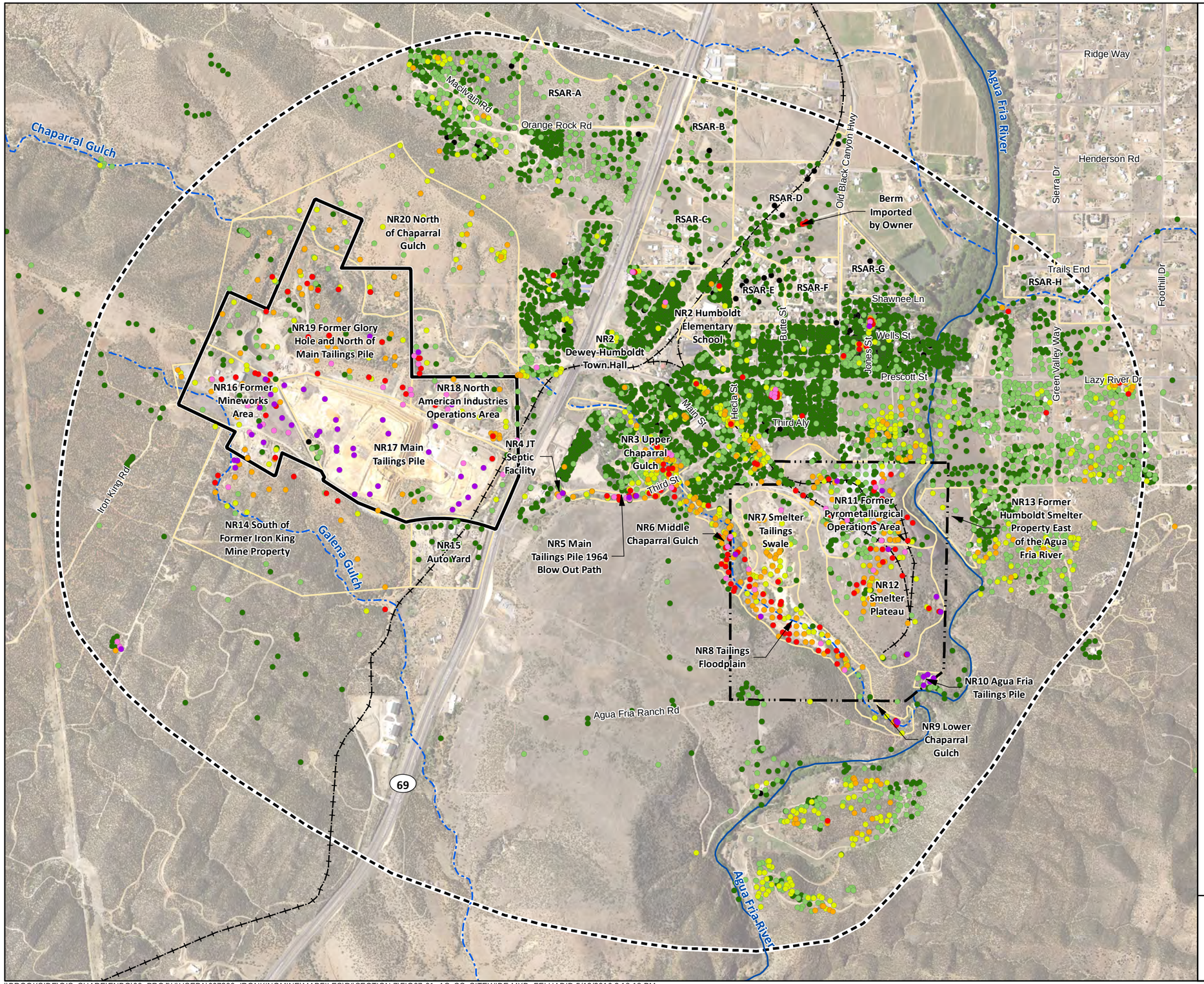


LEGEND

Arsenic Concentration in Surface Soil (mg/kg)

- Not Detected
- 1.6 (Lowest Detection) to 50
- >50 to 112 (Background)
- >112 to 194 (Screening Level)
- >194 to 400
- >400 to 800
- >800 to 1,600
- 1,600 to 20,200 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Area of Potential Site Impact
- Dewey-Humboldt Town Boundary

N

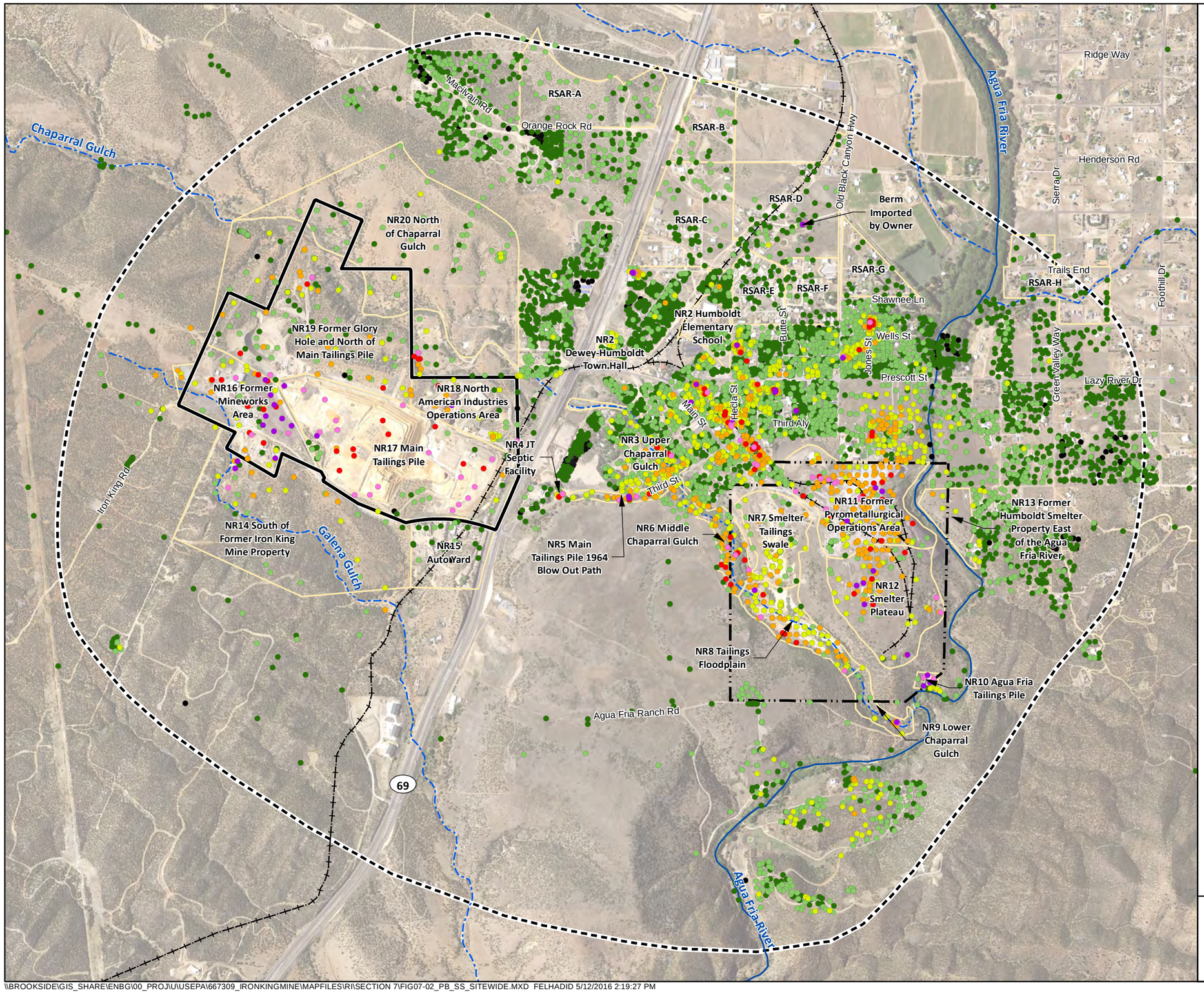
0 1,200 2,400

Scale in Feet

Notes:
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
NR3 Upper Chaparral Gulch, designated as a non-residential (possible future residential) area, overlaps an area designated as RYSR.
Image Source: USDA, 2015.

Figure 7-1
Arsenic Distribution in Surface Soil
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-01_AS_SS_SITEWIDE.MXD FELHADID 5/12/2016 2:18:18 PM



LEGEND

Lead Concentration in Surface Soil (mg/kg)

- Not Detected
- 0.37 (Lowest Detection) to 35 (Background)
- >35 to 140 (Provisional RSL)
- >140 to 400 (Residential RSL)
- >400 to 1,200
- >1,200 to 2,400
- >2,400 to 4,800
- >4,800 to 65,700 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Area of Potential Site Impact
- Dewey-Humboldt Town Boundary

N

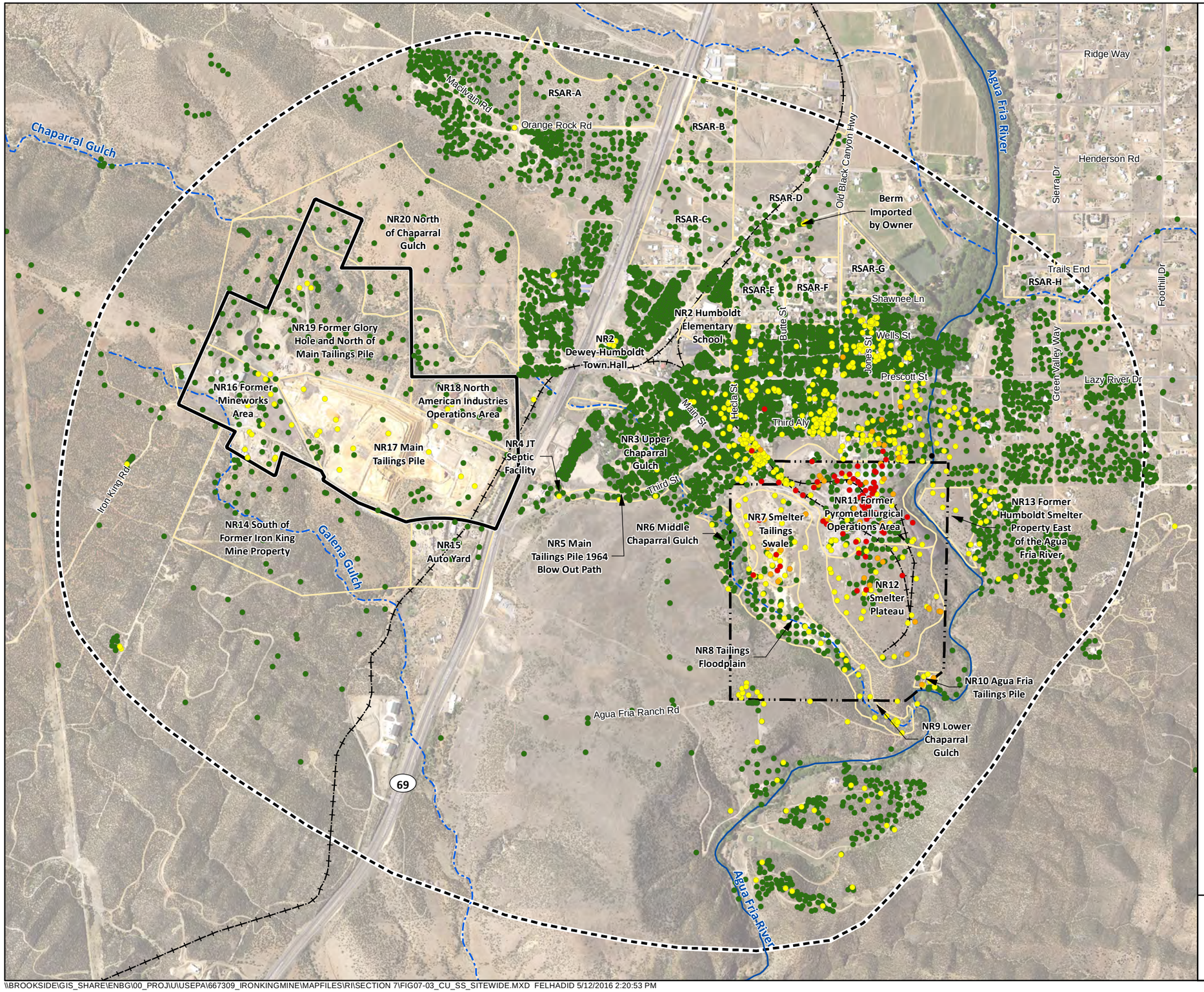
0 1,200 2,400

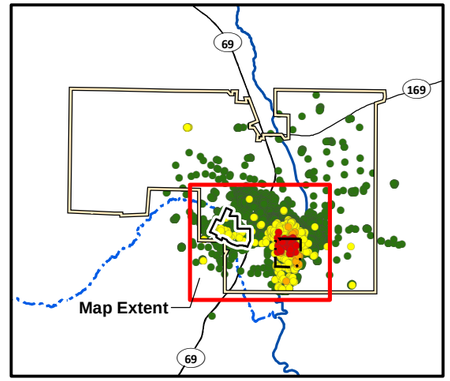
Scale in Feet

Notes:
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
NR3 Upper Chaparral Gulch, designated as a non-residential (possible future residential) area, overlaps an area designated as RYSR.
Image Source: USDA, 2015.

Figure 7-2
Lead Distribution in Surface Soil
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-02_PB_SS_SITEWIDE.MXD FELHADID 5/12/2016 2:19:27 PM





LEGEND

Copper Concentration in Surface Soil (mg/kg)

- Not Detected
- 0.3 (Lowest Detection) to 182 (Background)
- >182 to 1,820
- >1,820 to 3,100 (Screening Level)
- >3,100 to 32,900 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Area of Potential Site Impact
- Dewey-Humboldt Town Boundary

N

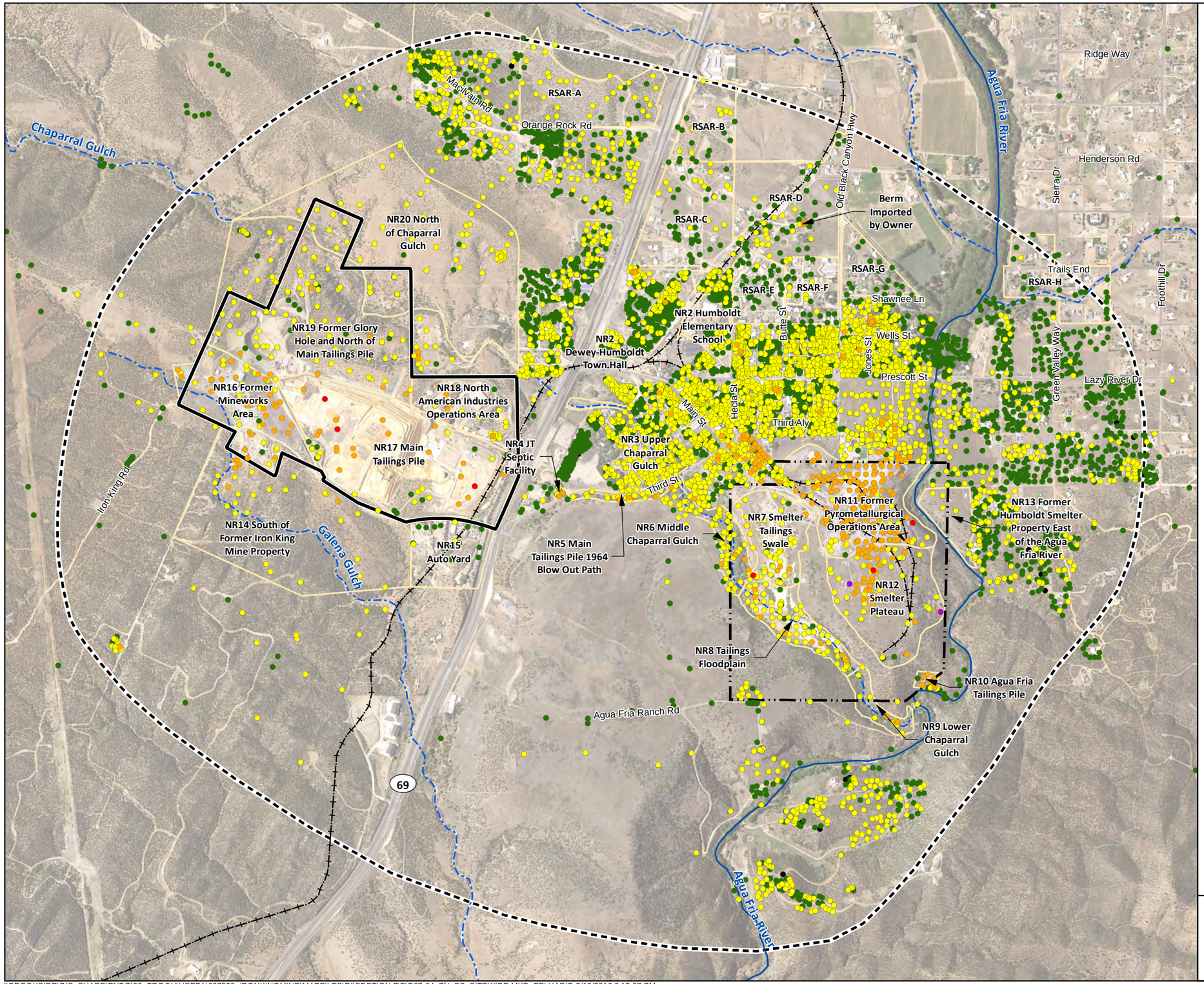
0 1,200 2,400

Scale in Feet

Notes:
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
NR3 Upper Chaparral Gulch, designated as a non-residential (possible future residential) area, overlaps an area designated as RYSR.
Image Source: USDA, 2015.

Figure 7-3
Copper Distribution in Surface Soil
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-03_CU_SS_SITEWIDE.MXD FELHADID 5/12/2016 2:20:53 PM



LEGEND

Zinc Concentration in Surface Soil (mg/kg)

- Not Detected
- 0.3 (Lowest Detection) to 136 (Background)
- >136 to 1,360
- >1,360 to 13,600
- >13,600 to 23,000 (Screening Level)
- >23,000 to 58,900 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Area of Potential Site Impact
- Dewey-Humboldt Town Boundary

N

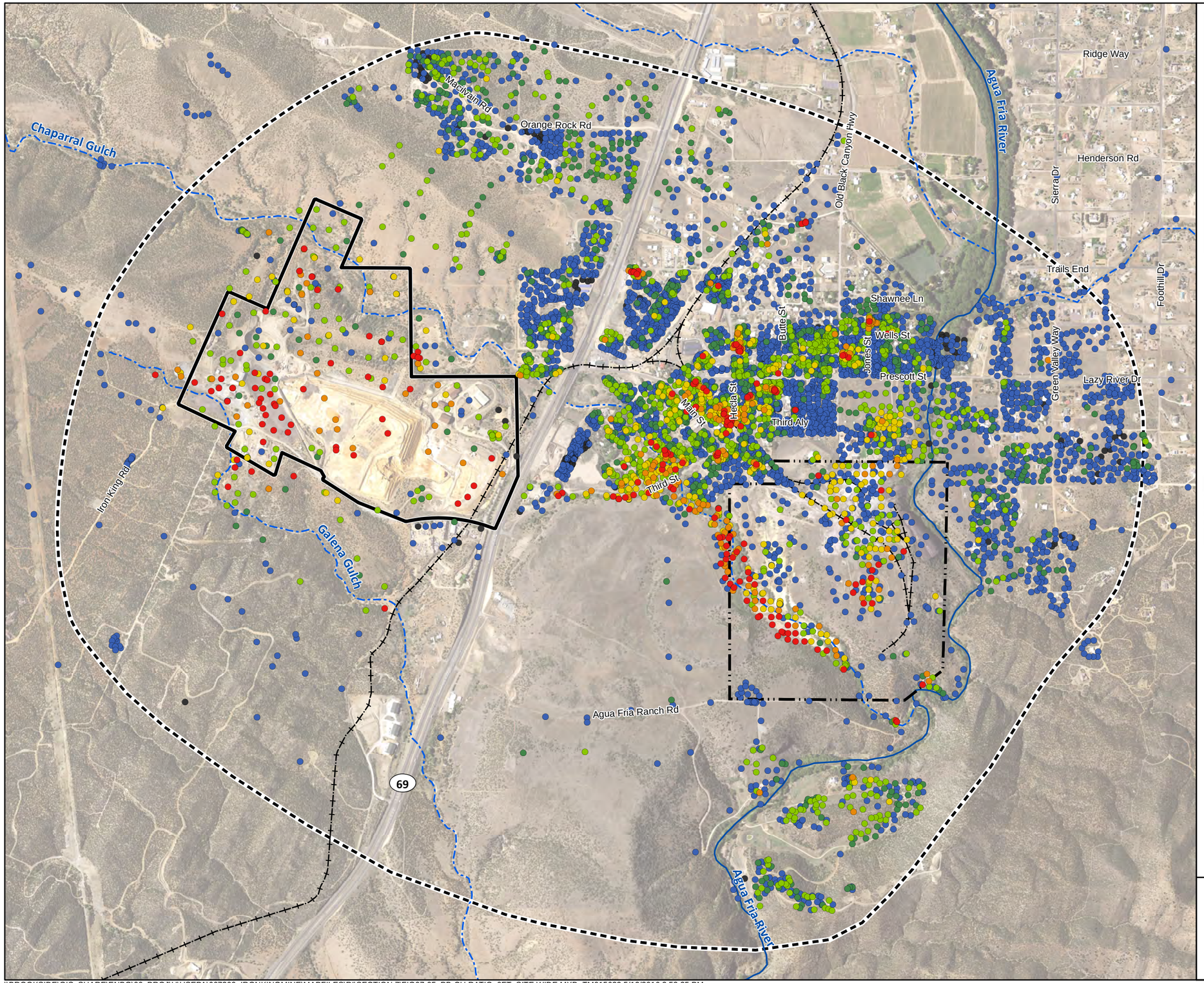
0 1,200 2,400

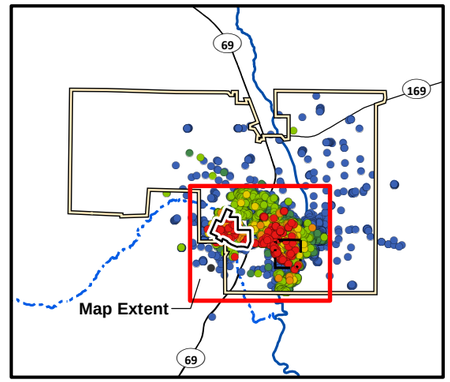
Scale in Feet

Notes:
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
NR3 Upper Chaparral Gulch, designated as a non-residential (possible future residential) area, overlaps an area designated as RYSR.
Image Source: USDA, 2015.

Figure 7-4
Zinc Distribution in Surface Soil
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-04_ZN_SS_SITEWIDE.MXD FELHADID 5/12/2016 2:15:27 PM





LEGEND

Lead to Copper Ratio in Shallow Soil[a]

- Not Detected[b]
- 0.004 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 3.5
- >3.5 to 6
- >6 to 10
- >10 to 427 (Highest Ratio)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Area of Potential Site Impact
- Dewey-Humboldt Town Boundary

N

0 1,200 2,400

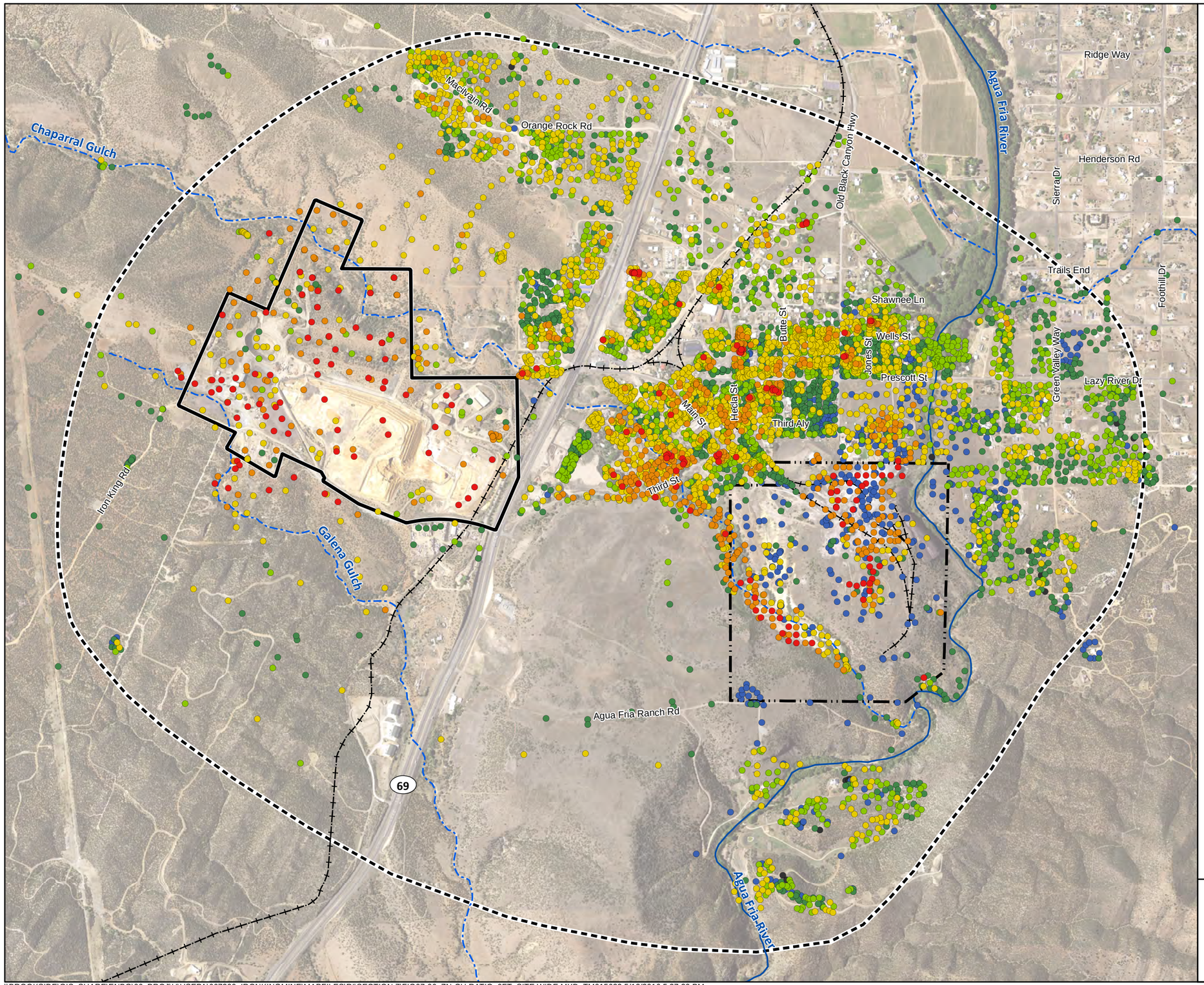
Scale in Feet

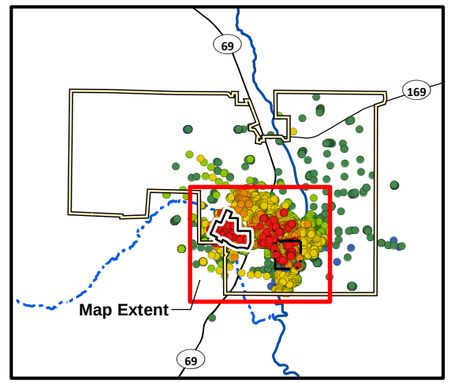
[a]Shallow soil samples are defined as having a sample start depth of zero feet below ground surface.
[b]Lead and/or copper were not detected in shallow soil at this location.

Note:
Image Source: USDA, 2015.

Figure 7-5
Shallow Soil Sample Results – Lead to Copper Ratios
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-05_PB-CU RATIO_0FT_SITE WIDE.MXD TM015632 5/12/2016 3:53:25 PM





LEGEND

Zinc to Copper Ratio in Shallow Soil[a]

- Not Detected[b]
- 0.02 (Lowest Ratio) to <1
- 1 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 20
- >20 to 395 (Highest Ratio)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Area of Potential Site Impact
- Dewey-Humboldt Town Boundary

N

0 1,200 2,400

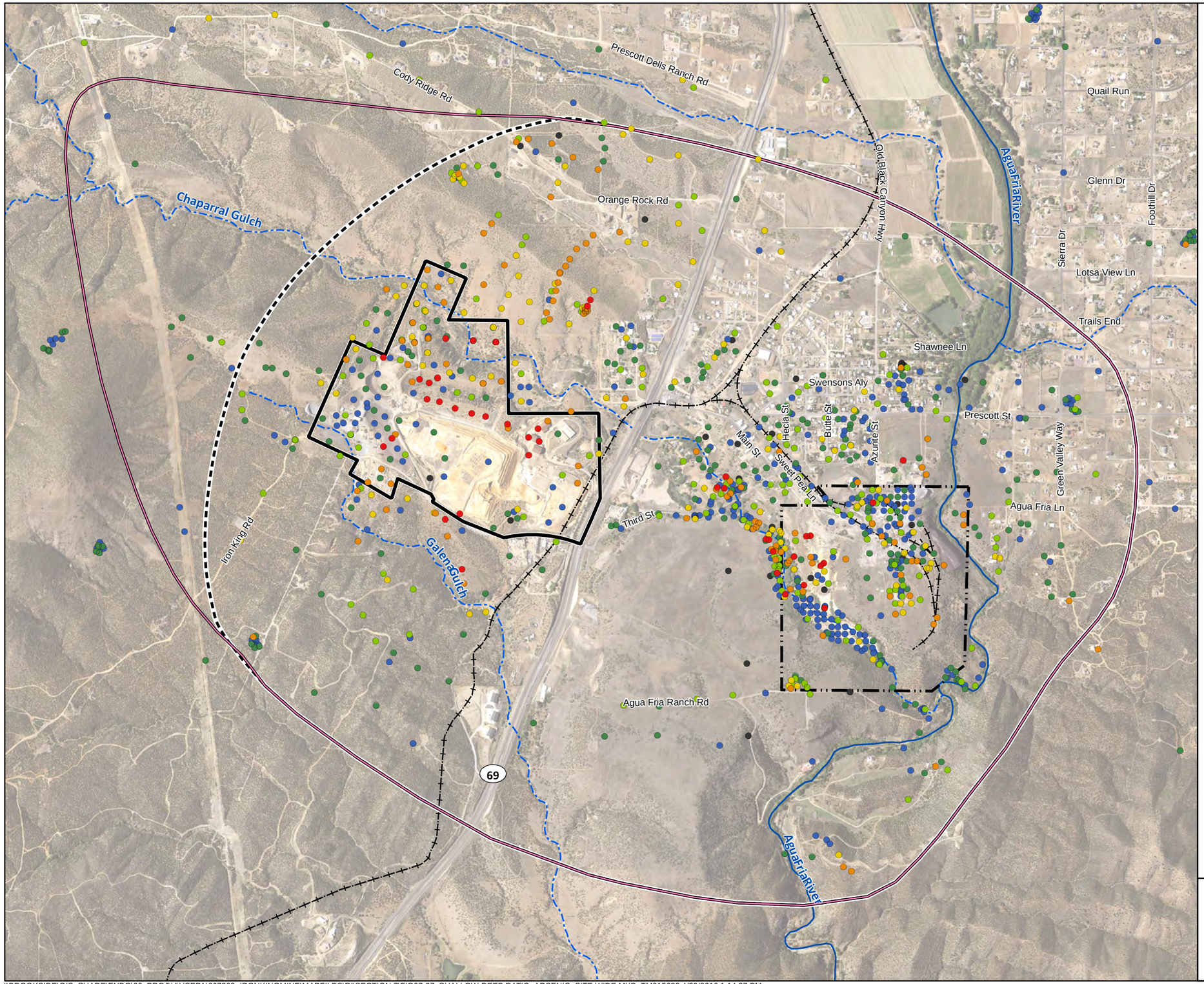
Scale in Feet

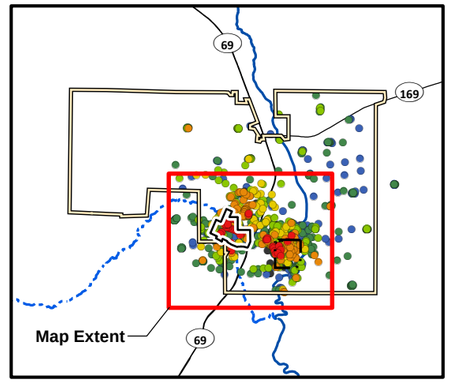
[a]Shallow soil samples are defined as having a sample start depth of zero feet below ground surface.
[b]Zinc and/or copper were not detected in shallow soil at this location.

Note:
Image Source: USDA, 2015.

