R & E Grant Application 15-17 Biennium

Project #: 15-060

Dillon Alt. Irrigation Pipeline Construction

Project Information

R&E Project Request:	$179,700
Total Project:	$573,241
Start Date:	12/7/2015
End Date:	6/30/2017
Organization:	Umatilla Basin Watershed Foundation (Tax ID #: 93-1231250)

Fiscal Officer

Name:	Jonathan Staldine
Address:	PO box 1551 Pendle, O 9
Telephone:	541-276-2190
Telephone 2:	541-969-0105
Fax:	541-276-2275
Email:	director@umatillawc.org

Applicant Information

Name:	Jon Staldine
Address:	920 SW Frazer Ave Suite 210 PO Box 1551 Pendleton, OR 97801
Telephone:	541-276-2190
Telephone 2:	541-969-0105
Email:	director@umatillawc.org

Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

Location Information

Where is it?

The project will occur on private land owned or managed by another party

Landowner Information

Name: Double M Ranch, Inc.
Affiliation: Dillon Irrigation Company
Echo, OR, 97826
Phone: 541-376-8317
Cell: 541-561-5332
Fax: 541-376-8190
Email: miketay@eotnet.net

Site Description

Street Address, nearest intersection, or other descriptive location.

The Dillon Pipeline alignment originates at the Hunt Ditch (Westland Canal) near the crossing at White House Rd running north along Andrews Rd which becomes Echo Meadows Rd, and terminates at an existing culvert and ditch segment that runs under I-84 to lands historically served by waters diverted at the Dillon Dam. The pipeline is approximately 11,000 feet in length.

The Dillon Dam site is accessed by a private road at 45d 45.305'N, 119d 13.225'W. The Dillon Dam proper is located at 45d 45.491'N, 119 2.969'W. The inlet structure for the pipeline is found at 45d 44.504'N, 119d 14.477'W. The terminus of the pipeline is found at 45d 46.112'N, 119d 13.323'W.

Directions to the site from the nearest highway junction.

To reach the start of the Dillon Pipeline alignment, turn off I-84 at exit 188 toward Echo via Thielsen St for approximately 1 mile. Take a slight right onto N. Dupont St. over the railroad tracks for a quarter mile before turning right onto W Main St. in Echo. W. Main St. becomes Oregon Trail Rd. Stay on Oregon Trail Rd. for 2.6 miles, turning right onto White House Rd. The inlet structure is found approximately 600 yards east of where Whitehouse Rd crosses the canal (aka Hunt Ditch).

From the inlet structure, follow along Andrews Rd to the north until it becomes Echo Meadows Rd. The terminus of the pipeline is found approximately 200 yards west of where Echo Meadows road has an overpass on I-84.

Following project completion, public anglers will be allowed the following level of access to the project site:

No access

Please describe what leases, easements, agreements are in place to ensure angler access to the project site, and what is the length of each agreement.

No easements are in place. Angler access is not gained through easements or agreements associated with the project proper (pipeline construction). Dam landownership is associated with a small land-locked parcel without public access. Agreements are in place associated with installation of the pipeline for post implementation survey and reporting purposes.

Dominant Land Use Type:

Cropland
County road shoulder will be utilized during construction and repaired.

Project Location

General Project Location.

County: Umatilla
Town/City: Echo
ODFW Dist: John Day Watershed District
Stream/Lake/Estuary Name: Umatilla River
Sub-basin: 1707070103
Tributary of: Columbia River

Specific Project Location.

Latitude	Longitude
45.7582	-119.2159
45.7686	-119.2427
45.7409	-119.2217

Project Summary

Project Summary

Please provide a couple sentence summary of the proposal.

This project aims to build a pipeline to convey irrigation water and render the Dillon Dam obsolete for removal. The Dillon dam is a passage barrier for anadromous species including ESA listed Mid-Columbia Steelhead and Pacific Lamprey. Removing the barrier enhances the sport fishery and angler access to the Umatilla.

Overall Project Goals

Describe the primary goals or outcomes of the entire project, including elements not requesting funding from R&E.

The primary goal is to build the pipeline, leveraging nearly $350,000 in OWEB funds, and $20,000 in CTUIR funding to construct a 11,000 foot alternate means of irrigation supply. Construction of the pipeline enables removal of the Dillon Dam.

Primary objectives of R&E funding

Please describe the measurable objectives for the R&E portion of the funding request.

R&E funding would be used to fund installation costs of the pipeline, related directly to contractor costs including inspection by a registered Oregon Professional Engineer. Construction will be completed by February 2017.

Current Situation/Justification

Please describe the current situation and explain why this funding is needed.

The Umatilla Basin Watershed Council received OWEB grants for a feasibility study, design and construction of the pipeline serving the Dillon Irrigation Company, holders of a water right otherwise tied to the Dillon Dam. These grants cover a significant portion of the costs in constructing the pipeline, however the need to increase the size of the pipeline from 21" pipe to

24", and overall construction costs were not anticipated in the original OWEB grant application.

With design work accomplished, much of the funding in place, and a slated dam removal in 2017 this is a shovel ready project upon bridging the funding gap for the Dillon Pipeline. Without completion of the pipeline, the dam will remain in place and this is very likely the best opportunity to remove the dam.

Recreation and Commercial Benefit

This project will provide benefits to:

Recreational fisheries

Explain how this project will contribute to current (and/or potential) fishing opportunities, access, or fisheries management.

The Umatilla River supports ESA listed Mid Columbia Steelhead, Bull Trout and culturally sensitive Pacific Lamprey, in addition to annual returns averaging over 20,000 fish consisting of Spring and Fall Chinook, Coho and Summer Steelhead. One of the greatest obstacles for these anadromous species is found at the Dillon Dam, particularly for Pacific Lamprey for which modeling indicates approximately 5% passage rate. Passage at the Dillon Dam affects multiple life stages for these species, but removal of the dam is dependent upon satisfying the water right associated with the Dillon Dam. Construction of the proposed pipeline makes dam removal possible, minimizes in-stream maintenance, and makes operation of an installed fish screen obsolete, all while facilitating fish passage that stand to benefit fish populations, especially during sensitive juvenile life stages.

To support recreational use of the Umatilla River, removal of the dam through construction of the pipeline helps ensure healthy populations of returning fish, gets fish upstream to areas of greater recreational access, and eliminates a hazard to float and drift fishermen within the lower Umatilla to provide safer access.

Is this project part of an approved Salmon-Trout Enhancement Program (STEP) activity?

No

This project has been identified as a priority for:

Local/watershed
Basin/regional

Identify any plan or other document that identifies this priority.

Mid-Columbia Steelhead Recovery Plan (2009): 1.6.1; 6.3.2.1; 6.4.3; 7.1.3.2; 7.2.3

Umatilla-Willow Subbasin Plan (2005): 3.2; 3.5

This project is intended to benefit the following species:

Fall Chinook Salmon
Other Fish Species
Bull Trout, Pacific Lamprey
Spring Chinook Salmon
Coho Salmon
Lamprey
Summer Steelhead
Rainbow Trout

This project will benefit anglers or fishery by providing:

Angler Access
Angling Opportunity
Fish Passage

Angler Access

This project will:

Improve access to existing angling opportunities
Installation of the pipeline is the only factor holding back removal of the Dillon Dam. When the dam is removed (slated in 2017, following dam removal design in 2016 and permitting already in initial phases). When the dam is removed, anglers and recreational floaters will have improved access by removal of a portage point that currently presents a hazard to river users.

Choose the following that best describes the angling access provided by the project:

Passage by way of facilitating dam removal, eliminates need for portage around an existing hazard (Dillon Dam)

Do similar access sites, facilities, or fisheries exist within 10 miles of the project site?

No

Angling Opportunity

This project will:

Enhance natural production of fish stocks to levels that allow for recreational fishing opportunities
The project leads to removal of a known significant passage barrier, enabling multiple life stages of anadromous to better utilize the river. This allows fish passage to areas with increased recreational access, and allows greater reaches of the river for float and drift anglers to access fishing opportunities.

Fish Passage

This fish passage project will:

Remove a barrier with an existing fishway/passage structure
Removal of a "partial" classified passage barrier with older passage structures that do not meet current passage criteria and are typically blocked or have degraded passage following high flow events that occur during important migration periods. Telemetry based modeling indicates that this structure has the lowest mean fitted probability for Pacific Lamprey passage of any dams on the mainstem Umatilla.

Removal of the Dillon Dam has been identified as a priority for regional ODFW and Confederated Tribes of the Umatilla Indian Reservation agencies, in addition to Watershed Council and collaborative interagency efforts.

Additionally, through construction of the proposed Dillon Pipeline an existing fish screen tied to the Dillon Irrigation Company will be made obsolete and thereby stands to reduce operating costs for fish passage in the lower Umatilla Basin while providing preferred unrestricted passage through the reach and utilizing an already screened and well established point of diversion for future irrigation water consumption.

We have contacted or have been working with:

Local ODFW staff
ODFW has been contacted

The project is being reviewed

Project Description

Schedule

Activity	Date	RE Funding
Completion of the change in Point of Diversion to the existing water rights associated with the Dillon Dam, moved to the Westland Dam (effective on pipeline completing and use).	February, 2015	No
Completion and acceptance of the final pipeline design	June, 2015	No
Construction of the pipeline from the flowmeter vault onward (completed on or before)	February, 2017	Yes
Construction of the inlet structure from the canal to the pipeline (completed by or before)	January, 2017	No
Final construction inspection (as-built and satisfactory completion inspections)	March, 2017	No
Completion of CTUIR cultural resource survey and reporting	February, 2016	No
Completion of CTUIR sponsored removal designs for Dillon Dam, including review	December, 2016	No
Removal of the Dillon Dam sponsored by ODFW through the John Day Watershed District. (2017 in-stream work period)	September, 2017	No

Permits

Permit	Secured?	Date Expected
Umatilla County Utilities on County and Public Roads	Yes	March,2015
Permits associated with dam removal are separate from this phase of the project; anticipated permitting includes HIPIII or a BA/BE and will be handled by CTUIR and ODFW staff.	No	Prior to 2017 construction

Project Design and Description

Please describe in detail the methods or approach that will be used to achieve the project objectives.

A comprehensive set of plans and specifications was developed for the Dillon Pipeline by an engineering firm, and overseen by a project manager that is a registered Professional Engineer with the State of Oregon. Additionally, the plans were reviewed by the Regional Engineer with NRCS for consistency and recommendations were included with the final draft following landowner, UBWC, and Westland Irrigation District comments.

Engineering

Does the project involve capital improvement, engineering, site grading or other construction?

Yes

Not associated with ODFW

Project Management and Maintenance

What is the life expectancy of R&E funded construction, structures, equipment, supplies, data or fishery?

Consultation with the registered Professional Engineer that served as project manager on the pipeline design concluded that a 100 year service life for the proposed Dillon Pipeline would be a reasonable estimate. By nature of design, this is meant to be a lasting installation with long-term benefits.

Who is responsible for long term management, maintenance, and oversight of the project beyond what is funded by R&E.

The structure will become part of the Westland Irrigation District infrastructure. Operation and maintenance will be the responsibility of the Westland Irrigation District and the end users according to their existing policies and any additional agreements. Oversight of the construction and as-built inspection of the project will be funded through an OWEB grant administered by the Umatilla Basin Watershed Council, who will select a qualified Oregon registered Professional

Engineer. Through an existing agreement, UBWC and it's associates will be provided access to the project to comply with post implementation surveys and reporting requirements.

In addition to being a much lower maintenance means of diverting irrigation water, and facilitating the removal of the Dillon Dam, construction of the proposed Dillon Pipeline would also allow a fish screen currently tied to the Dillon Irrigation District to be taken out of use, and saving costs on maintenance and operation at the same time.

Will the project require ongoing maintenance?

Unknown

Is there a plan to collect baseline data and to conduct monitoring efforts to measure the effectiveness of the project?

Yes

Continuous logging temperature data has been collected at the Dillon Dam site for several seasons. Although significant temperature drops are not anticipated, temperature drops may be observed and UBWC plans to continue to collect temperature data at this point, as well as upstream and downstream locations.

Project Funding

Funding

Have you applied for OWEB funding for this project?

Yes

OWEB application number: 215-6018

Received an award.

R&E money is needed as matching funds.

Other Funding Source	Type	Secured	Dollar Value	Comments
CTUIR - BPA funding	In-Kind	Secured	19678	Cultural Resource survey along proposed pipeline and expanded dam removal site. 2016.
OWEB Grant 212-6033	Cash	Secured	38203	Dillon Dam removal feasibility study. Completed
OWEB 214-6024	Cash	Secured	38944	Dillion Dam Removal - Phase 1: Alternate Irrigation Design. Complete 2015
		Total	96825	

Budget

Item	Unit Number	Unit Cost	In-kind or non-cash contributions	Funding from other sources	R&E Funds	Total Costs
PROJECT MANAGEMENT						
UBWC Project management @ $40.39/hr	520	40	0	20800	0	20800
		SUBTOTAL(1)	0	20800	0	20800
IN-HOUSE PERSONNEL						
Staff time is covered under Project Management	0	0	0	0	0	0
		SUBTOTAL(2)	0	0	0	0
CONTRACTED SERVICES						
Pipeline installation @ $7.50/ft	11000	0	0	82500	0	82500
Inlet structure construction per plan	1	26000	26000	0	0	26000
Fabrication, fittings, road restoration, concrete work	1	42000	0	42000	0	42000
Professional Engineer - Quote for services onhand	1	18640	0	18640	0	18640
Construction contingency, 10% installation only	1	4200	8250	0	4200	12450
Westland Irrigation District - Review, consulting and inclusion	1	10000	10000	0	0	10000
Cultural Resource Survey - Invoice total on hand	1	19668	19668	0	0	19668
		SUBTOTAL(3)	63918	143140	4200	211258
TRAVEL						
UBWC meetings, site visits, project tours	2640	0.56	0	1478	0	1478
		SUBTOTAL(4)	0	1478	0	1478
SUPPLIES/MATERIALS						
PVC pipe, fittings and associated materials @ $25/lnft	11000	25	0	112000	163000	275000
Pipeline materials contingency, 10% total materials	1	27500	15000	0	12500	27500
Pipe and material transportation services	1	7500	7500	0	0	7500
24" Flowmeter - Westland Irrigation District - estimated	1	10000	10000	0	0	10000
		SUBTOTAL(5)	32500	112000	175500	320000
EDUCATION/OUTREACH						
	0	0	0	0	0	0
		SUBTOTAL(6)	0	0	0	0
EQUIPMENT						
	0	0	0	0	0	0
		SUBTOTAL(7)	0	0	0	0
FISCAL ADMINISTRATION						
UBWC Grant Administration	1	18905	0	18905	0	18905
Post Implementation Status Reporting	1	800	0	800	0	800
		SUBTOTAL(8)	0	19705	0	19705
		BUDGET TOTAL	96418	297123	179700	573241

Additional Files

Click a link to view that particular file.

CR Invoice

CTUIR - LoS 2016

Dillon Irrigation Company POD Decree

Dillon Irrigation Company Service Map

Dillon Pipeline final design drawings

Dillon Pipeline Location

Double M LoS

Engineering Work Order - Review Request

ODFW JDW - LoS 2016, James

OWRD LoS

Pipeline Aerial Overview

Scoping Report from feasibility study

Shapefiles for Pipeline

Signature Authorization Page - Public

UBWC Action Plan 2014

UBWF IRS Tax Exempt Status Notification

Utility Installation Permit

Dillion Dam Removal Piping Re-route

Prepared for: Fisheries
Prepared by: CRPP
Date: October 5, 2015
Subject: Research and Shovel Test Probe Project

I. PERSONNEL

A. Salaries and Wages

Personnel	*Rate*	*Hours*		*TOTAL*
Archaeologist	$ 28.50	70	$	1,995.00
Field Director	$ 27.45	167.5	$	4,597.88
Cultural Resource Technician	$ 17.70	160	$	2,832.00
SUBTOTAL			**$**	**9,424.88**

B. Benefits

Fringe Benefits @ 39%		$	3,675.70
SUBTOTAL		**$**	**13,100.58**

II. NON-PERSONNEL	*miles*	*price per mile*		
Mileage	1200	$ 0.30	$	360.00
Equipment Fee (per day)	$ 12.79		$	204.64
SUBTOTAL			**$**	**564.64**

SUBTOTAL PERSONNEL AND NON-PERSONNEL	**$**	**13,665.22**

III. INDIRECT COST

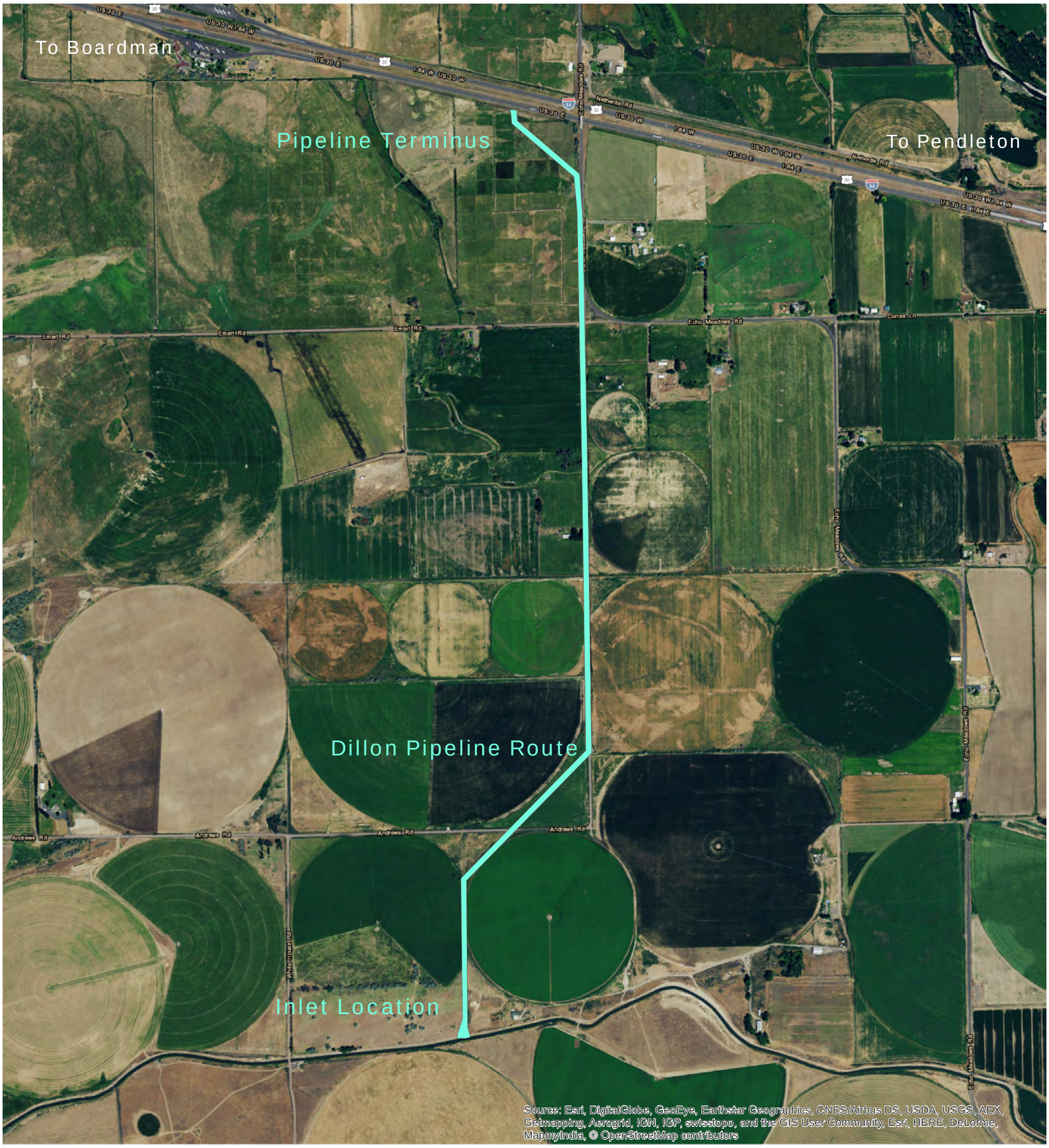
Indirect Rate @ 44%	**$**	**6,012.70**

TOTAL COSTS	**$**	**19,677.91**

This budget is valid through March 31, 2016.

DILLON IRRIGATION PIPELINE

Proposed Pipeline Alignment and Overview



Map generated using ESRI ArcGIS 10.3 software in 2011 Oregon North State Plane intl. Feet Projection. Intended only for general reference, not suitable for surveys, studies, or legal purposes.

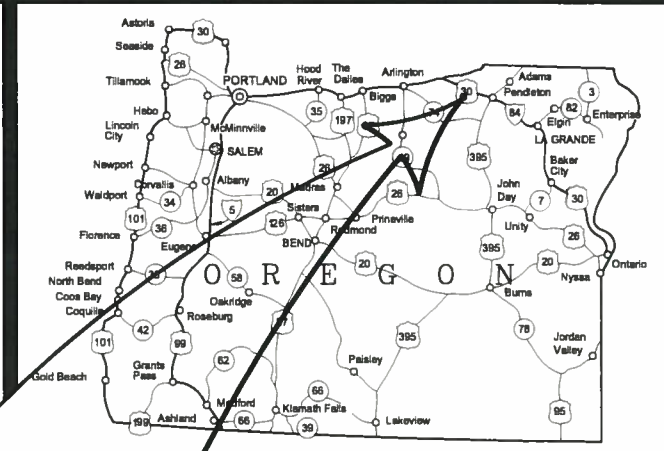
0 0.125 0.25 0.5 0.75 Miles

UMATILLA BASIN
WATERSHED COUNCIL

WESTLAND IRRIGATION DISTRICT

DILLON DAM PIPELINE

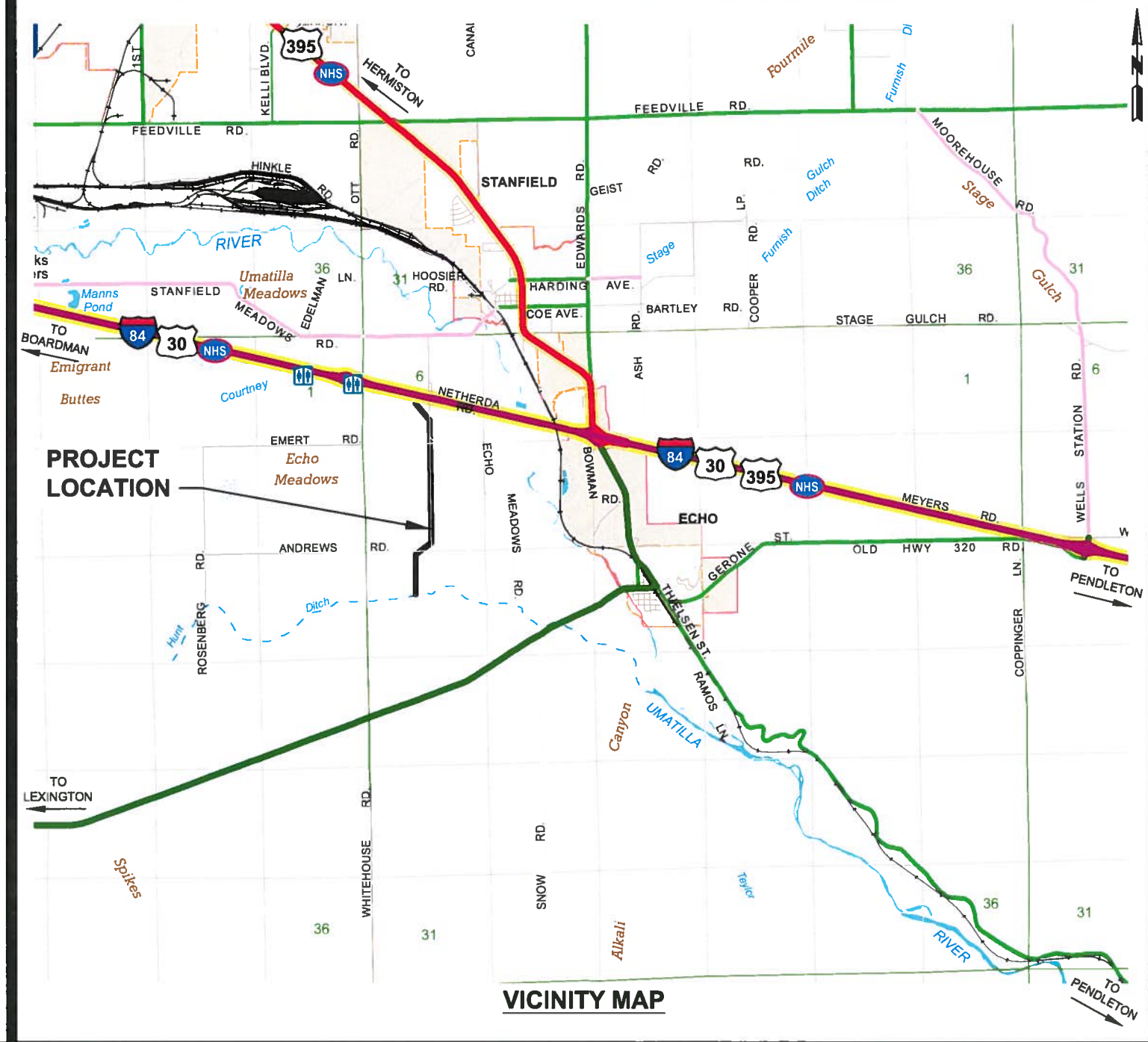
2015



INDEX

_____ has reviewed these drawings and approved them for construction to fulfill the intended project objectives.

_____ _____
Date

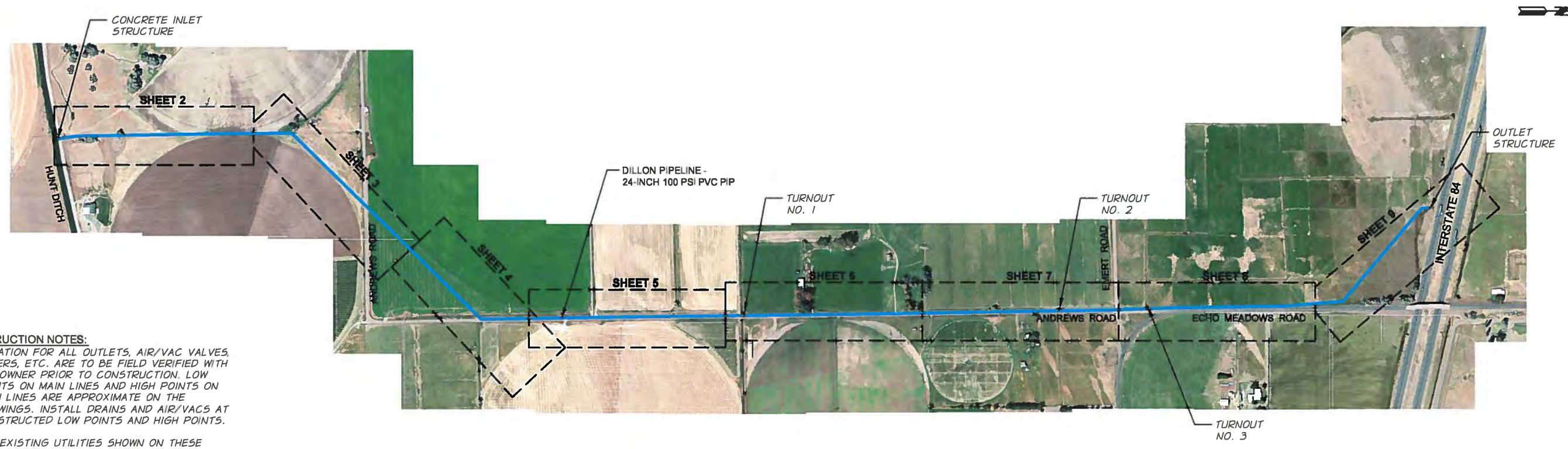


WESTLAND IRRIGATION DISTRICT

Umatilla Basin Watershed Council

REGISTERED PROFESSIONAL ENGINEER
83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
7/31/15
RENEWS 06-30-17

anderson perry & associates, inc.
engineering · surveying · natural resources
1901 N. Fir Street - La Grande, OR 97850 Ph: (541)963-8309 Fax: (541)963-5456
LA GRANDE, OR. WALLA WALLA, WA.



SHEET INDEX

SCALE: 1"=400'

CONSTRUCTION NOTES:

1. LOCATION FOR ALL OUTLETS, AIR/VAC VALVES, METERS, ETC. ARE TO BE FIELD VERIFIED WITH THE OWNER PRIOR TO CONSTRUCTION. LOW POINTS ON MAIN LINES AND HIGH POINTS ON MAIN LINES ARE APPROXIMATE ON THE DRAWINGS. INSTALL DRAINS AND AIR/VACS AT CONSTRUCTED LOW POINTS AND HIGH POINTS.
2. ALL EXISTING UTILITIES SHOWN ON THESE DRAWINGS ARE SHOWN WITH AS MUCH ACCURACY AS POSSIBLE. PIPELINE INSTALLER IS TO WORK CLOSELY WITH THE RESPECTIVE UTILITY COMPANY FOR LOCATION AND COORDINATION NEEDS. (CALL-BEFORE-YOU-DIG) 811 OR 1-800-332-2344, UTILITIES NOTIFICATION CENTER.

PLAN LEGEND

IRRIGATION

	EXISTING	PROPOSED
IRRIGATION LINE		6" PVC
VALVE		
AIR/VAC VALVE		
FLOWMETER		
DRAIN		

SITE SURVEY

EXISTING

- INDEX CONTOUR — 750
- INTERMEDIATE CONTOUR — 749
- CENTERLINE
- CULVERT
- CONTROL POINT

STREET AND CURB

- PAVED STREET — 1ST ST.
- GRAVEL DRIVEWAY/STREET

DRAFTING

- SECTION DESIGNATION (A / 2)
- SHEET WHERE SECTION WAS TAKEN OR WHERE SECTION IS SHOWN.
- 3 — 3 SHEET CONTINUATION REFERENCE

MISCELLANEOUS UTILITIES

EXISTING

- OVERHEAD POWER — OHP — OHP
- BURIED TELEPHONE — T
- ELECTRICAL VAULT — E
- UTILITY POLE
- GUY WIRE
- TELEPHONE RISER

GENERAL

EXISTING

- FENCE LINE/GATE
- WOODEN FENCE
- CREEK/DITCH CENTERLINE
- SIGN

PROFILE LEGEND

- EXISTING GROUND AT PIPE
- 18" PVC — NEW IRRIGATION LINE AND SLOPE
- SL=0.0010 FT/FT
- G.C. STA. 4+65 I.E. 652.52 — PIPE GRADE CHANGE

NORTH ARROW

REGISTERED PROFESSIONAL ENGINEER
83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg
DRAWN BY	P. RICHARDSON	
REVIEWED BY	B. MOORE	

400 0 400 800 1200
SCALE IN FEET

HORZ. SCALE	AS SHOWN	VERT. SCALE	
JOB NUMBER	1280-02	DATE	2015
ACAD FILE:	Sheet Index.dwg		

THIS DRAWING HAS BEEN REDUCED 50%. ADJUST SCALE ACCORDINGLY. BARSCALE SHOWN IS ACCURATE.

