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006005.01

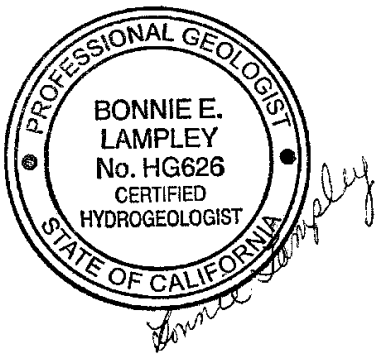
HYDROLOGIC EVALUATION

FOR

PROPOSED QUARRY CHANGES

CRYSTAL CREEK AGGREGATES

AUGUST 2022



PREPARED FOR:

CRYSTAL CREEK AGGREGATES
10936 IRON MOUNTAIN ROAD
REDDING, CA 96001

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INTRODUCTION

This report presents a hydrologic evaluation of the proposed quarry expansion at the Crystal Creek Aggregates (CCA) facility on Iron Mountain Road, Redding, California (**Figures 1** and **2**).

Existing CCA plant facilities include a rock crushing/screening plant, washing operation, mobile office trailer, truck scales, diesel-fuel storage tanks (1,000 and 20,000 gallons), one waste-oil tank (350 gallons), two motor oil tanks and one lubricating oil tank (90 gallons each), and five settling and two recycle ponds.

The proposed changes include an increase in the total annual amount of aggregate to be processed from 250,000 to 500,000 tons. The existing Concrete Recycle Area location and operation, for which an administrative permit was issued and subsequently reissued by the County due to the Carr Fire, is proposed to be removed as a Project component. The estimated 2.80-acre Concrete Recycle Area is proposed to be used for aggregate stockpiling.

The amount of aggregate mined will be increased, as will the yearly blasting maximums. The hours of operation will stay the same as currently permitted. The height of the Quarry high walls and bench widths will be increased as will the lake size and depth upon reclamation of the site. The estimated amount of aggregate proposed to be mined will increase from 15.92 million tons to 25.4 million tons. The estimated life of the mining operation will increase from the end of Year 2072 by 27 years to end of the Year 2101.

The existing approved Use Permit Area of 110.69-acres and the existing approved 110.69-acre Reclamation Plan Area will be maintained.

The scope of work included site visits, review of reports prepared by others related to geologic conditions, estimation of existing and future water budgets for the new lake and site changes, evaluation of potential impacts from changes in the water budget, and evaluation of potential water-quality impacts from the expanded operations. Existing and future site plans, and the size and volume for the proposed quarry excavation, were supplied by Mr. Duane Miller, PE, on behalf of Crystal Creek Aggregates.

The work was conducted by Ms. Bonnie Lampley, California Certified Hydrogeologist (CHG 626).

SUMMARY

NEW LAKE WATER LEVELS

After filling, the new lake would overflow in average years, and would have minimal to no overflow in dry years (**Figures 10** and **11**). The water level would vary seasonally by less than 5 feet.

Changing the runoff factor has some effect on model results; if only 10% of the runoff is routed to the lake, seasonal water-level changes will be similar and it will not dry out in the summer.

Modeling results are more sensitive to changing the leakage factor. If the leakage factor is increased by an order of magnitude (to 0.003 feet/day), the water levels would show more variability, with the variation less than 10 feet. If the leakage factor is increased by two orders of magnitude (to 0.03 feet/day), the new lake may dry out seasonally. Although the permeability of the material that will form the base of the lake is unknown, it is unlikely to be as permeable as 0.03 feet/day (1×10^{-5} cm/sec). Existing ponds at the site do not dry out over the summer. This implies either groundwater contribution to maintaining water levels or low permeability to prevent leakage of collected surface water (more likely the latter, based on observations of the amount of groundwater seepage in June 2019).

WATER BUDGET

The major changes to the water budget are as follows:

- Increase in water stored in Site water bodies. The increase would range from approximately 500 to 3,100 acre-feet more than currently held.
- More total inflow to the system because of the larger area (new lake surface) that receives direct precipitation. The increase could be approximately 40 acre-feet per year.

  Even though the overall area of the quarry + upland watershed remains the same, the relative change in percent covered by the open water body means there is more direct precipitation (vs. watershed runoff) into the system. This is because there is less total evapotranspiration and infiltration losses in the watershed because of the smaller relative area.

  Also, because there is less total "undeveloped" watershed, the amount of upland runoff into the system will be between approximately 75 and 100 acre-feet per year less.
- Leakage to groundwater will be higher in the future, because of the greater area of the new lake relative to the existing ponds. The total leakage, however, will remain an insignificant percentage of the total water budget.
- More evaporation because of the greater surface area of the new lake. The increase could be approximately 65 to 130 acre-feet per year.

- Less offsite runoff (denoted as "overflow" in the figures in **Appendix D**) in both drought average periods. The decrease could average approximately 75 acre-feet/year.

The decrease in offsite runoff during droughts represents approximately 25% less runoff to the tributary to Middle Creek. This would represent a net 1.4% reduction flow to Middle Creek below CCA (25% less off-site discharge over 5.5% of the total Middle Creek drainage area). The reduction in off-site discharge would occur only during the wet season.

Changes in inflow from groundwater, are assumed to be minimal. Because of the nature of the geologic materials (relatively impermeable hard rock with few open fractures), it is unlikely that the new lake would act as a groundwater sink. Some groundwater seepage zones may be intercepted by the expanded excavation, but the probability that more seepage zones than are currently observed will be encountered at depth is unlikely in that fractures generally become less prevalent with depth and the existing seepage zones are associated with the contact between the weathered overburden and more competent bedrock.

WATER QUALITY

Water management and stormwater-runoff control in the future will be done similarly to the current operations. During mining in each phase, runoff from the disturbed areas will be routed to temporary detention basins within the phase footprint, as has been done historically and currently.

Groundwater inflow into each phase also will be routed to the temporary detention basins, as currently done. Once excavation in a phase proceeds such that deeper basins are developed, groundwater seepage into the basin will be pumped out for discharge to either temporary basins or existing ponds. Groundwater production from mined areas is not expected to be greater than current seepage rates because as the quarry is deepened, the potential for groundwater occurrence decreases.

Overall, there will be less offsite discharge once the new lake is developed than currently occurs.

Runoff from the new batch plant will be routed to Recycle Pond #1, similarly to the runoff from the existing crushing and screening plant. If the Recycle Ponds discharge, it is routed through the Settling Ponds, eventually to be discharged from Settling Pond #3, along with all other site stormwater that potentially flows to Middle Creek.

There is no evidence that historic runoff from CCA has adversely affected surface-water quality in Middle Creek, and there is evidence of other influences that affect the creek's water quality.

Therefore, it is unlikely that future operations will adversely affect water quality in Middle Creek.

SITE SETTING

EXISTING PONDS AND DRAINAGE

Figure 2 shows the existing site plan, with an emphasis on drainage features and ponds; **Figure 4** shows a schematic diagram of the existing drainages and water-management features.

Drainage and water is managed by a network of ponds, ditches, and piping. The major source of process water for the Facility is from upland runoff to Ponds #4 and #5. These two ponds are hydraulically connected in the subsurface through a layer of crushed rock approximately 10 feet thick. The two ponds receive runoff from the upland hills west of the Plant Area, from the Existing Quarry, and from the Plant Area (equipment storage, stockpile areas, concrete recycle area, and topsoil stockpile area). **Table 1** shows the characteristics of the existing ponds:

TABLE 1. EXISTING POND CHARACTERISTICS

Ponds	Comment	Area	Depth	Volume
		acres	feet	acre-feet
Settling Pond 1	Usually dry in dry season	0.5	15	3
Settling Pond 2	Usually dry in dry season	0.2	15	1
Settling Pond 3	Always contains water	0.5	15	2
Existing Pond 4	Always contains water	1.9	25	14
Existing Pond 5	Always contains water	2.2	30	24
Recycle Ponds	Always contain water	0.5	15	3
	TOTALS	5.8		46

During regular operations, water is pumped from Pond #5 to Settling Pond #1 and Recycle Pond #2. During storm events, water can be released as needed from Pond #4 through a slide gate. Stormwater released from Pond #4 is routed through a 36-inch corrugated metal pipe (CMP) culvert to the drainage ditch immediate east of Settling Ponds #2 and #3; the valve at the point of discharge of the 36-inch CMP to the ditch is always closed, and only opened during large storm events. Just south of Settling Pond #3, the small drainage ditch connects with a larger drainage ditch; the larger ditch discharges to Middle Creek near where Iron Mountain Road crosses Middle Creek.

Water from Pond #4 is routed to Recycle Pond #2 from Settling Pond #1; Recycle Pond #2 also receives overflow from Recycle Pond #1. During operations, water for aggregate washing is pumped from Recycle Pond #2 by two centrifugal pumps (one 4-inch and one six-inch). If needed, make-up water for aggregate washing is provided by Shasta Community Services District (SCSD; formerly water was provided by Keswick CSD which is now part of SCSD). Typical usage is 1,000 gallons/eight-hour shift, up to 12 hours/day. This equates to approximately one gallon per minute on a daily basis (1,000 gallons/8 hours = 125 gallons/hour x 12 hours = 1,500 gallons ÷ 1440 minutes/day).

The used wash water that has passed over the aggregate is returned to Recycle Pond #1 after the addition of flocculent to aid in settling the fine particulates. Approximately every three days, the fine material that is washed off the aggregate and into Recycle Pond #1 is cleaned out and moved to an overburden pile, to be used in Site reclamation in the future. Washed aggregate is stored in various Stockpile Areas, in the eastern part of the Site.

The two Recycle Ponds are connected by a 48-inch corrugated metal pipe (CMP). Recycle Pond #2 can overflow to a ditch which routes discharge to Settling Pond #1. Settling Ponds #1, #2, and #3 are connected in series, with Pond #3 the farthest downgradient. Settling Pond #3 discharge to the small ditch along the eastern side of the ponds, and thence to the larger ditch that is tributary to Middle Creek.

PROPOSED LAKE AND DRAINAGE

Figure 3 shows the proposed drainage features; **Figure 5** shows a schematic diagram of the proposed drainages and water-management features.

Drainage features in the Plant Area (eastern portion of the Site) will remain the same, with the Recycle Ponds, Settling Ponds #1, #2, and #3, and Ponds #4 and #5 unchanged. Drainage in the Mining Area (west of the Plant Area) will be modified because of the expansion of the quarry footprint. Overall drainage areas will remain the same, but the distribution of the drainage will change.

Water-supply to, and runoff from, the new batch plant will be routed to and from the Recycle Ponds, similar to the water management for the existing crushing plant.

Figure 6 shows the general overall future drainage areas for the Site. For the Site as a whole, the existing and future total drainage area are the same. For modeling purposes (discussed below), L&A divided the Site into three areas:

- New Lake drainage area (45.1 acres) which represents the area upgradient of the quarry excavation.
- Quarry Excavation area (51.2 acres) which represents the area of the proposed excavation, including the New Lake. Within this area, the New Lake will cover 35.64 acres at its water-surface elevation of 736 feet MSL.
- Site Area Not Draining to Quarry (84.5 acres) which represents the remainder of the Site, including the Plant Area.

Note that these areas do not correspond to specific Project areas referenced in other documents because some of the drainage areas extend beyond the CCA property boundary and the drainage boundaries do not necessarily correspond to Project areas defined in the Reclamation Plan, for example.

REGIONAL HYDROLOGIC SETTING

The Site is located within the Middle Creek watershed, along the northern boundary (**Figure 1**). To the north is the Rock Creek watershed. The Middle Creek watershed covers 2,890 acres (the area was scaled from the USGS topographic map using AutoCAD v. 2018).

The drainage area of the quarry area (both existing and proposed) is approximately 160 acres. The CCA drainage area represents approximately 5.5% of the Middle Creek drainage area. Drainage from the CCA site eventually enters Middle Creek approximately 1.3 miles upstream of its confluence with the Sacramento River.

REGIONAL AND LOCAL HYDROGEOLOGIC SETTING

GEOLOGY

The following description of the regional and local geology is taken from the Geotechnical Report (Bajada Geosciences, April 2020, as revised August 2022). **Appendix A** contains the geologic and lineation maps, and geologic cross sections, from that report.

The Site is located in the eastern Klamath Mountains within the Klamath Mountains geomorphic Geologic Province of California. The Klamath Mountains form a geologic province that extends from northern California to Southern Oregon. In California, the Klamath Mountains province extends from the Pacific Ocean to the Great Valley.

The quarry is located within the Eastern Klamath terrane of the Klamath Mountains geomorphic Geologic Province, and is about 180- to 400-million years old (Silurian-Devonian to Jurassic). The Eastern Klamath terrane is composed of three subterranes - Redding, Trinity, and Yreka subterranes. The Redding subterrane consists of Mississippian to Devonian-age metavolcanic and metasedimentary rocks. Formations within the Redding subterrane consist of the Baird, Bragdon, and Kennett Formations, the Mule Mountain stock, Balaklala Rhyolite, and Copley Greenstone. Those formations are locally faulted into place. Superjacent rocks consist of alluvium, colluvium, local terrace, and landslide deposits.

The existing quarry highwalls expose Mule Mountain Stock (Dmm), Copley Greenstone (Dc), and epidote and/or chloritic amphibolite (Da). These materials are unconformably in contact in some locations and have been juxtaposed by faulting in other locations. In areas outside of the active quarry face, Dmm and Dc are visible in outcrop, as float on the ground surface, and exposed within scoured drainages.

Granitics of the Mule Mountain Stock consist of granodiorite, albite granite, and trondhjemite that increase in hardness and competency and decrease in weathering with depth. Regolithic and saprolitic soils associated with weathering produce overburden thicknesses ranging from a few feet to over 20 feet. Below the overburden, weathering decreases from highly weathered to fresh over thicknesses ranging from about 5 to 20 feet. These zones of weathering are often observed penetrating relatively fresh rocks along discontinuities. Moderately weathered to fresh Mule Mountain Stock ranges from weak rock to strong rock.

The Copley greenstone is generally hard, dense, and locally has been sulfide enriched to exhibit pyrite mineralization. Generally, the greenstone observed within the quarry ranges from medium strong to very strong

Copley greenstone is massive to moderately fractured with persistent discontinuities that are moderately to very widely spaced, partially open to tight, undulating to planar, and generally rough. Few open apertures were observed, and those present were filled with calcium carbonate, epidote, and quartz. Some discontinuity planes appeared to have a relatively thin coating of iron oxide, zinc oxide, calcium carbonate or other coatings. Few discontinuities were observed to be open and unfilled except where prior blasting and mining had occurred.

Faulting and lineations in the existing quarry area trend generally east-west (see the lineation map in **Appendix A**).

HYDROGEOLOGY

Groundwater in the Site vicinity can occur in the small areas of alluvial deposits in stream bottoms, in weathering zones atop bedrock, and within the bedrock (hard rock). In hard rock, groundwater occupies openings made by faulting or fracturing, known as secondary porosity. Groundwater does not occur within the rock itself, as in sedimentary deposits (alluvial material and to a lesser degree, weathered bedrock), where groundwater occupies the spaces between particles, known as primary porosity. Generally, the porosity of hard rocks is much less than in sedimentary rocks: Porosity in sedimentary rocks typically ranges between 30 and 60% and in hard rocks similar to those in the Project vicinity (granitics and greenstone) it can be as low as 1 to 2%, although weathered zones can have porosities similar to sedimentary rocks.

Related to porosity is a characteristic known as hydraulic conductivity. A material has high hydraulic conductivity if there are many connected pore spaces or large fractures; that is, groundwater can move more rapidly through these kinds of materials. A material has low hydraulic conductivity if the pore spaces are not well connected, continuous, or large. Groundwater cannot move easily through these kinds of materials.

Based on the description of the rocks in the quarry area, it is likely that both the porosity and hydraulic conductivity of the quarry rocks are low. The Geotechnical Report describes that the fractures, where present, are partially open to tight, with few observed to be open. Most are filled with calcium carbonate, epidote, and quartz.

Groundwater seepage was observed in only two locations within the existing quarry area, along fault planes and near the weathered-fresh bedrock interface (**Figure 2** shows seepage locations in June 2019). CCA staff report that Ponds #4, #5, and Settling Pond #3 remain full year round, without addition of water. This suggests that, at least in part, groundwater seepage occurs year round and helps maintain lake water levels, in that there is no surface-water runoff from the uplands in the summer.

Well logs for water wells in the vicinity of the Site, on file with the Department of Water Resources (DWR), show similar geologic materials as described in the Geotechnical Report

(although the driller's descriptions often mislabel rock types). **Figure 7** shows a map of the vicinity wells, for logs that had sufficient location information. There were 28 wells of record in the DWR database. All of the wells of record are located to the north (within the Rock Creek drainage) and to the south of the Site (mostly in the Salt Creek drainage). There appear to be only four wells of record within the Middle Creek drainage, in the Site vicinity (numbers 405981, 485937, 705923, and 957748). These wells are all located close to Middle Creek, south to southwest of the Site and approximately one-half to one mile away from the Site.

Based on the geologic mapping of the Site in the Geotechnical Report, we assume that the predominant direction of groundwater movement is to the east, following the trend of the faults and lineations, and the general fall of the topography towards the Sacramento River. Based on this, there are no groundwater wells downgradient of the Site.

Potable water in the vicinity, and at the Site, is provided by the Shasta CSD (and previously, the Keswick CSD, which is now part of the Shasta CSD). **Figure 8** shows a map of the potable water suppliers in the vicinity.

WATER-BUDGET

To evaluate the various potential hydrologic impacts from the expanded quarry operations, L&A developed a hydraulic-capacity model (in an Excel™ spreadsheet) that accounts for daily inflows to and outflows from the new lake, the quarry area, and the plant area. The model uses various inputs (precipitation, evaporation, rock characteristics, drainage areas, etc.) to estimate how water will move onto the Site, through the new lake, and into the subsurface. Model outputs can be plotted vs. time to show potential seasonal changes in various factors (*e.g.*, lake depth, run on, runoff, evaporation, etc.).

The modeling evaluated each of the three phases, which will have the following approximate areas:

Phase 1	22.66 acres	43% of area
Phase 2	21.26 acres	40% of area
Phase 3	8.82 acres	17% of area

The modeling used the following logic:

- The maximum lake depth is assumed to be 96 feet, based on a base elevation of 640 feet MSL and a design high-water level of 736 feet MSL. **Appendix C** shows the calculations for volume vs. depth and volume vs. area used in the model, for the entire new lake and for each of the proposed phases.
- Starting storage (in acre-feet) for each day equals the final storage from the previous day.
- Total daily inflow is calculated by adding the direct precipitation (maximum lake area in acres × daily precipitation in feet), groundwater inflow (if used), and stormwater inflow (in acre-feet). The stormwater inflow is routed through the phases based on which phases are

operational.

In years 1 through 20, it is assumed that only Phase 1 will be active; therefore, in those years, all upland runoff is routed to Phase 1.

In years 20 through 40, it is assumed that Phase 1 will be completed and Phase 2 will be active; therefore, in those years, upland runoff is routed to Phase 2 based on its relative size to the other phases. The remaining upland runoff is routed to Phase 1. The overflow from Phase 2 also is routed to Phase 1 because the outlet for the quarry area will be within the Phase 1 footprint.

In years 40 through 50, it is assumed that Phase 3 will be actively mined; in those years upland runoff is routed to each phase based on its relative size. Overflow from Phases 2 and 3 is routed through Phase 1.

In years 50+, it is assumed that the quarrying will be completed and the entire lake will be established.

- Total daily outflow is the evaporation (area covered by water × daily evaporation rate in feet) and leakage, assumed to be 0.0003 feet/day (1×10^{-7} cm/sec).
- The daily net change in storage is calculated by subtracting the outflow from the inflow. The net change then is subtracted from the beginning storage to yield the final storage at the end of each day. If final storage is greater than the maximum allowable volume, the volume difference spills out of the lake.

Several model runs were performed, as follows, with the estimated time frame for each phase's operation based on a total operating period of 50 years, approximately apportioned by the relative size of each phase:

Years 1 – 20	Phase 1 only
Years 21 – 40	Phase 2, with overflow passed to the Phase 1 area
Years 41 – 50	Phases 2 and 3, with overflow passed to the Phase 1 area

Phase 1 receives the overflow from the other two phases because the outlet for the future quarry lake will be in the Phase 1 area.

INPUT VARIABLES

PRECIPITATION

Precipitation values were taken from daily precipitation recorded at Whiskeytown for the period water year 1997 to date.[1] Both the entire data set and a subset of the data representing drought conditions were used in the modeling. The drought subset was selected using a graph of the cumulative departure from average water-year precipitation (**Figure 9**). For a cumulative

[1] California Data Exchange Center; http://cdec.water.ca.gov/dynamicapp/QueryDaily?s=WHI&d=03-Jul-2019+12:36 .

departure analysis, the average precipitation for the entire period is calculated, and then the departure or difference in annual precipitation from the average is calculated for each water year. The departure from average annual precipitation is cumulated. This cumulative value then is plotted vs. water year. A downward trend of cumulative departure indicates a period during which precipitation was less than average. Conversely, an upward trend indicates a period during which precipitation was greater than average. A period of average precipitation is one in which the beginning and ending cumulative values are the same. The period 2007 to 2017 was taken as the subset for drought modeling because the period had an extended dry period.

The annual average precipitation at Whiskeytown is 60.8 inches; the annual average drought period precipitation used in the model was 44.2 inches.

GROUNDWATER

The model assumes a steady 10 gpm of groundwater inflow, although eliminating groundwater inflow does not substantially change modeling results. In the predictive modeling, it is assumed that 10 gpm of groundwater inflow will be routed through the quarry to maintain pond levels in the Plant Area.

STORMWATER

Stormwater inflow to the model is calculated from the various watershed areas, as shown in **Figure 4**. Stormwater inflow to the lake was calculated to be 50% of the total rainfall on the watershed above the lake; that is, for each day of the modeling period in which there was rain, the rainfall amount was multiplied by 45.1 acres and then by 0.5. Stormwater runoff from the Plant area was calculated similarly. The model, however, does not route Plant Area stormwater through each of the Plant ponds; rather, the total storage of the ponds is added together, for ease of calculation.

EVAPORATION

Evaporation was based on typical values of reference evapotranspiration as published by the California Department of Water Resources, August 2008, *Estimating Irrigation Water Needs of Landscape Plantings in California,* Appendix A – Table 1, Zone 14. Zone 14 encompasses the Sacramento Valley and the eastern foothills of the Coast Range, including the southwestern portion of Shasta County.

LEAKAGE

A relatively slow leakage (hydraulic conductivity) of 0.0003 feet per day (1×10^{-7} cm/sec) was assumed for the bottom of the lake, based on the description of the geologic materials and the fact that the existing lakes retain water year-round without water addition during the dry season.

MODELING RESULTS

Appendix D contains graphs of the results of pond modeling for each phase in 20-year time increments. It is unknown exactly how each phase will be configured; therefore, the modeling for the various phases should be considered approximate. **Figures 10** and **11** show graphs of the

results for the entire new lake in years 50+, for average and drought scenarios, respectively. On these figures, the thick blue line is the pond depth, the thin red line is inflow, and the medium dashed blue line is overflow.

NEW LAKE WATER LEVELS

After filling, it would overflow in average years, and would have minimal to no overflow in dry years (**Figures 10** and **11**). The water level would vary seasonally by less than 5 feet.

Changing the runoff factor has some effect on model results; if only 10% of the runoff is routed to the lake, seasonal water-level changes will be similar and it will not dry out in the summer.

Modeling results are more sensitive to changing the leakage factor. If the leakage factor is increased by an order of magnitude (to 0.003 feet/day), the water levels would show more variability, with the variation less than 10 feet. If the leakage factor is increased by two orders of magnitude (to 0.03 feet/day), the new lake may dry out seasonally. Although the permeability of the material that will form the base of the lake is unknown, it is unlikely to be as permeable as 0.03 feet/day (1×10^{-5} cm/sec). Existing ponds at the site do not dry out over the summer. This implies either groundwater contribution to maintaining water levels or low permeability to prevent leakage of collected surface water (more likely the latter, based on observations of the amount of groundwater seepage in June 2019).

CHANGES IN WATER BUDGET

To evaluate how operation of the new lake may change the overall Site water budget, the daily values were aggregated to yearly totals for the various modeling scenarios and phases. **Appendix E** contains the summary sheets of those calculations.

Table 2 summarizes the yearly totals to overall annual averages, to compare pre-Project and post-Project water budgets.

The major changes to the water budget are as follows:

- Increase in water stored in Site water bodies. The increase would range from approximately 500 to 3,100 acre-feet more than currently held.
- More total inflow to the system because of the larger area (new lake surface) that receives direct precipitation. The increase could be approximately 40 acre-feet per year.

  Even though the overall area of the quarry + upland watershed remains the same, the relative change in percent covered by the open water body means there is more direct precipitation (vs. watershed runoff) into the system. This is because there is less total evapotranspiration and infiltration losses in the watershed because of the smaller relative area.

  Also, because there is less total "undeveloped" watershed, the amount of upland runoff into the system will be between approximately 75 and 100 acre-feet per year less.

- Leakage to groundwater will be higher in the future, because of the greater area of the new lake relative to the existing ponds. The total leakage, however, will remain an insignificant percentage of the total water budget.
- More evaporation because of the greater surface area of the new lake. The increase could be approximately 65 to 130 acre-feet per year.
- Less offsite runoff (denoted as "overflow" in the figures in **Appendix D**) in both drought average periods. The decrease could average approximately 75 acre-feet/year.

TABLE 2. ESTIMATED ANNUAL CHANGES IN WATER BUDGET

WATER-BUDGET ITEM	AVERAGE			DROUGHT		
	EXISTING	FUTURE	DIFFERENCE	EXISTING	FUTURE	DIFFERENCE
Direct Precipitation on Water Bodies	59	198	138	58	189	132
Runoff to Ponds/Lake	325	232	-93	293	218	-76
TOTAL INFLOW	400	446	46	367	423	56
Leakage	2	5	3	1	4	3
Evaporation	53	117	65	53	184	131
Overflow from Site	337	260	-77	309	235	-74
TOTAL OUTFLOW	397	449	52	364	423	59

The decrease in offsite runoff during droughts represents approximately 25% less runoff to the tributary to Middle Creek. This would represent a net 1.4% reduction flow to Middle Creek below CCA (25% less off-site discharge over 5.5% of the total Middle Creek drainage area). The reduction in off-site discharge would occur only during the wet season.

Changes in inflow from groundwater, are assumed to be minimal. Because of the nature of the geologic materials (relatively impermeable hard rock with few open fractures), it is unlikely that the new lake would act as a groundwater sink. Some groundwater seepage zones may be intercepted by the expanded excavation, but the probability that more seepage zones than are currently observed will be encountered at depth is unlikely in that fractures generally become less prevalent with depth and the existing seepage zones are associated with the contact between the weathered overburden and more competent bedrock.

WATER-QUALITY

Water quality at the Facility has been regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB) through a series of permits over the years. Prior to 2015, the Facility was regulated under National Pollution Discharge Elimination System (NPDES) permits, which were renewed every five years. The last NPDES permit was rescinded in 2015, and the

Facility currently is covered under the General Industrial Stormwater Permit (GISP). Monitoring of pond and runoff water quality was, and is, conducted under all of these permits; **Appendix F** contains summaries of the monitoring programs under the various permits.

Factors that can influence the water quality of stormwater runoff or stored water at the Facility include natural and man-made sources of particulates or chemicals. Natural sources of particulates are undeveloped or unpaved areas; currently, the main area of undeveloped runoff area is the upland watershed above the quarry area.

Potential water-quality contaminants have been described in two reports:

- Potential salinity-related water-quality issues and their control are described in the *Salinity Evaluation and Minimization Plan* (Salinity Plan).[2]
- Potential issues related to chemicals and fuels used and stored at the Facility are described in the *Spill Prevention Control and Countermeasures Plan (SPCCP)*.[3]

Because issues related to the use, storage, and control of man-made chemicals at the Facility have been discussed in the above-referenced reports, they will not be discussed herein. Evaluation of potential impacts of stormwater runoff from the Facility have not previously been presented, and are discussed herein.

Stormwater runoff from the Facility is routed through the various ponds, with all but a small portion eventually discharged from Settling Pond #3 (see description of water management, pages 4 and 5 of this report). Stormwater from Pond #4 can be routed around the Settling Ponds and discharged directly to the ditch that is tributary to Middle Creek, but this has seldom occurred (pers. comm., J. Comingdeer to B. Lampley, 2020).

Sampling of discharge from Settling Pond #3 and Middle Creek (the receiving water) was conducted between 2004 and 2014, under previous NPDES permits. Sampling of Middle Creek is no longer required under the GISP. To assess whether Facility discharge may affect water quality in Middle Creek, **Appendix E** contains data tables of water-quality testing results from Settling Pond #3, and the upstream and downstream points on Middle Creek; data were provided by CCA staff. **Table 3** summarizes the differences in upstream vs. downstream values in Middle Creek, and offsite discharge (from Settling Pond #3 only; there are no data from the direct discharge from Pond 4 because that discharge point is so infrequently used).

[2] Land Designers, Inc., February 2013, *Salinity Evaluation and Minimization Plan*.

[3] Land Designers, Inc., June 2018, *Spill Prevention Control and Countermeasures Plan (SPCCP) for Crystal Creek Aggregates, Redding, California.*

TABLE 3. COMPARISON OF WATER QUALITY OF OFFSITE DISCHARGE VS. MIDDLE CREEK

Parameter	Differences
Specific conductance (µmhos/cm)	Samples from 2008 - 2012; SP#3 always higher than M.C.; downstream M.C. usually slightly higher than upstream M.C., with one exception.
Total dissolved solids (mg/L)	Samples from 2010 - 2012; SP#3 always higher than M.C.; downstream M.C. slightly higher than upstream M.C.
pH (units)	Samples from 2004 - 2014; SP#3 usually lower than M.C.; downstream M.C. higher than upstream M.C.
Total suspended solids (mg/L)	Samples from 2004 - 2014; SP#3 sometimes higher, sometimes lower than M.C.; downstream M.C. sometimes higher than upstream M.C. and CCA runoff.
Settleable solids (mg/L)	Samples from 2004 – 2009; all points non-detected.
Turbidity	Samples from 2004 - 2014; SP#3 always higher than M.C.; downstream M.C. sometimes higher than upstream M.C.
Hardness (mg/L)	Samples from 2004 - 2012; SP#3 always higher than M.C.; downstream M.C. sometimes higher than upstream M.C.
Aluminum (µg/L)	One sample, 2012; SP#3 higher than M.C. upstream, but M.C. downstream significantly higher than SP#3 and upstream M.C.
Arsenic (µg/L)	One sample, 2006; SP#3 (0.5) higher than M.C. upstream (0.3), M.C. downstream (0.4) higher than upstream M.C.
Cadmium (µg/L)	One sample, 2006; SP#3 and M.C. upstream nondetected, M.C. downstream (1.45) higher than upstream M.C.
Chromium (µg/L)	One sample, 2006; SP#3 (1.5) higher than M.C. upstream (0.9), M.C. downstream (1.1) higher than upstream M.C.
Copper (µg/L)	Two samples, 2006; SP#3 (2.5-3.9) higher than M.C. upstream (1.4-1.8), M.C. downstream the same as upstream M.C.
Iron (µg/L)	One sample, 2012; SP#3 higher than M.C. upstream, but M.C. downstream significantly higher than upstream M.C.
Lead (µg/L)	Two samples, 2006 & 2012; SP#3 lower than M.C. upstream.
Manganese (µg/L)	One sample, 2012; SP#3 (112) higher than M.C. upstream (8.1), M.C. downstream (84.4) higher than upstream M.C.
Mercury (µg/L)	One sample, 2006; SP#3 (2.05) lower than M.C. upstream (2.61), M.C. downstream (2.49) lower than upstream M.C.
Nickel (µg/L)	One sample, 2006; SP#3 (0.8) higher than M.C. upstream (0.3), M.C. downstream the same as upstream M.C.
Silver (µg/L)	One sample, 2006; SP#3 (0.8) lower than M.C. upstream and downstream.
Zinc (µg/L)	Samples from 2005 - 2009; SP#3 always higher than M.C.; downstream M.C. sometimes higher and sometimes lower than upstream M.C.

The higher pH sometimes observed in the downstream vs. upstream samples from Middle Creek suggests that there are influences other than CCA runoff on the downstream water quality. Because the CCA runoff samples usually are of lower pH than the Middle Creek samples, it is not possible that the CCA runoff is causing the higher pH in the downstream samples.

Likewise, TSS in downstream samples was periodically higher than in both CCA runoff and upstream samples. This implies an additional source of TSS beyond CCA runoff.

Hardness was always higher in the CCA runoff than in the upstream Middle Creek samples, and the downstream Middle Creek samples were higher than the upstream samples. This suggests that CCA could have affected the hardness in Middle Creek, but it is not clear that the upstream vs. downstream differences can be attributed solely to CCA in light of the evidence that there are other influences, also.

The limited data on metals suggests that there was generally no impact on Middle Creek from CCA runoff. If there were impacts, they were slight. Note that metals derived from runoff from the existing mines in the upland watershed have been accounted for in the historic data.

