TABLES

Table 1
Studies Used in RM 0-17.4 Mapping of Surficial Sediment Concentrations

Study Name	Years	Centroid	Data Counts					
			TCDD	Total PCBs	Mercury	HMW PAH	LMW PAH	Total DDx
Honeywell International Sampling Programs	2005, 2006	no	2	2	2	2	2	0
USEPA/MPI – High-Resolution Sediment Coring Program	2005, 2006, 2008	no	1	1	0	1	1	0
USEPA/MPI – EMBM	2007, 2008	no	18	18	18	18	18	9
Low-Resolution Coring Program	2008	yes	90	91	91	91	91	90
USEPA/MPI – Sediment Sampling Program	2008	no	10	10	17	10	10	10
Benthic Program Surface Sediment Sampling (2009)	2009	no	110	110	110	0	110	110
Benthic Program Surface Sediment Sampling (2010)	2010	no	21	21	21	0	21	21
River Mile 10.9 Characterization	2011	yes	54	54	54	54	54	54
Low-resolution Coring Program Supplemental Sampling Program	2012	yes	85	85	85	85	85	85
Tierra – Focused Sediment Investigation (RM 10.9)	2012	no	6	0	0	0	0	0
River Mile 10.9 Addendum A	2012	yes	15	15	15	15	15	15
Low-resolution Coring Program Supplemental Sampling Program 2	2013	yes	75	74	74	72	72	74

Notes:
DD_X = sum of all six DDT isomers (2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT and 4,4′-DDT)
EMBM = Empirical Mass Balance Model
HMW = high molecular weight
LMW = low molecular weight
MPI = Malcolm Pirnie, Inc.
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
RM = River Mile
TCDD = tetrachlorodibenzo-p-dioxin
USEPA = U.S. Environmental Protection Agency

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Table 2
Probing and Fine Sediment Content Data Used to Evaluate the Expansion of Silt Areas

Study Name	Year	Probing	Fine Sediment Content
USEPA/MPI – EMBM	2007, 2008	Yes	No
Low-Resolution Coring Program	2008	Yes	Yes
Benthic Program Surface Sediment Sampling (2009)	2009	No	Yes
River Mile 10.9 Characterization	2011	No	Yes
Low-resolution Coring Program Supplemental Sampling Program	2012	No	Yes
Low-resolution Coring Program Supplemental Sampling Program 2	2013	Yes	Yes

Notes:
EMBM = Empirical Mass Balance Model
MPI = Malcolm Pirnie, Inc.
USEPA = U.S. Environmental Protection Agency

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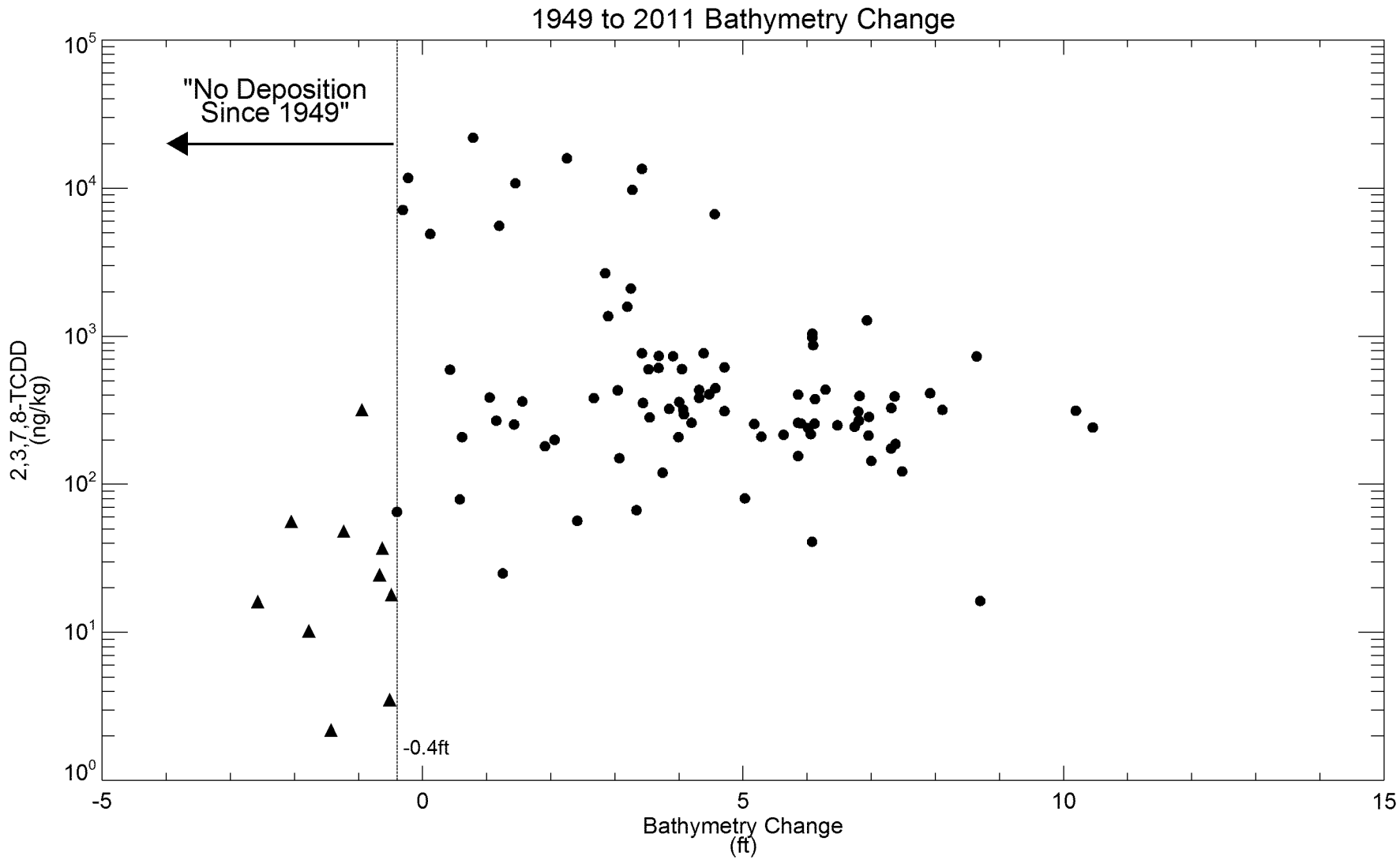
FIGURES



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▲ < -0.4 feet of deposition since 1949
● > -0.4 feet of deposition since 1949

Figure 1

2,3,7,8-TCDD Concentration Versus Bathymetry Change from 1949 to 2011 in RM 2.5 to RM 6.8
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Includes data from 1995-2013.

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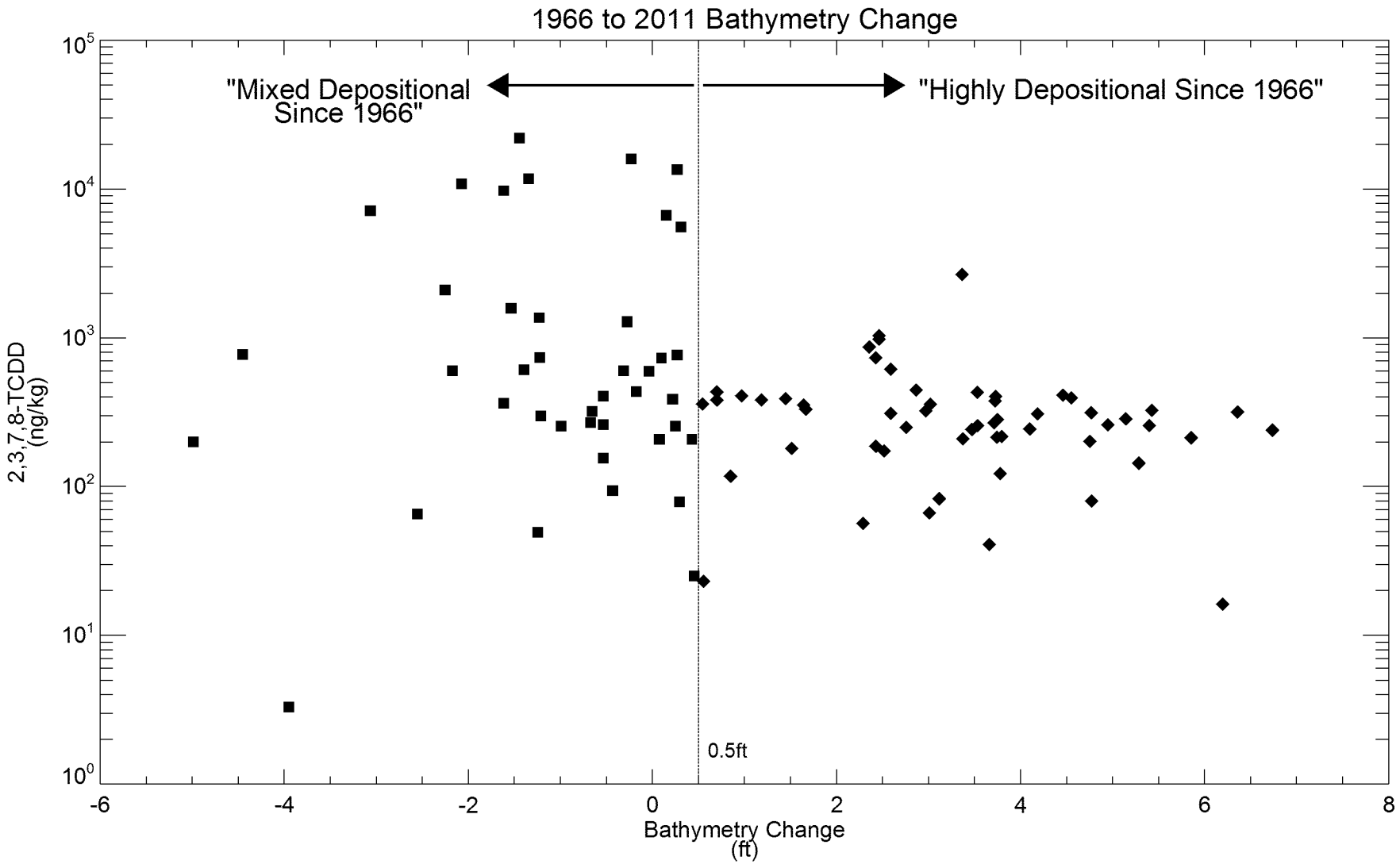

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Figure 2

2,3,7,8-TCDD Concentration Versus Bathymetry Change from 1966 to 2011 in RM 2.3 to RM 7.8

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

■ Erosion or <0.5 feet of deposition since 1966

◆ >0.5 feet of deposition since 1966

Includes data from 1995-2013. Only data with greater than -0.4ft deposition since 1949 are plotted.

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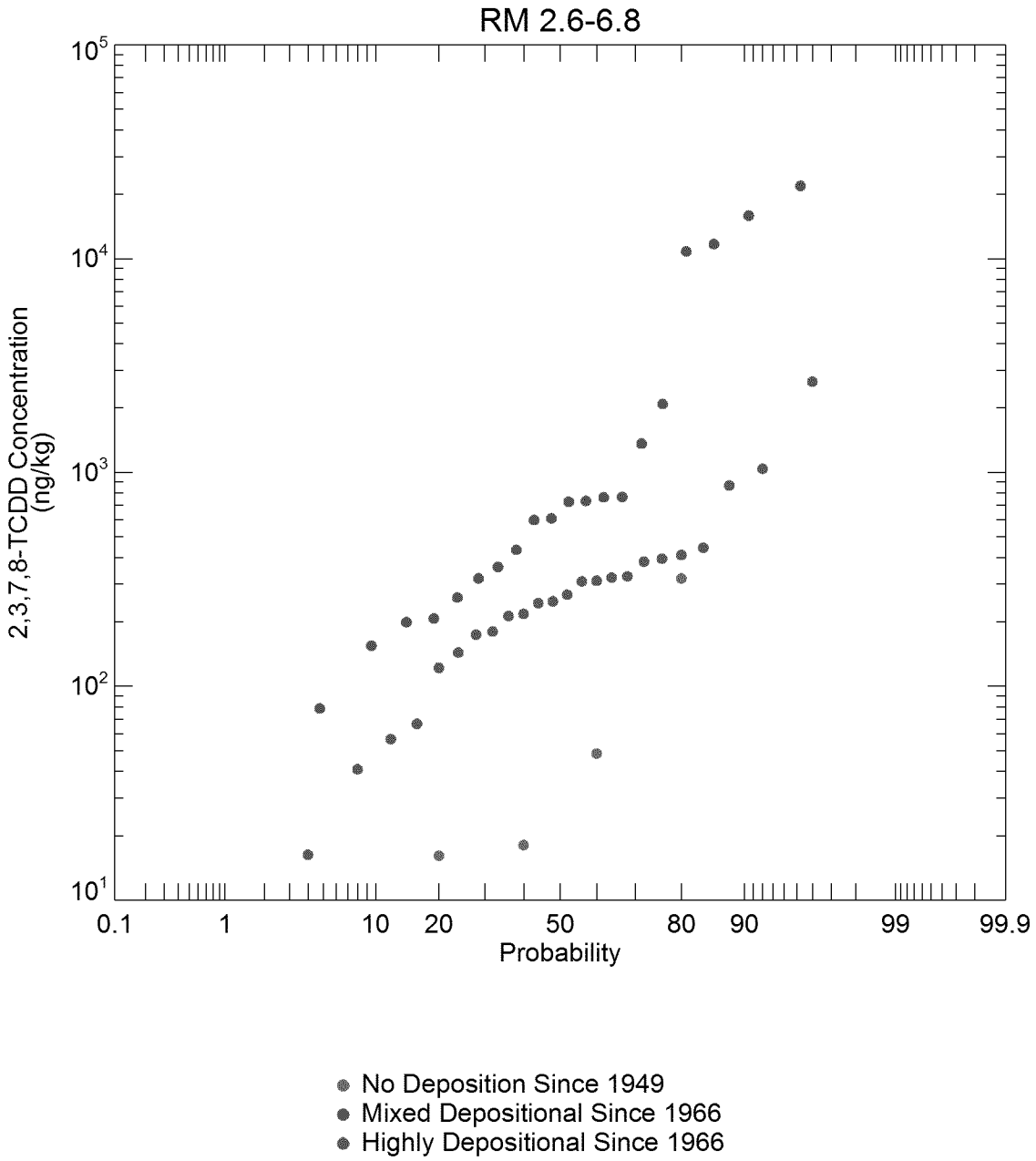

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Figure 3

Distribution of Surface Sediment 2,3,7,8-TCDD Concentration between RM 2.6 and 6.8, by Interpolation Group
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Note: Includes data from 2005-2013.. Excludes data in the shoals

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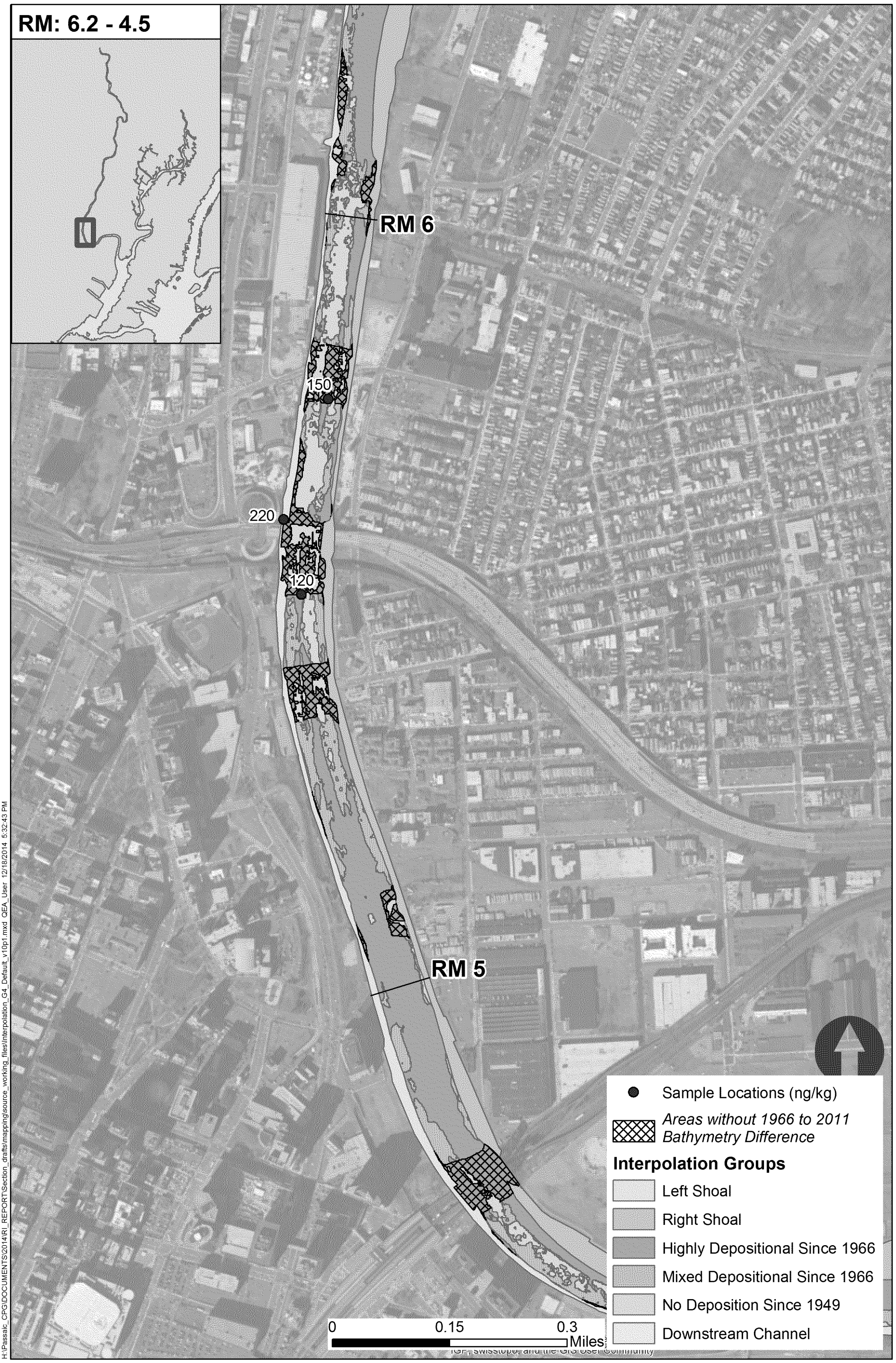

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Figure 4a

Areas Without 1966 to 2011 Bathymetry Difference That Were Set to Highly Depositional Since 1966

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Note: Only samples within the highlighted areas with no bathymetry difference between 1966-2011 were shown above. Sample locations were labeled with surface 2,3,7,8-TCDD concentrations in ng/kg. Samples collected between 1995-2013.

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Figure 4b

Areas Without 1966 to 2011 Bathymetry Difference That Were Set to Highly Depositional Since 1966

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Note: Only samples within the highlighted areas with no bathymetry difference between 1966-2011 were shown above. Sample locations were labeled with surface 2,3,7,8-TCDD concentrations in ng/kg. Samples collected between 1995-2013.

