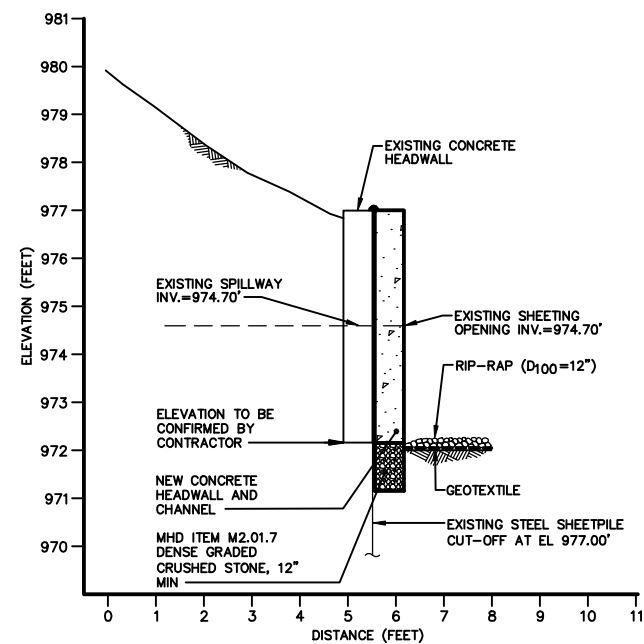
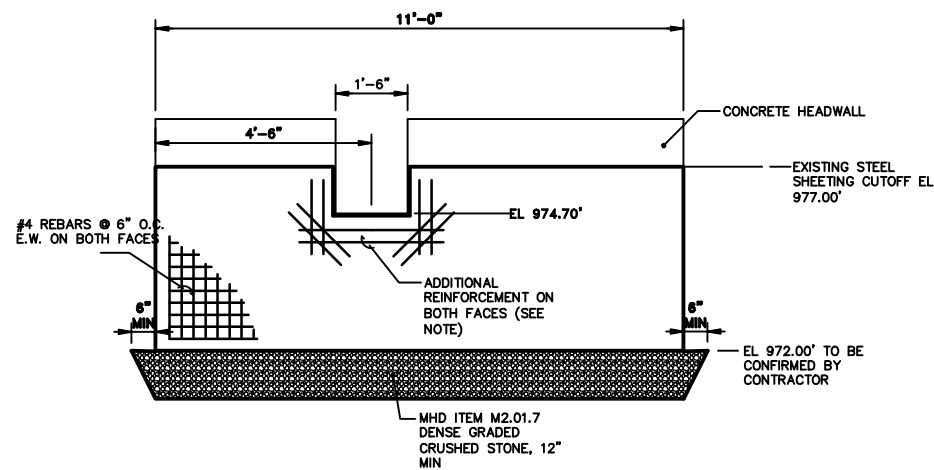


**WEST HEADWALL PLAN 1**  
NOT TO SCALE



**SECTION A-A' 1**  
SCALE: 1"=2'-0"



- NOTES:**
1. REBAR MAT TO BE ATTACHED TO STEEL LUGS WELDED TO SHEETPIILING @ 1' O.C.
  2. MINIMUM 3" COVER FOR REBAR.
  3. PROVIDE ADDITIONAL REINFORCEMENT OF #4 BARS AS SHOWN. THE BARS WILL BE PLACED ABOUT 2" FROM THE CONCRETE FACE. THE REINFORCEMENT WILL BE EXTENDED A MINIMUM OF 12" BEYOND THE OPENING.

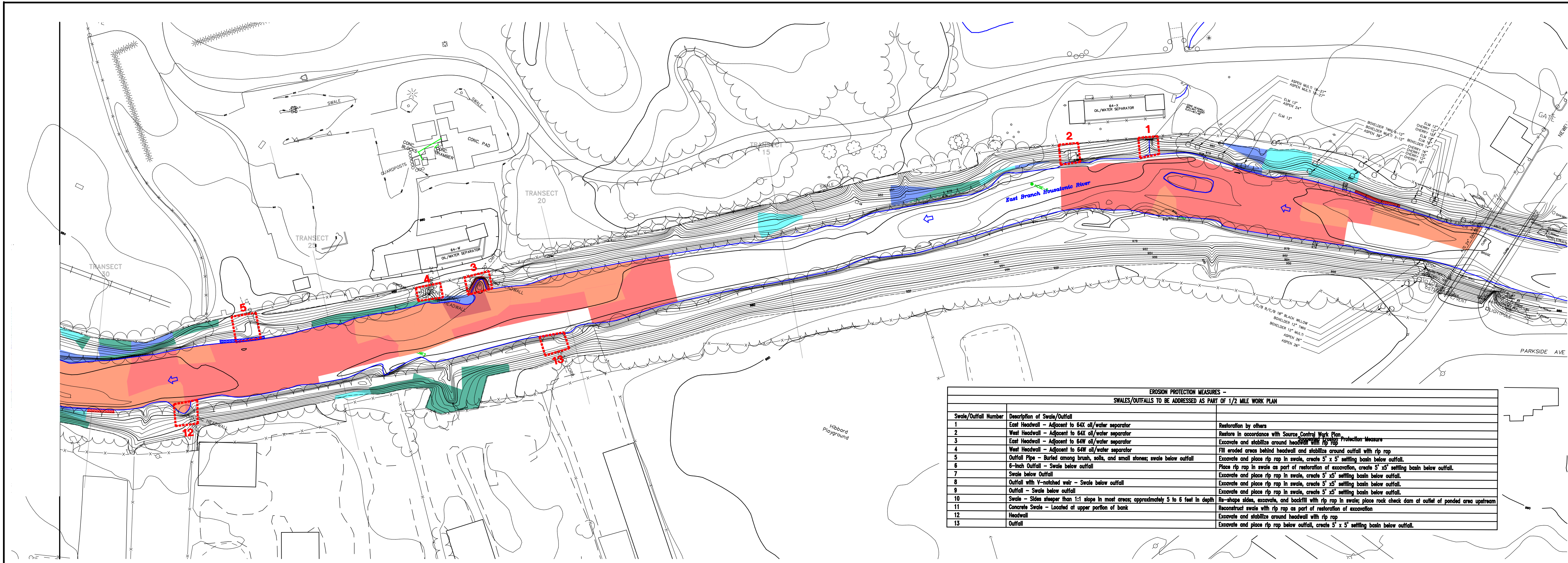
**SECTION B-B' 1**  
NOT TO SCALE

**DRAFT**

GENERAL ELECTRIC COMPANY  
PITTSFIELD, MASSACHUSETTS  
**REMOVAL ACTION WORK PLAN—  
UPPER 1/2-MILE REACH OF HOUSATONIC RIVER**  
**EAST STREET AREA 2  
HEADWALL PLAN & SECTIONS**

