Figure 15A
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 546'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15B
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 548'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15C
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 550'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15D
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 552'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

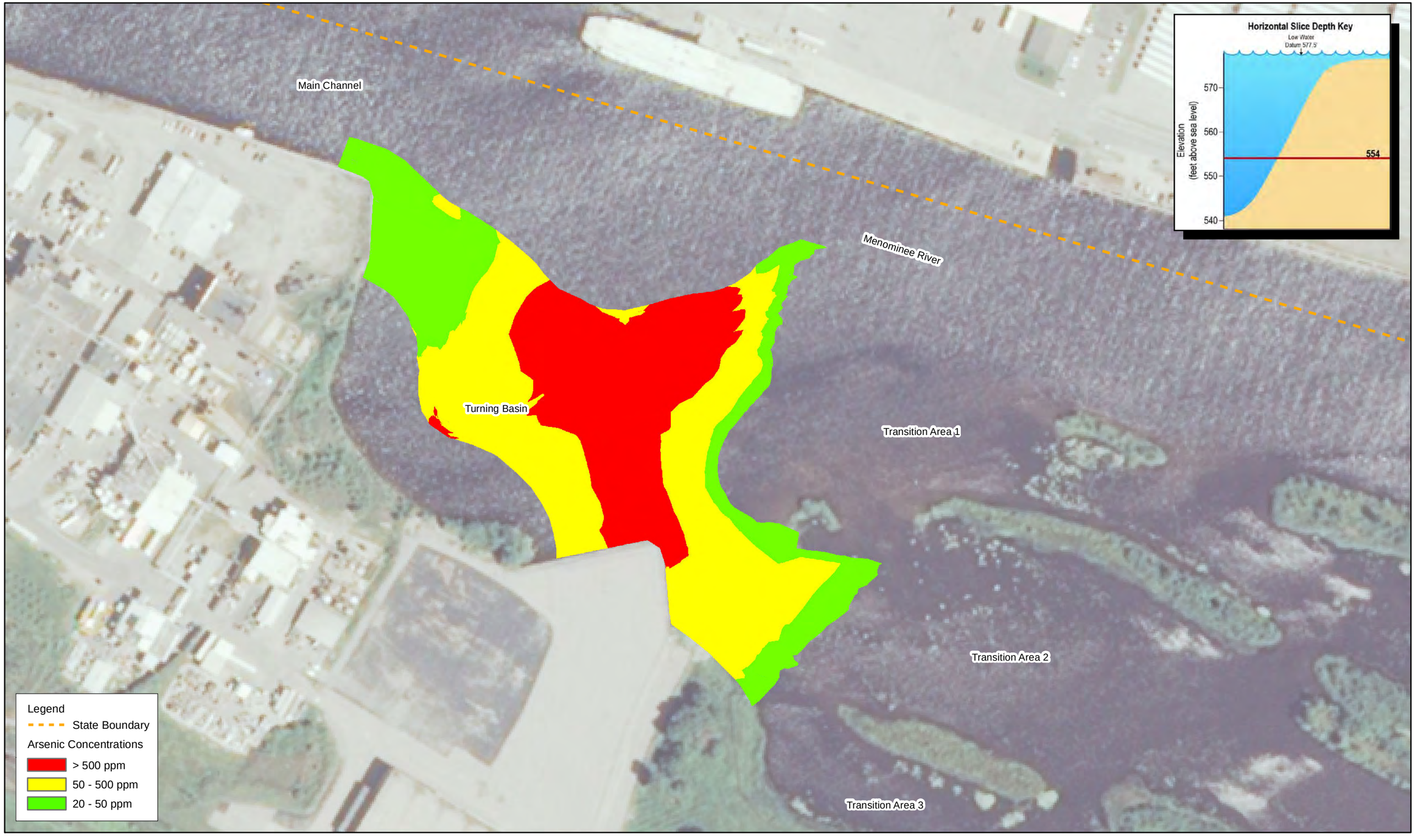


Figure 15E
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 554'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

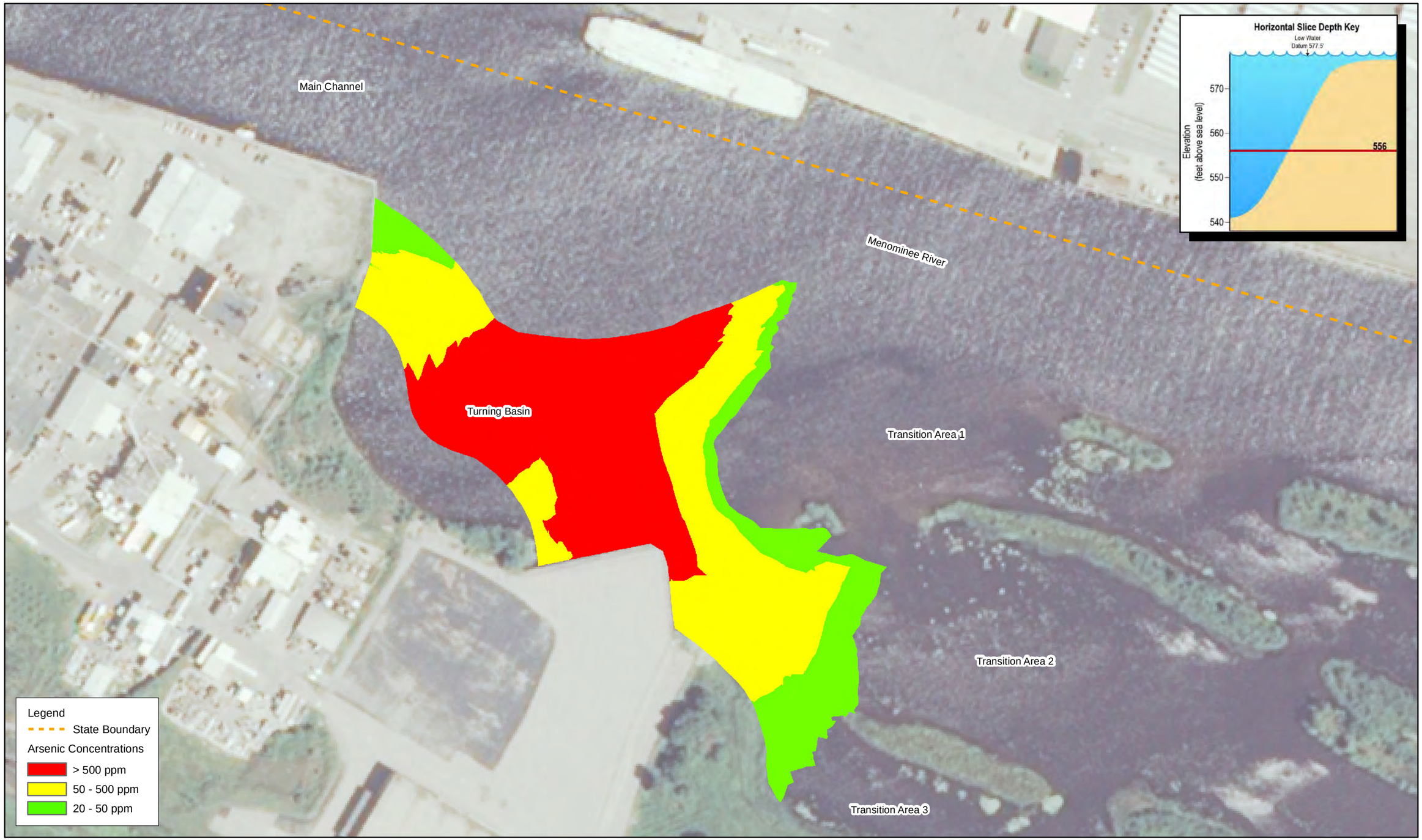


Figure 15F
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 556'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15G
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 558'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15H
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 560'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