Figure 7-6
Shallow Soil Sample Results – Zinc to Copper Ratios
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-06_ZN-CU RATIO_0FT_SITE WIDE.MXD TM015632 5/12/2016 5:27:20 PM





LEGEND

Ratio of Shallow to Deep Arsenic Concentrations in Soil[a]

- Not Detected[b]
- 0.033 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 58 (Highest Ratio)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine
- Former Humboldt Smelter
- Area of Potential Site Impact
- Background Boundary[c]
- Dewey-Humboldt Town Boundary

0 1,400 2,800

Scale in Feet

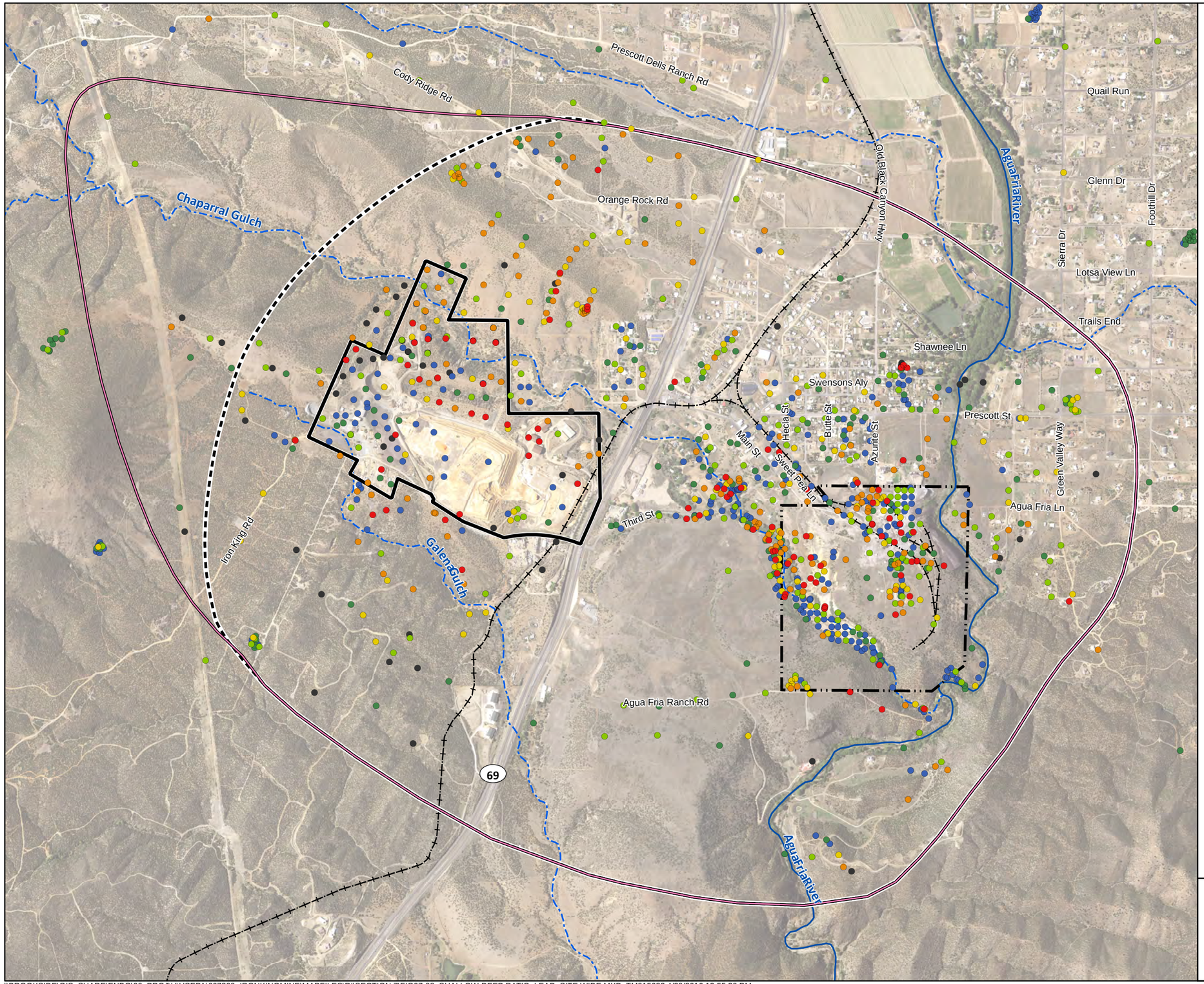
N

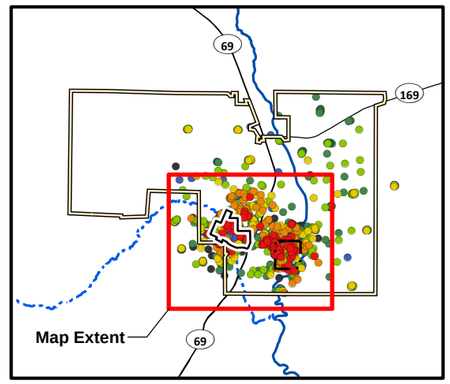
[a]Shallow soil samples are defined as having a sample start depth of zero feet below ground surface, and deep samples are defined as having a sample start depth greater than zero.
[b]Arsenic was not detected in surface and/or deep soil at this location.
[c]The background boundary was developed as part of the Soil Background Study Report (CH2M, 2015).

Notes:
Image Source: USDA, 2015.

Figure 7-7
Ratio of Shallow to Deep Soil Concentrations – Arsenic
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-07_SHALLOW-DEEP RATIO_ARSENIC_SITE WIDE.MXD TM015632 4/29/2016 1:14:37 PM





LEGEND

Ratio of Shallow to Deep Lead Concentrations in Soil[a]

- Not Detected[b]
- 0.006 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 110 (Highest Ratio)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine
- Former Humboldt Smelter
- Area of Potential Site Impact
- Background Boundary[c]
- Dewey-Humboldt Town Boundary

0 1,400 2,800

Scale in Feet

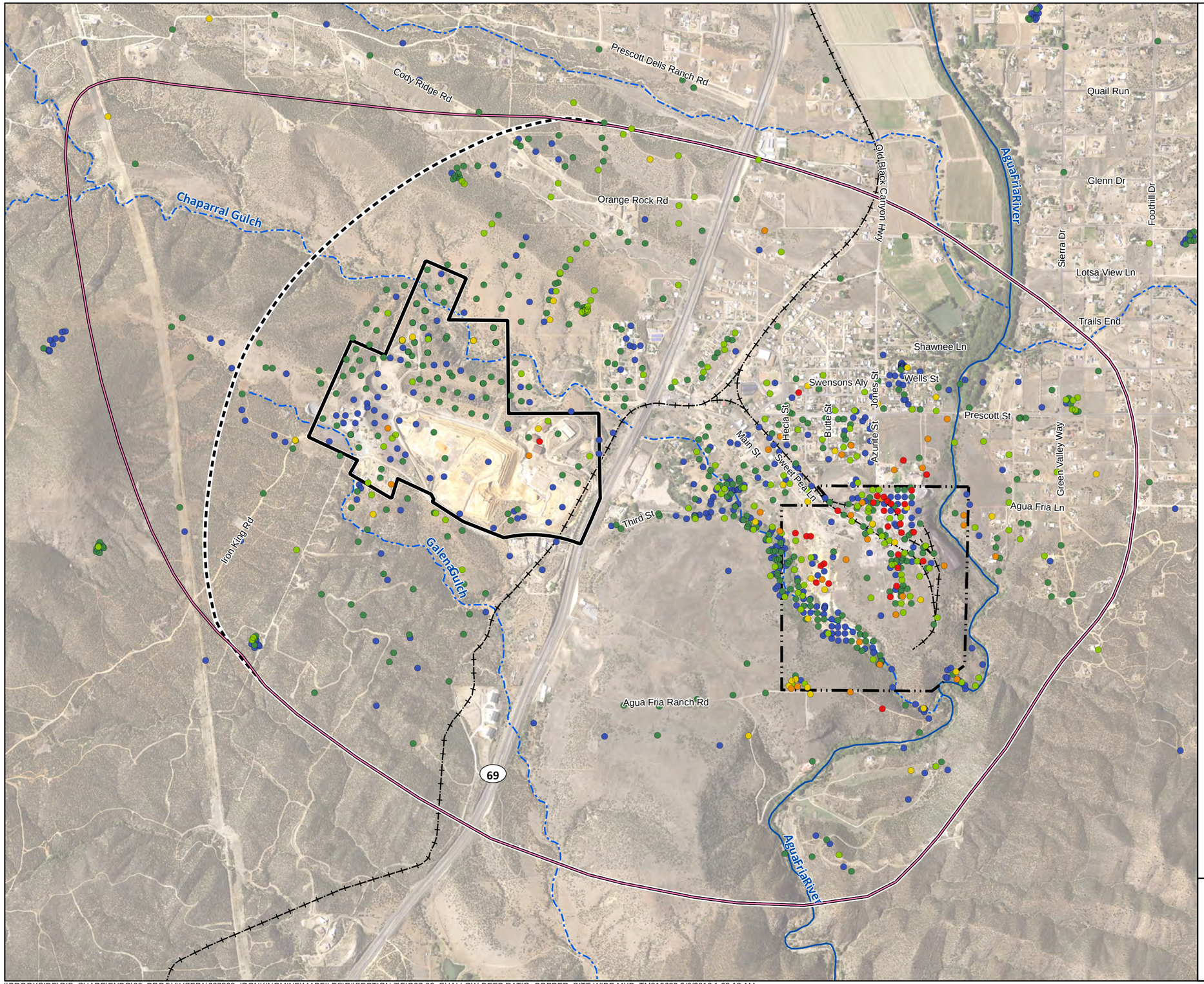
N

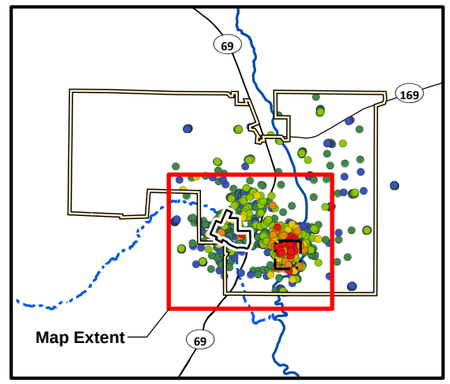
[a]Shallow soil samples are defined as having a sample start depth of zero feet below ground surface, and deep samples are defined as having a sample start depth greater than zero.
[b]Lead was not detected in surface and/or deep soil at this location.
[c]The background boundary was developed as part of the Soil Background Study Report (CH2M, 2015).

Notes:
Image Source: USDA, 2015.

Figure 7-8
Ratio of Shallow to Deep Soil Concentrations – Lead
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-08_SHALLOW-DEEP RATIO_LEAD_SITE WIDE.MXD TM015632 4/29/2016 12:55:30 PM





LEGEND

Ratio of Shallow to Deep Copper Concentrations in Soil[a]

- 0.031 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 196 (Highest Ratio)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine
- Former Humboldt Smelter
- Area of Potential Site Impact
- Background Boundary[c]
- Dewey-Humboldt Town Boundary

0 1,400 2,800

Scale in Feet

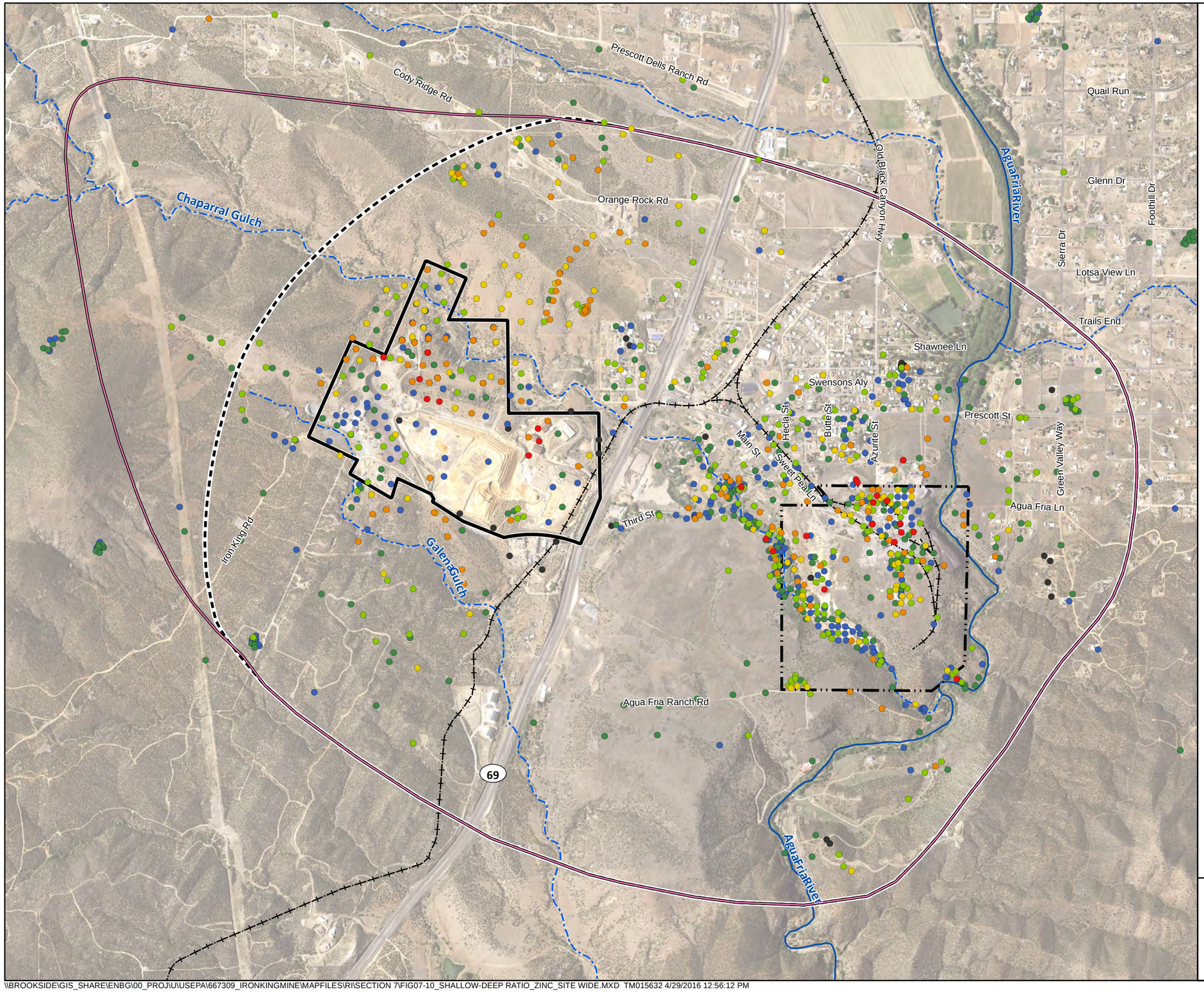
N

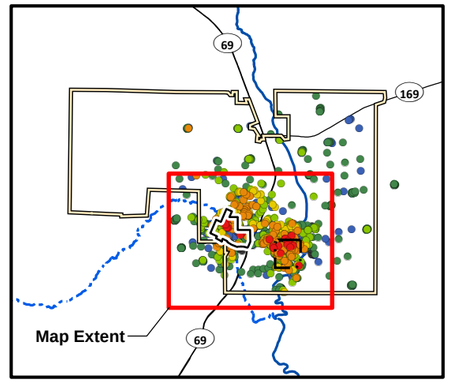
[a]Shallow soil samples are defined as having a sample start depth of zero feet below ground surface, and deep samples are defined as having a sample start depth greater than zero.
[b]Copper was not detected in surface and/or deep soil at this location.
[c]The background boundary was developed as part of the Soil Background Study Report (CH2M, 2015).

Note:
Image Source: USDA, 2015.

Figure 7-9
Ratio of Shallow to Deep Soil Concentrations – Copper
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-09_SHALLOW-DEEP RATIO_COPPER_SITE WIDE.MXD TM015632 5/6/2016 1:03:13 AM





LEGEND

Ratio of Shallow to Deep Zinc Concentrations in Soil[a]

- Not Detected[b]
- 0.045 (Lowest Ratio) to <1
- 1 to 1.5
- >1.5 to 2.5
- >2.5 to 4
- >4 to 10
- >10 to 82 (Highest Ratio)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine
- Former Humboldt Smelter
- Area of Potential Site Impact
- Background Boundary[c]
- Dewey-Humboldt Town Boundary

0 1,400 2,800
Scale in Feet

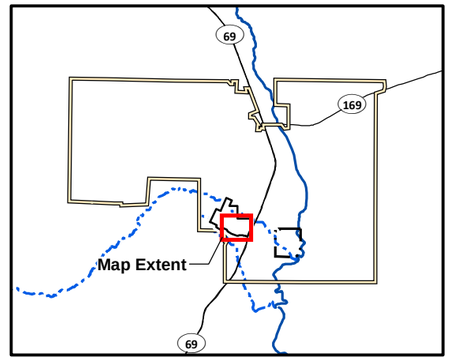
N

[a]Shallow soil samples are defined as having a sample start depth of zero feet below ground surface, and deep samples are defined as having a sample start depth greater than zero.
[b]Zinc was not detected in surface and/or deep soil at this location.
[c]The background boundary was developed as part of the Soil Background Study Report (CH2M, 2015).

Notes:
Image Source: USDA, 2015.

Figure 7-10
Ratio of Shallow to Deep Soil Concentrations – Zinc
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-10_SHALLOW-DEEP RATIO_ZINC_SITE WIDE.MXD TM015632 4/29/2016 12:56:12 PM



LEGEND

- CPT Boring Location
- Soil Boring Location
- Monitoring Well Location
- Location of Cross Section
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

N

0 250 500

Scale in Feet

Notes:
Cone Penetrometer Testing (CPT) was completed as part of the Phase 1 Subsurface Exploration of the MTP (GEI, 2012). Only locations along the cross sections are shown on this figure. Cross sections are shown on Figures 7-12, 7-13, and 7-14.
Image Source: Google Earth™; Image date November 6, 2015. Accessed February 2, 2016.

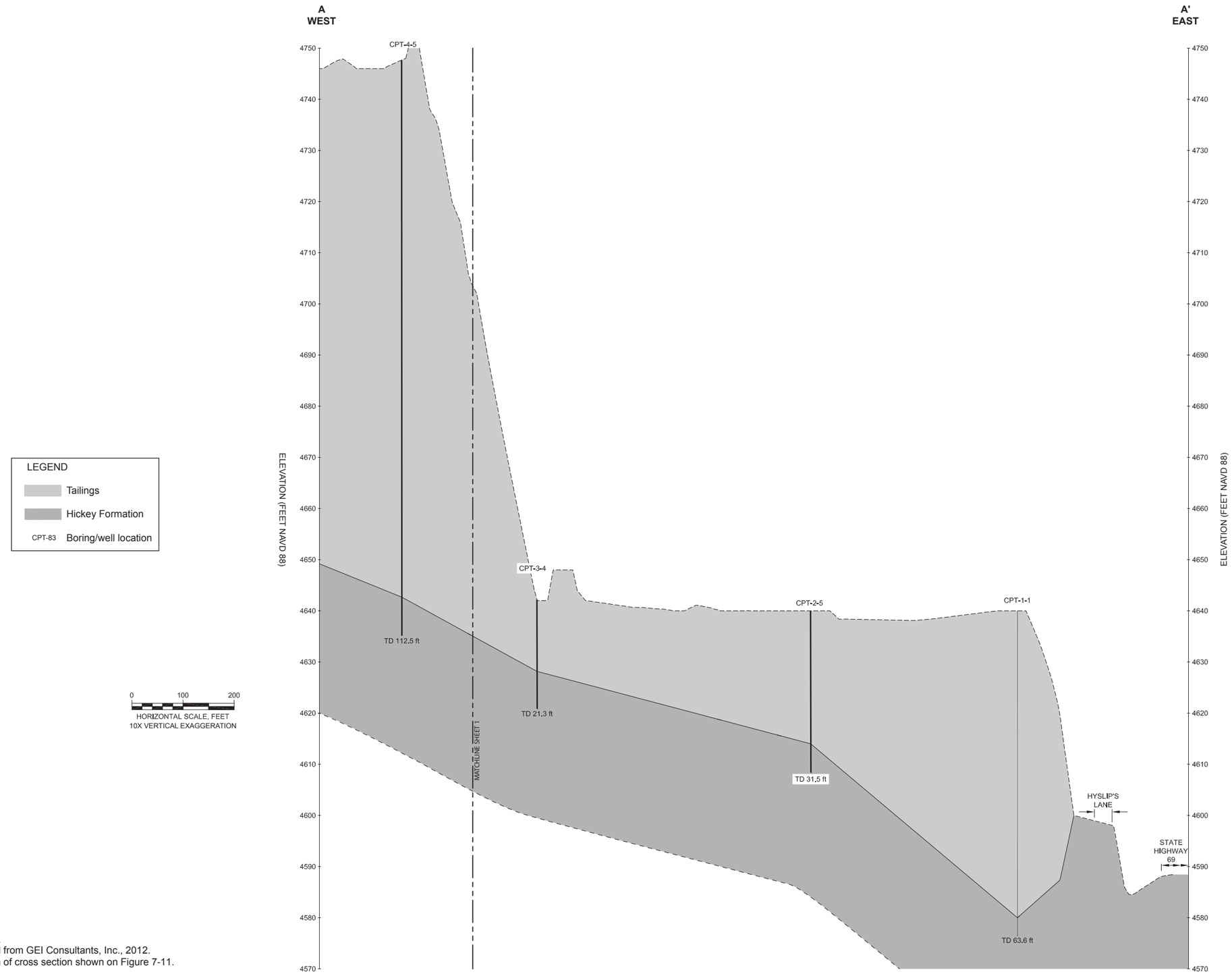
Figure 7-11
Location of Main Tailings Pile Cross Sections
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-11_MINETAILXSECTION.MXD FELHADID 5/16/2016 8:00:58 AM

NOTES:
Modified from GEI Consultants, Inc., 2012.
Location of cross section shown on Figure 7-11.

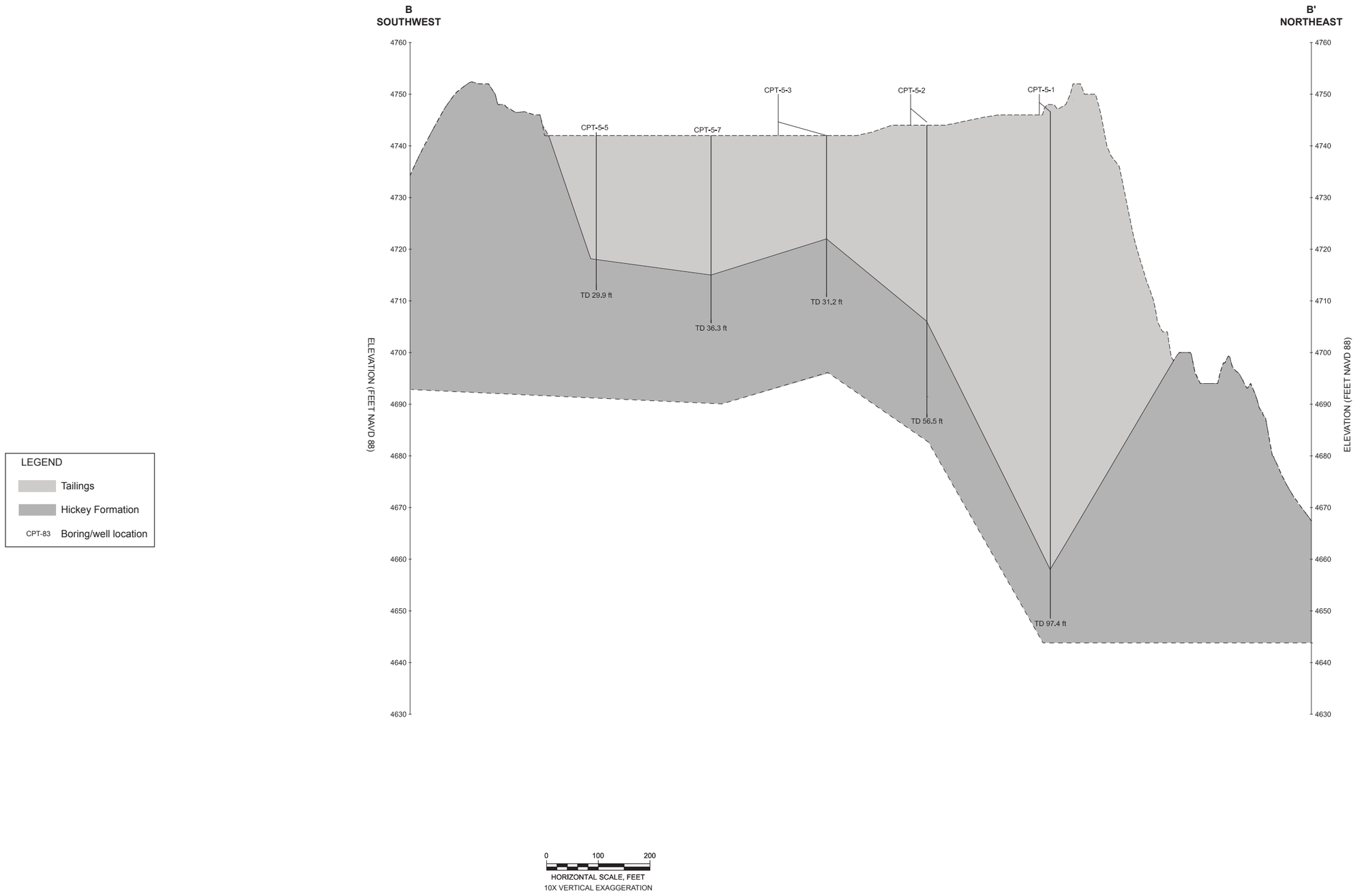
EN0622151025SCO Iron_King_Mine_section_A_West_to_East_1_rev1.ai 4/16

FIGURE 7-12
Iron King Mine Main Tailings Pile
Cross Section A-A' (Sheet 1 of 2)
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



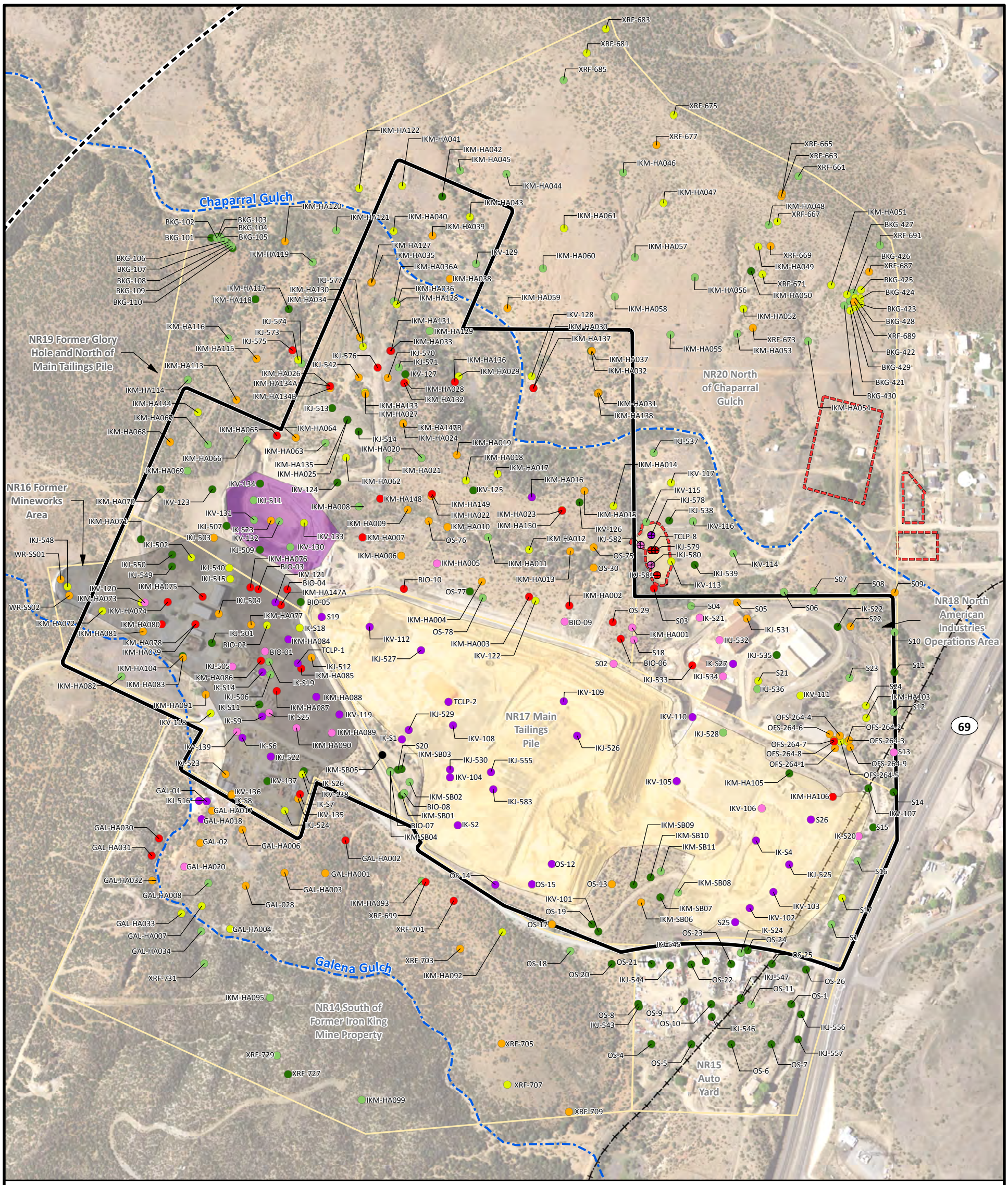
NOTES:
Modified from GEI Consultants, Inc., 2012.
Location of cross section shown on Figure 7-11.

FIGURE 7-13
Iron King Mine Main Tailings Pile
Cross Section A-A'
(Sheet 2 of 2)
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



NOTES:
Modified from GEI Consultants, Inc., 2012.
Location of cross section shown on Figure 7-11.

FIGURE 7-14
Iron King Mine Main Tailings Pile
Cross Section B-B'
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Arsenic Concentration in Surface Soil (mg/kg)

- Not Detected
- 8.6 (Lowest Detection) to 50
- >50 to 112 (Background)
- >112 to 194 (Screening Level)
- >194 to 400
- >400 to 800
- >800 to 1,600
- >1,600 to 12,000 (Highest Detection)
- Pre-Removal Soil Sample Location[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Removal Action Area
- Tailings
- Former Glory Hole
- Waste Rock
- Area of Potential Site Impact (APSI)
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

[a]Pre-removal samples refer to samples collected from an area subsequently subject to removal action. The color shown for the sample reflects the concentration prior to soil removal.

Notes:
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. Only samples within non-residential exposure areas on or adjacent to the Former Iron King Mine property are shown on this figure.
Image Source: USDA, 2015.

