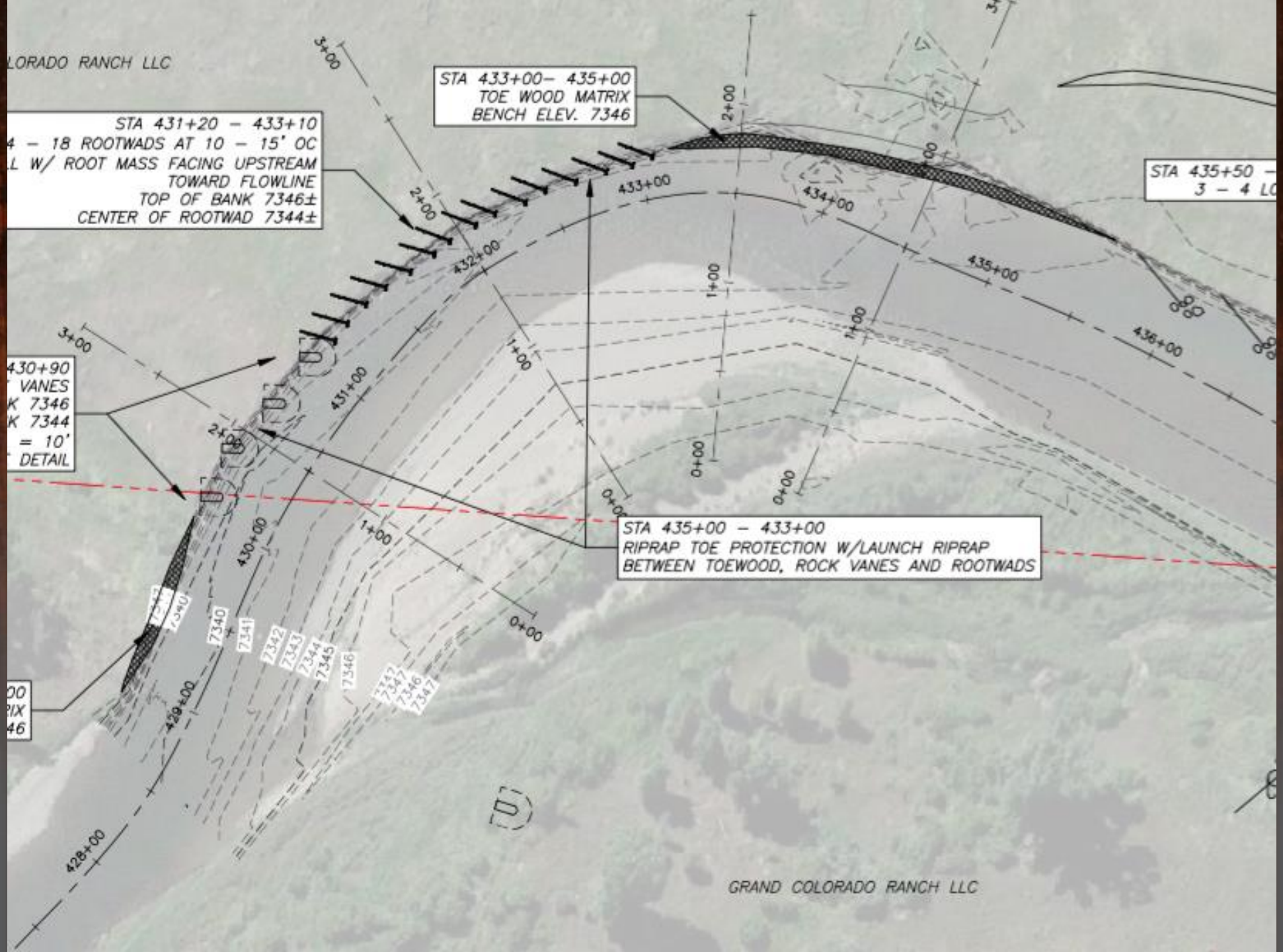
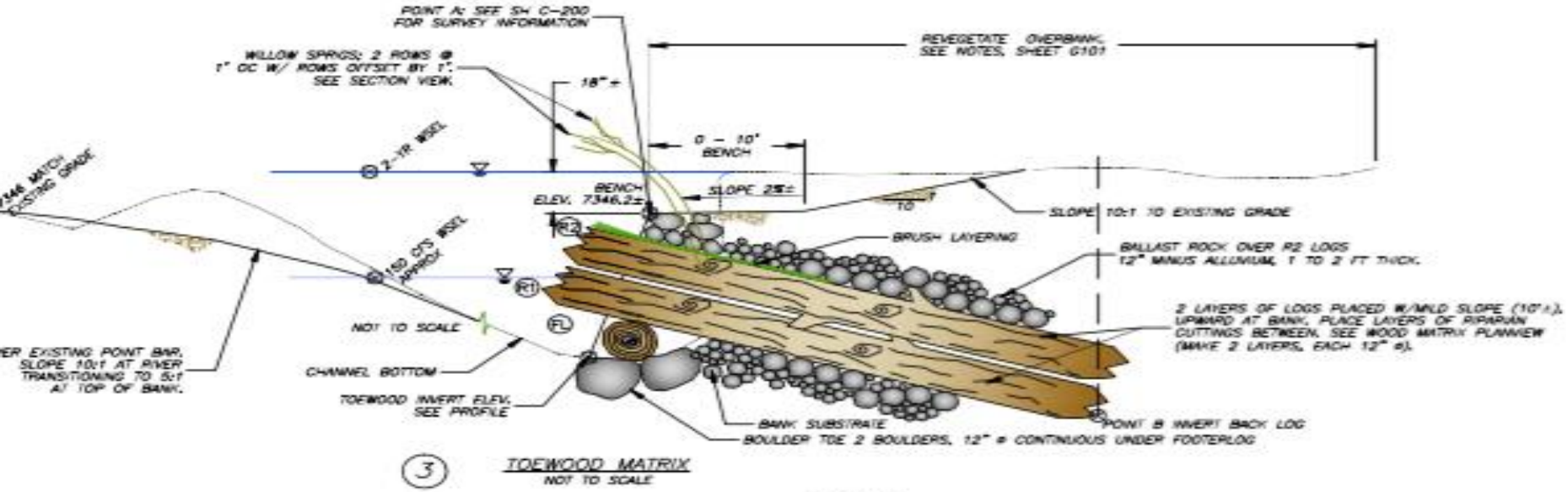