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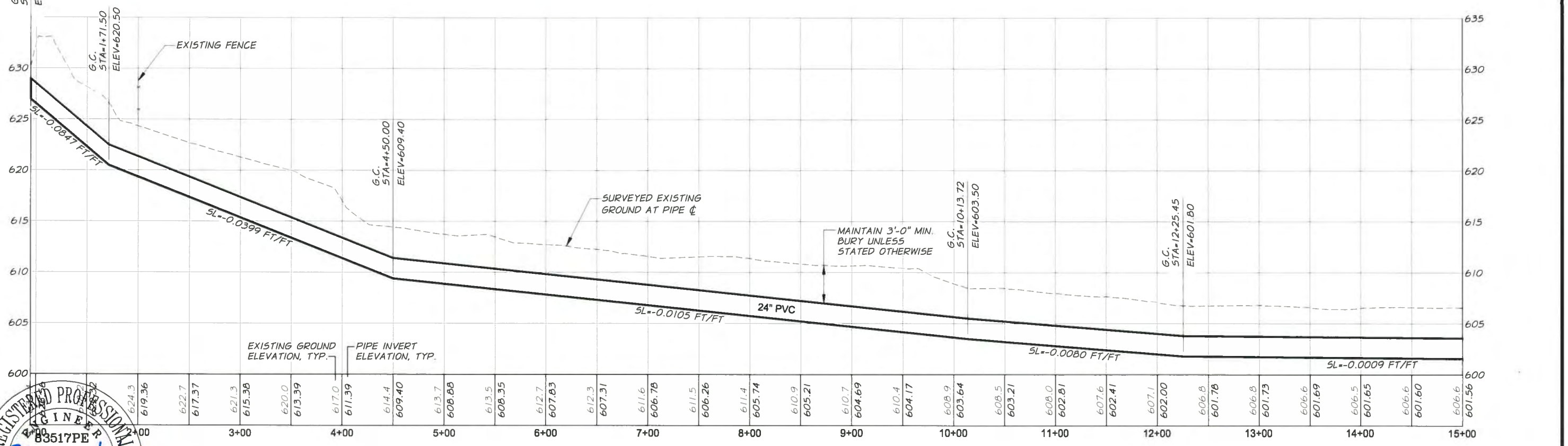
engineering - surveying - natural resources
LA GRANDE, OR. WALLA WALLA, WA.

WESTLAND IRRIGATION DISTRICT
DILLON DAM PIPELINE

SHEET INDEX AND LEGEND

SHEET 1



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REVISION	BY	DATE

HORZ. SCALE IN FEET: 50 0 50 100 150
VERT. SCALE IN FEET: 5 0 5 10 15

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg	
DRAWN BY	P. RICHARDSON		
REVIEWED BY	B. MOORE		
HORZ. SCALE	1"=50'	VERT. SCALE	1"=5'
JOB NUMBER	1280-02	DATE	2015
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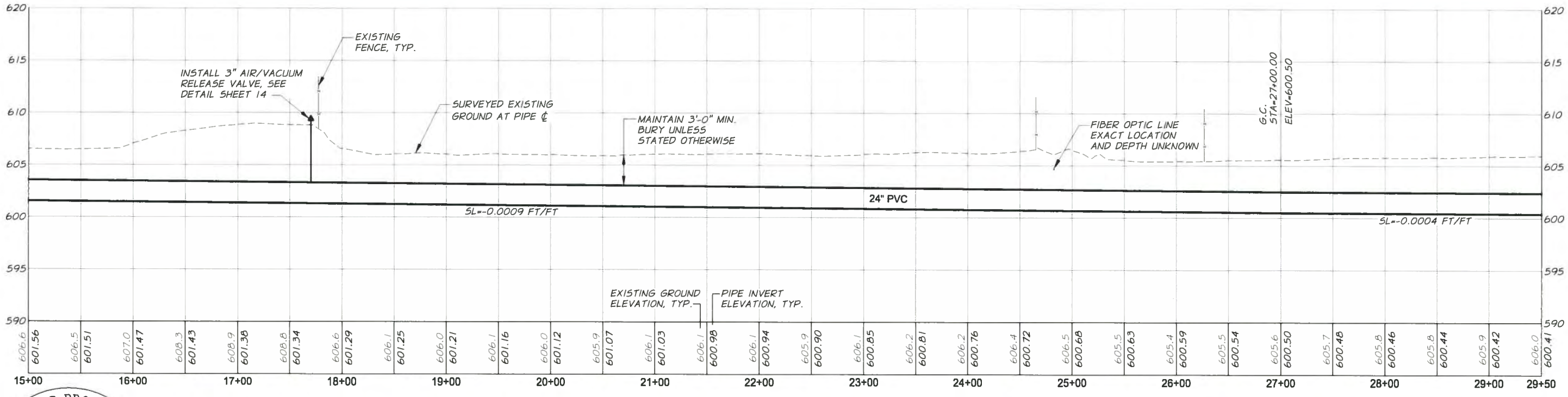
WESTLAND IRRIGATION DISTRICT
DILLON DAM PIPELINE

PLAN AND PROFILE
STA. 1+00 TO STA. 15+00

SHEET 2



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50 0 50 100 150 HORZ. SCALE IN FEET
5 0 5 10 15 VERT. SCALE IN FEET

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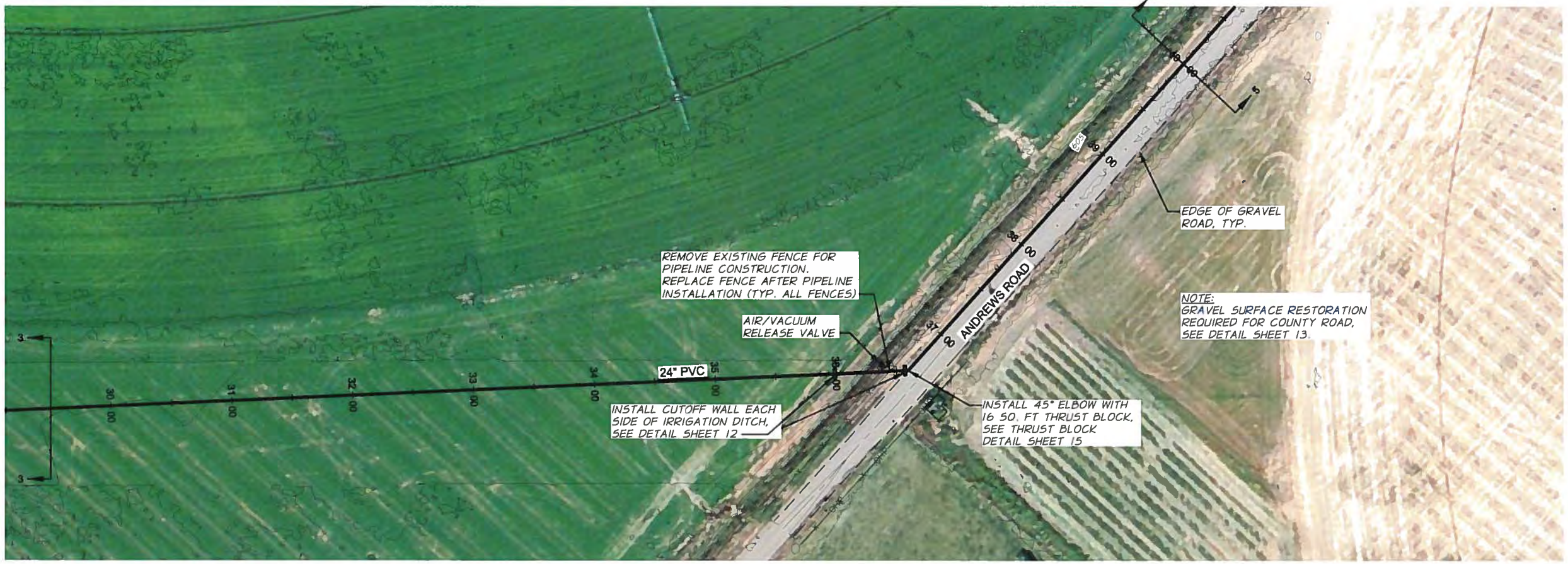
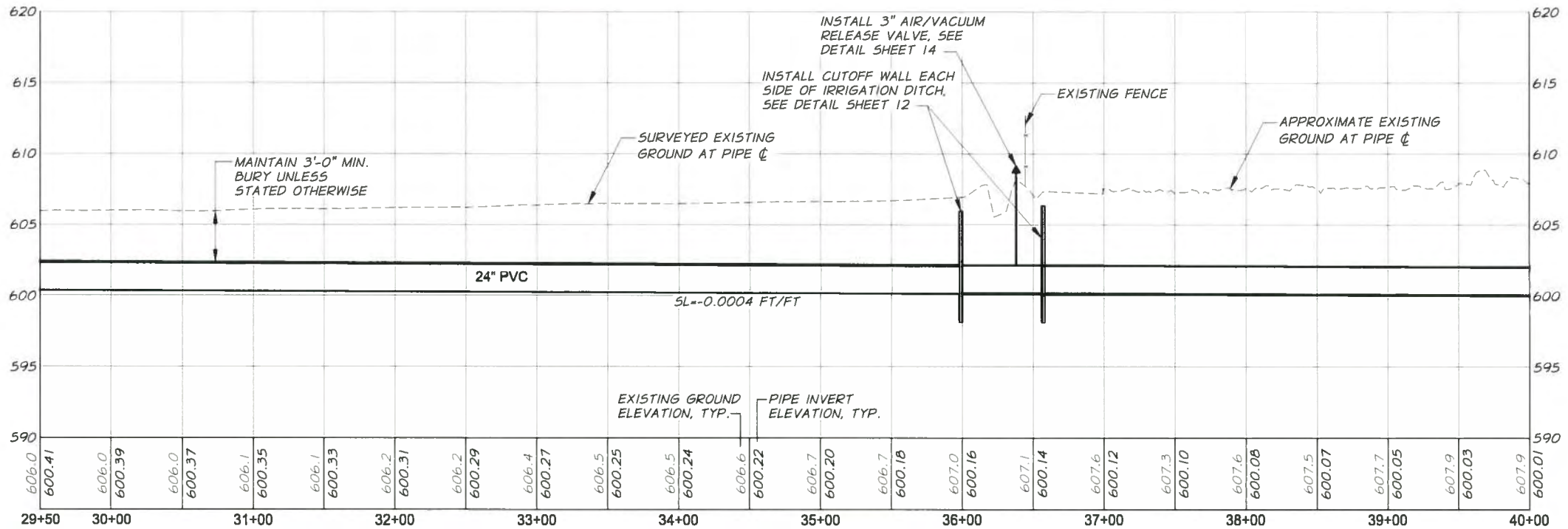
WESTLAND IRRIGATION DISTRICT
DILLON DAM PIPELINE

PLAN AND PROFILE
STA. 15+00 TO STA. 29+50

SHEET
3





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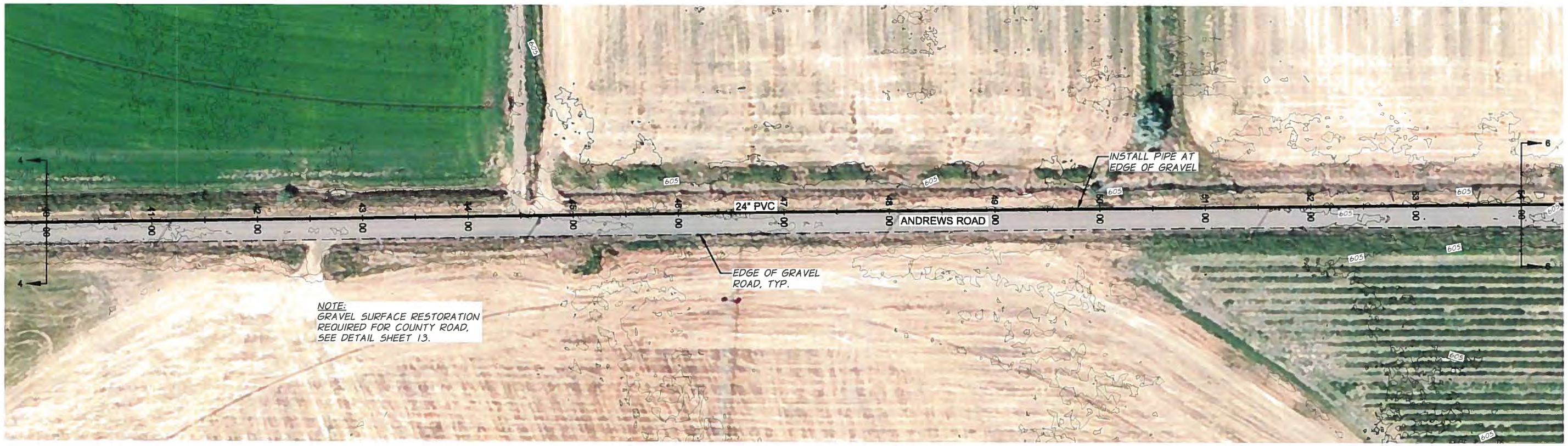
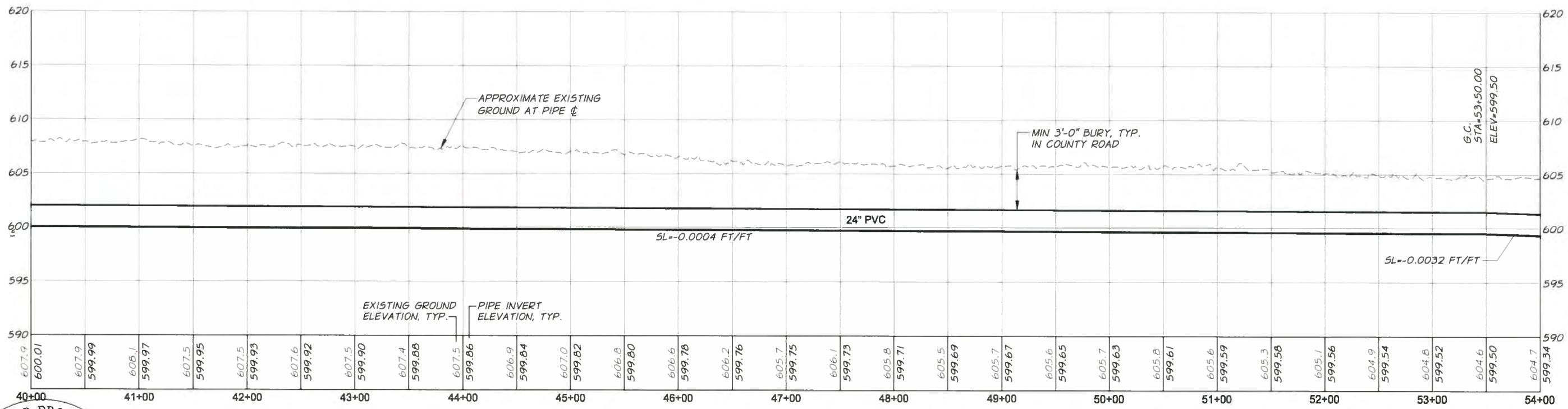
WESTLAND IRRIGATION DISTRICT
DILLON DAM PIPELINE

PLAN AND PROFILE
STA. 29+50 TO STA. 40+00

SHEET
4





REGISTERED PROFESSIONAL ENGINEER
83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TD.dwg
DRAWN BY	P. RICHARDSON	
REVIEWED BY	B. MOORE	

HORZ. SCALE IN FEET: 50 0 50 100 150
VERT. SCALE IN FEET: 5 0 5 10 15

HORZ. SCALE	1"=50'	VERT. SCALE	1"=5'
JOB NUMBER	1280-02	DATE	2015
ACAD FILE	DSN Dillon Base110414.dwg		

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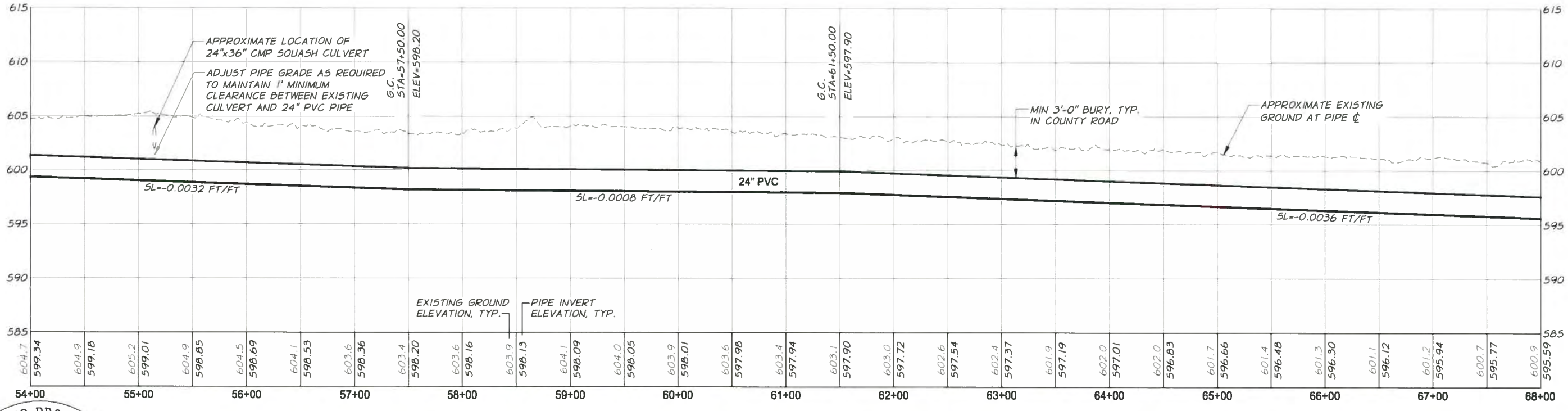
DILLON DAM PIPELINE

PLAN AND PROFILE
STA. 40+00 TO STA. 54+00

SHEET
5



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83517PE
OREGON
NOV. 10, 2009
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RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg	
DRAWN BY	P. RICHARDSON		
REVIEWED BY	B. MOORE		

HORZ. SCALE IN FEET: 50 0 50 100 150
VERT. SCALE IN FEET: 5 0 5 10 15

HORZ. SCALE	1"=50'	VERT. SCALE	1"=5'
JOB NUMBER	1280-02	DATE	2015
ACAD FILE	DSN Dillon Base110414.dwg		

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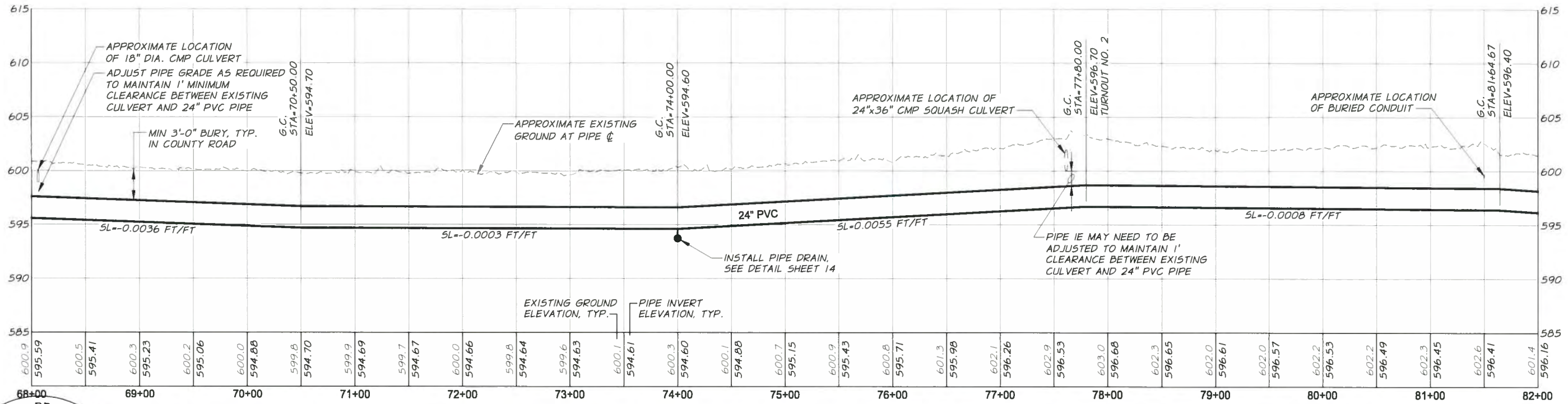
DILLON DAM PIPELINE

PLAN AND PROFILE
STA. 54+00 TO STA. 68+00

SHEET
6



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83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

HORZ. SCALE IN FEET: 50 0 50 100 150
VERT. SCALE IN FEET: 5 0 5 10 15

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg	
DRAWN BY	P. RICHARDSON		
REVIEWED BY	B. MOORE		

HORZ. SCALE 1"=50' VERT. SCALE 1"=5'
JOB NUMBER 1280-02 DATE 2015
ACAD FILE: DSN Dillon Base110414.dwg

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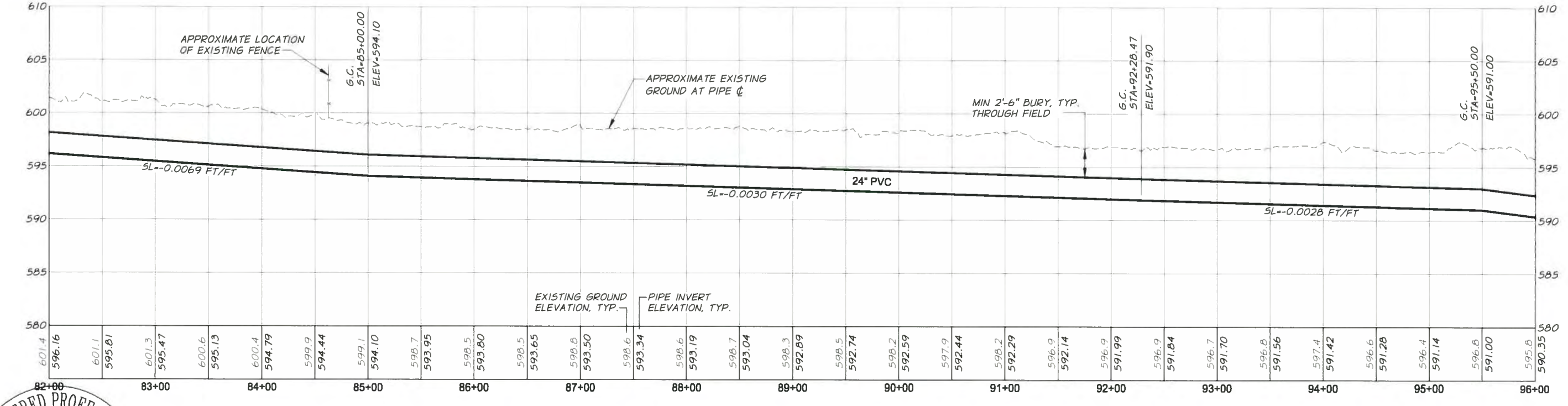
DILLON DAM PIPELINE

PLAN AND PROFILE
STA. 68+00 TO STA. 82+00

SHEET 7

NOTES:
1. STATIONS FOR TURNOUTS ARE APPROXIMATE LOCATIONS. EXACT LOCATION FOR TURNOUT TO BE DETERMINED BY LANDOWNER AT THE TIME OF PIPELINE CONSTRUCTION.
2. GRAVEL SURFACE RESTORATION REQUIRED FOR COUNTY ROAD, SEE DETAIL SHEET 13.



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CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

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DRAWN BY	P. RICHARDSON	
REVIEWED BY	B. MOORE	

HORZ. SCALE IN FEET: 50 0 50 100 150
VERT. SCALE IN FEET: 5 0 5 10 15

HORZ. SCALE	1"=50'	VERT. SCALE	1"=5'
JOB NUMBER	1280-02	DATE	2015
ACAD FILE	DSN Dillon Base110414.dwg		

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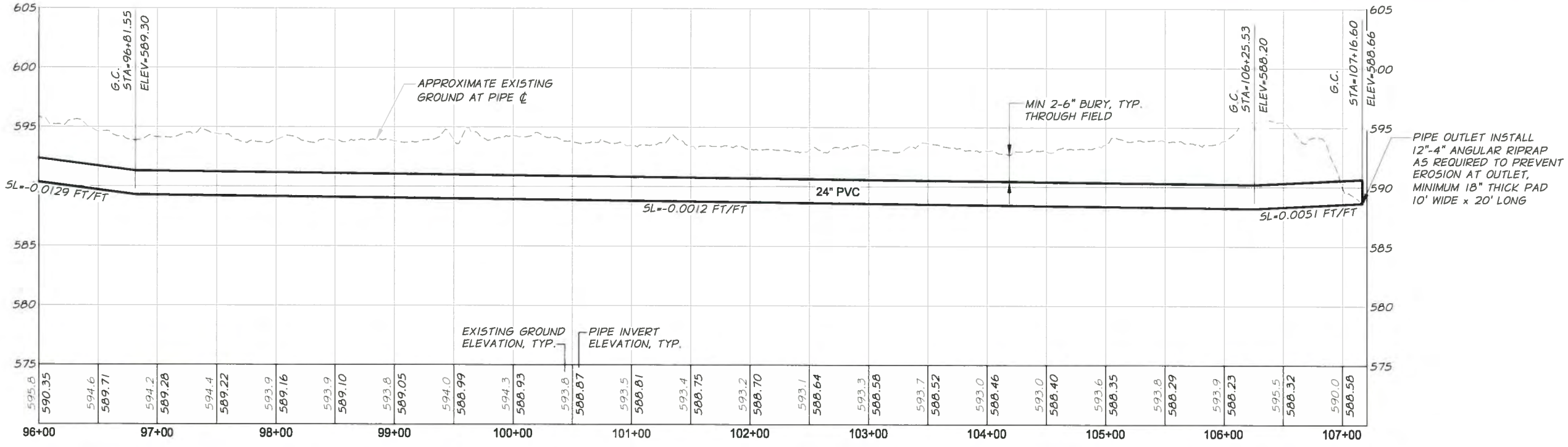
DILLON DAM PIPELINE

PLAN AND PROFILE
STA. 82+00 TO STA. 96+00

SHEET 8



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NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg
DRAWN BY	P. RICHARDSON	
REVIEWED BY	B. MOORE	

HORZ. SCALE IN FEET: 50 0 50 100 150
VERT. SCALE IN FEET: 5 0 5 10 15

HORZ. SCALE	1"=50'	VERT. SCALE	1"=5'
JOB NUMBER	1280-02	DATE	2015
ACAD FILE	DSN Dillon Base110414.dwg		

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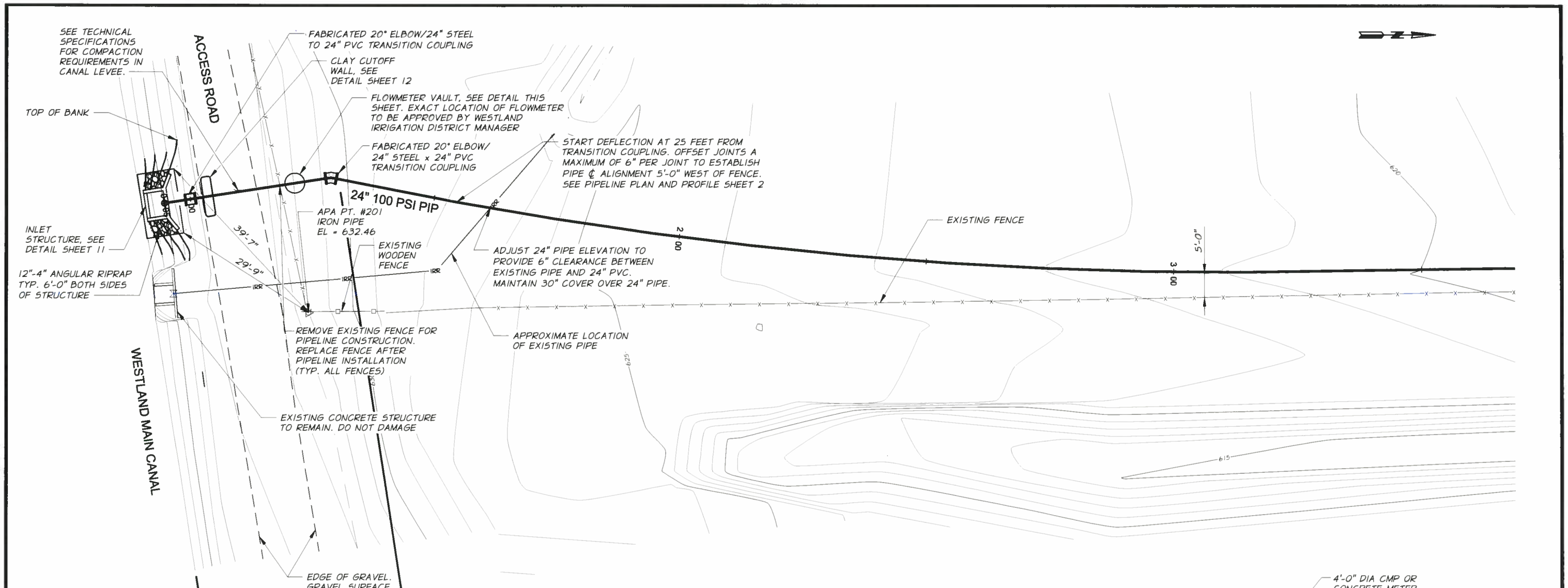
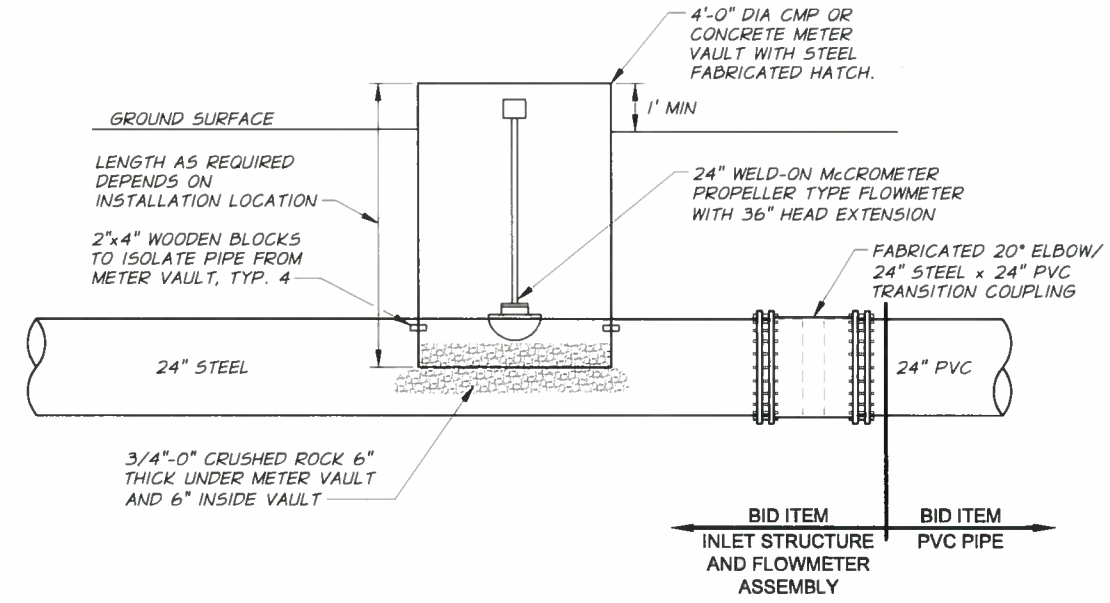
PLAN AND PROFILE
STA. 96+00 TO STA. 107+21

SHEET
9



INTAKE STRUCTURE SITE PLAN

SCALE: 1"=10'



FLOWMETER VAULT DETAIL

N.T.S.

