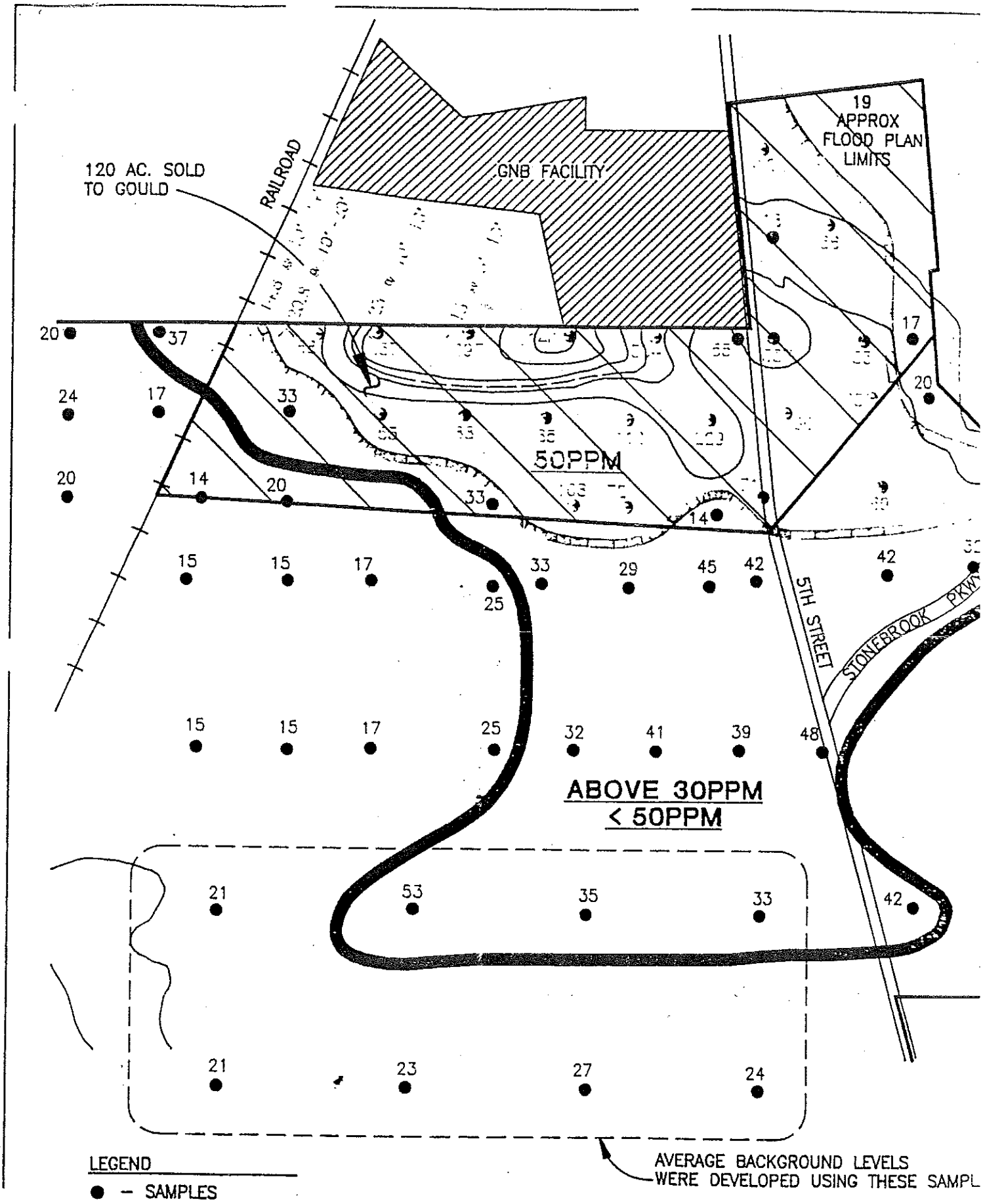
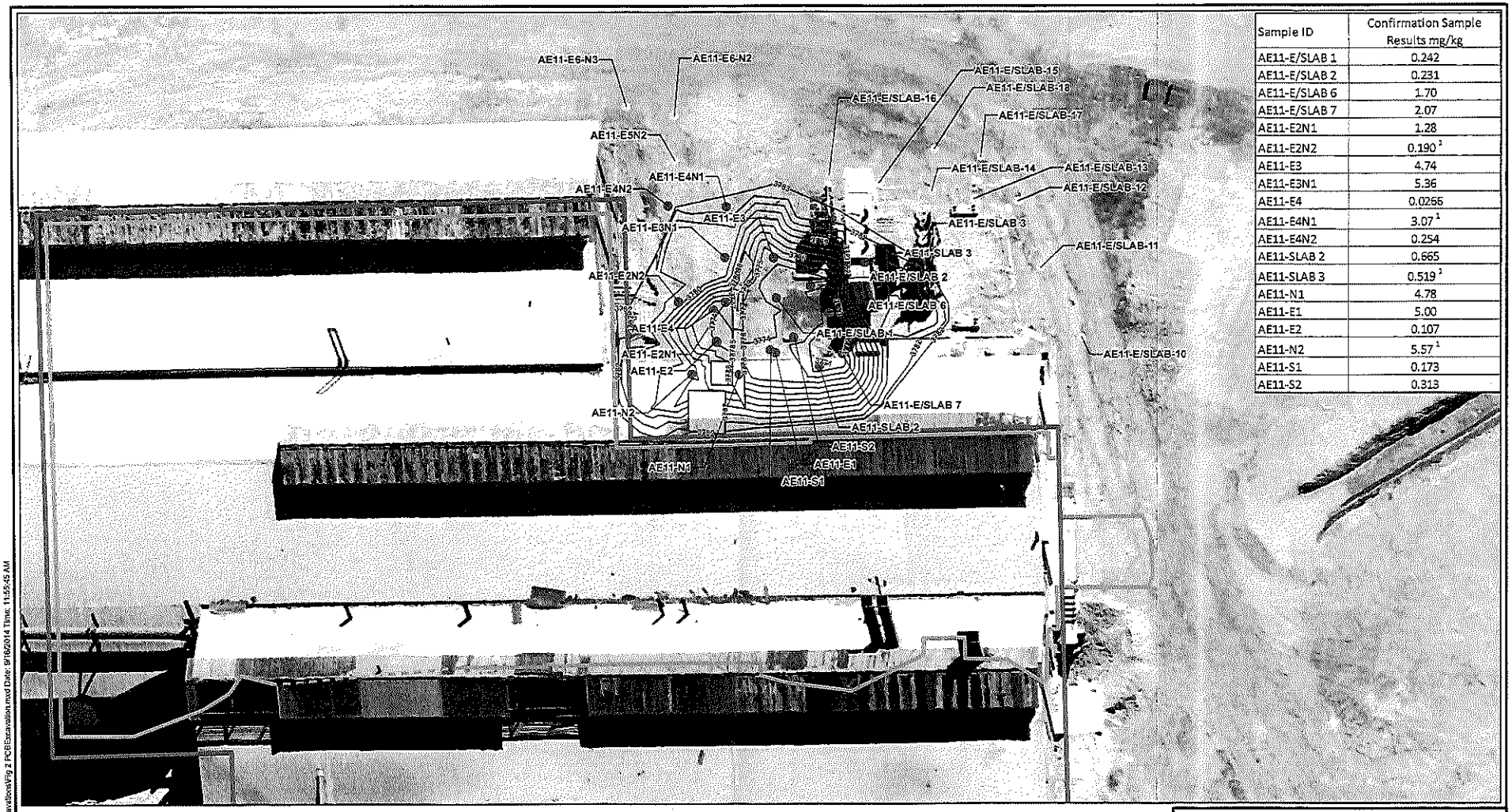


LEAD DISTRIBUTION SURVEY

INFORMATION SOURCE:
MAXIM ENGINEERS, INC.
SURFACE INVESTIGATION - FDIC

AWARE ENGINEERING, INC.



Sample ID	Confirmation Sample Results mg/kg
AE11-E/SLAB 1	0.242
AE11-E/SLAB 2	0.231
AE11-E/SLAB 6	1.70
AE11-E/SLAB 7	2.07
AE11-E2N1	1.28
AE11-E2N2	0.190 [1]
AE11-E3	4.74
AE11-E3N1	5.36
AE11-E4	0.0266
AE11-E4N1	3.07 [1]
AE11-E4N2	0.254
AE11-SLAB 2	0.665
AE11-SLAB 3	0.519 [1]
AE11-N1	4.78
AE11-E1	5.00
AE11-E2	0.107
AE11-N2	5.57 [1]
AE11-S1	0.173
AE11-S2	0.313

LEGEND

- Confirmation Samples
- Horizontal Delineation Samples
- Powerhouse Basement Boundary
- Powerhouse Building Boundary

Note:
[1] Samples originally collected during the excavation delineation

0 20 40 Feet
GRAPHIC SCALE

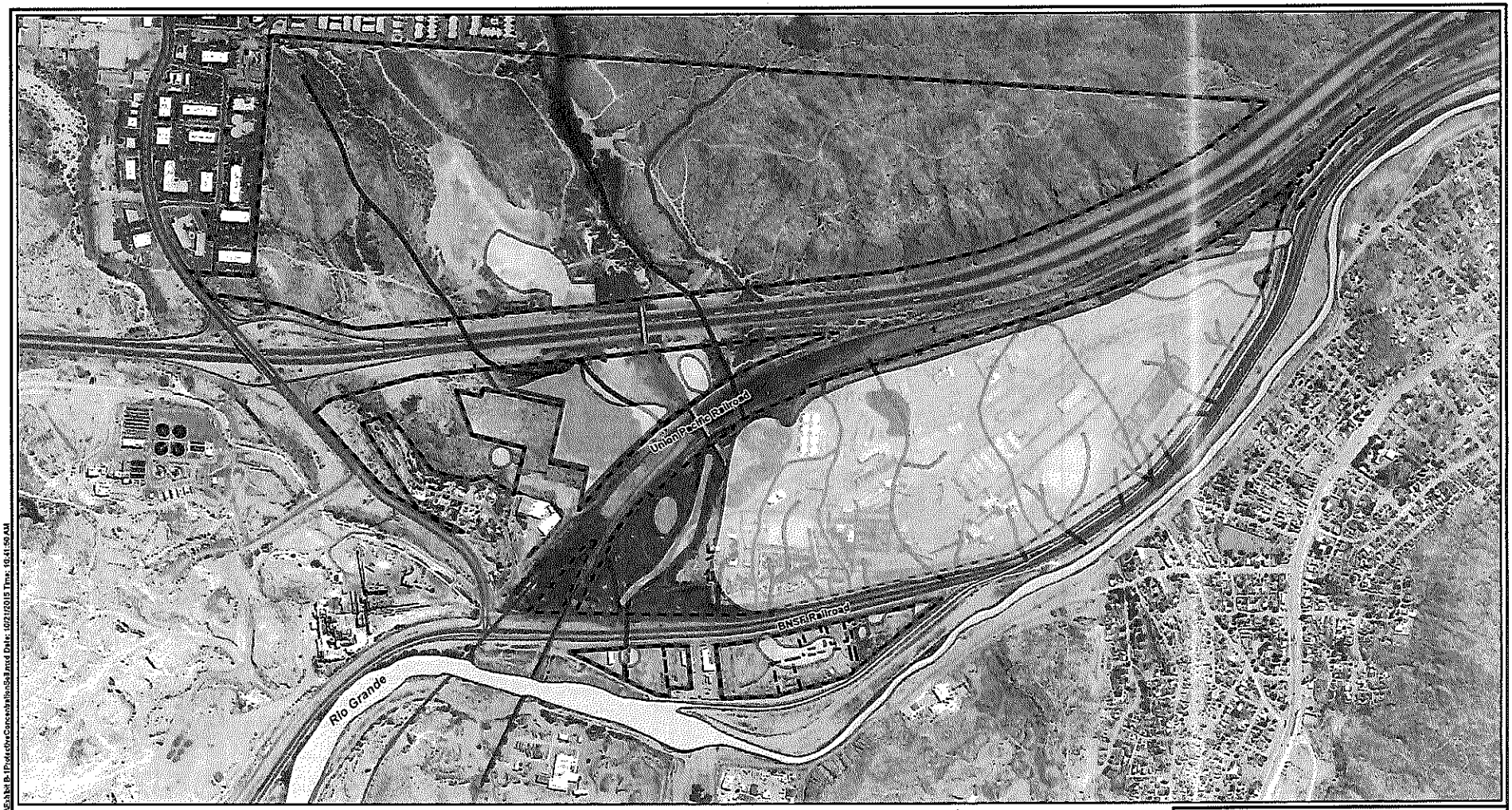
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PBC EXCAVATION

ARCADIS

FIGURE 5

CITY: Highlands Ranch DIV/GROUP: GIS DB: BG
Project (Project 4)
File: G:\GIS\ASPECO_ElPaso\GIS\MXD\Excavations\Fig 2 PCB\Excavation.mxd Date: 9/16/2014 Time: 11:55:45 AM



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Area Boundary
- Soil PCLE Zone

Note:
Color of sample location markers are relative to Commercial/Industrial PCLs except for those on the East Property AA, north of the South Arroyo (designated in green). Marker colors in northern East Property is based on Residential PCLs.

