

# MONTANA FISH, WILDLIFE & PARKS

# BLACK SANDY STATE PARK

# BANK STABILIZATION PROJECT

near Helena, MT

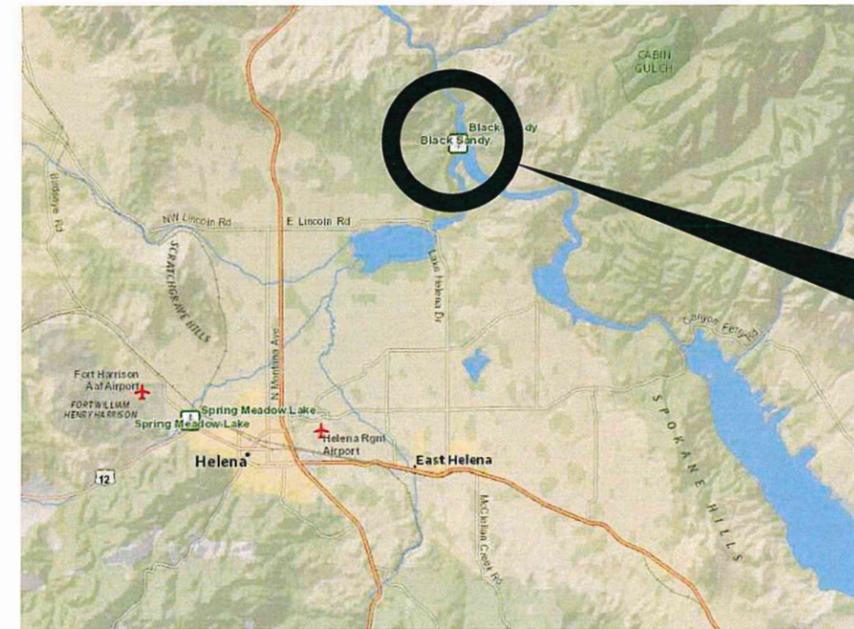
#64452



**Project Location**

### Location Map

No Scale



**Project Location**

### Vicinity Map

No Scale

North



MONTANA FISH, WILDLIFE AND PARKS  
DESIGN AND CONSTRUCTION

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## DRAWING INDEX

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1	COVER SHEET
2	SITE PLAN
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P. Jagoda 1/31/2023  
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P. Jagoda 1/31/2023  
CHECKED BY: DATE:

APPROVED BY: DATE:

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**MONTANA FISH,  
WILDLIFE & PARKS**

Cover Sheet  
Black Sandy State Park - Bank Stabilization Project



SHEET: 1 of 5



**NOTES:**

1. SURVEY COMPLETED BY MONTANA FISH, WILDLIFE AND PARKS - DESIGN & CONSTRUCTION, ON JUNE 25, 2020. ELEVATIONS AND COORDINATES ARE BASED ON A LOCAL GRID ESTABLISHED BY MONTANA FWP AT TIME OF SURVEY.
2. ANY UTILITIES DEPICTED ON THESE PLANS ARE IN ACCORDANCE WITH THEIR ACHIEVED "QUALITY LEVELS" AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEER'S DOCUMENT ASCE 38, "STANDARD FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA." BEFORE DIGGING, CALL 811 FOR LOCATION OF EXISTING UTILITIES.



LEGEND	
<b>EXISTING FEATURES</b>	
CONTROL POINT	
EDGE OF ROAD	
FENCE	
EX. CONTOUR	
TREE	
FIREPIT RING	
<b>PROPOSED FEATURES</b>	
BANK STABILIZATION AREA	
BANK STABILIZATION DETAIL II	
PROP. CONTOUR	

