January 14, 2013
Kennewick Irrigation District
Kennewick, Washington
Benton County
Project Title: KID WaterSMART13 Canal Lining Project

TECHNICAL PROPOSAL

Executive Summary

The Kennewick Irrigation District (KID) submits this application for Funding Opportunity Announcement No. R 13SF80003 under **Task A-Water Conservation** for **Group II Funding** through the 2013 WaterSMART: Water and Energy Efficiency Grant Program from the Bureau of Reclamation (USBR).

The KID has a project which would use this grant funding to install 14.6 miles of EPDM (ethylene propylene diene terpolymer) geomembrane canal liner in the following areas:

- 17,942 lineal feet of the KID Badger East Lateral Canal
- 50,203 lineal feet of the KID Main Canal – Division IV
- 9,106 lineal feet of the KID Highland Feeder Canal

This project will result in quantifiable and sustained water savings of 1,759 acre feet annually. Total project costs are $6,975,357 with KID contributing $5,475,357 or 78.5%. The schedule for this project would begin in the summer of 2013 and would be completed the summer of 2016.

Background Data

The Kennewick Division is part of the Bureau of Reclamation's Yakima Project in Washington and diverts water from the Yakima River at Prosser Dam, river mile 47.1. Lands within the KID are located south of the Yakima River and Columbia River and extend to the foot of the Horse Heaven Hills. The KID's canal system ends and spills water back to the Columbia River near river mile 317.5. The map on the following page shows the geographic location of the project.

Water rights for the KID can be traced to an August 6, 1891 water right claim filed by the Yakima Irrigation and Improvement Company and a conditional final order issued through the State of Washington Department of Ecology v. Acquavella adjudication which confirm a pro-ratable May 10, 1905 water right held by USBR for the benefit of the KID water users. KID's water rights provide a maximum annual diversion of 102,674 acre feet and a maximum instantaneous Yakima River diversion of 345 cubic feet per second (cfs). The diversion at Prosser Dam is the last USBR diversion on the Yakima River. From this diversion, water travels in the Chandler diversion canal to the Chandler Power and Pumping Plant.

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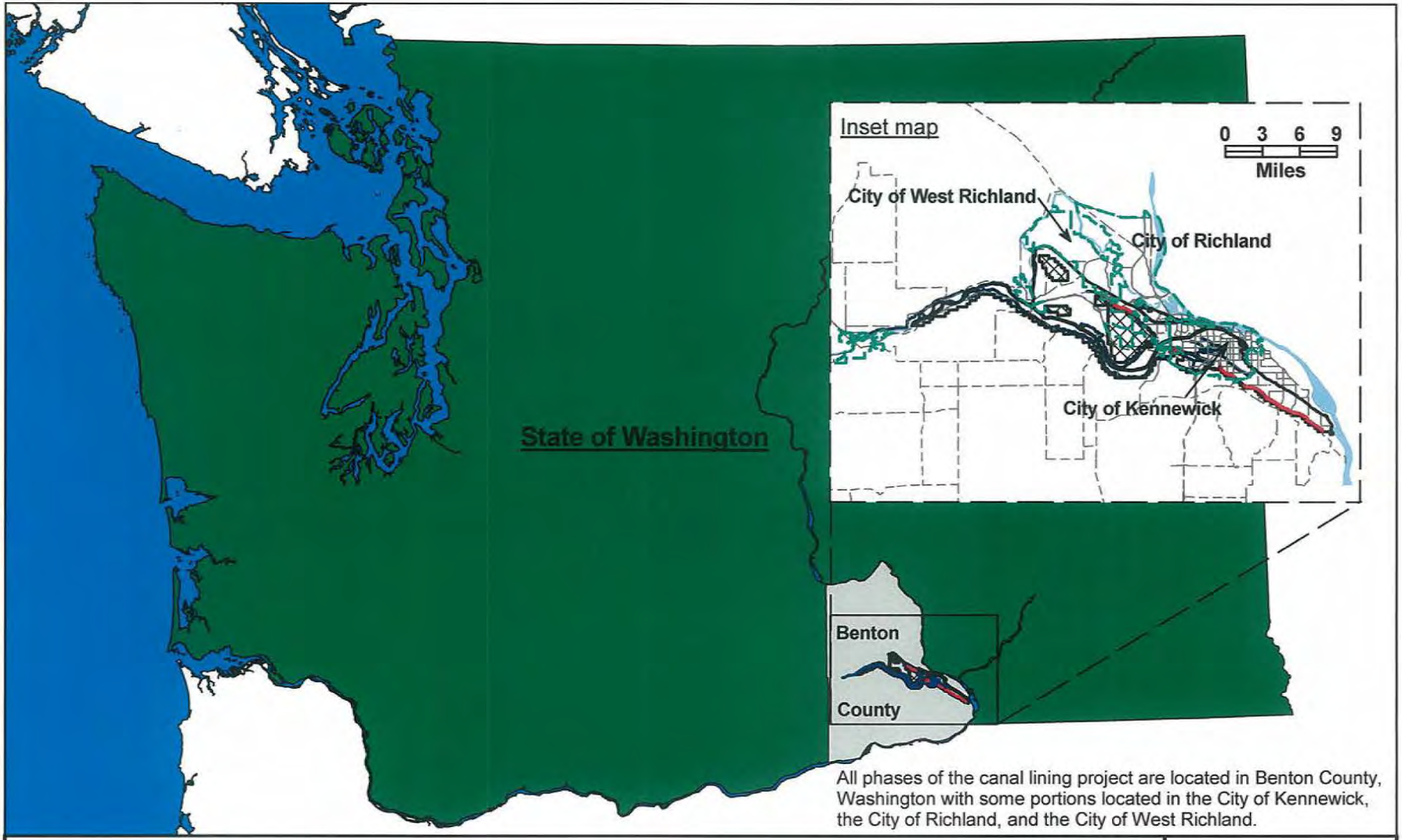


All phases of the canal lining project are located in Benton County, Washington with some portions located in the City of Kennewick, the City of Richland, and the City of West Richland.

KID WaterSMART13 Canal Lining G2 Locator Map

KID Boundary

Exclusion

River

WaterSMART13 Canals (G2)

KID Canals

Major Roads

N

0 15 30 45 60 75
Miles

KID
KENNEWICK IRRIGATION DISTRICT

The drive water that powers the two hydraulic pumps at Chandler pump water into the KID Main Canal at a rate of 5 units drive water to 4 units pumped water. So, for every 100 acre feet of water conserved by KID and not pumped, an additional 125 acre-feet of water is conserved by not utilizing the drive water for pumping. The unused capacity in the Chandler Diversion Canal may then be used by Reclamation to divert additional water to produce additional electricity at Chandler according to the Reclamation staff at the Columbia Cascade area office.

KID delivers irrigation water to its customers via 74 miles of canal and over 400 miles of distribution water mains. The Main Canal was constructed in four divisions. The first three divisions are approximately 24 miles in length in total. At the Main Canal mile 14.5 the Badger Siphon diverts water to the Badger East and Badger West Lateral Canals which are 17 miles and 3 miles in length respectively. Division III of the Main Canal ends at the Amon Siphon and the Main Canal spillway. The Amon Siphon supplies water to Division IV of the Main Canal, the Highland Feeder Canal and the Amon Pump Laterals in Kennewick.

Division IV of the Main Canal is approximately 18 miles in length. KID has approximately 49.02 miles of earthen canal; 12.56 miles of concrete lined canal; 5.45 miles of EPDM lined canal; 1.58 miles of HDPE lined canal; 5.54 miles of PVC lined canal and 4.82 miles of siphon.

KID is a heavily urbanized district with 22,886 customers. Of these customers, 278 own parcels eight acres and larger, representing agricultural customers who grow alfalfa and grass hay, corn, wheat, pumpkins, asparagus, apples, cherries, peaches, pears, grapes and plums. In the urbanized areas of the District, irrigation water is used predominately for lawn watering, landscape and garden areas.

The District has a rolling 5 year capital plan that includes; lining and piping canals, conducting water management planning, installing water measurement devices, automation and telemetry and initiating programs and policies that improve water quality and more efficient water use.

This project is an integral part of KID's capital plan. In 2010, the District identified approximately 54.5 miles of canal to be lined. By the start of the 2013 water season, the District will have completed lining approximately 9.0 miles of canal. The proposed project will line another 14.6 miles over three years for a total of 23.6 miles lined.

KID has a long and positive relationship with Reclamation that includes previous grant awards for the following projects:

- 2011 WaterSMART: Water and Energy Efficiency Grant;
- 2011 Field Services Grant for poly-urea membrane lining of concrete panels;
- 2009 Seepage Reduction project;
- 2007 Technology Grant for the installation of a SCADA system on critical portions of the KID canal system.

Additionally, KID meets regularly with the USBR's Yakima Field Office staff regarding regional water supply and quality as well as actively participating in regional water supply planning efforts under the authority of the Yakima River Basin Water Enhancement Project (YRBWEP).

Technical Project Description

The project areas selected were based on water conservation, and public safety due to the substantial elevation changes from the canal embankment to downhill properties immediately adjacent to the canal.

The vicinity maps and canal cross section figures shown on pages 22-31 show the geographic location and the installation details of the EPDM liner and geo-textile proposed lining project. The project is located in southeastern Washington State, including portions of Kennewick, Richland, West Richland and unincorporated Benton County.

KID has divided the EPDM canal project lining areas into 3 phases as shown below to match the duration of the WaterSMART grant.

Phase I (2013-2014)

- Main Canal – Division IV: Station 1616+06 to Station 1700+30.
- Main Canal – Division IV: Station 2040+73 to Station 2206+07.

The Main Canal – Division IV lining project proposes to line approximately 22,327 lineal feet of existing earth lined canal. From Station 1616+06 to Station 1700+30 the cross sectional width of the Main Canal is about 50 feet for this section. Therefore, two 30-feet wide by 200-foot long sections of rolled EPDM liner will be installed and laterally seamed every 200 feet with one longitudinal seam.

From Station 2040+73 to Station 2206+07 the cross sectional width of the Main Canal is about 25 feet for this section. Therefore, one 35-foot wide by 200-foot long sections of rolled EPDM liner will be installed and laterally seamed every 200 feet. Each section of EPDM liner will be keyed into a trench at the top of the canal embankment with the 4-foot of overlap keyed into the top bank anchor trench for a total width of 35 feet.

Phase II (2014-2015)

- Badger East Lateral Canal: Station 604+05 to Station 829+07.
- Highland Feeder Canal: Station 1+29 to Station 92+35
- Main Canal – Division IV: Station 1325+00 to Station 1342+50.

As part of Phase II, The Badger East Canal lining project proposes to line approximately 17,822 lineal feet of existing earthen lined canal. The cross sectional width of the Badger East Canal is approximately 20-feet for this section. One 30-foot wide by 200-foot long section of EPDM rolled liner will be installed and laterally seamed every 200 feet. Each section of EPDM liner will be keyed into a trench at the top of the canal embankment with a 4-foot overlap for a total width of approximately 30 feet.

The Highland Feeder Canal lining project proposes to line approximately 9,106 lineal feet of existing earthen lined canal. The cross sectional width of the Highland Feeder Canal is approximately 40 feet for this section. Therefore, one 30-foot wide by 200-foot long section of EPDM rolled liner will be longitudinally seamed with a 20-foot wide by 200-foot long section of EPDM rolled liner. Each section of EPDM liner will be keyed into a trench at the top of the canal embankment with the 4-foot of overlap keyed into the top bank anchor trench for a total width of 50 feet.

The Main Canal Division IV lining project proposes to line approximately 1,750 lineal feet of existing earth lined canal from Station 2040+73 to Station 2206+07. The cross sectional width of the Main Canal is about 50 feet for this section. Therefore, one 30-foot wide by 200-foot long section of EPDM rolled liner will be longitudinally seamed with a 35-foot wide by 200-foot long section of EPDM rolled liner. Each section of EPDM liner will be keyed into a trench at the top of the canal embankment with the 4-foot of overlap keyed into the top bank anchor trench for a total width of 65 feet.

Phase III (2015-2016)

- Main Canal – Division IV: Station 1760+72 to Station 1867+52.
- Main Canal – Division IV: Station 1876+27 to Station 2036+43.

As part of phase III, The Main Canal – Division IV Section 2 lining project proposes to line approximately 10,680 lineal feet of existing earthen lined canal. The cross sectional width of the Main Canal is about 50 feet for this section. Therefore, two 30-foot wide by 200-foot long EPDM rolls of liner will be longitudinally seamed together. Each section of EPDM liner will be keyed into trenches at the top of the canal embankments with a 4-foot overlap for a total width of approximately 60 feet.

In addition, a second section of the Main Canal – Division IV Section 2 and 3 lining project proposes to line approximately 15,446 lineal feet of existing earthen lined canal. The cross sectional width of the Main Canal is about 45 feet for this section. Therefore, one 20-foot wide by 200-foot long EPDM roll of liner will be longitudinally seamed with a 35-foot wide by 200-foot long EPDM roll of liner. Each section of EPDM liner will be keyed into trenches at the top of the canal embankments with a 4-foot overlap for a total width of approximately 55 feet.

Evaluation Criteria

A. Water Conservation (28 points)

Subcriterion No. A.1(a) - Quantifiable Water Savings (20 points)
KID's annual average water supply is 97,500 acre feet which includes deliveries to customers, operational spills, seepage and evaporation. The total estimated amount of water conserved for all three phases is 1,759 acre-feet annually, through reduced canal seepage.

To calculate seepage losses the following formula is used:	
$S = \frac{(SR) * (WP) * (L) * (D)}{Acre}$	
S	Seepage in Acre-Feet/ Water Season, in ft./day
SR	Seepage rate (from USGS Study* see below)
WP	Wetted Perimeter of Canal Reach to be lined, in sq.ft.
L	Length of Canal Reach, in ft.
D	Days in Water Season

The Seepage rate was determined by a study shown in the attached excerpt, which was completed by the United States Geological Survey* (USGS) published in 1997

entitled "Changes in Ground-Water Levels and Ground-Water Budgets, from Predevelopment to 1986, in Parts of the Pasco Basin, WA.". (See Attachment A) In this study most of the reaches of the Badger East Canal which are proposed to be lined had a seepage rate established. There is one reach of canal that had a much higher seepage rate than any of the other reaches, so that seepage rate was replaced by evaluating the soil types in that reach. In addition, in the canal reaches not covered by the USGS study, the seepage rates were determined by comparing the soil types in the canal reaches included in the study with the soil types in the canal reaches not included in the study. The soil types for this analysis are shown in the attached excerpt from the "Soil Survey Benton County Area, Washington," issued by the United States Department of Agriculture, Soil Conservation Service in 1971. (See Attachment B) Note: KID's water right is April 1 to October 31. Applying this formula results in the seepage amounts shown in the table below:

WaterSMART Seepage Analysis

Phase	***Location***	***Canal Section***	***Seepage Rates (ft/d)****	***Wetted Perimeter (ft)***	***Length (ft)***	***Days***	***Seepage (Acft/Year)***
			SR	***WP***	***L***	***D***	***S***
1	Division 4, Ely St. to Olympia St.	Section No. 1	0.2	23.7	8,374	210	192
1	Division 4, SR 397 to Hover Drain	Section No. 4	0.4	10.9	13,953	210	292
2	Division 4, Start to Existing Concrete	Section No. 1	0.2	23.7	1,750	210	40
2	Highland Feeder, Start to CCB	Section No. 1	0.2	25.9	9,106	210	227
2	Badger East Lateral	Section No. 3	0.4	11.6	6,135	210	137
2	Badger East Lateral	Section No. 4	0.4	8.1	11,807	210	183
3	Division 4, Olympia Siphon to Herrin Siphon	Section No. 2	0.3	19.1	10,680	210	295
3	Division 4, Herrin Siphon to 397 Siphon	Section No. 2	0.3	19.1	7,506	210	207
3	Division 4, Herrin Siphon to 397 Siphon	Section No. 3	0.3	16.2	7,941	210	186

Total 1,759

Upon completion of the project, the 45-Mil EPDM lining that is proposed provides a permeability of 3.0 x 10^{-6} m^3/m^2d which equals a seepage rate of 9.8 x 10^{-6} ft./day which effectively equates to no seepage loss. A detailed description of the 45-Mil EPDM lining is included. (See attachment C)

Verifying the actual canal seepage reduction will be completed by inflow/outflow tests within the canal reaches to be lined. KID began inflow/outflow baseline testing at the end of the water season 2012, and will be continue with inflow/outflow testing every year in the future. The baseline inflow/outflow testing is completed at the beginning and end of the water season, when no water deliveries are occurring, allowing for a more accurate calculation of the water loss in the canal reach. In addition to the beginning and end of season testing, KID has a SCADA system that provides data to calculate losses in the canal reaches.

Water that seeps from KID canals returns to the lower Yakima and Columbia Rivers. Conserved water is governed by the 2001 State v. Acquavella settlement agreement, and its 2011 amendment, both entered into by KID, USBR, the Washington State Department of Ecology and the Yakama Indian Nation.

That portion of the water conserved by the project, which is required to stay in the Yakima River (580 acre feet), will stay in stream. The 1,179 acre feet of conserved water which is not required to stay in the river, can be better managed by KID and beneficially used in drought years in a manner consistent with the State v. Acquavella settlement agreement. KID is allowed, but is not obligated to leave all conserved water in the Yakima River per the State v. Acquavella settlement agreement. The following table details where the conserved water will go.

Table of Water Conserved Resulting From Project			
Conserved Water	Drive Water at Chandler Pumps Not Diverted at Prosser for Conserved Water	**TOTAL**	
580 AF	725 AF	1,305 AF	**MINIMUM** addition to in stream flow
1,179 AF	1,474 AF	2,650 AF	**67%** of Conserved Water together with Associated Drive Water t
1,759 AF	2,199 AF	3,958 AF	

Subcriterion No. A.1(b) – Improved Water Management (5 points)
Canal flows will be improved and transit times reduced allowing for more efficient water delivery. Water management will also be improved due to the safety and security of KID's canal facilities as a result of this project, especially for areas adjacent to or below canal embankments.

Subcriterion No. A.2 – Percentage of Total Supply (4 points)
1.8% of the total average water supply will be conserved as a direct result of this project.

$$\frac{\textbf{1,759} \text{ (Estimated Amount of Water Conserved)}}{\textbf{97,500} \text{ (Average Annual Water Supply)}}$$

Subcriterion No. A.3 – Reasonableness of Costs (4 points)
For a total project cost of $6,975,357, and an annual water savings of 1,759 acre-feet the cost for each acre-foot of water conserved is $3,966 which is comparatively inexpensive when amortized over the life of the project. The EPDM liner being installed for this project is rated for a minimum lifespan of 50 years. Over the projected 50 year life of this project, the total water conserved is 87,950 acre feet, $79.31per acre foot over the 50 year life cycle per the manufacturer's product specification.

$$\frac{\textbf{\$6,975,357} \text{ (Total Project Cost)}}{\textbf{87,950} \text{ (Acre Feet Water Conserved, or Better Managed x Improvement Life)}}$$

Reclamation's share of the funding is $852.76 per acre-foot and $17.06 per acre-foot over the life of the project. In addition to this low cost per acre-foot, the EPDM Lining material is backed by a 10 year non-prorated warranty with an additional 20 year pro-rated warranty.

B. Energy-Water Nexus (16 points)

Subcriterion No. B.1 – Implementing Renewable Energy Projects Related to Water Management and Delivery (16 points)

Reduced diversions could allow for a commensurate increase in hydropower production through the Chandler generation station by USBR, according to USBR's Columbia Cascades Area staff. The increase in hydropower is calculated through the following equations:

$$hp = \frac{h_a * Q * SG}{3956}$$

Where:

hp = Horsepower

h_a = elevation difference = 618.48 ft. – 507.00 ft. (Centerline of Chandler Hydraulic Turbine) = 111.48 ft.

Q = Flow = 1759 x (5/4 drive water ratio at Chandler) Acre-ft per 210 day water season = 2,369 gallons per min.

SG = Specific Gravity of Water = 1

$$hp = \frac{(111.48 \text{ ft.}) * (2{,}369 \text{ gpm}) * (1)}{3956} = 66.75 \text{ hp}$$

And using:

Total KWH = .7457 * hp * 24 hrs * 210 days

Where:

1 hp = .7457 KW

Total KWH = (.7457) * (66.75 hp) * (24 hrs.) * (210 days) = 250,868 KWH

Assuming a pump efficiency of 70%, the estimated commensurate increase in hydropower is 175,608 KWH per year or 7,986 KWH per 100 Acre-Feet of water conserved.

Subcriterion No. B.2 – Increasing Energy Efficiency in Water Management (4 points)

The proposed canal lining project increases hydraulic energy efficiency and water management by reducing the amount of energy necessary to deliver water in the KID system

The Bureau of Reclamation operates the Chandler Power and Pumping Plant which produces electricity for Reclamation and pumps water to the KID Main Canal utilizing two 167 cfs hydraulically powered pumps. These pumps lift the water delivered to KID from an elevation of 618.48 ft at the Chandler Canal to an elevation of 719.99 ft at the KID Main Canal, this lift that is provided equates to approximately 13,000 KWH per 100 Acre-Feet of water conserved. The total equivalent electrical energy reduced by not diverting the water conserved by the proposed lining project is calculated through the following equations:

$$hp = \frac{h_a * Q * SG}{3956}$$

Where:

hp = Horsepower

h_a = elevation difference = 719.99 ft. – 618.48 ft. = 101.51 ft.