N

0 500 1,000

Scale in Feet

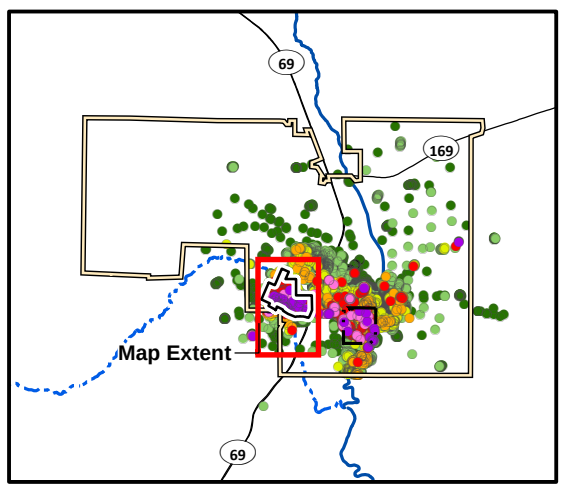
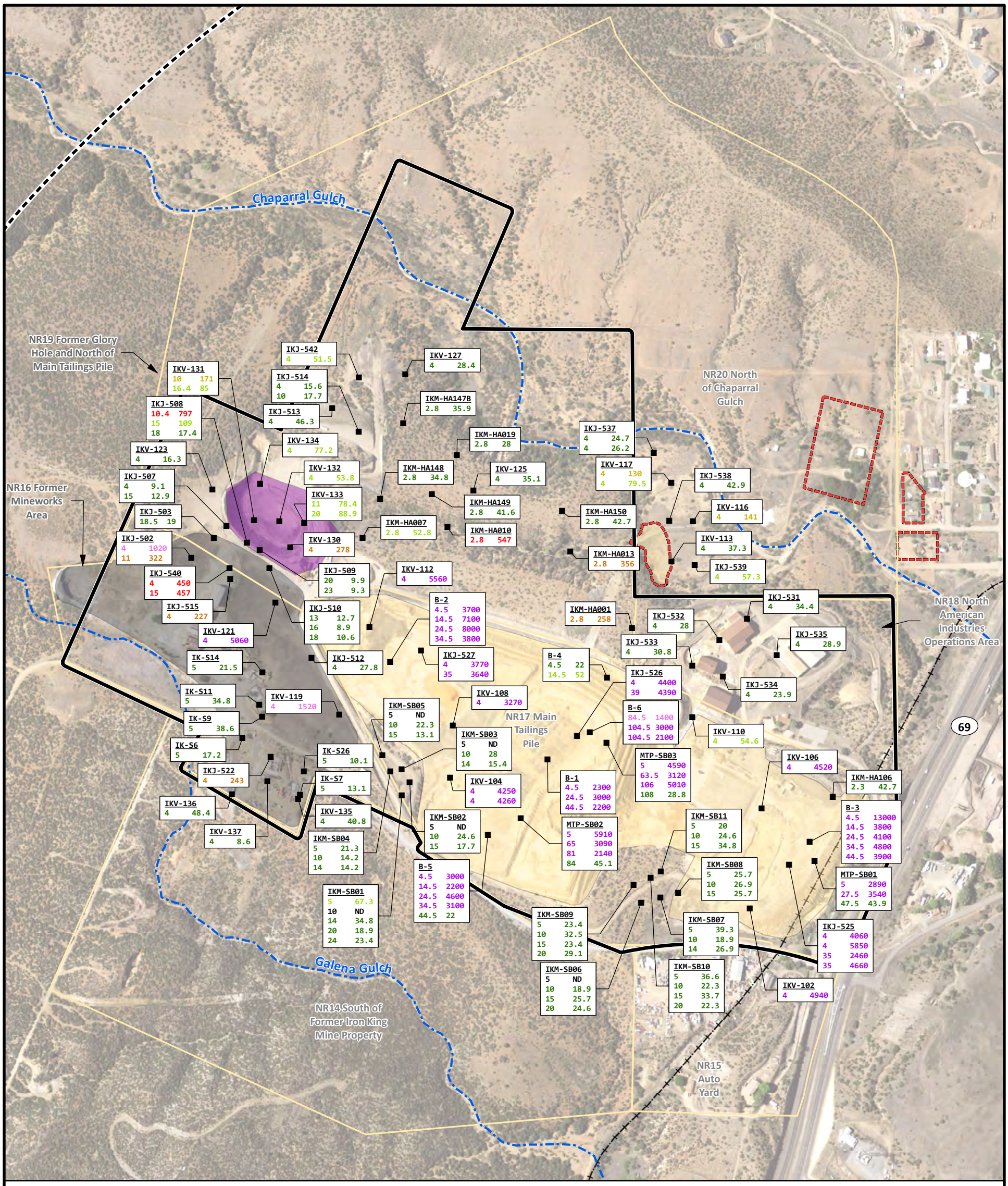


Figure 7-15
Arsenic Distribution in Surface Soil, Former Iron King Mine Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Subsurface Soil Sample Location
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Removal Action Area
- Tailings
- Former Glory Hole
- Waste Rock
- Area of Potential Site Impact (APSI)
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

ASH-B02 — Location ID
3.3 — Sample Depth (feet bgs)
749 — Maximum Detected Arsenic Concentration (mg/kg)

Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	8.6 (Lowest Detection) to 50
Lime	>50 to 112 (Background)
Yellow	>112 to 194 (Screening Level)
Orange	>194 to 400
Red	>400 to 800
Pink	>800 to 1,600
Purple	>1,600 to 13,000 (Highest Detection)

Notes:
bgs = below ground surface
Subsurface soil samples have a beginning depth greater than 2 feet bgs.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Only samples within non-residential exposure areas on or adjacent to the Former Iron King Mine property are shown on this figure.
Image Source: USDA, 2015.

N
0 500 1,000
Scale in Feet

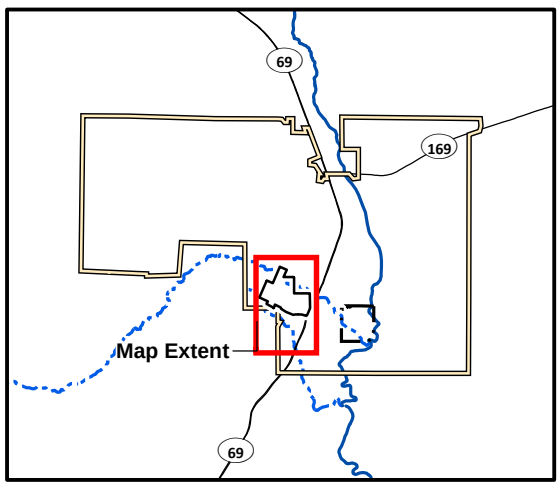
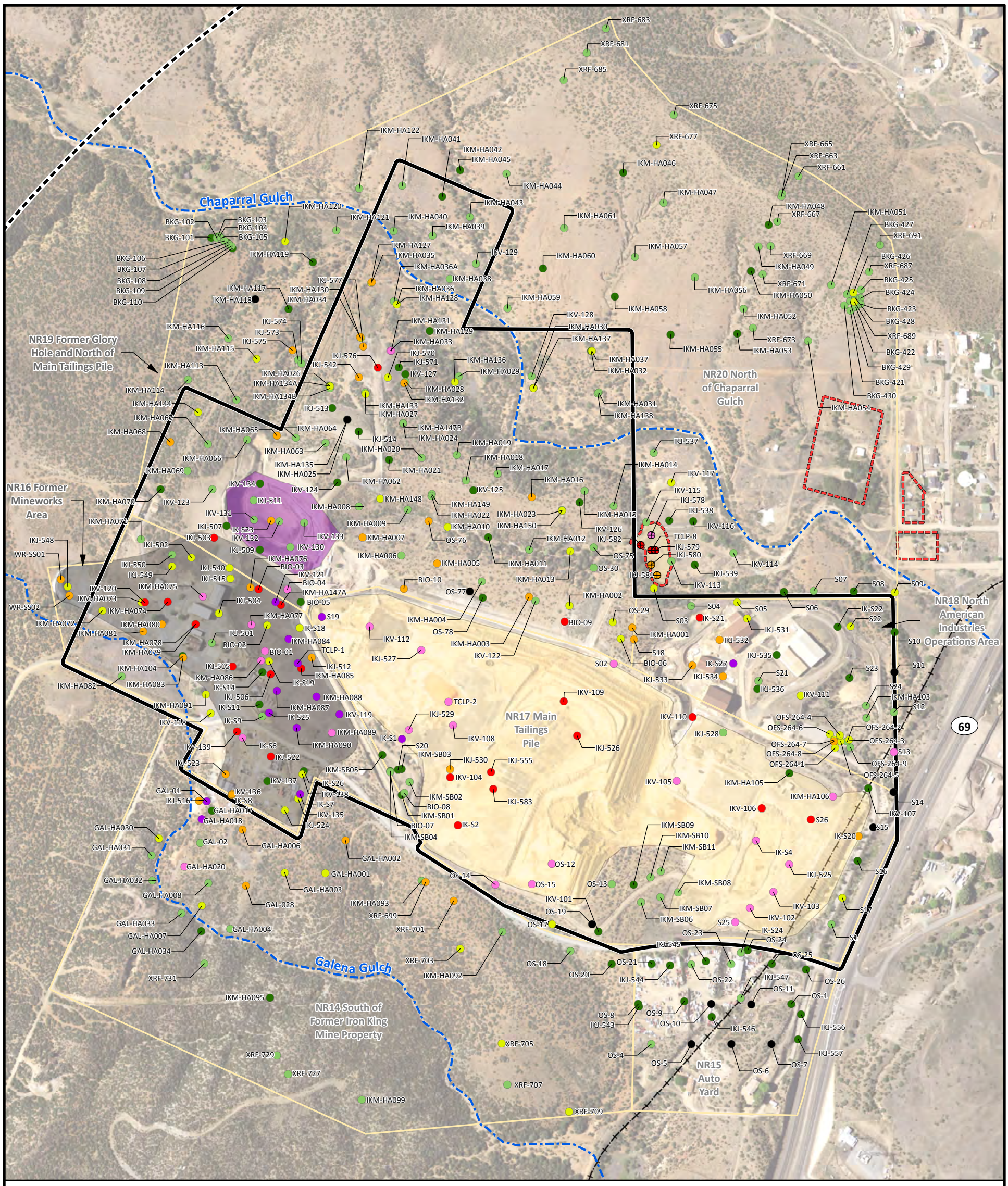


Figure 7-16
Arsenic Distribution in Subsurface Soil, Former Iron King Mine Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-16_ASSUBS_IKM.MXD TM015632 5/9/2016 10:01:24 PM



LEGEND

Lead Concentration in Surface Soil (mg/kg)

- Not Detected
- 3.3 (Lowest Detection) to 35 (Background)
- >35 to 140 (Provisional RSL)
- >140 to 400 (Residential RSL)
- >400 to 1,200
- >1,200 to 2,400
- >2,400 to 4,800
- >4,800 to 65,700 (Highest Detection)
- Pre-Removal Soil Sample Location[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Removal Action Area
- Tailings
- Former Glory Hole
- Waste Rock
- Area of Potential Site Impact (APSI)
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

[a]Pre-removal samples refer to samples collected from an area subsequently subject to removal action. The color shown for the sample reflects the concentration prior to soil removal.

Notes:
RSL = EPA Regional Screening Level
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface.
At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Only samples within non-residential exposure areas on or adjacent to the Former Iron King Mine property are shown on this figure.
Image Source: USDA, 2015.

N

0 500 1,000

Scale in Feet

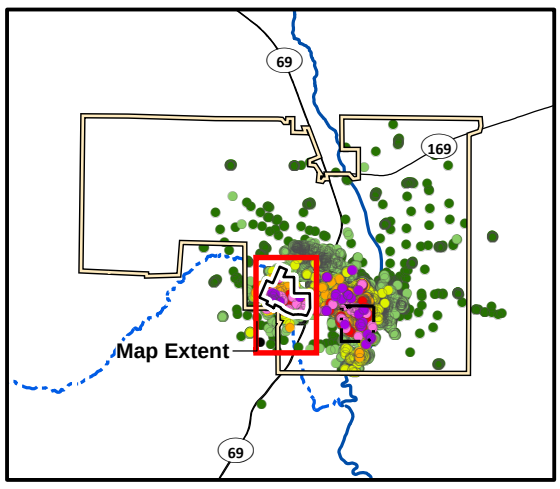
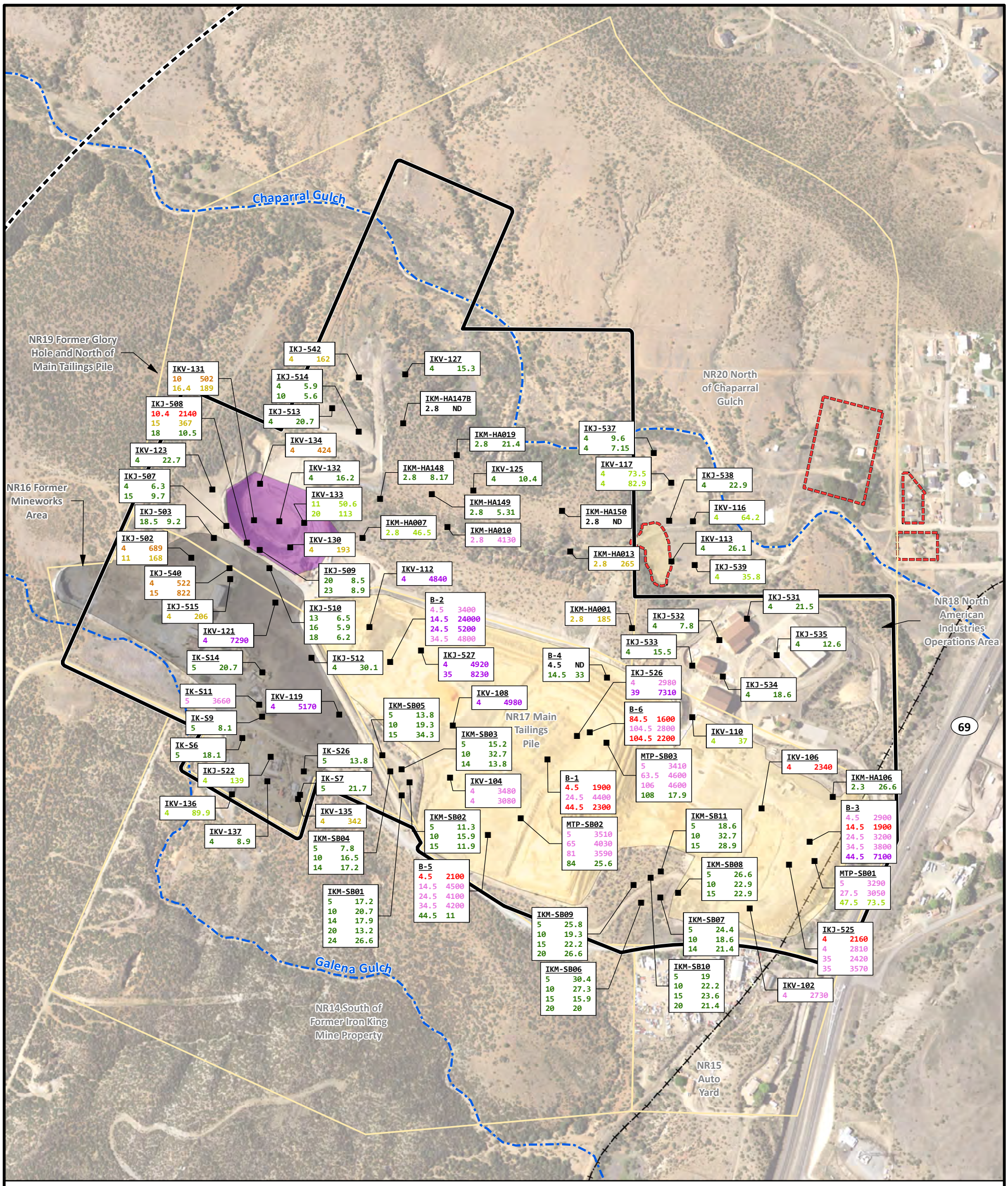


Figure 7-17
Lead Distribution in Surface Soil, Former Iron King Mine Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-17_PBSS_IKM.MXD TM015632 5/9/2016 9:58:48 PM



LEGEND

- Subsurface Soil Sample Location
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Removal Action Area
- Tailings
- Former Glory Hole
- Waste Rock
- Area of Potential Site Impact (APSI)
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

IKV-119 (Location ID)
4 (Sample Depth (feet bgs)) 5170 (Maximum Detected Lead Concentration (mg/kg))

Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	5.31 (Lowest Detection) to 35 (Background)
Lime	>35 to 140 (Provisional RSL)
Yellow	>140 to 400 (Residential RSL)
Orange	>400 to 1,200
Red	>1,200 to 2,400
Pink	>2,400 to 4,800
Purple	>4,800 to 24,000 (Highest Detection)

Notes:
bgs = below ground surface
RSL = EPA Regional Screening Level
Subsurface soil samples have a beginning depth greater than 2 feet bgs.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Only samples within non-residential exposure areas on or adjacent to the Former Iron King Mine property are shown on this figure.
Image Source: USDA, 2015.

0 500 1,000
Scale in Feet
N

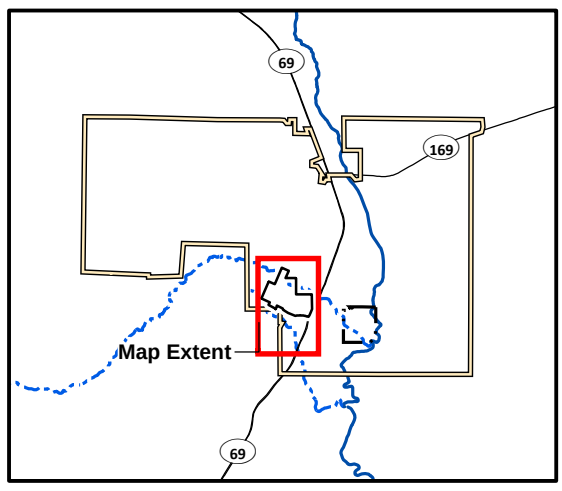
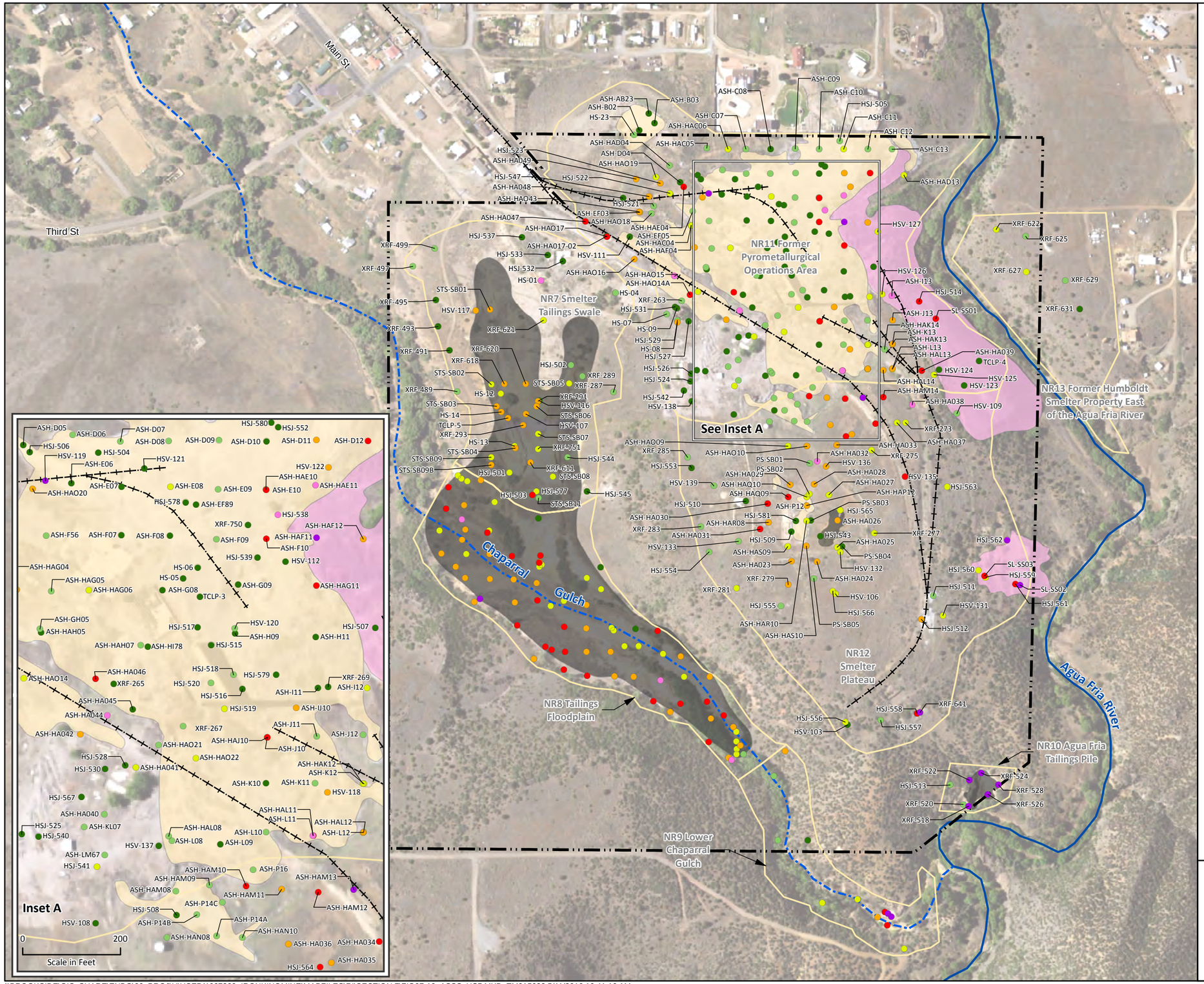
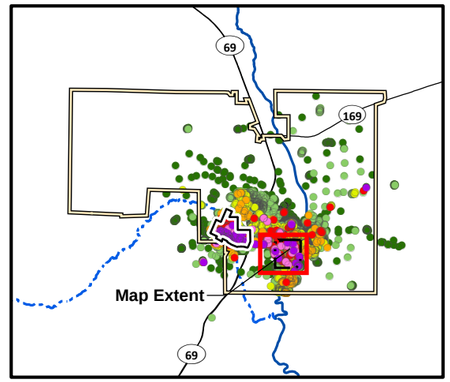


Figure 7-18
Lead Distribution in Subsurface Soil, Former Iron King Mine Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-18_PBSUBS_IKM.MXD TM015632 5/9/2016 10:02:43 PM





LEGEND

Arsenic Concentration in Surface Soil (mg/kg)

- Not Detected
- 8.6 (Lowest Detection) to 50
- >50 to 112 (Background)
- >112 to 194 (Screening Level)
- >194 to 400
- >400 to 800
- >800 to 1,600
- >1,600 to 20,200 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

0 400 800
Scale in Feet
N

Notes:
Only samples within non-residential exposure areas on or adjacent to the former Humboldt Smelter property are shown on this figure. Samples within exposure areas NR7, NR10, NR11, NR12, and NR13 are labeled; samples in Chaparral Gulch exposure areas are labeled on Figure 7-24.
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-19
Arsenic Distribution in Surface Soil, Former Humboldt Smelter Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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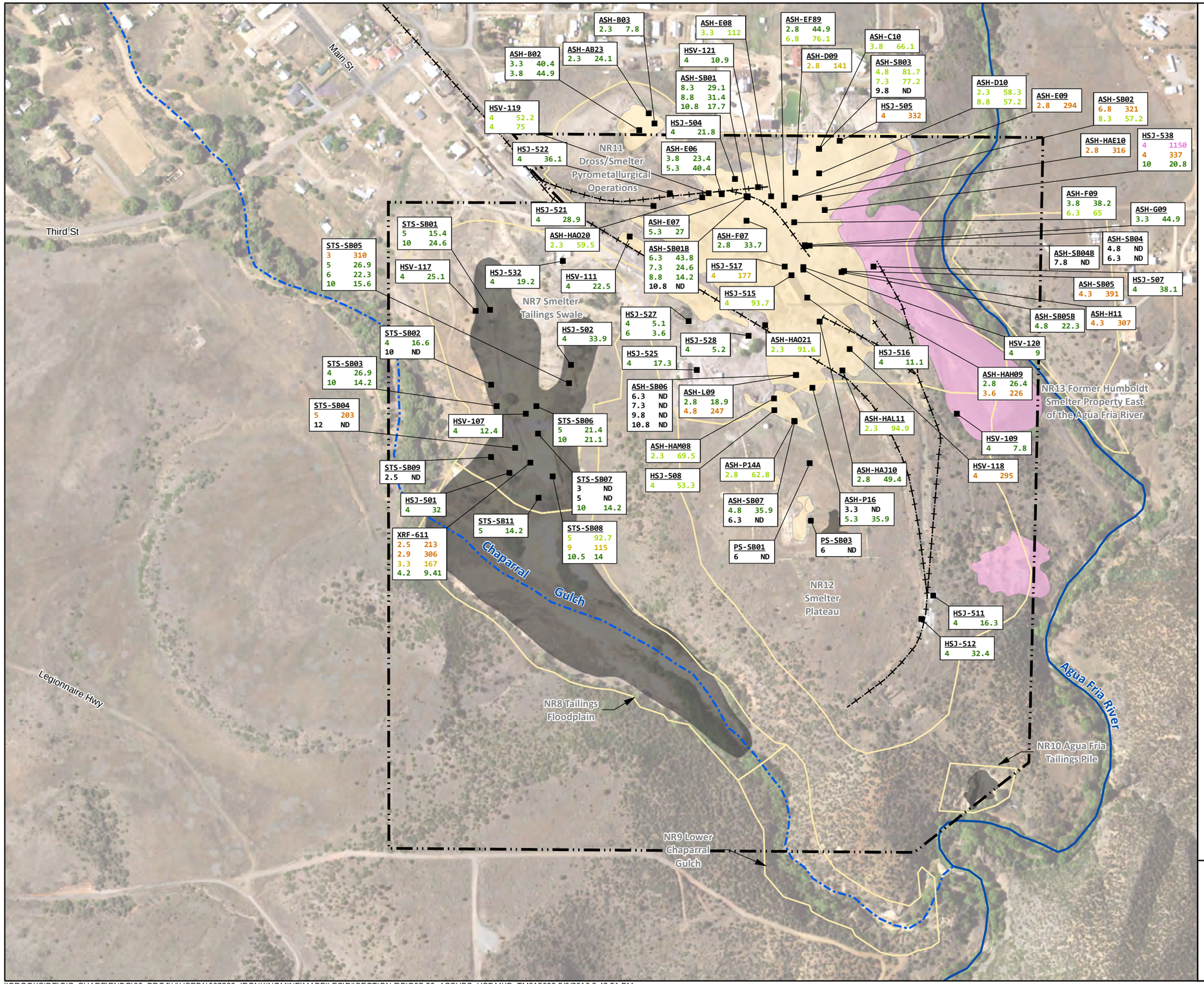


LEGEND

- Subsurface Soil Sample Location
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

ASH-H11 (Location ID)
4.3 307 (Sample Depth (feet bgs); Maximum Detected Arsenic Concentration (mg/kg))

Sample Concentration Color Range:

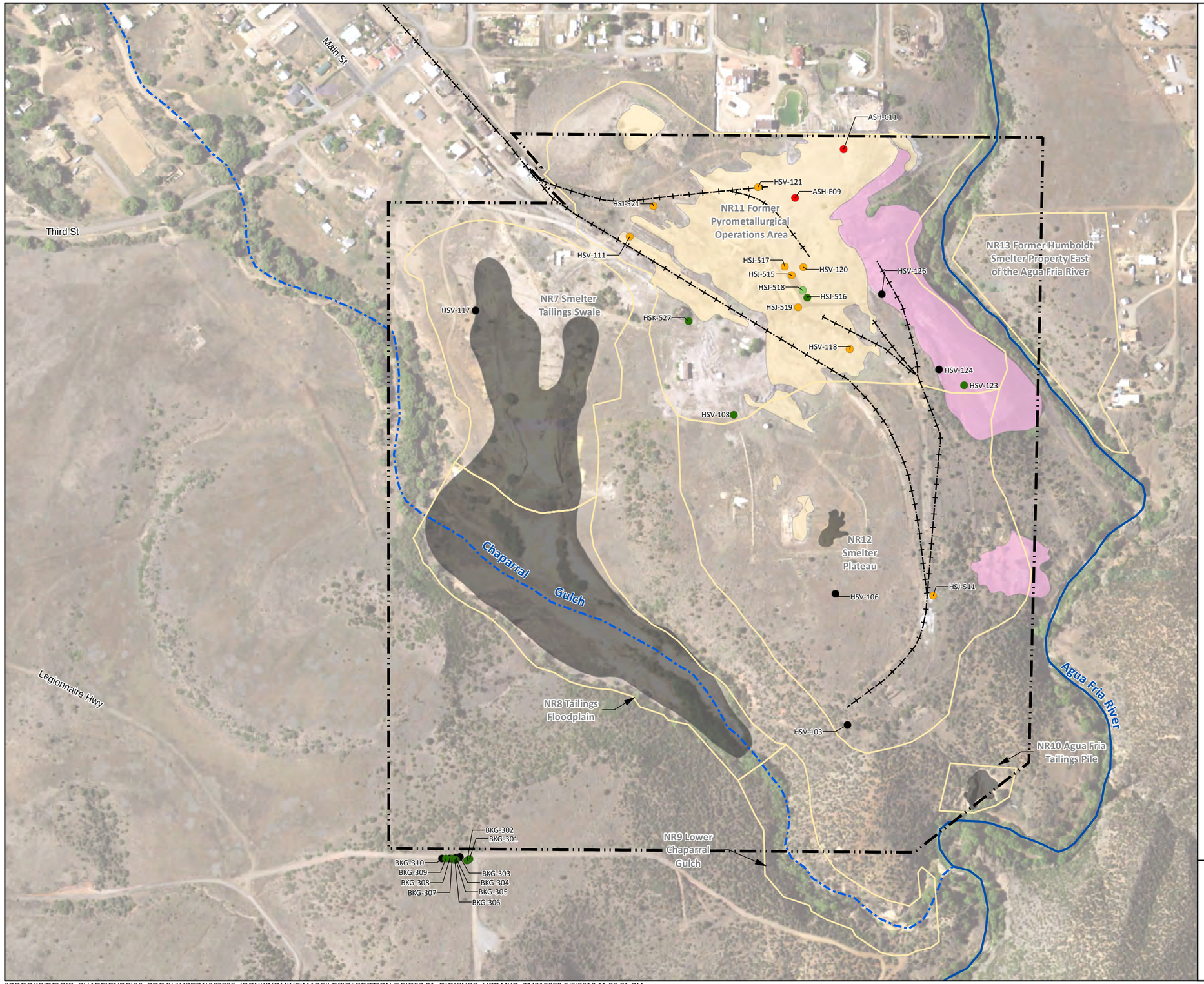
Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	3.6 (Lowest Detection) to 50
Lime	>50 to 112 (Background)
Yellow	>112 to 194 (Screening Level)
Orange	>194 to 400
Red	>400 to 800
Pink	>800 to 1,150 (Highest Detection)

0 400 800
Scale in Feet

N

Notes:
bgs = below ground surface
Only samples within non-residential exposure areas on or adjacent to the former Humboldt Smelter property are shown on this figure.
Samples within exposure areas NR7, NR11, and NR12 are labeled; samples in Chaparral Gulch exposure areas are labeled on Figure 7-26A and Figure 7-26B.
Subsurface soil samples have a beginning depth greater than 2 feet bgs.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

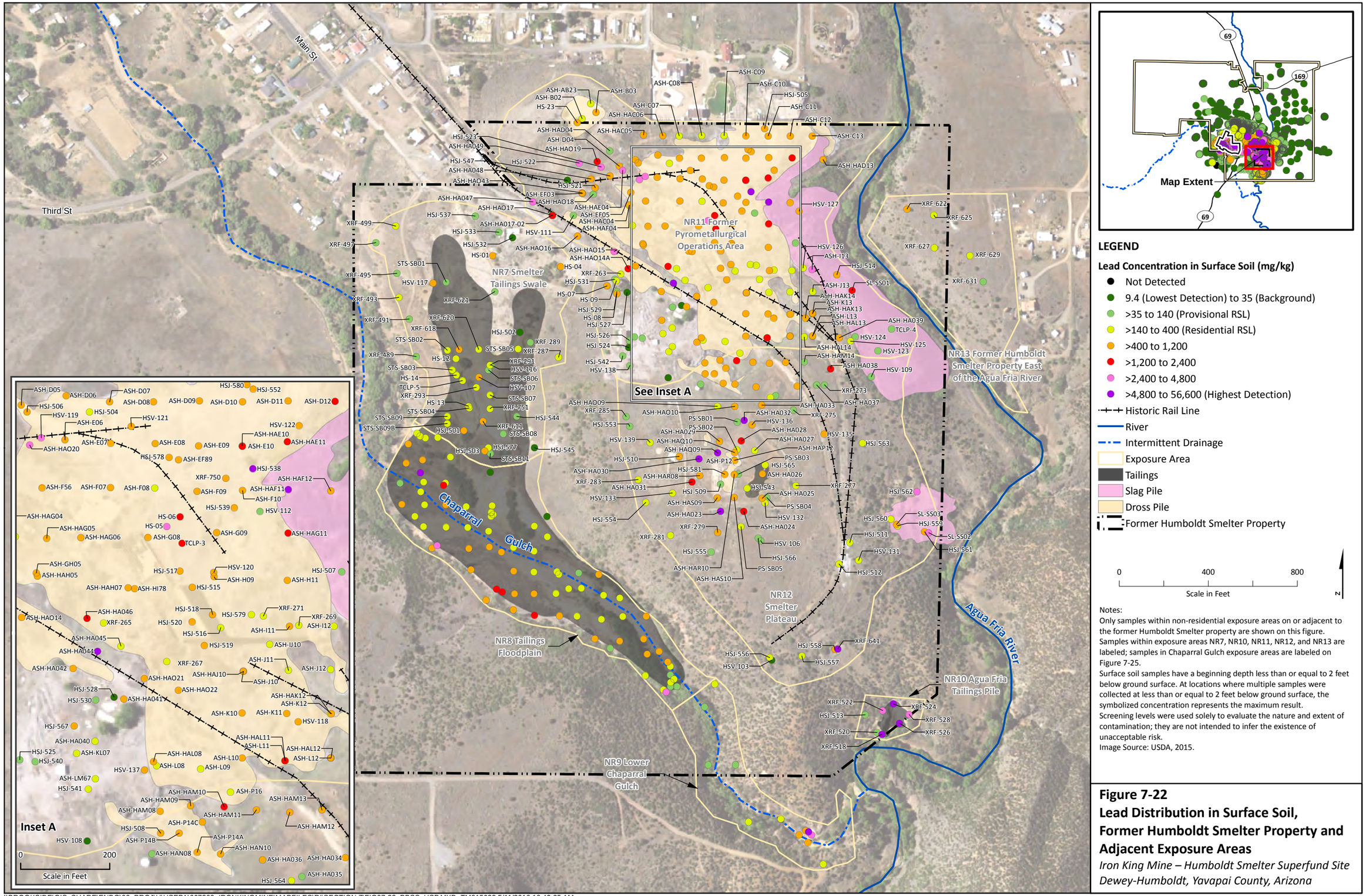
Figure 7-20
Arsenic Distribution in Subsurface Soil, Former Humboldt Smelter Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



[a]Total dioxin/furan concentrations expressed as the toxic equivalency (TEQ) for mammal species.