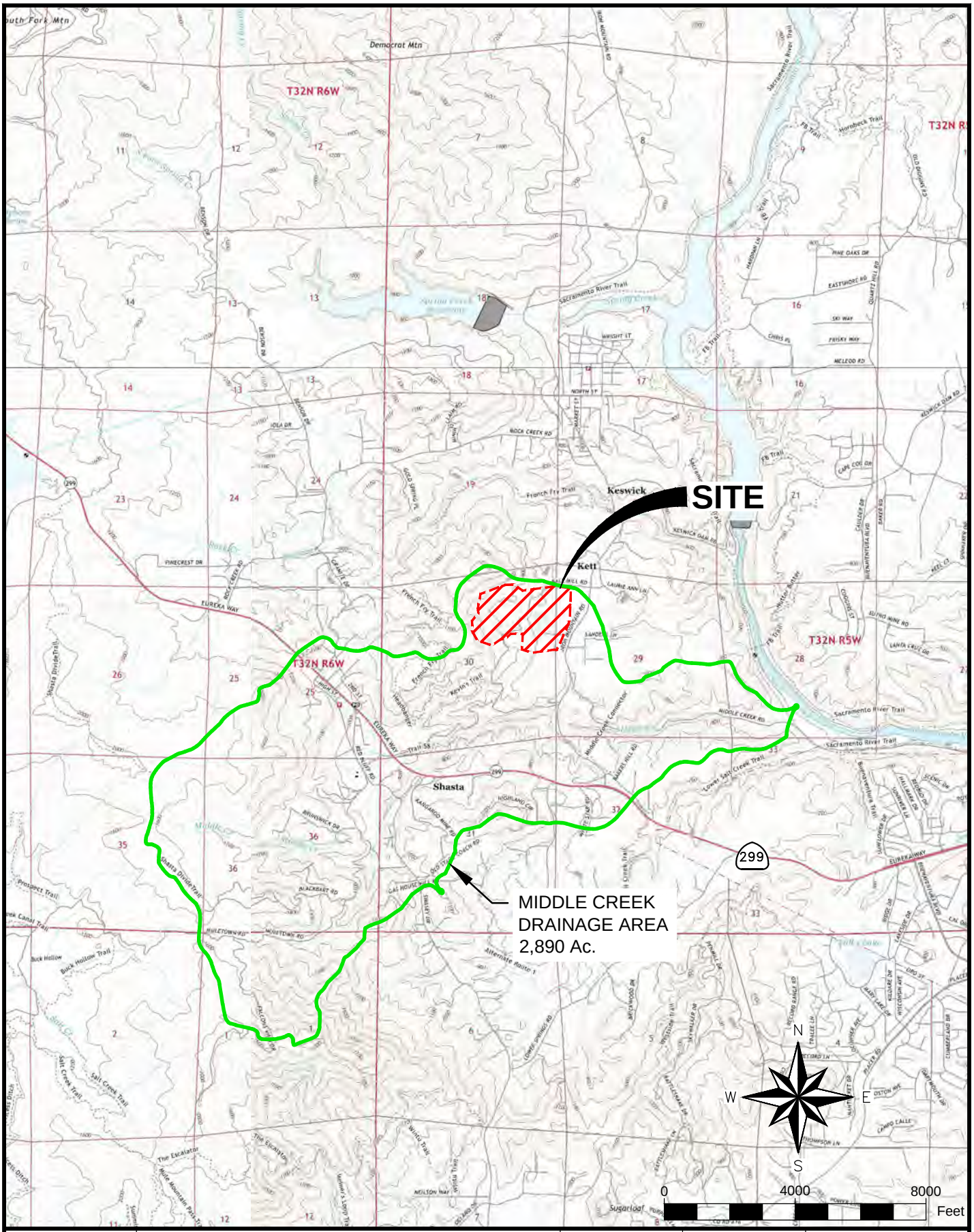
Therefore, it does not appear that historic runoff from CCA has adversely affected surface-water quality in Middle Creek, and there is evidence of other influences that affect the creek's water quality.

Water management and stormwater-runoff control in the future will be done similarly to the current operations. During each phase, runoff from the disturbed areas will be routed to temporary detention basins within the phase footprint, as has been done historically and currently.

Groundwater inflow into each phase also will be routed to the temporary detention basins, as currently done. Once excavation in a phase proceeds such that deeper basins are developed, groundwater seepage into the basin will be pumped out for discharge to either temporary basins or existing ponds. Groundwater production from mined areas is not expected to be greater than current seepage rates because as the quarry is deepened, the potential for groundwater occurrence decreases.

Overall, there will be less offsite discharge once the new lake is completed than currently occurs (**Table 2**, page 12).

Therefore, it is unlikely that future operations will adversely affect offsite runoff.



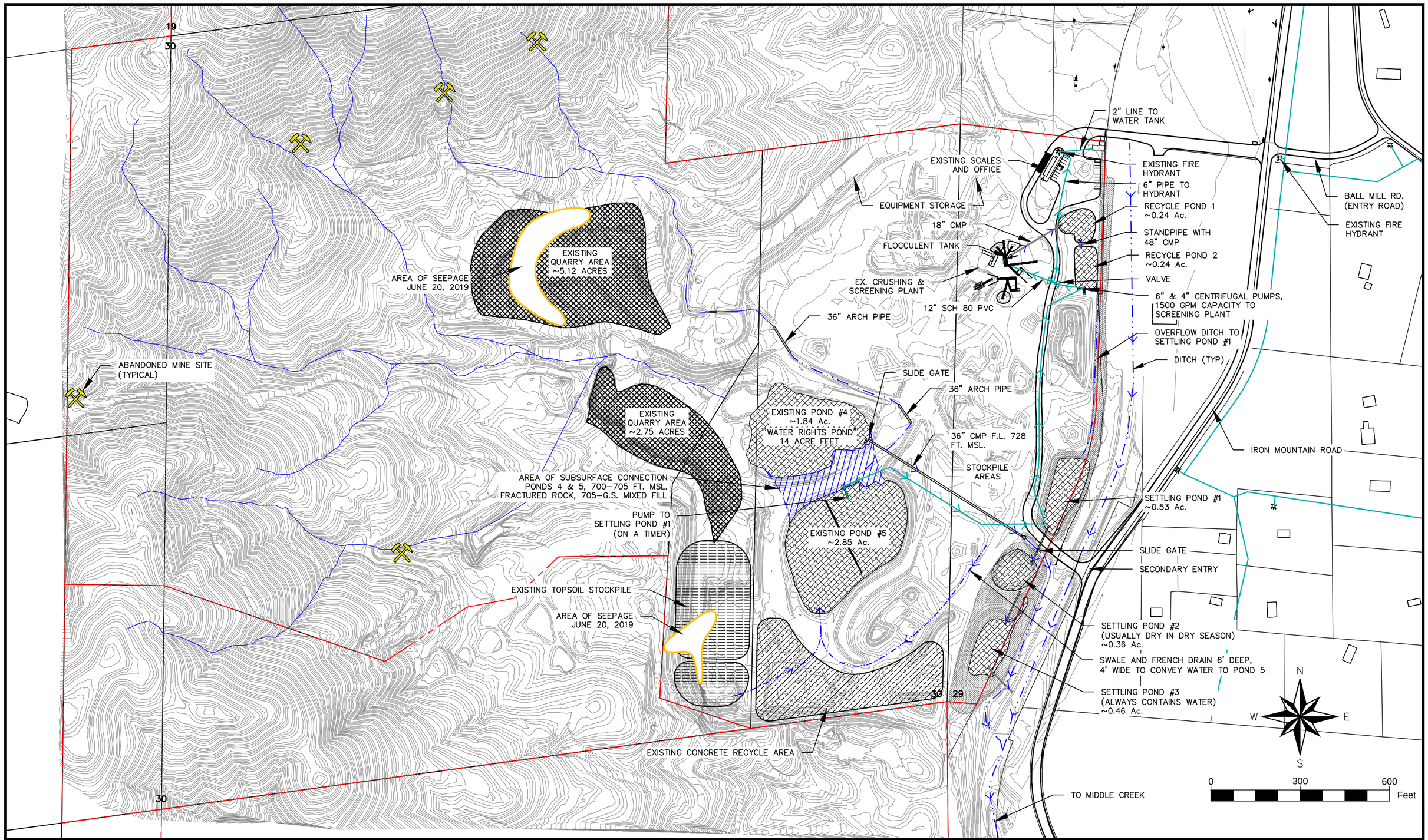
LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

SITE LOCATION MAP

MAP ADAPTED FROM U.S.G.S. 7.5–MINUTE TOPOGRAPHIC QUADS: REDDING, WHISKEYTOWN, SHASTA DAM AND IGO, CA.

PROJECT NAME:	PROJECT NO:	DATE:
QUARRY ANALYSIS	006005.01	5/1/2020
CLIENT:	DRAWN BY:	FIGURE 1
CRYSTAL CRK. AGG.	J. BEERS	
SCALE:	CHECKED BY:	
1" = 4,000'	B. LAMPLEY	

p:\006005.00_crystal creek aggregate\site_loc.dwg J.R.B. 5/1/2020



LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

EXISTING SITE PLAN SHOWING DRAINAGES AND POND AREAS

QUARRY ANALYSIS

CRYSTAL CREEK AGGREGATE

PROJECT NO: 006005.01	SCALE: 1" = 300'
DRAWN BY: J. BEERS	DATE: 12/2/2020
CHECKED BY: B. LAMPLEY	FIGURE 2

p:\006005.00_crystal creek aggregate\site5.dwg J.R.B. 12/2/2020

19
30
EQUIPMENT STORAGE
EXISTING SCALES AND OFFICE
18" CMP
EXISTING FIRE HYDRANT
RECYCLE POND 1
BALL MILL RD. (ENTRY ROAD)
EXISTING FIRE HYDRANT
FLOCCULENT TANK
STANDPIPE WITH 48" CMP
EX. CRUSHING & SCREENING PLANT
RECYCLE POND 2
6" & 4" CENTRIFUGAL PUMPS, 1500 GPM CAPACITY TO SCREENING PLANT
12" SCH 80 PVC
36" ARCH PIPE
OVERFLOW DITCH TO SETTLING POND #1
ABANDONED MINE SITE (TYPICAL)
PROPOSED MINE EXPANSION
BOTTOM ELEVATION: 640.00 FT. MSL
WATER SURFACE ELEVATION: 734 FT. MSL
36" ARCH PIPE
EXISTING POND #4 "WATER RIGHTS POND" 14 ACRE FEET
36" CMP F.L. 728 FT. MSL.
IRON MOUNTAIN ROAD
STOCKPILE AREAS
SETTLING POND #1
EXISTING POND #5
SLIDE GATE
SECONDARY ENTRY
AREA OF SUBSURFACE CONNECTION PONDS 4 & 5, 700–705 FT. MSL. FRACTURED ROCK, 705–G.S. MIXED FILL
EXISTING TOPSOIL STOCKPILE
"SLUDGE STORAGE"
SETTLING POND #2 (USUALLY DRY IN DRY SEASON)
SWALE AND FRENCH DRAIN 6' DEEP, 4' WIDE TO CONVEY WATER TO POND 5
SETTLING POND #3 (ALWAYS CONTAINS WATER)
30
29
30
EXISTING CONCRETE RECYCLE AREA
TO MIDDLE CREEK
N
W
E
S
0
300
600
Feet

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

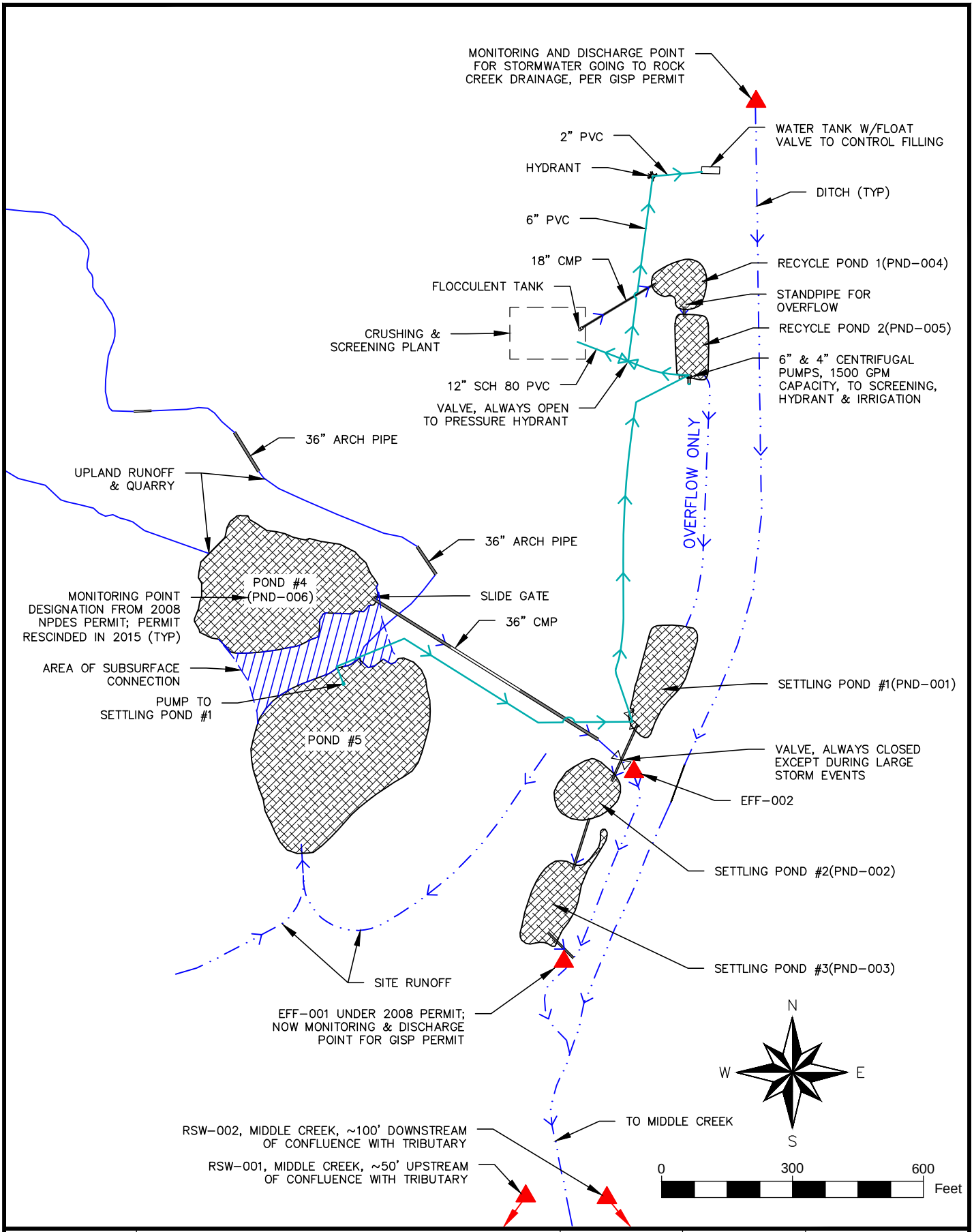
PROPOSED SITE PLAN

QUARRY ANALYSIS

CRYSTAL CREEK AGGREGATE

PROJECT NO: 006005.01	SCALE: 1" = 300'
DRAWN BY: J. BEERS	DATE: 12/6/2022
CHECKED BY: B. LAMPLEY	FIGURE 3

p:\006005.00_crystal creek aggregate\site_prop3.dwg J.R.B. 12/6/2022

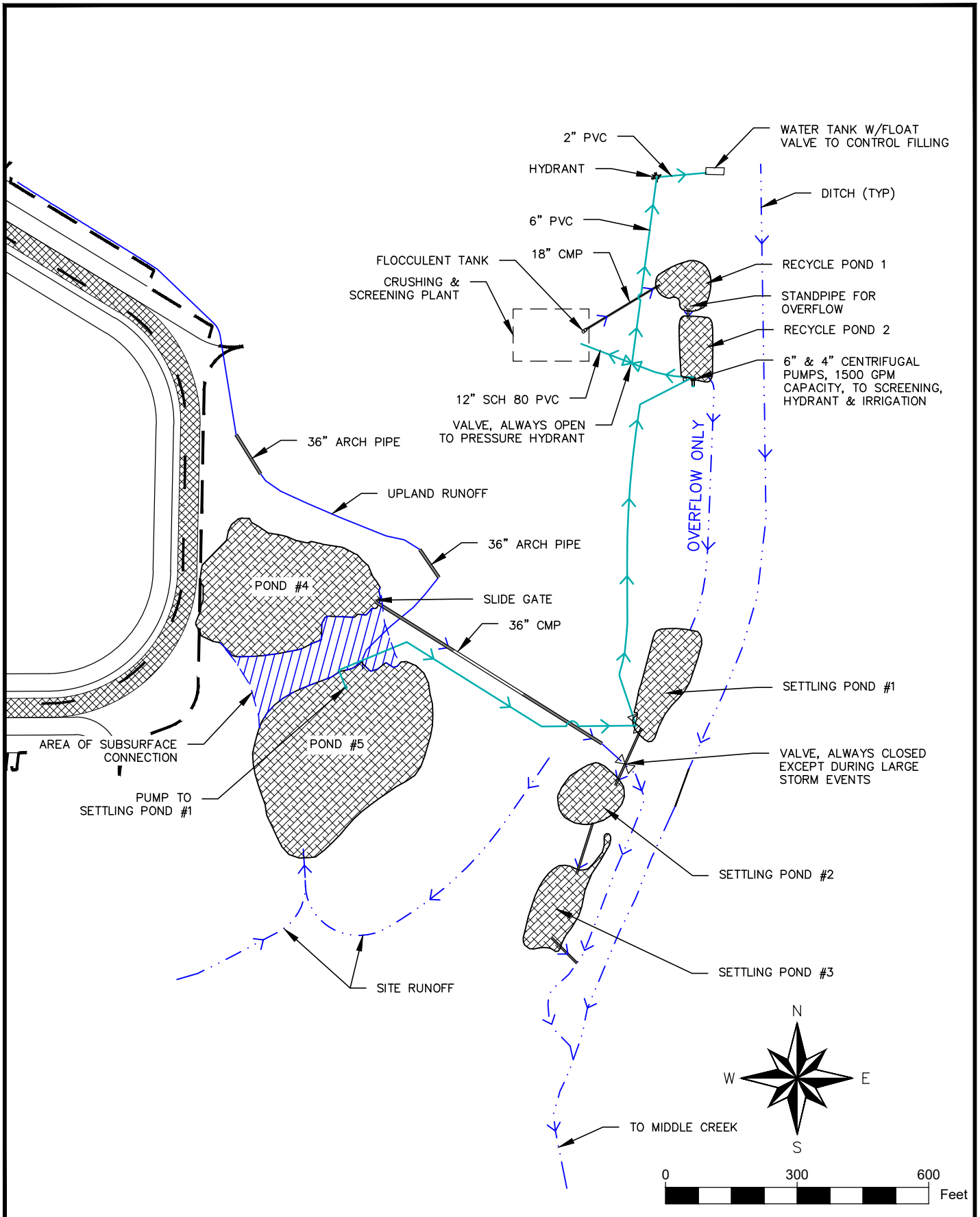


LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

EXISTING DRAINAGE/WATER MANAGEMENT SCHEMATIC

PROJECT NAME:	PROJECT NO:	DATE:
QUARRY ANALYSIS	006005.01	12/1/2020
CLIENT:	DRAWN BY:	FIGURE 4
C.C. AGG.	J. BEERS	
SCALE:	CHECKED BY:	
1" = 300'	B. LAMPLEY	

p:\006005.00_crystal creek aggregate\site5_drain_schem_ex.dwg J.R.B. 12/1/2020



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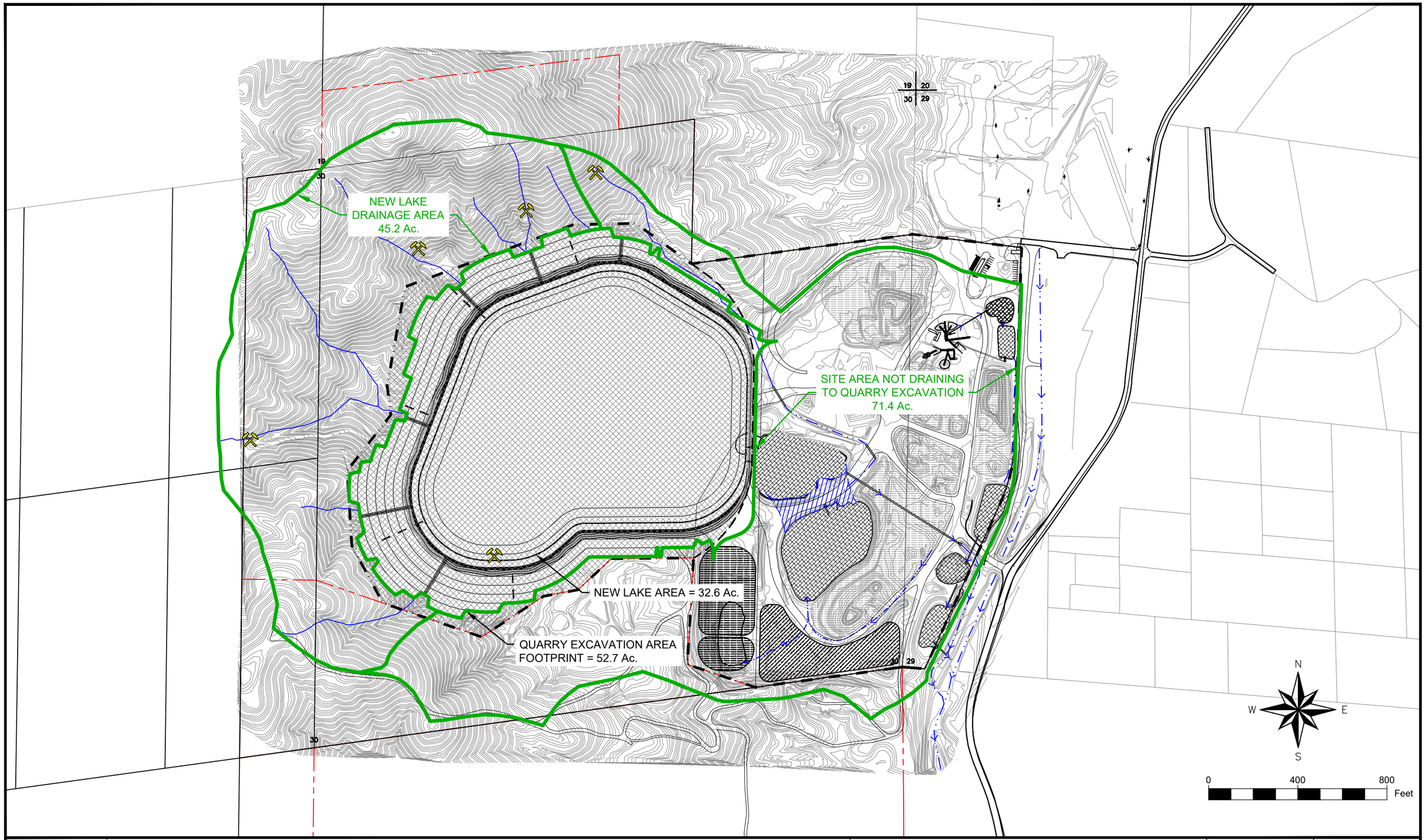
PROPOSED DRAINAGE/WATER MANAGEMENT SCHEMATIC

PROJECT NAME:	PROJECT NO:	DATE:
QUARRY ANALYSIS	006005.01	12/6/2022
CLIENT: C.C. AGG.	DRAWN BY: J. BEERS	FIGURE 5
SCALE: 1" = 300'	CHECKED BY: B. LAMPLEY	

p:\006005.00_crystal creek aggregate\site6_drain_schem.dwg J.R.B. 12/6/2022



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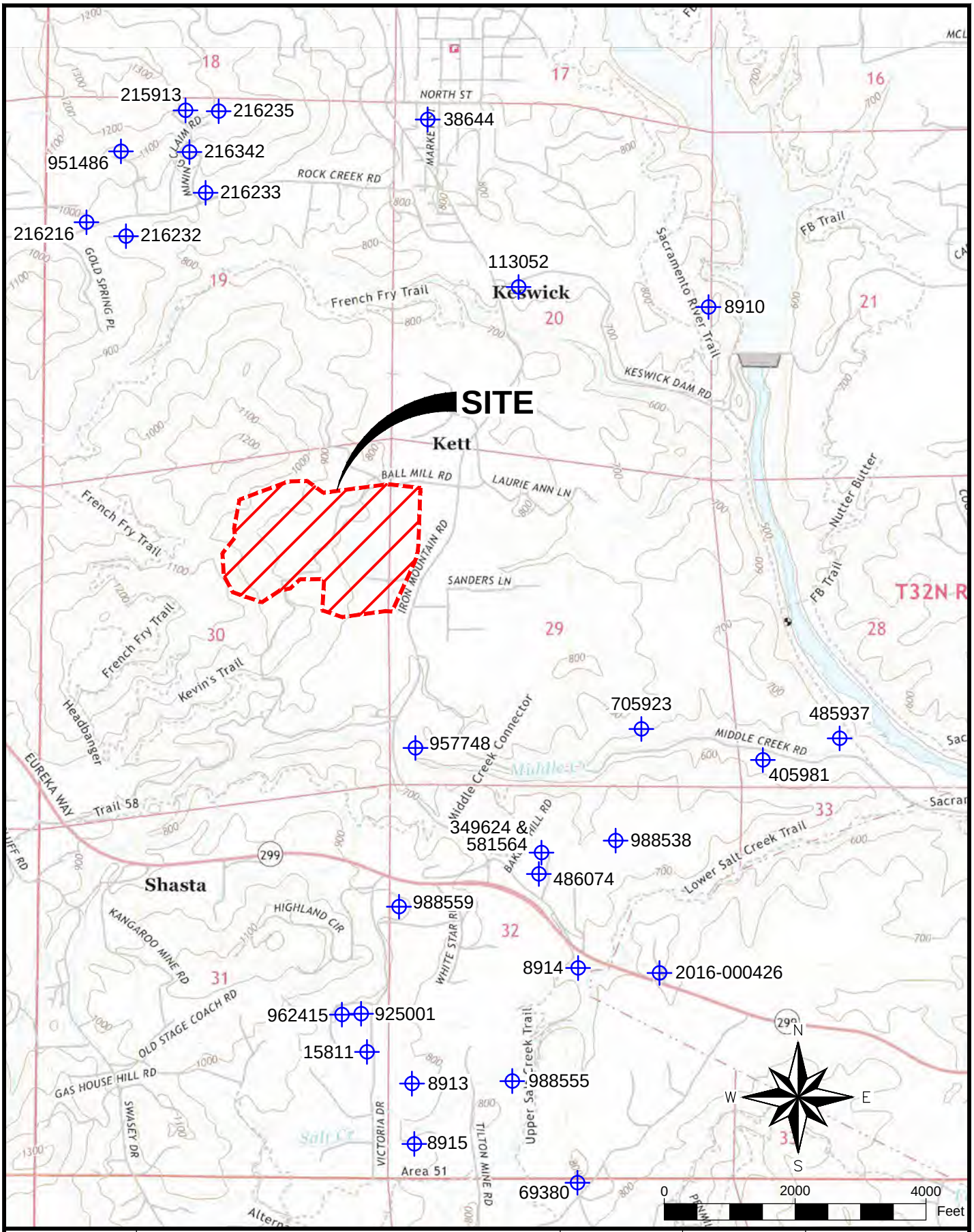
GENERAL SITE DRAINAGE AREAS

QUARRY ANALYSIS

CRYSTAL CREEK AGGREGATE

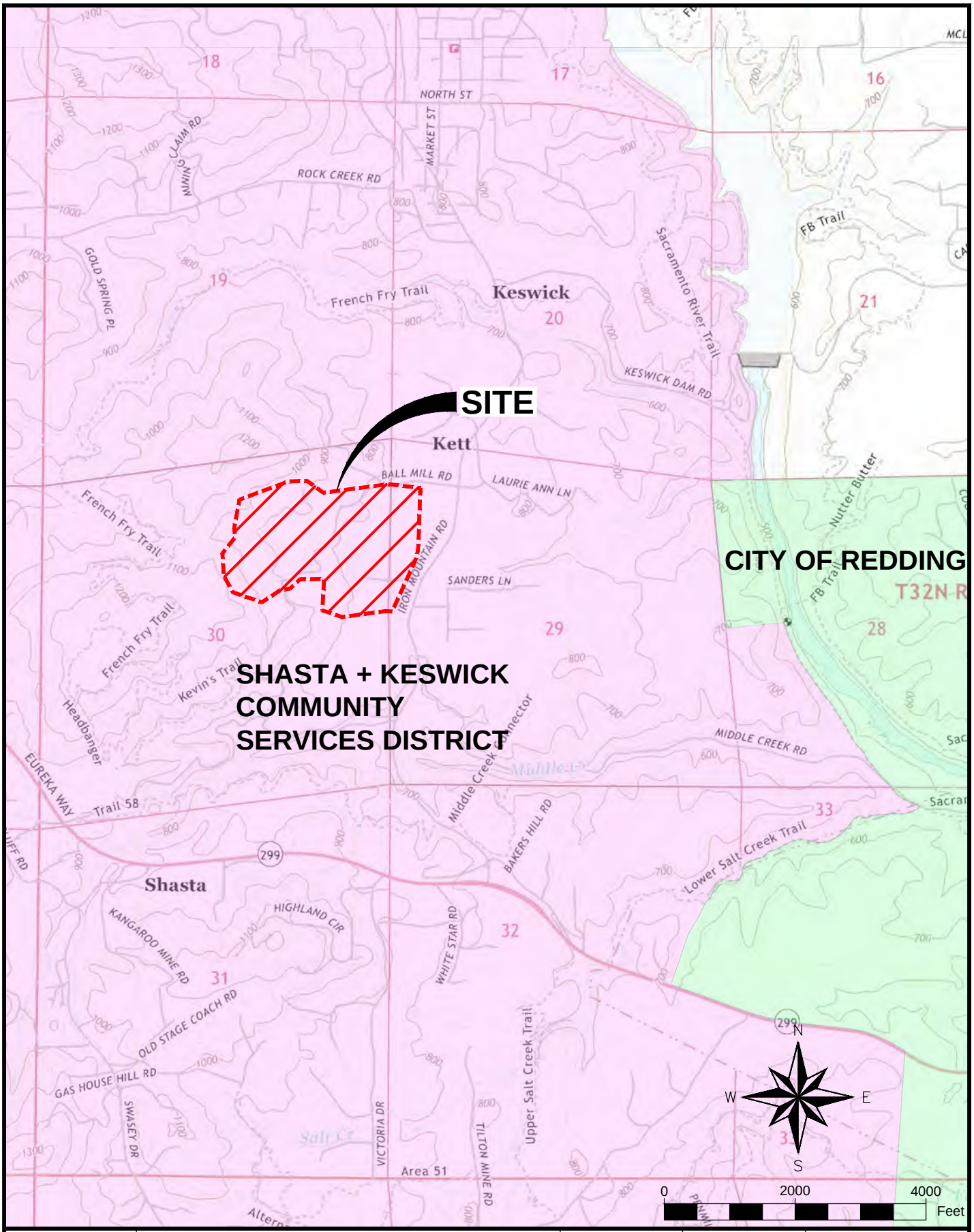
PROJECT NO: 006005.01	SCALE: 1" = 400'
DRAWN BY: J. BEERS	DATE: 12/6/2022
CHECKED BY: B. LAMPLEY	FIGURE 6

p:\006005.00_crystal creek aggregate\site_drain3.dwg J.R.B. 12/6/2022



LAWRENCE & ASSOCIATES ENGINEERS & GEOLOGISTS	WELLS OF RECORD IN THE VICINITY	PROJECT NAME: QUARRY ANALYSIS	PROJECT NO: 006005.01
		CLIENT: CRYSTAL CRK. AGG.	DRAWN BY: J. BEERS
		SCALE: 1" = 2,000'	CHECKED BY: B. LAMPLEY
		DATE: 11/20/2020	FIGURE 7

p:\006005.00_crystal creek aggregate\wells_vicinity.dwg J.R.B. 11/20/2020



LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

VICINITY POTABLE WATER SUPPLIERS

PROJECT NAME:	PROJECT NO:	DATE:
QUARRY ANALYSIS	006005.01	11/20/2020
CLIENT:	DRAWN BY:	
CRYSTAL CRK. AGG.	J. BEERS	FIGURE 8
SCALE:	CHECKED BY:	
1" = 2,000'	B. LAMPLEY	

p:\006005.00_crystal creek aggregate\water_suppliers.dwg J.R.B. 11/20/2020

CUMULATIVE DEPARTURE GRAPH & DATA

Water Year	Precipi-tation	Departure From Average	Cumulative Departure
	inches	inches	inches
1960			0
1961	47.53	-13.91	-13.91
1962	55.41	-6.03	-19.94
1963	61.45	0.01	-19.93
1964	38.35	-23.09	-43.02
1965	73.36	11.92	-31.10
1966	51.14	-10.30	-41.40
1967	73.86	12.42	-28.98
1968	46.17	-15.27	-44.25
1969	76.44	15.00	-29.25
1970	70.92	9.48	-19.77
1971	65.06	3.62	-16.15
1972	36.59	-24.85	-41.00
1973	67.62	6.18	-34.82
1974	99.52	38.08	3.26
1975	62.49	1.05	4.31
1976	38.88	-22.56	-18.25
1977	27.05	-34.39	-52.64
1978	91.89	30.45	-22.19
1979	40.3	-21.14	-43.33
1980	60.51	-0.93	-44.26
1981	58.41	-3.03	-47.29
1982	92.13	30.69	-16.60
1983	122.4	60.96	44.36
1984	61.79	0.35	44.71
1985	46.11	-15.33	29.38
1986	75.55	14.11	43.49
1987	36.8	-24.64	18.85
1988	50.88	-10.56	8.29
1989	57.37	-4.07	4.22
1990	37.72	-23.72	-19.50
1991	34.44	-27.00	-46.49
1992	52.81	-8.63	-55.12
1993	77.15	15.71	-39.41
1994	39.87	-21.57	-60.98
1995	106.54	45.10	-15.88
1996	65.95	4.51	-11.37
1997	76.29	14.85	3.48
1998	115.36	53.92	57.40
1999	59.51	-1.93	55.47
2000	73.08	11.64	67.11
2001	44.83	-16.61	50.50
2002	59.02	-2.42	48.08
2003	74.61	13.17	61.25
2004	57.64	-3.80	57.45
2005	65.8	4.36	61.81
2006	88.49	27.05	88.86
2007	39.82	-21.62	67.24
2008	36.74	-24.70	42.54
2009	59.36	-2.08	40.46
2010	75.51	14.07	54.53
2011	73.09	11.65	66.18
2012	45.94	-15.50	50.68
2013	43.57	-17.87	32.81
2014	34.42	-27.02	5.79
2015	52.74	-8.70	-2.91
2016	63.78	2.34	-0.57
2017	90.05	28.61	28.04
2018	36.65	-24.79	3.25
2019	87.46	26.02	29.27
2020	32.17	-29.27	0.00