**BBL** BLASLAND, BOUCK & LEE, INC.  
engineers & scientists **FIGURE 8-1**

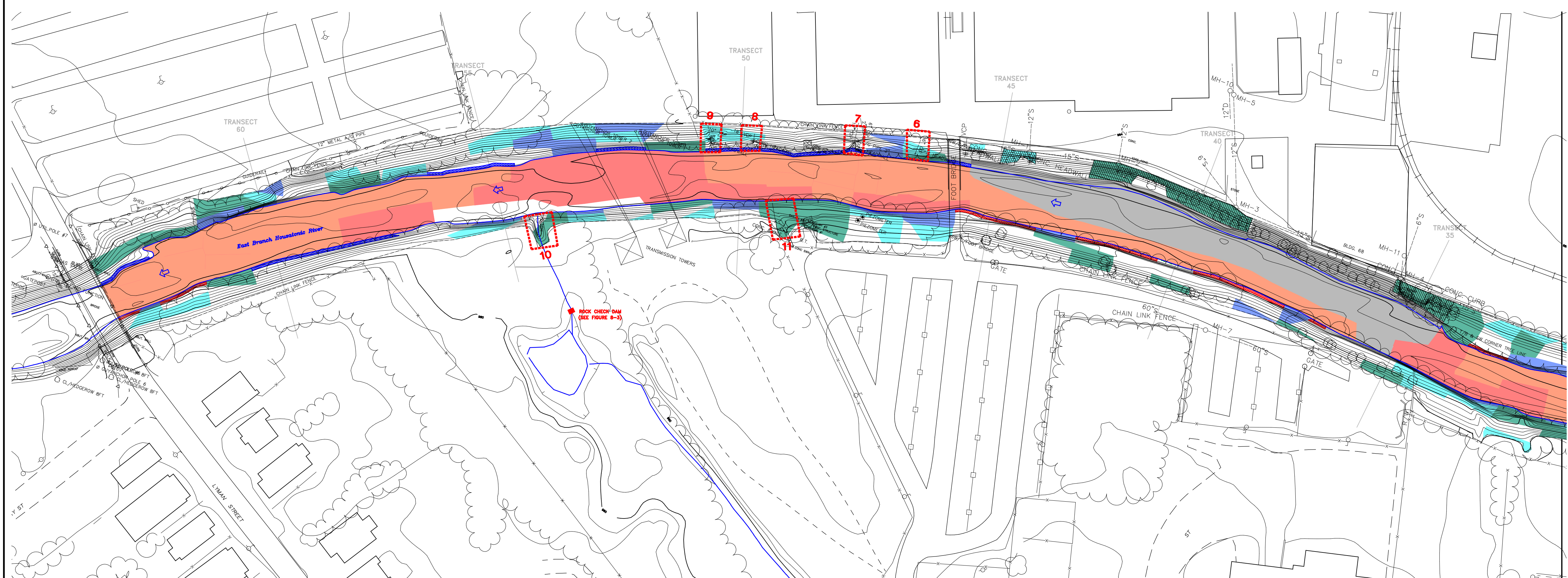




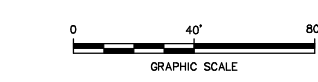
- LEGEND:**
- 1.5 FEET SEDIMENT REMOVAL DEPTH
  - 2 FEET SEDIMENT REMOVAL DEPTH
  - 2.5 FEET SEDIMENT REMOVAL DEPTH
  - 1 FOOT BANK SOIL DEPTH REMOVAL
  - 2 FEET BANK SOIL DEPTH REMOVAL
  - 3 FEET BANK SOIL DEPTH REMOVAL
  - TOP OF BANK
  - BUILDING 68 REMOVAL AREA
  - UPPER 1/2-MILE REMOVAL AREA (COMPLETED AS PART OF BUILDING 68 AREA REMOVAL ACTION)
  - AREA SUBJECT TO BANK STABILIZATION (TYPE I)
  - AREA SUBJECT TO BANK STABILIZATION (TYPE II)
  - APPROXIMATE LOCATION OF SWALE/OUTFALL TO BE ADDRESSED
  - CONTAMINATION BARRIER LOCATION

**EROSION PROTECTION MEASURES - SWALES/OUTFALLS TO BE ADDRESSED AS PART OF 1/2 MILE WORK PLAN**

Swale/Outfall Number	Description of Swale/Outfall	Restoration by others
1	East Headwall - Adjacent to 64X oil/water separator	Restoration by others
2	West Headwall - Adjacent to 64X oil/water separator	Restore in accordance with Source Control Work Plan
3	East Headwall - Adjacent to 64W oil/water separator	Excavate and stabilize around headwall with rip rap
4	West Headwall - Adjacent to 64W oil/water separator	Fill eroded areas behind headwall and stabilize around outfall with rip rap
5	Outfall Pipe - Buried among brush, soils, and small stones; swale below outfall	Excavate and place rip rap in swale, create 5' x 5' settling basin below outfall.
6	6-inch Outfall - Swale below outfall	Place rip rap in swale as part of restoration of excavation, create 5' x 5' settling basin below outfall.
7	Swale below Outfall	Excavate and place rip rap in swale, create 5' x 5' settling basin below outfall.
8	Outfall with Y-notch weir - Swale below outfall	Excavate and place rip rap in swale, create 5' x 5' settling basin below outfall.
9	Outfall - Swale below outfall	Excavate and place rip rap in swale, create 5' x 5' settling basin below outfall.
10	Swale - Slopes steeper than 1:1 slope in most areas; approximately 5 to 6 feet in depth	Re-shape slope, accretion, and headfill with rip rap in swale; place rock check dam at outlet of ponded area upstream
11	Concrete Swale - Located at upper portion of bank	Reconstruct swale with rip rap as part of restoration of excavation
12	Headwall	Excavate and stabilize around headwall with rip rap
13	Outfall	Excavate and place rip rap below outfall, create 5' x 5' settling basin below outfall.



- NOTES:**
- LOCATIONS ARE APPROXIMATE.
  - TYPE I BANK STABILIZATION CONSISTS OF PLACING GEOTEXTILE AND FILLING UNDERCUT BANK AREA WITH RIP-RAP (D<sub>100</sub> = 12"). SEE FIGURES 7-1A,B,C.
  - TYPE II BANK STABILIZATION CONSISTS OF EXCAVATING 2 FEET OF SOIL APPROXIMATELY 3 FEET UP THE BANK, PLACING GEOTEXTILE, 6 INCHES OF GRAVEL AND 18 INCHES OF RIP-RAP (D<sub>100</sub> = 12"). SEE FIGURES 7-1A,B,C.
  - REFER TO FIGURE 8-3 FOR ADDITIONAL NOTES AND DETAILS.



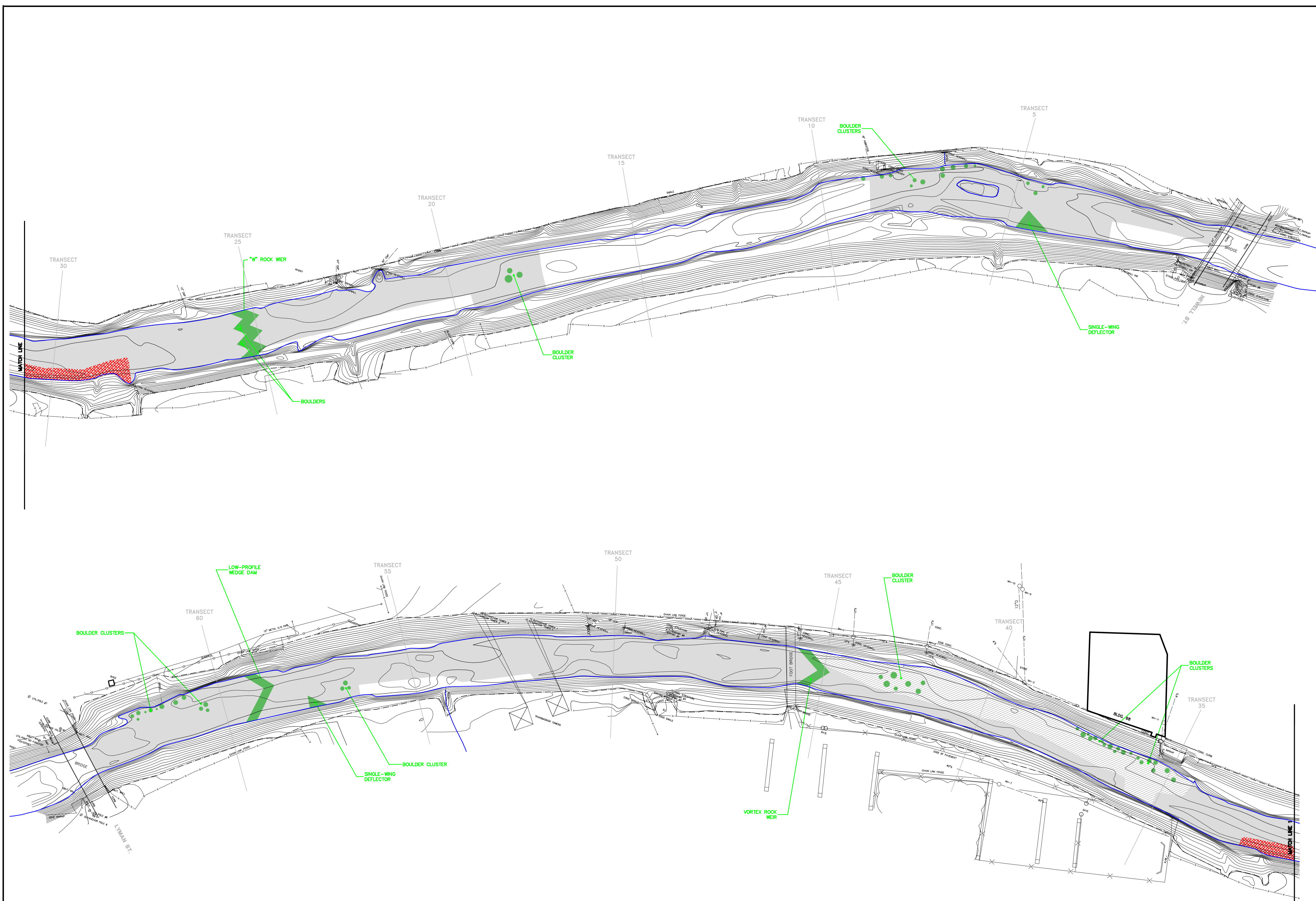
**GENERAL ELECTRIC COMPANY  
PITTSFIELD, MASSACHUSETTS  
REMOVAL ACTION WORK PLAN -  
UPPER 1/2-MILE REACH OF HOUSATONIC RIVER  
BANK STABILIZATION AND  
SWALE/OUTFALL EROSION  
PROTECTION AREAS**