Q = Flow = 1759 Acre-ft per 210 day water season = 1895 gallons per min.

SG = Specific Gravity of Water = 1

$$hp = \frac{(101.51 \text{ ft.}) * (1895 \text{ gpm}) * (1)}{3956} = 48.63 \text{ hp}$$

And using:

Total KWH = .7457 * hp * 24 hrs * 210 days

Where:

1 hp = .7457 KW

Total KWH = (.7457) * (48.63 hp) * (24 hrs.) * (210 days) = 182,767 KWH

Assuming an electrical pump efficiency of 80%, the estimated equivalent energy savings for the conserved water is 228,459 KWH per year.

This equivalent energy savings is for the conserved canal seepage only, and does not include the drive water that is saved by not pumping water into the KID canal. This benefit to the project can be verified by measuring the amount of water diverted to the KID Main Canal. Reclamation currently measures the KID diversion on the Hydromet system. KID's water right is from April 1 to October 31.

C. Benefits to Endangered Species (12 points)

The species listed under the Endangered Species Act (ESA) in the Yakima River in Benton County include bull trout and mid-Columbia ESU steelhead. The water conservation savings resulting from the seepage reduction of this canal lining project will directly benefit the listed and other species of fish in the Yakima River.

The Prosser to Chandler reach of the Yakima River is identified as priority habitat for both ESA listed steelhead and bull trout. The Prosser to Chandler reach of the Yakima River is subject to reduced flows; particularly during peak water use summer months during drought years, due in part to Reclamation withdrawals for irrigation water. Both fish species are dependent on water for habitat. Approval of the project would incrementally improve their habitat and be a step toward eventual de-listing under ESA. A steelhead recovery plan is in place for the Yakima River basin, and goal number one of the Recovery Plan in the Lower Yakima River is increasing flows in the Prosser to Chandler Reach.

D. Water Marketing (12 points)

The lining project allows KID to market 67% of the conserved water, or 1,179 acre feet, pursuant to the 2001 State v. Acquavella Settlement agreement for in stream flows in critical reaches of the Yakima River. The amount of water marketed will not exceed the amount of water conserved, and that portion which is available for marketing, would occur in a manner consistent with the formulas outlined in Sections 5 and 6 of the 2001 State v. Acquavella settlement agreement.

E. Other Contributions to Water Supply Sustainability (14 points)

The water conserved by this project will be particularly beneficial to fish in drought and shortage years by increasing in-stream flows in a critical reach during critical low flow periods. Downstream benefits of additional flows continue through to the Pacific Ocean.

The Yakima Basin is a water short basin and the climate in the Basin is changing. Significant droughts occurred in 1977, 2001 and 2005. Intensive planning efforts have been ongoing since the 1970's to cure the long-term water supply shortages. KID had participated in the formulation of the Yakima Basin Integrated Plan and has endorsed its implementation. There has been significant tension and litigation over water supply for several decades. The State v. Acquavella adjudication has been ongoing since 1977.

In drought years, KID's water supply is pro-rationed based on the projected total water supply available in the basin. KID is dependent on return flows from other upstream USBR Yakima Project diversions including but not limited to, the Sunnyside Valley, Roza, Wapato and Kittitas Irrigation Districts. During drought years, the reduced water supply diminishes crop production, increased KID operation costs and increases competition for a scare resource. The lining project will incrementally reduce the negative effects of drought.

Upstream return flows are diminished when conservation projects are implemented upstream. Reducing KID's canal seepage improves long-term water supply sustainability in the Yakima Basin by reducing the District's water needs. Reduced water needs will reduce competition for scarce water from upstream sources in drought years and will incrementally reduce water related conflict.

This project implements prior collaboration with the Yakama Nation, Ecology, KID and USBR through the settlement agreement. The project will make additional water available to Indian Tribes through increased in stream flows provided to benefit ESA listed steelhead and fisheries important to the Yakama Nation.

Urbanization has stressed the KID system, which adds to the need to line canals to improve safety of downhill property owners and to improve the operational efficiency of the canal system. The project will also provide an increase in public safety levels by helping to prevent canal embankment failures which may result in property damage and/or loss of life.

F. Implementation and Results (10 points)

Subcriterion No.F.1 – Project Planning

The KID has a Water Conservation Plan adopted in April of 2009 and a December 2010 Feasibility Study in place supporting this project. This project implements the District's Water Conservation Plan, YRBWEP Integrated Plan, and Feasibility Study goals and objectives.

Additionally, this project implements the District's 5 year capital plan. The liner has been engineered specifically for the affected canal segments being lined. The project improves implementation of the USBR's Yakima Project operations plan.

The KID recently completed an EPDM canal lining project of the same type in March of 2012 on the KID Main Canal. The design and specifications for the prior EPDM liner project are very similar and will be utilized again for the new project.

Subcriterion No.F.2 – Readiness to Proceed
KID is prepared to begin immediately on project construction upon entering into a financial assistance agreement with the Bureau of Reclamation. KID's in-kind contributions are within KID's capital budget capacity. A Categorical Exclusion for all of the phases of the project was obtained October 26, 2012. The Project Schedule is shown on the following page and the Categorical Exclusion Checklist is attached. (See Attachment D)

No permitting delays are expected as the entire project occurs within the KID/USBR irrigation O&M easement and right-of-way. No delays are expected in documenting compliance with applicable state and federal environmental laws.

Subcriterion No.F.3 – Performance Measures
The performance measure that will verify the actual canal seepage reduction of 1,759 AF will be performed by completing inflow/outflow tests within the canal reaches to be lined. KID began inflow/outflow baseline testing at the end of the water season 2012, and will be continue with inflow/outflow testing every year in the future. The baseline inflow/outflow testing is completed at the beginning and end of the water season, when no water deliveries are occurring, allowing for a more accurate calculation of the water loss in the canal reach. In addition to the beginning of season, end of season testing, KID has a SCADA system that provides data to calculate losses in the canal reaches.

The performance measure that will verify increased electricity production will be verified through the number of KWH produced by USBR at the Chandler Power and Pumping Plant, through the existing metering system at the site.

The performance measure that will verify the equivalent energy of 228,459 KWH per year is the reduced actual total diversion to KID from Reclamation as measured at the KID Main Canal. In this manner, the total number of acre feet reduced from the diversion will be able to be calculated to equivalent energy savings.

Canal Lining Project Schedule: April 2013 through March 2016			
ACTIVITIES	**PHASE**	**FROM**	**TO**
Detailed Engineering Report with Construction Sequence	1	May-2013	Sep-2013
	2	May-2014	Sep-2014
	3	May-2015	Sep-2015
Construction Bid Process	1	Aug-2013	Sep-2013
	2	Aug-2014	Sep-2014
	3	Aug-2015	Sep-2015
Material Ordering and Purchase	1	Sep-2013	Oct-2013
	2	Sep-2014	Oct-2014
	3	Sep-2015	Oct-2015
Canal Shaping/Excavation	1	Oct-2013	Mar-2014
	2	Oct-2014	Mar-2015
	3	Oct-2015	Mar-2016
Ballast Processing/Excavation	1	Oct-2013	Mar-2014
	2	Oct-2014	Mar-2015
	3	Oct-2015	Mar-2016
Canal Liner Installation	1	Oct-2013	Mar-2014
	2	Oct-2014	Mar-2015
	3	Oct-2015	Mar-2016
Inspections and Certificate of Substantial Completion	1	During Construction	Mar-2014
	2	During Construction	Mar-2015
	3	During Construction	Mar-2016

G. Additional Non-Federal Funding (4 points)

$$\frac{\$5,475,356.92 \text{ (Non-Federal Funding; KID's Share)}}{\$6,975,356.92 \text{ (Total project Cost)}} = 78.5\%$$

H. Connection to Reclamation Project Activities (4 points)

This project is connected to Reclamation project activities by meeting the goals of the District's Water Conservation Plan, and implementing Reclamation's Yakima Basin Integrated Water Management Plan (Integrated Plan).

The Kennewick Irrigation District is a federal Bureau of Reclamation supplied irrigation district and is a current recipient of Reclamation project water.

The proposed canal lining project involves Reclamation owned canals, which by contract are transferred works.

The project is located within the Kennewick Division of Reclamation's Yakima Project, which is within the Yakima River Basin. The proposed work will contribute water to a basin where a Reclamation project is located.

ENVIRONMENTAL COMPLIANCE

Environmental compliance will be achieved by securing the applicable permits, if any, prior to any ground-disturbing activity in preparation of the canal lining installation. KID prepared and submitted a programmatic cultural and environmental review, which included the project sites, to the USBR in 2012. A categorical exclusion checklist No. 2012-CCA-103C was issued on October 26, 2012. A copy of this checklist is included. (See attachment D)

This project will not create a measurable negative impact to surrounding soil and animal habitat areas, endangered or threatened species, critical habitat areas, wetlands or other surface waters inside the project boundaries. Dust impacts will be minimal during construction and improved after completion of the liner installation. Noise impacts during construction will not adversely impact ESA listed species.

Due to the District's ongoing vegetation management program, this project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species of plants in our area.

The construction of the KID delivery system in its current form was completed in 1957. None of the features of the irrigation system are listed on the National Register of Historic Places, and while constructed in 1957, they have no known historical significance. This project will not result in any modifications to the features of the KID irrigation system.

There are no known archeological sites in the proposed project area nor will this project impact or cause adverse effects to tribal lands, low income or minority populations.

REQUIRED PERMITS OR APPROVALS

Compliance with the National Environmental Policy Act (NEPA) has been completed. Compliance with the state environmental policy act (SEPA) is required for this project, and will be completed prior to each phase. The KID Board of Directors is required by District policy and state bidding laws to award the project materials contract(s) to the lowest responsible bidder during a public meeting. A KID/USBR grant contract is required. Applicable state and local permits, if any, will be obtained prior to construction.

FUNDING PLAN AND LETTER OF COMMITMENT

KID is requesting the maximum funding under Group II or $1,500,000. The total cost for this project is estimated at $6,975,357. The Board of Directors approved submission of this grant application and matching funds from the KID capital improvement budget through the 2013-2016 budgets. (See attachment E)

No letters of commitment from other organizations are applicable. We have included letters of support from the Benton County Water Conservancy Board, the Benton County Conservation District and the Benton County Commissioners. (See Attachment F) The only funding partners are KID rate payers. The KID Board authorized the submittal of this grant application for 2013 WaterSMART funding by resolution during a special board meeting on January 8, 2013. The Board received no formal public comments for this project.

Table Summary of Non-Federal and Federal Funding Sources	
Funding Sources	**Funding Amount**
Non Federal Entities:	
1) KID In-Kind Contribution	*$22,363,674
2) KID Cash Contribution	$3,111,683
Non Federal Subtotal:	$5,475,357
Other Federal Entities	
1) None	0
Other Federal Subtotal:	0
Requested Reclamation Funding:	$1,500,000
Total Project Funding:	$6,975,357

(* denotes in-kind contribution)

OFFICIAL RESOLUTION

Resolution 2013-4 meeting the requirements of this application is shown on the following page. The KID Board of Directors met on Tuesday, January 8, 2013 at which time the resolution was adopted.

Please return to:
Executive Assistant
Kennewick Irrigation District
12 West Kennewick Avenue
Kennewick, WA 99336

KENNEWICK IRRIGATION DISTRICT
RESOLUTION 2013-4

OFFICIAL RESOLUTION FOR FY 2013 WATERSMART GRANT APPLICATION GROUP II

A RESOLUTION of the Board of Directors of Kennewick Irrigation District (KID), Benton County, Washington, for the purpose of authorizing the District Secretary/Manager as official representative and signature authority for KID in matters relating to the financial and legal obligations associated with the receipt of FY 2013 WaterSMART Grant, Group II financial assistance if awarded.

WHEREAS, the Board of Directors of KID (the Board) met in regular session on January 8, 2013 with a quorum present; and

WHEREAS, KID is submitting an application for FY 2013 Water SMART Grant funding Group II, in the amount of $1.5 Million dollars to complete a canal lining project with matching funds. The application is due January 17, 2013; and

WHEREAS, the Board is required to appoint an official signature authority representing KID in matters relating to the financial and legal obligations associated with the receipt of FY 2013WaterSMART Grant, Group II financial assistance and names Charles Freeman, District Secretary Manager as that representative; and

WHEREAS, KID has budgeted appropriately to complete the project and to meet the requirements of the matching funds criteria and is prepared to work with Reclamation to meet established deadlines associated with the cooperative agreement of this grant award.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE KENNEWICK IRRIGATION DISTRICT, BENTON COUNTY, WASHINGTON, that Charles Freeman, District Secretary Manager is authorized as the official representative and signature authority for KID in matters relating to the financial and legal obligations and requirements associated with the receipt of FY 2013 WaterSMART Grant, Group II financial assistance.

RESOLUTION 2013-4 IS HEREBY ADOPTED by the Board of Directors of Kennewick Irrigation District, Benton County, Washington, at a regular open public meeting thereof this 8th day of January 2013. This resolution supersedes all previous resolutions relating to the FY 2013 WaterSMART Grant Application.

Gene Huffman, President

Patrick McGuire, Vice President

David McKenzie, Director

Kirk Rathbun, Director

Penny Hermanson, Director

K. Budget Proposal

Budget Item Description		Computation $/Unit and Unit		Quantity	Recipient Funding	Reclamation Funding	Form 424C Line	Total Cost
Salaries and Wages								
1)	Comptroller	$ 44.50 - 47.78	/Hr	72	$ 3,321.12		1	$ 3,321.12
2)	Project Manager	$ 42.53 - 47.79	/Hr	360	$ 16,248.00		4	$ 16,248.00
3)	Staff Engineer	$ 33.06 - 37.15	/Hr	660	$ 23,239.00		4	$ 23,239.00
4)	Inspector	$ 25.29 - 28.20	/Hr	990	$ 26,586.30		6	$ 26,586.30
5)	Foreman/Field Op. Lead	$ 30.46 - 32.32	/Hr	660	$ 20,750.20		9	$ 20,750.20
6)	Maintenance/Canal	$ 22.96 - 25.11	/Hr	34320	$ 826,945.60		9	$ 826,945.60
7)	Part-Time Labor/Seasonal	$ 11.93 - 12.66	/Hr	13200	$ 162,564.00		9	$ 162,564.00
Fringe								
8)	Comptroller	$ 18.47 - 21.74	/Hr	72	$ 1,446.24		1	$ 1,446.24
9)	Project Manager	$ 14.03 - 17.68	/Hr	360	$ 5,698.80		4	$ 5,698.80
10)	Staff Engineer	$ 10.91 - 13.75	/Hr	660	$ 8,181.40		4	$ 8,181.40
11)	Inspector	$ 8.35 - 10.43	/Hr	990	$ 9,355.20		6	$ 9,355.20
12)	Foreman/Field Op. Lead	$ 14.62 - 16.80	/Hr	660	$ 10,407.80		9	$ 10,407.80
13)	Maintenance/Canal	$ 11.02 - 13.06	/Hr	34320	$ 414,991.20		9	$ 414,991.20
14)	Part-Time Labor/Seasonal	$ 5.73 - 6.58	/Hr	13200	$ 81,520.00		9	$ 81,520.00
Equipment								
KID Owned Equipment								
15)	312C Excavator	$ 4,249.72	/Mo	16	$ 67,995.46		9	$ 67,995.46
16)	310SJ Loader/Backhoe	$ 2,583.74	/Mo	16	$ 41,339.90		9	$ 41,339.90
17)	650J Crawler/Dozer	$ 4,412.40	/Mo	16	$ 70,598.40		9	$ 70,598.40
18)	450G Crawler/Dozer	$ 3,647.81	/Mo	16	$ 58,364.93		9	$ 58,364.93
19)	GUB13 Dump Truck (1)	$ 7,603.20	/Mo	16	$ 121,651.20		9	$ 121,651.20
20)	GUB13 Dump Truck (2)	$ 7,603.20	/Mo	16	$ 121,651.20		9	$ 121,651.20
21)	544J Loader	$ 7,957.88	/Mo	16	$ 127,326.14		9	$ 127,326.14
22)	JD770A Motor Grader	$ 6,853.44	/Mo	16	$ 109,655.04		9	$ 109,655.04
23)	17D Mini-Excavator (1)	$ 1,199.86	/Mo	16	$ 19,197.70		9	$ 19,197.70
24)	Catepillar 301.8 Mini-Excavator	$ 1,171.34	/Mo	16	$ 18,741.50		9	$ 18,741.50
25)	Caterpillar Roller 563C	$ 7,131.94	/Mo	16	$ 114,110.98		9	$ 114,110.98
26)	Ford L8000 Water Truck	$ 7,866.92	/Mo	16	$ 125,870.78		9	$ 125,870.78
Rental Equipment								
27)	Excavator 450	$ 12,355.30	/Mo	2	$ 24,710.60		9	$ 24,710.60
28)	Excavator 200 (1)	$ 6,259.80	/Mo	16	$ 100,156.80		9	$ 100,156.80
29)	Excavator 200 (2)	$ 6,259.80	/Mo	16	$ 100,156.80		9	$ 100,156.80
30)	Excavator 200 (3)	$ 6,259.80	/Mo	2.5	$ 15,649.50		9	$ 15,649.50
31)	Loader 644J	$ 6,958.40	/Mo	16	$ 111,334.40		9	$ 111,334.40
32)	Dozer 750	$ 6,895.40	/Mo	16	$ 110,326.40		9	$ 110,326.40
33)	Dump Truck (1)	$ 9,096.00	/Mo	16	$ 145,536.00		9	$ 145,536.00
34)	Dump Truck (2)	$ 9,096.00	/Mo	16	$ 145,536.00		9	$ 145,536.00
	Sales Tax				$ 62,532.74			$ 62,532.74
Supplies/Materials								
35)	EPDM Lining	$ 0.57 - 0.71	/Sqft	3587100	$ 934,418.45	$ 1,385,041.55	9	$ 2,319,460.00
36)	Geotextile	$ 0.14	/Sqft	4385700	$ 633,490.00		9	$ 633,490.00
37)	Taping and Seaming Materials	$ 219,652.40	Lump Sum	1	$ 219,652.40		9	$ 219,652.40
38)	Culvert Pipe	$ 750.00	/Ea	51	$ 38,250.00		9	$ 38,250.00
39)	Concrete Anchors	$ 90.00	/Yd	452	$ 40,680.00		9	$ 40,680.00
	Sales Tax (8.3%)				$ 154,918.74	$ 114,958.45		$ 269,877.19
Contractual/Construction								
40)	Surveying		Lump Sum	1	$ 30,250.00		5	$ 30,250.00
Total Direct Costs					$ 5,475,356.92	$ 1,500,000.00		$ 6,975,356.92
Indirect Costs -_____%								
Total Project Costs					$ 5,475,356.92	$ 1,500,000.00		$ 6,975,356.92

BUDGET NARRATIVE

Salaries & Wages; Fringe: The KID Comptroller, Engineering Manager (Project Manager), Staff Engineers, Inspectors, Foreman, Equipment Operators and Laborers-Full and Part-Time will provide the labor for all phases and for the engineering of the project. Their actual salary rates and individual fringe benefit and tax rates are included under "Fringe" in the calculation of hours in the Budget Proposal. These wages have been increased by 3% for each phase of the project to reflect probable wage increases per collective bargaining agreements. Included is a supporting spreadsheet for KID labor and benefit rates. (See Attachment G)

Equipment: Equipment Rentals are broken down into two parts:

- **KID Owned Equipment**
- **Rental Equipment**.

KID Owned Equipment rates are based on the "Construction Equipment Ownership and Operation Schedule, Region VIII" by U.S. Army Corps of Engineer's Volume 8, November 2011, excerpts of the applicable sections of the pamphlet are attached. (See Attachment H) The Army Corps rates are reduced by 25% because KID assumes that all equipment will be operating at 30 hours a week. This is a reasonable assumption due to the fact that KID operators will not be using the machines all 40 hours in a normal work week. The reduction in a 10 hours a week accounts for KID operator break times, travel times to and from the jobsite as KID operators report to work at the KID shop, daily staff and project meetings, sanitation breaks, holidays, and heavy equipment engine and hydraulic warm-up times.

Rental Equipment rates are based on actual bids received in 2012. The tabulation of these bids is attached. (See Attachment I) Added to the rental rates from the agencies is the fuel component of the Army Corps rates for equipment. This fuel component has also been reduced by 25% because of operator break times, travel times to and from the jobsite as KID operators report to work at the KID shop, daily staff and project meetings, sanitation breaks, holidays, and heavy equipment engine and hydraulic warm-up times.

Supplies/Materials: KID will contract with the lowest responsible bidder for materials on this project. Materials will be purchased prior to breaking ground on the project phases. Prices used in the first phase of the project estimate are based on current quotes from materials suppliers. The prices for the following phases include a $0.07 per square foot increase per year. In KID's experience buying 45-Mil EPDM lining, the price increased by $0.07 per square foot from 2010 - 2011. Additionally, in the last two years to today's market, KID has experienced a larger cost increase of approximately $0.17 to $0.22 per square foot of EPDM liner. This increase appears to be an abnormal price increase, so the more reasonable price increase of $0.07 per square foot a year will be utilized. The awarded bid quotes are attached. (See Attachment J)

The EPDM has special market conditions, such as high demand, that have caused the high price increases. Due to this the geotextile underlayment prices have not been increased in the same manner as the EPDM. In the proposed project budget an increase of $.03 per square foot has been utilized. This is based on observed price increases over the last few years.

