

Information for File # 2013-01725-TJH

Applicant: Afton Land Limited Partnership
Belwin Conservancy, Ms. Nancy Kafka

Corps Contact: Tom Hingsberger

Address: 180 E. 5th Street, Suite 700, St. Paul, Minnesota 55101-1638

E-Mail: thomas.j.hingsberger@usace.army.mil

Phone: (651) 290-5367

Primary County: Washington County

Section: Sec. 15

Township: 28N

Range: 20W

Information Complete On: April 30, 2014

Posting Expires On: July 28, 2014

Authorization Type: LOP-05-MN

This application is being reviewed in accordance with the practices for documenting Corps jurisdiction under Sections 9 & 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act identified in Regulatory Guidance Letter 07-01. We have made a preliminary determination that the aquatic resources proposed to be impacted by the proposed project are regulated by the Corps of Engineers under Section 10 of the Rivers and Harbors Act. Our jurisdictional review could result in modifications to the scope of the project's regulated waterbody/wetland impacts and compensatory mitigation requirements identified above. An approved jurisdictional determination will be made prior to reaching a permit decision, and will be posted on the St. Paul District web page at <http://www.mvp.usace.army.mil/>.

Project Includes: Upland bank shaping, wetland enhancement, and channel restoration in Valley Creek as part of the Phase 2 Valley Creek Trout Habitat Restoration project (MnDNR Permit No. 2014-2024).

PROJECT DESCRIPTION AND PURPOSE: The purpose of the project is to improve habitat and in-stream cover for trout and to stabilize the banks along Valley Creek east of Stagecoach Trail South in Afton, Minnesota. The project includes upland bank shaping, construction of vane structures, and the placement of random boulders, skyhooks, and

rootwads along 3,800 feet of Valley Creek, in the channel between Edward Norton Pond and the outfall to Valley Creek, and in the mill run channel between Rainbow Pond and Spreeman Pond. Accumulated sediment in Spreeman Pond would be excavated to its original depth and discharged into approximately 0.35 acre of Rainbow Pond to create shallower water depths and seasonal pools adjacent to Valley Creek.

NAME, AREA AND TYPES OF WATERS (INCLUDING WETLANDS) SUBJECT TO LOSS: Fill material would be discharged into approximately 0.35-acre of Spreeman pond, a shallow open-water Type 5 wetland to create a seasonally-flooded Type 1 basin. Stream enhancements are proposed for approximately 3,800 linear feet of Valley Creek. The project would result no loss of waters.

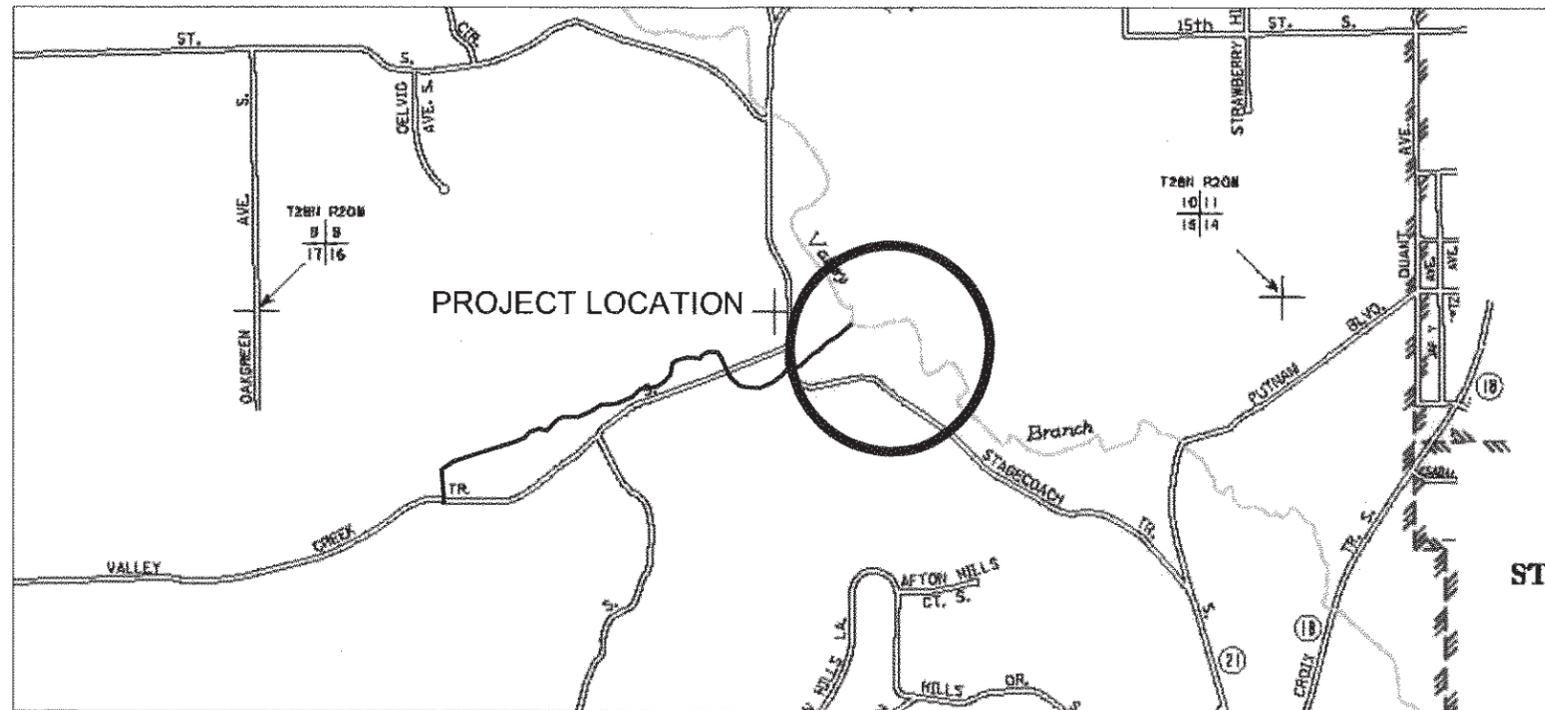
ALTERNATIVES CONSIDERED: The preferred alternative was developed following review by the Valley Branch Watershed District and the MnDNR.

COMPENSATORY MITIGATION: No compensatory mitigation is proposed.

Drawings See attached.

AFTON LAND LTD.
VALLEY CREEK TROUT
HABITAT IMPROVEMENT PROJECT
DRAFT CONSTRUCTION PLANS
AFTON, WASHINGTON CO., MN

FEATURE	EXISTING	PROPOSED
SILT FENCE		
CONSTRUCTION FENCE		
DELINEATED WETLAND		
WATERLINE/Shoreline		
OVERHEAD ELECTRIC LINES		
BURIED ELECTRIC LINES		
FIBER OPTIC LINES		
GAS LINES		
PIPELINE		
OVERHEAD TELEPHONE		
BURIED TELEPHONE		
TELEPHONE MANHOLE		
TELEPHONE CABLE PEDESTAL		
OVERHEAD CABLE TV		
BURIED CABLE TV		
TV CABLE PEDESTAL		
BARBED WIRE FENCE		
CHAIN LINK FENCE		
STOCKADE/WOOD FENCE		
GUARD RAIL		
CENTER LINE ROADWAY		
CENTER LINE RAILROAD		
SANITARY SEWER LINE		
SANITARY SEWER FORCEMAIN		
SANITARY SEWER MANHOLE		
STORM SEWER LINE		
STORM SEWER CULVERT		
STORM SEWER FORCEMAIN		
STORM SEWER MANHOLE		
WATERMAIN		
WATERMAIN MANHOLE		
HYDRANT		
WATER VALVE		



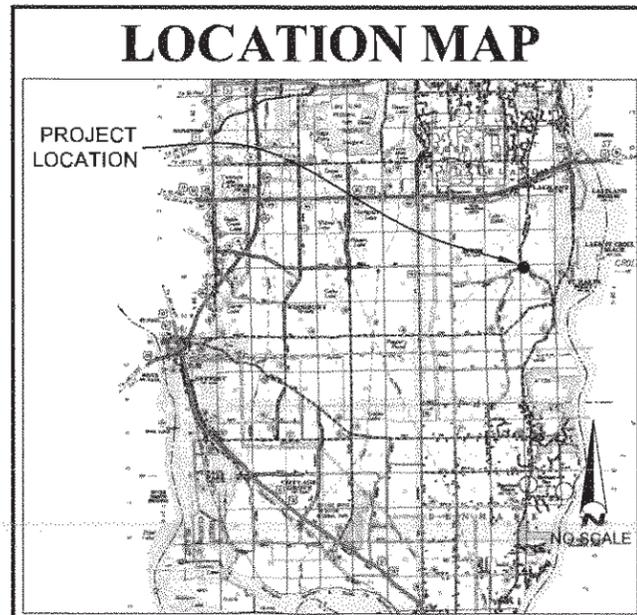
Sheet List Table	
Sheet Number	Sheet Title
01	TITLE SHEET
02	SWPPP
03	NOTES & ESTIMATED QUANTITIES
04	DETAILS 1
05	DETAILS 2
06	DETAILS 3
07	OVERALL PLAN
08	PLAN & PROFILE 1
09	PLAN & PROFILE 2
10	PLAN & PROFILE 3
11	DETAIL AREAS 1
12	DETAIL AREAS 2
13	DETAIL AREAS 3
14	CROSS SECTIONS
15	CROSS SECTIONS 2

GOVERNING SPECIFICATIONS
 THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
 ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING FIELD MANUAL FOR TEMPORARY CONTROL ZONE LAYOUTS.

EXISTING UTILITIES
 THE LOCATION OF UNDERGROUND FACILITIES AND/OR STRUCTURES AS SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORD AT THE TIME THE PLANS WERE PREPARED AND ARE NOT GUARANTEED TO BE COMPLETE OR CORRECT. THE SUBSURFACE UTILITY INFORMATION SHOWN IS UTILITY QUALITY LEVEL D, AS DETERMINED USING THE GUIDELINES OF "CIASCE 38-02 STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA." THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE THE EXACT LOCATION OF ALL FACILITIES AND TO PROVIDE ADEQUATE PROTECTION OF SAID UTILITIES DURING THE COURSE OF WORK.

CONSTRUCTION NOTE
 CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO MAINTAIN OPERATION OF EXISTING UTILITIES THROUGHOUT THE DURATION OF THE PROJECT. IN THE EVENT THAT AN INTERRUPTION OF SERVICE IS UNAVOIDABLE IN ORDER TO COMPLETE THE WORK, CONTRACTOR SHALL PROVIDE ADEQUATE NOTIFICATION TO ALL AFFECTED BUSINESSES A MINIMUM OF 3 WORKING DAYS IN ADVANCE OF ANY INTERRUPTION.

GOPHER STATE ONE-CALL
 IT IS THE LAW THAT ANYONE EXCAVATING AT ANY SITE MUST NOTIFY GOPHER STATE ONE CALL (GSOC) SO THAT UNDERGROUND ELECTRIC, NATURAL GAS, TELEPHONE OR OTHER UTILITY LINES CAN BE MARKED ON OR NEAR YOUR PROPERTY BEFORE ANY DIGGING BEGINS. A 48-HOUR NOTICE, NOT INCLUDING WEEKENDS, IS REQUIRED. CALLS CAN BE MADE TO GSOC AT 1-800-252-1188 OR (651)454-0002, MONDAY THROUGH FRIDAY (EXCEPT HOLIDAYS) FROM 7 A.M. TO 5 P.M.



