

Anderson-Cottonwood Irrigation District

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System Improvement Projects: November 2008 ~ September 2011

1. Lateral 29 – Perry’s Pond

Description: Aged, degraded section of 24” pipe that traversed under the pond was leaking badly. Approximately 540’ was replaced by Hoy & Son Construction at a cost of \$22,000 (\$13,500 pipe, \$8,500 labor). District crew replaced approximately 320’ of additional pipe at a cost of \$13,500 (\$8,000 pipe, \$5,500 labor).

Priority: Very high.

Estimated cost: Total cost for replacement of 860 feet of pipe; \$35,500 (pipe – \$21,500; labor – \$14,000)

**Completed January 2008 by Hoy & Son Construction and ACID crew.*

2. Clear Creek Siphon

Description: Siphon has a damaged or failed joint that has worsened to the point it is leaking an estimated 20-30 cubic feet per second.

Repairs were completed by placement of a steel plate over the hole. The plate was backed with epoxy and Kevlar mesh, and the perimeter of the plate lined with oakum saturated with epoxy after placement.

Priority: Very high. This repair is the highest priority of any project within the District.

Cost: \$4,400

**Completed October 27, 2008 by team of divers.*

3. Spring Gulch Flume – support pillar

Description: Streambed is eroded beneath support pillar leaving it unsupported.

Repairs were completed by vertical placement of two concrete pipe joints five feet below invert to act as forms, and filled with concrete to the bottom of the support pillar. Rip rap was placed on upstream side to prevent erosion.

Priority: Very high

Estimated cost: \$2,000

**Completed October 2008 by crew.*

4. Lateral 29, west of Balls Ferry/Lone Tree Roads intersection

Description: Aged, degraded section of 24" pipeline 160 feet in length needs replacement.

Priority: Very high

Estimated cost: \$8,000 (pipe – \$4,800; labor – \$3,200)

**Completed November 2008 by crew.*

5. Lateral 37, south of Adobe Road

Description: Aged, degraded section of 24" pipeline 30 feet in length needs replacement.

Priority: High

Estimated cost: \$1,500 (pipe – \$900; labor – \$600)

**Completed November 2008 by crew.*

6. Lateral 35, north of Balls Ferry/Adobe Roads intersection

Description: Aged, degraded section of 24" pipeline 370 feet in length needs replacement.

Priority: Moderate

Estimated cost: \$18,500; (pipe – \$11,000; labor – \$7,500)

**Completed November 2008 by crew.*

7. Lateral 37, Adobe Road

Description: Aged, degraded section of 18" pipeline needs replacement. 440 feet of 18" Schedule 80 SDR51 PVC pipe (\$12.14/ft) has been purchased and delivered on-site for installation.

Priority: Very high

Estimated cost: \$8,900 (pipe – \$5,340; labor – \$3,560)

**Completed December 2008 by crew.*

8. Lateral 21, southwest of Rupert Road

Description: Open ditch constructed in loose, non-compacting soils highly susceptible to leaks, rodent damage, and structural failure. This section of ditch requires frequent earthwork repair. The best fix for this 300' reach of ditch would be conversion to buried 24" pipeline.

Priority: Moderate

Estimated cost: \$15,000 (pipe – \$9,000; labor – \$6,000)

**Completed January 2009 by crew.*

9. Lateral 27, east of Hawes Road

Description: Aged, degraded reach of 18" pipe needs replacement. 300' of Schedule 80 SDR51 PVC pipe has been purchased and installed (\$11.35/ft. inc. tax).

Priority: High

Estimated cost: \$5,650 (pipe – \$3,400; labor – \$2,250).

**Completed November 2009 by crew.*

10. Cottonwood Creek Siphon

Description: Streambed degradation has resulted in exposure of the siphon within the waterway; the exposed pipe is posing an impediment to fish passage and; scouring of the concrete has resulted in exposure of the rebar. (200' of 48" RCP)

An application for grant funding has been submitted to the US Fish & Wildlife Service, a decision regarding funding is pending.

Priority: Very high; further scouring will result in failure of the pipe.

Estimated cost: \$420,000 (\$310,000 construction; \$90,000 environmental & permitting)

**Completed by RTA & VESTRA November 2010.*

11. Main Canal Modernization Project

Description: Ongoing grant-funded project with local cost share component. Crowley Gulch siphon will be constructed.

