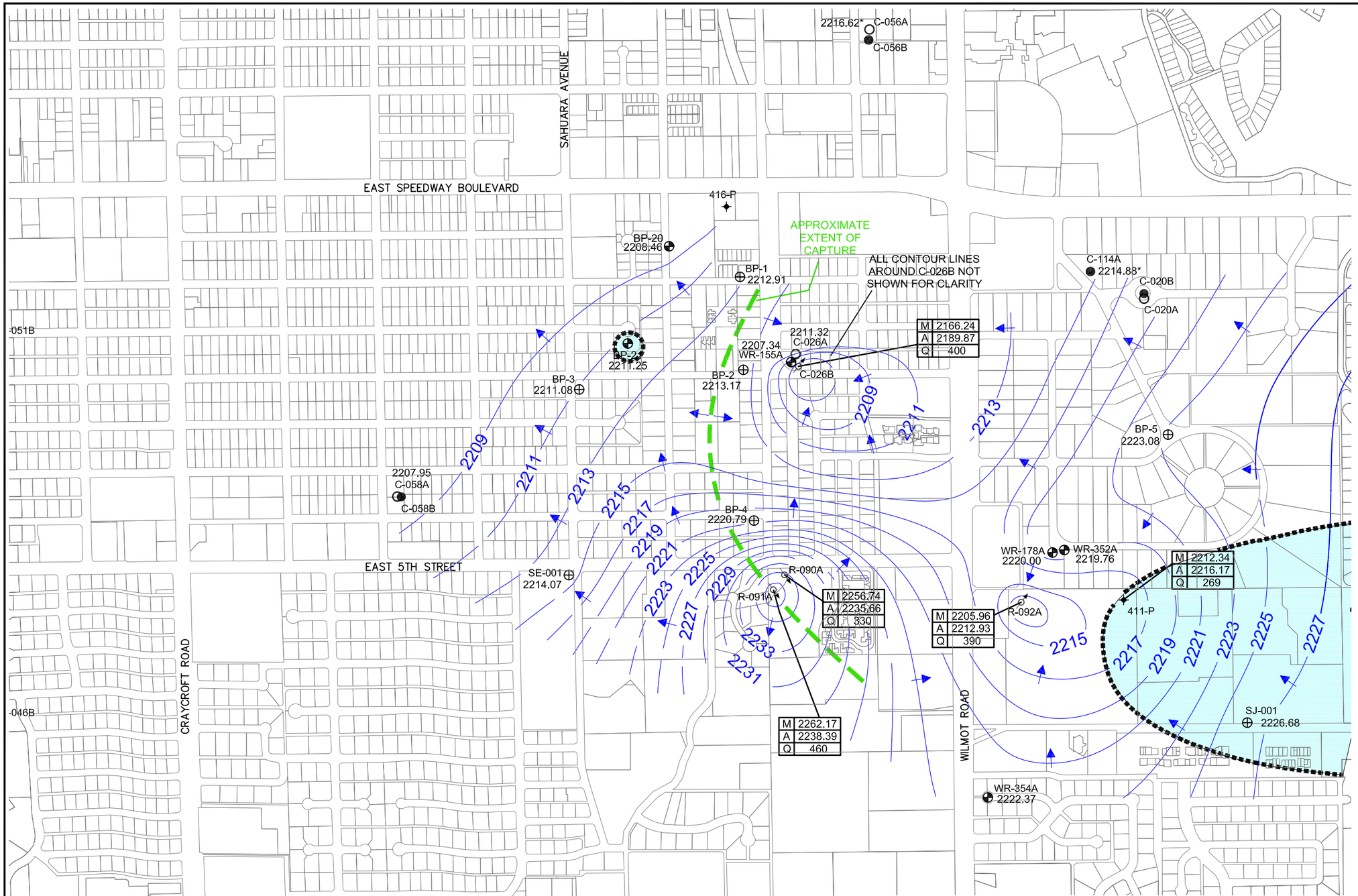
SOIL GAS DISTRIBUTION AT BROADWAY NORTH LANDFILL
JANUARY 22 - 23, 2008

FIGURE: 53

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.08	PMP	RP	TAK	3/25/2008



LEGEND

- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- AIR INJECTION WELL/MONITOR WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 2322 — GROUNDWATER CONTOURS DASHED WHERE INFERRED. 1 ft CONTOUR INTERVAL.
- 2220.88 — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE EXTENT OF TETRACHLOROETHENE (PCE) IN GROUNDWATER 5.0ppb TETRACHLORETHENE RESULTS DEPICTED ARE FROM SEP 19-20, 2005
- APPROXIMATE CAPTURE ZONE DASHED WHERE INFERRED.

NOTE

GROUNDWATER ELEVATION ADJUSTED FROM MARCH 2003 BASELINE AND FOR WELL INEFFICIENCY ESTIMATED AT 50%.

