CONCEPTUAL MODEL OF GROUNDWATER FLOW IN THE ANIMAS UPLIFT AND PALOMAS BASIN COPPER FLAT PROJECT SIERRA COUNTY, NEW MEXICO

prepared by

Michael A. Jones

John W. Shomaker, PhD, CPG

Steven T. Finch, Jr., CPG

JOHN SHOMAKER & ASSOCIATES, INC.
Water-Resource and Environmental Consultants
2611 Broadbent Parkway NE
Albuquerque, New Mexico 87107
505-345-3407
www.shomaker.com

prepared for

New Mexico Copper Corporation,
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CONCEPTUAL MODEL OF GROUNDWATER FLOW IN THE ANIMAS UPLIFT AND PALOMAS BASIN COPPER FLAT PROJECT, SIERRA COUNTY, NEW MEXICO

1.0 INTRODUCTION

This report presents the current conceptual model of the hydrogeological system in the area of the Copper Flat Project (Project) near Truth or Consequences, New Mexico. The Project location is shown on Figure 1.1.

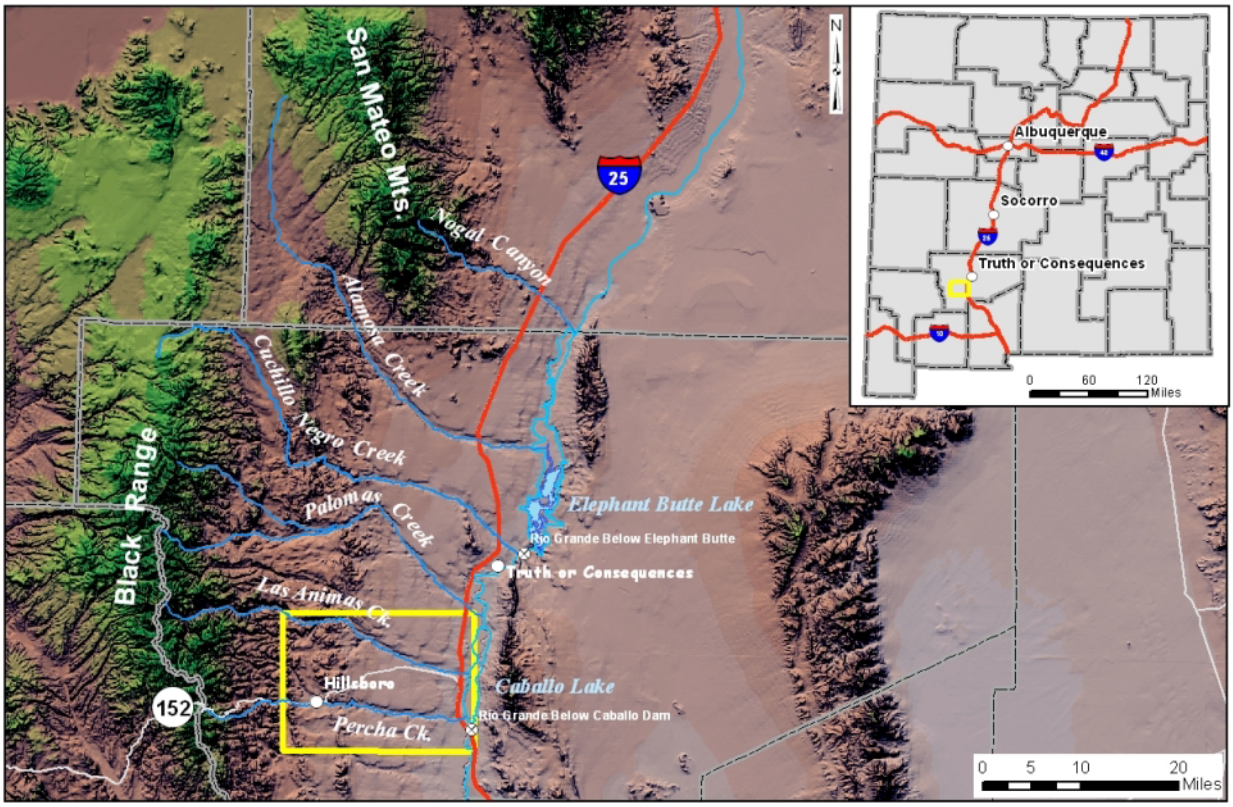


Figure 1.1. Copper Flat Project location.

The purpose of the conceptual model is to describe the hydrologic and hydrogeologic systems in which the mine water-supply wells and the Project facilities including open pit, tailings impoundment, and waste rock deposit are set.

The conceptual model is based on previous studies by Shomaker (1993), Adrian Brown Consultants (1996), Bureau of Land Management (BLM, 1999), Raugust (2003), and NMCC Baseline Data Report (INTERA, 2012), and ongoing investigations. It will provide the framework for development of a numerical hydrologic/hydrogeologic model, which will in turn provide a more precise quantitative framework in which to evaluate the effects of Project development.

2.0 CLIMATE AND METEOROLOGY

Precipitation and evaporation in the study area are examined using data from regional meteorological stations. The station at Hillsboro, New Mexico, has a long record (with at least partial data from 1893), is located nearby (about 4 miles from the Copper Flat open pit), and at a similar elevation (5,270 feet above mean sea level (ft amsl)) as the Copper Flat Mine site. Locations of the Hillsboro station and other meteorological stations along the east side of the Black Range are shown on Figure 2.1.

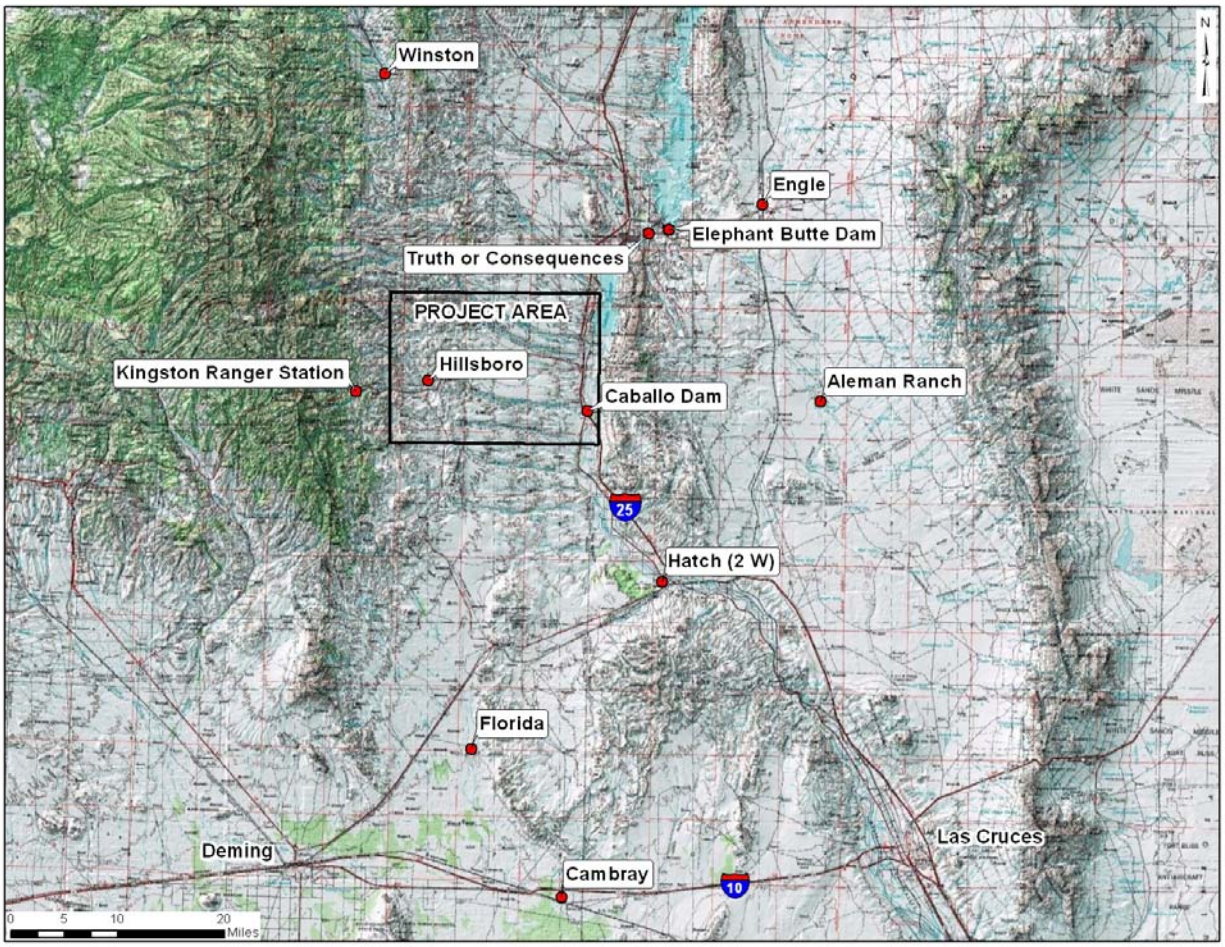


Figure 2.1. Locations of meteorological stations surrounding Project area.

2.1 Annual Precipitation

The range of variability between wet and dry climatic conditions is seen in the annual precipitation recorded at Hillsboro from 1925 through 2010, shown on Figure 2.2. Annual precipitation ranges from about 5 to about 20 inches per year (in./yr) and averages about 12.5 inches. Copper Flat weather station recorded 4.82 inches precipitation between October 2010 and September 2011, signifying extreme drought conditions during this period.

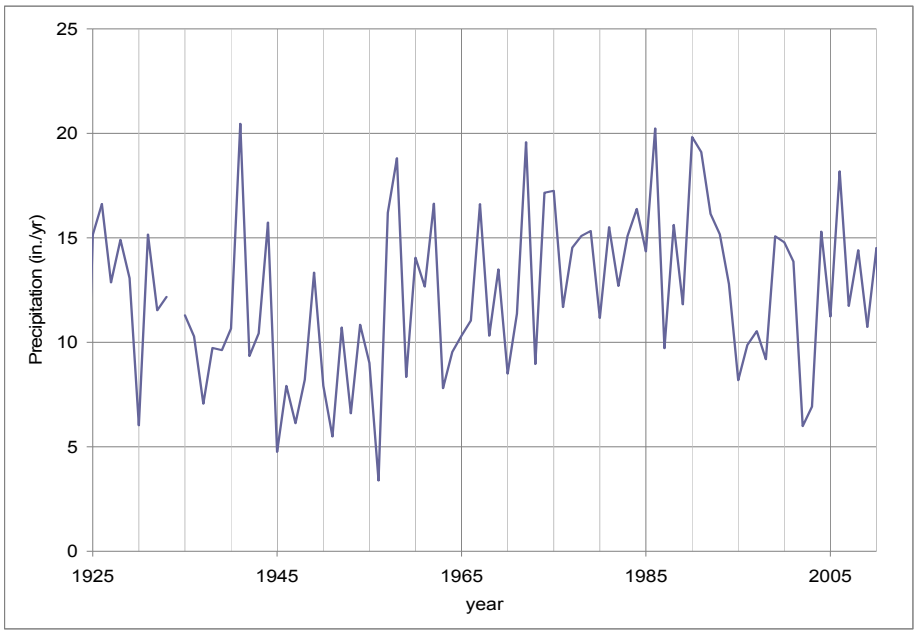


Figure 2.2. Recorded annual precipitation at Hillsboro meteorological station.

2.2 Precipitation Events

The frequency and magnitude of rainfall-runoff events are examined in the statistical distribution of daily precipitation at Hillsboro, shown on Figure 2.3. Daily precipitation of 1 inch or more occurs, on average, twice per year. Storm events of magnitude 2 inches can be expected to occur every 5 years, and the 100-year storm event is about 3.5 inches.

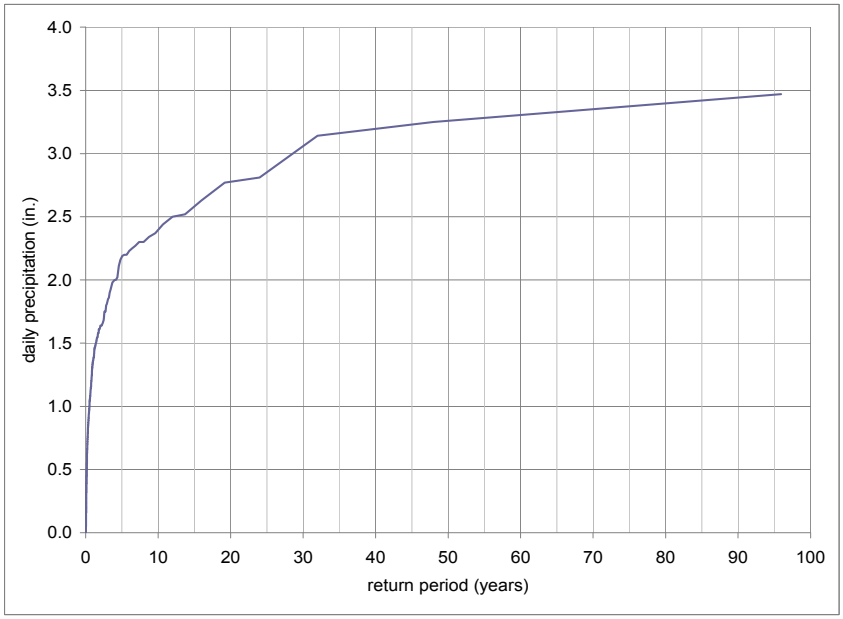


Figure 2.3. Distribution of daily precipitation at Hillsboro meteorological station.

2.3 Precipitation and Elevation

Precipitation is known to increase with elevation, and the bulk of surface-water runoff and groundwater recharge in the study area is generated by precipitation on the higher elevations of the Percha Creek and Las Animas Creek watersheds. Mean annual precipitation was compared to elevation for meteorological stations east of the Black Range as shown on Figure 2.4. The best-fit linear relationship estimates about 8.6 in./yr mean annual precipitation at elevation 4,000 ft amsl and about 26.2 in./yr at elevation 10,000 ft amsl, approximately the maximum in the study area.

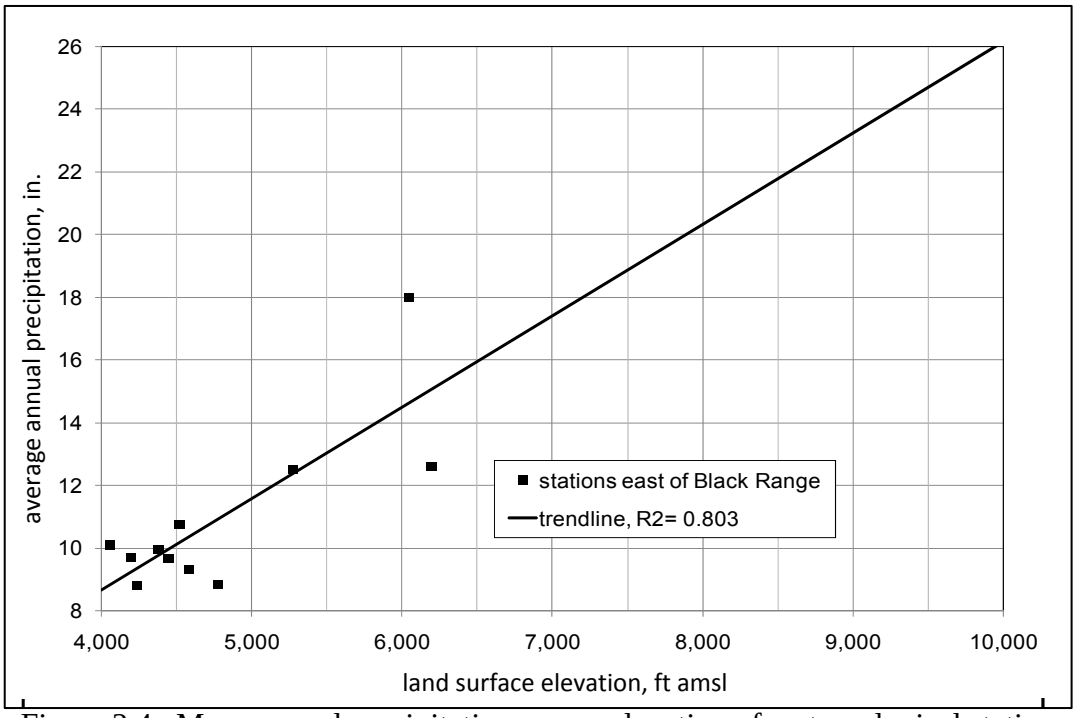


Figure 2.4. Mean annual precipitation versus elevation of meteorological station.

2.4 Potential Evapotranspiration

Potential evapotranspiration (ET), or the maximum evaporation and plant transpiration that could be expected assuming full availability of water, is commonly estimated using the Penman-Monteith equations (Monteith, 1965) which relate maximum ET (ET_0) to meteorological parameters including temperature, relative humidity and wind speed, and to geographical parameters (latitude and time of year) for a given reference crop.

Annual ET_0 computed from results at Hillsboro meteorological station is shown on Figure 2.5 to be about 60 in./yr. This compares well to previous estimates (SRK, 1997) of 65 in./yr of potential evaporation, and the baseline data collected at Copper Flat (62.5 inches net evaporation between October 2010 and September 2011). Actual ET, or actual evaporation from an open water surface, is less, depending on sun and wind exposure, ground conditions, and availability of water.

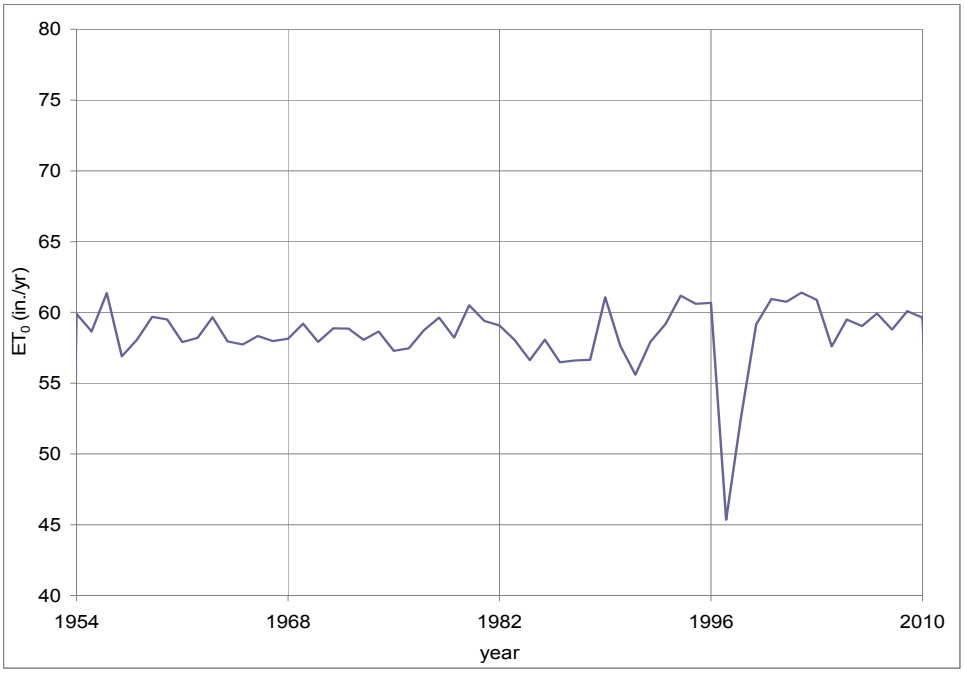


Figure 2.5. Penman-Monteith evapotranspiration (ET_0) from Hillsboro meteorological station.

Evaporation in the study area increases at lower elevations. An estimate of reservoir evaporation along the Rio Grande (Middle Rio Grande Endangered Species Collaborative, 2003) is:

evaporation = 135.8 in. – (0.0135 in./ft amsl) * Z

where,

Z is elevation in feet above mean sea level.

Estimated average evaporation, precipitation (Fig. 2.4) and net evaporation for Caballo Lake and the Copper Flat open pit are presented in Table 2.1.

Table 2.1. Estimated average total and net reservoir evaporation

location	elevation (ft amsl)	mean annual precipitation (in.)	annual reservoir evaporation (in.)	net evaporation (in./yr)
Caballo Lake	4,200	9.2	79.1[1]	69.9
Copper Flat open pit	5,440	12.8	62.4	49.5

[1] Equivalent to 74% of pan evaporation measured at Caballo (WRCC)

3.0 HYDROLOGY AND WATER BALANCE

Topographic basins of the study area are shown on Figure 3.1 and include Las Animas Creek and Percha Creek watersheds as well as the Grayback and Greenhorn arroyo drainages. Part of the original Grayback Arroyo watershed now drains to the Copper Flat pit.

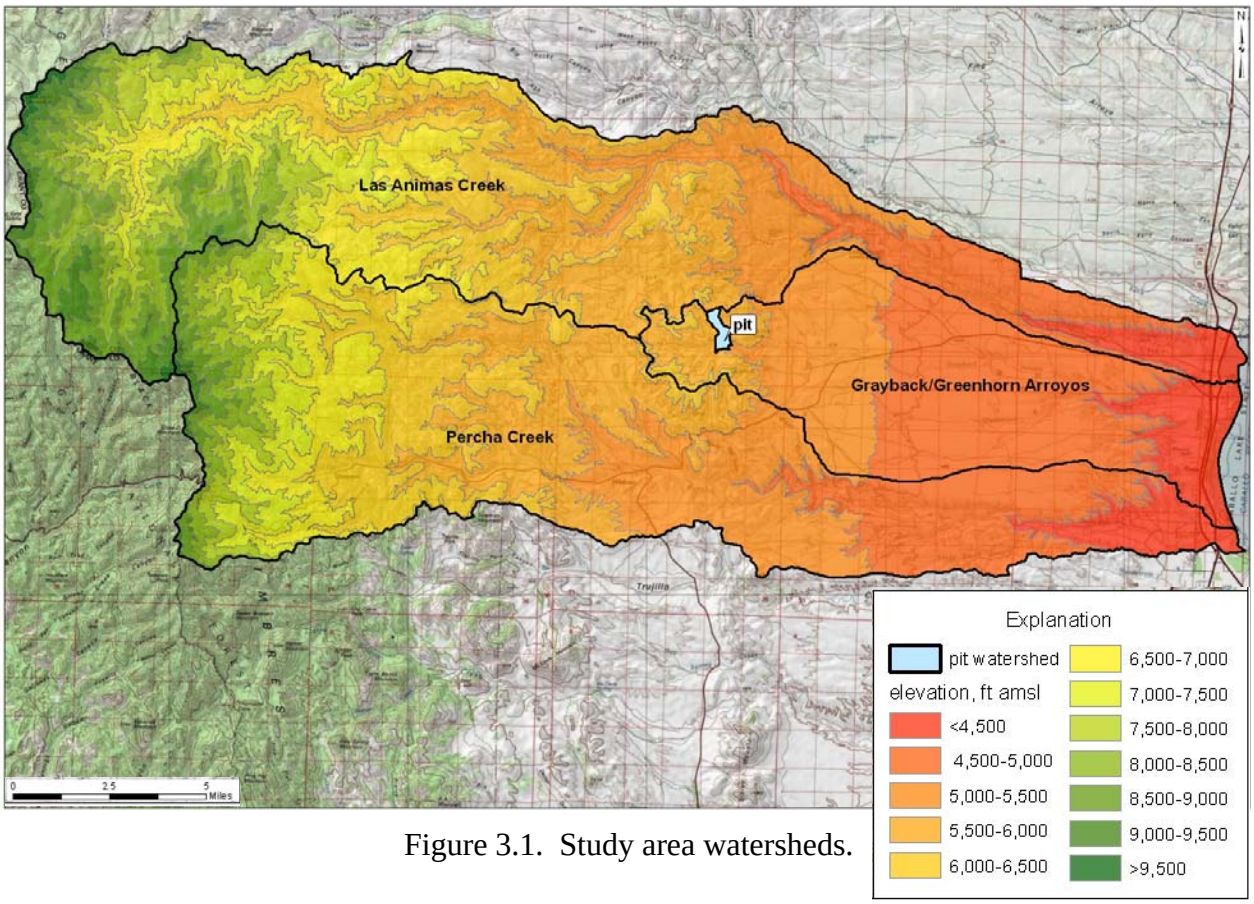


Figure 3.1. Study area watersheds.

3.1 Watershed Area and Precipitation

The areas of each of the watersheds within defined elevation bands are listed on Table 3.1. The mean annual precipitation (Fig. 2.4) estimated for the midpoint of each band is presented on Table 3.2, along with the estimated total annual volume of precipitation for each watershed.

Table 3.1. Study area watershed areas and hypsometry

elevation range (ft amsl)	Las Animas Creek	Percha Creek	Grayback / Greenhorn Arroyos	open pit
	area (acres)			
<4,500	2,888	3,576	4,539	
4,500-5,000	7,030	11,035	17,095	
5,000-5,500	8,412	12,614	9,708	230
5,500-6,000	14,539	14,072	2,864	
6,000-6,500	12,369	13,030	635	
6,500-7,000	10,279	8,219		
7,000-7,500	6,507	5,355		
7,500-8,000	5,808	4,159		
8,000-8,500	6,160	3,021		
8,500-9,000	6,362	1,749		
>9,000	3,305	509		
total	**83,659**	**77,339**	**34,840**	**230**

ft amsl - feet above mean sea level

Table 3.2. Study area precipitation by watershed and elevation

midpoint elevation (ft amsl)	precipitation (in./yr)	Las Animas Creek	Percha Creek	Grayback / Greenhorn Arroyos	open pit
		precipitation (ac-ft/yr)			
4,350	9.7	2,326	2,880	3,655	
4,750	10.8	6,345	9,961	15,431	
5,250	12.3	8,617	12,921	9,944	236
5,750	13.8	16,661	16,126	3,282	
6,250	15.2	15,679	16,516	804	
6,750	16.7	14,279	11,417		
7,250	18.1	9,832	8,091		
7,750	19.6	9,482	6,790		
8,250	21.0	10,805	5,298		
8,750	22.5	11,933	3,280		
9,500	24.7	6,802	1,048		
total		**112,760**	**94,328**	**33,116**	**236**

ft amsl - feet above mean sea level
in./yr - inches per year
ac-ft/yr - acre-feet per year

3.2 Runoff and Groundwater Recharge

Groundwater recharge has, in some studies, been estimated using the method of Maxey and Eakin (1949), in which estimated mean annual precipitation, a function of elevation, is correlated with an independent estimate of discharge. The result is a set of recharge factors, defined as the proportion of precipitation that becomes runoff or recharge (excess precipitation), for a given level of mean annual precipitation.

Some example sets of recharge factors are presented in Table 3.3. These include the formulation of Bennett and Finch (2002) used to estimate recharge in the trans-Pecos region of Texas, that was subsequently used to estimate recharge to the Salt Basin in New Mexico and Texas (JSAI, 2010) and the Davis Mountains/Salt Basin in Texas (LBG-Guyton, 2004). Another example is that of Maxey and Eakin (1949), which studied dry, closed basins in southern Nevada, estimating discharge as playa ET. This example was modified by McDonald-Morrissey (1998) in BLM (2000), in a study of wetter, exorheic basins along the Carlin Trend in northern Nevada that estimated discharge from gaged surface flows and as ET from vegetated areas.

Table 3.3. Published recharge factors

midpoint elevation (ft amsl)	precipitation (in./yr)	portion of precipitation that becomes runoff and/or recharge		
		Bennett and Finch (2002)	Maxey - Eakin (1949)	BLM (2000)
4,350	9.7	0.00	0.03	0.03
4,750	10.8	0.00	0.03	0.03
5,250	12.3	0.00	0.07	0.07
5,750	13.8	0.02	0.07	0.07
6,250	15.2	0.03	0.15	0.3
6,750	16.7	0.04	0.15	0.3
7,250	18.1	0.05	0.15	0.3
7,750	19.6	0.07	0.15	0.3
8,250	21.0	0.08	0.25	0.45
8,750	22.5	0.09	0.25	0.45
9,500	24.7	0.11	0.25	0.45

Actual runoff and recharge are influenced by site-specific conditions including topography and surface geology. However in the absence of an independent estimate of discharge, the previously published recharge factors may indicate a potential range of basin water yield. Table 3.4 presents the estimates of runoff and groundwater recharge for the study area corresponding to the recharge factors presented in Table 3.3.

Table 3.4. Study-area runoff and groundwater recharge, estimated assuming published parameters

runoff + recharge (acre-feet per year)	Bennett and Finch (2002)	Maxey - Eakin (1949)	BLM (2000)
Las Animas Creek	5,149	16,805	30,104
Percha Creek	2,920	11,247	19,595
Grayback / Greenhorn Arroyos	96	1,619	1,740
open pit	1	16	16
total	**8,166**	**29,688**	**51,455**

3.3 Water Balance

Discharge from the study area occurs mainly as discharge to Caballo Lake and the Rio Grande, and as ET discharge from riparian and irrigated areas along Las Animas and Percha Creeks. Evaporation and ET for Caballo Lake and for the study area watersheds are estimated on Table 3.5.

In Table 3.5, ET from irrigated crops or riparian vegetation was estimated at 3 ft/yr. Net evaporation for Caballo Lake, estimated at 70 in./yr (Table 2.1), was rounded down to account for runoff from the east side of the lake. Net evaporation and ET for North Caballo Lake and Rio Grande riparian area were estimated as the average of net combined Caballo evaporation and riparian ET rate.

Table 3.5. Estimated evaporation and ET

	area (ac)	net evaporation / groundwater ET rate (ft/yr)	net evaporation / groundwater ET rate (ac-ft/yr)
Caballo Lake (water surface at 4,200 ft amsl)	6,344	5	31,719
North Caballo Lake / Rio Grande riparian area	5,214	4	20,858
Animas Creek irrigated / riparian area	1,421	3	4,262
Percha Creek irrigated / riparian area	280	3	839
Copper Flat open pit	5	4	20
total			**57,698**

The Caballo Lake discharge components, totaling 52,577 acre-feet per year (ac-ft/yr) in Table 3.5, are provided in part by direct contribution from the Rio Grande. Based on average daily discharge below Elephant Butte dam (U.S. Geological Survey (USGS) gage No. 08361000) and below Caballo dam (USGS gage No. 08362500) from 1938 through 2010, an average of 12,364 ac-ft/yr more water is released from Elephant Butte than from Caballo.

Another part of the remaining Caballo Lake discharge (40,213 ac-ft/yr) is provided by contributions from the Palomas Creek (catchment area 233,942 ac) and Cuchillo Creek (catchment area 235,493 ac) basins north of the study area. Assuming water yield proportional to catchment area (Table 3.1), Palomas and Cuchillo Creeks basins would be expected to produce about 71 percent of the total, with the study area basins contributing the remainder (about 11,850 ac-ft/yr).

Based on this estimate of total discharge (runoff + groundwater discharge) to the Rio Grande / Caballo Lake system and on the discharge estimates in Table 3.5, an estimated water balance for the study area is presented in Table 3.6.

Table 3.6. Estimated water balance

runoff and recharge	
Animas Creek	10,709
Percha Creek	6,074
Grayback and Greenhorn Arroyos	201
Copper Flat open pit	1
total	**16,984**
discharge	
Animas Creek irrigated and riparian area	4,262
Percha Creek irrigated and riparian area	839
discharge to Rio Grande and Caballo Reservoir	11,850
Copper Flat open pit	20
total	**16,971**

The initial water balance in Table 3.6 may be compared with the water balance of the Upper Mimbres Basin, located on the opposite side of the Black Range from the study area, with a similar distribution of elevations. The average yield of the 300,000-acre basin above Faywood gaging station is estimated (based on gaged flows) at 26,700 ac-ft/yr (White, 1930). Assuming the same per-acre water yield for the study area would result in an estimate of 17,450 ac-ft/yr, similar to the estimate given in Table 3.6.

The estimated water balance will be further refined based on results of 2011 Las Animas Creek and Percha Creek seepage studies, of pit-area monitoring and hydraulic testing, and possibly on results of numerical model development.

4.0 GEOLOGY AND HYDROGEOLOGY

The hydrogeologic study area is shown on Figure 4.1, along with the larger area of the study area (surface) watersheds. Although most of the precipitation that recharges the groundwater system originates in the upper part of the watersheds, the most significant groundwater systems are found downstream from the Black Range mountain block.

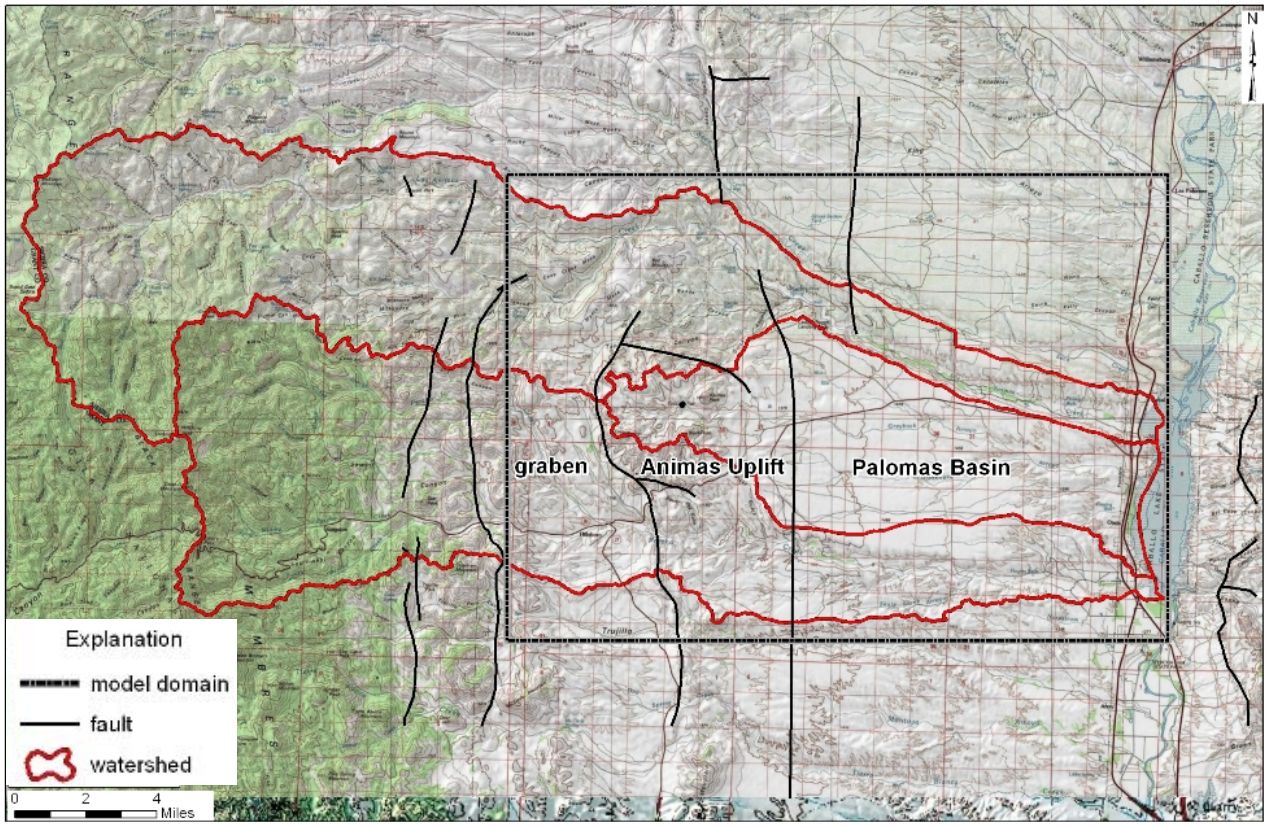
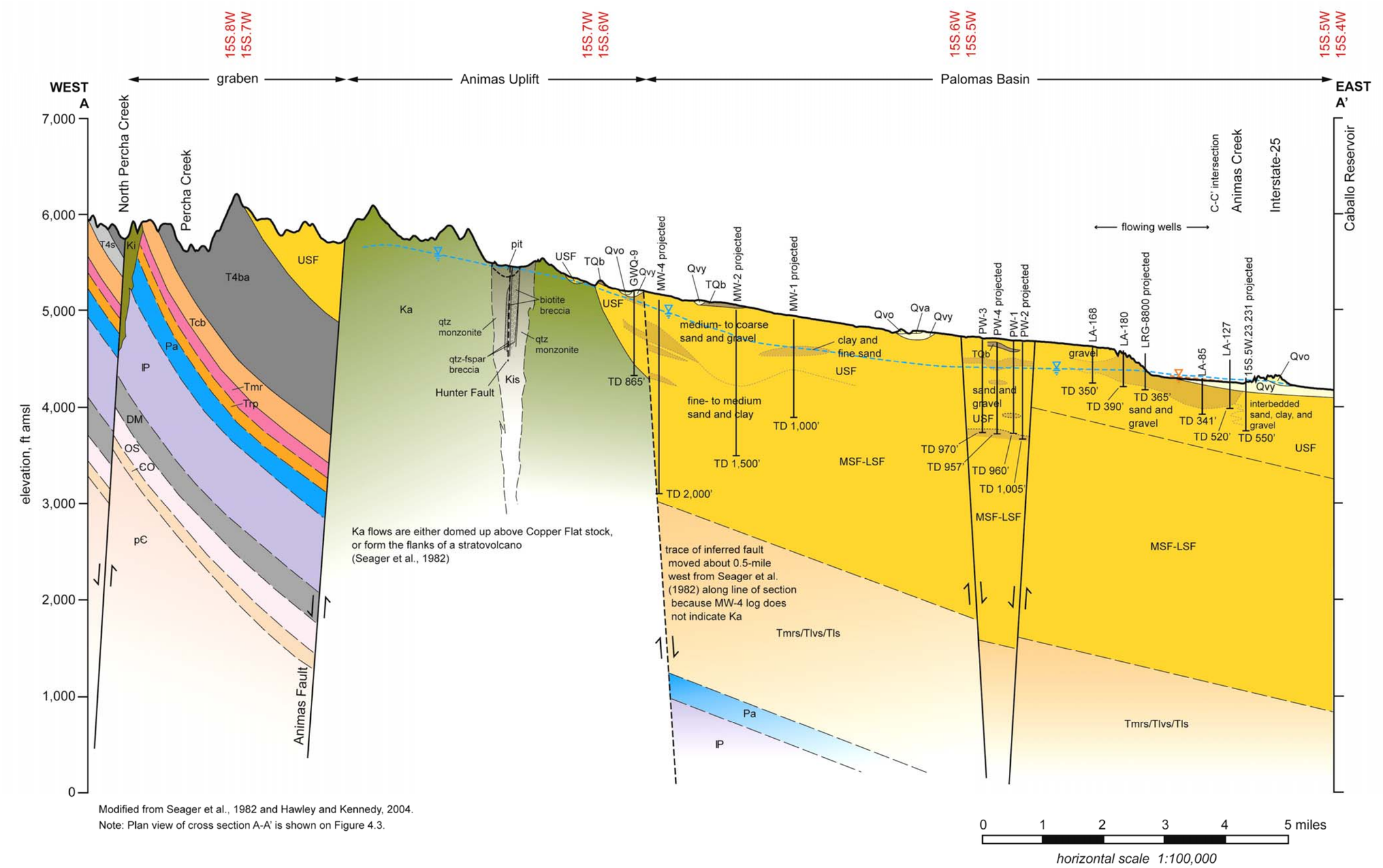


Figure 4.1. Hydrogeologic zones.

The study area consists of three major hydrogeologic zones (Fig. 4.1), shown in west-east cross-section on Figure 4.2. The three zones are 1) The Animas Uplift, in which the ore body is located, 2) the graben east of the Black Range and west of the Animas Uplift, and 3) the Palomas Basin, a sediment-filled basin east of the Animas Uplift in which the mine water supply wells are located.



Modified from Seager et al., 1982 and Hawley and Kennedy, 2004.
Note: Plan view of cross section A-A' is shown on Figure 4.3.

Figure 4.2. Hydrogeologic zones, west-to-east cross-section.

The Animas Uplift contains the Copper Flat open pit, excavated in 1982 by Quintana Minerals, which the New Mexico Copper Corporation (NMCC) proposes to expand. The Quintana pit was excavated to a maximum depth corresponding to elevation 5,400 ft amsl. The current water level in the pit is about 5,440 ft. The pre-mining groundwater level (without lake evaporation) was about 5,450 ft. The main part of the other Project facilities, including waste rock and tailings storage facilities, would be located on the Animas Uplift.

The graben between the Black Range and the Animas Uplift drains to the Warm Springs valley. Potential effects to groundwater levels and spring discharge within the graben will be evaluated.

The Palomas (geologic) Basin lies within the Lower Rio Grande Underground Water (administrative) Basin. The Project water-supply wells are located within the basin on a mesa adjacent to Animas Creek (Fig. 4.1), and will be the main source of groundwater drawdown and surface-flow depletion from the Project. Parts of the waste rock and tailings storage facilities would also be located overlying the western margin of the Palomas Basin.

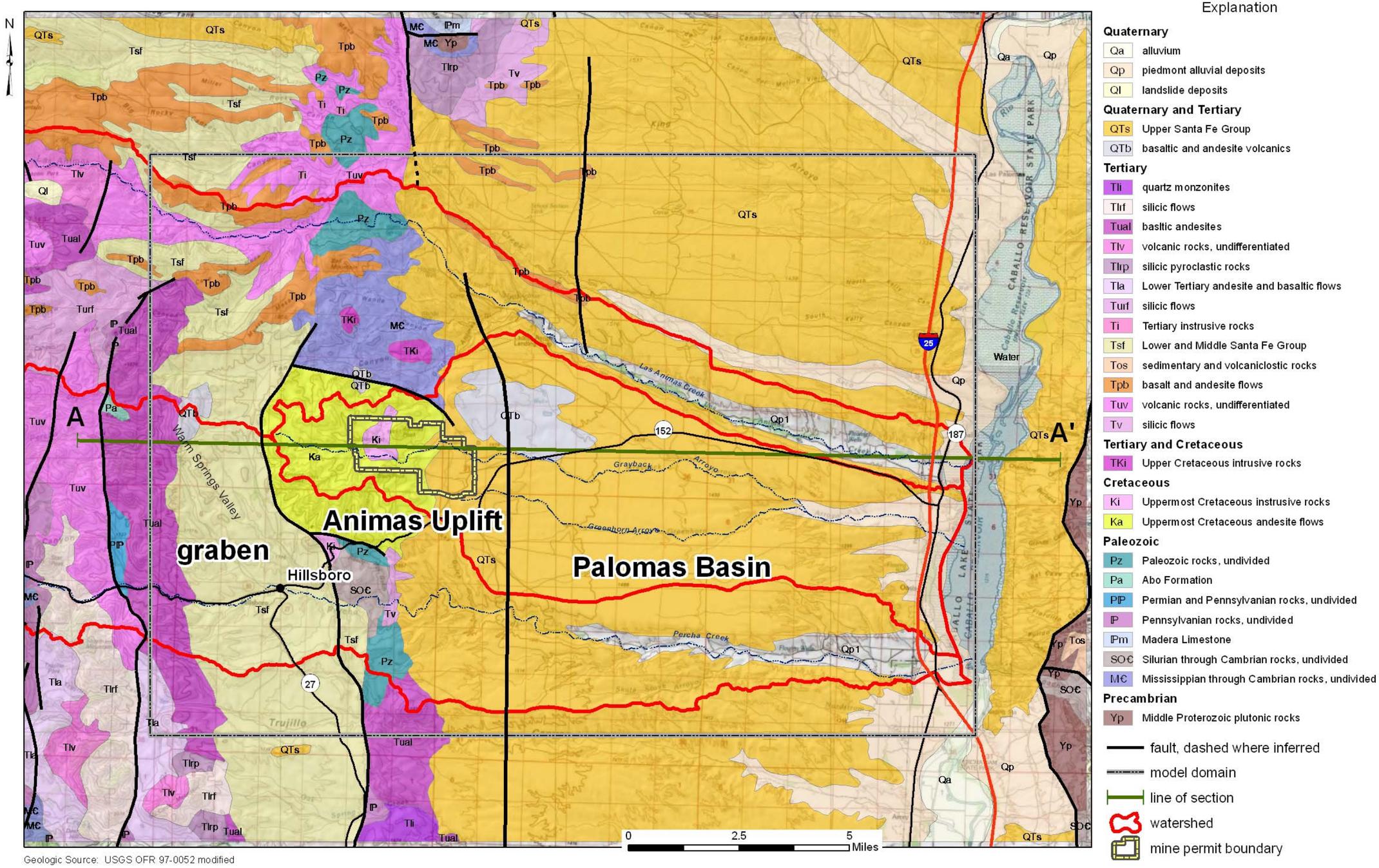
4.1 Geology

The geologic description is adapted from Shomaker (1993), who cites Harley (1934), Hedlund (1975), Dunn (1982), and Seager et al. (1982). The geologic map of the study area is presented on Figure 4.3. Three major geologic subdivisions (Figs. 4.1 and 4.2), the Animas Uplift, the graben east of the Black Range, and the Palomas Basin, are described below.

4.1.1 Animas Uplift

The Animas Uplift is an upthrown block, ranging from less than 2 to about 4 miles wide, bounded by north-south trending faults (Fig. 4.1). The Copper Flat ore body is located within a nearly circular remnant of a Cretaceous-age andesite volcano about 4 miles in diameter that is part of the Animas Uplift. Drilling has shown that the andesite is present to a depth of more than 3,000 ft (Dunn, 1982, p. 314).

The hills surrounding Copper Flat, referred to as the Hillsboro Hills, consist of Cretaceous-age andesite flows, breccias, and volcaniclastic rocks that were erupted from the volcano (McLemore, 2001; Raugust and McLemore, 2004). The andesite is bounded on the north and south by Paleozoic limestone, and on the east by the Santa Fe Group sediments of the Palomas Basin, in fault contact. On the west, the andesite body is in fault contact with Paleozoic-age limestone, Tertiary-age volcanic rocks, and overlying Santa Fe Group sediments of the half-graben between the Animas Uplift and the Black Range (Fig. 4.1).



Geologic Source: USGS OFR 97-0052 modified

Figure 4.3. Geologic map of study area.

The ore body itself is in the Copper Flat quartz monzonite stock, within the body of andesite. The quartz monzonite porphyry intruded the vent of the volcano, and then dikes and mineralized veins intruded the monzonite porphyry and radiated outward from the porphyry into faults and fracture zones in the andesite. The porphyry copper deposit is concentrated within a breccia pipe in the quartz monzonite stock.

4.1.2 Graben West of Animas Uplift

West of the Animas Uplift, between it and the Black Range, lies a half-graben in which Tertiary-age alluvial-fan deposits, sandstones and mudstones of the Santa Fe Group overlie Tertiary-age volcanic rocks and Paleozoic-age sedimentary rocks. Dips are eastward, and the half-graben is bounded on the east by normal faults. The Santa Fe beds may reach a thickness of 1,000 ft on the east side of the half-graben (Seager et al., 1982, sheet 2).

4.1.3 Palomas Basin

The Palomas Basin is a sediment-filled structural trough, part of the Rio Grande rift system. The principal water-bearing sediments of the Palomas Basin are (1) alluvial-fan deposits, and fluvial sands and gravels of the Santa Fe Group, and (2) alluvium in the inner valleys of the Rio Grande and principal tributaries.

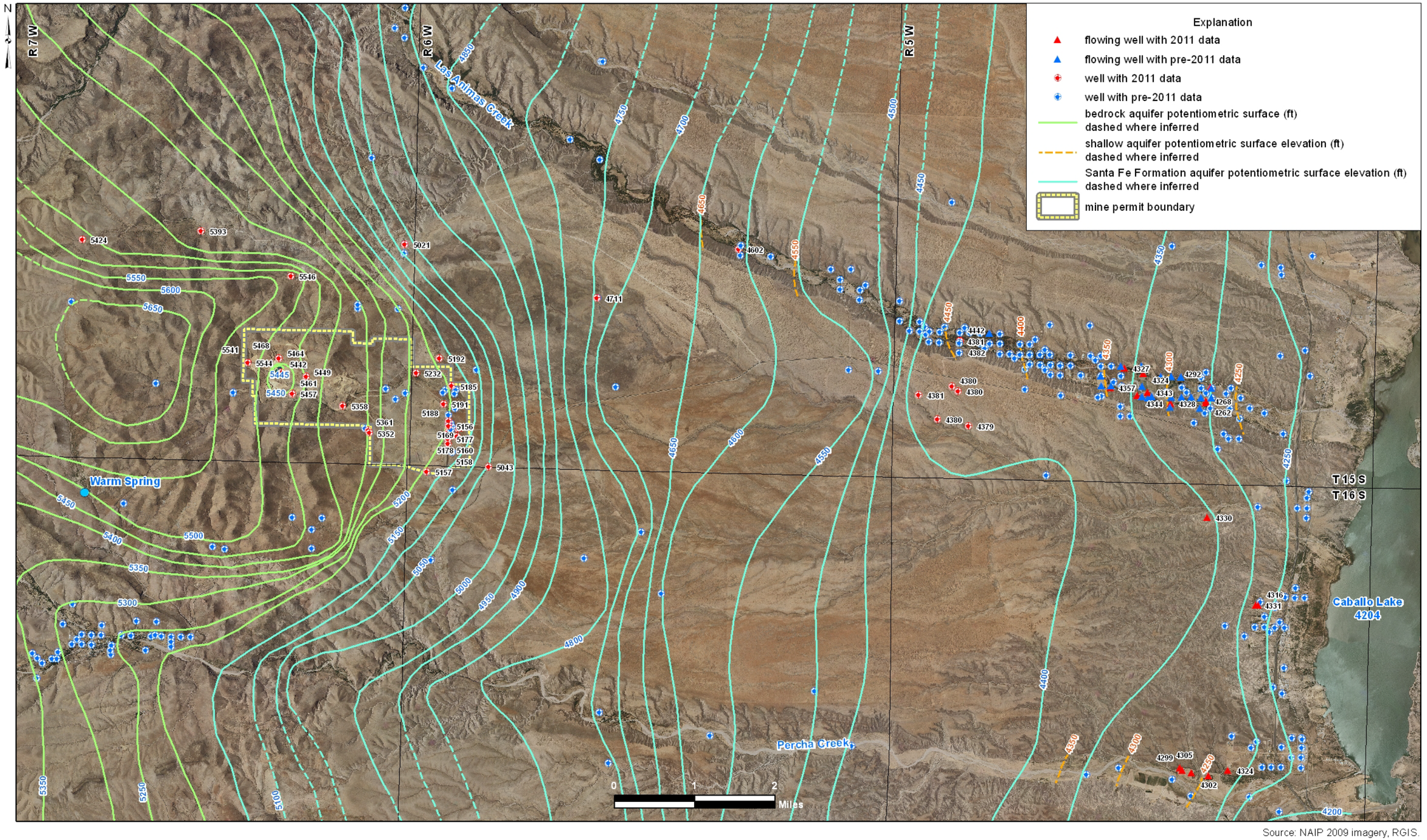
Davie and Spiegel (1967, p. 9) describe the Santa Fe Group in Las Animas Creek area as consisting of (a) an alluvial fan facies, interfingering eastward with (b) a clay facies, possibly representing the distal or deltaic beds of the alluvial fan facies, which in turn interfingers with (c) an axial river facies consisting of well-sorted sand and gravel containing well-rounded quartzite pebbles. The sediments are stratified and in general dip to the east.

This description of the distribution of fine-grained sand and clay and of coarser sand and gravel is reflected in the logs of wells and shown in cross-section on Figure 4.2. In general, the sediments become finer-grained to the east from the western margin to the axis of the basin.

4.2 Groundwater Flow Patterns

Groundwater flow patterns, recharge and discharge locations and aquifer characteristics are discussed below, for the three geologic subdivisions of the study area.

Locations of wells and water-level measurements are presented with approximate potentiometric surface contours on Figure 4.4. Interpreted contours are shown for three aquifers: (1) bedrock of the Animas Uplift and the pit area, (2) the Santa Fe Group aquifer, and (3) the shallow alluvium along Las Animas Creek. Groundwater levels range from above 5,800 ft amsl at the western edge of the graben to about 4,200 ft amsl at Caballo Lake.



Source: NAIP 2009 imagery, RGIS.

Figure 4.4. Potentiometric surface contours.

4.2.1 Animas Uplift

Groundwater recharge from local precipitation occurs over the uplift. Recharge to the quartz monzonite and andesite is limited by low hydraulic conductivity. Recharge to the limestone outcrop areas north and south of the andesite is likely greater, and includes infiltration of runoff from Las Animas and Percha Creeks that was generated at higher elevations in the Black Range and in the half-graben between the Black Range and Animas Uplift.

Groundwater discharges from the limestone at the foot of the uplift, as spring flow and base flow to Percha and Las Animas Creeks. Groundwater discharges from the andesite as subsurface flow across the fault contacts with the Palomas Basin, and as evaporation from the open pit.

The low hydraulic conductivity of the quartz monzonite and andesite is reflected in the low pumping rates required in 1982 to dewater the Quintana pit. The dewatering rate required to maintain the greater-than 45-ft drawdown, in an excavation about 100 ft by 200 ft in area at maximum depth, was estimated at 22 gallons per minute (gpm) (Shomaker, 1993). SRK (1997) reports pumping rates up to 50 gpm. The range in dewatering rates is likely influenced by precipitation and localized recharge.

It can be expected that the hydraulic conductivity of rock deeper in the andesite and quartz monzonite will have still lower hydraulic conductivity, because of the decrease in weathering effects and the closing of fractures with depth. The andesite acts as a hydrologic containment vessel for the existing and proposed open pits.

The radiating dikes and veins may be inferred to have relatively low conductivity as well. Several mine shafts in Wicks Gulch were examined, and found to be almost full of water; if there were significant hydraulic conductivity, either along fractures or through the rock matrix, water levels would be closer to the elevation of nearby surface channels.

Away from the andesite body, where the Animas Uplift consists of fractured, predominantly limestone and dolomite bedrock, it is likely that significant permeability has developed by the combination of fracturing and enlargement of fracture-openings by dissolution of carbonate minerals. This hypothesis is supported by the account of an air-drilled exploration hole in the vicinity of the windmill well in the SW/4 SE/4 Sec. 3, T. 16 S., R. 7 W., which was abandoned because large water production overcame the capacity of the compressor to continue circulation (Sonny Hale, personal communication). The well is close to the fault which offsets the andesite against the predominantly limestone Paleozoic-age section.

4.2.2 Graben West of Animas Uplift

Local precipitation and runoff from the Black Range provide groundwater recharge to the graben. Discharge occurs mainly as spring flow and possibly also as subsurface discharge to the Animas Uplift. Spring flow in the Warm Springs drainage discharges as base flow to Percha Creek. The emergence of water at Warm Springs at the eastern edge of the graben demonstrates that the andesite of the Animas Uplift acts as a barrier to flow at depth from the graben. Groundwater in the graben flows west to east across the Animas Uplift south toward Percha Creek and north toward Las Animas Creek (Fig. 4.4) flowing around the low-permeability andesite.

The contrast between the chemical makeup of Warm Springs water and that of wells and springs within the Animas Uplift indicates that the source of Warm Springs water is not within the uplift, as might otherwise be inferred from the relative heads at the spring and at wells and springs within the uplift. The chemistry of groundwater in the vicinity of the project is discussed more fully by Newcomer and Finch (1993).

4.2.3 Palomas Basin

Water recharges the Palomas Basin at its western edge, through alluvial fans at the edge of the Animas Uplift, including infiltration of runoff from Greenhorn and Grayback Arroyos and as infiltration of base flow and runoff from the upper catchments of Las Animas and Percha Creeks. Groundwater flows east toward the Rio Grande and Caballo Lake. Besides discharging to the Rio Grande and Caballo, groundwater discharges as evapotranspiration from irrigated and riparian-vegetation areas along Las Animas and Percha Creeks.

Stratification and heterogeneity of the Santa Fe Group creates confined conditions at depth in the lower Palomas Basin. Seepage along Percha Creek, Grayback Arroyo, Greenhorn Arroyo, and Animas Creek alluvial systems recharges the Santa Fe Group sediments in the upper basin and the recharge hydraulically loads the more permeable zones down-dip. Overlying clay beds create artesian-well conditions in the basin down-dip of recharge zones.

Artesian pressures are relatively low, generally less than 10 ft of head above land surface. A survey of artesian wells (Shomaker, unpublished) from 1993 has been updated, indicating reduction of artesian flow and pressure over 18 years. The history and effects of artesian discharge are discussed further below.

4.3 Hydrogeologic Conceptual Model

The hydrogeologic system described above is summarized on Figure 4.5, a map of hydrogeologic units, and on Figure 4.6, a map of the boundary conditions (inflows and outflows of water) on the system. The hydrogeologic units and boundary conditions presented form the basis of the numerical groundwater-flow model.

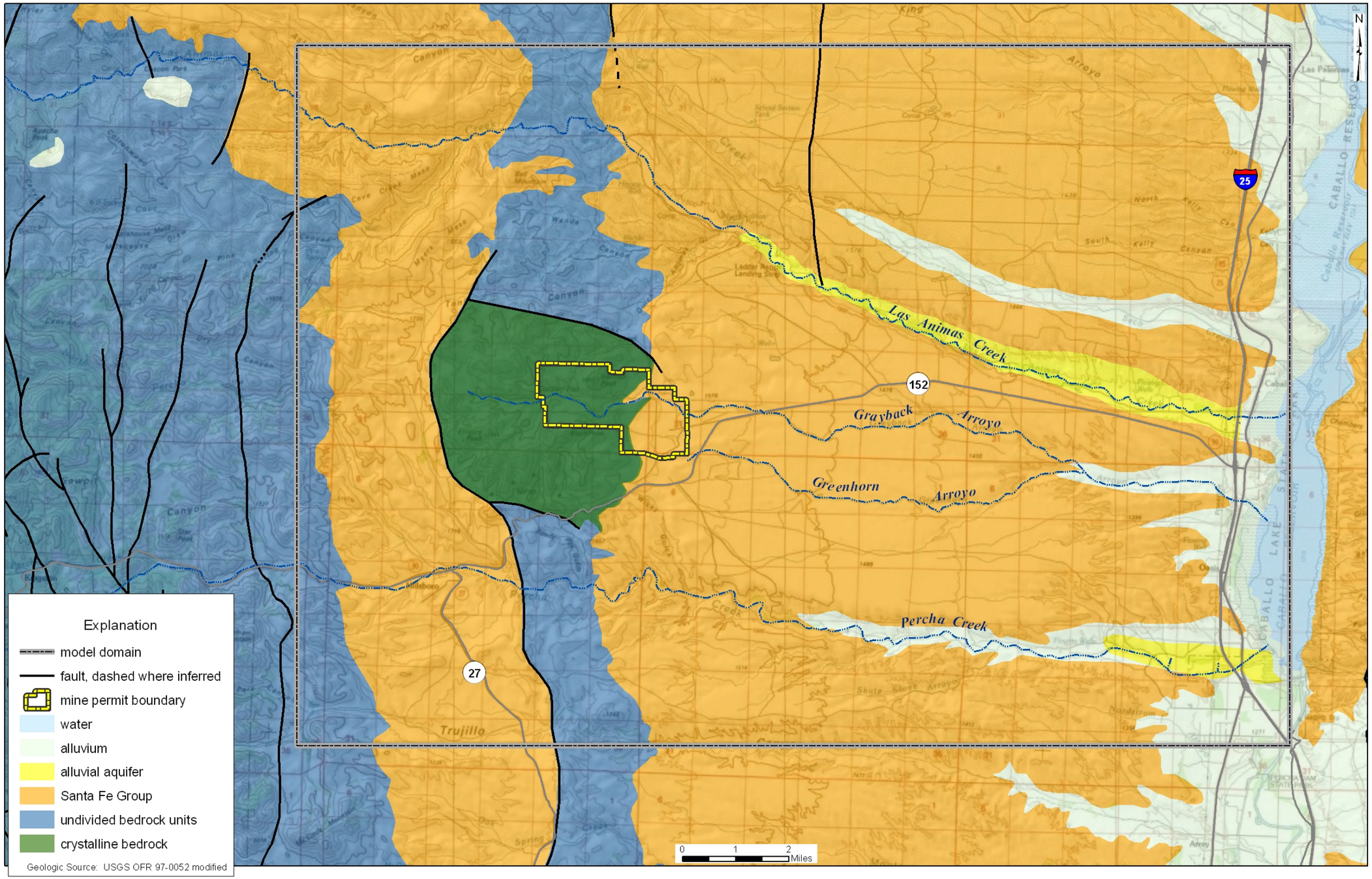


Figure 4.5. Hydrogeologic map of study area.

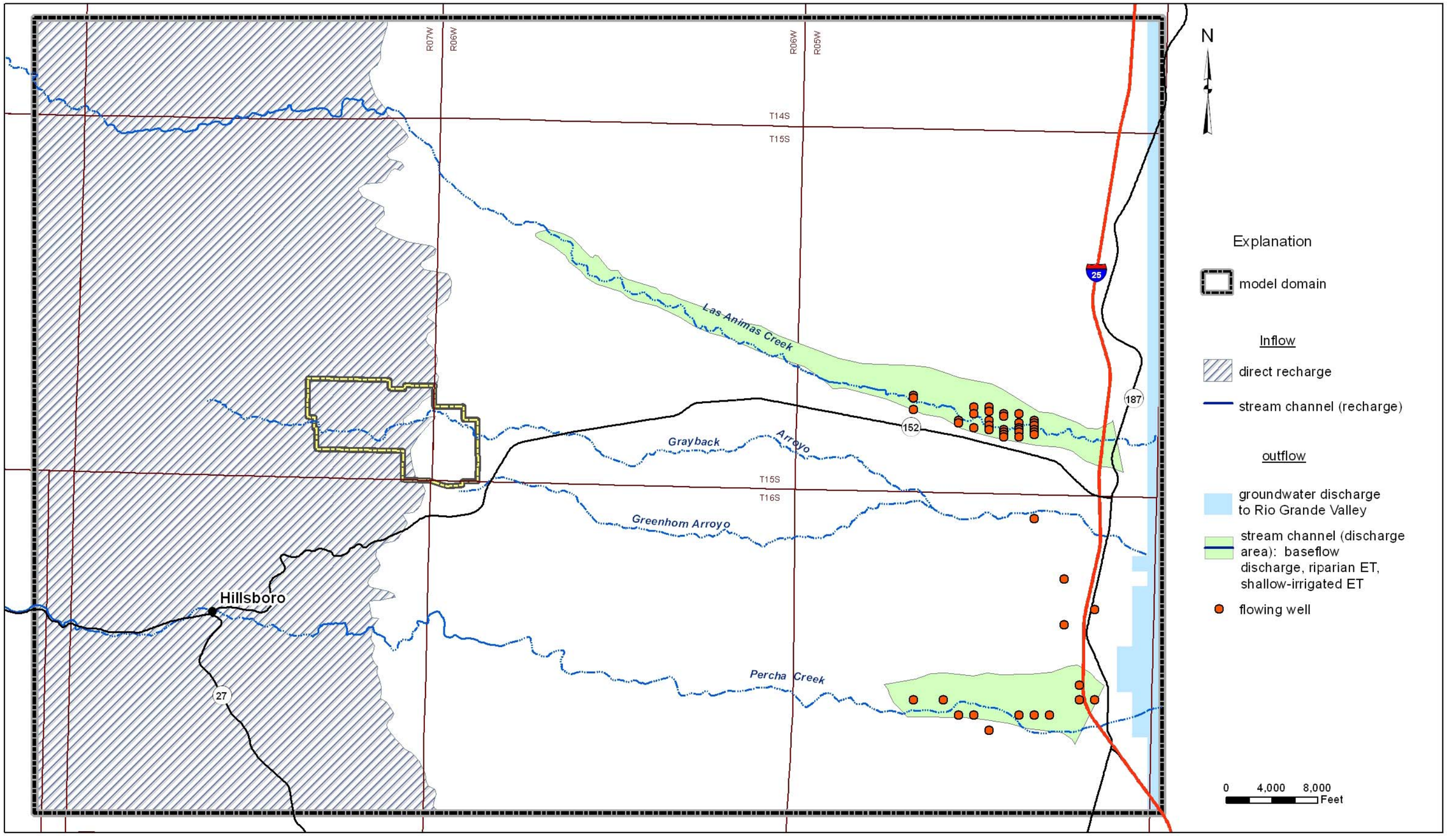


Figure 4.6. Hydrogeologic boundary conditions.

5.0 CALIBRATION DATA

This section describes the data on aquifer stresses and responses available to guide the development and calibration of a numerical groundwater-flow model. These include information on (1) the area of the water-supply wells (well field), (2) the former tailings facility, (3) the open pit, and (4) the artesian zones in the lower Animas and lower Percha basins. The locations of the wells discussed below are shown on Figure 5.1.

5.1 Well Field Area

The NMCC water supply wells (PW-1, PW-2, PW-3, and PW-4) were constructed and tested in 1975-76 (Green and Halpenny, 1976). Local transmissivity of the Santa Fe Group aquifer is estimated below from the PW-1 and PW-2 test data. Effects of the period of well field operation, from March through June, 1982, are then discussed. Finally, results of a 1994 pumping test of MW-9, evaluating vertical transmission of effects, is presented.

5.1.1 PW-2 Test, January 1976

PW-2 was pumped at 2,020 gpm for 72 hours in January 1976. Measured drawdown and recovery at observation wells PW-1 and MW-5 are shown on Figures 5.2 and 5.3. Aquifer transmissivity is estimated at about 20,000 ft^2/day by matching the solution of Theis (1938) to measured drawdown and recovery at PW-1 and MW-5, and to measured recovery at the pumping well PW-2, shown on Figure 5.4.

5.1.2 PW-1 Test, December 1975

PW-1 was pumped at 1,500 gpm for 70 hours in December 1975. Measured drawdown and recovery at observation well MW-5 are shown on Figure 5.5. Aquifer transmissivity of about 17,000 ft^2/day is estimated by matching the solution of Theis (1938) to measured drawdown and recovery at MW-5, and to measured recovery at the pumping well PW-1, shown on Figure 5.6.

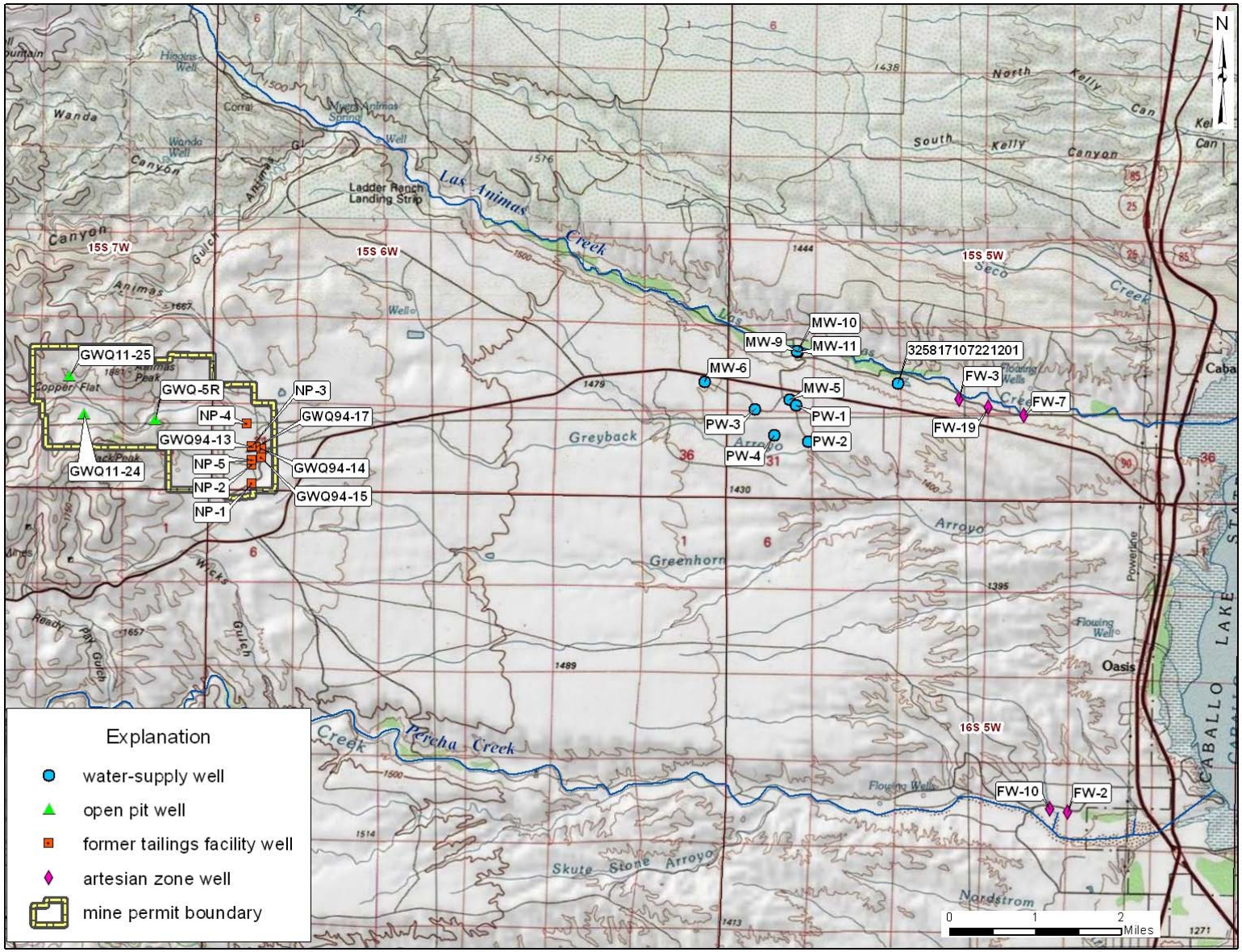


Figure 5.1. Well locations.

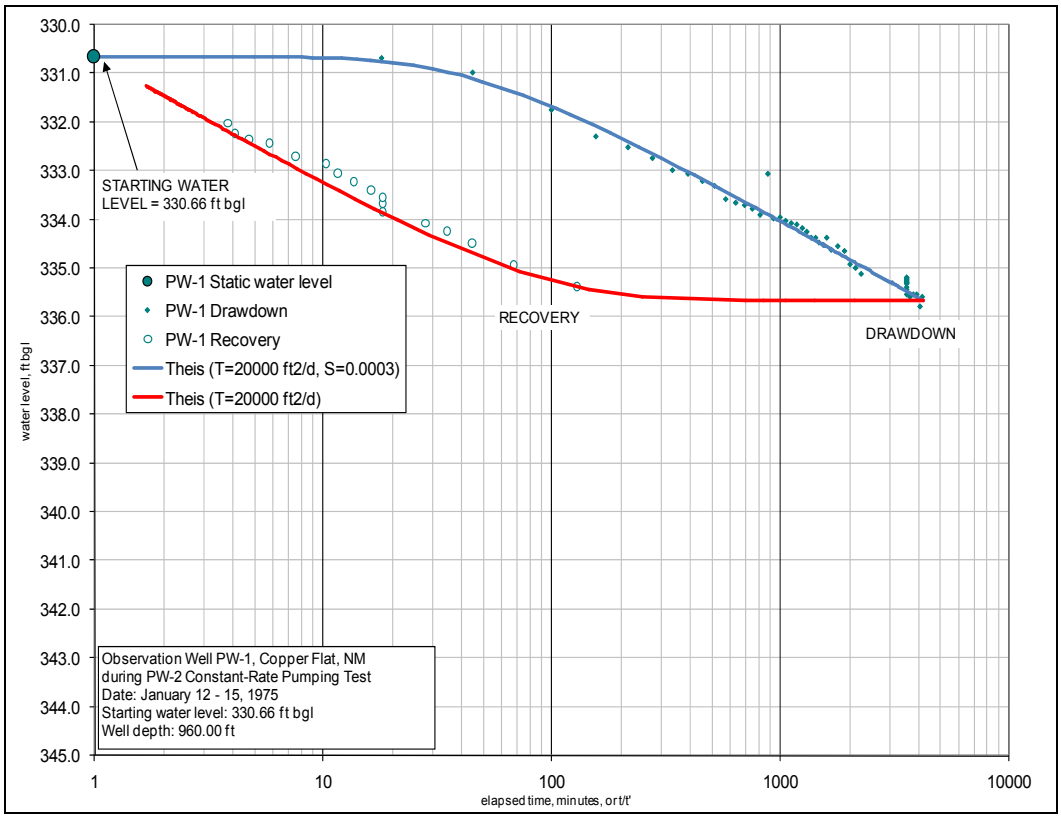


Figure 5.2. Drawdown and recovery in PW-1 during PW-2 pumping test.

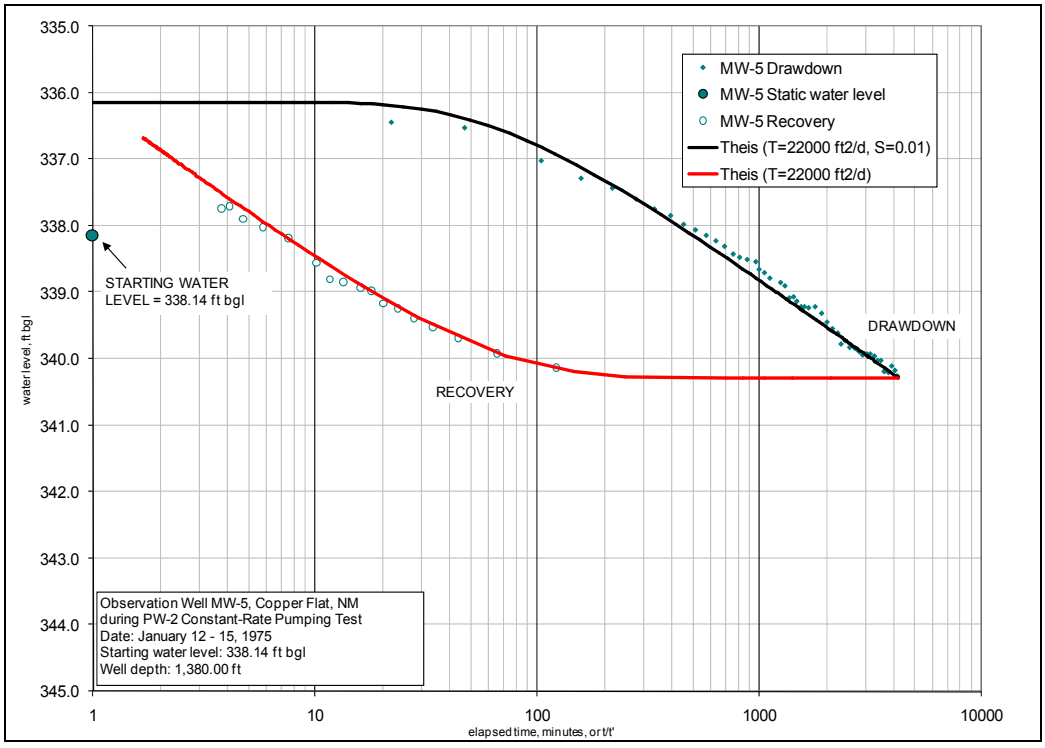


Figure 5.3. Drawdown and recovery in MW-5 during PW-2 pumping test.

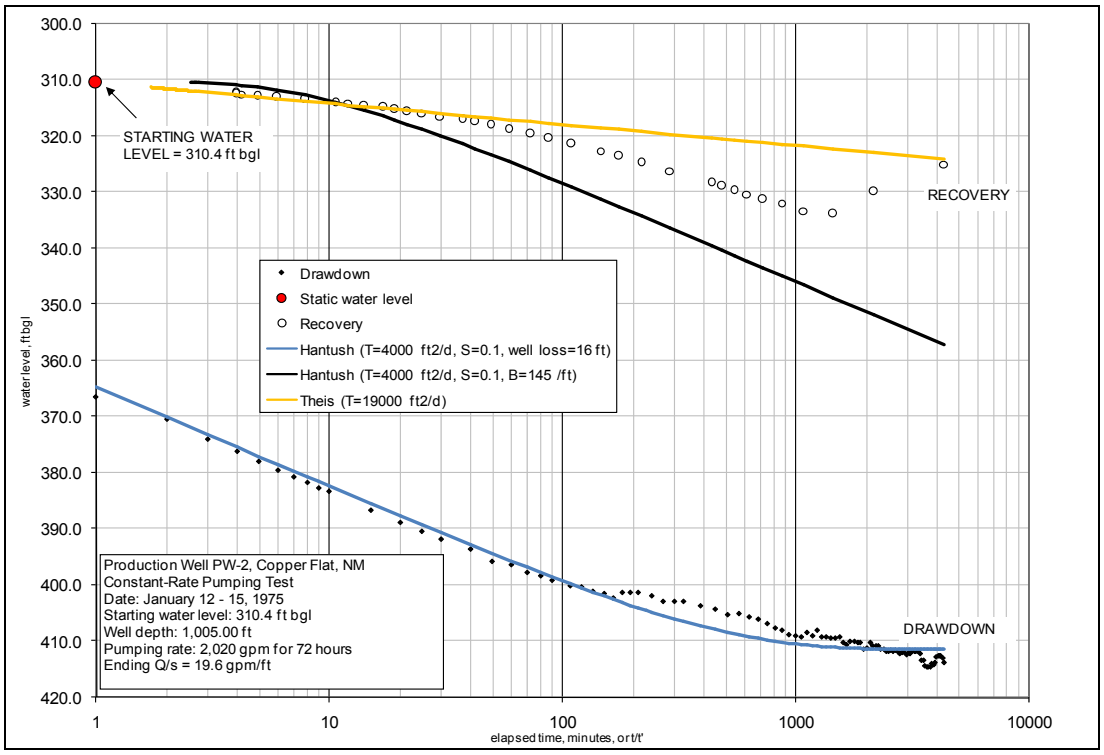


Figure 5.4. Drawdown and recovery in PW-2 during PW-2 pumping test.

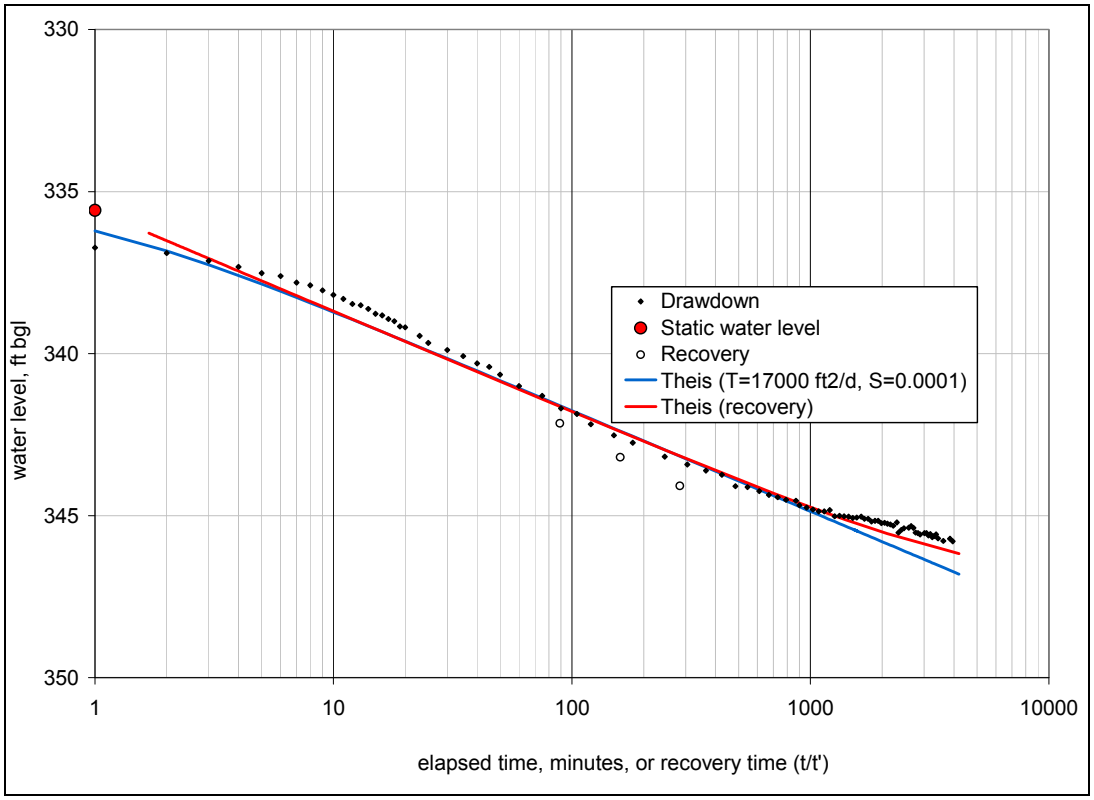


Figure 5.5. Drawdown and recovery in MW-5 during PW-1 pumping test.

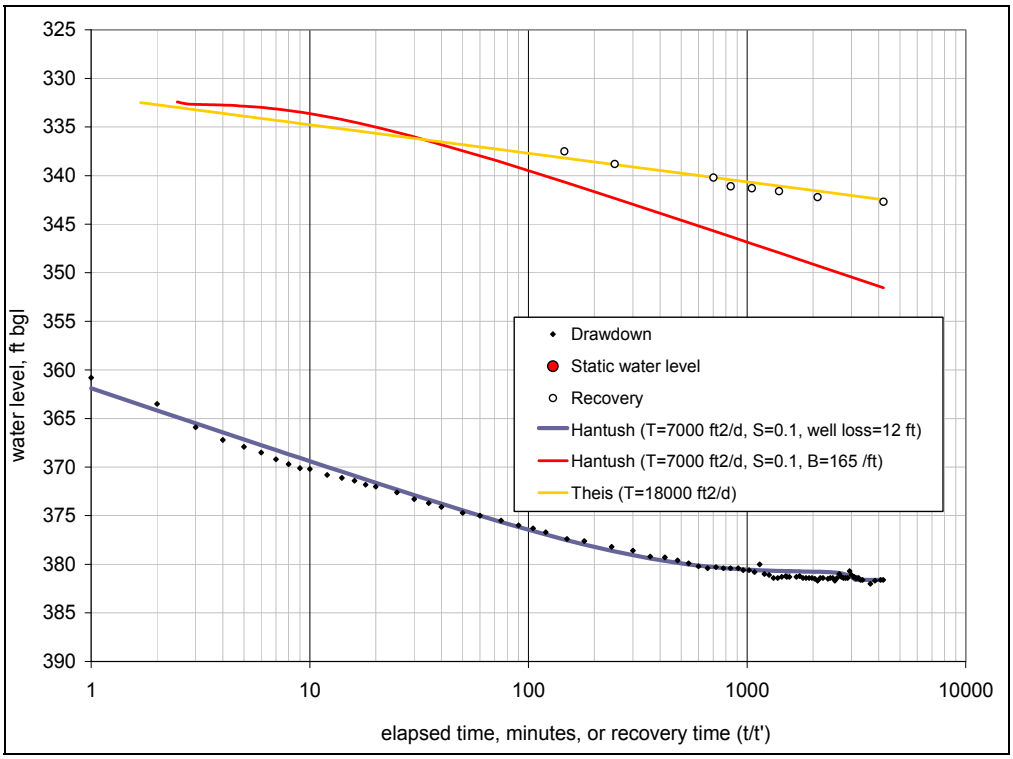


Figure 5.6. Drawdown and recovery in PW-1 during PW-1 pumping test.

5.1.3 Period of Mine Operation, 1982

The well field was operated for four months from March through June, 1982, at an average pumping rate of 2,272 gpm. Some pumping, averaging 40 gpm, continued for sixteen months further. Average pumping rates (Frost, 2010) are presented in Table 5.1. Total pumped for 1980-83 was 1,317 ac-ft.

Water levels measured in MW-5, in the immediate area of the production wells, are shown along with well field pumping on Figure 5.7, showing about 20 feet of water level drawdown due to pumping.

Table 5.1. Recorded average well field pumping in gallons per minute

1980	1	Jul-82	70	Mar-83	29
1981	1	Aug-82	43	Apr-83	31
Jan-82	29	Sep-82	60	May-83	68
Feb-82	29	Oct-82	34	Jun-83	26
Mar-82	1,817	Nov-82	40	Jul-83	43
Apr-82	3,042	Dec-82	43	Aug-83	25
May-82	1,501	Jan-83	43	Sep-83	16
Jun-82	2,727	Feb-83	48	Oct-83	29

West of the well field, no response to pumping can be seen in water levels at MW-6, shown on Figure 5.8.

Water levels in USGS Well No. 325817107221201, east of the well field along Animas Creek, are shown on Figure 5.9. There is no clear response to pumping; the slight (0.15 ft) drop in water level is well within the background fluctuation.

5.1.4 MW-9 Test, January 1994

Well MW-9, along Animas Creek, is completed at a depth of about 250 ft. MW-10 and MW-11 are each about 50 horizontal feet from MW-9. MW-10 is completed at a depth of 125 ft and MW-11 at 37 ft. Responses at MW-10 and MW-11 to pumping at MW-9 therefore characterize the resistance to vertical flow through the Santa Fe Group and alluvial aquifers. MW-9 was pumped at 90 gpm for 24 hours. Drawdown and recovery at MW-9 are presented on Figure 5.10 along with a matching Hantush leaky type curve estimating transmissivity of 900 ft^2/day.

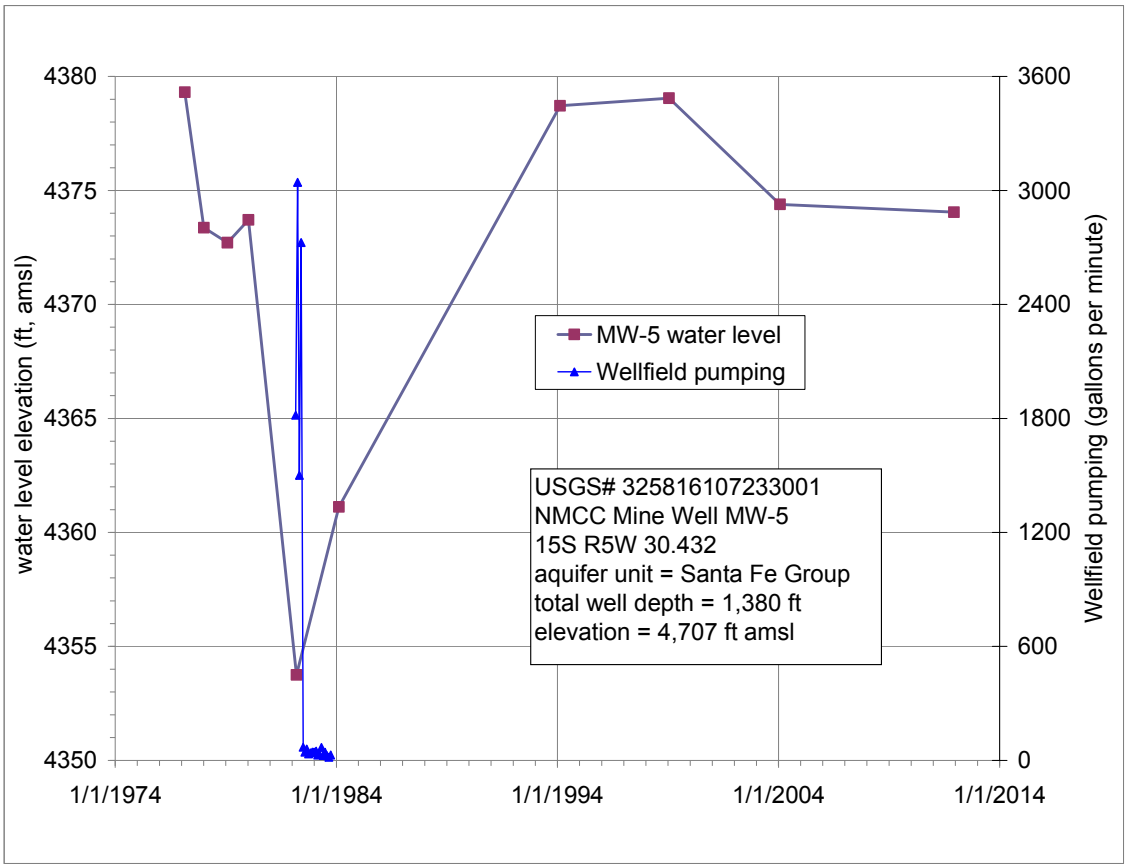


Figure 5.7. Well field pumping history and water level in MW-5.

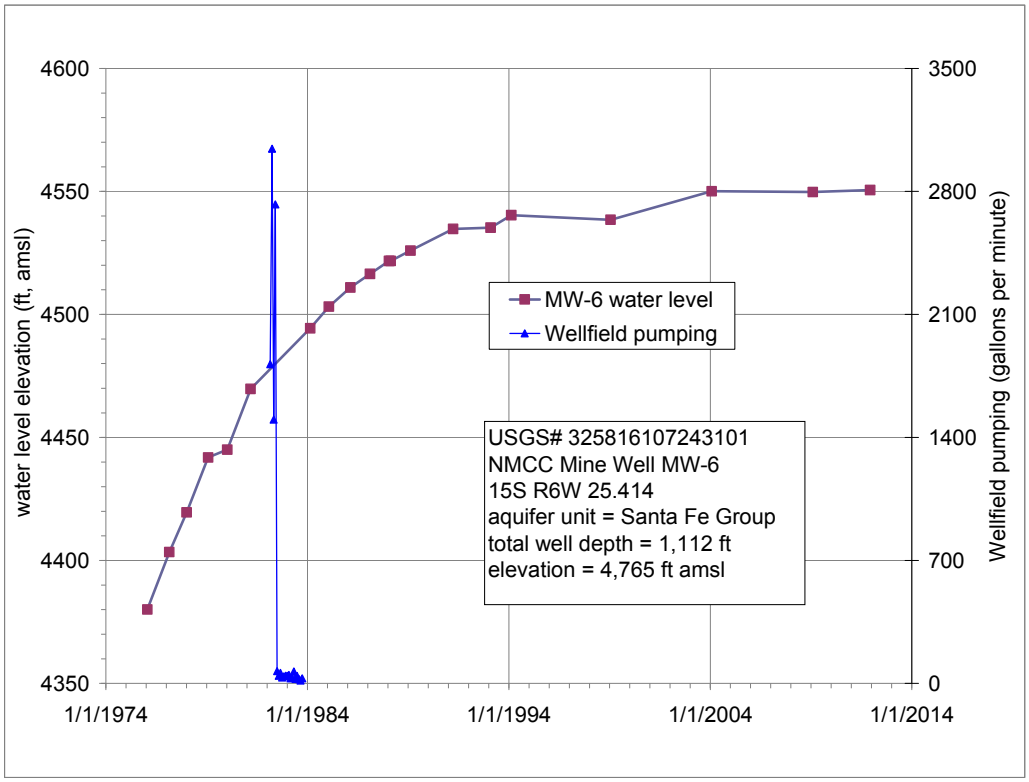


Figure 5.8. Well field pumping history and water level in MW-6.

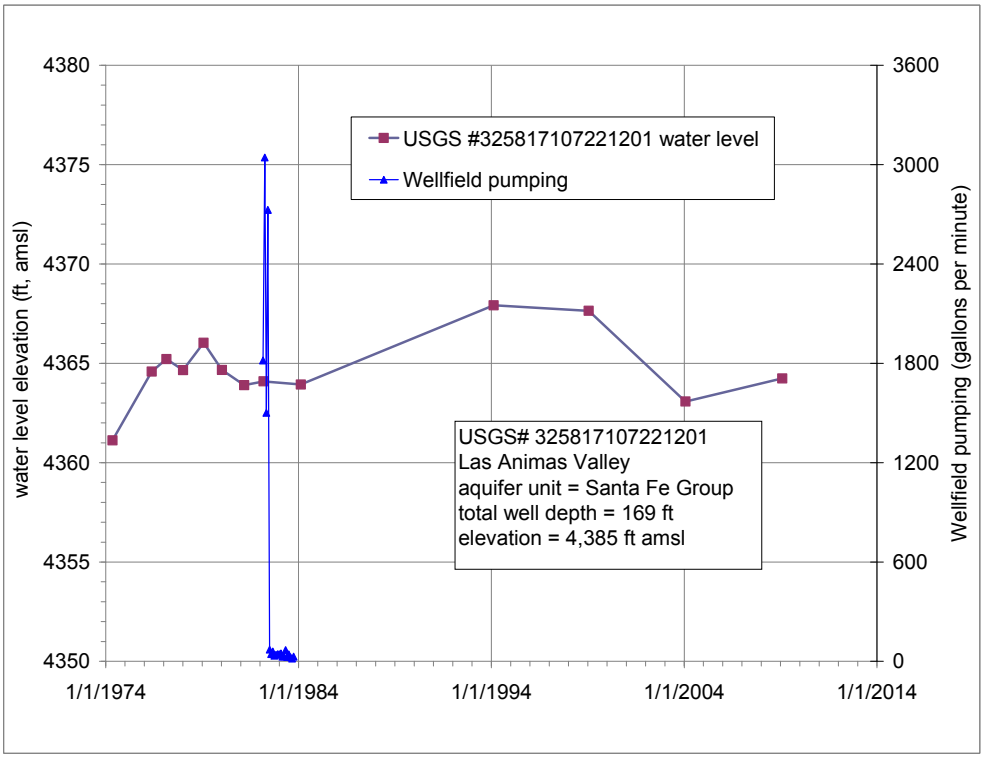


Figure 5.9. Well field pumping history and water level in USGS No. 325817107221201.

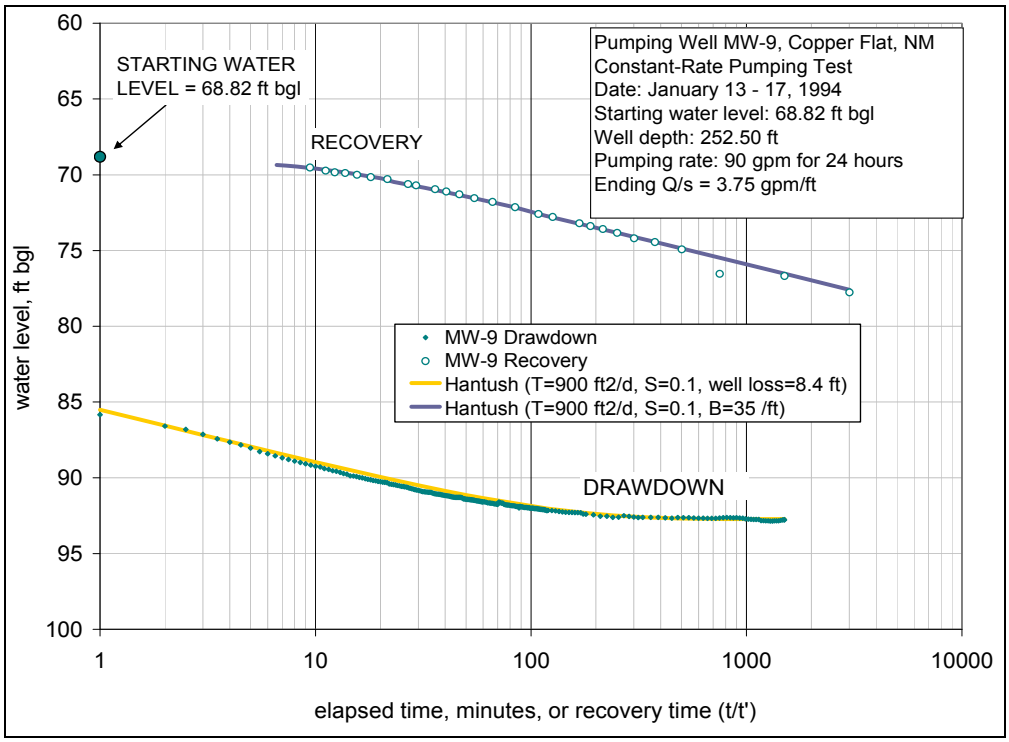


Figure 5.10. Drawdown and recovery in MW-9.

Drawdown and recovery in the overlying MW-10 are shown on Figure 5.11, showing a small response (<1 ft) to pumping, indicating limited vertical transmission of effects. No response to pumping was detected in the shallow alluvium well MW-11, as shown on Figure 5.12.

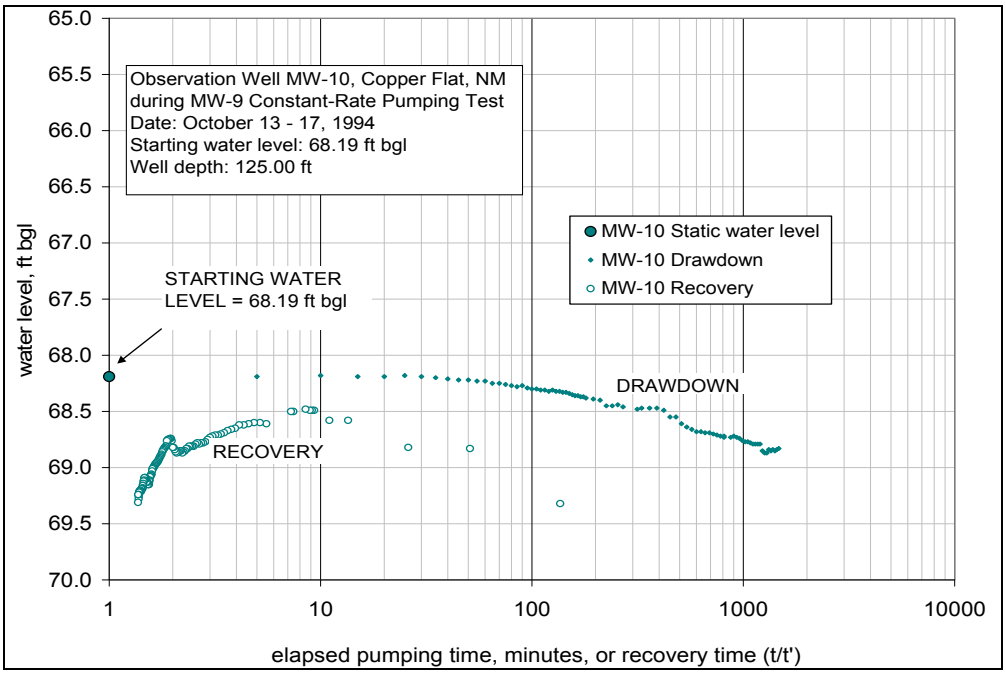


Figure 5.11. Drawdown and recovery in MW-10 during and after pumping of MW-9.

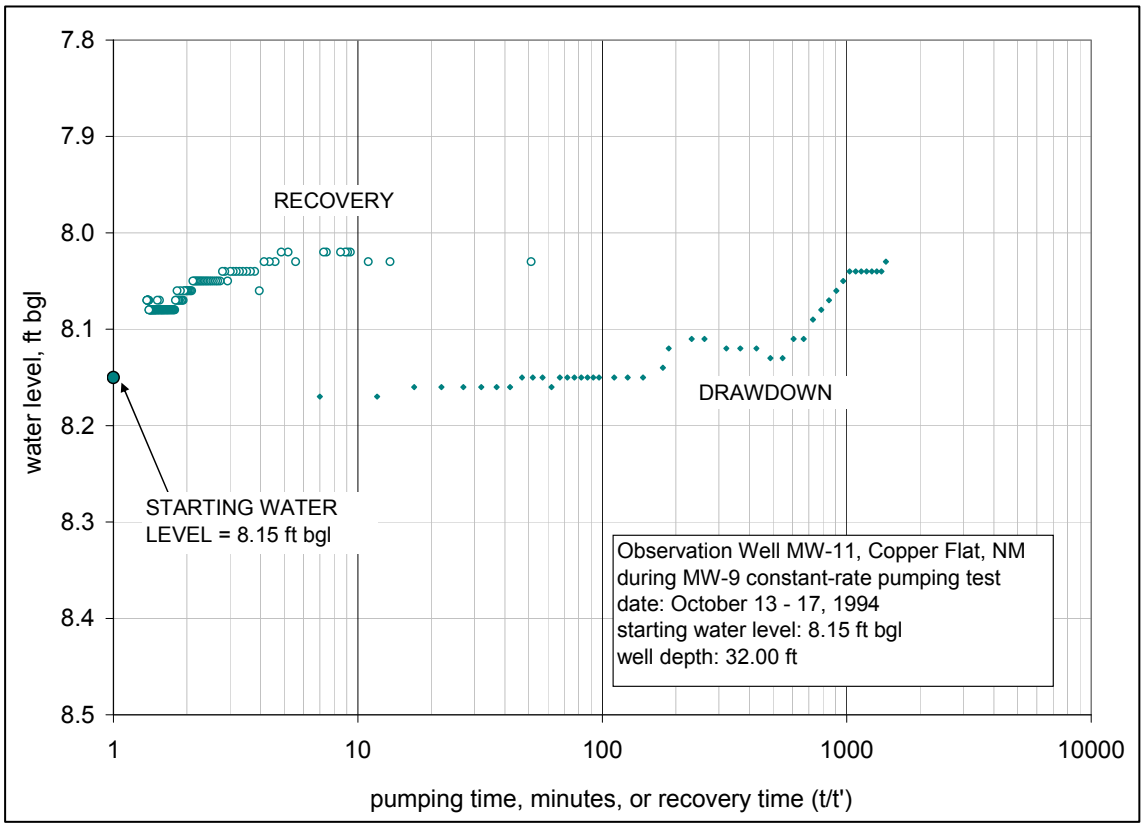


Figure 5.12. Drawdown and recovery in MW-11 during and after pumping of MW-9.

5.2 Tailings Impoundment Area

During the period of mine operations, the groundwater system beneath the unlined tailings facility was recharged by seepage from the tailings, in the portion of the impoundment overlying alluvium. Measured tailings-area water levels, shown on Figure 5.13, indicate 60-70 ft of water level rise that has persisted to the present, indicating a fault or other barrier to flow holding the water in place.

Transmissivity in the range of 100 to 240 ft^2/day is estimated for this area at the edge of the Santa Fe Group aquifer, based on the results of a 1994 aquifer test at well GWQ94-17, presented below.

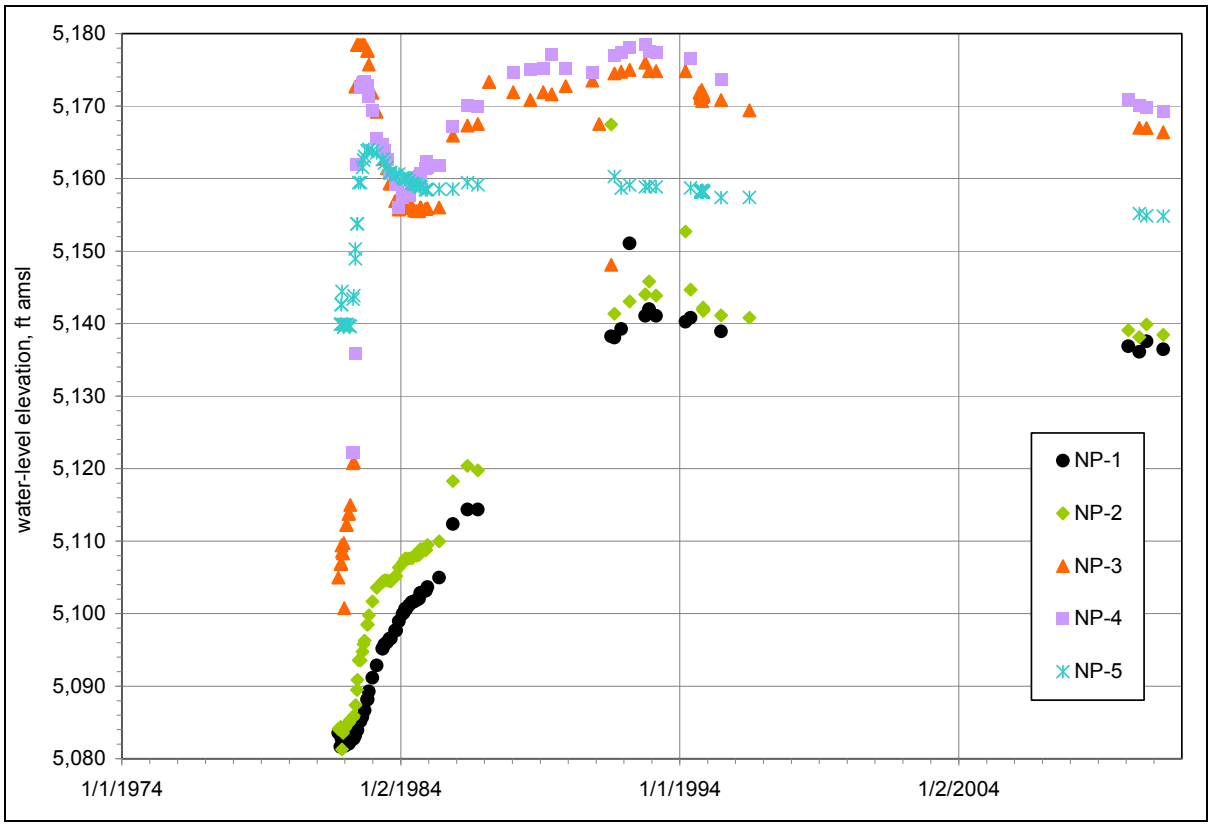


Figure 5.13. Tailings-area water levels.

5.2.1 GWQ94-17 test, November 1994

Well GWQ94-17 was pumped at 23 gpm for 4,688 minutes (3.26 days), with responses measured in GWQ-13, GWQ-14 and GWQ-15 (Fig. 5.1). Drawdown and recovery in GWQ-13 and GWQ-14 are presented on Figures 5.14 and 5.15 respectively, along with analytical (Theis, 1938) solutions. Drawdown in GWQ-14 is presented on Figure 5.16 (recovery data were unavailable). Recovery in the pumping well GWQ-17 is presented on Figure 5.17 (pumping water level was constant at about 123 feet).

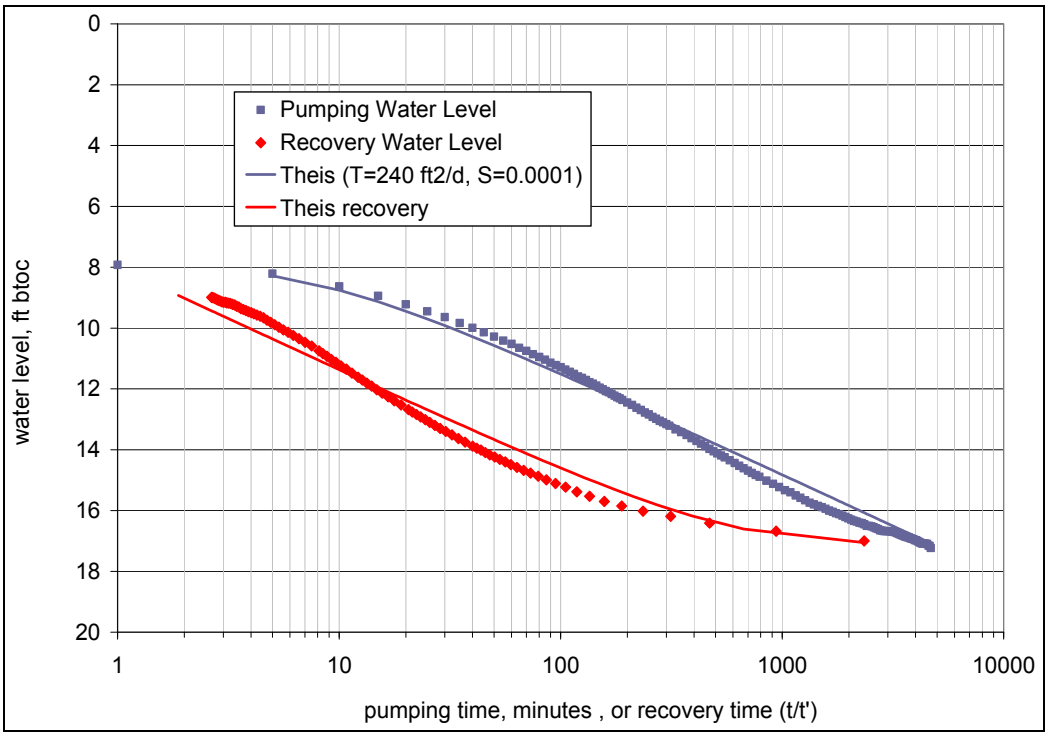


Figure 5.14. Drawdown and recovery in GWQ-13 during GWQ-17 pumping test.

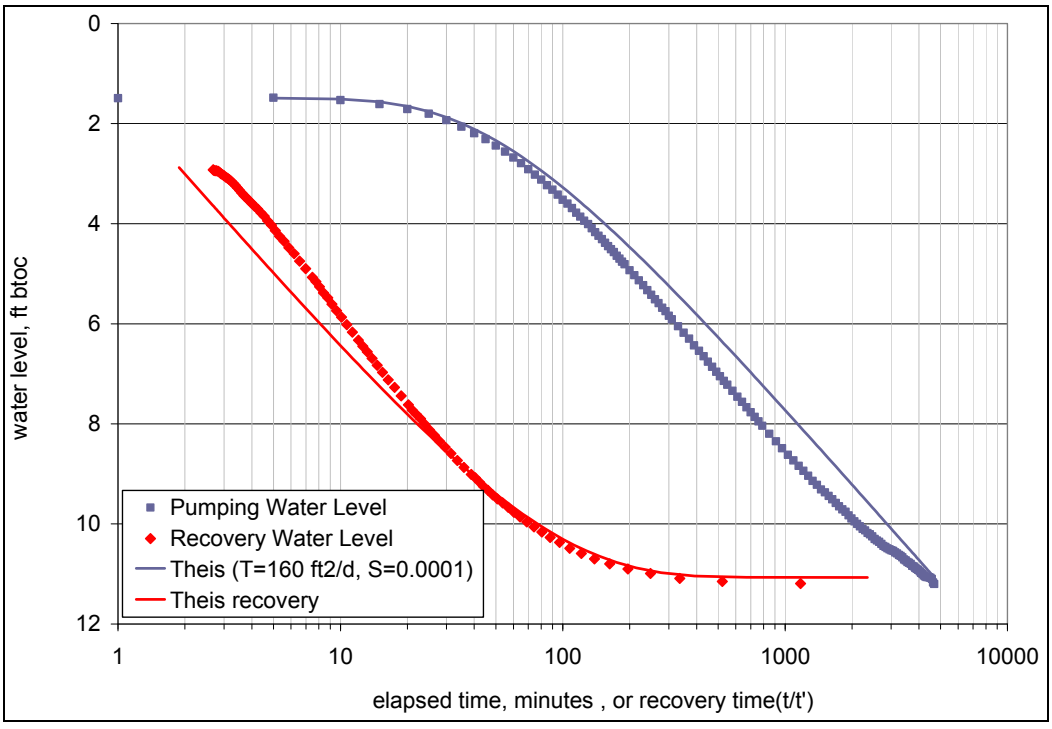


Figure 5.15. Drawdown and recovery in GWQ-14 during GWQ-17 pumping test.

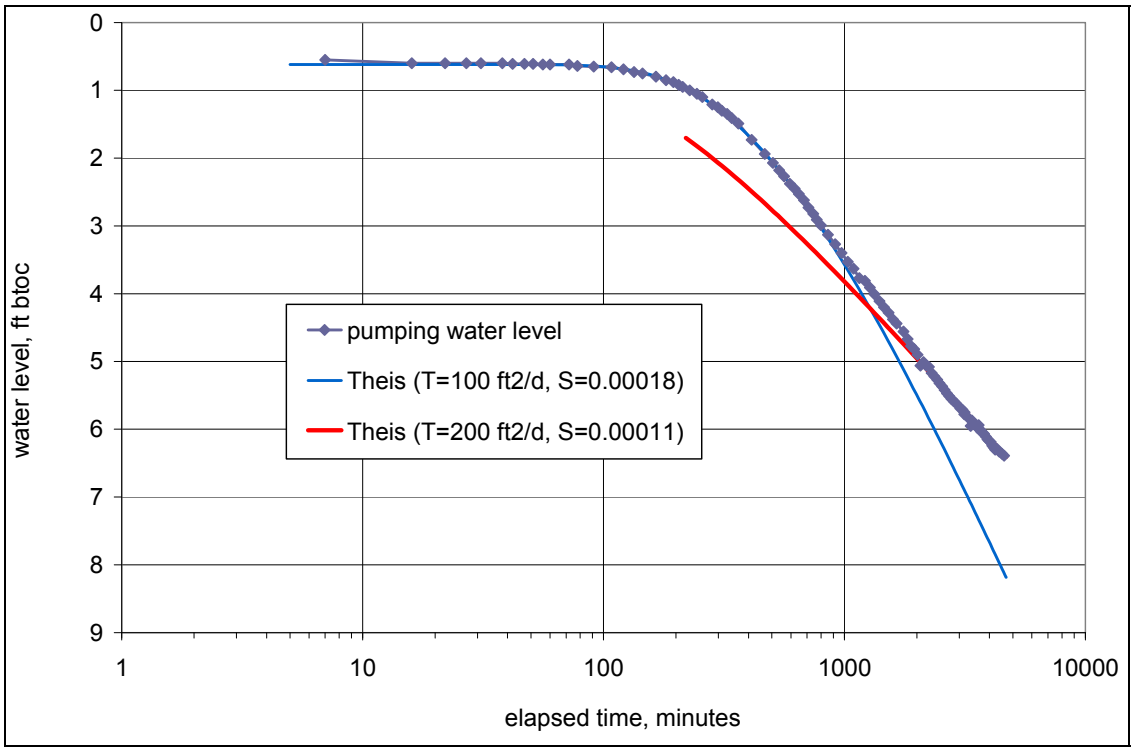


Figure 5.16. Drawdown in GWQ-15 during GWQ-17 pumping test.

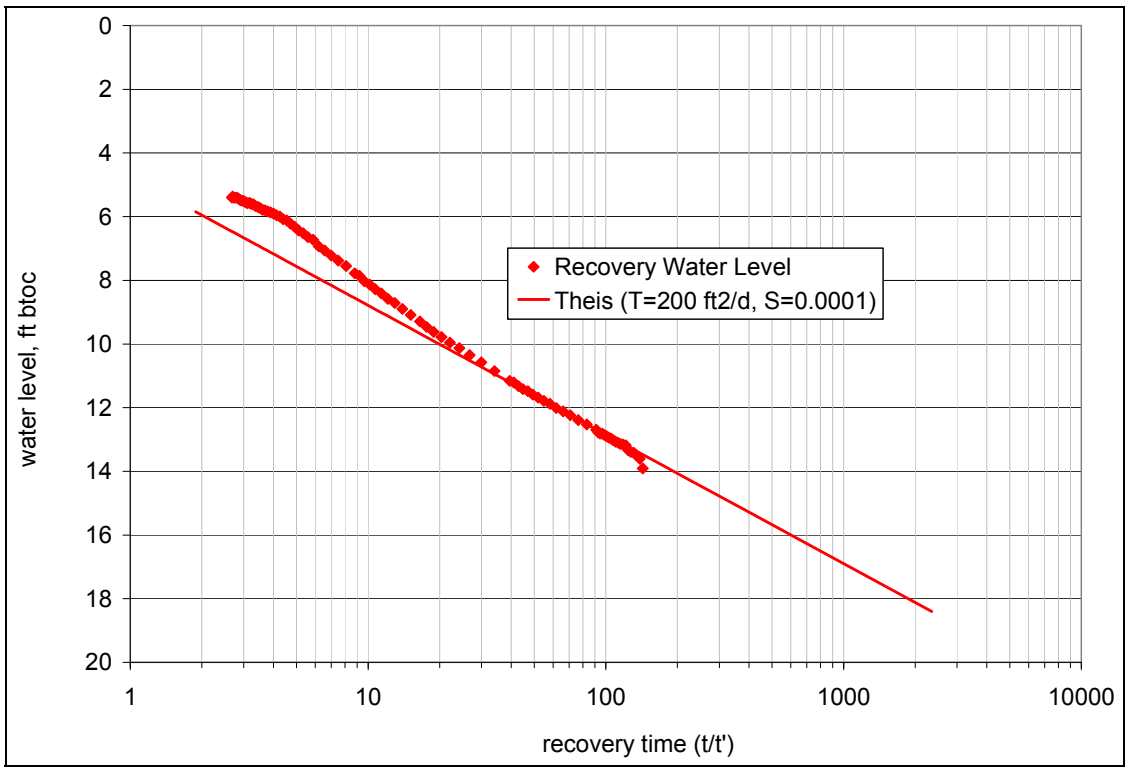


Figure 5.17. Recovery in GWQ-17 after pumping test.

5.3 Open Pit Area

The historical water level in the open pit has ranged between 5,436 and 5,450 ft amsl, corresponding to a water surface area between 5 and 14 acres. Based on an evaporation rate of 62.4 inches/year (Table 2.1), annual average open-pit evaporation rate ranges from about 16 gpm to 45 gpm.

This discharge is supported by a combination of groundwater inflow, and precipitation and runoff. Based on precipitation records it is estimated that the annual pit water balance (16 to 45 gpm) is provided by 6 to 10 gpm of groundwater inflow and the rest (6 to 40 gpm) by precipitation and runoff.

Current pit water levels are below 5,440 ft amsl, with water balance in the low range of the estimate. The pit is a hydrologic sink, as shown by the form of the local piezometric surface, Figure 5.18.

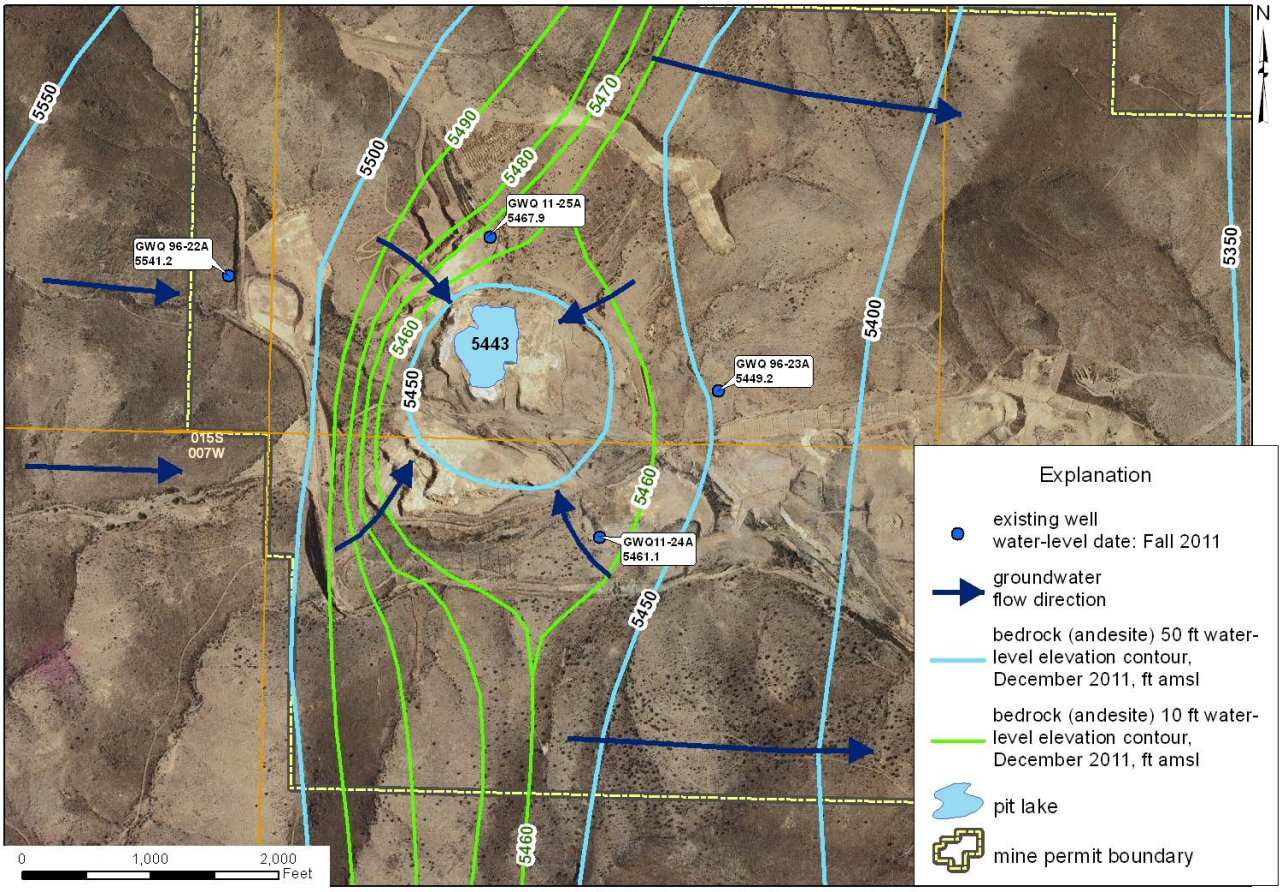


Figure 5.18. Measured pit-area groundwater levels.

5.3.1 Pit Area Pressure-Injection Tests, September 2011

Pressure-injection testing in the bedrock around the pit, in wells GWQ 5-R, GWQ 11-24 and GWQ 11-25, is summarized in Table 5.2. Apparent permeability of the bedrock ranges from near zero, to about 0.1 ft/day in the most fractured zones.

Table 5.2. Summary of pressure-injection test results

borehole and zone	depth interval, ft	apparent permeability	
		cm/sec	ft/day
GWQ 5-R, Zone 1	64-100	~0	~0
GWQ 11-24, Zone 1	100-147	7×10^{-6}	0.02
GWQ 11-24, Zone 2	150-197	3.0×10^{-5}	0.085
GWQ 11-24, Zone 3	204-251	4.9×10^{-5}	0.14
GWQ 11-25, Zone 1	100-148	~0	~0
GWQ 11-25, Zone 2	150-198	2.9×10^{-5}	0.081
GWQ 11-25, Zone 3	207-251	2.6×10^{-5}	0.074

5.4 Flowing Wells

The first artesian wells in the study area were drilled in the late 1930s. Most of the artesian wells were drilled prior to the New Mexico Office of the State Engineer (NMOSE) declaration of the Las Animas Creek and Lower Rio Grande Underground Water Basins.

Flow from selected artesian wells has been measured by Murray (1959), Davie and Speigel (1967), JSAI (1995), and JSAI (2011). A summary of aggregate measured artesian flow rates is presented as Table 5.3.

Table 5.3. Summary of measured artesian flow rates

source	number of wells	year	total artesian flow (gpm)	comments
Murray (1959)	23	1946	460	Included Percha, Las Animas Creek, and Oasis areas
Davie and Spiegel (1967)	29	1966	1,186	Las Animas creek area only.
JSAI (1995)	12	1995	1,319	Survey limited to accessible wells with owner permission
JSAI (2011)	21	2011	222	Survey limited to accessible wells with owner permission

gpm - gallons per minute

Construction details for the artesian wells are limited, but it appears a number of artesian wells were drilled without proper annular seals to prevent flow of water from the artesian zone into the overlying alluvium and stream channels. Furthermore, many of the artesian wells were never valved, and therefore left open to flow continuously at the land surface. Since the area was declared by the State Engineer, valves to regulate artesian flow, and metering, have been conditions attached to many of the permits.

Over the last 50 years significant changes in flow rates have been observed in the few artesian wells that have time-series data. Measured artesian flow rates over time are presented in Figure 5.19. It is apparent that artesian flow rates from individual wells have declined significantly in both Percha and Las Animas Creek valleys.

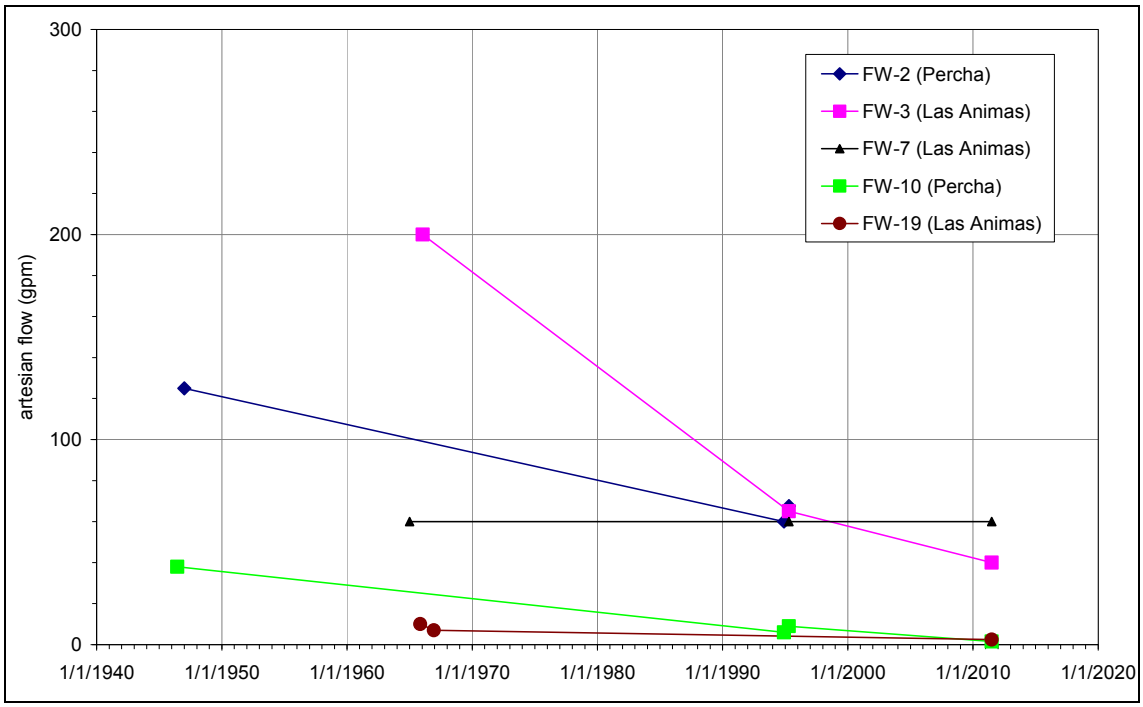


Figure 5.19. Measured artesian flow rates.

There are many factors that affect artesian flow, including climatic conditions and recharge, and Caballo Reservoir stage. Upward leakage via artesian wells and open flow, however, appear to be mainly responsible for the long-term decline in artesian flow rates.

The assessment of aquifer properties will be further refined based on planned aquifer testing (JSAI, 2011) to more fully characterize hydraulic properties around the existing production wells, including vertical resistance to flow. The evaluation of aquifer properties will be further refined during development of the numerical groundwater-flow model.

6.0 SUMMARY

The conceptual model as presented above forms the framework of the ongoing numerical model development. This report will form a part of the final model report which, additionally, would include the following:

Numerical model description and layout

- discretization
- aquifer parameters
- boundary conditions

Model calibration

- measured and simulated current water-level contours
- x-y plot of measured vs. simulated water levels
- measured and simulated MW-5 hydrographs
- measured and simulated MW-6 hydrographs
- measured and simulated USGS hydrographs
- measured and simulated tailings-area water levels
- measured and simulated flowing well discharges

Model projection - effects of water-supply pumping

- end-of mining groundwater drawdown contours
- water balance changes with time on Animas, Percha, and Rio Grande systems
- contour of maximum drawdown extent
- contours of projected subsidence

Model projection - effects of pit-area dewatering and recovery

- projected dewatering rates
- contour map of final pit
- pit stage-area-volume curves
- projected pit water-level hydrograph
- projected pit area and volume
- projected pit water balance
- detailed water balance for pit water quality projections
- evaluation of any pit outflows
- post-recovery pit-area groundwater drawdown contours

7.0 REFERENCES

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NEW MEXICO
ENVIRONMENT DEPARTMENT

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lt. Governor

Harold Runnels Building
1190 Saint Francis Drive (87505)
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2990 Fax (505) 827-1628
www.env.nm.gov

BUTCH TONGATE
Cabinet Secretary- Designate
J.C. BORREGO
Deputy Secretary

December 15, 2016

VIA E-MAIL

Jaimie Park
jpark@nmelc.org

Re: Request to Inspect Public Records

Dear Ms. Park:

On December 14, 2016, this office received your request for public information. You request information pertaining to: Copper Flat Copper Mine. (See attached request).

I forwarded your request to the bureaus on December 15, 2016. The bureaus will respond by December 29, 2016.

Should you have any questions, please contact the Ground Water Quality Bureau at (505) 827-2919, and the Surface Water Quality Bureau at (505) 827-2819.

Sincerely,

Melissa Y. Mascareñas
New Mexico Environment Department
Department Public Records Custodian

cc: Andrew Knight, Office of General Counsel
Michelle Hunter, Chief, Ground Water Quality Bureau
Shelly Lemon, Acting Chief, Surface Water Quality Bureau

NEW MEXICO ENVIRONMENT DEPARTMENT
INSPECTION OF PUBLIC RECORD REQUEST FORM

Please fill out the following information:

1. Date: December 14, 2016

2. Requestor's Name: Jaimie Park, New Mexico Environmental Law Center

3. Requestor's Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

4. Phone No.: (505) 989-9022

5. Email: **jpark@nmelc.org**

6. Company Being Represented: New Mexico Environmental Law Center

7. Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

8. Document or File being requested to be reviewed or copied (please describe the records in sufficient detail to enable Department personnel to reasonably identify & locate the records:

I request that you inform me what documents are available within the scope of this request and when I can inspect those documents. I also request that you not make any copies without first informing me of the number of copies and the cost for the copying that are involved. Finally, I request that if you determine that any documents or portions of documents are exempt from disclosure you inform me of that and provide me with citations to the provisions in the Inspection of Public Records Act that indicate that the documents or portions of documents are exempt from disclosure, describe the type of document being withheld, and identify who sent the document being withheld and who received the document being withheld.

Records being requested:

1. Discharge Permit 1340; and

2. Discharge Permit 1236.

9. NMED Bureau where Document/File can be found (if known): Surface Water Quality Bureau, Ground Water Quality Bureau

Signature

Revised 6/14/12

NEW MEXICO
ENVIRONMENT DEPARTMENT

Harold Runnels Building
1190 South St. Francis Drive (87505)
P.O. Box 5469, Santa Fe, New Mexico 87502-5469
Phone (505) 827-2900 Fax (505) 827-2965
www.env.nm.gov

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

BUTCH TONGATE
Cabinet Secretary - Designate

J.C. BORREGO
Deputy Secretary

MEMORANDUM

DATE: January 6, 2017

TO: Holland Shepherd, Program Manager, Mining Act Reclamation Program

THROUGH: Jeff Lewellin, Mining Act Team Leader

FROM: Brad Reid, Mining Environmental Compliance Section
John Moeny, Surface Water Quality Bureau
Neal Butt, Air Quality Bureau

RE: NMED Comments, Updated Mining Operation and Reclamation Plan, New Mexico Copper Corporation (NMCC), Copper Flat Mine, Sierra County, New Mexico, MMD Permit No. SI027RN

The New Mexico Environment Department (NMED) received correspondence from the Mining and Minerals Division (MMD) on November 8, 2016 requesting NMED review and provide comments on the above referenced MMD permitting action. The document submitted updates the Mining Operation and Reclamation Plan (MORP). MMD requested comments within 60 days of receipt in accordance with Section 19.10.6.605.C NMAC. NMED has the following comments:

Background

On July 18, 2012, NMCC submitted the original permit application package and MORP to MMD. Subsequent to the July 18, 2012 submission, updates to the MORP have been provided to MMD. This comment memorandum specifically addresses the updated MORP submitted to MMD on October 14, 2016.