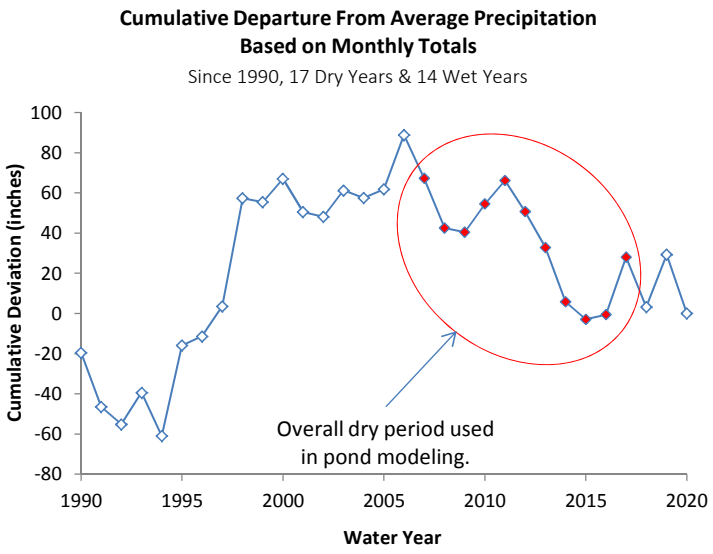
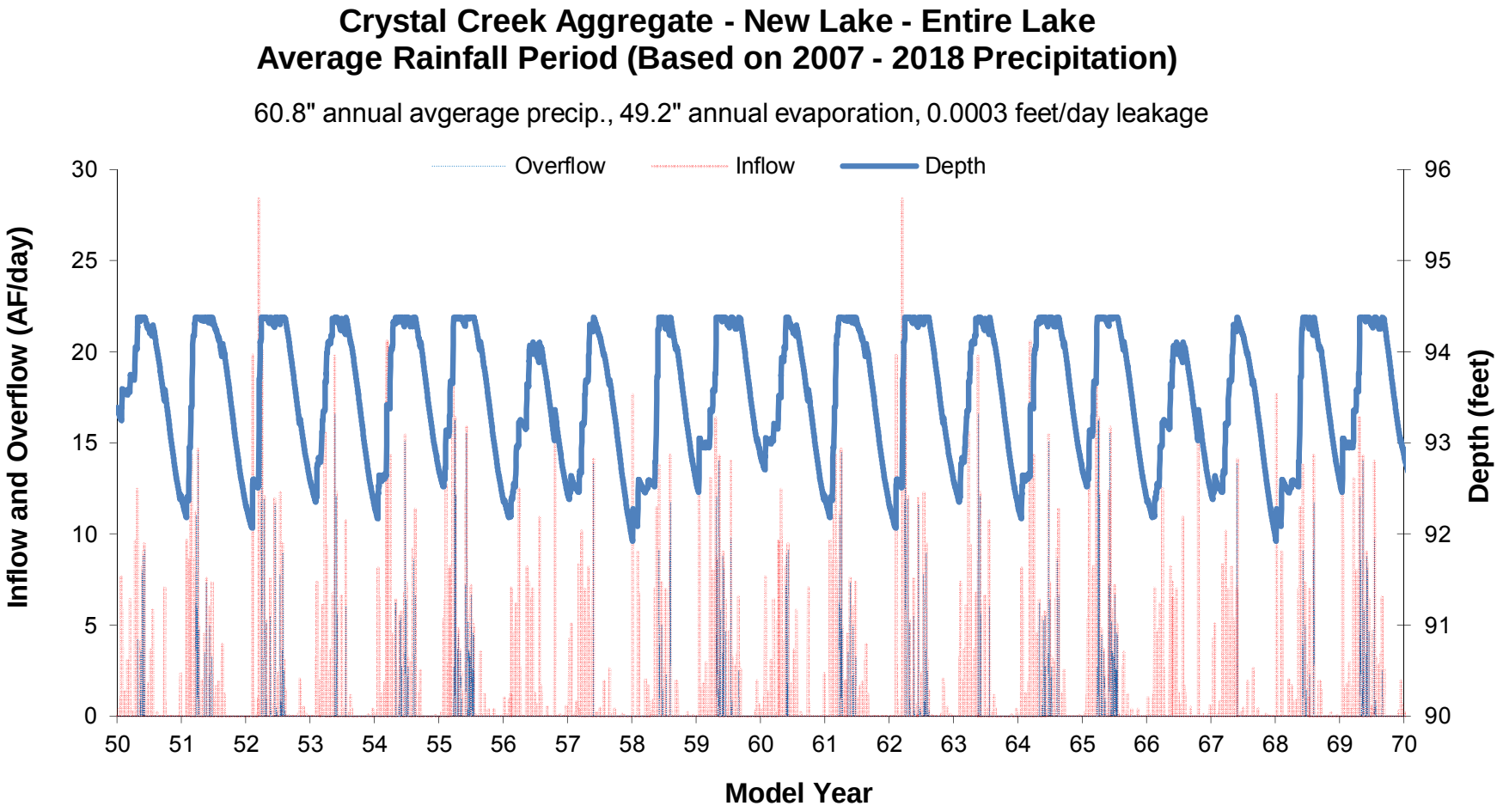


FIGURE 9


Crystal Creek Aggregate - New Lake - Entire Lake
Average Rainfall Period (Based on 2007 - 2018 Precipitation)
60.8" annual avgerage precip., 49.2" annual evaporation, 0.0003 feet/day leakage
Overflow
Inflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
Model Year
0
5
10
15
20
25
30
90
91
92
93
94
95
96
50
51
52
53
54
55
56
57
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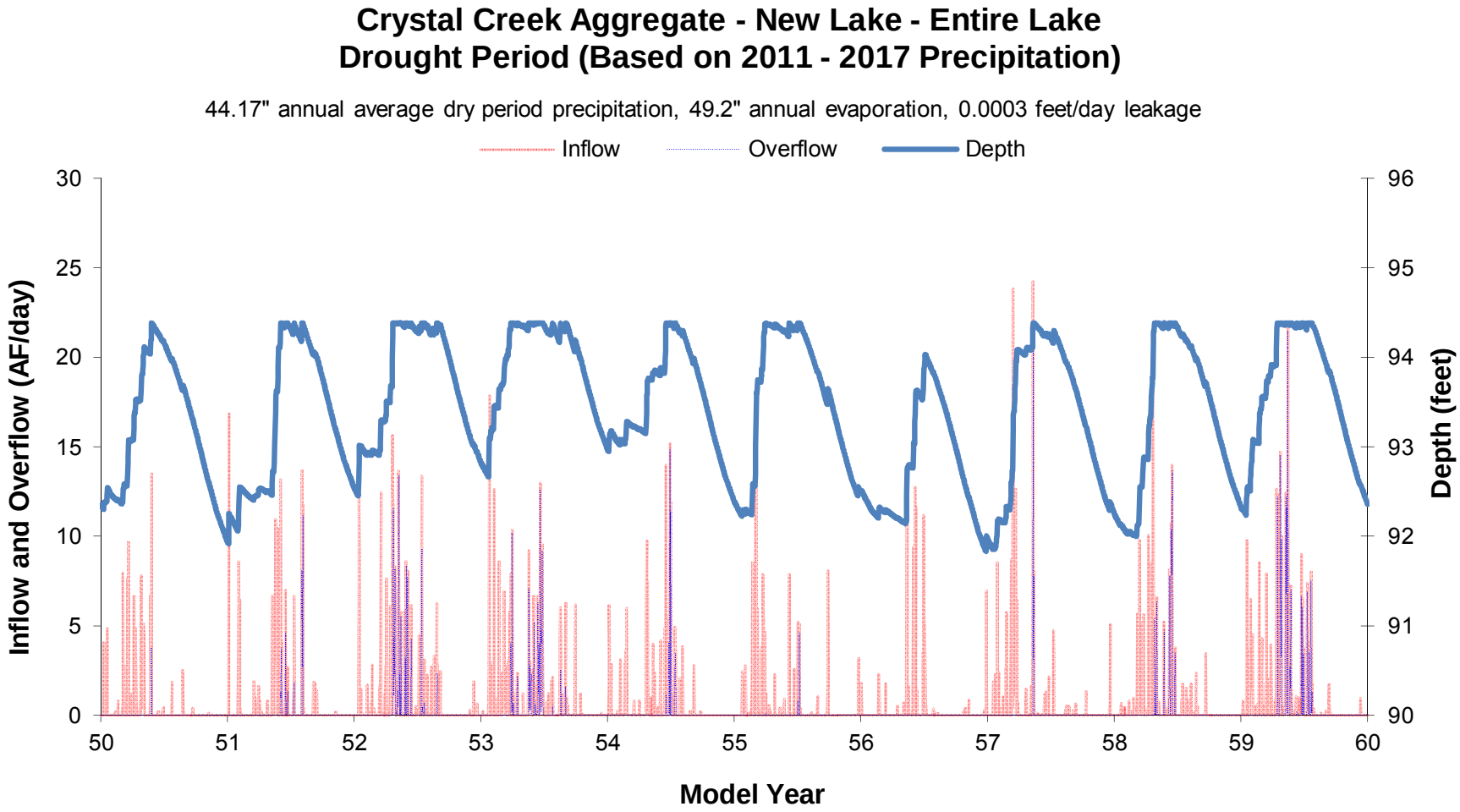
69
70

FIGURE 10


Crystal Creek Aggregate - New Lake - Entire Lake
Drought Period (Based on 2011 - 2017 Precipitation)
44.17" annual average dry period precipitation, 49.2" annual evaporation, 0.0003 feet/day leakage
Inflow
Overflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
Model Year
0
5
10
15
20
25
30
90
91
92
93
94
95
96
50
51
52
53
54
55
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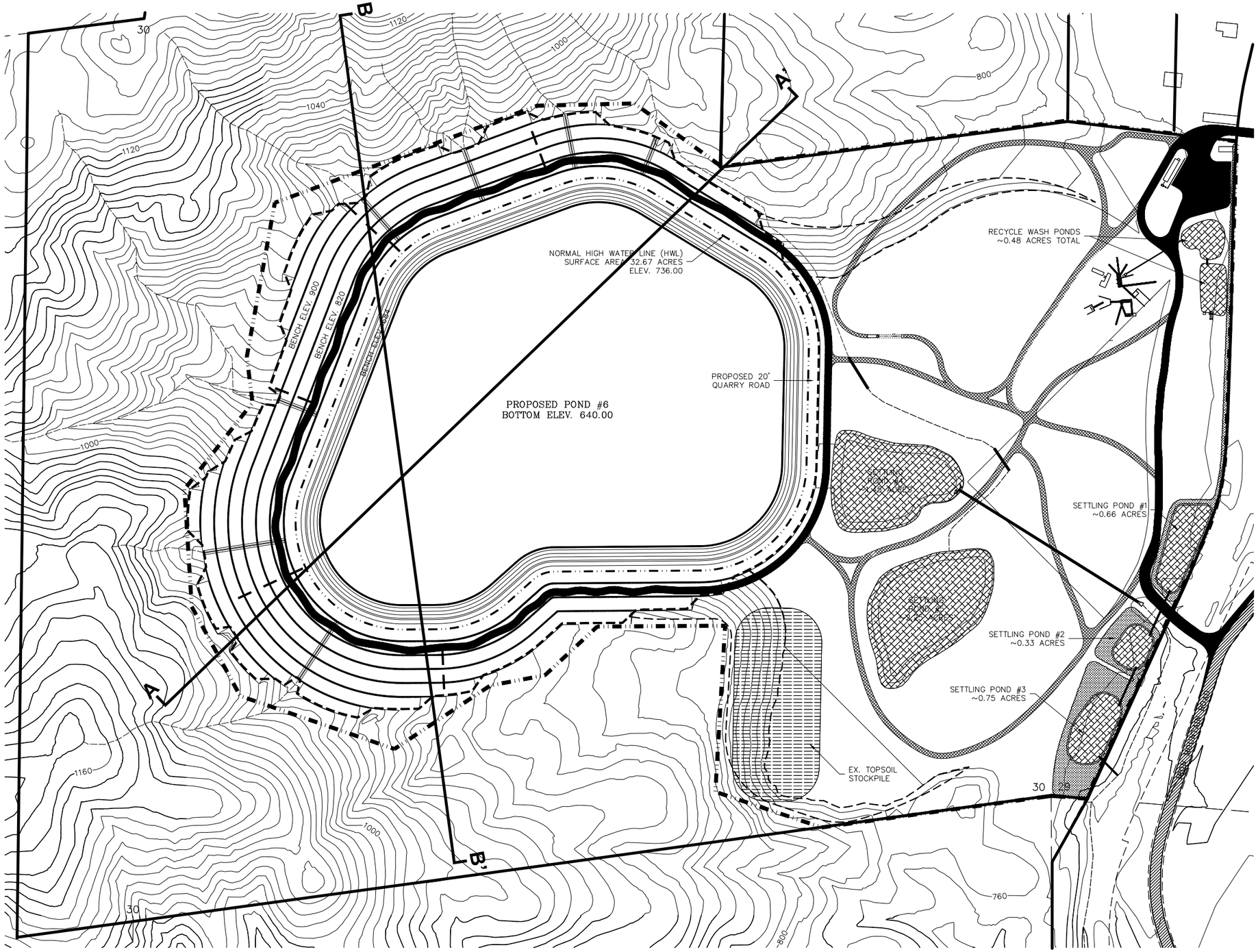
59
60

FIGURE 11

APPENDIX A

GEOLOGIC & LINEATION MAPS

FROM: BAJADA GEOSCIENCES, GEOTECHNICAL REPORT



Map from Duane Miller Engineering (2020)

B B' Cross Sections
see Plates 5.1 & 5.2

0 150 300

Scale: 1"=300'
1:3,600

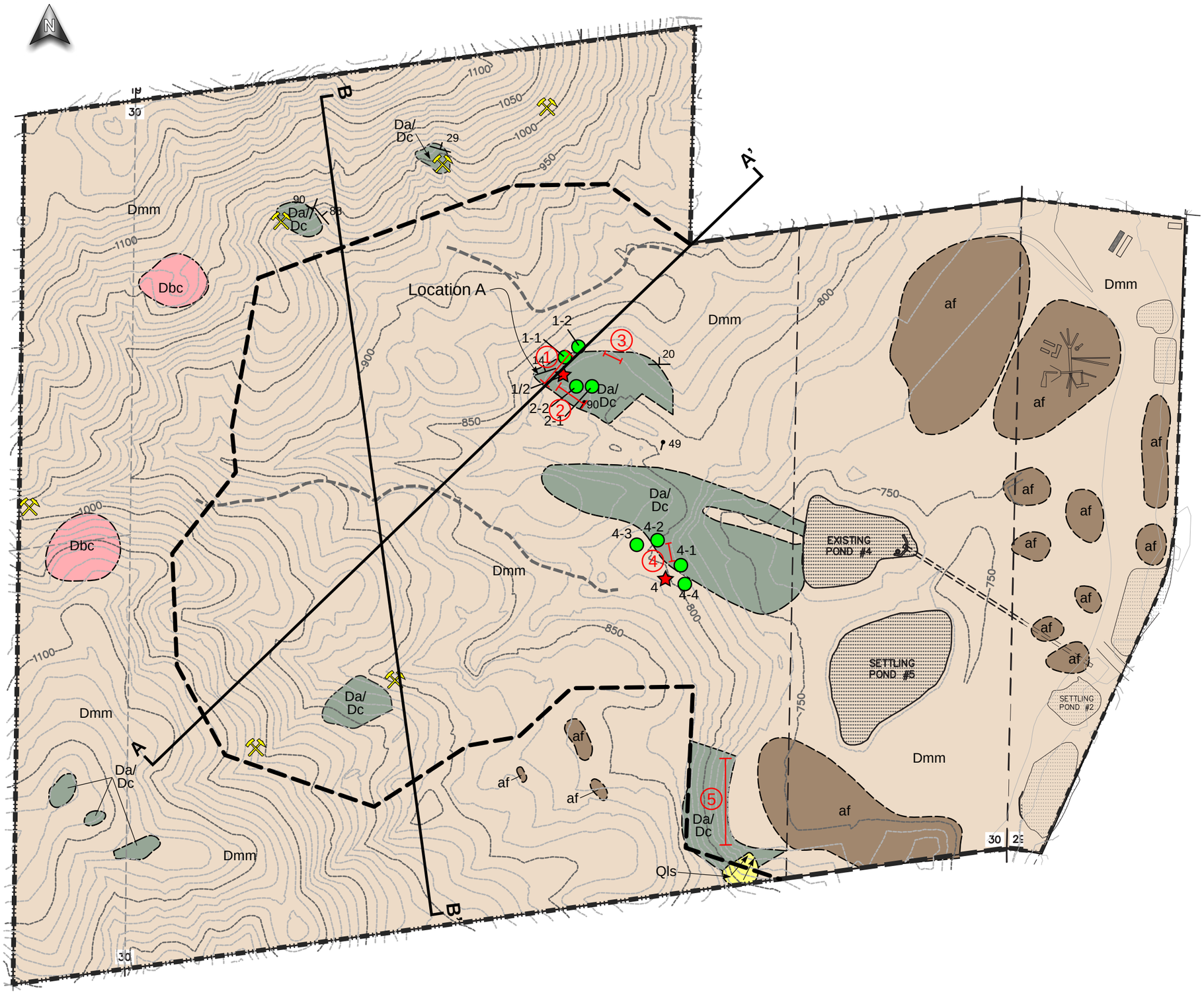
PROPOSED MINE CONFIGURATION

Crystal Creek Aggregates Quarry
Amendment to Reclamation Plan
Proposed Quarry Expansion
Shasta County, California

Plate No. 2

BAJADA Geosciences, Inc.

Project no. 1901.0114



af — Artificial Fill/Stockpiles

Qls — Landslide Deposits

Dmm — Mule Mountain Stock

Dbc — Balaklala Rhyolite

Da/Dc — Epidote/Chloritic Amphibolite, Copley Greenstone, & Gabbro

Abandoned Mine Site

Formation Contact
Dashed where inferred

75 — Fault/Lineation
Dashed where inferred, ball & bar indicate measured fault plane dip direction & magnitude

20 — Strike & Dip Orientation at Contacts & Marker Beds

4-4 — Sample location for rock unconfined compressive strength

4 — Sample location for Naturally Occurring Asbestos (NOA)

5 — Sites 1 through 6 - areas where discontinuities were mapped during this study

0 150 300

Scale: 1”=300’
1:3,600

Base map from Duane K. Miller Civil Engineer (2020)

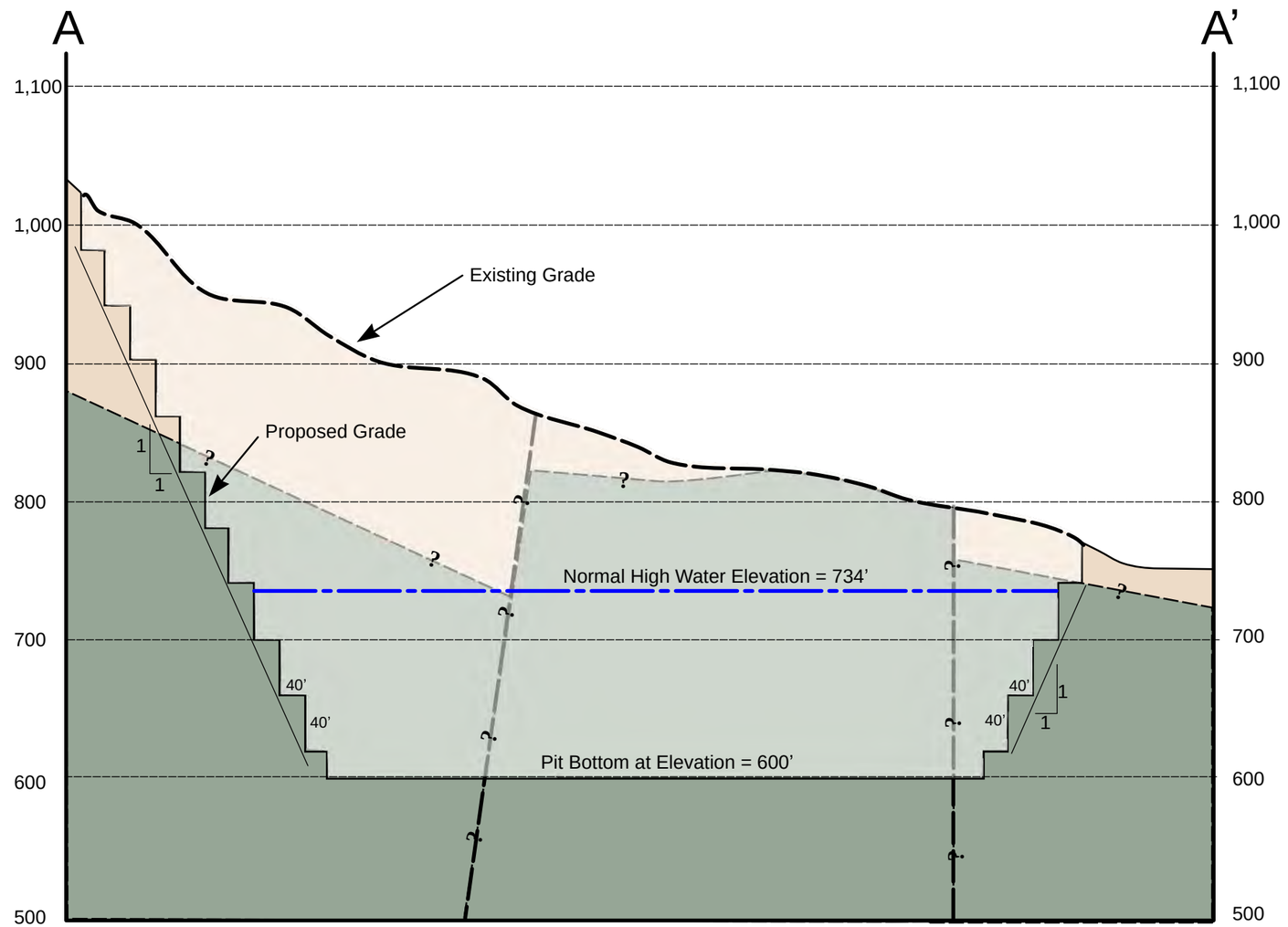
GEOLOGIC MAP

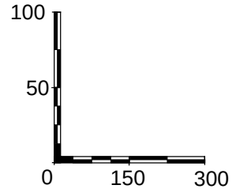
Crystal Creek Aggregates Quarry
Amendment to Reclamation Plan
Proposed Quarry Expansion
Shasta County, California

Plate No. 3

BAJADA Geosciences, Inc.

Project no. 1901.0114

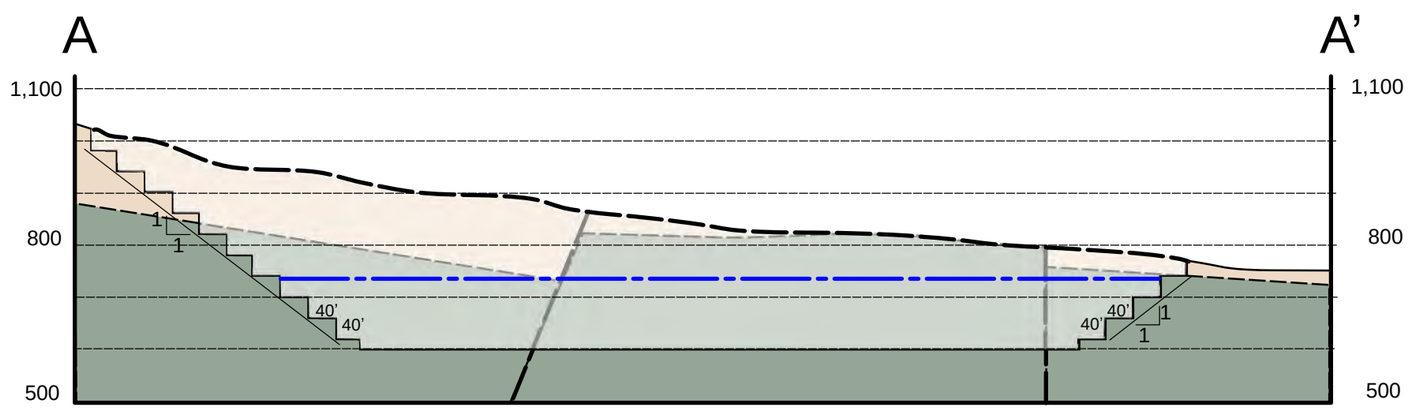


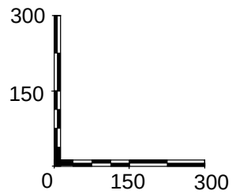


Scale:
Horizontal:1”=300’
Vertical: 1”=100’
Vertical Exaggeration 3x

af	Artificial Fill/Stockpiles
Qls	Landslide Deposits
Dmm	Mule Mountain Stock
Dbc	Balaklala Rhyolite
Da/ Dc	Epidote/Chloritic Amphibolite & Copley Greenstone

No subsurface information was available for this quarry. Projections of subsurface geological conditions are conjecture and subject to change as the quarry is mined and further mapping performed.





Scale:
Horizontal:1”=300’
Vertical: 1”=300’
No Vertical Exaggeration

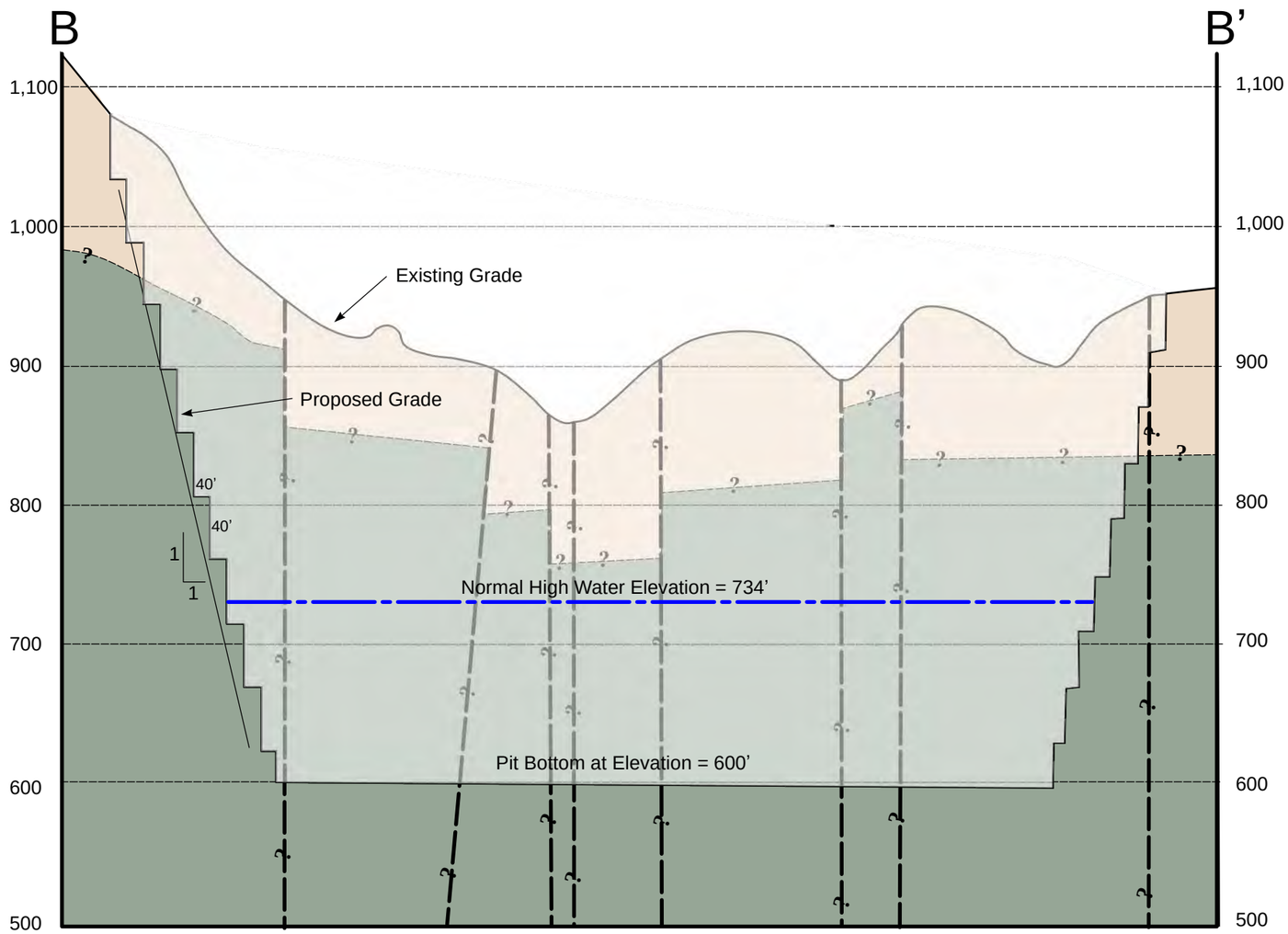
GEOTECHNICAL SECTION A-A’

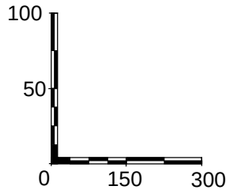
Crystal Creek Aggregate Quarry
Amendment to Reclamation Plan
Proposed Quarry Expansion
Shasta County, California

Plate No. 5.1

BAJADA Geosciences, Inc.

Project no. 1901.0114





Scale:
Horizontal:1”=300’
Vertical: 1”=100’
Vertical Exaggeration 3x

af	Artificial Fill/Stockpiles
Qls	Landslide Deposits
Dmm	Mule Mountain Stock
Dbc	Balaklala Rhyolite
Da/ Dc	Epidote/Chloritic Amphibolite & Copley Greenstone

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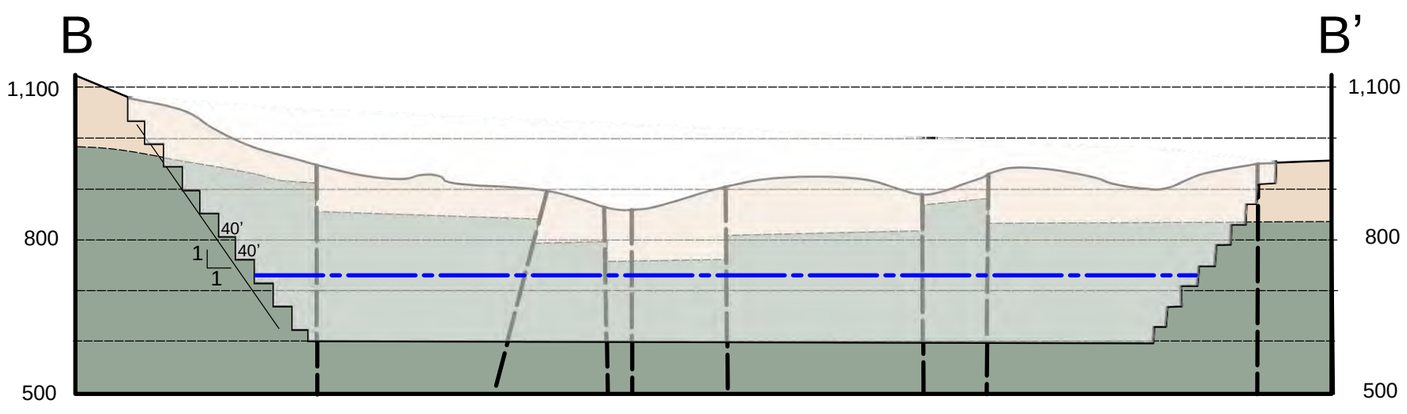
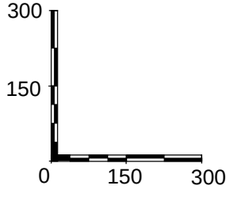




Scale:
Horizontal:1”=300’
Vertical: 1”=300’
No Vertical Exaggeration

GEOTECHNICAL SECTION B-B’

Crystal Creek Aggregate Quarry
Amendment to Reclamation Plan
Proposed Quarry Expansion
Shasta County, California

Plate No. 5.2

BAJADA Geosciences, Inc.

Project no. 1901.0114

APPENDIX B

VICINITY WELL LOGS

32N/05W-19 M

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 215953

Not[illegible] Intent No.

Loca[illegible]ermit No. or Date 8306

State Well No.

Other Well No.

Off Rock Creek Road

(2) LOCATION OF WELL (See instructions):

County Shsta Owner's Well Number WW-1

Well address if different from above Gold Rush Road Keswick

Township 32 N Range 5 W Section 19

Distance from cities, roads, railroads, fences, etc.

Parcel# 065-220-49

See Map Attached

WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic ☐
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other Monitoirng ☒

(5) EQUIPMENT:

Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:

Yes ☐ No ☒ Size
Diameter of bore 6 1/8
Packed from to ft.

(7) CASING INSTALLED:

Steel ☒ Plastic ☒ Concrete ☐

(8) PERFORATIONS:

Type of perforation or size of screen

	From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
St	0	25	6 5/8	.188	139	159	
PVC	0	150	4	40			

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 20 ft.
Were strata sealed against pollution? Yes ☐ No ☐ Interval ft.
Method of sealing Bentonite

(10) WATER LEVELS:

Depth of first water, if known 40 85 ft.
Standing level after well completion ft.

(11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? driller
Type of test Pump ☐ Bailer ☐ Air lift ☒
Depth to water at start of test 40 ft. At end of test 40 ft
Discharge 30 gal/min after 1½ hours Water temperature
Che[illegible] analysis made? Yes ☐ No ☒ If yes, by whom?
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG:

Total depth 160 ft. Depth of completed well 159 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	80	Overburden Rddish dirt
80	87	Blue Shale
87	100	Blue shale
100	123	Fractured blue shale
123	130	Hard gray shale
130	140	Color change brown
140	150	Blue gray shale
150	160	Hard blue gray shale

APR 08 1988

Work started 2-8- 19 88 Completed 2-9- 19 88

WELL DRILLER'S STATEMENT:

01382

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED (Well Driller)

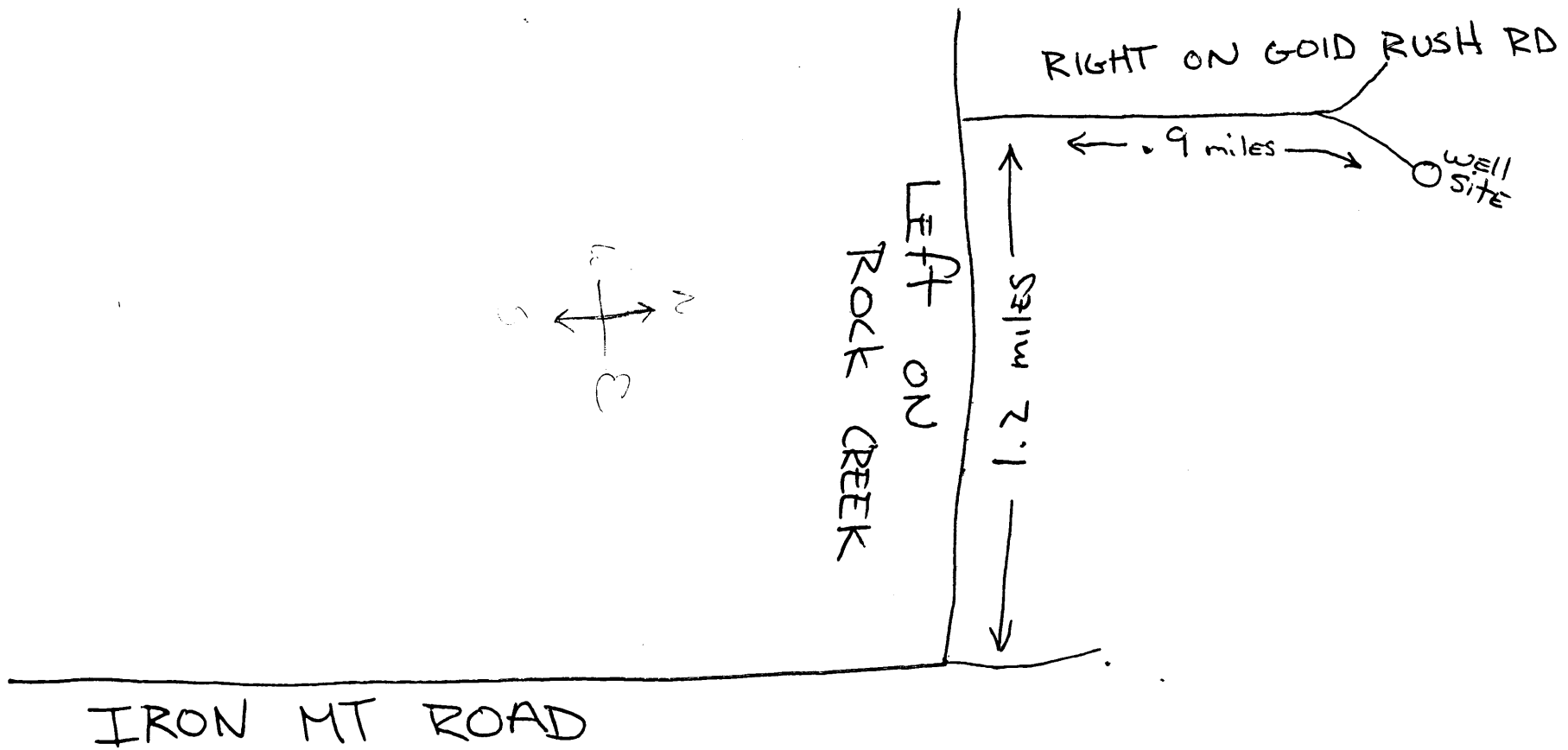
NAME Diamond Core Drilling, Inc.
(Person, firm, or corporation) (Typed or printed)

Address 10556 Petunia Lane

City Palo Cedro, CA 96073 Zip

License No. 512406 Date of this report 2-18-88

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM


RIGHT ON GOID RUSH RD
.9 miles
Well Site
LEFT ON ROCK CREEK
1.2 miles
IRON MT ROAD

32N/05W-19M

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 216216

Notice of Intent No. _____

Local Permit No. or Date _____

State Well No. _____

Other Well No. _____

Off Rock Creek Road

(2) LOCATION OF WELL (See instructions):

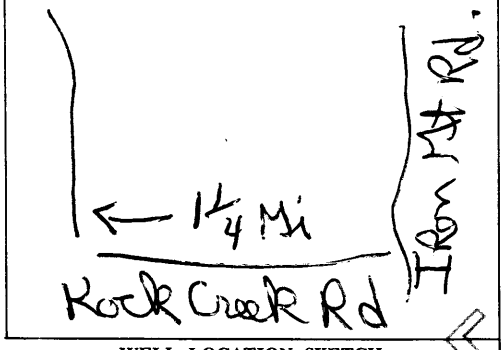
County Shasta Owner's Well Number _____

Well address if different from above _____

Township 32N Range 5W Section 19

Distance from cities, roads, railroads, fences, etc.