N

0 700 1,400 Feet

GRAPHIC SCALE

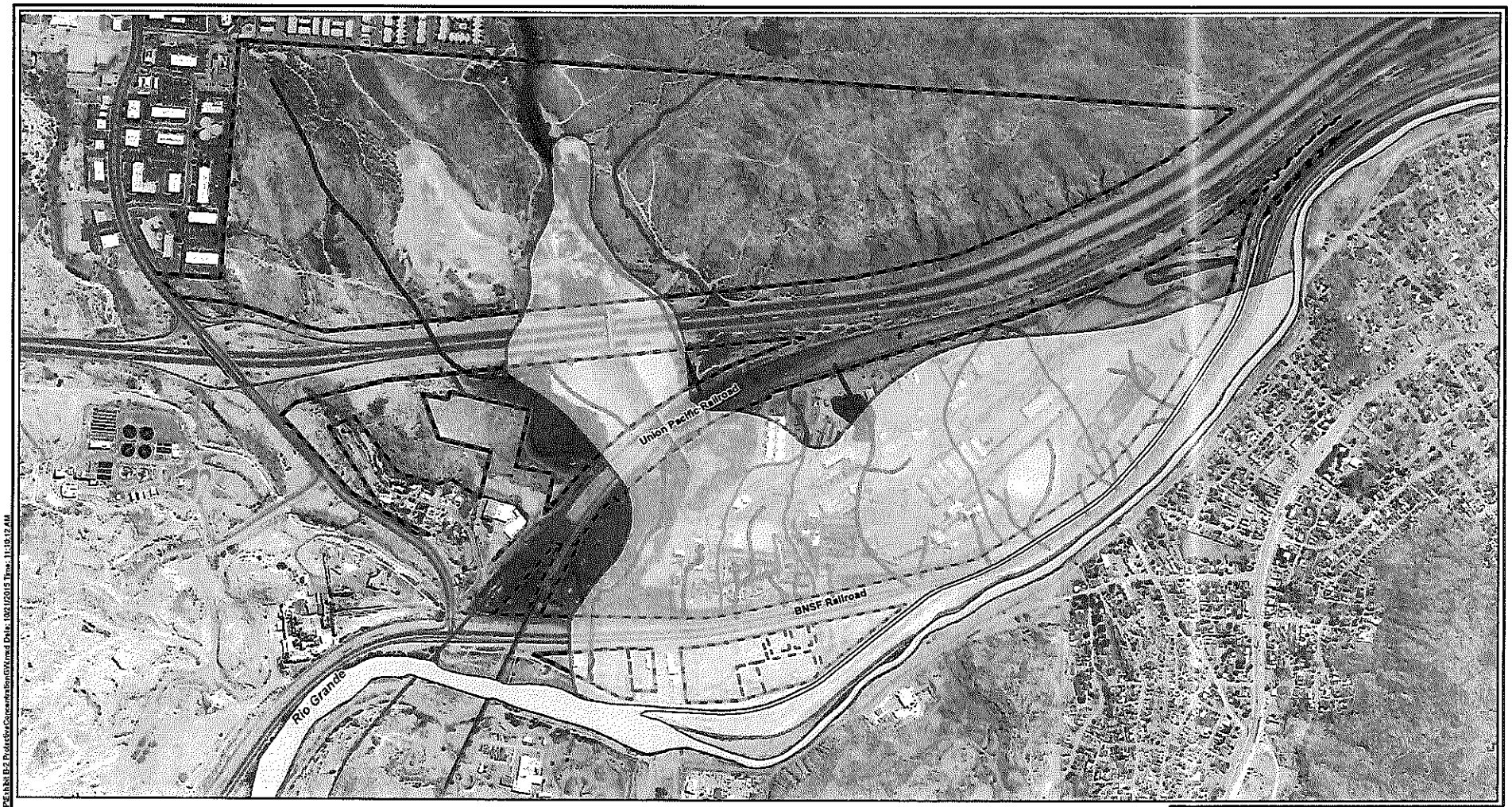
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN SOIL

ARCADIS

EXHIBIT **B-1**

CITY: Highlands Ranch DIV/GROUP: GIS DB: BG
Project (Project #)
Path: G:\GIS\MXD\ARCO_ElPaso\CISM\MXD\BAP\Exhibit B-1\ProtectiveConcentrationSoil and Date: 10/21/2015 Time: 10:41:50 AM



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Groundwater PCLE Zone

NOTE:
Based on groundwater data collected in October 2012

Protective Concentration Level (PCL)

Date of Aerial Photo: 2009

N

0 700 1,400 Feet

GRAPHIC SCALE

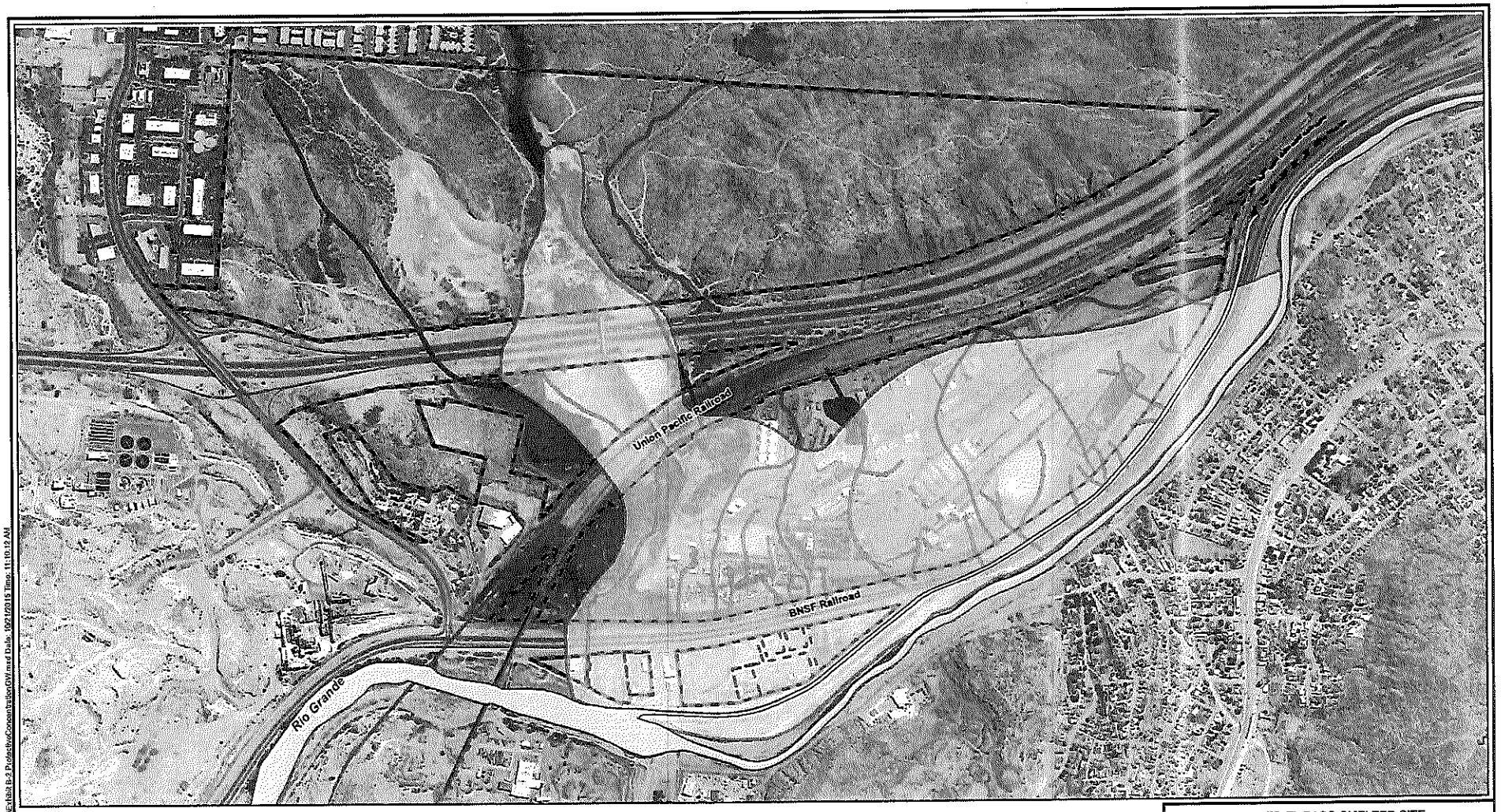
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN GROUNDWATER

ARCADIS

EXHIBIT **B-2**

CITY: Hq4Lodi Ranch DIV/GROUP: GIS DB: BG
Path: G:\GIS\SMC\EPaso\GIS\MXD\RAP\Exhibit B-2 PcdrsiveConcentrationGW.mxd Date: 10/21/2015 Time: 11:19:12 AM



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Groundwater PCLE Zone

NOTE:
Based on groundwater data collected in October 2012

Protective Concentration Level (PCL)

Date of Aerial Photo: 2009

N

0 700 1,400 Feet

GRAPHIC SCALE

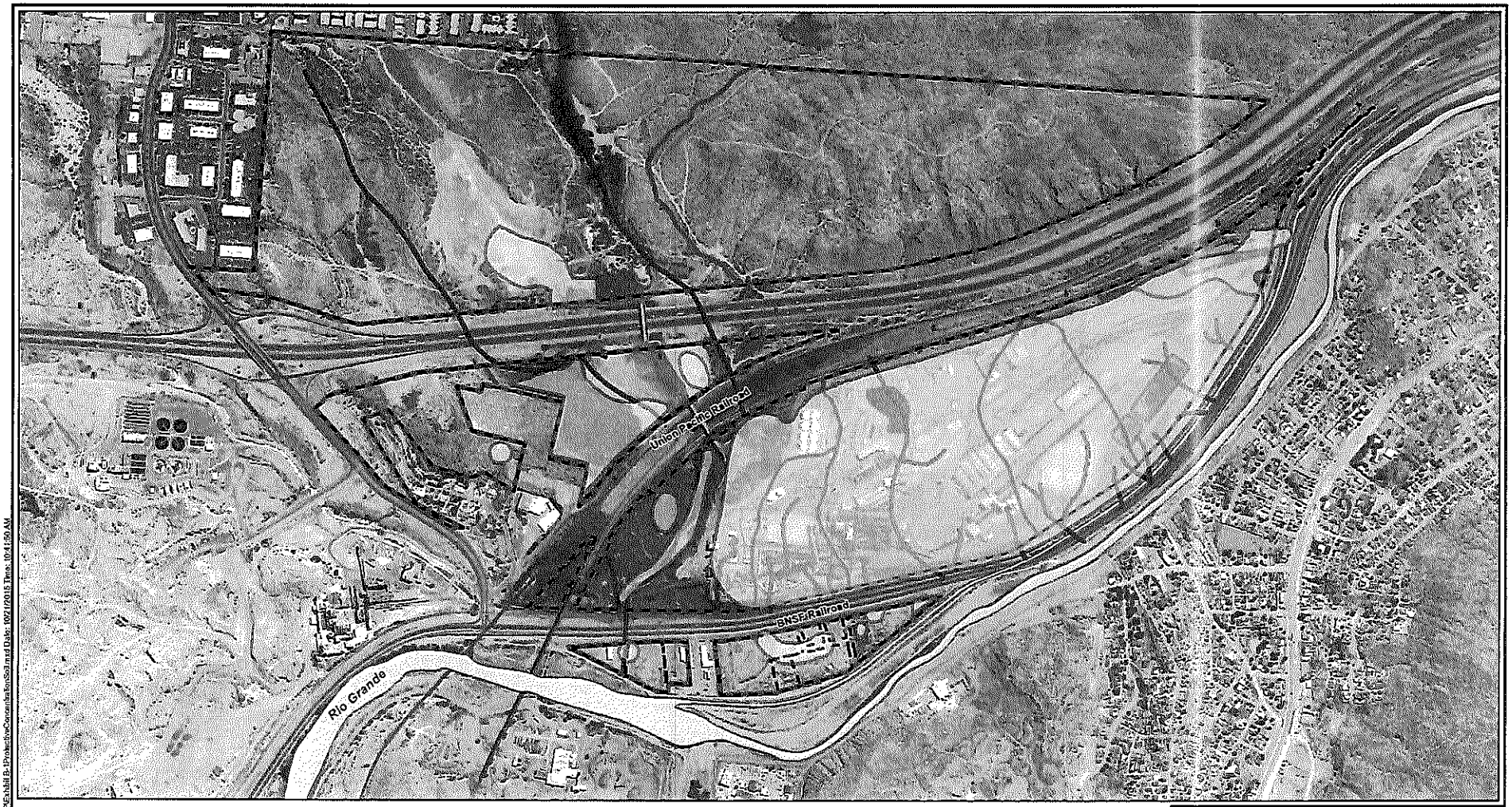
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN GROUNDWATER

ARCADIS

EXHIBIT **B-2**

CITY: Highlands Ranch DIV/GROUP: GIS DB: BG
Project (Project #)
Path: G:\GIS\SAMPLCO_EP\mxd\GIS\MXD\PCPExhibit B-2 ProtectiveConcentrationGW.mxd Date: 10/21/2013 Time: 11:10:12 AM



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Area Boundary
- Soil PCLE Zone

Note:
Color of sample location markers are relative to Commercial/Industrial PCLs except for those on the East Property AA, north of the South Arroyo (designated in green). Marker colors in northern East Property is based on Residential PCLs.

