



**US Army Corps
of Engineers** ®
Omaha District

PUBLIC NOTICE

Application No: NWO-2014-02184-MTB
Applicant: Montana Department of Transportation
**Waterway: Ashley Creek, Unnamed Tributary to Bowser
Creek and Wetlands**
Issue Date: March 4, 2015
Expiration Date: March 19, 2015

15 DAY NOTICE

Missoula Regulatory Office 1600 North Avenue West, Suite 105 Missoula, Montana 59801

JOINT PUBLIC NOTICE FOR PERMIT APPLICATION SUBMITTED TO U.S. ARMY CORPS OF ENGINEERS AND MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

The application of the Montana Department of Transportation (MDT) for approval of plans and issuance of a permit under authority of the Secretary of the Army is being considered by the District Engineer, U.S. Army Corps of Engineers, Omaha, Nebraska. **The project described herein is not being proposed by the Corps, but by the applicant; the Corps will evaluate the proposed work to determine if it is permissible under current laws and regulations.**

Description of Proposed Project: An Individual Permit was issued in February 2015 for stream and wetland impacts associated with the Three Mile Drive segment of the Kalispell Bypass (KBP). The following proposed project impacts will be evaluated cumulatively with the 0.58 acres of permanent wetland fill and various stream impacts, including 393 linear feet of impacts to spring Creek, associated with Three Mile Drive KBP segment which were described in a public notice dated October 15, 2014.

The KBP-US 2 to Three Mile Drive project will complete 2.0 kilometers of new arterial roadway with limited access, two roadway bridges over US 2 and Two Mile Drive, two at-grade, signalized intersections on Three Mile Drive, one signalized intersection at US 2, reconfiguration of one intersection on US 2. One-half kilometer of Two Mile Drive will be reconstructed with a bridge over the Bypass.

This project will also complete one kilometer of widening of the existing segment from Foy's Lake Road to US 2 from the existing two travel lanes to a "full-build" which provides two additional travel lanes, a center median and appropriate shoulders. An additional northbound through lane will be added north of this roundabout. The bridge over Ashley Creek North will also be widened to the west.

Specific: A new drainage culvert will replace the existing culvert under Two Mile Drive on the Unnamed Tributary to Bowser Creek that perpetuates the natural drainage of a groundwater wetland. The length of the new culvert will accommodate the placement of future roadway embankment fill to elevate Two Mile Drive to accommodate the future Bypass. This portion of the project will also stabilize erosion resulting from a culvert discharging to Ashley Creek.

These bank stabilization measures will be constructed in the stream channel, but will avoid all wetland impacts.

A location map and drawings are attached to this notice. A copy of this public notice and a complete set of drawings are also available at

<http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/Montana/PublicNotices.aspx>

Location: The proposed project is located in the city of Kalispell, Flathead County, Montana.

Stream or Water Body	Approximate Project Station	Plan Sheet Number(s)	Proposed Action	Approximate Old Structure Dimensions ¹	Approximate New Structure Dimensions ¹	Approximate Linear Feet of Stream Impacted ²
Ashley Creek	58+32	47, 83	Bank stabilization		37.0 ft (11.25m)	37 ft
Unnamed tributary to Bowser Creek (groundwater) Under Two Mile Drive	47+60 (old) 47+56 (new) (Bypass Station 74+50 Left)	48, 49, 50, 51, 89	Remove and replace culvert, widen roadway	Diameter: 4 ft (1219 mm) Length: 57.4 ft (17.5 m)	Diameter: 3 ft (900 mm) Length: 207.3 ft (63.2 m)	207.3 ft – 57.4 ft = 149.9 ft
TOTAL ESTIMATED LINEAR STREAM IMPACTS						≈ 186.9 ft

Wetland	Associated Drainage	MDT/ Cowardin Classification	Metric Station ±	Latitude/ Longitude	Permanent Impact Area
W-2A	Unnamed Tributary to Bowser Creek (Groundwater)	III Emergent / Aquatic Bed/Scrub-shrub	Two Mile Drive Sta. 47+60 (Bypass Station 74+60 Left)	48° 12'15.25"N 114°20'48.50"W	0.052 Ac (0.021 Ha)
W-2B	Unnamed Tributary to Bowser Creek (Groundwater)	III Emergent / Aquatic Bed/Scrub-shrub	Two Mile Drive Sta. 47+60 (Bypass Station 74+20 Left)	48° 12'15.25"N 114°20'48.50"W	0.259 Ac (0.105 Ha)
Total Impact					0.311 Ac (0.126 Ha)

Purpose: The project purpose, as stated by the applicant, of the Kalispell Bypass (Bypass) project is to reduce regional roadway congestion, provide for planned growth and development, improve traffic safety, and provide intermodal facility connections.

Mitigation: Compensatory mitigation will be required for the 0.311 acre of permanent wetland impact. Wetland impacts will be mitigated at MDT's Batavia Wetland Mitigation Reserve approximately 5 miles southwest of Kalispell and approximately 4 miles from this project. This mitigation reserve is located in the same watershed (Flathead River Basin #4) as the wetland losses; therefore a replacement ratio of 1:1 will be used. The ledger will be updated to show the removal of 0.311 acre of wetland credits from MDT's Batavia Wetland Mitigation Reserve balance.

401 Water Quality Certification: The Montana Department of Environmental Quality, 1520 East 6th Avenue, PO Box 200901, Helena, Montana 59620-0901 will review the proposed project in accordance with the provisions of Section 401 of the Clean Water Act. The certification, if issued, will express the State's opinion that the operations undertaken by the applicant will not result in a violation of applicable water quality standards. The Montana Department of Environmental Quality hereby incorporates this public notice as its own public notice and procedures by reference thereto.

Cultural Resources: Federal Highways is the lead Federal agency responsible for compliance with Section 106 of the National Historic Preservation Act. A re-evaluation of the Final Environmental Impact Statement (FEIS) for the Bypass was completed by MDT and approved by the Federal Highway Administration in 2006. In the bypass study area, the FEIS

documented potential impacts to two cultural resources that had been determined eligible for the National Register of Historic Places; the Kalispell-Somers Railroad Spur Line (not within the Three Mile Drive segment project area) and the McCormack Farm (located south of the Three Mile Drive segment project area). A Memorandum of Agreement dated June 13, 1990, included mitigation measures for impacts to these resources. For the McCormack Farm, MDT will conduct monitoring to assess the visual and audible impacts to the site before, during, and after construction.

Threatened / Endangered Species: Federal Highways is the lead federal agency responsible for compliance with the Endangered Species Act. A re-evaluation of the Final Environmental Impact Statement (FEIS) for the Bypass was completed by MDT and approved by the Federal Highway Administration in 2006. Based upon the results of a 2011 survey and coordination between MDT and the US Fish and Wildlife Service, it is determined that the proposed action will have *no effect* on any sensitive, threatened, or endangered species. In order to complete our evaluation of this activity, comments are solicited from the U.S. Fish and Wildlife Service and other interested agencies and individuals.

Evaluation Factors: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposed activity must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. In addition, the evaluation of the impact of work on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act (40 C.F.R.; Part 230).

Comments: The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. All public notice comments will be considered public information and will be subject to review by the applicant.

Any person may request, in writing and within the comment period specified in this notice, that a public hearing be held for the purpose of gathering additional information. Requests for public hearings must be identified as such and shall state specifically the reasons for holding a public hearing and what additional information would be obtained. The request must be submitted to the U.S. Army Corps of Engineers, 1600 North Avenue West, Suite 105, If it is decided that additional information is required and that a public hearing should be held, interested parties will be notified of the date, time and location.

Any interested party (particularly officials of any town, city, county, state, or Federal agency; Indian tribe; or local association whose interests may be affected by the work) is invited to submit to this office written facts, arguments, or objections on or before the expiration date listed on the front of this notice. Any agency or individual having an objection to the work should specifically identify it as an objection with clear and specific reasons. Comments, both favorable and unfavorable, will be accepted, made a part of the record and will receive full consideration in subsequent actions on this application. All replies to the public notice should be addressed to the **U.S. Army Corps of Engineers, 1600 North Avenue West, Suite 105, Missoula, Montana, 59801. Please reference the Application Number found on the first page of this notice in any correspondence.** Christina Schroeder, telephone number (406) 541-4845, extension 323, may be contacted for additional information. You may also fax your comments to (406) 541-4849, or email them to: **Christina.L.Schroeder@usace.army.mil**

Comments postmarked after the expiration date of this public notice, or received by fax or e-mail after the expiration date, will not be considered. Comments left on our voicemail system will not be considered.