Assessor's Parcel #65-22-58



WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic ☒
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

(5) EQUIPMENT:

Rotary ☒ Reverse ☐
Cable ☐ Air ☒
Other ☐ Bucket ☐

(6) GRAVEL PACK:

Yes ☐ No ☒ Size _____
Diameter of bore _____
Packed from _____ to _____ ft.

(7) CASING INSTALLED:

Steel ☒ Plastic ☐ Concrete ☐

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	120	6 5/8	.188	100	120	

(8) PERFORATIONS:

Type of perforation or size of screen DTH Perf

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 0-20' ft.
Were strata sealed against pollution? Yes ☒ No ☐ Interval _____ ft.
Method of sealing Grout

(10) WATER LEVELS:

Depth of first water, if known 84 ft.
Standing level after well completion 20 ft.

(11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? Driller
Type of test Pump ☐ Bailer ☐ Air lift ☒
Depth to water at start of test 20 ft. At end of test 20 ft
Disch 32 gal/min after ½ hours Water temperature _____
Chem analysis made? Yes ☐ No ☒ If yes, by whom? _____
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG:

Total depth 130 ft. Depth of completed well 130 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	30	Overburden-Red clay
30	42	Weathered Shale
42	74	Fractured shale
74	86	Blue-green shale
86	103	Fractured shale
103	110	Fractured shale quarts and weathered shale
110	120	Fractured shale with small quarts seams
120	130	shale

FEB 5 1986

Work started 1/2 19 86 Completed 1/3 19 86

WELL DRILLER'S STATEMENT:

01382

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED Gary Oglund (Well Driller)

NAME Diamond Core Drilling (Person, firm, or corporation) (Typed or printed)

Address 10556 Petunia Lane

City Palo Cedro, CA Zip 96073

License No. 404778 Date of this report 1/7/86

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

32N/05W-19M

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 216232

Not Intent No.

Local Permit No. or Date 7731

State Well No.

Other Well No.

(2) LOCATION OF WELL (See instructions):

County Shasta Owner's Well Number [redacted]

Well address if different from above Rock Ck. Rd.

Township 32N Range 5W Section 19

Distance from cities, roads, railroads, fences, etc.

Assessor's parcel no. 065-220-33

See map attached

WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well [X] Deepening [ ]
Reconstruction [ ]
Reconditioning [ ]
Horizontal Well [ ]
Destruction [ ] (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic [X]
Irrigation [ ]
Industrial [ ]
Test Well [ ]
Stock [ ]
Municipal [ ]
Other [ ]

(5) EQUIPMENT:

Rotary [X] Reverse [ ]
Cable [ ] Air [ ]
Other [ ] Bucket [ ]

(6) GRAVEL PACK:

Yes [ ] No [X] Size

Diameter of bore

Packed from to ft.

(7) CASING INSTALLED:

Steel [X] Plastic [ ] Concrete [ ]

From ft.	To ft.	Dia. in.	Gage or Wall
0	63	6 5/8	.188

(8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Slot size

(9) WELL SEAL:

Was surface sanitary seal provided? Yes [X] No [ ] If yes, to depth 20 ft.

Were strata sealed against pollution? Yes [ ] No [ ] Interval ft.

Method of sealing Bentonite--cement cap

(10) WATER LEVELS:

Depth of first water, if known 46 ft.

Standing level after well completion 10 ft.

(11) WELL TESTS:

Was well test made? Yes [X] No [ ] If yes, by whom? Driller

Type of test Pump [ ] Bailer [ ] Air lift [X]

Depth to water at start of test ft. At end of test ft

Discharge 12 gal/min after 1 hours Water temperature

Chemical analysis made? Yes [ ] No [X] If yes, by whom?

Was electric log made? Yes [ ] No [X] If yes, attach copy to this report

(12) WELL LOG:

Total depth 180 ft. Depth of completed well 180 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	6	Overburden
6	22	Highly fractured, weathered shale
22	40	Highly fractured shale with quartz
40	46	Highly weathered shale with quartz
46	60	Fractured blue shale
60	104	Hard dense blue shale
104	122	Hard dense blue shale with quartz seams
122	148	hard dense blue shale
148	154	Fractured blue shale
154	180	Hard dense blue shale

JUN 2 1986

Work started 2-11 1986 Completed 2-15 1986

WELL DRILLER'S STATEMENT:

01382

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED (Well Driller)

NAME Diamond Core Drilling
(Person, firm, or corporation) (Typed or printed)

Address 10556 Petunia Lane

City Palo Cedro, CA Zip 96073

License No. 404778 Date of this report 3/4/86

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

32N/05W-19M

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 216233

Notice of Intent No.

Local Permit No. or Date 7732

State Well No.

Other Well No.

(2) LOCATION OF WELL (See instructions):

County Shasta Owner's Well Number

Well address if different from above Rock Creek Rd

Township 32N Range 5W Section 19

Distance from cities, roads, railroads, fences, etc.
Parcel # 065-220-54

Map attached

WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well [X] Deepening [ ]
Reconstruction [ ]
Reconditioning [ ]
Horizontal Well [ ]
Destruction [ ] (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic [X]
Irrigation [ ]
Industrial [ ]
Test Well [ ]
Stock [ ]
Municipal [ ]
Other [ ]

(5) EQUIPMENT:

Rotary [X] Reverse [ ]
Cable [ ] Air [ ]
Other [ ] Bucket [ ]

(6) GRAVEL PACK:

Yes [ ] No [X] Size
Diameter of bore
Packed from to ft.

(7) CASING INSTALLED:

Steel [X] Plastic [ ] Concrete [ ]

From ft.	To ft.	Dia. in.	Gage or Wall
0	33	6 5/8"	.188

(8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Slot size

(9) WELL SEAL:

Was surface sanitary seal provided? Yes [X] No [ ] If yes, to depth 20 ft.
Were strata sealed against pollution? Yes [ ] No [ ] Interval ft.
Method of sealing grout

(10) WATER LEVELS:

Depth of first water, if known 46 ft.
Standing level after well completion 10 ft.

(11) WELL TESTS:

Was well test made? Yes [X] No [ ] If yes, by whom? driller
Type of test Pump [ ] Bailer [ ] Air lift [X]
Depth to water at start of test ft. At end of test ft
Discharge 5 gal/min after 1 hours Water temperature
Chemical analysis made? Yes [ ] No [X] If yes, by whom?
Was electric log made? Yes [ ] No [X] If yes, attach copy to this report

(12) WELL LOG:

Total depth ft. Depth of completed well ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	5	overburden
5	20	Weathered shale
20	40	fractured shale w/quarts
40	52	fractured shale
52	55	highly fractured shale
55	63	fractured shale
63	70	shale and quartz
70	103	shale
103	110	fractured shale
110	120	shale
120	180	fractured shale
180	220	shale
220	244	fractured shale
244	310	hard dense gray shale & quartz

JUN 2 1986

Work started 02-17-86 19 Completed 02-21 19 86

WELL DRILLER'S STATEMENT:

01382

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED (Well Driller)

NAME Diamond Core Drilling (Person, firm, or corporation) (Typed or printed)

Address 10556 Petunia Ln

City Palo Cedro Ca Zip 96073

License No. 404778 Date of this report 03-31-86

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

32N/05W-19M

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 216235

Not Intent No.

Local Permit No. or Date 7735

State Well No.

Other Well No.

Off Rock Creek Road

(2) LOCATION OF WELL (See instructions):

County Shasta Owner's Well Number 4

Well address if different from above Mining Claim Rd

Township 32N Range 5W Section 19

Distance from cities, roads, railroads, fences, etc.
Parcel #065-220-68

see map attached

WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic ☒
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

(5) EQUIPMENT:

Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:

Yes ☐ No ☒ Size
Diameter of bore
Packed from to ft.

(7) CASING INSTALLED:

Steel ☒ Plastic ☐ Concrete ☐

(8) PERFORATIONS:

None
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	51	6 5/8"	.188 & .250	wall		

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 20 ft.
Were strata sealed against pollution? Yes ☐ No ☐ Interval ft.
Method of sealing grout

(10) WATER LEVELS:

Depth of first water, if known 125 ft.
Standing level after well completion 56 ft.

(11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? driller
Type of test Pump ☐ Bailer ☐ Air lift ☐
Depth to water at start of test 70 ft. At end of test 56 ft
Disc[illegible]e 20 gal/min after 1 hours Water temperature
Che[illegible] analysis made? Yes ☐ No ☒ If yes, by whom?
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG:

Total depth 140 ft. Depth of completed well ft.

from ft.	to	ft. Formation (Describe by color, character, size or material)
0	-	35 Overburden
35	-	46 Highly weathered shale
46	-	125 Shale
125	-	132 Fractured Shale
132	-	140 Shale

JAN 2 1986

Work started 04-03 19 86 Completed 04-04 19 86

WELL DRILLER'S STATEMENT:

01382

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED (Well Driller)

NAME Diamond Core Drilling
(Person, firm, or corporation) (Typed or printed)

Address 10556 Petunia Lane

City Palo Cedro Ca Zip 96073

License No. 404778 Date of this report 04-14-86

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

32N/05W-19M

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 216342

Notice of Intent No.

Local permit No. or Date 8611

State Well No.

Other Well No.

Off Rock Creek Road

(2) LOCATION OF WELL (See instructions):

County Shasta Owner's Well Number 1

Well address if different from above Mining Claim Road Shasta County

Township 32 N Range 5 W Section 19

Distance from cities, roads, railroads, fences, etc.

Parcel # 365-73 -

See Map Attached

WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic ☒
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

(5) EQUIPMENT:

Rotary ☒ Reverse ☐
Cable ☐ Air ☒
Other ☐ Bucket ☐

(6) GRAVEL PACK:

Yes ☐ No ☒ Size

Diameter of bore

Packed from to ft.

(7) CASING INSTALLED:

Steel ☒ Plastic ☐ Concrete ☐

(8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
Steel 0	47'	6 5/8	188			

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 20' ft.

Were strata sealed against pollution? Yes ☐ No ☐ Interval ft.

Method of sealing Bentonite

(10) WATER LEVELS:

Depth of first water, if known 120' ft.

Standing level after well completion ft.

(11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? Driller

Type of test Pump ☐ Bailer ☐ Air lift ☒

Depth to water at start of test 40 ft. At end of test 40 ft

Discharge 9 gal/min after 1 hours Water temperature

Chemical analysis made? Yes ☐ No ☒ If yes, by whom?

Water electric log made? Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG:

Total depth 160 ft. Depth of completed well 160 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	47	Fractured Shale
47	160	Blue Gray Shale

MAR 8 1989

Work started 1-3 1989 Completed 1-4 1989

WELL DRILLER'S STATEMENT:

1382

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED K. Ogilvie (Well Driller)

NAME Diamond Core Drilling Inc (Person, firm, or corporation) (Typed or printed)

Address 10556 Petunia LN

City PALO Cedro Ca Zip 96073

License No. 512406 Date of this report 1-25-89


well
House Rd
mining claim rd
Rock Creek rd

ORIGINAL
File with DWR

Page 1 of 1

Owner's Well No. WW-APR 9 2012

RECEIVED

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 0951468

DWR USE ONLY — DO NOT FILL IN
32N/05W-19
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Date Work Began 4/2/12, Ended 4/3/12

Local Permit Agency Shasta County Environmental Health

DWR NO. DIS

Permit No. WTR12-107 Permit Date 3/20/12

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD Air-Rotary FLUID

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	9	Tan Silt
9	33	Tan very weathered bedrock
33	67	light brownweathered bedrock
67	74	Light brown and grey weathered bedrock
74	118	Light grey bedrock - (Rhyolite)
118	122	Light grey Rhyolite fractured H20 zone
122	146	Light grey Rhyolite

TOTAL DEPTH OF BORING 146 (Feet)

TOTAL DEPTH OF COMPLETED WELL 146 (Feet)

WELL OWNER

Off Rock Creek Road

ZIP

WELL LOCATION

Address Gold Rush Dr.

City Keswick

County Shasta

APN Book 065 Page 220 Parcel 001

Township 32N Range 5W Section 19

Lat ___ DEG. ___ MIN. ___ SEC. N

Long ___ DEG. ___ MIN. ___ SEC. W

LOCATION SKETCH

NORTH

WEST — SEE ATTACHED MAP — EAST

SOUTH

*Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL

MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial

___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 60' (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 41.62TOC (Ft.) & DATE MEASURED 4/3/12

ESTIMATED YIELD * 24 (GPM) & TEST TYPE Air lift

TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~
+1.5	27	10"	X				Steel	6 5/8"	.188	
27	33	7.5"	X				Steel	6 5/8"	.188	
33	146	6 1/8"					OPEN HOLE			
6	106		X				PVC	4"	Sch 40	
106	146		X				PVC	4"	Sch 40	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	27		X		

ATTACHMENTS (✓) X

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
X Other See Map

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Diamond Core Drilling, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS P.O. Box 491925 CITY Redding STATE CA ZIP 96049

Signed [signature] C-57 LICENSED WATER WELL CONTRACTOR

DATE SIGNED 4/4/12

C-57 LICENSE NUMBER 512406

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

OSP 03 78836

Buggie WW-1
Surprise Ln
Rock Creek Rd
© 2012 Google
Imagery Date: 7/27/2011
1994

ORIGINAL
File Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

DIVISION OF WATER RESOURCES

SHEET 1

Do Not Fill In
State Well No.
Other Well No.
Region

WATER WELL DRILLERS REPORT

8910

(Sections 7076, 7077, 7078, Water Code)

(1) **Driller:**
Name Leo Foster
Address 2355 Calif. St. Redding Calif.
License No. 110880 Classification C-57

Owne
Name
Addres

(2) **Proposed use or uses** *check* :
Domestic ✓ Municipal ☐
Irrigation ☐ Industrial ☐
Domestic and Irrigation ☐ Test well ☐
Other

(3) **Equipment used** *(check)*:
Rotary ☐
Cable ✓
Dug well ☐
Other

(4) **Type of work** *check* :
New well ✓ Reconditioning of well ☐
Deepening existing well ☐

(5) **Well log:**
Total depth of well 162 ft.

Depth From Ground Surface

Give details of formations penetrated, such as silt, peat, muck, sand, gravel, clay, shale, sandstone, hardpan, rock. Include size of gravel (diameter) and sand (fine, medium, coarse), color of material, structure (loose, packed, cemented, soft, hard, brittle).

1	ft. to	45	ft.	Clay boulders
45	" "	121	"	blue clay
121	" "	128	"	cement Gravel
128	" "	160	"	blue clay
160	" "	162	"	blue sand

If additional space is required, continue on DWR Form No. 246—Supplement, and attach to respective report copies.

(6) **Casing left in well:**

LENGTH FT.	DIAMETER INCHES	SINGLE, DOUBLE, WELDED, OTHER	LBS. PER FOOT OR GAGE OF CASING	SEATING BELOW GROUND SURFACE, FT.
96	6	Single Weld	12 ga.	95

Type and size of shoe or well ring 5/8 Welded joints— ✓ Yes ☐ No

ORIGINAL
File Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5, CALIFORNIA

SHEET 2

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code

Do Not Fill In
State Well No.
Other Well No.
Region

(7) Perforations:

Type of perforator used ROUND
Perforated 70 ft. to 96 ft. Hole size 3/2 No. of holes 375
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "

(8) Water levels:

Depth at which water first encountered 121 ft.
Depth to water before perforating ft.
Depth to water after perforating 65 ft.
Note any change in water level while drilling

(9) Well pumping test: Bailer

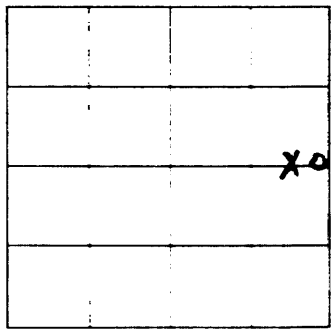
Date of test 6-13 By whom Leo Foster
Depth to water when test started 66 ft.
G.P.M. at beginning of test 3
Drawdown from standing level 160 ft.
G.P.M. at completion of test 3
Drawdown at completion of test 160 ft.
Length of time tested 1 hr.
Temperature of water 60
Was gas present in water? ☐ Yes ☒ No

(10) General:

Was well gravel packed? NO Size of rock Thickness of pack
Was a surface sanitary seal provided? NO
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, attach detailed description.
Strata sealed
Was analysis made of water? ☐ Yes ☒ No If yes, attach copy.
Was electric log made of well? ☐ Yes ☒ No If yes, attach copy.
If well abandoned, was it plugged and sealed?
Method of plugging and sealing

(11) Location:

North



Section No. 20
Township T 32 N
Range R 5 W
Base & Meridian M. D. B. M.
Show location of well in Section, thus (X)
Distances to section lines from well, N or S 2500 ft. and E or W 200 ft.
Show location of nearest known well, thus (O)
Distance to nearest known well 225 ft.

(12) Time of work:

Work started date 6-5 Completed date 6-13
Date of this report 7-3-50

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

[SIGNED] Leo Foster
By OWNER
License No. 110880 Classification C 57
Dated 7-3-50, 1950

D.W.R. FORM NO. 246 REGIONAL WATER POLLUTION CONTROL BOARD COPY 23972 3-50 40M QUIN SPO

32N05W20

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 113052

Notice of Intent No.

Local Permit No. or Date

State Well No.

Other Well No.

(2) LOCATION OF WELL (See instructions):

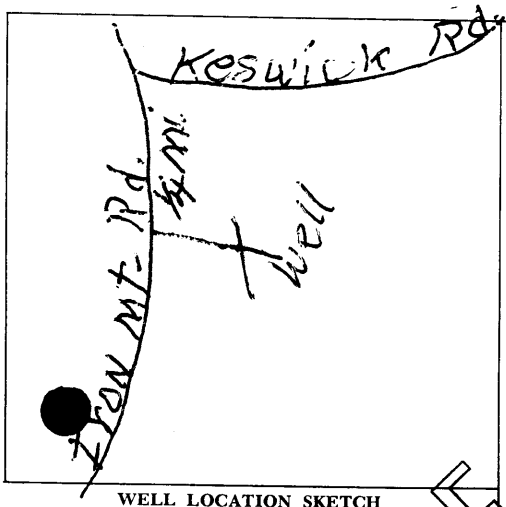
County SHASTA Owner's Well Number

Well address if different from above SAME

Township 32N Range 2W 5 Section 20

Distance from cities, roads, railroads, fences, etc.

100' EAST IRON MT. RD.



WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well [X] Deepening [ ]
Reconstruction [ ]
Reconditioning [ ]
Horizontal Well [ ]
Destruction [ ] (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic [ ]
Irrigation [X]
Industrial [ ]
Test Well [ ]
Stock [ ]
Municipal [ ]
Other [ ]

(5) EQUIPMENT:

Rotary [ ] Reverse [ ]
Cable [ ] Air [X]
Other [ ] Bucket [ ]

(6) GRAVEL PACK:

Yes [ ] No [X] Size

Diameter of bore

Packed from to ft.

(7) CASING INSTALLED:

Steel [X] Plastic [ ] Concrete [ ]

From ft.	To ft.	Dia. in.	Gage or Wall
0	440	5 5/8	.12

(8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Slot size
NO		

(9) WELL SEAL:

Was surface sanitary seal provided? Yes [ ] No [ ] If yes, to depth 38 ft.

Were strata sealed against pollution? Yes [ ] No [X] Interval ft.

Method of sealing BENTO

(10) WATER LEVELS:

Depth of first water, if known NO ft.

Standing level after well completion FLOWS ft.

(11) WELL TESTS:

Was well test made? Yes [ ] No [X] If yes, by whom?

Type of test Pump [ ] Bailer [ ] Air lift [X]

Depth to water at start of test NO ft. At end of test FLOWS ft.

Discharge 2 gal/min after FLOWS hours Water temperature 61

Chemical analysis made? Yes [ ] No [X] If yes, by whom?

Was electric log made? Yes [ ] No [X] If yes, attach copy to this report

(12) WELL LOG:

Total depth 85 ft. Depth of completed well 85 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	34	SHALE RK.
34	60	BROKEN BLUE RK.
60	80	GREEN RK. CLAY SAND

FEB 1 1984

Work started 19 Completed 1/7/83

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED Leo Foster 480
(Well Driller)

NAME Leo Foster
(Person, firm, or corporation) (Typed or printed)

Address 702 EASTSIDE RD.

City ANDERSON CAL. Zip 96007

License No. 11880 Date of this report 1/30/83

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File Original, Duplicate and Triplicate with the REGIONAL WATER POLLUTION CONTROL BOARD No._____
(Insert appropriate number)

WATER WELL DRILLERS REPORT
(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

Do Not Fill In
No 38644

State Well No._____
Other Well No. 32N/5W-24

In Keswick Town

(2) LOCATION OF WELL:
County SHASTA Owner's number, if any—
R. F. D. or Street No. LOT 1-2 BLOCK 20
JONES SUBDIVISION TO SOUTH PARK

(3) TYPE OF WORK (*check*):
New well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (*check*):
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) EQUIPMENT:
Rotary ☐
Cable ☒
Dug Well ☐

(6) CASING INSTALLED:
SINGLE ☒ DOUBLE ☐
From 0 ft. to 48 ft. Diam. 12 Gage or ~~Wall~~

Type and size of shoe or well ring 4X5/8X16
Describe joint BUTT WELD

If gravel packed

Diameter of Bore	from ft.	to ft.

Size of gravel:

(7) PERFORATIONS:
Type of perforator used BURNED
Size of perforations 3/8" ROUND in., length, by in.
From 32 ft. to 48 ft. 6 Perf. per row 4 Rows per ft.

(8) CONSTRUCTION:
Was a surface sanitary seal provided? ☐ Yes ☒ No To what depth ft.
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, note depth of strata
From ft. to ft.
Method of Sealing

(9) WATER LEVELS:
Depth at which water was first found 32 ft.
Standing level before perforating ft.
Standing level after perforating 10' ft.

(10) WELL TESTS:
Was a pump test made? ☒ Yes ☐ No If yes, by whom?
Yield: 5 gal./min. with 19' ft. draw down after 2 hrs.
Temperature of water 64° Was a chemical analysis made? ☐ Yes ☒ No
Was electric log made of well? ☐ Yes ☒ No

(11) WELL LOG:
Total depth 48' ft. Depth of completed well 48 ft.
Formation: *Describe by color, character, size of material, and structure.*

0 ft. to	28 ft.	YELLOW CLAY & GRAVEL
28 "	36 "	ROCK, QUARTZ GRANITE
36 "	44 "	BLUE CLAY DECOMP QUARTZ GRAVEL
44 "	48 "	QUARTZ SAND & BLUE GRAVEL
48' "		A BLUE DIORITE FAULT.

Work started 4/23, 1957 Completed 5/1 1957

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME SABINE & LUSSO 522
(Person, firm, or corporation) (*Typed or printed*)
Address 4V7 CONTINENTAL
REDDING CALIF
[SIGNED] Arthur Sabine
(Well Driller)
License No. 159635 Dated 5/13, 1957

95689 3-54 50M QUIN ® SPO

DWR FORM NO. 246 (REV. 3-54)

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Page 1 of 1

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STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 405981

DWR USE ONLY — DO NOT FILL IN
32N/05W-29M
STATE WELL NO. STATION NO.
LATITUDE LONGITUDE
APN TRS OTHER

Owner's Well No. _____
Date Work Began 9-29-92 Ended 9-29-92
Local Permit Agency Shasta County Health Dept.
Permit No. 10274 Permit Date 9-10-92

GEOLOGIC LOG

ORIENTATION ✓ X VERTICAL ___ HORIZONTAL ___ ANGLE ___ SPECIFY
DEPTH TO FIRST WATER 111 FT. BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	8	Yellow clay & rock
8	107	Blue clay & rock
107	108	Red clay
108	111	Blue rock
111	120	Gravel

TOTAL DEPTH OF BORING _____ (Feet)
TOTAL DEPTH OF COMPLETED WELL 120 (Feet)

WELL OWNER

East End of Middle Creek

WELL LOCATION

Address 16553 Middle Creek Rd. City Redding STATE ZIP
County Shasta
APN Book 063 Page 720 Parcel 04
Township 32N Range 05W Section 29
Latitude ___ DEG ___ MIN ___ SEC ___ NORTH Longitude ___ DEG ___ MIN ___ SEC ___ WEST

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.
PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL
MODIFICATION REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
X Domestic
___ Public
___ Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD Air rotary FLUID quick foam

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 0 (Ft.) & DATE MEASURED 9-29-92
ESTIMATED YIELD* 25 (GPM) & TEST TYPE air lift
TEST LENGTH ___ (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
* *May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	78	6-5/8					steel	6	10	
70	120	6-5/8					pvc liner 4			

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	25	X			

NOV 25 1992

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME W. S. Heitman (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED) 936

15030 McCoy Rd. Red Bluff, Ca. 96080
ADDRESS CITY STATE ZIP

Signed W. S. Heitman WELL DRILLER/AUTHORIZED REPRESENTATIVE
9-30-92 DATE SIGNED
324874 C-57 LICENSE NUMBER

DWR 188 REV 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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ORIGINAL
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Page 1 of 1
Owner's Well No. ____
Date Work Began 9-29-92 Ended 9-29-92
Local Permit Agency Shasta County Health Dept.
Permit No 10274 Permit Date 9-10-92

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 405984

DWR USE ONLY — DO NOT FILL IN
32N/05W-29M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION (Describe material, grain size, color, etc.)
0	160	Concrete
		Well Destruction

TOTAL DEPTH OF BORING ______ (Feet)
TOTAL DEPTH OF COMPLETED WELL ______ (Feet)

WELL OWNER

CITY STATE ZIP

WELL LOCATION

Address ____
City ____
County ____
APN Book ____ Page ____ Parcel ~~[illegible]~~
Township 32N Range 05W Section 29
Latitude ___ NORTH (DEG. MIN. SEC.) Longitude ___ WEST (DEG. MIN. SEC.)

LOCATION SKETCH

NORTH

Fr [illegible] take 299 W. toward Old Shasta to [illegible] Rd - go north to Middle Creek Rd - [illegible] site to 1st hole on site

WEST EAST

SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.
PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)

X DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
___ Domestic
___ Public
___ Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD ____ FLUID ____

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL ____ (Ft.) & DATE MEASURED ____
ESTIMATED YIELD* ____ (GPM) & TEST TYPE ____
TEST LENGTH ____ (Hrs.) TOTAL DRAWDOWN ____ (Ft.)
** May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)

NOV 25 1992

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ____

ATTACH ADDITIONAL INFORMATION IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME W. S. Heitman 936
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

15030 McCoy Rd. Red Bluff, Ca. 96080
ADDRESS CITY STATE ZIP

Signed W.S. Heitman 10-1-92 324874
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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D.W.R.

Page 1 of 1
Owner's Well No. 1
Date Work Began 09/03/93 Ended 09/08/93
Local Permit Agency
Permit No. 10567 Permit Date

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 485937

DWR USE ONLY — DO NOT FILL IN
32N/05W+29M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DEPTH TO FIRST WATER 180 (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	25	BROWN CLAY AND BROKEN ROCK
25	150	BROWN BROKEN ROCK
150	220	GREEN BROKEN ROCK

TOTAL DEPTH OF BORING 220 (Feet)
TOTAL DEPTH OF COMPLETED WELL 220 (Feet)

WELL OWNER

Far Eastern End of Middle Creek

WELL LOCATION

Address 1 MIDDLE CREEK RD
City REDDING
County SHASTA
APN Book 065 Page 320 Parcel 10
or
Township 32N Range 05W Section 29
or
Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.
PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
X Domestic
___ Public
___ Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD AIR FLUID

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 5 (Ft.) & DATE MEASURED
ESTIMATED YIELD* (GPM) & TEST TYPE
TEST LENGTH (Hrs.) TOTAL DRAWDOWN (Ft.)
* *May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	200	8	X				STEEL	6	.156	
200	220	8		X			STEEL	6	.156	1/8

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	22		X		

SEP 24 1993

TURNER DRILLING
714-350 U.S. Hwy. 395 E Susanville CA 96130

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Turner Drilling 1485
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
714-350 US Hwy 395 E Susanville CA 96130
ADDRESS CITY STATE ZIP
Signed Naomi Turner 9-18-93 332037
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

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Page 1 of 1

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STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 705923

DWR USE ONLY — DO NOT FILL IN
32N/05W-29M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

Owner's Well No. WW-2
Date Work Began 8-05-99, Ended 8-06-99
Local Permit Agency Shasta County Environmental Health
Permit No. WTR99-193 Permit Date 7-27-99

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD air rotary FLUID none

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	10	Weathered tan rock
10	70	Fractured green rock
70	140	Green rock w/fractured zones

TOTAL DEPTH OF BORING 140 (Feet)
TOTAL DEPTH OF COMPLETED WELL 140 (Feet)

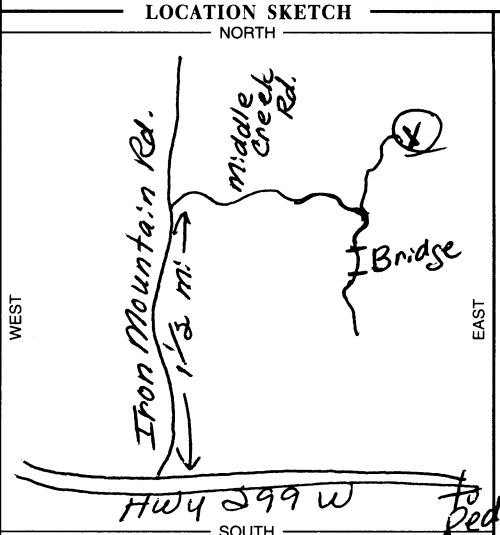
WELL OWNER

CITY STATE ZIP

WELL LOCATION

Address 16390 Middle Creek Road
City Old Shasta
County Shasta
APN Book 065 Page 320 Parcel 10
Township 32N Range 5W Section 29
Latitude ___ DEG. ___ MIN. ___ SEC. NORTH
Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USES (✓)

WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial
___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 80 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 34 (Ft.) & DATE MEASURED 8-06-99
ESTIMATED YIELD * 60 (GPM) & TEST TYPE air lift
TEST LENGTH 2 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)
** May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	CASING (S) TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	22	10	x				Steel	6	.188	
22	25	7½	x				Steel	6	.188	
0	22	10	x				PVC	4	Sch40	
22	25	7½	x				PVC	4	Sch40	
25	120	6¼	x				PVC	4	Sch40	
120	140	6¼		x			PVC	4	Sch40	.040

DEPTH FROM SURFACE Ft.	to Ft.	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	22		x		Granular & chips
				OCT 13 1999	

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Diamond Core Drilling, Inc.
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

P.O. Box 491925 Redding CA 96049
ADDRESS CITY STATE ZIP

Signed [signature] 9-21-99 512406
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 11-97 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

Page 1 of 4

Owner's Well No. 1

Date Work Began 12-11-06, Ended 12-12-06

Local Permit Agency Shasta

Permit No. 06-390 Permit Date 12-5-06

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 0957748

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD ___ FLUID ___

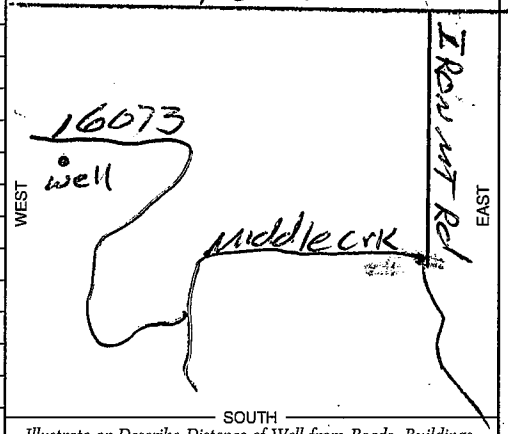
DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	2	Brown Soil
2	24	Fractured Granit
24	155	Blue Granit
155	160	Fractured Granit

TOTAL DEPTH OF BORING 160 (Feet)
TOTAL DEPTH OF COMPLETED WELL 160 (Feet)

WELL OWNER

WELL LOCATION
Address 16073 Middle Crk Rd
City Shasta
County Shasta
APN Book ___ Page ___ Parcel 065-320-022000
Township 32N Range 5W Section 29
Lat ___ N DEG. MIN. SEC. Long ___ W DEG. MIN. SEC.

