

Sources: Project Boundary - MN Land Trust; Basemap - ESRI World Street Map

- Radio Tower Bay
- Aquatic Habitat Restoration Sites
- Other Habitat Restoration Projects
- City Boundary

N

 1 inch = 2.5 miles
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Figure 1: Habitat Restoration Projects Within the St. Louis River estuary Area of Concern (AOC)

Minnesota Land Trust:
Radio Tower Bay EAW





Sources: Project Boundary - MN Land Trust; Parcels - St. Louis County; Basemap - ESRI - World Imagery

-  Slurry Pipeline (Approx. 10,850 L.F.)
-  Mud Lake Dewatering Facility
-  Radio Tower Bay (Dredging Site)

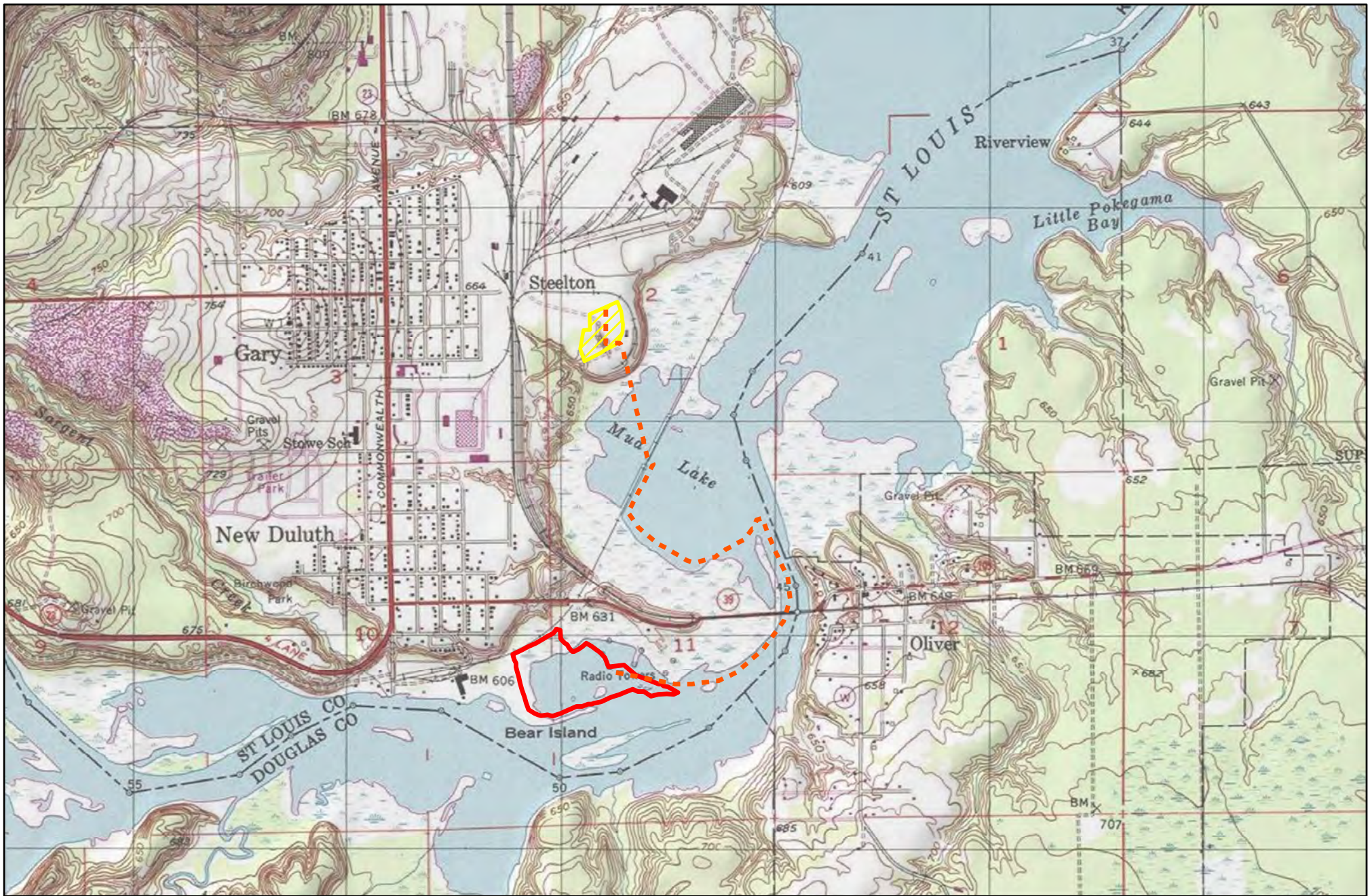
N
1 inch = 1,200 feet
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Figure 2: Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota Vicinity Map and Project Overview

Minnesota Land Trust:
Radio Tower Bay EAW



Sources: Project Boundary - MN Land Trust; Basemap - ESRI USA Topo Maps

- - - - - Proposed Slurry Pipeline
- Mud Lake Dewatering Facility
- Radio Tower Bay

N

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Figure 3: Topographic Map of Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota


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Radio Tower Bay EAW

ID	Property Owner
1	City of Duluth
2	William Kaper, Jr.
3	N P RY Co.
4	State of Minnesota



Sources: Project Boundary - MN Land Trust; Parcels - St. Louis County; Basemap - ESRI - World Imagery

-  Radio Tower Bay
-  Parcel Unit


 1 inch = 300 feet
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Figure 4: Parcel Map for Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota

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Figure 5 Aerial views of Radio Tower Bay in 2007, Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota (views towards the northeast with river shown in the lower half of the images).