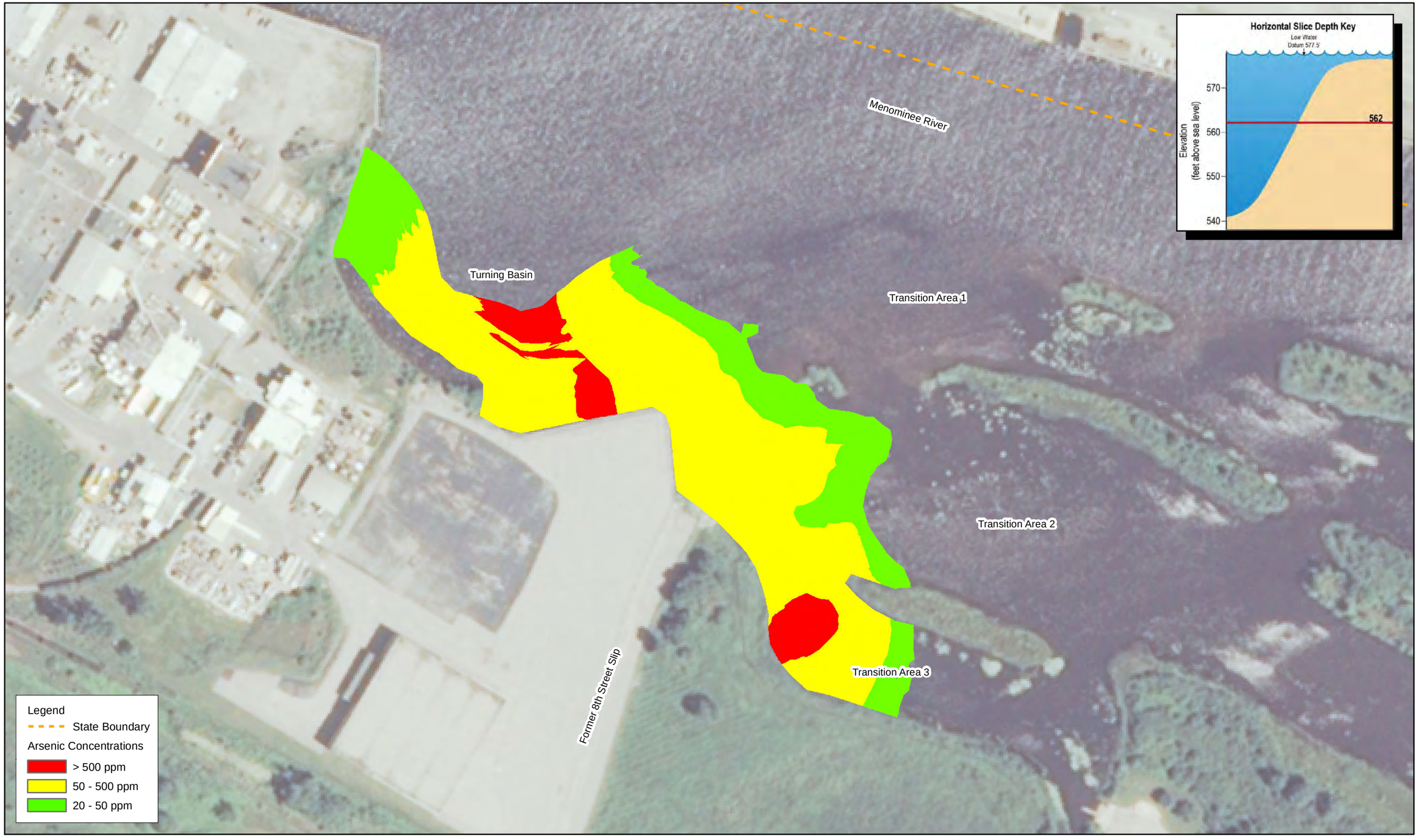


Figure 15I
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 562'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15J
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 564'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15K
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 566'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15L
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 568'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15M
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 570'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15N
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 572'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15O
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 574'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

Figure 15P
Horizontal Slice of Project Area, Arsenic Concentrations
Elevation 576'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