LOCATION SKETCH



*Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)
✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)
WATER SUPPLY
✓ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL
DEPTH TO FIRST WATER 155 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 5' (Ft.) & DATE MEASURED 12-12-06
ESTIMATED YIELD * 80-100 (GPM) & TEST TYPE Air
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN n/a (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	24	10"	✓				Steel	6	188	
24	120	6"	✓				P.V.C	4	Sch 40	040
120	160	6"	✓				P.V.C	4	Sch 40	040 x 4 x 4 Rows

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	20		✓		

ATTACHMENTS (✓)
___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___
ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Shasta Drilling
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

16602 Vickmor Ct Redding CA 96001
ADDRESS CITY STATE ZIP

Signed [signature] 12-14-06
C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED

813776
C-57 LICENSE NUMBER

DWR 188 REV. 05-03 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM OSP 03 78836

SHASTA COUNTY DEPARTMENT OF RESOURCE MANAGEMENT
ENVIRONMENTAL HEALTH DIVISION
1855 Placer Street, Suite 201, Redding, CA 96001 Telephone (530) 225-5787 FAX (530) 225-5413

BP # 06-7470
#WTR 06-390

Fee $240.97

APPLICATION FOR WATER WELL PERMIT

LOCATION OF PROPERTY
Street or Road 16023 Middle Creek ROAD
Assessor's Parcel Number 065-320-022-000

LOT SIZE ____ x ____ or acreage 16

PROPERTY OWNER

TYPE OF WORK
☒ New Well ☐ Deepening ☐ Destroying ☐ Reconditioning

PROPOSED USE * REQUIRED ANNULAR SEAL DEPTH
☒ Domestic ..... 20 foot minimum
☐ Agricultural ..... 20 foot minimum
☐ Industrial ..... 50 foot minimum
☐ Public ..... 50 foot minimum
☐ Monitoring ..... Varies, attach schematic.
☐ Other _____ ..... Varies, attach schematic.
* Alternate seal depth may be required by site conditions or as noted in conditions below. Minimum thickness of annular space seal is 2 inches.

WELL CONTRACTOR
Name Shasta Drilling
Mailing Address _____
City, State, Zip Code Redding, Ca. 96001
Telephone 530-229-9720
License # 817776

PLOT PLAN is to be submitted on 8½ x 11 sheet according to the attached instructions and show all requested information.

DIRECTIONS TO LOCATE PROPERTY are to be provided on the back of this application or the back of the plot plan. Directions must be adequate for staff to locate property.

WELL NUMBER (If applicable): _____

SIGNATURE OF CONTRACTOR (if applicant is contractor)
I certify that I am licensed under the provisions of Division 3, Chapter 9 of the Business and Professions Code, and my license is in full force and effect. License # _____
I certify that I have read this application and the above information is correct. I agree to comply with all Shasta County Ordinances and State Laws relating to this construction.

SIGNATURE OF CONTRACTOR DATE

SIGNATURE OF OWNER (required on all applications)
I certify that I have read this application and the above information is correct. I agree to comply with all Shasta County Ordinances and State Laws relating to this construction, and hereby authorize representatives of SHASTA COUNTY to enter the property for inspection purposes.
By signing this application I agree to defend, indemnify, and hold the county harmless from any claim, action, or proceeding brought to attack, set aside, void or annul the county's approval of this application.
I understand that the Shasta County Department of Resource Management, in releasing this permit for the immediate construction of a water well does not guarantee the issuance of any other development permits or land use request for this property.

Judy Rickwood 12/4/06
SIGNATURE OF OWNER DATE

Received by Adam Date 12/4/06 Fee $ 240.97 Receipt # R0600961

Granted by James Ames with the following and any attached conditions. Date 12/05/06

Permission is hereby granted for the above well work in accordance with all State and County laws and standards as provided in Shasta County Code, Sections 8.56.010 - 8.56.130 and any conditions as set forth in this permit.
☒ Well is to be located a minimum of 50 feet from any sewer, septic tank, or pit privy and a minimum of 100 feet from any structure or facility designed to allow sewage to percolate into the ground. ☐ This permit is subject to the attached conditions if box is marked.

Final inspection by _____ Date _____

Inspection Notes: _____

Completion Notice Received: Date _____ Well Depth _____ Casing Depth _____ Estimated g.p.m. _____

01/20/2006

ORIGINAL
File Original, Duplicate and Triplicate with the REGIONAL WATER POLLUTION CONTROL BOARD No. 5
(Insert appropriate number)

WATER WELL DRILLERS REPORT
(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

LOCATION NOT CHECKED — Do Not Fill In
No. 15811
State Well No.
Other Well No. 32N/5W-31 on 32

Victoria Highlands

(2) LOCATION OF WELL:
County Shasta — Owner's number, if any
R. F. D. or Street No. 10156 Victoria Dr. Redding 96097
Tower Springs Subd.
Hwy 299 West Bet Redding & Shasta

(3) TYPE OF WORK (check):
New well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (check):
Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(5) EQUIPMENT:
Rotary [ ]
Cable [X]
Dug Well [ ]

(6) CASING INSTALLED:
SINGLE [X] DOUBLE [ ]

From ft.	to ft.	Diam.	Gage or Wall
0	64	8	12

Type and size of shoe or well ring None
Describe joint welded.

If gravel packed

Diameter of Bore	from ft.	to ft.

Size of gravel:

(7) PERFORATIONS:
Type of perforator used Torch Cut
Size of perforations 3/8 Round in., length, by in.

From ft.	to ft.	Perf. per row	Rows per ft.
40	60	4	4

(8) CONSTRUCTION:
Was a surface sanitary seal provided? [ ] Yes [ ] No To what depth ft.
Were any strata sealed against pollution? [ ] Yes [ ] No If yes, note depth of strata

From ft.	to ft.

Method of Sealing

(9) WATER LEVELS:
Depth at which water was first found 40 ft.
Standing level before perforating 24 ft.
Standing level after perforating 24 ft.

(10) WELL TESTS:
Was a pump test made? [ ] Yes [ ] No If yes, by whom?
Yield: gal./min. with ft. draw down after hrs.
Temperature of water Was a chemical analysis made? [ ] Yes [ ] No
Was electric log made of well? [ ] Yes [ ] No

(11) WELL LOG:
Total depth 84 ft. Depth of completed well 84 ft.
Formation: *Describe by color, character, size of material, and structure.*

ft. to	ft.	
0	36	Clay & Gravel
36	40	Gravel
40	84	Rock.

Bailed apx 10 gal
minute
40 ft draw down

Section 7076, Water Code

Work started June 27 19 63. Completed June 29 19 63

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME FRED WILLIAMS 537
(Person, firm, or corporation) (Typed or printed)
Address Rt 2, Box 6624
Anderson Calif.
[Signature] Fred Williams
License No. 117416 Well Driller
Dated July 5 63

55689 3-54 50M QUIN ® SPO

DWR FORM NO. 246 (REV. 3-54)

ORIGINAL
File Original, Duplicate and Triplicate with the
REGIONAL WATER POLLUTION
CONTROL BOARD No. 5
(Insert appropriate number)

WATER WELL DRILLERS REPORT
(Sections 7076, 7077, 7078, Water Code)

STATE OF CALIFORNIA

Do Not Fill In
No 69380
State Well No.
Other Well No. 32N/5W-31

Lower Springs Road

(2) LOCATION OF WELL:
County Shasta Owner's number, if any—
R. F. D. or Street No.

(3) TYPE OF WORK (*check*):
New well [X] Deepening [ ] Reconditioning [ ] Abandon [ ]
If abandonment, describe material and procedure in Item 11.

(4) PROPOSED USE (*check*):
Domestic [X] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(5) EQUIPMENT:
Rotary [ ]
Cable [ ]
Dug Well [X]

(6) CASING INSTALLED:
SINGLE [X] DOUBLE [ ]

From ft.	to ft.	Diam.	Gage or Wall
0	64	8	12
2	70	6	12

Type and size of shoe or well ring None
Describe joint welded

If gravel packed

Diameter of Bore	from ft.	to ft.

Size of gravel:

(7) PERFORATIONS:
Type of perforator used torch cut
Size of perforations 3/8 in., length, by in.

From ft.	to ft.	Perf. per row	Rows per ft.
62	70	10	10
40	62	5	5

(8) CONSTRUCTION:
Was a surface sanitary seal provided? [ ] Yes [ ] No To what depth ft.
Were any strata sealed against pollution? [ ] Yes [ ] No If yes, note depth of strata

From ft.	to ft.

Method of Sealing

(9) WATER LEVELS:
Depth at which water was first found 43 ft.
Standing level before perforating 40 ft.
Standing level after perforating 30 ft.

(10) WELL TESTS:
Was a pump test made? [ ] Yes [ ] No If yes, by whom?
Yield: gal./min. with ft. draw down after hrs.
Temperature of water Was a chemical analysis made? [ ] Yes [ ] No
Was electric log made of well? [ ] Yes [ ] No

(11) WELL LOG:
Total depth 70 ft. Depth of completed well 70 ft.
Formation: *Describe by color, character, size of material, and structure.*

ft. to	ft.	
0	40	Sand Shale Clay
40	64	Sand Stone
64	70	Blue Granite

Bailed apx 8 gal
minute

CONFIDENTIAL
Section 7076, Water Code

Work started Sept 28 19 61. Completed Oct 2 19 61

WELL DRILLER'S STATEMENT: 537
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
NAME FRED WILLIAMS
(Person, firm, or corporation) (Typed or printed)
Address Rt 2 Box 56 74
Anderson Calif
[SIGNED] Fred Williams
Well Driller
License No. 11746 Dated Oct 9, 1961

57025 6-57 50M QUIN △ SPO

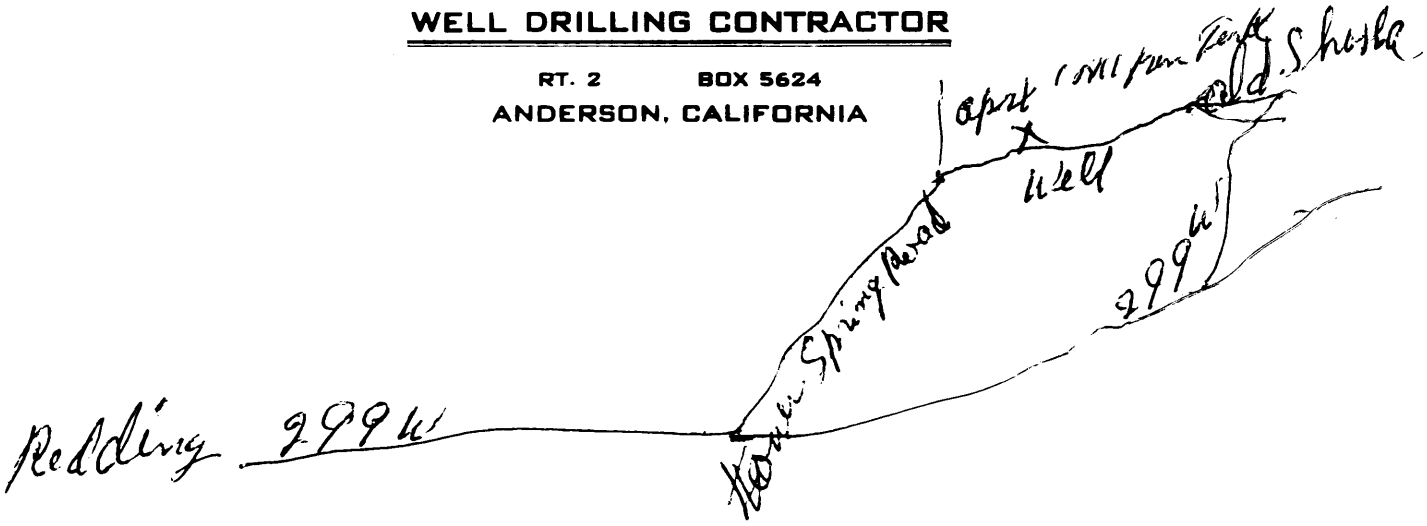
DWR 188 (REV. 3-54)

PHONE: CHESTNUT 3-3931
REDDING, CALIFORNIA

Fred Williams

WELL DRILLING CONTRACTOR

RT. 2 BOX 5624
ANDERSON, CALIFORNIA



32N/5W-31

ORIGINAL

File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 116007

[redacted] of Intent No.

Local Permit No. or Date

State Well No.

Other Well No.

1 mile NNW of Grant School

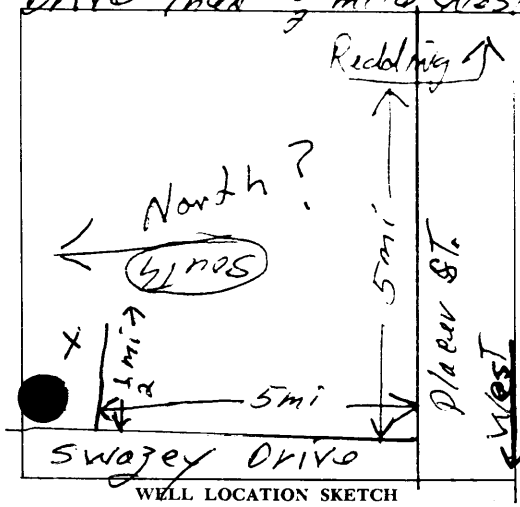
(2) LOCATION OF WELL See instructions

County Shasta Owner's Well Number

Well address if different from above Helena Road.

Township Range Section

Distance from cities, roads, railroads, fences, etc. Approx 5 miles from corner of Swazey Drive and Placer St. of Swazey Drive then ½ mile west on Deschutes Rd.



WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well ☑ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic ☑
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☐
Other ☐

(5) EQUIPMENT:

Rotary ☐ Reverse ☐
Cable ☑ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:

Yes ☐ No ☐ Size None
Diameter of bore
Packed from to ft.

(7) CASING INSTALLED:

Steel ☑ Plastic ☐ Concrete ☐

From ft.	To ft.	Dia. in.	Gage or Wall
0	60	8"	12

(8) PERFORATIONS:

Type of perforation or size of screen None

From ft.	To ft.	Slot size
None		

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☑ No ☐ If yes, to depth 38' ft.
Were strata sealed against pollution? Yes ☐ No ☑ Interval ft.
Method of sealing Drill Cuttings and Dell

(10) WATER LEVELS:

Depth of first water, if known 55 ft.
Standing level after well completion 55' ft.

(11) WELL TESTS:

Was well test made? Yes ☑ No ☐ If yes, by whom? Driller
Type of test Pump ☐ Bailer ☑ Air lift ☐
Depth to water at start of test 55' ft. At end of test 95' ft
Discharge 7 gal/min after 1 hours Water temperature
Chemical analysis made? Yes ☐ No ☒ If yes, by whom?
Was electric log made? Yes ☐ No ☒ If yes, attach copy to this report

12 WELL LOG:

Total depth 100 ft. Depth of completed well 100 ft.
(Describe by color, character, size or material)

0	5	red clay
5	25	brown clay and hard pan
25	39	decomposed rock
39	55	medium hard granite
55	100	hard gray granite

Work started 1/19 19 77 Completed 1/26 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED Robert McCullough (Well Driller)

NAME C. ROBERT McCULLOUGH 501
(Person, firm or corporation) (Type or print)
Licensed Driving Co.

Address P. O. BOX 3117

City REDDING, CALIF. 96001 Zip

License No. 182319 Date of this report

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

SEP 0 3 2014

Page 1 of 4

Owner's Well No. 1

Date Work Began 8-27-14, Ended 8-27-14

Local Permit Agency Shasta

Permit No. 14-256 Permit Date 6-27-14

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 0952001

DWR USE ONLY — DO NOT FILL IN
32N/05W-21A
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Air FLUID

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0 15	Red soil
15 80	Fractured granit
80 100	Blue granit

TOTAL DEPTH OF BORING 100 (Feet)
TOTAL DEPTH OF COMPLETED WELL 100 (Feet)

WELL OWNER

Victoria Drive

WELL LOCATION

Address Same
City
County
APN Book ___ Page ___ Parcel 204-130-010
Township 32N Range 05W Section 21
Lat ___ DEG. ___ MIN. ___ SEC. N
Long ___ DEG. ___ MIN. ___ SEC. W

LOCATION SKETCH

NORTH / WEST / EAST / SOUTH

*Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. **PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)
WATER SUPPLY
___ Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 80 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 20' (Ft.) & DATE MEASURED 8-27-14
ESTIMATED YIELD * 20 (GPM) & TEST TYPE Air
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN N/A (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0 24	10"								
24 80	6	✓				steel	6	.188	
~~80 100~~	~~6~~								
60 80	6	✓				PVC	4	Sch 40	
80 100	6		✓			PVC	4	Sch 40	.030 x 40

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE: CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0 24		✓		

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Shasta Drilling Inc (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
16602 Vladimir CT Redding CA 96001
ADDRESS CITY STATE ZIP
Signed [signature] 8-27-14
C-57 LICENSED WATER WELL CONTRACTOR DATE SIGNED
895374
C-57 LICENSE NUMBER

DWR 188 REV. 05-03 IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM OSP 03 78836

SHASTA COUNTY DEPARTMENT OF RESOURCE MANAGEMENT
ENVIRONMENTAL HEALTH DIVISION
1855 Placer Street, Suite 201, Redding, CA 96001 Telephone (530) 225-5787 FAX (530) 225-5413
ehd.co.shasta.ca.us

Fee $287.17

APPLICATION FOR WATER WELL PERMIT

BP _____
WTR _____

APPLICANT (Must be licensed contractor or property owner.)

LOCATION OF PROPERTY
Street or Road 16200 Victoria Dr.
Assessor's Parcel Number 304-130-010

LOT SIZE 1.1 x _____ or acreage

TYPE OF WORK
☑ New Well ☐ Deepening ☐ Destroying ☐ Reconditioning

PROPERTY OWNER Same
Name _____
Mailing Address _____
City, State, Zip Code _____
Telephone _____
EMail Address _____

PROPOSED USE * REQUIRED ANNULAR SEAL DEPTH
☑ Domestic . . . . . 20 foot minimum
☐ Agricultural. . . . . 20 foot minimum
☐ Industrial . . . . . 50 foot minimum
☐ Public . . . . . 50 foot minimum
☐ Monitoring . . . . . Varies, attach schematic.
☐ Other _____ . . . . . Varies, attach schematic.
* Alternate seal depth may be required by site conditions or as noted in conditions below. Minimum thickness of annular space seal is 2 inches.

WELL CONTRACTOR
Name Shasta Drilling, Inc
Mailing Address 16602 Vladimir Court
City, State, Zip Code Redding Ca 96001
Telephone 530-229-9120
EMail Address _____
License # 795374

Proof of legal creation is required on undeveloped properties.

PLOT PLAN is to be submitted on 8½ x 11 sheet according to the Sample Plot Plan instructions and show all requested information.

DIRECTIONS TO LOCATE PROPERTY are to be provided on the back of this application or the back of the plot plan. Directions must be adequate for staff to locate property.

WELL NUMBER (If applicable): _____

SIGNATURE OF CONTRACTOR (if applicant is contractor)
I certify that I am licensed under the provisions of Division 3, Chapter 9 of the Business and Professions Code, and my license is in full force and effect. License # _____
I certify that I have read this application and the above information is correct. I agree to comply with all Shasta County Ordinances and State Laws relating to this construction.

_____ _____
SIGNATURE OF CONTRACTOR DATE

SIGNATURE OF OWNER (required on all applications)
I certify that I have read this application and the above information is correct. I agree to comply with all Shasta County Ordinances and State Laws relating to this construction, and hereby authorize representatives of SHASTA COUNTY to enter the property for inspection purposes.
By signing this application I agree to defend, indemnify, and hold the county harmless from any claim, action, or proceeding brought to attack, set aside, void or annul the county's approval of this application.
I understand that the Shasta County Department of Resource Management, in releasing this permit for the immediate construction of a water well does not guarantee the issuance of any other development permits or land use request for this property.

[signature] 6-23-14
SIGNATURE OF OWNER DATE

Received by _____ Date _____ Fee $ _____ Receipt # _____ Pre-Permit Insp Required? Y N
Legal Creation verified _____ Pre-permit Inspection by _____ Notes _____

Granted by _____ with the following and any attached conditions. Date _____

Permission is hereby granted for the above well work in accordance with all State and County laws and standards as provided in Shasta County Code, Sections 8.56.010 - 8.56.130 and any conditions as set forth in this permit.
☒ Well is to be located a minimum of 50 feet from any sewer, septic tank, or pit privy and a minimum of 100 feet from any structure or facility designed to allow sewage to percolate into the ground. ☐ This permit is subject to the attached conditions if box is marked.

Final inspection by _____ Date _____
Inspection Notes: _____
Completion Notice Received: Date_____ Well Depth _____ Casing Depth _____ Estimated g.p.m. _____

FEB 2014

5/22/09

ORIGINAL
File with DWR

Page 1 of 4
Owner's Well No. 1
Date Work Began 5-18-09, Ended 5-18-09
Local Permit Agency Shasta
Permit No. _____ Permit Date _____

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet
No. 0962415

32N/06W-15J1 M
STATE WELL NO./STATION NO.
LATITUDE _____ LONGITUDE _____
APN/TRS/OTHER

1

Ganim Lane, Victoria Higlands

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD _____ FLUID _____

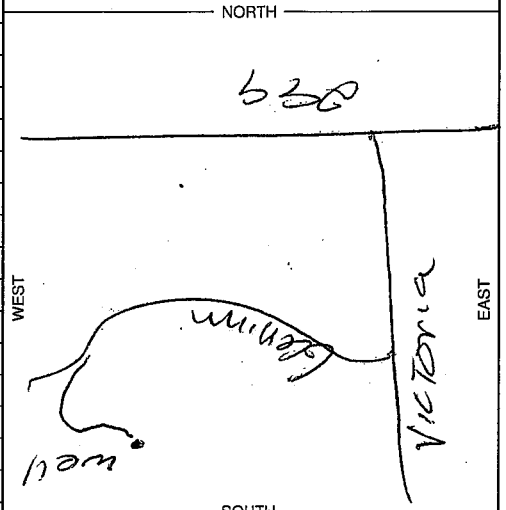
DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	6	Brown Soil
6	38	Fractured Granit
38	57	Granit
57	61	Fractured Granit
61	75	Granit
75	86	Fractured Granit
86	100	Granit

TOTAL DEPTH OF BORING 100 (Feet)
TOTAL DEPTH OF COMPLETED WELL 100 (Feet)

WELL LOCATION

Address Same Ganim Ln
City _____
County _____
APN Book 704 Page 130 Parcel 009
Township 32N Range 5W Section 31
Lat _____ N DEG. MIN. SEC. Long _____ W DEG. MIN. SEC.

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
✓ Domestic ___ Public
✓ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 12 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 5 (Ft.) & DATE MEASURED 5-18-08
ESTIMATED YIELD * 30 (GPM) & TEST TYPE air
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN N/A (Ft.)
** May not be representative of a well's long-term yield.*

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	CASING (S) TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	23	10"								
23	40	6"	✓				Steel	6	.188	
40	60	6"	✓				P.V.C	4	Sch 40	
60	100	6"		✓			P.V.C	4	Sch 40	.030x40

DEPTH FROM SURFACE Ft.	to Ft.	ANNULAR MATERIAL TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	23		✓		

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Shasta Drilling Inc (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
16602 Vladimir CT Redding CA 96001
ADDRESS CITY STATE ZIP
Signed _____ C-57 LICENSED WATER WELL CONTRACTOR
5-18-09 DATE SIGNED
895374 C-57 LICENSE NUMBER

DWR 188 REV. 05-03
IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM
OSP 03 78836

SHASTA COUNTY DEPARTMENT OF RESOURCE MANAGEMENT

ENVIRONMENTAL HEALTH DIVISION

1855 Placer Street, Suite 201, Redding, CA 96001 Telephone (530) 225-5787 FAX (530) 225-5413

www.co.shasta.ca.us/Departments/Resourcemgmt/drm/ehmain.htm

Fee $265.35

APPLICATION FOR WATER WELL PERMIT

BP # _____

WTR 09-1060

ROPERTY OWNER
ame SAME
ailing Address _____
ity, State, Zip Code _____
elephone _____

/ELL CONTRACTOR
ame SHASTA DRILLING
ailing Address 16602 VLADIMIR COURT
ity, State, Zip Code REDDING, CA. 96001
elephone 530-229-9120
cense # 895374

LOT PLAN is to be submitted on 8½ x 11 sheet according to the tached instructions and show all requested information.

IRECTIONS TO LOCATE PROPERTY are to be provided on e back of this application or the back of the plot plan. Directions ust be adequate for staff to locate property.

/ELL NUMBER (If applicable): _____

SIGNATURE OF CONTRACTOR (if applicant is contractor)

I certify that I am licensed under the provisions of Division 3, Chapter 9 of the Business and Professions Code, and my license is in full force and effect. License # _____

I certify that I have read this application and the above information is correct. I agree to comply with all Shasta County Ordinances and State Laws relating to this construction.

SIGNATURE OF CONTRACTOR DATE

LOCATION OF PROPERTY
Street or Road GANIM LANE
Assessor's Parcel Number 204-130-009

LOT SIZE ____ x ____ or acreage 2.0

TYPE OF WORK
☒ New Well ☐ Deepening ☐ Destroying ☐ Reconditioning

PROPOSED USE	* REQUIRED ANNULAR SEAL DEPTH
☐ Domestic	20 foot minimum
☒ Agricultural	20 foot minimum
☐ Industrial	50 foot minimum
☐ Public	50 foot minimum
☐ Monitoring	Varies, attach schematic.
☐ Other _____	Varies, attach schematic.

* Alternate seal depth may be required by site conditions or as noted in conditions below. Minimum thickness of annular space seal is 2 inches.

SIGNATURE OF OWNER (required on all applications)

I certify that I have read this application and the above information is correct. I agree to comply with all Shasta County Ordinances and State Laws relating to this construction, and hereby authorize representatives of SHASTA COUNTY to enter the property for inspection purposes.

By signing this application I agree to defend, indemnify, and hold the county harmless from any claim, action, or proceeding brought to attack, set aside, void or annul the county's approval of this application.

I understand that the Shasta County Department of Resource Management, in releasing this permit for the immediate construction of a water well does not guarantee the issuance of any other development permits or land use request for this property.

Gary L. Larson 4/20/09

SIGNATURE OF OWNER DATE

eceived by BD Date 4/20/09 Fee $ 265.35 Receipt # KO 9010916

ranted by MCramer with the following and any attached conditions. Date 4/22/09

ermission is hereby granted for the above well work in accordance with all State and County laws and standards as provided in Shasta County ode, Sections 8.56.010 - 8.56.130 and any conditions as set forth in this permit.

Well is to be located a minimum of 50 feet from any sewer, septic tank, or pit privy and a minimum of 100 feet from any structure or facility esigned to allow sewage to percolate into the ground. ☐ This permit is subject to the attached conditions if box is marked.

nal inspection by _____ Date _____

spection Notes: _____

ompletion Notice Received: Date _____ Well Depth _____ Casing Depth _____ Estimated g.p.m. _____

ORIGINAL
File Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

DIVISION OF WATER RESOURCES

SHEET 1

Do Not Fill In
State Well No.
Other Well No.
Region

WATER WELL DRILLERS REPORT

8913

(Sections 7076, 7077, 7078, Water Code) 08540

(1) **Driller:**
Name Frost Thompson Son
Address PO 942 Redding Calif
License No. 116336 Classification C 57

(2) **Proposed use or uses** *(check)*:
Domestic [X] Municipal [ ]
Irrigation [ ] Industrial [ ]
Domestic and Irrigation [ ] Test well [ ]
Other

(3) **Equipment used** *(check)*:
Rotary [ ]
Cable [X]
Dug well [ ]
Other

Owne
Name
Addre

(4) **Type of work** *(check)*:
New well [ ] Reconditioning of well [ ]
Deepening existing well [X]

(5) **Well log:**
Total depth of well 44 ft.

Depth From Ground Surface

0	ft. to	23	ft.	Was a Dug Well
23	" "	44	"	gravel & sand — Medium gravel 3"

Give details of formations penetrated, such as silt, peat, muck, sand, gravel, clay, shale, sandstone, hardpan, rock. Include size of gravel (diameter) and sand (fine, medium, coarse), color of material, structure (loose, packed, cemented, soft, hard, brittle).

CONFIDENTIAL
Section 7076.1, Water Code

If additional space is required, continue on DWR Form No. 246—Supplement, and attach to respective report copies.

(6) **Casing left in well:**

LENGTH FT.	DIAMETER INCHES	SINGLE, DOUBLE, WELDED, OTHER	LBS. PER FOOT OR GAGE OF CASING	SEATING BELOW GROUND SURFACE FT.
44	8	Single	12 Ga	43' 6"

Type and size of shoe or well ring 5/8 X 4 Welded joints — [X] Yes [ ] No

ORIGINAL
File Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5, CALIFORNIA

SHEET 2

WATER WELL DRILLERS REPORT

(Sections 7076, 7077, 7078, Water Code)

Do Not Fill In
State Well No. 32 N/5W-32A1
Other Well No.
Region 5

(7) Perforations:

Type of perforator used Burnt Holes

Perforated	32	ft. to	44	ft. Hole size	3/8	No. of holes	18 Per ft.
"		" "		" " "		" " "	
"		" "		" " "		" " "	
"		" "		" " "		" " "	
"		" "		" " "		" " "	
"		" "		" " "		" " "	
"		" "		" " "		" " "	
"		" "		" " "		" " "	
"		" "		" " "		" " "	
"		" "		" " "		" " "	

(8) Water levels:

Depth at which water first encountered 25 ft.
Depth to water before perforating ft.
Depth to water after perforating ft.
Note any change in water level while drilling

(9) Well pumping test:

Date of test July 10 By whom Water Bailer
Depth to water when test started 25 ft.
G.P.M. at beginning of test 15
Drawdown from standing level 7 ft.
G.P.M. at completion of test 15
Drawdown at completion of test 7 ft.
Length of time tested 45 min.
Temperature of water 62
Was gas present in water? ☐ Yes ☒ No

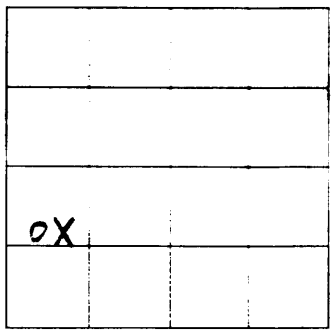
[redacted]

Was well gravel packed? No Size of rock Thickness of pack
Was a surface sanitary seal provided?
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, attach detailed description.
Strata sealed
Was analysis made of water? ☐ Yes ☒ No If yes, attach copy.
Was electric log made of well? ☐ Yes ☒ No If yes, attach copy.
If well abandoned, was it plugged and sealed?
Method of plugging and sealing

CONFIDENTIAL
Section 7076, Water Code

(11) Location:

North



Section No. 32
Township 32 N.
Range 5 W.
Base & Meridian 122° 21' Mt. Diablo Meridian
Show location of well in Section, thus (⊗)
Distances to section lines from well. ☒ or S 1500 ft. and ☒ or W 1000 ft.
Show location of nearest known well, thus (O)
Distance to nearest known well 100 ft.

(12) Time of work:

Work started date July 8 Completed date July 10
Date of this report Aug 14

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

[SIGNED] Forest Thompson & Son
By Forest Thompson
License No. 1133 Classification C57
Dated Aug 14, 1950

D.W.R. FORM NO. 246 REGIONAL WATER POLLUTION CONTROL BOARD COPY 23972 3-50 40M 20.N SPO

ORIGINAL
[illegible] Original. Send this copy with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5, CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

DIVISION OF WATER RESOURCES

SHEET 1

8914

Do Not Fill In
State Well No. [illegible]
Other Well No. [illegible]
Region [illegible]

WATER WELL DRILLERS REPORT

Sections [illegible] Water Code) 0854

(1) **Driller:**
Name Forest Thompson
Address P.O. Box 95 Fiddletown Calif
License No. 6335 Classification C57

Owner
Name
Address

(2) **Proposed use or uses** *check*:
Domestic ☐ Municipal ☐
Irrigation ☐ Industrial ☐
Domestic and Irrigation ☒ Test well ☐
Other

(3) **Equipment used** *(check)*:
Rotary ☐
Cable ☒
Dug well ☐
Other

(4) **Type of work** *check*:
New well ☒ Reconditioning of well ☐
Deepening existing well ☐

(5) **Well log:**
Total depth of well 48 ft.

Depth From Ground Surface

0	ft. to	4	ft.	Top Soil
4	" "	36	"	Light Clay some gravel No water
36	" "	45	"	~~Sandy Clay Some water~~ gravel with some Clay carring water
45	" "	48	"	light Blue Clay bottom of gravel

Give details of formations penetrated, such as silt, peat, muck, sand, gravel, clay, shale, sandstone, hardpan, rock. Include size of gravel (diameter) and sand (fine, medium, coarse), color of material, structure (loose, packed, cemented, soft, hard, brittle).

If additional space is required, continue on DWR Form No. 246—Supplement, and attach to respective report copies.

(6) **Casing left in well:**

LENGTH FT.	DIAMETER INCHES	SINGLE, DOUBLE, WELDED, OTHER	LBS. PER FOOT OR GAGE OF CASING	SEATING BELOW GROUND SURFACE FT.
48	6	single welded	12 ga.	47 1/2

Type and size of shoe or well ring 4 X 5 Welded joints ☒ Yes ☐ No

D.W.R. FORM NO. 246 REGIONAL WATER POLLUTION CONTROL BOARD COPY 23971 3-5

ORIGINAL
File Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5, CALIFORNIA

SHEET 2

WATER WELL DRILLERS REPORT

Sections [illegible] Water Code

Do Not Fill In
State Well No.
Other Well No.
Register

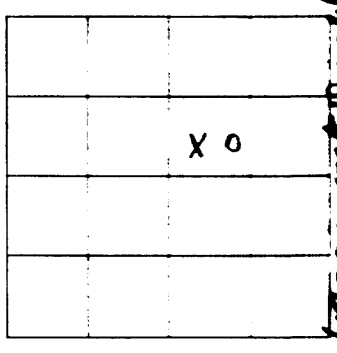
(7) **Perforations:**
Type of perforator used: Burnt holes
Perforated 32 ft. to 48 ft. Size of holes 3/4 No. of holes 15 Per ft.
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "
" " " " " " " " "

(8) **Water levels:**
Depth at which water first encountered 36 ft.
Depth to water before perforating ft.
Depth to water after perforating ft.
Note any change in water level while drilling
No

(9) **Well pumping test:**
Date of test May 30 By whom Bailer test
Depth to water when test started 20 ft.
G.P.M. at beginning of test 16
Drawdown from standing level 18 ft.
G.P.M. at completion of test 15
Drawdown at completion of test 18 ft.
Length of time tested 1 hr.
Temperature of water 62
Was gas present in water? ☐ Yes ☒ No

(10) **General:**
Was well gravel packed? No Size of rock Thickness of pack
Was a surface sanitary seal provided? Clay packed
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, attach detailed description.
Strata sealed
Was analysis made of water? ☐ Yes ☒ No If yes, attach copy.
Was electric log made of well? ☐ Yes ☒ No If yes, attach copy.
If well abandoned, was it plugged and sealed?
Method of plugging and sealing

(11) **Location:**



Section No. 32
Township 3S
Range 5W
Base & Meridian Mount Diablo
Show location of well in Section, thus (X)
Distances to section lines from well. N or S 2000 ft. and E or W 2000 ft.
Show location of nearest known well, thus (O)
Distance to nearest known well 150 ft.