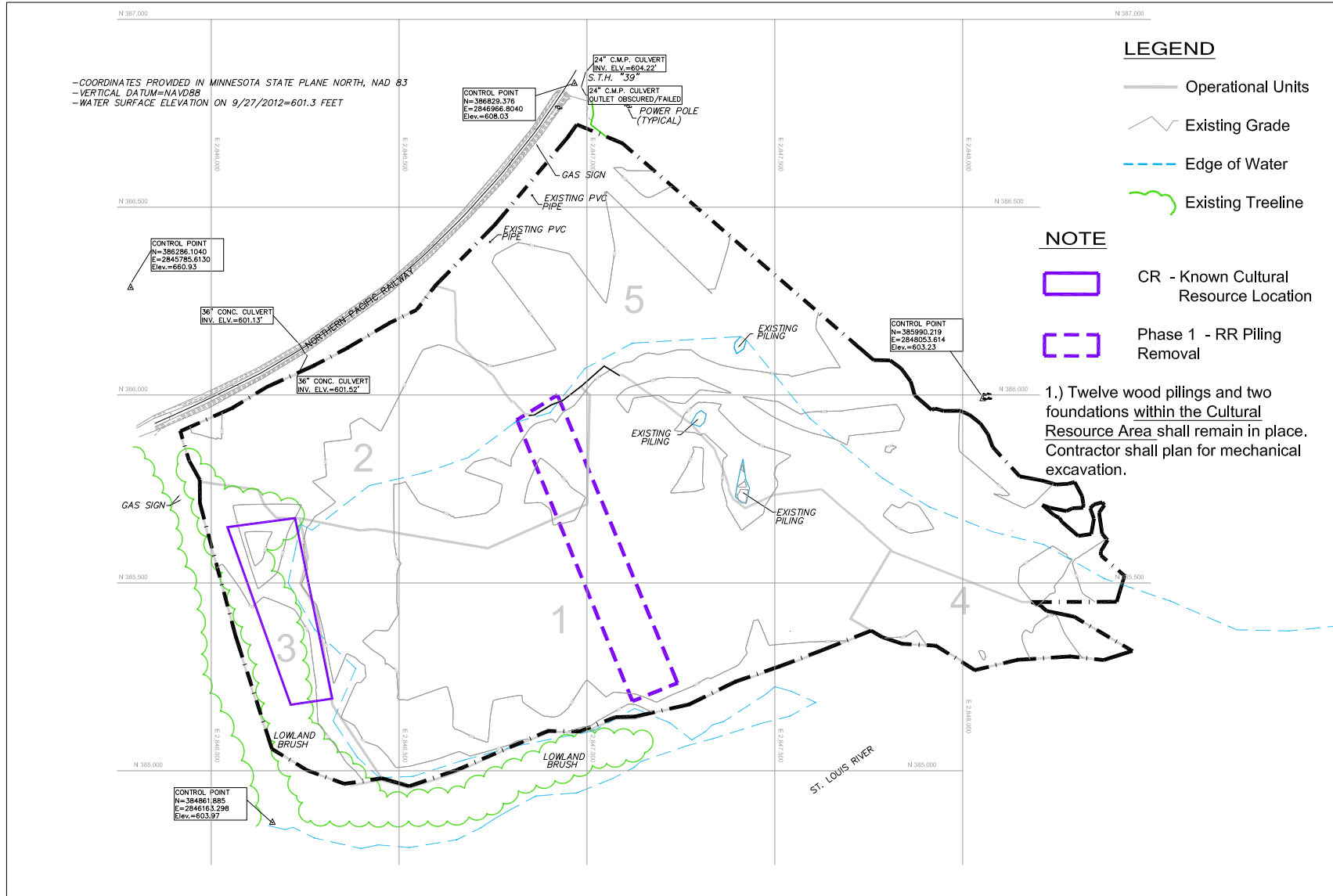
Minnesota Land Trust
Radio Tower Bay EAW



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Figure 6. Examples of wood waste present within Radio Tower Bay, St. Louis County, Minnesota.

