R & E Grant Application 13 Biennium

Project #: 13-072

Thief Valley Reservoir Culvert

Project Information

R&E Project Request: $18,905.00
Match Funding: $19,146.00
Total Project: $38,051.00
Start Date: 9/1/2014
End Date: 6/30/2015
Project Email: anjalina.johnston@or.nacdnet.net
Project Biennium: 13 Biennium
Organization: Keating Soil and Water Conservation District

Fiscal Officer

Name: Whitney Collins
Address: 3990 Midway Drive
Baker City, OR 97814
Telephone: 541-523-7121 x109
Email: whitney.collins@or.nacdnet.net

Applicant Information

Name: Anjalina Johnston
Address: 3990 Midway Dr.
Baker City, OR 97814
Telephone: 541-523-7121 x111
Email: anjalina.johnston@or.nacdnet.net

Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

Project Summary

This project is NOT part of ODFW's 25 Year Angling Plan.

Activity Type: Access
Summary: Thief Valley Reservoir supports a fast growing population of stocked rainbow trout, and is a popular fishing location for anglers in Union and Baker Counties. Currently, Cusick Creek; a tributary to Thief Valley Reservoir is being restored to its historic channel through an Oregon Watershed Enhancement Board restoration grant. The historic channel will pass through a culvert that isn't adequately sized for fish passage and high flows of Cusick Creek. The solution is to install a multi-

plate bottomless arch culvert (15' x5', 9", 36' long), remove the undersized culvert, and provide adequate passage for fish and high flow events.

Objectives: To purchase and install one multi-plate bottomless arch culvert (15 feet x5 feet, 9 inch, 36 feet long) that will be located on Cusick Creek and will be placed in its historic channel. The culvert will rest on pre-cast concrete footers. The channel through the culvert will be constructed with a rock gradation to reduce the possibility of piping through the substrate. Additionally, fine sediment will be washed through after construction to further ensure no piping occurs. The slope of the channel will be 2.1%. The channel will contain embedded large rock to provide velocity breaks at higher flows as well as a low flow micro-channel that will provide fish passage at minimum flows. The culvert is designed to provide for flows above the 100 year (551 cfs) event. The new culvert will provide fish passage from Thief Valley Reservoir back to the historic Cusick Creek channel, and its tributaries. This project will open up 15.45 miles of stream and fish habitat for Rainbow Trout, as the existing culvert is a barrier to fish passage. This project will preserve access as it will allow Cusick Creek's high flows to pass through the culvert and avoid washing out the road. This popular fishing destination will be available for anglers in the area, and create additional fishing opportunities in the Cusick Creek channel between the reservoir and the new culvert.

Fishery Benefits: This project will protect angler access to the reservoir directly above the dam and to the river immediately below dam, as well as creating additional fishing opportunities in the historic Cusick Creek stream channel between the reservoir and the new culvert. The installation of the culvert will preserve access as Cusick Creek's flows will be able to pass unrestricted through the culvert. The plantings that will be installed will reduce bank erosion, improving water quality, and eliminating the sediment that is entering into Cusick Creek and Thief Valley Reservoir. The new fish passable culvert will open up 15.45 miles of fish habitat.

Watershed Benefits: This project will improve fish passage from Thief Valley Reservoir to the historic Cusick Creek. The new historic Cusick Creek stream channel will result in increased stream flows, which will greatly benefit habitat and fish passage as it will open 15.45 miles of stream and fish habitat for rainbow trout, blue gill, black crappie, bass, yellow perch, red side shiner, sculpin, and red band trout. Currently, Cusick Creek has severely cut stream banks, which are sloughing into the water, increasing the sediment and turbidity. The newly restored creek channel will increase water quality by eliminating these undercut banks and decreasing sediment entering the stream. Willow cuttings will be planted both upstream and downstream of the culvert. These plantings will be the primary rehabilitation method and will provide additional stability over time.

Current Situation: Currently, at the project site, Cusick Creek is being restored. This restoration includes moving Cusick Creek back into its historic channel. However, this channel currently has an undersized culvert in place. This culvert is not fish passable and will not be able to handle Cusick Creek high flows.

Alternatives: We considered installing a bridge in this location. However, the costs for the

bridge were more expensive than the multi-plate bottomless arch culvert.

Designer: The project has already been designed by Resource Specialists, Inc. engineering firm, through the Oregon Watershed Enhancement Board (OWEB) restoration grant and the Keating Soil and Water Conservation District (SWCD).

Methods: One (15 feet x 5 feet, 9 inch, 36 feet long) multi- plate bottomless arch culvert will be purchased. The current undersized culvert will be removed and the new multi-plate bottomless arch culvert will be installed. The installation is estimated to take place in Sept/Oct of 2014. It is expected that the area will be dry during that time frame so no dewatering will be required. The existing culvert will be removed and the area will be graded using an excavator. Once final grade is established and inspected, the pre-cast footers will be installed. The stream channel through the culvert will be installed as shown on the design drawings. The multi-plate culvert will be assembled and backfilled as per the manufacture's specifications. The roadway will be constructed as shown on the design drawings. The impact area for such installation is typically very low so minimal rehabilitation work will be needed. Willow cuttings will be planted both upstream and downstream of the culvert. The plantings will be the primary rehabilitation method and will provide additional stability to the banks over time.

Inspector: The Keating SWCD, Resource Specialist, Inc. and ODFW.

Funding Elements: The R & E funds will be used for the purchase of the culvert, materials for installation, the installation, and the labor.

Partners: Yes

Keating SWCD - inspection, project oversite, monitoring
Resource Specialist, Inc. - inspection, project oversite
OWEB - engineering design and construction oversite
Adjacent Landowner (Bruce Hummel)- provide fill material, base aggregate, weed control, seeding

Existing Plan: No

Affected Contacted: Yes

Affected Supportive: Yes

Affected Comments: Keating SWCD helped the landowner acquire a grant through OWEB to restore Cusick Creek and return it to its historic channel.

Project Schedule/Participants/Funding

Activity	Date	Participants
Project Stakeout	6/29/2014	Engineer
Instream Work Period/Construction Begins	7/1/2014	Contractor/ Engineer

Instream Work Period/ Construction Ends	10/31/2014	Contractor/ Engineer

Affected Species:

Rainbow Trout
Red Band Trout
Red Side Shiner
Sculpin

Project Permits

Name	Issued By	Secured?	Date Secured	Date Expected
General Authorization Permit	DSL	No	1/1/0001	5/1/2014
Joint Permit Application	U.S. Army Corp of Engineers	No	1/1/0001	7/1/2014

Project Monitoring

Organization	Address	Activity	Frequency
Keating Soil and Water Conservation District	3990 Midway Drive Baker City, OR 97814	Photo Monitoring	Once per year for two years after project completion

Project Maintenance

This project has no maintenance plans.