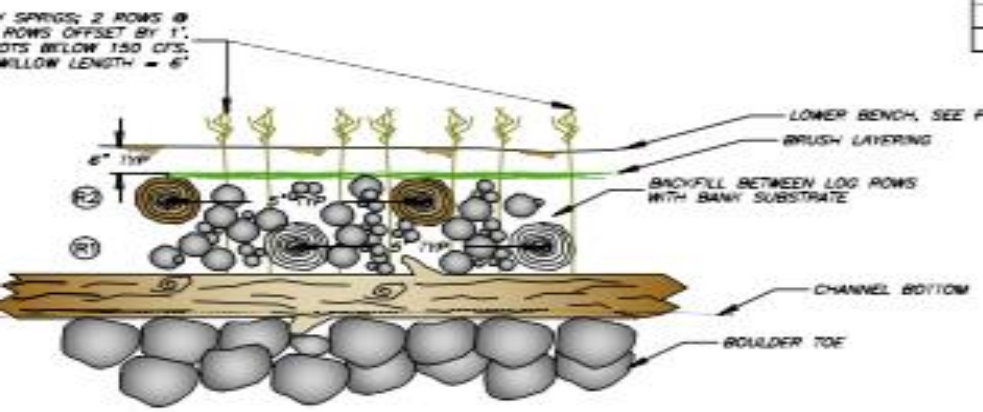
# Plans and Projects
# Part 4