Minnesota Land Trust
Radio Tower Bay EAW



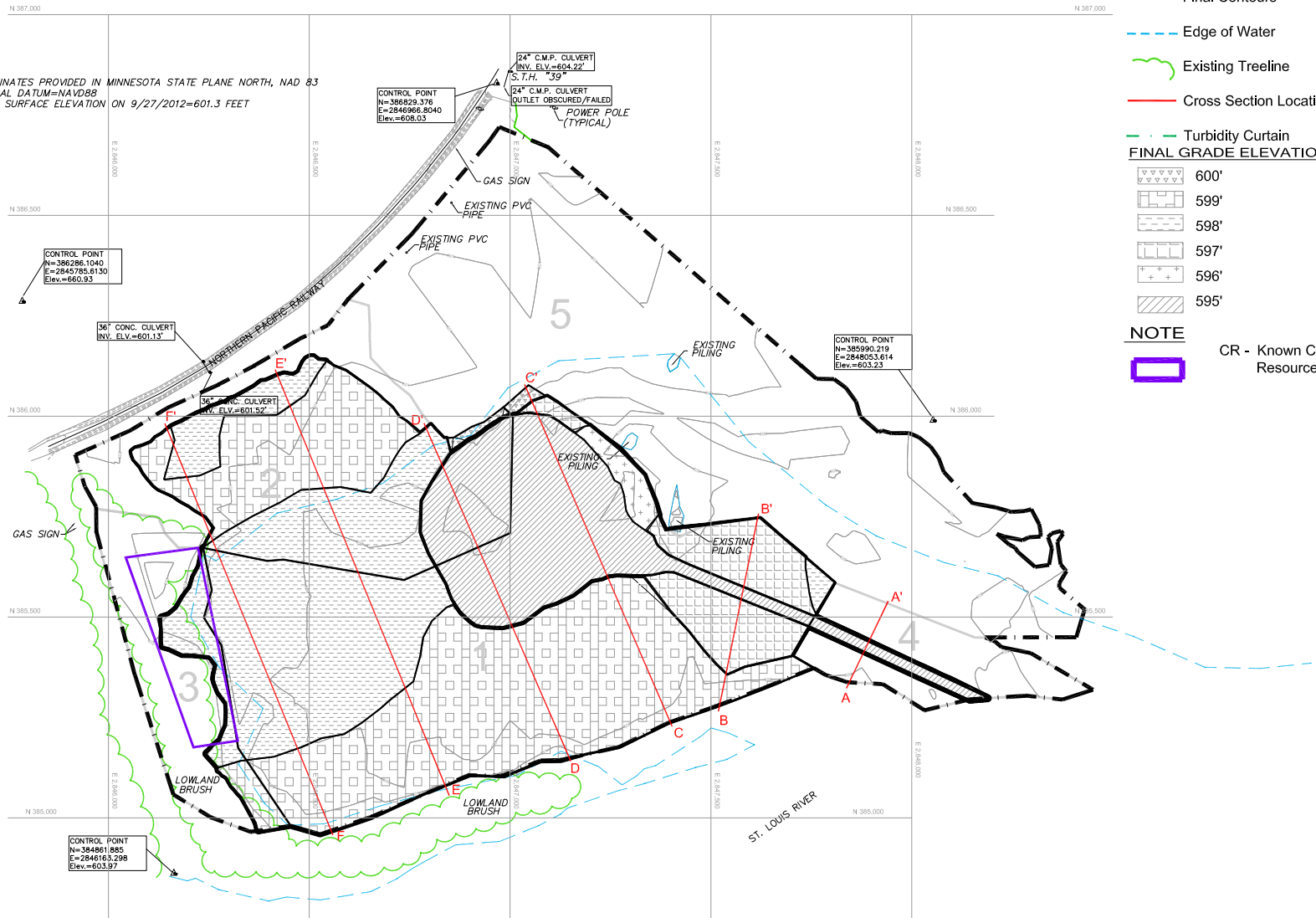
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Figure 7: Existing conditions with phase 1 piling removal area, proposed operational unit locations, and current bathymetry in Radio Tower Bay prior to wood waste and sediment removal.

-COORDINATES PROVIDED IN MINNESOTA STATE PLANE NORTH, NAD 83
 -VERTICAL DATUM=NAVD83
 -WATER SURFACE ELEVATION ON 9/27/2012=601.3 FEET



Location: M:\Radio Tower\ACADDWG\Sheets\EXHIBITS\FINAL EXHIBITS.dwg Plotted April 18, 2014, 9:48:59 AM



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Figure 8: Proposed future conditions with final contours and location of reference cross-sections in Radio Tower Bay following wood waste and sediment removal.

Location: F:\ReInfo_Tower\ACAD\DWG\Sheets\EXHIBITS\FINAL EXHIBITS.dwg Plotted By: Greg Woodcock Plotted: April 18, 2014, 10:05:40 AM

