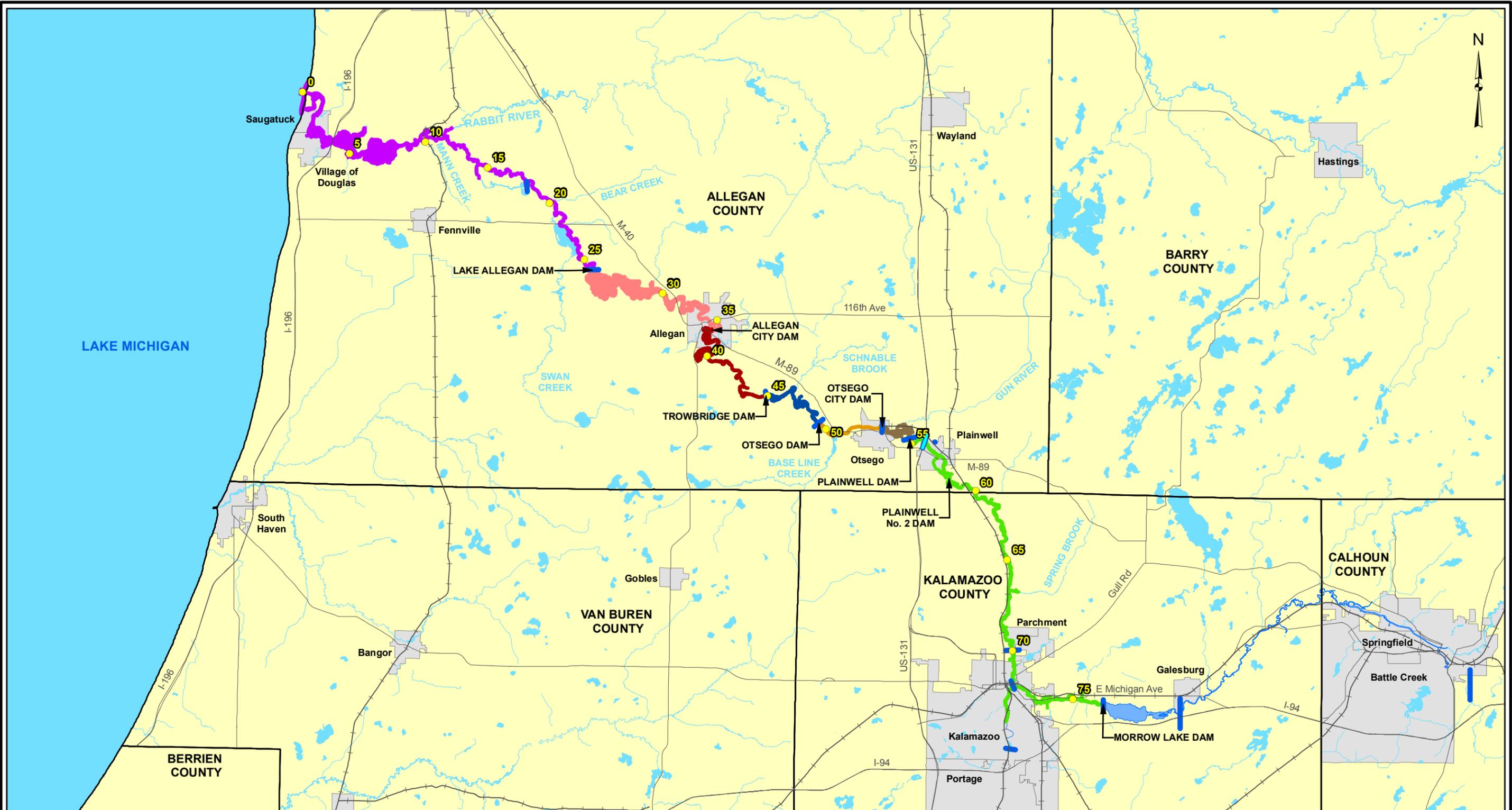


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G:\Kalamazoo\mxd\Area 1\Report\_Figures\Site Location Map - Figure 1-1.mxd 6/3/2014 10:40:19 AM



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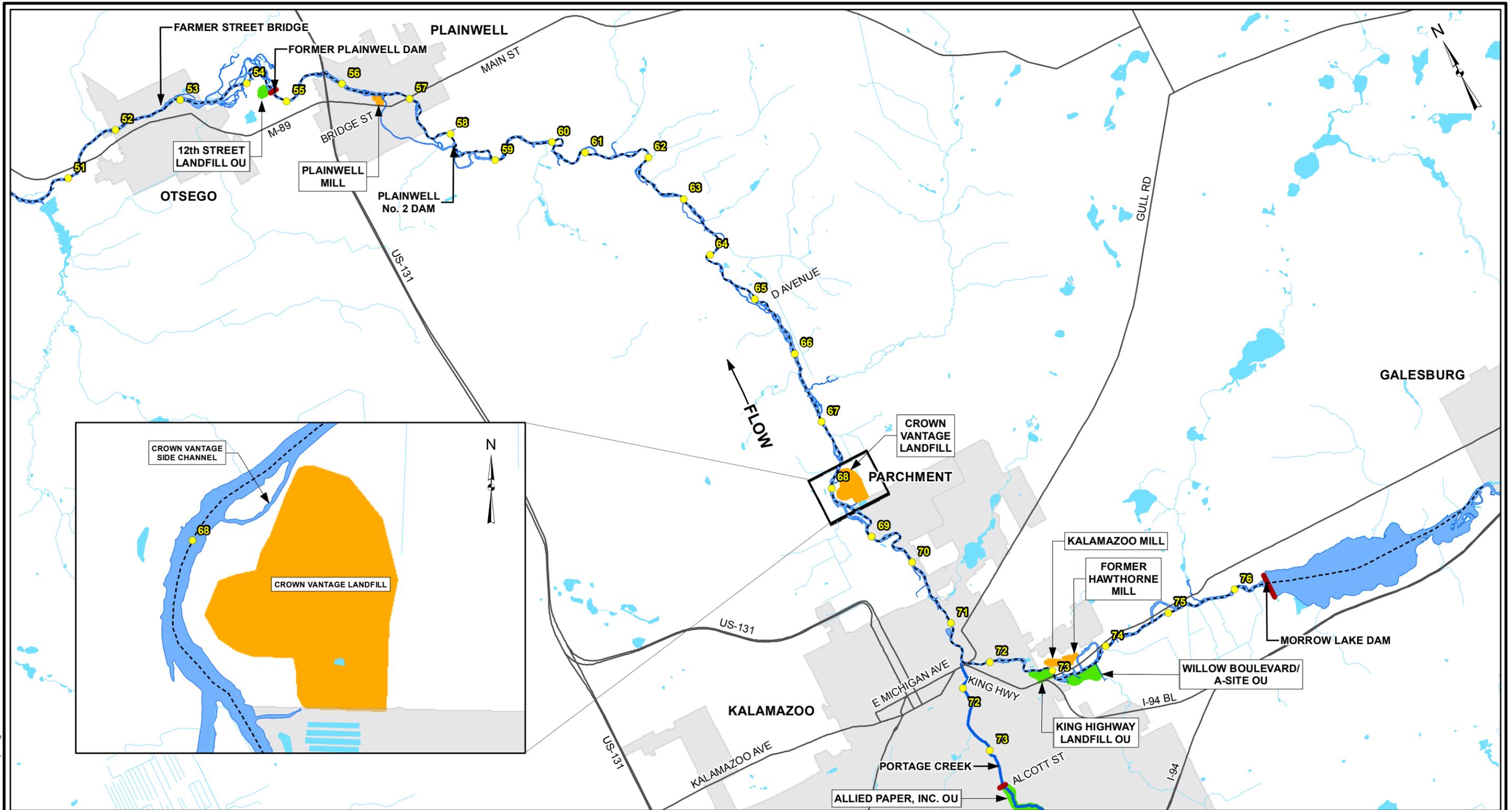
- RIVER MILE MARKER
- ROAD
- RAILROAD
- KALAMAZOO RIVER/PORTAGE CREEK
- WATER BODIES
- INCORPORATED AREA
- COUNTY BOUNDARY
- AREA 1
- AREA 2
- AREA 3
- AREA 4
- AREA 5
- AREA 6
- AREA 7



**NOTES:**

1. KALAMAZOO RIVER SHORELINE APPROXIMATED FROM AERIAL PHOTOGRAPHY COLLECTED IN 1999.
2. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
3. ORIGINAL SOURCE OF FIGURE: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –                  MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>SITE LOCATION MAP</b>	
Prepared by/Date: JMP 06/13/13 Checked by/Date: MTP 06/13/13 Project Number: 3293131541	
<b>FIGURE 1-1</b>	



G:\Kalamazoo\mxd\Area 1\Report\Figures\Area 1 Location Map - Figure 1-2.mxd 12/2/2014 11:03:37 AM

**LEGEND:**

- RIVER MILE MARKER
- KALAMAZOO RIVER
- RIVER CENTERLINE
- AREA 1 STUDY AREA BOUNDARY
- WATER BODIES
- OPERABLE UNIT
- ROAD
- INCORPORATED AREA



**NOTES:**

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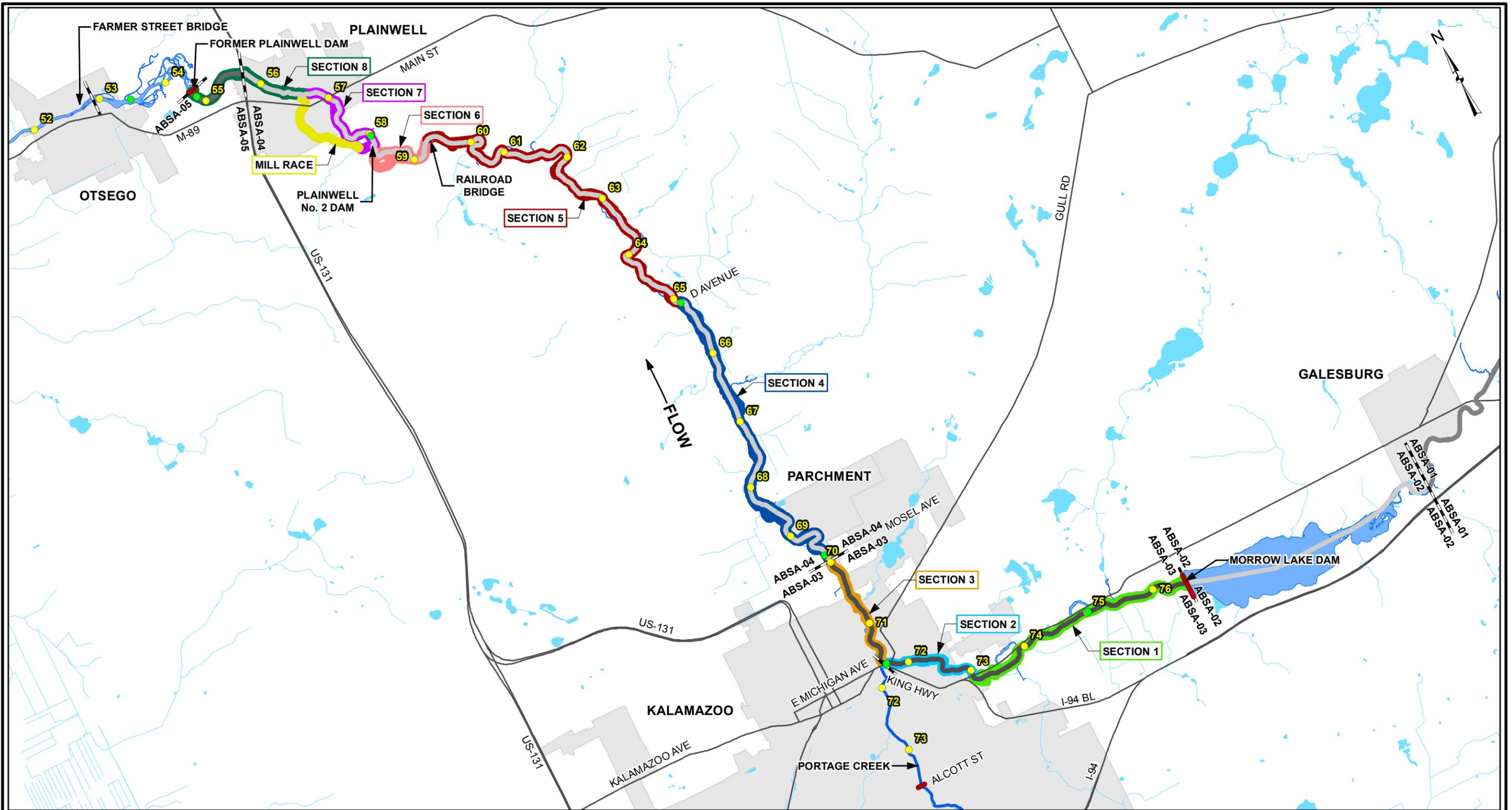
GEORGIA-PACIFIC LLC  
 ALLIED PAPER, INC./PORTAGE CREEK/  
 KALAMAZOO RIVER SUPERFUND SITE  
**AREA 1 FEASIBILITY STUDY REPORT –  
 MORROW DAM TO FORMER PLAINWELL DAM**

**AREA 1 - MORROW LAKE  
DAM TO PLAINWELL DAM**

Prepared by/Date:  
 JMP 06/13/13  
 Checked by/Date:  
 MTP 06/13/13  
 Project Number:  
 3293131541



**FIGURE  
1-2**



G:\Kalamazoo\mxd\Area 1\Report\Figures\Area 1\Reaches - Figure 1-3.mxd 12/2/2014 11:05:45 AM

**LEGEND:**

- |                              |           |           |               |
|------------------------------|-----------|-----------|---------------|
| ● RIVER MILE MARKER          | SECTION 1 | SECTION 6 | — ABSA BREAKS |
| — AREA 1 STUDY AREA BOUNDARY | SECTION 2 | SECTION 7 | — ABSA-01     |
| — ROAD                       | SECTION 3 | MILL RACE | — ABSA-02     |
| — KALAMAZOO RIVER            | SECTION 4 | SECTION 8 | — ABSA-03     |
| — WATER BODIES               | SECTION 5 |           | — ABSA-04     |
|                              |           |           | — ABSA-05     |



**NOTES:**

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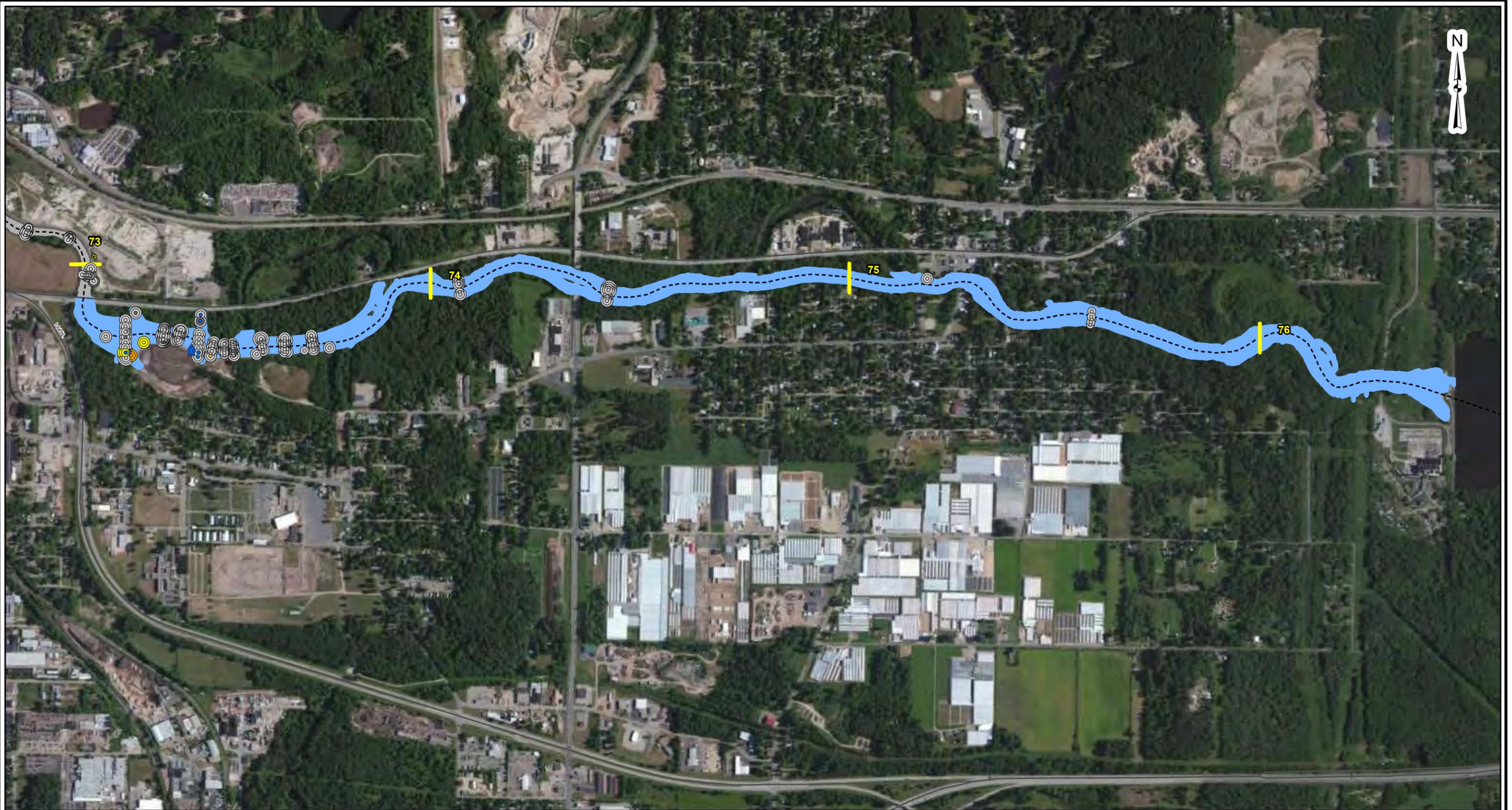
GEORGIA-PACIFIC LLC  
ALLIED PAPER, INC./PORTAGE CREEK/  
KALAMAZOO RIVER SUPERFUND SITE  
**AREA 1 FEASIBILITY STUDY REPORT –  
MORROW DAM TO FORMER PLAINWELL DAM**

**AREA 1 - SECTIONS AND ABSAs**

Prepared by/Date:  
JMP 06/13/13  
Checked by/Date:  
MTP 06/13/13  
Project Number:  
3293131541



**FIGURE  
1-3**



**LEGEND:**

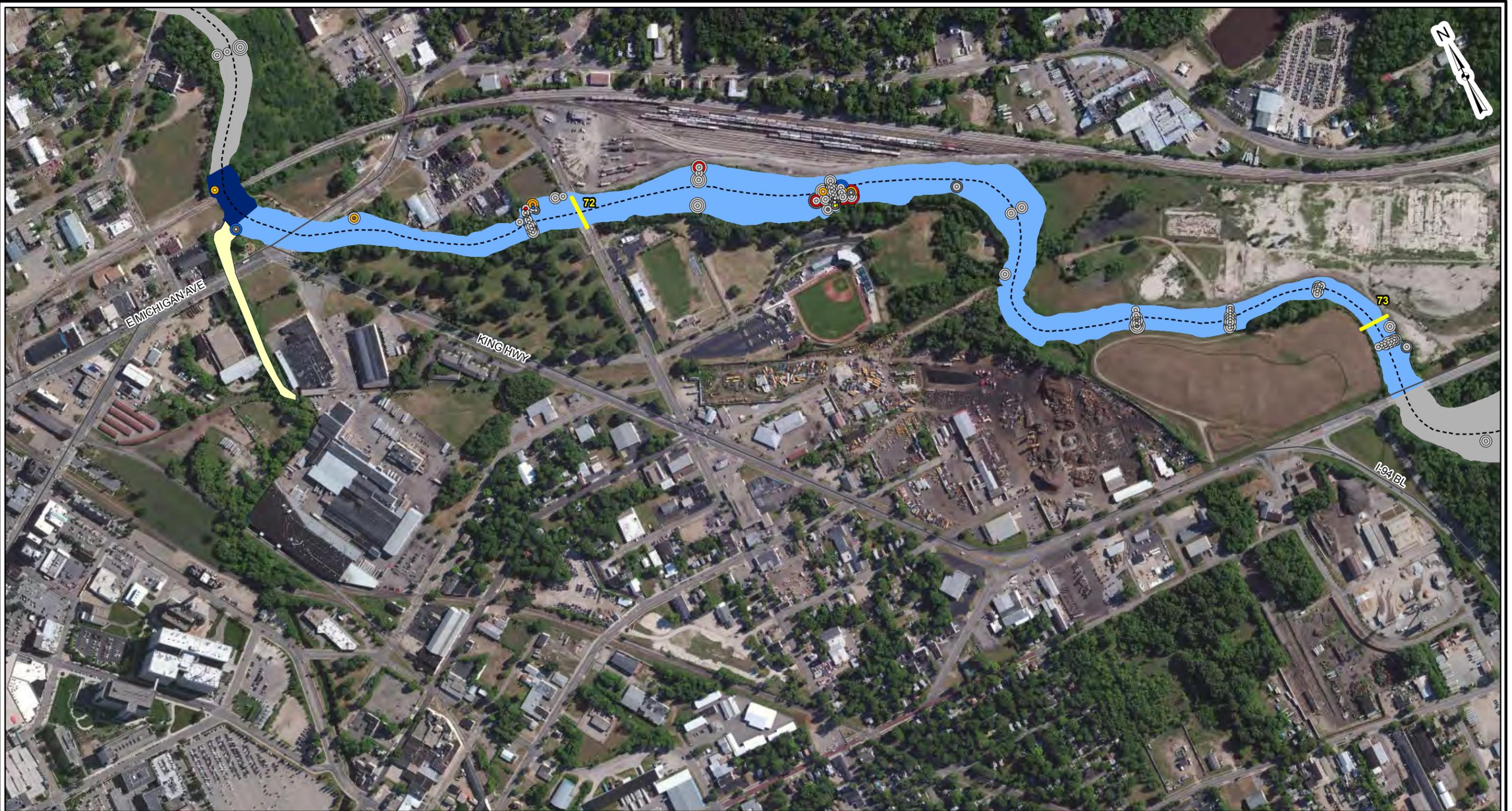
PROPOSED REMEDIATION AREA	RIVER MILE MARKER	<b>MAXIMUM CONC. IN INTERVAL (MG/KG PCB)</b>	<b>DEPTH INTERVALS</b>
REACH 1	RIVER CENTERLINE	<1	0-6 Inches
CONFLUENCE	ROAD	1-2	6-12 Inches
BACKWATER		2-5	12-24 Inches
WATER BODIES		5-10	>24 Inches
		10-50	
		>50	



**NOTES:**

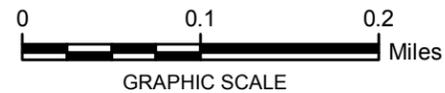
1. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –                  MORROW DAM TO FORMER PLAINWELL DAM</b> <b>AREA 1 - SECTION 1</b> <b>SEDIMENT PCB CONCENTRATION                  BY DEPTH INTERVAL</b>	
Prepared by/Date: JMP 07/03/13	<b>FIGURE 1-4a</b>
Checked by/Date: MTP 07/03/13	
Project Number: 3293131541	



LEGEND:

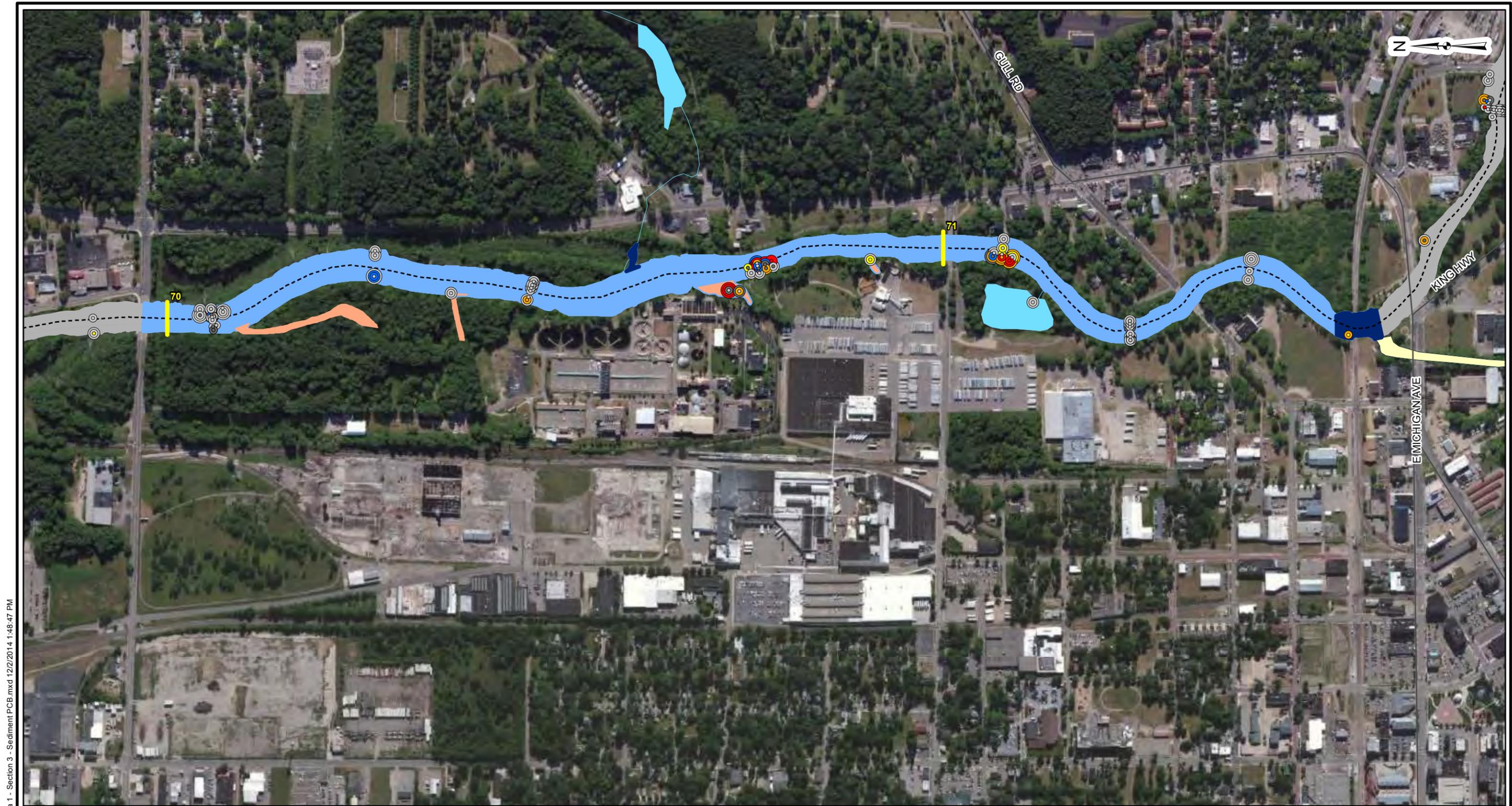
	PROPOSED REMEDIATION AREA		RIVER MILE MARKER	<b>MAXIMUM CONC. IN INTERVAL (MG/KG PCB)</b>	<b>DEPTH INTERVALS</b>
	SECTION 2		RIVER CENTERLINE		
	CONFLUENCE		ROAD		
	BACKWATER				
	WATER BODIES				



NOTES:

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2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

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Prepared by/Date: JMP 07/15/13 Checked by/Date: MTP 07/15/13 Project Number: 3293131541	
<b>FIGURE 1-4b</b>	