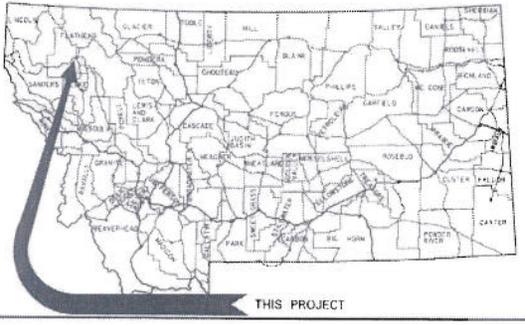
Statutory Authorities: A permit, if issued, will be under the provisions of Section 404 of the Clean Water Act.

MDTA
MONTANA DEPARTMENT
OF TRANSPORTATION

MONTANA
CADD



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MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO. NH-MT 15(108)

GRADING, GRAVEL, SURFACING, DRAIN & STRUCTURES

KBP - US 2 TO THREE MILE DRIVE

FLATHEAD COUNTY, MONTANA

(A LIMITED ACCESS FACILITY)

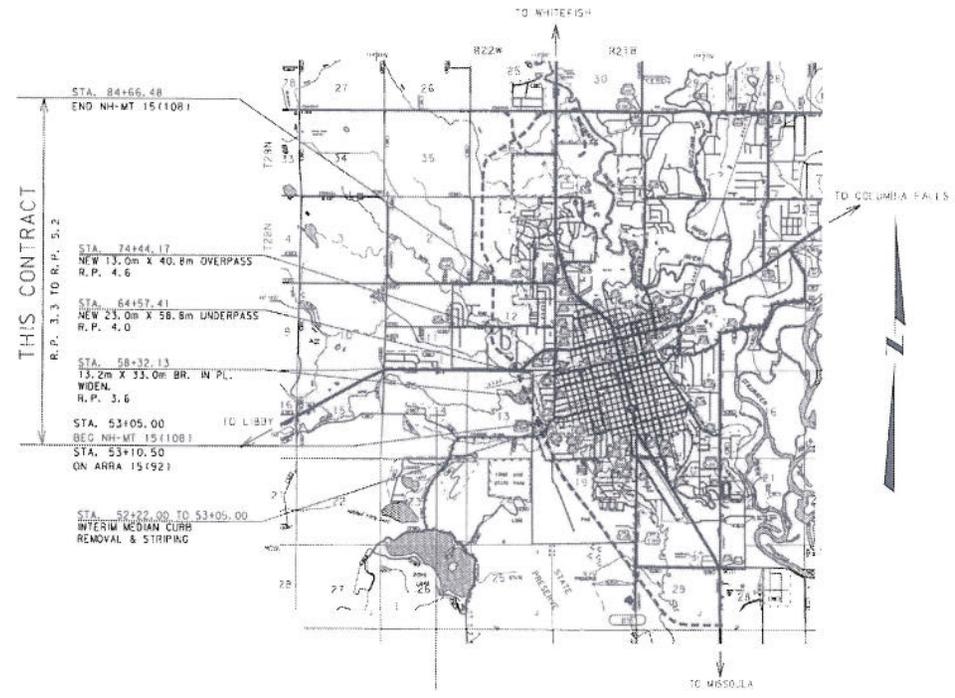
LENGTH 3.1 kilometers

DESIGN DATA	
2009 A.D.T. =	0
2030 A.S.T. =	23 740
D.H.V. =	2 990
T. =	0.0%
V. =	100 km/h (60 mph)
80 KN ESALS =	108
GROWTH RATE =	1.5%

CDP = 0.99470385

SURFACING SOURCES = CONTRACTOR FURNISHED

FINAL PLAN REVIEW
SUBMITTAL
NOVEMBER 2013



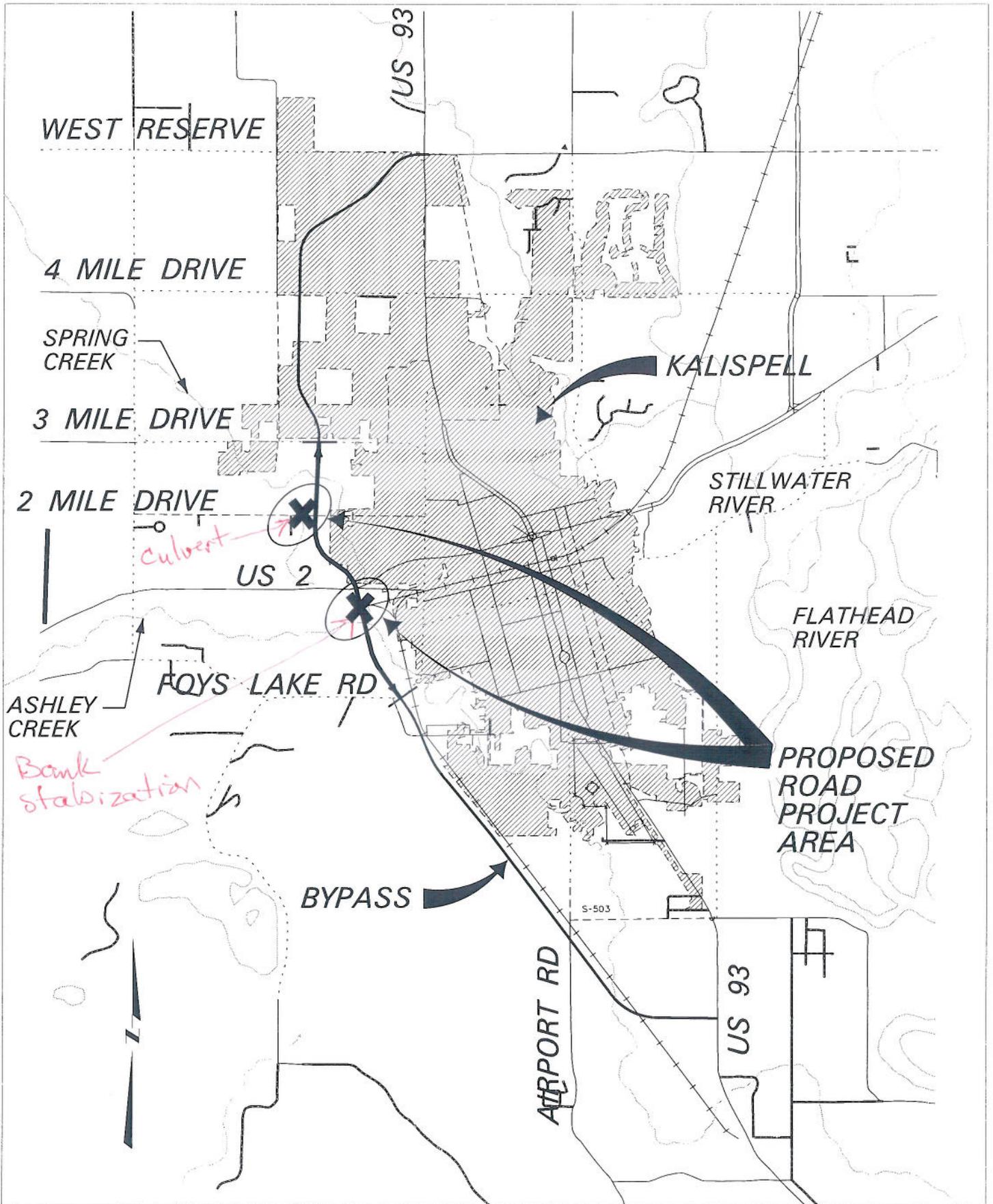
PLANS PREPARED BY
KLI
2969 AIRPORT RD, SUITE 10
HELLENA, MT 59601
PHONE (406) 449-1754

RELATED PROJECTS

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R/W & E.C.	NH-MT 15(108)
P.E.	NH-MT 15(108)

CONTRACT NO. 2038 Q17

KLI	
BY _____	
DATE _____	
MONTANA DEPARTMENT OF TRANSPORTATION	
RECEIVED _____	
BY _____	DATE _____
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED _____	DATE _____
DESIGN ADMINISTRATOR	