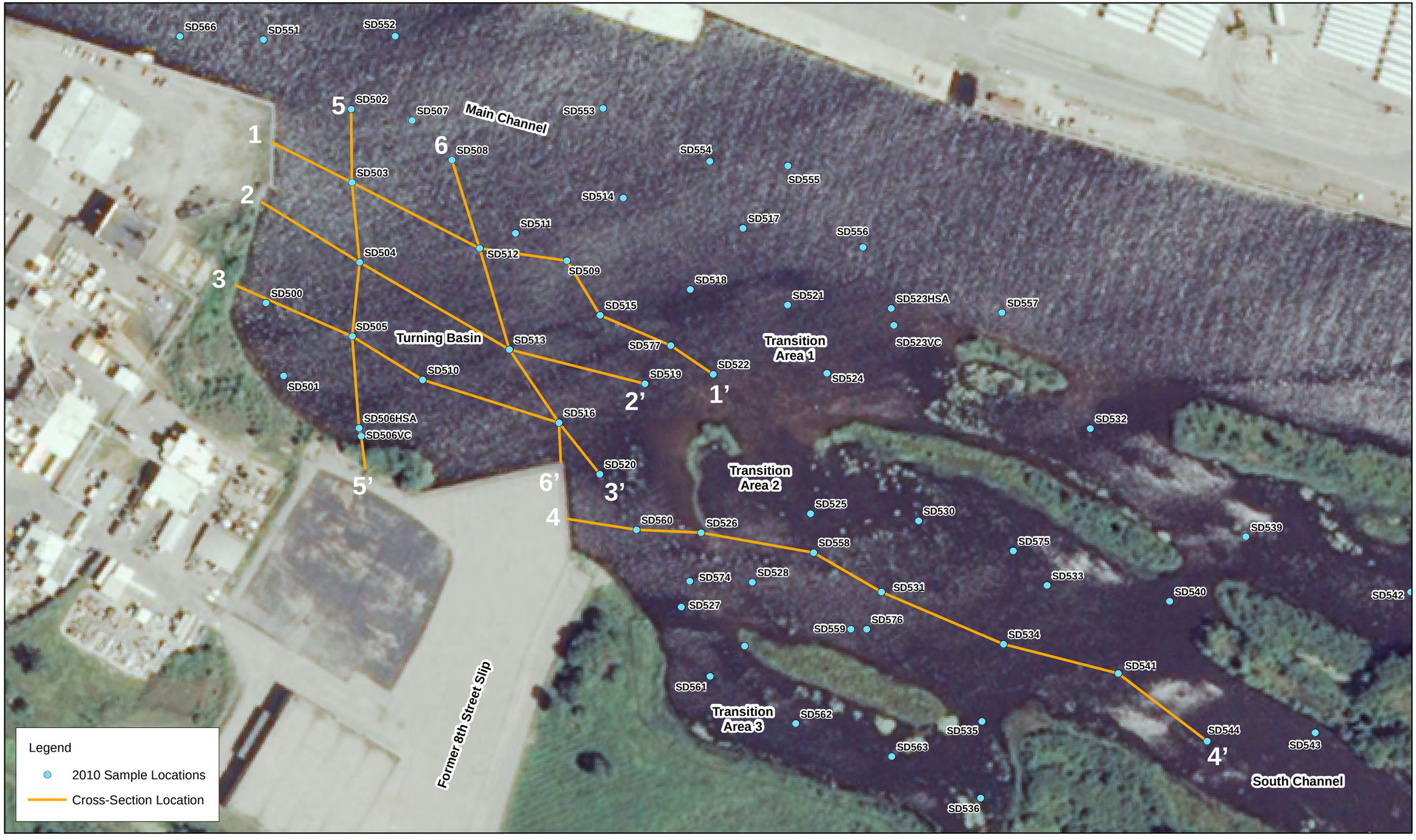


Figure 16
Cross-Section Location
Tyco Fire Products LP Facility
Marinette, WI

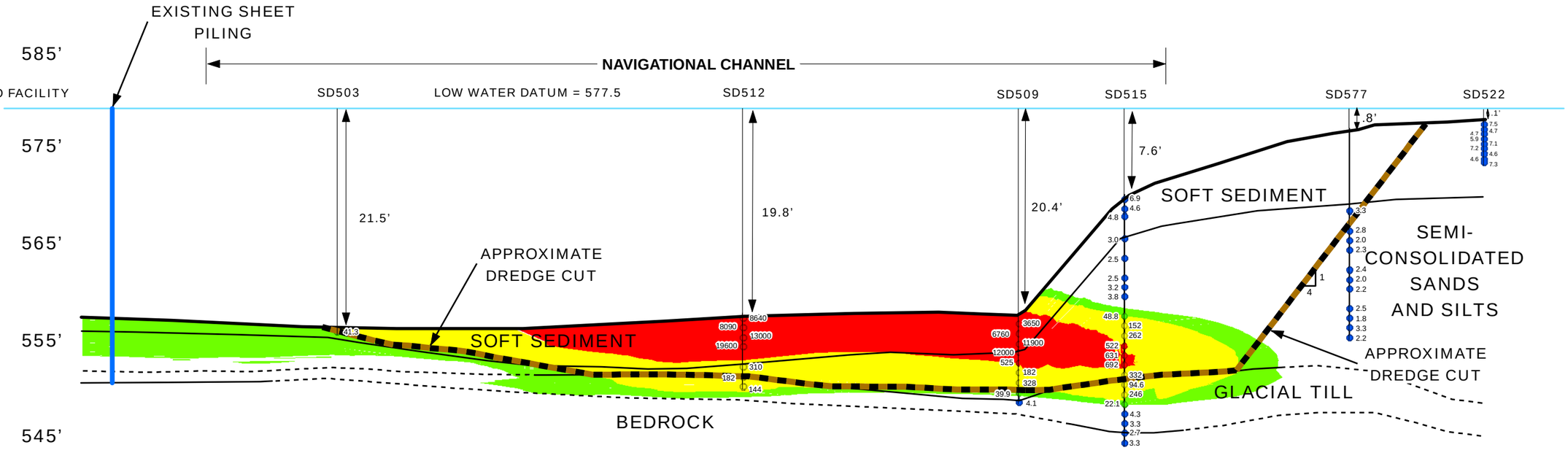
CH2MHILL

WEST

1

EAST

1’



Arsenic

Legend

> 500 PPM

50 - 500 PPM

20 - 50 PPM

Approximate Dredge Cut

NOTES:
1. VERTICAL DATUM IS NAVD88-FT
2. ARSENIC CONCENTRATION IN PARTS PER MILLION
3. 19.8’ - WATER DEPTH AT SAMPLE LOCATION REFERENCED TO LOW WATER DATUM
4. ELEVATIONS AND WATER DEPTH IN FEET
5. BEDROCK DEPICTION IS APPROXIMATE
6. BLUE HIGHLIGHTED SAMPLE POINTS ARE RESULTS BELOW 20 PPM
7. THE 3-DIMENSIONAL SOFTWARE EXTRAPOLATES BETWEEN DATA POINTS, AS SUCH, THE INTERPRETATION OF CONCENTRATIONS AND LITHOLOGY BETWEEN DATA POINTS ARE APPROXIMATE

N

0 60 120

Feet

APPROXIMATE HORIZONTAL SCALE

Figure 17A
Cross-section 1-1’
Tyco Fire Products LP Facility
Marinette, WI

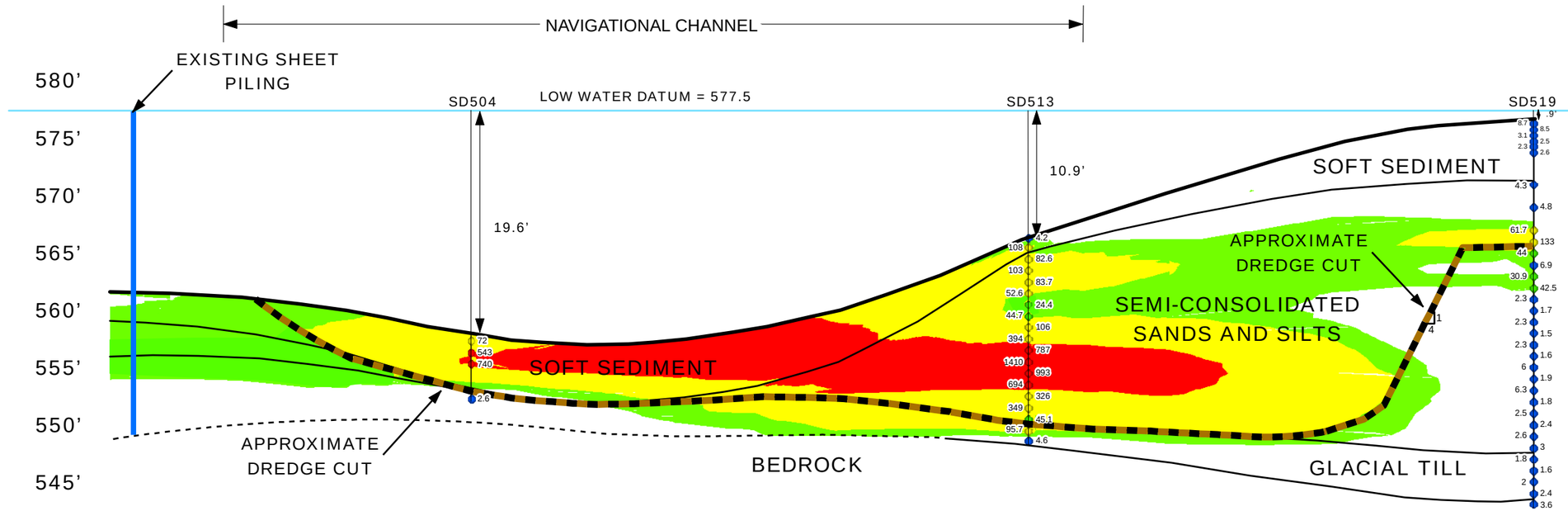
CH2MHILL

WEST

2

EAST

2’



Arsenic

> 500 PPM

50 - 500 PPM

20 - 50 PPM

Legend

Approximate Dredge Cut

NOTES:

1. VERTICAL DATUM IS NAVD88-FT
2. ARSENIC CONCENTRATION IN PARTS PER MILLION
3. 19.8’ - WATER DEPTH AT SAMPLE LOCATION REFERENCED TO LOW WATER DATUM
4. ELEVATIONS AND WATER DEPTH IN FEET
5. BEDROCK DEPICTION IS APPROXIMATE
6. BLUE HIGHLIGHTED SAMPLE POINTS ARE RESULTS BELOW 20 PPM
7. THE 3-DIMENSIONAL SOFTWARE EXTRAPOLATES BETWEEN DATA POINTS, AS SUCH, THE INTERPRETATION OF CONCENTRATIONS AND LITHOLOGY BETWEEN DATA POINTS ARE APPROXIMATE