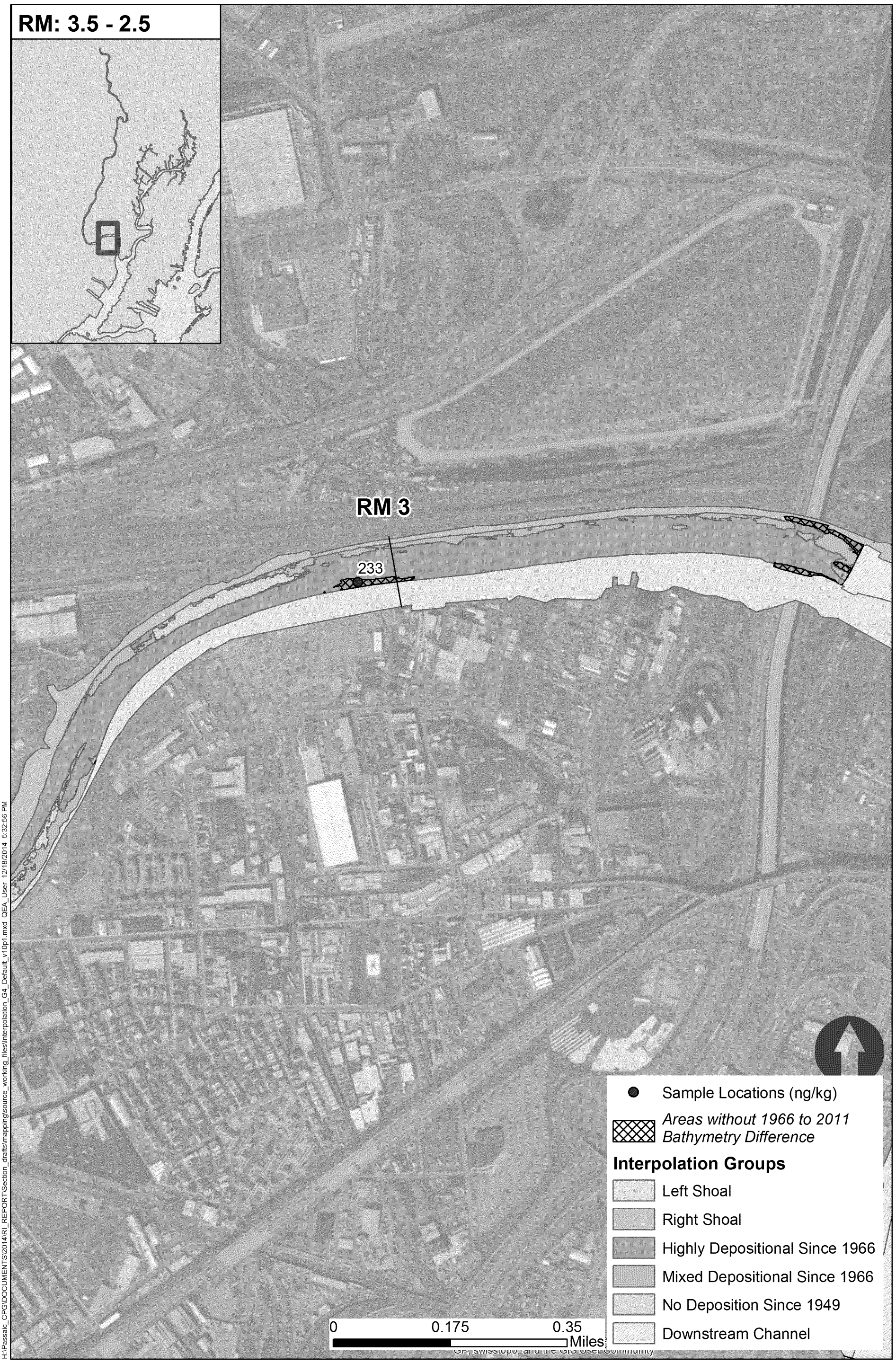

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Figure 4c

Areas Without 1966 to 2011 Bathymetry Difference That Were Set to Highly Depositional Since 1966

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Note: Only samples within the highlighted areas with no bathymetry difference between 1966-2011 were shown above. Sample locations were labeled with surface 2,3,7,8-TCDD concentrations in ng/kg. Samples collected between 1995-2013.

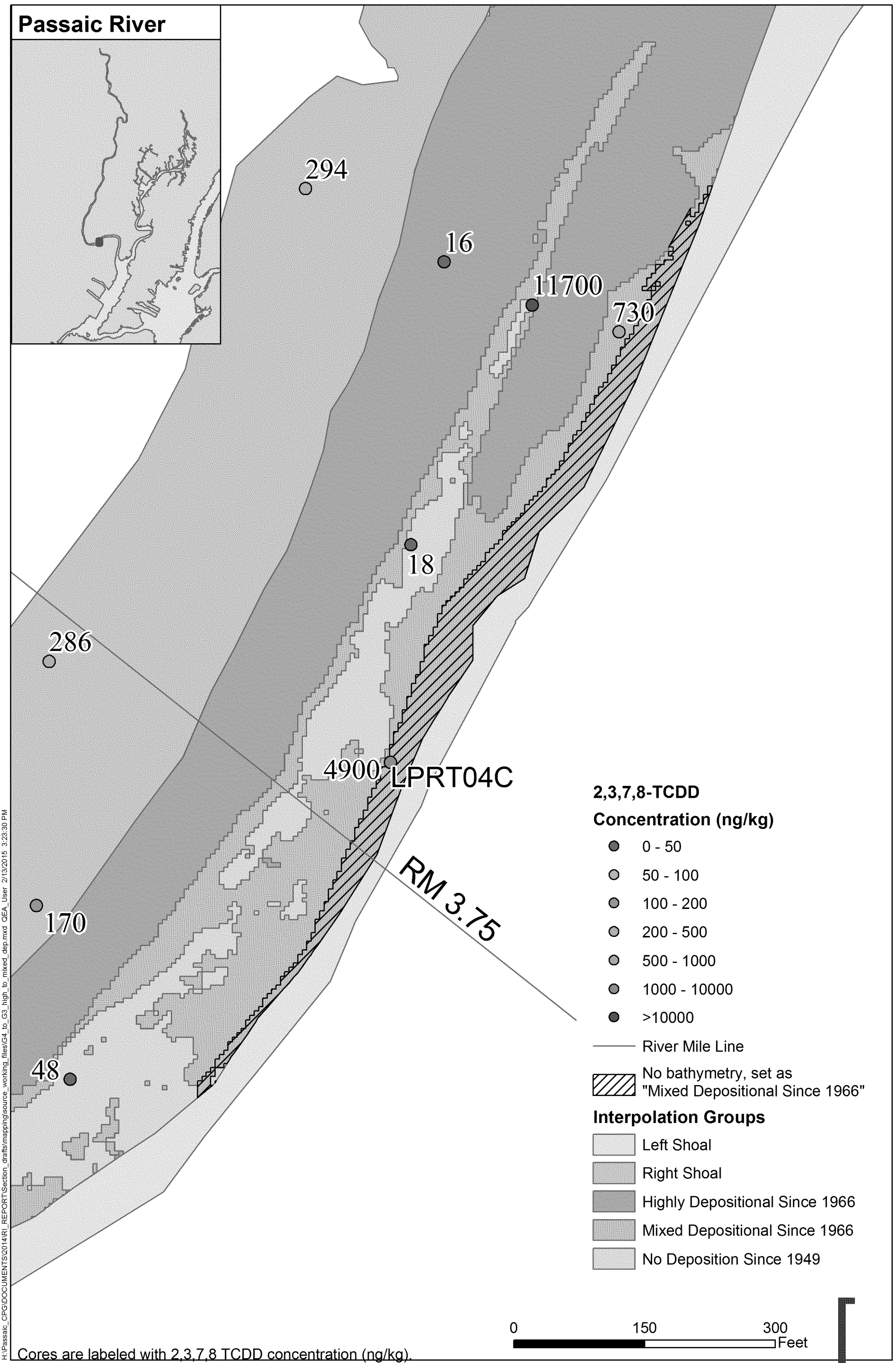

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Figure 5

Area without historical 1966 bathymetry set as "Mixed Depositional Since 1966"
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

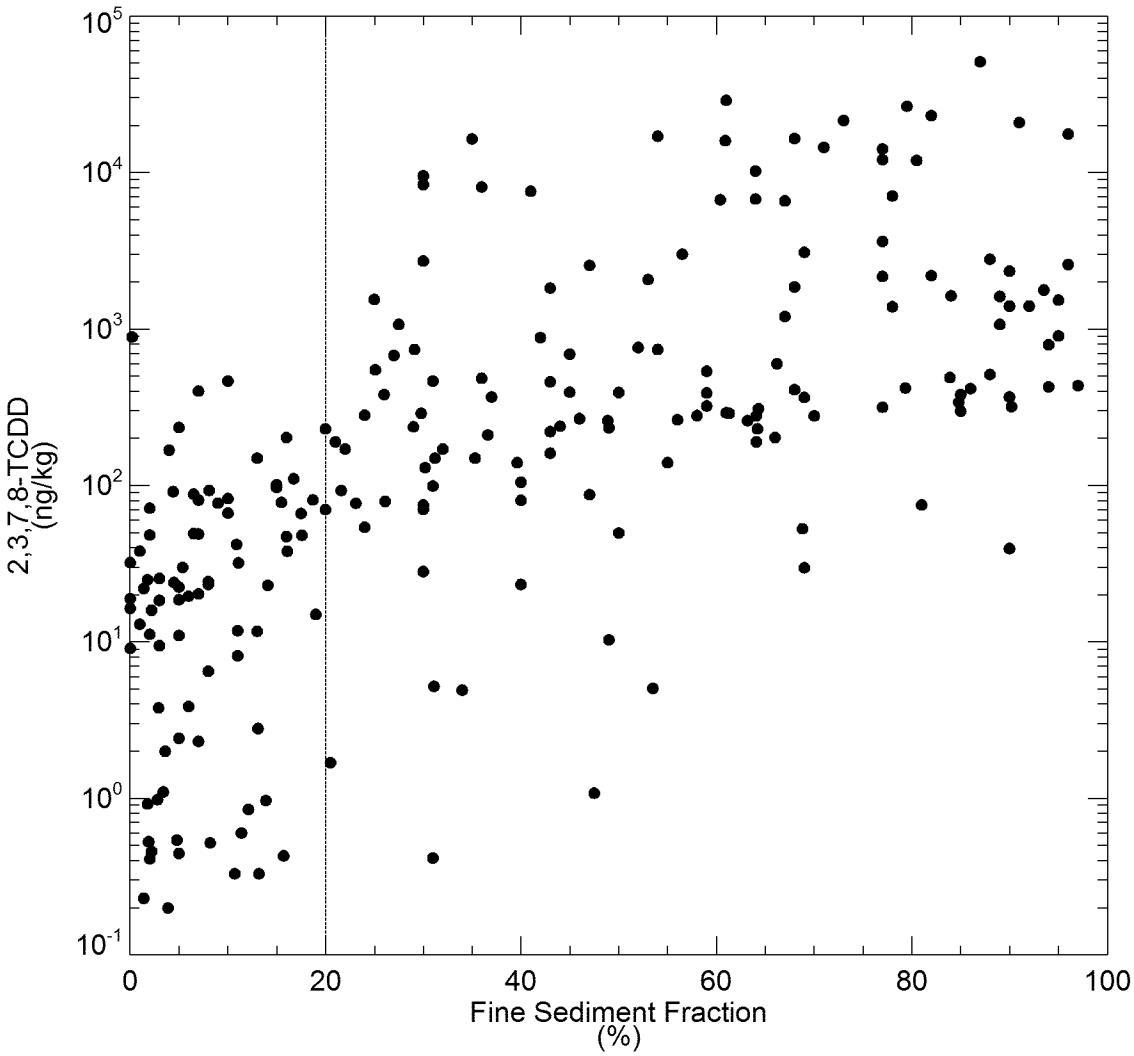

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Figure 6

2,3,7,8-TCDD Concentrations in Surface Sediments Versus Fine Sediment Content Between RM 7.8 and RM 17.4

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Note: Includes data from 2005-2013. Surface sediments have bottom depths less than 6 inches.

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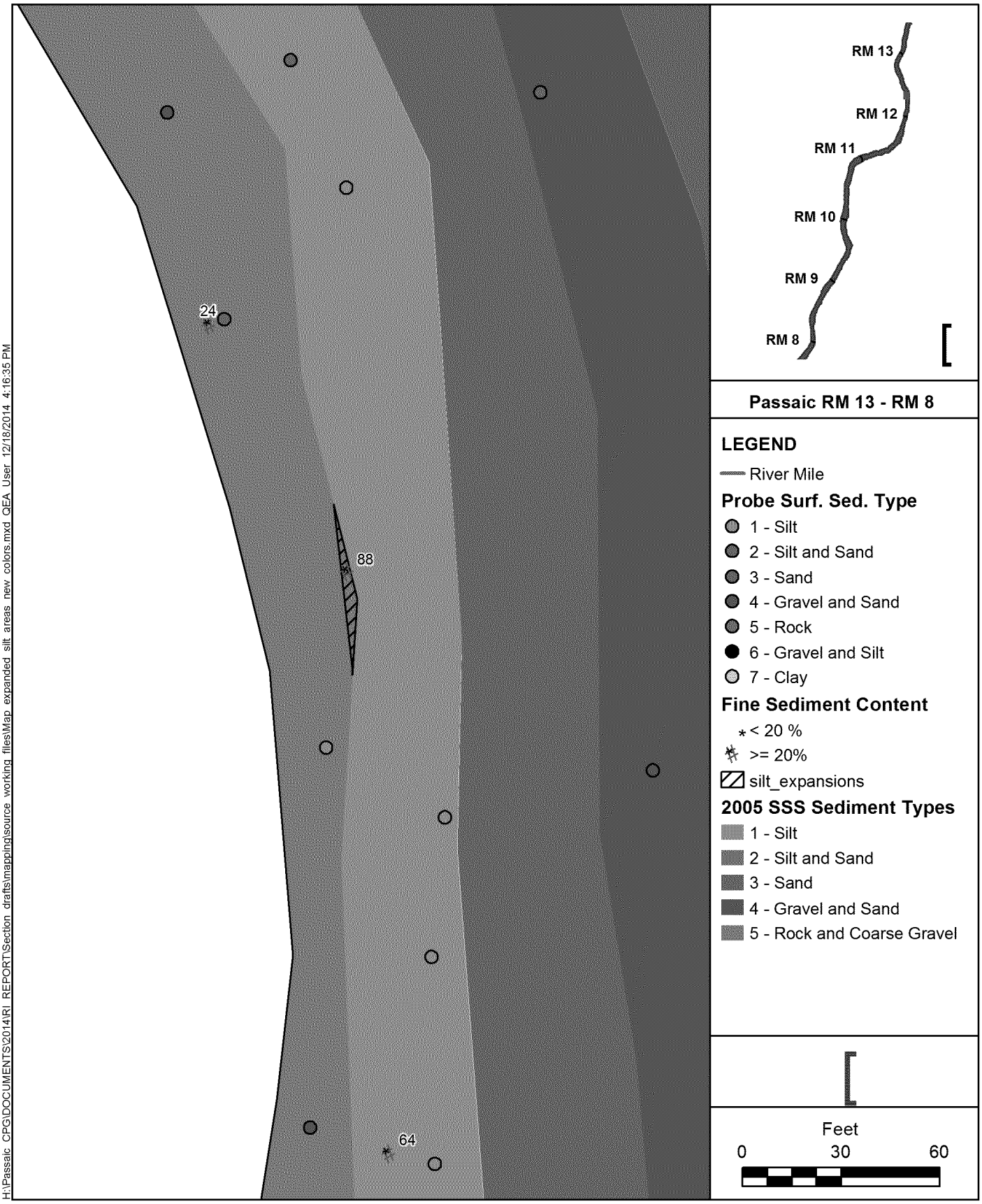

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Figure 7a

Silt Areas Delineated/Expanded Based on Probing and Fine Sediment Content Data

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Labels indicate fine sediment content.

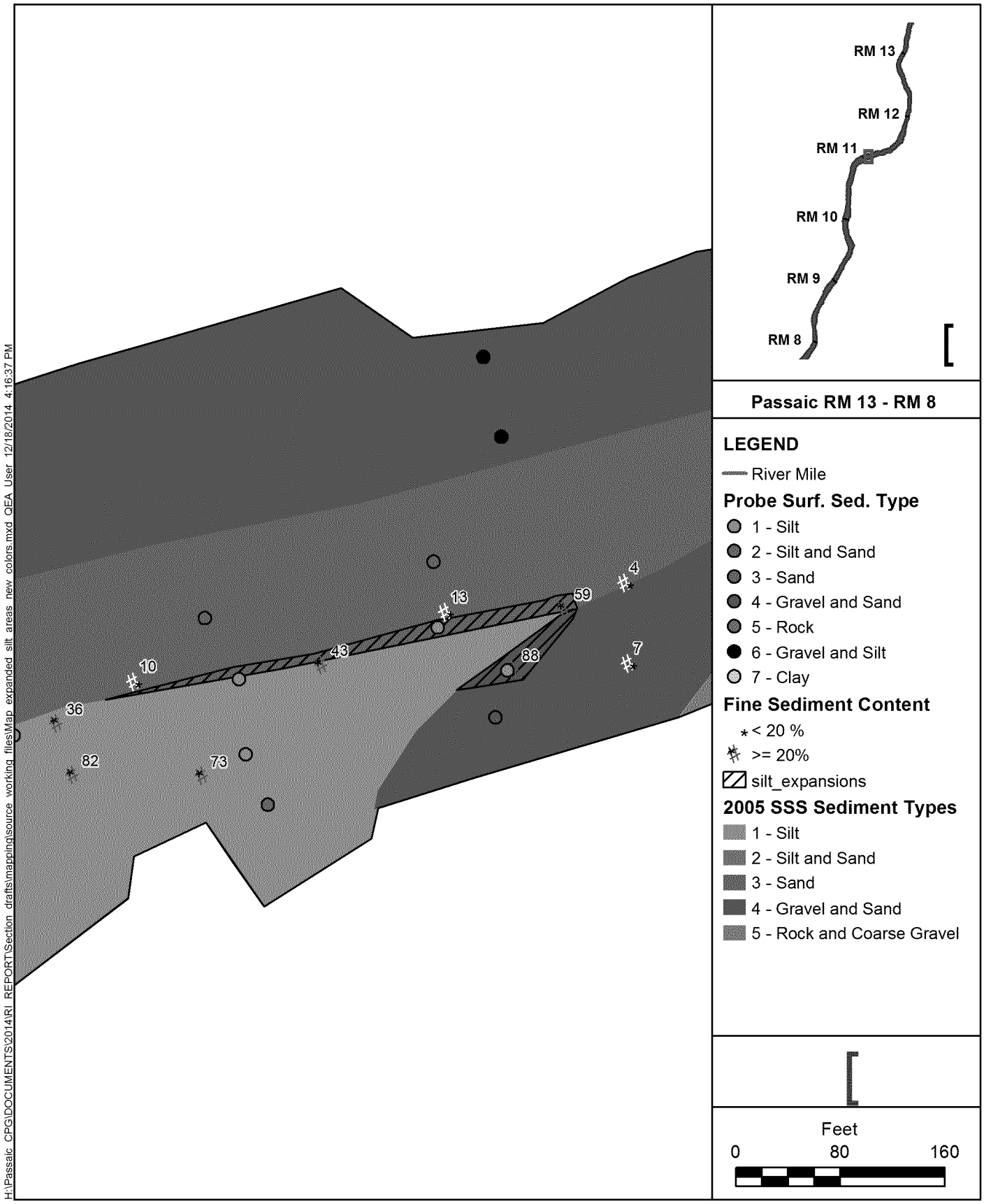

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Figure 7b

Silt Areas Delineated/Expanded Based on Probing and Fine Sediment Content Data

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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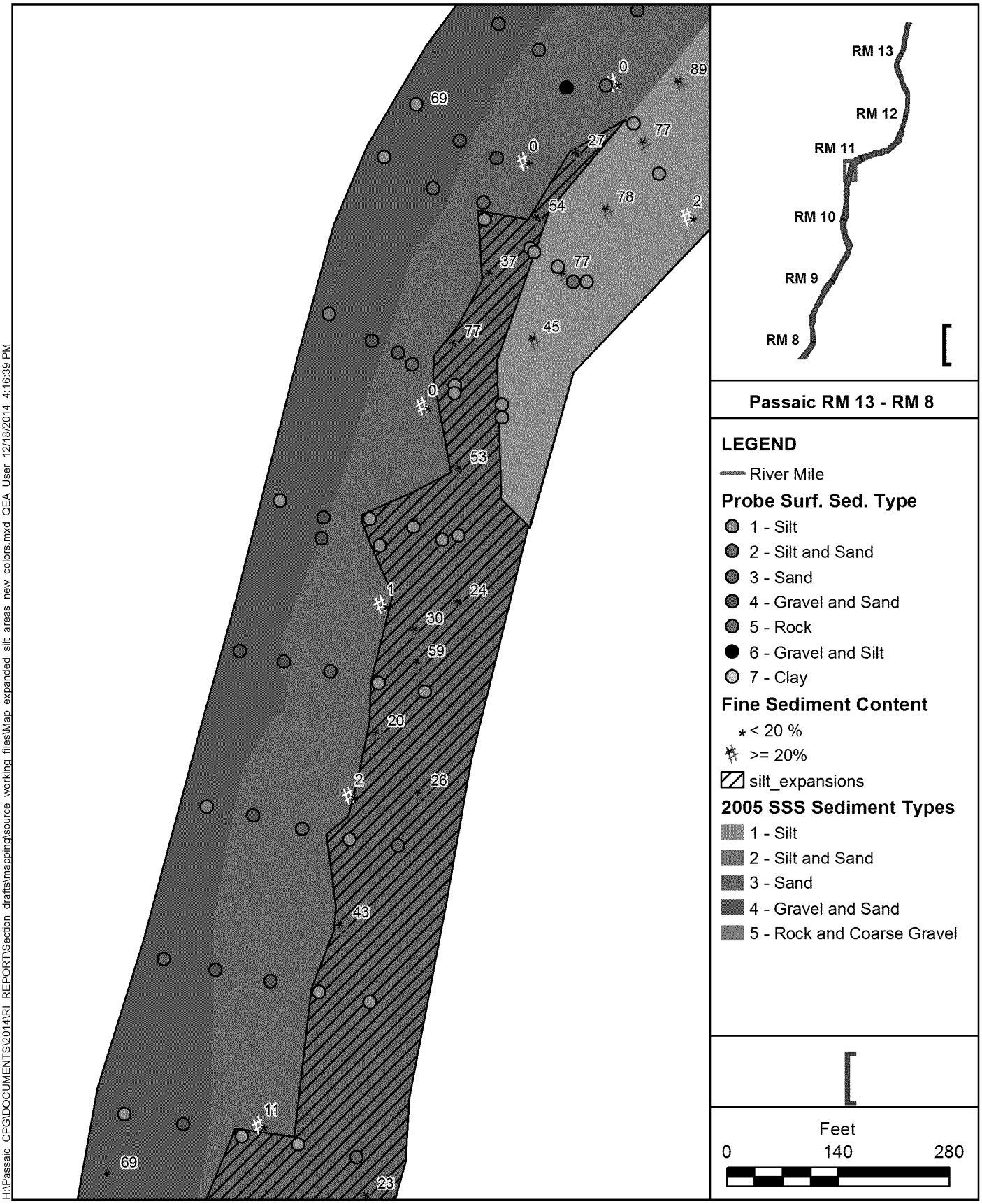