Contractual: KID will procure the services of an outside contractor for survey work required on the project. The attached quotation estimates $30,250 is required for that work. (See Attachment K)

OMB Number: 4040-0008
Expiration Date: 06/30/2014

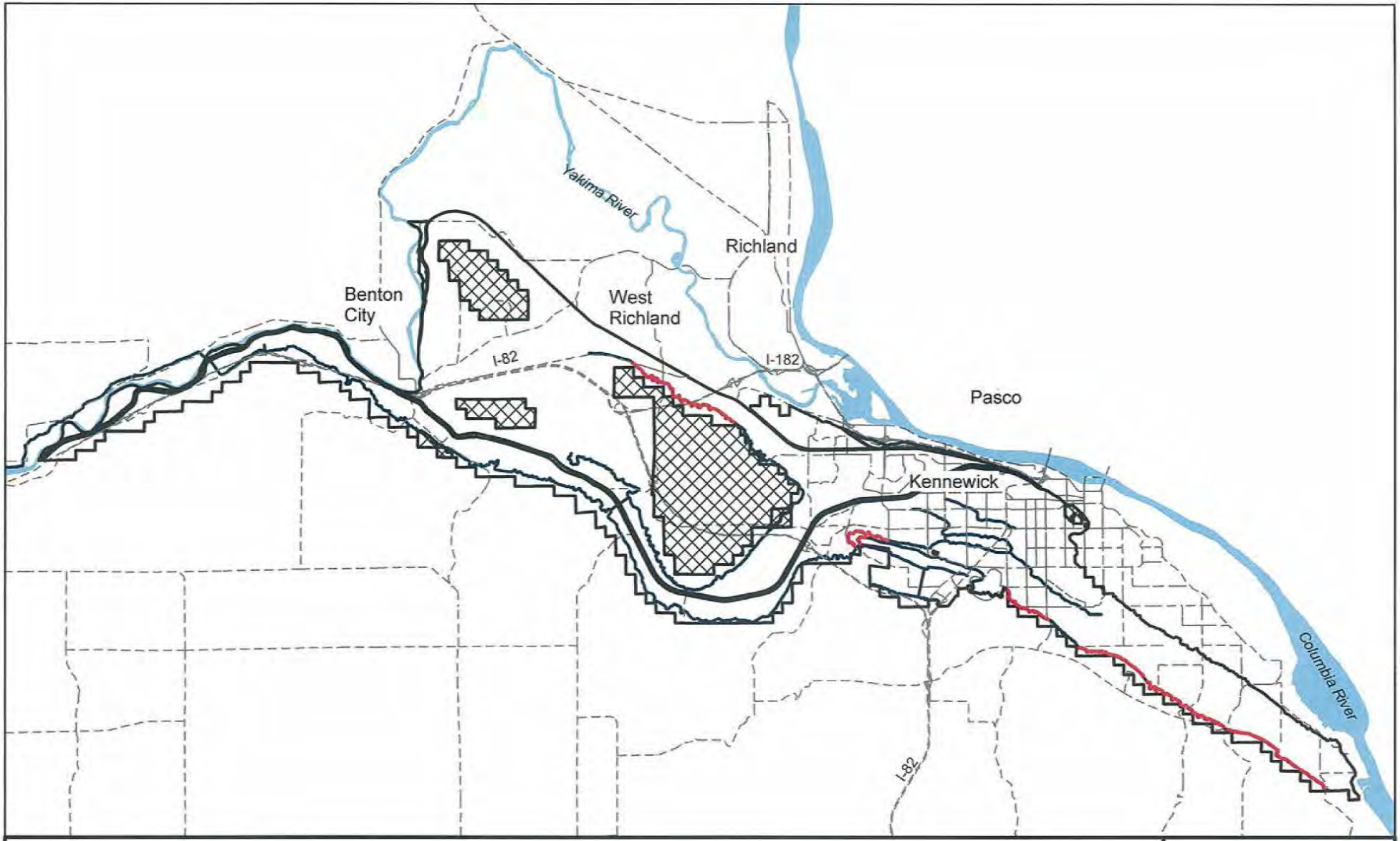
BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	$ 4,767.36	$	$ 4,767.36
2. Land, structures, rights-of-way, appraisals, etc.	$	$	$ 0.00
3. Relocation expenses and payments	$	$	$ 0.00
4. Architectual and engineering fees	$ 53,367.20	$	$ 53,367.20
5. Other architectural and engineering fees	$ 30,250.00	$	$ 30,250.00
6. Project inspection fees	$ 35,941.50	$	$ 35,941.50
7. Site work	$	$	$ 0.00
8. Demolition and removal	$	$	$ 0.00
9. Construction	$ 6,851,030.86	$	$ 6,851,030.86
10. Equipment	$	$	$ 0.00
11. Miscellaneous	$	$	$ 0.00
12. SUBTOTAL *(sum of lines 1-11)*	$ 6,975,356.92	$ 0.00	$ 6,975,356.92
13. Contingencies	$	$	$ 0.00
14. SUBTOTAL	$ 6,975,356.92	$ 0.00	$ 6,975,356.92
15. Project (program) income	$	$	$ 0.00
16. TOTAL PROJECT COSTS *(subtract #15 from #14)*	$ 6,975,356.92	$ 0.00	$ 6,975,356.92

FEDERAL FUNDING		
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting Federal share.	Enter eligible costs from line 16c Multiply X 21.5 %	$ 1,500,00.00

Maps & Drawings



KID WaterSMART13 Canal Lining G2 Vicinity Map

KID Boundary

Exclusion

River

WaterSMART13 Canals (G2)

KID Canals

Major Roads

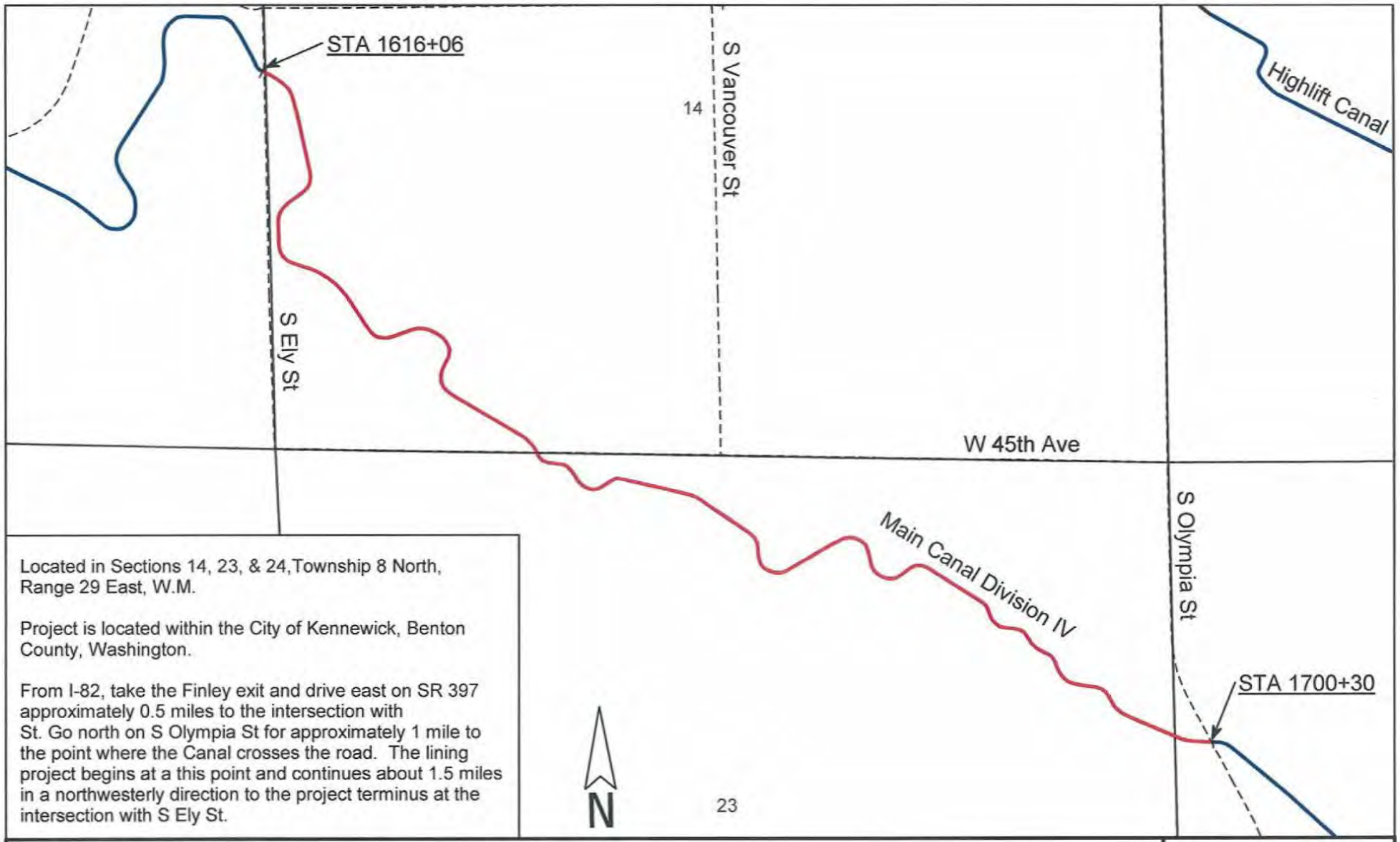
0.0 1.5 3.0 4.5 6.0 7.5

Miles

N

KID

KENNEWICK IRRIGATION DISTRICT



Located in Sections 14, 23, & 24,Township 8 North, Range 29 East, W.M.

Project is located within the City of Kennewick, Benton County, Washington.

From I-82, take the Finley exit and drive east on SR 397 approximately 0.5 miles to the intersection with St. Go north on S Olympia St for approximately 1 mile to the point where the Canal crosses the road. The lining project begins at a this point and continues about 1.5 miles in a northwesterly direction to the project terminus at the intersection with S Ely St.

KID WaterSMART13 Canal Lining G2 (Phase I)

KID Main Canal Division IV, Ely to Olympia Canal Lining Stations 1616+06 to 1700+30

Canal/Lateral

Proposed Canal Lining

Major Roads

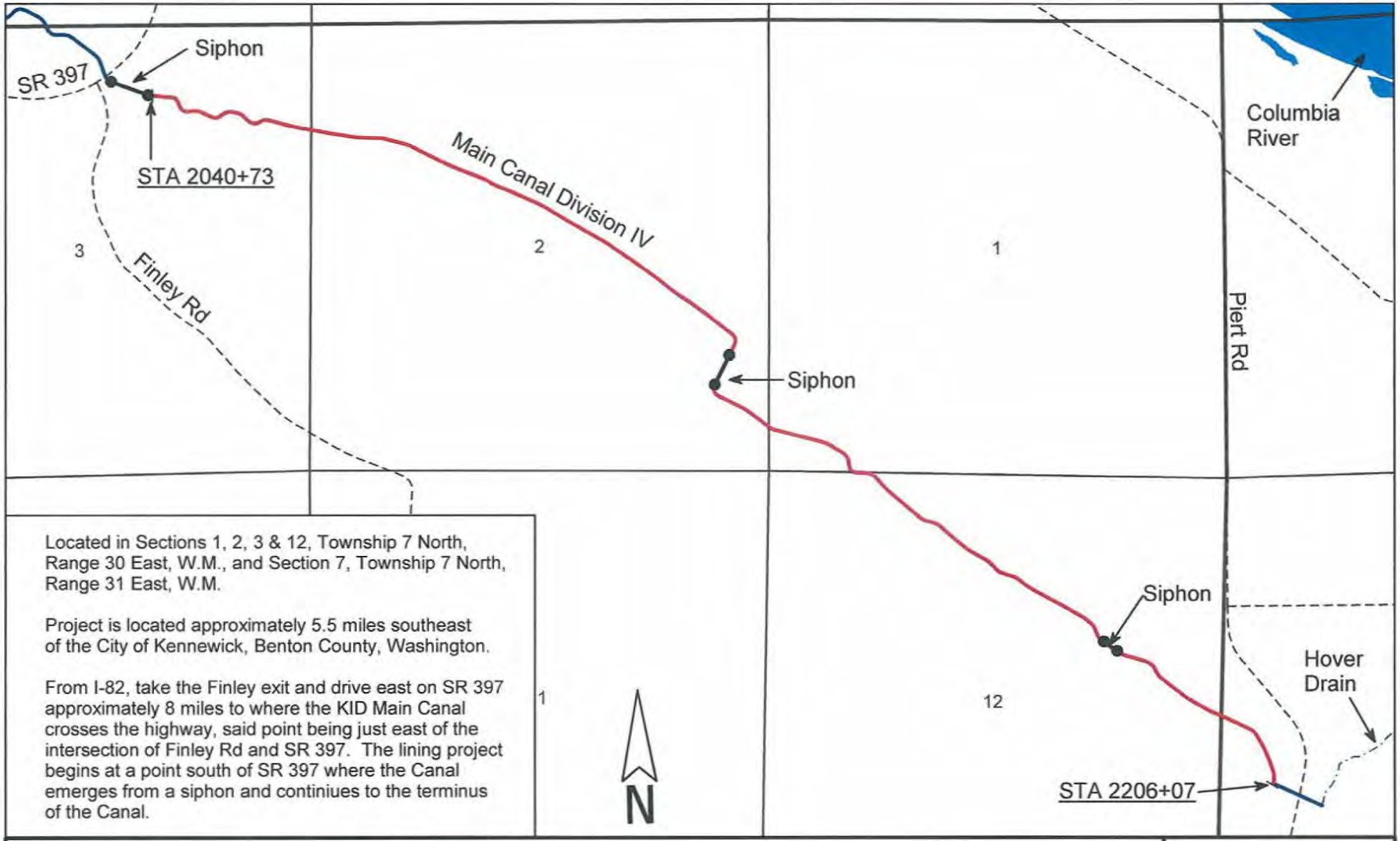
Sections

0.0 0.1 0.2 0.3

Miles

KID

KENNEWICK IRRIGATION DISTRICT



Located in Sections 1, 2, 3 & 12, Township 7 North, Range 30 East, W.M., and Section 7, Township 7 North, Range 31 East, W.M.

Project is located approximately 5.5 miles southeast of the City of Kennewick, Benton County, Washington.

From I-82, take the Finley exit and drive east on SR 397 approximately 8 miles to where the KID Main Canal crosses the highway, said point being just east of the intersection of Finley Rd and SR 397. The lining project begins at a point south of SR 397 where the Canal emerges from a siphon and continiues to the terminus of the Canal.

KID WaterSMART13 Canal Lining G2 (Phase I)

KID Main Canal Division IV Canal Lining Stations 2040+73 to 2206+07

Canal/Lateral

Proposed Canal Lining

Major Roads

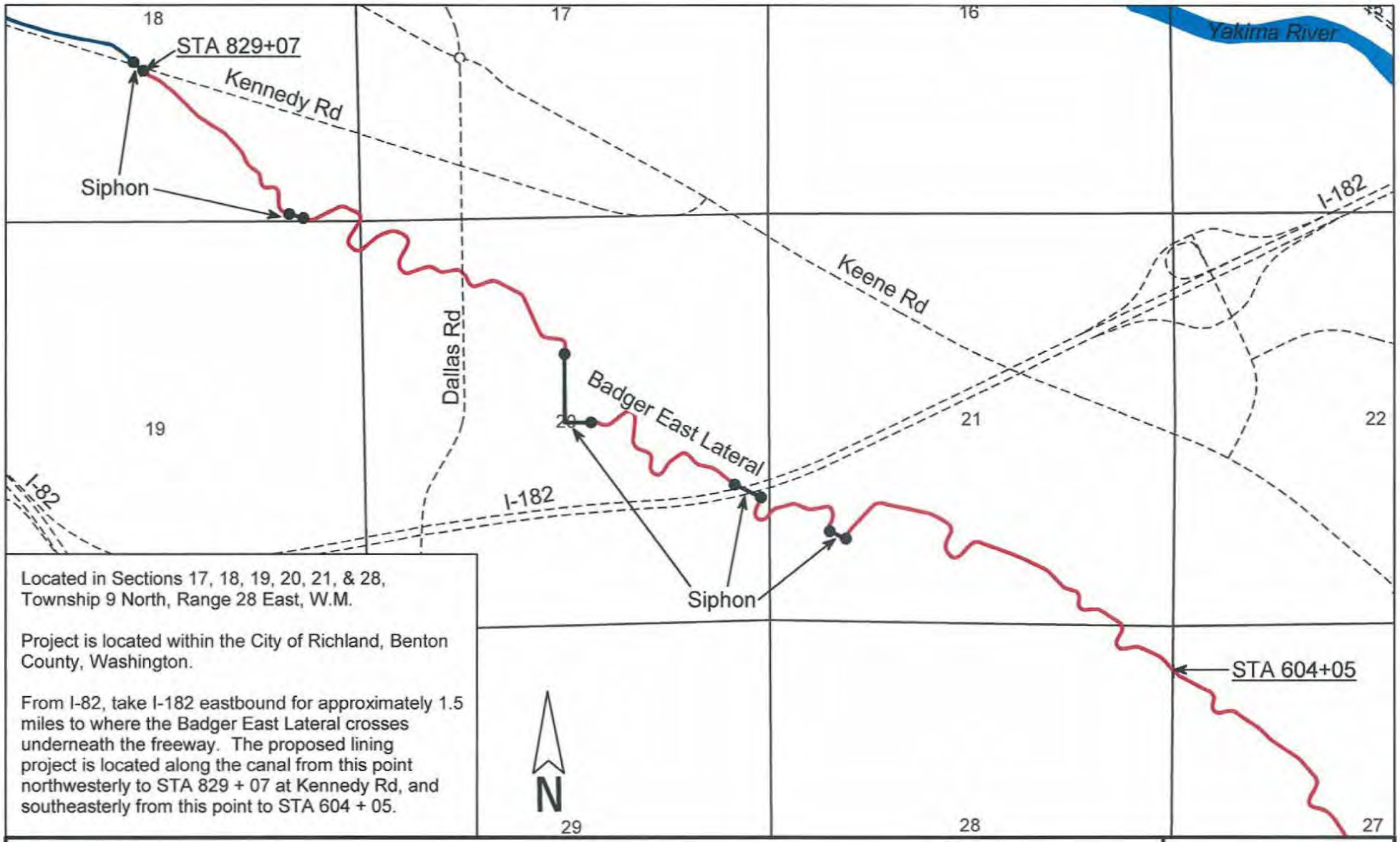
Sections

0.0 0.2 0.4 0.6

Miles

KID

KENNEWICK IRRIGATION DISTRICT



Located in Sections 17, 18, 19, 20, 21, & 28, Township 9 North, Range 28 East, W.M.

Project is located within the City of Richland, Benton County, Washington.

From I-82, take I-182 eastbound for approximately 1.5 miles to where the Badger East Lateral crosses underneath the freeway. The proposed lining project is located along the canal from this point northwesterly to STA 829 + 07 at Kennedy Rd, and southeasterly from this point to STA 604 + 05.

KID WaterSMART13 Canal Lining G2 (Phase II)

KID Badger East Lateral Canal Lining Stations 604+05 to 829+07

Canal/Lateral

Proposed Canal Lining

Major Roads

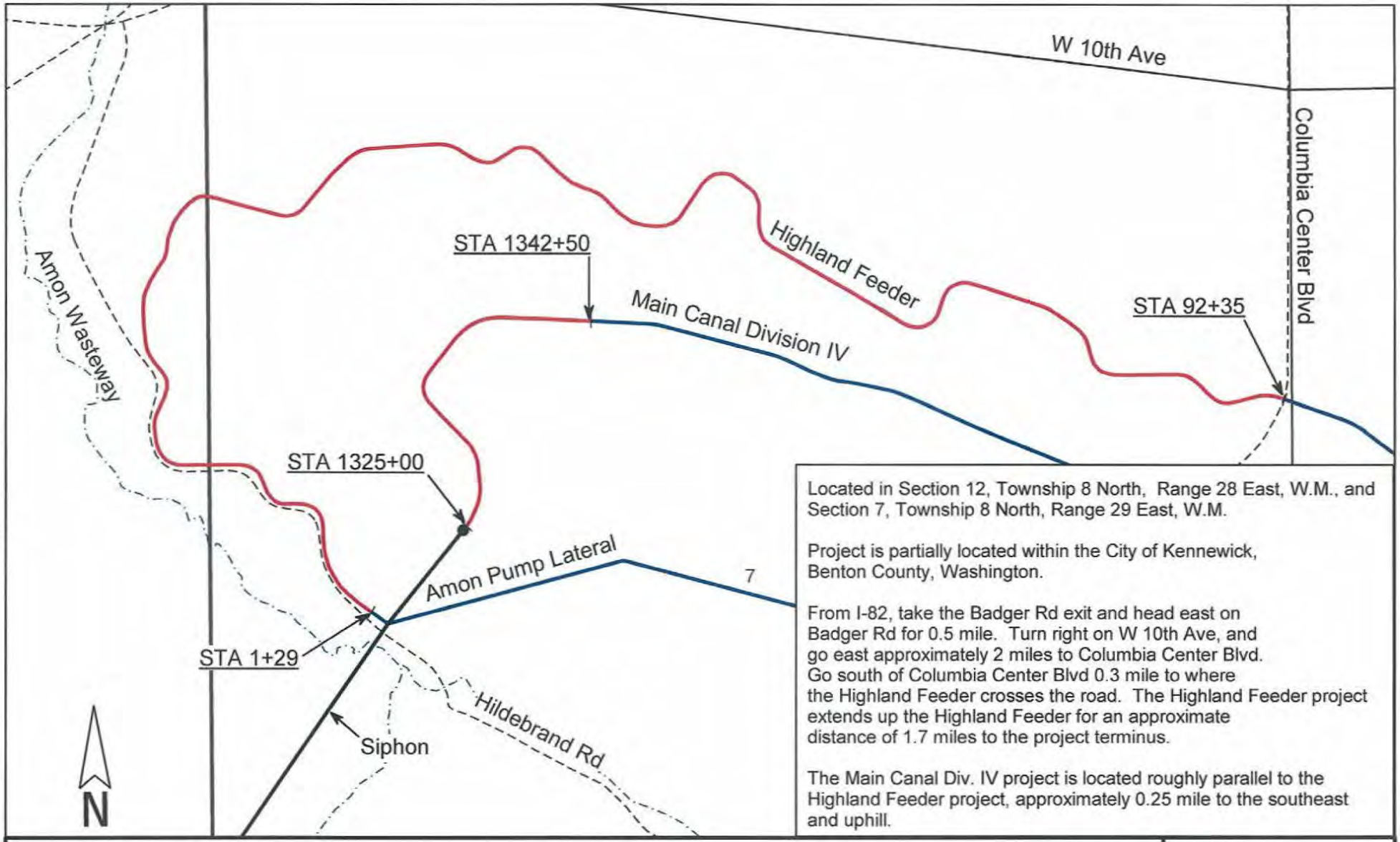
Sections

0.00 0.15 0.30 0.45 0.60

Miles

KID

KENNEWICK IRRIGATION DISTRICT



Located in Section 12, Township 8 North, Range 28 East, W.M., and Section 7, Township 8 North, Range 29 East, W.M.