Project Match Funding

Funding Source	Cash	In-Kind	Other	Description	Total	Secured?	Conditions?	Comments
R&E Request	$18,905.00	$0.00	$0.00	For supplies/ materials/ and installation costs	$18,905.00	No	No	
Adjacent Landowner	$0.00	$2,670.00	$0.00	Provide fill material, base aggregate, fencing, weed control, and seeding	$2,670.00	Yes	No	
OWEB	$0.00	$15,620.00	$0.00	Engineering design and construction oversite	$15,620.00	Yes	No	
Keating Soil and Water Conservation District	$0.00	$856.00	$0.00	Time and labor of monitoring and travel	$856.00	Yes	No	
				Total Match Funding:	$38,051.00			

Project Budget

Item	Item Type	Units	Unit Cost	R&E Funds	Match Funds	Total
Engineering	Contracted Services	1	$10,000.00	$0.00	$10,000.00	$10,000.00
Monitoring	Contracted Services	20	$26.00	$0.00	$520.00	$520.00
Base Aggregate	Supplies/Materials /Services	5	$25.00	$0.00	$125.00	$125.00
Fencing	Supplies/Materials /Services	400	$2.50	$0.00	$1,000.00	$1,000.00
Fill Material	Supplies/Materials /Services	53	$15.00	$0.00	$795.00	$795.00
Fill Material	Supplies/Materials /Services	27	$15.00	$405.00	$0.00	$405.00
Labor	Supplies/Materials /Services	1	$4,500.00	$0.00	$4,500.00	$4,500.00
Large Rock	Supplies/Materials /Services	100	$25.00	$2,500.00	$0.00	$2,500.00
Plate Arch Culvert	Supplies/Materials /Services	1	$11,500.00	$11,500.00	$0.00	$11,500.00
Precast Block	Supplies/Materials /Services	1	$4,500.00	$4,500.00	$0.00	$4,500.00
Removal	Supplies/Materials /Services	160	$7.00	$0.00	$1,120.00	$1,120.00
Seeding	Supplies/Materials /Services	2	$125.00	$0.00	$250.00	$250.00
Weed Control	Supplies/Materials /Services	4	$125.00	$0.00	$500.00	$500.00
10 Site Visits @ 60 miles round trip @ $0.56/ mile	Travel	10	$33.60	$0.00	$336.00	$336.00
					Total Budget:	$38,051.00

Project Map

Additional Files

Click a link to view that particular file.

Engineer Designs for Culvert

Signature Authorization Page

Thief Valley Culvert Photos

Kevin Herkamp

From: Johnston, Anjalina - NRCS-CD, Baker City, OR <Anjalina.Johnston@or.nacdnet.net>
Sent: Friday, April 11, 2014 10:00 AM
To: Kevin Herkamp
Subject: RE App 13-072 Thief Valley

From: Timothy Bailey [mailto:timothy.d.bailey@state.or.us]
Sent: Thursday, April 10, 2014 4:04 PM
To: Johnston, Anjalina - NRCS-CD, Baker City, OR
Subject: Cusick Creek Culvert

Jalina,

On February 10th, 2014, I met with you and Gabe Williams of Resource Specialists, Inc. to discuss the preliminary plans for habitat restoration and installation of a culvert on Cusick Creek in southern Union County. Cusick Creek is a tributary of the Powder River and is occupied by inland redband trout. Gabe provided an overview of the designs for habitat restoration and for the new culvert installation. From this overview and 50% design drawings provided to me, it appears the proposed culvert will meet ODFW criteria for fish passage. However, I have not at this point given the plans a thorough review. Once I receive 90% plans, I will review and either provide passage approval, or specify improvements needed to meet our criteria.

Tim Bailey
La Grande District Fish biologist
Oregon Department of Fish & Wildlife
107 20th Street
La Grande, OR 97850

Signature Authorization Page

I hereby make an application for financial assistance under the terms and conditions of the R&E Program as described in my project application.

I understand that if my project is approved for funding, the following will apply:

- All project sponsors must sign a grant agreement containing the terms and conditions on which funding will be released.
- Project expenses which occur before the grant agreement is signed or after the expiration date will not be paid by the R&E Program.
- Copies of all necessary permits must be submitted to the R&E Program.
- Project sponsors must certify compliance with local, state, and federal regulations and laws.
- Landowner, monitoring and maintenance agreements must be submitted to the R&E Program.
- Regular progress reports may be required, and at the end of each project a Completion Report must be submitted.
- Educational products resulting from projects are public domain.
- All information submitted to either party under this application is subject to the federal Freedom of Information Act.

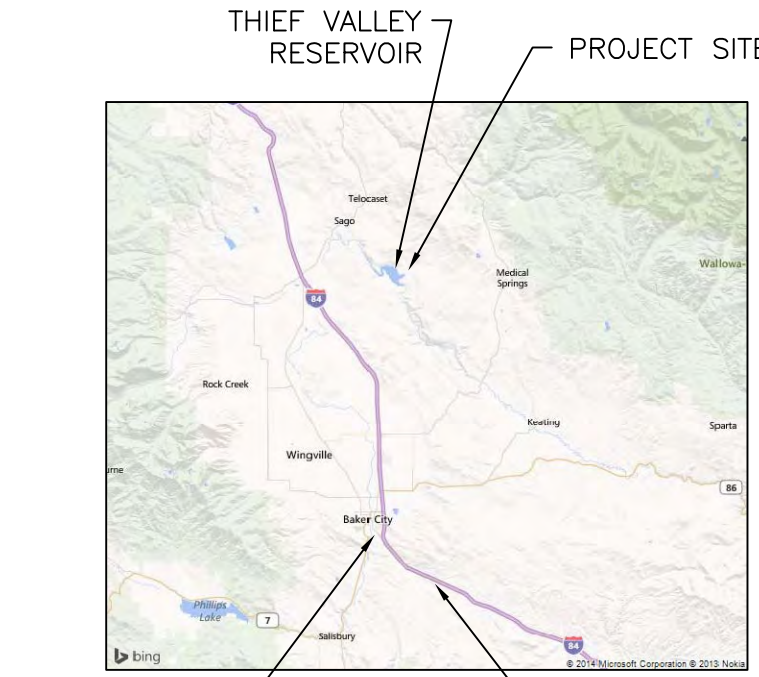
Project Title: Thief Valley Reservoir Culvert

Applicant: Keating Soil and Water Conservation District

Date: 3/31/2014

Fiscal Officer: [redacted]

Date: 3/31/2014



VICINITY MAP
NTS

CONSTRUCTION PLANS FOR:

CUSICK CREEK STREAM IMPROVEMENTS

KEATING SWCD
FEBRUARY, 2014
T6S, R40E, S23

PROPERTY OWNER
BRUCE HUMMEL

AGENCY
KEATING SOIL AND WATER
CONSERVATION DISTRICT
3990 MIDWAY DRIVE
BAKER CITY, OR 97814
PH: 541-523-7121

CONSULTANT
RESOURCE SPECIALISTS, INC.
CONTACT: GABE WILLIAMS
P.O. BOX 25
BEND, OR 97709
PH: 541-771-6911

SHEET INDEX

LEGEND

- EXISTING CONTOUR (1')
- EXISTING CONTOUR (5') — 1975
- FINISH CONTOUR (1')
- FINISH CONTOUR (5') — 1975
- BYPASS PIPE
- OHW LINE
- EXISTING THALWEG
- CONSTRUCTED THALWEG
- TOP OF BANK
- EDGE OF WATER
- ORDINARY HIGH WATER
- EXISTING POWER POLE
- EXISTING TREE

CONSTRUCTION QUANTITIES

MATERIALS

ARCH PLATE CULVERT	1 EA.
PRE-CAST FOOTERS	2 EA.
3/4"-0" AGG. (FOR FOOTERS)	3 CY
LARGE ROCK (12"-36")	550 CY
3'x3'x4' ROCK	20 EA.
2'x2'x3' ROCK	18 EA.
WILLOW CUTTINGS	2250 EA.
EXCAVATION (CUT)	2770 CY
EXCAVATION (FILL)	1510 CY
REMOVAL WITHIN OHW	135 CY
FILL WITHIN OHW	35 CY

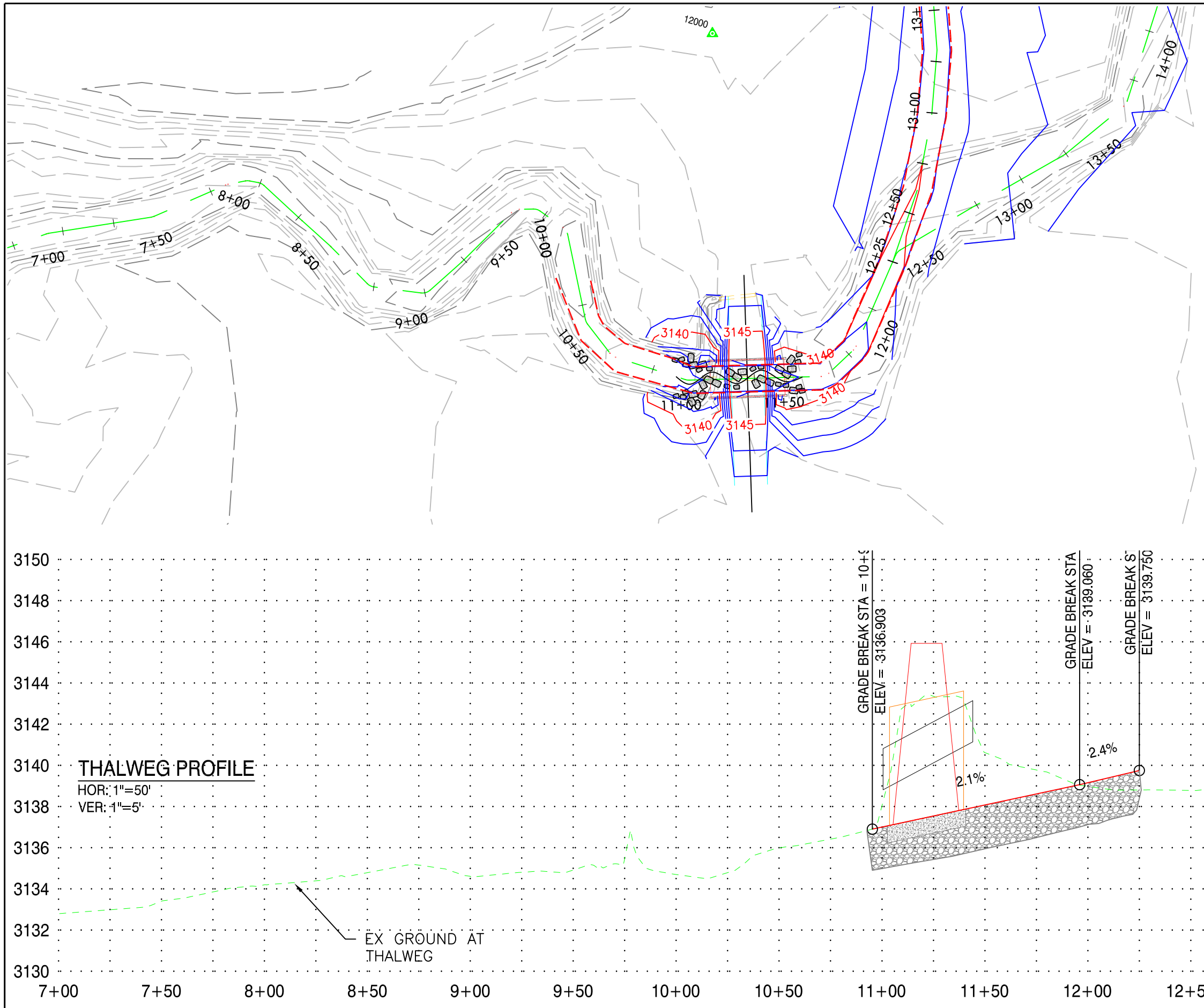
REGISTERED PROFESSIONAL ENGINEER
65686PE
OREGON
JULY 12, 2005
HAYES A. McCOY
RENEWAL DATE: 12/31/14

DRAWING STATUS: CROSSING/MEANDER DATE: 2/9/14

ResourceSpecialists INC.
P.O. BOX 25
BEND, OR 97709
(541)771-6911
gabe@rsiengr.com

PROJECT: CUSICK CREEK ARCH PLATE CULVERT
PROJECT LOCATION: UNION COUNTY, OREGON
CLIENT: KEATING SWCD

DRAWN BY: HAM
SHEET TITLE: COVER SHEET
DRAWING: CC1.1



SCALE: 1" = 50'

0 25' 50' 100'