N

0 70 140

Feet

APPROXIMATE HORIZONTAL SCALE

Figure 17B
Cross-section 2-2’
Tyco Fire Products LP Facility
Marinette, WI

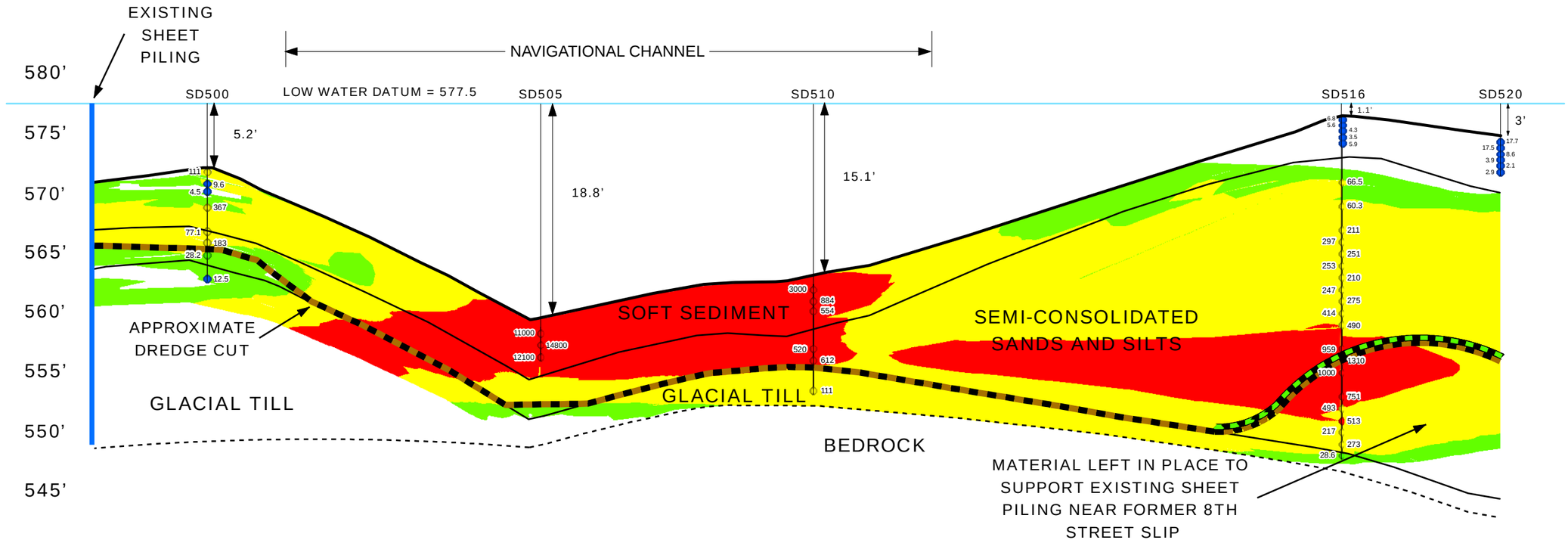
CH2MHILL

WEST

3

EAST

3’



Arsenic

> 500 PPM

50 - 500 PPM

20 - 50 PPM

Legend

Manage with Chemical Isolation Layer

Approximate Dredge Cut

NOTES:

1. VERTICAL DATUM IS NAVD88-FT
2. ARSENIC CONCENTRATION IN PARTS PER MILLION
3. 19.8’ - WATER DEPTH AT SAMPLE LOCATION REFERENCED TO LOW WATER DATUM
4. ELEVATIONS AND WATER DEPTH IN FEET
5. BEDROCK DEPICTION IS APPROXIMATE
6. BLUE HIGHLIGHTED SAMPLE POINTS ARE RESULTS BELOW 20 PPM
7. THE 3-DIMENSIONAL SOFTWARE EXTRAPOLATES BETWEEN DATA POINTS, AS SUCH, THE INTERPRETATION OF CONCENTRATIONS AND LITHOLOGY BETWEEN DATA POINTS ARE APPROXIMATE

N

0 50 100

Feet

APPROXIMATE HORIZONTAL SCALE

Figure 17C
Cross-section 3-3’
Tyco Fire Products LP Facility
Marinette, WI

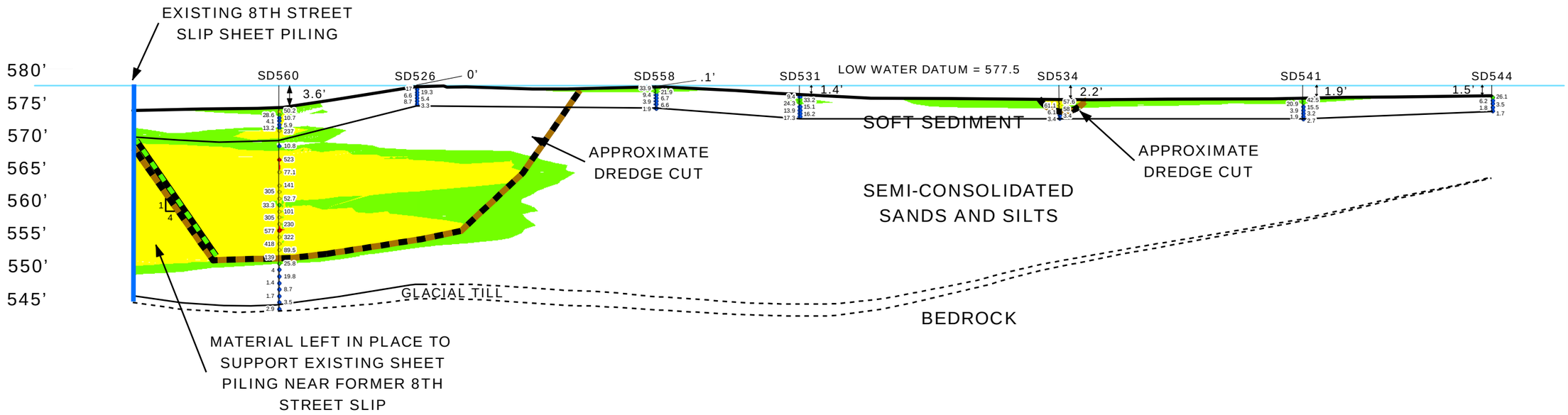
CH2MHILL

WEST

4

EAST

4’



Arsenic

> 500 PPM

50 - 500 PPM

20 - 50 PPM

Legend

Manage with Chemical Isolation Layer

Approximate Dredge Cut

NOTES:
1. VERTICAL DATUM IS NAVD88-FT
2. ARSENIC CONCENTRATION IN PARTS PER MILLION
3. 19.8’ - WATER DEPTH AT SAMPLE LOCATION REFERENCED TO LOW WATER DATUM
4. ELEVATIONS AND WATER DEPTH IN FEET
5. BEDROCK DEPICTION IS APPROXIMATE
6. BLUE HIGHLIGHTED SAMPLE POINTS ARE RESULTS BELOW 20 PPM
7. THE 3-DIMENSIONAL SOFTWARE EXTRAPOLATES BETWEEN DATA POINTS, AS SUCH, THE INTERPRETATION OF CONCENTRATIONS AND LITHOLOGY BETWEEN DATA POINTS ARE APPROXIMATE