N

0 700 1,400 Feet

GRAPHIC SCALE

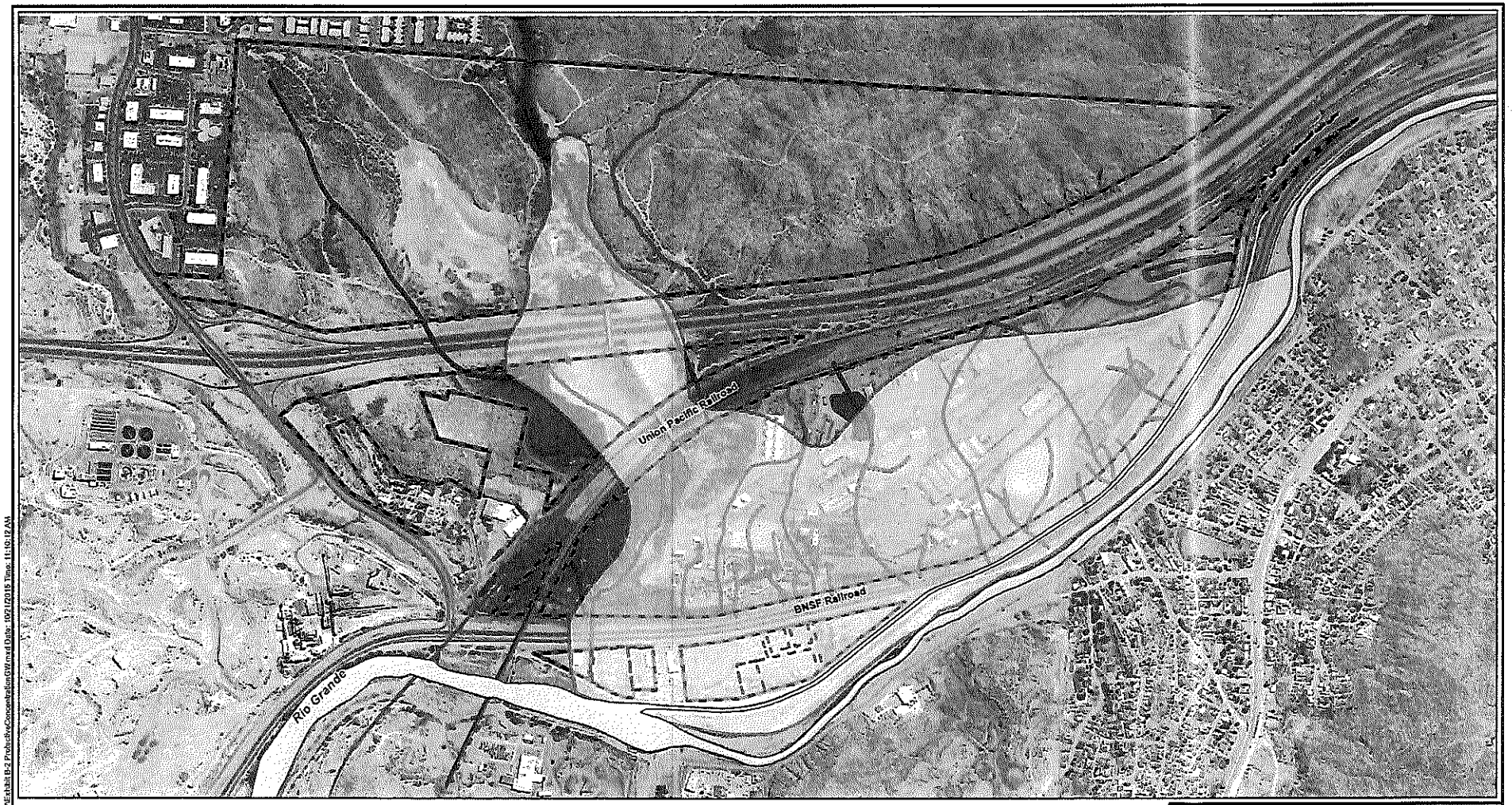
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN SOIL

ARCADIS

EXHIBIT
B-1

CITY: Highland Ranch DIV/GROUP: GIS DB: SG
Project Mgr: Jim Weber Phone: Fax:
Path: G:\GIS\AS\RCO_ElPaso\GIS\MXD\BAP\Exhibit B-1ProtectiveConcentrationSoil.mxd Date: 10/21/2015 Time: 10:41:50 AM



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Groundwater PCLE Zone

NOTE:
Based on groundwater data collected in October 2012

Protective Concentration Level (PCL)

Date of Aerial Photo: 2009

N

0 700 1,400 Feet

GRAPHIC SCALE

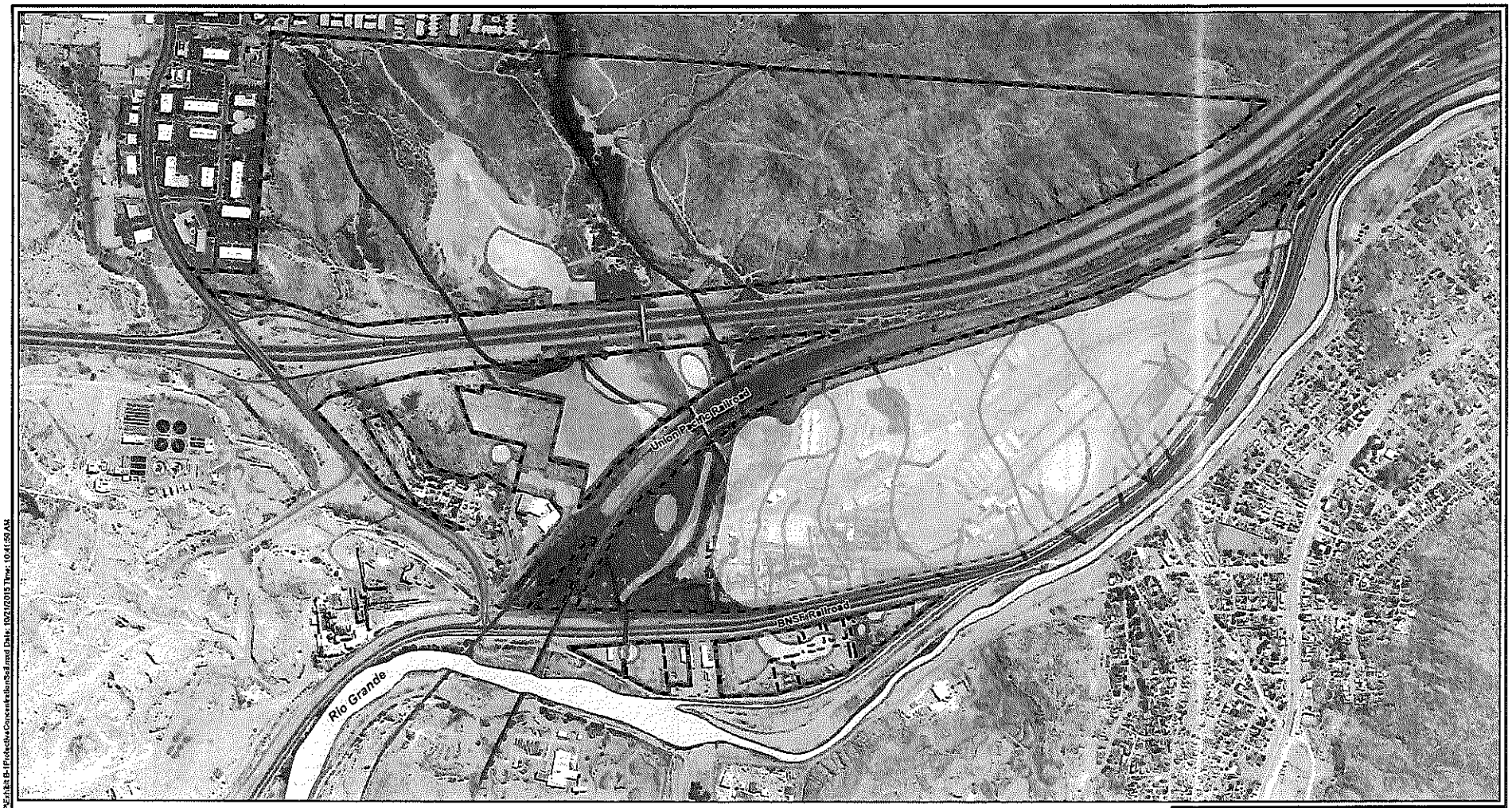
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN GROUNDWATER

ARCADIS

EXHIBIT
B-2

CITY: Highlands Ranch DIV/GROUP: GIS DB: BG
Project(Project #)
File: C:\GIS\SOCO_ElPaso\GIS\MXD\BAP\Exhibit B-2 ProtectiveConcentrationGWmod Date: 10/21/2015 Time: 11:10:12 AM



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Area Boundary
- Soil PCLE Zone

Note:
Color of sample location markers are relative to Commercial/Industrial PCLs except for those on the East Property AA, north of the South Arroyo (designated in green). Marker colors in northern East Property is based on Residential PCLs.

N

0 700 1,400 Feet

GRAPHIC SCALE

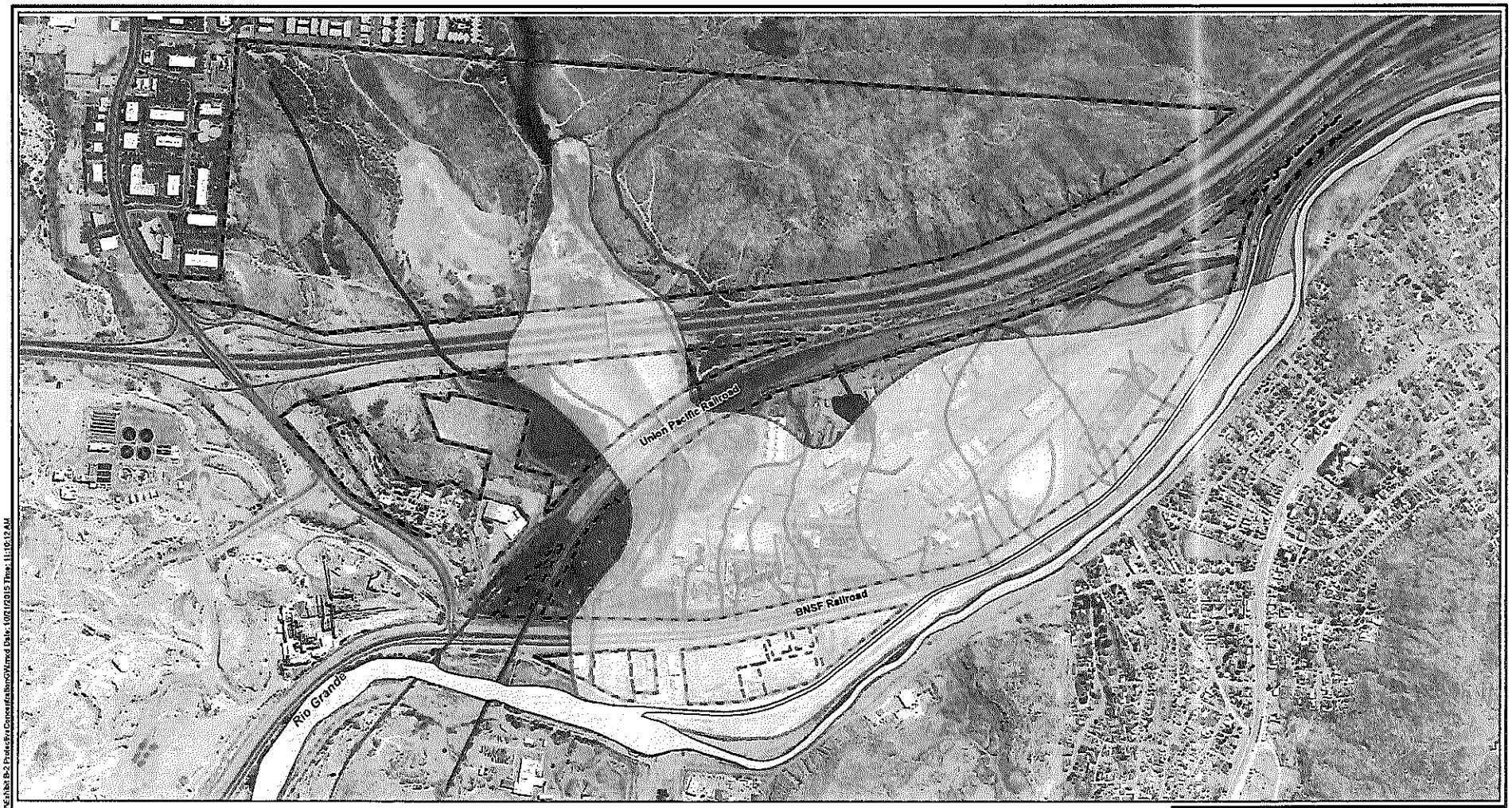
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN SOIL