MEASURED	M	2254.06
ADJUSTED	A	2234.33
FLOW RATE	Q	400

Q = FLOW RATE IN GALLONS PER MINUTE (GPM)

* C-114A & C-056A NOT USED FOR CONTOURING

N

0 800 1600

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FOR: BROADWAY-PANTANO WQARF SITE
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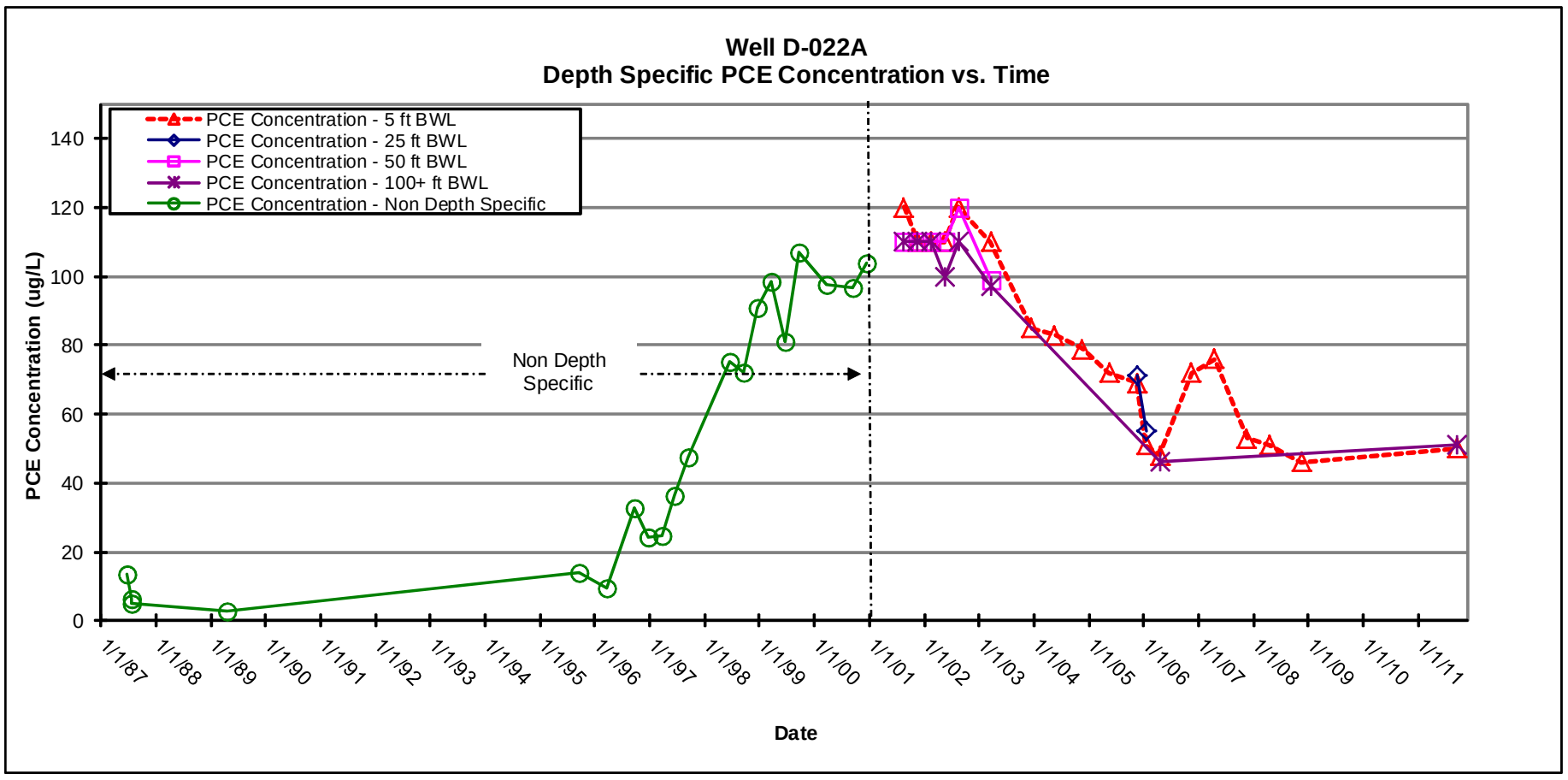
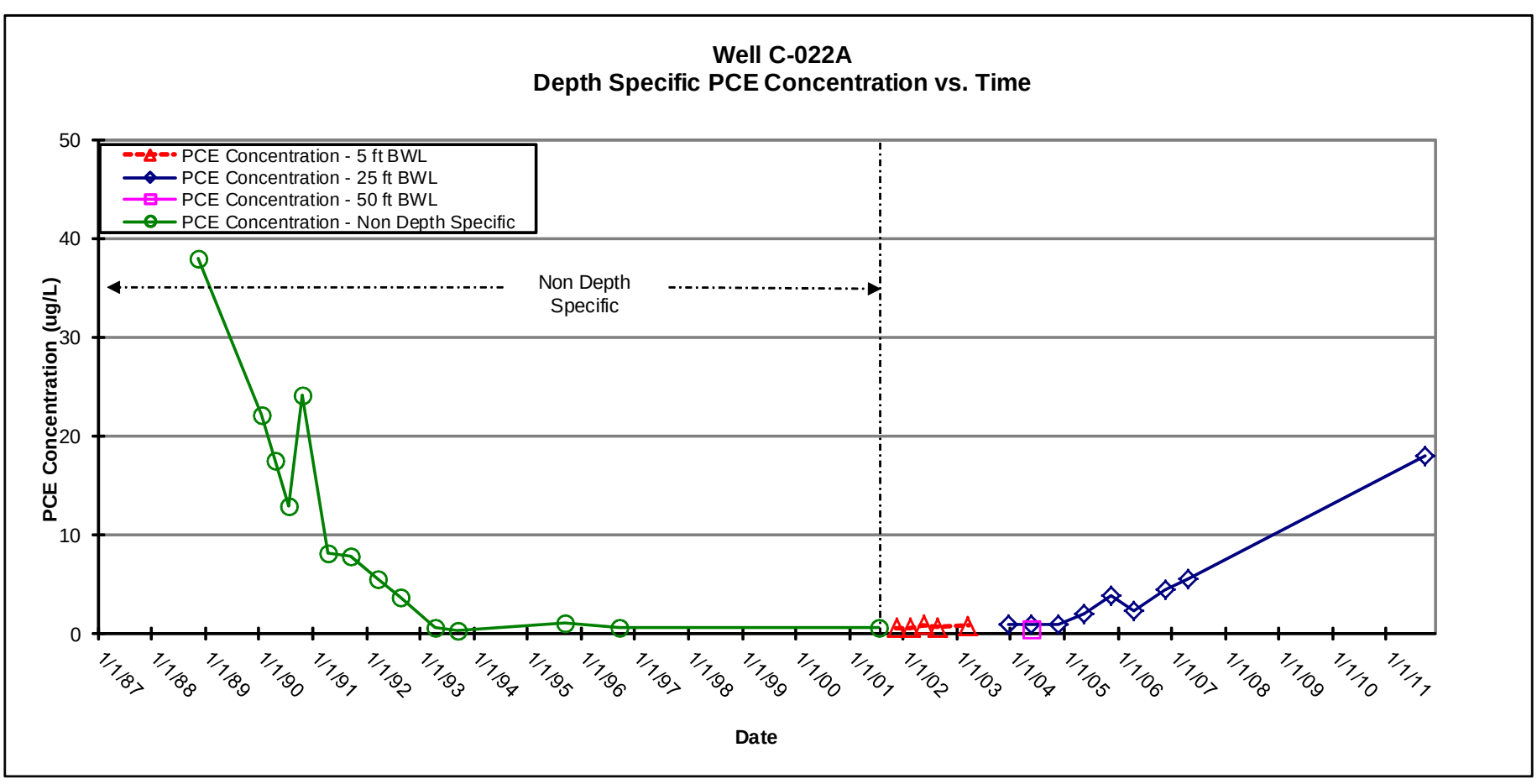
WCS GROUNDWATER ELEVATION CONTOUR MAP SEPTEMBER 2005