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83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg
DRAWN BY	P. RICHARDSON	
REVIEWED BY	B. MOORE	

10 0 10 20 30
SCALE IN FEET

HORZ. SCALE	1"=10'	VERT. SCALE	
JOB NUMBER	1280-02	DATE	2015
ACAD FILE:	DSN Dillon Base110414.dwg		

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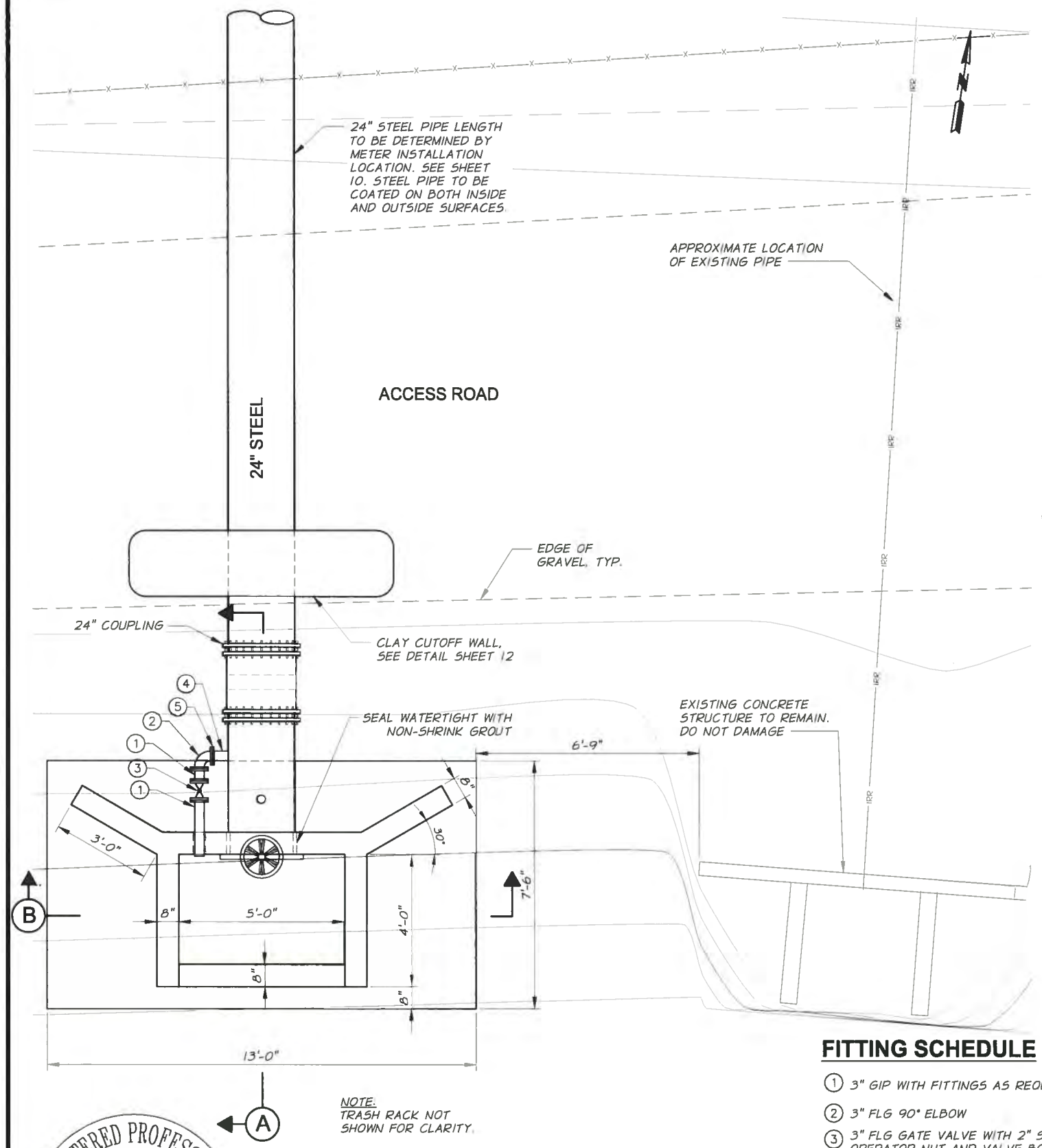
DILLON DAM PIPELINE

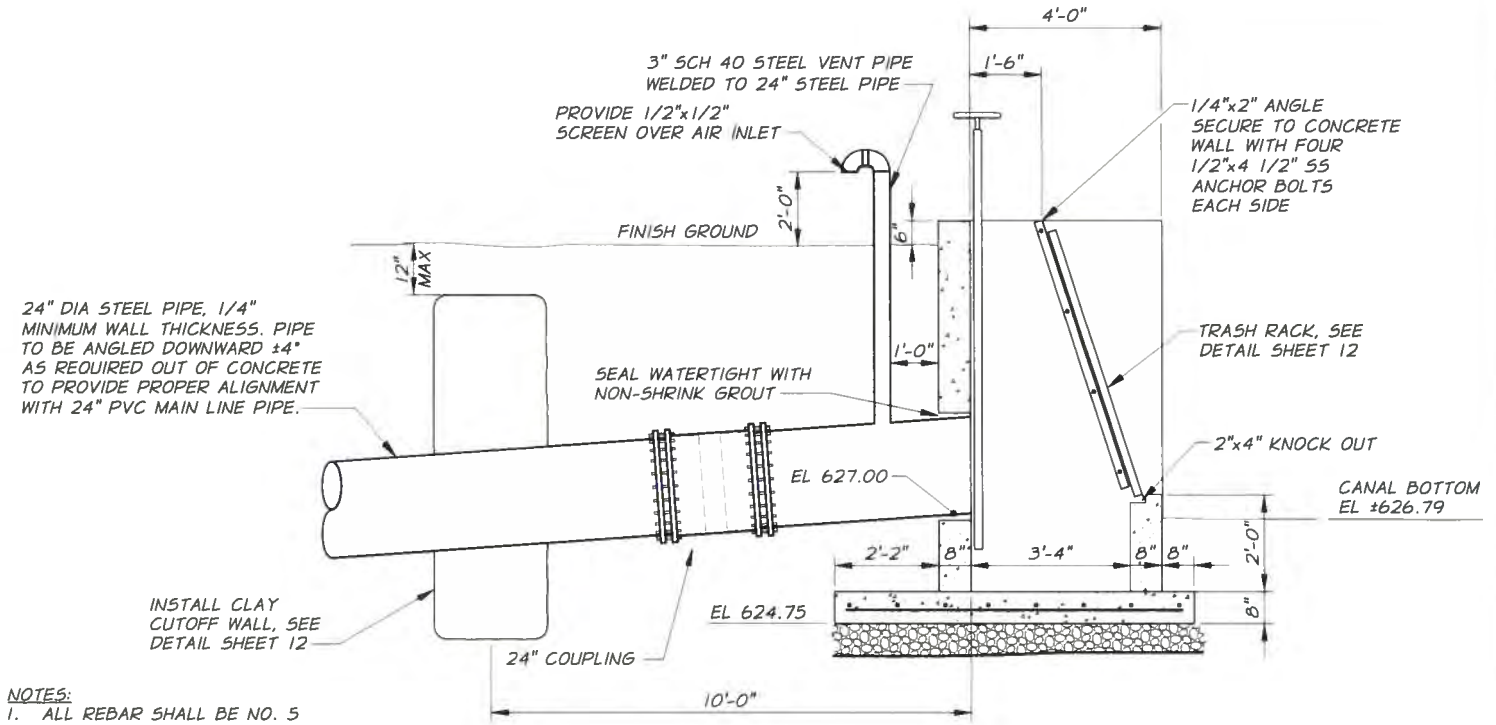
INTAKE STRUCTURE SITE PLAN AND DETAIL

SHEET 10



INLET STRUCTURE PLAN

SCALE: 1/2"=1'-0"



SECTION A

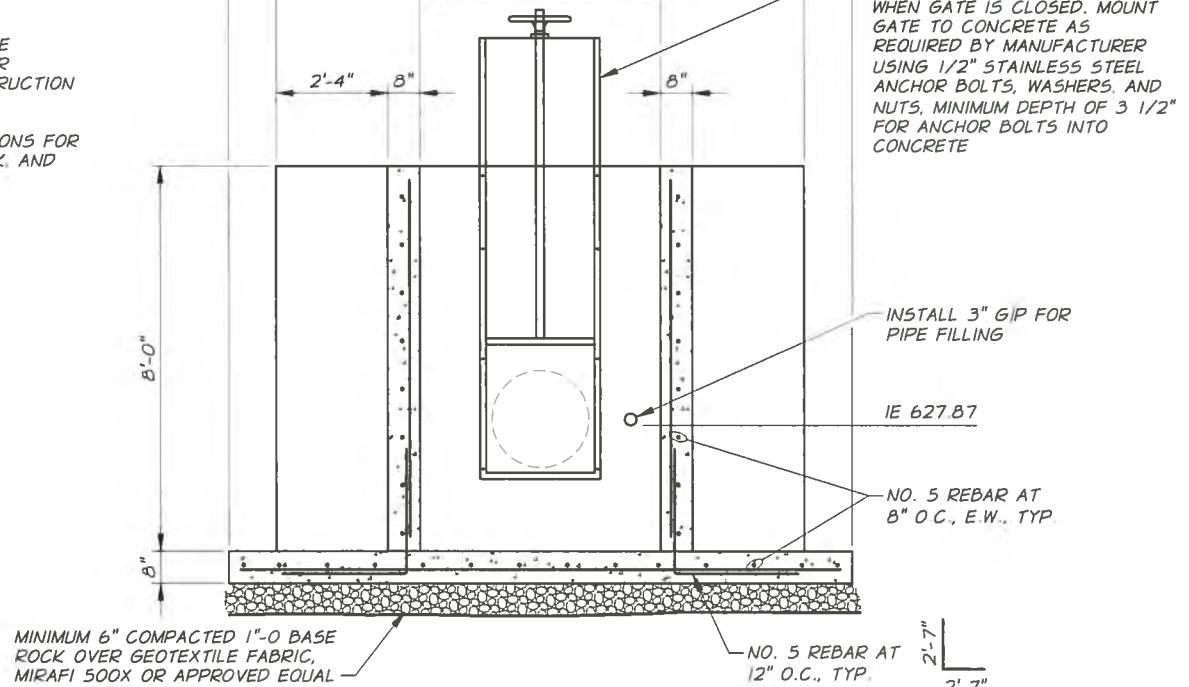
SCALE: 1/2"=1'-0"

NOTES:

1. ALL REBAR SHALL BE NO. 5 INSTALLED AT 12" (MAXIMUM) ON-CENTER EACH WAY IN THE CENTER OF THE SLAB OR WALL (UNLESS OTHERWISE SPECIFIED). 3" CLEARANCE IS REQUIRED WHEN CONCRETE IS ANTICIPATED TO BE IN CONTACT WITH SOIL. 2" MINIMUM CLEARANCE IS REQUIRED FOR ALL OTHER CIRCUMSTANCES.
2. ALL METAL SHALL BE COATED WITH COAL TAR ENAMEL, INSIDE AND OUTSIDE OF PIPES.
3. CONCRETE MIX DESIGN TO BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION OF THE INTAKE STRUCTURE.
4. SEE TECHNICAL SPECIFICATIONS FOR DETAILS OF CONCRETE WORK AND REQUIREMENTS.

FITTING SCHEDULE

1. 3" GIP WITH FITTINGS AS REQUIRED
2. 3" FLG 90° ELBOW
3. 3" FLG GATE VALVE WITH 2" SQUARE OPERATOR NUT AND VALVE BOX
4. 3" IPT NIPPLE WELDED TO 24" STEEL INLET PIPE
5. 3" FLG THREADED ONTO 3" IPT NIPPLE



SECTION B

SCALE: 1/2"=1'-0"

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83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg	
DRAWN BY	B. SAILER		
REVIEWED BY	B. MOORE		

2 0 2 4 6
SCALE IN FEET

HORZ. SCALE	1/2"=1'-0"	VERT. SCALE	
JOB NUMBER	1280-02	DATE	2015
ACAD FILE:	Sheet 11 Intake Plan and Sections.dwg		

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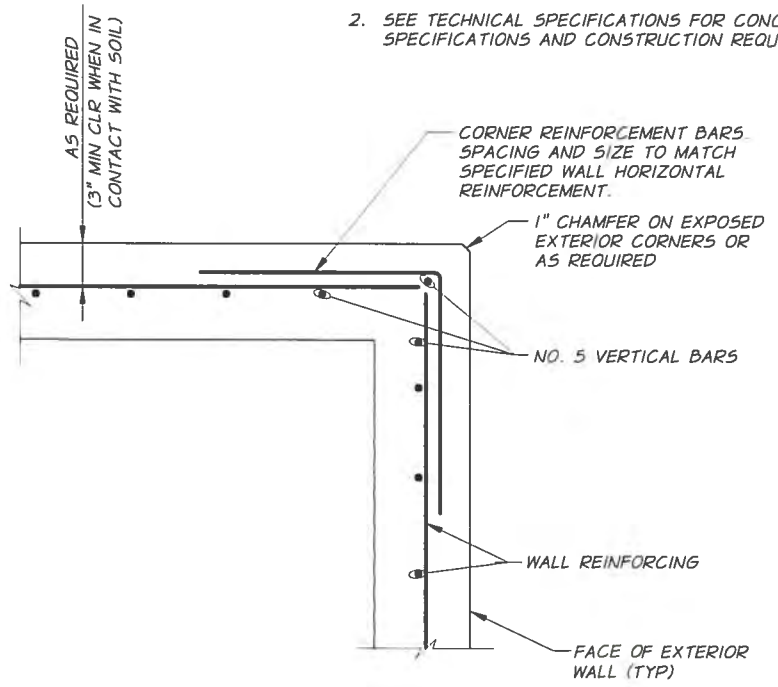
WESTLAND IRRIGATION DISTRICT
DILLON DAM PIPELINE

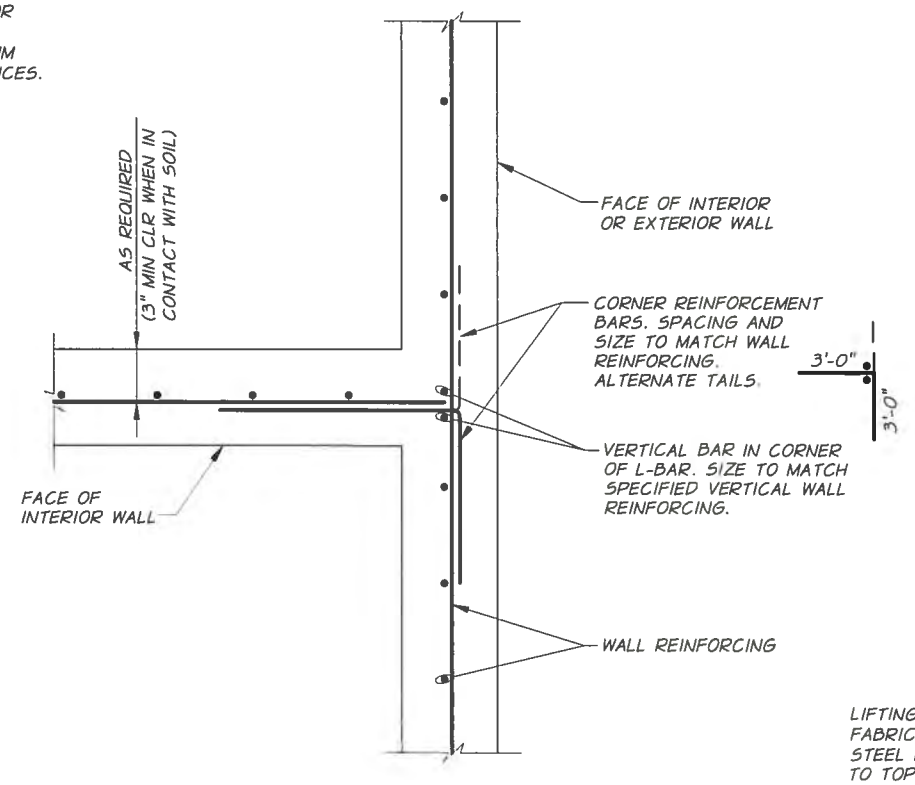
INTAKE STRUCTURE PLAN AND SECTIONS

SHEET 11

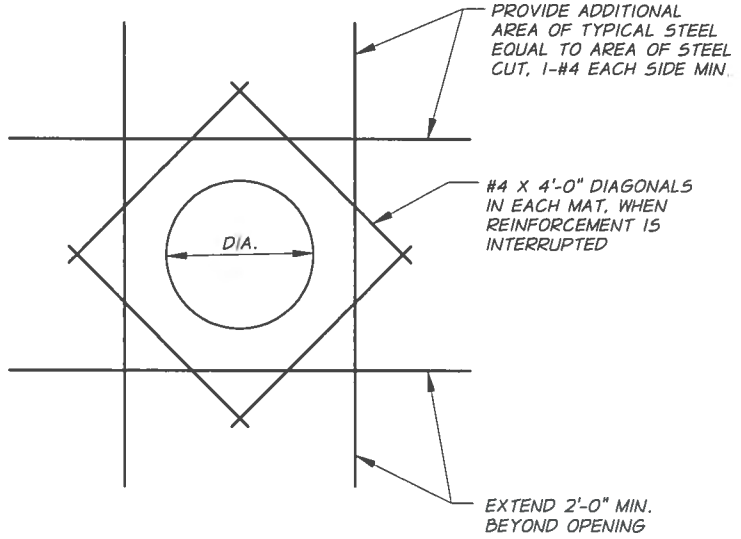
NOTES:
1. ALL REBAR SHALL BE NO. 5 INSTALLED AT 12" (MAXIMUM) ON CENTER EACH WAY IN THE CENTER OF THE SLAB OR WALL. 3" CLEARANCE IS REQUIRED WHEN CONCRETE IS ANTICIPATED TO BE IN CONTACT WITH SOIL. 2" MINIMUM CLEARANCE IS REQUIRED FOR ALL OTHER CIRCUMSTANCES.
2. SEE TECHNICAL SPECIFICATIONS FOR CONCRETE MIX SPECIFICATIONS AND CONSTRUCTION REQUIREMENTS.



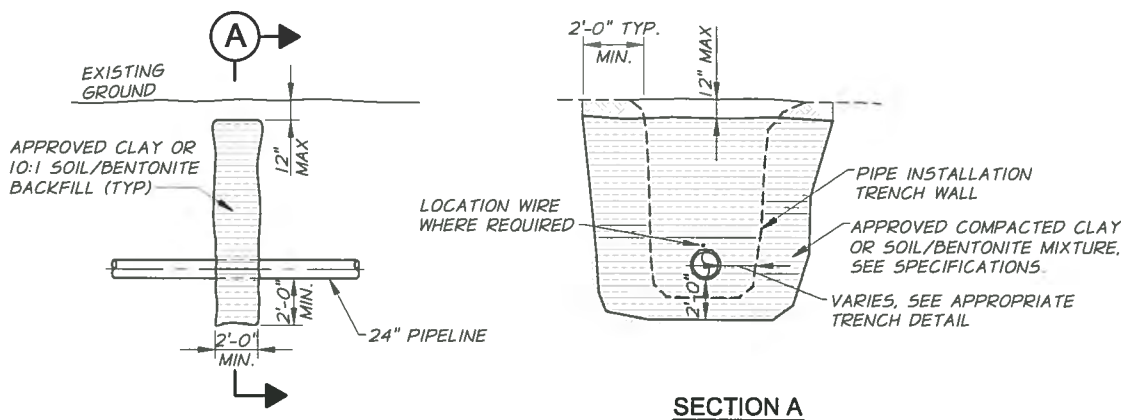
DETAIL A
(TYPICAL EXTERIOR WALL CORNER WITH SINGLE MAT REINFORCEMENT)
N.T.S.



DETAIL B
(TYPICAL INTERIOR WALL CORNER WITH SINGLE MAT REINFORCEMENT)
N.T.S.

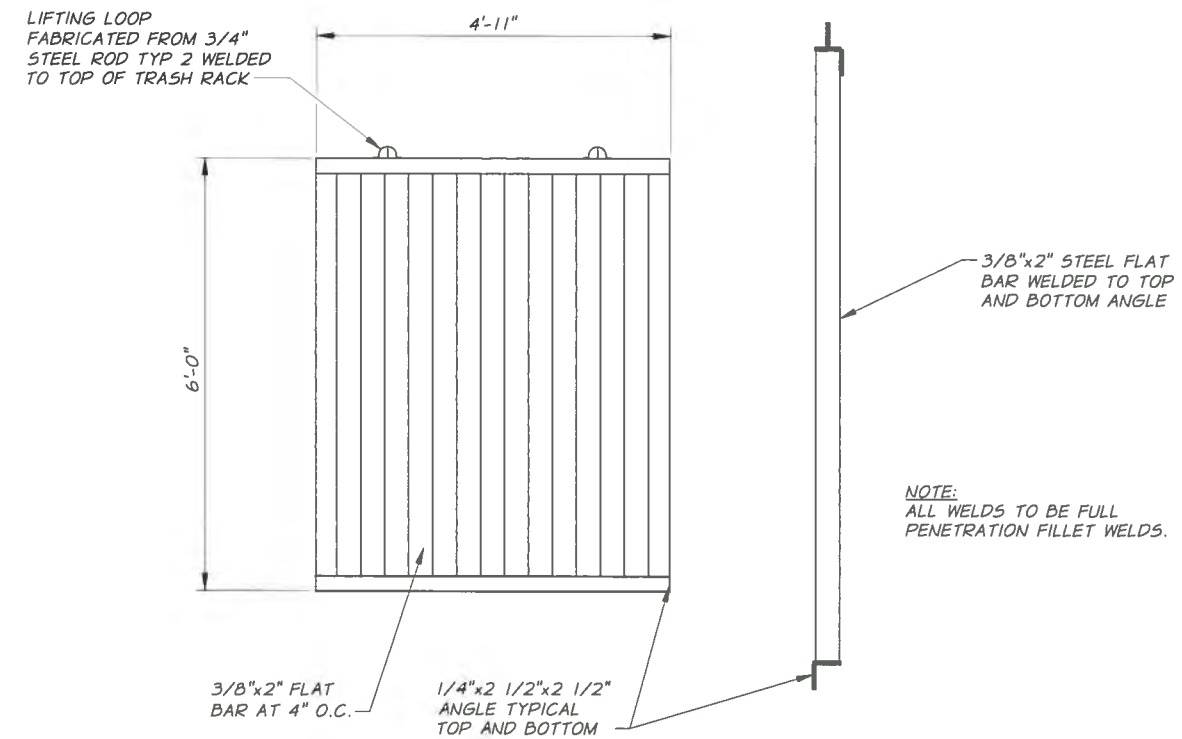


TYPICAL OPENING IN CONCRETE WALLS
N.T.S.



SECTION A

CLAY CUTOFF WALL DETAIL
N.T.S.



SECTION

TRASH RACK DETAIL
SCALE: 1/2"=1'-0"

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83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg	
DRAWN BY	B. SAILER		
REVIEWED BY	B. MOORE		

2 0 2 4 6
SCALE IN FEET

HORZ. SCALE	AS SHOWN	VERT. SCALE	
JOB NUMBER	1280-02	DATE	2015
ACAD FILE	Sheet 12 Intake Structure Details.dwg		

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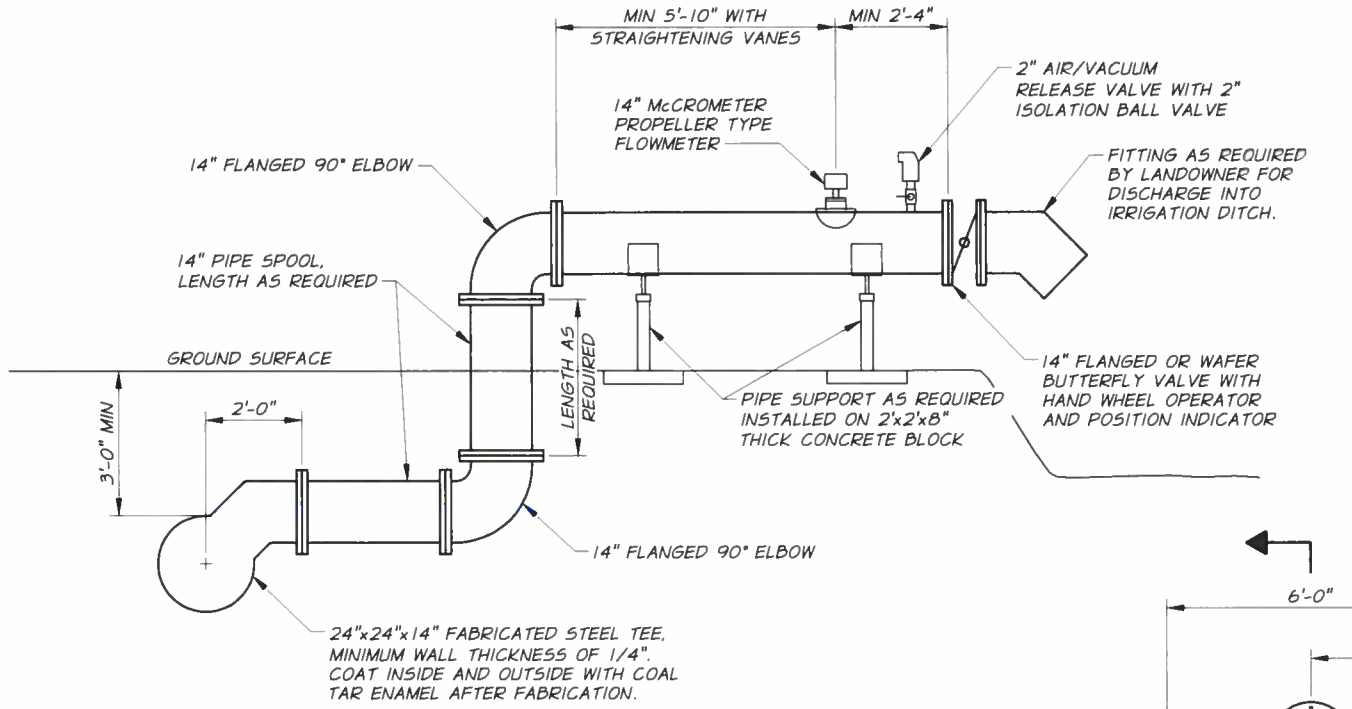
DILLON DAM PIPELINE

INTAKE STRUCTURE DETAILS

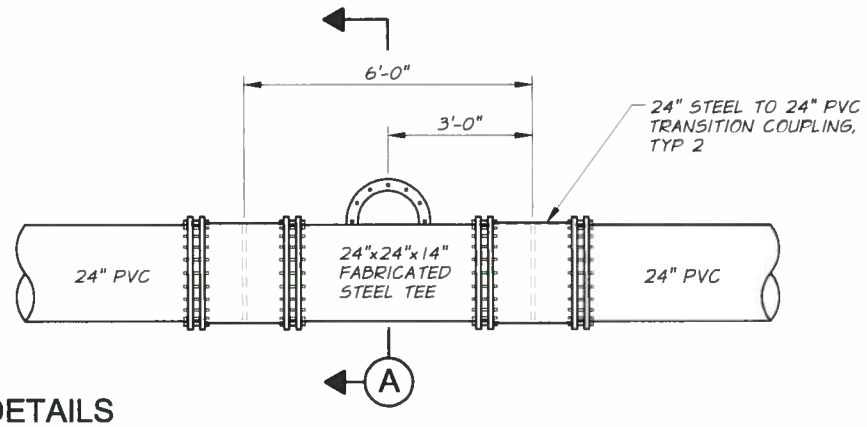
SHEET 12



TURNOUT SECTION A

N.T.S.

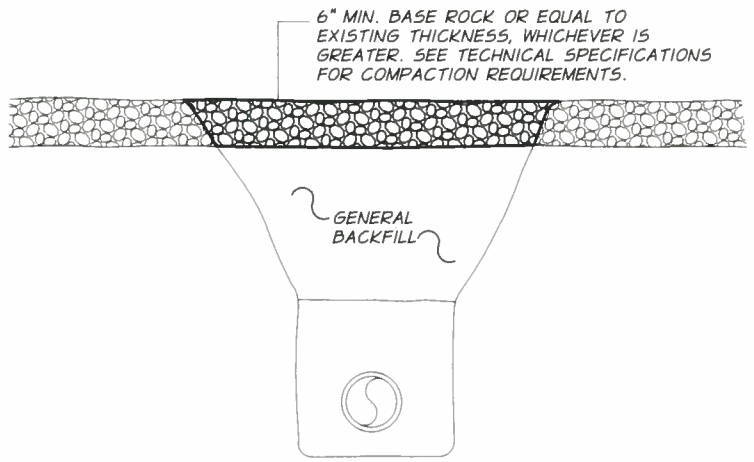
NOTE:
1) LENGTH OF EACH PIPE SPOOL TO BE DETERMINED AT TIME OF CONSTRUCTION AND DEPENDS ON DEPTH OF PIPE INSTALLATION AND PIPE ALIGNMENT
2) FITTINGS MAY BE DUCTILE IRON OR FABRICATED FROM 14" STEEL PIPE. STEEL PIPE WALL THICKNESS TO BE MINIMUM 1/4".
3) FITTINGS MAY BE TURNED TO BEST FIT THE INSTALLATION SITE.
4) 24"x24"x14" TEE TO BE FABRICATED AND INSTALLED AS SHOWN TO PROVIDE MAIN LINE AIR RELEASE.
5) ALL STEEL PIPE TO BE COATED WITH COAL TAR ENAMEL AFTER FABRICATION.



TURNOUT DETAILS

N.T.S.

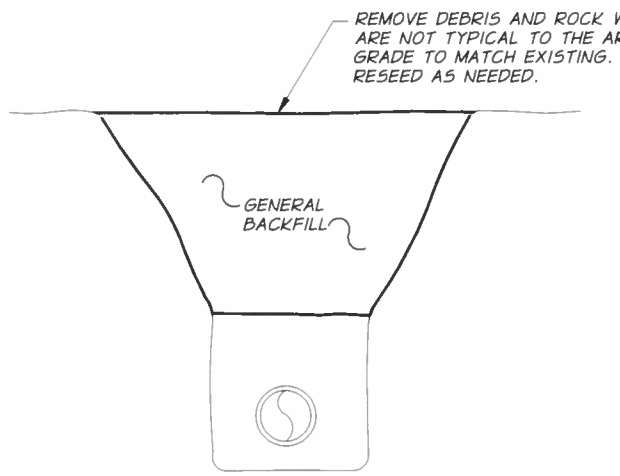
TRENCH EXCAVATION AND BACKFILL NOTES:
1. SEE APPROPRIATE TRENCH RESTORATION DETAILS FOR SURFACE RESTORATION REQUIREMENTS.
2. BEDDING AND SELECT BACKFILL TO BE WELL GRADED 3/4"-0 MATERIAL. MATERIAL EXCAVATED FROM TRENCH MAY BE USED IF GRADING AND COMPACTION REQUIREMENTS ARE MET.
3. BEDDING AND SELECT BACKFILL TO BE COMPACTED TO THE DENSITY OF THE EXISTING SOIL OR AS APPROVED BY THE ENGINEER.
4. CARE SHOULD BE USED TO ENSURE THAT THE BEDDING MATERIAL IS PROPERLY WORKED UNDER THE HAUNCH OF THE PIPE FOR IT'S FULL LENGTH.
5. SEE TECHNICAL SPECIFICATIONS FOR COMPACTION REQUIREMTENTS.



TRENCH RESTORATION

GRAVEL STREETS, ROADWAYS, AND SHOULDERS

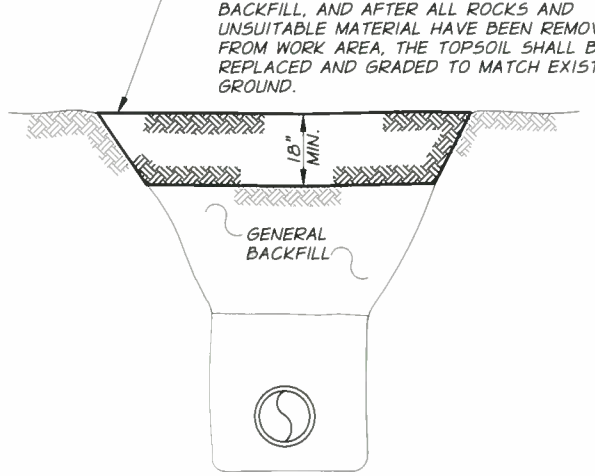
N.T.S.