SCALE IN FEET

REGISTERED PROFESSIONAL ENGINEER
65688PE
OREGON
JULY 12, 2005
HAYES A. McCOY
RENEWAL DATE: 12/31/14

DRAWING STATUS:	DATE:
CROSSING/MEANDER	2/9/14

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P.O. BOX 25
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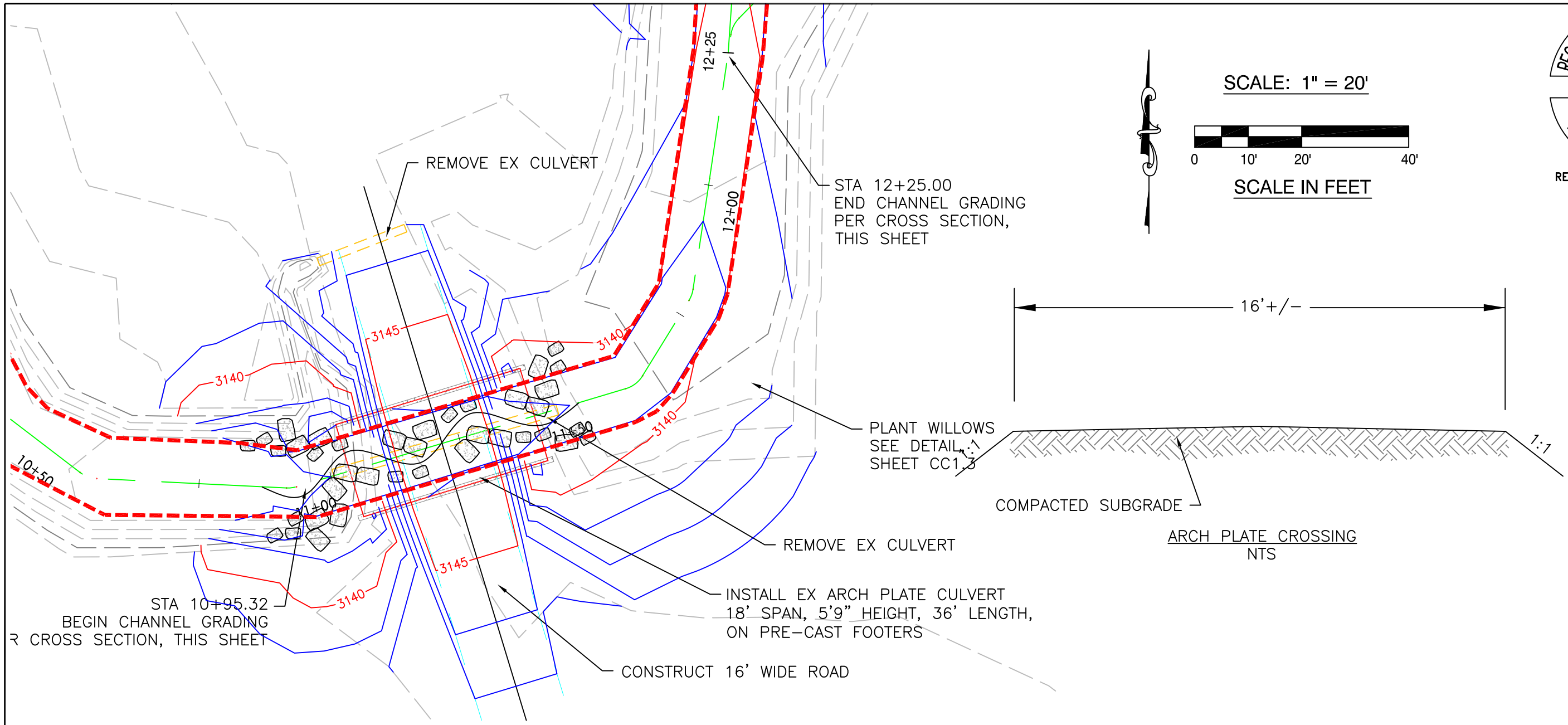
(541)771-6911
gabe@rsiengr.com

PROJECT:
CUSICK CREEK
ARCH PLATE CULVERT
PROJECT LOCATION:
UNION COUNTY, OREGON
CLIENT:
KEATING SWCD

DRAWN BY: HAM

SHEET TITLE:
THALWEG STA 7+00 TO 14+00

DRAWING:
CC2.2



SCALE: 1" = 20'

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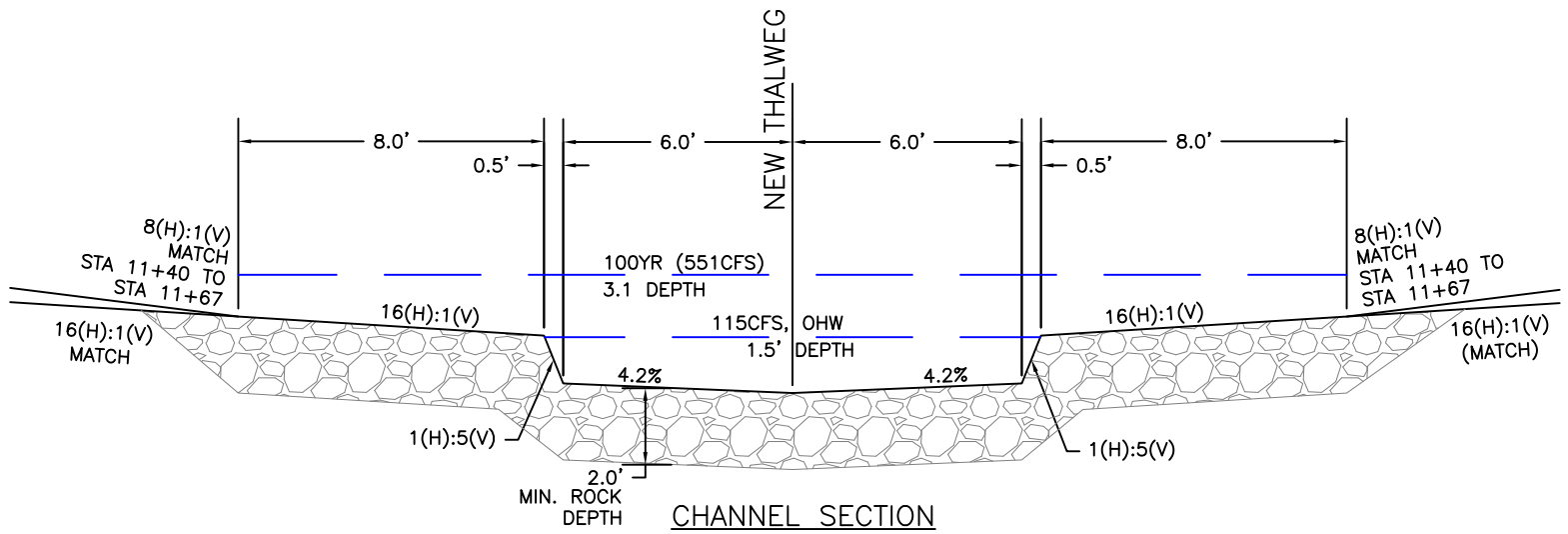
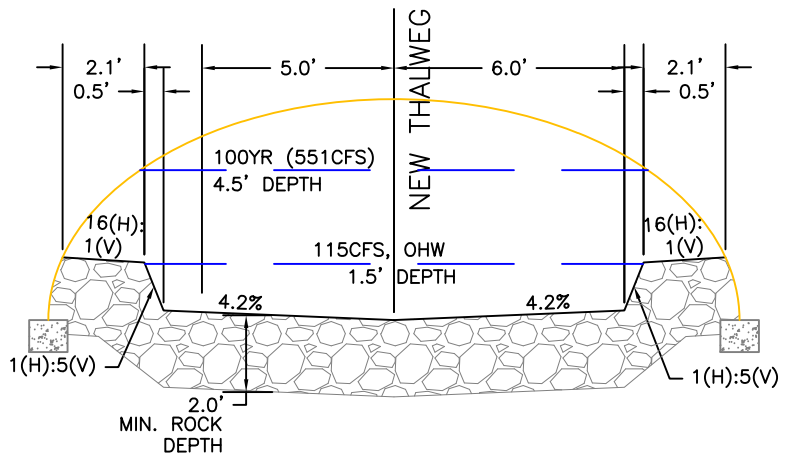
SCALE IN FEET

