

RECEIVED

JAN 19 2010

DEPARTMENT OF
WATER RESOURCES

Project No. 938-01-2006

**Recharge Impact Evaluation of
Transfer no. 74449 over a Modified
Time Schedule Using a Big Wood
River Aquifer Groundwater Model**

Prepared for:

Dry Lot, LLC
116 Valley Club Drive
Hailey, Idaho 83333

January 15, 2010

For information concerning this report, contact
G. Erick Powell, Ph.D., P.E.



CHARLES E. BROCKWAY, PH.D., P.E.
CHARLES G. BROCKWAY, PH.D., P.E.

2016 NORTH WASHINGTON, SUITE 4
TWIN FALLS, IDAHO 83301

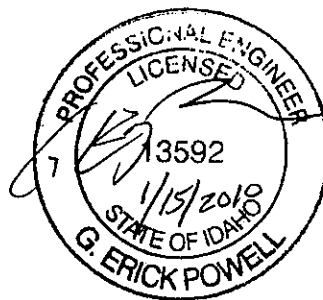
Project No. 938-01-2006

Recharge Impact Evaluation of Transfer no. 74449 over a Modified Time Schedule Using a Big Wood River Aquifer Groundwater Model

Prepared for:

Dry Lot, LLC
116 Valley Club Drive
Hailey, Idaho 83333

January 15, 2010



For information concerning this report, contact
G. Erick Powell, Ph.D., P.E.



CHARLES E. BROCKWAY, Ph.D., P.E.
CHARLES G. BROCKWAY, Ph.D., P.E.

2016 NORTH WASHINGTON, SUITE 4
TWIN FALLS, IDAHO 83301

Table of Contents

A.	Introduction.....	1
B.	Results.....	2
C.	Summary	3
D.	References	3

List of Figures

1.	Location of groundwater level evaluations	4
2.	Point A – Heatherlands	5
3.	Point B – North of Valley Club.....	6
4.	Point C – South of Valley Club	7
5.	Point D – North of KSKI Property.....	8
6.	Point E – Mouth of Indian Creek.....	9
7.	Big Wood River Reaches	10
8.	Big Wood River Reach Gain/Loss	11

Recharge Impact Evaluation of Transfer no. 74449 over a Modified Time Schedule Using a Big Wood River Aquifer Groundwater Model

Prepared by: Brockway Engineering, PLLC
G. Erick Powell, Ph.D., P.E.
Date: January 15, 2010

A. Introduction

Discussions were held between the Idaho Department of Water Resources, consultants for Dry Lot, LLC, and Dry Lot, LLC on January 7, 2010 regarding the preliminary approval for Transfer no. 74449. Impact evaluations of the proposed transfer were submitted to IDWR with a typical recharge schedule in July 2009. During the discussions held in January 2010, IDWR requested that a modified recharge schedule be evaluated during years when recharge is finished by July 1st. The following modified recharge schedule was determined (Table 1) and evaluated.

Table 1: Monthly volumes (acre-feet) of irrigation extraction under the proposed new permit and possible recharge monthly volumes (acre-feet).

	Apr	May	Jun	Jul	Aug	Sept	Oct	Total
Proposed Extraction (acft)	1	10	20	27	23	13	2	96
Original Recharge (acft)	10	19	19	19	19	10	0	96
Modified Recharge (acft)	18.8	38.8	38.7	0	0	0	0	96

B. Results

A groundwater model (Brockway Engineering, 2009) was developed to evaluate the impacts of the proposed transfer. The baseline model results (no transfer) were compared with the results from the original and modified recharge schedules to quantify the impacts of the proposed project.

Figure 3 indicates the location of the model nodes used to evaluate the impact from the proposed recharge mitigation well and the irrigation well for the owners association. Points A, B, C, D, and E are shown in Figure 1 with locations ranging from north of the proposed project, within the Heatherlands development, to south of the proposed project, at the mouth of Indian Creek. All five nodes were used to evaluate the changes of groundwater surface elevations from the baseline model data and the Dry Lot, LLC scenarios.