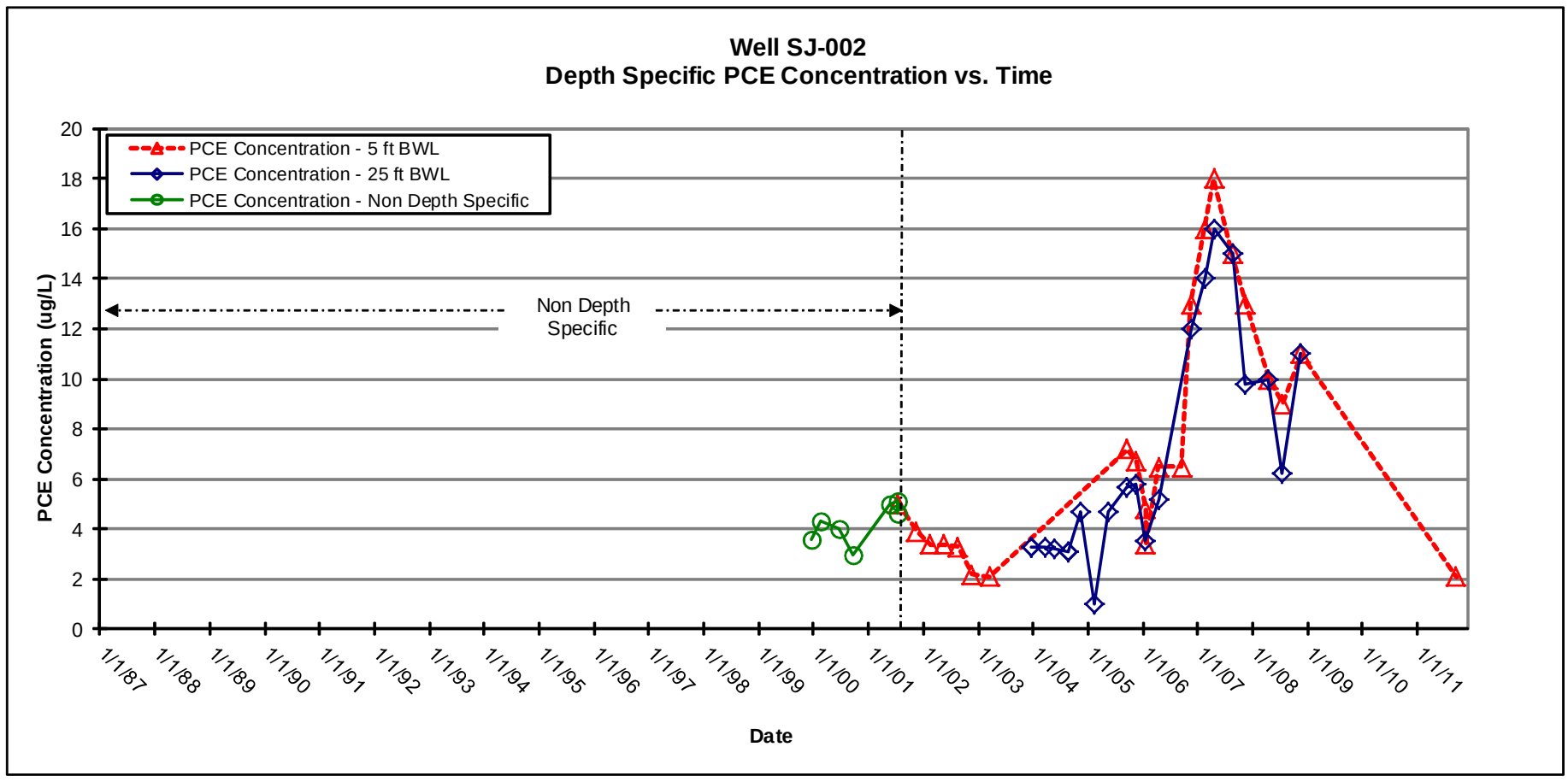
FIGURE: **54**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 54-WCS GW ELEV - SEP 2005.dwg|cjames|Jun 01, 2012 at 16:02|Layout: Figure 2