Air Quality Bureau

The Air Quality Bureau comments are attached under separate letterhead.

Surface Water Quality Bureau

In 2014, the US Army Corps of Engineers approved a jurisdictional determination for the 230-acre watershed surrounding the pit lake at Copper Flat, excluding it from regulatory action under

Section 404 of the Clean Water Act. The status of the pit lake as a water-of-the-state, however, is still under review at this time, pending a survey to determine whether the lake at mine closure will remain entirely on private land. Until a formal decision is made, State Water Quality Standards for unclassified perennial waters are presumed to be relevant (NMAC 20.6.4.99). Other ephemeral drainages within and affected by the mine are also subject to water quality protections under both Federal and State regulations.

The SWQB is concerned that mine-impacted stormwater may discharge into Grayback Arroyo. The existence of a TDS/sulfate plume downgradient of the mine suggests that contaminated stormwater has, in the past, been discharged into Grayback Arroyo. A new Stormwater Pollution Prevention Plan (SWPP) and Multi-Sector General Permit will be required by NMCC which should address stormwater collection to prevent point-source discharge of contaminated stormwater. The SWQB will be reviewing the SWPPP and stormwater diversion structures for adequacy and soundness to prevent discharges, in addition to monitoring water quality data collected in Grayback Arroyo at the four sampling stations detailed in the MORP.

Ground Water Quality Bureau

The MORP was submitted to NMED on October 14, 2016 as a component of the Ground Water Quality Bureau Discharge Permit Application (Application) for Discharge Permit 1840 (DP-1840). Technical review of the Application pursuant to the Water Quality Act (WQA) and the Water Quality Control Commission (WQCC) Regulations, including the Copper Mine Rule (20.6.7 NMAC), is currently in progress. Pursuant to Subsection G of 20.6.7.10 NMAC, the technical completeness response deadline is February 14, 2017. NMED may have additional comments based on technical review of the Application and associated operational, monitoring and closure plans. As such, any additional comments will be submitted under separate letterhead directly to NMCC Copper Flats Mine with copy to MMD as these reports are critical to development of the draft Ground Water Discharge Permit. NMED will coordinate response to these documents with MMD prior to issuance of a comment letter to NMCC Copper Flats Mine.

NMED Summary Comment

NMED finds that environmental standards will be met if mining operations and reclamation are carried out as described in the pending New Mexico Mining Act permit, pending DP-1840, the Copper Mine Rule, and if the above comments are addressed.

If you have any questions, please contact Jeff Lewellin at (505) 827-1049.

cc: Bruce Yurdin, Division Director, NMED-WPD
Shelly Lemon, Acting Bureau Chief, SWQB
Richard Goodyear, Bureau Chief, AQB
Fernando Martinez, Division Director, EMNRD-MMD
DJ Ennis, Lead Staff, EMNRD-MMD
Kurt Vollbrecht, Program Manager, MECS

NEW MEXICO
ENVIRONMENT DEPARTMENT
525 Camino de los Marquez
Suite 1
Santa Fe, New Mexico, 87505
Phone (505) 476-4300 Fax (505) 476-4375
www.env.nm.gov

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

BUTCH TONGATE
Cabinet Secretary - Designate
J. C. Borrego
Acting Deputy Cabinet Secretary

MEMORANDUM

DATE: November 29, 2016

TO: Jeff Lewellin, Mining Act Team Leader
Mining Environmental Compliance Section, Ground Water Quality Bureau

FROM: Neal Butt, Environmental Analyst
Air Quality Bureau

RE: Request for Comments, Regular New Mine, Updated Mining Operation and Reclamation Plan, Copper Flat Mine, Sierra County, MMD Permit No. SI027RN

The New Mexico Air Quality Bureau (AQB) has completed its review of the above mentioned mining project. Pursuant to the New Mexico Mining Act Rules, the AQB has the following comments:

Air Quality Permitting History

Development of the Copper Flat Mine Project was begun in the 1970's by Quintana Minerals Corporation (Quintana). Quintana applied for and received Air Quality Permit #0365. In 1982 operating under Air Quality Permit #0365-M1, the Copper Flat Partnership, Ltd. developed and operated the Project, which consisted of an open pit copper mine, a 15,000-ton per day (TPD) flotation mill, and a 515-acre tailings impoundment. The Copper Flat Mine officially commenced full commercial production in April, 1982. In July 1982 the mine was shut down due to low copper prices and other economic considerations. In 1986 all on-site surface facilities were removed and a BLM approved program of non-destructive reclamation was carried out. Most of the property's infrastructure, including building foundations, power lines and water pipelines were preserved for future reuse, in the event that copper prices recovered sufficiently to make re-establishing the Project economically viable. In April of 1995, Alta Gold Company applied for a revision to Air Quality Permit #0365-M1. However, Alta Gold Company declared bankruptcy in early 1999. Air quality permit #0365-M1 was closed in 2002 due to inactivity.

NSR Permit #0365-M3 was issued on 6/25/2013 to New Mexico Copper Corporation (NMCC) to operate the Copper Flat Mine. Though this facility's permit number would indicate that this is a modification, it is not. This permit is new, since there is no current operation to modify.

Details

The Copper Flat Project is a copper/molybdenum porphyry deposit located in the Hillsboro Mining District in Sierra County, New Mexico. The center of the mineralization is at UTM coordinates 263,150 meters easting, 3,650,750 meters northing, Zone 13, NAD 83. The Project is 150 miles south of Albuquerque and 20 miles southwest of Truth or Consequences, New Mexico. Access from Truth or Consequences is via 24 miles of paved highway and 3 miles of all-weather gravel road.

NMCC proposes to reopen the mine, re-establish production and expand the scope of the previous Quintana mining activities conducted at Copper Flat in 1982. The mine would operate 24-7. A portion of the ore body at Copper Flat is exposed at the surface and will be mined by conventional truck and shovel open pit methods. The planned facilities will be similar to those of the previous operator, including an open pit mine, a 25,000 TPD crushing circuit; course ore storage pile and reclaimer; a 25,000 TPD flotation mill; concentrate production facilities; waste rock stockpiles (WRSPS); and a tailings storage facility (TSF) to be built over the previous tailings impoundment. Upon receiving the required permit approvals, the project will begin site preparation and construction for approximately 2 years. The operating life of the project ("life of mine") is projected to be 11 to 12 years. Thereafter, the site will be closed and reclaimed per an approved reclamation and closure plan.

NMCC will mine approximately 113 million tons of ore and 45 million tons of waste rock during the operating life of the mine (158 million tons). Annually, the mining operation will supply 8.9-10.8 million tons of copper ore to the mill for processing (an average rate of approximately 25.5 to 29.6 thousand TPD) depending on operational conditions in the concentrator. Waste rock production will be highest in the early years of production while the mine is developed (e.g. 8.5 million tons in the first year to 2.5 million tons in the seventh year). Thereafter, waste rock production will decrease significantly (e.g. 718,000 tons in year eight to as little as 4,000 tons in year twelve).

The area inside the proposed permit area boundary is 2,190 acres. NMCC's proposed Copper Flat Project will disturb approximately 1,290 acres within the permit area, 910 acres of which were originally disturbed by previous mining operations. There may also be some additional acreage disturbance on lands outside of the permit area boundary related to ancillary facilities such as the well field, the substation and power line, and the water pipeline.

Air Quality Impacts

Copper Flat mine will be a source of PM, NO_2, CO and SO_2 emissions. NO_2, CO and SO_2 emissions occur during blasting in the open pit mine. Blasting operations will occur mostly during the afternoon, for an estimated 290 blasts per year. The Copper Flat Project is designed to control particulate emissions to meet all regulatory standards. Committed air quality practices would include dust control for mine unit operations. The fugitive dust control program would provide for water application on haul roads and other disturbed areas; chemical dust suppressant application (e.g. magnesium chloride) where appropriate, and other dust control measures as per accepted industry practice. Disturbed areas would be seeded with an interim seed mix to

minimize fugitive dust emission from un-vegetated surfaces where appropriate. Fugitive emissions in the process area would be controlled at the crusher, stockpile reclaimer and conveyor drop points through the use of fugitive dust collectors. Other process areas requiring dust and/or emission controls include the concentrate drying and packaging circuit and the various process plants. Emission control equipment will be installed and operated in accordance with the air quality construction permit. The lime storage would be fitted with a dust collector for capture of fugitive dust during loading of the lime silo.

No gaseous contaminants, with the exception of blasting, are expected to be emitted to the atmosphere from the proposed stationary source operations. Drilling operations would be done wet or with other efficient dust control measures. At a minimum, haul roads, waste rock disposal areas, and ore transfer points would be wetted down on a regular basis to minimize dust emissions. Fugitive SO_2 emissions from ore and the flotation equipment are expected to be small due to the low volatility of the sulfur compounds present in the concentrate.

Recommendation

Assuming that the facility stays in compliance with their air quality permit, the AQB has no objection to the proposed *Updated Mining Operation and Reclamation Plan*

If you have any questions, please contact me at (505) 476-4317.

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Tony Delfin
Acting Cabinet Secretary

Fernando Martinez, Director
Mining and Minerals Division

November 8, 2016

Mr. Jeff Lewellin
NMED Ground Water Quality Bureau
P.O. Box 5469
Santa Fe, NM 87502-5469

Re: Request for Agency Comments, Updated Mining Operation and Reclamation Plan, Copper Flat Mine, Sierra County, New Mexico, Permit Tracking No. SI027RN

Dear Mr. Lewellin,

On October 14, 2016, the Mining and Minerals Division ("MMD") of the New Mexico Energy, Minerals, and Natural Resources Department received the Updated Mining Operation and Reclamation Plan ("MORP") for the Copper Flat mine application, permit tracking no. SI027RN. This updated MORP is a portion of the overall Permit Application Package being reviewed by MMD in relation to the proposed Copper Flat mine located in Sierra County, New Mexico.

Pursuant to §19.10.6.605.C of the New Mexico Administrative Code, MMD is requesting comments from your agency regarding the updated MORP, which can be downloaded from MMD's website at http://www.emnrd.state.nm.us/mmd/MARP/PermitSI027RN.html. In accordance with §19.10.6.605.C NMAC, your agency has 60 days from the date of receipt of this letter in which to provide comments.

If you have any questions, please contact me at (505) 476-3434 or by email at david.ennis@state.nm.us.

Sincerely,

David J. (DJ) Ennis, P.G., Permit Lead
Mining Act Reclamation Program (MARP)

cc: Mine File (SI027RN)

ENVIRONMENT DEPARTMENT INTERNAL MEMORANDUM

TO: Brad Reid, Mining Environmental Compliance Section
John Moeny, Surface Water Quality Bureau
Neal T. Butt, Air Quality Bureau

FROM: Jeff Lewellin, NMED Mining Act Team Leader

DATE: November 18, 2016

SUBJECT: **Request for Comments, Regular New Mine, Updated Mining Operation and Reclamation Plan, Copper Flat Mine, Sierra County, MMD Permit No. SI027RN**

Attached is a copy of a cover letter received from the Mining Act Reclamation Program (MARP) by the New Mexico Environment Department (NMED) requesting comments regarding the Copper Flat Mine, updated Mining Operation and Reclamation Plan (MORP). This is designated as a regular new mine and assigned permit tracking No. SI027RN. Please have any comments back to me by January 3, 2017.

A copy of the cover letter is attached to this electronic transmittal. The updated MORP can be viewed on the Mining and Minerals Division webpage at:

http://www.emnrd.state.nm.us/MMD/MARP/PermitSI027RN.html

Please send all responses to Jeff Lewellin, Mining Act Team Leader.

Attachments:
November 8, 2016, MARP, DJ Ennis, Request for Comments

xc: Richard Goodyear, Chief, AQB
Shelly Lemon, Chief, SWQB
Greg Kaufman, Team Leader, SWQB
Michelle Hunter, Chief, GWQB
Kurt Vollbrecht, Program Manager, GWQB, MECS
Holland Shepherd, Program Manager, MMD
DJ Ennis, Lead Staff, MMD

Cooperating Agencies - NMCC Meeting – PROPOSED AGENDA
11 January 2017 14:30 MST
MMD Conference room
Call in: 605-475-4000 PIN 422-765

1. EIS status – Doug, Dave
    - Comment processing/Status
    - Section 106 Consultation Programmatic Agreement
    - Section 7 Consultation
2. Discharge Permit status
3. Permit Application Package status
4. Pit Water Discussion Update
5. Water trial status
6. Next meeting date: Proposing 22 February or 1 March 2017
7. Any desired conversation without NMCC present

Reid Meeting Notes:

1. EIS status - BLM reviewing responses on comments to DEIS.

    - Discussion regarding the ground water model and possible impacts to Animas Creek/Chiricahua Leopard Frogs. Model shows no impact to Animas Creek from pumping the water supply wells for mine operations. There could be an impact to the flowing wells on the eastern edge of Animas Creek closer to Caballo Reservoir-wells will still flow but at a lower rate. Some of the flowing wells may feed privately-owned irrigation ponds (14 in total).

2. Technical review by NMED still ongoing. Deadline for NMED to comment on additional info. submitted is Feb 14.

3. MORP submitted in October, MMD reviewing.

4. Land surveyors out at site and survey underway. Outcome will be for a formal plat to be created that will connect all the patented mining claims. A follow-up letter will have to be sent to SWQB upon completion and filing of the survey plat.

5. Final briefs due 1/26/17.

NEW MEXICO
ENVIRONMENT DEPARTMENT

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PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2990 Fax (505) 827-1628
www.env.nm.gov

BUTCH TONGATE
Cabinet Secretary- Designate
J.C. BORREGO
Deputy Secretary

January 12, 2017

VIA E-MAIL

Jaimie Park
jpark@nmelc.org

Re: Request to Inspect Public Records

Dear Ms. Park:

On January 12, 2017, this office received your request for public information. You request information pertaining to: January 11, 2017 proposed Copper Flat Copper Mine cooperating agencies meeting notes. (See attached request).

I forwarded your request to the bureaus on January 12, 2017. The bureaus will respond by January 27, 2017.

Should you have any questions, please contact the Ground Water Quality Bureau at (505) 827-2919, and the Surface Water Quality Bureau at (505) 827-2819.

Sincerely,

Melissa Y. Mascareñas
New Mexico Environment Department
Department Public Records Custodian

cc: Andrew Knight, Office of General Counsel
Michelle Hunter, Chief, Ground Water Quality Bureau
Shelly Lemon, Acting Chief, Surface Water Quality Bureau

NEW MEXICO ENVIRONMENT DEPARTMENT
INSPECTION OF PUBLIC RECORD REQUEST FORM

Please fill out the following information:

1. Date: January 12, 2017

2. Requestor's Name: Jaimie Park, New Mexico Environmental Law Center

3. Requestor's Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

4. Phone No.: (505) 989-9022

5. Email:
jpark@nmelc.org

6. Company Being Represented: New Mexico Environmental Law Center

7. Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

8. Document or File being requested to be reviewed or copied (please describe the records in sufficient detail to enable Department personnel to reasonably identify & locate the records:

I request that you inform me what documents are available within the scope of this request and when I can inspect those documents. I also request that you not make any copies without first informing me of the number of copies and the cost for the copying that are involved. Finally, I request that if you determine that any documents or portions of documents are exempt from disclosure you inform me of that and provide me with citations to the provisions in the Inspection of Public Records Act that indicate that the documents or portions of documents are exempt from disclosure, describe the type of document being withheld, and identify who sent the document being withheld and who received the document being withheld.

Records being requested:

1. January 11, 2017 proposed Copper Flat Copper Mine cooperating agencies meeting notes.
2. NMED's request for additional information to New Mexico Copper Corporation, date range February 1, 2017 through February 14, 2017.
3. NMED's technical completeness determination regarding New Mexico Copper Corporation's discharge permit application, date range February 1, 2017 through February 14, 2017.
4. Surveys submitted by New Mexico Copper Corporation to NMED regarding the Copper Flat Copper Mine pit lake.
5. NMED determination regarding Copper Flat Copper Mine pit lake being a private water, date range February 1, 2017 through February 14, 2017.

Reid, Brad, NMENV

From: candi Browne <candilight4u@gmail.com>
Sent: Tuesday, January 17, 2017 2:54 PM
To: Reid, Brad, NMENV
Subject: Re: New Mexico Copper Corp Wastewater Discharge Permit

Thanks Brad-
I do remember that you put me on the list early in 2016, etc. Thank you for restating all that.
My email to you is from October & I can't recall what triggered by email to you, may beI thought (from info I'd received from other concerned people) that information was going out to the people on the list & I had not received it.
I will await the 30 day Comment period.
We're getting some nice rains down here. Hope the Rain Gods are Blessing you too.
Best Regards
candi

On Tue, Jan 17, 2017 at 2:28 PM, Reid, Brad, NMENV <brad.reid@state.nm.us> wrote:

> Hi Candi,
>
> Thanks for the information expressing your concerns about the proposed Copper Flat Tailing Storage Facility HDPE liner system; I was cc'd on your submittal to the BLM on 3/22/16.
>
> I believe I sent you an e-mail in early 2016 that discussed this but just to reiterate for your benefit: you can provide comments to NMED at any point but the most practical time to formally provide them is during the official 30-day public comment period. The 30-day comment period (PN-2) commences after NMED proposes a draft discharge permit. Providing comments during this time is beneficial in that you will be able to read the draft permit at this point. As you were added to the interested parties list on February 5, 2016, you will be notified when this time period commences.
>
> Thanks, Brad
>
> Brad Reid, Geologist
> Mining Environmental Compliance Section
> Ground Water Quality Bureau
> New Mexico Environment Department
> P.O. Box 5469
> Santa Fe, NM 87502
> Phone: 505.827.2963; Fax: 505.827.2965

From: candi Browne [mailto:candilight4u@gmail.com]
Sent: Saturday, October 22, 2016 1:31 PM
To: Reid, Brad, NMENV <brad.reid@state.nm.us>
Subject: New Mexico Copper Corp Wastewater Discharge Permit

Hello Brad-

I submitted information & questions concerning the proposed HDPE liner system. This was for the DRAFT DEIS for NMCC Copper Flat Project. I'm sure you've seen all that DEIS information.

To have my questions and information on the liner be considered officially for your WASTWATER DISCHARGE PERMIT must I send these comments & questions to you?

Hope you are enjoying autumn.

Thanks-

candi

Candace Browne

candiLight4u@gmail.com

P.O. Box 3642

Truth or Consequences, NM
87901
575 894 4495

Reid, Brad, NMENV

From: Reid, Brad, NMENV
Sent: Monday, September 26, 2016 12:57 PM
To: candi Browne
Subject: RE: New Mexico Copper Corp Wastewater Discharge Permit

Hi Candi,

Thank for the request, I went ahead and added you on the Interested Parties List back on February 5, 2016 after our earlier conversations. Is your preference to be notified via e-mail or standard mail? Thanks, Brad

Brad Reid, Geologist
Mining Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502
Phone: 505.827.2963; Fax: 505.827.2965

From: candi Browne [mailto:candilight4u@gmail.com]
Sent: Thursday, September 15, 2016 5:55 PM
To: Reid, Brad, NMENV
Subject: New Mexico Copper Corp Wastewater Discharge Permit

Hi Brad-

Please put me on your list to be informed of ANY NEWS about
New Mexico Copper Corp
THEMAC
Wastewater Discharge Permit
Copper Flat
Sierra County
New Mexico

I hear that it's moving forward.

Thank you, I'm sure you're doing a great job protecting our waters.
candi

Candace Browne
candiLight4u@gmail.com
P.O. Box 3642
Truth or Consequences
New Mexico 87901

Reid, Brad, NMENV

From: Reid, Brad, NMENV
Sent: Thursday, March 03, 2016 3:09 PM
To: candi Browne
Subject: RE: THANK YOU

Candi,

You can provide comments at any point. There is an official 30-day comment period (PN-2) which commences after we propose a draft discharge permit; this time period is a logical time to provide comments because you will be able to read the draft permit at this point. As you are on the interested parties list, you will be notified when this time period commences. Thanks, Brad

From: candi Browne [mailto:candilight4u@gmail.com]
Sent: Thursday, March 03, 2016 1:59 PM
To: Reid, Brad, NMENV
Subject: Re: THANK YOU

Brad-
Yes thank you, I am aware of the extension.

Do you have any ball park idea of when the public will have the opportunity to present comments on the Wastewater Discharge permit?

candi

On Thu, Mar 3, 2016 at 1:53 PM, Reid, Brad, NMENV <brad.reid@state.nm.us> wrote:

Hi Candi,

Glad you received the documents. Not sure if you have seen this or not, but the comment period for the DEIS has been extended until April 4, 2016. Brad

---------- Forwarded message ----------
From: **Gutierrez, Rena** <rgutierr@blm.gov>
Date: 2016-03-02 9:27 GMT-07:00
Subject: COPPER FLAT COPPER MINE COMMENT PERIOD EXTENSION
To:

EXTENSION

COPPER FLAT COPPER MINE
DRAT ENVIRONMENTAL IMPACT STATEMENT
Comments now due APRIL 4, 2016

BLM

BLM has extended the public comment period another 30 days Copper Flat Copper Mine Project Draft Environmental Impact Statement (EIS). With this extension, the public will have until **April 4, 2016** to submit their comments to BLM.

The BLM recognizes the Draft EIS is a comprehensive environmental document, including complex hydrological and water modeling studies and analysis, which may require more time for the public to understand and provide comments.

BLM's decision to extend the comment period on the Draft EIS is important to ensure all interested stakeholders in this project have ample time and opportunity to get their substantive comments to BLM for consideration.

File your comments at **BLM_NM_LCDO_Comments@blm.gov** electronically or mail your comments to: "Copper Flat Copper Mine DEIS", BLM Las Cruces District Office, ATTN. Douglas Haywood, 1800 Marquess Street, Las Cruces, NM, 88005. For additional information, contact Douglas Haywood at 575-525-4498.

From: candi Browne [mailto:candilight4u@gmail.com]
Sent: Thursday, March 03, 2016 1:35 PM
To: Reid, Brad, NMENV
Subject: THANK YOU

Brad-

Received the DP-1840 Copper Flat GW Discharge Permit Application on CD.

Thank you for handling my request so thoughtfully.

Haven't opened it yet with time constraints on getting comments in to BLM

on the DEIS.

Along with this thank you I am attaching a document that explains in detail my concern about the quality of fabrication, construction, manufacturing, field laying, field seaming & maintenance of the HDPE geomembrane that is called for at Copper Flat under the TSF and waste rock and holding ponds.

The pdf is named: appndx_n.pdf

Geotechnical construction Quality Assurance (CQA) Plan for Construction of the Composite Liner System at Gregory Canyon Landfill (CA) 2003

Thank you again

candi

Candi Browne

candilight4u@gmail.com

P.O. Box 3642

Truth or Consequences

NM 87901
557 894 4495

Reid, Brad, NMENV

From: Reid, Brad, NMENV
Sent: Tuesday, February 09, 2016 10:37 AM
To: candi Browne
Subject: RE: NMCC - Application for Copper Flat Mine Wastewater Discharge Permit

Candi,

Melissa's e-mail address is at the bottom of the form, and yes, you can submit it in electronic format. As far as making comments concerning the Ground Water Discharge Permit, you can provide them to us at any point. There is an official 30-day comment period (PN-2) which commences after we propose a draft permit; this time period is a logical time to provide comments because you will be able to read the draft permit at that point. As you are now on the interested parties list you will be notified when this time period commences.

We will not be providing any information for the local library, but when we propose a draft Discharge Permit it will be viewable online.

Thanks, Brad

From: candi Browne [mailto:candilight4u@gmail.com]
Sent: Monday, February 08, 2016 7:45 PM
To: Reid, Brad, NMENV
Subject: Re: NMCC - Application for Copper Flat Mine Wastewater Discharge Permit

Brad-
All helpful information
Thank you. It sounds like the LINER information is incorporated into the Tailings documentation. Am I right?
I'll get the document printed and fill it out.
Can I then scan it and return it by email?
Do I need to send it to Melissa Y. Mascareñas?

If so, will you please give me her email address.

Will there be a Public information evening for us here in Sierra County concerning the Wastewater Discharge Permit?

Is there be a way for the public to make comments? Are you in charge of this or should I contact someone else?

Will your Department be sending this documentation to our public library?

I have the NMCC Mining Plan of Operation from 2012 (when I received it) and there is a section on the liner - but it lacks a huge amount of information. The company is Golding's Assoc. I think.

Thanks so much. I really appreciate how quickly you are responding.
candi

On Mon, Feb 8, 2016 at 3:52 PM, Reid, Brad, NMENV <brad.reid@state.nm.us> wrote:

Hi Candi,

In order for you to get a hold of the documents you have requested, you will need to fill out a Public Information Request Form so that it can be properly documented with our Inspection of Public Records Officer, Melissa Y. Mascareñas. Attached is the request form. After we receive the request, we can talk about the best way to get these documents to you. The Tailings Design document is 676 pages and 75 MB so it is quite a large document. The Discharge Permit Application is about the same size. Thanks, Brad

From: candi Browne [mailto:candilight4u@gmail.com]
Sent: Monday, February 08, 2016 3:37 PM
To: Reid, Brad, NMENV
Subject: NMCC - Application for Copper Flat Mine Wastewater Discharge Permit

Hi Brad-

8 Feb 2016

I just found this draft email.....I thought I sent it a couple of weeks ago....maybe I sent something similar. Sorry for any confusion.

Thank you for checking through this.

candi

We spoke at the DEIS Public Comment Meeting in T or C in December about NMCC's proposed Copper Flat Mine project.

Thank you for your response to my inquiry about the Copper Rules section on 'Liners"

I so hope you've found useful information about the need for stringent regulations & checking of any liner before, during and after it is installed.

I recall your comment that if there were to be a problem with the liner, the company who manufactured it &/or the company that installed it would be held responsible & would be fined and would be required to repair/replace/or do whatever is necessary. So, I want to stress my very real concern that repairing/replacing/ or 'whatever' will be very questionable & iffy in quality and any fines will not 'bring back our environment' or rid it of pollution. Mining waste pollution lasts for 100s of years. Leaving pollution for the next generation too cope with is a poor decision, in my way of thinking. Let's find a better way! If you have good information about the company chosen by NMCC then you can make a better decision.

HDPE liner technology is fairly new. Their success rate is not very good.

The company who did the report for NMCC Mining Plan Of Operation, Golder Inc (?), put this comment in their report.....

I'm contacting you about

New Mexico Copper Corp's application for a Wastewater Dischare Permit for their proposed Copper Flat Mine.

DP#1840 Copper Flat Mine, Sierra County, NM

I'd like to be put on the "facility-specific mailing list" for any and all future notices about this application.

Can you do this? or do I need to contact someone else??? If so who?

What is the time-frame for this application? When can we make public comments? Will there be a public hearing here in TorC?

I'd like to see all the specifics of the liner. What company are they using? What material will they be using? Etc.

I like to have a copy of this Application? Is it available on a CD? Is it available by paper copy? Can it mailed to me? Is there a cost?

Thanks so much to you Brian-

Candi Browne

P.O. Box 3642

Truth or Consequences, NM 87901

candilight4u@gmail.com
575 894-4495

Reid, Brad, NMENV

From: Reid, Brad, NMENV
Sent: Monday, January 25, 2016 4:13 PM
To: Jaimie Park
Subject: RE: Quick Question

Jaimie,

I have burned a copy of the MPO to a CD. It looks like it actually is the December 2010 and revised June 2011 version so good news there. Let me know when you would like to pick it up. Brad

---

From: Jaimie Park [mailto:jpark@nmelc.org]
Sent: Wednesday, January 20, 2016 11:10 AM
To: Reid, Brad, NMENV
Subject: RE: Quick Question

Thanks, Brad. The reason that I asked is because NMCC seems to be stating in various state permit applications and in its proposed action in the EIS different production rates. In its permit application with MMD they are claiming their production rate will be 25,000 tpd, and that is based on the most recent MORP the company completed in July 2012 (we have a copy of that). Since the December 2015 permit application submitted to NMED says their production rate will be 30,000 tpd and cites to the 2012 MORP (that is the source for the 25,000 tpd production rate) I was wondering if they had a more recent MPO that was submitted with their application to y'all. I don't understand how they can reference a MORP which states the production rate will be 25,000 tpd yet say in their application for a discharge permit their production rate will be 30,000 tpd. And why would they submit to the BLM/third party contractor preparing the EIS that their proposed action would be a production rate of 17,500 tpd? Why not revise that proposed action to reflect the higher production rate they are stating in state permit applications being submitted? Could you explain that to me? I'm sure I'm just missing something here as I'm new to this process.

If you could put a copy of the December 2010 MPO on a disc that would be great and I'd like to take a look at the revised version (hard copy) and determine which pages I need a copy of. Let me know if you have time for me to do that on Friday.

From: Reid, Brad, NMENV [mailto:brad.reid@state.nm.us]
Sent: Wednesday, January 20, 2016 9:11 AM
To: Jaimie Park
Cc: Vollbrecht, Kurt, NMENV
Subject: RE: Quick Question

Hi Jaimie,

MPOs are documents typically required by BLM as part of the EIS process. The December 2010, revised in 2011 MPO is referenced three times in the DP Application and we do have a hard copy in our files (we only have a CD of the December 2010 MPO, it is 35.1 MB).

I'm not aware of a July 2012 MPO - I am thinking the July 2012 MPO you are referring to is actually the July 2012 MORP (Mine Operation and Reclamation Plan) which is a submittal required by the EMNRD MMD as part of the Permit Application Package. This document can be found at the following link:

http://www.emnrd.state.nm.us/MMD/MARP/PermitSI027RN.html

We do also have a hard copy of the MORP here at GWQB.

Let me know how you would like to proceed with respect to obtaining any/all of these documents.

Brad

From: Jaimie Park [mailto:jpark@nmelc.org]
Sent: Tuesday, January 19, 2016 11:23 AM
To: Reid, Brad, NMENV
Subject: Quick Question

Hey, Brad. I'm reviewing the December 2015 permit application submitted by NMCC and it is unclear which MPO this permit application is relying upon. There isn't an MPO in this application package. It may be incorporated by reference. Under "references" there are two MPO's listed:

1. December 2010, revised in 2011 MPO
2. July 2012 MPO

I would like both of these MPOs, along with any other revised MPO submitted by NMCC to NMED. I believe this falls under my IPRA request submitted to NMED. Thanks for your time and assistance with this. Hope you had a nice weekend. Take care.

Kind Regards,

Jaimie Park
Staff Attorney
New Mexico Environmental Law Center
1405 Luisa Street, Suite 5
Santa Fe, NM 87505
(505) 989-9022
jpark@nmelc.org
www.nmelc.org

NEW MEXICO
ENVIRONMENT DEPARTMENT

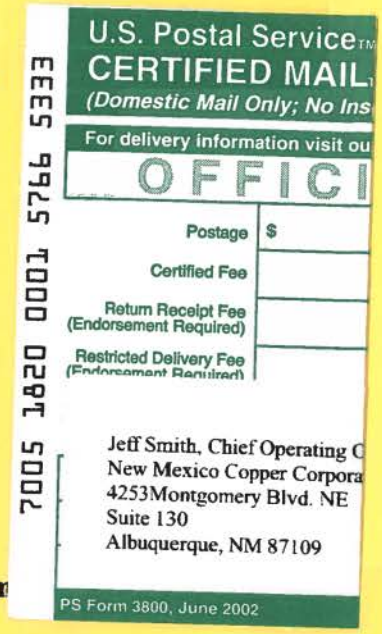
Harold Runnels Building
1190 South St. Francis Drive (87505)
P.O. Box 5469, Santa Fe, New Mexico 87502-5469
Phone (505) 827-2900 Fax (505) 827-2965
www.env.nm.gov

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

BUTCH TONGATE
Cabinet Secretary - Designate

J.C. BORREGO
Deputy Secretary



CERTIFIED MAIL - RETURN RECEIPT REQUESTED

February 14, 2017

Jeff Smith, Chief Operating Officer
New Mexico Copper Corporation
4253 Montgomery Blvd. NE
Suite 130
Albuquerque, NM 87109

RE: Request for Additional Information, Application for Discharge Perm
Flat Mine, New Mexico Copper Corporation (NMCC)

Dear Mr. Smith:

On December 11, 2015 the Mining Environmental Compliance Section (MECS) of the New Mexico Environment Department (NMED) received an application (Application) dated December 11, 2015 for Discharge Permit 1840 (DP-1840) from the New Mexico Copper Corporation (Applicant). In a letter dated January 15, 2016 NMED notified the Applicant that the Application was deemed administratively complete. NMED deemed the Application technically deficient and issued a letter to the Applicant dated March 21, 2016 requesting additional information. On May 19, 2016 NMED received a letter from the Applicant requesting a time extension until June 22, 2016 to submit the requested additional information and in a letter dated May 19, 2016 NMED granted the requested time extension. On June 21, 2016 NMED received a letter from NMCC providing responses to the request for additional information titled, *NMCC Responses to NMED Request for Additional Information DP 1840 Application, Copper Flat Project,* dated June 21, 2016. NMED deemed the Application technically deficient and issued a letter to the Applicant dated September 19, 2016 requesting additional information. The Applicant provided additional information in letters dated October 14, 2016, November 2, 2016, and November 15, 2016.

Pursuant to Subsection G of 20.6.7.10 NMAC, NMED shall review any additional information submitted to supplement an application for technical completeness within 90 days of receipt. NMED has reviewed the Application, additional information responses and supporting documents in accordance with the general permitting requirements of Part 20.6.2 NMAC and supplemental copper mine facility permitting requirements of Part 20.6.7 NMAC (Copper Mine Rule), and has deemed the Application technically deficient. Additional information is required pursuant to Part 20.6.7 NMAC in order for NMED to complete the technical evaluation of the Application.

Comments pertaining to the letter titled "Additional Information Requested on September 19, 2016, Application for Discharge Permit 1840, Copper Flat Mine, Sierra County," dated November 15, 2016:

NMCC Response to NMED Comment 5

1. The July 17, 2013 "Copper Flat Mine Baseline Data Report Addendum" and associated Supplemental Soils Investigation states: "[s]ite specific soil water characteristic (retention) curves may be required to further evaluate available water capacity with respect to cover design and performance." NMED will add a permit condition to require the Applicant to perform soil water characteristic curve laboratory analysis in order to verify Copper Mine Rule water holding capacity requirements pursuant to Section 20.6.7.33.F NMAC. Based on the results of developed soil water characteristic curves, the Applicant will be required to implement an appropriate material handling plan at closure to ensure the emplaced cover material textural characteristics achieves the water holding capacity required pursuant to Section 20.6.7.33 NMAC.

NMCC Response to NMED Comment 9

2. NMED requests that the Applicant provide any additional sampling results retrieved from surface water samples (SWQ-1 through SWQ-3) subsequent to submittal of the May 2014 John Shomaker and Associates, Inc. document titled, "Results from First Year of Stage 1 Abatement Investigation at the Copper Flat Mine Site Near Hillsboro, New Mexico."

NMCC Response to NMED Comment 16

3. NMED recognizes that the historical laboratory data sheets for total dissolved solids (TDS) values referenced in the 1980 and 1981 Sargent, Hauskins, and Beckwith reports are not available. However, the TDS values referenced therein and also shown in Table 11G-2 of December 11, 2015 Application are useful for providing an indication of water quality conditions prior to previous mining efforts conducted at Copper Flat Mine.

Comments pertaining to the document titled, "Updated Mining Operation and Reclamation Plan for its Copper Flat Mine," dated October 14, 2016:

Appendix E

4. Drawing C-010 – Section 20.6.7.24.B NMAC states, "[s]tormwater shall be diverted outward and away from the perimeter of the open pit and, to the extent practicable, shall not be directed into the open pit." The WRSP-2 and WRSP-3 regrade and drainage plan shown in Drawing C-010 shows a clean stormwater drainage channel centerline extending from the top of WRSP-2, continuing down a haul road in a westerly direction for a distance of approximately 1.2 miles before eventually discharging to the open pit. Clean stormwater originating east of Animas Peak and outside the Open Pit Surface Drainage Area should not be directed to the open pit; please revise Drawing C-010 and any other related drawings to comply with Section 20.6.7.24.B NMAC of the Copper Mine Rule.

5. Table E1 and Drawing C-006 – NMED requests that the Applicant provide a "cut-and-fill" diagram to demonstrate that the proposed regrade and drainage plan for EWRSP-4 is appropriate pursuant to Section 20.6.7.24.B NMAC.

6. Drawing C-011 – NMED has concerns that placement of Growth Media Stockpiles 1 & 2 adjacent to the Tailing Storage Facility (TSF) could result in impacts by wind-blown tailings. Please discuss the possibility of placing the Growth Media Stockpiles in alternative location(s) or other measures to address the risk of impact from wind-blown tailings.

7. Drawing C-021 – Drawing C-021 shows a typical downslope channel cross section showing riprap armoring of the channel. Based on observations made at other mine sites in New Mexico, articulated concrete block downslope channels withstand stormwater runoff events better than riprap-armored downslope channels.

8. Attachment E2 – Section 3.0 discusses a 15-acre forced evaporation mechanical spray system located on top of the TSF and proposed for use after closure to enhance disposal of TSF underdrain process water resulting from the drain down of the TSF. This is referred to as the "active evaporation" period and may last up to five years following closure during the period of highest relative drainage rate at the TSF. The text states, "[d]uring the active evaporation phase, reclamation of the TSF will continue such that grading will have been completed and the cover will have been placed on the TSF". It does not seem plausible to evaporate process water using a mechanical spray system concurrent with cover placement without contaminating clean cover material. Please clarify the timing of the "active evaporation" phase relative to placement of cover on the TSF.

NMED requests that the Applicant review the appropriate sections of the Copper Mine Rule when preparing a response to this letter. It is the responsibility of the Applicant to ensure that the information provided meets the requirements of the Copper Mine Rule.

Pursuant to Subsection G of Section 20.6.7.10 NMAC, the Applicant shall have 60 days from the date of postal notice of this letter to provide the information requested. Upon request by the Applicant and for good cause shown, NMED may grant one or more extensions of time for the Applicant to provide the required information. NMED may have additional comments as a result of processing the Application and forthcoming addendums before deeming the Application technically complete.

NMED appreciates the diligence and organized efforts by the Applicant to address comments and concerns during this process and looks forward to working with the Applicant as the permitting process for DP-1840 progresses. If you have any questions, please contact me at (505) 827-2963 or Kurt Vollbrecht, MECS Program Manager, at (505) 827-0195.

Sincerely,

Brad Reid

Brad Reid, Geologist
Mining Environmental Compliance Section
Ground Water Quality Bureau

BR:br

cc: Jeff Smith, Chief Operating Officer, NMCC (signed copy: jsmith@themacresourcesgroup.com)
Katie Emmer, Permitting & Environmental Compliance Manager, NMCC (signed copy: kemmer@themacresourcesgroup.com)
Kurt Vollbrecht, Program Manager, MECS (signed copy: kurt.vollbrecht@state.nm.us)
David Ennis, MMD (signed copy: david.ennis@state.nm.us)

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lt. Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Harold Runnels Building
1190 Saint Francis Drive (87505)
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2990 Fax (505) 827-1628
www.env.nm.gov

BUTCH TONGATE
Cabinet Secretary- Designate
J.C. BORREGO
Deputy Secretary

February 14, 2017

VIA E-MAIL

Jaimie Park
jpark@nmelc.org

Re: Request to Inspect Public Records

Dear Ms. Park:

On February 14, 2017, this office received your request for public information. You request information pertaining to: Copper Flat Copper Mine. (See attached request).

I forwarded your request to the bureaus on February 14, 2017. The bureaus will respond by March 1, 2017.

Should you have any questions, please contact the Ground Water Quality Bureau at (505) 827-2919, and the Surface Water Quality Bureau at (505) 827-2819.

Sincerely,

Melissa Y. Mascareñas
New Mexico Environment Department
Department Public Records Custodian

cc: John Verheul, Office of General Counsel
Andrew Knight, Office of General Counsel
Michelle Hunter, Chief, Ground Water Quality Bureau
Shelly Lemon, Acting Chief, Surface Water Quality Bureau

NEW MEXICO ENVIRONMENT DEPARTMENT
INSPECTION OF PUBLIC RECORD REQUEST FORM

Please fill out the following information:

1. Date: January 12, 2017

2. Requestor's Name: Jaimie Park, New Mexico Environmental Law Center

3. Requestor's Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

4. Phone No.: (505) 989-9022

5. Email: **jpark@nmelc.org**

6. Company Being Represented: New Mexico Environmental Law Center

7. Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

8. Document or File being requested to be reviewed or copied (please describe the records in sufficient detail to enable Department personnel to reasonably identify & locate the records:

I request that you inform me what documents are available within the scope of this request and when I can inspect those documents. I also request that you not make any copies without first informing me of the number of copies and the cost for the copying that are involved. Finally, I request that if you determine that any documents or portions of documents are exempt from disclosure you inform me of that and provide me with citations to the provisions in the Inspection of Public Records Act that indicate that the documents or portions of documents are exempt from disclosure, describe the type of document being withheld, and identify who sent the document being withheld and who received the document being withheld.

Records being requested:

1. January 11, 2017 proposed Copper Flat Copper Mine cooperating agencies meeting notes.
2. NMED's request for additional information to New Mexico Copper Corporation, date range February 1, 2017 through February 14, 2017.
3. NMED's technical completeness determination regarding New Mexico Copper Corporation's discharge permit application, date range February 1, 2017 through February 14, 2017.
4. Surveys submitted by New Mexico Copper Corporation to NMED regarding the Copper Flat Copper Mine pit lake.
5. NMED determination regarding Copper Flat Copper Mine pit lake being a private water, date range February 1, 2017 through February 14, 2017.

Cooperating Agencies - NMCC Meeting – PROPOSED AGENDA
22 February 2017 14:30 MST
MMD Conference room
Call in: 605-475-4000 PIN 422-765

1. EIS status
    - Comment processing/Status
    - Section 7 Consultation
2. Discharge Permit status
3. Permit Application Package status
4. Pit Water Discussion Update
5. Water trial status
6. Next meeting date: Proposing 5 or 19 April 2017 (Next mtg: April 5)
7. Any desired conversation without NMCC present

Reid Meeting Notes:

1. EIS status – Not much action since last meeting. 44 RFAIs sent to NMCC last fall of which there are 9 items of interest that BLM is waiting for a response from NMCC. NMCC close to responding on a couple of the items.

- Section 7 – NMCC, BLM, SOLV working on some mitigations for US Fish and Wildlife. There are other non-frog species which are part of biological assessment (e.g., fish, yellow-billed cuckoo, etc…)

2. DP Status – NMCC expects to respond to NMED 2/14/17 RFAI sometime in mid-April.

3. PAP – MMD has the MORP, DJ from MMD may have comments prepared for NMCC in the next couple weeks. Still missing from PAP: 1) Millsite claims report 2) Probable Hydrologic Consequences report, 3) Pit geochem report (will discuss additional reclamation options for pit area). NMCC may work on FA this summer after comments received from MMD on PAP.

4. Working on a surveyor-stamped plat to file with BLM – might be ready in March.

5. Final briefs submitted 1/26/17. Judge could ask for additional arguments or make a decision on his own time. EIS considers that water will be pulled from 4 water supply wells so judgement on water rights will likely not impact EIS outcome unless NMCC awarded very little water rights.

Reid, Brad, NMENV

From: Reid, Brad, NMENV
Sent: Monday, February 27, 2017 11:48 AM
To: 'Katie Emmer'
Subject: RE: Copper Flat surface water monitoring locations

Hi Katie,

NMED prefers that the location for SWQ-3 stays put. Please give me a call if you would like to discuss this matter further. Thanks, Brad

Brad Reid, Geologist
Mining Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
Santa Fe, NM 87502
Phone: 505.827.2963; Fax: 505.827.2965

From: Katie Emmer [mailto:kemmer@themacresourcesgroup.com]
Sent: Monday, February 27, 2017 9:51 AM
To: Reid, Brad, NMENV <brad.reid@state.nm.us>
Subject: Copper Flat surface water monitoring locations

Hi Brad,

This is figure 5 from the May 2014 Stage I report, it show surface water monitoring locations at Copper Flat.

Katie Emmer | Permitting & Environmental Compliance Manager

M: +1 505.400.7925| **F:** +1 505.881.4616
A: 4253 Montgomery Blvd. NE, Suite 130, Albuquerque, NM 87109
W: themacresourcesgroup.com | **E:** kemmer@themacresourcesgroup.com

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RE: NMCC request to re-locate SWQ-3 to a new location downstream

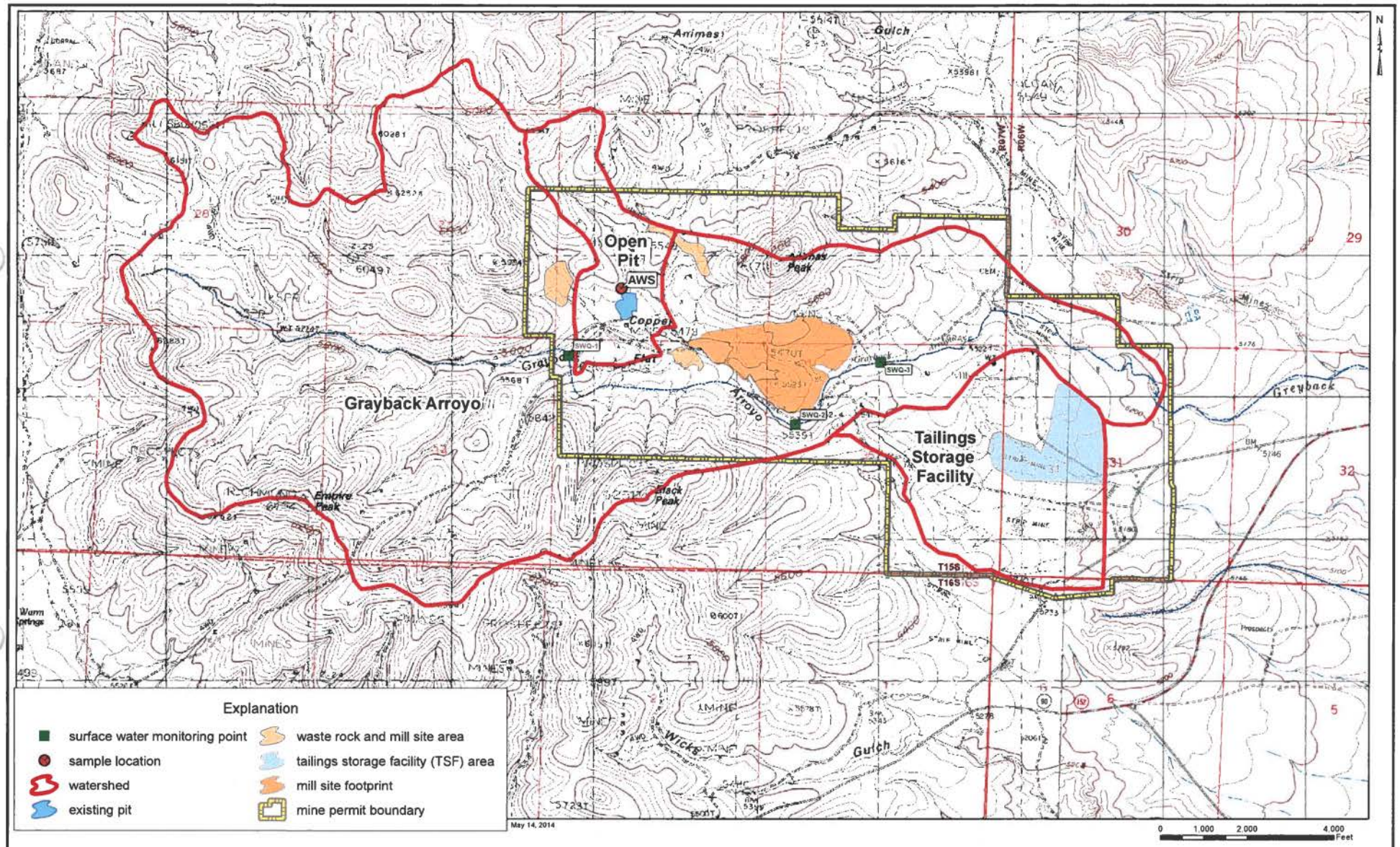


Figure 5. Topographic map showing watersheds and sampling points, Copper Flat Mine, Sierra County, New Mexico.

JOHN SHOMAKER & ASSOCIATES, INC.

Cooperating Agencies - NMCC Meeting – PROPOSED AGENDA
5 April 2017 14:30 MST
MMD Conference room

1. EIS status
    - Comment processing/Status
    - Section 7 Consultation
2. Discharge Permit status
3. Permit Application Package status
4. Pit Discussion
5. Next meeting date discussion
6. Any desired conversation without NMCC present

April 5, 2017 - Reid Meeting Notes:

1. EIS Status

- Most of the 9 outstanding RFAIs that SOLV has been waiting for from NMCC have been answered in the last couple weeks.
- NMCC updated water balance questions from public. Original water balance only contemplated water used for operations and did not include other uses (i.e., water used for construction, start-up, rapid re-fill, etc.).
- NMCC still working on 2 RFAI responses, working to answer these soon.
- Draft EIS instructs for submittal of a pit lake water quality management plan near end of operations (check page ~3-34 of DEIS) as opposed to NMED/MMD which require submittal of a CCP prior to operations.

2. DP Status

- Same status as last meeting. NMCC still working on mid-April response. Juan wants to provide a complete final DP Application.

3. PAP Status

- MMD still waiting on a couple submittals from NMCC. SRK modeling future pit lake water quality. Probable hydrologic consequences report (JSAI) will use the new water quantity balance discussed above.

- MMD MORP comment letter in review.

4. Pit Lake Discussion

- Patented claims survey completed in January. Plat created and presented to Sierra County Assessors in mid-March, and also submitted to BLM in SF and Las Cruces. BLM legal reviewing. After approval by BLM, BLM will be requested by SWQB to write a letter of concurrence for SWQB benefit, and then NMCC will ask SWQB to write a final confirmation letter on private water body determination.
- NMCC working with SRK concerning backfilling or leaving a bench in pit bottom and consequent water quality impacts. New model will consider reclamation measures and may include reclaimed pit haul road, new bench, rapid re-refill.
- Current pit level fluctuates some due to seasonality. GW model (JSAI) predicts a ~4866 ft. final elevation.
- Discussion about applicable water quality standards at the pit lake. BLM reviewing options if surface water quality regulations not applicable and how that may affect the EIS. BLM considering whether there needs to be a Supplemental EIS. DEIS states standards could change in the future (see page ~3-32 of DEIS).
- 602.D.13.g(v) = Mining Act, determination of probable hydrologic consequences. Mirrors statement made in Mining Act statute. Mining Act considers hydrologic impact…. should be similar to pre-mining conditions. Discussion regarding pre-mining conditions.

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lt. Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Harold Runnels Building
1190 Saint Francis Drive (87505)
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2990 Fax (505) 827-1628
www.env.nm.gov

BUTCH TONGATE
Cabinet Secretary
J.C. BORREGO
Deputy Secretary

April 7, 2017

VIA E-MAIL

Katie Emmer
kemmer@thermacressourcesgroup.com

Re: Request to Inspect Public Records

Dear Ms. Emmer:

On April 7, 2017, this office received your request for public information. You request information pertaining to: notes taken by Brad Reid with the GWQB in Cooperating Agency meetings regarding Cooper Flat on 1/11, 2/22, and 4/5/2017. (See attached request).

I forwarded your request to the bureau on April 7, 2017. The bureau will respond by April 24, 2017.

Should you have any questions, please contact the Ground Water Quality Bureau at (505) 827-2919.

Sincerely,

Melissa Y. Mascareñas
New Mexico Environment Department
Department Public Records Custodian

cc: Andrew Knight, Office of General Counsel
Michelle Hunter, Chief, Ground Water Quality Bureau

NEW MEXICO ENVIRONMENT DEPARTMENT
INSPECTION OF PUBLIC RECORD REQUEST FORM

Please fill out the following information:

1. Date: 6 April 2017
2. Requestor's Name: Katie Emmer, New Mexico Copper Corporation
3. Requestor's Address: 4253 Montgomery Blvd NE, Ste 180
   Albuquerque NM 87109
4. Phone No.: (505) 400-7925
5. Email: kemmer@themacresourcesgroup.com
6. Company Being Represented: New Mexico Copper Corporation
7. Address: As above
8. Document or File being requested to be reviewed or copied (please describe the records in sufficient detail to enable Department personnel to reasonably identify & locate the records:

   Brad Reid's notes from Cooperating Agency Meetings on Copper Flat for the following days/meetings: 11 Jan 2017, 22 Feb 2017 & 5 April 2017 - electronic/via email only please
9. NMED Bureau where Document/File can be found (if known): _____

Katie Emmer
Signature

The cost for copying by NMED is as indicated on Attachment A. Please send this request to:

Melissa Y. Mascareñas
Inspection of Public Records Officer
1190 St. Francis Drive, Ste. N-4050
Santa Fe, New Mexico 87505
fax: (505) 827-1628 or
email: melissa.mascarenas@state.nm.us

Revised 6/14/12

Most of these figs are incorporated into DP App.
- Lab sheets are here
- SWQ sampling results are not

THEMAC RESOURCES | NEW MEXICO COPPER CORPORATION

April 14, 2017

RECEIVED
APR 17 2017
Ground Water Quality Bureau

Brad Reid
Mining Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
1190 South St. Francis Drive
P.O. Box 5469
Santa Fe, NM 87502-5496

RE: Additional Information Requested on February 14, 2017, Application for Discharge Permit 1840, Copper Flat Mine, Sierra County

Dear Mr. Reid,

In your letter dated February 14, 2017, you provided 8 comments and requests for additional information for the above referenced Discharge Permit Application based on New Mexico Environment Department (NMED) review of New Mexico Copper Corporation (NMCC) responses to previous NMED comments, in particular our letter dated November 15, 2016 and our October 14, 2016 submission of the Updated Mining Operation and Reclamation Plan. We appreciate your time and consideration in this matter. The purpose of this letter is to respond to your February 14, 2017 requests. We present your comments prior to our responses below for clarity.

NMED Comment 1

The July 17, 2013 "Copper Flat Mine Baseline Data Report Addendum" and associated Supplemental Soils Investigation states: "[s]ite specific soil water characteristic (retention) curves may be required to further evaluate available water capacity with respect to cover design and performance." NMED will add a permit condition to require the Applicant to perform soil water characteristic curve laboratory analysis in order to verify Copper Mine Rule water holding capacity requirements pursuant to Section 20.6.7.33.F NMAC. Based on the results of developed soil water characteristic curves, the Application will be required to implement an appropriate material handling plan at closure to ensure the emplaced cover material textural characteristics achieves the water holding capacity required pursuant to Section 20.6.7.33 NMAC.

NMCC Response to NMED Comment 1

NMCC acknowledges NMED's intent to add a permit condition regarding a requirement to perform soil water characteristic curve laboratory analysis.

Per NMCC plans, reclamation cover materials (suitable growth media) will be salvaged and stockpiled in the growth media stockpiles during the construction phase. NMCC will implement quality control/quality assurance (QA/QC) procedures in the field to segregate reclamation materials from engineering materials and select suitable growth media for salvage. NMCC is committed to ensuring that cover material used at Copper Flat achieves the water holding capacity required in Section 20.6.7.33 NMAC.

NMED Comment 2

NMED requests that the Application provide any additional sampling results retrieved from surface water samples (SWQ-1 through SWQ-3) subsequent to submittal of the May 2014 John Shomaker and Associates, Inc. document titled, "Results from First Year of Stage 1 Abatement Investigation at the Copper Flat Mine Site Near Hillsboro, New Mexico."

NMCC Response to NMED Comment 2

NMCC collected surface water samples at the Copper Flat property from 2014-2016 as precipitation events and equipment success allowed. The table below presents the samples taken in flood events. Also, attached please find:

- A map showing the locations of all of the auto-samplers at the site. SWQ-4 is located east of SWQ-3 and was installed in 2015,
- A table presenting analytical results for samples collected,
- Lab reports for the sample events listed.

Summary of Opportunistic Surface Water Sampling Events at Copper Flat, 2014-2016

Date of Event	Sampler			
	SWQ-1	SWQ-2	SWQ-3	SWQ-4
9/22/2014			X	
6/8/2015		X	X	X
7/21/2015	X			X
10/6/2015	X	X	X	
10/30/2015				X
8/10/2016	X			X
8/12/2016	X	X		X
8/22/2016	X			X
8/23/2016		X	X	
Total to date	**5**	**4**	**4**	**6**

NMED Comment 3

NMED recognizes that the historical laboratory data sheets for total dissolved solids (TDS) values referenced in the 1980 and 1981 Sargent, Hauskins, and Beckwith reports are not available. However, the TDS values referenced therein and also shown in Table 11G-2 of December 11, 2015 Application are useful for providing an indication of water quality conditions prior to previous mining efforts conducted at Copper Flat Mine.

NMCC Response to NMED Comment 3

NMCC acknowledges NMED's determination that TDS values reported in the 1980 and 1981 SHB reports may be useful information.

NMED Comment 4

Drawing C-010 – Section 20.6.7.24.B NMAC states, "[s]tormwater shall be diverted outward and away from the perimeter of the open pit and, to the extent practicable, shall not be directed into the open pit." The WRSP-2 and WRSP-3 regrade and drainage plan shown in Drawing C-010 shows a clean stormwater drainage channel centerline extending from the top of WRSP-2, continuing down a haul road in a westerly direction for a distance of approximately 1.2 miles before eventually discharging to the open pit. Clean stormwater originating east of Animas Peak and outside the Open Pit Surface Drainage Area should not be directed to the open pit; please revise Drawing C-010 and any other related drawings to comply with Section 20.6.7.24.B NMAC of the Copper Mine Rule.

NMCC Response to NMED Comment 4

NMCC has revised the grading plan to ensure that clean stormwater originating east of Animas Peak and outside the Open Pit Surface Drainage Area is not directed to the open pit. The revised grading plan complies with Section 20.6.7.24.B NMAC. This change affects the following drawings in Appendix E Copper Flat Mine Reclamation and Closure Plan: G-004; C-006; C-008; C-010; C-013; C-014; C-016. Copies of the affected drawings are attached.

NMED Comment 5

Table E1 and Drawing C-006 – NMED requests that the Applicant provide a "cut-and-fill" diagram to demonstrate that the proposed regrade and drainage plan for EWRSP-4 is appropriate pursuant to Section 20.6.7.24.B NMAC.

NMCC Response to NMED Comment 5

A cut/fill isopach drawing demonstrating the proposed regrading and drainage plan for EWRSP-4 is provided with this letter (Drawing C-006a). In drawing C-006a, fill is designated by red contours, cut is designated by green contours, and the balance point is designated by a single blue contour. As described in the Mine Reclamation and Closure Plan, EWRSP-4 outslope reclamation, including cover and revegetation, and minor re-grading of the EWRSP-4 top surface will be completed during project construction. The EWRSP-4 top surface will be used for equipment and material storage during the mine operation. An earthen berm of growth media will be installed around the perimeter of the EWRSP-4 top surface during mining operations as a safety measure for mining equipment operating in the area. The berm will also serve as a protection barrier for the reclaimed outslope. After operations are complete and storage area is no longer needed, the growth media berm will be spread across the top surface. Additional growth media material will be imported as needed to complete the design cover, which is planned to be 36 inches in depth, and seeded to reestablish vegetation using a seed mix approved by the BLM and MMD.

The majority of the top surface of EWRSP-4 is currently located within the open pit surface drainage area (OPSDA). The grading plan will ensure stormwater from the top surface of EWRSP-4 is fully captured and contained within the OPSDA through the operation and reclamation phases of the project and then continues following closure. NMCC considers the grading activity planned for the top surface to be minor in nature and feels the planned grading is needed to facilitate development of a necessary equipment and material storage area as well as insure all stormwater coming in

contact with the un-reclaimed surface is captured within the OPSDA for proper water management. Section 20.6.7.24.B NMAC refers to the diversion of stormwater away from the pit during operations and states that "Stormwater shall be diverted outward and away from the perimeter of the open pit and, to the extent practicable, shall not be directed into the open pit." NMCC believes that the most environmentally responsible approach is to continue to direct stormwater flows inward toward the pit during operations.

NMED Comment 6

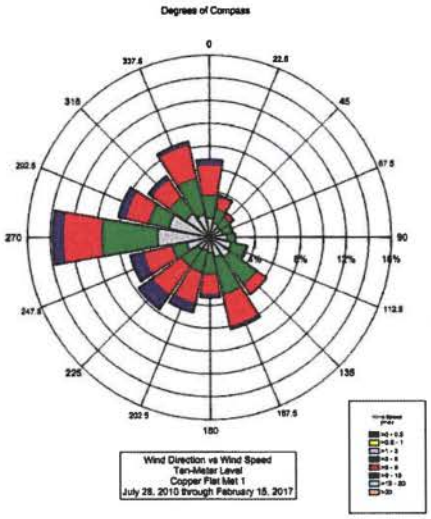
Drawing C-011 – NMED has concerns that placement of Growth Media Stockpiles 1 & 2 adjacent to the Tailing Storage Facility (TSF) could result in impacts by wind-blown tailings. Please discuss the possibility of placing the Growth Media Stockpiles in alternative location(s) or other measures to address the risk of impact from wind-blown tailings.

NMCC Response to NMED Comment 6

The location of Growth Media Stockpiles (GMSPs) 1 and 2 are shown on Drawing C-011 (attached). The GMSPs were located to facilitate efficient and cost-effective handling of borrow materials in both salvage and redistribution operations. Given permit boundary and operational constraints, relocation of the GMSPs is not practicable.

NMCC consulted with Golder Associates Inc. (Golder) on the concern of wind-blown tailings transport based on NMED's comment. Golder reviewed the NMCC planned GMSP locations relative to the TSF and their experience in New Mexico. Golder noted that the extent of wind-blown tailings transport is a function of grain size, wind speed, and topography. As part of this review, Golder relied on the wind rose diagram shown below for Copper Flat using data obtained from the NMCC weather station during the period July 2010 through February 2017 and created by Class1 Technical Services.

Figure 1. Wind Speed and Direction at the Copper Flat Meteorological Station, July 2010 to February 2017, Class1 Technical Services.



Golder does not believe wind-blown tailings are likely to impact the salvaged growth media for two primary reasons: wind direction and distance. Winds at Copper Flat predominantly come from the west (see Copper Flat Wind Rose) and GMSP 1, located southwest of the Tailings Storage Facility (TSF) and GMSP 2, located north of the TSF, are not directly downwind. Winds from the south do occur at the site, but they are not as strong and occur less frequently than other winds in the area. Second is distance. GMSP 2 is located across Grayback Arroyo and more than 1,000 feet from the TSF. Although GMSP 1 is much closer to the TSF, the stockpile location is not in the predominate path for wind at Copper Flat.

Additionally, GMSPs will be seeded with an interim seed mix once their construction is complete for erosion control. Periodic inspections of the GMSP vegetation will also determine if wind-blown tailing are impacting the growth media. Finally, NMCC will use operational best management practices at Copper Flat to control fugitive dust in the vicinity of the TSF, including watering, sprinkling, and vegetation as necessary.

NMED Comment 7

Drawing C-021 – Drawing C-021 shows a typical downslope channel cross section showing riprap armoring of the channel. Based on observations made at other mine sites in New Mexico, articulated concrete block downslope channels withstand stormwater runoff events better than riprap-armored downslope channels.

NMCC Response to NMED Comment 7

NMCC drawings submitted to NMED on October 14, 2016, with the Copper Flat Mine Reclamation and Closure Plan include a call out for using articulated block to armor downslope channels. See Drawing C-021, Detail 8, and accompanying Channel Schedule contained in the October 14 submittal. As detailed in the Channel Schedule table, attached for reference, articulated concrete block (ACB) is specified for all of the downslope channels included in the reclamation designs as well as the haul road channel running to the base of the open pit.

NMED Comment 8

Attachment E2 – Section 3.0 discusses a 15-acre forced evaporation mechanical spray system located on top of the TSF and proposed for use after closure to enhance disposal of TSF underdrain process water resulting from the drain down of the TSF. This is referred to as the "active evaporation" period and may last up to five years following closure during the period of highest relative drainage rate at the TSF. The text states, "[d]uring the active evaporation phase, reclamation of the TSF will continue such that grading will have been completed and the cover will have been placed on the TSF". It does not seem plausible to evaporate process water using a mechanical spray system concurrent with cover placement without contaminating clean cover material. Please clarify the timing of the "active evaporation" phase relative to placement of cover on the TSF.

NMCC Response to Comment 8

The text in Section 3.0 of Attachment E2 needs further clarification. The current plan is for active evaporation to begin within the central portion of the top surface of the Tailing Storage Facility

(TSF) at the end of operations and to continue for a period of 5 years. The TSF embankment outslope will begin to be regraded approximately 2 to 3 years following cessation of operations. Cover will begin to be placed on the regraded TSF embankment outslope approximately 4 to 5 years following cessation of operation, near the completion of the active evaporation program. The top surface of the TSF will begin to be regraded as conditions allow. It is estimated that regrading activities will begin on the perimeter of the TSF top surface (away from the spray/pond area) toward the end of the active evaporation program. Regrading of the TSF top surface will then continue inward following cessation of the active evaporation program, and as surface conditions allow. It is anticipated that the entire top surface will be regraded and covered approximately six to seven years following cessation of operations, one to two years following completion of the active evaporation program. With this plan, there is little to no risk of contamination of the reclamation cover material associated with overspray of process water from the mechanical spray system.

NMCC appreciates the time and effort NMED has put into the review of Discharge Permit Application 1840 for the proposed operation of Copper Flat Mine. We look forward to working with you in the future. If you have any questions, please don't hesitate to contact us.

Best regards,
New Mexico Copper Corporation

J Smith

Jeff Smith
Chief Operating Officer

Attachments:

REFERENCE	DESCRIPTION
NMED Comment 2	• NMCC map presenting locations of all auto-samplers at Copper Flat; • Table presenting analytical results for samples collected; • Lab reports for sample events presented.
NMED Comment 4	• Revised Drainage Plan, Drawings G-004, C-006, C-008, C-010, C-013, C-014, C-016, Copper Flat Reclamation and Closure Plan.
NMED Comment 5	• EWRSP-4 Regrade and Drainage Plan, Cut and Fill Isopach Map, Drawing C-006a, Copper Flat Reclamation and Closure Plan.
NMED Comment 6	• Growth Media Stockpiles, Drawing C-011, Copper Flat Reclamation and Closure Plan.
NMED Comment 7	• Channel Schedule Table from MORP drawing package; • Channel Typical Sections and Details, Drawing C-021, Copper Flat Reclamation and Closure Plan.

evaporation program. With this plan, there is little to no risk of contamination of the reclamation cover material associated with overspray of process water from the mechanical spray system.

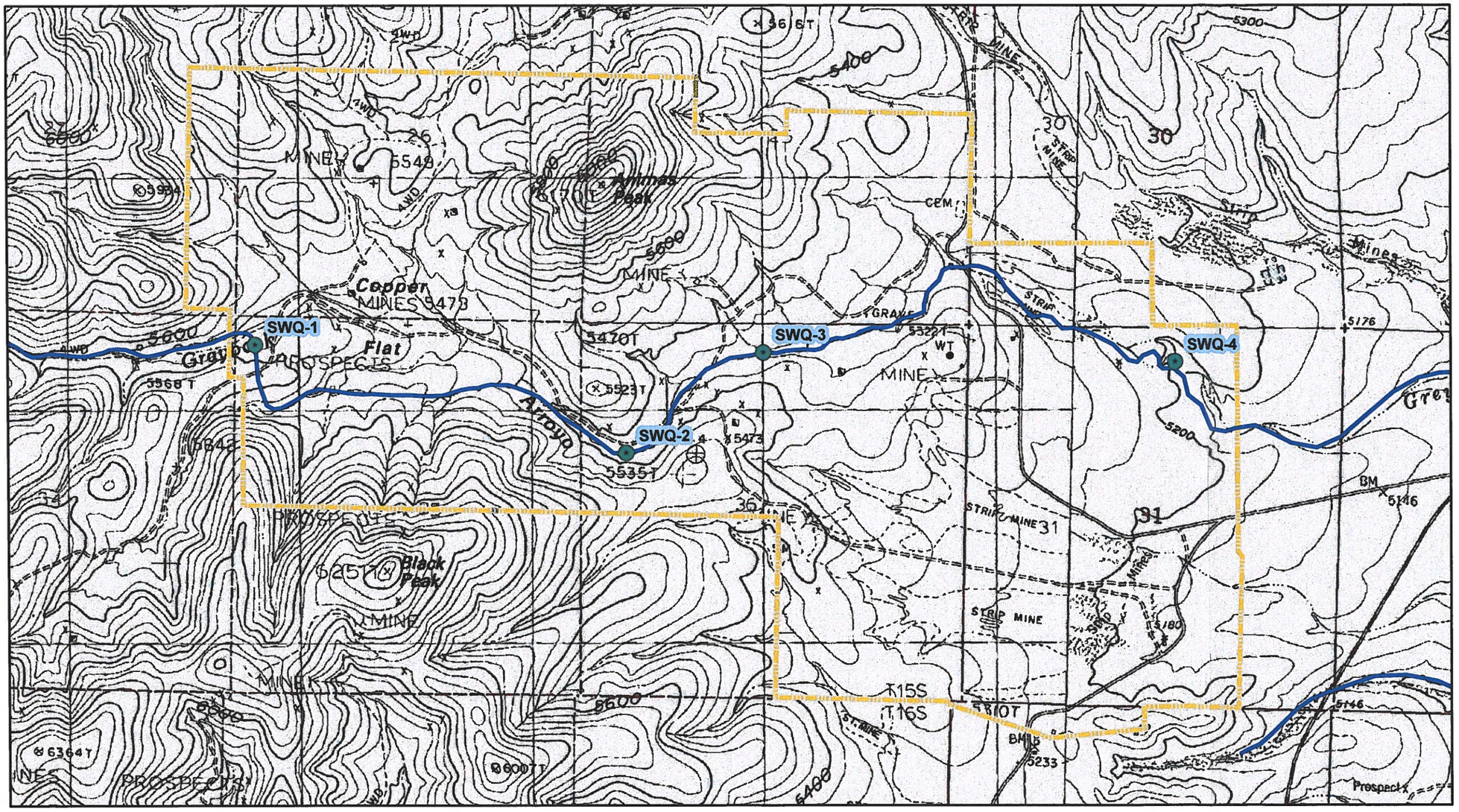
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NMED Comment 7	• Channel Schedule Table from MORP drawing package; • Channel Typical Sections and Details, Drawing C-021, Copper Flat Reclamation and Closure Plan.



0 1,000 2,000 4,000 Feet

1 inch = 2,000 feet

Legend

- Surface Water Quality Samples
- Greyback Drainage
- Copper Flat Mine Area

Surface Water Sampling Locations	
THEMAC RESOURCES Copper Flat Project	March 2, 2017

RECEIVED
APR 17 2017
Ground Water Quality Bureau

N W E S

15280

Copper Flat Surface Water Sampling Results, 2014-2016

Sample ID	Sample date	pH	Total Dissolved Solids (TDS)	Total alkalinity	Bicarbonate	Carbonate	Sulfate	Chloride	Fluoride	Calcium	Magnesium	Sodium	Potassium	Aluminum	Cadmium		Cobalt	Manganese	Selenium	Zinc
		(std units)	(mg/L)	(mg/L as $CaCO_3$)	(mg/L)															
NMWQCC standard*		6.6-9													0.05	1		0.05	25
SWQ-1	7/21/2015	7.25	800	44.24	44.24	<2	5.7	3.8	<0.5	23	9.3	3.3	6.6	7.6	<0.002	0.016	2.1	<0.001	0.086
SWQ-1	10/6/2015	6.85	205	15.64	15.64	<2	30	3.4	<0.5	17	3.6	1.6	7.6	1.2	<0.002	<0.006	0.22	<0.001	0.021
SWQ-1	8/10/2016	7.21	280	25.12	25.12	<2	6.5	4.2	<0.5	16	3.7	2.7	3.7	2.6	<0.002	<0.006	0.097	<0.001	0.027
SWQ-1	8/12/2016	7.41	320	44.72	44.72	<2	4.5	<2.5	<0.5	20	4.4	2.5	3.9	2.4	<0.002	<0.006	0.098	<0.001	0.012
SWQ-1	8/22/2016	7.21	550	28.4	28.4	<2	2.9	<2.5	<0.5	11	5.6	1.4	4.7	7.9	<0.002	0.0073	0.39	<0.001	0.035
SWQ-2	6/8/2015	7.23	356	26.88	26.88	<2	190	3.7	<0.5	61	8.7	17	4.9	<0.02	<0.002	<0.006	0.14	0.0016	0.014
SWQ-2	10/6/2015	7.08	200	20.2	20.2	<2	49	2	<0.5	21	4.9	6.1	4.4	1.5	<0.002	<0.006	0.18	<0.001	0.022
SWQ-2	8/12/2016	7.73	1960	114.1	114.1	<2	1200	22	0.76	330	70	180	6.5	<0.02	<0.002	<0.006	0.092	**0.09**	0.015
SWQ-2	8/23/2016	7.98	1850	161.2	161.2	<2	1100	17	0.82	270	66	160	6	<0.02	<0.002	<0.006	0.12	0.011	0.01
SWQ-3	9/22/2014	7.91	3530	150	150	<2	2100	76	1.1	440	130	370	5.5	<0.02	<0.002	<0.006	0.012	0.021	0.047
SWQ-3	6/8/2015	7.76	627	50.4	50.4	<2	370	11	0.15	82	22	69	5.4	<0.02	<0.002	<0.006	0.27	<0.005	<0.01
SWQ-3	10/6/2015	7.68	1080	50.56	50.56	<2	660	17	0.66	140	36	120	5.9	0.38	<0.002	<0.006	0.11	<0.001	0.025
SWQ-3	8/23/2016	8.08	2780	237.2	237.2	<2	1700	29	1.6	390	110	260	6.2	<0.02	<0.002	<0.006	3.1	0.0086	0.014
SWQ-4	6/8/2015	7.91	207	72.16	72.16	<2	28	1.7	0.15	31	3.1	3	6.6	0.29	<0.002	<0.006	0.065	<0.001	0.015
SWQ-4	7/21/2015	7.42	480	45.48	45.48	<2	32	5	<0.5	30	4.2	7	6.9	0.82	<0.002	<0.006	0.098	<0.001	<0.01
SWQ-4	10/30/2015	7.41	164	42.76	42.76	<2	4.2	2.8	<0.5	19	3.1	1.6	5	1.4	<0.002	<0.006	0.21	<0.001	0.021
SWQ-4	8/10/2016	7.55	135	49.28	49.28	<2	<2.5	<2.5	<0.5	17	2	<1	5.5	0.3	<0.002	<0.006	0.068	<0.001	0.21
SWQ-4	8/12/2016	7.41	136	36.24	36.24	<2	23	<2.5	<0.5	18	2.6	4.9	3	0.49	<0.002	<0.006	0.042	<0.001	0.027
SWQ-4	8/22/2016	7.63	280	34.92	34.92	<2	<2.5	<2.5	<0.5	12	2.5	<1	4.6	2.9	<0.002	<0.006	0.28	<0.001	0.016

* livestock and wildlife only

NMWQCC- New Mexico Water Quality Control Commission

bold above NMWQCC standard

Copper Flat Opportunistic Surface Water Sampling Results

Sample Analyses for: September 22, 2014

Samples Collected:

SWQ-1	
SWQ-2	
SWQ-3	X
SWQ-4	

Analytical Report
Lab Order **1409B87**
Date Reported: **10/24/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1409B87-001
Matrix: AQUEOUS
Client Sample ID: SWQ-3
Collection Date: 9/22/2014 9:30:00 AM
Received Date: 9/24/2014 12:04:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	1.1	0.50		mg/L	5	9/24/2014 4:41:45 PM	R21451
Chloride	76	2.5		mg/L	5	9/24/2014 4:41:45 PM	R21451
Sulfate	2100	25	*	mg/L	50	10/9/2014 5:58:14 AM	R21777
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JLF**	
Aluminum	ND	0.020		mg/L	1	10/3/2014 2:07:59 PM	R21641
Cadmium	ND	0.0020		mg/L	1	9/26/2014 3:34:31 PM	R21505
Calcium	440	5.0		mg/L	5	9/26/2014 3:36:23 PM	R21505
Cobalt	ND	0.0060		mg/L	1	9/26/2014 3:34:31 PM	R21505
Copper	0.068	0.0060		mg/L	1	9/26/2014 3:34:31 PM	R21505
Magnesium	130	5.0		mg/L	5	9/26/2014 3:36:23 PM	R21505
Manganese	0.012	0.0020		mg/L	1	9/26/2014 3:34:31 PM	R21505
Potassium	5.5	1.0		mg/L	1	9/26/2014 3:34:31 PM	R21505
Sodium	370	5.0		mg/L	5	9/26/2014 3:36:23 PM	R21505
Zinc	0.047	0.010		mg/L	1	9/26/2014 3:34:31 PM	R21505
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Selenium	0.021	0.010		mg/L	10	10/13/2014 4:59:49 PM	R21879
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.91	1.68	H	pH units	1	9/29/2014 6:32:50 PM	R21535
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	150	20		mg/L CaCO3	1	9/29/2014 6:32:50 PM	R21535
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	9/29/2014 6:32:50 PM	R21535
Total Alkalinity (as CaCO3)	150	20		mg/L CaCO3	1	9/29/2014 6:32:50 PM	R21535
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3530	20.0	*	mg/L	1	9/28/2014 6:40:00 PM	15511

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NMCC | Work Order Number: 1409B87 | RcptNo: 1

Received by/date: 09/24/14
Logged By: Lindsay Mangin 9/24/2014 12:04:00 PM
Completed By: Lindsay Mangin 9/24/2014 1:00:46 PM
Reviewed By: 09/24/14

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☑
2. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
9. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
11. Were any sample containers received broken? Yes ☐ No ☑
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
14. Is it clear what analyses were requested? Yes ☑ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: ____ (<2 or >12 unless noted)
Adjusted? NO
Checked by: ____

Special Handling (If applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____
By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Not Present			

15284

Chain-of-Custody Record

Client: NMCC

Mailing Address: 2424 Louisiana Blvd NE suite 301, ABQ NM

Phone #: 505.400.7925

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Copper Flat

Project #:

Project Manager: Katie Emmer

Sampler: Katie Emmer

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1409887	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Attached list					Air Bubbles (Y or N)
9.22.14	930	H_2O	SWQ-3	2 bottles	HNO_3	-001												X					

Date: 9.24.14 Time: 1042 Relinquished by: Katie Emmer Received by: Date 09/24/14 Time 1042

Date: Time: Relinquished by: Received by: Date Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Anne Thorne

From: Katie Emmer [kemmer@themacresourcesgroup.com]
Sent: Monday, September 22, 2014 2:54 PM
To: Anne Thorne
Subject: a bottle kit request

Hi Anne,

I am wondering if I could get a single bottle kit for the following, with filtered metals, could you forward this as needed:

- pH
- TDS
- Total alkalinity as CaCO3
- Bicarbonate
- Carbonate
- Sulfate
- Chloride
- Fluoride
- Calcium
- Magnesium
- Sodium
- Potassium
- Aluminum
- Cadmium
- Cobalt
- Copper
- Manganese
- Selenium
- Zinc

I would like to come by either today around 5 or tomorrow morning to pick it up if possible. I'm sorry it's so late in the day. I'll call before coming if I try to come by this afternoon.

Thank you very much!

Katie Emmer | Permitting & Environmental Compliance Manager

M: +1 505.400.7925| F: +1 505.881.4616
A: 2424 Louisiana Blvd. NE, Suite 301, Albuquerque, NM 87110
W: themacresourcesgroup.com | E: kemmer@themacresourcesgroup.com



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Copper Flat Opportunistic Surface Water Sampling Results

Sample Analyses for: June 8, 2015

Samples Collected:

SWQ-1	
SWQ-2	X
SWQ-3	X
SWQ-4	X

Analytical Report
Lab Order **1506687**
Date Reported: **7/7/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1506687-001
Matrix: AQUEOUS
Client Sample ID: SWQ-2
Collection Date: 6/8/2015 1:00:00 PM
Received Date: 6/15/2015 11:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	ND	0.15	0.50		mg/L	5	6/15/2015 6:45:50 PM	R26845
Chloride	3.7	0.67	2.5		mg/L	5	6/15/2015 6:45:50 PM	R26845
Sulfate	190	0.57	2.5		mg/L	5	6/15/2015 6:45:50 PM	R26845
Nitrate+Nitrite as N	0.78	0.22	1.0	J	mg/L	5	6/17/2015 4:14:09 AM	R26878
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **ELS**	
Aluminum	0.0073	0.0034	0.020	J	mg/L	1	6/25/2015 11:32:44 AM	R27081
Barium	0.049	0.00095	0.0020		mg/L	1	6/25/2015 11:32:44 AM	R27081
Beryllium	0.00081	0.00031	0.0020	J	mg/L	1	6/25/2015 11:32:44 AM	R27081
Boron	0.021	0.016	0.040	J	mg/L	1	6/25/2015 11:32:44 AM	R27081
Cadmium	ND	0.00097	0.0020		mg/L	1	6/25/2015 11:32:44 AM	R27081
Calcium	61	0.057	1.0		mg/L	1	6/25/2015 11:32:44 AM	R27081
Chromium	ND	0.0018	0.0060		mg/L	1	6/25/2015 11:32:44 AM	R27081
Cobalt	0.0017	0.0013	0.0060	J	mg/L	1	6/25/2015 11:32:44 AM	R27081
Iron	0.018	0.0073	0.020	J	mg/L	1	6/25/2015 11:32:44 AM	R27081
Magnesium	8.7	0.039	1.0		mg/L	1	6/25/2015 11:32:44 AM	R27081
Manganese	0.14	0.00027	0.0020	*	mg/L	1	6/25/2015 11:32:44 AM	R27081
Molybdenum	0.0036	0.0017	0.0080	J	mg/L	1	6/25/2015 11:32:44 AM	R27081
Nickel	ND	0.0021	0.010		mg/L	1	6/25/2015 11:32:44 AM	R27081
Potassium	4.9	0.18	1.0		mg/L	1	6/25/2015 11:32:44 AM	R27081
Silicon	2.7	0.040	0.080		mg/L	1	6/25/2015 11:32:44 AM	R27081
Silver	ND	0.0012	0.0050		mg/L	1	6/25/2015 11:32:44 AM	R27081
Sodium	17	0.072	1.0		mg/L	1	6/25/2015 11:32:44 AM	R27081
Vanadium	0.0034	0.0015	0.050	J	mg/L	1	6/25/2015 11:32:44 AM	R27081
Zinc	0.014	0.0028	0.010		mg/L	1	6/25/2015 11:32:44 AM	R27081
EPA 200.8: DISSOLVED METALS							Analyst: **DBD**	
Antimony	0.00042	0.00014	0.0010	J	mg/L	1	6/19/2015 3:15:12 PM	R26957
Arsenic	0.00056	0.000065	0.0010	J	mg/L	1	6/19/2015 3:15:12 PM	R26957
Lead	ND	0.000026	0.0010		mg/L	1	6/19/2015 3:15:12 PM	R26957
Selenium	0.0016	0.00019	0.0010		mg/L	1	6/19/2015 3:15:12 PM	R26957
Thallium	0.0000079	0.0000028	0.0010	J	mg/L	1	6/19/2015 3:15:12 PM	R26957
Uranium	0.000095	0.0000048	0.0010	J	mg/L	1	6/19/2015 3:15:12 PM	R26957
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	480	0.010	0.010		µmhos/c	1	6/16/2015 7:07:13 PM	R26890
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.23	0.100	1.68	H	pH units	1	6/16/2015 7:07:13 PM	R26890
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	26.88	0.9399	20.00		mg/L CaC	1	6/16/2015 7:07:13 PM	R26890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Client Sample ID: SWQ-2
Project: Copper Flat
Collection Date: 6/8/2015 1:00:00 PM
Lab ID: 1506687-001
Matrix: AQUEOUS
Received Date: 6/15/2015 11:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **JRR**	
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	6/16/2015 7:07:13 PM	R26890
Total Alkalinity (as CaCO3)	26.88	0.9399	20.00		mg/L CaC	1	6/16/2015 7:07:13 PM	R26890
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	356	14.5	20.0		mg/L	1	6/16/2015 5:04:00 PM	19730
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	170	2.5	4.0		mg/L	1	6/16/2015 9:41:00 AM	19736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1506687-002 **Matrix:** AQUEOUS

Client Sample ID: SWQ-3
Collection Date: 6/8/2015 1:15:00 PM
Received Date: 6/15/2015 11:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	0.15	0.15	0.50	J	mg/L	5	6/15/2015 7:10:39 PM	R26845
Chloride	11	0.67	2.5		mg/L	5	6/15/2015 7:10:39 PM	R26845
Sulfate	370	2.3	10		mg/L	20	6/15/2015 7:23:03 PM	R26845
Nitrate+Nitrite as N	0.23	0.22	1.0	J	mg/L	5	6/17/2015 4:26:34 AM	R26878
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **ELS**	
Aluminum	0.0075	0.0034	0.020	J	mg/L	1	6/25/2015 11:36:48 AM	R27081
Barium	0.098	0.00095	0.0020		mg/L	1	6/25/2015 11:36:48 AM	R27081
Beryllium	0.0010	0.00031	0.0020	J	mg/L	1	6/25/2015 11:36:48 AM	R27081
Boron	0.024	0.016	0.040	J	mg/L	1	6/25/2015 11:36:48 AM	R27081
Cadmium	ND	0.00097	0.0020		mg/L	1	6/25/2015 11:36:48 AM	R27081
Calcium	82	0.057	1.0		mg/L	1	6/25/2015 11:36:48 AM	R27081
Chromium	ND	0.0018	0.0060		mg/L	1	6/25/2015 11:36:48 AM	R27081
Cobalt	0.0024	0.0013	0.0060	J	mg/L	1	6/25/2015 11:36:48 AM	R27081
Iron	ND	0.0073	0.020		mg/L	1	6/25/2015 11:36:48 AM	R27081
Magnesium	22	0.039	1.0		mg/L	1	6/25/2015 11:36:48 AM	R27081
Manganese	0.27	0.00027	0.0020	*	mg/L	1	6/25/2015 11:36:48 AM	R27081
Molybdenum	0.0063	0.0017	0.0080	J	mg/L	1	6/25/2015 11:36:48 AM	R27081
Nickel	ND	0.0021	0.010		mg/L	1	6/25/2015 11:36:48 AM	R27081
Potassium	5.4	0.18	1.0		mg/L	1	6/25/2015 11:36:48 AM	R27081
Silicon	2.0	0.040	0.080		mg/L	1	6/25/2015 11:36:48 AM	R27081
Silver	ND	0.0012	0.0050		mg/L	1	6/25/2015 11:36:48 AM	R27081
Sodium	69	0.072	1.0		mg/L	1	6/25/2015 11:36:48 AM	R27081
Vanadium	0.0037	0.0015	0.050	J	mg/L	1	6/25/2015 11:36:48 AM	R27081
Zinc	0.0088	0.0028	0.010	J	mg/L	1	6/25/2015 11:36:48 AM	R27081
EPA 200.8: DISSOLVED METALS							Analyst: **DBD**	
Antimony	0.00030	0.00014	0.0010	J	mg/L	1	6/19/2015 3:20:15 PM	R26957
Arsenic	0.00079	0.000065	0.0010	J	mg/L	1	6/19/2015 3:20:15 PM	R26957
Lead	ND	0.000026	0.0010		mg/L	1	6/19/2015 3:20:15 PM	R26957
Selenium	ND	0.00097	0.0050		mg/L	5	6/23/2015 12:00:36 PM	R27034
Thallium	0.0000043	0.0000028	0.0010	J	mg/L	1	6/19/2015 3:20:15 PM	R26957
Uranium	0.00079	0.0000048	0.0010	J	mg/L	1	6/19/2015 3:20:15 PM	R26957
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	860	0.010	0.010		µmhos/c	1	6/16/2015 7:13:35 PM	R26890
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.76	0.100	1.68	H	pH units	1	6/16/2015 7:13:35 PM	R26890
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	50.40	0.9399	20.00		mg/L CaC	1	6/16/2015 7:13:35 PM	R26890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Client Sample ID: SWQ-3
Project: Copper Flat
Collection Date: 6/8/2015 1:15:00 PM
Lab ID: 1506687-002
Matrix: AQUEOUS
Received Date: 6/15/2015 11:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **JRR**	
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	6/16/2015 7:13:35 PM	R26890
Total Alkalinity (as CaCO3)	50.40	0.9399	20.00		mg/L CaC	1	6/16/2015 7:13:35 PM	R26890
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	627	14.5	20.0	*	mg/L	1	6/16/2015 5:04:00 PM	19730
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	77	2.5	4.0		mg/L	1	6/16/2015 9:41:00 AM	19736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Client Sample ID: SWQ-4
Project: Copper Flat
Collection Date: 6/8/2015 1:30:00 PM
Lab ID: 1506687-003
Matrix: AQUEOUS
Received Date: 6/15/2015 11:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	0.15	0.15	0.50	J	mg/L	5	6/15/2015 8:00:16 PM	R26845
Chloride	1.7	0.67	2.5	J	mg/L	5	6/15/2015 8:00:16 PM	R26845
Sulfate	28	0.57	2.5		mg/L	5	6/15/2015 8:00:16 PM	R26845
Nitrate+Nitrite as N	0.36	0.22	1.0	J	mg/L	5	6/17/2015 4:38:58 AM	R26878
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **ELS**	
Aluminum	0.29	0.017	0.10	*	mg/L	5	6/26/2015 3:43:44 PM	R27130
Barium	0.055	0.00095	0.0020		mg/L	1	6/25/2015 2:14:15 PM	R27081
Beryllium	0.0013	0.00031	0.0020	J	mg/L	1	6/25/2015 2:14:15 PM	R27081
Boron	0.022	0.016	0.040	J	mg/L	1	6/25/2015 2:14:15 PM	R27081
Cadmium	ND	0.00097	0.0020		mg/L	1	6/25/2015 2:14:15 PM	R27081
Calcium	31	0.057	1.0		mg/L	1	6/26/2015 3:30:31 PM	R27130
Chromium	ND	0.0018	0.0060		mg/L	1	6/25/2015 2:14:15 PM	R27081
Cobalt	0.0015	0.0013	0.0060	J	mg/L	1	6/25/2015 2:14:15 PM	R27081
Iron	0.30	0.0073	0.020	*	mg/L	1	7/1/2015 7:51:42 AM	R27214
Magnesium	3.1	0.039	1.0		mg/L	1	6/26/2015 3:30:31 PM	R27130
Manganese	0.065	0.00027	0.0020	*	mg/L	1	6/25/2015 2:14:15 PM	R27081
Molybdenum	0.0023	0.0017	0.0080	J	mg/L	1	6/25/2015 2:14:15 PM	R27081
Nickel	ND	0.0021	0.010		mg/L	1	6/25/2015 2:14:15 PM	R27081
Potassium	6.6	0.18	1.0		mg/L	1	6/26/2015 3:30:31 PM	R27130
Silicon	3.8	0.040	0.080		mg/L	1	7/1/2015 7:51:42 AM	R27214
Silver	ND	0.0012	0.0050		mg/L	1	7/1/2015 7:51:42 AM	R27214
Sodium	3.0	0.072	1.0		mg/L	1	6/26/2015 3:30:31 PM	R27130
Vanadium	0.0063	0.0015	0.050	J	mg/L	1	6/25/2015 2:14:15 PM	R27081
Zinc	0.015	0.0028	0.010		mg/L	1	6/25/2015 2:14:15 PM	R27081
EPA 200.8: DISSOLVED METALS							Analyst: **DBD**	
Antimony	0.00043	0.00014	0.0010	J	mg/L	1	6/19/2015 3:25:17 PM	R26957
Arsenic	0.0011	0.000065	0.0010		mg/L	1	6/19/2015 3:25:17 PM	R26957
Lead	0.00035	0.000026	0.0010	J	mg/L	1	6/19/2015 3:25:17 PM	R26957
Selenium	0.00028	0.00019	0.0010	J	mg/L	1	6/19/2015 3:25:17 PM	R26957
Thallium	0.0000097	0.0000028	0.0010	J	mg/L	1	6/19/2015 3:25:17 PM	R26957
Uranium	0.00020	0.0000048	0.0010	J	mg/L	1	6/19/2015 3:25:17 PM	R26957
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	230	0.010	0.010		µmhos/c	1	6/16/2015 7:21:15 PM	R26890
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.91	0.100	1.68	H	pH units	1	6/16/2015 7:21:15 PM	R26890
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	72.16	0.9399	20.00		mg/L CaC	1	6/16/2015 7:21:15 PM	R26890

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Client Sample ID: SWQ-4
Project: Copper Flat
Collection Date: 6/8/2015 1:30:00 PM
Lab ID: 1506687-003
Matrix: AQUEOUS
Received Date: 6/15/2015 11:45:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **JRR**	
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	6/16/2015 7:21:15 PM	R26890
Total Alkalinity (as CaCO3)	72.16	0.9399	20.00		mg/L CaC	1	6/16/2015 7:21:15 PM	R26890
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	207	14.5	20.0		mg/L	1	6/16/2015 5:04:00 PM	19730
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	87	2.5	4.0		mg/L	1	6/16/2015 9:41:00 AM	19736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NEW MEXICO COPPER Work Order Number: 1506687 RcptNo: 1

Received by/date: KS 06/15/15

Logged By: Celina Sessa 6/15/2015 11:45:00 AM Celina Sessa

Completed By: Celina Sessa 6/15/2015 1:57:07 PM Celina Sessa

Reviewed By: KMS 6/15/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 10 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? —
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.9	Good	Not Present			

15294

Chain-of-Custody Record

Client: New Mexico Copper Corporation

Mailing Address: 2424 Louisiana Blvd NE (Ste 301) ABQ NM 87110

Phone #: 505-400-7925

email or Fax#: kemmer@themacresourcesgroup.com

QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ NELAP ☐ Other ____

☐ EDD (Type) ____

Turn-Around Time: ☒ Standard ☐ Rush ____

Project Name: Copper Flats

Project #:

Project Manager: Katie Emmer

Sampler: Katie Emmer

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1506687	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	list included				Air Bubbles (Y or N)
8-15	1300	H_2O	SWQ-2			-001												X				
8-15	1315	"	SWQ-3			-002												X				
8-15	1330	"	SWQ-4			-003												X				
14-15	1500	"	Pit Water Body			-004												X				
14-15	1530	"	NW Pit Wall Seep			-005												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
15-15	1145	Katie Emmer		6/15/15	1145
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

List for Copper Flat Samples 6-15-15

Analytical Parameters & Analysis Methods for Surface Water

Constituent	Analysis Method (water)	Lab Detection limit (mg/L unless noted)
Anions		
Fluoride	EPA 300.0	0.1
Chloride		0.1
Nitrogen, Nitrate (as N)		0.1
Sulfate		0.5
Dissolved Metals		
Aluminum	EPA 200.7	0.02
Antimony	EPA 200.8	0.005
Arsenic	EPA 200.8	0.02
Barium	EPA 200.7	0.002
Beryllium	EPA 200.7	0.002
Boron	EPA 200.7	0.04
Cadmium	EPA 200.7	0.002
Calcium	EPA 200.7	0.5
Chromium	EPA 200.7	0.006
Cobalt	EPA 200.7	0.006
Iron	EPA 200.7	0.02
Lead	EPA 200.7	0.005
Magnesim	EPA 200.7	0.5
Manganese	EPA 200.7	0.002
~~Mercury~~	~~EPA 7470 CVAA~~	~~0.0002~~
Molybdenum	EPA 200.7	0.008
Nickel	EPA 200.7	0.01
Potassium	EPA 200.7	1
Selenium	~~EPA 200.8~~	~~0.02~~
Silicon	EPA 200.7	0.08
Silver	EPA 200.7	0.005
Sodium	EPA 200.7	0.5
Thallium	EPA 200.7	0.01
Uranium	EPA 200.8	0.01
Vanadium	EPA 200.7	0.005
Zinc	EPA 200.7	0.005
Solids		
Total Suspended Solids (TSS)	SM 2540D	1.0 µg/L
Total Dissolved Solids (TDS)	SM 2540C	10
Alkalinity		
Alkalinity, total (as CaCO3)	SM 2320B	20
Carbonate	SM 2320B	20
Bicarbonate	SM 2320B	20
Other		
pH	150.1	12.45
Specific Conductance	120.1	0.01 µS/cm

Note hold time on samples SWQ-2, SWQ-3, SWQ-4

Don't report Hg

Need 0.001 mg/L DL

Call Katie Emmer w/ any questions
400-7925

Copper Flat Opportunistic Surface Water Sampling Results

Sample Analyses for: July 21, 2015

Samples Collected:

SWQ-1	X
SWQ-2	
SWQ-3	
SWQ-4	X

Analytical Report
Lab Order **1507B22**
Date Reported: **8/4/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1507B22-001 **Matrix:**

Client Sample ID: SWQ-1
Collection Date: 7/21/2015 7:30:00 PM
Received Date: 7/23/2015 9:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Antimony	ND	0.0010		mg/L	1	7/28/2015 4:51:04 PM	R27808
Arsenic	0.0013	0.0010		mg/L	1	7/28/2015 4:51:04 PM	R27808
Lead	0.028	0.0025	*	mg/L	5	7/29/2015 1:07:35 PM	R27849
Selenium	ND	0.0010		mg/L	1	7/28/2015 4:51:04 PM	R27808
Thallium	ND	0.00050		mg/L	1	7/28/2015 4:51:04 PM	R27808
Uranium	0.00057	0.00050		mg/L	1	7/28/2015 4:51:04 PM	R27808
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	ND	0.50		mg/L	5	7/24/2015 8:40:28 PM	R27772
Chloride	3.8	2.5		mg/L	5	7/24/2015 8:40:28 PM	R27772
Sulfate	5.7	2.5		mg/L	5	7/24/2015 8:40:28 PM	R27772
Nitrate+Nitrite as N	ND	1.0		mg/L	5	7/24/2015 9:30:06 PM	R27772
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	120	0.010		µmhos/cm	1	7/24/2015 3:55:54 PM	R27797
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	44.24	20.00		mg/L CaCO3	1	7/24/2015 3:55:54 PM	R27797
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	7/24/2015 3:55:54 PM	R27797
Total Alkalinity (as CaCO3)	44.24	20.00		mg/L CaCO3	1	7/24/2015 3:55:54 PM	R27797
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	800	200	*	mg/L	1	7/28/2015 2:02:00 PM	20461
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.25	1.68	H	pH units	1	7/24/2015 3:55:54 PM	R27797
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	930	40		mg/L	1	7/29/2015 2:08:00 PM	20474
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	7.6	0.20	*	mg/L	10	7/31/2015 1:06:32 PM	R27875
Barium	0.34	0.0020		mg/L	1	8/3/2015 1:46:53 PM	R27918
Beryllium	ND	0.0020		mg/L	1	8/3/2015 1:46:53 PM	R27918
Boron	ND	0.040		mg/L	1	8/3/2015 1:46:53 PM	R27918
Cadmium	ND	0.0020		mg/L	1	8/3/2015 1:46:53 PM	R27918
Calcium	23	1.0		mg/L	1	8/3/2015 1:46:53 PM	R27918
Chromium	ND	0.0060		mg/L	1	8/3/2015 1:46:53 PM	R27918
Cobalt	0.016	0.0060		mg/L	1	8/3/2015 1:46:53 PM	R27918
Iron	7.2	0.20	*	mg/L	10	7/31/2015 1:06:32 PM	R27875
Magnesium	9.3	1.0		mg/L	1	8/3/2015 1:46:53 PM	R27918
Manganese	2.1	0.010	*	mg/L	5	7/31/2015 1:05:00 PM	R27875
Molybdenum	ND	0.0080		mg/L	1	8/3/2015 1:46:53 PM	R27918

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1507B22-001 **Matrix:**

Client Sample ID: SWQ-1
Collection Date: 7/21/2015 7:30:00 PM
Received Date: 7/23/2015 9:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Nickel	ND	0.010		mg/L	1	8/3/2015 1:46:53 PM	R27918
Potassium	6.6	1.0		mg/L	1	8/3/2015 1:46:53 PM	R27918
Silicon	16	0.40		mg/L	5	7/31/2015 1:05:00 PM	R27875
Silver	ND	0.0050		mg/L	1	8/3/2015 1:46:53 PM	R27918
Sodium	3.3	1.0		mg/L	1	8/3/2015 1:46:53 PM	R27918
Vanadium	ND	0.050		mg/L	1	8/3/2015 1:46:53 PM	R27918
Zinc	0.086	0.010		mg/L	1	8/3/2015 1:46:53 PM	R27918
EPA METHOD 245.1: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	7/29/2015 9:36:00 AM	20483

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1507B22-002 **Matrix:**

Client Sample ID: SWQ-4
Collection Date: 7/21/2015 8:00:00 PM
Received Date: 7/23/2015 9:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Antimony	ND	0.0010		mg/L	1	7/28/2015 5:01:09 PM	R27808
Arsenic	0.0012	0.0010		mg/L	1	7/28/2015 5:01:09 PM	R27808
Lead	0.0014	0.00050		mg/L	1	7/28/2015 5:01:09 PM	R27808
Selenium	ND	0.0010		mg/L	1	7/28/2015 5:01:09 PM	R27808
Thallium	ND	0.00050		mg/L	1	7/28/2015 5:01:09 PM	R27808
Uranium	ND	0.00050		mg/L	1	7/28/2015 5:01:09 PM	R27808
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	ND	0.50		mg/L	5	7/24/2015 9:05:17 PM	R27772
Chloride	5.0	2.5		mg/L	5	7/24/2015 9:05:17 PM	R27772
Sulfate	32	2.5		mg/L	5	7/24/2015 9:05:17 PM	R27772
Nitrate+Nitrite as N	5.2	1.0		mg/L	5	7/24/2015 9:42:31 PM	R27772
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	250	0.010		µmhos/cm	1	7/24/2015 4:03:11 PM	R27797
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	45.48	20.00		mg/L CaCO3	1	7/24/2015 4:03:11 PM	R27797
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	7/24/2015 4:03:11 PM	R27797
Total Alkalinity (as CaCO3)	45.48	20.00		mg/L CaCO3	1	7/24/2015 4:03:11 PM	R27797
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	480	200		mg/L	1	7/28/2015 2:02:00 PM	20461
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.42	1.68	H	pH units	1	7/24/2015 4:03:11 PM	R27797
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	780	20		mg/L	1	7/29/2015 2:08:00 PM	20474
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	0.82	0.020	*	mg/L	1	8/3/2015 1:48:41 PM	R27918
Barium	0.043	0.0020		mg/L	1	8/3/2015 1:48:41 PM	R27918
Beryllium	ND	0.0020		mg/L	1	8/3/2015 1:48:41 PM	R27918
Boron	ND	0.040		mg/L	1	8/3/2015 1:48:41 PM	R27918
Cadmium	ND	0.0020		mg/L	1	8/3/2015 1:48:41 PM	R27918
Calcium	30	1.0		mg/L	1	8/3/2015 1:48:41 PM	R27918
Chromium	ND	0.0060		mg/L	1	8/3/2015 1:48:41 PM	R27918
Cobalt	ND	0.0060		mg/L	1	8/3/2015 1:48:41 PM	R27918
Iron	0.80	0.020	*	mg/L	1	8/3/2015 1:48:41 PM	R27918
Magnesium	4.2	1.0		mg/L	1	8/3/2015 1:48:41 PM	R27918
Manganese	0.098	0.0020	*	mg/L	1	8/3/2015 1:48:41 PM	R27918
Molybdenum	ND	0.0080		mg/L	1	8/3/2015 1:48:41 PM	R27918

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1507B22-002 **Matrix:**

Client Sample ID: SWQ-4
Collection Date: 7/21/2015 8:00:00 PM
Received Date: 7/23/2015 9:06:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Nickel	ND	0.010		mg/L	1	8/3/2015 1:48:41 PM	R27918
Potassium	6.9	1.0		mg/L	1	8/3/2015 1:48:41 PM	R27918
Silicon	4.8	0.080		mg/L	1	8/3/2015 1:48:41 PM	R27918
Silver	ND	0.0050		mg/L	1	8/3/2015 1:48:41 PM	R27918
Sodium	7.0	1.0		mg/L	1	8/3/2015 1:48:41 PM	R27918
Vanadium	ND	0.050		mg/L	1	8/3/2015 1:48:41 PM	R27918
Zinc	ND	0.010		mg/L	1	8/3/2015 1:48:41 PM	R27918
EPA METHOD 245.1: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	7/29/2015 9:42:20 AM	20483

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NEW MEXICO COPPER Work Order Number: 1507B22 RcptNo: 1

Received by/date: A.T. 07/23/15

Logged By: Ashley Gallegos 7/23/2015 9:06:00 AM

Completed By: Ashley Gallegos 7/23/2015 5:01:15 PM

Reviewed By: CS 07/24/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: AG

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.7	Good	Not Present			

15302

Chain-of-Custody Record

Client: New Mexico Copper Corp

Mailing Address: 2424 Louisiana Blvd Ste 300, ABQ

Phone #: 505.400.7925

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Copper Flat

Project #:

Project Manager: Katie Ermer

Sampler: KE

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	see list				Air Bubbles (Y or N)
~~7.21.15~~	~~1930~~	~~H~~				1507B22																
7.21.15	1930	H_2O	SWQ-1	several	H_2SO_4 HNO_3	-001												X				
~	2000	~	SWQ-4	~	~	-002												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
7.23	906	Katie Ermer		07/23/15	0906
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

15303

Analytical Parameters & Analysis Methods for Surface Water

Constituent	Analysis Method (water)	Lab Detection limit (mg/L unless noted)
Anions		
Fluoride	EPA 300.0	0.1
Chloride		0.1
Nitrogen, Nitrate (as N)		0.1
Sulfate		0.5
Dissolved Metals		
Aluminum	EPA 200.7	0.02
Antimony	EPA 200.8	0.005
Arsenic	EPA 200.8	0.02
Barium	EPA 200.7	0.002
Beryllium	EPA 200.7	0.002
Boron	EPA 200.7	0.04
Cadmium	EPA 200.7	0.002
Calcium	EPA 200.7	0.5
Chromium	EPA 200.7	0.006
Cobalt	EPA 200.7	0.006
Iron	EPA 200.7	0.02
Lead	EPA 200.7	0.005
Magnesim	EPA 200.7	0.5
Manganese	EPA 200.7	0.002
Mercury	EPA 7470 CVAA	0.0002
Molybdenum	EPA 200.7	0.008
Nickel	EPA 200.7	0.01
Potassium	EPA 200.7	1
Selenium	EPA 200.8	0.02
Silicon	EPA 200.7	0.08
Silver	EPA 200.7	0.005
Sodium	EPA 200.7	0.5
Thallium	EPA 200.7	0.01
Uranium	EPA 200.8	0.01
Vanadium	EPA 200.7	0.005
Zinc	EPA 200.7	0.005
Solids		
Total Suspended Solids (TSS)	SM 2540D	1.0 µg/L
Total Dissolved Solids (TDS)	SM 2540C	10
Alkalinity		
Alkalinity, total (as CaCO3)	SM 2320B	20
Carbonate	SM 2320B	20
Bicarbonate	SM 2320B	20
Other		
pH	150.1	12.45
Specific Conductance	120.1	0.01 µS/cm

Copper Flat Opportunistic Surface Water Sampling Results

Sample Analyses for: October 6, 2015

Samples Collected:

SWQ-1	X
SWQ-2	X
SWQ-3	X
SWQ-4	

Analytical Report
Lab Order **1510751**
Date Reported: **11/3/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1510751-001 **Matrix:** AQUEOUS

Client Sample ID: SWQ-1
Collection Date: 10/6/2015 10:20:00 AM
Received Date: 10/14/2015 3:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	ND	0.16	0.50		mg/L	5	10/16/2015 2:07:36 AM	A29597
Chloride	3.4	1.7	2.5		mg/L	5	10/16/2015 2:07:36 AM	A29597
Sulfate	30	1.6	2.5		mg/L	5	10/16/2015 2:07:36 AM	A29597
Nitrate+Nitrite as N	3.0	0.30	1.0		mg/L	5	10/16/2015 3:46:54 AM	A29597
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **ELS**	
Aluminum	1.2	0.017	0.10	*	mg/L	5	10/16/2015 8:18:13 PM	C29618
Barium	0.037	0.00095	0.0020		mg/L	1	10/16/2015 8:16:20 PM	C29618
Beryllium	ND	0.00031	0.0020		mg/L	1	10/16/2015 8:16:20 PM	C29618
Boron	0.020	0.016	0.040	J	mg/L	1	10/19/2015 3:45:37 PM	B29632
Cadmium	ND	0.00097	0.0020		mg/L	1	10/16/2015 8:16:20 PM	C29618
Calcium	17	0.057	1.0		mg/L	1	10/16/2015 8:16:20 PM	C29618
Chromium	ND	0.0018	0.0060		mg/L	1	10/16/2015 8:16:20 PM	C29618
Cobalt	0.0014	0.0013	0.0060	J	mg/L	1	10/16/2015 8:16:20 PM	C29618
Iron	0.68	0.0073	0.020	*	mg/L	1	10/16/2015 8:16:20 PM	C29618
Magnesium	3.6	0.039	1.0		mg/L	1	10/16/2015 8:16:20 PM	C29618
Manganese	0.22	0.00027	0.0020	*	mg/L	1	10/16/2015 8:16:20 PM	C29618
Molybdenum	0.0030	0.0017	0.0080	J	mg/L	1	10/16/2015 8:16:20 PM	C29618
Nickel	ND	0.0021	0.010		mg/L	1	10/16/2015 8:16:20 PM	C29618
Potassium	7.6	0.18	1.0		mg/L	1	10/16/2015 8:16:20 PM	C29618
Silicon	3.4	0.040	0.080		mg/L	1	10/16/2015 8:16:20 PM	C29618
Silver	ND	0.0012	0.0050		mg/L	1	10/19/2015 3:45:37 PM	B29632
Sodium	1.6	0.072	1.0		mg/L	1	10/16/2015 8:16:20 PM	C29618
Vanadium	0.0060	0.0015	0.050	J	mg/L	1	10/16/2015 8:16:20 PM	C29618
Zinc	0.021	0.0028	0.010		mg/L	1	10/19/2015 3:45:37 PM	B29632
EPA 200.8: DISSOLVED METALS							Analyst: **DBD**	
Antimony	ND	0.00014	0.0010		mg/L	1	10/20/2015 5:26:31 PM	B29683
Arsenic	0.00054	0.000065	0.0010	J	mg/L	1	10/20/2015 5:26:31 PM	B29683
Lead	0.0023	0.000026	0.00050		mg/L	1	10/20/2015 5:26:31 PM	B29683
Selenium	0.00034	0.00019	0.0010	J	mg/L	1	10/20/2015 5:26:31 PM	B29683
Thallium	0.000044	0.0000028	0.00050	J	mg/L	1	10/20/2015 5:26:31 PM	B29683
Uranium	0.00066	0.0000048	0.00050		mg/L	1	10/20/2015 5:26:31 PM	B29683
EPA METHOD 245.1: MERCURY							Analyst: **JLF**	
Mercury	ND	0.000059	0.00020		mg/L	1	10/21/2015 9:32:48 AM	21934
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	170	0.010	0.010		µmhos/c	1	10/17/2015 3:52:59 AM	R29625
SM4500-H+B: PH							Analyst: **JRR**	
pH	6.85	0.100	1.68	H	pH units	1	10/17/2015 3:52:59 AM	R29625

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Client Sample ID: SWQ-1
Project: Copper Flat
Collection Date: 10/6/2015 10:20:00 AM
Lab ID: 1510751-001
Matrix: AQUEOUS
Received Date: 10/14/2015 3:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	15.64	0.9399	20.00	J	mg/L CaC	1	10/17/2015 3:52:59 AM	R29625
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	10/17/2015 3:52:59 AM	R29625
Total Alkalinity (as CaCO3)	15.64	0.9399	20.00	J	mg/L CaC	1	10/17/2015 3:52:59 AM	R29625
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	205	72.4	100	HD	mg/L	1	10/19/2015 12:49:00 PM	21886
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	270	4.9	8.0	HD	mg/L	1	10/20/2015 8:31:00 AM	21911

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Client Sample ID: SWQ-2
Project: Copper Flat
Collection Date: 10/6/2015 10:00:00 AM
Lab ID: 1510751-002
Matrix: AQUEOUS
Received Date: 10/14/2015 3:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	ND	0.16	0.50		mg/L	5	10/16/2015 2:32:26 AM	A29597
Chloride	2.0	1.7	2.5	J	mg/L	5	10/16/2015 2:32:26 AM	A29597
Sulfate	49	1.6	2.5		mg/L	5	10/16/2015 2:32:26 AM	A29597
Nitrate+Nitrite as N	0.78	0.30	1.0	J	mg/L	5	10/16/2015 3:59:18 AM	A29597
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **ELS**	
Aluminum	1.5	0.017	0.10	*	mg/L	5	10/16/2015 8:29:30 PM	C29618
Barium	0.059	0.00095	0.0020		mg/L	1	10/16/2015 8:20:19 PM	C29618
Beryllium	ND	0.00031	0.0020		mg/L	1	10/16/2015 8:20:19 PM	C29618
Boron	0.019	0.016	0.040	J	mg/L	1	10/19/2015 3:47:30 PM	B29632
Cadmium	ND	0.00097	0.0020		mg/L	1	10/16/2015 8:20:19 PM	C29618
Calcium	21	0.057	1.0		mg/L	1	10/16/2015 8:20:19 PM	C29618
Chromium	ND	0.0018	0.0060		mg/L	1	10/16/2015 8:20:19 PM	C29618
Cobalt	0.0036	0.0013	0.0060	J	mg/L	1	10/16/2015 8:20:19 PM	C29618
Iron	0.93	0.0073	0.020	*	mg/L	1	10/16/2015 8:20:19 PM	C29618
Magnesium	4.9	0.039	1.0		mg/L	1	10/16/2015 8:20:19 PM	C29618
Manganese	0.18	0.00027	0.0020	*	mg/L	1	10/16/2015 8:20:19 PM	C29618
Molybdenum	0.0031	0.0017	0.0080	J	mg/L	1	10/16/2015 8:20:19 PM	C29618
Nickel	ND	0.0021	0.010		mg/L	1	10/16/2015 8:20:19 PM	C29618
Potassium	4.4	0.18	1.0		mg/L	1	10/16/2015 8:20:19 PM	C29618
Silicon	4.1	0.040	0.080		mg/L	1	10/16/2015 8:20:19 PM	C29618
Silver	ND	0.0012	0.0050		mg/L	1	10/19/2015 3:47:30 PM	B29632
Sodium	6.1	0.072	1.0		mg/L	1	10/16/2015 8:20:19 PM	C29618
Vanadium	0.0074	0.0015	0.050	J	mg/L	1	10/16/2015 8:20:19 PM	C29618
Zinc	0.022	0.0028	0.010		mg/L	1	10/19/2015 3:47:30 PM	B29632
EPA 200.8: DISSOLVED METALS							Analyst: **DBD**	
Antimony	ND	0.00014	0.0010		mg/L	1	10/20/2015 5:58:10 PM	D29683
Arsenic	0.00087	0.000065	0.0010	J	mg/L	1	10/20/2015 5:58:10 PM	D29683
Lead	0.0044	0.000026	0.00050		mg/L	1	10/20/2015 5:58:10 PM	D29683
Selenium	0.00064	0.00019	0.0010	J	mg/L	1	10/20/2015 5:58:10 PM	D29683
Thallium	0.00020	0.0000028	0.00050	J	mg/L	1	10/20/2015 5:58:10 PM	D29683
Uranium	0.00029	0.0000048	0.00050	J	mg/L	1	10/20/2015 5:58:10 PM	D29683
EPA METHOD 245.1: MERCURY							Analyst: **JLF**	
Mercury	0.000061	0.000059	0.00020	J	mg/L	1	10/21/2015 9:34:51 AM	21934
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	200	0.010	0.010		µmhos/c	1	10/17/2015 3:59:45 AM	R29625
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.08	0.100	1.68	H	pH units	1	10/17/2015 3:59:45 AM	R29625

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Client Sample ID: SWQ-2
Project: Copper Flat
Collection Date: 10/6/2015 10:00:00 AM
Lab ID: 1510751-002
Matrix: AQUEOUS
Received Date: 10/14/2015 3:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	20.20	0.9399	20.00		mg/L CaC	1	10/17/2015 3:59:45 AM	R29625
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	10/17/2015 3:59:45 AM	R29625
Total Alkalinity (as CaCO3)	20.20	0.9399	20.00		mg/L CaC	1	10/17/2015 3:59:45 AM	R29625
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	200	72.4	100	HD	mg/L	1	10/19/2015 12:49:00 PM	21886
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	500	4.9	8.0	HD	mg/L	1	10/20/2015 8:31:00 AM	21911

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1510751-003 **Matrix:** AQUEOUS

Client Sample ID: SWQ-3
Collection Date: 10/6/2015 9:35:00 AM
Received Date: 10/14/2015 3:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	0.66	0.16	0.50		mg/L	5	10/16/2015 2:57:15 AM	A29597
Chloride	17	1.7	2.5		mg/L	5	10/16/2015 2:57:15 AM	A29597
Sulfate	660	6.4	10		mg/L	20	10/16/2015 3:09:40 AM	A29597
Nitrate+Nitrite as N	1.6	0.30	1.0		mg/L	5	10/16/2015 4:11:42 AM	A29597
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **ELS**	
Aluminum	0.38	0.0034	0.020	*	mg/L	1	10/16/2015 8:31:35 PM	C29618
Barium	0.085	0.00095	0.0020		mg/L	1	10/16/2015 8:31:35 PM	C29618
Beryllium	ND	0.00031	0.0020		mg/L	1	10/16/2015 8:31:35 PM	C29618
Boron	0.045	0.016	0.040		mg/L	1	10/19/2015 3:49:26 PM	B29632
Cadmium	ND	0.00097	0.0020		mg/L	1	10/16/2015 8:31:35 PM	C29618
Calcium	140	0.28	5.0		mg/L	5	10/16/2015 8:33:40 PM	C29618
Chromium	ND	0.0018	0.0060		mg/L	1	10/16/2015 8:31:35 PM	C29618
Cobalt	0.0027	0.0013	0.0060	J	mg/L	1	10/16/2015 8:31:35 PM	C29618
Iron	0.22	0.0073	0.020		mg/L	1	10/16/2015 8:31:35 PM	C29618
Magnesium	36	0.039	1.0		mg/L	1	10/16/2015 8:31:35 PM	C29618
Manganese	0.11	0.00027	0.0020	*	mg/L	1	10/16/2015 8:31:35 PM	C29618
Molybdenum	0.014	0.0017	0.0080		mg/L	1	10/16/2015 8:31:35 PM	C29618
Nickel	0.0022	0.0021	0.010	J	mg/L	1	10/16/2015 8:31:35 PM	C29618
Potassium	5.9	0.18	1.0		mg/L	1	10/16/2015 8:31:35 PM	C29618
Silicon	4.0	0.040	0.080		mg/L	1	10/16/2015 8:31:35 PM	C29618
Silver	ND	0.0012	0.0050		mg/L	1	10/19/2015 3:49:26 PM	B29632
Sodium	120	0.36	5.0		mg/L	5	10/16/2015 8:33:40 PM	C29618
Vanadium	0.0035	0.0015	0.050	J	mg/L	1	10/16/2015 8:31:35 PM	C29618
Zinc	0.025	0.0028	0.010		mg/L	1	10/19/2015 3:49:26 PM	B29632
EPA 200.8: DISSOLVED METALS							Analyst: **DBD**	
Antimony	ND	0.00014	0.0010		mg/L	1	10/20/2015 6:03:18 PM	D29683
Arsenic	0.0015	0.00013	0.0020	J	mg/L	2	10/21/2015 12:58:42 PM	B29718
Lead	0.00048	0.000026	0.00050	J	mg/L	1	10/20/2015 6:03:18 PM	D29683
Selenium	0.0073	0.00019	0.0010		mg/L	1	10/20/2015 6:03:18 PM	D29683
Thallium	0.0000097	0.0000028	0.00050	J	mg/L	1	10/20/2015 6:03:18 PM	D29683
Uranium	0.0012	0.0000048	0.00050		mg/L	1	10/20/2015 6:03:18 PM	D29683
EPA METHOD 245.1: MERCURY							Analyst: **JLF**	
Mercury	ND	0.000059	0.00020		mg/L	1	10/21/2015 9:36:55 AM	21934
SM2510B: SPECIFIC CONDUCTANCE							Analyst: **JRR**	
Conductivity	1400	0.010	0.010		µmhos/c	1	10/17/2015 4:06:42 AM	R29625
SM4500-H+B: PH							Analyst: **JRR**	
pH	7.68	0.100	1.68	H	pH units	1	10/17/2015 4:06:42 AM	R29625

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Client Sample ID: SWQ-3
Project: Copper Flat
Collection Date: 10/6/2015 9:35:00 AM
Lab ID: 1510751-003
Matrix: AQUEOUS
Received Date: 10/14/2015 3:20:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
SM2320B: ALKALINITY							Analyst: **JRR**	
Bicarbonate (As CaCO3)	50.56	0.9399	20.00		mg/L CaC	1	10/17/2015 4:06:42 AM	R29625
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	10/17/2015 4:06:42 AM	R29625
Total Alkalinity (as CaCO3)	50.56	0.9399	20.00		mg/L CaC	1	10/17/2015 4:06:42 AM	R29625
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: **KS**	
Total Dissolved Solids	1080	72.4	100	*HD	mg/L	1	10/19/2015 12:49:00 PM	21886
SM 2540D: TSS							Analyst: **KS**	
Suspended Solids	340	4.9	8.0	HD	mg/L	1	10/20/2015 8:31:00 AM	21911

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NEW MEXICO COPPER Work Order Number: 1510751 RcptNo: 1

Received by/date: 10/14/15

Logged By: Lindsay Mangin 10/14/2015 3:20:00 PM

Completed By: Lindsay Mangin 10/15/2015 11:59:59 AM

Reviewed By: MJ 10/15/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 9 (<2 or >12 unless noted)

Adjusted? No

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Not Present			

Chain-of-Custody Record

Client: New Mexico Copper Corp.

Mailing Address: 4253 Montgomery Ste 130 ABQ

Phone #: 505.400.7925

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name: Copper Flat

Project #:

Project Manager: Katie Ermer

Sampler: KE

On Ice: ☐ Yes ☐ No

Sample Temperature: 2.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510751
10-6-15	1020	H_2O	SWQ-1	VARIOUS		-001
10-6-15	1000	"	SWQ-2	1		-002
10-6-15	935	"	SWQ-3	1		-003

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Enclosed list				Air Bubbles (Y or N)
											X				
											X				
											X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
10.14.15	13:20	Katie Ermer		10/14/15	1520
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

15313

Analytical Parameters & Analysis Methods for Surface Water

Constituent	Analysis Method (water)	Lab Detection limit (mg/L unless noted)
Anions		
Fluoride	EPA 300.0	0.1
Chloride		0.1
Nitrogen, Nitrate (as N)		0.1
Sulfate		0.5
Dissolved Metals		
Aluminum	EPA 200.7	0.02
Antimony	EPA 200.8	0.005
Arsenic	EPA 200.8	0.02
Barium	EPA 200.7	0.002
Beryllium	EPA 200.7	0.002
Boron	EPA 200.7	0.04
Cadmium	EPA 200.7	0.002
Calcium	EPA 200.7	0.5
Chromium	EPA 200.7	0.006
Cobalt	EPA 200.7	0.006
Iron	EPA 200.7	0.02
Lead	EPA 200.7	0.005
Magnesim	EPA 200.7	0.5
Manganese	EPA 200.7	0.002
Mercury	EPA 7470 CVAA	0.0002
Molybdenum	EPA 200.7	0.008
Nickel	EPA 200.7	0.01
Potassium	EPA 200.7	1
Selenium	EPA 200.8	0.02
Silicon	EPA 200.7	0.08
Silver	EPA 200.7	0.005
Sodium	EPA 200.7	0.5
Thallium	EPA 200.7	0.01
Uranium	EPA 200.8	0.01
Vanadium	EPA 200.7	0.005
Zinc	EPA 200.7	0.005
Solids		
Total Suspended Solids (TSS)	SM 2540D	1.0 µg/L
Total Dissolved Solids (TDS)	SM 2540C	10
Alkalinity		
Alkalinity, total (as CaCO3)	SM 2320B	20
Carbonate	SM 2320B	20
Bicarbonate	SM 2320B	20
Other		
pH	150.1	12.45
Specific Conductance	120.1	0.01 µS/cm

important

0.001 mg/L

Copper Flat Opportunistic Surface Water Sampling Results

Sample Analyses for: October 30, 2015

Samples Collected:

SWQ-1	
SWQ-2	
SWQ-3	
SWQ-4	X

Analytical Report
Lab Order **1511232**
Date Reported: **12/1/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1511232-001 **Matrix:** AQUEOUS

Client Sample ID: SWQ-4
Collection Date: 10/30/2015 2:00:00 PM
Received Date: 11/5/2015 11:52:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Antimony	ND	0.0010		mg/L	1	11/16/2015 3:46:20 PM	B30266
Arsenic	ND	0.0010		mg/L	1	11/16/2015 3:46:20 PM	B30266
Lead	0.0037	0.00050		mg/L	1	11/16/2015 3:46:20 PM	B30266
Selenium	ND	0.0010		mg/L	1	11/18/2015 3:27:37 PM	B30317
Thallium	ND	0.00050		mg/L	1	11/16/2015 3:46:20 PM	B30266
Uranium	ND	0.00050		mg/L	1	11/16/2015 3:46:20 PM	B30266
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	ND	0.50		mg/L	5	11/5/2015 10:13:54 PM	R30046
Chloride	2.8	2.5		mg/L	5	11/5/2015 10:13:54 PM	R30046
Sulfate	4.2	2.5		mg/L	5	11/5/2015 10:13:54 PM	R30046
Nitrate+Nitrite as N	ND	1.0		mg/L	5	11/6/2015 1:21:16 AM	R30052
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **MRA**	
Conductivity	130	0.010		µmhos/cm	1	11/9/2015 6:20:12 PM	R30131
SM2320B: ALKALINITY						Analyst: **MRA**	
Bicarbonate (As CaCO3)	42.76	20.00		mg/L CaCO3	1	11/9/2015 6:20:12 PM	R30131
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	11/9/2015 6:20:12 PM	R30131
Total Alkalinity (as CaCO3)	42.76	20.00		mg/L CaCO3	1	11/9/2015 6:20:12 PM	R30131
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	164	20.0		mg/L	1	11/7/2015 8:59:00 PM	22218
SM4500-H+B: PH						Analyst: **MRA**	
pH	7.41	1.68	H	pH units	1	11/9/2015 6:20:12 PM	R30131
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	280	4.0		mg/L	1	11/6/2015 7:03:00 PM	22217
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	1.4	0.20	*	mg/L	10	11/11/2015 1:44:32 PM	A30158
Barium	0.057	0.0020		mg/L	1	11/9/2015 1:33:36 PM	A30106
Beryllium	ND	0.0020		mg/L	1	11/9/2015 1:33:36 PM	A30106
Boron	ND	0.040		mg/L	1	11/9/2015 1:33:36 PM	A30106
Cadmium	ND	0.0020		mg/L	1	11/9/2015 1:33:36 PM	A30106
Calcium	19	1.0		mg/L	1	11/9/2015 1:33:36 PM	A30106
Chromium	ND	0.0060		mg/L	1	11/9/2015 1:33:36 PM	A30106
Cobalt	ND	0.0060		mg/L	1	11/9/2015 1:33:36 PM	A30106
Iron	1.1	0.20	*	mg/L	10	11/11/2015 1:44:32 PM	A30158
Magnesium	3.1	1.0		mg/L	1	11/9/2015 1:33:36 PM	A30106
Manganese	0.21	0.0020	*	mg/L	1	11/9/2015 1:33:36 PM	A30106
Molybdenum	ND	0.0080		mg/L	1	11/9/2015 1:33:36 PM	A30106

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1511232-001
Matrix: AQUEOUS
Client Sample ID: SWQ-4
Collection Date: 10/30/2015 2:00:00 PM
Received Date: 11/5/2015 11:52:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Nickel	ND	0.010		mg/L	1	11/9/2015 1:33:36 PM	A30106
Potassium	5.0	1.0		mg/L	1	11/9/2015 1:33:36 PM	A30106
Silicon	4.6	0.40		mg/L	5	11/11/2015 1:42:32 PM	A30158
Silver	ND	0.0050		mg/L	1	11/9/2015 1:33:36 PM	A30106
Sodium	1.6	1.0		mg/L	1	11/9/2015 1:33:36 PM	A30106
Vanadium	ND	0.050		mg/L	1	11/9/2015 1:33:36 PM	A30106
Zinc	0.021	0.010		mg/L	1	11/9/2015 1:33:36 PM	A30106
EPA METHOD 245.1: MERCURY						Analyst: **DBD**	
Mercury	ND	0.00020		mg/L	1	11/6/2015 4:52:02 PM	22226

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NEW MEXICO COPPER Work Order Number: 1511232 RcptNo: 1

Received by/date: CS 11/05/15

Logged By: Celina Sessa 11/5/2015 11:52:00 AM Celina Sessa

Completed By: Celina Sessa 11/5/2015 12:45:15 PM Celina Sessa

Reviewed By: 11/05/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 6 (2 or >12 unless noted)

Adjusted? NO

Checked by: JA

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Not Present			

15318

Chain-of-Custody Record

Client: NMCC

Mailing Address: 4253 Montgomery Blvd Ste 130

Phone #: 505·400·7925

Email or Fax#:

QA/QC Package: ☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time: ☑ Standard ☐ Rush

Project Name: Copper Flat

Project #:

Project Manager: Katie Gamer

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.1°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1511232	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	See list enclosed				Air Bubbles (Y or N)
Oct	1400	H_2O	SWQ-4	various	various	-001												X				
4	1230	H_2O	Pit	"	"	-002												X				

Date: Nov Time: 1152 Relinquished by: Katie Gamer Received by: Celina Sanchez Date: 11/05/15 Time: 1152

Date: Time: Relinquished by: Received by: Date: Time:

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

15319

Analytical Parameters & Analysis Methods for Surface Water

Constituent	Analysis Method (water)	Lab Detection limit (mg/L unless noted)
Anions		
Fluoride	EPA 300.0	0.1
Chloride		0.1
Nitrogen, Nitrate (as N)		0.1
Sulfate		0.5
Dissolved Metals		
Aluminum	EPA 200.7	0.02
Antimony	EPA 200.8	0.005
Arsenic	EPA 200.8	0.02
Barium	EPA 200.7	0.002
Beryllium	EPA 200.7	0.002
Boron	EPA 200.7	0.04
Cadmium	EPA 200.7	0.002
Calcium	EPA 200.7	0.5
Chromium	EPA 200.7	0.006
Cobalt	EPA 200.7	0.006
Iron	EPA 200.7	0.02
Lead	EPA 200.7	0.005
Magnesim	EPA 200.7	0.5
Manganese	EPA 200.7	0.002
Mercury	EPA 7470 CVAA	0.0002
Molybdenum	EPA 200.7	0.008
Nickel	EPA 200.7	0.01
Potassium	EPA 200.7	1
Selenium		
Silicon	EPA 200.7	0.08
Silver	EPA 200.7	0.005
Sodium	EPA 200.7	0.5
Thallium	EPA 200.7	0.01
Uranium	EPA 200.8	0.01
Vanadium	EPA 200.7	0.005
Zinc	EPA 200.7	0.005
Solids		
Total Suspended Solids (TSS)	SM 2540D	1.0 µg/L
Total Dissolved Solids (TDS)	SM 2540C	10
Alkalinity		
Alkalinity, total (as CaCO3)	SM 2320B	20
Carbonate	SM 2320B	20
Bicarbonate	SM 2320B	20
Other		
pH	150.1	12.45
Specific Conductance	120.1	0.01 µS/cm

Please
Keep with COC

Please test SELENIUM with a method that can yield a detection limit of 0.005 mg/L.