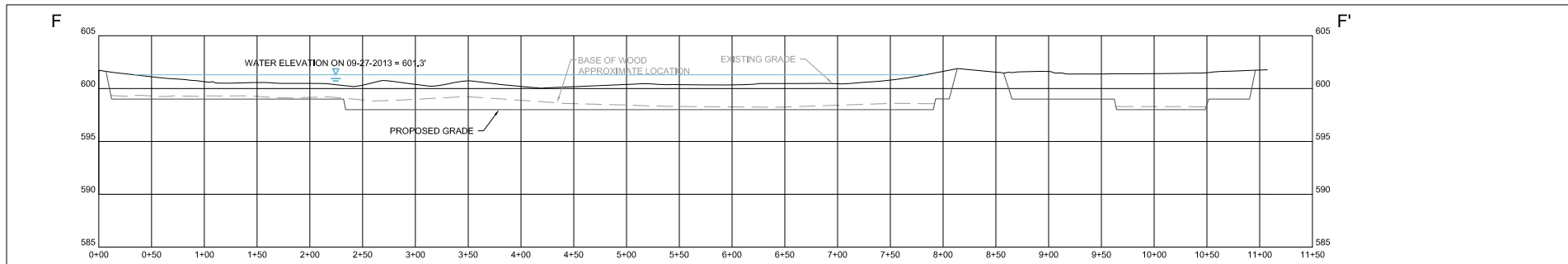
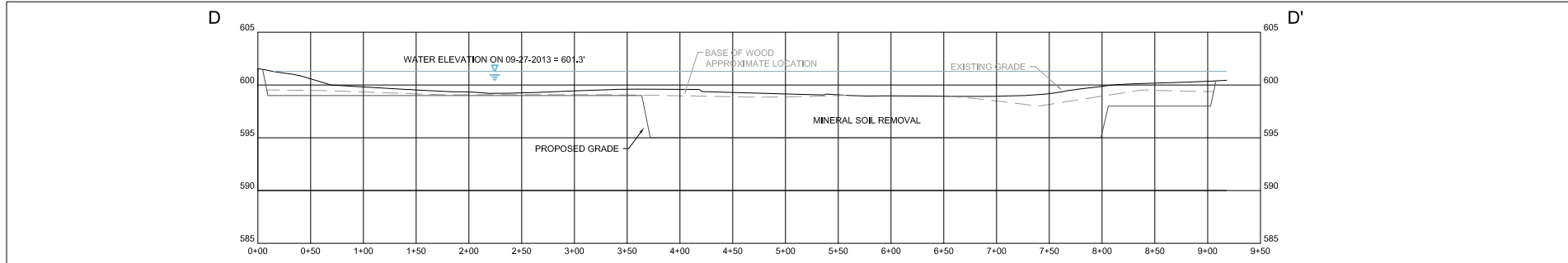
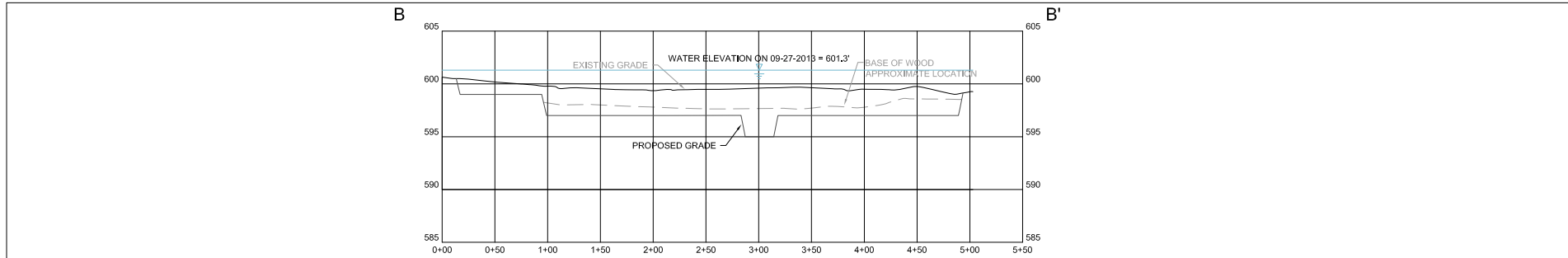
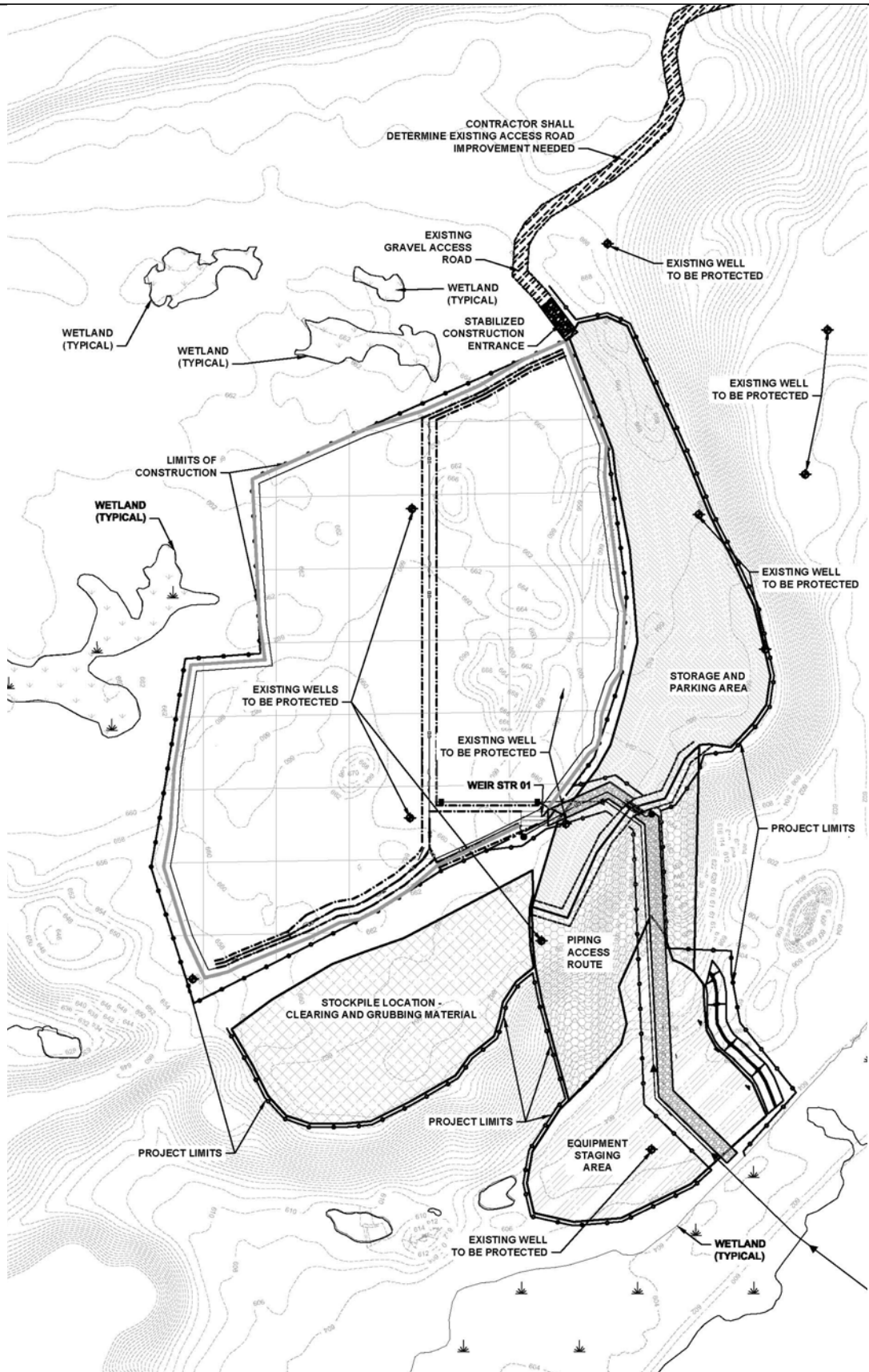


Figure 9: Existing and proposed cross sections for Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota.