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**FIGURE  
8-2**

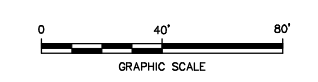
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T: 04/11/2019  
U: 04/11/2019  
V: 04/11/2019  
W: 04/11/2019  
Y: 04/11/2019  
Z: 04/11/2019





- LEGEND:**
- CAP AND ARMOR AREAS (ARMOR STONE D100, 9")
  - CAP AND ARMOR AREAS (ARMOR STONE D100, 12")
  - AQUATIC ENHANCEMENT DEVICES
  - BUILDING 68 REMOVAL AREA

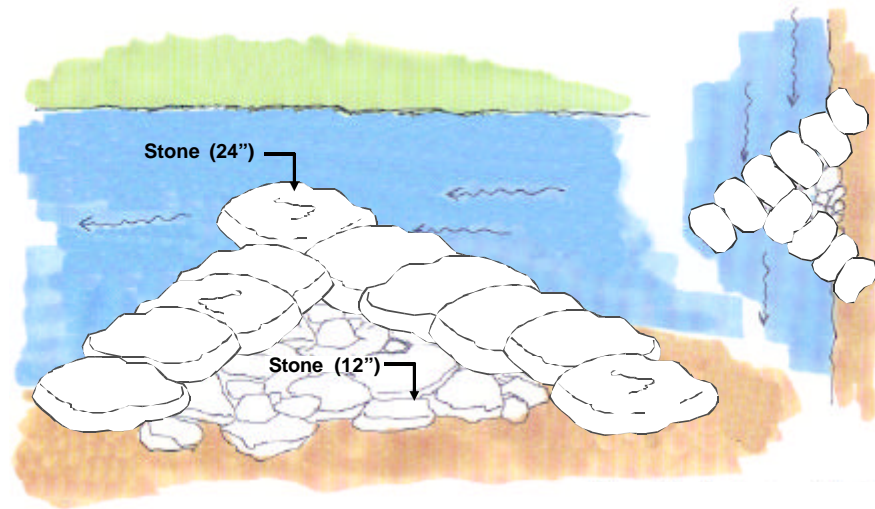
- NOTE:**
1. FIGURE DEPICTS GENERAL LOCATIONS OF MAJOR COMPONENTS OF THE RESTORATION PLAN. SEE FIGURES 4-1 THROUGH 4-4 FOR COMPLETE DOCUMENTATION OF REMOVAL AREAS.
  2. BOULDERS WILL BE PLACED ON TOP OF THE ARMOR LAYER AND WILL NOT BE KEED INTO THE ARMOR LAYER.



**GENERAL ELECTRIC COMPANY  
 PITTSFIELD, MASSACHUSETTS  
 REMOVAL ACTION WORK PLAN -  
 UPPER 1/2-MILE REACH OF HOUSATONIC RIVER  
 CONCEPTUAL RIVER BOTTOM  
 HABITAT RESTORATION PLAN**

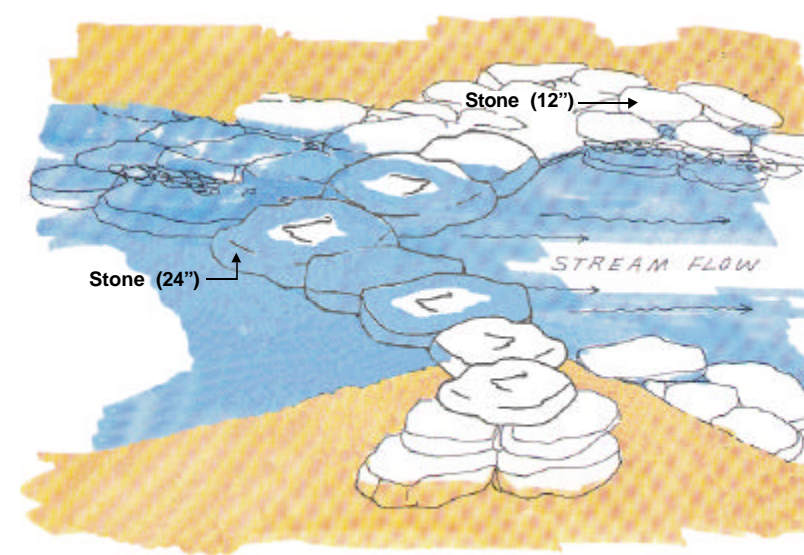
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 20197030/HABITAT/20197804.DWG





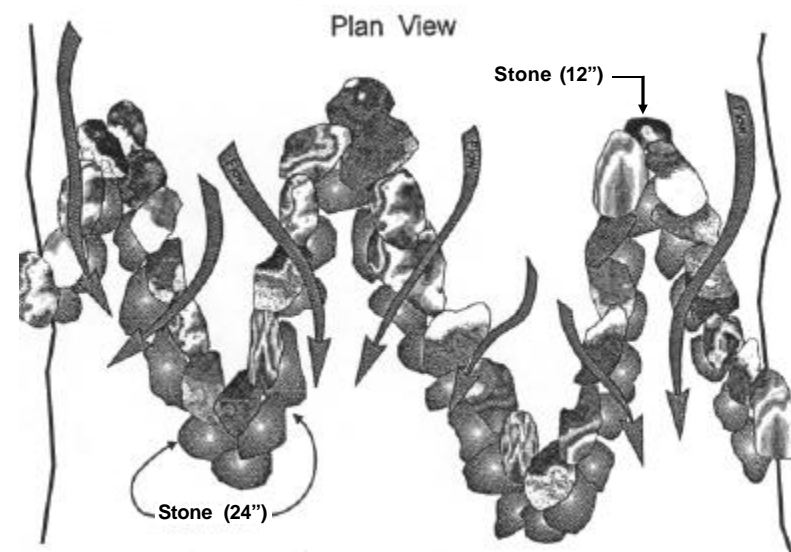
Modified From USDA (1992).