Copper Flat Opportunistic Surface Water Sampling Results

Sample Analyses for: August 10, 2016

Samples Collected:

SWQ-1	X
SWQ-2	
SWQ-3	
SWQ-4	X

And August 12, 2016

Samples Collected:

SWQ-1	X
SWQ-2	X
SWQ-3	
SWQ-4	X

Analytical Report
Lab Order **1608A18**
Date Reported: **9/20/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-001
Matrix: AQUEOUS
Client Sample ID: SWQ-1
Collection Date: 8/10/2016 11:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst:	**DBD**
Antimony	ND	0.0010		mg/L	1	8/19/2016 5:17:32 PM	B36637
Arsenic	ND	0.0010		mg/L	1	8/19/2016 5:17:32 PM	B36637
Lead	0.0012	0.00050		mg/L	1	8/19/2016 5:17:32 PM	B36637
Selenium	ND	0.0010		mg/L	1	8/19/2016 5:17:32 PM	B36637
Thallium	ND	0.00050		mg/L	1	8/19/2016 5:17:32 PM	B36637
Uranium	ND	0.00050		mg/L	1	8/19/2016 5:17:32 PM	B36637
EPA METHOD 300.0: ANIONS						Analyst:	**LGT**
Fluoride	ND	0.50		mg/L	5	8/23/2016 12:57:36 AM	A36685
Chloride	4.2	2.5		mg/L	5	8/28/2016 3:18:43 PM	R36824
Sulfate	6.5	2.5		mg/L	5	8/23/2016 12:57:36 AM	A36685
Nitrate+Nitrite as N	4.3	1.0		mg/L	5	8/28/2016 4:33:12 PM	R36824
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	130	1.0		µmhos/cm	1	8/18/2016 1:30:05 PM	R36624
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	25.12	20.00		mg/L CaCO3	1	8/18/2016 1:30:05 PM	R36624
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/18/2016 1:30:05 PM	R36624
Total Alkalinity (as CaCO3)	25.12	20.00		mg/L CaCO3	1	8/18/2016 1:30:05 PM	R36624
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	280	100	D	mg/L	1	8/18/2016 5:18:00 PM	27034
SM4500-H+B: PH						Analyst:	**JRR**
pH	7.21	1.68	H	pH units	1	8/18/2016 1:30:05 PM	R36624
SM 2540D: TSS						Analyst:	**KS**
Suspended Solids	410	20	D	mg/L	1	8/18/2016 11:33:00 AM	27044
EPA METHOD 200.7: DISSOLVED METALS						Analyst:	**ELS**
Aluminum	2.6	0.10	*	mg/L	5	9/13/2016 11:09:34 AM	C37148
Barium	0.031	0.0020		mg/L	1	8/28/2016 6:01:55 PM	A36806
Beryllium	ND	0.0020		mg/L	1	8/28/2016 6:01:55 PM	A36806
Boron	ND	0.040		mg/L	1	8/28/2016 6:01:55 PM	A36806
Cadmium	ND	0.0020		mg/L	1	8/28/2016 6:01:55 PM	A36806
Calcium	16	1.0		mg/L	1	9/6/2016 6:25:10 PM	D37002
Chromium	ND	0.0060		mg/L	1	8/28/2016 6:01:55 PM	A36806
Cobalt	ND	0.0060		mg/L	1	8/28/2016 6:01:55 PM	A36806
Iron	3.2	0.10	*	mg/L	5	9/13/2016 11:09:34 AM	C37148
Magnesium	3.7	1.0		mg/L	1	9/6/2016 6:25:10 PM	D37002
Manganese	0.097	0.0020	*	mg/L	1	8/28/2016 6:01:55 PM	A36806
Molybdenum	ND	0.0080		mg/L	1	8/28/2016 6:01:55 PM	A36806

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-001
Matrix: AQUEOUS
Client Sample ID: SWQ-1
Collection Date: 8/10/2016 11:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Nickel	ND	0.010		mg/L	1	8/28/2016 6:01:55 PM	A36806
Potassium	3.7	1.0		mg/L	1	9/6/2016 6:25:10 PM	D37002
Silicon	9.2	0.40		mg/L	5	8/28/2016 6:13:29 PM	A36806
Silver	ND	0.0050		mg/L	1	8/28/2016 6:01:55 PM	A36806
Sodium	2.7	1.0		mg/L	1	9/6/2016 6:25:10 PM	D37002
Vanadium	ND	0.050		mg/L	1	8/28/2016 6:01:55 PM	A36806
Zinc	0.027	0.010		mg/L	1	8/28/2016 6:01:55 PM	A36806
EPA METHOD 6020: DISSOLVED METALS						Analyst: **DBD**	
Selenium	ND	0.0010		mg/L	1	8/24/2016 1:16:48 PM	A36721

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-002
Matrix: AQUEOUS
Client Sample ID: SWQ-4
Collection Date: 8/10/2016 11:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Antimony	ND	0.0010		mg/L	1	8/19/2016 5:22:41 PM	B36637
Arsenic	ND	0.0010		mg/L	1	8/19/2016 5:22:41 PM	B36637
Lead	0.00054	0.00050		mg/L	1	8/19/2016 5:22:41 PM	B36637
Selenium	ND	0.0010		mg/L	1	8/19/2016 5:22:41 PM	B36637
Thallium	ND	0.00050		mg/L	1	8/19/2016 5:22:41 PM	B36637
Uranium	ND	0.00050		mg/L	1	8/19/2016 5:22:41 PM	B36637
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	ND	0.50		mg/L	5	8/23/2016 1:47:15 AM	A36685
Chloride	ND	2.5		mg/L	5	8/28/2016 3:31:09 PM	R36824
Sulfate	ND	2.5		mg/L	5	8/23/2016 1:47:15 AM	A36685
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/28/2016 4:45:37 PM	R36824
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	120	1.0		µmhos/cm	1	8/18/2016 1:36:52 PM	R36624
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	49.28	20.00		mg/L CaCO3	1	8/18/2016 1:36:52 PM	R36624
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/18/2016 1:36:52 PM	R36624
Total Alkalinity (as CaCO3)	49.28	20.00		mg/L CaCO3	1	8/18/2016 1:36:52 PM	R36624
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	135	100	D	mg/L	1	8/18/2016 5:18:00 PM	27034
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.55	1.68	H	pH units	1	8/18/2016 1:36:52 PM	R36624
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	390	20	D	mg/L	1	8/18/2016 11:33:00 AM	27044
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	0.30	0.020	*	mg/L	1	8/28/2016 6:15:42 PM	A36806
Barium	0.040	0.0020		mg/L	1	8/28/2016 6:15:42 PM	A36806
Beryllium	ND	0.0020		mg/L	1	8/28/2016 6:15:42 PM	A36806
Boron	ND	0.040		mg/L	1	8/28/2016 6:15:42 PM	A36806
Cadmium	ND	0.0020		mg/L	1	8/28/2016 6:15:42 PM	A36806
Calcium	17	1.0		mg/L	1	9/6/2016 6:26:51 PM	D37002
Chromium	ND	0.0060		mg/L	1	8/28/2016 6:15:42 PM	A36806
Cobalt	ND	0.0060		mg/L	1	8/28/2016 6:15:42 PM	A36806
Iron	0.42	0.020	*	mg/L	1	9/6/2016 6:26:51 PM	D37002
Magnesium	2.0	1.0		mg/L	1	9/6/2016 6:26:51 PM	D37002
Manganese	0.068	0.0020	*	mg/L	1	8/28/2016 6:15:42 PM	A36806
Molybdenum	ND	0.0080		mg/L	1	8/28/2016 6:15:42 PM	A36806

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-002
Matrix: AQUEOUS
Client Sample ID: SWQ-4
Collection Date: 8/10/2016 11:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Nickel	ND	0.010		mg/L	1	8/28/2016 6:15:42 PM	A36806
Potassium	5.5	1.0		mg/L	1	9/6/2016 6:26:51 PM	D37002
Silicon	3.3	0.080		mg/L	1	8/28/2016 6:15:42 PM	A36806
Silver	ND	0.0050		mg/L	1	8/28/2016 6:15:42 PM	A36806
Sodium	ND	1.0		mg/L	1	9/6/2016 6:26:51 PM	D37002
Vanadium	ND	0.050		mg/L	1	9/6/2016 6:26:51 PM	D37002
Zinc	0.21	0.010		mg/L	1	8/28/2016 6:15:42 PM	A36806
EPA METHOD 6020: DISSOLVED METALS						Analyst: **DBD**	
Selenium	ND	0.0010		mg/L	1	8/24/2016 1:21:04 PM	A36721

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-003
Matrix: AQUEOUS
Client Sample ID: SWQ-1
Collection Date: 8/12/2016 10:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Antimony	ND	0.0010		mg/L	1	8/19/2016 5:27:49 PM	B36637
Arsenic	ND	0.0010		mg/L	1	8/19/2016 5:27:49 PM	B36637
Lead	0.0012	0.00050		mg/L	1	8/19/2016 5:27:49 PM	B36637
Selenium	ND	0.0010		mg/L	1	8/19/2016 5:27:49 PM	B36637
Thallium	ND	0.00050		mg/L	1	8/19/2016 5:27:49 PM	B36637
Uranium	ND	0.00050		mg/L	1	8/19/2016 5:27:49 PM	B36637
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	ND	0.50		mg/L	5	8/23/2016 2:12:05 AM	A36685
Chloride	ND	2.5		mg/L	5	8/28/2016 3:43:34 PM	R36824
Sulfate	4.5	2.5		mg/L	5	8/23/2016 2:12:05 AM	A36685
Nitrate+Nitrite as N	3.1	1.0		mg/L	5	8/28/2016 4:58:01 PM	R36824
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	140	1.0		µmhos/cm	1	8/18/2016 1:45:01 PM	R36624
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	44.72	20.00		mg/L CaCO3	1	8/18/2016 1:45:01 PM	R36624
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/18/2016 1:45:01 PM	R36624
Total Alkalinity (as CaCO3)	44.72	20.00		mg/L CaCO3	1	8/18/2016 1:45:01 PM	R36624
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	320	100	D	mg/L	1	8/18/2016 5:18:00 PM	27034
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.41	1.68	H	pH units	1	8/18/2016 1:45:01 PM	R36624
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	840	20	D	mg/L	1	8/18/2016 11:33:00 AM	27044
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	2.4	0.10	*	mg/L	5	8/28/2016 6:22:15 PM	A36806
Barium	0.046	0.0020		mg/L	1	8/28/2016 6:20:07 PM	A36806
Beryllium	ND	0.0020		mg/L	1	8/28/2016 6:20:07 PM	A36806
Boron	ND	0.040		mg/L	1	8/28/2016 6:20:07 PM	A36806
Cadmium	ND	0.0020		mg/L	1	8/28/2016 6:20:07 PM	A36806
Calcium	20	1.0		mg/L	1	9/6/2016 6:28:44 PM	D37002
Chromium	ND	0.0060		mg/L	1	8/28/2016 6:20:07 PM	A36806
Cobalt	ND	0.0060		mg/L	1	8/28/2016 6:20:07 PM	A36806
Iron	5.0	0.10	*	mg/L	5	9/6/2016 6:30:29 PM	D37002
Magnesium	4.4	1.0		mg/L	1	9/6/2016 6:28:44 PM	D37002
Manganese	0.098	0.0020	*	mg/L	1	8/28/2016 6:20:07 PM	A36806
Molybdenum	ND	0.0080		mg/L	1	8/28/2016 6:20:07 PM	A36806

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-003
Matrix: AQUEOUS
Client Sample ID: SWQ-1
Collection Date: 8/12/2016 10:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Nickel	ND	0.010		mg/L	1	8/28/2016 6:20:07 PM	A36806
Potassium	3.9	1.0		mg/L	1	9/6/2016 6:28:44 PM	D37002
Silicon	11	0.40		mg/L	5	8/28/2016 6:22:15 PM	A36806
Silver	ND	0.0050		mg/L	1	8/28/2016 6:20:07 PM	A36806
Sodium	2.5	1.0		mg/L	1	9/6/2016 6:28:44 PM	D37002
Vanadium	ND	0.050		mg/L	1	9/6/2016 6:28:44 PM	D37002
Zinc	0.012	0.010		mg/L	1	8/28/2016 6:20:07 PM	A36806
EPA METHOD 6020: DISSOLVED METALS						Analyst: **DBD**	
Selenium	ND	0.0010		mg/L	1	8/24/2016 1:25:20 PM	A36721

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1608A18**
Date Reported: **9/20/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-004
Matrix: AQUEOUS
Client Sample ID: SWQ-2
Collection Date: 8/12/2016 10:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Antimony	ND	0.0010		mg/L	1	8/19/2016 5:32:57 PM	B36637
Arsenic	ND	0.0050		mg/L	5	8/23/2016 11:33:03 PM	B36711
Lead	ND	0.00050		mg/L	1	8/19/2016 5:32:57 PM	B36637
Selenium	0.092	0.0050	*	mg/L	5	8/23/2016 11:33:03 PM	B36711
Thallium	ND	0.00050		mg/L	1	8/19/2016 5:32:57 PM	B36637
Uranium	0.0052	0.00050		mg/L	1	8/19/2016 5:32:57 PM	B36637
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	0.76	0.50		mg/L	5	8/23/2016 2:36:54 AM	A36685
Chloride	22	2.5		mg/L	5	8/28/2016 3:55:58 PM	R36824
Sulfate	1200	25	*	mg/L	50	8/28/2016 4:08:23 PM	R36824
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/28/2016 5:47:39 PM	R36824
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	2300	1.0		µmhos/cm	1	8/18/2016 1:53:01 PM	R36624
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	114.1	20.00		mg/L CaCO3	1	8/18/2016 1:53:01 PM	R36624
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/18/2016 1:53:01 PM	R36624
Total Alkalinity (as CaCO3)	114.1	20.00		mg/L CaCO3	1	8/18/2016 1:53:01 PM	R36624
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	1960	40.0	*D	mg/L	1	8/18/2016 5:18:00 PM	27034
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.73	1.68	H	pH units	1	8/18/2016 1:53:01 PM	R36624
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	61	4.0		mg/L	1	8/18/2016 11:33:00 AM	27044
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	ND	0.020		mg/L	1	8/28/2016 6:24:28 PM	A36806
Barium	0.12	0.0020		mg/L	1	8/28/2016 6:24:28 PM	A36806
Beryllium	ND	0.0020		mg/L	1	8/28/2016 6:24:28 PM	A36806
Boron	0.058	0.040		mg/L	1	8/28/2016 6:24:28 PM	A36806
Cadmium	ND	0.0020		mg/L	1	8/28/2016 6:24:28 PM	A36806
Calcium	330	5.0		mg/L	5	9/6/2016 6:33:58 PM	D37002
Chromium	ND	0.0060		mg/L	1	8/28/2016 6:24:28 PM	A36806
Cobalt	ND	0.0060		mg/L	1	8/28/2016 6:24:28 PM	A36806
Iron	ND	0.020		mg/L	1	9/6/2016 6:32:02 PM	D37002
Magnesium	70	1.0		mg/L	1	9/6/2016 6:32:02 PM	D37002
Manganese	0.092	0.0020	*	mg/L	1	8/28/2016 6:24:28 PM	A36806
Molybdenum	0.019	0.0080		mg/L	1	8/28/2016 6:24:28 PM	A36806

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-004
Matrix: AQUEOUS
Client Sample ID: SWQ-2
Collection Date: 8/12/2016 10:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Nickel	ND	0.010		mg/L	1	8/28/2016 6:24:28 PM	A36806
Potassium	6.5	1.0		mg/L	1	9/6/2016 6:32:02 PM	D37002
Silicon	9.9	0.40		mg/L	5	8/28/2016 6:26:16 PM	A36806
Silver	ND	0.0050		mg/L	1	8/28/2016 6:24:28 PM	A36806
Sodium	180	5.0		mg/L	5	9/6/2016 6:33:58 PM	D37002
Vanadium	ND	0.050		mg/L	1	9/6/2016 6:32:02 PM	D37002
Zinc	0.015	0.010		mg/L	1	8/28/2016 6:24:28 PM	A36806
EPA METHOD 6020: DISSOLVED METALS						Analyst: **DBD**	
Selenium	0.090	0.0010		mg/L	1	8/24/2016 1:29:36 PM	A36721

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-005
Matrix: AQUEOUS
Client Sample ID: SWQ-4
Collection Date: 8/12/2016 10:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Antimony	ND	0.0010		mg/L	1	8/19/2016 5:38:06 PM	B36637
Arsenic	ND	0.0010		mg/L	1	8/19/2016 5:38:06 PM	B36637
Lead	0.00068	0.00050		mg/L	1	8/19/2016 5:38:06 PM	B36637
Selenium	ND	0.0010		mg/L	1	8/19/2016 5:38:06 PM	B36637
Thallium	ND	0.00050		mg/L	1	8/19/2016 5:38:06 PM	B36637
Uranium	ND	0.00050		mg/L	1	8/19/2016 5:38:06 PM	B36637
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	ND	0.50		mg/L	5	8/23/2016 3:01:43 AM	A36685
Chloride	ND	2.5		mg/L	5	8/28/2016 4:20:47 PM	R36824
Sulfate	23	2.5		mg/L	5	8/23/2016 3:01:43 AM	A36685
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/28/2016 6:00:04 PM	R36824
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	150	1.0		µmhos/cm	1	8/18/2016 2:02:20 PM	R36624
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	36.24	20.00		mg/L CaCO3	1	8/18/2016 2:02:20 PM	R36624
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/18/2016 2:02:20 PM	R36624
Total Alkalinity (as CaCO3)	36.24	20.00		mg/L CaCO3	1	8/18/2016 2:02:20 PM	R36624
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	136	40.0	D	mg/L	1	8/18/2016 5:18:00 PM	27034
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.41	1.68	H	pH units	1	8/18/2016 2:02:20 PM	R36624
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	180	8.0	D	mg/L	1	8/18/2016 11:33:00 AM	27044
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	0.49	0.020	*	mg/L	1	8/28/2016 6:28:27 PM	A36806
Barium	0.024	0.0020		mg/L	1	8/28/2016 6:28:27 PM	A36806
Beryllium	ND	0.0020		mg/L	1	8/28/2016 6:28:27 PM	A36806
Boron	ND	0.040		mg/L	1	8/28/2016 6:28:27 PM	A36806
Cadmium	ND	0.0020		mg/L	1	8/28/2016 6:28:27 PM	A36806
Calcium	18	1.0		mg/L	1	9/6/2016 6:43:11 PM	D37002
Chromium	ND	0.0060		mg/L	1	8/28/2016 6:28:27 PM	A36806
Cobalt	ND	0.0060		mg/L	1	8/28/2016 6:28:27 PM	A36806
Iron	0.75	0.020	*	mg/L	1	9/6/2016 6:43:11 PM	D37002
Magnesium	2.6	1.0		mg/L	1	9/6/2016 6:43:11 PM	D37002
Manganese	0.042	0.0020		mg/L	1	8/28/2016 6:28:27 PM	A36806
Molybdenum	ND	0.0080		mg/L	1	8/28/2016 6:28:27 PM	A36806

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: NMCC
Project: Copper Flat
Lab ID: 1608A18-005
Matrix: AQUEOUS
Client Sample ID: SWQ-4
Collection Date: 8/12/2016 10:00:00 PM
Received Date: 8/17/2016 11:20:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Nickel	ND	0.010		mg/L	1	8/28/2016 6:28:27 PM	A36806
Potassium	3.0	1.0		mg/L	1	9/6/2016 6:43:11 PM	D37002
Silicon	3.1	0.080		mg/L	1	8/28/2016 6:28:27 PM	A36806
Silver	ND	0.0050		mg/L	1	8/28/2016 6:28:27 PM	A36806
Sodium	4.9	1.0		mg/L	1	9/6/2016 6:43:11 PM	D37002
Vanadium	ND	0.050		mg/L	1	9/6/2016 6:43:11 PM	D37002
Zinc	0.027	0.010		mg/L	1	8/28/2016 6:28:27 PM	A36806
EPA METHOD 6020: DISSOLVED METALS						Analyst: **DBD**	
Selenium	ND	0.0010		mg/L	1	8/24/2016 1:33:53 PM	A36721

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NMCC Work Order Number: 1608A18 RcptNo: 1

Received by/date: AT 08/17/16

Logged By: Ashley Gallegos 8/17/2016 11:20:00 AM AG

Completed By: Ashley Gallegos 8/17/2016 3:15:30 PM AG

Reviewed By: AG 1a3

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Client		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 10 (<2 or >12 unless noted)

Adjusted? NO

Checked by: AJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.9	Good	Not Present			

15332

Chain-of-Custody Record

Client: NMCC

Mailing Address: 4253 Montgomery Blvd Ste 130 Albuquerque NM 87109

Phone #: 505.400.4925

Email or Fax#:

QA/QC Package: Standard ☐ Level 4 (Full Validation)

Accreditation: NELAP ☐ Other

EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: Copper Flat

Project #:

Project Manager: Katie Emmer

Sampler: Katie Emmer

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1608418
7-16	11:30 pm	H2O	SWQ-1	various	HNO_3 H_2SO_4	-001
7-16	11:00 pm		SWQ-4			-002
12-16	10:00 pm		SWQ-1			-003
2-16	10:00 pm		SWQ-2			-004
2-16	6:00 pm		SWQ-4			-005

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	see list - Note low DL if req.				Air Bubbles (Y or N)
											X				
											X				
											X				
											X				
											X				

Date	Time	Relinquished by	Received by	Date	Time
7-16	11:20	Katie Emmer		08/17/16	11:20

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

15333

Analytical Parameters & Analysis Methods for Surface Water

Constituent	Analysis Method (water)	Lab Detection limit (mg/L unless noted)
Anions		
Fluoride	EPA 300.0	0.1
Chloride		0.1
Nitrogen, Nitrate (as N)		0.1
Sulfate		0.5
Dissolved Metals		
Aluminum	EPA 200.7	0.02
Antimony	EPA 200.8	0.005
Arsenic	EPA 200.8	0.02
Barium	EPA 200.7	0.002
Beryllium	EPA 200.7	0.002
Boron	EPA 200.7	0.04
Cadmium	EPA 200.7	0.002
Calcium	EPA 200.7	0.5
Chromium	EPA 200.7	0.006
Cobalt	EPA 200.7	0.006
Iron	EPA 200.7	0.02
Lead	EPA 200.7	0.005
Magnesim	EPA 200.7	0.5
Manganese	EPA 200.7	0.002
Molybdenum	EPA 200.7	0.008
Nickel	EPA 200.7	0.01
Potassium	EPA 200.7	1
Selenium		
Silicon	EPA 200.7	0.08
Silver	EPA 200.7	0.005
Sodium	EPA 200.7	0.5
Thallium	EPA 200.7	0.01
Uranium	EPA 200.8	0.01
Vanadium	EPA 200.7	0.005
Zinc	EPA 200.7	0.005
Solids		
Total Suspended Solids (TSS)	SM 2540D	1.0 µg/L
Total Dissolved Solids (TDS)	SM 2540C	10
Alkalinity		
Alkalinity, total (as CaCO3)	SM 2320B	20
Carbonate	SM 2320B	20
Bicarbonate	SM 2320B	20
Other		
pH	150.1	12.45
Specific Conductance	120.1	0.01 µS/cm

Please test SELENIUM with a method that can yield a detection limit of 0.005 mg/L.

Copper Flat Opportunistic Surface Water Sampling Results

Sample Analyses for: August 22, 2016

Samples Collected:

SWQ-1	X
SWQ-2	
SWQ-3	
SWQ-4	X

And

August 23, 2016

Samples Collected:

SWQ-1	
SWQ-2	X
SWQ-3	X
SWQ-4	

Analytical Report
Lab Order **1608D98**
Date Reported: **9/23/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1608D98-001 **Matrix:** AQUEOUS

Client Sample ID: SWQ-1
Collection Date: 8/22/2016 4:00:00 PM
Received Date: 8/24/2016 1:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Antimony	ND	0.0010		mg/L	1	8/25/2016 7:02:07 PM	B36777
Arsenic	ND	0.0010		mg/L	1	8/25/2016 7:02:07 PM	B36777
Lead	0.0057	0.00050		mg/L	1	8/25/2016 7:02:07 PM	B36777
Selenium	ND	0.0010		mg/L	1	8/25/2016 7:02:07 PM	B36777
Thallium	ND	0.00050		mg/L	1	8/25/2016 7:02:07 PM	B36777
Uranium	ND	0.00050		mg/L	1	8/25/2016 7:02:07 PM	B36777
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	ND	0.50		mg/L	5	8/25/2016 1:08:48 AM	R36752
Chloride	ND	2.5		mg/L	5	8/25/2016 1:08:48 AM	R36752
Sulfate	2.9	2.5		mg/L	5	8/25/2016 1:08:48 AM	R36752
Nitrate+Nitrite as N	ND	1.0		mg/L	5	9/1/2016 7:23:05 AM	A36930
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	73	1.0		µmhos/cm	1	8/29/2016 5:24:33 PM	R36846
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	28.40	20.00		mg/L CaCO3	1	8/29/2016 5:24:33 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 5:24:33 PM	R36846
Total Alkalinity (as CaCO3)	28.40	20.00		mg/L CaCO3	1	8/29/2016 5:24:33 PM	R36846
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	550	200	*D	mg/L	1	8/28/2016 2:06:00 PM	27174
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.21	1.68	H	pH units	1	8/29/2016 5:24:33 PM	R36846
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	1100	40	D	mg/L	1	8/26/2016 10:30:00 AM	27173
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	7.9	0.20	*	mg/L	10	9/13/2016 11:31:16 AM	C37148
Barium	0.079	0.0020		mg/L	1	9/6/2016 8:04:15 PM	D37002
Beryllium	ND	0.0020		mg/L	1	9/6/2016 8:04:15 PM	D37002
Boron	ND	0.040		mg/L	1	9/6/2016 8:04:15 PM	D37002
Cadmium	ND	0.0020		mg/L	1	9/6/2016 8:04:15 PM	D37002
Calcium	11	1.0		mg/L	1	9/13/2016 11:29:40 AM	C37148
Chromium	ND	0.0060		mg/L	1	9/6/2016 8:04:15 PM	D37002
Cobalt	0.0073	0.0060		mg/L	1	9/6/2016 8:04:15 PM	D37002
Iron	10	0.20	*	mg/L	10	9/13/2016 11:31:16 AM	C37148
Magnesium	5.6	1.0		mg/L	1	9/13/2016 11:29:40 AM	C37148
Manganese	0.39	0.0020	*	mg/L	1	9/6/2016 8:04:15 PM	D37002
Molybdenum	ND	0.0080		mg/L	1	9/6/2016 8:04:15 PM	D37002

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1608D98-001 **Matrix:** AQUEOUS

Client Sample ID: SWQ-1
Collection Date: 8/22/2016 4:00:00 PM
Received Date: 8/24/2016 1:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Nickel	ND	0.010		mg/L	1	9/6/2016 8:04:15 PM	D37002
Potassium	4.7	1.0		mg/L	1	9/13/2016 11:29:40 AM	C37148
Silicon	19	0.80		mg/L	10	9/13/2016 11:31:16 AM	C37148
Silver	ND	0.0050		mg/L	1	9/6/2016 8:04:15 PM	D37002
Sodium	1.4	1.0		mg/L	1	9/13/2016 11:29:40 AM	C37148
Vanadium	ND	0.050		mg/L	1	9/6/2016 8:04:15 PM	D37002
Zinc	0.035	0.010		mg/L	1	9/6/2016 8:04:15 PM	D37002
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	8/31/2016 9:13:45 AM	27259

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1608D98-002
Matrix: AQUEOUS
Client Sample ID: SWQ-2
Collection Date: 8/23/2016 12:00:00 PM
Received Date: 8/24/2016 1:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Antimony	ND	0.0010		mg/L	1	8/25/2016 7:07:15 PM	B36777
Arsenic	ND	0.0050		mg/L	5	8/29/2016 5:34:30 PM	B36861
Lead	ND	0.00050		mg/L	1	8/25/2016 7:07:15 PM	B36777
Selenium	0.011	0.0010		mg/L	1	8/25/2016 7:07:15 PM	B36777
Thallium	ND	0.00050		mg/L	1	8/25/2016 7:07:15 PM	B36777
Uranium	0.0041	0.00050		mg/L	1	8/25/2016 7:07:15 PM	B36777
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	0.82	0.10		mg/L	1	8/25/2016 12:19:11 AM	R36752
Chloride	17	0.50		mg/L	1	8/25/2016 12:19:11 AM	R36752
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/25/2016 12:19:11 AM	R36752
Nitrogen, Nitrate (As N)	2.7	0.10		mg/L	1	8/25/2016 12:19:11 AM	R36752
Sulfate	1100	25		mg/L	50	8/30/2016 8:50:27 PM	A36890
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	2200	1.0		µmhos/cm	1	8/29/2016 5:31:55 PM	R36846
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	161.2	20.00		mg/L CaCO3	1	8/29/2016 5:31:55 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 5:31:55 PM	R36846
Total Alkalinity (as CaCO3)	161.2	20.00		mg/L CaCO3	1	8/29/2016 5:31:55 PM	R36846
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	1850	20.0	*	mg/L	1	8/28/2016 2:06:00 PM	27174
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.98	1.68	H	pH units	1	8/29/2016 5:31:55 PM	R36846
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	17	4.0		mg/L	1	8/26/2016 10:30:00 AM	27173
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	ND	0.020		mg/L	1	9/6/2016 8:07:27 PM	D37002
Barium	0.11	0.0020		mg/L	1	9/6/2016 8:07:27 PM	D37002
Beryllium	ND	0.0020		mg/L	1	9/6/2016 8:07:27 PM	D37002
Boron	0.070	0.040		mg/L	1	9/6/2016 8:07:27 PM	D37002
Cadmium	ND	0.0020		mg/L	1	9/6/2016 8:07:27 PM	D37002
Calcium	270	5.0		mg/L	5	9/13/2016 11:34:49 AM	C37148
Chromium	ND	0.0060		mg/L	1	9/6/2016 8:07:27 PM	D37002
Cobalt	ND	0.0060		mg/L	1	9/6/2016 8:07:27 PM	D37002
Iron	ND	0.020		mg/L	1	9/6/2016 8:07:27 PM	D37002
Magnesium	66	1.0		mg/L	1	9/13/2016 11:32:51 AM	C37148
Manganese	0.12	0.0020	*	mg/L	1	9/6/2016 8:07:27 PM	D37002

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1608D98-002
Matrix: AQUEOUS
Client Sample ID: SWQ-2
Collection Date: 8/23/2016 12:00:00 PM
Received Date: 8/24/2016 1:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Molybdenum	0.013	0.0080		mg/L	1	9/6/2016 8:07:27 PM	D37002
Nickel	ND	0.010		mg/L	1	9/6/2016 8:07:27 PM	D37002
Potassium	6.0	1.0		mg/L	1	9/13/2016 11:32:51 AM	C37148
Silicon	16	0.40		mg/L	5	9/6/2016 8:09:24 PM	D37002
Silver	ND	0.0050		mg/L	1	9/6/2016 8:07:27 PM	D37002
Sodium	160	5.0		mg/L	5	9/13/2016 11:34:49 AM	C37148
Vanadium	ND	0.050		mg/L	1	9/6/2016 8:07:27 PM	D37002
Zinc	0.010	0.010		mg/L	1	9/6/2016 8:07:27 PM	D37002
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	8/31/2016 9:19:53 AM	27259

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1608D98-003 **Matrix:** AQUEOUS

Client Sample ID: SWQ-3
Collection Date: 8/23/2016 1:00:00 PM
Received Date: 8/24/2016 1:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Antimony	ND	0.0010		mg/L	1	8/25/2016 7:12:24 PM	B36777
Arsenic	ND	0.0050		mg/L	5	8/29/2016 5:39:38 PM	B36861
Lead	ND	0.00050		mg/L	1	8/25/2016 7:12:24 PM	B36777
Selenium	0.0086	0.0010		mg/L	1	8/25/2016 7:12:24 PM	B36777
Thallium	ND	0.00050		mg/L	1	8/25/2016 7:12:24 PM	B36777
Uranium	0.011	0.00050		mg/L	1	8/25/2016 7:12:24 PM	B36777
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.6	0.10		mg/L	1	8/25/2016 1:58:27 AM	R36752
Chloride	29	10		mg/L	20	8/25/2016 2:10:52 AM	R36752
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/25/2016 1:58:27 AM	R36752
Nitrogen, Nitrate (As N)	1.2	0.10		mg/L	1	8/25/2016 1:58:27 AM	R36752
Sulfate	1700	25		mg/L	50	8/30/2016 9:02:51 PM	A36890
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3100	1.0		µmhos/cm	1	8/29/2016 5:45:58 PM	R36846
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	237.2	20.00		mg/L CaCO3	1	8/29/2016 5:45:58 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 5:45:58 PM	R36846
Total Alkalinity (as CaCO3)	237.2	20.00		mg/L CaCO3	1	8/29/2016 5:45:58 PM	R36846
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2780	20.0	*	mg/L	1	8/28/2016 2:06:00 PM	27174
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.08	1.68	H	pH units	1	8/29/2016 5:45:58 PM	R36846
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	13	4.0		mg/L	1	8/26/2016 10:30:00 AM	27173
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	ND	0.020		mg/L	1	9/6/2016 8:11:20 PM	D37002
Barium	0.11	0.0020		mg/L	1	9/6/2016 8:11:20 PM	D37002
Beryllium	ND	0.0020		mg/L	1	9/6/2016 8:11:20 PM	D37002
Boron	0.077	0.040		mg/L	1	9/6/2016 8:11:20 PM	D37002
Cadmium	ND	0.0020		mg/L	1	9/6/2016 8:11:20 PM	D37002
Calcium	390	5.0		mg/L	5	9/13/2016 11:38:43 AM	C37148
Chromium	ND	0.0060		mg/L	1	9/6/2016 8:11:20 PM	D37002
Cobalt	ND	0.0060		mg/L	1	9/6/2016 8:11:20 PM	D37002
Iron	0.090	0.020		mg/L	1	9/6/2016 8:11:20 PM	D37002
Magnesium	110	5.0		mg/L	5	9/13/2016 11:38:43 AM	C37148
Manganese	3.1	0.010	*	mg/L	5	9/6/2016 8:13:16 PM	D37002

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1608D98-003
Matrix: AQUEOUS
Client Sample ID: SWQ-3
Collection Date: 8/23/2016 1:00:00 PM
Received Date: 8/24/2016 1:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Molybdenum	0.047	0.0080		mg/L	1	9/6/2016 8:11:20 PM	D37002
Nickel	ND	0.010		mg/L	1	9/6/2016 8:11:20 PM	D37002
Potassium	6.2	1.0		mg/L	1	9/13/2016 11:36:47 AM	C37148
Silicon	15	0.40		mg/L	5	9/6/2016 8:13:16 PM	D37002
Silver	ND	0.0050		mg/L	1	9/6/2016 8:11:20 PM	D37002
Sodium	260	5.0		mg/L	5	9/13/2016 11:38:43 AM	C37148
Vanadium	ND	0.050		mg/L	1	9/6/2016 8:11:20 PM	D37002
Zinc	0.014	0.010		mg/L	1	9/6/2016 8:11:20 PM	D37002
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	8/31/2016 9:21:55 AM	27259

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1608D98-004 **Matrix:** AQUEOUS

Client Sample ID: SWQ-4
Collection Date: 8/22/2016 4:30:00 PM
Received Date: 8/24/2016 1:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Antimony	ND	0.0010		mg/L	1	8/25/2016 7:17:32 PM	B36777
Arsenic	ND	0.0010		mg/L	1	8/25/2016 7:17:32 PM	B36777
Lead	0.0042	0.00050		mg/L	1	8/25/2016 7:17:32 PM	B36777
Selenium	ND	0.0010		mg/L	1	8/25/2016 7:17:32 PM	B36777
Thallium	ND	0.00050		mg/L	1	8/25/2016 7:17:32 PM	B36777
Uranium	ND	0.00050		mg/L	1	8/25/2016 7:17:32 PM	B36777
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	ND	0.50		mg/L	5	8/25/2016 2:23:17 AM	R36752
Chloride	ND	2.5		mg/L	5	8/25/2016 2:23:17 AM	R36752
Sulfate	ND	2.5		mg/L	5	8/25/2016 2:23:17 AM	R36752
Nitrate+Nitrite as N	ND	1.0		mg/L	5	9/1/2016 7:35:29 AM	A36930
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	87	1.0		µmhos/cm	1	8/29/2016 5:58:14 PM	R36846
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	34.92	20.00		mg/L CaCO3	1	8/29/2016 5:58:14 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 5:58:14 PM	R36846
Total Alkalinity (as CaCO3)	34.92	20.00		mg/L CaCO3	1	8/29/2016 5:58:14 PM	R36846
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	280	200	D	mg/L	1	8/28/2016 2:06:00 PM	27174
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.63	1.68	H	pH units	1	8/29/2016 5:58:14 PM	R36846
SM 2540D: TSS						Analyst: **KS**	
Suspended Solids	530	40	D	mg/L	1	8/26/2016 10:30:00 AM	27173
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	2.9	0.10	*	mg/L	5	9/6/2016 8:16:49 PM	D37002
Barium	0.052	0.0020		mg/L	1	9/6/2016 8:15:16 PM	D37002
Beryllium	ND	0.0020		mg/L	1	9/6/2016 8:15:16 PM	D37002
Boron	ND	0.040		mg/L	1	9/6/2016 8:15:16 PM	D37002
Cadmium	ND	0.0020		mg/L	1	9/6/2016 8:15:16 PM	D37002
Calcium	12	1.0		mg/L	1	9/13/2016 11:40:43 AM	C37148
Chromium	ND	0.0060		mg/L	1	9/6/2016 8:15:16 PM	D37002
Cobalt	ND	0.0060		mg/L	1	9/6/2016 8:15:16 PM	D37002
Iron	2.9	0.10	*	mg/L	5	9/6/2016 8:16:49 PM	D37002
Magnesium	2.5	1.0		mg/L	1	9/13/2016 11:40:43 AM	C37148
Manganese	0.28	0.0020	*	mg/L	1	9/6/2016 8:15:16 PM	D37002
Molybdenum	ND	0.0080		mg/L	1	9/6/2016 8:15:16 PM	D37002

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: New Mexico Copper Corp
Project: Copper Flat
Lab ID: 1608D98-004 **Matrix:** AQUEOUS

Client Sample ID: SWQ-4
Collection Date: 8/22/2016 4:30:00 PM
Received Date: 8/24/2016 1:20:00 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Nickel	ND	0.010		mg/L	1	9/6/2016 8:15:16 PM	D37002
Potassium	4.6	1.0		mg/L	1	9/13/2016 11:40:43 AM	C37148
Silicon	7.6	0.40		mg/L	5	9/6/2016 8:16:49 PM	D37002
Silver	ND	0.0050		mg/L	1	9/6/2016 8:15:16 PM	D37002
Sodium	ND	1.0		mg/L	1	9/13/2016 11:40:43 AM	C37148
Vanadium	ND	0.050		mg/L	1	9/6/2016 8:15:16 PM	D37002
Zinc	0.016	0.010		mg/L	1	9/6/2016 8:15:16 PM	D37002
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	8/31/2016 9:23:59 AM	27259

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NEW MEXICO COPPER Work Order Number: 1608D98 RcptNo: 1

Received by/date: JB 08/24/16

Logged By: Ashley Gallegos 8/24/2016 1:20:00 PM AG

Completed By: Ashley Gallegos 8/24/2016 2:28:15 PM AG

Reviewed By: JC 08/24/16

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 12 (<2 or >12 unless noted)
Adjusted? No yes
Checked by: aJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date ____
By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: ____

17. Additional remarks: For metals analysis: added 1mL HNO3 to -003B for acceptable pH.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Yes			

8/24@1555 aJ

15344

Chain-of-Custody Record

Client: New Mexico Copper

Mailing Address: 4253 Montgomery NE Ste 130 Alb NM 87109

Phone #: 505-400-7925

Email or Fax#: kemmer@themacresourcegroup.com

QA/QC Package: Standard ☐ Level 4 (Full Validation)

Accreditation: NELAP ☐ Other

EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: Copper Flat

Project #:

Project Manager: Katie Emmer

Sampler: KE

On Ice: ☐ Yes ☐ No

Sample Temperature: 2.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Full list				Air Bubbles (Y or N)
Aug 16	4pm	H_2O	SWQ-1	various	various	1604D98-001												X				
Aug 16	12pm	H_2O	SWQ-2	"	"	-002												X				
Aug 16	1pm	H_2O	SWQ-3	various	various	-003												X				
Aug 16	4:30pm	H_2O	SWQ-4	"	"	-004												X				

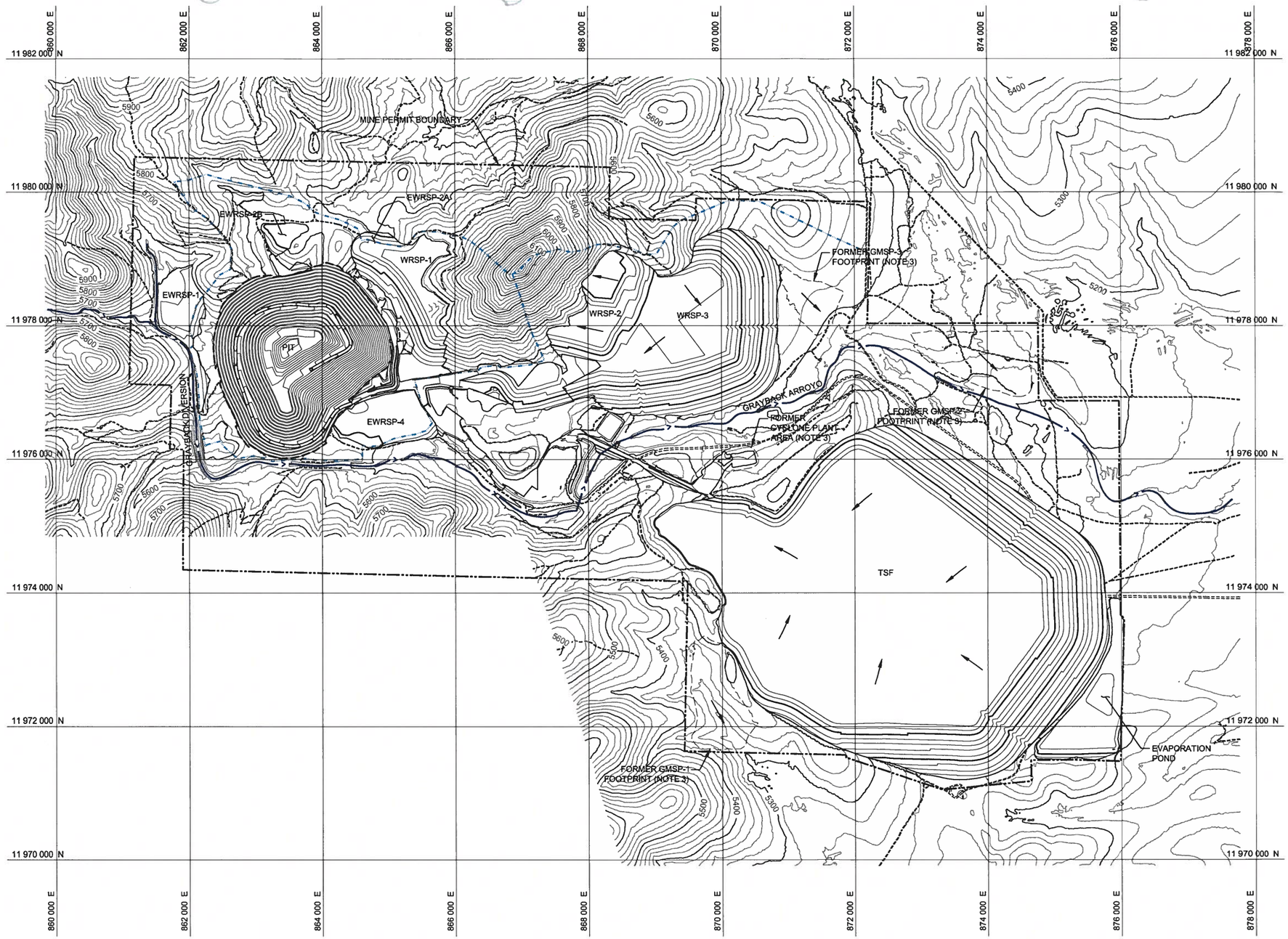
Date	Time	Relinquished by:	Received by:	Date	Time
8/9/16	1320	Katie Emmer			
				8/11/16	130

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Analytical Parameters & Analysis Methods for Surface Water

Constituent	Analysis Method (water)	Lab Detection limit (mg/L unless noted)
Anions		
Fluoride	EPA 300.0	0.1
Chloride		0.1
Nitrogen, Nitrate (as N)		0.1
Sulfate		0.5
Dissolved Metals		
Aluminum	EPA 200.7	0.02
Antimony	EPA 200.8	0.005
Arsenic	EPA 200.8	0.02
Barium	EPA 200.7	0.002
Beryllium	EPA 200.7	0.002
Boron	EPA 200.7	0.04
Cadmium	EPA 200.7	0.002
Calcium	EPA 200.7	0.5
Chromium	EPA 200.7	0.006
Cobalt	EPA 200.7	0.006
Iron	EPA 200.7	0.02
Lead	EPA 200.7	0.005
Magnesim	EPA 200.7	0.5
Manganese	EPA 200.7	0.002
Mercury	EPA 7470 CVAA	0.0002
Molybdenum	EPA 200.7	0.008
Nickel	EPA 200.7	0.01
Potassium	EPA 200.7	1
Selenium	EPA 200.8	0.02
Silicon	EPA 200.7	0.08
Silver	EPA 200.7	0.005
Sodium	EPA 200.7	0.5
Thallium	EPA 200.7	0.01
Uranium	EPA 200.8	0.01
Vanadium	EPA 200.7	0.005
Zinc	EPA 200.7	0.005
Solids		
Total Suspended Solids (TSS)	SM 2540D	1.0 µg/L
Total Dissolved Solids (TDS)	SM 2540C	10
Alkalinity		
Alkalinity, total (as CaCO3)	SM 2320B	20
Carbonate	SM 2320B	20
Bicarbonate	SM 2320B	20
Other		
pH	150.1	12.45
Specific Conductance	120.1	0.01 µS/cm



GENERAL LEGEND

- 5400 — EXISTING GROUND CONTOURS - 20 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 20 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- GRADE INDICATOR
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- TSF — TAILING STORAGE FACILITY
- GMSP — GROWTH MEDIA STOCKPILE

NOTES

1. EXISTING GROUND TOPOGRAPHY WAS DEVELOPED BY COOPER AERIAL SURVEYS BASED ON JUNE 18, 2011 AERIAL SURVEY AND PROVIDED BY THEMAC RESOURCES.
2. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
3. FOOTPRINT OF FORMER GROWTH MEDIA STOCKPILES AND THE CYCLONE PLANT AREA WILL BE GRADED TO APPROXIMATE SURROUNDING TOPOGRAPHY, RIPPED AND REVEGETATED.

RECEIVED
APR 17 2017
Ground Water Quality Bureau

0 800 1600 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-13	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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TUCSON, ARIZONA
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT
FINAL RECLAMATION TOPOGRAPHY

PROJECT NO.	CONTROL	REV.	4 of 25	DRAWING
1531453	0300	D		G-004

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

0 1 in

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15348



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 4)
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- PROPOSED ROAD
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT: DETAIL ID, DRAWING LOCATION
- A / C-017 — SECTION CALLOUT: SECTION ID, DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. EWRSP-4 TOP SURFACE SHALL BE GRADED TO A PROPOSED HAUL ROAD CHANNEL, HC-3, FOR FLOW CONVEYANCE TOWARD THE PIT.
3. EWRSP-4 RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 1% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(2). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT, AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
4. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
5. EXISTING EWRSP-4 FACILITY FOOTPRINT INCLUDES ASSOCIATED DISTURBED AREAS.

0 100 200 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENGY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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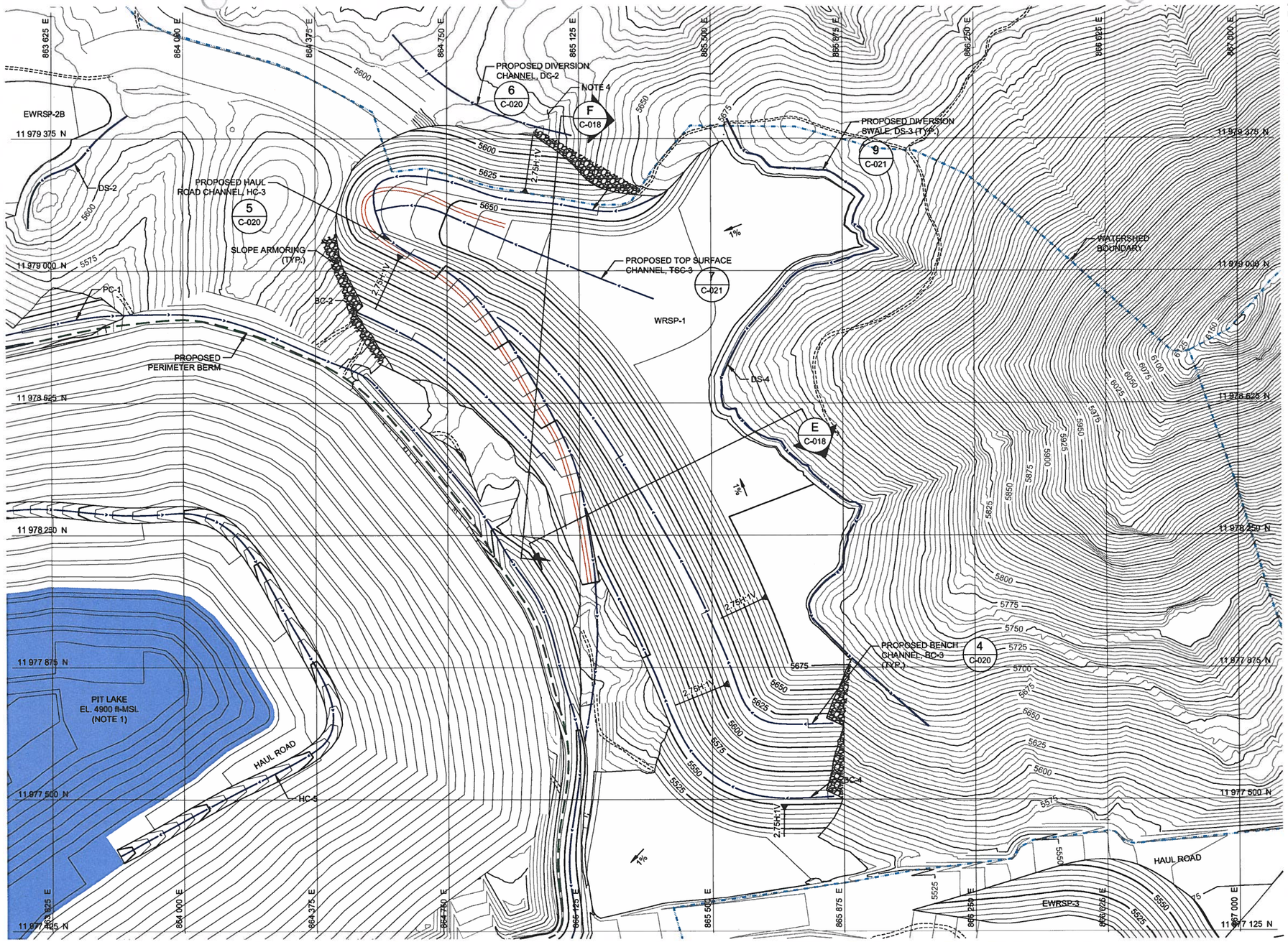
PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
EWRSP-4 REGRADE AND DRAINAGE PLAN

PROJECT NO.	CONTROL	REV.	10 of 25	DRAWING
1531453	0300	D		C-006

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 5)
- RECLAMATION WATERSHED BOUNDARY
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED PERIMETER BERM
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT: DETAIL ID, DRAWING LOCATION
- A / C-017 — SECTION CALLOUT: SECTION ID, DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- TYP. — TYPICAL
- PIT LAKE EL. 4900 ft-MSL (NOTE 1)
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC. PIT LAKE ELEVATION PROVIDED BY NMCC.
2. WRSP-1 TOP SURFACE SHALL BE GRADED TO A HAUL ROAD CHANNEL FOR FLOW CONVEYANCE TOWARD THE PIT.
3. WRSP-1 RECLAMATION DESIGN SHALL UTILIZE 2.75H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 1% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(2). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
4. PLACE FILL MATERIAL TO PROMOTE DRAINAGE AWAY FROM THE RECLAIMED WRSP-1 TOE.
5. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.

0 150 300 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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TUCSON, ARIZONA
UNITED STATES OF AMERICA
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

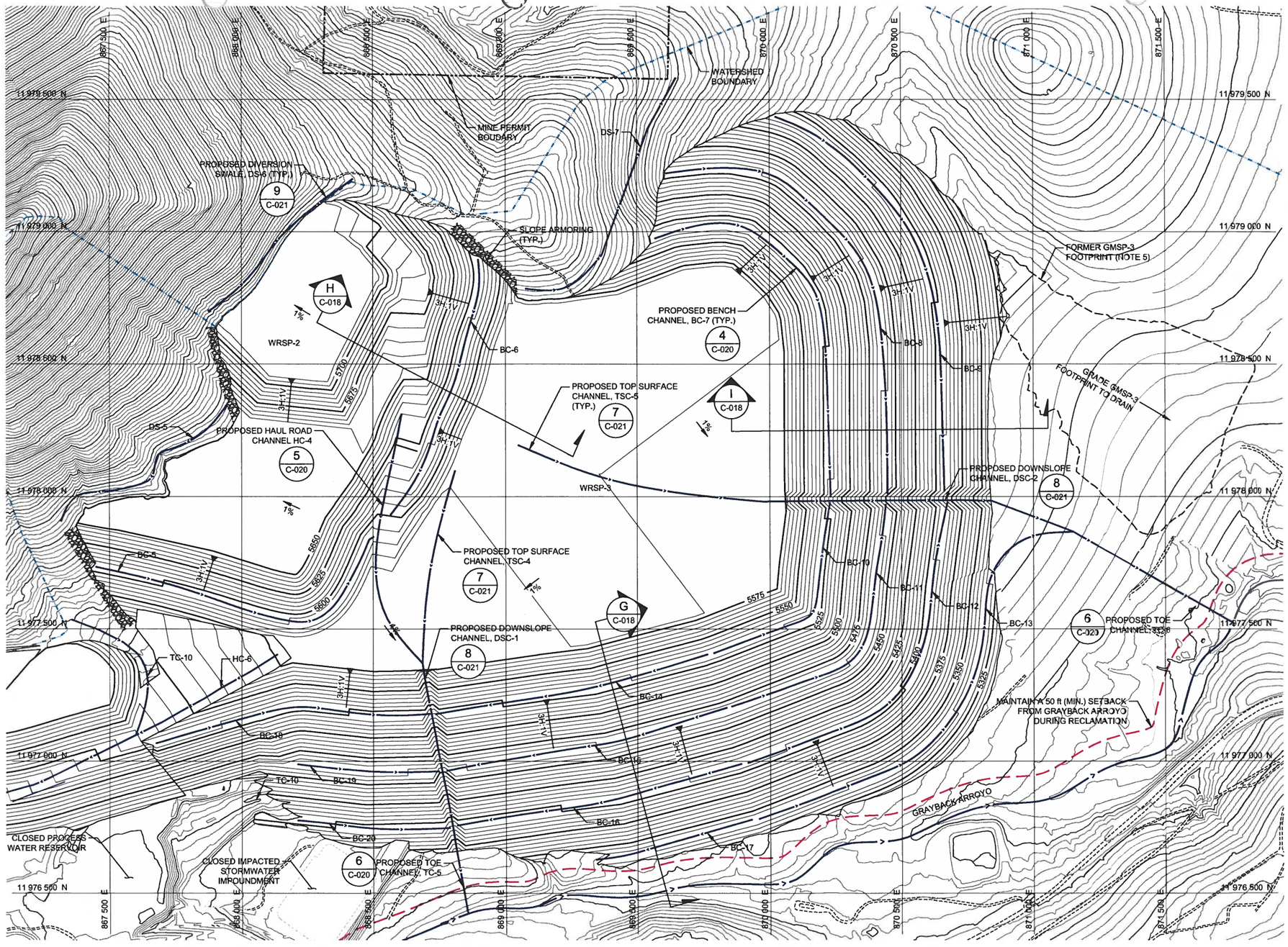
TITLE
WRSP-1 REGRADE AND DRAINAGE PLAN

PROJECT NO.	CONTROL	REV.	12 of 25	DRAWING
1531453	0300	D		C-008

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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15350



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 6)
- MINE PERMIT BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- PROPOSED ROAD
- SETBACK
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT: DETAIL ID, DRAWING LOCATION
- A / C-017 — SECTION CALLOUT: SECTION ID, DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- TYP. — TYPICAL
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. WRSP-2 AND WRSP-3 TOP SURFACE SHALL BE GRADED TOWARD THE SOUTH, WEST AND EAST, AND UTILIZE PLANNED HAUL ROADS WHERE PRACTICAL FOR STORMWATER CONVEYANCE.
3. WRSP-2 AND WRSP-3 RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 1% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(2). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
4. IMPACTED STORMWATER IMPOUNDMENT A AND THE PROCESS WATER RESERVOIR TO BE RECLAIMED AS PART OF THE PLANT AREA RECLAMATION PLAN (SEE DRAWING C-016).
5. FOOTPRINT OF FORMER GROWTH MEDIA STOCKPILE 3 WILL BE GRADED TO APPROXIMATE SURROUNDING TOPOGRAPHY, RIPPED AND REVEGETATED.
6. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
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MINE RECLAMATION AND CLOSURE PLAN

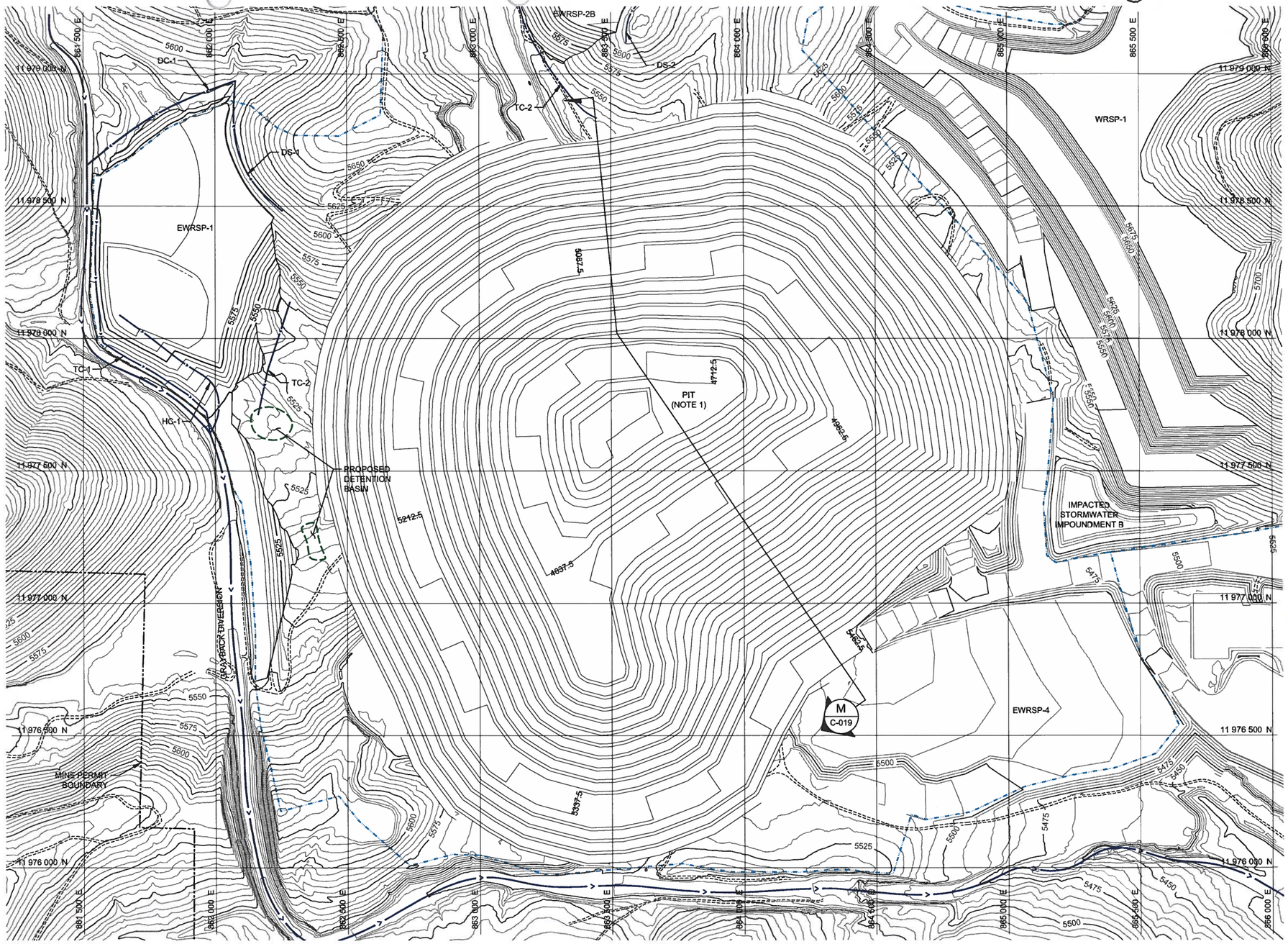
TITLE
WRSP-2 AND WRSP-3 REGRADE AND DRAINAGE PLAN

PROJECT NO.	CONTROL	REV.	14 of 25	DRAWING
1531453	0300	D		C-010

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

15351



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- A / C-017 — SECTION CALLOUT, SECTION ID, DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE

NOTES

1. PLANNED END OF MINE LIFE TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
PIT AT FINAL BUILDOUT

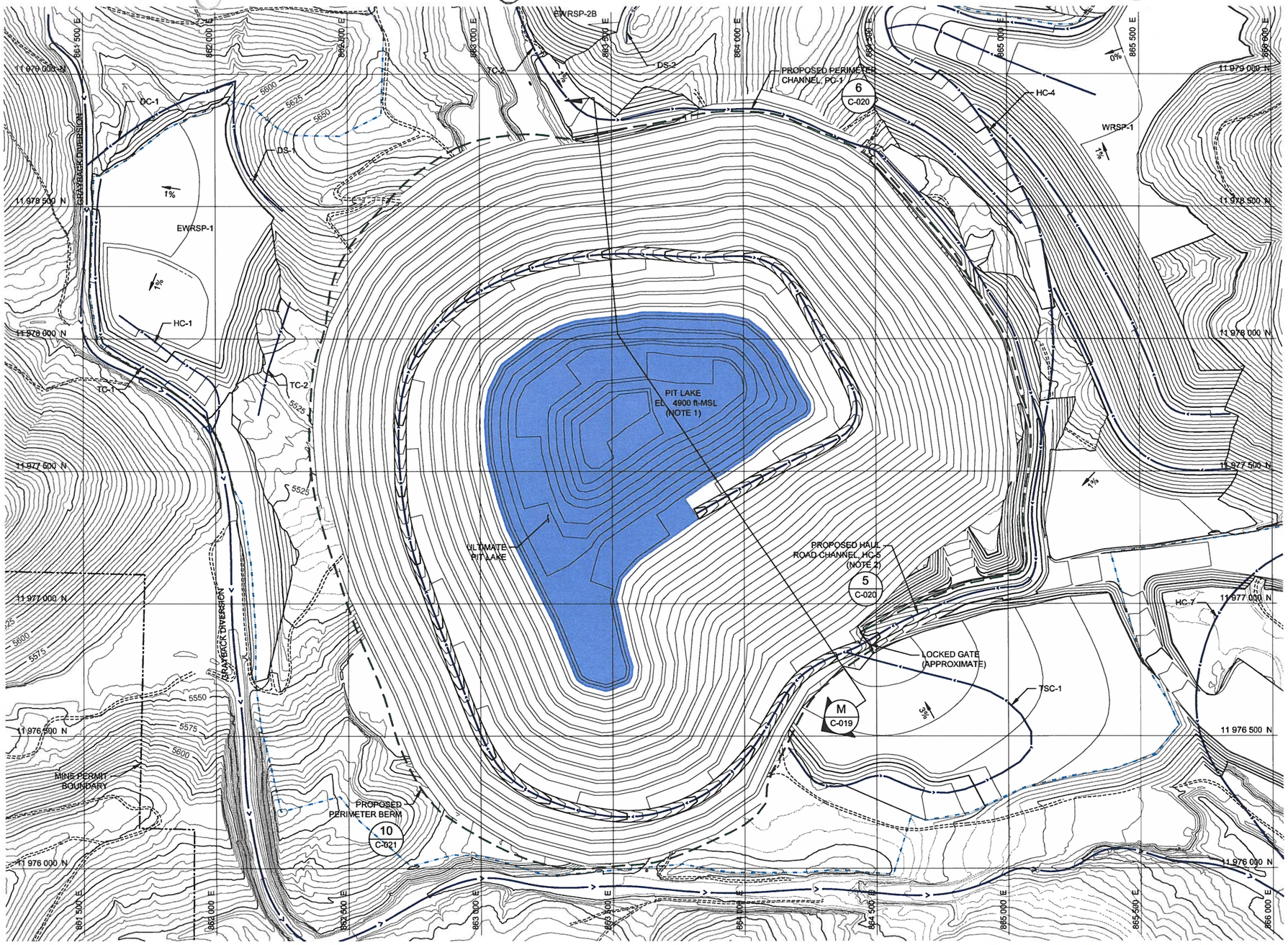
PROJECT NO.	CONTROL	REV.	17 of 25	DRAWING
1531453	0300	D		C-013

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

1 in

15352



LEGEND

- EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL) (5400)
- PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 4) (5400)
- MINE PERMIT BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- PROPOSED PERIMETER BERM
- 1% GRADE INDICATOR
- DETAIL CALLOUT (1 / C-020) — DETAIL ID, DRAWING LOCATION
- SECTION CALLOUT (A / C-017) — SECTION ID, DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- PIT LAKE EL. 4900 ft-MSL (NOTE 1)

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC. PIT LAKE ELEVATION PROVIDED BY NMCC.
2. THE PLANNED HAUL ROADS SHALL BE UTILIZED FOR STORMWATER CONVEYANCE TO THE PIT.
3. ASSUMED 100 foot WIDE DISTURBANCE AREA AROUND PERIMETER OF THE PIT TO BE RECLAIMED.
4. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PERMIT

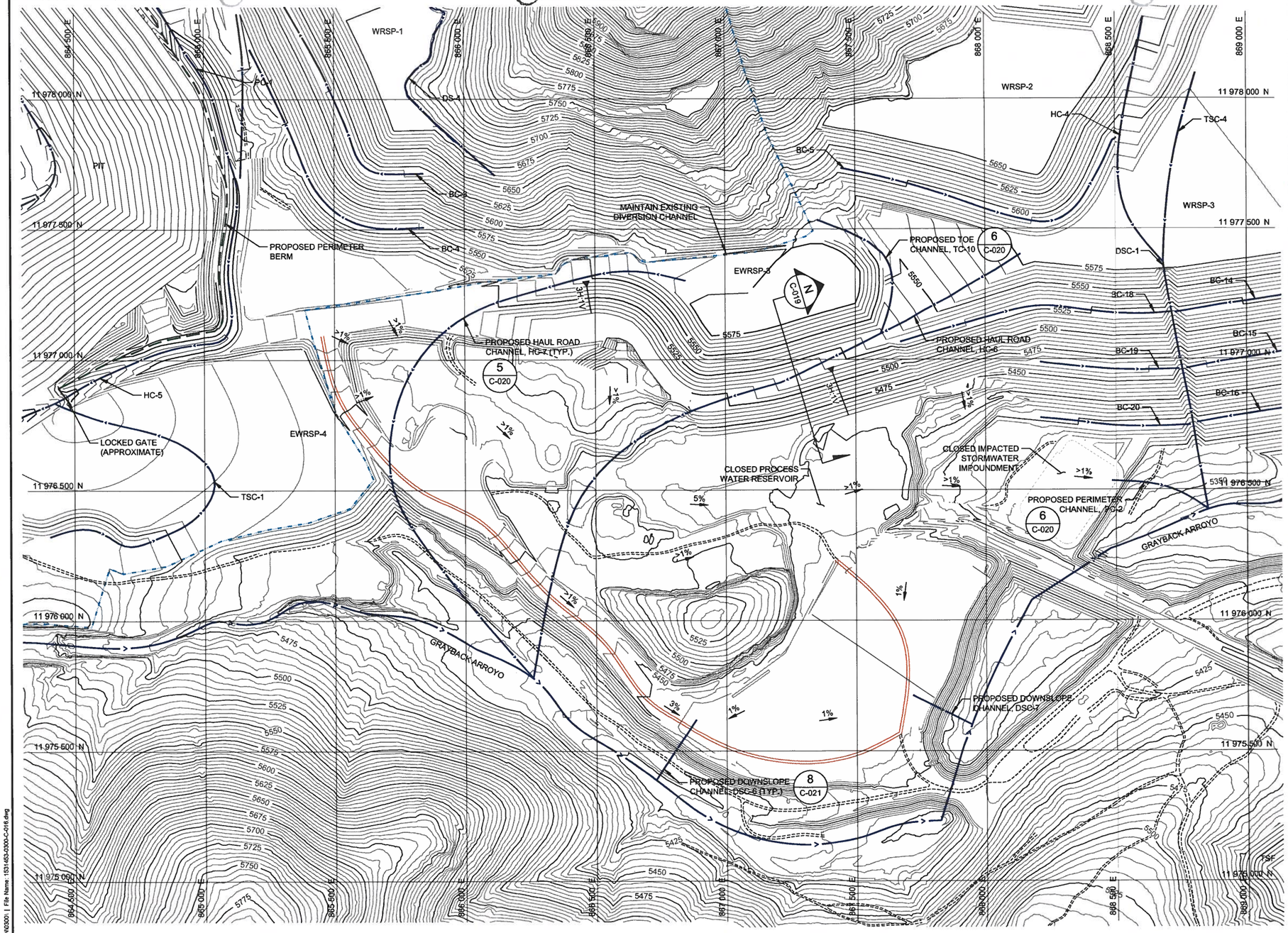
TITLE
PIT RECLAMATION AND DRAINAGE PLAN

PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	D	18 of 25	C-014

Path: \\tucson\proj\f\2015 Projects\1531453\PRODUCTION\0300\ | File Name: 1531453-0300-C-014.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

1 in 0



LEGEND

- 7600 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 7580 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 4)
- RECLAMATION WATERSHED BOUNDARY
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- PROPOSED ROAD
- PROPOSED PERIMETER BERM
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT (DETAIL ID, DRAWING LOCATION)
- A / C-017 — SECTION CALLOUT (SECTION ID, DRAWING LOCATION)
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. FINAL BUILDOUT TOPOGRAPHY FOR THE TSF WAS DEVELOPED BY GOLDER AND IS FROM THE 30K TPD TAILINGS STORAGE FACILITY FEASIBILITY DESIGN REPORT (GOLDER, 2015).
3. PLANNED HAUL ROADS WILL BE UTILIZED FOR STORMWATER CONVEYANCE TO THE PIT.
4. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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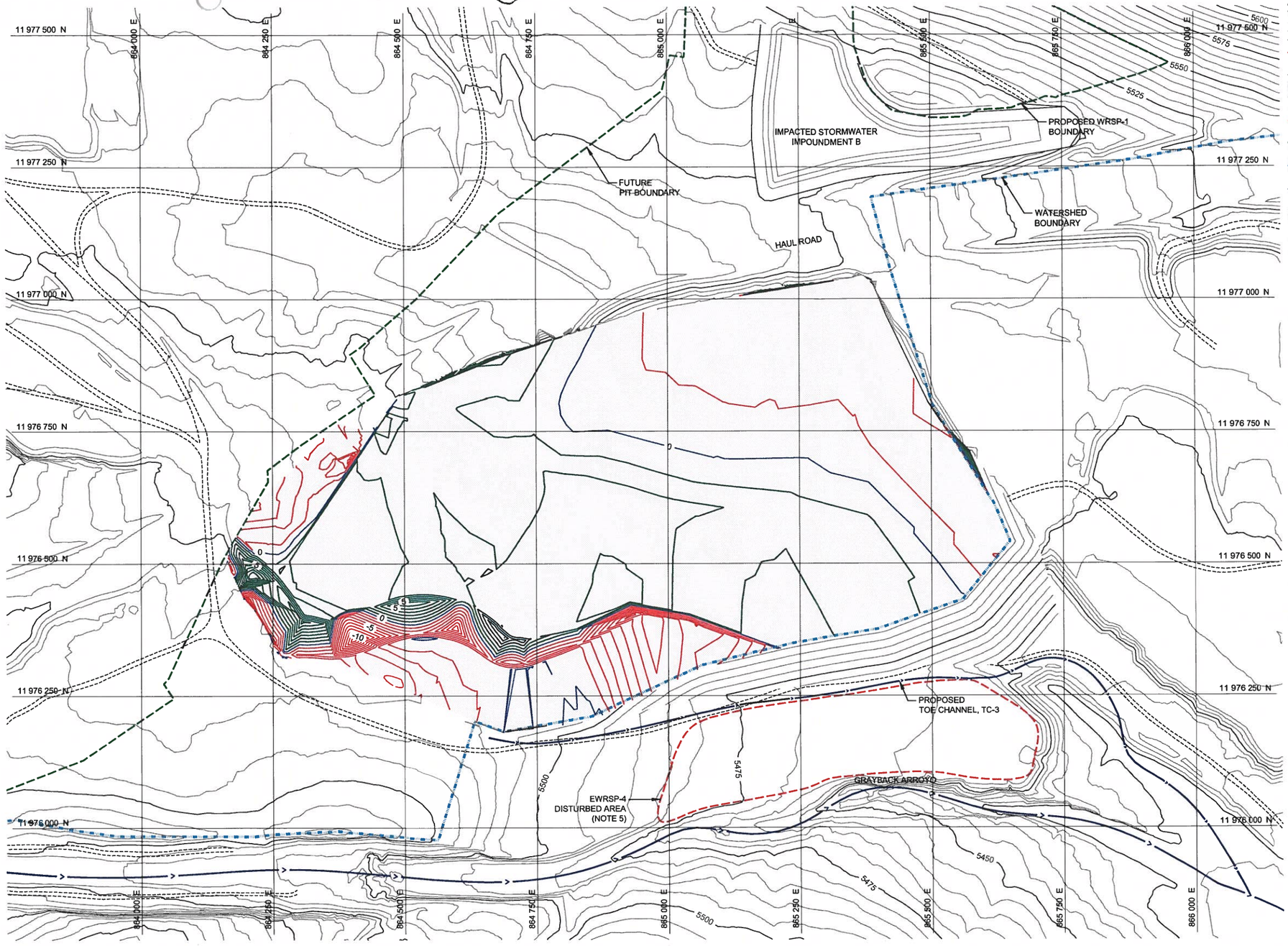
PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
PLANT AREA RECLAMATION AND DRAINAGE PLAN

PROJECT NO.	CONTROL	REV.	20 of 25	DRAWING
1531453	0300	D		C-016

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LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- -5 — BELOW DESIGN GRADE - 1 ft INTERVAL
- 0 — AT DESIGN GRADE
- 5 — ABOVE DESIGN GRADE - 1 ft INTERVAL
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. ISOPACH MAP COMPARES THE EWRSP-4 SURFACE AFTER FINAL BUILDOUT TO THE EWRSP-4 SURFACE AFTER RECLAMATION GRADING (BEFORE COVER); DURING RECLAMATION GRADING, CUT/FILL IS BALANCED AT 28,000 CY.
3. FINAL BUILDOUT IS MATERIAL NEEDED TO FILL EXISTING GAP BETWEEN EAST AND WEST SURFACES OF EWRSP-4.
4. RECLAMATION GRADING IS COMPLETED DURING MINE CONSTRUCTION PHASE.

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APR 17 2017
Ground Water Quality Bureau

0 100 200 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENGY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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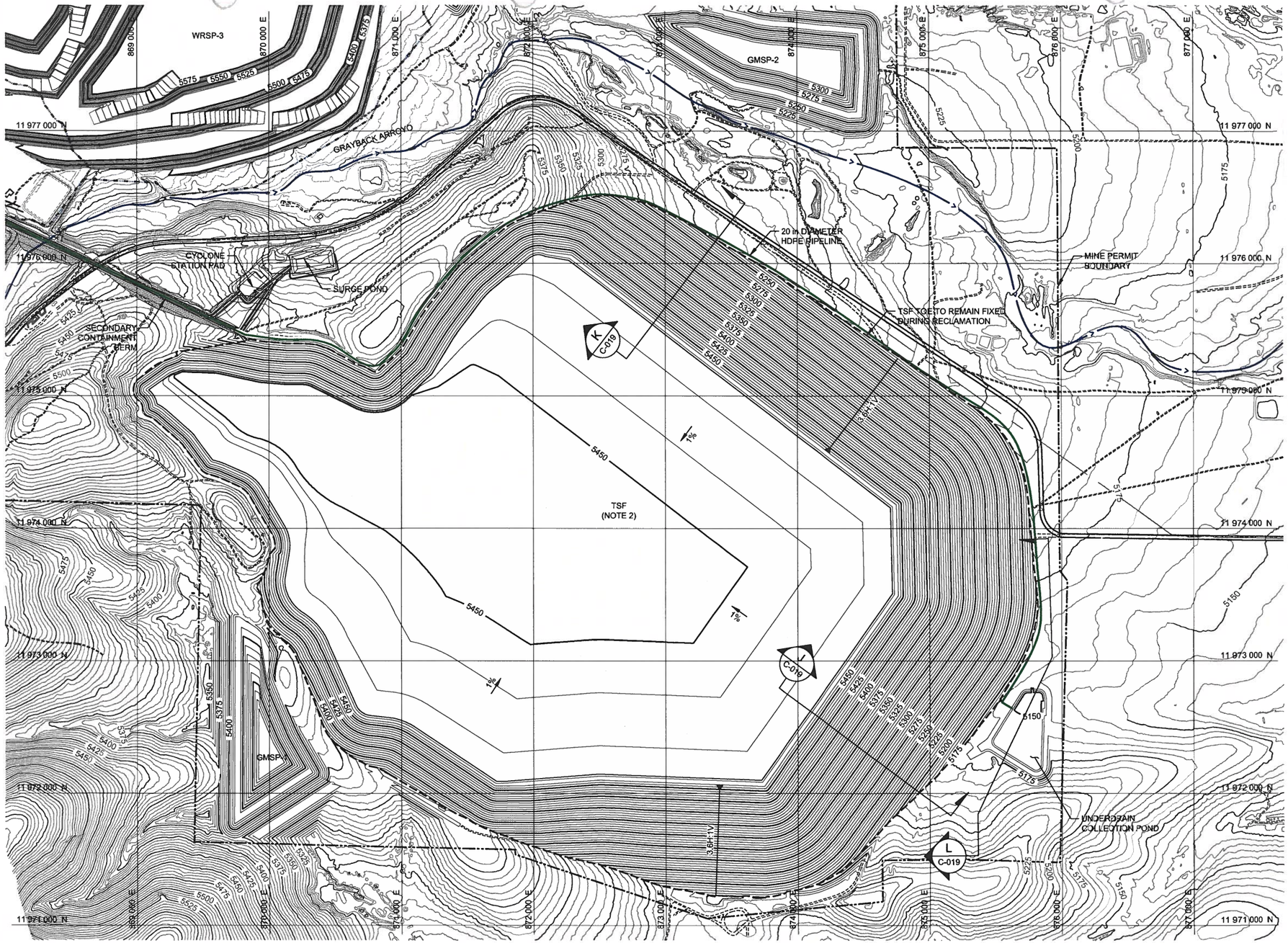
PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
EWRSP-4 REGRADE AND DRAINAGE PLAN
ISOPACH MAP

PROJECT NO.	CONTROL	REV.	10 of 25	DRAWING
1531453	0300	C		C-006a

0 IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTES 1 AND 2)
- MINE PERMIT BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- A / C-017 — SECTION CALLOUT (SECTION ID / DRAWING LOCATION)
- WRSP — WASTE ROCK STOCKPILE
- GMSP — GROWTH MEDIA STOCKPILE
- TSF — TAILING STORAGE FACILITY

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. FINAL BUILDOUT TOPOGRAPHY FOR THE TSF WAS DEVELOPED BY GOLDER AND IS FROM THE 30K TPD TAILINGS STORAGE FACILITY FEASIBILITY DESIGN REPORT (GOLDER, 2015).

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0 400 800 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
TSF AT FINAL BUILDOUT

PROJECT NO.	CONTROL	REV.	15 of 25	DRAWING
1531453	0300	C		C-011

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CALCULATIONS

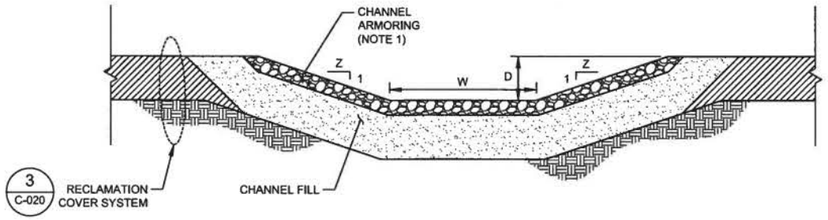
Date:	October 10, 2016	**Made by:**	HNL
Project No.:	1531453	**Checked by:**	TLS
Subject:	Channel Schedule	**Reviewed by:**	TLS
Project Short Title:	COPPER FLAT MORP AND MINE PERMIT APPLICATION		

CHANNEL SCHEDULE

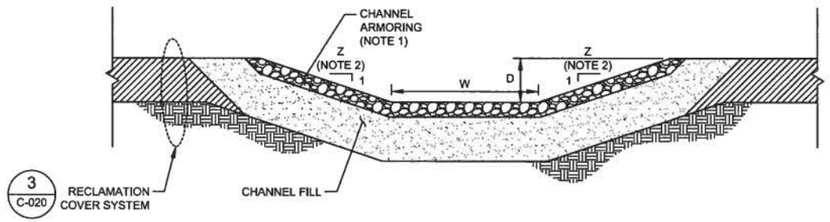
Reach Designation[1]	Q_{design} (cfs)	Reach Design							
		Bottom Width (ft)	Bed Slope (%)	Left Side Slope (H:1V)	Right Side Slope (H:1V)	Normal Flow Depth (ft)	Average Velocity (fps)	Min. D50 (in)	Reports to
EWRSP-1									
Diversion Channel, DC-1	100.0	10	0.5	3.0	3.0	2.1	3.0	3.0	Grayback Diversion
Diversion Swale, DS-1	12.0	10	0.5	3.0	3.0	0.6	1.6	3.0	Grayback Diversion
Toe Channel, TC-1	27.0	10	3.0	3.0	3.0	0.6	3.7	3.0	Grayback Diversion
Toe Channel, TC-2	17.0	10	0.5	3.0	3.0	0.8	1.8	3.0	Grayback Diversion
Haul Road Channel, HC-1	12.9	10	10.0	3.0	3.0	0.3	4.2	6.0	Grayback Diversion
EWRSP-2B									
Top Surface Channel, TSC-1	81.2	10	1.0	3.0	3.0	0.3	1.0	3.0	Pit Perimeter Channel to Pit
Toe Channel, TC-3	125.6	10	2.9	3.0	3.0	1.5	3.6	12.0	Pit Perimeter Channel to Pit
Diversion Swale, DS-2	3.4	10	0.5	3.0	3.0	1.5	6.0	-	Pit Perimeter Channel to Pit
EWRSP-4									
Top Surface Channel, TSC-2	86.0	10	2.5	3.0	3.0	1.2	5.1	3.0	Haul Road Channel HC-2 to Pit
Haul Road Channel, HC-2	20.0	10	6.7	3.0	3.0	0.4	4.4	3.0	Pit
Toe Channel, TC-4	13.0	10	7.4	3.0	3.0	0.3	3.9	3.0	Grayback Arroyo
WRSP-1									
Diversion Swale, DS-3	27.0	10	0.5	3.0	3.0	1.0	2.0	3.0	Off Site
Diversion Swale, DS-4	69.0	10	0.5	3.0	3.0	1.7	2.7	3.0	Natural Ground to Pit
Diversion Channel, DC-2	39.0	10	0.5	3.0	3.0	1.3	2.3	3.0	Off Site
Top Surface Channel-3	32.5	10	5.6	3.0	3.0	0.6	4.9	6.0	Pit Perimeter Channel to Pit
Bench Channels, BC-1 through BC-4	97.0	10	1.0	3.0	3.0	0.4	1.7	3.0	Pit Perimeter Channel to Pit
Haul Road Channel, HC-3	97.0	10	10.3	3.0	3.0	0.9	8.6	12.0	Pit Perimeter Channel to Pit
WRSP-2 and WRSP-3									
Diversion Swale, DS-5	112.0	10	0.5	3.0	3.0	2.2	3.1	3.0	Natural Ground to Pit
Diversion Swale, DS-6	52.0	10	0.5	3.0	3.0	1.5	2.5	3.0	Off Site
Diversion Swale, DS-7	26.0	10	0.5	3.0	3.0	1.0	2.0	3.0	Off Site
Haul Road Channel, HC-4	63.9	10	9.6	3.0	3.0	0.7	7.3	12.0	Pit
Top Surface Channel, TSC-4	42.0	10	1.0	3.0	3.0	1.1	3.0	3.0	Grayback Arroyo
Top Surface Channel, TSC-5	100.0	10	1.0	3.0	3.0	1.7	3.8	18.0	Grayback Arroyo
Downslope Channel, DSC-1	127.1	20	29.0	3.0	3.0	0.3	22.0	ACB	Grayback Arroyo
Downslope Channel, DSC-2	240.1	20	30.2	3.0	3.0	0.4	28.4	ACB	Grayback Arroyo
Toe Channel, TC-5	229.8	10	13.0	3.0	3.0	1.0	10.1	3.0	Grayback Arroyo
Toe Channel, TC-6	242.9	10	8.6	3.0	3.0	1.6	10.7	18.0	Grayback Arroyo
Bench Channels, BC-5 through BC-20	39.0	10	1.0	3.0	3.0	1.0	2.9	3.0	WRSP-2 to Pit, WRSP-3 to Grayback Arroyo
TSF									
Downslope Channel, DSC-3	181.8	20	27.6	3.0	3.0	0.4	24.9	ACB	Off Site
Downslope Channel, DSC-4	165.6	20	27.8	3.0	3.0	0.3	24.0	ACB	Grayback Arroyo
Downslope Channel, DSC-5	478.0	20	29.0	3.0	3.0	0.6	36.1	ACB	Grayback Arroyo
Top Surface Channel, TSC-6	243.0	10	0.5	3.0	3.0	2.8	3.7	3.0	DSC-5 to Grayback Arroyo
Top Surface Channel, TSC-7	236.4	10	0.5	3.0	3.0	2.8	3.7	3.0	DSC-5 to Grayback Arroyo
Bench Channels, BC-21 through BC-42	38.0	10	1.0	3.0	3.0	1.0	2.8	3.0	Off Site or Grayback Arroyo
Toe Channel, TC-7	487.7	15	0.5	3.0	3.0	4.0	4.5	3.0	Off Site
Toe Channel, TC-8	213.2	10	0.5	3.0	3.0	3.0	3.7	3.0	Grayback Arroyo
Toe Channel, TC-9	192.5	10	3.5	3.0	3.0	1.7	7.3	12.0	Grayback Arroyo
PLANT									
Perimeter Channel, PC-2	200.0	10	1.0	3.0	3.0	2.5	4.7	3.0	Grayback Arroyo
Toe Channel, TC-10	36.0	10	1.0	3.0	3.0	1.0	2.8	3.0	Pit
PIT									
Perimeter Channel, PC-1	294.0	10	2.0	3.0	3.0	2.5	6.7	3.0	Pit
Haul Road Channel, HC-5	984.4	10	10.0	3.0	3.0	1.8	36.7	ACB	Pit

Notes:
1 - See Mine Reclamation and Closure Plan drawing set for location of specific reach. Hydrolgy and Hydraulics calculation packet available upon request.
ACB - Articulated concrete block.
cfs - Cubic feet per second
ft - Feet
fps - Feet per second
in - Inch
Qdesign - Design flows for channel determined from Hydrologic Modeling System (HEC-HMS) developed by the Hydrologic Engineering Center within the U.S. Army Corps of Engineers.
Min. D50 - median diameter or the medium value of the particle size distribution
Rip Rap size calculations based on the following criteria: U.S. Army Corps of Engineers (USACE, 1994) mild slope, <2% slopes; USACE steep slope, >2% to <20% slopes; Robinson method (1997), >20% to ,40% slopes; ACB for all downslope channels.

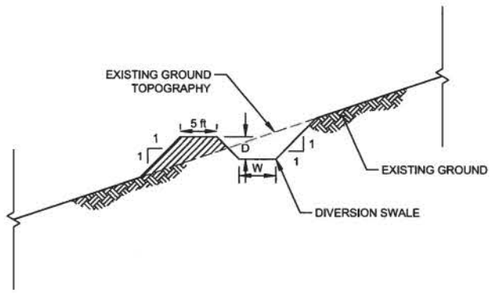
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SCALE N.T.S. 7 C-021 TYPICAL TOP SURFACE CHANNEL SECTION



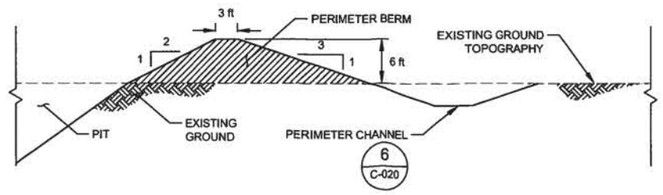
SCALE N.T.S. 8 C-021 TYPICAL DOWNSLOPE CHANNEL SECTION



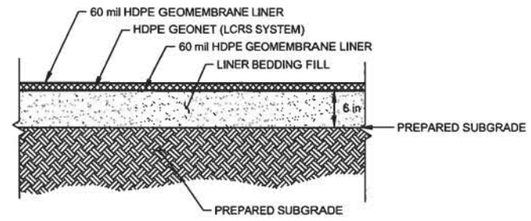
SCALE N.T.S. 9 C-021 TYPICAL DIVERSION SWALE DETAIL

NOTES

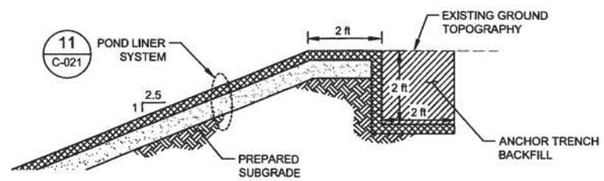
1. SEE CHANNEL SCHEDULE FOR DIMENSION AND ARMORING REQUIREMENTS. MINIMUM RIPRAP THICKNESS SHALL BE 2 X D_{50}. MINIMUM BEDDING THICKNESS IS 6 in.
2. DOWNSLOPE CHANNEL SIDESLOPES SHALL MAINTAIN A 3H:1V SLOPE PERPENDICULAR TO THE FLOW DIRECTION.



SCALE N.T.S. 10 C-021 PERIMETER BERM DETAIL



SCALE N.T.S. 11 C-021 EVAPORATION POND LINER SYSTEM



SCALE N.T.S. 12 C-021 EVAPORATION POND LINER SYSTEM ANCHOR TRENCH

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE CLOSURE AND RECLAMATION PLAN

TITLE
TYPICAL SECTIONS AND DETAILS (2 OF 2)

PROJECT NO.	CONTROL	REV.	25 of 25	DRAWING
1531453	0300	C		C-021

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SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lt. Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Harold Runnels Building
1190 Saint Francis Drive (87505)
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2990 Fax (505) 827-1628
www.env.nm.gov

BUTCH TONGATE
Cabinet Secretary
J.C. BORREGO
Deputy Secretary

April 18, 2017

VIA E-MAIL

Jaimie Park
jpark@nmelc.org

Re: Request to Inspect Public Records

Dear Ms. Park:

On April 17, 2017, this office received your request for public information. You request information pertaining to: April Copper Flat cooperating agency meeting notes, among other documents. (See attached request).

I forwarded your request to the bureau on April 18, 2017. The bureau will respond by May 2, 2017.

Should you have any questions, please contact the Ground Water Quality Bureau at (505) 827-2919.

Sincerely,

Melissa Y. Mascareñas
New Mexico Environment Department
Department Public Records Custodian

cc: Andrew Knight, Assistant General Counsel
Michelle Hunter, Chief, Ground Water Quality Bureau

NEW MEXICO ENVIRONMENT DEPARTMENT
INSPECTION OF PUBLIC RECORD REQUEST FORM

Please fill out the following information:

1. Date: April 17, 2017

2. Requestor's Name: Jaimie Park, New Mexico Environmental Law Center

3. Requestor's Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

4. Phone No.: (505) 989-9022

5. Email:
jpark@nmelc.org

6. Company Being Represented: New Mexico Environmental Law Center

7. Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

8. Document or File being requested to be reviewed or copied (please describe the records in sufficient detail to enable Department personnel to reasonably identify & locate the records:

I request that you inform me what documents are available within the scope of this request and when I can inspect those documents. I also request that you not make any copies without first informing me of the number of copies and the cost for the copying that are involved. Finally, I request that if you determine that any documents or portions of documents are exempt from disclosure you inform me of that and provide me with citations to the provisions in the Inspection of Public Records Act that indicate that the documents or portions of documents are exempt from disclosure, describe the type of document being withheld, and identify who sent the document being withheld and who received the document being withheld.

Records being requested:

1. April 2017 proposed Copper Flat Copper Mine cooperating agencies meeting notes.
2. New Mexico Copper Corporation's response to NMED's request for additional information on NMCC's discharge permit application, date range February 15, 2017 through April 17, 2017.
3. NMED's technical completeness determination regarding New Mexico Copper Corporation's discharge permit application, date range February 15, 2017 through April 17, 2017, and .
4. Surveys submitted by New Mexico Copper Corporation to NMED regarding the Copper Flat Copper Mine pit lake.

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Ken McQueen
Cabinet Secretary

Matthias Sayer
Deputy Cabinet Secretary

Fernando Martinez, Division Director
Mining and Minerals Division

April 21, 2017

Ms. Katie Emmer
New Mexico Copper Corporation
4253 Montgomery Blvd NE, Suite 130
Albuquerque, NM 87109

Re: Technical Comments on Updated Mining Operation and Reclamation Plan (MORP), Copper Flat Mine, Sierra County, Permit Tracking No. SI027RN

Dear Ms. Emmer,

The Mining and Minerals Division ("MMD") received the *Updated Mining Operation and Reclamation Plan* ("Updated MORP"), dated October 2016, submitted by New Mexico Copper Corporation ("NMCC") as a replacement of the *Mining Operation and Reclamation Plan*, dated July 18, 2012 ("Original MORP"). The Updated MORP is submitted as part of the overall Permit Application Package for the Copper Flat Mine.

In accordance with §19.10.6.605.C NMAC, MMD requested comments on the Updated MORP from the New Mexico Environment Department, New Mexico Department of Game and Fish, New Mexico State Forestry, New Mexico Office of the State Engineer, New Mexico Historic Preservation Division, and the Bureau of Land Management. Comments from the cooperating agencies are attached with this letter and shall be addressed in writing by NMCC.

In addition to the comments from the cooperating agencies, MMD has the following technical comments on the Updated MORP that shall be addressed in writing by NMCC:

1. Page 2-6, second paragraph, states that "there may be some additional acreage disturbance on lands outside the permit area boundary related to ancillary facilities such as the well field, the substation and power line, and the water pipeline."

The permit area under MMD's consideration is comprised of the boundary around the project (i.e., the pit, plant site, waste rock disposal facilities and tailings impoundment), the water well production field, the water pipeline corridor, and the various 5-acre mill site claims. The only related area not being considered a part of the Copper Flat permit area is the proposed electrical substation and associated power line due to anticipated ownership by the electrical company post-mining. The permit area being considered by MMD is best reflected in Figure 2-20 of the Updated MORP, with the exception of the proposed substation area. Under the Mining Act, only disturbance within the permit area is allowed, and any additional disturbance outside the permit area boundary could result in MMD issuing a notice of violation. Please commit to disturbance only within the permit area boundary applied for by NMCC.

2. Figure 2-14, page 2-25: the reclamation of the stormwater conveyance channel generally east and south of WRSP-3 that drains to Impacted Stormwater Impoundment C is not described.

This channel is not shown on Figures C-009 and C-010 making it difficult to compare and contrast what happens to this channel during reclamation. However, during an informal conversation with NMCC on the Updated MORP on February 15, 2017, NMCC stated that the push-down of WRSP-3 during reclamation likely covers this conveyance channel. Upon additional review, it appears this could be the case for portions of the conveyance channel, but not the entirety of the conveyance channel, especially north and south of Impoundment C. Additionally, it appears that the proposed footprint of GMSP-3 during operation may overlap with portions of this conveyance channel based on Figure C-009. Please clarify the proposed location of this conveyance channel relative to GMSP-3 and describe how this channel will be reclaimed.

3. Page 2-54, Wildlife Impacts Contingency Plan: This section does not adequately describe a contingency plan if there is an emergency or accidental discharge of toxic substances that may impact wildlife. This section states that a Spill Prevention, Control and Countermeasure ("SPCC") plan will provide contingencies to mitigate potential impacts for an accidental release. Please either provide the SPCC for MMD's review or excerpt portions of the SPCC describing how wildlife impacts will be mitigated upon an accidental release of toxic substances.

Appendix E – Mine Reclamation and Closure Plan

4. NMCC has proposed a bench-and-terrace design for waste rock stockpile reclamation. In previous comments on the Original MORP, dated February 18, 2013, MMD requested:

a. a description of the different reclamation alternatives considered and how the proposed reclamation plan was developed and designed using the most appropriate technology;

b. a description about the use of geomorphic reclamation techniques and how they might be integrated into the reclamation plan for the waste rock piles and the tailings.

Pursuant to the performance standards and requirements of §19.10.6.603.A NMAC, please provide this requested information.

5. Table E1 proposes two small detention basins at the base of EWRSP-1, and Section 2.1.2 further describes the detention basins. No details on the anticipated depth of these basins or anticipated storage volume is provided. These basins seem unlikely to provide wildlife or riparian habitat since it is likely that any water conveyed to these basins would be ephemeral. However, these basins may inadvertently allow infiltration which could facilitate an acid water seep on the pit wall and/or eventually weaken the pit wall to the point of failure. This is acknowledged as a possibility in Section 2.1.2 of the Updated MORP, which proposes to compact the soils at the bottom of the basins to minimize percolation. MMD suggests consolidation of waste rock at the southern tail to EWRSP-1 or rerouting stormwater so that these basins are unnecessary. Please address.

6. Table E1 and Appendix E2 propose a 1% top surface reclamation slope on the tailing storage facility, which is reiterated in Section 2.3.2 on page 15. However Figure C-012 shows a 0.5% top surface slope at reclamation. MMD's previous letter on the Original MORP, dated February 18, 2013, required a minimum of 1% slope. Please address.

7. Table E1 describes an assumed 100-foot wide disturbance around the open pit that will be ripped and revegetated. This assumed disturbance and reclamation is not portrayed on Figures C-013 and C-014. Please provide the anticipated grading plan of this assumed 100-foot-

wide area as well as a description of the anticipated sequencing of this reclamation as it relates to placement of the proposed perimeter berm proposed in Figure C-014.

8. Several places in Table E1 propose up to 6" of cover thickness. MMD requires a minimum of 18" of cover thickness over non-deleterious artificial fill areas in order to provide an adequate root zone for revegetation. Please address.

9. Section 2.1, page 8 references the open pit surface drainage area ("OPSDA"), however none of the drawings refer to the OPSDA. On drawings that show final buildout there is a "watershed boundary (by others)" label, and on drawings that show final reclamation topography there is a "reclamation watershed boundary" line. Please confirm that these boundaries represent the OPSDA and/or other watersheds surrounding the OPSDA.

10. Drawing C-002 shows proposed toe channel TC-2, however this channel length is different than that shown on C-013. MMD prefers the routing shown on Figure C-002 in order to reduce water going to the proposed detention basins (as discussed above in comment #5). Please address.

11. Throughout the closure plan, little reclamation/reduction of the widths of access and haul roads is proposed. While access roads can be included in the post-mining land use, leaving 50' wide haul roads is excessive for what should become a single vehicle access road. As an example, the proposed access road shown on drawing C-002 is shown as "50-feet (minimum) width." Please address.

12. Section 2.3.2, page 13 and page 14 describe an HDPE-lined runoff collection trench to be constructed at the toe of the TSF to route surface water runoff to the underdrain collection pond prior to cover placement on the TSF. This trench is not shown on Drawings C-011 and C-012. Please address.

13. The following comments related to Section 2.4 and Table E1 regarding the open pit shall be addressed:

    a. Description/justification as to how the pit walls will meet the wildlife habitat PMLU and reclamation to a self-sustaining ecosystem to meet the requirements of 19.10.6.603.C.(2) and 19.10.6.603.G;
    b. Description/justification as to how the pit walls meet the site stabilization and configuration requirements of §19.10.6.603.D NMAC including a description of how stabilization will be accomplished without backfilling or partial backfilling;
    c. Description/justification as to how adverse effects to pit water quality will be minimized in order to meet the requirements of §19.10.6.603.C(4) NMAC, which addresses hydrologic balance.

14. Section 2.5 describes reclamation of the plant area, however no overall grading plan for this large area is provided in Drawing C-016. Drawing C-016 appears to show many steep surfaces and other topographic irregularities across the former plant area (e.g. the slope east of the process water reservoir, the slope east of impacted stormwater impoundment A, the slope north and west of the crushed ore stockpile, slopes near the laydown yard, etc.). Please provide a comprehensive grading and reclamation plan for the plant area.

15. Proposed reclamation of the plant site does not include pull back and additional grading of the eastern, southern and southwestern slopes away from Grayback arroyo to achieve a 3:1 slope. These slopes are currently angle of repose and no reclamation is proposed along these edges of the plant site. Please address.

16. Figure C-015 shows an incision into the hillside south of the concentrator, however Figure C-016 does not show this incision at reclamation. Please correct.

17. No reclamation of the angle of repose, ~50 foot high land bridge used as the entrance access road (Gold Dust Road; the upstream Grayback culvert) is proposed. Similarly, no reclamation is proposed for the ~50 foot high land bridge (the downstream Grayback culvert) and ~1,000 foot long cut that facilitates the tailings pipeline. MMD recognizes that there is a wetland in this v-shaped area between the land bridges, however §19.10.6.603.C(8) NMAC states "adverse effects to riparian and wetland areas shall be mitigated during reclamation unless the mitigation conflicts with the approved post-mining land use." Please provide a reclamation plan for these land bridges including removal of the culverts.

18. The entrance road (Gold Dust Road) to the plant site contains several areas of waste rock fill that are not addressed in the reclamation plan (e.g. the stretch of access road due north of the proposed surge pond/cyclone plant.) The outslopes of these areas should be regraded to 3:1, covered with topdressing and revegetated. Additionally, the access road width should be reduced during reclamation. Please address.

19. Section 2.7 does not describe or provide an approximate layout of any roads that may be constructed or improved in order to haul cover to the growth media stockpiles, in particular GMSP-2 located across Grayback arroyo. Please provide an approximate haul route and any road improvements that are anticipated in order to construct the growth media stockpiles as well as a reclamation plan for these roads.

20. Section 2.8 in the last paragraph states that "surface disturbance at the five acre mill sites will be reclaimed." The mining operation plan does not describe any disturbance to the five acre mill site claims. Please clarify.

21. Section 2.8.2 describes the reclamation process for haul roads and access roads as ripping the surface. However, as described in other comments in this letter, the road widths should be reduced, outslopes should be regraded, and a minimum of 18" of growth media applied prior to revegetation. Please revise the reclamation plan accordingly.

22. Section 3.1, Table E6 shows the surface impoundments requiring 25,168 cy of growth media. However, MMD calculates this volume to be 29,201 cy (based on the acreage and 6" of growth media as cover). As discussed previously in comment #8, MMD requires a minimum of 18" of growth media at reclamation. Please address.

23. The reclamation plan for surface impoundments (Table E1) states that the HDPE liners will be ripped, folded over and buried in-place, and impoundments backfilled with clean fill. Will the clean backfill be material excavated during impoundment construction? If so, where will this clean backfill be stockpiled until closure? If this clean fill is to placed on the growth media

stockpile, does Table E6 account for the volume of growth media that will be required for these facilities at closure? For example, backfilling of Impacted Stormwater Impoundment C would require ~52,000 cy of growth media/backfill. Please clarify.

24. Does "surface impoundments" in Table E6 include the evaporation pond?

25. Section 3.2.2, seed mixtures, proposes 4.73 PLS drillseeded as "interim" for growth media stockpile stabilization versus 9.18 PLS drillseeded for "final" reclamation. Please provide a justification for the reduced seed density for interim stabilization.

26. Section 5.5.3 states that the growth media stockpiles need to contain 3.92 million cy, but are designed to contain 4.5 million cy (thereby there is an estimated 584,000 cy of excess growth media). However, Table E6 cites that 4.2 million cy of growth media is needed, Table E5 cites that 4.5 million cy will be stored, and page 40 states that 80,000 cy of topdressing will be stored in windrows around the plant area. This appears to be an excess of 380,000 cy of growth media, not 584,000 cy. Please clarify. Additionally, please provide a map showing the proposed location of the cover material windrows.

27. The *Supplemental Soils Investigation* performed by Golder Associates (2013) states in Section 3.4 that "nearly 68% of the test pits meet the soil suitability criteria for outslope cover and 87% meet the specifications for top surface cover." Further, this report states that development of borrow [salvage] areas will "require oversight by a qualified soil scientist and some selective handing to ensure suitable borrow materials area stockpiled" and that "oversight and coordination would be required to optimize the handing of suitable cover materials."

In contrast, Section 5.5.2 of Appendix E states that "NMCC will bulk salvage suitable soils and near-surface alluvial materials and that the deep coarse-textured alluvial materials will be mixed with the more fine-textured surficial soils." The plan to bulk salvage materials appears to contradict the necessity to selectively handle materials during salvage. The reclamation plan should commit to selective handing of topdressing with oversight by a qualified soil scientist during salvage and a Reclamation Materials Handling Plan should be developed for MMD review. Alternatively, NMCC should plan to bulk salvage and stockpile up to approximately 35% more growth media (approximately 6.1 million cy, not 4.5 million cy) since approximately 13-32% of this material will likely be deemed unsuitable for reclamation based on Golder (2013). This revised volume does not take into account the placement of 18" of growth media where 6" has been proposed. Please address.

28. NMCC will be required to implement a test plot program of the growth media proposed for use at reclamation. A condition in the future MMD permit will be for NMCC to submit a Test Plot Study Workplan in coordination and consultation with MMD. The key objectives of the study will be to evaluate erosion resistance and the ability to adequately establish vegetation. NMCC will be required to perform periodic monitoring of any test plots constructed. In the workplan, a reference area(s) should be proposed as a comparison to the test plots.

29. The north edge of EWRSP-4 in Drawing C-006 does not appear to tie into any of the existing contours. Please clarify.

30. In Figure C-010, Impacted Stormwater Pond C is not shown at reclamation. This pond should have a grading plan approximated in this figure. Please revise Figure C-010 accordingly.

31. The following comments relate to the proposed evaporation pond:

a. Figure C-019, cross section L, appears to show quite a bit of excavation required for the construction of the evaporation pond. Please describe where the stockpile of excess material will be created;
b. Figure C-012 shows that the east edge of the proposed evaporation pond is in a corner immediately adjacent to the proposed east and south mine permit boundary. Please describe how construction of the evaporation pond will be accomplished within the permit boundary;
c. The closure plan does not provide a figure showing future grading and reclamation of the evaporation pond. Also, a description of what happens to proposed toe channel TC-8 and a description of where water coming down TC-8 will be routed at reclamation is required. Please address.

32. Numerous figures depict the use of rip-rap for slope armoring, bench channels, downslope channels, etc. What is the proposed source of the rip-rap? Will rip-rap be sourced from the growth media stockpiles, and, if so, is there sufficient excess stockpiled volume to account for the volume of rip-rap needed and still have enough coarse material for outslope reclamation? Please address.

33. As discussed in the informal conversation between NMCC, NMED and MMD on February 15, 2017, NMCC may want to consider the use of articulating concrete block, or similar pre-fabricated materials, for downslope channels or other potentially high-flow channels.

MMD requests a response to these technical comments within 60-days after receipt. If you have any questions or wish to discuss any of the comments, please contact me at (505) 476-3434 or by email at david.ennis@state.nm.us.

Sincerely,

David J. ("DJ") Ennis, P.G.
Reclamation Specialist/Permit Lead

Attachments: Comments from cooperating agencies

cc: Holland Shepherd, Mining Act Program Manager
Brad Reid, NMED Permit Lead

Ennis, David, EMNRD

From: Roth, Daniela, EMNRD
Sent: Monday, November 21, 2016 2:42 PM
To: Ennis, David, EMNRD
Subject: RE: Request for agency comments, Copper Flat Mine, Sierra Co., NM (permit # SI027RN)

Dear David Ennis:

Thank you for giving me the opportunity to review and comment on the updated mining operation and reclamation plan for the Copper Flat Mine in Sierra County, NM (Permit Tracking No. SI027RN). I do not anticipate any impacts to state listed endangered plants from the updated MORP. I reviewed the updated closeout plan and have no further comments.

Please let me know if I can be of further help.

Sincerely,

Daniela Roth

Botany Program Coordinator
EMNRD – Forestry Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3347
http://www.emnrd.state.nm.us/SFD/

NEW MEXICO
ENVIRONMENT DEPARTMENT

Harold Runnels Building
1190 South St. Francis Drive (87505)
P.O. Box 5469, Santa Fe, New Mexico 87502-5469
Phone (505) 827-2900 Fax (505) 827-2965
www.env.nm.gov

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

BUTCH TONGATE
Cabinet Secretary - Designate

J.C. BORREGO
Deputy Secretary

MEMORANDUM

DATE: January 6, 2017

TO: Holland Shepherd, Program Manager, Mining Act Reclamation Program

THROUGH: Jeff Lewellin, Mining Act Team Leader

FROM: Brad Reid, Mining Environmental Compliance Section
John Moeny, Surface Water Quality Bureau
Neal Butt, Air Quality Bureau

RE: NMED Comments, Updated Mining Operation and Reclamation Plan, New Mexico Copper Corporation (NMCC), Copper Flat Mine, Sierra County, New Mexico, MMD Permit No. SI027RN

The New Mexico Environment Department (NMED) received correspondence from the Mining and Minerals Division (MMD) on November 8, 2016 requesting NMED review and provide comments on the above referenced MMD permitting action. The document submitted updates the Mining Operation and Reclamation Plan (MORP). MMD requested comments within 60 days of receipt in accordance with Section 19.10.6.605.C NMAC. NMED has the following comments:

Background

On July 18, 2012, NMCC submitted the original permit application package and MORP to MMD. Subsequent to the July 18, 2012 submission, updates to the MORP have been provided to MMD. This comment memorandum specifically addresses the updated MORP submitted to MMD on October 14, 2016.

Air Quality Bureau

The Air Quality Bureau comments are attached under separate letterhead.

Surface Water Quality Bureau

In 2014, the US Army Corps of Engineers approved a jurisdictional determination for the 230-acre watershed surrounding the pit lake at Copper Flat, excluding it from regulatory action under

Section 404 of the Clean Water Act. The status of the pit lake as a water-of-the-state, however, is still under review at this time, pending a survey to determine whether the lake at mine closure will remain entirely on private land. Until a formal decision is made, State Water Quality Standards for unclassified perennial waters are presumed to be relevant (NMAC 20.6.4.99). Other ephemeral drainages within and affected by the mine are also subject to water quality protections under both Federal and State regulations.

The SWQB is concerned that mine-impacted stormwater may discharge into Grayback Arroyo. The existence of a TDS/sulfate plume downgradient of the mine suggests that contaminated stormwater has, in the past, been discharged into Grayback Arroyo. A new Stormwater Pollution Prevention Plan (SWPP) and Multi-Sector General Permit will be required by NMCC which should address stormwater collection to prevent point-source discharge of contaminated stormwater. The SWQB will be reviewing the SWPPP and stormwater diversion structures for adequacy and soundness to prevent discharges, in addition to monitoring water quality data collected in Grayback Arroyo at the four sampling stations detailed in the MORP.

Ground Water Quality Bureau

The MORP was submitted to NMED on October 14, 2016 as a component of the Ground Water Quality Bureau Discharge Permit Application (Application) for Discharge Permit 1840 (DP-1840). Technical review of the Application pursuant to the Water Quality Act (WQA) and the Water Quality Control Commission (WQCC) Regulations, including the Copper Mine Rule (20.6.7 NMAC), is currently in progress. Pursuant to Subsection G of 20.6.7.10 NMAC, the technical completeness response deadline is February 14, 2017. NMED may have additional comments based on technical review of the Application and associated operational, monitoring and closure plans. As such, any additional comments will be submitted under separate letterhead directly to NMCC Copper Flats Mine with copy to MMD as these reports are critical to development of the draft Ground Water Discharge Permit. NMED will coordinate response to these documents with MMD prior to issuance of a comment letter to NMCC Copper Flats Mine.

NMED Summary Comment

NMED finds that environmental standards will be met if mining operations and reclamation are carried out as described in the pending New Mexico Mining Act permit, pending DP-1840, the Copper Mine Rule, and if the above comments are addressed.

If you have any questions, please contact Jeff Lewellin at (505) 827-1049.

cc: Bruce Yurdin, Division Director, NMED-WPD
Shelly Lemon, Acting Bureau Chief, SWQB
Richard Goodyear, Bureau Chief, AQB
Fernando Martinez, Division Director, EMNRD-MMD
DJ Ennis, Lead Staff, EMNRD-MMD
Kurt Vollbrecht, Program Manager, MECS

NEW MEXICO
ENVIRONMENT DEPARTMENT
525 Camino de los Marquez
Suite 1
Santa Fe, New Mexico, 87505
Phone (505) 476-4300 Fax (505) 476-4375
www.env.nm.gov

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

BUTCH TONGATE
Cabinet Secretary - Designate
J. C. Borrego
Acting Deputy Cabinet Secretary

MEMORANDUM

DATE: November 29, 2016

TO: Jeff Lewellin, Mining Act Team Leader
Mining Environmental Compliance Section, Ground Water Quality Bureau

FROM: Neal Butt, Environmental Analyst
Air Quality Bureau

RE: Request for Comments, Regular New Mine, Updated Mining Operation and Reclamation Plan, Copper Flat Mine, Sierra County, MMD Permit No. SI027RN

The New Mexico Air Quality Bureau (AQB) has completed its review of the above mentioned mining project. Pursuant to the New Mexico Mining Act Rules, the AQB has the following comments:

Air Quality Permitting History

Development of the Copper Flat Mine Project was begun in the 1970's by Quintana Minerals Corporation (Quintana). Quintana applied for and received Air Quality Permit #0365. In 1982 operating under Air Quality Permit #0365-M1, the Copper Flat Partnership, Ltd. developed and operated the Project, which consisted of an open pit copper mine, a 15,000-ton per day (TPD) flotation mill, and a 515-acre tailings impoundment. The Copper Flat Mine officially commenced full commercial production in April, 1982. In July 1982 the mine was shut down due to low copper prices and other economic considerations. In 1986 all on-site surface facilities were removed and a BLM approved program of non-destructive reclamation was carried out. Most of the property's infrastructure, including building foundations, power lines and water pipelines were preserved for future reuse, in the event that copper prices recovered sufficiently to make re-establishing the Project economically viable. In April of 1995, Alta Gold Company applied for a revision to Air Quality Permit #0365-M1. However, Alta Gold Company declared bankruptcy in early 1999. Air quality permit #0365-M1 was closed in 2002 due to inactivity.

NSR Permit #0365-M3 was issued on 6/25/2013 to New Mexico Copper Corporation (NMCC) to operate the Copper Flat Mine. Though this facility's permit number would indicate that this is a modification, it is not. This permit is new, since there is no current operation to modify.

Details

The Copper Flat Project is a copper/molybdenum porphyry deposit located in the Hillsboro Mining District in Sierra County, New Mexico. The center of the mineralization is at UTM coordinates 263,150 meters easting, 3,650,750 meters northing, Zone 13, NAD 83. The Project is 150 miles south of Albuquerque and 20 miles southwest of Truth or Consequences, New Mexico. Access from Truth or Consequences is via 24 miles of paved highway and 3 miles of all-weather gravel road.

NMCC proposes to reopen the mine, re-establish production and expand the scope of the previous Quintana mining activities conducted at Copper Flat in 1982. The mine would operate 24-7. A portion of the ore body at Copper Flat is exposed at the surface and will be mined by conventional truck and shovel open pit methods. The planned facilities will be similar to those of the previous operator, including an open pit mine, a 25,000 TPD crushing circuit; course ore storage pile and reclaimer; a 25,000 TPD flotation mill; concentrate production facilities; waste rock stockpiles (WRSPS); and a tailings storage facility (TSF) to be built over the previous tailings impoundment. Upon receiving the required permit approvals, the project will begin site preparation and construction for approximately 2 years. The operating life of the project ("life of mine") is projected to be 11 to 12 years. Thereafter, the site will be closed and reclaimed per an approved reclamation and closure plan.

NMCC will mine approximately 113 million tons of ore and 45 million tons of waste rock during the operating life of the mine (158 million tons). Annually, the mining operation will supply 8.9-10.8 million tons of copper ore to the mill for processing (an average rate of approximately 25.5 to 29.6 thousand TPD) depending on operational conditions in the concentrator. Waste rock production will be highest in the early years of production while the mine is developed (e.g. 8.5 million tons in the first year to 2.5 million tons in the seventh year). Thereafter, waste rock production will decrease significantly (e.g. 718,000 tons in year eight to as little as 4,000 tons in year twelve).

The area inside the proposed permit area boundary is 2,190 acres. NMCC's proposed Copper Flat Project will disturb approximately 1,290 acres within the permit area, 910 acres of which were originally disturbed by previous mining operations. There may also be some additional acreage disturbance on lands outside of the permit area boundary related to ancillary facilities such as the well field, the substation and power line, and the water pipeline.

Air Quality Impacts

Copper Flat mine will be a source of PM, NO_2, CO and SO_2 emissions. NO_2, CO and SO_2 emissions occur during blasting in the open pit mine. Blasting operations will occur mostly during the afternoon, for an estimated 290 blasts per year. The Copper Flat Project is designed to control particulate emissions to meet all regulatory standards. Committed air quality practices would include dust control for mine unit operations. The fugitive dust control program would provide for water application on haul roads and other disturbed areas; chemical dust suppressant application (e.g. magnesium chloride) where appropriate, and other dust control measures as per accepted industry practice. Disturbed areas would be seeded with an interim seed mix to

minimize fugitive dust emission from un-vegetated surfaces where appropriate. Fugitive emissions in the process area would be controlled at the crusher, stockpile reclaimer and conveyor drop points through the use of fugitive dust collectors. Other process areas requiring dust and/or emission controls include the concentrate drying and packaging circuit and the various process plants. Emission control equipment will be installed and operated in accordance with the air quality construction permit. The lime storage would be fitted with a dust collector for capture of fugitive dust during loading of the lime silo.

No gaseous contaminants, with the exception of blasting, are expected to be emitted to the atmosphere from the proposed stationary source operations. Drilling operations would be done wet or with other efficient dust control measures. At a minimum, haul roads, waste rock disposal areas, and ore transfer points would be wetted down on a regular basis to minimize dust emissions. Fugitive SO_2 emissions from ore and the flotation equipment are expected to be small due to the low volatility of the sulfur compounds present in the concentrate.

Recommendation

Assuming that the facility stays in compliance with their air quality permit, the AQB has no objection to the proposed *Updated Mining Operation and Reclamation Plan*

If you have any questions, please contact me at (505) 476-4317.

Ennis, David, EMNRD

From: Rappuhn, Doug H., OSE
Sent: Friday, January 6, 2017 4:48 PM
To: Ennis, David, EMNRD
Subject: NMOSE comments on Updated Mining Operation and Reclamation Plan, Copper Flat Mine, Sierra County, New Mexico, MMD Permit Tracking No. SI027RN

David –

NMOSE comments on subject proposed Copper Flat Mine materials (provided via 11/8/2016 link to the MMD website) are listed below. Thanks for the opportunity to comment.

Douglas H. Rappuhn
Hydrology Bureau / New Mexico Office of the State Engineer
5550 San Antonio Blvd NE
Albuquerque, NM 87109
505-383-4000

-

Testimony in the LRG-4652 water rights trial concluded in 2016, but court verdict has not yet been rendered. Availability of adequate water rights to conduct the proposed mining activities is necessary, and acquisition of rights will be required if sufficient rights are not deemed already in place. The NMOSE has not yet assessed hydrologic effects related to proposed project water use. The (potential) transfer-in of an undetermined amount of new water rights would result in an (as-yet undetermined) amount of depletions on Rio Grande flow and potential effects to the viability of proximal wells of other ownership. Depletions to flow in the Rio Grande would require offset in a manner acceptable to the NMOSE, and proximal well viability concerns may need addressing.

The rights transfer and assessment process would begin with application to the NMOSE through our Las Cruces office. Assessment of effects may benefit from, but not necessarily be conducted using project consultant JSAI groundwater flow model, referenced on page 4-2 of the submitted *Updated Mining Operation and Reclamation Plan for its Copper Flat Mine (October 2016)*.

Appendix A - Feasibility Level Design, 30,000 TPD Tailings Storage Facility (November 30, 2015)* page 2 notes "The new TSF design will comply with the design and dam-safety guidelines and regulations of the New Mexico Office of the State Engineer (OSE) Dam Safety Bureau (NMDSB, 2010)." Also, *Appendix B – Copper Flat Project Impoundment Design Report (signed 12/7/2015)* page 3 notes "All impoundments for the Copper Flat Project will be considered "new" impoundments as defined by NMAC 20.6.7.17(D)."

These documents, and as necessary, *Appendix D – Copper Flat Project Site Diversion Analysis Report*, relate to the design of project tailings storage facility and diversion (re-routing) plans for existing topographic drainages in the vicinity of project facilities. As new impoundments, the structures are subject to submittal of required NMOSE Dam Safety Bureau permit application and review. I understand project representatives have conferred with NMDSB personnel regarding the required submittal and that analysis and permitting will occur via that process.

*: Note that *Updated Mining Operation and Reclamation Plan for its Copper Flat Mine (October 2016)* references a June 2016 Appendix A revision on unnumbered title page for Appendix A following Section 5.0 – References.

Appendix E - Mine Reclamation and Closure Plan (October 7, 2016) addresses final disposition of various physical components of the project, and either that "installation, operation, and maintenance of groundwater monitoring wells that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC", or that "groundwater monitoring wells and surface water samplers that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC" will occur relative to the closure of several of the project components. It is reasonable to assume a suite of project monitor wells will be required for assessment of project effects post-cessation of mining. With consent of the appropriate regulatory agencies, these or other monitor or production wells may be considered for eventual decommissioning by plugging. Well plugging procedures may fall under joint jurisdiction of the NMOSE, MMD, and NMED, and the authorized plugging process may be specific to the original well design, hydrogeologic unit penetrated, and/or chemistry of groundwater tapped.

All project wellheads shall be crafted at a minimum following 19.27.4 NMAC well design regulations and made safe from vandalism and the unwarranted infiltration or injection of contaminants and surface water. As project activities wind down and the presence of authorized personnel becomes less common, wellheads should be capably secured and locations documented, or decommissioned as required under project permit. Well decommissioning is generally accomplished by plugging by a New Mexico-licensed Well Driller. No well shall be buried, destroyed, or plugged without appropriate regulatory approval and permitting. The retention of an unused well is not a given, so should alternative uses be desired for any project well, the NMOSE shall be consulted to review the need for administrative filings related to amended ownership and/or use, provided the request is otherwise deemed permissible by actual property owner and collaborating regulatory agencies.

GOVERNOR
Susana Martinez

DIRECTOR AND SECRETARY
TO THE COMMISSION
Alexandra Sandoval

DEPUTY DIRECTOR
Donald L. Jaramillo

STATE OF NEW MEXICO
DEPARTMENT OF GAME & FISH

One Wildlife Way, Santa Fe, NM 87507

Post Office Box 25112, Santa Fe, NM 87504

Tel: (505) 476-8000 | Fax: (505) 476-8123

For information call: (888) 248-6866

www.wildlife.state.nm.us

STATE GAME COMMISSION

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Roswell

THOMAS "DICK" SALOPEK
Las Cruces

9 January 2017

David J. (DJ) Ennis, P.G.
Permit Lead, Mining Act Reclamation Program (MARP)
EMNRD Mining and Minerals Division
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: New Mexico Copper Corporation (NMCC) Updated Mining Operation and Reclamation Plan, Copper Flat Mine, Sierra County, Permit No. SI027RN; NMDGF No. 17415

Dear Mr. Ennis:

In response to your letter dated 8 November 2016, the New Mexico Department of Game and Fish (Department) has reviewed the updated Mining Operation and Reclamation Plan for the Copper Flat Mine permit application.

- Section 2.3, Wildlife Impacts Contingency Plan, states that fencing of "appropriate height" will be constructed around process water and solution ponds to keep out larger wildlife such as deer and antelope. The Department recommends that exclusionary fencing for livestock be designed to minimize potential injury to any wildlife attempting to cross under or over the fence. The fence can be designed to exclude the smaller terrestrial animals as well, by wrapping the bottom of eight foot chain link fence with a smaller mesh material. Please consult the Department's Livestock Wildlife Fence Guidelines for details, at: http://www.wildlife.state.nm.us/download/conservation/habitat-handbook/project-guidelines/Livestock-Wildlife-Fence-Guidelines.pdf. For those containment ponds and reservoirs that do not require exclusionary fencing, escape ramps should be constructed to intercept an animal swimming around the periphery of the tank, pit or pond, at any water level. Ramps should be constructed from a textured, non-slippery material. This section of the plan also states that for "avian species the use of exclusionary devices will be employed, as needed, to prevent exposure to toxic chemicals and conditions created by mining activities". Exclusionary devices such as netting or other materials should be designed and maintained to prevent entanglement or entrapment of both birds and bats. Monofilament nylon netting material should never be used because it is significantly more likely to ensnare wildlife, and cause injury or death. Extruded, knit, or woven netting is preferred, and should be kept taut and inspected regularly. Department staff is available for consultation to assist in developing appropriate wildlife-friendly fence designs and netting options for specific applications.
- Section 2.5, Post Mining Land Use, states that the pit lake will "provide enhanced avian wildlife habitat and a water source for transient wildlife". The potential benefit to wildlife from the pit lake will be contingent upon meeting surface water quality standards over an

extended time frame. Since the open pit is a hydraulic sink and groundwater recharge from local precipitation to the crystalline bedrock is limited because of its low hydraulic conductivity, any metals that leach into the pit lake from the surrounding high walls and mining area could concentrate over time, if the evaporation rate exceeds the recharge rate from local precipitation. This condition will be exacerbated if the local climate becomes hotter and drier in the future. New Mexico Copper Corporation should have a long-term mitigation plan in place to protect migratory birds and local wildlife if the water quality in the pit lake becomes toxic over time. Mitigation measures could include a combination of both exclusionary and hazing techniques.

- Section 4.1, Best Management Practices, states that NMCC will use only certified weed-free seed and mulch. It should also state that only native plant species will be used for reclamation and if possible, that they are sourced from within the same region and vegetative community types.
- Section 4.3.1, Shafts, Adits or Tunnels, states that historic mine workings exist within the permit area and that NMCC will work with the Bureau of Land Management to safeguard those features from unauthorized entry. All historic mine workings should be evaluated for bat activity. Shafts and adits that are used by bats should be appropriately gated to protect bats as well as prevent unauthorized human entry. Information and guidance on determining the most appropriate closure type for specific mine openings can be found at the Abandoned Mine Closure Website (http://www.batgating.com/).
- Section 4.3.2 states that exclusionary fencing will be used in high hazard areas that include electrical substations. The Department recommends that electrical substations and associated surface power lines be constructed in conformance with the Avian Power Line Interaction Committee's "Suggested Practices for Avian Protection on Power Lines" (2006) (www.aplic.org/mission.php).