ARCH PLATE CROSSING
NTS



CHANNEL SECTION
STA 11+40 – STA 12+25
NTS



MULTI-PLATE ARCH CULVERT SECTION
STA 10+95 – STA 11+40

REGISTERED PROFESSIONAL ENGINEER
6568PE
OREGON
JULY 12, 2005
HAYES A. McCOY
RENEWAL DATE: 12/31/14

DRAWING STATUS:	DATE:
CROSSING/MEANDER	2/9/14

Resource Specialists INC.
P.O. BOX 25
BEND, OR 97709
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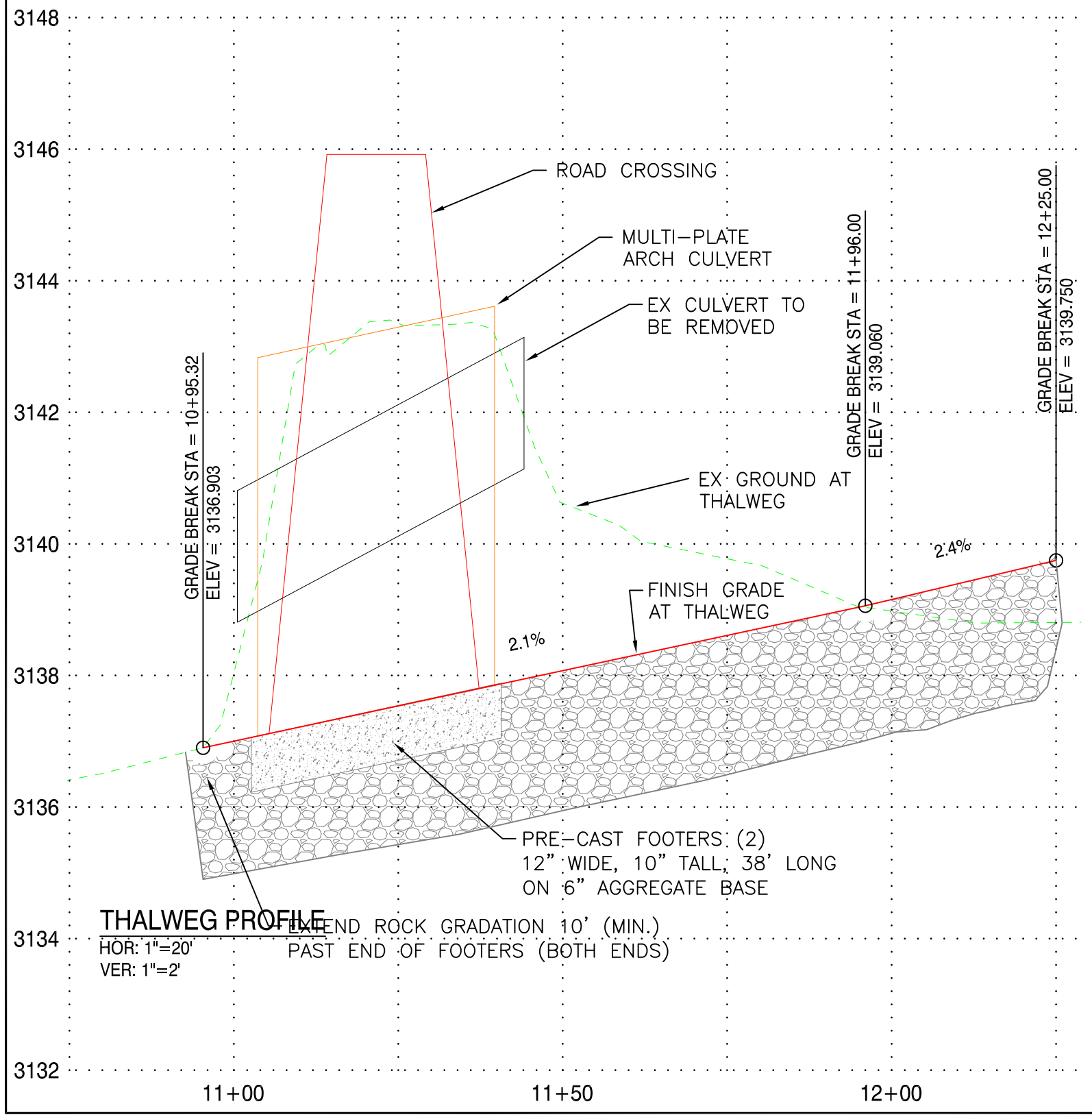
gabe@rsiengr.com