N

0 80 160

Feet

APPROXIMATE HORIZONTAL SCALE

Figure 17D
Cross-section 4-4’
Tyco Fire Products LP Facility
Marinette, WI

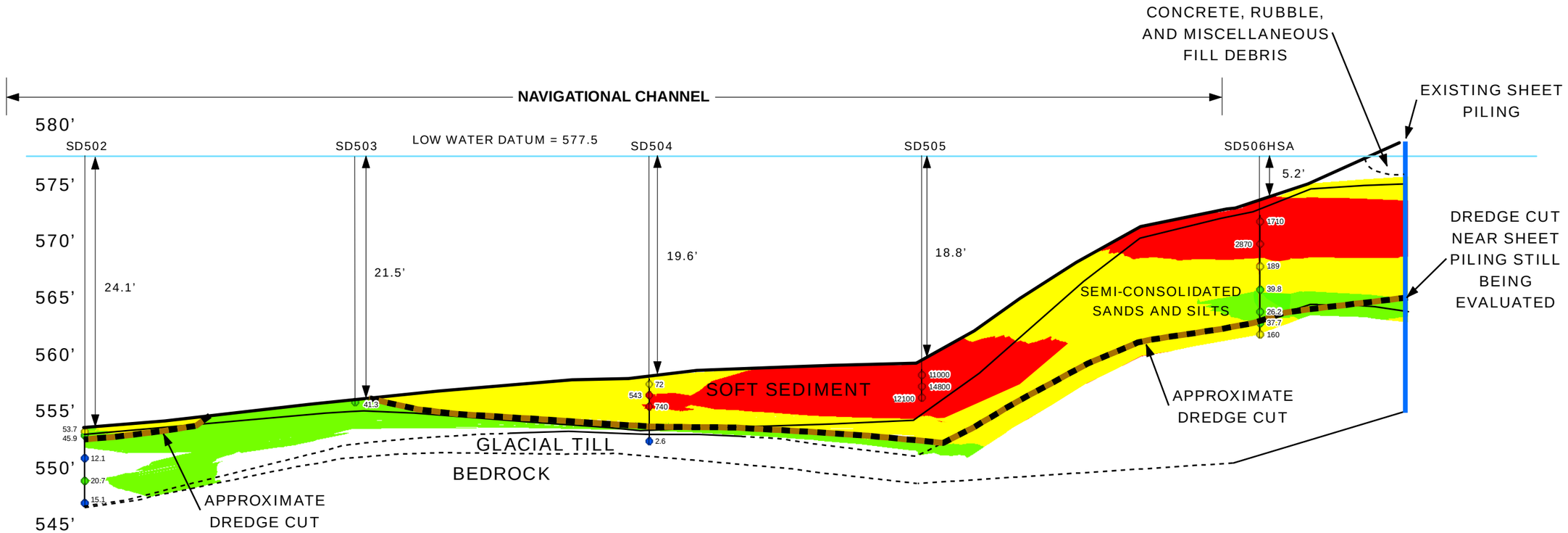
CH2MHILL

NORTH

5

SOUTH

5’



Arsenic

Legend

> 500 PPM

50 - 500 PPM

20 - 50 PPM

Approximate Dredge Cut

NOTES:
1. VERTICAL DATUM IS NAVD88-FT
2. ARSENIC CONCENTRATION IN PARTS PER MILLION
3. 19.8’ - WATER DEPTH AT SAMPLE LOCATION REFERENCED TO LOW WATER DATUM
4. ELEVATIONS AND WATER DEPTH IN FEET
5. BEDROCK DEPICTION IS APPROXIMATE
6. BLUE HIGHLIGHTED SAMPLE POINTS ARE RESULTS BELOW 20 PPM
7. THE 3-DIMENSIONAL SOFTWARE EXTRAPOLATES BETWEEN DATA POINTS, AS SUCH, THE INTERPRETATION OF CONCENTRATIONS AND LITHOLOGY BETWEEN DATA POINTS ARE APPROXIMATE

N

0 50 100

Feet

APPROXIMATE HORIZONTAL SCALE

Figure 17E
Cross-section 5-5’
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

NORTH

SOUTH

6

NAVIGATIONAL CHANNEL EXTENDS APPROXIMATELY 60' NORTH OF SD508

NAVIGATIONAL CHANNEL

6'

EXISTING SHEET PILING

580'

575'

570'

565'

560'

555'

550'

545'

SD508

SD512

LOW WATER DATUM = 577.5

SD513

SD516

1.1'

10.9'

19.8'

23.9'

SOFT SEDIMENT

SEMI-CONSOLIDATED SANDS AND SILTS

GLACIAL TILL

BEDROCK

MATERIAL LEFT IN PLACE TO SUPPORT EXISTING SHEET PILING NEAR FORMER 8TH STREET SLIP

1

4

Arsenic

> 500 PPM

50 - 500 PPM

20 - 50 PPM

Legend

Approximate Dredge Cut

Manage with Chemical Isolation Layer

NOTES:

1. VERTICAL DATUM IS NAVD88-FT
2. ARSENIC CONCENTRATION IN PARTS PER MILLION
3. 19.8'- WATER DEPTH AT SAMPLE LOCATION REFERENCED TO LOW WATER DATUM
4. ELEVATIONS AND WATER DEPTH IN FEET
5. BEDROCK DEPICTION IS APPROXIMATE
6. BLUE HIGHLIGHTED SAMPLE POINTS ARE RESULTS BELOW 20 PPM
7. THE 3-DIMENSIONAL SOFTWARE EXTRAPOLATES BETWEEN DATA POINTS, AS SUCH, THE INTERPRETATION OF CONCENTRATIONS AND LITHOLOGY BETWEEN DATA POINTS ARE APPROXIMATE

0 40 80

Feet

APPROXIMATE HORIZONTAL SCALE

Figure 17F
Cross-section 6-6'
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