Thank you for the opportunity to review and comment on the updated Mining Operation and Reclamation Plan. If you have any questions, please contact Ron Kellermueller, Mining and Energy Habitat Specialist, at (505) 476-8159 or ronald.kellermueller@state.nm.us.

Sincerely,

Chuck Hayes, Assistant Chief
Ecological and Environmental Planning Division

cc: USFWS NMES Field Office
Daniel Lusk (Southwest Regional Habitat Biologist, NMDGF)

Susana Martinez
Governor

STATE OF NEW MEXICO
DEPARTMENT OF CULTURAL AFFAIRS
HISTORIC PRESERVATION DIVISION

BATAAN MEMORIAL BUILDING
407 GALISTEO STREET, SUITE 236
SANTA FE, NEW MEXICO 87501
PHONE (505) 827-6320 FAX (505) 827-6338

January 23, 2017

David J. Ennis, P.G.
Permit Lead
Mining Act Reclamation Program
Mining and Minerals Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Updated Mining Operation and Reclamation Plan, Copper Flat Min, Sierra County, New Mexico, SI027RN

Dear Mr. Ennis:

This letter is in response to the above the aforementioned Mining and Operation Plan for the Copper Flat Mine.

In accordance with rule 19.10.6.605.C NMAC, I reviewed our records to determine if cemeteries, burial grounds or cultural resources listed on the State Register of Cultural Properties or the National Register of Historic Places exist within or near the permit area. Our records show that there are no cultural resources listed on the National Register or State Register within or near the proposed permit area. There are however, resources tentatively identified as burial grounds. Although there are no cultural resources listed on the State or National Register, our records show several archaeological surveys within part of the permit area. These surveys identified archaeological sites and a historic district.

The Bureau of Land Management and the New Mexico State Historic Preservation Officer have entered into a Programmatic Agreement to take into the account the mine operation's effects to historic properties and to resolve adverse effects to historic properties pursuant to Title 54 306108 (aka Section 106) of the National Historic Preservation Act and its implementing regulation, 36 CFR 800. The BLM may require avoidance of any eligible archaeological sites and an archaeological monitor to ensure that eligible sites are not affected.

Please do not hesitate to contact me if you have any questions regarding these comments. I can be reached by telephone at (505) 827-4064 or by email at bob.estes@state.nm.us..

Sincerely,

Bob Estes

Bob Estes Ph.D.
Archaeologist

Log: 104742, 104758

Cc: David Legare,
Archaeologist, Bureau of Land Management

Cooperating Agencies - NMCC Meeting – PROPOSED AGENDA
17 May 2017 14:30 MST
MMD Conference room

1. EIS status
    - Comment processing/Status
    - Section 7 Consultation
2. Discharge Permit status
3. Permit Application Package status
4. Pit Discussion
5. Next meeting date discussion
6. Any desired conversation without NMCC present

May 17, 2017 - Reid Meeting Notes:

1. EIS Status

- Not much progress to report
- NMCC working on some final data requests.

2. DP Status

- NMCC submitted a response to NMED RFAI on April 14. NMED technical completeness deadline is July 16.

3. PAP Status

- MMD provided comments to NMCC on April 21. NMCC working to respond to this within 60 days.
- NMCC still has the probable hydrologic consequences report.

4. Pit Lake Discussion

- NMCC working on it with state agencies.

Next Meeting – June 28

NEW MEXICO
ENVIRONMENT DEPARTMENT

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lt. Governor

Harold Runnels Building
1190 Saint Francis Drive (87505)
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2990 Fax (505) 827-1628
www.env.nm.gov

BUTCH TONGATE
Cabinet Secretary
J.C. BORREGO
Deputy Secretary

June 1, 2017

VIA E-MAIL

Jaimie Park
jpark@nmelc.org

Re: Request to Inspect Public Records

Dear Ms. Park:

On June 1, 2017, this office received your request for public information. You request information pertaining to: May 2017 Copper Flat cooperating agency meeting notes, among other documents. (See attached request).

I forwarded your request to the bureaus on June 1, 2017. The bureaus will respond by June 16, 2017.

Should you have any questions, please contact the Ground Water Quality Bureau at (505) 827-2919 and the Surface Water Quality Bureau at (505) 827-2819.

Sincerely,

Melissa Y. Mascareñas
New Mexico Environment Department
Department Public Records Custodian

cc: Andrew Knight, Assistant General Counsel
Michelle Hunter, Chief, Ground Water Quality Bureau
Shelly Lemon, Chief, Surface Water Quality Bureau

NEW MEXICO ENVIRONMENT DEPARTMENT
INSPECTION OF PUBLIC RECORD REQUEST FORM

Please fill out the following information:

1. Date: June 1, 2017

2. Requestor's Name: Jaimie Park, New Mexico Environmental Law Center

3. Requestor's Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

4. Phone No.: (505) 989-9022

5. Email:
jpark@nmelc.org

6. Company Being Represented: New Mexico Environmental Law Center

7. Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

8. Document or File being requested to be reviewed or copied (please describe the records in sufficient detail to enable Department personnel to reasonably identify & locate the records:

I request that you inform me what documents are available within the scope of this request and when I can inspect those documents. I also request that you not make any copies without first informing me of the number of copies and the cost for the copying that are involved. Finally, I request that if you determine that any documents or portions of documents are exempt from disclosure you inform me of that and provide me with citations to the provisions in the Inspection of Public Records Act that indicate that the documents or portions of documents are exempt from disclosure, describe the type of document being withheld, and identify who sent the document being withheld and who received the document being withheld.

Records being requested:

1. May 2017 proposed Copper Flat Copper Mine cooperating agencies meeting notes.
2. New Mexico Copper Corporation's response to NMED's request for additional information on NMCC's discharge permit application, date range February 15, 2017 through April 17, 2017;
3. Surveys submitted by New Mexico Copper Corporation to NMED regarding the Copper Flat Copper Mine pit lake;
4. NMED determination regarding Copper Flat Copper Mine pit lake being a private water, date range February 15, 2017 through April 17, 2017;
5. Bureau of Land Management request to the Surface Water Quality Bureau to write a letter of concurrence for the Surface Water Quality Bureau's benefit regarding the proposed

NEW MEXICO
ENVIRONMENT DEPARTMENT

SUSANA MARTINEZ
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Harold Runnels Building
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Phone (505) 827-2990 Fax (505) 827-1628
www.env.nm.gov

BUTCH TONGATE
Cabinet Secretary
J.C. BORREGO
Deputy Secretary

June 28, 2017

VIA E-MAIL

Jaimie Park
jpark@nmelc.org

Re: Request to Inspect Public Records

Dear Ms. Park:

On June 28, 2017, this office received your request for public information. You request information pertaining to: additional Copper Flat cooperating agency meeting notes, among other documents. (See attached request).

I forwarded your request to the bureaus on June 28, 2017. The bureaus will respond by July 12, 2017.

Should you have any questions, please contact the Ground Water Quality Bureau at (505) 827-2919 and the Surface Water Quality Bureau at (505) 827-2819.

Sincerely,

Melissa Y. Mascareñas
New Mexico Environment Department
Department Public Records Custodian

cc: Andrew Knight, Assistant General Counsel
Michelle Hunter, Chief, Ground Water Quality Bureau
Shelly Lemon, Chief, Surface Water Quality Bureau

NEW MEXICO ENVIRONMENT DEPARTMENT
INSPECTION OF PUBLIC RECORD REQUEST FORM

Please fill out the following information:

1. Date: June 28, 2017

2. Requestor's Name: Jaimie Park, New Mexico Environmental Law Center

3. Requestor's Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

4. Phone No.: (505) 989-9022

5. Email:
jpark@nmelc.org

6. Company Being Represented: New Mexico Environmental Law Center

7. Address: 1405 Luisa Street, Suite 5, Santa Fe, NM 87505

8. Document or File being requested to be reviewed or copied (please describe the records in sufficient detail to enable Department personnel to reasonably identify & locate the records:

I request that you inform me what documents are available within the scope of this request and when I can inspect those documents. I also request that you not make any copies without first informing me of the number of copies and the cost for the copying that are involved. Finally, I request that if you determine that any documents or portions of documents are exempt from disclosure you inform me of that and provide me with citations to the provisions in the Inspection of Public Records Act that indicate that the documents or portions of documents are exempt from disclosure, describe the type of document being withheld, and identify who sent the document being withheld and who received the document being withheld.

Records being requested:

1. June 28, 2017 proposed Copper Flat Copper Mine cooperating agencies meeting notes;

2. New Mexico Copper Corporation's response to NMED's request for additional information on NMCC's discharge permit application, date range June 1, 2017 through June 28, 2017;

3. NMED determination regarding Copper Flat Copper Mine pit lake being a private water, date range June 1, 2017 through June 28, 2017;

4. Bureau of Land Management request to the Surface Water Quality Bureau to write a letter of concurrence for the Surface Water Quality Bureau's benefit regarding the proposed Copper Flat Copper Mine pit lake and associated patented claims surveys completed and a finding that the pit lake constitutes a "private water" and is not subject to either surface or groundwater quality standards; and

5. New Mexico Copper Corporation submittals to NMED pertaining to its discharge permit application since June 1, 2017.

9. NMED Bureau where Document/File can be found (if known): Surface Water Quality Bureau, Ground Water Quality Bureau

Signature

The cost for copying by NMED is as indicated on Attachment A. Please send this request to:

Melissa Y. Mascareñas
Inspection of Public Records Officer
1190 St. Francis Drive, Ste. N-4050
Santa Fe, New Mexico 87505
fax: (505) 827-1628 or
email: melissa.mascarenas@state.nm.us

Cooperating Agencies - NMCC Meeting – PROPOSED AGENDA
28 June 2017 14:30 MDT
MMD Conference room

1. EIS status
    - Comment processing/Status
    - Section 7 Consultation
2. Discharge Permit status
3. Permit Application Package status
4. Pit Discussion
5. Next meeting date discussion – NMCC proposes 23 or 30 Aug
6. Any desired conversation without NMCC present

June 28, 2017 - Reid Meeting Notes:

1. EIS Status

- 3 questions that BLM posed to NMCC…NMCC still working on answering them: pit lake water quality, GW Quality Monitoring, biological assessment
- Starting August 6, Doug will be out for 4 months on survey work in Alaska
- Katie wondering who from BLM will be making decisions for next 4 months. Leeandra will be managing the project while he is out, not sure about decision making

2. Discharge Permit Status

- Deadline July 16 for technical completeness (Sunday…so actually July 17)

3. PAP

- NMCC requested an extension, new deadline July 17 for MORP answers
- Pit water update, still working on questions. Still waiting to hear back from SF BLM office on the patented survey

4. Water Rights

- Judge Wexler retiring July 31. Not sure how this impacts water rights decision

Next Meeting = August 30

NEW MEXICO
ENVIRONMENTAL LAW CENTER

July 3, 2017

Shelly Lemon, Bureau Chief
Surface Water Quality Bureau
New Mexico Environment Department
1190 St. Francis Dr.
P.O. Box 5469
Santa Fe, NM 87502

RE: Copper Flat Copper Mine Current and Proposed Future Pit Lake in Sierra County, New Mexico

Dear Mrs. Lemon:

The New Mexico Environmental Law Center ("NMELC") represents Turner Ranch Properties, L.P. ("TRP"), owner of the Ladder Ranch ("Ranch") in Hillsboro, New Mexico. The Ranch is located adjacent to the Copper Flat Copper Mine site ("Mine"), which the New Mexico Copper Corporation ("NMCC") has proposed to reopen. As part of the proposed reopening process, NMCC has requested that the New Mexico Environment Department ("NMED") regulate the Mine's current and potentially future expanded pit lake ("Pit Lake") as a "private water of the State," thereby exempting it from New Mexico's water quality protection regulations. NMCC Letter to Surface Water Quality Bureau (August 9, 2016). On behalf of TRP, NMELC hereby requests that NMED continue to regulate the Pit Lake as a surface water of the State, subject to New Mexico's water quality protection regulations.

The Pit Lake cannot satisfy New Mexico's private waters exemption for the following two reasons: first, the Pit Lake is partially located on public lands; and second, the Pit Lake will not remain an evaporative sink during post-closure operations and will combine with groundwater. Therefore, NMED must continue to regulate this toxic body of water as a surface

1405 Luisa Street, Suite 5, Santa Fe, New Mexico 87505
Phone (505) 989-9022 Fax (505) 989-3769 nmelc@nmelc.org

water of the State, subject to water quality protection regulations, and must require NMCC to complete its Use Attainability Analysis ("UAA") for the Pit Lake.

I. Surface Waters of the State and the Private Waters Exemption.

New Mexico has historically treated pit lakes, which are water bodies within artificially constructed pits created as a result of copper mining activity, as surface waters of the state subject to New Mexico's surface water quality standards. 20.6.4 NMAC. Flow-through pit lakes that recharge the groundwater must also meet groundwater standards. *Id.* Until pit lakes are reclaimed to meet water quality standards they pose a grave threat to wildlife.[1] NMCC has requested NMED find that the Mine's Pit Lake is not a surface water of the State, but rather a "private water of the State" not subject to either State surface or groundwater quality protection standards.

The "private waters exemption" is found at 20.6.4.7(5) NMAC. It states, in pertinent part:

> Surface waters of the state does not include private waters that do not combine with other surface or subsurface water or any water under tribal regulatory jurisdiction pursuant to Section 518 of the Clean Water Act.

Id.

A two-part test is used in determining whether a pit lake satisfies the private waters exemption. The first part of the test is whether the pit lake is solely on private lands. The pit lake cannot be situated "wholly or partly within or bordering upon the state." *Id.* The second part of the test is whether the pit lake will combine with either surface or subsurface water or any

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[1] The U.S. Fish and Wildlife Service determined that the 3,000 to 4,000 snow geese that perished in the Berkley Pit in Montana in December 2016 died due to heavy metals and sulfuric acid exposure. http://mtstandard.com/natural-resources/superfund/metals-acid-in-berkeley-pit-water-killed-geese-report-confirms/article_0d30c9c3-ae67-56cf-9314-bb1685a1a42d.html. Last visited on June 26, 2017.

water under tribal regulatory jurisdiction. *Id.* The Pit Lake, both in its current and potential future expanded states, does not satisfy this two-part test for the reasons discussed below.

II. The Pit Lake is Situated on Both Public and Private Lands.

The Pit Lake is situated on both public and private lands. The Bureau of Land Management ("BLM") "manages surface ownership of 56 percent of the Copper Flat site and 44 percent is privately owned." Draft Environmental Impact Statement, page 1-1; *see also* Figure 1-1 (Source: BLM 2015) (November 2015). Specifically, "10 percent of the open pit would be located on public land subject to mining claims controlled by NMCC ...." *Id.* at 2-2 (citing to THEMAC 2011). This comports with the previous Mine owner's assertion regarding location of the Pit Lake. *See* Draft Environmental Impact Statement, page 2-5 (1996) ("10 percent of the open pit would be on public land"); *see also* Figure 2-1, attached as Exhibit A (Date: NOV/17/1995; ACAD FILE: 12-476\401\BASE).

Moreover, legal counsel for NMCC conceded to NMED that a portion of the Pit Lake is situated on public lands. Mine Cooperating Agency Meeting Notes, page 3 (April 28, 2016).[2] Therefore, the Pit Lake fails to satisfy the private water exemption's requirement that the surface water be situated wholly on private land.

III. The Pit Lake Will Not Remain an Evaporative Sink at the End of Mining.

NMCC's inadequate hydrologic modeling fails to show that the Pit Lake will not remain a hydrologic evaporative sink at all times during post-closure operations.[3] The Pit Lake will

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[2] Attached as Exhibit B.

[3] NMED responded to NMCC's August 5, 2016 request letter on October 21, 2016. Acting Surface Water Quality Bureau Chief, Shelly Lemon, stated in response:

[A] groundwater flow model report submitted by your company to the Department with the ground water discharge permit application contains hydrologic modeling showing that the water body does not combine with other surface or subsurface waters. The modeling shows that the water body is an evaporative sink, meaning that ground water

combine with subsurface waters during and after rapid fill of the pit after mining operations cease. Back in April 2016, NMELC provided extensive comments on the BLM's Draft Environmental Impact Statement ("DEIS") released in November 2015, with particular emphasis on the DEIS's failure to fully ascertain hydrologic baseline conditions and the resultant conceptual flow model errors and numerical flow model errors and biases relied upon in the DEIS.[4] In light of these substantial hydrologic modeling errors, NMED should not presume NMCC's groundwater flow model is scientifically valid.

NMELC requests that NMED take into consideration a recent technical memorandum prepared by its Hydrologic Consultant, Dr. Tom Myers, addressing the Pit Lake.[5] In his technical memorandum, Myers concludes that "pit lake water would enter the surrounding formations as groundwater" due to rapid fill of the pit after mining operations cease. Dr. Tom Myers Technical Memorandum, "Description of Pit Lake Formation, Copper Flat", page 8 (June 25, 2017) ("Myers Technical Memo").

Myers has estimated that the Pit Lake surface "would be about 600 feet below the rim of the pit" at the end of mining operations. Myers Technical Memo, page 2. The DEIS states that the Proposed Action and Alternatives 2 and 3 include a "rapid fill" of the pit to limit the exposure of sulfide in the wall rock to oxidation and to stabilize pit water quality after mining operations cease. DEIS, page 2-44 (November 2015). The plan would "bring pit water to a

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within a certain radius will flow exclusively toward the pit, where it will evaporated along with any stormwater that enters the pit. Additional hydrologic modeling demonstrates that at the end of mining, the pit will remain an evaporative sink.

NMED Response Letter to NMCC, pages 1-2 (October 21, 2016). NMED fails to cite to additional hydrologic modeling demonstrating that at the end of mining the pit lake will remain an evaporative sink.

[4] *See* NMELC's comments on the DEIS, pages 2-3, 6-7, 20-26, 45-48, 54-57 (April 4, 2016).

[5] Myers' Technical Memo has been attached as Exhibit C.

steady-state water level elevation in less than a year through the addition of groundwater from the mine production wells, rather than the many years it would take for the pit water elevation to rise to this level if it were to refill naturally." *Id.* About 2800 acre feet of water would be pumped into the pit within seven months at 3,000 gallons per minute. *Id.* The DEIS claims that this would "create a steady state condition for the hydraulic sink in the near term rather than waiting for the natural refilling of the pit." *Id.* Myers estimates that natural refill of the pit would take between 35-100 years. Myers Technical Memo, page 3.

Rapid filling the pit after the end of mining operations will cause Pit Lake water to combine with groundwater for the following reason:

> Rapid refilling of the pit would occur at a rate as much as 60 times that of the natural inflow rate. This would cause the pit lake level to rise much faster than it would solely on groundwater inflow and runoff. It would also rise faster than the groundwater table around the pit would rise naturally because natural groundwater level rise depends on the rate that groundwater can flow toward the pit, and that is very limited by the low conductivity in most of the bedrock. *Because the rising pit lake levels would be higher than the surrounding groundwater, it would cause the water table to slope from the pit lake into the surrounding formations, opposite from its share during natural refill. Water would enter the formations from the rising pit lake.*

Id. at page 7 (emphasis added). It is unclear for how long Pit Lake water will enter surrounding formations and combine with groundwater. Therefore, the Pit Lake fails to satisfy the private waters exemption's requirement that it not combine with surface or subsurface water.

IV. NMED Must Require NMCC to Complete Its Use Attainability Analysis of the Pit Lake.

The New Mexico Mining Act requires that new mines be designed "to meet without perpetual care all applicable environmental requirements imposed by the New Mexico Mining Act and regulations adopted pursuant to that act and other laws following closure." NMSA 1978, Section 69-36-12.B(4). This statutory requirement is implemented through Section 10.19.6.606.B(3) NMAC, which states that no permit shall be issued until:

> The Secretary of the Environment Department has provided a written determination stating that the permit applicant has demonstrated that the activities to be permitted or authorized will be expected to achieve compliance with all applicable air, water quality and other environmental standards if carried out as described in the permit application. This determination shall address applicable standards for air, surface water and ground water protection enforced by the Environment Department, or for which the Environment Department is otherwise responsible.

Id. In order for NMED to make a determination regarding whether NMCC will meet surface water and ground water protection standards after mining operations cease, a Use Attainability Analysis ("UAA") is required.

There are two main reasons why a UAA is needed. First, the Pit Lake is a surface water of the State, specifically it is a perennial unclassified water. Section 20.6.4.99 NMAC. Perennial unclassified waters have the following designated uses: "warm water aquatic life, livestock watering, wildlife habitat and primary contact." The designated use determines the water quality standards NMCC is required to meet. Section 20.6.4.900 NMAC. NMCC has conceded to NMED that it cannot meet standards for warm water aquatic life. Mine Cooperating Agency Meeting Notes, page 6 (April 28, 2016) ("We can't meet aquatic life. There will be no mining if we are required to meet warm water aquatic life standards".)

Second, NMED has determined that the proposed Mine cannot meet standards after mining operations cease based on NMCC's groundwater flow model. *Id.* at page 4 (James Hogan, Acting Bureau Chief of the Surface Water Quality Bureau, advised NMCC, "Right now, you can't meet standards."). Because the current Pit Lake does not currently meet standards[6] and NMCC's modeling demonstrates that the future expanded Pit Lake will not meet standards, a UAA is required.

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[6] *See* DEIS, pages 3-21, 3-22; *See also* NMCC's Stage 1 Abatement Plan for the current pit lake.

A UAA "is a scientific study conducted for the purpose of assessing the factors affecting the attainment of a use," Section 20.6.4.15.A NMAC, and "shall assess the physical, chemical, biological, economic or other factors affecting the attainment of a use." *Id.* at -B. The New Mexico Water Quality Control Commission ("WQCC") may, upon request by NMCC, remove a designated use "only if a use attainability analysis demonstrates that attaining the use is not feasible." *Id.* at –A(1). Therefore, if NMCC wants to avoid meeting standards for the designated use of warm water aquatic life because it has conceded that it cannot meet this standard at the Pit Lake, then NMCC must complete a UAA in order to request that the WQCC remove this designated use and thereby remove the associated requirement of meeting those particular water quality standards. Until a UAA is completed and the WQCC has ruled on a request to remove the designated use of warm water aquatic life from the Pit Lake, NMED cannot certify to MMD that the Mine will meet the applicable water quality standards upon mine closure.

Additionally, the DEIS stated that a "use attainability analysis is being conducted to evaluate if the pit lake was capable of attaining a designated use such as warm water aquatic life based on physical, chemical, biological, or other factors." DEIS 3-33. This statement is factually incorrect for two reasons. First, NMCC has not completed a use attainability analysis for the Mine's Pit Lake. In fact, NMCC has requested that NMED either 1) not require a UAA or 2) defer the completion of a UAA until after closure of mining activities. Mine Cooperating Agency Meeting Notes, page 4 (April 28, 2016). Second, NMCC is now claiming that the Pit Lake is a "private water of the State" and not subject to State groundwater and surface water quality standards, therefore a UAA is no longer required.

V. Conclusion.

For the above stated reasons, NMED must continue to regulate the Pit Lake as a surface water of the State subject to water quality protection regulations and must therefore require NMCC to complete its UAA for the Pit Lake.

Regards,

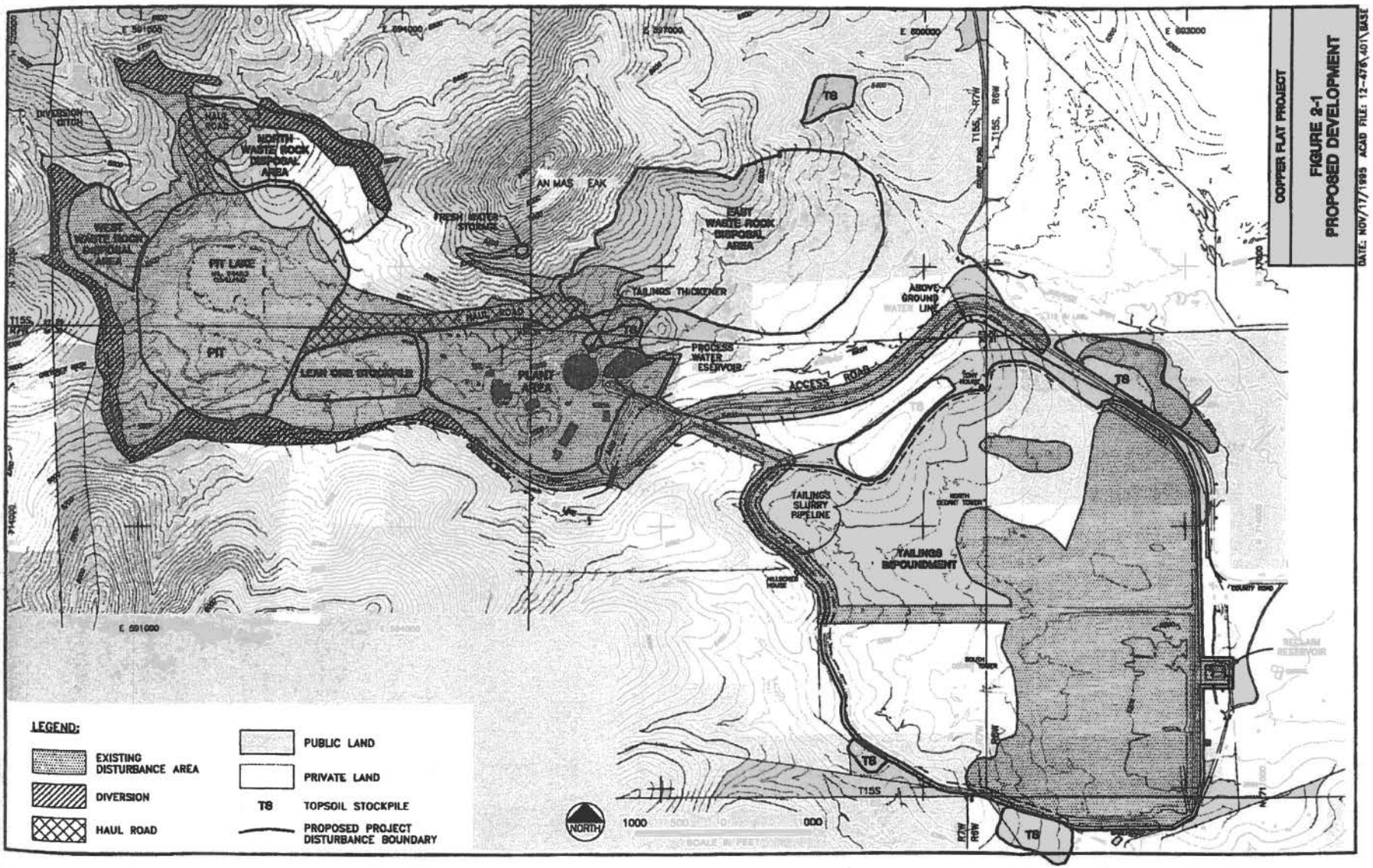
Jaimie Park, Staff Attorney
New Mexico Environmental Law Center

Cc:

Andrew Knight, Assistant General Counsel
New Mexico Environment Department

Doug Haywood, Project Lead
Copper Flat Copper Mine Project
BLM Las Cruces District Office

Holland Shepherd, Program Manager
New Mexico Mining and Minerals Division,
Mining Act Reclamation Program


COPPER FLAT PROJECT
FIGURE 2-1
PROPOSED DEVELOPMENT
DATE: NOV/17/1995 ACAD FILE: 12-476\401\BASE
NORTH WASTE ROCK DISPOSAL AREA
WEST WASTE ROCK DISPOSAL AREA
EAST WASTE ROCK DISPOSAL AREA
PIT LAKE
PIT
LEAN ORE STOCKPILE
PLANT AREA
FRESH WATER STORAGE
TAILINGS THICKENER
PROCESS WATER RESERVOIR
ACCESS ROAD
TAILINGS SLURRY PIPELINE
TAILINGS IMPOUNDMENT
RECLAIM RESERVOIR
DIVERSION DITCH
HAUL ROAD
TS
T15S
R7W
R6W
LEGEND:
EXISTING DISTURBANCE AREA
DIVERSION
HAUL ROAD
PUBLIC LAND
PRIVATE LAND
TOPSOIL STOCKPILE
PROPOSED PROJECT DISTURBANCE BOUNDARY
NORTH
1000
000

15404



Notes – Meeting of Surface Water Quality Bureau (SWQB) and New Mexico Copper Corporation (NMCC) on 28 April 2016

In Attendance

Name	Organization	Initials
James Hogan	NMED – SWQB	JH
Shelly Lemon	NMED – SWQB	SL
Andrew Knight	NMED – SWQB	AK
Bryan Dail	NMED – SWQB	BD
Kris Pintado	NMED – SWQB	KP
Brad Reid	NMED – GWQB	BR
Jeff Smith	NMCC	JS
Katie Emmer	NMCC	KE
Stuart Butzier	Modrall Sperling	SB
Christina Sheehan	Modrall Sperling	CS

Next Meeting: 23 May, 2pm at SWQB

Action Items

- NMED will consider and research the interpretations discussed regarding whether the Copper Flat Pit meets or is excluded from the definition of a surface water of the state and provide feedback on their position in the next scheduled meeting.
- NMCC will continue to work on the geochemical model and reclamation strategies that might improve future pit water quality, the economic impact of limiting mining to keep pit water on private lands, and the possibility of a Use Attainability Analysis (UAA).

Meeting Discussion

JH: Provided an overview of status based on KE's email and our previous conversations. There currently is a pit water body that the ACOE has determined is not jurisdictional "Waters of the United States" under the Clean Water Act. However, because the current pit water exceeds some NM surface water quality standards (for Cu, Zn, Cd, others), we've discussed that NMCC could do a UAA to change water quality standards- either modify or remove the aquatic life standard. During mining, the water will be pumped out of the pit. We've discussed that groundwater coming into the pit could be used in process per NMCC's Discharge Plan (DP) and within NMCC's water rights. Post mining, water will collect in the pit and the question will be does the future water meet the applicable water quality standards under a closure scenario.

JS- Confirmed JH's schematic overview: Copper Flat has a pit water body now, when mined it will be dewatered, and when the mine closes the water will return to the pit. Discussed background on where we've been and why we are here. JS has been with NMCC for about 2.5 years. Copper Flat was mined briefly in 1982 and had to be shut down due to copper prices. The plans for the proposed mine now being considered are similar to what Quintana put in place then. In 2013 NMCC did a project feasibility study, with engineering and economic analysis, and after that NMCC has had to focus most of its

attention on the NEPA process and getting BLM what they needed. NMCC has a small staff and with some considerable effort it did get the DEIS issued last year. In 2015, in addition to working on responding to requests for information from the BLM, NMCC shifted focus to the DP Application, and that was submitted in December of 2015. The DP is in review, and NMCC is in the process of responding to comments from NMED. Now NMCC is shifting its focus to the mine permit needed from MMD. This is why we are here today, we are shifting our focus to the regulatory issues we need to work through for that permit, and we want to clarify a few things and make sure we are all on the same page.

SB- Modrall has been asked to review things for NMCC, and has taken a step back to look at how the pit is understood in relation to the Water Quality Control Commission's (WQCC) definition of "surface waters of the state." NMCC wishes to explore that issue, discuss whether a possible UAA will be necessary, and come to an understanding of how the Determination the NMED needs to make under the Mining Act for the state mining permit to be issued under the Mining Act by the Mining and Minerals Division (MMD). Under that permitting process, the Post Mining Land Use (PMLU) will be wildlife at the pit. The pit will not be backfilled at the end of mining. It will be there. The pit is a unique situation. NMCC does not want active treatment at the end of mining. Cunningham Hill is perhaps a similar situation, but was already in play by 2010 when the surface water standards were changed.

JH- The Cunningham Hill permit was already in place and SWQB did not change the standards that apply to it at that time.

SB- Because the pit water situation at Copper Flat is fairly unique, how SWQB interprets the Copper Flat pit will not be hugely precedent setting. We view the Copper Flat pit as distinct from other sites where water will be in mine pits. Tyrone/Chino will have long term treatment, so they are exempt. The Cunningham pit is not subject to aquatic life or primary contact standards. Up to this point apparently NMED has been thinking that the water at Copper Flat probably is a "lake." Our interpretation is that it's not a lake and will not collect surface waters of the state. The definition draws distinctions between natural features and manmade bodies. Because the pit will be a hydrologic sink, it will not combine with surface or ground waters under the language of the surface waters of the state definition.

JH- So what about a manmade body, such as damming the Rio Grande and creating Elephant Butte?

SB- In that case you are impounding a water of the US, and the same water would be surface water of the state.

CS- That is expressly contemplated in the definition of a surface water of the state, it's a manmade body in a tributary.

JH- So what if you have a closed basin, such as Mimbres, and there's a stock pond there, is that a surface water of the state? It's in a stream channel, but we know the Army Corps of Engineers is not involved...

SB- Yes, that impounds surface waters of the state, it's created in a tributary, a stream that is a surface water of the state and once you impound that water, it's included.

KE- I'd note here that Grayback arroyo does not connect to the pit water body; this was one of the features that made ACOE comfortable to make their jurisdictional determination that the pit water is not a Water of the United States.

JS- I was part of making the diversion back in the 80s at Copper Flat. We diverted Grayback so that it goes around the pit.

BD- The water in the pit comes from groundwater coming into the ore body that is exposed.

SB- Correct. So you aren't impounding a surface water of the state. There will be water falling on the pit walls during precipitation events, but no tributary flowing in. We don't expect a solution today; we just want to talk through a list of things for you to think about, and for us to think about.

AK – I followed this case from the side lines when Kay Bonsa was assigned to this project. I have been willing to revisit her conclusions if it ever was assigned to me, and now it is. I think this will turn on how we've interpreted the definition in the past and in other similar places. I need to dive deeply into this topic and do some research. Kay didn't do much mining; she worked on waters of the US, dairy. On its face, the interpretation you are presenting is plausible and will require a lot of research on my part to see what kind of context we have.

SB – Under Part 6 of the Mining Act there is a stringent (some would say onerous) permitting process that MMD administers and requires a NMED determination that the plan will meet all standards. NMCC is of course concerned about wildlife. There is a provision in Part 6 that addresses wildlife, and so there will be consideration of protecting wildlife. Even if SWQB concludes the pit water is not surface waters of the state, NMED will have an opportunity to comment on the application, and MMD may confer with NMED about protections for wildlife. Wildlife protection issues will be addressed through the mining program administered by MMD.

JH- So if MMD came to us, we would say (in this scenario), it's not a surface water of the state, no standards apply, but MMD may ask what is needed to protect wildlife and we could advise on what is appropriate.

SB- NMED could urge MMD to consider its standards relating to wildlife protection.

JH- So Andrew, would you want anything further from Stuart on this, a memo or any rendering of opinion?

AK- (No.) I have enough to get started.

SB – We are happy to field any questions. So after that question of the definition of a surface water of the state, which is our first layer that we'd like you to consider, there is a second layer of interpretation SWQB could consider, that of private waters. Most of the water body at the end of mine life will be on patented mining claims, which is to say they are on private lands. Most of the surface expression of the pit water falls on patented land; only a small sliver expresses on unpatented claims, which are not fee lands. If you assume for the discussion that the pit water is disqualified for a private water when it expresses beyond the boundary of patented lands, what if the future water body were to be entirely confined to private land? We are interested in NMED's view of this alteration, if NMCC decided to make it, would cause you to conclude the water is private.

JH – If you can figure out a way to avoid that issue, the private waters exclusion is clear. We would entertain that.

SB – We understand the reasoning that if part is not on private land, there's access. But to be clear, our first layer interpretation is our first choice: the pit water is a unique water body and does not meet the definition of a surface water of the state, so it is not even necessary to consider the private waters exception.

SB – So on a third level, and only if the SWQB decides the pit water meets the definition of a surface water of the state and is not within the private waters exception, we have the issue of the tricky UAA process. The UAA purpose is to try to scale back some normal fishable/swimmable standards based on attainability. You've indicated NMCC may need to do a UAA on current water, how do you transpose that to future water?

JH – It all comes down to the future pit water body. The water in the current pit does not meet standards. If future water meets standards at the end, then fine. If you can't meet standards in the future, do the UAA on the present water body and if the standards are modified or removed, that same change (in standards applied) would ultimately apply to the future pit.

SB – We wanted to explore this idea of doing a UAA on the current water. The current water doesn't tell you much about the water in the future pit. The company expects to mine out most of the sulfides in the pit and will take reclamation steps to limit the amount of water that comes in contact with sulfides. They are still in the process of undertaking that planning and analysis. Based on no reclamation, the pit will maybe not meet the standard for Se. But we are optimistic that modeling can show standards will be met. Could we skip doing the UAA today? Give MMD a plan, we think we will meet but if we can't, then at that point we would do a UAA. Is that a way to avoid problems now? Allow NMED to say that we will meet in the future, but still provide cover if we don't.

JH – Right now, you can't meet standards. There are some constituents that the model shows as high where the current data from the actual pit water it's lower. The model isn't able to accurately predict exactly what is in the pit, some things are high, some are low. Perhaps you can show that the model is conservative and use it. What I hear you saying is we will look at the future water body and see if we can meet those standards, perhaps do more future measures, remove sources of constituents. If you can show that you will be able to meet standards and have confidence in the reasoning, then yes (NMED can offer the determination). If however based on your analysis you believe you can't meet a, b, c, that will kick us back to the UAA.

SB – We are wondering about timing. We think we will meet standards, but if we don't, perhaps a UAA in the future.

BR – So you would monitor the pit way into the future? Such that perhaps you find 50 years after closure that it's not meeting standards and do something then? Will that be considered perpetual care?

SB – No, I had only contemplated running a new model at the end of mine life, allowing us to re-assess at closure with more information about the pit walls, etc. One thought is if we can push the UAA decision to the end of mine life, perhaps we could set up a process where NMED can today say it's ok if you go through this process.

JH – I'm not sure we could.

AK- For us to make a determination, if you can show you will meet standards, fine. But if the model shows you won't meet standards, we can't make that certification.

SB – My hypothetical does imagine showing that water will meet standards. Maybe you stop there.

JH – Maybe more can be done to avoid exposure to rocks that will contribute constituents to the water body.

SB- If NMCC can produce a model that shows compliance with standards in the future, maybe the determination on surface waters of the state can be punted.

AK- Strictly speaking a determination letter does not go into that. It states the standards, if apply, will be met.

JH – The report we've seen on the geochemical model for the pit does show some discrepancy between the existing pit and what the model shows. For example Vanadium – the model shows it higher than the current water in the pit. Se, for another example, is higher in the predicted model than the existing water. Arsenic is high in the current water but lower in the model.

KE – Yes, trying to calibrate to an existing pit has been both a blessing and a difficulty. There are some things the model is good at modeling, others that it doesn't do as well at.

BR – So was Kay looking at Copper Flat?

AK – She was also tasked with looking at Little Rock.

BR – But that's a water of the US, a water of the state. Little Rock is a closed basin.

JH – It's a water of the state if we don't buy SB's argument.

AK and SB – Discussed the possibility of appeals and how the issues might play out in that context.

AK – It certainly would be easier if you meet standards.

KE- I just want to note that meeting the wildlife standard is hard but meeting the warm water aquatic life standard is really a problem.

AK – I know it's easy for me to say, but I think the UAA is very doable. I know it's hard to put in all that effort and just see what happens.

JH – The UAA says we can't achieve this use for these reasons.

KE – I'm concerned that if we do a UAA on the current pit, which isn't reclaimed, and show that we can't attain the standards, people will complain that once the pit is reclaimed we should be able to meet standards.

AK- People will have that criticism.

KP – We were aimed at the use because the aquatic life standard is so difficult.

SB- The current conditions don't reflect the future conditions.

JH- You do a UAA because in the future you don't believe you will meet standards.

KE- We can't meet aquatic life. There will be no mining if we are required to meet warm water aquatic life standards.

SB- Is it possible to do a UAA on a future pit?

JH – We can only apply a UAA to what exists today.

BR- So could you do a UAA if there was not water body today?

JH- No. I don't know what we would do in that scenario.

SB- So, if the pit water is interpreted as a surface water of the state, you'd have to go through the UAA before NMED would issue a determination?

AK & JH- Yes.

SB – I think this first layer interpretation I have laid out is defensible and avoids the uncertainties associated with trying to do a UAA under the circumstances presented here.

AK – I think it will be challenged, so we have to be sure.

SL – The UAA may not be too long. It just has to go to the commission, it's a hearing. The UAA process doesn't necessary mean years.

JH – We've done a UAA hearing that took an hour. Once you have the analysis done the hearing can go fast.

SB, AK and CS – Further discussed the possibility of an appeal. AK – I think I can get this interpretation issue reviewed in 2 weeks; that should be enough to find and look at what's out there.

Discussion of next steps- NMED will shoot for having their internal review done by 20 May. Group agrees to meet again to discuss further on 23 May at 2pm. Meanwhile NMCC will continue assessing pit issues.

Close. Thank you for your time.

Doc # 2704671

Tom Myers, Ph.D.
Hydrologic Consultant
6320 Walnut Creek Road
Reno, NV 89523
775-530-1483
tommyers1872@gmail.com

EXHIBIT
C

Technical Memorandum

RE: DESCRIPTION OF PIT LAKE FORMATION, COPPER FLAT Sierra County NM

June 25, 2017

Prepared for: Turner Ranch Properties, L.P. ("TRP"), owner of the Ladder Ranch, and the New Mexico Environmental Law Center ("NMELC")

Prepared by: Tom Myers, PhD, Hydrologic Consultant, Reno NV

Introduction

The Copper Flat project would reestablish an open pit mine (proposed action) in foothills near Hillsboro NM between Las Animas and Percha Creeks. Myers (2016) reviewed the Draft Environmental Impact Statement (DEIS) prepared for the project.

The original mine operated for a few months in 1982. When it closed, it left an open pit which has formed a small pit lake. The existing pit lake is a terminal lake with a historical water level ranging between 5435 and 5450 ft amsl, and a water surface area between 5 and 14 acres (Jones et al 2014, p 42). The evaporation rate is 64.6 in/y so the evaporation has varied from 16 to 45 gpm. The bottom of the existing pit is about 5400 ft amsl and the current water level is about 5439 ft amsl (Jones et al 2014, p 24). The pre-mining groundwater level had been about 5450 ft amsl (Id.) so evaporation in the existing pit maintains about an 11-foot drawdown over pre-mine groundwater levels. To keep the pit dry in 1982, the pumping rate was about 22 gpm with some increases to 50 gpm due to precipitation.

Evaporation is the only outflow from a terminal pit lake that has reached steady state conditions, such as the existing pit lake. Steady state means that the pit lake water level is relatively constant from year to year, with changes occurring seasonally and due to long-term wet or dry periods. Groundwater contours around the pit lake form a cone with the pit at its center so that groundwater flows toward the lake from all directions (Figure 1). The groundwater contour plotting assumes the observed water levels are representative for the entire aquifer thickness that could drain toward the lake. It assumes there are no geologic

layers that have substantially different water levels not accounted for in the contour plotting and through which water could escape from the pit.

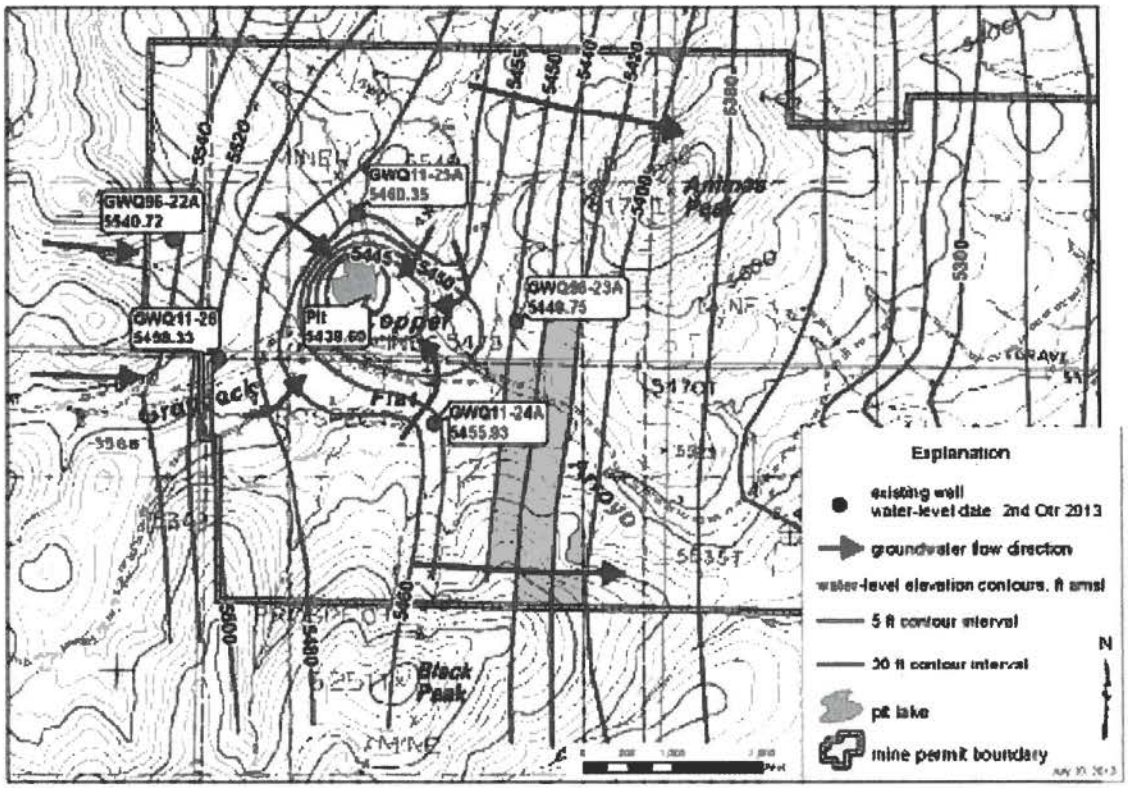


Figure 5.21. Measured pit-area groundwater levels.

Figure 1: Snapshot of Figure 5.21 from Jones et al (2014) showing groundwater contours around the existing pit lake at Copper Flat.

Proposed Action and Pit Lake

The proposed pit would average about 780 feet deep with a maximum depth of about 900 feet from its highest point (DEIS, p 2-6). During mining operations, the pit would be kept dry by pumping water ponded in a sump at the bottom of the pit. At the end of mining, model-simulated groundwater contour maps for all mining alternatives show drawdown at the center of the cone centered on the pit would exceed 700 feet (Jones 2015).

The proposed action and both alternatives would allow a pit lake to form at the proposed Copper Flat Pit during closure. The closure pit lake water level has been estimated to be about 4900 ft amsl once the pit lake water balance reaches steady state (DEIS, p 2-43). Assuming the closure pit lake level is accurate, the pit lake surface would be about 600 feet below the rim of the pit (based on ground contours on Figure 1) and drawdown of the closure pit lake level from

the pre-mining water level would be 550 feet. The pit lake would be lower than the groundwater table all around the pit which would render the long-term steady state pit lake a hydrologic sink. Outflow would equal pit lake evaporation. The difference in groundwater inflow rates to the pit during operations and closure does not vary substantially among alternatives. The groundwater flow rate to the pit three months and 100 years after the end of mining for the proposed action would be 21 and 28 gpm, respectively. For alternative 2, the similar rates are 33 and 30 gpm (Jones 2015).

Neither the DEIS nor Jones (2015) estimate the time until the pit lake naturally recovers. Jones (2015) runs the model for 100 years after the mine closes and the changed flows generally return to a steady state value in times ranging from 60 to 100 years, although Jones' graphs do not include pit lake inflow. Considering the inflow rate changed no more than 33% between the end of mining and 100 years later, as discussed in the previous paragraph, it is likely that the simulated pit lake at least has approached steady state within 100 years and probably substantially sooner.

Rapid Fill of the Pit

The proposed action and alternatives all include a "Rapid Fill" of the pit to limit the exposure of sulfide in the wall rock to oxidation and stabilize pit water quality (DEIS, p 2-44). The plan would "bring pit water to a steady-state water level elevation in less than a year through the addition of groundwater from the mine production wells, rather than the many years it would take for the pit water elevation to rise to this level if it were to refill naturally" (Id.). About 2800 af of water would be pumped into the pit within seven months at 3000 gpm (Id.). The DEIS claims this would "create a steady state condition for the hydraulic sink in the near term rather than waiting for the natural refilling of the pit" (Id.).

The pit would therefore fill at the rate of about 3000 gpm and be at its projected steady state level within seven months rather than in many years. The pit lake would have risen approximately 230 feet from the empty pit, which averages 780-feet deep. The refill rate if allowed to fill naturally would be between 23 and 33 gpm plus some occasional runoff into the pit. Pumping it full would refill the pit at about 60 times its natural refill rate, assuming that with runoff the average is 50 gpm. That ratio would establish the natural refill time at 35 years.

At mine closure, the groundwater table would intersect the bottom of the pit because dewatering the pit would have lowered the water table that far. That would result in the 550-foot drawdown noted above, although there may be seeps of perched water entering the pit from up along the pit walls. If allowed to refill naturally, groundwater would continue to discharge into the pit at rates noted above and accumulate on the pit floor and form a lake. The groundwater table would rise as the pit lake fills.

The natural groundwater inflow rate depends on the rate groundwater in the surrounding rock flows to the pit. Darcy's Law controls the flow rate which can be estimated as the product of hydraulic gradient, the rock conductivity (K), and the cross-sectional area through which the flow enters the pit.

The gradient is the slope of the water table which is sloping toward the pit. The water table is curved so the gradient changes all along the water table, with it generally being flatter with distance from the pit. The flow rate toward the pit is the same however because as the water table becomes flatter the cross-sectional area becomes larger. Cross-sectional area is the aquifer area through which the groundwater flows toward the pit, including area beneath the pit as some water will enter through the bottom.

Hydraulic conductivity is a measure of the ease with which water flows through a material, usually measured as a velocity at a unit gradient, or feet/day (ft/d). The proposed pit would be constructed in andesite separated from undifferentiated bedrock north and south (Figure 2).

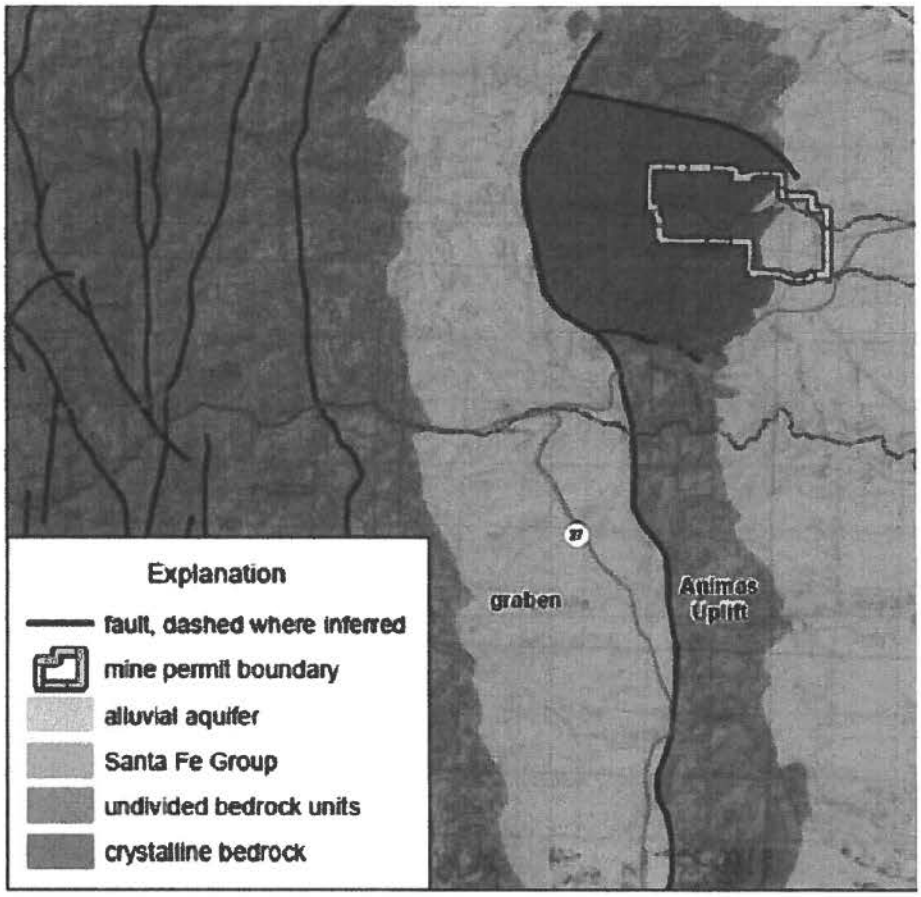


Figure 2: Snapshot of a portion of Figure 1-6 (SRK 2013) showing the aquifer zones near the proposed Copper Flat pit.

The local geology at the pit is primarily monzonite (Figure 3). The monzonite is a small pillar containing the ore intruded into the andesite (Figure 4). Much of the monzonite would be excavated to construct the pit, although the pit walls would slope into andesite which would therefore be most of the pit wall material (Figure 5).

SRK (2013) indicated the K of the andesite is just 0.003 ft/d but that in the monzonite nearest the proposed pit (Figure 2), K is about 0.1 ft/d. Pressure injection tests pit show K increasing with depth (Jones et al 2014, p 43), countering the conception that K should decrease with depth due to decreased weathering and the closing of fractures (Jones et al 2014, p 23). For depths of 100-147, 150-197, and 204-251 ft bgs, K was 0.02, 0.085, and 0.14 ft/d, respectively in one well and for approximately the same depth intervals conductivity was ~0, 0.081, and 0.074 ft/d for another well (Id.). These observations suggest that near the pit, the ore body has increased K with depth. This could be due to fracturing related to mineral intrusion.

The groundwater model calibrated the quartz monzonite and andesite around the pit (Figure 3) for model layers 2 through 4 at 0.002 in layer 2 and 0.001 ft/d in both layers 3 and 4 (Jones et al 2014, Table 6.1). The saturated thickness for these layers at the pit was 1000, 2000, and 3000 feet, respectively (Id.), so model layer 2 simulates the entire pit lake. The storage coefficient in that layer for both formations is 0.1%, a very high value meaning that more water is released for each unit of drawdown. The NMCC model therefore simulates pit refill with groundwater entering from one formation with no differing conductivity.

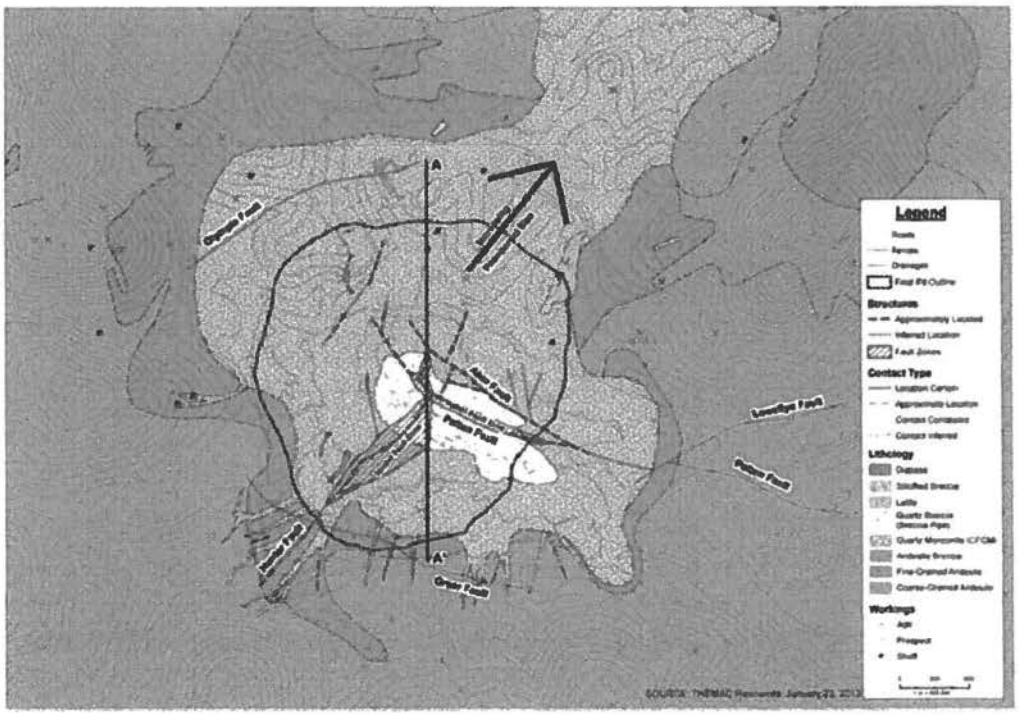
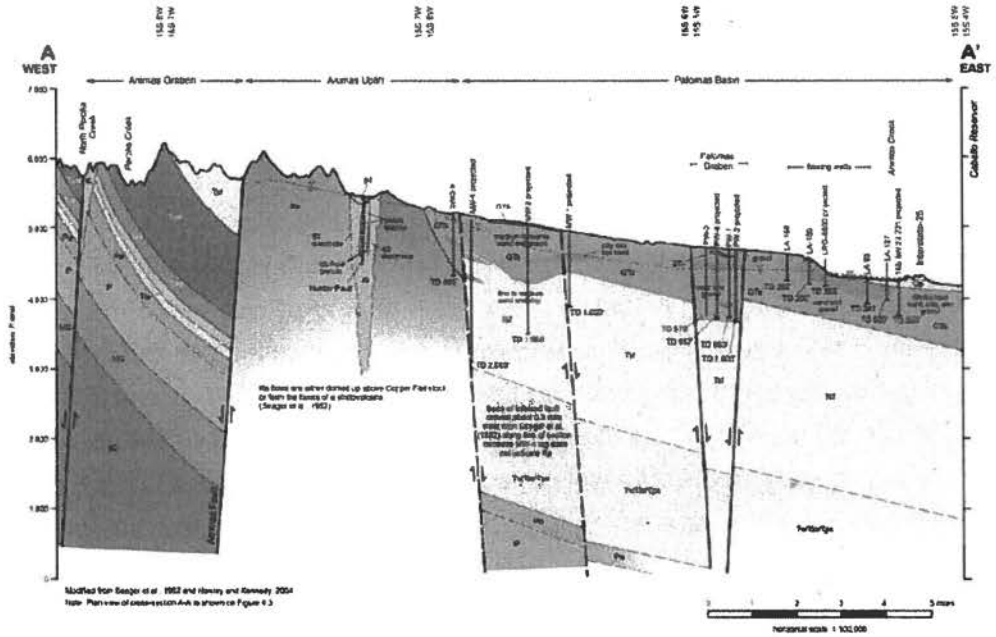


Figure 1-4: Detailed Geologic Map of the Copper Flat Orebody (THEMAC, 2013)

Figure 3: Snapshot of Figure 1-4 (SRK, 2013) showing a detailed geologic map of the Copper Flat proposed pit and the outline of the proposed pit.



- ***Figure 4: Snapshot of a portion of Figure 4-2 (Jones et al 2014) showing geologic cross-section from west to east through the proposed pit.***

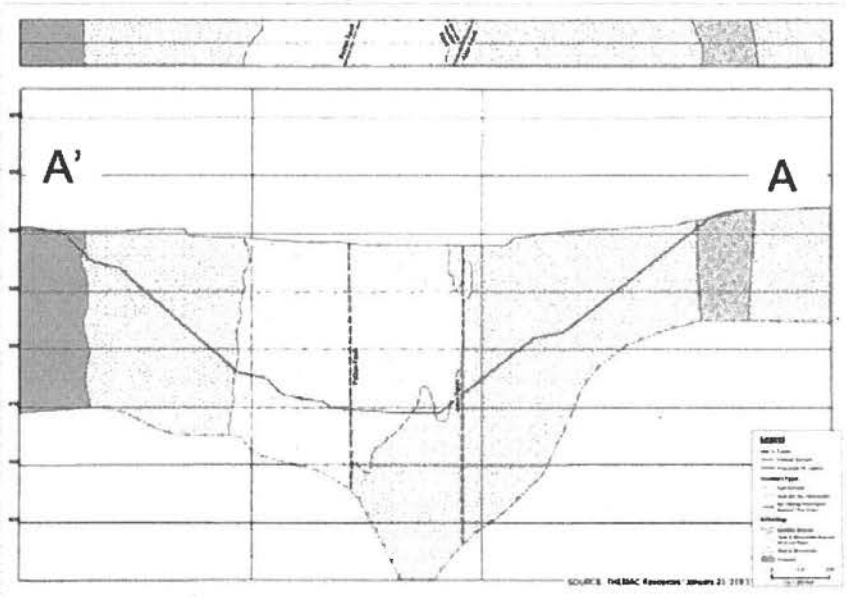


Figure 1-5: Geologic Cross Section through the Copper Flat Orebody (THEMAC, 2013)

Figure 5: Snapshot of Figure 1-5 (SRK 2013) showing a north-south geologic cross-section through the proposed Copper Flat pit.

Comparison of Rapid Fill and Natural Fill

Low conductivity near the pit causes the drawdown cone to be steep near the pit. During natural refill, the pit would continue to resemble a drain for the groundwater flowing toward the pit because the pit lake would not recover rapidly. The effective controlling downgradient groundwater level would be the pit lake water level.

Rapid refilling of the pit would occur at a rate as much as 60 times that of the natural inflow rate. This would cause the pit lake level to rise much faster than it would solely on groundwater inflow and runoff. It would also rise faster than the groundwater table around the pit would rise naturally because natural groundwater level rise depends on the rate that groundwater can flow toward the pit, and that is very limited by the low conductivity in most of the bedrock. Because the rising pit lake levels would be higher than the surrounding groundwater, it would cause the water table to slope from the pit lake into the surrounding formations, opposite from its shape during natural refill. Water would enter the formations from the rising pit lake. The water table that was sloping toward the pit would resemble a U for a time period as the water level in both the pit lake and away from the pit lake in the wall would be higher than the water table closer to the pit. The water table in this low point in the U would rise as groundwater flows toward this point from both sides.

The summary is that pit lake water would enter the surrounding formations as groundwater. Until the nadir in the U rises so that the gradient away from the pit becomes horizontal, the lake will not be a hydrologic sink and pit lake waters will be mixing with groundwater in formations around the pit.

References

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Jones MA, Shomaker JW, Finch ST (2014) Model of Groundwater Flow in the Animas Uplift and Palomas Basin, Copper Flat Project, Sierra County, New Mexico. August 15, 2014. John Shomaker and Associates, Inc., Albuquerque NM

SRK Consulting (2014) Memoir to Steve Raugust, THEMAC Resources Group Ltd, Copper Flat Pit Lake Modeling Report Errata. April 1, 2014. Reno NV

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NEW MEXICO
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau
1190 South St. Francis Drive (87505)
P.O. Box 5469, Santa Fe, New Mexico 87502-5469
Phone (505) 827-2900 Fax (505) 827-2965
www.env.nm.gov

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor



CERTIFIED MAIL - RETURN RECEIPT REQUESTED

July 17, 2017

Jeff Smith, Chief Operating Officer
New Mexico Copper Corporation
4253 Montgomery Blvd. NE
Suite 130
Albuquerque, NM 87109

RE: Technical Completeness Status, Application for Discharge Permit 1840, Copper Flat Mine, New Mexico Copper Corporation (NMCC)

Dear Mr. Smith:

On December 11, 2015 the Mining Environmental Compliance Section (MECS) of the New Mexico Environment Department (NMED) received an application (Application) dated December 11, 2015 for Discharge Permit 1840 (DP-1840) from the New Mexico Copper Corporation (Applicant). NMED issued letters to the Applicant dated March 21, 2016, September 19, 2016, and February 14, 2017 deeming the Application technically deficient and requesting additional information. The Applicant provided responses to NMED in letters dated June 21, 2016, October 14, 2016, November 2, 2016, and November 15, 2016 and April 14, 2017.

On July 17, 2017 NMED received a document from NMCC titled, "NMCC Response to MMD Comments, Updated MORP Reclamation and Closure Plan, Copper Flat Project," submitted to the Mining and Minerals Division (MMD) and NMED. NMED considers information in this document critical to and supplemental to NMED's Application. Pursuant to Paragraph (3) of Subsection G of 20.6.7.10 NMAC, NMED shall review this information for technical completeness within 90 days.

If you have any questions, please contact me at (505) 827-2963 or Kurt Vollbrecht, MECS Program Manager, at (505) 827-0195.

Sincerely,

Brad Reid

Brad Reid, Geologist
Mining Environmental Compliance Section
Ground Water Quality Bureau

BR:br

cc: Jeff Smith, Chief Operating Officer, NMCC (signed copy: jsmith@themacresourcesgroup.com)
Katie Emmer, Permitting & Environmental Compliance Manager, NMCC (signed copy: kemmer@themacresourcesgroup.com)
Kurt Vollbrecht, Program Manager, MECS (signed copy: kurt.vollbrecht@state.nm.us)
David Ennis, MMD (signed copy: david.ennis@state.nm.us)

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RECEIVED
JUL 17 2017
Ground Water Quality Bureau

July 17, 2017

Brad Reid, Geologist
Mining Environmental Compliance Section
Ground Water Quality Bureau
New Mexico Environment Department
1190 South St. Francis Drive
P.O. Box 5469
Santa Fe, NM 87502-5496

RE: NMCC Response the MMD Comments
Updated MORP Reclamation & Closure Plan
Copper Flat Project

Dear Mr. Reid,

Today NMCC submitted its response to the New Mexico Mining and Minerals Division (MMD) comments of April 21, 2017, on NMCC's Updated Mining and Operations Plan (MORP) for its Copper Flat project. As you know NMCC's Reclamation and Closure Plan contained in the Updated MORP is also the Closure Plan required Copper Rules for its Discharge Plan application. As such, NMCC is hereby submitting its' response to MMD comments to your office so that you can insert the revisions provided to MMD into your copies of our October 2016 Updated Mining Operations and Reclamation Plan. Submitted herewith are two hard copies of the revisions and a CD containing the full document, Revision 1, Updated MORP, Copper Flat Project on digital media.

The hard copy materials consist of copies of the following documents which are to be inserted in NMCC's October 2016 submittal;

1. A tabular form that sets forth each MMD comment followed by NMCC's response;

2. A set of revised and new pages to NMCC's Updated MORP to insert as replacement pages;

3. A complete revised Appendix E, Mine Reclamation and Closure Plan, including a complete revised set of design drawings (Attachment E1) and several revised pages to Attachment E2.

As always, we look forward to working with you and the rest of the Ground Water Quality Bureau staff as we pursue approval of the DP. Please do not hesitate to contact us if you have any questions.

Sincerely,

Jeff Smith, Chief Operating Officer

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July 17, 2017

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JUL 17 2017
Ground Water Quality Bureau

Mr. David Ennis
Reclamation Specialist
New Mexico Energy, Minerals and Natural Resources Department
Mining and Minerals Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: NMMC Response to MMD Technical Comments
Updated Mining Operation and Reclamation Plan (MORP)
Copper Flat Mine, Sierra County
Permit Tracking No. SI027RN

Dear Mr. Ennis:

Enclosed herewith is New Mexico Copper Corporation's response to MMD's technical comments of April 21, 2017, following MMD's review of our Updated Mining Operation and Reclamation Plan submitted October 16, 2016, for its Copper Flat project. The package consists of two hard copies of the following documents which are to be inserted in NMCC's October 2016 submittal:

1. A tabular form that sets forth each MMD comment followed by NMCC's response. This form will allow the MMD to review each comment and response side-by-side with the information described below for ease of review and insertion into NMCC's October 2016 Updated MORP submittal.

2. A set of revised and new pages to NMCC's Updated MORP to insert as replacement pages providing the information requested.

3. A complete revised Appendix E, Mine Reclamation and Closure Plan, including a complete revised set of design drawings (Attachment E1) and several revised pages to Attachment E2.

4. Two CD's containing electronic copies of all of the above listed documents.

NMCC appreciates the opportunity to continue to work with the MMD in pursuit of approval of Mining Permit No. SI027RN. Please do not hesitate to contact us if you have any questions or require clarification.

Sincerely,

Jeff Smith, Chief Operating Officer

cc: Brad Reid – New Mexico Environment Department

.

New Mexico Copper Corporation Response to NM MMD's April 21st, 2017 Technical Comments on NMCC's Updated Mining Operations and Reclamation Plan (MORP), Copper Flat Mine, Sierra County Permit Tracking No. SIO27RN July 17, 2017

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G.
Agency: NM Mining and Minerals Division
Review Date: April 21st, 2017

Item #	Section/Page (or general)	Topic	Comment
MMD Comment 1	MORP Update, Page 2-6, second paragraph	Permit Area Boundary	Page 2-6, second paragraph, states that "there may be some additional acreage disturbance on lands outside the permit area boundary related to ancillary facilities such as the well field, the substation and power line, and the water pipeline." The permit area under MMD's consideration is comprised of the boundary around the project (i.e., the pit, plant site, waste rock disposal facilities and tailings impoundment), the water well production field, the water pipeline corridor, and the various 5-acre mill site claims. The only related area not being considered a part of the Copper Flat permit area is the proposed electrical substation and associated power line due to anticipated ownership by the electrical company post-mining. The permit area being considered by MMD is best reflected in Figure 2-20 of the Updated MORP, with the exception of the proposed substation area. Under the Mining Act, only disturbance within the permit area is allowed, and any additional disturbance outside the permit area boundary could result in MMD issuing a notice of violation. Please commit to disturbance only within the permit area boundary applied for by NMCC.
	NMCC Response		*NMCC commits to limiting its disturbances only within the permit area. The statement made on page 2-6 to which MMD refers requires some clarification and revision. The "additional acreage disturbance on lands outside the permit area boundary related to ancillary facilities" referred to are, in fact, within the permit area under MMD's consideration, not outside. MMD identifies Figure 2-20 as best reflecting the permit area being considered by MMD. Figure 2-20 is a figure that depicts "Post-Quintana Watershed Areas". As such NMCC believes that MMD may have been referring to Figure 2-12 on page 2-20. This figure identifies the boundary around the project (i.e., the pit, plant site, waste rock disposal*

Agency Review of Updated MORP			
Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
Item #	**Section/Page (or general)**	**Topic**	**Comment**
	NMCC Response (Cont.)		*facilities and tailings impoundment), the water well production field, the water pipeline corridor, and the nine 5-acre mill site claims. Two of the 5-acre mill site claims (one on Section 25 and one on Section 28 shown in yellow) have no disturbances associated with them and NMCC has no current plans to conduct any disturbance related to the mine on these properties. NMCC will obtain any required approvals from MMD should it become necessary to utilize them in conducting its mining operations in the future. Pages 2-6 has been revised and provided with these responses for MMD's replacement in the Updated MORP.*
MMD Comment 2	MORP Update, Figure 2-14, page 2-25	Location & Reclamation of Stormwater Conveyance Channels at WRSP-3	Figure 2-14, page 2-25: the reclamation of the stormwater conveyance channel generally east and south of WRSP-3 that drains to Impacted Stormwater Impoundment C is not described. This channel is not shown on Figures C-009 and C-010 making it difficult to compare and contrast what happens to this channel during reclamation. However, during an informal conversation with NMCC on the Updated MORP on February 15, 2017, NMCC stated that the push-down of WRSP-3 during reclamation likely covers this conveyance channel. Upon additional review, it appears this could be the case for portions of the conveyance channel, but not the entirety of the conveyance channel, especially north and south of Impoundment C. Additionally, it appears that the proposed footprint of GMSP-3 during operation may overlap with portions of this conveyance channel based on Figure C-009. Please clarify the proposed location of this conveyance channel relative to GMSP-3 and describe how this channel will be reclaimed.
	NMCC Response		*The purpose of Figure 2-14 as noted on page 2-12 of the Updated MORP is to depict the watershed areas that NMCC will develop at the site during operations. Figure 2-14 and drawing C-009 have been revised to show the location of the stormwater conveyance channels around WRSP-3, including the proposed location of the channel relative to GMSP-3. Drawing C-010 has been revised to show the location of reclaimed conveyance channels. Drawing C-010 shows that a small portion of the storm water conveyance channel located at the foot of GMSP-3 will be backfilled with clean fill and consolidated as the fill is placed. The backfilled conveyance channels will not require additional cover unless sufficient native growth media is not present in the backfilled areas. If areas contain insufficient residual growth media, an additional 6 inches of growth media material will be added to promote vegetative growth. The*

Agency Review of Updated MORP			
Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
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	NMCC Response (Cont.)		*backfilled channels will be graded to drain, the surfaces re-contoured to blend into the natural topography and ripped to a depth of between 12 and 18 inches. The areas will then be seeded to reestablish vegetation using a seed mix approved by the BLM and MMD. Section 2.2.2 of the Reclamation Plan (Appendix E) has been revised to reflect this information. These revisions more clearly show the relationship between GMSP-3 and the toe of WRSP-3.In addition, the reviewer is pointed to Appendix B, Impoundment Design Report, of the Updated MORP which contains the detailed designs for the storm water impoundments and the attendant conveyance channels.*
MMD Comment 3	MORP Update, Page 2-54	Wildlife Impacts Contingency Plan	Page 2-54, Wildlife Impacts Contingency Plan: This section does not adequately describe a contingency plan if there is an emergency or accidental discharge of toxic substances that may impact wildlife. This section states that a Spill Prevention, Control and Countermeasure ("SPCC") plan will provide contingencies to mitigate potential impacts for an accidental release. Please either provide the SPCC for MMD's review or excerpt portions of the SPCC describing how wildlife impacts will be mitigated upon an accidental release of toxic substances.
	NMCC Response		*NMCC has revised Section 2.3, Wildlife Contingency Plan to address MMD's concerns. It contains a general description of preventative, containment, and cleanup measures to be taken in the event of an emergency or accidental discharge of toxic substances that may impact wildlife. 19.10.6.602.D.(15)(d) NMAC requires that an applicant provide a detailed description of the proposed mining operation and reclamation plan including a contingency plan to mitigate impacts to wildlife when there has been an emergency or accidental discharge of toxic substances that may impact wildlife. 19.10.6.603(4).(a) NMAC requires the operations be designed so that non-point source releases of acid or other toxic substances be contained within the permit area. Section 4.3.4 of the Updated MORP, at pages 4-23 and 4-24, describe how NMCC has designed the Copper Flat facility such that no releases of acid or other toxic substances will occur. Appendix A, B, C and D of the Updated MORP provide the design details to manage and contain the unlikely occurrence of emergency or accidental discharge of toxic substances. An SPPC Plan is not typically a document that is prepared at this stage of permitting as it is not a document as it is not a document that requires regulatory review and*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
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	NMCC Response (Cont.)		*approval. Rather, EPA requires that a site plan be prepared and implemented in advance of construction and operations. SPCC plans are typically prepared after all permits for a project are obtained and final detailed designs for the facility have been prepared. NMCC's SPCC Plan will be available for inspection in the future but is not available now. The basic elements of the Wildlife Impacts Contingency component will include 1) Identification of the source or the release, 2)Action necessary to eliminate hazards and ensure the safety of response personnel, 3) Action necessary to protect/exclude wildlife from the area, 4) Actions necessary to stop and clean up the release.*
MMD Comment 4	Appendix E General Comment	Reclamation Alternatives & Geomorphic Considerations	NMCC has proposed a bench-and-terrace design for waste rock stockpile reclamation. In previous comments on the Original MORP, dated February 18, 2013, MMD requested: a. a description of the different reclamation alternatives considered and how the proposed reclamation plan was developed and designed using the most appropriate technology; b. a description about the use of geomorphic reclamation techniques and how they might be integrated into the reclamation plan for the waste rock piles and the tailings. Pursuant to the performance standards and requirements of §19.10.6.603.A NMAC, please provide this requested information.
	NMCC Response		*Section 19.10.6.602.D.(15) identifies the requirements of the content of the MORP. Section 19.10.6.603 NMAC requires that the permit area be reclaimed to achieve a self-sustaining ecosystem appropriate for the life zone of the surrounding areas following closure unless conflicting with the approved post-mining land use. It stipulates that each reclamation plan must be developed to meet the site-specific characteristics of the mining operation and the site. Section 19.10.6.603.A requires that the mining operation and reclamation plan be designed and operated using the most appropriate technology and the best management practices. NMCC is unaware of any Mining Act Regulations that require an applicant to describe the different reclamation alternatives considered or a description of the geomorphic techniques utilized in design of the reclamation plan. NMCC believes that the reclamation design proposed, including the waste rock stock piles (WRSP) and tailings storage facility (TSF) utilizes the most appropriate technology and best management practices of industry for meeting the requirements of the Mining Act and the NMED Copper Rules. The Copper Flat operation is designed for reclamation and closure utilizing geomorphic concepts such as shaping reclaimed*

Agency Review of Updated MORP			
Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
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	NMCC Response (Cont.)		*areas to approximate the shape of nearby land forms within the framework of meeting the NMED Copper Rules. As provided in NMCC's responses to NMED Request For Information (RFI) dated June 21, 2016, a copy of which was provided to MMD, NMCC addressed this issue in its response to comment No. 18 as restated herein; NMCC's approach to reclamation is to meet the requirements of the Copper Rules for closure which are specific and prescriptive and to meet the requirements of the Mining Act, which are less prescriptive but require significant engineering protocols. Section 20.6.7.33 NMAC contains the prescriptive requirements for closure of the WRSPs and TSF. To the extent that application of these requirements at the Copper Flat site results in reclaimed WRSPs and TSF that blend into the surrounding environment (as much a practicable), then it can be said the NMCC will be using a geomorphic approach to reclamation. However, this is not a commitment to a strict geomorphic approach.*
MMD Comment 5	Appendix E Table E1 & Section 2.1.2, Updated MORP	Detention Basins	Table El proposes two small detention basins at the base of EWRSP-1, and Section 2.1.2 further describes the detention basins. No details on the anticipated depth of these basins or anticipated storage volume is provided. These basins seem unlikely to provide wildlife or riparian habitat since it is likely that any water conveyed to these basins would be ephemeral. However, these basins may inadvertently allow infiltration which could facilitate an acid water seep on the pit wall and/or eventually weaken the pit wall to the point of failure. This is acknowledged as a possibility in Section 2.1.2 of the Updated MORP, which proposes to compact the soils at the bottom of the basins to minimize percolation. MMD suggests consolidation of waste rock at the southern tail to EWRSP-1 or rerouting stormwater so that these basins are unnecessary. Please address.
	NMCC Response		*Based on MMD concerns NMCC has eliminated the proposed detention basins and Golder has prepared a revised grading plan for the area located east and south of EWRSP-1 to direct storm water flows to proposed toe channel TC-2. The revised grading plan is included in revised Drawing C-002. Table E1 and Section 2.1.2 of the Reclamation Plan (Appendix E) have also been revised to reflect this change.*
MMD Comment 6	Appendix E, Table E1	TSF Surface Reclamation Slope	Table El and Appendix E2 propose a 1% top surface reclamation slope on the tailing storage facility, which is reiterated in Section 2.3.2 on page 15. However Figure C-012 shows a 0.5% top surface slope at reclamation. MMD's previous letter on the Original MORP, dated February 18, 2013, required a minimum of 1% slope. Please address.

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**	**Review Date: April 21st, 2017**

Item #	Section/Page (or general)	Topic	Comment
	NMCC Response		*The top surface of the TSF will be regraded to a minimum slope of 1%. Drawing C-012 has been revised to show the correct slope of 1%.*
MMD Comment 7	Appendix E, Table E1, Figures C-013 and Co14	Pit Reclamation	Table El describes an assumed 100-foot wide disturbance around the open pit that will be ripped and revegetated. This assumed disturbance and reclamation is not portrayed on Figures C-013 and C-014. Please provide the anticipated grading plan of this assumed 100-foot- wide area as well as a description of the anticipated sequencing of this reclamation as it relates to placement of the proposed perimeter berm proposed in Figure C-014.
	NMCC RESPONSE		*The 100-foot width assumed for reclamation around the perimeter of the pit is a generalized approximate average width of the disturbance that will occur during mining operations. The purpose of calling out a 100 ft. perimeter around the entire pit in the reclamation plan is as a means of acknowledging that there may be disturbance around the perimeter of the pit caused during operations and that to the extent that there is, NMCC will conduct reclamation of those areas as needed. The actual width of disturbance will vary by location. The locations and size of the disturbances will not be known until and if they are created in the field during operations. Some disturbances will be less than others. Where disturbance areas occur as a result of operations they will be ripped and graded to control drainage around the perimeter of the open pit and generally match the surrounding topography where possible or graded to 3:1 slopes at locations where the natural topography cannot be matched. NMCC has revised Drawing C-014 (See Note 3) and Section 2.4.2 of the Reclamation Plan (Appendix E) to acknowledge that disturbance that occurs around the perimeter of the pit during operations will be reclaimed as may be necessary. The grading plan calls for ripping and revegetating the areas as discussed in NMCC's response to MMD comment No. 8 following the construction of perimeter channels, barbed wire fencing, and the safety berm around the pit perimeter.*
MMD Comment 8	Appendix E, Table E1	Reclamation Cover Thickness	Several places in Table El propose up to 6" of cover thickness. MMD requires a minimum of 18" of cover thickness over non-deleterious artificial fill areas in order to provide an adequate root zone for revegetation. Please address.
	NMCC Response		*An 18" minimum cover thickness requirement over non-deleterious artificial fill does not exist in the Mining Act regulations. However, MMD and NMCC have agreed that where suitable native growth materials exist, the area will be ripped up to 18 inches deep and reseeded. In areas where native suitable growth media materials do not exist, the area will be ripped 12 inches deep and 6 inches of growth media will be placed over the ripped material and the area*

Agency Review of Updated MORP			
Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
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	NMCC Response (Cont.)		*then seeded. Section 19.10.6.603 NMAC, Performance and Reclamation Standards and Requirements, provides that each reclamation plan must be developed to meet the site-specific characteristics of the mining operation and the site, and Subsection A requires that the reclamation plan be designed using the most appropriate technology and the best management practices. NMCC has designed its reclamation plan in conformance with this requirement. Foot-note No. 4 of Table E1 addresses MMD's comment with respect to cover thickness of non-deleterious artificial fill areas and the desire to provide an adequate root zone for revegetation. It indicates that the growth media stockpile areas, disturbed areas and other ancillary facilities will not require additional cover unless sufficient native growth media is not present in the area and that in those areas where insufficient residual growth media exists that an additional 6 inches of growth media material will be added to promote vegetative growth. It also indicates that all of these areas will be graded, re-contoured and ripped to a depth of between 12 and 18 inches. Treatment of these areas in this manner is considered the most appropriate technology and best management practice sufficient to provide adequate root zone for revegetation.*
MMD Comment 9	Appendix E, Section 2.1	OPSDA Boundaries	Section 2.1, page 8 references the open pit surface drainage area ("OPSDA"), however none of the drawings refer to the OPSDA. On drawings that show final buildout there is a "watershed boundary (by others)" label, and on drawings that show final reclamation topography there is a "reclamation watershed boundary" line. Please confirm that these boundaries represent the OPSDA and/or other watersheds surrounding the OPSDA.
	NMCC Response		*The watershed boundaries presented on the final buildout and regrade and drainage plan drawings represent the surface water drainage boundaries associated with each watershed area during operations and reclamation, respectively. The open pit surface drainage area (OPSDA) delineation has been added to the regrade and drainage drawings in the revised drawing package to identify its location at final reclamation. It should be noted that the aerial extent of the surface expression of the OPSDA during operations and the OPSDA at reclamation will differ as shown on Figures G-003 and G-004. During operations, surface water runoff from WRSP-1 will be diverted to Impacted Stormwater Impoundment B as shown on Figure G-003. After operations cease and WRSP-1 and Impacted Stormwater Impoundment B are reclaimed, the surface expression of the OPSDA will include those areas as shown on Figure G-004. Section 2.1 of the Reclamation Plan has been revised to provide clarification.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**	**Review Date: April 21st, 2017**

Item #	Section/Page (or general)	Topic	Comment
MMD Comment 10	Appendix E, Drawing C-002	Toe Channel (TC-2) Location	Drawing C-002 shows proposed toe channel TC-2, however this channel length is different than that shown on C-013. MMD prefers the routing shown on Figure C-002 in order to reduce water going to the proposed detention basins (as discussed above in comment #5). Please address.
	NMCC Response		*NMCC's Updated MORP, Reclamation Plan (Appendix E) and the attendant drawing package have been revised to address MMD's preferred routing of surface water runoff from the area. The detention basins have been eliminated. The revised grading plan for the area east and south of EWRSP-1 now calls for runoff to be routed to drain to the Grayback Arroyo diversion. See, also, NMCC's response to MMD Comment No. 5, above.*
MMD Comment 11	Reclamation Plan - General	Access & Haul Road Reclamation	Throughout the closure plan, little reclamation/reduction of the widths of access and haul roads is proposed. While access roads can be included in the post-mining land use, leaving 50' wide haul roads is excessive for what should become a single vehicle access road. As an example, the proposed access road shown on drawing C-002 is shown as "50-feet (minimum) width." Please address.
	NMCC Response		*The reclamation plan and associated drawings have been revised to provide that the width of the closure and post-closure access roads will be reduced to a width suitable for single vehicle access. Existing roads utilized for closure and post-closure access that are wider than that required for single vehicle access will be narrowed during reclamation by ripping, grading and covering with 6-inches of suitable cover material where unsuitable growth media exists. The areas will then be seeded and revegetated. Section 2.8.2 of the Reclamation Plan has been revised to provide clarification on the reclamation of the haul roads and access roads.*
MMD Comment 12	Appendix E, Section 2.3.2 & Drawings C-011, C-012	TSF Runoff collection Trench	Section 2.3.2, page 13 and page 14 describe an HDPE-lined runoff collection trench to be constructed at the toe of the TSF to route surface water runoff to the underdrain collection pond prior to cover placement on the TSF. This trench is not shown on Drawings C-011 and C-012. Please address.
	NMCC Response		*Drawings C-011 and C-012 of the Reclamation Plan (Appendix E) have been revised to show the HDPE-lined runoff containment berm. Typical details of the HDPE-lined runoff containment berm have also been added to Drawing C-021 to provide more clarity.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
Item #	**Section/Page (or general)**	**Topic**	**Comment**
MMD Comment 13	Appendix E, Section 2.4 and Table E1	Open Pit Reclamation	The following comments related to Section 2.4 and Table El regarding the open pit shall be addressed: a. Description/justification as to how the pit walls will meet the wildlife habitat PMLU and reclamation to a self-sustaining ecosystem to meet the requirements of 19.10.6.603.C.(2) and 19.10.6.603.G; b. Description/justification as to how the pit walls meet the site stabilization and configuration requirements of §19.10.6.603.D NMAC including a description of how stabilization will be accomplished without backfilling or partial backfilling; c. Description/justification as to how adverse effects to pit water quality will be minimized in order to meet the requirements of §19.10.6.603.C(4) NMAC, which addresses hydrologic balance.
	NMCC Response		*NMCC believes that Appendix E is not the appropriate location to address MMD's request. Instead, NMCC has revised Sections 4.3.2, Wildlife Protection, 4.3.4, Hydrologic Balance, 4.4 Site Stabilization and Configuration, and 4.7, Revegetation, of the Updated MORP to address the issues raised by MMD.* *In response to comment a:, Section 19.10.6.603.C.(2) requires that measures be taken to* ***minimize adverse impacts*** *(emphasis added) on wildlife and important habitat, based on site-specific characteristics. NMCC considers that the pit walls represent a steep-canyon ecosystem environment similar to those that currently exist in the Copper Flat area. These steep-canyon ecosystems sustain native flora and fauna populations. The pit walls will provide for a similar ecosystem which is consistent with the primary goal of closeout and the proposed post-mine land use of wildlife habitat. Section 19.10.6.603.G is a revegetation performance and reclamation standard required to obtain release of financial assurance on revegetated lands. The Copper Flat reclamation plan does not propose revegetation of pit walls as NMCC anticipates that the pit wall will self-vegetate with native flora over time, providing a self-sustaining ecosystem appropriate for the life zone of the surrounding area, i.e., steep-canyon wildlife habitat. Additionally, Federal and State safety rules and regulations prohibit access to benches left in the pit walls due to restrictions regardeing working under rock highwalls and ingress/egress limitations.* *In response to comment b., Section 19.10.6.603.D requires that the permit area be* ***stabilized to the extent practicable, to minimize future impact*** *to the environment and protect air and*

Agency Review of Updated MORP			
Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
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	NMCC Response (Cont.)		*water resources. With respect to the pit walls, the final slopes and drainage configuration will be such that they will be left in place and surface water runoff from the pit walls will be routed to the bottom of the pit via a channel (HC) that will be constructed along the haul road as shown in Drawing C-014. The pit walls will, in this manner, be compatible with the approved wildlife habitat post-mining land use, in conformance with 19.10.603.D.(1). It will not be necessary to backfill or partially backfill the open pit as NMCC's reclamation objectives will be otherwise accomplished through other mitigation measures as described in the Updated MORP and Reclamation Plan, in conformance with 19.10.6.603.D.(2). With respect to the requirements of 19.10.6.603.D.(3), as indicated above, the pit walls will be left in place, not reconstructed. As such, 19.10.6.603.D.(3) does not apply to the pit walls. Nonetheless, mine safety is of the utmost importance and pit highwalls represent a significant safety risk that must be minimized to the extent possible. Mass movement of the pit walls will be minimized by appropriate design, construction and operation of the pit. Appropriate pit design is of paramount importance in order to ensure the safety of mine personnel and minimize the economic impacts of pit wall failure. NMCC has conducted significant feasibility level geotechnical analysis for the design of the pit. The results of the geotechnical analysis was utilized in designing the open pit described in Section 2.1.2 of the Updated MORP and depicted in figures 2-3 through 2-11. Geotechnical safety factors appropriate to conditions projected for the Copper Flat Pit were incorporated into the geotechnical analysis resulting in pit slope angles designed to be generally 40-50 degrees. Pit wall designs will be reviewed again as part of detailed planning. During operations, blasting will be designed and controlled to maintain pit wall stability. A comprehensive pit slope monitoring program will be routinely used in order to maintain safe operating conditions, provide advance notice of potential instabilities so that mine plans can be modified to minimize hazards and provide additional real-time geotechnical information to assist in further analyzing slope stability and modifying slope designs as needed.* *Section 19.10.6.603.D.(4) requires that measures be taken to* ***reduce, to the extent practicable****, the formation of acid and other toxic drainage that may otherwise occur following closure to prevent releases that cause federal or state standards to be exceeded. The language of this section speaks to reduction of the potential for the pit wall to form and release acid or other toxic drainage and preventing their release so that they do not cause federal or state standards*

Agency Review of Updated MORP			
Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
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	NMCC Response (Cont.)		*to be exceeded. The pit wall will not be a significant source of acid or other toxic drainage as demonstrated by the SRK geochemical studies (SRK 2013). As determined by SRK and described in their report, the majority of the materials tested typically exhibited either non-acid forming characteristics or a low potential for acid generation based on NAG and ABA test work results. Much of the material determined to be potentially acid generating (PAG) will be removed by mining. Pit lake chemistry modeling has predicted that waters will be moderately alkaline, approximately 8 pH, thus confirming that the ;\pit wall is not anticipated to be a source of acid and other toxic drainage that may be released and cause federal or state standards to be exceeded. In addition, the open pit has been confirmed to be a hydrologic sink (see Section 4.1.1 of the Updated MORP), thus further minimizing future impacts to the environment and protecting water resources. All surface drainage from the pit wall will be captured in the pit lake that will form at the bottom of the pit after operations cease, which will remain in the pit lake and not released to another surface drainage. Finally, as noted above, non-point source surface releases from the pit walls will be captured in the pit lake, in conformance with 19.10.6.603.D.(5). Therefore, no adverse effects to pit water quality or exceedance of federal or state standards are anticipated.* *In response to comment c., NMCC believes that there will be no adverse effects to pit water quality. The water quality data provided by NMCC in its Baseline Data Report (See Appendix 8-E, Intera 2012) for the existing pit lake, together with additional water quality data provided to MMD and NMED since development of the BDR, will be utilized to assist in defining and establishing baseline water quality conditions for the existing pit lake. Section 19.10.6.603.C.4 requires, in part, that reclamation result in a hydrologic balance* ***similar to pre-mining conditions*** *unless non-mining impacts have substantially changed the hydrologic balance. NMCC's Baseline Data Report and subsequent hydrologic reports submitted to the MMD and other agencies (see JSAI 2014c) have confirmed that the open pit is currently a hydrologic sink and will continue to be after operations and reclamation. The water that reports to the pit lake after the mine ceases to operate and the site is reclaimed will be the same source of water that has formed the existing pit lake, i.e., ground water inflow and precipitation runoff. Water quality of the pit lake formed after mining ceases is anticipated to be better for the foreseeable future because the ore body will have been removed by mining and the ore is the source of many of the constituents identified in the baseline data. Ground water will no longer be moving*

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	NMCC Response (Cont.)		*through higher mineral content rock. Instead, it will move through less mineralized rock into the pit. In the long term, future pit lake water quality may approach that of the existing pit lake as a result of evapo-concentration, but it will always be similar, and thus, in compliance with 19.10.6.603.C.4.*
MMD Comment 14	Appendix E, Section 2.5 & Drawing C-016	Plant Area Grading Plan	Section 2.5 describes reclamation of the plant area, however no overall grading plan for this large area is provided in Drawing C-016. Drawing C-016 appears to show many steep surfaces and other topographic irregularities across the former plant area (e.g. the slope east of the process water reservoir, the slope east of impacted stormwater impoundment A, the slope north and west of the crushed ore stockpile, slopes near the laydown yard, etc.). Please provide a comprehensive grading and reclamation plan for the plant area.
	NMCC Response		*A revised grading plan has been developed for the Plant Area and is presented on revised Drawing C-016. The Reclamation Plan has also been revised to reflect this addition. The existing hill south of the concentrator in the southern portion of the Plant Area will be left in place as a natural geomorphic feature. The top of the hill is currently covered with native vegetation and supports native wildlife in the area (birds, reptiles, and small mammals). The remaining slopes within the Plant Area will be graded to maximum 3:1 slope, and the top surfaces will be graded to a slope of 1% or greater to re-contour the slope east of the process water reservoir, the slope east of the impacted storm water impoundment, the slope north and west of the crushed ore stockpile and the slopes near the laydown yard..*
MMD Comment 15	Appendix E, Plant Site Reclamation – General	Grading & Reclamation of Grayback Arroyo	Proposed reclamation of the plant site does not include pull back and additional grading of the eastern, southern and southwestern slopes away from Grayback arroyo to achieve a 3:1 slope. These slopes are currently angle of repose and no reclamation is proposed along these edges of the plant site. Please address.
	NMCC Response		*The revised grading plan developed for the Plant Area and presented on revised Drawing C-016 includes regrading of all of the slopes along the perimeter of the Plant Area. The grading plan includes both pull back sections and pushdown sections along the perimeter of the Plant Area. The perimeter slopes will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media. All of this grading is designed to avoid impact on Grayback Arroyo. The Reclamation Plan has been revised to reflect this addition.*

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MMD Comment 16	Appendix E, Figure C-015	Plant Reclamation	Figure C-015 shows an incision into the hillside south of the concentrator, however Figure C-016 does not show this incision at reclamation. Please correct.
	NMCC Response		*The incision in the hillside south of the concentrator is an artifact of an earlier design of the Plant Area. The incision was inadvertently included in the final buildout drawing for the Plant area (Drawing C-015), so no additional excavation will be needed. Drawing C-015 has been revised to show the hillslope without the incision south of the concentrator area.*
MMD Comment 17	Appendix E, General	Land Bridge Reclamation	No reclamation of the angle of repose, -50 foot high land bridge used as the entrance access road (Gold Dust Road; the upstream Grayback culvert) is proposed. Similarly, no reclamation is proposed for the -50 foot high land bridge (the downstream Grayback culvert) and -1,000 foot long cut that facilitates the tailings pipeline. MMD recognizes that there is a wetland in this v-shaped area between the land bridges, however §19.10.6.603.C(8) NMAC states "adverse effects to riparian and wetland areas shall be mitigated during reclamation unless the mitigation conflicts with the approved post-mining land use." Please provide a reclamation plan for these land bridges including removal of the culverts.
	NMCC Response		*The "wetland" referred to by MMD in this comment is not located where MMD describes it. It is actually located east of the easternmost land bridge (see Section 4.4.1.9 and Figure 4-12 of the BDR and Map 3 of 4, Detailed Riparian Vegetation Mapping Permit Area, of Appendix 4-D of the BDR). The revised grading plan developed for the Plant Area and presented on revised Drawing C-016 includes removal of the land bridge used as the entrance access road (Gold Dust Road) and the land bridge at the downstream Grayback culvert. The culverts at each location will also be removed as part of this process. The remaining angle of repose slopes following removal of the land bridges will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media. A revised grading plan has also been developed for the approximate 1,000-foot long pipeline cut that facilitates the tailings pipeline. The revised grading plan is presented in revised Drawing C-012 and includes partial backfilling of the pipeline cut to allow for the construction of conveyance channel DCS-5 that will direct stormwater flows from the covered top surface and the northwest slopes of the TSF to Grayback Wash. The pipeline cut will be backfilled with clean fill in lifts, and each lift will be compacted. The remaining exposed slopes of the pipeline cut will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media. The grading plan is designed so that there is no impact on Grayback Arroyo.*

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	NMCC Response (Cont.)		*Section 2.5 of the Reclamation Plan and Section 4.3.8 of the Updated MORP have been revised to reflect this information.*
MMD Comment 18	Appendix E, General	Plant Site Entrance Road Reclamation	The entrance road (Gold Dust Road) to the plant site contains several areas of waste rock fill that are not addressed in the reclamation plan (e.g. the stretch of access road due north of the proposed surge pond/cyclone plant.) The outslopes of these areas should be regraded to 3:1, covered with topdressing and revegetated. Additionally, the access road width should be reduced during reclamation. Please address.
	NMCC Response		*The reclamation plan has been revised to include reclamation of all haul roads and access roads containing waste rock fill. The outslopes of the waste rock fill areas will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media. Subject to input from the Sierra County government with regard to public road access, all closure and post-closure access roads will be reduced to a width suitable for single vehicle traffic. The width of all existing roads utilized for closure and post-closure access will be reduced to accommodate single vehicle traffic and the excess width will be reclaimed by ripping and revegetating thems. The reclaimed areas will be covered with 6-inches of suitable cover material where unsuitable growth media exists.*
MMD Comment 19	Appendix E, Section 2.7	Haul Road layout and improvements	Section 2.7 does not describe or provide an approximate layout of any roads that may be constructed or improved in order to haul cover to the growth media stockpiles, in particular GMSP-2 located across Grayback arroyo. Please provide an approximate haul route and any road improvements that are anticipated in order to construct the growth media stockpiles as well as a reclamation plan for these roads.
	NMCC Response		*Haul roads and vehicle access to and from the growth media stockpiles will be limited to existing roads, contained within an existing disturbance footprint, or contained within a planned disturbance footprint. The locations of GMSP-1 and GMSP-3, as shown on Drawings C-009 and C-013, are coincident with the locations of the TSP and WRSP-2 and WRSP-3. The location of GMSP-2, as shown on Drawing C-011, and noted by MMD, is across Grayback Arroyo to the north of the TSF. In the case of GMSP-1 and 3, the haul routes will be within the location excavated within the TSF and WRSP-2 and WRSP-3 such that there will be little or no disturbance caused by a haul road. In the case of GMSP-2, Drawing C-012 shows the route to be taken from the TSF northwest along an existing road, across Grayback Arroyo, then east to*

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	NMCC Response (Cont.)		*GMSP-2. The roads not designated as needed for post reclamation monitoring will be reclaimed by ripping and revegetating the surface areas and covered with 6-inches of suitable cover material where unsuitable growth media exists as described in NMCC response to comment No. 8, above.*
MMD Comment 20	Appendix E, Section 2.8	Mill Sites Reclamation	Section 2.8 in the last paragraph states that "surface disturbance at the five acre mill sites will be reclaimed." The mining operation plan does not describe any disturbance to the five acre mill site claims. Please clarify.
	NMCC Response		*Section 2.2.12 of the Updated MORP, Other Facilities and Structures, at pages 2-53 and 2-54 describes the disturbance to seven of the nine 5-acre mill site claims as consisting of those associated with previous operations and maintenance of the water wells and attendant pipeline and access roads. NMCC will continue to utilize these facilities during operations and these facilities will remain at closure as discussed in Section 2.8.1, fifth bullet, of the Reclamation Plan. The fifth bullet also indicates that no additional disturbance of the areas where the production wells are located is anticipated to occur except for occasional minor disturbance that may occur during inspection and maintenance. Such disturbances will be repaired and reclaimed as needed during operation. It also indicates that surface structures and equipment will be removed and that the well areas will, otherwise be left as they currently exist. NMCC does not anticipate creating any disturbance on the remaining two mill-site locations. However ,NMCC has indicated that it may utilize the other two mill sites in the future for other well-related infrastructure uses such as staging and storage areas for booster tanks, pumps and electrical equipment, maintenance and monitoring. (See, also, NMCC's response to MMD Comment No. 1, above).*
MMD Comment 21	Appendix E, Section 2.8.2	Haul and Access Road Reclamation	Section 2.8.2 describes the reclamation process for haul roads and access roads as ripping the surface. However, as described in other comments in this letter, the road widths should be reduced, outslopes should be regraded, and a minimum of 18" of growth media applied prior to revegetation. Please revise the reclamation plan accordingly.
	NMCC Response		*NMCC has revised the Reclamation Plan to reflect reducing the width of access and haul roads that are left to a width appropriate for single vehicle access. With respect to MMD's comment to a minimum of 18" of growth media applied prior to revegetation, please refer to NMCC's response to MMD's comment No. 8.*

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MMD Comment 22	Appendix E, Table E6	Growth media Thickness	Section 3.1, Table E6 shows the surface impoundments requiring 25,168 cy of growth media. However, MMD calculates this volume to be 29,201 cy (based on the acreage and 6" of growth media as cover). As discussed previously in comment #8, MMD requires a minimum of 18" of growth media at reclamation. Please address.
	NMCC Response		*Table E4 has been updated to include the correct surface area of 22.3 acres for the TSF Evaporation Pond (See NMCC Response to Comment No. 24). Additionally, Table E6 has been updated with the correct surface area for the TSF Evaporation Pond, and an explanation that the TSF Underdrain Collection Pond gets incorporated into the TSF Evaporation Pond and is included in the 22.3 acre total TSF Evaporation Pond area.*
MMD Comment 23	Appendix E, Table E1	Impoundment Clean Fill	The reclamation plan for surface impoundments (Table El) states that the HDPE liners will be ripped, folded over and buried in-place, and impoundments backfilled with clean fill. Will the clean backfill be material excavated during impoundment construction? If so, where will this clean backfill be stockpiled until closure? If this clean fill is to be placed on the growth media stockpile, does Table E6 account for the volume of growth media that will be required for these facilities at closure? For example, backfilling of Impacted Stormwater Impoundment C would require -52,000 cy of growth media/backfill. Please clarify.
	NMCC Response		*Materials excavated during the construction of the surface impoundments will be used to build up the pond embankments and surrounding operational areas. Excess material will be used first for construction fill, including filling and re-grading the area immediately south and east of EWRSP-1, as described in NMCC's response to comments No. 5 and No. 10. Additional excess material will be stored in the GMSPs, if suitable, or taken to one of the WRSPs, if unsuitable. Sufficient space to add excess material from the impoundments exists at both the GMSPs and WRSPs. At reclamation, the majority of the fill needed to reclaim the impoundments will come from re-grading the embankments and the local fill. The balance of the fill requirements and the cover will be sourced from the GMSPs. Revised Table E6 includes material needed to fill and cover all impoundments. Section 2.6.2 of the Reclamation Plan has been revised to provide clarification on the reclamation of the surface impoundments.*
MMD Comment 24	Appendix E, Table E6	Evaporation Pond	Does "surface impoundments" in Table E6 include the evaporation pond?

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	NMCC Response		*The "surface impoundments" designation in Table E6 does include the TSF Evaporation Pond. Acreage figures in Tables E4 and E6 were reviewed and reconciled with reclamation designs. The surface area for the TSF evaporation pond shown on Table E4 was corrected to 22.3 acres. The 22.3 acres of the evaporation pond includes the TSF underdrain collection pond area tha becomes part of the TSF Evaporation Pond. As a result of our review and corrections the surface impoundment entry in Table E6 has been revised to 31.3 acres.*
MMD Comment 25	Appendix E, Section 3.2.2	Reclamation seed density	Section 3.2.2, seed mixtures, proposes 4.73 PLS drillseeded as "interim" for growth media stockpile stabilization versus 9.18 PLS drillseeded for "final" reclamation. Please provide a justification for the reduced seed density for interim stabilization.
	NMCC Response		*The objectives of the interim and final seed mixes are different. The interim seed mix will be used to quickly establish plant cover on the growth media stockpiles to minimize soil losses due to wind and water erosion. This will be accomplished using a seed mix comprised of selected grasses and forbs that are typically available from seed vendors. In contrast, the final seed mix is intended to establish a plant community that will meet the revegetation performance standards including shrub density and plant diversity. Thus, the final seed mix will have a higher PLS rate, particularly for shrub species, but also other grasses and forbs, to increase overall plant diversity. Seeding rates are a function of both the number of pure live seeds (PLS) per pound for a given species and the target density of the planting (seeds per square foot). While there are differences in seed density between the interim and final seed mixes, the increase seeding rate (PLS/acre) is partly related to the final mix having higher rates of certain species with larger (heavier) seed such as four-wing saltbush, winterfat and indian ricegrass.*
MMD Comment 26	Appendix E, Section 5.5.3	Growth Media Volume	Section 5.5.3 states that the growth media stockpiles need to contain 3.92 million cy, but are designed to contain 4.5 million cy (thereby there is an estimated 584,000 cy of excess growth media). However, Table E6 cites that 4.2 million cy of growth media is needed, Table E5 cites that 4.5 million cy will be stored, and page 40 states that 80,000 cy of topdressing will be stored in windrows around the plant area. This appears to be an excess of 380,000 cy of growth media, not 584,000 cy. Please clarify. Additionally, please provide a map showing the proposed location of the cover material windrows.

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	NMCC Response		*The required volume of reclamation cover material that was identified in Tables E6 (4.2 million cy),is more simply broken down as follows;* *Stored in GMSPs* — *3,920,000 cy* *Hauled as excavated in EWRSP 1, 2B & 4* — *204.000 cy* *Stored in windrows at plant area* — *80,000 cy* *Total* — *4,204,000 cy* *Table E5 provides the design storage volume of the GMSP's of 4.5 million cy of material. Therefore, the stockpiles have 580,000 cy of unused design capacity.* *With respect to the 80,000 cy of material identified to be stored in windrows at the process area on page 40 of the Reclamation Plan, upon further consideration, NMCC no longer proposes to store any material at the plant site. However, there will be a nominal volume of material stored in windrows (approximately 20,000 cy) along horizontal construction of ancillary facilities such as buried pipelines, roads, etc., as shown in revised Table E6 of the Reclamation Plan. The exact location of these windrows cannot be identified at this time as it will be determined in the field during construction as to whether or not excavated materials at Hz construction locations can be salvaged. The Reclamation Plan has been revised to reflect new information to further identify the estimated cover requirements. Table E6 and Sections 2.7, 3.0, 3.1 and 5.5 of the Reclamation Plan have been revised to provide updated information on the volume of growth media materials that will be needed.*

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MMD Comment 27	Appendix E, Section 5.5.2	Material Handling of Suitable Soils	The Supplemental Soils Investigation performed by Golder Associates (2013) states in Section 3.4 that "nearly 68% of the test pits meet the soil suitability criteria for outslope cover and 87% meet the specifications for top surface cover." Further, this report states that development of borrow [salvage] areas will "require oversight by a qualified soil scientist and some selective handing to ensure suitable borrow materials area stockpiled" and that "oversight and coordination would be required to optimize the handing of suitable cover materials." In contrast, Section 5.5.2 of Appendix E states that "NMCC will bulk salvage suitable soils and near-surface alluvial materials and that the deep coarse-textured alluvial materials will be mixed with the more fine-textured surficial soils." The plan to bulk salvage materials appears to contradict the necessity to selectively handle materials during salvage. The reclamation plan should commit to selective handing of topdressing with oversight by a qualified soil scientist during salvage and a Reclamation Materials Handling Plan should be developed for MMD review. Alternatively, NMCC should plan to bulk salvage and stockpile up to approximately 35% more growth media (approximately 6.1 million cy, not 4.5 million cy) since approximately 13-32% of this material will likely be deemed unsuitable for reclamation based on Golder (2013). This revised volume does not take into account the placement of 18" of growth media where 6" has been proposed. Please address.
	NMCC Response		*NMCC believes that Section 5.5.2 of Appendix E is consistent with the description contained in the Golder Supplemental Soils Investigation. The use of "bulk salvage" methods to excavate and recover suitable materials for reclamation is not contrary to the statements made in Golder (2013). NMCC will employ bulk excavation methods to recover material for reclamation. However, this does not preclude the use of selective methods to identify and separate suitable and unsuitable materials when excavating reclamation material. Methods used for recovering suitable reclamation material will be similar to the methods that will be used in the mine to identify and separate ore and waste in the pit. NMCC will engage a qualified soil scientist to guide identification, mapping, and handling of suitable soil horizons in the field (similar to ore control in the pit as discussed in Section 3.3.2 of the Updated MORP). NMCC commits to preparing a Reclamation Materials Handling Plan as a condition in the approved mine permit. Therefore, there is no need to excavate and store additional material to account for the inclusion of unsuitable material in the stockpile. The selection process will be completed at the point of excavation, before the material is taken to stockpile or taken for use in contemporaneous reclamation. Unsuitable material will be identified and sorted out as*

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	NMCC Response (Cont.)		*discussed above. Material that is not suitable for reclamation cover will be left behind at the TSF and incorporated into the TSF grading plan.* *With respect to accounting for 18 inches of cover material where 6 inches were proposed, discussions with MMD have concluded that ripping to 12-inches with 6-inches of growth media cover provides 18-inches of growth media. Also, please refer to NMCC Response to Comment No. 8.*
MMD Comment 28	Appendix E, General	Test Plot Work Plan	NMCC will be required to implement a test plot program of the growth media proposed for use at reclamation. A condition in the future MMD permit will be for NMCC to submit a Test Plot Study Work Plan in coordination and consultation with MMD. The key objectives of the study will be to evaluate erosion resistance and the ability to adequately establish vegetation. NMCC will be required to perform periodic monitoring of any test plots constructed. In the work plan, a reference area(s) should be proposed as a comparison to the test plots.
	NMCC Response		*NMCC is aware that a test-plot program will be required. We will work with MMD to develop a Test-Plot Study Work Plan. We anticipate utilizing the reclaimed existing waste rock stockpile areas in the program as they will be reclaimed in the early years of operations. We look forward to developing the plan in coordination with MMD.*
MMD Comment 29	Appendix E, Drawing C006	EWRSP-4	The north edge of EWRSP-4 in Drawing C-006 does not appear to tie into any of the existing contours. Please clarify.
	NMCC Response		*Drawing C-006 has been revised to show the tie-in between the regrade and existing contours at the north edge of EWRSP-4.*
MMD Comment 30	Appendix E, Figure C-010	Storm Water Pond C	In Figure C-010, Impacted Stormwater Pond C is not shown at reclamation. This pond should have a grading plan approximated in this figure. Please revise Figure C-010 accordingly.
	NMCC Response		*Drawing C-010 has been revised to show the footprint of reclaimed Impacted Stormwater Impoundment C and the grading plan for the area.*

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MMD Comment 31	Appendix E, Attachment 2	Evaporation Pond	The following comments relate to the proposed evaporation pond: a. Figure C-019, cross section L, appears to show quite a bit of excavation required for the construction of the evaporation pond. Please describe where the stockpile of excess material will be created; b. Figure C-012 shows that the east edge of the proposed evaporation pond is in a corner immediately adjacent to the proposed east and south mine permit boundary. Please describe how construction of the evaporation pond will be accomplished within the permit boundary; c. The closure plan does not provide a figure showing future grading and reclamation of the evaporation pond. Also, a description of what happens to proposed toe channel TC-8 and a description of where water coming down TC-8 will be routed at reclamation is required. Please address.
	NMCC Response		*In response to comment a.; Excess material remaining following construction of TSF Evaporation Pond will be utilized for reclamation of the TSF that are ready for cover at the time of the pond construction and/or direct hauled to other areas requiring fill and cover. Excess material from the evaporation pond construction that cannot be used at the time of excavation may be taken to one of the growth media stock piles, if the material is suitable, or to one of the waste rock stockpile areas, if unsuitable. Sufficient space to add excess material from the evaporation pond construction exists at both the GMSPs and WRSPs. Revised Table E6 in the Reclamation Plan includes material needed to fill and cover all impoundments. Section 2.6.2 of the Reclamation Plan has been revised to provide clarification on the reclamation of the evaporation pond.* *In response to comment b.; The mine permit area will be fenced and all construction equipment and construction disturbances associated with the TSF Evaporation Pond will be restricted to within the fenced mine permit area. Construction projects are routinely completed successfully with space constraints and NMCC will establish permit boundaries in the field and require contractors to respect the established boundaries.* *In response to comment c.; A new drawing (C-012A) has been developed showing the regrade and drainage plan for the TSF Evaporation Pond. As shown on Drawing C-012A, toe channel TC-8 will remain in place and will continue to route clean surface water runoff off of the TSF to the tributary drainage that ultimately drains to Grayback Arroyo. The Evaporation Pond liner will be cut and disposed of at the in the void created by the underdrain collection pond (which*

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	NMCC Response (Cont.)		*was incorporated into the Evaporation Pond) and covered with fill material graded from the Evaporation Pond area. The pond embankment will be collapsed, graded and re-contoured to allow the Evaporation Pond area to drain to a tributary drainage to Grayback Arroyo as shown on Drawing C-12A. The entire area will be ripped and seeded. Section 2.6.2 of the Reclamation Plan has been revised to provide clarification on the reclamation of the TSF Evaporation Pond.*
MMD Comment 32	Appendix E, General	Rip-Rap Source	Numerous figures depict the use of rip-rap for slope armoring, bench channels, downslope channels, etc. What is the proposed source of the rip-rap? Will rip-rap be sourced from the growth media stockpiles, and, if so, is there sufficient excess stockpiled volume to account for the volume of rip-rap needed and still have enough coarse material for outslope reclamation? Please address.
	NMCC Response		*Rip-Rap required for reclamation of Copper Flat may be sourced from three locations within the permit area boundary, as may be needed and determined by geochemical and engineering suitability. The sources of rip-rap may be that exhumed from within the TSF area during salvage operations of the growth media materials, rock that currently exists at EWRSP-2 and B, and rip-rap that may be sourced from a quarry developed in the andesite located at WRSP-3. if it is determined that sufficient materials cannot be salvaged from the TSF excavation and the EWRPs, a small quarry will be developed at the WRSP-3 location prior to constructing WRSP-3 to produce needed Rip-Rap. Developedrfip-rap material will be stockpiled at designated locations within the WRSP areas for temporary storage until needed. Any material not utilized as rip-rap will simply remain in the WRSR in which it is located and be reclaimed along with the rest of the deposited mine waste rock.*
MMD Comment 33	Appendix E, General	Downslope Channel protection	As discussed in the informal conversation between NMCC, NMED and MMD on February 15, 2017, NMCC may want to consider the use of articulating concrete block, or similar pre-fabricated materials, for downslope channels or other potentially high-flow channels.
	NMCC Response		*NMCC has included the utilization of articulating concrete block (ACB) in the design of the downslope channels as indicated in Drawing C-21, Detail 8 and accompanying Channel Schedule contained in the Reclamation and Closure Plan (Appendix E). As detailed in the Channel Schedule table, ACB is specified for all of the downslope channels included in the reclamation design as well as the haul road channel running to the base of the open pit.*

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MMD Forestry Division Comment 1	General	State Listed Endangered Plants	Thank you for giving me the opportunity to review and comment on the updated mining operation and reclamation plan for the Copper Flat Mine in Sierra County, NM (Permit Tracking No. SI027RN). I do not anticipate any impacts to state listed endangered plants from the updated MORP. I reviewed the updated closeout plan and have no further comments.
	NMCC Response		*NMCC appreciates the MMD Forestry Division's review and contribution to the process.*
NMED SWQB Comment 1	General	Pit Lake Water Quality Standards	In 2014, the US Army Corps of Engineers approved a jurisdictional determination for the 230-acre watershed surrounding the pit lake at Copper Flat, excluding it from regulatory action under Section 404 of the Clean Water Act. The status of the pit lake as a water-of-the-state, however, is still under review at this time, pending a survey to determine whether the lake at mine closure will remain entirely on private land. Until a formal decision is made, State Water Quality Standards for unclassified perennial waters are presumed to be relevant (NMAC 20.6.4.99). Other ephemeral drainages within and affected by the mine are also subject to water quality protections under both Federal and State regulations.
	NMCC Response		*NMCC has performed a cadastral survey of the property and provided the results to the Bureau of Land Management and has filed the survey plat in Sierra County. Upon BLM's concurrence with the survey results, NMCC will inform the Surface Water Quality Bureau and provide the evidence required that will allow the SWQB to determine that the pit lake will be located such that it will not be a water-of-the-state subject to the surface water quality standards of 20.6.4.99 NMAC. NMCC recognizes that there are other performance standards aside from SWQB surface water standard that apply in protecting ephemeral drainages within and affected by the mine are also subject to protections under federal and state regulations and will conduct its operations in conformance with them.*

Agency Review of Updated MORP			
Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
Item #	**Section/Page (or general)**	**Topic**	**Comment**
NMED SWQB Comment 2	General	SWPP	The SWQB is concerned that mine-impacted stormwater may discharge into Grayback Arroyo. The existence of a TDS/sulfate plume downgradient of the mine suggests that contaminated stormwater has, in the past, been discharged into Grayback Arroyo. A new Stormwater Pollution Prevention Plan (SWPP) and Multi-Sector General Permit will be required by NMCC which should address stormwater collection to prevent point-source discharge of contaminated stormwater. The SWQB will be reviewing the SWPPP and stormwater diversion structures for adequacy and soundness to prevent discharges, in addition to monitoring water quality data collected in Grayback Arroyo at the four sampling stations detailed in the MORP.
	NMCC Response		*The Copper Flat Mine is designed to be a zero discharge facility. As described in Section 2.1 of the Reclamation Plan (Appendix E), the existing waste rock stockpiles from previous operations at the site which are of concern to the NMED, will be reclaimed in conformance with NMCC's Reclamation and Closure plans. All impacted storm water runoff at the Copper Flat project will be captured in impoundments as described in the Updated MORP and the Discharge Plan application submitted to the NMED Groundwater Bureau. NMCC will prepare and submit a SWPP for the project after approval of the MORP and DP applications well in advance of commencing site preparation and construction. NMCC acknowledges that the SWQB will review the SWPP and monitor water quality data collected per the MORP. NMCC will also obtain an NPDES multi-sector general permit as the NMED Copper Rules require that certain impoundments be designed with an overflow feature capable of safely passing runoff from a 100-year, 24-hour precipitation event. As such, an NPDES permit will be required even though Copper Flat is designed as a zero discharge facility.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**	**Review Date: April 21st, 2017**

Item #	Section/Page (or general)	Topic	Comment
NMED GWQB Comment 1	General	MORP Submittal to NMED as part of DP Application	The MORP was submitted to NMED on October 14, 2016 as a component of the Ground Water Quality Bureau Discharge Permit Application (Application) for Discharge Permit 1840 (DP-1840). Technical review of the Application pursuant to the Water Quality Act (WQA) and the Water Quality Control Commission (WQCC) Regulations, including the Copper Mine Rule (20.6.7 NMAC), is currently in progress. Pursuant to Subsection G of 20.6.7.10 NMAC, the technical completeness response deadline is February 14, 2017. NMED may have additional comments based on technical review of the Application and associated operational, monitoring and closure plans. As such, any additional comments will be submitted under separate letterhead directly to NMCC Copper Flats Mine with copy to MMD as these reports are critical to development of the draft Ground Water Discharge Permit. NMED will coordinate response to these documents with MMD prior to issuance of a comment letter to NMCC Copper Flats Mine.
	NMCC Response		*NMED's comments to NMCC's Updated MORP (which was submitted to NMED in October 2016) were provided to MMD on January 6, 2017. Since that time, on February 12, 2017 NMED requested additional information as part of its technical review of NMCC Discharge Plan application which included comments to NMCC's Updated MORP. NMCC submitted its response to NMED's request on April 14, 2017 and that response is currently undergoing NMED's review. NMCC appreciates the coordination efforts between NMED and MMD on the matter.*
NMED GWQB Comment 2			NMED finds that environmental standards will be met if mining operations and reclamation are carried out as described in the pending New Mexico Mining Act permit, pending DP-1840, the Copper Mine Rule, and if the above comments are addressed.
	NMCC Response		*NMCC appreciates the cooperation and effort provided by NMED and MMD as we navigate our way through the permitting process.*
NMED AQB Comment 1	General	Air Quality	Assuming that the facility stays in compliance with their air quality permit, the AQB has no objection to the proposed Updated Mining Operation and Reclamation Plan
	NMCC Response		*NMCC appreciates the NMED's Air Quality Bureau's review and contribution to the process.*

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Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
Item #	**Section/Page (or general)**	**Topic**	**Comment**
NMOSE Comment 1	General	Water Rights Availability	Testimony in the LRG-4652 water rights trial concluded in 2016, but court verdict has not yet been rendered. Availability of adequate water rights to conduct the proposed mining activities is necessary, and acquisition of rights will be required if sufficient rights are not deemed already in place. The NMOSE has not yet assessed hydrologic effects related to proposed project water use. The (potential) transfer-in of an undetermined amount of new water rights would result in an (as-yet undetermined) amount of depletions on Rio Grande flow and potential effects to the viability of proximal wells of other ownership. Depletions to flow in the Rio Grande would require offset in a manner acceptable to the NMOSE, and proximal well viability concerns may need addressing.
	NMCC Response		*NMCC acknowledges the OSE's role in resolving the issue of water rights and awaits the court's decision in the near future. Water availability is crucial to successful operation of the proposed mine and NMCC worked diligently to ensure that it has sufficient water and attendant water rights, including addressing the concerns of the OSE.*
NMOSE Comment 2	General	Water Rights Transfer	The rights transfer and assessment process would begin with application to the NMOSE through our Las Cruces office. Assessment of effects may benefit from, but not necessarily be conducted using project consultant JSAI groundwater flow model, referenced on page 4-2 of the submitted Updated Mining Operation and Reclamation Plan for its Copper Flat Mine (October 2016).
	NMCC Response		*NMCC does not foresee a need to initiate a water rights transfer request as the water to be utilized by NMCC in operation of the Copper Flat mine will be pumped (diverted) from the same wells for which water rights were granted, i.e., the production well field, and the location and purpose of use of the water will be the at the same location for which water rights were granted, i.e., the Copper Flat mine.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**	**Review Date: April 21st, 2017**

Item #	Section/Page (or general)	Topic	Comment
NMOSE Comment 3	Appendix A, B and D	TSF Design Reports	Appendix A - Feasibility Level Design, 30,000 TPD Tailings Storage Facility (November 30, 2015*) page 2 notes "The new TSF design will comply with the design and dam-safety guidelines and regulations of the New Mexico Office of the State Engineer (OSE) Dam Safety Bureau (NMDSB, 2010)." Also, Appendix 8 — Copper Flat Project Impoundment Design Report (signed 12/7/2015) page 3 notes "All impoundments for the Copper Flat Project will be considered "new" impoundments as defined by NMAC 20.6.7.17(D)." These documents, and as necessary, Appendix D — Copper Flat Project Site Diversion Analysis Report, relate to the design of project tailings storage facility and diversion (re-routing) plans for existing topographic drainages in the vicinity of project facilities. As new impoundments, the structures are subject to submittal of required NMOSE Dam Safety Bureau permit application and review. I understand project representatives have conferred with NMDSB personnel regarding the required submittal and that analysis and permitting will occur via that process.
	NMCC Response		*NMCC will prepare the Dam Safety Permit application documents that will need to be submitted to the NMOSE.*
NMOSE Comment 4	Appendix A	Revision Reference	Note that Updated Mining Operation and Reclamation Plan for its Copper Flat Mine (October 2016) references a June 2016 Appendix A revision on unnumbered title page for Appendix A following Section 5.0 —References.
	NMCC Response		*Appendix A, contained with the Updated MORP is the TSF Design Document as revised in June 2016. As explained in the insert sheet that follows the unnumbered title page for Appendix A is a separate document titled, "Feasibility Level Design, 30.000 TPD Tailings Storage Facility and Tailings Distribution and Water Reclaim System. This document was originally produced and submitted to the NMED in October 2015 and subsequently revised in June 2016 in response to agency comments.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
Item #	**Section/Page (or general)**	**Topic**	**Comment**
NMOSE Comment 5	Appendix E	Well Plugging Requirements	Appendix E - Mine Reclamation and Closure Plan (October 7, 2016) addresses final disposition of various physical components of the project, and either that "installation, operation, and maintenance of groundwater monitoring wells that may be required for post-closure monitoring in accordance with 20.6.7.35.6 NMAC", or that "groundwater monitoring wells and surface water samplers that may be required for post-closure monitoring in accordance with 20.6.7.35.6 NMAC" will occur relative to the closure of several of the project components. It is reasonable to assume a suite of project monitor wells will be required for assessment of project effects post-cessation of mining. With consent of the appropriate regulatory agencies, these or other monitor or production wells may be considered for eventual decommissioning by plugging. Well plugging procedures may fall under joint jurisdiction of the NMOSE, MMD, and NMED, and the authorized plugging process may be specific to the original well design, hydrogeologic unit penetrated, and/or chemistry of groundwater tapped.
	NMCC Response		*NMCC acknowledges that wells that are decommissioned by NMCC will require the consent of the appropriate regulatory agencies.*
NM OSE Comment 6	Appendix E	Well Abandonment	All project wellheads shall be crafted at a minimum following 19.27.4 NMAC well design regulations and made safe from vandalism and the unwarranted infiltration or injection of contaminants and surface water. As project activities wind down and the presence of authorized personnel becomes less common, wellheads should be capably secured and locations documented, or decommissioned as required under project permit. Well decommissioning is generally accomplished by plugging by a New Mexico-licensed Well Driller. No well shall be buried, destroyed, or plugged without appropriate regulatory approval and permitting. The retention of an unused well is not a given, so should alternative uses be desired for any project well, the NMOSE shall be consulted to review the need for administrative filings related to amended ownership and/or use, provided the request is otherwise deemed permissible by actual property owner and collaborating regulatory agencies.
	NMCC Response		*NMCC acknowledges that there a variety of construction, maintenance and decommissioning requirements for wells owned by NMCC. Similarly, NMCC understands that alternative future uses of wells may be subject to NMOSE jurisdiction. NMCC has been consulting with the OSE on these types of matters and will continue to do so as the project develops.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**	**Review Date: April 21st, 2017**

Item #	Section/Page (or general)	Topic	Comment
NMDG&F Comment 1	Section 2.3	Wildlife Contingency Plan	Section 2.3, Wildlife Impacts Contingency Plan, states that fencing of "appropriate height" will be constructed around process water and solution ponds to keep out larger wildlife such as deer and antelope. The Department recommends that exclusionary fencing for livestock be designed to minimize potential injury to any wildlife attempting to cross under or over the fence. The fence can be designed to exclude the smaller terrestrial animals as well, by wrapping the bottom of eight foot chain link fence with a smaller mesh material. Please consult the Department's Livestock Wildlife Fence Guidelines for details, at: http://www.wildlife.state.nm.usidownload/conservation/habitat-handbook/project-quidelines/Livestock-Wildlife-Fence-Guidelines.odf. For those containment ponds and reservoirs that do not require exclusionary fencing, escape ramps should be constructed to intercept an animal swimming around the periphery of the tank, pit or pond, at any water level. Ramps should be constructed from a textured, non-slippery material. This section of the plan also states that for "avian species the use of exclusionary devices will be employed, as needed, to prevent exposure to toxic chemicals and conditions created by mining activities". Exclusionary devices such as netting or other materials should be designed and maintained to prevent entanglement or entrapment of both birds and bats. Monofilament nylon netting material should never be used because it is significantly more likely to ensnare wildlife, and cause injury or death. Extruded, knit, or woven netting is preferred, and should be kept taut and inspected regularly. Department staff is available for consultation to assist in developing appropriate wildlife-friendly fence designs and netting options for specific applications.
	NMCC Response		*NMCC will install exclusionary fencing for livestock around the perimeter of the site and around certain process water impoundments that is designed to minimize potential injury to any wildlife attempting to penetrate or jump the fence. NMCC will consult the Department's Livestock Wildlife Fence Guidelines in selecting fence designs. Escape ramps will be constructed in a textured, non-slippery material will be installed. Exclusionary avian devices such as netting or other materials, if utilized, will be designed and maintained to prevent entanglement or entrapment of birds and bats and will be kept taut and inspected regularly. Monofilament nylon netting will not be used.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**	**Review Date: April 21st, 2017**

Item #	Section/Page (or general)	Topic	Comment
NMDG&F Comment 2	Section 2.5	Pit Lake Post-mining Land Use	Section 2.5, Post Mining Land Use, states that the pit lake will "provide enhanced avian wildlife habitat and a water source for transient wildlife". The potential benefit to wildlife from the pit lake will be contingent upon meeting surface water quality standards over an extended time frame. Since the open pit is a hydraulic sink and groundwater recharge from local precipitation to the crystalline bedrock is limited because of its low hydraulic conductivity, any metals that leach into the pit lake from the surrounding high walls and mining area could concentrate over time, if the evaporation rate exceeds the recharge rate from local precipitation. This condition will be exacerbated if the local climate becomes hotter and drier in the future. New Mexico Copper Corporation should have a long-term mitigation plan in place to protect migratory birds and local wildlife if the water quality in the pit lake becomes toxic over time. Mitigation measures could include a combination of both exclusionary and hazing techniques.
	NMCC Response		*NMCC has prepared its reclamation plan for the pit to make it suitable for wildlife habitat after reclamation. NMCC is currently working with the MMD, NMED and BLM to establish the means by which the performance and reclamation standards will be met at the site. NMCC will develop a pit lake water quality management plan (see page 34 of the DEIS) that will detail reclamation, water quality management, and monitoring activities that will be conducted to facilitate compliance with applicable standards.*
NMDG&F Comment 3	Section 4.1	Best Management Practices	Section 4.1, Best Management Practices, states that NMCC will use only certified weed-free seed and mulch. It should also state that only native plant species will be used for reclamation and if possible, that they are sourced from within the same region and vegetative community types.
	NMCC Response		*The seed mixture used for reclamation will be native plant species to the extent possible based on availability, compatibility with the vegetation of the surrounding areas, soil and climatic conditions of the area, and by recommendations from the BLM and NMEMNRD. If possible, seeds and plants will be sourced from within the same region and vegetative community types. Section 4.1, Page 4-2 of the Updated MORP has been revised to reflect this.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**	**Review Date: April 21st, 2017**

Item #	Section/Page (or general)	Topic	Comment
NMDG&F Comment 4	Section 4.3.1	Bat Protection for Shafts, Adits, Tunnels	Section 4.3.1, Shafts, Adits or Tunnels, states that historic mine workings exist within the permit area and that NMCC will work with the Bureau of Land Management to safeguard those features from unauthorized entry. All historic mine workings should be evaluated for bat activity. Shafts and adits that are used by bats should be appropriately gated to protect bats as well as prevent unauthorized human entry. Information and guidance on determining the most appropriate closure type for specific mine openings can be found at the Abandoned Mine Closure Website (http://www.batgating.com/).
	NMCC Response		*Surveys of all historic mine features (shafts and adits) that were known within the mine area were conducted during the summer of 2012 and during the hibernation season of 2013 to survey for bats, as detailed in the July 2013 Baseline Data Report Addendum, see Section 5, pages 21-24 for more details. These surveys found only nominal use of these features by bats within the mine area. NMCC will conduct additional surveys prior to conducting safeguarding actions on shafts and adits to confirm that all historic mine features within the mine area being used by bats are identified. If found to be used by bats the adit or shaft will be gated appropriately to allow continued use by bats while preventing unauthorized human entry. Section 4.3.1, page 4-20, has been revised to reflect this.*
NMDG&F Comment 5	Section 4.3.2	High Hazard Protection	Section 4.3.2 states that exclusionary fencing will be used in high hazard areas that include electrical substations. The Department recommends that electrical substations and associated surface power lines be constructed in conformance with the Avian Power Line Interaction Committee's "Suggested Practices for Avian Protection on Power Lines" (2006) (www.aplic.org/mission.php).
	NMCC Response		*There are two proposed substations to provide power to the site, one located east of the mine on New Mexico State Land and the other located on-site. They will be constructed, owned, and operated by Tri-State Electric. NMCC anticipates that the electrical substations and associated surface power lines will be constructed in conformance with the Avian Power Line Interaction Committee's "Suggested Practices for Avian Protection on Power Lines", as these companies are well aware of the avian protection techniques available.*

Agency Review of Updated MORP

Reviewer: David (DJ) Ennis, P.G. **Agency: NM Mining and Minerals Division**			**Review Date: April 21st, 2017**
Item #	**Section/Page (or general)**	**Topic**	**Comment**
NM DCAHPD Comment 1	General	Historic Properties & Archaeological sites	In accordance with rule 19.10.6.605.0 NMAC, I reviewed our records to determine if cemeteries, burial grounds or cultural resources listed on the State Register of Cultural Properties or the National Register of Historic Places exist within or near the permit area. Our records show that there are no cultural resources listed on the National Register or State Register within or near the proposed permit area. There are however, resources tentatively identified as burial grounds. Although there are no cultural resources listed on the State or National Register, our records show several archaeological surveys within part of the permit area. These surveys identified archaeological sites and a historic district. The Bureau of Land Management and the New Mexico State Historic Preservation Officer have entered into a Programmatic Agreement to take into the account the mine operation's effects to historic properties and to resolve adverse effects to historic properties pursuant to Title 54 306108 (aka Section 106) of the National Historic Preservation Act and its implementing regulation, 36 CFR 800. The BLM may require avoidance of any eligible archaeological sites and an archaeological monitor to ensure that eligible sites are not affected.
	NMCC Response		*NMCC appreciates the NMDCAHPD's review and contribution to the process. The Cultural Resources Programmatic Agreement recently executed between the various interested parties is the document by which cultural properties at the will be protected.*

NEW MEXICO COPPER CORPORATION

NEW MINE PERMIT No. SI027RN

UPDATED MINING OPERATION AND RECLAMATION PLAN

FOR ITS

COPPER FLAT MINE

SUBMITTED TO

NEW MEXICO MINING & MINERALS DIVISION PURSUANT TO

19.10.6.602.D.(15) and 19.10.6.603 NMAC

OCTOBER 2016

REVISION 1
JULY 2017

PREPARED BY

Velasquez Environmental Management Services Inc.