(12) **Time of work:**
Work started date May 29 Completed date May 30
Date of this report June 7

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

[SIGNED] Forest Thompson & Son
Well Driller
By Forest Thompson
License No. 11333 Classification C57
Dated June 7, 1950

D.W.R. FORM NO. 246 REGIONAL WATER POLLUTION CONTROL BOARD COPY 23972 3-50 40M CO.-N SPO

ORIGINAL
For Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5 CALIFORNIA

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

DIVISION OF WATER RESOURCES

SHEET 1

Do Not Fill In
State Well No.
Other Well No.
Report

WATER WELL DRILLERS REPORT 8915

Sections 7851, 7852, 7853, Water Code

(1) **Driller:**
Name A. H. MIXOR
Address 1727 Magnolia Street
Redding, California
License No. 116889 Classification C 57

(2) **Proposed use or uses** *check*: Domestic X Municipal ☐ Irrigation ☐ Industrial ☐ Domestic and Irrigation ☐ Test well ☐ Other ☐

(3) **Equipment used** *(check)*: Rotary ☐ Cable X Dug well ☐ Other ☐

Owner:
Name
Address

(4) **Type of work** *check*: New well X Reconditioning of well ☐ Deepening existing well ☐

(5) **Well log:**
Total depth of well 52 ft.

Depth From Ground Surface

0	ft. to	16	ft.	Gravel-Loam loose
16	" "	21	"	Clay packed
21	" "	29	"	Gravel ½"-Sand coarse
29 32	" "	37	"	Hardpan cemented
37	" "	52	"	Gravel ½" to 1½" Sand coarse

Give details of formations penetrated, such as silt, peat, muck, sand, gravel, clay, shale, sandstone, hardpan, rock. Include size of gravel (diameter) and sand (fine, medium, coarse), color of material, structure (loose, packed, cemented, soft, hard, brittle).

If additional space is required, continue on DWR Form No. 246—Supplement, and attach to respective report copies.

(6) **Casing left in well:**

LENGTH FT.	DIAMETER INCHES	SINGLE, DOUBLE, WELDED, OTHER	LBS. PER FOOT OR GAGE OF CASING	SEATING BELOW GROUND SURFACE, FT
52	6"	Single	12 gage	ground surface

Type and size of shoe or well ring 5/8 Welded joints—X Yes ☐ No

23971 3-52 40M QUIN SPC

ORIGINAL
File Original, Duplicate and Triplicate with the
DIVISION OF WATER RESOURCES
P. O. BOX 1079
SACRAMENTO 5, CALIFORNIA

SHEET 2

WATER WELL DRILLERS REPORT

Sections [illegible] Water Code

Do Not Fill In
State Well No.
Other Well No.
Receipt

(7) **Perforations:**

Type of perforator used: **Machine perforated**

Perforated **32** ft. to **52** ft. Hole size **3/8** No. of holes **29 per ft.**

(8) **Water levels:**

Depth at which water first encountered **16** ft.
Depth to water before perforating ft.
Depth to water after perforating **9** ft.
Note any change in water level while drilling

(9) **Well pumping test:**

Date of test By whom
Depth to water when test started ft.
G.P.M. at beginning of test
Drawdown from standing level ft.
G.P.M. at completion of test
Drawdown at completion of test ft.
Length of time tested
Temperature of water
Was gas present in water? ☐ Yes ☐ No

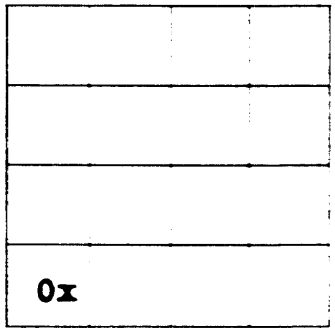
(10) **General:**

CONFIDENTIAL
Section 7076.1, Water Code

Was well gravel packed? Size of rock Thickness of pack
Was a surface sanitary seal provided?
Were any strata sealed against pollution? ☐ Yes ☒ No If yes, attach detailed description.
Strata sealed
Was analysis made of water? ☐ Yes ☒ No If yes, attach copy.
Was electric log made of well? ☐ Yes ☒ No If yes, attach copy.
If well abandoned, was it plugged and sealed?
Method of plugging and sealing

(11) **Location:**

North



Section No. **32**
Township **32N**
Range **5 W**
Base & Meridian **Mt. Diablo**
Show location of well in Section, thus (X)
Distances to section lines from well, N or S **975** ft. and E or W **1025** ft.
Show location of nearest known well, thus (O)
Distance to nearest known well **180** ft.

(12) **Time of work:**

Work started date **10-9-50** Completed date **10-11-50**
Date of this report **11-18-50**

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

[SIGNED] A. W. Mason
Well Driller

By
License No. **116889** Classification **C 57**
Dated **Nov. 18,** 19**50**

July 50

D.W.R. FORM NO. 246 REGIONAL WATER POLLUTION CONTROL BOARD COPY 23972 3-50 40M SUIN SPO

32N/05W - 32M

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in
No. 349624

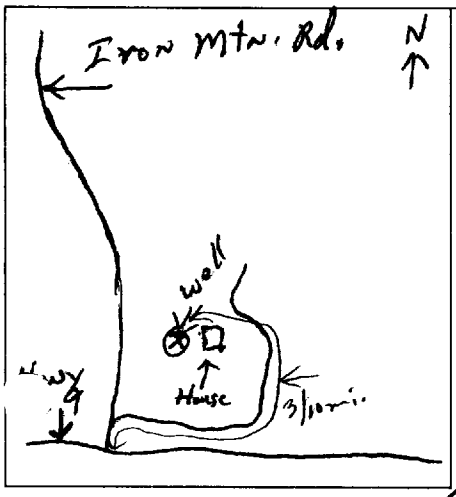
ce of Intent No. _____
Local Permit No. or Date 9311

AP 204-060-06

State Well No. _____
Other Well No. _____

(1
Ac
Ci

(2) LOCATION OF WELL (See instructions):
County Shasta Owner's Well Number 2
Well address if different from above _____
Township 32N Range 5W Section 32
Distance from cities, roads, railroads, fences, etc. 3/10 mi. From Hwy 299 to drill site



WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☒
Irrigation ☐
Industrial ☐
Test Well ☐
Municipal ☐
Other ☐
(Describe)

(5) EQUIPMENT:
Rotary ☒ Reverse ☐
Cable ☐ Air ☒
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☐ No ☒ Size _____
Diameter of bore 6 7/8 in.
Packed from _____ to _____ ft.

(7) CASING INSTALLED:
Steel ☒ Plastic ☐ Concrete ☐

From ft.	To ft.	Dia. in.	Gage or Wall
-1	35	6	.188

(8) PERFORATIONS: NONE
Type of perforation or size of screen

From ft.	To ft.	Slot size

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 23 ft.
Were strata sealed against pollution? Yes ☐ No ☐ Interval _____ ft.
Method of sealing Dry Bentonite

(10) WATER LEVELS:
Depth of first water, if known — ft.
Standing level after well completion 84 ft.

(11) WELL TESTS:
Was well test made? Yes ☒ No ☐ If yes, by whom? US
Type of test Pump ☐ Bailer ☐ Air lift ☒
to water at start of test 84 ft. At end of test 250 ft.
Discharge 3 gal/min after 1 hours Water temperature _____
Chemical analysis made? Yes ☐ No ☒ If yes, by whom? _____
Was electric log made Yes ☐ No ☒ If yes, attach copy to this report

(12) WELL LOG: Total depth 262 ft. Completed depth 262 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	34	weathered greenstone
34	262	Fresh greenstone

SEP 11 1990

Work started 8-20 19 90 Completed 8-21 19 90

WELL DRILLER'S STATEMENT: 457
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Signed Don Hefley (Well Driller)
NAME DON'S DRILLING CO. (Person, firm or corporation) (Typed or printed)
Address Rt. 2 Box 279B3
City SHINGLETOWN, CA 96088 (916) 474-5300 ZIP _____
License No. 279177 Date of this report 8-22-90

ORIGINAL
File with DWR

RECEIVED
DEC 0 1 1992
D.W.R.

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

Page 1 of 1
Owner's Well No. 2
Date Work Began 9-30-92, Ended 10-1-92
Local Permit Agency Shasta Co. Health Dept.
Permit No. 10295 Permit Date 9-23-92

No. 486074

DWR USE ONLY — DO NOT FILL IN
32N/05W-32M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DEPTH TO FIRST WATER 25 (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	36	Brown clay, [weathered rock]
36	258	green rhyolite with quartz seams

TOTAL DEPTH OF BORING 258 (Feet)
TOTAL DEPTH OF COMPLETED WELL 258 (Feet)

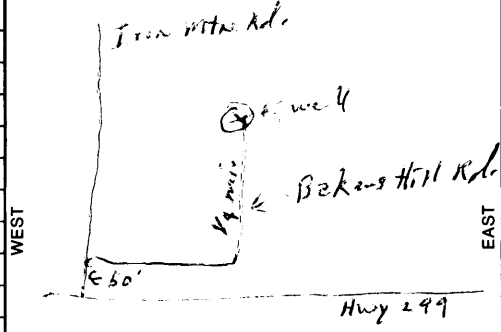
WELL OWNER

CITY STATE ZIP

WELL LOCATION

Address Same
City Redding
County Shasta
APN Book 204 Page 060 Parcel 03
or Township 32N Range 05W Section 32
or Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

LOCATION SKETCH

NORTH


SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.
PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
X Domestic
___ Public
___ Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD Air Rotary FLUID water

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 36 (Ft.) & DATE MEASURED 10-1-92
ESTIMATED YIELD* 18 (GPM) & TEST TYPE Air Lift
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN 200 (Ft.) Est.
** May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	41	10"	✓				A53A	6 5/8"	.134	

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	20		✓		

DEC 18 1992

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Don's Drilling Co. Inc. 457
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

27983 Camino Real Shingletown Ca. 96088
ADDRESS CITY STATE ZIP

Signed Don Hackley 10-1-92 641500
WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

RECEIVED SEP 09 1994 D.W.R.

Page 1 of 1
Owner's Well No. _____
Date Work Began 8-22-94 Ended 8-23-94
Local Permit Agency _____
Permit No. 10936 Permit Date 8-25-94

No. 581564

DWR USE ONLY — DO NOT FILL IN
32N/05W-32M
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DEPTH TO FIRST WATER _____ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft. to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
262 498	Hard Rhyolite with quartz seams 450-498

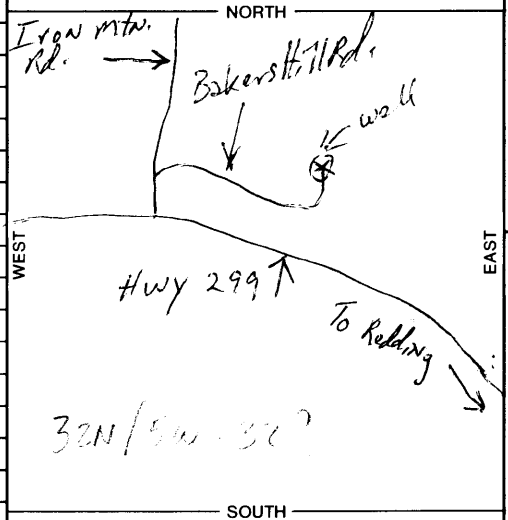
TOTAL DEPTH OF BORING 498 (Feet)
TOTAL DEPTH OF COMPLETED WELL 498 (Feet)

WELL OWNER

WELL LOCATION

Address Same
City _____
County Shasta
APN Book 204 Page 060 Parcel 06
or Township 32N Range 05W Section 32M
or Latitude _____ DEG. MIN. SEC. NORTH Longitude _____ DEG. MIN. SEC. WEST

LOCATION SKETCH



Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.
PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

___ NEW WELL
MODIFICATION/REPAIR
X Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)

___ MONITORING
WATER SUPPLY
X Domestic
___ Public
___ Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD Air Rotary FLUID water

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL _____ (Ft.) & DATE MEASURED _____
ESTIMATED YIELD* 1½ (GPM) & TEST TYPE Air Lift
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN — (Ft.)
** May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft. to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL/GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
None added									

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft. to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
None added				

SEP 21 1994

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other _____

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Don's Drilling Co. Inc 457
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 22983 Camino Real CITY Shingletown STATE Ca. ZIP 96088
Signed Don Ackley (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED 8-25-94 C-57 LICENSE NUMBER 641500

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

DEC 07 2015

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 0988538

DWR USE ONLY — DO NOT FILL IN
32N/05W-32
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Page ____ of ____
Owner's Well No. 1
Date Work Began ____, Ended 10-7-15
Local Permit Agency SHASTA COUNTY
Permit No. 15-164 Permit Date 9-17-15

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD AIR ROTARY FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	3	Soil + Boulders
3	22	BROWN SHALE
22	35	FRACTURED BROWN ROCK
35	405	GREEN GRANIT
W		
60		
205		
~~348~~	348	

TOTAL DEPTH OF BORING 405 (Feet)
TOTAL DEPTH OF COMPLETED WELL 405 (Feet)

WELL OWNER

[redacted]

WELL LOCATION

Address BAILER HILL RD
City REDDING
County SHASTA
APN Book 204 Page 040 Parcel 005
Township ___ Range ___ Section ___
Lat ___ DEG. ___ MIN. ___ SEC. N
Long ___ DEG. ___ MIN. ___ SEC. W

LOCATION SKETCH

NORTH
WEST — DRIVEWAY — EAST
SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial
___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 60 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 100 (Ft.) & DATE MEASURED 10-7-15
ESTIMATED YIELD * 8 (GPM) & TEST TYPE AIR LIFT
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN NA (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	38	10"	X				Steel	6"	134	NO
38	405	6"								
5	405						PVC	4"	Sch 40	Centaloc
345	405			X			PVC	4"	Sch 40	.032 FACTORY

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	29		X		

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME STEVEN FOSTER WELL DRILLING
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 1021 EASTSIDE RD CITY ANDERSON STATE CA ZIP 96007

Signed [signature] C-57 LICENSED WATER WELL CONTRACTOR

DATE SIGNED ___ C-57 LICENSE NUMBER 573681

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

OSP 03 78836

ORIGINAL
File with DWR

NOV 07 2014

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 0988555

DWR USE ONLY — DO NOT FILL IN
32N/10W-32P
STATE WELL NO./STATION NO.
LATITUDE | LONGITUDE
APN/TRS/OTHER

Page ___ of ___
Owner's Well No. I
Date Work Began ___ Ended 9-25-14
Local Permit Agency Shasta Co
Permit No. 14-273 Permit Date 7-15-14

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Air Rotary FLUID ___

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	2	Soil & Cobles
2	45	Brown Shale
45	54	Brown & Green Shale
54	264	Green Granit
W		
80		
145		
225		

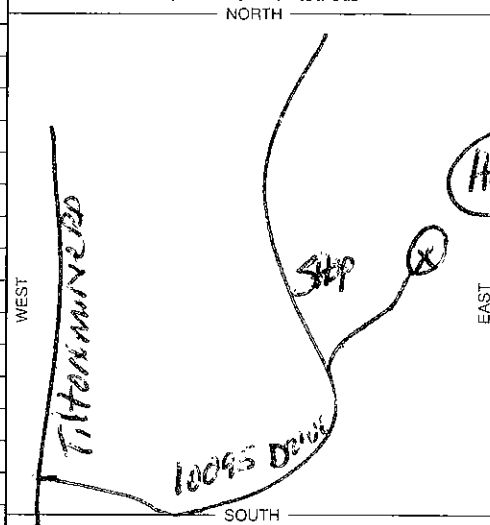
TOTAL DEPTH OF BORING 264 (Feet)
TOTAL DEPTH OF COMPLETED WELL 264 (Feet)

Off Tilton Mine Road, Lower Springs

WELL LOCATION

Address Same
City ___
County Shasta
APN Book 204 Page 530 Parcel 014
Township ___ Range ___ Section ___
Lat ___ DEG. MIN. SEC. N Long ___ DEG. MIN. SEC. W

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. ***PLEASE BE ACCURATE & COMPLETE.***

ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)

WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial
___ MONITORING
___ TEST WELL
___ CATHODIC PROTECTION
___ HEAT EXCHANGE
___ DIRECT PUSH
___ INJECTION
___ VAPOR EXTRACTION
___ SPARGING
___ REMEDIATION
___ OTHER (SPECIFY)

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 80 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 50 (Ft.) & DATE MEASURED 9-25-14
ESTIMATED YIELD * 10 (GPM) & TEST TYPE Air Lift
TEST LENGTH NR (Hrs.) TOTAL DRAWDOWN NA (Ft.)
* *May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	29	10"	X				Steel	6"	134	
29	264	6"								
4	204						PVC	4"	Sch40	Cedar Rx
204	264			X			PVC	4"	Sch40	.032

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	23		X		

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Steven Foster Well Drilling (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 7021 Eastside Rd CITY Anderson STATE Ca ZIP 96007
Signed ___ C-57 LICENSED WATER WELL CONTRACTOR
DATE SIGNED ___
C-57 LICENSE NUMBER 373451

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

OSP 03 78836

ORIGINAL
File with DWR

SEP 7 4 2014

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 0988559

Page ___ of ___
Owner's Well No. I
Date Work Began ___ Ended Aug 11-14
Local Permit Agency Shasta Co
Permit No. 14-262 Permit Date 7-9-14

DWR USE ONLY — DO NOT FILL IN
32N/5W-27Q1
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DRILLING METHOD Air Rotary FLUID ___

Victoria Highlands

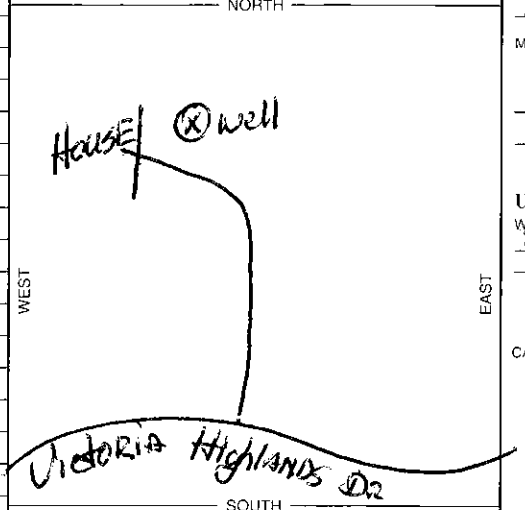
DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	6	Soil
6	29	D.G.
29	225	Green & White Granit
225	270	Green Granit
270	295	Soft White Granit
295	330	Soft Green Granit
330	365	Green Granit
365	385	Soft Green & White Granit
385	426	Green Granit
Water		
333		
185		
225		

TOTAL DEPTH OF BORING 426 (Feet)
TOTAL DEPTH OF COMPLETED WELL 426 (Feet)

WELL LOCATION

Address Same
City ___
County Shasta
APN Book 204 Page 050 Parcel 027
Township 32N Range 05W Section 27
Lat ___ N DEG. MIN. SEC. Long ___ W DEG. MIN. SEC.

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)
X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

USES (✓)
WATER SUPPLY
X Domestic ___ Public
___ Irrigation ___ Industrial
MONITORING ___
TEST WELL ___
CATHODIC PROTECTION ___
HEAT EXCHANGE ___
DIRECT PUSH ___
INJECTION ___
VAPOR EXTRACTION ___
SPARGING ___
REMEDIATION ___
OTHER (SPECIFY) ___

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 185 (Ft.) BELOW SURFACE
DEPTH OF STATIC WATER LEVEL 150 (Ft.) & DATE MEASURED 8-11-14
ESTIMATED YIELD * 5 (GPM) & TEST TYPE Air Lift
TEST LENGTH 1 (Hrs.) TOTAL DRAWDOWN NA (Ft.)
** May not be representative of a well's long-term yield.*

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	29	10"	X				Steel	6"	134	
29	426	6"								Certa
0	426						PVC	4"	Sch 40	Loc.
~~346~~	~~426~~			X			PVC	4"	Sch 40	.032
343	423			X					Factory	Perf.

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	23		X		

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Steven Foster Well Drilling (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)
ADDRESS 7021 Eastside Rd CITY Anderson STATE CA ZIP 96007
Signed ___ (C-57 LICENSED WATER WELL CONTRACTOR) DATE SIGNED ___
C-57 LICENSE NUMBER 736081

DWR 188 REV. 05-03

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

OSP 03 78836

State of California

Well Completion Report

Form DWR 188 Complete 1/21/2016

WCR2016-000426

Owner's Well Number: WW-1 | Date Work Began: 12/14/2015 | Date Work Ended: 12/15/2015

Local Permit Agency: Shasta County Environmental Health

Secondary Permit Agency: | Permit Number: WTR15-229 | Permit Date: 11/24/2015

Well Owner (must remain confidential pursuant to Water Code 13752)

Name: XXXXXXXXXXXXXXXXXXX

Mailing Address: XXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXX

City: XXXXXXXXXXXXXXXXXXX | State: XX | Zip: XXXXX

Planned Use and Activity

Activity: Drill and Destroy

Planned Use: Destruction

Well Location

Address: 100 New Found WAY

City: Redding | Zip: 96002 | County: Shasta

Latitude: 40 Deg. 35 Min. 10.59 Sec. N | Longitude: -122 Deg. 27 Min. 6.20 Sec. W

Dec. Lat.: 40.5873912 | Dec. Long.: -122.4559088

Vertical Datum: | Horizontal Datum: WGS84

Location Accuracy: | Location Determination Method:

APN: 204-660-008-000

Township: 32 N

Range: 05 W

Section: 32

Baseline Meridian:

Ground Surface Elevation: 729

Elevation Accuracy: 30 Ft

Elevation Determination Method: GPS with WAAS

Borehole Information

Orientation: Vertical | Specify:

Drilling Method: Downhole Rotary Hammer | Drilling Fluid: Air

Total Depth of Boring: 486 Feet

Total Depth of Completed Well: Feet

Water Level and Yield of Completed Well

Depth to first water: (Feet below surface)

Depth to Static Water Level: (Feet) | Date Measured:

Estimated Yield*: (GPM) | Test Type:

Test Length: (Hours) | Total Drawdown: (feet)

*May not be representative of a well's long term yield.

Geologic Log - Free Form

Depth from Surface Feet to Feet		Description
0	2	Reddish brown silty clay
2	8	Lt. brown silty clay
8	25	Lt. brown weathered greenstone
25	486	Greenstone

Casings

Casing #	Depth from Surface Feet to Feet		Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description

Annular Material

Depth from Surface Feet to Feet		Fill	Fill Type Details	Filter Pack Size	Description

Destruction Details:
Well unsuccessful, no production- Back filled w/clean native material to 27'. Filled with bentonite chips 27 ' to 19', granular bentonite 19' to surface.

Other Observations:

Borehole Specifications

Depth from Surface Feet to Feet		Borehole Diameter (inches)

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name: DIAMOND CORE DRILLING INC
Person, Firm or Corporation

Address	City	State	Zip
P O BOX 491925	REDDING	CA	96049

Signed: *electronic signature received*
C-57 Licensed Water Well Contractor

Date Signed: 01/18/2016

C-57 License Number: 512406

Attachments

Cory McCandliss Well Site.pdf - Location Map

DWR Use Only

CSG #	State Well Number	Site Code	Local Well Number

N	W
Latitude Deg/Min/Sec	Longitude Deg/Min/Sec

TRS:

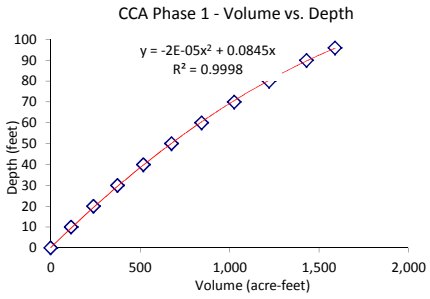
APN:

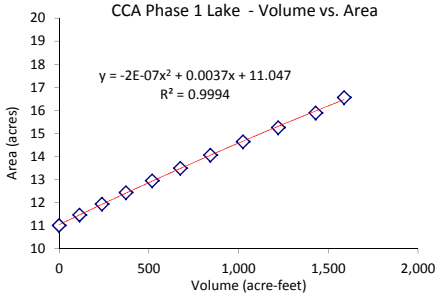
APPENDIX C

NEW LAKE & PHASE CHARACTERISTICS

PHASE 1

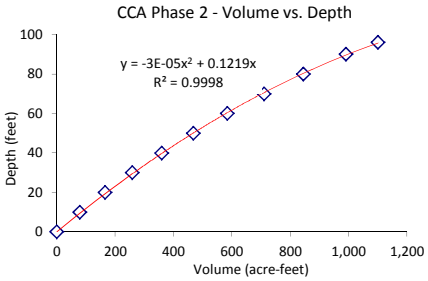
Elevation	Incremental	Area	Volume
feet MSL	feet	acres	acre feet
640	0	11.01	0
650	10	11.47	115
660	20	11.95	239
670	30	12.44	373
680	40	12.96	518
690	50	13.50	675
700	60	14.07	844
710	70	14.65	1,026
720	80	15.26	1,221
730	90	15.90	1,431
736	96	16.56	1,590

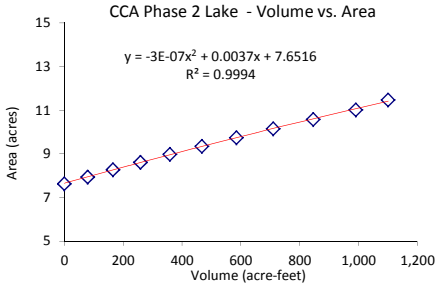




PHASE 2

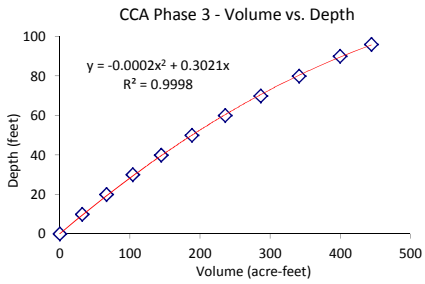
Elevation	Incremental Depth	Area	Volume
feet MSL	feet	acres	acre feet
640	0	7.63	0
650	10	7.94	79
660	20	8.27	165
670	30	8.62	259
680	40	8.98	359
690	50	9.35	468
700	60	9.74	585
710	70	10.15	710
720	80	10.57	846
730	90	11.01	991
736	96	11.47	1,101

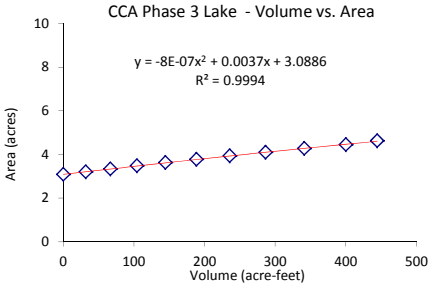




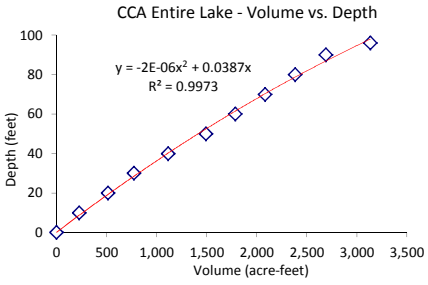
PHASE 3

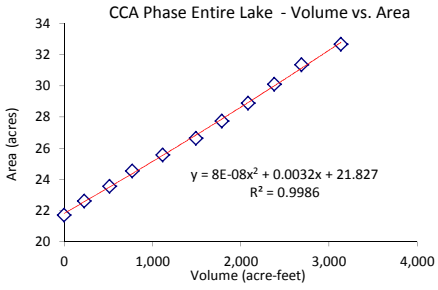
Elevation	Incremental Depth	Area	Volume
feet MSL	feet	acres	acre feet
640	0	3.08	0
650	10	3.21	32
660	20	3.34	67
670	30	3.48	104
680	40	3.62	145
690	50	3.78	189
700	60	3.93	236
710	70	4.10	287
720	80	4.27	341
730	90	4.44	400
736	96	4.63	444





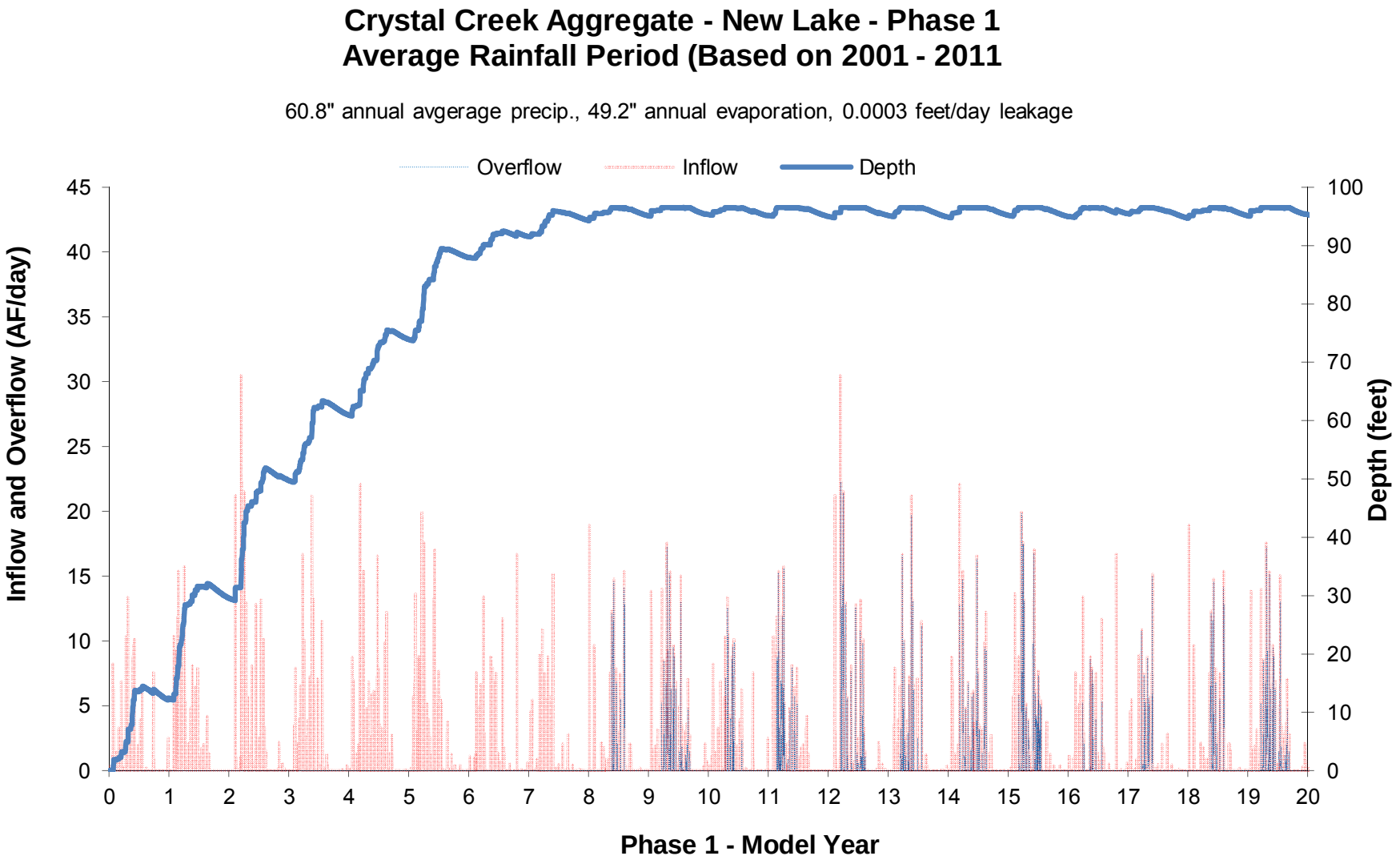
	ENTIRE LAKE		
	Incremental		
Elevation	**Depth**	**Area**	**Volume**
feet MSL	feet	acres	acre feet
640	0	21.71	0
650	10	22.62	226
660	20	23.56	514
670	30	24.54	773
680	40	25.56	1,115
690	50	26.63	1,492
700	60	27.74	1,788
710	70	28.90	2,085
720	80	30.10	2,383
730	90	31.35	2,691
736	96	32.66	3,135





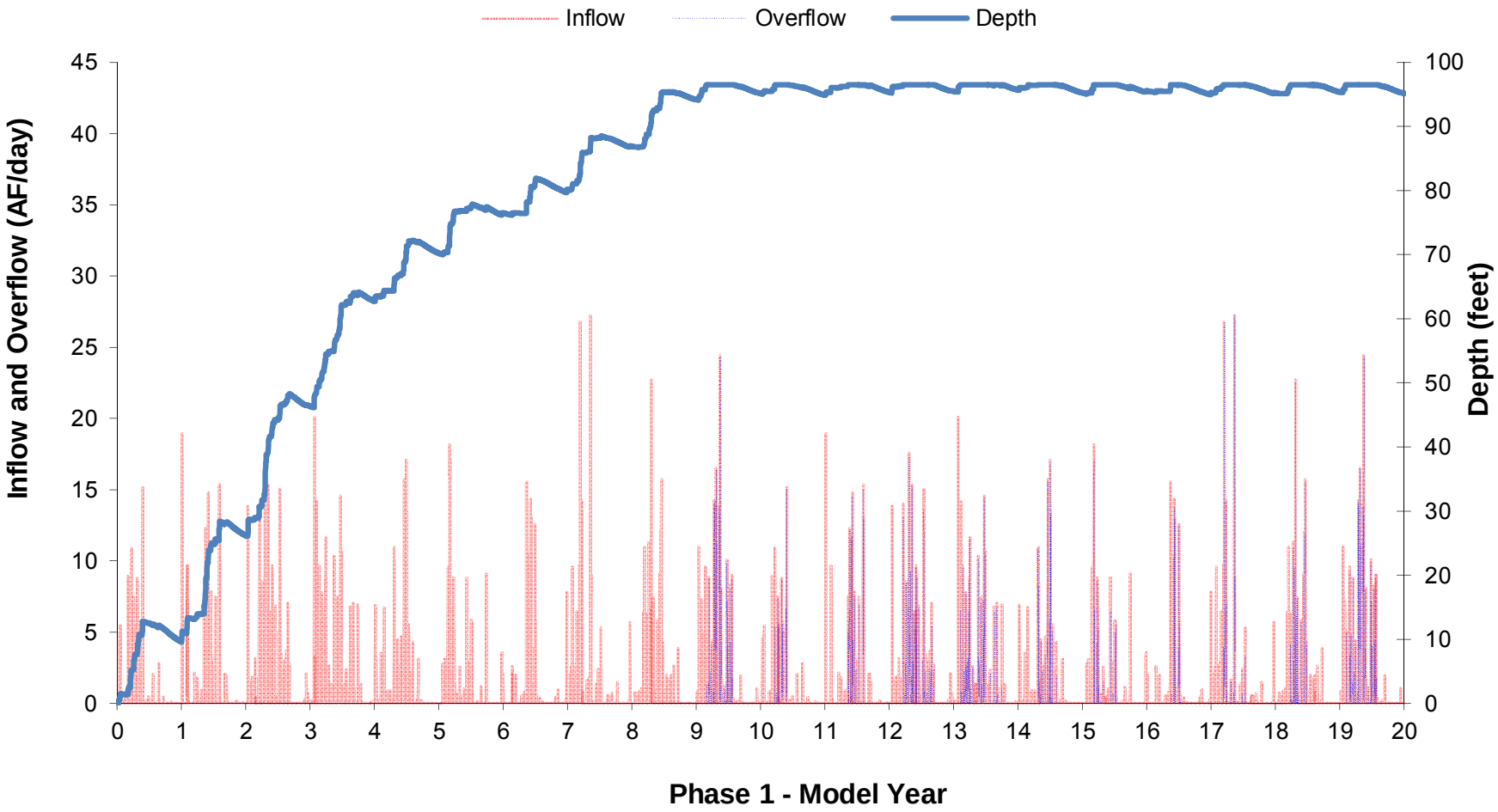
APPENDIX D

WATER-BUDGET MODELING OUTPUT GRAPHS


Crystal Creek Aggregate - New Lake - Phase 1
Average Rainfall Period (Based on 2001 - 2011
60.8" annual avgerage precip., 49.2" annual evaporation, 0.0003 feet/day leakage
Overflow
Inflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
Phase 1 - Model Year
0
5
10
15
20
25
30
35
40
45
0
10
20
30
40
50
60
70
80
90
100
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