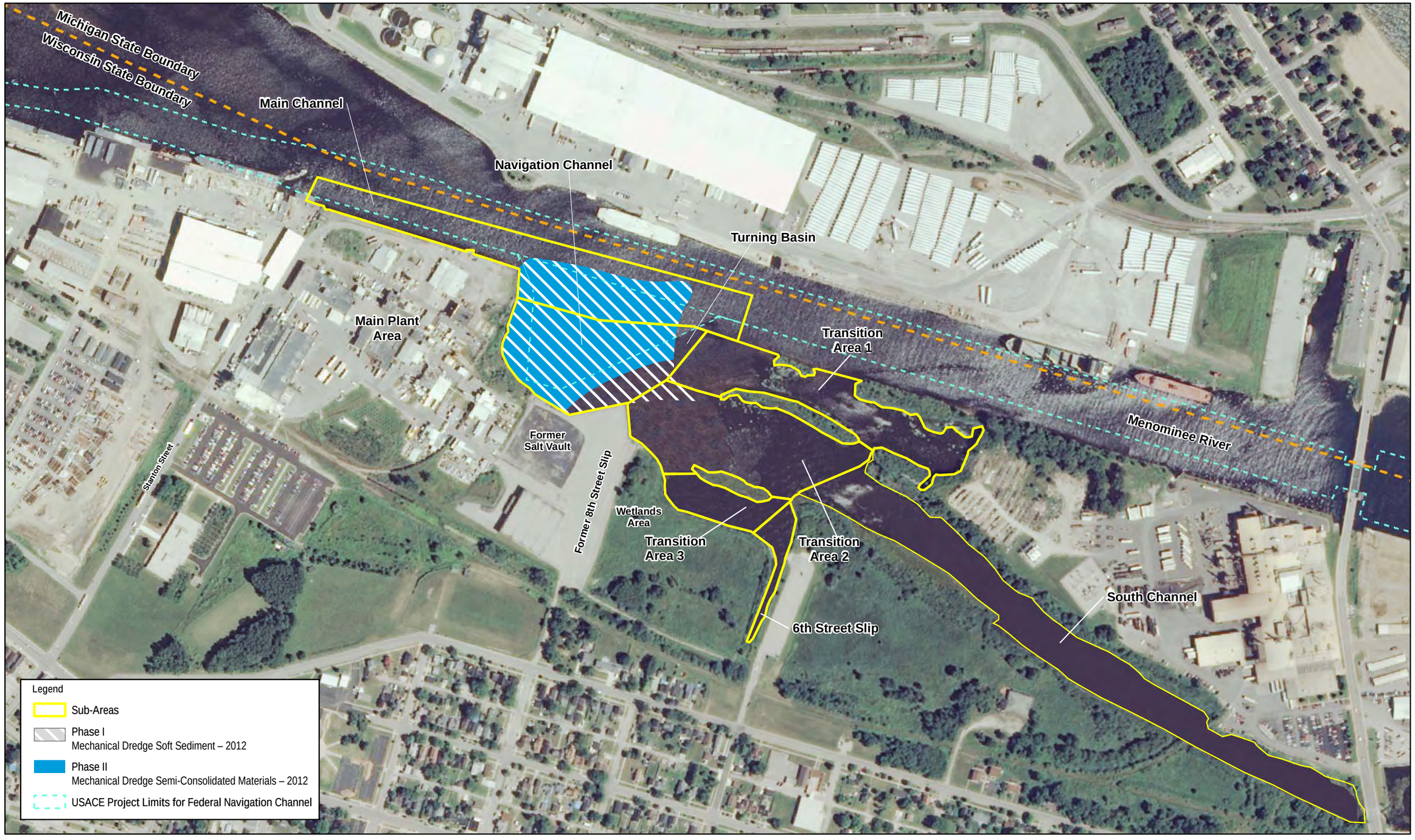


FIGURE 18A
Remediation Sequence 2012
Tyco Fire Products Facility
Marinette, WI

CH2MHILL

Michigan State Boundary
Wisconsin State Boundary
Main Channel
Navigation Channel
Turning Basin
Main Plant Area
Transition Area 1
Menominee River
Former Salt Vault
Stanton Street
Former 8th Street Slip
Wetlands Area
Transition Area 3
Transition Area 2
South Channel
6th Street Slip

Legend

- Sub-Areas
- Phase III
  Dry Excavation Soft Sediment – 2013
- Phase IV
  Dry Excavation Semi-Consolidated Materials – 2013
- Phase V
  Mechanical Dredge Semi-Consolidated Materials at Temporary Sheet Piling – 2013
- Phase VI
  Chemical Isolation Layer near 8th Street Slip Sheet Piling – 2013
- Temporary Sheet Piling
  For Dry Excavation – 2013
- USACE Project Limits for Federal Navigation Channel

N

0 200 400
Feet

FIGURE 18B
Remediation Sequence 2013
Tyco Fire Products Facility
Marinette, WI

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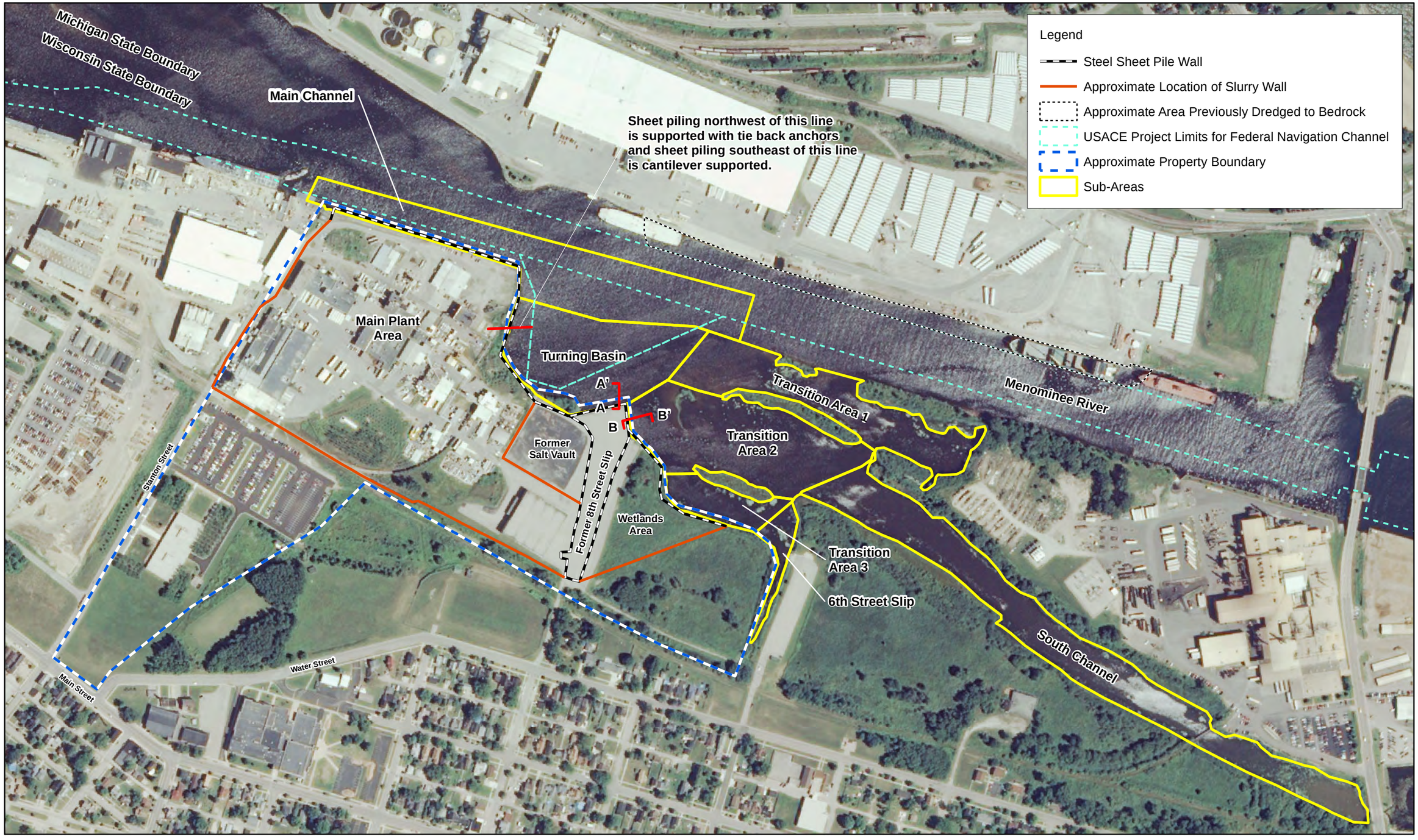

Figure 19
Sheet Piling Assessment
Cross Section Locations
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL