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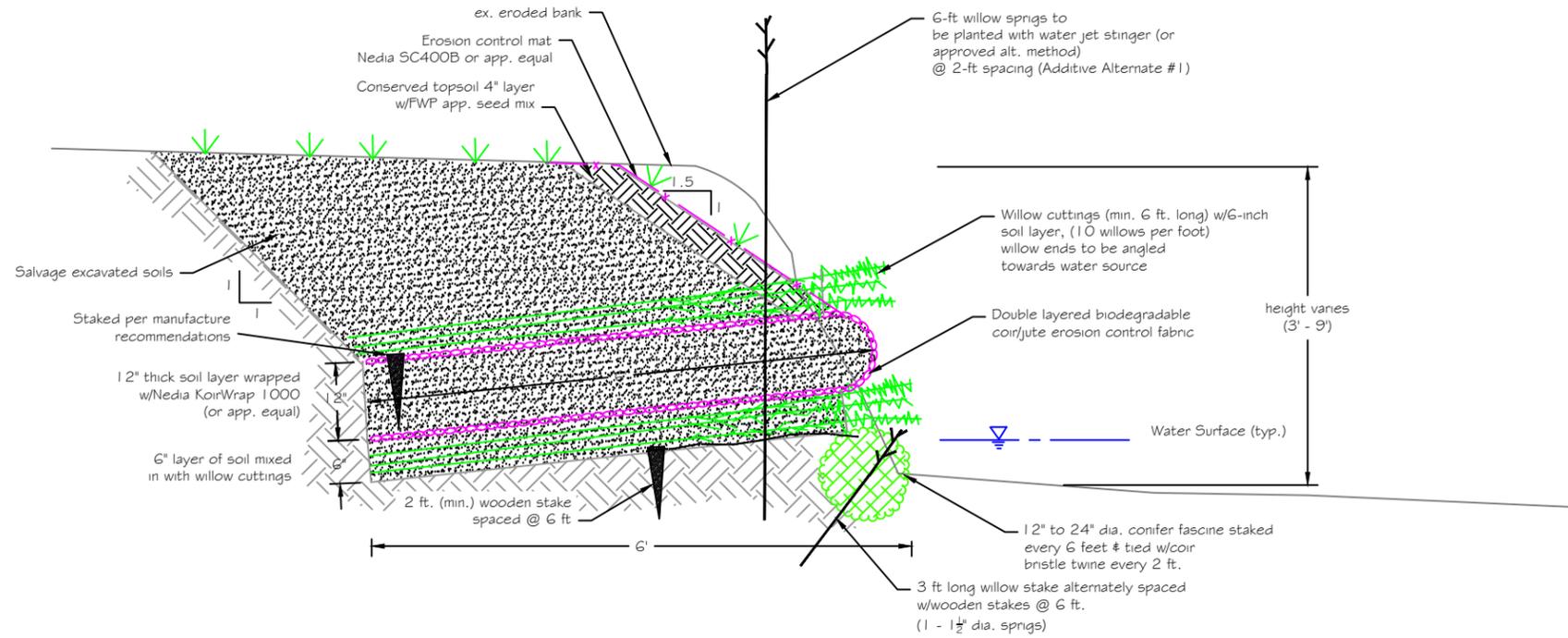
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**Site Plan with Aerial background**  
**Black Sandy State Park - Bank Stabilization Project**



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**WILLOW BANK STABILIZATION DETAIL I**

Approx. Scale: 1"=2'

**Notes:**

1. Willow shoots must be angled down towards water line and allowed to come into contact with water source. The tips of all willows (1"-2") shall be trimmed after installation to stimulate root production.
2. Willow cuttings shall be placed above & below the soil bundle so that no more than one-third of the length of the cuttings extends beyond the face of the bundle tier. Willow cuttings shall be installed at a spacing of ten (10) cuttings per foot.
3. Willow cuttings must be soaked in water for min. 2 days prior to installation. Lower 2/3 of sprigs to be trimmed of branches, upper quarter of sprigs branches to remain.
4. Staking for conifer fascine shall be spaced at 6 feet with wooden stakes and alternating willow stakes every 3 feet.