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Appendix A: Feasibility Level Design, 30,000 TPD Tailings Storage Facility and Tailings Distribution and Water Reclaim Systems, Copper Flat Project, Sierra County, New Mexico, Golder Associates Inc., November, 2015 as Revised, June, 2016

Appendix B: Impoundment Design Report, Copper Flat Project, M3-PN120085 Revision 0, M3 Engineering & Technology Corp. November, 2015

Appendix C: Process Facility Containment Report, Copper Flat Project, M3-PN120085 Revision 0, M3 Engineering & Technology Corp., November, 2015

Appendix D: Site Diversion Analysis, Copper Flat Project, M3-PN120085 Revision 0, M3 Engineering & Technology Corporation, December 2015 as Revised, June, 2016

Appendix E: Mine Reclamation and Closure Plan, Copper Flat Mine, Golder Associates Inc., October, 2016

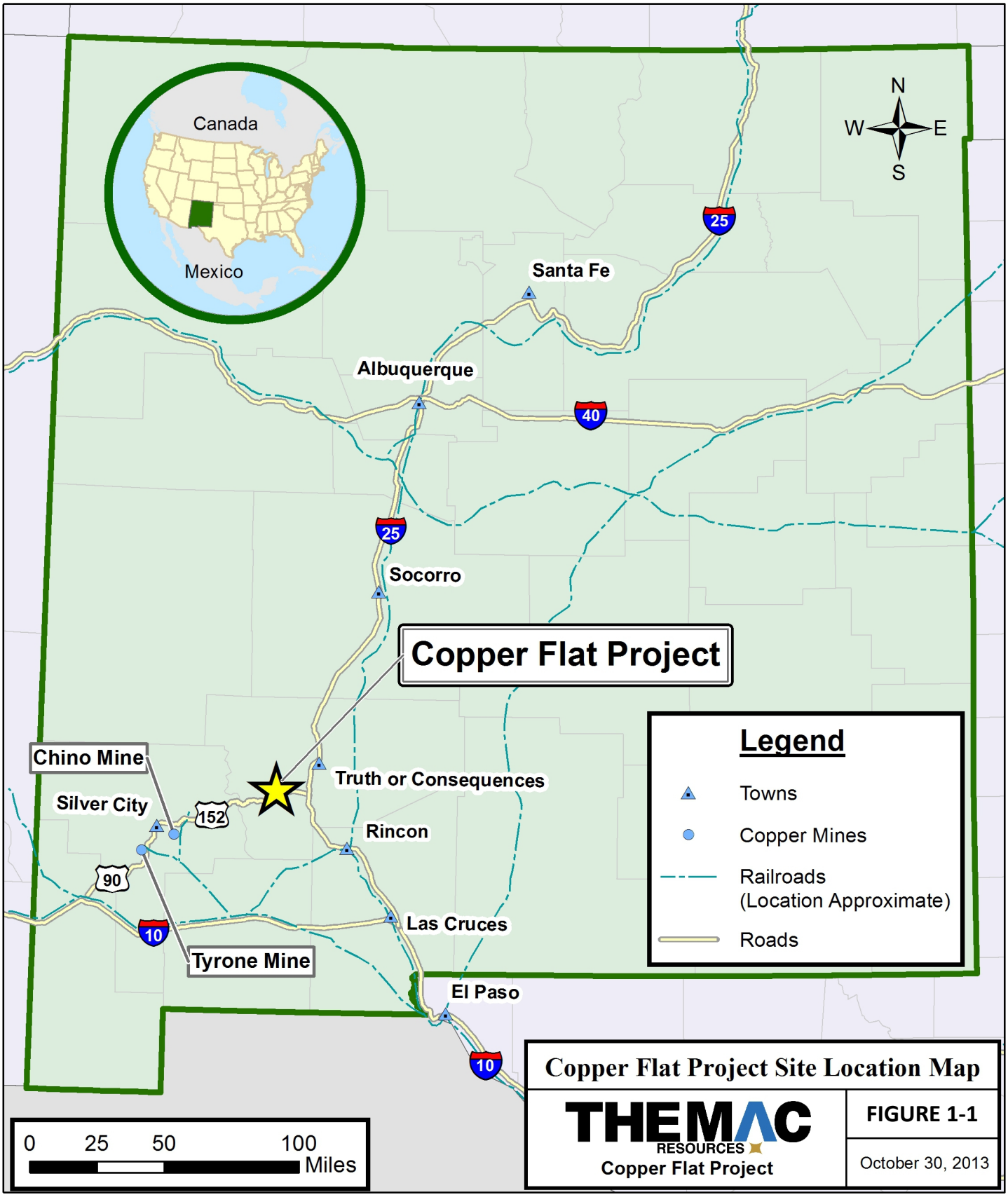
1.0 INTRODUCTION

New Mexico Copper Corporation (NMCC) is developing the Copper Flat Mine located approximately 150 miles south of Albuquerque, New Mexico and 20 miles southwest of Truth or Consequences, NM, north of NM State Highway 152 between the communities of Caballo to the east and Hillsboro to the west in Sierra County, as shown on Figure 1-1. NMCC has proposed to mine approximately 125 million tons of copper ore. Over the life of the mine, it will produce approximately 113 million tons of ore and 33 million tons of waste rock. The mine life for the current reserve is estimated at 11 to 12 years.

On July 18, 2012 NMCC submitted its Permit Application Package (PAP) to the New Mexico Mining and Minerals Division (MMD), including the Mining Operation and Reclamation Plan (MORP) for its Copper Flat Mine Project in Sierra County, NM. On February 18, 2013 the MMD provided comments on NMCC's PAP, including NMCC's Baseline Data Report (BDR) and the MORP. In the intervening time NMCC and MMD have resolved all of MMD's comments related to the BDR with the exception of a determination of the hydrologic consequences of the operation and reclamation on the permit and affected areas as required by 19.10.6.602.D.(13)(g)(v) of the Mining Act regulations. NMCC will submit a revised hydrologic consequences analysis in response to MMD's request under separate cover as an addendum to the BDR when it becomes available.

This document updates NMCC's MORP submittal of July 18, 2012, in particular with respect to Sections 3.15 through 4.8 of the 2012 MORP document. This update addresses proposed mine operations and reclamation and closure of the Copper Flat Project and provides the most recent information available consistent with the information contained in NMCC's Discharge Permit (DP) application submitted to the New Mexico Environment Department (NMED) in December2015 and revised in June 2016, currently undergoing technical review. The information herein is also consistent with the information contained in the Bureau of Land Management's (BLM) draft Environmental Impact Statement (DEIS) published for public comment in November 2015, in particular, with regard to Alternative 2 as described in the DEIS and designated by the BLM as the preferred alternative. This document also takes into account MMD's February 18, 2013 comments and provides more detailed information that may resolve or render a specific comment moot.

This MORP update is organized in a manner that allows the reviewer to compare subsection of 19.10.6.602.D.(15), Description of the Proposed Mine Operation and Reclamation Plan, and 19.10.6.603, Performance and Reclamation Standards and Requirements, of the Mining Act regulations to see how NMCC proposed operations and reclamation of Copper Flat will comply with MMD's Mining Act regulations. Section 2.0 presents NMCC's Mine Operation Plan for Copper Flat and Section 3.0 presents its Reclamation and Closure Plan. The contents of this


Canada
Mexico
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Santa Fe
Albuquerque
Socorro
Copper Flat Project
Chino Mine
Silver City
Truth or Consequences
Rincon
Las Cruces
Tyrone Mine
El Paso
25
40
10
90
152
Legend
Towns
Copper Mines
Railroads
(Location Approximate)
Roads
0 25 50 100
Miles
Copper Flat Project Site Location Map
THEMAC RESOURCES
Copper Flat Project
FIGURE 1-1
October 30, 2013

MORP update are also supported by the appended documents included herewith as well as the other documents included as part of the MORP update by reference herein.

As indicated above, NMCC submitted its DP application to the NMED for review and approval. The DP application was determined administratively complete in December 2015 and is currently undergoing technical review. NMED provided a set comments and a request for additional information in March 2016. NMCC submitted the requested information in June 2016, including a commitment to submit the information contained in this document in response to NMED's request for a more detailed Closure Plan. This MORP update is consistent with and includes much of the same information as was provided to NMED in its DP application. NMCC considers that the Reclamation Plan as contained herein is also the Closure Plan required by the NMED Copper Rules. The DP application as revised in June 2016 is, therefore, included in this MORP by reference.

NMED's requirements for ground water protection during operation of Copper Flat and subsequent reclamation at the end of the project are tied to each other through the New Mexico Mining Act regulations and the New Mexico Water Quality Control Act Copper Rules (NMED Copper Rules) regulatory approval process for the mine. The objective of the Reclamation and Closure Plan is to reclaim and close the facility in a manner protective of ground water in conformance with the NM Copper Rules, meet the reclamation requirements of the New Mining Act and return the mine area to conditions similar to those present before reestablishment of the mine. Reclamation of the site will re-establish the post-mining land uses consistent with the land uses of the site and the surrounding area, i.e., wildlife habitat, grazing, mining and recreation as identified by the Bureau of Land Management in its approved Land Use Management Plan (BLM 1986).

2.0 MINE OPERATIONS PLAN - 19.10.6.602.D.(15)

This Section provides a detailed description of the NMCC's proposed construction and operation of the Copper Flat Project. It is organized to provide the information requested in Sections 19.10.602.D.(15)(a) through (f) of the New Mexico Mining Act regulations and how the operation will meet the performance standards and requirements of 19.10.6.603 NMAC.

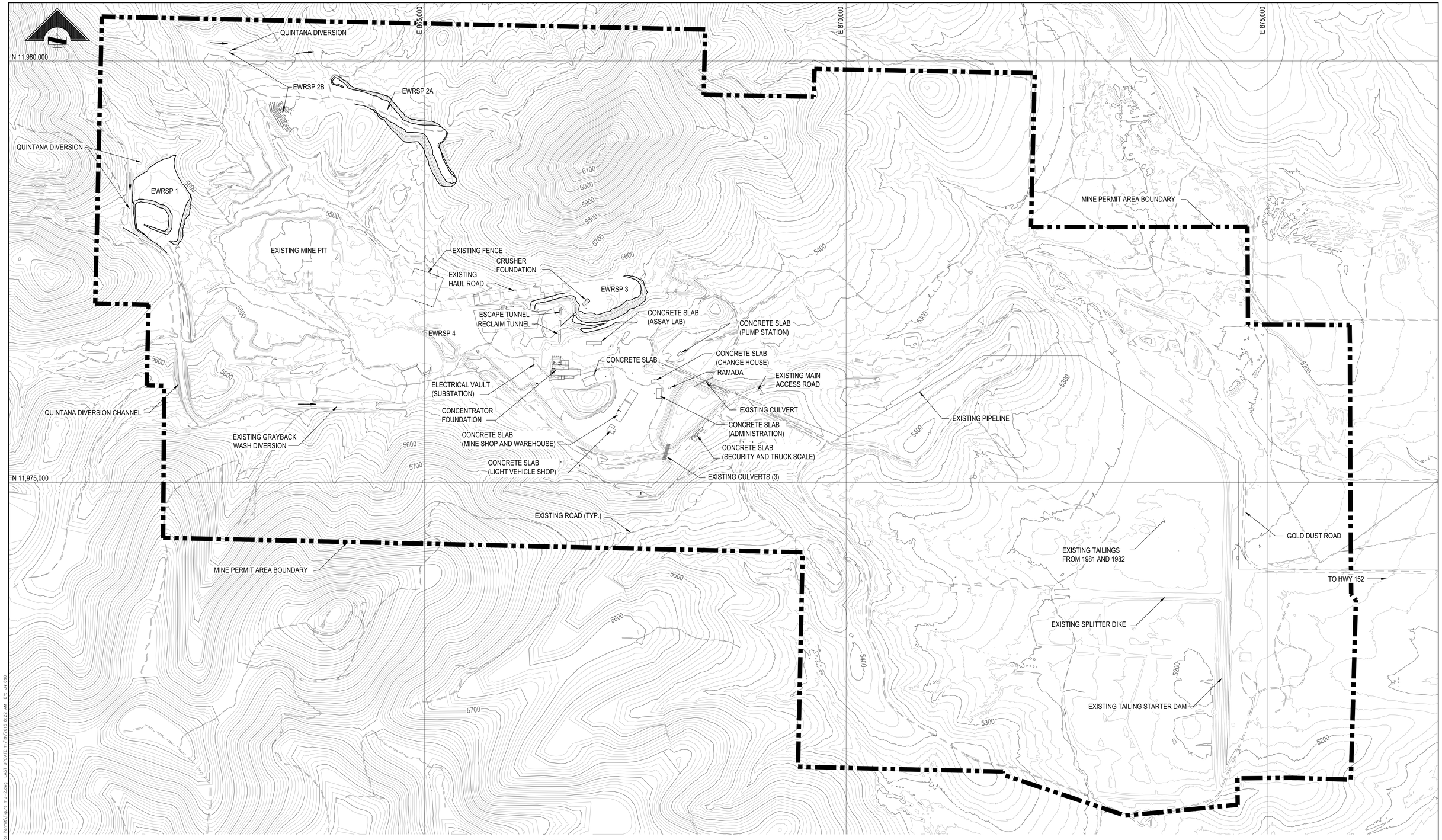
2.1 Type & Methods of Mining - 19.10.6.602.D.(15)(a) & (b)

This Section describes the type and method of mining and the engineering techniques proposed at the Copper Flat mine. It contains the required maps and describes the approximate time table and general sequence to be followed in constructing and operating the mine, including the number of acres of land anticipated to be disturbed.

NMCC proposes to construct an open pit mine at its Copper Flat Project. This new facility will entail the expansion of an existing open pit previously developed and operated for a short time in 1982 by Quintana Minerals Corporation (Quintana). A portion of the ore body at Copper Flat is exposed at and near the surface and will be mined by conventional truck and shovel open pit methods. Figure 2-1 is a map of the site as it currently exists, showing the various existing facilities as constructed by Quintana when it operated the mine. Figure 2-2 provides a map of the proposed site facility showing the location of the various features of the project described in more detail later herein. These maps provide the reviewer the ability to differentiate between what currently exists as a disturbance on-site as compared to NMCC's proposed activities.

NMCC proposes to re-establish and expand the previous Quintana mining activities conducted at Copper Flat in 1982. The facilities will be similar to those of the previous operator, including an open pit mine, concentrate production facilities, waste rock stockpiles (WRSPS) and a tailings storage facility (TSF). Upon receiving the required permit approvals the project will begin site preparation and construction for approximately 2 years. The operating life of the project ("life of mine") is anticipated to be 11 to 12 years. Thereafter, the site will be closed and reclaimed per an approved reclamation and closure plan. Table 2-1 provides an approximate timetable indicating development, construction, operation and reclamation of the Copper Flat Project beginning from the time NMCC obtains all of the required permissions and approvals.

NMCC will mine approximately 113 million tons of ore and 45 million tons of waste rock during the operating life of the mine (158 million tons). Annually, the mining operation will supply 8.9 million 10.8 million tons of copper ore to the mill for processing (an average rate of approximately 25.5 to 29.6 thousand tons per day) depending on operational conditions in the concentrator. Table 2-2 shows the estimated annual mine and process production schedule for Copper Flat. Waste rock production will be highest in the early years of



NOTES:

CONCRETE FOUNDATIONS SHOWN REFLECT PLANS BY QUINTANA MINERALS CORPORTATION FROM 1981 AND MOST RECENT SURVEY CONDUCTED.

SITE PLAN

SCALE: 1" = 500'

500 250 0 500 1000

SCALE IN FEET

CONTOUR INTERVAL = 10'

DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY

FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1"= 500'	DATE
DESIGNED BY	JPN	OCT 15
DRAWN BY	JPN	OCT 15
CHECKED BY		
PROJECT MGR	RKZ	
CLIENT APPR.		

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COPPER FLAT PROJECT

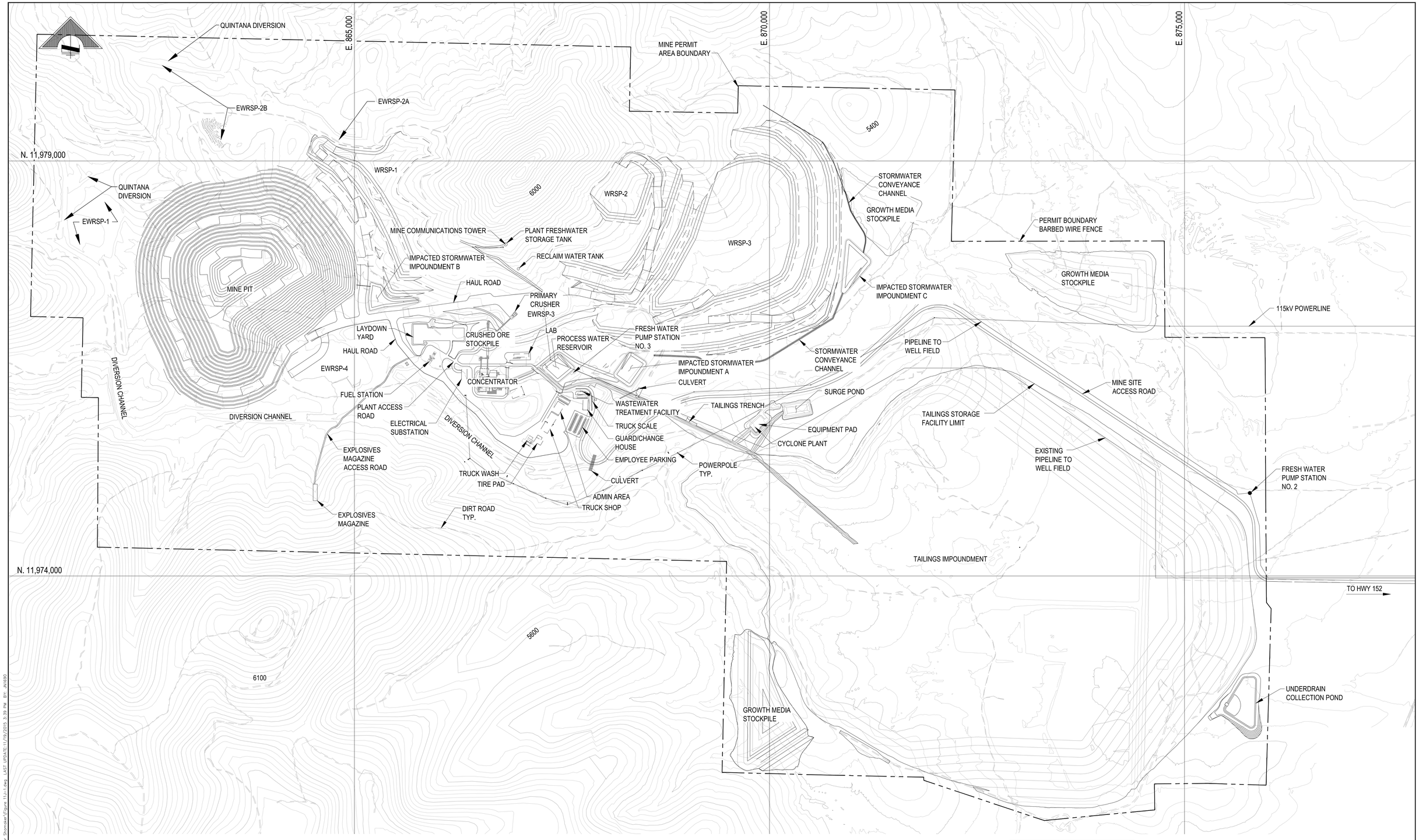
SITE GENERAL CIVIL MINE SITE EXISTING CONDITIONS

JOB NO. M3 PN-120085

DWG NO. **FIGURE 2-1**

REV NO. P2 | DATE 20 NOV 15

File: P:\2012\120085\CIVIL (5441)\5442 Dwgs\Figures for Permit\Figure 1\1--2.dwg LAST UPDATE:11/19/2015 8:22 AM BY: JN1690



EWRSP = EXISTING WASTE ROCK STOCKPILE
WRSP = WASTE ROCK STOCKPILE

SITE PLAN
SCALE: 1:500

500' 250' 0' 500' 1000'
1" = 500'
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE: 1" = 500'		DATE
DESIGNED BY	SAM	DEC12
DRAWN BY	SAM	DEC12
CHECKED BY	TDL	JAN13
PROJECT MGR	RKZ	
CLIENT APPR.		

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COPPER FLAT PROJECT

SITE GENERAL
CIVIL
PROJECT AREA
PROPOSED SITE PLAN

JOB NO. M3 PN-120085
DWG NO. **FIGURE 2-2**
REV NO. P18
DATE 16 NOV 15

File: P:\2012\120085\CIVIL (544)\544.2 Dwgs\For Showcase\Figure 11-1.dwg LAST UPDATE:11/19/2015 3:39 PM BY: JKN690

TABLE 2-1
COPPER FLAT DEVELOPMENT SEQUENCE AND SCHEDULE

Project Build Out Sequence					Project Reclamation Sequence	
		Disturbed Acres				
Year	Project Activity	Facility	Cumulative	19.10.1602.D(15)(c) Reference	Year	Reclamation Activity
1	Mobilize Construction	0.00	0.00	Other Facility or Structures (c)xiii	1	
	Plant Site Grading	84.41	84.41	Other Facility or Structures (c)xiii		
	TSF Phase 1	451.50	535.91	Tailings Storage Facility (c)vii		
	Top Dressing Stockpile 1	29.33	565.24	Topsoil & Topdressing Stockpiles (c)xi		
	Construct Mill	8.51	573.75	Mills (c)viii		
	Construct Ancillary Facilities	8.89	582.64	Other Facility or Structures (c)xiii		
	Storage Areas	3.22	585.86	Storage Areas (c)x		
	EWRSP 1	15.34	601.20	Waste Rock Stockpiles (c)xii		
	EWRSP 2A	8.33	609.53	Waste Rock Stockpiles (c)xii		
	EWRSP 2B	12.73	622.26	Waste Rock Stockpiles (c)xii		
	EWRSP 3	19.54	641.80	Waste Rock Stockpiles (c)xii		
	EWRSP 4	18.10	659.90	Waste Rock Stockpiles (c)xii		
	Mine Haul Roads	5.97	665.87	Waste Rock Stockpiles (c)xii		
	Impoundments : TSF; Proc; SW A	12.92	678.79	Impoundments (c)ii		
	Collection Ditches: SW A	1.38	680.17	Impoundments (c)ii		
2	Top Dressing Stockpile 2	31.55	711.72	Topsoil & Topdressing Stockpiles (c)xi	2	Reclaim EWRSP 1
	Top Dressing Stockpile 3	3.53	715.25	Topsoil & Topdressing Stockpiles (c)xi		Reclaim EWRSP 2A
	Construct Ancillary Facilities	21.10	736.35	Other Facility or Structures (c)xiii		Reclaim EWRSP 2B
	Open Pit	82.66	819.01	Open Pit (c)vi		
	WRSP 1	3.97	822.98	Waste Rock Stockpiles (c)xii		
	WRSP 2	2.44	825.42	Waste Rock Stockpiles (c)xii		
	WRSP 3	6.07	831.49	Waste Rock Stockpiles (c)xii		
	Mine Haul Roads	11.03	842.52	Waste Rock Stockpiles (c)xii		
	EWRSP 4	4.52	847.04	Waste Rock Stockpiles (c)xii		
	Ore Stockpile	2.07	849.11	Ore Stockpiles (c)i		
	Impoundments : Surge; SW B; SW C	8.99	858.10	Impoundments (c)ii		
	Collection Ditches: SW B; SW C	4.42	862.52	Impoundments (c)ii		
3	Top Dressing Stockpile 3	10.58	873.10	Topsoil & Topdressing Stockpiles (c)xi	3	
	Open Pit	66.13	939.23	Open Pit (c)vi		
	WRSP 1	27.80	967.03	Waste Rock Stockpiles (c)xii		
	WRSP 2	4.88	971.91	Waste Rock Stockpiles (c)xii		
	WRSP 3	18.20	990.11	Waste Rock Stockpiles (c)xii		
	TSF Phase 2	28.22	1,018.33	Tailings Storage Facility (c)vii		
4	WRSP 1	7.94	1,026.27	Waste Rock Stockpiles (c)xii	4	
	WRSP 2	19.51	1,045.78	Waste Rock Stockpiles (c)xii		
	WRSP 3	18.20	1,063.98	Waste Rock Stockpiles (c)xii		
	TSF Phase 3	28.22	1,092.20	Tailings Storage Facility (c)vii		
5	Open Pit	8.27	1,100.47	Open Pit (c)vi	5	
	WRSP 2	14.63	1,115.10	Waste Rock Stockpiles (c)xii		
	WRSP 3	18.20	1,133.30	Waste Rock Stockpiles (c)xii		
	TSF Phase 4	28.22	1,161.52	Tailings Storage Facility (c)vii		
6	Open Pit (buildout complete)	8.27	1,169.79	Open Pit (c)vi	6	
	WRSP 1	0.00	1,169.79	Waste Rock Stockpiles (c)xii		
	WRSP 2	4.88	1,174.67	Waste Rock Stockpiles (c)xii		
	WRSP 3	18.20	1,192.87	Waste Rock Stockpiles (c)xii		
7	WRSP 2, 3	2.44	1,195.31	Waste Rock Stockpiles (c)xii	7	
	WRSP 3	18.20	1,213.51	Waste Rock Stockpiles (c)xii		
	TSF Phase 5 (buildout complete)	28.22	1,241.73	Tailings Storage Facility (c)vii		
8	WRSP 3	18.20	1,259.93	Waste Rock Stockpiles (c)xii	8	
9 - 11	WRSP 3 (buildout complete)	6.07	1,266.00	Waste Rock Stockpiles (c)xii	10 - 11	WRSP 3 Contour
12					12	WRSP 3 Contour, TSF Draindown - Active Evaporation
13					13	Pit Rapid Fill, WRSP 2-Upper Lift Contour, WRSP 1-Contour, TSF Draindown - Active Evaporation
14	Mining and Processing Ends				14	Rapid Fill, WRSP-2 Upper Lift Contour, WRSP 1 - Contour, Fill & Contour, WRSP 3, 2, 1, EWRSP 4 Cover & Seed, TSF Draindown - Active Evaporation
15					15	Process Area Demo, Fill & Contour, WRSP 3, 2, 1, EWRSP 3 & 4 Contour, Cover & Seed, Pit Area Contour, TSF Contour, Draindown - Active Evaporation
16					16	Process Area Fill & Contour, WRSP 3, , 2, 1, EWRSP 3 & 4 Contour, Cover, Seed, TSF Contour, Draindown - Active Evaporation
17					17	TSF Contour, Draindown - Active Evaporation
18	Evaporation Pond Construction (Project Buildout Complete)	24.05	1,290.05	Impoundments (c)ii	18	TSF Contour & Cover, Draindown - Active Evaporation, Passive Evaporation
19					19	TSF Contour, Cover, Draindown - Passive Evaporation
20 - 21					20 - 21	TSF Contour, Cover, Seed, Draindown - Passive Evaporation
22 - 38					22 - 38	TSF Draindown - Passive Evaporation
39					39	TSF Evaporation Pond Fill, Cover & Seed

TABLE 2-2
Copper Flat Project
Estimated Mine & Process Scheduler

Period	Ore Annual Kton	WRSP 1 Annual Kton	WRSP 2 Annual Kton	WRSP 3 Annual Kton	Total WRSP Annual Kton	Total Mined Annual Kton	Strip Ratio	Mine Avg TPD	Process Annual Kton	Process Avg TPD
Preproduction	360,000	32,000	30,000	48,000	110,000	470,000	0.31	7,380	0	0
Year 1	8,940,000	2,073,000	1,346,000	5,141,000	8,560,000	17,500,000	0.96	47,950	9,300,000	25,480
Year 2	10,800,000	1,055,000	2,544,000	3,312,000	6,700,000	17,500,000	0.62	47,950	10,800,000	29,590
Year 3	10,800,000	0	1,756,000	4,156,000	6,700,000	17,500,000	0.62	47,950	10,800,000	29,590
Year 4	10,800,000	0	628,000	4,944,000	6,700,000	17,500,000	0.62	47,950	10,800,000	29,590
Year 5	10,800,000	0	0	6,072,000	6,700,000	17,500,000	0.62	47,950	10,800,000	29,590
Year 6	10,250,000	0	0	5,924,000	5,924,000	15,949,000	0.59	43.700	10,025,000	27,470
Year 7	9,900,000	0	0	2,491,000	2,491,000	12,391,000	0.25	33,950	9,900,000	27,120
Year 8	9,900,000	0	0	718,000	718,000	10,618,000	0.07	29,090	9,900,000	27,120
Year 9	9,900,000	0	0	71,000	71,000	9,971,000	0.01	27,320	9,900,000	27,120
Year 10	9,900,000	0	0	3,000	3,000	9,903,000	0.00	27,130	9,900,000	27,120
Year 11	9,900,000	0	0	1,000	1,000	9,901,000	0.00	27,130	9,900,000	27,120
Year 12	1,059,000	0	0	4,000	4,000	1,063,000	0.00	26,580	1,059,000	26,480
Total	113,084,000	3,160,000	8,637,000	32,885,000	44,682,000	157,766,000	0.40	38,340	113,084,000	27,890

production while the mine is developed, i.e., 8.5 million tons in the first year to 2.5 million tons in the seventh year. Thereafter, waste rock production will decrease significantly, i.e., 718,000 tons in year eight to as little as 4,000 tons in year twelve.

The permit area boundary as shown on Figure 2-2 is 2,190 acres. The Copper Flat Project will disturb approximately 1,290 acres, 910 acres of which were disturbed by previous mining operations. There will also be additional nominal disturbance on lands shown on Figure 2-20 that are part of the permit area referred to later herein in Section 2.1.7 as "Off-site Ancillary Facilities", including the well field, water pipeline corridor and mill-site claims. The substation and power lines are not considered part of the permit area. Table 2-3 summarizes the approximate number of acres disturbed by the Copper Flat Project at the end of mine life. The total amount of acreage to be reclaimed is discussed in Section 3.0.

TABLE 2-3
Copper Flat Project Disturbed Acreage[1]

Project Area	Associated 19.10.6.602.D.(15)(c) Requirement	Acres Disturbed
Crushed Ore Stockpile	Ore Dumps & Stockpiles - (c)i	2
Ponds & Surface Impoundments	Impoundments - (c)ii & iii	52
Mine Pit	Pits - (c)vi	165
Tailings Storage Facility	Tailings Disposal Facilities - c)vii	565
Concentrator	Mills - (c)viii	9
Laydown Yard & Fuel Station	Storage Areas - (c)x	3
Growth Media Stockpiles	Topsoil and Top Dressing Stockpiles - (c)xi	75
Waste Rock Stockpiles (existing & proposed)	Waste Rock Stockpiles - (c)xii	305
Administration/Warehouse/Other Facilities	Other Facilities or Structures - (c)xiii	114
Total		1290

1. Does not include nominal disturbances at Off-site Ancillary Facilities

2.1.1 Existing Open Pit

Quintana created the existing open pit shown in Figure 2-1 in 1982 when they brought the property into production as an open pit mine and mineral processing plant. The initial mine stripping required to expose the ore body occurred during the four- to six-month period immediately preceding startup of the mineral processing plant. Following startup the open pit and processing plant were in commercial production for three and a half months. At that time, all operations were halted due to a significant decline in copper prices. Approximately 3 million tons of overburden material and 1.2 million tons of ore were mined from the open pit by Quintana. No commercial mining has occurred at this open pit since 1982.

The elevation of the bottom level of the existing Quintana pit is 5,400 feet above mean sea level (amsl), approximately 100 feet beneath the original pre-mining ground surface. The existing open pit encompasses approximately 80 acres of existing disturbance. The bottom benches of the existing pit are flooded, forming a small 5 acre water body. The water level

fluctuates with the season in response to precipitation year over year. The depth of the water varies with the underlying open pit and ranges from 10 feet deep to 35 feet deep. The pit currently contains approximately 80 acre-feet (AF) of water.

2.1.2 Proposed Open Pit

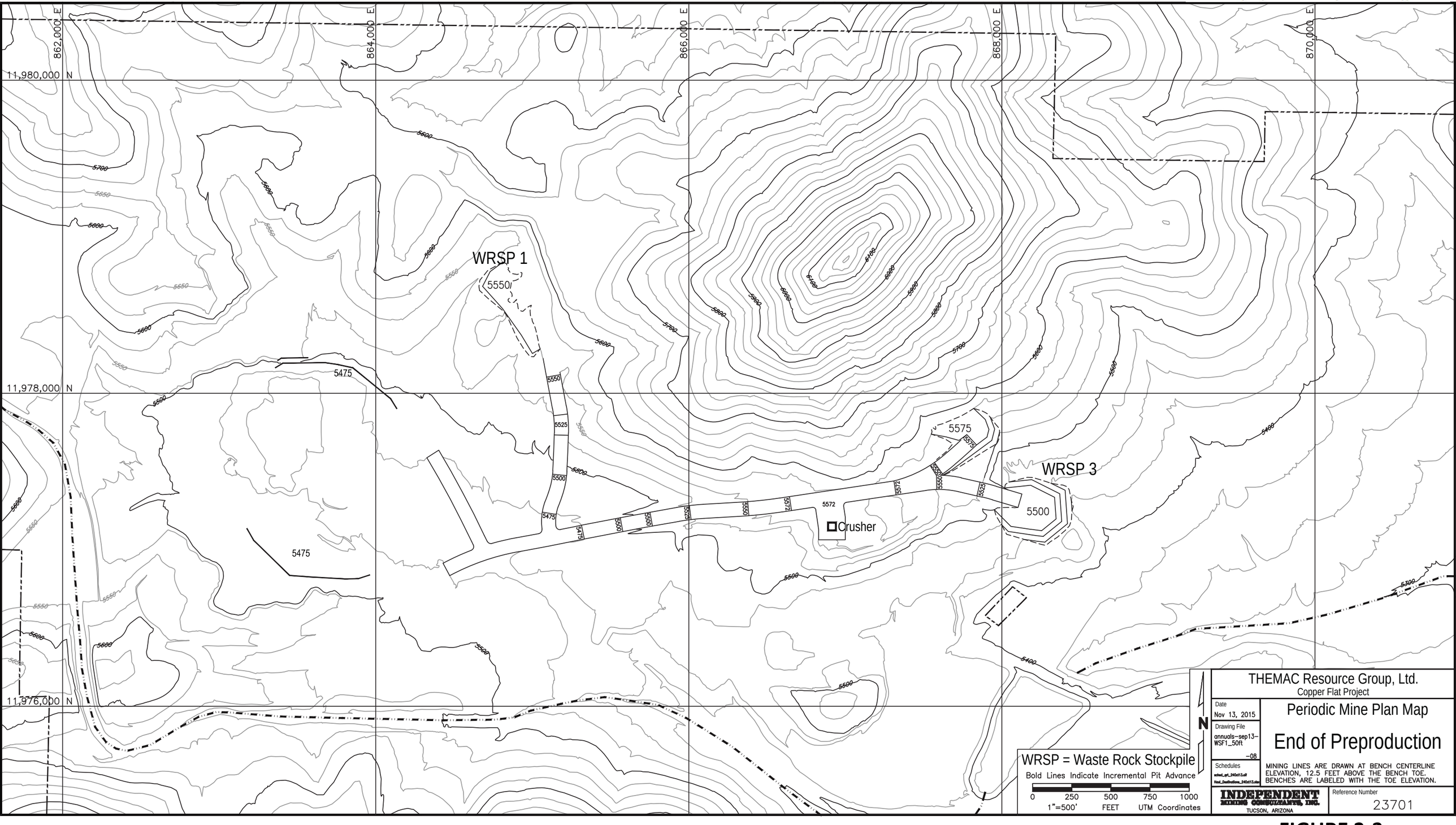
As shown in Figure 2-2, NMCC's proposed open pit will be created through the expansion of the existing open pit to a total of approximately 166 acres, Including the pit, explosives magazine and magazine access road. A multiple bench, open pit mining method will be used to mine the Copper Flat ore body. The pit material will be drilled, blasted, and excavated, creating benches approximately 25 ft. high. The blasted material will be loaded by wheel loader to haul trucks where it will be hauled either to the waste rock piles for storage or as ore to the primary crusher where it will be fed, crushed and conveyed to the mill for processing. A description of the process is provided in more detail later herein. Figures 2-3 through 2-11 depict expansion of the pit over time.

Over the 12-year life of the mine, approximately 113 million tons of copper ore and 45 million tons of waste rock will be mined and removed from the open pit. The proposed mining activities will enlarge the open pit over time to a diameter of approximately 2,800 feet. The open pit will reach a depth of approximately 4,650 feet above sea level, which will be approximately 850 to 900 feet beneath the original pre-mining ground surface. The area of the pit will be expanded to approximately 165 acres. The existing diversions of Grayback Arroyo, shown on Figure 2-1, constructed by Quintana during its operation of the mine will provide diversion of water around the pit and will not be affected by the proposed pit expansion (see Figure 2-2).

2.1.3 Waste Rock Stockpiles (WRSPs)

Waste rock will be hauled from the mine pit and placed in designated stockpile areas shown on Figure 2-2 and described in more detail later herein. These new WRSPs will be constructed in an area of the site that is completely underlain by andesite bedrock, a geologic formation that has a transmissivity of less than 10^{-6} centimeters per second (cm/sec) (SRK, May 2013), thus providing a natural liner. These WRSPs will be constructed as units segregated by the grade of copper contained in the waste rock material so as to maximize its potential to be processed as ore in the future. WRSP-1 is located inside the post-mining open pit surface drainage area and will contain the highest non-ore grade material. WRSP-2 will contain the next highest non-grade material. WRSP-3 will contain all the remaining material.

These new WRSPs will cover approximately 221 acres, including haul roads. They will be built generally to a configuration of 3 horizontal to 1 vertical slope angles (18.4 degrees) to help facilitate reclamation at the end of the mine life. Each lift within the stockpile will be



THEMAC Resource Group, Ltd.
Copper Flat Project

Date: Nov 13, 2015
Drawing File: annuals–sep13–WSF1_50ft –08
Schedules: sched_qrt_240ct13.scl; final_DeathBlons_240ct13.dzm

Periodic Mine Plan Map

End of Preproduction

MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.

INDEPENDENT MINING CONSULTANTS, INC.
TUCSON, ARIZONA

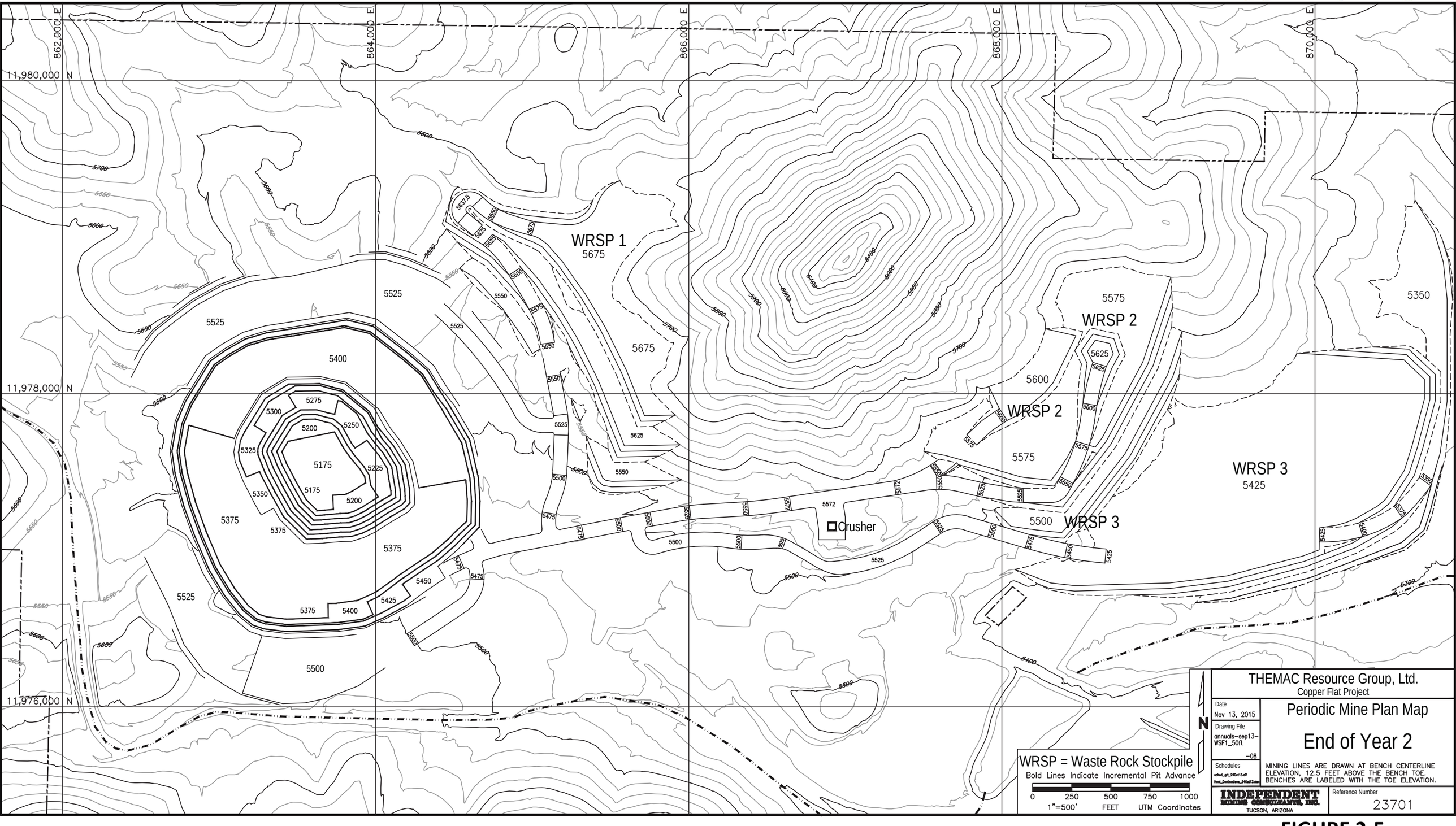
Reference Number: 23701

FIGURE 2-3

862,000 E
864,000 E
866,000 E
868,000 E
870,000 E
11,980,000 N
11,978,000 N
11,976,000 N
WRSP 1
WRSP 2
WRSP 3
Crusher
5675
5525
5475
5625
5350
5575
5600
5500
5425
5572
5450
5400
5375
5637.5
WRSP = Waste Rock Stockpile
Bold Lines Indicate Incremental Pit Advance
0 250 500 750 1000
1"=500' FEET UTM Coordinates
N

THEMAC Resource Group, Ltd.
Copper Flat Project
Date: Nov 13, 2015
Drawing File: annuals-sep13-WSF1_50ft -08
Schedules: sched_qrt_240ct13.xlf Haul_DestNotions_240ct13.xlsx
Periodic Mine Plan Map
End of Year 1
MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.
INDEPENDENT MINING CONSULTANTS, INC. TUCSON, ARIZONA
Reference Number 23701

FIGURE 2-4



THEMAC Resource Group, Ltd.
Copper Flat Project

Periodic Mine Plan Map

End of Year 2

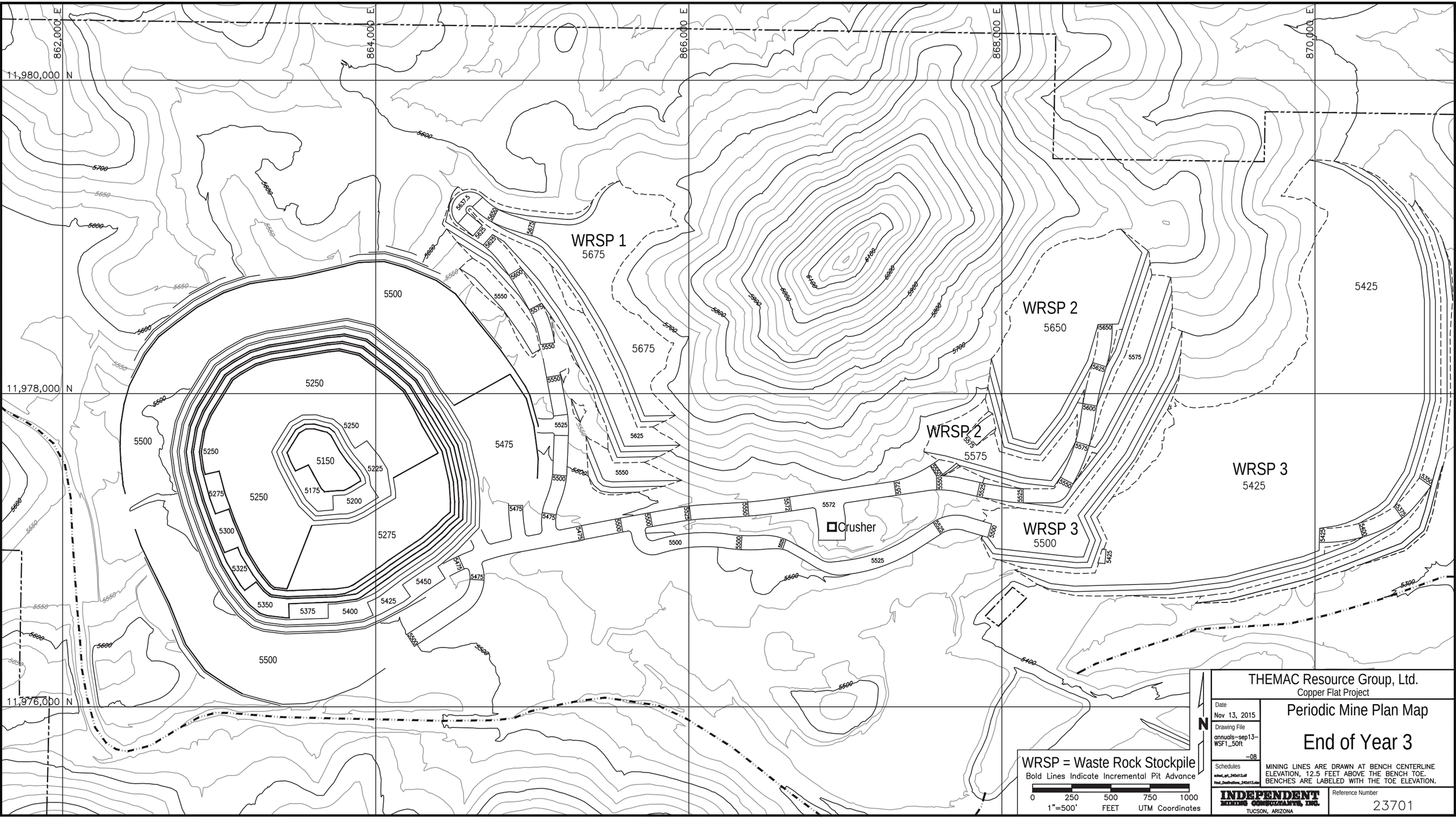
Date	Nov 13, 2015
Drawing File	annuals–sep13–WSF1_50ft –08
Schedules	sched_qrt_240ct13.slf; Heal_DestNotions_240ct13.dzm

MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.

INDEPENDENT MINING CONSULTANTS, INC. TUCSON, ARIZONA

Reference Number 23701

FIGURE 2-5



THEMAC Resource Group, Ltd.
Copper Flat Project

Date: Nov 13, 2015

Drawing File: annuals-sep13-WSF1_50ft -08

Schedules: sched_qrt_240ct13.xlsl Haul_DestNodes_240ct13.xlsx

Periodic Mine Plan Map

End of Year 3

MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.

INDEPENDENT MINING CONSULTANTS, INC. TUCSON, ARIZONA

Reference Number: 23701

FIGURE 2-6

862,000 E
864,000 E
866,000 E
868,000 E
870,000 E
11,980,000 N
11,978,000 N
11,976,000 N

WRSP 1
5675
WRSP 2
5725
WRSP 2
5650
WRSP 3
5425
WRSP 3
5500
5675
5450
5150
5475
5575
5572
Crusher

WRSP = Waste Rock Stockpile
Bold Lines Indicate Incremental Pit Advance
0 250 500 750 1000
1"=500' FEET UTM Coordinates

N

THEMAC Resource Group, Ltd.
Copper Flat Project

Date: Nov 13, 2015
Drawing File: annuals-sep13-WSF1_50ft -08
Schedules: sched_qrt_240ct13.xlsl Haul_DestNodes_240ct13.xlsx

Periodic Mine Plan Map

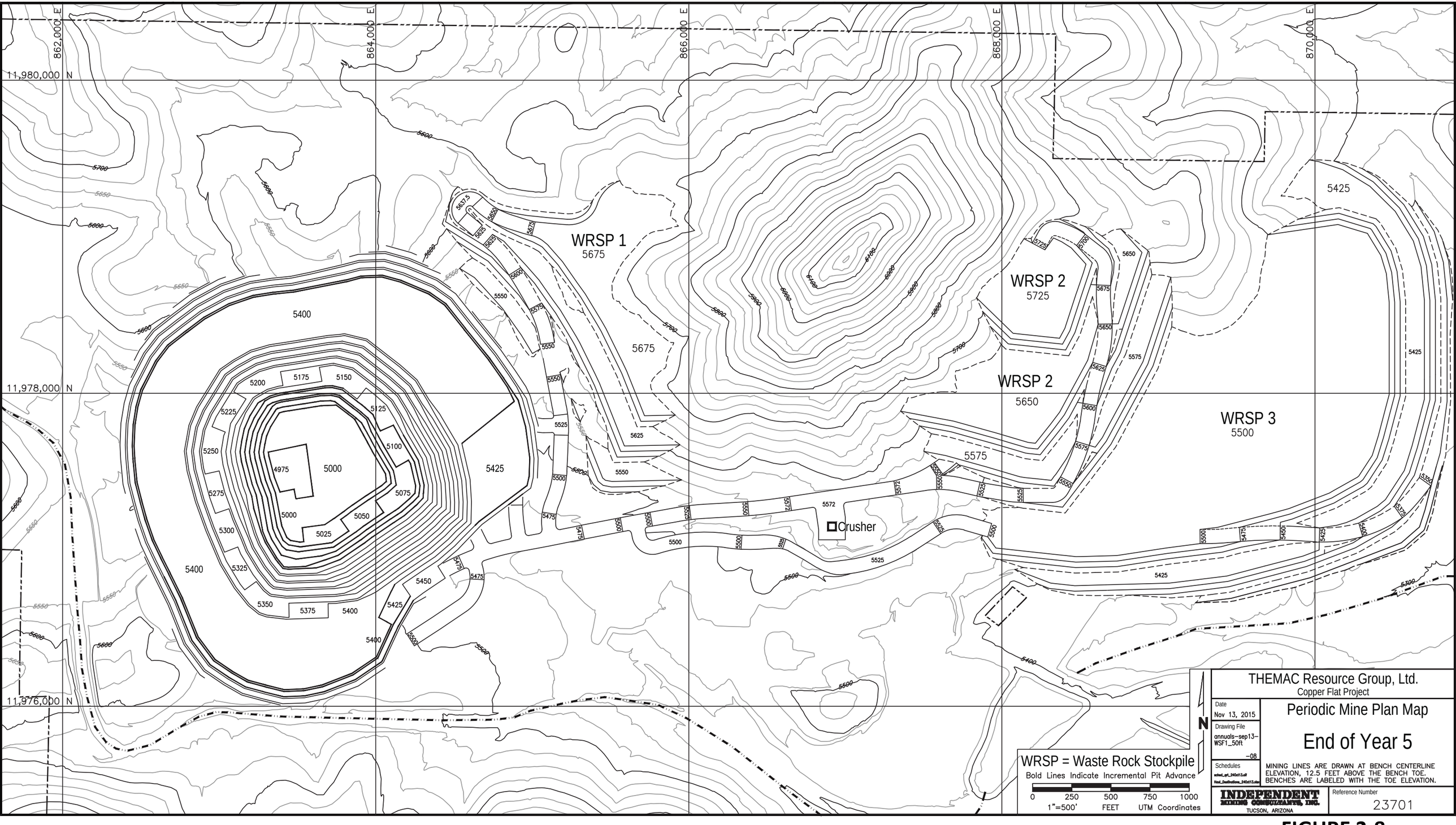
End of Year 4

MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.

INDEPENDENT MINING CONSULTANTS, INC.
TUCSON, ARIZONA

Reference Number: 23701

FIGURE 2-7



THEMAC Resource Group, Ltd.
Copper Flat Project

Date: Nov 13, 2015
Drawing File: annuals-sep13-WSF1_50ft -08
Schedules: sched_qrt_240ct13.xlsl Haul_DestNotions_240ct13.xlsx

Periodic Mine Plan Map

End of Year 5

MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.

INDEPENDENT MINING CONSULTANTS, INC. TUCSON, ARIZONA

Reference Number: 23701

FIGURE 2-8

862,000 E
864,000 E
866,000 E
868,000 E
870,000 E
11,980,000 N
11,978,000 N
11,976,000 N

WRSP 1
5675

WRSP 2
5725

WRSP 2
5650

WRSP 3
5575

5675
5225
5200
5500
5425
5575
5650
5500
5575
Crusher

WRSP = Waste Rock Stockpile
Bold Lines Indicate Incremental Pit Advance

0 250 500 750 1000
1"=500' FEET UTM Coordinates

N

THEMAC Resource Group, Ltd.
Copper Flat Project

Date
Nov 13, 2015

Drawing File
annuals-sep13-WSF1_50ft
-08

Schedules
sched_qrt_240ct13.xlf
Haul_DestNotions_240ct13.xlsx

Periodic Mine Plan Map

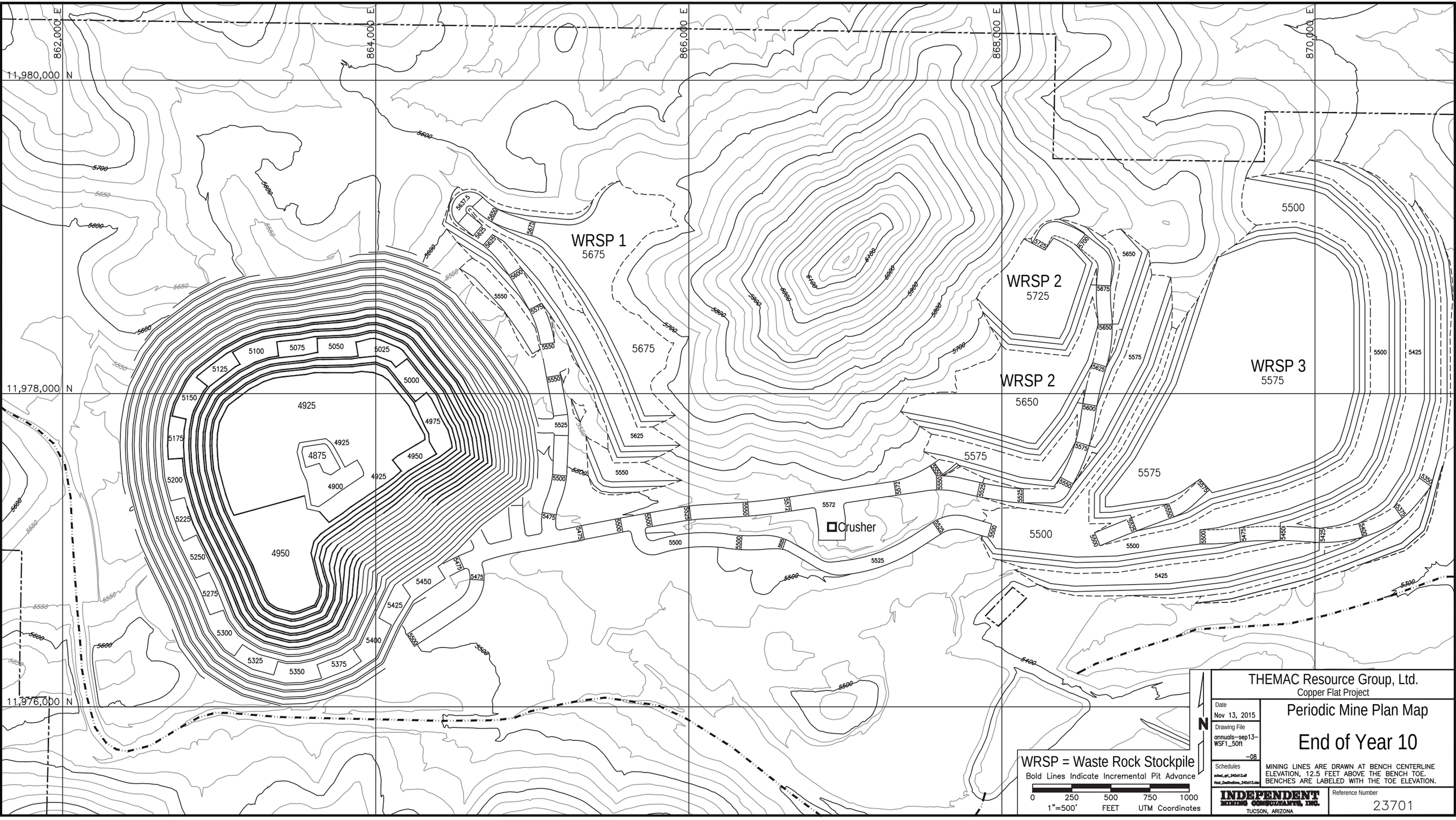
End of Year 7

MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.

INDEPENDENT MINING CONSULTANTS, INC.
TUCSON, ARIZONA

Reference Number
23701

FIGURE 2-9



THEMAC Resource Group, Ltd.
Copper Flat Project

Periodic Mine Plan Map

End of Year 10

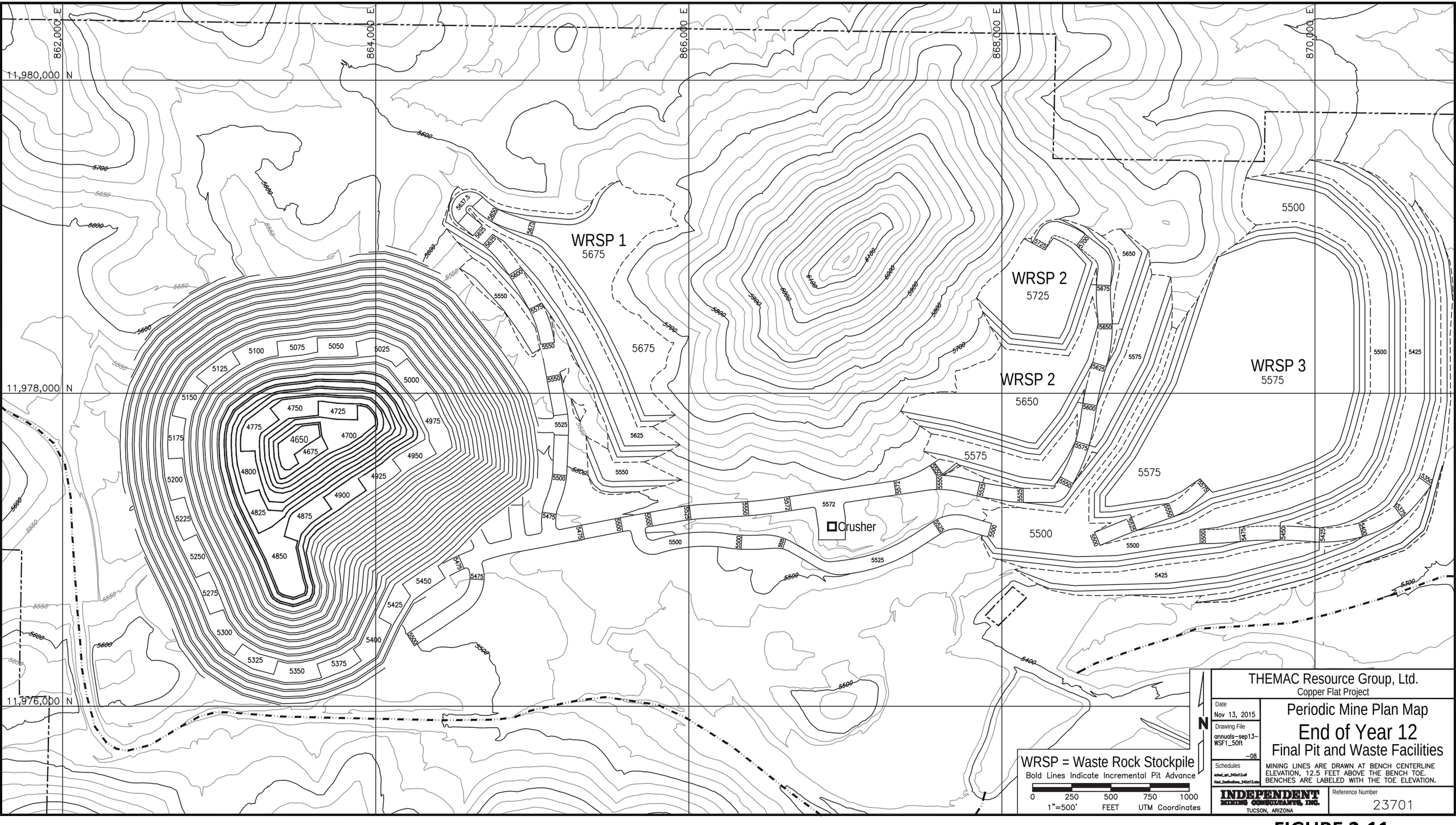
Date	Nov 13, 2015
Drawing File	annuals-sep13-WSF1_50ft -08
Schedules	sched_qrt_240ct13.xlf Haul_DestNotions_240ct13.xlsx

MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.

INDEPENDENT MINING CONSULTANTS, INC.
TUCSON, ARIZONA

Reference Number 23701

FIGURE 2-10



THEMAC Resource Group, Ltd.
Copper Flat Project

Date: Nov 13, 2015
Drawing File: annuals–sep13–WSF1_50ft –08
Schedules: sched_qrt_240ct13.slf; Haul_DestNotions_240ct13.xlsx

Periodic Mine Plan Map
End of Year 12
Final Pit and Waste Facilities

MINING LINES ARE DRAWN AT BENCH CENTERLINE ELEVATION, 12.5 FEET ABOVE THE BENCH TOE. BENCHES ARE LABELED WITH THE TOE ELEVATION.

INDEPENDENT MINING CONSULTANTS, INC. TUCSON, ARIZONA

Reference Number: 23701

FIGURE 2-11

approximately 75 ft. high and be placed at angle of repose (35.54 degrees) with benches sufficiently wide enough between lifts to maintain the 3 to 1 overall angle for the stockpile. Interceptor trenches will be constructed above each waste rock stockpile to limit storm water run-on. Surface water runoff collection trenches will be constructed to collect and route runoff from the proposed stockpiles to storm water impoundments. The collection trenches will be constructed into the andesite bedrock to prevent water from entering the alluvial surface material down-gradient of the WRSP and in a manner to maximize positive flow while minimizing the potential for ponding and erosion.

In addition to the proposed WRSPs, there are also four existing waste rock stockpiles (EWRSP) on-site generated by the previous Quintana mining activities. These EWRSPs, identified in Figure 2-1, represent an additional 84 acres of disturbance. EWRSP-1 and EWRSP-2B are located in the open pit surface drainage area. EWRSP-2A is located largely coincident with the location of proposed WRSP-1. EWRSP-3 is located in the plant process area next to the primary crusher. EWSRP-4 is also located in the plant process area and will be utilized during operations as a storage area.

2.1.4 Ore Processing Facility

The ore will be processed through a conventional sulfide flotation concentrator, using standard crushing, grinding and flotation technologies. It will be trucked from the open pit to the plant area, crushed and temporarily stored at a stockpile before being processed through a copper sulfide flotation mill, using a flowsheet very similar the Quintana operation (see Figure 2-2). The mill will process ore at an average throughput rate of 27,890 tons per day over the life of the operation. Milling will also include a molybdenum processing circuit and a gravity gold recovery circuit. The processing facility will be located on approximately 128 acres, including the crushed ore stockpile, concentrator, laydown yard and fuel station, process water reservoir and the administration, warehouse, and other facilities. A detailed discussion of the concentration plant process is provided later herein.

The copper concentrate will be shipped in bulk form by truck to an off-site smelter or rail loadout facility. Molybdenum concentrate will be filtered, dried, packaged and shipped by truck to purchasers for further refining. Coarse gold concentrate recovered from the gravity gold circuit will be shipped to a refinery for further processing.

2.1.5 Tailings Storage Facility (TSF)

NMCC will construct a new tailings storage facility (TSF) which will include a lined tailings impoundment with an associated underdrain collection system and underdrain collection pond for the impoundment and the dam. The tailings impoundment and dam will encompass approximately 604 acres of the site, including the footprint of the tailings dam and impoundment, the cyclone plant and surge tank and the surge pond, associated pipeline

trenches and a future evaporation pond constructed after the end of life of the project to provide evaporation of drain-down water from the TSF long-term.

Whole tailings will be transported from the processing facility to the TSF cyclone plant via pipeline where the coarse tailings fraction, i.e., the sand, will be separated from the fines fraction. The sand fraction will be utilized to construct the tailings embankment dam in phases during operations. The fines fraction will be disposed of in the TSF impoundment behind the embankment dam. The TSF impoundment will be equipped with a water reclaim or recycle system to maximize water reuse. A water reclaim barge will be installed within the impoundment to recycle water from the impoundment back to the process facility.

The TSF includes an underdrain collection system constructed at the bottom of the TSF impoundment above the liner as well as a dam embankment underdrain blanket constructed under the dam. These features will collect free water that drains from the impoundment and the dam into an underdrain collection pond and route it back to the process facility for re-use. The dam blanket drain will provide the mechanism that will drain water within the dam out of the structure and allow the dam to become consolidated and stable as it is continually constructed during operations as the sand fraction of tailings is emplaced on the dam. The tailings impoundment underdrain system will allow free water in the impoundment to be drained out of the impoundment from underneath the impoundment to the underdrain collection pond and also be recycled to the processing facility. The TSF underdrain collection pond will also serve to capture surface water runoff routed from the downstream face of the tailings dam via runoff control ditches to the pond.

The tailings delivery from the process plant will have an associated surge pond that will be part of the cyclone plant located at the TSF. The purpose of the surge pond will be to capture and temporarily retain tailings materials in the event of a temporary upset in the cyclone plant or the process facility.

Appendix A, Feasibility Level Design, 30,000 TPD Tailings Storage Facility and Tailings Distribution and Water Reclaim Systems, Copper Flat Project, Sierra County, New Mexico, November, 2015, prepared by Golder Associates Inc. (Golder), provides the technical design detail for the TSF. This document is also an appendix to NMCC's Discharge Permit application.

2.1.6 Cover Material Stockpiles

In addition to the facilities described above, three cover material stockpiles, identified as growth media stockpiles (GMSP) in various documents that will be developed from soils material that will be salvaged from the WRSP and TSF construction footprints. The location of these GMSPs is shown in Figure 2-2. These stockpiles will total approximately 75 acres in size and will be utilized as cover material for the various disturbed areas of the mine site at closure

and reclamation. Sections 2.2.10 and 4.5 provide a discussion on the use of the terms cover materials, topsoil, topdressing and growth media materials. Section 3.0 provides the details of the use of cover material in NMCC's Reclamation and Closure Plan.

2.1.7 Off-Site Ancillary Facilities

The Copper Flat Project also includes several off-site facilities that are integral to the project, including an electrical substation located on land owned by the State of New Mexico, nine separate 5-acre mill-site claim sites, and an approximate 8-mile long fresh water pipeline. The mill sites are associated with the well field and utilized as support facilities for the pipeline. Figure 2-12 identifies the location of these ancillary facilities relative to the mine.

2.1.8 Closure and Reclamation

NMCC has prepared a Reclamation and Closure Plan as described in Section 3.0 and Appendix E. Section 3.0 provides a description of NMCC's plans for reclamation, including a detailed description of how the disturbed area will be reclaimed to meet the requirements of Section 69-36-7H of the Mining Act (see 19.10.6.602.D.(15)(g) NMAC of the Mining Act regulations). The objective of the Reclamation and Closure Plan is to reclaim and close the facility in a manner protective of ground water in conformance with the NM Copper Rules, meet the reclamation requirements of the New Mexico Mining Act, and return the mine area to conditions similar to those present before NMCC's reestablishment of the mine (BLM DEIS 2015, p. 2-34). The Copper Flat facility will be reclaimed to restore the land to its current use. The Mining Operation Plan and the Reclamation Plan has been designed to use the most appropriate technology (MAT) and best management practices (BMPs) to assure protection of human health and safety, the and the environment.

Section 4.0 provides the description of how the Reclamation and Closure Plan will meet the performance standards required in 19.10.6.603 NMAC. Appendix E presents the detailed design of the Reclamation and Closure Plan. Sections 3.0, 4.0 and Appendix E, together, also provide the information required by Section 20.6.7.11.T of the NMED Copper Rules.

2.2 Maps and Plans for the Mine Facility – 19.10.6.602.D.(15)(c)

This Section provides the maps and plans and other details, including the location, size, and capacities for each unit of the Copper Flat Project facilities described below. Additional details are provided in the various appended documents that contain design documentation and analyses that support the design.

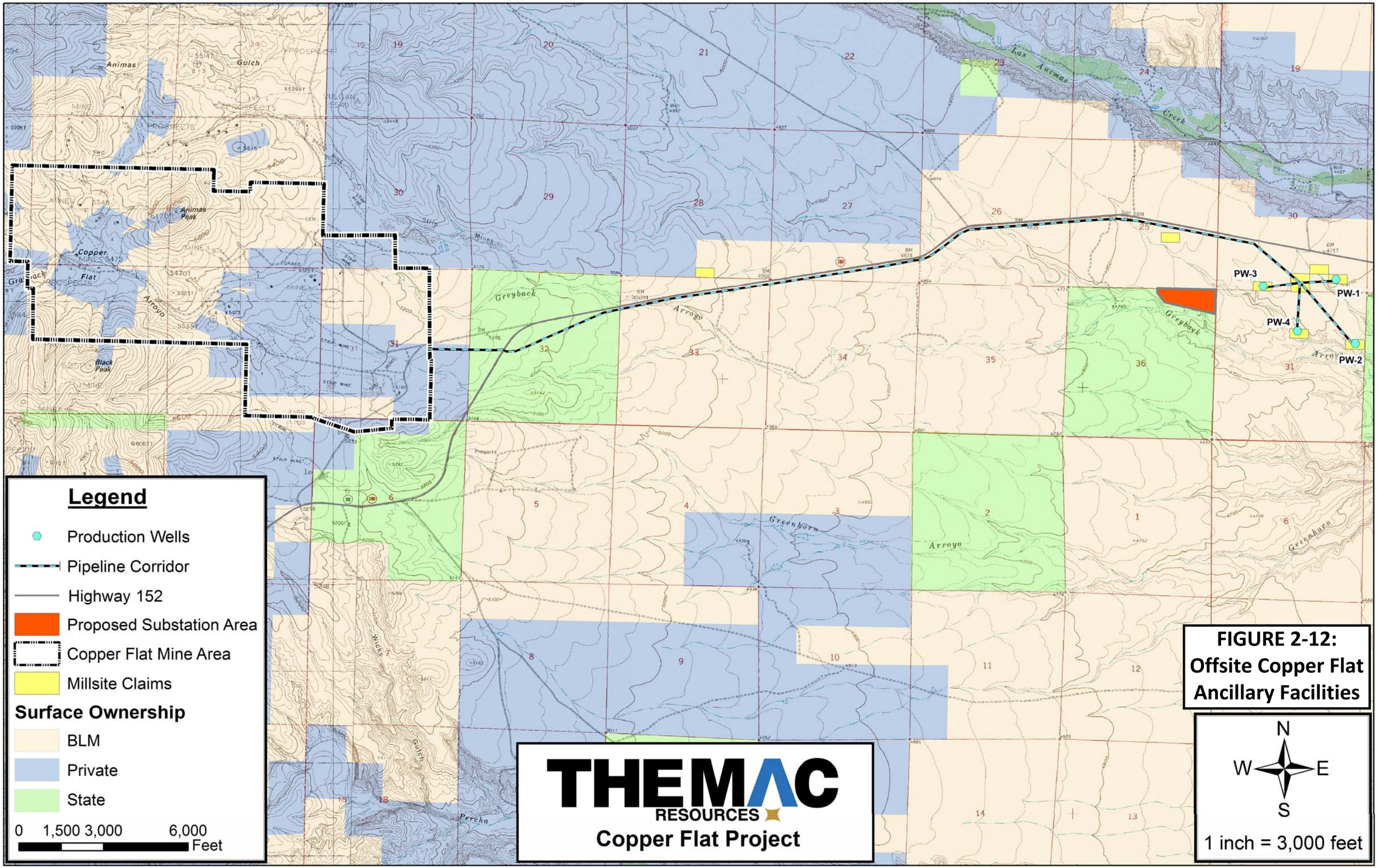


FIGURE 2-12:
Offsite Copper Flat Ancillary Facilities

2.2.1 Leach pads, heaps, ore dumps and stockpiles- 19.10.6.602.D.(15)(c)(i)

The Copper Flat Project does not propose to construct and operate any leach pads or heaps. This section discusses the coarse ore stockpile located near the primary crusher in the plant process area as shown on Figure 2-2.

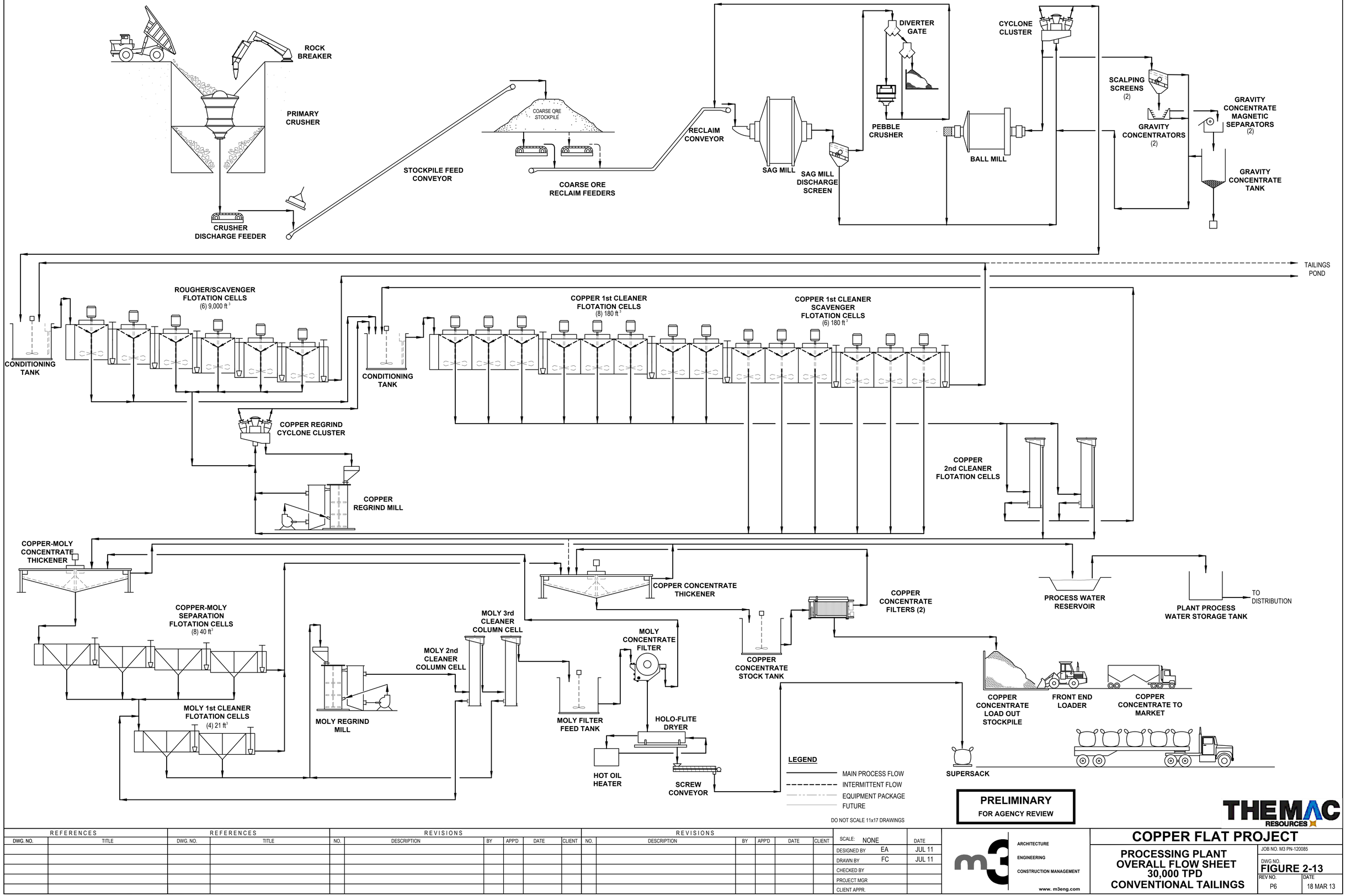
Figure 2-13 is a schematic diagram of the processing plant that shows that ore will be hauled from open pit in trucks and fed directly to the primary crusher for the first stage of crushing to produce a coarse ore stockpile (called the crushed ore stockpile in Figure 2-2). The crusher will size the run-of-mine rock to a nominal 8 inches in diameter or less. A small, temporary run-of-mine ore stockpile may be located adjacent to the crusher only when ore trucked from the open pit cannot be fed directly into the primary crusher; for example, when the crusher is temporarily out of service. Typical operating procedure will be to feed ore directly into the crusher from the open pit. Material contained in the temporary run of mine stockpile by the crusher will be fed into the crusher when direct feed from the open pit is not available.

The crushed rock will be fed by an apron feeder onto the stockpile feed belt conveyor for transport to the coarse ore stockpile where it will be temporarily stored prior to being fed into to the grinding mill. The belt conveyor will include a stacker for placing the coarse ore into the stockpile as seen on Figure 2-13. The coarse ore stockpile will have a design capacity of approximately 75,000 tons.

Ore will be drawn from the coarse ore stockpile and transported by belt conveyor passing through a reclaim tunnel located beneath the stockpile to feed the SAG mill in the grinding circuit. The conveyor system will be equipped with two variable speed apron feeders that will feed the reclaim conveyor. Ore handled through this part of the process will be relatively dry. Water associated with this part of the process will include:

- Moisture associated with the ore;
- Water spray used to control dust within the primary crusher pocket and at the stockpile feed stacker; and
- Water used for housekeeping purposes.

The primary crusher and the coarse ore reclaim equipment will be located below ground level in reinforced concrete structures. These concrete structures are existing structures from the Quintana operation and have concrete sumps built into the structures to contain excess water. Water collected in these sumps will be reused within the ore processing circuit via a pumping and recycling system that will be installed during the construction phase of the project. Water used for housekeeping purposes will be confined to use within the concrete structures where it will be contained and recycled via the sump collection and recycle system.



REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

		DATE
SCALE:	NONE	
DESIGNED BY	EA	JUL 11
DRAWN BY	FC	JUL 11
CHECKED BY		
PROJECT MGR		
CLIENT APPR.		

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COPPER FLAT PROJECT

PROCESSING PLANT OVERALL FLOW SHEET 30,000 TPD CONVENTIONAL TAILINGS

JOB NO. M3 PN-120085
DWG NO. FIGURE 2-13
REV NO. P6
DATE 18 MAR 13

Water spray used for dust control at the stockpile feed stacker will be exterior to the concrete structures. The sprays will only be used when necessary to control dust and will be controlled to minimize excess moisture. During normal operations, water from these sprays will evaporate once the ore reaches the coarse ore stockpile, although some residual moisture will remain below the surface of the pile. In the event of an upset condition, any excess water from these sprays will be contained in the storm water impoundment that will control runoff from the plant facility area. The entire plant facility area will be contoured to control and capture precipitation falling onto the plant area in a lined impoundment. The captured water will be recycled for use in the process.

2.2.2 Impoundments and ponds – 19.10.6.602.D.(15)(c)(ii) & (iii)

NMCC will construct several impoundments and ponds at Copper Flat, including:

- Three impacted storm water impoundments to manage runoff;
- A process water reservoir to store and condition recycle water and process makeup water;
- A surge pond to manage upset conditions;
- A tailings impoundment to store tailings and produce water for recycle;
- An underdrain collection pond to capture free tailings liquids from the impoundment and the dam; and
- An evaporation pond (coincident with the underdrain collection pond) to capture and evaporate residual water that the tailings impoundment may continue to produce long-term after site closure.

Details of the design of the impacted storm water impoundments and the process water reservoir are provided in Appendix B, Impoundment Design Report, Copper Flat Project, November, 2015, prepared by M3 Engineering & Technology Corporation (M3). Details of the design of the underdrain collection pond and surge pond are provided in Appendix A. This Subsection discusses the impacted storm water impoundments and the process water reservoir. The tailings impoundment and associated underdrain collection pond and the surge pond are discussed in detail in Subsection 2.2.6, below. The evaporation pond is discussed in Section 3.0 and Appendix E.

IMPACTED STORM WATER IMPOUNDMENTS AND PROCESS WATER RESERVOIR

NMCC proposes to construct a process water reservoir and three (3) impacted storm water impoundments shown on Figure 2-2. The nomenclature of “impacted storm water impoundment” is derived from the NMED Copper Rules. However, the purpose of these impoundments can and will provide water management capabilities beyond just storm water, as discussed herein. The process water reservoir, located in the center of the plant process

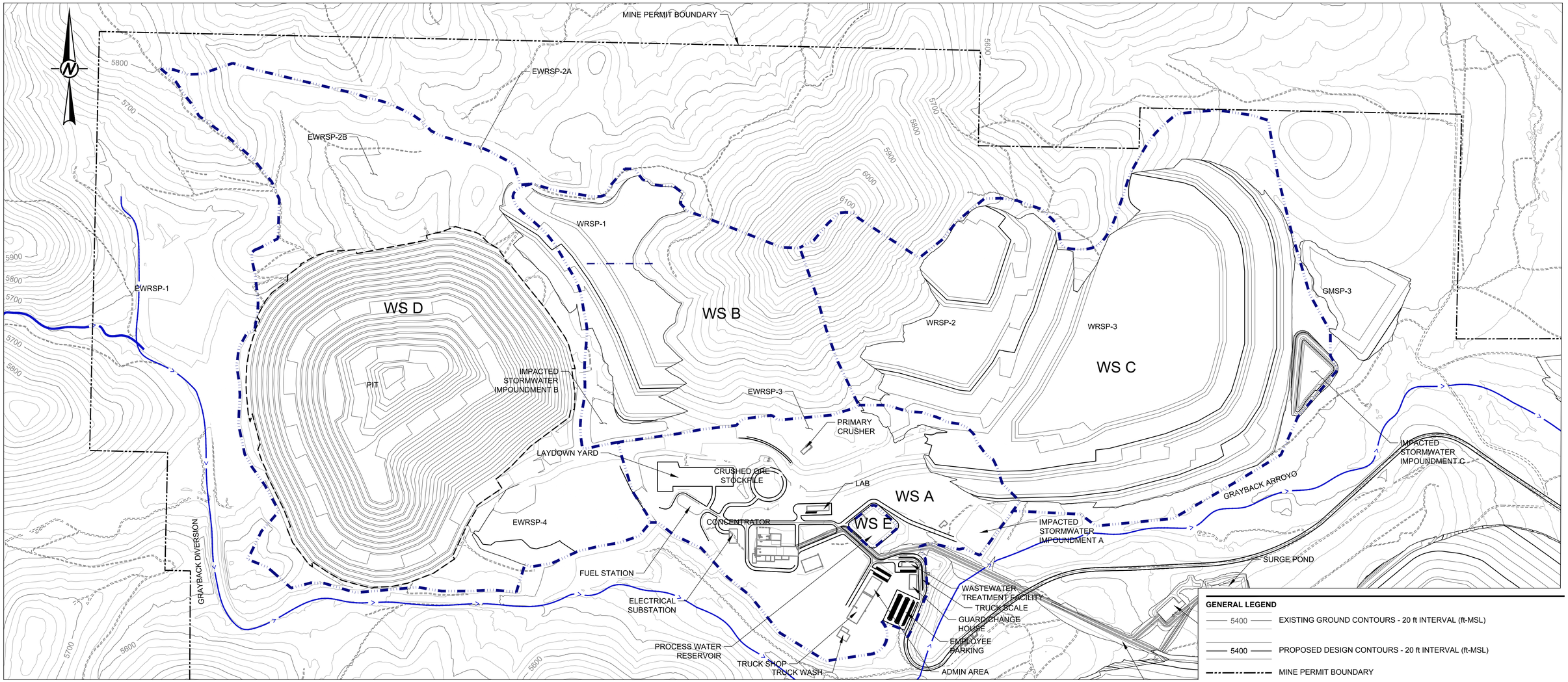
area, will hold water from several sources including reclaimed water from the TSF, captured storm water, and fresh make-up water from the off-site well field.

Two of the storm water impoundments will capture surface water runoff from the waste rock stockpiles and drainage from under the waste rock stockpile areas. The third will capture surface water runoff from the process plant area. Appendix B provides the technical design details for the impoundments and the process water reservoir. Appendix B is also an Appendix to NMCC's Discharge Permit application.

Figure 2-14 shows the various watershed areas that NMCC will develop on-site by grading and contouring the areas to manage and capture surface water runoff. The developed watershed areas shown are as follows:

- Watershed area A (WS A) wherein the process facilities and ancillary plant areas, including the ore stockpile, will be located. EWRSP-3, as shown in Figure 2-14, also called the low-grade ore stockpile in earlier documents, is also located within WS A;
- Watershed area B (WS B) is a portion of the open pit surface drainage area (OPSDA) wherein the proposed new Waste Rock Stockpile no. 1 (WRSP-1) will be located. EWRSP-2A, as shown in Figure 2-14, also called the north waste rock disposal facility in earlier documents is located at the northern edge of WS B;
- Watershed area C (WS C), wherein the proposed new Waste Rock Stockpiles no. 2 and 3 (WRSP-2 and WRSP-3) will be located;
- Watershed area D (WS D) is a portion of the open pit surface drainage area wherein the open pit is located. Existing waste rock stockpiles EWRSP-1, also called the west waste rock disposal facility in earlier documents, EWRSP-2B, also called the north waste rock stockpile in earlier documents, and EWRSP-4, also called the south waste rock stockpile in earlier documents, shown in Figure 2- 14, are located within WS D; and
- Watershed E (WS E) represents the footprint of the process water reservoir, the impoundment that holds process water prior to it being introduced into the process circuit. WS E is depicted as a watershed to indicate that the reservoir will not collect any storm water runoff from the plant site. Only precipitation that falls directly on the reservoir will be collected therein.

Storm water impoundments will be constructed within watershed areas A, B, and C at locations shown in Figure 2-14 to manage and capture storm water runoff from each area and water that may flow from the interface between the bottom of the WRSPs and the andesite bedrock. Impacted storm water impoundment A is designed to capture and manage surface water runoff from WS A, i.e., the plant area. Impacted storm water impoundment B is designed to capture



NOTES

1. EXISTING GROUND TOPOGRAPHY WAS DEVELOPED BY COOPER AERIAL SURVEYS BASED ON JUNE 18, 2011 AERIAL SURVEY AND PROVIDED BY THEMAC RESOURCES.
2. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NEW MEXICO COPPER CORPORATION (NMCC).
3. WS D IS THE SURFACE WATERSHED EXPRESSION OF THE OPEN PIT SURFACE DRAINAGE AREA (OPSDA) DURING OPERATIONS, AND WS B PLUS WS D IS THE SURFAECC WATERSHED EXPRESSION OF THE OPSDA AFTER RECLAMATION.

GENERAL LEGEND

5400	EXISTING GROUND CONTOURS - 20 ft INTERVAL (ft-MSL)
5400	PROPOSED DESIGN CONTOURS - 20 ft INTERVAL (ft-MSL)
	MINE PERMIT BOUNDARY
	WATERSHED BOUNDARY (BY OTHERS)
	EXISTING DIVERSION OR ARROYO
	EXISTING ROAD
WRSP	WASTE ROCK STOCKPILE
EWRSP	EXISTING WASTE ROCK STOCKPILE
TSF	TAILING STORAGE FACILITY
GMSP	GROWTH MEDIA STOCKPILE
WS	WATERSHED

0 400 1600
FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
C	2017-07-10	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2017-06-21	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2017-06-21	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

SEAL

PRELIMINARY
FOR AGENCY REVIEW

CLIENT

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CONSULTANT

Golder Associates

TUCSON OFFICE
4730 N. ORACLE ROAD, SUITE 210
TUCSON, ARIZONA
UNITED STATES OF AMERICA
[+1] (520) 888 8818
www.golder.com

PROJECT
COPPER FLAT PROJECT

TITLE
DEVELOPED WATERSHED AREAS

PROJECT NO.	CONTROL	REV.		FIGURE
1531453	0500	C	1 of 1	2-14

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

Path: \\tucson\cadd\NMCC\Copper Flat\09_Projects\1531453_THEMACPermitSupport\0500_ReportFigures | File Name: 1531453-0500-FIG2-14.dwg

and manage water from WS B which contains WRSP 1. Impacted storm water impoundment C is designed to capture and manage water from WS C which contains WRSP 2 and WRSP-3.

As noted above, developed WS B and D are sub-watersheds of the larger open pit surface drainage area. The entire area naturally drains to the mine pit, with the exception of the EWRSP-4 area, which will be re-contoured during operations to drain to the pit. NMCC has opted to develop these two sub-watersheds separately in order to provide control of the amount of water that will report to the mine pit under normal operating conditions. Surface water runoff from WS D will flow directly to the bottom of the pit as shown in Figure 2-14. As such, no additional impoundment is needed at that location. Water contributed from WS B will be diverted to flow into Impacted Storm water Impoundment B as shown on Figure 2-14.

As described in more detail in Appendix B, Impacted Storm water Impoundment B will be constructed at the lower southwestern corner of developed WS B to capture water from the proposed new WRSP-1 under normal operating conditions. However, should overflow from this impoundment occur as a result of an extraordinary precipitation event, it will flow over the spillway and into the open pit via a culvert, as shown in Figure 2-14 and discussed in Appendix B. This will allow NMCC to control the flow of water into the pit while maximizing the harvesting of storm water for use as process water.

The process water reservoir, i.e., WS E, is designed to hold all of the water recycled from the tailings storage facility, process makeup water and water transferred from the impacted storm water impoundments for introduction into the process circuit. It is designed so that only precipitation that falls directly on the footprint of the reservoir will be captured by the reservoir. Water captured in impoundments A, B and C will be transported to the process water reservoir within 30 days for use as an additional source of make-up process water. Water recycled from the TSF will be continually pumped from the TSF to the process water reservoir.

Liner system design

Appendix B provides the details of the liner design for the impacted storm water impoundments and process water reservoir. The impacted storm water impoundment liner design is consistent with the requirements of the NMED Copper Rules for impoundments that will store impacted water for less than 30 days. It will consist of a compacted liner bedding fill layer, overlain with a 60 mil high density polyethylene (HDPE) geomembrane or equivalent. The liner bedding will be a minimum of six inches of sand or fine soil.

The process water reservoir will be double-lined with a lower 60 mil, or equivalent, HDPE geomembrane and a 60 mil, or equivalent, upper HDPE geomembrane liner. An HDPE geonet will be placed between the liners to serve as the pond leak collection and recovery system

(LCRS) and to minimize pressure on the lower pond liner. This design is in accordance with the requirements of the NMED Copper Rules.

Size and storage capacity

The design storage capacity for each of the impacted storm water impoundments is driven by the size of the watershed, required storm intensity and duration, and freeboard. Table 2-4 provides the storage capacity for each storm water impoundment and the process water reservoir.

TABLE 2-4
Impoundment Storage Capacity

Impoundment	Size (Acres)	Capacity (Gal)
Impacted storm water impoundment A	2.90	7,307,000
Impacted storm water impoundment B	2.69	5,598,000
Impacted storm water impoundment C	4.44	10,514,000
Process Water Reservoir	2.12	5,434,000

Design capacity of the impoundments is based on anticipated normal operating conditions at the site plus prevention of overflow resulting from a 100-year, 24-hour return interval storm event while maintaining two feet of freeboard. The process water reservoir is sized to contain the water that will be pumped from the water reclaim system and the underdrain collection pond at the TSF plus capacity for necessary process makeup water pumped from the freshwater off-site well field or the impacted storm water impoundments.

2.2.3 Diversions - 19.10.6.602.D.(15)(c)(iv)

This Subsection requires that the applicant provide maps and plans indicating location, size and capacities for the mine facility diversions. A diversion is defined in 19.10.1.7.D.(3) as a channel, embankment, ore other manmade structure constructed to divert water from one area to another. Diversions at the Copper Flat facility include the following:

- The Grayback Arroyo diversion and other diversion structures constructed to divert surface water around and away from the site;
- Diversions at the TSF to impoundments and/or ponds; and
- Diversion channels, ditches swales, curbs, contours and other manmade surface water control features constructed to manage and divert surface water off of waste rock stockpiles and the plant site.

Grayback Arroyo Diversion

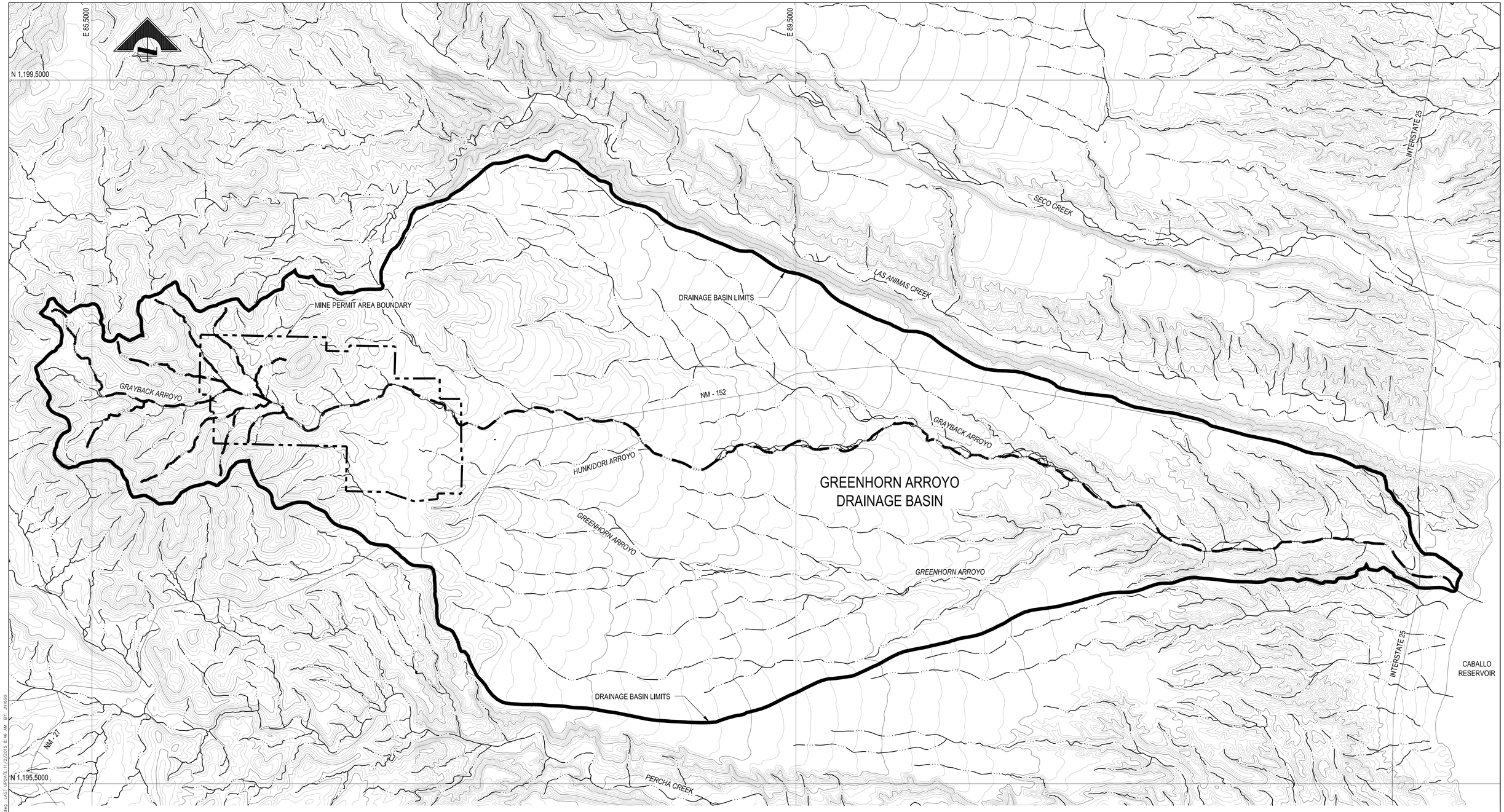
With regard to the Grayback Arroyo and other diversion structures, NMCC will utilize some existing water diversion structures, as discussed in more detail below, at the Copper Flat

Project. NMCC's consulting engineers, M3, performed a peak discharge and volume analysis of the drainage areas contributing to Grayback Arroyo at the site. The report is included as Appendix D. The purpose of the analysis was to evaluate the existing diversions and water conveyance features existing at the Copper Flat site as to their adequacy in conveying flows from storm events and protecting the site from flooding. The return periods analyzed were the 100-year, 200-year, and 500-year 24 hour storms. The capability of certain existing culverts within Grayback Arroyo to safely pass those storms without overtopping the proposed facility roadway or pipeline corridor was also analyzed. Appendix D provides the information required by the Mining Act regulations and the results of the analysis. Following is a synopsis of the results. This document is also an appendix to NMCC's Discharge Permit application.

Figure 2-15 shows the location of the Copper Flat Project permit area boundary within the Greenhorn Arroyo drainage basin watershed. It shows the Greenhorn Arroyo watershed as it existed prior to any mining. As shown in Figure 2-15, the site is located in the head of the basin. Figure 2-16 provides a closer view of the headwater drainage of the watershed in relation to the mine permit area boundary. Grayback Arroyo and its tributaries naturally begin as the headwaters of the drainage basin and converge at the western side of the site, transecting the mine permit area draining from west to east. The main-stem of Grayback Arroyo enters the western boundary of the site; several small unnamed arroyos, tributary to Grayback Arroyo, enter the site at the northwest and southwest corners of the site. As seen on Figure 2-15, Hunkidori Gulch begins at the eastern edge of the site down-gradient of the operations and drains to the east, away from the site. Greenhorn Arroyo begins off of the southeast corner of the site down-gradient from the operations and also drains east. Hunkidori and Greenhorn Arroyos have no impact upon the Copper Flat facility as they are located down-gradient of the mine. Only Grayback Arroyo and its unnamed arroyos, which enter the site from the west, need be the subject of consideration with respect to surface water run-on and runoff management.

Preproduction site preparation activities conducted by Quintanain the early 1980's included the construction of diversion structures to Grayback Arroyo and unnamed arroyos to divert drainage around the site. These structures are shown in Figure 2-17. Diversion structures were constructed to divert the headwaters of Grayback arroyo and its western tributaries as they entered the western site boundary to the south around the open pit. Another diversion structure, similar in purpose but smaller in size, was constructed at the northwest corner of the site to divert drainage from small tributaries to Grayback Arroyo, diverting them to the north east around Animas Peak away from the site into a sub-watershed that joins Grayback Arroyo east of the of the site boundary.

In addition to the diversion structures, Quintana installed large diameter culverts, as shown on Figure 2-18, where the tailings transport pipeline and the access road cross over Grayback Arroyo. These structures are still in place and will be used to control storm water passing



LEGEND

- DRAINAGE BASIN BOUNDARY
- MINE PROPERTY BOUNDARY
- GRAYBACK ARROYO
- FLOWLINE

SITE PLAN

SCALE: 1" = 2500'

2500 1250 0 2500 5000

SCALE IN FEET
CONTOUR INTERVAL = 50'
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 2500'	
DESIGNED BY	JPN	OCT 15
DRAWN BY	JPN	OCT 15
CHECKED BY		
PROJECT MGR		
CLIENT APPR.		

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COPPER FLAT PROJECT

GENERAL SITE CIVIL GREENHORN ARROYO PRE-MINING WATERSHED BASIN

JOB NO. M3 PN-120085
DWG NO. **FIGURE 2-15**
REV NO. P2
DATE 20 NOV 15

File: P:\2012\120085\CIVIL (544)\544-2 Dwgs\Figures for Permit\Figures 11-18_19.dwg LAST UPDATE:11/25/2015 8:46 AM BY: JM1690

E 659,000

E 674,000

N 11,984,000

N 11,969,000

WATERSHED BOUNDARY

MINE PERMIT AREA BOUNDARY

GRAYBACK ARROYO

GRAYBACK ARROYO

GRAYBACK ARROYO

NM - 52

WATERSHED BOUNDARY

GREENHORN ARROYO

LEGEND

- DRAINAGE BASIN BOUNDARY
- MINE PROPERTY BOUNDARY
- GRAYBACK ARROYO
- FLOWLINE

SITE PLAN

SCALE: 1" = 1000'

1000 500 0 1000 2000

SCALE IN FEET
CONTOUR INTERVAL = 20 FT
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THE MAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 1000'	DATE
DESIGNED BY	JPN	OCT 15
DRAWN BY	JPN	OCT 15
CHECKED BY		
PROJECT MGR.		
CLIENT APPR.		

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COPPER FLAT PROJECT

GENERAL SITE COPPER FLAT SITE EXISTING HYDROLOGY PRE-QUINTANA MINING

JOB NO. M3 PN-120085

DWG NO. **FIGURE 2-16**

REV NO. P1 | DATE 20 NOV 15

File: P:\2012\120085\CIVIL (544)\544-2 Dwgs\Figures for Permit\Figures 11-18_19.dwg LAST UPDATE:11/19/2015 1:47 PM BY: JN1690

E 659,000

E 674,000

N 11,984,000

N 11,969,000

WATERSHED BOUNDARY

MINE PERMIT AREA BOUNDARY

QUINTANA DIVERSION

QUINTANA DIVERSION

GRAYBACK ARROYO

GRAYBACK ARROYO

GRAYBACK ARROYO

GRAYBACK ARROYO

NM - 52

WATERSHED BOUNDARY

GREENHORN ARROYO

LEGEND

- DRAINAGE BASIN BOUNDARY
- MINE PROPERTY BOUNDARY
- GRAYBACK ARROYO
- FLOWLINE

SITE PLAN

SCALE: 1" = 1000'

1000 500 0 1000 2000

SCALE IN FEET
CONTOUR INTERVAL = 20 FT
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 1000'	DATE
DESIGNED BY	JPN	OCT 15
DRAWN BY	JPN	OCT 15
CHECKED BY		
PROJECT MGR.		
CLIENT APPR.		

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COPPER FLAT PROJECT

GENERAL SITE
COPPER FLAT SITE
EXISTING HYDROLOGY
POST QUINTANA MINING

JOB NO. M3 PN-120085

DWG NO. **FIGURE 2-17**

REV NO. P1

DATE 20 NOV 15

File: P:\2012\120085\CIVIL (5441)\944.2 Dwgs\Figures for Permit\Figures 11-18_19.dwg LAST UPDATE:11/19/2015 1:47 PM BY: JN1690

E. 865,000
E. 870,000
E. 875,000
N. 11,979,000
N. 11,974,000
MINE PERMIT AREA BOUNDARY
EWRSP-2A
EWRSP-2B
EWRSP-1
WRSP-1
WRSP-2
WRSP-3
MINE PIT
IMPACTED STORMWATER IMPOUNDMENT B
EWRSP-3
EWRSP-4
RECLAIM RESERVOIR
IMPACTED STORMWATER IMPOUNDMENT A
PROCESS PLANT
CULVERT
CULVERTS
STORMWATER CONVEYANCE CHANNEL
GROWTH MEDIA STOCKPILE
IMPACTED STORMWATER IMPOUNDMENT C
PERMIT BOUNDARY BARBED WIRE FENCE
GRAYBACK ARROYO
GROWTH MEDIA STOCKPILE
MINE SITE ACCESS ROAD
QUINTANA DIVERSION CHANNEL
DIVERSION CHANNEL
EXPLOSIVES MAGAZINE ACCESS ROAD
TAILINGS TRENCH
SURGE POND
TAILINGS STORAGE FACILITY LIMIT
EXPLOSIVES MAGAZINE
DIRT ROAD TYP.
TAILINGS IMPOUNDMENT
TO HWY 152
GROWTH MEDIA STOCKPILE
UNDERDRAIN COLLECTION POND
5700
5600
5400
5300
5200
6000
5900
5800
6100
5500

LEGEND

- MINE PROPERTY BOUNDARY
- GRAYBACK ARROYO
- QUINTANA DIVERSION

EWRSP = EXISTING WASTE ROCK STOCKPILE
WRSP = WASTE ROCK STOCKPILE

SITE PLAN

SCALE: 1:500

500' 250' 0' 500' 1000'
1" = 500'
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES		REVISIONS						REVISIONS					
DWG. NO.	TITLE	DWG. NO.	TITLE	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT	NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 500'	DATE
DESIGNED BY	JPN	OCT 15
DRAWN BY	JPN	OCT 15
CHECKED BY		
PROJECT MGR	RKZ	
CLIENT APPR.		

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COPPER FLAT PROJECT

SITE GENERAL CIVIL GRAYBACK ARROYO DIVERSION THROUGH NMCC PROJECT SITE

JOB NO. M3 PN-120085
DWG NO. **FIGURE 2-18**
REV NO. P1
DATE 20 NOV 15

File: P:\2013\120085\CIVIL (344)\344-2 Dwgs\Figures for Permit\Figure 11-20.dwg LAST UPDATE:11/2/2015 8:46 AM BY: JN1690

through the site. Figure 2-18 also shows these structures in relation NMCC's proposed Copper Flat Project facilities. The pre-mine development natural topography and drainage pattern of the site is shown in Figure 2-19. Sixteen (16) sub-basin watersheds naturally contributed to Grayback Arroyo. The upstream drainages merged in the central portion of the current Copper Flat Project area and passed through to the eastern boundary via Grayback Arroyo.

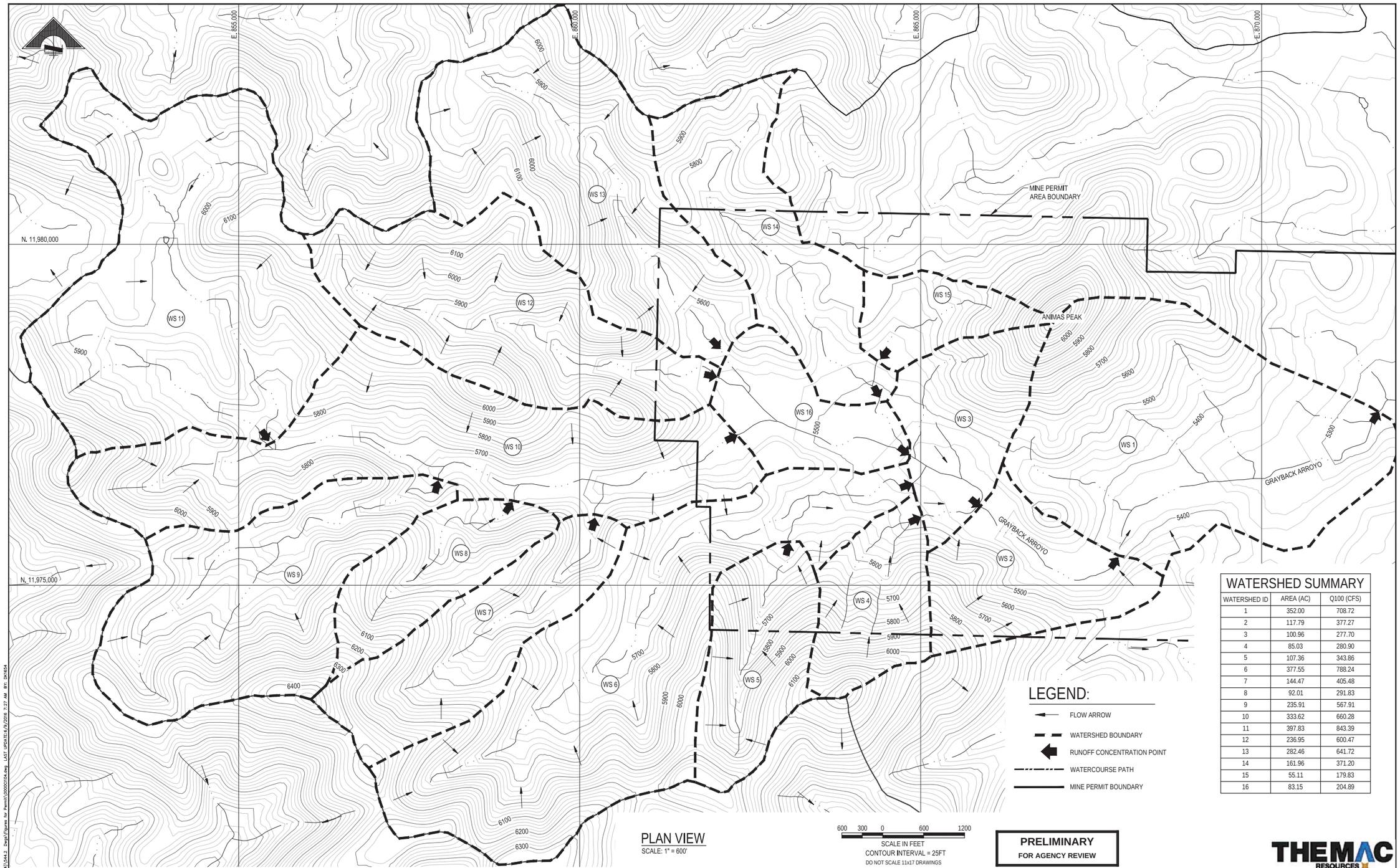
M3's analysis evaluated the diversions and culverts to determine their adequacy in conveying flows from storm events and protecting the site from flooding. Peak discharge and volume analyses for a 100-year, 200-year and 500 year 24-hour storm event was performed for drainage areas contributing to Grayback Arroyo located within the Copper Flat site area. Culvert and channel capacity analysis for the two culvert crossings was conducted for Grayback to determine water surface elevations during the design storm events. Peak flows were analyzed for each sub-basin contributing flow upstream of the site. Figure 2-20 shows the upstream sub-basins in relation to the site.

Diversion of surface drainages away from the mining area was accomplished by Quintana when they developed the site by constructing the diversions described above. Future development of the site by NMCC will result in changes to watersheds shown on Figure 2-19 in the area of the site. Watershed areas no. 15 and 16 will be completely within open pit surface drainage area and will be eliminated as tributaries to Grayback Arroyo. Portions of watersheds 1, 2, 3 and 14 will be incorporated into the site storm water control area of the site and will no longer contribute directly to Grayback Arroyo. These differences can be seen by comparing Figure 2-19 to 2-20.

M3 evaluated the storm flows in the Grayback Arroyo drainage for the 100-year, 200-year, and 500-year 24-hour storm events for the pre-Quintana, i.e., natural conditions in comparison to Post-Quintana NMCC proposed site conditions. The results demonstrate that the existing diversion structures and culverts provide appropriate surface water management of the drainage that is protective of the site.

TSF Diversions

With regard to diversions and other control features at the TSF, Section 6.6, Surface Water Management, of Appendix A, the TSF design report, contains a discussion of the design features of the diversion structures planned to manage surface water runoff at this location. Diversion ditches will be constructed as shown on Figure 2-21, to divert run-on away from the impoundment. The TSF will be built in phases, as shown in Figure 2-21, requiring a series of ditches to be constructed through phase 3 of dam construction to divert run-on to the TSF. When subsequent phases are constructed in the later years of the project, the footprint of the TSF will be such that there will be no run-on of surface water to the TSF as seen on Figure 2-22. The design details for these ditches are contained in Appendix A.



WATERSHED SUMMARY

WATERSHED ID	AREA (AC)	Q100 (CFS)
1	352.00	708.72
2	117.79	377.27
3	100.96	277.70
4	85.03	280.90
5	107.36	343.86
6	377.55	788.24
7	144.47	405.48
8	92.01	291.83
9	235.91	567.91
10	333.62	660.28
11	397.83	843.39
12	236.95	600.47
13	282.46	641.72
14	161.96	371.20
15	55.11	179.83
16	83.15	204.89

PLAN VIEW
SCALE: 1" = 600'

600 300 0 600 1200
SCALE IN FEET
CONTOUR INTERVAL = 25FT
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES	
DWG. NO.	TITLE	DWG. NO.	TITLE

REVISIONS					
NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

REVISIONS					
NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 600'	DATE
DESIGNED BY	AJE	OCT 15
DRAWN BY	AJE	OCT 15
CHECKED BY		
PROJECT MGR		
CLIENT APPR.		

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COPPER FLAT PROJECT

GENERAL SITE
CIVIL
PRE QUINTANA
EXISTING WATERSHED AREAS

JOB NO. M3 PN-120085
DWG NO. **FIGURE 2-19**
REV NO. P2
DATE 09 JUN 16

File: P:\2012\120085\CIVIL (344)\344.2 Dwgs\Figures for Permit\000005104.dwg LAST UPDATE:6/9/2016 7:27 AM BY: DK1654

E. 855,000
E. 860,000
E. 865,000
E. 870,000
N. 11,980,000
N. 11,975,000
WS 1
WS 2
WS 3
WS 4
WS 5
WS 6
WS 7
WS 8
WS 9
WS 10
WS 11
WS 12
WS 13
WS 14
MINE PERMIT AREA BOUNDARY
QUINTANA DIVERSION 1
QUINTANA DIVERSION 2
QUINTANA DIVERSION 3
DEVELOPED WATERSHED BOUNDARY SEE SHEET 0000-CI-006
ANIMAS PEAK
ULTIMATE PIT EXTENTS
MINE PIT
EXISTING PLANT
EXISTING CULVERT CROSSING #1
EXISTING CULVERT CROSSING #2
GRAYBACK ARROYO
5900
5800
5700
5600
5500
6000
6100

WATERSHED SUMMARY

WATERSHED ID	AREA (AC)	Q100 (CFS)
1	28.21	117.20
2	106.56	363.66
3	34.99	129.54
4	75.02	259.92
5	124.19	342.49
6	331.22	774.13
7	144.47	411.06
8	92.01	291.83
9	235.91	567.91
10	330.41	663.73
11	397.83	843.39
12	227.42	588.30
13	275.51	649.87
14	79.97	243.90

LEGEND:

- FLOW ARROW
- WATERSHED BOUNDARY
- RUNOFF CONCENTRATION POINT
- WATERCOURSE PATH
- MINE PROPERTY BOUNDARY

PLAN VIEW
SCALE: 1" = 600'

600 300 0 600 1200
SCALE IN FEET
CONTOUR INTERVAL = 25FT
DO NOT SCALE 11x17 DRAWINGS

PRELIMINARY
FOR AGENCY REVIEW

THEMAC RESOURCES

REFERENCES		REFERENCES	
DWG. NO.	TITLE	DWG. NO.	TITLE
0000-CI-006	DEVELOPED WATERSHED AREAS		

REVISIONS					
NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

REVISIONS					
NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

SCALE:	1" = 600'	DATE
DESIGNED BY	AJE	OCT 15
DRAWN BY	AJE	OCT 15
CHECKED BY		
PROJECT MGR		
CLIENT APPR.		

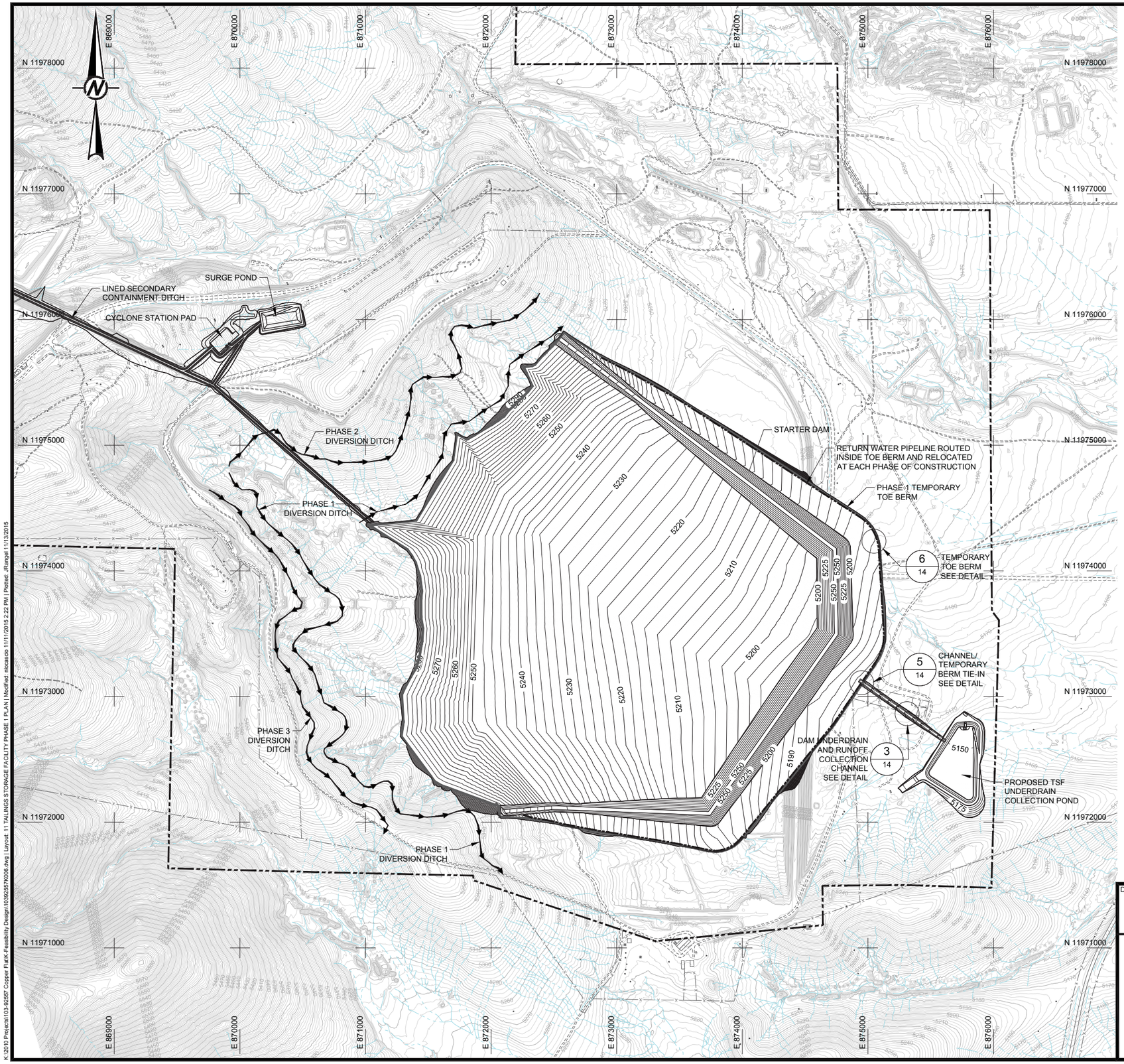
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COPPER FLAT PROJECT

GENERAL SITE CIVIL POST QUINTANA EXISTING WATERSHED AREAS

JOB NO. M3 PN-120085
DWG NO. **FIGURE 2-20**
REV NO. P1
DATE 20 NOV 15

File: P:\2013\120085\CIVIL (3441)\3442 Dwgs\Figures for Permit\0000CI004.dwg LAST UPDATE:11/12/2015 4:35 PM BY: JN690



LEGEND

- 3600 — EXISTING GROUND CONTOUR (ft -MSL)
- EXISTING ROADS
- EXISTING DRAINAGE
- EXISTING FENCELINE
- MINE PERMIT AREA BOUNDARY
- 3600 — REGRADED CONTOURS (ft -MSL)
- TEMPORARY TOE BERM CENTERLINE
- PHASE 1 — PHASE BOUNDARY
- GRADE BREAK
- SLOPE INDICATOR
- 3H:1V or 3H / 1V — 3 HORIZONTAL TO 1 VERTICAL SLOPE
- 5% — GRADE INDICATOR
- 1 / 14 — DETAIL CALLOUT: DETAIL ID, DRAWING SHEET LOCATION
- A / 13 — CROSS-SECTION CALLOUT: SECTION ID, DRAWING SHEET LOCATION

0 400 800 1200
SCALE FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
6	2015-11-12	ISSUED FOR CLIENT AND AGENCY REVIEW	GM	NIL	GM	MJG
5	2015-10-27	ISSUED FOR CLIENT AND AGENCY REVIEW	GM	NIL	GM	MJG
4	2014-01-06	ISSUED FOR FEASIBILITY REPORT (30,000 TPD)	DMW	JHR	GM	MJG
3	2013-11-15	ISSUED FOR 30,000 TPD M3 USE	DMW	NIL	GM	MJG
2	2013-07-17	ISSUED FOR FEASIBILITY STUDY	DMW	NIL	GM	DAK
1	2013-05-03	ISSUED FOR CLIENT REVIEW	DMW	NIL	GM	DAK

DRAWING USE
PRELIMINARY
FOR AGENCY REVIEW

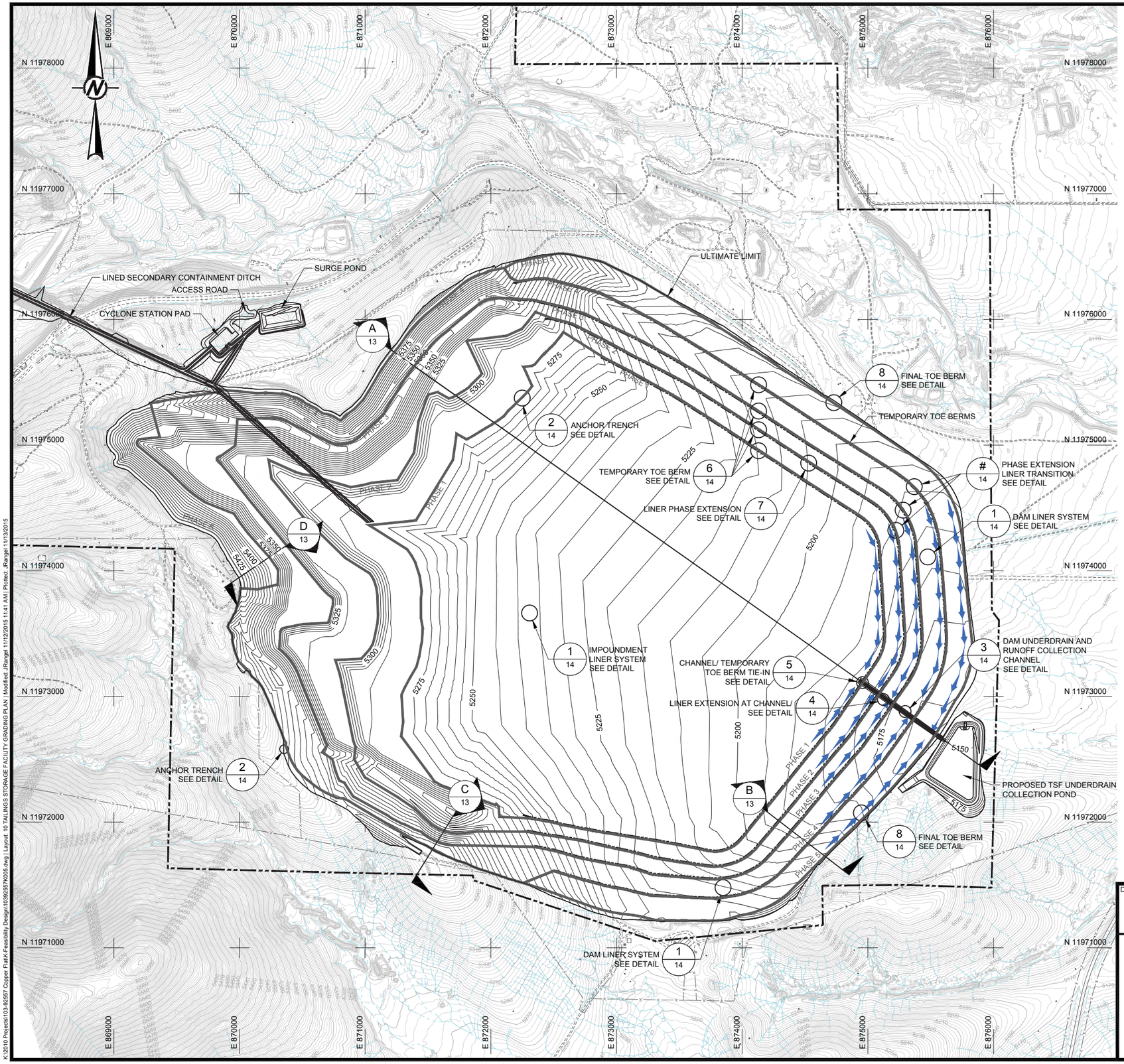
PROJECT
THEMAC RESOURCES — NEW MEXICO COPPER CORPORATION
Environmentally Responsible. Community-Minded. Local Opportunities.
COPPER FLAT PROJECT
30K TPD TAILINGS STORAGE FACILITY
FEASIBILITY DESIGN
SIERRA COUNTY, NEW MEXICO

TITLE
TAILINGS STORAGE FACILITY DIVERSION DITCH LOCATIONS

Golder Associates

PROJECT No.		103-92557	FILE No.		10392557K006
DESIGN	DW	2013-04-08	SCALE		AS SHOWN
CADD	JHR	2013-07-10	DRAWING		11
CHECK	GM	2013-07-16			
REVIEW	DAK	2013-07-17			

K:\2010 Projects\103-9255\ Copper Flat\K-Feasibility Design\10392557K006.dwg | Layout: 11 TAILINGS STORAGE FACILITY PHASE I PLAN | Modified: nbcasio 11/11/2015 2:22 PM | Plotted: JRangel 11/13/2015



LEGEND

- 3600 — EXISTING GROUND CONTOUR (ft -MSL)
- EXISTING ROADS
- EXISTING DRAINAGE
- EXISTING FENCELINE
- MINE PERMIT AREA BOUNDARY
- 3600 — REGRADED CONTOURS (ft -MSL)
- TEMPORARY TOE BERM CENTERLINE
- PHASE 1 — PHASE BOUNDARY
- GRADE BREAK
- DRAINAGE
- SLOPE INDICATOR
- 3H:1V or 3H / 1V — 3 HORIZONTAL TO 1 VERTICAL SLOPE
- 5% — GRADE INDICATOR
- 1 / 14 — DETAIL CALLOUT: DETAIL ID, DRAWING SHEET LOCATION
- A / 13 — CROSS-SECTION CALLOUT: SECTION ID, DRAWING SHEET LOCATION

0 400 800 1200
SCALE FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW
A	2015-11-12	ISSUED FOR CLIENT AND AGENCY REVIEW	GM	NIL	GM	MJG
E	2015-10-27	ISSUED FOR CLIENT AND AGENCY REVIEW	GM	NIL	GM	MJG
D	2014-01-06	ISSUED FOR FEASIBILITY REPORT (30,000 TPD)	DMW	JHR	GM	MJG
C	2013-11-15	ISSUED FOR 30,000 TPD M3 USE	DMW	NIL	GM	MJG
B	2013-07-17	ISSUED FOR FEASIBILITY STUDY	DMW	NIL	GM	DAK
A	2013-05-03	ISSUED FOR CLIENT REVIEW	DMW	NIL	GM	DAK

DRAWING USE
PRELIMINARY
FOR AGENCY REVIEW

PROJECT
THEMAC RESOURCES — NEW MEXICO COPPER CORPORATION
Environmentally Responsible. Community-Minded. Local Opportunities.
COPPER FLAT PROJECT
30K TPD TAILINGS STORAGE FACILITY
FEASIBILITY DESIGN
SIERRA COUNTY, NEW MEXICO

TITLE
TAILINGS STORAGE FACILITY DAM LIFT PHASES

Golder Associates

PROJECT No.		103-92557	FILE No.		10392557K005
DESIGN	DW	2013-04-08	SCALE		AS SHOWN
CADD	JHR	2013-07-10	DRAWING		
CHECK	GM	2013-07-16			10
REVIEW	DAK	2013-07-17			

K:\2010 Projects\103-92557 Copper Flat\K-Feasibility Design\10392557K005.dwg | Layout: 10 TAILINGS STORAGE FACILITY GRADING PLAN | Modified: JRangel 11/12/2015 11:41 AM | Plotted: JRangel 11/13/2015

Other Diversion Structures

With respect to diversion channels, ditches swales, curbs, contours and other manmade surface water control features constructed to manage and divert surface water off of waste rock stockpiles and the plant site, Appendix B contains a discussion of the design features incorporated into the design of the stockpiles and plant site to manage surface water runoff from these areas.