TRENCH RESTORATION

NATURAL AREAS

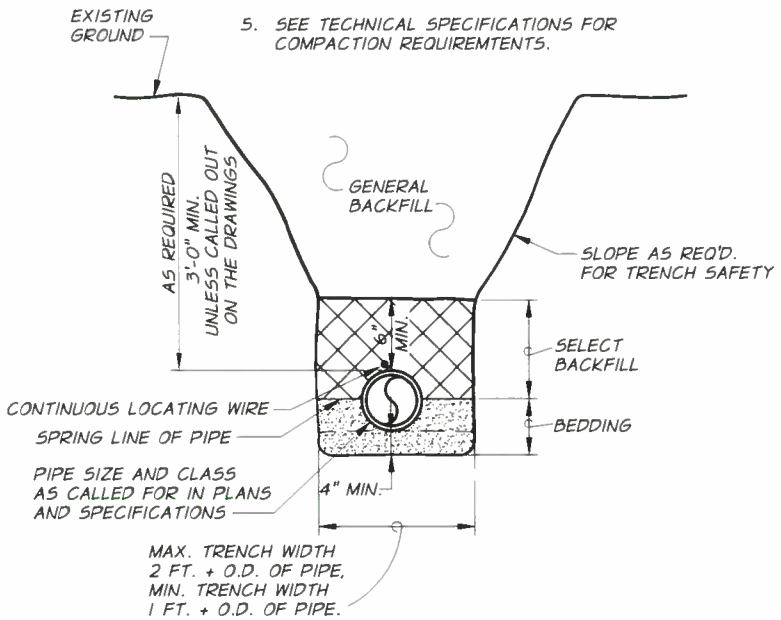
N.T.S.



TRENCH RESTORATION

AGRICULTURAL AREAS

N.T.S.



TYPICAL TRENCH EXCAVATION AND BACKFILL

N.T.S.

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83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY L. UMPLEBY
DRAWN BY L. WILLHITE
REVIEWED BY B. MOORE
XREFS: Dillon Pipeline-TB.dwg

HORZ. SCALE NO SCALE
VERT. SCALE
JOB NUMBER 1280-02
DATE 2015
ACAD FILE: DETL-1.dwg

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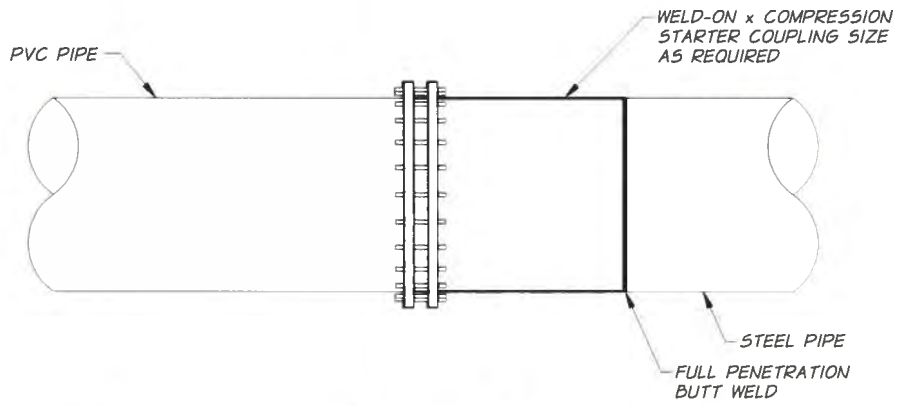
DILLON DAM PIPELINE

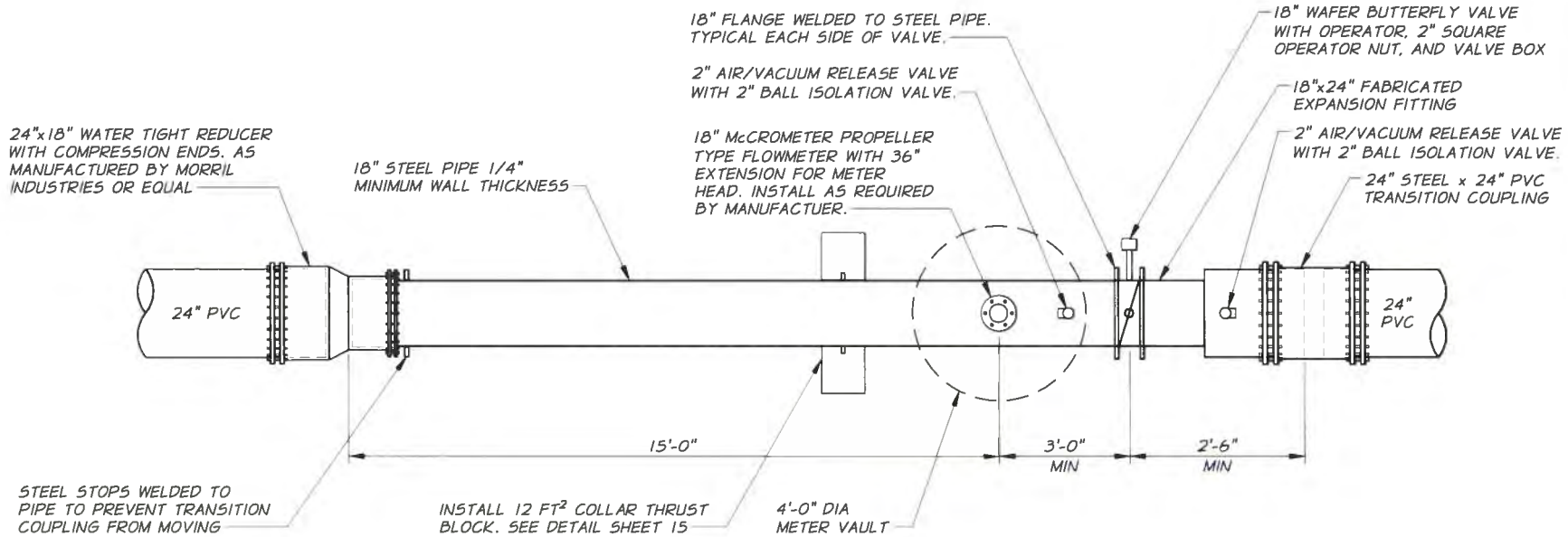
IRRIGATION TURNOUT AND TRENCH DETAILS

SHEET 13



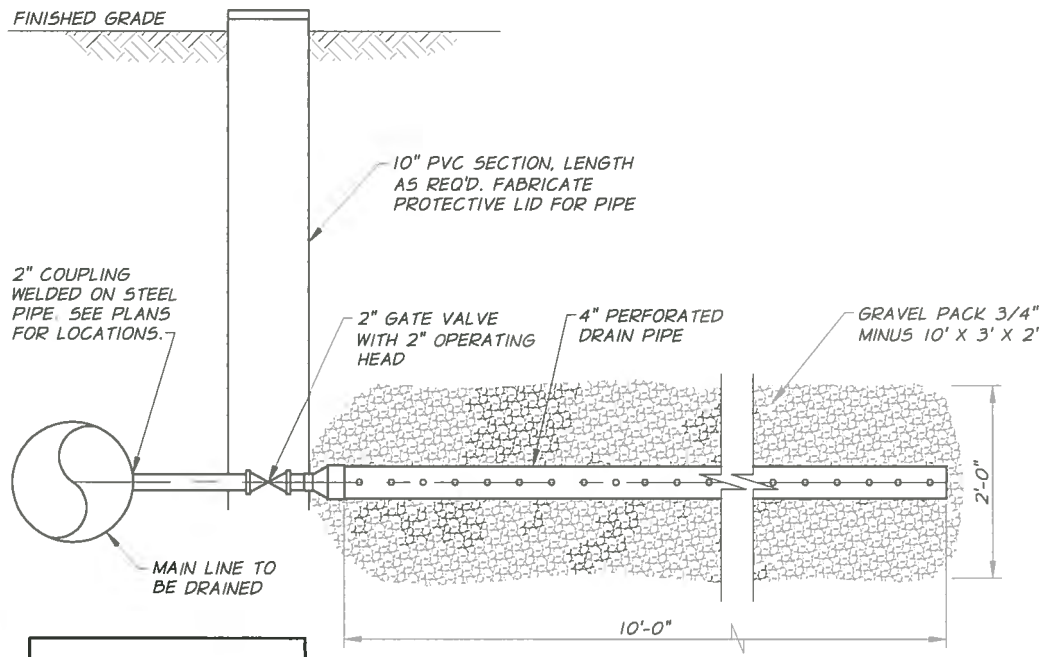
FLANGE X STEEL-TO-PVC GASKET COUPLING DETAIL

N.T.S.



INLINE METER AND VALVE PLAN

N.T.S.

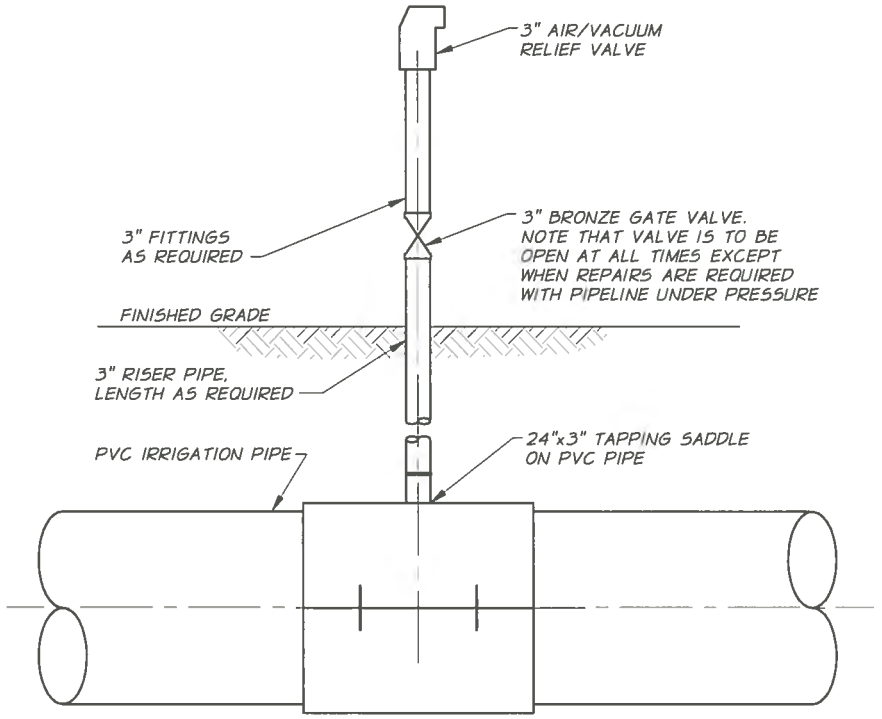


NOTE:
INSTALL PIPE DRAIN TO DAYLIGHT IF POSSIBLE. OTHERWISE, INSTALL AS SHOWN.

PIPE DRAIN DETAIL

N.T.S.

NOTE:
FABRICATE RISER AS REQUIRED FOR INSTALLATION OF AIR/VACUUM VALVE. VALVE SIZES AS SHOWN ON DRAWINGS.



AIR/VACUUM RELEASE DETAIL

N.T.S.

INLINE METER AND VALVE SECTION

N.T.S.

REGISTERED PROFESSIONAL ENGINEER
83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg	HORZ. SCALE NO SCALE / VERT. SCALE
DRAWN BY	L. WILLHITE		JOB NUMBER 1280-02 / DATE 2015
REVIEWED BY	B. MOORE		ACAD FILE: Dets-ii.dwg

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DILLON DAM PIPELINE

INLINE METER AND VALVE DETAILS

SHEET
14

THRUST BLOCK NOTES

1. THRUST BLOCKS SHALL BE REQUIRED AT THE FOLLOWING LOCATIONS:
   A. ALL CHANGES IN DIRECTION.
   B. ALL DEAD-ENDS.
   C. ALL VALVES 8-INCHES AND LARGER SHALL BE SIZE FOR CLOSED CONDITION EXCEPTIONS:
      (1) WHEN RESTRAINED JOINT PIPE IS USED ON BOTH SIDES OF VALVE.
      (2) WHEN VALVE IS RESTRAINED JOINT CONNECTED TO A FITTING WHICH HAS APPROPRATE THRUST BLOCKING.
   D. AT LOCATIONS SPECIFICALLY CALLED OUT ON THE DRAWINGS.
   E. AT TEMPORARY DEAD ENDS DURING PIPE INSTALLATIONS AS REQUIRED FOR TEMPORARY PRESSURE TESTING.
   F. AT OTHER LOCATIONS REQUIRED BY THE ENGINEER.
2. THRUST BLOCKS SHALL BE SIZED AS REQUIRED BY SOIL CONDITIONS AND DESIGN PRESSURE.
3. PLACE CONCRETE AGAINST UNDISTURBED TRENCH WALL.
4. CONCRETE SHALL BE 2,500 PSI MINIMUM.
5. ALL CONCRETE SHALL BE PLACED SO THAT PIPE, FITTING JOINTS, BOLTS AND NUTS, ETC., WILL BE ACCESSIBLE FOR REPAIRS.
6. PLACE ONE LAYER OF VISQUEEN BETWEEN FITTING AND CONCRETE TO FACILITATE FUTURE REMOVAL OF THRUST BLOCK IF REQUIRED.
7. ANCHOR RODS SHALL BE 3/4" DIAMETER GALVANIZED STEEL RODS OR #6 EPOXY COATED REINFORCEMENT BAR, AASHTO M284, HAVING AN 18" MINIMUM EMBEDMENT IN CONCRETE.
8. ALL THRUST BLOCKS SHALL BE SIZED FOR 50 PSI PRESSURE.
9. IF THE REQUIRED BEARING AREA IS LESS THAN 1 SQUARE FOOT, A THRUST BLOCK SHALL NOT BE REQUIRED.

DETERMINATION OF THRUST BLOCK BEARING AREA

NOTE:
WHEN THRUST BLOCK BEARING AREA IS NOT SPECIFIED ON THE PLANS OR DETERMINED BY THE ENGINEER, THE FOLLOWING PROCEDURE SHALL BE USED TO DETERMINE REQUIRED BEARING AREA.

1. DETERMINE THRUST (T) FOR TYPE OF FITTING OR JOINT AND SIZE OF PIPE FROM TABLE NO. 1 OR TABLE NO. 3
2. DETERMINE BEARING CAPACITY (B) OF SOIL FROM TABLE NO. 2
3. DETERMINE REQUIRED BEARING AREA (A) AS FOLLOWS:

$A = T / B$

EXAMPLE: DESIGN PRESSURE = 175 PSI
PIPE = 12"
FITTING = TEE
SOIL - SANDY GRAVEL
FROM TABLE NO. 1: T = 15,050 LB.
FROM TABLE NO. 2: B = 3000 LB/SQ.FT.

$A = \frac{15,050 \times 1.75}{3,000} = 8.8$ SQ.FT. = 9 SQ.FT. (ROUND UP TO NEAREST WHOLE SQ.FT.)

TABLE NO. 1
THRUST AT FITTINGS IN POUNDS AT 100 PSI OF PRESSURE

PIPE SIZE	TEES AND DEAD ENDS	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
4"	1,680	2,310	1,290	660	340
6"	3,770	5,320	2,890	1,480	750
8"	6,690	9,460	5,120	2,620	1,320
10"	10,440	14,780	8,010	4,090	2,050
12"	15,050	21,280	11,520	5,880	2,960
14"	20,490	28,960	15,680	8,000	4,020
16"	26,750	37,830	20,470	10,440	5,260
18"	33,850	47,870	25,910	13,210	6,640
20"	41,790	59,090	31,980	16,310	8,190
24"	60,170	85,100	46,060	23,490	11,800

NOTE:
FOR WATER PRESSURES DIFFERENT THAN 100 PSI, MULTIPLY THRUST FOUND IN TABLE NO. 1 BY REQUIRED PROPORTION.
EXAMPLE: DESIGN PRESSURE = 175 PSI.
MULTIPLY VALUE IN TABLE BY 1.75

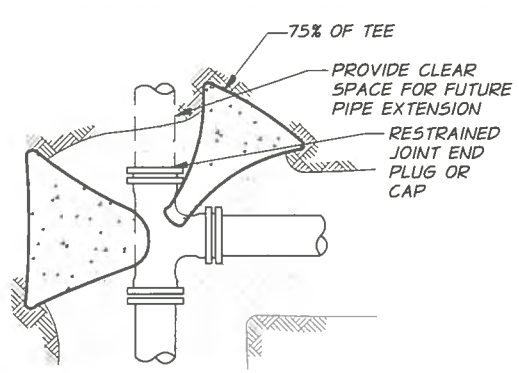
TABLE NO. 2

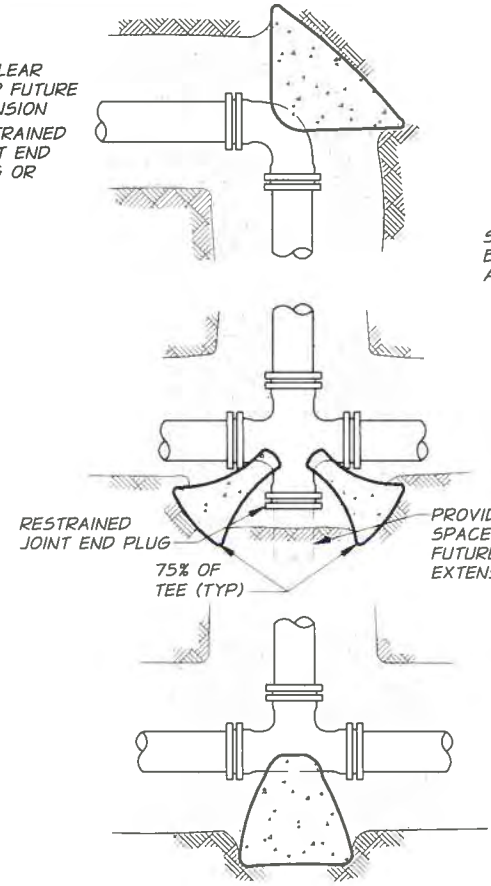
SOIL	SAFE BEARING LOAD LB/SQ.FT.
SOFT CLAY	500
SILT	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED WITH CLAY	4,000
HARD CLAY	4,000

TABLE NO. 3

SIDE THRUST PER 100 LB./SQ.IN. PRESSURE PER DEGREE OF DEFLECTION			
PIPE SIZE	SIDE THRUST-LB	PIPE SIZE	SIDE THRUST-LB
4"	N/A	14"	360
6"	N/A	16"	470
8"	N/A	18"	600
10"	190	20"	730
12"	270	24"	1,050

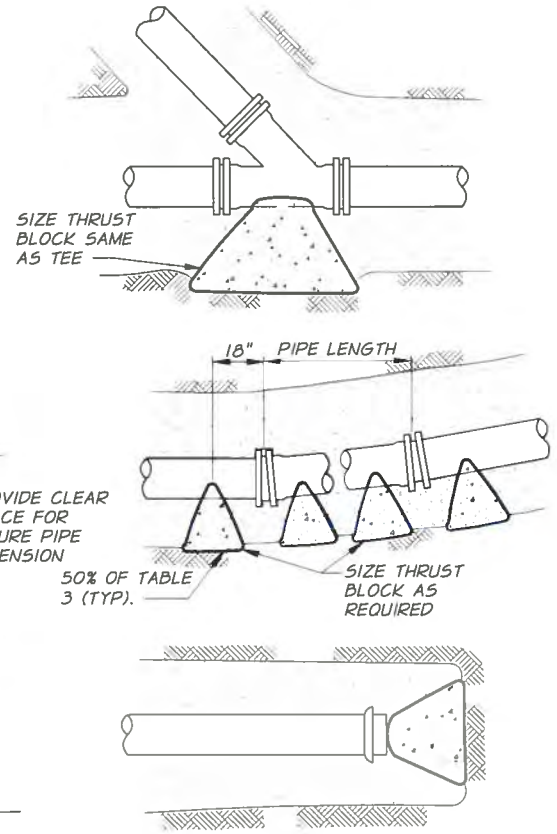
MULTIPLY THRUST BY DEGREE OF DEFLECTION TO OBTAIN TOTAL THRUST

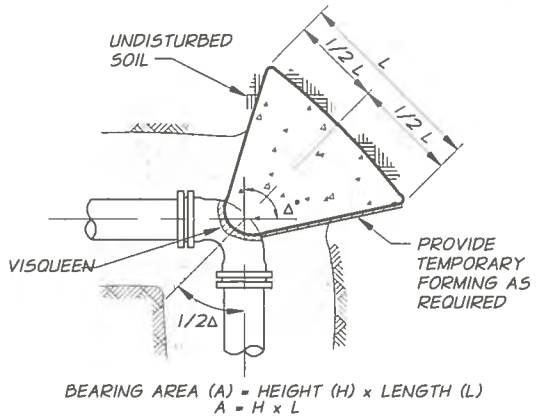




TYPICAL THRUST BLOCK LOCATIONS

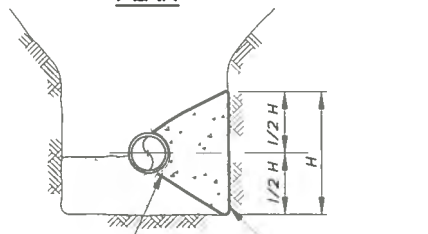
PLAN VIEWS





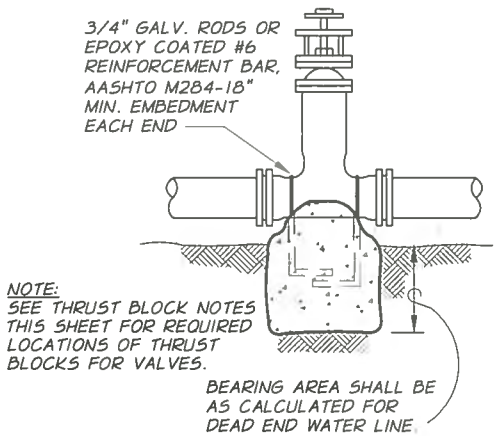
BEARING AREA (A) = HEIGHT (H) x LENGTH (L)
A = H x L

PLAN

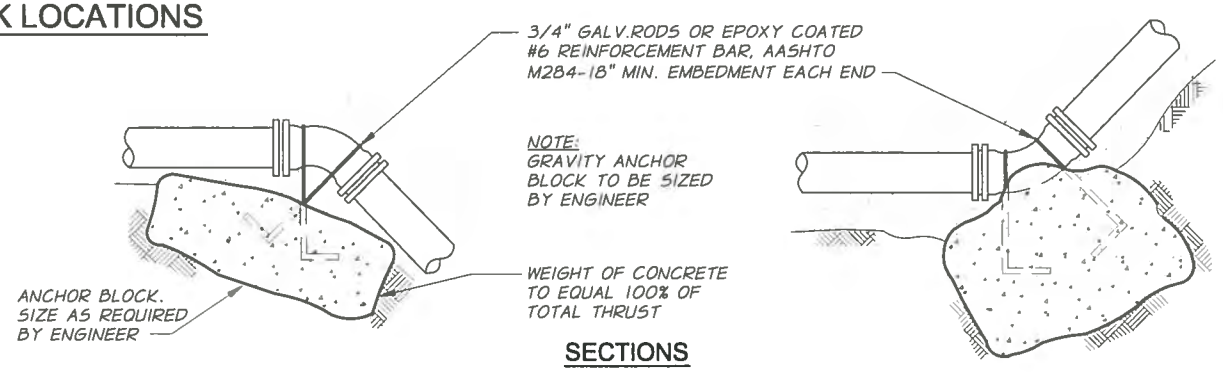


SECTION

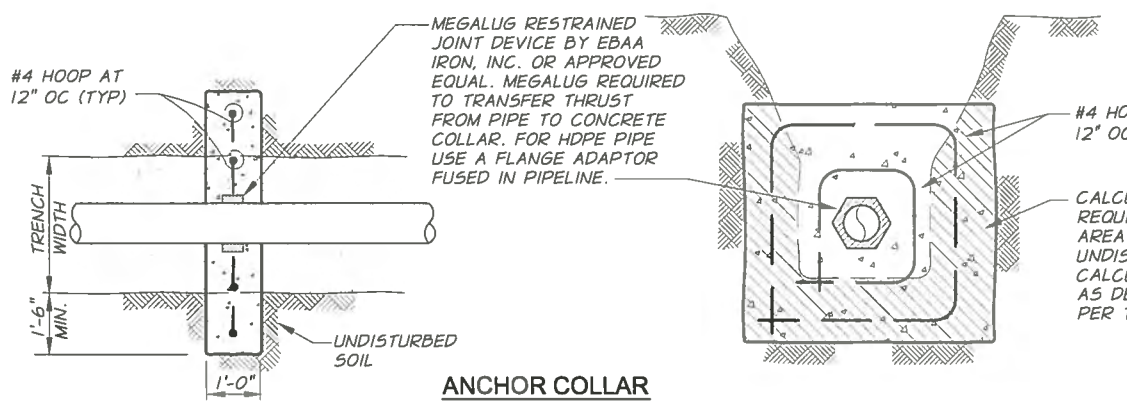
TYPICAL THRUST BLOCK DETAILS



TYPICAL VALVE THRUST BLOCK



SECTIONS



ANCHOR COLLAR

TYPICAL ANCHOR BLOCKS

REGISTERED PROFESSIONAL ENGINEER
83517PE
OREGON
NOV. 10, 2009
CHAS B. HUTCHINS
RENEWS 06-30-17
SIGNED 07-31-15

REVISION	BY	DATE

DESIGNED BY L. UMPLEBY
DRAWN BY L. WILLHITE
REVIEWED BY B. MOORE
XREFS: Dillon Pipeline-TB.dwg
HORZ. SCALE NO SCALE
VERT. SCALE
JOB NUMBER 1280-02
DATE 2015
ACAD FILE: ThrustBlk.dwg

THIS DRAWING HAS BEEN REDUCED 50%. ADJUST SCALE ACCORDINGLY. BARSCALE SHOWN IS ACCURATE.

anderson perry & associates, inc.
engineering · surveying · natural resources
LA GRANDE, OR. WALLA WALLA, WA

WESTLAND IRRIGATION DISTRICT
DILLON DAM PIPELINE

THRUST BLOCK DETAILS

SHEET
15

Oregon
Kate Brown, Governor

Department of Fish and Wildlife
John Day Watershed
East Region
73471 Mytinger Lane
Pendleton, Oregon 97801
(541) 276-2344
FAX (541)276-4414

February 24, 2016

Jonathan Staldine
Executive Director
Umatilla Basin Watershed Council
920 SW Frazier Ave., Suite 210
Pendleton, Oregon 97801

Subject: Dillon Dam Removal and Pipeline Construction on the Umatilla River

We are writing to express our support for the Umatilla Basin Watershed Council (UBWC) in their endeavor to attain the Oregon Department of Fish and Wildlife Restoration & Enhancement (ODFW R&E) grant. If awarded this grant, UBWC would be able to fund the imperative task of installing a pipeline as part of the Dillon Dam removal project.

The Dillon Dam has been identified as an obstruction or fish passage and has been identified as a location of major fish passage delay for various species including federally listed Middle Columbia Summer Steelhead and Bull Trout. The Umatilla River supports annual returns of Fall Chinook, Spring Chinook, Coho and Summer Steelhead with annual returns averaging over 20,000 fish annually. A majority of these fish are destined for spawning grounds in the upper watershed and must pass the Dillon Dam on their migration upstream. To allow for the proposed removal of Dillon Dam, the UBWC must first install a pipeline which will eliminate the need for Dillon Dam as an irrigation diversion. The pipeline will connect to another existing canal system which is equipped with state of the art fish passage facilities. The ODFW Fish screening and passage project has committed to completing the physical work of removing Dillon Dam in 2017 following installation of the pipeline. Extraction of the Dam will lead to restored fish passage and the reestablishment of a more natural flow pattern.

We endorse the Umatilla Basin Watershed Council in their efforts to seek additional funding through ODFW R&E for the installation of a pipeline as part of the Dillon Dam removal project. If you have any questions or would like to discuss our support for the UBWC's work, please feel free to contact Jacquelyn DeAngelo at 541-276-2344 or email jacquelyn.a.deangelo@state.or.us.

Kind regards,

[redacted]

Jacquelyn A. DeAngelo
ODFW Fish Habitat Biologist

William B. Duke
ODFW District Fish Biologist

Confederated Tribes *of the*
Umatilla Indian Reservation

DNR Fish & Wildlife Programs

46411 Timíne Way
Pendleton, OR 97801

www.ctuir.org email: info@ctuir.org
Phone 541-276-3447

February 23, 2016

Jonathan Staldine
Executive Director
Umatilla Basin Watershed Council
920 SW Frazier Ave., Suite 210
Pendleton, Oregon 97801

Subject: Pipeline Construction for Dillon Dam Removal-Umatilla River

As fishery co-managers in the Umatilla River Subbasin and in support of the First Foods and River Vision Principles, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) has an interest in improving anadromous fish populations through maintaining and restoring functional watershed and floodplain processes. We support the Umatilla Basin Watershed Council's (UBWC) efforts to obtain Oregon Department of Fish & Wildlife Restoration & Enhancement (ODFW R&E) funding to install the necessary pipeline in support of future Dillon Dam removal. The overall effort of this project will eliminate a fish passage obstacle, while improving irrigation efficiency through decreased operation and maintenance expenses within the lower Umatilla River Subbasin.

The Umatilla River Subbasin supports various life stages of anadromous and resident fish including ESA-listed Mid-Columbia River steelhead, ESA-listed Columbia bull trout, spring and fall Chinook and Coho salmon, and Pacific lamprey as well as other resident aquatic species important to the Tribes. Removing Dillon Dam will clearly benefit all of these fish species and anglers in two main ways: 1) improve fish passage; and, 2) improve boat passage. Dillon Dam does not meet current fish passage criteria. Additionally, passage conditions are often degraded after high flow events when coble and gravels inundate the ladders, blocking access to fish ladders. Regular removal of gravel by heavy equipment in the stream is required to maintain fish passage. Listed bull trout and juvenile steelhead descend from the Umatilla headwaters in the fall through this structure and need to then return to the headwaters in the spring before water temperatures in the lower Umatilla become too warm, which they cannot. Pacific lamprey passage at this structure is particularly problematic. Through radio telemetry studies the CTUIR found that Dillon had the lowest mean fitted probability for lamprey passage upstream of any of the seven irrigation dams on the mainstem Umatilla River. Finally, fishermen that float the Umatilla River can have significant difficulty passing Dillon Dam safely.

At this time, CTUIR has prioritized $50,000 in Bonneville Power Administration cost share funds to design the dam removal in 2016. We endorse the UBWC to seek additional funds through ODFW R&E for a project cost-share towards irrigation pipeline construction as part of the removal of Dillon Dam. We appreciate this coordinated partnership developed for planning and implementation of this project to restore high quality ecological conditions in the Umatilla River Subbasin.

Please feel free to contact Richard Christian at 541-429-7283 with any additional questions about CTUIR's support for this proposal within the Umatilla River Basin.

Sincerely,

[redacted]

Gary A. James

Fisheries Program Manager

Oregon
John A. Kitzhaber, MD, Governor

Water Resources Department
Watermaster
116 SE Dorion Avenue
Pendleton, OR 97801
Phone: (541) 278-5456
FAX: (541) 278-0287

October 11, 2011

Oregon Watershed and Enhancement Board
775 Summer St. NE, Suite 360
Salem, OR. 97301-1290

RE: Dillon Dam Remediation and Stream Restoration Project.

Dear OWEB Reviewer:

This letter is to express support for the Dillon Dam Remediation and Stream Restoration Project as sponsored by the Umatilla Basin Watershed Council. The mid and lower reaches of the Umatilla River River, are located within a high priority water availability basin as identified by Oregon Water Resources Department (OWRD) and Oregon Department of Fish and Wildlife (ODFW).

Modification of diversion dams which interfere with fish passage is a high priority for OWRD as part of the Oregon Plan for Salmon and Watersheds. The Umatilla River provides habitat for several Salmon species as well as ESA listed Summer Steelhead.

Our understanding is that the Dillon Diversion Dam is a concrete and wood structure that impedes fish passage. The removal of this barrier fits well within the objectives of Oregon Plan for Salmon and Watersheds. We strongly support the project and the funding necessary to complete it.

If you have any questions, please contact me at 541-278-5456.

Sincerely,

[redacted]

Watermaster, District 5

Cc: Greg Silbernagel, UBWC

October 13,2011

Double M Ranch, Inc
P.O. Box 398
Echo, OR 97826
P
Phone: 541-376-8317
Fax: 541-376-8190
E-mail: miketay@eotnet.net

To Whom it may Concern,

Double M Ranch, Inc is a landowner in the Dillon Irrigation Company. We own approximately 1200 acres with Dillon water rights of which 2/3 are grass pastures and 1/3 cropland.