NO	DATE	BY	REVISION
6			
5			
4	4/18/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	8/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWD/MNDNR WALK THROUGH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

 JAY R. HILL
 DATE: 04/18/2014 LICENSE # 22542

SUBMISSION DATE:
04/18/2014
 DESIGN BY: CKA DRAWN BY: JRH
 EOR PROJECT NO.: 01101-0001

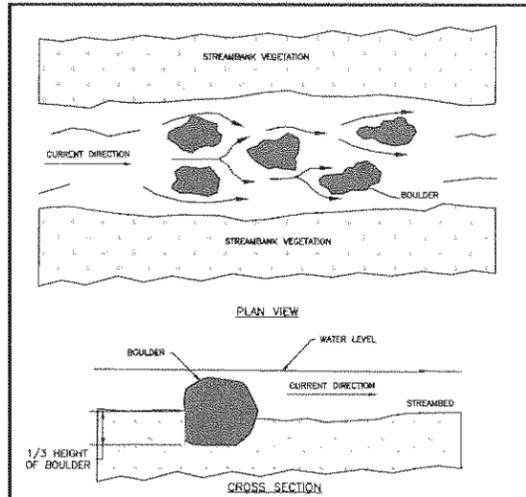
EOR Emmons & Olivier Resources, Inc.
 651 Hale Avenue North
 Oakdale, MN 55128
 Telephone: 651.770.8448
 www.eorinc.com

AFTON LAND LTD.
 1660 HIGHWAY 100 S.
 #426
 MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT
 HABITAT IMPROVEMENT PROJECT
 DRAFT CONSTRUCTION PLANS
 AFTON, WASHINGTON CO., MN

TITLE SHEET
 SHEET 01 OF 15 SHEETS

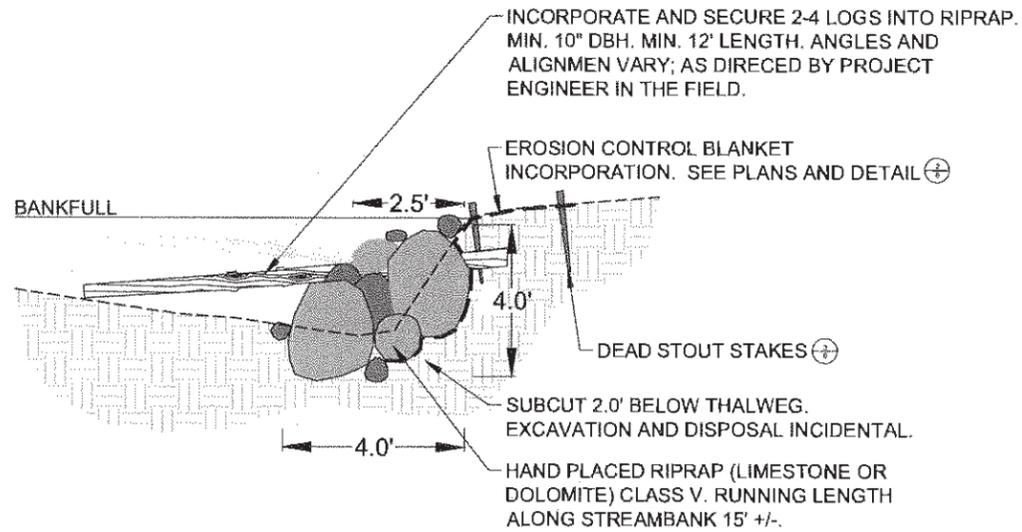
PROJECT OWNER
AFTON LAND LTD.
 1660 HIGHWAY 100 S.
 MINNEAPOLIS, MN 55416
PROJECT ENGINEER
EMMONS & OLIVIER RESOURCES, INC.
 651 HALE AVENUE NORTH
 OAKDALE, MINNESOTA 55128-7534
 TELEPHONE: (651) 770-8448
 FAX: (651) 770-2552
 eorinc.com



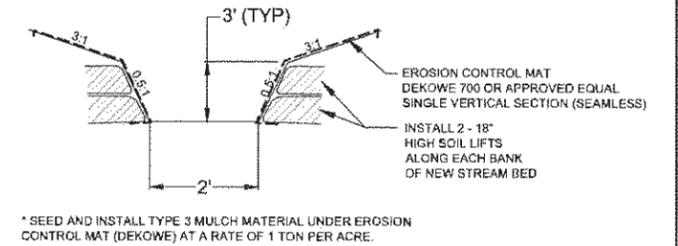
- 5 BOULDERS PER CLUSTER. 2-24" MINIMUM DIAMETER & 3-18" MINIMUM HEIGHT.
- A MINIMUM OF ONE BOULDER PER SET OF BOULDERS SHOULD PROTRUDE FROM WATER SURFACE DURING TIMES OF ORDINARY FLOW TO ACT AS MID-STREAM PERCHING/LOWERING SITES.
- USE BOULDERS WITH IRREGULARITIES OR MULTIPLE BOULDERS TOGETHER TO PROVIDE SLIGHT OVERHANGING COVER.
- PLACE BOULDERS SO CURRENT WILL NOT BE DEFLECTED INTO UNPROTECTED STREAM BANKS.

	RANDOM BOULDER PLACEMENT <small>Natural Resources Conservation Service United States Department of Agriculture</small>	Design: ###	Date: ###	Drawing Name: W-037
		Client: ###	County: ###	Date: 10/2010

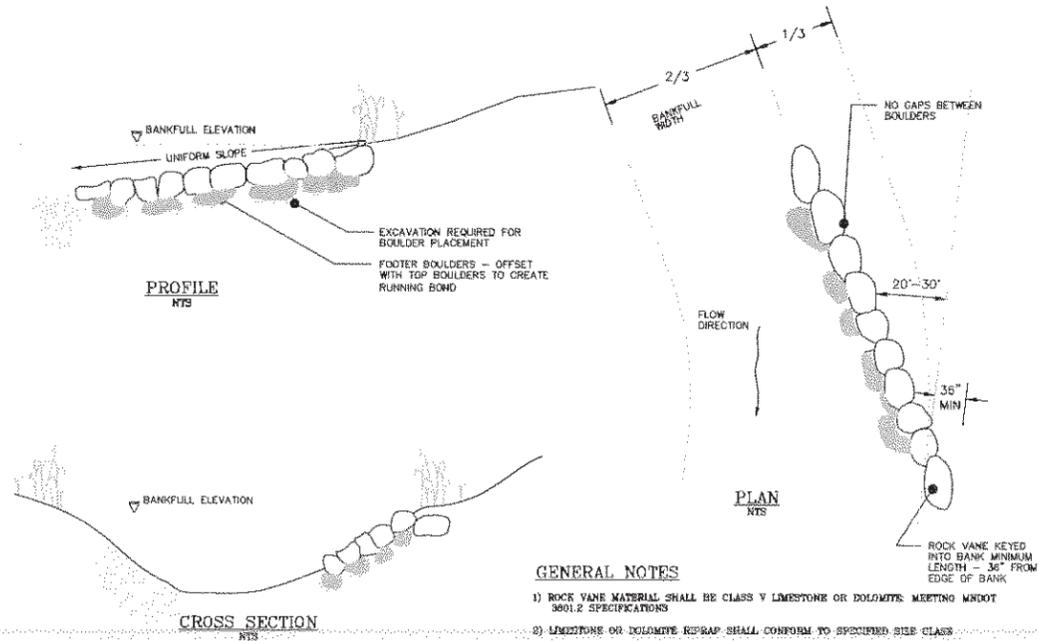
1
4
RANDOM BOULDER PLACEMENT
NOT TO SCALE



2
4
LARGE WOODY DEBRIS
NOT TO SCALE

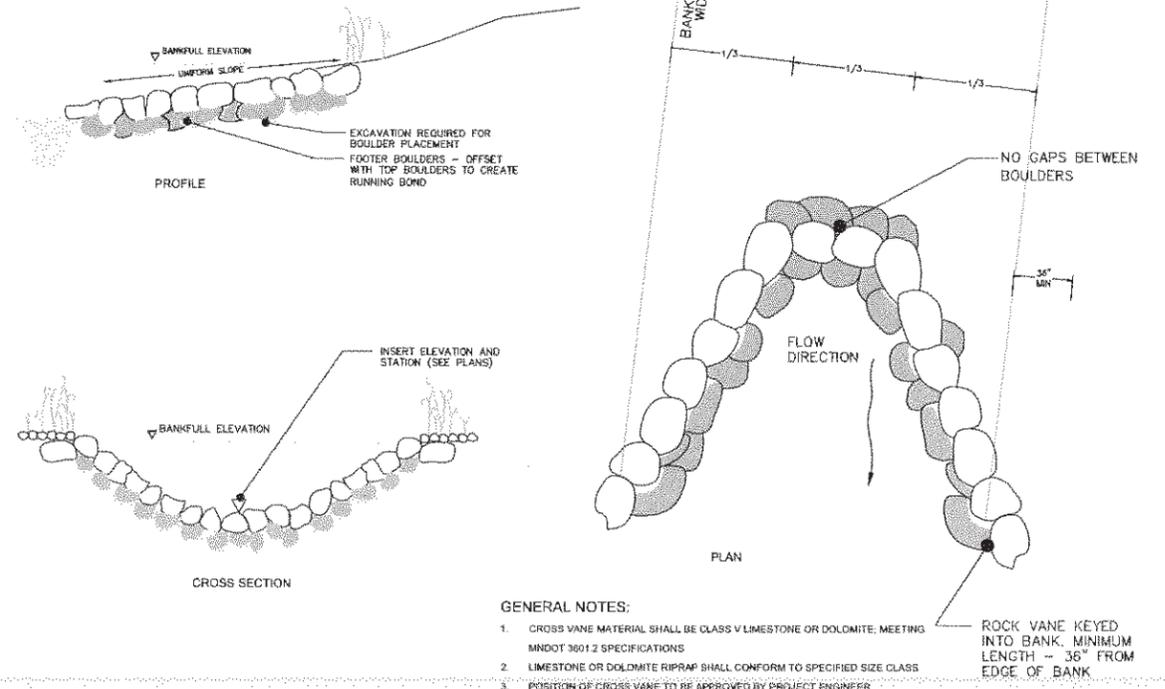


3
4
NEW RAINBOW POND STREAM SECTION
NOT TO SCALE



- GENERAL NOTES:**
- 1) ROCK VANE MATERIAL SHALL BE CLASS V LIMESTONE OR DOLOMITE MEETING MNDOT 3001.2 SPECIFICATIONS
 - 2) LIMESTONE OR DOLOMITE RIPRAP SHALL CONFORM TO SPECIFIED SIZE CLASS
 - 3) POSITION OF SINGLE VANE TO BE APPROVED BY PROJECT ENGINEER

4
4
SINGLE VANE DETAIL
NOT TO SCALE



- GENERAL NOTES:**
1. CROSS VANE MATERIAL SHALL BE CLASS V LIMESTONE OR DOLOMITE MEETING MNDOT 3001.2 SPECIFICATIONS
 2. LIMESTONE OR DOLOMITE RIPRAP SHALL CONFORM TO SPECIFIED SIZE CLASS
 3. POSITION OF CROSS VANE TO BE APPROVED BY PROJECT ENGINEER

5
4
CROSS VANE DETAIL
NOT TO SCALE

6			
5			
4	4/18/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	8/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWD/MNDNR WALK THROUGH
NO	DATE	BY	REVISION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Jay R. Hill
 JAY R. HILL
 DATE: 04/18/2014 LICENSE # 22542

SUBMISSION DATE: 04/18/2014
 DESIGN BY: CKA DRAWN BY: JRH
 EOR PROJECT NO. 01101-0001

EOE Emmons & Olivier Resources, Inc.
 651 Hale Avenue North
 Oakdale, MN 55128
 Phone: 651.770.8448
 www.eorinc.com