2.2.4 Disposal Systems – 19.10.6.602.D.(15)(c)(v)

Disposal systems contemplated at the Copper Flat facility include:

- Waste Rock Stockpiles,
- Tailings Disposal Facilities,
- Sewage disposal,
- Solid waste disposal, and
- Hazardous and chemical waste disposal.

Information regarding the waste rock stockpile disposal system is contained in Subsection 2.2.9 below. Information regarding the TSF disposal system is contained in Subsection 2.2.6 below.

Sewage Disposal

With respect to sewage disposal, NMCC will not use a septic tank and leach field treatment system for disposal of domestic wastes at the Copper Flat Mine. Disposal of domestic wastes generated will be accomplished by installing a single packaged wastewater treatment plant to serve the majority of employees and visitors at the mine. Individual portable toilet facilities for outlying areas of the operation will be utilized, as needed.

The packaged wastewater treatment plant will receive and treat domestic wastes from buildings located in the administration, concentrator, and mine shop areas. The packaged system will be sized for a load based on the number of mine employees and visitors expected at the mine during a 24-hour period and applying an average water use of 50 gallons per day per person. Breaking down the employee headcount for the mine by the planned rotation schedule indicates 160 employees per day will be using facilities connected to the package plant. An additional 40 persons per day are assumed to account for visitors and contractors. Based on these figures, a 10,000 gallon per day plant has been selected for Copper Flat Mine. The plant will be located on a pre-existing concrete slab near the main gate as shown in Figure 2-2. The plant will generate effluent treated to secondary treatment levels. Treated effluent from the plant will be piped to the tailings storage facility for disposal in the impoundment. System specifications and installation will conform to State and local regulations. Individual portable toilet facilities will be provided for employees working in outlying areas of the operation such as the pit, mine stockpile areas, the primary crusher, and the TSF. The portable toilets will be maintained by a licensed contractor on a regular basis.

Solid Waste Disposal

Solid non-hazardous waste generated at the site will include paper, wood, scrap metal and domestic trash. These materials will be disposed of in a permitted on-site Class III sanitary landfill on private land permitted by the State of New Mexico, or by other methods approved by the State and Sierra County. When recycling services are available, scrap paper, wood, and scrap metal will be sold for recycling to a dealer and transported off-site. Electronics will be held onsite and recycled appropriately as sufficient quantities are generated.

Hazardous and Non-Hazardous Waste Disposal

The Copper Flat facility will be a small generator of hazardous waste as defined in 40 CFR 260.10. Small quantity generators generate more than 100 kilograms, but less than 1,000 kilograms of hazardous waste per month. Management of hazardous waste materials at Copper Flat will comply with all applicable Federal, State and local requirements. All hazardous waste generated at Copper Flat will be managed and transported off-site by a licensed contractor for disposal in accordance with state and federal regulations.

2.2.5 Pits – 19.10.6.602.D.(15)(c)(vi)

NMCC proposes to construct an open pit mine at its Copper Flat project as shown in Figure 2-2 and discussed in detail in Section 2.1.2. This new facility will entail the expansion of an existing open pit previously developed and operated for a short time in 1982 by Quintana. A portion of the ore body at Copper Flat is exposed at the surface and the ore body is proposed to be mined solely by conventional truck and shovel open pit methods. The proposed mining activities will enlarge the open pit over time to a diameter of approximately 2,800 feet. The area of the pit will be expanded to approximately 165 acres. All material mined will be drilled and blasted and loaded into mine haul trucks for removal from the open pit. Ore will be hauled to the primary crusher and then conveyed to the mill as described below. Waste rock will be placed in designated stockpile areas as described in Section 2.2.11.

2.2.6 Tailings Disposal Facilities – 19.10.6.602.D.(15)(c)(vii)

NMCC will construct a tailings storage facility (TSF) which will include, a lined tailings impoundment with an associated underdrain collection system and underdrain collection pond for the impoundment and the dam, and a water reclaim or recycle system to maximize water reuse. The TSF will also include a cyclone plant to separate the tailings coarse and fine fractions and a surge pond to handle potential upset conditions at its Copper Flat Project. Appendix A provides the technical design detail for the TSF. As indicated previously, this document is also part of NMCC's Discharge Permit application.

The footprint of the proposed new TSF and related facilities shown in Figure 2-2 will be approximately 604 acres in size at full capacity. As described in Appendix A, a centerline construction method using tailings sand produced from the underflow of the cyclone plant for

construction of the dam will be utilized. A starter dam will be constructed using borrow material to provide initial storage capacity and to provide a location for initial discharge of tailings. The centerline construction method allows construction of a stable, drained tailings dam using coarse tailings sands while reducing the quantity of fill material required for dam construction. The design for the new TSF will comply with the design and dam safety guidelines of the New Mexico Office of the State Engineer (OSE) Dam Safety Bureau.

The tailings impoundment is designed to store the tailings produced through processing 113 million tons of ore over approximately 11 years. Tailings deposition will occur continuously from ore processing at an annual average rate of approximately 27,890 tons per day. The tailings impoundment will be lined with an 80-mil HDPE, or equivalent liner, placed on a minimum 12-inch thick liner bedding fill material. In the initial phases of construction the bedding material will consist of recovered sand from the old Quintana starter dam. Later phases of construction will require the use of selected crushed and screened native materials or selected local soil be utilized. Bedding material will comply with agency approved specifications.

The TSF will have two separate underdrain systems; a dam underdrain underlying the dam to collect draining water from the coarse sands used to construct the dam, and an impoundment underdrain system overlying the impoundment liner to collect draining water that is collected behind the dam. The liner will extend from the impoundment under the dam and through the drainage collection ditch which will form a lined conveyance to the underdrain collection pond. Both underdrain systems will overlie the liner. The detail of their design is contained in Appendix A.

The dam underdrain will provide the mechanism that will drain water within the dam, out of the structure to the underdrain collection pond. This will allow the dam to become consolidated and stable as it is continually constructed during operations as the sand fraction of tailings is emplaced on the dam. The tailings impoundment underdrain system will allow free water in the impoundment to be drained out from underneath the impoundment to the underdrain collection pond. Water collected in the underdrain collection pond will be recycled to the processing facility. The underdrain, together with the impoundment synthetic liner, will provide significant mitigation against the potential for seepage from the impoundment. It will also contribute to the ability to recycle water from the system to the process facility while contributing to the stability of the TSF.

The drained water will be collected in the collection trench and be routed to the underdrain collection pond. Collected water will be pumped back to the process facility for reuse. The TSF collection trench and underdrain collection pond will also serve to capture surface water runoff routed from the downstream face of the tailings dam via runoff control ditches to the pond.

The TSF underdrain collection pond will be double-lined with a 60 mil, or equivalent, HDPE geomembrane liner. An HDPE geonet will be placed between the liners to serve as the LCRS and to minimize pressure on the lower pond liner. The pond is sized to contain 24 hours of underdrain flow at maximum estimated drainage rates from the dam and impoundment underdrains, as well as runoff from the 100-year, 24-hour storm event of 3.73 inches incident on the downstream dam face. The pond capacity is approximately 12.24 million gallons with 2 feet of freeboard. Design details are contained in Appendix A.

The TSF will also be equipped with a water reclaim system to collect water forming on the surface of the tailings impoundment for return to the processing facility. The water reclaim system will consist of a floating barge located within the tailings impoundment containing pumps to remove water from the impoundment, a pipeline to transport the reclaimed water to the process water reservoir.

The TSF will also have an associated surge pond that will be part of the cyclone plant located at the TSF. The purpose of the surge pond is to capture and temporarily retain tailings materials in the event of a temporary upset at the cyclone plant. It will also provide temporary storage in the event that an upset occurs in the tailings circuit. The surge pond liner will consist of a compacted liner bedding fill layer, overlain with a 60 mil HDPE geomembrane or equivalent. The liner bedding will be a minimum of six inches of sand or fine soil. It is designed to retain tailings and other process water that is not diverted directly to the tailings impoundment in the event of temporary upset conditions.

Under normal operating conditions the surge pond will be empty. It is designed to receive tailings materials and process water on a temporary basis. Feasibility level design capacity of the surge pond is 1.6 million gallons, sufficient to handle the volume of upset conditions plus direct precipitation from a 100-year 24 hour precipitation event with at least 2 feet of freeboard. This design capacity conservatively assumes that an upset would occur during a maximum precipitation event and that the cyclone plant is running at maximum design rates, allowing time for operators to react to the situation. In addition, the pond will be equipped with dedicated pumps and water level actuators to automatically begin pumping materials to the TSF. The pumps will be tied into the site emergency power grid. The process control room will be equipped with emergency alarms that notify the operator of an upset condition immediately to allow the operator to make necessary adjustments in the process, as needed.

2.2.7 Mills (Process Facilities) – 19.10.6.602.D.(15)(c)(viii)

The Copper Flat ore processing facilities will be constructed at the site of the original Quintana processing plant site which is located southeast of the existing open pit as shown in Figure 2-2. The plant facilities will be approximately 128 acres in size. Ore processing will consist of a conventional sulfide flotation plant to extract copper, a molybdenum processing

circuit, and a gravity gold recovery circuit. No smelting, refining or SX/EW operations will be conducted at the Copper Flat site. The plant will produce copper and molybdenum concentrates as well as a small amount of coarse gold concentrate. Figure 2-13 is a conceptual flow diagram of the process. The ore will be fed to the primary crusher and crushed and ground to a fine particle size and then processed through mineral flotation circuits. Ore processing activities will continue 24 hours per day, seven days per week, 365 days per year. The plant will process approximately 11 million tons per year at an average rate of 27,890 tons per day over the life of the project. An overview of the process area is provided herein, including preliminary isometric drawings, to aid the reader in visualizing how the ore is processed.

The process selected for recovering the copper and molybdenum minerals is considered "conventional." The sulfide ore is crushed and ground to a fine size and processed through mineral flotation circuits. The following items summarize the process operations required to extract copper and molybdenum from the Copper Flat sulfide ore. The major equipment for the mineral processing plant is discussed below.

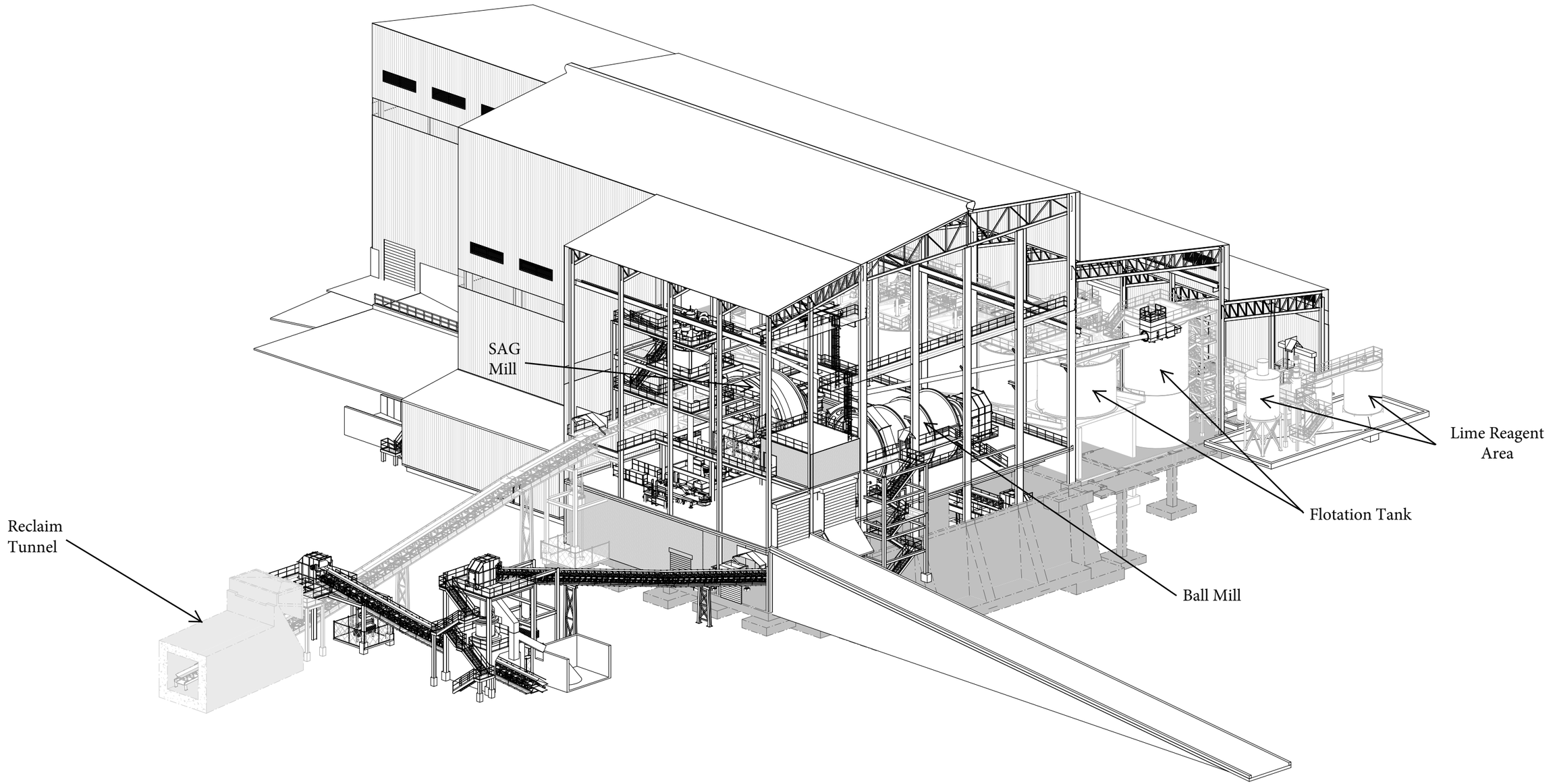
Primary Crushing and Coarse Ore Stockpile

As shown on Figure 2-13, run-of-mine ore will be trucked from the mine to the primary crusher where it will be dumped directly into the crusher dump pocket that feeds a gyratory crusher. A rock breaker will be installed at the dump pocket for use on oversized material. Primary crushed ore will be withdrawn from the crusher discharge pocket by a variable speed, crusher discharge apron feeder. The crusher discharge feeder will feed the coarse ore conveyor that will discharge to coarse ore stockpile. The crushing production rate will be monitored by a belt scale mounted on the conveyor. Tramp iron will be removed using a self-cleaning magnet that will be located at the transfer point between the crusher discharge feeder and the stockpile feed conveyor.

As seen on Figure 2-23, an existing reclaim tunnel is beneath the stockpile location. Ore will be withdrawn from coarse ore reclaim stockpile by variable speed apron feeders. The feeders will discharge to a conveyor belt that feeds the SAG mill in the grinding circuit. Fugitive dust will be controlled with water sprays at the discharge of the stockpile feed conveyor. Dust control in the coarse ore stockpile area will be by dry dust collector systems installed as part of the crushing area.

Crushing and Grinding

Ore from the coarse ore stockpile will be fed through the reclaim tunnel as shown on Figure 2-23 to the SAG mill. Ore will be ground to final product size in a SAG mill and ball mill grinding circuit. The SAG mill will operate in closed circuit with SAG mill discharge screen and pebble



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FIGURE 2-23

crusher. The SAG mill discharge screen undersize will flow by gravity to the primary cyclone feed sump and the screen oversize will be transported by conveyors to the pebble crusher. Pebble crushing will be conducted in a short-head cone crusher. The SAG mill discharge screen oversize can bypass the pebble crusher via diverter gate ahead of the pebble crusher. The bypassed screen oversize will feed a second diverter gate which will either feed the pebble crusher conveyor that transports crushed pebble to the SAG mill or dump pebbles to the pebble stockpile. Tramp iron, and broken media will be removed using a self-cleaning belt magnet that will be installed over the SAG mill oversize conveyor ahead of the pebble crusher.

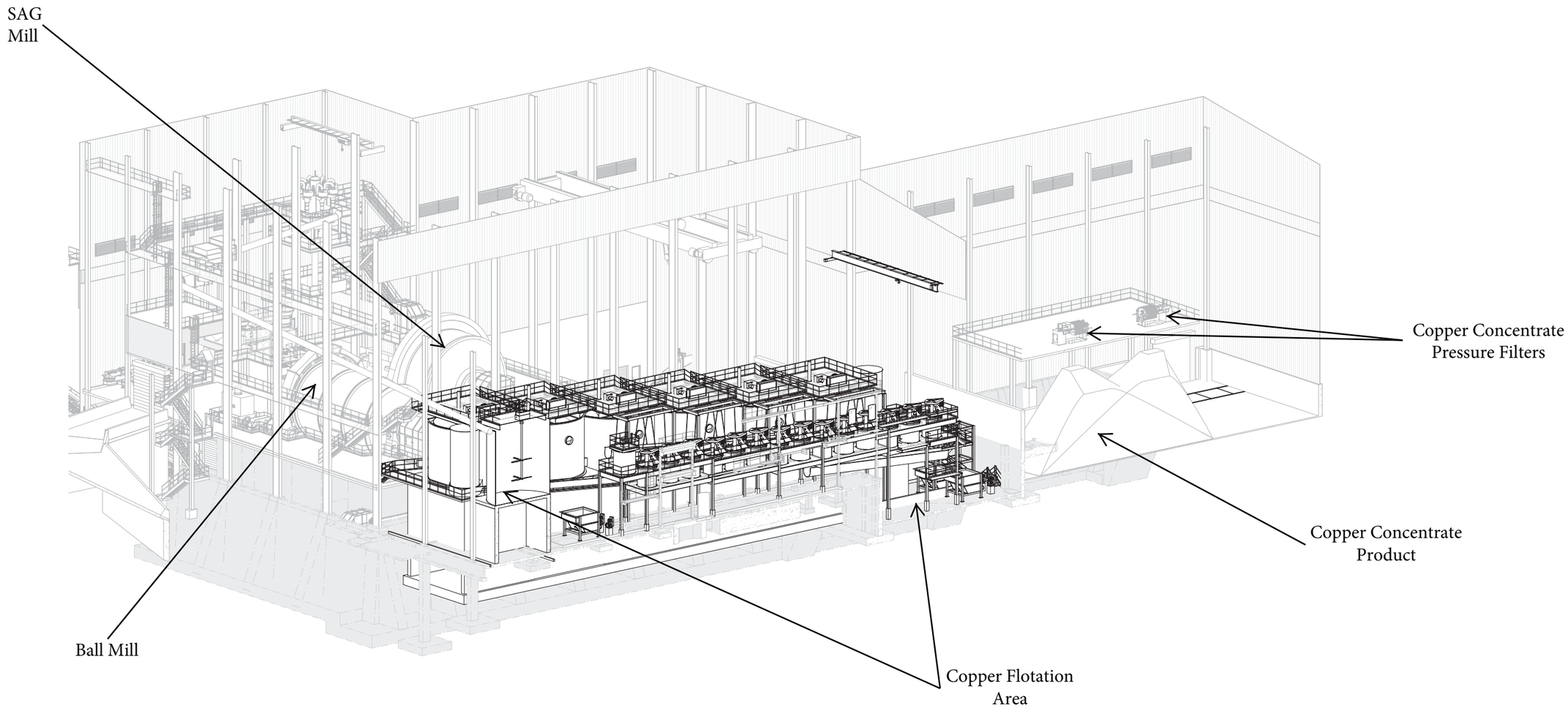
Secondary grinding will be performed in a ball mill which will operate in closed circuit with a cluster of hydrocyclones. The ball mill will discharge into a cyclone feed sump. The contents of the sump will be transferred using a slurry pump to a hydrocyclone cluster. Most of the hydrocyclone underflow slurry will report to the ball mill, but a portion of the underflow will be taken through a Knelson-type gravity concentrator circuit to collect gravity recoverable gold. The gravity separation circuit will consist of two Knelson-type concentrators, each of which will have an upstream scalping screen to remove oversize material. The gravity concentrates will pass through magnetic separators for removal of tramp iron and broken grinding media. The tailings from the gravity concentrators will be pumped back to the cyclone feed sump.

Hydrocyclone overflow (final grinding circuit product) will flow by gravity to the rougher flotation conditioning tank ahead of the rougher flotation cells. The overflow slurry will be sampled and analyzed for metallurgical control prior to flotation.

Grinding balls will be added to SAG mill and ball mill using ball loading systems. Lime slurry will be added to the SAG mill and ball mill feed to adjust the pH of the slurry. If needed, lime slurry may also be added to the primary grinding sumps. In addition, fuel oil will be added to the SAG mill feed to aid in molybdenite collection.

Flotation

Primary grinding hydrocyclone overflow will flow by gravity to the bulk flotation circuit (see Figures 2-23 and 2-24). The bulk flotation circuit will consist of a conditioning tank, one row of rougher flotation cells, a rougher concentrate vertical regrind mill, one row of first cleaner/cleaner-scavenger flotation cells and two second cleaner column flotation cells. The rougher flotation row will consist of six tank type rougher flotation cells with a drop between each cell. Flotation reagents will be added to the hydrocyclone overflow in the rougher flotation conditioning tank where the slurry will be agitated to allow the reagents to react with the ore particles before feeding to the rougher flotation cells. The flotation concentrate from the last four rougher flotation cells will be transported by gravity to the rougher concentrate regrind sump. Tailing from the rougher flotation cell will be sampled and transported to the tailings treatment facility. Rougher flotation tailings will be sampled for metallurgical control.



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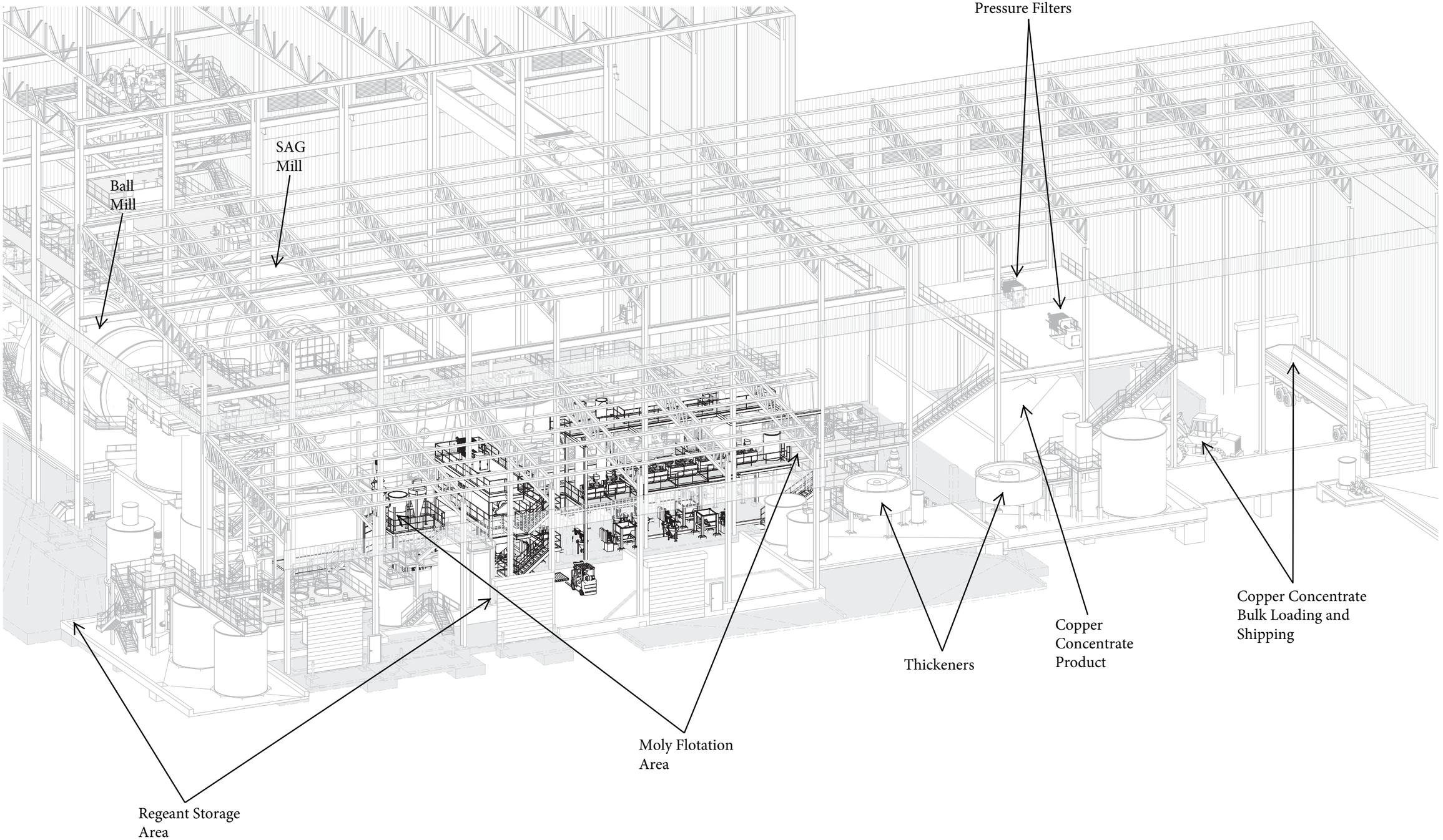
FIGURE 2-24

Concentrate from the last four rougher flotation cells, combined with first cleaner-scavenger concentrate and regrind cyclone underflow, will be pumped from the copper regrind cyclone feed pump box to copper regrind cyclone cluster. Copper regrind cyclone underflow will flow by gravity to the copper regrind mill. The copper regrind mill will operate in closed circuit with hydrocyclone.

Molybdenite Flotation

Figure 2-25 identifies the location of the molybdenum circuit. Regrind cyclone overflow, final regrind circuit product, will flow by gravity to an agitated conditioning tank. Second cleaner tailing and flotation reagents will also be added into this tank. Conditioning tank discharge will flow by gravity to the first cleaner/cleaner-scavenger flotation cells. The first cleaner flotation will consist of eight tank type flotation cells. Concentrate from the first cleaner flotation cells will be pumped to the concentrate distribution box. Tailing from the first cleaner flotation cells will flow by gravity to the first cleaner-scavenger cells. The first cleaner-scavenger flotation circuit will consist of six tank type rougher flotation cells. Concentrate from the cleaner-scavenger cells will be returned to the bulk concentrate regrind circuit sump using a froth pump. Tailing from the cleaner-scavenger cells will be pumped back to the rougher flotation circuit. Cleaner-scavenger tailing may be sent to the final tailing sump. Two discharge ports in the concentrate distribution box will direct the slurry to the feed inlets for the second cleaner column cells operated in parallel. Second cleaner tailing slurry will be pumped from the two columns to the first cleaner conditioning tank from where it will be pumped to the first cleaner flotation cells. The second column cleaner concentrate slurry will be pumped to the copper-moly concentrate thickener. A blower will supply air to bulk second cleaner column cells to the bulk mechanical rougher, first cleaner/cleaner-scavenger and second cleaner bulk flotation tank cells. Flotation reagents will be added at several points in the bulk flotation circuit. Flotation reagents will be added at several points in the bulk flotation circuit.

Bulk second cleaner concentrate will be transported to the copper-moly concentrate thickener. Thickener overflow will be pumped by a horizontal centrifugal pump from an overflow sump to the plant reclaim water storage tank. Copper-moly thickener underflow will be pumped by a slurry pump to the molybdenite flotation circuit. The molybdenum flotation circuit will consist of one row of copper-moly separation (rougher) flotation cells, one row of molybdenite first cleaner flotation cells, a moly regrind circuit, one molybdenite second cleaner flotation cell, and one molybdenite third cleaner flotation cell. The copper-moly separation (rougher) flotation row will consist of eight mechanical rougher flotation cells. Concentrate from the copper-moly separation (rougher) cells will be pumped by froth pump to the molybdenite first cleaner flotation cells. Tailing from the copper-moly separation cells will flow by gravity to the copper concentrate thickener. The molybdenite first cleaner flotation row will consist of four mechanical cells. Concentrate from the molybdenite first cleaner cells will be pumped by froth pump to the feed sump of the molybdenite concentrate regrind circuit. Tailing from the



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FIGURE 2-25

molybdenite first cleaner flotation cells will flow by gravity to the feed launder of the copper concentrate thickener. Concentrate from the moly first cleaner cells will be sampled. Molybdenite concentrate regrinding will be performed in a vertical mill. Molybdenite first cleaner flotation concentrate will feed the vertical mill which will discharge into the moly regrind discharge pump box and pumped to the moly second cleaner column cell.

Slurry will be pumped by the second moly cleaner feed pump to the molybdenite second cleaner flotation column cell. Tailing from the molybdenite second cleaner column cell will be pumped to the moly first cleaner flotation cells. Molybdenite second cleaner concentrate will be pumped to the moly third cleaner column cell. Concentrate from the molybdenite third cleaner column cell will be pumped to the agitated moly filter feed tank that feeds the moly filtering and drying circuit. Tailing from the molybdenite third cleaner column cell will be pumped to the molybdenite regrind cyclone feed sump. A blower will supply air to the second and third moly cleaner column cells.

Flotation reagents will be added at several points in the molybdenite flotation circuit. Molybdenite circuit process streams will be sampled for metallurgical control. Sample points include: concentrate from the copper-moly separation (rougher) flotation row, concentrate from molybdenite first cleaner flotation row, and concentrate from molybdenite third cleaner column cell.

Copper Concentrate Dewatering

Final copper concentrate will be a combination of tailings from copper-moly separation flotation and moly first cleaner flotation cells. Each tailing stream will be sampled before being transported to the copper concentrate thickener feed box from where the combined tailings will be fed to the copper concentrate thickener. Thickener overflow will be pumped from the overflow pump box by a horizontal centrifugal pump to the copper-moly concentrate thickener feed box. Thickener underflow will be pumped by variable speed horizontal centrifugal slurry pump to the copper concentrate stock tank from which it will be pumped to the copper concentrate filters. Horizontal centrifugal pumps will transport copper concentrate slurry from agitated concentrate stock tank to two automatic plate-and-frame pressure filters. The filters will discharge batches of filter cake to a copper concentrate stockpile at the east end of the mill building. Filtrate and filter wash water will be returned to the feed box of the copper-moly concentrate thickener. A front-end loader will fill highway haulage trucks with copper concentrate on a built-in truck scale. A wheel wash system for the concentrate haulage trucks will ensure that concentrate will not be carried out of the load out area.

Molybdenite Concentration

Molybdenite concentrate from the molybdenite third cleaner column cell will flow by gravity to the moly filter feed tank. Concentrate from the agitated tank will be pumped to a disc filter for

dewatering. Filter cake will discharge to a conveyor that feeds a Holoflite-type hot oil dryer. The dryer will discharge via a screw conveyor to the molybdenite concentrate storage bins. Filtrate will be pumped to the copper-moly thickener.

Tailings Dewatering

Tailings from the bulk rougher flotation row will flow by gravity to a tailings separation facility where hydrocyclones will be used to separate the coarser sands to build the dam. Underflow sands will be pumped to the crest of the tailings storage facility (TSF). Cyclone overflow fines will be pumped to the TSF and spigotted to the interior of the impoundment. Further settling of the fines produces a supernatant water pond at the back (upstream) of the impoundment that will be reclaimed and pumped to the Reclaim Reservoir. Drainage from the tailings materials will be captured by a synthetic liner and conveyed via a drainage system to a underdrain collection pond. Collected seepage water will be pumped to the Process Water Reservoir.

Reagent Storage and Mixing

Reagents requiring handling, mixing, and distribution system include:

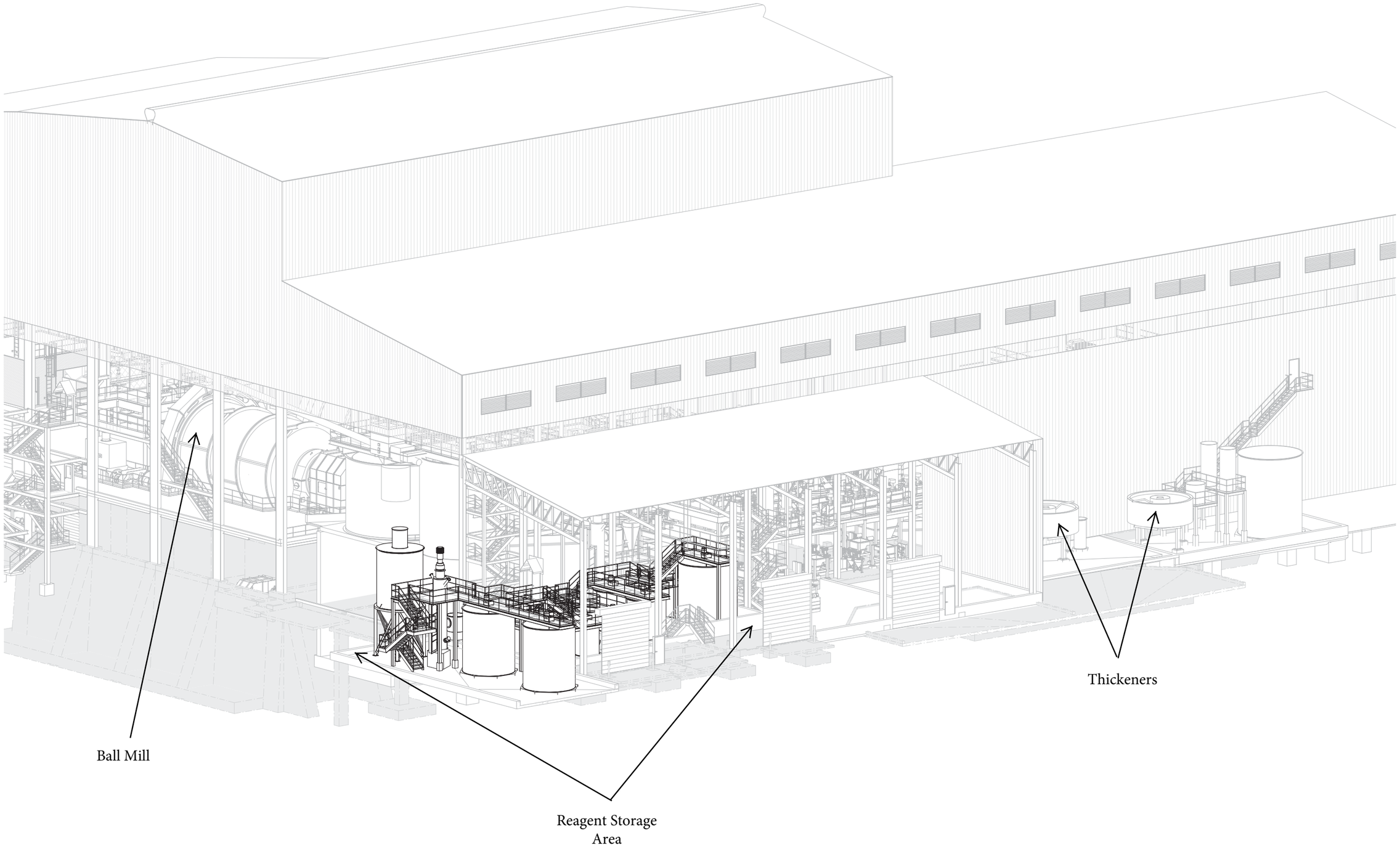
- Potassium Amyl Xanthate (PAX, collector)
- Methyl Isobutyl Carbinol (MIBC, frother)
- Sodium Hydrosulfide (NaHS), copper mineral depressant)
- Flocculant
- Pebble Lime (CaO, pH modifier)
- Fuel oil (molybdenite collector)
- Butyl dithiophosphate
- Antiscalant

Figure 2-26 identifies the general reagent area.

Process Water Handling and Disposal

All water used in the processing of ore will be either be contained within the ore processing circuit, discharged to the TSF, or be in the copper and molybdenum concentrates as moisture content. The plant water system will consist of a lined process water reservoir and a plant process water storage tank. Both will be located near the plant site. Water will be delivered to the reservoir via pipelines. Water reporting to the reservoir includes the following:

- Recycled process water from the TSF;
- Makeup water from the fresh water tank (water from the well field);
- Copper/molybdenum concentrate thickener and copper concentrate thickener; overflows; and
- Storm water from the impacted storm water impoundments.



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FIGURE 2-26

Water from the process water reservoir will be pumped to the plant process water tank. The tank will deliver water the processing areas for use as needed a via gravity-flow pipeline. Approximately 73 percent of the water required for processing ore will be provided by recycling water back from the TSF and storm water harvesting. Approximately 23 percent of the water used for processing ore will remain entrained within the tailings. The remaining 4 percent will be lost to evaporation or as moisture in the concentrates. The amount of water in the concentrates will be less than 1 percent of the total water used for processing ore.

2.2.8 Water Treatment Facilities - 19.10.602.D.(15)(c)(ix)

The Copper Flat Project is designed to prevent water discharge into the environment. Therefore, no water treatment facilities other than the packaged waste water treatment facility discussed in Section 2.2.4, above, are planned.

2.2.9 Storage Areas - 19.10.6.602.D.(15)(c)(x)

Planned storage areas for equipment, vehicles, chemicals and solutions at Copper Flat will all be located within the area described as the plant facilities as shown in Figure 2-2. All equipment and vehicles will be utilized and maintained within the confines of the mine permit area. There will be areas specified during operations for parking of mine equipment and vehicles when not in use such that any leakage and/or potential spillage from them will be captured within contained and curbed areas of the facility and not released off-site.

As shown in Figure 2-14 and discussed in Section 2.2.2, all surface runoff is managed so that it reports either to the open pit or an impacted storm water impoundment. Appendix C provides a discussion of the various containment areas designed within the process area to contain the chemicals and solutions utilized at the site to ensure that all potential releases are managed and contained. Appendix C was produced, in part, to address the NMED's Copper Rule with respect to describing proposed sumps, tanks, pipelines and truck and equipment wash units, including information for each unit regarding its location purpose construction material, dimensions and capacity. Appendix C also provides the information requirements of 19.10.6.602.D.(15)(c)(x) of the Mining Act Rules. For example, Drawing No. 0000-CI-008 in Appendix C is a scaled map of the location of the various process facility containment areas. Drawing No. 0000-GA-050 is a scaled map of the concentrator area identifying the containment arrangement for all of the process tanks, including the locations of the sumps and tanks. Drawing No. 1010-AR-012 is a scaled map of the truck shop tank farm showing the location of the tanks and sump. Drawing No. 1010-GA-010 is a scaled map of the fuel station showing the location of the tanks and sumps. Drawing No. 1010-GA-001 is a scaled drawing showing the location of the Truck Wash and its sumps or settling tanks.

2.2.10 Topsoil & Topdressing Stockpiles – 19.10.6.602.D.(15)(c)(xi)

Figure 2-2 identifies the location of three topsoil and topdressing stockpiles (also called Growth Media Stockpiles) that will be developed as part of the site development and construction phases of operation. The general term growth media is used rather than a more specific term such as topsoil, because various natural materials would be stockpiled during construction of the mine for use as growth media during reclamation. Primary considerations for selection of growth media are the quantity required to support reclamation and the available water holding capacity of the materials (BLM DEIS November 2015, p. 3-140). The GMSPs will be made up of soils and underlying suitable unconsolidated alluvial and colluvial materials salvaged from areas where the TSF and waste rock stockpiles will be constructed as discussed in the Golder Supplemental Soils Investigation of July 8, 2013, submitted to the MMD and NMED. The report was submitted as part of NMCC's Copper Flat Mine Baseline Data Report Addendum dated July 17, 2013 (NMCC 2013) as Appendix C, Supplemental Soils Investigation.

Golder collected soil samples during a geotechnical investigation conducted in December 2012 and January 2013 as part of their studies conducted in designing the TSF (see Appendix A). The soils investigation provided sufficient information to develop additional insight about the presence of potential cover materials on-site for reclamation and quantify soil resources available. As shown in Figure 2-2, GMSP No. 1 will be located at the southwest corner of the TSF. GMSP No. 2 will be located north of the TSF north of Grayback Arroyo. GMSP No. 3 will be located east of WRSP-3.

Golder's supplemental soils investigation provides the soils data gathered, including sample and field descriptions of soils in and around the footprint of the proposed TSF and WRSP-3. The information has been utilized to develop salvage strategies for the GMSPs in conjunction with construction of the TSF and WRSP-3 and the Reclamation and Closure Plan (see Appendix E). Section 3.0 of Appendix C of Golder's soils investigation discusses the soil resource characterization conducted, including physical and chemical properties, and reclamation suitability. Section 4.0 of the investigation provides estimates of cover material available.

2.2.11 Waste Rock Stockpiles 19.10.6.602.D.(15)(c)(xii)

NMCC will construct three new waste rock stockpiles (WRSP) in conjunction with operation of its Copper Flat Project as discussed previously in Section 2.1.3. NMCC considers that all material excavated from a mine facility that is not ore or clean topsoil is waste rock. Figure 2-2 shows the location of each of the WRSPs relative to the mine and the process area. Figures 2-3 through 2-11 show the design and construction sequencing for the mine pit and the new proposed WRSPs beginning at the preproduction stage through the life of the mine. As indicated in Section 2.1.3, the proposed WRSPs will be built generally to a configuration of 3 horizontal to 1 vertical slope. This design consideration is an example of NMCC's commitment to "operating for closure", or "design for closure", as it facilitates reclamation at the end of the

mine life. Each lift within the stockpile will be approximately 75 ft. high and be placed at angle of repose (1.5 horizontal to 1 vertical) with bench setbacks left between lifts sufficiently wide enough to maintain the 3 horizontal to 1 vertical 1 overall angle for the stockpile.

Surface water runoff collection trenches will be constructed, as needed, to collect and route runoff from the proposed stockpiles to the storm water impoundments describe above. These trenches will be constructed into the andesite bedrock to prevent water from entering the alluvial surface material down-gradient of the WRSP and in a manner to maximize positive flow while minimizing the potential for ponding and erosion.

The planned storage or disposal capacity of the proposed new WRSPs over the life of the mine is as follows:

- WRSP-1 – 3.16 million tons
- WRSP-2 – 8.64 million tons
- WRSP-3 – 32.89 million tons

In addition to the proposed new stockpiles, there exist four small waste rock stockpiles at the site (i.e., EWRSP-1, EWRSP-2A and 2B, EWRSP-3, and EWRSP-4) and generated by the previous Quintana operation. Their location is shown on Figure 2-1. EWRSP-1 is located at the western edge of the open pit surface drainage area (OPSDA) and contains approximately 486,000 tons of material. EWRSP-2A and 2B are located at the northwest side of the site within the OPSDA and contain approximately 760,050 tons of material in total. EWRSP-3 is located next to the primary crusher within the plant facility area and contains approximately 333,300 tons of material. Approximately 123,000 tons of this material consists of unprocessed ore remaining on-site at the end of Quintana's operations, 24,000 tons of which is a small amount of unprocessed run-of-mine ore, 44,000 tons of which is crushed ore contained in the coarse ore stockpile area, and 55,000 tons of which was removed from the coarse ore stockpile and utilized to backfill the process building foundations. EWRSP-4 is located southeast of the mine pit and contains approximately 1.0 million tons of material. As discussed later herein in the Reclamation and Closure Plan, the EWRSPs will be reclaimed either during operations as part of NMCC's contemporaneous reclamation or at the end of the life of mine at closure.

2.2.12 Other Facilities and Structures – 19.10.6.602.D.(15)(c)(xiii)

In addition to the Copper Flat facilities described above within the permit area boundary, there are several other ancillary facilities and structures, located off-site, existing and proposed, that will contribute to the project. These facilities are located within nine mill site claims held by NMCC east of the Copper Flat site as seen on Figure 2-12. These mill site claims are on federal land managed by the Bureau of Land Management (BLM). Seven mill site claims are clustered together in the southern half of Section 30, T5S, R5W and the northern half of Section 31, T5S,

R5W, south of State Highway 152. An eighth mill site claim is located in the southeast quarter of Section 28, T15S, R6W, north of Highway 152, and the ninth mill site claim is located in the southeast quarter of Section 25, T15S, R6W, just south of the highway. Each mill site is five acres in size. Portions of these sites have been previously developed and disturbed during installation of the water wells, pipeline and access roads installed by Quintana in the late 1970's or early 1980's to provide water for their operations at Copper Flat. NMCC will operate these wells to provide water for the process facilities. The mill sites will also be utilized for other water-related infrastructure uses such as staging and storage areas for booster tanks, pumps and electrical equipment, maintenance, and monitoring. Access to the mill sites will be along existing unpaved roads. The land is also grazed by cattle.

In addition to the mill site claims controlled by NMCC, Figure 2-12 also shows the location of the proposed substation site in the northeast corner of Section 36, T15S, R6W, land owned by the State of New Mexico and managed by the New Mexico State Land Office (SLO). This 30 acre area is the proposed location of a proposed 10 acre power substation that will be installed and tied into an existing high voltage power line in order to provide the power needed to operate the mine. Access to the substation will be along an existing unpaved road.

2.3 Wildlife Impacts Contingency Plan – 19.10.6.602.D.(15)(d)

Impacts to wildlife from operation of the Copper Flat Project are not expected to be significant (BLM DEIS Nov. 2015, p. 2-95). At the completion of mining activities, the site will be restored to conditions and standards that meet approved post-mining land uses. These uses will include native plant communities similar to surrounding undisturbed areas for wildlife habitat, and grazing land potentially suitable for livestock. Once reclamation is successfully completed, wildlife populations would be expected to return to existing (i.e., pre-mining operation) levels (BLM DEIS Nov. 2015, p. 3-137 and 138).

The Mining Act regulations require that a contingency plan be developed for mitigating impacts to wildlife when there has been an emergency or accidental discharge of a toxic substance that may impact wildlife. It is highly unlikely that there will be any emergency or accidental discharge of toxic substances from the Copper Flat facilities. All process chemicals, diesel fuel, gasoline, hydraulic oils, lubricants, antifreeze and other such liquids will all be stored in such a manner so as to protect them from accidental discharge. All tanks, reagent storage areas and process areas have been designed to provide secondary containment per regulatory requirements. In addition, the processing facility and its related storage areas where toxic substances could be housed is designed such that accidental spills or other upset conditions that may occur will be routed to sumps and/or lined secondary containment ditches that will transport those materials to a surge pond for collection and then pumped either back to the process facility or directly to the TSF. The design of these sumps and ditches is discussed in the various design documents of the appendices.

Borrow areas will be kept free of steep walls and will be sloped and stabilized to allow for safe wildlife entry and exit and prevent erosion. NMCC will construct BLM-approved fencing to prevent livestock from entering the pit, WRSPs, and TSF. Fences of appropriate height will be constructed around water and solution ponds to keep out larger wildlife such as deer and antelope. In areas where a higher level of security or safety is needed, such as the mine substation, chain-link fences suitable for wildlife exclusion will be erected. Gates or cattle guards will be installed along roadways within the proposed mine area as appropriate. NMCC will monitor the fences on a regular basis and repairs will be made, as needed. In the event that livestock manage to enter the proposed mine area via a gate or opening in a fence, the grazing permittee will be contacted immediately. NMCC will assist, as requested, in moving these animals out of the proposed mine area.

The use of avian exclusion devices will be employed, as needed, to prevent deleterious exposure of birds to toxic chemicals or conditions used or created by mining and mineral processing operations.

NMCC's operations Spill Prevention, Control and Countermeasure Plan (SPCC) will provide contingencies to mitigate potential impacts from emergency or accidental releases of petroleum substances, including safeguards and quick clean-up measures to prevent detrimental impacts to humans and wildlife. All other potentially toxic materials will be stored in secured facilities that will exclude wildlife entry.

As part of its SPCC Plan NMCC will determine the reportable quantity for each toxic substance in accordance with the regulatory requirements and train the personnel to recognize the quantities. Prior to commencing site work, all project personnel, including contractor personnel, will receive training on the proper procedures to respond to a spill or discharge to ensure that all personnel understand the procedures and best management practices utilized at the site and other requirements under applicable pollution control laws, rules, and regulations.

As discussed above, site preparation and mining operation activities will be conducted to minimize the likelihood of a discharge leaving the facility. While the occurrence of spills and other unintended releases occurring during operations will be controlled by utilizing various engineered secondary containment controls to prevent the release of toxic materials, use and maintenance of mobile equipment and vehicles represent potential sources of release of materials, particularly during construction. Vehicle and equipment fueling and maintenance and generator operations are the primary activities requiring spill prevention. Vehicle and equipment fueling procedures and practices will be designed to minimize or eliminate the discharge of fuel spills and leaks. Vehicles and equipment will be refueled onsite, either at designated onsite refueling areas or at the equipment locations, as necessary. NMCC will

require that procedures and practices, such as those identified below, be adhered to during site preparation and mining operations activities:

- An onsite fueling area will be designated and designed with an area protected from run-on with berms or curbs and a curbed interior pad area to contain spills.
- Fueling area(s) will be located away from water courses.
- Drip pans or absorbent pads will be used as necessary during vehicle and equipment fueling.
- Absorbent spill clean-up materials and spill kits will be available in the fueling area and on fueling trucks used to refuel equipment outside the designated fueling area, and will be disposed of properly after use.
- Fueling will be performed within the protected areas.
- Nozzles used in vehicle and equipment fueling will be equipped with an automatic shutoff to control drips. Fueling operations will not be left unattended.
- Fuel tanks will not be "topped off."
- All site vehicles will be monitored daily for leaks, and will receive regular preventive maintenance to reduce the potential of leaks. Vehicles with leaks will be repaired immediately or will be moved from the immediate work location to the maintenance building if further maintenance is required.
- Drip pans or absorbent pads will be used during vehicle and equipment maintenance work.
- Absorbent spill clean-up materials will be available onsite and will be disposed of properly after use.
- Used oils, fluids, lubricants, and spill clean-up materials will be disposed of immediately and properly.

Equipment inspections will be performed routinely, including informal daily examinations and periodic condition. Additional inspections will be performed if a malfunction or leak occurs. Designated field personnel will conduct informal daily inspections of the support vehicles and associated equipment. Personnel will check equipment for leaks and proper operation; examine generators and pumps to verify proper function and check for damage and leakage; look for accumulation of water, oil, or other material at the work sites; and look for stained or discolored soil in and around the vehicles and equipment. Inspections of certain equipment will be performed in accordance with manufacturer's specifications, where applicable.

Brittle fracture evaluation will be conducted by an experienced person for field-constructed aboveground tanks that undergo repair, alteration, reconstruction, or change in service. Brittle fractures may cause sudden and catastrophic tank failure, resulting in loss of product. Aboveground tanks will be evaluated for brittle fracture using current industry standards. The brittle fracture evaluation will be conducted as a best management practice as deemed necessary by NMCC.

The following summarizes the Contingency Plan actions to be taken in the event of a spill or discharge. Immediately upon identifying the event, field personnel will:

- Shut off all ignitions sources, including motors, electrical circuits, and open flames.
- Determine the source of the discharge, and if safe to do so, immediately shut off the source of the discharge.
- Use any and all resources available at the project site to stop the spilled material from spreading and to protect and/or exclude wildlife from the area if safe to do so.
- Depending on the location and size of the discharge, sorbent material may be placed in the path of the discharge, or earthen berms or trenches constructed.
- Immediately contact the onsite manager, who will direct the response and cleanup activities.

Spill response materials will be available to and accessible by NMCC and subcontractor personnel. These materials may be stored in the project vehicles or an onsite trailer, if one is used. The response materials may include:

- Absorbent socks
- "Oil-dry" loose absorbent material
- Absorbent pads
- Nitrile gloves
- Neoprene gloves
- Non-sparking shovels

NMCC field operations personnel will regularly check the materials to ensure that used material is replenished.

2.4 Sediment Control – 19.10.6.602.D.(15)(e)

The Copper Flat facility is designed to be a zero discharge facility. As such, sediment control is an important design feature at the site. As described in Appendix D, Grayback Arroyo and its tributaries up-gradient of the site have been diverted entirely around the site. Therefore, the only sedimentation that will be potentially produced will be from surface water runoff from several on-site sources including the mine pit area, the waste rock stockpiles, the process plant facilities and the TSF.

A Storm Water Pollution Prevention Plan (SWPPP) will be developed for construction and maintained during operation. Sediment control will be achieved by the use of BMPs including regrading, seeding and mulching, silt fences, straw bale dams, diversion ditches with energy dissipaters, and rock check dams at appropriate locations during construction and operation.

Diversion structures, including existing structures, will divert run-on away from disturbed areas. All sediment control structures will be monitored and maintained on a regular basis. During operations, all runoff from the plant site will be directed into impacted storm water impoundments and other ponds, as discussed below. During reclamation, all ponds will be backfilled, re-contoured and graded, surfaces covered with top dressing, and vegetated.

2.4.1 Open Pit

The open pit surface drainage area is a closed basin that will capture all surface runoff at the bottom of the pit. As such, sediments from this area will be managed entirely within the OPSDA and will not contribute sediments to surface water drainages during operations or upon reclamation. The water collected at the bottom of the pit during operations will all be utilized to control dust within the OPSDA and, to the extent allowed, elsewhere in the operation.

2.4.2 Waste Rock Stockpiles

Sediments produced from the waste rock stockpiles will be managed by constructing surface water trenches as may be necessary during operations to capture, route, and divert runoff into impacted storm water impoundments. Appendix B provides the details of the design of these impoundments and associated trenches, including the criteria for their size, dimension, and capacity.

Runoff from proposed WRSP-1, 2, and 3, as seen on Figures 2-2 and 2-14, will be managed by routing it to Impacted Storm Water Impoundments B and C. As discussed in the Reclamation and Closure Plan, EWRSP-1 and EWRSP-2B will be reclaimed during operations, further reducing sediment production. Runoff from existing waste rock stockpile EWRSP-1 will be diverted to Grayback Arroyo (see Drawing C-002 of Appendix E). Runoff from EWRSP-2B and EWRSP-4 will be captured in the OPSDA as shown in Figure 2-14. . Runoff from the area of EWRSP-2A will be captured in Impacted Storm Water Impoundment B as EWRSP-2A will be incorporated into proposed WRSP-1 during operations. EWRSP-4 will be re-contoured to route runoff into the OPSDA as part of the site preparation process. The area will be utilized as an equipment laydown area during operations. The southern out-slopes of this stockpile will be reclaimed as discussed in the Reclamation and Closure Plan to protect against potential sediments being introduced into Grayback Arroyo from that location. Runoff from EWRSP-3 will be captured in Impacted Storm Water Impoundment A, which will manage runoff from the plant facilities.

2.4.3 Process Plant Facilities

As shown on Figures 2-2 and 2-14, runoff from the process plant facilities will be managed by contouring the plant site footprint to route runoff to Impacted Storm Water Impoundment A. Runoff from all of the facilities located in this area including the primary crusher, crushed ore stockpile, concentrator, fuel station, reagent storage area, administration building, parking lot, EWRSP-3, and all of the associated ancillary areas will be captured in Impacted Storm Water

Impoundment A. Runoff from the laydown area containing EWRSP-4 will be routed to the open pit during operations.

An additional impoundment, i.e., the process water reservoir, can also be seen on Figures 2-2 and 2-14. It should be noted that no runoff from the process plant facilities area will be directly captured by this impoundment. However, the process water reservoir is designed such that all runoff water captured in the Impacted Storm Water Impoundments will be transferred to the process water reservoir for use in the process.

2.4.4 Tailings Storage Facility

The location of the TSF is shown on Figure 2-2. Appendix A contains detailed discussion of the design of the TSF. Potential sediment contribution from runoff at the TSF will be from the outer slopes of the dam. Table 6 (page 20) of Appendix A contains the storm water diversion design criteria utilized. The TSF dam will be constructed in phases using the coarse tailings sand from the process as shown in Figure 2-22. Storm water will be diverted around and away from the footprint of the dam as shown in Figure 2-21 via diversion ditches. As such, all precipitation that falls within the footprint of the tailings impoundment from the crest of the dam inward will remain within the impoundment. Precipitation that may fall up-gradient of the impoundment will be diverted around and away from the impoundment. Therefore, the only opportunity for sediment production at the TSF will be from precipitation runoff from the outer slopes of the embankment. As shown on Figure 2-22, a lined runoff collection trench will be constructed at the toe of the dam at each phase of construction to capture surface water runoff from the outer slopes of the dam and route it to the underdrain collection pond located at the southeastern corner of the TSF as seen in the Figure cited above. The purpose of the underdrain collection pond, in addition to capturing and managing storm water runoff from the tailings dam, is to capture water from the dam underdrain and impoundment underdrain collection systems of the TSF. The collected water will be pumped to the process water reservoir discussed above for use in the process.

2.4.5 Sediment Management at Construction & Reclamation

BMPs will be used to limit erosion and reduce sediment in runoff from the Project facilities and disturbed areas during construction, operations, and reclamation. Sections 3.0 of the updated MORP and Section 5.0 of the Reclamation and Closure Plan discuss structural and operational BMPs that will be used to minimize erosion and control sediment. Disturbance will be limited to preserve existing vegetation to the maximum extent possible. Following construction activities, areas such as cut and fill embankments and GMSPs will be seeded as soon as practicable and safe. Revegetation of disturbed areas will reduce the potential for wind and water erosion. Concurrent reclamation will be utilized to the extent practicable to accelerate revegetation of disturbed areas. All sediment and erosion control measures will

be inspected periodically and repairs performed as needed. Additional details regarding BMPs will be included in the SWPPP permit required for mine construction and operation.

2.4.6 Non-Point Source Sediment Monitoring

As indicated above, Copper Flat is designed to be a zero discharge facility. As such, there are no non-point discharges that NMCC anticipates will require monitoring. However, NMCC will manage non-point sources to the extent they may occur during construction or reclamation with the use of BMPs including such things as seeding and mulching of disturbed areas, silt fences, straw bale check dams, diversion ditches with energy dissipaters, and rock check dams, as necessary. NMCC has submitted a proposed monitoring plan to the NMED (see Appendix E of the DP Application), pursuant to the requirements of the NMED Copper Rules and its proposed Discharge Plan. This plan has a surface water monitoring component proposed that NMCC will incorporate into this MORP update. Figure 2-27 identifies five (5) surface water quality sampling locations that will be monitored per the plan. NMCC believes this component of the DP monitoring plan will provide the information required by the Mining Act regulations.

The following mitigations address potential non-point source charge management as identified in the BLM DEIS for Copper Flat (BLM DEIS November 2015, p. 3-46):

- Prior to initiation of mine construction or other surface disturbing activities, NMCC will obtain a Multi-Sector General Permit for Storm water Discharges Associated with Industrial Activity and comply with all requirements of that permit.
- Prior to initiation of mine construction or other surface disturbing activities, NMCC will provide final designs for storm water diversion structures and other associated BMPs for review.
- The SWPPP and all associated inspection and maintenance records will be available for inspection upon request.

Because non-point source pollution is regulated by existing laws and regulations and NMCC must comply with those laws, potential effects to water quality from non-point source discharge of sediments are not considered to be significant.

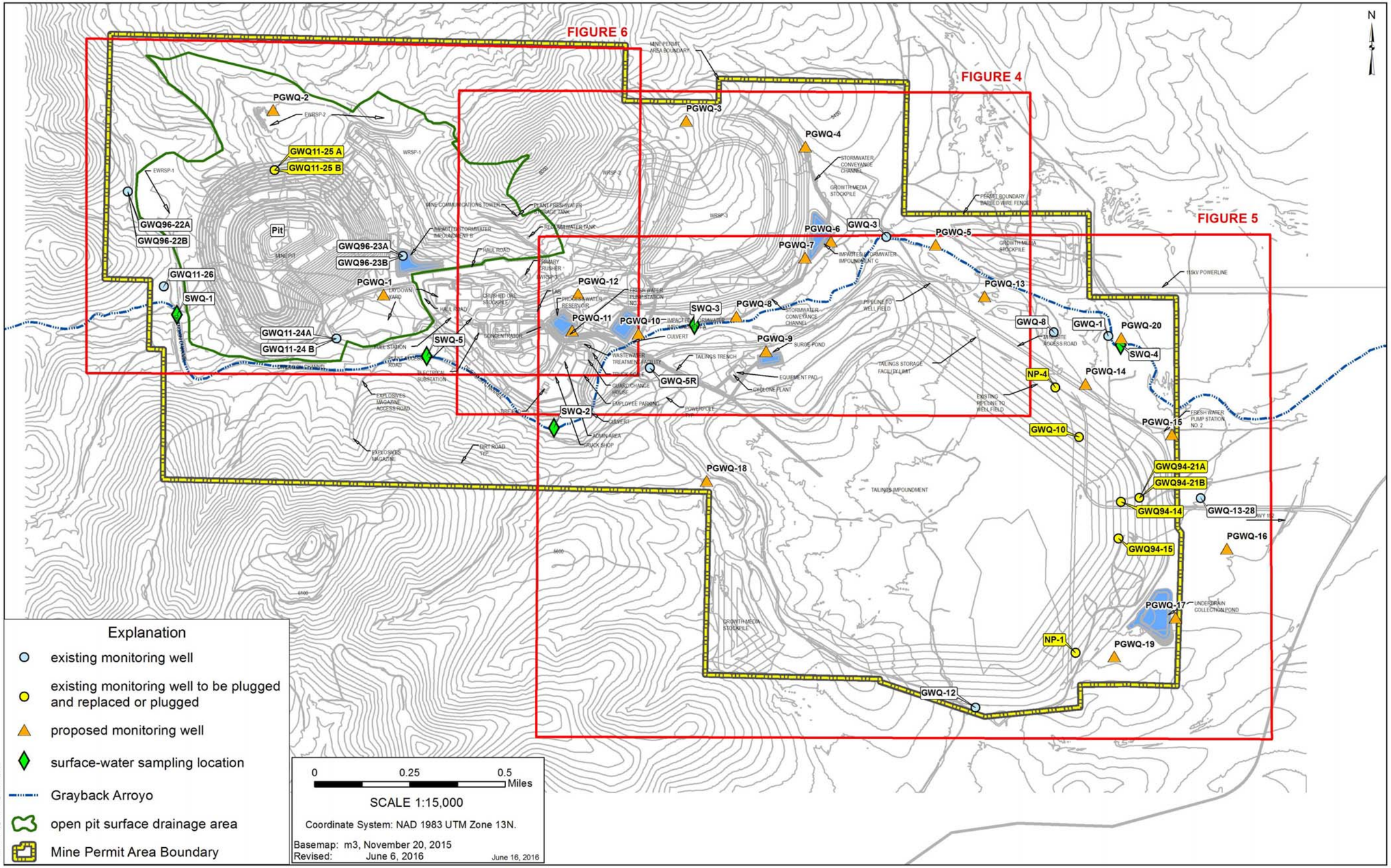


FIGURE 2-27: Proposed surface water quality monitoring locations.

2.5 Post-mining Land Use – 19.10.6.602.D.(15)(f)

The New Mexico Mining Act rules define Post-Mining Land Use (PMLU) as;

> *"a beneficial use or multiple uses which will be established on a permit area after completion of a mining project. The PMLU may involve active management of the land. The use shall be selected by the owner of the land and approved by the Director [of MMD]. The uses, which may be approved as PMLUs, may include agriculture, commercial or ecological uses that would ensure compliance with Federal, State or local laws, regulations and standards and which are feasible." 19.10.1.7. P. (5) NMAC.*

The Copper Flat Project will be developed and operated on a combination of federal land administered by the BLM and private land owned by NMCC. The current land uses of federal lands administered by the BLM in the area of the Copper Flat facility have been identified previously in BLM's 1986 White Sands Resource Management Plan (BLM 1986), e.g., grazing, wildlife habitat, recreation and mining.

Land use in the project area will not change from pre-mining approved purposes and the project area will continue to support these approved uses. As described in Appendix E, reclamation and closure of the disturbed area will result in post-mining land uses at Copper Flat that will be sustainable and in keeping with uses currently approved and in use. Mining, grazing, recreation and wildlife habitat are the designations consistent with the surrounding land uses of the Copper Flat site and are appropriate for the site upon reclamation. The Reclamation and Closure Plan is designed to re-establish grazing in the area and allow for long-term use of the reclaimed areas by wildlife known to historically use the area without affecting the potential for other uses such as mining and recreation.

At completion of mining activities, the site will be reclaimed to establish a native plant community similar to the surrounding area. NMCC's reclamation of the site will establish an enhanced native plant community in the area as much of the surrounding area not disturbed by the Copper Flat Project has been significantly disturbed by other historic activities. NMCC's reclamation will result in the development of an early-stage grass/shrub community that will provide a locally-important increase in plant community diversity. Establishment of native vegetation on reclaimed areas at Copper Flat will result in increased erosion protection and direct habitat improvement relative to current conditions.

While the aerial extent of the mine pit will be increased from its current size and, therefore, physically result in permanent loss of some grazing area and wildlife habitat, the vegetation enhancement resulting from reclamation of currently disturbed areas will greatly increase grazing potential and wildlife habitat. As such, there is expected to be a net gain for the land use of the area once reclaimed. In addition, the pit walls created by mining and the pit lake

that will form over time upon mine closure will provide enhanced avian wildlife habitat and a water source for transient wildlife. The pit water is known to be devoid of aquatic life and would not be expected to be a future source for aquatic habitat and in any case remain closed to the public as it will remain private land after mine closure.

With respect to the need to obtain approval from the landowner(s) of a post-mining land use, NMCC believes that no such approval is required in this case. The only two landowners of concern at Copper Flat are the federal government and the company. The company is committed to a reclamation and closure plan that re-establishes grazing and wildlife habitat land use of the site at closure. The BLM has approved land uses in its Resource Management Plan for the area. Approval of the Mine Operations Plan required by the BLM for NMCC's mining activities will constitute the approval by the BLM of NMCC's Reclamation and Closure Plan and its goal to return the land to its pre-mining use.

3.0 PROPOSED RECLAMATION PLAN – 19.10.6.602.D.(15)(g)

Appendix E, Mine Reclamation and Closure Plan, Copper Flat Mine, October 2016, prepared by Golder, provides the detailed description of how the disturbed area will be reclaimed to meet the requirements of 69-36-7(H)4 and the performance and reclamation standards and requirements of the Mining Act regulations. This Section of the MORP update is organized to provide the information requested in Sections 19.10.602.D.(15)(h) through(k) of the New Mexico Mining Act regulations and how the Reclamation and Closure Plan will meet the reclamation standards and requirements of 19.10.6.603 NMAC. The Reclamation and Closure Plan and associated design criteria conform to the reclamation requirements described 19.10.6.602.D.(15) NMAC and 19.10.6.603 NMAC, the closure requirements in the Copper Mine Rules (*Subsection A of 20.6.7.18 NMAC, 20.6.7.33 NMAC, 20.6.7.34 NMAC and 20.6.7.35 NMAC*) and applicable mine reclamation regulations set forth by the Bureau of Land Management (BLM) (3809.401(b)(3) and 3809.420(b)(3).

The objective of the Reclamation and Closure Plan is to reclaim and close the facility in a manner protective of ground water in conformance with the NM Copper Rules, meet the reclamation requirements of the New Mining Act and return the mine area to conditions similar to those present before reestablishment of the mine (BLM DEIS 2015, p. 2-34). Reclamation of the site will re-establish the post-mining land uses consistent with the land uses of the site and the surrounding area, i.e., wildlife habitat, grazing, mining and recreation as identified by the BLM in its approved Land Use Management Plan (BLM 1986).

The Reclamation and Closure Plan has been prepared to address the actions that will be undertaken to reclaim the Copper Flat site at the end of the life of the mine as a result of disturbance created by the previous mine operation conducted by Quintana and those caused by NMCC mining operations. Golder has identified the general setting of the Copper Flat Mine area as they currently exist (see Figure E2 of Appendix E) and the configuration of the site at the end of mine life (see Figure E3 of Appendix E). These figures provide the basis for the reclamation design presented in Appendix E. The reclamation designs are depicted in the drawing set provided in Attachment E1 of Appendix E. This Reclamation and Closure Plan describes contemporaneous reclamation that will be conducted, to the extent practicable, during mine operations, facilities to be reclaimed and closed following cessation of mining operations, and the components of the site that will remain post-closure, following completion of reclamation.

The plans and methods developed and presented in the Reclamation and Closure Plan represent detailed designs for reclamation of the facilities sufficient for agency review and approval. Construction design documents and construction quality assurance/construction quality control (CQA/CQC) plans will be prepared by NMCC for submittal to and approval by the

State of New Mexico within 180 days of submission of a notice of intent to implement the closure plan per the NMED Copper Rules (20.6.7.34.B, NMAC). The CQA/CQC plan will provide a detailed description of the work proposed to be performed to close the site and the final reclamation designs for the facilities to be closed. Post-closure monitoring activities will be conducted in accordance with Section 20.6.7.35 NMAC, and post-closure monitoring and maintenance requirements that may be contained in the Copper Flat Mine Permit.

3.1 Reclamation Schedule & Sequence – 19.10.6.602.D.(15)(h)

Section 4.0 of Appendix E provides the anticipated reclamation schedule and sequence for the Copper Flat Mine. In addition, Table 2-1 of this MORP update includes a summary of the sequence and schedule presented in Appendix E. The schedule is based on consideration of practical phasing of the reclamation projects to account for the anticipated labor, equipment and other resources that would be necessary to complete these projects based on current conditions, sequential closure of facilities in a phased cost efficient manner, and total annual acreages that would be reclaimed over this period. The anticipated durations for reclamation presented include earthwork and reseeding. The reclamation schedule is based on the number of years and months from the time NMCC obtains permit approvals to begin operations. Contemporaneous reclamation of EWRSP-1, EWRSP-2, and portions of EWRSP-4 will begin during the initial mine preproduction period.

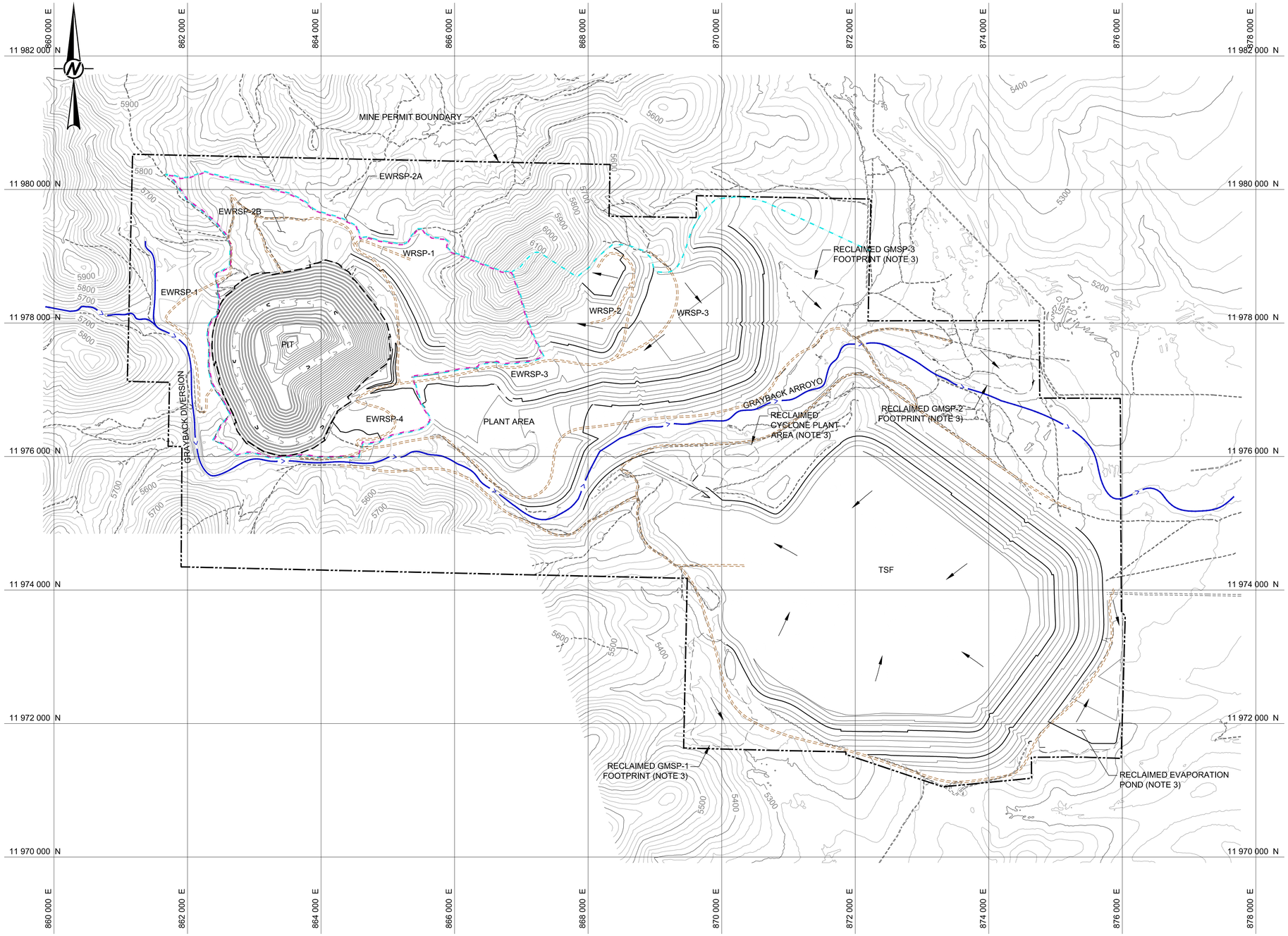
3.2 Reclamation Topographic Map(s) – 19.10.6.602.D.(15)(i)

Figure 3-1 presents the anticipated surface configuration of the permit area upon the completion of reclamation and closure operations. Appendix E contains a drawing package that provides additional detailed depictions of the reclaimed surface various facility units.

3.3 PAG after Reclamation – 19.10.6.602.D.(15)(j)

Generation of acid or other toxic drainage from overburden and waste materials following reclamation that could cause federal or state standards to be exceeded is very unlikely because of the manner in which the overburden and waste will be characterized and disposed of during operations, combined with the reclamation and closure measure that will be implemented as described in more detail in Appendix E. A description of NMCC's waste characterization and handling plan that will be utilized during operations is provided below. These operations practices have been taken into account in the Reclamation and Closure Plan design to ensure that acid generation or other toxic drainage from the site does not occur after reclamation.

NMMC submitted a proposed Mine Plan of Operations (MPO) for the Copper Flat Project in December, 2011 to the Las Cruces, NM office of the Bureau of Land Management (NMCC 2010).



GENERAL LEGEND

- 5400 — EXISTING GROUND CONTOURS - 20 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 20 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA) (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 4)
- GRADE INDICATOR
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- TSF — TAILING STORAGE FACILITY
- GMSP — GROWTH MEDIA STOCKPILE

NOTES

1. EXISTING GROUND TOPOGRAPHY WAS DEVELOPED BY COOPER AERIAL SURVEYS BASED ON JUNE 18, 2011 AERIAL SURVEY AND PROVIDED BY THEMAC RESOURCES.
2. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
3. FOOTPRINT OF FORMER GROWTH MEDIA STOCKPILES, CYCLONE PLANT AREA, AND EVAPORATION POND WILL BE GRADED TO APPROXIMATE SURROUNDING TOPOGRAPHY, RIPPED AND REVEGETATED.
4. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

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FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
E	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-13	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

SEAL

PRELIMINARY
FOR AGENCY REVIEW

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Golder Associates

TUCSON OFFICE
4730 N. ORACLE ROAD, SUITE 200
TUCSON, ARIZONA
UNITED STATES OF AMERICA
[+1] (520) 888 8818
www.golder.com

PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT
FINAL RECLAMATION TOPOGRAPHY

PROJECT NO.	CONTROL	REV.		FIGURE
1531453	0300	E	4 of 26	3-1

Path: \\tucson\cad\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-G-004.dwg

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This document, revised in June, 2011, was also provided to the NM MMD and the NMED for review and comment as part of the Environmental Impact Statement (EIS) that is currently being prepared by the BLM for the Copper Flat Project. Appendix C of the MPO contains a Mine Waste Management Plan for the waste rock which includes a plan for waste characterization and handling. MPO Appendix C also contains results of waste characterization work performed by SRK Consulting U.S. Inc. (SRK) in 1997 in support of an EIS that was being prepared at the time for mining activities proposed by Alta Gold Corporation.

In the intervening time since the MPO was first proposed by NMCC in 2010, the waste characterization portion of the plan was implemented. The results of this work have been submitted and discussed with the NM MMD and the NMED and is utilized in the design of the WRSPs described in the MORP update as well as NMCC's DP application.

NMCC will initiate the materials handling plan contained in Appendix C of the MPO, as ultimately approved by the BLM, NMED and other constituent agencies. Implementation of this plan will result in preventing the release of acid generating materials and other toxic drainage that cause federal or state standards to be exceeded following reclamation.

3.3.1 Waste Characterization

SRK performed extensive geochemical characterization studies in support of NMCC's proposed Copper Flat Project (SRK 2013). The resulting report and additional documentation requested by the NMED upon review of SRK's report represent NMCC's material characterization efforts to date and are incorporated into this application by reference.

SRK conducted a mine waste characterization program for the Copper Flat Project. The geochemical testing of mine waste materials provided the characterization required to determine the potential for Acid Rock Drainage and Metal Leaching (ARDML) from mining facilities. This provided the basis for a quantitative risk assessment and evaluation of the options for design, construction, operation, reclamation and closure of the tailings and waste rock disposal facilities.

The Copper Flat mine waste characterization program was designed to investigate the potential for ARDML due to exposure and oxidation of sulfide minerals, such as pyrite, that are unstable under atmospheric conditions. Upon exposure to oxygen and water, sulfide minerals will oxidize, releasing metals, acidity and sulfate. SRK's geochemical characterization investigated the potential for rock that will be exposed in the Copper Flat waste rock disposal facility and pit walls to generate acid and leach when exposed to the atmosphere. The results of the characterization program were used in quantitative numerical predictions to assess the potential future leachate chemistry associated with the mine facilities, specifically the waste rock stockpiles and the TSF.

SRK's investigation concluded that with respect to waste rock, acid generation is not anticipated to occur for most of the un-weathered waste rock materials during operations. SRK concluded that the acid generating potential of the Copper Flat materials, i.e., acid rock drainage (ARD), is largely dependent on the sulfide mineral content and that the sulfide concentrations in the material varied from less than analytical detection limits to a maximum of 2.52 weight percent (wt%) that was highest in the transitional waste material. Transitional material is the oxidized and partially oxidized surface rock material that overlies the fresh rock material below the surface. Where oxidation of this overlying material is complete, waste rock produced from it will be inert with respect to acid generation. Partially oxidized material occurs in a transition zone beneath the oxidized cover and the underlying un-oxidized material. This transitional material has been exposed to oxidizing conditions over geologic time. Such material will typically exhibit a low paste pH and high paste conductivity, and will be generally acid generating. Examples of this condition can be found in the exposed pit walls and where transitional waste material was deposited on the existing waste rock stockpiles.

SRK determined that 96% of the waste rock that will be produced at Copper Flat will consist of sulfide, non-oxidized Quartz Monzonite/Breccia waste, which typically exhibits either non-acid forming characteristics or a low potential for acid generation. Samples collected by SRK in their investigation from the surface of the existing waste rock stockpiles and pit walls indicated that there is some potential for acid generation from material mined by previous mining operations and exposed to natural weathering conditions. However, as indicated previously, most of the existing waste rock stockpiles will be reclaimed and the existing pit walls will be mined by NMCC's proposed operation.

3.3.2 Material Handling Plan

NMCC's proposed material handling plan is based, in part, on SRK's recommendations to minimize the potential for acid leaching from the waste rock stockpiles and tailings. Based on SRK's findings the materials that will be generated will have only a low potential for acid leaching, NMCC anticipates that it will, generally, not be necessary segregate waste rock. As described in Appendix C of the MPO, most of the waste rock produced by the operation will be low and high sulfide material with only small amounts of oxide and transitional material produced near the surface of the proposed pit expansion. Additionally, it should be noted that the terms "high sulfide" and "low sulfide" are terms relative to specific conditions at Copper Flat and, therefore, to each other. That is, at Copper Flat low sulfide material is defined as material having less than 0.5% sulfide and high sulfide material will have 0.5% sulfide or more. It is further noted that the Copper Flat ore body is a very low sulfide ore body in relation to other ore bodies in the region. The waste produced at Copper Flat will be primarily quartz monzonite and andesite and the ore will be primarily breccia. NMCC will implement a waste material classification program as described in Section 2.5 of the MPO. It is anticipated that the waste rock generated will oxidize very slowly and may only, potentially, produce acid over some

period of time. The acid rock ARD potential associated with un-oxidized waste rock is relative in the long-term. SRK determined that the waste rock can be considered as being inert with respect to ARD for a timeframe in the order approximately 20 years. Therefore, the vast majority of the waste material, i.e., about 96%, that will be generated at Copper Flat will generally have a low ARD potential. As indicated above, the transitional materials that have been exposed to oxidizing conditions over time have the most potential for acid generation.

Waste Material Classification

Section 2.6.2 of the MPO generally describes the general material handling approach the will be implemented at Copper Flat. The subsequent work conducted by SRK and presented in its May, 2013 Geochemical Characterization Report confirms the approach to be utilized. However, while the approach is generally the same as described in Appendix C of the MPO, there will be some aspects of material handling that may differ from the information provided therein as supported by the later findings of SRK's material characterization studies.

The overarching approach to waste rock material handling to control ARD will be to control the movement of water through the waste rock stockpiles, in combination with continual diligent monitoring and characterization of the waste materials produced to confirm SRK's conclusion that the majority of the material has a low ARD potential. As discussed in more detail below, NMCC believes that depositing the small amounts of material with high ARD potential; i.e., the transitional waste, when encountered, along with the large amounts of non-ARD materials will further reduce the potential for the ARD materials to create acid. The buffering capacity of the large volume non-transitional waste will neutralize the small volume transitional waste. Should field characterization reveal that more ARD materials than anticipated are being generated the materials handling plan will be adjusted to consider isolation, encapsulation and other means of treatment to mitigate the potential for acid generation. The non-transitional waste will be used as base material in any areas where it has been determined in the field that transitional material should be segregated. However, as a practical matter, under normal circumstances large volumes of non-transitional waste will typically be placed below, above, and all around the transitional waste produced.

SRK recommended in its May 2013 report that, during proposed operations, specific controls would be needed to collect storm water runoff from the waste rock stockpiles and that storm-water diversions would be required to prevent run-on. SRK also recommended that covering the waste rock stockpiles with a re-vegetated 36-inch cover at the end of mine life would reduce infiltration of water and flux of oxygen into the facility, and thus, limit oxidation of sulfide minerals. SRK also noted that migration of seepage from the waste rock stockpiles into the underlying bedrock would be anticipated to be very small, or nil, because of the low permeability of the andesite underlying the area. These recommendations have been incorporated into NMCC's design of its waste rock stockpiles.

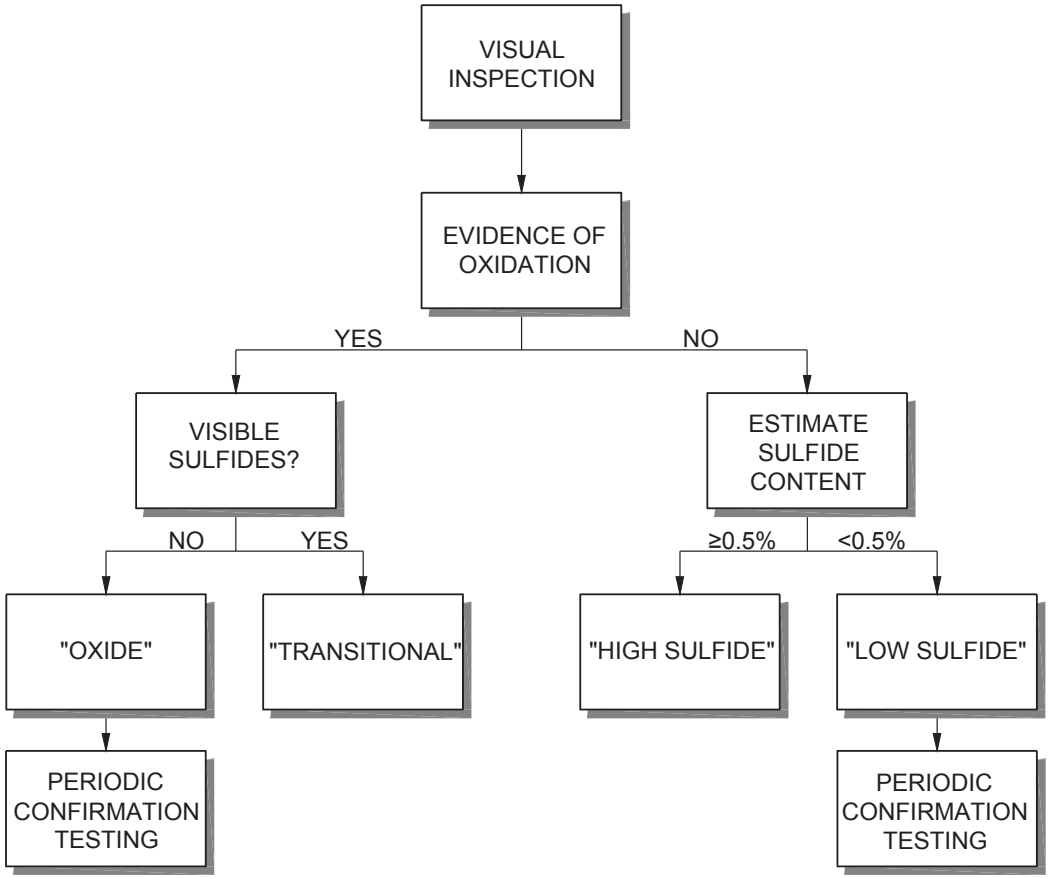
Figure 3-2 describes process that will be utilized in the NMCC's proposed waste classification program during operations. Following the evaluation path shown in Figure 3-2, a determination will be made as to classification, and periodic confirmation testing will be conducted. Confirmation testing will include a field testing program for representative samples of the cuttings, as determined by the qualified geologist or technician. The tests conducted will include paste pH, saturated paste conductivity, and acid base accounting testing (total sulfur, sulfate sulfur, and NP testing).

As described in more detail in Section 2.6.2.5 of Appendix C of the MPO, prior to blasting active benches in the open pit, the drill cuttings from each drill blasthole will be inspected. Blasthole drill cuttings will be visually inspected by a qualified geologist or trained technician prior to blasting and removal of the material from the pit. The rock type, color, degree of oxidation, sulfide content and other pertinent features will be noted and transferred to the bench plan maps. All material characterized as oxide or low sulfide waste will be sampled for confirmation testing. Material classified as low sulfide rock will be subject to periodic confirmation testing at a frequency initially on one confirmation test for each five blastholes designated as oxide waste rock. This frequency will be adjusted as ongoing testing and field observation continues to demonstrate consistent reproducible results supporting visual waste classification. NMCC anticipates a frequency of confirmation testing in the longer term to be one test for every 20 holes. Confirmation testing will be performed on-site using a Leco Furnace to evaluate the classification determinations made.

Waste Rock Flagging and Routing

Waste rock from the open pit will be examined as benches are mined to identify sulfide bearing transition material that may represent ARD potential. Specific procedures will be established by the mine operations team when preparing for startup. However it is anticipated that the procedures employed by the operation will be similar to the following description, which follows standard mine geology practices and methods. The operations team will develop full details after the team is assembled to begin startup of the mine. As requested by the state regulatory agencies, NMCC will meet with them as plans develop to discuss the plan and receive input prior to implementation.

The mine waste rock identification, flagging, and routing process will be similar to mine ore control procedures and the two processes will be completed simultaneously. Identification, digging plan design, field identification for operations, determination of destination and placement, and routing of ore and waste materials will be the responsibility of the mine technical services team, which typically includes geology engineering, and surveying disciplines.



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DESIGN	XXX
REVIEW	TS
APPROVED	XXX

PROJECT

NEW MEXICO COPPER CORPORATION
COPPER FLAT PROJECT
SIERRA COUNTY, NEW MEXICO

TITLE

WASTE CLASSIFICATION FLOWCHART

PROJECT No.	PHASE	Rev.	FIGURE
153-1453	0006	1	3-2

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The mining and ore/waste classification cycle begins with blasthole drilling. At Copper Flat, all benches mined will require blasting; therefore all areas mined will be drilled on a regular grid pattern across the full width and length of each bench. Each blasthole will be assigned a unique identification number (ID) for data tracking, and each will be surveyed and plotted onto a blasthole location map that is spatially tied to a three dimensional (3D) model of the mine geology. As holes are drilled and surveyed, the ID and survey coordinates of each blasthole will be logged into a blasthole data base. After drilling, and before blasting, the geology of the bench surfaces and exposed mine faces will be examined for key geologic parameters and the geology mapped to the same scale as the blasthole maps. The blasthole cuttings will be visually examined to determine rock type, sulfide content, and oxidation level and samples taken for laboratory analysis. Data from field examinations will be logged into the blasthole data base and plotted onto the blasthole map, with the analytical results added to the maps and the database upon receipt from the laboratory. When the geologic and analytical data for a specific area is complete, the technical services team will develop ore and waste zone boundaries and identify material types that are subject to a specific routing plan, such as for ore transport or transport of potential ARD material to the WRSP. The boundaries and material designations will be transferred back to the blasthole maps and survey coordinates produced for identifying material boundary lines in the field.

After blasting, and before excavation begins, the material boundary lines will be established on the top of the broken rock by survey, and the broken rock visually examined again to determine if any field adjustment in classification is needed. Field adjustments will be transferred to the blasthole maps for record keeping. Even after having been blasted, the area will be closed to excavation and material removal until all data is received and the “dig plan” is finalized by the technical services team. When an area is opened for excavation of material, the specific ore and waste boundary lines will be visually identified on the top of the broken rock and specific material types designated with color coded flagging. Copies of the blasthole maps showing the corresponding material types and boundaries will be provided to the mine equipment operators for reference during material removal.

As excavation proceeds, the loader operators will selectively excavate specific ore or waste material types following the dig plan established by the technical services team. Each haul truck will be loaded with only the one type of material designated. After loading, the loader operator will communicate the material type to the truck operator through an established signal system. The material type loaded into the truck will designate a pre-determined destination for the load. The truck operator will track loads by material type and destination and the load information will be compiled and maintained by mine staff for reporting.

Transitional Waste Material Disposal

Section 2.6.2.2 of Appendix C of the MPO provides that material classified as "transition waste" will be isolated in a waste rock stockpile area and covered with a minimum of six feet of "non-transition" material. SRK's investigation determined that the transitional material to be excavated will be less than 4% of the total volume of waste produced from the operation. SRK's analysis was performed prior to development of the mine plan proposed in this MORP update for Copper Flat, NMCC's DP application and Alternative 2 of the DEIS. Review of the most recent geologic model and the mine plan indicates that transitional material will still be produced at the same ratio relative to non-transition waste as determined during the SRK investigation.

NMCC anticipates that the transitional waste will be produced in the first 8 years of operation (approximately 5.4 million tons), with about half of it produced in the first 2 years. Some of this material will be disposed of in WRSP-1, which located in the OSPDA. The remainder will be disposed of in WRSP-2 and 3. During the same two years as much as 5.2 million tons of non-transitional acid neutralizing waste material, will also be produced. Some of this acid neutralizing material will be used as neutralizing material for those areas where transitional material may be deposited. NMCC will lay a minimum 10 ft. of base of non-transitional waste underlying the area where transitional material will be deposited in the WRSPs and ensure that at least 10 feet of non-transitional waste surrounds the transitional waste in such a manner that the transitional waste is not exposed to oxidation.

The remaining approximate 2.6 million tons of transitional material will be produced over years 3 through 8 at an average rate of approximately 433 thousand tons per year while at the same time about 27.6 million tons, an average of 4.6 million tons of acid neutralizing non-transitional waste will be produced. As such, the greatest volume of waste material generated, by far, will be classified as un-oxidized high sulfide and/or un-oxidized low sulfide waste. As confirmed by SRK's waste rock characterization investigations, this material poses a low level, short-term risk for ARD. While NMCC considers it unnecessary, and perhaps to some extent, contrary to the desire to minimize potential acid generation, to isolate and concentrate that material in one area, NMCC will continue to identify potential ARD generating waste during operations and take steps to establish disposal areas within the WRSPs for this material ensuring that a minimum of 10 ft. of non-transitional acid-neutralizing waste surrounds the transitional waste within the WRSPs where the potential ARD generating material will be deposited. As a practical matter, NMCC will ensure that non-transitional material is placed below, above and all around the transitional material wherever possible, providing a thick neutralizing "blanket" around the transitional material.

Quality assurance testing will also be performed in addition to the daily field sampling. Up to 10 archived blasthole samples will be randomly selected and subjected to paste pH, saturated

paste conductivity, and acid base accounting testing (total sulfur, sulfate sulfur, and NP testing). The testing will be performed by a third-party independent state approved laboratory. The samples will be classified with respect to ARD potential on the basis of NP/AP ratio. The samples will be located on the appropriate bench plan maps and the quality assurance test classifications will be compared to the operational waste classification designations.

SRK has performed significant kinetic testing of waste materials since the time of submittal of the MPO. Humidity cell testing results were first reported to NMED in SRK's May, 2013 report. Continued and more extensive humidity cell results were reported to NMED in February, 2014 in an SRK report titled "Humidity Cell Termination Report for the Copper Flat Project, New Mexico." These documents are included in this MORP update by reference. As indicated earlier in this document, these studies provide the basis for NMCC's mine waste characterization and handling plans.

At the end of the mine life the waste rock stockpiles will be reclaimed in accordance with the approved Reclamation and Closure Plan. As determined by SRK the majority of the waste rock materials can be categorized as being inert from the standpoint of acid generation for about twenty years before beginning to develop ARD potential if left uncovered. The anticipated life of the mine is 11 years. The waste rock stockpiles will be covered with a minimum of 3 ft. of soil. Therefore, covering the waste rock stockpiles with a minimum of 3 ft. of soil will mitigate the potential for acid generation and impacts to groundwater.

3.4 Contemporaneous Reclamation – 19.10.6.602.D.(15)(k)

The concept of operating for closure and contemporaneous reclamation are means by which NMCC will strive to reduce erosion, provide early impact mitigation, limit costs and reduce final reclamation work. NMCC is committed to maximizing these concepts at the Copper Flat Project where feasible. It has designed mine facilities to employ contemporaneous reclamation to the extent appropriate and practicable. Re-contouring, placement of cover materials and revegetation will be implemented, where and when operational conditions permit in areas where mine operation activities are discontinued.

Contemporaneous reclamation is integrated into the design and construction of the Copper Flat facilities, in particular, the WRSPs. The WRSPs will be constructed in their final configurations with the first lift built to occupy the projected footprint of each stockpile. All sequential lifts will be set back to facilitate final out-slope grading and accommodate inter-bench slopes and cross bench drainages as discussed in more detail in the Reclamation and Closure Plan. As each lift is completed, any portion not needed for access to other lifts will be regraded, covered and revegetated as soon as practicable. The top surface of each lift of the WRSPs will also be

constructed to a minimum final grade of 1 percent to minimize the final grading operations and achieve positive drainage.

As discussed earlier, at Copper Flat there are several existing waste rock stockpiles (EWRSP-1, 2A and 2B, 3 and 4, see Figure 2-14, that were generated by Quintana during previous operations. NMCC has incorporated these EWRSPs into its contemporaneous reclamation efforts. EWRSP-1 and 2B will be reclaimed during operations as discussed previously and described in the Reclamation and Closure Plan.

EWRSP-2A will be incorporated into new WRSP-1 during operations as it is constructed.WRSP-1 will be reclaimed per the Reclamation and Closure Plan. EWRSP-3 will be incorporated into the process plant facility during operations. As such, it will be reclaimed along with WRSP-1 at the end-of-life of the project. EWRSP-4 will be re-contoured and utilized as a laydown area during operations and will be reclaimed at the end of mining. However, the side-slopes of EWRSP-4 will be reclaimed during operations as described in the Reclamation and Closure Plan to mitigate against potential surface water impacts to Grayback Arroyo.

Opportunities for contemporaneous reclamation of the TSF are limited as they could interfere with operations and could jeopardize dam safety. However, during operation of the TSF, management of tails deposition while constructing the embankment will assist in achieving the desired outslope grade to accommodate final reclamation grading. Also, in the later operational period of tailings deposition, discharge of tailings from selected locations will be used to relocate the supernatant pool to a location adjacent to the location of what will be the post-closure spillway. This will reduce grading requirements and limit earthmoving operations in areas where working conditions can be more challenging due to the presence of soft and saturated tailings. Tailings discharge may also be used to create nominal surface topography on the final top surface that will assist with developing a final drainage pattern.

NMCC may also decommission some access roads and other ancillary facilities prior to final mine closure when determined to be no longer needed for mine operations.

4.0 PERFORMANCE & RECLAMATION STANDARDS & REQUIREMENTS – 19.10.6.603

The Reclamation and Closure Plan described above and in Appendix E has been developed to meet the site-specific characteristics of the mining operation and the site. As indicated herein previously, the current land uses in the area of the Copper Flat facility have been identified by the BLM to include activities such as grazing, wildlife habitat and mining. Reclamation of the disturbed area will result in post-mining land uses at Copper Flat that will be sustainable and in keeping with previous historic uses. Aside from mining, grazing, wildlife habitat, and recreation are the designations consistent with the surrounding land uses of the Copper Flat site and are appropriate for the site upon reclamation. The Reclamation and Closure Plan is designed to re-establish grazing in the area and allow for long-term use of the reclaimed areas by wildlife known to historically use the area without affecting the potential for other uses such as mining and recreation. This section describes how the Copper Flat operation will meet the performance and reclamation standards and requirements of the Mining Act rules and the NMED Copper Rules closure requirements.

4.1 Most Appropriate Technology and Best Management Practices- 19.10.603.A

NMCC has designed its operations and reclamation plans to protect human health and safety, the environment, wildlife and domestic animals using Most Appropriate Technology (MAT) and Best Management Practices (BMPs). MAT in mine operations is understood as the selection and application of the most suitable mining technology to achieve the intended purpose while reducing impacts to the environment. The selection of a MAT is typically accomplished in mine feasibility studies that evaluate mining technologies, processes and operating methods. The Copper Flat Project has been designed and will be operated using both MAT and BMPs based on site-specific technical and economic feasibility. Mining technologies, processes and operating methods proposed by NMCC are provided in Section 2.0.

BMPs are defined as any program, technology, process, siting criteria, operating method, measure or device, which controls, prevents, removes or reduces impacts to the environment. BMPs are accepted, effective and practical methods including structural or engineered control devices, systems and materials as well as operational or procedural practices used to prevent or reduce environmental impacts of ground disturbing activities. NMCC will meet or exceed applicable state and federal reclamation requirements through application of MAT and BMPs. NMCC has designed its operations and reclamation plans to use the most appropriate technology for an open pit mine operation. Structural BMPs will be used to limit erosion and

reduce sediment in precipitation runoff from proposed Project facilities and disturbed areas during construction, operations and reclamation. These structural BMPs will include:

- Surface stabilization measures such as dust control, regrading, mulching, riprap, temporary and permanent revegetation/reclamation and placing growth media;
- Run-on and runoff control and conveyance measures such as hardened channels, runoff diversions; and
- Sediment traps and barriers such as check dams, grade stabilization structures, sediment detention, sediment/silt fence and straw bale barriers.
- Apply water to control dust on haul roads and other disturbance areas;
- Interim seeding of stockpiles and surface disturbance areas;
- Use of certified weed-free mulch and native plant seed sourced from the same region and vegetative community types, when possible, if available;
- Cleaning heavy equipment before entering the mine area; and
- Noxious weed monitoring and treatment.

BMPs will be employed at appropriate locations during mine construction, operation and reclamation phases of the project and structures will be inspected periodically, with repairs performed as needed. NMCC will limit disturbance and preserve existing vegetation to the maximum extent possible. Additional details regarding structural and operational BMPs will be included in the SPCC plan and the SWPPP permit required for mine operation.

4.1.1 Hydrologic Investigations at Copper Flat

Utilization of MAT and BMP to protect ground water and surface water is the dominant theme in design, operation and reclamation at Copper Flat as it is the medium of greatest concern with respect to potential for environmental impact. As such, all facets of the operation have been designed to ensure water resource protection during operations and following reclamation. NMCC and its water resource consultant, John Shoemaker & Associates (JSAI), have conducted extensive hydrologic investigation of the Copper Flat site and the surrounding area in support of NMCC's permitting activities for the project. These activities include supplementing the NMCC Abatement Plan previously submitted to NMED and the BDR submitted to NMED and NM MMD, providing detailed analysis for the BLM EIS and supporting various requests for information by the NM OSE.

NMCC has previously submitted to the various agencies, including NM MMD and NMED, JSAI's document titled "Model of Groundwater Flow in the Animas Uplift and Palomas Basin, Copper Flat Project, Sierra County, New Mexico, August 2014" (JSAI 2014c). This document, the subsequent review documentation provided by NMCC and JSAI are, therefore, incorporated into this MORP update by reference. The following information is a synopsis of the volumes of information provided in the groundwater model documentation in an effort to provide specifics

as required by the NMED Copper Rules and NMCC's Discharge Plan application and has been utilized in determining MAT for the site.

General Hydrogeologic Setting

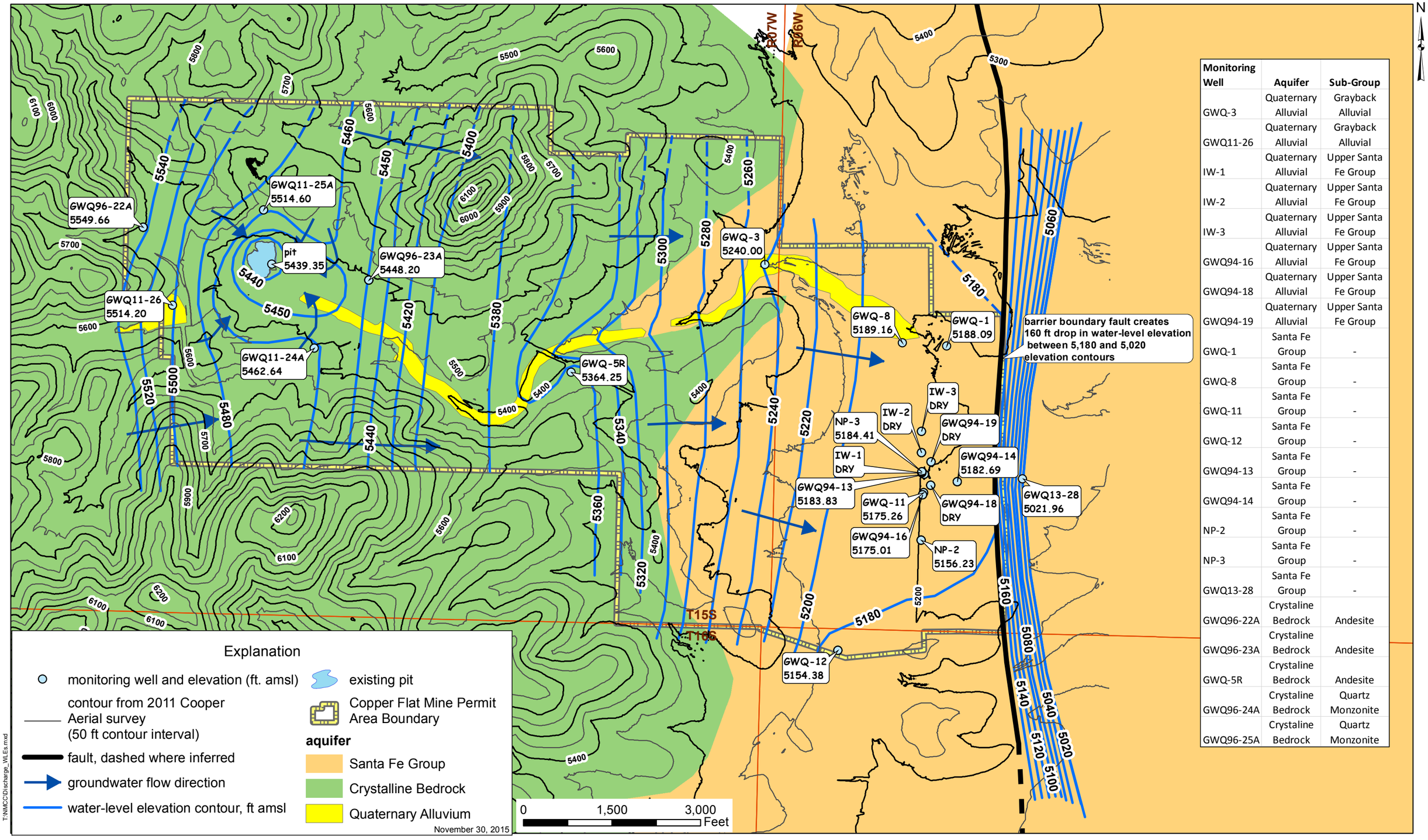
The Copper Flat facility will be located in area that includes the following water-bearing formations within the Animas Uplift: crystalline bedrock (andesite and quartz monzonite) in the western part of the mine permit area, Santa Fe Group sedimentary deposits in the eastern part of the mine permit area, and alluvium of upper Grayback Arroyo overlying the crystalline bedrock and Santa Fe Group in the mine permit area. Figure 4-1 presents the water-bearing formations at the facility, potentiometric surface contours and direction of groundwater flow, selected monitoring wells, and topography. Figure 4-2 presents a geologic map of the facility and surrounding area, and transects of hydrogeologic cross-sections.

Groundwater flow is mainly from west to east in the mine permit area, with groundwater discharging from the crystalline bedrock as subsurface flow across the contact with the Santa Fe Group, and as evaporation from the open pit. Monitoring wells designated as "dry" in Figure 4-1 are shallow wells installed to depths of less than 60 ft. in the Upper Santa Fe Group.

The potentiometric surface contours in the vicinity of the existing open pit shown in Figure 4-1 demonstrate the open pit to be hydraulic sink. Cross-sections PA-PA' and PX-PX' presented in Figures 4-2, 4-3 and 4-4 show groundwater flow in the crystalline bedrock in the vicinity of the open pit. Hydrogeologic cross-sections presented in Figure 4-2 (i.e., TA-TA' and TB-TB') and Figures 4-5 and 4-6 depict the Upper Santa Fe Group in the mine permit area. The crystalline bedrock at the facility is relatively impermeable and groundwater recharge from local precipitation to the crystalline bedrock is limited by low hydraulic conductivity. The groundwater system at the facility conducts little water, and the eastern mine permit boundary generally coincides with the East Animas Fault, shown in Figures 4-1 and 4-2, which acts as a barrier to groundwater flow.

A portion of the original Grayback Arroyo watershed within the mine permit area now drains to and includes the open pit. Grayback Arroyo is an ephemeral drainage in the mine permit area. However, groundwater levels are close to the surface, and there can be base flow discharge to Grayback Arroyo following wet periods. The cross-section A-A', presented in Figures 4-2 and 4-7, show the alluvium of upper Grayback Arroyo overlying the crystalline bedrock and Santa Fe Group in the mine permit area.

The Copper Flat porphyry copper-molybdenum deposit is hosted by the Cretaceous quartz monzonite in the western part of the mine permit area (Figure 4-2). Faults to the north and south of the mine permit boundary juxtapose the andesite with older, Paleozoic sedimentary rocks. The eastern mine permit boundary generally coincides with the East Animas Fault, which



Monitoring Well	Aquifer	Sub-Group
GWQ-3	Quaternary Alluvial	Grayback Alluvial
GWQ11-26	Quaternary Alluvial	Grayback Alluvial
IW-1	Quaternary Alluvial	Upper Santa Fe Group
IW-2	Quaternary Alluvial	Upper Santa Fe Group
IW-3	Quaternary Alluvial	Upper Santa Fe Group
GWQ94-16	Quaternary Alluvial	Upper Santa Fe Group
GWQ94-18	Quaternary Alluvial	Upper Santa Fe Group
GWQ94-19	Quaternary Alluvial	Upper Santa Fe Group
GWQ-1	Santa Fe Group	-
GWQ-8	Santa Fe Group	-
GWQ-11	Santa Fe Group	-
GWQ-12	Santa Fe Group	-
GWQ94-13	Santa Fe Group	-
GWQ94-14	Santa Fe Group	-
NP-2	Santa Fe Group	-
NP-3	Santa Fe Group	-
GWQ13-28	Santa Fe Group	-
GWQ96-22A	Crystaline Bedrock	Andesite
GWQ96-23A	Crystaline Bedrock	Andesite
GWQ-5R	Crystaline Bedrock	Andesite
GWQ96-24A	Crystaline Bedrock	Quartz Monzonite
GWQ96-25A	Crystaline Bedrock	Quartz Monzonite

FIGURE 4-1: Water bearing formations, Copper Flat Mine, Sierra County New Mexico.

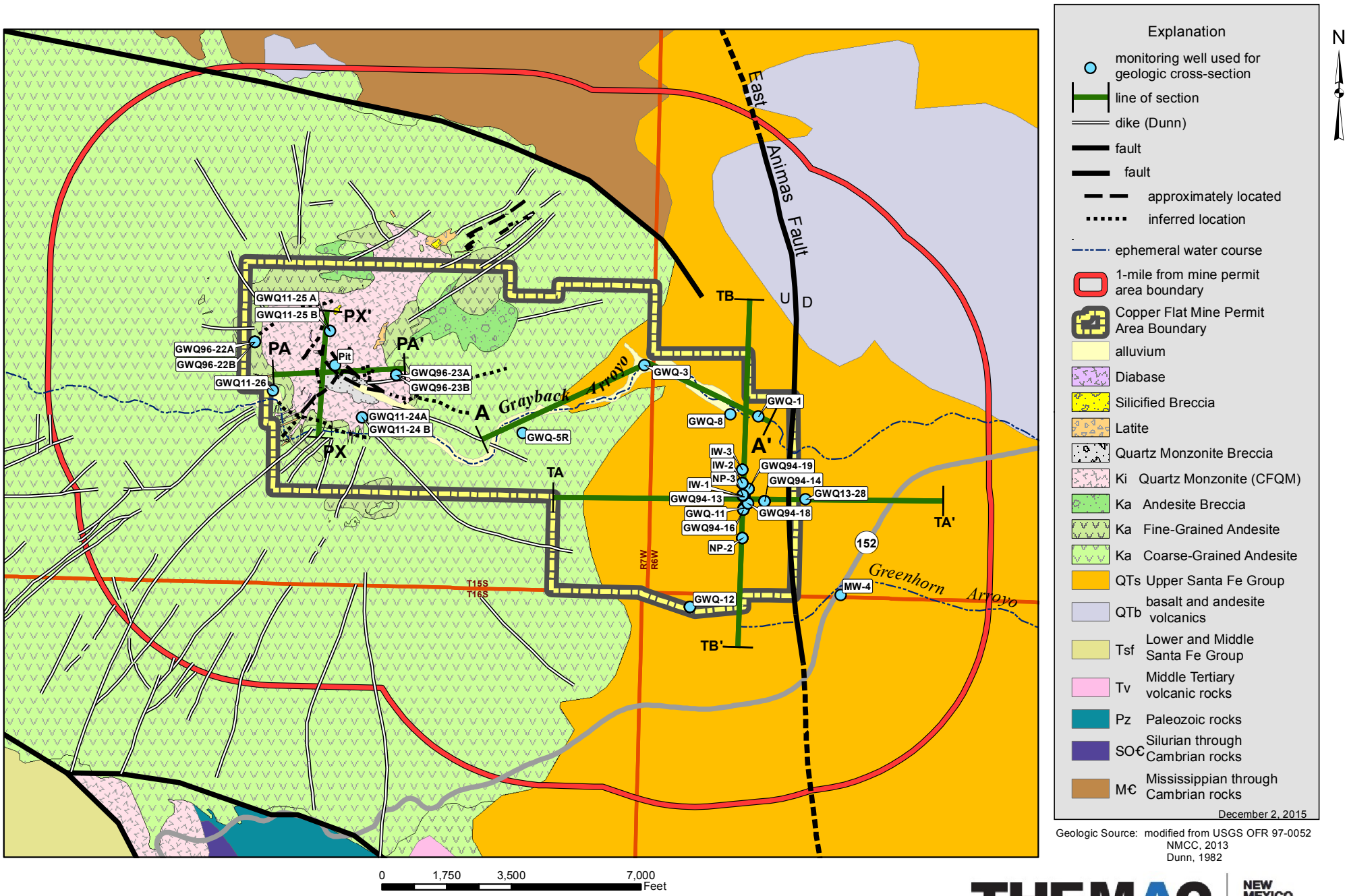


FIGURE 4-2: Mine site geologic map, Sierra County, New Mexico.

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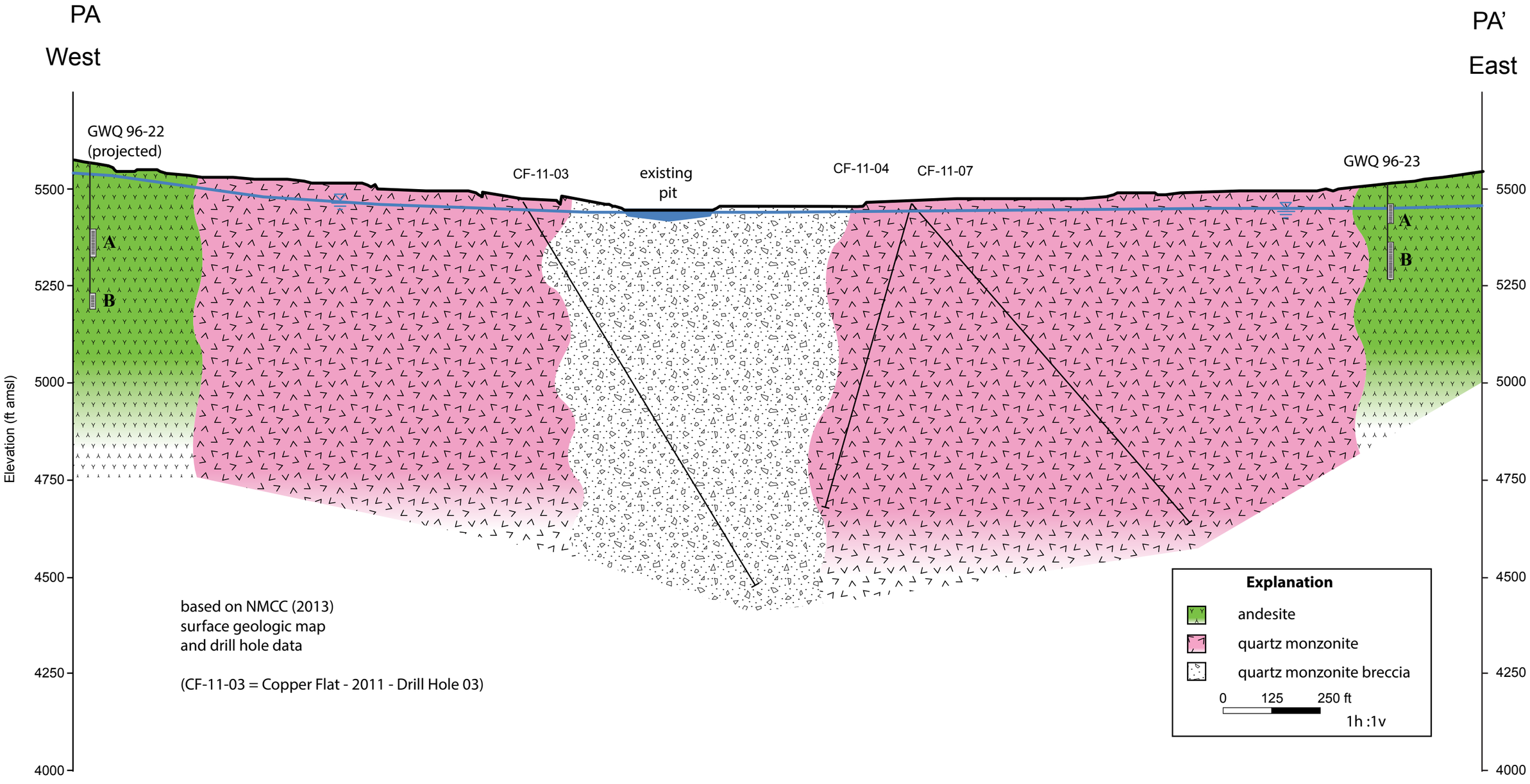


FIGURE 4-3: Hydrogeologic cross- section PA-PA'. Copper Flat Mine, Sierra County, New Mexico.
(Reference Figure 4-2)

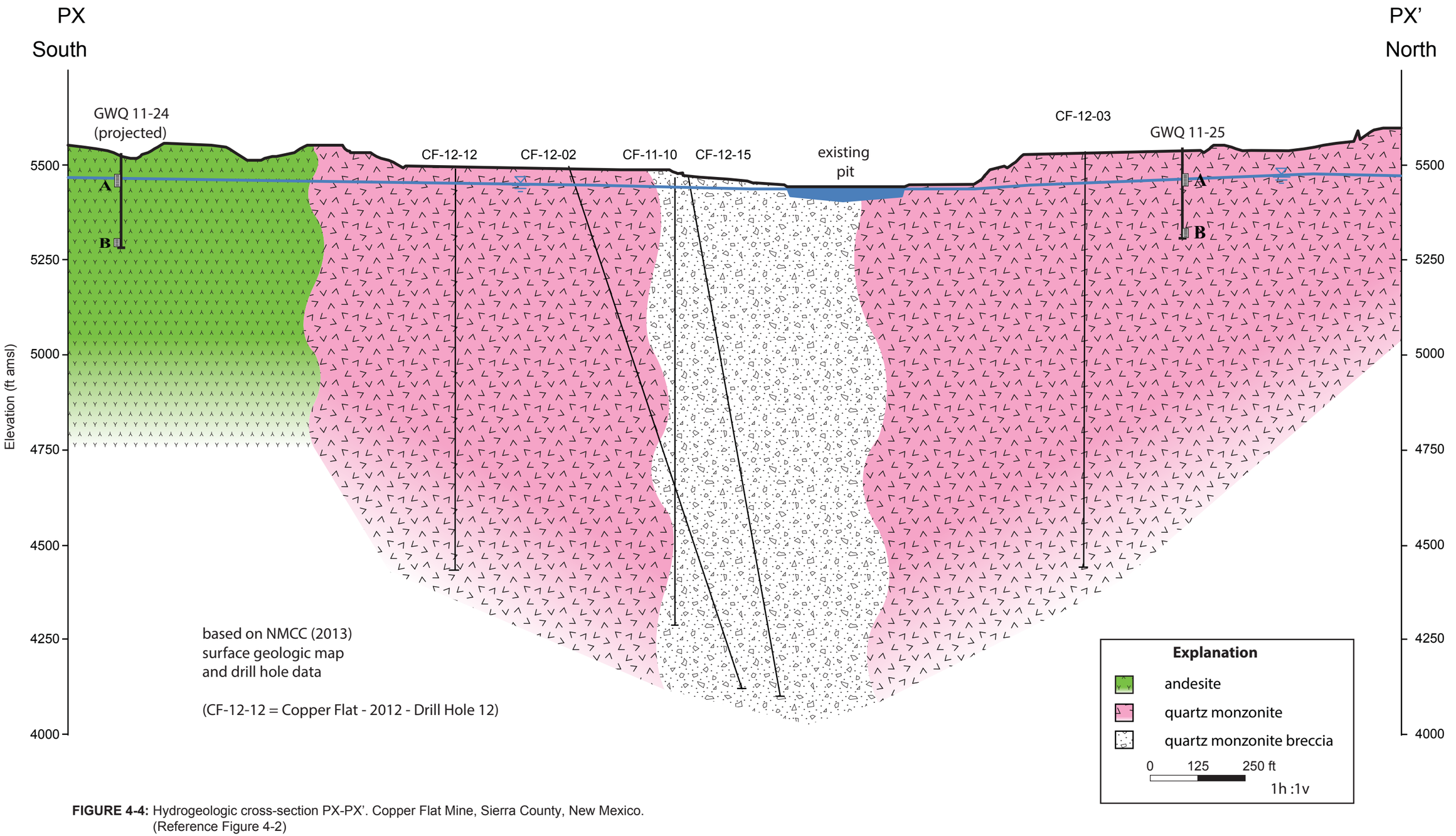


FIGURE 4-4: Hydrogeologic cross-section PX-PX'. Copper Flat Mine, Sierra County, New Mexico. (Reference Figure 4-2)

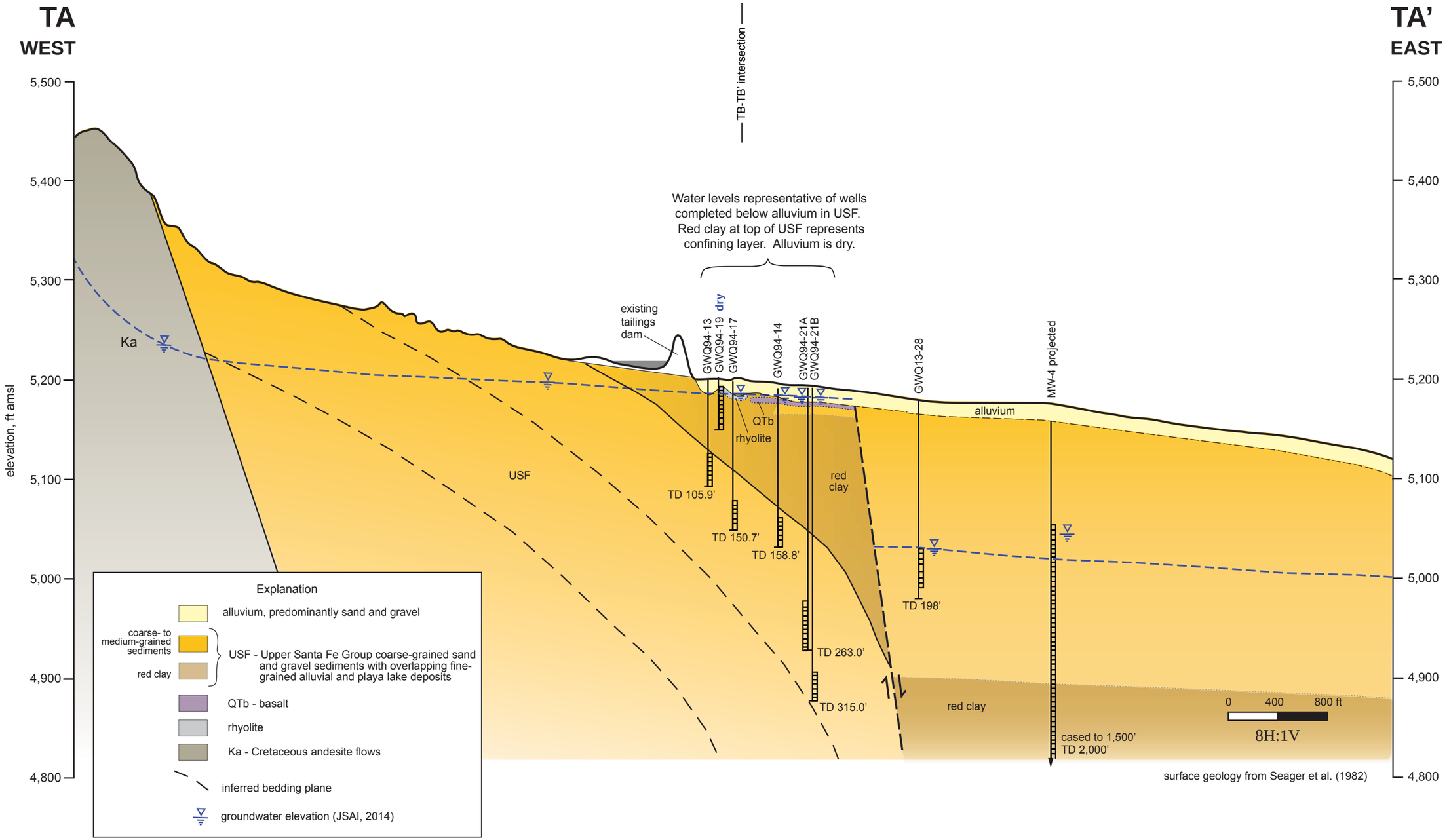
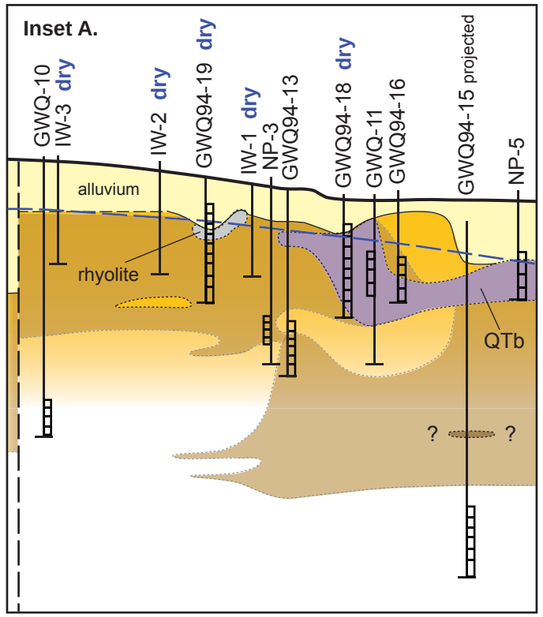
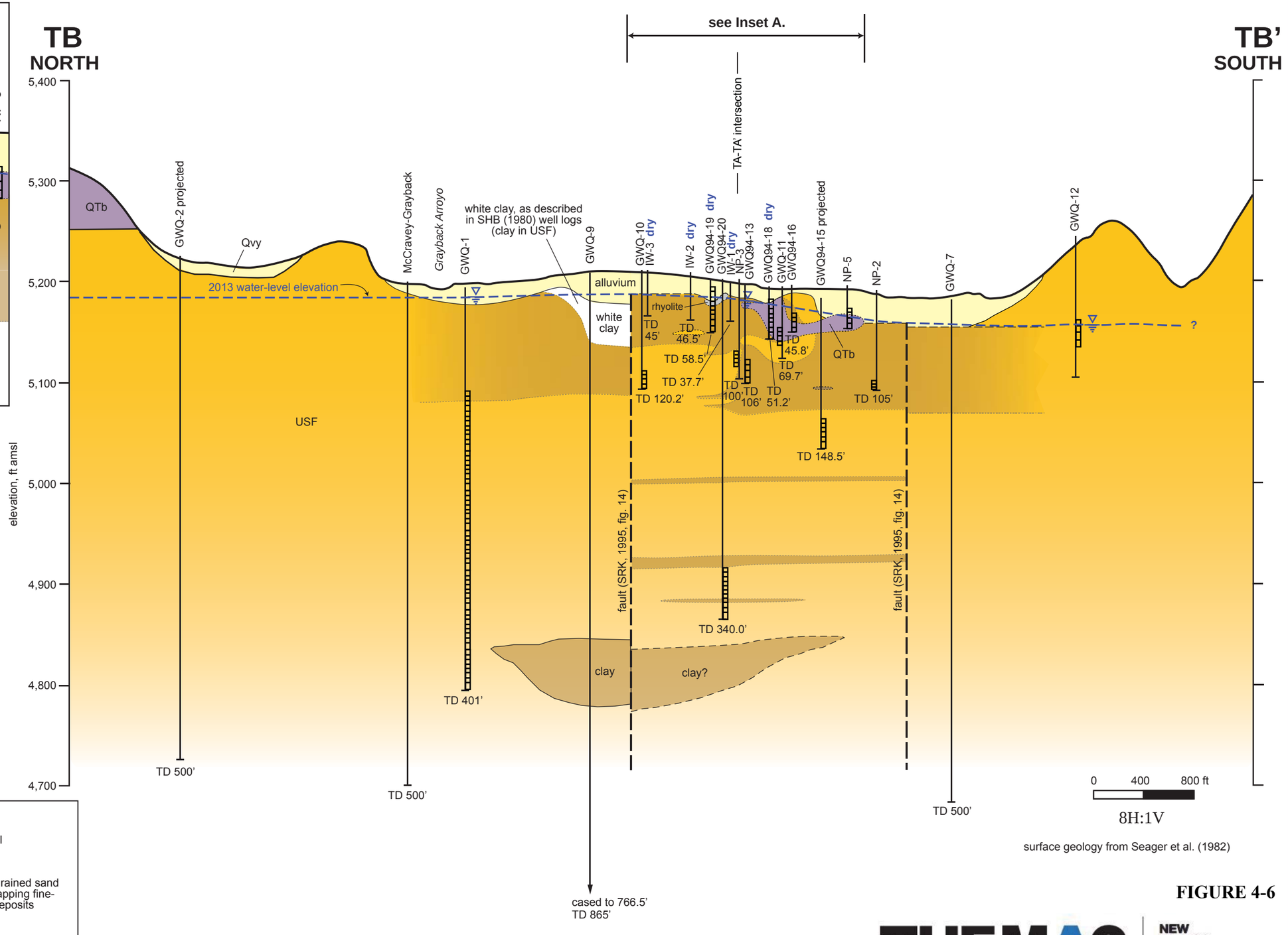


FIGURE 4-5: West to east geologic cross-section TA-TA' through the tailings storage facility (TSF) area, Copper Flat Mine, Sierra County, New Mexico. (Reference Figure 4-2)

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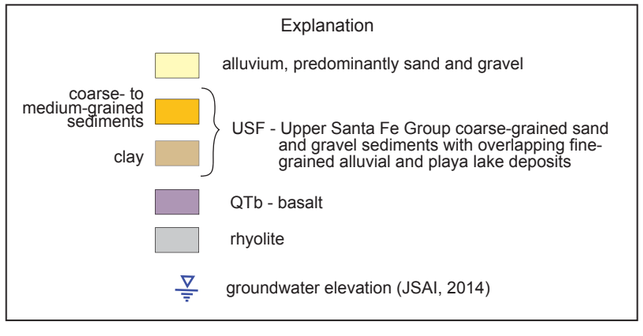


FIGURE 4-6

FIGURE 4-6: North to south geologic cross-section TB-TB' through the tailings storage facility (TSF) area, Copper Flat Mine, Sierra County, New Mexico.
(Reference Figure 4-2)

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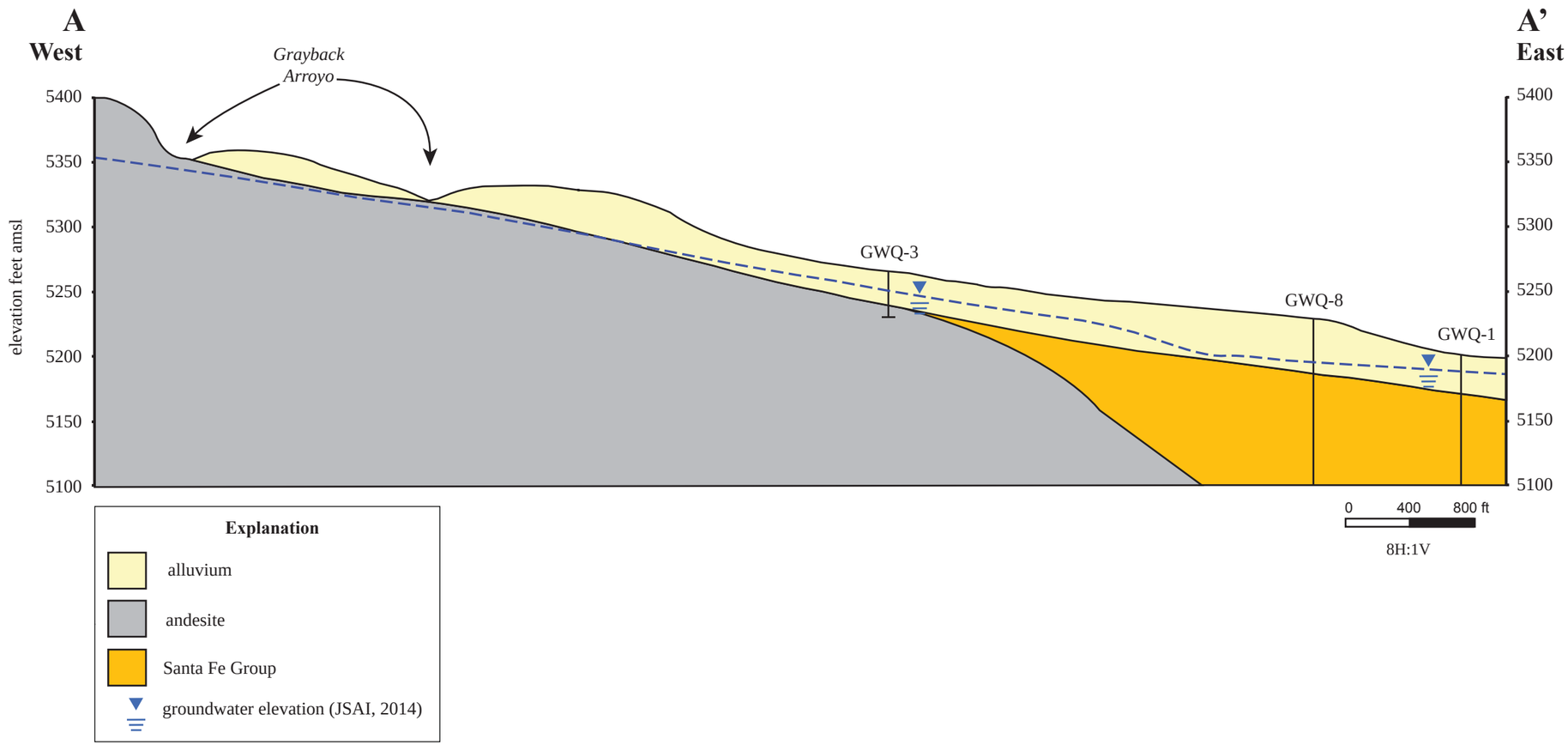


FIGURE 4-7: West to east geologic cross-section along Grayback Arroyo, Copper Flat Mine, Sierra County, New Mexico. (Reference Figure 4-2)

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defines the eastern edge of the Animas Uplift. The Santa Fe Group deposits in the mine permit area are located west of the East Animas Fault. As indicated above, Figures 4-5 through 4-7 present hydrogeologic cross-sections showing geologic formations, water-bearing formations, and groundwater depths.

