KENNEWICK IRRIGATION DISTRICT

WEST RICHLAND IRRIGATION
MASTER PLAN

FEBRUARY 2026

Prepared By:

KENNEWICK IRRIGATION DISTRICT

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SECTION 1.0 – INTRODUCTION

1.1 BACKGROUND

The West Richland service area encompasses approximately 931.5 total acres of land in Richland and West Richland, Washington. It is bounded by Keene Road, the Badger East Canal and I-182. The Master Plan area largely slopes from southwest to northeast. The Badger East Canal is located at the high points and the land slopes downward to Keene Road, with an elevation range of 650 feet to 530 feet above sea level. Figure 1 shows the location of the West Richland Master Plan.

The West Richland service area is mostly developed, with only about 340 total acres of land available for new development. The land use of this area is very diverse with parcels being designated by the City of Richland and the City of West Richland's zoning maps with commercial, low and medium density residential, and rural residential uses.

In the past, the infrastructure needs for new development in the Kennewick Irrigation District (KID) boundaries were determined on a development by development basis. However, in this case, due to the existing pressurized systems in the area, KID is presented with a challenge. Per current KID policy, each subdivision greater than 10 parcels is required to install a pond and pump station. In order to reduce maintenance costs and create more efficient systems, KID prefers not to add new systems, but instead expand, consolidate, and intertie existing pressurized service areas (PSAs).

This Master Plan has been created as a guide for irrigation infrastructure required for development and consolidation in the West Richland service area. This Master Plan begins by outlining the existing irrigation facilities that serve this area and the current irrigation demands. The evaluation of current and future development in this area was assessed and future water demands were estimated. Using these projected demands, regional alternatives for pressurizing the West Richland area were modeled and evaluated with associated costs and infrastructure. The regional alternatives were evaluated, and a final recommendation was outlined.

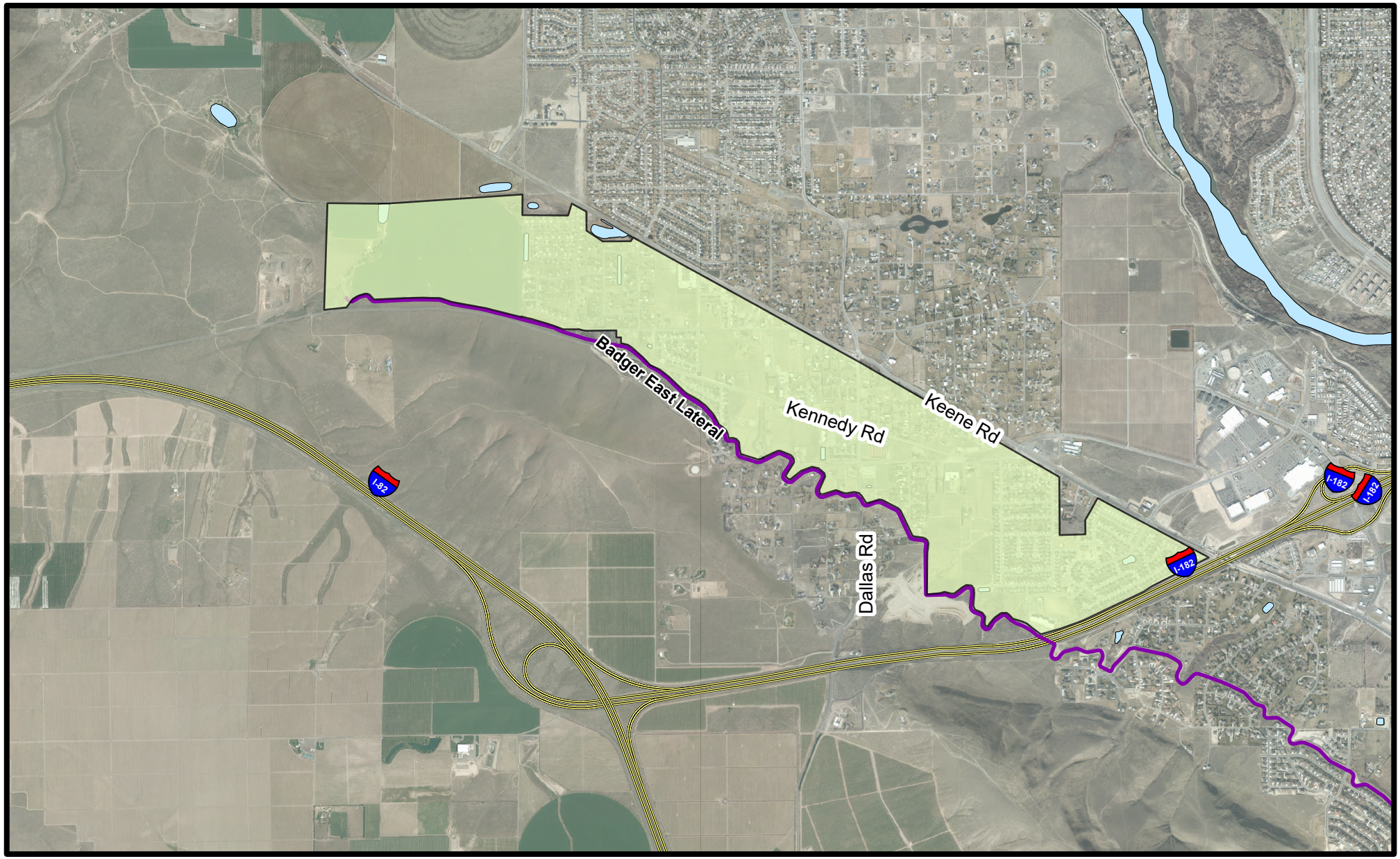

Figure 1: West Richland Master Plan
Future Service Area

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KENNEWICK IRRIGATION DISTRICT
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SECTION 2.0 – EXISTING IRRIGATION FACILITIES

2.1 DESCRIPTION OF EXISTING KID FACILITIES

Irrigation water is currently delivered to the West Richland region through a series of canals, pipelines, and pump stations. A map of the existing facilities is shown in Figure 2. From the Chandler pumping plant, water is supplied to the KID Main Canal. 14.5 miles downstream of the headwork water, irrigation water is delivered to the Badger East Lateral. Several turnouts and laterals off of the Badger East Lateral are responsible for supplying the West Richland service area.

After the canal, there is a mix of infrastructure that supplies the individual lots and respective deliveries with water. KID ponds, pump stations and piping are used in tandem to supply the majority of customers with irrigation water. These KID owned pump station and pipe facilities are known as pressurized service areas (PSAs). The West Richland area also contains a KID owned well that previously served properties in the Keene Village subdivision. Table 1 outlines the existing KID owned facilities. Figures 3 through 8 provide images of a selection of existing facilities.