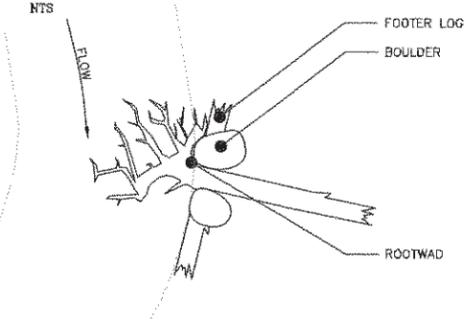
AFTON LAND LTD.
 1660 HIGHWAY 100 S.
 #426
 MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT HABITAT IMPROVEMENT PROJECT
 DRAFT CONSTRUCTION PLANS
 AFTON, WASHINGTON CO., MN

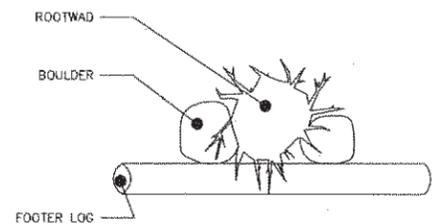
DETAILS 1

SHEET 04 OF 15 SHEETS

ROOTWAD PLAN VIEW
NTS

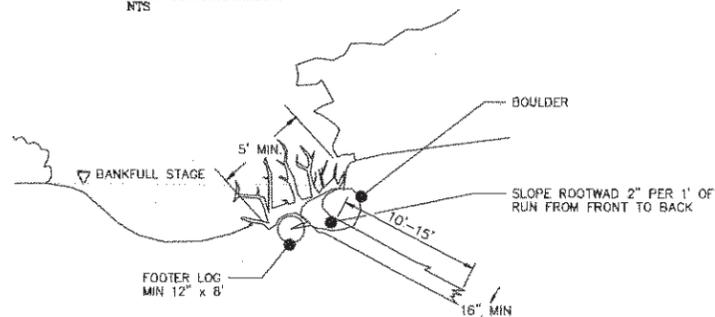


ROOTWAD ELEVATION
NTS



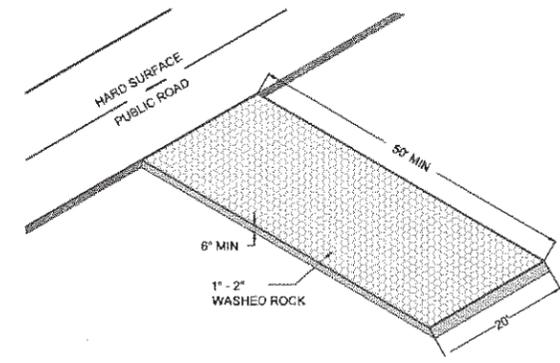
SEE PLANS FOR SPECIFIED BIOTECHNICAL TREATMENTS SURROUNDING ROOTWADS

ROOTWAD CROSS SECTION
NTS

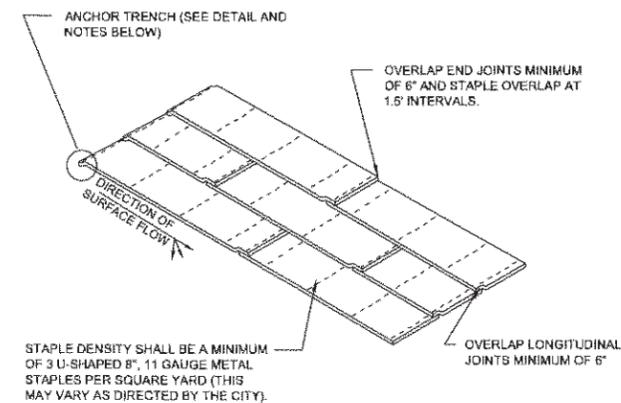


GENERAL NOTES

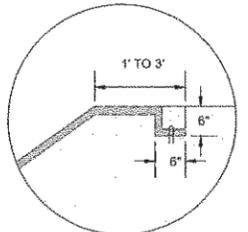
- 1) LOCATION OF ROOT WADS TO BE VERIFIED BY ENGINEER.
- 2) ROOTWADS TO BE INSTALLED UPSTREAM TO DOWNSTREAM.
- 3) ROOTWADS TO BE DRIVEN INTO UNDISTURBED BANKS. TRENCHING OF ROOTWADS WILL NOT BE PERMITTED.
- 4) ROOTWADS AND FOOTER LOGS SHALL BE FROM A HARDWOOD SOURCE.
- 5) BOULDERS SHALL BE LIMESTONE OR DOLOMITE, GREATER THAN 24".



4 ROCK CONSTRUCTION ENTRANCE
NOT TO SCALE

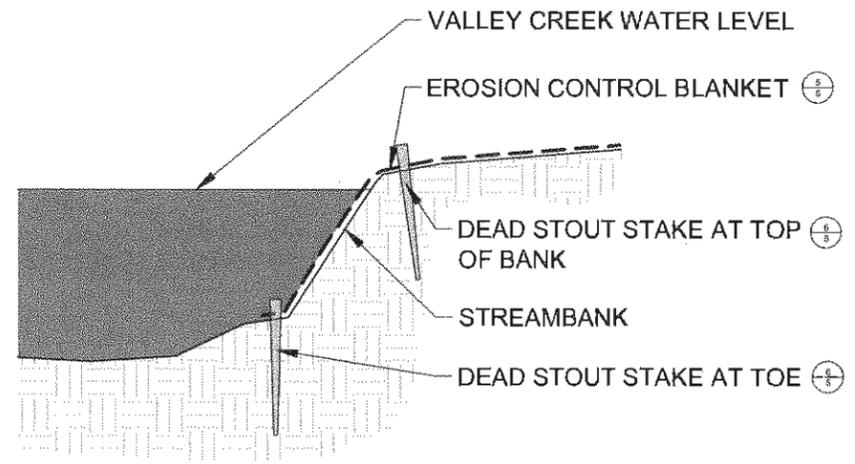


- ANCHOR TRENCH**
1. DIG 6" X 6" TRENCH
 2. LAY BLANKET IN TRENCH
 3. STAPLE AT 1.5' INTERVALS
 4. BACKFILL WITH NATURAL SOIL AND COMPACT
 5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH

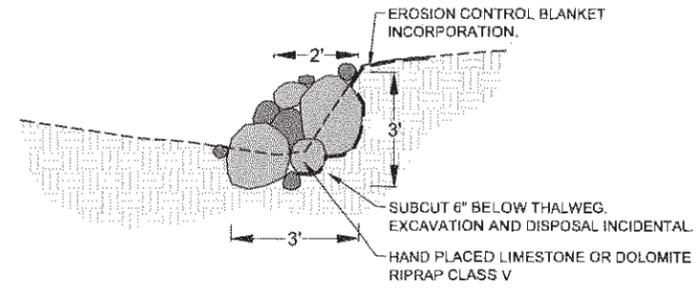


5 EROSION CONTROL BLANKET INSTALLATION
NOT TO SCALE

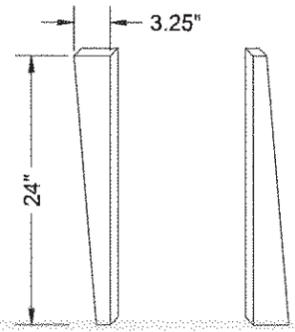
1 ROOTWAD
NOT TO SCALE



2 EROSION CONTROL BLANKET INSTALLATION ON STREAM BANK
NOT TO SCALE



3 BOULDER TOE
NOT TO SCALE



6 DEAD STOUT STAKE
NOT TO SCALE

DEAD STOUT STAKES FOR USE AT ALL DEKOWE EROSION CONTROL BLANKET EDGES

NO	DATE	BY	REVISION
6			
5			
4	4/18/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	9/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWDMNDNR WALK THROUGH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JAY R. HILL
DATE: 04/18/2014 LICENSE # 22542

SUBMISSION DATE: 04/18/2014
DESIGN BY: CKA DRAWN BY: JRH
EOR PROJECT NO. 01101-0001

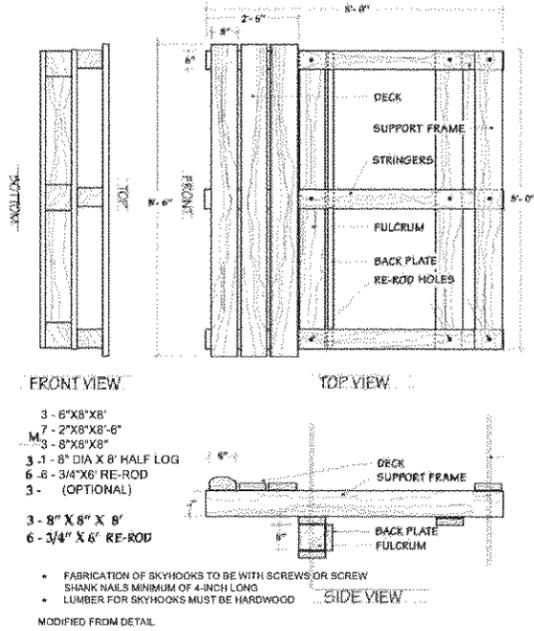
EOE Emmons & Olivier Resources, Inc.
651 Hale Avenue North
Oakdale, MN 55128
Tel: 651.770.8448
www.eorinc.com

AFTON LAND LTD.
1660 HIGHWAY 100 S.
#426
MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT HABITAT IMPROVEMENT PROJECT
DRAFT CONSTRUCTION PLANS
AFTON, WASHINGTON CO., MN