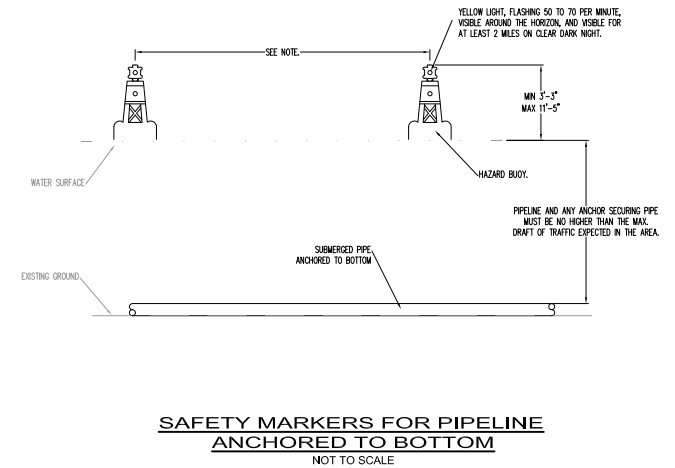
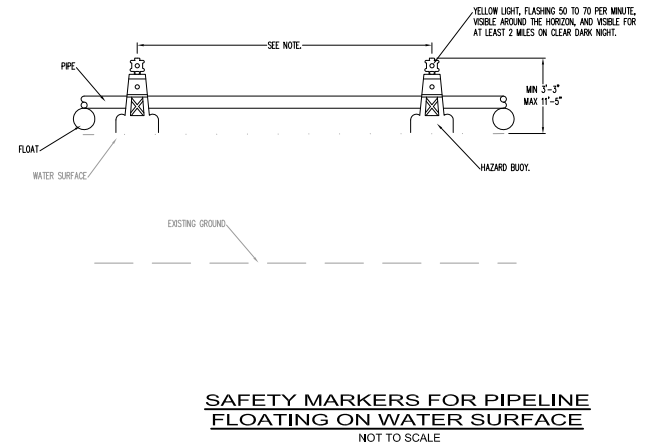
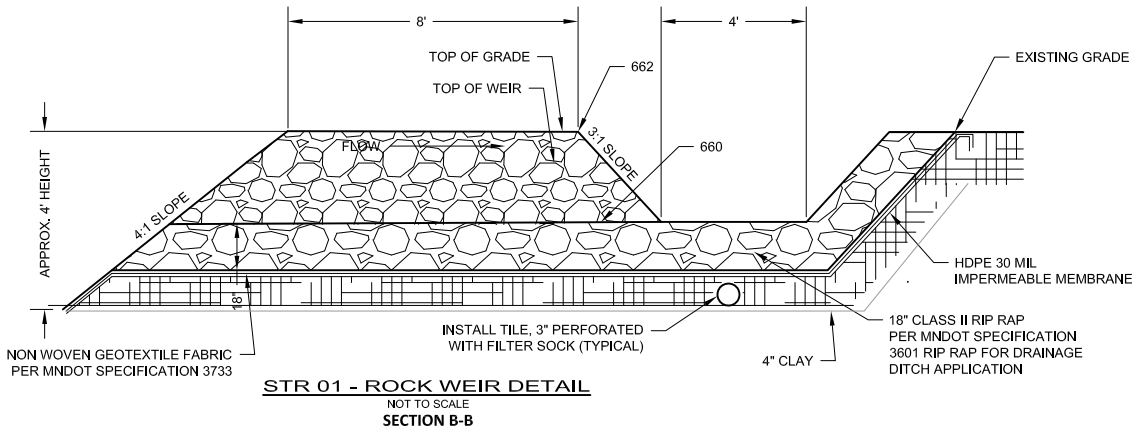
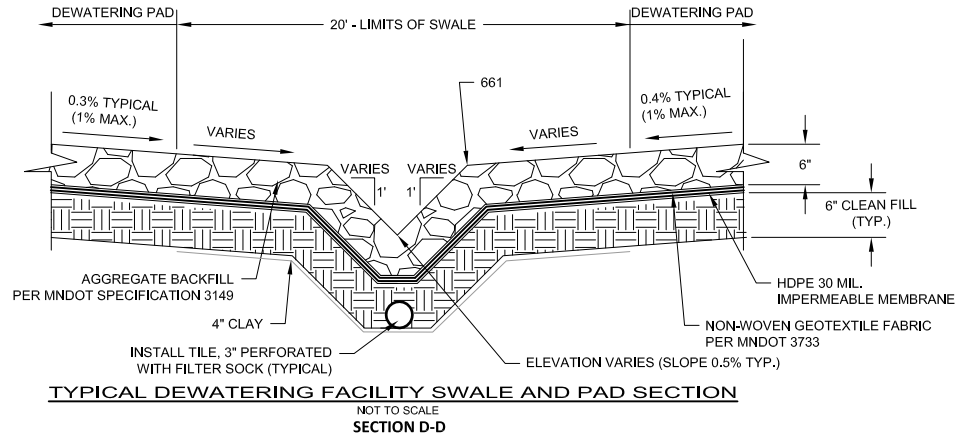


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Figure 10. Dewatering facility layout including slurry pipeline and carriage water return paths for Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota.