The Dillon water comes out of the Umatilla River at the Dillon Dam and travels approximately 1 mile in an open and unlined ditch until the water reaches the first ground to be irrigated. From this point on, the Dillon water is transported through a system of open and unlined ditches to irrigate the ground within the Dillon Irrigation Company.

The Dillon Irrigation Company has studied options to improve our irrigation system. They have looked at ways to increase efficiency, alleviate head fluctuation, and decrease maintenance costs. One option is a pipeline out of Westland Irrigation District's canal. A pipeline would eliminate head fluctuation and maintenance costs for the dam. A pipeline would also eliminate maintenance costs for ODFW on their fish screen and fish passage facilities and for ODWR flow measuring site. We are very interested and would be willing partners in developing plans for a pipeline and removal of the Dillon Dam from the Umatilla River.

Double M Ranch, Inc
Patsy Taylor – Stanfield Ranch Manager

Dillon Dam Removal Scoping Report

Prepared For:

Greg Silbernagel
Execu ve Director
Uma lla Basin Watershed Council

Umatilla Basin Watershed Council

Through Funding Provided by:

Oregon Watershed Enhancement Board (#212-6033)
Oregon Water Resources Department (GC 0041 13)

OWEB

WRD

RIVER DESIGN GROUP, INC.

Montana	5098 HWY 93 South	Whitefish, MT 59937	P 406.862.4927
Oregon	311 SW Jefferson Avenue	Corvallis, OR 97333	P 541.738.2920

December 2013

Executive Summary

The Umatilla Basin Watershed Council (UBWC) retained River Design Group, Inc. (RDG) to develop a scoping plan for removal of the Dillon Dam on the Umatilla River. The dam is located at river mile 25 and is 2,500 ft upstream of the Interstate 84 bridge crossing. The scoping study was initiated as a means to provide the UBWC and stakeholders with planning level information and analysis to evaluate potential impacts on the Umatilla River if the Dillon Dam is removed. A stakeholder meeting was conducted on February 21, 2013, to solicit feedback and input on the Dillon Dam and initial project scoping concepts.

Dillon Dam is a cast-in-place concrete dam that spans 193 ft across the Umatilla River with two – 8 ft wide fish/lamprey ladders located on each side of the dam. The concrete dam has a longitudinal length of 8 ft and a hydraulic height of 4.8 ft without the potential boards that can raise the height an additional 1.2 ft. The dam currently provides fish passage but does not meet current fish passage criteria and potentially hinders lamprey passage. The dam influences vegetation patterns, sediment transport, and hydraulics upstream approximately 1,300 ft.

Removal of the Dillon Dam will have little to no impact on river processes and surrounding environs based on initial analysis of sediment transport conditions and the current influence of the dam on the river. Furthermore, hydraulic conditions for fish passage will be improved with removal of the dam. The Dillon Dam can be removed using standard construction techniques and machinery. Removal of the dam and restoration of the channel is an approximate two month construction process that can be performed during the standard in-water work period. Restoration of the reservoir area and floodplain are also recommended actions to restore long-term, sustainable river processes.

Dam removal is a unique undertaking, but based on previous projects of similar scale and complexity, a two year timeline is adequate to perform the necessary design and permitting for removal of the Dillon Dam. A cost estimate is presented that details likely outlays during each phase of the project. Total cost, in 2013 dollars, for the project are estimated at $436,000 and includes planning, design, permitting, permit fees, dam removal, and restoration of the site.

Table of Contents

1 INTRODUCTION

The Umatilla Basin Watershed Council (UBWC) retained River Design Group, Inc. (RDG) to develop a scoping plan for removal of the Dillon Dam on the Umatilla River. The dam is located at approximately river mile 25, 2,500 ft upstream of the Interstate 84 crossing, as shown in the project vicinity map (Figure 1-1). The scoping plan was initiated as a means to provide the UBWC and stakeholders with planning information and analysis in preparation for removing Dillon Dam.

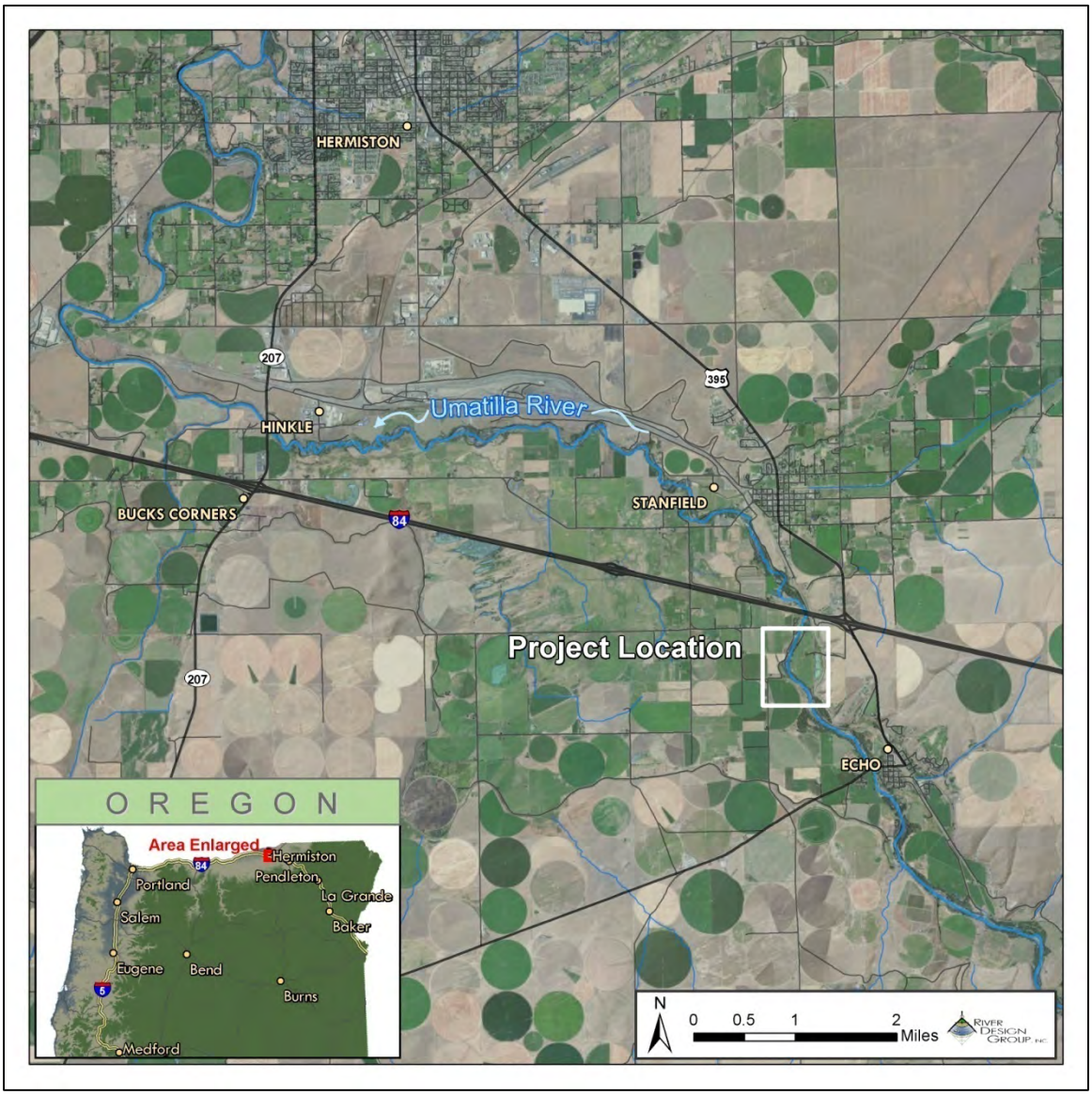


Figure 1-1. Project vicinity map for Dillon Dam on the Umatilla River.

1.1 Project Scope

The project scope of work (SOW) consists of the following tasks:

- **Task 1 Topographic Survey of Existing Conditions** – Complete site survey using a survey-grade GPS, data collection to include a longitudinal river and water surface profile and

necessary geometric data to develop a hydraulic model of existing site conditions. Additional data would be gathered in and around the dam to help estimate quantities of concrete and obtain a better understanding of restoration required around the dam site and construction access. A plan and profile drawing of existing site conditions would be developed.

- **Task 2 Sediment & Geomorphic Evaluation** – Obtain river sediment characteristics upstream and downstream of the dam and evaluate the likely trends of the river by looking at historical channel forms and historical channel aerials. Specific evaluation output will pertain to "hard points"; including rip rap banks, channel levees, and the Interstate 84 bridge crossing.

- **Task 3 Stakeholder Meeting** – Present findings of initial data collection and sediment/geomorphic evaluation to stakeholders.

- **Task 4 Dam Removal and Restoration Cost Estimate** - Develop cost opinions associated with design, permitting, dam removal and stream restoration activities.

1.2 Standard of Practice

RDG works exclusively in the river environment and employs the most current and accepted practices available for planning and design of restoration and channel enhancement projects. The analysis for the Dillon Dam scoping plan relied on current fish passage criteria from Oregon Department of Fish and Wildlife (ODFW) and HEC-RAS hydraulic modeling of existing and proposed conditions. All work was performed or directed by a registered professional civil engineer with past experience in the design and implantation of dam removals.

Figure 1-2. Existing Dillon Dam on the Umatilla River.

2 WATERSHED OVERVIEW

The following watershed overview information is taken primarily from the Umatilla Sub-basin Assessment (Maudlin 2000).

The Umatilla River is located in northeastern Oregon, between the Blue Mountains and the Snake River. Flowing in a westerly direction to the Columbia River, the Umatilla River drainage includes nearly 2,550 square miles in Umatilla and Morrow counties. Basin elevations range from 5,800 ft on Thimbleberry Mountain, to 220 ft at Irrigon, Oregon.

The mainstem Umatilla River is formed by the confluence of the North and South Forks. The principal tributaries of the Umatilla River are, in downstream order: Meacham Creek, Wildhorse Creek, McKay Creek, Birch Creek and Butter Creek. All of the primary tributaries, except Wildhorse Creek, drain the Blue Mountains and enter the Umatilla River from the south. Wildhorse Creek drains the divide between the Umatilla River and the Walla Walla River to the north. The North and South forks of the Umatilla River and Meacham Creek watersheds account for approximately 14 percent of the Umatilla River Sub-basin drainage area yet supply 40-50 percent of the average flow to the Umatilla River (UNF 1999).

As the Umatilla River and its tributaries flow to the Columbia River, they cross a varied landscape. The river and many of its tributaries begin in the Blue Mountain Physiographic Province, which is characterized by a deeply incised upland surface and a ramp-like slope called the Blue Mountains Slope (USACE 1947). The Blue Mountains Province consists of flat-topped ridges and steep stair-stepped valley walls formed by thousands of feet of Miocene basalt flows that surrounded and largely engulfed the batholithic core of the mountains (USACE 1947). The structural deformation of the basalt and its subsequent erosion create the varied topography of the sub-basin.

2.1 Climate

The climate within the Umatilla Sub-basin is subject to different large-scale patterns, depending on the location within the sub-basin. A major influence on the regional climate is the Cascade Mountains to the west, which form a barrier against warm, moist fronts from the Pacific Ocean. The Columbia Gorge provides a break in the curtain of the Cascade Mountains and allows an oceanic climate to penetrate into the northern Blue Mountains (Johnson and Clausnitzer 1992). This penetration of oceanic climate allows vegetation more common to the west slopes of the Cascades to be present in the northern and northwestern portions of the Blue Mountains (Johnson and Clausnitzer 1992). The climate in the Umatilla Sub-basin is characterized by light to moderate precipitation and a wide range in seasonal temperatures. The topography is diverse, which leads to a marked spatial variation in temperature and precipitation within the sub-basin. Temperature decreases and precipitation increases at higher elevations, which has profound implications for the aquatic ecosystem in the Umatilla Sub-basin.

The climate varies across the Umatilla Sub-basin, from warm and semiarid at the lower elevations to cool and relatively wet at higher elevations. Precipitation across the sub-basin falls mainly in the winter, with a majority falling between late fall and early spring. Reflecting the seasonal variation in precipitation, the average monthly discharge of the Umatilla River (measured at RM 2.1) varies from 23 cubic feet per second (cfs) in July to 1,095 cfs in April.

Intense storms are common in the Umatilla Sub-basin, often coming in the springtime when the sub-basin is susceptible to rain-on-snow events. The U. S. Army Corps of Engineers (1955) identified the storm of May 26-30, 1906 as their "standard project general storm", a storm that would produce a flood exceeded only on rare occasion. The 1906 flood was chosen because of its occurrence during a period of higher temperatures, with resultant greater percentage of the precipitation falling as rain and therefore having a greater contribution of snowmelt runoff (USACE 1955).

The climate of the region creates a natural "feast or famine" situation, with seasonal flooding and drought cycles. Many of the larger tributaries lose surface flow during the summer through parts of their length.

2.2 Geology

The Miocene basalt that characterizes the Umatilla Sub-basin belongs to a regionally widespread series of flows known as the Columbia River Basalt (CRB). Dating from 6 to 16.5 million years before present, the CRB covers much of eastern Washington, eastern Oregon and southern Idaho (Swanson et al. 1979, cited in Gonthier and Bolke 1993). Three major basalt formations occur in the Umatilla Sub-basin: the Saddle Mountains Formation, the Wanapum Formation and the Grande Ronde Formation. Each basalt formation is an aggradation of smaller individual flows sharing similar flow histories and chemistry extruded from a regional volcanic vent system and filling the shallow structural basin of the Columbia Plateau (Gonthier and Bolke 1993). The flow thickness can range from 5 feet to as much as 150 feet, and collectively is estimated to be hundreds to thousands of feet thick (Newcomb 1965).

As the streams leave the canyons of the Blue Mountain Province and flow through the sub-basin, they cross a wide expanse of plains and terraces known as the "Valley" Physiographic Province (Newcomb 1965). The Valley Province is comprised of Tertiary and Quaternary loess, alluvium, glacio-fluvial, lacustrine, and pediment deposits, which mantle the CRB across much of the lower elevations (Newcomb 1965). In the plateau area, many intermittent streams are tributary to the Umatilla River. Deep channels characterize most of these creeks, but most only carry water during periods of snowmelt or sustained rainfall. There is little run-off from lands in the lower Umatilla Sub-basin because of low precipitation, flat surface relief and sandy soils (BOR 1954).

During the Tertiary, ancestral streams washed the oldest of the valley sedimentary deposits down from the canyons of the Blue Mountains and deposited them along the mountain front (Gonthier and Bolke 1993). Quaternary deposits of wind-borne silt, or loess, blanket much of the Tertiary deposits and basalt flows in the sub-basin, creating an undulating landscape where they are present. The source material for the loess deposits was likely derived from flood-deposited material left from the massive Bretz Floods that periodically inundated large areas of the Columbia Plateau over a 2,000 year period from 15,000 to 12,800 years ago (Gonthier and Bolke 1993). The highly productive soils that make the region famous for its agriculture are largely derived from these Quaternary and Tertiary deposits.

2.3 Channel Morphology

The Umatilla River through the project reach flows west-northwest in a moderately broad valley with gentle, down-valley elevation relief. The valley floor is predominantly comprised of alluvial terraces and floodplains. These depositional landforms are capable of producing a high sediment supply. Undisturbed rivers in this valley type are typically characterized by meandering channels that are only slightly entrenched, meaning that they have access to a broad floodplain. Presently, cropland occupies terraces that were once floodplains and lower level floodplains accessed during higher peak flows such as the 10-year event.

2.4 Fisheries

The Umatilla Sub-basin currently supports several species of salmonids, including natural and hatchery steelhead/redband trout (Oncorhynchus mykiss), mountain whitefish (Prosopium williamsoni), bull trout (Salvelinus confluentus), fall and spring Chinook salmon (O. tshawytscha) and coho salmon (O. kisutch) as summarized in Table 2-1. Historically, the aquatic community of the Umatilla River was probably more diverse and several species more abundant than currently is the case (CTUIR and ODFW 1990). It is also likely that many of the current species were more widely distributed throughout the sub-basin. The historic presence and current absence of natural coho and fall Chinook salmon populations further suggests that changes to the habitat of these species in particular, occurred in the Umatilla Sub-basin.

Eastern brook trout (S. fontinalis) were once stocked in Meacham Creek and ponds in the lower sub-basin (Oregon State Game Commission 1963), but are now considered absent (Buchanan et al. 1997). Piscivorous species, such as northern pikeminnow, bass and bull trout are present in much of the Umatilla Sub-basin (Contor et al. 1998).

Table 2-1. Native salmonids, native non-salmonids, and non-native fish species in the Umatilla River.

Native Species	Non-native Species
Salmonids Natural and hatchery steelhead/redband, Oncorhynchus mykiss Bull trout, Salvelinus confluentus Spring Chinook salmon, O. tshawytscha Fall Chinook salmon, O. tshawytscha Coho salmon, O. kisutch Mountain whitefish, Prosopium williamsoni	Largemouth bass, Micropterus salmoides Smallmouth bass, Micropterus dolomieui Bullhead, Ameiurus sp. Bluegill, Lepomis macrochirus Pumpkinseed, Lepomis gibbosus White crappie, Pomoxis annularis Carp, Cyprinus carpio
Lamprey Pacific lamprey, Lampetra tridentata Western brook lamprey, Lampetra richardsoni	
Minnows Speckled dace, Rhinichthys osculus Northern pikeminnow, Ptycheilus oregonensis Redside shiner, Richardsonius balteatus Chiselmouth, Acrocheilus alutaceus	

Table 2-1. Native salmonids, native non-salmonids, and non-native fish species in the Umatilla River.

Native Species	Non-native Species
Suckers	
Catostomus sp.	
Sculpins	
Paiute sculpin, Cottus beldingi	
Margined sculpin, Cottus marginatus	

2.4.1 Fish Passage

Fish passage at Dillon Dam is provided by fish ladders on each side of the existing structure as shown in Figure 2-1. Field observations by Craig Contor, CTUIR monitoring and evaluation project leader, showed that fall Chinook and coho salmon have historically stacked up at the base of the dam trying to pass with little or no success (C. Contour, CTUIR, email 2013). In addition, fish passage success appears to be highly variable depending on flows and sediment deposition in and around the ladders, primarily sediment deposition near the ladder on river-left. Actual physical monitoring of the diversion in 2009 - 2011 revealed that upstream passage is working but Dillon Dam has the longest passage times of all diversions in the lower mainstem Umatilla River for fall Chinook salmon (Contor 2012).

Figure 2-1. Upstream views of existing fish ladders on each side of existing Dillon Dam.

A thorough evaluation of the fish ladders was not completed as part of the dam removal scoping. However, it appears that the existing fish ladders do not meet current criteria provided by the National Marine Fisheries Service (NMFS) and ODFW. The river-right fish ladder has a jump height that exceeds 1 ft at many flow levels during anadromous fish movement at the downstream end of the fish ladder. The river-left fish ladder has a history of sediment deposition in and around the ladder that inhibits adult fish from accessing the ladder due to shallow water depths.

2.5 Current Land Use

Agriculture is the primary land use in the middle and lower Umatilla River as illustrated in Figure 2-2. The U.S. Bureau of Reclamation (BOR) Umatilla Basin Project covers four irrigation districts: Stanfield (SID), Hermiston (HID), Westland (WID) and West Extension (WEID). The project currently furnishes a full supply of irrigation water to 13,679 acres and a supplemental supply to 12,499 acres (BOR 2000). The major features of the Umatilla Project are Cold Springs Dam and

Reservoir, located about 6 miles off-stream and filled by a feeder canal, McKay Dam and Reservoir, on McKay Creek, and three mainstem Umatilla River diversion dams: Feed Canal, Maxwell and Three Mile Falls (BOR 2000).

With the push into irrigated agriculture that came at the turn of the century, many of the riparian areas became a direct hindrance to productive agriculture. This may be the period when extensive channel alteration began in the Umatilla Sub-basin (Nagle 1998). Landowners moved channels to the edge of valley and removed the riparian vegetation to maximize the arable alluvial area. Areas that were not cleared for agriculture were used for grazing. Local landowners conducted much of the alteration to the riparian habitat until the 1940s when the Federal government began flood control projects in the Umatilla Sub-basin. The U.S. Army Corps of Engineers developed several flood control proposals during the 1940s, most of which were not realized until after the devastating floods in December of 1964 and January of 1965. Channel alterations at Echo and Pendleton by the U.S. Army Corps of Engineers have proven detrimental to fish by spreading flows over a wider channel bottom and increasing the minimum flow required to maintain critical water depths (OSGC 1963).

Figure 2-2. Aerial view looking upstream at Dillon Dam and surrounding agricultural land areas.

3 DAM REMOVAL SCOPING

RDG completed detailed field data collection in October 2012 to characterize and survey the existing site conditions at Dillon Dam along with conditions upstream and downstream of the dam. Data collection included the topographic survey of the existing concrete dam and surrounding structures. Water surface elevations were collected along with velocity profiles at a defined cross section located downstream of the dam for calibration of the hydraulic model. RDG data collection efforts utilized a survey-grade GPS (Trimble R8) system. RDG also established horizontal and vertical control benchmarks for use throughout the project area.

Light Detection and Ranging (LiDAR) data was acquired for the project area August 26, 2013 by Watershed Sciences, Inc. Average density for ground classified point returns was 6.9 points per square meter. The average absolute accuracy between the ground surface model and RTK ground survey check points collected in the project areas was 0.003 meters. Deliverables used in surface modeling for the Dillon Dam project included ground classified points in LAS format as well as bare earth digital elevation models (DEMs) in ESRI grid format. Deliverables were provided in the horizontal datum of NAD83 projection UTM Zone 11N. Vertical datum was NAVD88 with both vertical and horizontal units in meters. LiDAR data was merged with GPS field survey data to create a comprehensive surface model with bathymetry of the project area (**Appendix A**).

Using data collected from the field survey, the existing sediment and geomorphic regimes were analyzed by performing hydraulic modeling of existing site conditions. This modeling was used to determine how removal of Dillon Dam would affect river processes and existing infrastructure including levees, rip rap banks, and the Interstate 84 bridge crossing which is located 2,500 ft downstream of the dam.

3.1 Existing Dam Structure

Dillon Dam is situated at the lower end of the Umatilla River watershed with a drainage area of approximately 1,400 square miles. It is located upstream of the Interstate 84 bridge crossing. Dillon Dam is a cast in place concrete structure. Figures 3-1 and 3-2 show the concrete structure and fish passage bays at time of survey. The dams' weir width is 193 ft, with two 8 foot wide fish/lamprey ladders located on either side of the weir. It has a longitudinal length of 8 ft, and has a hydraulic height of 4.8 ft. At the time of survey flashboards were installed to increase the hydraulic height to 6.0 ft. The two fish passage facilities are located on either side of the structure.

Figure 3-1. Site conditions during the March 7, 2012 site visit, 380 cfs. Photo is taken from downstream river-left gravel bar looking across the structure.

Figure 3-2. Site conditions during the October 24, 2012 site visit, 190 cfs. Photo is taken from the downstream river-right bank looking upstream at the structure. Note growth of gravel bar in foreground.

3.2 Hydrology

The Umatilla River is located in northeast Oregon, between the Blue Mountains and the Snake River. Flowing in a westerly direction to the Columbia River, the Umatilla River drainage encompasses nearly 2,550 square miles in Umatilla and Morrow counties. The Umatilla River drains primarily forested lands in the headwaters and agricultural lands through the majority of the middle and lower reaches of the watershed. Rural and urban residential development is common in the lower portion of the river with primary river-side towns including Pendleton, Echo, Stanfield, and Hermiston. The Umatilla River is influenced by historical river management and agriculture.

To determine peak flows at the Dillon Dam site a hydraulic analysis was completed. The best data for stream flow is developed from active stream gages with long periods of record but since the gage nearest the project site (Umatilla at I-84 Stanfield, OR #14031050) has a short record (18 years) and no available peak flow data, another widely accepted method was utilized to determine flow characteristics at the project location. The selected method was regionalization of nearby gages.

3.2.1 Regionalization of Nearby Gages

A peak flow analysis was completed for two nearby gages on the Umatilla River; Umatilla River near Yoakum, OR (#14026000), and Umatilla River near Umatilla, OR (#14033500). The three gages being along the same river have similar watershed characteristics. A summary of the three gages is provided in Table 3-1.

Table 3-1. Summary of nearby stream gages used for hydrologic predictions on the Umatilla River at Dillon Dam.

Characteristic	Umatilla River near Yoakum, OR USGS 14026000	Umatilla at I-84 Stanfield, OR OWRD 14031050	Umatilla River near Umatilla, OR OWRD 140335000
Gage Elevation (ft NGVD29)	770	600	330
Active Period	1905-1991	1994-2011	1903-2011
Period of Record (years)	87	18	108
Drainage Area (sq. miles)	1,270	1,400	2,290

The analysis was completed using the U.S. Army Corps' Hydrologic Engineering Center statistical software package (HEC-SSP) version 2.0 (USACE 2010). The statistical analysis program uses general frequency analysis techniques as well as Technical Bulletin 17B "Guidelines for Determining Flood Flow Frequency" (1982) to determine peak flows and duration based on historical gage data. Both gages have periods of record that meet the requirements for a robust flow frequency analyses that should include at least 20 years of flow data (IACWD 1982; Copeland et al. 2001). The gage flows are then related to the project location by proportioning catchment areas. A summary of the results is provided in Table 3-2 using a drainage area of 1,400 square miles at Dillon Dam.

Table 3-2. Summary of flow characteristics at Umatilla River gage sites adjusted by drainage area.

Recurrence	Umatilla River near Yoakum, OR (cfs)	Umatilla at I-84 Stanfield, OR (cfs)	Umatilla River near Umatilla, OR (cfs)
2-year	6,430	4,470	3,113
10-year	13,136	8,273	6,689
25-year	17,403	10,258	9,078
50-year	21,014	11,770	11,152
100-year	25,022	13,317	13,500
Annual Percent Exceedance			
95% low fish passage	53	4	2
5% high fish passage	2,690	2,150	1,339

Values obtained from the analysis of the Umatilla River near Yoakum, OR gage were used in the hydraulic analysis of peak flows at the project site due to the short period of record at the gage near Stanfield, OR. Annual percent exceedance flows (fish passage flows) were utilized from the gage located at the project site due to it providing the most accurate flows during times of diversion and water usage/storage. Design flows and associated significance are provided in Table 3-3.

Table 3-3. Summary of design flows at Dillon Dam project site.

Recurrence	Flow (cfs)	Notes
95% Exceedance	4	Low fish passage (due to diversions)
5% Exceedance	2,150	High fish passage
2-year	6,430	
10-year	13,135	
25-year	17,405	
50-year	21,015	
100-year	25,020	

3.3 Hydraulic Analysis

A hydraulic model was developed to evaluate sediment mobilization due to different flow regimes based on existing and proposed (post-dam removal) site conditions.

3.3.1 Hydraulic Model Capabilities

HEC-RAS v4.1.0 (USACE-HEC 2009) is a 1-dimensional, steady-state, hydraulic model which was used for the analysis of the Dillon Dam site. The model solves the energy equation using an iterative approach for a given hydraulic condition. This technique results in a solution to all variables in the energy equation (i.e., velocity, hydraulic head, fiction losses, etc.) at any given or interpolated cross-section. Inherent assumptions of the model are that the situation is steady-state, gradually varied, channel slopes are less than 1 on 10, and flow is 1-dimensional and uniform within a streamline. The model has the ability to simulate subcritical flow, supercritical flow, and a combination of the two for open channels. The model will produce average channel velocities at each cross-section and has the ability to produce pseudo two-dimensional velocities

at a cross-section. The model also has the capability to perform a split flow analysis between open channels under a range of flow conditions, and to model in-stream hydraulic structures.

3.3.2 Model Data Development

HEC-RAS requires several model inputs including channel geometry, hydrologic information, roughness coefficients, velocity head reduction coefficients and model boundary condition information. A steady-state, hydraulic model of the project site was developed in HEC-RAS and consists of the project site stream reach and representative channel hydraulic sections. Project geometry was developed for both pre-project and post-project conditions representing the existing ground, and the site with the dam removed. Existing site geometry was developed from pre-project ground survey data comprised of topography/bathymetry collected by RDG in 2012. AutoCAD Civil 3D 2012 was used to model an existing condition terrain surface from collected survey data. Cross-sections were generated at channel control sections throughout the project site. Cross-section data was then exported for use in HEC-RAS using Autodesk Project River Analysis 2012, a front end engine for HEC-RAS that automates geometry development for HEC-RAS and permits spatially dense geometry development. Figure 3-3 shows the hydraulic model layout with cross-section locations for the study.

Figure 3-3. Plan view of hydraulic model layout showing cross-section locations.

3.3.3 Model Calibration and Existing Conditions

The existing condition hydraulic model was calibrated using observed water surface elevations collected during the bathymetric survey. These known water surface elevations were entered into HEC-RAS and compared to the slope and elevation of the estimated field work water surface elevations. The existing model produced a baseline set of conditions that dam removal alternatives could be compared with to understand and quantify the potential changes in stream parameters such as velocity and shear stresses caused by dam removal.

3.4 Sediment Evaluation

Six pebble counts, three upstream and three downstream of the dam, were collected in riffles to help determine the mobile particle size and how dam removal would affect sediment movement through the site (Wolman 1954). Pebble count data are presented in Table 3-2 and Figure 3-4. The existing river sediment within the project reach is predominantly comprised of "very coarse gravel" with an average D_{50} of 62 mm and a maximum particle size of 256 mm or "very large cobble". It can be deducted that the streambed extending ~1,300 ft upstream of the dam is comprised of smaller particles that have deposited within the backwater created by the dam. No sand or boulder size substrate materials were observed at the site.

Table 3-2. Pebble count data for project area. Stationing obtained from the Existing Conditions drawing 2.0, Appendix A.

	River Station						
Particle Class	1+00 (mm)	6+50 (mm)	11+30 (mm)	27+00 (mm)	35+50 (mm)	39+25 (mm)	Project Reach Avg (mm)
D_{16}	34	34	26	66	36	28	37
D_{50}	66	67	37	97	57	46	62
D_{84}	110	99	61	120	87	100	96
D_{100}	180	256	128	256	180	256	209

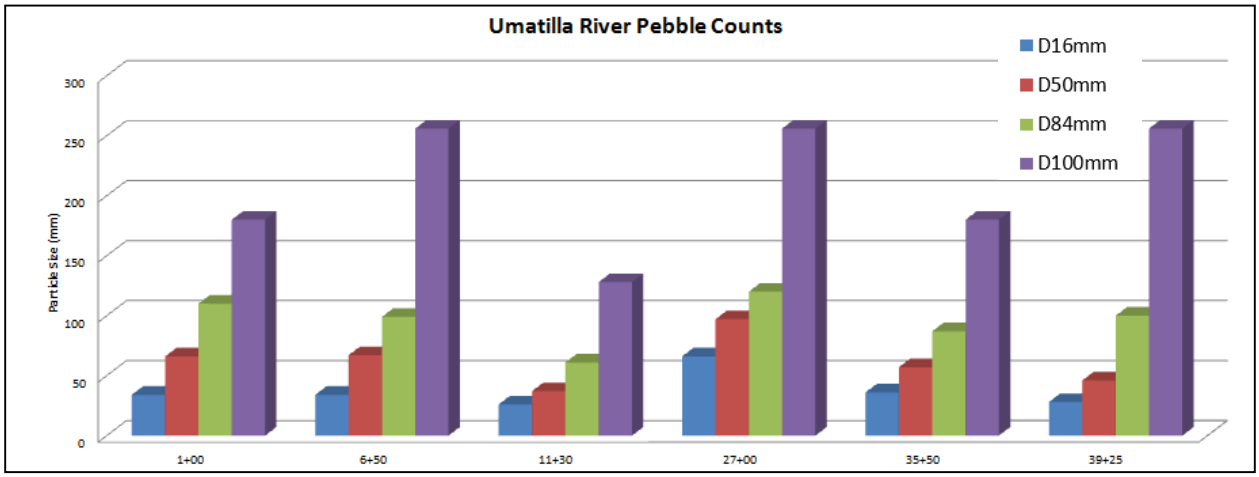


Figure 3-4. Bar graph depicting distribution of particle size. Station 1+00 is the most upstream measurement site with blue representing D_{16} and purple representing D_{100}.