STATE PROJECT NO. CITY PROJECT NO.
DETAILS 2
SHEET 05 OF 15 SHEETS

MINNESOTA SKYHOOK BANK OVERHANG STRUCTURE

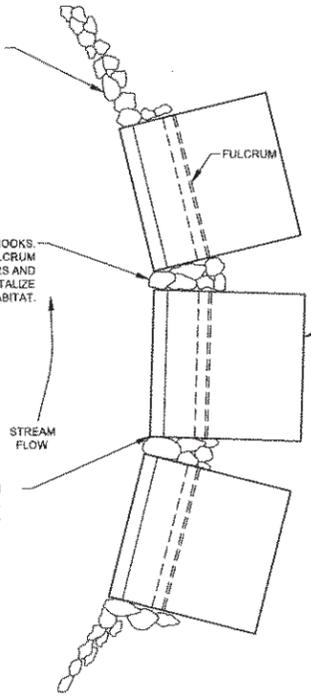


1 MINNESOTA SKYHOOK
NOT TO SCALE

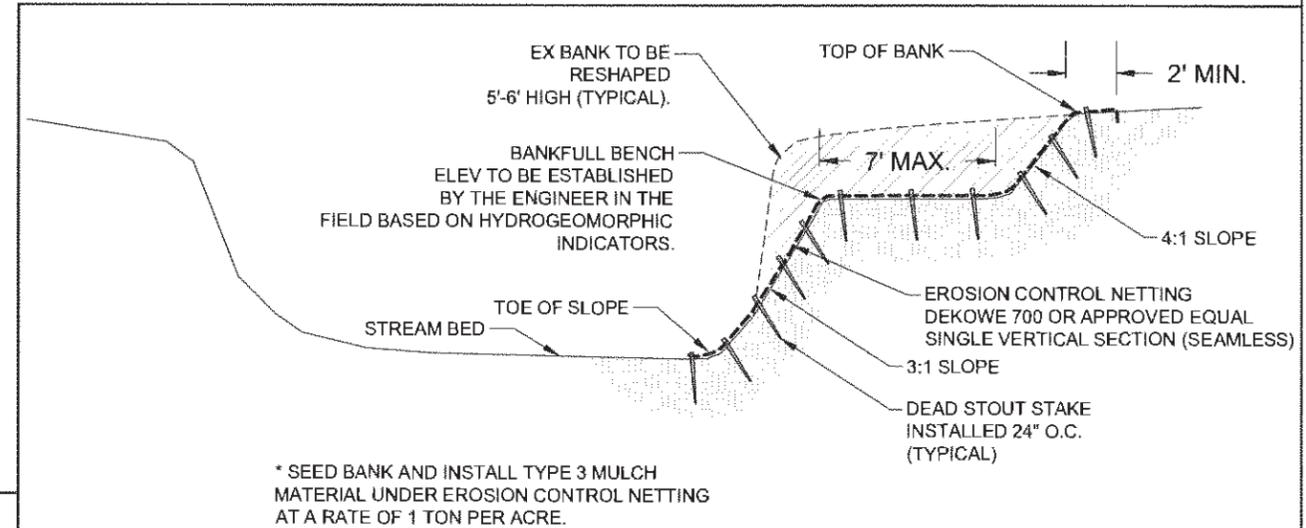
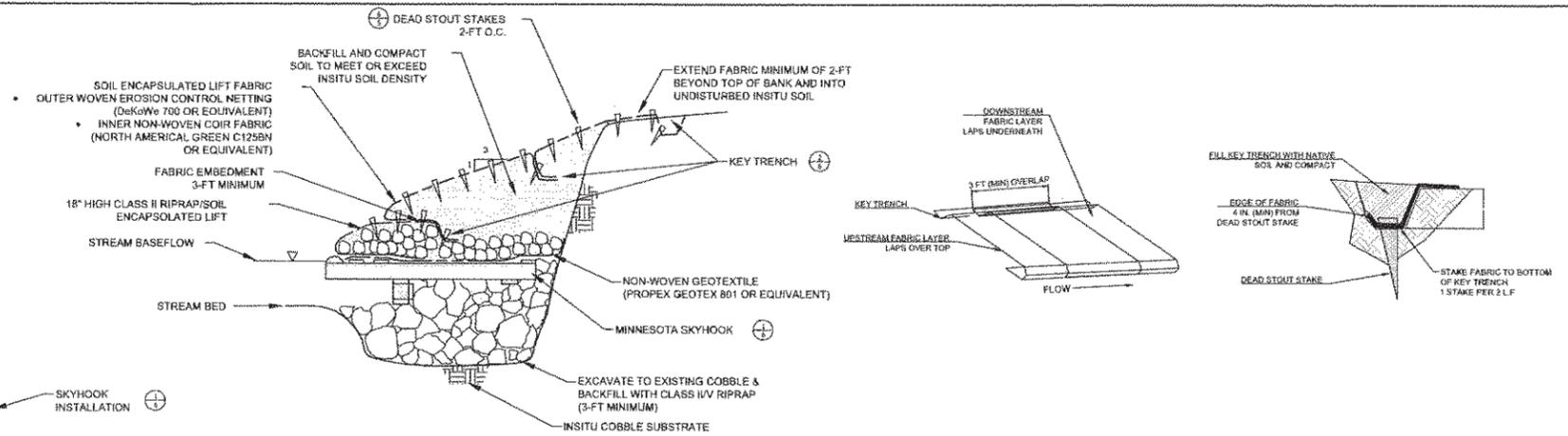
MINIMUM OF 8-FT OF CLV BOULDER TOE UPSTREAM AND DOWNSTREAM OF SKYHOOK STRING. RESHAPE BANK & BLANKET SLOPES ABOVE TO MATCH/BLEND INTO EXISTING GRADES.

18" MINIMUM SPACING BETWEEN SKYHOOKS. FILL GAP BETWEEN STRUCTURES FROM FULCRUM TO STREAM EDGE WITH 30" BOULDERS AND CLASS V RIPRAP TO COMPARTMENTALIZE OVERHEAD COVER HABITAT.

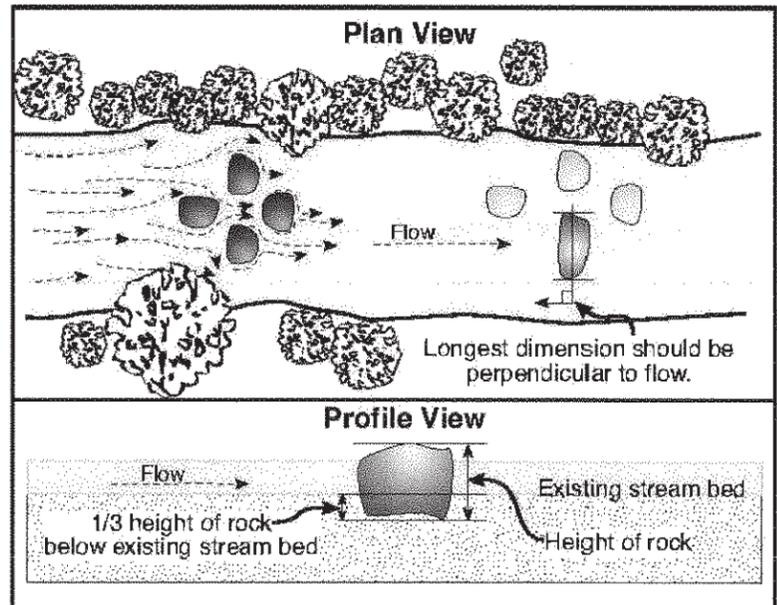
LEADING EDGE OF DOWNSTREAM SKYHOOK MUST BE FLUSH OR SET BACK TOWARDS BANK 1'-2".



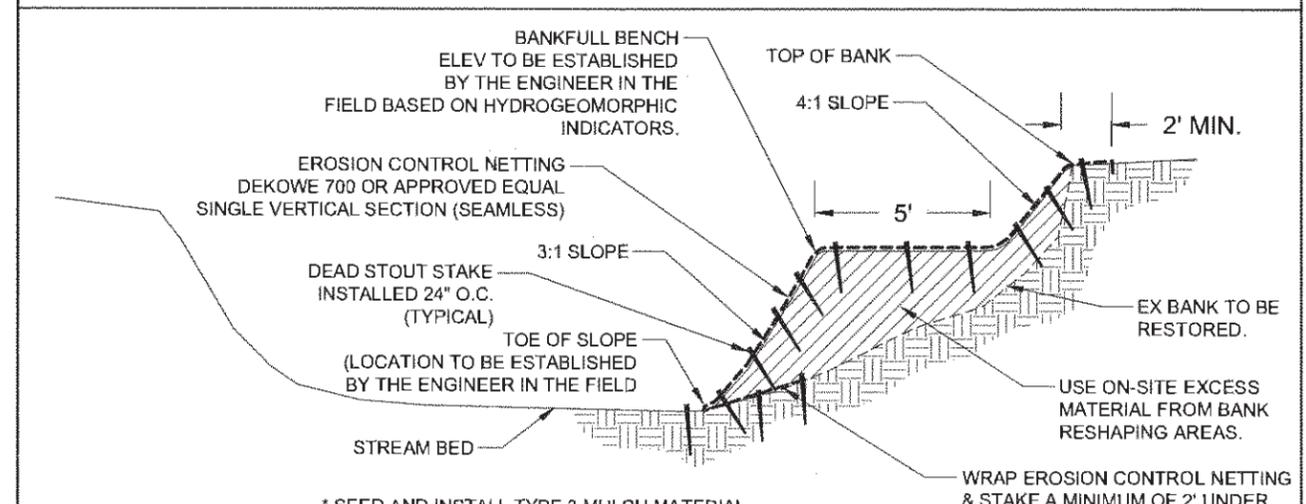
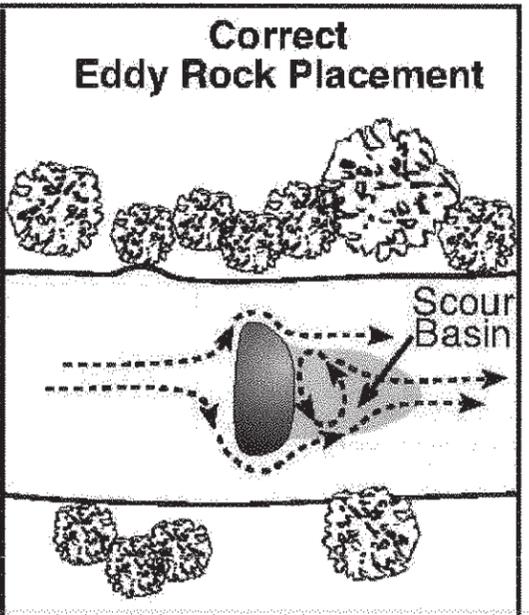
2 SKYHOOK INSTALLATION DETAILS
NOT TO SCALE



4 BANK RESHAPING - CUT AREAS
NOT TO SCALE



3 BIG EDDY ROCK
NOT TO SCALE



5 BANK RESHAPING - FILL AREAS
NOT TO SCALE

NO	DATE	BY	REVISION
6			
5			
4	4/18/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	8/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWD/MNDNR WALK THROUGH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JAY R. HILL
DATE: 04/18/2014 LICENSE # 22542

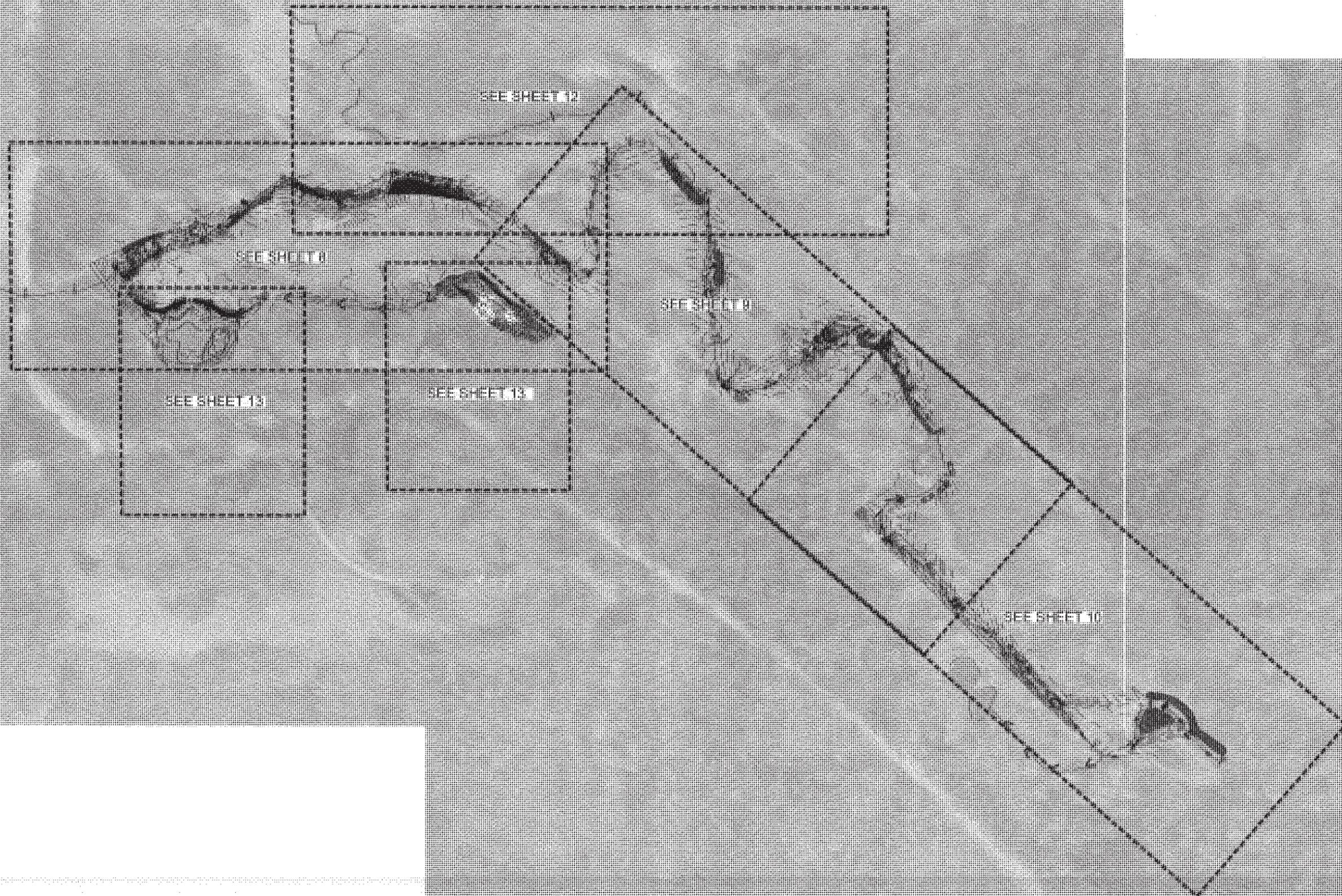
SUBMISSION DATE: 04/18/2014
DESIGN BY: CKA DRAWN BY: JRH
EOR PROJECT NO: 01101-0001

