Appendix 2D
Groundwater Monitoring Plan

Midway Gold US Inc.
Groundwater Monitoring Plan

Pan Project
Nevada

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1 INTRODUCTION

This Groundwater Monitoring Plan has been developed by Interralogic, Inc. for Midway Gold US Inc's (MG) proposed Pan Project, located in White Pine County, Nevada (Figure 1). The Pan Project currently includes the mining of two open pits and four satellite pits for a mine life of 13 years. Ores will be crushed and heap leached, with gold recovery using a carbon-in-columns (CIC) process.

The objectives of this Monitoring Plan are to establish a groundwater monitoring program that is compliant with Nevada regulations, meets guidelines for implementation of Nevada Bureau of Land Management's (BLM's) Water Resource Data and Analysis Policy, and provides additional hydrogeologic information to support the project's Environmental Impact Statement (EIS). The plan is based on the current understanding of the area hydrogeology as described in the Baseline Hydrogeology Report (Interralogic, 2012).

1.1 BACKGROUND

The facilities planned for the proposed Pan Project are shown in Figure 2. The new facilities in the Pan Project area include:

- North Pan Pit
- South Pan Pit
- Satellite Pits (4)
- Leach pad and process ponds (2)
- Waste rock dumps (2)
- Growth media stockpiles
- Mine office and related facilities
- Miscellaneous facilities including roads, power lines, transformers, substations, pipelines, and stormwater management structures.

The Pan Project is a "greenfield" site and therefore there are limited historical data available. Geology and some limited hydrogeology data are available from pre-feasibility and exploration activities plus information developed from hydrogeology field activities conducted in mid-2012 (Interralogic, 2012). The existing regional and site data are summarized in the following sections.