Project is partially located within the City of Kennewick, Benton County, Washington.

From I-82, take the Badger Rd exit and head east on Badger Rd for 0.5 mile. Turn right on W 10th Ave, and go east approximately 2 miles to Columbia Center Blvd. Go south of Columbia Center Blvd 0.3 mile to where the Highland Feeder crosses the road. The Highland Feeder project extends up the Highland Feeder for an approximate distance of 1.7 miles to the project terminus.

The Main Canal Div. IV project is located roughly parallel to the Highland Feeder project, approximately 0.25 mile to the southeast and uphill.

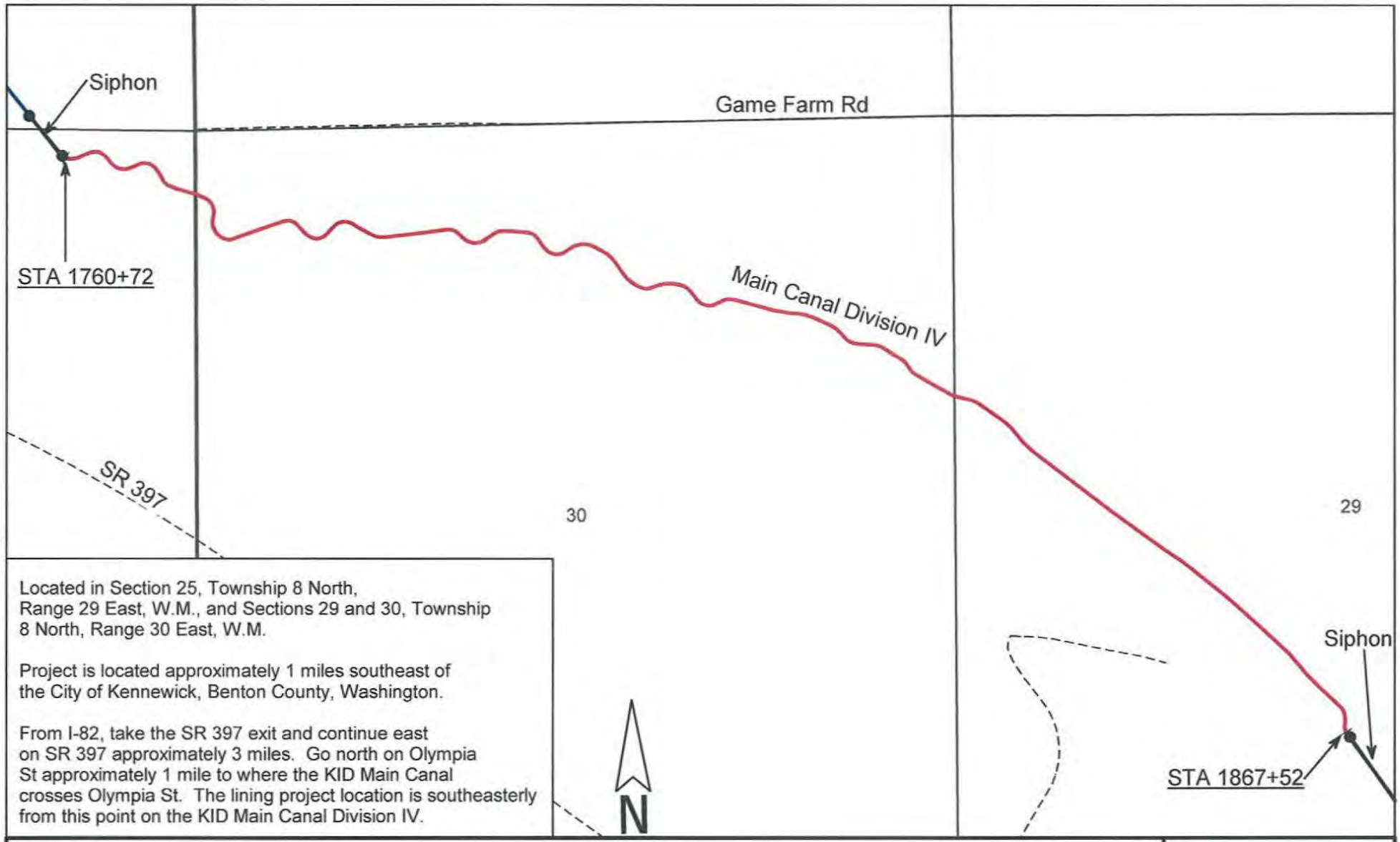
KID WaterSMART13 Canal Lining G2 (Phase II)

KID Highland Feeder Canal Lining Stations 1+29 to 92+35
KID Main Canal Division IV Canal Lining Stations 1325+00 to 1342+50

Canal/Lateral
Proposed Canal Lining
Major Roads
Sections

0.00 0.05 0.10 0.15 0.20
Miles

KID
KENNEWICK IRRIGATION DISTRICT



Located in Section 25, Township 8 North, Range 29 East, W.M., and Sections 29 and 30, Township 8 North, Range 30 East, W.M.

Project is located approximately 1 miles southeast of the City of Kennewick, Benton County, Washington.

From I-82, take the SR 397 exit and continue east on SR 397 approximately 3 miles. Go north on Olympia St approximately 1 mile to where the KID Main Canal crosses Olympia St. The lining project location is southeasterly from this point on the KID Main Canal Division IV.

KID WaterSMART13 Canal Lining G2 (Phase III)

KID Main Canal Division IV Canal Lining Stations 1760+72 to 1867+52

Canal/Lateral

Proposed Canal Lining

Major Roads

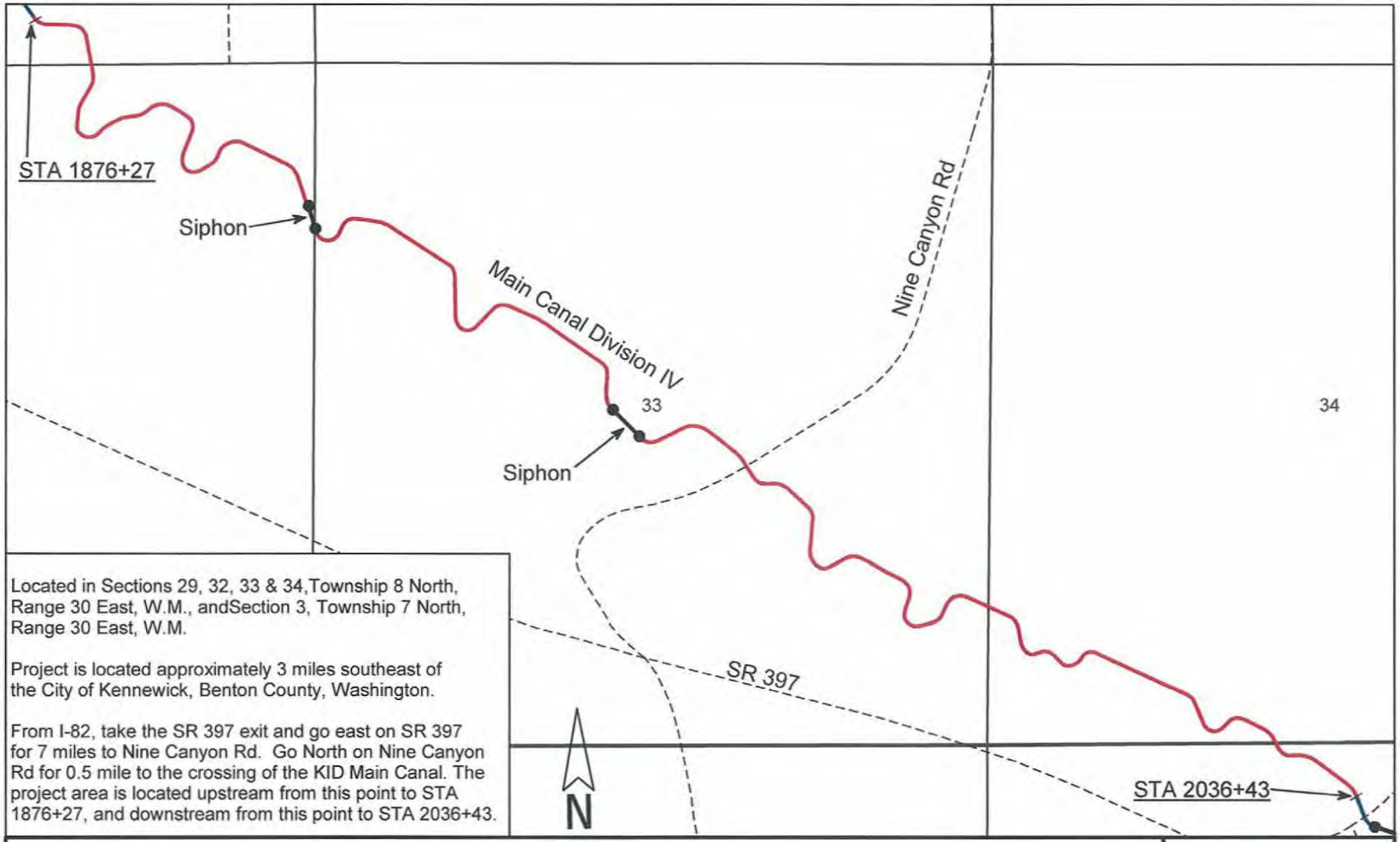
Sections

0.0 0.1 0.2 0.3 0.4

Miles

KID

KENNEWICK IRRIGATION DISTRICT



Located in Sections 29, 32, 33 & 34,Township 8 North, Range 30 East, W.M., andSection 3, Township 7 North, Range 30 East, W.M.

Project is located approximately 3 miles southeast of the City of Kennewick, Benton County, Washington.

From I-82, take the SR 397 exit and go east on SR 397 for 7 miles to Nine Canyon Rd. Go North on Nine Canyon Rd for 0.5 mile to the crossing of the KID Main Canal. The project area is located upstream from this point to STA 1876+27, and downstream from this point to STA 2036+43.

KID WaterSMART13 Canal Lining G2 (Phase III)

KID Main Canal Division IV Canal Lining Stations 1876+27 to 2036+43

Canal/Lateral

Proposed Canal Lining

Major Roads

Sections

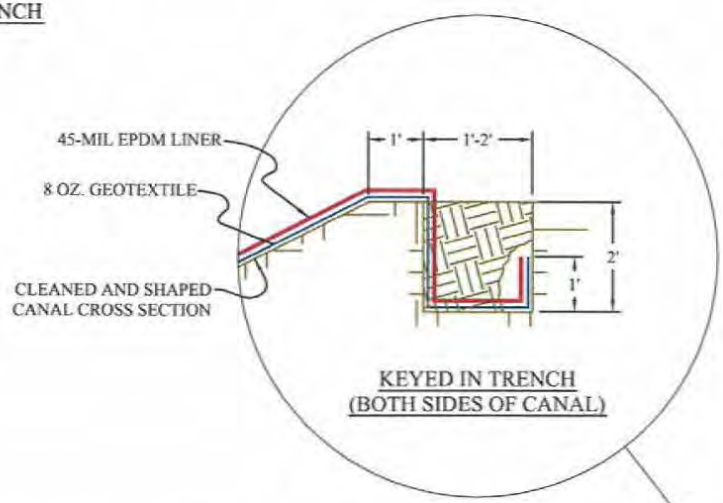
0.0 0.1 0.2 0.3 0.4

Miles

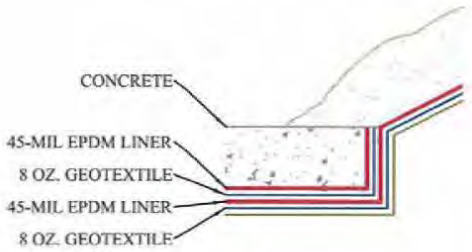
KID

KENNEWICK IRRIGATION DISTRICT

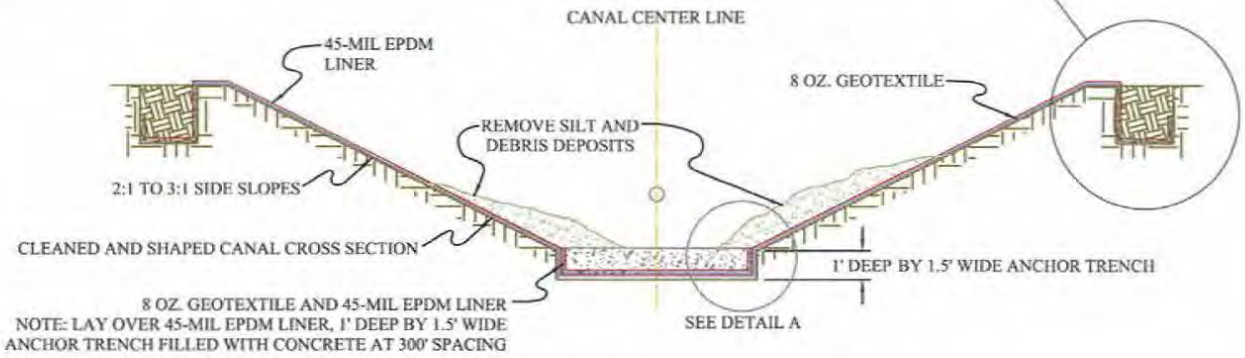
OPTION #2: CONCRETE ANCHOR TRENCH



KEYED IN TRENCH
(BOTH SIDES OF CANAL)



DETAIL A



45-MIL EPDM LINING

LEGEND

45-MIL EPDM LINER

8 OUNCE GEOTEXTILE

28

NAME	DATE / COMPANY
DRAWN BY: CDS	6.18.2010 / KID
APPROVED SIGNATURE:	KID

KID
KENNEWICK IRRIGATION DISTRICT
12 W. KENNEWICK AVE.
KENNEWICK, WASHINGTON 99336
(509) 586-9111
WWW.KID.ORG

KENNEWICK IRRIGATION DISTRICT
45-MIL EPDM CANAL LINING
DETAIL

SIZE	DWG NO	REV
B	DWG	0

SCALE: NTS | PROJECT | SHEET 1 OF 1

EPDM CANAL LINING PROJECT BY KENNEWICK IRRIGATION DISTRICT 2011-2012 PROJECT

EPDM CANAL LINING PROJECT BY KENNEWICK IRRIGATION DISTRICT 2011-2012 PROJECT

Attachments

Changes in Ground-Water Levels a Water Budgets, from Predevelopment to 1986, in Parts of the Pasco Basin, Washington

U.S. GEOLOGICAL SURVEY
Water-Resources Investigations Report 96-4086

Prepared in cooperation with
WASHINGTON STATE DEPARTMENT OF ECOLOGY

Table 8.—*Summary of U.S. Geological Survey canal-seepage tests by inflow-outflow method, October, 1987*

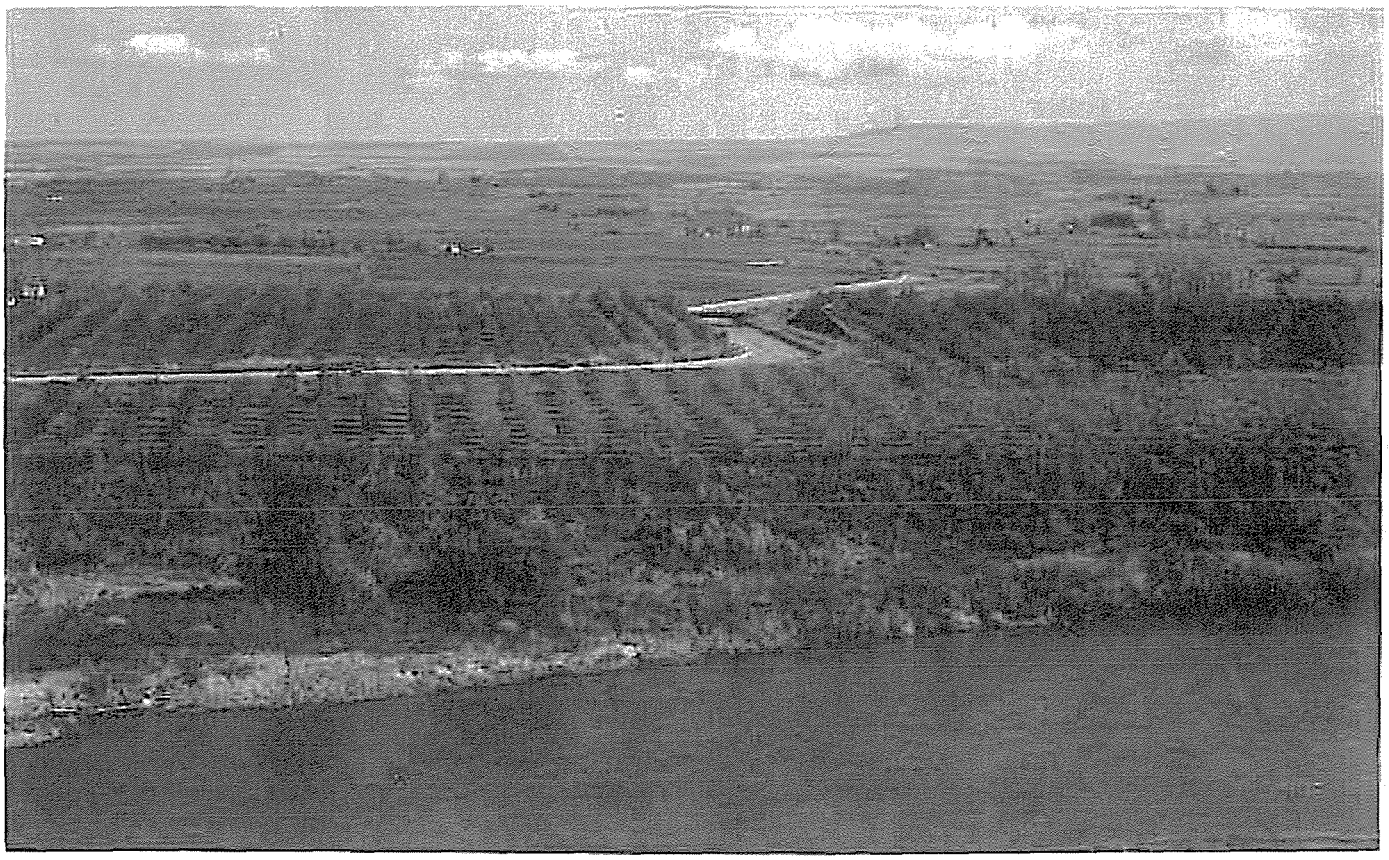
[ft^3/s; cubic foot per second; ft/d, cubic foot per day; E, compacted earth lining; C, concrete lining; P, PVC lining; U, unlined; DUNE, dune sand; TCHT, Touchet Beds; PSCO, Pasco gravels; UPRG, upper Ringold Formation; SDLM, Saddle Mountains Basalt]