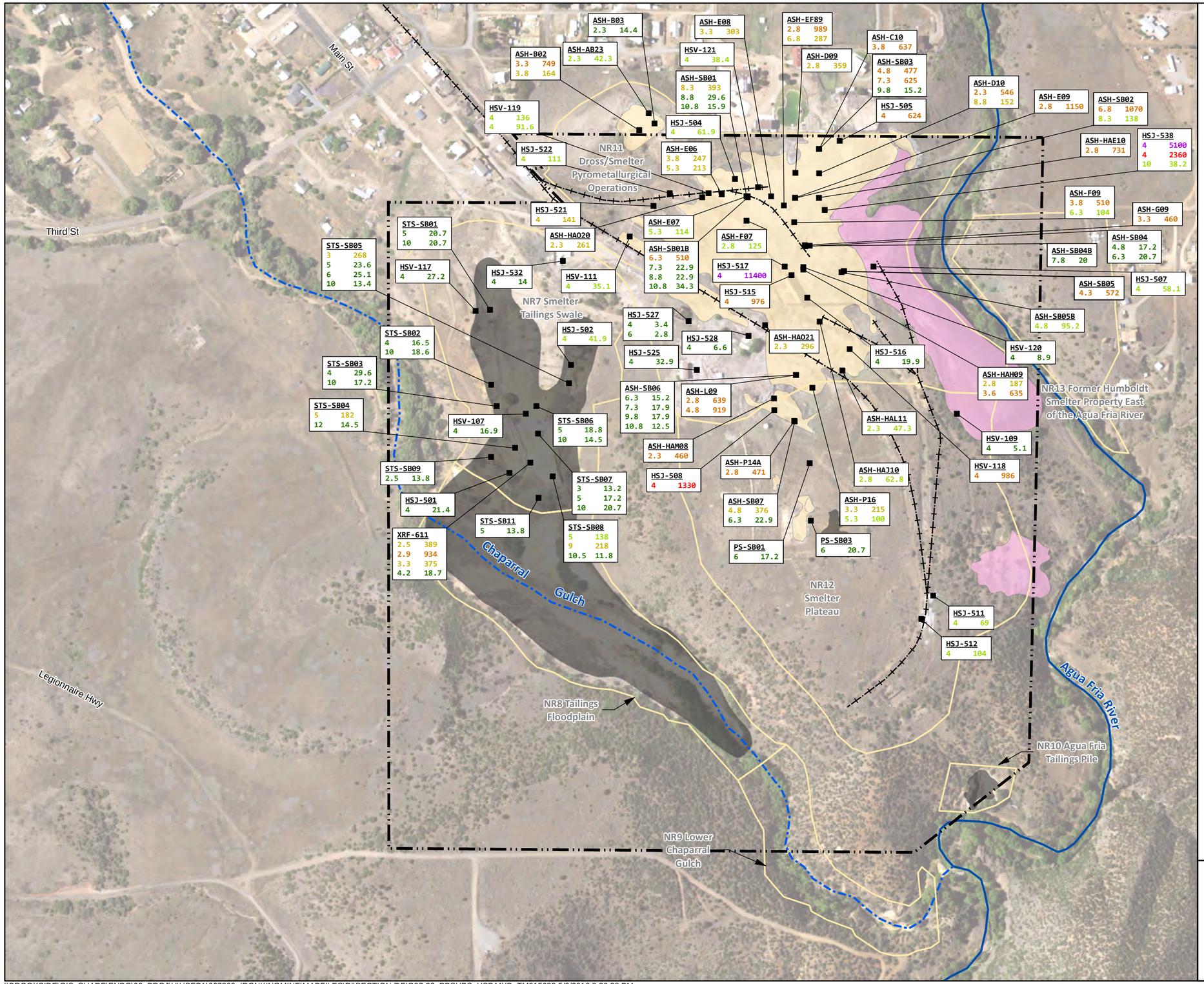
Notes:
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-21
Dioxin/Furan Distribution in Surface Soil, Former Humboldt Smelter Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



Notes:
Only samples within non-residential exposure areas on or adjacent to the former Humboldt Smelter property are shown on this figure.
Samples within exposure areas NR7, NR10, NR11, NR12, and NR13 are labeled; samples in Chaparral Gulch exposure areas are labeled on Figure 7-25.
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-22
Lead Distribution in Surface Soil, Former Humboldt Smelter Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Subsurface Soil Sample Location
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

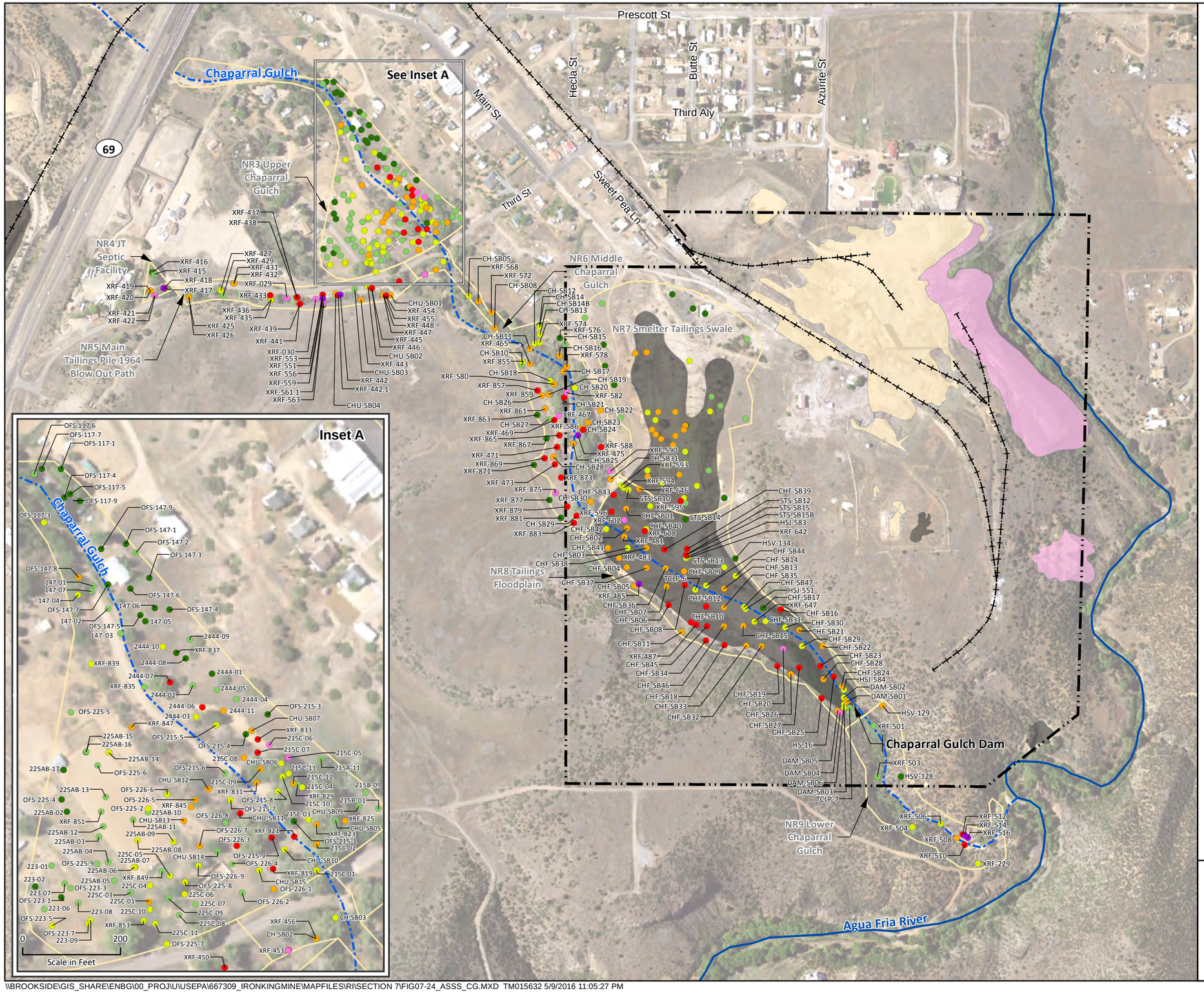
HSV-118 (Location ID)
4 (Sample Depth (feet bgs)) 986 (Maximum Detected Lead Concentration (mg/kg))

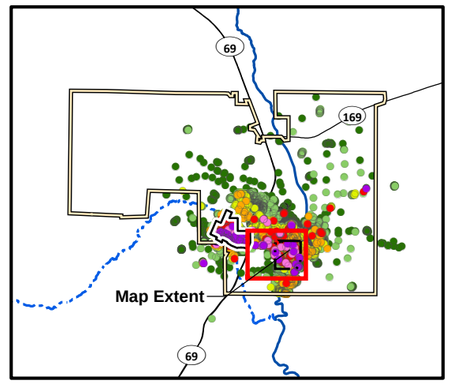
Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	2.8 (Lowest Detection) to 35 (Background)
Lime	>35 to 140 (Provisional RSL)
Yellow	>140 to 400 (Residential RSL)
Orange	>400 to 1,200
Red	>1,200 to 2,400
Pink	>2,400 to 4,800
Purple	>4,800 to 11,400 (Highest Detection)

Notes:
bgs = below ground surface
RSL = EPA Regional Screening Level
Only samples within non-residential exposure areas on or adjacent to the former Humboldt Smelter property are shown on this figure.
Samples within exposure areas NR7, NR11, and NR12 are labeled; samples in Chaparral Gulch exposure areas are labeled on Figure 7-27A and Figure 7-27B.
Subsurface soil samples have a beginning depth greater than 2 feet bgs.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-23
Lead Distribution in Subsurface Soil, Former Humboldt Smelter Property and Adjacent Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona





LEGEND

Arsenic Concentration in Surface Soil (mg/kg)

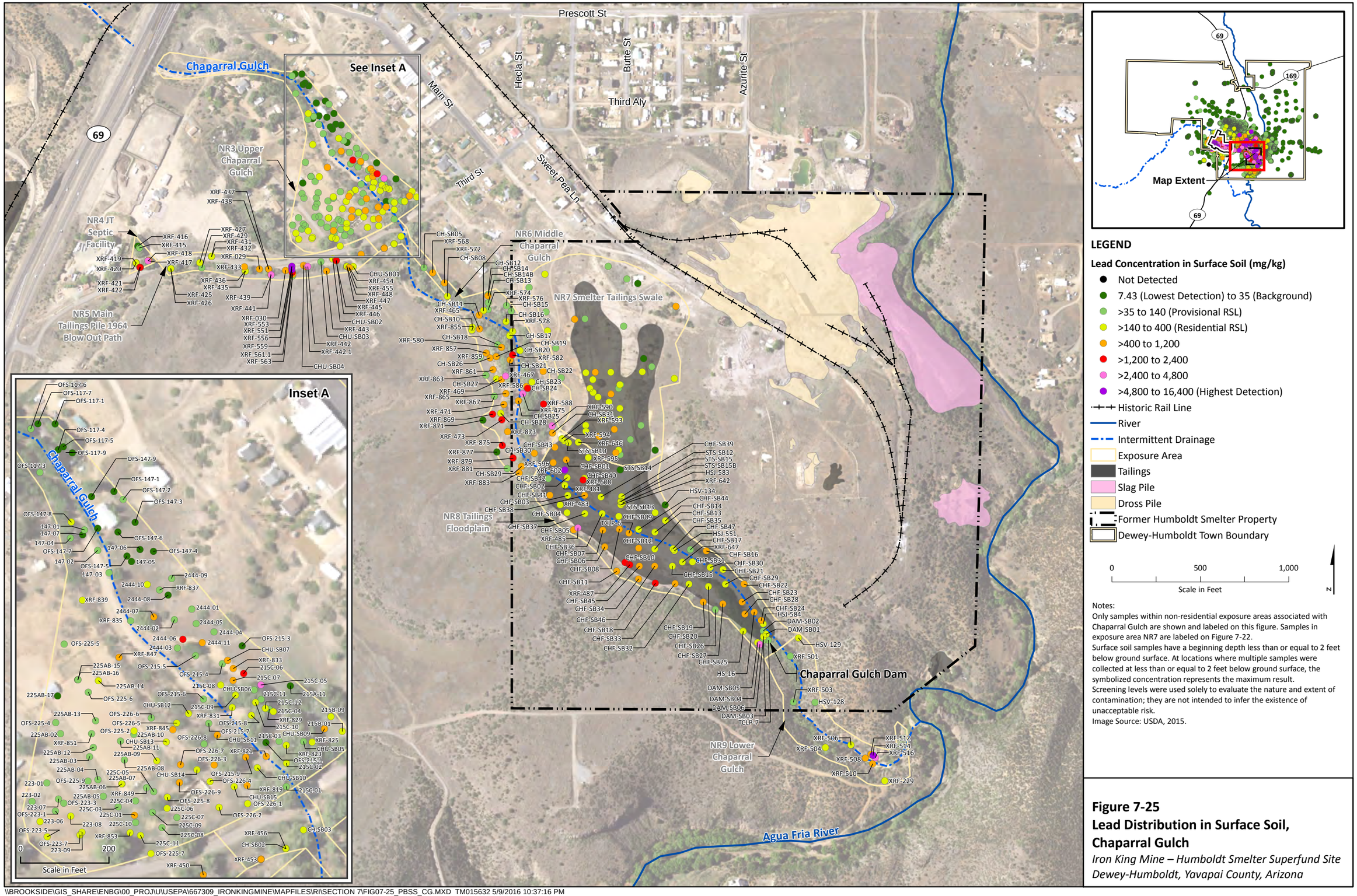
- Not Detected
- 8.6 (Lowest Detection) to 50
- >50 to 112 (Background)
- >112 to 194 (Screening Level)
- >194 to 400
- >400 to 800
- >800 to 1,600
- 1,600 to 4,140 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

0 500 1,000
Scale in Feet

N

Notes:
Only samples within non-residential exposure areas associated with Chaparral Gulch are shown and labeled on this figure. Samples in exposure area NR7 are labeled on Figure 7-19.
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-24
Arsenic Distribution in Surface Soil, Chaparral Gulch
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



Notes:
Only samples within non-residential exposure areas associated with Chaparral Gulch are shown and labeled on this figure. Samples in exposure area NR7 are labeled on Figure 7-22.
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-25
Lead Distribution in Surface Soil, Chaparral Gulch
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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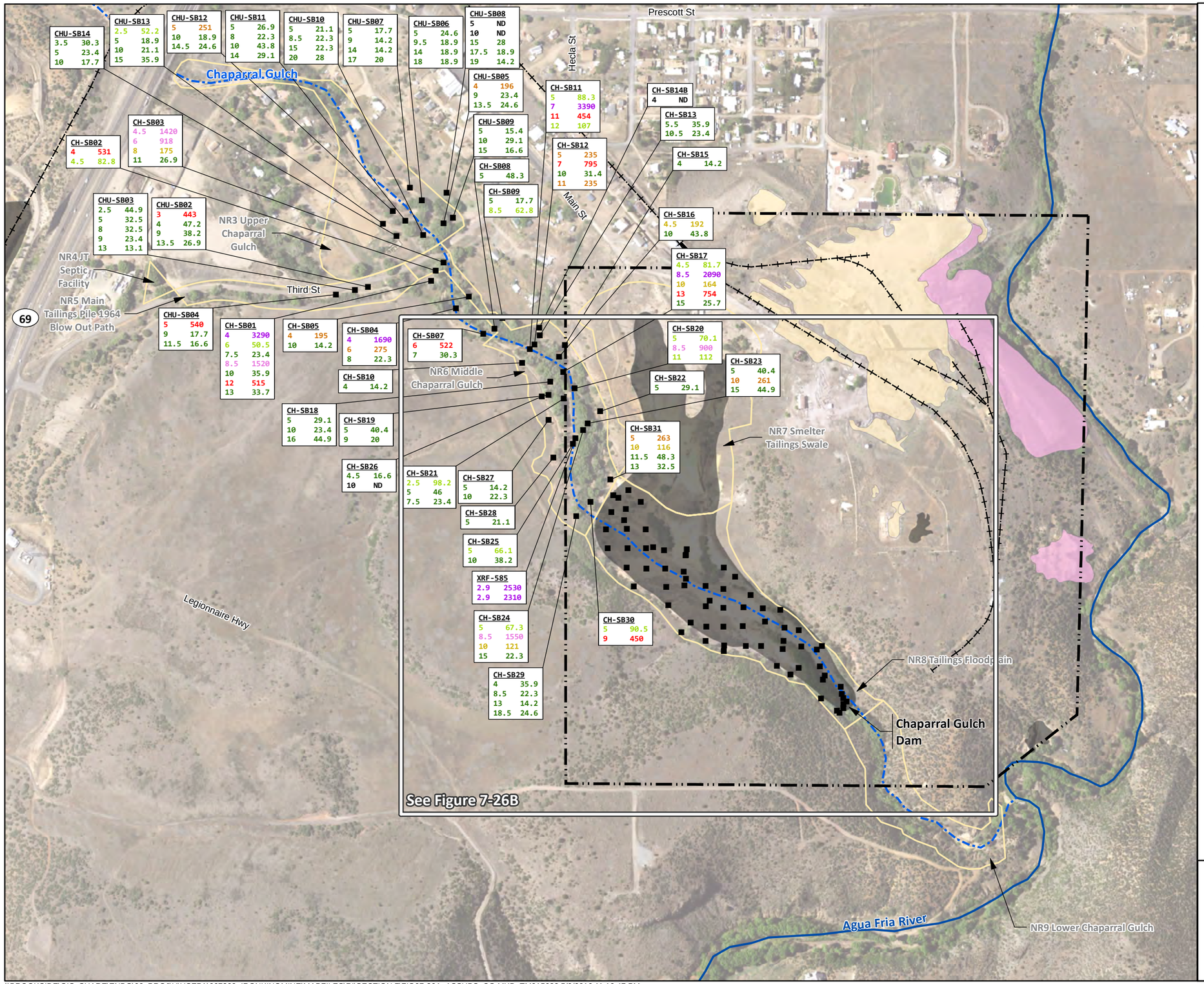
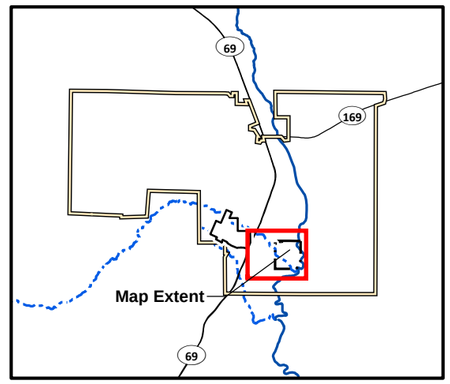




LEGEND

- Subsurface Soil Sample Location
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

Sample Depth (feet bgs) — XRF-585 / 2.9 2530 — Location ID; Maximum Detected Arsenic Concentration (mg/kg)

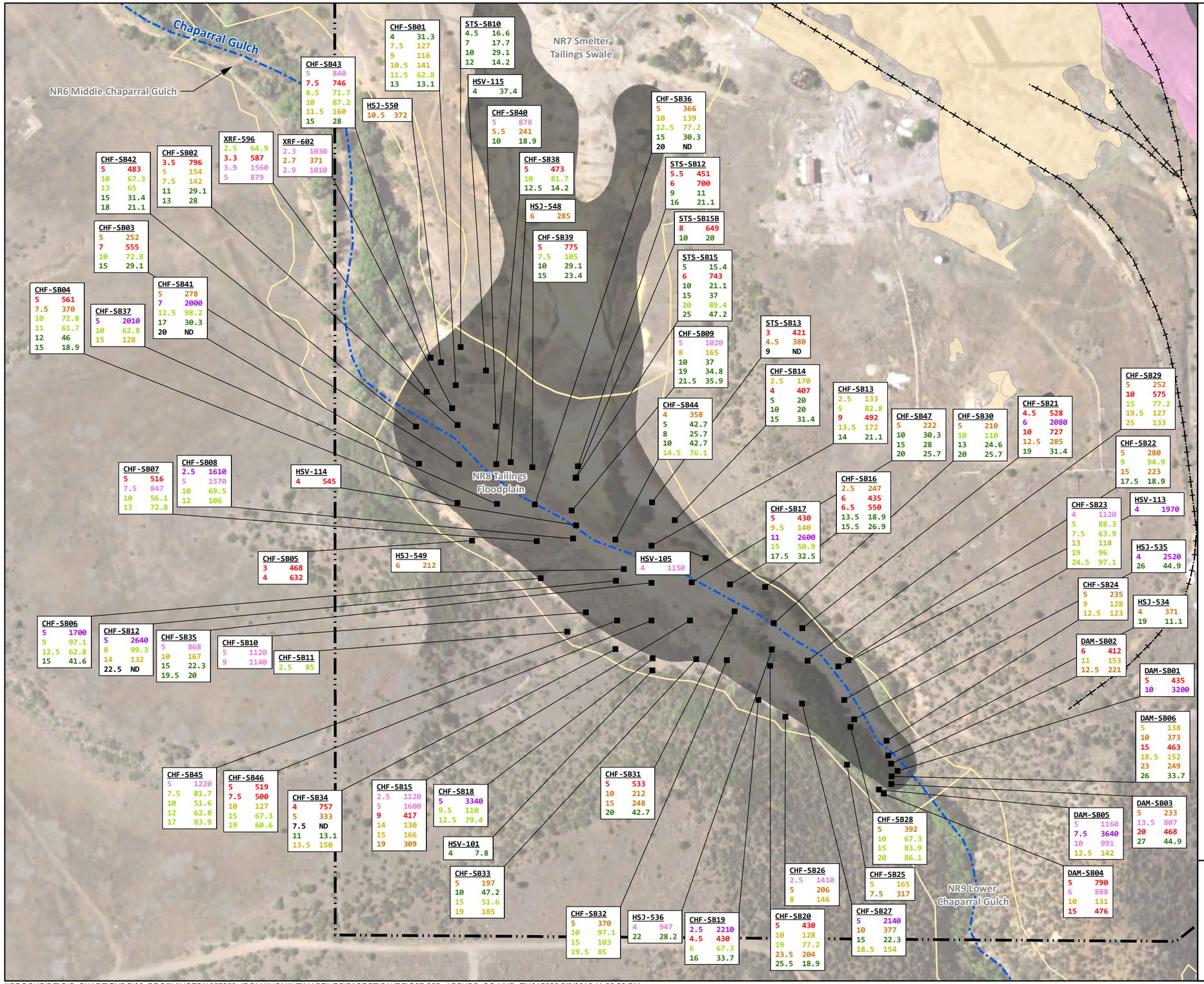
Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	13.1 (Lowest Detection) to 50
Lime	>50 to 112 (Background)
Yellow	>112 to 194 (Screening Level)
Orange	>194 to 400
Red	>400 to 800
Pink	>800 to 1,600
Purple	>1,600 to 3,390 (Highest Detection)

0 500 1,000
Scale in Feet
N

Notes:
bgs = below ground surface
Only samples within non-residential exposure areas NR3, NR5, and NR6 are labeled on this figure. Samples in exposure area NR8 are shown but not labeled; see Figure 7-26B for NR8 results. Samples in exposure areas NR7, NR11, and NR12 are shown and labeled in Figure 7-20. Subsurface soil samples have a beginning depth greater than 2 feet bgs. Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-26A
Arsenic Distribution in Subsurface Soil, Chaparral Gulch, Exposure Areas NR3, NR5, and NR6
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

- Subsurface Soil Sample Location
- Historic Rail Line
- River
- Intermittent Drainage
- Exposure Area
- Tailings
- Slag Pile
- Dross Pile
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Subsurface Soil Sample Label

HSV-113 / 4 1970 — *Sample Depth (feet bgs)*; *Location ID*; *Maximum Detected Arsenic Concentration (mg/kg)*

Sample Concentration Color Range:

Color	Concentration Range (mg/kg)
Black	Not Detected (ND)
Green	7.8 (Lowest Detection) to 50
Lime	>50 to 112 (Background)
Yellow	>112 to 194 (Screening Level)
Orange	>194 to 400
Red	>400 to 800
Pink	>800 to 1,600
Purple	>1,600 to 3,640 (Highest Detection)

0 250 500
Scale in Feet

N

Notes:
bgs = below ground surface
Only samples within non-residential exposure area NR8 are shown and labeled on this figure. Samples in exposure areas NR3, NR5, and NR6 are shown and labeled on Figure 7-26A, and samples in exposure areas NR7, NR11, and NR12 are shown in Figure 20.
Subsurface soil samples have a beginning depth greater than 2 feet bgs.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-26B
Arsenic Distribution in Subsurface Soil, Chaparral Gulch, Exposure Area NR8
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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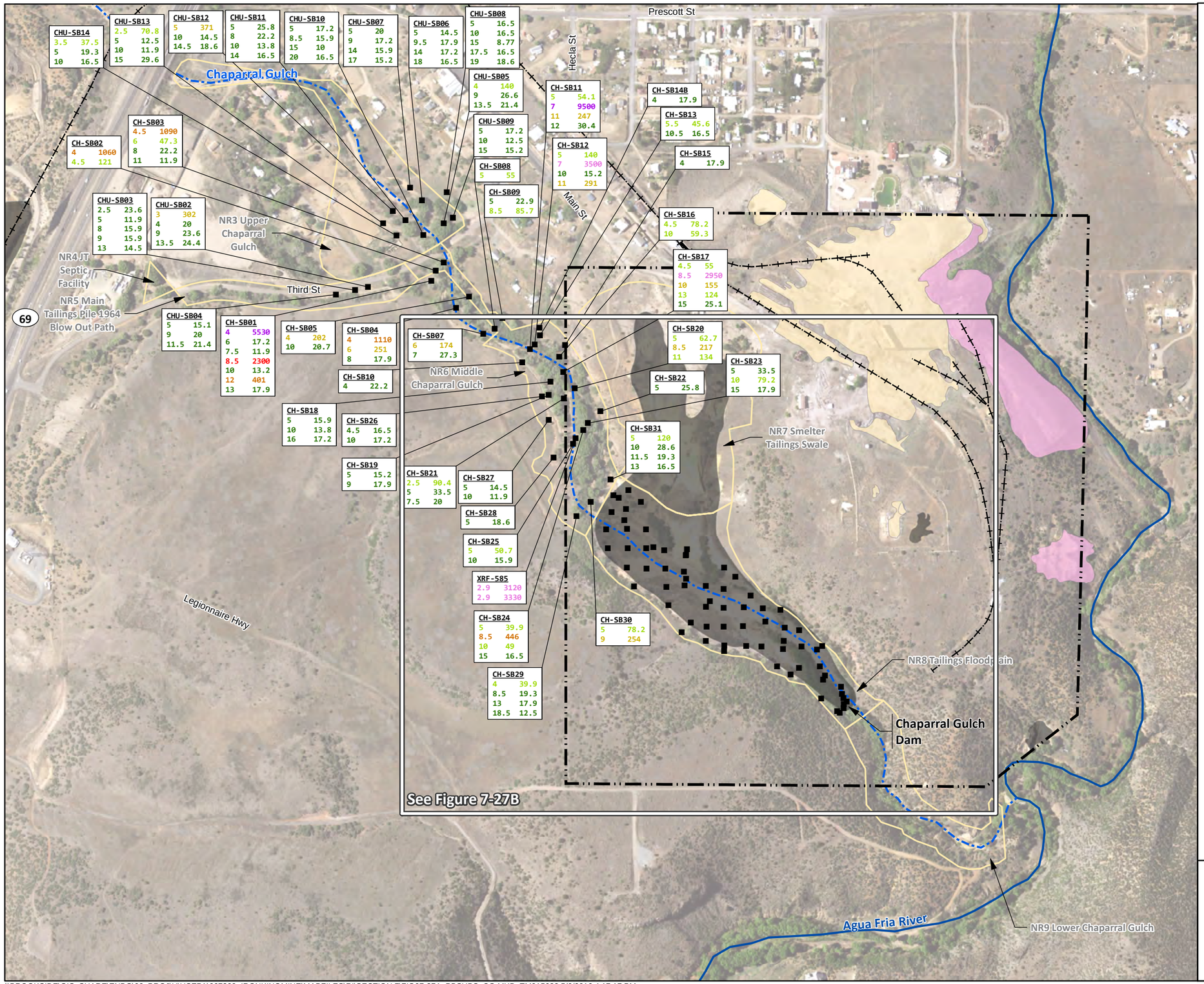
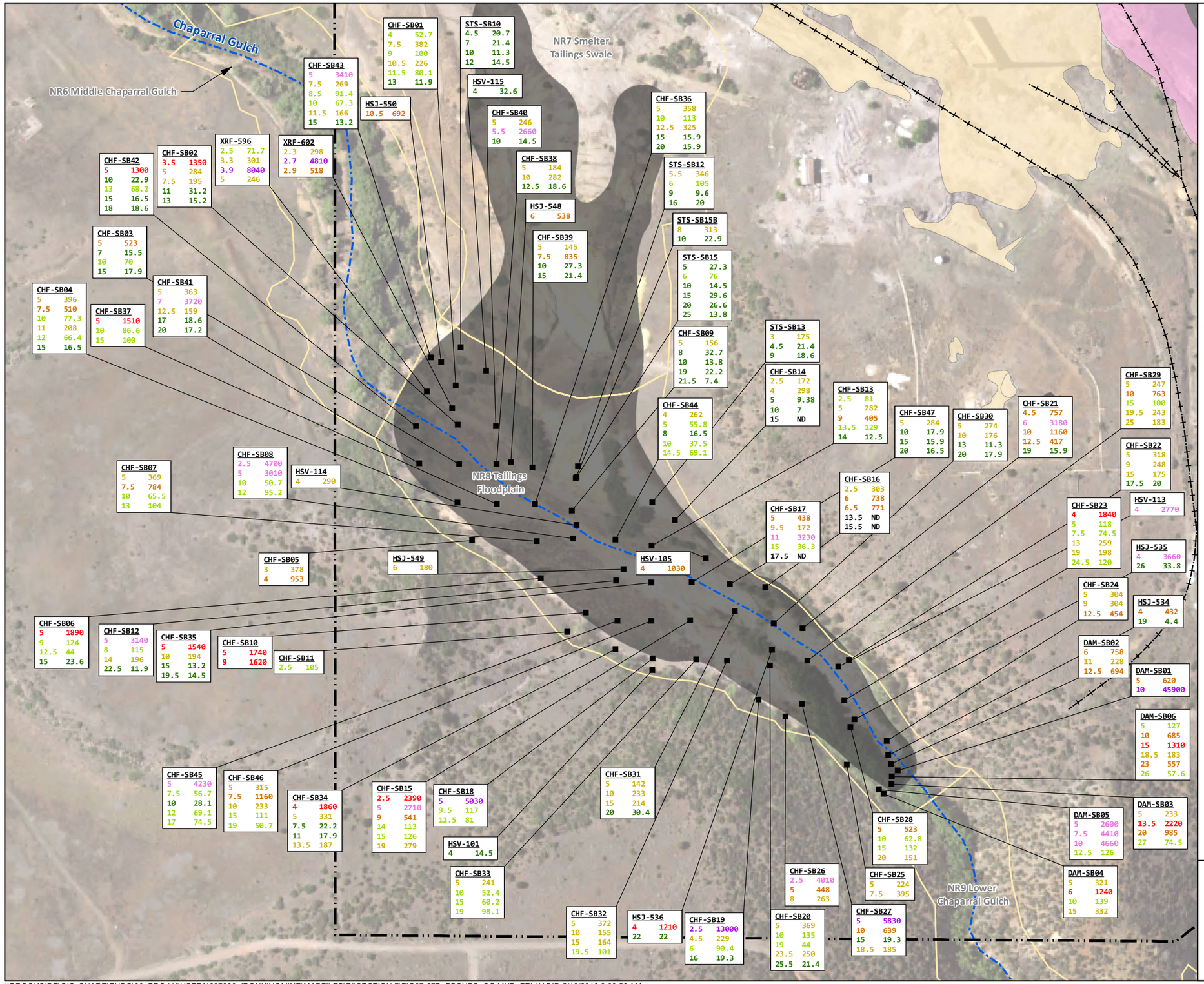


Notes:
bgs = below ground surface
RSL = EPA Regional Screening Level
Only samples within non-residential exposure areas NR3, NR5, and NR6 are labeled on this figure. Samples in exposure area NR8 are shown but not labeled; see Figure 7-27B for NR8 results. Samples in exposure areas NR7, NR11, and NR12 are shown and labeled in Figure 7-23.
Subsurface soil samples have a beginning depth greater than 2 feet bgs.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-27A
Lead Distribution in Subsurface Soil, Chaparral Gulch, Exposure Areas NR3, NR5, and NR6
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-27A_PBSUBS_CG.MXD TM015632 5/6/2016 4:17:17 PM



Notes:
bgs = below ground surface
RSL = EPA Regional Screening Level
Only samples within non-residential exposure area NR8 are shown and labeled on this figure. Samples in exposure areas NR3, NR5, and NR6 are shown and labeled on Figure 7-27A, and samples in exposure areas NR7, NR11, and NR12 are shown in Figure 23.
Subsurface soil samples have a beginning depth greater than 2 feet bgs.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
Image Source: USDA, 2015.