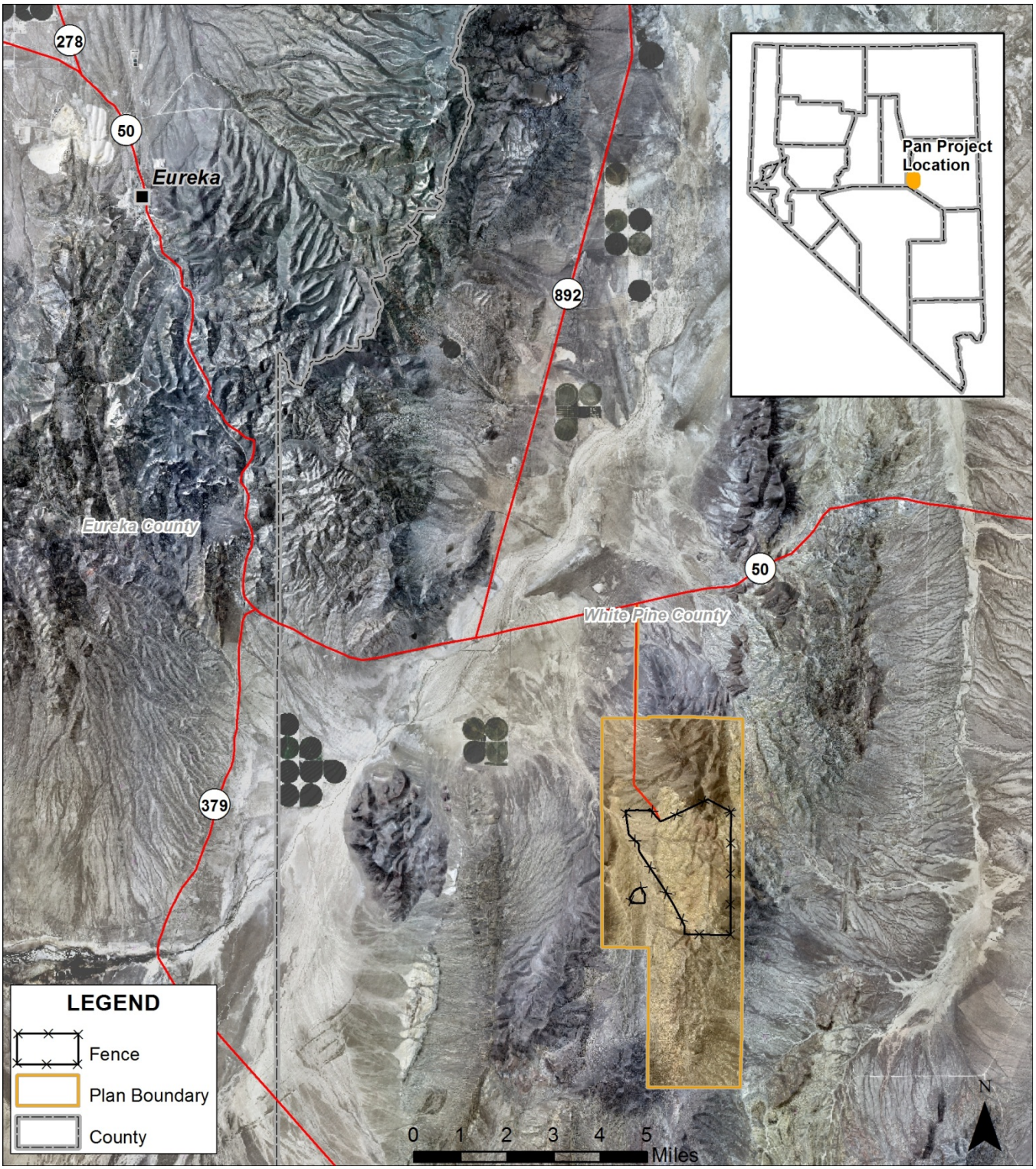

Figure 1 - Site Location

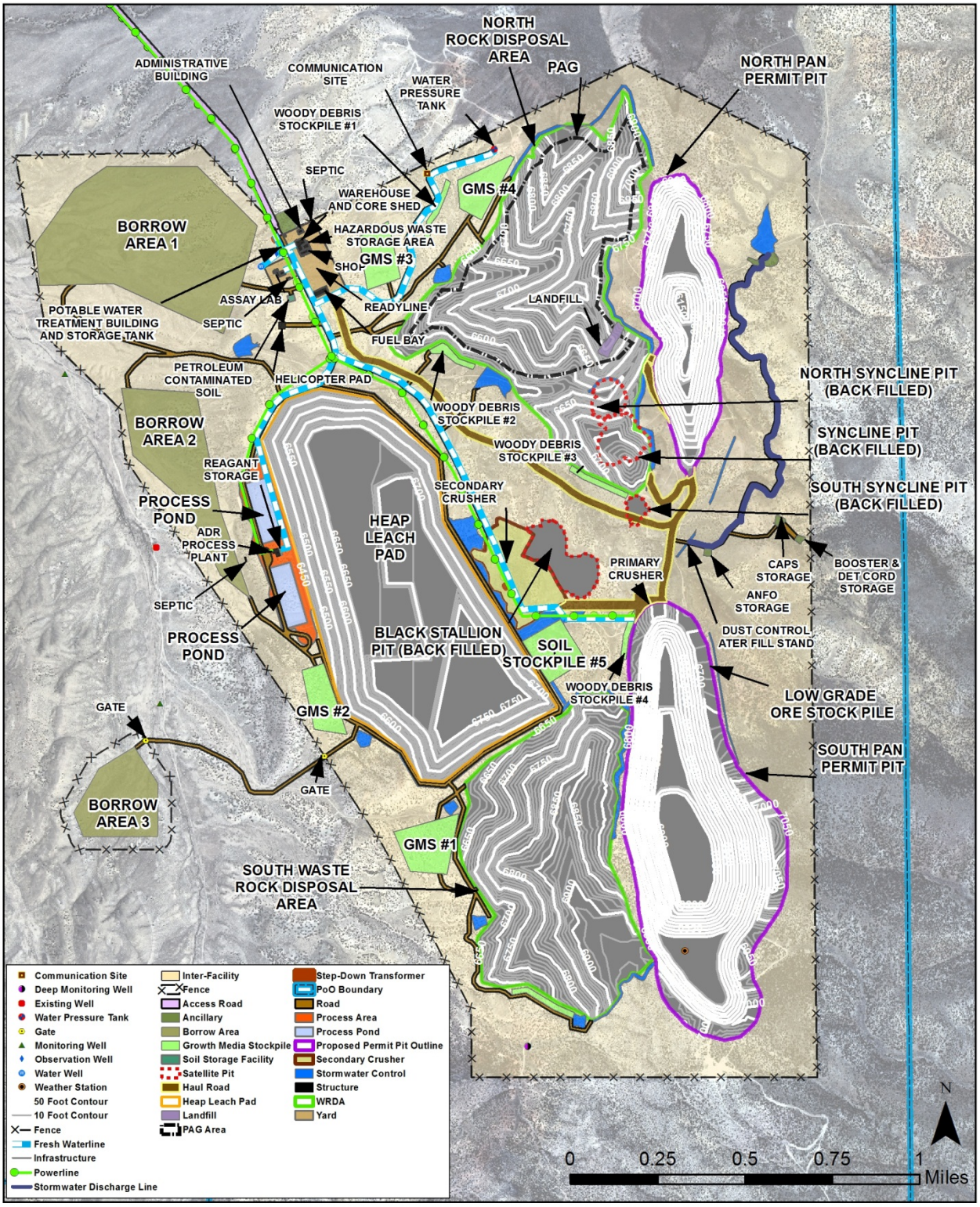

Figure 2 - Mine Facilities

1.1.1 CLIMATE

The climate in the area is typical for the high desert of central Nevada and the Basin and Range province. Climate data from Eureka, Nevada averages 11.85 inches of precipitation per year, with average temperatures ranging from 17 degrees F in the winter to 86.4 degrees F in the summer. Daytime temperatures exceeding 90 degrees F during July and August are common (Western Regional Climate Center, 2008). Average annual pan evaporation at the Ruby Lake Station (about 60 miles north of the Pan site and at elevation 6010 feet amsl) is 51.5 inches (www.wrcc.dri.edu/htmlfiles/westevap.final.html).

1.1.2 PHYSICAL SETTING

The Pan property is located within the rolling hills associated with the Pancake Range of east-central Nevada. The terrain is gentle to moderate throughout most of the project area, with no major stream drainages. Elevation at the property ranges from 6,400 to 7,500 feet above sea level. The local vegetation includes areas of heavy/dense Juniper and Pinyon pines, mixed with open areas of sagebrush and grasses. This vegetation is typical of northern Nevada. No known springs are present on the property.

1.1.3 GEOLOGY

The Pan property is located in the core of the Pancake Range of east-central Nevada. The Pancake Range is within the Basin and Range province, which contains a series of north-south trending mountain ranges separated by deep alluvial valleys. The Pancake Range is approximately 85 miles long and 8 to 10 miles wide, and on the west is bordered by the Newark Valley. The rocks exposed in the range are Devonian to Permian carbonate and clastic sedimentary rocks. These have been locally intruded by a Cretaceous aged quartz monzonite intrusives. These intrusives appear to be age related to the Mount Hamilton stock, which lies in the White Pine Range to the east. The Mount Hamilton area, which contains the Seligman and Monte Cristo stocks, and other similar aged monzonite to quartz monzonite intrusive, may have provided the heat source for the mineral deposits. These formations are overlain by Tertiary volcanics (basalt flows and tuffs) in several locations (Gustavson, 2010).

A summary of lithologic descriptions for the site and vicinity are summarized in Interralogic (2012) and in more detail in Gustavson (2010) and Smith (1976).

1.1.4 STRUCTURAL GEOLOGY

The Pan property is dominated by the north-south trending Pan Fault, which appears to be a normal fault, with some right lateral offset component. Based on drill intercepts and interpretation, the fault dips between 80-85 degrees east, with at least 3,000 feet of normal offset. True offset is unknown due to a lack of deep drilling on the east side of the fault to defined marker horizons exposed on the west side.

On the west side of the fault, Devonian to Mississippian aged rocks dip gently west (10-30 degrees), with moderate folding associated with the Pan and other cross-cutting faults. On the east side of the fault, Devonian to Permian aged rocks dip steeply east (65-70 degrees) along the Pan Fault, flatten and roll back along a northwest trending syncline along the east margin of the property.

The Pan Fault can be tracked north at the surface until it is covered by Tertiary Volcanics at the northern drilled limit of mineralization. To the south, the Pan Fault appears to horsetail into a series of smaller, barite filled structures. The extent of offset is unknown because the fault places Devils Gate against Devils Gate in this area. A parallel series of faults extend west of the Pan Fault, including the Red Hill Fault and Wash Fault.

Several northwest and northeast trending structures have been mapped on the property. These appear to offset mineralization and are terminated against the Pan Fault. Normal offset of 50-500 feet is noted, especially in the Joana Limestone. These faults do not appear to propagate across the Pan Fault, but appear to have younger reactivation associated with offset of mineralization. One east-west trending structure in the south-central portion of the property has been mapped. This structure has approximately 300 feet of offset, and is associated with an intrusive sill. Low angle thrusting that has increased the true thickness of the Pilot Shale is present along the Pan Fault and west of the fault. Age of faulting is unknown at this time.

1.1.5 REGIONAL HYDROGEOLOGY

The Pan Project overlies the Great Basin Carbonate and Alluvial Aquifer System (shortened here to CAAS) (Heilweil and Brooks, 2011). The CAAS covers most of eastern Nevada, and adjacent western Utah. According to a U.S. Geological Survey (USGS) study of the CAAS, most groundwater in the area flows through a patchwork of carbonate and basin fill (including

volcanic deposits) aquifers separated in places by impermeable geologic units and structures. Groundwater in the CAAS flows primarily towards regional discharge areas. In the Project area the primary aquifers present are the lower Paleozoic carbonate and the Cenozoic basin fill.

In the Newark Valley near the Pan Project, the carbonate aquifer groundwater levels are relatively flat and at elevations between 5,800 and 6,300 feet; the area could be described as a groundwater saddle with groundwater flowing toward discharge areas to the north and south (Interralogic, 2012). Analysis of both groundwater budgets and potentiometric surfaces of the CAAS suggest that water recharging in the southern part of the Newark Valley flows south to discharge in the Railroad Valley (Heilweil and Brooks, 2011).

Groundwater flow in the Newark basin-fill aquifer is generally from recharge areas along the margins of the valley towards the center of the valley (Welch, et al., 2007). In Nevada, recharge to the basin fill generally occurs either as infiltration or as subsurface flow from the bedrock mountain ranges. In Newark Valley near the Pan Project area a northward component to groundwater flow along the axis of the valley is present with flow toward discharge areas near the Newark Lake (Heilweil and Brooks, 2011).

Aquifer parameters vary considerably due to the karst conditions observed locally, including a range of eight orders of magnitude for hydraulic conductivity and storage ranging from 0.01 to 0.4 (Heilweil and Brooks, 2011).

Groundwater users make up a large part of the groundwater discharge budget of the basin fill aquifers in many areas of Nevada (Heilweil and Brooks, 2011). Water level data were obtained from the USGS National Water Information System (NWIS) for wells in the Newark and Little Smoky valleys (NWIS, 2012). Data from historical wells in the Newark Valley near the Project area indicate average groundwater levels in the basin fill range from 35 to 128 feet below ground surface (bgs) (5,884 to 5,922 feet amsl).

1.1.6 SITE-SCALE HYDROGEOLOGY

Site-scale hydrogeologic information has been obtained from surface mapping, on-site boreholes drilled for exploration purposes, and wells installed as part of the hydrogeologic characterization field program (Interralogic, 2012). Site-scale hydrogeologic information has

been evaluated, along with regional studies, to develop a conceptual model of groundwater flow at and adjacent to the Project site. Based on the existing data, which are summarized in the sections below, groundwater at the Project site occurs in a deep carbonate aquifer and, to a very limited extent, in a shallow, discontinuous alluvial aquifer along the normally-dry stream channel west of the proposed mine area. Figure 3 presents a conceptual hydrogeologic cross section of the proposed mine area. As shown in the figure, the shallow alluvial groundwater west of the mine area occurs discontinuously at elevations that are approximately 500 feet higher than the carbonate aquifer. The deep carbonate aquifer is approximately 900 feet below the ground surface and locally has hydraulic head 250 feet greater than the top of the aquifer. Groundwater levels in the Newark Valley basin fill are roughly 100 feet higher than the carbonate aquifer indicating a hydraulic gradient from the valley toward the Pan site.

1.1.6.1 DEEP BEDROCK AQUIFER

A deep, confined bedrock aquifer in the Devonian Devil's Gate Limestone is present at the Project site. Site specific information on the deep carbonate aquifer was generated through the exploration drilling program over the last few years and the hydrogeologic characterization program conducted in 2012.