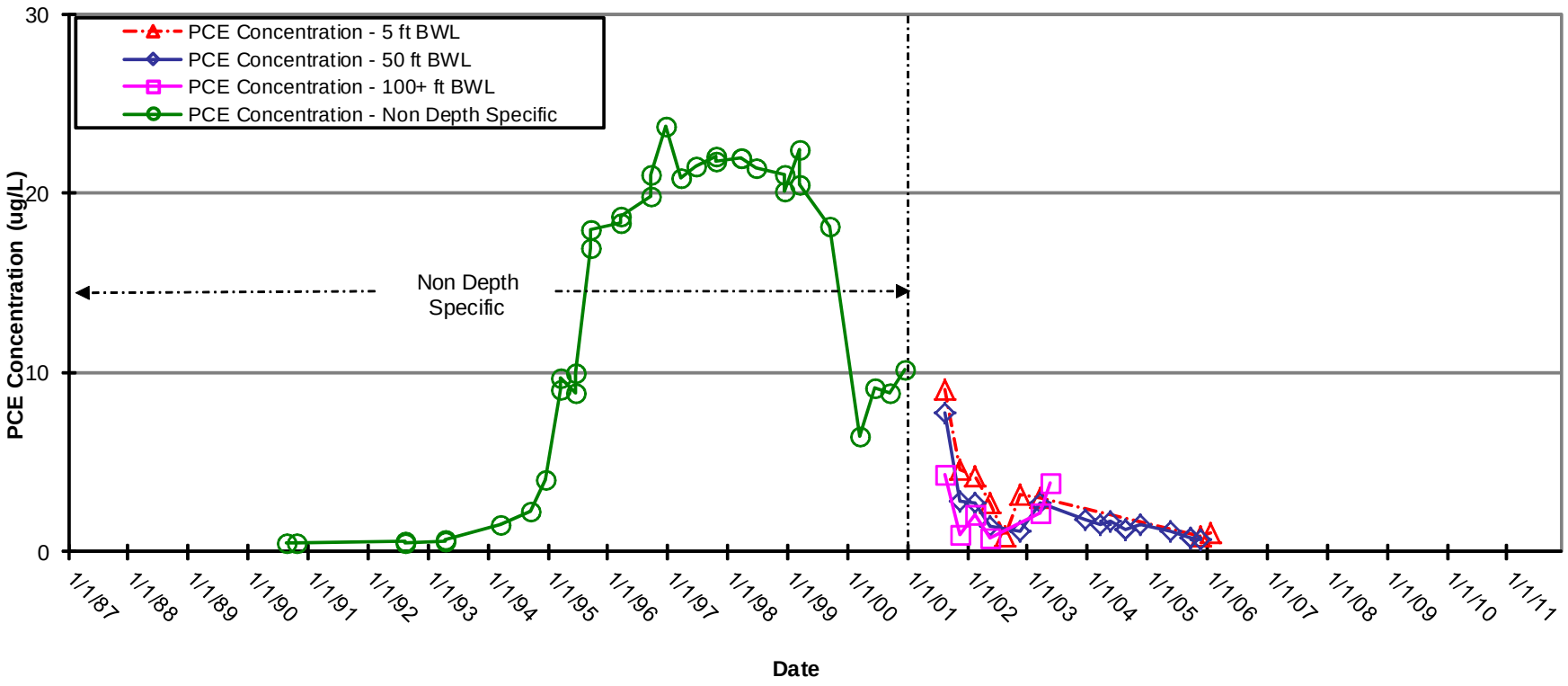




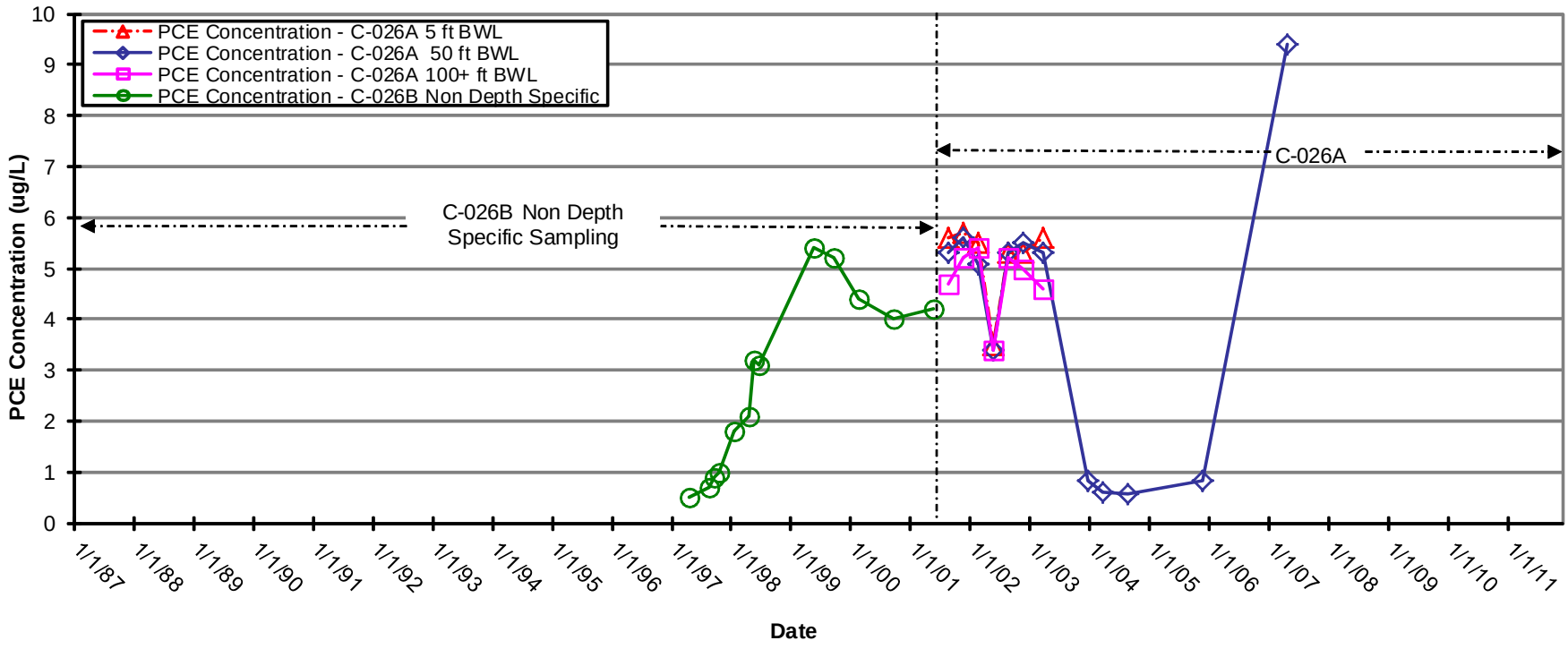
Stantec 8211 S. 48th Street Phoenix, Arizona 85044 PHONE:(602) 438-2200 FAX:(602) 431-9562	FOR: BROADWAY-PANTANO WQARF SITE TUCSON, ARIZONA	**PCE CONCENTRATION TREND GRAPHS FOR WELLS D-022A, C-022A AND SJ-002**		FIGURE: **55**
	JOB NUMBER: 18OT.20401.07	DRAWN BY: MDR	CHECKED BY: TAK	APPROVED BY: CRP	DATE: 10/28/04