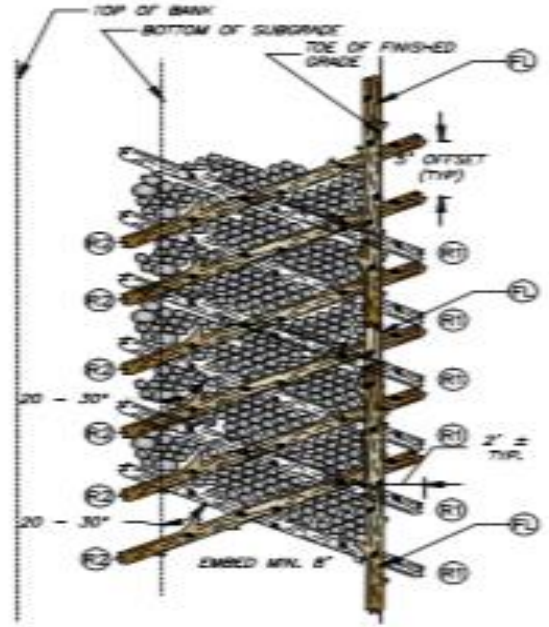

LORADO RANCH LLC
STA 433+00– 435+00
TOE WOOD MATRIX
BENCH ELEV. 7346
STA 431+20 – 433+10
4 – 18 ROOTWADS AT 10 – 15' OC
L W/ ROOT MASS FACING UPSTREAM
TOWARD FLOWLINE
TOP OF BANK 7346±
CENTER OF ROOTWAD 7344±
STA 435+50 –
3 – 4 LO
430+90
VANES
K 7346
K 7344
= 10'
DETAIL
STA 435+00 – 433+00
RIPRAP TOE PROTECTION W/LAUNCH RIPRAP
BETWEEN TOEWOOD, ROCK VANES AND ROOTWADS
GRAND COLORADO RANCH LLC




3 TOEWOOD MATRIX
NOT TO SCALE




TOEWOOD MATRIX SECTION VIEW
NOT TO SCALE




TOEWOOD MATRIX PLANVIEW
NOT TO SCALE

TABLE 1

| ITEM | DESCRIPTION | DIAMETER, IN (TYP) | LENGTH, FT* | ROOTWAD |
|---|---|---|---|---|
| FL | FOOTER LOG | 12" | 16 MIN | NO |
| R1 | LOG | 12" | 16 MIN | OPTIONAL |
| R2 | LOG | 12" | 16 MIN | OPTIONAL |
| B | BRUSH LAYER | VARIES | 8 MIN | OPTIONAL |

* LOGS SHOULD EXTEND AT LEAST THE WIDTH OF THE BENCH. THE LENGTH INCLUDES A ONE FOOT PROTRUSION OF THE ROOT OR EXPOSED LOG.