Most of the precipitation that recharges the groundwater system at the facility originates in the upper part of the watersheds to the west of the mine permit area. The main groundwater systems in the region are found in Santa Fe Group sedimentary deposits downstream of the mine permit area, with groundwater conveyed through more permeable Paleozoic sedimentary rocks located to the north and south of the facility. Runoff from Grayback Arroyo infiltrates the Santa Fe Group sedimentary deposits downstream of the mine permit area.

4.1.2 Implementation of MAT and BMPs at Copper Flat

Table 4-1 presents a summary of the potential sources of water constituents, discharge types, and locations at Copper Flat. Figures 2-2 and 2-14 show the locations of the potential sources during operations. The potential pathways for migration of constituents to ground water identified in Table 4-1 could potentially source from direct infiltration into the water bearing formations, release of fluids to the surface, or run-on and runoff of precipitation through and off of the site. NMCC has designed the Copper Flat facilities to maximally incorporate MAT and BMPs to protect human health and the environment based on site-specific technical and economic feasibility as discussed below.

Tailings Storage Facility (TSF)

The TSF will be a lined impoundment with an associated underdrain collection system and underdrain collection pond for the impoundment and the dam. It will also include a water reclaim or recycle system to increase water reuse. The TSF also includes a cyclone plant to separate the tailings coarse and fine fractions and a surge pond to handle potential upset conditions at its Copper Flat Project. The location of the proposed new TSF is shown in Figure 2-2. Appendix A provides the technical design detail for the TSF. The TSF will be constructed using the coarse tailings sands materials produced from processing the ore for its mineral content. Whole tailings material will be transported via a pipeline from the processing facility to the TSF and delivered to the cyclone plant where sands and slimes fractions will be separated. The coarse or sand fraction of the tailings, or cyclone underflow, will then be pumped to the TSF for use in construction of the dam. The slimes or fines fraction of the tailings, or cyclone overflow, will be pumped to the TSF and deposited in the impoundment that will form behind the dam. Storm water run-on will be diverted around the tailings impoundment as shown in Figure 2-21. The diversion ditches are designed to be able to safely pass the peak flow generated by the 100-year storm event. The tailings impoundment will be lined with an 80-mil HDPE, or equivalent liner, placed on a minimum 12-inch thick liner

TABLE 4-1 Potential Sources of Water Constituents, Discharge Types, and Locations		
Potential Source	**Discharge Type**	**Source Location**
Tailings Storage Facility (TSF)	Tailings, process water and impacted storm water	Southeast area of site
TSF cyclone plant surge pond	Tailings	Southeast area north of TSF
Tailings slurry pipeline conveyance	Tailings	Process Area to TSF Permit Area Boundary
TSF water recycle system-under-drain collection pond	process water and impacted storm water	Eastern edge of site
TSF water recycle system pipeline conveyances	Process water and impacted storm water	TSF area to process water reservoir
Process water reservoir	Process water and impacted storm water	East-central area of plant site
Impacted storm water impoundment A	Impacted storm water and process water	Plant site Area
Impacted storm water impoundment B	Impacted storm water	Southwest corner of WS B
Impacted storm water impoundment C	Impacted storm water	Southeast corner of WS C
Waste Rock Stockpile (WRSP)-1	Impacted storm water	Western side of Watershed (WS) A
WRSP-2	Impacted storm water	Western portion of WS B
WRSP-3	Impacted storm water	Eastern portion of WS B
Open Pit	Impacted storm water, mine water	Western side of site
Material handling and processing-primary crushing	Process water	Central portion of site within WS A
Material handling and processing-crushing and grinding	Process water	Central portion of site within WS A
Material handling and processing-flotation and concentration	Process water	Central portion of site within WS A
Plant site sumps, tanks, pipelines and truck and equipment wash units	Process water	Central portion of site within WS A
Packaged water treatment plant	Influent sanitary waste, treated effluent water to the TSF	Central portion of site within WS A
Mobile Equipment Fuel Station	Petroleum Products-Diesel, Gasoline, Oil	Central portion of site within WS A

bedding fill material. An underdrain collection system will be installed on top of the liner as described in Appendix A to collect free water that drains from the contents of the impoundment. The collected water will drain via a collection gallery into an underdrain collection pond constructed at the foot of the impoundment dam outside of the dam structure as shown in Figure 2-2 and the design document.

A blanket underdrain collection system will also be installed under the dam to collect and water that drains from the tailings sands used to construct the dam. As the dam drains its free water, it will consolidate the sand material and add stability to the dam. The water captured by the blanket underdrain will also be collected in the undrain collection pond. The underdrain collection pond itself will have a double liner of 60-mil HDPE, or equivalent, and will be equipped with a leakage collection system to detect and collect any leakage through the primary liner layer.

The underdrain collection pond will also provide the collection point for surface water runoff from the down-slope face of the dam. As shown in Figure 2-22, the dam will be constructed in several phases. The dam will be constructed using an engineered material placement technique known as "centerline" construction. During reclamation, inter-benches will be cut into the face of the dam that will provide the location for the placement of runoff collection ditches to capture runoff and route it to the runoff collection trench at the toe of the dam. The runoff collection trench will be lined with 60-mil HDPE as described in Appendix A.

Water from the runoff collection trench will be routed to the underdrain collection pond. The water from the pond will continually be pumped back to the process water reservoir for reuse in processing. The pipeline that transports this water back to the process facility from the underdrain pond will be installed within the lined runoff collection trench, around the TSF as shown in Figure 4-8 and described in Appendix A. Should there be any leakage or spillage from the pipeline, it will simply run back via gravity to the underdrain pond. The underdrain collection pond will be sized to contain 24 hours of underdrain flow at maximum estimated drainage rates from the dam and impoundment underdrains, as well as runoff from the 100-year, 24-hour storm event of 3.73 inches incident on the downstream dam face. The pond capacity will be approximately 12.22 million gallons with 2 feet of freeboard.

The TSF will be equipped with a floating water reclaim barge located in the pond within the impoundment. The purpose of the barge is to pump as much free water as possible gathered within the impoundment back to the process water reservoir for reuse in the process. The water reclaimed from the tailings impoundment will be transported back to the process facility through a pipeline located within a trench lined with 60-mil HDPE that will provide secondary containment in the event of a spill or leak in the line. This lined trench will also contain the tailings pipeline that will transport whole tailings from the processing facility to the cyclone plant describe above. The pipeline from the underdrain collection pond to the process facility will combine with the barge reclaim water pipeline up-gradient of the TSF as shown in Figure 4-8.

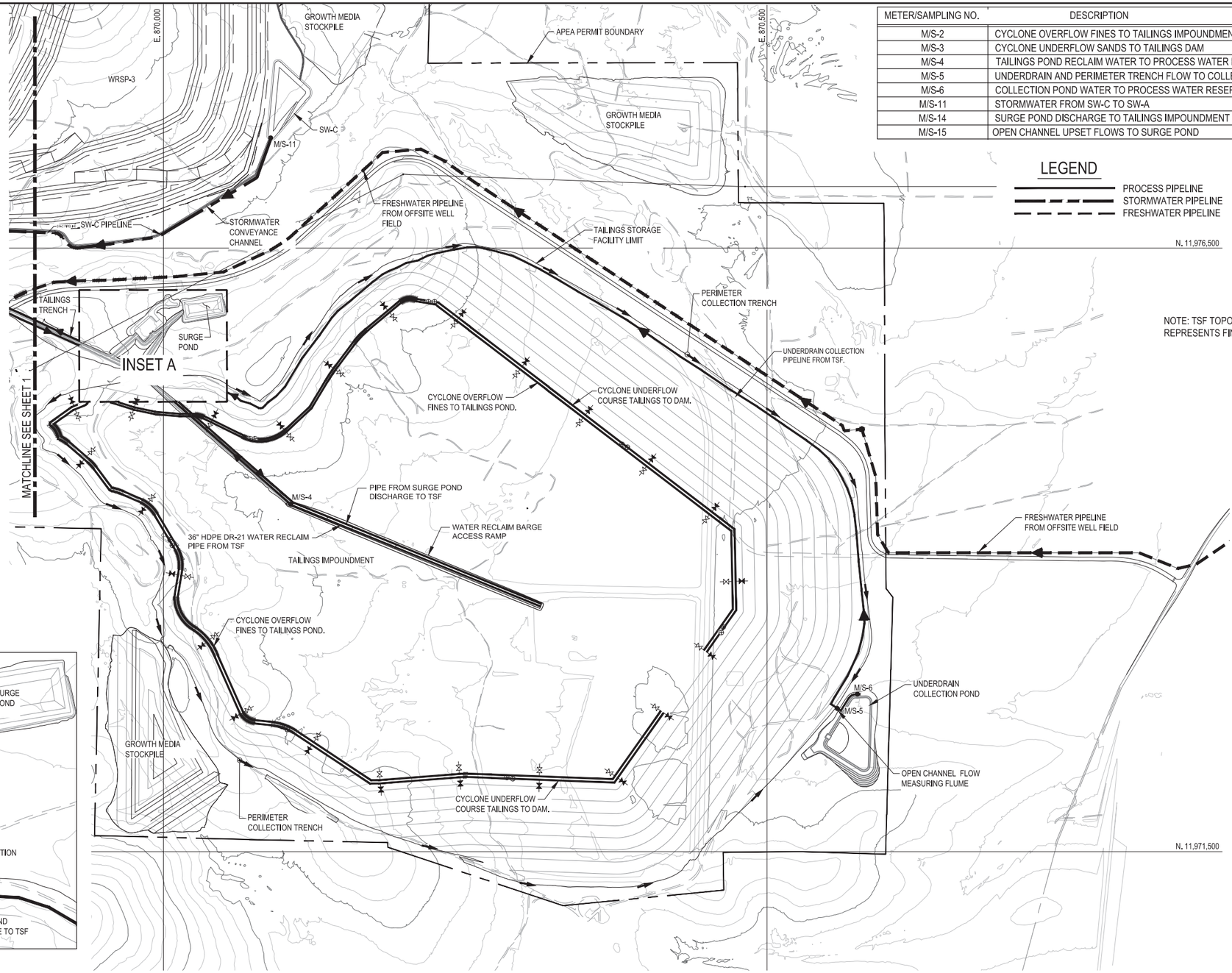
The TSF will also have an associated surge pond locate at the cyclone plant. The purpose of the surge pond will be to capture and temporarily retain tailings materials in the event of a

METER/SAMPLING NO.	DESCRIPTION
M/S-2	CYCLONE OVERFLOW FINES TO TAILINGS IMPOUNDMENT
M/S-3	CYCLONE UNDERFLOW SANDS TO TAILINGS DAM
M/S-4	TAILINGS POND RECLAIM WATER TO PROCESS WATER RESERVOIR
M/S-5	UNDERDRAIN AND PERIMETER TRENCH FLOW TO COLLECTION POND
M/S-6	COLLECTION POND WATER TO PROCESS WATER RESERVOIR
M/S-11	STORMWATER FROM SW-C TO SW-A
M/S-14	SURGE POND DISCHARGE TO TAILINGS IMPOUNDMENT
M/S-15	OPEN CHANNEL UPSET FLOWS TO SURGE POND

LEGEND

PROCESS PIPELINE
STORMWATER PIPELINE
FRESHWATER PIPELINE

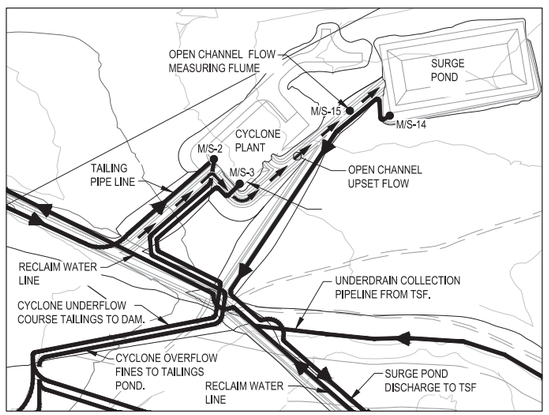
NOTE: TSF TOPO REPRESENTS FINAL PHASE



SITE PLAN

400 200 0 400 800

SCALE IN FEET



INSET A

150 75 0 150 300

SCALE IN FEET

DO NOT SCALE 11x17 DRAWINGS

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PROJECT MGR	RKZ	FEB 13
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REV NO. P2
DATE 09 JUN 16

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temporary upset in the cyclone plant and provide temporary storage in the event that an upset occurs in the cyclone circuit. The surge pond will be lined with a 60-mil HDPE liner. Under normal operating conditions the surge pond will be dry. However, it has been designed so that it can hold flows for one-half hour from maximum upset conditions that occur at the process facility plus maximum upset conditions at the cyclone plant both occurring during a 100-year, 24 hour precipitation event plus two feet of freeboard, all happening at the same time. Dedicated pumps will begin to evacuate the surge pond to the TSF at a pre-determined capacity of the pond within a half-hour of such an event occurring. In addition, the pumps will be tied into the emergency diesel power system located on-site in case of power is lost to the facility.

The use of MAT and BMPs at Copper Flat will extend to reclamation and closure of the TSF as described in detail in the Reclamation and Closure Plan. Surface re-grading of the tailings impoundment at closure will be performed that will provide a stable configuration to minimize ponding and promote conveyance of surface water. The final grade of the top surface of the re-contoured impoundment will be at least 1.0% after accounting for the magnitude and location of large-scale settlement of tailings.

Re-grading and contouring of the TSF to its post-mining configuration will begin at the end of the project life after it has been determined that sufficient water has been removed by the underdrain system. Because the Copper Flat TSF will be constructed with an engineered underdrain system, prior to conducting final grading activities NMCC will ensure that adequate drainage of the impoundment has occurred to ensure that large-scale settlement following grading is minimized. Consolidation drainage into the underdrain system is anticipated to continue at declining rates for a period following the cessation of tailings discharge operations. Underdrain water collected will be pumped from the underdrain collection pond and disposed of via evaporation utilizing active and passive systems as described in the TSF Post-Operations Water Management Plan, Attachment E2, of Appendix E.

A 36-inch topdressing soil cover will be placed on the top surfaces of the tailings impoundment and embankment out-slopes as described in Appendix E. The cover area will be seeded. Riprap and other erosion control structures will be placed as necessary in the drainage channels.

Other Impoundments, ponds and reservoirs

All of the impoundments, ponds and reservoirs will be lined with synthetic liner materials as described in more detail above and in Appendix B. In brief, the three impacted storm water impoundments and the surge pond will be lined with 60 mil HDPE liners. The process water reservoir will be double-lined with 60 mil HDPE liners and a leak collection system. There will also be a number of runoff collection trenches and water conveyance ditches constructed at Copper Flat to collect and convey water to the various water retaining structures as shown in Figures 4-8 and 4-9 and described in Appendix A and B. The trenches will have a 60 mil HDPE

METER/SAMPLING NO.	DESCRIPTION
M/S-1	TAILINGS FLOW FROM CONCENTRATOR
M/S-7	RECLAIMED WATER TO PROCESS WATER RESERVOIR
M/S-8	PROCESS WATER FROM RESERVOIR TO CONCENTRATOR
M/S-9	STORMWATER FROM SW-A TO PROCESS RESERVOIR
M/S-10	STORMWATER FROM SW-B TO SW-A
M/S-12	FRESHWATER TO PROCESS WATER RESERVOIR
M/S-16	TREATED EFFLUENT TO TSF
M/S-17	FRESHWATER TO CONCENTRATOR FOR PROCESS

LEGEND

PROCESS PIPELINE
STORMWATER PIPELINE
FRESHWATER PIPELINE

E. 865,000
E. 866,500
E. 868,000
E. 869,500
N. 11,977,100
N. 11,975,600

FRESH/FIRE TANK
M/S-17
PROCESS WATER STORAGE TANK
M/S-10
SW-B
SW-B PIPELINE
PROCESS WATER PIPELINE
PRIMARY CRUSHER
COARSE ORE STOCKPILE
FUEL STATION
ASSAY LABORATORY
M/S-8
M/S-7
PROCESS WATER RESERVOIR
M/S-12
SW-A PIPELINE
M/S-1
CONCENTRATOR BUILDING
WASTEWATER TREATMENT FACILITY
M/S-16
SW-A
M/S-9
SW-C PIPELINE
MATCHLINE SEE SHEET 2
FRESHWATER WATER PIPELINE
RECLAIM WATER PIPELINE
TAILING PIPELINE
TRUCK SHOP TANK FARM
TRUCK WASH

SITE PLAN

150 75 0 150 300
SCALE IN FEET

DO NOT SCALE 11x17 DRAWINGS

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REVISIONS					
NO.	DESCRIPTION	BY	APP'D	DATE	CLIENT

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DWG NO. **Figure 4-9**
REV NO. P2
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liner, with exception of those trenches located at the WRSPs that are constructed into the impermeable bedrock as discussed earlier herein. The use of this MAT and BMPs will significantly mitigate against the potential for these structures being a pathway for migration. All of the impoundments, ponds, reservoirs, and conveyance ditches are designed to eliminate run-on and capture runoff to the maximum extent possible and contain storm events in accordance with the requirements of the NMED Copper Rules as described in the NMCC DP application during operations.

At reclamation/closure the impoundments, ponds and reservoirs will be decommissioned, the liners ripped and buried in place and the areas regraded, re-contoured, covered with top dressing and vegetated. The details of the reclamation/closure actions to be taken are described in Appendix E.

Waste Rock Stockpiles

As discussed in more detail above, the waste rock stockpiles will be constructed over bedrock that has a permeability of 10^{-6} cm/sec. As such, these areas will not require lining. While the waste rock stockpiles represent a potential source of migration on constituents to ground water, that potential is significantly mitigated by the natural barrier to migration that exists. The waste rock stockpiles also represent sources of potential pathways for migration of constituents to surface water. However, as discussed in detail above, each of the waste rock stockpile areas will be constructed within a developed watershed designed to eliminate run-on, control and capture runoff in a lined impoundment.

Surface water diversion ditches and swales will be constructed within the waste rock stockpile areas to divert water to the impoundments at a controlled rate while reducing the potential for ponding and infiltration. In addition, the WRSPs have been designed and will be constructed in a manner to promote contemporaneous reclamation to the extent practicable such that 3 feet of cover materials will begin to be placed on them, as discussed in Sections 3.4 and 4.2, and Appendix E.

These MATs and BMPs utilized at the WRSPs will provide appropriate protection of human health and safety, the environment, wildlife and domestic animals. During operations the waste rock stockpiles will be constructed to facilitate re-grading during reclamation such that inter-bench slope faces will be 3H:1V or flatter and shaped to enhance runoff and prevent infiltration and ponding. Inter-bench slopes lengths will be no longer than 200 ft. The composite overall slope, which includes the inter-bench slopes and benches, will be 3H:1V or flatter.

All of the WRSPs will be reclaimed in accordance with the approved Reclamation and Closure Plan. The side-slopes will be reconfigured, as needed to meet the requirements of the NMED

Copper Rules and the Mining Act regulations. The details of the reclamation/closure actions to be taken are described in Appendix E.

As discussed above, waste rock will be managed during operations based on NMCC's operations material characterization program and predictive geochemical modeling. Contemporaneous reclamation to the extent practicable, materials management and surface water control measures will be used to maximize runoff, reduce infiltration, and reduce contact with the air, thus minimizing the potential for acid generation. The top surfaces of the waste rock stockpiles will be designed and constructed to a minimum final grade of 1%. The potential for ponding on the final surface will be reduced by careful contouring of the surface.

The waste rock stockpiles will be reclaimed at the end of the life of operations by re-grading re-contoured, as necessary, and a 36-inch soil cover will be placed over the stockpiles, unless NMCC can demonstrate a thinner cover will resist erosion, sustain vegetation and be equally protective of groundwater considering site-specific reclamation plans for the facility in conformance with the NMED Copper Rules. The cover area will be seeded thereafter as soon as practicable. The top surfaces of the stockpiles will be graded to promote positive drainage to storm water conveyance channels. These channels and hydraulic structures will be designed to control erosion on the top surfaces and out-slopes and safely convey storm-water off of the stockpile areas. Cross bench drainages will be trapezoidal and constructed to safely convey storm-water off reclaimed slopes for a 100-year precipitation event that results in the peak discharge. Longitudinal slopes for these drainages will be 1 to 5 percent. Energy-dissipation structures will be constructed at channel outlets to reduce erosive velocities where necessary. Where possible, channels will be constructed to incorporate existing topography, grade controls and exposed inert bedrock, which will promote long-term integrity of the structures. The final designs will be adjusted for local conditions. Temporary erosion control measures will be provided during the reclamation construction and early vegetation establishment periods. These control measures include mulch, straw bales, silt fences and minor corrective re-grading, as necessary.

Process Area

The process area also represents a source of potential migration of constituents to ground water and surface water. With respect to ground water, the potential pathways for migration exist largely in the form of process water handling within the process, in particular at sumps that hold and transfer water from one part of the process to another. The sumps in the process area, including the crushing and grinding and flotation and concentrating areas, are designed and will be constructed using MAT techniques such as water-stops and single monolithic pours to reduce the likelihood of release.

With respect to the potential for release to surface water, the process area will be constructed

within a developed watershed that will be graded such that run-on will be eliminated and runoff will be controlled and captured in the lined impacted storm water impoundment A, as shown in Figure 4-9. Water from all of the process facilities, material handling areas, parking areas, storage areas, chemical and fuel inventory areas and pipeline surface areas will be routed to the impoundment.

Also, as noted above, tailings from the process facility will be transported through a pipeline to the cyclone plant. The tailings pipeline will be laid within the same trench as described above that will contain the water reclaim line from the TSF to the process water reservoir. This trench, shown in Figures 4-8 and 4-9, will provide secondary containment for all process water in the event of an upset condition in the process area and/or a significant precipitation event that may cause the process water reservoir to overflow. As discussed in detail in Appendix C, the process area has been designed such that all process water can be captured into this "secondary containment trench" and routed to the surge pond described above. From the surge pond, captured process fluids will be pumped to the TSF.

4.2 Contemporaneous Reclamation – 19.10.6.603.B

The concept of contemporaneous reclamation, operating-for-closure, or "designing for closure", is a means by which NMCC will reduce erosion, provide early impact mitigation, limit costs and reduce final reclamation work. NMCC is committed to maximizing this type of reclamation at the Copper Flat Project where feasible. It has designed mine facilities to employ contemporaneous reclamation to the extent appropriate and practicable. Section 3.4 of this MORP update and the Reclamation and Closure Plan contain a detailed discussion of the contemporaneous reclamation activities that NMCC will undertake to take maximal advantage of site-specific conditions accomplish optimal closure of the site at the end of the mine's life.

4.3 Assure Protection – 19.10.603.C

NMCC has designed its Operations and its Reclamation and Closure Plan to assure protection of human health and safety, the environment, wildlife and domestic animals. Mine development and operation activities will also be implemented to assure that protection.

4.3.1 Signs, Markers and Safeguarding – 19.10.6.603.C.(1)

NMCC will implement and maintain safeguarding measures such as signs, markers, fences and barricades to protect the public, wildlife and domestic animals from potentially dangerous areas associated with the Project. Access to the permit area will be controlled at all times during mining operations and reclamation phase to protect the public from possible injury due to operating conditions such as heavy equipment and truck traffic. All personnel entering the

site will be checked in, receive site-specific safety training and will be escorted by trained personnel.

Shafts, Adits or Tunnels – 19.10.603.C.(1)(a)

This Section does not apply to the Copper Flat Project as no underground workings are proposed. However, some historic underground mine workings exist within the permit area and will remain at closure. These historic workings have been and remain the responsibility of federal government. Nonetheless, because the existence of these workings have the potential to attract interest as a result of the increased activity at the site, NMCC will work with the BLM to ensure appropriate safeguarding from unauthorized human entry and to protect bat habitat.

Warning Signs – 19.10.6.603.C.(1)(b)

NMCC will comply with the specific standards and regulations with respect to warning signage for mine operations and visitors as required by MSHA. Appropriate warning signs will be posted at strategic locations at the Copper Flat Project site around the perimeter and across the mine permit area beginning with the initial construction period, through mine operations until the completion of reclamation, as appropriate. Other markers or signs may be posted based on the facilities or activities at specific times.

Access Restriction to Hazardous Areas – 19.10.6.603.C.(1)(c)

All hazardous areas within the perimeter of the proposed permit area, such as ponds, electrical installations, power lines, reclaimed areas, explosives storage areas, etc., will be fenced and posted with appropriate warning signs.

Permit Area Boundaries – 19.10.6.603.C.(1)(d)

The mine permit boundary will be fenced and posted with signs warning of unauthorized entry and stating the appropriate hazard warning. A single public access point will be established at the main entrance to the mine site. Fences and locked gates will be placed at all secondary road entrances to the proposed permit area.

Main Entrance Signage – 19.10.6.603.C.(1)(e)

The main entrance to the site will have a security guard in a gatehouse to stop and check in personnel and visitors. Signs will be posted at the main entrance identifying the Project, the operator and a telephone number and other contact information in the event of emergencies related to the mining operation.

4.3.2 Wildlife Protection – 19.10.6.603.C.(2)

Construction, operations and reclamation phases of the Project will not impact critical habitat for wildlife based on wildlife studies conducted on site. Physical disturbances will be limited to only those areas needed for mine facilities and access, minimizing impacts to surrounding

habitat that may be used by wildlife. Construction activities such as land clearing and surface disturbance will be conducted, to the extent practicable, in a manner to minimize disturbance to active bird nests and/or birds' young, if possible, and to prevent habitat destruction whenever possible. The services of qualified biological consultants will be retained to provide assistance to NMCC in evaluating areas prior to the occurrence of construction disturbances to provide recommendations on the manner to proceed in the event of the presence of active nests during construction. Reasonable attempts will be made to minimize disturbances to active nests and/or mating bird pairs. Electric transmission or physical power poles will be constructed in a manner to protect raptors from potential electrocution hazards.

NMCC will take measures to minimize adverse impacts on wildlife and important habitat, including the installation of fencing around the perimeter of the permit area boundary to restrict humans and livestock entry to the Project area. Special wildlife exclusion fencing will be used in specific high hazard areas such impoundments, electrical substations and reagent areas. Gates and/or cattle guards will be installed along roadways within the proposed permit area, as appropriate. Because all of the impoundments and ponds are lined with HDPE it will be necessary to make every effort to deter access by wildlife and domestic animals and keep them off of the liner in order to protect its integrity and minimize the potential of puncture. At more remote locations at the site where there is less human activity and wildlife and domestic animals may be more likely to be enticed, it may be necessary to provide additional barriers such as individual exclusionary fencing to deter trespass. All of the ponds and impoundments (with the exception of the tailings impoundment) have been designed with an escape ramp so that an animal that may find its way into the pond may be able to get out.

Reclamation of the site will be performed with the goal of re-establishing the land use of the site as grazing and wildlife habitat, as it is today. Grading, re-contouring, covering and re-establishing vegetation at the site in accordance with the approved Reclamation and Closure Plan will allow NMCC to meet this goal.

With respect to the pit walls, as a rule, safety protocols will not permit regrading, covering, and revegetating narrow catch benches left in pit walls and other areas that cannot be safely accessed. NMCC considers that the pit walls represent a steep-canyon ecosystem environment similar to those that currently exist in the Copper Flat area. These steep-canyon ecosystems sustain native flora and fauna populations. The pit walls will provide for a similar ecosystem, which is consistent with the primary goal of closeout and the proposed post-mine land use of wildlife habitat. NMCC anticipates that the pit wall will self-vegetate with native flora over time, providing a self-sustaining eco-system appropriate for the life zone of the surrounding area, i.e., steep-canyon wildlife habitat.

4.3.3 Cultural Resources – 19.10.6.603.C.(3)

NMCC conducted cultural resource investigations as part of its baseline data gathering efforts to develop the information needed to assess the potential impacts of the proposed project on cultural resources and to meet compliance requirements for applicable State and Federal regulations, particularly Section 106 of the National Historic Preservation Act as part of its baseline data gathering efforts (Intera 2012). These investigations were conducted in accordance with State and Federal standards, and included survey and tribal consultation. Section 3.13 of the BLM DEIS contains a detailed discussion of the cultural resource considerations applicable to the Copper Flat Project.

In its evaluation in the DEIS, the BLM determined that there would be a significant impact to historic properties from development of the Copper Flat Project that would result in an adverse effect to historic properties. The majority of these impacts would occur due to facility construction, surface activities at the mine area, removal of mineralized ore, and traffic. BLM has determined that prior the commencement of any mine development activities that it will complete Section 106 consultation with the Advisory Council on Historic Preservation, State Historic Preservation Office (SHPO), Tribes, and NMCC. The purpose of the consultation will be to develop measures to avoid, minimize, or mitigate the adverse effects to historic properties. A Programmatic Agreement (PA) will be developed for signature by the parties, which will document the measures to be implemented. The following measures to avoid, minimize, or mitigate adverse effects are examples that may be considered and included in the PA:

- Conducting data recovery excavations of archaeological sites;
- Fencing of sites and activity areas to prevent impacts;
- Implementing a monitoring program to ensure avoidance measures are effective, and to modify such measures if not effective;
- Implementing standard best management practices during construction and operations activities to control erosion and changes to erosion patterns;
- Training of NMCC construction, operations, and reclamation personnel and contractors to recognize when archaeological resources or human remains have been discovered, to recognize when inadvertent damage has occurred to a resource, to halt ground disturbing activities in the vicinity of the discovery, and to notify appropriate personnel; and
- Educating NMCC personnel and contractors on the importance of cultural resources, the laws and regulations protecting cultural resources, the need to stay within defined work zones, and the legal implications of vandalism and looting.

The PA will describe the processes to be followed in the event that previously unknown cultural resources or human remains are discovered during construction or operation of the selected alternative, and will address processes to be followed in the event that inadvertent physical

damage to an historic property occurs. While the effects to the resources will remain, the PA and the measures contained within it will resolve these effects and reduce the significance of the impacts. The PA will address all effects to historic properties, and will document NMCC's, the BLM's, and other regulatory agencies' commitment to ensure that the mitigation measures are implemented.

NMCC is committed to this PA process. Roads and project facilities at Copper Flat will be sited as much as possible to avoid cultural resource impacts. If avoidance is not possible or is not adequate to prevent adverse effects, NMCC will undertake data recovery from such sites. Development of a treatment plan, data recovery, archeological documentation and report preparation will be based on the Secretary of the Interior's "Standards and Guidelines for Archeology and Historic Preservation," 48 CFR § 44716 (September 29, 1983), as amended or replaced. If an unevaluated site cannot be avoided, additional information will be gathered and the site evaluated. If the site does not meet eligibility criteria as defined by the New Mexico SHPO, no further cultural work will be performed. If a site meets eligibility criteria, a data recovery plan or appropriate mitigation will be completed.

An archaeologist will be consulted prior to and during construction to advise NMCC and its contractors and to issue clearances, as necessary, for construction activities and provide guidance and expertise to ensure the protection of cultural properties. The appropriate agency will be notified immediately if additional cultural sites are discovered during these activities. Mitigation strategies will be developed in consultation with the agency.

4.3.4 Hydrologic Balance – 19.10.6.603.C.(4)

NMCC has planned and designed operations of the Copper Flat facility in such a manner to minimize change to the hydrologic balance in the permit area and potentially affected areas. As discussed in Section 3, above, the resulting post-mining reclamation hydrologic balance will be similar to the pre-mining hydrologic balance. The following discussion addresses the methods by which NMCC will ensure this balance occurs.

Non-point Source Surface Releases of Acid or Other Toxic Substances – 19.10.6.603.C.(4)(a)

NMCC has designed and will operate the Copper Flat facility such that no releases of acid or other toxic substances will occur. To the extent that unanticipated releases may occur, all such releases will be contained within the permit area. Because the design of the facility contemplates retaining all surface flows in impoundments and/or ponds with no release of surface flows from the disturbed area, no treatment will be required. Sources of potential non-point source surface water drainage at Copper Flat include; the mine pit, the process plant area, the WRSPs and the TSF. All of these areas and their surface water protection features have been discussed earlier herein.

Surface water drainage in the area of the open pit is into the OPSDA. As such, no non-point source or releases off of the permit area from this location can or will occur as the open pit will act as a hydrologic sink for surface and ground water during and after operations.

The likelihood of acid generation from waste rock is very small (as discussed in Section 3.3, above); therefore, its release as a non-point source to the surface unlikely. NMCC has designed waste handling and disposal plans for the WRSPs as discussed in Sections 2.2.11 and 3.3.2. Surface water runoff and surface water that may manifest itself as a "seep" in the WRSP that could result from percolation of precipitation through the stockpile will be captured in runoff collection trenches and routed to lined impoundments. Water captured in these impoundments will, in turn, be evacuated to the double-lined process water reservoir located in the process plant area, within thirty days of capture (per the NMED Copper Rules) for use in the process. Therefore, non-point source releases from the WRSPs will not occur.

In addition to the WRSPs that will be constructed per NMCC's proposal, there are four existing waste rock stockpiles on-site, i.e., EWRSP-1, EWRSP-2A and 2B, EWSRP-3 and EWRSP-4 as shown in Figure 2-2. EWRSP-1 and EWRSP-2B are located in the OPSDA and, as such, will not contribute non-point source releases during operations. EWRSP-2A is located in the area where WRSP-1 will be constructed and will be incorporated into it during operations. Thus, it will not contribute non-point source releases during operations. However, currently the westernmost edge of EWRSP-1 and the northernmost edge of EWSRP-2A may be contributing surface water runoff away from the site. NMCC will reclaim these areas as described in the Reclamation and Closure Plan so that no non-point source releases occur from them.

With respect to the pit lake that will reform after mining ceases, NMCC believes that there will be no adverse effects to pit water quality. The water quality data provided by NMCC in its Baseline Data Report (Intera 2012) for the existing pit lake, together with additional water quality data provided to NMED and MMD since development of the BDR, will be utilized to assist in defining and establishing baseline water quality conditions for the existing pit lake. Section 19.10.6.603.C.4 requires, in part, that reclamation result in a hydrologic balance similar to pre-mining conditions unless non-mining impacts have substantially changed the hydrologic balance.

NMCC's BDR and subsequent hydrologic reports submitted to the MMD and other agencies (see JSAI 2014c) have confirmed that the mine pit is currently a hydrologic sink and will continue to be after operations and reclamation. Water quality in the pit lake after mining ceases is anticipated to be better for the foreseeable future because the ore body will have been removed by mining and the ore is the source of many of the constituents of concern identified in the baseline data. The water that reports to the pit lake after the mine ceases to operate and the site is reclaimed will be the same source(s) of water that have formed the

existing pit lake, i.e., ground water inflow and precipitation runoff. In the long-term future pit lake water quality may approach the of the existing pit lake as a result of evapo-concentration, but it will always be similar and, thus, in compliance with section 19.10.6.603.C.(4). Water quality monitoring to be conducted during the post-mining and reclamation phase of the project will confirm this.

As shown in Figure 2-21, the TSF is designed so that no non-point source releases occur from the facility. Run-on into the location of the TSF will be diverted around and away from the TSF. Tailings water will be retained in the lined impoundment behind the dam and will be recycled utilizing a floating water reclaim barge in the impoundment and an underdrain collection system at the bottom of the impoundment. Drainage collection trenches will be constructed on the out-slope side of the tailings dam to capture and direct runoff to the lined underdrain collection pond. An underdrain collection system will also be placed under the dam to collect water that drains from the dam and routed to the pond. The water in the pond will be pumped back to the process water reservoir for reuse in the process. Therefore, there will be no non-point source releases from the TSF.

Surface water runoff from the process plant area will be captured in a lined impoundment. That water will also be pumped to the process water reservoir for use in the process. Sources of potential non-point source releases in this area include the primary crusher and ore storage pile, the grinding and concentrator facilities, the reagent storage areas and two existing waste rock stockpiles, EWRSP-3 and EWRSP-4. . All surfaces will be graded to drain into contained area or impoundment. Therefore no non-point source releases will occur from plant area.

EWRSP-4 will be graded and contoured to be utilized as an equipment lay-down area. Runoff from EWRSP-4 will be routed to the mine pit during operations. The southern exterior of EWRSP-4 will be reclaimed during operations as described in the Reclamation and Closure Plan to ensure that no non-point source surface releases of acid or other toxic substances occur.

Control of Suspended Solids – 19.10.6.603.C.(4)(b)

Sediment control will be achieved by the use of BMPs to stabilize the site and ensure that the permit area does not contribute suspended solids above background levels, or if applicable above the Water Quality Control Commission's standards, to intermittent and perennial streams. All of the water courses in the permit area and the potentially affected areas are ephemeral, flowing only in response to precipitation events. This condition notwithstanding, the following types of BMPs may be utilized and maintained, as needed during construction, operation and reclamation/closure of the facilities:

- Fiber rolls (waddles)
- Ditches/swales

- Diversion channels
- Energy dissipaters
- Slope drains
- Sediment traps and fences
- Stilling basins
- Impoundments and ponds

A SWPPP will be developed for the permit area that outlines the mechanisms to control storm water run-on and runoff from disturbed areas. The SWPPP will be based on the final mine design. Mine employees will be trained to its requirements prior to commencement of construction and/or mining operations.

Roads will be constructed with a center crown to direct storm water to the side ditches. The ditches will have sediment control features such as water bars, fiber rolls or other traps to reduce sediment if the water enters an arroyo. These sediment control devices will be placed around construction or operational areas for temporary surface disturbance activities. Grading, revegetation, where appropriate and/or necessary and concurrent or contemporaneous reclamation will also be utilized as sedimentation control mechanisms.

Background Surface Water Quality – 19.10.6.603.C.(4)(c)

As part of the baseline study previously submitted, NMCC installed a surface water sampler where Grayback Arroyo enters the proposed mine permit boundary. The sampler is designated as SWQ-1 in Figure 8-7 of the BDR. This sampler was dry on each quarterly sampling event during the baseline study. However, continued sampling has continued since that time and any results that become available will be reported to establish background surface water quality.

Diversions of Overland Flow – 19.10.6.603.C.(4)(d)

NMCC's design of the Copper Flat facility includes several diversion structures to control overland flow of water at the site including runoff control and diversion ditches at the WRSP facilities, in the plant process area and at the TSF. The design specifications for these structures can be found in the various Appendices included in this MORP update. These structures have been designed and will be constructed and maintained to minimize adverse impacts to the hydrologic balance and assure public safety in accordance with the requirements of the performance and reclamation standards and requirements of the Mining Act regulations and the requirements of the NMED Copper Rules.

Slope stability is of utmost importance in construction and operation of the Copper Flat facility. None of these structures will be located so as to increase the potential for landslides. All of the structures are designed to safely pass the peak runoff from a 100 year, 24 hour precipitation event and have been certified by a professional engineer registered in New Mexico as having been designed in accordance with 19.10 NMAC and the NMED Copper Rules. A complete set of

diversion design documents will be kept on-site for inspection by the Director or his designee. When no longer needed, upon completion of reclamation/closure of the site, temporary diversions will be removed.

4.3.5 Stream Diversions – 19.10.6.603.C.(5)

NMCC does not propose to construct any stream diversions at the Copper Flat facility. There is a permanent existing diversion of Grayback Arroyo, an ephemeral watercourse that transects the site from west to east that will be maintained to continue to divert water safely around and through the site. NMCC has performed a diversion analysis to determine the ability of this diversion to protect the site. The report of this analysis is contained in Appendix D of the MORP update. The 24-hour storm flows for 100-year, 200-year and 550-year return periods were evaluated for the existing diversion structure. The report concludes that the existing diversion structure is protective of the site. The report also recommended minor repair and maintenance of the upstream inlets of the culverts located at the roadway and pipeline crossing (see Drawing 0000-CI-103 in Appendix D). NMCC will conduct said repair and maintenance at the beginning of construction.

4.3.6 Impoundments – 19.10.6.603.C.(6)

NMCC's design of the Copper Flat facility includes several impoundments, reservoirs and ponds, as shown on Figures 2-2 and 2-14, including three impacted process water impoundments, one process water reservoir, one tailings storage impoundment, one underdrain collection pond and one surge pond. The design specifications for these structures can be found in Appendix A and B. In addition, there will be an evaporation pond constructed after the end-of-life of the mine to provide long-term passive capture and evaporation of residual fluids that may be produced from the tailings impoundment. This pond will be constructed essentially as an extension of the underdrain collection pond, expanding its size and capacity as described in Appendix E. The liner system of the underdrain collection pond will extended to the constructed evaporation pond. As such, the design of the pond is the same as that for the underdrain collection pond, except that it will be more shallow in depth as described in Appendix E. The design of the underdrain collection pond is described in Appendix A.

These impoundments have been designed and will be constructed and maintained to minimize adverse impacts to the hydrologic balance, protect adjoining property and assure the safety of the public in accordance with the requirements of the performance and reclamation standards and requirements of the Mining Act regulations and the requirements of the NMED Copper Rules.

As shown in the design documents provided herewith, all of the impoundments, ponds and reservoirs (except the tailings impoundment) meet or exceed the design requirements of Section 19.10.6.603.C.(6)(a)(i through ix). The tailings impoundment meets or exceeds the

design requirements specified by the OSE. When no longer required, the impoundments, ponds and reservoirs will be reclaimed in accordance with the Reclamation and Closure Plan.

4.3.7 Minimization of Mass Movement – 19.10.6.603.C.(7)

All slopes, embankments and the stockpiles will be designed, constructed and maintained to prevent the potential for mass movement both during operations and following closure. Details of the WRSP and TSF designs are presented in Section 2.

4.3.8 Riparian and Wetland Areas – 19.10.603.C.(8)

Disturbance to riparian and wetland areas at Copper Flat will be minimal. The Copper Flat Project area is primarily a terrestrial habitat with limited riparian and wetland habitats. The primary riparian areas are associated with the Grayback Arroyo and the established diversion. Arroyo areas within the proposed permit area boundary occur along Grayback Arroyo, the diversion channel, and pit lake. The arroyo vegetative cover has the highest woody plant density within the proposed mine area. The majority of vegetation within this land cover consists of shrubs, with Emory's baccharis (*Baccharis emoryi*) being the most abundant. Burro bush (*Hymenoclea monogyra*) is also frequent in Grayback Arroyo. Grasses make up 24 percent of the relative vegetation cover, with vine mesquite (*Panicum obtusum*) being the most abundant. Other vegetation found in Grayback Arroyo includes desert willow (*Chilopsis linearis*), Goodding's willow (*Salix gooddingii*), cottonwood, four wing saltbush (*Atriplex canescens*), and salt cedar (*Tamarix* spp.) (BLM DEIS 2015, Section 3.11.1.1, pg 3-142,143). This variety and distribution of vegetation in this area of the arroyo is quite typical of the riparian habitat throughout the area in the arroyos in the vicinity of the site.

NMCC operations will not change the existing surface water flow conditions and will maintain the existing hydrologic conditions that support the riparian areas. All riparian areas will be managed appropriately according to state and federal requirements.

Mining operations will involve the drawdown of groundwater from the pumping of water from the fresh water well field that will provide a portion of the water required for processing. However, none of the hydric soils at the mine site or elsewhere in the potentially affected area will be affected by that drawdown. Hydric soils in the wetlands along the arroyos and other water courses in the area do not rely on groundwater. They have an alternative source of water, such as flooding from surface water runoff or a perched water table.

The BDR (Intera 2012) indicates that during mine area surveys, two locations within the proposed mine area boundary appeared to meet wetland conditions as defined by the Clean Water Act (i.e., dominance by hydrophytic vegetation, hydric soils, and wetland hydrology). One of these areas is a small cattail wetland adjacent to the pit lake. However, based on discussions with the USACE, this area is not considered jurisdictional because there was no

significant connection to a jurisdictional, navigable waterway. The second area is a small patch that may meet the general wetland criteria that is dominated by Goodding's Willow, is estimated to be 0.5 to 1.5 acres in size. It is located within the mine site in Grayback Arroyo just east of the easternmost land bridge is located where the pit access road crosses Grayback Arroyo. Seep willow (*Baccharis salicifolia*) also occurs here (BLM 2015 DEIS, Section 3.11.1.1, pg 3-145). No formal wetland delineation has been completed for either of these locations.

Hydric soils of the first area, the small cattail area adjacent to the pit lake, will be removed at the outset of operations since pumping of the pit lake will be necessary prior to mining and continuously throughout the life of the mine. This area will be mined out when the pit is deepened so no surface soils will remain.

The second area, in Grayback Arroyo, will not be affected by drawdown associated with activities at Copper Flat because it will be outside of the drawdown area. This area overlies the andesite bedrock of the Animas Uplift. As a result, there is no aquifer underlying the surface (BLM DEIS, November 2015, Section 3.8.2.1.1, page 3-110).

Engineering designs provided in the Reclamation and Closure Plan have set a minimum 50-foot set-back from Grayback Arroyo for the final reclamation footprints for GMSP-2, GMSP-3, WRSP-2, and WRSP-3 footprints and a 25-foot set-back for EWRSP-1. Riparian areas delineated at the plant area will not be disturbed. Removal of the land bridges will be conducted as described in the Reclamation Plan (Appendix E) in a manner protective of the Gooding's Willow community in Grayback Arroyo.

4.3.9 Roads – 19.10.6.602.C.(9)

For the most part, existing haul roads will be utilized to haul material to the crusher, stockpiles and WRSPs. Some minor realignment of these roads may be necessary and road widths will vary. Roads will be constructed and maintained to control erosion. Drainage control structures will be used, as necessary, to control runoff and minimize erosion, sedimentation and flooding. Drainage facilities will be installed as road construction or extension progresses and will be capable of passing a 10-year, 24 hour precipitation event. Culverts and drainage pipes will be constructed and maintained to avoid plugging, collapsing or erosion.

Haul roads are not expected to create new disturbances, as they will be constructed on previously disturbed land. Mined material will be hauled to the WRSPs and the mill using conventional mining haul trucks. The on-site service roads will be designed for easy access and traffic movement within the operations area. No roads will be constructed that cross intermittent or perennial streams. Access to the project area is via an existing county road (Gold Dust Rd./Co. Rd. Bo27) which will remain following closure. Prior to final closure, the State of New Mexico and the BLM will determine which other roads will be made permanent in

the project area to conduct post-closure monitoring or provide adjacent landowner access. A number of pre-1981, primitive roads currently exist within the proposed project boundary. Some of these roads will not be utilized during the proposed operations and will remain.

4.3.10 Subsidence Control – 19.10.6.603.C.(10)

No underground or in situ mining are proposed to be conducted at Copper Flat. Therefore, subsidence control is not a consideration for the Copper Flat Project.

4.3.11 Explosives Blasting – 19.10.6.603.C.(11)

Blasting will be conducted in a manner to prevent injury to persons or damage to property not owned by the operation. The generation of fly rock will be minimized to ensure that it is confined to the permit area. Blasting will be limited to the daylight hours and performed by trained and certified blasters. Safe seismic disturbance and air blast limits will be established to prevent damage to buildings.

Blasting agents and explosives such as ammonium nitrate and diesel fuel will be stored onsite in bins and tanks. Detonators, detonating cords, boosters, caps and fuses will be stored in two separate magazines. Ammonium nitrate will be stored in a 75-ton capacity, 3,000 ft^3 silo. All explosive materials will be stored away from the plant site in compliance with MSHA, New Mexico State Mine Inspector's regulations, Bureau of Alcohol, Tobacco and Firearms (BATF), and U.S. Department of Homeland Security requirements. The magazines will be situated away from occupied buildings in compliance with the BATF and each magazine will be secured with two locks (see Figure 2-2).

Appropriate warning signs will be placed in such a way that a bullet passing through the sign will not strike the magazines. NMCC employees who use and handle explosives will do so in accordance with MSHA regulations and will meet all BATF, MSHA and state qualification and certification requirements. All transportation of explosives will meet MSHA and state requirements. An inventory will be kept of all explosives received into and distributed out of the magazines.

4.4 Site Stabilization & Configuration – 19.10.6.603.D

The permit area will be stabilized to minimize future impact to the environment and protect air and water resources. The final surface configurations of the disturbed areas subject to reclamation/closure will be suitable to achieve the post-mining land uses in accordance with the approved Reclamation and Closure Plan. Contemporaneous reclamation actions undertaken at Copper Flat during operations will have a positive impact on site stabilization, configuration, and final reclamation. Contemporaneous reclamation is discussed in more detail in Section 3.4. Appendix E contains a more detailed discussion of the steps to be taken to

stabilize and configure the site so as to achieve the post-mining land use. These steps are summarized below.

4.4.1 Final Slopes and Drainage Configuration – 19.10.6.603.D.(1)

The final slopes and drainage configuration of the reclaimed areas are designed to be compatible with the post-mining land use. The reclamation design is driven by the requirements of the NMED Copper Rules as well as the Mining Act regulations to promote slope and drainage stability. Consideration will be given to providing a diversity of topographic relief that assists in promoting vegetation diversity within the prescriptive context of the NMED Copper Rules thus providing a geomorphic component to the design. For example, the topographic disturbances, slopes, and other aspects of the disturbed project areas will be contoured to blend in with the surrounding topography to the extent practicable within the constraints of the NMED Copper Rule. Final slopes will be 3H:1V or shallower and will be restructured to resemble existing topography to the extent practicable. A few areas may have steeper slopes and would be stabilized by physically with coarser materials to add to general diversity and stability. Flatter disturbed areas (slopes of 4H:1V or less) will be minimally regraded to restore an appropriate drainage system and revegetated. Re-grading will be completed to direct water away from out-slopes, particularly on the WRSPs and the TSF. Where possible, the size and shape of new channels will approximate former drainages. All drainage channels, ditches and earthen water control structures will be revegetated and/or protected from erosion by riprap, sediment traps or other BMPs.

Section 19.10.6.603.D requires that the permit area be stabilized to the extent practicable, to minimize future impact to the environment and protect air and water resources. With respect to the pit walls, as described in the Reclamation Plan (Appendix E), the final slopes and drainage configuration will be such that they will be left in place and surface water runoff from the pit walls will be routed to the bottom of the pit (See Drawing C-014). The pit walls will, in this manner, be compatible with the approved wildlife habitat post-mining land use, in conformance with 19.10.603.D.(1).

4.4.2 Backfilling – 19.10.6.603.D.(2)

The impoundments, ponds and reservoirs constructed at the site will be backfilled with embankment materials and re-contoured and reclaimed to blend into the natural topography. Because the Copper Flat deposit must be mined sequentially from top to bottom, NMCC will not backfill the pit as NMCC's reclamation objectives will be otherwise accomplished through other mitigation measures as described in the Reclamation Plan, in conformance with 19.10.6.603.D.(2).

4.4.3 Minimizing Mass Movement – 19.10.6.603.D.(3)

All reconstructed slopes and embankments of the WRSPs and TSF are designed and will be constructed and maintained to prevent the potential for mass movement. The Reclamation and Closure Plan contains the design details in Section 2 of Appendix E.

The pit walls, as indicated above, will be left in place after mining ceases, not reconstructed. As such, 19.10.6.603.D.(3) does not apply to the pit walls. Mine safety is of the utmost importance and pit highwalls represent a significant safety risk that must be minimized to the extent possible. Mass movement of the pit walls will be minimized by appropriate design, construction and operation of the pit. Appropriate pit design is of paramount importance in order to ensure the safety of mine personnel and minimize the economic impacts of pit wall failure. NMCC has conducted significant feasibility level geotechnical analysis for the design of the pit. The results of the geotechnical analysis was utilized in designing the open pit described in Section 2.1.2 and depicted in figures 2-3 through 2-11. Geotechnical factors appropriate to conditions projected for the Copper Flat pit were incorporated into the geotechnical analysis, resulting in pit slope angles designed to be generally 40-50 degrees. During operations, blasting will be designed and controlled to maintain pit wall stability. A comprehensive pit slope monitoring program will be routinely used in order to maintain safe operating conditions, provide advance notice of potential instabilities so that mine plans can be modified to minimize hazards, provide additional real-time geotechnical information to assist in further analyzing slope stability and modifying slope designs as needed.

4.4.4 Acid and other Toxic Drainage Formation – 19.10.6.603.D.(4)

Section 3.3 provides a discussion of the measures that will be taken to reduce, to the extent practicable, the formation of acid and other toxic drainage that may otherwise occur following closure to prevent releases that cause federal or state standards to be exceeded. NMCC's waste characterization efforts confirm that the likelihood of the formation of acid from the Copper Flat Project is very small (SRK 2013). NMCC's material handling, waste classification, waste rock flagging and routing and transitional waste materials disposal plans, as discussed in Section 3.3, to be implemented during operations, will prevent the formation of acid and other toxic drainage following reclamation/closure.

With respect to the pit wall, it is not anticipated to be a significant source of acid or other toxic drainage as demonstrated by the SRK geochemical studies (SRK 2013). As described in the SRK report, the majority of the materials tested typically exhibited either non-acid forming characteristics or a low potential for acid generation based on NAG and ABA test work results. Surface drainage from the pit wall will be captured in the pit lake that will form at the bottom of the pit after operations cease, and not released to another surface drainage. The pit has been demonstrated to be a hydrologic sink as ground water flows into the pit lake as discussed in Section 4.1.1. Pit lake chemistry modeling has predicted that the waters will be moderately

alkaline, approximately 8 pH, thus confirming that the pit wall is not anticipated to be a source of acid and other toxic drainage that may be released and potentially cause federal or state standards to be exceeded.

4.4.5 Non-Point Source Releases – 19.10.6.603.D.(5)

Section 4.3.4 provides a discussion of the measures that will be taken to ensure that there will be no non-point source surface releases of acid or other toxic substances during operations. Finally, as noted above, non-point source surface releases from the pit walls will be captured in the pit lake, in conformance with 19.10.6.603.D.(5). Therefore, no adverse effects to pit water quality or exceedance of federal or state standards are anticipated.

4.5 Topsoil (Topdressing or Cover Material) – 19.10.6.603.E

An important feature of "topsoil" is the presence of decomposed organic matter and bacterial, fungi, and other organisms that make the topsoil biologically active. These organisms are important to critical soil processes such as decomposition of organic matter and rendering nitrogen and other nutrients into plant-available forms. The alluvial sediments that will be stockpiled at Copper Flat for use in reclamation are unlikely to contain sufficient organic matter, nutrients and biological activity to support reclamation at the time of stockpiling but they are likely to contain adequate fine grained sediments (i.e., silts and clay) to provide water holding capacity when used as growth media (BLM DEIS page 3-41). As such, the discussion of "topsoil" in the context of salvaging materials for use in reclamation of the Copper Flat site reflects the nature of the materials available to stockpile. It is, therefore, more appropriate to refer to the materials utilized as cover material for reclamation and closure of the site as "topdressing" or "growth media." Additional information regarding the cover growth material requirements for reclamation is provided in Section 3.1 and 5.5 of Appendix E.

4.5.1 Topdressing Suitability – 19.10.603.E.(1)

The suitability of topdressing/cover materials is based on the material's ability to provide erosion control, sustain vegetation, and reduce net infiltration. In general, soils and underlying colluvial and alluvial materials in the permit area are considered suitable and have no chemical limitations for growth of native and adapted reclamation species.

The NMED Copper Rules, 20.6.7.33.F.(2) NMAC, require that the proposed soil cover system be designed to limit net-percolation by having the capacity to store at least 95 percent of the long-term average winter (December, January and February) precipitation or at least 35% of the long-term average summer (June, July and August) precipitation, whichever is greater as determined by utilizing field or laboratory test results or published estimates of available water capacity. The suitability of topdressing cover materials to meet this standard is discussed in detail in Section 5.5.1 of Appendix E.

The available water capacity (AWC) for the salvageable growth media within the limits of the TSF and WRSP-2 and -3 were estimated utilizing the laboratory results of soils samples taken during Golder's Supplemental Soils Investigation at Copper Flat (see Subsection 3.3.1 and Table 3, Golder, 2013). These estimates show an average AWC of approximately 0.9 inches of water per 1 foot of soil for the salvageable growth media within the footprint of WRSP-2 and -3, with a range of between 0.6 and 1.3 inches of water per 1 foot of soil. The AWC estimates for the salvageable growth media within the footprint of the TSF show an average AWC of approximately 1.2 inches of water per 1 foot of soil, with a range of between 0.4 and 2.2 inches of water per 1 foot of soil.

While the actual water retention of the salvaged soils will vary based on the types of soil materials that are placed in the GMSPs, the range of materials identified as suitable cover at the site indicates that the proposed cover system at Copper Flat will meet the storage requirements of the NMED Copper Rules.

4.5.2 Topdressing Salvage – 19.10.603.E.(2)

NMCC will salvage as much material as can be safely and practicably recovered and safely stored in the planned stockpiles. As part of the proposed operations, NMCC will bulk salvage suitable soils and near-surface alluvial materials from within the TSF, WRSP-2 and WRSP-3 footprints. Topdressing materials will be carefully recovered and stockpiled during the preproduction phase of the Project. Surficial soil materials will be salvaged in association with the construction of the plant, pipeline corridor, access roads and ancillary facilities. The salvaged growth media in these locations will be windrowed for local redistribution during final reclamation of the site. Suitable soils and other suitable cover materials including unconsolidated subgrade materials, colluvium and overburden will be salvaged to meet the volumetric requirements for final cover construction at closure as discussed in Section 3.1 and 5.5.2 of Appendix E.

4.5.3 Topdressing Stockpiling - 19.10.603.E.(3)

Salvaged reclamation cover materials will be stored in the three GMSPs shown in Figure 2-2. The GMSPs are located so as not to be disturbed or impacted by mining operations. The surfaces of the stockpile will be shaped after construction with overall slopes of 3H:1V or shallower to minimize soil loss. To further minimize erosion and the establishment of undesirable weeds, the GMSPs will be seeded with the interim seed mix Additional information regarding stockpiling of growth media is contained in Section 5.5.3 of Appendix E.

4.5.4 Topdressing Re-Distribution - 19.10.603.E.(4)

Topdressing will be distributed in a manner to establish and maintain vegetation. Details regarding the manner in which it will be distributed and applied on regraded areas during for reclamation are discussed in Section 3.1, Growth Media Placement, of Appendix E.

4.5.5 Topdressing Stabilization - 19.10.603.E.(5)

Cover materials will be stabilized after distribution. Seedbed preparation, including scarification and disking along the contour, will be performed prior to seeding and mulching operations as described in the Section 3.0 of Appendix E.

4.5.6 Topdressing Amendment - 19.10.603.E.(6)

As discussed in Section 5.5.1 of Appendix E, most semi-arid native plants have adapted to low to moderate soil fertility conditions and are relatively unresponsive to increased soil fertility compared to crop plants. Fertilizer additions have been shown to have negative impacts in reclamation including increases in weedy annuals, shifts in species composition and decreases in drought, disease and pest resistance. Topdressing amendment requirements are discussed in Section 5.5.6 of Appendix E.

4.6 Erosion Control – 19.10.6.603.F

Reclamation activities described in Sections 3.0 and 5.6 of Appendix E will stabilize disturbed areas to a condition that protects against erosion. All disturbed areas will be regraded and shaped to a final contour that achieves positive drainage, reconstructs slopes with lengths and gradients that will provide long-term stability and seeded and mulched to establish a vegetative cover. Storm water will be diverted away from facilities. Drainage channels will be designed to regulate the velocity of water and minimize the potential for channel erosion. BMPs for storm water diversions, drainage and other water conveyance channels may include lining the channel with rock, riprap, vegetation or other geotechnical materials.

4.7 Revegetation – 19.10.6.603.G

As discussed in Section 2.5 of this updated MORP, NMCC's Copper Flat Project will take place on a combination of federal land administered by the BLM and private land owned by NMCC (by virtue of patented mining claims). The current land uses of federal lands administered by the BLM in the area of the Copper Flat facility have been identified previously in BLM's 1986 White Sands Resource Management Plan (BLM 1986); e.g., grazing, wildlife habitat, recreation and mining.

Revegetation of the site will be consistent with the requirements of 19.10.6.603.G.(3) NMAC; i.e., the previously accepted historic post-mining land uses as identified by the BLM in its land management plan consistent with the surrounding land uses of the Copper Flat site. The Reclamation and Closure Plan is designed to re-establish grazing in the area and allow for long-term use of the reclaimed areas by wildlife known to historically use the area without affecting the potential for other uses such as mining and recreation. Revegetation success is discussed in more detail in Section 5.7 of Appendix E.

19.10.6.603.(G) NMAC sets forth the standards by which revegetation success will be measured. NMCC will work with MMD to develop a Test Plot Study Work Plan, including the use of approved reference areas or other reasonably attainable standards approved by MMD. We anticipate utilizing the reclaimed existing waste rock stockpile areas in the program as they will be reclaimed as part in the early years of operations. However, with respect to the pit walls, NMCC does not propose to revegetate pit walls as we anticipate that they will self-vegetate with native flora over time, providing a self-sustaining eco-system appropriate for the life zone of the surrounding area, i.e., steep-canyon wildlife habitat. Additionally, federal and state safety rules and regulations prohibit access to benches left in the pit walls due to restrictions regarding work under rock highwalls and ingress/egress limitations.

4.8 Perpetual Care – 19.10.6.603.H

The Copper Flat facility will be reclaimed in conformance with the Reclamation and Closure Plan, as approved. The Plan is designed to meet all of the applicable environmental requirements of the Act, 19.10.6 NMAC, the NMED Copper Rules and other laws following closure. As indicated above, NMCC will reclaim the disturbed areas consistent with the BLM's land management plan as currently approved. The lands surrounding the site are currently self-sustaining and do not require perpetual care. After the lands disturbed by NMCC's mining activities are reclaimed, the land will return to being self-sustaining requiring no perpetual care following closure.

5.0 REFERENCES

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Appendix E

Mine Reclamation and Closure Plan

Copper Flat Mine

Golder Associates Inc.

October, 2016

Revision 1
July, 2017

REPORT

APPENDIX E

MINE RECLAMATION AND CLOSURE PLAN

COPPER FLAT MINE



Submitted To: Mr. Jeffrey Smith, PE
Chief Operating Officer
THEMAC Resources Group Ltd.
Copper Flat Mine Project
4253 Montgomery Blvd. NE, Suite 130
Albuquerque, NM 87109

Submitted By: Golder Associates Inc.
5200 Pasadena Avenue N.E., Suite C
Albuquerque, NM 87113 USA

Distribution:

2 Copies – Mining and Minerals Division
2 Copies – New Mexico Environment Department
3 Copies – THEMAC Resources Group Ltd.
2 Copies – Golder Associates Inc.

October 7, 2016
Revision 1 July 17, 2017

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This report documents the Reclamation and Closure Plan for all of the mine facilities and disturbed areas associated with New Mexico Copper Corporation's Copper Flat project located near Hillsboro, New Mexico in Sierra County. The designs included herein were developed at a level consistent with preliminary designs for agency review. Development of this report and associated preliminary reclamation and closure designs was conducted under the oversight of the following Golder staff:



7-13-17

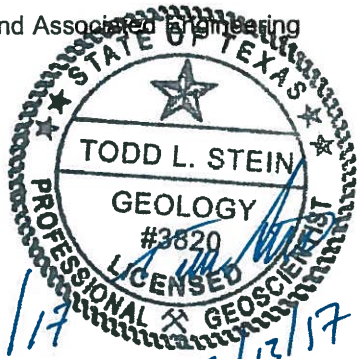
Jeffrey Clark, PE — Date 7-13-17

(Senior Level Review of Preliminary Mine Reclamation and Closure Design Drawings and Associated Engineering Calculations)

7/13/17

Heather Lammers, Project Engineer — Date

(Preparation of Preliminary Mine Reclamation and Closure Design Drawings and Associated Engineering Calculations)



7/13/17

Todd Stein, PG — Date 7/13/17

(Preparation of Copper Flat Mine Reclamation and Closure Plan Document)

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1.0 INTRODUCTION

Golder Associates has been contracted by New Mexico Copper Corporation (NMCC) to prepare a Mine Reclamation and Closure Plan for its Copper Flat project located near Hillsboro, New Mexico in Sierra County (**Figure E1**). This reclamation and closure plan describes the approach for reclamation of all of the disturbed areas described in NMCC's Mine Operations and Reclamation Plan document to which this document is attached as Appendix E. The reclamation and closure plan and associated design criteria conform to: (1) the closure requirements in the Copper Mine Rules (*Subsection A of 20.6.7.18 NMAC, 20.6.7.33 NMAC, 20.6.7.34 NMAC and 20.6.7.35 NMAC*); (2) reclamation requirements described 19.10.6.602.D(15) NMAC and 19.10.6.603 NMAC (requirements established as part of the New Mexico Mining Act); and (3) applicable mine reclamation regulations set forth by the Bureau of Land Management (BLM) (3809.401(b)(3) and 3809.420(b)(3)). The goal for reclamation of the site is to re-establish the post-mining land uses consistent with the pre-mining land uses of the site and the surrounding area, i.e., wildlife habitat, grazing, mining, watershed and recreation as identified by the BLM in its approved Land Use Management Plan (BLM, 1986).

The Reclamation and Closure Plan and associated design criteria for the individual Copper Flat facilities are described in Section 2. Section 3 details how the plan will be implemented with regards to regrading operations, growth media placement and the revegetation plan. Section 4 describes the projected reclamation schedule and sequence of reclamation activities. Section 5 details the performance and reclamation standards and requirements. Section 6 provides the references associated with the citations included within the report.

2.0 RECLAMATION AND CLOSURE PLAN DESIGN CRITERIA

This Reclamation and Closure Plan was developed with consideration of the site-specific conditions that exist at the Copper Flat Mine as a result of previous mine operations at the site by Quintana Minerals, and will exist at the cessation of NMCC's proposed mining operations (end of mine life). The general setting of the Copper Flat Mine area is shown on **Figure E2** (existing features) and **Figure E3** (end of mine life features). The designs are depicted in the drawing set provided in **Attachment E1** of this Plan and have been developed to provide sufficient detail to calculate the financial assurance cost estimate when the Plans are deemed approvable.

The Reclamation and Closure Plan is subdivided into five major facility areas and several ancillary facilities, including:

Major Facility Areas:

- Existing Waste Rock Stockpiles (EWRSPs)
- Proposed Waste Rock Stockpiles (WRSPs)
- Tailings Storage Facility (TSF)
- Open Pit
- Plant Area

Ancillary Facilities:

- Surface Impoundments and Reservoirs
- Growth Media (i.e., Topdressing) Stockpiles
- Other Ancillary Facilities

Each of the major facility areas are discussed in Sections 2.1 through 2.5, and the ancillary facilities are discussed in Sections 2.6 through 2.8. The plans and methods developed herein represent detailed designs for reclamation of the facilities sufficient for agency review and approval. Construction design documents and construction quality assurance/construction quality control (CQA/CQC) plans will be prepared by NMCC for submittal to and approval by the State of New Mexico within 180 days of submission of a notice of intent to implement the closure plan per the Copper Rule (20.6.7.34.B, NMAC). The CQA/CQC plan will provide a detailed description of the work proposed to be performed and the final reclamation designs for the facilities to be closed. Post-closure monitoring activities will be conducted in accordance with Section 20.6.7.35 NMAC, and post-closure monitoring and maintenance requirements that may be contained in the Copper Flat Mine Permit.

This Reclamation and Closure Plan describes: (1) contemporaneous reclamation that will be conducted, to the extent practicable, during mine operations; (2) facilities to be closed following cessation of mining operations; and (3) components that will be retained following closure of the site. A summary of the key design criteria for reclamation of the facilities to be closed is presented in **Table E1**.

Table E1. Proposed Copper Flat Reclamation Design Criteria

Facilities to be Reclaimed	Outslope Angle (Interbench)[1,2]	Cover Thickness[3,4]	Bench Width[2,5]	Interbench Slope Length[2,6]	Top Surface Slope[7,8]	Bench Cross Slope[5]	Bench Longitudinal Slope[5]	Surface Water Conveyances[2,9]	Comments
Existing Waste Rock Stockpiles (EWRSPs)									
EWRSP-1	3.0H:1.0V max.	36" min.	NA	200' max.	Between 1.0% and 5.0%	NA	NA	Armored channels designed to convey peak flows from 100-year, 24-hour storm event	Requires a pullback from Grayback Diversion to maintain 25-foot setback from diversion. Top surfaces and outslopes to be graded to drain back to Grayback Diversion. Area located east and south of EWRSP-1 will be backfilled and regraded to direct stormwater flows to the Grayback Arroyo Diversion via proposed toe channel TC-2. Will also regrade and cover the diversion containment dike located south of EWRSP-1. There are no slopes greater than 200 feet in length so no benches are required.
EWRSP-2A	NA	0" to 6"		NA	NA			NA	Stockpile will get partially consumed by proposed WRSP-1. Portion that does not get consumed and located outside the OPSDA will get moved to EWRSP-2B or reclaimed as part of WRSP-1 reclamation. Disturbed surfaces will be graded, ripped and covered with 6-inches of suitable cover material where unsuitable growth media exists.
EWRSP-2B	3.0H:1.0V max.	36" min.		200' max.	Between 1.0% and 5.0%			Armored channels designed to convey peak flows from 100-year, 24-hour storm event	Waste material to the north of EWRSP-2B also gets graded and covered. Disturbed areas get graded, ripped, and seeded. There are no slopes greater than 200 feet in length so no benches are required.
EWRSP-3	3.0H:1.0V max.	36" min.		200' max.	Between 1.0% and 5.0%			Armored channels designed to convey peak flows from 100-year, 24-hour storm event	Will be reclaimed as part of the Plant Area reclamation program. There are no slopes greater than 200 feet in length so no benches are required.
EWRSP-4	3.0H:1.0V max.	36" min.		200' max.	Between 1.0% and 5.0%			Armored channels designed to convey peak flows from 100-year, 24-hour storm event	The area between the two lobes of EWRSP-4 will be filled in with clean mine waste during the pre-production years. For reclamation design purposes it is assumed that the area is filled in prior to reclamation. Top surface to be graded to drain back toward the open pit, and the top surface will be used as an equipment and laydown area during operations. There are no slopes greater than 200 feet in length so no benches are required.

Table E1. Proposed Copper Flat Reclamation Design Criteria (continued)

Facilities to be Reclaimed	Outslope Angle (Interbench)[1,2]	Cover Thickness[3,4]	Bench Width[2,5]	Interbench Slope Length[2,6]	Top Surface Slope[7,8]	Bench Cross Slope[5]	Bench Longitudinal Slope[5]	Surface Water Conveyances[2,9]	Comments
New Proposed Waste Rock Stockpiles (WRSPs)									
WRSP-1	2.75H:1.0V max.	36" min.	25'	200' max.	Between 1.0% and 5.0%	1%	1%	Armored channels designed convey peak flows from 100-year, 24-hour storm event	This stockpile is located within the OPSDA and the outslopes will be graded to 2.75H:1V. Portion of EWRSP-2A located along northern perimeter of WRSP-1 will get consumed by this stockpile and reclaimed as part of WRSP-1.
WRSP-2	3.0H:1.0V max.			200' max.					WRSP's 2 and 3 will be reclaimed as one single facility. Southeastern toe to be set back a minimum of 50' from Grayback Arroyo. A portion of the stormwater conveyance channel located at the foot of WRSP-3 will not be covered over by the reclaimed stockpile. This portion will be reclaimed by backfilling with clean fill, surface to be graded to drain and blend into the natural topography. Surface area of the exposed channel will be ripped, and covered with 6-inches of suitable cover material where unsuitable growth media exists after grading.
WRSP-3									
Surface Impoundments	NA	0" to 6"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	NA	HDPE liners will be ripped, folded over and buried in place, and impoundments backfilled with clean fill, surface to be graded to drain and blend into the natural topography. Surface area to be ripped and covered with 6-inches of suitable cover material where unsuitable growth media exists after grading.
Growth Media Stockpiles (GMSPs)									
GMSP-1	NA	0"	NA	NA	Blended to natural topography	NA	NA	NA	The footprint areas of the growth media stockpiles will be graded to drain and recontoured to blend into the natural topography. It is anticipated that the only area that may require cover is GMSP-3 which is underlain by andesitic bedrock. The other two stockpile areas are underlain by alluvial materials (suitable growth media).
GMSP-2		0"							
GMSP-3		Up to 6"							
Tailing Storage Facility (TSF)									
Tailing Storage Facility	Between 3.0H:1.0V and 3.5H:1.0V	36" min.	25'	Between 200 feet (3H:1V) and 250 feet (3.5H:1V)	Between 1.0% and 5.0%	1%	1%	Armored channels designed to convey peak flows from 100-year, 24-hour storm event	The toe of the TSF to stay where it's at due to the underlying HDPE liner and associated HDPE lined toe berm.

Table E1. Proposed Copper Flat Reclamation Design Criteria (continued)

Facilities to be Reclaimed	Outslope Angle (Interbench)[1,2]	Cover Thickness[3,4]	Bench Width[2,5]	Interbench Slope Length[2,6]	Top Surface Slope[7,8]	Bench Cross Slope[5]	Bench Longitudinal Slope[5]	Surface Water Conveyances[2,9]	Comments
Tailing Storage Facility (TSF)									
Tailings Pipeline Corridor	3.0H:1.0V max	36" min	NA	NA	Conveyance channel min. 1.0% slope	NA	NA	Armored channel designed to convey peak flows from 100-year, 24-hour storm event	The approximate 1,000-foot long tailings pipeline corridor that facilitates the tailings pipeline will be partially backfilled to allow for the construction of conveyance channel DCS-5 that will direct stormwater flows from the covered top surface and the northwest slopes of the TSF to Grayback Arroyo. The pipeline corridor will be backfilled with clean fill in lifts, and each lift will be compacted. The remaining exposed slopes of the pipeline corridor will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media.
Surface Impoundments	NA	0" to 6"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	NA	See above description in WRSPs.
Cyclone Plant Area	NA	6" to 36"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	NA	All structures and equipment at the cyclone plant will be removed from the site and disposed of in an approved manner according to applicable federal and state laws; concrete foundations will be broken and covered with 36" of growth media; remaining disturbed areas will be graded, ripped, and covered with 6" of growth media.
Open Pit									
Open Pit	NA	NA	NA	NA	NA	NA	NA	Armored channels designed to convey peak flows from 100-year, 24-hour storm event	Earthen berm will be constructed around the perimeter of the open pit to limit public access and reduce the physical safety hazard. Surface water conveyance channels will be constructed around the north, east, and south perimeter of the pit (immediately upstream of the perimeter berm/security fence) and along the existing haul road to direct surface water around and into the pit. Stormwater from the west perimeter will be directed to the Grayback Arroyo Diversion. It is assumed there will be an approximate 100-foot-wide disturbance area around the pit that will be ripped and revegetated. The 100-foot width is a generalized approximate average width of disturbance around the pit perimeter that occurs during mining operations. The actual width of disturbance will vary by location. In some areas there may be little or no disturbance.
Plant Area									
Buildings and Structures	NA	6" to 36"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	Armored channels designed to convey peak flows from 100-year, 24-hour storm event	All fuel tanks, reagent storage facilities, and equipment will be removed from the site and disposed of in an approved manner according to applicable federal and state laws; concrete foundations will be broken, walls toppled, backfilled, and covered with 36" of growth media; remaining disturbed areas will be graded, ripped, and covered with 6" of growth media.

Table E1. Proposed Copper Flat Reclamation Design Criteria (continued)

Facilities to be Reclaimed	Outslope Angle (Interbench)[1,2]	Cover Thickness[3,4]	Bench Width[2,5]	Interbench Slope Length[2,6]	Top Surface Slope[7,8]	Bench Cross Slope[5]	Bench Longitudinal Slope[5]	Surface Water Conveyances[2,9]	Comments
Plant Area									
Surface Impoundments	NA	0" to 6"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	Armored channels designed to convey peak flows from 100-year, 24-hour storm event	See above description in WRSPs.
Pipelines, Pipeline Corridors	NA	0" to 6"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	Armored channels designed to convey peak flows from 100-year, 24-hour storm event	Residual sediments and fluids will be flushed from the pipelines and placed in the TSF prior to reclamation of this facility, or at an approved location. Above-ground pipelines will be disposed of in the TSF prior to reclamation of this facility, or at a nearby approved construction and debris landfill. Buried pipelines will be capped at both ends. Disturbed surfaces will be graded, and covered with 6-inches of suitable cover material where unsuitable growth media exists.
Electrical Infrastructure	NA	0" to 6"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	Armored channels designed to convey peak flows from 100-year, 24-hour storm event	Removal of on-site overhead lines and power poles and disconnect from the 115kV line owned by Tri-State Generation and Transmission. The electrical substation and associated transmission lines will be closed once they are no longer needed. Disturbed surfaces along corridor will be graded, ripped, and covered with 6-inches of suitable cover material where unsuitable growth media exists.
Ancillary Facilities									
Pipelines, Pipeline Corridors	NA	0" to 6"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	NA	See above description in Plant Area.

Table E1. Proposed Copper Flat Reclamation Design Criteria (continued)

Facilities to be Reclaimed	Outslope Angle (Interbench)[1,2]	Cover Thickness[3,4]	Bench Width[2,5]	Interbench Slope Length[2,6]	Top Surface Slope[7,8]	Bench Cross Slope[5]	Bench Longitudinal Slope[5]	Surface Water Conveyances[2,9]	Comments
Ancillary Facilities									
Surface Impoundments	NA	0" to 6"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	NA	See above description in WRSPs.
Mine Access Roads									Access roads not needed for closure and post-closure access will be reclaimed by ripping and revegetating the surfaces. Roads will be ripped, and covered with 6-inches of suitable cover material where unsuitable growth media exists. Culverts will be removed if they are not needed for post-closure storm water management and disposed of in an approved manner. Closure and post-closure access roads will be reduced to a width suitable for single vehicle access. Existing roads utilized for closure and post-closure access that are wider than that required for single vehicle access will be narrowed during reclamation by ripping, grading and covering with 6-inches of suitable cover material where unsuitable growth media exists.
Substation and Electrical Transmission Infrastructure	NA	0" to 6"	NA	NA	Blended to natural topography with a min. 1.0%	NA	NA	NA	See above description in Plant Area.
Other Disturbed Areas									Surfaces will be graded, ripped, and covered with 6-inches of suitable cover material where unsuitable growth media exists.

Notes:
NA – Not Applicable
OPSDA – Open Pit Surface Drainage Area
[1] – Outslopes will be graded in accordance to 20.6.7.33.C(3) NMAC which states: "The outslopes of all tailing impoundments, waste rock and leach stockpiles at a copper mine facility shall be constructed to an interbench slope no steeper than three horizontal to one vertical (3H:1V). Alternative slope gradients may be allowed within an open pit surface drainage area, or if the permittee provides information showing that the cover performance objectives in Subsection F of this Section are met and the exception is approved by the department."
[2] – For the growth media stockpiles, it is assumed that the majority of the growth media will be used for cover on the reclaimed facilities and that there will be little to no growth media remaining following closure of these facilities (no outslopes, benches, or surface water conveyances).
[3] – Cover systems for the EWRSPs, WRSPs, and TSF will be in accordance to 20.6.7.33.F NMAC which states: "Any cover system installed at an existing copper mine facility after the effective date of the copper mine rule shall be a store and release earthen cover system with a thickness of thirty-six inches…"
[4] – The growth media stockpile areas, disturbed areas, and other ancillary facilities will not require additional cover unless sufficient native growth media is not present in the area (such as area underlain by bedrock). In areas with insufficient residual growth media, an additional six inches of cover material will be added to promote vegetative growth as part of the reclamation plan. The surfaces will be graded to drain and recontoured to blend into the natural topography, the graded area will then be ripped to a depth of between 12 and 18 inches and then seeded.
[5] – In accordance with 19.10.5.507 NMAC "final surface configuration of the disturbed area shall be suitable for achieving a self-sustaining ecosystem or approved post-mining land use".
[6] – Slopes lengths will be in accordance with 20.6.7.33.C(4) NMAC which states: "The maximum uninterrupted slope lengths shall be no greater than 300 feet for 4.0:1, 200 feet for 3:1 slopes and 175 feet for 2.5:1 slopes."
[7] – The top surfaces of the EWRSPs and WRSPs will be graded in accordance to 20.6.7.33C(2) NMAC which states: "The top surfaces of all waste rock and leach stockpiles at a copper mine facility shall be constructed to a minimum final grade of 1%."
[8] – The top surface of the TSF will be graded in accordance to 20.6.7.33. C(1) NMAC which states: "The top surfaces of all tailing impoundments at a copper mine facility shall be constructed to a minimum final grade of 0.5% after accounting for the estimated magnitude and location of large scale settlement due to totaling consolidation or differential settlement." The reclamation plan for the TSF is to grade the top surface to a minimum grade of 1%.
[9] – Surface water conveyances will be constructed in accordance to 20.6.7.33. A NMAC which states: "Permanent storm water conveyances, ditches, channels, and diversions required for closure of a discharging facility at a copper mine facility shall be designed to convey the peak flow generated by the 100 year return interval storm event."

2.1 Existing Waste Rock Stockpiles

There are four existing waste rock stockpiles at the site, EWRSP-1, EWRSP-2A and 2B, EWRSP-3 and EWRSP-4 (**Figure E2**). The four stockpiles were developed in the early 1980's by Quintana Minerals Corporation. The size and volume of the four EWRSPs are listed in **Table E2**.

Table E2. EWRSP Details

Facility	Size[1] (Acres)	Volume[2] (tons)
EWRSP 1	15.34	486,000
EWRSP 2A & 2B	21.06	760,050
EWRSP 3	19.54	333,300
EWRSP 4	22.62	1,000,050

Notes:
[1] – Includes stockpile areas and associated disturbance areas.
[2] – Provided by NMCC

NMCC will conduct contemporaneous reclamation of these EWRSP's to the extent practicable. EWRSP-1 is located at the western edge of the site within the current open pit surface drainage area (OPSDA), as shown on Drawings G-002 and C-001, and contains approximately 324,000 cy of waste rock. EWRSP-2, consists of two waste rock disposal areas and associated disturbed areas (EWRSP-2A and EWRSP-2B) located northeast of the open pit. Combined, these two disposal areas are estimated to contain approximately 506,700 cy of waste rock. EWRSP-3, located immediately east of the QMC crusher foundation and approximately 3,000 feet east of the pit, is estimated to contain approximately 222,200 cy of waste rock. EWRSP-4 is located southeast of the open pit and contains approximately 666,700 cy of waste rock. NMCC will use a portion of the top surface of EWRSP-4 for an equipment/supply laydown yard during the future mining operations.

In addition to the existing waste rock stockpiles described above, there is 73,000 cy (110,000 tons) of unprocessed ore mined by Quintana Minerals also stockpiled at Copper Flat. This material will be used by NMCC for process plant commissioning and startup.

EWRSP-1, EWRSP-2B, and a portion of EWRSP-2A, as shown on Drawings C-003 and C-004, will be reclaimed during the pre-production phase of mine operations. Reclamation of EWRSP-1 will result in the area draining to the Grayback Arroyo diversion, and thus, outside the surface expression of the OPSDA in that area. EWRSP-3 (see Drawing C-010) will be reclaimed at the end of mine life as part of the plant area reclamation. The outslope of EWRSP-4 will also be reclaimed during the pre-production phase of mine operations. The top surface of EWRSP-4 will be regraded to drain toward the open pit to capture and route surface runoff during operations to the mine pit. EWRSP-4 will be reclaimed at the end of mine life after the area is no longer needed for an equipment/supply laydown yard.

Reclamation designs for the EWRSPs are based on an overall slope of 3H:1V with maximum 200-foot slope lengths. Final reclamation designs for the EWRSPs will be prepared and submitted to the agencies along

with CQA/CQC plans within 180 days of submission of a notice of intent to implement the reclamation plan and may adjust the designs presented herein. The reclamation design criteria for the EWRSPs are summarized in **Table E1** and the design strategy for closure of these facilities are described below. Reclamation design drawings for the facilities are presented in **Attachment E1**.

2.1.1 Components To Remain At Closure

There are certain components and related engineering controls associated with the EWRSPs and associated disturbance areas that will be used for post-closure purposes, including:

- The existing Grayback Diversion Channel;
- The clean water diversion channel located at the north perimeter of EWRSP-2B;
- Access for small vehicles for future monitoring of the reclaimed areas; and
- Groundwater monitoring wells and surface water samplers that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.1.2 EWRSP Reclamation and Closure Plan

The approach for reclamation and closure of the EWRSPs is summarized below and the associated reclamation schedule and sequence is summarized in Section 4.0. The reclamation designs for the EWRSPs are detailed in sheets C-001 through C-006, C-015 and C-016 in **Attachment E1**. The approach for reclamation and closure of the EWRSPs include the following:

- Waste rock adjacent to the Grayback Diversion pulled back from EWRSP-1 or moved to provide clear separation between the final toe of the reclaimed stockpile and the bank of the Grayback Diversion channel;
- The portion of the EWRSP-2A that lies within the footprint of proposed WRSP-1 incorporated into this new stockpile;
- The portion of EWRSP-2A located outside of the OPSDA boundary relocated to the top of EWRSP-2B located inside the OPSDA boundary;
- Grading of the EWRSP top surfaces to a final grade of between 1 and 5% to direct storm water to slope drainage channels;
- Grading of the EWRSP outslopes down to an overall slope of 3.0H:1V with maximum uninterrupted slope lengths of 200 feet;
- Covering of the top surfaces and outslopes of the EWRSPs with 36 inches of growth media;
- Backfilling and grading of the area located east and south of EWRSP-1 to direct stormwater flows to proposed toe channel TC-2.
- Construction of an earthen protective safety/containment berm around the outer edge of the equipment/supply laydown yard on top of EWRSP-4 to prevent surface water run-on onto the top surface and to provide a safety berm for vehicles and equipment operating in the area;
- Construction of surface water conveyance channels on the top surfaces (where required) to direct surface water off the covered stockpile surfaces. Surface water directed to the OPSDA for the top surfaces and interior slopes of EWRSPs 2B, 3, and 4 and to the exterior for the exterior slopes. Surface water directed to the exterior to Grayback Diversion for the top surfaces, slopes, and area east and south of EWRSP-1;

- Construction of energy-dissipation structures at channel outlets to reduce erosive velocities where necessary. Where possible channels will be constructed to incorporate existing topography, grade controls and exposed inert bedrock to promote long-term integrity of the structures;
- Construction of diversion swales and/or surface water conveyance channels to prevent storm water run on onto the EWRSPs;
- Grading and ripping of the disturbed areas associated with the EWRSPs to provide positive drainage. Where adequate growth media does not exist, areas will be ripped and covered with 6-inches of growth media;
- Ripping and seeding of covered and disturbed areas to reestablish vegetation using a seed mix approved by the BLM and MMD, seeding of the equipment and material storage area on top of EWRSP-4 will be completed as part of the plant area reclamation; and
- Installation, operation, and maintenance of groundwater monitoring wells that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.2 Proposed Waste Rock Stockpiles

Waste rock will be hauled from the mine pit and placed in three proposed new waste rock stockpile (WRSP) areas shown on **Figure E3**. The planned sizes and capacities of the three WRSPs at the end of mine life are listed in **Table E3**.

Table E3. Proposed WRSP Details

Facility	Size[1] (Acres)	Storage Volume[2] (MT)
WRSP 1	39.71	3.16
WRSP 2	48.78	8.64
WRSP 3	121.35	32.89

Notes:
[1] – Includes stockpile areas and associated disturbance areas.
[2] – Provided by NMCC
MT – Million tons

Proposed waste rock stockpiles WRSP-1, WRSP-2 and WRSP-3 will be constructed in areas of the site that are completely underlain by andesite bedrock, a geologic formation that has a transmissivity of less than 10^{-6} centimeters per second (SRK, 2013). The proposed WRSPs will cover approximately 210 acres at final built-out, and will be constructed by end dumping in lifts approximately 75 feet high. The outslopes of the stockpiles will be built at angle of repose with benches sufficiently wide enough on each lift to allow grading the final slope and allow sufficient space for cross slope ditches.

Reclamation of the WRSP areas will be completed after the cessation of mining operations. However, select areas may be reclaimed contemporaneous during mine operations. NMCC is committed to maximizing contemporaneous reclamation activities, to the extent practicable, at the Copper Flat Project that will reduce erosion, provide early impact mitigation, limit costs and reduce final reclamation work. For example, portions of WRSP-3 may begin to be reclaimed by regrading and contouring of the WRSP beginning on the north side and proceeding south after the area is filled. Also, some roads that are no longer required for operations may be decommissioned and reclaimed contemporaneously during the active

mining operation. Reclamation efforts will be implemented as soon as practicable in areas where activities are discontinued. This includes recontouring, scarifying/ripping, placement of topdressing or other approved growth media, followed by revegetation.

Reclamation designs for the proposed WRSP-2 and WRSP-3 are based on an inter-bench slope of 3.0H:1V, 25-foot wide terrace benches, and maximum 200-foot inter-bench slope lengths to allow for flexibility in the final design of the terrace benches. With these designs, the overall outslope gradient from the crest to toe is generally 3.5H:1V. For WRSP-1, which is located within the OPSDA, reclamation designs are based on an inter-bench slope of 2.75H:1V, 25-foot wide terrace benches, and maximum 200-foot inter-bench slope lengths. With these designs, the overall outslope gradient from the crest to toe for WRSP-1 ranges between 3.0H:1V and 3.5H:1V. Final reclamation designs for the WRSPs will be prepared and submitted to the agencies along with CQA/CQC plans within 180 days of submission of a notice of intent to implement the reclamation plan and may adjust the overall slopes presented herein. The reclamation design criteria for the proposed WRSPs are summarized in **Table E1** and the design strategy for closure of these facilities are described below. Reclamation design drawings for the facilities are presented in **Attachment E1**.

2.2.1 Components To Remain At Closure

The closure components and related engineering controls associated with the proposed WRSPs and stockpile areas that will be used for post-closure purposes include:

- Access for small vehicles maintained for future monitoring of the reclaimed areas; and
- Groundwater monitoring wells and surface water samplers that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.2.2 WRSP Reclamation and Closure Plan

The approach for reclamation and closure of the WRSPs is summarized below and the associated reclamation schedule and sequence is summarized in Section 4.0. The reclamation designs for the WRSPs are detailed in sheets C-007 through C-010 in **Attachment E1**. The approach for reclamation and closure of the WRSPs include the following:

- Grading of the proposed WRSP top surfaces to a final grade of between 1 and 5% to direct storm water to slope drainage channels;
- Grading of proposed WRSP-2 and WRSP-3 outslopes down to interbench slopes of 3.0H:1V;
- Construction of 25 foot wide terrace benches on the outslopes of proposed WRSP-2 and WRSP-3 at maximum slope lengths of 200 feet;
- Grading of proposed WRSP-1 outslopes down to interbench slopes of 2.75H:1V;
- Construction of 25 foot wide terrace benches on the outslopes of proposed WRSP-1 at maximum slope lengths of 200 feet;
- Covering of the top surfaces and outslopes of the proposed WRSPs with 36 inches of growth media;

- A portion of the stormwater conveyance channel located at the foot of WRSP-3 will be covered over as part of the push-down of WRSP-3. The portion of the conveyance channel not covered over by regrading will be reclaimed by backfilling with clean fill and consolidated. The backfilled channel will be graded to drain and the surfaces re-contoured to blend into the natural topography. The re-contoured surfaces will be ripped and covered with 6-inches of suitable cover material where unsuitable growth media exists after grading. The covered/backfilled areas will then be seeded to reestablish vegetation using a seed mix approved by the BLM and MMD.
- Construction of surface water conveyance channels on the top surfaces (as needed), terrace benches, and downslope channels to direct surface water off the covered stockpile surfaces. Surface water will be directed to the OPSDA for the top surface and interior slopes of WRSP-1, and to the exterior of the mine for WRSP-2 and WRSP-3;
- Construction of diversion swales and/or surface water conveyance channels to prevent storm water run on onto the stockpiles;
- Construction of energy-dissipation structures at channel outlets to reduce erosive velocities where necessary. Where possible channels will be constructed to incorporate existing topography, grade controls and exposed inert bedrock to promote long-term integrity of the structures;
- Grading of the disturbed areas associated with the stockpiles to provide positive drainage;
- Ripping and seeding of covered and disturbed areas to reestablish vegetation using a seed mix approved by the BLM and MMD; and
- Installation, operation, and maintenance of groundwater monitoring wells that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.3 Tailings Storage Facility

The proposed TSF will include an HDPE-lined tailings impoundment with an associated underdrain collection system and underdrain collection pond for the impoundment and the dam, and a water reclaim system to maximize water reuse. The TSF will also include a cyclone plant to separate the tailings coarse and fine fractions and a surge pond to handle potential upset conditions at the Copper Flat Project. The proposed TSF and associated ancillary facilities will cover approximately 564 acres at full capacity (**Figure E3**) and will be constructed using the centerline construction method. During operation, the embankment outslopes and impoundment top surface will be shaped to facilitate final grading at reclamation. The proposed TSF design will comply with the design and dam-safety guidelines of the New Mexico Office of the State Engineer (OSE) Dam Safety Bureau. The tailings impoundment is designed to store 113 million tons of tailings produced over approximately 11 years, with tailings deposition occurring at an average rate of approximately 27,900 tons per day over the life of the mine. Additional details on the TSF design are provided in the Feasibility Level Design Report for the TSF (Golder, 2015).

The Feasibility Level Design Report for the TSF indicates that the maximum down-drain flow rate at final buildout of the dam is anticipated to be approximately 448 gallons per minute (gpm) from the dam underdrain and 66 gpm from the impoundment underdrain. The TSF embankment (dam) will be constructed of cyclone underflow sand fill which is coarser and has a higher permeability than the cyclone overflow material that is deposited within the TSF impoundment. This means that the TSF embankment

will drain quickly in comparison to the impoundment and is, therefore, anticipated to undergo reclamation sooner than the impoundment surface. It is currently estimated that it will take approximately 2 to 3 years for the TSF embankment to drain sufficiently to begin reclamation. It is also anticipated that some reclamation of the impoundment can begin within 5 years of cessation of operations as the impoundment continues to drain and dry, allowing construction equipment to be utilized to commence cover placement. The underdrain systems will continue to operate after cessation of operations. An "active" underdrain water management program will commence thereafter, including pumping captured water from underdrain collection pond back to the impoundment surface of the TSF and use of forced or enhanced evaporation equipment to reduce the volume of the water. The duration of continued operation of the "active" water management system will, be driven by the volume of water that continues to drain from the impoundment. For planning purposes NMCC has assumed that there will be 5 years of operation of the active program followed by 20 years of "passive" drain-down water management. After decommissioning of the active program and full reclamation of the TSF, any water that may continue to drain from the TSF (at ever decreasing rates for an estimated 20 years) will be captured in an evaporation pond that will be constructed below the toe of the TSF within the mine permit area. The underdrain collection pond will be incorporated into this evaporation pond. Details of the TSF drain-down water management program, including the design of the evaporation ponds, are included in **Attachment E2**.

Reclamation designs for the proposed TSF are based on an inter-bench slopes ranging between of 3H:1V and 3.5H:1V, 25-foot wide terrace benches, and inter-bench slope lengths of between 200 feet (3H:1V) and 250 feet (3.5H:1V). With these designs, the overall outslope gradient from the crest to toe ranges between approximately 3.0H:1V and 3.6H:1V. Final reclamation designs for the TSF will be prepared and submitted to the agencies along with CQA/CQC plans within 180 days of submission of a notice of intent to implement the reclamation plan and may adjust the overall slopes presented herein. The reclamation design criteria for the proposed TSF are summarized in **Table E1** and the approaches for closure of this facility are described below. Reclamation design drawings for the TSF are presented in **Attachment E1**.

2.3.1 Components To Remain At Closure

The closure components and related engineering controls associated with the TSF area that will be used for post-closure purposes include:

- Access for small vehicles maintained for future monitoring of the reclaimed areas; and
- Groundwater monitoring wells and surface water samplers that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.3.2 TSF Reclamation and Closure Plan

The approach for closure of the proposed TSF is summarized below and the associated reclamation schedule and sequence is summarized in Section 4.0. The reclamation designs for the TSF are detailed in sheets C-011 and C-012 in **Attachment E1**. The approach for closure of the TSF is outlined below. The

approach contains three fundamental components to successful completion of reclamation: (1) efficient grading of embankment outslopes and impoundment top surface; (2) a short-term active or forced water evaporation component; and (3) a long-term passive operation component. Utilization of active evaporation will allow the cover to begin to be placed on those areas of the top of the impoundment that become sufficiently "dry" to accept machinery. The goal of the active phase of evaporation is to dry the top of the impoundment as soon as possible to allow as much of the cover to be placed as possible, and eventually placing all of the cover on the impoundment. The active evaporation phase includes the following:

- Maintain the HDPE-lined runoff collection berm constructed during operations at the toe of the dam to capture surface water runoff from the outer slopes of the dam and route it to the TSF underdrain collection pond prior to cover placement on the TSF embankment. Following cover placement on the embankment, surface water runoff will be routed to the nearest natural drainage;
- The storm water diversion ditches will be maintained to limit surface water run on onto the TSF;
- The TSF underdrain collection system will be maintained to collect drain down water from the TSF and direct it to the TSF underdrain collection pond during the active evaporation period;
- Maintenance of the HDPE-lined runoff collection trench at the toe of the dam to capture surface water runoff from the outer slopes of the TSF and route it to the TSF underdrain collection pond prior to cover placement, and to an offsite drainage after cover placement on the outslope;
- Maintenance of the HDPE-lined TSF underdrain collection pond and associated pumps and piping to collect drain down and storm water runoff from the TSF (prior to cover placement) and direct it to the top of the TSF for active evaporation, or for direct passive evaporation within the pond;
- Grading of the TSF embankment outslope down to interbench slopes of between 3.0H:1V and 3.5H:1V (estimated to begin 2-3 years after cessation of operations);
- Construction of 25 foot wide terrace benches on the outslope of the TSF embankment at maximum slope lengths of between 200 feet (3H:1V) and 250 feet (3.5:1V);
- Covering of the embankment outslopes of the TSF with 36 inches of growth media and seeding;
- Begin grading of TSF impoundment as conditions allow (estimated to begin within 5 years of cessation of operations). Placement of growth media cover to the extent possible as conditions allow;
- Closure of surge pond at the cyclone plant as described in Section 2.6;
- All structures, tanks, storage facilities, buildings and equipment will be removed from the cyclone plant and TSF areas and disposed of in an approved manner according to applicable federal and state laws;
- Concrete foundations will be broken and covered with 36 inches of growth media;
- Pipelines will be removed or capped as described below in Section 2.8.
- The electrical power systems and associated transmission lines will be removed once they are no longer needed as described below in Section 2.8.

- Grading and ripping of the disturbed areas associated with the cyclone plant area to provide positive drainage. Where adequate growth media does not exist, areas will be covered with 6-inches of growth media;
- Ripping and seeding of covered and disturbed areas to reestablish vegetation using a seed mix approved by the BLM and MMD;
- Construction of HDPE–lined evaporation pond for management of long term drain down water from the TSF through passive evaporation at end of active evaporation phase. (This includes consolidation of the underdrain collection pond into the evaporation pond system).

Upon completion of placement of the cover on the impoundment, active evaporation will no longer be necessary. However, the impoundment will continue to drain at an ever-decreasing rate, requiring that it continue to be captured and treated. A passive evaporation phase will be implemented so that captured drain-down water can continue to be managed through evaporation and the water not be placed on the clean impoundment cover. For planning purposes it is assumed that the passive evaporation phase may last as long as 20 years after cessation of operations. NMCC, in coordination with the MMD, NMED and BLM, will determine when sufficient drain down has occurred to allow closure and reclamation of the passive evaporation system. The passive evaporation phase includes the following;

- The TSF underdrain collection system maintained to collect continued drain down water long-term, from the TSF and direct it to the evaporation pond during the passive evaporation period;
- Continue grading of the TSF top surface to a final grade of between 1 and 5% to direct storm water to the back side of the TSF;
- Complete covering of the top surfaces of the TSF with 36 inches of growth media and seeding, as conditions allow;
- The approximate 1,000-foot long tailings pipeline corridor that facilitates the tailings pipeline will be partially backfilled to allow for the construction of conveyance channel DCS-5 that will direct stormwater flows from the covered top surface and the northwest slopes of the TSF to Grayback Arroyo. The tailings pipeline corridor will be backfilled with clean fill in lifts, and each lift will be compacted. The remaining exposed slopes of the tailings pipeline corridor will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media;
- Construction of surface water conveyance channels on the top surface of the TSF and outlet structure from the top of the TSF to Grayback Arroyo to direct surface water off the covered TSF surfaces. Surface water will be directed to Grayback Arroyo and other natural drainages upon completion of cover placement;
- Construction of energy-dissipation structures at channel outlets to reduce erosive velocities where necessary. Where possible channels will be constructed to incorporate existing topography, grade controls and exposed inert bedrock, which will promote long-term integrity of the structures;
- Grading of the disturbed areas associated with the TSF to provide positive drainage;
- Ripping and seeding of covered and disturbed areas to reestablish vegetation using a seed mix approved by the BLM and MMD;
- Installation, operation and maintenance of groundwater monitoring wells that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC;

- The TSF evaporation pond will remain in place until drain down from the facility is reduced to a point to where it is no longer required for passive evaporation of these waters. This point in time will be determined in collaboration with the Agencies; and
- The evaporation pond will be reclaimed once it is no longer needed as described below in Section 2.6.2 and shown on Drawing C-012A.

2.4 Open Pit

The open pit will be mined with pit benches ranging between 16 and 28 feet wide, creating a terraced/benched pit wall. Over the 11-year life of the proposed project, approximately 113 million tons of copper ore and 45 million tons of waste rock will be mined and removed from the open pit. The proposed mining activities will enlarge the open pit over time to a diameter of approximately 2,800 feet and an area of approximately 165 acres (including an assumed average 100 foot disturbed area at the pit perimeter). The floor of the proposed open pit will be mined to an elevation of approximately 4,650 feet above mean sea level (AMSL), which will be approximately 850 feet beneath the original surface of the Copper Flat Basin in this area.

The open pit will remain a hydrologic sink capturing groundwater flowing from all directions during operations and post-closure (JSAI, 2012; JSAI, 2013; JSAI, 2014; JSAI, 2014b; JSAI, 2014c; JSAI, 2015). NMCC will conduct rapid filling of the mine pit with fresh water provided from the off-site well field as the initial step in commencing reclamation/closure. The purpose of rapid filling of the pit is to provide a source of good quality water and provide a mechanism by which the mineralized rock walls of the pit will be more quickly submerged under water, thus limiting the potential for mineral oxidation. Approximately 2,200 acre-feet of water will be required for the rapid fill, which will be completed in approximately 6 months. Thereafter, pumping water for rapid fill will be discontinued and the surface elevation of the pit lake will reach an average steady-state condition of approximately 4,895 feet above MSL over the long-term. Surface water runoff from the reclaimed facilities located within the OPSDA will be routed into the pit. Surface water conveyance channels will be constructed around the northern and eastern pit perimeter to direct surface runoff water into the pit. As noted in Section 2.1, EWRSP-1 will be reclaimed such that the western portion of the pit perimeter will be graded to drain away from the pit, into proposed toe channel TC-2 that drains to the Grayback Arroyo diversion. The reclamation design criteria for the open pit are summarized in **Table E1** and the design strategy for closure of this facility are described below. Reclamation design drawings for the open pit are presented in **Attachment E1**.

2.4.1 Components To Remain At Closure

The closure components and related engineering controls associated with the open pit area that will be used for post-closure purposes include:

- Maintenance of existing storm water diversion structures to limit surface water run on into the open pit;

- Single vehicle access maintained on the portion of the haul road remaining following construction of the open pit conveyance channel for future monitoring within of the open pit; and
- Groundwater monitoring wells in the vicinity of the open pit that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.4.2 Mine Pit Reclamation and Closure Plan

The approach for closure of the open pit is summarized below and the associated reclamation schedule and sequence is summarized in Section 4.0. The reclamation designs for the open pit area are detailed in sheets C-013 and C-014 in **Attachment E1**. The approaches for closure of the open pit area include the following:

- Rapid filling of the pit with approximately 2,200 acre-feet of water from the off-site well field over a period of approximately 6 months;
- Construction of an earthen berm around the perimeter of the open pit to limit public access and ensure that the pit area does not pose a current or future hazard to public health or safety. The berm will be constructed from local rock and soils and will be 15 to 20-foot wide at the base and 5- to 6-feet high with side slopes angled at 1.5H:1V;
- Construction of surface water conveyance channels around the perimeter of the pit (immediately upstream of the perimeter berm/security fence) to direct surface water around the pit to the newly constructed open pit conveyance channel;
- Construction of the open pit conveyance channel along the existing haul road to direct surface water flows from around the perimeter of the pit to the pit lake;
- Construction of energy-dissipation structures at channel outlets to reduce erosive velocities where necessary. Where possible the channels will be constructed to incorporate existing topography, grade controls and exposed inert bedrock, which will promote long-term integrity of the structures;
- Grading of the disturbed areas associated with the pit perimeter, perimeter channels, and safety berm construction. It is assumed there will be an approximate 100-foot-wide disturbance area around the pit. The 100-foot width is a generalized approximate average width of disturbance around the pit perimeter that occurs during mining operations. The actual width of disturbance will vary by location. In some areas there may be little or no disturbance;
- Removal of aboveground electrical systems and infrastructure, including pumps, lighting and transmission lines not necessary for post-closure site operations and maintenance;
- Installation of a security gate at the haul road entrance into the pit to allow access for operation, maintenance, and monitoring activities to authorized personnel;
- Installation of a barbed wire fence around the outside perimeter of the pit safety berm to exclude livestock and other large mammals;
- Signs will be posted at 500-ft intervals along the security fence/earthen berm and at all access points, warning of potential hazards present;
- Ripping and seeding of disturbed areas around the pit perimeter to reestablish vegetation using a seed mix approved by the BLM and MMD; and
- Installation, operation, and maintenance of groundwater monitoring wells that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.5 Plant Area

The Copper Flat plant area will cover an area of approximately 82 acres located southeast of the existing open pit (**Figure E3**). The plant area includes the process area, primary crusher, concentrator area, laydown yard, administration/warehouse/mine shop, water tanks, process water reservoir, impacted stormwater impoundment A, tailings and process water conveyances, ancillary roadways, haul roads on the northern and southern/southwestern portion of the area, parking lot, wastewater treatment facility, fuel station, truck wash, and facilities supporting the process area. Additionally, due to its physical location within the plant area, an additional 23 acres which include EWRSP-3 will be incorporated into grading and drainage reclamation plan for the plant area.

At closure, all surface facilities, equipment and buildings will be removed from the area. The foundations associated with these structures will be buried in place. The land bridge used as the entrance access road and the land bridge at the downstream Grayback culvert will be removed as shown on Drawing C-016. The culverts at each location will also be removed as part of this process. The remaining angle of repose slopes following removal of the land bridges will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media. A small area in Grayback Arroyo downgradient from the easternmost land bridge was identified as potentially meeting the general wetland criteria of the Clean Water Act, although the area has not been formally delineated as such (Intera et al., 2012). The area, estimated to be 0.5 to1.5 acres in size, will be maintained as part of the closure plan. The reclamation design criteria for the plant area are summarized in **Table E1** and the approach for closure of this facility area is described below. Reclamation design drawings for the plant area are presented in **Attachment E1**.

2.5.1 Components To Remain At Closure

The closure components and related engineering controls associated with the plant area that will be used for post-closure purposes include:

- The Grayback Diversion Channel located along the southern perimeter of the plant area;
- Small vehicle access maintained following regrading EWRSP-3 and the access road on the western portion of the plant area for future monitoring and maintenance activities. Small vehicle access through the plant area to the open pit and WRSPs north and west of the plant area, and for access to public and private lands north and west of the mine property; and
- Groundwater monitoring wells in the vicinity of the plant area that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.5.2 Plant Process Area Reclamation and Closure Plan

The approach for closure of the plant area summarized below and the associated reclamation schedule and sequence is summarized in Section 4.0. The reclamation designs for the plant area are detailed in sheets C-015 and C-016 in **Attachment E1**. The approach for closure of the plant area includes the following:

- All fuel tanks, reagent storage facilities, buildings and equipment will be removed from the site and disposed of in an approved manner according to applicable federal and state laws;
- Concrete foundations will be broken, walls toppled, backfilled, and covered with 36 inches of growth media;
- Closure of the process water reservoir and impacted storm water impoundment A as described below in Section 2.6;
- Pipelines will be removed or capped as described below in Section 2.8;
- The electrical substation and associated transmission lines will be removed once they are no longer needed as described below in Section 2.8;
- The land bridge used as the entrance access road and the land bridge at the downstream Grayback culvert will be removed. The culverts at each location will also be removed as part of this process. The remaining angle of repose slopes following removal of the land bridges will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media;
- Ripping and grading of the top surfaces of the plant area to a slope of 1% or greater;
- Ripping and grading of the disturbed areas associated with the plant area following burial of concrete foundations, slabs, and footings to provide positive drainage (see Drawing C-016);
- Grading of EWRSP-3 top surface to a final grade of between 1 and 5% to direct storm water to slope drainage channels;
- Grading of the EWRSP-3 outslope down to a slope of 3.0H:1V;
- Regrading of all of the slopes along the perimeter of the plant area. The grading plan includes both pull back sections and pushdown sections along the perimeter of the plant area. The perimeter slopes will be graded to a slope of 3.0H:1V and covered with 36 inches of growth media;
- Covering of the top surface and outslope of the EWRSP-3 with 36 inches of growth media;
- Covering of ripped and graded disturbed areas with 6-inches of growth media;
- Construction of surface water conveyance channels to direct surface water off the covered surfaces. Surface water runoff will be directed to Grayback Arroyo;
- Construction of energy-dissipation structures at channel outlets to reduce erosive velocities where necessary. Where possible channels will be constructed to incorporate existing topography, grade controls and exposed inert bedrock, which will promote long-term integrity of the structures;
- Ripping and seeding of covered and disturbed areas to reestablish vegetation using a seed mix approved by the BLM and MMD; and
- Installation, operation, and maintenance of any additional groundwater monitoring wells that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.6 Surface Impoundments

Table E4 presents a summary of the surface impoundment list for the Copper Flat Project. There will be 6 surface impoundments present at Copper Flat at the end of mine life; 3 impacted storm water impoundments, one process water reservoir, one surge pond and one underdrain collection pond. The seventh impoundment will be a passive evaporation pond constructed after mining is complete to provide long-term passive evaporation of residual fluid drainage from the TSF. The TSF Underdrain Collection Pond

get incorporated into the TSF Evaporation Pond as it is constructed and is, therefore, included in the 22.3 acre total TSF Evaporation Pond area.

Table E4. Summary of Copper Flat Surface Impoundments

Impoundment	Size[1] (Acres)	Storage Volume[2] (Gallons)	Total Excavation Volume[3] (cy)	Required Backfill Import[3] (cy)
Impacted Storm Water Impoundment A	2.90	7,306,971	43,000	11,000
Impacted Storm Water Impoundment B	2.69	5,598,421	34,000	9,000
Impacted Storm Water Impoundment C	4.44	10,513,870	63,000	16,000
Process Water Reservoir	2.12	5,433,849	32,000	8,000
Surge Pond	1.86	1,610,000	12,000	3,000
TSF Underdrain Collection Pond	7.90	12,240,000	80,000	20,000
TSF Evaporation Pond	22.30	21,934,379	163,000	41,000
Total:	**44.21**	**64,637,490**	**427,000**	**108,000**

Notes:
[1] –Surface impoundment areas also include disturbed areas (embankment, access road, etc.) associated with each impoundment.
[2] – Surface impoundment storage volumes account for 2-feet of freeboard.
[3] – Backfill volume total = full excavation volume to match storage capacity + 2' freeboard. Import volume assumes that 75% of reclamation backfill is retrieved from excavated material stored within pond embankments, etc.
cy – Cubic yards

Typically the surface impoundments will be the last features to be closed at their respective locations after grading and cover placement of the adjacent facilities (e.g., WRSPs, TSF, plant area, mine pit).

2.6.1 Components To Remain At Closure

The closure components and related engineering controls associated with the surface impoundments that will be used for post-closure purposes include:

- Groundwater monitoring wells in the vicinity of the plant area that are required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.6.2 Surface Impoundment Reclamation and Closure Plan

All of the surface impoundments will be reclaimed after the facilities they service are reclaimed. The TSF underdrain collection pond will continue to collect water that drains from the TSF during the active evaporation phase discussed above and will be incorporated into a single evaporation pond constructed for the management of water collected during the passive evaporation phase. The evaporation pond will be constructed below the toe of the TSF to allow for passive evaporation of any residual drain down water from the TSF. The evaporation pond will remain in place until drain down from the TSF facility is reduced to a point to where it is no longer required. This point in time will be determined in collaboration with the Agencies and the pond will be reclaimed thereafter. The reclamation and closure activities for the surface impoundments consist of the following:

- Flushing of all process water pipelines to remove residual solutions and disposing of the solutions in the TSF to evaporate;

- Removing and disposing of the above-ground process pipelines in the TSF or at a nearby approved construction and debris landfill;
- Pumping of remaining water in the impoundments into the TSF to evaporate;
- Removal of all above ground impoundment electrical systems, pumps, and infrastructure, including outdoor lighting and transmission lines;
- Capping all buried process water, tailings delivery, and water delivery pipelines;
- Ripping surface impoundment HDPE liners and folding over prior to backfilling;
- Grading impoundment berms into and backfilling the impoundments with clean fill, as necessary, and consolidating the material;
- Grading the backfilled areas to drain and re-contour surfaces to blend into the natural topography;
- Covering of impoundments with 6-inches of suitable cover material where unsuitable growth media exists after grading;
- Ripping and seeding of covered and disturbed areas to reestablish vegetation using a seed mix approved by the BLM and MMD; and
- Installation, operation, and maintenance of groundwater monitoring wells that may be required for post-closure monitoring in accordance with 20.6.7.35.B NMAC.

2.7 Growth Media Stockpiles

The term “growth media” as referred to within this Plan is equivalent to topdressing as defined in 19.10.1.7.T(1) NMAC. **Figure E3** identifies the location of the growth media/cover material stockpiles GMSP-1, GMSP-2, and GMSP-3. GMSP-1 will be located at the southwest corner of the proposed TSF, GMSP-2 will be located north of the proposed TSF and north of Grayback Arroyo, and GMSP-3 will be located east of WRSP-3. Combined, these stockpiles will store an estimated 4.5 million cy of required growth media/cover material on a reclamation cover basis as shown on **Table E5**. In addition to the material stored in the stockpiles, growth media/cover material will also be salvaged as encountered during miscellaneous horizontal construction (roads, ditches, pipelines, power lines, etc.) and within the embankments constructed around the perimeter of the individual surface impoundments as also shown on **Table E5**.

Table E5. Required Reclamation Growth Media/Cover Material Storage

Facility	Size[1] (Acres)	Required Material [2, 3] (reclamation cy)
Growth Media Stockpile 1	29.33	2,197,930
Growth Media Stockpile 2	31.55	1,826,877
Growth Media Stockpile 3	14.1	511,904
Surface Impoundment Backfill Areas	NA	320,000
Horizontal Construction Alignments[4]	NA	20,000
Total:		**4,876,711**

Notes:
[1] – Includes GMSP and associated disturbance areas.
[2] – Reclamation volumes are calculated from bank volumes and account for material swell and re-consolidation at excavation, storage, re-handle, and cover placement. See Section 3.0 for factors applied.
[3] – Storage capacity of the GMSPs is sufficient to store the volume required.
[4] – Provided by NMCC. Additional material will be salvaged as encountered during miscellaneous horizontal construction (roads, ditches, pipelines, power lines).
cy – Cubic yards
NA – Not applicable

The growth media stockpile material will be consumed as part of the cover systems associated with reclamation of the site. After moving this material from the stockpiles to its location of use in reclamation, there will be a need to also reclaim the area disturbed at the stockpile location. There may be a need to leave a minimum of 6 inches of growth media material in place to provide for seeding the disturbed stockpile area. The design criteria associated with reclamation of any remaining growth media stockpile material that may be present following closure of these facilities, and the disturbed areas associated with the growth media stockpiles are summarized in **Table E1**, and the planned approach for closure of these facilities is described below.

2.7.1 Growth Media Stockpile Reclamation and Closure Plan

The approach for closure of any residual growth media stockpile material that may be present following closure of the facilities described in Sections 2.1 through 2.6 above, and the disturbed areas associated with the growth media stockpiles includes the following:

- Grading remaining growth media material and disturbed areas to drain and re-contour surfaces to blend into the natural topography;
- Ripping of the remaining growth media and disturbed areas;
- Leave a minimum of six inches of growth media material in place, as needed, within the stockpile footprints. The only area that may require a minimum of six inches of residual stockpiled growth media to remain within the stockpile footprint is GMSP-3 which is underlain by andesitic bedrock. The other two stockpile areas (GMSP-1 and GMSP-2) are underlain by alluvial materials (suitable growth media); and
- Seeding of remaining growth media and disturbed areas to reestablish vegetation using a seed mix approved by the BLM and MMD.

2.8 Ancillary Facilities and Structures

A miscellaneous group of ancillary facilities and structures will be present within the Copper Flat mine permit area including: access roads utilized during operations; HDPE pipelines and trenches; electrical power distribution system and components; storm water structures for drainage, diversion, and sediment control; equipment storage areas; and fencing. The Copper Flat project also includes several off-site facilities that are integral to the project, including an electrical substation located on 10 acres of land owned by the State of New Mexico, nine separate 5-acre mill-site claim sites associated with the fresh water production well field and an approximate 8-mile long fresh water buried pipeline contained in approximately 53 acres, 45 of which are outside of the site boundary. These facilities are considered part of the mine permit area, and all NMCC created disturbances will be reclaimed at the end of mining with the exception of the electrical substation and the fresh water production wells.

Reclamation of the disturbed areas associated with the ancillary facilities and structures will be accomplished by burying utility and structure foundations, removing and disposing of above-ground pipelines and power lines on-site, and removing all buildings erected by NMCC. Erosion and drainage control and revegetation of these areas will be provided as necessary. Surface disturbance at the five acre

mill sites will be reclaimed. The buried fresh water pipeline will be left in place. No reclamation will be required as the pipeline corridor contains natural vegetation consistent with the surrounding environs. The electrical substation will be the property of the service provider. It is assumed that the substation will continue to provide local infrastructure power supply to the area well beyond the time of cessation of operation of the mine. As such, no reclamation requirement is contemplated. The closure components and the closure activities for the ancillary facilities and structures are described below.

2.8.1 Components to Remain At Closure

The closure components and related engineering controls associated with the ancillary facilities and structures that will be used for post-closure purposes include:

- On-site power poles may be left in place to the extent possible as bird perching sites;
- Continued utilization of access roads for post closure access to the pit bottom and reclaimed facilities for reclamation monitoring and long-term access to public and private lands;
- Continued utilization of storm water control structures located along post-closure haul roads and access roads;
- The existing 115-kV transmission line and the electrical substation constructed on State land will be left in place. The local power utility owns these facilities and will be responsible for their continued operation and maintenance; and
- Preservation of existing water supply pipeline from four fresh water production wells located off-site on BLM land. The wells will remain in a condition suitable for other uses. All roads, power lines and foundations for the production wells are in place. No additional disturbance will occur during mining operations, with the exception of occasional minor disturbance that may occur during inspection and maintenance. Such disturbances will be repaired and reclaimed as they may be needed during operations. Surface structures and equipment will be removed and the well area will be left as it currently exists after closure of the mine.

2.8.2 Ancillary Facilities and Structures Reclamation and Closure Plan

The design criteria for the ancillary facilities and structures are summarized in **Table E1** and the approach for closure includes:

- Haul roads and access roads not needed for closure and post-closure access will be reclaimed. The compacted road material will be loosened by ripping to a depth of between 12 and 18 inches and covering with 6-inches of growth media where suitable growth media does not exist, and revegetated using a seed mix approved by the BLM and MMD.;
- Removal of culverts not needed for post-closure storm water management and disposal of them in an approved manner;
- Closure and post-closure access roads will be reduced to a width suitable for single vehicle access. Existing roads utilized for closure and post-closure access that are wider than that required for single vehicle access will be narrowed during reclamation by ripping, grading and covering the excess width with 6-inches of suitable cover material where unsuitable growth media exists;
- Removal of overhead lines and power poles and disconnect from the 115kV line owned by Tri-State Generation and Transmission;

- Removal of pumping stations and on-site electrical substation once they are no longer needed for post-closure water management;
- Removal of residual sediments and fluids from pipelines and disposal of materials in the TSF prior to reclamation of this facility, or at an approved location;
- Removal and disposal of the above-ground pipelines in the TSF prior to reclamation of this facility, or at a nearby approved construction and debris landfill;
- Capping all buried pipelines;
- Ripping HDPE liners within corridors;
- Backfilling of pipeline corridor trenches with clean fill, as necessary, and consolidating the material;
- Grading the backfilled areas to drain and recontouring surfaces to blend into the natural topography;
- Covering of pipeline corridors with 6-inches of suitable cover material where unsuitable growth media exists after grading;
- Ripping of non-impacted disturbed areas to a depth of 12 to 18 inches; and
- Seeding of ripped and covered areas to reestablish vegetation using a seed mix approved by the BLM and MMD.

2.9 Post-Mining Land Use

The NMMA Rules (MMD 1996) defines Post-Mining Land Use (PMLU) as:

> "a beneficial use or multiple uses which will be established on a permit area after completion of a mining project. The PMLU may involve active management of the land. The use shall be selected by the owner of the land and approved by the Director [of MMD]. The uses, which may be approved as PMLUs, may include agriculture, commercial or ecological uses that would ensure compliance with Federal, State or local laws, regulations and standards and which are feasible." 19.10.1.7. P (5) NMAC

The major land uses in the vicinity of the project area are mining, grazing, wildlife, watershed and recreation, particularly on federal lands. This multiple land management strategy concurs with the BLM administrative directives and resource management plans. Land use in the project area will not change from pre-mining approved purposes and the project area will continue to support these approved uses following closure. Post-closure land uses at Copper Flat will conform to the previously defined BLM Caballo Planning Unit, the 1986 White Sands Resource Management Plan (BLM, 1986) and the Sierra County Comprehensive Land Use Plan.

Grazing land, wildlife habitat, recreation, and mining are the PMLUs most consistent with the surrounding land uses of the Copper Flat site. NMCC will reclaim all disturbed areas in the permit boundary to support the multiple uses of grazing, wildlife habitat, and mining consistent with current BLM land uses. At completion of mining activities, the site will be reclaimed to a native plant community similar to surrounding undisturbed areas. Reclamation will result in the development of an early-stage grass/shrub community that will provide a locally-important increase in landscape-level (plant community) diversity. Native vegetation established on reclaimed areas at Copper Flat will result in increased erosion protection, habitat

improvement, forage production, and reduced net infiltration of water into the underlying materials relative to current conditions.

The open pit area will be reclaimed to the extent practicable to a wildlife habitat. A water conveyance channel will be constructed along the existing pit haul road to direct surface water flows to the pit lake. As a rule, safety protocols will not permit regrading, covering, and revegetating narrow catch benches left in pit walls and other areas that cannot be safely accessed. These areas will be allowed to revegetate themselves through natural processes. The open pit walls and benches will become wildlife habitat providing abundant rock outcroppings and cliff habitat suitable for small mammals, reptiles and birds.

3.0 IMPLEMENTATION OF RECLAMATION AND CLOSURE PLAN

At completion of mining activities, Copper Flat will be reclaimed according to the reclamation and closure plan described in Section 2.0 and the site will be restored to conditions to meet post-mining land uses of wildlife habitat, grazing land, recreation, and mining consistent with the BLM land management plan (BLM, 1986). The focus of this section is to detail regrading operations, growth media reclamation cover volumes, and placement and the revegetation plan including planting techniques and proposed seed mixes.

Throughout the Reclamation and Closure Plan, consideration of material density changes during excavation, stockpiling, and placement of cover materials have been incorporated into the available in place borrow (bank) volume, stored (stockpiled) volume, and cover (reclamation) volume estimates. Factors applied for the analyses within the reclamation plan include the following:

Reclamation Activity:	Shrink(+)/Swell (-) Factor Applied:	Net Change to Bank Measure at Placement:
Initial Excavation	+25%	
Storage at GMSP & Mechanically Consolidate	-10%	Volume Increases 112.5%
Excavate GMSP	+15%	
Placement at Reclamation	-5%	Volume Increases 123%

In summary, one cubic yard (cy) of bank material is equivalent to 1.125 cy of stockpiled material, and 1.23 cy of reclamation cover material.

3.1 Growth Media Placement

The use of the term “growth media” herein is synonymous with the terms ‘topdressing” as defined in the Mining Act regulations. The major guiding elements in developing the grading plans for the major facility areas and ancillary facilities at Copper Flat are to achieve positive drainage, facilitate constructability and the efficient conveyance of water and limit slope length and gradient to prevent soil erosion, provide a base for establishing revegetation, and eliminate long-term maintenance requirements. Prior to cover placement, top surfaces and disturbed areas will require minor grading to fill rills, enable the construction of surface water control features and ensure that the final grade is between 1 and 5 percent for reclaimed waste storage units, and graded to blend into the natural topography for other disturbed areas. More extensive grading will be required on the slopes to achieve the desired slope configuration, smooth the bed materials and accommodate surface water control features.