The exploration/condemnation program included advancement of 10 deep boreholes where hydrogeologic information was collected. Information collected included lithology, airlift flow rates and recovery, first water encountered and water level data. This information confirmed the presence of a deep, confined carbonate aquifer beneath the Project site. Three dry boreholes located along the high elevation ridgeline were drilled to over 1,000 feet bgs without encountering water. In the remaining wet boreholes, static water levels were generally higher than the initial elevation where water was encountered in the borehole indicating confined conditions. Boreholes encountered primarily oxidized lithologic materials over the entire depths, suggesting long-term unsaturated conditions over the borehole depth. Air-lift testing was conducted on the seven condemnation boreholes which encountered groundwater. Tests were conducted for several minutes at a purge rate of approximately 30 to 40 gpm. After air-lifting, a pressure transducer was immediately lowered into the borehole to monitor recovery of the water level. By the time the transducer was lowered into the water column, the water level had recovered to static, suggesting that the production potential of the bedrock aquifer is good.

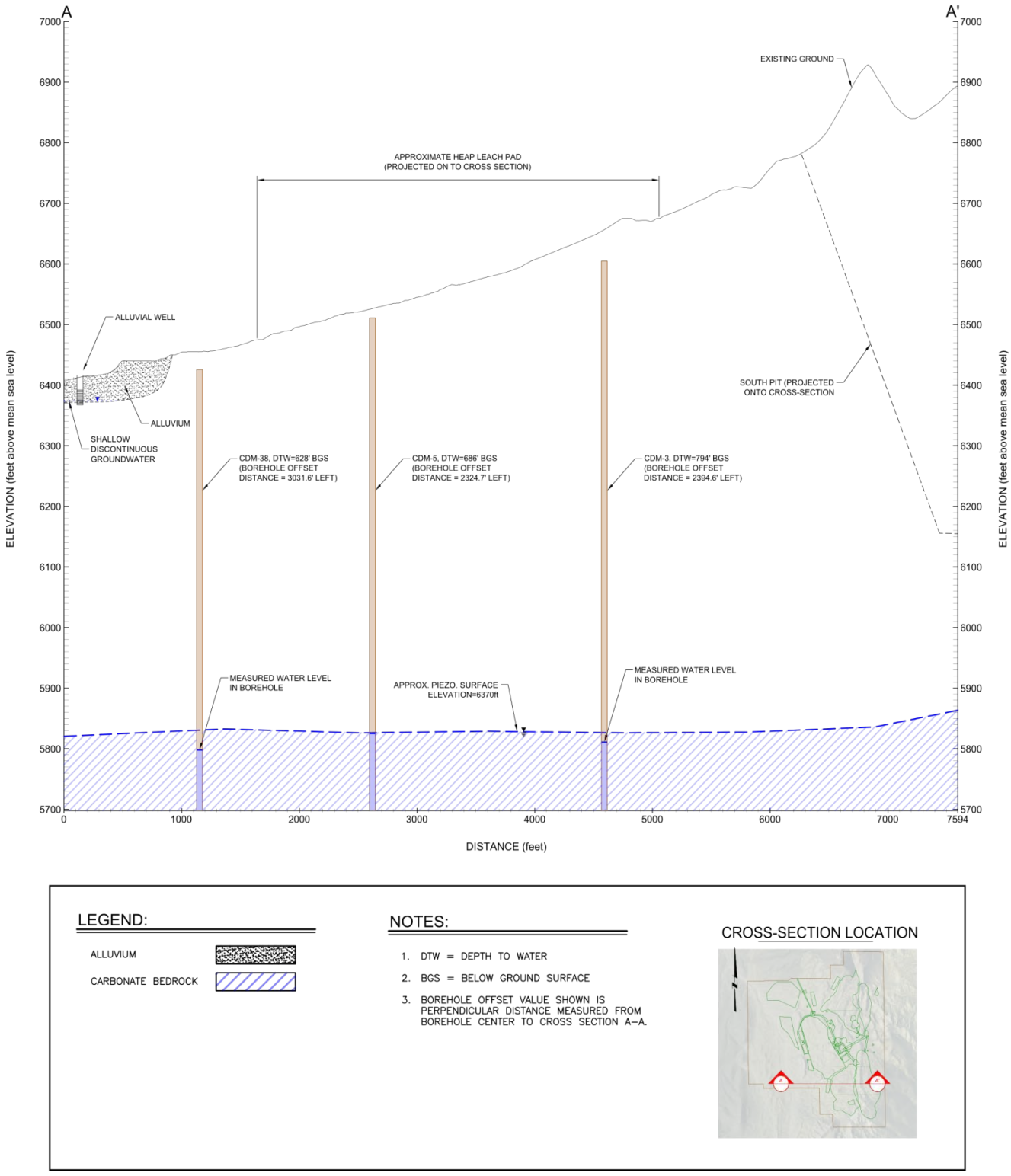

Figure 3 - Conceptual Cross Section of Mine Area

A field program was initiated by Interralogic in April 2012 with the goals of characterizing hydrogeology at the Pan Project site as well as establishing a groundwater monitoring network and developing a water supply from the deep carbonate aquifer. Activities included:

- Installation of a deep monitoring well upgradient of the site
- Installation of a water supply well and a nearby piezometer
- Collection of hydrogeologic information during drilling
- Measurement of static groundwater levels
- Testing hydraulic properties of the aquifers
- Collection of groundwater samples for laboratory analysis

Three deep bedrock wells were drilled and installed from April 23 to July 6, 2012 to provide baseline groundwater information for the carbonate aquifer as well as a potential water supply for the mine. Summary information for the wells is presented in Table 1 and well construction logs provided in Appendix A. Static groundwater elevations in these wells range from 5,824 to 5,794 feet AMSL (Figure 4). The groundwater levels in the wells are above the top of the aquifer indicating the aquifer is at least locally confined where intercepted by drillholes. The difference between water levels in two nearby wells (OBS-1 and PW-1) suggests that lithologic or structural barriers may exist in the aquifer. Experience during drilling and aquifer testing suggests the aquifer generally has high permeability (Interralogic, 2012).

The boreholes were drilled with using air rotary method with foam to depths ranging from 1,035 to 1,185 feet bgs. Bedrock encountered consisted of black shale, minor siltstone and massive and sometimes voided carbonate with occasional mineral alteration zones. Well completion details are presented in diagrams in the baseline report (Interralogic, 2012).

Location	Easting*	Northing*	Ground Surface Elevation	Screen Depth**	Screened Geology	Elevation Water Encountered	Potentio metric Elevation	Hydraulic Conductivity (ft/day)
DMW-1	6,550,278	46,813,694	6,713.1	1035 - 975	Limestone	5,726	5,824	21
OBS-1	6,537,824	46,853,022	6,442.9	1100 - 950	Limestone	5,483	5,794	N/A
PW-1	6,537,040	46,852,389	6,431.9	1152 - 851	Limestone	5,587	5,819	49