KALISPELL BYPASS
11-14-14

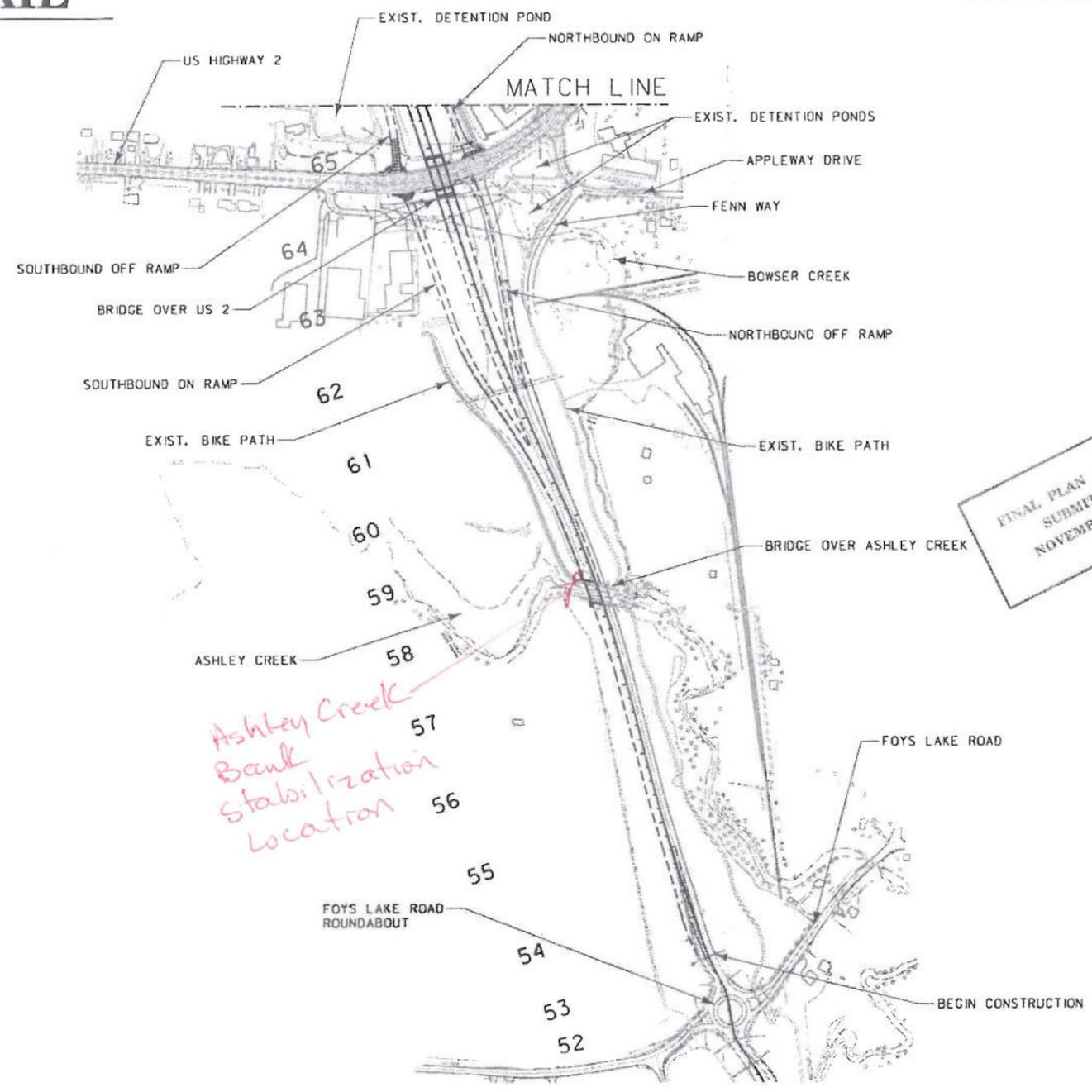
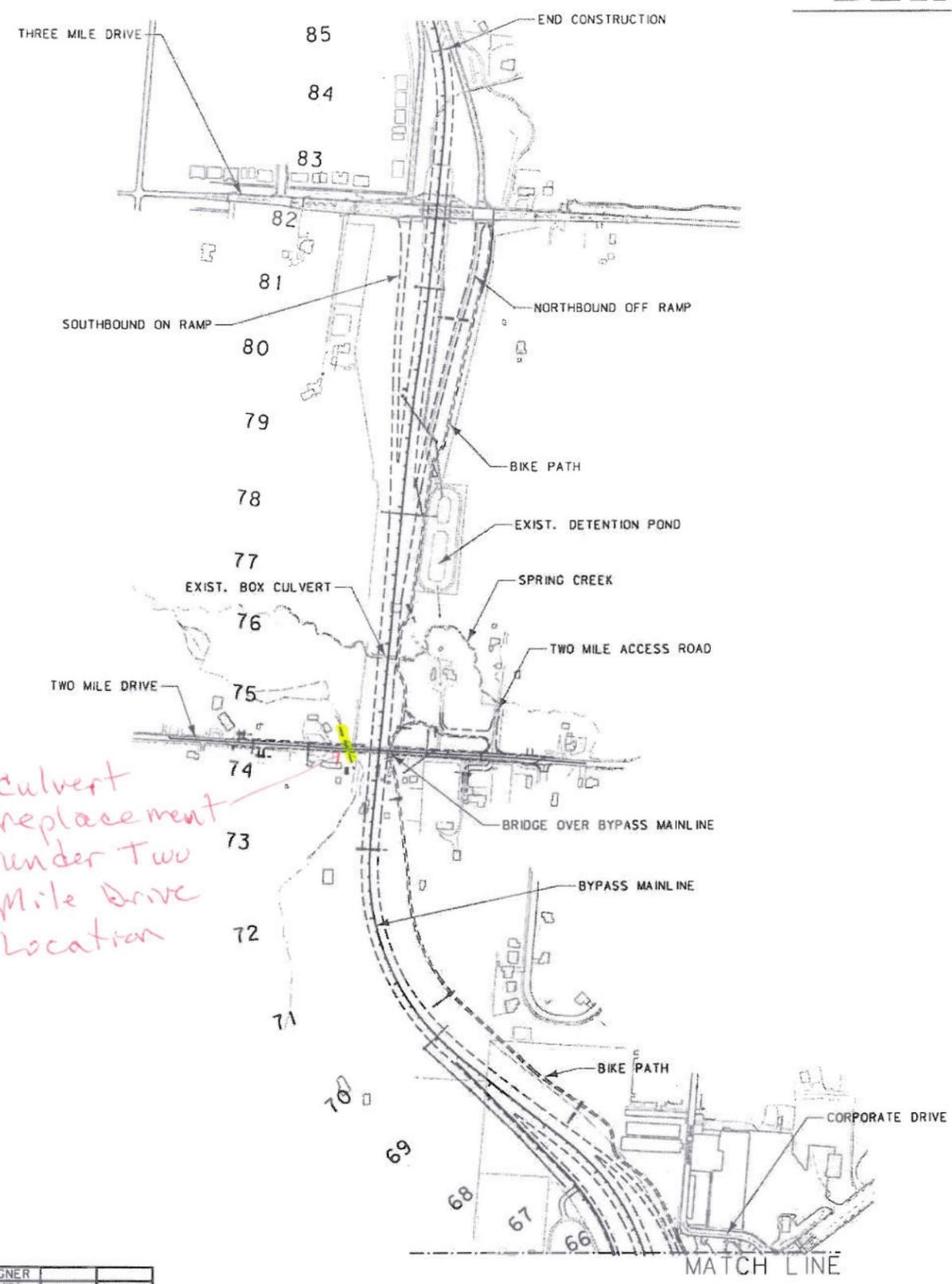
NOT TO SCALE

REGIONAL LOCATION MAP



STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-MT 15(108)	38

DETAIL



Culvert replacement under Two Mile Drive location

Ashley Creek Bank Stabilization location

FINAL PLAN REVIEW
SUBMITTAL
NOVEMBER 2014



DESIGNED BY	
DRAWN BY	
APPROVED BY	
REVISOR	
DATE	

DESIGNER		
DRAWN		
APPROVED		
REVISOR		
INITIALS		DATE

LOCATION MAP
SCALE: 1:4 000
PRELIMINARY

DETAIL

UNNAMED TRIBUTARY TO BOWSER CREEK CHANNEL CHANGE

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-MT 15(108)	48

CSF-0.999470385

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PI=300+02.87
 $\Delta = 16^\circ 45' 18''$ (RT)
 R = 5 m
 T = 0.74 m
 L = 1.46 m
 E = -0.05 m