Lastly, private line areas (PLAs) exist in the West Richland area. PLAs consist of delivery points where KID supplies irrigation water and a group of customers then convey the water to individual properties through privately owned facilities.

Table 1*:* Description of Existing Facilities

Facility	Description	Reference
Badger East Lateral	Original Design Earth Section 4 (11 cfs) currently lined with HDPE and Shotcrete	USBR 566-121-365 USBR 566-121-366 USBR 566-121-367
PSA 182	Pond and Pump Station	Riverwood
PSA 174	Pond and Pump Station	Glenbrook
PSA 194	Pump Station	Hazelwood Estates
PSA 157	Pond and Pump Station	Elite Estates/Candy Mountain Estates
PSA 165	Pond and Pump Station	Hearthstone
PSA 148	Well	Keene Village
Brookshire	Pond and Pump Station	Brookshire Estates
Brookshire	Booster Pump Station	Brookshire Estates

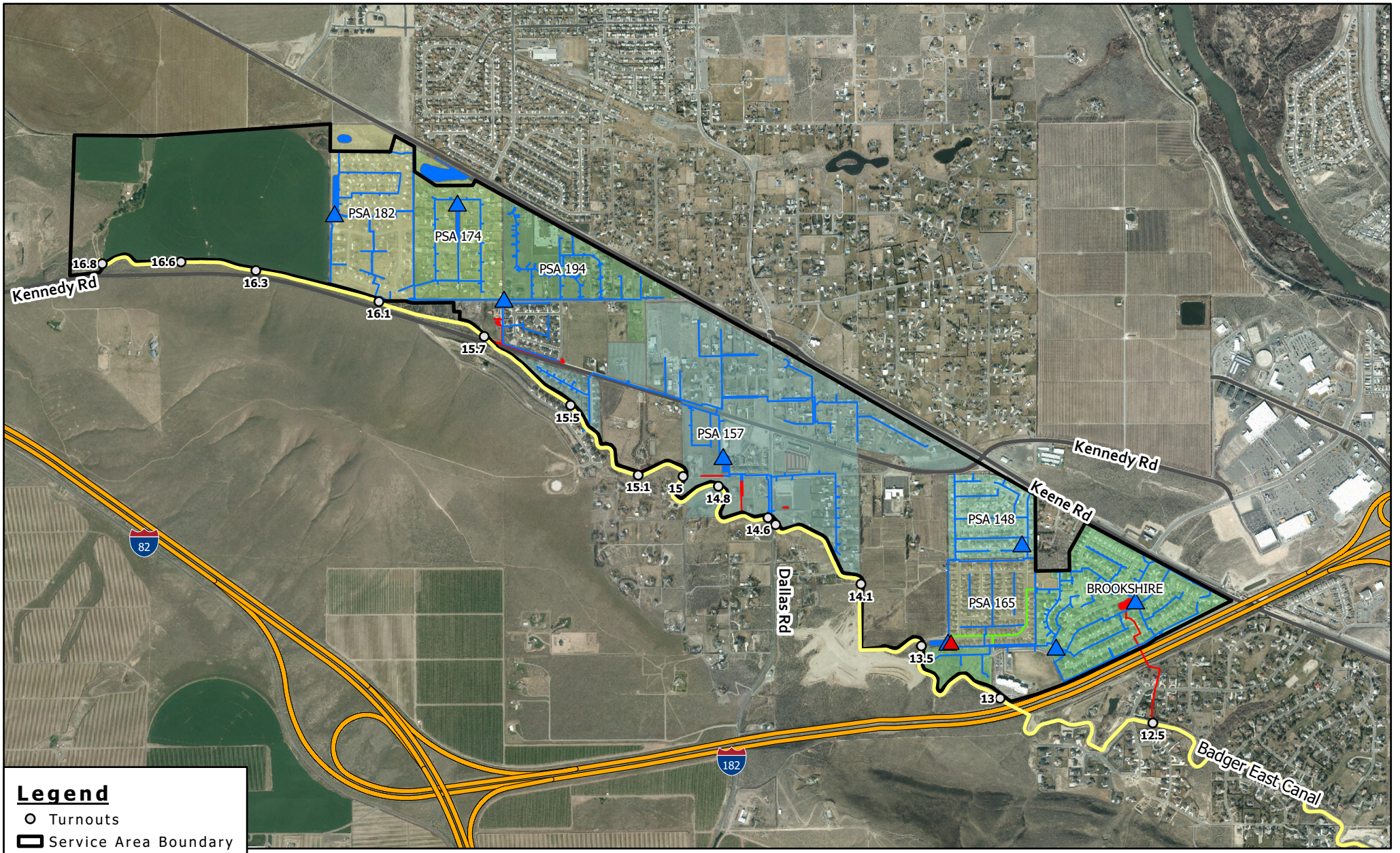


Figure 2: West Richland Existing Facilities

Figure 3: Existing KID PSA 157 Pump and Pond

Figure 4: Existing KID PSA 165 Pump

Figure 5: Existing KID PSA 165 Pond

Figure 6: Existing KID PSA 182 Pump

Figure 7: Existing KID PSA 182 Pond

Figure 8: Badger East Canal

2.2 IRRIGABLE ACREAGE

There are 736.3 acres classified as irrigable in the current West Richland Study area. The land classification was originally established by the Bureau of Reclamation as part of the Yakima River Project. Areas outside of the classified irrigable area are lands that were either unable to be serviced by irrigation (steep ravines and hills), or had ill-suited soil for agriculture.

As developments occur, areas that have a water allocation become impervious surfaces (such as roadways and buildings) that cannot use the irrigation water. As a result, water allocations can be transferred to other areas inside the KID boundaries. This allows KID to maximize its full irrigation water right. The removal of allocations from impervious surface policy allows for properties with partial irrigable land to develop into fully irrigable lots. This will allow for all new subdivided properties within the master plan area to receive a water allocation. In addition, this allows for new water allocations to currently non-irrigable properties when it is consistent with policy and priorities. All new allocations need to be approved by the KID Board of Directors.