## CONSTRUCTION NOTES:

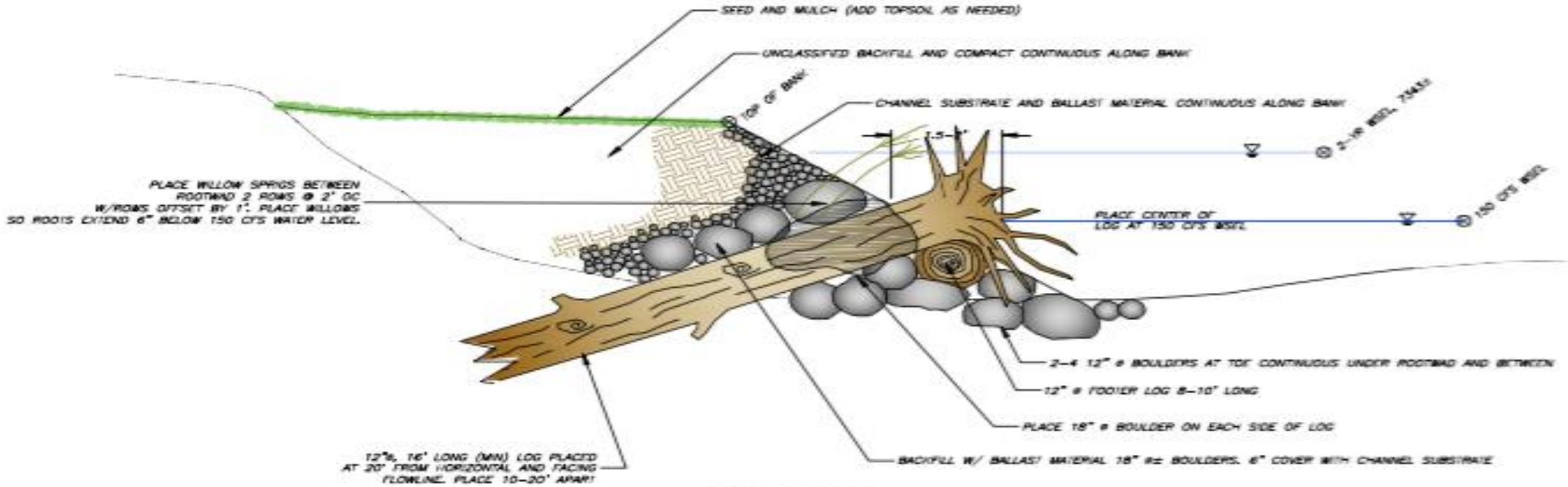
1. EXCAVATE THE SUBGRADE FOR THE TOE MATRIX USING POINT B ELEVATION AND COORDINATES.
2. PLACE BOULDER TOE BOULDERS CONTINUOUSLY ALONG THE TOE OF BANK LINE.
3. PLACE FOOTER LOGS. CRADLE FOOTER LOGS ALONG THE BOULDER TOE.
4. PLACE BANK SUBSTRATE ON THE BOTTOM OF THE EXCAVATION BETWEEN POINT B AND THE BOULDER TOE AND FOOTER LOG TO FORM THE SUBGRADE WITH A 10-DEGREE SLOPE.
5. SET THE P1 LOGS ON TOP OF THE RIVER ALLUVIUM AND FOOTER LOGS. PLACE THESE LOGS WITH 20 TO 30-DEGREE ANGLE TO THE BANK LINE. PLACE LOG SO THE ROOT OF THE END OF THE LOG PROTRUDES BY A FOOT MAXIMUM.
6. BACKFILL WITH BANK SUBSTRATE TO THE TOP OF THE LOG LEAVING THE TOP OF THE LOG EXPOSED AND INSURING THE 10-DEGREE UPWARD SLOPE REMAINS INTACT.
7. SET THE R2 LOGS ON TOP OF THE P1 AND RIVER ALLUVIUM. PLACE THESE LOGS WITH 20 TO 30-DEGREE ANGLE TO THE BANKS LINE.
8. BACKFILL WITH BANK SUBSTRATE TO THE TOP OF THE LOG LEAVING THE TOP OF THE LOG EXPOSED AND INSURING THE 10-DEGREE UPWARD SLOPE REMAINS INTACT.
9. COVER TOP OF LOGS WITH A LAYER OF BRUSH MATERIAL.
10. COVER THE BRUSH WITH AT LEAST 12 INCHES OF BALLAST MATERIAL.
11. INCREMENTALLY BACKFILL OVER THE BALLAST MATERIAL WITH 8" TO 12" THICK LIFTS OF NATIVE, MATERIAL DERIVED FROM PREVIOUS EXCAVATION TO FINAL GRADES.
12. COMPACT TO 90% MAXIMUM RELATIVE DENSITY USING BUCKET COMPACTION.
13. INSTALL WILLOWS USING A STINGER OR SIMILAR DEVICE AS OUTLINED ON SHEET C-101.
14. CONSTRUCT UPPER BENCH AS SHOWN.
15. REVEGETATE OVERBANK AND DISTURBED AREAS PER SHEET G101.