Priority: Committed/ongoing

Estimated cost: \$40,000 local share (plus \$1.75 M funded)

**Project restarted; bid has been awarded; construction to commence Spring 2012.*

12. Lateral 21, between Deschutes Road and Gaines Lane

Description: Open ditch constructed in loose, non-compacting soils highly susceptible to leaks, rodent damage, and structural failure. This section of ditch requires frequent earthwork repair. The best fix for this 300' reach of ditch would be conversion to buried 24" pipeline.

[Initial 30' of PVC pipe has been joined to existing concrete at start of ditch; remainder can be joined to newly-installed bell/gasket joint.]

Priority: Moderate

Estimated cost: \$15,000 (pipe – \$9,000; labor – \$6,000)

**Completed February 2010 by crew.*

13. Pick-up Ditch

Description: Aged, degraded reach of 24" pipe needs replacement. 100' of Schedule 80 SDR51 PVC pipe has been purchased and installed (\$23.00/ft. inc. tax).

Priority: High

Estimated cost: \$3,800 (pipe – \$2,300; labor – \$1,500).

**Completed April 2010 by crew.*

14. Sacramento Valley Integrated Regional Water Management Plan, conjunctive use component

Description: Approved grant-funded project with local cost share component for the construction of production wells within the District (total project, \$1,360,000).

Priority: Grant contract with Department of Water Resources pending.

Estimated cost: \$140,000 local share; \$190,000 in Federal funding has been secured to cover most cost share (estimated \$20,000 non-payroll).

**Underway, CEQA & NEPA documentation, update of GW model.*

15. Lateral 33

Description: Aged, degraded reach of 18” pipe needs replacement. 80’ of Schedule 80 SDR51 PVC pipe has been purchased and installed (\$11.35/ft. inc. tax).

Priority: High

Estimated cost: \$1,500 (pipe – \$900; labor – \$600).

**Completed April 2010 by crew.*

16. Clear Creek Siphon

Description: Siphon has a damaged or failed joint, previously repaired in October 2008. The previous patch was lost due to a larger chunk of pipe falling out, resulting in complete shut-down of the main canal. The hole was approximately 2’ x 2’ in size. Repairs were completed by sandwiching two 5’ x 5’ steel plates over the hole, inside and outside the siphon.

Priority: Very high

Cost: \$11,000.

**Completed May 2010 by team of divers.*

17. Lateral 29.2, south of Kimberly Road

Description: Aged, degraded reach of 24” pipe needs replacement. 550’ of Schedule 80 SDR51 PVC pipe has been purchased and installed (\$19.05/ft. inc. tax).

Priority: High

Estimated cost: \$17,500 (pipe – \$10,500; labor – \$7,000).

**Completed November 2010 by crew.*

18. Lateral 33.2, Spoon Lane

Description: Aged, degraded reach of 18” pipe needs replacement. ~~320~~ 120’ of Schedule 80 SDR51 PVC pipe has been ordered, 66’ of which has been purchased and delivered (\$10.70/ft. inc. tax).

Priority: High

Estimated cost: \$2,100 (pipe – \$1,300; labor – \$800).

**Completed 120’ March 2011 by crew; remainder has been reassessed as low priority.*

19. Lateral 35, south of Venske Road

Description: Aged, degraded reach of 18” pipe needs replacement. 450’ of Schedule 80 SDR51 PVC pipe will be required (est. \$18.00/ft. inc. tax).

Priority: High

Estimated cost: \$13,300 (pipe – \$8,100; labor – \$5,200).

**Completion expected Winter 2011-2012 by crew.*

20. Lateral 41, north of 4th Street

Description: Aged, degraded reach of 18” pipe needs replacement. ~~300~~ 140’ of Schedule 80 SDR51 PVC pipe will be required (est. \$13.00/ft. inc. tax).

Priority: High

Estimated cost: \$3,000 (pipe – \$1,800; labor – \$1,200).

**Completed 140’ March 2011 by crew; remainder has been reassessed as low priority.*

21. Lateral 33, Webb Road

Description: Aged, degraded reach of 15” pipe needs replacement. 480’ of Schedule 80 SDR51 PVC pipe will be required (est. \$12.00/ft. inc. tax).

Priority: Medium

Estimated cost: \$9,400 (pipe – \$5,700; labor – \$3,700).