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 55-PCE GRAPHS.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:36

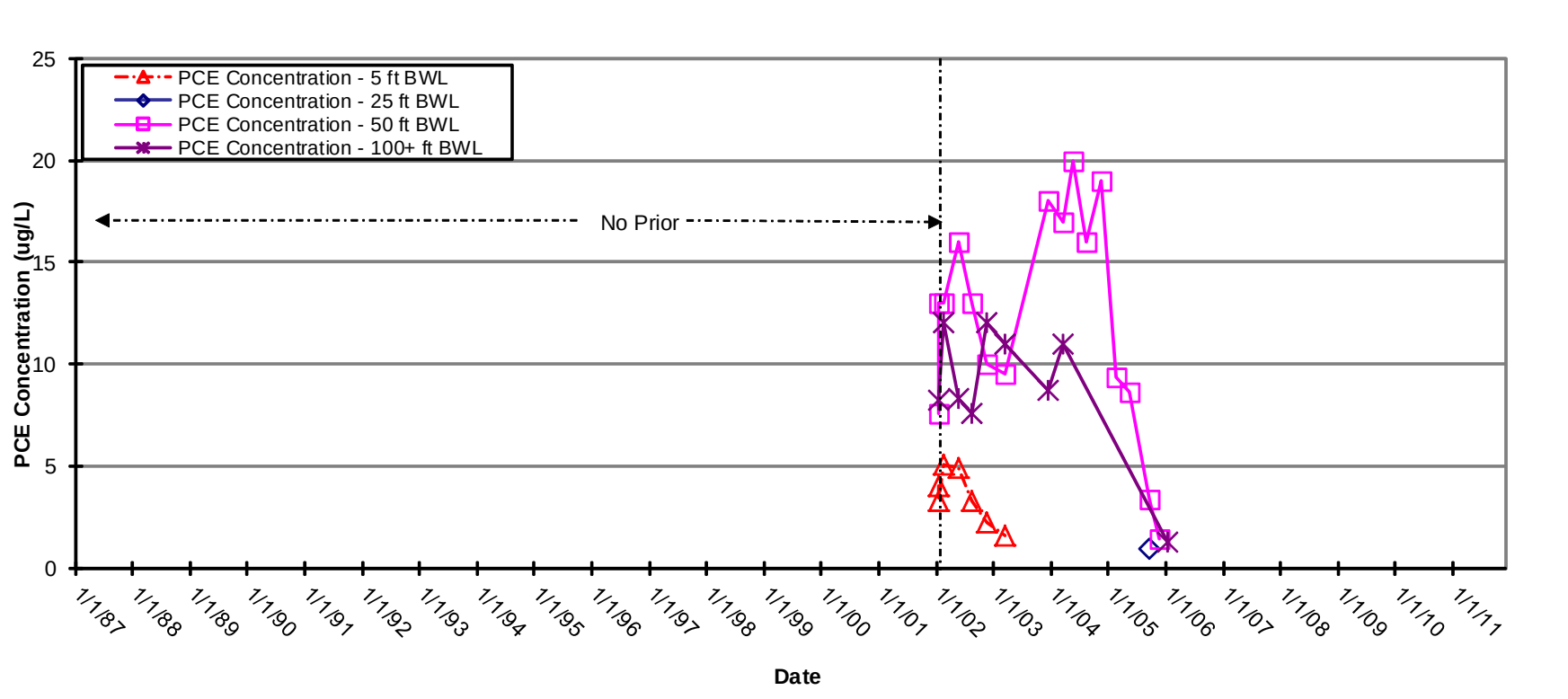
Well WR-178A
Depth Specific PCE Concentration vs. Time