### SINGLE-WING DEFLECTOR



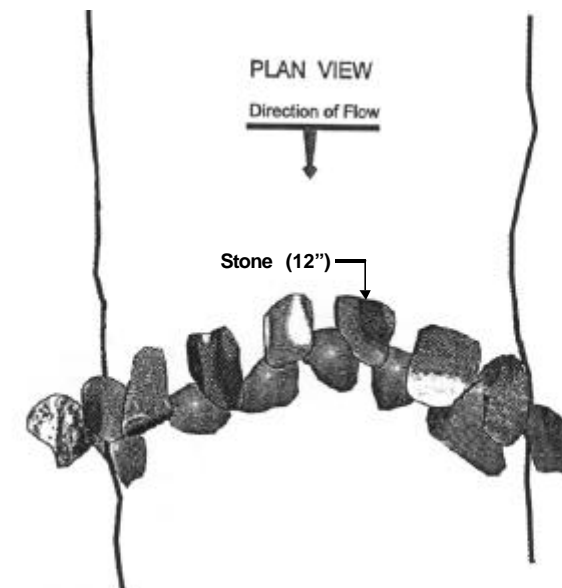
Modified From USDA(1992).

### LOW-PROFILE WEDGE DAM



Modified From Rosgen (1996).

### “W” ROCK WEIR



Modified From Rosgen(1996).

### VORTEX ROCK WEIR

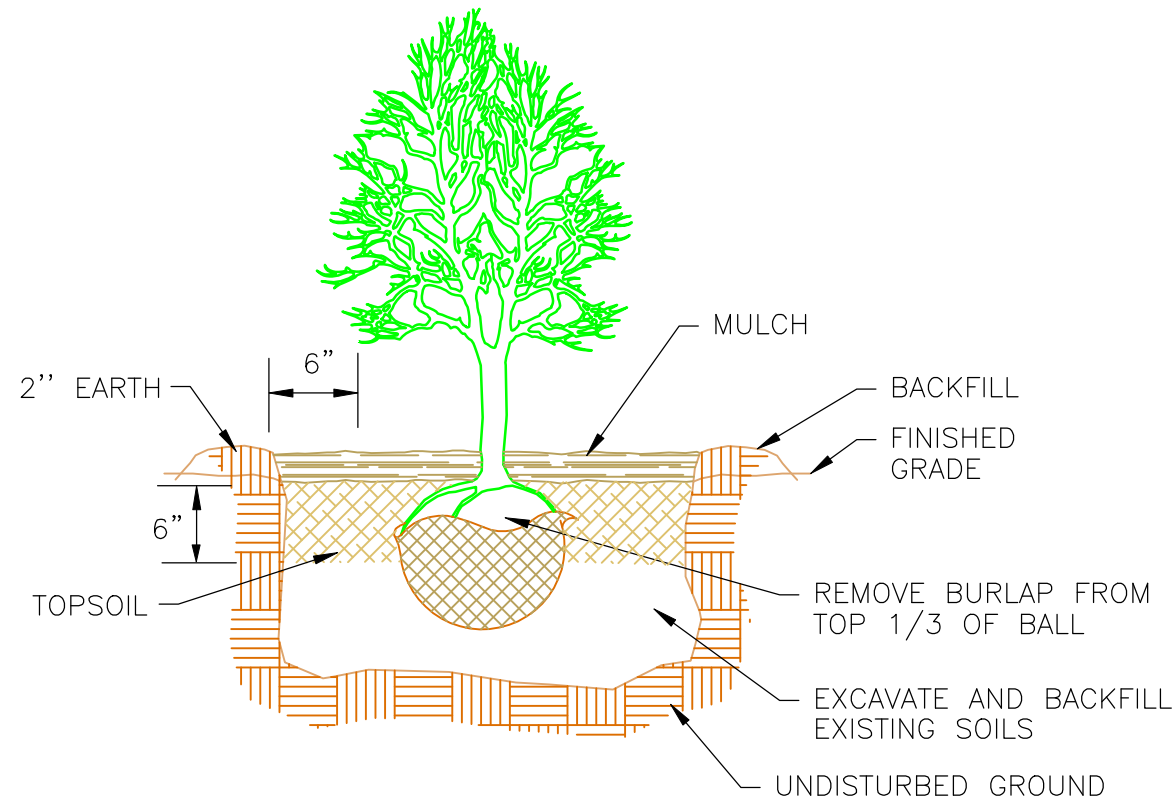
**DRAFT**

GENERAL ELECTRIC COMPANY  
PITTSFIELD, MASSACHUSETTS  
REMOVAL ACTIONWORK PLAN -  
UPPER 1/2-MILE REACH OF HOUSATONIC RIVER

HABITAT RESTORATION  
STRUCTURES

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engineers & scientists

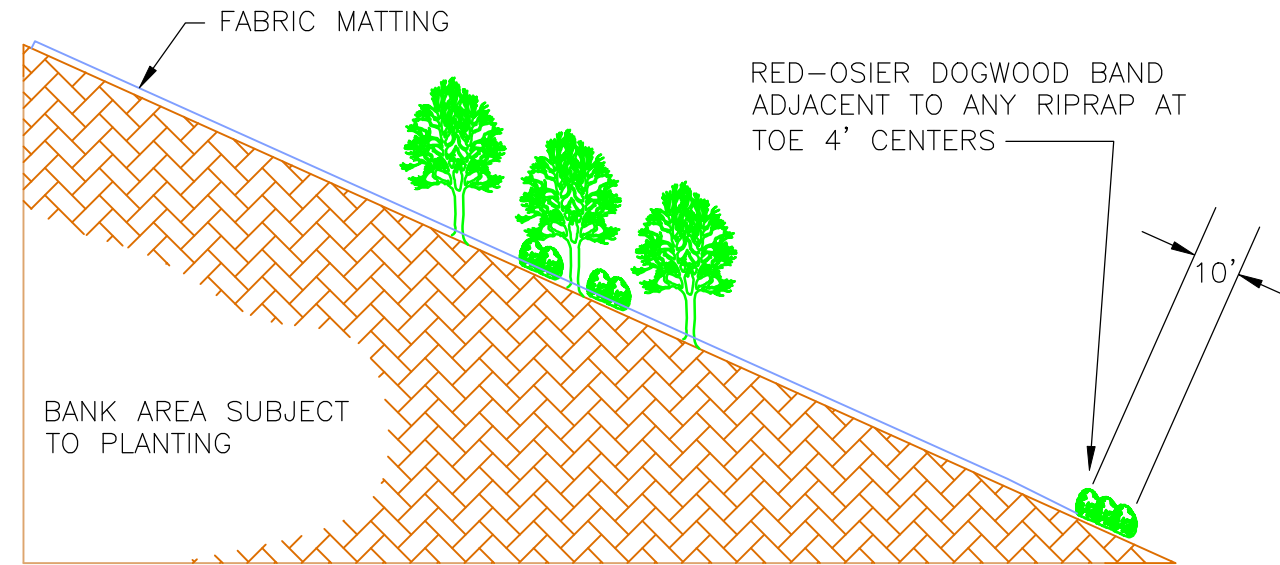
FIGURE  
9-2



NOTE: IN AREAS OF BANK SOIL EXCAVATION, A 6 INCH LAYER OF TOPSOIL WILL BE INSTALLED BENEATH EACH TREE/SHRUB.

### TREE & SHRUB PLANTING DETAIL

SCALE: N.T.S.



### CROSS SECTION

SCALE: N.T.S.

#### PLANT SPECIFICATIONS:

CANOPY: 4' – 6' HIGH (UNLESS OTHERWISE APPROVED BY THE TRUSTEES), CONTAINER GROWN.

UNDERSTORY: 2' – 3' HIGH (UNLESS OTHERWISE APPROVED BY THE TRUSTEES), CONTAINER GROWN.