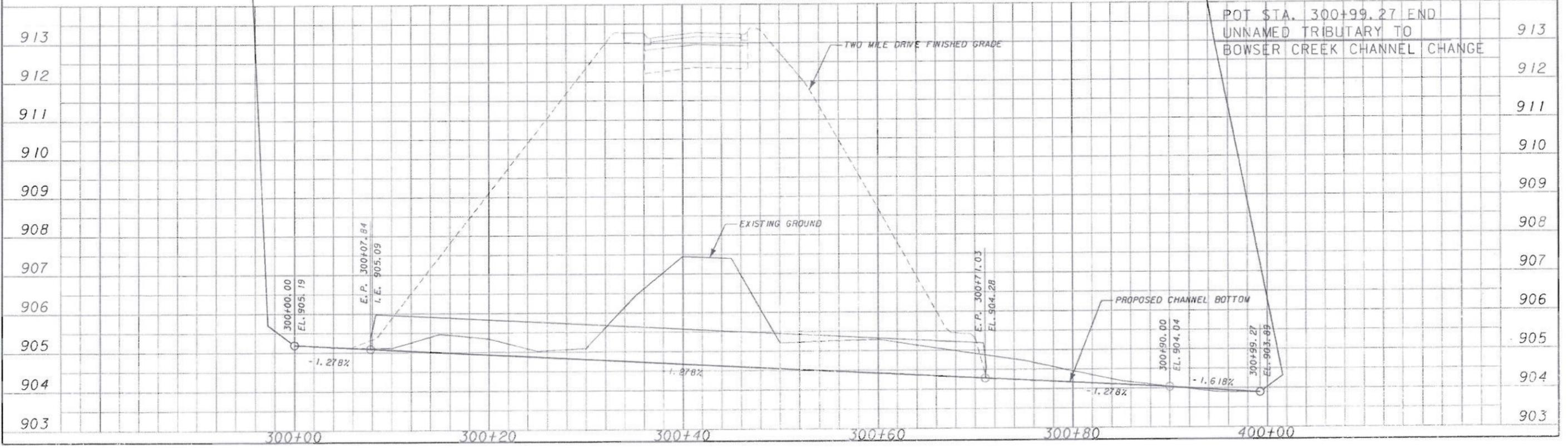
PI=300+86.76
 $\Delta = 21^\circ 08' 13''$ (RT)
 R = 20 m
 T = 3.73 m
 L = 7.38 m
 E = 0.35 m

POT STA. 300+00.00 BEGIN
 UNNAMED TRIBUTARY TO
 BOWSER CREEK CHANNEL CHANGE

POT STA. 300+99.27 END
 UNNAMED TRIBUTARY TO
 BOWSER CREEK CHANNEL CHANGE

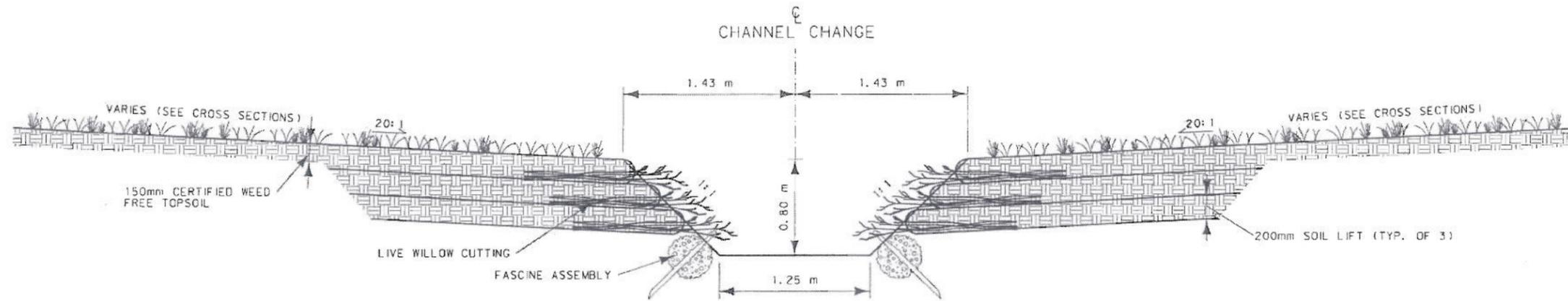
PRELIMINARY

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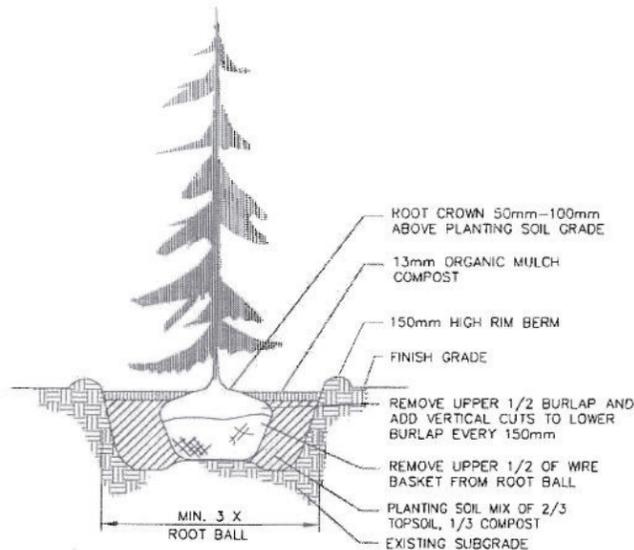
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STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-MT 15(10B)	49
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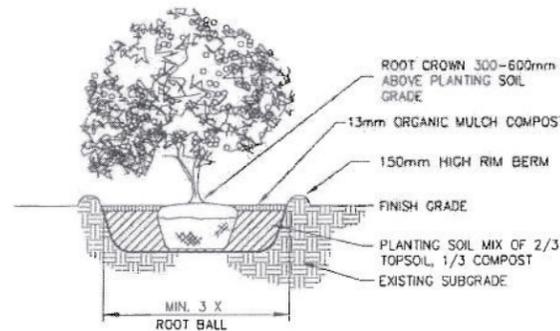
TYPICAL CHANNEL RESTORATION SECTION

FINAL PLAN REVIEW
SUBMITTED
NOVEMBER 2014



TREE PLANTING

NOT TO SCALE



SHRUB PLANTING

NOT TO SCALE

NOTE: SLOPES GREATER THAN 3:1 WILL HAVE EROSION JUTE NETTING. NETTING MUST BE CUT TO ACCOMMODATE PLANTINGS. SEE SPECIAL PROVISIONS FOR JUTE SPECIFICATION.

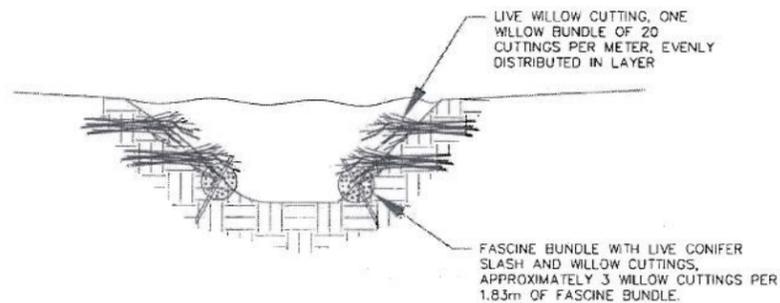
PRELIMINARY



SPACING

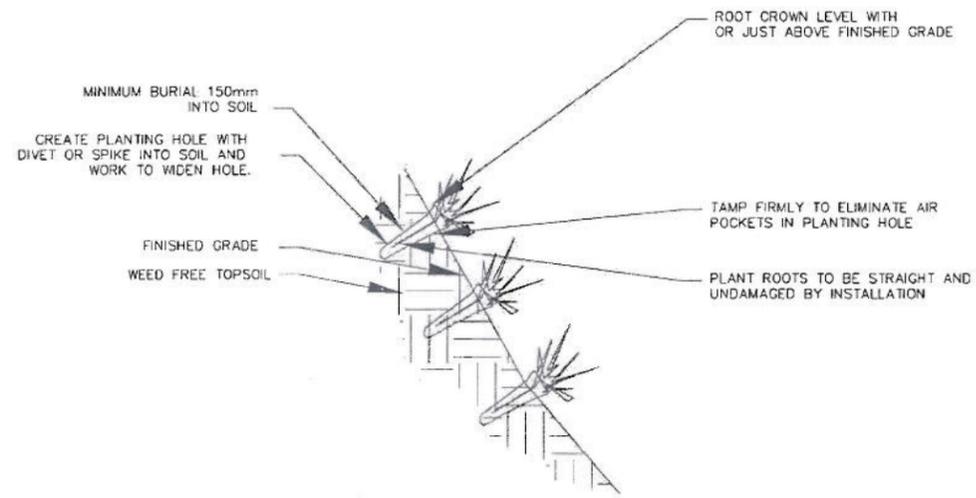
UNKNOWN TRIBUTARY
TO BOWSER CREEK
CHANNEL DETAILS

SCALE: NOT TO SCALE



ZONE D FASCINE BUNDLESS WITH WILLOW CUTTINGS

NOT TO SCALE



ZONE D RIPARIAN PLUG PLANTING

NOT TO SCALE

FOR INSIDE BEND OF SPRING CREEK POOLS

MDTX MONTANA DEPARTMENT OF TRANSPORTATION
MONTANA CADD

KLJ

DESIGNED BY	11/25/2014
DRAWN BY	6:28:21 PM
APPROVED BY	dillanmclain
REVISIONS	
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2	