Figures 2 through 6 show the groundwater elevations of the baseline data and the model scenario. The largest decrease in water surface elevation occurs at point B, located immediately north of the Valley Club HOA irrigation well near Ohio Gulch road, of 0.33 ft under both recharge schedules. This decrease in water surface elevation is less than the annual variation in water surface elevations at point B of 1.2 ft

Six Big Wood River reaches were evaluated to quantify the change in the river/aquifer exchange based on the proposed scenarios. Figure 7 identifies the location of the river reaches. Figure 8 shows changes in river reach gain/loss based on the original and modified recharge schedules. The zero line in each figure represents the baseline model data; if the scenario reach data produced different results than the baseline model, then the difference for each river reach was plotted relative to the baseline model (positive = river gain; negative = river loss).

Results show an annual loss of 3 acre-ft/year in Reach 1 (Northern Boundary to Starweather Bridge) under both recharge schedules. Reach 2 (Starweather Bridge to

Deer Creek Bridge) showed a river annual gain of 21 acre-ft/year under the modified time schedule and 19 acre-ft/year under the original schedule. Reach 3 (Deer Creek Bridge to Aspen Lake) resulted in an annual river gain of 1 acre-ft/year under both schedules. All other reaches showed no detectible reach gain/loss.

The modified time recharge schedule, when compared to the original recharge schedule, results in very minimal differences, if any, of water surface elevations and aquifer/river interactions.

C. Summary

1. Dry Lot, LLC original and modified recharge scenarios were evaluated and compared with the baseline model data.
2. Model results indicated minimum impacts to local groundwater and surface water as shown.

D. References

Brockway Engineering, 2009. Development of a Groundwater Flow Model for the Big Wood River Aquifer: East Fork to Bellevue. Submitted to IDWR – Feb. 3, 2009.
Brockway Engineering, PLLC. Twin Falls, Idaho.