ARCADIS

EXHIBIT
B-1

CITY: Highlands Ranch DIV/GROUP: GIS DB: BG
Project (Project)
Path: G:\GIS\SARCO_EP\arcGIS\MXD\BAPE\Exhibit B-1\Protective\ConcentrationSed.mxd Date: 10/21/2015 Time: 10:41:59 AM



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Groundwater PCLE Zone

NOTE:
Based on groundwater data collected in October 2012

Protective Concentration Level (PCL)

Date of Aerial Photo: 2009

N

0 700 1,400 Feet

GRAPHIC SCALE

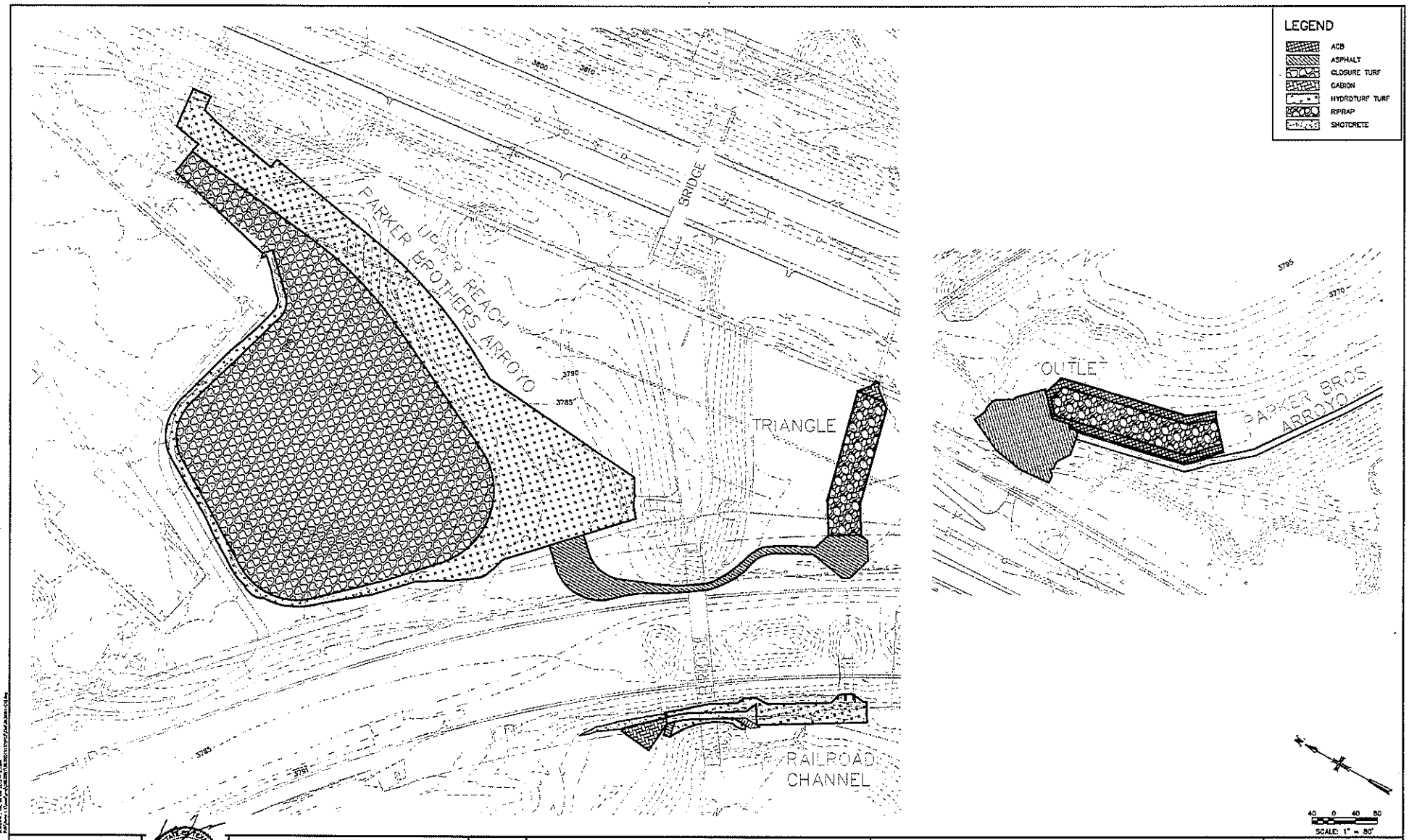
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN GROUNDWATER

ARCADIS

EXHIBIT
B-2

CITY: Highland Ranch DIV/GROUP: GIS DB: BG
Proj: Highland Ranch
Path: G:\GIS\MXD\APX\Exhibit B-2 ProtectiveConcentrationGW.mxd Date: 10/21/2015 Time: 11:10:12 AM



FIRM REGISTRATION F-533
ARCADIS

STATE OF TEXAS
ISAAC J. THOMAS
111221
LICENSED
PROFESSIONAL ENGINEER
10/6/2015

REVISIONS			
NO.	BY	DATE	REMARKS

DES I. THOMAS
DWN T. WASS
CKD MB, SB, CZ

FORMER ASARCO SMELTER

UPPER PARKER BROS. ARROYO

CIVIL

COVERAGE DETAILS

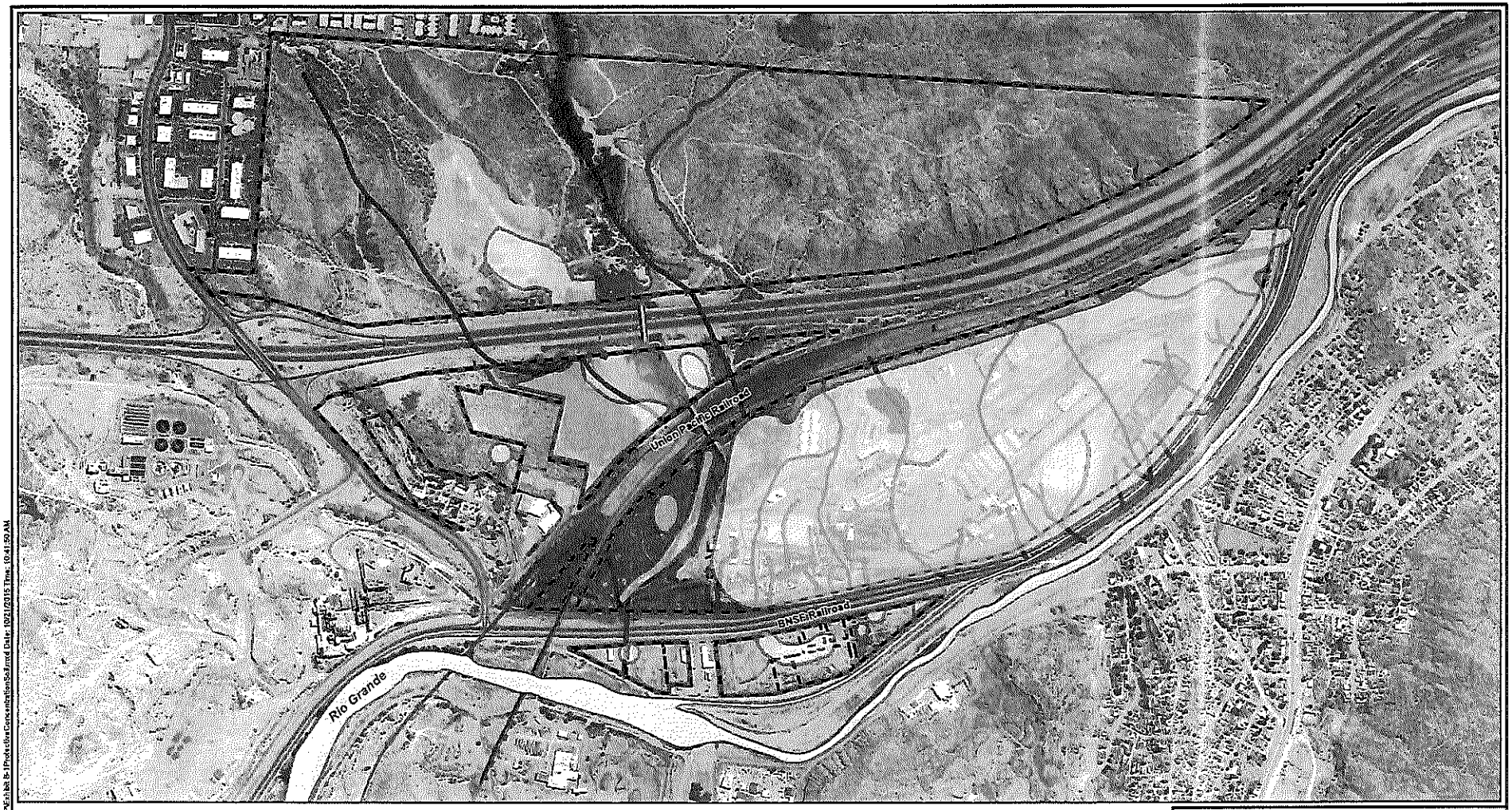
SCALE: AS NOTED

COPYRIGHT © 2013 ARCADIS-US, INC.

DATE 9/25/2015

C-12 SHEET 14 OF 21

CAD REF. NO. 6835001-C12



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Area Boundary
- Soil PCLE Zone

Note:
Color of sample location markers are relative to Commercial/Industrial PCLs except for those on the East Property AA, north of the South Arroyo (designated in green). Marker colors in northern East Property is based on Residential PCLs.

N

0 700 1,400 Feet

GRAPHIC SCALE

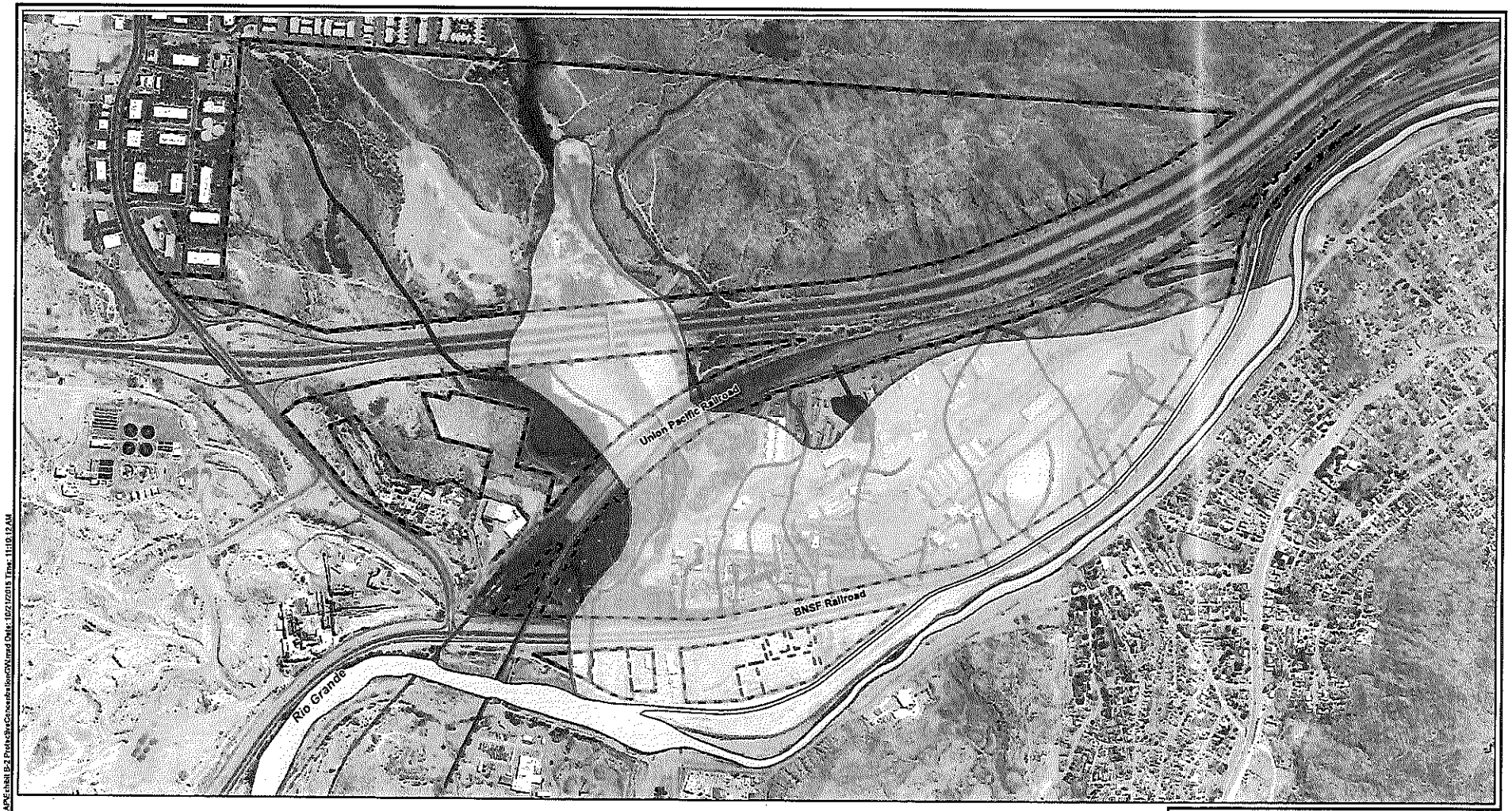
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

AFFECTED PROPERTY MAP
SOIL

ARCADIS

EXHIBIT
B-1

CITY: Highlands Ranch DIV/GROUP: GIS DB: EG
Project (Project #)
Path: G:\GIS\KS\ARCO_ElPaso\GIS\MXD\BAPE\Exhibit B-1ProtectiveConcentrationSoil.mxd Date: 10/21/2015 Time: 10:41:50 AM



LEGEND:

- Arroyo Trace Lines
- Property Boundary
- Groundwater PCLE Zone

NOTE:
Based on groundwater data collected in October 2012

Protective Concentration Level (PCL)

Date of Aerial Photo: 2009

N

0 700 1,400 Feet

GRAPHIC SCALE

FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

AFFECTED PROPERTY MAP
GROUNDWATER

ARCADIS

EXHIBIT
B-2

CITY: Highlands Ranch DIV/GROUP: GIS DB: BG
Project (Project 6)
Path: G:\GIS\ARCO_ElPaso\GIS\MXD\RAP\Exhibit B-2 ProtectiveConcentrationGW.mxd Date: 10/21/2015 Time: 11:10:12 AM

The information presented in this Chapter is based on groundwater data previously collected at the site and presented in the previous RI reports.