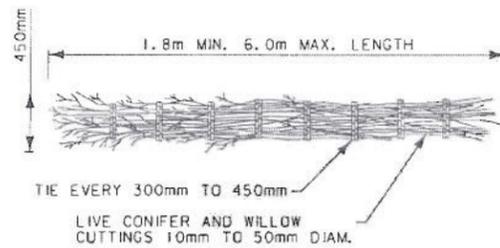
DESIGNER	
DRAWN	
APPROVED	
REVISION	
INITIALS	DATE

DETAIL

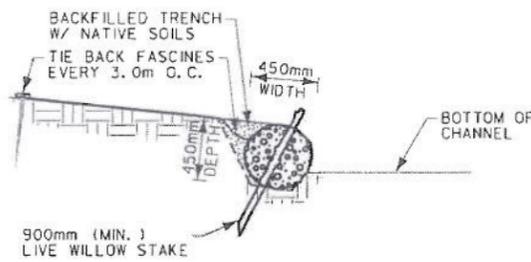
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-MT 15(108)	50
CSF - 0.999470385		

NOTES:

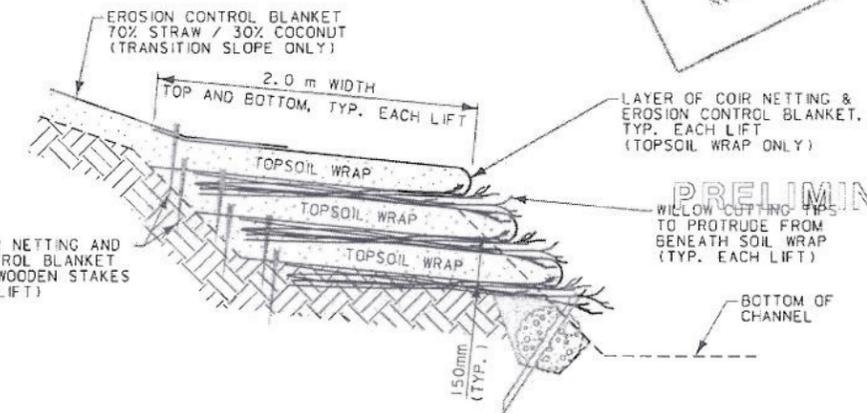
- PREPARE 450mm DIAMETER FASCINE BUNDLES WITH 10mm TO 50mm CONIFER SLASH & WILLOW CUTTINGS WITH ALL BRANCH ENDS FACING THE SAME DIRECTION. TIE EVERY 300mm ON CENTER. POSITION END TO END AND OVERLAP ENDS APPROX. 600mm TO 900mm LEAVING NO GAPS BETWEEN BUNDLES. PLACE BUNDLES ENTIRELY WITHIN THE TRENCH AS SHOWN ON THE PLANS.
- BUILD SOIL LIFTS ON SUITABLE, STABLE NATIVE GROUND OR COMPACTED FILL AS NECESSARY. OBTAIN PROJECT MANAGER APPROVAL OF FOUNDATION LAYER PRIOR TO CONSTRUCTING SOIL LIFTS.
- STABILIZE TOE OF SOIL LIFT USING A MIXTURE OF CONIFER FASCINES STABILIZED DOWN TO THE MAXIMUM ANTICIPATED SCOUR DEPTH.
- ENSURE UPSTREAM AND DOWNSTREAM "TIE-IN" POINTS ARE STABLE AREAS. STAKE THE FABRIC TIGHTLY INTO THE STABLE AREA USING WOOD STAKES AT 600mm O. C.
- EMBED LIVE CUTTINGS A MINIMUM OF 1.2m INTO SOIL LIFT.
- NOTIFY PROJECT MANAGER OF ANY PROPOSED CHANGES PRIOR TO IMPLEMENTATION. THE CONSTRUCTION MANAGER RESERVES THE RIGHT TO MODIFY STRUCTURE DESIGN SPECIFICATIONS DURING CONSTRUCTION IF WARRANTED DUE TO UNFORESEEN CONDITIONS.
- WILLOW HARVESTING AND INSTALLATION NOTES:
 - * COLLECT AND PLANT CUTTINGS IN A DORMANT CONDITION. ENSURE CUTTINGS REMAIN VIABLE UNTIL PLANTED.
 - * USE HEALTHY, STRAIGHT AND LIVE WOOD AT LEAST ONE YEAR OLD.
 - * MAKE CLEAN CUTS AND DO NOT DAMAGE CUTTINGS OR SPLIT ENDS DURING INSTALLATION.
 - * BRIEFLY SOAK CUTTINGS IN WATER AND ROOTING HORMONE PRIOR TO INSTALLATION.
- SOIL LIFT BACKFILL NOTES:
 - * SOIL LIFTS SHALL CONTAIN SOIL FROM ON-SITE SOURCES.
 - * CONSTRUCT LIFTS FROM TOPSOIL SUITABLE FOR PLANTING AND COMPACT LIFTS USING A VIBRATORY PLATE COMPACTOR OR EQUAL TO A MINIMUM OF 90% MAXIMUM RELATIVE DENSITY.
 - * PLACE WILLOW CUTTINGS IN A SHALLOW LAYER OF DIRT BETWEEN EACH SOIL LIFT.
 - * APPLY WETLAND SEED MIX TO INSIDE OF FRONT 600mm OF SOIL LIFT.
 - * SOIL LIFT FABRIC TO BE DRAWN TIGHT WITH NO FOLDS, ROLLS OR GAPS.
 - * INSERT STAKES AT 450mm TO 600mm FROM SOIL LIFT FACE SO THAT BACKFILL WILL COVER STAKES.
 - * VEGETATE TOP OF SOIL LIFT PER PLANTING PLANS.