LEGEND

- MODFLOW Obs Nodes
- MODFLOW Boundary

**FIGURE 1: DRY LOT, LLC
GROUNDWATER LEVELS
EVALUATIONS NODES**
NAIP 2006 AERIAL PHOTO

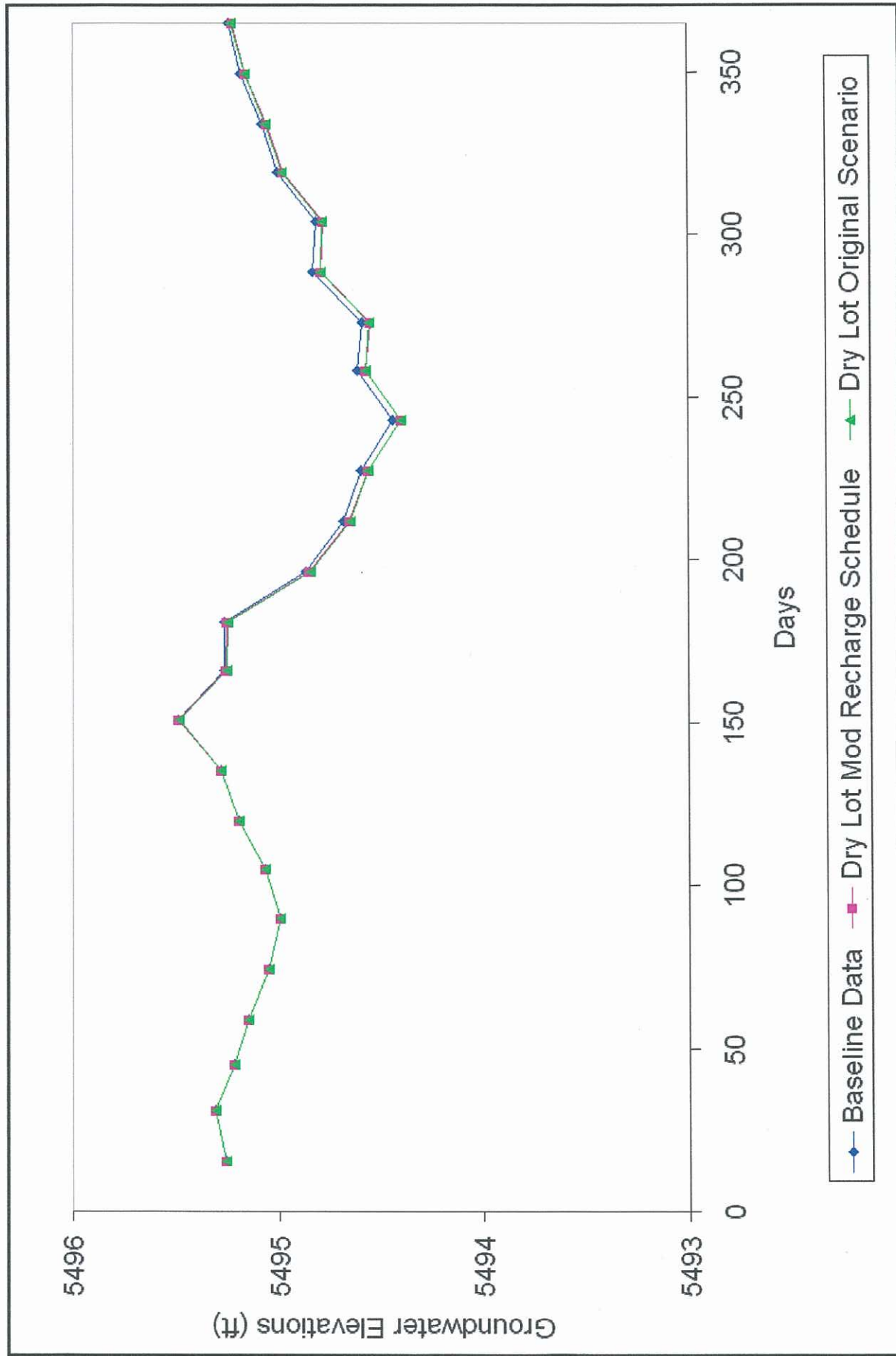


FIGURE 2: GROUNDWATER ELEVATIONS AT POINT A: HEATHERLANDS