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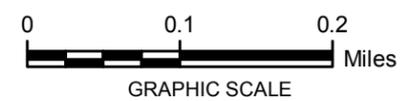
- |   |   |
|---|---|
| <span style="display:inline-block; width:15px; height:15px; background-color:lightblue; border:1px solid black;"></span> SECTION 3            | <span style="display:inline-block; width:15px; height:15px; background-color:lightblue; border:1px solid black;"></span> WATER BODIES   |
| <span style="display:inline-block; width:15px; height:15px; background-color:darkblue; border:1px solid black;"></span> CONFLUENCE            | <span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> RIVER MILE MARKER |
| <span style="display:inline-block; width:15px; height:15px; background-color:orange; border:1px solid black;"></span> BACKWATER               | <span style="display:inline-block; width:15px; border-bottom:2px dashed black;"></span> RIVER CENTERLINE                                |
| <span style="display:inline-block; width:15px; height:15px; background-color:yellow; border:1px solid black;"></span> PORTAGE CREEK TCRA AREA | <span style="display:inline-block; width:15px; border-bottom:2px solid black;"></span> ROAD   |

**MAXIMUM CONC. IN INTERVAL (MG/KG PCB)**

- |   |
|---|
| <span style="display:inline-block; width:10px; height:10px; background-color:lightgrey; border:1px solid black;"></span> <1 |
| <span style="display:inline-block; width:10px; height:10px; background-color:grey; border:1px solid black;"></span> 1-2     |
| <span style="display:inline-block; width:10px; height:10px; background-color:blue; border:1px solid black;"></span> 2-5     |
| <span style="display:inline-block; width:10px; height:10px; background-color:yellow; border:1px solid black;"></span> 5-10  |
| <span style="display:inline-block; width:10px; height:10px; background-color:orange; border:1px solid black;"></span> 10-50 |
| <span style="display:inline-block; width:10px; height:10px; background-color:red; border:1px solid black;"></span> >50      |

**DEPTH INTERVALS**

- 0-6 Inches
- 6-12 Inches
- 12-24 Inches
- >24 Inches

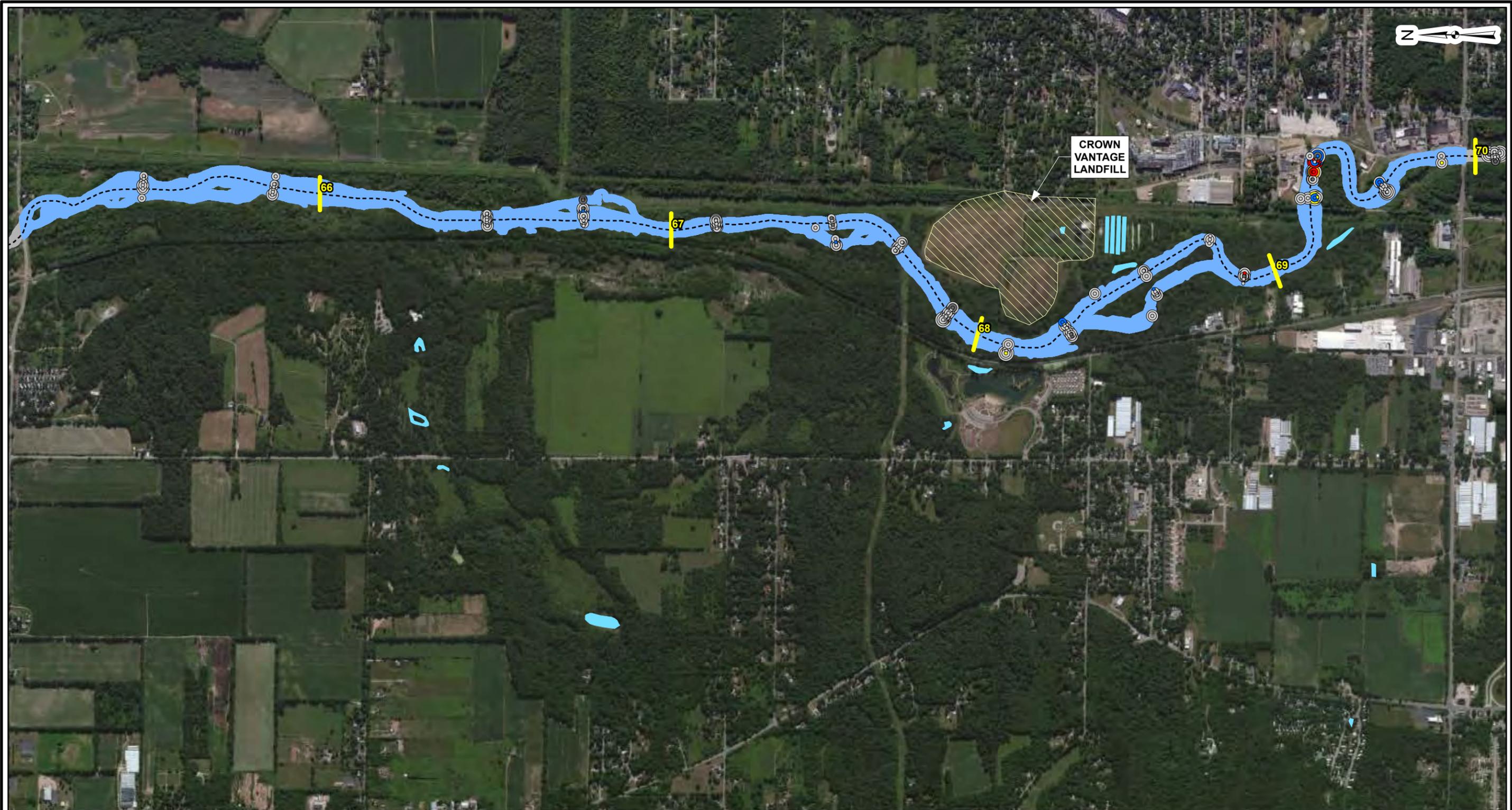


**NOTES:**

1. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

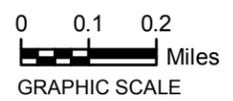
GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b> <b>AREA 1 - SECTION 3</b> <b>SEDIMENT PCB CONCENTRATION          BY DEPTH INTERVAL</b>	
Prepared by/Date: JMP 02/24/14 Checked by/Date: MTP 02/24/14 Project Number: 3293131541	<span style="font-weight: bold; font-size: 1.2em;">FIGURE 1-4c</span>

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**LEGEND:**

- |                           |                   |  |                        |
|---------------------------|-------------------|--|------------------------|
| PROPOSED REMEDIATION AREA | RIVER MILE MARKER | <b>MAXIMUM CONC. IN INTERVAL (MG/KG PCB)</b> | <b>DEPTH INTERVALS</b> |
| SECTION 4                 | RIVER CENTERLINE  | <1   | 0-6 Inches             |
| CONFLUENCE                | ROAD              | 1-2  | 6-12 Inches            |
| BACKWATER                 |                   | 2-5  | 12-24 Inches           |
| WATER BODIES              |                   | 5-10   | >24 Inches             |
|                           |                   | 10-50  |                        |
|                           |                   | >50  |                        |

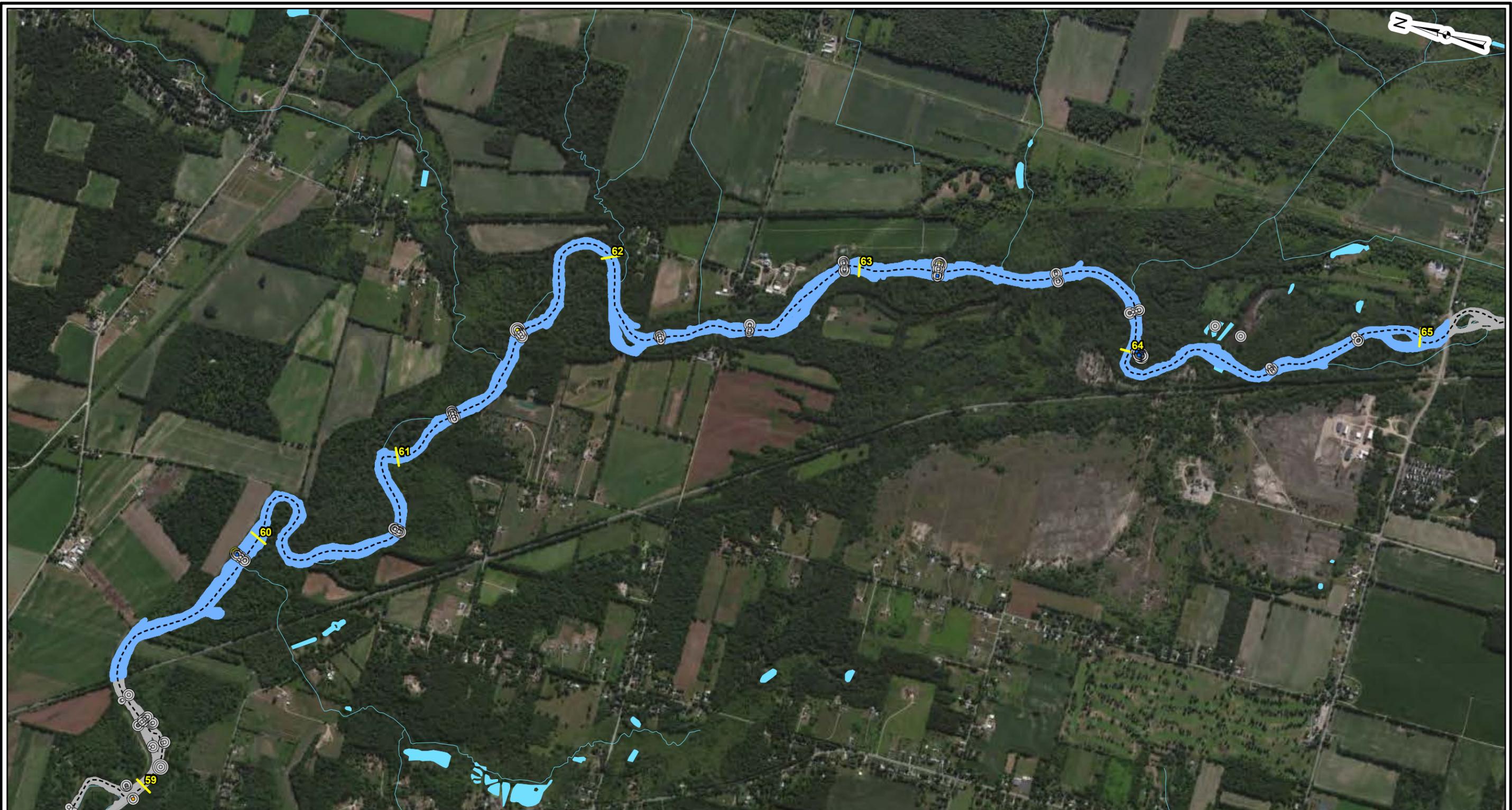


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2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –                  MORROW DAM TO FORMER PLAINWELL DAM</b> <b>AREA 1 - SECTION 4</b> <b>SEDIMENT PCB CONCENTRATION                  BY DEPTH INTERVAL</b>	
Prepared by/Date: JMP 07/15/13	
Checked by/Date: MTP 07/15/13	
Project Number: 3293131541	
<b>FIGURE 1-4d</b>	

G:\Kalamazoo\mxd\Area 1\Report\Figures\Area 1 - Section 5 - Sediment PCB.mxd 6/2/2014 1:41:31 PM



**LEGEND:**  
 PROPOSED REMEDIATION AREA  
 SECTION 5  
 CONFLUENCE  
 BACKWATER

WATER BODIES  
 RIVER MILE MARKER  
 RIVER CENTERLINE  
 ROAD

**MAXIMUM CONC. IN INTERVAL (MG/KG PCB)**

	<1
	1-2
	2-5
	5-10
	10-50
	>50

**DEPTH INTERVALS**

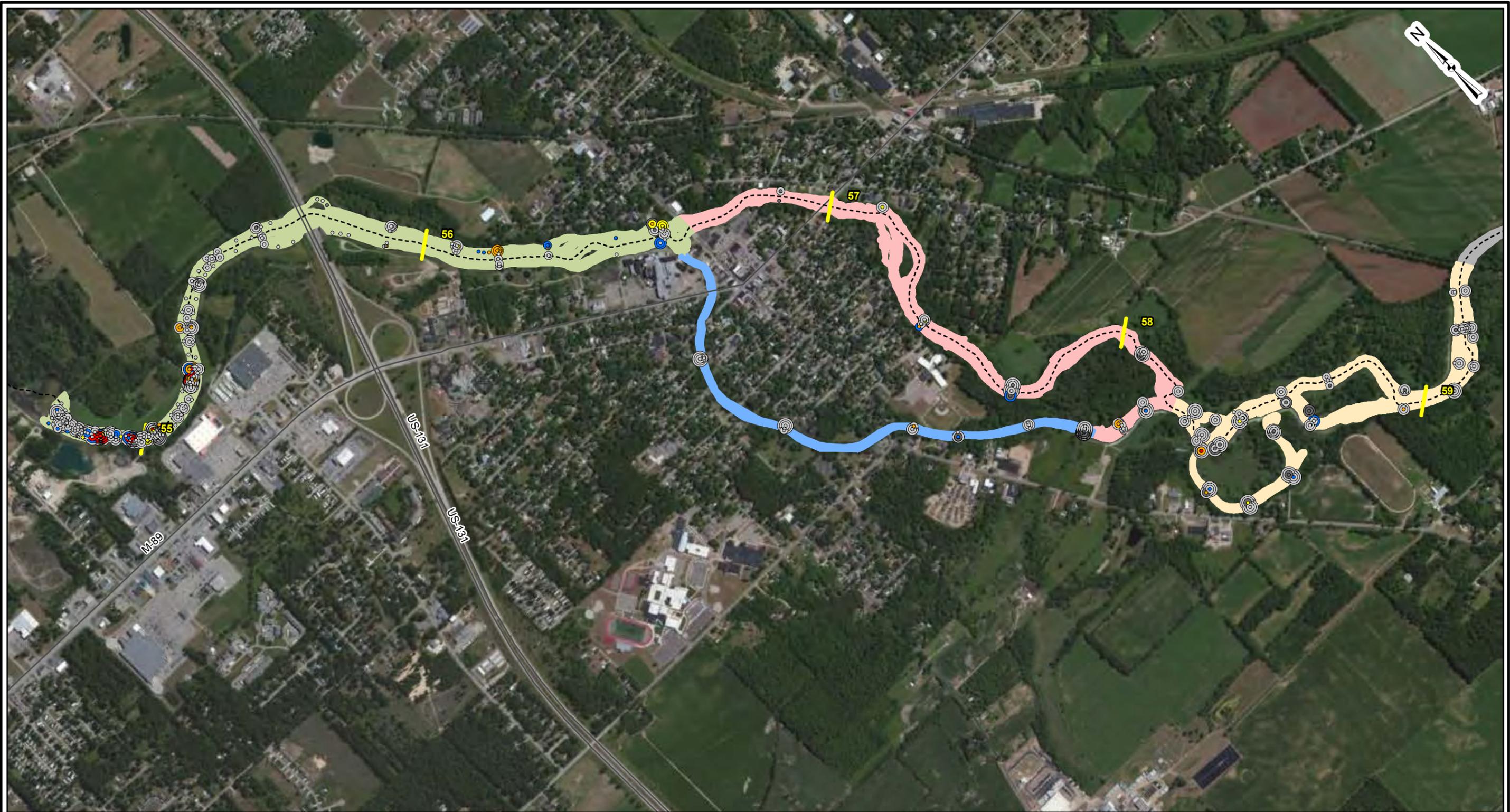
- 0-6 Inches
- 6-12 Inches
- 12-24 Inches
- >24 Inches

0 0.1 0.2  
  
 Miles  
 GRAPHIC SCALE

**NOTES:**

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2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>AREA 1 - SECTION 5          SEDIMENT PCB CONCENTRATION          BY DEPTH INTERVAL</b>	
Prepared by/Date: JMP 07/15/13 Checked by/Date: MTP 07/15/13 Project Number: 3293131541	<span style="font-weight: bold; font-size: 1.2em;">FIGURE 1-4e</span>



**LEGEND:**

- |  |   |
|--|---|
| <span style="border: 1px solid green; display: inline-block; width: 15px; height: 10px;"></span> PROPOSED REMEDIATION AREA | <span style="background-color: blue; width: 15px; height: 10px;"></span> CONFLUENCE     |
| <span style="background-color: orange; width: 15px; height: 10px;"></span> SECTION 6                                       | <span style="background-color: lightblue; width: 15px; height: 10px;"></span> BACKWATER |
| <span style="background-color: pink; width: 15px; height: 10px;"></span> SECTION 7   | <span style="background-color: cyan; width: 15px; height: 10px;"></span> WATER BODIES   |
| <span style="background-color: lightgreen; width: 15px; height: 10px;"></span> SECTION 8                                   | <span style="border-bottom: 2px solid yellow; width: 15px;"></span> RIVER MILE MARKER   |
| <span style="background-color: lightblue; width: 15px; height: 10px;"></span> MILL RACE                                    | <span style="border-bottom: 1px dashed black; width: 15px;"></span> RIVER CENTERLINE    |
|  | <span style="border-bottom: 1px solid black; width: 15px;"></span> ROAD                 |

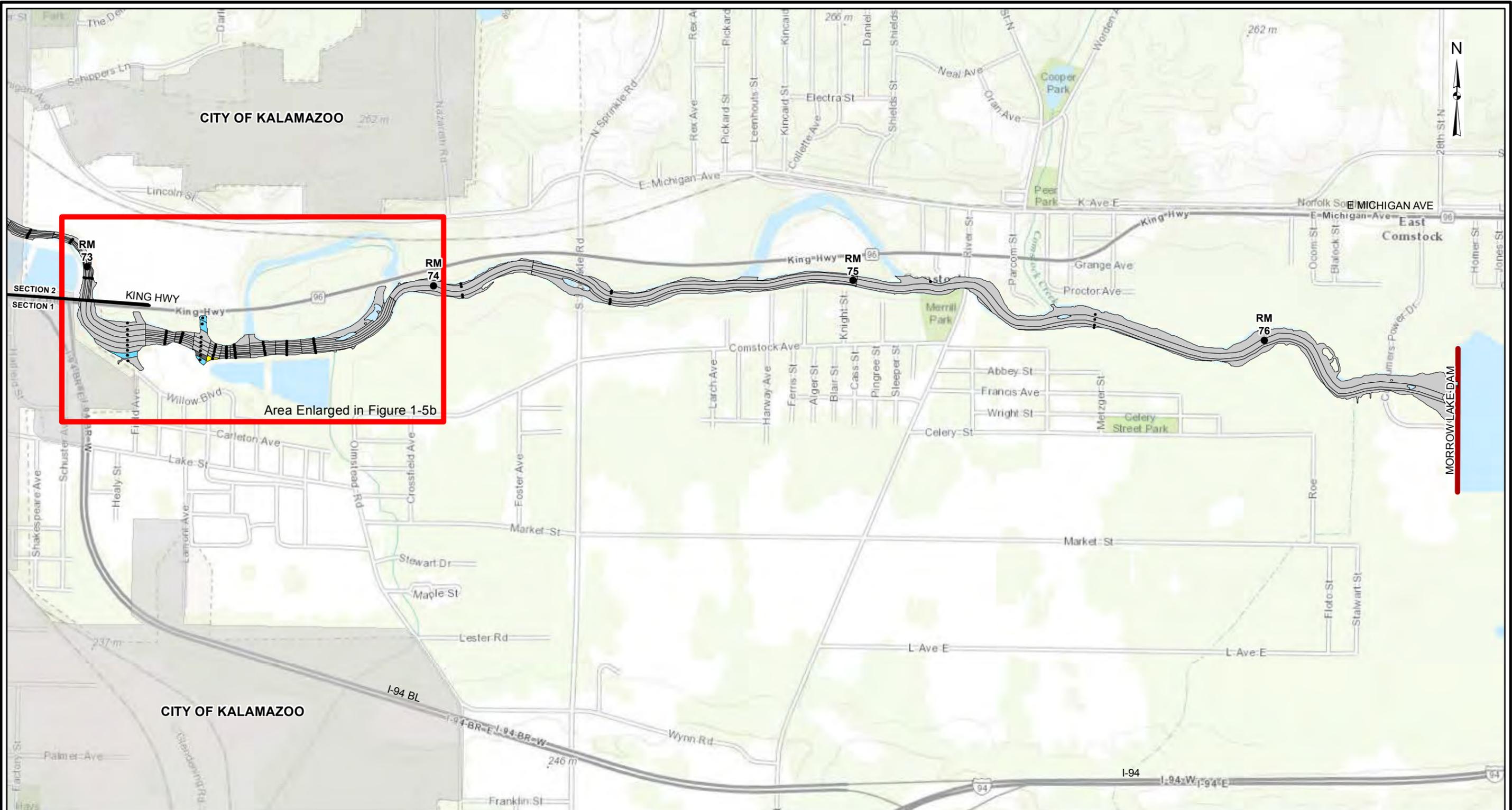
- |  |  |
|--|--|
| <b>MAXIMUM CONC. IN INTERVAL (MG/KG PCB)</b>                                     | <b>DEPTH INTERVALS</b>                               |
| <span style="background-color: gray; width: 10px; height: 10px;"></span> <1      | <span style="font-size: 8px;">•</span> 0-6 Inches    |
| <span style="background-color: gray; width: 10px; height: 10px;"></span> 1-2     | <span style="font-size: 10px;">•</span> 6-12 Inches  |
| <span style="background-color: blue; width: 10px; height: 10px;"></span> 2-5     | <span style="font-size: 12px;">•</span> 12-24 Inches |
| <span style="background-color: yellow; width: 10px; height: 10px;"></span> 5-10  | <span style="font-size: 16px;">•</span> >24 Inches   |
| <span style="background-color: orange; width: 10px; height: 10px;"></span> 10-50 |  |
| <span style="background-color: red; width: 10px; height: 10px;"></span> >50      |  |



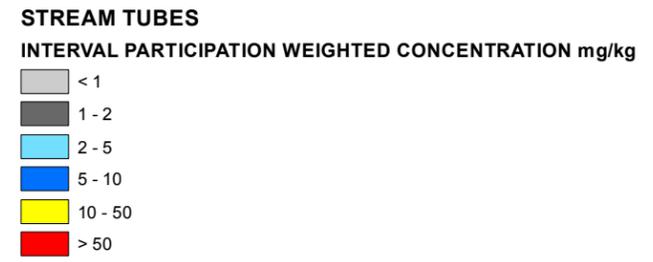
- NOTES:**
1. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
  2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –                  MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>AREA 1 - SECTIONS 6, 7, 8 AND MILL RACE                  SEDIMENT PCB CONCENTRATION                  BY DEPTH INTERVAL</b>	
Prepared by/Date: JMP 07/15/13	<b>FIGURE 1-4f</b>
Checked by/Date: MTP 07/15/13	
Project Number: 3293131541	

Path: G:\Kalamazoo\mxd\Area 1\Report Figures\Area 1 SWAC TUBES - Section 1 - Figure 1-5a.mxd



- Legend**
- SEDIMENT SAMPLING LOCATIONS
  - RIVER MILE MARKER
  - SECTION BREAKS
  - AREA 1 STUDY AREA BOUNDARY



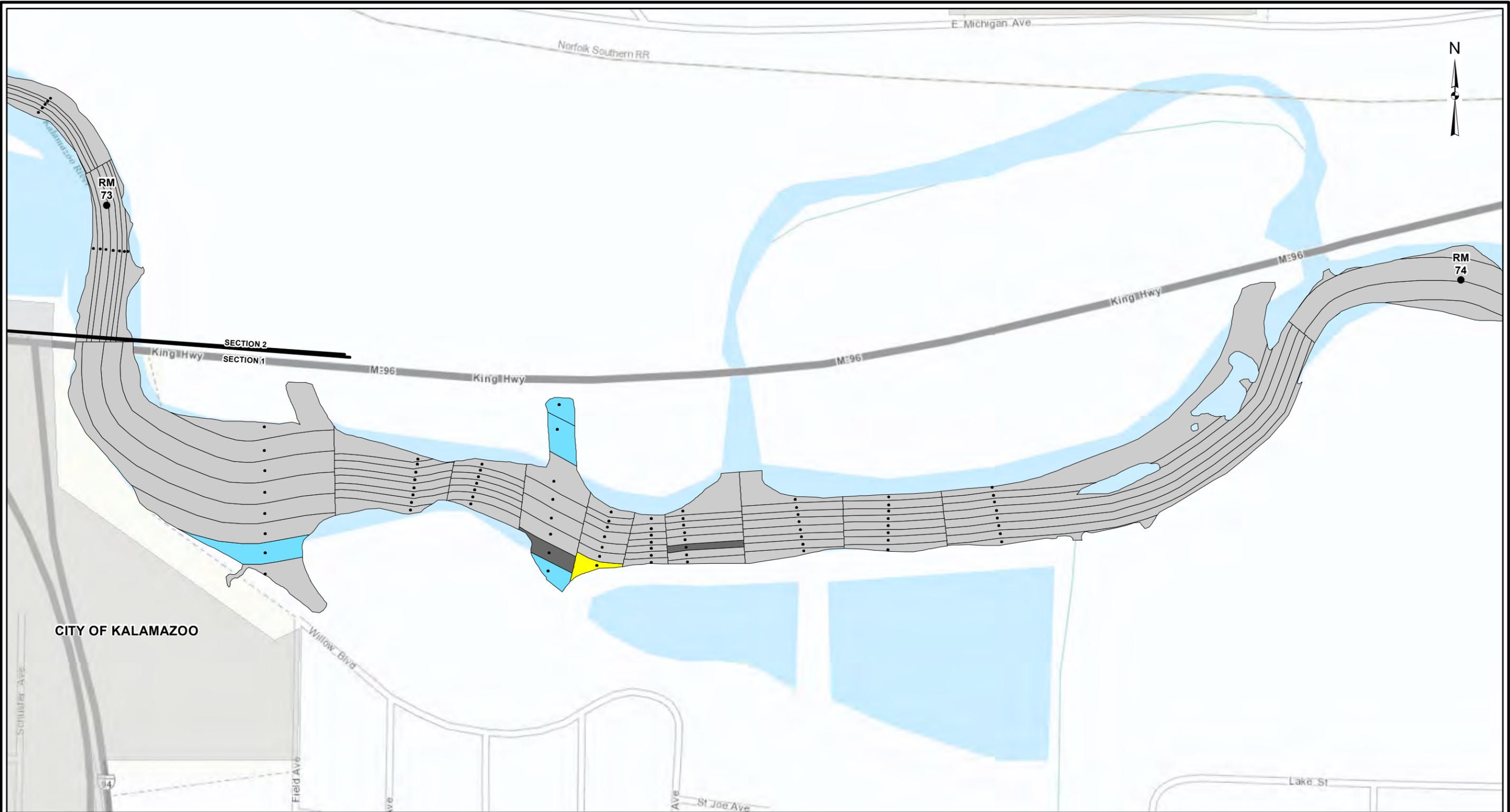
NOTES:  
1. BASEMAP SOURCE: ESRI TOPOGRAPHIC MAP

GEORGIA-PACIFIC LLC  
ALLIED PAPER, INC./PORTAGE CREEK/  
KALAMAZOO RIVER SUPERFUND SITE  
**AREA 1 FEASIBILITY STUDY REPORT -  
MORROW DAM TO FORMER PLAINWELL DAM**

**SECTION 1 SWAC STREAM TUBES  
INTERVAL 1 (0-6")**

Prepared by/Date: JMP 06/13/13		<b>FIGURE 1-5a</b>
Checked by/Date: MTP 06/13/13		
Project Number: 3293131541		

Path: G:\Kalamazoo\mxd\Area 1\Report Figures\Area 1 SWAC TUBES - Section 1 - Figure 1-5b.mxd