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Location: R:Radio_Tower/ACAD/DWG/Sheets/EXHIBITS/FINAL EXHIBITS.dwg Plotted By: Greg Woodcock Plotted: April 18, 2014, 10:11:37 AM



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Figure 11: Details for pipeline safety markers, dewatering facility pad design and rock weir for Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota

Location: R:\Radio Tower\ACAD\DWG\Sheets\EXHIBITS\FINAL EXHIBITS.dwg Plotted By: Greg Woodcock Plotted: April 18, 2014, 10:19:10 AM

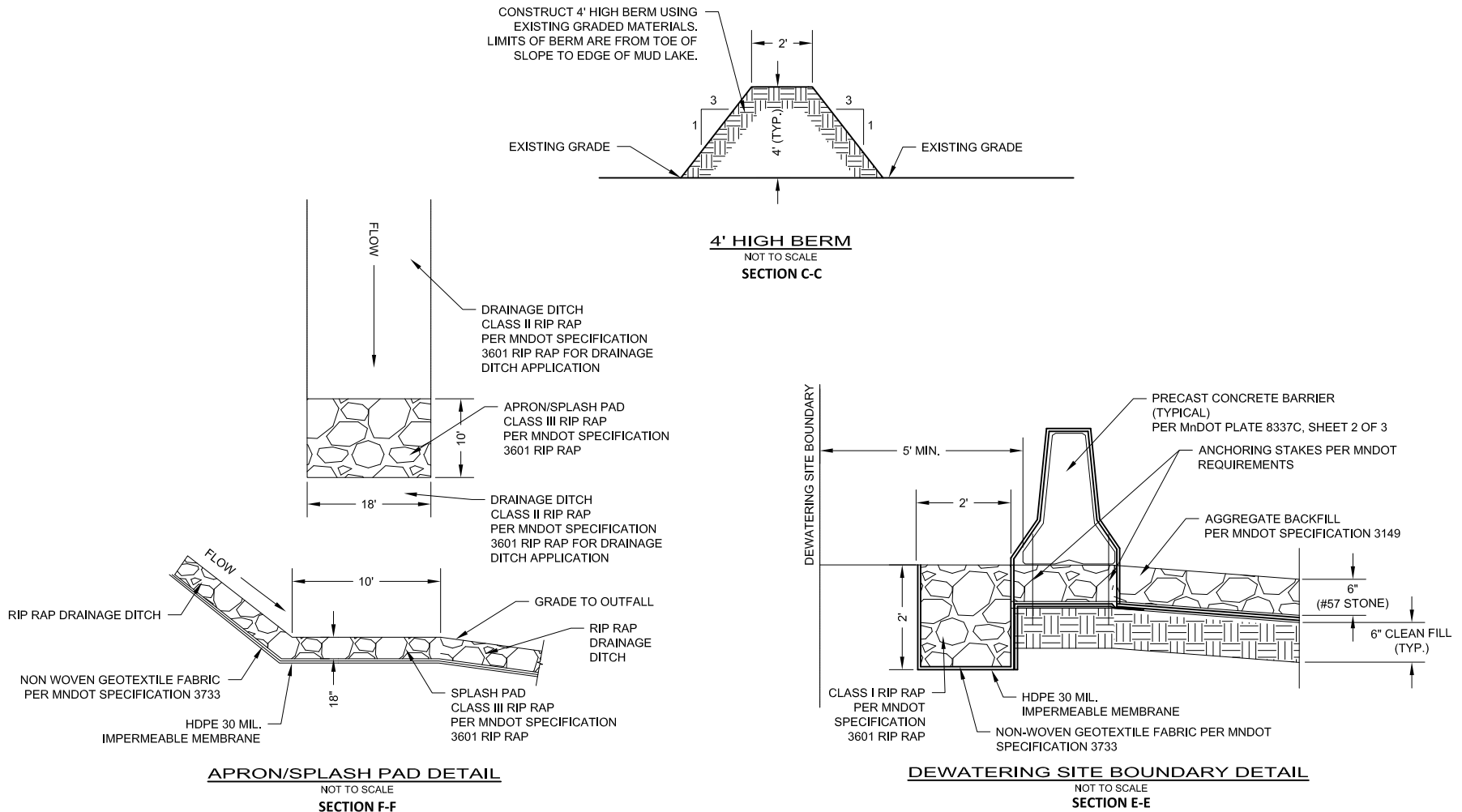
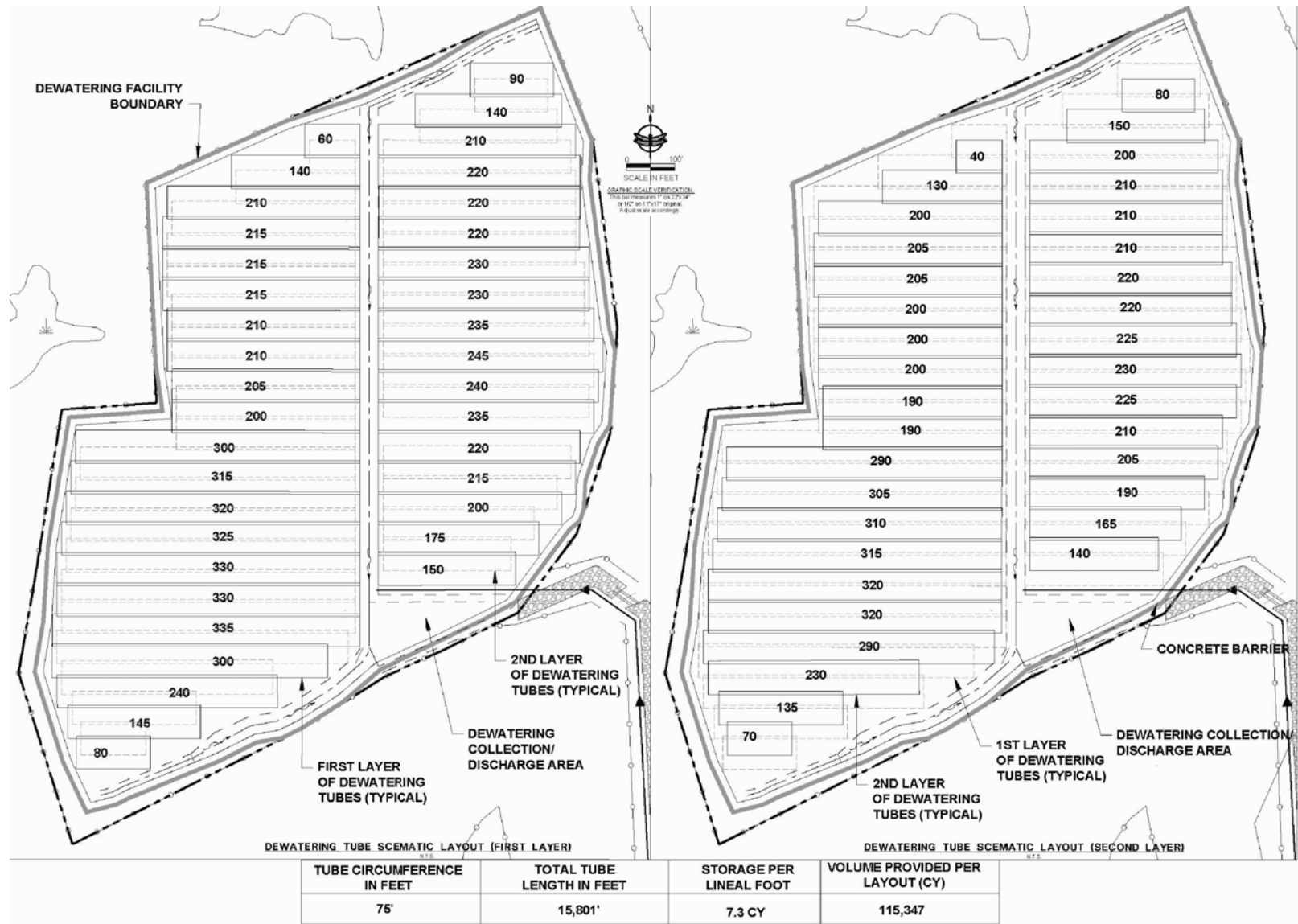