Canal reach	Discharge (ft^3/s)[1] Up-stream	Adjust-ment[2]	Down-stream	Change in dis-charge[3] (ft^3/s)	Ave-rage wetted peri-meter (feet)	Length of reach (feet)	Canal lining type	Under-lying hydro-logic unit	Seepage rate (ft/d)
Columbia Irrigation District									
Canal No. 1 #1	6.36	-0.07	5.21	-1.08	11.0	12,950	U[4]	PSCO	0.7
Canal No. 2 #1	23.2	-.08	22.1	-1.02	15.8	23,925	U+C[5]	PSCO	.2
Kennewick Irrigation District									
Division 4 #1[6]	7.23	-.07	5.80	-1.36	18.7	26,300	U+C[7]	TCHT	.2
Division 4 #1[8]	7.14	-.07	5.95	-1.12	18.7	26,300	U+C[7]	TCHT	.2
Division 4 #2[6]	5.80	-.14	4.31	-1.35	18.8	25,650	U[9]	TCHT	.2
Division 4 #2[8]	5.95	-.14	4.29	-1.52	18.8	25,650	U[9]	TCHT	.3
Division 4 #3[6]	4.31	-.07	2.79	-1.45	13.4	24,050	U[10]	TCHT	.4
Division 4 #3[8]	4.29	-.07	2.78	-1.44	13.4	24,050	U[10]	TCHT	.4
East Badger #1	8.12	-.04	6.84	-1.24	11.0	24,800	U	TCHT	.4
East Badger #2	6.84	-.07	5.99	-.78	10.2	20,600	U[11]	TCHT	.3
East Badger #3	5.99	-.07	3.76	-2.16	8.8	25,600	U[12]	TCHT	.8
Main Canal #1+2[6]	113	-8.37	89.5	-15.13	33.	102,325	U+C[13]	TCHT+SDLM	.4
Main Canal #1[8]	112	-8.34	95.4	-8.26	33.	63,925	U+C	TCHT+SDLM	.3
Main Canal #2[8]	95.4	-.03	89.6	-5.77	32.	38,400	U+C	TCHT+SDLM	.4
South Columbia Basin Irrigation District-Block 1									
PPL	7.79	-.18	7.57	-.04	7.8	13,102	C	PSCO	.3
South Columbia Basin Irrigation District-Block 12									
PE35.8	7.70	-1.09	5.84	-.77	11.1	18,697	U[14]	SDLM	.3

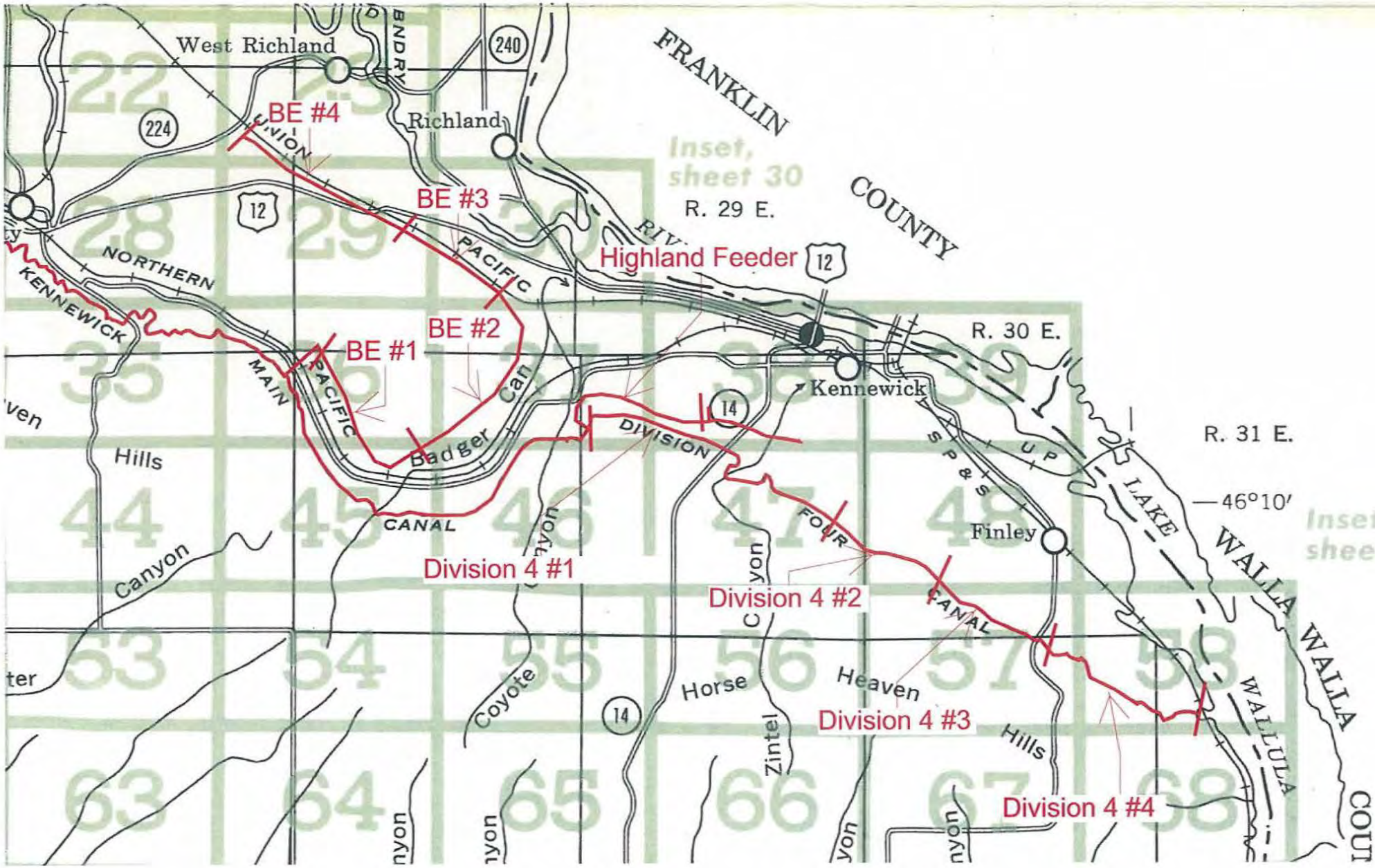
Issued July 1971

SOIL SURVEY

Benton County Area, Washington



UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
WASHINGTON AGRICULTURAL EXPERIMENT STATION


West Richland
Richland
Kennewick
Finley
FRANKLIN COUNTY
R. 29 E.
R. 30 E.
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Inset, sheet 30
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BE #4
BE #3
BE #2
BE #1
Highland Feeder
Division 4 #1
Division 4 #2
Division 4 #3
Division 4 #4
UNION PACIFIC
NORTHERN PACIFIC
KENNEWICK MAIN CANAL
Badger Canyon
DIVISION CANAL
FOUR MILE CANAL
LAKE WALLULA
WALLULA
Hills
Canyon
Coyote Canyon
Horse Heaven Hills
Zintel Canyon
—46°10′
224
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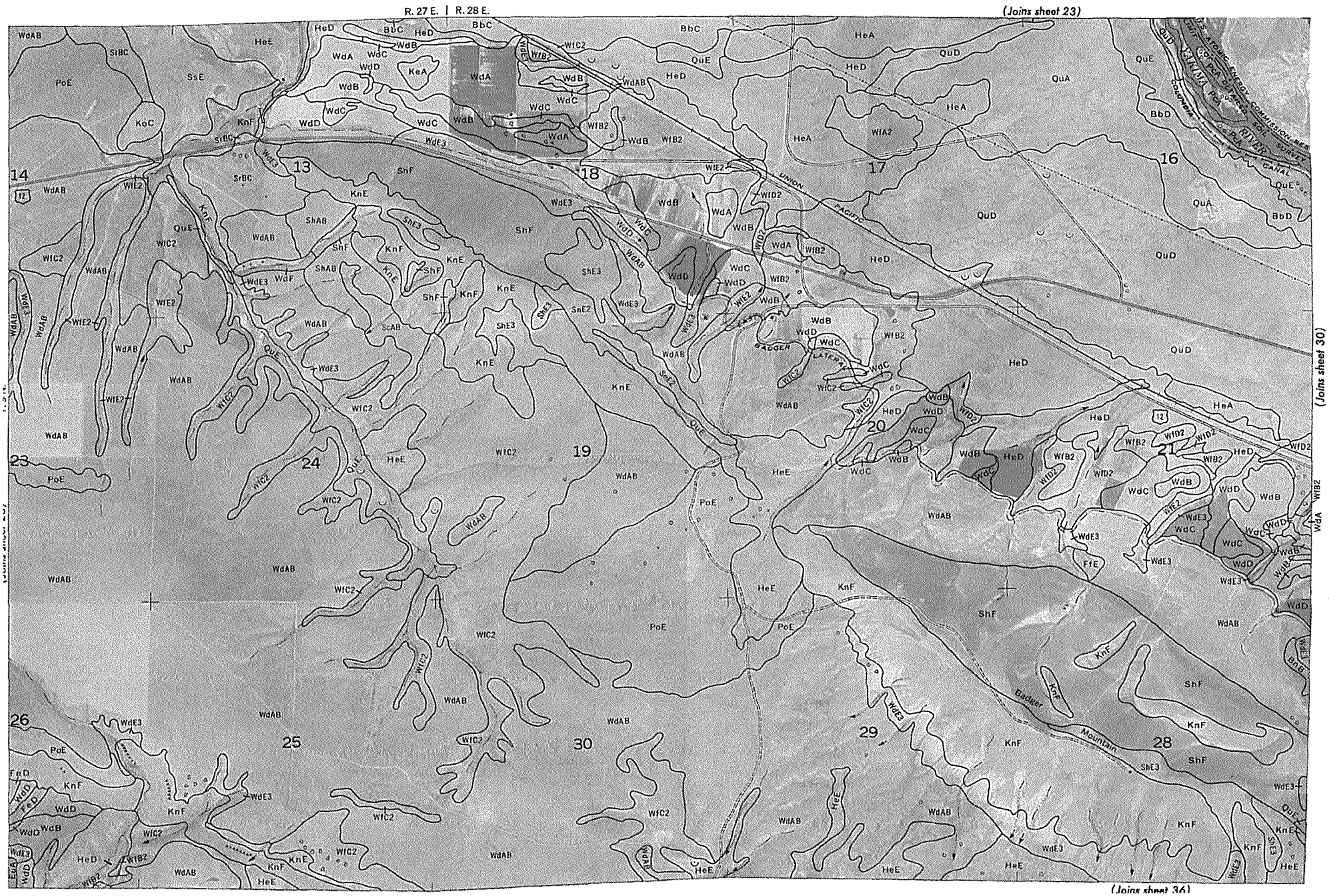
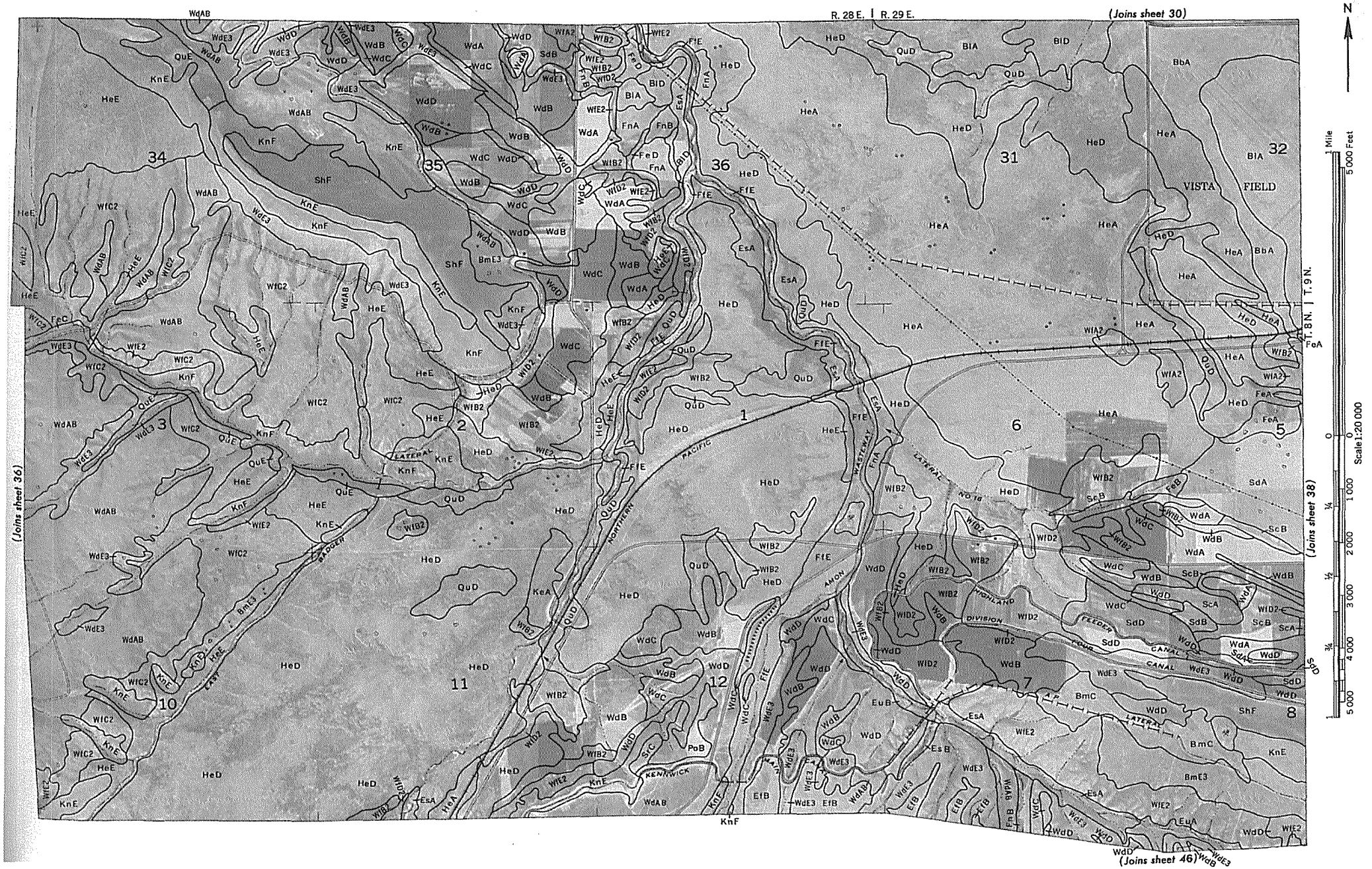
14

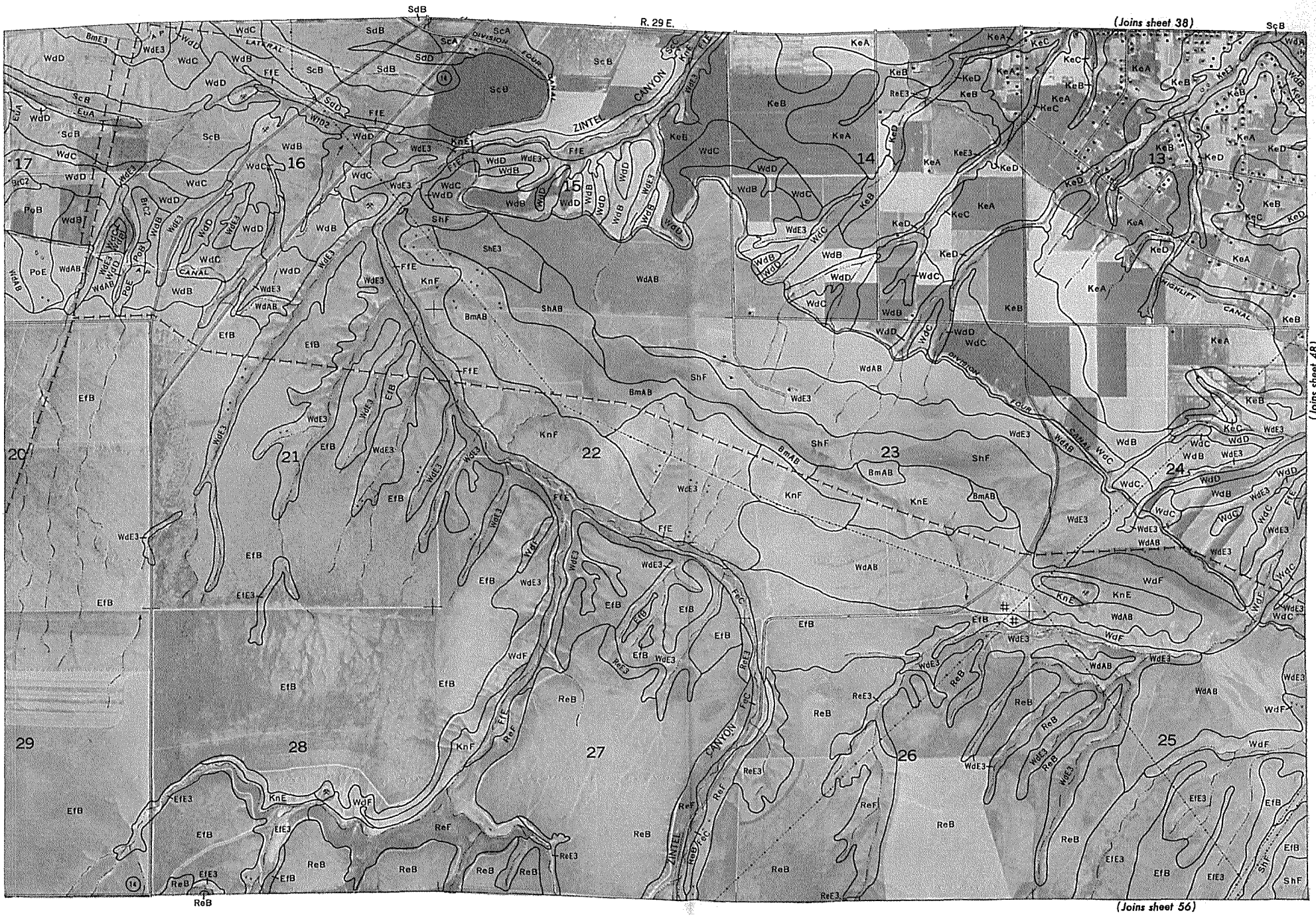
BENTON COUNTY AREA, WASHINGTON — SHEET NUMBER 29



BENTON COUNTY AREA, WASHINGTON — SHEET NUMBER 37



BENTON COUNTY AREA, WASHINGTON — SHEET NUMBER 47



BENTON COUNTY AREA, WASHINGTON — SHEET NUMBER 58

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(Joins inset)

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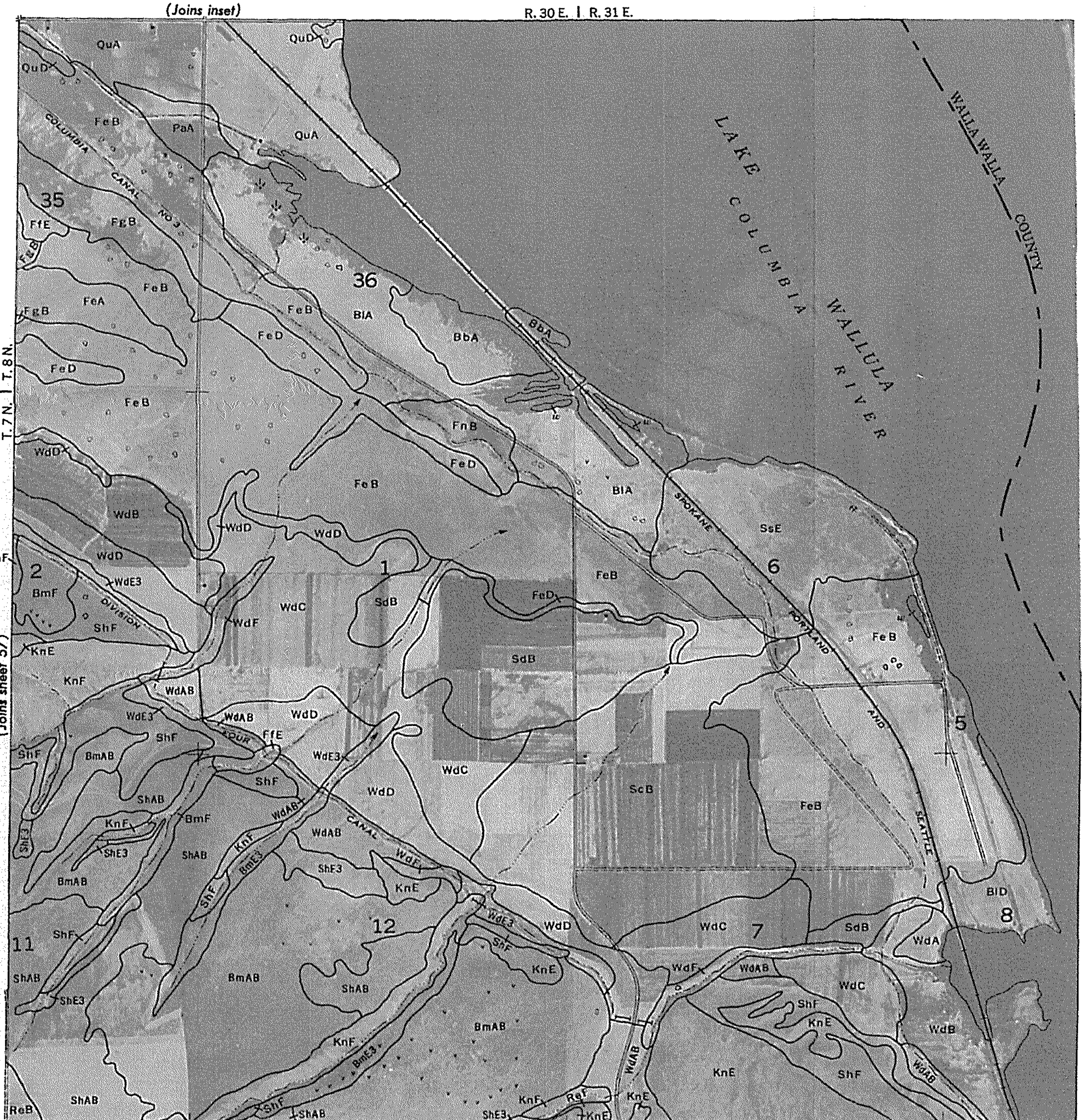

T. 7 N. | T. 8 N.

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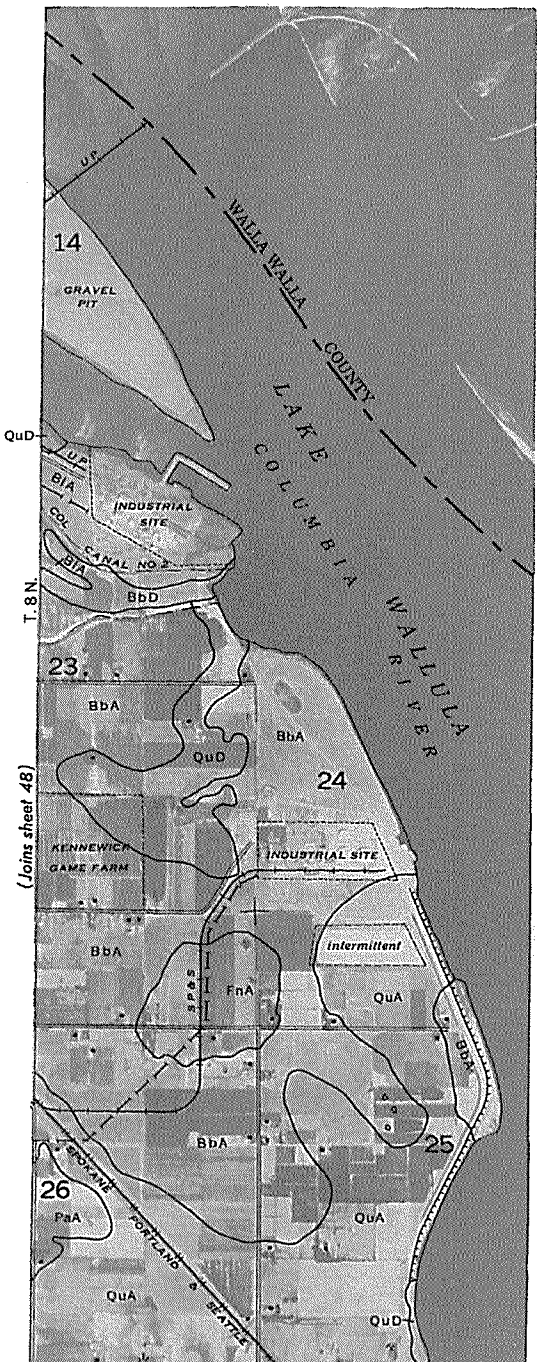

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R. 30 E.