- Legend**
- SEDIMENT SAMPLING LOCATIONS
  - RIVER MILE MARKER
  - SECTION BREAKS
  - AREA 1 STUDY AREA BOUNDARY

**STREAM TUBES**  
INTERVAL PARTICIPATION WEIGHTED CONCENTRATION mg/kg

Grey	< 1
Black	1 - 2
Light Blue	2 - 5
Dark Blue	5 - 10
Yellow	10 - 50
Red	> 50



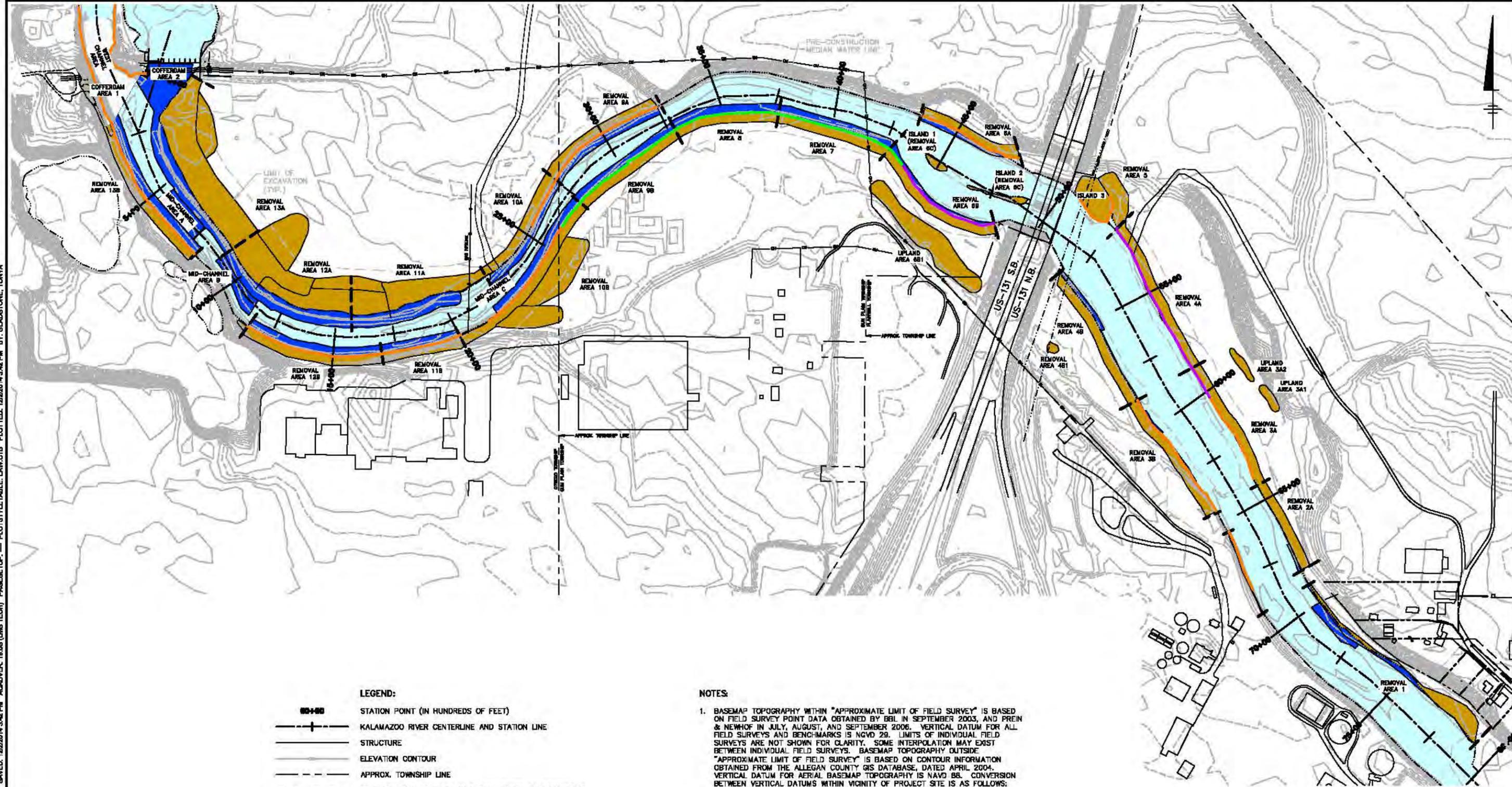
NOTES:  
1. BASEMAP SOURCE: ESRI TOPOGRAPHIC MAP

GEORGIA-PACIFIC LLC  
 ALLIED PAPER, INC./PORTAGE CREEK/  
 KALAMAZOO RIVER SUPERFUND SITE  
**AREA 1 FEASIBILITY STUDY REPORT -  
 MORROW DAM TO FORMER PLAINWELL DAM**

**SECTION 1 SWAC STREAM TUBES  
 INTERVAL 1 (0-6") INSET**

Prepared by/Date: JMP 06/13/13 Checked by/Date: MTP 06/13/13 Project Number: 3293131541	<b>FIGURE 1-5b</b>
--	------------------------

CITY:SYRACUSE DIVISION:DBAGS LDAGS PH:SIDG LYRSON:DFP:REF: J:\KALAMAZOO\CAD\_A\ME\2014\3001.dwg LAYOUT:1 SAVED:12/22/2014 3:42 PM ACADVER:18.08 (LMS TECH) PAGES:10 PLOTTED:12/22/2014 3:42 PM BY:GLADSTONE,TONYA XREFS: IMAGES: PROJECTNAME: amecgo-water-3001.dwg



**LEGEND:**

- STATION POINT (IN HUNDREDS OF FEET)
- KALAMAZOO RIVER CENTERLINE AND STATION LINE
- STRUCTURE
- ELEVATION CONTOUR
- APPROX. TOWNSHIP LINE
- PRE-CONSTRUCTION DAM-IN MEDIAN WATER LINE (APPROX.)
- APPROX. LIMIT OF FIELD SURVEY
- ACCESS ROAD
- KALAMAZOO RIVER
- IN-STREAM EXCAVATION AREA
- SOIL EXCAVATION AREA
- RIVER RUN ROCK INCLUDED AS A PART OF DESIGN AND INSTALLED DURING CONSTRUCTION ACTIVITIES
- RIVER RUN ROCK AND COIR LOG INSTALLED POST-CONSTRUCTION IN RESPONSE TO OBSERVED BANK CONDITIONS
- RIVER RUN ROCK INSTALLED POST-CONSTRUCTION IN RESPONSE TO OBSERVED BANK CONDITIONS (SEE NOTES 5 AND 6)

- NOTES:**
- BASEMAP TOPOGRAPHY WITHIN "APPROXIMATE LIMIT OF FIELD SURVEY" IS BASED ON FIELD SURVEY POINT DATA OBTAINED BY BBL IN SEPTEMBER 2003, AND PREIN & NEWHOF IN JULY, AUGUST, AND SEPTEMBER 2006. VERTICAL DATUM FOR ALL FIELD SURVEYS AND BENCHMARKS IS NAVD 29. LIMITS OF INDIVIDUAL FIELD SURVEYS ARE NOT SHOWN FOR CLARITY. SOME INTERPOLATION MAY EXIST BETWEEN INDIVIDUAL FIELD SURVEYS. BASEMAP TOPOGRAPHY OUTSIDE "APPROXIMATE LIMIT OF FIELD SURVEY" IS BASED ON CONTOUR INFORMATION OBTAINED FROM THE ALLEGAN COUNTY GIS DATABASE, DATED APRIL 2004. VERTICAL DATUM FOR AERIAL BASEMAP TOPOGRAPHY IS NAVD 88. CONVERSION BETWEEN VERTICAL DATUMS WITHIN VICINITY OF PROJECT SITE IS AS FOLLOWS: [NAVD 88] + 0.44 FT = [NGVD 29]. ALL ELEVATIONS SHOWN ARE IN FEET. HORIZONTAL DATUM FOR ALL SURVEY INFORMATION (I.E., FIELD AND AERIAL) IS STATE PLANE, NAD 83, MICHIGAN SOUTH ZONE (2113), INTERNATIONAL FEET.
  - TAX PARCELS OBTAINED FROM ALLEGAN COUNTY LAND INFORMATION SERVICES GIS DEPARTMENT AND INCLUDE OTSEGO AND GUN PLAIN TOWNSHIPS AND PLAINWELL CITY AND ARE PROJECTED IN NAD 83 STATE PLANE MICHIGAN SOUTH.
  - EXISTING FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE PLANS, RECORDS AND SURVEYS, AND, THEREFORE, THEIR LOCATIONS, MATERIALS, AND TYPE OF USE MUST BE CONSIDERED APPROXIMATE ONLY.
  - RIVER RUN ROCK LIMITS SHOWN ON THIS FIGURE DEPICT LOCATION OF ROCK PLACEMENT AND ARE NOT EXACT BOUNDARIES.
  - IN REMOVAL AREA 4A, FILL WAS PLACED BEHIND ANGULAR RIP RAP AS NEEDED TO ALLOW THE ARMORED BANK TO BE AT A 3:1 SLOPE.
  - IN REMOVAL AREA 6B, LIVE WILLOW STAKES WERE INSERTED INTO UNDERLYING SOIL IN TWO ROWS AT 5-FOOT SPACING ON-CENTER.
  - ORIGINAL SOURCE OF FIGURE: ARCADIS. MODIFIED WITH PERMISSION.

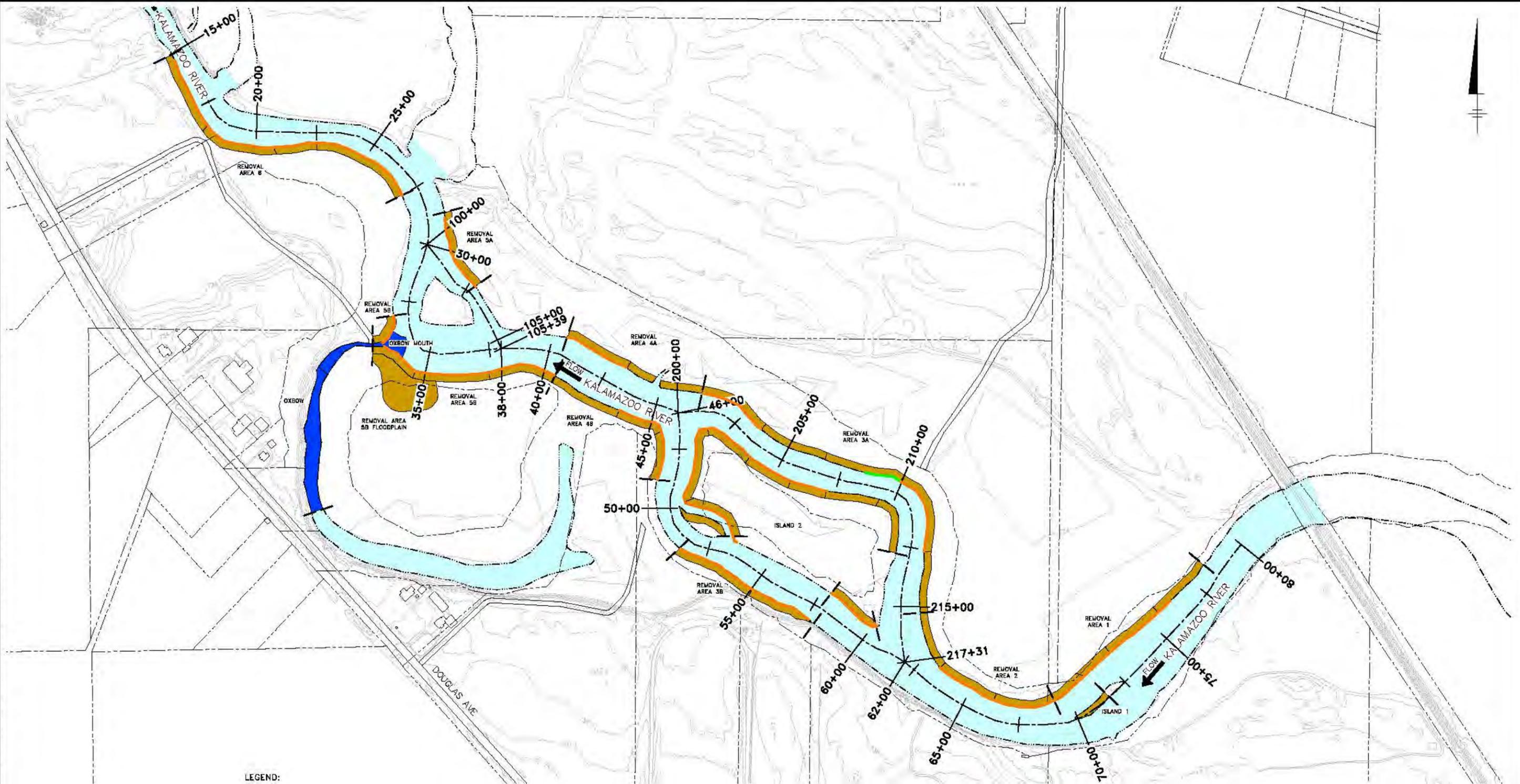
**KALAMAZOO RIVER STUDY GROUP  
ALLIED PAPER INC./PORTAGE CREEK/  
KALAMAZOO RIVER SUPERFUND SITE  
AREA 1 FEASIBILITY STUDY REPORT -  
MORROW DAM TO FORMER PLAINWELL DAM**

**SITE PLAN  
FORMER PLAINWELL IMPOUNDMENT  
TCRA**

Prepared by Date: TG 7/22/2013 Check by Date: MTP 7/22/2013 Project Number: 3283131641	<b>FIGURE 1-6</b>
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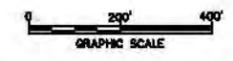


CITY: STRAUBER DIVISION; 141 NEW DR; AGS LD; AGS PIC; PW; BDB; TH; LYRON; OFF-REF  
 J:\KALAMAZOO\CAD\_A\MEC\383838.DWG LAYOUT: 2 8/16/13 12:22:2014 3:40 PM ACADVER: 18.08 (LMS TECH) PAGES: 18  
 XREFS: IMAGES: PROJECTNAME: amecgo-water-plainwell  
 04/08/2011 04/03/2012 CSD 04/03/2012



- LEGEND:**
- ELEVATION CONTOUR
  - MEDIAN WATER LINE (APPROX.)
  - TAX PARCEL LINE
  - 60+00 STATION POINT (IN HUNDREDS OF FEET)
  - KALAMAZOO RIVER CENTERLINE AND STATION LINE
  - ACCESS ROAD
  - KALAMAZOO RIVER
  - IN-STREAM EXCAVATION AREA
  - SOIL EXCAVATION AREA
  - RIVER RUN ROCK AND COIR LOG INCLUDED AS A PART OF DESIGN AND INSTALLED DURING CONSTRUCTION ACTIVITIES (SEE NOTE 5)
  - RIVER RUN ROCK AND COIR LOG INSTALLED POST-CONSTRUCTION IN RESPONSE TO OBSERVED BANK CONDITIONS

- NOTES:**
1. APPROXIMATE LIMITS OF FIELD-BASED SURVEY DELINEATES AREA WHERE TOPOGRAPHIC INFORMATION IS BASED ON SURVEY DATA COLLECTED DURING FIELD WORK IN 1993, 2000, 2007, AND 2008, WHICH INCLUDED SEDIMENT AND SOIL SAMPLE COLLECTION, TRANSECT SURVEYS, PROBING ACTIVITIES, AND DETAILED BANK SURVEY PERFORMED BY PREIN & NEWHOF APRIL THROUGH JUNE 2009. TOPOGRAPHIC INFORMATION OUTSIDE APPROXIMATE LIMITS OF FIELD-BASED SURVEY IS BASED ON AERIAL SURVEY INFORMATION PROVIDED BY AXIS GEOSPATIAL, LLC (JOB NUMBER: 8068NE, DATE FLOWN: DECEMBER 29, 2008, CONTOUR INTERVAL: 1 FOOT).
  2. APPROXIMATE MEDIAN WATER LINE BASED ON HYDRAULIC MODELING ANALYSIS.
  3. TAX PARCELS OBTAINED FROM ALLEGAN COUNTY LAND INFORMATION SERVICES GIS DEPARTMENT AND INCLUDE GUN PLAIN TOWNSHIP AND PLAINWELL CITY AND ARE PROJECTED IN NAD 83 STATE PLANE MICHIGAN SOUTH.
  4. EXISTING FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE PLANS, RECORDS AND SURVEYS, AND, THEREFORE, THEIR LOCATIONS, MATERIALS, AND TYPE OF USE MUST BE CONSIDERED APPROXIMATE ONLY. OTHER UNDERGROUND STRUCTURES AND UTILITIES MAY EXIST, THE LOCATIONS OF WHICH ARE PRESENTLY UNKNOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL STRUCTURES AND UTILITIES.
  5. RIVER RUN ROCK LIMITS SHOWN ON THIS FIGURE DEPICT LOCATION OF ROCK PLACEMENT AND ARE NOT EXACT BOUNDARIES.
  6. ORIGINAL SOURCE OF FIGURE: ARCADIS. MODIFIED WITH PERMISSION.

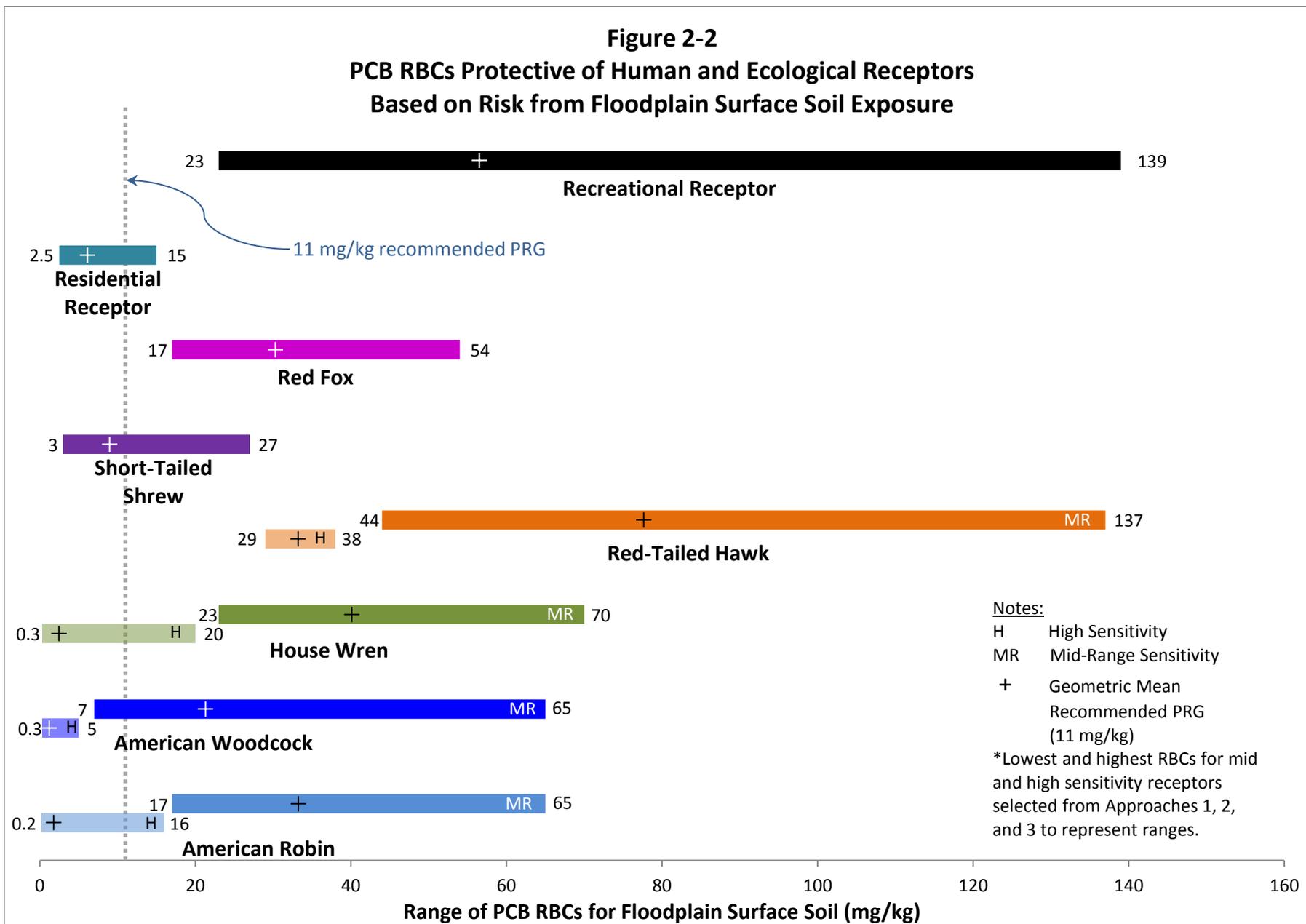


<b>GEORGIA-PACIFIC LLC          ALLIED PAPER, INC/PORTAGE CREEK/          KALAMAZOO RIVER SUPERFUND SITE          AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>SITE PLAN          PLAINWELL NO. 2 DAM AREA TCRA</b>	
Prepared by Date: TG 7/22/2013 Check by Date: MTP 7/22/2013	<b>FIGURE          1-7</b>
Project Number: 3293131541	

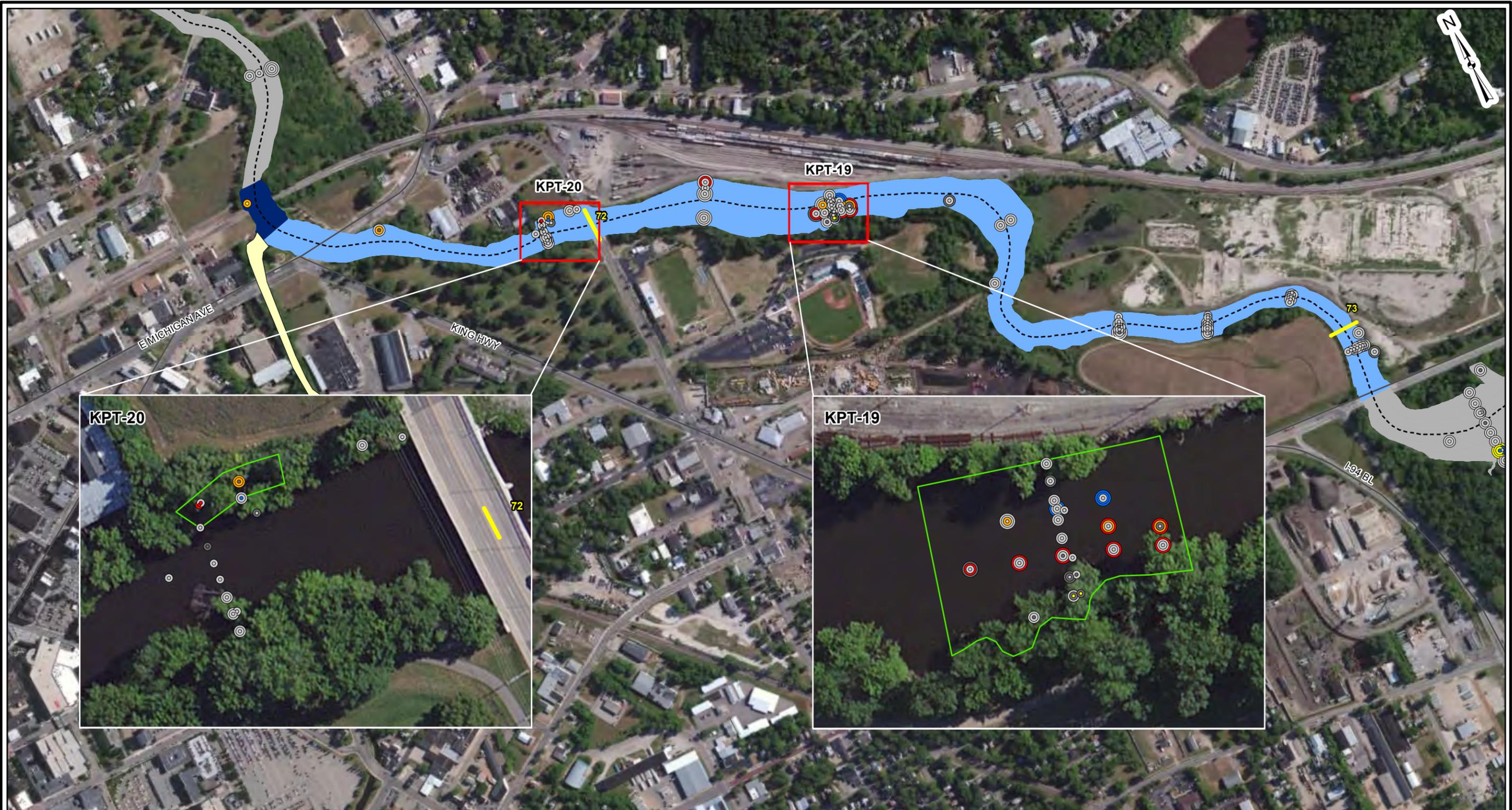
**Figure 2-1  
 PCB Sediment RBCs Protective of Human and Ecological Receptors  
 Based on Risk from Fish Ingestion**



**Figure 2-2**  
**PCB RBCs Protective of Human and Ecological Receptors**  
**Based on Risk from Floodplain Surface Soil Exposure**



Document Path: G:\Kalamazoo\mxd\Area 1\Report Figures\Area 1 - Section 2 Hot Spot Area Fig 3-1.mxd



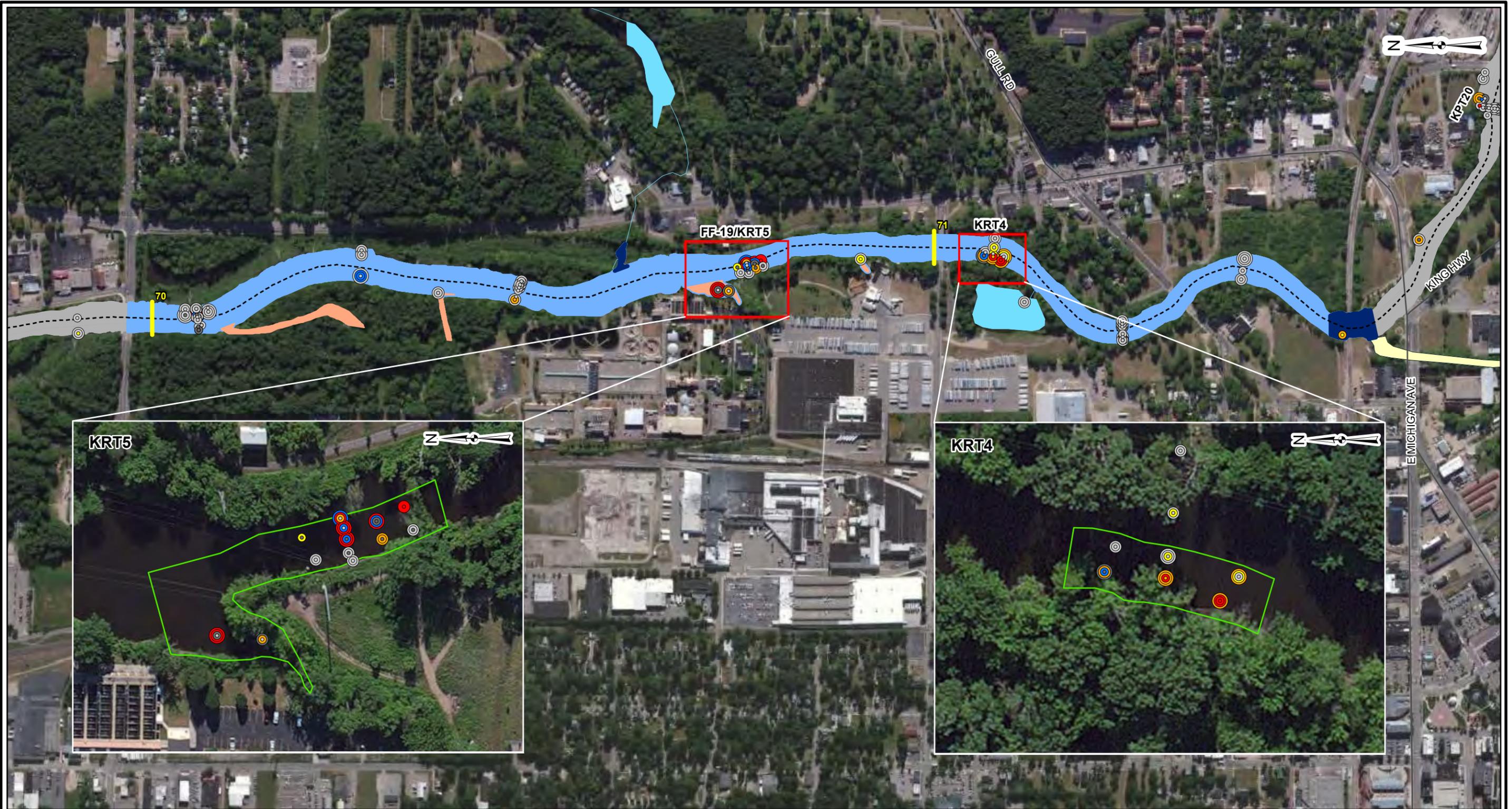
<b>LEGEND:</b>	PROPOSED REMEDIATION AREA	RIVER MILE MARKER	<b>MAXIMUM CONC. IN INTERVAL (MG/KG PCB)</b>	<b>DEPTH INTERVALS</b>
SECTION 2	RIVER CENTERLINE	<1	0-6 Inches	6-12 Inches
CONFLUENCE	ROAD	1-2	12-24 Inches	>24 Inches
BACKWATER		2-5		
WATER BODIES		5-10		
PORTAGE CREEK TCRA AREA		10-50		
		>50		