EOR Emmons & Olivier Resources, Inc.
651 Hale Avenue North
Oakdale, MN 55128
Tel: 651.770.8448
www.eorinc.com

AFTON LAND LTD.
1660 HIGHWAY 100 S.
#426
MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT HABITAT IMPROVEMENT PROJECT
DRAFT CONSTRUCTION PLANS
AFTON, WASHINGTON CO., MN

STATE PROJECT NO. CITY PROJECT NO.
DETAILS 3
SHEET 06 OF 15 SHEETS



NO.	DATE	BY	DESCRIPTION
1	11/11/09	EDW	ISSUED FOR CONSTRUCTION
2	08/20/09	EDW	ISSUED FOR PERMITS
3	08/20/09	EDW	ISSUED FOR PERMITS
4	08/20/09	EDW	ISSUED FOR PERMITS
5	08/20/09	EDW	ISSUED FOR PERMITS

I HEREBY CERTIFY THAT THE PLAN, SPECIFICATIONS, OR REPORT
 WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION
 AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER
 THE LAWS OF THE STATE OF MINNESOTA.
 DATE: 08/20/09
 LICENSE NO: 40000

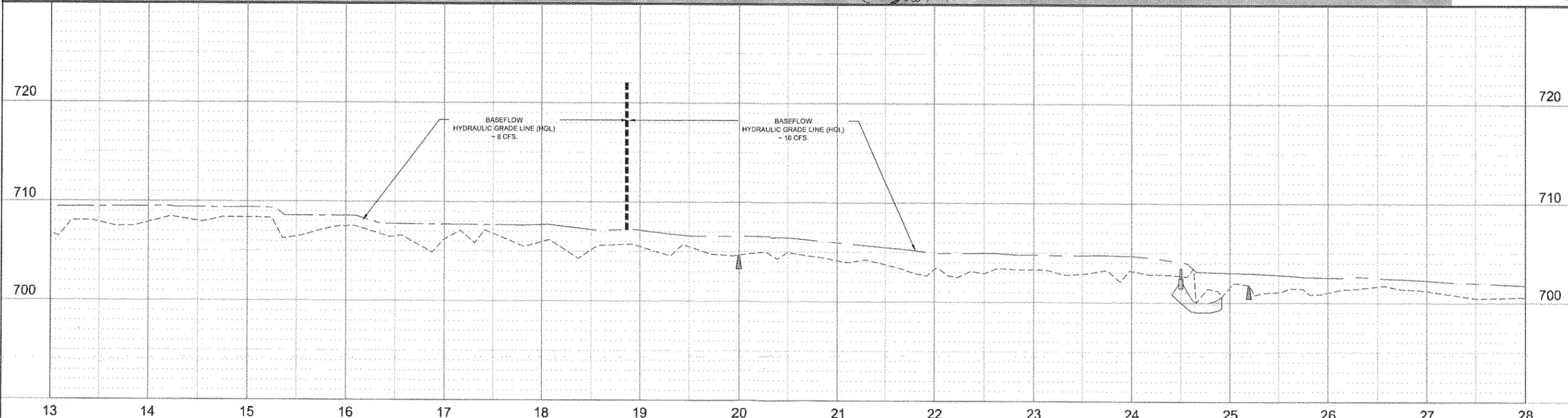
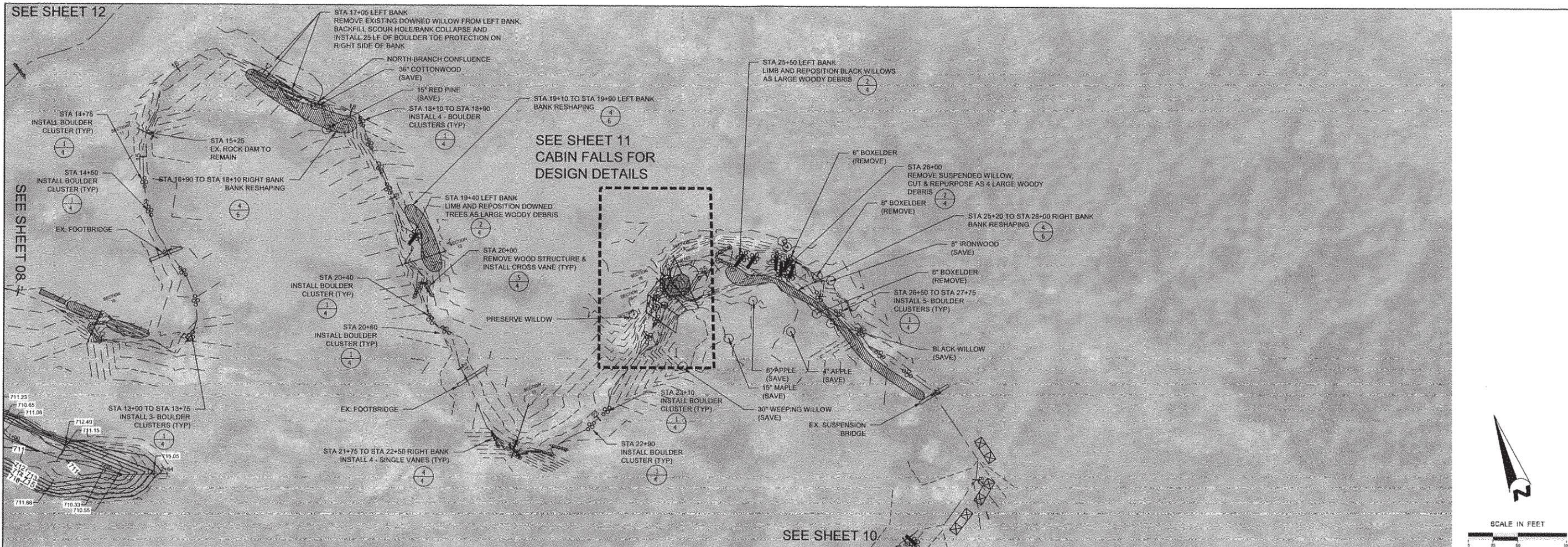
SUBMITTED DATE: 08/20/09
 DESIGNED BY: EDW
 CHECKED BY: JPM
 WORK PROJECT NO: 0701000

EDR Emerson & Oliver
 Resources, Inc.
 881 Main Avenue North
 Duluth, MN 55812
 Phone: 651.779.8448
 www.edrinc.com

AFTON LAND LTD.
 1000 HIGHWAY 100 S.
 55200
 MINNEAPOLIS, MN 55448

WALLEY CREEK TROUT
 HABITAT IMPROVEMENT PROJECT
 DRAFT CONSTRUCTION PLANS
 AFTON, WASHINGTON CO., MN

OVERALL PLAN
 SHEET 07 OF 16 SHEETS



NO	DATE	BY	REVISION
6			
5			
4	4/18/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	8/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWD/MNDNR WALK THROUGH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

J.R.H.
 JAY R. HILL
 DATE: 04/18/2014 LICENSE # 22542

SUBMISSION DATE: 04/18/2014
 DESIGN BY: CKA DRAWN BY: JRH
 EOR PROJECT NO. 01101-0001

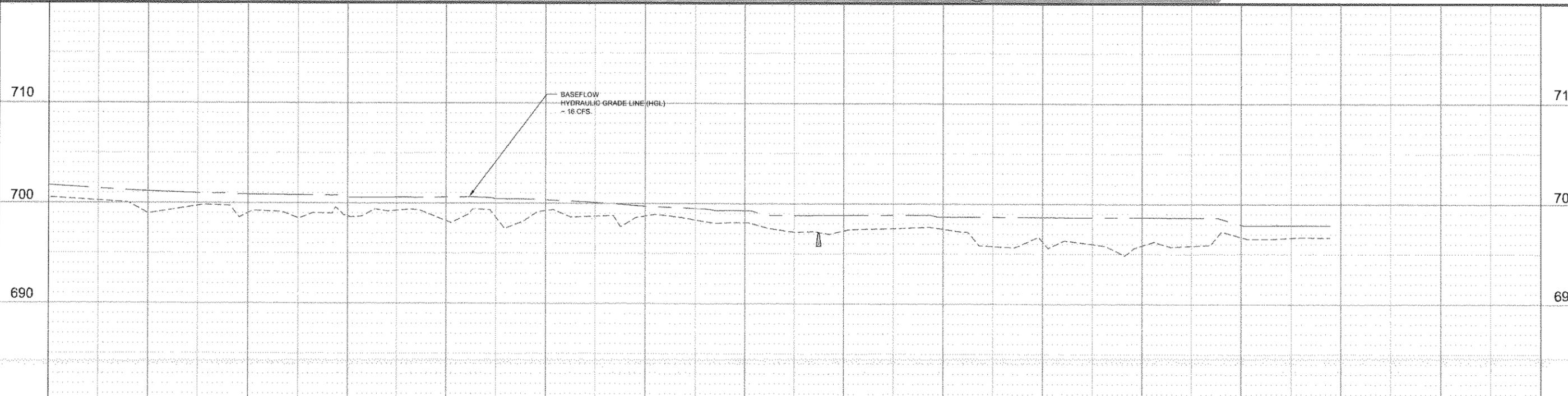
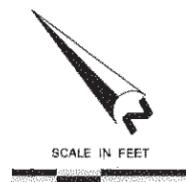
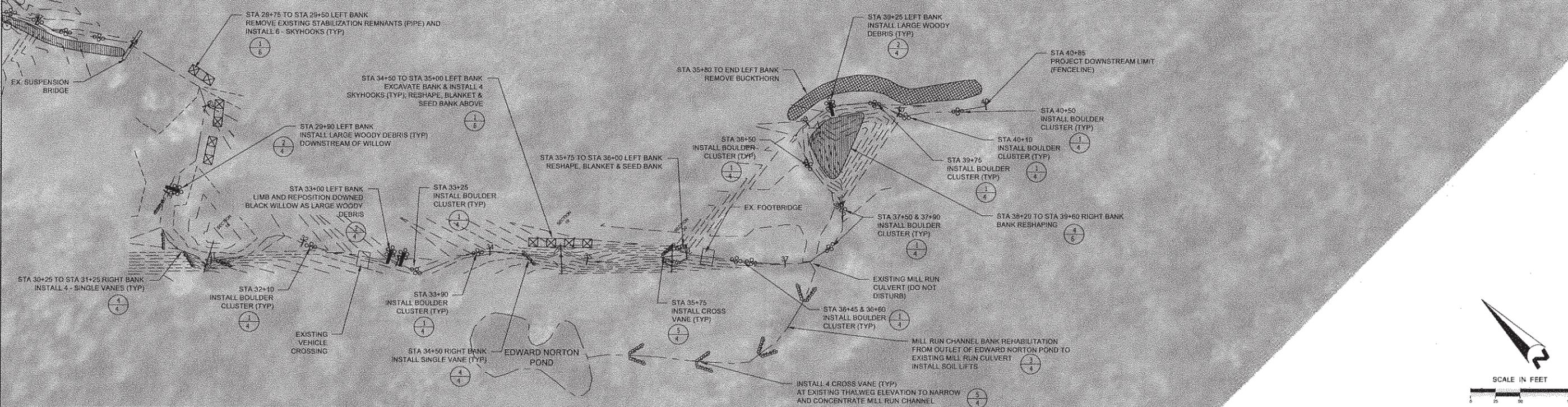
EOE Emmons & Olivier Resources, Inc.
 651 Hale Avenue North
 Oakdale, MN 55128
 Tel: 651.770.8448
 www.eorinc.com