*NAD 83 UTM Meters

**All depths in feet from ground surface; elevation in feet amsl.

Table 1 - Completion Summary for Deep Carbonate Wells

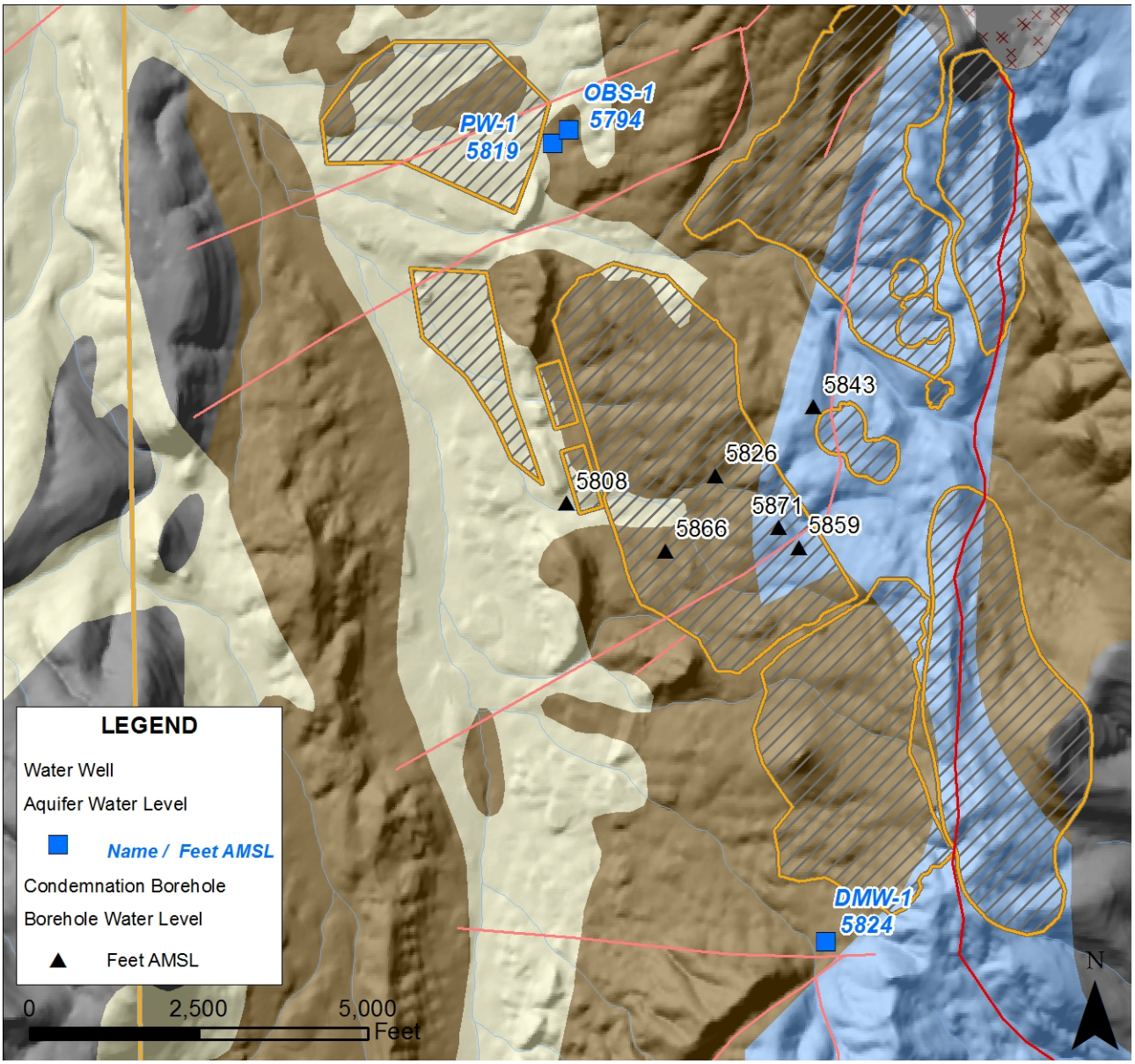

Figure 4 - Deep Bedrock Aquifer

PW-1 and OBS-1 boreholes are located approximately 250 feet apart. PW-1 was completed as a bedrock water supply well with a casing diameter of 10 inches. OBS-1 was completed as a piezometer with a casing diameter of 2 inches. At PW-1 and OBS-1 black shale and siltstone of the Pilot Shale were present from below the soil profile to approximately 600 and 500 feet bgs, respectively. Below the Pilot Shale, the Devil's Gate Limestone was encountered. The precise contact between the formations is uncertain as the contact is gradational but is generally picked

at the first massive carbonate. At PW-1 and OBS-1 locations a significant void was encountered at 760 and 665 feet bgs, respectively. All circulation was lost including loss of air pressure at the surface suggesting that the void was large and well connected. Because of the loss of circulation, limited hydrogeological and no lithological information was collected below this point. The presence of water was confirmed by monitoring bit air pressure on the drill rig. Water was first encountered in PW-1 and OBS-1 at 845 and 960 feet bgs, respectively. In both boreholes measured water levels were similar to the level of the void, well above the first encounter of groundwater, indicating that the carbonate aquifer is confined. The void was able to take water produced by the formation and the void likely controlled the measured water level in the open boreholes. This last observation suggests that water level information from open boreholes at the site, especially where large voids were encountered in the carbonate aquifer, is uncertain and may be of limited use in estimating the stable potentiometric surface of the aquifer. According to drill records during the condemnation drilling, a similar, large void was observed at various locations in the project site. The total depths of PW-1 and OBS-1 boreholes are 1,185 and 1,135 feet bgs, respectively.

At DMW-1, black shale and siltstone of the Pilot Shale were present from below the soil profile to 290 feet bgs. Below the Pilot Shale, the Devil's Gate Limestone was encountered. As with the other locations, the contact between the formations is gradational. At this location no voids were encountered in the Devil's Gate Limestone however the drillers noted a great deal of fracturing and mineral alteration was encountered in some of the geologic samples. The location of this well is near several faults. Water was encountered at 985 feet bgs and the total well depth was 1,035 feet bgs.

Pumping tests of DMW-1 and PW-1 were conducted in September 2012. Analysis of the test results are presented in Interralogic (2012) and are summarized here:

- The carbonate aquifer is highly productive demonstrating little drawdown during pumping
- Hydraulic conductivity averages 35 ft/day
- Water level response in OBS-1 suggests that aquifer may be locally and/or partially unconfined

This summary was used in the development of a conceptual groundwater flow model of the deep carbonate aquifer as described in Interralogic (2012).

Analytical laboratory results for groundwater samples from condemnation boreholes CDM-6, CDM-3, CDM-33, and CDM-38 indicate that the water quality of the deep aquifer is good, with neutral pH and low total dissolved solids (ranging from 260 to 290 mg/L). Additionally, water from the deep aquifer is warm, with temperatures near 80 degrees Fahrenheit. Concentrations of analytes are below the Nevada Profile II reference values, except for antimony and thallium for borehole CDM-33 and iron for borehole CDM-3. For borehole CDM-33, antimony and thallium are equal to the reference values of 0.006 mg/L and 0.002 mg/L, respectively.

1.1.6.2 ALLUVIAL AQUIFER

Shallow groundwater is present discontinuously in the narrow band of alluvium beneath the unnamed, ephemeral stream west of the project area (Figure 5). The materials have low to moderate permeability due to presence of very fine grained materials in a matrix of very poorly sorted alluvium. Gradients suggest the small quantities of groundwater present flow towards the Newark Valley and/or infiltrate the bedrock below.

A field program was initiated by Interralogic in April 2012 with the goals of characterizing hydrogeology at the Pan Project site as well establishing a groundwater monitoring network for the shallow alluvial aquifer (Figure 5). Activities included:

- Installation of 4 shallow “alert” monitoring wells in the main drainage west of the Project site
- Collection of hydrogeologic information during drilling
- Testing hydraulic properties of the aquifers
- Collection of groundwater samples for laboratory analysis
- Measurement of static groundwater levels