TABLE 2

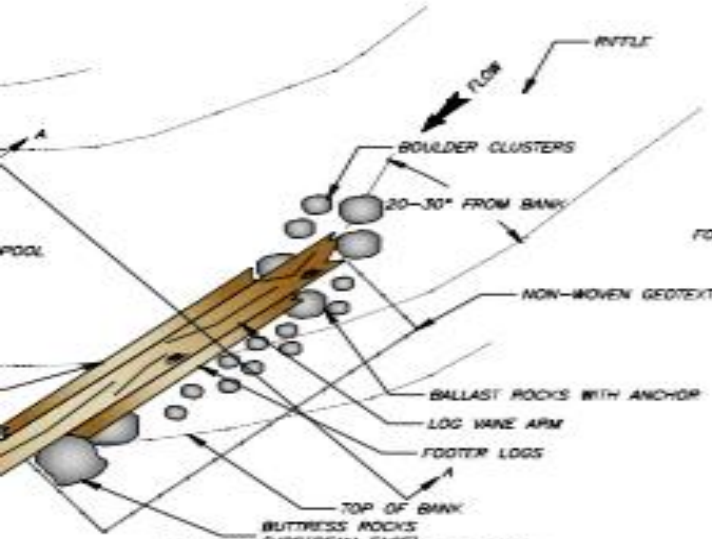
| BANK SUBSTRATE | | |
|---|---|---|
| STONE SIZE | PERCENT OF MATERIAL SMALLER THAN TYPICAL STONE | TYPICAL STONE DIMENSIONS (IN) |
| $D_{50}$ = 2 IN | 100 | 4 |
| | 50 - 70 | 2½ |
| | 35 - 50 | 2 |
| | 2 - 10 | 1 |

*PLAN AND DETAILS ARE PRELIMINARY ONLY, SUBJECT TO MODIFICATION PENDING TOPOGRAPHIC SURVEY, ANALYSIS AND FINAL DESIGN.