PROJECT:
CUSICK CREEK
ARCH PLATE CULVERT
PROJECT LOCATION:
UNION COUNTY, OREGON
CLIENT:
KEATING SWCD

DRAWN BY: HAM

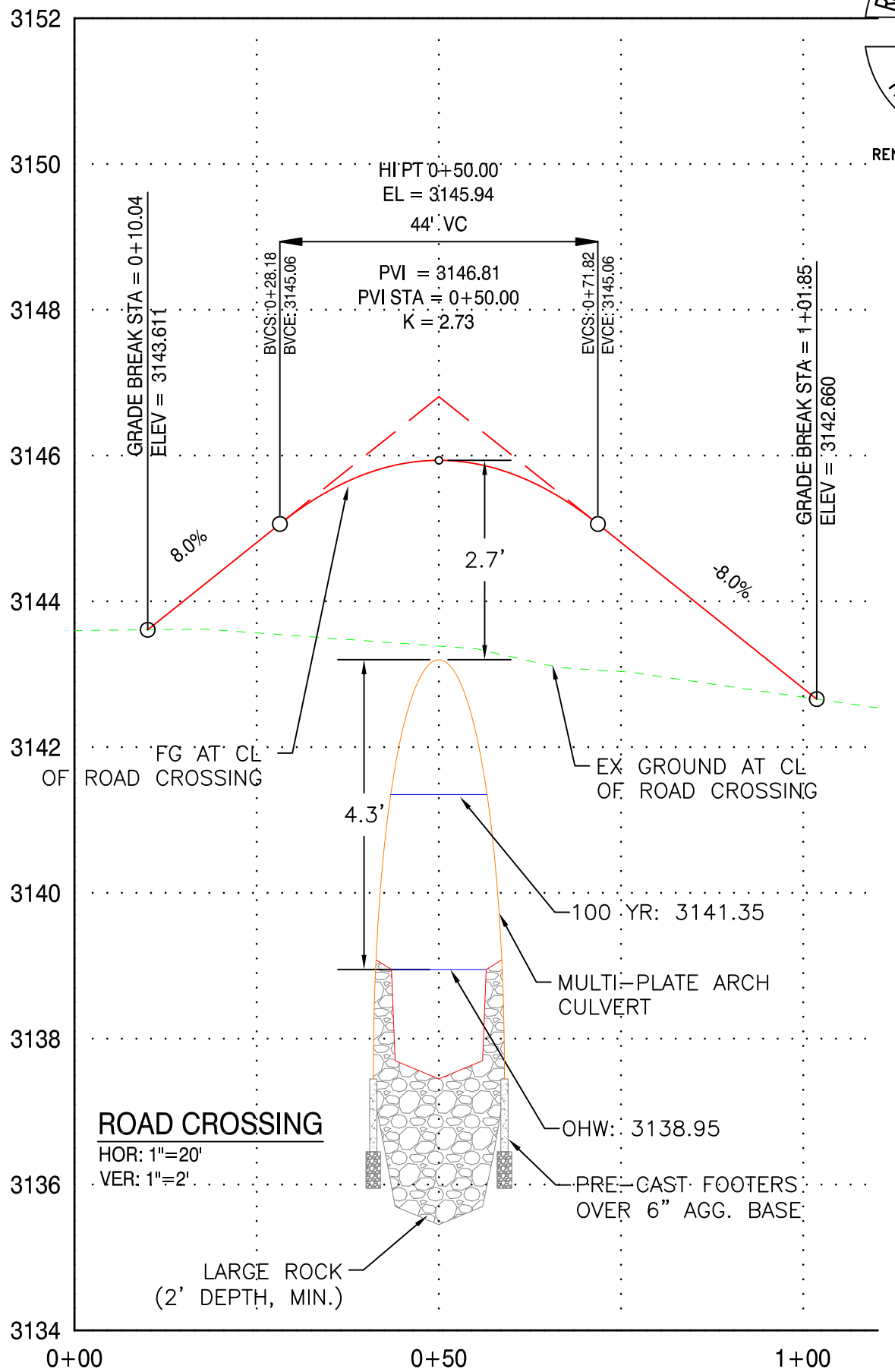
SHEET TITLE:
ARCH PLATE SITE PLAN

DRAWING:
CC3.1



THALWEG PROFILE

HOR: 1"=20'
VER: 1"=2'



ROAD CROSSING

HOR: 1"=20'
VER: 1"=2'

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65688PE
OREGON
JULY 12, 2005
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RENEWAL DATE: 12/31/14

DRAWING STATUS: CROSSING/MEANDER
DATE: 2/9/14

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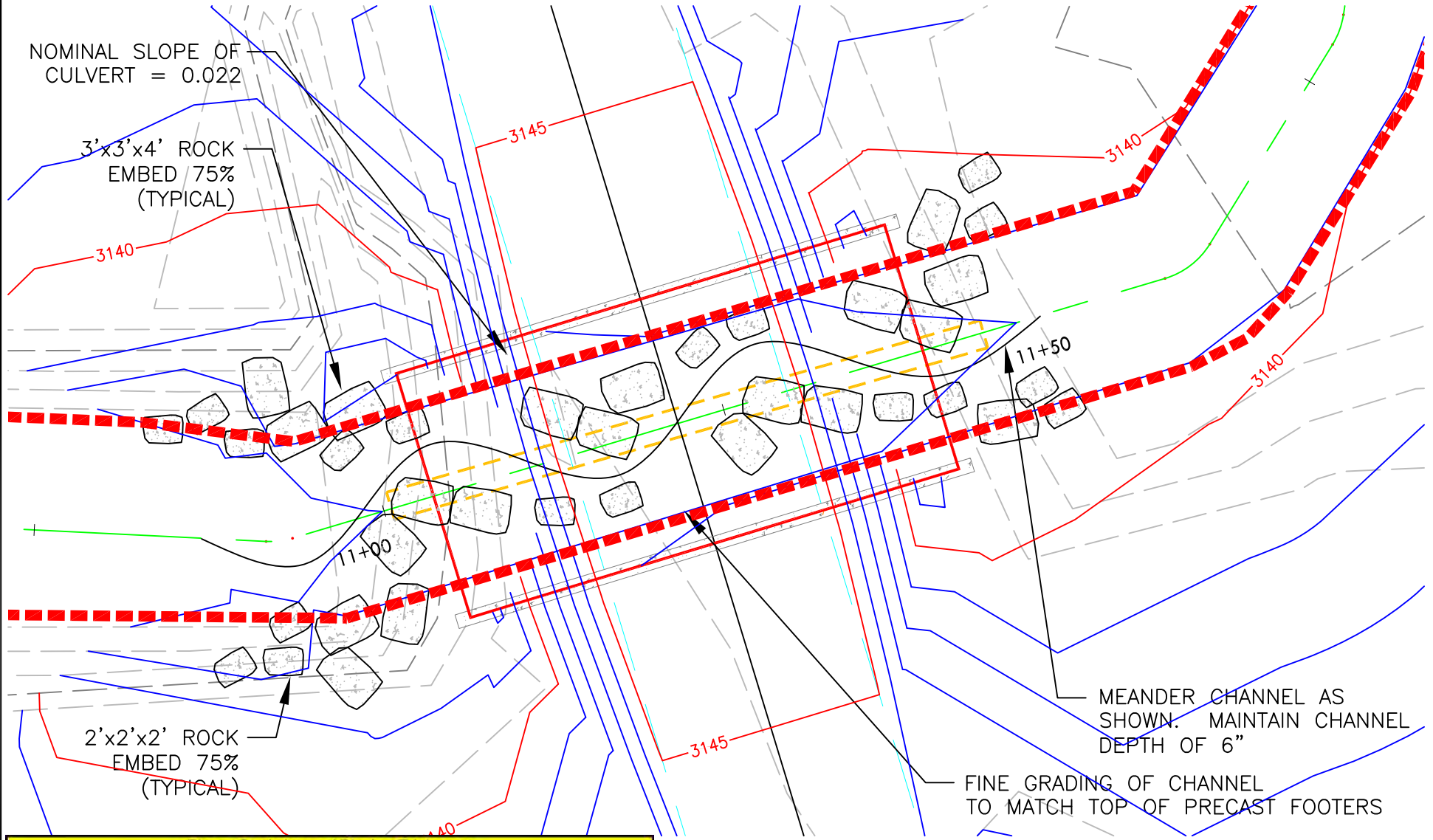
PROJECT: CUSICK CREEK ARCH PLATE CULVERT
PROJECT LOCATION: UNION COUNTY, OREGON
CLIENT: KEATING SWCD