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5 000 4 000 3 000 2 000 1 000 0 5 000 Feet

Scale 1:20 000

Technical Information Sheet
Firestone EPDM Geomembrane

1. Description

The Firestone EPDM Geomembrane 1.14 mm (.045") liner is a cured single-ply synthetic rubber membrane made of ethylene-propylene-diene terpolymer (EPDM). It is available in a variety of panel sizes. Depending on the dimensions of the liner, the waterproofing surface may be seamless (up to 930 m^2). In other situations, seams can be made using a self-adhesive tape.

2. Preparation

Product: Allow the membrane to relax for approximately 30 minutes before splicing.
Substrate: The substrate needs to be smooth, dry and free of sharp objects, oil, grease and other materials that may damage the membrane.

3. Application

Install the Firestone Geomembrane in accordance with current specifications and details.

4. Coverage

The dimensions of the membrane are calculated to cover the base of the reservoir, slopes and anchor trenches, including seam overlaps.

5. Characteristics

The Firestone Geomembrane is a rubber material with the following properties:

Physical

- Elastomeric membrane with a good combination of high elasticity and tensile strength
- Retains its flexibility at low temperature (-45°C)
- Resists to temperature shocks up to 250°C
- Excellent resistance to alkali rains
- Excellent resistance to U.V. radiation and ozone concentration
- Contact with some kind of oils, petroleum products, hot bitumen and grease must be avoided

Technical

• Base	synthetic rubber
• Colour	black
• Solvents	none
• Solids(%)	100
• State	cured
• Storage	Store the membrane in a dry place until use

6. Technical Specifications

Physical Properties	Test Method	Declared value	Tolerance	Unit
Mass per unit area	EN 1849-2	1288	± 5%	g/m²
Tensile strength (MD/CD)	ISO R 527	9	- 1	N/mm²
Elongation (MD/CD)	ISO R 527	≥ 300		%
Dimensional stability	EN 1107-2	≤ 0.5		%
Flexibility at low temperature	EN 495-5	≤ -45		°C
Resistance to static puncture	EN ISO 12236	0.7	- 0.1	kN
Water permeability (Liquid tightness)	EN 14150	$3.0\ 10^{-5}$	$\pm\ 10^{-6}$	m³/m²d
Methane permeability (Gas tightness)	ASTM D1434	$2.25\ 10^{-3}$		m³/m²d
Durability - weathering (25y)	EN 12224	Pass		
Durability - oxidation	EN 14575	Pass		

7. Precautions

Take care when moving, transporting or handling to avoid sources of punctures and physical damage. Isolate waste products, such as petroleum products, greases, oils (mineral and vegetable) and animal fats from Firestone EPDM Geomembrane.

Copies: 103C
PN-6515
CCA-1104
CCA-1604

CATEGORICAL EXCLUSION CHECKLIST

YAK-5000
YAK-5100

PROJECT: Kennewick Irrigation District: Installation of EPDM Geomembrane Canal Liner in Main Canal Divisions I, II, III, and IV; Badger East Lateral: and, Highland Feeder Canal, Yakima Field Office
DATE: October 24, 2012

EXCLUSION CATEGORY: 516 DM Chapter 14.5 D.1. Maintenance, rehabilitation, and replacement of existing facilities which may involve a minor change in size, location, and/or operation; AND Appendix 9.4.C.3 - Minor construction activities associated with authorized projects which correct unsatisfactory environmental conditions or which merely augment or supplement or are enclosed within existing facilities.

NATURE OF ACTION: The Bureau of Reclamation (Reclamation) proposes to allow Kennewick Irrigation District (KID) to install ethylene propylene diene monomer (EPDM) geomembrane canal liner in earthen canal sections of the Main Canal Division I, II, III, and IV; Badger East Lateral: and, Highland Feeder Canal.

EVALUATION OF EXTRAORDINARY CIRCUMSTANCES FOR CATEGORICAL EXCLUSION (516 DM 2 Appendix 2: 43 CFR 46.215)

Extraordinary Circumstances Exist For This Action Which May:		No	Uncertain	Yes
1.	Have significant impacts on public health or safety.	X		
2.	Have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds; and other ecologically significant or critical areas.	X		
3.	Have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources [NEPA Section 102(2)(E)].	X		
4.	Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks.	X		
5.	Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects.	X		
6.	Have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects.	X		
7.	Have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by either the bureau or office.	X		
8.	Have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant impacts on designated Critical Habitat for these species.	X		
9.	Violate a Federal law, or a State, local, or tribal law or requirement imposed for the protection of the environment.	X		
10.	Have a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898).	X		
11.	Limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (Executive Order 13007).	X		
12.	Contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112).	X		

	Yes	Uncertain	No
This action will affect Indian Trust Assets (ITAs).	___	___	X
This action will adversely affect Essential Fish Habitat.	___	___	X

NEPA ACTION RECOMMENDED:

- ☒ Categorical Exclusion
- ☐ Environmental Assessment
- ☐ Environmental Impact Statement

ENVIRONMENTAL AND TRUST ASSET COMMITMENTS, EXPLANATION AND/OR COMMENTS:

KID is an irrigation district operating within Reclamation's Yakima Project boundary, diverting water from the Yakima River at river mile 47.1. KID proposes to use EPDM geomembrane canal liner to line approximately 42 miles of earthen canal sections within KID's Main Canal Divisions I, II, III, and IV; Badger East Lateral: and, Highland Feeder Canal. The projects are intended to reduce seepage through earthen-lined canals and increase irrigation system efficiency.

The general amounts of lining and legal locations of the EPDM lining projects are as follows:

Main Canal Division I:	Approximately 6.2 miles of lining within portions of Township 9 North, Range 26 East, Sections 13, 14, 15, and 24; and, portions of Township 9 North, Range 27 East, Sections 19, 19, and 30
Main Canal Division II:	5.0 miles of lining within portions of Township 8 North, Range 27 East, Section 1; and, portions of Township 9 North, Range 27 East, Sections 33, 34, 35, and 36
Main Canal Division III:	1.7 miles of lining within portions of Township 8 North, Range 28 East, Sections 7 and 12
Main Canal Division IV:	13.8 miles of lining within portions of Township 8 North, Range 29 East, Sections 7, 9, 14, 15, 16, 23, 24 and 25; portions of Township 8 North, Range 30 East, Sections 29, 30, 32, 33, and 34; portions of Township 7 North, Range 20 East, Sections 1, 2, 3, and 12; and, portions of Township 7 North, Range 31 East, Section 7
Highland Feeder:	2.9 miles of lining within portions of Township 8 North, Range 28 East, Section 12; and portions of Township 8 North, Range 29 East, Sections 7, 9, and 10
Badger East Lateral:	12.3 miles of lining within portions of Township 9 North, Range 27 East, Section 13; portions of Township 9 North, Range 28 East, Sections 18, 19, 20, 21, 27, 28 and 35; and, portions of Township 8 North, Range 28 East, Sections 6, 7, 8, 16, and 17

KID's proposed EPDM lining project would be completed and installed within the existing canal prism and KID's ROW in the fall/winter season when the canal is dry, typically October to March. KID proposes to install 13.38 miles of lining during the 2012-2014 construction seasons. The construction schedule for the remaining 28.53 miles of lining has not been determined. KID can average 3.5 miles of canal lining installation in one fall/winter season; at this rate, the canal lining installation for the 41.9 miles could extend into 2023.

KID proposes to shape and clean the canal; over excavate the bottom of canal 18 inches by 18 inches wide every 300 feet; place 45 mil EPDM liners; and, utilize concrete as ballast in the over-excavated, trenched areas. Optionally, KID would shape and clean the canal; over excavate the bottom of canal 1 foot; place the 45 mil EPDM liners; and, utilize the over-excavated material to form gravel ballast on top of the EPDM liner. The lining will be keyed into a trench at the top of the canal embankment with the 4-foot of overlap on each roll. The trench will be one foot away from the sloped side of the canal and will be dug 1-2 foot wide and 2 foot deep with the excavated material placed on top of the membrane to anchor the lining.

Most excavation will occur within the prism of the canal and in the previously disturbed areas along the top of the canal; however, additional excavation and clearing in undisturbed agricultural areas along the canal may occur, and be kept to a minimum, to accomplish liner installation. In some of the project areas, vegetation adjacent to the opposite bank may be cleared and/or temporarily impacted in order to key-in the liner. The *Kennewick Irrigation District Programmatic Review Report, 2012-2014 CIP Programmatic Project Level Review, Final Report, August 2012* by RH2 Engineering, Inc. and Cascadia Archaeology, LLC., indicates that approximately 75,000 sf (1.7 acres) of sagebrush habitat and 11,8000 sf (0.27 acres) of other tree and shrub vegetation will be removed. Removal of sagebrush along the canal to facilitate the lining project has the potential to at least temporarily impact the ecosystem and wildlife species that rely on it. Some big sagebrush (*Artemisia tridentata*) were observed in areas adjacent to the canal, primarily on the undeveloped side of the canal (opposite of the O&M road). Sagebrush habitat is an important resource in the area for wildlife, with several species of wildlife depending on this habitat. Areas of sagebrush habitat will still exist beyond KID's ROW, and its removal is solely intended to facilitate lining installation and will be kept to a minimum. The trees and shrubs requiring removal are located in the KID ROW, an area which is supposed to be kept free of vegetation to facilitate KID's operation.

The Department of Archaeology & Historic Preservation (DAHP) letter, received by Reclamation on October 24, 2012, agreed with the Area of Potential Effect (APE) for the approximately 42 miles of lining and concurred that the current project as proposed will have No Adverse Effect on National Register eligible or listed historic and cultural resources. The Yakama Nation may request monitoring of the construction of the proposed project.

Reclamation concludes that a Biological Evaluation, under Section 7 of the Endangered Species Act (ESA), is not required for this proposed action. Reclamation determines that this Federal Action will have no affect on Threatened or Endangered species.

Any identified cultural resources and Indian trust assets would not be impacted by this project. Should cultural resources be discovered during construction, all ground disturbing activities in the area of the archeological resource will stop and the Area Office Archeologist will be contacted at (509) 575-5848. Construction will not resume until all mitigative measures developed in consultation with the State Historic Preservation Officer have been completed.

In evaluating environmental justice, there would be no adverse or significant impacts to minority or low-income populations or communities.

This Federal action will not adversely impact access to or ceremonial use of any identified Indian sacred sites, and will not adversely affect the physical integrity of any such sacred sites.

Reclamation has notified KID that the Yakama Nation may request monitoring of construction. KID will be responsible for expenses associated with the monitoring. If additional staging areas are identified that were not included in Cascadia's Cultural Resource Report, those areas will need to be surveyed prior to being utilized for staging. Reclamation requests that minimal earth work (grading, excavation, road development) and vegetation removal take place on the opposite side of the canal from the O&M road in order to reduce impacts to sagebrush habitat. Through this Federal action, Reclamation approves of KID's installation of EPDM geomembrane liner in Main Canal Divisions I, II, III, and IV; Badger East Lateral: and, Highland Feeder Canal.

Preparer: Elizabeth A. Heather — Date: October 25, 2012
Environmental Protection Specialist

Concurrence with Item 7: — Date: 10/25/12
Area Office Archeologist
No Adverse Effect per consultation w/ SHPO

Concurrence with ITA Determination: Elizabeth A. Heather — Date: 10/25/12
ITA designee for C. Carmack

Concurrence: — Date: 10/25/12
Field Office Manager

Concurrence: — Date: 10/25/12
Environmental Programs Manager

Approved: — Date: 10/26/12
Deputy Area Office Manager

Categorical Exclusion No. 2012 - CCA - 103C — Date: 10/26/12

Retention Code : ENV-3.00
Folder # : 1195726
Control # : 12066575

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

Received in Mailroom
OCT 24 2012
Yakima, Washington

October 22, 2012

Ms. Candace McKinley
Environmental Program Manager
Bureau of Recreation
1917 Marsh Rd
Yakima, WA 98901-2058

BUREAU OF RECLAMATION
OFFICIAL FILE COPY

MAIL CODE	SCAN	INIT & DATE	COPY
1000	X		
1002	X		
1100	X		
1600	X		
1700	X		
5000			
1600	X		
1653	X		
ACTION			

In future correspondence please refer to:
Log: 102212-20-BOR
Property: Kennewick Irrigation District (Highland, Badger East laterals)
Re: NO Adverse Effect

Dear Ms. McKinley:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP). The above referenced project has been reviewed on behalf of the State Historic Preservation Officer under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. My review is based upon documentation contained in your communication.

First, I agree with the Area of Potential Effect (APE) as mapped in the consultant's report. I also concur that the current project as proposed will have "NO ADVERSE EFFECT" on National Register eligible or listed historic and cultural resources. If additional information on the project becomes available, or if any archaeological resources are uncovered during construction, please halt work in the area of discovery and contact the appropriate Native American Tribes and DAHP for further consultation.

Thank you for the opportunity to review and comment. If you have any questions, please contact me.

Sincerely,

Russell Holter
Project Compliance Reviewer
(360) 586-3533
russell.holter@dahp.wa.gov

ELECTRONICALLY
TRANSMITTED

Capital Projects 2012-2016

2013

Revenue

Projected 2012 Carryfoward Funds	$	(124,484.15)
Projected 2013 Assessments	$	1,280,000
From 0400 (Brantingham Heights Upsizing)	$	25,000
From 0400 (In-Kind Labor)	$	429,445
Total	$	1,609,961

					Project Funding Sources					
Project Name	Project Number	Total Project Cost	Previous Year Cost	Remaining Balance	In Kind Labor	Capital Upgrade & Improvement Fund	Grants	Other	Total Funding Remaining	Notes
Main Canal Div. 4 EPDM Lining MP 38.7 to 41.8	CUIP13-02	$ 842,259	$ -	$ 842,259	$ 429,445	$ 412,813	$ -	$ -	$ 842,259	EPDM Lining From end of Division 4 working upstream
Brantingham Heights Upsizing Ph 2	CUIP13-03	$ 25,000	$ -	$ 25,000	$ -	$ -	$ -	$ 25,000	$ 25,000	Development Participated Pipeline Upsizing (from 0400 IRRIG)
Technology/Automation	CUIP13-04	$ 100,000	$ -	$ 100,000	$ -	$ 100,000	$ -	$ -	$ 100,000	For Canal and Pump Station Control and Automation
SIP Projects	CUIP13-05	$ 250,000	$ -	$ 250,000	$ -	$ 200,000	$ -	$ -	$ 200,000	System Improvement Projects
Infrastructure Upsizing Projects	CUIP13-06	$ 100,000	$ -	$ 100,000	$ -	$ 100,000	$ -	$ -	$ 100,000	Upsizing Projects in Coordination with Development (upsizing benefits existing customers)
Contingency		$ 150,000	$ -	$ 150,000	$ -	$ 150,000	$ -	$ -	$ 150,000	This Contingency is in addition to contingencies included in project estimates
Summary		$ 1,467,259	$ -	$ 1,467,259	$ 429,445	$ 962,813	$ -	$ 25,000	$ 1,417,259	
Projected Carryfoward	$ 142,702.48									

2014

Revenue

Projected 2013 Carryfoward Funds	$	142,702.48
Projected 2014 Assessments	$	1,292,000
From 0400 (In-Kind Labor)	$	289,055
Total	$	1,434,702

					Project Funding Sources					
Project Name	Project Number	Total Project Cost	Previous Year Cost	Remaining Balance	In Kind Labor	Capital Upgrade & Improvement Fund	Grants	Other	Total Funding Remaining	Notes
Main Canal Div. 4 EPDM Lining MP 30.6 to 32.2	CUIP14-01	$ 779,120	$ -	$ 779,120	$ 289,055	$ 490,065	$ -	$ -	$ 779,120	EPDM Lining From S. Ely St to S. Olympia Street
Technology/Automation	CUIP14-02	$ 150,000	$ -	$ 150,000	$ -	$ 150,000	$ -	$ -	$ 150,000	For Canal and Pump Station Control and Automation
SIP Projects	CUIP14-03	$ 250,000	$ -	$ 250,000	$ -	$ 200,000	$ -	$ -	$ 200,000	System Improvement Projects
Infrastructure Upsizing Projects	CUIP14-04	$ 100,000	$ -	$ 100,000	$ -	$ 100,000	$ -	$ -	$ 100,000	Upsizing Projects in Coordination with Development (upsizing benefits existing customers)
Contingency		$ 150,000	$ -	$ 150,000	$ -	$ 150,000	$ -	$ -	$ 150,000	This Contingency is in addition to contingencies included in project estimates
Summary		$ 1,429,120	$ -	$ 1,429,120	$ 289,055	$ 1,090,065	$ -	$ -	$ 1,379,120	
Projected Carryfoward	$ 5,582.17									

Capital Projects 2012-2016

2015

Revenue

Projected 2014 Carryfoward Funds	$	5,582.17
Projected 2015 Assessments	$	1,318,000
From 0400 (In-Kind Labor)	$	359,250.32
Total	$	1,682,832.49

					Project Funding Sources					
Project Name	Project Number	Total Project Cost	Previous Year Cost	Remaining Balance	In Kind Labor	Capital Upgrade & Improvement Fund	Grants	Other	Total Funding Remaining	Notes
Main Canal Div. 4 EPDM Lining MP 25.09to 25.4 and Highland Feeder 0.0 to 1.7	CUIP15-01	$ 906,471	$ -	$ 906,471	$ 359,250	$ 547,221	$ -	$ -	$ 906,471	EPDM Lining at head end of Div. 4 and Highland Feeder
Technology/Automation	CUIP15-02	$ 150,000	$ -	$ 150,000	$ -	$ 150,000	$ -	$ -	$ 150,000	For Canal and Pump Station Control and Automation
SIP Projects	CUIP15-03	$ 250,000	$ -	$ 250,000	$ -	$ 200,000	$ -	$ -	$ 200,000	System Improvement Projects
Infrastructure Upsizing Projects	CUIP15-04	$ 100,000	$ -	$ 100,000	$ -	$ 100,000	$ -	$ -	$ 100,000	Upsizing Projects in Coordination with Development (upsizing benefits existing customers)
Contingency		$ 150,000	$ -	$ 150,000	$ -	$ 150,000	$ -	$ -	$ 150,000	This Contingency is in addition to contingencies included in project estimates
Summary		$ 1,556,471	$ -	$ 1,556,471	$ 359,250	$ 1,147,221	$ -	$ -	$ 1,506,471	
Projected Carryfoward	$ 126,361.19									

2016

Revenue

Projected 2015 Carryfoward Funds	$	126,361.19
Projected 2016 Assessments	$	1,332,000
From 0400 (In-Kind Labor)	$	355,113
Total	$	1,813,474

					Project Funding Sources					
Project Name	Project Number	Total Project Cost	Previous Year Cost	Remaining Balance	In Kind Labor	Capital Upgrade & Improvement Fund	Grants	Other	Total Funding Remaining	Notes
Badger East EPDM Lining MP 11.5 to 15.7	CUIP16-01	$ 806,819	$ -	$ 806,819	$ 355,113	$ 451,707	$ -	$ -	$ 806,819	EPDM Lining From Queensgate to Kennedy Road
Technology/Automation	CUIP16-02	$ 150,000	$ -	$ 150,000	$ -	$ 150,000	$ -	$ -	$ 150,000	For Canal and Pump Station Control and Automation
SIP Projects	CUIP16-03	$ 250,000	$ -	$ 250,000	$ -	$ 200,000	$ -	$ -	$ 200,000	System Improvement Projects
Infrastructure Upsizing Projects	CUIP16-04	$ 100,000	$ -	$ 100,000	$ -	$ 100,000	$ -	$ -	$ 100,000	Upsizing Projects in Coordination with Development (upsizing benefits existing customers)
Contingency		$ 150,000	$ -	$ 150,000	$ -	$ 150,000	$ -	$ -	$ 150,000	This Contingency is in addition to contingencies included in project estimates
Summary		$ 1,456,819	$ -	$ 1,456,819	$ 355,113	$ 1,051,707	$ -	$ -	$ 1,406,819	
Projected Carryfoward	$ 356,654.53									

Benton County Water Conservancy Board
Information Memorandum

Distribution: E-mail

DATE: January 11, 2013

TO: Mr. Chuck Freeman, General Manager
Kennewick Irrigation District

FROM: Darryll Olsen, Ph.D., Chairman, BCWCB D.O.