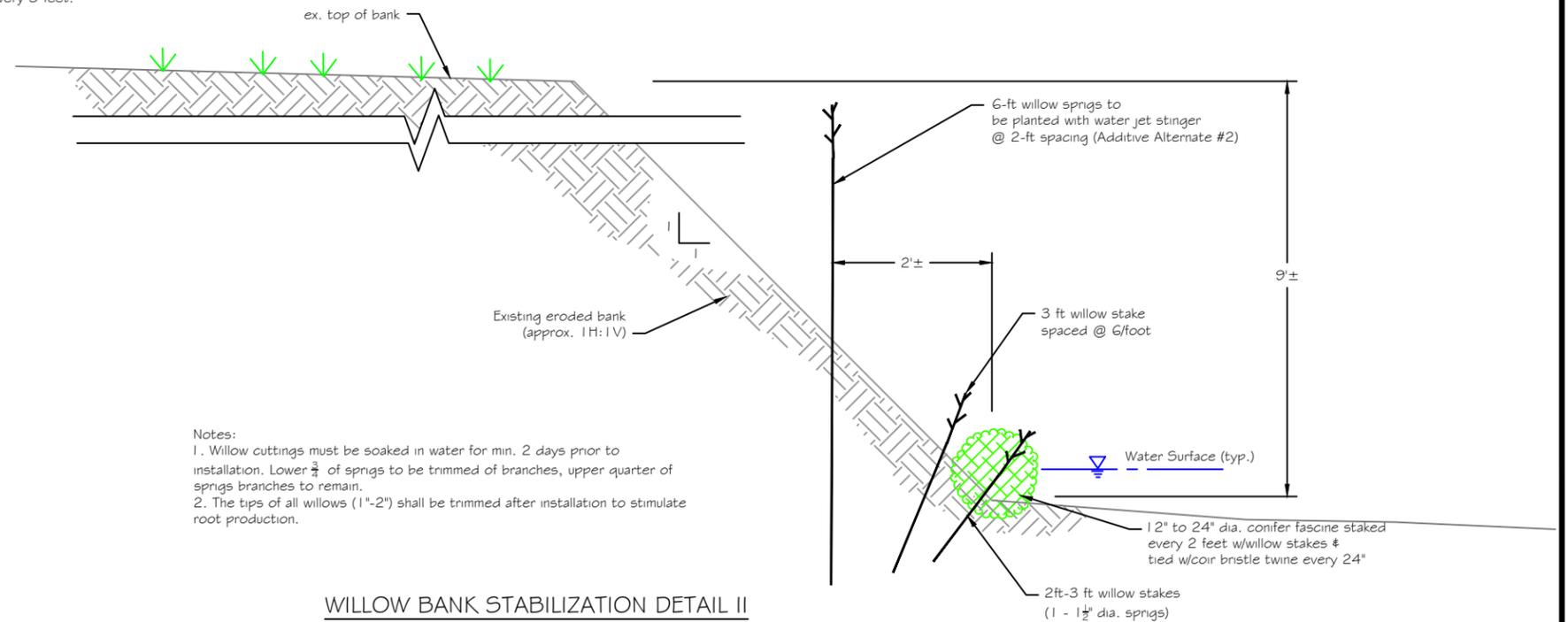


**PHOTO EXAMPLE OF CONIFER FASCINE INSTALLATION**

NOTE: PHOTO IS BEING PROVIDED TO ILLUSTRATE A TYPICAL CONIFER FASCINE INSTALLATION.

ESTIMATED WILLOW CUTTINGS		
6' willow sprigs	3,920	horiz. installation w/soil mix
6' willow sprigs	118	vertical installation w/stinger
3' willow stakes	293	vert. installation in fascine & as stakes

Notes: 1. Sprigs to be 6' - 8' long, willow stakes to be 2' - 3' long as shown in details.  
 2. MT FWP & Volunteers will cut & store the willow cuttings for the project. Contractor will be responsible for picking up cuttings at FWP cold storage location and transporting to project site, and planting willows as specified.



**WILLOW BANK STABILIZATION DETAIL II**

Approx. Scale: 1"=2'

**Notes:**

1. Willow cuttings must be soaked in water for min. 2 days prior to installation. Lower 2/3 of sprigs to be trimmed of branches, upper quarter of sprigs branches to remain.
2. The tips of all willows (1"-2") shall be trimmed after installation to stimulate root production.