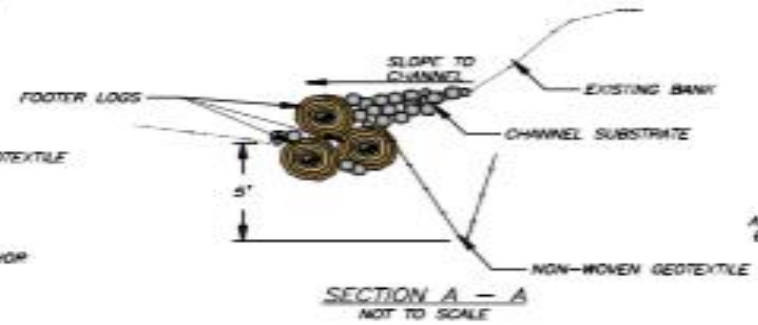

LIVE



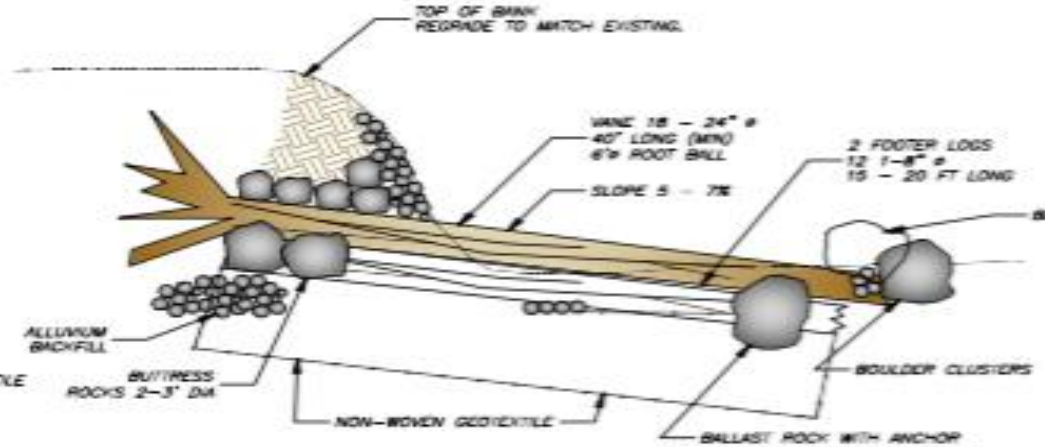

ROOTWAD DETAIL
NOT TO SCALE




LOG VANE STRUCTURE PLAN
NOT TO SCALE




SECTION A - A