Bank stabilization structures such as rip rap banks are common along the Umatilla River. The Dillon Dam site has rip rap banks located upstream adjacent to a large pool on the river-left side of the channel and is intended for bank protection along the 90-degree bend in the channel. Additional rip rap located downstream of the dam serves to hold the channel alignment and to protect the Interstate 84 crossing.

Additional anthropogenic features include a series of levees which aim to contain channel overflow and channel migration within a confined river corridor. The river corridor immediately upstream of the dam is bound by a levee on the river-right floodplain. The river-left road extending downstream from the dam acts as a levee bounding flow to the west ending at the

Interstate 84 right of way. There are no levees located on the river-right stream bank downstream of the dam, though the adjacent railway grade acts to bound flows on the floodplain east of the stream.

HEC-RAS allows a direct comparison of existing condition model results to the proposed restoration conditions to help ascertain hydraulic variability as a result of the proposed project. It was determined that the 10-year peak flow (13,135 cfs) would be used to analyze changes in sediment and geomorphic conditions associated with dam removal. This flow was selected because at flows higher than the 10-year peak the Umatilla River activates the adjacent river right floodplain and the conveyance area increases. Two stream parameters, average channel velocity and average channel shear stress were used in the hydraulic analysis of the proposed dam removal. Figure 3-5 provides a comparison between existing and proposed average channel velocity and shear stress at the 10-year peak flow. The plot shows an increase in velocity and shear stress upstream of the existing structure, a decrease in velocity at the removed structure site, and no change below the existing structure site.

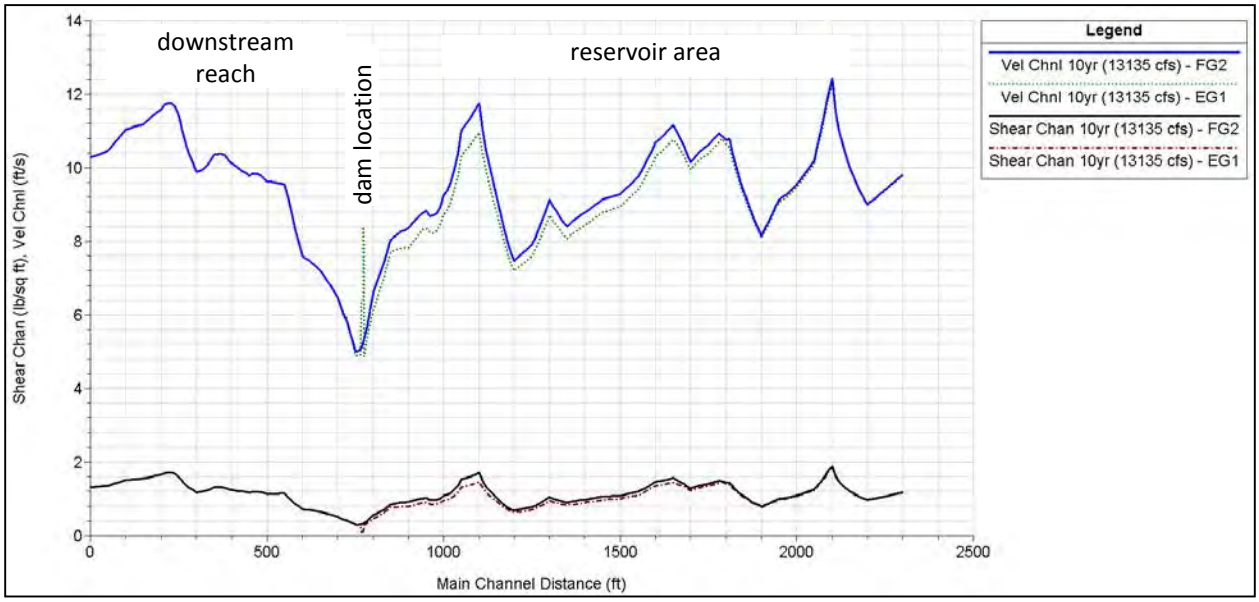


Figure 3-5. Cross sectional average velocity and shear comparison from existing (EG1) and proposed (FG2) condition models.

Figure 3-6 provides a water surface profile comparison between existing and proposed (no dam) conditions at the 10-year peak flow. The comparison shows a decrease in water surface elevation through the reservoir with the proposed water surface matching into the existing condition at the dam location and approximately 1,300 upstream at the upstream extent of the reservoir.

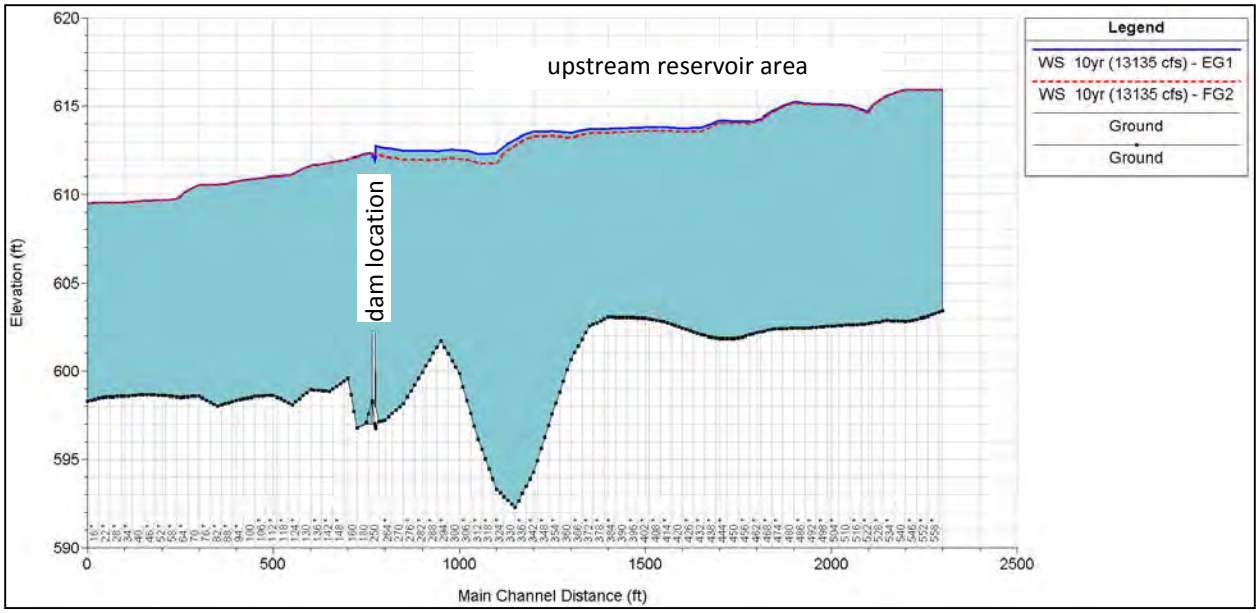


Figure 3-6. Longitudinal water surface profile showing existing (blue) and proposed water surface (red dash line).

Figures 3-7 and 3-8 provide typical velocity and shear stress plots for the existing and proposed conditions for the project site. Velocity and shear stress signatures change very little after the dam is removed due to the wide channel width near the dam site and the subcritical flow regime.

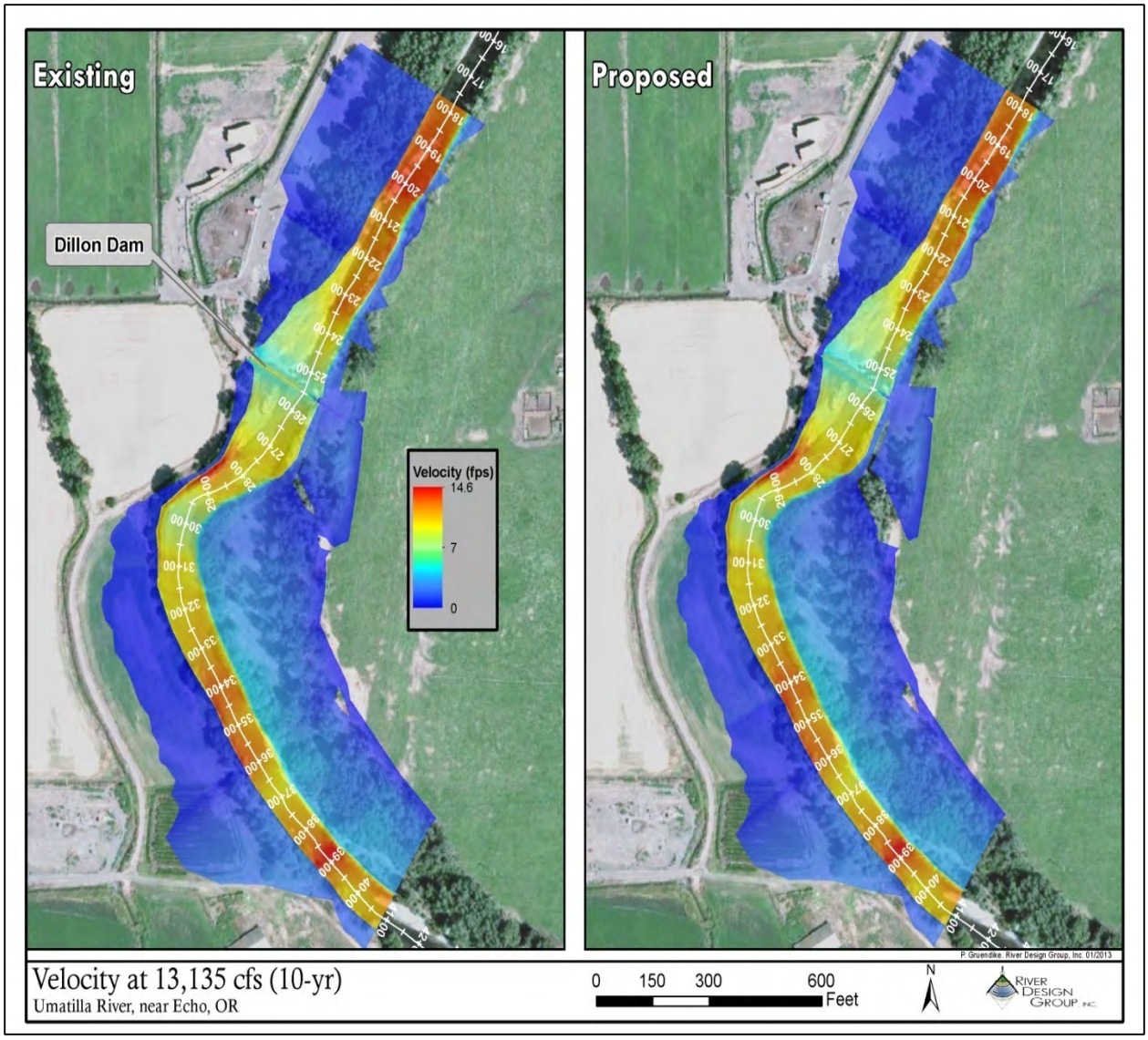


Figure 3-7. Velocity plots for existing and proposed (no dam) conditions based on the removal of Dillon Dam. Velocity changes are nearly indistinguishable due to the small influence Dillon Dam has at high flow conditions.

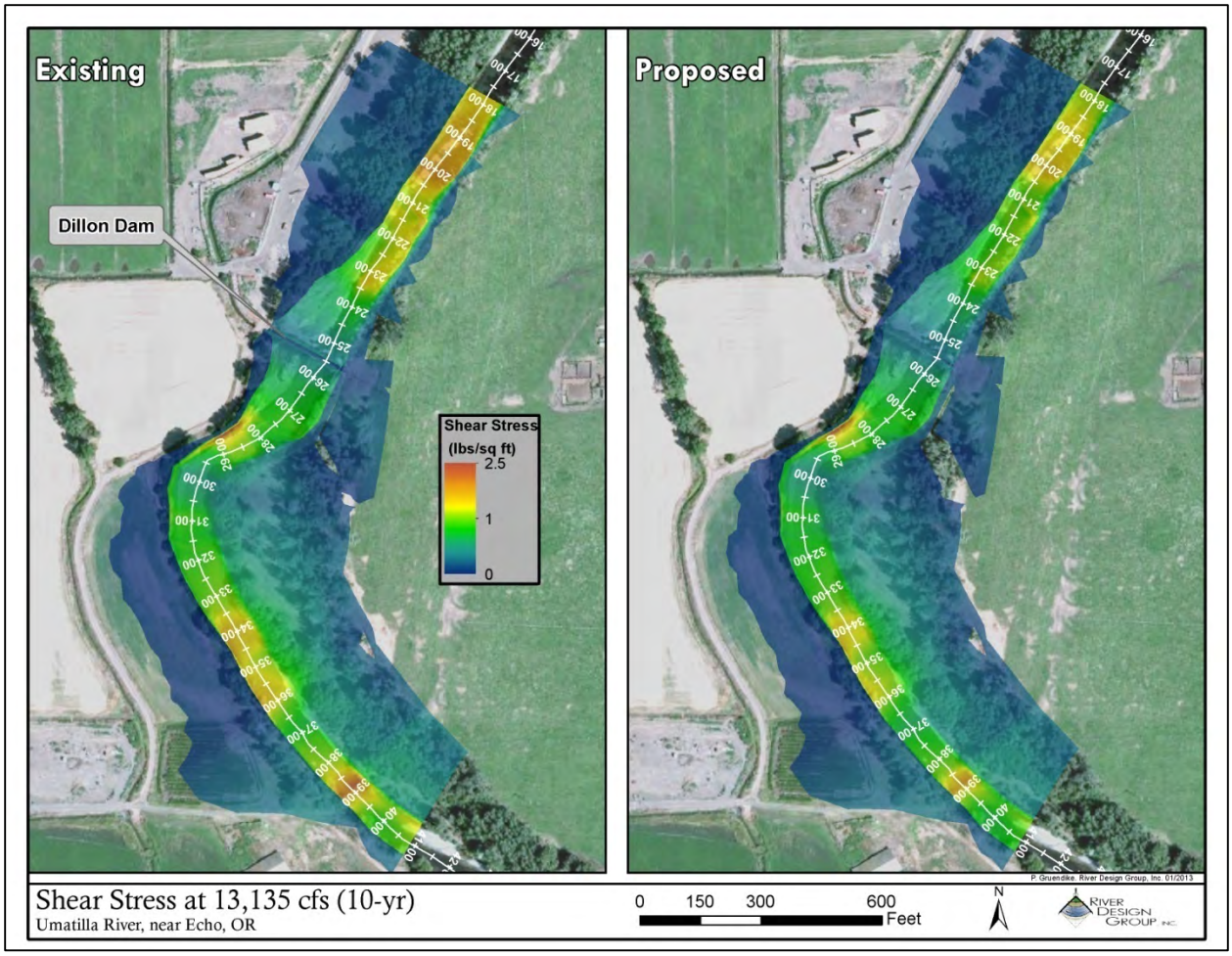


Figure 3-8. Shear stress plots for existing and proposed conditions based on the removal of Dillon Dam.

A summary of hydraulic variables that include channel velocity, shear stress, and mobile particle size are presented in Table 3-4. Results show that dam removal will cause minimal changes in these variables and therefore will have little or no perceivable change to existing river processes at the site. The analysis also shows that the zone of dam removal influence extends upstream approximately 1,300 feet and has no measurable influence downstream.

Table 3-4. Summary of hydraulic properties at the Dillon Dam site during the 10-year peak flow (13,135 cfs).

Hydraulic Variable	Existing Conditions	Proposed Conditions	Δ Change
Avg. Velocity (ft/s)	9.2	9.4	+0.15
Max. Velocity (ft/s)	12.3	12.4	+0.13
Avg. Shear Stress (lb/ft^2)	1.1	1.1	+0.05
Max. Shear Stress (lb/ft^2)	1.9	1.9	+0.04
Avg. Mobile Particle (mm)[1]	92	101	+9

[1]Average of Shields 1936 and Komar 1987

Mobile particle size was derived from the Shields sediment entrainment equation (1936) and the modified Shields equation developed by Komar (1987). Based on these equations the average mobile particle size will increase from 92 mm to 101 mm, remaining within the "medium cobble" classification (Wolman 1954). Based on streambed sampling completed at the project site it is expected that a 10-year event will mobilize the average D_{84} particle of 96 mm (Section 3.7). In the 1,300 ft upstream of the dam, both existing and proposed conditions are expected to mobilize the D_{95} due to the decrease in size of streambed sediment in this area. Any additional sediment mobilized from this area should deposit in the channel just below the existing dam as the cross-sectional area increases and velocities and shear stress decrease. The increase in mobile particle size should not influence streambed mobilization through this reach as can be seen by the considerable amount of excess sediment load in Figure 3-9.

Figure 3-9. Photo of high flow conditions during March 2011 showing large amount of mobile sediment in the Umatilla River that deposits in and around the dam and illustrates the lack of influence the existing dam has on river processes.

3.1 Dam Removal Impact on Surrounding Infrastructure

The primary concern with dam removal is the potential impacts downstream and upstream of the structure. Based on hydraulic modeling and sediment transport predictions, removing Dillon Dam will have no impacts on downstream stable features including rip rap banks and Interstate 84 bridge foundations. The primary stable river feature located within the dam's zone of influence is the river-left rip rap bank located between model sections 330 and 350 upstream of the dam. Within this area the average channel velocity is predicted to increase by ~0.5 fps at the 10-year flow and a shear stress increase of less than 0.1 psf. Based on these slight increases, it is expected that the rip rap will be able to withstand the minimally increased forces. Furthermore, the dam does not interrupt peak flows or sediment mobility and will have little or no impacts on river processes once removed.

4 DAM REMOVAL SEQUENCE

Since dam removal is a potential next step for stakeholders, a typical approach to dam removal is provided below to further explain the dam removal process. This approach is one that would likely be approved by the regulatory agencies, however, some modifications may be necessary for specific permit conditions that could arise during the consultation process. In addition, construction contractors could provide value engineering services to help reduce costs or improve deconstruction techniques for easier dam removal and restoration.

4.1 Construction Techniques

Due to the recent number of dam removal projects in the Pacific Northwest, there are multiple contractors in the region who have dam removal experience. The Dillon Dam does not warrant a high level of contractor expertise, but it is recommended that a contractor with experience doing in-water work be retained for the dam removal and stream restoration. The existing concrete dam can be easily removed using standard construction equipment and techniques for in-water work. The in-water work period established by ODFW for the Umatilla River is July 15 - September 30. No in-water work extension would be necessary to complete the dam removal due to the small size of the project. The following steps provide a likely construction sequence for removing Dillon dam:

Step 1 Work Area Isolation - One of the most important aspects of in-water work is isolation of the work area. Work area isolation creates a safer environment for construction activities and protects aquatic species and wildlife from the work area. By reducing or eliminating active stream flow in the work area, work area isolation also reduces the potential for sediment or sediment laden waters to enter active river flows. Work area isolation would be completed by isolating approximately half of the dam from moving water using sand bags or bulk bags filled with native sand and gravel as shown in Figure 4-1. Bulk bags are made of geotextile fabric and are similar to standard sand bags but on a larger scale. Since sand bags and bulk bags are filled with native sand and gravels, if they rip, only native materials are introduced to the stream. The materials are also relatively inexpensive, easily deployed and removed from the stream, and provide an effective means of work area isolation.

Figure 4-1. Use of large bulk bags filled with native river sand to isolate work areas in active channels.

Step 2 Salvage Aquatic Species - After the area is isolated, a fish salvage is performed to ensure that fish and aquatic species are removed from the work area. The fish salvage typically uses handheld dip nets, seine nets, and backpack electrofishing units in isolated areas as shown in Figure 4-2. Aquatic species obtained during the salvage would be placed back into the Umatilla River below the project and outside the isolated work areas.

Figure 4-2. Two-person crew uses a backpack electroshocker and dip nets to salvage fish from work area during a concrete dam removal project.

Step 3 Remove Half of Concrete Dam - The concrete dam is a small enough structure that it can easily be broken using a standard trackhoe (38,000 pound machine or greater) equipped with an air actuated pick. Figure 4-3 illustrates a typical trackhoe with a pick breaking concrete. Typically, another trackhoe with a bucket is available to load the broken concrete to off-road or 10-wheel dump trucks (Figure 4-4) for transport to appropriate off-site locations. Additional techniques can be implemented to ensure turbidity is minimized such as the installation of floating silt curtains as shown in Figure 4-5. Concrete removed from the site could be recycled for other construction projects, or disposed of at an approved disposal location.

Figure 4-3. A trackhoe equipped with a pick for breaking concrete for removal.

Figure 4-4. A trackhoe with a bucket and hydraulic thumb loads a dump truck with broken concrete for hauling off-site during a dam removal project.

Figure 4-5. An example of a floating silt curtain isolating an active work area from clean water flowing by the project site. Turbid water is contained within the work area by the silt curtain.

Step 4 Remove Remaining Half of Concrete Dam - Once half of the dam is removed, the active flow of the Umatilla River could be routed through this portion of the dam. The remaining portion of the dam could be removed from the other side of the channel, or a temporary bridge crossing could be constructed for access as illustrated in Figure 4-6.

Figure 4-6. An example of a temporary bridge installed over an active channel to access the opposite side of the river for dam removal and restoration work.

4.2 Restoration Concepts

Once the concrete dam structure is removed from the Umatilla River, a channel restoration plan would be implemented. The restoration plan would incorporate strategic restoration sites throughout the reservoir and dam site reach to ensure long-term stability and river recovery.

Figure 4-7. The reservoir area upstream and at the existing dam has abundant gravels suitable for fish habitat.

The existing channel has an average bankfull width of 110 - 130 ft with an average stream slope of 0.2%. The channel in the project reach is a gravel-bed system. Habitat diversity, lack of large wood, and overall lack of fish habitat are significant concerns that should be addressed in restoration design concepts. It is recommended that the reach impacted by the dam and reservoir affect (approximately 1300 ft) be fully restored versus stabilizing a small area where the dam is removed. The reason for this recommendation is to ensure restoration is done in a sustainable fashion that addresses river processes that can be naturally maintained over time instead of isolated grade stabilization at the dam.

This reach is primarily a single-thread stream with intermittent connectivity with the surrounding floodplain. In order to restore habitat and channel function through the reservoir area, bank and channel alterations, primarily for low flow fish passage, would be constructed using design methods that evaluate hydraulic conditions and incorporate parameters found in nearby productive reaches of the Umatilla River. This type of channel restoration, in combination with streambank treatments, acts to maintain lateral channel stability, within an acceptable range of natural variability, while vegetation becomes established and provides long-term stability to the stream system. In addition, streambank treatments also add aquatic habitat complexity and mimic the functions of large wood that is naturally recruited into the stream system. Examples of natural river processes and streambank treatments that could be used for the Umatilla River

restoration effort include engineered log jams, vegetated soil lifts, and coir log fascines with bioengineering. These restoration techniques and treatments are described in more detail below.

4.2.1 Engineered Log Jams

Engineered log jams are engineered wood structures that intercept flow and reduce near-bank velocities, protect new floodplain surfaces, promote pool scour and maintenance, and provide abundant habitat along the land-water interface. These structures span from the anticipated depth of the channel to over the bankfull channel elevation, and tie into existing stable bank vegetation where available. Engineered log jams are constructed of logs, whole trees with attached root wads, and either large anchor rocks or tree members for ballast and structural support. Engineered log jams are used in combination with streambank bioengineering structures. They create stable tie-in points for the streambank structures and provide aquatic habitat by encouraging scour along outside streambanks and meander bends. Figure 4-8 shows an example natural large wood that is emulated with engineered log jams.

Figure 4-8. Example of large wood providing multiple benefits including habitat complexity, energy dissipation, and bank stability.

4.2.2 Streambank Bioengineering

Streambank bioengineering consists of using live plant material in conjunction with biodegradable coconut fiber fabrics (coir) to create a streambank that is stable in the short term until native vegetation can become established. Streambank bioengineering treatments are used to encourage woody vegetation establishment in areas such as at the land-water interface along outer meander bends. Because streambank bioengineering is a revegetation technique rather than a streambank stabilization technique, engineered log jams would also be constructed at

these sites to provide more stability to the bioengineering structure while also providing in-stream habitat.

4.2.3 Revegetation

One of the most critical components of a river restoration plan is implementation of an aggressive revegetation plan. Riparian vegetation provides numerous benefits for the river corridor. Plants maintain streambank integrity, filter runoff, provide habitat and stream shading, and contribute organic debris to river systems. Plant roots bind soil, thereby increasing streambank integrity and resistance to scour. Deeply penetrating roots associated with hydric grasses, sedges, rushes, and forbs provide structural support for stream banks. Plant stems and leafy canopies slow floodwater, increasing fine sediment deposition. During high flows, woody shrubs flex and overlay the floodplain surface, slowing water velocities and protecting the floodplain surface. Water-tolerant or water-loving plants with deeper and stronger roots are more effective for holding stream banks in place than are plants from upland areas.

Different types of vegetation provide multiple services to hold streambank soils in place and protect them from erosion and undercutting by floodwaters, transported woody debris, or ice jams. The deep, penetrating roots of sedges, rushes, willow, grasses, and other herbaceous plants provide structural support for stream banks, while the thicker, harder roots of woody plants protect stream banks against bank scouring by floods and ice jams.

A healthy riparian zone provides habitat for terrestrial, aquatic, and amphibious wildlife. A diverse community supports more terrestrial species than a simplified forest with no understory complexity, or a diverse understory with no overstory canopy. From a fisheries perspective, grasses and shrubs maintain bank integrity, shrubs over-hang streams providing cover and contributing debris, and mature trees shade the stream corridor and contribute wood. Shading of the stream water surface is also an important ecological service of riparian vegetation along the Umatilla River.

Revegetation in the restored project area would consist of planting native trees, shrubs, and willows along with broadcasting a native species seed mix.

4.3 Monitoring and Adaptive Management

A restoration monitoring plan determines the effectiveness of restoration activities, supports recommendations for future restoration treatments, and determines whether the project has achieved project objectives and is trending towards the desired future condition. In addition, regular data collection related to monitoring can help identify maintenance needs.

To achieve project objectives over time, it will be necessary to observe how the restoration strategies and treatments applied on the ground influence ecological processes and habitat in the project area. For example, by observing and documenting stream channel morphology, floodplain development, natural vegetation recruitment, invasive species colonization and any shifts in plant species composition that reflect changes in hydrology and soil nutrient regimes, it will be possible to determine if the project site is trending towards desired future conditions.

5 PERMITS AND TYPICAL COSTS

5.1 Permit Process

Dam removal and restoration can be a multi-year effort depending on site constraints, project complexity, public support and inter-agency cooperation. We have found that convening an inter-agency team of regulatory personnel at the beginning of the project provides substantial benefits. The following discussion on permits is based on our working knowledge through multiple dam removal projects in Oregon, information in the Draft Guidelines for Dam Decommissioning Projects from the United States Society on Dams (USSD 2008), and review of the Small Dam Removal Guide (Hoffert-Hay 2008).

5.1.1 Federal Permits

Section 401 of the Clean Water Act (CWA) requires that proposed actions with federal agencies, such as permitting from the Army Corps of Engineers (USACE), that may result in a discharge of a pollutant into waters of the United States must not violate state or federal water quality standards. Section 401 also requires that any applicant for a federal permit to conduct any activity that may result in discharge into navigable waters shall provide the permitting agency a certification from the state in which the discharge originates. The certification (401 permit) shall state that any such discharge will comply with the applicable provisions of state law and the actual water quality certification is issued by the state.

As part of the Section 401 permitting, an evaluation of the existing sediment in the reservoir area is necessary to determine potential for pollutants. This process is carried out through the **Sediment Evaluation Framework (SEF)** implemented by the USACE. The SEF is a process designed to systematically assess, characterize, and manage sediments in areas that will be dredged or disturbed. The SEF is a multi-level approach that starts with an initial site assessment and sediment evaluation outlined under SEF Section 4.4 (Level 1). Two options are given in this section for project types: 1) dredging assessment that looks at navigation or maintenance dredging operations or 2) contaminated site assessment where a site is nominated because "available evidence exists supporting the presence of some risk". The Dillon Dam removal project does not fit into either of the categories since it is a dam removal project in an area that is not known to be contaminated. Therefore, historical documentation and a search of historical land uses should be all that is necessary. Once the historical documentation is submitted, it generally takes 30 days for a review by the multi-disciplinary team that makes a final determination or request for additional information.

Section 404 of the CWA requires that a permit be obtained from the USACE for the discharge of dredged material into waters of the United States, including wetlands. The USACE has jurisdictional authority to regulate all activities that dredge, dam, or divert navigable waters or that result in the deposit of dredged and fill material into waters of the United States, which includes perennial and intermittent streams. Under the USACE evaluation, an analysis of practicable alternatives is a screening mechanism, often under Category II as a "proactive restoration project", to determine the appropriateness of permitting a discharge under an individual or nationwide permit. USACE evaluation also includes an analysis of compliance with other requirements of EPA guidelines, a public interest review, and an evaluation of potential

impacts on the environment in compliance with National Environmental Policy Act (NEPA). This includes compliance with state water quality standards (Section 401 water quality certification), and with Section 7 of the ESA and Section 106 of the National Historic Preservation Act (NHPA) as described below. It is likely that the Dillon Dam project would be evaluated under an individual permit.

Section 7 of the Endangered Species Act (ESA) requires federal agencies, in consultation with U.S. Fish & Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS, NOAA-Fisheries), to ensure that their actions do not jeopardize the continued existence of ESA-listed endangered or threatened species or result in the destruction or adverse modification of the critical habitat of these species. In the case of removing Dillon Dam, it is likely that a hired consultant, would perform the following steps for Section 7 consultation: 1) consultant requests information from the USFWS and NMFS regarding the existence of listed species or species proposed for listing in the project area, 2) consultant prepares a biological assessment to determine whether any listed species or species proposed for listing are likely to be affected by a proposed action, 3) consultant initiates formal consultation with the USFWS and NMFS if the proposed action would adversely affect listed species, finally, 4) USFWS and NMFS prepare a biological opinion to determine whether the action would jeopardize the continued existence of listed species or result in the destruction or adverse modification of their critical habitat.

If a finding of jeopardy or destruction or adverse modifications of critical habitat is made in the biological opinion, the USFWS and NMFS recommend reasonable and prudent alternatives that would avoid jeopardy, and the project must be modified to ensure that listed species are not jeopardized and that their critical habitat is not adversely modified, unless an exemption from this requirement is granted. It is assumed that the project will meet the requirements for a programmatic biological opinion as used for similar projects.

The **Fish and Wildlife Coordination Act** (FWCA) requires federal agencies to consult with USFWS, NMFS, and state fish and wildlife agencies before undertaking or approving water projects that control or modify surface water. Federal agencies are responsible for consulting with USFWS for the purpose of conserving wildlife resources by preventing their loss and damage and providing for their development and improvement in connection with water resource projects. The USFWS is required to report its findings and the measures proposed for mitigating or compensating for any damage. Federal agencies issuing permits are required to fully consider recommendations made by USFWS, NMFS, and state fish and wildlife agencies, and to include measures to reduce impacts on wildlife in project plans.

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to evaluate the effects of federal undertakings (i.e. issuance of a permit) on significant cultural resources, termed historic properties. It requires federal agencies to coordinate with the State Historic Preservation Office (SHPO) and possibly the Advisory Council on Historic Preservation (ACHP) regarding the effects an undertaking may have on historic properties. Section 106 defines the purpose and requirements of the federal review process to ensure that historic properties are considered during federal project planning and execution. Compliance with Section 106 generally includes a determination of impacts to historic properties and consultation with the SHPO to develop mitigation measures to allow the project to proceed, see section 5.1.2.

Dillon Dam is in a Zone AE flood area as shown on the 2010 Flood Insurance Rate Map (Map 41059C0614-G). Zone AE designation means the dam is within the 100-year flood and base flood elevations have been determined for the specific site. **Section 60.3** of the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP) regulates modifications to floodways and floodplains. The project will likely require a Conditional Letter of Map Revision (CLOMR) for changing the extent of flooding impacts due to removal of the dam. After removal of the dam and restoration of the stream, a Letter of Map Revision (LOMR) would have to be submitted to FEMA. FEMA does not have statutory permitting authority in dam decommissioning, but may be consulted by USACE during the permit review process.