Figure 12: Details for dewatering facility pad/boundary and carriage water return ditch/splash pad for Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota

Location: R:\Radio Tower\ACAD\DWG\Sheets\EXHIBITS\FINAL EXHIBITS.dwg Plotted By: Greg Woodcock Plotted: April 18, 2014, 10:22:51 AM



[INITIALS]



April 2014



Figure 13: Geotextile tube layout within the dewatering facility for Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota.

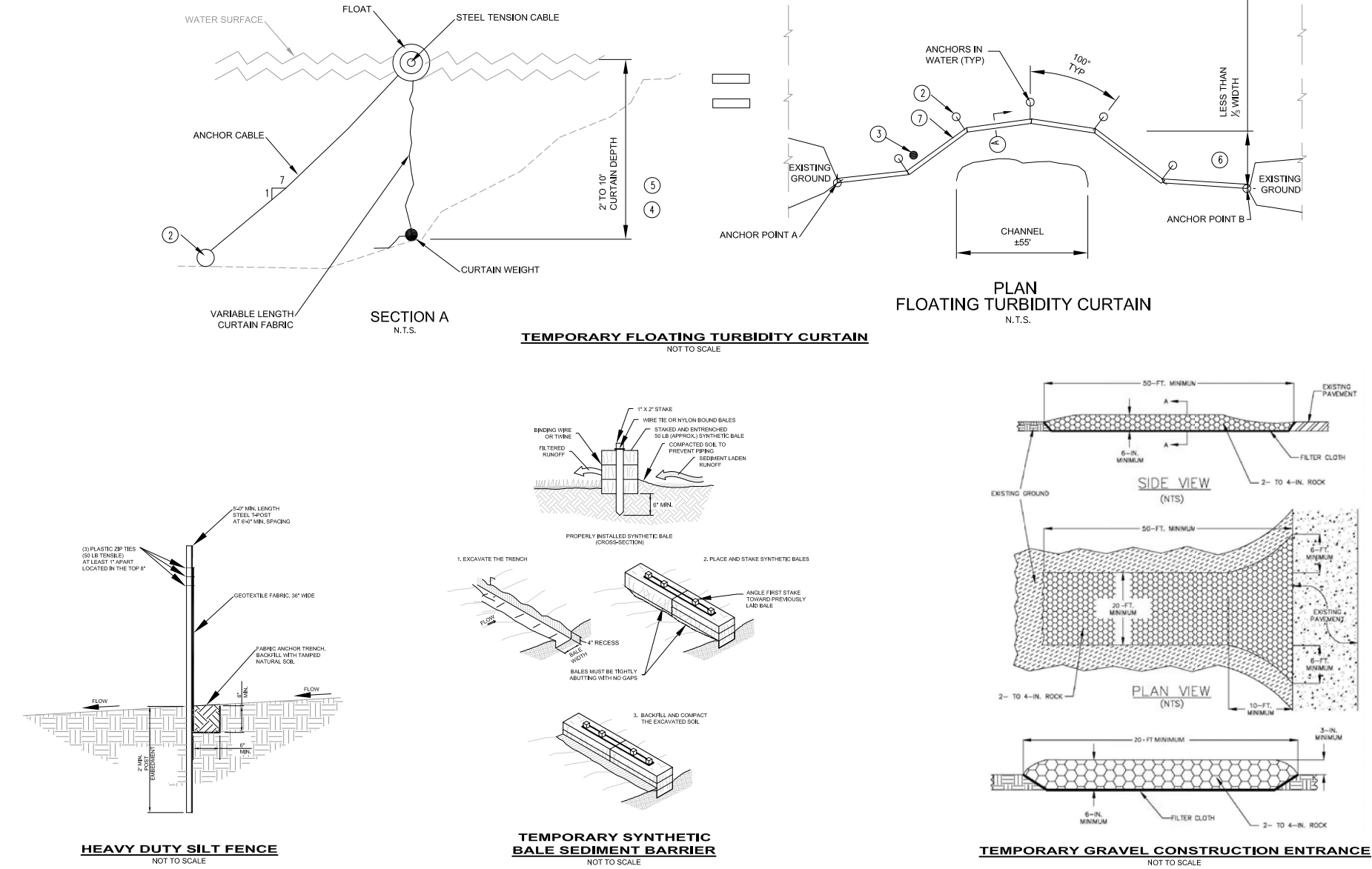
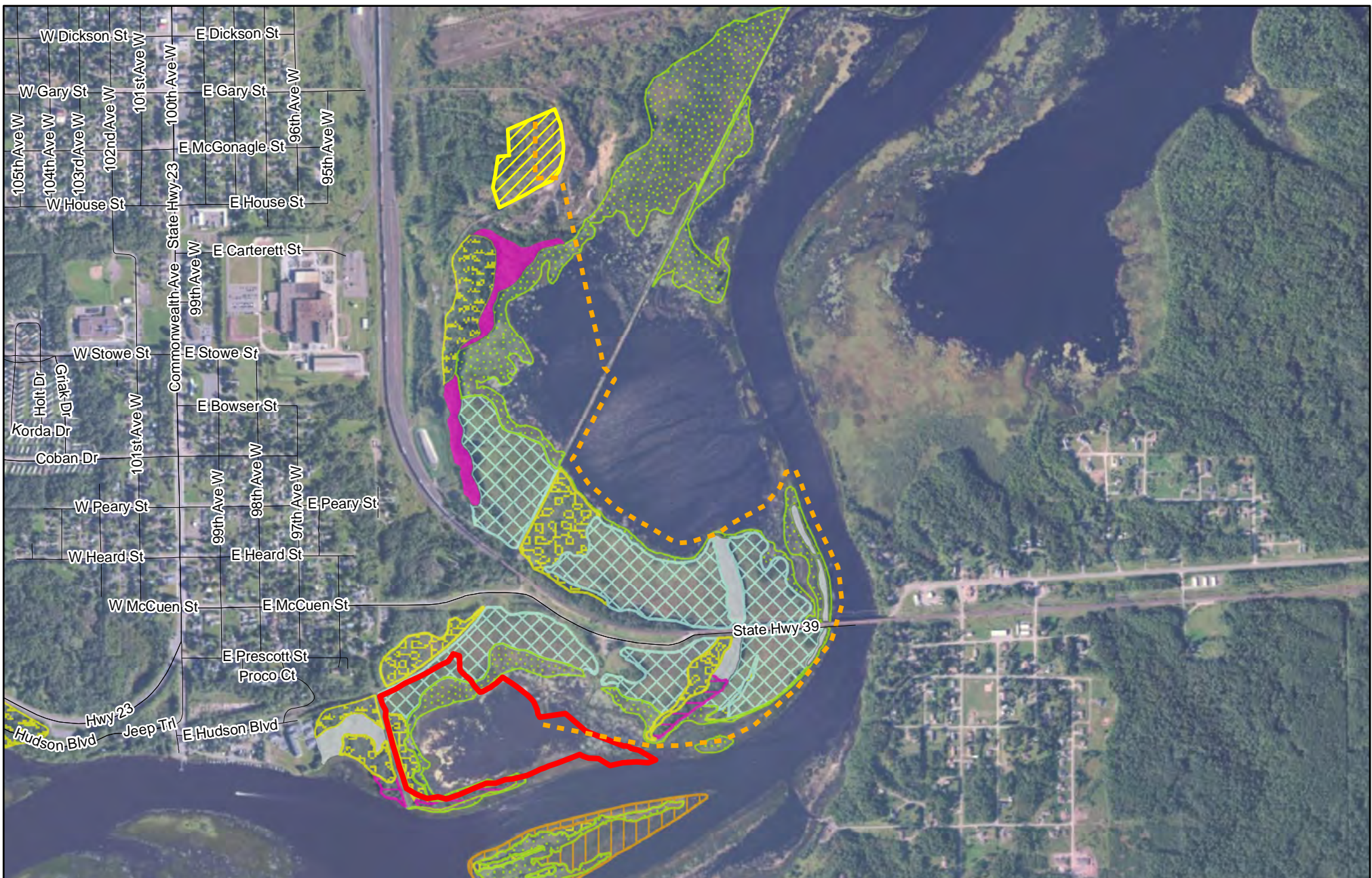


Figure 14: Details for erosion and sediment control practices (silt curtain, silt fence, bale sediment barrier, and temporary gravel construction entrance) used for Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota



Sources: Project Boundary - MN Land Trust; MBS Native Plant Communities - MN DNR; Basemap - ESRI - World Imagery

	Proposed Slurry Pipeline		Black Ash - Aspen - Balsam Poplar Swamp (Northeastern)
	Mud Lake Dewatering Facility		Black Ash - Silver Maple Terrace Forest
	Radio Tower Bay		Estuary Marsh (Lake Superior)
MBS Native Plant Communities			Other Water Body
	Alder - (Maple - Loosestrife) Swamp		Sedge Meadow
	Aspen - Birch - Red Maple Forest		Willow - Dogwood Shrub Swamp

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Figure 15: MBS Native Plant Communities Within the Project Areas for Radio Tower Bay Wetland Restoration Project, St. Louis County, Minnesota

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Radio Tower Bay EAW