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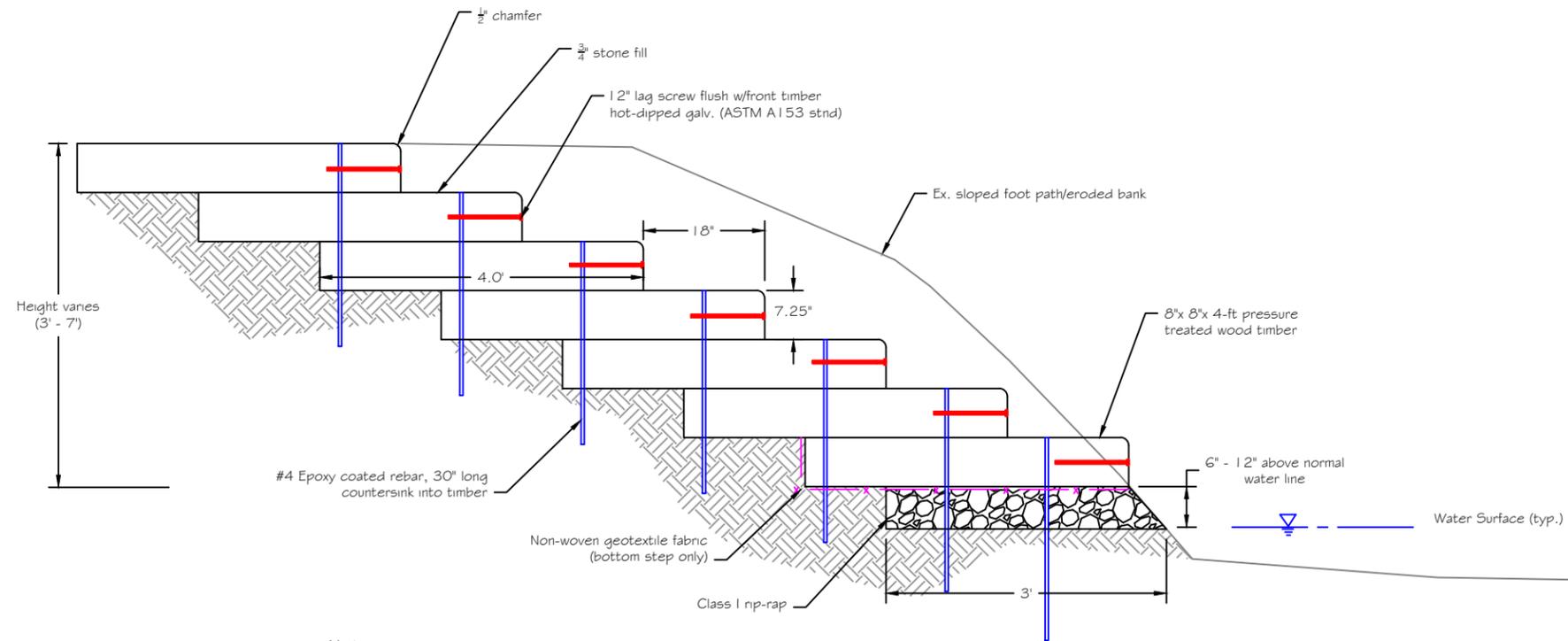
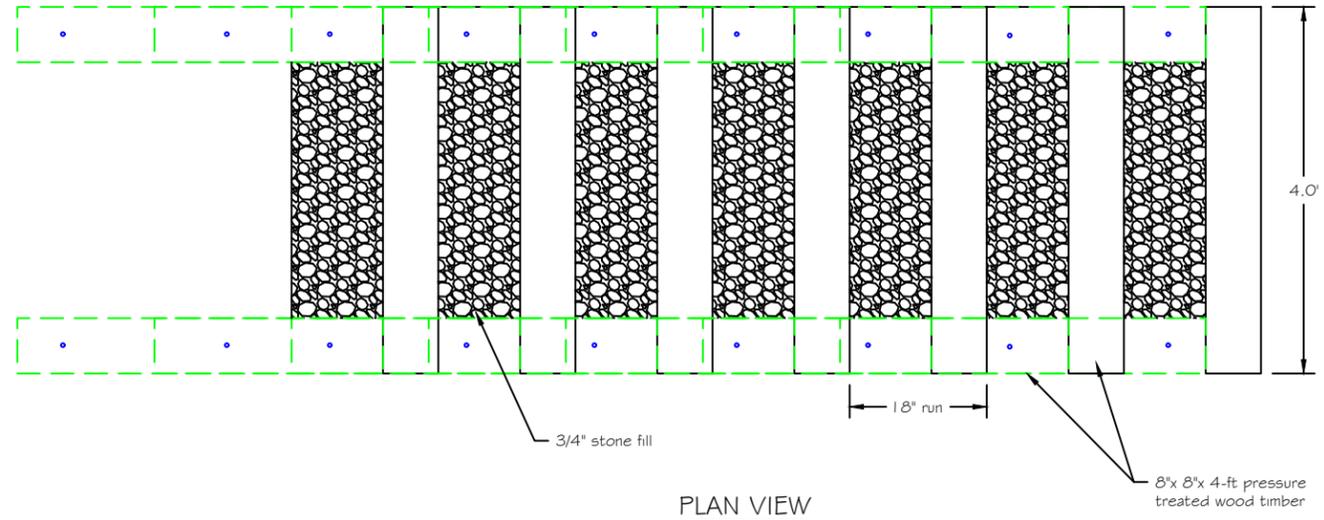
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**Detail Sheet I**  
**Black Sandy State Park - Bank Stabilization Project**



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- Notes:
1. Access stairs will vary in height & number of rises depending on location.
  2. Rebar shall be coated with epoxy in accordance with ASTM A775 or approved equal.

**TIMBER STEPS SECTION VIEW**

Approx. Scale: 1"=2'

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**Detail Sheet II**  
 Black Sandy State Park - Bank Stabilization Project



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