**NOTES:**

1. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

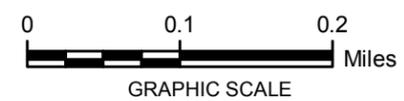
GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –                  MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>AREA 1 - SECTION 2                  HOT SPOT AREAS</b>	
Prepared by/Date: JMP 03/17/14 Checked by/Date: MTP 03/17/14 Project Number: 3293131541	
FIGURE <b>3-1</b>	



G:\Kalamazoo\mxd\Area 1\Report\_Figures\Area 1 - Section 3\_Hot Spot\_Area Fig 3-2.mxd 5/29/2014 4:28:20 PM

**LEGEND:**

PROPOSED REMEDIATION AREA	RIVER MILE MARKER	<b>MAXIMUM CONC. IN INTERVAL (MG/KG PCB)</b>	<b>DEPTH INTERVALS</b>
SECTION 3	RIVER CENTERLINE	<1	0-6 Inches
CONFLUENCE	ROAD	1-2	6-12 Inches
BACKWATER		2-5	12-24 Inches
WATER BODIES		5-10	>24 Inches
PORTAGE CREEK TCRA AREA		10-50	
		>50	



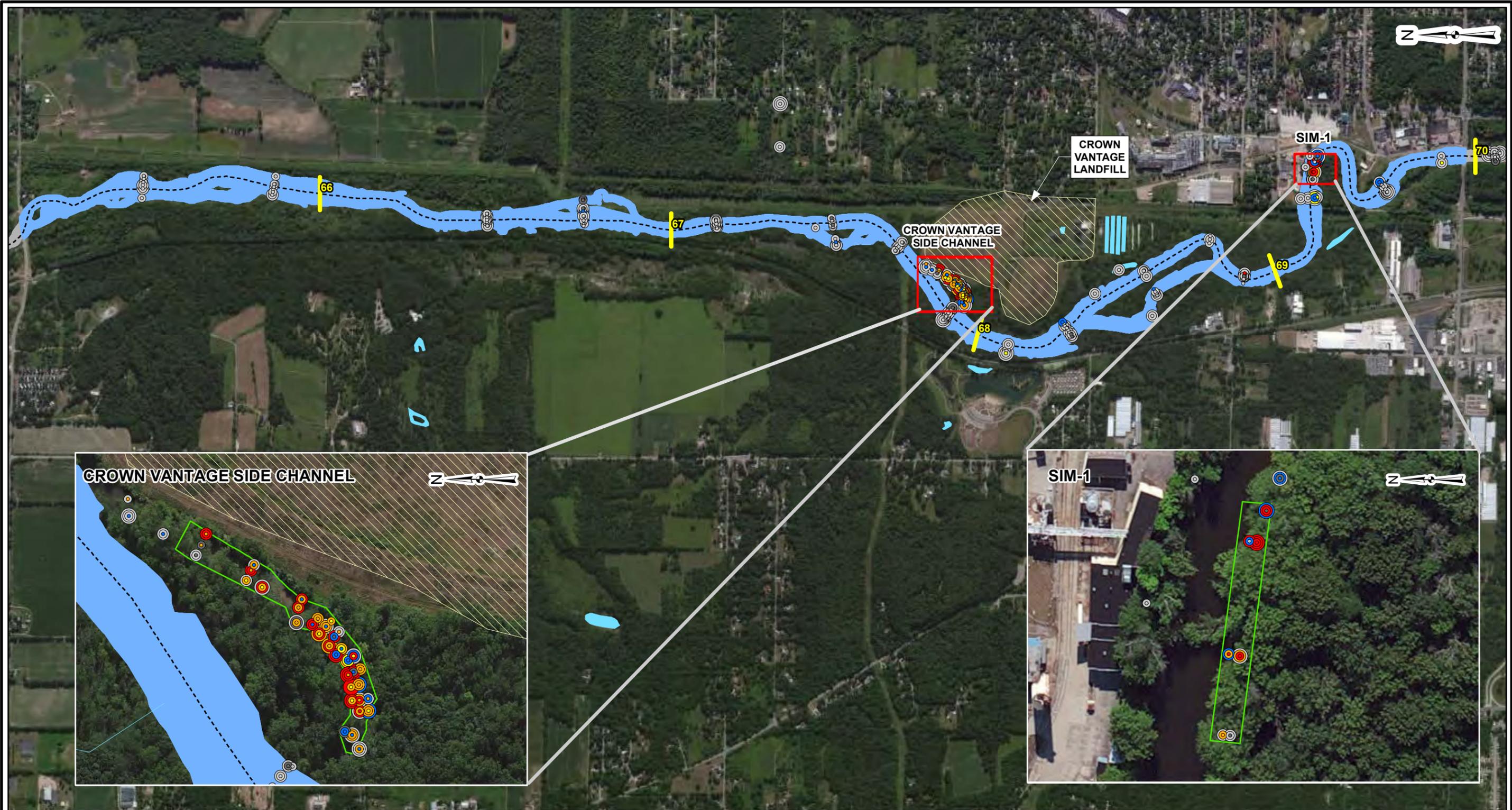
**NOTES:**

1. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC  
 ALLIED PAPER, INC./PORTAGE CREEK/  
 KALAMAZOO RIVER SUPERFUND SITE  
**AREA 1 FEASIBILITY STUDY REPORT -  
 MORROW DAM TO FORMER PLAINWELL DAM**

**AREA 1 - SECTION 3  
HOT SPOT AREAS**

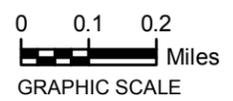
Prepared by/Date: JMP 03/17/14		<b>FIGURE 3-2</b>
Checked by/Date: MTP 03/17/14		
Project Number: 3293131541		



G:\Kalamazoo\mxd\Area 1\Report\_Figures\Area 1 - Section 4 Hot Spot Area Fig 3-3 new.mxd 5/29/2014 1:32:45 PM

**LEGEND:**

PROPOSED REMEDIATION AREA	RIVER MILE MARKER	<b>MAXIMUM CONC. IN INTERVAL (MG/KG PCB)</b>	<b>DEPTH INTERVALS</b>
SECTION 4	RIVER CENTERLINE	<1	0-6 Inches
CONFLUENCE	ROAD	1-2	6-12 Inches
BACKWATER		2-5	12-24 Inches
WATER BODIES		5-10	>24 Inches
PORTAGE CREEK TCRA AREA		10-50	
		>50	

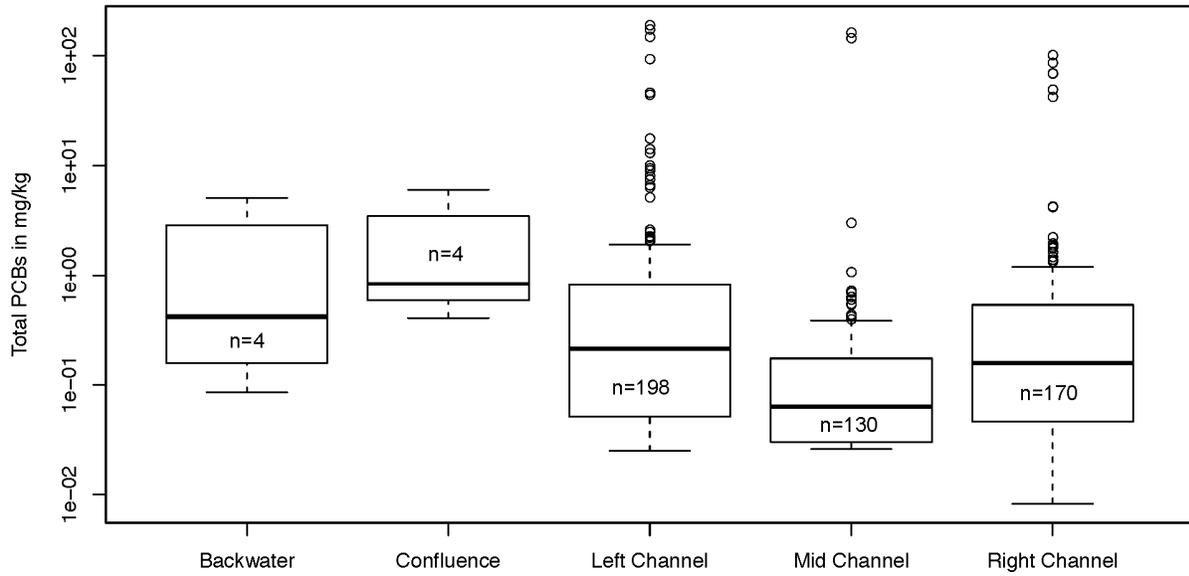


**NOTES:**

1. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>AREA 1 - SECTION 4          HOT SPOT AREA AND          CROWN VANTAGE SIDE CHANNEL</b>	
Prepared by/Date: JMP 03/17/14	
Checked by/Date: MTP 03/17/14	
Project Number: 3293131541	
<b>FIGURE 3-3</b>	

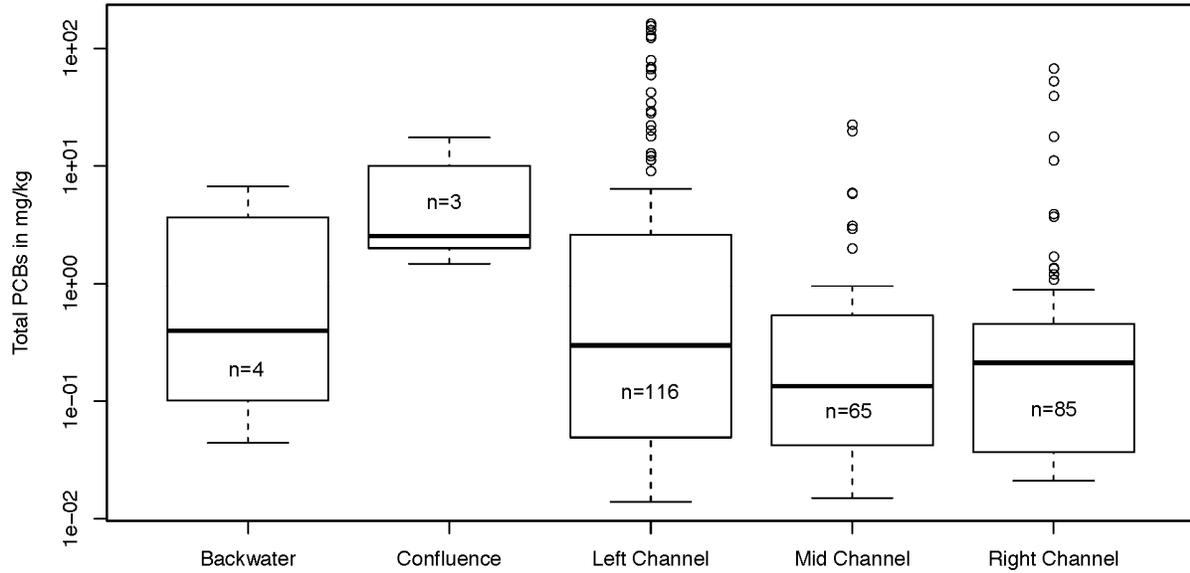
**Figure 3-4**  
**Box and Whisker Plots of Shallow (0-6") PCB Data by Transverse Location**



**Notes:**

1. Boxes extend from lower quartile value (25%) to upper quartile value (75%). The median value is shown as a bold line inside the box. Whiskers extend 1.5 times the inter-quartile range (i.e., box height) above and below the box. Whiskers do not appear equal length due to log scale.
2. Numbers inside each box represent the total number of data points in that geomorphic category.

**Figure 3-5**  
**Box and Whisker Plots of Deep (>6") PCB Data by Transverse Location**

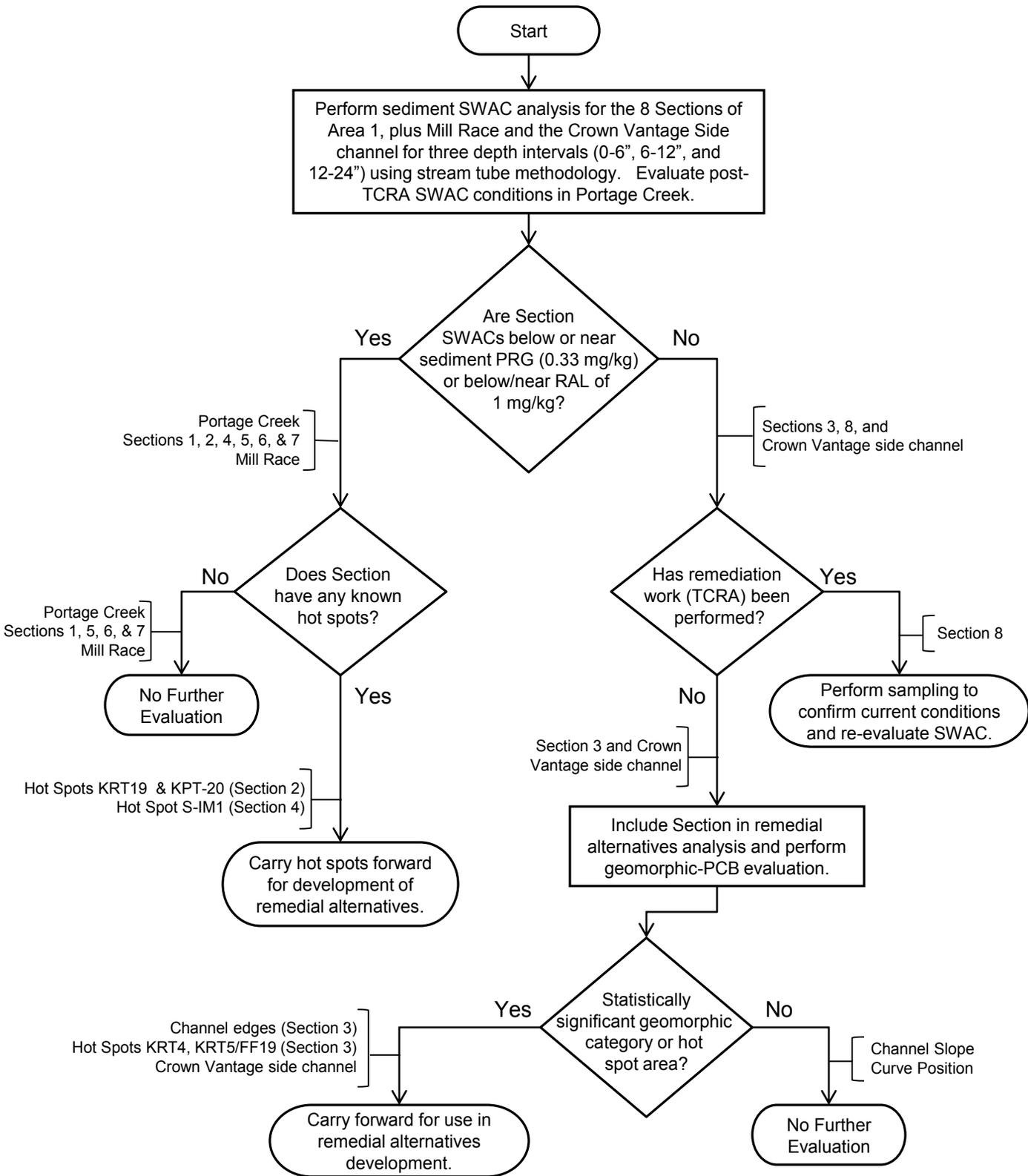


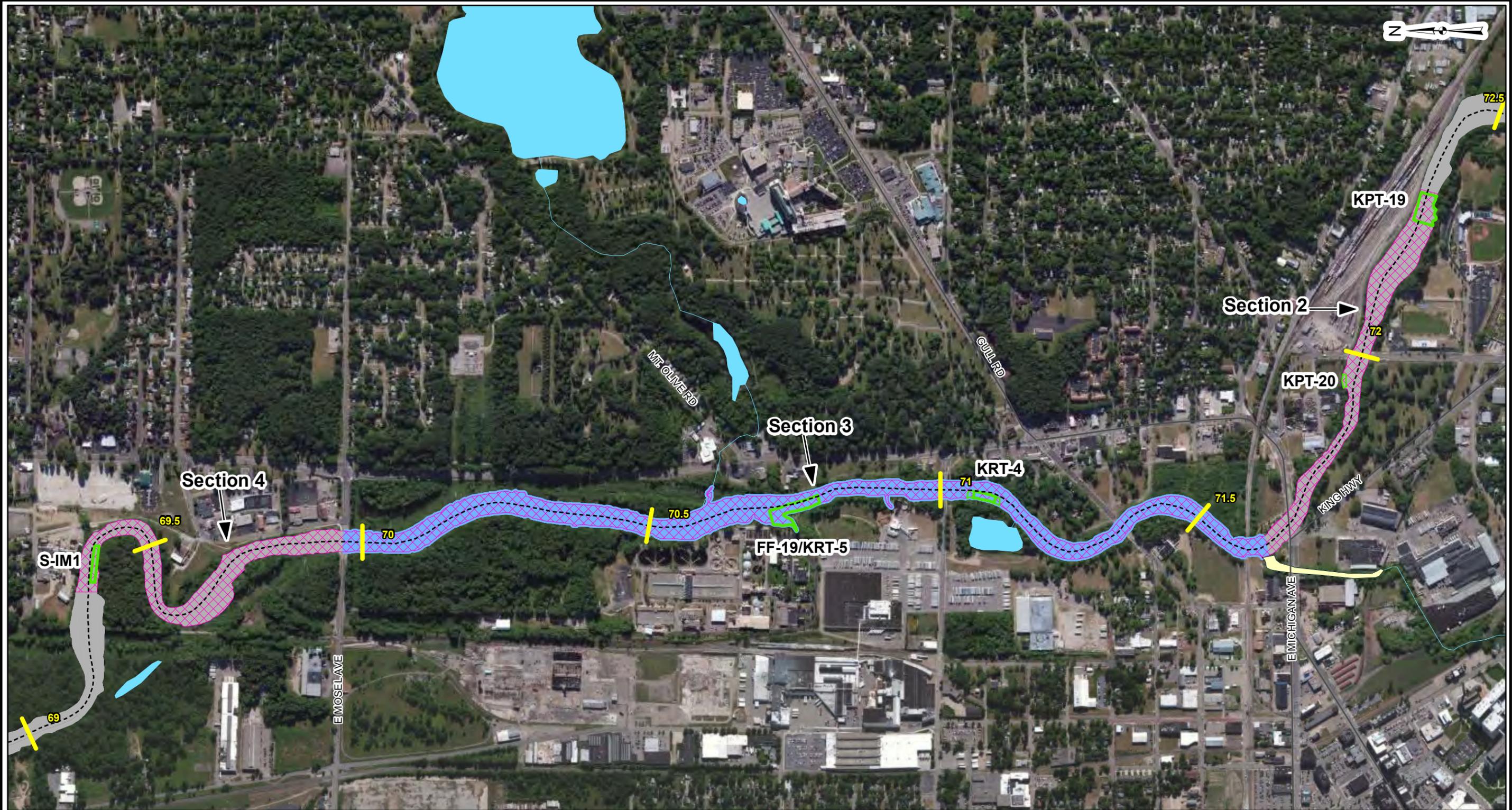
Notes:

1. Boxes extend from lower quartile value (25%) to upper quartile value (75%). The median value is shown as a bold line inside the box. Whiskers extend 1.5 times the inter-quartile range (i.e., box height) above and below the box. Whiskers do not appear equal length due to log scale.
2. Numbers inside each box represent the total number of data points in that geomorphic category.

**Figure 3-6**

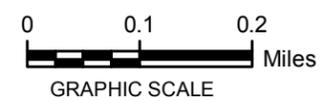
**Process Flow Diagram: Identification of Area 1 Sediment Remediation Areas**





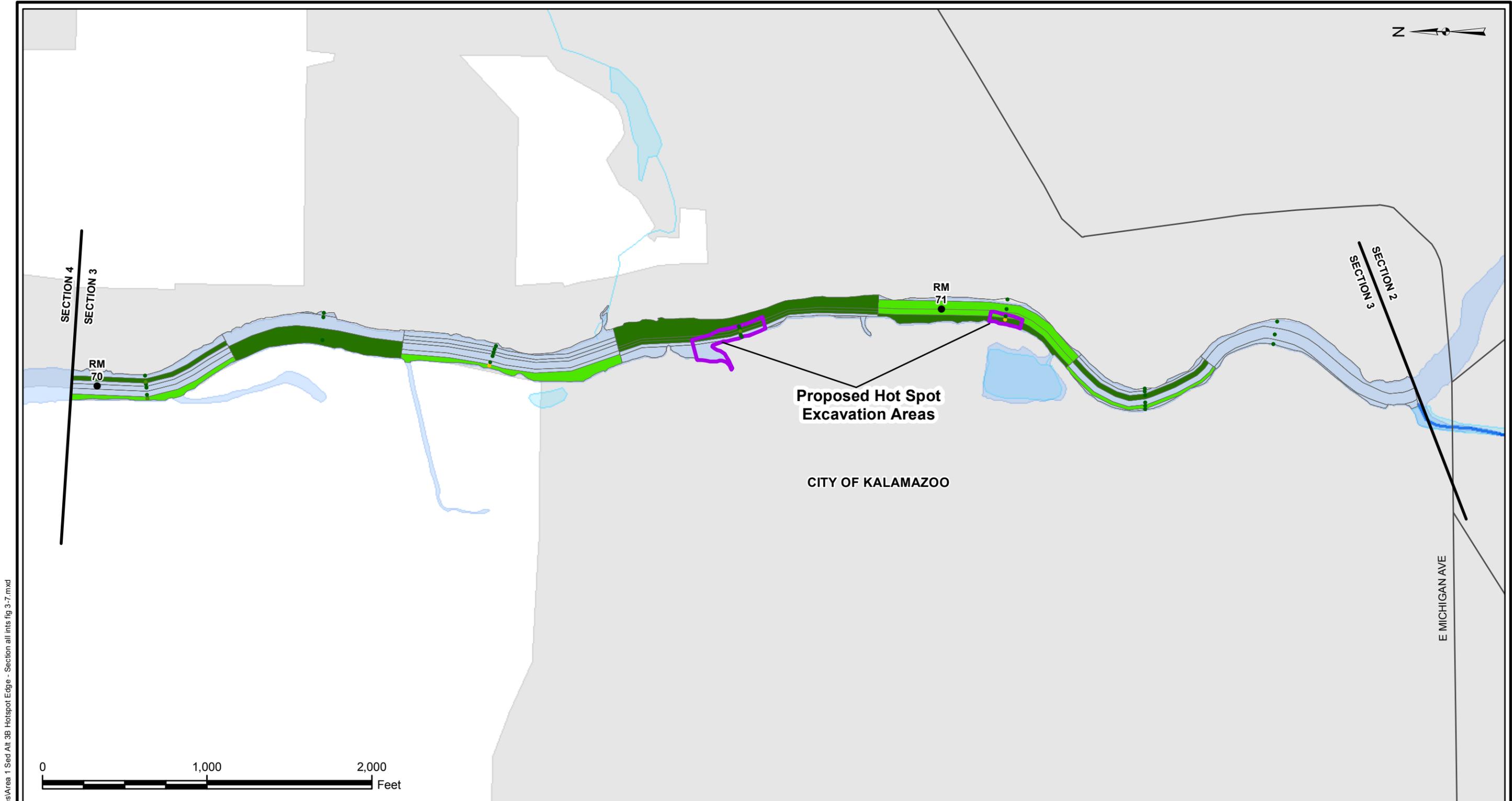
C:\Kalamazoo\mxd\Area 1\Report\_Figures\Area 1 Remedial Reach Fig 3-0.mxd 6/12/2014 9:21:29 AM

- LEGEND:**
- PROPOSED REMEDIATION AREA
  - PORTAGE CREEK TCRA AREA
  - REMEDIAL REACH/REMEDIAL DESIGN SAMPLING AREA
  - SECTION 3
  - SECTIONS 2 AND 4
  - WATER BODIES
  - RIVER MILE MARKER
  - RIVER CENTERLINE
  - ROAD



- NOTES:**
1. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
  2. ORIGINAL SOURCE OF BASEMAP: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –          MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>Remedial Reach          (RM69.3 to RM72.3)</b>	
Prepared by/Date: JMP 03/17/14 Checked by/Date: MTP 03/17/14 Project Number: 3293131541	<span style="font-weight: bold; font-size: 1.2em;">FIGURE 3-7</span>