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Figure 7c

Silt Areas Delineated/Expanded Based on Probing and Fine Sediment Content Data

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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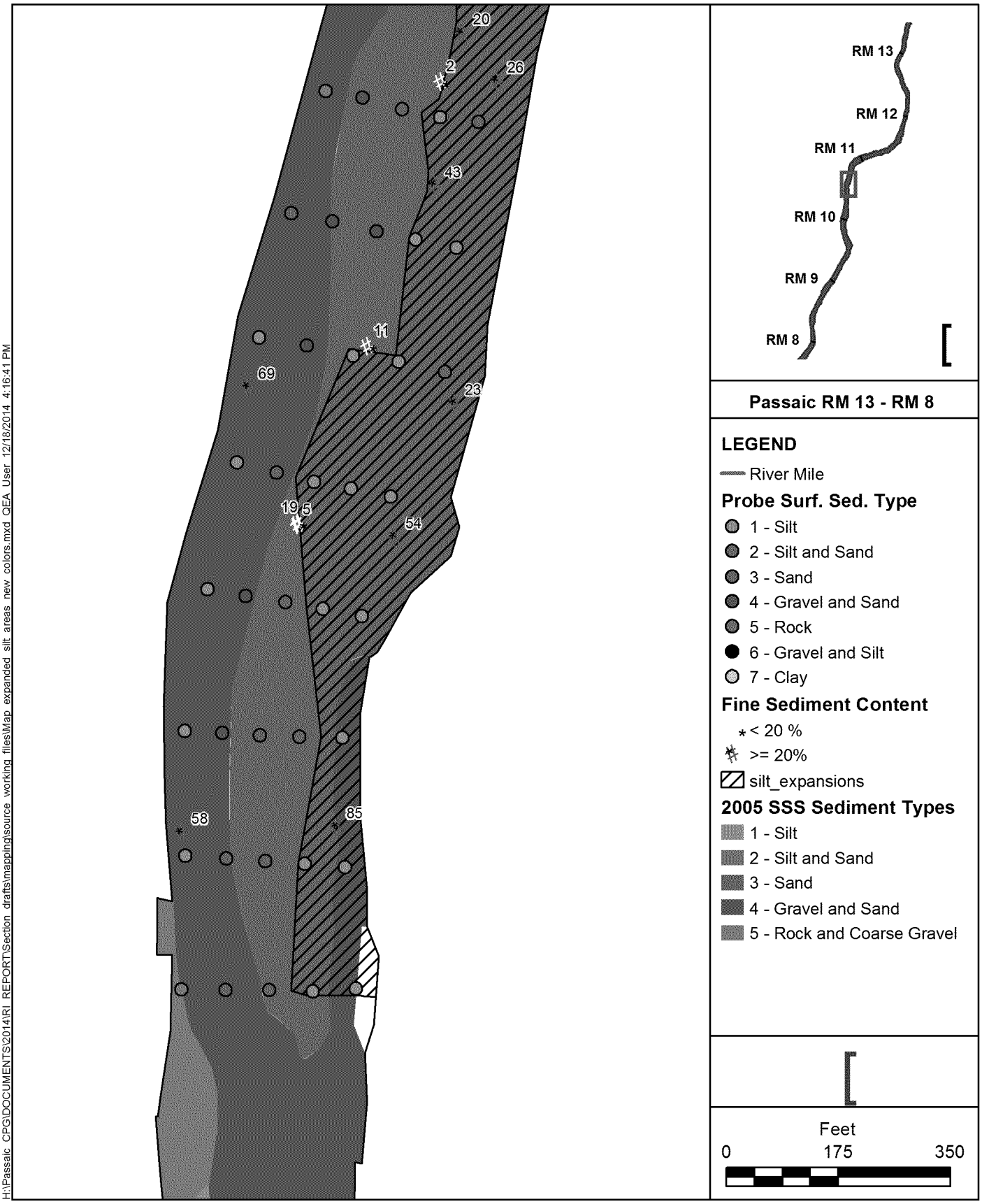

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Figure 7d

Silt Areas Delineated/Expanded Based on Probing and Fine Sediment Content Data

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Labels indicate fine sediment content.

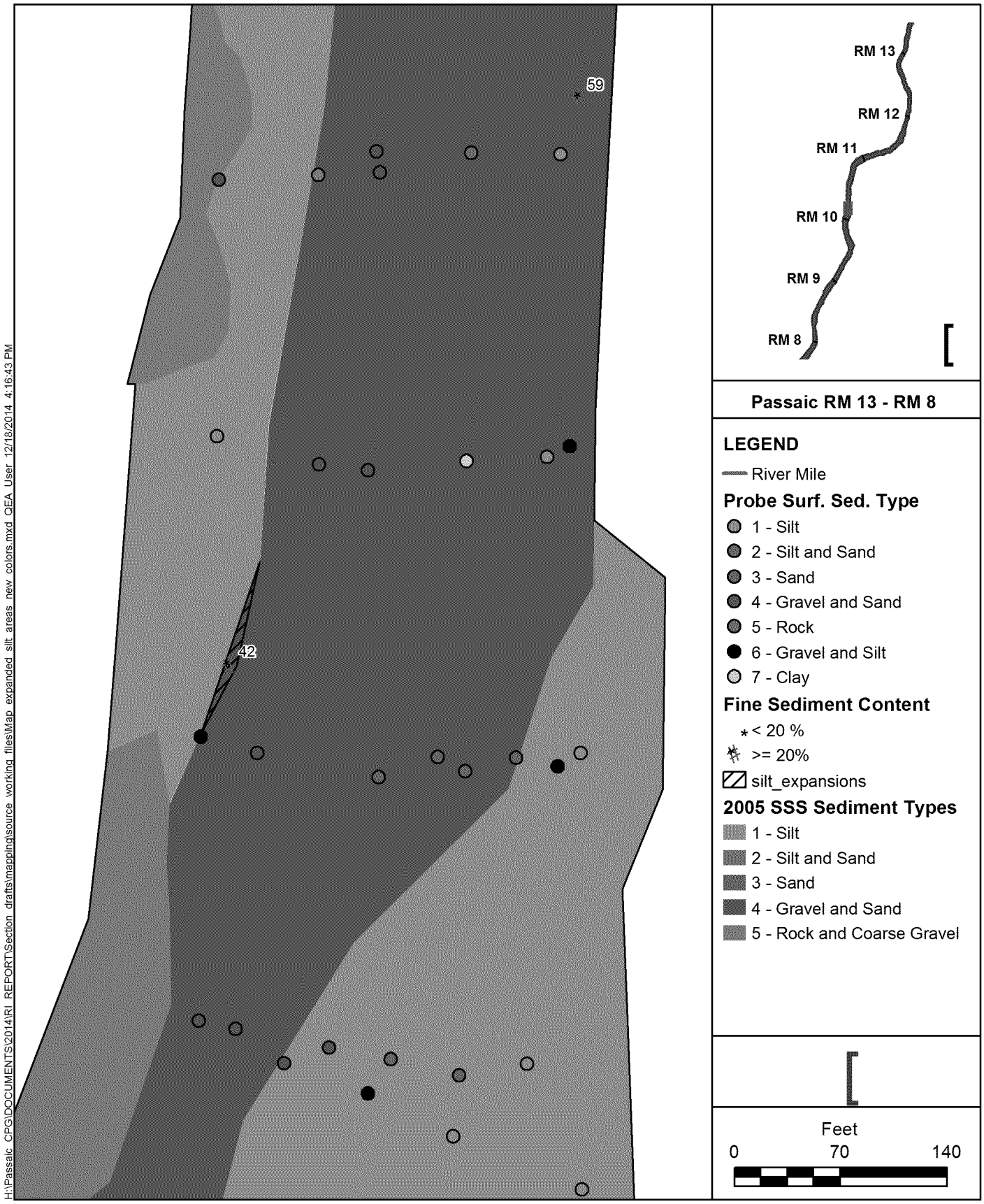

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Figure 7e

Silt Areas Delineated/Expanded Based on Probing and Fine Sediment Content Data

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Labels indicate fine sediment content.

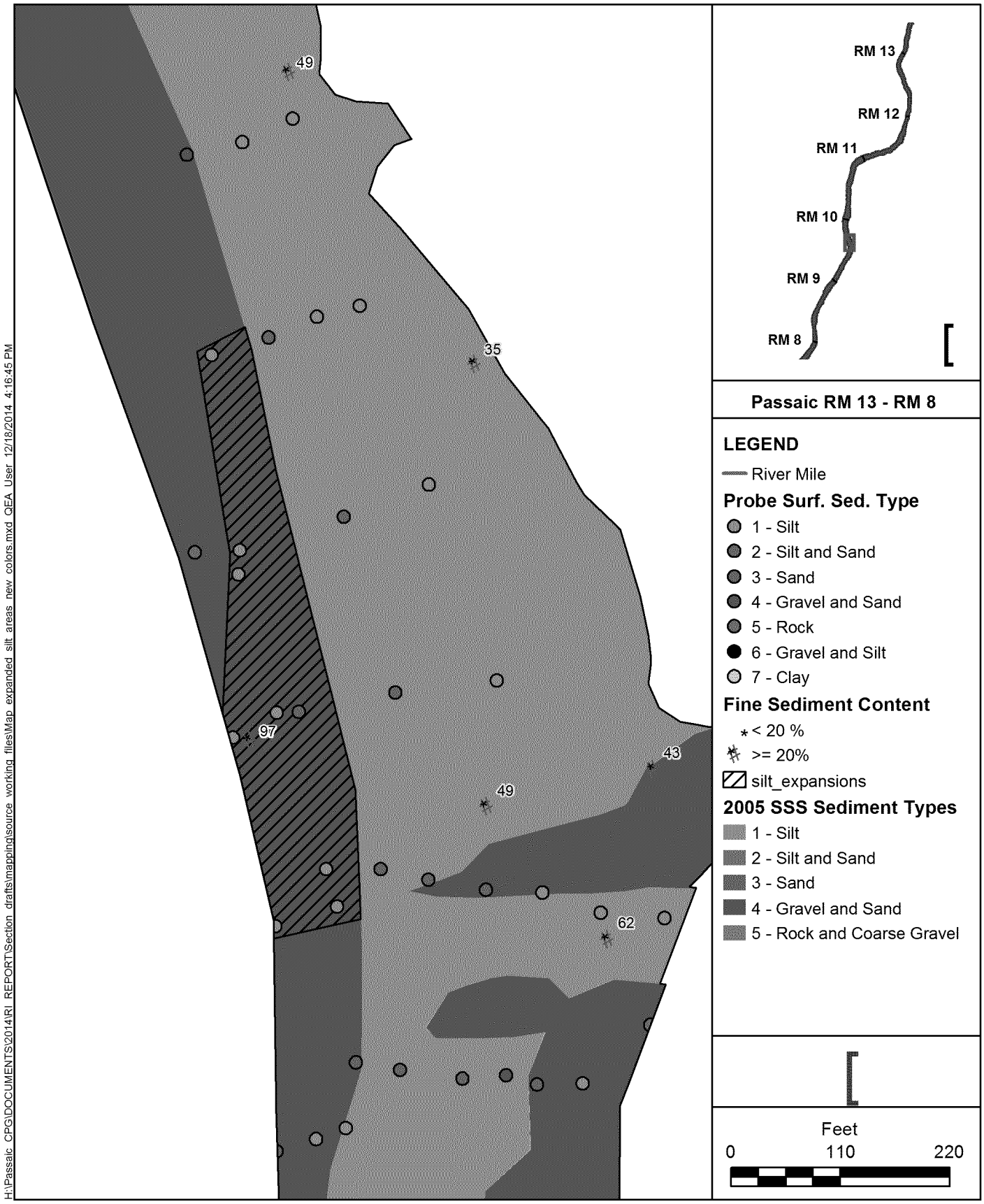

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Figure 7f

Silt Areas Delineated/Expanded Based on Probing and Fine Sediment Content Data

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Labels indicate fine sediment content.

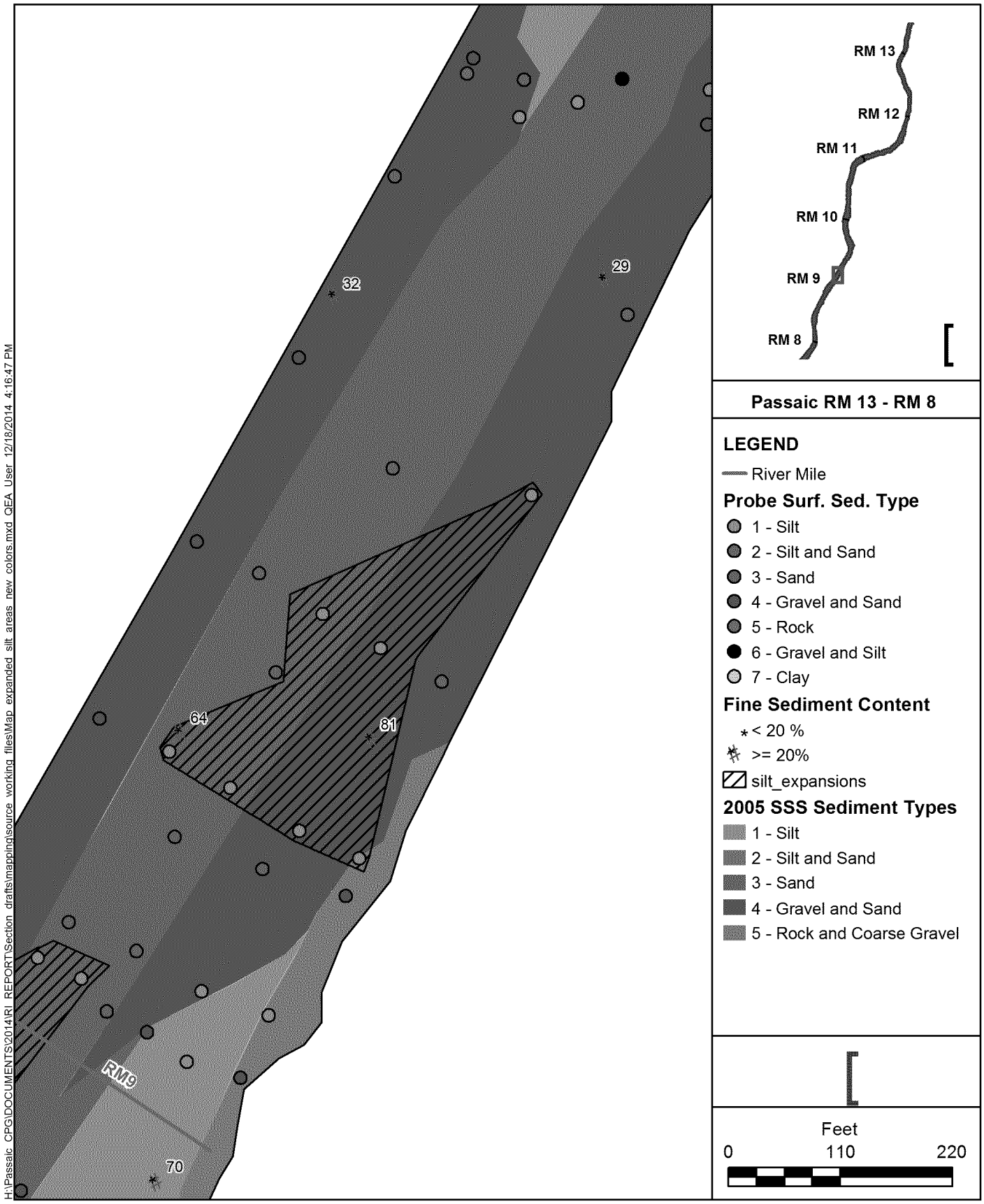

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Figure 7g

Silt Areas Delineated/Expanded Based on Probing and Fine Sediment Content Data

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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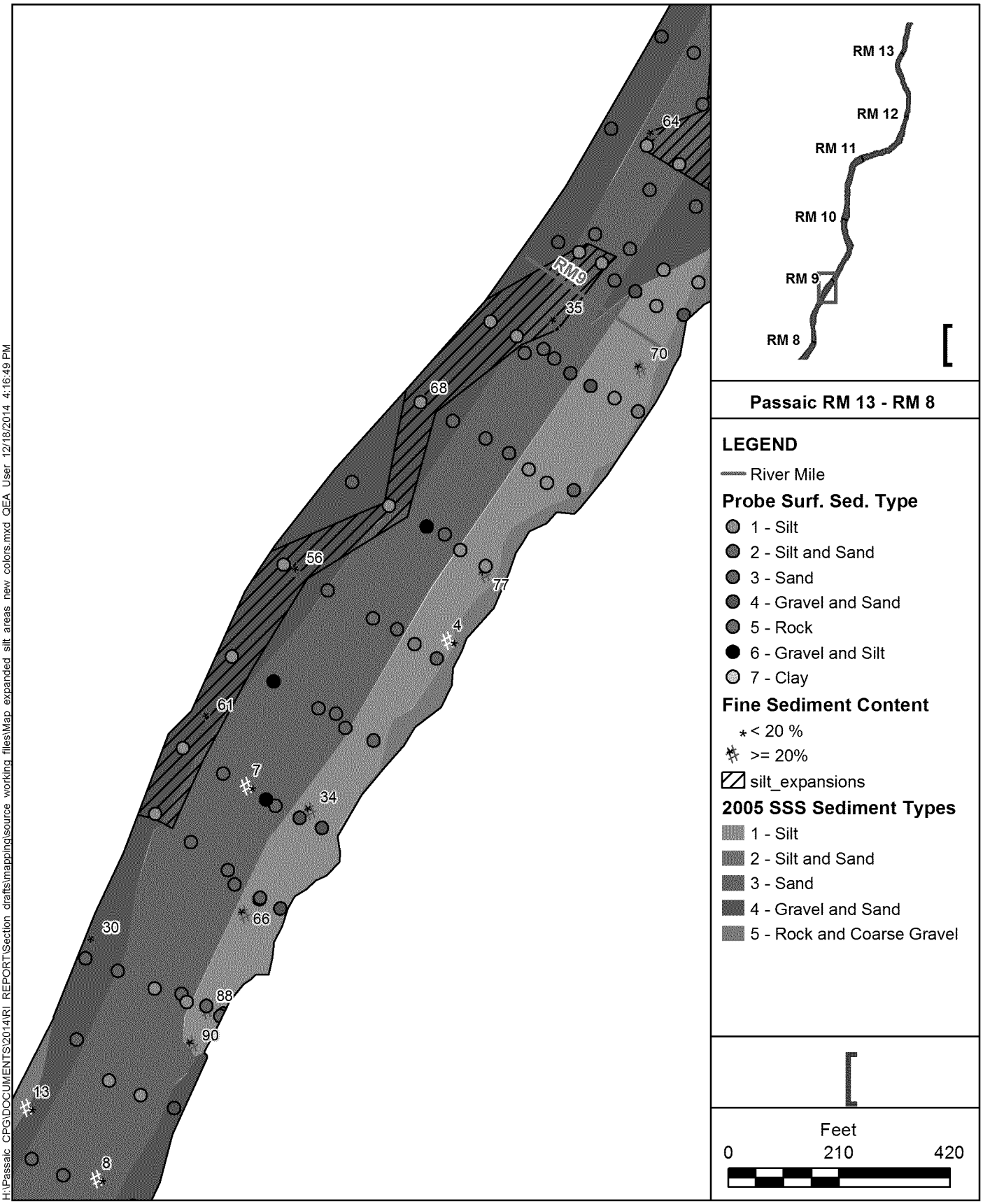

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Figure 7h

Silt Areas Delineated/Expanded Based on Probing and Fine Sediment Content Data

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Labels indicate fine sediment content.