Well C-026A / C-026B
Depth Specific PCE Concentration vs. Time



Well BP-2
Depth Specific PCE Concentration vs. Time



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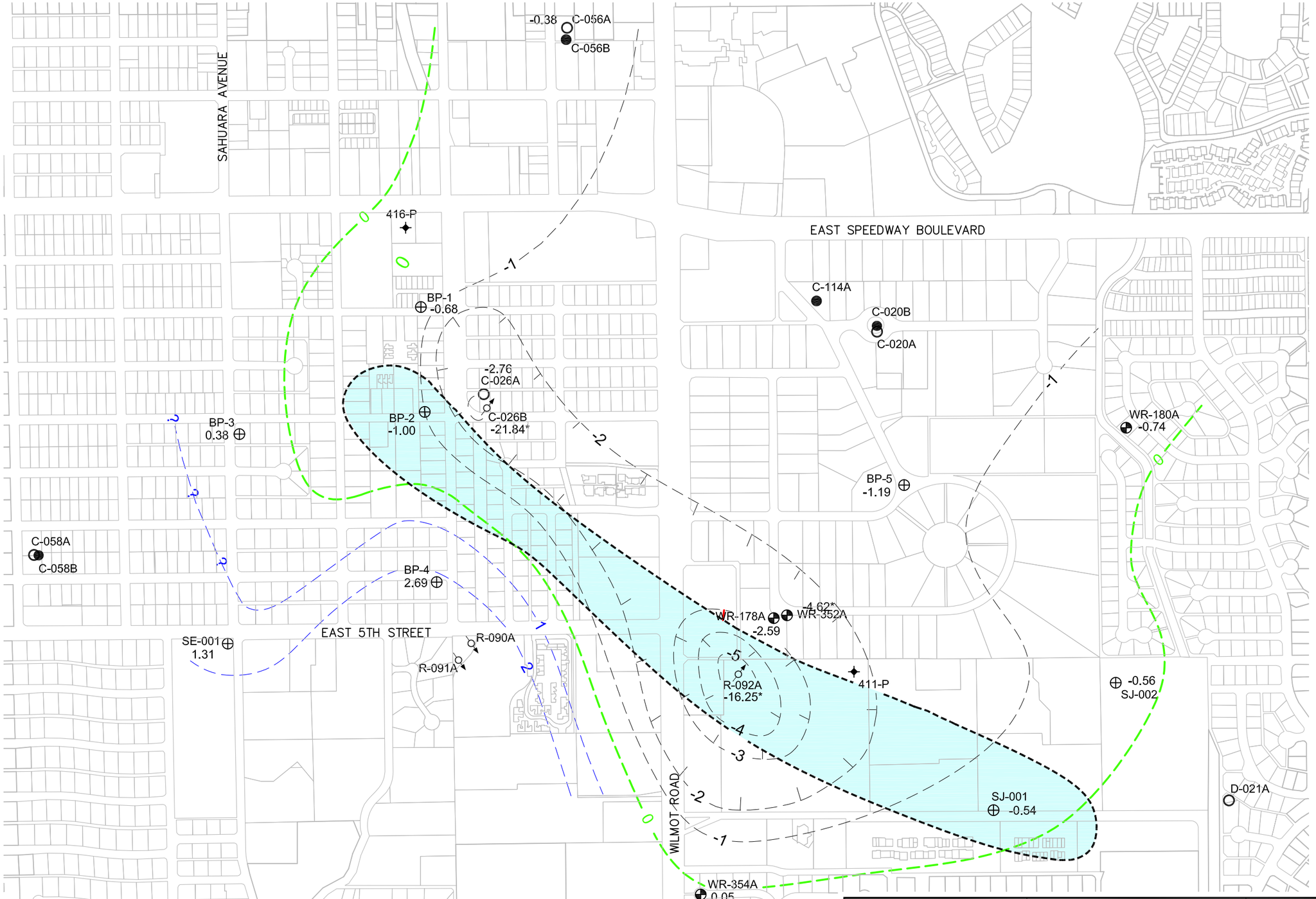
FOR:		FIGURE:
BROADWAY-PANTANO WQARF SITE TUCSON, ARIZONA	**PCE CONCENTRATION TREND GRAPHS FOR WELLS WR-178A, C-026A/C-026B AND BP-2**	**56**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	10/28/04

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 56-PCE GRAPHS.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:37



LEGEND

- COT INACTIVE PRODUCTION WELL
- COT ACTIVE PRODUCTION WELL
- ADEQ MONITOR WELL
- COT MONITOR WELL
- PRIVATE WELL
- WESTERN CONTAINMENT SYSTEM EXTRACTION WELL
- WESTERN CONTAINMENT SYSTEM INJECTION WELL
- 3 — APPARENT WATER LEVEL CHANGE CONTOUR LINE DASHED WHERE INFERRED.
- 4.18 — CHANGE IN GROUNDWATER ELEVATION
- APPROXIMATE EXTENT OF DISSOLVED PHASE TETRACHLOROETHENE GREATER THAN 5.0 MICROGRAMS PER LITER. DASHED WHERE INFERRED. TETRACHLOROETHENE RESULTS DEPICTED ARE FROM DECEMBER 2, 2003.