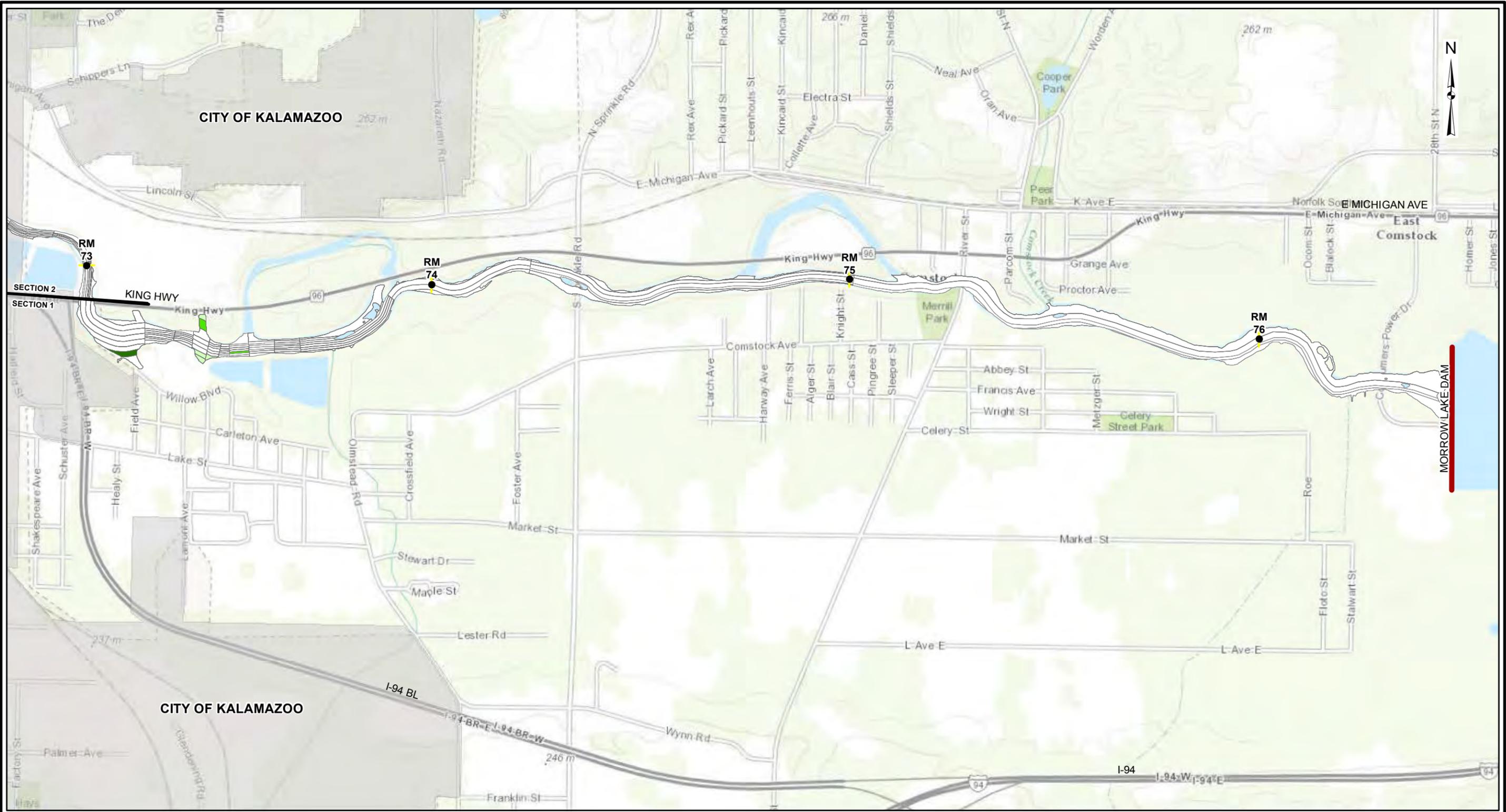
Path: G:\Kalamazoo\mxd\Area 1\Report Figures\Area 1 Sed Alt 3B Hotspot Edge - Section all ints fig 3-7.mxd

- LEGEND:**
- ROAD
  - WATER BODIES
  - PROPOSED HOT SPOT EXCAVATION AREAS
  - Proposed Excavation of Interval One (0" to 6")
  - Proposed Excavation Through Interval Two (0" to 12")
  - Proposed Excavation Through Interval Three (0" to 24")

- NOTES:**
1. BASEMAPPING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
  2. ORIGINAL SOURCE OF BASE MAP: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b> <b>SECTION 3 FIRST 3 INTERVALS (0-24")          SEDIMENT HOT SPOT AND EDGE          REMOVAL AREAS</b>	
Prepared by/Date: THP 07/12/13 Checked by/Date: MTP 07/13/13 Project Number: 3293131541	<span style="font-weight: bold; font-size: 1.2em;">FIGURE 3-8</span>

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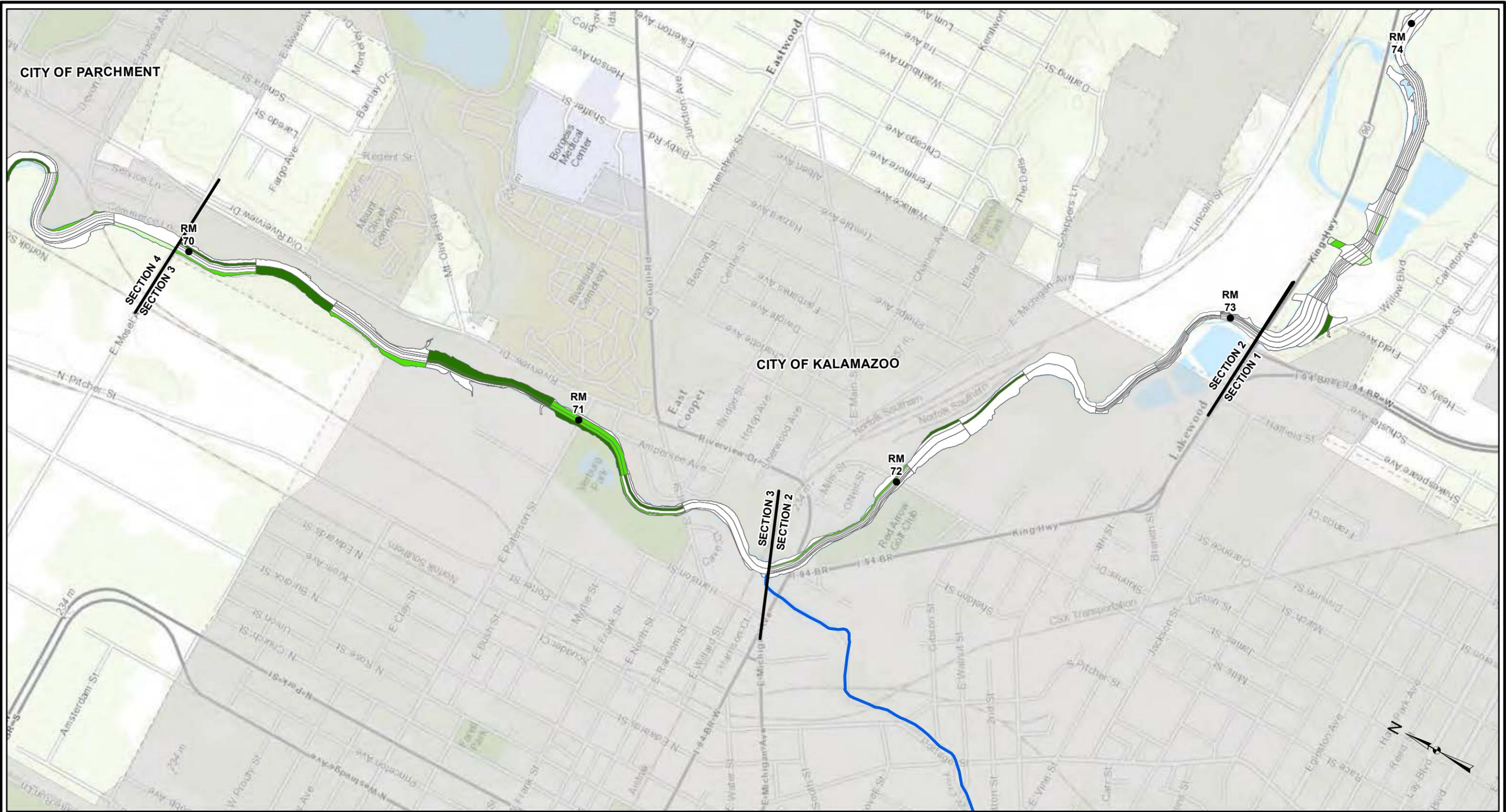
**Legend**

- RIVER MILE MARKER
- SECTION BREAKS
- AREA 1 STUDY AREA BOUNDARY
- Proposed Excavation of Interval One (0" to 6")
- Proposed Excavation Through Interval Two (0" to 12")
- Proposed Excavation Through Interval Three (0" to 24")



NOTES:  
1. BASEMAP SOURCE: ESRI TOPOGRAPHIC MAP

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –                  MORROW DAM TO FORMER PLAINWELL DAM</b> <b>SECTION 1 FIRST 3 INTERVALS (0-24")                  SEDIMENT REMOVAL OF STREAM                  TUBES &gt; 1MG/KG</b>	
Prepared by/Date: JMP 06/13/13 Checked by/Date: MTP 06/13/13 Project Number: 3293131541	 <b>FIGURE 3-9a</b>



**Legend**

- RIVER MILE MARKER
- SECTION BREAKS
- AREA 1 STUDY AREA BOUNDARY
- Proposed Excavation of Interval One (0" to 6")
- Proposed Excavation Through Interval Two (0" to 12")
- Proposed Excavation Through Interval Three (0" to 24")



NOTES:  
1. BASEMAP SOURCE: ESRI TOPOGRAPHIC MAP

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –                  MORROW DAM TO FORMER PLAINWELL DAM</b> <b>SECTIONS 2 &amp; 3 FIRST 3 INTERVALS (0-24")                  SEDIMENT REMOVAL OF STREAM                  TUBES &gt; 1MG/KG</b>	
Prepared by/Date: JMP 06/13/13 Checked by/Date: MTP 06/13/13 Project Number: 3293131541	 <b>FIGURE 3-9b</b>

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**Legend**

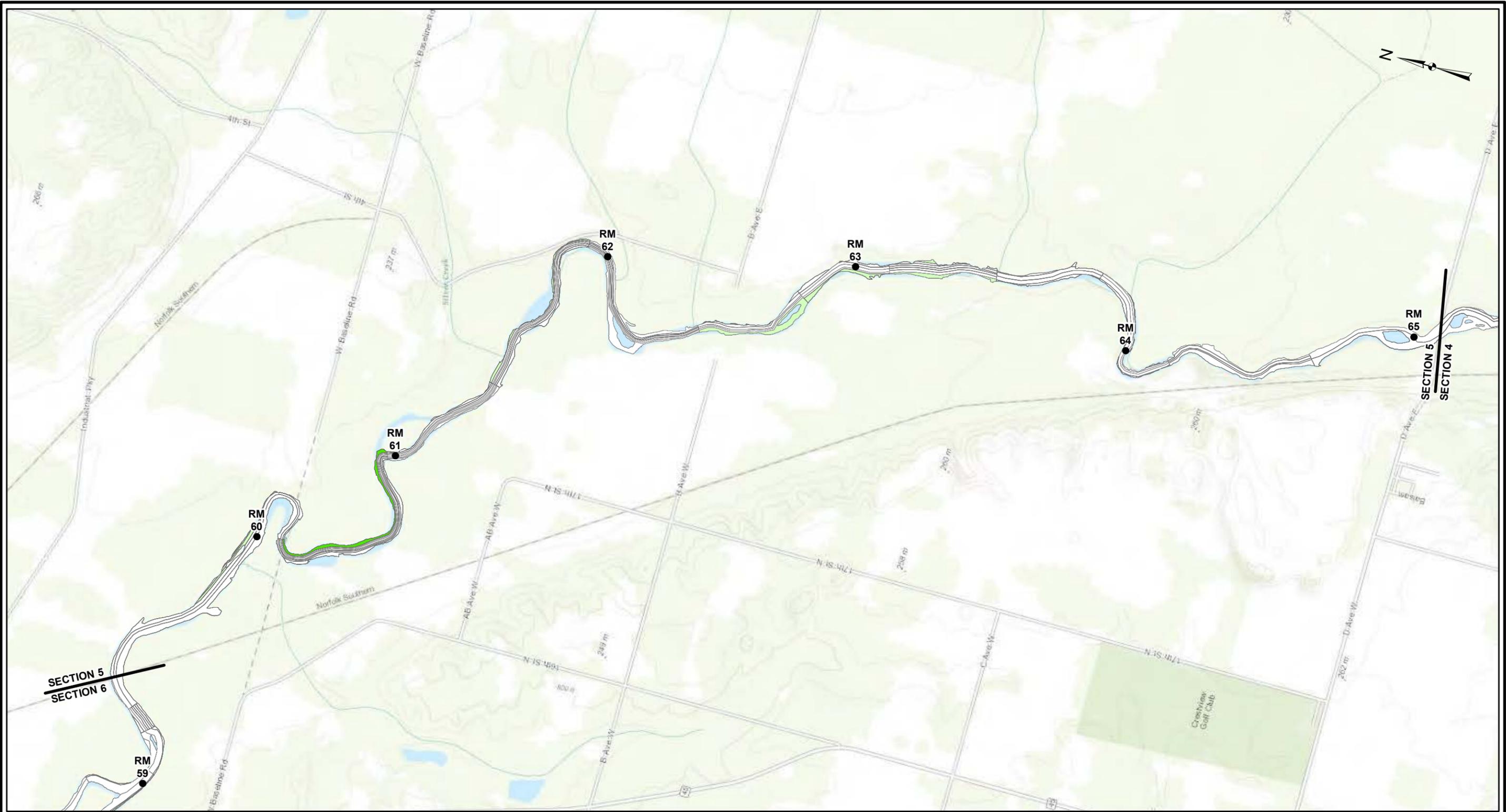
- RIVER MILE MARKER
- SECTION BREAKS
- AREA 1 STUDY AREA BOUNDARY
- Proposed Excavation of Interval One (0" to 6")
- Proposed Excavation Through Interval Two (0" to 12")
- Proposed Excavation Through Interval Three (0" to 24")



NOTES:  
1. BASEMAP SOURCE: ESRI TOPOGRAPHIC MAP

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -                  MORROW DAM TO FORMER PLAINWELL DAM</b> <b>SECTION 4 FIRST 3 INTERVALS (0-24")                  SEDIMENT REMOVAL OF STREAM                  TUBES &gt; 1 MG/KG</b>	
Prepared by/Date: JMP 06/13/13 Checked by/Date: MTP 06/13/13 Project Number: 3293131541	 <b>FIGURE 3-9c</b>

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**Legend**

- RIVER MILE MARKER
- SECTION BREAKS
- AREA 1 STUDY AREA BOUNDARY

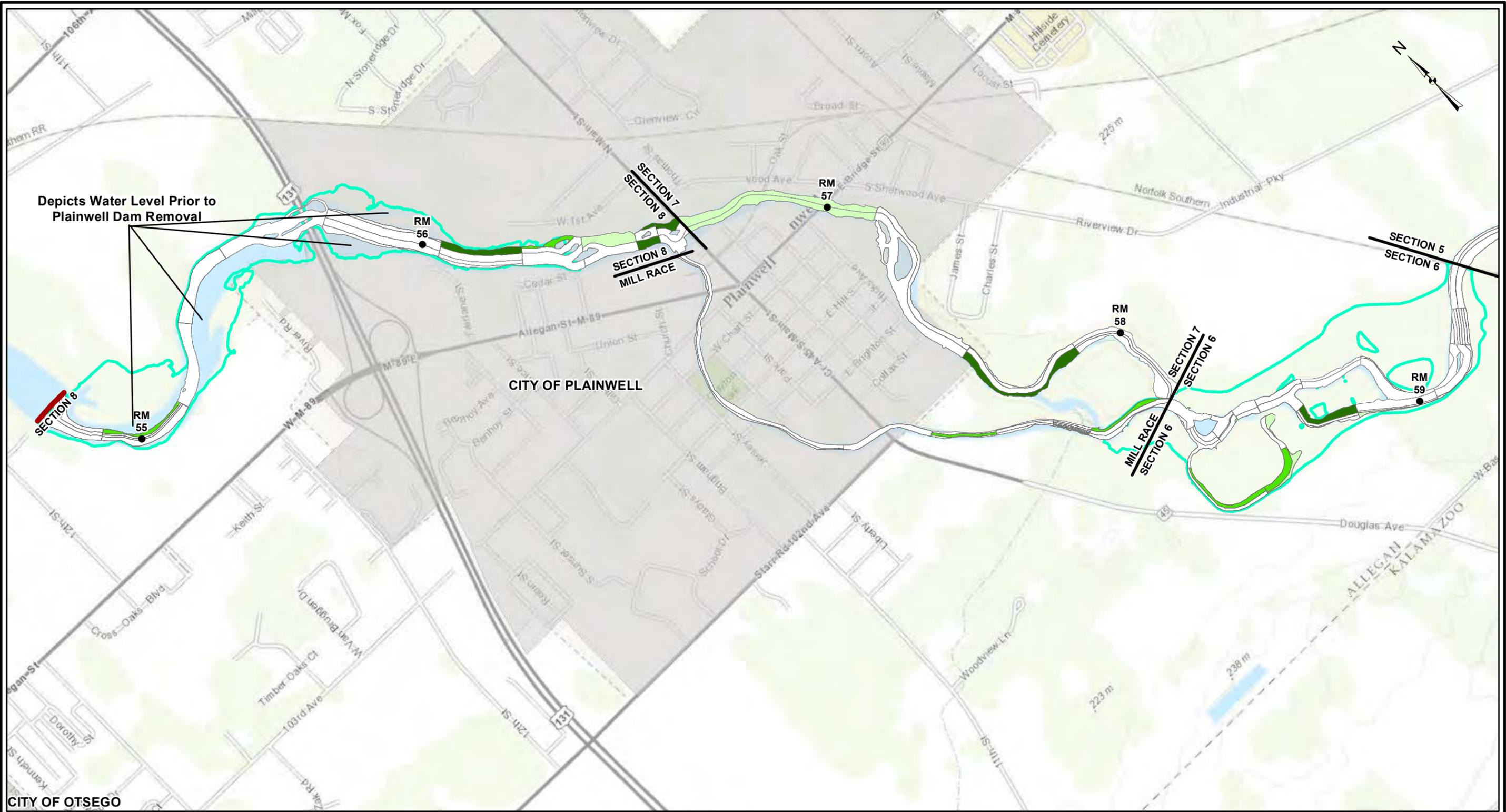
- Proposed Excavation of Interval One (0" to 6")
- Proposed Excavation Through Interval Two (0" to 12")
- Proposed Excavation Through Interval Three (0" to 24")



NOTES:  
1. BASEMAP SOURCE: ESRI TOPOGRAPHIC MAP

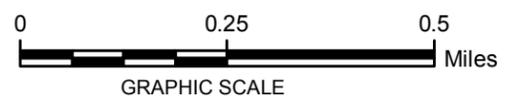
GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>SECTION 5 FIRST 3 INTERVALS (0-24")          SEDIMENT REMOVAL OF STREAM          TUBES &gt; 1MG/KG</b>	
Prepared by/Date: JMP 06/13/13 Checked by/Date: MTP 06/13/13 Project Number: 3293131541	<span style="font-weight: bold; font-size: 1.2em;">FIGURE 3-9d</span>

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- Legend**
- RIVER MILE MARKER
  - SECTION BREAKS
  - AREA 1 STUDY AREA BOUNDARY
  - TCRA STUDY AREAS

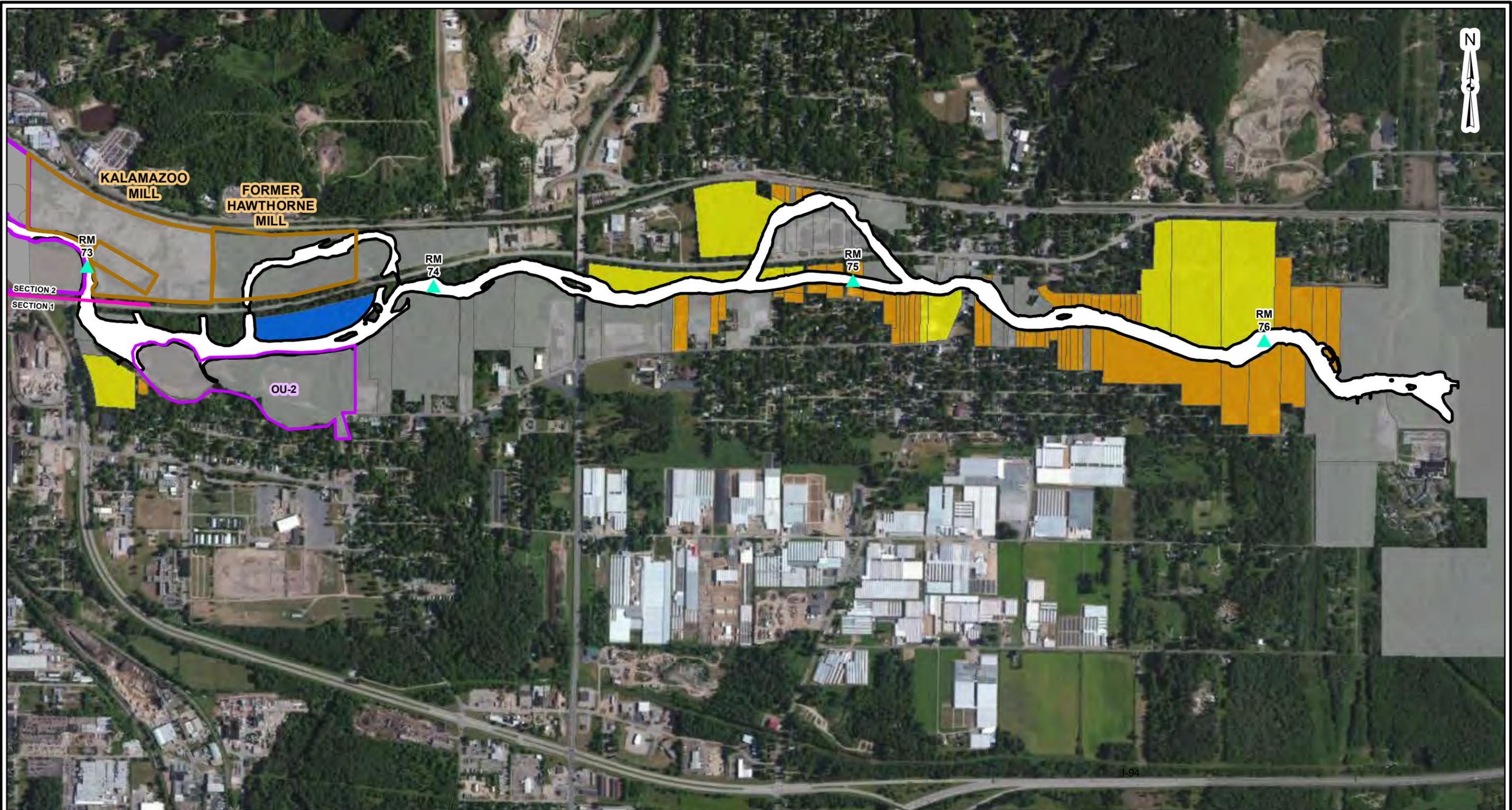
- Proposed Excavation of Interval One (0" to 6")
- Proposed Excavation Through Interval Two (0" to 12")
- Proposed Excavation Through Interval Three (0" to 24")



NOTES:  
1. BASEMAP SOURCE: ESRI TOPOGRAPHIC MAP

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b> <b>SECTIONS 6, 7, 8, AND MILL RACE</b> <b>FIRST 3 INTERVALS (0-24") SEDIMENT</b> <b>REMOVAL OF STREAM TUBES &gt; 1MG/KG</b>	
Prepared by/Date: JMP 06/13/13 Checked by/Date: MTP 06/13/13 Project Number: 3293131541	
FIGURE <b>3-9e</b>	

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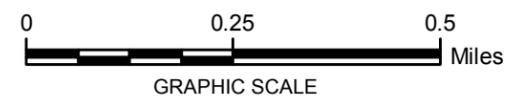
**LEGEND:**

-  RIVER MILE MARKER
-  FLOODPLAIN SOIL SAMPLE
-  SECTION BREAKS
-  OPERABLE UNIT
-  KALAMAZOO RIVER
-  FORMER MILL

**PARCEL CLASSIFICATION**

-  AGRICULTURAL PROPERTY
-  RESIDENTIAL PROPERTY
-  COMMERCIAL/INDUSTRIAL PROPERTY
-  RECREATION/SCHOOL/CHURCH/EXEMPT PROPERTY
-  STATE PROPERTY

NOTES:  
1. IMAGERY SOURCE: ESRI WORLD IMAGERY

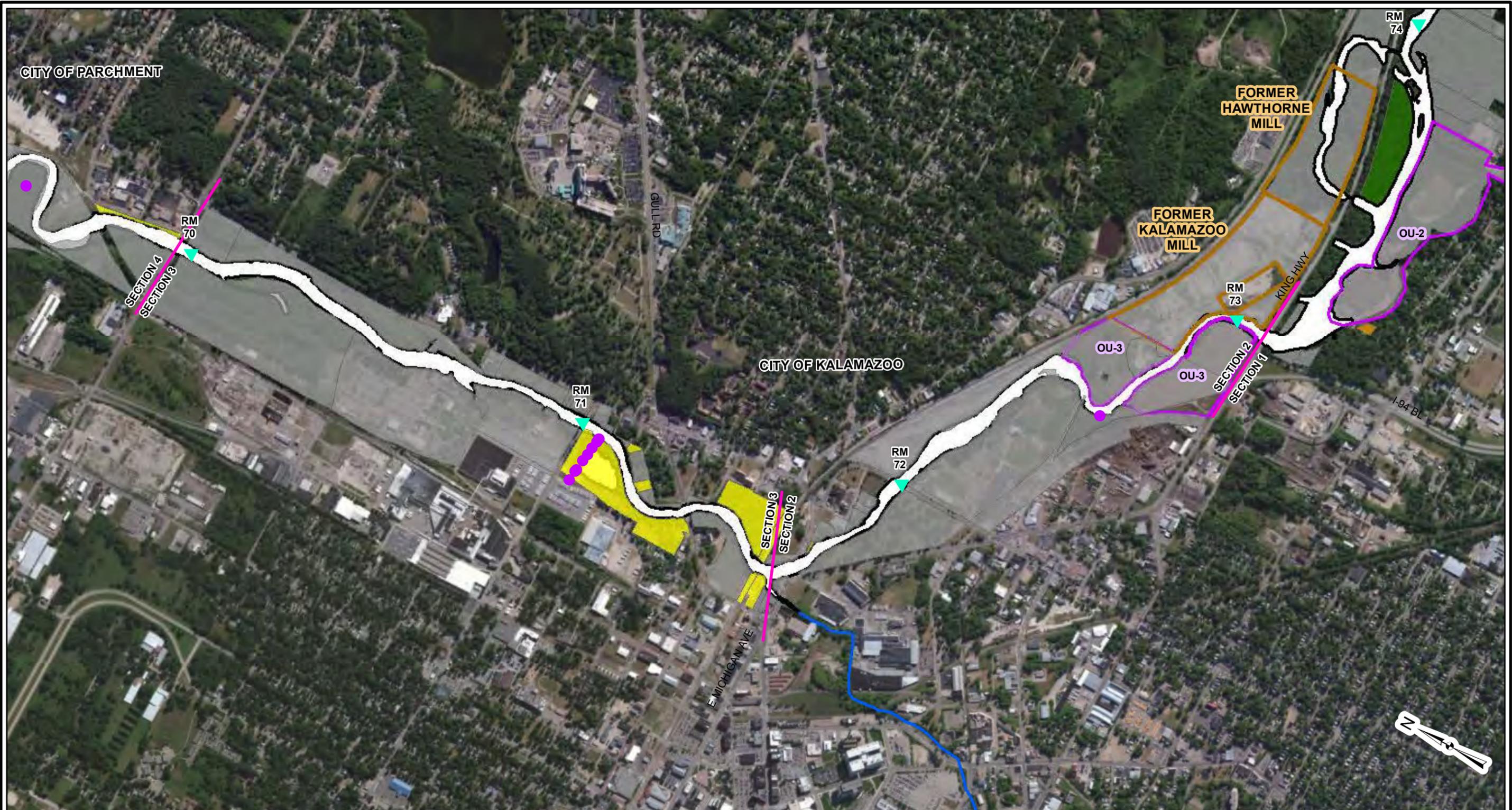


GEORGIA-PACIFIC LLC  
 ALLIED PAPER, INC./PORTAGE CREEK/  
 KALAMAZOO RIVER SUPERFUND SITE  
**AREA 1 FEASIBILITY STUDY REPORT -  
 MORROW DAM TO FORMER PLAINWELL DAM**

**SECTION 1 RESIDENTIAL PROPERTIES  
 ABUTTING KALAMAZOO RIVER IN AREA 1**

Prepared by/Date: CLS 05/05/14 Checked by/Date: MTP 05/05/14 Project Number: 3293131541	 <span style="font-weight: bold; font-size: small;">FIGURE 3-10a</span>
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Path: G:\Kalamazoo\mxds\Area 1\Fp Assessment\Area 1 - Sections 2 and 3 - Floodplain Residential.mxd