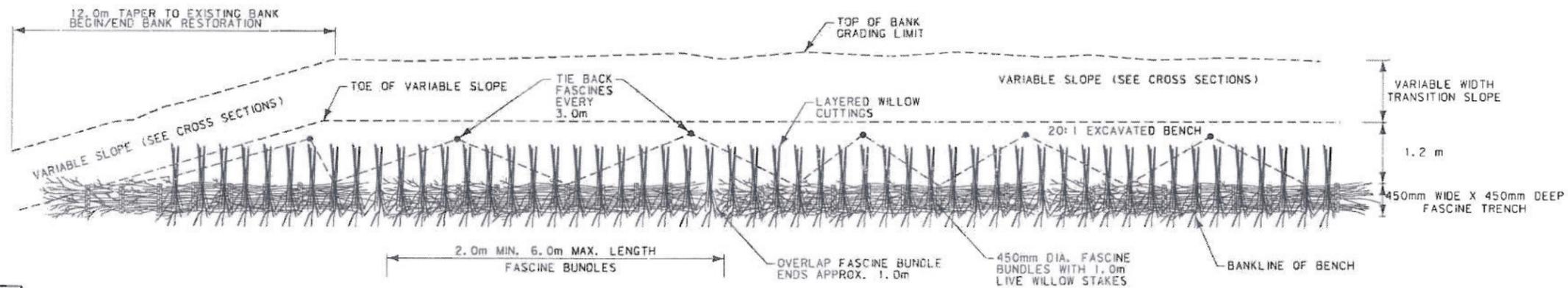
FASCINE ASSEMBLY



FASCINE INSTALLATION



POOL SECTION SOIL LIFT INSTALLATION



PLAN VIEW

FINAL PLAN REVIEW
SUBMITTED
NOVEMBER 2014

PRELIMINARY

UNKNOWN TRIBUTARY
TO BOWSER CREEK
CHANNEL DETAILS
SCALE: NOT TO SCALE

PRELIMINARY

MONTANA DEPARTMENT OF TRANSPORTATION
MDTX
MONTANA CADD

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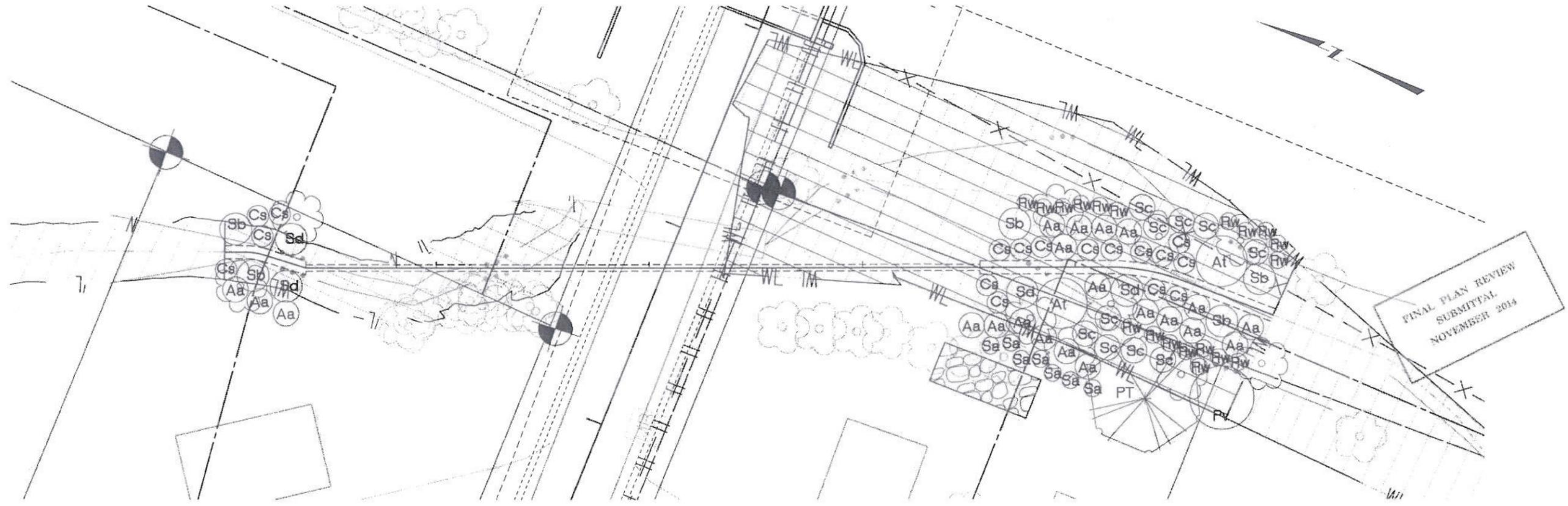
DESIGNED BY	11/25/2014
DRAWN BY	6:28:22 PM
CHECKED BY	dillon@dnr.mt.gov
REVISIONS	

DESIGNER	
DRAWN	
APPROVED	
REVISED	
INITIALS	DATE

DETAIL

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-MT 15(108)	51

CSF - 0.999470385



MDTX MONTANA DEPARTMENT OF TRANSPORTATION
 MONTANA CADD



DESIGNED BY	11/25/2014
REVIEWED BY	3:42:03 PM
CHECKED BY	11/25/2014

LEGEND	
	PROPOSED SHRUB PLANTING
	PROPOSED TREE PLANTING

NOTES:
 THIS PLAN IS A GRAPHIC REPRESENTATION.
 REFER TO SECTIONS AND PLANT LISTS FOR
 MORE DETAILED ZONAL PLACEMENT.
 VERIFY PLANTING LOCATIONS WITH PROJECT MANAGER.

ZONE A UPLAND				
TYPE	BOTANICAL NAME	COMMON NAME	QTY	SIZE
TREES				
Pt	Populus tremuloides	Quaking Aspen	1	2' B&B

ZONE B TRANSITIONAL				
TYPE	BOTANICAL NAME	COMMON NAME	QTY	SIZE
SHRUBS				
Aa	Amelanchier alnifolia	Saskatoon Serviceberry	21	1 Gal.
Pv	Prunus virginiana	Common Chokecherry	1	5 Gal.
Rw	Rosa woodsii	Woods Rose	19	24 Gal.
Sc	Shepherdia canadensis	Canada Buffaloberry	10	1 Gal.
Sa	Symphoricarpos albus	Snowberry	7	1 Gal.

ZONE C SEASONALLY FLOODED				
TYPE	BOTANICAL NAME	COMMON NAME	QTY	SIZE
SHRUBS				
Al	Alnus incana ssp. tenuifolia	Thin-leaf Alder	2	5 Gal.
Cs	Cornus sericea	Red-osier Dogwood	17	1 Gal.
Sb	Salix bebbiana	Bebb Willow	5	5 Gal.
Sd	Salix drummondiana	Drummond Willow	4	5 Gal.

ZONE D SEMI - PERMANENTLY FLOODED				
TYPE	BOTANICAL NAME	COMMON NAME	QTY	SIZE
FASCINE BUNDLES				
		Conifer Slash & Willow Cuttings		meters
LIVE WILLOW BUNDLE				
	Salix drummondiana	Drummond Willow		cuttings
	Salix exigua	Sandbar Willow		cuttings
SEEDING MIXTURE				
		Wetland Seed Mix		ha
		Upland Seed Mix		ha

UNKNOWN TRIBUTARY
 TO BOWSER CREEK
 CHANNEL DETAILS
 SCALE: NOT TO SCALE

DESIGNER	
DRAWN	
APPROVED	
REVISED	
INITIALS	DATE

DETAIL

US 2 SOUTHBOUND ON RAMP

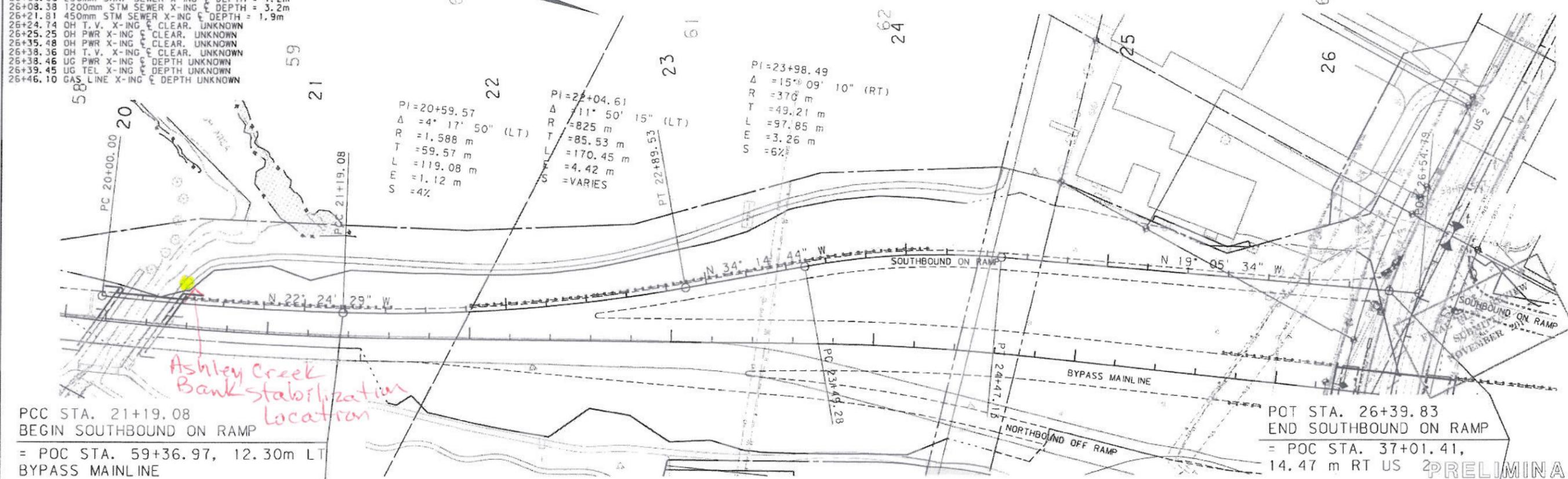
- UTILITY CROSSINGS**
- 23+30.54 SAN. SEWER X-ING DEPTH = 2.6m
 - 23+35.10 WATER X-ING DEPTH = 2.5m
 - 25+90.55 WATER X-ING DEPTH UNKNOWN
 - 25+94.71 UG T.V. X-ING DEPTH UNKNOWN
 - 25+95.05 F.O. CABLE X-ING DEPTH UNKNOWN
 - 26+00.06 250mm SAN. SEWER X-ING DEPTH = 1.2m
 - 26+08.38 1200mm STM SEWER X-ING DEPTH = 3.2m
 - 26+21.81 450mm STM SEWER X-ING DEPTH = 1.9m
 - 26+24.74 OH T.V. X-ING CLEAR. UNKNOWN
 - 26+25.25 OH PWR X-ING CLEAR. UNKNOWN
 - 26+35.48 OH PWR X-ING CLEAR. UNKNOWN
 - 26+38.36 OH T.V. X-ING CLEAR. UNKNOWN
 - 26+38.46 UG PWR X-ING DEPTH UNKNOWN
 - 26+39.45 UG TEL X-ING DEPTH UNKNOWN
 - 26+46.10 GAS LINE X-ING DEPTH UNKNOWN

- CURB RAMPS**
- 26+35.1 RT.
 - 26+38.1 LT.
 - 26+43.5 LT.