NOT TO SCALE




LOG VANE STRUCTURE PROFILE
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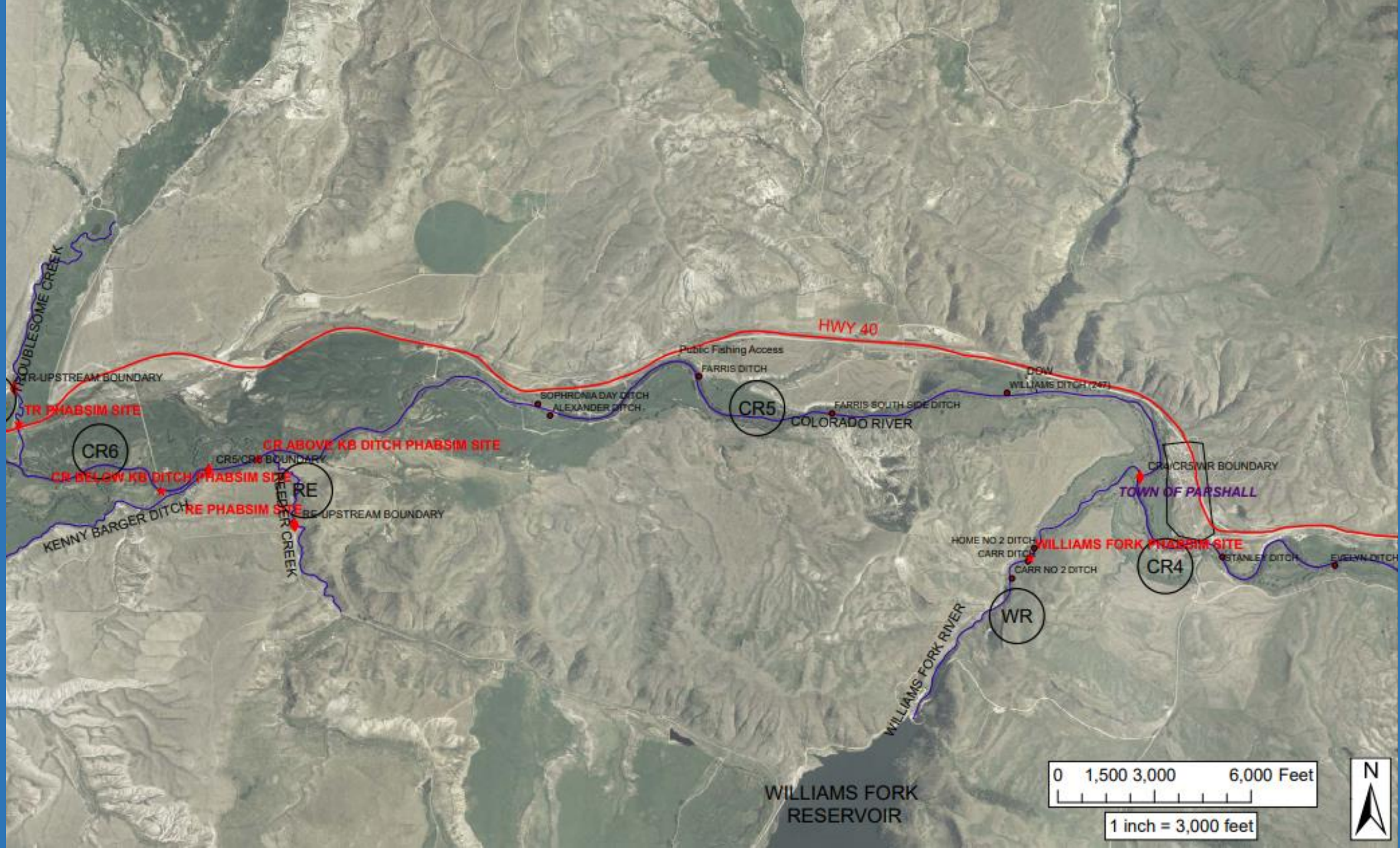
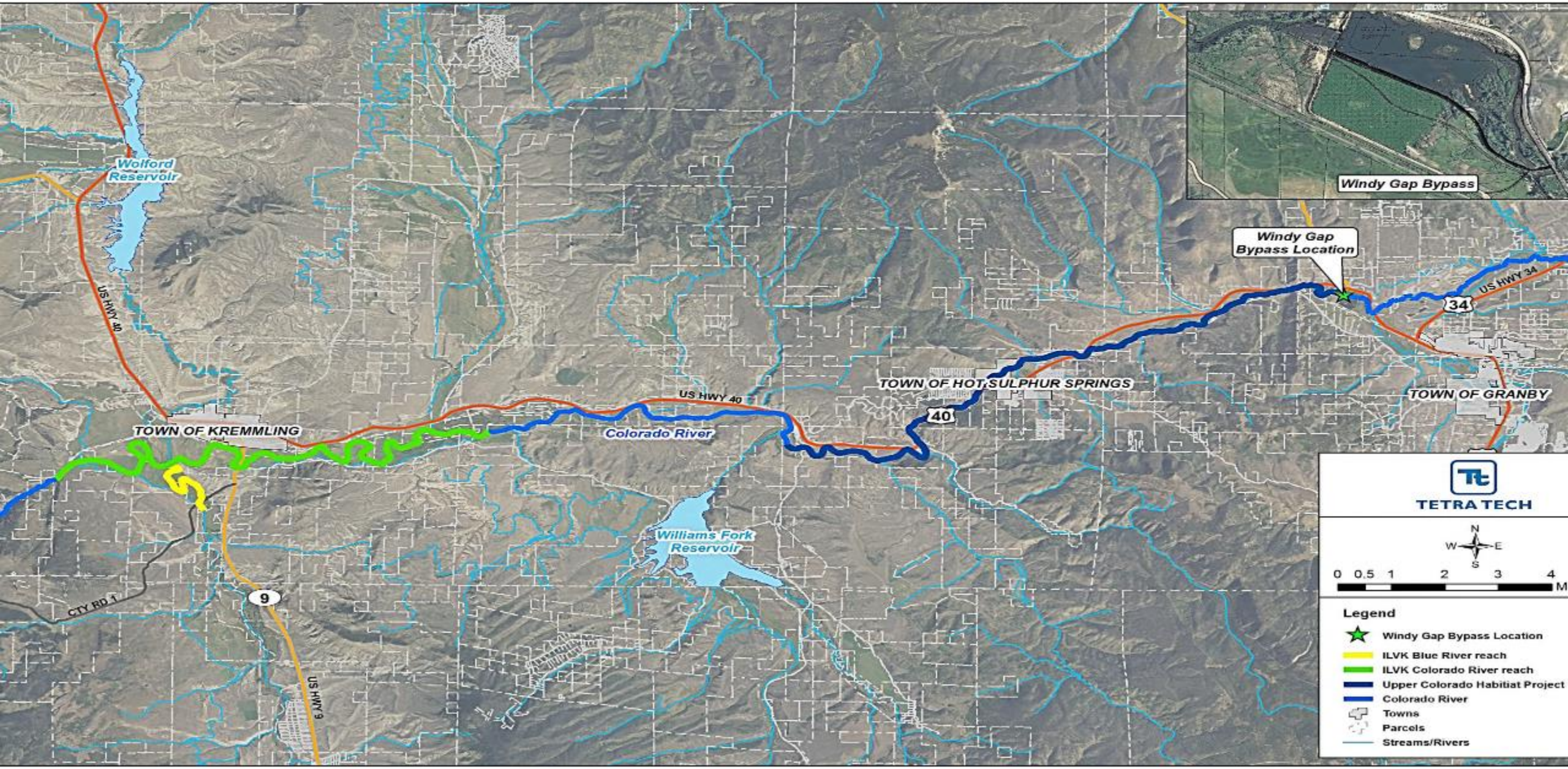