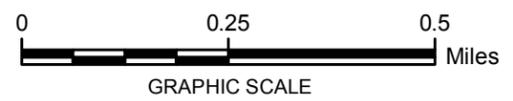
**LEGEND:**

- RIVER MILE MARKER
- FLOODPLAIN SOIL SAMPLE
- SECTION BREAKS
- OPERABLE UNIT
- KALAMAZOO RIVER
- FORMER MILL

**PARCEL CLASSIFICATION**

- AGRICULTURAL PROPERTY
- RESIDENTIAL PROPERTY
- COMMERCIAL/INDUSTRIAL PROPERTY
- RECREATION/SCHOOL/CHURCH/EXEMPT PROPERTY
- STATE PROPERTY

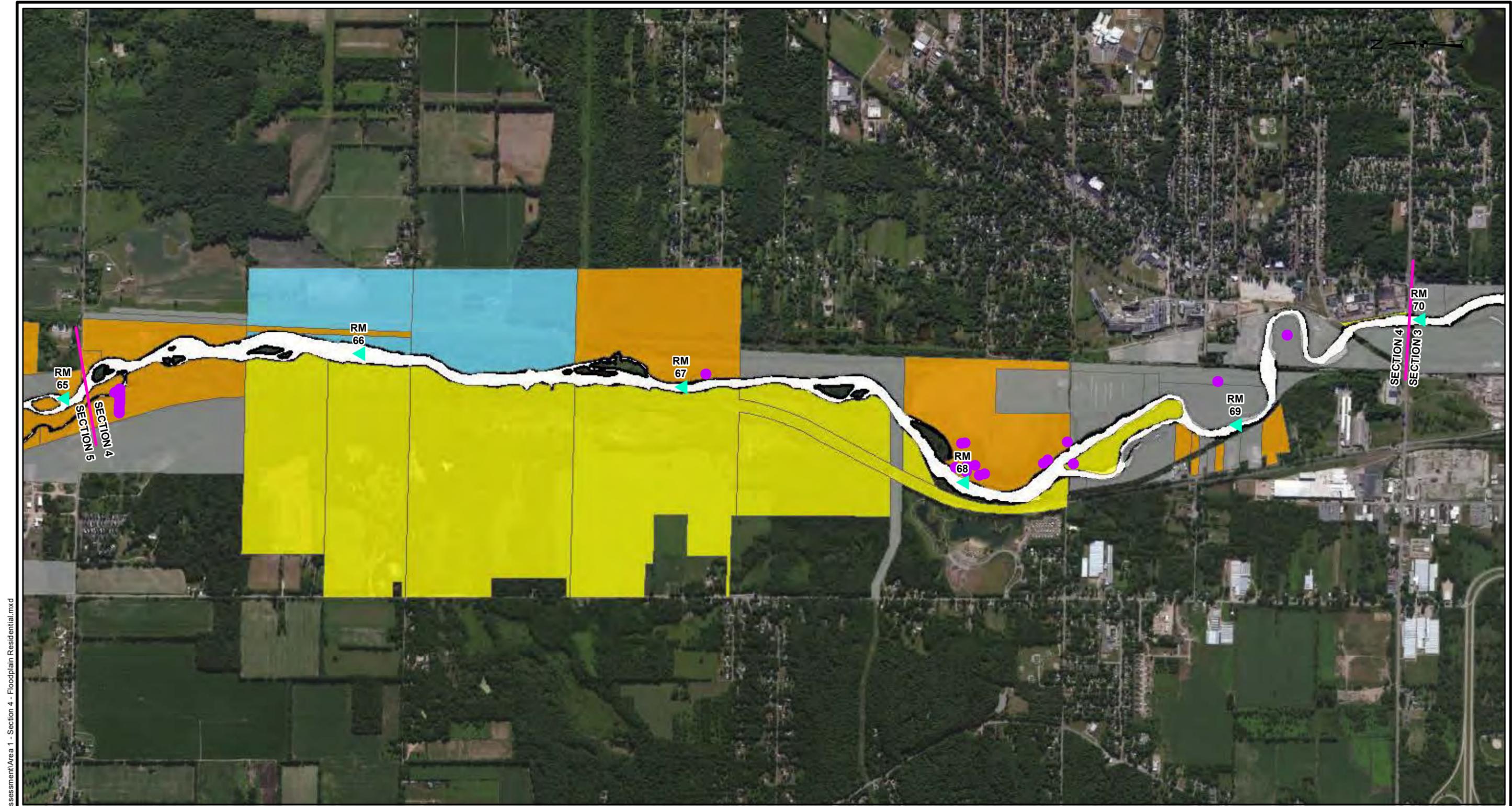
NOTES:  
1. IMAGERY SOURCE: ESRI WORLD IMAGERY



GEORGIA-PACIFIC LLC  
 ALLIED PAPER, INC./PORTAGE CREEK/  
 KALAMAZOO RIVER SUPERFUND SITE  
**AREA 1 FEASIBILITY STUDY REPORT -  
 MORROW DAM TO FORMER PLAINWELL DAM**

**SECTIONS 2 AND 3 RESIDENTIAL PROPERTIES  
 ABUTTING KALAMAZOO RIVER IN AREA 1**

Prepared by/Date: CLS 05/05/14 Checked by/Date: MTP 05/05/14 Project Number: 3293131541	
FIGURE <b>3-10b</b>	



Path: G:\Kalamazoo\mxd\Area 1 - Section 4 - Floodplain Residential.mxd

**LEGEND:**

-  RIVER MILE MARKER
-  FLOODPLAIN SOIL SAMPLE
-  SECTION BREAKS
-  OPERABLE UNIT
-  KALAMAZOO RIVER
-  FORMER MILL

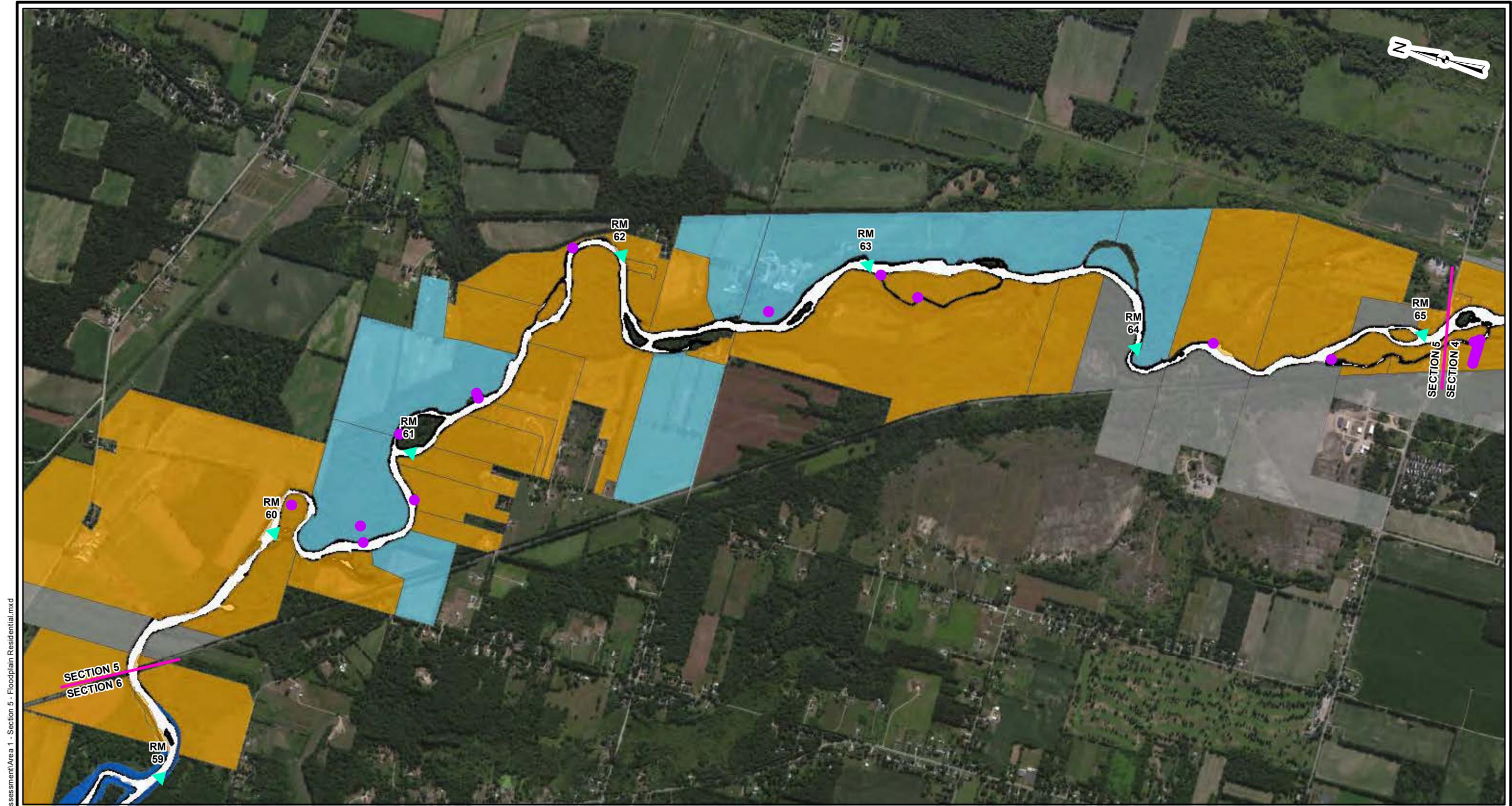
**PARCEL CLASSIFICATION**

-  AGRICULTURAL PROPERTY
-  RESIDENTIAL PROPERTY
-  COMMERCIAL/INDUSTRIAL PROPERTY
-  RECREATION/SCHOOL/CHURCH/EXEMPT PROPERTY
-  STATE PROPERTY

NOTES:  
1. IMAGERY SOURCE: ESRI WORLD IMAGERY



GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>SECTION 4 RESIDENTIAL PROPERTIES          ABUTTING KALAMAZOO RIVER IN AREA 1</b>	
Prepared by/Date: CLS 05/05/14	
Checked by/Date: MTP 05/05/14	
Project Number: 3293131541	
<b>FIGURE 3-10c</b>	



Path: G:\Kalamazoo\mxd\Area 1 - Section 5 - Floodplain Residential.mxd

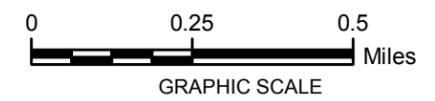
**LEGEND:**

- ▲ RIVER MILE MARKER
- FLOODPLAIN SOIL SAMPLE
- SECTION BREAKS
- OPERABLE UNIT
- KALAMAZOO RIVER
- FORMER MILL

**PARCEL CLASSIFICATION**

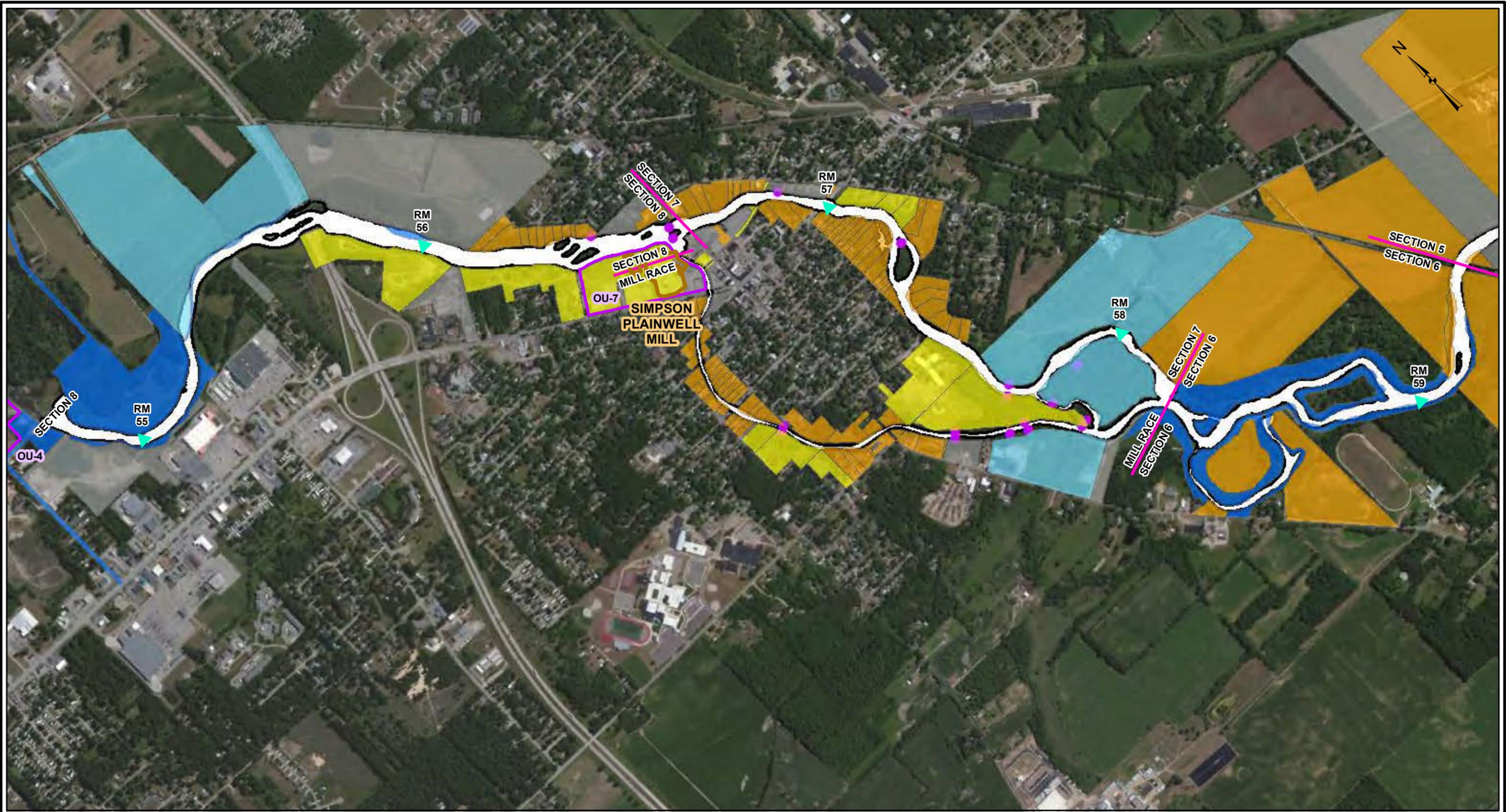
- AGRICULTURAL PROPERTY
- RESIDENTIAL PROPERTY
- COMMERCIAL/INDUSTRIAL PROPERTY
- RECREATION/SCHOOL/CHURCH/EXEMPT PROPERTY
- STATE PROPERTY

NOTES:  
1. IMAGERY SOURCE: ESRI WORLD IMAGERY



GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -          MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>SECTION 5 RESIDENTIAL PROPERTIES          ABUTTING KALAMAZOO RIVER IN AREA 1</b>	
Prepared by/Date: CLS 05/05/14 Checked by/Date: MTP 05/05/14 Project Number: 3293131541	<span style="font-weight: bold; font-size: 1.2em;">FIGURE 3-10d</span>

Path: G:\Kalamazoo\mxd\Area 1\Area 1 Fp Assessment\Sections 6, 7, 8 and Mill Race - Floodplain Residential.mxd



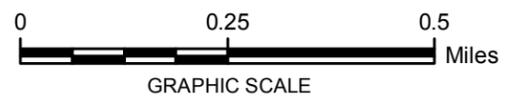
**LEGEND:**

- ▲ RIVER MILE MARKER
- FLOODPLAIN SOIL SAMPLE
- SECTION BREAKS
- OPERABLE UNIT
- KALAMAZOO RIVER
- FORMER MILL

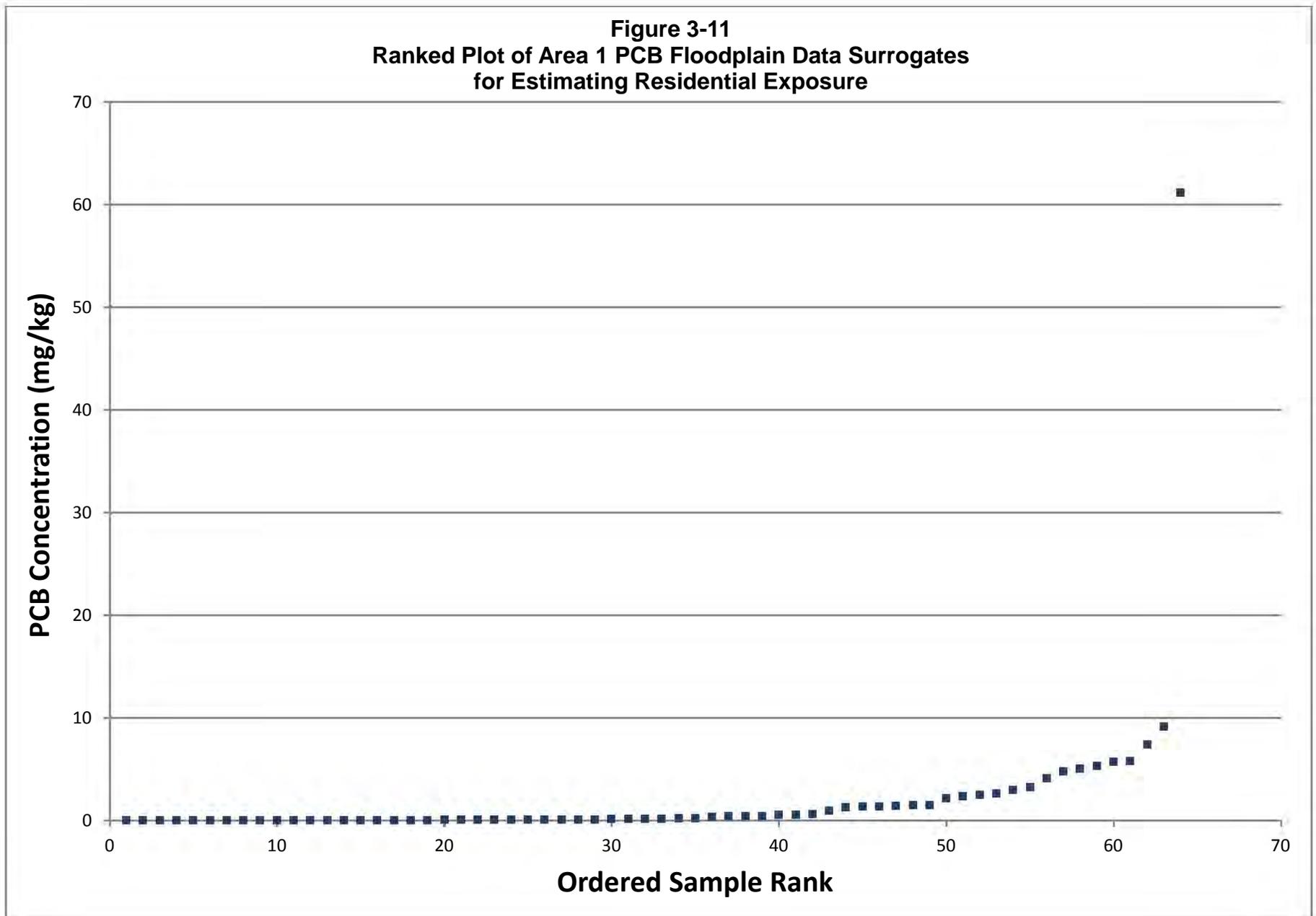
**PARCEL CLASSIFICATION**

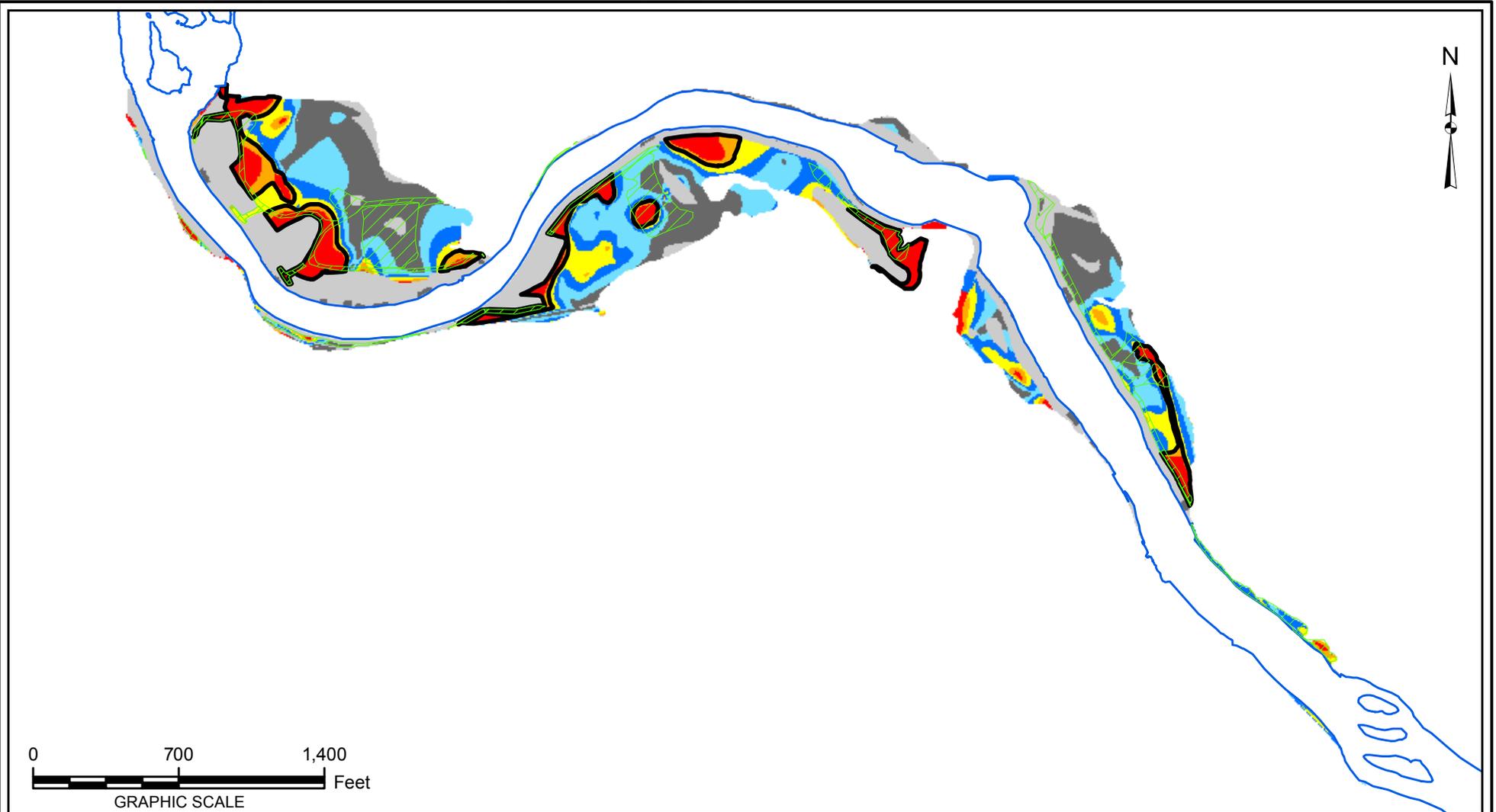
- AGRICULTURAL PROPERTY
- RESIDENTIAL PROPERTY
- COMMERCIAL/INDUSTRIAL PROPERTY
- RECREATION/SCHOOL/CHURCH/EXEMPT PROPERTY
- STATE PROPERTY

NOTES:  
1. IMAGERY SOURCE: ESRI WORLD IMAGERY



GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT –                  MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>SECTIONS 6, 7, 8 AND MILL RACE                  RESIDENTIAL PROPERTIES                  ABUTTING KALAMAZOO RIVER IN AREA 1</b>	
Prepared by/Date: CLS 05/05/14 Checked by/Date: MTP 05/05/14 Project Number: 3293131541	<span style="font-weight: bold; font-size: 1.2em;">FIGURE 3-10e</span>





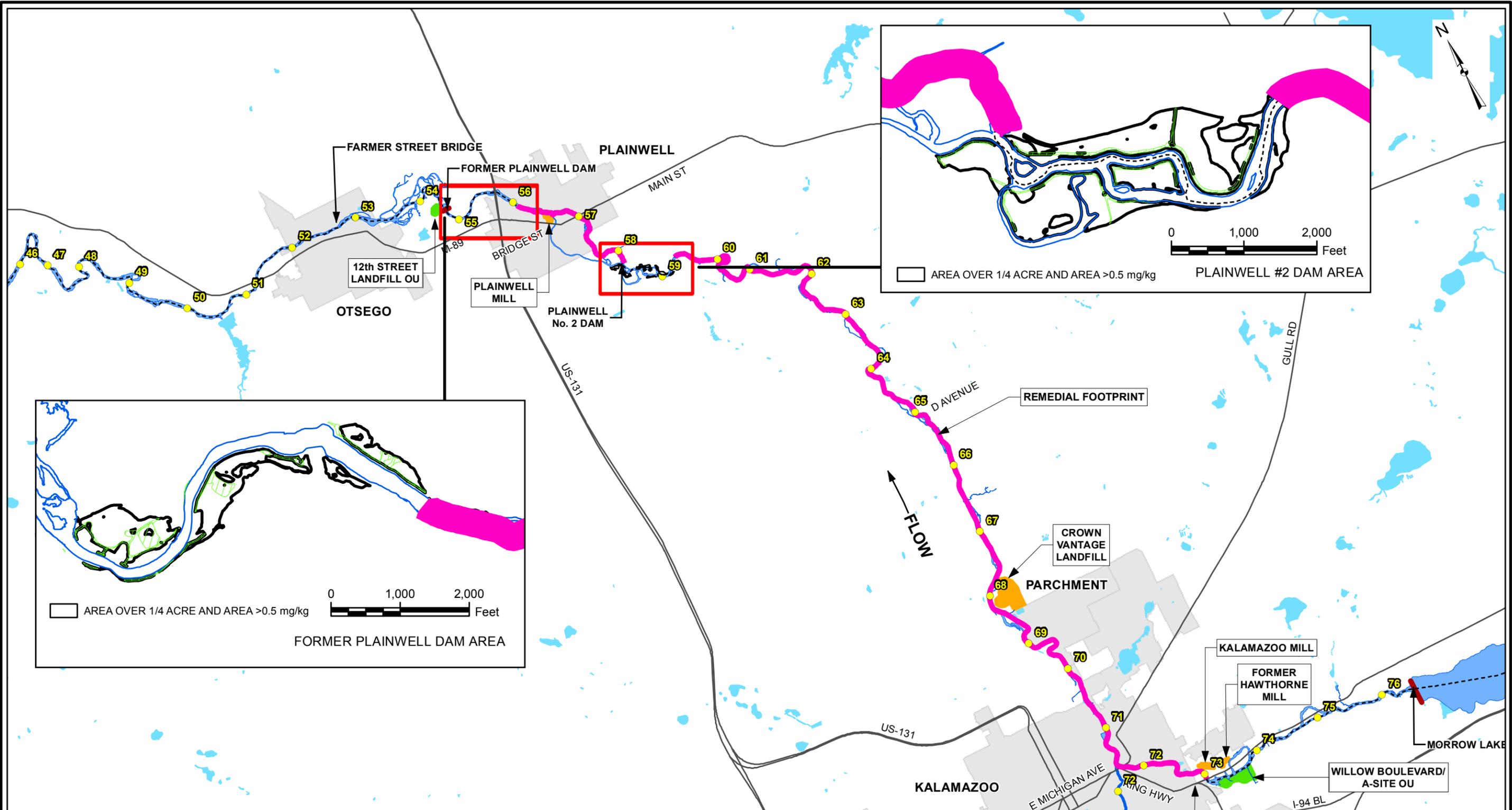
**LEGEND:**

SOIL PCB (MG/KG):	AREA OVER 1/4 ACRE AND AREA >20 mg/kg
<math>< 1</math>	TCRA ACCESS ROAD AND STAGING AREA
<math>> 1 \text{ and } \le 5</math>	KALAMAZOO RIVER
<math>> 5 \text{ and } \le 10</math>	
<math>> 10 \text{ and } \le 15</math>	
<math>> 15 \text{ and } \le 20</math>	
<math>> 20 \text{ and } \le 25</math>	
<math>> 25</math>	