AFTON LAND LTD.
 1660 HIGHWAY 100 S.
 #426
 MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT HABITAT IMPROVEMENT PROJECT
 DRAFT CONSTRUCTION PLANS
 AFTON, WASHINGTON CO., MN

PLAN & PROFILE 2
 STA 13+00 - 28+00
 SHEET 09 OF 15 SHEETS

SEE SHEET 09



28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43

6			
5			
4	4/19/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	8/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWD/MNDNR WALK THROUGH
NO	DATE	BY	REVISION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Jay R. Hill
 JAY R. HILL
 DATE: 04/18/2014 LICENSE # 22542

SUBMISSION DATE:
04/18/2014

DESIGN BY: CKA DRAWN BY: JRH

EOR PROJECT NO.
01101-0001

EOR Emmons & Olivier Resources, Inc.
 651 Hale Avenue North
 Oakdale, MN 55128
 Tele: 651.770.8448
 www.eorinc.com

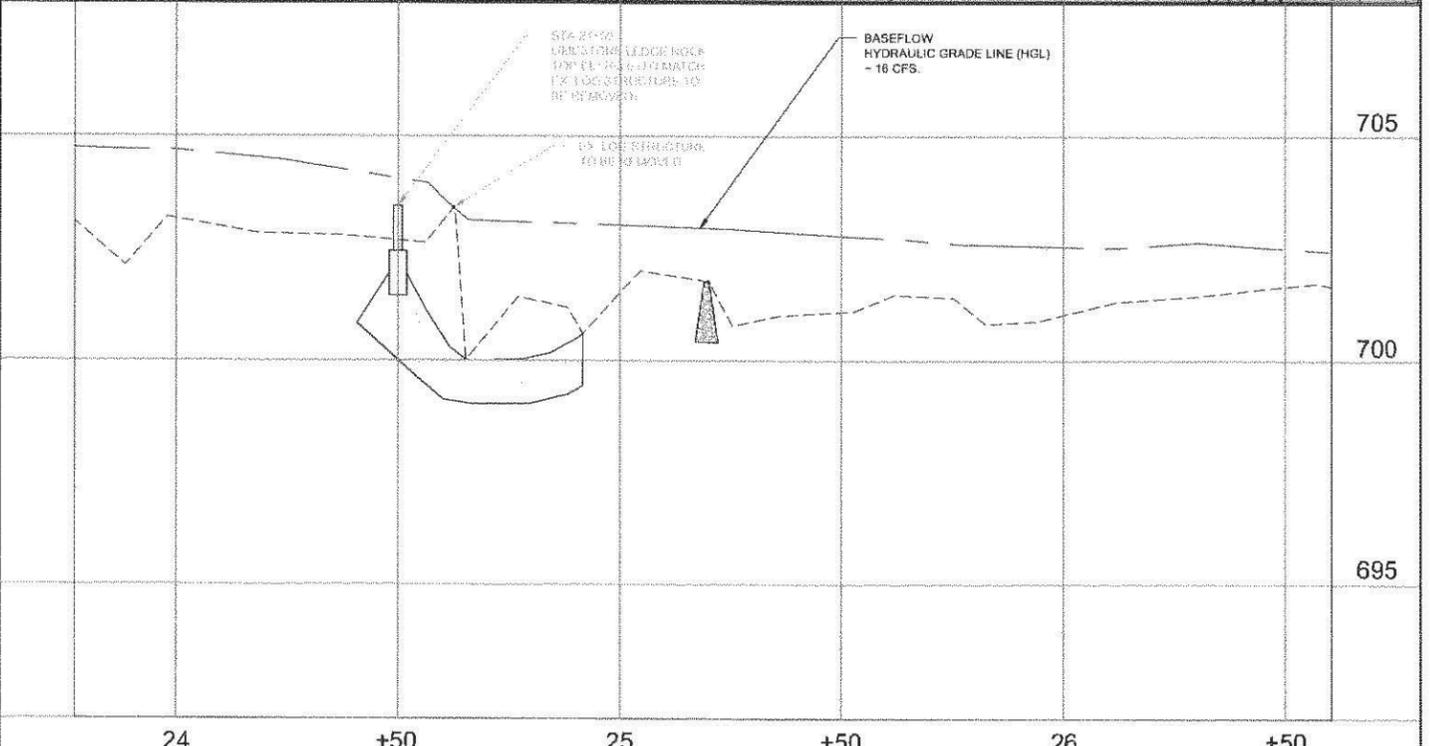
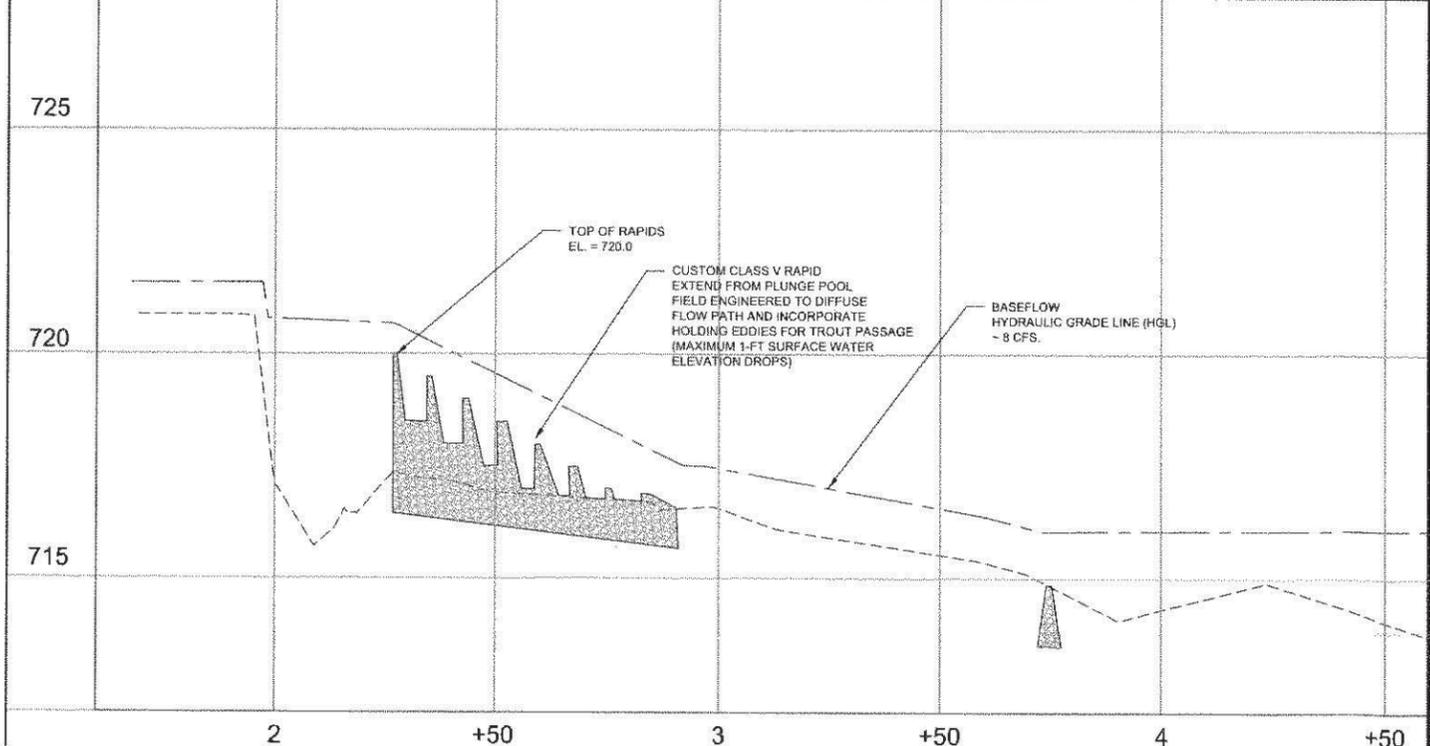
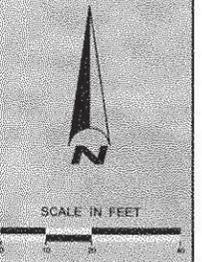
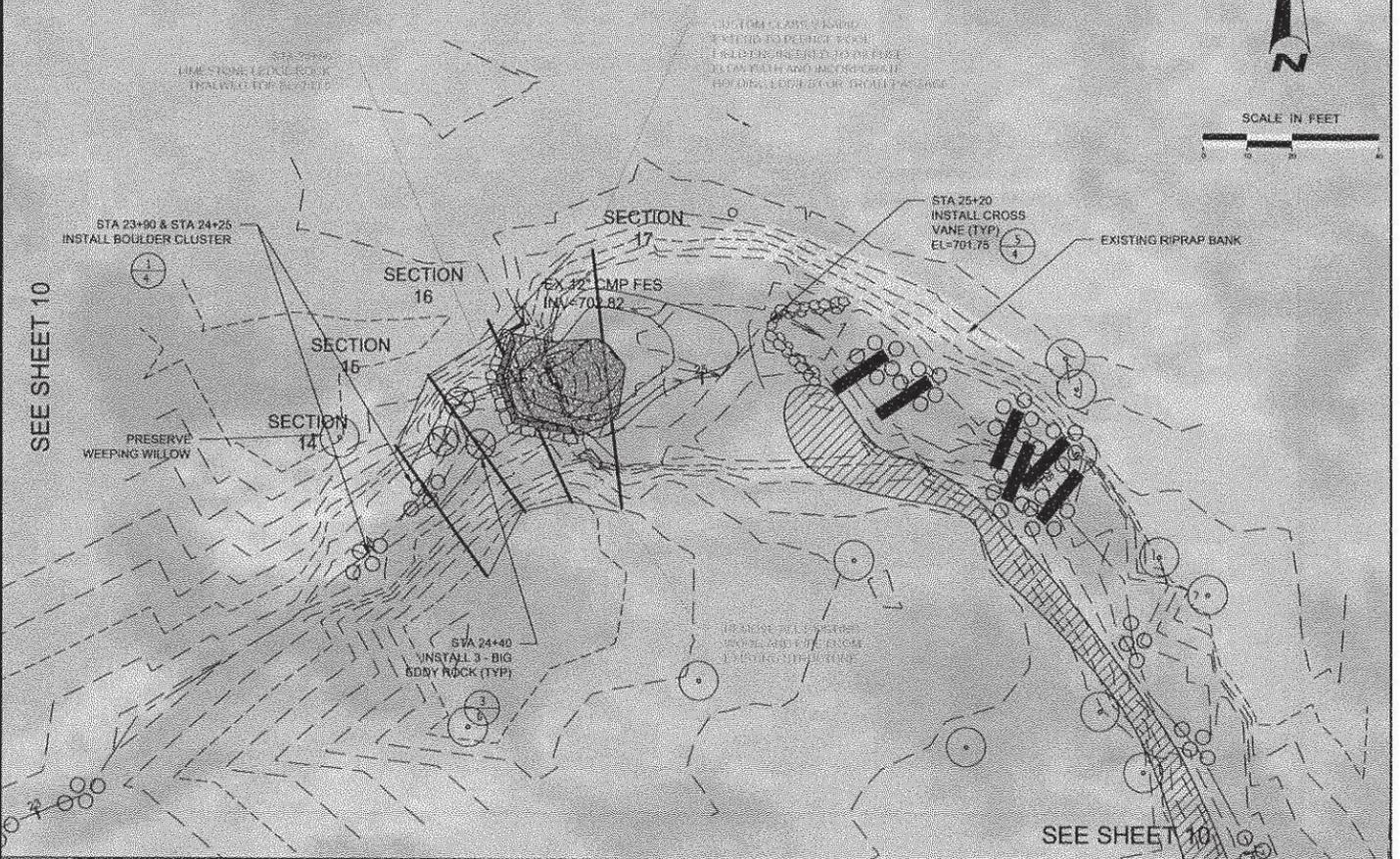
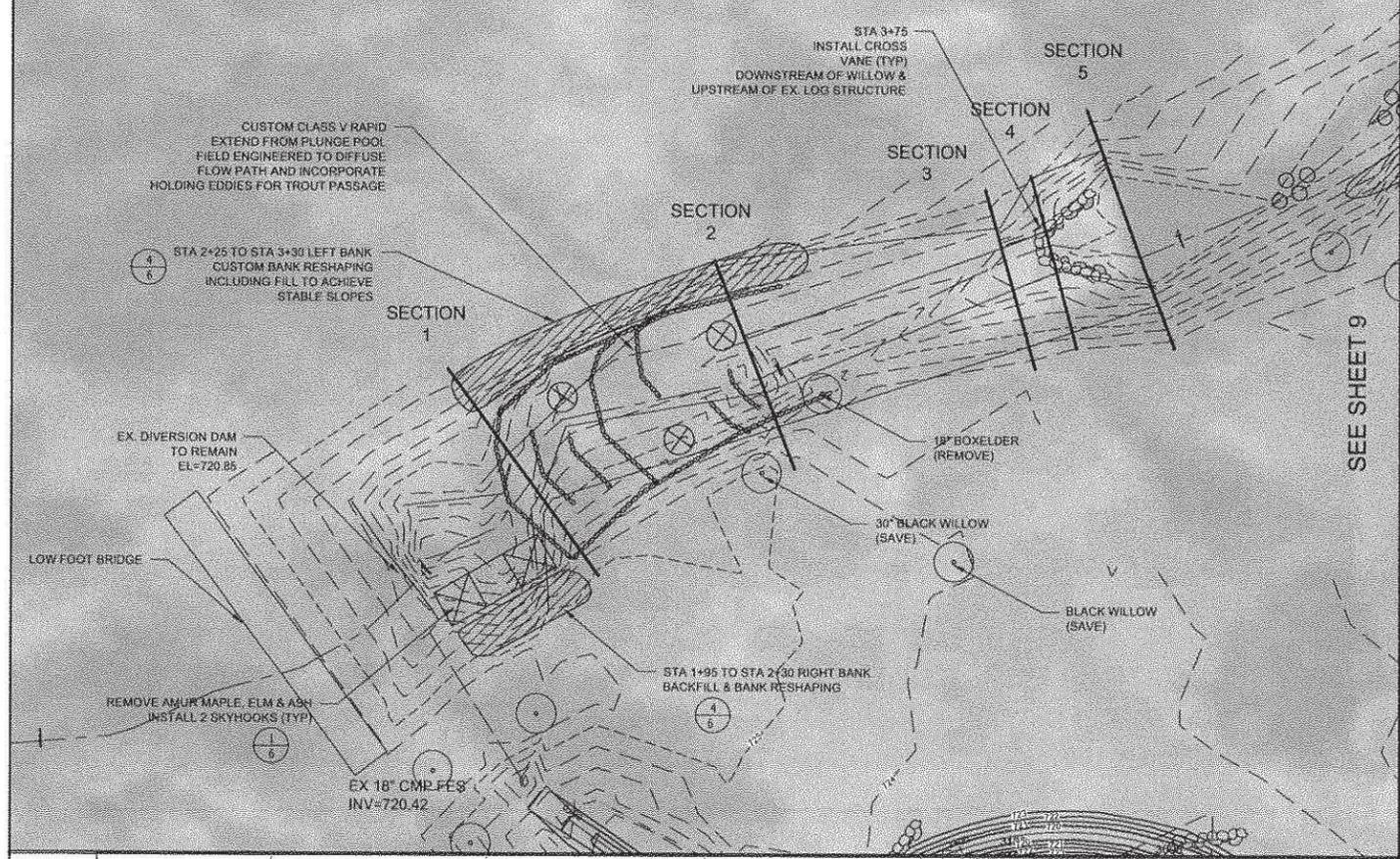
AFTON LAND LTD.
 1660 HIGHWAY 100 S.
 #426
 MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT HABITAT IMPROVEMENT PROJECT
 DRAFT CONSTRUCTION PLANS
 AFTON, WASHINGTON CO., MN