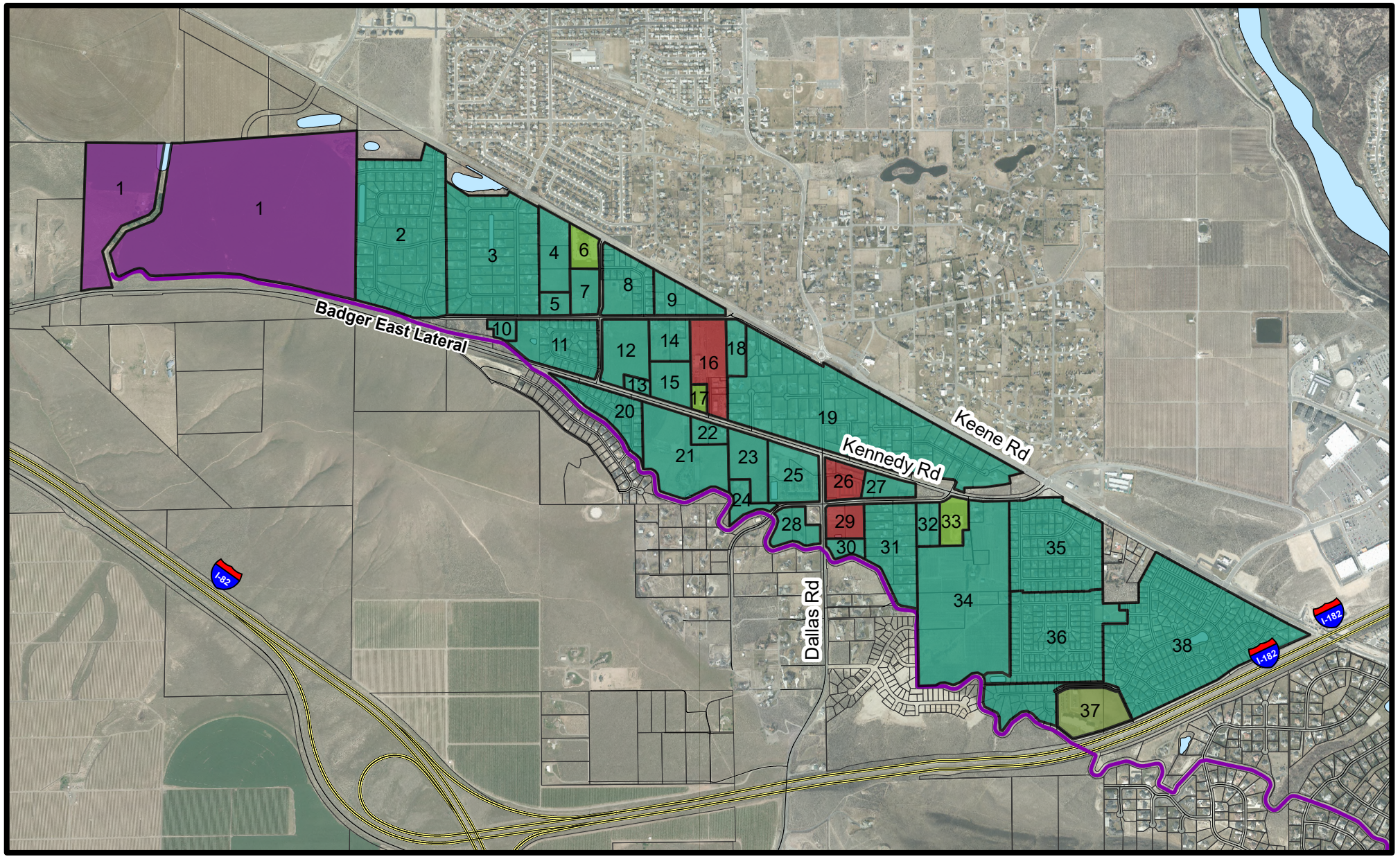
Figure 9 is a map depicting the future service area in West Richland. It shows roadways and developments that are expected to be built in the near future. Acreage that has an existing water allocation or is planned to be serviced by KID water is divided into numbered areas, which coincide with the different subdivisions, lots, and facilities that are planned for the area.

In addition, Figure 9 also illustrates the City of Richland's and the City of West Richland's Land Use designation for the West Richland region. Definitions for residential land use are shown below in Table 2. These definitions are from the City of Richland's Comprehensive Plan 2008 and the City of West Richland's Comprehensive Plan 2017.

Table 2: Residential Land Use Definition

Designation	City of Richland Units per Acre	City of West Richland Units per Acre
Low Density Residential (single family)	3.5 Average	2 Average
Medium Density Residential (multi-family)	8 Average	9 Average
High Density Residential (multi-family)	15 Average	Greater than 9

Figure 10 shows the ongoing development in The Grove - Townhomes Service Area.



Legend

- Church
- Commercial
- Low and Medium Density Residental
- Rural Residential
- School

Figure 9: West Richland Master Plan Area Land Use

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Figure 10: Undeveloped Residential Lots in Proposed Service Area 23

SECTION 3.0 – PLANNING

3.1 WATER DEMANDS

3.1.1 EXISTING

Table 3 lists the irrigable acreage and irrigation volume allotted for existing turnouts that serve the West Richland service area. The allotted acreage includes both public and private service areas. Each irrigable acre has an allocation of 3.5 acre-feet per year (Ac-Ft/Ac-Yr). The irrigation season typically runs 198 days a year (April through October). The peak irrigation demands vary throughout the season.

Table 3: Water Allotments for Existing Turnouts

Turnout	Allocated Acreage	Yearly Allotment (Ac-Ft)
BE 12.5-1	72.93	255.3
BE 13.0-1	13.32	46.6
BE 13.5-1	63.6	222.6
BE 13.5-2	62.33	218.2
BE 14.8-1	188.29	659.0
BE 15.1-1	26.42	92.5
BE 15.7-1	19.4	67.9
BE 16.1-1	52.1	182.4
BE 16.1-2	45.93	160.8
BE 16.1-3	2.9	10.2
BE 16.1-4	1.76	6.2
BE 16.1-5	39.71	139.0
BE 16.1-6	3.28	11.5
BE 16.1-7	12.71	44.5
BE 16.3-1	131.6	460.6
Total:	736.3	2577.0

Table 4 lists the peak demand for existing KID PSAs. Many of the PSAs are made up of properties with different land use. Where this is the case, multiple rows in Table 4 are provided to take into account the differences in demand.

Table 4*:* Peak Demand for Existing KID Service Areas

Service Area	Service Location	Quantity	Unit	Peaking Factor (gal/unit)	Peak Demand (gpm)
2	PSA 182 – Residential	94	Lot	3	282
3	PSA 174 – Residential	49	Lot	3	147
4	PSA 194 – Residential	29	Lot	3	87
5	PSA 194 - Large Lot Residential	1	Lot	12	12
6	PSA 194 – Church	5.18	AC	5.7	29.5
7	PSA 194 – Residential	20	Lot	3	60

8	PSA 194 – Residential	39	Lot	3	117
16	PSA 157 – Commercial	12.14	AC	5.7	69.2
17	PSA 157 – Church	2	AC	5.7	11.4
18	PSA 157 – Large Lot Residential	1	Lot	12	12
19	PSA 157 – Residential	73	Lot	3	219
20	PSA 157 – Residential	29	Lot	3	87
24	PSA 157 – Residential	2	Lot	3	6
25	PSA 157 – Commercial	12.92	AC	5.7	73.6
26	PSA 157 – Commercial	6.45	AC	5.7	36.8
27	PSA 157 – Large Lot Residential	2	Lot	12	24
28	PSA 157 – Large Lot Residential	3	Lot	12	36
29	PSA 157 – Commercial	12.06	AC	5.7	68.74
31	PSA 157 – Residential	17	Lot	3	51
35	PSA 148 – Residential	87	Lot	3	261
36	PSA 165 – Residential	131	Lot	3	393
38	Brookshire Estates	278	Lot	3	834
	Total:	905.75			2917.3

3.1.2 FUTURE

Figure 9 illustrates the proposed service areas for the KID West Richland region. Water demands vary according to the type of facility or development built. The West Richland Master Plan area has already been substantially subdivided, however, further subdivision is still occurring and expected. In order to determine future demands, the number of lots for each undeveloped area must be estimated. Some plats and lot layouts have been preliminarily submitted to KID. These subdivision designs provide an estimated number of lots for undeveloped land in the West Richland service area.