**NOTES:**

1. RAL: REMEDIAL ACTION LEVEL (CONTIGUOUS AREAS OF OVER 1/4 ACRE GREATER THAN 20 MG/KG.)
2. INTERPOLATION PERFORMED USING NATURAL NEIGHBOR TECHNIQUE AND SURFACE SAMPLES.
3. REMEDIATION ACCOUNTED FOR BY REPLACING APPROPRIATE AREAS WITH EITHER CONFIRMATION GRID CONCENTRATIONS OR BACKFILL CONCENTRATION ESTIMATES (0.078 MG/KG).
4. AREA OF FORMER IMPOUNDMENT BOUNDARY IS APPROXIMATELY 57 ACRES.
5. ORIGINAL SOURCE OF FIGURE: ARCADIS MODIFIED WITH PERMISSION

GEORGIA-PACIFIC LLC ALLIED PAPER, INC./PORTAGE CREEK/ KALAMAZOO RIVER SUPERFUND SITE <b>AREA 1 FEASIBILITY STUDY REPORT -                  MORROW DAM TO FORMER PLAINWELL DAM</b>	
<b>FORMER PLAINWELL IMPOUNDMENT                  FLOODPLAIN SOIL AREAS                  EXCEEDING AN RAL OF 20 MG/KG PCB</b>	
Prepared by/Date: JMP 07/01/13	
Checked by/Date: MTP 07/01/13	
Project Number: 3293131541	
<b>FIGURE                  3-12</b>	



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**LEGEND:**

- RIVER MILE MARKER
- ROAD
- KALAMAZOO RIVER
- WATER BODIES
- OPERABLE UNIT
- ADDITIONAL AREA OF INTEREST
- INCORPORATED AREA
- FLOODPLAIN REMEDIATION SPAN OUTSIDE THE FORMER TCRA STUDY AREAS (See Note 3)



**NOTES:**

1. BASEMAPMING PROVIDED BY THE MICHIGAN CENTER FOR GEOGRAPHIC INFORMATION.
2. ORIGINAL SOURCE OF FIGURE: ARCADIS MODIFIED WITH PERMISSION
3. INSETS SHOW THE REMEDIAL FOOTPRINT AT AN RAL OF 0.5 MG/KG PCB IN THE TCRA STUDY AREAS BASED ON EXISTING DATA (SEE APPENDIX G). FOR THE REMAINDER OF AREA 1 DOWNSTREAM OF THE FORMER MILL SITES (THE HIGHLIGHTED SPAN), THE REMEDIAL FOOTPRINT IS ASSUMED TO EXTEND 200 FEET ON EACH SIDE OF THE RIVER

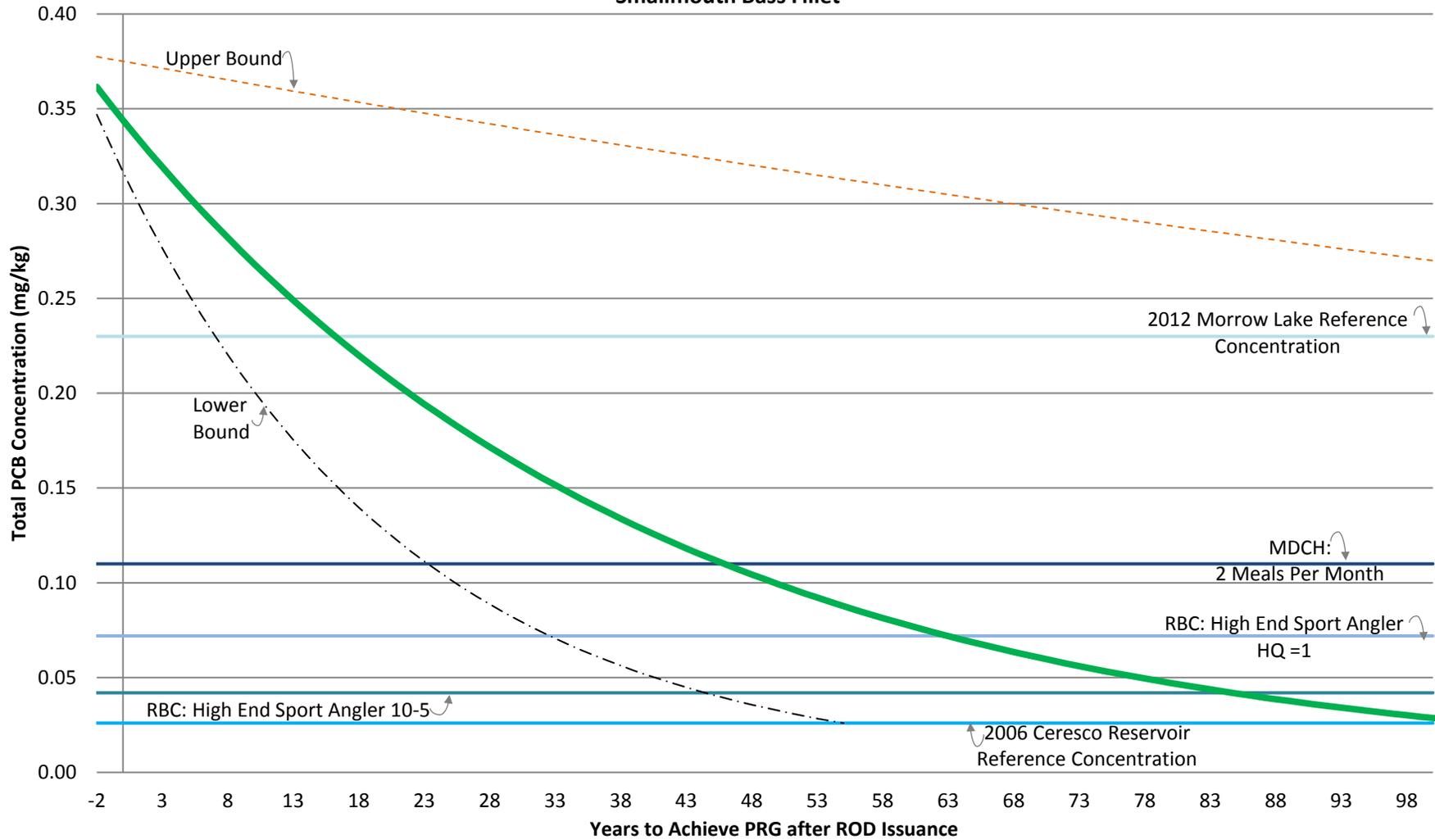
GEORGIA-PACIFIC LLC  
 ALLIED PAPER, INC./PORTAGE CREEK/  
 KALAMAZOO RIVER SUPERFUND SITE  
**AREA 1 FEASIBILITY STUDY REPORT –  
 MORROW DAM TO FORMER PLAINWELL DAM**

**AREA 1 FLOODPLAIN SOIL AREAS  
 EXCEEDING AN RAL OF 0.5 MG/KG PCB**

Prepared by/Date: JMP 06/13/13	
Checked by/Date: MTP 06/13/13	
Project Number: 3293131541	

FIGURE  
3-13

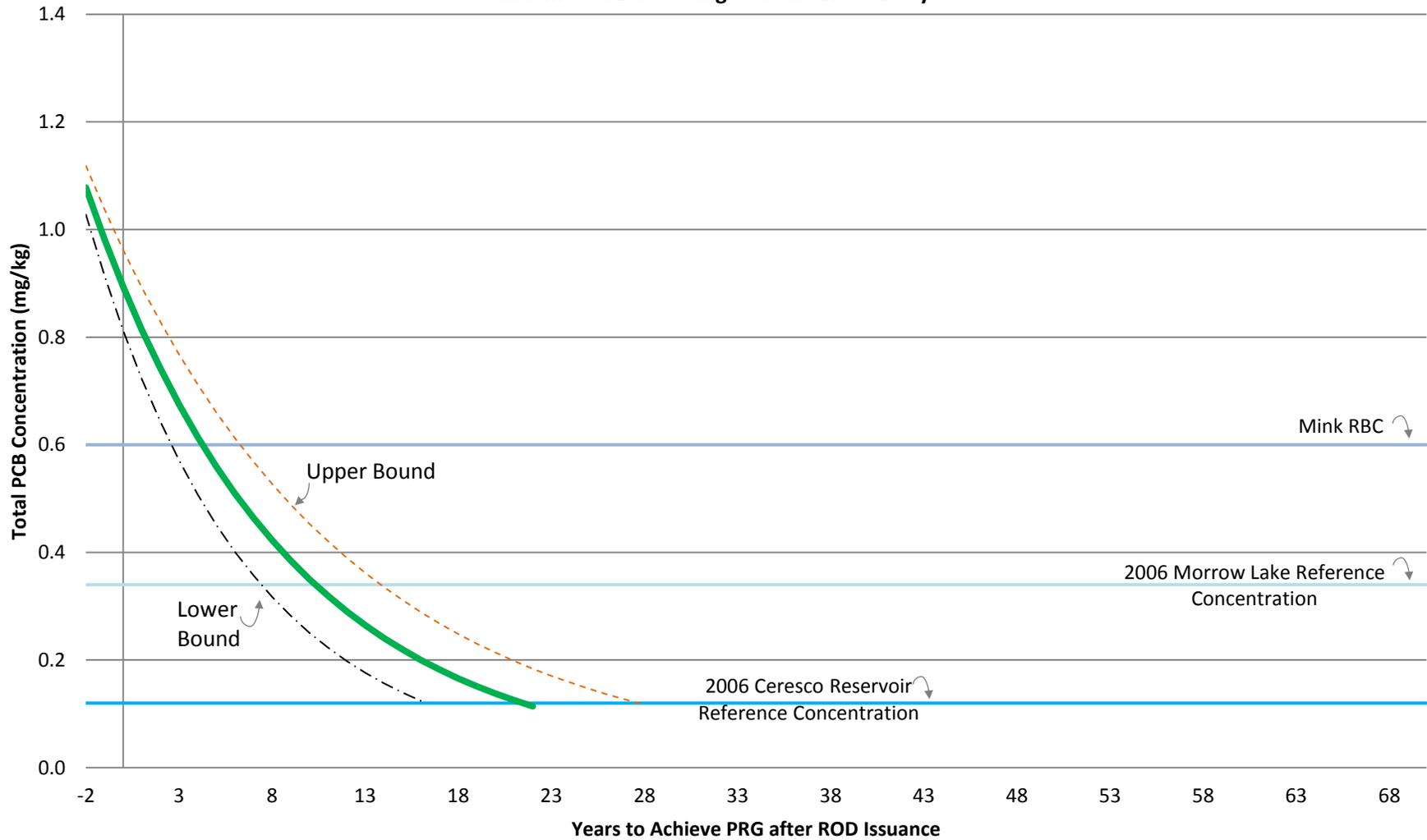
**Figure 4-1a**  
**Fish Tissue Projections for S-2:**  
**Smallmouth Bass Fillet**



2012 Morrow Lake Reference Concentration = 0.23 mg/kg  
 MDCH: 2 Meals Per Month = 0.11 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (HQ = 1) = 0.072 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-4</sup>) = 0.42 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-5</sup>) = 0.042 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.026 mg/kg  
 Refer to Table I-1.1 for definition of segments

----- Upper Bound S-2: (MNR)  
 ————— S-2: (MNR)  
 - · - · - Lower Bound S-2: (MNR)

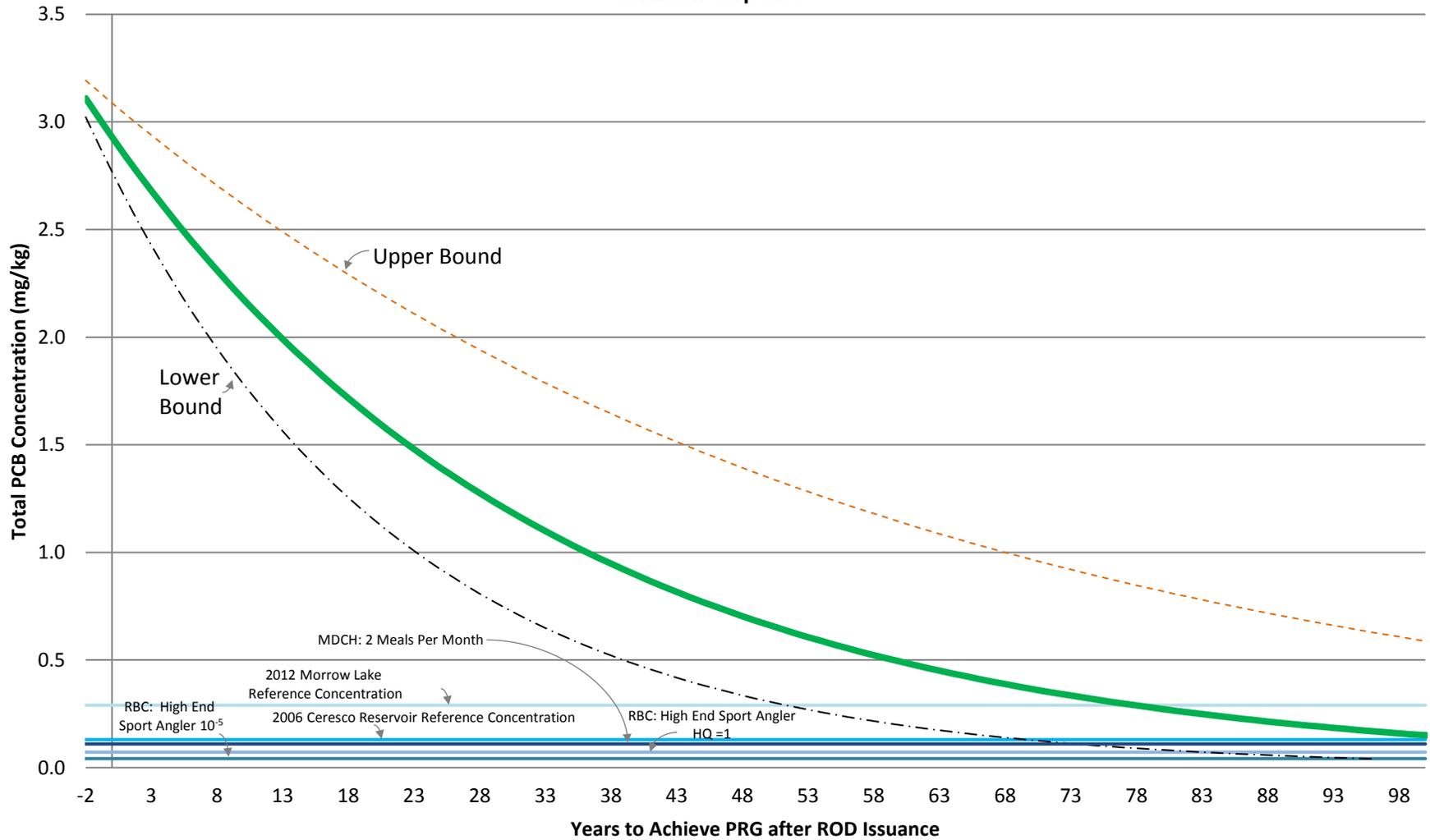
**Figure 4-1b**  
**Fish Tissue Projections for S-2:**  
**Smallmouth Bass Young of Year Whole Body**



Mink RBC = 0.60 mg/kg  
 2006 Morrow Lake Reference Concentration = 0.34 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.12 mg/kg  
 Refer to Table I-2.1 for definition of segments

--- Upper Bound S-2: (MNR)  
 — S-2: (MNR)  
 - · - · Lower Bound S-2: (MNR)

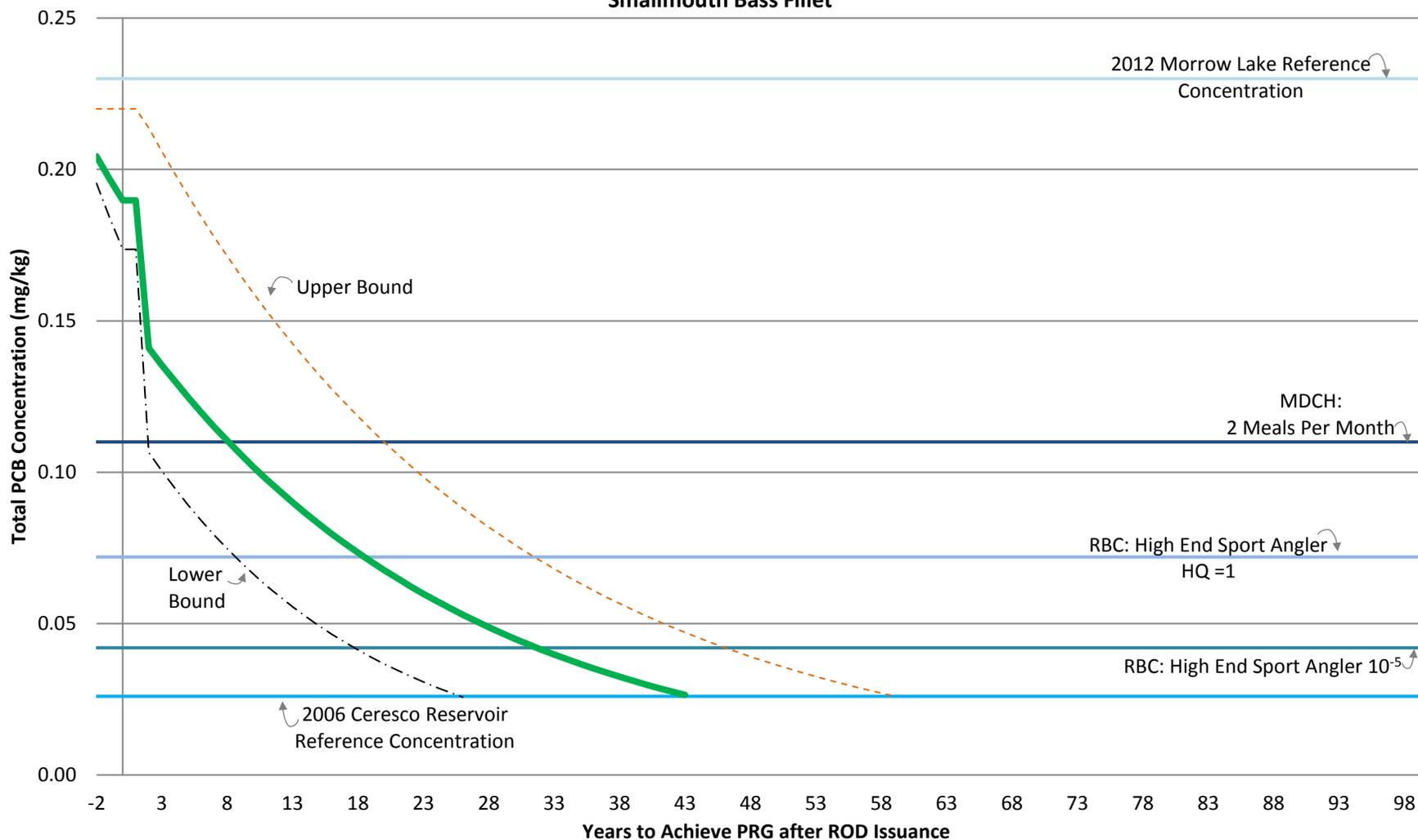
**Figure 4-1c**  
**Fish Tissue Projections for S-2:**  
**Common Carp Fillet**



2012 Morrow Lake Reference Concentration = 0.29 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.13 mg/kg  
 MDCH: 2 Meals Per Month = 0.11 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler HQ = 1 = 0.072 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler  $10^{-4}$  = 0.42 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler  $10^{-5}$  = 0.042 mg/kg  
 Refer to Table I-3.1 for definition of segments

--- Upper Bound S-2: (MNR)  
 — S-2: (MNR)  
 - · - Lower Bound S-2: (MNR)

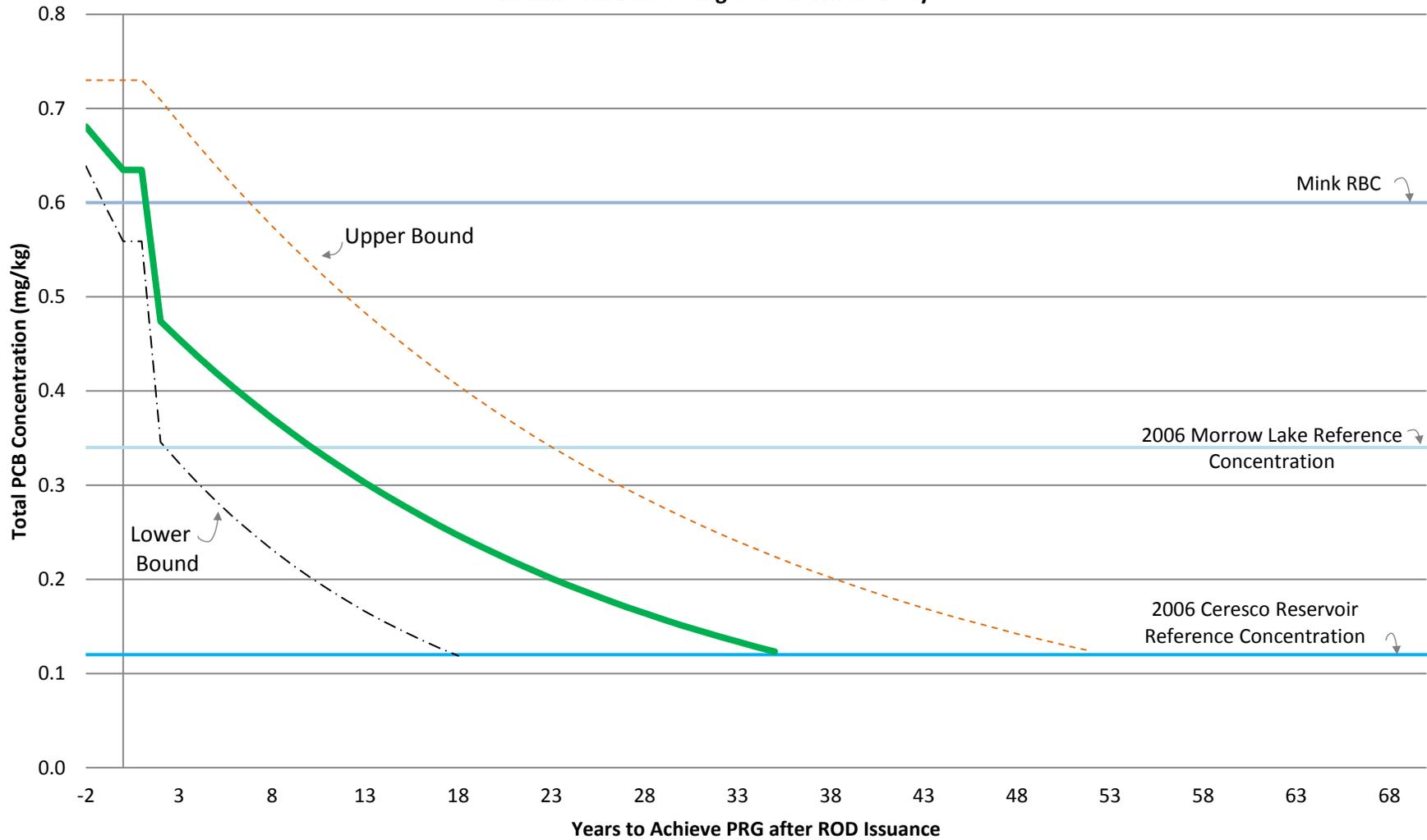
**Figure 4-2a**  
**Fish Tissue Projections for S-3:**  
**Smallmouth Bass Fillet**



2012 Morrow Lake Reference Concentration = 0.23 mg/kg  
 MDCH: 2 Meals Per Month = 0.11 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (HQ = 1) = 0.072 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-4</sup>) = 0.42 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-5</sup>) = 0.042 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.026 mg/kg  
 Refer to Table I-1.2 for definition of segments

--- Upper Bound S-3: Section 2-4 Hotspots (Upper Bound Step Down)  
 — S-3: Section 2-4 Hotspots (Mid Approximation Step Down)  
 - · - Lower Bound S-3: Section 2-4 Hotspots (Lower Bound Step Down)

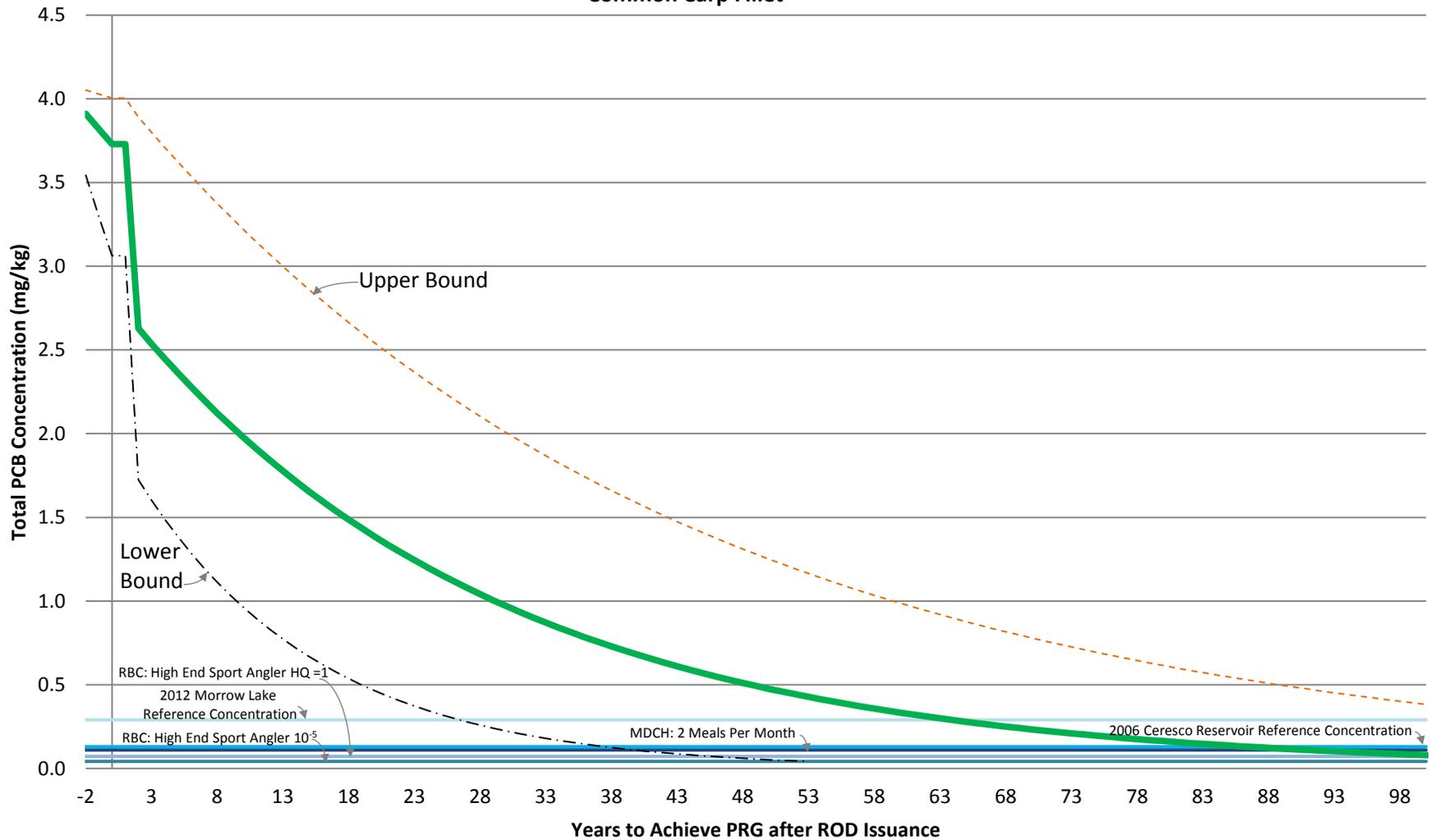
**Figure 4-2b**  
**Fish Tissue Projections for S-3:**  
**Smallmouth Bass Young of Year Whole Body**