TROUBLESOME CREEK
TR-UPSTREAM BOUNDARY
TR PHABSIM SITE
CR6
CR ABOVE KB DITCH PHABSIM SITE
CR5/CR6 BOUNDARY
CR BELOW KB DITCH PHABSIM SITE
RE
RE PHABSIM SITE
KENNY BARGER DITCH
RE-UPSTREAM BOUNDARY
KEMPER CREEK
HWY 40
Public Fishing Access
FARRIS DITCH
SOPHRONIA DAY DITCH
ALEXANDER DITCH
CR5
FARRIS SOUTH SIDE DITCH
COLORADO RIVER
D&W
WILLIAMS DITCH (247)
CR4/CR5/WR BOUNDARY
TOWN OF PARSHALL
HOME NO 2 DITCH
CARR DITCH
CARR NO 2 DITCH
WILLIAMS FORK PHABSIM SITE
CR4
STANLEY DITCH
EVELYN DITCH
WR
WILLIAMS FORK RIVER
WILLIAMS FORK
RESERVOIR
0 1,500 3,000 6,000 Feet
1 inch = 3,000 feet
N

# Colorado River Headwaters Project



# Regional conservation Partnership program

Bypass (PL-566) $5,729,600

ILVK (EQIP) $2,029,239

Total $7,758,839

# CDSS: HydroBase



Climate


Well Permits
Geophysical Logs

Dams

**HydroBase**

Map Viewer

CDSS Data & Tools

Web Services

Software (TSTool / StateDMI/ StateCU)

# CDSS Analysis Tools

- Crop Consumptive Use Model (StateCU)
  - Estimates **Crop Irrigation Requirement** based on climate data "what the crops could use if given a full irrigation supply"
  - Uses acreage from CDSS GIS Assessments
  - Uses DWR diversion records from HydroBase
  - Incorporates individual ditch conveyance loss and maximum application efficiency
  - Estimates **Actual Consumptive Use** (Supply-limited CU) and Shortages

# CDSS Data and Analysis Tools

StateMod can help answer questions like:

- Physical Supply
  - Where and when is water available compared to demand? (spatial and temporal availability)
  - Is supply available in dryer years?
  - Are instream flow rights met?
- Legal Supply
  - Is physical supply available in priority?
  - Is it committed to downstream, senior uses?
  - Will it be available if conditional rights are perfected?

# CDSS Data and Analysis Tools

StateMod can help answer questions like:

- Reliable Supply
  - Will supply be reliable if other conditions change?
    - administrative changes
    - extended drought conditions or climate change
    - compact restrictions

# CDSS Data and Analysis Tools

StateMod can help answer questions like:

- Impact of Changes to Irrigation Practices
  - How will changes in irrigation efficiency increase minimum flows? Will the changes impact downstream users?
  - How will voluntary fallowing increase minimum flows? Will the reduction in return flows impact downstream users? Will the water reach the bottom of the watershed without shepherding?