For properties with no plans, it was assumed that lots would have a density similar to the surrounding developments. Densities of the existing subdivisions are approximately 2 to 3.3 lots/gross-acre. The peak irrigation demand was determined by assigning a peaking factor to each type of development. Peaking factors have been determined by flow studies performed by the KID. Service areas have been chosen based on existing PSA and PLA boundaries, as well as, land use designations per the City of Richland and City of West Richland, as shown in Figure 9. The future demands are summarized in Table 5.

Table 5*:* Future Water Demands

Service Area	Service Location	Quantity	EIUs	Unit	Peaking Factor (gal/unit)	Peak Demand (gpm)
1	Future Rural Residential	35	140	Lot	20	700
2	PSA 182 – Residential	94	94	Lot	3	282
3	PSA 174 – Residential	49	49	Lot	3	147

4	Sagewood Estates	29	29	Lot	3	87
5	Large Lot Residential	1	1	Lot	12	12
6	LDS Church	5.18	4	AC	5.7	29.5
7	Lattin Meadows Phase 3	20	20	Lot	3	60
8	PSA 194 – Residential	39	39	Lot	3	117
9	Residential	15	15	Lot	3	45
10	Residential	1	1	Lot	3	3
11	Ken Acres	32	36	Lot	3	96
12	Future Residential	34	34	Lot	3	102
13	Large Lot Residential	2	2	Lot	3	6
14	Future Residential	20	20	Lot	3	60
15	Future Residential	14	17	Lot	3	42
16	PSA 157 – Commercial	12.14	8	AC	5.7	69.2
17	PSA 157 – Church	2	1	AC	5.7	11.4
18	PSA 157 – Large Lot Residential	1	4	Lot	12	12
19	PSA 157 – Residential	73	73	Lot	3	219
20	PSA 157 – Residential	29	29	Lot	3	87
21	Future Residential	64	64	Lot	3	192
22	Future Residential	10	10	Lot	3	30
23	The Grove - Townhomes	88	15	Lot	3	264
24	PSA 157 – Residential	2	8	Lot	3	6
25	PSA 157 – Commercial	12.92	8	AC	5.7	73.6
26	PSA 157 – Commercial	6.45	7	AC	5.7	36.8
27	PSA 157 – Future Residential	11	11	Lot	3	33
28	PSA 157 – Future Residential	14	14	Lot	3	42
29	PSA 157 – Commercial	12.06	4	AC	5.7	68.7
30	Future Residential	7	7	Lot	3	21
31	PSA 157 – Residential	17	17	Lot	3	51
32	Future Residential	11	11	Lot	3	33
33	Temple Baptist Church	5.93	4	AC	5.7	33.8
34	Future Residential	186	186	Lot	3	558
35	PSA 148 – Residential	87	87	Lot	3	261
36	PSA 165 – Residential	131	131	Lot	3	393
37	White Bluffs Elementary School	14.05	8	AC	10.1	141.9
38	Brookshire Estates	278	278	Lot	3	834
		Total:	1486			5272.0

*The Service Area number is shown in Figure 9.

3.2 DESIGN STANDARDS

KID maintains a set of standard specifications and design parameters for irrigation infrastructure. The purpose of the design standards is to have a distribution system that is efficient and cost effective without compromising safety, operation, maintenance and

environmental concerns (KID Standard Specifications, 2012). KID design standards were incorporated into the design assumptions used in this report.