SUBJECT: Support for the KID's Grant Proposal for the 2013 WaterSMART Program

---

The BCWCB fully supports the Kennewick Irrigation District's application to the U. S. Bureau of Reclamation for grant funding under the 2013 WaterSMART Program.

KID's irrigation canal project will conserve Yakima River surface water and supports the BCWCB's water management objectives.

USBR staff are welcome to contact us at any time regarding our affirmation for this grant.

Thank you.

3030 W. Clearwater, Suite 205-A, Kennewick, WA, 99336
509-783-1623, FAX 509-735-3140, DOlsenEcon@AOL.com

Benton Conservation District
415 Wine Country Road
Prosser, WA 99350
(509) 786-1923 x 3 Fax: (509) 786-1175

January 10, 2013

Mr. Charles Freeman
Kennewick Irrigation District
12 West Kennewick Avenue
Kennewick, WA 99336

Dear Mr. Freeman,

This letter is submitted in support of Kennewick Irrigation District's application for U.S. Bureau of Reclamation grant funding from the 2013 WaterSMART program.

Kennewick Irrigation District's canal project will conserve Yakima River surface water and supports the Benton Conservation District's conservation goals.

Best wishes for success on your grant application.

Sincerely,

Jack Clark
Chair

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Letter of Support expected from the Benton County Commissioners Office by January 30, 2013.

Will submit upon receipt.

KENNEWICK IRRIGATION DISTRICT

WATERSMART 2013 APPLICATION

KID LABOR & BENEFIT RATES

Prepared by cgStorms 1.10.13

		2013	2013	2014	2014	2015	2015
		Rate 2013-2% COLA + Step if Applicable	Average Benefit Rate	Rate 2014-3% COLA + Step if Applicable	Average Benefit Rate	Rate 2015-3% COLA + Step if Applicable	Average Benefit Rate
FIELD	Field Op Lead	30.46	14.62	31.37	15.69	32.32	16.80
	Maintenance Laborer	14.23	6.83	14.66	7.33	15.10	7.85
These Are	Maintenance/Canal	22.96	11.02	24.02	12.01	25.11	13.06
Average Rates	Mechanic/Warehouse	24.61	11.81	25.35	12.68	26.11	13.58
By Classification	Pump Technician	26.03	12.50	26.82	13.41	27.62	14.36
	Seasonal- Winter	11.93	5.73	12.29	6.14	12.66	6.58
	Veg Control Special	24.91	11.96	25.66	12.83	26.43	13.74
	Veg Tech	23.84	11.44	24.55	12.28	25.29	13.15
FINANCE							
Comptroller/ Accountant	(Composition Rate)	44.50	18.47	46.10	20.05	47.78	21.74
ENGINEERING	Const. Inspector/CAD	27.27	9.00	28.09	9.83	28.94	10.71
Specific Rates	Project Manager	42.53	14.03	45.08	15.78	47.79	17.68
	Staff Engineer I	29.38	9.70	31.14	10.90	33.01	12.21
	Staff Engineer I	33.06	10.91	35.05	12.27	37.15	13.75
	Maint/Constr. Inspect/CAD	25.29	8.35	26.81	9.38	28.20	10.43

Field	Average Benefit Rate to use for 2013:	48.0%		50.0%	52.0%
Finance	Average Benefit Rate to use for 2013:	41.5%		43.5%	45.5%
Engineering	Average Benefit Rate to use for 2013:	33.0%		35.0%	37.0%

JUSTIFICATION OF REASONABLENESS

Field	Average Benefit Rate: Current year 2012 benefit rate, non overtime, excluding leave time= 46%
Finance	Average Benefit Rate: Current year 2012 benefit rate, non overtime, excluding leave time= 39.5%
Engineering	Average Benefit Rate: Current year 2012 benefit rate, non overtime, excluding leave time= 31%
FACTS:	I added 2% to each of the 2012 Average Benefit Rates because in the past 3 years, we've had the following increase:
	We have averaged a 7% increase in our medical insurance cost, which was 54.4% of our total fringe benefit cost,
	but also does not grow in proportion to wages, but is a fixed cost.
	PERS2, our State Retirement Plan, employer costs have increased by an average of.64% OF GROSS PAY per year in past 3 years.
	Therefore, we feel that 2% of the wages will cover the increased cost in fringes per year.

KID Owned Equipment Rates
based on
Construction Equipment Ownership and Operation Schedule, Region VIII
US Army Corps of Engineers, Volume 8, November 2011

Budget Item (from Table K)	KID Owned Equipment	Year	Hour Rate	DEPR	FCCM	Equipment Age Adj.	Adj. Hourly	40 Hour Adj. Monthly Rate	30 Hour Adj. Monthly Rate**
15	Catepillar 312C Excavator	2006	$ 35.81	$ 11.97	$ 1.22	0.97	$ 35.41	$ 5,666.29	$ 4,249.72
16	310SJ Loader/Backhoe	2009	$ 21.32	$ 4.69	$ 0.59	1.04	$ 21.53	$ 3,444.99	$ 2,583.74
17	650J Crawler/Dozer	2008	$ 36.77	$ 8.56	$ 1.12	1.00	$ 36.77	$ 5,883.20	$ 4,412.40
18	450G Crawler/Dozer	1999	$ 31.41	$ 7.46	$ 0.97	0.88	$ 30.40	$ 4,863.74	$ 3,647.81
19	Mack GUB13 Dump Truck (1)	2008	$ 60.90	$ 8.15	$ 1.07	1.00	$ 60.90	$ 9,744.00	$ 7,308.00
19	Truck Option		$ 2.46	$ 1.27	$ 0.09	1.00	$ 2.46	$ 393.60	$ 295.20
	Subtotal for 19								$ 7,603.20
20	Mack GUB13 Dump Truck (2)	2008	$ 60.90	$ 8.15	$ 1.07	1.00	$ 60.90	$ 9,744.00	$ 7,308.00
20	Truck Option		$ 2.46	$ 1.27	$ 0.09	1.00	$ 2.46	$ 393.60	$ 295.20
	Subtotal for 20								$ 7,603.20
21	544J Loader	2005	$ 68.42	$ 17.10	$ 2.03	0.89	$ 66.32	$ 10,610.51	$ 7,957.88
22	John Deere JD770A Motor Grader	1984	$ 60.56	$ 14.68	$ 2.56	0.80	$ 57.11	$ 9,137.92	$ 6,853.44
23	17D Mini-Excavator (1)	2009	$ 9.88	$ 3.61	$ 0.35	1.03	$ 10.00	$ 1,599.81	$ 1,199.86
24	Catepillar 301.8 Mini-Excavator	2004	$ 9.88	$ 3.61	$ 0.35	0.97	$ 9.76	$ 1,561.79	$ 1,171.34
25	Caterpillar Roller 563C	2000	$ 61.54	$ 15.96	$ 1.60	0.88	$ 59.43	$ 9,509.25	$ 7,131.94
26	Ford L8000 Water Truck	1987	$ 60.90	$ 8.15	$ 1.07	0.84	$ 59.42	$ 9,507.97	$ 7,130.98
26	Truck Option		$ 6.38	$ 3.22	$ 0.31	0.93	$ 6.13	$ 981.26	$ 735.95
	Subtotal for 26								$ 7,866.92

KID Rental Equipment Fuel Rates
based on
Construction Equipment Ownership and Operation Schedule, Region VIII
US Army Corps of Engineers, Volume 8, November 2011

Budget Item (from Table K)	KID Rental Equipment	Fuel	40 Hour Adj. Monthly Rate	30 Hour Adj. Monthly Rate**
27	Excavator 450	$ 33.69	$ 5,390.40	$ 4,042.80
28	Excavator 200 (1)	$ 15.29	$ 2,446.40	$ 1,834.80
29	Excavator 200 (2)	$ 15.29	$ 2,446.40	$ 1,834.80
30	Excavator 200 (3)	$ 15.29	$ 2,446.40	$ 1,834.80
31	Loader 644J	$ 22.57	$ 3,611.20	$ 2,708.40
32	Dozer 750	$ 16.42	$ 2,627.20	$ 1,970.40
33	Dump Truck (1)	$ 38.30	$ 6,128.00	$ 4,596.00
34	Dump Truck (2)	$ 38.30	$ 6,128.00	$ 4,596.00

** The KID will be assuming that all equipment will be operating at 30 hours a week. This is a reasonable assumption due to the fact that KID operators will not be using the machines all 40 hours in a normal work week. The reduction in a 10 hours a week accounts for KID operator break times, travel times to and from the jobsite as KID operators report to work at the KID shop, daily staff and project meetings, sanitation breaks, holidays, and heavy equipment engine and hydraulic warm-up times.

Table 2-1. HOURLY EQUIPMENT OWNERSHIP AND OPERATING EXPENSE

CAT	REGION 8 ID.NO.	MODEL	EQUIPMENT DESCRIPTION	ENGINE HORSEPOWER AND FUEL TYPE MAIN	CARRIER	VALUE (TEV) 2008 ($)	TOTAL HOURLY RATES ($/HR) AVERAGE	STANDBY	ADJUSTABLE ELEMENTS DEPR	FCCM	FUEL	CWT
			MELROE COMPANY/BOBCAT									
	H25ME001	323	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 3,600 LBS, 0.04 CY BUCKET, 7'6" MAX DIGGING DEPTH	13 HP D-off		$30,060	7.61	1.68	2.82	0.27	1.42	37
	H25ME002	331	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 7,200 LBS, 0.10 CY BUCKET, 10'2" MAX DIGGING DEPTH	40 HP D-off		$43,355	13.56	2.42	4.66	0.39	4.28	72
	H25ME003	337	HYDRAULIC EXCAVATOR, CRAWLER-RUBBER TRACK, 11,000 LBS, 0.18 CY BUCKET, 12' MAX DIGGING DEPTH	48 HP D-off		$80,362	17.93	3.38	5.66	0.55	5.13	110
	SUBCATEGORY 0.11		**OVER 12,500 LBS THRU 40,000 LBS**									
			CATERPILLAR INC. (MACHINE DIVISION)									
	H25CA038	307D	HYDRAULIC EXCAVATOR, CRAWLER, 14,310 LBS, 0.45 CY BUCKET, 15.25' MAX DIGGING DEPTH	54 HP D-off		$104,734	26.31	5.56	9.24	0.94	5.78	159
	H25CA029	311-CU	HYDRAULIC EXCAVATOR, CRAWLER, 24,640 LBS, 0.80 CY BUCKET, 16.50' MAX DIGGING DEPTH	79 HP D-off		$134,573	34.99	7.15	11.87	1.21	8.45	258
Item 15	H25CA021	312-DL	HYDRAULIC EXCAVATOR, CRAWLER, 26,000 LBS, 0.68 CY BUCKET, 18.18' MAX DIGGING DEPTH	84 HP D-off		$135,858	35.81	7.21	11.97	1.22	8.08	288
			KOBELCO AMERICA INC.									
	H25KC017	70SR	HYDRAULIC EXCAVATOR, CRAWLER, 16,400 LBS, 0.33 CY BUCKET, 14.75' MAX DIGGING DEPTH	54 HP D-off		$114,662	28.18	6.09	10.12	1.03	5.78	168
	H25KC016	135SR LC	HYDRAULIC EXCAVATOR, CRAWLER, 30,870 LBS, 0.60 CY BUCKET, 19.58' MAX DIGGING DEPTH	94 HP D-off		$163,402	42.26	8.68	14.42	1.47	10.05	319

Table 3-1 Equipment Age Adjustment Factors for Ownership Cost

CATEGORY SUB	REGION 8 TYPE OF EQUIPMENT	Life in Years 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		Year Purchased New 2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994
Item 23 & 24 H25 0.10	0 LBS THRU 12,500 LBS (COMPACT EXCAVATORS)	1.06	1.03	1.03	1.00	0.99	0.97												
Item 15 H25 0.11	OVER 12,500 LBS THRU 40,000 LBS	1.06	1.03	1.03	1.00	0.99	0.97												
H25 0.12	OVER 40,000 LBS THRU 100,000 LBS	1.06	1.03	1.03	1.00	0.99	0.97	0.91	0.84										
H25 0.13	OVER 100,000 LBS THRU 160,000 LBS	1.06	1.03	1.03	1.00	0.99	0.97	0.91	0.84	0.82	0.79	0.72							
H25 0.14	OVER 160,000 LBS	1.06	1.03	1.03	1.00	0.99	0.97	0.91	0.85	0.82	0.79	0.72	0.74	0.73					
H25 0.21	ATTACHMENTS, ADD-ON SHEARS	1.07	1.04	1.04	1.00														
H25 0.22	ATTACHMENTS, MATERIAL HANDLING	1.07	1.04	1.04	1.00														
H25 0.23	ATTACHMENTS, CONCRETE PULVERIZERS	1.07	1.04	1.04	1.00														
H25 0.24	ATTACHMENTS, COMPACTORS	1.07	1.04	1.04	1.00														
H30 0.00	HYDRAULIC EXCAVATORS, WHEEL MOUNTED																		
H30 0.01	0 THRU 1.0 CY	1.06	1.03	1.03	1.00	0.99	0.97												
H30 0.02	OVER 1.0 CY	1.06	1.03	1.03	1.00	0.99	0.97	0.90											
H35 0.00	HYDRAULIC SHOVELS, CRAWLER MOUNTED																		
H35 0.11	DIESEL, 0 CY THRU 5.0 CY	1.05	1.02	1.03	1.00	0.99	0.97	0.91	0.85	0.83	0.80								
H35 0.12	DIESEL, OVER 5.0 CY	1.05	1.02	1.03	1.00	0.99	0.97	0.91	0.85	0.83	0.80	0.74							
H35 0.21	ELECTRIC, OVER 2.5 CY	1.05	1.02	1.03	1.00	0.99	0.97	0.91	0.85	0.83	0.80	0.74	0.75						
L10 0.00	LAND CLEARING EQUIPMENT	1.06	1.03	1.03	1.00	0.96	0.94	0.90											
L15 0.00	LANDSCAPING EQUIPMENT	1.07	1.04	1.04	1.00														
L20 0.00	LIGHTING SETS, TRAILER MOUNTED																		
L20 0.10	METALLIC VAPOR	1.07	1.04	1.04	1.00	0.96	0.93												
L25 0.00	LINE STRIPING EQUIPMENT	1.07	1.04	1.04	1.00	0.96	0.93												
L30 0.00	LOADERS, BELT (Conveyor belts) & ACCESSORIES	1.07	1.04	1.04	1.00	0.96	0.93	0.89											

Table 2-1. HOURLY EQUIPMENT OWNERSHIP AND OPERATING EXPENSE

CAT	ID.NO.	MODEL	EQUIPMENT DESCRIPTION	ENGINE HORSEPOWER AND FUEL TYPE MAIN	ENGINE HORSEPOWER AND FUEL TYPE CARRIER	VALUE (TEV) 2008 ($)	TOTAL HOURLY RATES ($/HR) AVERAGE	TOTAL HOURLY RATES ($/HR) STANDBY	ADJUSTABLE ELEMENTS DEPR	ADJUSTABLE ELEMENTS FCCM	ADJUSTABLE ELEMENTS FUEL	CWT
L50	LOADERS / BACKHOE, WHEEL TYPE											
	SUBCATEGORY 0.00		LOADERS / BACKHOE, WHEEL TYPE									
			CATERPILLAR INC. (MACHINE DIVISION)									
Item 16	L50CA001	416E	LOADER / BACKHOE, WHEEL, 1.00 CY FRONT END BUCKET, 18" DIP, 4.5 CF, 14.5' DIGGING DEPTH, 4X2	75 HP D-off		$66,080	21.33	2.94	4.69	0.58	6.46	162
	L50CA004	446D	LOADER / BACKHOE, WHEEL, 1.50 CY FRONT END BUCKET, 36" DIP, 10 CF, 17.1' DIGGING DEPTH, 4X2	110 HP D-off		$156,208	41.02	7.02	11.25	1.39	9.11	193
			CASE CORPORATION									
	L50CS005	580 SUPER M SERIES 2	LOADER / BACKHOE, WHEEL, 1.00 CY FRONT END BUCKET, 24" DIP, 6.2 CF, 14.25' DIGGING DEPTH, 4X4	90 HP D-off		$99,007	28.46	4.45	7.14	0.88	7.45	143
	L50CS006	590 SUPER M SERIES 2	LOADER / BACKHOE, WHEEL, 1.30 CY FRONT END BUCKET, 24" DIP, 8.4 CF, 18' DIGGING DEPTH, 4X4, EXTENDAHOE	98 HP D-off		$118,799	33.08	5.30	8.49	1.05	8.11	153
			JCB INC.									
	L50JC001	212S (4WS)	LOADER / BACKHOE, WHEEL, 0.80 CY FRONT END BUCKET, 24" DIP, 4.3 CF, 12' DIGGING DEPTH, 4X4	67 HP D-off		$74,947	21.44	3.37	5.42	0.66	5.55	120
	L50JC002	214S (2WD)	LOADER / BACKHOE, WHEEL, 1.25 CY FRONT END BUCKET, 24" DIP, 7.1 CF, 14.6' DIGGING DEPTH, 4X2	92 HP D-off		$85,777	26.46	3.82	6.12	0.76	7.62	158
	L50JC003	214S (4WS)	LOADER / BACKHOE, WHEEL, 1.40 CY FRONT END BUCKET, 24" DIP, 7.1 CF, 14.6' DIGGING DEPTH, 4X4	100 HP D-off		$103,772	30.84	4.61	7.38	0.92	8.28	164

Table 3-1 Equipment Age Adjustment Factors for Ownership Cost

CATEGORY	SUB	REGION 8 TYPE OF EQUIPMENT	Life in Years 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			Year Purchased New 2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994
L35	0.00	LOADERS, FRONT END, CRAWLER TYPE	1.06	1.03	1.03	1.00	0.96	0.94	0.89											
L40	0.00	LOADERS, FRONT END, WHEEL TYPE																		
Item 21 L40	0.11	ARTICULATED, 0 THRU 225 HP	1.07	1.03	1.04	1.00	0.96	0.94	0.89											
L40	0.12	ARTICULATED, OVER 225 HP	1.06	1.03	1.03	1.00	0.96	0.94	0.90	0.85	0.82									
L40	0.20	SKID STEER	1.06	1.03	1.03	1.00	0.96	0.94												
L40	0.21	SKID STEER ATTACHMENTS	1.06	1.03	1.03	1.00														
L40	0.31	TOOL CARRIER & TELESCOPIC HANDLERS, 0 THRU 225 HP	1.06	1.03	1.04	1.00	0.96	0.94	0.89											
L40	0.32	TOOL CARRIER & TELESCOPIC HANDLERS, OVER 225 HP	1.06	1.03	1.03	1.00	0.97	0.94	0.90	0.85										
L45	0.00	LOADERS / BACKHOE, CRAWLER TYPE	1.06	1.03	1.03	1.00	0.96	0.94												
Item 16 L50	0.00	LOADERS / BACKHOE, WHEEL TYPE	1.06	1.03	1.04	1.00	0.96	0.94	0.89											
L55	0.00	LOADER / BACKHOE, ATTACHMENTS	1.07	1.04	1.04	1.00														
L60	0.00	LOG SKIDDERS	1.06	1.04	1.04	1.00	0.95	0.90	0.85											
M10	0.00	MARINE EQUIPMENT (NON DREDGING)																		
M10	0.11	AQUATIC MAINTENANCE	1.10	1.08	1.05	1.00	0.96	0.91	0.87											
M10	0.12	AQUATIC MAINTENANCE ATTACHMENTS	1.11	1.08	1.05	1.00														
M10	0.21	HYDRAULIC CUTTERHEAD DREDGE, 8" OR LESS, TRANSPORTABLE	1.09	1.07	1.05	1.00	0.96	0.92	0.88	0.85	0.80	0.76	0.75							
M10	0.22	HYDRAULIC CUTTERHEAD DREDGE,8" - 12", TRANSPORTABLE	1.09	1.07	1.05	1.00	0.96	0.92	0.88	0.85	0.80	0.76	0.75							
M10	0.23	HYDRAULIC AUGERHEAD DREDGE, 12" OR LESS, TRANSPORTABLE	1.09	1.07	1.05	1.00	0.96	0.92	0.88	0.85	0.80	0.76	0.75							
M10	0.24	HYDRAULIC FLOATING PUMPS, 12" OR LESS, TRANSPORTABLE	1.10	1.07	1.05	1.00	0.96	0.92												
M10	0.25	HYDRAULIC DREDGE PUMPS,12" OR LESS,TRANSPORTABLE	1.10	1.08	1.05	1.00														
M10	0.26	HYDRAULIC DREDGE / PUMP ATTACHMENTS	1.10	1.08	1.05	1.00														
M10	0.31	SMALL MECH DREDGES,CLAMSHELL,BARGE-MTD TO 5 CY	1.05	1.02	1.03	1.00	0.99	0.98	0.92	0.86	0.84	0.81	0.75	0.76						