MDTA MONTANA DEPARTMENT OF TRANSPORTATION
 MONTANA CADD

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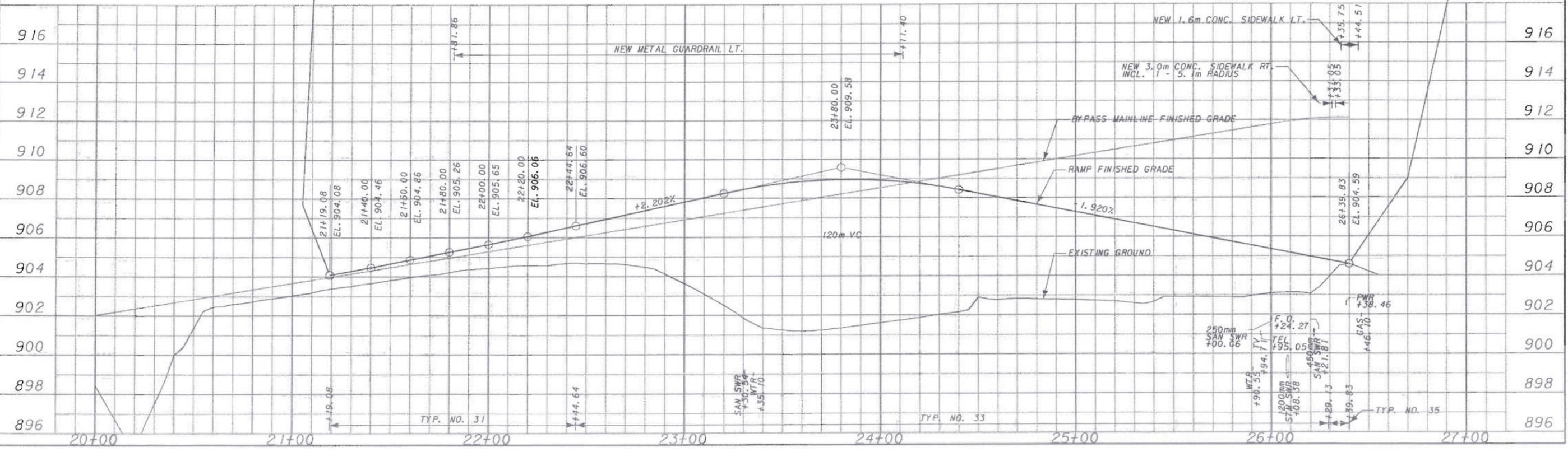
REVISED BY: 11/25/2014
 CHECKED BY:



PCC STA. 21+19.08
 BEGIN SOUTHBOUND ON RAMP
 = POC STA. 59+36.97, 12.30m LT
 BYPASS MAINLINE

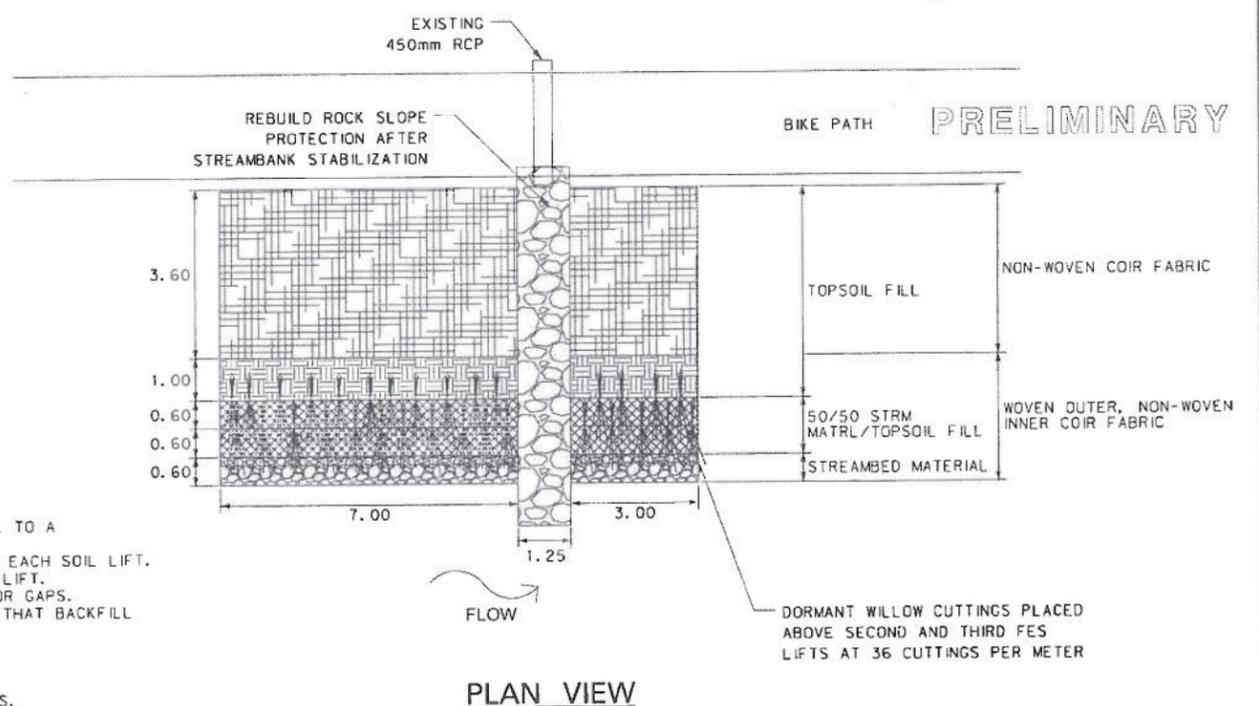
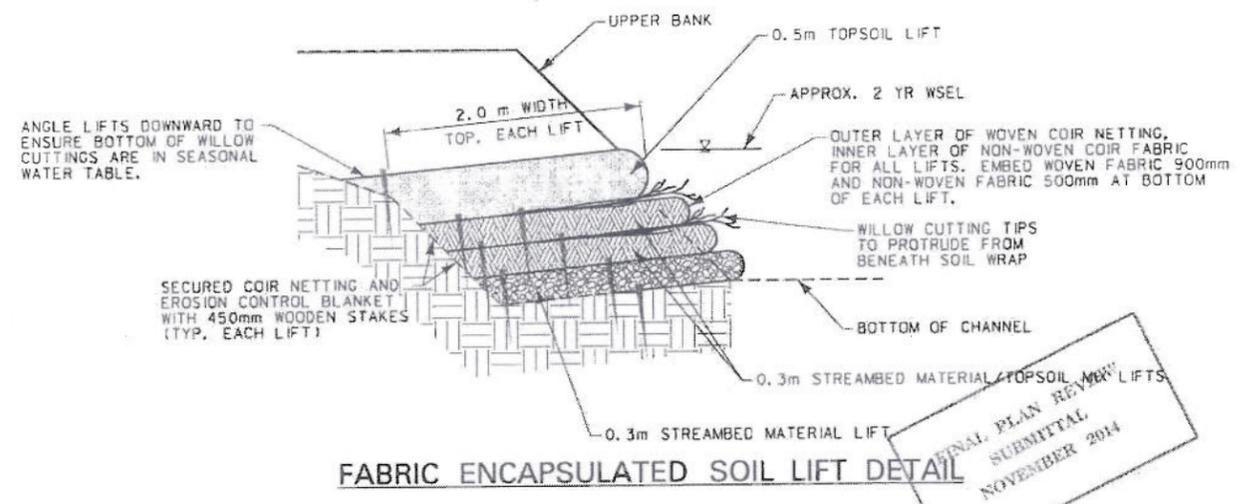
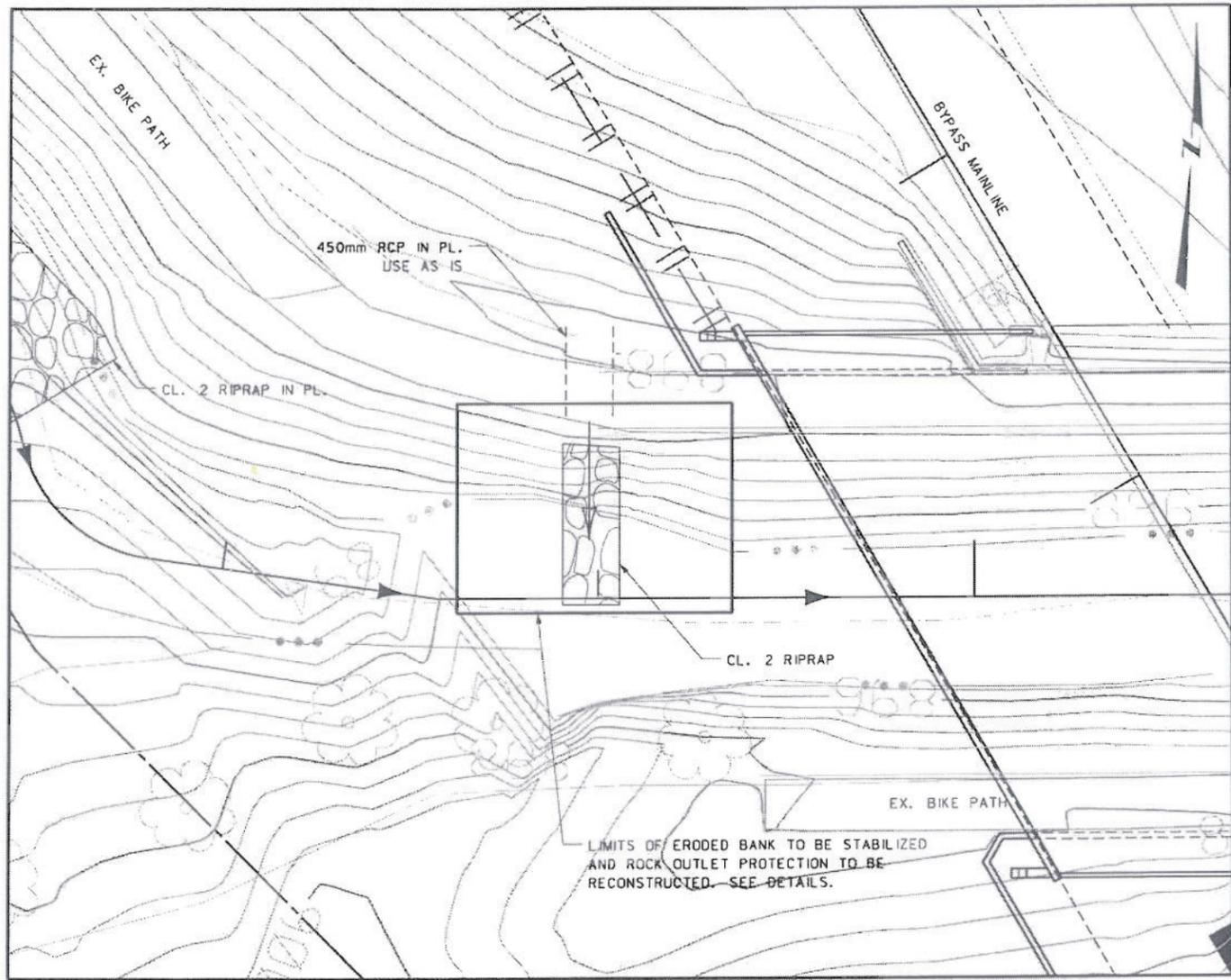
POT STA. 26+39.83
 END SOUTHBOUND ON RAMP
 = POC STA. 37+01.41,
 14.47 m RT US