**Project has been reassessed as low priority, no expected completion date.*

22. Lateral 37, east of Adobe Road

Description: Aged, degraded reach of 18” pipe needs replacement. 100’ of Schedule 80 SDR51 PVC pipe will be required (est. \$18.00/ft. inc. tax).

Priority: High

Estimated cost: \$3,000 (pipe – \$1,800; labor – \$1,200).

**Completion expected Winter 2011-2012 by crew.*

23. Anderson Creek Flume

Description: Vertical joints between the arch sections leak, causing erosion and spalling of concrete surfaces exposed to leaking water. Joints may be cleaned with pressure washer and filled with appropriate flexible epoxy material.

Priority: High

Estimated cost: \$7,500

**Completion expected Winter 2011-2012.*

24. Clear Creek Siphon

Description: Damaged joint that has been repaired twice since 2008 with steel plates placed by divers; this portion of the siphon should be stabilized. Entire siphon in streambed is exposed on upstream and top surfaces due to erosion of streambed material. A report is being prepared by VESTRA Resources detailing possible solutions, alternatives and costs for repair and stabilization of the structure.

Priority: Very high; the highest priority repair/improvement in the District.

Estimated cost: \$7,500 (feasibility report)

**Completion of report, Fall 2011; project completion pending design and permitting requirements.*

25. Lateral 2 near Cedars Road

Description: Open ditch constructed in loose, non-compacting soils highly susceptible to leaks, rodent damage, structural failure and unauthorized diversions. There are two reaches of this lateral

that require frequent earthwork repair, each about 120' feet in length; one reach provides easy equipment access while the other is difficult to access due to residential development. The best fix for this total 240' reach of ditch would be conversion to buried 24" pipeline using Schedule 80 SDR51 (est. \$32.00/ft. inc. tax).

Priority: High.

Estimated cost: \$6,800 (pipe – \$4,100; labor – \$2,700).

**Schedule pending.*

26. Lateral 29 at Balls Ferry Road (Ferd Knerr)

Description: Open ditch is bounded on both sides by private service ditches; the lateral has been impacted by cattle tromps which affects the delivery of water from the lateral to the service ditches. Piping of the open ditch with 120' of 18" pipe is recommended pipeline using Schedule 80 SDR51 (est. \$18.00/ft. inc. tax).

Priority: Medium.

Estimated cost: \$3,600 (pipe – \$2,200; labor – \$1,400).

**Schedule pending.*

27. Lateral 21, west side of Balls Ferry Road, north of Deschutes Road

Description: Open ditch is bounded on west side by private service ditch; the lateral has been impacted by cattle tromps which causes failure of the ditch to contain water delivered to both upstream and downstream customers. Existing ditch could be repaired by importing a significant volume of fill material or piping with 700' of 36" pipe using Schedule 80 SDR51 (est. \$78.00/ft. inc. tax).

Priority: High.

Estimated cost: \$90,100 (pipe – \$54,600; labor – \$35,500).

**Schedule pending.*

28. Lateral 21.3, Darting Ditch from Deschutes Road to Riverland Road

Description: Open ditch constructed in loose, non-compacting soils highly susceptible to leaks, rodent damage, structural failure and seepage. The best fix for this total 860' reach of ditch would be conversion to buried 24" pipeline using Schedule 80 SDR51 (est. \$32.00/ft. inc. tax).

Priority: Medium.

Estimated cost: \$45,500 (pipe – \$27,500; labor – \$18,000).

**Schedule pending.*

29. Lateral 55, Amen Lane

Description: Open ditch that is compromised on a regular basis by water thieves who divert water while paying customers are trying to irrigate; proposal is to pipe the ditch past the property on which theft occurs; a 240' reach of ditch would be converted to buried 18" pipeline using Schedule 80 SDR51 (est. \$18.00/ft. inc. tax).

Priority: High.

Estimated cost: \$7,100 (pipe – \$4,300; labor – \$2,800).

**Schedule pending.*

30. Lateral 41.2, between 4th Street and Balls Ferry Road

Description: Aged, degraded reach of 18" pipe needs replacement. 500' of 18" pipe will be required pipeline using Schedule 80 SDR51 (est. \$18.00/ft. inc. tax).

Priority: High.

Estimated cost: \$14,800 (pipe – \$9,000; labor – \$5,800).