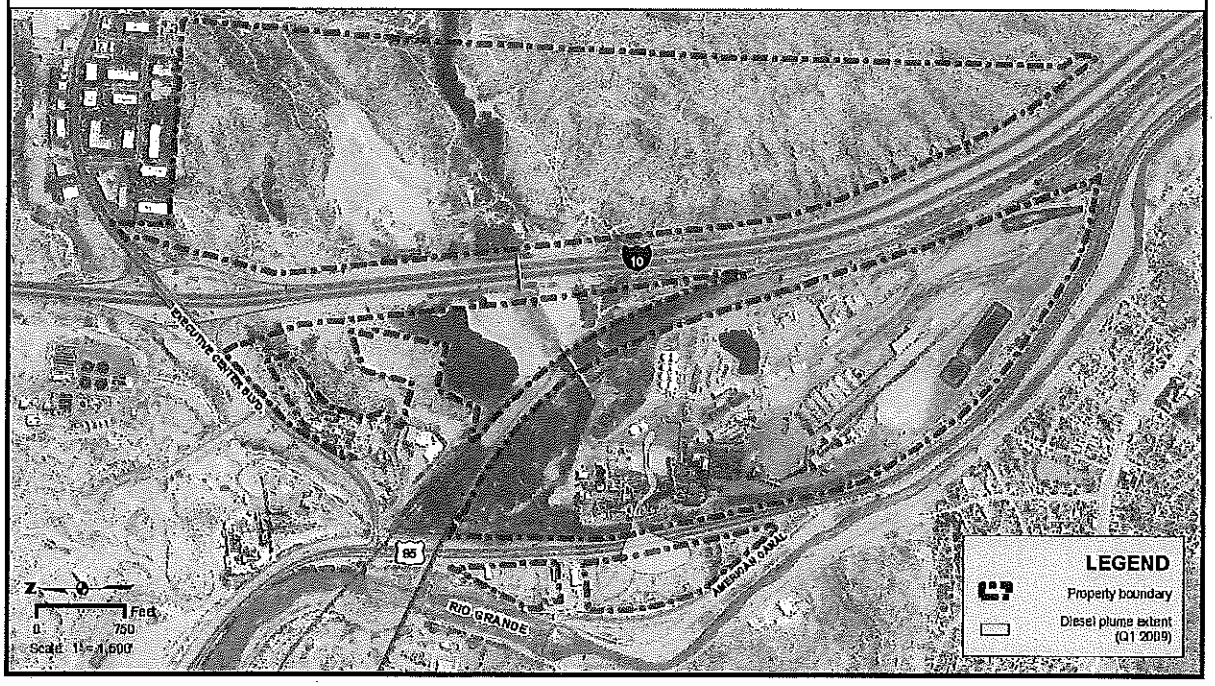
6.1. Current Conditions

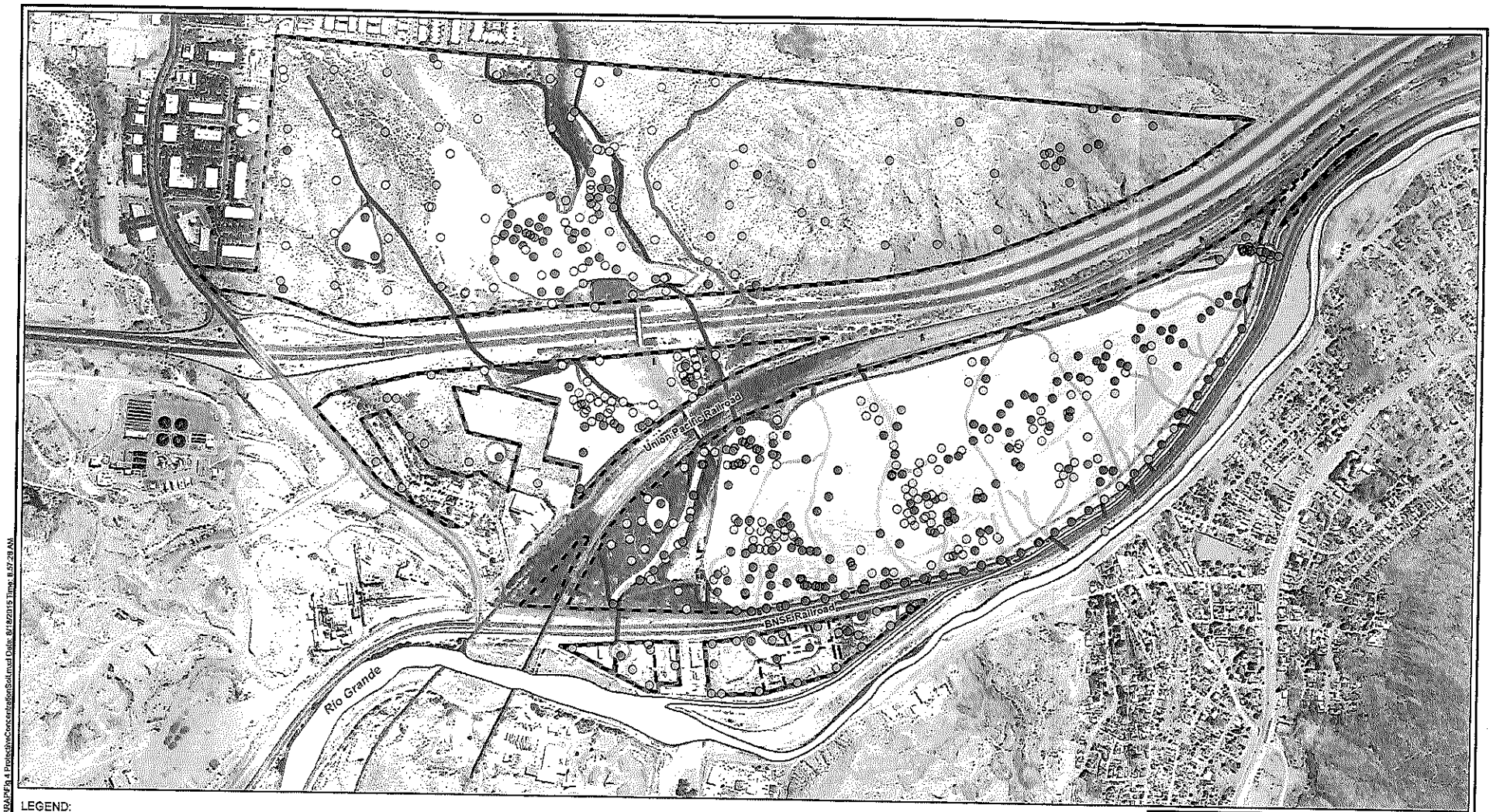
As determined during previous Remedial Investigations (discussed in Section 3), groundwater at the Site has been impacted by smelter operations. The COCs found at concentrations above applicable standards in groundwater are arsenic, cadmium, lead, and selenium, with the primary COC being arsenic. Furthermore, groundwater is impacted with petroleum hydrocarbons in the area of the Acid Tank and the floodplain as described in Section 6.1.1.

Distribution of arsenic and other COCs at the Site is primarily driven by the historic arroyos where most groundwater flow and mass flux occurs, as described in the CSM. The primary source areas in the Parker Brothers Arroyo, where most mass flux occurs, are likely the Northern Area Slag Pile and the Boneyard as discussed in Section 2.5. COC mass is transported through the Parker Brothers arroyo alluvium and discharged into the floodplain alluvium. A similar flow-focused distribution is present in the other arroyos and floodplain; Ponds 5 and 6 Arroyo, Pond 1 Arroyo and the South Terrace Area Arroyo (Figure 6-1).

Remedial Investigations (Section 3) have been completed at the Site and areas of impact have been indentified and characterized. After closing operations at the Site in 1999 and decommissioning of onsite ponds and old water pipes, COC

Figure 6-1 – Diesel 2 Plume





LEGEND:

- Detected ≤ $^{GW}Soil_{Ing}$ PCL
- Detected > $^{GW}Soil_{Ing}$ PCL< $^{Tot}Soil_{Comb}$ PCL
- Detected > $^{Tot}Soil_{Comb}$ PCL

South Arroyo

- Detected ≤ $^{Eco}Soil$ PCL
- Detected > $^{Eco}Soil$ PCL

- Arroyo Trace Lines
- Property Boundary
- Area Boundary
- South Arroyo

PCLE Zone

Note:
Color of sample location markers are relative to Commercial/Industrial PCLs except for those on the East Property AA, north of the South Arroyo (designated in green). Marker colors in northern East Property is based on Residential PCLs.

N

0 700 1,400 Feet

GRAPHIC SCALE

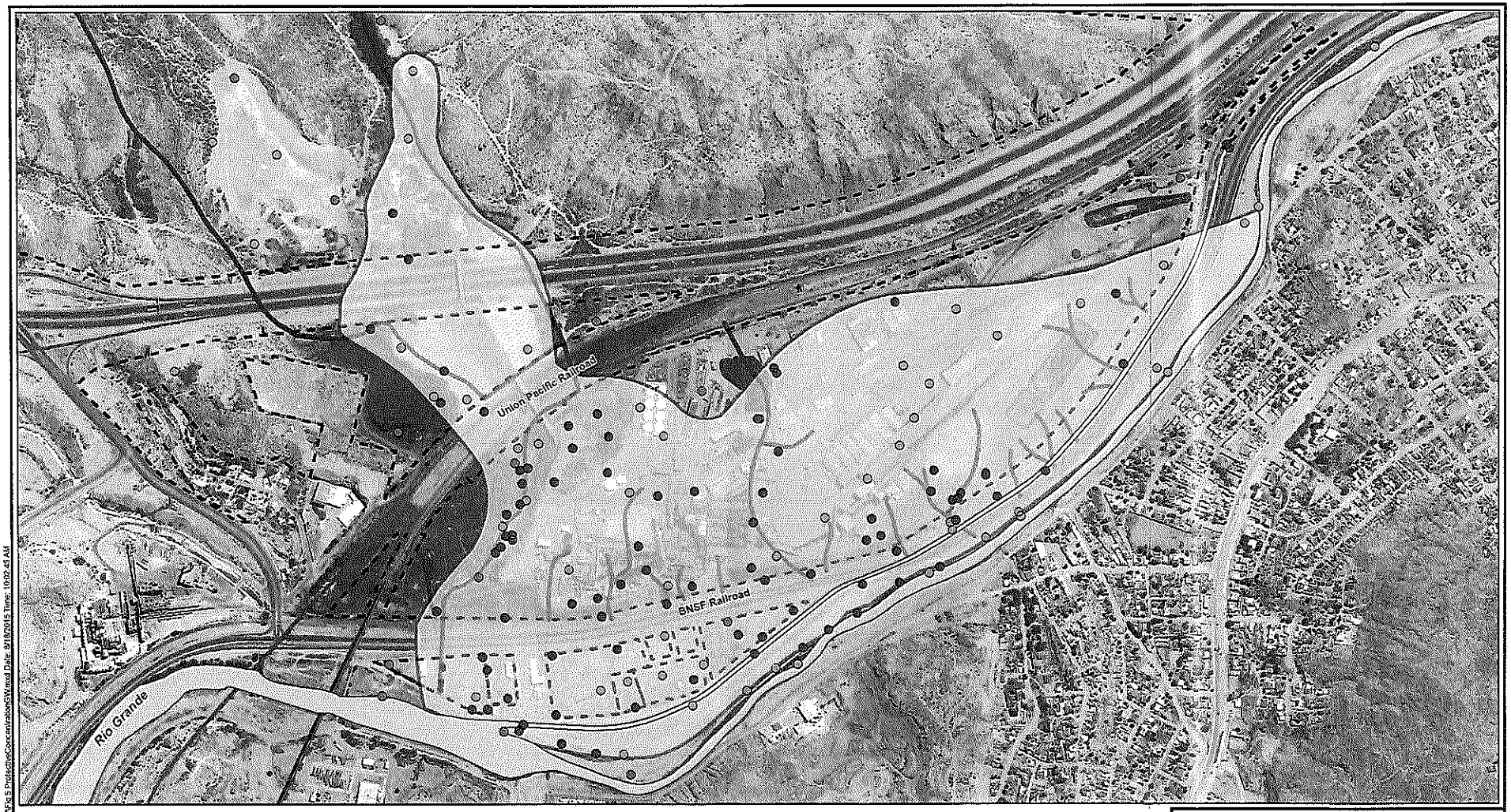
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN SOIL