5.1.2 State Permits

Oregon´s Removal-Fill Law (ORS 196.795-990) requires projects that remove or fill material in waters of the state to obtain a permit from the Department of State Lands (DSL). "Waters of the state" are defined as "natural waterways including all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and non-navigable." The law applies to all landowners, whether private individuals or public agencies. This permit application is typically submitted as a joint permit application to USACE that covers the state and federal application submittal, although the federal portion of the permit requires additional information as described below.

Section 402 of the Clean Water Act (CWA) requires that all point sources that discharge pollutants into navigable waters of the United States must obtain a National Pollutant Discharge Elimination System (NPDES) permit issued by the state. This permit is issued by the Oregon Department of Environmental Quality (ODEQ) as the NPDES-1200C permit for construction activity.

The Oregon Department of Fish and Wildlife (ODFW) requires an approved plan to provide volitional fish passage at all obstructions through Oregon Administrative Rule (OAR) 635-412-0035. A project plan must be submitted showing the dam removal and how volitional fish passage will be maintained during and once the dam is removed. This can easily be demonstrated through channel restoration.

The existing site has an irrigation diversion water right that would need to be coordinated with the Oregon Water Resources Department (OWRD). It is our understanding that IRZ, irrigation water consultants, is handling water rights and issues related to water diversion.

SHPO requires a review and documentation of historic resources (above ground) and archaeological resources (below ground) in compliance with Federal Section 106 and ORS 358.653. In this case the concrete dam and diversion infrastructure would need to be documented and a review of the likelihood of subsurface artifacts would be required. It is our understanding that an initial review of the site was completed and the required documentation was submitted to SHPO in October, 2013 and pending final approval.

5.1.3 County Permits

County planning and building departments typically have little or no experience with dam removal and the building codes typically do not address dam removal. As stated earlier, Umatilla

County may require a CLOMR/LOMR process to make amendments to the flood insurance rate map (FIRM).

5.2 Dam Removal Probable Cost Opinion

As part of the scoping report, project costs were developed for the various components necessary to implement the project. Table 5-1 summarizes cost estimates for the project with an explanation of the line items and estimating methodology below. All project costs were developed in current dollars for 2013 and should be indexed to industry standards, such as the ENR Construction Cost Index, for future project estimates. Due to the estimate being preliminary, a contingency of 15% was added to dam removal construction costs for budgeting purposes. No costs were developed for dealing with the water diversion, new pipelines and water rights issues.

Table 5-1. Estimated project costs for Dillon Dam removal and restoration in present value for 2013.

PROJECT COMPONENT	ESTIMATED COST
Planning and Outreach	$20,000
Design and Studies	$50,000
Permits / Reports / Assessments	$46,000
Floodplain CLOMR-LOMR	$30,000
Dam Removal Construction	$250,000
Restoration and Monitoring	$30,000
Total	$436,000

Planning and Outreach costs consist of estimated legal fees to deal with water rights and a site visit by a consultant. The consultant site visit would culminate into a report that further details the recommended approach for permitting, dam removal, and restoration. Outreach and partner support would also be a necessary component in the planning stage and would require multiple meetings. This scoping report achieves these objectives with one exception of the water rights. The remaining cost would be for additional planning and dealing with water rights at the site.

Design and Studies consist of engineering and design services necessary to complete a dam removal plan and site restoration design for the project area. This includes site topographic survey, removal plans, sediment evaluation framework (SEF) report, erosion control plan, fish passage plan, work area isolation plan, hydraulic modeling, sediment transport modeling, and restoration plans as necessary to obtain permits and final budgets for the project. This estimate does not include design of a new water diversion system.

Permits/Reports/Assessments includes the necessary services required to prepare applications and consult on permits as shown in Table 5-1, item 3. It is assumed that the project will meet the requirements for a programmatic biological opinion as used for similar projects. Some permits are open-ended due to consultation requirements but should be manageable due to the relatively small nature of this project and lack of sediment storage upstream of the dam. The cost estimate includes permit fees. Dam removal is a unique endeavor and typical permitting estimates and percentages of construction costs are usually not accurate for estimating this phase of work. Therefore, estimates were based on similar projects and standard consulting fees.

CLOMR-LOMR includes the necessary services required to prepare a hydraulic model that mimics the FEMA model and then re-run the model without the dam in place. A detailed report and floodplain elevation modification would be required. The info would be submitted to FEMA for approval. Since the project will only result in a net lowering of the floodplain, it is anticipated that a CLOMR will not be required.

Dam Removal Construction primarily represents the cost of physically removing the dam and oversight by a qualified engineering consultant. This would entail putting the project out for bid, hiring a construction contractor, removing the concrete dam and cleanup of the site for restoration. Cost estimates were developed using RS Means, an industry standard heavy construction estimating guide, and actual costs from similar dam removal and restoration projects. In addition, provisions for channel shaping and fish passage improvements are incorporated into the cost opinion.

Restoration and Monitoring includes restoring the surrounding site, primarily with large wood and vegetation. A comprehensive revegetation plan will be a critical part of the restoration effort necessary to restore a functional stream and riparian corridor. Monitoring would likely be three to five years after the project is completed based on permit conditions.

6 CONCLUSION

The Dillon Dam is a low-head, cast-in-place concrete dam that serves as a point of diversion for the Dillon Ditch Company irrigation district. It is a run-of-the-river dam that provides fish passage, but does not meet current fish passage criteria. Hydraulic analysis shows that removal of the dam will have a limited, localized impact on sediment and river processes around the dam site, extending 1,300 ft upstream of the existing dam. Modeling results show the removal will have no influence on the river downstream of the project site.

Removal of the dam can be completed using standard in-water construction techniques and will require no special equipment or procedures. Restoration of the impacted stream reach can be done using ordinary stream restoration practices due to the easy site access, small upstream influence of the dam, and well-connected floodplain. A stream length of 1,300 ft is recommended for stream restoration to fully establish sustainable river processes that enhance fish passage and provide maximum ecological functions. In conclusion, there appears to be no significant issues with the existing site that would prohibit moving forward with dam removal and restoration of the Dillon Dam site with regards to river processes and physical site constraints.

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APPENDIX A

Existing Conditions Drawings

Umatilla Basin
Watershed Council

2014 Action Pla

Umatilla Basin Watershed Council
P.O. Box 1551
Pendleton, OR 97801
(541) 276-2190

Table of Contents

UBWC Mission

"To foster cooperation among watershed users & provide education to people interested in watershed health; and to develop, support, implement, and monitor activities that improve and maintain water quality and water quantity for all uses within the Umatilla Basin"

Chapter 1: Introduction

1a Purpose

The 2014 Umatilla Basin Watershed Council (UBWC) Action Plan identifies organizational goals & program objectives as they pertain to overall watershed health, water quality & quantity, ecological restoration, and community outreach priorities throughout the Umatilla River Basin.

The Umatilla Basin Watershed Council operates through a combination of grants and annual Umatilla County support funding. An important component of this funding comes from the Oregon Watershed Enhancement Board through the Council Capacity and Support Grant, allowing UBWC to secure quality staff and leverage funds to conduct restoration projects, feasibility studies, and educational programs.

1b Description of the Watershed

The Umatilla River Basin (HUC 17070103) covers approximately 2,550 square miles (1.6 million acres) in northeastern Oregon, flowing through the namesake Umatilla River in a generally northwesterly direction. The Umatilla River flows through a course of 90 miles out of the Blue Mountains before joining the Columbia River (river mile 289) near Umatilla, Oregon. Within this vast area there is approximately 5,600 feet of elevation difference from the summit of Black Mountain to the port of Umatilla. Approximately 84% of the basin is comprised of agricultural production (irrigated, dryland, and rangeland), nearly all of the basin's public land lies within the Umatilla National Forest, and urbanized or suburban development comprises the remainder of the landscape.

Sub-basins contributing to the Umatilla River include Meacham Creek, Wildhorse Creek, McKay Creek, Birch Creek Mission Creek, Upper and Lower Butter Creeks, Sand Hollow, Cold Springs Canyon, Stage Gulch, Hunt Ditch, Alkali Canyon, and the North and South Fork headwaters areas.

Temperature and precipitation are highly influenced by elevation within the Umatilla River Basin, lower elevations average as little as eight inches of precipitation, while the higher elevations of the Blue Mountains may receive in excess of fifty inches annually.

Typically the majority of the Basin's precipitation occurs between October and April, although high intensity localized events may occur in late spring or early summer. Peak runoff events occur during periods of winter rain events over frozen ground in the upper and mid basin areas (Umatilla TMDL, 2001).

Water resource concerns occupy a broad spectrum throughout the Umatilla River Basin and include anthropocentric and biological origins. Significant human use concerns stem from water quality and quantity perspectives including agricultural production, seasonal flooding, municipal and industrial consumption, nitrate and bacterial concentration, recreational use, and cultural importance. Biological concerns include water quantity and timing, temperature and sediment thresholds, anadromous fish passage, and substantial habitat fragmentation and degradation; with the 2004 Umatilla/Willow Sub-basin Assessment prioritizing temperature and sediment reductions being the most beneficial to fish populations. The three key concepts are the timing & quantity of water presence, sediment & nutrient transportation, and the coexistence of natural and human systems.

1c Demographics

The Umatilla Basin is predominantly characterized by a rural agricultural nature. Pendleton has historically been a cultural hub for eastern Oregon, however in recent decades Hermiston has shown tremendous growth (+70% since 1990), even surpassing the population of Pendleton. In 2010 the Pendleton-Hermiston Micropolitan Statistical Area had 87,062 inhabitants. During the same census, Umatilla County, which is predominantly within the Umatilla River Basin, had 75,899 inhabitants. While approximately half of the Basin population lives within Pendleton or Hermiston, there are numerous small towns within the area.

1d Background and Historic Information

The Umatilla Basin Watershed Council was created in 1997 by the Umatilla County Board of Commissioners, as a result of the development of the Umatilla Basin Total Maximum Daily Load (TMDL) project. Initial emphasis was directed toward education and outreach, in addition to water quality monitoring that supported the Umatilla TMDL project. As time moved forward the UBWC branched into restoration activities, as well as continuing support of water quality monitoring and community outreach and education directives.

Chapter 2: Planning & Strategy

2a Watershed Action Plan Development

The Umatilla River Basin has a legacy of collaboration cultivated through stakeholder involvement and participation in the TMDL project. Through this collaboration, inroads toward effective working relationships exist within the basin. By the nature of its mission, the UBWC stands as a neutral entity providing sound, scientifically driven information supporting activities which enhance overall watershed health, functionality and community education. As a neutral entity and partner in this shared vision, the UBWC has a responsibility to facilitate and contribute to projects and supporting goals identified in the Umatilla Basin TMDL, the Umatilla/Willow Subbasin Plan (2004), and from the council itself.

Development of an Action Plan benefits the Umatilla Basin Watershed Council through organizing the over-arching, big-picture goals into desired outcomes with objective measures to reach. Further refinement of the objectives develop the strategies available to take action. A vision is meaningless without action, and action is meaningless without a vision; the Action Plan serves as guidance to organize the actions, objectives, and large scale organizational goals for the UBWC.

2b Watershed Inventory

A comprehensive watershed assessment within the Umatilla Basin is supported by two substantive existing documents, the Umatilla River Basin TMDL (2001), and the Umatilla/Willow Subbasin Plan (2004). Climatological, land use, ecological, hydrological, and conservation priorities were developed through extensive collaboration, and a wealth of information is available and is relatively current. Supplemental assessment and monitoring data collected by partnering agencies including the Oregon DEQ, the Confederated Tribes of the Umatilla Indian Reservation, and the US Forest Service are available to reinforce or update the comprehensive assessment.

Through collaboration with established partners, the Umatilla Basin Watershed Council has extensive access to beneficial data and analyses that aid in supporting Council actions. Analysis and modeling of available data sets will enable the UBWC to prioritize the actions that support the strategies, objectives, and watershed goals established in the 2014 Umatilla Basin Watershed Council Action Plan.

2c Watershed Goals, Objectives and Strategies

The Board of Directors for the Umatilla Basin Watershed Council identified guiding principles in support of the organizational mission:

- The UBWC will strive to work towards supporting, collaborating, and cooperating with partners for the overall benefit to the Basin and its communities.
- The UBWC will be a neutral, scientifically sound source for information related to watershed health, taking a professional approach to information requests and interactions on issues related to the UBWC mission.
- The UBWC will strive to have a diverse Board of Directors representing tribal, private, public, and other interests within the Basin.
- Board meetings will be a forum for information exchange between partners.
- The UBWC will continue to support and partner with the Water Quality Technical Committee and Umatilla Basin Restoration Team to further collaborative/cooperative work in meeting mutual interests.
- The Board and Executive Director will work to develop and maintain a work environment that fosters achievement, creativity, and inspiration.

The underlying purpose of the Umatilla Basin Watershed Council is to promote overall watershed health within the Umatilla River Basin through stakeholder cooperation and collaboration. Three key goals support this purpose; watershed planning, monitoring and assessment; community engagement and collaboration; and implementation of watershed restoration projects.

Goal 1: Watershed Planning, monitoring and assessment

Watershed planning, monitoring and assessment includes water quality monitoring, remote sensing and project prioritization, project effectiveness monitoring and assessment. This goal assists in the genesis of projects within the human and ecologic scopes, and directly relates to the adaptive management approach to project management. What can be learned through the process of a project is important in many ways, and generally contributes to the successful planning, implementation, and review of subsequent projects. The UBWC intends to be a dynamic organization capable of responding to changes, while remaining rooted to the core purpose and supporting goals.

Goal 2: Community Engagement and Collaboration

Community engagement and collaboration involves not only the stakeholders or partners on projects, but active engagement with the people who make the Umatilla Basin their home. Through collaboration and stakeholder involvement, UBWC can incorporate the values and

priorities of the residents and cooperating agencies of the Umatilla Basin and work toward a shared vision of what a healthy, functional watershed represents.

Goal 3: Implementation of Watershed Restoration Projects

Watershed restoration projects are the on-the-ground physical manifestation of some of our actions. Restoration projects may have community visibility, buy-in and support functions in addition to the ecological functions provided.

Chapter 3: Application

3a Implementation

Refining the outlined goals is the first step toward implementation, and is followed closely by developing objectives based on available information and organizational priorities. The Umatilla Basin is fortunate in having a high quality and relatively recent TMDL and Watershed Assessment from which to draw. From the known issues and directives of Basin-wide activities a suite of objectives were developed. Strategies for attaining the specific objectives listed below were then identified, as were supporting parties, stakeholders, and a relative priority timeline.

Goal 1: Watershed Planning, Monitoring and Assessment

Objective	Action Item	Stakeholders	Partners	Priority Ranking	Indicators of Success
Reduce sediment load from agricultural runoff	Identi y partnership opportuni es with NRCS, & SWCDs	Ag landowners throughout the Umatilla Basin	NRCS, SWCDs, UBWC	**High** - contin ing basis	Develop common goals between NRCS, SWCDs, UBWC Identi y landowners interested in BMP or site restoratio projects.
	Quanti y extent of headwater erosion area	Ag landowners throughout the Umatilla Basin	NRCS, SWCDs	**High -** near term focus	Develop a baseline map of HES & sources of headwater sub-basin erosion concern areas.
	Assist landowners with bu er and restoratio projects	Ag landowners throughout the Umatilla Basin, CTUIR, UBWC, ODFW	NRCS, SWCDs, UBWC, OSU Extension, DEQ	**Moderate** - partner led	Installatio of erosion BMP projects, addi onal interest in parti ipati n. Landowner parti ipa on survey.
Reduce summer temperatures in identified critical salmonid spawning reaches	Analyze existing data sources, and gaps in existing data	UBWC, CTUIR, ODFW, NOAA	UBWC, CTUIR, USFS	**High** - near term focus	Map of temperature logged reaches of the Umatilla River and its tributaries.
	Contin e temperature monitoring	UBWC, CTUIR, ODFW, NOAA, USFS	UBWC, CTUIR	**High** - contin ing basis	Temperature profil s for project e ec veness monitoring pre & post restoratio implementa on.
	Voluntary projects in temperature sensi ve reaches	UBWC, CTUIR, ODFW, NOAA, Uma lla Basin Residents	UBWC, SWCDs, CTUIR, NRCS	**High** - coordinate with partners	Implementatio of voluntary projects to reduce summer temperatures on thermally impaired reaches.
	Landowner engagement and educatio	Landowners throughout the Uma lla Basin	UBWC, SWCDs, TU	**Moderate** - coordinate with partners	Develop landowner workshops, provide technical assistance, and distribute informatio .

Goal 1: Watershed Planning, Monitoring and Assessment, *continued*

Objec ve	Action Item	Stakeholders	Partners	Priority Ranking	Indicators of Success
Prioritize Umatilla Basin Watershed Council restoration focus areas	Develop GIS overlay model to target high priority focus areas	Ag landowners throughout the Umatilla Basin	NRCS, SWCDs, UBWC	**High** - near term focus	Develop a prioritized map using McHargian overlays to identi y key areas to direct on the ground and educatio e orts within the Uma lla Basin.
Continued support of Umatilla Basin TMDL planning, monitoring, and implementation	Sediment and temperature monitoring & analysis	DEQ, UBWC, CTUIR, USFS Residents throughout the Uma lla Basin	DEQ, UBWC, CTUIR, USFS, SWCDs	**High** - contin ing basis	Stati ti ally sound database within SOP requirements supporting consistent data analysis evaluati n of composite project e ec veness in supporting all beneficial uses.
Fish passage survey	Analyze existing data sources, and gaps in existing data	UBWC, CTUIR, ODFW, NOAA, ODOT	UBWC, CTUIR, NRCS, ODOT	**Moderate** - coordinate with partners	Map of known sh passage barriers within the Uma lla Basin including natural barriers, dams, and culverts.
	Improve sh passage plan development	UBWC, CTUIR, ODFW, NOAA, USFS, ODOT	UBWC, CTUIR, NOAA, NRCS	**Long Term** - progress dependent	Strategic, coordinated plan for implementing passage improvement across agencies.
Floodplain planning and hydrologic background survey	Floodplain mapping, community engagement, project planning	Residents of the Uma lla Basin, UBWC, ODFW, NRCS	UBWC, NRCS, ODFW, NRCS	**High** - build from current project progress	Identifica of future projects with poten al to improve groundwater recharge, reduce fragmentatio , and reduce ood damages.
	Discharge histogram	Residents of the Uma lla Basin, DWR, DEQ	UBWC, DWR	**Moderate** - supplemental informati n	Gain background knowledge of ungagged sources of interest to restoratio and conservati n prac ces.

Goal 2: Community Engagement and Collaboration

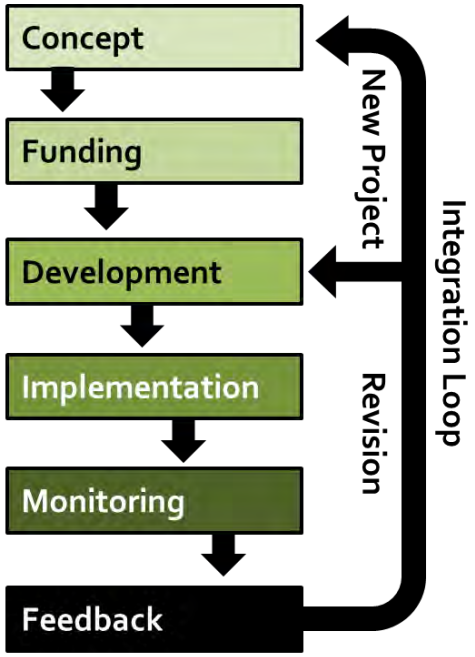
Objective	Action Item	Stakeholders	Partners	Priority Ranking	Indicators of Success
Build visibility and rapport within communities of the Umatilla Basin	Accessible, forum – based meetin s on a spati l rotatio	UBWC, Residents of the Uma lla Basin Watershed	Community	**High** - contin ing basis	Contin e to hold monthly meetin s which rotate to the dis-tributed communi es within the Uma lla Basin.
	Implement high visibility projects and events with volunteer opportuni es	UBWC, Residents of the Uma lla Basin Watershed	Community	**High** - contin ing basis	Select high impact—high visibility projects that involve schools, local service organizatio s, municipaliti s, retir es, and other interested residents to encourage parti ipa on.
	Sponsor youth and resident educatio projects and events	UBWC, SWCDs, Residents of the Umati la Basin Watershed.	UBWC, SWCDs, OSU Extension	**Moderate** - build quality materials through community and partner relatio ships	Workshops, demonstratio site projects, digital and print informati nal media development and distributio .
	Sponsor a watershed fes val event	Residents of the Uma lla Basin Watershed	UBWC, CTUIR, SWCD, OSU Extension	**Long Term** - Build partner and community support to ensure success	Recurring festi als drawing more parti ipants.

Goal 3: Implementation of Watershed Restoration Projects

Objective	Action Item	Stakeholders	Partners	Schedule	Indicators of Success
Sediment Reduction Projects	Sedimenta on Basins	NRCS, SWCD, UBWC, Rural landowners	UBWC, SWCD, ODFW, OSU, NRCS	Year 2 - 3+	Installatio s of engineered agricultural sedimentatio basins in designated high priority areas.
	Ca le exclusion fencing installatio s	NRCS, SWCD, UBWC, Rural landowners	UBWC, SWCD, OSU, NRCS	Year 1 - 3+	Installatio s of riparian ca le exclusion fencing & alterna ve stockwater optio s.
	Urban runo pre-treatment elements	Basin municipaliti s, SWCD, UBWC, DEQ	UBWC, DEQ, SWCD	Year 2 - 3+	Planning, development, and implementatio of greenways & stormwater management features and ordinances.
Habitat Restoration Projects	Revegetatio and stabilizatio of banks and oodplains	UBWC, CTUIR, BOR, Public and private landowners	UBWC, CTUIR, BOR	Year 1- 3+	Installatio of riparian revegetatio projects and demonstratio sites.
Fish Passage Projects	Dam removals	UBWC, ODFW, CTUIR	UBWC, ODFW, CTUIR	Year 1 - 3+	Broun Dam, Peterson Dam, Dillon Dam removed and enhanced.
Groundwater recharge projects	Culvert survey & replacement	ODFW, CTUIR, UBWC	UBWC, ODFW, CTUIR	Year 2 - 3+	Priori zed culvert replacement project installatio s.

3b Plan Updates and Revisions

Adaptive Management Framework



Through adopting an Action Plan, the UBWC is building a holistic model tying the key organizational goals into a cohesive plan for a healthy, functional Umatilla River Basin. The 2014 Umatilla Basin Action Plan is not meant to be a prescriptive document. This plan serves as guidance for Umatilla Basin Watershed Council actions, while remaining adaptive to future concerns and integrating feedback to continually improve project success. Adaptive Management is a systemic process or model that has seen increasing use through natural resource disciplines since inception in the 1970's. The main premise of the Adaptive Management is that management practices and policies can continually improve, refine and evolve through the application of lessons learned through past and present experiences. By implementing an Adaptive Management approach to decision-making and planning, an organization is better prepared to handle internal and external changes including technology, personnel, and partnering agencies.

Action Plan updates are anticipated as the strategies are implemented and objectives are met, allowing further refinement to accommodate revised Council priorities and staffing capabilities. A set schedule for revision is not set, relying on successive annual work plans to track fine grain adjustments and progress toward organizational objectives. The work plan will be developed annually and approved by the Umatilla Basin Watershed Council Board of Directors. This annual work plan will allow Board members to track progress on individual projects contributing to the strategies, objectives, and goals of the UBWC.

Chapter 4: Summary

4a What makes UBWC successful?

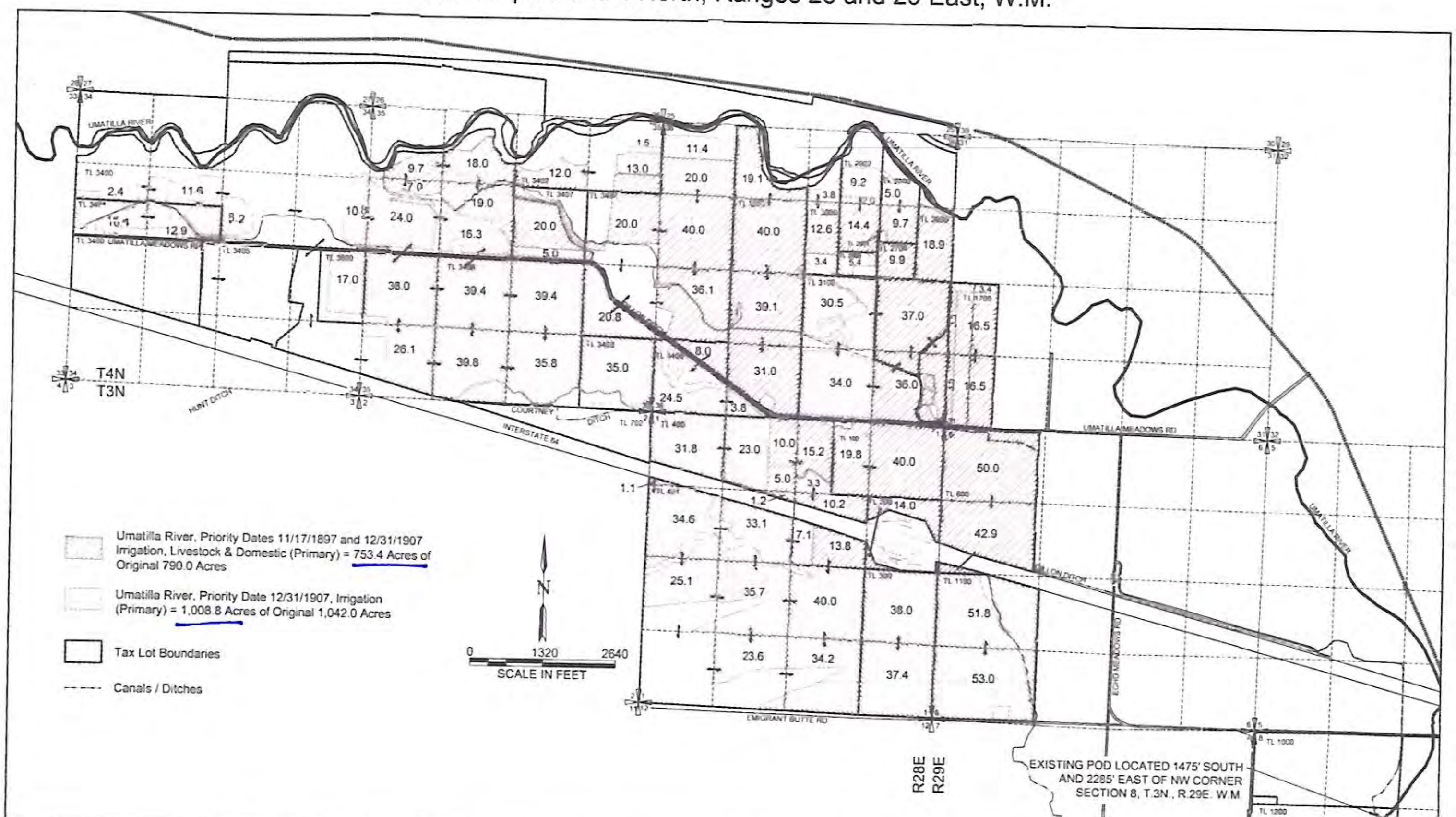
Success of the Umatilla Basin Watershed Council depends on many factors, but being a result driven organization and an active community resource stand out among the most important. Being an operation almost entirely funded on grant based projects means that the UBWC must be driven to produce results in every project. Granting bodies want to see an organization make effective use of funding, and producing quality deliverables is critical to the success of future funding.

Communities are the component that brings the Umatilla Basin to life. Creating lasting relationships and building rapport with residents is an important factor in the success of the UBWC to support outreach functions. Effective community engagement encompasses volunteerism, collaboration in board meetings, landowner recruitment, and educational outreach projects spanning generations while fostering a mentality that we are all part of a shared watershed. Through outreach UBWC gains local buy-in and support of projects affecting the watershed as a whole.

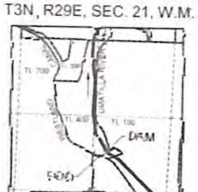
4b The future of UBWC

To be successful as an organization, it is important for the Umatilla Basin Watershed Council to adopt and update strategic planning efforts, such as the 2014 Action Plan. An important component of this plan is collaboration with partnering agencies to coordinate efforts and maximize returns on conservation and outreach actions. The future of the Umatilla Basin Watershed Council lies in forging resilient working relationships with collaborators, and in gaining strong community support through participation and projects reflecting the interests of basin residents.

Townships 3 and 4 North, Ranges 28 and 29 East, W.M.



PROPOSED ADDITIONAL POD
T3N, R29E, SEC. 21, W.M.



DILLON IRRIGATION COMPANY
TRANSFER MAP
REQUESTING AN ADDITIONAL POINT OF DIVERSION

THIS MAP WAS PREPARED FOR THE PURPOSE OF IDENTIFYING THE LOCATION OF A WATER RIGHT ONLY AND IS NOT INTENDED TO PROVIDE LEGAL DIMENSIONS OR LOCATION OF PROPERTY OWNERSHIP LINES

Certified Water Rights Examiner
Paul L. Wattenburger
July 16, 2009
STATE OF OREGON
EXPIRES 6/30/14

IRZ Consulting, LLC

Total acres served under the transfer, and by the new pipeline includes 1762.2 acres.

BEFORE THE WATER RESOURCES DEPARTMENT
OF THE
STATE OF OREGON

In the Matter of Transfer Application T-11648, Umatilla County	))	FINAL ORDER APPROVING A CHANGE IN POINT OF DIVERSION

Authority

ORS 540.505 to 540.580 establishes the process in which a water right holder may submit a request to transfer the point of diversion, place of use, or character of use authorized under an existing water right. OAR Chapter 690, Division 380 implements the statutes and provides the Department's procedures and criteria for evaluating transfer applications.

Applicant

DILLON IRRIGATION COMPANY
31466 ANDREWS RD.
ECHO, OR 97826

Findings of Fact

1. On August 9, 2013, DILLON IRRIGATION COMPANY filed an application for an additional point of diversion under adjudicated, un-certificated rights (Umatilla River Decree Volume 3, Page 127 and Volume 15, Page 378). The Department assigned the application number T-11648.

2. On March 10, 2014, the applicant requested the application be amended to a change in the point of diversion and not an additional point of diversion.

3. Notice of the application for transfer was published on August 20, 2013, pursuant to OAR 690-380-4000. No comments were filed in response to the notice.

4. On April 17, 2014, the Department issued a draft Preliminary Determination that set a deadline of May 17, 2014, for the applicant to respond to the Department's findings.

5. On June 24, 2014, the Department mailed a revised copy of the draft Preliminary Determination proposing to deny Transfer Application T-11648 to the applicant. The revised draft Preliminary Determination cover letter set forth a deadline of July 24, 2014, for the applicant to respond. The applicant requested that the Department proceed with issuance of a Preliminary Determination.

This final order is subject to judicial review by the Court of Appeals under ORS 183.482. Any petition for judicial review must be filed within the 60-day time period specified by ORS 183.482(1). Pursuant to ORS 536.075 and OAR 137-003-0675, you may petition for judicial review or petition the Director for reconsideration of this order. A petition for reconsideration may be granted or denied by the Director, and if no action is taken within 60 days following the date the petition was filed, the petition shall be deemed denied.

6. On June 27, 2014, the applicant requested that the Department seek a recommendation from the Oregon Department of Fish and Wildlife as to whether the Department should consent to injury of the instream water right pursuant to OAR 690-380-5050.

7. On July 25, 2014, the Department issued a Preliminary Determination proposing to deny Transfer T-11648 and mailed a copy to the applicant. Additionally, notice of the Preliminary Determination for the transfer application was published on the Department's weekly notice on July 29, 2014, and in the East Oregonian newspaper on September 16 and 23, 2014 pursuant to ORS 540.520 and OAR 690-380-4020. No protests were filed in response to the notice.