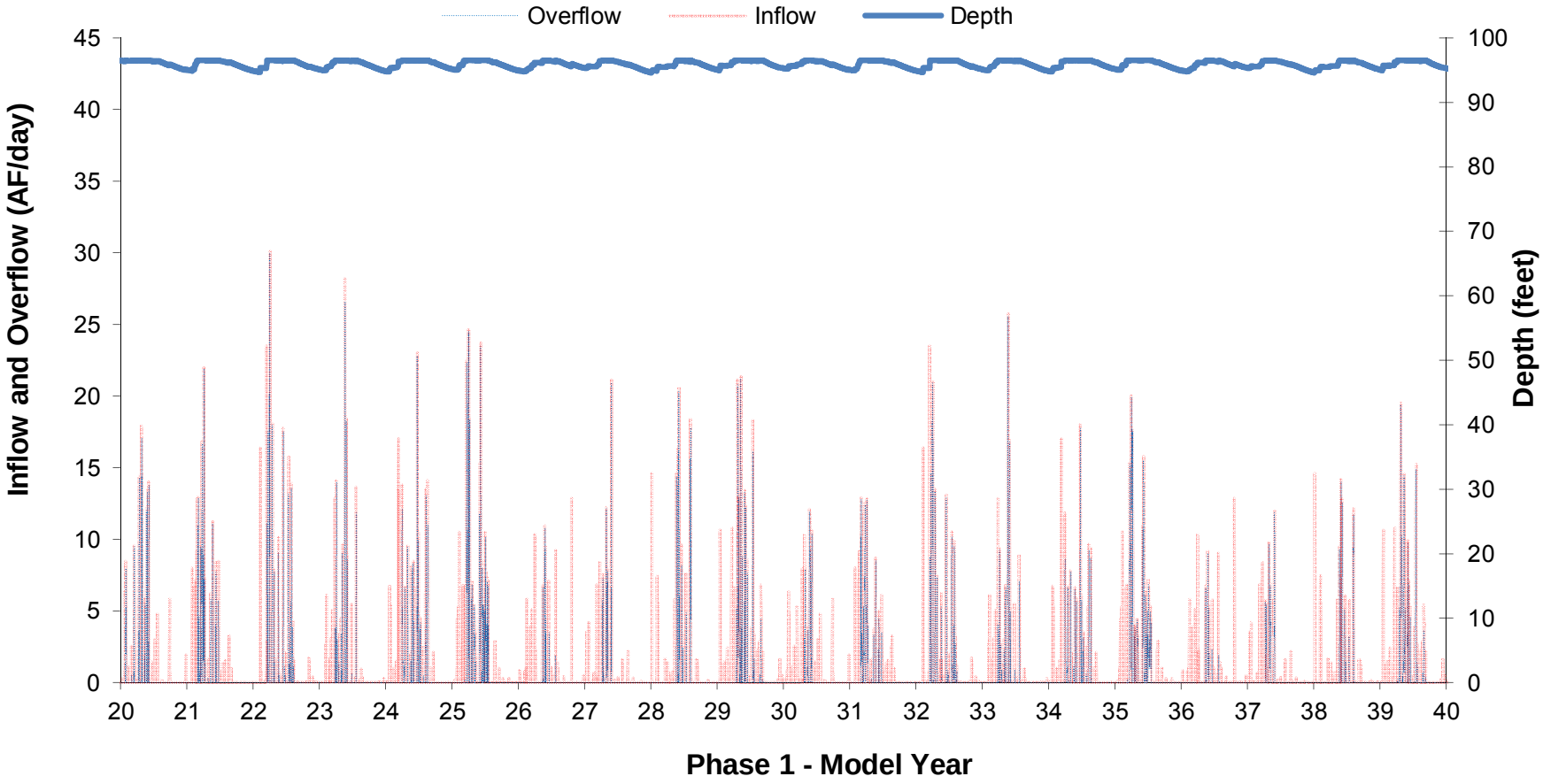
Crystal Creek Aggregate - New Lake - Phase 1
Drought Period (Based on 2007 - 2017 Precipitation)

44.17" annual average dry period precipitation, 49.2" annual evaporation, 0.0003 feet/day leakage



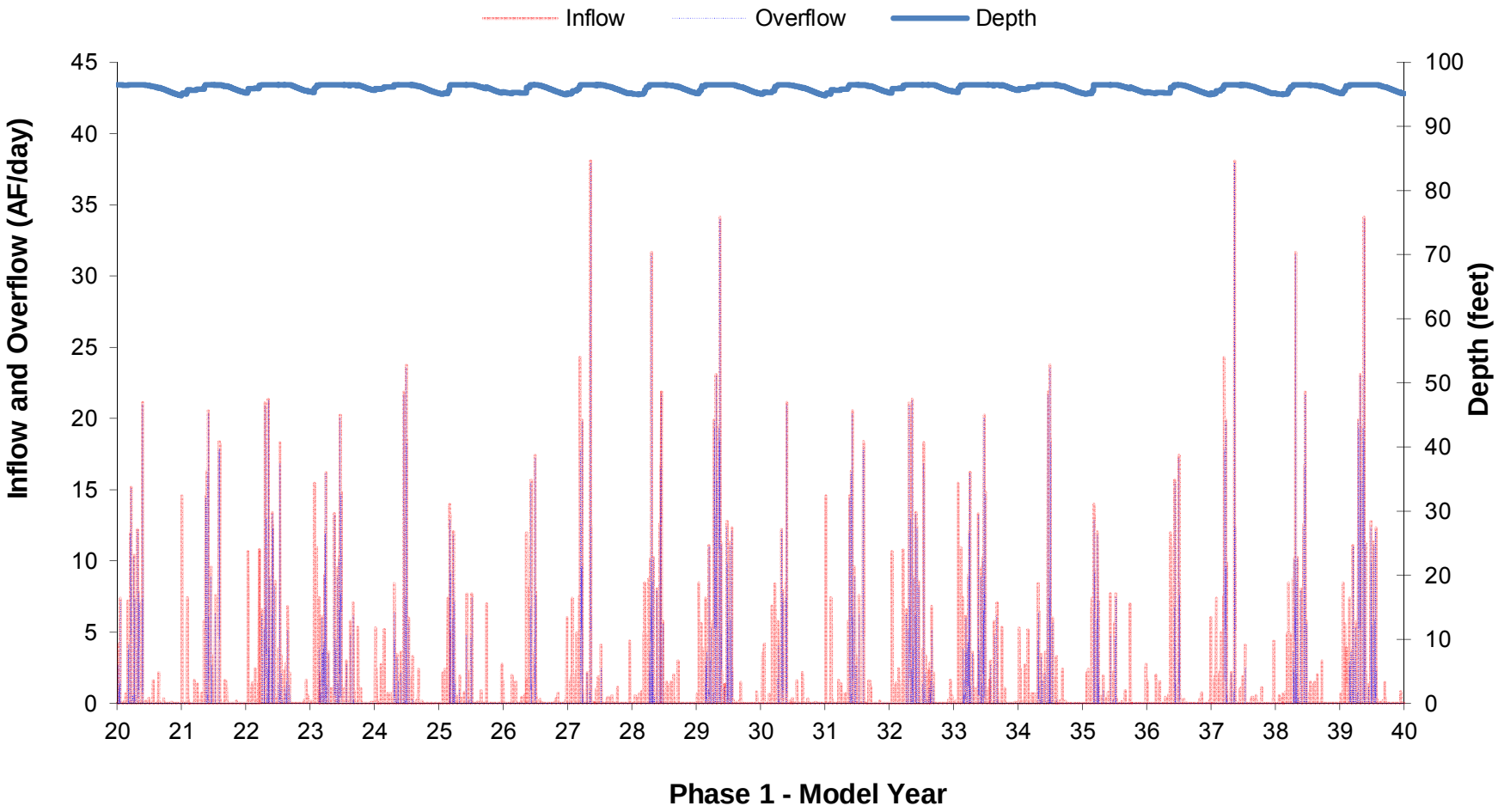
Crystal Creek Aggregate - New Lake - Phase 1
Average Rainfall Period (Based on 2001 - 2011

60.8" annual avgerage precip., 49.2" annual evaporation, 0.0003 feet/day leakage



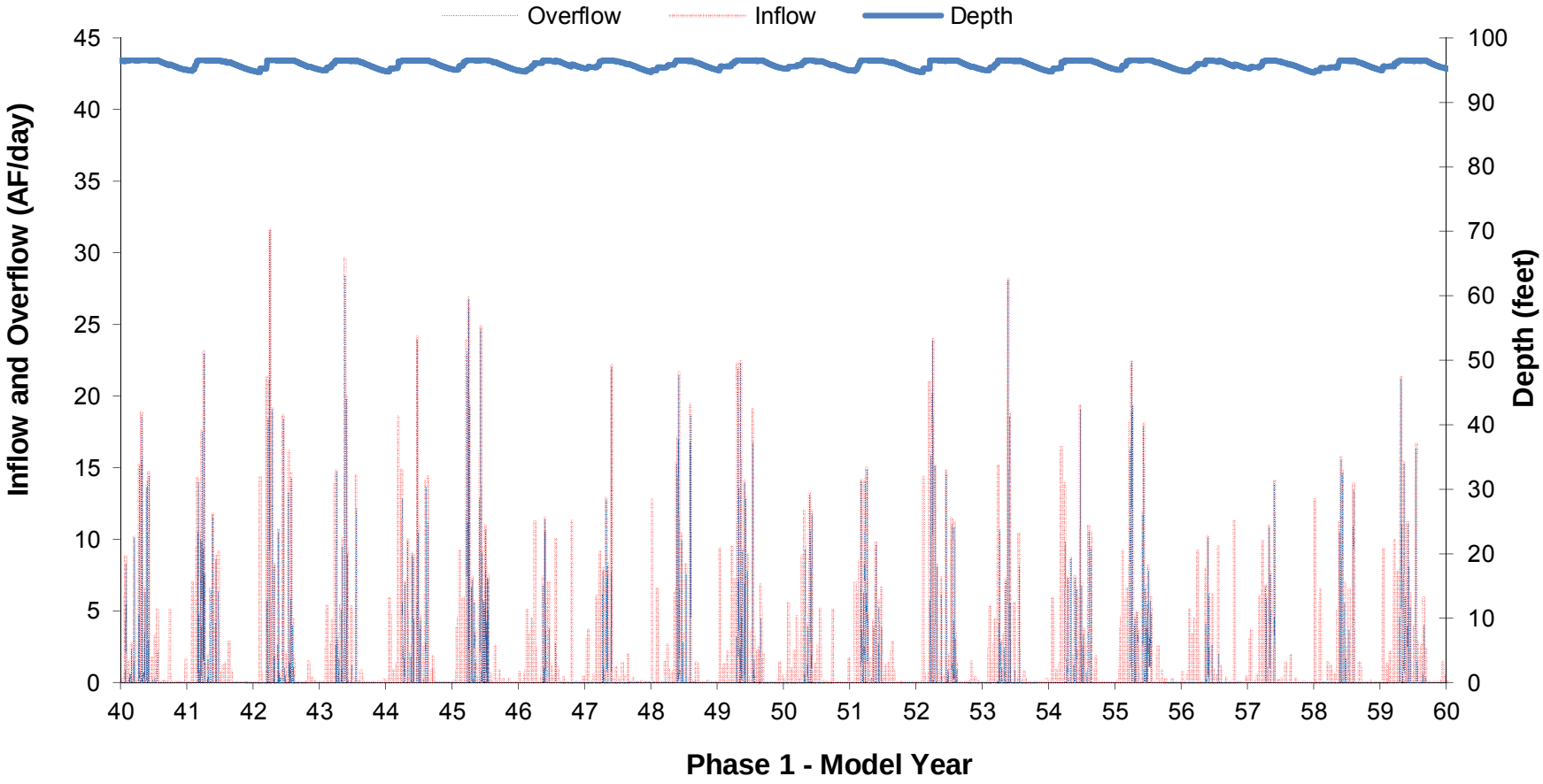
Crystal Creek Aggregate - New Lake - Phase 1
Drought Period (Based on 2007 - 2017 Precipitation)

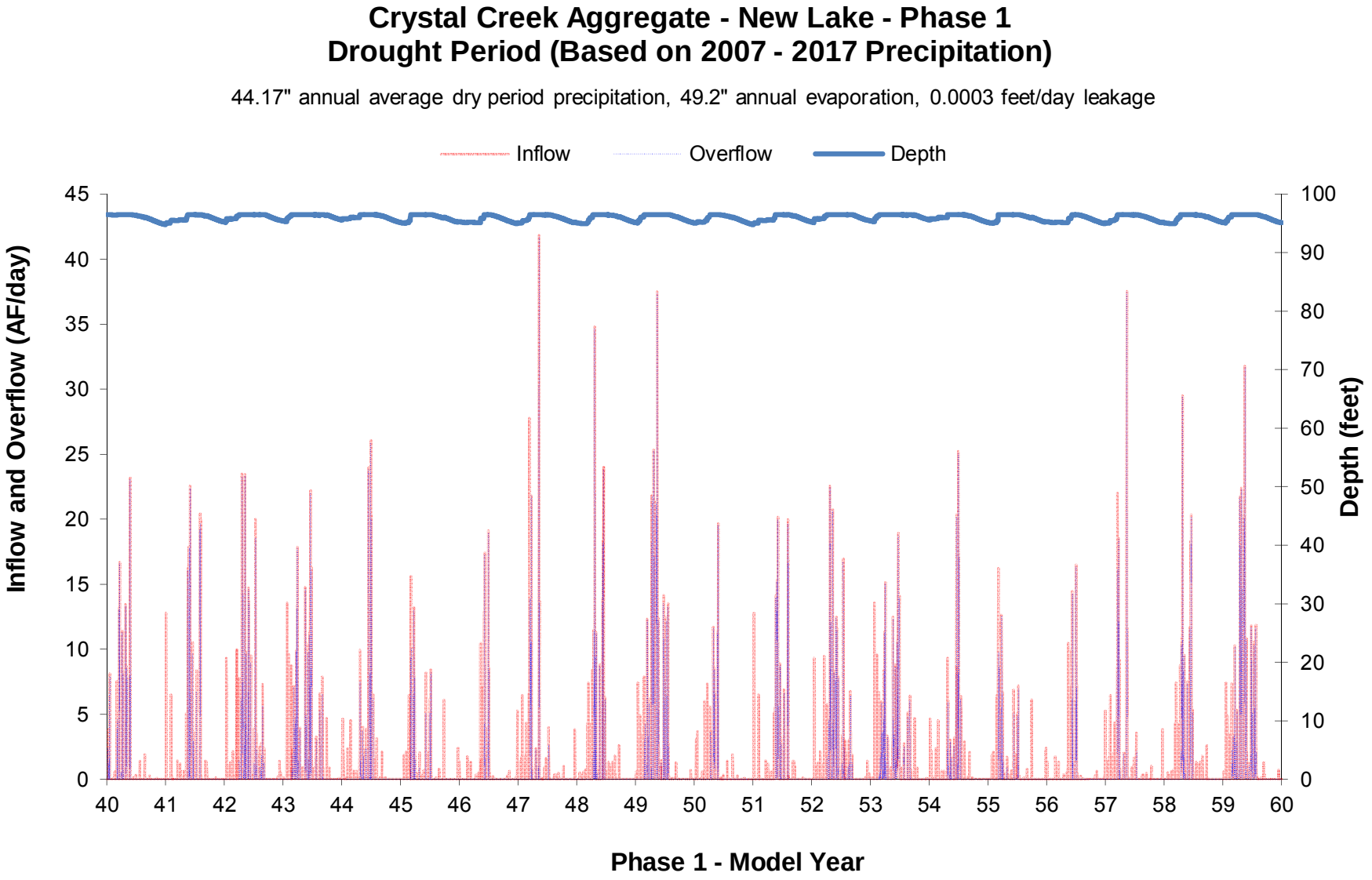
44.17" annual average dry period precipitation, 49.2" annual evaporation, 0.0003 feet/day leakage

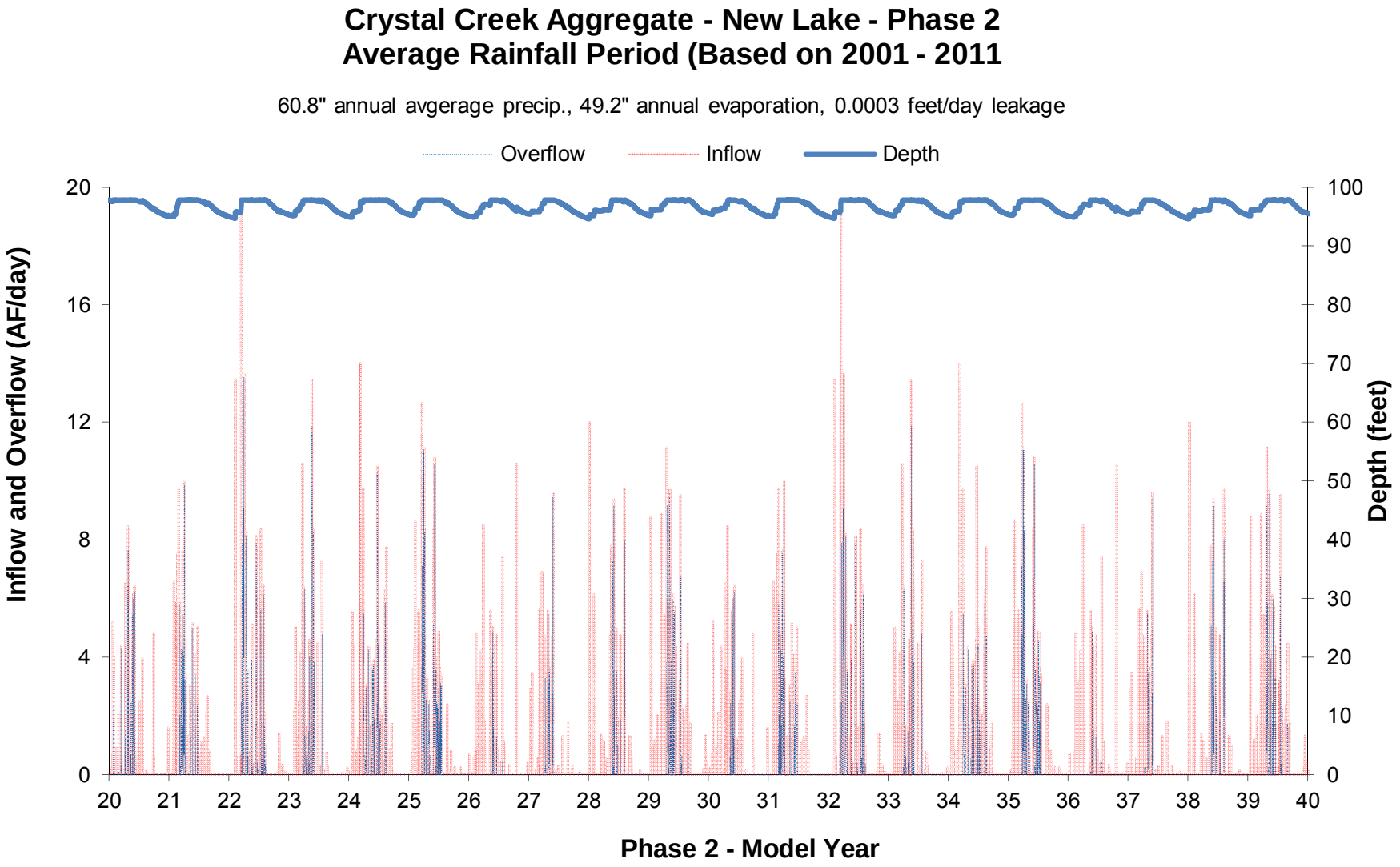


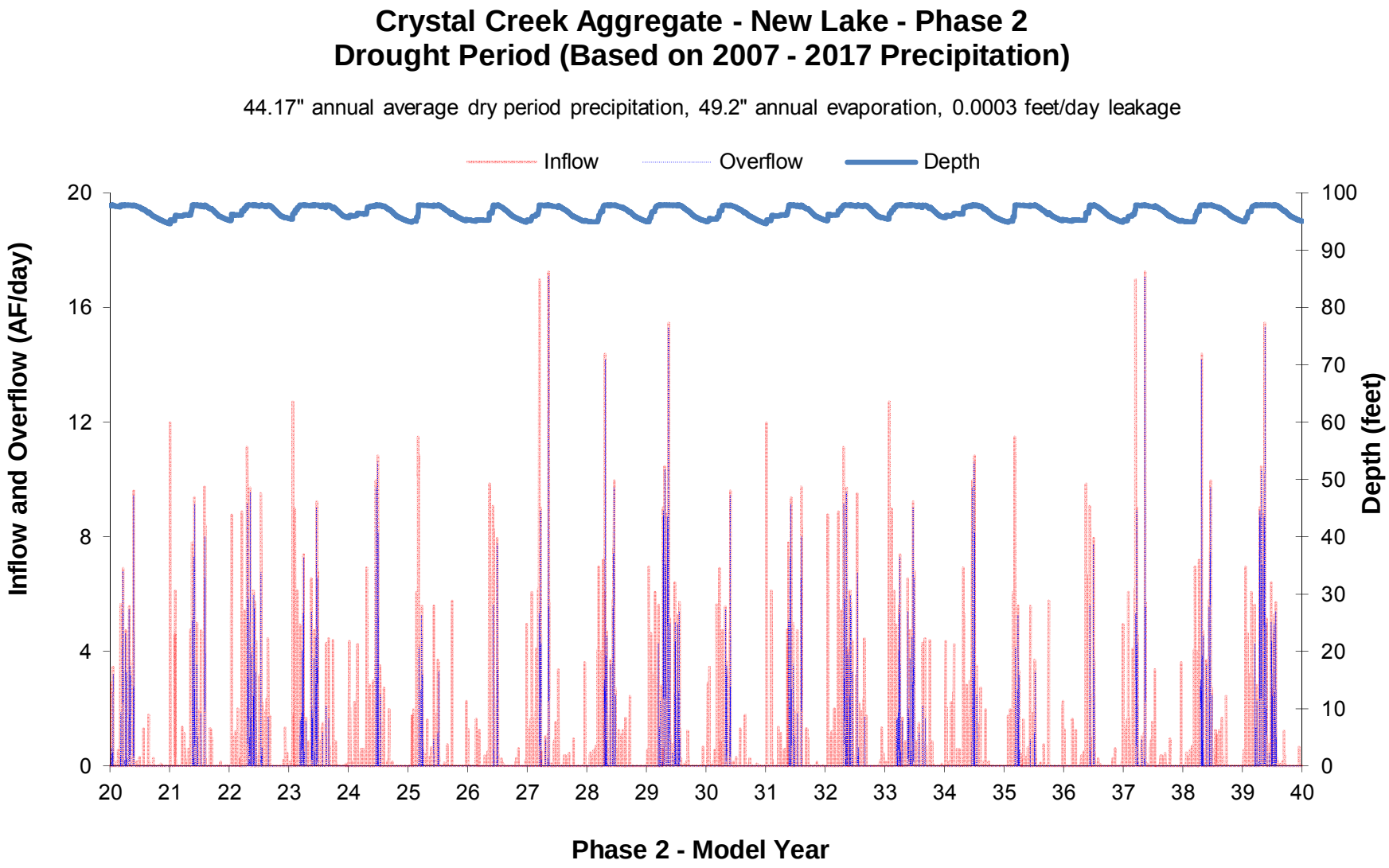
Crystal Creek Aggregate - New Lake - Phase 1
Average Rainfall Period (Based on 2001 - 2011

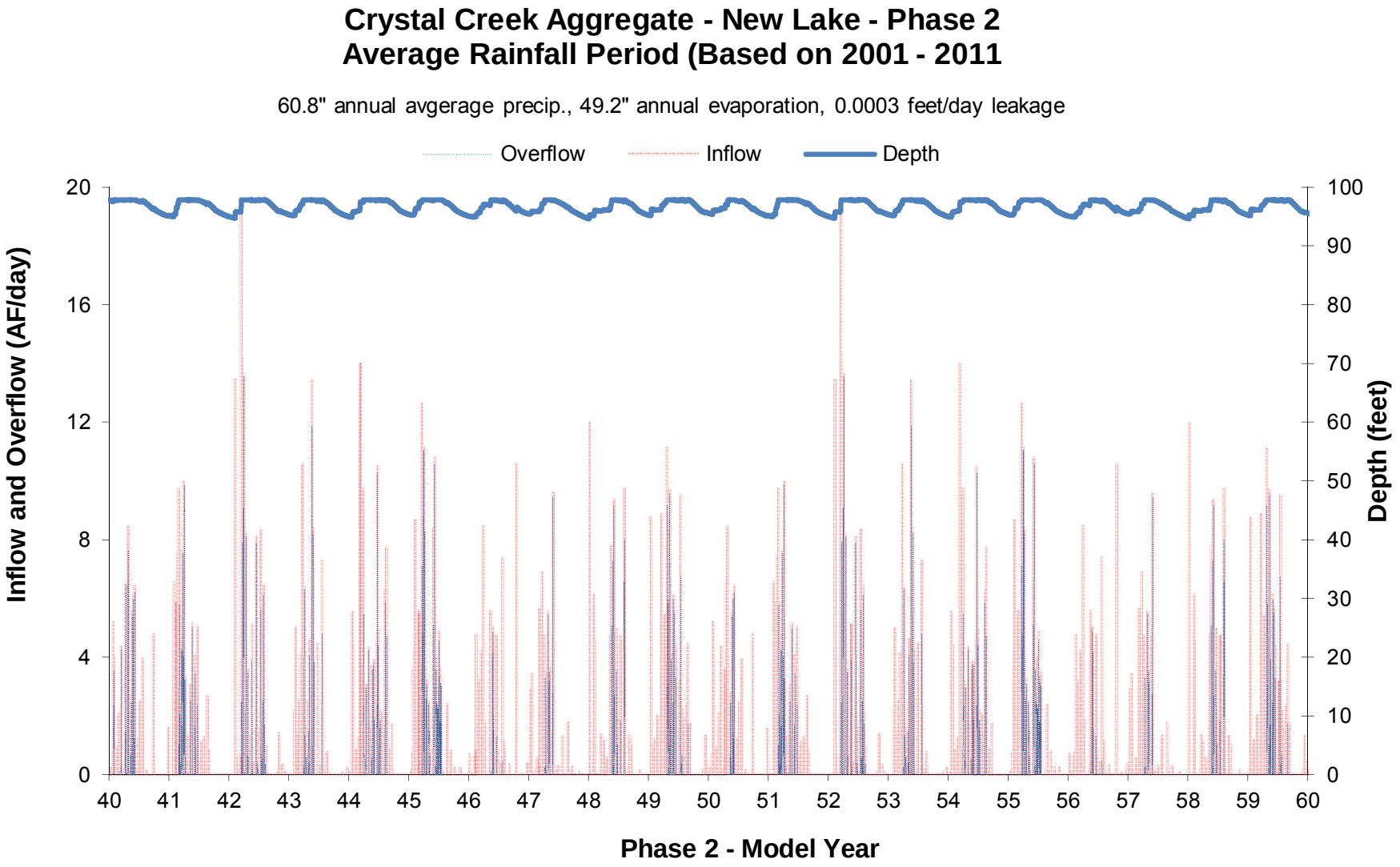
60.8" annual avgerage precip., 49.2" annual evaporation, 0.0003 feet/day leakage

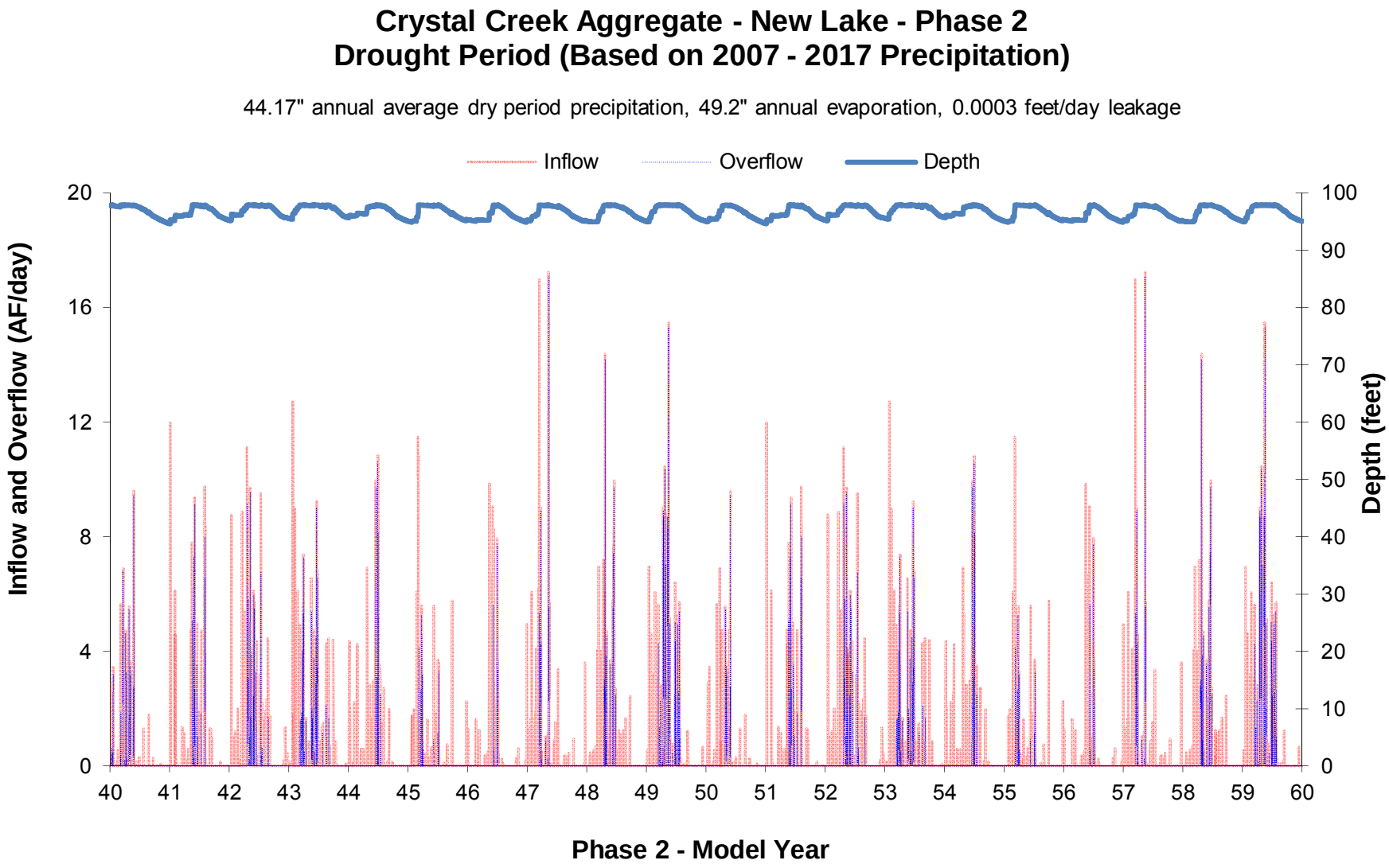



Crystal Creek Aggregate - New Lake - Phase 1
Drought Period (Based on 2007 - 2017 Precipitation)
44.17" annual average dry period precipitation, 49.2" annual evaporation, 0.0003 feet/day leakage
Inflow
Overflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
0
5
10
15
20
25
30
35
40
45
0
10
20
30
40
50
60
70
80
90
100
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
Phase 1 - Model Year


Crystal Creek Aggregate - New Lake - Phase 2
Average Rainfall Period (Based on 2001 - 2011
60.8" annual avgerage precip., 49.2" annual evaporation, 0.0003 feet/day leakage
Overflow
Inflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
0
4
8
12
16
20
0
10
20
30
40
50
60
70
80
90
100
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
Phase 2 - Model Year

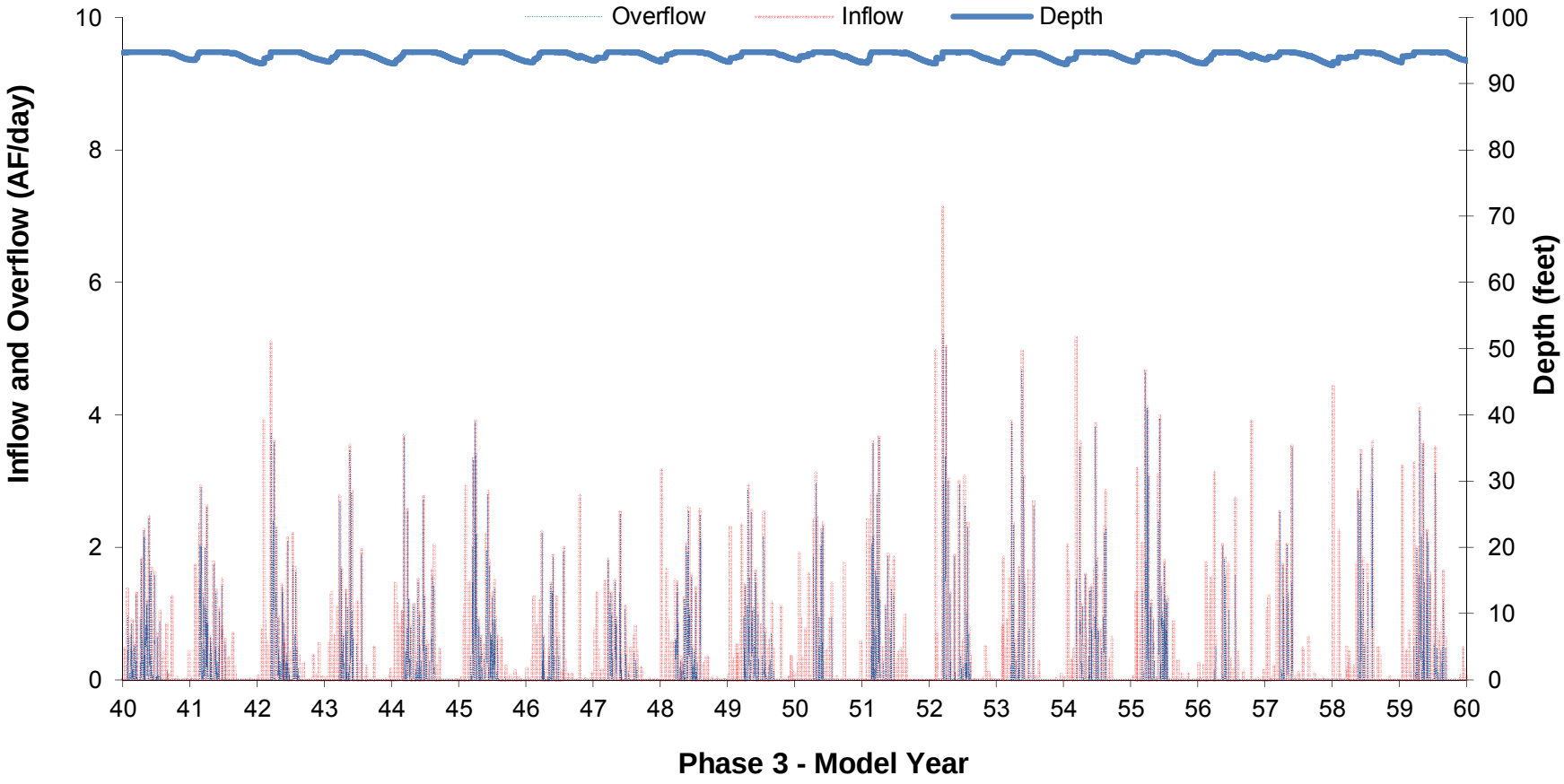

Crystal Creek Aggregate - New Lake - Phase 2
Drought Period (Based on 2007 - 2017 Precipitation)
44.17" annual average dry period precipitation, 49.2" annual evaporation, 0.0003 feet/day leakage
Inflow
Overflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
0
4
8
12
16
20
0
10
20
30
40
50
60
70
80
90
100
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
Phase 2 - Model Year