CANOPY: (APPROXIMATELY 700 TREES/ ACRE)

TREES WILL BE PLANTED IN VARYING DENSITIES, CLUMPS, OR IF NECESSARY, SINUOUS LINES, TO MORE CLOSELY MIMIC NATURAL CONDITIONS.

- 37.5% EASTERN COTTONWOODS
- 37.5% BOXELDERS
- 12.5% BLACK WILLOWS
- 12.5% SILVER MAPLES

UNDERSTORY: (APPROXIMATELY 730 SHRUBS/ ACRE)

PLANTED IN 30' X 50' OVALS  
SPECIES WITHIN OVALS ON 4' CENTERS  
MINIMUM OF 40' BETWEEN PATCHES.

- 25% SERVICEBERRY
- 25% NORTHERN ARROWWOOD
- 25% SILKY DOGWOOD
- 25% WINTERBERRY HOLLY

VINES: (APPROXIMATELY 40 VINES/ ACRE)

- 100% GRAPE

NOTE: FIGURE PREPARED BY McLAREN HART, INC.



GENERAL ELECTRIC COMPANY  
PITTSFIELD, MASSACHUSETTS  
REMOVAL ACTION WORK PLAN—  
UPPER 1/2-MILE REACH OF HOUSATONIC RIVER

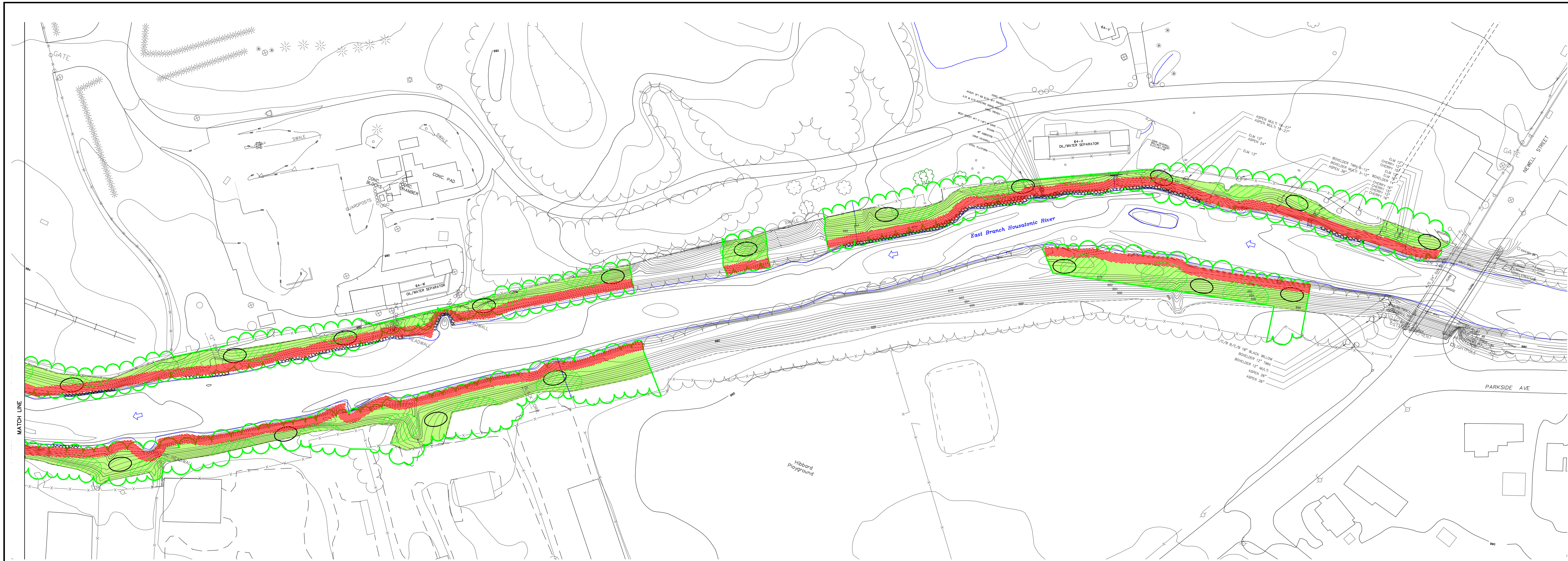
### PROPOSED BANK PLANTINGS



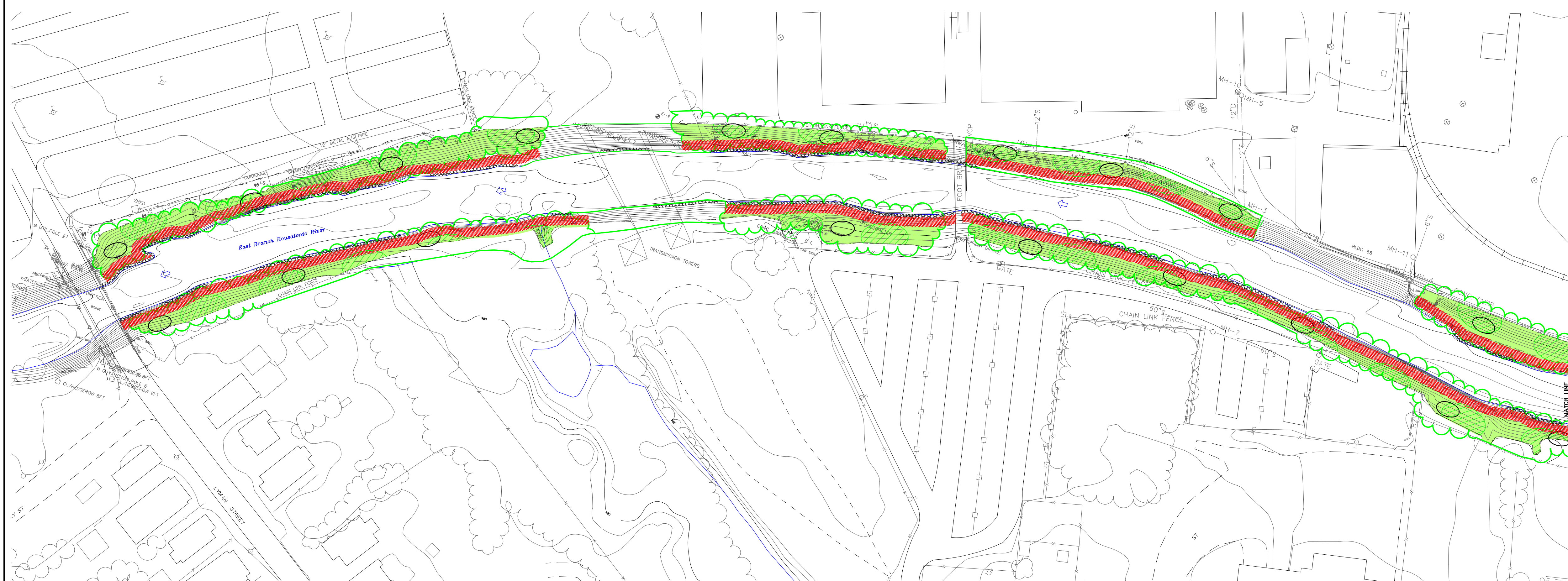
BLASLAND, BOUCK & LEE, INC.  
engineers & scientists

FIGURE  
9-3

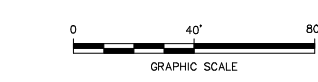




- LEGEND:**
- TOP OF BANK
  - VEGETATION REMOVAL/RESTORATION AREA
  - UNDERSTORY SPECIES APPROXIMATELY 30' X 50' PATCHES, 40' APART (APPROXIMATE 4 FOOT SPACING BETWEEN SPECIES) (SEE PLANTING DETAIL ON FIGURE 9-3)
  - CANOPY SPECIES (APPROXIMATE 8 FOOT SPACING BETWEEN SPECIES) (SEE PLANTING DETAIL ON FIGURE 9-3)
  - VINE PATCHES, APPROXIMATE 15'X30' PATCHES 150' APART
  - STONE/RIP-RAP
  - RED-OSIER-DOGWOOD