PRELIMINARY



DETAIL

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH-MT 15(108)	47
CSF - 0.999470385		



NOTES:

- BUILD SOIL LIFTS ON SUITABLE, STABLE NATIVE GROUND OR COMPACTED FILL AS NECESSARY. OBTAIN PROJECT MANAGER APPROVAL OF FOUNDATION LAYER PRIOR TO CONSTRUCTING SOIL LIFTS.
- ENSURE UPSTREAM AND DOWNSTREAM "TIE-IN" POINTS ARE STABLE AREAS. STAKE THE FABRIC TIGHTLY INTO THE STABLE AREA USING WOOD STAKES AT 600mm O.C.
- NOTIFY PROJECT MANAGER OF ANY PROPOSED CHANGES PRIOR TO IMPLEMENTATION. THE CONSTRUCTION MANAGER RESERVES THE RIGHT TO MODIFY STRUCTURE DESIGN SPECIFICATIONS DURING CONSTRUCTION IF WARRANTED DUE TO UNFORESEEN CONDITIONS.
- WILLOW HARVESTING AND INSTALLATION NOTES:
 - * COLLECT AND PLANT CUTTINGS IN A DORMANT CONDITION. ENSURE CUTTINGS REMAIN VIABLE UNTIL PLANTED.
 - * USE HEALTHY, STRAIGHT AND LIVE WOOD AT LEAST ONE YEAR OLD.
 - * MAKE CLEAN CUTS AND DO NOT DAMAGE CUTTINGS OR SPLIT ENDS DURING INSTALLATION.
 - * BRIEFLY SOAK CUTTINGS IN WATER AND ROOTING HORMONE PRIOR TO INSTALLATION.

- SOIL LIFT BACKFILL NOTES:
 - * SOIL LIFTS SHALL CONTAIN TOPSOIL FROM ON-SITE SOURCES.
 - * CONSTRUCT LIFTS FROM TOPSOIL SUITABLE FOR PLANTING AND COMPACT LIFTS USING A VIBRATORY PLATE COMPACTOR OR EQUAL TO A MINIMUM OF 75% MAXIMUM RELATIVE DENSITY.
 - * PLACE WILLOW CUTTINGS IN A SHALLOW LAYER OF DIRT BETWEEN EACH SOIL LIFT.
 - * APPLY WETLAND SEED MIX TO INSIDE OF FRONT 600mm OF SOIL LIFT.
 - * SOIL LIFT FABRIC TO BE DRAWN TIGHT WITH NO FOLDS, ROLLS OR GAPS.
 - * INSERT STAKES AT 450mm TO 600mm FROM SOIL LIFT FACE SO THAT BACKFILL WILL COVER STAKES.
- SEPERATE LIFTS TO ACHIEVE OVERALL BANK SLOPE OF 2:1.
- WOVEN COIR FABRIC MATERIAL TO BE 900 G/m² IN 4m WIDE ROLLS.
- NON-WOVEN COIR FABRIC MATERIAL TO BE 300 G/m² IN 2m WIDE ROLLS.
- BOTTOM BASE LIFT TO CONSIST OF STREAMBED MATERIAL ONLY. SECOND AND THIRD LIFT TO CONSIST OF 50/50 MIXTURE OF STREAMBED MATERIAL/TOPSOIL AND SEEDED WITH WETLAND SEED MIX. CONSTRUCT ALL THREE LOWER LIFTS TO 0.3m THICKNESS.
- FOURTH LIFT CONSISTS OF TOPSOIL FILL MATERIAL CONSTRUCTED TO 0.5m THICKNESS AND SEEDED WITH WETLAND SEED MIX.
- PLANT DORMANT WILLOW CUTTINGS IN 7.5cm LAYER OF SOIL BETWEEN SECOND AND THIRD, AND THIRD AND FOURTH LIFTS AT 39 CUTTINGS/m OF BANK.

- UPPER BANK TO BE GRADED 2:1 SLOPE, CAPPED WITH MIN. 15cm TOPSOIL, SEEDED WITH UPLAND SEED MIX, AND COVERED WITH NON-WOVEN FABRIC.

FINAL PLAN REVIEW
SUBMITTAL
NOVEMBER 2014

PRELIMINARY

ASHLEY CREEK
STREAM BANK
RECONSTRUCTION

SCALE: NOT TO SCALE

MDTA MONTANA DEPARTMENT OF TRANSPORTATION
MONTANA CADD



DESIGNED BY	12/3/2014
REVIEWED BY	3:31:00 PM
CHECKED BY	
DATE	

DESIGNER		
DRAWN		
APPROVED		
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INITIALS		DATE