Figure 7-27B
Lead Distribution in Subsurface Soil, Chaparral Gulch, Exposure Area NR8
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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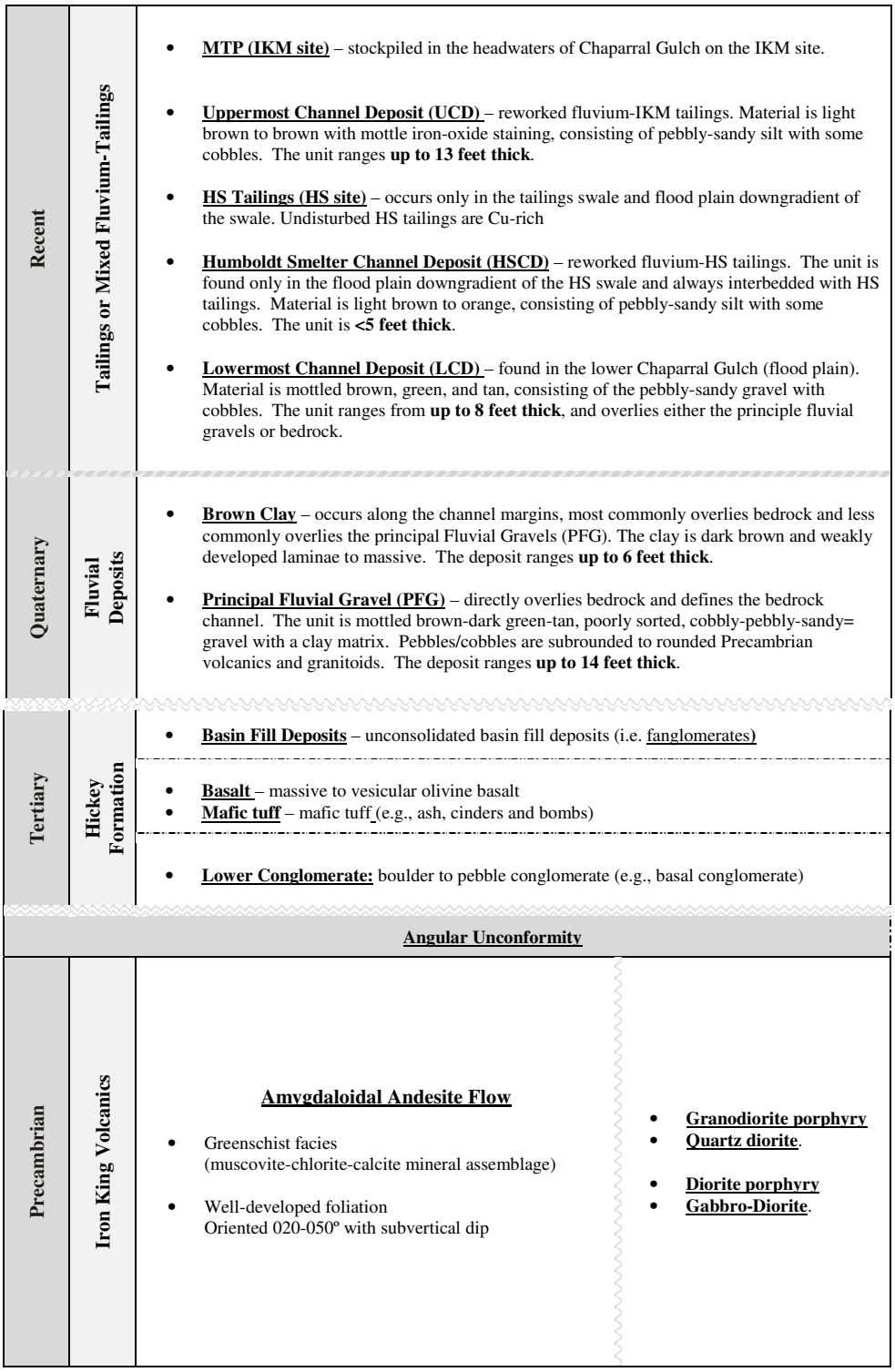
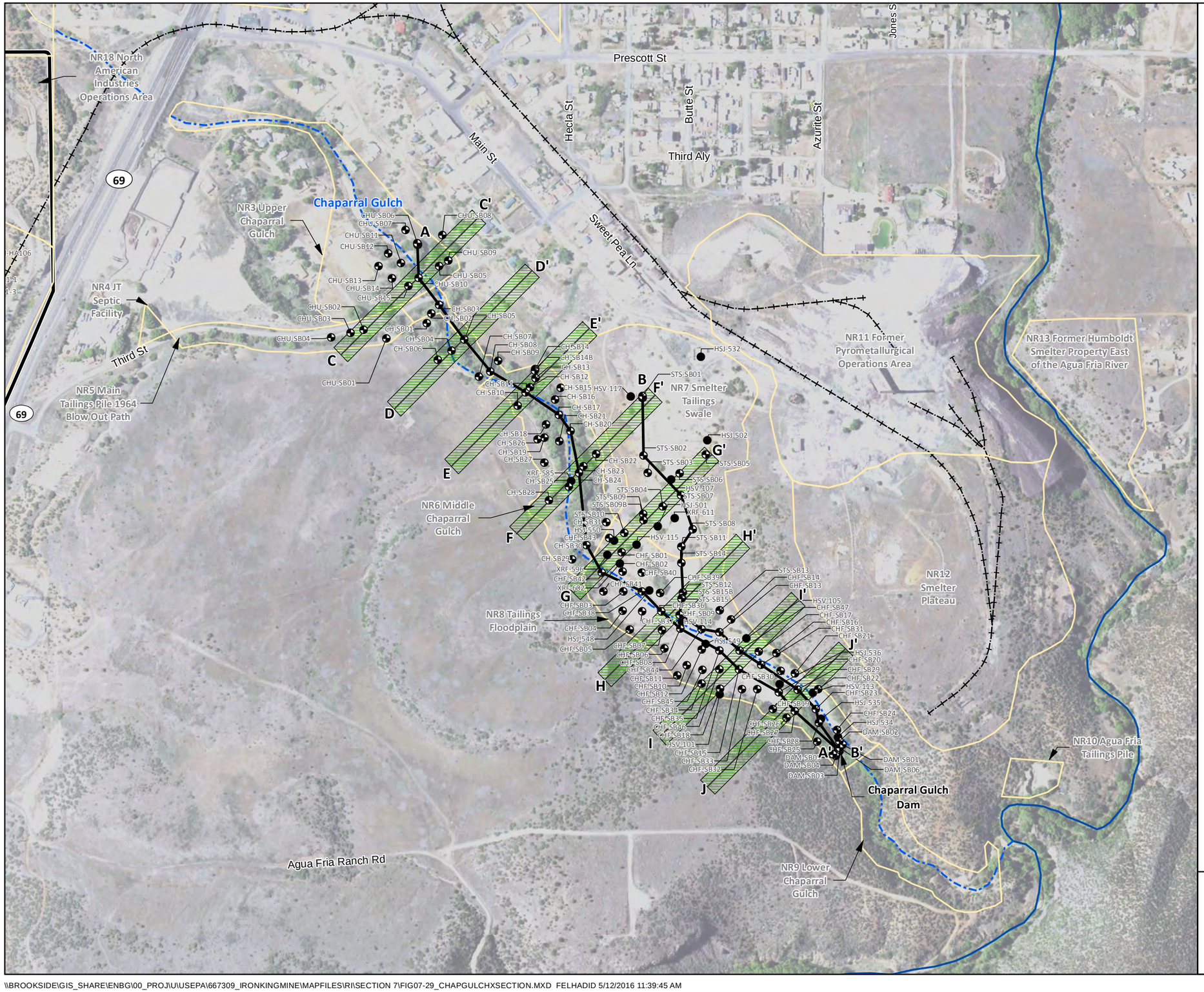
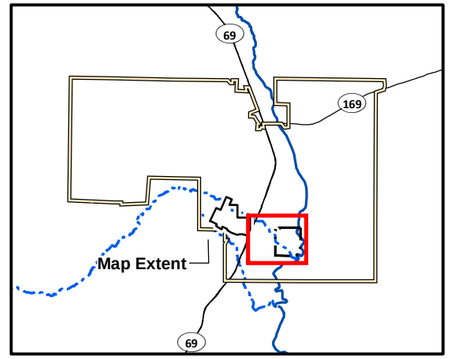


Figure 7-28
Stratigraphic Column – Chaparral Gulch
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

NOTE:
Modified from Lockheed Martin SERAS, 2015





LEGEND

Subsurface Soil Sample Location by Investigation Phase

- 2013 to 2014 ERT Data Gap RI (Lockheed Martin SERAS, 2015)
- 2008 EA Initial RI (EA, 2010)
- Location of Cross Section
- Historic Rail Line
- River
- Intermittent Drainage
- Profile Section
- Exposure Area
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

N

0 500 1,000

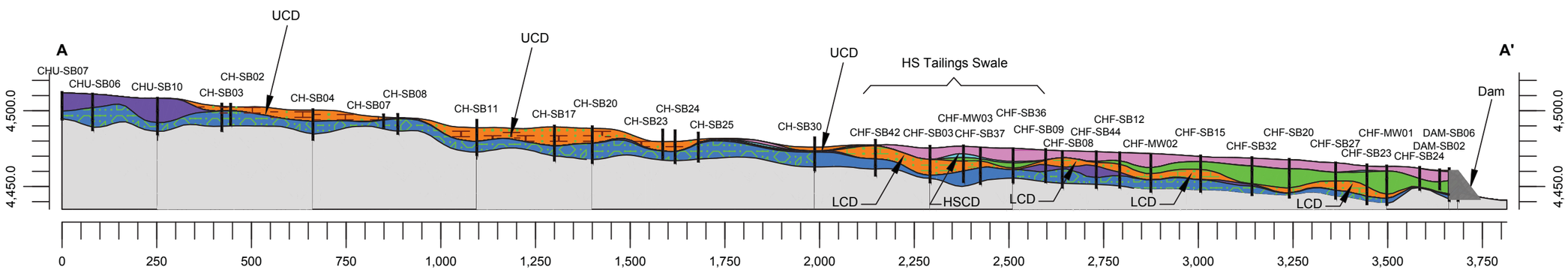
Scale in Feet

Notes:
Modified from Lockeed Martin SERAS, 2015.
Cross sections shown on Figures 7-30 and 7-31.
Image Source: USDA, 2015.

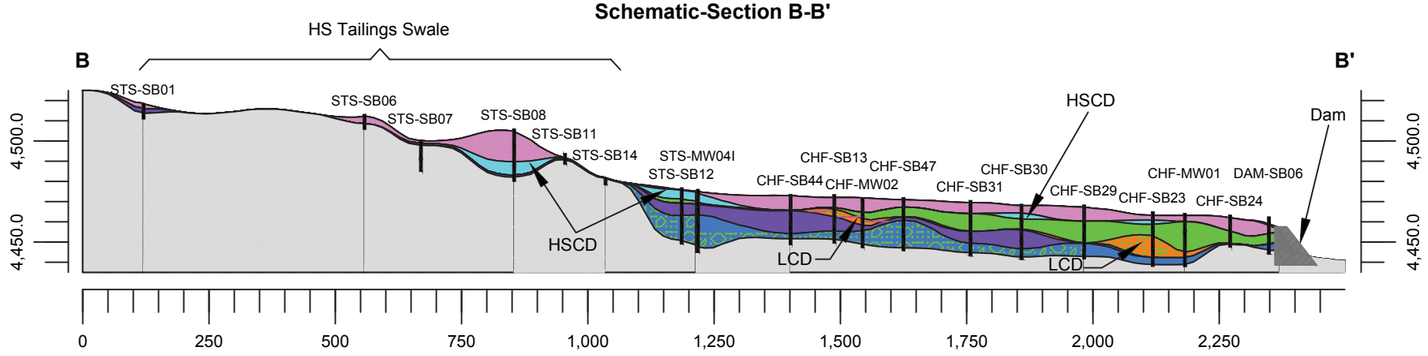
Figure 7-29
Location of Chaparral Gulch Cross Sections
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

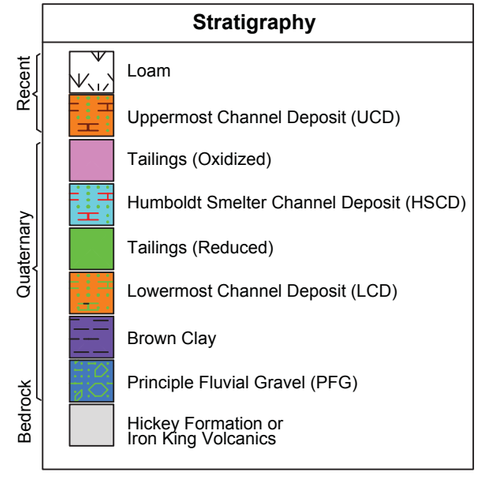
\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-29_CHAPGULCHXSECTION.MXD FELHADID 5/12/2016 11:39:45 AM

Schematic-Section A-A'

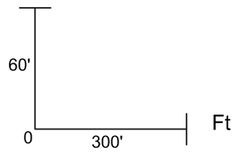


Schematic-Section B-B'



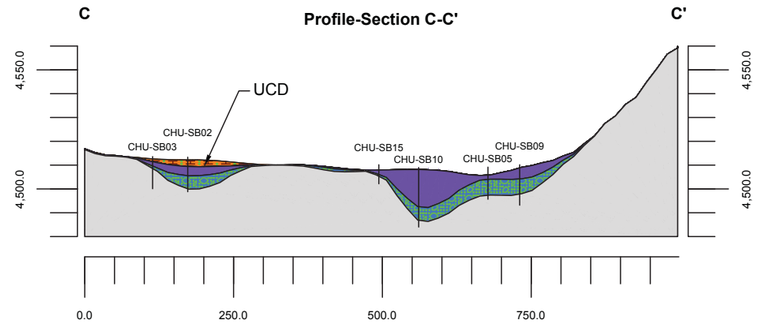


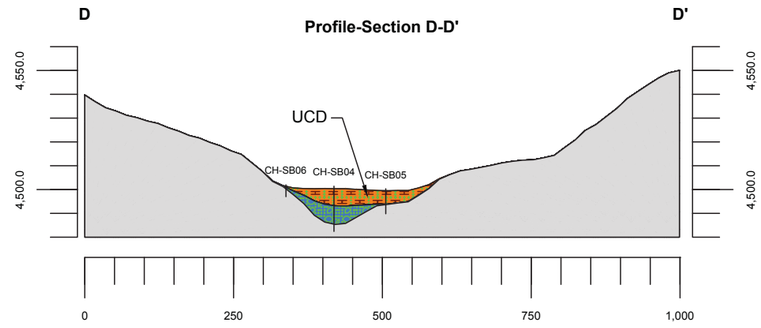
Scale:

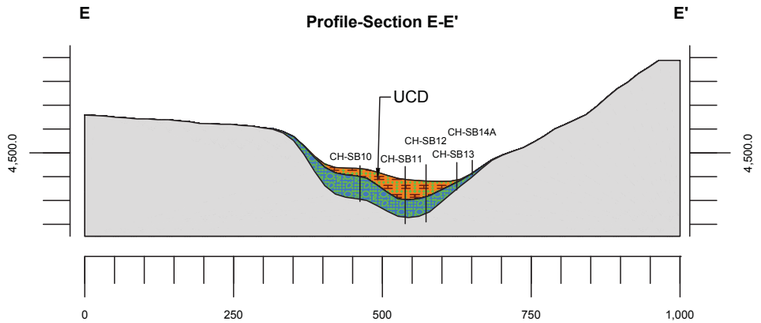


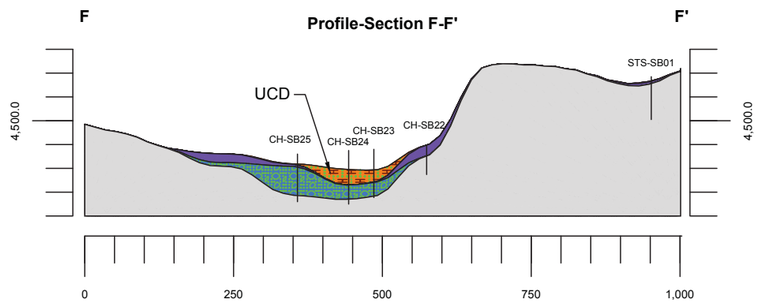
NOTES:
Modified from Lockheed Martin SERAS, 2015.
Summary of hydrostratigraphy is shown on Figure 7-28.

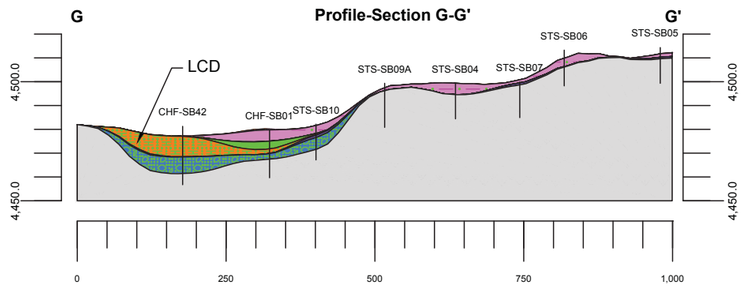
Figure 7-30
Schematic Cross Sections A-A' and B-B', Chaparral Gulch
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

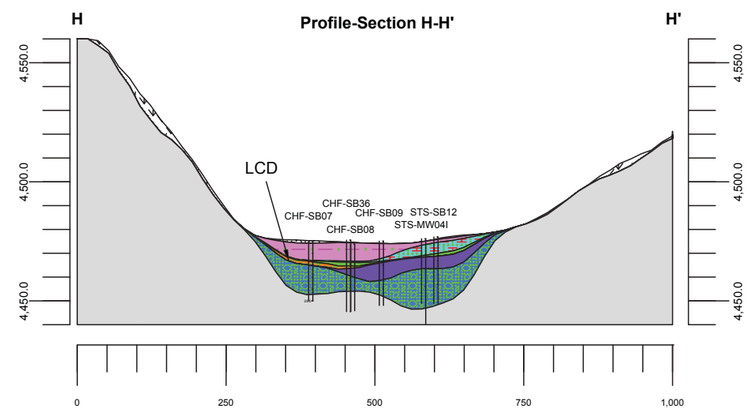


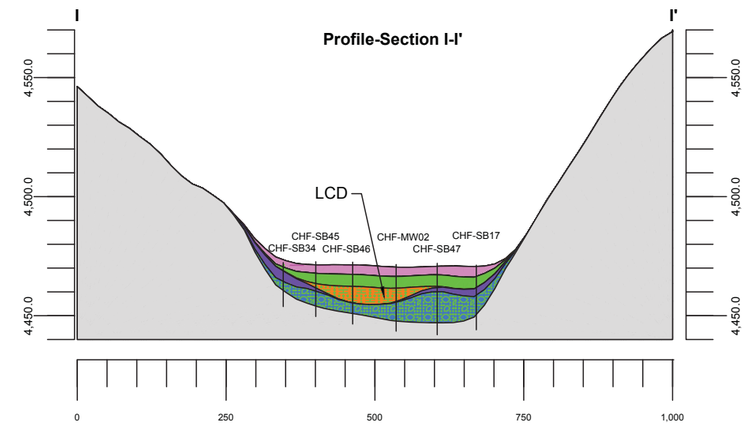


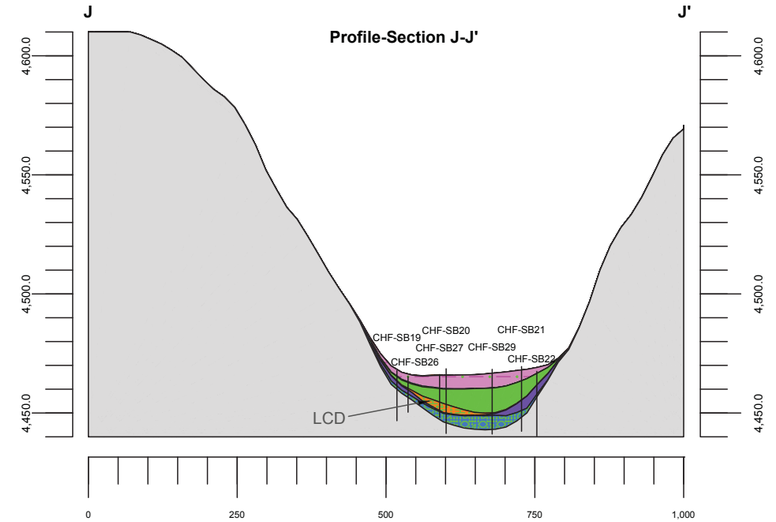


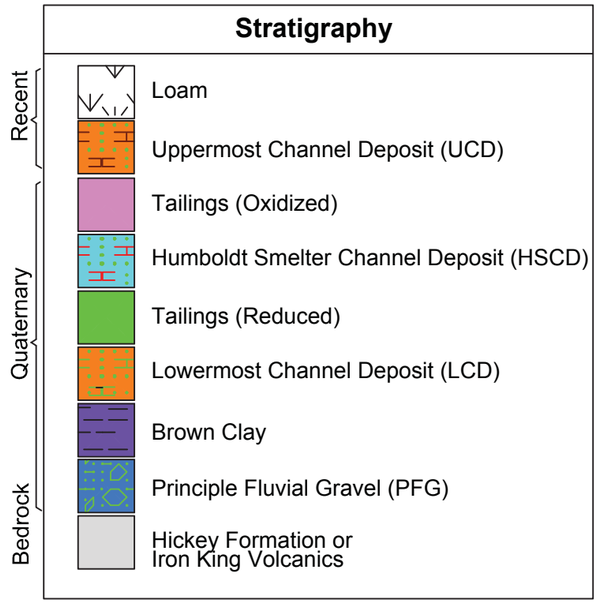




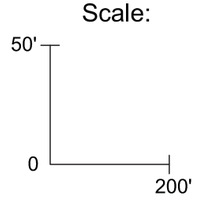






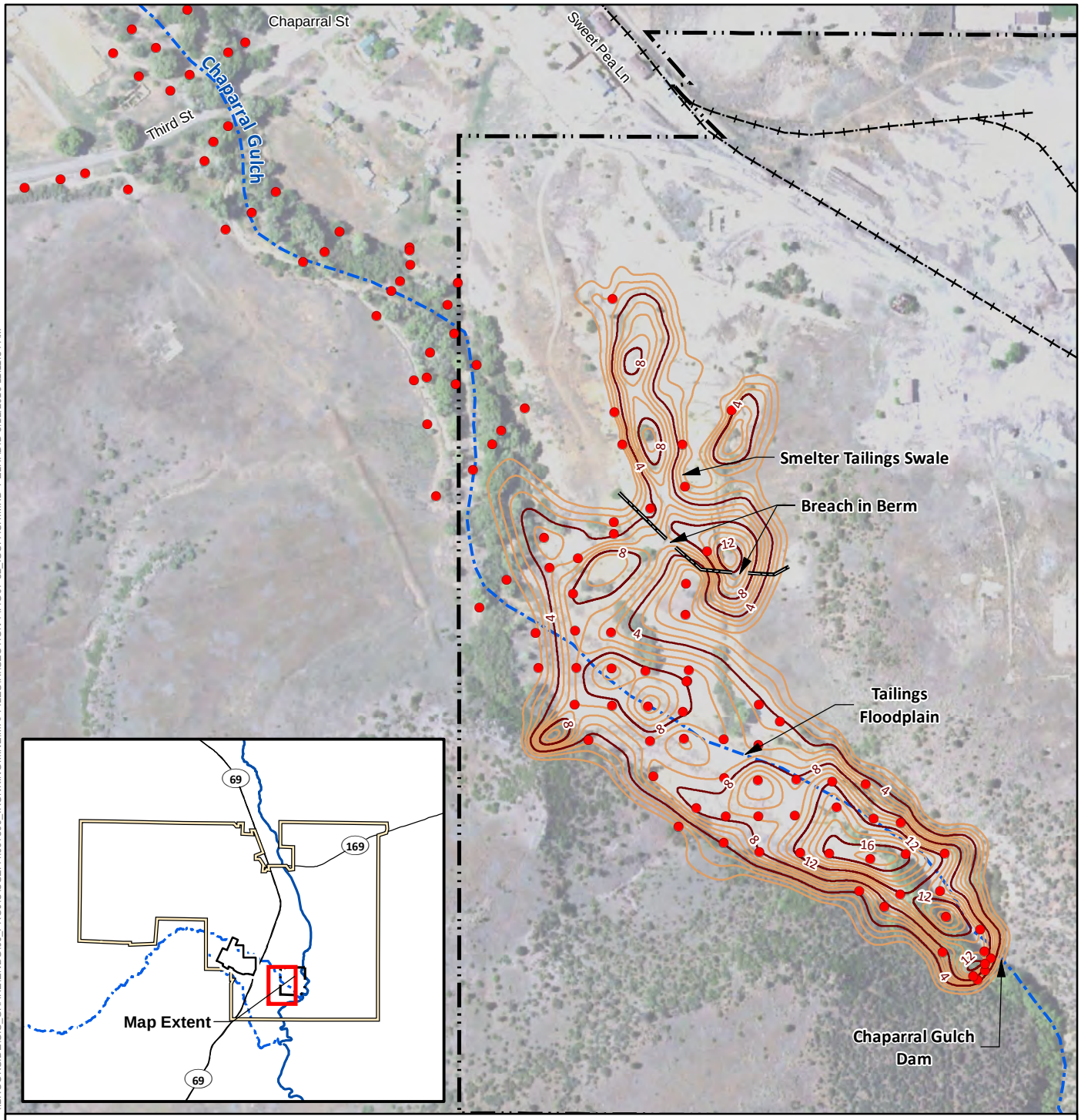


Scale:



NOTES:
Modified from Lockheed Martin SERAS, 2015.
Summary of hydrostratigraphy is shown on Figure 7-28.

FIGURE 7-31
Cross Sections C-C' through J-J', Chaparral Gulch
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



\\BROOKSIDEGIS_SHARE\ENBG\00_PROJ\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-32_ISOPACH.MXD FELHADID 5/12/2016 11:11:54 AM

LEGEND

- 2013 to 2014 ERT Data Gap RI Sample Location (Lockheed Martin SERAS, 2015)
- 1-foot Contour
- 4-foot Contour
- Historic Rail Line
- River
- Intermittent Drainage
- Former Humboldt Smelter Property
- Former Iron King Mine Property
- Dewey-Humboldt Town Boundary

Notes:
Modified from Lockheed Martin SERAS, 2015.
Image Source: USDA, 2015.

0 400 800
Scale in Feet

N

Figure 7-32
Tailings Floodplain Isopach Map
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

[a]Pre-removal samples refer to samples collected from an area subsequently subject to removal action. The color shown for the sample reflects the concentration prior to soil removal.

[b]Areas shown as having complete removal action are defined as having had surface soil from more than 50 percent of the undeveloped portion of the area removed. Areas shown as having partial removal are defined as having had surface soil from less than 50 percent of the undeveloped portion of the area removed.

[c]Areas O06, O07A, O07B, O07C, and O07D are shown as having limited hot spot removal. The original 2006 planned excavation boundary included the entire O06 and O07 properties. However, the excavation boundary was revised to hot spot removal on O07C after access was denied (Brown and Caldwell, 2007).

[d]The sample locations in the embedded tables are associated with the listed yard. However, location coordinates are not available and the location is not displayed. The location ID and concentration are color coded using the same distribution noted in the legend for surface soil sample locations. Because coordinates are unavailable, these are all considered pre-removal samples for yards subject to a removal action.

Notes:
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
For a detailed map showing surface soil samples in Exposure Areas associated with the former Iron King Mine, see Figure 7-15. For a detailed map showing surface soil samples in Exposure Areas associated with the former Humboldt Smelter, see Figure 7-19. For a detailed map showing surface soil samples in Exposure Areas associated with the Chaparral Gulch, see Figure 7-24. For detailed maps showing surface soil samples in residential yards in RYSR and RSAR areas, see Appendix J.
mg/kg = milligram per kilogram
Image Source: USDA, 2015

Figure 7-33
Arsenic Distribution in Surface Soil, Residential Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-33_ARSENIC RESIDENTIAL SAMPLES.MXD FELHADID 5/12/2016 3:23:06 PM

RSAR-A
RSAR-B
RSAR-C
RSAR-D
RSAR-D Hotspot
RSAR-E
RSAR-F
RSAR-G
RSAR-H
Orange Rock Rd
Pale Moon Dr
Quail Ct
Glenn Dr
Sierra Dr
Lotsa View Ln
Old Black Canyon Hwy
Agua Fria River
Shawnee Ln
Wells St
Johnsons Av
Prescott St
Third St
Main St
Butte St
Adline St
Herds St
Bradshaw Rd
Wagon Wheel Dr
Lazy River Dr
Green Valley Way
Galaxy View Way
Agua Fria Ln
Chaparral Gulch
Galena Gulch
Former Small Tailings Pile
260 (Right-of-Way)
69

Maggy Trail Residential Area
South of Former Humboldt Smelter

LEGEND

- Pre-Removal Soil Sample Location[a]

Lead Concentration in Surface Soil (mg/kg)

- Not Detected
- 0.37 (Lowest Detection) to 35 (Background)
- >35 to 140 (Provisional RSL)
- >140 to 400 (Residential RSL)
- >400 to 1,200
- >1,200 to 2,400
- >2,400 to 4,800
- >4,800 to 65,700 (Highest Detection Sitewide)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Removal Action Area

- Complete Removal[b]
- Partial Removal[b]
- Limited Hot Spot Removal[c]

Main Map Extent
Maggy Trail Residential Area Inset Extent

0 350 700
Scale in Feet

[a]Pre-removal samples refer to samples collected from an area subsequently subject to removal action. The color shown for the sample reflects the concentration prior to soil removal.
[b]Areas shown as having complete removal action are defined as having had surface soil from more than 50 percent of the undeveloped portion of the area removed. Areas shown as having partial removal are defined as having had surface soil from less than 50 percent of the undeveloped portion of the area removed.
[c]Areas O06, O07A, O07B, O07C, and O07D are shown as having limited hot spot removal. The original 2006 planned excavation boundary included the entire O06 and O07 properties. However, the excavation boundary was revised to hot spot removal on O07C after access was denied (Brown and Caldwell, 2007).
[d]The sample locations in the embedded tables are associated with the listed yard. However, location coordinates are not available and the location is not displayed. The location ID and concentration are color coded using the same distribution noted in the legend for surface soil sample locations. Because coordinates are unavailable, these are all considered pre-removal samples for yards subject to a removal action.