SECTION 4.0 – SYSTEM IMPROVEMENTS

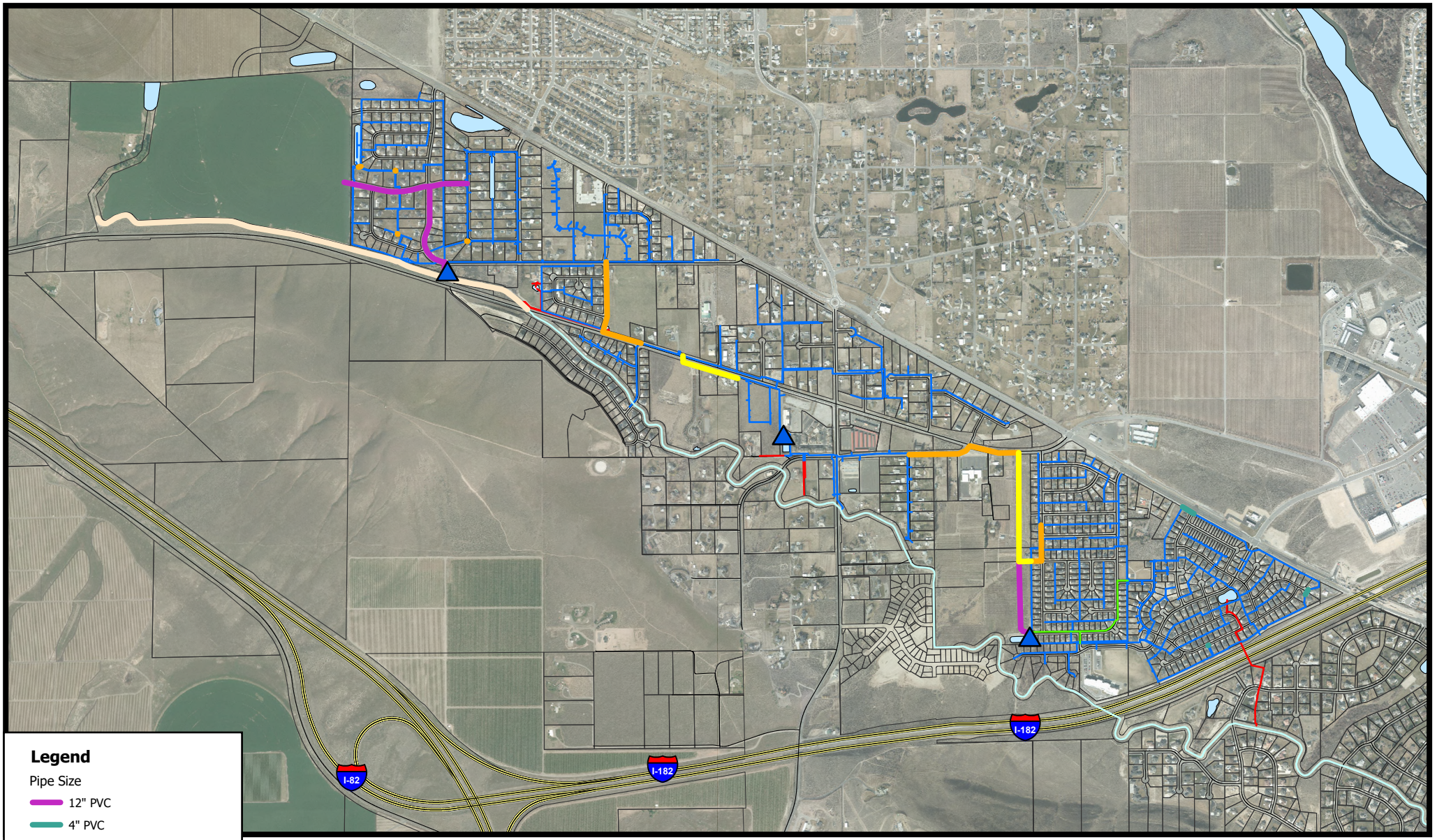
4.1 REGIONAL MASTER PLAN

Although the West Richland Service Area has been substantially developed with irrigation installed (see Figure 2), the projected growth of the area presents KID with an opportunity to improve the existing infrastructure and provide new infrastructure for future expansion. Figure 11 (described below) displays the regional system including the locations of new pipelines and infrastructure.

The Master Plan proposes the use and repurposing of two (2) KID pump stations and the construction of one (1) new pump station. The existing PSA 157 and PSA 165 facilities will provide storage and pressurization to the east portion of the system. Currently, they lack the capacity in storage and pumping to provide adequate pressure to all the areas needed. As part of the master plan, both facilities will be upgraded to increase the pumping capacity. A third pump station, proposed to be located near the southwest corner of the Glenbrook service area, is planned to be constructed in the future to provide storage and pressurization to the remaining sections on the west side of the system.

In addition, new pipe will be needed to consolidate existing turnouts, pump stations and provide pressurization to new subdivisions and existing PLAs. An inline reservoir is also proposed to be installed at the tail end of the Badger East Lateral to increase in-canal storage. Figure 11 displays the regional system including the locations of new pipelines and infrastructure.

The completion of this regional master plan will remove three (3) KID pump stations. Moreover, new development will not be required to install individual ponds and pump stations, and properties that have no service, but do have water allocations, will receive irrigation water.



Legend

Pipe Size
- 12" PVC
- 4" PVC
- 6" PVC
- 8" PVC
- Pump Station

Existing Pipelines
- Private Pipe
- KID Pipe
- Planned Project Pipe

Canal
- Existing Badger East Lateral
- Planned Inline Reservoir

Figure 11: West Richland Master Plan
Final Master Plan

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SECTION 5.0 - RECOMMENDATION

5.1 IMPLEMENTATION PLAN

The West Richland Master Plan should be constructed as demand, financial resources, and development opportunities become available. As future developments come forward this master plan should be utilized to coordinate the installation of irrigation infrastructure to and through developments. Additionally, it should also be used to coordinate with the City of Richland and West Richland as street resurfacing occurs.

As the private line areas are connected to the KID system it is expected that a connection fee will be equitably assessed for connection to the regional pressurized system, as well as providing on demand service via a local distribution system (if KID were to make the local improvements). As new areas are developed and desire to be connected to the pressurized system grows it is expected that a connection fee will be assessed that is based on equivalent irrigation units (EIU). Each EIU is equivalent to a one and a quarter inch (1-1/4) service connection providing an instantaneous flow of 15 gallons per minute. Any larger service connections shall be calculated as a multiple of this base EIU, irrespective of development standards applicable to a property. KID intends to assess the costs of the improvements as capital assessments.

5.2 FINANCIAL

KID intends to assess the costs of the improvements required by the West Richland Irrigation Master Plan as capital assessments together with any capital charges, in addition to the annual operations, maintenance and capital assessments levied across all KID-served land. The level of service provided to properties within the West Richland Irrigation Master Plan shall be based on equivalent irrigation units (EIU). Each EIU is equivalent to a one and a quarter inch (1-1/4) service connection providing an instantaneous flow of 15 gallons per minute. Any larger service connections shall be calculated as a multiple of this base EIU, irrespective of development standards applicable to a property. Breakdown of EIUs per service connection is located in Table 6. As seen in Table 5, there is a projected total of 1486 EIUs for the West Richland Service Area. The total costs associated with this Master Plan is projected at $4,999,722.47. Costs can be seen in Appendix A. This equates to a total cost of $3,364.55 per EIU.

Table 6: EIU Breakdown

Connection Size	Flow (gpm)	EIUs
1.25” Service	15	1.00
2” Service	55	4.00
4” Service	120	8.00
6” Service	310	21.00
8” Service	630	42.00

5.3 CONCLUSION

This West Richland Irrigation Master Plan has provided an overview of the existing irrigation facilities, the existing traditional service areas, and existing water demands. The West Richland Service Area is expected to continue developing rapidly as developments, and commercial industry take shape in this part of Richland and West Richland. KID is presented with an opportunity to plan and provide pressurized irrigation service to new and existing customers. With new developments projected, it is expected that connection fees will be equitably assessed for connection to the regional system. Those in private line areas will be assessed connection fees as well. These connection surcharges ensure that the proposed improvements will be funded. Similar to previous surcharges charged by KID to fund projects within the District, service agreements with the properties will be established to hold the properties accountable for the improvements. For this Master Plan, this fee was preliminarily determined based on a service model of equivalent irrigation units (EIUs). With 1,486 EIUs projected for the West Richland Service Area, the total estimated Master Plan cost of $4,999,722.47 results in an average surcharge of $3,364.55 per EIU.