ARCADIS

FIGURE 4

CITY: Highlands Ranch DIV/GROUP: GIS DR: BG
Project (Project #)
PATH: G:\GIS\ASARCO_ElPaso\GIS\MXD\RAP\Fig 4 ProtectiveConcentrationSoil.mxd Date: 8/18/2015 Time: 8:57:28 AM



LEGEND:

- Detected ≤ $^{GW}GW_{Ing}$ PCL
- Detected > $^{GW}GW_{Ing}$ PCL < $^{SW}GW_{Ing}$ PCL
- Detected > $^{SW}GW_{Ing}$ PCL
- Arroyo Trace Lines
- Property Boundary
- Groundwater PCLE Zone

NOTE:
Based on groundwater data collected in October 2012

Protective Concentration Level (PCL)

Date of Aerial Photo: 2009

N

0 600 1,200 Feet

GRAPHIC SCALE

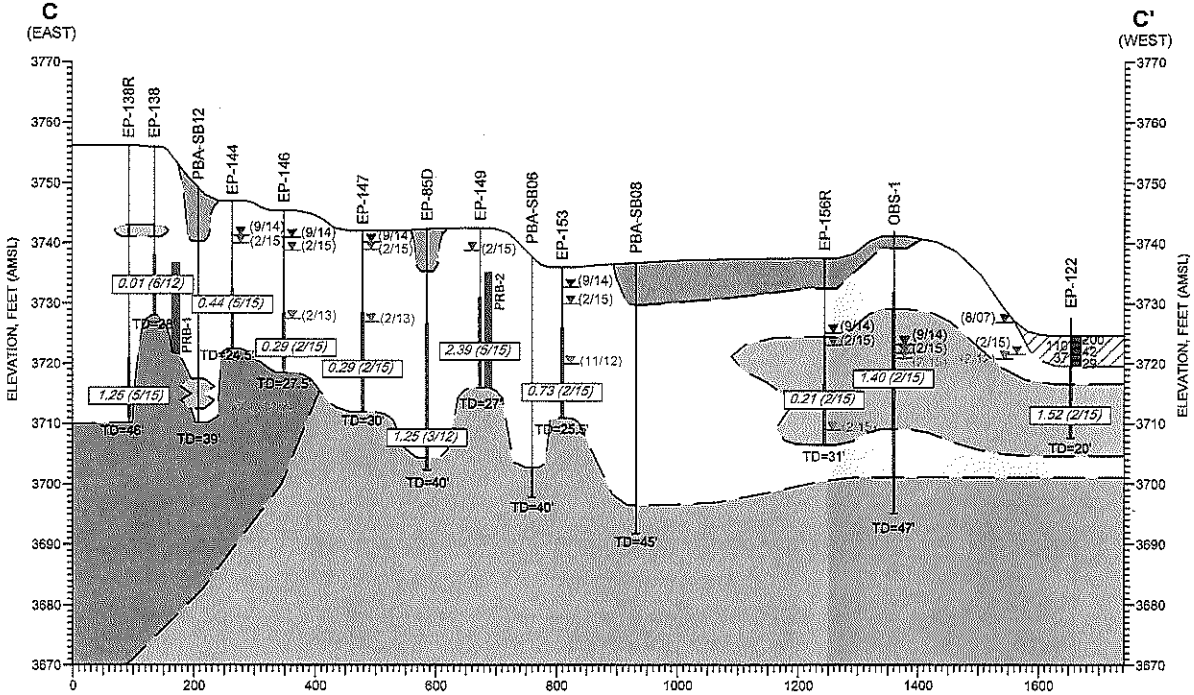
FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

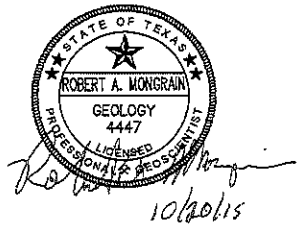
PROTECTIVE CONCENTRATION LEVEL EXCEEDENCE ZONES IN GROUNDWATER

ARCADIS

FIGURE 5

CITY: Highlands Reach DIVGROUP: GIS DB: DG
Project (Project LF)
Path: G:\GIS\ASARCO_ElPaso\GIS\MXD\GRAPH\Fig 5 ProtectiveConcentrationSVMxmd Date: 9/18/2015 Time: 10:02:48 AM





TOTAL ARSENIC CONCENTRATIONS IN GROUNDWATER:

- = <0.01 mg/L
- = >0.01 mg/L
- = >0.1 mg/L
- = >1.0 mg/L
- = >10 mg/L

EPA ARSENIC MAXIMUM CONTAMINANT LEVEL (MCL) = 0.01 mg/L

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 10X

NOTES:

1. NORTHING AND EASTING COORDINATES ARE TEXAS STATE PLANE, CENTRAL ZONE (NAD 83 DATUM) AND ARE IN U.S. SURVEY FEET.
2. ELEVATIONS ARE BASED ON NGS VERTICAL CONTROL MONUMENT Q460. RECORD ELEVATION IS 3738.19 (NAVD 88 DATUM).
3. MEASURING POINT FOR ALL WELLS IS TOP OF CASING ON THE NORTH SIDE.

DEFINITION:

AMSL = ABOVE MEAN SEA LEVEL
HIGH WL = HISTORIC HIGH GROUNDWATER LEVEL
LOW WL = HISTORIC LOW GROUNDWATER LEVEL
BGS = BELOW GROUND SURFACE

LEGEND:

EP-77 — WELL/BORING ID
180 — ARSENIC CONCENTRATION IN SOILS (mg/kg)
HIGH WL, RECENT WL, LOW WL — GROUNDWATER ELEVATION (DATE)
WELL SCREEN
BLUE INDICATES WELLS IN SEMI-ANNUAL MONITORING NETWORK
0.02 (8/09) — ARSENIC CONCENTRATION IN GROUNDWATER IN mg/L (SAMPLE DATE)
HYDRAULIC CONDUCTIVITY (K) VALUES IN FEET/DAY — TD=30'
TD = TOTAL DEPTH OF BOREHOLE IN FEET BELOW GROUND SURFACE

HISTORIC TOPOGRAPHY
FILL
BASAL GRAVEL
SLAG
SAND/GRAVEL

PRB-2 — ZERO VALENT IRON PERMEABLE REACTIVE BARRIER (PRB)
LOWER PERMEABILITY SAND/GRAVEL (SILTY, CLAYEY, CEMENTED)
SANDSTONE BEDROCK (MOJADO FORMATION)
SHALE BEDROCK (MESILLA VALLEY FORMATION)
SHALE BEDROCK (DEL RIO FORMATION)

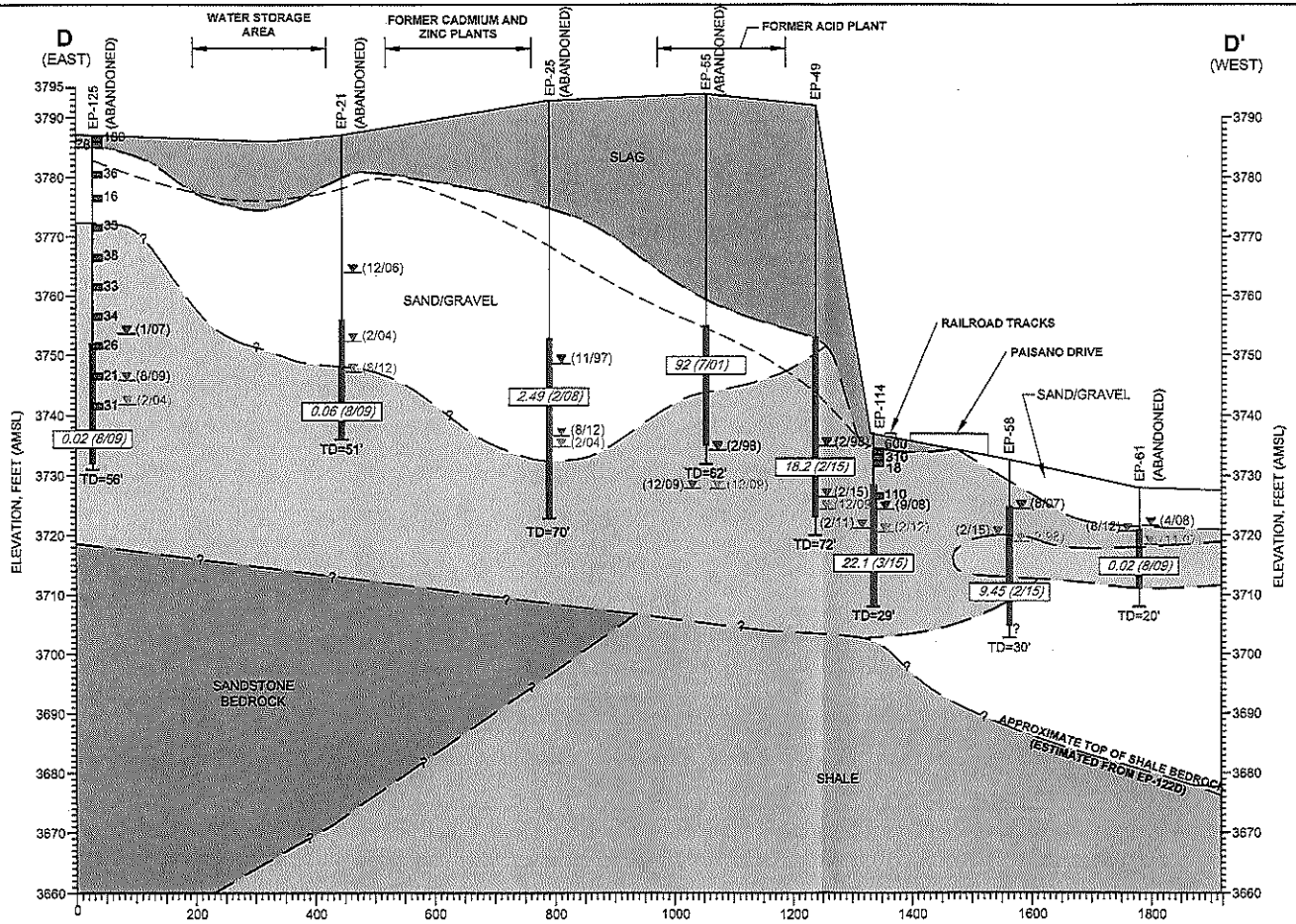
EL PASO SMELTER SITE
EL PASO, TEXAS

CROSS-SECTION C-C'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1A-5

Date\Time : Thu, 22 Oct 2015 - 9:03am
Path\Name : G:\ENV\EDA\PROJ\200\209 - MP - El Paso Smelter\180 - CAD\53-Exhibits_H\HC.dwg
Acad Version : R18.1s (LMS Tech)
User Name : RRosciolek



TOTAL ARSENIC CONCENTRATIONS IN GROUNDWATER:

- = <0.01 mg/L
- = >0.01 mg/L
- = >0.1 mg/L
- = >1.0 mg/L
- = >10 mg/L

EPA ARSENIC MAXIMUM CONTAMINANT LEVEL (MCL) = 0.01 mg/L

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 10X

NOTES:

1. NORTHING AND EASTING COORDINATES ARE TEXAS STATE PLANE, CENTRAL ZONE (NAD 83 DATUM) AND ARE IN U.S. SURVEY FEET.
2. ELEVATIONS ARE BASED ON NGS VERTICAL CONTROL MONUMENT Q460. RECORD ELEVATION IS 3738.19 (NAVD 88 DATUM).
3. MEASURING POINT FOR ALL WELLS IS TOP OF CASING ON THE NORTH SIDE.