DRAWN BY: HAM

SHEET TITLE: ARCH PLATE SITE PLAN

DRAWING: CC3.2



SCALE: 1" = 10'

0 5' 10' 20'

SCALE IN FEET

Riprap Gradation and Blanket Thickness:		
Percent Passing	Lower Limit (inches)	Upper Limit (Inches)
100	24.5	32.7
85	21.3	29.5
50	16.4	24.5
15	4.9	8.2
Blanket Thickness	32.7	inches

ROCK NOTES

ALL ROCK SHALL BE DURABLE, SOUND, DENSE (SG=2.65 MIN), FREE FROM CRACKS,SEAMS,AND OTHER DEFECTS THAT WOULD TEND TO INCREASE DETERIORATION FROM WEATHERING. ROCK FRAGMENTS SHALL BE ANGULAR TO SUBROUNDED IN SHAPE WITH THE LEAST DIMENSION OF AN INDIVIDUAL ROCK FRAGMENT NOT LESS THAN ONE–THIRD THE GREATEST DIMENSION.

BLEND LOWER END OF STREAM SIMULATION INTO NATURAL CHANNEL. USE MATERIAL SIZES SPECIFIED IN ROCK GRADATION TABLE. MINIMIZE DISTURBANCE TO AREA UPSTREAM OF THE CULVERT. ALLOW NATURAL FINE MATERIALS AND NATURAL COBBLES TO WASH THROUGH THE STREAM SIMULATION WORK ONCE CONSTRUCTION IS COMPLETE TO FURTHER MINIMIZE THE CHANCE OF PIPING THROUGH THE CONSTRUCTED CHANNEL.

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65688PE
OREGON
JULY 12, 2005
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RENEWAL DATE: 12/31/14

DRAWING STATUS: CROSSING/MEANDER DATE: 2/9/14

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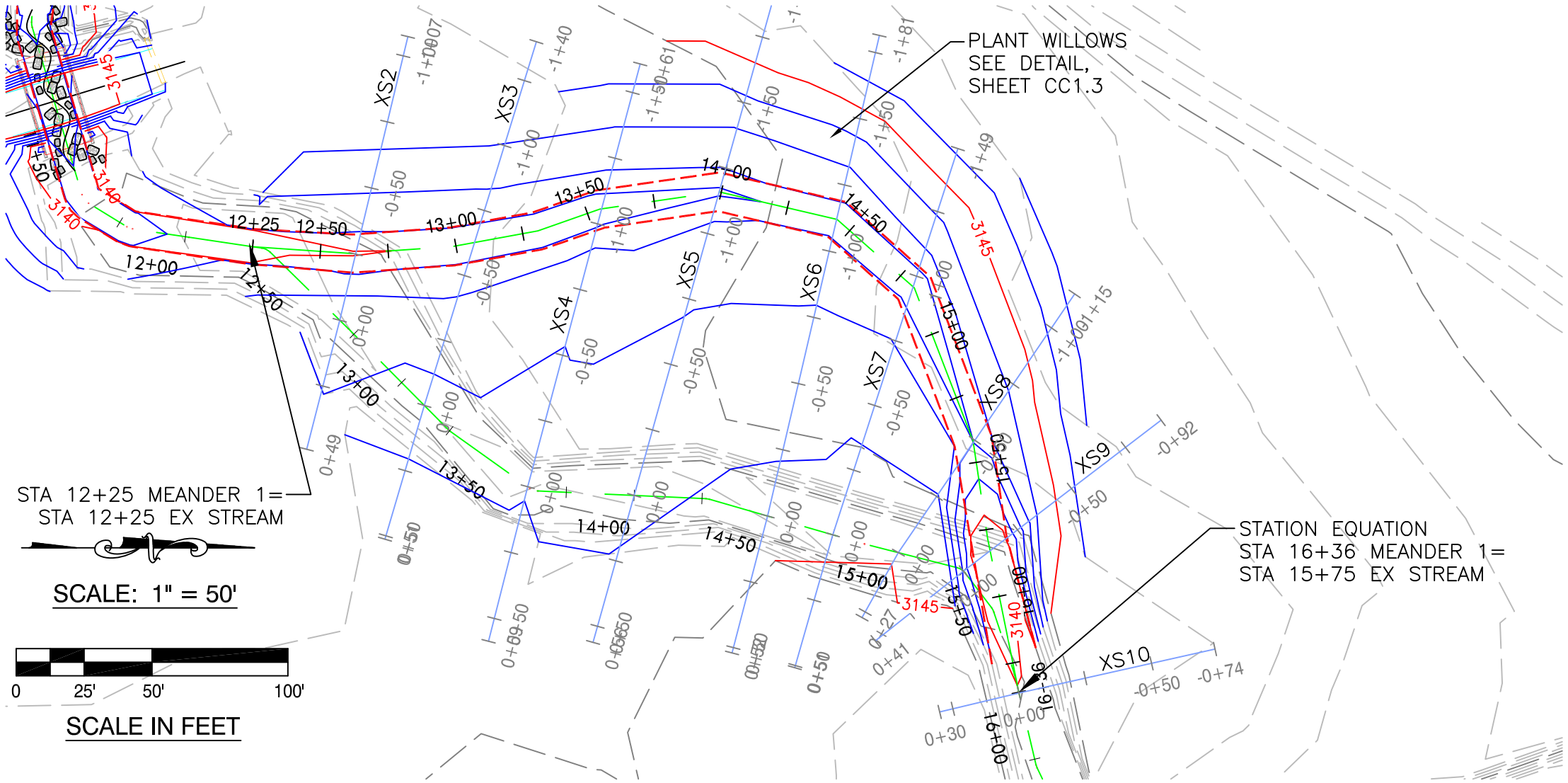
PROJECT:
CUSICK CREEK
ARCH PLATE CULVERT
PROJECT LOCATION:
UNION COUNTY, OREGON
CLIENT:
KEATING SWCD