Table 2-1. HOURLY EQUIPMENT OWNERSHIP AND OPERATING EXPENSE

CAT	REGION 8 ID.NO.	MODEL	EQUIPMENT DESCRIPTION	ENGINE HORSEPOWER AND FUEL TYPE MAIN	CARRIER	VALUE (TEV) 2008 ($)	TOTAL HOURLY RATES ($/HR) AVERAGE	STANDBY	ADJUSTABLE ELEMENTS DEPR	FCCM	FUEL	CWT
	SUBCATEGORY 0.03		OVER 30,000 GVW (Chassis only - Add options)									
	NO SPECIFIC MANUFACTURER											
	T50XX027	4X2 35KGVW DSL	TRUCK, HIGHWAY, 35,000 LBS GVW, 2 AXLE, 4X2 (CHASSIS ONLY-ADD OPTIONS)	265 HP D-en		$115,827	44.79	4.74	7.52	0.98	25.38	126
	T50XX032	4X2 35KGVW DSL	DUMP TRUCK, HIGHWAY, 35,000 LBS GVW, 2 AXLE, 4X2 WITH REAR 10 - 13 CY DUMP BODY	265 HP D-en		$126,020	46.19	5.17	8.20	1.07	25.38	160
	T50XX028	6X4 45KGVW DSL	TRUCK, HIGHWAY, 45,000 LBS GVW, 3 AXLE, 6X4 (CHASSIS ONLY-ADD OPTIONS)	230 HP D-en		$116,185	41.26	4.71	7.46	0.98	22.02	135
	T50XX029	6X4 55KGVW DSL	TRUCK, HIGHWAY, 50,000 LBS GVW, 3 AXLE, 6X4 (CHASSIS ONLY-ADD OPTIONS)	310 HP D-en		$107,397	48.68	4.34	6.86	0.91	29.69	144
	T50XX030	6X6 70KGVW DSL	TRUCK, HIGHWAY, 70,000 LBS GVW, 3 AXLE, 6X6 (CHASSIS ONLY-ADD OPTIONS)	350 HP D-en		$136,742	57.01	5.57	8.82	1.16	33.52	180
Item 19, 20 & 26	T50XX031	6X4 75KGVW DSL	TRUCK, HIGHWAY, 75,000 LBS GVW, 3 AXLE, 6X4 (CHASSIS ONLY-ADD OPTIONS)	400 HP D-en		$126,343	50.90	5.15	8.15	1.07	38.30	197
Item 33 & 34	T50XX033	6X4 75KGVW DSL	DUMP TRUCK, HIGHWAY, 75,000 LBS GVW, 3 AXLE, 6X4 WITH REAR 15 - 20 CY DUMP BODY	400 HP D-en		$138,041	62.51	5.64	8.93	1.17	38.30	240

Table 3-1 Equipment Age Adjustment Factors for Ownership Cost

CATEGORY SUB	REGION 8 TYPE OF EQUIPMENT	Life in Years 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		Year Purchased Now 2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994
Item 26 T40 0.60	WATER TANKS	1.07	1.04	1.04	1.00	0.96	0.93												
T40 0.70	ALL OTHER OPTIONS	1.07	1.04	1.04	1.00	0.96	0.93												
T45 0.00	TRUCK TRAILERS																		
T45 0.10	BOTTOM DUMP	1.06	1.04	1.03	1.00	0.97	0.94	0.90											
Item 19 & 20 T45 0.20	END DUMP	1.06	1.04	1.03	1.00	0.97	0.94	0.90											
T45 0.30	PUP TRAILER	1.06	1.04	1.03	1.00	0.97	0.94												
T45 0.41	LOWBOY, RIGID NECK, DROP DECK	1.06	1.04	1.03	1.00	0.97	0.94	0.90											
T45 0.50	FLATBED TRAILER	1.06	1.04	1.03	1.00	0.97	0.94	0.90											
T45 0.60	MISCELLANEOUS / UTILITY	1.06	1.04	1.03	1.00	0.97	0.94	0.90											
T45 0.70	WATER TANKER TRAILER	1.07	1.04	1.04	1.00	0.96	0.93	0.86											
T45 0.80	DECONTAMINATION FACILITY	1.07	1.04	1.04	1.00	0.96	0.93												
T45 0.90	TANK TRAILERS	1.07	1.04	1.04	1.00	0.96	0.93	0.88											
T50 0.00	TRUCKS, HIGHWAY (Add attachments as required)																		
T50 0.01	0 THRU 10,000 GVW	1.11	1.09	1.06	1.00	0.96	0.93												
T50 0.02	OVER 10,000 THRU 30,000 GVW (Chassis only - Add options)	1.11	1.09	1.06	1.00	0.96	0.93	0.88											
Item 19, 20 & 26 T50 0.03	OVER 30,000 GVW (Chassis only - Add options)	1.11	1.09	1.06	1.00	0.96	0.93	0.88	0.84										
T55 0.00	TRUCKS, OFF-HIGHWAY																		
T55 0.10	RIGID FRAME	1.04	1.03	1.02	1.00	0.96	0.94	0.89	0.82	0.77	0.76	0.74	0.73	0.71					
T55 0.20	ARTICULATED FRAME	1.04	1.03	1.02	1.00	0.96	0.94	0.89	0.81	0.76									
T56 0.00	TRUCKS, OFF-HIGHWAY, PRIME MOVER TRACTORS & WAGONS																		
T56 0.10	PRIME MOVER TRACTORS	1.04	1.03	1.02	1.00	0.96	0.94	0.89	0.82	0.77	0.76	0.74	0.73	0.71					
T56 0.20	WAGONS, BOTTOM DUMP	1.04	1.03	1.02	1.00	0.96	0.93	0.88	0.81	0.75	0.74								

Rowand Machinery Company
1907 E Jasmes Rd.
Pasco, WA 99301

BID PROPOSAL "A"
SCHEDULE OF PRICES - BADGER EAST CANAL

Unit Price for all items, all extensions, and total amount of bid must be shown.
ALL ENTRIES SHALL BE IN INK OR TYPED TO VALIDATE BID.

Item No.	QTY.	TYPE	Unit Price ($)	Total ($)
John Deere 200 CLC Excavators (or write Equivalent)	2	Weeks	$ 1,450.00	$2,900.00
	3	Months	$ 4,350.00	$13,050.00
Freight, Mobilization, Demobilization	1	LS	$ 300.00	$300.00

Line 1: Subtotal x 2 (2 Pieces of Equipment): $32,500.00

Item No.	QTY.	TYPE	Unit Price ($)	Total ($)
John Deere 644 J Four Wheel Drive Loader (or write Equivalent)	2	Weeks	$ 1,500.00	$3,000.00
	3	Months	$ 4,500.00	$13,500.00
Freight, Mobilization, Demobilization	1	LS	$ 300.00	$300.00
John Deere 750K Dozer (or write Equivalent)	1	Weeks	$ 1,617.00	$1,617.00
	1	Months	$ 4,850.00	$4,850.00
Freight, Mobilization, Demobilization	1	LS	$ 300.00	$300.00

Line 2: Subtotal: $23,567.00

Total (sum Lines 1 & 2): $56,067.00
Tax (8.3%): $4,653.56
Grand Total: $60,720.56

BID PROPOSAL "B"
SCHEDULE OF PRICES - MAIN CANAL

Item No.	QTY.	TYPE	Unit Price ($)	Total ($)
John Deere 450 DLC Excavator (or write Equivalent)	1	Weeks	$ 2,875.00	$2,875.00
	1	Months	$ 8,625.00	$8,625.00
Freight, Mobilization, Demobilization	1	LS	$ 330.00	$330.00
John Deere 200 CLC Excavators (or write Equivalent)	1	Weeks	$ 1,450.00	$1,450.00
	1	Months	$ 4,350.00	$4,350.00
Freight, Mobilization, Demobilization	1	LS	$ 300.00	$300.00

Total: $17,930.00
Tax (8.3%): $1,488.19
Grand Total: $19,418.19

Combined Schedule "A" & "B" Total $80,138.75

Peters & Keatts Equipment Inc
31369 Thiessen Road
Lewiston, ID 83501

BID PROPOSAL "A"
SCHEDULE OF PRICES - BADGER EAST CANAL

Unit Price for all items, all extensions, and total amount of bid must be shown.
ALL ENTRIES SHALL BE IN INK OR TYPED TO VALIDATE BID.

Item No.	QTY.	TYPE	Unit Price ($)	Total ($)
John Deere 200 CLC Excavators (or write Equivalent)	2	Weeks	$ 1,125.00	$2,250.00
	3	Months	$ 4,500.00	$13,500.00
Freight, Mobilization, Demobilization	1	LS	$ 500.00	$500.00

Line 1: Subtotal x 2 (2 Pieces of Equipment): $32,500.00

Item No.	QTY.	TYPE	Unit Price ($)	Total ($)
John Deere 644 J Four Wheel Drive Loader (or write Equivalent)	2	Weeks	$ 1,000.00	$2,000.00
	3	Months	$ 4,000.00	$12,000.00
Freight, Mobilization, Demobilization	1	LS	$ 500.00	$500.00
John Deere 750K Dozer (or write Equivalent)	1	Weeks	$ 1,250.00	$1,250.00
	1	Months	$ 5,000.00	$5,000.00
Freight, Mobilization, Demobilization	1	LS	$ 500.00	$500.00

Line 2: Subtotal: $21,250.00

Total (sum Lines 1 & 2): $53,750.00
Tax (8.3%): $4,461.25
Grand Total: $58,211.25

BID PROPOSAL "B"
SCHEDULE OF PRICES - MAIN CANAL

Item No.	QTY.	TYPE	Unit Price ($)	Total ($)
John Deere 450 DLC Excavator (or write Equivalent)	1	Weeks	$ 2,000.00	$2,000.00
	1	Months	$ 8,000.00	$8,000.00
Freight, Mobilization, Demobilization	1	LS	$ 500.00	$500.00
John Deere 200 CLC Excavators (or write Equivalent)	1	Weeks	$ 1,125.00	$1,125.00
	1	Months	$ 4,000.00	$4,000.00
Freight, Mobilization, Demobilization	1	LS	$ 500.00	$500.00

Total: $16,125.00
Tax (8.3%): $1,338.38
Grand Total: $17,463.38

Combined Schedule "A" & "B" Total $75,674.63

ATTACHMENT I 56

Approved By:_____ Date:_____

PETERS & KEATTS
EQUIPMENT INC.
31368 THIESSEN RD.
LEWISTON, ID 83501
208-743-0866

Invoice

Date	Invoice #
11/2/2012	4731

Bill To
Kennewick Irrigation District P.O. Box 6900 Kennewick, WA 99336

RECEIVED
NOV 05 2012
KID

P.O. No.	Terms	Due Date	Rep
Gene Zadow	Net 30	12/2/2012	Gary

Item	Description	Serial #	Rental Dates	Quantity	Rate	Amount
PK 966 Rental	Rent 2007 Peterbilt 357 Dump Truck	1NPALBEX97D677217	11/1 - 12/1/12		4,000.00	4,000.00T
PK 974 Rental	Rent 2007 Peterbilt 378 Dump Truck	1NPFLB0X47D686131	11/1 - 12/1/12		4,000.00	4,000.00T
	Wa. Sales Tax 8.6%				8.60%	688.00

Thank you for your business.

Total $8,688.00

Rebecca Hiles

From: Tony McBride <tmcbride@2mco.com>
Sent: Friday, December 14, 2012 4:10 PM
To: Rebecca Hiles
Subject: LINER

Good afternoon!

Your price for the liner is $0.57 per square foot. Have a great weekend!

Tony McBride
Manager/Sales
2M Company
1026 W Third Ave
Moses Lake WA
PH – 509-765-0867
Fax – 509-765-4079

Quotation Form

2M Company Inc.
1215 Cordova
Billings, MT 59101
Phone # (406) 245-3008
Fax # (406) 259-4841

Date: 10/27/11
Quote #
Quote by: Dan Ruff

Customer Name: Kenneck Irrigation District
Phone # 1-509-586-9111
Fax #

Method of Delivery

UPS [ ] Freight [ ] Delivery [X]

Freight Charges

Prepaid [X] Collect [ ]

Note: $0.40 /sq. ft

Quantity	Part # (2M or Vendor)	Description	List	Discount	Net	Ext. Net
50	W56GM43520	35'x200' 45 mil Firestone EPDM Liner per roll			$2800.00 ea	$140,000.00
9	W56GM43020	30'X200' 45 mil Firestone EPDM Liner per roll			$2400.00 ea	$21,600.00
130	W56RAC1616	6"x100' roll Firestone Seaming Tape per roll			$186.85 ea	$ 24,290.50
160	W563587041	Firestone QuickPrime Seaming Adhesive 1 gallon			$33.40 ea	$ 5,355.00
150	80115	15'x300' 8 oz non-woven Hanes Underlayment per roll			$472.10 ea	$70,815.00
3	Fuel Surcharge	Fuel Surcharge per truck - 3 Truckloads			$175.00 ea	$525.00
1	Washinton Sales Tax	Washington State & City Sales Tax - .083%			$21,794.59	$21,794.59
		Attn: Ed Everardt				
		Prices on this Quotation are good until November 18, 2011				
		Prices include freight except the Fuel Surcharge of $175.00 per				
		Truckload of Liner - 3 Truckloads Required for Order				
		as per Line Item 6				
		Quantities of Seaming Tape & QuickPrime were given by KID				
		Use Unit Pricing for Actual Quantites at time of order				

Note: $0.105 /sq. ft

* Quotations are subject to change without notice

Terms: Net 30 Days **Total** $ 284,380.09

Note: The items and quantities quoted herein are our interpretation of materials required for this project. We suggest that the bidders verify the items and quantities in as much as 2M Company does not guarantee the accuracy of this material take off.
Prices are good for 30 day's after date of quote. Some exceptions may apply, see distributor for detials.

ATTACHMENT J 59

SCHEDULE OF PRICES

Unit Price for all items, all extensions, and total amount of bid must be shown.
ALL ENTRIES SHALL BE IN INK OR TYPED TO VALIDATE BID.

Item No.	Quant	Unit	Description	Unit Price	Total Amount
1	377,528	SQFT	45 Mil EPDM lining 35 ft. wide roll - Badger East Site 1	.33 sq/ft	$ 124,584.24
2	266,200	SQFT	45 Mil EPDM lining 30 ft. wide roll -Badger East Site 2	.33 sq/ft.	$ 87,846.00
3	57,120	SQFT	46 Mil EPDM lining 35 ft. wide roll -Badger East Site 2	.33 sq ft	$ 18,849.60
4	292,536	SQFT	45 Mil EPDM lining 30 ft. wide roll - Main Canal Site	.33 sq ft	$ 96536.88
5	341,292	SQFT	45 Mil EPDM lining 35 ft. wide roll - Main Canal Site	.33 sq ft	$ 112,626.36
6	522,313	SQFT	8 ounce Non-Woven Geotextile Badger East Site 1	.09 sq ft	$ 47,008.17
7	435,256	SQFT	8 ounce Non-Woven Geotextile Badger East Site 2	.09 sq ft	$ 39,173.04
8	795,392	SQFT	8 ounce Non-Woven Geotextile Main Canal Site	.09 sq ft	$ 71,585.28
~~10~~ 9	1	LS	Taping and Seaming Materials - Badger East Site 1	SEE ATTACHED LETTER	$ 7,690.30
~~11~~ 10	1	LS	Taping and Seaming Materials - Badger East Site 2	"	$ 6,681.05
~~12~~ 11	1	LS	Taping and Seaming Materials - Main Canal Site	"	$ 32,316.00
~~9~~ 12	1	LS	Taping and Seaming Tools	"	$ 355.00

Sub Total	$ 645,251.92
→ Sales Tax	$ 53,555.90
Grand Total Base Bid	$ 698,807.82

NOTE: IF APPLICABLE → REQUIRE TAX EXEMPT CERTIFICATE –

NOTE: 5% CASHIERS CHECK IS BASED ON SUB-TOTAL BID PRICE, [redacted] INCLUDING SALES TAX

KENNEWICK IRRIGATION DISTRICT

PURCHASE ORDER
No. 00038462

VENDOR:	SHIP TO:	BILL TO:
ACF West Construction Co 8951 SE76th Drive Portland, OR 97206-	Shop0 2015 S. Ely Street Kennewick, WA 99336-	Kennewick Irrigation Dist 12 West Kennewick Avenu PO Box 6900 Kennewick, WA 99336

VENDOR NO.	VENDOR PHONE NUMBER	TERMS	DATE	REQUIRED DELIVERY DATE
ACFWest	(503) 771-5115	0	11/30/2012	

SHIPPING INSTRUCTIONS

(none)

ITEM	QTY	U/M	DESCRIPTION / TASK	PRD CODE	ACCOUNT	UNIT PRICE	AMOUNT
1	120.00	EA	Firestone Seaming Adhesive/Primer Firestone Quick Prime Plus	Seaming Adhesive	8000-63-66200	33.5000	4,020.00
2	120.00	EA	Firestone 6" Seaming Tape Firestone 6" Batten Cover Strip	Seaming Tape	8000-63-66200	230.0000	27,600.00
3	1.00	EA	Freight	Freight	8000-63-66200	650.0000	650.00

SUBTOTAL:	32,270.00
TAX:	2,678.41
SHIPPING:	0.00
TOTAL:	**34,948.41**

TAXABLE: Yes
CONFIRMING: No

AUTHORIZED SIGNATURE

SPECIAL INSTRUCTIONS:

IMPORTANT: OUR ORDER NUMBER MUST APPEAR ON EVERY INVOICE AND PACKAGE

This order is given upon the representation and guaranty of the manufacturer or seller that no breach of any State or Federal Law or Regulation has occurred in connection with the manufacturing, processing, branding, labeling or transportation of the merchandise herein mentioned. If such breach occurs or is charged by any legally constituted State or Federal authority, the buyer shall be entitled to rescind the order and return the unused merchandise and shall also be held harmless by the manufacturer or seller against any penalty incurred and/or the cost of defense of any proceeding designed to penalize the buyer therefor.

ACF WEST CONSTRUCTION COMPANY, INC.
8951 SE 76th Drive, Portland, OR 97206 503-771-5115 800-878-5115 Fax: 877-668-8730

Name: Gene Zadow **Co:** Kennewick Irrigation District **e-mail:** gzadow@kid.org

Sent By: Jeff Boys **Date:** 11-29-2012

PROJECT: **KID Canal Liner Seaming Materials**

AGENCY: Kennewick Irrigation District

BID DATE: n/a

Firestone Seaming Adhesive/Primer

Firestone Quick Prime Plus	Quantity: 120 gal.	@ $33.50 per gallon	**$4,020.00**

Firestone 6" Seaming Tape

Firestone 6" Batten Cover Strip	Quantity: 120 rolls	@ $230.00 per roll	**$27,600.00**

(Shipping from: Las Vegas, NV)

Freight to Kennewick, WA **$650.00**

Total: $32,270.00

Tax $2,678.41

$ 34,948.41 TAX

F.O.B. **Las Vegas, NV Plant**
Terms: **Net 30 Days**

ROGERS SURVEYING, INC.
1455 COLUMBIA PARK TRAIL
RICHLAND, WA 99352
HTTP://WWW.ROGERSSURVEYING.COM
jbaalman@rogerssurveying.com
PHONE: (509) 783-4141
FAX: (509) 783-8994

January 10, 2013

Ben Woodard
Staff Engineer
Kennewick Irrigation District
12 West Kennewick Avenue.
Kennewick, WA 99336

Re: Cost Estimates for future canal lining projects

Dear Ben;

Rogers Surveying appreciates the opportunity to provide the following estimates for Professional Land Surveying Services on the above named project. We propose the following scope of work.

Work will include establishing or recovering control as necessary, verifying crossings in the canal, as-builts of the canal shoulder on each side at 50 foot stations with offsets and setting hubs every 500 feet and a rebar every 1500 feet, providing point files and spreadsheets.

Year/phase 1

1. Canal from Ely Street to Olympia Street. Approximately 8,374 LF. Estimated Cost $3000.
2. Canal from SR397 to End (Meal Road). Approximately 13,953 LF. Estimated Cost $6000.

Year/phase 2

1. Canal from Queensgate to Kennedy. Approximately 17,942 LF. Estimated Cost $6000.
2. Canal from future Hildebrand to S. Columbia Center Blvd. Approximately 9,106 LF. Estimated Cost $4000.
3. Canal from future Hildebrand east. Approximately 1750 LF. Estimated Cost $1250.

Year/phase 3

1. Canal from KID Olympia Siphon to Herrin Siphon. Approximately 10,680 LF. Estimated Cost $4000.
2. Canal from Herrin Siphon to SR 397, Approximately 15,466 LF. $6000.

Should you have any questions, please give me a call at (509) 783-4141.

Sincerely,

John A. Baalman, PLS
Principal