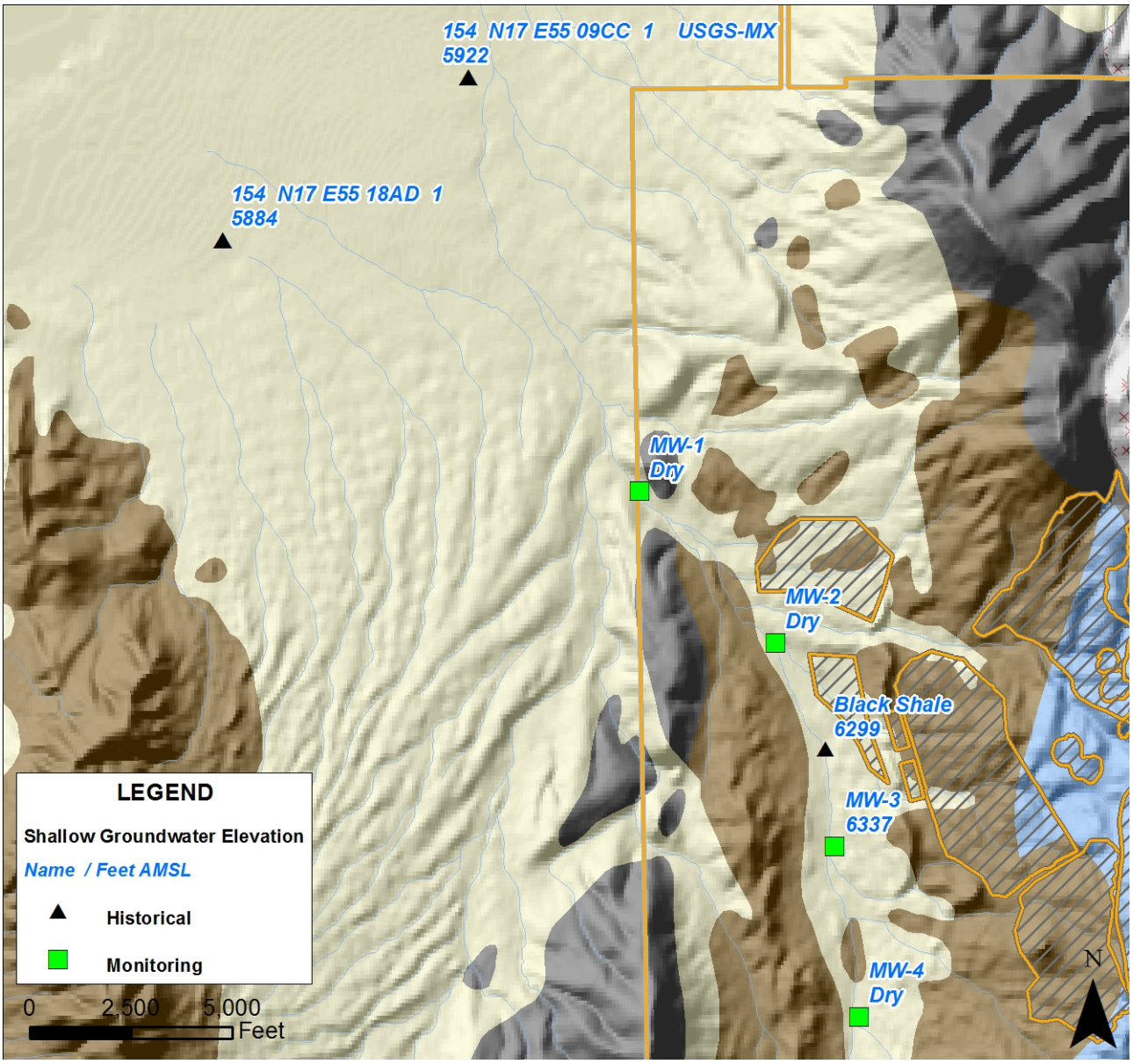

Figure 5 - Existing Wells in Alluvial Aquifer

The alluvial wells were drilled and installed from April 20-22, 2012 and are intended to provide shallow groundwater level information and groundwater samples for baseline and impacts monitoring. A summary of well completion information is presented in Table 2 and well construction details are provided in Appendix A. The boreholes were drilled with using mud rotary method to depths ranging from 29 to 50 feet bgs. Alluvium consisted of very poorly sorted, often clayey gravel to sandy clay. The total depth penetrated at least 3 feet of bedrock at each location. Boreholes at MW-2, MW-3, and MW-4 encountered black shale at the contact.

The northernmost location (MW-1) is located between two basalt covered hills and encountered basalt at the contact. Four-inch schedule-40 PVC casing was installed in each of the boreholes with screen extending below the alluvium-bedrock contact in order to capture alluvial groundwater which may exist only at this interface. The well completion diagrams are presented in the baseline report (Interralogic, 2012). After installation, wells were developed to the extent possible; however most of the wells were dry. Only MW-3 has water present above the screen.

Location	Easting*	Northing*	Ground Surface Elevation	Screen Depth**	Screened Geology	Elevation Water Encountered	Potentio metric Elevation	Hydraulic Conductivity (ft/day)
MW-1	6,516,434	46,859,504	6,223.6	28.3 - 18.3	Alluvium/Bedrock	Dry	Dry	N/A
MW-2	6,527,334	46,847,074	6,297.9	44.9 - 29.9	Alluvium/Bedrock	Dry	Dry	N/A
MW-3	6,532,045	46,830,726	6,377.4	39.1 - 24.1	Alluvium/Bedrock	N/A	6,340.9	0.8
MW-4	6,534,028	46,817,032	6,447.5	36.5 - 21.5	Alluvium/Bedrock	Dry	Dry	N/A

*NAD 83 UTM Meters

**All depths in feet from ground surface; elevation in feet amsl.

Table 2 - Completion Summary for Shallow Alluvial Wells

Based on the materials encountered (very poorly sorted gravel to clay), it was anticipated that the conductivity and storage would be on the low end of the ranges presented for basin fill sediments in Section 2.4.2. Well MW-3 was slug tested and analysis of responses indicates a conductivity of 0.7-0.8 ft/day consistent with the anticipated values (Interralogic, 2012).

Water level was also measured in the historical “Black Shale” well located between MW-2 and MW-3 (Figure 5). The State Well Drillers Report indicates that the well was drilled to 66 feet bgs and completed to a depth of 45 feet bgs, with a water level of 32 feet bgs at the time of construction in 1977. No active use of the Black Shale well has been observed since Project activities commenced. Measurement during the recent field program indicates the same water level in 2012 (32 feet bgs).

2 GROUNDWATER MONITORING

Monthly groundwater monitoring is underway for the four alluvial monitoring wells, deep bedrock well, and water supply test well. After a year of monthly data has been collected, sampling will be continued quarterly. Monitoring events will consist of:

- Measuring depth to groundwater;
- Purging groundwater from the wells prior to sampling;
- Measuring field parameters throughout purging and before sample collection;
- Collecting groundwater samples for laboratory analyses; and
- Reviewing laboratory data and entering field and laboratory data into a database.

The alluvial and bedrock monitoring well would be maintained and sampled for ongoing compliance monitoring during operations.

2.1 WATER LEVEL MEASUREMENT AND PURGING

Before purging and sampling, the depth-to-water will be measured from a surveyed measuring point to the nearest hundredth of a foot. After measurement, if water is present, groundwater in the alluvial monitoring wells will be purged using either a disposable bailer and new length of polypropylene or nylon rope, or an electric submersible stainless-steel pump, such as a Grundfos Redi-flo2. If non-disposable or non-dedicated equipment is used, it will be decontaminated between monitoring locations using a phosphate-free detergent solution, made from Alconox or similar detergent, followed by a rinse with distilled water. At the deep bedrock monitoring and water supply wells (if sampled), purging and sample collection will be conducted using the installed (dedicated) pumps described in Sections 3.1 and 3.2. Throughout purging, field parameters of pH, specific conductivity, and temperature will be measured at regular intervals, with a minimum frequency of once for every casing volume purged from the well. Purging will continue until field parameters stabilize and at least three casing volumes of water have been extracted from the well. Field parameters will be considered stable if three consecutive measurements vary by less than 10% for specific conductivity and by less than 0.2 pH units. Purged water will be disposed on the ground surface.

2.2 SAMPLE COLLECTION AND ANALYSIS

Once purging is complete, samples will be collected for laboratory analysis of the dissolved fraction of the NDEP Profile II parameters, which are listed in Table 3. Samples will be filtered in the field using a new, disposable 0.45 micron filter, with the sample transferred through the filter using a peristaltic pump or hand pump and length of new or dedicated tubing. Sample bottles will be prepared by the analytical laboratory and pre-preserved, if required by the analytical method. Filled sample bottles will be labeled with a minimum of the date, time of

sample collection, sample location, and project name. Bottles will be placed in an ice-filled cooler and shipped express to the analytical laboratory. Appropriate lab and field blanks, and duplicates will be collected. Laboratory Chain-of-Custody procedures will be followed. Currently, the analytical laboratory is expected to be Western Environmental Testing Laboratory in Sparks, Nevada.

2.3 REVIEW OF LABORATORY RESULTS

Upon receiving the laboratory report, results will be reviewed for reasonableness and completeness. At a minimum, data review will include checks of the following:

- Samples were received by the laboratory at an appropriate temperature;
- All requested analyses were completed with the analytical method's recommended holding time;
- Charge balances are reasonable; and
- Laboratory quality assurance testing was completed and results are satisfactory.

Once the dataset is found to be acceptable, data will be imported to a database.

3 SCHEDULE

The monitoring activities described in this Monitoring Plan are scheduled to take place through the permitting phase of the project. Wells will then be used for operational compliance monitoring, as appropriate. Drilling, well installation, and well development of the monitoring wells and water supply test well were conducted in spring and summer of 2012. The initial quarterly monitoring event was conducted immediately after installation of the wells, after well development, with subsequent events occurring monthly through the present (as of the date of this update plan). Table 4 summarizes the Monitoring Plan schedule from the present to post closure. Additional details will be provided in the reclamation plan.