- NOTES:**
1. REFERENCE MAP SOURCE.
  2. CANOPY SPECIES INCLUDE:  
75% COMBINATION OF:  
EASTERN COTTONWOOD (POPULUS DELTOIDES)  
BOX ELDER (ACER NEGUNDO)  
25% COMBINATION OF:  
BLACK WILLOW (SALIX NIGRA)  
SILVER MAPLE (ACER SACCHARINUM)
  3. UNDERSTORY SPECIES INCLUDE:  
SILKY DOGWOOD (CORNUS AMOMUM)  
RED-OSIER DOGWOOD (CORNUS SERICEA)  
WINTERBERRY HOLLY (ILEX VERTICILLATA)  
SERVICEBERRY (AMELANCHIER LAEVIS)  
NORTHERN ARROWWOOD (VIBURNUM DENTATUM)
  4. WOODY VINES INCLUDE VITIS SP.
  5. ALL RESTORED AREAS TO BE COVERED WITH A FULLY BIODEGRADABLE EROSION CONTROL MATTING.
  6. ALL RESTORED AREAS WILL BE SOWN WITH A HERBACEOUS SEED MIXTURE CONSISTING OF A FAST GROWING NATIVE ANNUAL GRASS FOR EROSION CONTROL AND NATIVE GRASSES AND WILDFLOWERS.
  7. MAPPING IS BEST AVAILABLE INFORMATION AS OF 12/10/98 BASED ON MAPPING PROVIDED BY LOCKWOOD MAPPING, INC. PREPARED FROM 1990 AERIAL PHOTOGRAPHY. DATA PROVIDED BY GENERAL ELECTRIC, AND BLASLAND AND BOUCK, P.C. CONSTRUCTION PLANS. RIVERBANK AND RIVER BED TOPOGRAPHIC INFORMATION PROVIDED BBL FROM OCTOBER12-23, 1998 FIELD SURVEY.
  8. COORDINATE GRID BASED ON 1927 STATE PLAN COORDINATES.
  9. ELEVATION DATUM REFERENCED TO NGVD 1929.



GENERAL ELECTRIC COMPANY  
PITTSFIELD, MASSACHUSETTS  
REMOVAL ACTION WORK PLAN—  
UPPER 1/2-MILE REACH OF HOUSATONIC RIVER

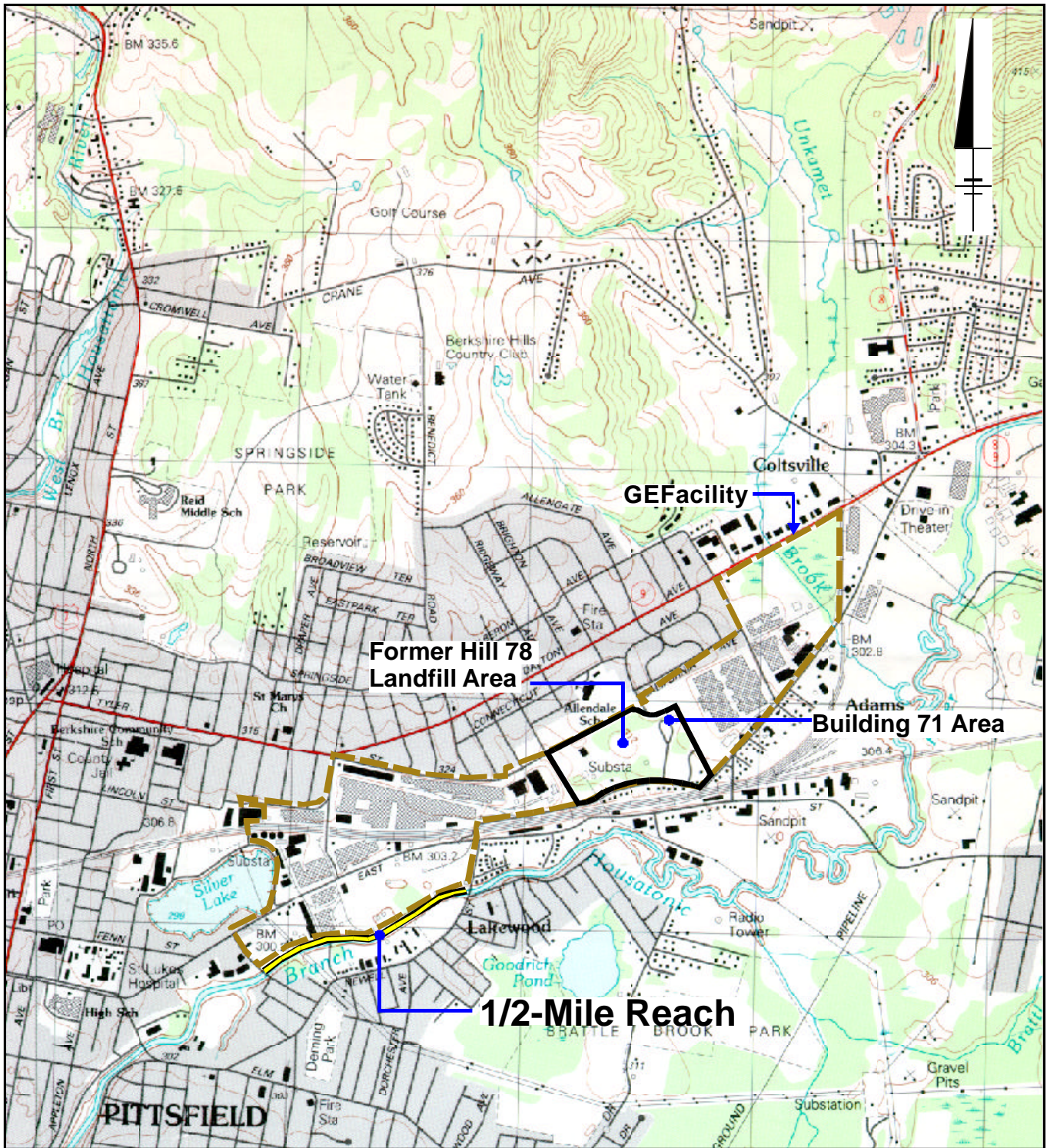
**STREAMBANK  
REPLANTING PLAN**

**BBL** BLASLAND, BOUCK & LEE, INC.  
engineers & scientists

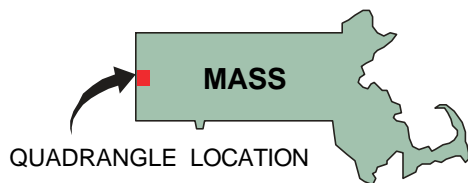
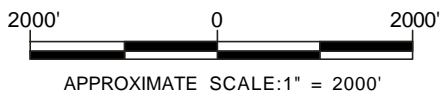
FIGURE  
**9-4**

© 2019 TIA.DWG, 2019 TX18.DWG  
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2019/030/2019/007.DWG





REFERENCE: PITTSFIELD EAST, MASS. USGS QUADS., 7.5 MIN. SERIES, 1988



GENERAL ELECTRIC COMPANY  
 PITTSFIELD, MASSACHUSETTS  
 REMOVAL ACTION WORK PLAN -  
 UPPER 1/2-MILE REACH OF HOUSATONIC RIVER