N

0 600 1200

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FOR: BROADWAY-PANTANO WQARF SITE
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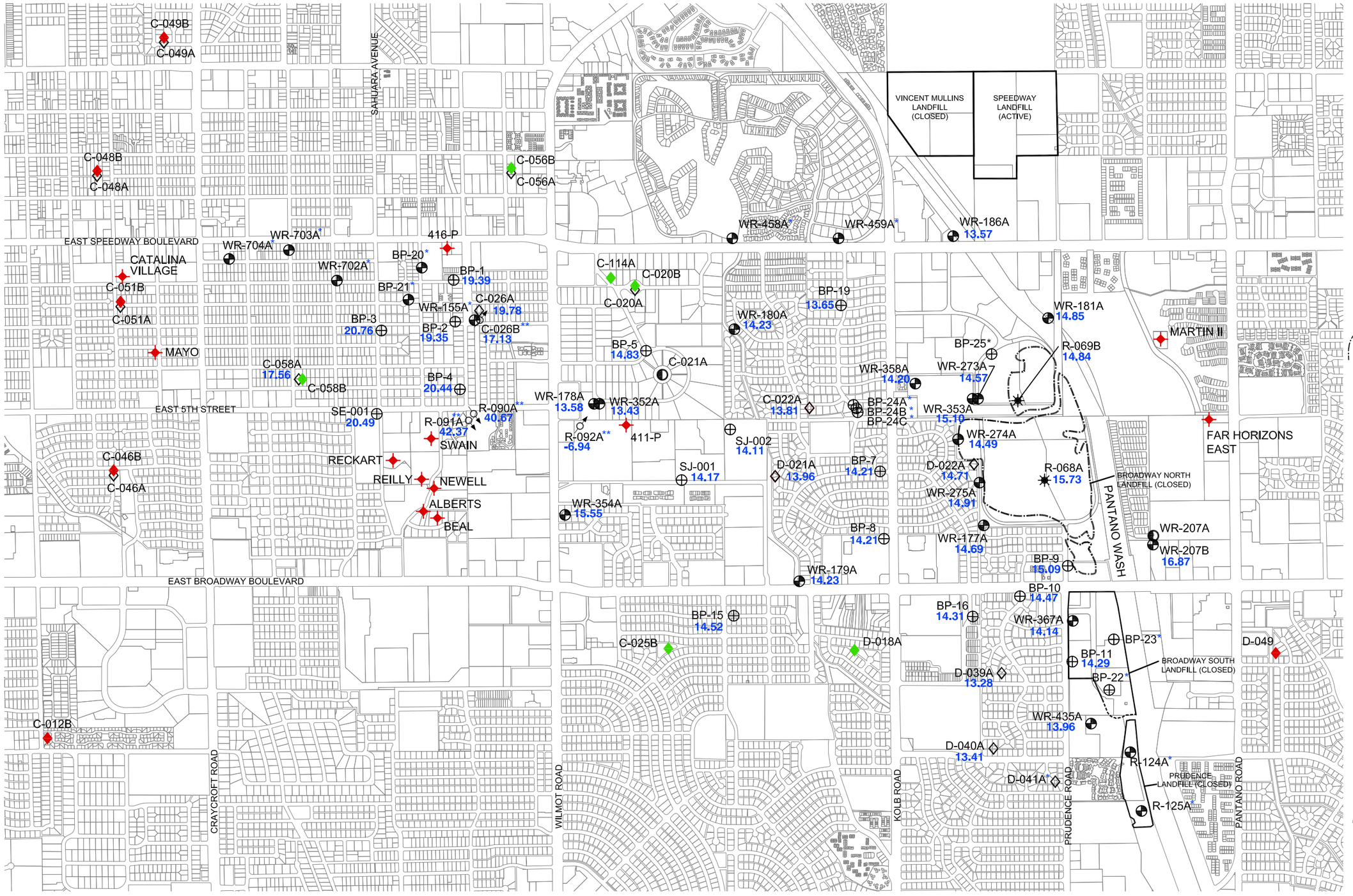
APPARENT WATER LEVEL CHANGE CONTOUR MAP MARCH 17-18 2003 (BASELINE) TO DECEMBER 2003 WCS VICINITY

FIGURE: 57

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
18OT.20401.07	MDR	TAK	CRP	DECEMBER 2006

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 57-WCS WLC - DEC 2003.dwg | Layout Tab: 11x17 | Drafter: cjames | Jun 01, 2012 at 15:38



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FOR:
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TUCSON, ARIZONA

GROUNDWATER ELEVATION CHANGE MARCH 2003 TO SEPTEMBER 2011

FIGURE: **58**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
212202353	CMG	TAK	TAK	2/11/2012

FILEPATH:I:\ASRAC-NEW BP (20401)\4.4 Reports\2011 RI\Figures 04-2012 Update\FIGURE 58 - GW ELEV CHANGE 2003_2011.dwg | Layout Tab: 11x17 COLOR | Drafter: cjames | Jun 01, 2012 at 15:39