REFERENCES

City of Richland Comprehensive Plan, 2008

City of West Richland Comprehensive Plan, 2017

Kennewick Irrigation District Policy 4.19, Standard Specifications, May 1, 2012

APPENDIX A

Transmission Project Cost Estimates

Kennewick Irrigation District
Date: 2/11/2026
Regarding: Watkins Property Inertie
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 5,000.00	$ 5,000.00
2	1	LS	Labor	$ 37,743.12	$ 37,743.12
3	1	LS	Equipment	$ 42,423.82	$ 42,423.82
4	1	LS	Traffic Control	$ 12,245.31	$ 12,245.31
5	1540	LF	6" C900 PVC PIPE	$ 13.50	$ 20,790.00
6	1	EA	8" FL x 6" FL Tee	$ 400.00	$ 400.00
7	2	EA	8" RFCA	$ 470.00	$ 940.00
8	2	EA	6" MJ x FL Gate Valve	$ 980.00	$ 1,960.00
9	1	EA	6" FL Tee	$ 330.00	$ 330.00
10	2	EA	6" RFCA	$ 290.00	$ 580.00
11	4	EA	6" Bend	$ 150.00	$ 600.00
12	10	EA	6" Meg-a-lug and Accessory Kit	$ 65.00	$ 650.00
13	11	EA	6" Bell Restraint	$ 80.00	$ 880.00
14	2	EA	Valve Box Assembly	$ 135.00	$ 270.00
15	111	TON	HMA Patch Restoration	$ 75.00	$ 8,341.67
16	911.37	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ 10,480.79
17	1	LS	BE 15.7 Turnout Decommissioning	$ 3,561.53	$ 3,561.53
18	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
11.78	working days
10	hours/day
117.80	working hours
1	paving days/road
3.08	roads**
0.5	days/tie-in
2	road tie-ins

Sub Total	$	148,196.24
Sales Tax (8.7%)	$	12,893.07
Administration/Engineering (8%)	$	12,887.14
Permitting Costs	$	3,060.11
Contingency (10%)	$	16,108.93
Grand Total	$	193,145.50

**Pipe to run on East side of Watkins Way (asphalt) and on South side of Kennedy Rd (asphalt).*
***Pave 500 LF of road/day*

Kennewick Irrigation District
Date: 2/11/2026
Regarding: The Grove Pipe Extension
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 5,000.00	$ 5,000.00
2	1	LS	Labor	$ 20,826.00	$ 20,826.00
3	1	LS	Equipment	$ 23,273.38	$ 23,273.38
4	1	LS	Traffic Control	$ 4,504.50	$ 4,504.50
5	900	LF	8" C900 PVC PIPE	$ 25.00	$ 22,500.00
6	1	EA	8" FL Tee	$ 400.00	$ 400.00
7	1	EA	8" MJ x FL Gate Valve	$ 1,570.00	$ 1,570.00
8	2	EA	8" RFCA	$ 470.00	$ 940.00
9	1	EA	8" Solid Sleeve	$ 180.00	$ 180.00
10	2	EA	8" MJ x FL Adaptor	$ 155.00	$ 310.00
11	1	EA	8" MJ 90 Deg. Bend	$ 190.00	$ 190.00
12	5	EA	8" Meg-a-lug and Accessory Kit	$ 75.00	$ 375.00
13	6	EA	8" Bell Restraint	$ 130.00	$ 780.00
14	1	EA	Valve Box Assembly	$ 135.00	$ 135.00
15	12	TON	HMA Patch Restoration	$ 75.00	$ 937.08
16	106.42	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ 1,223.83
17	1	LS	BE 15.1 Turnout Decommissioning	$ 3,794.47	$ 3,794.47
18	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
6.50	working days
10	hours/day
65.00	working hours
1	paving days/road
1	roads**
0.5	days/tie-in
2	road tie-ins

Sub Total	$	87,939.26
Sales Tax (8.7%)	$	7,650.72
Administration/Engineering (8%)	$	7,647.20
Permitting Costs	$	1,075.71
Contingency (10%)	$	9,559.00
Grand Total	$	113,871.88

**Pipe to run on South side of Kennedy Rd (gravel shoulder), but still within City ROW.*

***Pave 500 LF of road/day. All crossings of driveways and street equals 173 LF. Assume 1 full day of paving due to sections.*

Kennewick Irrigation District
Date: 2/11/2026
Regarding: Arena Rd. Extension
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 5,000.00	$ 5,000.00
2	1	LS	Labor	$ 57,992.40	$ 57,992.40
3	1	LS	Equipment	$ 54,376.42	$ 54,376.42
4	1	LS	Traffic Control	$ 12,162.15	$ 12,162.15
5	1600	LF	6" C900 PVC PIPE	$ 13.50	$ 21,600.00
6	1280	LF	8" C900 PVC PIPE	$ 25.00	$ 32,000.00
7	1	EA	8" MJ x FL 90 Deg Bend	$ 260.00	$ 260.00
8	1	EA	8" FL x 6" MJ Reducer	$ 110.00	$ 110.00
9	1	EA	6" FL Tee	$ 330.00	$ 330.00
10	3	EA	6" RFCA	$ 290.00	$ 870.00
11	3	EA	6" FL Gate Valve	$ 1,100.00	$ 3,300.00
12	6	EA	6" MJ Bend	$ 150.00	$ 900.00
13	1	EA	8" Meg-a-lug and Accessory Kit	$ 75.00	$ 75.00
14	13	EA	6" Meg-a-lug and Accessory Kit	$ 65.00	$ 845.00
15	1	EA	8" Bell Restraint	$ 130.00	$ 130.00
16	7	EA	6" Bell Restraint	$ 80.00	$ 560.00
17	3	EA	Valve Box Assembly	$ 135.00	$ 405.00
18	116	TON	HMA Patch Restoration	$ 75.00	$ 8,666.67
19	946.88	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ 10,889.14
20	1	EA	Intertie	$ 5,000.00	$ 5,000.00
21	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
18.10	working days
10	hours/day
181.00	working hours
1	paving days/road
3.20	roads**
0.5	days/tie-in
1	road tie-ins

Sub Total	$	216,471.77
Sales Tax (8.7%)	$	18,833.04
Administration/Engineering (8%)	$	18,824.39
Permitting Costs	$	3,136.71
Contingency (10%)	$	23,530.48
Grand Total	$	280,796.39

**Pipe to run on South side of Arena Rd (asphalt) and Kennedy Rd (asphalt)*
***Pave 500 LF of road/day*

Kennewick Irrigation District
Date: 2/11/2026
Regarding: Sirron Ave. Intertie
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 5,000.00	$ 5,000.00
2	1	LS	Labor	$ 15,955.92	$ 15,955.92
3	1	LS	Equipment	$ 17,930.42	$ 17,930.42
4	1	LS	Traffic Control	$ 4,313.93	$ 4,313.93
5	640	LF	6" C900 PVC PIPE	$ 13.50	$ 8,640.00
6	1	EA	6" FL Tee	$ 330.00	$ 330.00
7	2	EA	6" RFCA	$ 290.00	$ 580.00
8	1	EA	6" MJ x FL Gate Valve	$ 980.00	$ 980.00
9	1	EA	6" MJ Bend	$ 150.00	$ 150.00
10	3	EA	6" Meg-a-lug and Accessory Kit	$ 65.00	$ 195.00
11	5	EA	6" Bell Restraint	$ 80.00	$ 400.00
12	1	EA	Valve Box Assembly	$ 135.00	$ 135.00
13	46	TON	HMA Patch Restoration	$ 75.00	$ 3,466.67
14	378.75	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ 4,355.65
15	1	EA	Intertie	$ 5,000.00	$ 5,000.00
16	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
4.98	working days
10	hours/day
49.80	working hours
1	paving days/road
1.28	roads***
0.5	days/tie-in
1	road tie-ins