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

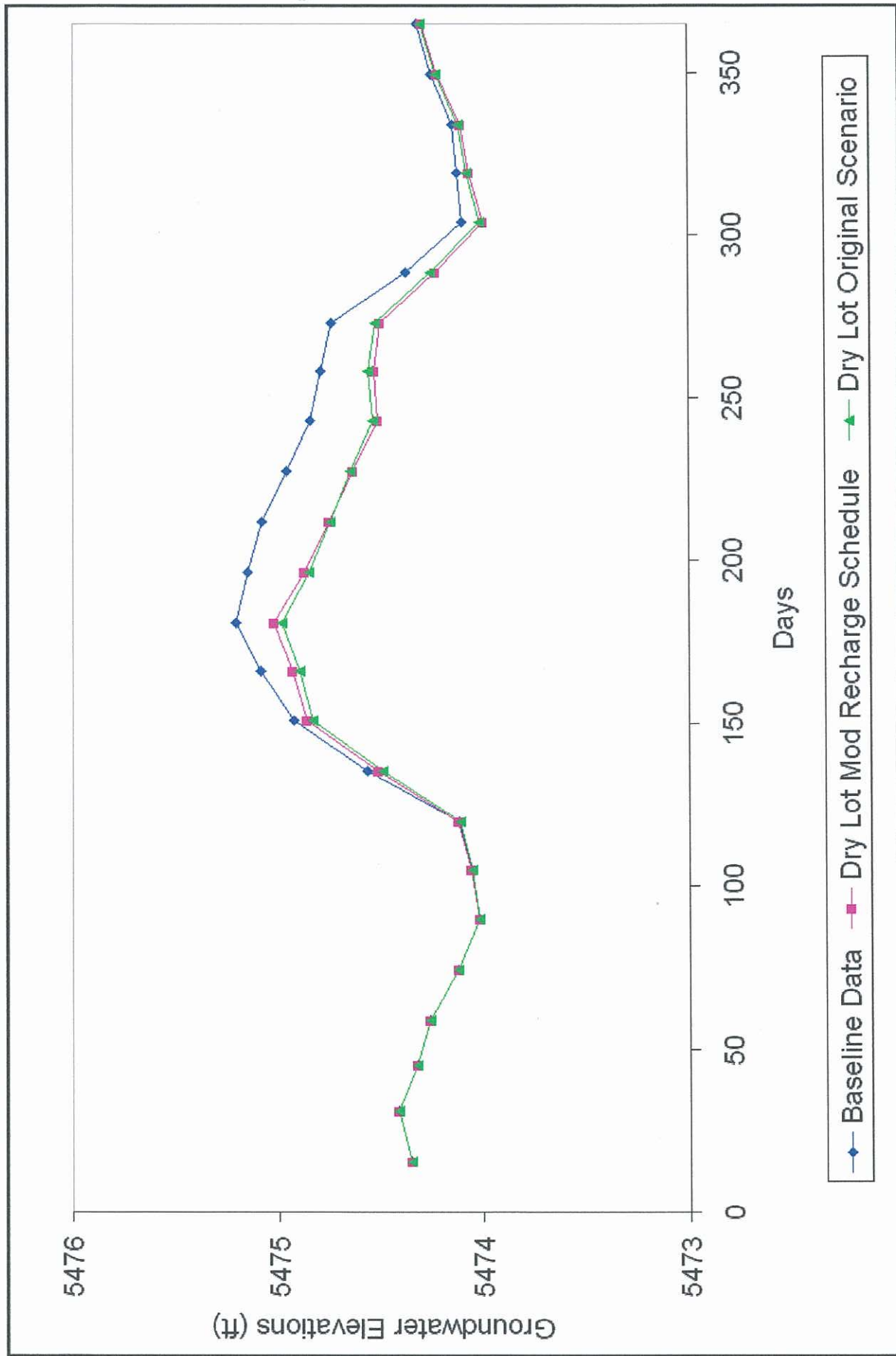


FIGURE 3: GROUNDWATER ELEVATIONS AT POINT B: NORTH OF VALLEY CLUB
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

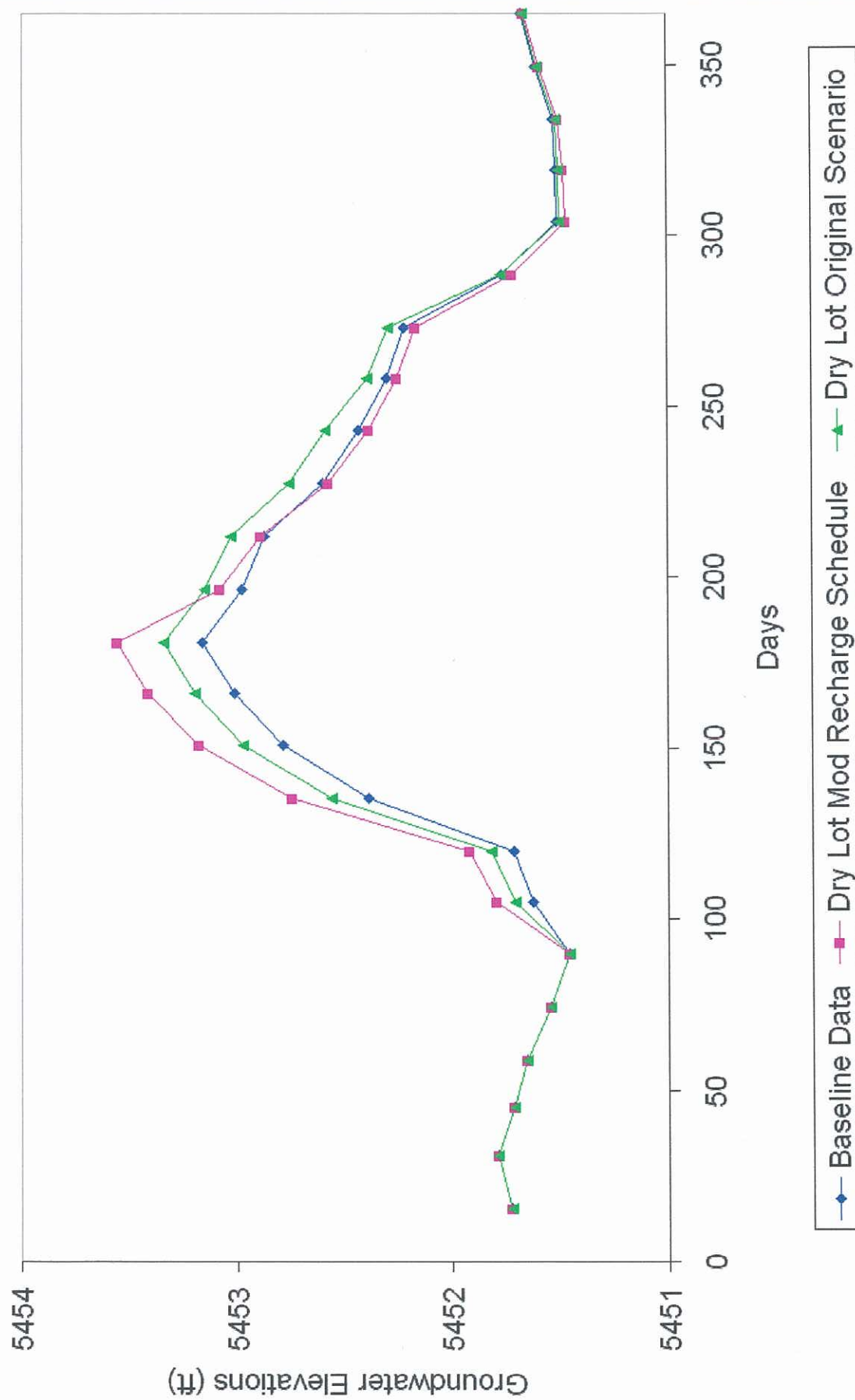