Notes:
Surface soil samples have a beginning depth less than or equal to 2 feet below ground surface. At locations where multiple samples were collected at less than or equal to 2 feet below ground surface, the symbolized concentration represents the maximum result.
Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.
For a detailed map showing surface soil samples in Exposure Areas associated with the former Iron King Mine, see Figure 7-17. For a detailed map showing surface soil samples in Exposure Areas associated with the former Humboldt Smelter, see Figure 7-22. For a detailed map showing surface soil samples in Exposure Areas associated with the Chaparral Gulch, see Figure 7-25. For detailed maps showing surface soil samples in residential yards in RYSR and RSAR areas, see Appendix I.
mg/kg = milligram per kilogram
RSL = EPA Regional Screening Level
Image Source: USDA, 2015

Figure 7-34
Lead Distribution in Surface Soil, Residential Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

69
Pale Moon Dr
Quail Ct
Agua Fria River
Glenn Dr
RSAR-A
Orange Rock Rd
RSAR-B
RSAR-C
RSAR-D
RSAR-D Hotspot
Old Black Canyon Hwy
RSAR-E
RSAR-F
RSAR-G
RSAR-H
Lotsa View Ln
Wagon Wheel Dr
Shawnee Ln
Bradshaw Rd
Chaparral Gulch
Former Smelter Tailings Pile
Swenson Ave
Wells St
Prescott St
Lazy River Dr
Main St
Third Ave
Third St
Galaxy View Way
Green Valley Way
Agua Fria Ln
Galena Gulch
Maggy Trail Residential Area
South of Former Humboldt Smelter
LEGEND
Surface Soil Sample Location
Historic Rail Line
River
Intermittent Drainage
Former Iron King Mine Property
Former Humboldt Smelter Property
Dewey-Humboldt Town Boundary
Arsenic Exposure Point Concentration (mg/kg)
11.37 to 50
>50 to 112 (Background)
>112 to 194 (Residential 1x10^-4 Risk)
>194 to 400
>400 to 778 (Highest EPC)
Removal Action Area[a]
Complete Removal
Partial Removal
Limited Hot Spot Removal
Main Map Extent
Maggy Trail Residential Area Inset Extent
169
0
350
700
Scale in Feet
N
[a]Areas shown as having complete removal action are defined as having had surface soil from more than 50 percent of the undeveloped portion of the area removed. Areas shown as having partial removal action were subject to hot spot removals only. Areas O06, O07A, O07B, O07C, and O07D are shown as having limited hot spot removal. The original 2006 planned excavation boundary included the entire O06 and O07 properties.However, the excavation boundary was revised to hot spot removal on O07C after access was denied (Brown and Caldwell, 2007).
Notes:
EPC = Exposure Point Concentration
mg/kg = milligram per kilogram
RSL = EPA Regional Screening Level
Image Source: USDA, 2015

Figure 7-35
Arsenic Exposure Point Concentration, Residential Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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RSAR-A
RSAR-B
RSAR-C
RSAR-D
RSAR-D Hotspot
RSAR-E
RSAR-F
RSAR-G
RSAR-H
Orange Rock Rd
Pale Moon Dr
Quail Ct
Glenn Dr
Sierra Dr
Lotsa View Ln
Wagon Wheel Dr
Bradshaw Rd
Lazy River Dr
Galaxy View Way
Agua Fria Ln
Shawnee Ln
Wells St
Prescott St
Third St
Swensons Aly
Old Black Canyon Hwy
Agua Fria River
Chaparral Gulch
Galena Gulch
Former Small Tailings Pile
260 (Right-of Way)
69

Maggy Trail Residential Area
South of Former Humboldt Smelter

LEGEND

- Surface Soil Sample Location
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

Lead Exposure Point Concentration (mg/kg)

- 7.7 (Lowest EPC) to 35 (Background)
- >35 to 140 (Provisional RSL)
- >140 to 400 (RSL)
- >400 to 1,200
- >1,200 to 2,400
- >2,400 to 4,800
- >4,800 to 18,699 (Highest EPC)

Removal Action Area[a]

- Complete Removal
- Partial Removal
- Limited Hot Spot Removal

Main Map Extent
Maggy Trail Residential Area Inset Extent

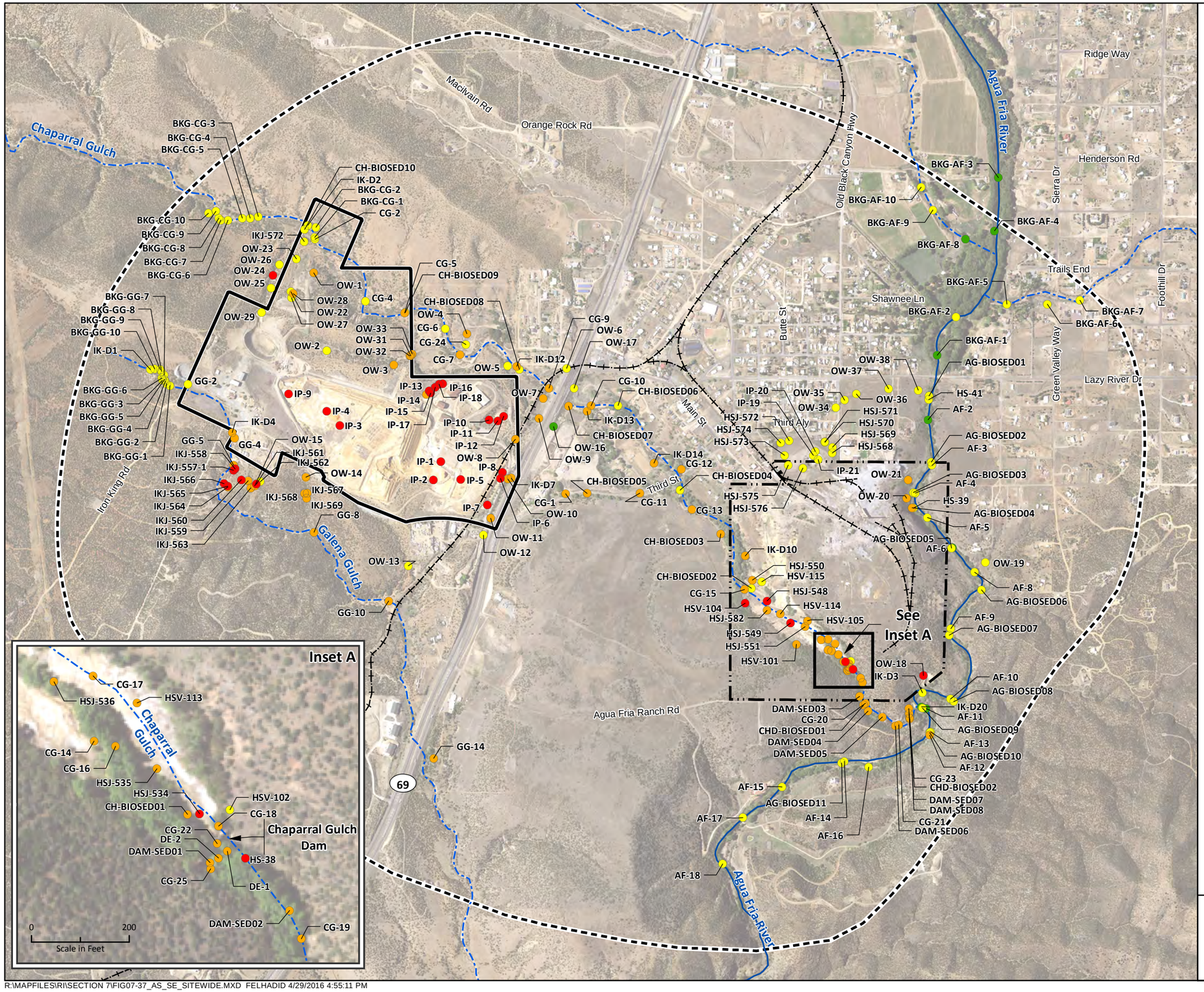
[a]Areas shown as having complete removal action are defined as having had surface soil from more than 50 percent of the undeveloped portion of the area removed. Areas shown as having partial removal action were subject to hot spot removals only. Areas OO6, OO7A, OO7B, OO7C, and OO7D are shown as having limited hot spot removal. The original 2006 planned excavation boundary included the entire OO6 and OO7 properties.However, the excavation boundary was revised to hot spot removal on OO7C after access was denied (Brown and Caldwell, 2007).

Notes:
EPC = Exposure Point Concentration
mg/kg = milligram per kilogram
RSL = EPA Regional Screening Level
Image Source: USDA, 2015

0 350 700
Scale in Feet

N

Figure 7-36
Lead Exposure Point Concentration, Residential Exposure Areas
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



Notes:
For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.
Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.
Image Source: USDA, 2015.

Figure 7-37
Arsenic Distribution in Sediment
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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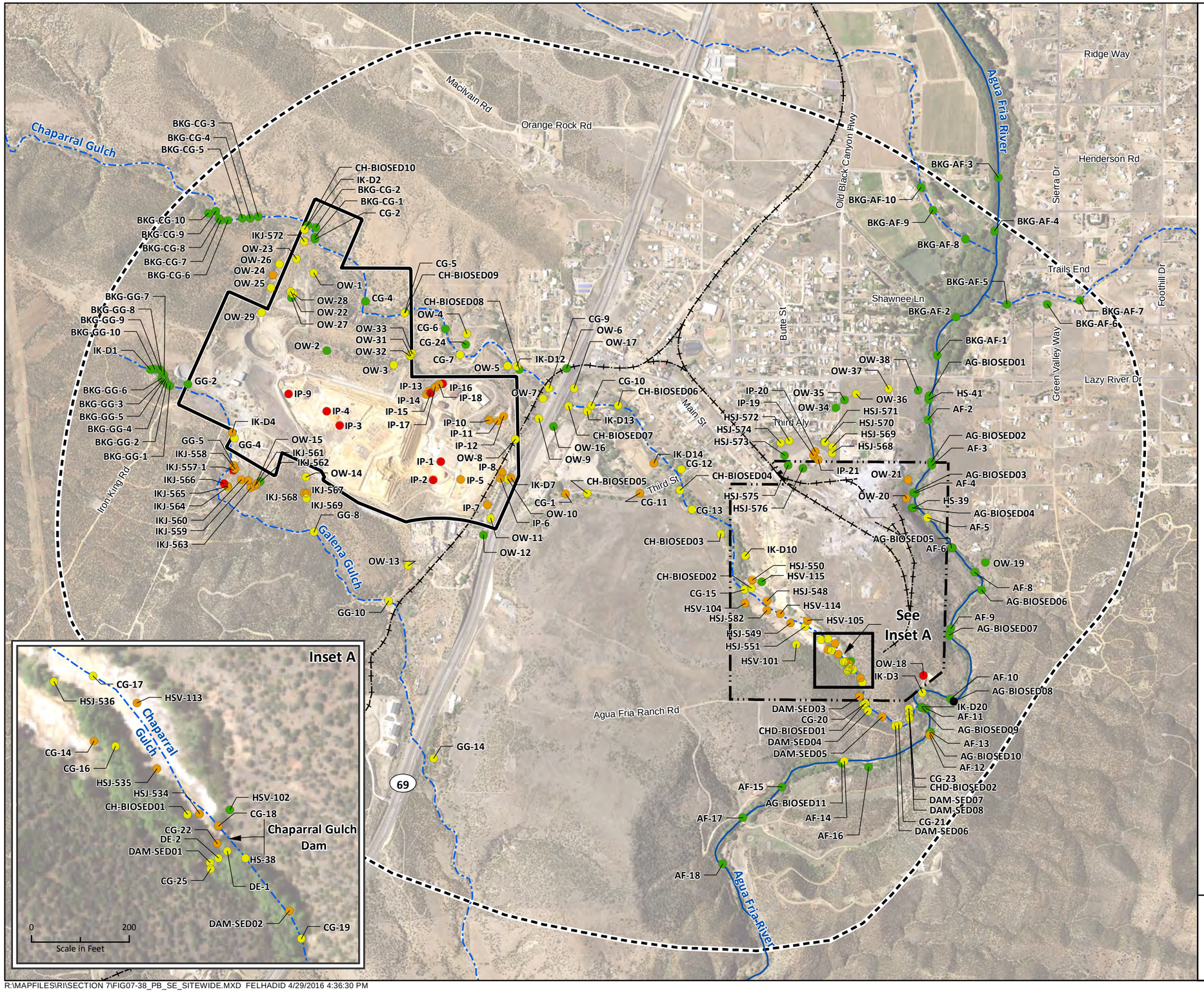
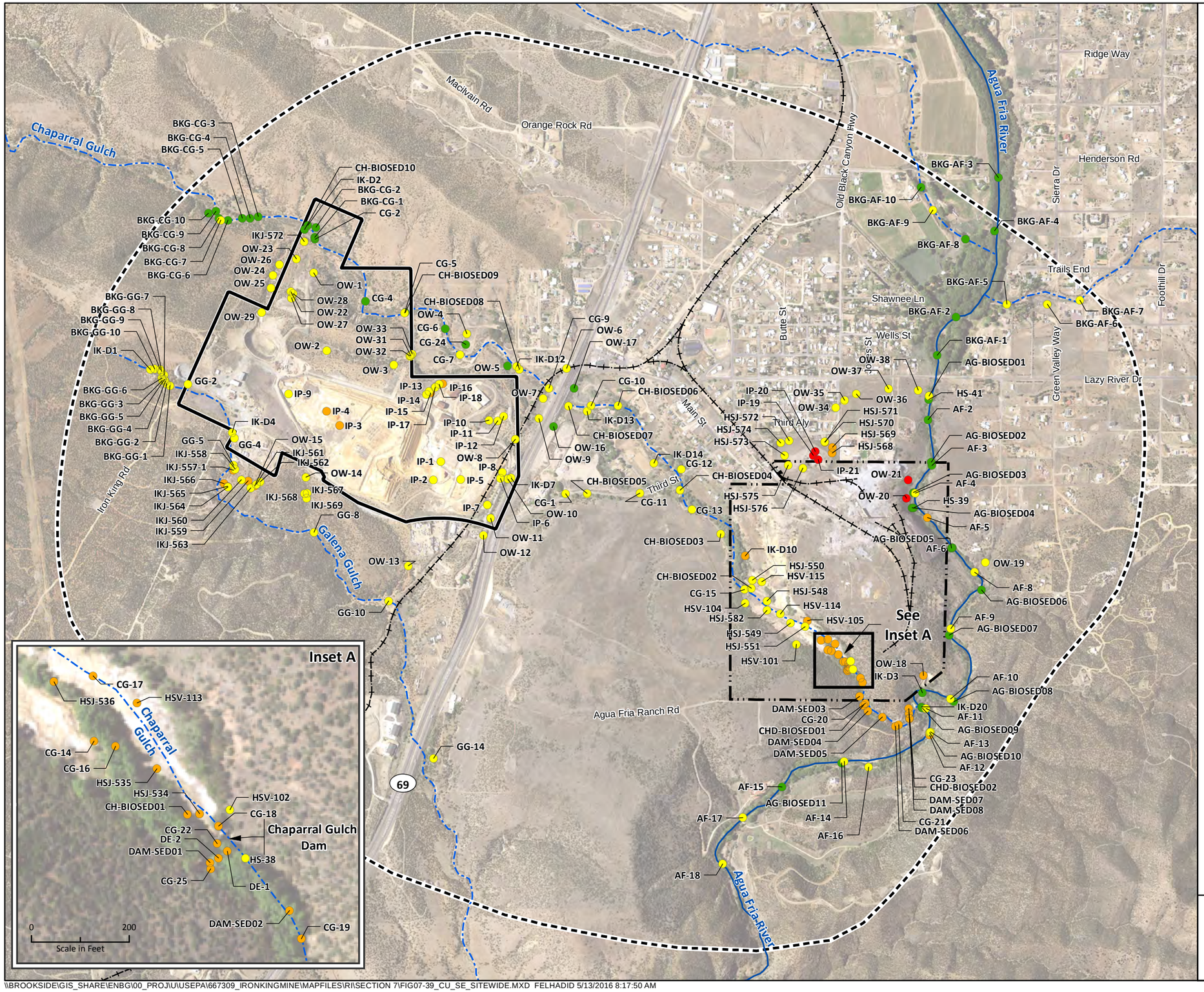


Notes:
For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.
Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.
Image Source: USDA, 2015.

Figure 7-38
Lead Distribution in Sediment
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

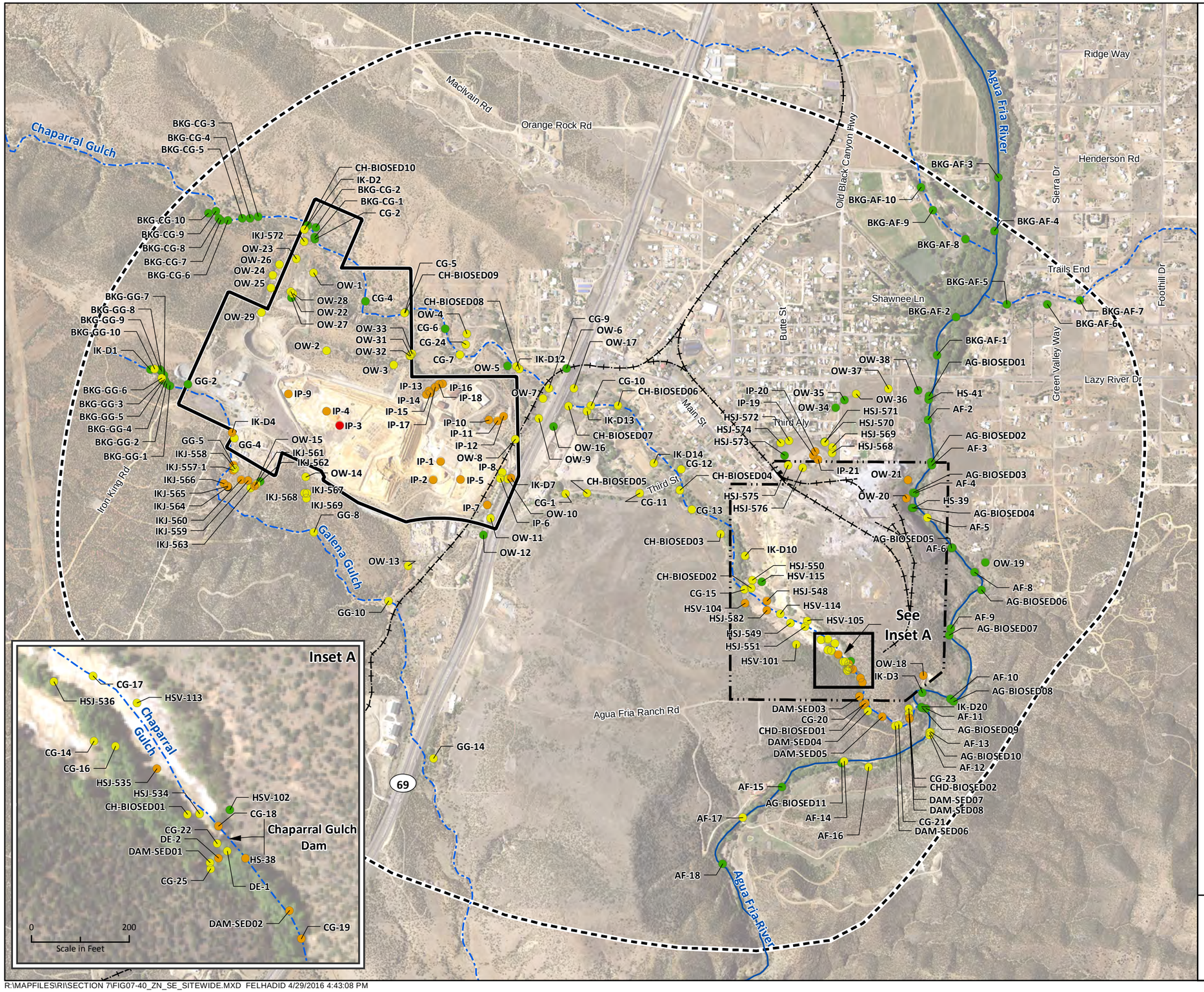
R:\MAPFILES\RI\SECTION 7\FIG07-38_PB_SE_SITEWIDE.MXD FELHADID 4/29/2016 4:36:30 PM



Notes:
For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.
Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.
Image Source: USDA, 2015.

Figure 7-39
Copper Distribution in Sediment
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-39_CU_SE_SITEWIDE.MXD FELHADID 5/13/2016 8:17:50 AM



Notes:
For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.
Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.
Image Source: USDA, 2015.

Figure 7-40
Zinc Distribution in Sediment
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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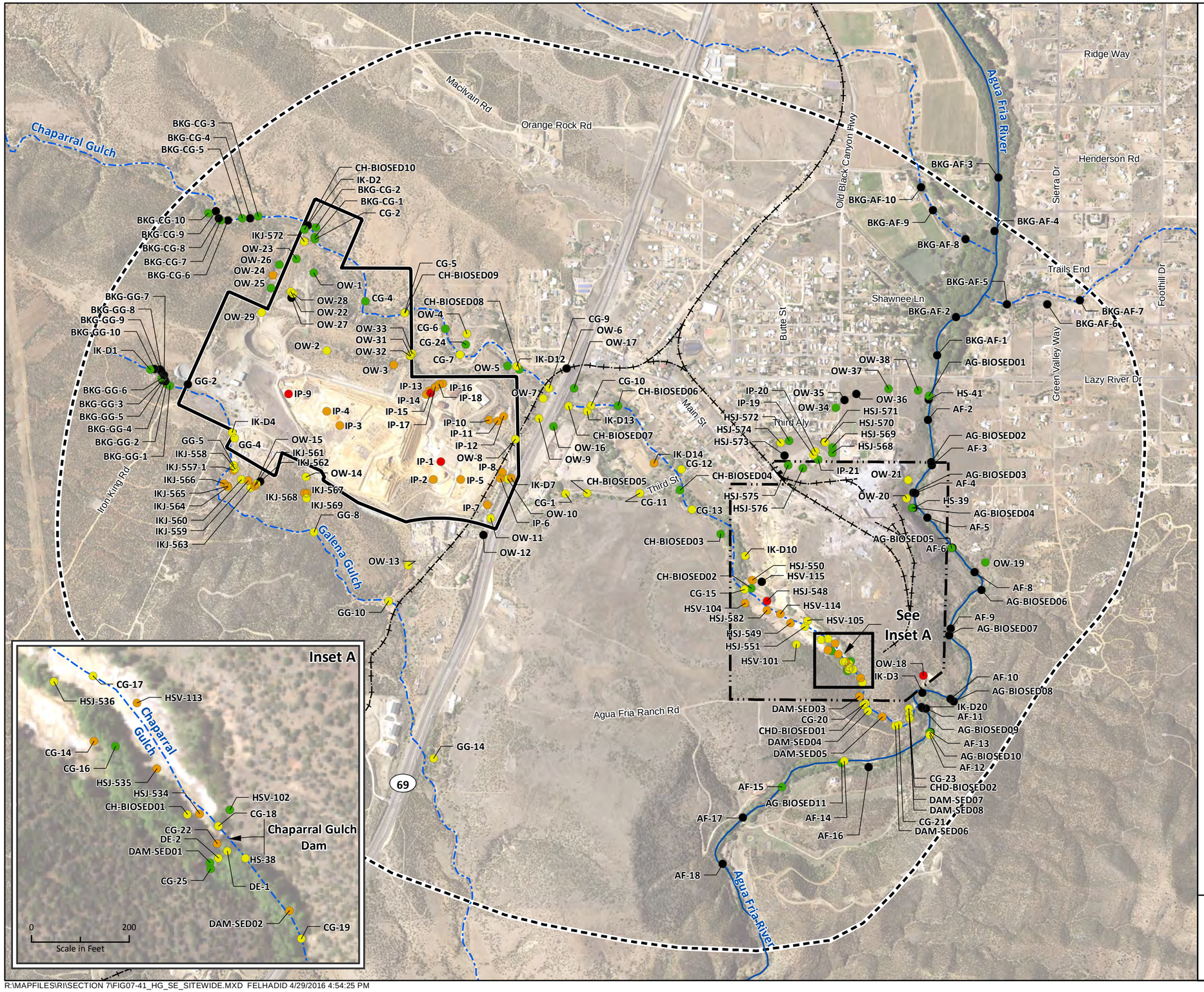

Notes:
For locations where sediment was collected at multiple depths, only the maximum concentration is shown. This includes CG-22 and DAM-SED locations.
Samples identified as sediment were screened against criteria intended for the protection of benthic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support benthic organisms.
Image Source: USDA, 2015.

Figure 7-41
Mercury Distribution in Sediment
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

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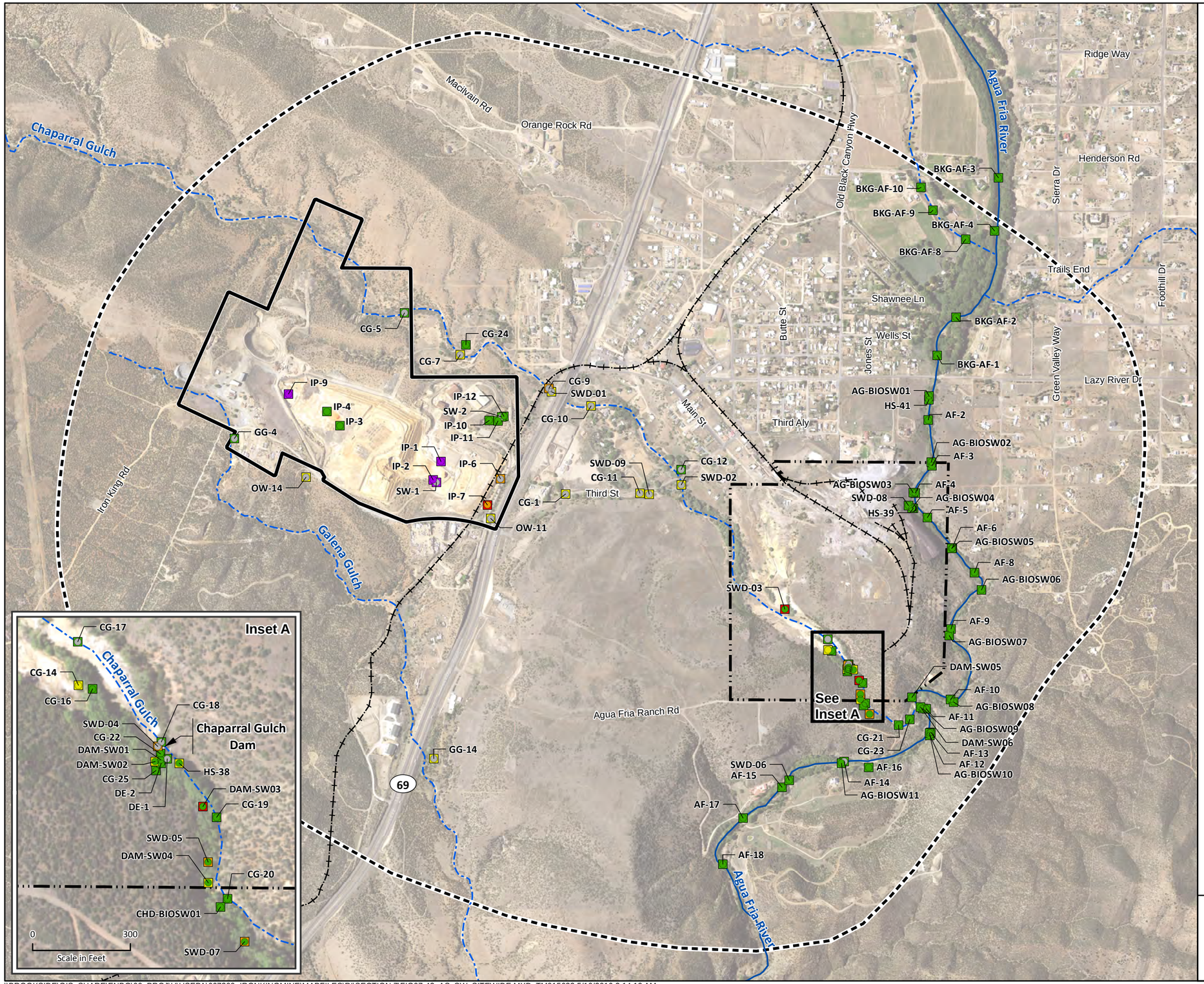


LEGEND

Dissolved Arsenic Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0028 to 0.15 (Screening Level)
- >0.15 to 1.5
- >1.5 to 15
- >15 to 150
- >150 to 205 (Highest Detection)

Total Arsenic Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0024 to 0.15 (Screening Level)
- >0.15 to 1.5
- >1.5 to 15
- >15 to 150
- >150 to 191 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary
- Area of Potential Site Impact (APSI)

N

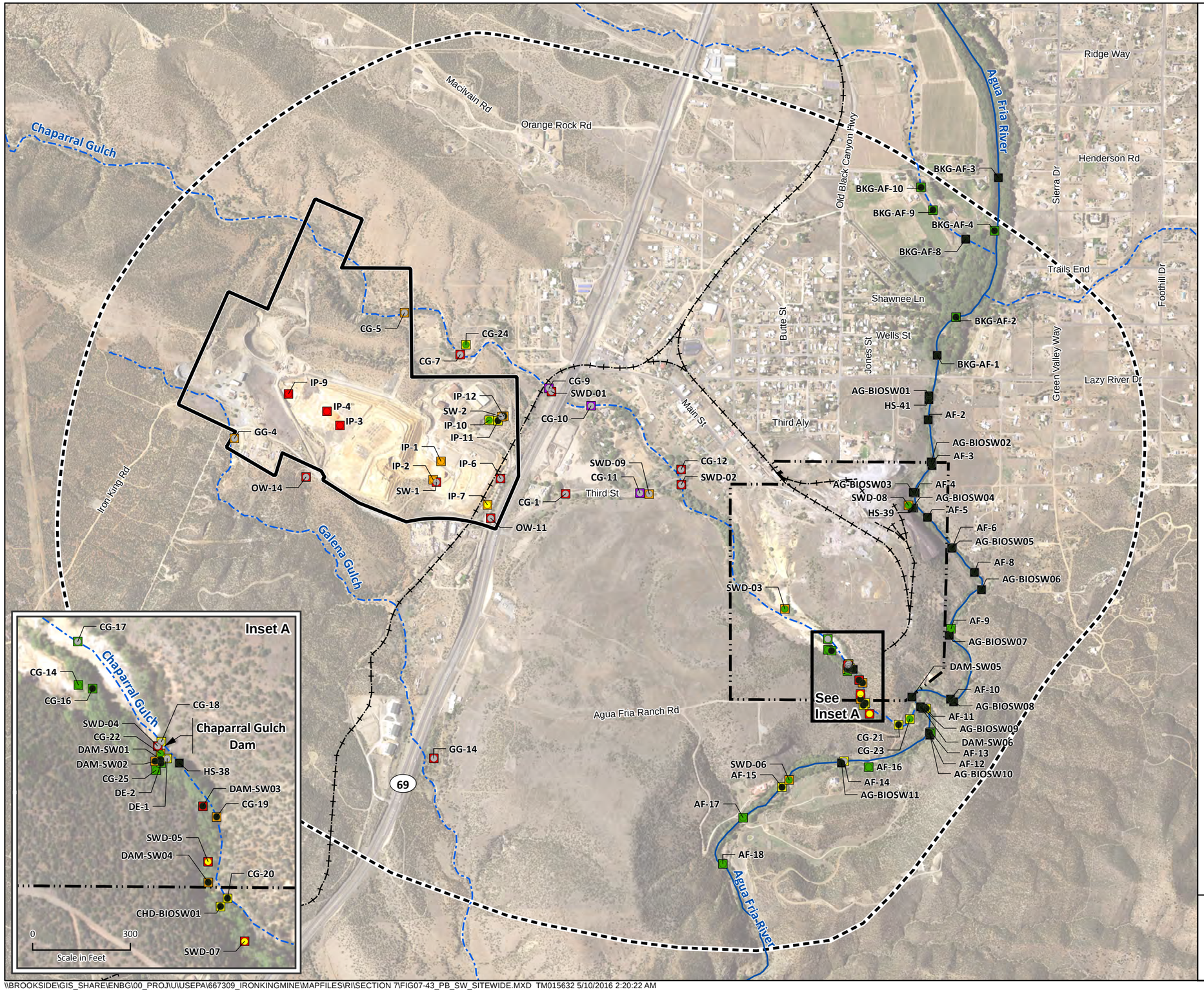
0 1,200 2,400

Scale in Feet

Notes:
Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
Image Source: USDA, 2015.

Figure 7-42
Arsenic Distribution in Surface Water
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-42_AS_SW_SITEWIDE.MXD TM015632 5/10/2016 2:14:19 AM



LEGEND

Dissolved Lead Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.000021 to 0.0025 (Screening Level)
- >0.0025 to 0.025
- >0.025 to 0.25
- >0.25 to 0.885 (Highest Detection)

Total Lead Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.000098 to 0.0032 (Screening Level)
- >0.0032 to 0.032
- >0.032 to 0.32
- >0.32 to 3.2
- >3.2 to 10.2 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary
- Area of Potential Site Impact (APSI)

N

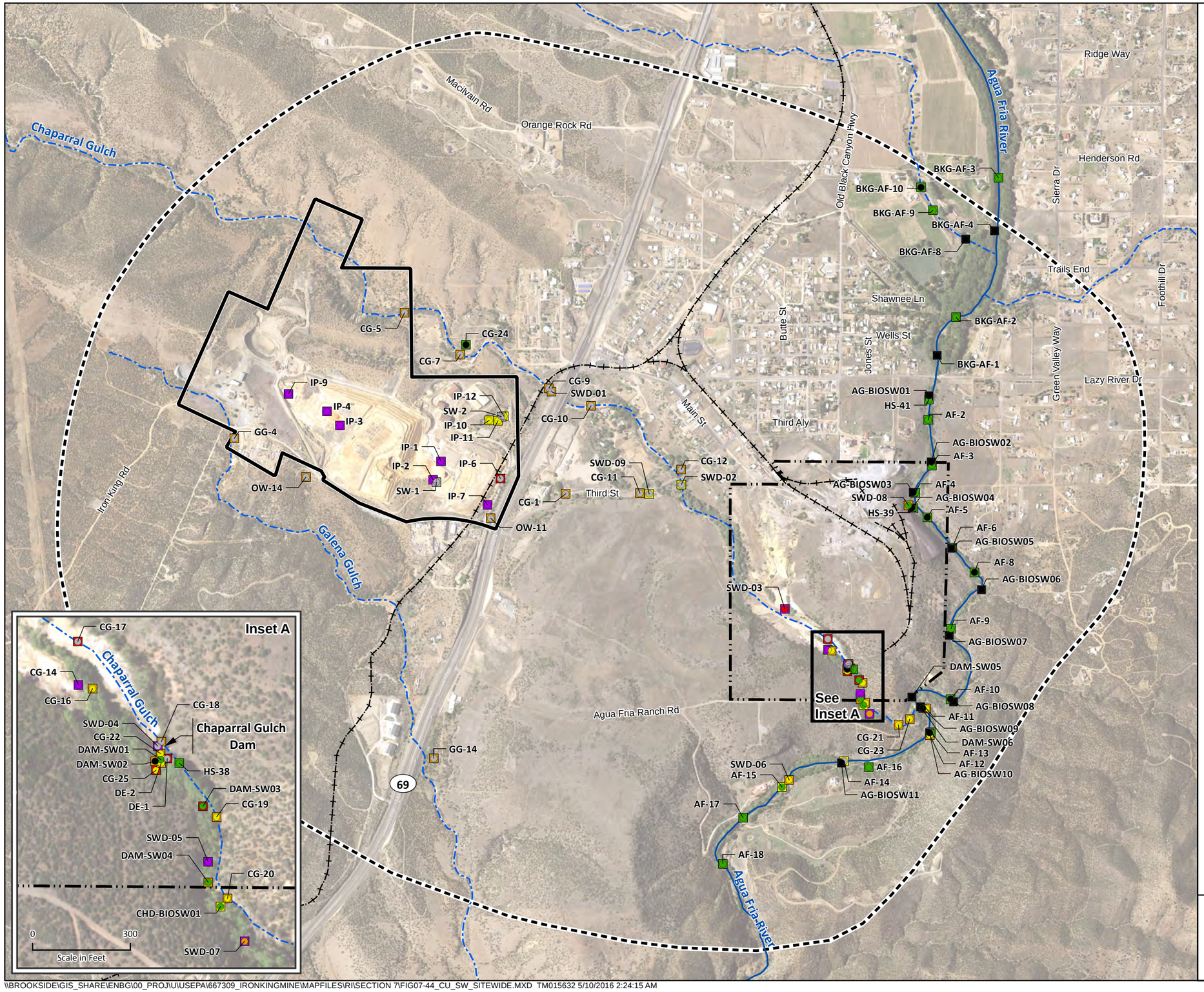
0 1,200 2,400

Scale in Feet

Notes:
Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
Image Source: USDA, 2015.