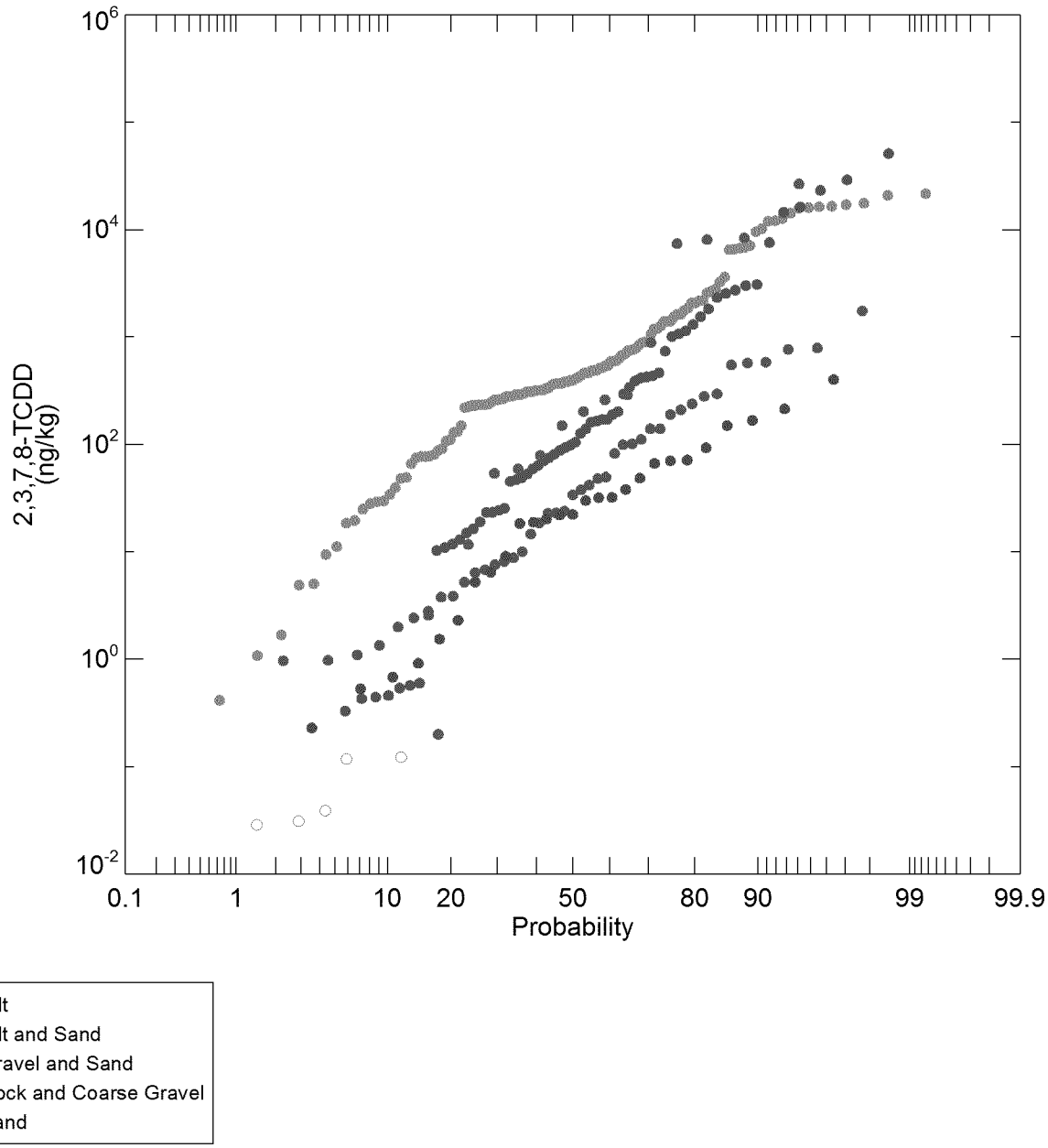

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Figure 8

Distribution of Surface Sediment 2,3,7,8-TCDD Concentrations Between RM 7.8 and RM 17.4 by Sediment Type

Remedial Investigation Report

Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Note: Sediment types based on expanded silt areas and 2005 SSS survey. Includes data from 2005-2013. Hollow circles denote non detect concentrations.

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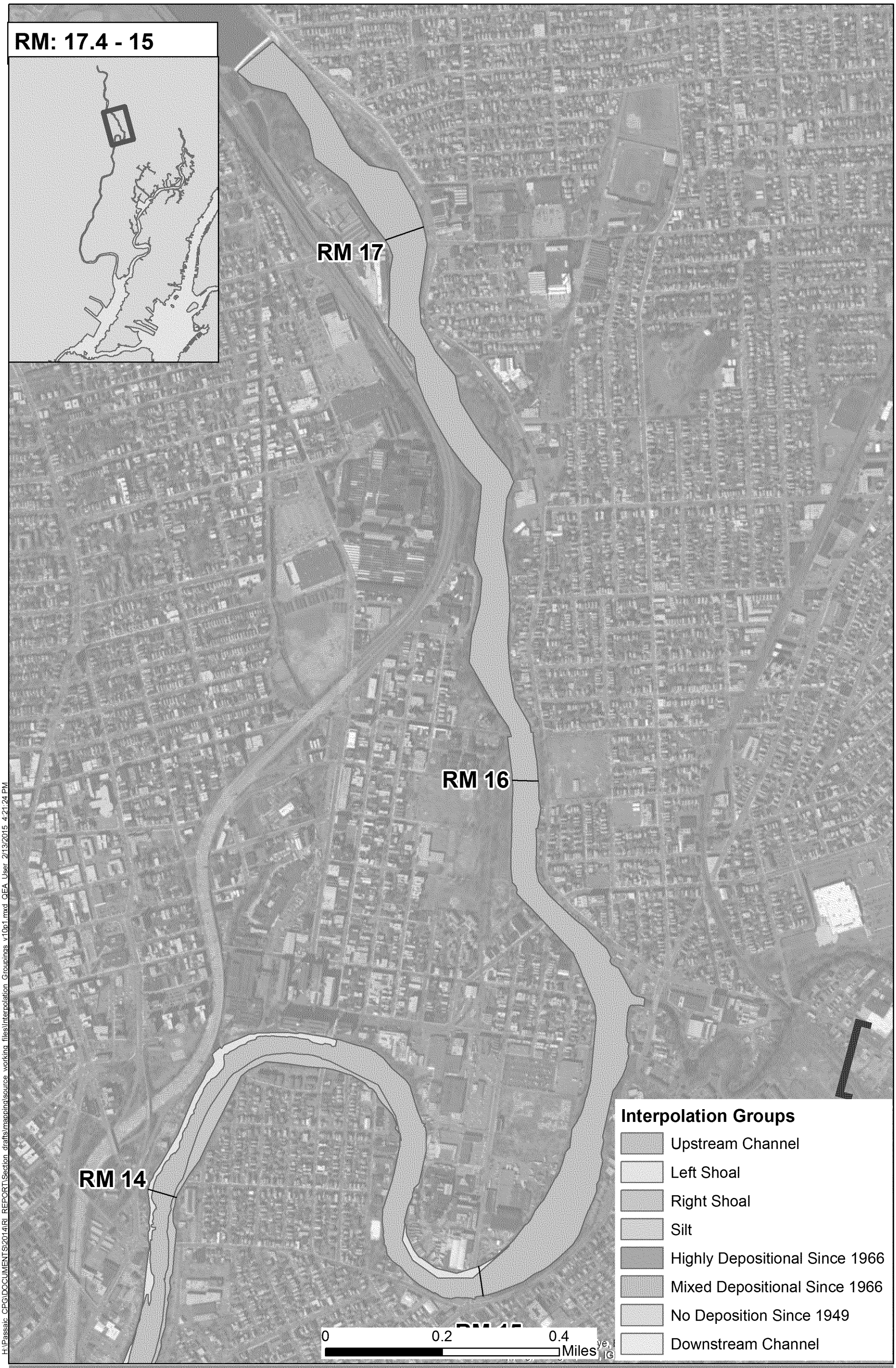

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Figure 9a
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

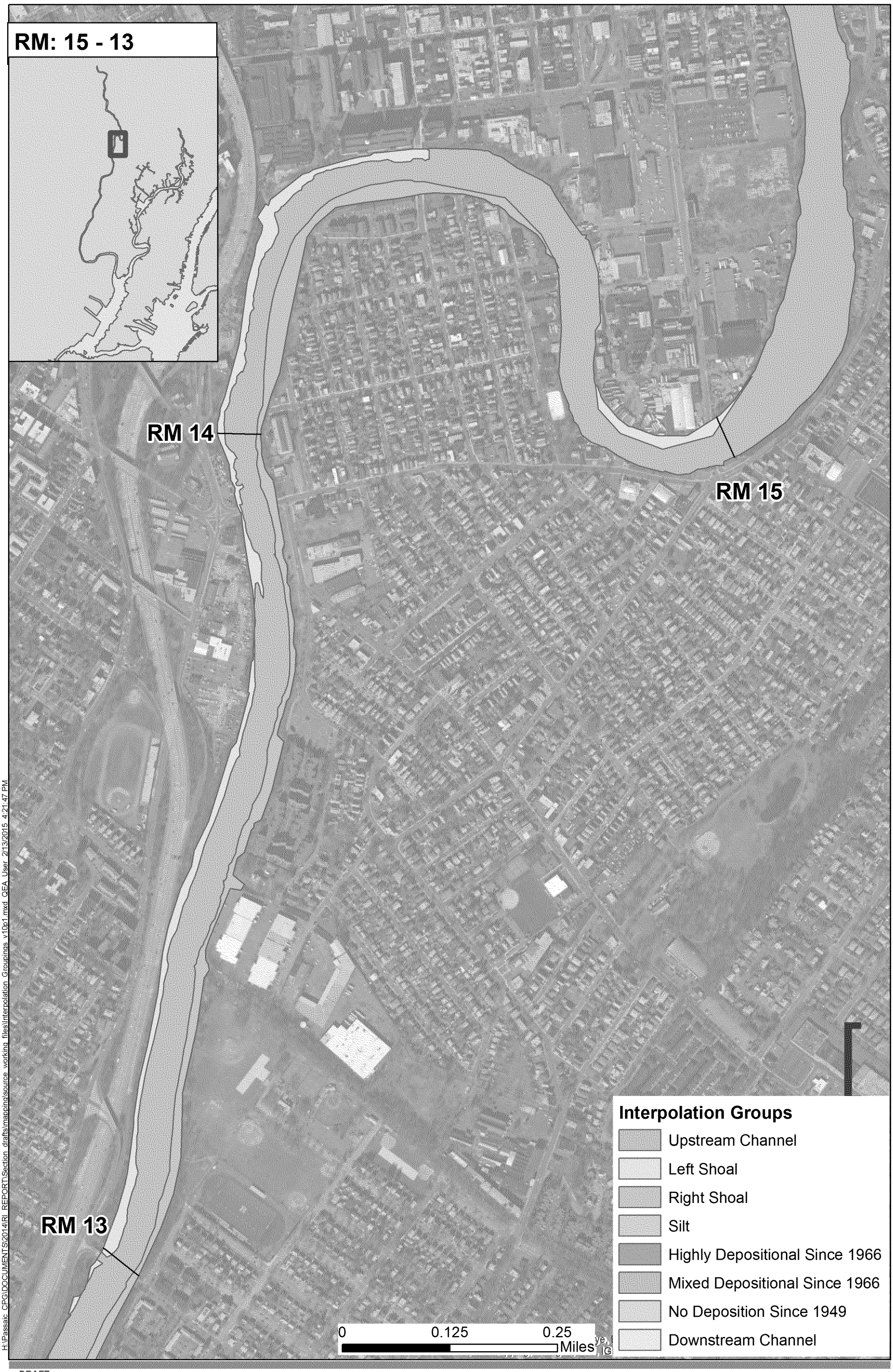

Figure 9b
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

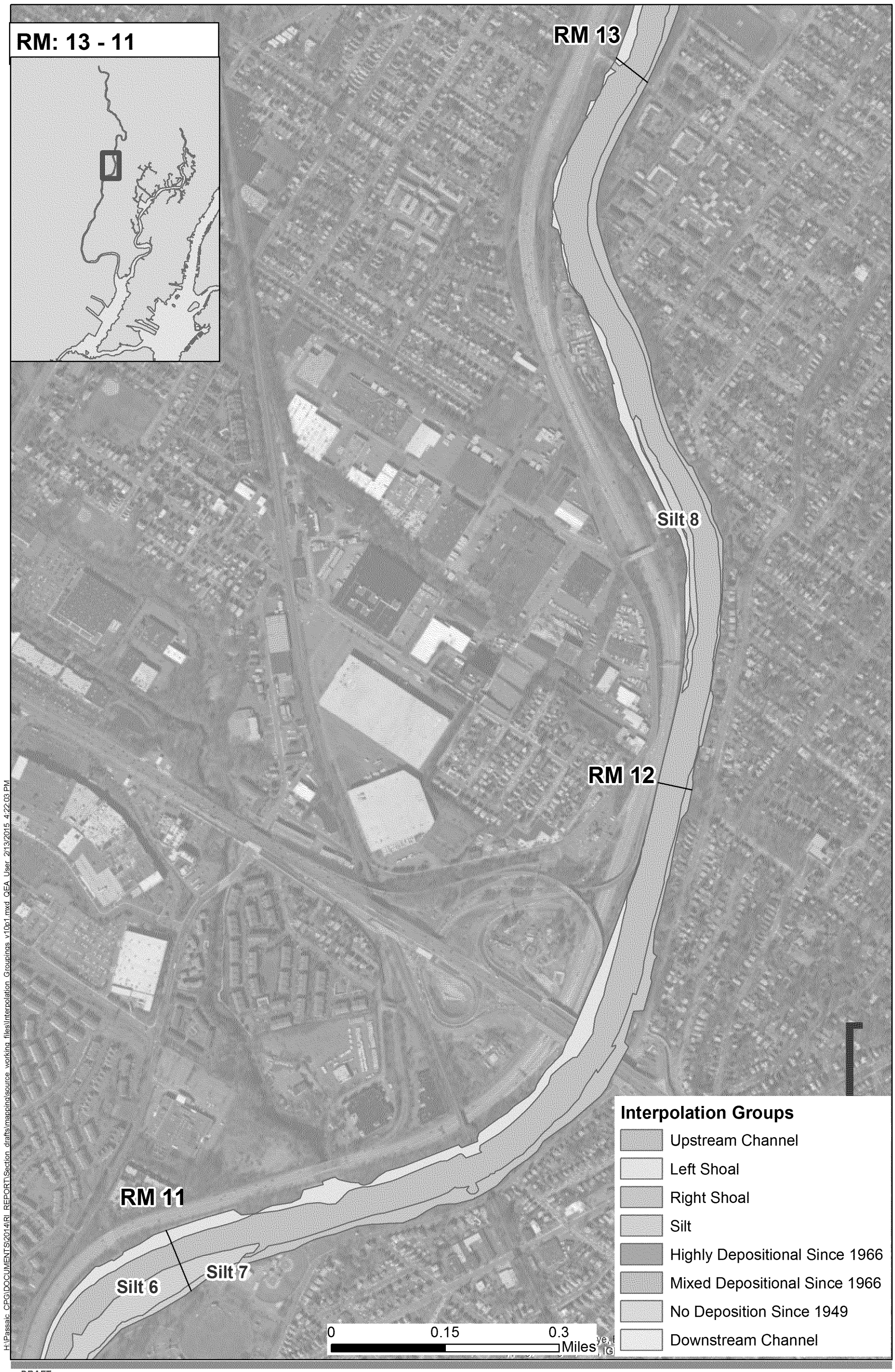

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Figure 9c
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

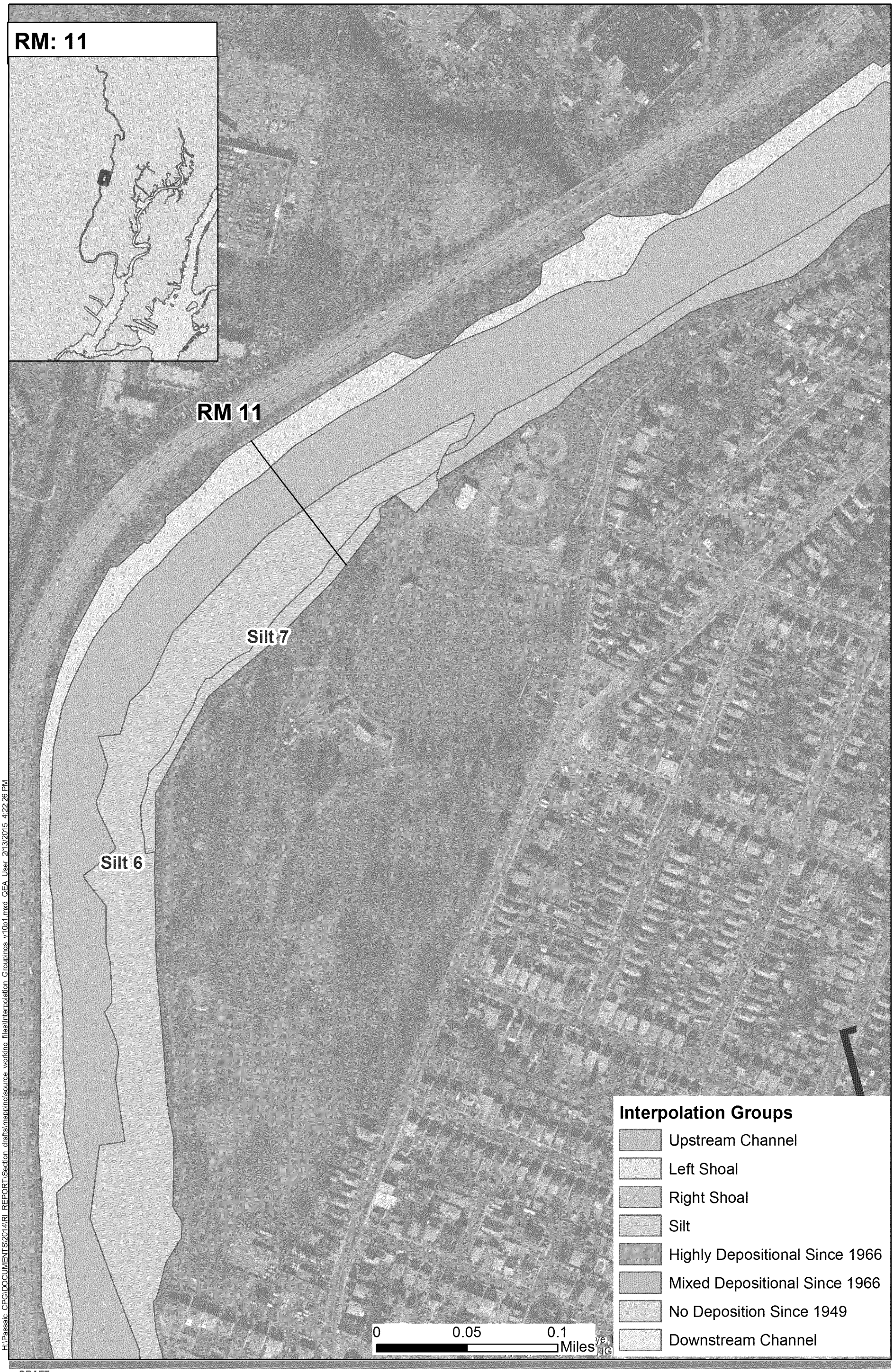

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Figure 9d
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

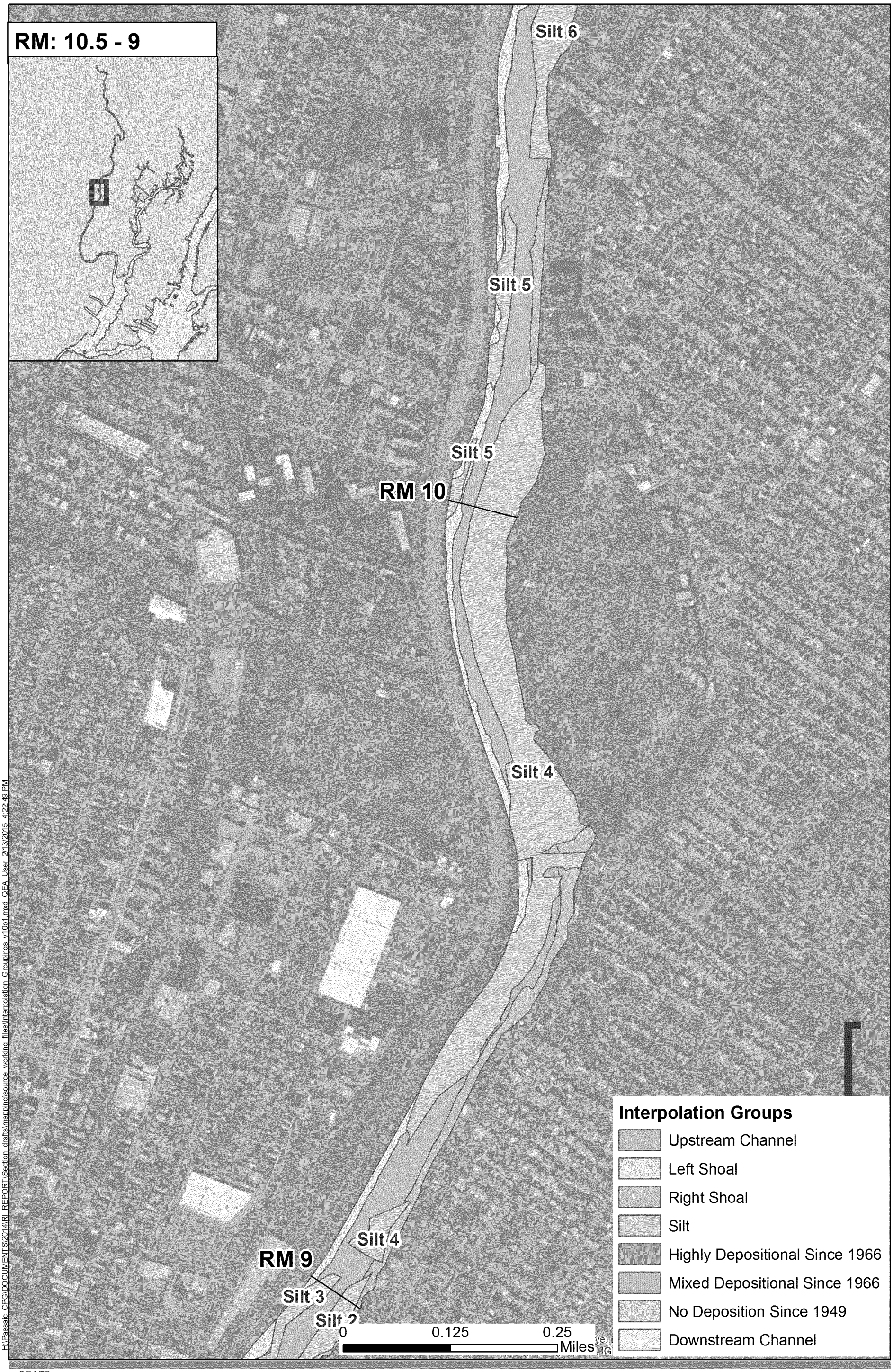

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Figure 9e
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