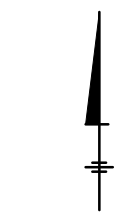
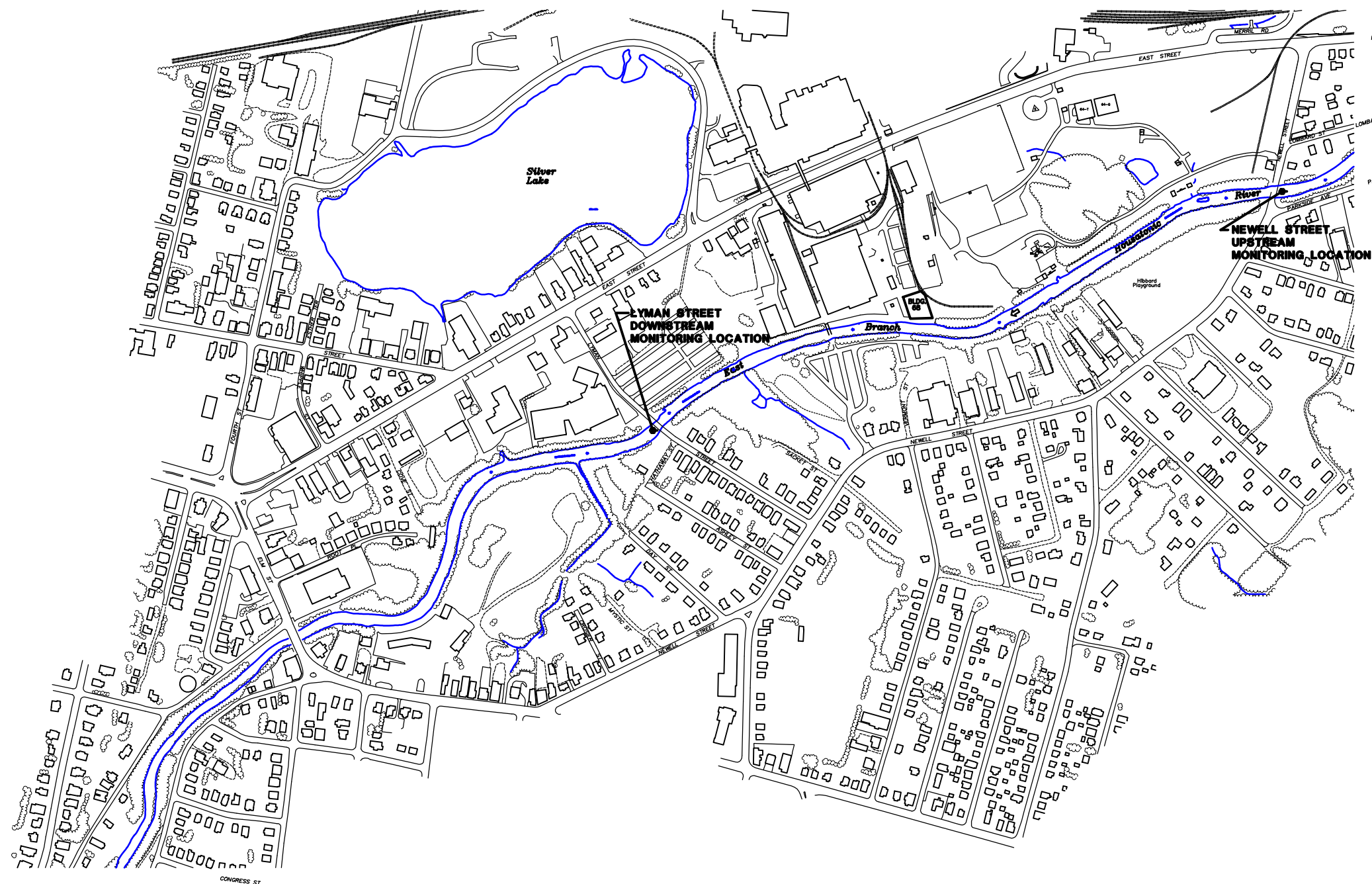
**CONSOLIDATION AREA  
 SITE LOCATION MAP**

**BBL**

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 engineers & scientists

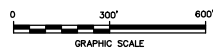
**FIGURE  
 10-1**





**LEGEND:**

- PROPOSED WATER COLUMN AND BIOTA MONITORING LOCATION
- EDGE OF WATER
- PAVED ROADWAY
- UNPAVED ROADWAY OR TRAIL
- RAILROAD
- VEGETATION



**NOTES:**

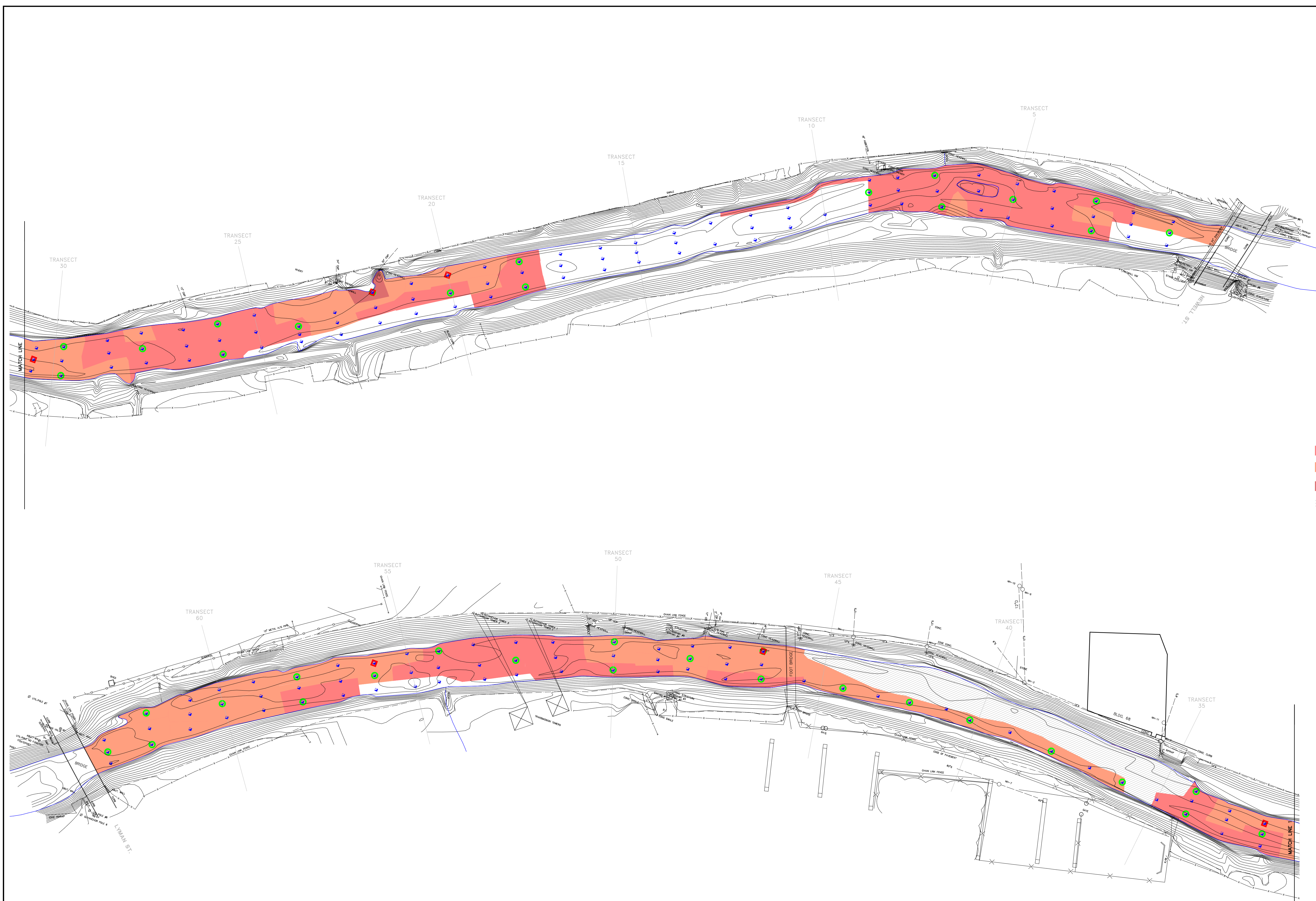
1. THE BASE MAP FEATURES PRESENTED ON THIS FIGURE WERE PHOTOGRAMMETRICALLY MAPPED FROM APRIL 1990 AERIAL PHOTOGRAPHS, AND FROM JANUARY 1997 AND OCTOBER 1998 SURVEYS PERFORMED BY BBL.
2. MONITORING LOCATIONS ARE APPROXIMATE. MONITORING TO BE PERFORMED BEFORE, DURING AND FOLLOWING REMOVAL AND REPLACEMENT ACTIVITIES AS SPECIFIED IN THE WORK PLAN.
3. MAPPING IS BEST AVAILABLE INFORMATION AS OF 12/10/98 BASED ON MAPPING PROVIDED BY LOCKWOOD MAPPING, INC. PREPARED FROM 1990 AERIAL PHOTOGRAPHY; DATA PROVIDED BY GENERAL ELECTRIC; AND BLASLAND AND BOUCK, P.C. CONSTRUCTION PLANS, RIVERBANK AND RIVER BED TOPOGRAPHIC INFORMATION PROVIDED BBL FROM OCTOBER12-23, 1998 FIELD SURVEY.
4. COORDINATE GRID BASED ON 1927 STATE PLAN COORDINATES.