PLAN & PROFILE 3
 STA 28+00 - 43+00
 SHEET 10 OF 15 SHEETS

UPPER DAM RAPIDS & CROSS VANES

CABIN FALLS RECONSTRUCTION



NO	DATE	BY	REVISION
6			
5			
4	4/18/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	8/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWD/MNDNR WALK THROUGH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

J.R.H.
 JAY R. HILL
 DATE: 04/18/2014 LICENSE # 22542

SUBMISSION DATE: 04/18/2014
 DESIGN BY: CKA DRAWN BY: JRH
 EOR PROJECT NO. 01101-0001

Emmons & Olivier Resources, Inc.
 651 Hale Avenue North
 Oakdale, MN 55128
 Tele: 651.770.8448
 www.eorinc.com

AFTON LAND LTD.
 1660 HIGHWAY 100 S.
 #426
 MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT HABITAT IMPROVEMENT PROJECT
 DRAFT CONSTRUCTION PLANS
 AFTON, WASHINGTON CO., MN

DETAIL AREAS 1
 STA 0+00 - 13+00
 SHEET 11 OF 15 SHEETS

NORTH BRANCH NOTES:

- REMOVE SILT FENCE
- ALLOW NATURAL CHANNEL TO REFORM THROUGH FORMER "HOUR GLASS PONDS"
- CONSTRUCT CROSS VANES AT EXISTING ROCK DAMS
- BEAVER PATROL

AMEND & ENHANCE EXISTING ROCK DAM TO CREATE CROSS VANE (TYP); INCREASE ELEVATION 6-8 INCHES

AMEND & ENHANCE EXISTING ROCK DAM TO CREATE CROSS VANE (TYP); INCREASE ELEVATION 6-8 INCHES



SECTION

SEE SHEET 9

6			
5			
4	4/18/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	8/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWD/MNDNR WALK THROUGH
NO	DATE	BY	REVISION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JAY R. HILL
 DATE: 04/18/2014
 LICENSE # 22542

SUBMISSION DATE:
04/18/2014

DESIGN BY: CKA
 DRAWN BY: JRH

EOR PROJECT NO.
01101-0001

EOR Emmons & Olivier Resources, Inc.
 651 Hale Avenue North
 Oakdale, MN 55128
 ecology community
 Tel: 651.770.8448
 www.eorinc.com