Mink RBC = 0.60 mg/kg  
 2006 Morrow Lake Reference Concentration = 0.34 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.12 mg/kg  
 Refer to Table I-2.2 for definition of segments

----- Upper Bound S-3: Section 2-4 Hotspots (Upper Bound Step Down)  
 ——— S-3: Section 2-4 Hotspots (Mid Approximation Step Down)  
 - · - · - Lower Bound S-3: Section 2-4 Hotspots (Lower Bound Step Down)

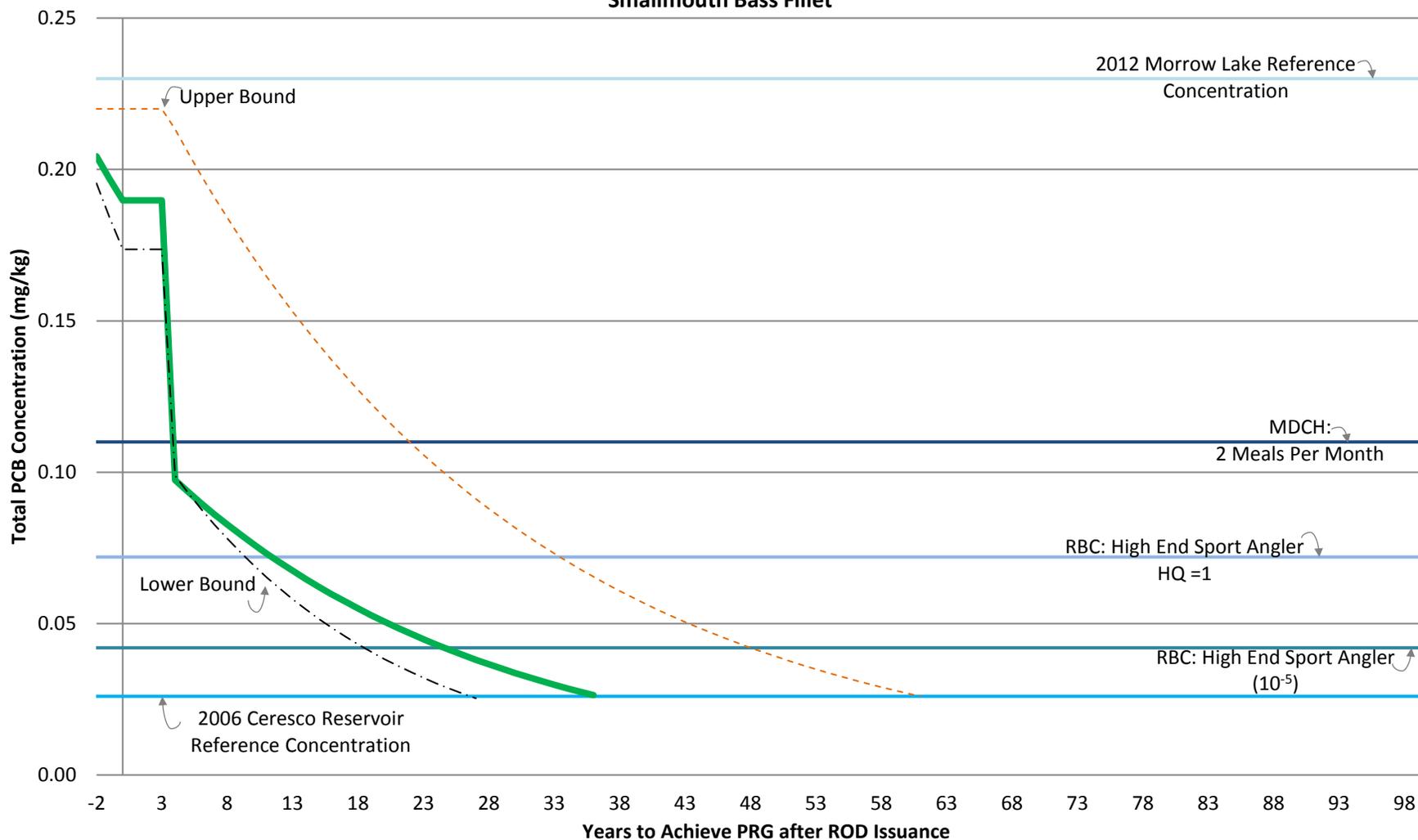
**Figure 4-2c**  
**Fish Tissue Projections for S-3:**  
**Common Carp Fillet**



2012 Morrow Lake Reference Concentration = 0.29 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.13 mg/kg  
 MDCH: 2 Meals Per Month = 0.11 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler HQ = 1 = 0.072 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler 10<sup>-4</sup> = 0.42 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler 10<sup>-5</sup> = 0.042 mg/kg  
 Refer to Table I-3.2 for definition of segments

--- Upper Bound S-3: Section 2-4 Hotspots (Upper Bound Step Down)  
 — S-3: Section 2-4 Hotspots (Mid Approximation Step Down)  
 - · - · - Lower Bound S-3: Section 2-4 Hotspots (Lower Bound Step Down)

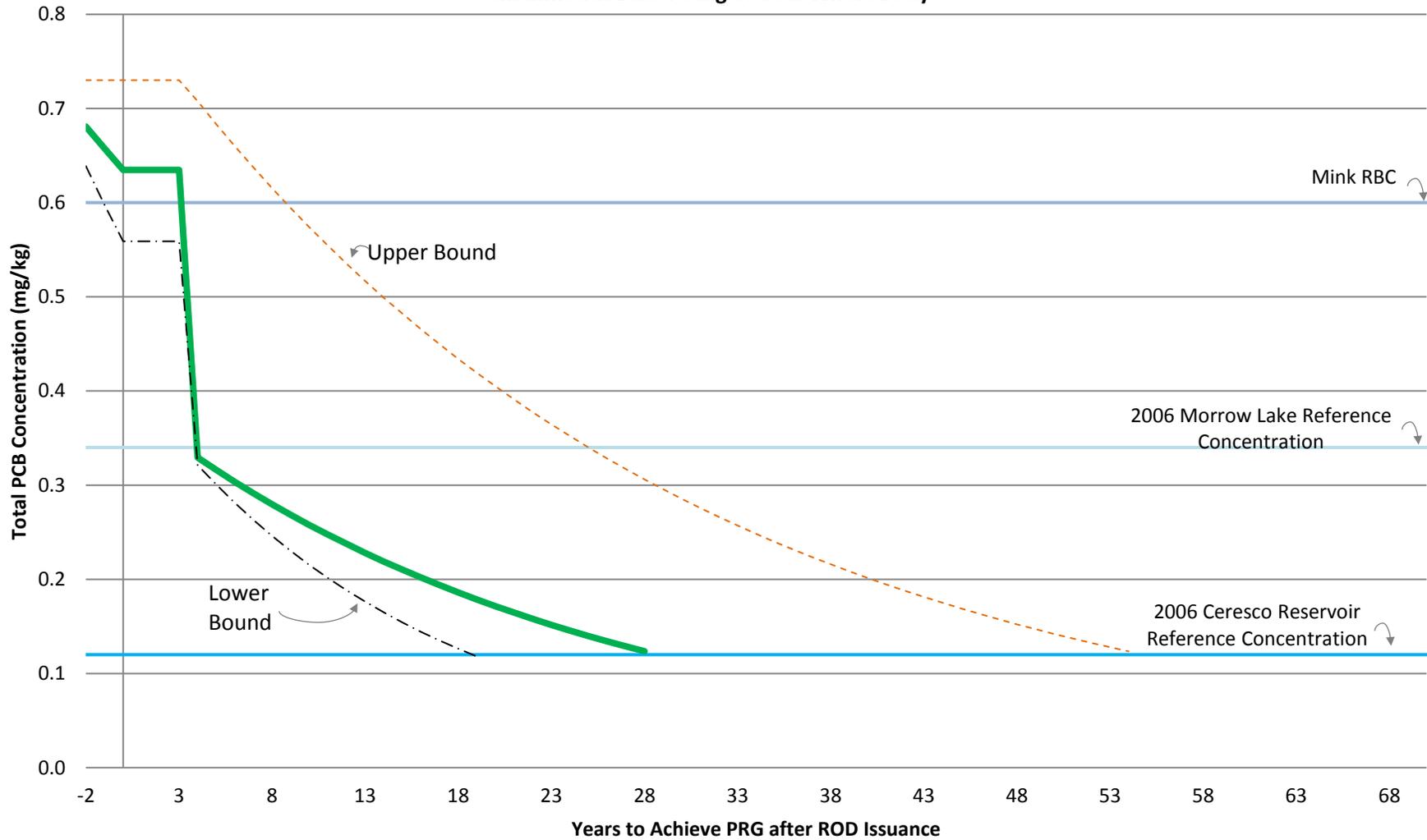
**Figure 4-3a**  
**Fish Tissue Projections for S-4:**  
**Smallmouth Bass Fillet**



2012 Morrow Lake Reference Concentration = 0.23 mg/kg  
 MDCH: 2 Meals Per Month = 0.11 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (HQ = 1) = 0.072 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-4</sup>) = 0.42 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-5</sup>) = 0.042 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.026 mg/kg  
 Refer to Table I-1.3 for definition of segments

- Upper Bound S-4: Section 2-4 Hotspots and Section 3 Edges (Upper Bound Step Down)
- S-4: Section 2-4 Hotspots and Section 3 Edges (Mid Approximation Step Down)
- · - · - Lower Bound S-4: Section 2-4 Hotspots and Section 3 Edges (Lower Bound Step Down)

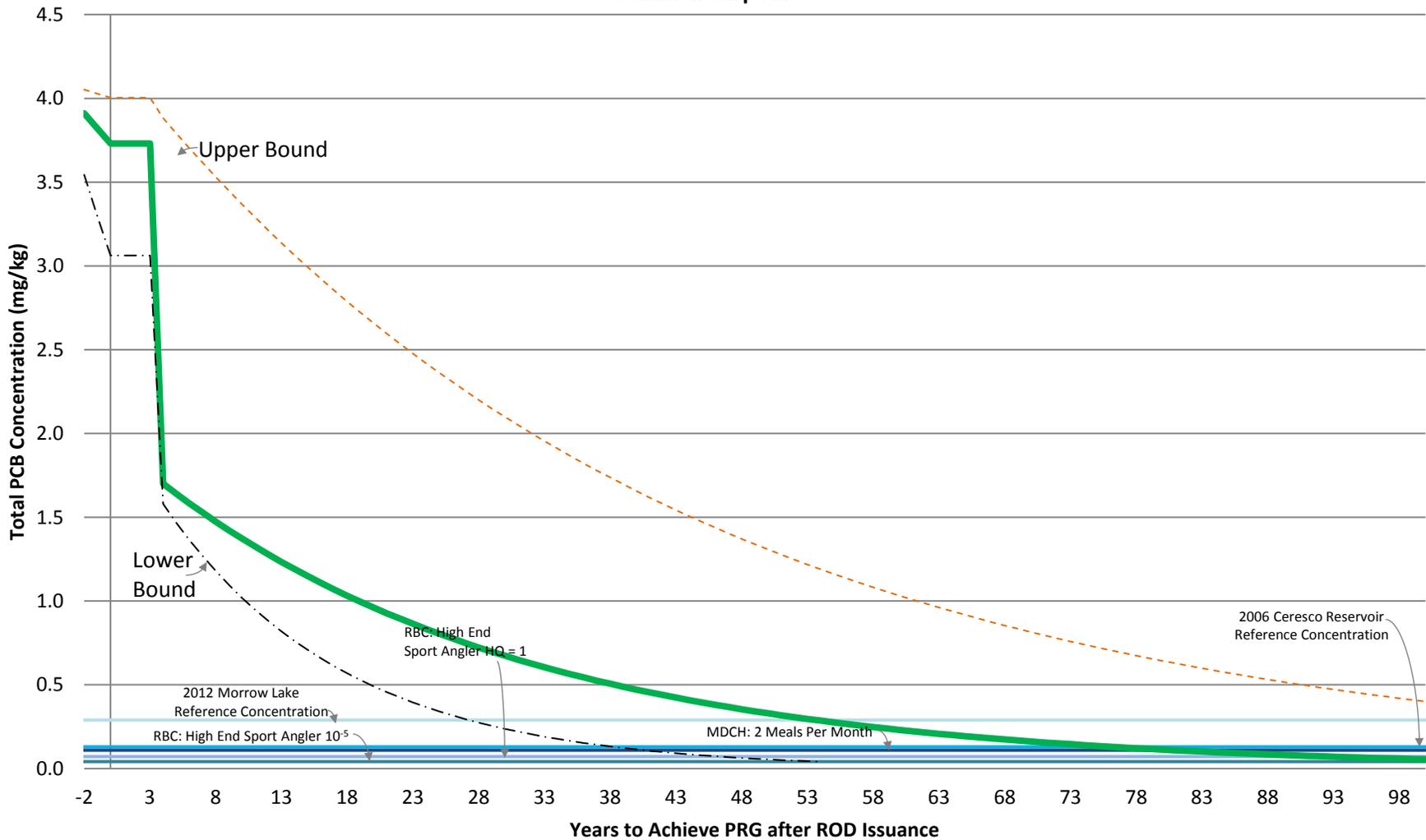
**Figure 4-3b**  
**Fish Tissue Projections for S-4:**  
**Smallmouth Bass Young of Year Whole Body**



Mink RBC = 0.60 mg/kg  
 2006 Morrow Lake Reference Concentration = 0.34 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.12 mg/kg  
 Refer to Table I-2.3 for definition of segments

- Upper Bound S-4: Section 2-4 Hotspots and Section 3 Edges (Upper Bound Step Down)
- S-4: Section 2-4 Hotspots and Section 3 Edges (Mid Approximation Step Down)
- · - · - Lower Bound S-4: Section 2-4 Hotspots and Section 3 Edges (Lower Bound Step Down)

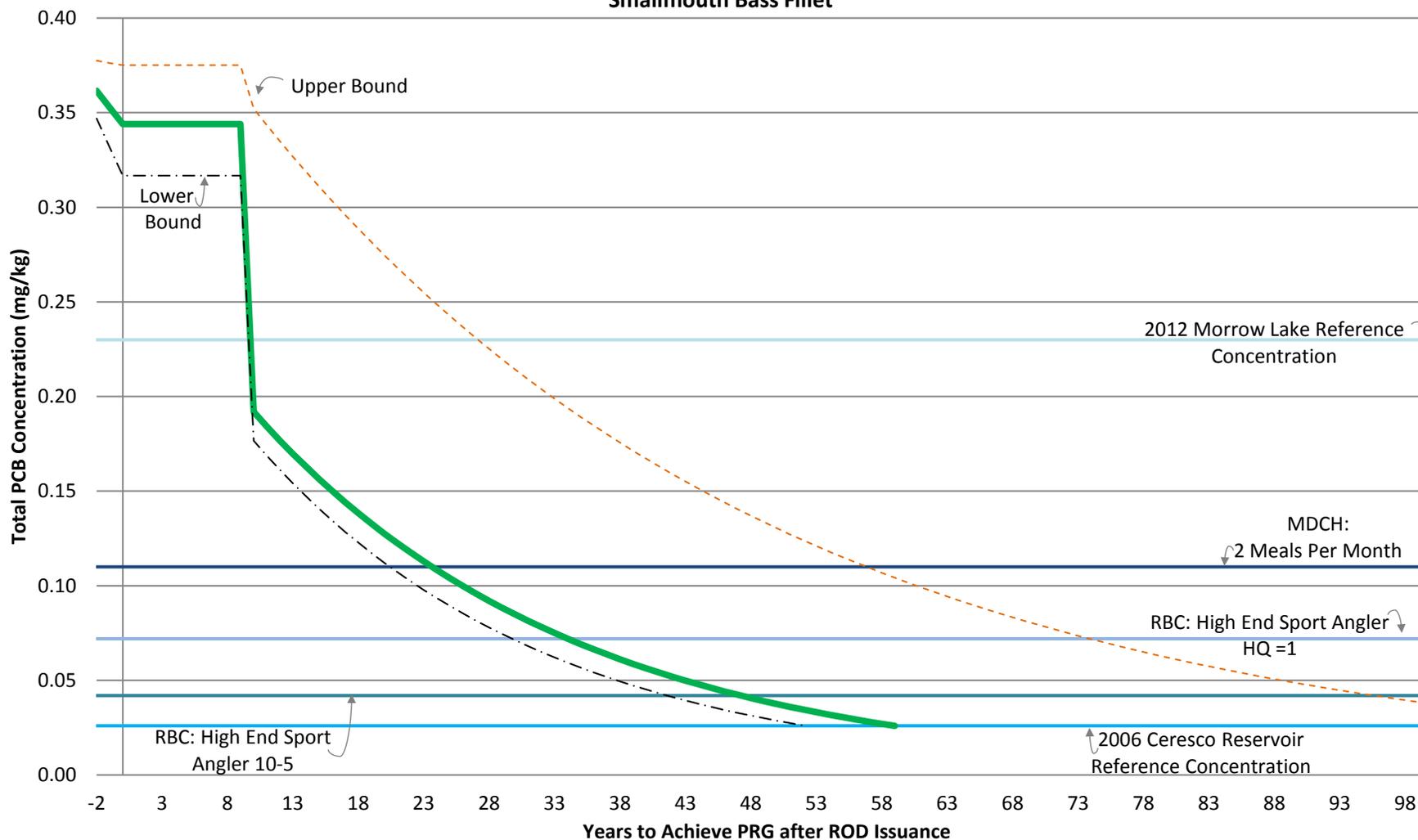
**Figure 4-3c**  
**Fish Tissue Projections for S-4:**  
**Common Carp Fillet**



2012 Morrow Lake Reference Concentration = 0.29 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.13 mg/kg  
 MDCH: 2 Meals Per Month = 0.11 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (HQ=1) = 0.072 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-4</sup>) = 0.42 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-5</sup>) = 0.042 mg/kg  
 Refer to Table I-3.3 for definition of segments

--- Upper Bound S-4: Section 2-4 Hotspots and Section 3 Edges (Upper Bound Step Down)  
 — S-4: Section 2-4 Hotspots and Section 3 Edges (Mid Approximation Step Down)  
 - · - Lower Bound S-4: Section 2-4 Hotspots and Section 3 Edges (Lower Bound Step Down)

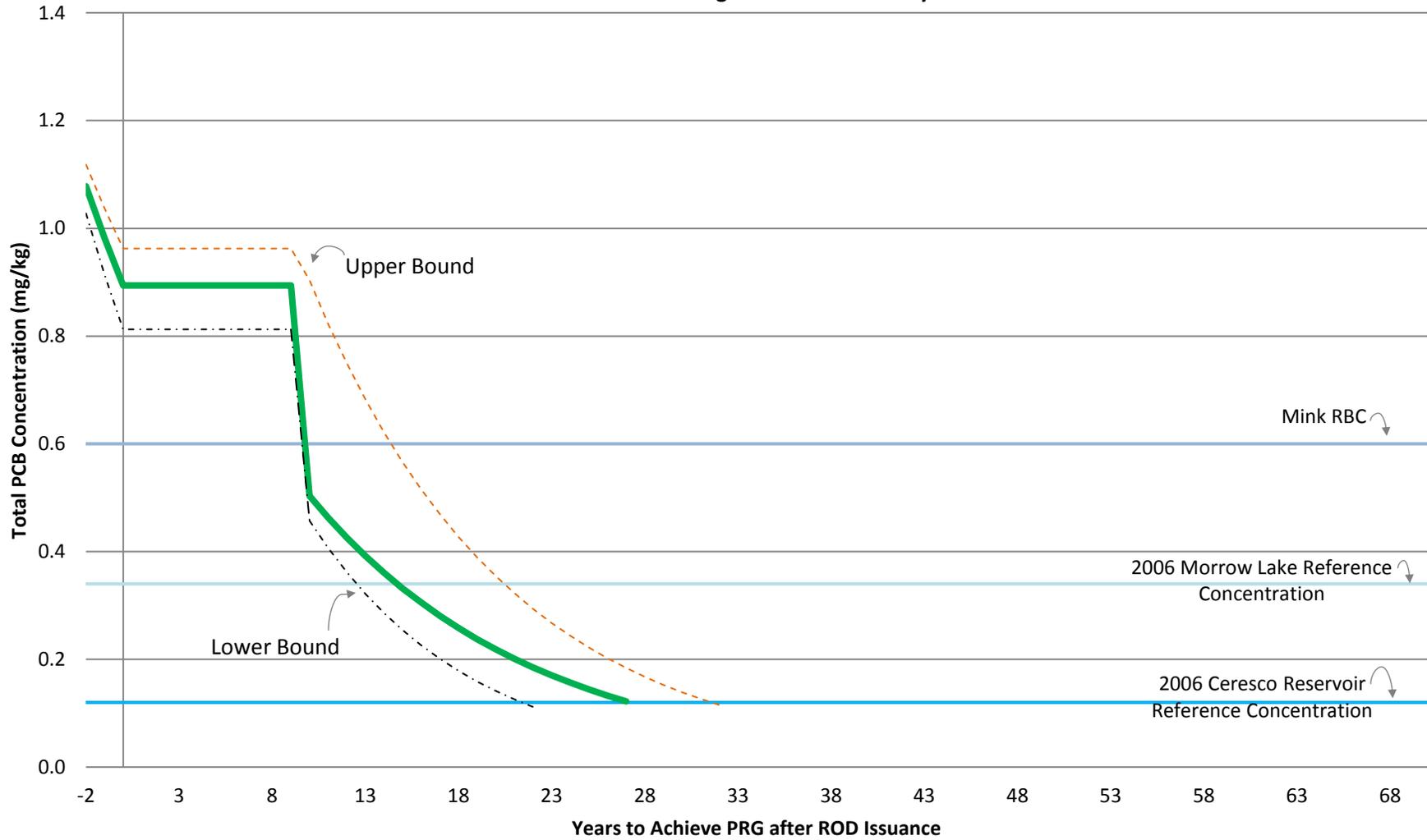
**Figure 4-4a**  
**Fish Tissue Projections for S-5:**  
**Smallmouth Bass Fillet**



2012 Morrow Lake Reference Concentration = 0.23 mg/kg  
 MDCH: 2 Meals Per Month = 0.11 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (HQ = 1) = 0.072 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-4</sup>) = 0.42 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-5</sup>) = 0.042 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.026 mg/kg  
 Refer to Table I-1.4 for definition of segments

--- Upper Bound S-5: Area-wide Removal (Upper Bound Step Down)  
 — S-5: Area-wide Removal (Mid Approximation Step Down)  
 - - - Lower Bound S-5: Area-wide Removal (Lower Bound Step Down)

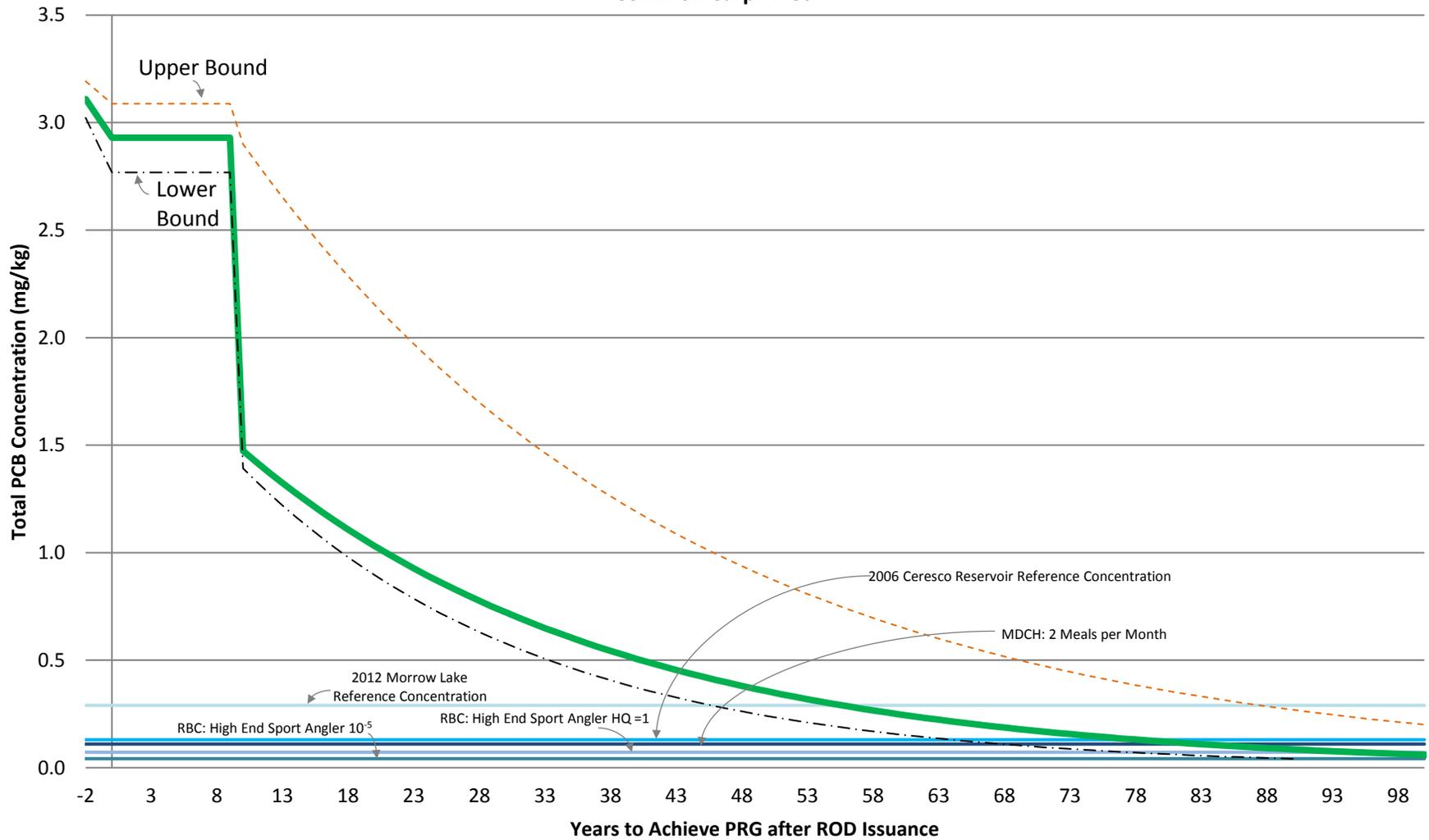
**Figure 4-4b**  
**Fish Tissue Projections for S-5:**  
**Smallmouth Bass Young of Year Whole Body**



Mink RBC = 0.60 mg/kg  
 2006 Morrow Lake Reference Concentration = 0.34 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.12 mg/kg  
 Refer to Table I-2.4 for definition of segments

- Upper Bound S-5: Area-wide Removal (Upper Bound Step Down)
- S-5: Area-wide Removal (Mid Approximation Step Down)
- Lower Bound S-5: Area-wide Removal (Lower Bound Step Down)

**Figure 4-4c**  
**Fish Tissue Projections for S-5:**  
**Common Carp Fillet**



2012 Morrow Lake Reference Concentration = 0.29 mg/kg  
 2006 Ceresco Reservoir Reference Concentration = 0.13 mg/kg  
 MDCH: 2 Meals Per Month = 0.11 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (HQ =1) = 0.072 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-4</sup>) = 0.42 mg/kg  
 Human Health Fish Consumption RBC: High End Sport Angler (10<sup>-5</sup>) = 0.042 mg/kg  
 Refer to Table I-3.4 for definition of segments

--- Upper Bound S-5: Area-wide Removal (Upper Bound Step Down)  
 — S-5: Area-wide Removal (Mid Approximation Step Down)  
 - · - Lower Bound S-5: Area-wide Removal (Lower Bound Step Down)