Parameter	Analytical Method	Reporting Limit (mg/L)	NDEP Reference Value (mg/L)
Profile I Parameters			
Alkalinity, Bicarbonate (as $CaCO_3$)	SM 2320B	1	--
Alkalinity, Total (as $CaCO_3$)	SM 2320B	1	--
Aluminum	EPA 200.7	0.045	0.2
Antimony	EPA 200.8	0.0025	0.006
Arsenic	EPA 200.8	0.005	0.010
Barium	EPA 200.7	0.01	2.0
Beryllium	EPA 200.7	0.001	0.004
Boron	EPA 200.7	0.1	--
Cadmium	EPA 200.7	0.001	0.005
Calcium	EPA 200.7	0.5	--
Chloride	EPA 300.0	1	400
Chromium	EPA 200.7	0.005	0.1
Copper	EPA 200.7	0.05	1.0
Fluoride	EPA 300.0	0.1	4.0
Iron	EPA 200.7	0.01	0.6
Lead	EPA 200.8	0.0025	0.015
Magnesium	EPA 200.7	0.5	150
Manganese	EPA 200.7	0.005	0.10
Mercury	EPA 200.8	0.0001	0.002
Nickel	EPA 200.7	0.01	0.1
Nitrate + Nitrite, Total (as N)	EPA 353.2	0.1	10
pH (standard units)	SM 4500-H+ B		6.5 - 8.5
Potassium	EPA 200.7	0.5	--
Selenium	EPA 200.8	0.005	0.05
Silver	EPA 200.7	0.005	0.1
Sodium	EPA 200.7	0.5	--
Sulfate	EPA 300.0	1	500
Thallium	EPA 200.8	0.001	0.002
Total Dissolved Solids	SM 2540C	10	1000
Vanadium	EPA 200.7	0.01	--
WAD Cyanide	SM 4500CNI	0.01	0.2
Zinc	EPA 200.7	0.01	5.0
Additional Parameters for Profile II*			
Bismuth	EPA 200.7	0.1	--
Cobalt	EPA 200.7	0.01	--
Gallium	EPA 200.7	0.1	--
Lithium	EPA 200.7	0.1	--
Molybdenum	EPA 200.7	0.01	--
Nitrogen, Total (as N)	Calc.	1.1	10
Phosphorus, Total	EPA 365.3	0.01	--
Scandium	EPA 200.7	0.1	--
Strontium	EPA 200.7	0.1	--
Tin	EPA 200.7	0.1	--
Titanium	EPA 200.7	0.1	--

NOTES:

-All analyses are for the dissolved fraction

*Profile II includes Profile I and the additional 11 parameters listed

Table 3 - Proposed Baseline Groundwater Monitoring Suite

Wells \ Time	2013	2014 Through Construction	During Operations	Post operations - for 2 years	After 2 years post closure
MW-1, MW-2, MW-3, MW-4	Monthly	Quarterly	Quarterly	To be determined	To be determined
DMW-1	Monthly	Quarterly	Quarterly	To be determined	To be determined
PW-1	Monthly	Quarterly	As needed	To be determined	To be determined

Table 4 - Proposed Schedule for Monitoring Plan

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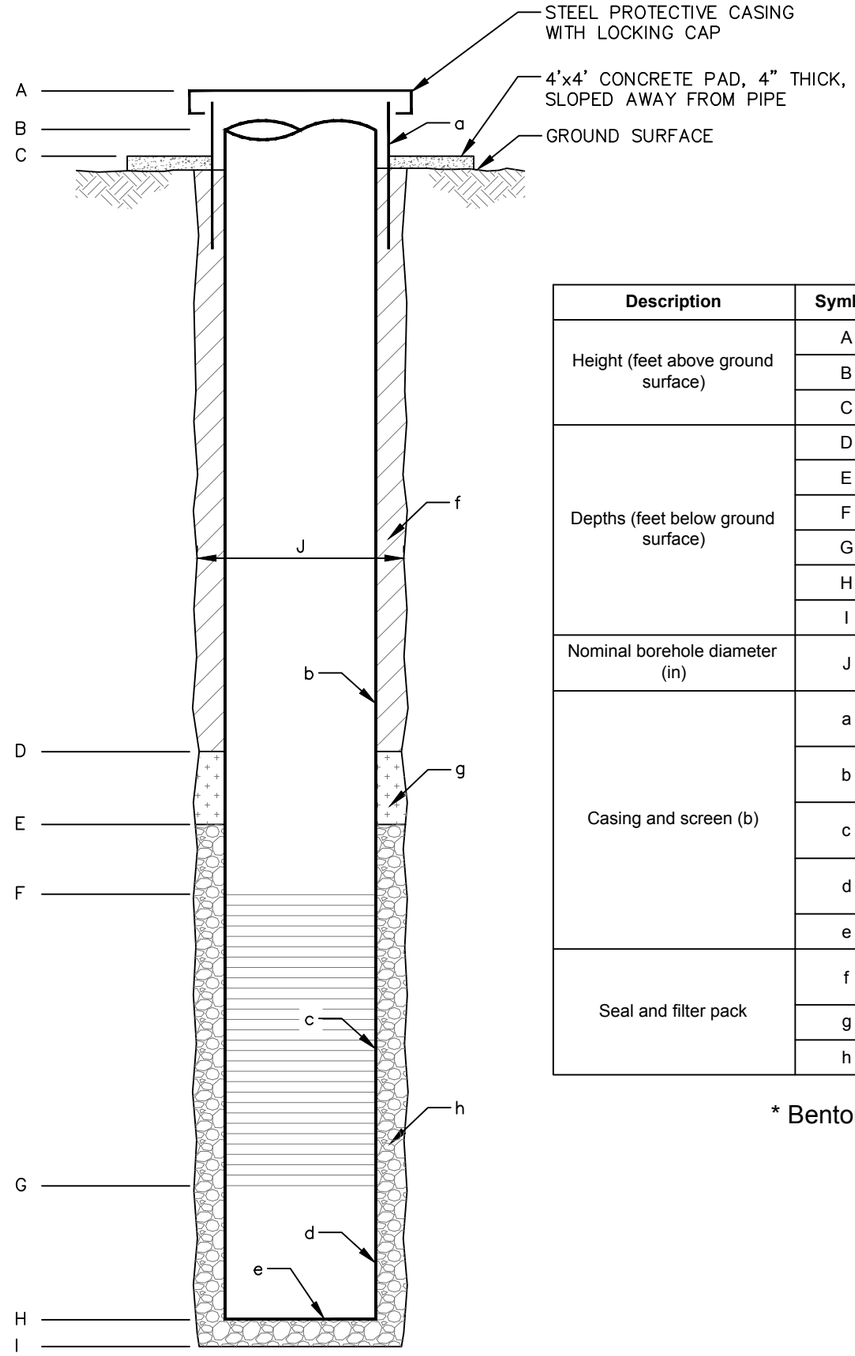
APPENDIX : COMPLETION DIAGRAMS FOR WELLS

LEGEND:

- SURFACE SEAL
- PELLET SEAL
- FILTER PACK



NOT TO SCALE

Description	Symbol	Description	MW-1	MW-2	MW-3	MW-4
Height (feet above ground surface)	A	Top of outer casing with cover	1.6	1.9	2.0	1.8
	B	Top of inner casing	1.4	1.6	1.9	1.5
	C	Top of concrete pad	0.3	0.3	0.3	0.3
Depths (feet below ground surface)	D	Top of bentonite	14.1	16.0	15.7	14.9
	E	Top of filter pack	16.2	18.1	20.9	20.0
	F	Top of Screen	18.3	29.9	24.1	21.5
	G	Bottom of screen	28.3	44.9	39.1	36.5
	H	Bottom of end cap	28.6	45.2	39.4	36.8
	I	Bottom of hole	28.6	45.2	39.4	37.3*
Nominal borehole diameter (in)	J	Borehole diameter	8.5+	8.5+	8.5+	8.5+
Casing and screen (b)	a	8-inch steel protective casing				
	b	4-inch schedule 40 PVC casing				
	c	4-inch schedule 40 PVC well screen, 0.020-inch slot size (20 slot)				
	d	4-inch schedule 40 PVC casing				
	e	4-inch PVC well end cap				
Seal and filter pack	f	Bentonite grout				
	g	Bentonite pellets				
	h	#8 Silica Sand				

* Bentonite chips placed from 37.3 to 50.0 feet below ground surface.