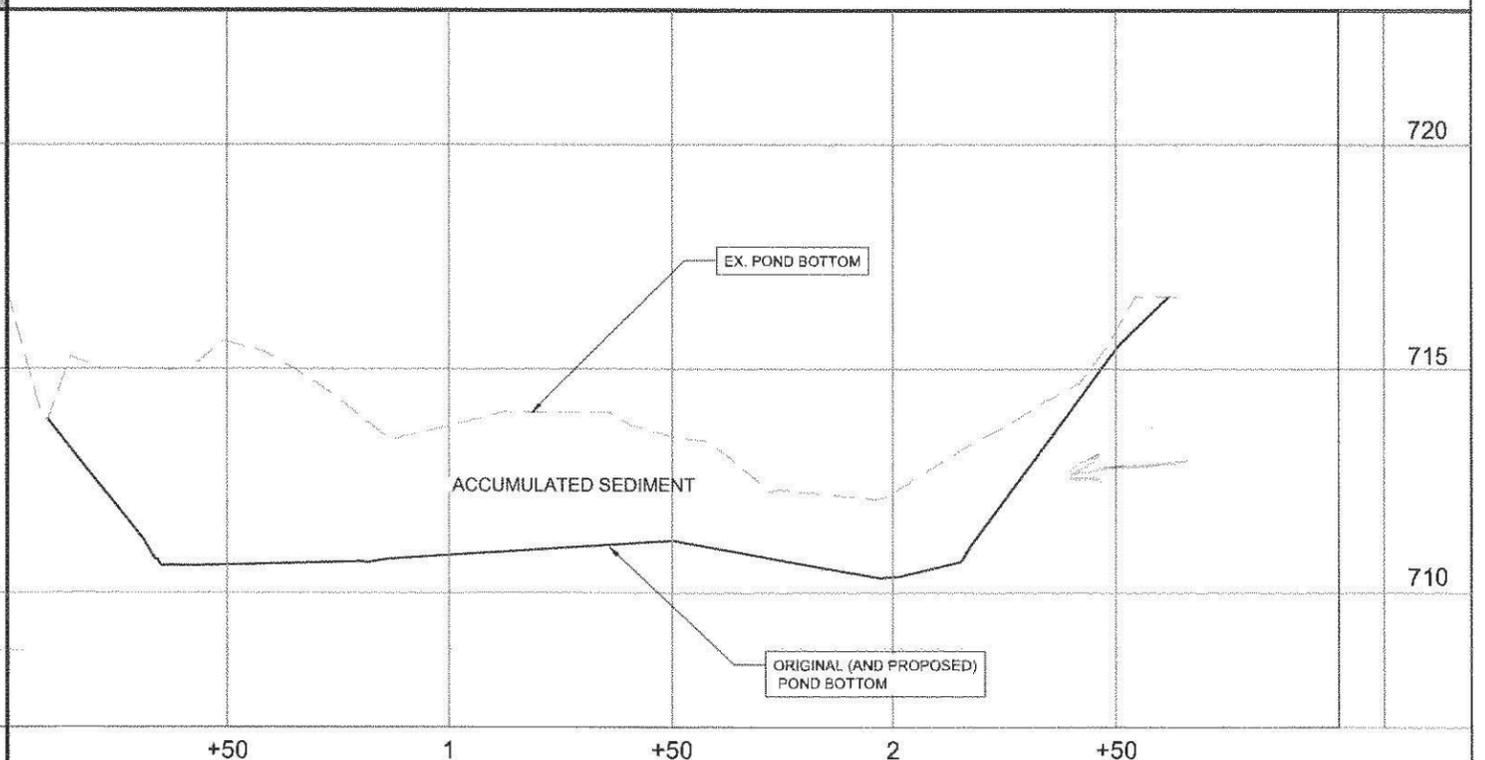
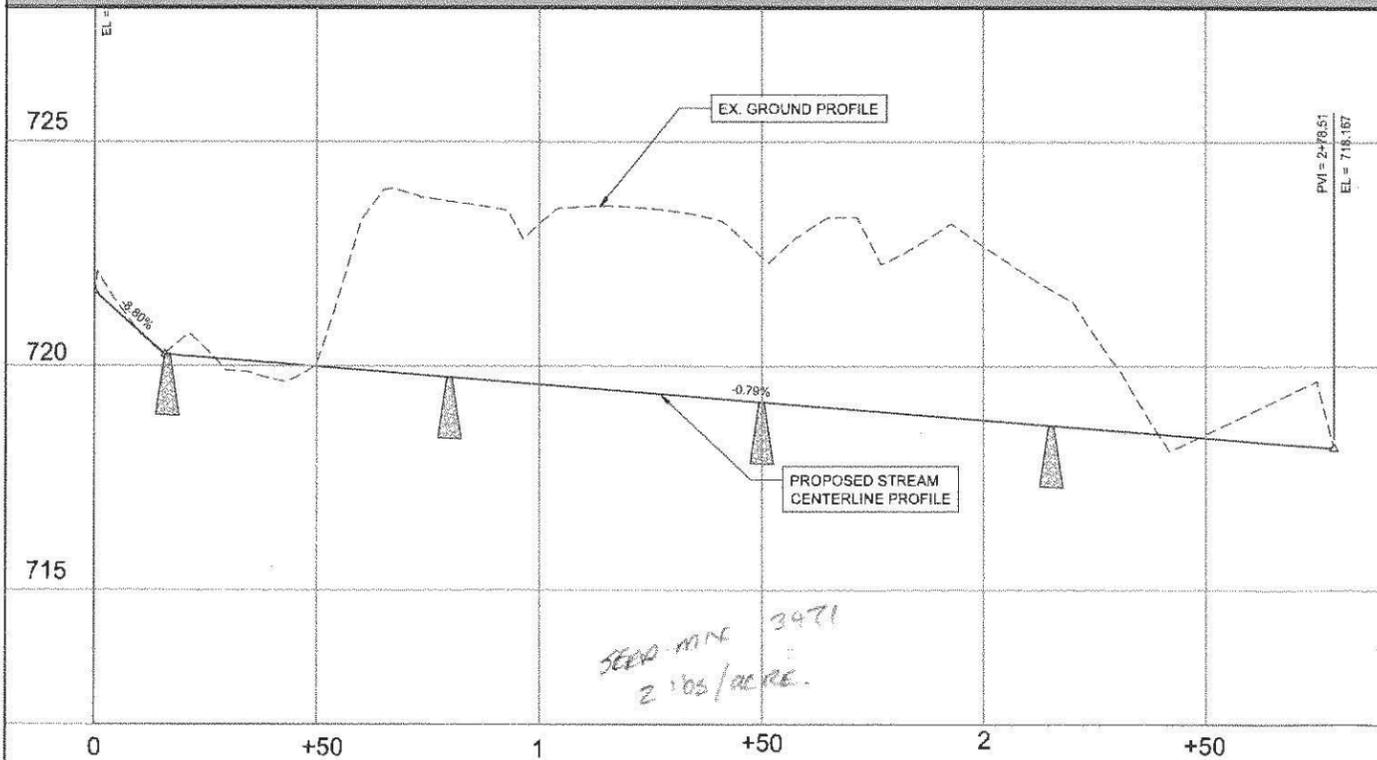
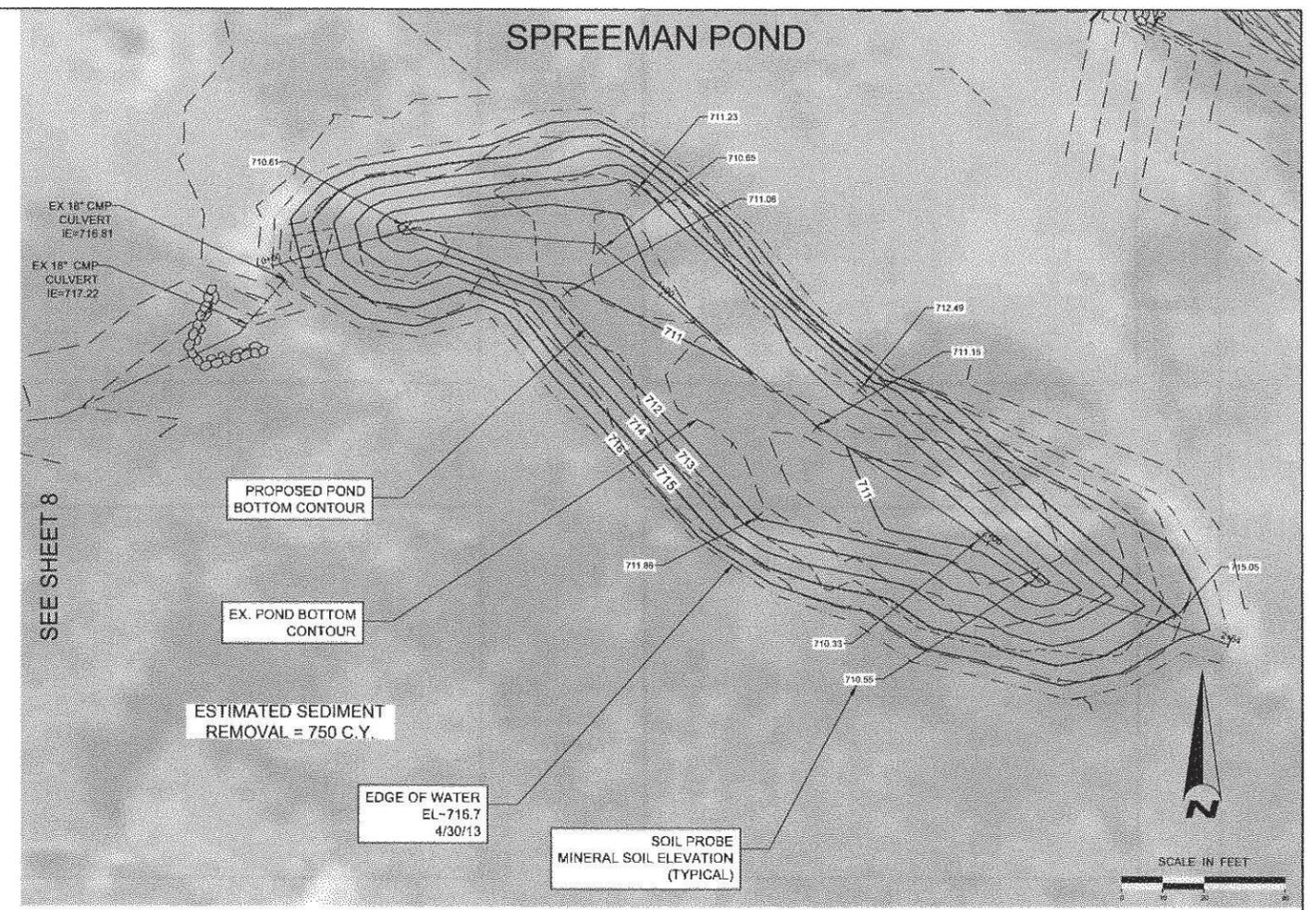
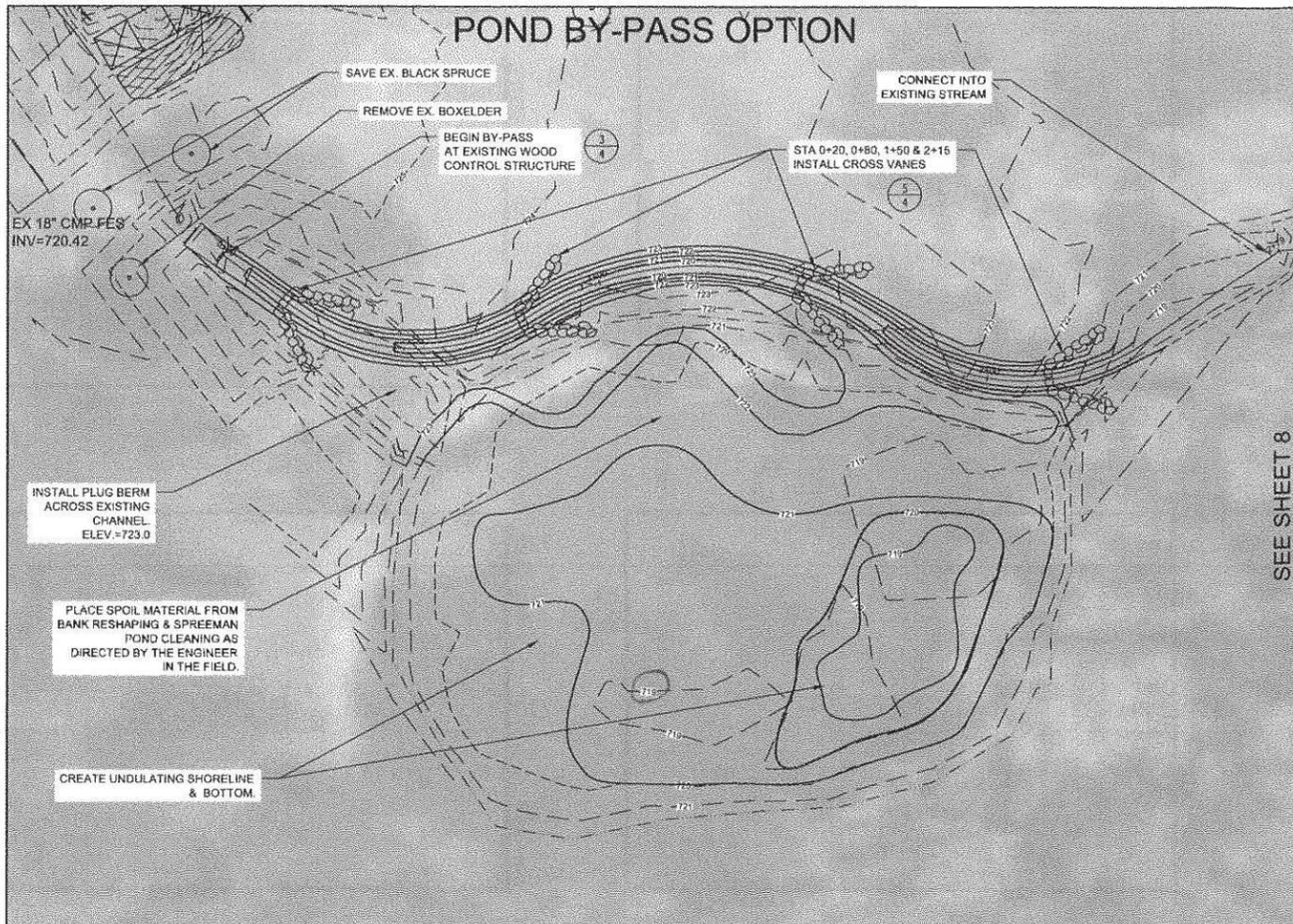
AFTON LAND LTD.
 1660 HIGHWAY 100 S.
 #426
 MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT
 HABITAT IMPROVEMENT PROJECT
 DRAFT CONSTRUCTION PLANS
 AFTON, WASHINGTON CO., MN

STATE PROJECT NO. CITY PROJECT NO.

DETAIL AREAS 2

SHEET 12 OF 15 SHEETS



NO	DATE	BY	REVISION
6			
5			
4	4/19/14	JRH	REVISIONS PER VBWD WALK THROUGH
3	4/07/14	JRH	REVISIONS PER LANDOWNER INPUT
2	8/28/13	JRH	REVISIONS PER PERMIT APPLICATION
1	7/31/13	JRH	REVISIONS PER VBWD/MNDNR WALK THROUGH

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

J.P.H.

JAY R. HILL
DATE: 04/18/2014 LICENSE # 22542

SUBMISSION DATE: 04/18/2014

DESIGN BY: CKA DRAWN BY: JRH

EOE PROJECT NO. 01101-0001

EOR Emmons & Olivier Resources, Inc.
651 Hale Avenue North
Oakdale, MN 55128
Tel: 651.770.8448
www.eorinc.com

AFTON LAND LTD.
1660 HIGHWAY 100 S.
#426
MINNEAPOLIS, MN 55416

VALLEY CREEK TROUT HABITAT IMPROVEMENT PROJECT
DRAFT CONSTRUCTION PLANS
AFTON, WASHINGTON CO., MN

STATE PROJECT NO. CITY PROJECT NO.

DETAIL AREAS 3

SHEET 13 OF 15 SHEETS