Sub Total	$	68,432.58
Sales Tax (8.7%)	$	5,953.63
Administration/Engineering (8%)	$	5,950.90
Permitting Costs**	$	250.00
Contingency (10%)	$	7,438.62
Grand Total	$	88,025.74

**Pipe to run on South side of Jasper St (asphalt) and West side of Sirron Ave (asphalt)*
***This is within City of Richland boundary, so only a ROW permit is required, no inspection fees.*
****Pave 500 LF of road/day*

Kennewick Irrigation District
Date: 2/11/2026
Regarding: PSA 165 Intertie
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 5,000.00	$ 5,000.00
2	1	LS	Labor	$ 24,030.00	$ 24,030.00
3	1	LS	Equipment	$ 14,312.63	$ 14,312.63
4	1	LS	Traffic Control	$ -	$ -
5	380	LF	8" C900 PVC PIPE	$ 25.00	$ 9,500.00
6	1120	LF	12" C900 PVC PIPE	$ 45.00	$ 50,400.00
7	1	EA	12" FL x 8" FL Tee	$ 930.00	$ 930.00
8	1	EA	12" FL x 8" FL Reducer	$ 500.00	$ 500.00
9	1	EA	12" MJ 90 Deg. Bend	$ 370.00	$ 370.00
10	1	EA	12" MJ x FL Adaptor	$ 350.00	$ 350.00
11	2	EA	8" MJ x FL Gate Valve	$ 1,570.00	$ 3,140.00
12	1	EA	8" MJ x FL 90 Deg Bend	$ 260.00	$ 260.00
13	1	EA	8" MJ x 6" MJ Reducer	$ 150.00	$ 150.00
14	1	EA	8" MJ x FL Adaptor	$ 155.00	$ 155.00
15	1	EA	8" Solid Sleeve	$ 180.00	$ 180.00
16	3	EA	12" Meg-a-lug and Accessory Kit	$ 130.00	$ 390.00
17	5	EA	8" Meg-a-lug and Accessory Kit	$ 75.00	$ 375.00
18	1	EA	6" Meg-a-lug and Accessory Kit	$ 65.00	$ 65.00
19	7	EA	12" Bell Restraint	$ 180.00	$ 1,260.00
20	6	EA	8" Bell Restraint	$ 130.00	$ 780.00
21	2	EA	Valve Box Assembly	$ 135.00	$ 270.00
22	0.00	TON	HMA Patch Restoration	$ 75.00	$ -
23	0.00	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ -
24	1	EA	Intertie	$ 5,000.00	$ 5,000.00
25	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
7.50	working days
10	hours/day
75.00	working hours
0.5	paving days/road
0	roads
0.5	days/tie-in
0	road tie-ins

Sub Total	$	118,417.63
Sales Tax (8.7%)	$	10,302.33
Administration/Engineering (8%)	$	10,297.60
Contingency (10%)	$	12,872.00
Grand Total	$	151,889.55

**No paving, no tie-ins, and no permitting as this is project is not within City streets. 5/8" CSTC is not required.*

Kennewick Irrigation District
Date: 2/11/2026
Regarding: W. Lattin Rd. Extension
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 10,000.00	$ 10,000.00
2	1	LS	Labor	$ 74,551.86	$ 74,551.86
3	1	LS	Equipment	$ 81,298.18	$ 81,298.18
4	1	LS	Traffic Control	$ 24,002.06	$ 24,002.06
5	3220	LF	12" C900 PVC PIPE	$ 45.00	$ 144,900.00
6	1	EA	12" FL Tee	$ 1,300.00	$ 1,300.00
7	2	EA	12" MJ x FL Butterfly Valve	$ 2,160.00	$ 4,320.00
8	12	EA	12" MJ Bend	$ 350.00	$ 4,200.00
9	2	EA	12" MJ x 8" FL Reducer	$ 500.00	$ 1,000.00
10	1	EA	12" MJ x 6" FL Reducer	$ 520.00	$ 520.00
11	1	EA	12" MJ Cap	$ 200.00	$ 200.00
12	1	EA	12" MJ x FL Adaptor	$ 320.00	$ 320.00
13	1	EA	8" FL Tee	$ 510.00	$ 510.00
14	1	EA	8" RFCA	$ 470.00	$ 470.00
15	3	EA	8" FL Gate Valve	$ 1,700.00	$ 5,100.00
16	1	EA	6" FL Tee	$ 330.00	$ 330.00
17	1	EA	6" FL Gate Valve	$ 1,100.00	$ 1,100.00
18	2	EA	6" RFCA	$ 290.00	$ 580.00
19	31	EA	12" Meg-a-lug and Accessory Kit	$ 130.00	$ 4,030.00
20	32	EA	12" Bell Restraint	$ 180.00	$ 5,760.00
21	6	EA	Valve Box Assembly	$ 135.00	$ 810.00
22	216	TON	HMA Patch Restoration	$ 75.00	$ 16,222.92
23	1955.85	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ 22,492.23
24	3	EA	Intertie	$ 5,000.00	$ 15,000.00
25	2	EA	Pump Station Decommissioning	$ 5,000.00	$ 10,000.00
26	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
23.09	working days
10	hours/day
230.90	working hours
1	paving days/road
5.99	roads**
0.5	days/tie-in
2	road tie-ins

Sub Total	$	430,017.25
Sales Tax (8.7%)	$	37,411.50
Administration/Engineering (8%)	$	37,394.30
Permitting Costs	$	5,711.84
Contingency (10%)	$	46,742.87
Grand Total	$	557,277.76

**Pipe to run on South side of Lanay St (asphalt) and East/North side of W Lattin Rd (asphalt)*
***Pave 500 LF of road/day*