FIGURE 4: GROUNDWATER ELEVATIONS AT POINT C: SOUTH OF VALLEY CLUB
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

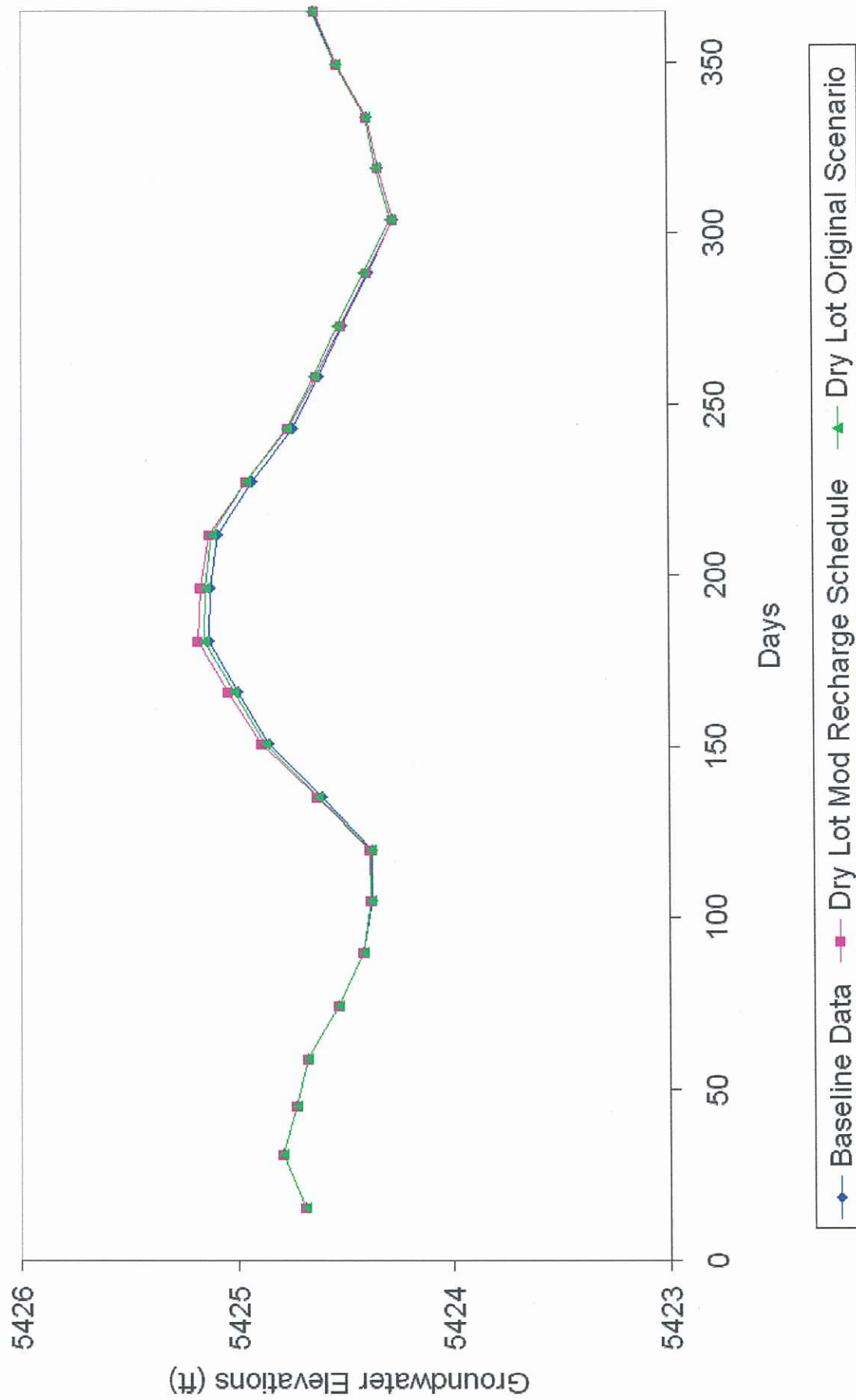


FIGURE 5: GROUNDWATER ELEVATIONS AT POINT D: NORTH OF KSKI PROPERTY
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