8. The first right to be transferred is as follows:

Decree: Umatilla River in the name of DILLON IRRIGATION COMPANY (Volume 3 Page, 127)
Use: IRRIGATION, LIVESTOCK, AND DOMESTIC of 753.40 ACRES
Priority Date: NOVEMBER 17, 1897 and 1907
Rate/Duty: 9.30 CUBIC FEET PER SECOND (subject to the provisions of the Umatilla River Decree, Paragraph 33)
Period of Use: Usually MARCH 1 to NOVEMBER 1
Source: UMATILLA RIVER, tributary to the COLUMBIA RIVER

Authorized Point of Diversion: Not described in Decree

Authorized Place of Use:

PRIORITY DATE: NOVEMBER 17, 1897						
IRRIGATION, LIVESTOCK, AND DOMESTIC						
Twp	**Rng**	**Mer**	**Sec**	**Q-Q**	**Acres**	**Tax lot**
3 N	28 E	WM	1	NE NE	40.00	100
3 N	28 E	WM	1	NW NE	19.80	100
3 N	28 E	WM	1	NW NE	15.20	400
3 N	28 E	WM	1	SW NE	10.20	400
3 N	28 E	WM	1	SW NE	13.80	401
3 N	28 E	WM	1	SE NE	14.00	400
3 N	28 E	WM	1	NE NW	10.00	400
3 N	29 E	WM	6	NW NW	50.00	600
3 N	29 E	WM	6	SW NW	42.90	600
4 N	28 E	WM	36	NW NE	2.00	2902
4 N	28 E	WM	36	SW NE	14.40	2902
4 N	28 E	WM	36	SW NE	12.60	3000
4 N	28 E	WM	36	SE NE	18.90	2600
4 N	28 E	WM	36	SE NE	9.90	2700
4 N	28 E	WM	36	SE NE	9.70	2800
4 N	28 E	WM	36	NE SE	37.00	3100
4 N	28 E	WM	36	SE SE	36.00	3100
4 N	29 E	WM	31	NW SW	3.50	1700
4 N	29 E	WM	31	SW SW	3.50	1700
				TOTAL	**363.40**	

PRIORITY DATE: 1907						
IRRIGATION, LIVESTOCK, AND DOMESTIC						
Twp	**Rng**	**Mer**	**Sec**	**Q-Q**	**Acres**	**Tax lot**
3 N	28 E	WM	1	NE NW	5.00	400
4 N	28 E	WM	35	NE NE	13.00	3402
4 N	28 E	WM	35	NW NE	12.00	3402
4 N	28 E	WM	35	SW NE	20.00	3407
4 N	28 E	WM	35	SE NE	20.00	3490
4 N	28 E	WM	35	NE NW	18.00	3400
4 N	28 E	WM	35	NW NW	9.70	3400
4 N	28 E	WM	35	SW NW	7.00	3400
4 N	28 E	WM	35	SE NW	19.00	3400
4 N	28 E	WM	36	NE NW	19.10	3200
4 N	28 E	WM	36	NW NW	20.00	3490
4 N	28 E	WM	36	SW NW	40.00	3490
4 N	28 E	WM	36	SE NW	40.00	3200
4 N	28 E	WM	36	NE SW	39.10	3200
4 N	28 E	WM	36	NW SW	36.10	3490
4 N	28 E	WM	36	SW SW	8.00	3406
4 N	28 E	WM	36	SE SW	31.00	3200
4 N	29 E	WM	31	NW SW	16.50	1700
4 N	29 E	WM	31	SW SW	16.50	1700
				TOTAL	**390.00**	

9. The Umatilla River Decree Volume 3, Page 127, does not provide a detailed description of the location of the authorized the point of diversion, however the applicant has provided a description of the point of diversion as follows:

Twp	Rng	Mer	Sec	Q-Q	Tax lot	Measured Distances
3 N	29 E	WM	8	SE NW	1200	1475 FEET SOUTH AND 2285 FEET EAST FROM THE NW CORNER OF SECTION 8

10. Transfer Application T-11648 proposes to move the point of diversion to a location approximately 2.6 miles upstream to:

Twp	Rng	Mer	Sec	Q-Q	Tax Lot	Measured Distances
3 N	29 E	WM	21	SW NE	100	NORTH 76 DEGREES 45 MINUTES 56 SECONDS EAST; 2913.19 FEET FROM THE W ¼ CORNER OF SECTION 21

11. The second right to be transferred is as follows:

Decree Umatilla River in the name of DILLON IRRIGATION COMPANY (Volume 15, Page 397)
Use: IRRIGATION of 1008.80 ACRES
Priority Date: 1907
Rate/Duty: 14.41 CUBIC FEET PER SECOND (subject to the provisions of the Umatilla River Decree, Paragraph 33)
Period of Use: USUALLY MARCH 1 TO NOVEMBER 1
Source: UMATILLA R, tributary to the COLUMBIA RIVER

Authorized Point of Diversion: DILLON CANAL

Authorized Place of Use:

IRRIGATION						
Twp	**Rng**	**Mer**	**Sec**	**Q-Q**	**Acres**	**Tax Lot**
3 N	28 E	WM	1	NW NE	3.30	400
3 N	28 E	WM	1	SW NE	7.10	401
3 N	28 E	WM	1	NE NW	23.00	400
3 N	28 E	WM	1	NW NW	31.80	400
3 N	28 E	WM	1	NW NW	1.10	401
3 N	28 E	WM	1	SW NW	34.60	401
3 N	28 E	WM	1	SE NW	1.20	400
3 N	28 E	WM	1	SE NW	33.10	401
3 N	28 E	WM	1	NE SW	35.70	401
3 N	28 E	WM	1	NW SW	25.10	401
3 N	28 E	WM	1	SE SW	23.60	401
3 N	28 E	WM	1	NE SE	38.00	300
3 N	28 E	WM	1	NW SE	40.00	401
3 N	28 E	WM	1	NW SE	34.20	401
3 N	28 E	WM	1	SE SE	37.40	300
3 N	29 E	WM	6	NW SW	51.80	1190
3 N	29 E	WM	6	SW SW	53.00	1190
4 N	28 E	WM	34	SW NE	8.20	3400
4 N	28 E	WM	34	SE NE	10.80	3400
4 N	28 E	WM	34	SW NW	2.40	3400
4 N	28 E	WM	34	SW NW	16.40	3404
4 N	28 E	WM	34	SE NW	11.60	3400
4 N	28 E	WM	34	SE NW	12.90	3404
4 N	28 E	WM	34	NE SE	17.00	3600
4 N	28 E	WM	35	NE NE	1.50	3402
4 N	28 E	WM	35	SW NE	5.00	3407
4 N	28 E	WM	35	SW NW	24.00	3400
4 N	28 E	WM	35	SE NW	16.30	3400
4 N	28 E	WM	35	NE SW	39.40	3400
4 N	28 E	WM	35	NW SW	38.00	3400
4 N	28 E	WM	35	SW SW	26.10	3400
4 N	28 E	WM	35	SE SW	39.80	3400
4 N	28 E	WM	35	NE SE	20.80	3400
4 N	28 E	WM	35	NW SE	39.40	3400
4 N	28 E	WM	35	SW SE	35.80	3400
4 N	28 E	WM	35	SE SE	35.00	3403
4 N	28 E	WM	36	NE NE	5.00	2800
4 N	28 E	WM	36	NW NE	9.20	2902
4 N	28 E	WM	36	NW NE	3.80	3000
4 N	28 E	WM	36	SW NE	5.40	2900
4 N	28 E	WM	36	SW NE	3.40	3000
4 N	28 E	WM	36	NW NW	11.40	3490
4 N	28 E	WM	36	SW SW	24.50	3406
4 N	28 E	WM	36	SE SW	3.80	3406

IRRIGATION						
Twp	**Rng**	**Mer**	**Sec**	**Q-Q**	**Acres**	**Tax Lot**
4 N	28 E	WM	36	NW SE	30.50	3100
4 N	28 E	WM	36	SW SE	34.00	3100
4 N	29 E	WM	31	NW SW	3.40	1700
				TOTAL	**1008.80**	

12. The Umatilla River Decree Volume 15, Page 397, does not provide a detailed description of the location of the authorized the point of diversion, however the applicant has provided a description of the point of diversion as follows:

Twp	Rng	Mer	Sec	Q-Q	Tax Lot	Measured Distances
3 N	29 E	WM	8	SE NW	1200	1475 FEET SOUTH AND 2285 FEET EAST FROM THE NW CORNER OF SECTION 8

13. Transfer Application T-11648 proposes to change the point of diversion to a location approximately 2.6 miles upstream to:

Twp	Rng	Mer	Sec	Q-Q	Tax Lot	Measured Distances
3 N	29 E	WM	21	SW NE	100	NORTH 76 DEGREES 45 MINUTES 56 SECONDS EAST; 2913.19 FEET FROM THE W¼ CORNER OF SECTION 21

14. The Oregon Department of Fish and Wildlife has determined that a fish screen is necessary at the new point of diversion to prevent fish from entering the diversion and that the diversion is currently equipped with an appropriate fish screen.

Transfer Review Criteria [OAR 690-380-4010(2)]

15. Water has been used within the five-year period prior to submittal of the transfer application according to the terms and conditions of the right. There is no information in the record that would demonstrate that the right is subject to forfeiture under ORS 540.610.

16. A pump and pipeline and a municipal delivery system sufficient to use the full amount of water allowed under the existing right was present within the five-year period prior to submittal of Transfer Application T-11648.

17. The Department requires a suitable measuring device at the proposed point of diversion. The proposed point of diversion is currently equipped with a gaging station that satisfies this requirement.

18. The proposed change would not result in enlargement of the right.

19. An instream water right, Certificate 59837, exists for the reach of the river in which the authorized point of diversion would be moved upstream, and streamflows within the reach are frequently below the levels allocated under the instream water right. Thus, the instream water right would be injured as a result of the proposed point of diversion.

Conclusions of Law

The change point of diversion proposed in Transfer application T-11648 appears to be consistent with the requirements of ORS 540.505 to 540.580 and OAR 690-380-5000. The Oregon Department of Fish and Wildlife recommends the Department consent to injury of an instream water right filed pursuant to OAR 690-380-5050 or protests are filed pursuant to OAR 690-380-4030.

Now, therefore, it is ORDERED:

1. The change in point of diversion proposed in Transfer Application T-11648 is approved.

2. The right to the use of the water is restricted to beneficial use at the place of use described, and is subject to all other conditions and limitations contained in the Umatilla River Decree Volume 3, Page 127-251 and Volume 15, Page 397-444.

3. The Umatilla Decree Volume 3, Page 127-251 and Volume 15, Pages 397- 444 contain descriptions of the right to be transferred; the portion of right described and/or identified as Dillon Irrigation Company is cancelled. A Certificate will be issued describing that portion of the right not affected by this transfer.

4. The quantity of water diverted at the new point of diversion, shall not exceed the quantity of water lawfully available at the original point of diversion.

5. The water user shall insure the existing measurement device is maintained and operated and shall make such improvements as may be required by the Department. If in the judgment of the Watermaster a different type of measuring device is needed an alternate measuring device may be required. The Western Land Canal NR Echo gaging station on the Umatilla River (Station number 14030500) is the current measuring point for this right.

6. The water user shall allow the Watermaster access to the meter or measuring device provided however, where the meter or measuring device is located within a private structure, the Watermaster shall request access upon reasonable notice.

7. The water user shall operate and maintain an approved fish screen at the new point of diversion. If Oregon Department of Fish and Wildlife (ODFW) determine the screen is not functioning properly, and is unsuccessful in working with the water user to meet ODFW standards, ODFW may request that OWRD regulate the use of water until OWRD receives notification from ODFW that the fish screen is functioning properly.

8. Recommendation for consent to injury of Certificate 59837 is contingent upon the removal of Dillon Dam by the end of 2016. Removal shall include the dam and all associated structures within the active channel of the Umatilla River at the site.

9. The applicant shall notify ODFW and the Department in writing if the dam is not removed by the end of 2016 as planned. ODFW may then re-evaluate the timeline for dam removal and may submit to the Department a revision of this recommendation to consent to injury.

10. Should the applicant be unable to complete the dam removal in the time allowed, the applicant must apply for and have approval of an extension of time for completion for a period up to, but not to exceed two additional years.

11. Should the applicant not prove up on the new point of diversion the applicant can apply for a reversion of the point of diversion to the original diversion point.

12. Removal of Dillon Dam must occur during the established in-water work period or under approval from ODFW.

13. The change in point of diversion proposed in application T-11648 is approved.

14. The right to the use of the water is restricted to beneficial use at the place of use described, and is subject to all other conditions and limitations contained in the Umatilla River Decree Vol. 3, Page 127 and Vol. 15, Page 397 and any related decree.

15. The portion of the Decree that references Dillon Irrigation Company is cancelled. A new certificate will be issued describing that portion of the right not affected by this transfer.

16. Full beneficial use of the water shall be made, consistent with the terms of this order, on or before **October 1, 2016**. A Claim of Beneficial Use prepared by a Certified Water Right Examiner shall be submitted by the applicant to the Department within one year after the deadline for completion of the change and full beneficial use of the water.

17. After satisfactory proof of beneficial use is received, a new certificate confirming the right transferred will be issued.

Dated at Salem, Oregon this 9 day of February, 2015.

[redacted]

Dwight French, Water Right Services Administrator, for
THOMAS M. BYLER, DIRECTOR
Oregon Water Resources Department

FEB 11 2015
Mailing Date

RECEIVED

MAR 0 3 2015

UMATILLA COUNTY RECORDS

DATE PERMIT FORM ISSUED: 15-010-UP

ISSUED BY: _____

FEE: OGN

UMATILLA COUNTY DEPARTMENT OF PUBLIC WORKS

3920 WESTGATE
PENDLETON, OREGON 97801

PERMIT APPLICATION FORM
FOR
INSTALLATION OF UTILITIES ON COUNTY AND PUBLIC ROADS

I (We) Umatilla Basin Watershed Council,
(Please Print or Type Names)

PO Box 1551, Pendleton OR 97801, 541-276-2190,
(Address) (Telephone Number)

hereby respectfully request permission to access Umatilla County Road No. 1338 Emert (open dry) 1341, Andrews-Parrish,
(Road Name)

or Public Road _____ located
(Road Name)

in the _____ of Section _____ ownship 2N, Range 28,29
(1/4 Section)

E.W.M. with a 24" PVC irrigation line,
(Water Line, Gas Line, Electric Line, Telephone Line, etc.)

the location of which is more particularly described by the attached sketch (attach copy of assessor's map, available at Road Dept., with installation location shown and a plan of the proposed installation showing depths, trench widths, distances from existing edges of traveled roadway, etc.). I (We) agree to defend, indemnify and hold harmless Umatilla County and its officials and employees from all claims, liability and causes of action that arise from or relate in any way to my (our) installation of utilities on the county and public roads.

[redacted]

Signature of Permittee

SPECIAL PROVISIONS

APPROVALS

[redacted] 2-18-15

(Section Foreman or Assistant Public Works Director) (Date)

[redacted] 2/18/15

(Public Works Director) (Date)

Permission is hereby granted by the Umatilla County Board of Commissioners, pursuant to Oregon Revised Statutes 375.305 to 374.325 to make the aforesaid installation in accordance with all specifications. The Permittee as indicated on Page 1 shall at all times be responsible and liable for any and all damages arising from or caused by this installation and this permit may be revoked at any time.

PERMISSION GRANTED THIS 3 **DAY OF** March, 2015.

UMATILLA COUNTY BOARD OF COMMISSIONERS

[redacted]

BOARD OF COMMISSIONERS UMATILLA COUNTY STATE OF OREGON

ATTEST:
OFFICE OF COUNTY RECORDS

By: [redacted]
Records Officer

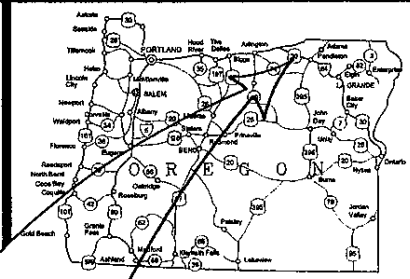
UMATILLA COUNTY STATE OF OREGON

Please return to UBWC with any notes drawn on! Thanks!

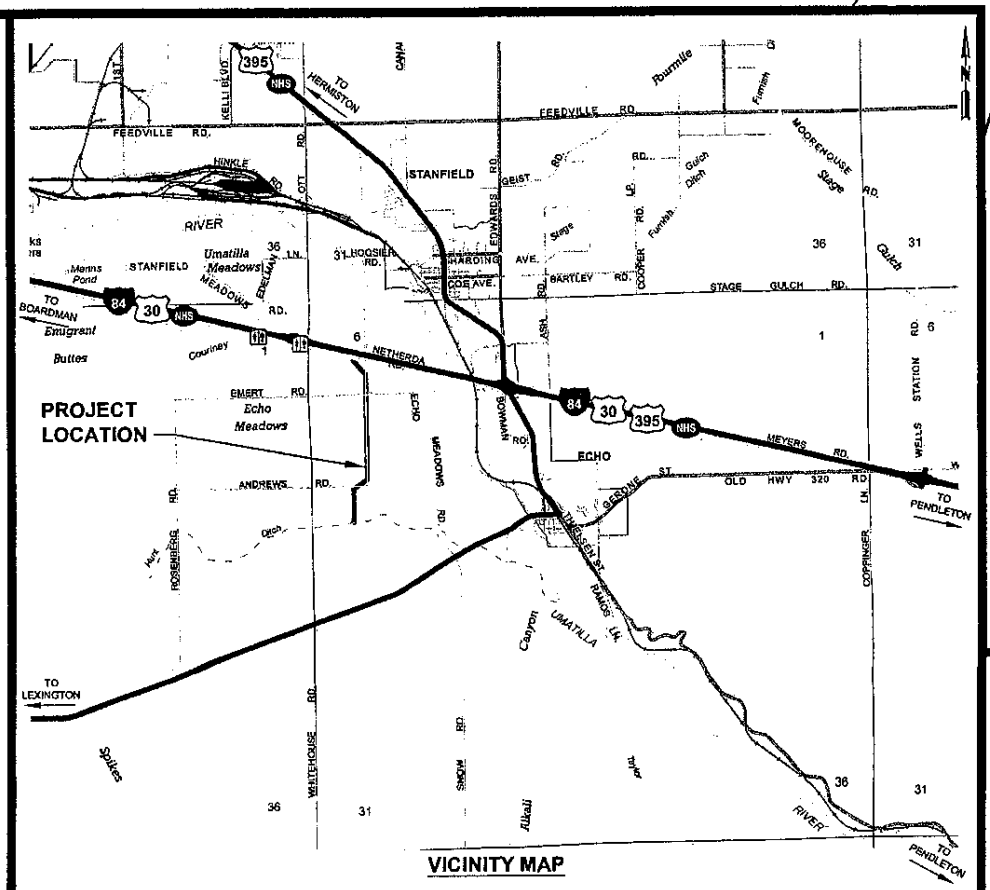
WESTLAND IRRIGATION DISTRICT

DILLON DAM PIPELINE

2014



INDEX



WESTLAND IRRIGATION DISTRICT

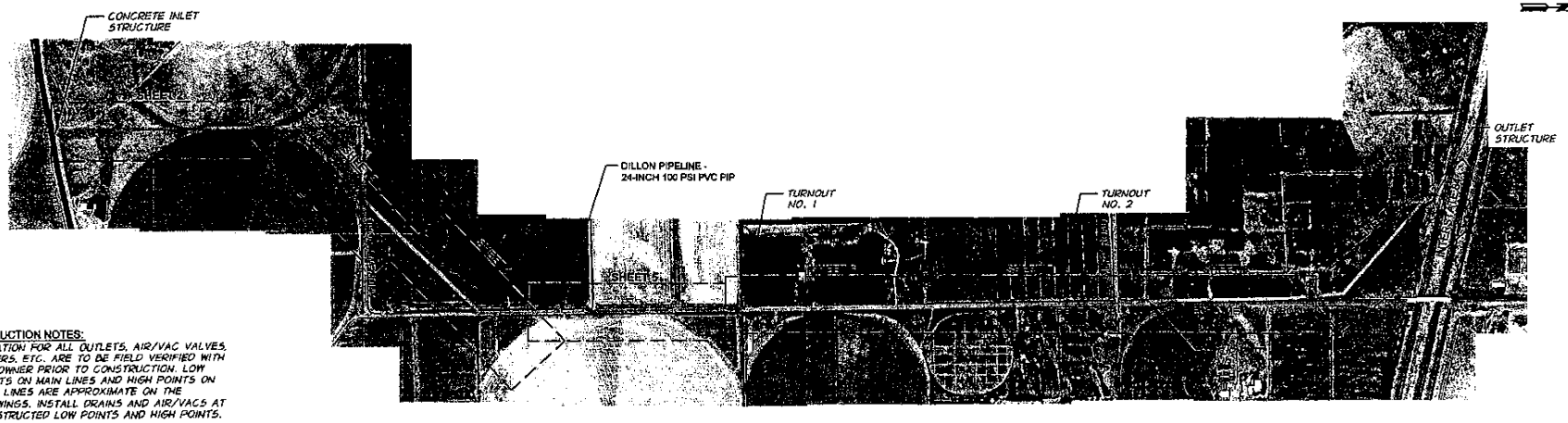
Umatilla Basin Watershed Council

_____ has reviewed these drawings and approved them for construction to fulfill the intended project objectives.

_____ _____
Date

FOR REVIEW ONLY
NOT FOR CONSTRUCTION
80% REVIEW

anderson perry & associates, inc.
engineering · surveying · natural resources
1901 N. Fir Street - La Grande, OR 97850 Ph: (541)963-3008 Fax: (541)963-5458
LA GRANDE, OR. WALLA WALLA, WA.



CONSTRUCTION NOTES:

1. LOCATION FOR ALL OUTLETS, AIR/VAC VALVES, METERS, ETC. ARE TO BE FIELD VERIFIED WITH THE OWNER PRIOR TO CONSTRUCTION. LOW POINTS ON MAIN LINES AND HIGH POINTS ON MAIN LINES ARE APPROXIMATE ON THE DRAWINGS. INSTALL DRAINS AND AIR/VACS AT CONSTRUCTED LOW POINTS AND HIGH POINTS.
2. ALL EXISTING UTILITIES SHOWN ON THESE DRAWINGS ARE SHOWN WITH AS MUCH ACCURACY AS POSSIBLE. PIPELINE INSTALLER IS TO WORK CLOSELY WITH THE RESPECTIVE UTILITY COMPANY FOR LOCATION AND COORDINATION NEEDS. (CALL-BEFORE-YOU-DIG) 811 OR 1-800-332-2344, UTILITIES NOTIFICATION CENTER.

SHEET INDEX

SCALE: 1"=400'

PLAN LEGEND

IRRIGATION

	EXISTING	PROPOSED
IRRIGATION LINE		6" PVC
VALVE		
AIR/VAC VALVE		
FLOWMETER		
DRAIN		

SITE SURVEY

EXISTING

- INDEX CONTOUR — 750
- INTERMEDIATE CONTOUR — 740
- CENTERLINE
- CULVERT
- CONTROL POINT

STREET AND CURB

EXISTING

- PAVED STREET — 1ST ST.
- GRAVEL DRIVEWAY/STREET

DRAFTING

- SECTION DESIGNATION (A / 2)
- SHEET WHERE SECTION WAS TAKEN OR WHERE SECTION IS SHOWN.
- SHEET CONTINUATION REFERENCE

MISCELLANEOUS UTILITIES

EXISTING

- OVERHEAD POWER — OHP — OHP
- BURIED TELEPHONE — T
- ELECTRICAL VAULT — E
- UTILITY POLE
- GUY WIRE
- TELEPHONE RISER

GENERAL

EXISTING

- FENCE LINE/GATE
- WOODEN FENCE
- CREEK/DITCH CENTERLINE
- SIGN

PROFILE LEGEND

- EXISTING GROUND AT PIPE
- 18" PVC — NEW IRRIGATION LINE AND SLOPE
- SL=0.0010 FT/FT
- B.C. STA. 4+65 I.E. 652.52 — PIPE GRADE CHANGE

NORTH ARROW

DESIGNED BY	L. UMPLEBY	XREFS: Dillon Pipeline-TB.dwg	
DRAWN BY	P. RICHARDSON		
REVIEWED BY	B. MOORE		

400 0 400 800 1200 SCALE IN FEET

HORZ. SCALE AS SHOWN — VERT. SCALE

JOB NUMBER 1280-02 — DATE 2014

ACAD FILE Sheet Index.dwg

THIS DRAWING HAS BEEN REDUCED 50%. ADJUST SCALE ACCORDINGLY. BARSCALE SHOWN IS ACCURATE.

FOR REVIEW ONLY
NOT FOR CONSTRUCTION
80% REVIEW

anderson perry & associates, inc.
engineering · surveying · natural resources
LA GRANDE, OR WALLA WALLA, WA

WESTLAND IRRIGATION DISTRICT
DILLON DAM PIPELINE

SHEET INDEX AND LEGEND

SH

INTERNAL REVENUE SERVICE
P. O. BOX 2508
CINCINNATI, OH 45201

DEPARTMENT OF THE TREASURY

Date: MAR 26 2000

Employer Identification Number:
93-1231250
DLN:
310007641
Contact Person:
ALLAN REINDERS ID# 95124
Contact Telephone Number:
(877) 829-5500
Accounting Period Ending:
December 31
Form 990 Required:
Yes
Addendum Applies:
No

UMATILLA BASIN WATERSHED FOUNDATION
BOX 1551
PENDLETON, OR 97801

Dear Applicant:

Based on information supplied, and assuming your operations will be as stated in your application for recognition of exemption, we have determined you are exempt from federal income tax under section 501(a) of the Internal Revenue Code as an organization described in section 501(c)(3).

We have further determined that you are not a private foundation within the meaning of section 509(a) of the Code, because you are an organization described in sections 509(a)(1) and 170(b)(1)(A)(vi).

If your sources of support, or your purposes, character, or method of operation change, please let us know so we can consider the effect of the change on your exempt status and foundation status. In the case of an amendment to your organizational document or bylaws, please send us a copy of the amended document or bylaws. Also, you should inform us of all changes in your name or address.

As of January 1, 1984, you are liable for taxes under the Federal Insurance Contributions Act (social security taxes) on remuneration of $100 or more you pay to each of your employees during a calendar year. You are not liable for the tax imposed under the Federal Unemployment Tax Act (FUTA).

Since you are not a private foundation, you are not subject to the excise taxes under Chapter 42 of the Code. However, if you are involved in an excess benefit transaction, that transaction might be subject to the excise taxes of section 4958. Additionally, you are not automatically exempt from other federal excise taxes. If you have any questions about excise, employment, or other federal taxes, please contact your key district office.

Grantors and contributors may rely on this determination unless the Internal Revenue Service publishes notice to the contrary. However, if you lose your section 509(a)(1) status, a grantor or contributor may not rely on this determination if he or she was in part responsible for, or was aware of, the act or failure to act, or the substantial or material change on the part of the organization that resulted in your loss of such status, or if he or she acquired knowledge that the Internal Revenue Service had given notice that you would no longer be classified as a section 509(a)(1) organization.

UMATILLA BASIN WATERSHED FOUNDATION

Donors may deduct contributions to you as provided in section 170 of the Code. Bequests, legacies, devises, transfers, or gifts to you or for your use are deductible for federal estate and gift tax purposes if they meet the applicable provisions of Code sections 2055, 2106, and 2522.

Contribution deductions are allowable to donors only to the extent that their contributions are gifts, with no consideration received. Ticket purchases and similar payments in conjunction with fundraising events may not necessarily qualify as deductible contributions, depending on the circumstances. See Revenue Ruling 67-246, published in Cumulative Bulletin 1967-2, on page 104, which sets forth guidelines regarding the deductibility, as charitable contributions, of payments made by taxpayers for admission to or other participation in fundraising activities for charity.

In the heading of this letter we have indicated whether you must file Form 990, Return of Organization Exempt From Income Tax. If Yes is indicated, you are required to file Form 990 only if your gross receipts each year are normally more than $25,000. However, if you receive a Form 990 package in the mail, please file the return even if you do not exceed the gross receipts test. If you are not required to file, simply attach the label provided, check the box in the heading to indicate that your annual gross receipts are normally $25,000 or less, and sign the return.

If a return is required, it must be filed by the 15th day of the fifth month after the end of your annual accounting period. A penalty of $20 a day is charged when a return is filed late, unless there is reasonable cause for the delay. However, the maximum penalty charged cannot exceed $10,000 or 5 percent of your gross receipts for the year, whichever is less. For organizations with gross receipts exceeding $1,000,000 in any year, the penalty is $100 per day per return, unless there is reasonable cause for the delay. The maximum penalty for an organization with gross receipts exceeding $1,000,000 shall not exceed $50,000. This penalty may also be charged if a return is not complete, so be sure your return is complete before you file it.

The law requires you to make your annual return available for public inspection without charge for three years after the due date of the return. You are also required to make available for public inspection a copy of your exemption application, any supporting documents and this exemption letter to any individual who requests such documents in person or in writing. You can charge only a reasonable fee for reproduction and actual postage costs for the copied materials. The law does not require you to provide copies of public inspection documents that are made widely available, such as by posting them on the Internet (World Wide Web). You may be liable for a penalty of $20 a day for each day you do not make these documents available for public inspection (up to a maximum of $10,000 in the case of an annual return).

You are not required to file federal income tax returns unless you are subject to the tax on unrelated business income under section 511 of the Code. If you are subject to this tax, you must file an income tax return on Form

990-T, Exempt Organization Business Income Tax Return. In this letter we are not determining whether any of your present or proposed activities are unrelated trade or business as defined in section 513 of the Code.

You need an employer identification number even if you have no employees. If an employer identification number was not entered on your application, a number will be assigned to you and you will be advised of it. Please use that number on all returns you file and in all correspondence with the Internal Revenue Service.

In accordance with section 508(a) of the Code, the effective date of this determination letter is May 1, 1997.

This determination is based on evidence that your funds are dedicated to the purposes listed in section 501(c)(3) of the Code. To assure your continued exemption, you should keep records to show that funds are expended only for those purposes. If you distribute funds to other organizations, your records should show whether they are exempt under section 501(c)(3). In cases where the recipient organization is not exempt under section 501(c)(3), there should be evidence that the funds will remain dedicated to the required purposes and that they will be used for those purposes by the recipient.

If distributions are made to individuals, case histories regarding the recipients should be kept showing names, addresses, purposes of awards, manner of selection, relationship (if any) to members, officers, trustees or donors of funds to you, so that any and all distributions made to individuals can be substantiated upon request by the Internal Revenue Service. (Revenue Ruling 56-304, C.B. 1956-2, page 306.)

If we have indicated in the heading of this letter that an addendum applies, the enclosed addendum is an integral part of this letter.

Because this letter could help resolve any questions about your exempt status and foundation status, you should keep it in your permanent records.

If you have any questions, please contact the person whose name and telephone number are shown in the heading of this letter.

Sincerely yours,

[redacted]

Steven T. Miller
Director, Exempt Organizations

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: Dillon Alternative Irrigation Pipeline Construction

Applicant: Umatilla Basin Watershed Foundation (Council);
Jonathan Staldine, Executive Director

Date: February 21, 2016

Fiscal Officer [redacted]

Date: February 21, 2016

OREGON DEPARTMENT OF FISH & WILDLIFE

Fish Division, Engineering

WORK ORDER

X	NEW CONSTRUCTION		REPAIR	NUMBER
	IMPROVEMENT		OTHER:	

FACILITY: Dillon Irrigation Pipeline

DESCRIPTION:

Review of construction documents pertaining to the Dillon Pipeline as an alternative means of diverting water from the Westland Canal to lands historically served by the Dillon Dam near Echo, Oregon.

TENT. START DATE:	TENT. COMPL. DATE:	IN-WATER WORK?:
December 1, 2016	February 28, 2017	Not at this time

COST CODE TITLE	GRANT	COST CENTER	PHASE		

ORIGINATOR DATE:	REGION/SECTION DATE:	ENGINEERING DATE:	

COMMENTS:

COMPLETION