**Schedule pending.*

31. Drain siphon under Main Canal, Eastside Road

Description: City of Redding storm drain siphon under Main Canal has been damaged so canal water leaks into drain system; need to replace 160' of 18" pipeline using Schedule 80 SDR51 (est. \$18.00/ft. inc. tax).

Priority: Very high.

Estimated cost: \$4,800 (pipe – \$2,900; labor – \$1,900).

**Completion expected Fall 2011.*

Table 1: Completed 2008-2012

Project	Priority	Status	Materials/\$	Labor/\$	Total Cost/\$
1. Lateral 29 – Perry’s Pond	Very high	Complete	21,500	14,000	35,500
2. Clear Creek siphon	Very high	Complete			4,400
3. Spring Gulch flume – support pillar	Very high	Complete	500	1,500	2,000
4. Lateral 29 – west of Balls Ferry/Lone Tree Roads	Very high	Complete	4,800	3,200	8,000
5. Lateral 37 – south of Adobe Road	High	Complete	900	600	1,500
6. Lateral 35 – north of Balls Ferry/Adobe Roads	Very high	Complete	11,000	7,500	18,500
7. Lateral 37 – Adobe Road	Very high	Complete	5,340	3,560	8,900
8. Lateral 21 – southwest of Rupert Road	Moderate	Complete	9,000	6,000	15,000
9. Lateral 27, east of Hawes Road	High	Complete	3,400	2,250	5,650
10. Cottonwood Creek Siphon	Very High	Complete		Grant funding: District share	130,000 270,000
11. See Table 2					
12. Lateral 21, between Deschutes Rd & Gaines Ln	High	Complete	6,000	9,000	15,000
13. Pick-up Ditch	High	Complete	1,500	2,300	3,800
14. See Table 2					
15. Lateral 33	High	Complete	900	600	1,500
16. Clear Creek siphon	Very high	Complete	1,000	10,000	11,000
17. Lateral 29.2, south of Kimberly Road	High	Complete	10,500	7,000	17,500
18. Lateral 33.2, Spoon Lane	High	Complete	1,300	800	2,100
20. Lateral 41, north of 4 th Street	High	Complete	1,800	1,200	3,000
Unlisted installations:					
Mar 09: 40’ x 24” Lateral 21.3			900	600	1,500
July 09: 40’ x 18”			550	350	900
Oct 09: 40’ x 15”			550	350	900
Nov 09: 20’ x 36”			930	620	1550
Total			82,370	71,430	558,200

Total installed pipe in linear feet: 4,110

Table 2: Grant-funded projects, expected completion Summer 2012

Project	Priority	Status	Materials/\$	Labor/\$	Total Cost/\$
11. Main Canal Modernization	High	Bid awarded/Crowley Gulch Spring 2012 start		Grant funding: District share:	1.75 M 40,000
14. SVIRWMP, Conjunctive Use Project	High	Underway/EA review		Grant funding: District share:	1.6M 20,000
Total					3,410,000

Table 3: Proposed/funded projects

Project	Priority	Status	Materials/\$	Labor/\$	Total Cost/\$
19. Lateral 35, south of Venske Road	High	Proposed	8,100	5,200	13,300
21. Lateral 33, Webb Road	High	Proposed	5,700	3,700	9,400
22. Lateral 37, east of Adobe Road	High	Proposed	1,800	1,200	3,000
23. Anderson Creek arch flume	High	Proposed	2,500	5,000	7,500
24. Clear Creek siphon - study	Very high	Underwa		7,500	7,500
25. Lateral 2, Cedars Road	High	Proposed	4,100	2,700	6,800
26. Lateral 29, Balls Ferry Road (Knerr)	Medium	Proposed	2,200	1,400	3,600
27. Lateral 21, Balls Ferry/Deschutes	High	Proposed	54,600	35,500	90,100
28. Lateral 21.3, Deschutes/Riverland	Medium	Proposed	27,500	18,000	45,500
29. Lateral 55, Amen Lane	High	Proposed	4,300	2,800	7,100
30. Lateral 41.2, between 4 th & Balls Ferry	High	Proposed	9,000	5,800	14,800
31. Drain siphon, Main Canal at Eastside Road	Very high	Proposed	2,900	1,900	4,800
Total			122,700	90,700	213,400

Proposed pipe in linear feet: 3,690