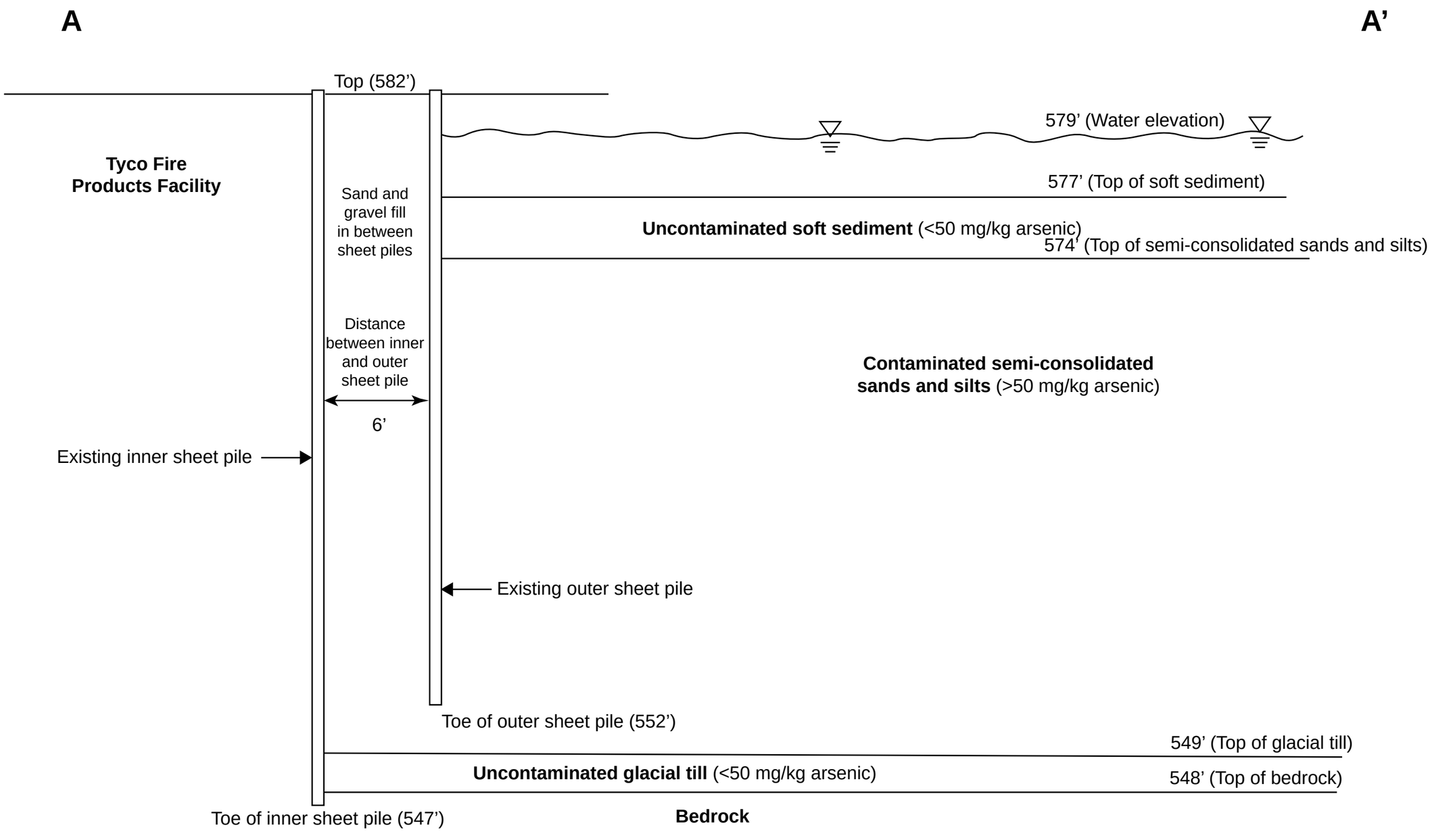

FIGURE 20A
Sheet Piling Assessment
Cross Section A-A’
Tyco Fire Products Facility

CH2MHILL

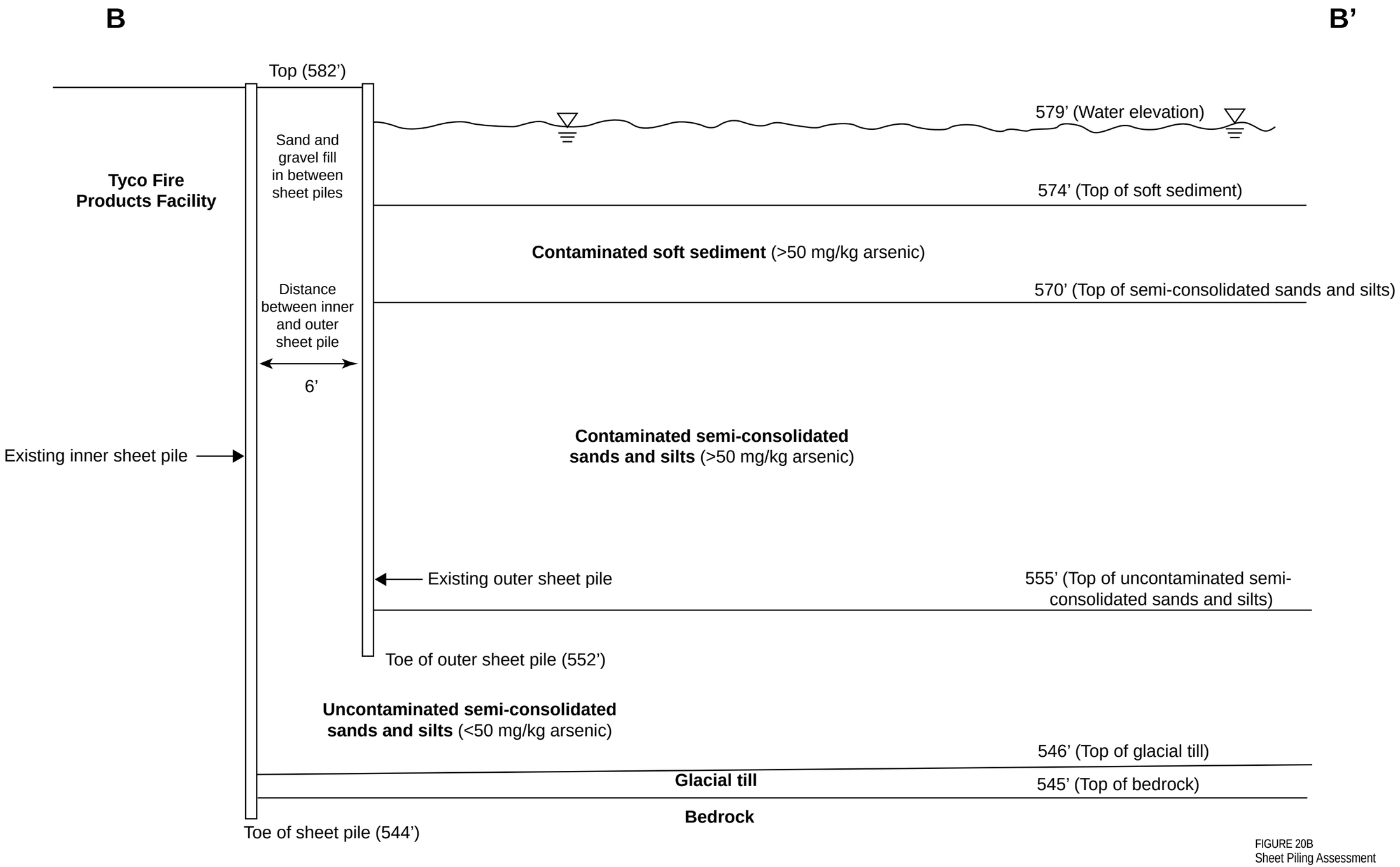

FIGURE 20B
Sheet Piling Assessment
Cross Section B-B’
Tyco Fire Products Facility