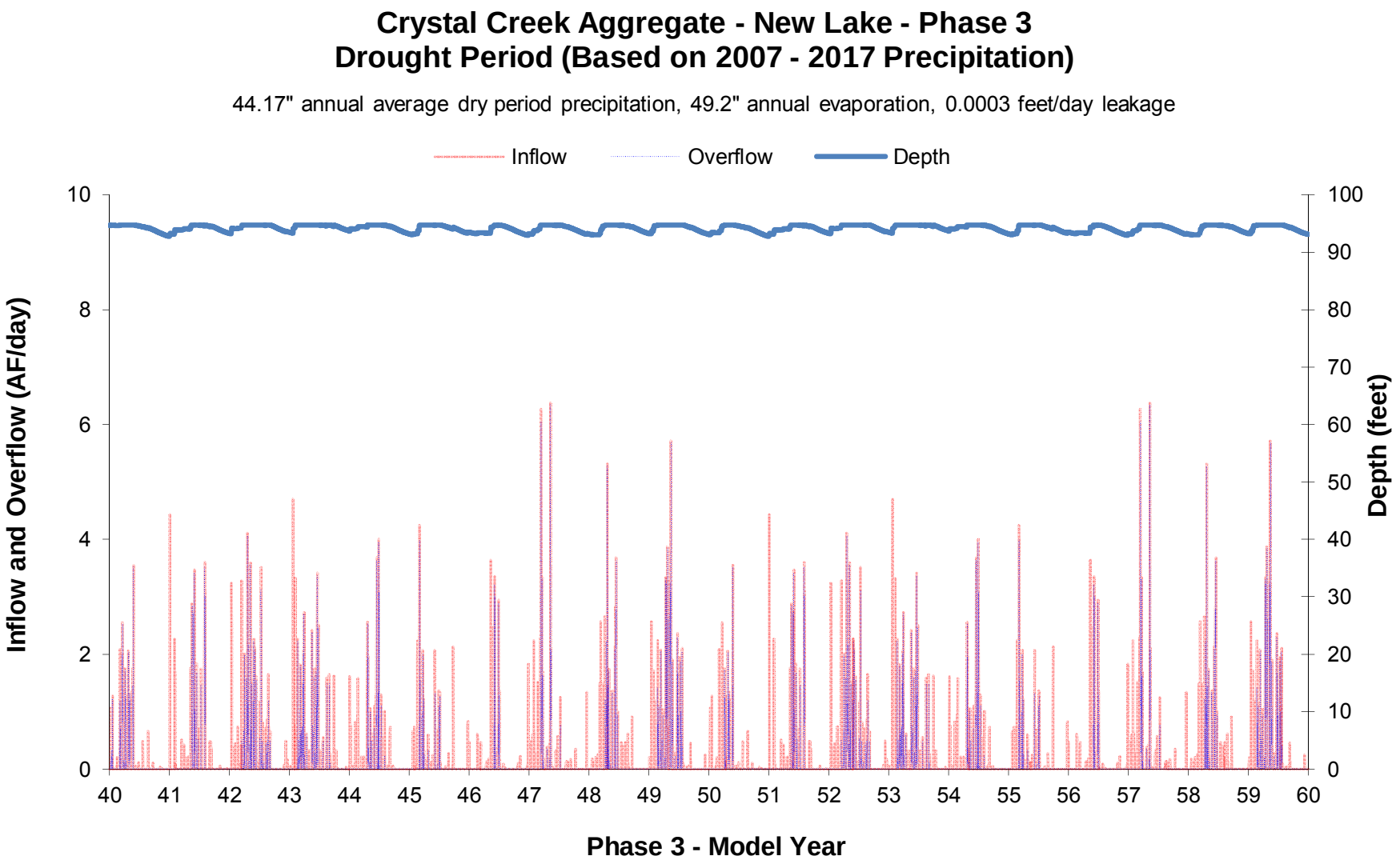

Crystal Creek Aggregate - New Lake - Phase 2
Average Rainfall Period (Based on 2001 - 2011
60.8" annual avgerage precip., 49.2" annual evaporation, 0.0003 feet/day leakage
Overflow
Inflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
0
4
8
12
16
20
0
10
20
30
40
50
60
70
80
90
100
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
Phase 2 - Model Year

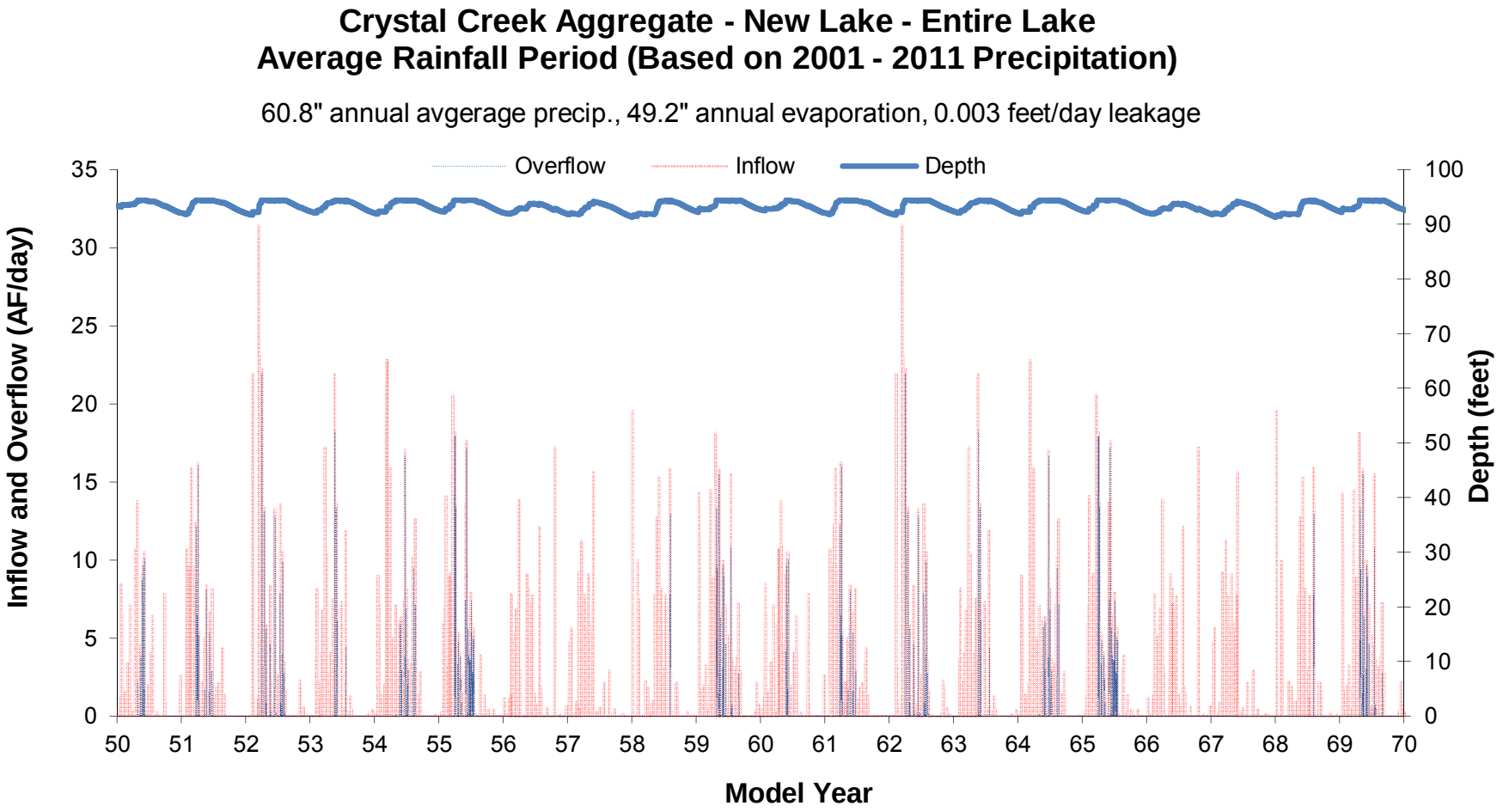

Crystal Creek Aggregate - New Lake - Phase 2
Drought Period (Based on 2007 - 2017 Precipitation)
44.17" annual average dry period precipitation, 49.2" annual evaporation, 0.0003 feet/day leakage
Inflow
Overflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
0
4
8
12
16
20
0
10
20
30
40
50
60
70
80
90
100
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
Phase 2 - Model Year

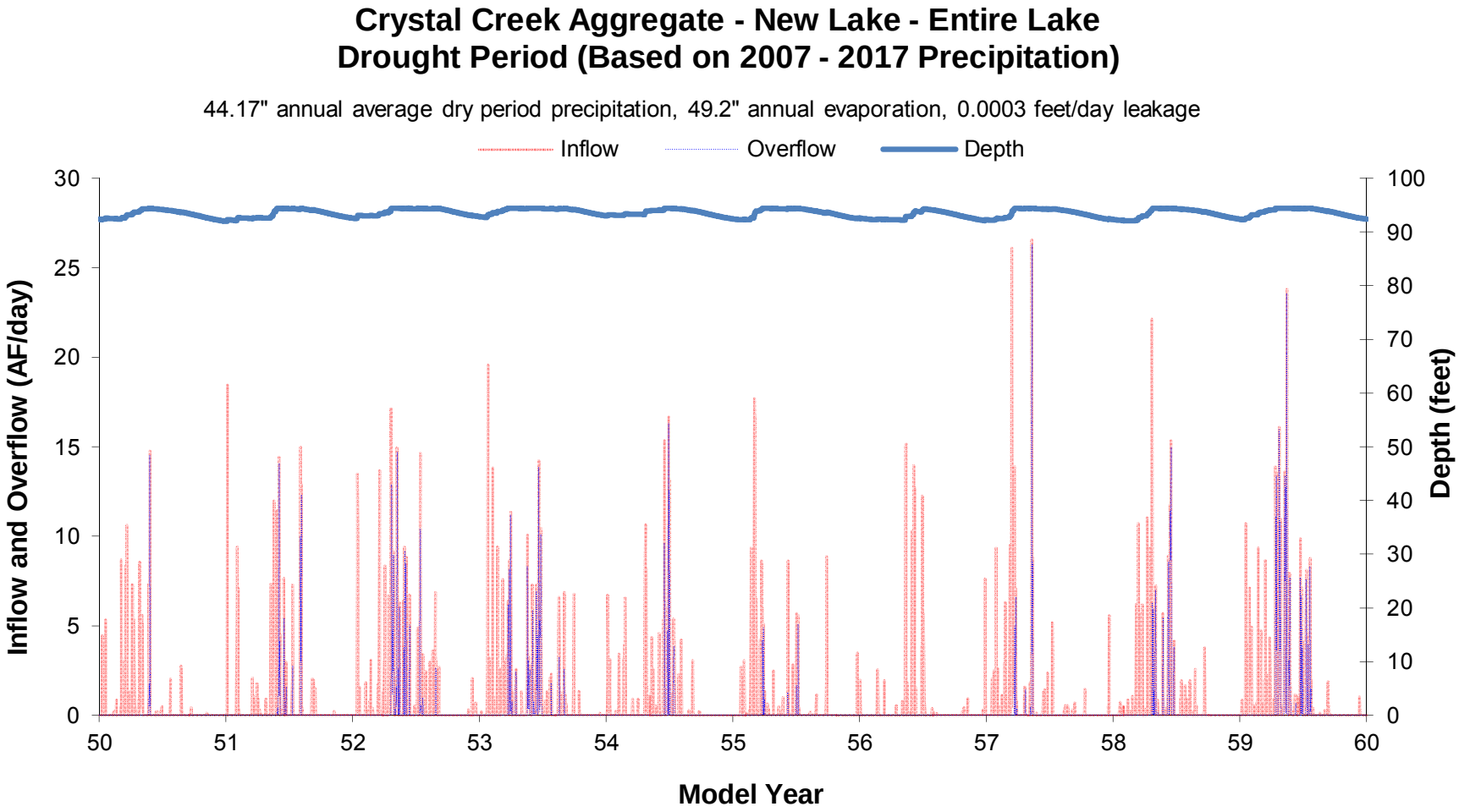
Crystal Creek Aggregate - New Lake - Phase 3
Average Rainfall Period (Based on 2001 - 2011

60.8" annual avgerage precip., 49.2" annual evaporation, 0.0003 feet/day leakage




Crystal Creek Aggregate - New Lake - Phase 3
Drought Period (Based on 2007 - 2017 Precipitation)
44.17" annual average dry period precipitation, 49.2" annual evaporation, 0.0003 feet/day leakage
Inflow
Overflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
0
2
4
6
8
10
0
10
20
30
40
50
60
70
80
90
100
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
Phase 3 - Model Year


Crystal Creek Aggregate - New Lake - Entire Lake
Average Rainfall Period (Based on 2001 - 2011 Precipitation)
60.8" annual avgerage precip., 49.2" annual evaporation, 0.003 feet/day leakage
Overflow
Inflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
Model Year
0
5
10
15
20
25
30
35
0
10
20
30
40
50
60
70
80
90
100
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70


Crystal Creek Aggregate - New Lake - Entire Lake
Drought Period (Based on 2007 - 2017 Precipitation)
44.17" annual average dry period precipitation, 49.2" annual evaporation, 0.0003 feet/day leakage
Inflow
Overflow
Depth
Inflow and Overflow (AF/day)
Depth (feet)
Model Year
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100
50
51
52
53
54
55
56
57
58
59
60

APPENDIX E

WATER-BUDGET MODELING ANNUAL SUMMARIES

WATER BALANCE SUMMARY
CLEAR CREEK AGGREGATE LAKE MODELING

ENTIRE LAKE - DRY PERIOD - YEARS 51 - 60

Model Year	Direct Precip	Runoff	TOTAL INFLOW	Leakage	Evaporation	Overflow	TOTAL OUTFLOW	BALANCE	CHECK (STORAGE FROM MODEL)
	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet
									3099
51	102	55	157	4	156	17	177	3079	3079
52	161	87	249	4	156	59	219	3109	3109
53	210	113	323	4	156	149	309	3123	3123
54	203	110	313	4	157	145	305	3130	3130
55	128	69	197	4	156	65	225	3102	3102
56	121	65	186	4	156	21	181	3107	3107
57	96	52	147	4	156	0	159	3095	3095
58	146	79	226	4	156	64	224	3096	3096
59	177	96	273	4	156	110	270	3099	3099
60	250	135	385	4	156	225	385	3099	3099

ENTIRE LAKE - AVERAGE PERIOD - YEARS 51 - 70

Model Year	Direct Precip	Runoff	TOTAL INFLOW	Leakage	Evaporation	Overflow	TOTAL OUTFLOW	BALANCE	CHECK (STORAGE FROM MODEL)
	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet
									3150
51	122	77	198	36	156	71	263	3085	3085
52	169	106	275	36	156	86	278	3082	3082
53	215	136	350	36	156	142	334	3098	3098
54	153	97	250	36	156	74	265	3083	3083
55	191	120	311	36	156	96	289	3105	3105
56	244	154	398	36	156	224	416	3086	3086
57	111	70	180	36	156	0	192	3075	3075
58	102	64	166	36	156	0	191	3050	3050
59	161	102	263	36	156	24	216	3097	3097
60	210	132	342	36	157	133	326	3113	3113

WATER BALANCE SUMMARY
CRYSTAL CREEK AGGREGATE QUARRY EXPANSION

PHASE 1 - DRY PERIOD - YEARS 41 - 50

Model Year	Direct Precip	Runoff	Overflow From Phases 2 and/or 3	TOTAL INFLOW	Leakage	Evaporation	Overflow	TOTAL OUTFLOW	BALANCE	CHECK (STORAGE FROM MODEL)
	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet
										1590
41	69	39	107	215	2	78	194	274	1532	1532
42	110	63	99	271	2	78	177	256	1546	1546
43	143	81	165	389	2	78	303	383	1553	1553
44	138	79	157	374	2	78	289	369	1558	1558
45	87	49	80	217	2	78	151	230	1544	1544
46	82	47	55	184	2	78	100	180	1548	1548
47	65	37	36	138	2	78	64	143	1543	1543
48	100	57	101	257	2	78	178	258	1542	1542
49	120	69	139	328	2	78	247	327	1543	1543
50	170	97	237	503	2	78	426	505	1541	1541

PHASE 1 - AVERAGE PERIOD - YEARS 41 - 50

Model Year	Direct Precip	Runoff	Overflow From Phases 2 and/or 3	TOTAL INFLOW	Leakage	Evaporation	Overflow	TOTAL OUTFLOW	BALANCE	CHECK (STORAGE FROM MODEL)
	acre-feet	acre-feet		acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet
										1590
41	83	47	131	261	2	92	215	310	1541	1541
42	115	65	131	311	2	91	224	317	1535	1535
43	146	83	177	406	2	91	306	399	1542	1542
44	104	59	111	274	2	89	191	282	1534	1534
45	130	74	140	344	2	93	238	334	1544	1544
46	166	94	230	491	2	91	405	498	1537	1537
47	75	43	39	157	2	89	54	145	1549	1549
48	69	40	65	174	2	86	105	192	1530	1530
49	110	63	112	284	2	90	181	274	1541	1541
50	143	81	153	377	2	94	274	370	1548	1548

WATER BALANCE SUMMARY
CRYSTAL CREEK AGGREGATE QUARRY EXPANSION

PHASE 2 - DRY PERIOD - YEARS 41 - 50

Model Year	Direct Precip	Runoff	TOTAL INFLOW	Leakage	Evaporation	Overflow	TOTAL OUTFLOW	BALANCE	CHECK (STORAGE FROM MODEL)
	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet
									1101
41	65	37	102	2	80	76	158	1045	1045
42	103	59	162	2	84	65	152	1055	1055
43	134	76	210	2	91	111	204	1061	1061
44	129	74	203	2	93	106	202	1062	1062
45	81	46	128	2	85	51	138	1052	1052
46	77	44	121	2	82	34	117	1056	1056
47	61	35	96	2	74	21	97	1055	1055
48	93	53	147	2	79	69	149	1053	1053
49	113	64	177	2	80	96	179	1051	1051
50	160	91	250	2	83	165	250	1052	1052

PHASE 2 - AVERAGE PERIOD - YEARS 41 - 50

Model Year	Direct Precip	Runoff	TOTAL INFLOW	Leakage	Evaporation	Overflow	TOTAL OUTFLOW	BALANCE	CHECK (STORAGE FROM MODEL)
	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet
									1101
41	78	44	122	2	86	81	169	1054	1054
42	108	61	169	2	82	88	172	1051	1051
43	137	78	215	2	82	125	209	1057	1057
44	98	56	153	2	81	77	159	1051	1051
45	122	69	191	2	86	96	184	1058	1058
46	156	89	244	2	83	165	250	1052	1052
47	71	40	111	2	85	17	104	1059	1059
48	65	37	102	2	75	39	116	1045	1045
49	103	59	162	2	84	65	152	1055	1055
50	134	76	210	2	91	111	204	1061	1061

WATER BALANCE SUMMARY
CRYSTAL CREEK AGGREGATE QUARRY EXPANSION

PHASE 3 - DRY PERIOD - YEARS 41 - 50

Model Year	Direct Precip	Runoff	TOTAL INFLOW	Leakage	Evaporation	Overflow to Phase 1 Outlet	TOTAL OUTFLOW	BALANCE	CHECK (STORAGE FROM MODEL)
	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet
									444
41	27	11	38	0	22	31	53	429	429
42	43	17	60	0	22	33	56	433	433
43	55	22	78	1	22	54	76	434	434
44	54	21	75	1	22	51	73	436	436
45	34	13	47	0	22	29	51	432	432
46	32	13	45	0	22	21	43	434	434
47	25	10	35	0	22	15	37	432	432
48	39	15	54	0	22	32	54	432	432
49	47	19	66	0	22	43	65	432	432
50	66	26	93	0	22	72	94	431	431

PHASE 3 - AVERAGE PERIOD - YEARS 41 - 50

Model Year	Direct Precip	Runoff	TOTAL INFLOW	Leakage	Evaporation	Overflow to Phase 1 Outlet	TOTAL OUTFLOW	BALANCE	CHECK (STORAGE FROM MODEL)
	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet	acre-feet
									444
41	32	32	64	1	22	50	72	436	436
42	45	17	62	0	22	43	65	432	432
43	57	20	76	0	22	52	74	434	434
44	41	13	53	0	22	34	56	431	431
45	50	18	68	0	22	44	66	434	434
46	65	23	87	0	22	65	88	433	433
47	29	16	45	0	22	22	44	434	434
48	27	20	47	0	22	26	48	433	433
49	43	26	68	0	22	46	69	433	433
50	55	12	67	1	22	42	65	436	436

APPENDIX F

MONITORING DATA TABLES

WATER-QUALITY TESTING RESULTS
DISCHARGE FROM SETTLING POND #3 AND MIDDLE CREEK UPSTREAM & DOWNSTREAM

	Flow (CFS)			SC (umhos/cm)			TDS (mg/L)			pH (units)			TSS (mg/L)		
	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down
12/30/04										7.42	7.37	7.46	15	<2	2
01/13/05															
05/15/06										7.20	7.55	7.61	2	<2	<2
05/15/06															
01/04/08				193											
02/23/09										7.21	7.58	7.60	2	<2	<2
02/23/09															
03/03/10				247	74	104	171	63	74						
12/30/11				638	84	248									
01/23/12										7.77	7.66	7.65	<2	<2	<2
02/29/12								77	100						
03/13/12				579	119	146	398			7.96	7.92	7.76	<2	4	66
03/23/12										7.78	7.85	7.87	<2	<2	<2
03/28/12					73	68				7.77	7.69	7.76	5	8	5
11/30/12							261	63					10.3	3.2	
12/05/12													<2	<2	
12/14/12													<2	<2	
12/21/12													7.0	3.7	
12/26/12							238	64					6.8	<2	
01/03/13	0.44	5.38	5.60							8.22	8.42		<2	<2	
01/10/13	0.10	3.28	3.36							7.85	8.36		2.2	<2	
01/17/13	0.05	2.23	2.24							7.93	7.93		2.8	<2	
01/24/13	0.03	1.18	1.16							7.89	7.99		<2	<2	
01/31/13	0.02	1.18	1.16							7.94	8.02		<2	<2	
03/06/14	8.20	17.40	20.40							6.85	7.84	8.04	<2	3.2	3.3
03/10/14	0.44	8.50	9.30							7.16	7.88	8.06	<2	<2	<2
04/01/14	0.28	2.23	2.24							7.04	7.62	8.07	<2	<2	<2

WATER-QUALITY TESTING RESULTS

DISCHARGE FROM SETTLING POND #3 AND MIDDLE CREEK UPSTREAM & DOWNSTREAM

	Settleable Solids (mg/L)			Turbidity (NTU)			Hardness (mg/L)			Aluminum (ug/L)			Arsenic (ug/L)		
	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down
12/30/04	<0.1	<0.1	<0.1	25.9	5.4	5.84	73	32	28						
01/13/05							41	29	29						
05/15/06	<0.1	<0.1	<0.1	2.14	0.59	0.90	63	28	31				0.5	0.3	0.4
05/15/06															
01/04/08															
02/23/09	<0.1	<0.1	<0.1	13.1	5.37	7.23	59	22	31						
02/23/09															
03/03/10															
12/30/11					9.2	8.5							0.2		
01/23/12	<0.1			3.8											
02/29/12					2.2	55.2							0.3	0.4	
03/13/12	<0.1			0.7						13.4	62.7	2020			
03/23/12	<0.1			0.8	0.6	0.7									
03/28/12	<0.1			10.7	9.2	8.6	208	28	25						
11/30/12															
12/05/12															
12/14/12															
12/21/12															
12/26/12							169	29							
01/03/13	<0.1			13.02	0.32										
01/10/13	<0.1			2.18	0.25										
01/17/13	<0.1			0.97	0.22		250	34							
01/24/13	<0.1			1.01	0.23										
01/31/13	<0.1			0.56	0.17										
03/06/14	<0.1			11.12	4.81	6.07									
03/10/14	<0.1			9.18	0.96	1.23									
04/01/14				9.47	1.43	1.77									

WATER-QUALITY TESTING RESULTS

DISCHARGE FROM SETTLING POND #3 AND MIDDLE CREEK UPSTREAM & DOWNSTREAM

	Cadmium (ug/L)			Chromium (ug/L)			Copper (ug/L)			Iron (ug/L)			Lead (ug/L)		
	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down
12/30/04															
01/13/05															
05/15/06	<0.05	<0.05	1.45	1.5	0.9	1.1	3.9	1.8	1.8				<0.1	0.2	
05/15/06							2.5	1.4	1.4						
01/04/08															
02/23/09															
02/23/09															
03/03/10															
12/30/11	0.05			<0.1			2						<0.1		
01/23/12															
02/29/12	<0.05	<0.05		<0.1	<0.1		1.9	3.4					<0.1	0.2	
03/13/12										160	148	2990			
03/23/12															
03/28/12															
11/30/12															
12/05/12															
12/14/12															
12/21/12															
12/26/12	0.10	<0.05					5.9	2.2							
01/03/13															
01/10/13															
01/17/13	<0.05	<0.05					2.8	1.9							
01/24/13															
01/31/13															
03/06/14															
03/10/14															
04/01/14															

WATER-QUALITY TESTING RESULTS

DISCHARGE FROM SETTLING POND #3 AND MIDDLE CREEK UPSTREAM & DOWNSTREAM

	Manganese (ug/L)			Mercury (ug/L)			Nickel (ug/L)			Silver (ug/L)			Zinc (ug/L)		
	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down	Pond 3 Out	M.C. Up	M.C. Down
12/30/04															
01/13/05													42	6	8
05/15/06				2.05	2.61	2.49	0.8	0.3	0.3	0.14	0.38	0.16	26.7	3.3	3.8
05/15/06													33.9	10	8.9
01/04/08															
02/23/09													35	7.0	6.9
02/23/09													27.4	2.6	4.5
03/03/10															
12/30/11				1.49			2.3			<0.10			68.9		
01/23/12															
02/29/12				0.79	4.02		2	0.4		<0.10	<0.10		55.3	3.4	
03/13/12	112	8.1	84.4												
03/23/12															
03/28/12															
11/30/12															
12/05/12															
12/14/12															
12/21/12															
12/26/12													53.1	3.2	
01/03/13															
01/10/13															
01/17/13													35.3	3.1	
01/24/13															
01/31/13															
03/06/14															
03/10/14															
04/01/14															

Crystal Creek Aggregate Monitoring

R5-2002-0160

Parameter	Frequency
Precipitation	Daily
Sedimentation Ponds	
Liquid depth	Weekly
Freeboard	
Discharge	
Settling Agent	
D-001 (pond effluent)	
Flow	Daily if precip >1", biweekly if continuous discharge
pH	
Settleable solids	
TSS	
Turbidity	
Zinc (total & dissolved)	Monthly
Hardness	
Priority poll. metals	2x year
Acute toxicity	Annually
R-1, R-2 (Middle Creek)	
pH	Daily if precip >1", biweekly if continuous Q
TSS	
Turbidity	
Hardness	Monthly
Zinc (total & dissolved)	
Priority poll. metals	2x year

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
SW-001	EFF-001	Outfall from Pond #3 Latitude 40° 36' 17" N, Longitude 122° 27' 47" W.
SW-002	EFF-002	Stormwater discharge to Rock Creek
	RSW-001	Middle Creek, approximately 50 feet above the confluence of unnamed tributary and Middle Creek.
	RSW-002	Middle Creek, approximately 100 feet downstream of confluence of unnamed tributary and Middle Creek.
Settling Basin #1	PND-001	Settling Pond #1 south of recycle ponds and north of by-pass culvert.
Settling Basin #2	PND-002	Settling Pond #2 south of recycle ponds and south of by-pass culvert.
Settling Basin #3	PND-003	Settling Pond #3 south of Settling Pond #3.
North Recycle Pond	PND-004	East of processing plant
South Recycle Pond	PND-005	East of processing plant and south of the North Recycle Pond
Water Rights Pond	PND-006	East side of quarry, between north and south haul roads

Table E-2. Effluent Monitoring Location EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Estimated Flow	gal/min	Visual	Weekly during discharge[1, 7, 8]	
Turbidity	NTU	Grab	Weekly during discharge[1, 7, 8]	
pH	units	Grab	Weekly during discharge[1, 7, 8]	
Settleable Solids	mL/L	Grab	Weekly during discharge[1, 7, 8]	
Total Suspended Solids	mg/L	Grab	Weekly during discharge[1, 8]	
Cadmium, dissolved	ug/L	Grab	Monthly during discharge[1, 6, 8]	
Copper, dissolved	ug/L	Grab	Monthly during discharge[1, 6, 8]	
Zinc, dissolved	ug/L	Grab	Monthly during discharge[1, 6, 8]	
Hardness	mg/L	Grab	Monthly during discharge[1, 6, 8]	
Alkalinity	mg/L	Grab	Monthly during discharge[1, 6, 8]	
Electrical Conductivity @ 25°C	umhos/cm	Grab	Annually	
Aluminum	ug/L	Grab	Annually	
Iron	ug/L	Grab	Annually	
Manganese	ug/L	Grab	Annually	
Total Dissolved Solids	mg/L	Grab	Annually	
Oil & Grease	mg/L	Grab	Annually	
Acute Toxicity	% Survival	Grab	Annually	
Priority Pollutant Metals [2, 3]	ug/L	Grab	Annually	
Chronic Toxicity	% Survival	Grab	Bi-annually	
Priority Pollutants [2,4,5]	ug/L	Grab	Bi-annually	

(1) Initial samples shall be collected during daylight hours during the first discharge after the dry season.
(2) Detection limits shall be at or below the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP).
(3) Antimony, arsenic, beryllium, cadmium, chromium III, chromium IV, copper, lead, mercury (EPA Method 1669/1631), nickel, selenium, silver, thallium, zinc, and cyanide.
(4) Priority Pollutants – one set during 1st 2-years of the permit, and one set during the 2nd 2-years of the permit.
(5) 126 Priority Pollutants except asbestos, and dioxins/furans.
(6) Samples shall be collected during the first rainfall event that produces ½-inch or greater precipitation per day (if one occurs during the month).
(7) Daily when rainfall events produce a ½-inch or greater precipitation per day, up to a total of four samples per calendar week.
(8) Sampling (routine sampling) other than when a ½-inch or greater precipitation per day occurs is only required during 15 October through 15 May.

Table E-4. Receiving Water Monitoring Requirements (RSW-001 and RSW-002)

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Estimated Flow	gal/min	Visual	Weekly during discharge[1, 7, 8]	
Turbidity	NTU	Grab	Weekly during discharge[1, 7, 8]	
pH	units	Grab	Weekly during discharge[1, 7, 8]	
Total Suspended Solids	mg/L	Grab	Weekly during discharge[1, 8]	
Cadmium, dissolved	ug/L	Grab	Monthly during discharge[1, 6, 8]	
Copper, dissolved	ug/L	Grab	Monthly during discharge[1, 6, 8]	
Zinc, dissolved	ug/L	Grab	Monthly during discharge[1, 6, 8]	
Hardness	mg/L	Grab	Monthly during discharge[1, 6, 8]	
Electrical Conductivity @ 25°C	umhos/cm	Grab	Annually	
Aluminum	ug/L	Grab	Annually	
Iron	ug/L	Grab	Annually	
Manganese	ug/L	Grab	Annually	
Total Dissolved Solids	mg/L	Grab	Annually	
Priority Pollutant Metals [2, 3]	ug/L	Grab	Annually	
Priority Pollutants [2,4,5]	ug/L	Grab	Bi-annually	

(1) Initial samples shall be collected during daylight hours during the first discharge after the dry season.
(2) Detection limits shall be at or below the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP).
(3) Antimony, arsenic, beryllium, cadmium, chromium III, chromium IV, copper, lead, mercury (EPA Method 1669/1631), nickel, selenium, silver, thallium, zinc, and cyanide.
(4) Priority Pollutants – one set during 1st 2-years of the permit, and one set during the 2nd 2-years of the permit.
(5) 126 Priority Pollutants except asbestos, and dioxins/furans.
(6) Samples shall be collected during the first rainfall event that produces ½-inch or greater precipitation per day (if one occurs during the month).
(7) Daily when rainfall events produce a ½-inch or greater precipitation per day, up to a total of four samples per calendar week.
(8) Sampling (routine sampling) other than when a ½-inch or greater precipitation per day occurs is only required during 15 October through 15 May.

A. Recycle and Settling Ponds

The Discharger shall monitor the recycle ponds (PND-004 and PND-005) and sedimentation ponds (PND-001 through PND-003) as follows:

Table E-5. Recycle and Sedimentations Ponds

Constituent	Units	Sample Type	Minimum Sampling Frequency	Reporting Frequency
Freeboard	Feet, inches	Visual	Weekly	Monthly
Liquid depth	Feet, inches	Visual	WeekIt	Monthly
Discharge	Yes/No	Visual	Weekly	Monthly
Settling Agent Used	Yes/No	Document	Weekly	Monthly

B. Precipitation Monitoring

The daily precipitation at the Crystal Creek Aggregate, Inc. facility shall be recorded on weekdays and weekends. The reading shall be taken at the same time each day and submitted as follows:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Precipitation	Inches (+/-0.1)	Visual	Daily	Monthly