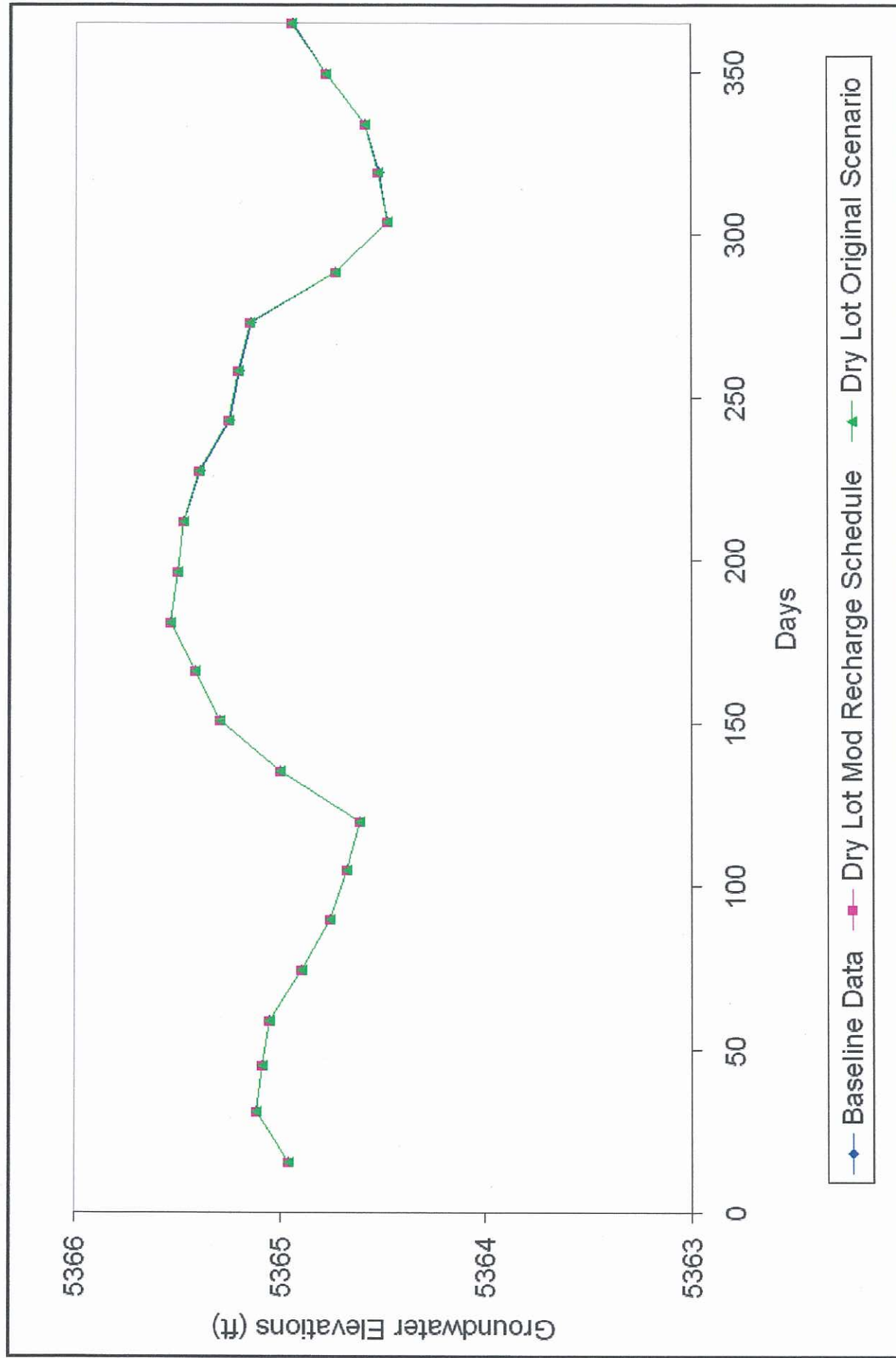