CH2MHILL

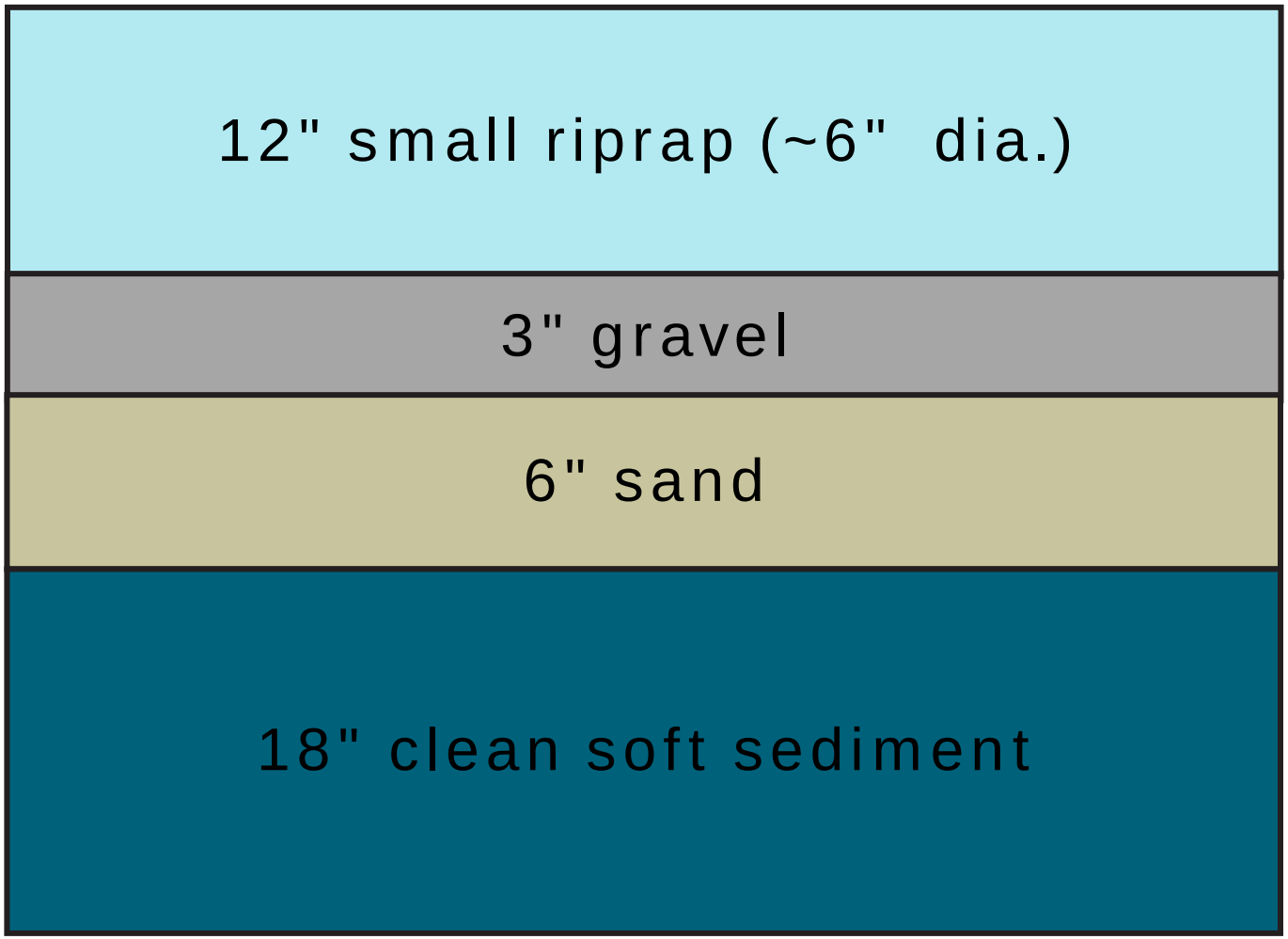

FIGURE 21
Proposed Chemical Isolation Layer
Tyco Fire Products Facility
Marinette, WI

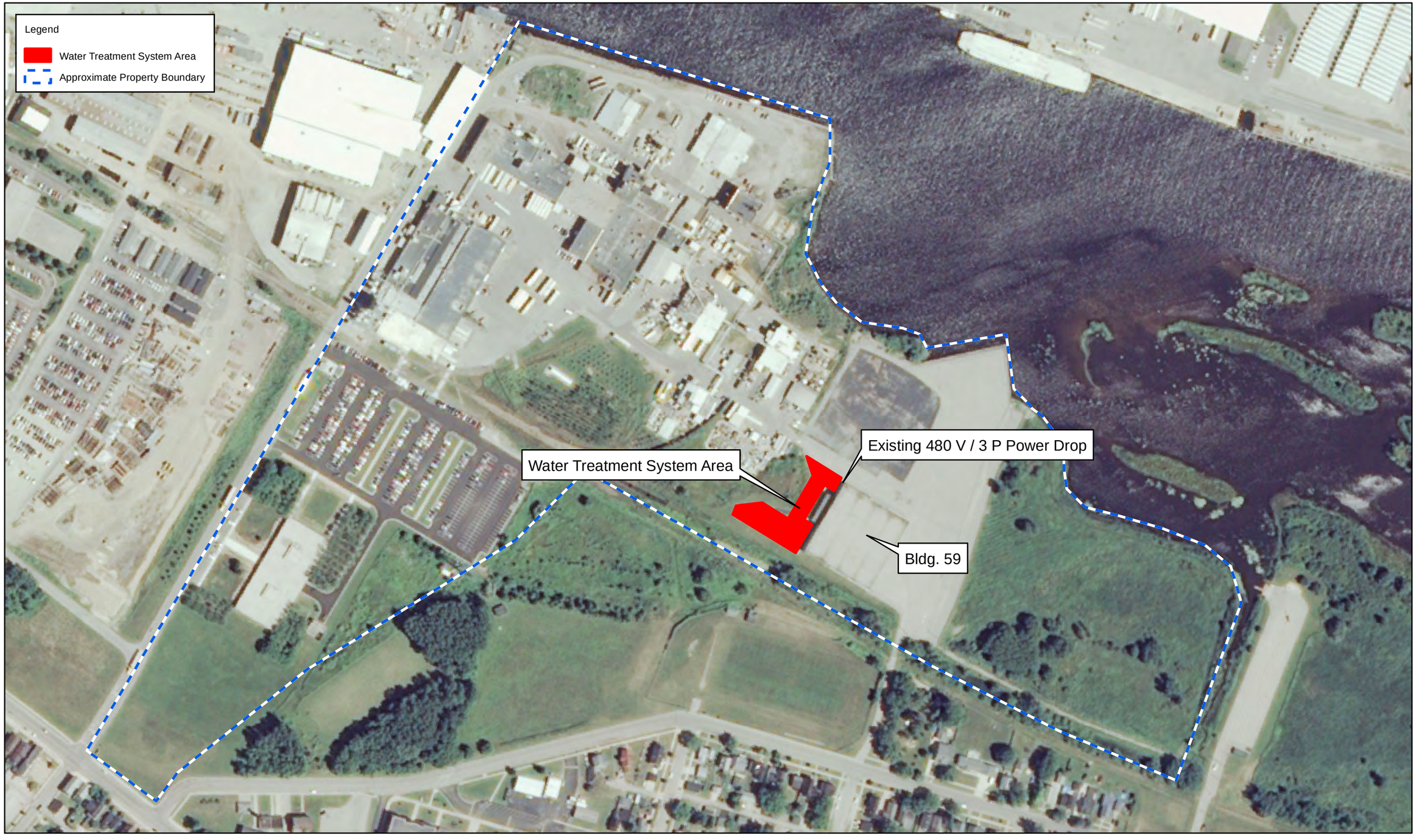

Figure 22
Temporary Water Treatment System Equipment Layout Area
Tyco Fire Products LP Facility
Marinette, WI

FIGURE 23
Preliminary Water Quality Sampling Locations During Dredging
Tyco Fire Products LP Facility
Marinette, WI

CH2MHILL