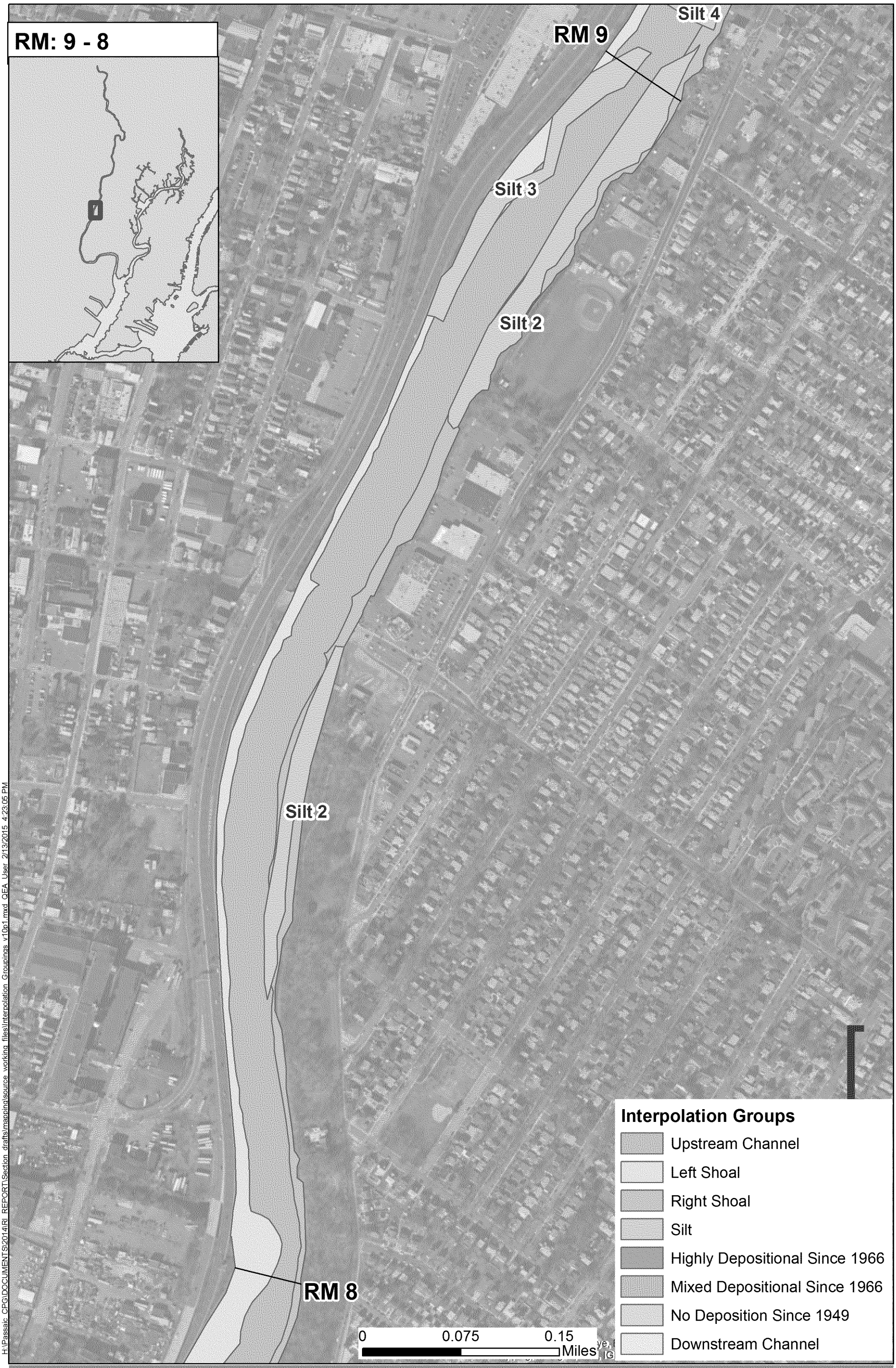

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Figure 9f
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

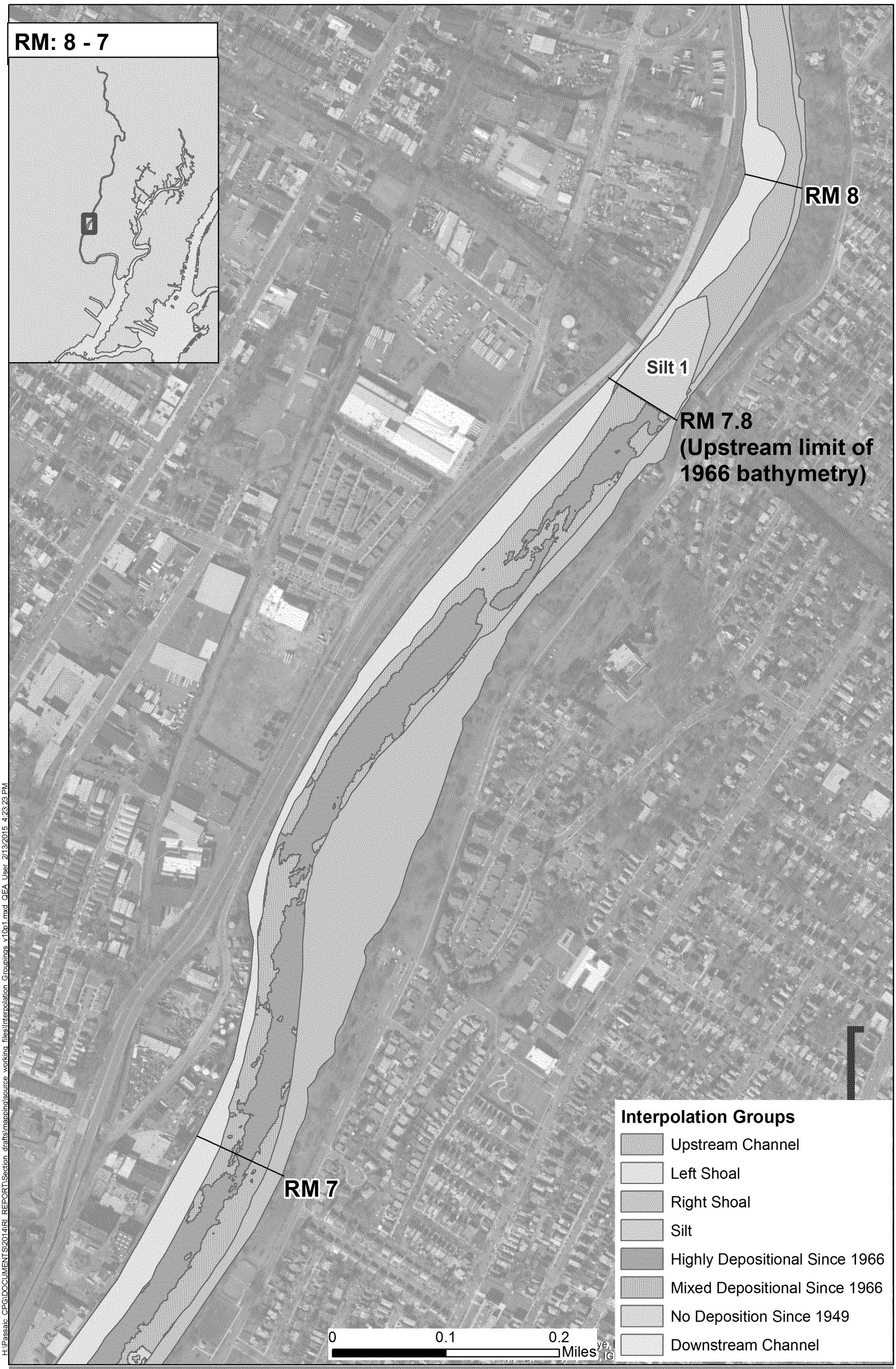

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Figure 9g
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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Figure 9h
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

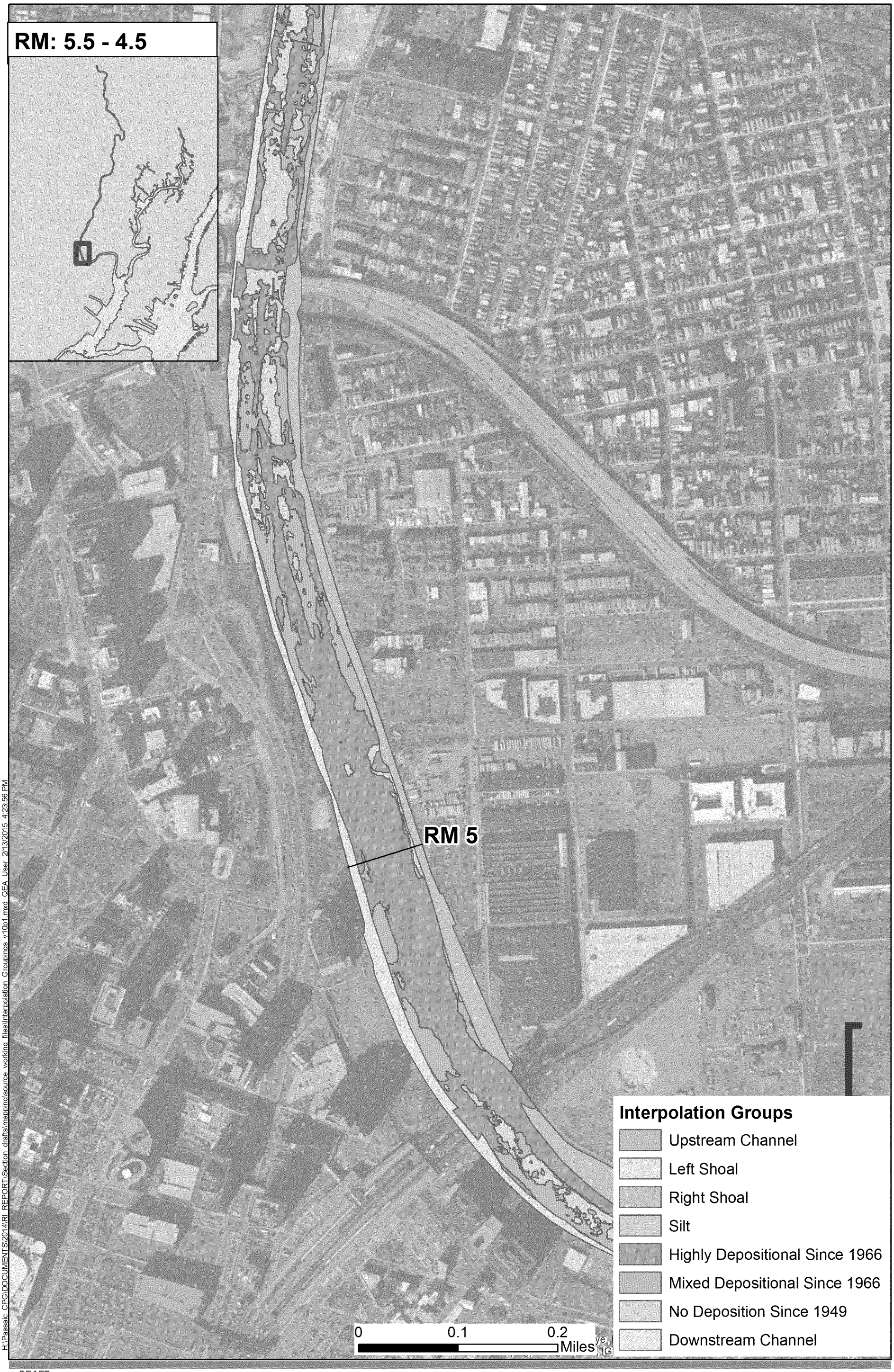

Figure 9i
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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Figure 9j
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

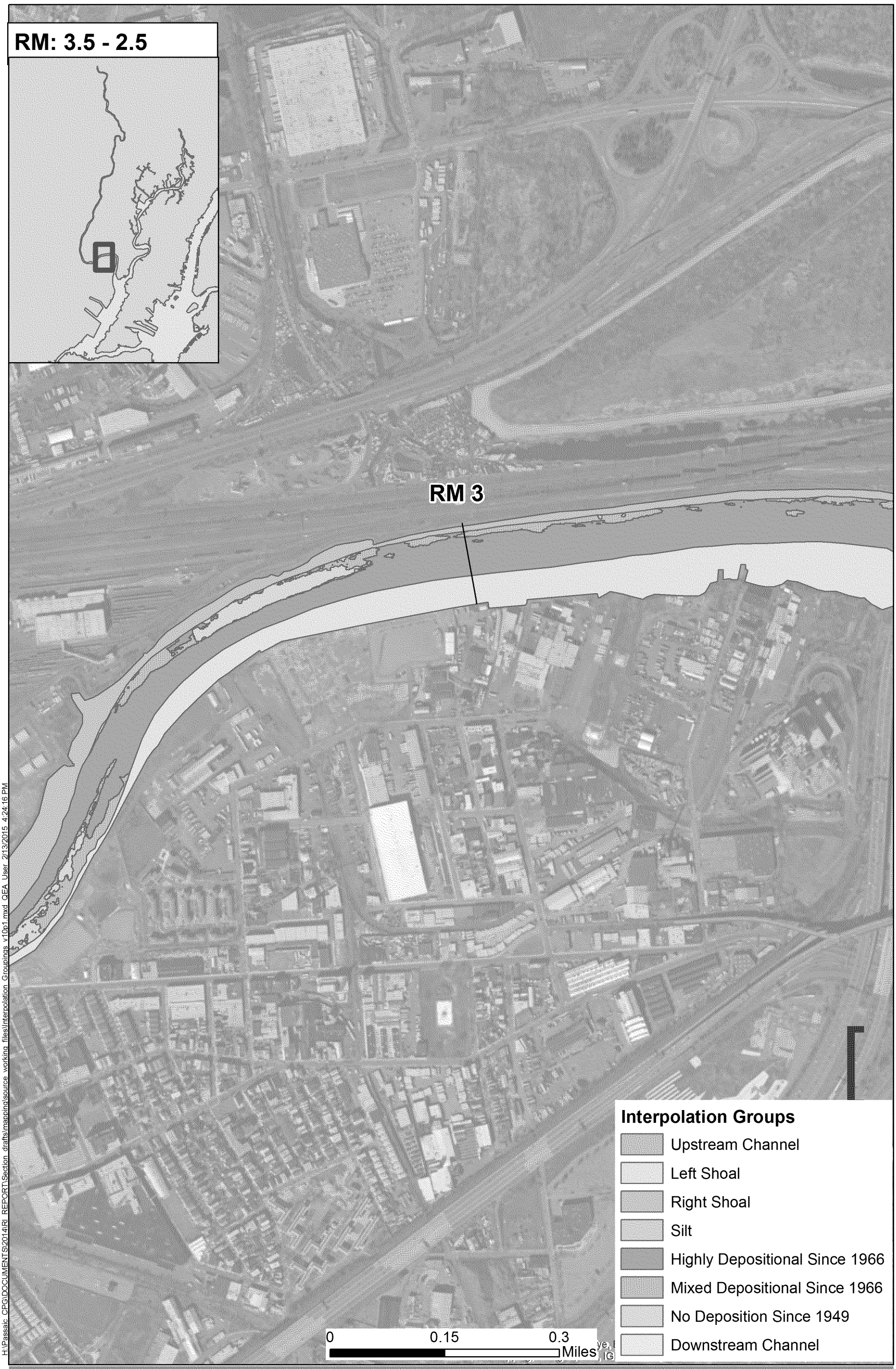

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Figure 9k
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