PROJECT NO.: 100013

INTERRA logic
4715 Innovation Dr., Suite 110
Fort Collins, Co 80525
970.225.8222

AS-BUILT ALLUVIAL MONITORING WELL

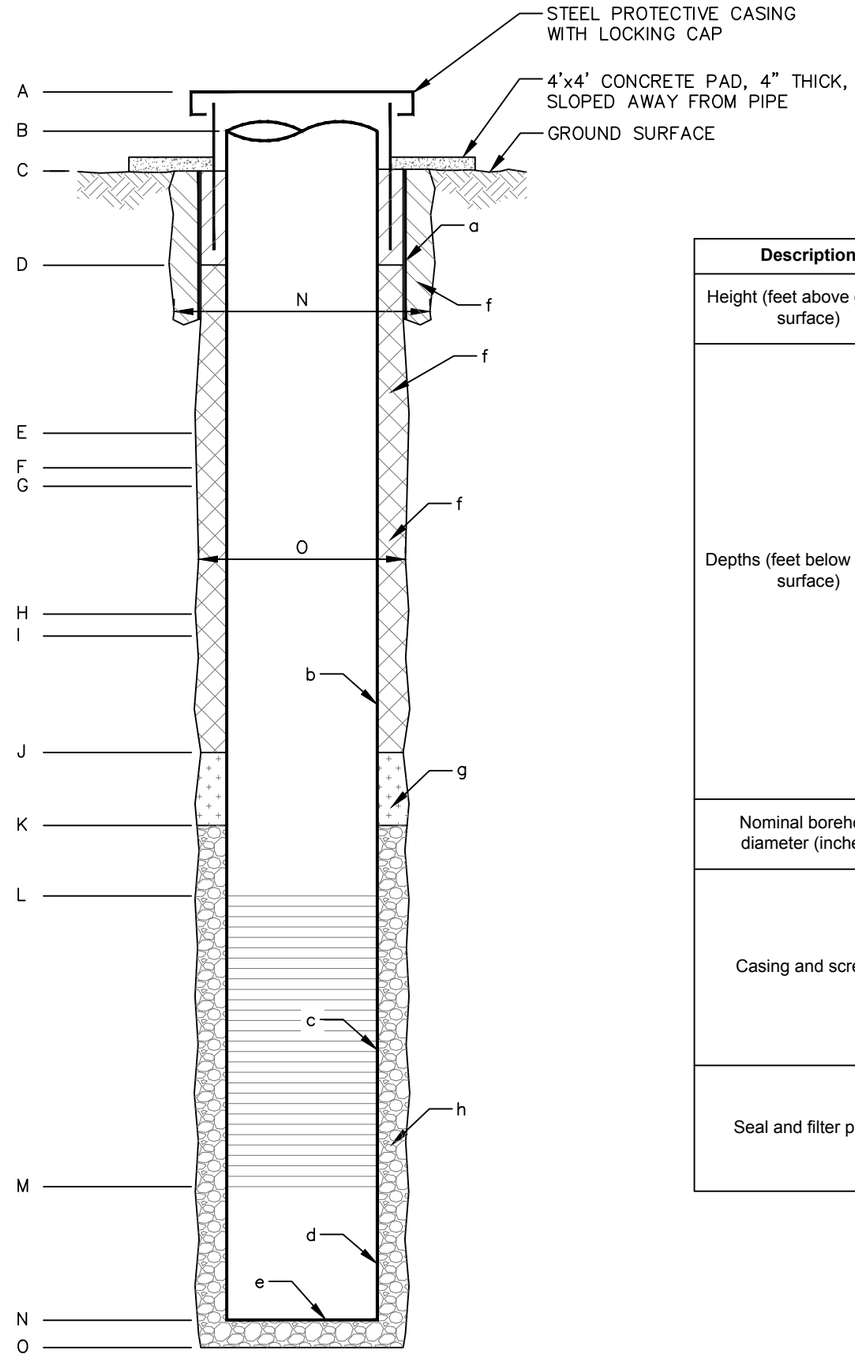
PREPARED FOR:

MIDWAY GOLD

DRAWING FILENAME: I:\Projects\100013 - Midway Gold-Pumpkin\Midway Cad\Dwgs\100013_Well Asbuilts.dwg LAYOUT NAME: Asbuilt Alluvial Monitoring Well DATE: Aug 27, 2013 - 8:44am CAD OPERATOR: dhobbs
LIST OF XREFS: [Interrabgk-border_2in Project WELL] [Interrabgk-border_22x34_ansiD]

LEGEND:

- CONDUCTOR CASING SEAL
- CEMENT SURFACE SEAL
- WELL SEAL
- PELLET SEAL
- FILTER PACK



NOT TO SCALE

Description	Symbol	Description	Bedrock Observation Well
Height (feet above ground surface)	A	Top of outer casing and cap	2
	B	Top of well casing	1
Depths (feet below ground surface)	C	Top of cement suface seal	0
	D	Top of grout seal	10
	E	Top of bentonite chips	93
	F	Top of plastic plug	105
	G	Top of grout seal (unconfirmed)	106
	H	Top of pellet seal (unconfirmed)	648
	I	Top of grout seal	665
	J	Top of pellet seal	918
	K	Top of filter pack	930
	L	Top of Screen	950
	M	Bottom of screen	1100
	N	Bottom of sump/end cap	1110
	O	Bottom of hole	1113
Nominal borehole diameter (inches)	P	Conductor casing borehole diameter	9.875
	Q	Main borehole diameter	6.250
Casing and screen	a	6.75-inch protective steel casing	20ft of casing
	b	2-inch schedule 80 PVC	
	c	2-inch schedule 80 PVC screen, 0.020-inch slot size (20 slot)	
	d	2-inch schedule 80 PVC	
	e	2-inch schedule 80 PVC end cap	
Seal and filter pack	f	Bentonite grout, 30% solids by weight	
	g	Bentonite pellets, coated 3/8-inch	
	h	#8 silica sand	

PROJECT NO.: 100013

INTERRA logic
4715 Innovation Dr., Suite 110
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970.225.8222

AS-BUILT DEEP BEDROCK OBSERVATION WELL

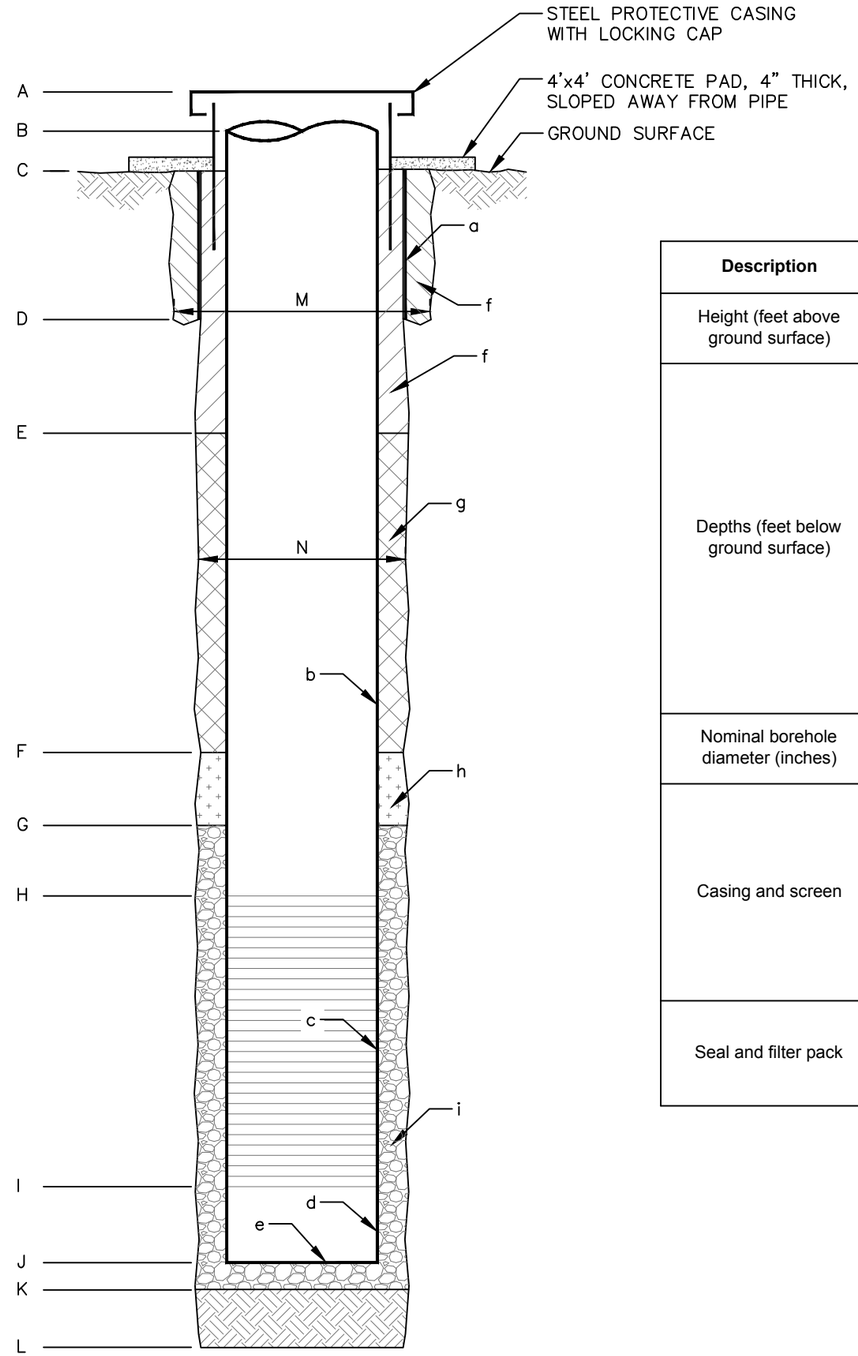
PREPARED FOR:

MIDWAY GOLD

DRAWING FILENAME: i:\Projects\100013 - Midway Gold-Paradise\Midway Gold\Dwgs\100013_Well Adsbuilts.dwg LAYOUT NAME: Adsbuilt Deep Observation Well DATE: Aug 27, 2012 - 9:44am CAD OPERATOR: dlhobbs
LIST OF XREFS: [InTerraLogic-Border_Plan Project WELL] [InTerraLogic-Border_22x34_ANSI]

LEGEND:

- CONDUCTOR CASING SEAL
- CEMENT SURFACE SEAL
- WELL SEAL
- PELLET SEAL
- FILTER PACK
- SLUFFED MATERIAL



NOT TO SCALE

Description	Symbol	Description	Bedrock Monitoring Well
Height (feet above ground surface)	A	Top of outer casing and cap	2
	B	Top of well casing	1
Depths (feet below ground surface)	C	Top of cement suface seal	0
	D	Bottom of conductor casing seal	20
	E	Top of bentonite slurry seal	50
	F	Top of bentonite pellet seal	930
	G	Top of filter pack	940
	H	Top of Screen	975
	I	Bottom of screen	1035
	J	Bottom of sump/end cap	1040
	K	Top of sluffed off material	1041
	L	Bottom of hole	1045
Nominal borehole diameter (inches)	M	Conductor casing borehole diameter	16.5 or greater
	N	Main borehole diameter	10.5 or greater
Casing and screen	a	Protective steel casing	
	b	6-inch schedule 80 PVC	
	c	6-inch schedule 80 PVC screen, 0.020-inch slot size (20 slot)	
	d	6-inch schedule. 80 PVC	
	e	6-inch schedule 80 PVC end cap	
Seal and filter pack	f	Cement grout	
	g	Bentonite pellets	
	h	Filter pack, 1/2 inch	

PROJECT NO.: 100013

INTERRA logic
4715 Innovation Dr., Suite 110
Fort Collins, Co 80525
970.225.8222

AS-BUILT BEDROCK MONITORING WELL

PREPARED FOR:

MIDWAY GOLD

DRAWING FILENAME: L:\Projects\100013 - Midway Gold-Pueblo\Midway Cad\Dwgs\100013_Wmb Asbuilts.dwg LAYOUT NAME: Asbuilt Deep Monitoring Well DATE: Aug 27, 2012 - 9:44am CAD OPERATOR: cthedlund
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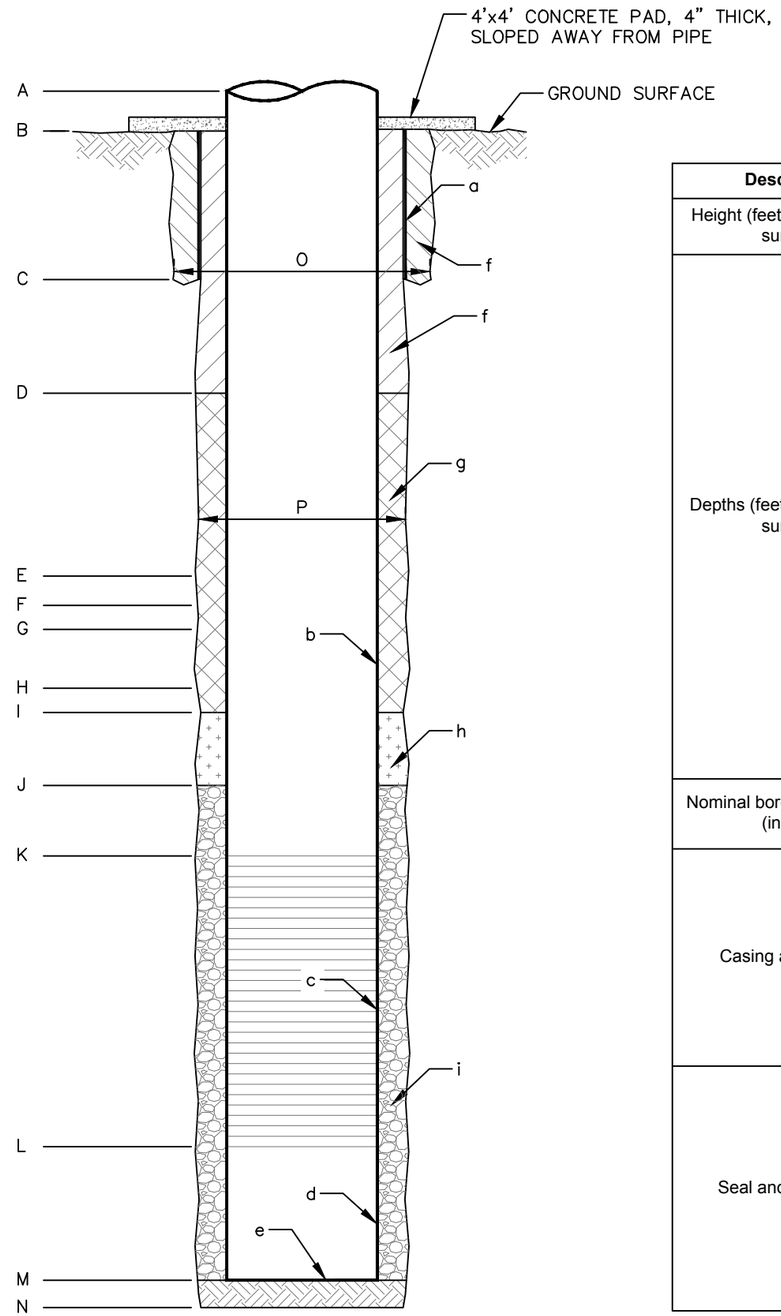
LEGEND:

- CONDUCTOR CASING SEAL
- CEMENT SURFACE SEAL
- WELL SEAL
- PELLET SEAL
- FILTER PACK
- SLUFFED MATERIAL



NOT TO SCALE

Description	Symbol	Description	Bedrock Water Well
Height (feet above ground surface)	A	Top of well casing	1.2
Depths (feet below ground surface)	B	Top of cement suface seal placed by tremmie	0
	C	Bottom of conductor casing seal	20
	D	Top of bentonite slurry seal placed by tremmie	50
	E	Top of bentonite chips placed by tremmie	733
	F	Major void	760
	G	Top of bentonite grout slurry seal placed by tremmie	787
	H	Top of gravel placed by gravity	816
	I	Top of bentonite pellet seal placed by tremmie	821
	J	Top of gravel pack placed by gravity	831
	K	Top of Screen	851.0
	L	Bottom of screen	1152.0
	M	Bottom of plug/Top of sluff	1162.5
	N	Bottom of hole	1174
Nominal borehole diameter (inches)	O	Conductor casing borehole diameter	20.5 or greater
	P	Main borehole diameter	17.5
Casing and screen	a	20-inch nominal steel casing	
	b	10-inch nominal steel casing	
	c	10-inch nominal steel louvered well screen	
	d	10-inch nominal steel casing	
	e	Steel welded cap	
Seal and filter pack	f	Cement grout	
	g	Bentonite grout with 30% solids (Aqua Guard; Baroid, Inc.) or bentonite chips (EnviroPlug; Wyo-Ben, Inc.)	
	h	Bentonite pellets, coated 3/8-inch (Kwik-Plug; MiSwaco, Inc.)	
	i	Filter pack, 1/2 and 3/4 inch (SRI Supreme; Silica Resources, Inc.)	

PROJECT NO.: 100013

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4715 Innovation Dr., Suite 110
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970.225.8222

AS-BUILT BEDROCK WATER WELL

PREPARED FOR:

MIDWAY GOLD

DRAWING FILENAME: L:\Projects\100013 - Midway Gold-Paradise\Midway Cat\Dwgs\100013_Well Asbuilts.dwg LAYOUT NAME: Asbuilt Bedrock Water Well DATE: Aug 27, 2012 - 8:44am CAD OPERATOR: ctrobled
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