Kennewick Irrigation District
Date: 2/10/2026
Regarding: BE 16.0 Pump Station (Using PSA 200 Pump Station Calculations)
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 10,000.00	$ 10,000.00
2	1	LS	Labor	$ 34,475.40	$ 34,475.40
3	1	LS	Equipment	$ 15,138.50	$ 15,138.50
4	1	LS	Building	$ 43,753.90	$ 43,753.90
5	36	LF	20" DI PC 250 PIPE	$ 145.00	$ 5,220.00
6	20	LF	12" C900 PVC PIPE	$ 45.00	$ 900.00
7	36	LF	12" DI DR 52 PIPE	$ 70.00	$ 2,520.00
8	18	LF	10" DI DR 52 PIPE	$ 60.00	$ 1,080.00
9	18	LF	8" DI DR 52 PIPE	$ 42.00	$ 756.00
10	60	LF	4" DI DR 52 PIPE	$ 40.00	$ 2,400.00
11	1	EA	All Materials (Pump, Amiad, Fittings)	$ 160,133.15	$ 160,133.15
12	2	EA	VFD	$ 25,000.00	$ 50,000.00
13	1	EA	Electrical	$ 50,000.00	$ 50,000.00
14	78.35	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ 901.00
15	2.06	CY	Concrete	$ 160.00	$ 328.89
16	1	LS	New Turnout	$ 12,180.10	$ 12,180.10
17	1	EA	New Pikometer	$ 17,637.26	$ 17,637.26
18	1	EA	Pump Station Decommissioning	$ 5,000.00	$ 5,000.00
19	1	LS	BE 16.1 Turnout Decommissioning	$ 3,561.53	$ 3,561.53
20	1	EA	Property Procurement***	$ 250,000.00	$ 250,000.00
21	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
14.00	working days
10	hours/day
140.00	working hours

Sub Total	$	666,985.73
Sales Tax (8.7%)	$	58,027.76
Administration/Engineering (8%)	$	58,001.08
Contingency (10%)	$	72,501.35
Grand Total	$	855,515.91

**Assumed 3 Pumps, 2 Amiads (Reuse 1 Pump with VFD)*

***Calcs for New Turnout Construction Costs based on South Richland Master Plan*

****Whole property is priced at $250,000 by property owner.*

Kennewick Irrigation District
Date: 2/10/2026
Regarding: PSA 157 Pump Station Improvements (Using PSA 200 Pump Station Calculations)
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 10,000.00	$ 10,000.00
2	1	LS	Labor	$ 22,073.40	$ 22,073.40
3	1	LS	Equipment	$ 5,242.40	$ 5,242.40
4	1	LS	Building	$ 43,753.90	$ 43,753.90
7	36	LF	12" DI DR 52 PIPE	$ 70.00	$ 2,520.00
8	18	LF	10" DI DR 52 PIPE	$ 60.00	$ 1,080.00
9	18	LF	8" DI DR 52 PIPE	$ 42.00	$ 756.00
10	60	LF	4" DI DR 52 PIPE	$ 40.00	$ 2,400.00
11	1	EA	All Materials (Pump, Amiad, Fittings)	$ 87,101.51	$ 87,101.51
12	1	EA	VFD	$ 25,000.00	$ 25,000.00
13	1	EA	Electrical	$ 50,000.00	$ 50,000.00
14	78.35	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ 901.00
15	2.06	CY	Concrete	$ 160.00	$ 328.89
16	1	LS	Pond Suction & Liner	$ 39,708.95	$ 39,708.95
17	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
14.00	working days
10	hours/day
140.00	working hours

Sub Total	$	291,866.04
Sales Tax (8.7%)	$	25,392.35
Administration/Engineering (8%)	$	25,380.67
Contingency (10%)	$	31,725.84
Grand Total	$	374,364.90

**Assumed 2 Vertical Turbine Pumps, 1 Amiad (Reuse 1 Pump with VFD)*

Kennewick Irrigation District
Date: 2/10/2026
Regarding: PSA 165 Pump Station Improvements (Using PSA 200 Pump Station Calculations)
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 10,000.00	$ 10,000.00
2	1	LS	Labor	$ 34,475.40	$ 34,475.40
3	1	LS	Equipment	$ 15,138.50	$ 15,138.50
4	1	LS	Building	$ 43,753.90	$ 43,753.90
5	36	LF	20" DI PC 250 PIPE	$ 145.00	$ 5,220.00
6	20	LF	12" C900 PVC PIPE	$ 45.00	$ 900.00
7	36	LF	12" DI DR 52 PIPE	$ 70.00	$ 2,520.00
8	18	LF	10" DI DR 52 PIPE	$ 60.00	$ 1,080.00
9	18	LF	8" DI DR 52 PIPE	$ 42.00	$ 756.00
10	60	LF	4" DI DR 52 PIPE	$ 40.00	$ 2,400.00
11	1	EA	All Materials (Pump, Amiad, Fittings)	$ 149,433.15	$ 149,433.15
12	1	EA	VFD	$ 25,000.00	$ 25,000.00
13	1	EA	Electrical	$ 50,000.00	$ 50,000.00
14	78.35	TON	5/8" Crushed Surfacing Top Course	$ 11.50	$ 901.00
15	2.06	CY	Concrete	$ 160.00	$ 328.89
16	1	LS	Pond Suction & Liner	$ 39,708.95	$ 39,708.95
17	1	EA	Incidentals	$ 1,000.00	$ 1,000.00

Work Performance

200	pipe installed ft/day
14.00	working days
10	hours/day
140.00	working hours

Sub Total	$	382,615.79
Sales Tax (8.7%)	$	33,287.57
Administration/Engineering (8%)	$	33,272.27
Contingency (10%)	$	41,590.34
Grand Total	$	490,765.96

**Assumed 3 Pumps, 2 Amiads (Reuse 2 pumps with VFDs)*

Kennewick Irrigation District
Date: 2/17/2026
Regarding: PSA 182 Pond Decommissioning
Prepared by: Diana Kapitula, Staff Engineer

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	1	LS	Mobilization	$ 5,000.00	$ 5,000.00
2	1	LS	Labor	$ 17,628.05	$ 17,628.05
3	1	LS	Equipment	$ 28,617.27	$ 28,617.27

Work Performance

7.16	working days
10	hours/day
71.60	working hours

Sub Total	$	51,245.31
Sales Tax (8.7%)	$	4,458.34
Administration/Engineering (8%)	$	4,456.29
Contingency (10%)	$	5,570.37
Grand Total	$	65,730.31

Kennewick Irrigation District
Date: 9/5/2023
Regarding: Kennedy Road to BE Canal End
Prepared by: Blaine Broberg, EIT - Staff Engineer I
Checked by: Daniel Tissell, P.E., Engineering Manager
Revised: 2/4/2026 by Diana Kapitula, E.I.T, Staff Engineer I

Engineer's Opinion of Probable Cost

Item	Approximate Quantity	Unit	Description	Unit Price	Total
1	6200	LF	Labor, Equip, Materials, etc.	$ 51.45	$ 318,989.80
2	1.0	LS	Concrete Structure(s)	$ 7,600.00	$ 7,600.00
3	1.0	EA	Rubicon™ Gate	$ 50,000.00	$ 50,000.00
4	1	LS	Form Boards	$ 500.00	$ 500.00
5	2	LS	BE 16.3/16.6 Turnout Decommissioning	$ 3,561.53	$ 7,123.07

Sub Total	$	384,212.87
Sales Tax (8.7%)	$	33,426.52
Engineering (15%)	$	62,645.91
Contingency (25%)	$	104,409.85
Grand Total	$	584,695.14