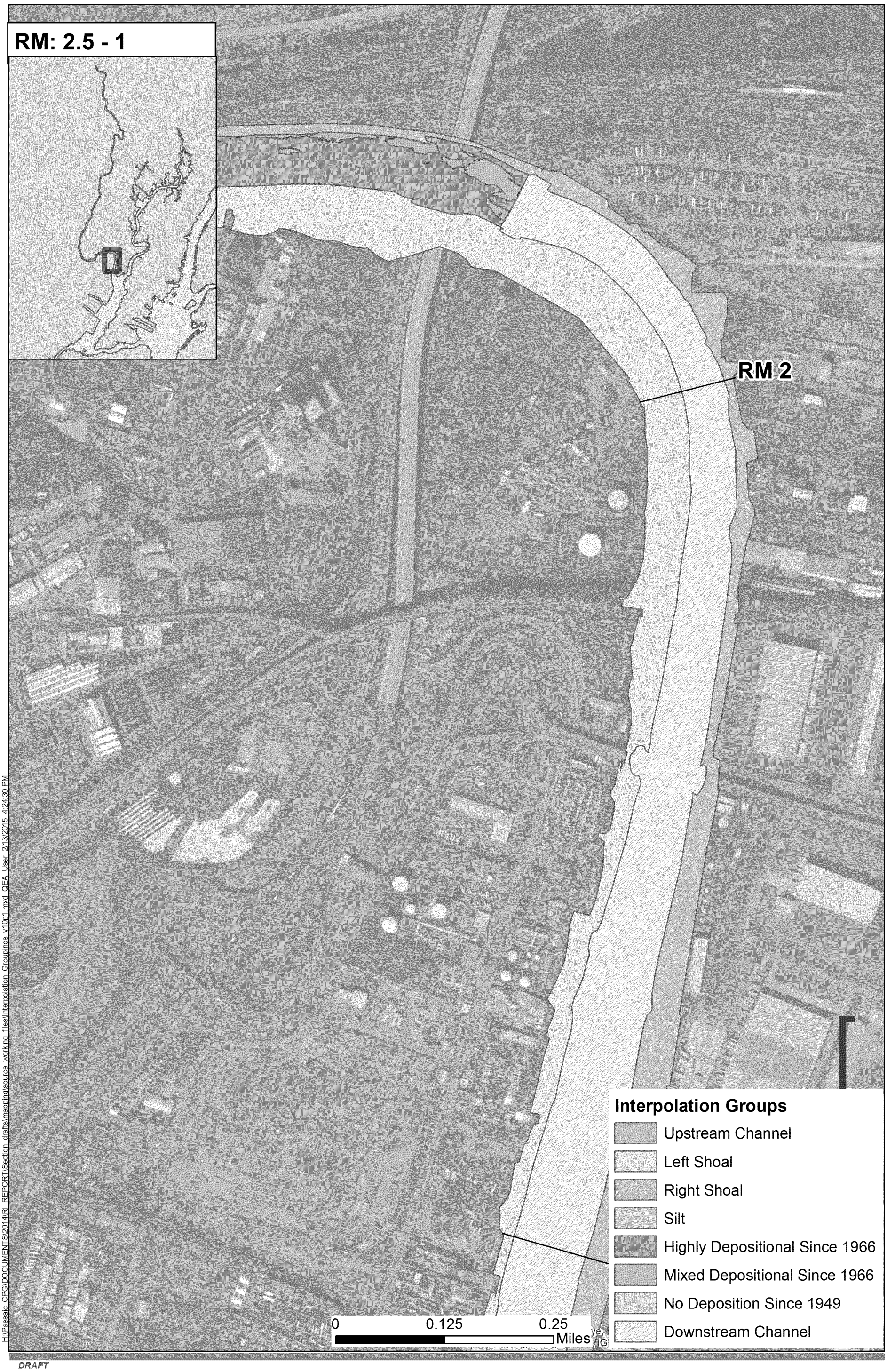


Figure 9I
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

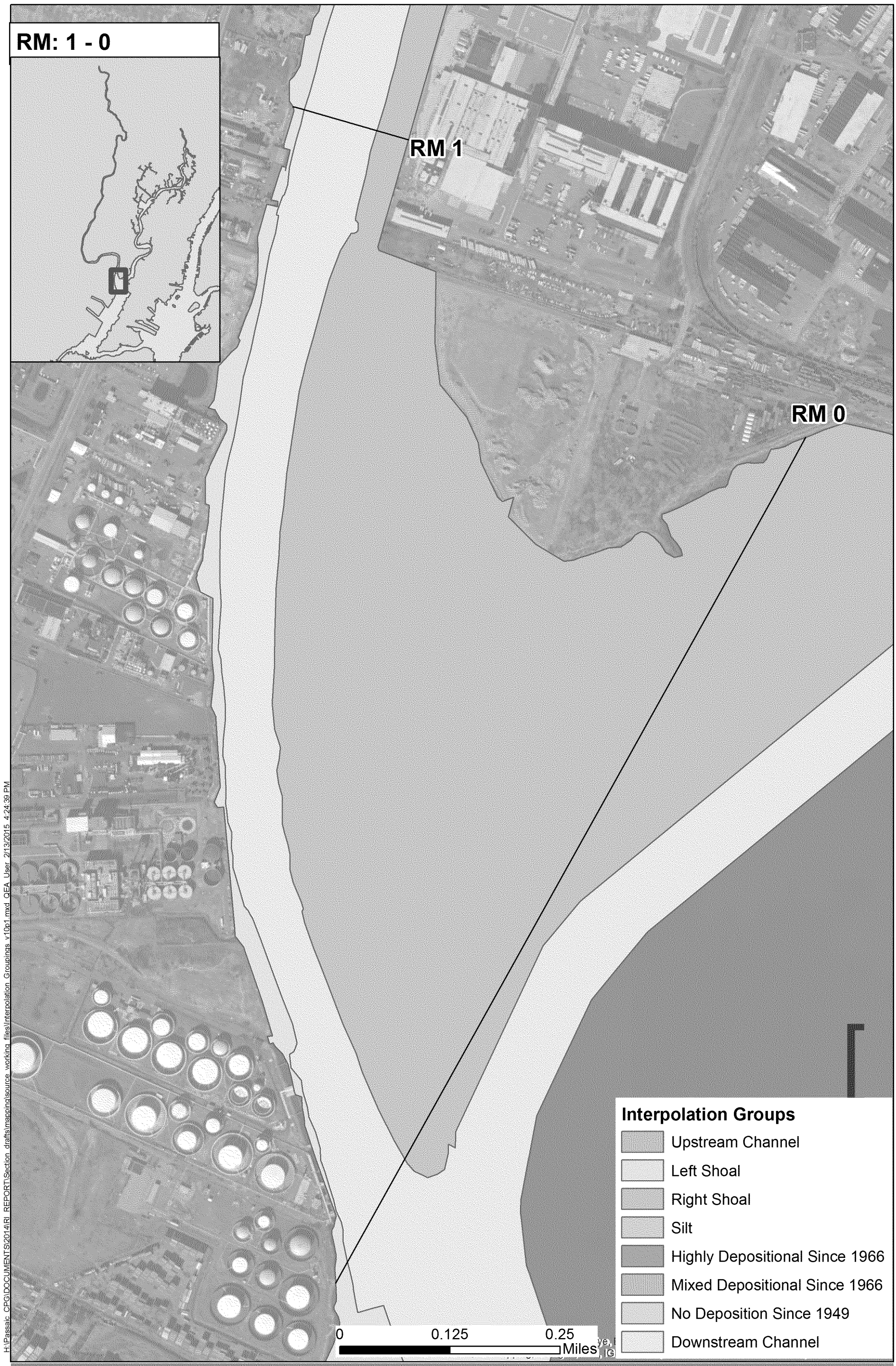
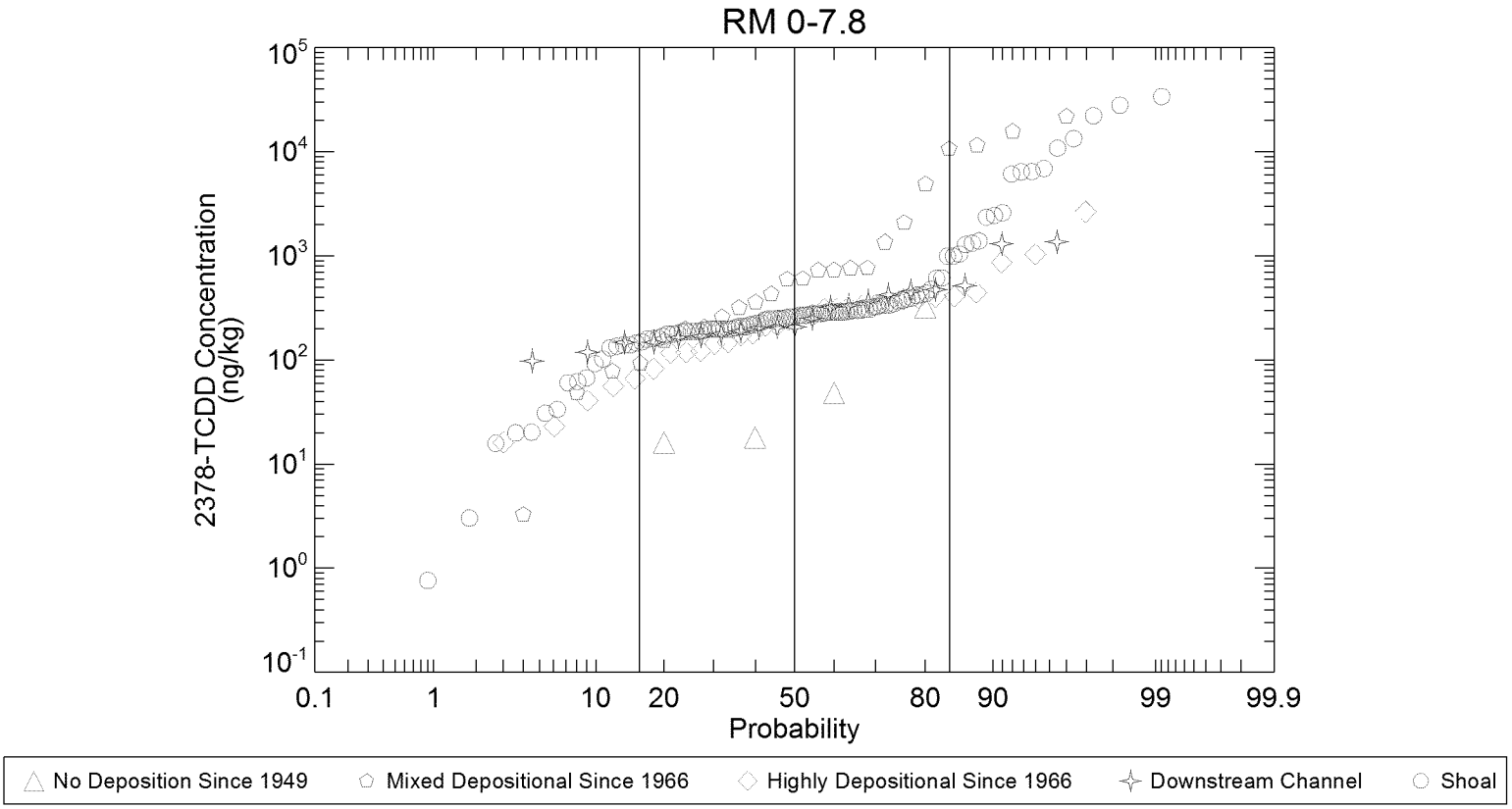


Figure 9m
Concentration Mapping Interpolation Groups
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study



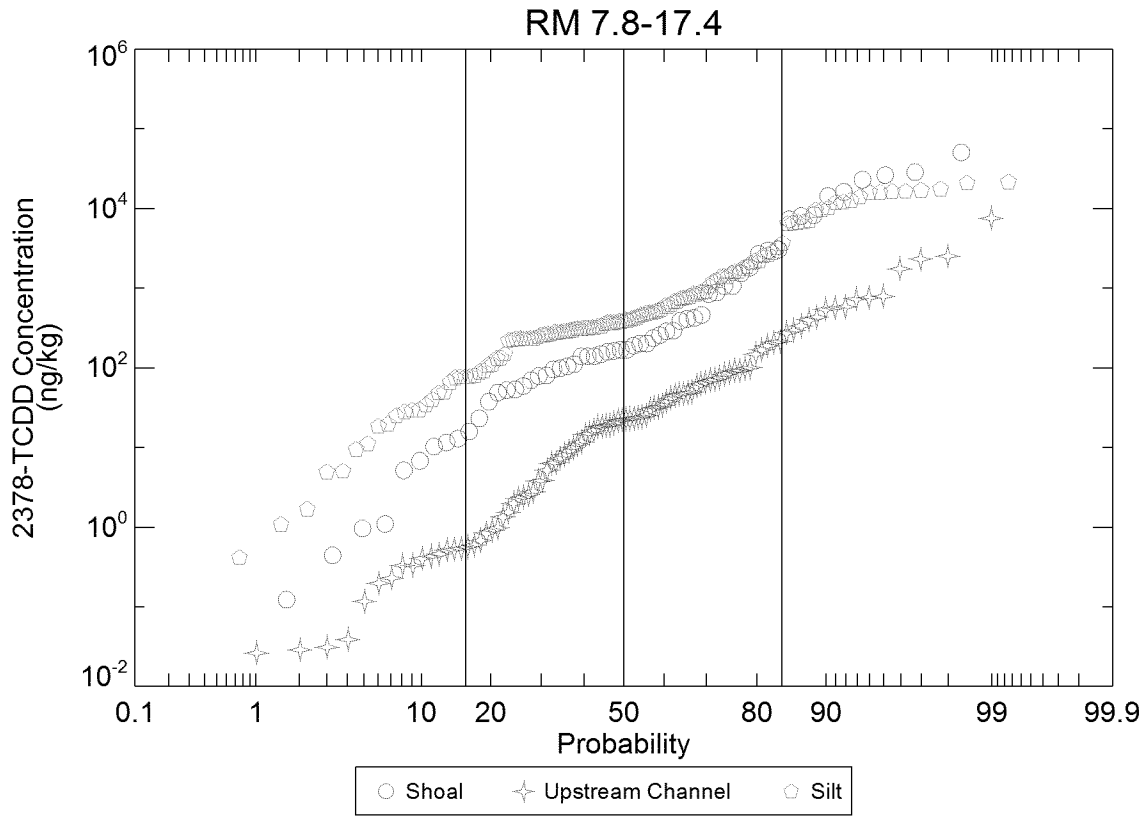


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Figure 10

Distribution of Surface Sediment 2378-TCDD Concentration Between RM 0 and 17.4 by Interpolation Group
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

Note: Includes data from 2005-2013. Shoal category is composed of left and right shoal groupings.

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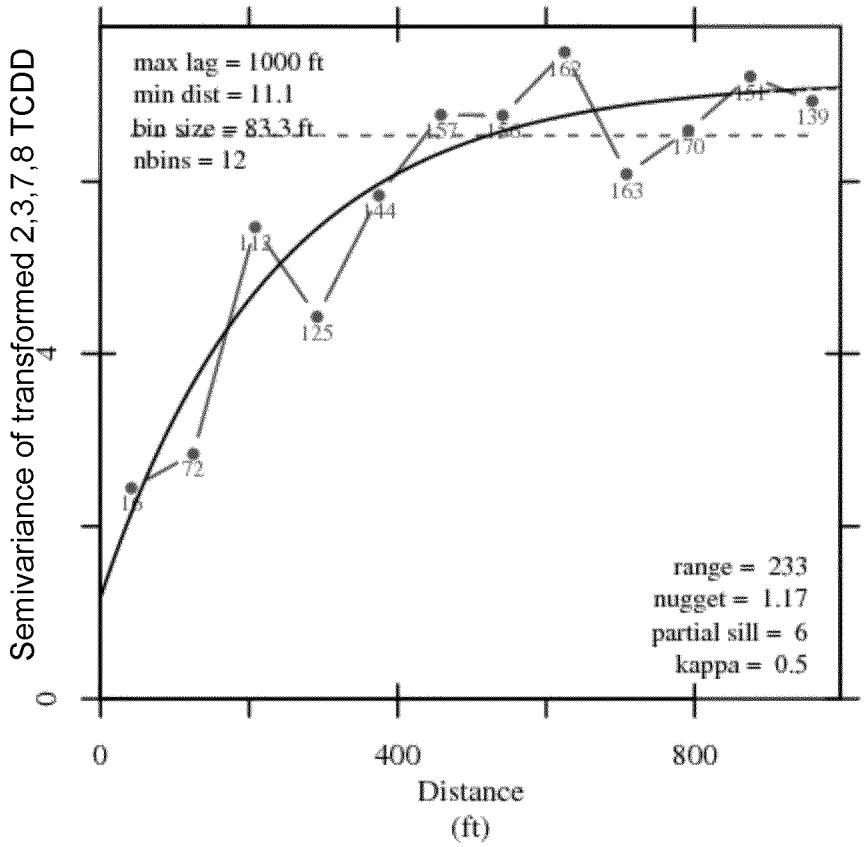
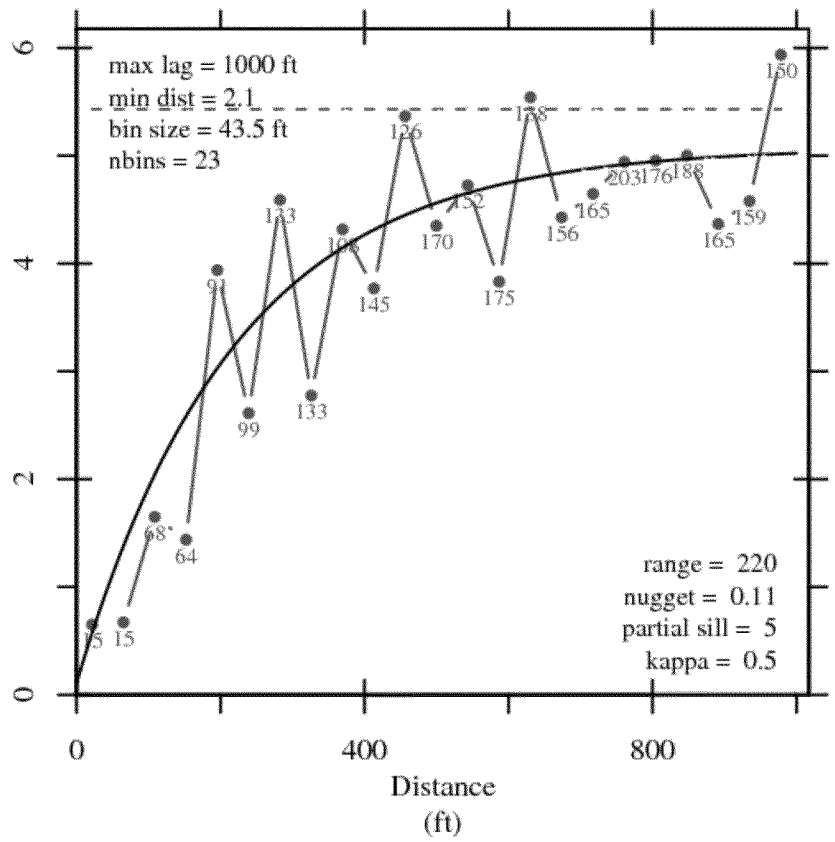
RM 10.9 Deposit

Azimuth = 60 deg ; Tolerance = +/– 20 deg



Straightened River, All Data

Azimuth = 0 deg ; Tolerance = +/– 20 deg



Notes:
The black line is a model fit through the data (Matern model parameters are printed on the bottom right of the panel).
The red points are the binned empirical variogram (based on surface sediment 2,3,7,8-TCDD data collected from 2005 to 2013).
Data are log-transformed prior to variogram generation to normalize the data distribution.
Each point is labeled with the number of pairs in the bin.
The blue dashed line is the population variance.

Key:
max lag = maximum lag length used in variogram
min dist = minimum separation between pairs
bin size = size of bins
nbins = number of bins shown on variogram

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Figure 11
Variograms for Surface Sediment 2,3,7,8-TCDD in the Lower Passaic River
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