**DRAFT**



<p><b>GENERAL ELECTRIC COMPANY PITTSFIELD, MASSACHUSETTS REMOVAL ACTION WORK PLAN- UPPER 1/2-MILE REACH OF HOUSATONIC RIVER</b></p>	
<p><b>PROPOSED WATER COLUMN AND BIOTA MONITORING LOCATIONS</b></p>	
<p><b>BBL</b></p>	<p>BLASLAND, BOUCK &amp; LEE, INC. engineers &amp; scientists</p>
<p><b>FIGURE 11-1</b></p>	

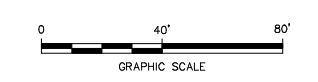




- LEGEND:
- 1.5 FEET SEDIMENT REMOVAL DEPTH
  - 2.0 FEET SEDIMENT REMOVAL DEPTH
  - 2.5 FEET SEDIMENT REMOVAL DEPTH
  - BUILDING 68 REMOVAL AREA
  - EPA SEDIMENT SAMPLE LOCATION (AUGUST – OCTOBER 1998)
  - RESTORED SEDIMENT MONITORING LOCATION
  - SEDIMENT CAP ISOLATION LAYER MONITORING LOCATION

NOTE:

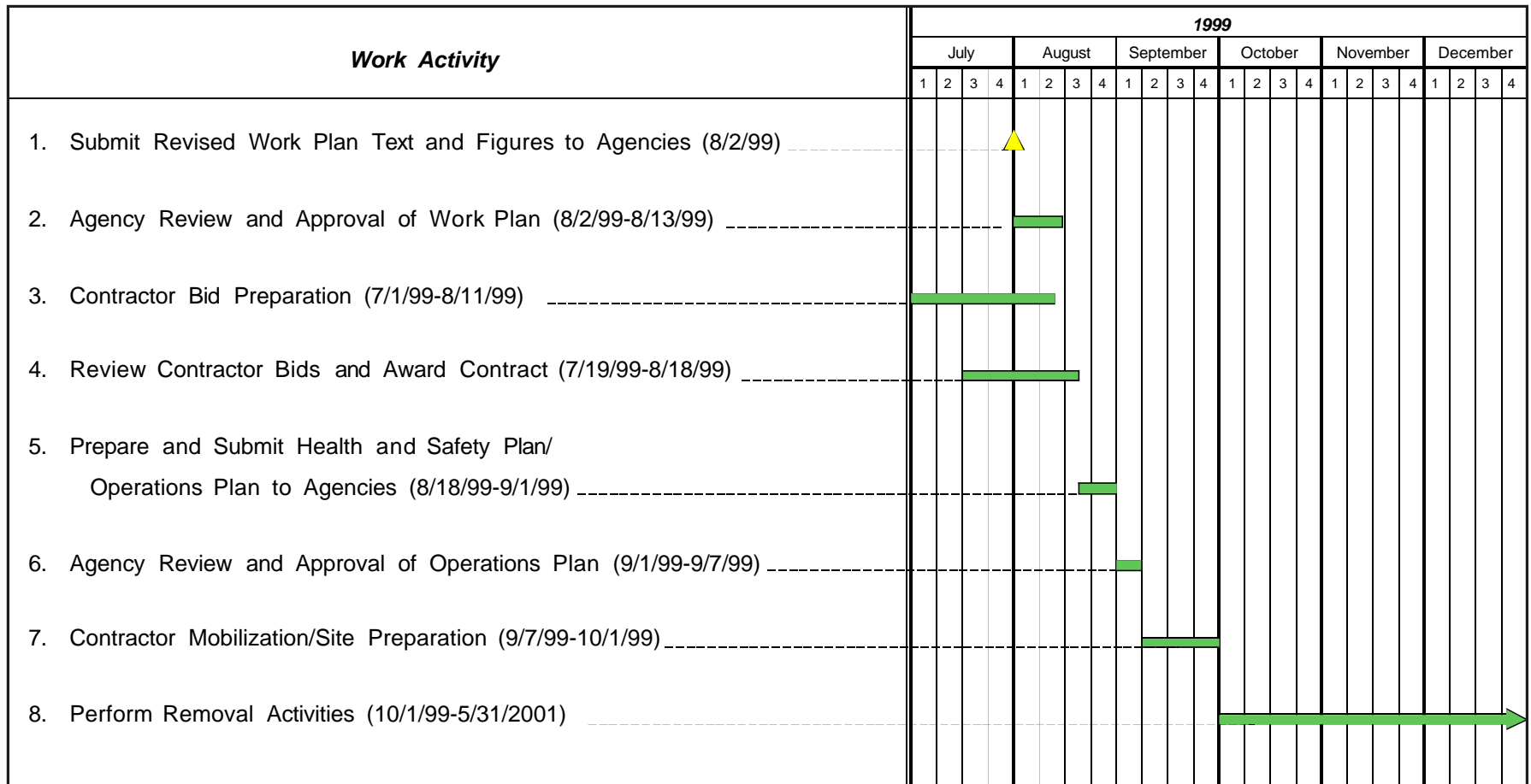
1. FIGURE DEPICTS GENERAL LOCATIONS OF MAJOR COMPONENTS OF THE RESTORATION PLAN. SEE FIGURES 4-1 THROUGH 4-4 FOR COMPLETE DOCUMENTATION OF REMOVAL AREAS.
2. SEDIMENT CAP ISOLATION LAYER MONITORING LOCATIONS ARE SUBJECT TO CHANGE BASED ON PCB CONCENTRATIONS IN POST EXCAVATION SAMPLES.



GENERAL ELECTRIC COMPANY  
 PITTSFIELD, MASSACHUSETTS  
 REMOVAL ACTION WORK PLAN –  
 UPPER 1/2-MILE REACH OF HOUSATONIC RIVER  
**SEDIMENT CAP ISOLATION  
 LAYER AND RESTORED SEDIMENT  
 MONITORING LOCATIONS**


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 REST-OTHERREST-OTHER-SHD\*  
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 6/11/99 SYN-SA-NES AH QMS MAD  
 20197030/HABITAT/20197B06.DWG





**KEY:**

 = Activity Duration

 = Milestone

**NOTES:**

1. The above schedule is dependent upon Agency review/approval timeframes.

GENERAL ELECTRIC COMPANY  
PITTSFIELD MASSACHUSETTS  
REMOVAL ACTION WORK PLAN -  
UPPER 1/2 MILE REACH OF HOUSATONIC RIVER

**ANTICIPATED  
PROJECT SCHEDULE**

**BBL**

BLASLAND, BOUCK & LEE, INC.  
engineers & scientists

FIGURE  
**13-1**