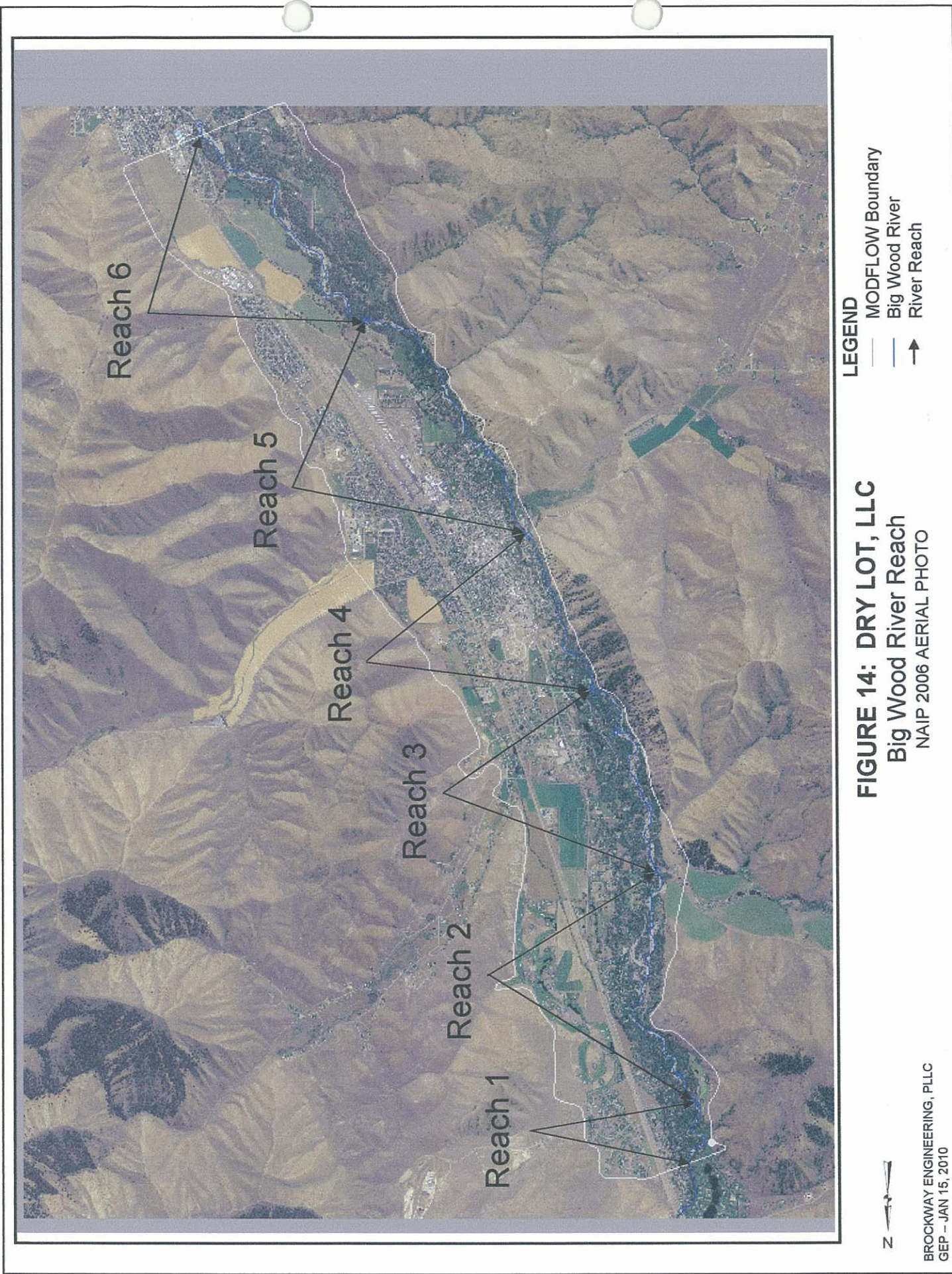