Figure 7-43
Lead Distribution in Surface Water
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-43_PB_SW_SITEWIDE.MXD TM015632 5/10/2016 2:20:22 AM



LEGEND

Dissolved Copper Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0018 to 0.009 (Screening Level)
- >0.009 to 0.09
- >0.09 to 0.9
- >0.9 to 9.0
- >9.0 to 92.8 (Highest Detection)

Total Copper Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0016 to 0.0094 (Screening Level)
- >0.0094 to 0.094
- >0.094 to 0.94
- >0.94 to 9.4
- >9.4 to 402 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary
- Area of Potential Site Impact (APSI)

N

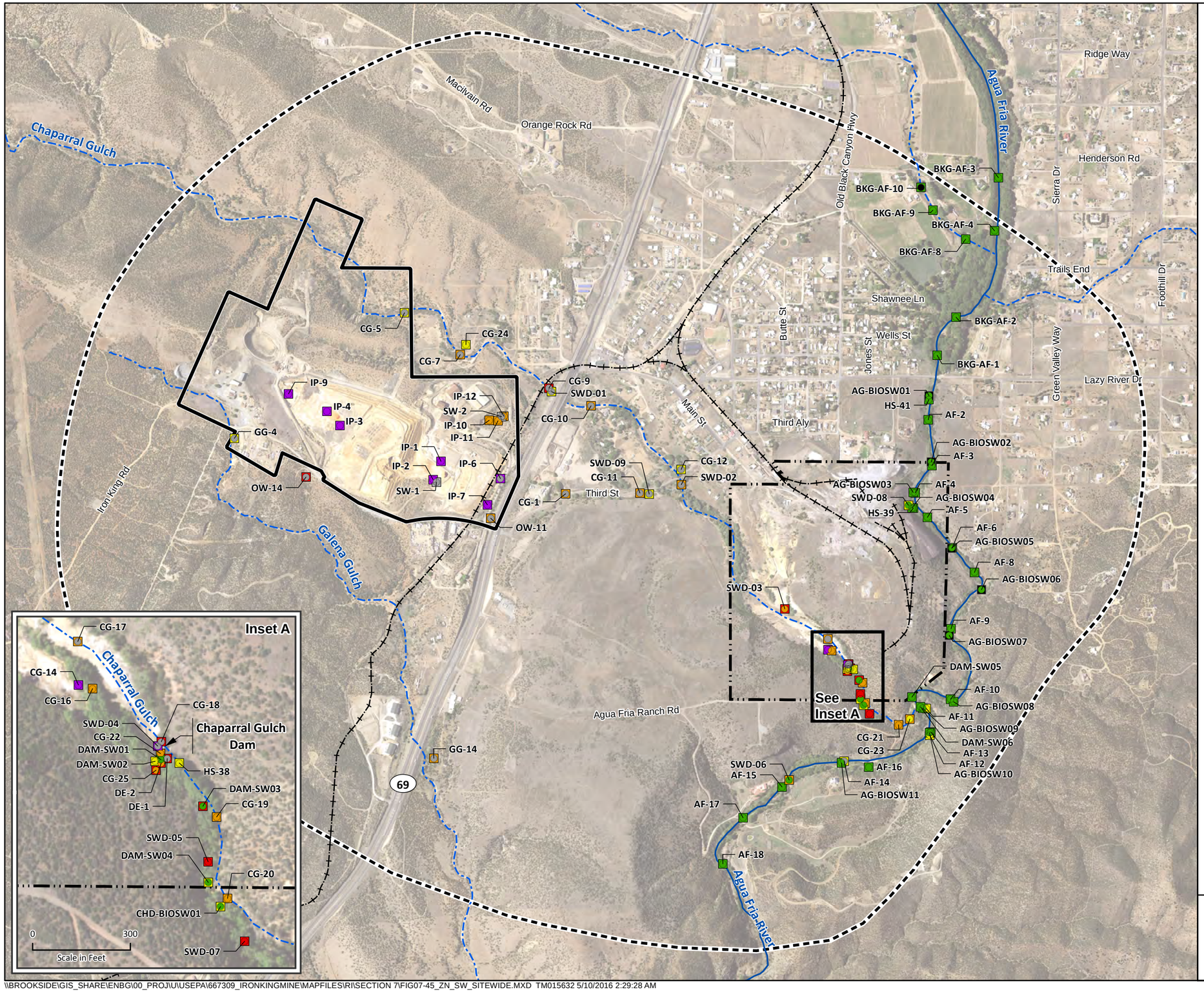
0 1,200 2,400

Scale in Feet

Notes:
Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
Image Source: USDA, 2015.

Figure 7-44
Copper Distribution in Surface Water
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-44_CU_SW_SITEWIDE.MXD TM015632 5/10/2016 2:24:15 AM



LEGEND

Dissolved Zinc Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.001 to 0.12 (Screening Level)
- >0.12 to 1.2
- >1.2 to 12.0
- >12.0 to 120
- >120 to 1,740 (Highest Detection)

Total Zinc Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.00099 to 0.122 (Screening Level)
- >0.122 to 1.22
- >1.22 to 12.2
- >12.2 to 122
- >122 to 1,610 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary
- Area of Potential Site Impact (APSI)

N

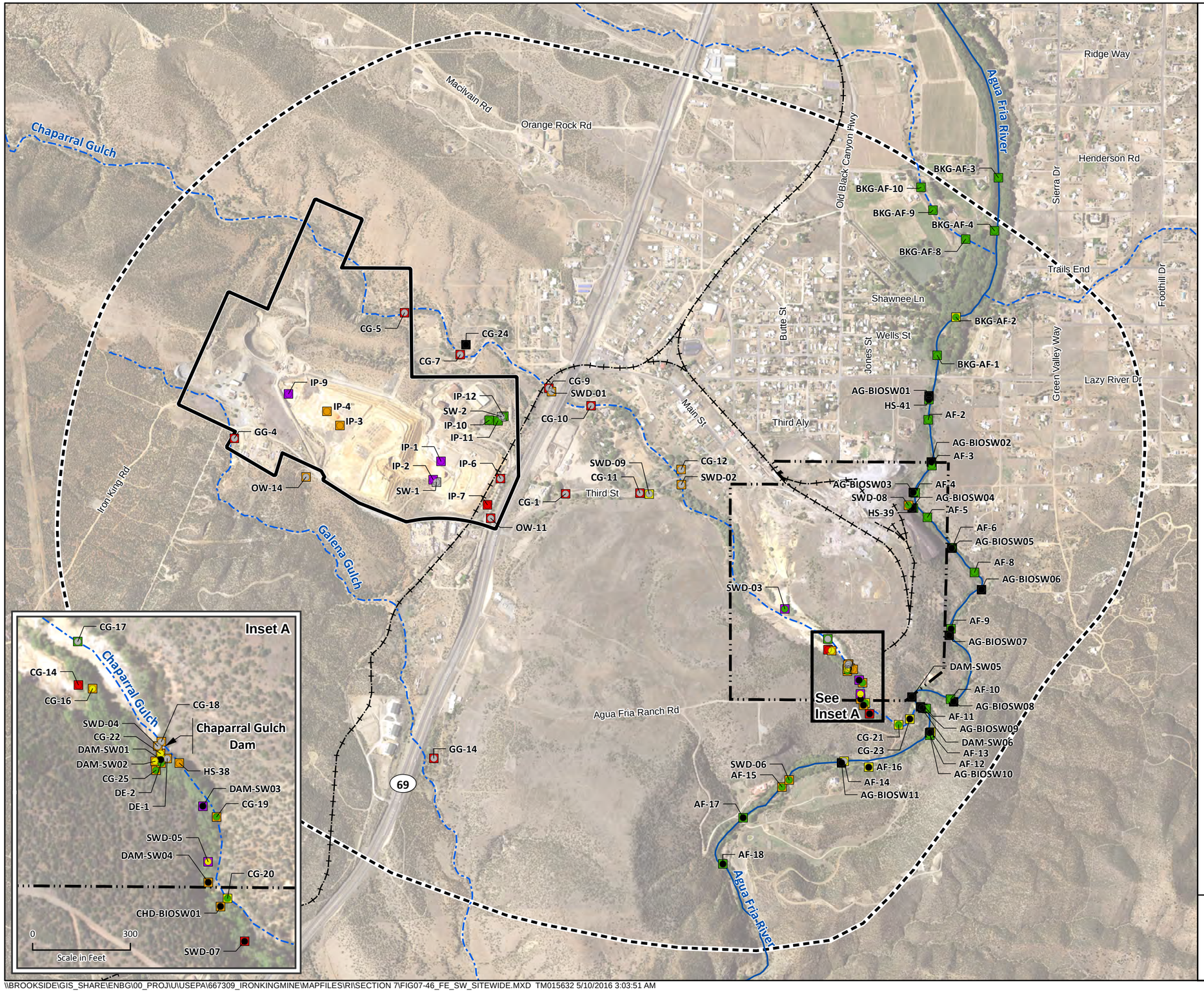
0 1,200 2,400

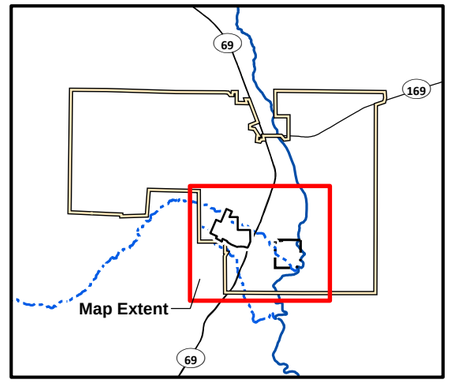
Scale in Feet

Notes:
Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
Image Source: USDA, 2015.

Figure 7-45
Zinc Distribution in Surface Water
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-45_ZN_SW_SITEWIDE.MXD TM015632 5/10/2016 2:29:28 AM





LEGEND

Dissolved Iron Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0052 to 1.0 (Screening Level)
- >1.0 to 10.0
- >10.0 to 100
- >100 to 1,000
- >1,000 to 11,900 (Highest Detection)

Total Iron Concentration in Surface Water (mg/L)

- Not Analyzed
- Not Detected
- 0.0702 to 1.0 (Screening Level)
- >1.0 to 10.0
- >10.0 to 100
- >100 to 1,000
- >1,000 to 13,000 (Highest Detection)
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary
- Area of Potential Site Impact (APSI)

N

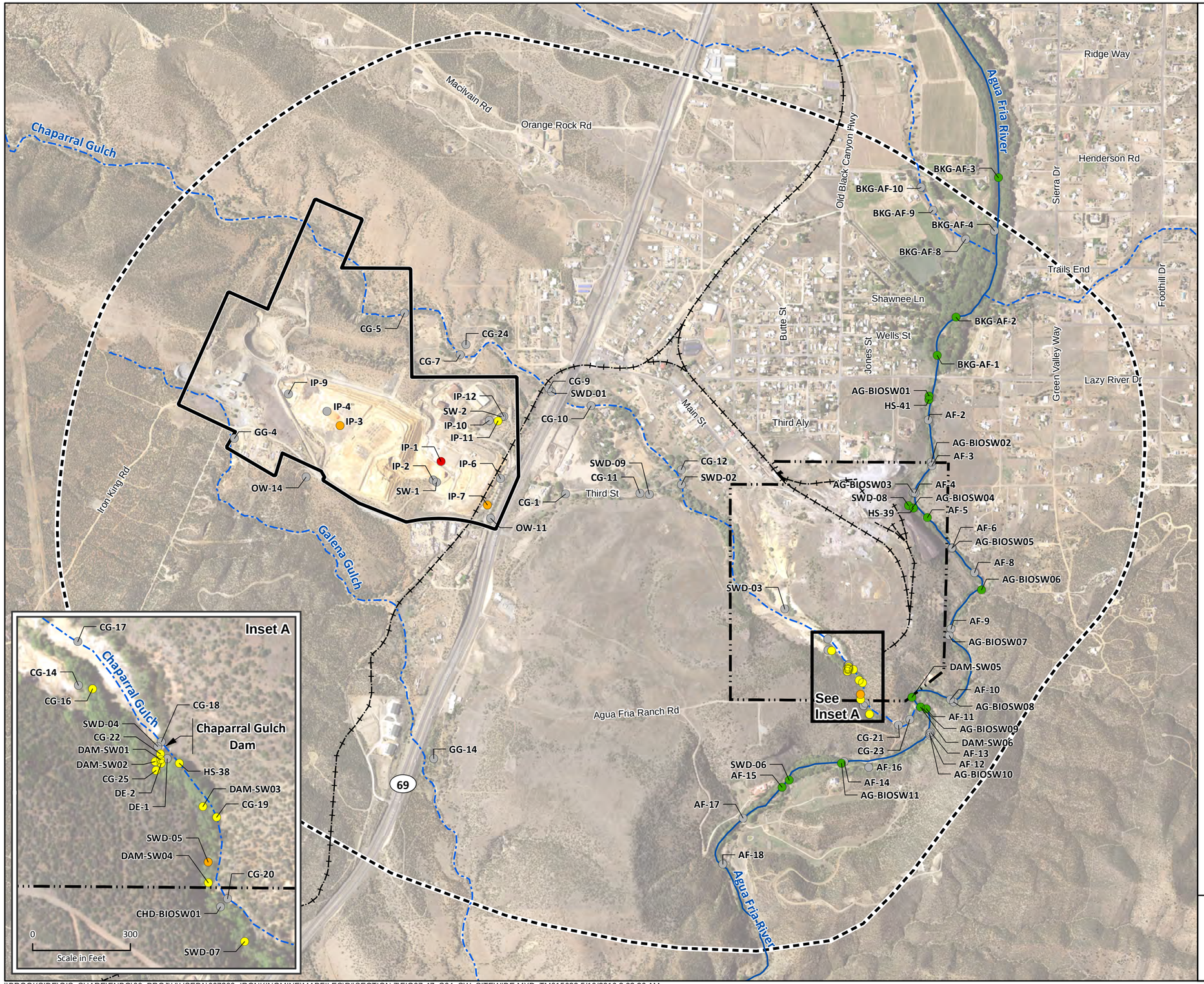
0 1,200 2,400

Scale in Feet

Notes:
Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
Image Source: USDA, 2015.

Figure 7-46
Iron Distribution in Surface Water
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

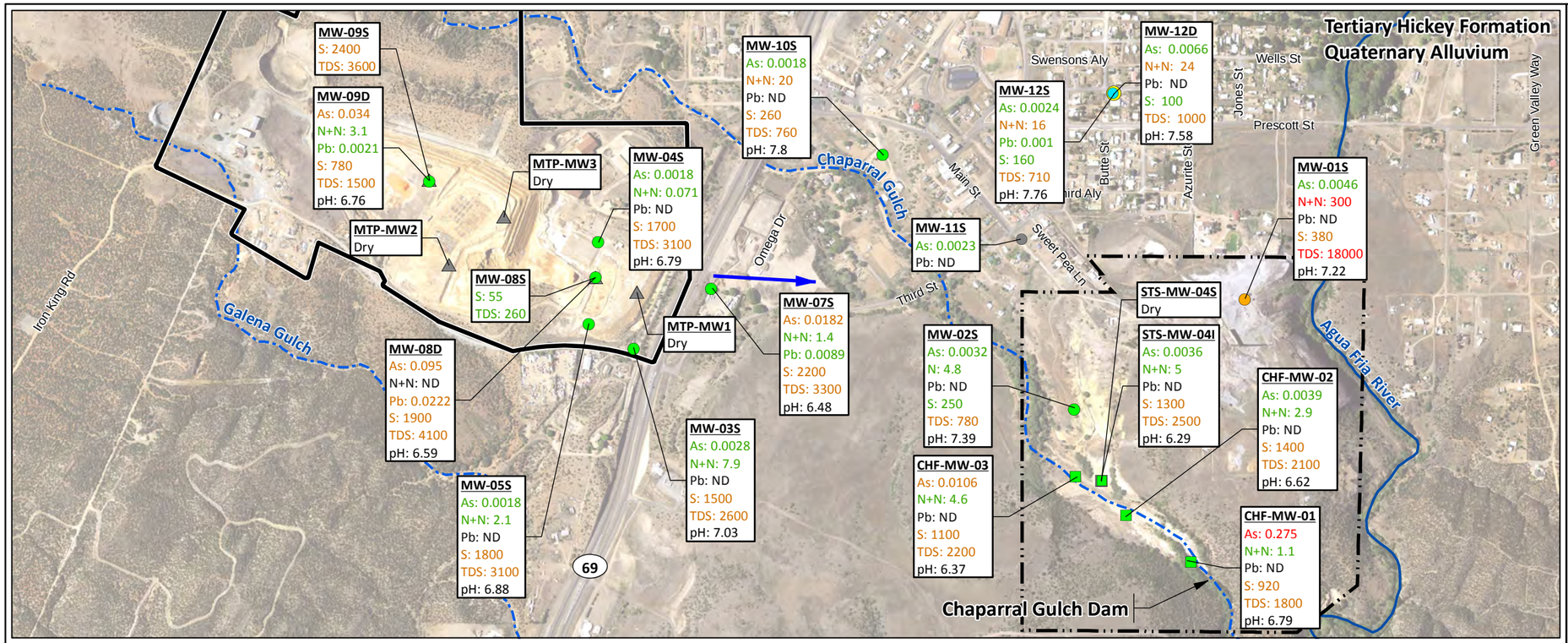
\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-46_FE_SW_SITEWIDE.MXD TM015632 5/10/2016 3:03:51 AM



Notes:
Samples identified as surface water were screened against criteria intended for the protection of aquatic life as a conservative approach. These screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk. The Agua Fria River is considered actual aquatic habitat; however, Chaparral and Galena Gulch are intermittent drainages and are not covered with water a sufficient amount of time to support aquatic organisms.
Image Source: USDA, 2015.

Figure 7-47
Sulfate Distribution in Surface Water
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-47_S04_SW_SITEWIDE.MXD TM015632 5/10/2016 3:03:26 AM



LEGEND

Monitoring Well Location by Geologic Unit

- Main Tailings Pile
- Quaternary Alluvium – Tailings Mixture in Chaparral Gulch
- Hickey Formation
- Precambrian Bedrock

Dominant Ions Defining Chemical Signature of Water

- Na-Cl (sodium-chloride)
- Ca-Cl (calcium-chloride)
- Ca-SO_4 (calcium-sulfate)
- Ca-HCO_3 (calcium-bicarbonate)
- Na-HCO_3 (sodium-bicarbonate)
- Na-HCO_3-SO_4 (sodium-bicarbonate-sulfate)
- Dry or Dominant Ions Not Analyzed
- Groundwater Flow Direction
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

0 1,000 2,000
Scale in Feet

N

Monitoring Well Location Labels

Location ID: **CHF-MW-01**
Analyte Name / Maximum Detected Sample Location Concentration[a] (mg/L):
As: 0.275
N+N: 1.1
Pb: ND
S: 920
TDS: 1800
pH: 6.79
Minimum Laboratory or Field pH Measurement

Sample concentrations are color coded based on a comparison of the sample result to the analyte's screening level[b]:

Black	Not Detected (ND) or no screening level (pH only)
Green	<= Screening Level
Orange	>Screening Level to <= 10X Screening Level
Red	>10X Screening Level to <= 100X Screening Level

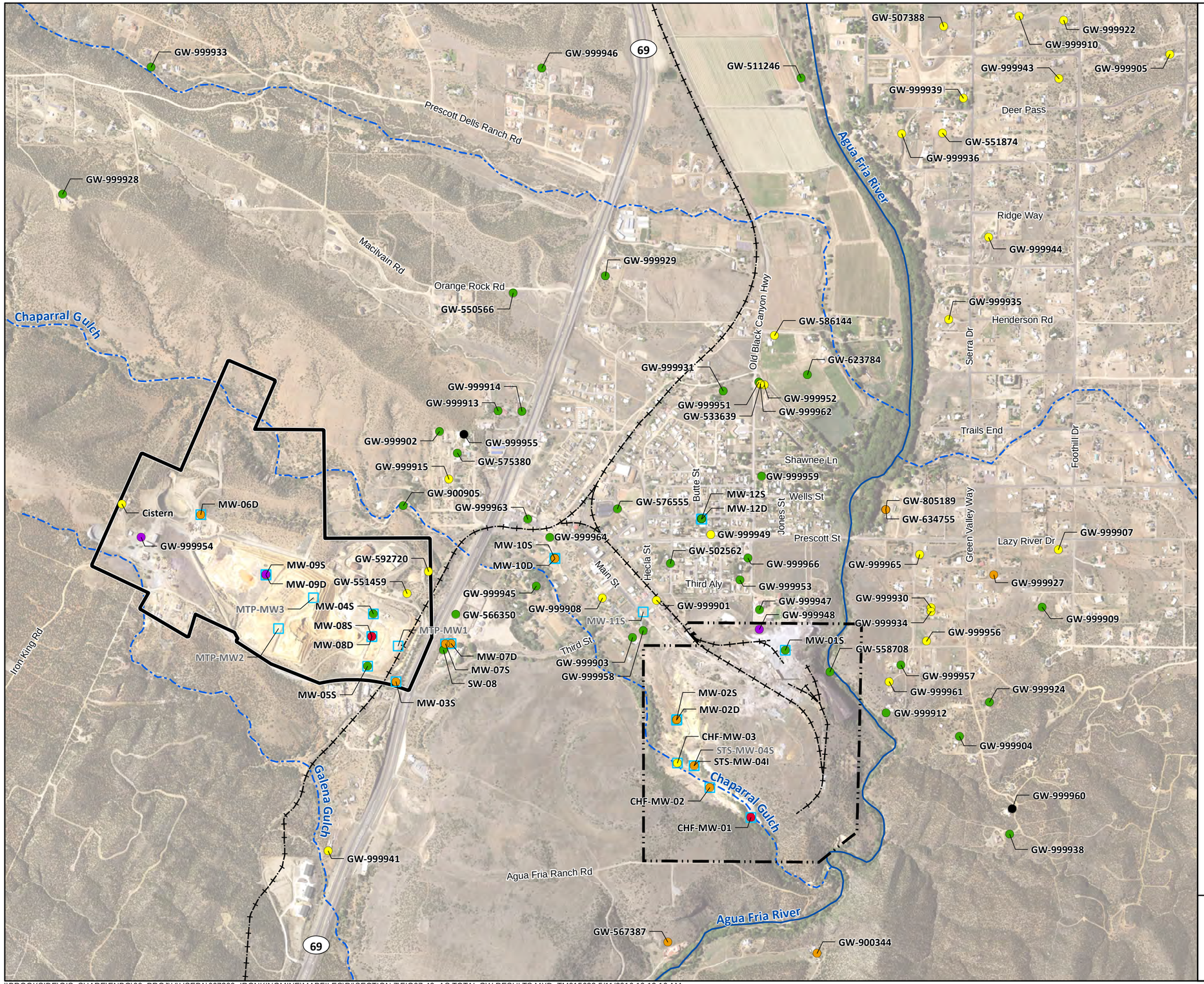
Analyte	Screening Level (mg/L)
As (Dissolved Arsenic)	0.01
N+N (Nitrate + Nitrite)	10
Pb (Dissolved Lead)	0.015
S (Sulfate)	250
TDS (Total Dissoved Solids)	500
pH	None

[a]Data presented are the maximum detections from samples collected in 2014, with the exception of MW-08S and MW-09S. These wells were dry in 2014, so 2012 data are presented.
[b]Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existence of unacceptable risk.

Note:
Image Source: USDA, 2015.

Figure 7-48
Selected Analytes in Groundwater – Most Recent Data from EPA Monitoring Wells
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\R\SECTION 7\FIG07-48_GWRESULTS.MXD FELHADID 5/13/2016 8:19:39 AM



LEGEND

Total Arsenic Concentration in Groundwater (mg/L)

- Not Detected
- 0.0012 to 0.01 (Screening Level)
- >0.01 to 0.03
- >0.03 to 0.10
- >0.10 to 1.00
- >1.00 to 1.95 (Highest Detection)
- EPA Well[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

N

0 1,200 2,400

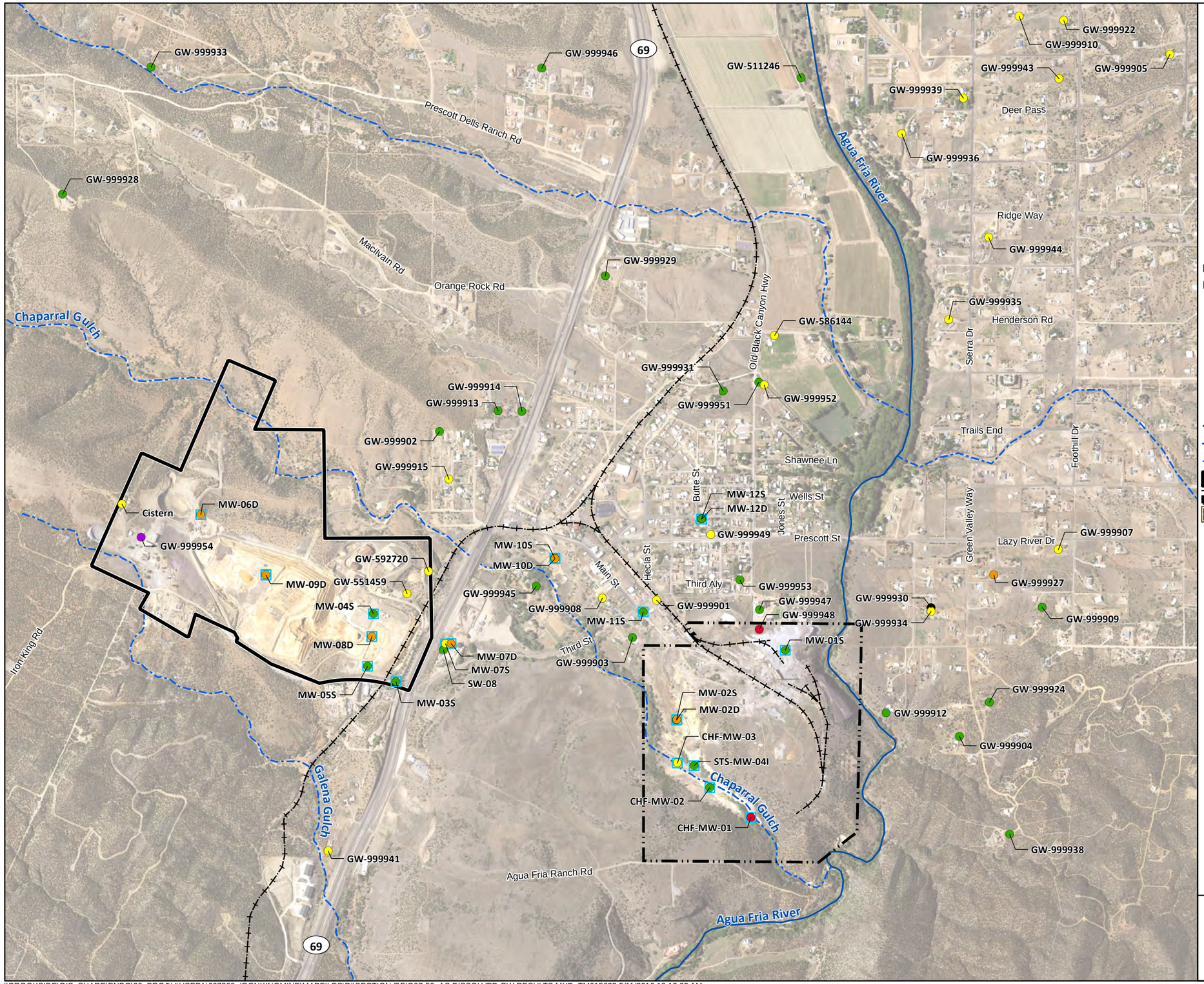
Scale in Feet

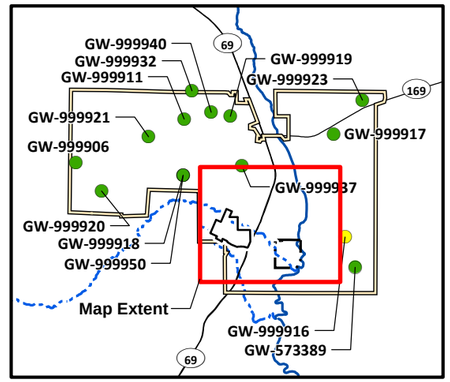
[a]The concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected.
GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
Image Source: USDA, 2015.

Figure 7-49
Total Arsenic in Groundwater
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-49_AS TOTAL GW RESULTS.MXD TM015632 5/11/2016 10:12:16 AM





LEGEND

Dissolved Arsenic Concentration in Groundwater (mg/L)

- Not Detected
- 0 to 0.01 (Screening Level)
- >0.01 to 0.03
- >0.03 to 0.10
- >0.10 to 1.00
- >1.00 to 1.01 (Highest Detection)
- EPA Well[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

N

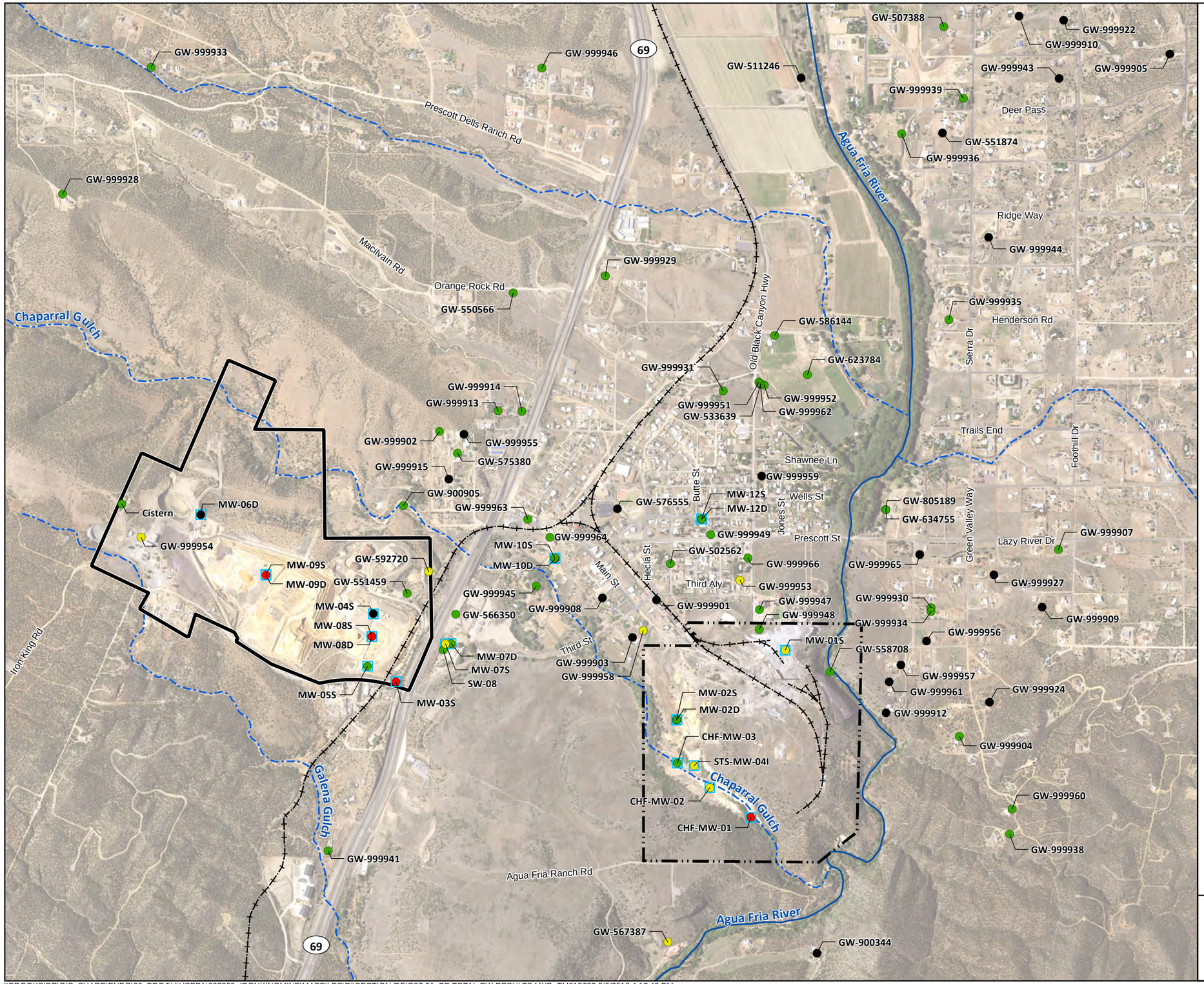
0 1,200 2,400

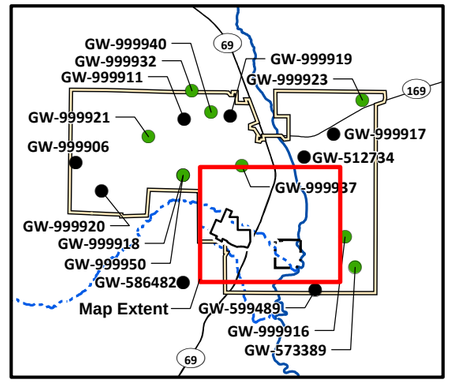
Scale in Feet

[a]The concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected.
GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
Image Source: USDA, 2015.