DEFINITION:

AMSL = ABOVE MEAN SEA LEVEL
HIGH WL = HISTORIC HIGH GROUNDWATER LEVEL
LOW WL = HISTORIC LOW GROUNDWATER LEVEL
BGS = BELOW GROUND SURFACE

LEGEND:

EP-77 — WELL/BORING ID
180 — ARSENIC CONCENTRATION IN SOILS (mg/kg)
HIGH WL, RECENT WL, LOW WL — GROUNDWATER ELEVATION (DATE)
WELL SCREEN
BLUE INDICATES WELLS IN SEMI-ANNUAL MONITORING NETWORK
0.02 (8/09) — ARSENIC CONCENTRATION IN GROUNDWATER IN mg/L (SAMPLE DATE)
HYDRAULIC CONDUCTIVITY (K) VALUES IN FEET/DAY
TD=30' — TD = TOTAL DEPTH OF BOREHOLE IN FEET BELOW GROUND SURFACE

- HISTORIC TOPOGRAPHY
- BASAL GRAVEL
- SLAG
- SAND/GRAVEL
- LOWER PERMEABILITY SAND/GRAVEL (SILTY, CLAYEY, CEMENTED)
- CLAY
- SANDSTONE BEDROCK (MOJADO FORMATION)
- SHALE BEDROCK (MESILLA VALLEY FORMATION)
- SHALE BEDROCK (DEL RIO FORMATION)

STATE OF TEXAS
ROBERT A. MONGRAIN
GEOLOGY
4447
LICENSED
PROFESSIONAL GEOSCIENTIST

10/20/15

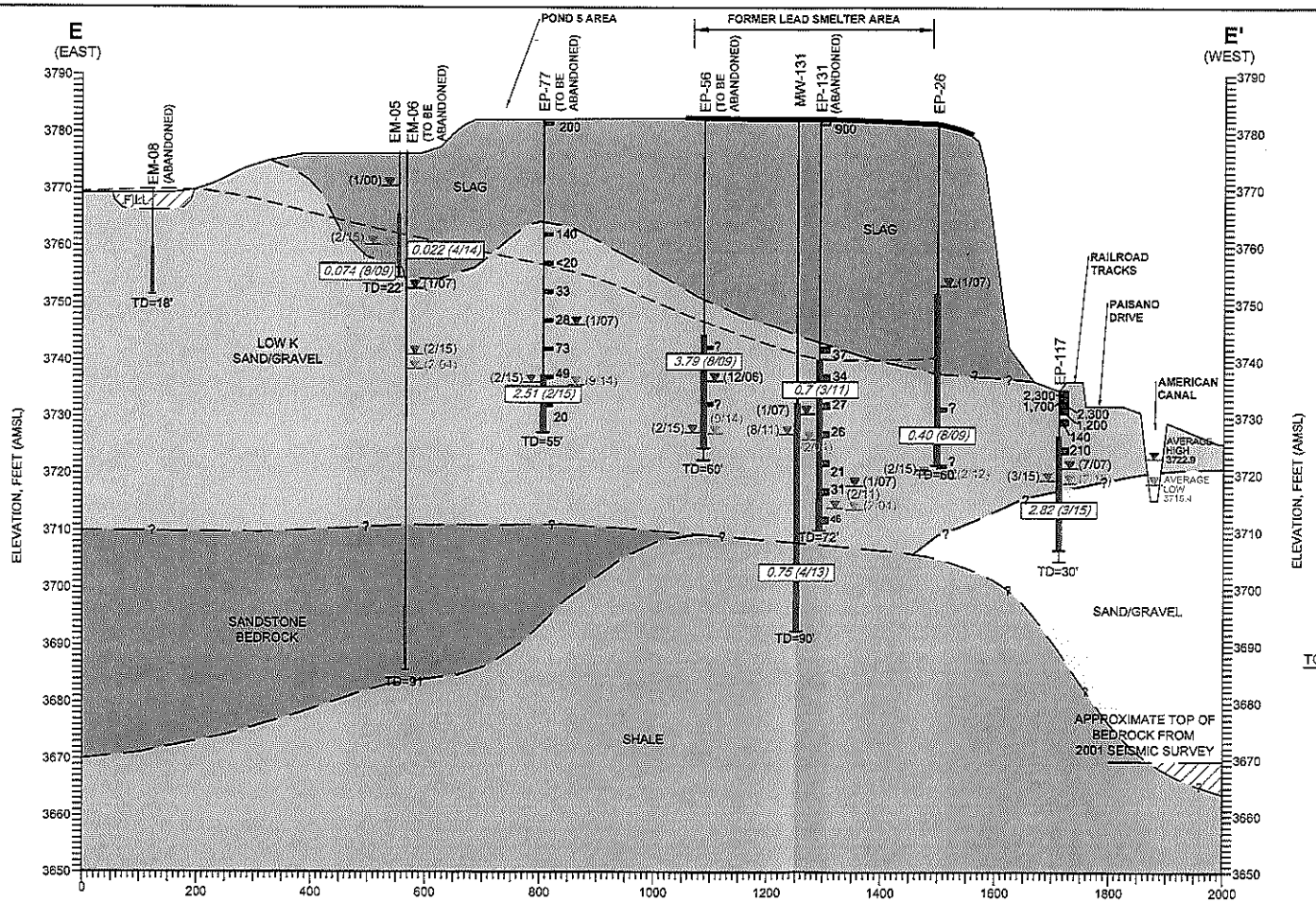
EL PASO SMELTER SITE
EL PASO, TEXAS

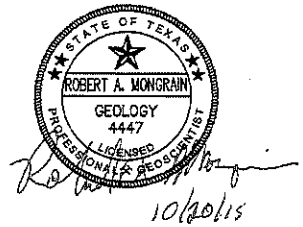
CROSS-SECTION D-D'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1A-6

Date\Time : Thu, 22 Oct 2015 - 9:03am
Path\Name : G:\ENV\ENV\PROJ\1200\1209 - MP - El Paso Smelter\180 - CAD\33-Exhibits_MYH2.dwg
Acad Version : R18.1s (LMS Tech)
User Name : RGoscicki





TOTAL ARSENIC CONCENTRATIONS IN GROUNDWATER:

- = <0.01 mg/L
- = >0.01 mg/L
- = >0.1 mg/L
- = >1.0 mg/L
- = >10 mg/L

EPA ARSENIC MAXIMUM CONTAMINANT LEVEL (MCL) = 0.01 mg/L

0 20 40 VERTICAL SCALE IN FEET

0 200 400 HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 10X

NOTES:

1. NORTHING AND EASTING COORDINATES ARE TEXAS STATE PLANE, CENTRAL ZONE (NAD 83 DATUM) AND ARE IN U.S. SURVEY FEET.
2. ELEVATIONS ARE BASED ON NGS VERTICAL CONTROL MONUMENT Q460. RECORD ELEVATION IS 3738.19 (NAVD 88 DATUM).
3. MEASURING POINT FOR ALL WELLS IS TOP OF CASING ON THE NORTH SIDE.

DEFINITION:

AMSL = ABOVE MEAN SEA LEVEL
HIGH WL = HISTORIC HIGH GROUNDWATER LEVEL
LOW WL = HISTORIC LOW GROUNDWATER LEVEL
BGS = BELOW GROUND SURFACE

LEGEND:

EP-77 — WELL/BORING ID
180 — ARSENIC CONCENTRATION IN SOILS (mg/kg)
HIGH WL, RECENT WL, LOW WL — GROUNDWATER ELEVATION (DATE)
WELL SCREEN
BLUE INDICATES WELLS IN SEMI-ANNUAL MONITORING NETWORK
0.02 (8/09) — ARSENIC CONCENTRATION IN GROUNDWATER IN mg/L (SAMPLE DATE)
HYDRAULIC CONDUCTIVITY (K) VALUES IN FEET/DAY
TD=30' — TD = TOTAL DEPTH OF BOREHOLE IN FEET BELOW GROUND SURFACE

HISTORIC TOPOGRAPHY
FILL
BASAL GRAVEL
SLAG
SAND/GRAVEL
LOWER PERMEABILITY SAND/GRAVEL (SILTY, CLAYEY, CEMENTED)
CLAY
SANDSTONE BEDROCK (MOJADO FORMATION)
SHALE BEDROCK (MESILLA VALLEY FORMATION)
SHALE BEDROCK (DEL RIO FORMATION)

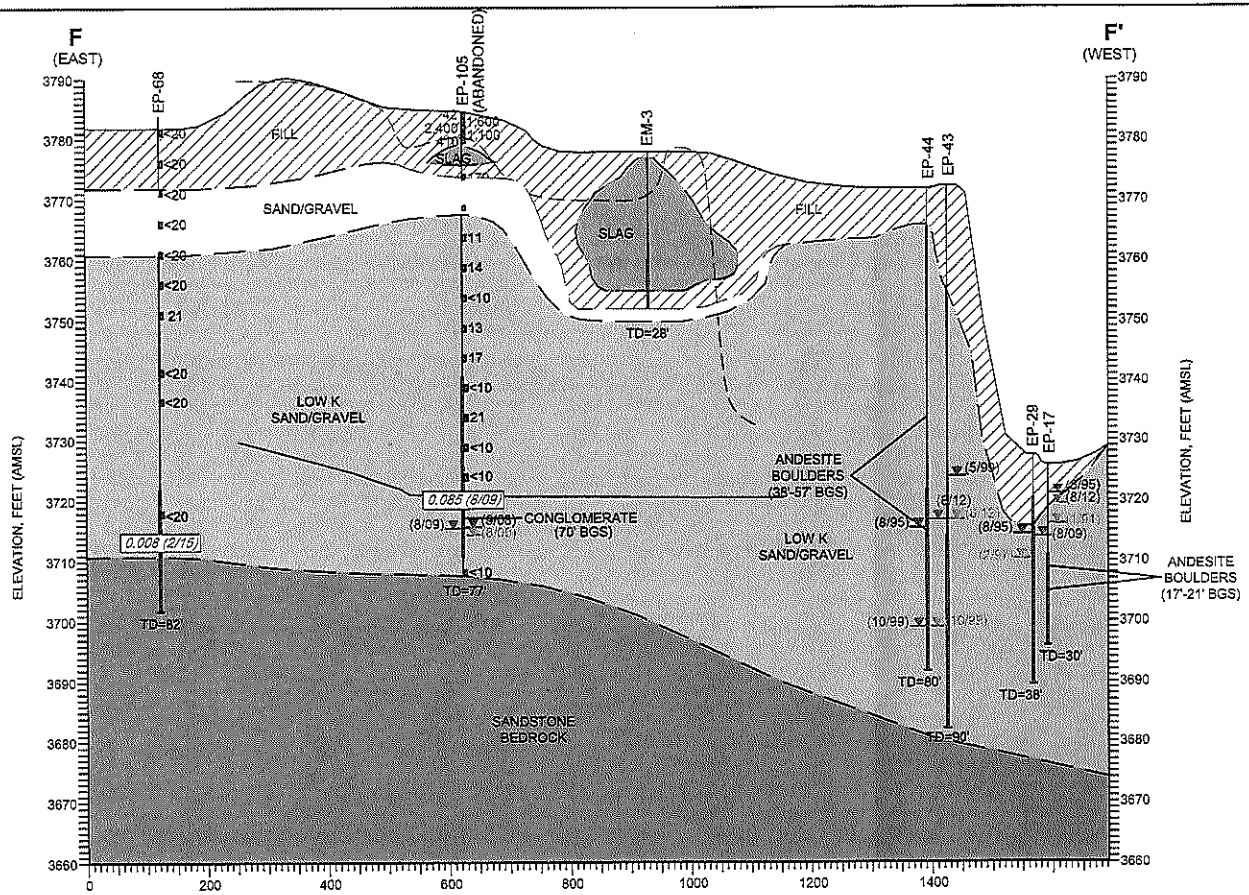
EL PASO SMELTER SITE
EL PASO, TEXAS

CROSS-SECTION E-E'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1A-7

Date\Time : Thu, 22 Oct 2015 – 9:03am
Path\Name : G:\ENV\ENV\PROJ\1200\1209 – MP – El Paso Smelter\180 – CAD\53–Exhibits_IA\IC.dwg
Acad Version : R18.1s (LMS Tech)
User Name : RRoscoelek



STATE OF TEXAS
ROBERT A. MONGRAIN
GEOLOGY
4447
LICENSED
PROFESSIONAL GEOSCIENTIST

10/20/15

TOTAL ARSENIC CONCENTRATIONS IN GROUNDWATER:

- = <0.01 mg/L
- = >0.01 mg/L
- = >0.1 mg/L
- = >1.0 mg/L
- = >10 mg/L

EPA ARSENIC MAXIMUM CONTAMINANT LEVEL (MCL) = 0.01 mg/L

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 10X

NOTES:

1. NORTHING AND EASTING COORDINATES ARE TEXAS STATE PLANE, CENTRAL ZONE (NAD 83 DATUM) AND ARE IN U.S. SURVEY FEET.
2. ELEVATIONS ARE BASED ON NGS VERTICAL CONTROL MONUMENT Q460. RECORD ELEVATION IS 3738.19 (NAVD 88 DATUM).
3. MEASURING POINT FOR ALL WELLS IS TOP OF CASING ON THE NORTH SIDE.