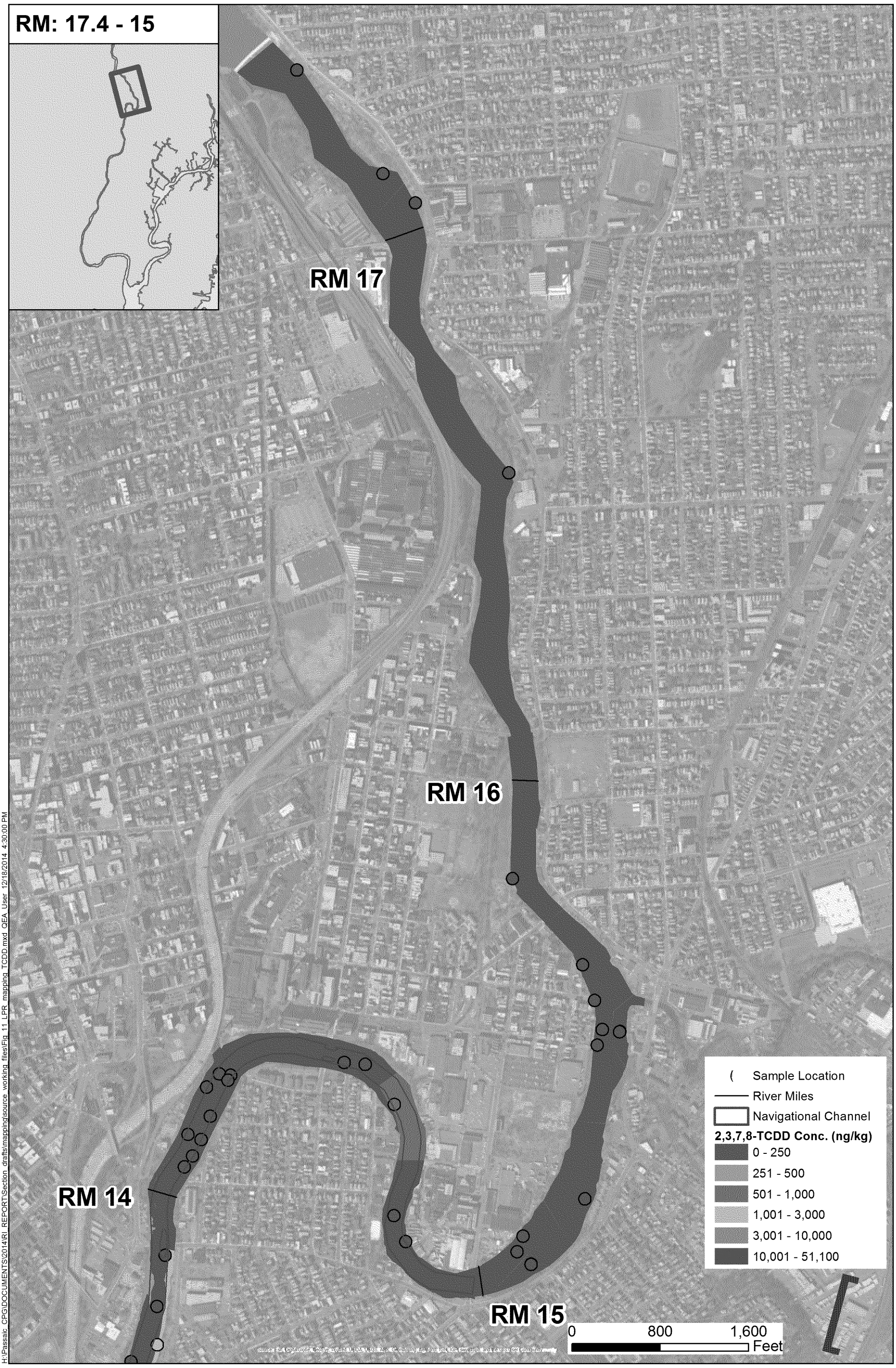

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Figure 12a

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

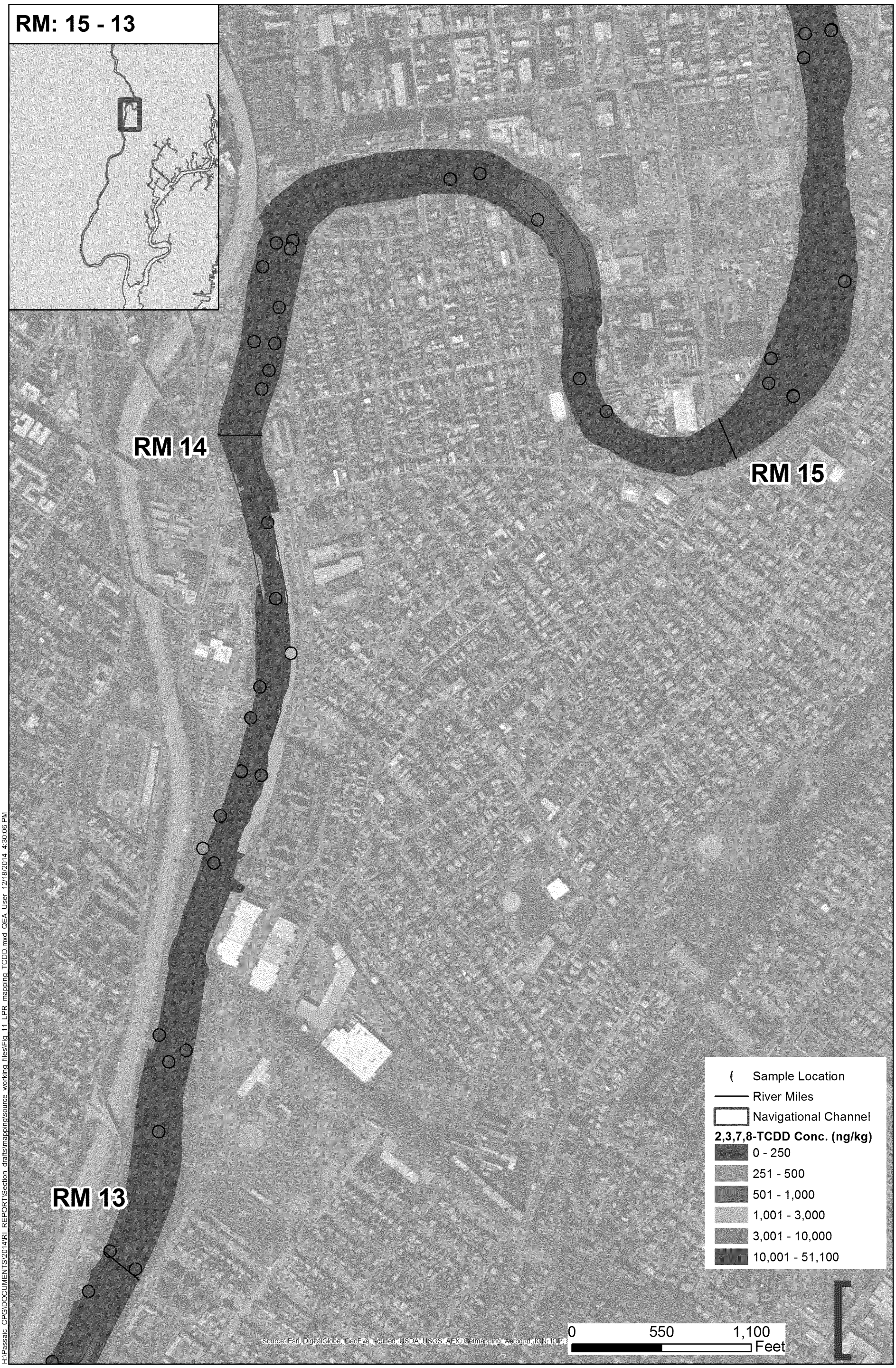

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Figure 12b

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

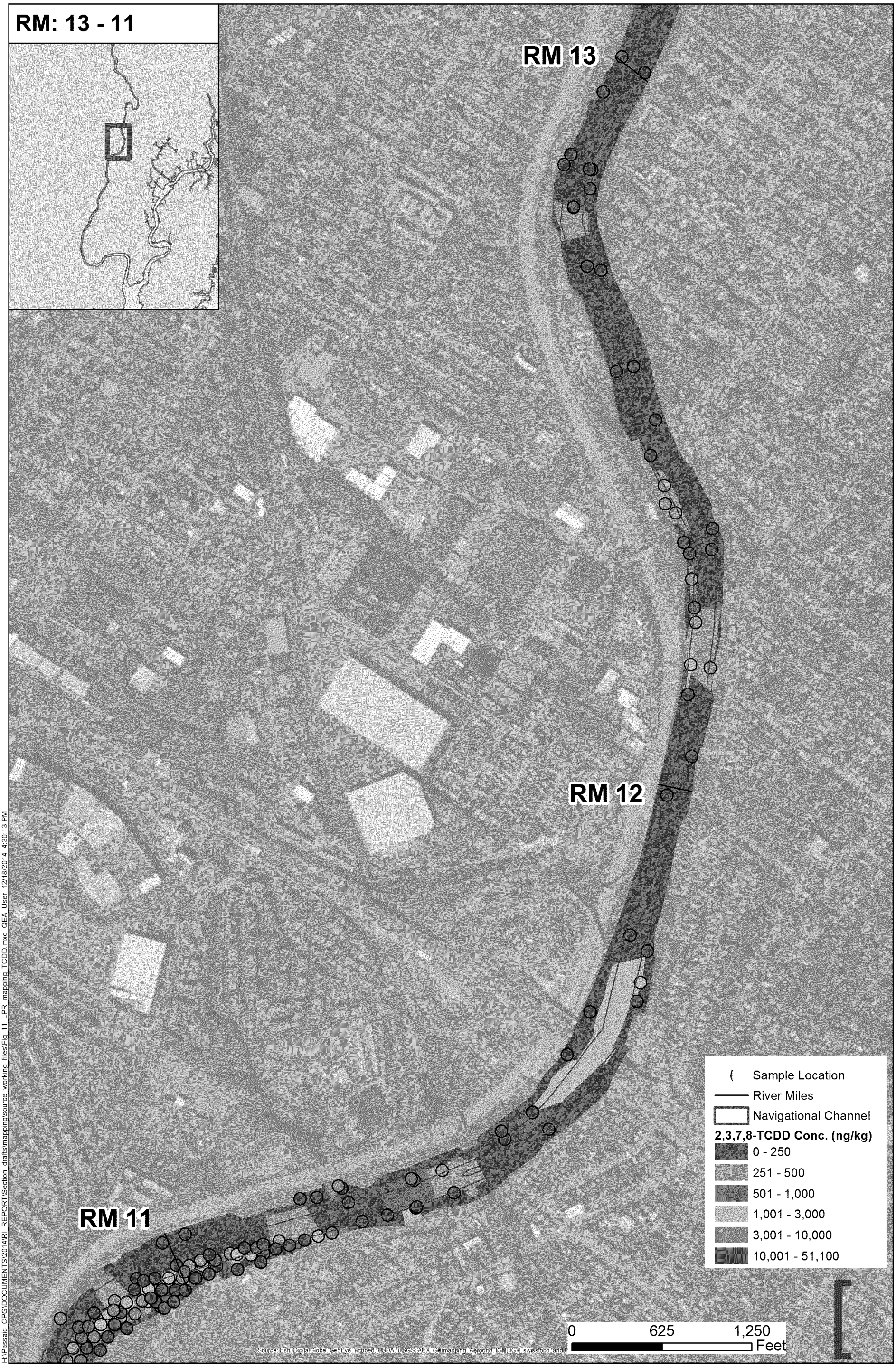

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Figure 12c

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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Figure 12d

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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Figure 12e

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

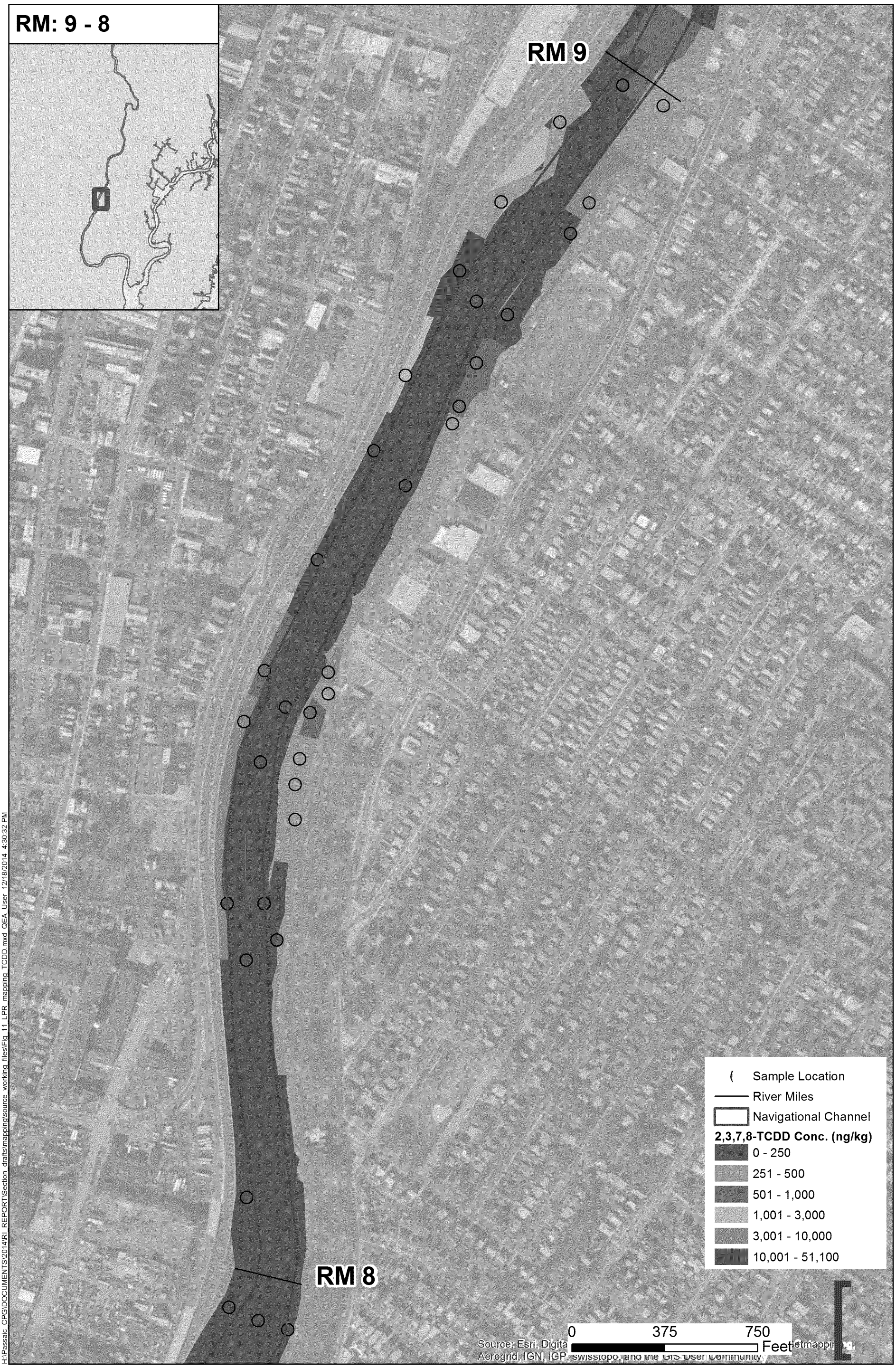

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Figure 12f

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

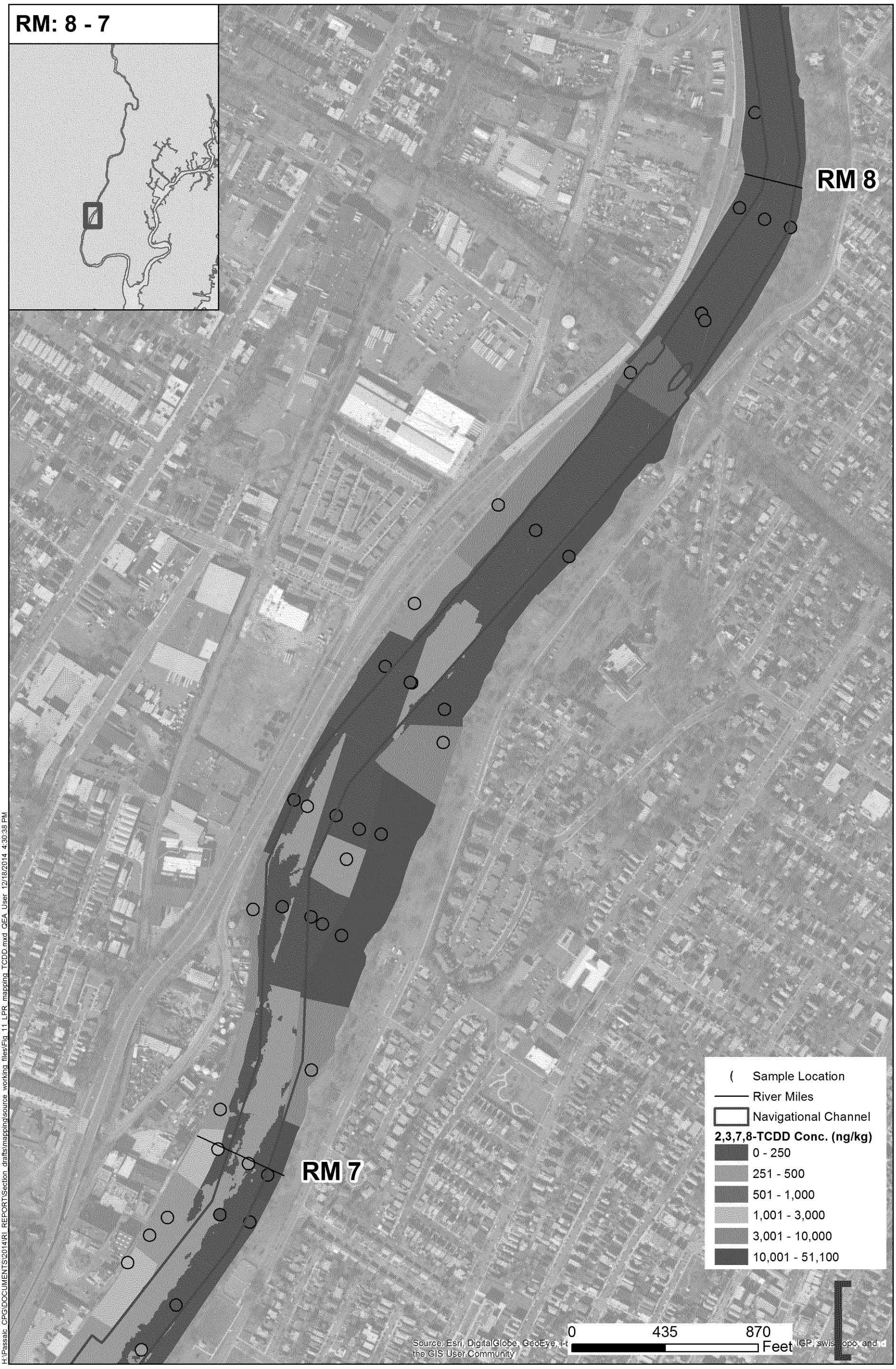

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Figure 12g

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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Figure 12h