DRAWN BY: HAM

SHEET TITLE:
ARCH PLATE SITE PLAN

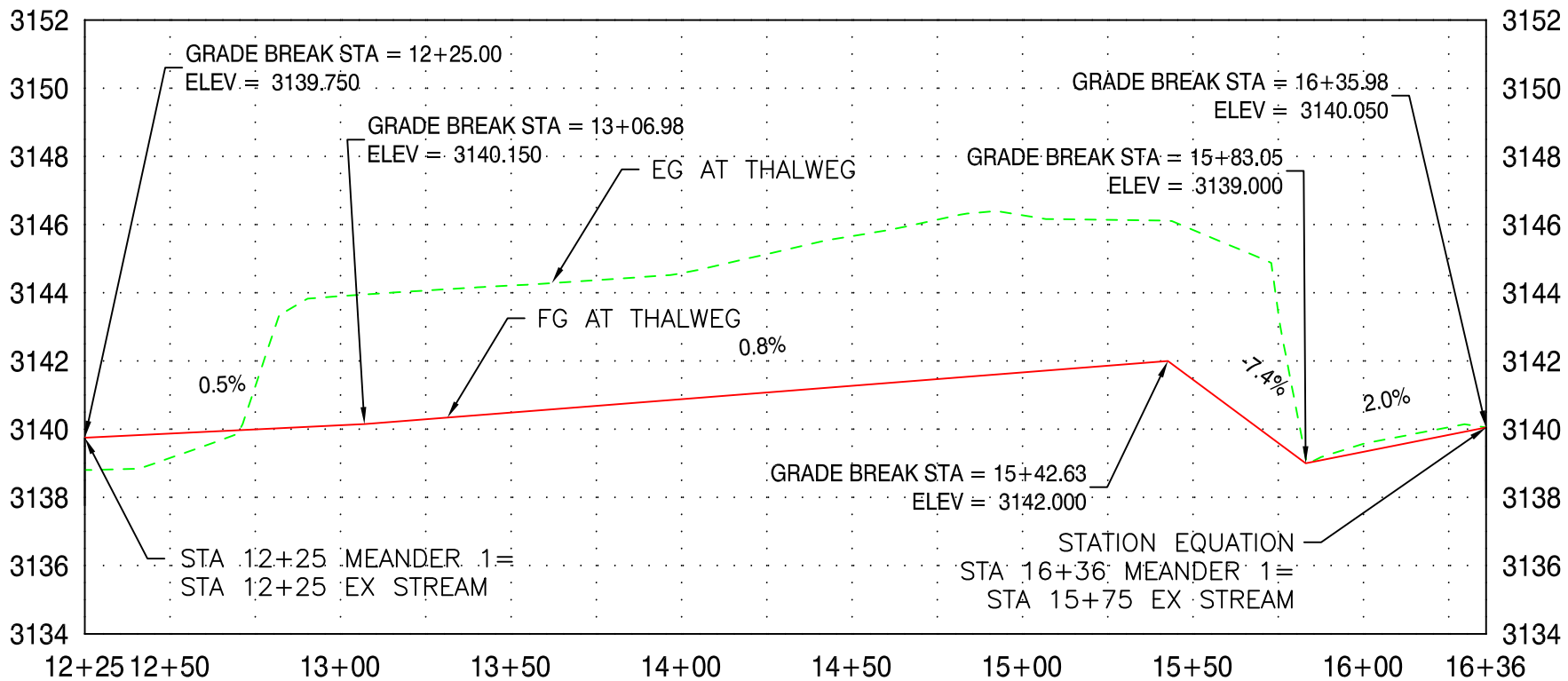
DRAWING:
CC3.3



SCALE: 1" = 50'

0 25' 50' 100'

SCALE IN FEET



MEANDER 1 PROFILE

HOR: 1"=50'
VER: 1"=5'

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65688PE
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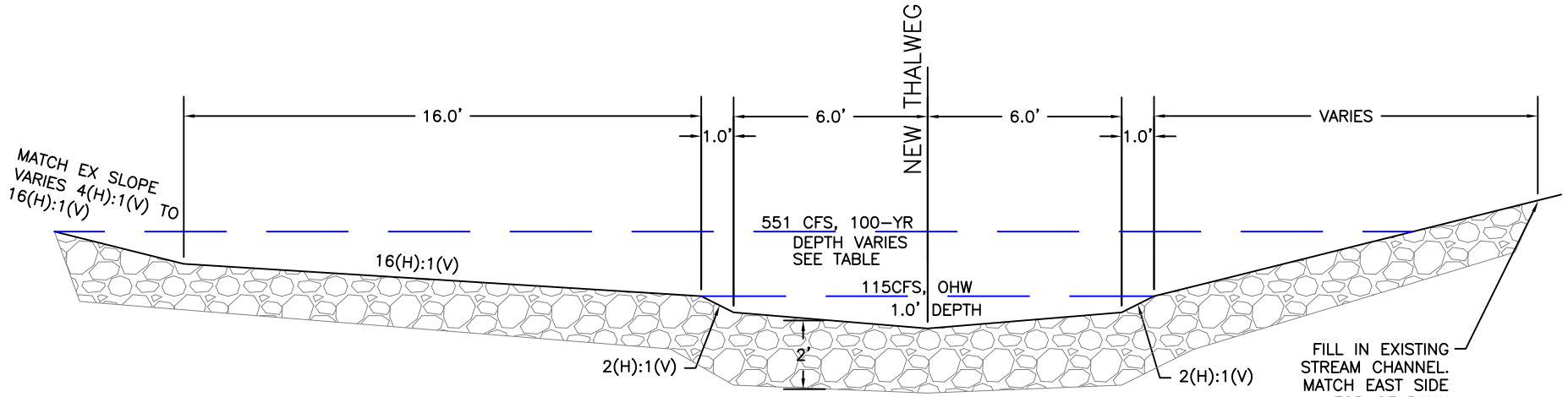
PROJECT LOCATION: UNION COUNTY, OREGON
CLIENT: KEATING SWCD

DRAWN BY: HAM

SHEET TITLE: MEANDER 1 STA 12+25 TO 15+75

DRAWING: CC4.1



MEANDER 1 SECTION
STA 12+25 – STA 16+36
NTS

100-YR FLOW DEPTHS
12+25 – 3.09'
12+68 – 3.09'
13+12 – 3.07'
13+60 – 2.88'
14+00 – 2.86'
14+50 – 2.87'
14+75 – 2.87'
15+00 – 3.09'
15+25 – 4.72'
15+75 – 3.67'

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ARCH PLATE CULVERT
PROJECT LOCATION:
UNION COUNTY, OREGON
CLIENT:
KEATING SWCD

DRAWN BY: HAM

SHEET TITLE:
MEANDER 1 TYPICAL SECTION

DRAWING:
CC4.2

Thief Valley Reservoir Culvert

Left: The existing undersized culvert on the reservoir side.

Right: This is the existing culvert as it drains on the reservoir side.

Thief Valley Reservoir Culvert

Left: The existing undersized culvert on the pasture side.

Right: The existing undersized culvert on the pasture side.

Left: The existing road that crosses Cusick Creek and the undersized culvert.