FIGURE 6: GROUNDWATER ELEVATIONS AT POINT E: INDIAN CREEK
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER



LEGEND
— MODFLOW Boundary
— Big Wood River
→ River Reach

FIGURE 14: DRY LOT, LLC
Big Wood River Reach
NAIP 2006 AERIAL PHOTO



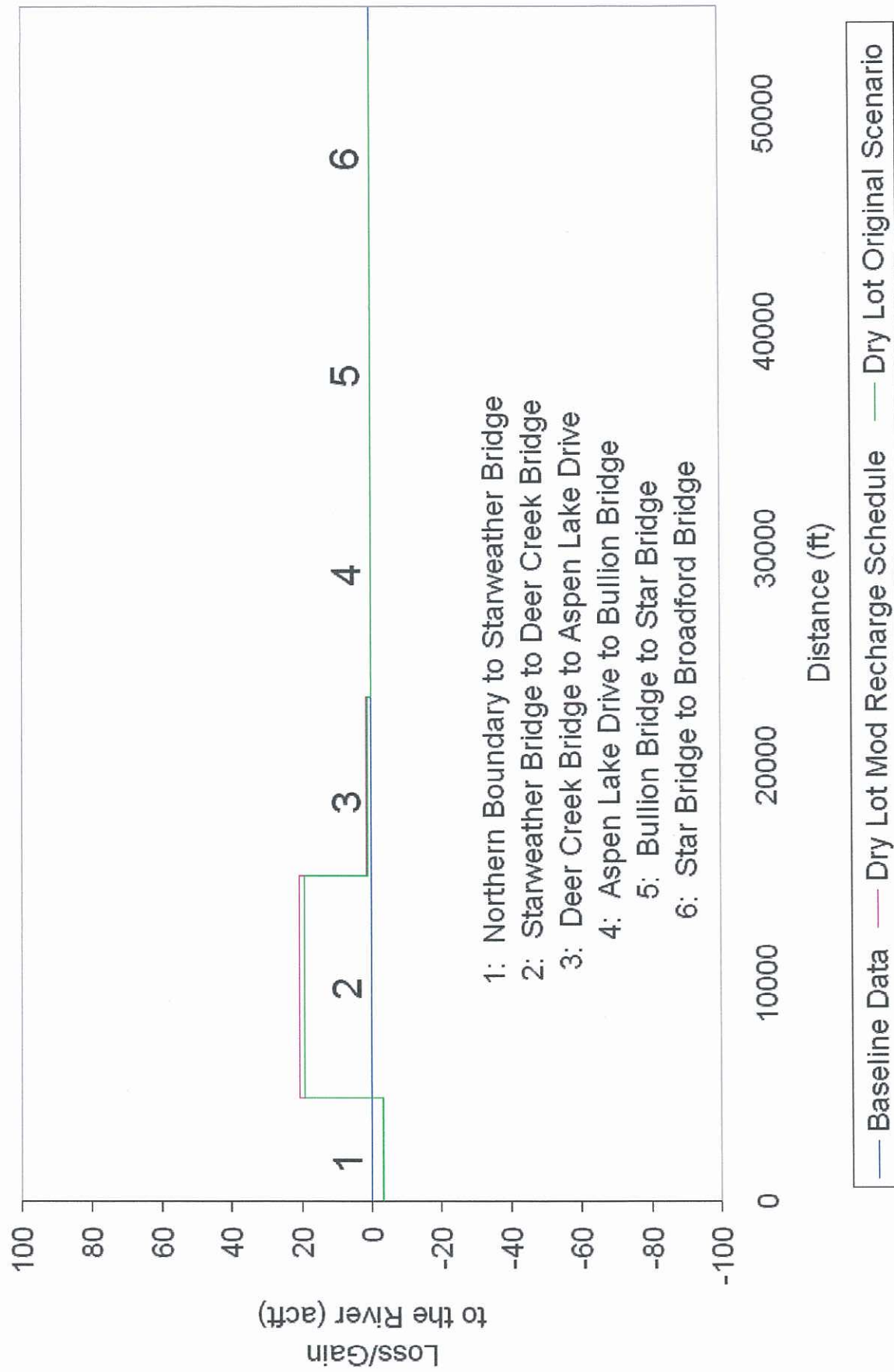


FIGURE 8: BIG WOOD RIVER REACH GAIN/LOSS RESULTING FROM DRY LOT, LLC PROPOSAL
 MODFLOW GROUNDWATER MODEL
 BIG WOOD VALLEY AQUIFER