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

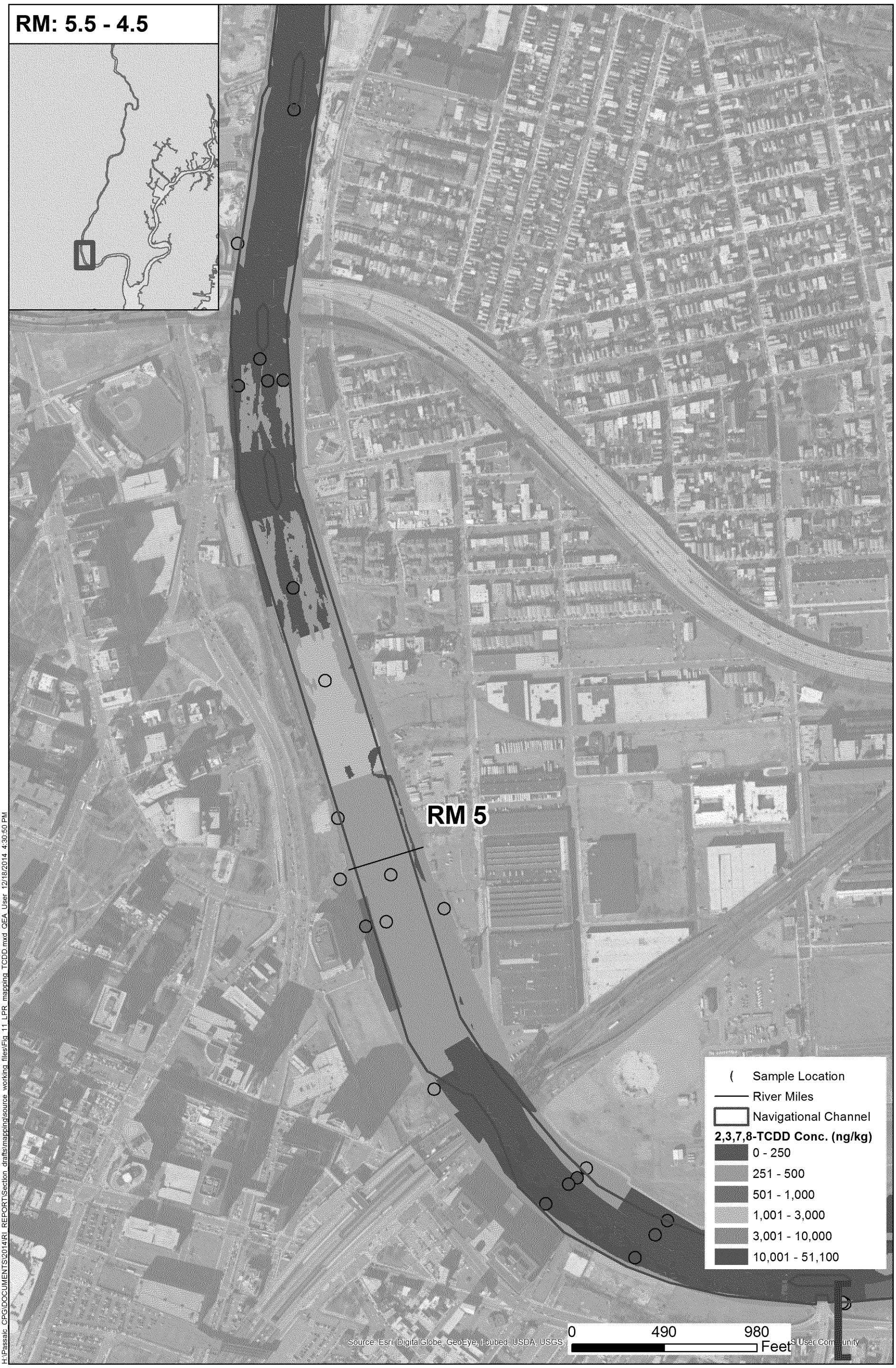

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Figure 12i

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

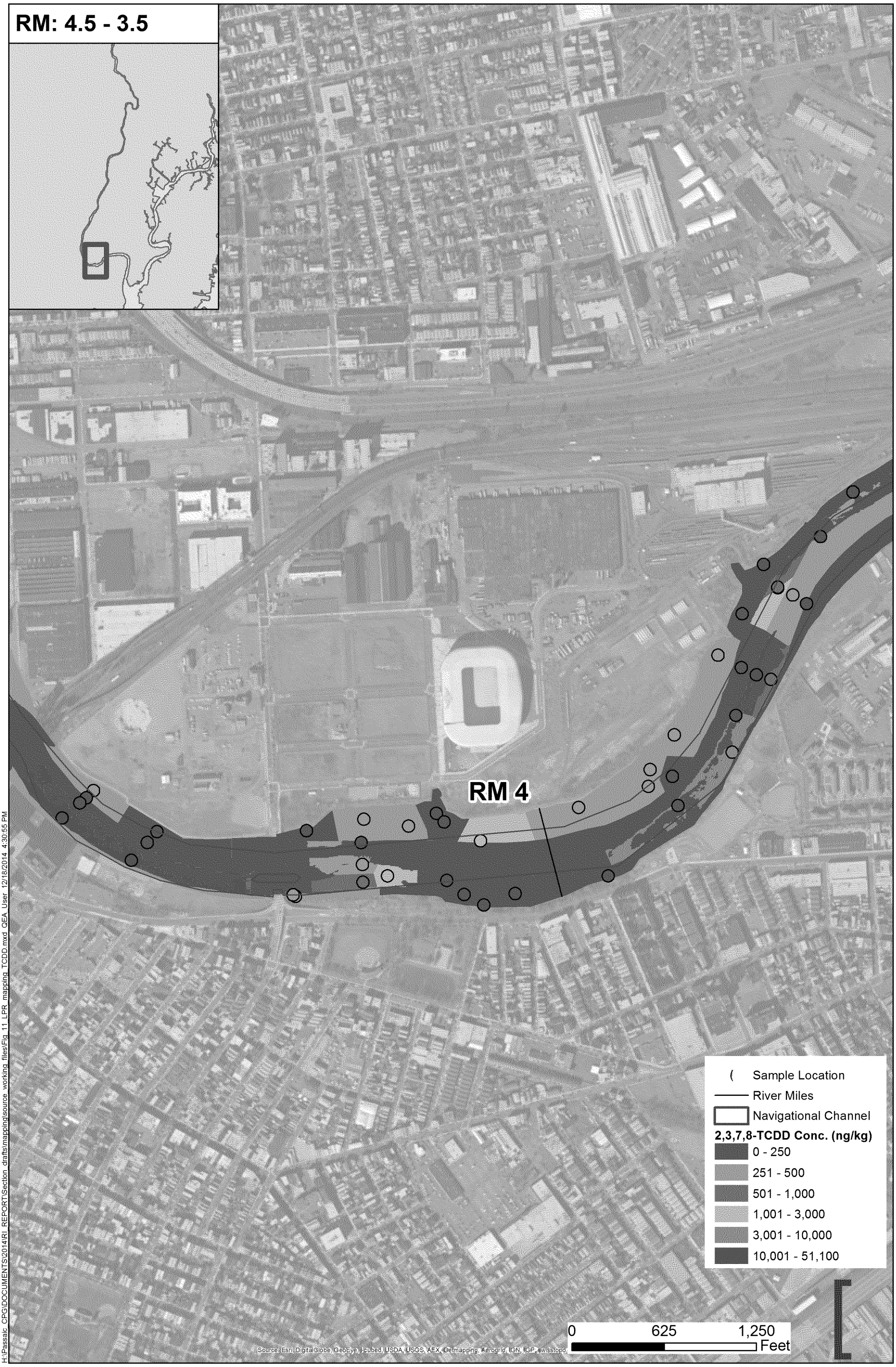

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Figure 12j

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

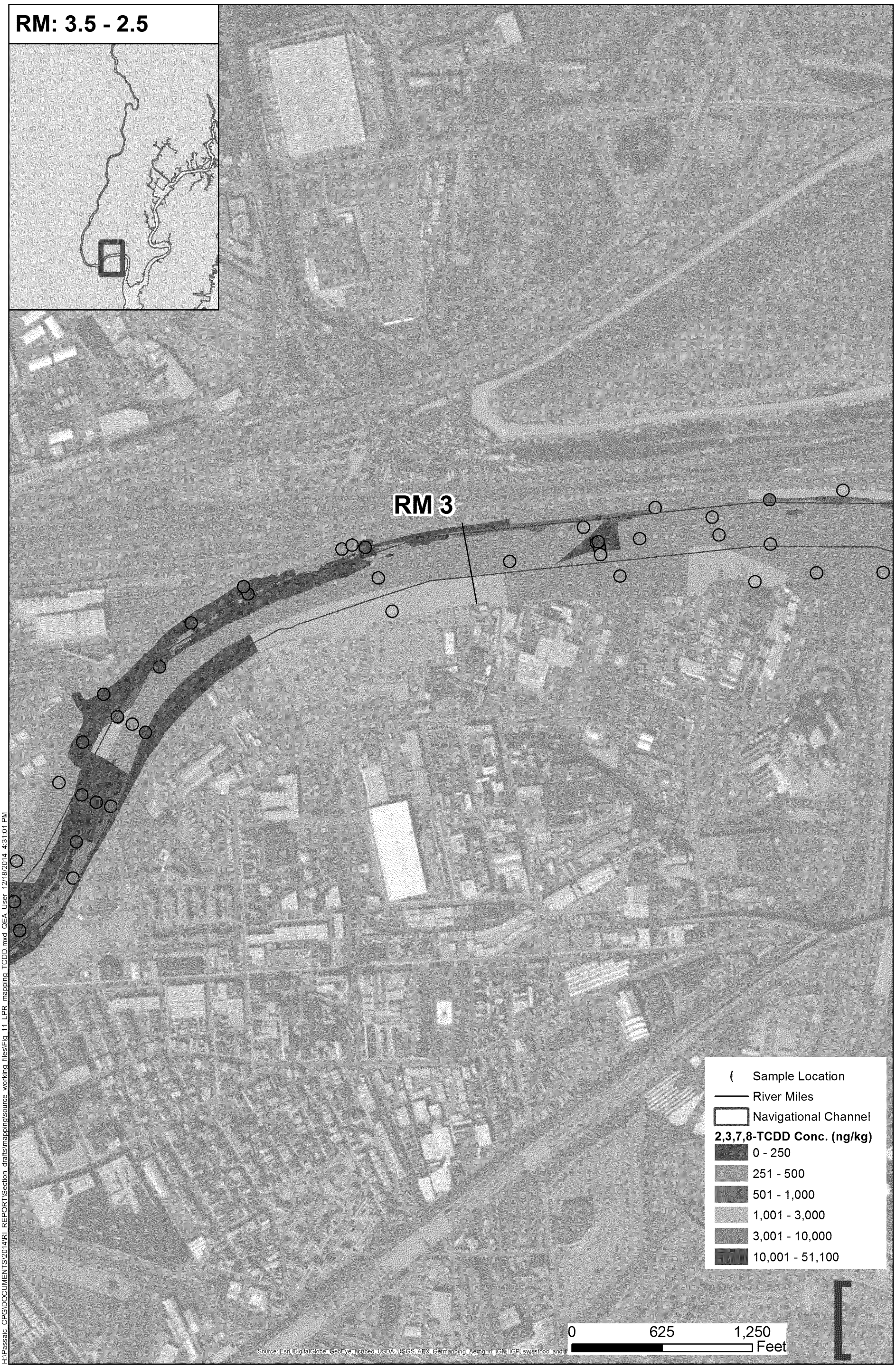

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Figure 12k

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

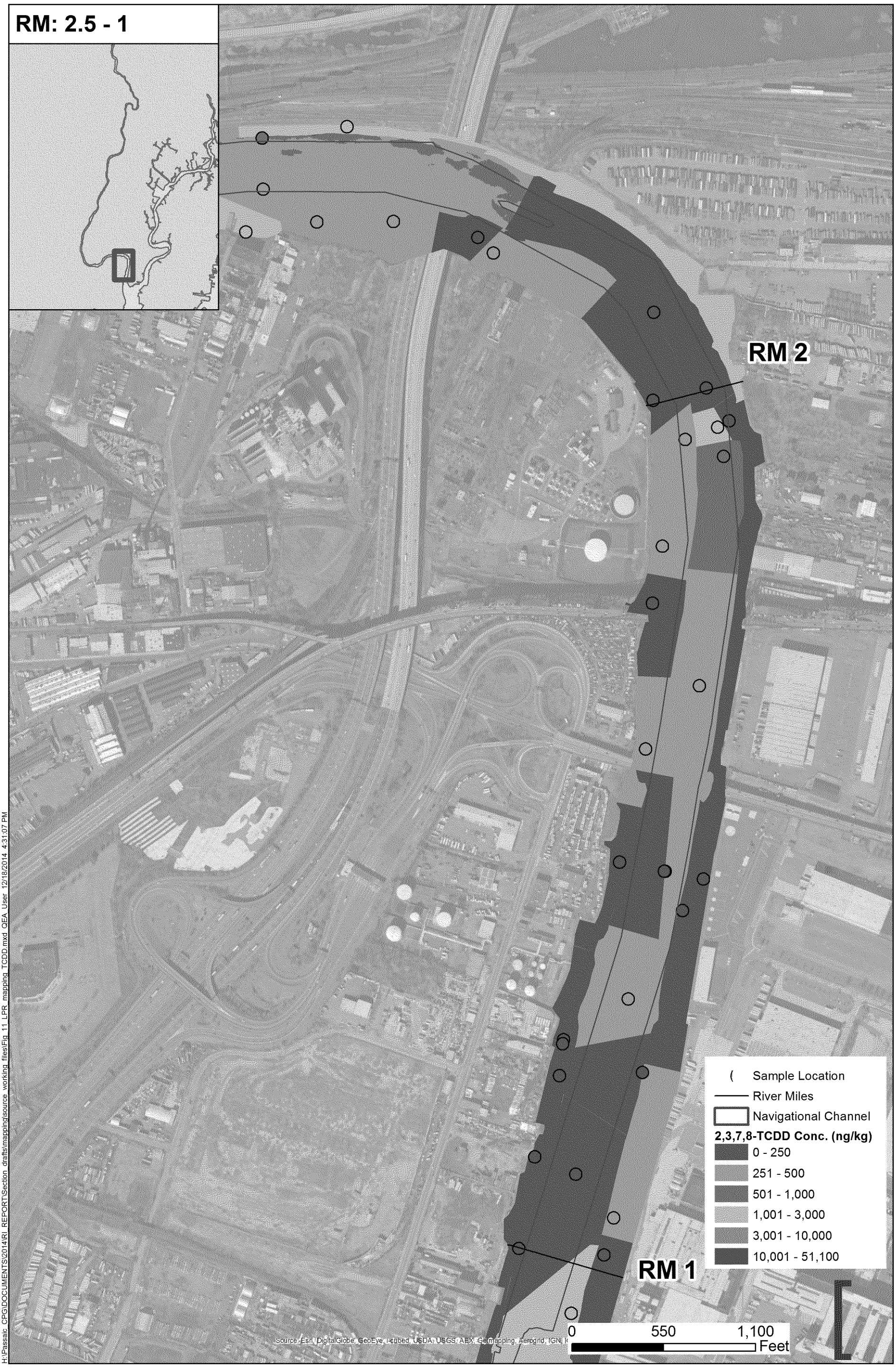

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Figure 12I

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

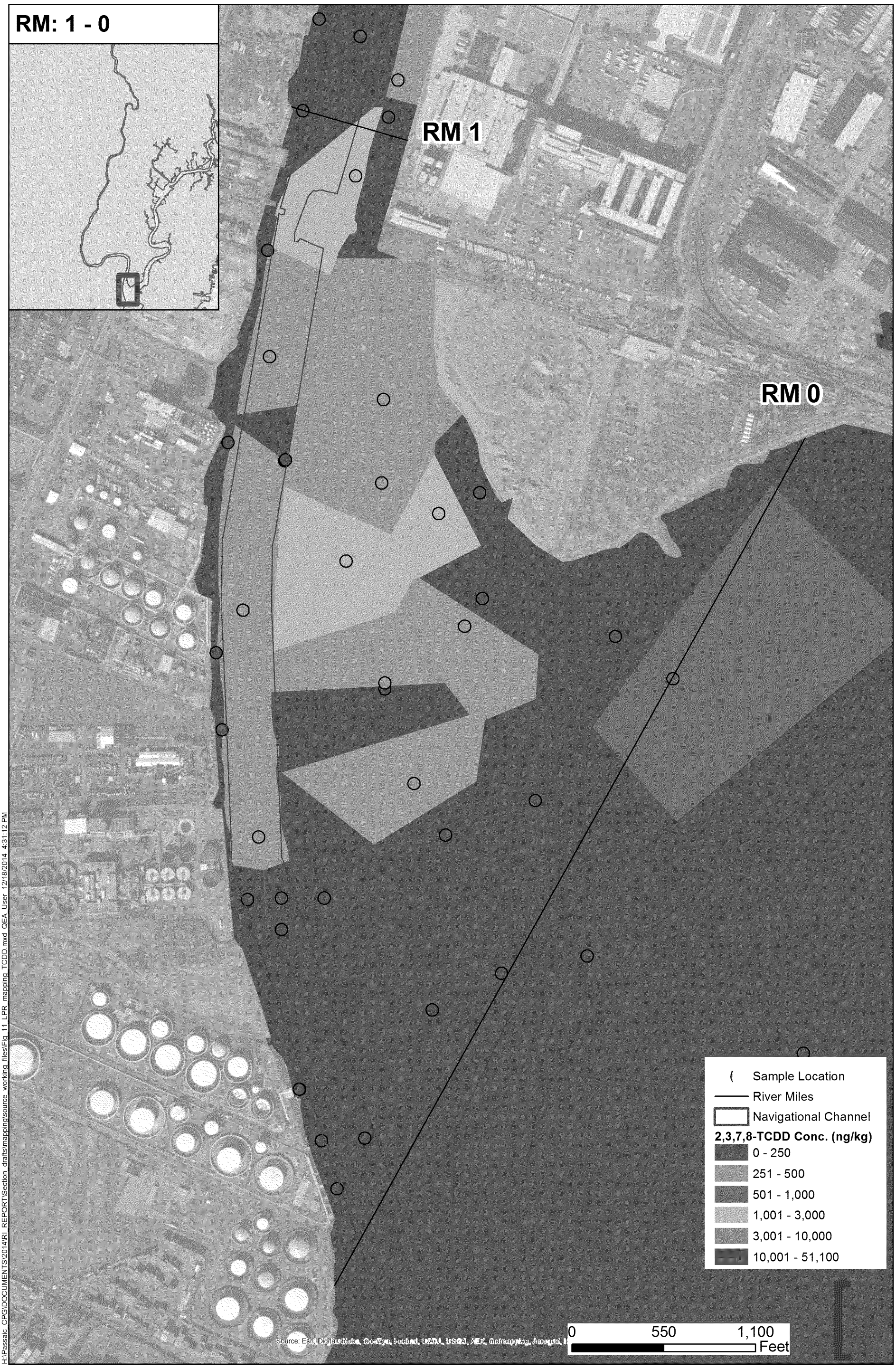

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Figure 12m

Mapped Surface Sediment 2,3,7,8-TCDD Concentrations
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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0 0.04 0.08 0.16 Miles

Figure 13a

2,3,7,8-TCDD Pre and Post Professional Judgment Data Location Map
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

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0 0.05 0.1 0.2 Miles

Figure 13b

2,3,7,8-TCDD Pre and Post Professional Judgment Data Location Map
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

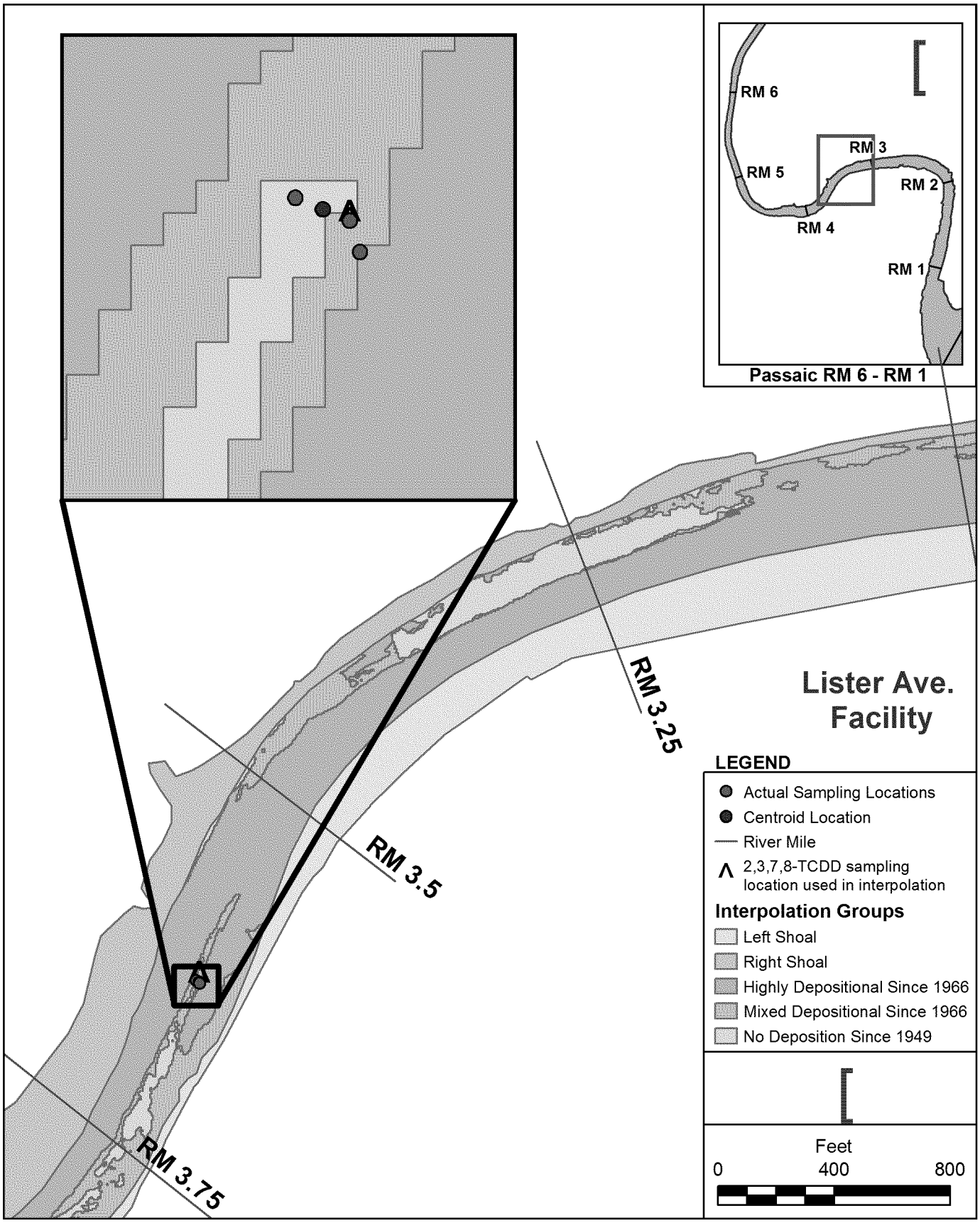

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Figure 14
Location Used in Interpolating Core 12A-0427
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study

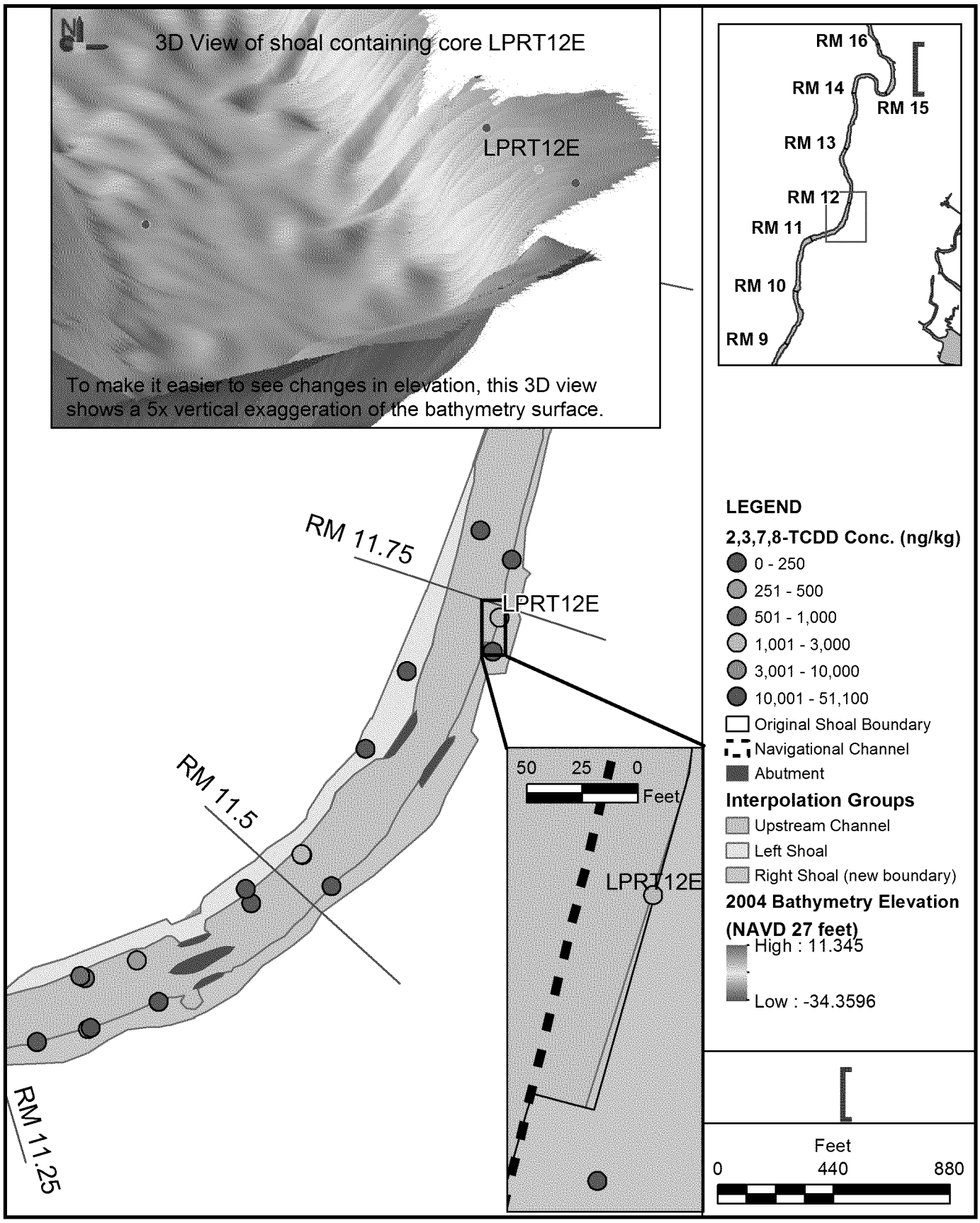

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Figure 15
Edit to Shoal Near RM 11.75
Remedial Investigation Report
Lower Passaic River Study Area Remedial Investigation/Feasibility Study