Figure 7-50
Dissolved Arsenic in Groundwater
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona





LEGEND

Total Lead Concentration in Groundwater (mg/L)

- Not Detected
- 0.00011 to 0.015 (Screening Level)
- >0.015 to 0.15
- >0.15 to 1.37 (Highest Detection)
- EPA Well[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

N

0 1,200 2,400

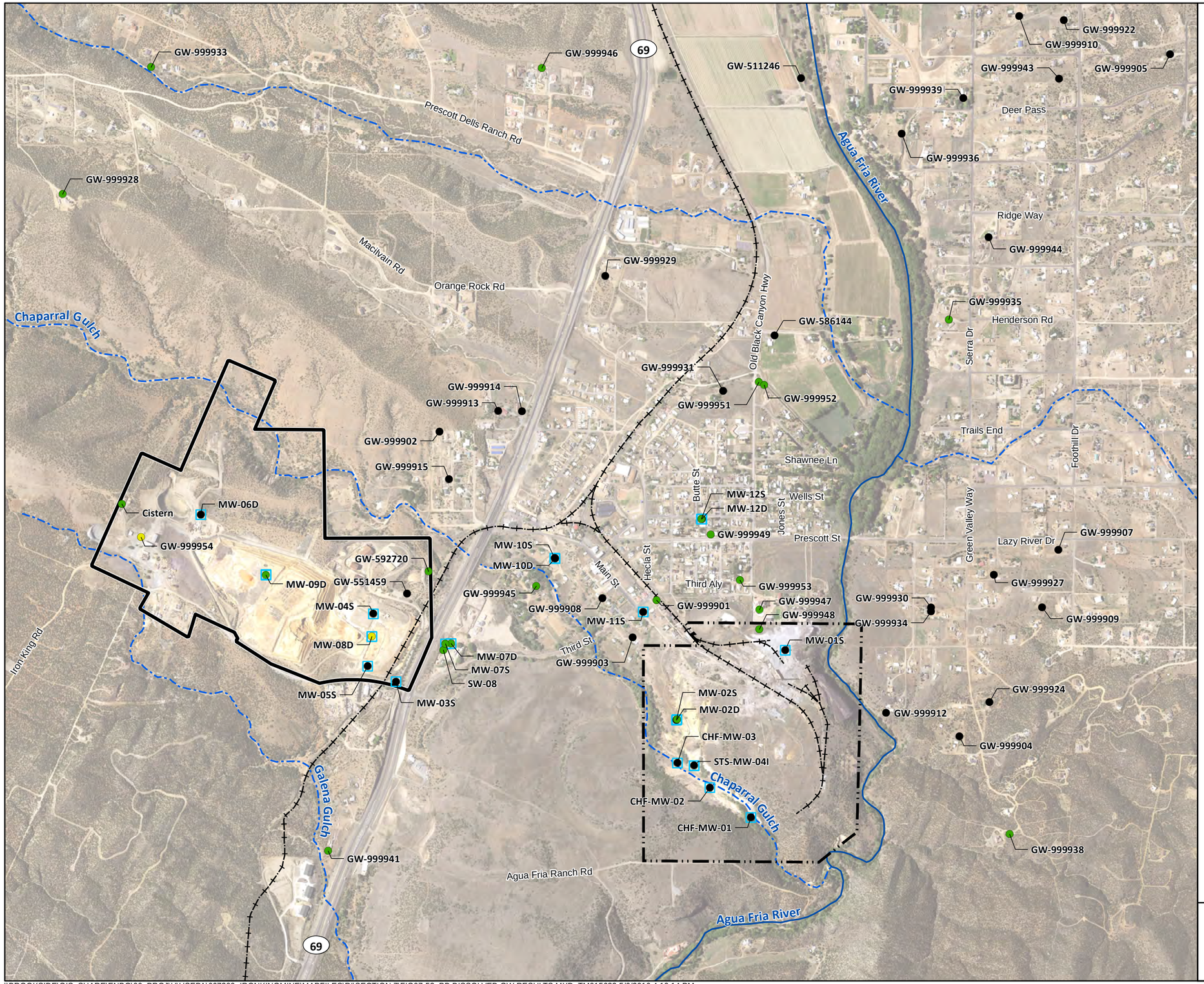
Scale in Feet

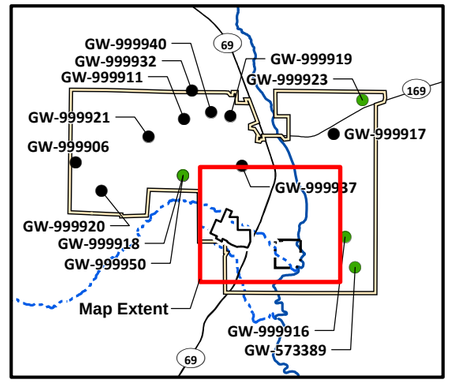
[a]The concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected.
GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
Image Source: USDA, 2015.

Figure 7-51
Total Lead in Groundwater
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-51_PB TOTAL GW RESULTS.MXD TM015632 5/6/2016 4:17:43 PM





LEGEND

Dissolved Lead Concentration in Groundwater (mg/L)

- Not Detected
- 0.000066 to 0.015 (Screening Level)
- >0.015 to 0.0357 (Highest Detection)
- EPA Well[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

N

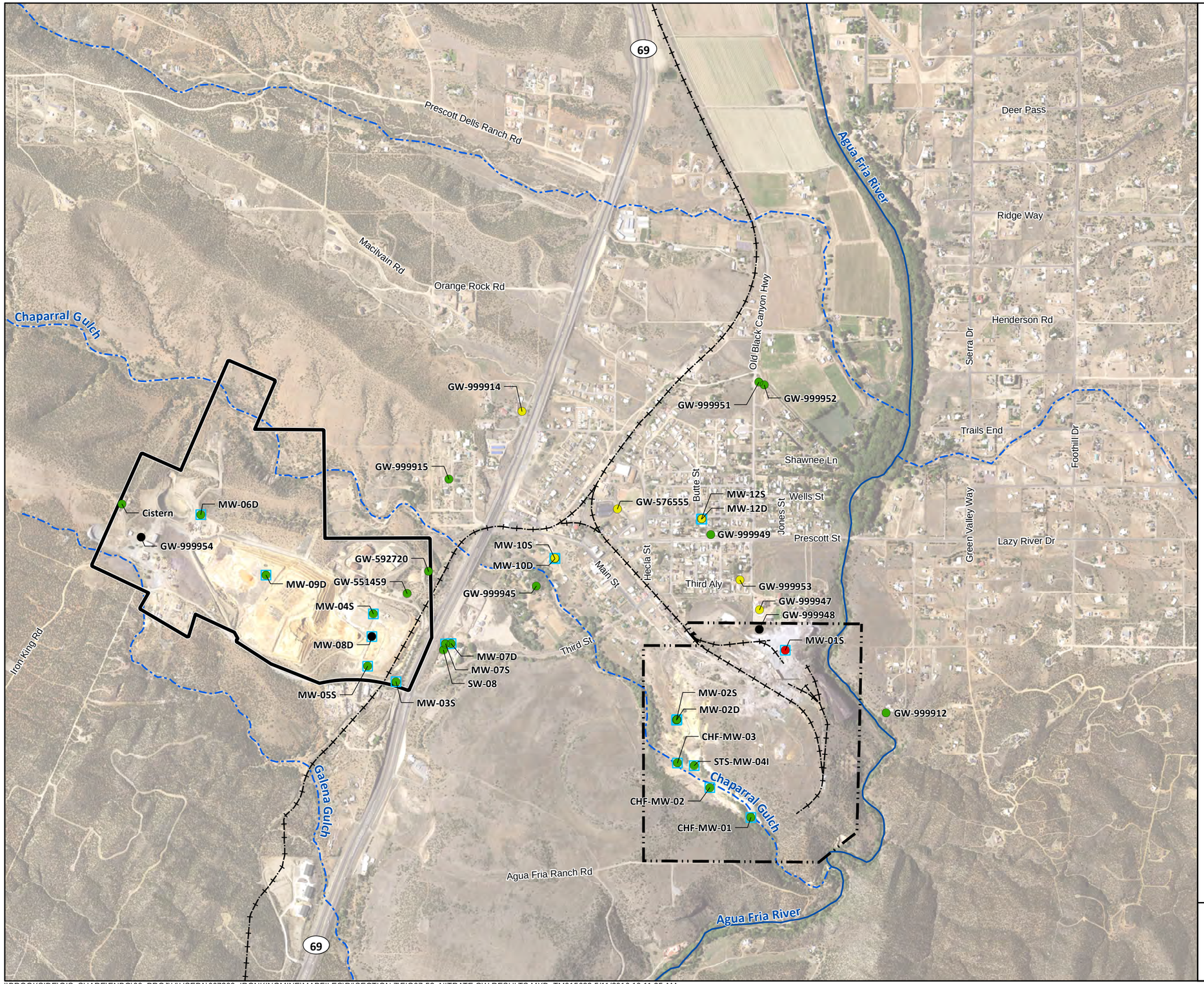
0 1,200 2,400

Scale in Feet

[a]The concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected.
GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
Image Source: USDA, 2015.

Figure 7-52
Dissolved Lead in Groundwater
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

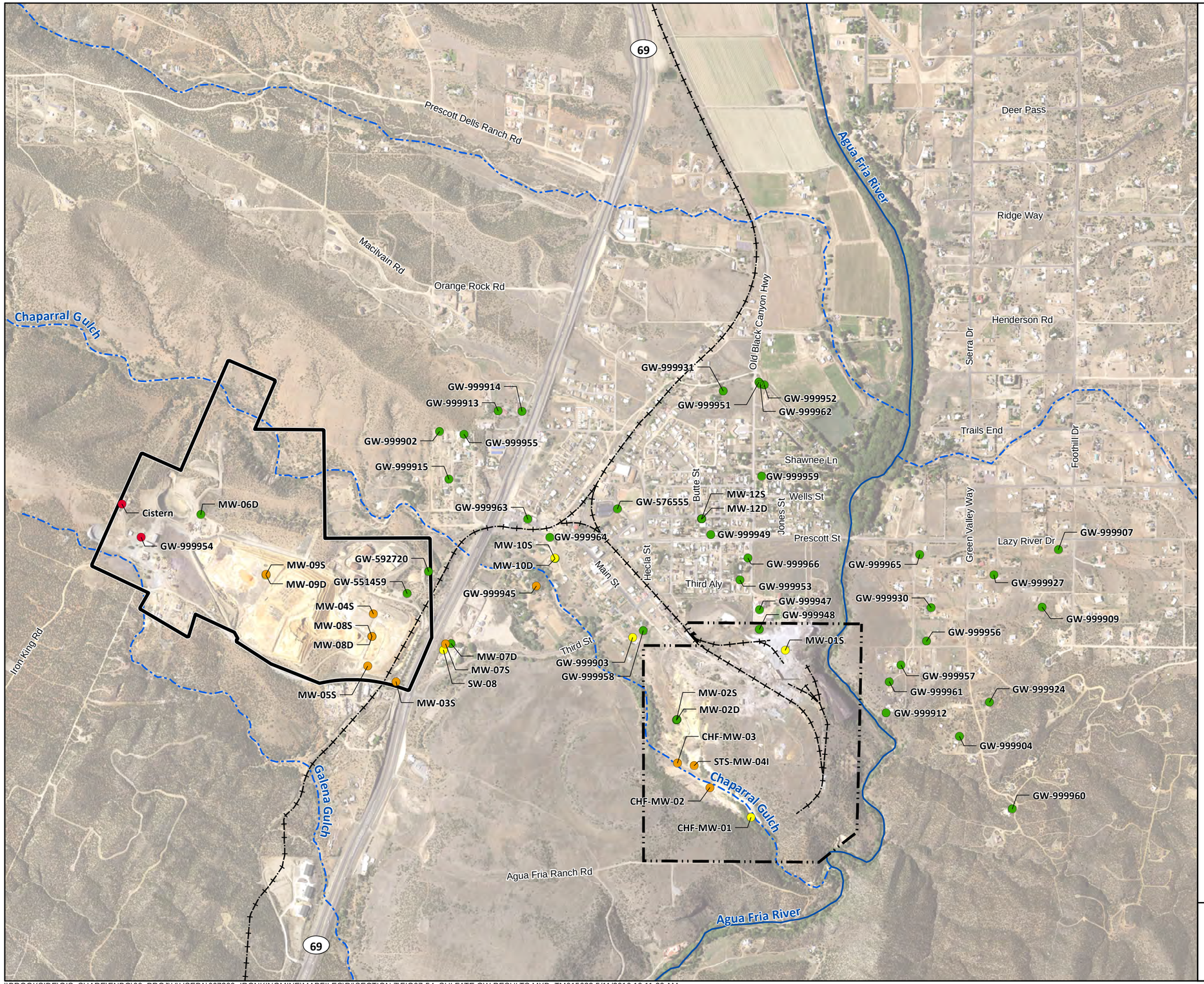


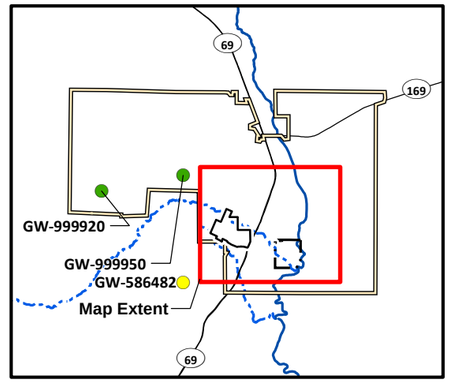
[a]The concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected.
GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
Image Source: USDA, 2015.

Figure 7-53
Nitrate in Groundwater
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-53_NITRATE GW RESULTS.MXD TM015632 5/11/2016 10:11:35 AM





LEGEND

Total Sulfate Concentration in Groundwater (mg/L)

- 13 to 250 (Screening Level)
- >250 to 1,000
- >1,000 to 2,500
- >2,500 to 4,800 (Highest Detection)
- EPA Well[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

N

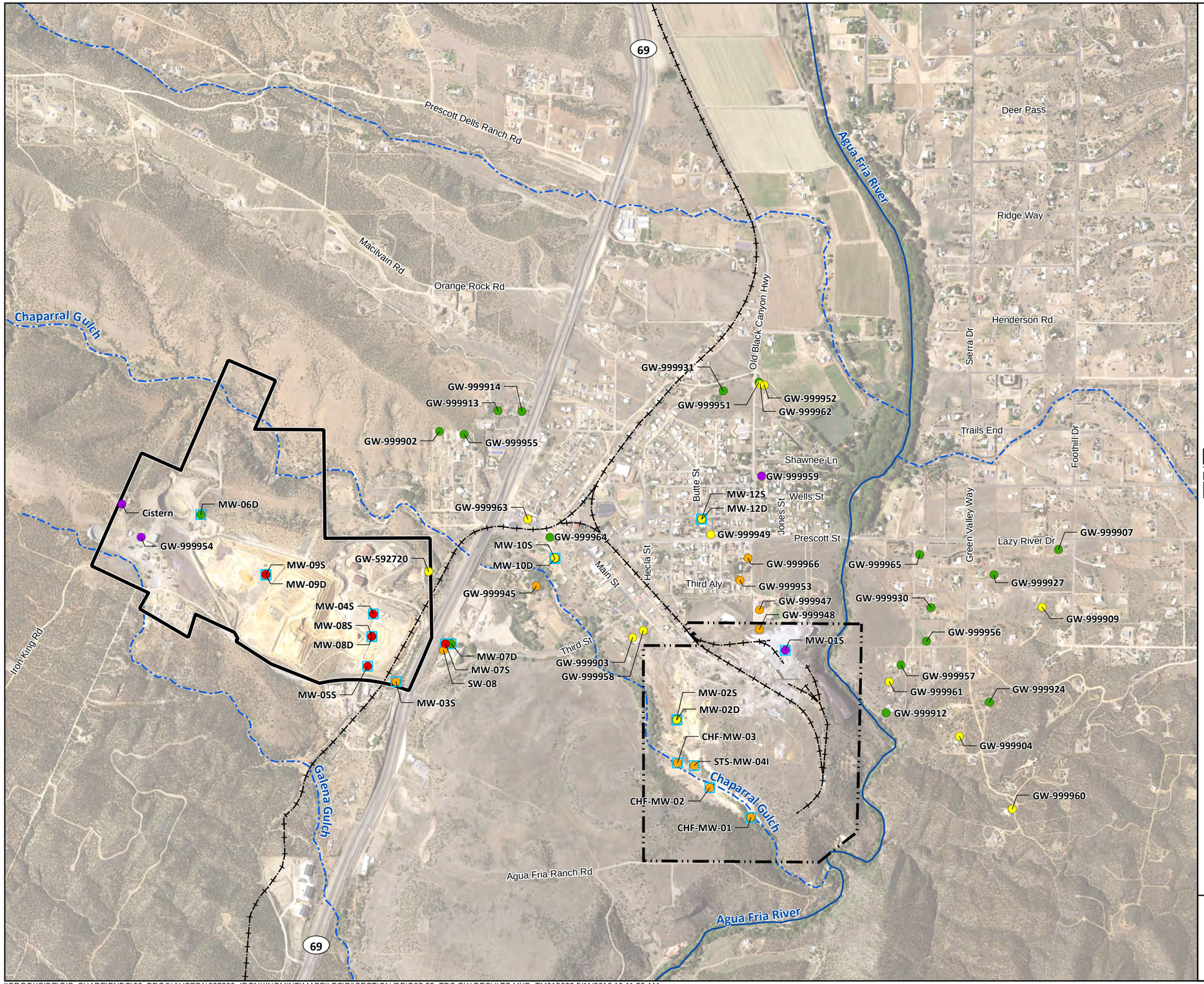
0 1,200 2,400

Scale in Feet

[a]The concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected.
GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
Image Source: USDA, 2015.

Figure 7-54
Sulfate in Groundwater
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona



LEGEND

Total Dissolved Solids Concentration in Groundwater (mg/L)

- 260 to 500 (Screening Level)
- >500 to 1,000
- >1,000 to 3,000
- >3,000 to 5,000
- >5,000 to 28,000 (Highest Detection)
- EPA Well[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary

N

0 1,200 2,400

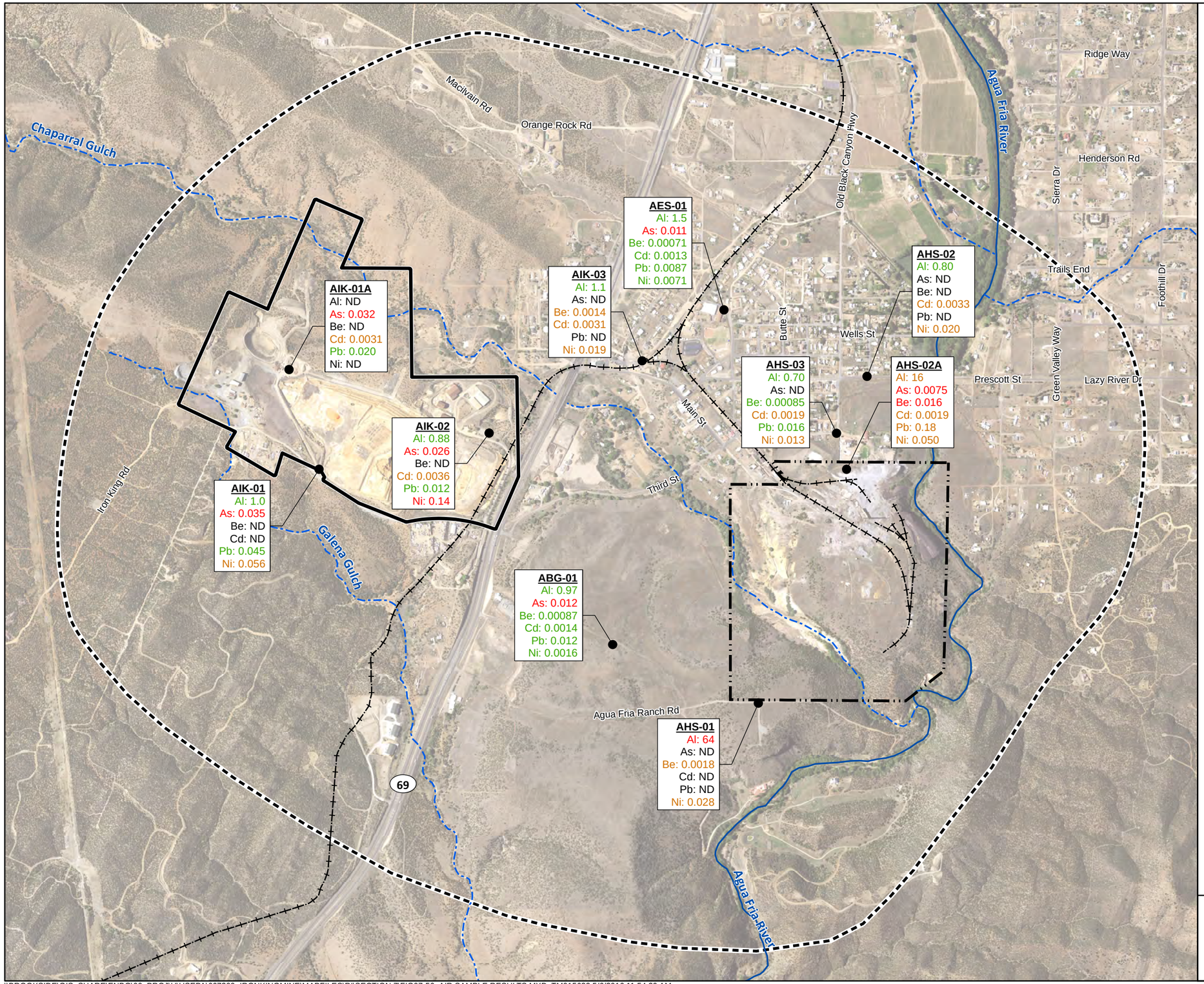
Scale in Feet

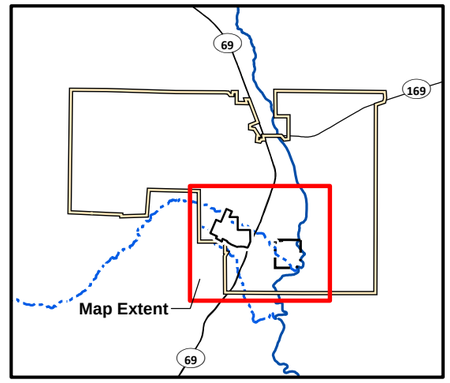
[a]The concentration shown for EPA monitoring wells is the maximum of the 2014 sampling data, where available. The concentration shown for other wells is the maximum of all sample data and is not restricted to a specific year. Monitoring wells by geologic unit are presented on Figure 7-48.

Notes:
The PVC casing at GW-999954 is greater than 3,000 feet below ground surface in the flooded mine workings of Old Mine Shaft No.7. The Cistern contains water pumped from Old Mine Shaft No. 7.
EPA wells STS-MW-04S, MTP-MW1, MTP-MW2, and MTP-MW3 were evaluated in 2014 but reported as dry, and no samples were collected.
GW-999925 and GW-999926 are not shown. GW-999925 is located approximately 3 miles south-southwest of the Iron King Mine, and GW-999926 is located approximately 11 miles south-southeast of the Iron King Mine.
Image Source: USDA, 2015.

Figure 7-55
Total Dissolved Solids in Groundwater
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-55_TDS GW RESULTS.MXD TM015632 5/11/2016 10:11:50 AM





LEGEND

- Air Sample Location[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary
- Area of Potential Site Impact (APSI)

N

0 1,200 2,400

Scale in Feet

Air Sample Location Labels

Location ID — **ABG-01**

Analyte Name — Al: 0.97; As: 0.012; Be: 0.00087; Cd: 0.0014; Pb: 0.012; Ni: 0.0016 — *Maximum Detected Sample Location Concentration (ug/m3)*

Sample concentrations are color coded based on a comparison of the sample result to the analyte's screening level:

Black	Not Detected (ND)
Green	<= Screening Level
Orange	>Screening Level to <= 10X Screening Level
Red	>10X Screening Level to <= 100X Screening Level

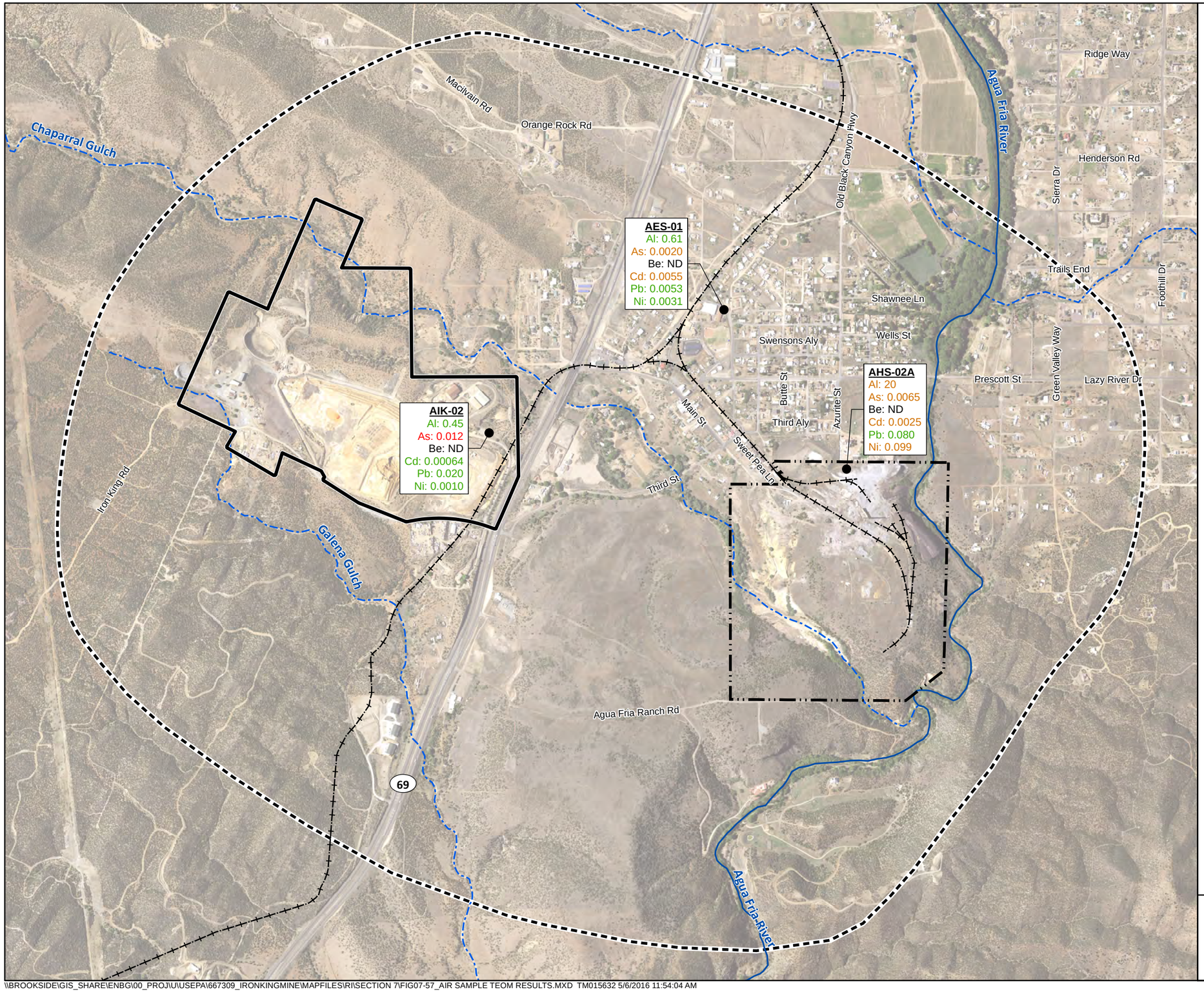
Analyte	Screening Level (ug/m3)[b]
Al (Aluminum)	5.2
As Arsenic	0.00065
Be (Beryllium)	0.0012
Cd (Cadmium)	0.0016
Pb (Lead)	0.15
Ni (Nickel)	0.011

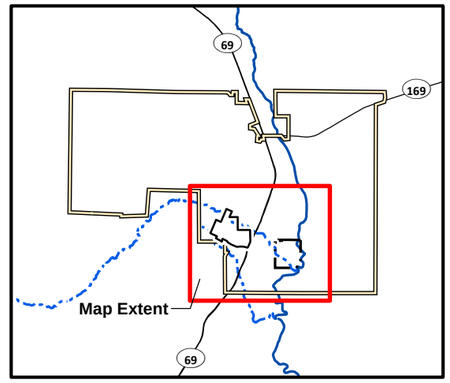
[a]Air samples were collected on multiple occasions between 2008 and 2009 using BGI PQ100 samplers. Data source: EA, 2010.
[b]Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existance of unacceptable risk.

Note:
Image Source: USDA, 2015.

Figure 7-56
Ambient Air Concentrations, PQ100 Samplers
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-56_AIR SAMPLE RESULTS.MXD TM015632 5/6/2016 11:54:29 AM





LEGEND

- Air Sample Location[a]
- Historic Rail Line
- River
- Intermittent Drainage
- Former Iron King Mine Property
- Former Humboldt Smelter Property
- Dewey-Humboldt Town Boundary
- Area of Potential Site Impact (APSI)

N

0 1,200 2,400

Scale in Feet

Air Sample Location Labels

Location ID — **ABG-01**

Analyte Name / *Maximum Detected Sample Location Concentration (ug/m3)*

- Al: 0.97
- As: 0.012
- Be: 0.00087
- Cd: 0.0014
- Pb: 0.012
- Ni: 0.0016

Sample concentrations are color coded based on a comparison of the sample result to the analyte's screening level:

Black	Not Detected (ND)
Green	<= Screening Level
Orange	>Screening Level to <= 10X Screening Level
Red	>10X Screening Level to <= 100X Screening Level

Analyte	Screening Level (ug/m3)[b]
Al (Aluminum)	5.2
As Arsenic	0.00065
Be (Beryllium)	0.0012
Cd (Cadmium)	0.0016
Pb (Lead)	0.15
Ni (Nickel)	0.011

[a]Air samples were collected between March and September 2009 using Thermo Electron TEOM Series 1400a continuous particulate monitors with an Automatic Cartridge Collection Unit (ACCU) intelligent sampling system (EA, 2010). Data source: EA, 2010.

[b]Screening levels were used solely to evaluate the nature and extent of contamination; they are not intended to infer the existance of unacceptable risk.

Note:
Image Source: USDA, 2015.

Figure 7-57
Ambient Air Concentrations, TEOM Samplers
Iron King Mine – Humboldt Smelter Superfund Site
Dewey-Humboldt, Yavapai County, Arizona

\\BROOKSIDE\GIS_SHARE\ENBG\00_PROJ\U\USEPA\667309_IRONKINGMINE\MAPFILES\RI\SECTION 7\FIG07-57_AIR SAMPLE TEOM RESULTS.MXD TM015632 5/6/2016 11:54:04 AM