DEFINITION:

AMSL = ABOVE MEAN SEA LEVEL
HIGH WL = HISTORIC HIGH GROUNDWATER LEVEL
LOW WL = HISTORIC LOW GROUNDWATER LEVEL
BGS = BELOW GROUND SURFACE

LEGEND:

EP-77 — WELL/BORING ID
180 — ARSENIC CONCENTRATION IN SOILS (mg/kg)
HIGH WL — GROUNDWATER ELEVATION (DATE)
RECENT WL
LOW WL
WELL SCREEN
BLUE INDICATES WELLS IN SEMI-ANNUAL MONITORING NETWORK
0.02 (8/09) — ARSENIC CONCENTRATION IN GROUNDWATER IN mg/L (SAMPLE DATE)
HYDRAULIC CONDUCTIVITY (K) VALUES IN FEET/DAY
TD=30' — TD = TOTAL DEPTH OF BOREHOLE IN FEET BELOW GROUND SURFACE

HISTORIC TOPOGRAPHY
FILL
BASAL GRAVEL
SLAG
SAND/GRAVEL
CALICHE
LOWER PERMEABILITY SAND/GRAVEL (SILTY, CLAYEY, CEMENTED)
CLAY
SANDSTONE BEDROCK (MOJADO FORMATION)
SHALE BEDROCK (MESILLA VALLEY FORMATION)
SHALE BEDROCK (DEL RIO FORMATION)

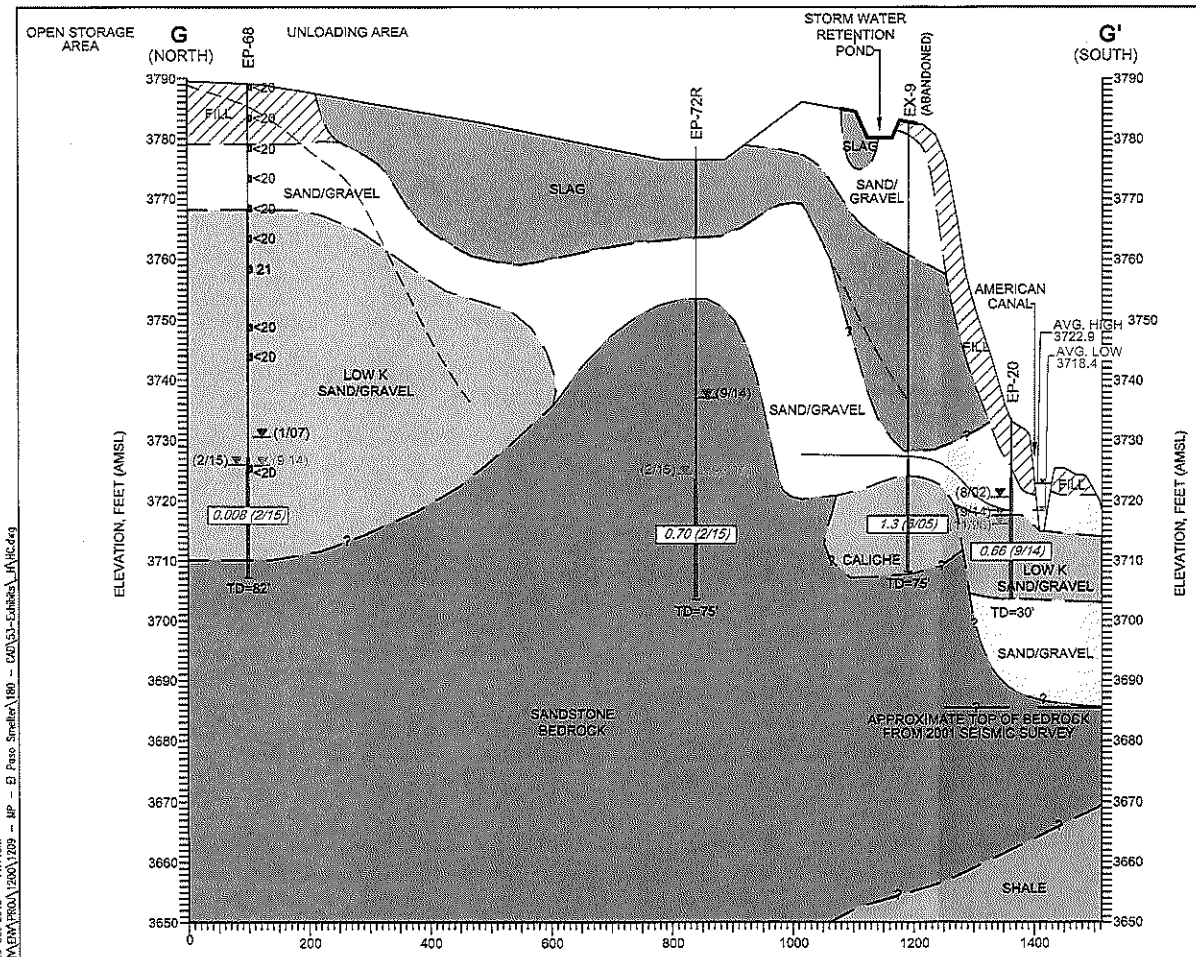
EL PASO SMELTER SITE
EL PASO, TEXAS

CROSS-SECTION F-F'

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1A-9

Date/Time : Thu, 22 Oct 2015 – 9:03pm
Path\Name : G:\EM\EMA\R00A\200\1209 – MP – El Paso Smelter\160 – CAD\53-Exhibits_JK\JC.dwg
Acad Version : R18.1s (LMS Tech)
User Name : RKoscielak



NOTES:

1. NORTHING AND EASTING COORDINATES ARE TEXAS STATE PLANE, CENTRAL ZONE (NAD 83 DATUM) AND ARE IN U.S. SURVEY FEET.
2. ELEVATIONS ARE BASED ON NGS VERTICAL CONTROL MONUMENT Q460. RECORD ELEVATION IS 3738.19 (NAVD 88 DATUM).
3. MEASURING POINT FOR ALL WELLS IS TOP OF CASING ON THE NORTH SIDE.

DEFINITION:

AMSL = ABOVE MEAN SEA LEVEL
HIGH WL = HISTORIC HIGH GROUNDWATER LEVEL
LOW WL = HISTORIC LOW GROUNDWATER LEVEL
BGS = BELOW GROUND SURFACE

LEGEND:

EP-77 — WELL/BORING ID
180 — ARSENIC CONCENTRATION IN SOILS (mg/kg)
HIGH WL, RECENT WL, LOW WL — GROUNDWATER ELEVATION (DATE)
WELL SCREEN
BLUE INDICATES WELLS IN SEMI-ANNUAL MONITORING NETWORK
0.02 (8/09) — ARSENIC CONCENTRATION IN GROUNDWATER IN mg/L (SAMPLE DATE)
HYDRAULIC CONDUCTIVITY (K) VALUES IN FEET/DAY
TD=30' — TD = TOTAL DEPTH OF BOREHOLE IN FEET BELOW GROUND SURFACE

HISTORIC TOPOGRAPHY
FILL
BASAL GRAVEL
SLAG
SAND/GRAVEL
CALICHE
LOWER PERMEABILITY SAND/GRAVEL (SILTY, CLAYEY, CEMENTED)
CLAY
SANDSTONE BEDROCK (MOJADO FORMATION)
SHALE BEDROCK (MESILLA VALLEY FORMATION)
SHALE BEDROCK (DEL RIO FORMATION)

STATE OF TEXAS
ROBERT A. MONGRAIN
GEOLOGY
4447
LICENSED
PROFESSIONAL GEOSCIENTIST
10/20/15

TOTAL ARSENIC CONCENTRATIONS IN GROUNDWATER:

= <0.01 mg/L
= >0.01 mg/L
= >0.1 mg/L
= >1.0 mg/L
= >10 mg/L

EPA ARSENIC MAXIMUM CONTAMINANT LEVEL (MCL) = 0.01 mg/L

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 10X

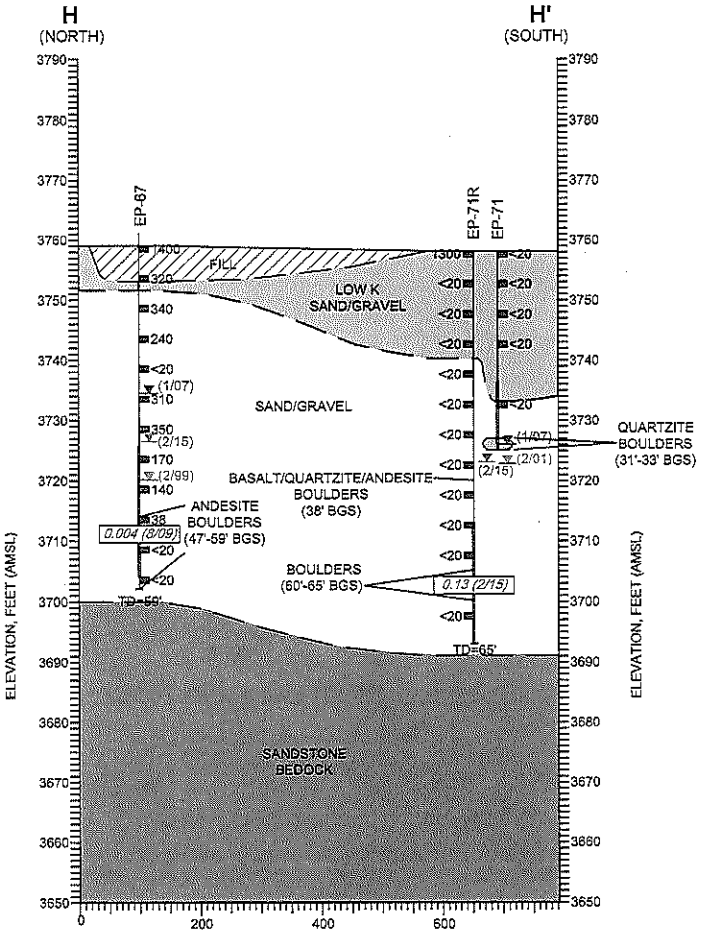
EL PASO SMELTER SITE
EL PASO, TEXAS

CROSS-SECTION G-G'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1A-10

Date\Time : Wed, 28 Oct 2015 - 11:11am
Path\Name : G:\ENV\ENVPROJ\2000\1209 - HP - El Paso Smelter\180 - CAD\53-Exhibits_JR\HC.dwg
Acad Version : R19.1s (LMS Tech)
User Name : RKosciolek



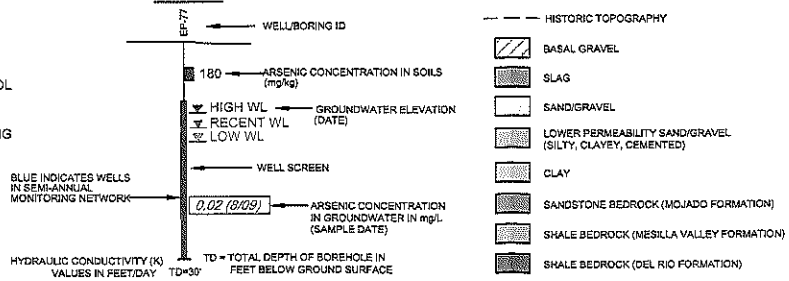
NOTES:

1. NORTHING AND EASTING COORDINATES ARE TEXAS STATE PLANE, CENTRAL ZONE (NAD 83 DATUM) AND ARE IN U.S. SURVEY FEET.
2. ELEVATIONS ARE BASED ON NGS VERTICAL CONTROL MONUMENT Q460. RECORD ELEVATION IS 3738.19 (NAVD 88 DATUM).
3. MEASURING POINT FOR ALL WELLS IS TOP OF CASING ON THE NORTH SIDE.

DEFINITION:

AMSL = ABOVE MEAN SEA LEVEL
HIGH WL = HISTORIC HIGH GROUNDWATER LEVEL
LOW WL = HISTORIC LOW GROUNDWATER LEVEL
BGS = BELOW GROUND SURFACE

LEGEND:



STATE OF TEXAS
ROBERT A. MONGRAIN
GEOLOGY
4447
LICENSED
PROFESSIONAL GEOSCIENTIST

10/30/15

TOTAL ARSENIC CONCENTRATIONS IN GROUNDWATER:

- = <0.01 mg/L
- = >0.01 mg/L
- = >0.1 mg/L
- = >1.0 mg/L
- = >10 mg/L

EPA ARSENIC MAXIMUM CONTAMINANT LEVEL (MCL) = 0.01 mg/L

0 20 40
VERTICAL SCALE IN FEET

0 200 400
HORIZONTAL SCALE IN FEET

VERTICAL EXAGGERATION = 10X

EL PASO SMELTER SITE
EL PASO, TEXAS

CROSS-SECTION H-H'

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1A-12

Date/Time : Mon, 26 Oct 2015 – 11:12am
Path/Name : G:\BM\BM\PROJ\1200\1209 – WP – El Paso Smelter\180 – CAD\33–Exhibits\JA\HC.dwg
Acad Version : R19.1s (LMS Tech)
User Name : RKowalek

LEGEND:

- Plume Management Zone
- Arroyo Trace Lines
- Property Boundary

Note:
1. Land use on BNSF property at toe-of-slope will be restricted to commercial/industrial with requirements for maintenance of slopes and stormwater drainage.

N

0 650 1,300 Feet

GRAPHIC SCALE

FORMER EL PASO SMELTER SITE
EL PASO, TEXAS

PLUME MANAGEMENT ZONE

ARCADIS

ATTACHMENT 2D

CITY: Highlands Ranch DIV/GROUP: GIS DR: BG
Path: G:\GIS\ASARCO_EPaso\GIS\MXD\DRAFT\2D PlumeManagementZone.mxd Date: 10/21/2015 Time: 3:51:23 PM