Once facilities are regraded, cover materials will be hauled from growth media stockpiles and placed on the top surface and slopes using a variety of equipment including scrapers or haul trucks. Additionally, excess

material remaining following construction of TSF Evaporation Pond and associate embankment will be utilized for reclamation cover on the portions of the top surface of the TSF that have been regraded at the time of the pond construction. Bulldozers and motor graders will be used to smooth the surfaces and facilitate access for cover placement and revegetation activities. Reclamation of EWRSP-1, EWRSP-2B, a portion of EWRSP-2A and the outslope of EWRSP-4 will occur during the pre-production phase of mine operations. Suitable growth media for these existing facilities will be excavated from TSF and/or WRSP-2 and -3 borrow areas and hauled directly as part of the plans to reclamation contemporaneously during the pre-production phase of mine operations (Section 2.1).

The cover system will be designed to provide erosion control, sustain vegetation and reduce net infiltration of stormwater through the underlying materials. The soil cover will be a monolithic store and release/evapotranspiration system. Where mine wastes are present (EWRSPs, WRSPs, and TSF) soil covers will be 36 inches thick, and other disturbed areas that do not have adequate growth media already in place will covered with 6-inches of soil. The covers will be designed to be protective of groundwater, resist erosion and support vegetation. Growth media to construct the cover will be spread and graded in a manner to minimize compaction that would inhibit plant growth.

NMCC will construct the soil covers in single lift. However, there may be occasions during cover construction when the subsurface and surface cover materials may be placed in separate operations. In these instances, NMCC will place coarser textured growth media materials in the surface lift, particularly on outslopes. Coarser textured soils materials are expected to have better performance related to their ability to resist erosion and capture water (high infiltration capacity) during high intensity precipitation events that occur during the summer monsoons (Golder, 2013).

Growth media will be placed at a depth of at least 6 inches in disturbance areas that do not contain mine waste rock. GMSP-1 and -2 are underlain by alluvial deposits that are suitable growth media. As such, the existing deposits underlying these stockpiles will simply be graded, scarified, and reseeded. Removal of growth media from GMSP-3 may expose bedrock that will require a minimum of 6 inches of stockpiled growth media to remain within the stockpile footprint prior to reseeding.

The majority of the reclamation cover, as shown in **Table E5**, will be stored in the GMSPs. However, some reclamation will be performed at the beginning of the mine development, which will allow a portion of the cover material to be taken directly to placement at the time of excavation (direct hauled). There will also be areas of the site where cover material will be salvaged while conducting site construction development activities. **Table E6** provides an estimate of the volume of growth media required for reclamation. As shown on **Table E6**, approximately 0.5 million cy (reclamation volume) will be direct hauled to a location undergoing reclamation and approximately 0.3 million cy will be stored in impoundment berms or windrows at the construction sites separate from the GMSPs. The remainder, approximately 4.3 million cy (reclamation volume), will be stored in the GMSPs.

Table E6: Estimated Reclamation Cover Requirements

Facility	Regraded Surface Area[1] (acres)	Cover Thickness (ft)	Cover Requirement (reclamation cy)	Cover Source		
				Direct Haul (cy)	Windrow/ Berm Next to Facility (cy)	Growth Media Stockpiles (cy)
EWRSP-1[2]	17.5	3	84,700	84,700	0	0
EWRSP-2A[2,3]	8.3	0	0	0	0	0
EWRSP-2B[2,3]	5.1	3	24,684	24,684	0	0
EWRSP-3	19.5	3	94,574	0	0	94,574
EWRSP-4[2]	22.6	3	109,481	27,370	0	82,111
WRSP-1	41.9	3	202,796	0	0	202,796
WRSP-2 and WRSP-3	171.8	3	831,512	0	0	831,512
TSF	564.4	3	2,731,696	150,000	0	2,581,696
Plant Area (excluding EWRSP-3)	78.9	0.5	63,646	0	0	63,646
Surface Impoundments[4]	31.3	0.5	25,249	0	0	25,249
Open Pit[5]	165.3	0	0	0	0	0
GMSP-1	29.3	0	0	0	0	0
GMSP-2	31.6	0	0	0	0	0
GMSP-3	14.1	0.5	11,374	0	0	11,374
Ancillary Facility Areas[6]	19.7	0.5	15,891	0	0	15,891
West Pit Buildup	6.9	15.0	166,980	166,980	0	0
Plant Area Perimeter Cover	19.9	3.0	96,316	0	0	96,316
TSF Pipeline Cut Fill	0.7	30.0	33,880	0	0	33,880
Misc. Horizontal Construction Fill & Cover[7]	100	0.5	80,667	0	20,000	60,667
Surface Impoundment Backfill[8]	44.2	NA	427,000	0	320,000	107,000
Foundation Backfill[9]	NA	NA	80,000	0	0	80,000
Total	**1,393.0**	**-**	**5,080,446**	**453,734**	**340,000**	**4,286,711**

Notes:

[1] - Regraded areas based on reclamation and closure designs presented in Attachment E1.

[2] - EWRSP-1, EWRSP-2B, a portion of EWRSP-2A, and the outslope of EWRSP-4 will be reclaimed during the pre-production phase of mine operations. The top surface of EWRSP-4 will be reclaimed following cessation of mining.

[3] - The portion of the EWRSP-2A that lies within the footprint of proposed WRSP-1 and will be incorporated into this new stockpile. The portion of EWRSP-2A located outside of the OPSDA boundary will be relocated to the top of EWRSP-2B and the disturbed area will be ripped and seeded. EWRSP-2B includes 5.1 acres of waste rock stockpile that will get covered and 7.6 acres of disturbed area that will get ripped and seeded.

[4] - Impacted Stormwater Impoundment A and the Process Water Reservoir cover requirements are included within the Plant Area and are excluded in the cover volume calculation. The TSF Underdrain Collection Pond gets incorporated into the TSF Evaporation Pond and is included in the 22.3 acre total TSF Evaporation Pond area.

[5] - Open pit area and associated disturbed area around the pit perimeter that will get ripped and seeded.

[6] - Includes ancillary facilities and structures not already included in one of the specific facilities listed. Includes haul and access roads, electrical power distribution system; storm water and sediment control structures; equipment storage areas; pipeline corridors; pump stations; tanks; explosives magazine and associated access road; and fencing.
[7] - NMCC calculation for WRSP storm water ditches & miscellaneous roads, pipelines, power lines, ditches. Fill and cover. 20,000 cy stored in windrows adjacent to alignments.
[8] - NMCC calculation based on water volume + 2 foot additional feet to account for freeboard volume.
[9] - Foundation backfill by NMCC.
cy – Cubic yards
lcy – Loose Cubic Yards (reclamation cover)
NA – Not applicable

3.2 Revegetation Plan

The revegetation plan for the Copper Flat Project is designed to create a stable, self-sustaining plant community that will conform to the planned grazing and wildlife habitat PMLU for areas outside the open pit. Revegetation of the site will consist mainly of the establishment of grass, forb and shrub species characteristic of the desert grassland community. Plant species were chosen based on their ability to provide satisfactory cover, on their nutritional value and ability to support livestock production and wildlife habitat. General planting techniques and proposed seed mixtures are provided below.

3.2.1 Planting Techniques

Revegetation will be performed in a manner consistent with industry standards to minimize erosion, promote stable land surfaces, and support the post-mining land use. The general order of agronomic practices for revegetation seeding are ripping or scarification, disking, seeding (drill, broadcast or hydroseed), mulching and crimping or tackifying. These practices are discussed in more detail below.

NMCC will time seeding activities in a manner that takes advantage of summer monsoon moisture to encourage establishment of warm weather grasses to the extent practicable. After placement, the cover will be scarified (ripped 8 to 12 inches) to break up compaction and roughen the surface. The ripping operation will be implemented on the contour for sloping areas to reduce the potential for early-stage soil erosion during vegetation establishment. The roughened surface is a transient condition that provides micro-sites for seedling establishment and to reduce concentrated overland flow and erosion. Prior to seeding, the seed bed will be prepared by disking or harrowing to a depth of approximately 6 inches. If soil amendments are required, disking to prepare the seedbed will take place after applying the amendments. Ripping and other seedbed preparation procedures will be conducted when surface and subsurface soil moisture conditions are dry to avoid compaction.

Specific seeding methods to be utilized at the site are dependent on many factors including the topography, surface conditions, seed mixture, and equipment availability. Specialized rangeland drills are available for seeding native seed mixes. They are equipped with an agitator and depth bands to mix seed and ensure proper seeding depths. Alternatively, seed may be broadcast and covered using a drag or hydro-seeding may be used on steep, small areas where larger equipment cannot easily operate. In most cases, seed will be planted using a rangeland drill or similar equipment. Wherever possible, seeding will be done along

the contour. When drill seeding cannot be accomplished, broadcast seeding will be employed. For broadcast seeding, the drill seeding rate will be doubled and areas will be raked with a chain- or tire-harrow to lightly cover the seed and achieve good soil-seed contact.

Following seeding, certified weed-free mulch will be uniformly spread at a rate of about 2 tons/acre. Mulch will contain a minimum of viable seeds associated with the source (i.e., barley or wheat). Long-stem mulch will be given preference over shorter materials. The mulch will be then be crimped with a straight-disc harrow or similar equipment to fix it in place. On steep slopes, tackifier emulsion may be used to secure the mulch rather than crimping.

Weed control will be implemented only if necessary. Methods of weed control will be determined upon recommendations from the BLM and/or MMD.

3.2.2 Seed Mixtures

Table E7 provides the proposed interim seed mix (primarily associated with the seeding of the growth media stockpiles) and final seed mixes for the Copper Flat Project for the grazing and wildlife PMLUs. The seed mixtures include native warm and cool season grasses, perennial shrubs and forbs. **Table E8** provides the primary functions and attributes of each proposed plant species. The species selected for the reclamation seed mixtures have been successfully used in mine reclamation and range improvement projects in many parts of New Mexico and are readily available from seed suppliers. The seed mix is selected to provide early establishment of ground cover, erosion control and productivity while providing diversity in growth forms. The seed mixture used for reclamation will be native plant species to the extent possible based on availability, compatibility with the vegetation of the surrounding areas, soils and climatic conditions of the area, and by recommendations from the BLM and MMD. If possible, seeds and plants will be sourced from within the same region and vegetative community types.

The seed mixes are designed for application prior to the summer rains and the seeding will be completed shortly ahead of and during the summer monsoon season (July through September). The ratio of cool season to warm season grasses may be adjusted if the seeding is conducted after the summer rains. The overall target seed rate for final seeding is expected to vary, but will range from about 40 to 60 seeds per square foot. Interim seedings for growth media stockpiles and other temporary stabilization seedings target a seed density of 30 seeds per square foot. All seed mixes shall be certified as weed free.

NMCC may propose to adjust the seeding rates or species listed in **Table E7** based on seed availability or to accommodate variations in seeding methods (e.g., broadcast, drill, hydraulic) and field conditions. A list of alternate or substitute species is included in **Table E9**. Based on the performance on the interim seed mix and seeding associated with the contemporaneous reclamation of the existing stockpiles, the final seed mix may be modified with approval of the MMD.

Table E7: Interim and Final Reclamation Seed Mixes

Scientific Name	Common Name	PLS/ac[1]	
		Interim	Final
Grasses – Warm Season			
Bothriochloa barbinodis	Cane bluestem	0.15	0.20
Bouteloua curtipendula	Sideoats grama	1.00	1.10
Bouteloua gracilis	Blue grama	0.20	0.25
Pleuraphis jamesii	Galleta	0.75	1.10
Leptochloa dubia	Green sprangletop	0.15	0.20
Seteria vulpiseta	Plains bristlegrass	0.20	0.30
Sporobolus cryptandrus	Sand dropseed	0.03	0.04
Grasses – Cool, Intermediate Season			
Achnatherum hymenoides	Indian ricegrass	0.60	1.30
Eragrostis intermedia	Plains lovegrass	0.05	0.04
Hesperostipa newmexicana	NM feathergrass	0.70	0.50
Shrubs			
Atriplex canescens	Four-wing saltbush	0.30	1.75
Ericamerica nauseosus	Rubber rabbitbrush	0.10	0.35
Fallugia paradoxa	Apache plume	--	0.10
Krascheninnikovia lanata	Winterfat	0.15	0.70
Forbs			
Dalea candida	White prairie clover	0.10	0.40
Linum lewisii	Blue flax	0.15	0.35
Ratibida colomnifera	Prairie coneflower	--	0.10
Sphaeralcea ambigua	Desert globemallow	0.10	0.40
	Total	**4.73**	**9.18**

Notes:
[1] - Rate is in pounds of pure live seed (PLS) per acre; Substitutions may change seeding rates.

Table E8: Functions and Attributes of the Primary Plant Species

Species	Character[1]	Attributes and Function
Cane beardgrass (*Bothriochloa barbinodis)*	N,P,W,G	Bunch grass providing ground cover and forage
Blue grama (*Bouteloua gracilis*)	N,P,W,G	Drought resistant sod grass providing ground cover and forage
Side-oats grama (*Bouteloua curtipendula*)	N,P,W,G	Drought tolerant bunchgrass providing ground cover and forage
Galleta (*Pleuraphis jamesii*)	N,P,W,G	Bunchgrass providing erosion control and early spring/late fall forage
Green sprangletop (*Leptochloa dubia*)	N,P,W,G	Erect bunchgrass; aggressive short-lived nurse plant with forage value
Plains lovegrass (*Eragrostis intermedia*)	N,P,I,G	Bunchgrass providing ground cover and early spring forage
Plains bristlegrass (*Setaria vulpiseta)*	N,P,W,G	Palatable bunchgrass with valuable seed for upland birds and small mammals
NM needlegrass (*Hesperostipa neomexicana*)	N,P,C,G	Persistent bunch grass providing ground cover and forage
Sand dropseed (*Sporobolus cryptandrus*)	N,P,W,G	Drought tolerant bunchgrass adapted to sandy sites
Indian ricegrass (*Achnatherum hymenoides*)	N,P,C,G	Tufted grass providing forage/seed to birds and small mammals
Apache plume (*Fallugia pardoxa*)	N,P,S	Mid-height shrub providing browse, cover and erosion control
Four-wing saltbush (*Atriplex canescens*)	N,P,S	Slightly evergreen shrub providing cover/forage for wildlife and livestock
Winterfat (*Krascheninnikovia lanata*)	N,P,HS	Low shrub providing nutritious winter browse
Rubber rabbitbush (*Ericamerica nauseosus*)	N,P,S	Mid-height shrub providing cover and erosion control
Desert globemallow (*Sphaeralcea ambigua*)	N,P,F	Persistent mid-height forb providing browse for deer and antelope
Prairie coneflower (*Ratibida colomnifera*)	N,P,F	Red and yellow flowered forb attracting pollinators
White prairie clover (*Dalea candida*)	N,P,F	Nitrogen-fixing forb with low water requirements providing forage and ground cover
Blue flax (*Linum lewisii*)	N,P,F	Persistent blue-flowered forb, nutritious seed for ground birds

Notes:
[1] – N = Native; P = Perennial; W = Warm season; C = Cool season; I = Intermediate season; G = Grass; S = Shrub; HS = Half shrub; F = Forb

Table E9: Alternative or Substitute Plant Species for Seed Mixtures

Scientific Name	Common Name
Grasses	
Andropogon saccharoides	Silver bluestem
Aristida purpurea	Purple three-awn
Bouteloua eriopoda	Black grama
Eragrositis curvula	Weeping lovegrass
Digitaria californica	Arizona cottontop
Hesperostipa comata	Needle and thread
Heterotheca contortus	Tanglehead
Panicum obtusum	Vine mesquite
Pleuraphis mutica	Tabosa
Sporobolus contractus	Spike dropseed
Shrubs	
Calliandra eriophylla	Fairyduster
Isocoma tenuisecta	Burroweed
Lycium pallidum	Wolfberry
Nolina microcarpa	Beargrass
Forbs	
Baileya multiradiata	Desert marigold
Coreopsis lanceolata	Lanceleaf tickseed
Machaeranthera tanacetifolia	Prairie aster
Penstemon parryii	Parry's penstemon

4.0 RECLAMATION SCHEDULE AND SEQUENCE

Table E10 presents the anticipated reclamation schedule and sequence for the Copper Flat Mine based on best available information and mine planning forecasts. The proposed schedule summarizes NMCC's understanding of the near-term mine operation and longer-term mine plan projections. More specifically, the schedule is based on the following considerations:

- Practical phasing of the reclamation projects to account for the anticipated labor, equipment and other resources that will be necessary to complete these projects based on current conditions;
- Sequential closure of facilities in a phased cost efficient manner;
- Total annual acreages that will be reclaimed over this period;
- Design, construct and operate facilities to support and facilitate future reclamation; and
- Perform reclamation contemporaneous with operations where practicable.

The anticipated duration for reclamation presented in **Table E10** include earthwork and reseeding, but do not include vegetation success/O&M/monitoring that will be conducted throughout the post-closure monitoring period as described in Section 5. The reclamation schedule is based on the number of years from the time NMCC obtains the required Mine permits and approvals to begin operations. Contemporaneous reclamation of EWRSP-1, EWRSP-2, and portions of EWRSP-4 will begin during the initial mine pre-production period.

Table E10. Copper Flat Reclamation Schedule and Sequence

Reclamation Facility Area	Reclamation Schedule, Year Following Mine Permit Approval[1]	
	Start	Finish
Existing Waste Rock Stockpiles		
EWRSP-1, EWRSP-2A, and EWRSP-2B (Placement of EWRSP-2A Stockpile Material Outside OPSDA onto the top of EWRSP-2B, Regrading and Cover Placement, Conveyance Channel Construction, Revegetation)	Year 2	Year 2
EWRSP-4 (Regrading, Cover Placement on Outslopes, Revegetation Outslopes, Revegetation of Top Surface,	Year 2	Year 2
EWRSP-4 (Cover Placement on Top Surface, Conveyance Channel Construction,	Year 14	Year 14
EWRSP-3 [2] (Regrading and Cover Placement, Conveyance Channel Construction, Revegetation)	Year 15	Year 16
Proposed Waste Rock Stockpiles		
WRSP-1 (Regrading and Cover Placement, Conveyance Channel Construction, Revegetation)	Year 13	Year 16
WRSP-2 (Regrading and Cover Placement, Conveyance Channel Construction, Revegetation)	Year 14	Year 16
WRSP-3 [3] (Regrading and Cover Placement, Conveyance Channel Construction, Revegetation)	Year 10	Year 16
Proposed Tailing Storage Facility		
Tailings Storage Facility (Regrading and Cover Placement, Backfilling and Reclamation of Tailings Pipeline Corridor, Conveyance Channel Construction, Revegetation)	Year 15	Year 21
Active Evaporation of Drain Down Waters	Year 12	Year 18
Construction of Evaporation Pond	Year 17	Year 18
Passive Evaporation of Drain Down Waters	Year 18	Year 38
Evaporation Pond Closure (Ripping Liner and Backfilling Pond, Regrading and Cover Placement, Revegetation)	Year 39	Year 39
Proposed Plant Area Facility[2]		
Plant Area (Building/Structure Demolition & Removal, Removal of Land Bridges, Regrading and Cover Placement, Conveyance Channel Construction, Revegetation)	Year 15	Year 16

Table E10. Copper Flat Reclamation Schedule and Sequence (Continued)

Reclamation Facility Area	Reclamation Schedule, Year Following Mine Permit Approval[1]	
	Start	Finish
Proposed Open Pit		
Rapid Fill of Pit Lake	Year 13	Year 14
Pit Perimeter (Construction of Pit Perimeter Conveyance Channels Perimeter Berm/Fencing and Cover Placement, Construction of Haul Road Conveyance Channel, Revegetation)	Year 15	Year 15
Ancillary Facilities[4]		
Building/Structure/Pipeline Demolition, Removal, and Burial, Regrading and Cover Placement, Facility Revegetation	Year 16	Year 20

Notes:
[1] - The reclamation schedule is based on the number of years from the time NMCC obtains all of the required Mine permits and approvals to begin operations.
[2] – Reclamation of the plant area will also include reclamation of EWRSP-3, the land bridges, and the haul roads running through the plant area.
[3] – Reclamation of the WRSP-3 may begin contemporaneous with mining operations.
[4] – Includes ancillary facilities and structures not already included in one of the specific facilities listed within this table. Includes haul and access roads, electrical power distribution system; storm water and sediment control structures; equipment storage areas; pipeline corridors; pump stations; tanks; explosives magazine and associated access road; and fencing.

5.0 PERFORMANCE AND RECLAMATION STANDARDS AND REQUIREMENTS

5.1 Most Appropriate Technology and Best Management Practices

The reclamation and closure plan has been designed to protect human health and safety, the environment, wildlife and domestic animals using Most Appropriate Technology (MAT) and Best Management Practices (BMPs). MAT in mine operations is understood as the selection and application of the most suitable techniques, practices, or methods of operation that have been proven effective in achieving the intended purpose or performance standard while reducing impacts to the environment (prevent, reduce or control pollution). The selection of a MAT is typically accomplished in mine feasibility studies that evaluate mining technologies, processes and operating methods relative to site-specific conditions. The Copper Flat Project is being designed and will be operated using both MAT and BMPs based on site-specific technical and economic feasibility. Mining technologies, processes and operating methods proposed by NMCC are provided in Section 2.0 of Updated Mine Operations and Reclamation Plan.

BMPs are defined as any program, technology, process, siting criteria, operating method, measure or device, which controls, prevents, removes or reduces impacts to the environment. BMPs are currently accepted, effective and practical methods including structural or engineered control devices, systems and materials as well as operational or procedural practices used to prevent or reduce environmental impacts of ground disturbing activities.

NMCC will meet or exceed applicable state and federal reclamation requirements through application of MAT and BMPs. NMCC has designed its reclamation and closure plan to use the most appropriate technology for an open pit mine operation. Structural and operational BMPs will be used to stabilize the site, limit erosion, reduce sediment, control fugitive dust, and prevent noxious weeds from existing and proposed facilities and disturbed areas during reclamation. These BMPs include:

- Surface stabilization measures – dust control, regrading, mulching, riprap, temporary and permanent revegetation/reclamation and placing growth media;
- Run-on and runoff control and conveyance measures – clean water diversions and swales, armored drainage channels, runoff diversions and berms;
- Sediment traps and barriers – check dams, grade stabilization structures, sediment detention, sediment/silt fence and straw bale barriers and sediment traps;
- Air quality – apply water to control dust on haul roads and other disturbance areas, interim seeding of growth media stockpiles and other surface disturbance areas
- Revegetation and noxious weeds – use of certified weed-free seed and mulch, cleaning heavy equipment before entering the mine area, noxious weed monitoring and treatment.

BMPs will be employed in appropriate sites during the reclamation phase of the Project and structures will be inspected periodically, with repairs performed as needed. NMCC will limit disturbance and preserve existing vegetation to the maximum extent possible. Additional details regarding structural and operational BMPs are included in Section 4.0 of the Updated Mine Operations and Reclamation Plan.

5.2 Contemporaneous Reclamation

Contemporaneous reclamation, mining-for-closure, or “designing for closure” will reduce erosion, provide early impact mitigation, limit costs and reduce final reclamation work. NMCC is committed to maximize this type of reclamation at the Copper Flat Mine Project and has designed mine facilities to employ contemporaneous reclamation, to the extent appropriate and practicable. Specific details regarding contemporaneous reclamation of the EWRSP-1, -2B and -4 and some outslopes of the proposed WRSP-3 are provided in Section 2.1 and 2.2 respectively. Other examples include, designing the waste rock stockpiles in such a way to facilitate their reclamation, building final lifts to accommodate the required reclamation slopes, and managing tails deposition while constructing the embankment to achieve the desired outslope and top surface grade.

5.3 Protection Assurance

NMCC has designed a reclamation plan to assure protection of human health and safety, the environment, wildlife and domestic animals. Mine development and operation activities will also be implemented to assure protection of human health and safety, the environment, wildlife and domestic animals. Specific details of the protection assurances associated with signs, markers, and safeguarding [603.C (1)]; wildlife protection [603.C (2)]; cultural resources [603.C (3)]; hydrologic balance [603.C (4)]; stream diversions [603.C (5)]; impoundments [603.C (6)]; mass movement minimization [603.C (7)]; riparian and wetland areas [603.C (8)]; roads [603.C (9)]; subsidence control [603.C (10)]; and explosives [603.C (11)] are provided in Section 4.3 of NMCC’s Updated Mine Operations and Reclamation Plan.

5.4 Site Stabilization and Configuration

The permit area will be stabilized, to the extent practicable, to prevent future impact to the environment and protect air and water resources. The final surface configurations for the Project are presented in **Figure E4** and will be suitable to achieve the grazing, wildlife habitat, and mining PMLUs. All facilities, slopes, embankments and roads will be designed, constructed, maintained and reclaimed to achieve stable configurations within the industry’s and engineering “standard of care” design process. Specific details on the steps to be taken to stabilize and configure to minimize future impact to the environment and protect air and water resources are provided in Section 4.4 of NMCC’s Updated Mine Operations and Reclamation Plan.

5.5 Topdressing and Cover Materials

Topdressing, for the purposes of reclamation, refers to any suitable soil or geological material used as growth media or soil cover for establishing native vegetation on sites disturbed by mining activities. Reclamation suitability is based on the material’s ability to provide erosion control, sustain vegetation, and reduce net infiltration into the underlying materials.

As previously described, growth media as referred to within this Mine Reclamation and Closure Plan is equivalent to topdressing as defined in 19.10.1.7.T(1) NMAC. Growth media removal quantities have been estimated on the basis of the Supplemental Soils Investigation (Golder, 2013) and are discussed below. The majority of the cover materials required to support revegetation and reclamation efforts will be obtained from within the footprints of the proposed TSF and TSF Evaporation Pond, WRSP-2 and WRSP-3.

The proposed soil cover system for the Copper Flat Project is a monolithic store-and-release or evapotranspiration (ET) cover. A store-and-release cover system stores precipitation during wet periods and releases the moisture back to the atmosphere via evapotranspiration during dry periods, reducing net infiltration. Where mine wastes are present, soil covers will be 36 inches thick unless NMCC can demonstrate a thinner cover can be protective of groundwater (per NMAC 20.6.7.33.F), resist erosion and support vegetation. Other reclamation units including the plant site, roads, other ancillary facilities, and disturbed areas that do not contain adequate growth media will require a minimum of 6 inches of cover. GMSP-1 and 2 which are underlain by unconsolidated alluvial materials will not require additional cover. Additional information regarding cover material requirements for reclamation are provided in Section 3.1.

5.5.1 Suitability

The suitability of topdressing/cover materials is based on the material's ability to provide erosion control, sustain vegetation, and reduce net infiltration. The ability of the materials to meet these performance objectives is primarily related to their physical properties, specifically the texture and rock fragment content of the final cover system (Golder, 2013). Cover materials identified within the limits of the TSF and WRSP-2 and -3 were found to be generally suitable from a physical perspective, though many surficial soils are fine-textured (high clay and silt content) that could present challenges with respect to revegetation and soil erodibility. In general, soils and underlying colluvial and alluvial materials in the permit area are considered suitable and have no chemical limitations (salinity, pH, macro and micronutrients, lime, or specific ion toxicity) for growth of native and adapted reclamation species.

Pursuant to Paragraph (2) of Subsection F of 20.6.7.33 NMAC, the proposed soil cover system must be designed to limit net-percolation by having the capacity to store at least 95 percent of the long-term average winter (December, January and February) precipitation or at least 35% of the long-term average summer (June, July and August) precipitation, whichever is greater as determined by utilizing field or laboratory test results or published estimates of available water capacity. Long-term average annual summer precipitation totals for the Hillsboro area are 5.43 inches (35% equals 1.90 inches), and winter precipitation totals 1.96 inches (95% equals 1.86 inches) (WRCC, 2016). Therefore in order to comply with the Copper Rule, the proposed 3-foot thick soil cover system must be able to store at least 1.90 inches of water.

The available water capacity (AWC) for the salvageable growth media within the limits of the TSF and WRSP-2 and -3 were estimated as part of the Supplemental Soils Investigation at Copper Flat (see Subsection 3.3.1 and Table 3, Golder, 2013). The AWC estimates were based on general relationships

between water retention and soil texture (Brady and Weil 2002, USDA NRCS 2005). These estimates show an average AWC of approximately 0.9 inches of water per 1 foot of soil for the salvageable growth media within the footprint of WRSP-2 and -3, with a range of between 0.6 and 1.3 inches of water per 1 foot of soil. The AWC estimates for the salvageable growth media within the footprint of the TSF show an average AWC of approximately 1.2 inches of water per 1 foot of soil, with a range of between 0.4 and 2.2 inches of water per 1 foot of soil.

The actual water retention of the salvaged soils will vary based on the types of soil materials that are placed in the growth media stockpiles. Cover materials with varying physical properties (e.g. texture and rock fragment content) will be blended during soil salvage. Given the range of materials identified as suitable cover, the proposed cover system at Copper Flat is expected to meet the storage requirements of the Copper Rule. Soil water characteristic (retention) curve laboratory analyses will be performed to evaluate available water capacity with respect to cover design and performance to ensure that the cover material used achieves the water holding capacity required in Section 20.6.7.33 NMAC.

Additional sources of alternative sources and types of materials for use as reclamation cover may be identified as part of a growth media management plan to be developed as part of the CQA/CQC plan that will be submitted to the agencies within 180 days of submission of a notice of intent to implement the reclamation plan and in consideration of performance objectives for the soil cover system.

5.5.2 Salvage

Where salvageable soil and alluvial materials exists, either on undisturbed or reclaimed areas, NMCC will salvage as much material as can be safely and practicably recovered. Additional suitable soils and other suitable cover materials including unconsolidated subgrade materials, colluvium and overburden will be salvaged to meet the volumetric requirements for final cover construction at closure (Section 3.1). Suitable soil materials available for reclamation from the previously mined and disturbed areas are very limited. Efforts will be made to carefully recover and stockpile these materials during the pre-production phase of the Project.

As part of the proposed operations, NMCC will salvage suitable soils and near-surface alluvial materials from within the TSF, surface impoundments, and WRSP-2 and WRSP-3 footprints, and horizontal construction alignments. These materials are part of the Santa Fe formation gravels and alluvial basin fill. The deep coarse-textured alluvial materials will be mixed with the more fine-textured surficial soils as part of the salvaging, loading and hauling operations and will create a suitable growth media for final reclamation (Golder, 2013).

Large diameter trees and shrubs will be grubbed prior to soil salvage. To the extent that it doesn't interfere with soil salvage operations, small diameter woody plants and herbaceous vegetation will be salvaged and incorporated in with the stockpiled growth media to maintain organic matter content of the cover materials.

However, vegetation residues from creosote-dominated vegetation will not be salvaged and incorporated in the growth media stockpiles due to creosote's allelopathic properties that may prevent seedling germination during revegetation.

The estimated volumes of salvageable cover material available are shown in **Table E11**. These estimates are based on the test pit data collected during the Supplemental Soils Investigation by Golder (2013). The estimate fully excludes the area with existing tailing deposits (about 60 acres) and assumes approximately 87% of the materials within the remaining TSF footprint area contains suitable growth media (Golder, 2013). Assuming a 20-foot excavation, there is approximately 13,755,280 bank cy of suitable cover materials within the proposed TSF footprint.

The WRSP-2 and WRSP-3 footprint occurs on the back- and foot slopes of Animas Peak and the soils and unconsolidated materials are shallower than those found within the TSF footprint. Test pit excavations in these locations encountered andesite bedrock and were restricted to 10 feet. Additionally, soils on the steep slopes of Animas Peak are expected to be thin and salvage may not be practical. Thus, cover estimates assume that only 50% of the proposed WRSP-2 and WRSP-3 disturbance footprints will be salvageable. Assuming a 10 foot excavation depth, there is approximately 1,385,853 bank cy of suitable cover materials available within the footprints of WRSP-2 and WRSP-3. Additional suitable cover material will become available as a result of construction of the TSF Evaporation Pond. The quantity of this excess material has not been included in the current estimate of the available topdressing materials for the project.

Surficial soil materials will salvaged in association with the construction of the plant, pipeline corridor, access roads and ancillary facilities. The salvaged growth media in these locations will be windrowed for local redistribution during final reclamation of the site.

More than 15.1 million bank cy (equivalent to approximately 18.6 million cy reclamation cover) of suitable reclamation material is available for salvage as shown on **Table E11**. In addition to salvage ahead of TSF, WRSP-3, and surface impoundment construction footprints, additional material will be salvaged as encountered during miscellaneous horizontal construction (roads, ditches, pipelines, power lines). Additional alternative sources of growth media for reclamation may be identified prior to construction activities and in consideration of performance objectives for the soil cover system.

Table E11: Estimated Available Reclamation Cover Materials

Facility	Reclamation Cover Salvage Area (acres)	Estimated Available Reclamation Cover Materials (bank volume cy)[3]	Estimated Available Topdressing Materials (reclamation volume cy)[3]
Tailings Storage Facility Area[1]	490	13,755,280	16,905,000
WRSP-2 and WRSP-3 Areas[2]	86	1,385,853	1,703,000
Horizontal Construction Alignments	NA	16,000	20,000
Total	**576**	**15,157,133**	**18,628,000**

Note:
[1] - Surface area excludes 60 acres of existing tailing deposits and assumes that 87% of the salvage area has suitable material.
[2] - Surface area excludes steep slopes and existing waste rock pile, it is assumed that 50% of the WRSP footprint areas will be salvageable.
[3] – Bank volumes are associated with the in-place volume of the material. Reclamation volumes are calculated from bank volumes and account for the material swell and re-consolidation at excavation, storage, re-handle, and cover placement. See Section 3.0 for factors applied.

Oversight and coordination will be required to handle suitable growth media during salvage operations. Specific borrow areas will be developed within the TSF and WRSP footprints for growth media and engineering materials. The procedures to segregate suitable and unsuitable materials will be further defined in a materials handling plan once final engineering specifications are determined.

5.5.3 Stockpiling

Salvaged growth media will be stored in the three GMSPs shown in **Figure E4**, windrows along the horizontal construction alignments, and embankments surrounding the surface impoundments. A total of approximately 5.08 million cy of cover material is required for reclamation at Copper Flat (**Table E6**). Of this total, approximately 4.29 million cy will be sourced from the three GMSPs, 0.45 million cy will be directly hauled from the borrow source (footprint of the TSF and/or the WRSP-2 and -3 borrow areas, and TSF evaporation pond footprint), and 0.34 million cy will be stored in windrows along horizontal construction alignments and within the pond embankments.

GMSPs are located so as not to be disturbed or impacted by mining operations. The surfaces of the stockpile will be shaped after construction with overall slopes of 3H:1V or shallower to minimize soil loss. To further minimize erosion and the establishment of undesirable weeds, growth media stockpiles will be seeded with the interim seed mix listed in **Table E7**. Interim seeding will be conducted prior to growing season. Diversion ditches will be constructed upgradient of the stockpiles, where necessary, to prevent run-on erosion. Additionally, berms will be constructed around the crest of stockpiles, as needed, to prevent outslope erosion from overland flow. BMPs such as silt fences or staked straw bales will be used as necessary to capture sediment and reduce soil loss.

5.5.4 Re-Distribution

Details regarding growth media's redistribution and application on regraded areas ready for reclamation are discussed in the Reclamation Plan (Section 3).

5.5.5 Stabilization

Cover materials will be stabilized after redistribution with seedbed preparation including scarification and disking along the contour and by seeding and mulching operations as described in the Reclamation Plan (Section 3).

5.5.6 Soil Fertility

Native soils in the project area, like most semi-arid soils in the region, have inherently low fertility in the upper horizons. In particular, site soils have relatively thin and poorly developed A horizons with low nitrogen and phosphorus levels and low to moderate organic matter content (Section 6, BDR; Golder, 2013). Further, most semi-arid native plants have adapted to low to moderate soil fertility conditions and are relatively unresponsive to increased soil fertility compared to crop plants (Chapin 1980). Fertilizer additions have been shown to also have negative impacts in reclamation including increases in weedy annuals, shifts in species composition and decreases in drought, disease and pest resistance. Based on the performance of interim seeding and concurrent reclamation efforts, NMCC will evaluate potential soil amendment requirements for redistributed topdressing materials through soil testing relative to native plant nutrient requirements.

5.6 Erosion Control

Reclamation activities described in Section 2.0 will stabilize disturbed areas to a condition that protects against erosion. All disturbed areas will be regraded and shaped to a final contour that achieves positive drainage, reconstructs slopes with lengths and gradients that will provide long-term stability and seeded and mulched to establish a vegetative cover. Stormwater will be diverted away from facilities. Drainage channels will be designed to regulate the velocity of water and minimize the potential for channel erosion. BMPs for stormwater diversions, drainage and other water conveyance channels may include lining the channel with rock, riprap, vegetation or other geotechnical materials.

NMCC will routinely inspect and maintain all reclaimed areas, drainage channels, diversion structures, retention impoundments and auxiliary erosion control features in accordance with professionally recognized standards such as Natural Resources Conservation Service. Post-construction/reclamation inspection schedules will be developed to include provisions for periodic (annual or semi-annual) and extreme event monitoring as appropriate for individual facilities.

5.7 Revegetation Success

The MMD rules require reclamation to a self-sustaining ecosystem (SSE) appropriate for the life zone of the surrounding area following closure. Revegetation success will be determined in conformance with Section 19.10.603.G of the Mining Act rules.

To summarize the revegetation success standards specified in Section 603.G, to obtain the release of financial assurance, revegetated lands under the grazing and wildlife habitat PMLU will meet the following:

- Total herbaceous cover and productivity shall be equal to 90 percent of the reference area within a 90 percent statistical confidence.
- The diversity of plant life forms (woody plants, grasses and forbs) shall determine what is reasonable given the physical environment of the reclamation.
- Woody plant species shall be established to an approved density with an 80 percent statistical confidence, or
- Other reasonable, attainable standards approved by the Director.

To establish revegetation success standards, NMCC will work with the MMD and BLM to develop the appropriate, reasonable, and attainable success standards for the site. They may include use of a reference area to develop technical standards from the analysis of vegetation data collected in native plant communities, the performance of areas reclaimed in the pre-production phase, interpretation of the ecological site potential and the anticipated differences in community structure among the reference area and reclaimed lands, or other reasonable means. NMCC will work with the MMD to develop a Test-Plot Study Work Plan utilizing the reclaimed EWRSP areas in the program in conjunction with reference areas to evaluate erosion resistance and the ability to adequately establish vegetation. The revegetation success standards agreed to will not be applied to the open pit area.

At the time of monitoring for financial assurance release, vegetation in reclaimed areas will likely represent an early-seral stage, grass-shrub community whereas the reference area will be representative of a mature plant community. The selection of the reference area and establishment of any technical achievable revegetation success standards for reclaimed areas will be developed in coordination with the MMD and/or the BLM.

Vegetation sampling techniques and statistical protocols for data analysis and hypothesis testing will also be developed in consultation with the agencies. The limitations associated with sampling and statistical analyses of vegetation data from heterogeneous semi-arid plant communities (i.e., minor components are often not represented in monitoring data) will be considered in selecting these appropriate sampling and analysis protocols. Standard plant ecology field methods and agency technical guidance will be used to create a robust and defensible vegetation monitoring program.

Revegetation success will be determined by monitoring the vegetation parameters in the final two years of the financial assurance period (years 11 and 12 following final reclamation). Data collection will be performed using the same methods and techniques on both reference and reclaimed areas. Vegetation success monitoring will be conducted once per year in the early fall after the tenth growing season. Two years of achieving the revegetation criteria will be considered a demonstration of success of the revegetation program.

5.8 Perpetual Care

The Reclamation and Closure Plan for the Copper Flat facility is designed to meet, without perpetual care, all applicable environmental requirements for post-mining, reclaimed sites and support a SSE. Details regarding perpetual care are provided in Section 4.8 of the Updated Mine Operations and Reclamation Plan.

6.0 REFERENCES

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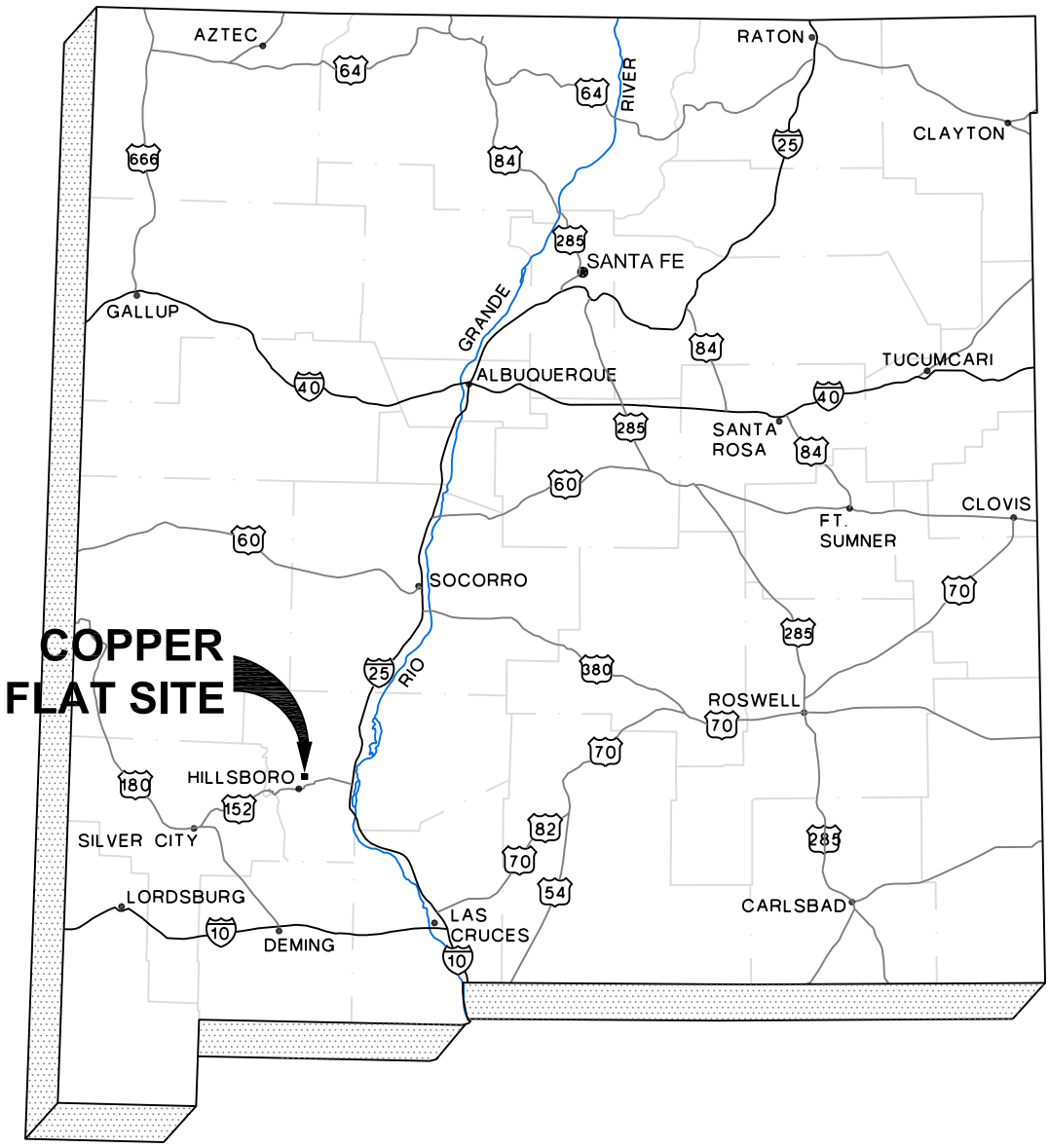
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FIGURES

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DESIGN	TS
REVIEW	TS
APPROVED	TS

PROJECT

COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE

SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
1531453	0300	0	E1

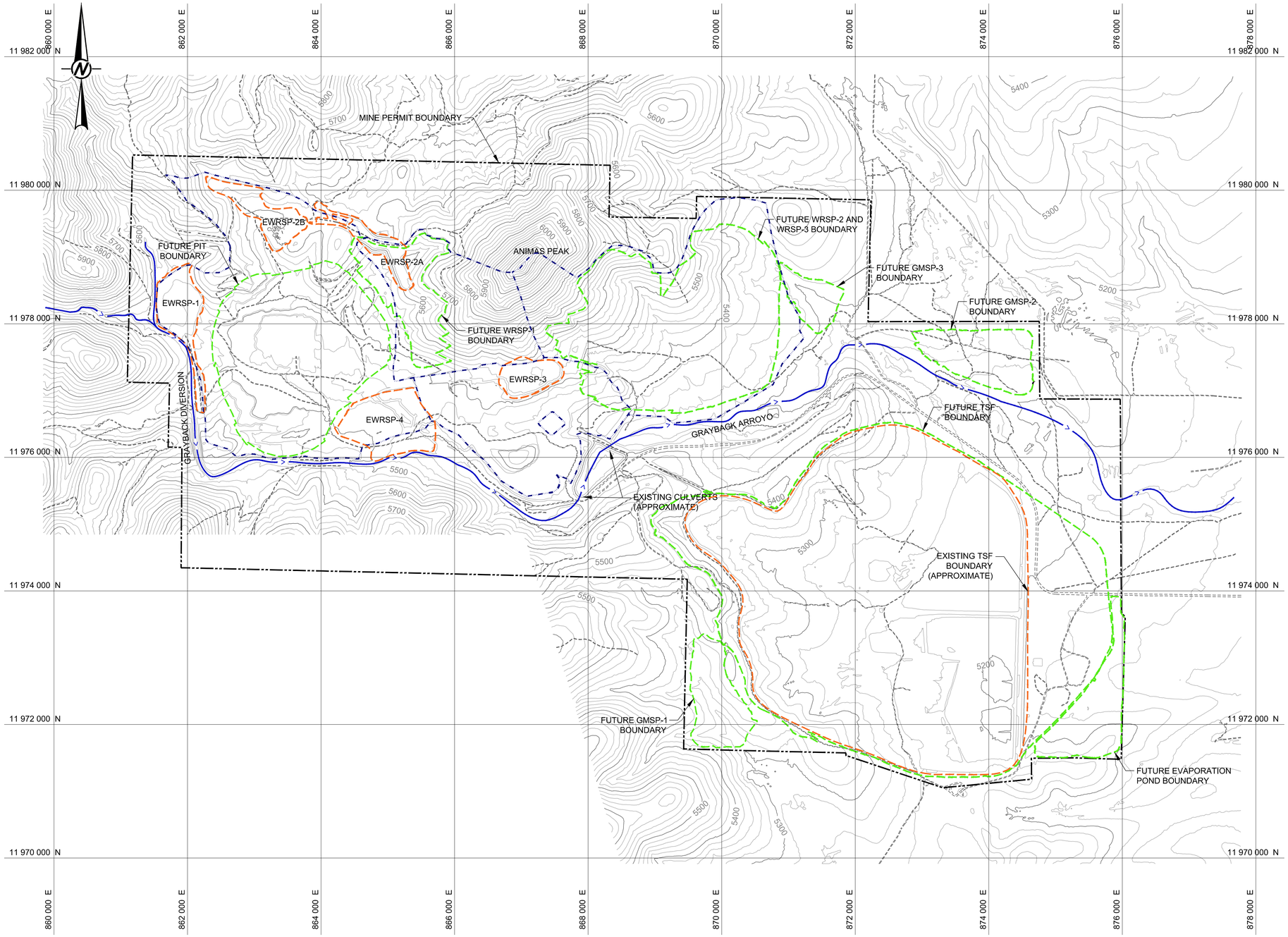
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GENERAL LEGEND

5400	EXISTING GROUND CONTOURS - 20 ft CONTOUR INTERVAL (ft-MSL)
	MINE PERMIT BOUNDARY
	EXISTING FACILITY BOUNDARY (APPROXIMATE)
	PROPOSED FACILITY BOUNDARY
	WATERSHED BOUNDARY (BY OTHERS)
	EXISTING DIVERSION OR ARROYO
	EXISTING ROAD
WRSP	WASTE ROCK STOCKPILE
EWRSP	EXISTING WASTE ROCK STOCKPILE
TSF	TAILING STORAGE FACILITY
GMSP	GROWTH MEDIA STOCKPILE

NOTES

1. EXISTING GROUND TOPOGRAPHY WAS DEVELOPED BY COOPER AERIAL SUVEYS BASED ON A JUNE 18, 2011 AERIAL SURVEY AND WAS PROVIDED BY THEMAC RESOURCES.
2. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NEW MEXICO COPPER CORPORATION (NMCC).
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FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
B	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
A	2016-10-07	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS

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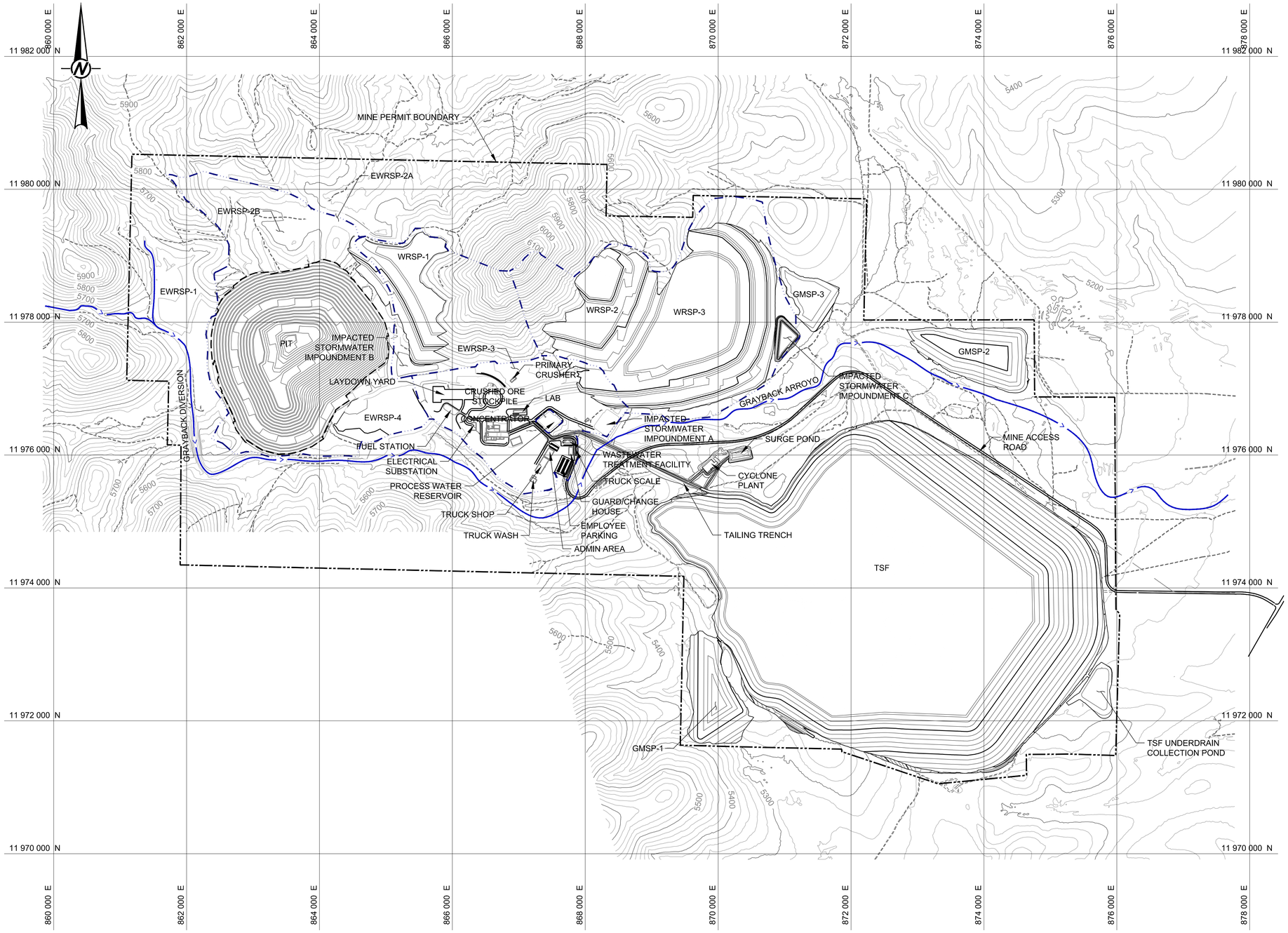
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT
EXISTING SITE CONDITIONS

PROJECT NO.	CONTROL	REV.		FIGURE
1531453	0500	B	1 of 1	E2

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GENERAL LEGEND

- 5400 — EXISTING GROUND CONTOURS - 20 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 20 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD

WRSP	WASTE ROCK STOCKPILE
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A	2016-10-07	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS

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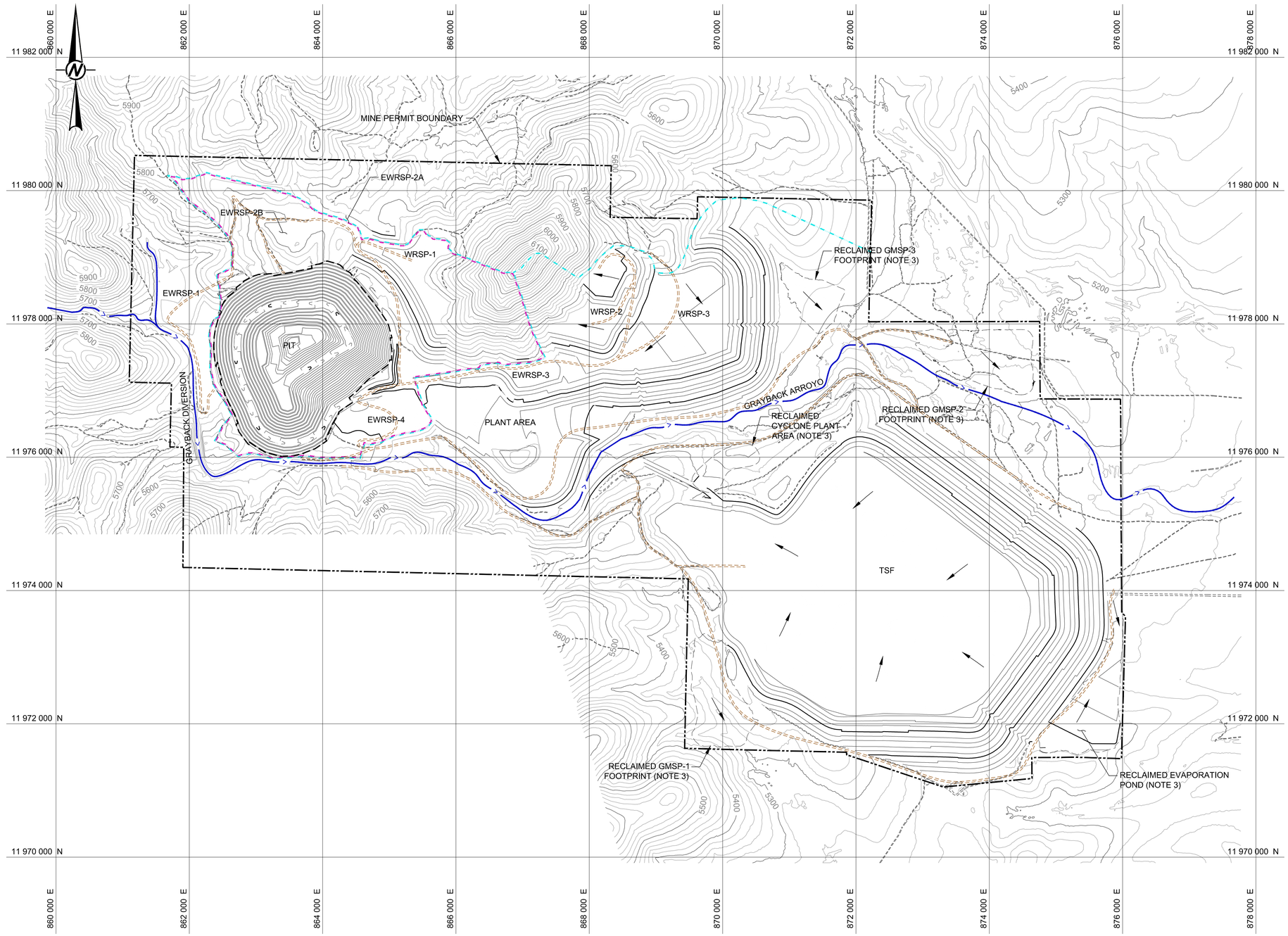
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PROJECT
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MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT AT FINAL BUILDOUT

PROJECT NO.	CONTROL	REV.		FIGURE
1531453	0500	B	1 of 1	E3

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GENERAL LEGEND

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- 5400 — PROPOSED DESIGN CONTOURS - 20 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA) (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 4)
- GRADE INDICATOR
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- TSF — TAILING STORAGE FACILITY
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2. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
3. FOOTPRINT OF FORMER GROWTH MEDIA STOCKPILES, CYCLONE PLANT AREA, AND EVAPORATION POND WILL BE GRADED TO APPROXIMATE SURROUNDING TOPOGRAPHY, RIPPED AND REVEGETATED.
4. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

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FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
B	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
A	2016-10-07	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS

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PROJECT
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MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT
FINAL RECLAMATION TOPOGRAPHY

PROJECT NO.	CONTROL	REV.		FIGURE
1531453	0500	B	1 of 1	E4

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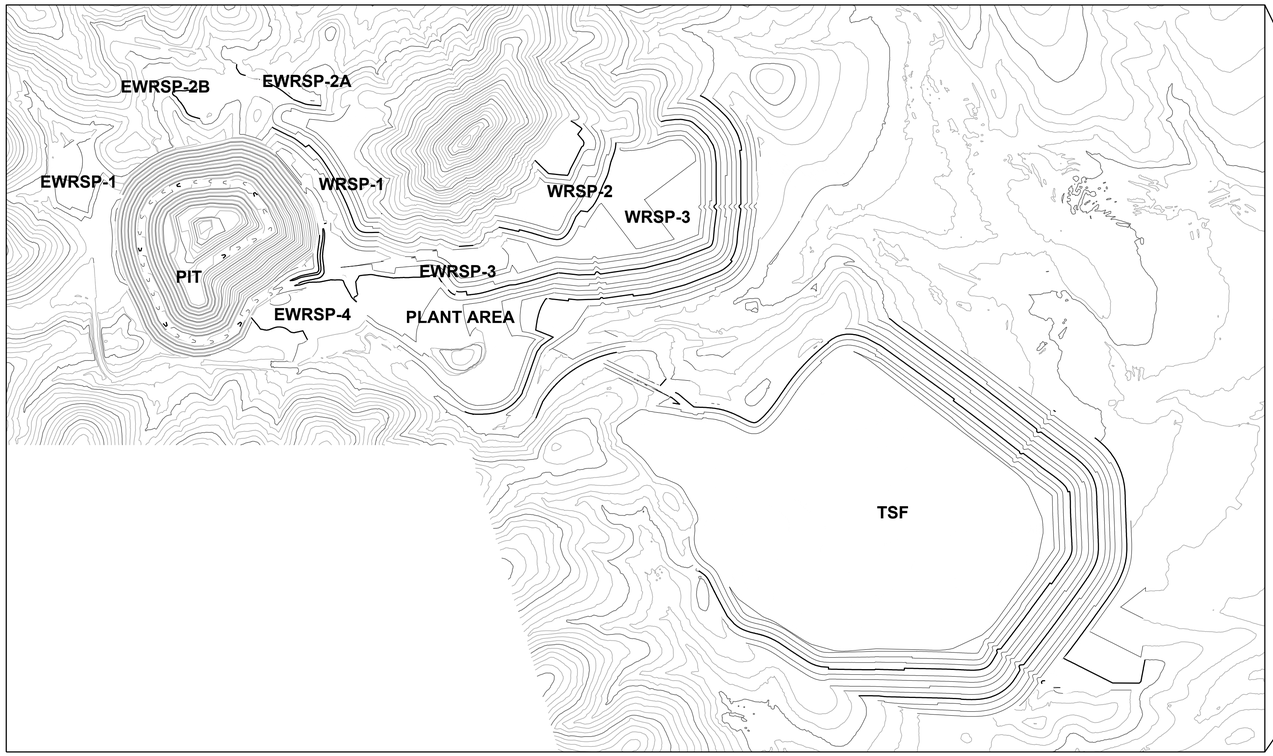
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ATTACHMENT E1
MINE RECLAMATION AND CLOSURE DESIGN PLANS

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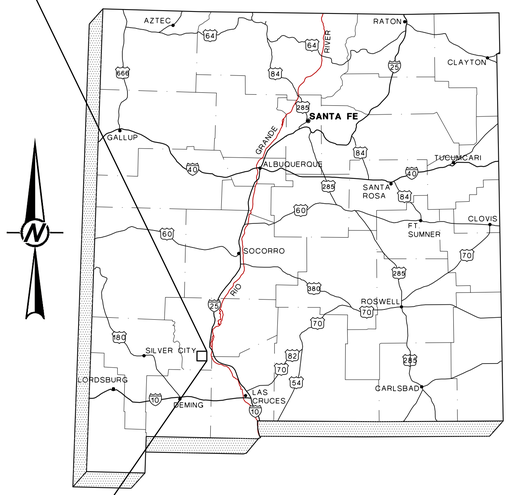
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COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN
SIERRA COUNTY, NEW MEXICO
OCTOBER 2016
REVISED JULY 2017



LOCATION MAP

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FEET



STATE OF NEW MEXICO

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LIST OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE
G-001	TITLE SHEET
G-002	GENERAL ARRANGEMENT EXISTING SITE CONDITIONS
G-003	GENERAL ARRANGEMENT AT FINAL BUILDOUT
G-004	GENERAL ARRANGEMENT FINAL RECLAMATION TOPOGRAPHY
C-001	EWRSP-1 EXISTING FACILITY LAYOUT
C-002	EWRSP-1 REGRADE AND DRAINAGE PLAN
C-003	EWRSP-2B EXISTING FACILITY LAYOUT
C-004	EWRSP-2B REGRADE AND DRAINAGE PLAN
C-005	EWRSP-4 EXISTING FACILITY LAYOUT
C-006	EWRSP-4 REGRADE AND DRAINAGE PLAN
C-007	WRSP-1 AT FINAL BUILDOUT
C-008	WRSP-1 REGRADE AND DRAINAGE PLAN
C-009	WRSP-2 AND WRSP-3 AT FINAL BUILDOUT
C-010	WRSP-2 AND WRSP-3 REGRADE AND DRAINAGE PLAN
C-011	TSF AT FINAL BUILDOUT
C-012	TSF RECLAMATION AND DRAINAGE PLAN
C-012A	EVAPORATION POND RECLAMATION AND DRAINAGE PLAN
C-013	PIT AT FINAL BUILDOUT
C-014	PIT RECLAMATION AND DRAINAGE PLAN
C-015	PLANT AREA AT FINAL BUILDOUT
C-016	PLANT AREA RECLAMATION AND DRAINAGE PLAN
C-017	EWRSP RECLAMATION SECTIONS
C-018	WRSP RECLAMATION SECTIONS
C-019	TSF, PIT AND PLANT RECLAMATION SECTIONS
C-020	TYPICAL SECTIONS AND DETAILS (1 OF 2)
C-021	TYPICAL SECTIONS AND DETAILS (2 OF 2)

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
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B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
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MINE RECLAMATION AND CLOSURE PLAN

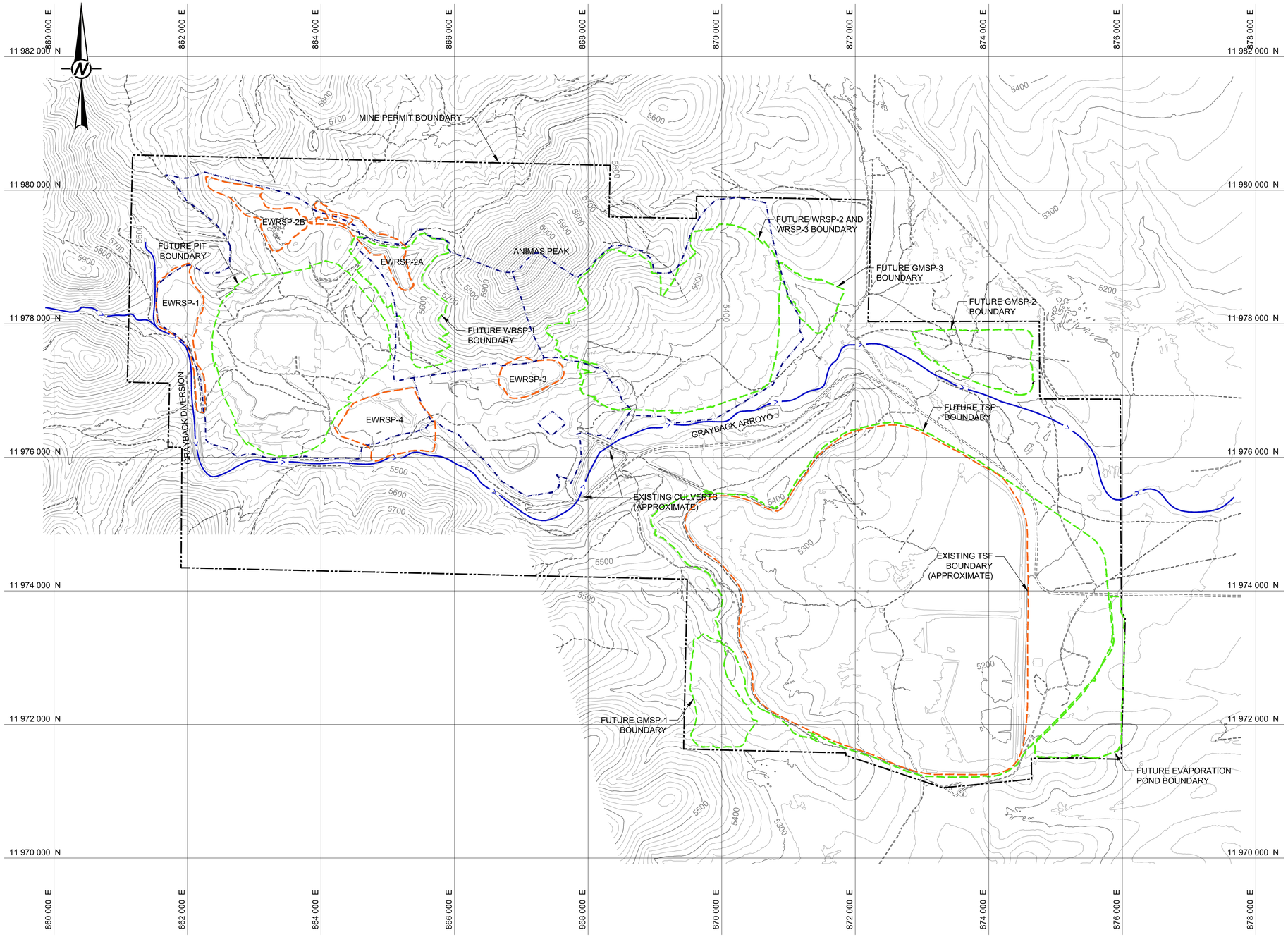
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GENERAL LEGEND

- 5400 — EXISTING GROUND CONTOURS - 20 ft CONTOUR INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD

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FEET

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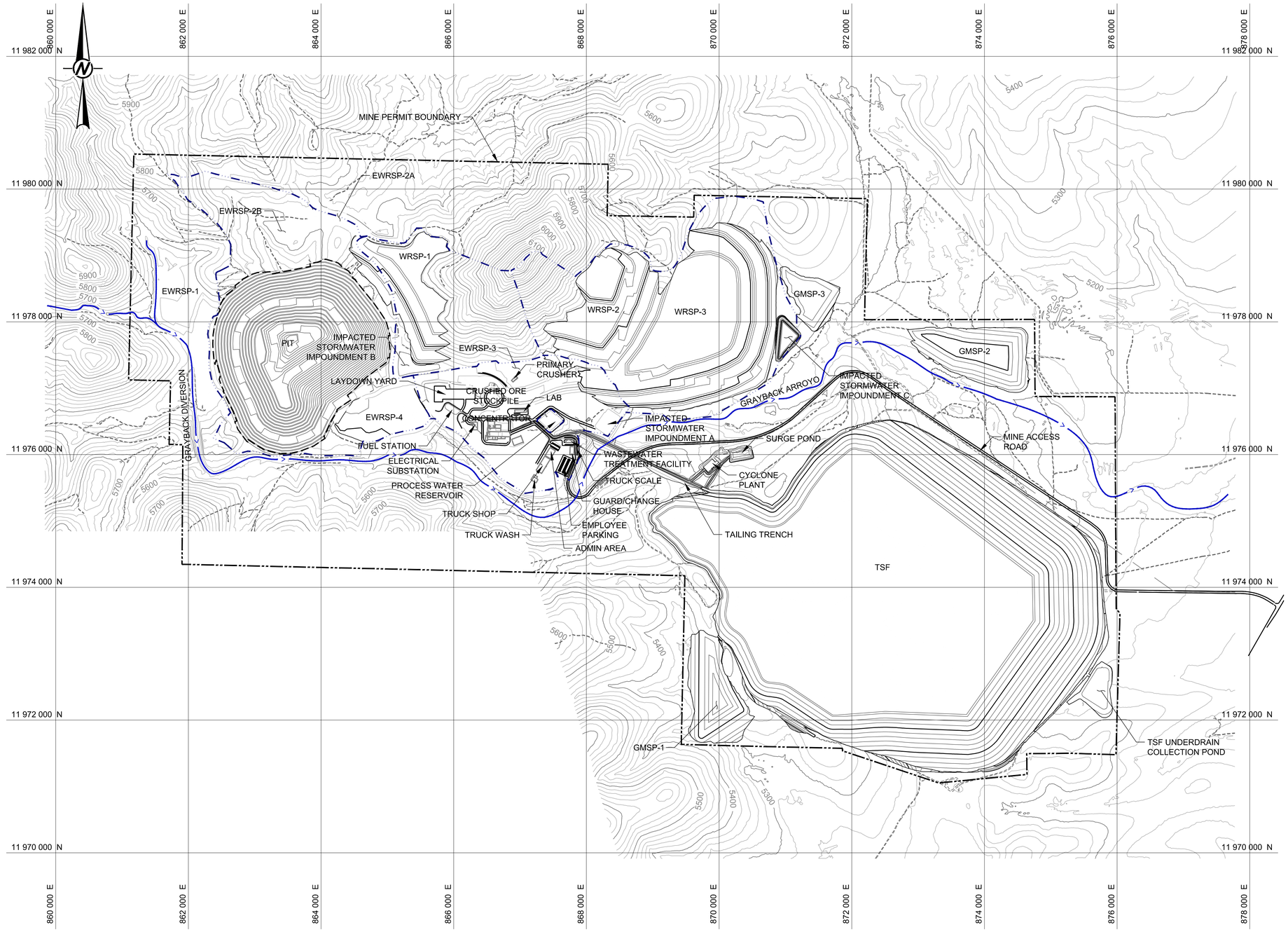
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT
EXISTING SITE CONDITIONS

PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	D	2 of 26	G-002

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GENERAL LEGEND

- 5400 — EXISTING GROUND CONTOURS - 20 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 20 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
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- EXISTING DIVERSION OR ARROYO
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT AT FINAL BUILDOUT

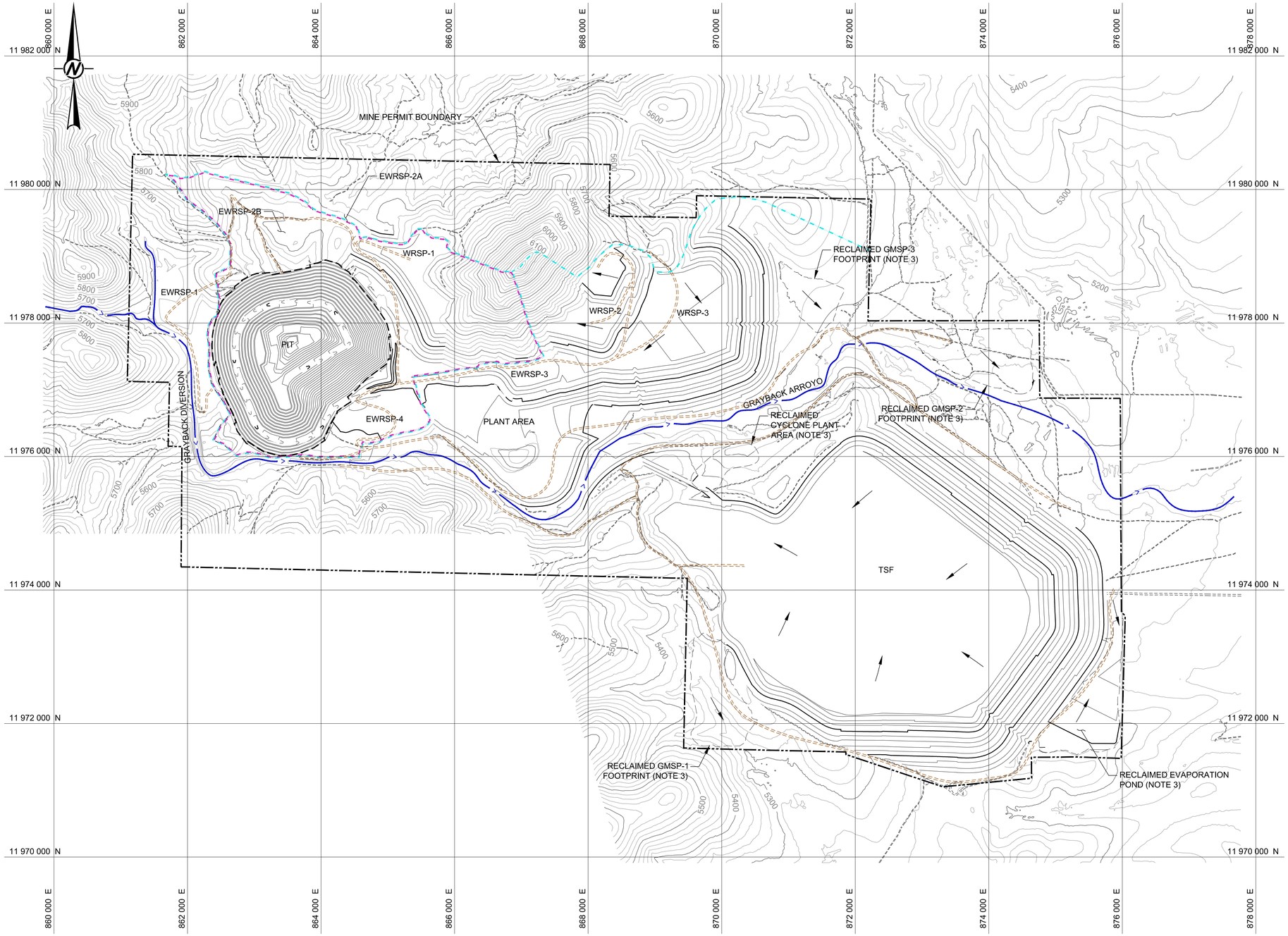
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GENERAL LEGEND

- 5400 — EXISTING GROUND CONTOURS - 20 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 20 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA) (BY OTHERS)
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1. EXISTING GROUND TOPOGRAPHY WAS DEVELOPED BY COOPER AERIAL SURVEYS BASED ON JUNE 18, 2011 AERIAL SURVEY AND PROVIDED BY THEMAC RESOURCES.
2. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
3. FOOTPRINT OF FORMER GROWTH MEDIA STOCKPILES, CYCLONE PLANT AREA, AND EVAPORATION POND WILL BE GRADED TO APPROXIMATE SURROUNDING TOPOGRAPHY, RIPPED AND REVEGETATED.
4. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 800 1600
FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
E	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-13	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT
FINAL RECLAMATION TOPOGRAPHY

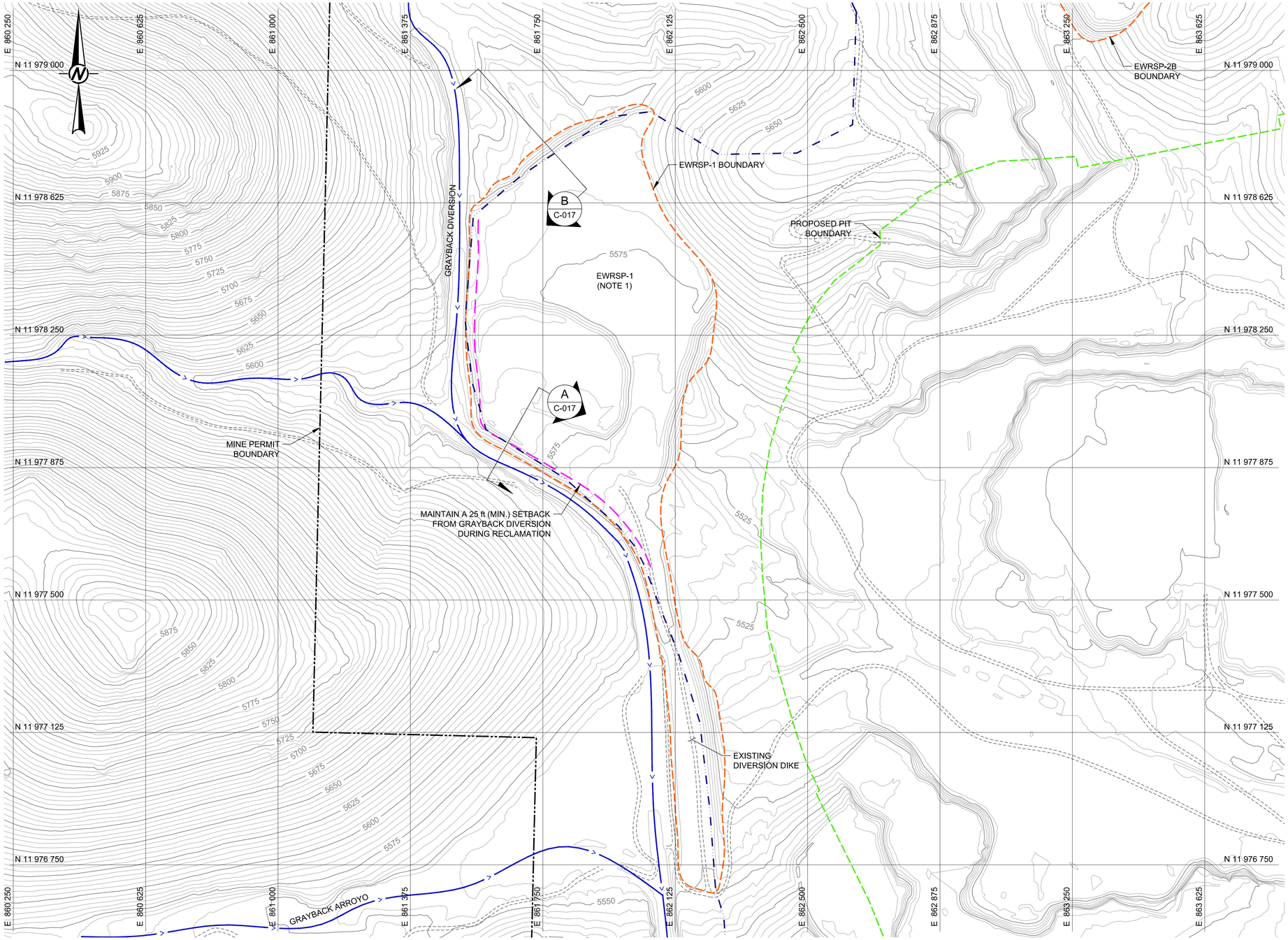
PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	E	4 of 26	G-004

Path: \\tucson\cad\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-G-004.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in

15639



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- PROPOSED SETBACK
- A / C-017 — SECTION CALLOUT: SECTION ID, DRAWING LOCATION
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- MIN. — MINIMUM

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.

0 150 300 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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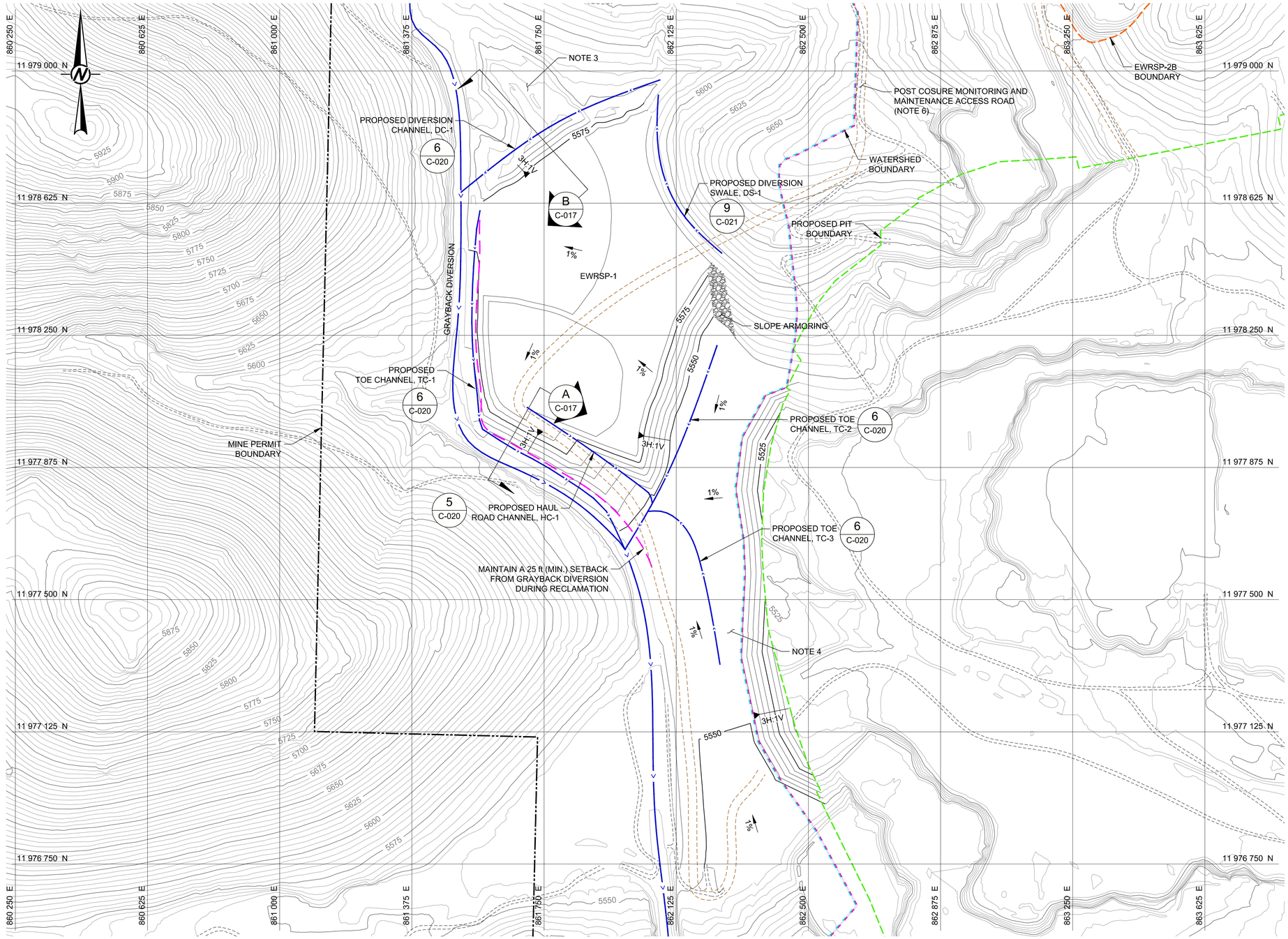
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TUCSON, ARIZONA
UNITED STATES OF AMERICA
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
EWRSP-1 EXISTING FACILITY LAYOUT

PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	D	5 of 26	C-001

Path: \\ucsonlcadd\NMCC\Copper Flat\99_Projects\1531453_THEMAC\Permit\Support\0300_Reclamation\Plans | File Name: 1531453-0300-C-001.dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
0 1 in



LEGEND

- EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 5)
- MINE PERMIT BOUNDARY
- PROPOSED FACILITY BOUNDARY
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA) (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 6)
- PROPOSED SETBACK
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT (DETAIL ID / DRAWING LOCATION)
- A / C-017 — SECTION CALLOUT (SECTION ID / DRAWING LOCATION)
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- MIN. — MINIMUM
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 1% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(2). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
3. PLACE FILL MATERIAL TO PROMOTE POSITIVE DRAINAGE TOWARD PROPOSED DIVERSION CHANNEL DC-1 AND THE EXISTING GRAYBACK DIVERSION.
4. PLACE FILL MATERIAL TO PROMOTE POSITIVE DRAINAGE TOWARD PROPOSED TOE CHANNELS TC-2 AND TC-3.
5. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
6. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 150 300
FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
EWRSP-1 REGRADE AND DRAINAGE PLAN

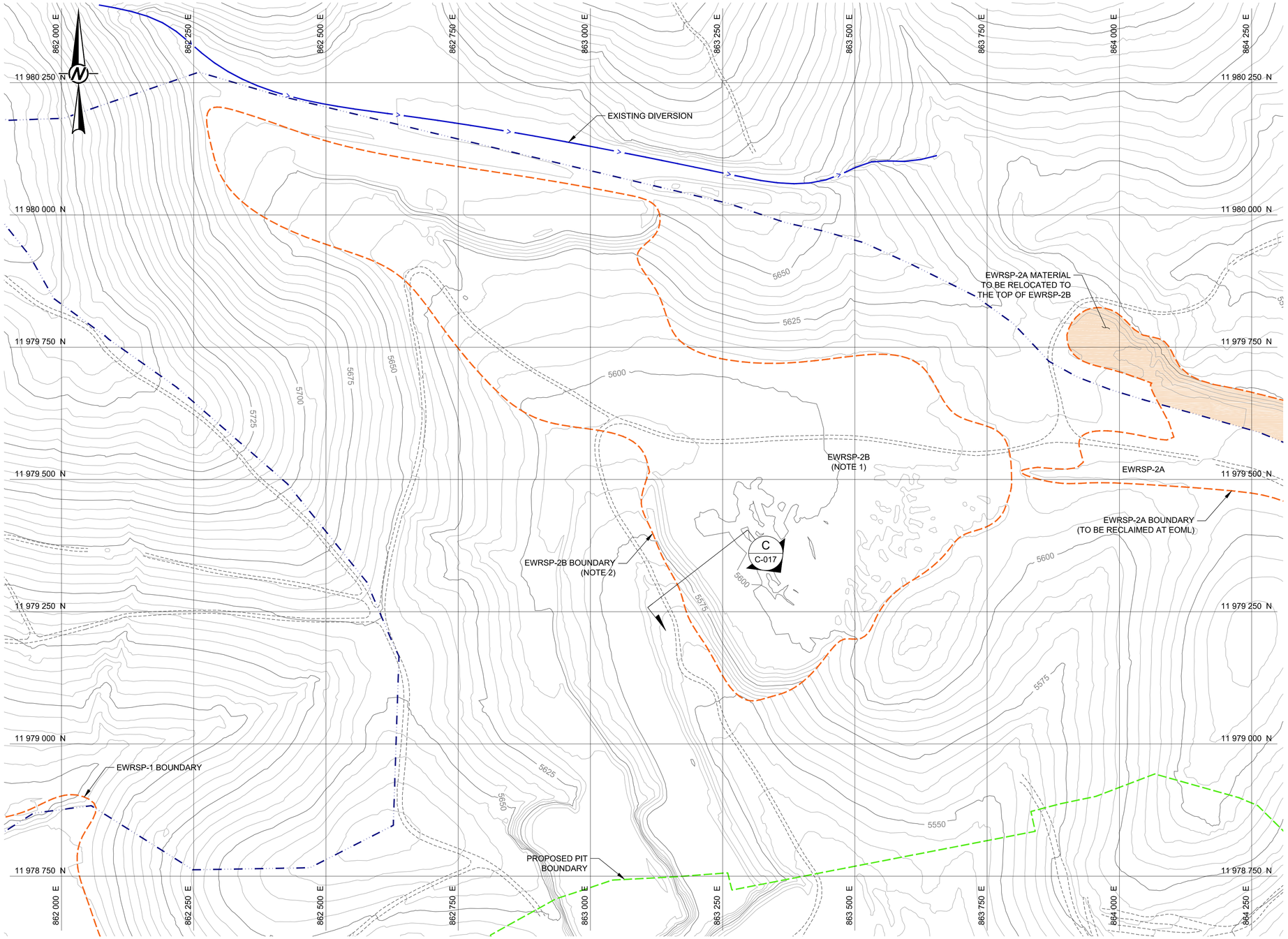
PROJECT NO.	CONTROL	REV.	DRAWING
1531453	0300	D	6 of 26 C-002

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in

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15641



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- A / C-017 — SECTION CALLOUT, SECTION ID, DRAWING LOCATION
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- EOML — END OF MINE LIFE

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. EXISTING EWRSP-2B FACILITY FOOTPRINT INCLUDES ASSOCIATED DISTURBED AREAS.

0 100 200 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
EWRSP-2B EXISTING FACILITY LAYOUT

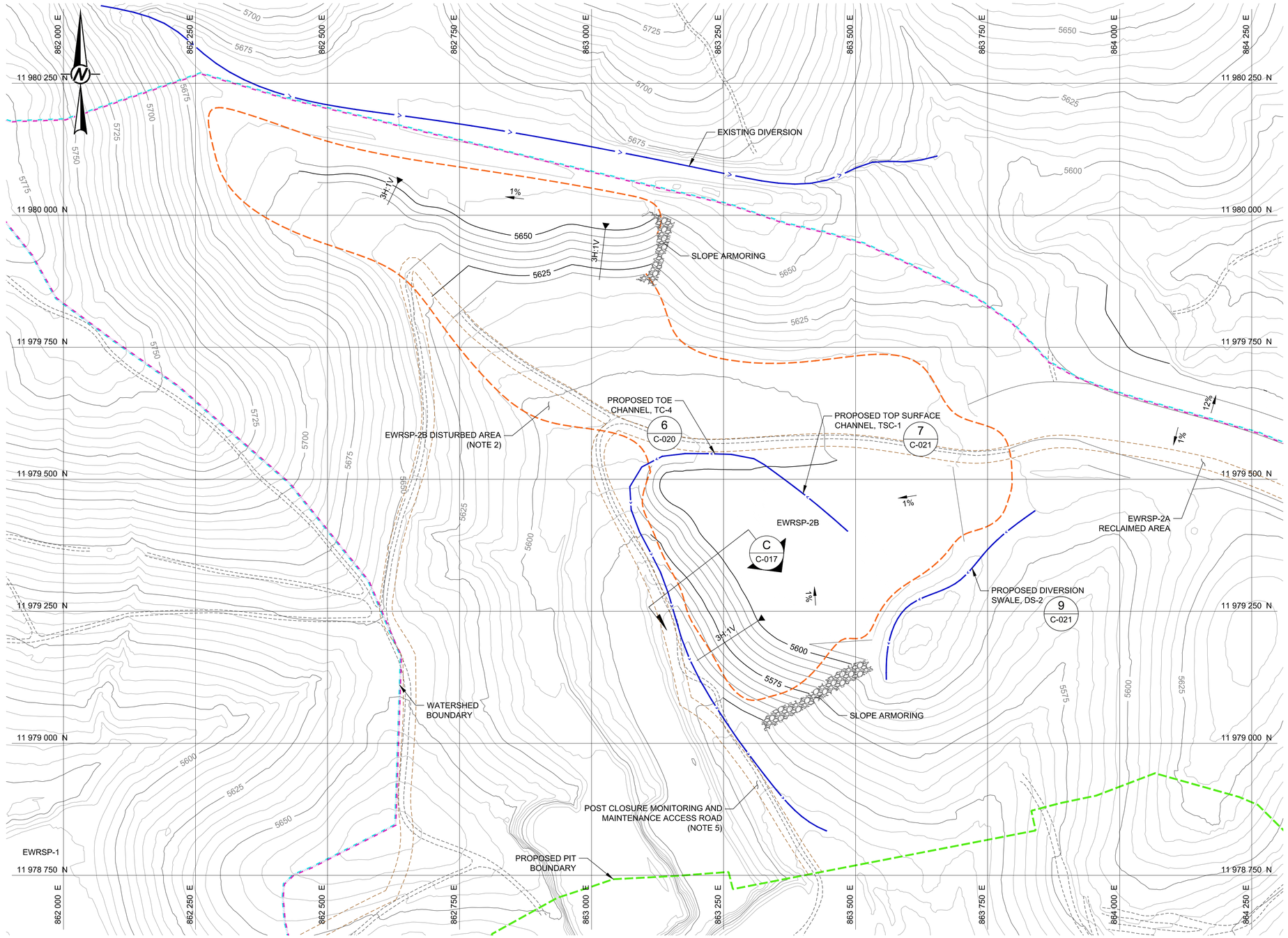
PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	D	7 of 26	C-003

Path: \\tucson\cadd\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-003.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in

15642



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 4)
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA) (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 5)
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT (DETAIL ID / DRAWING LOCATION)
- A / C-017 — SECTION CALLOUT (SECTION ID / DRAWING LOCATION)
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. EWRSP-2B TOP SURFACE SHALL BE GRADED TO PROPOSED TOE CHANNEL, TC-4, FOR FLOW CONVEYANCE TOWARD FUTURE PIT PERIMETER CHANNEL, PC-1 (SEE DRAWING C-014). EWRSP-2B FACILITY FOOTPRINT INCLUDES ASSOCIATED DISTURBED AREAS TO BE GRADED, RIPPED AND VEGETATED.
3. EWRSP-2B RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(2). A 1% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(2). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORWATER CONVEYANCE.
4. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
5. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 100 200 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
EWRSP-2B REGRADE AND DRAINAGE PLAN

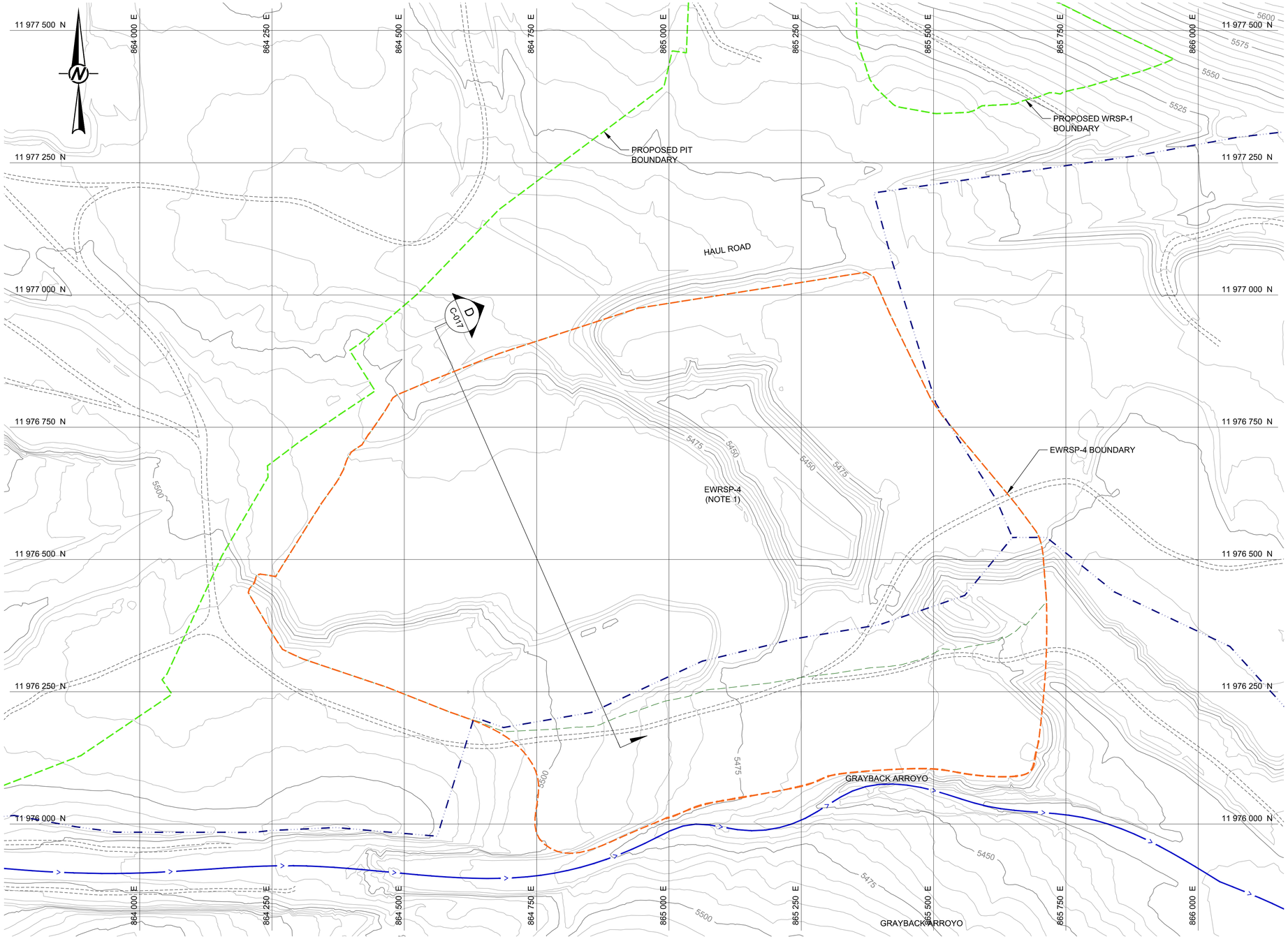
PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	D	8 of 26	C-004

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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Path: \\tucson\cadd\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-004.dwg

15643



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- A / C-017 — SECTION CALLOUT, SECTION ID, DRAWING LOCATION
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- WRSP — WASTE ROCK STOCKPILE

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.

0 100 200 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
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MINE RECLAMATION AND CLOSURE PLAN

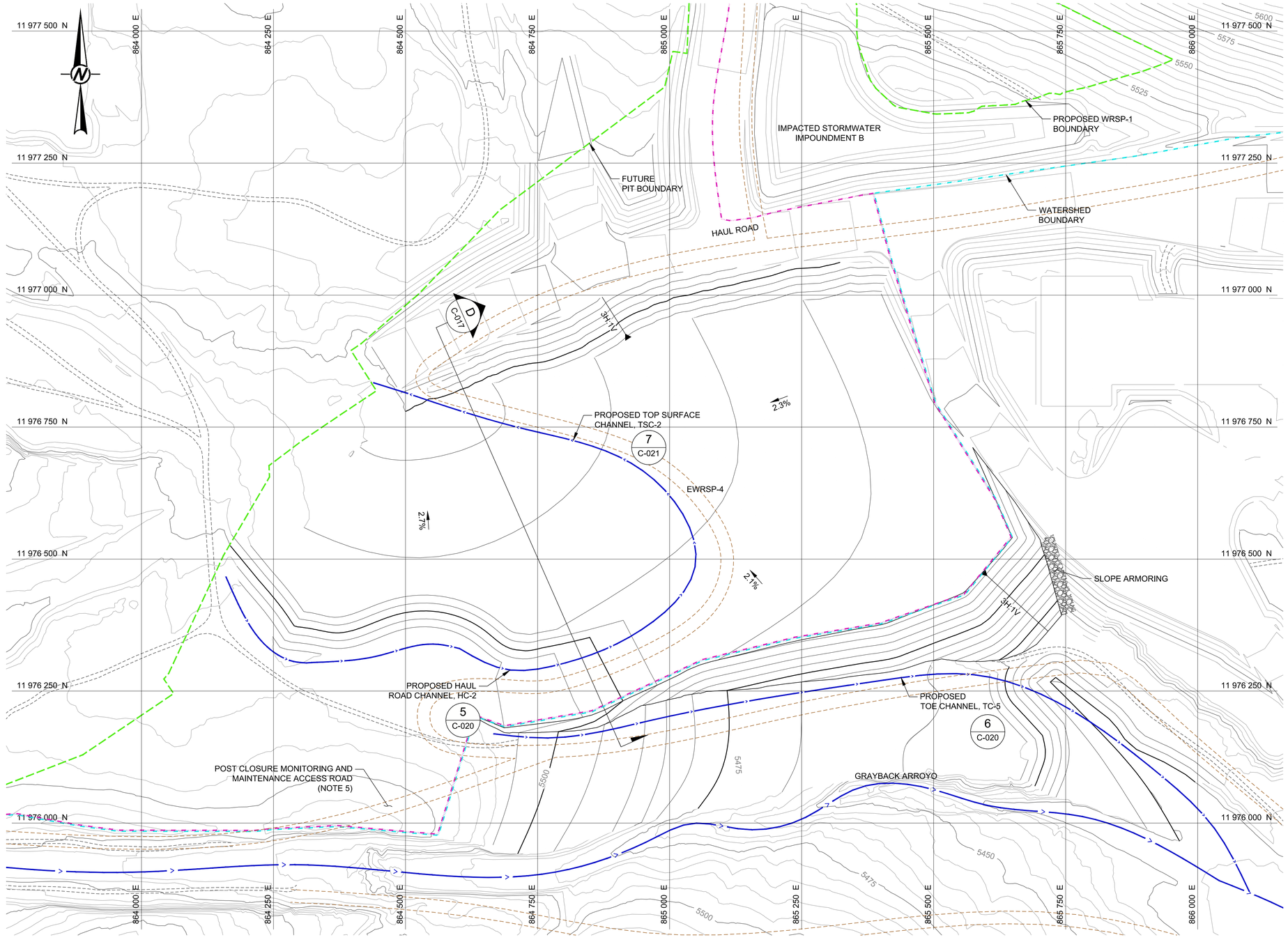
TITLE
EWRSP-4 EXISTING FACILITY LAYOUT

PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	D	9 of 26	C-005

Path: \\tucson\cadd\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-005.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in



LEGEND

- EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL) (5400)
- PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 4) (5400)
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA) (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 5)
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT (DETAIL ID / DRAWING LOCATION)
- A / C-017 — SECTION CALLOUT (SECTION ID / DRAWING LOCATION)
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. EWRSP-4 TOP SURFACE SHALL BE GRADED TO PROPOSED HAUL ROAD CHANNEL HC-5 (SEE DRAWING C-014) FOR FLOW CONVEYANCE TOWARD THE PIT.
3. EWRSP-4 RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 1% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(2). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT, AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
4. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
5. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 100 200 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
E	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENGY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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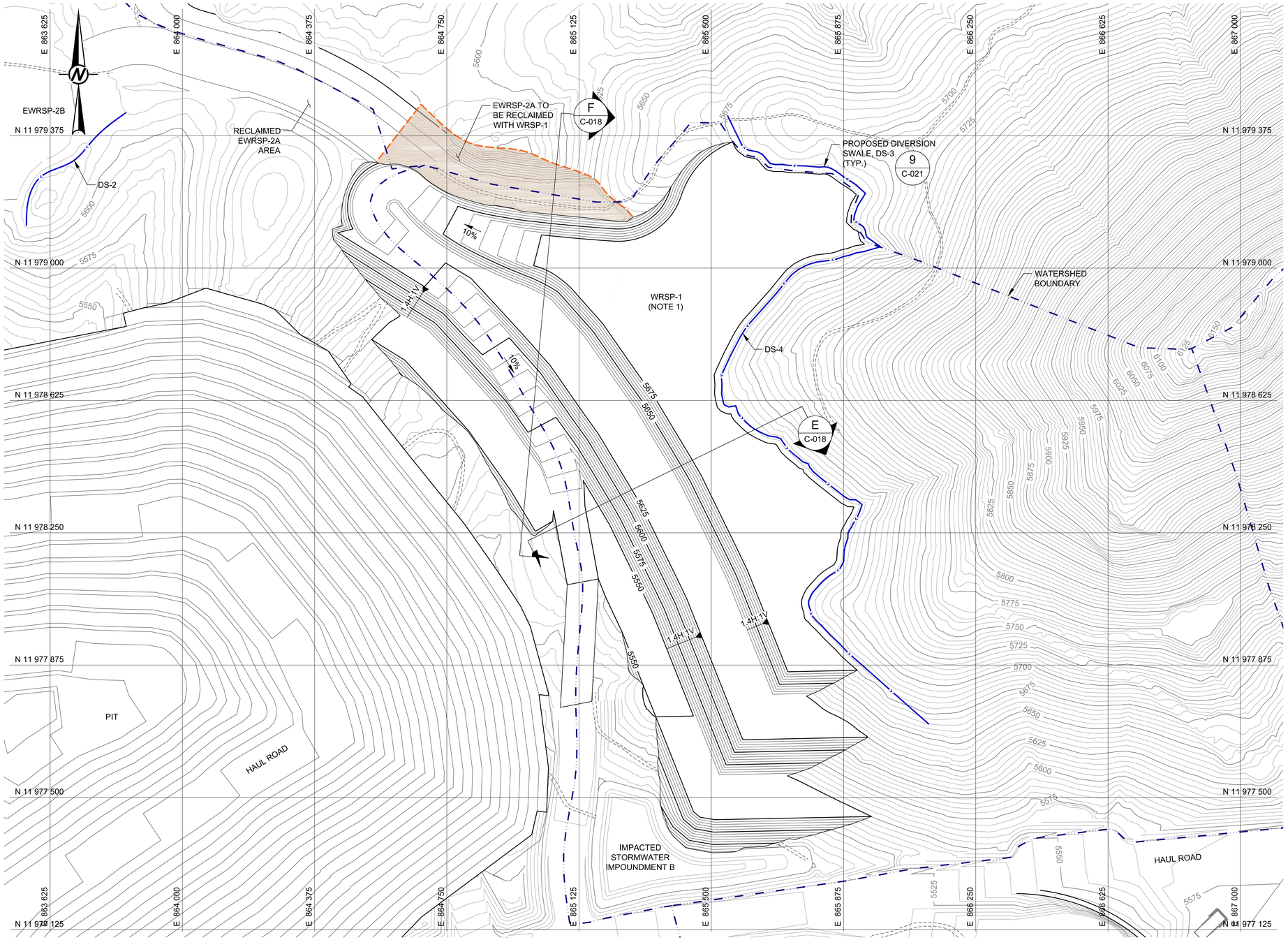
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
EWRSP-4 REGRADE AND DRAINAGE PLAN

PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	E	10 of 26	C-006

Path: \\tucson\cad\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-006.dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
0 1 in



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 1)
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- WATERSHED BOUNDARY (BY OTHERS)
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- A / C-017 — SECTION CALLOUT (SECTION ID, DRAWING LOCATION)
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- TYP. — TYPICAL

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.

0 150 300 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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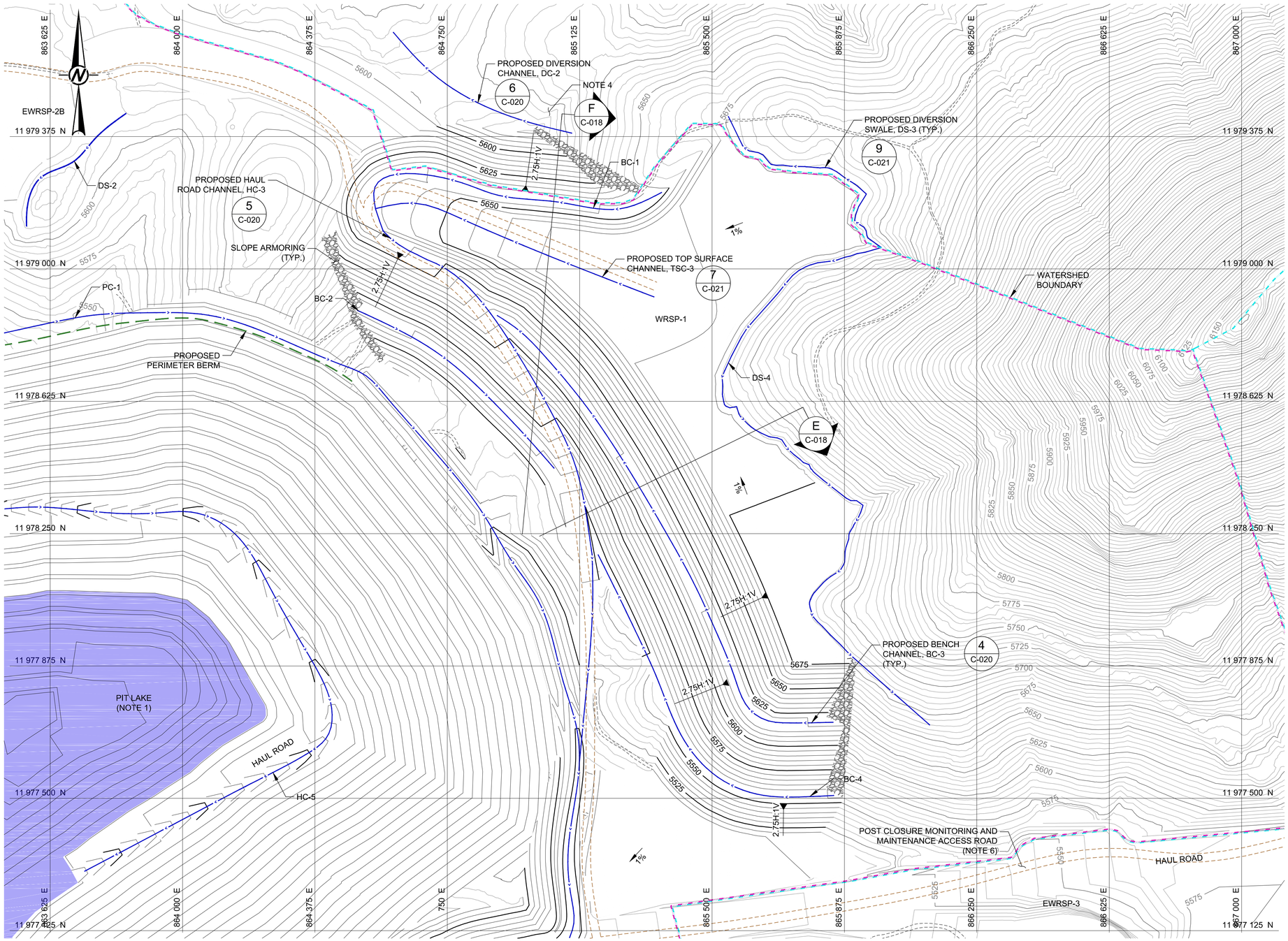
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
WRSP-1 AT FINAL BUILDOUT

PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	D	11 of 26	C-007

Path: \\tucson\cad\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-007.dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
0 1 in



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 5)
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA)
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 6)
- PROPOSED PERIMETER BERM
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT: DETAIL ID, DRAWING LOCATION
- A / C-017 — SECTION CALLOUT: SECTION ID, DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- TYP. — TYPICAL
- PIT LAKE (NOTE 1)
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC. PIT LAKE ELEVATION PROVIDED BY NMCC.
2. WRSP-1 TOP SURFACE SHALL BE GRADED TO A HAUL ROAD CHANNEL FOR FLOW CONVEYANCE TOWARD THE PIT.
3. WRSP-1 RECLAMATION DESIGN SHALL UTILIZE 2.75H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 1% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(2). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
4. PLACE FILL MATERIAL TO PROMOTE DRAINAGE AWAY FROM THE RECLAIMED WRSP-1 TOE.
5. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
6. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 150 300 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
E	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
WRSP-1 REGRADE AND DRAINAGE PLAN

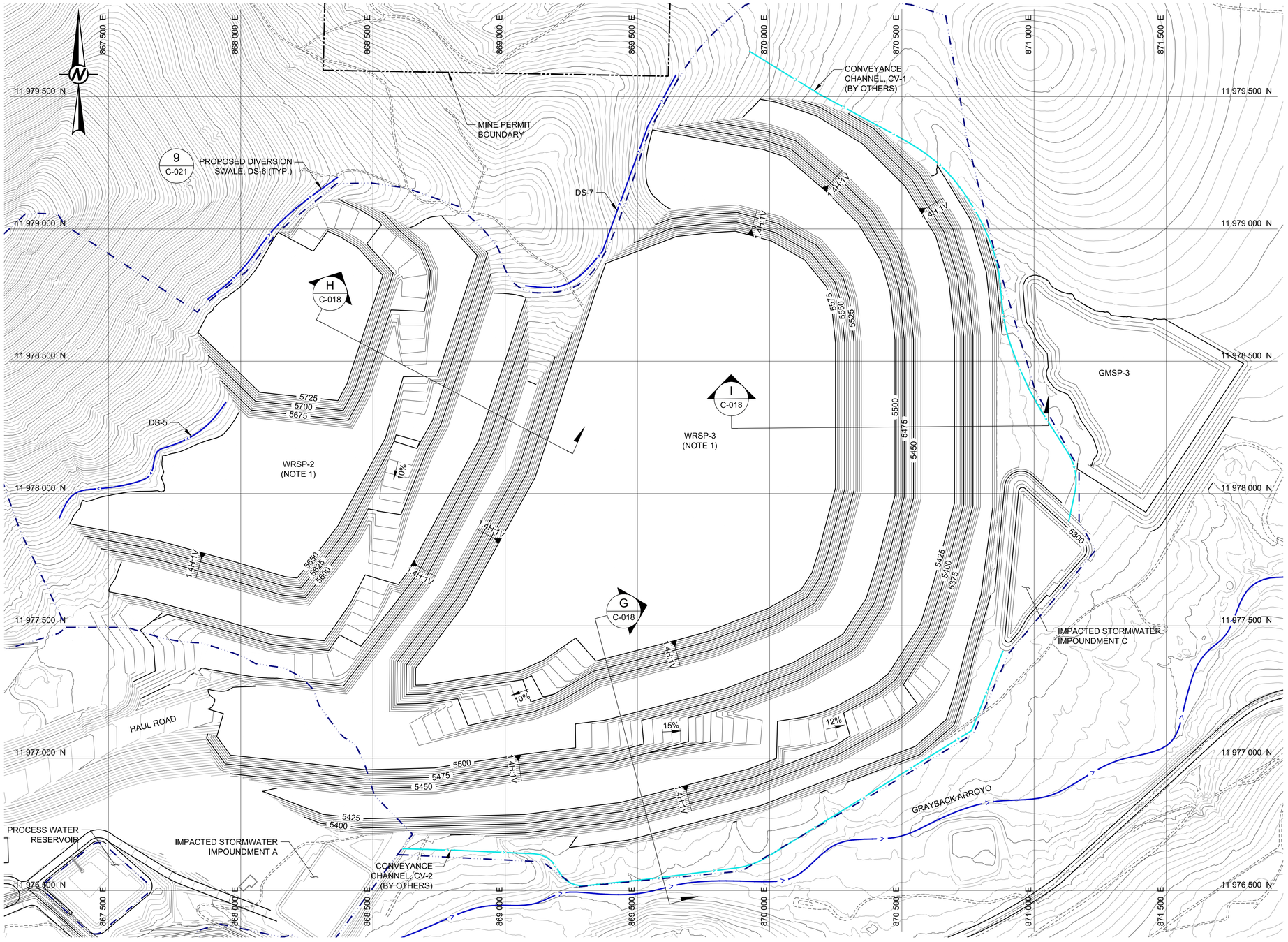
PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	E	12 of 26	C-008

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in

Path: \\tucson\cad\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-008.dwg

15647



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- CONVEYANCE CHANNEL (BY OTHERS)
- EXISTING ROAD
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- A / C-017 — SECTION CALLOUT; SECTION ID; DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- GMSP — GROWTH MEDIA STOCKPILE
- MIN. — MINIMUM
- TYP. — TYPICAL

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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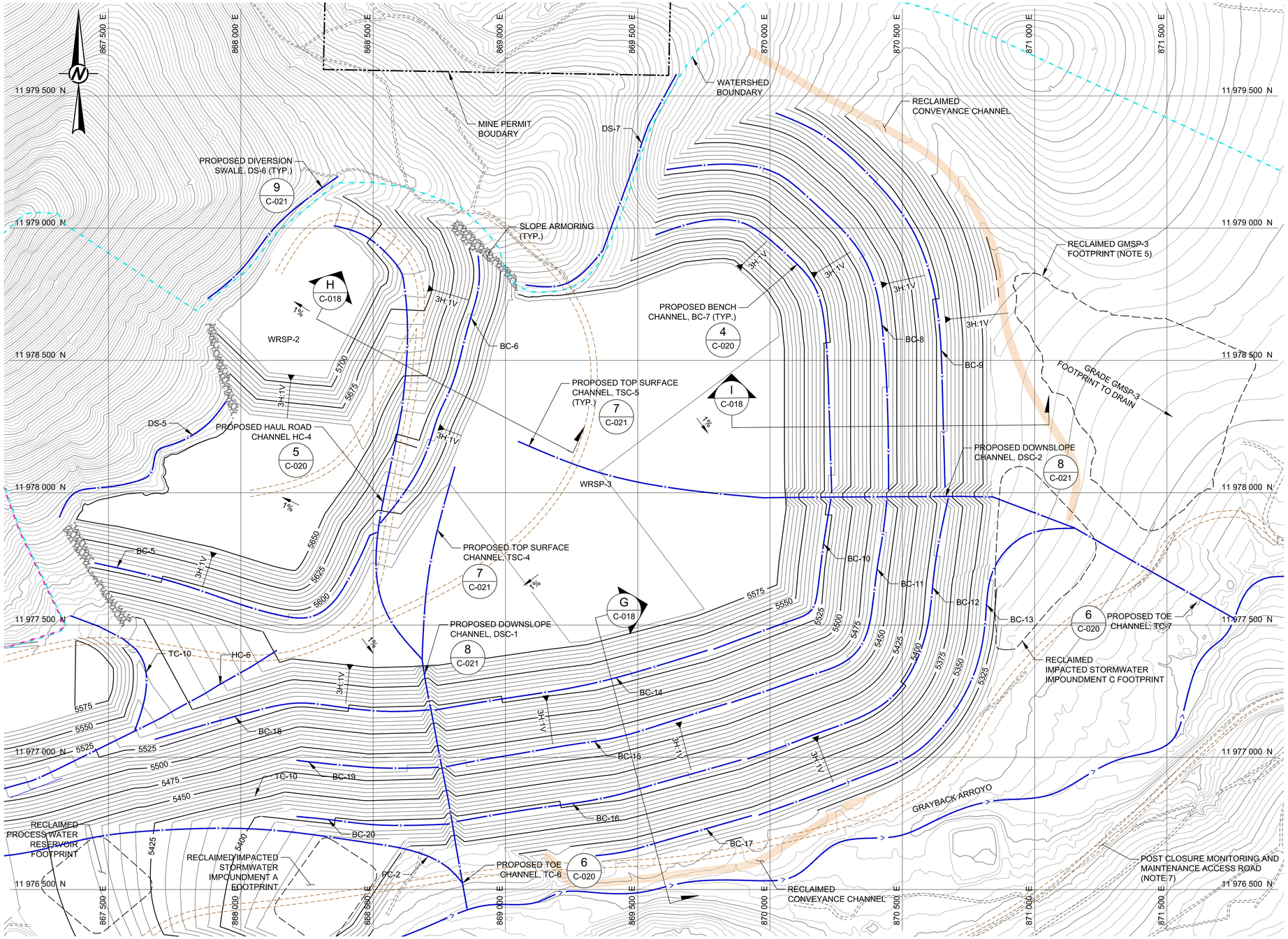
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TUCSON, ARIZONA
UNITED STATES OF AMERICA
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
WRSP-2 AND WRSP-3 AT FINAL BUILDOUT

PROJECT NO.	CONTROL	REV.	DRAWING
1531453	0300	D	C-009

Path: \\tucson\cad\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-009.dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
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LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 6)
- MINE PERMIT BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA) (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 7)
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT: DETAIL ID, DRAWING LOCATION
- A / C-017 — SECTION CALLOUT: SECTION ID, DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- TYP. — TYPICAL
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. WRSP-2 AND WRSP-3 TOP SURFACE SHALL BE GRADED TOWARD THE SOUTH, WEST AND EAST, AND UTILIZE PLANNED HAUL ROADS WHERE PRACTICAL FOR STORMWATER CONVEYANCE.
3. WRSP-2 AND WRSP-3 RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 1% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(2). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
4. IMPACTED STORMWATER IMPOUNDMENT A AND THE PROCESS WATER RESERVOIR TO BE RECLAIMED AS PART OF THE PLANT AREA RECLAMATION PLAN (SEE DRAWING C-016).
5. FOOTPRINT OF FORMER GROWTH MEDIA STOCKPILE 3 WILL BE GRADED TO APPROXIMATE SURROUNDING TOPOGRAPHY, RIPPED AND REVEGETATED.
6. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
7. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
E	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

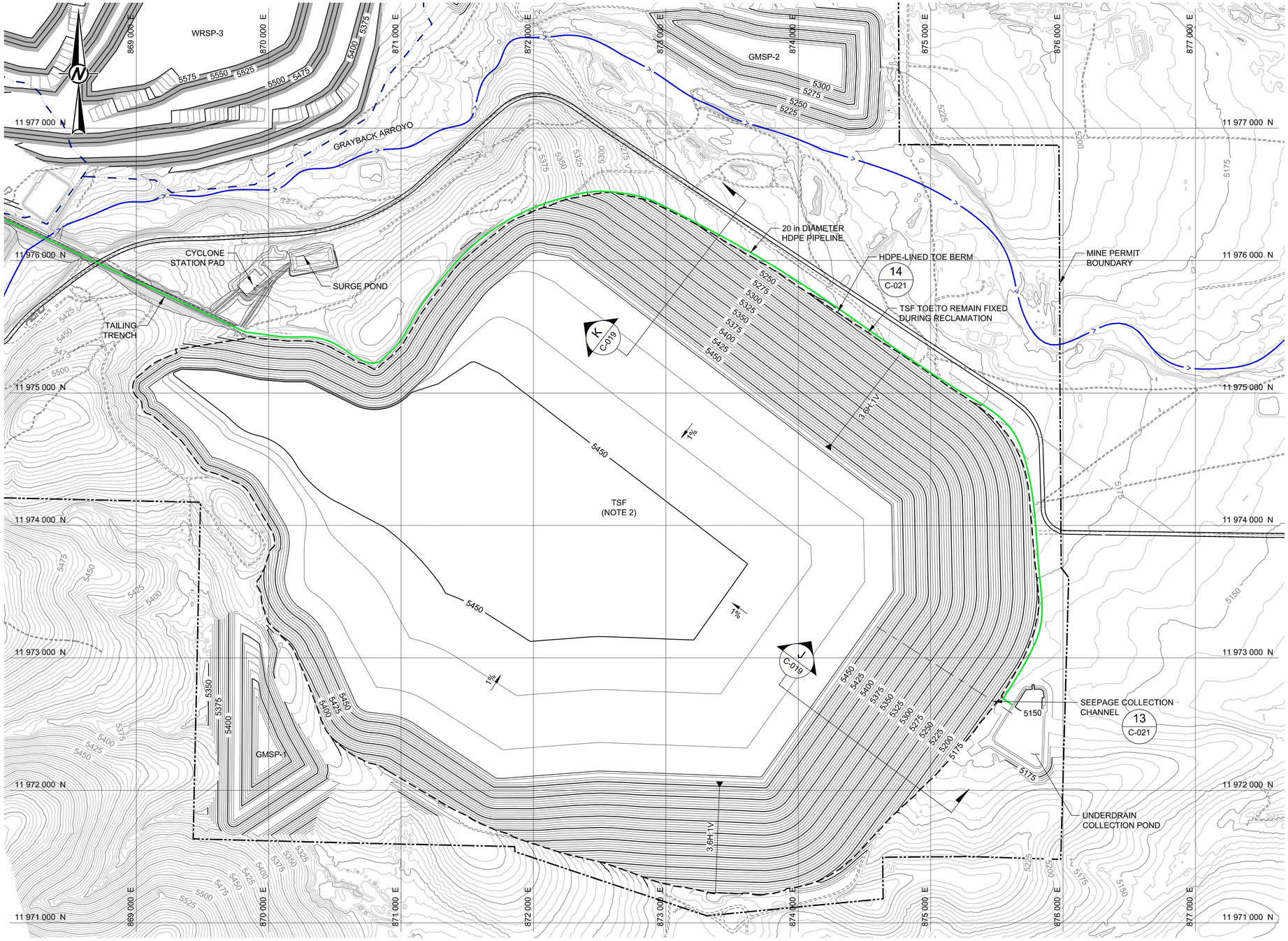
TITLE
WRSP-2 AND WRSP-3 REGRADE AND DRAINAGE PLAN

PROJECT NO.	CONTROL	REV.	14 of 26	DRAWING
1531453	0300	E		C-010

Path: \\tucson\cadd\NMCC\Copper Flat\99_Projects\1531453_THEMAC\Permit\Support\0300_Reclamation\Plans | File Name: 1531453-0300-C-010.dwg

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTES 1 AND 2)
- MINE PERMIT BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- A / C-017 — SECTION CALLOUT, SECTION ID, DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- GMSP — GROWTH MEDIA STOCKPILE
- TSF — TAILING STORAGE FACILITY

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. FINAL BUILDOUT TOPOGRAPHY FOR THE TSF WAS DEVELOPED BY GOLDER AND IS FROM THE 30K TPD TAILINGS STORAGE FACILITY FEASIBILITY DESIGN REPORT (GOLDER, 2015).

0 400 800 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
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MINE RECLAMATION AND CLOSURE PLAN

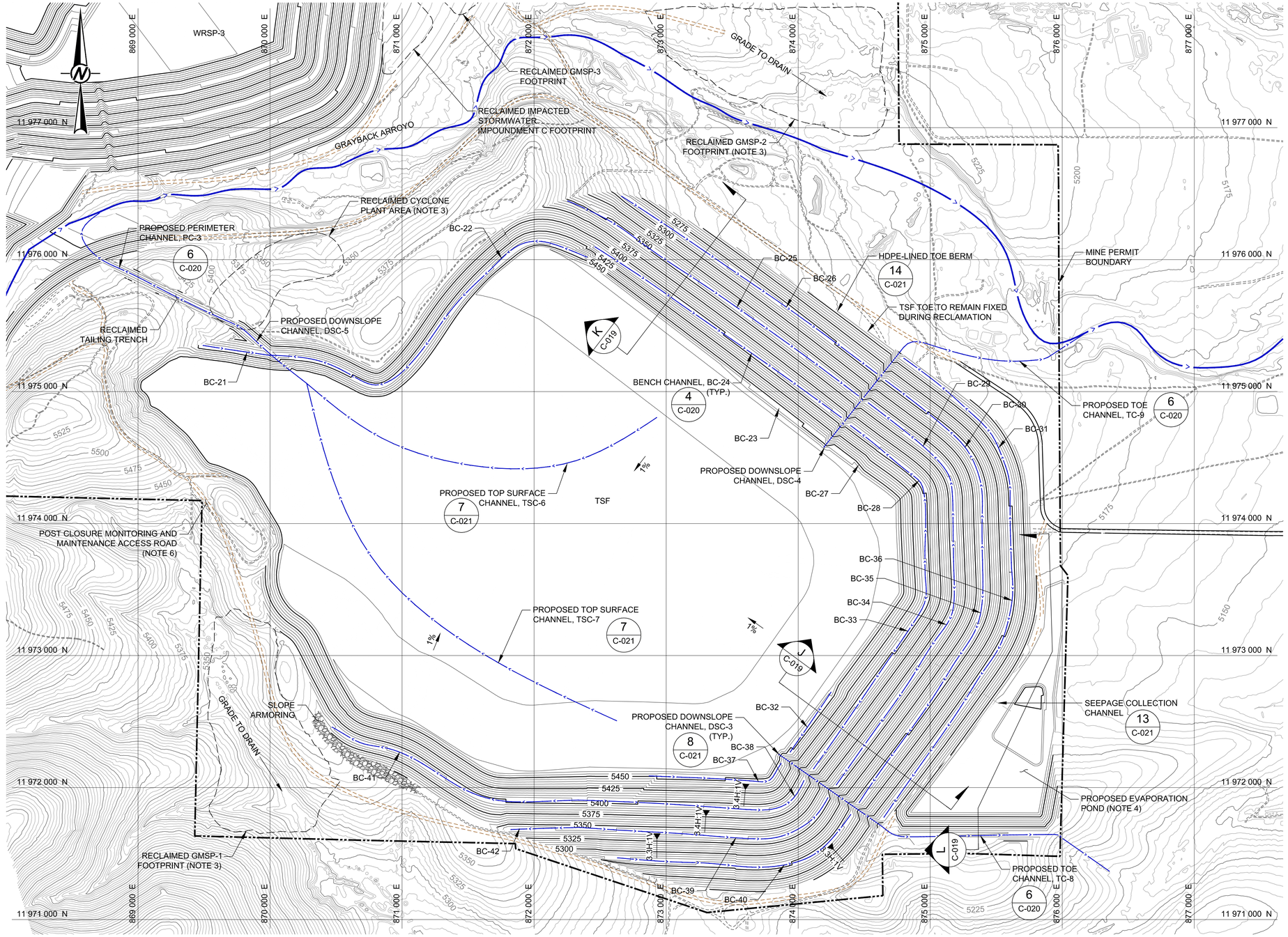
TITLE
TSF AT FINAL BUILDOUT

PROJECT NO.	CONTROL	REV.	DRAWING
1531453	0300	D	C-011

15 of 26

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

Path: \\tucson\cadd\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-011.dwg



LEGEND

- EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 5)
- MINE PERMIT BOUNDARY
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 6)
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT: DETAIL ID / DRAWING LOCATION
- A / C-017 — SECTION CALLOUT: SECTION ID / DRAWING LOCATION
- WRSP — WASTE ROCK STOCKPILE
- TSF — TAILING STORAGE FACILITY
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 0.5% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(1). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
3. FOOTPRINT OF RECLAIMED GROWTH MEDIA STOCKPILES AND THE CYCLONE PLANT AREA WILL BE GRADED TO APPROXIMATE SURROUNDING TOPOGRAPHY, RIPPED AND REVEGETATED.
4. EVAPORATION POND WILL BE CONSTRUCTED IN YEAR 5 FOLLOWING CESSATION OF MINING, NEAR THE END OF THE ACTIVE EVAPORATION PROGRAM. EVAPORATION POND WILL BE RECLAIMED AT THE END OF THE PASSIVE EVAPORATION PROGRAM (SEE DRAWING C-012A).
5. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
6. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 400 800 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
E	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE PERMIT CLOSURE DESIGN

TITLE
TSF RECLAMATION AND DRAINAGE PLAN

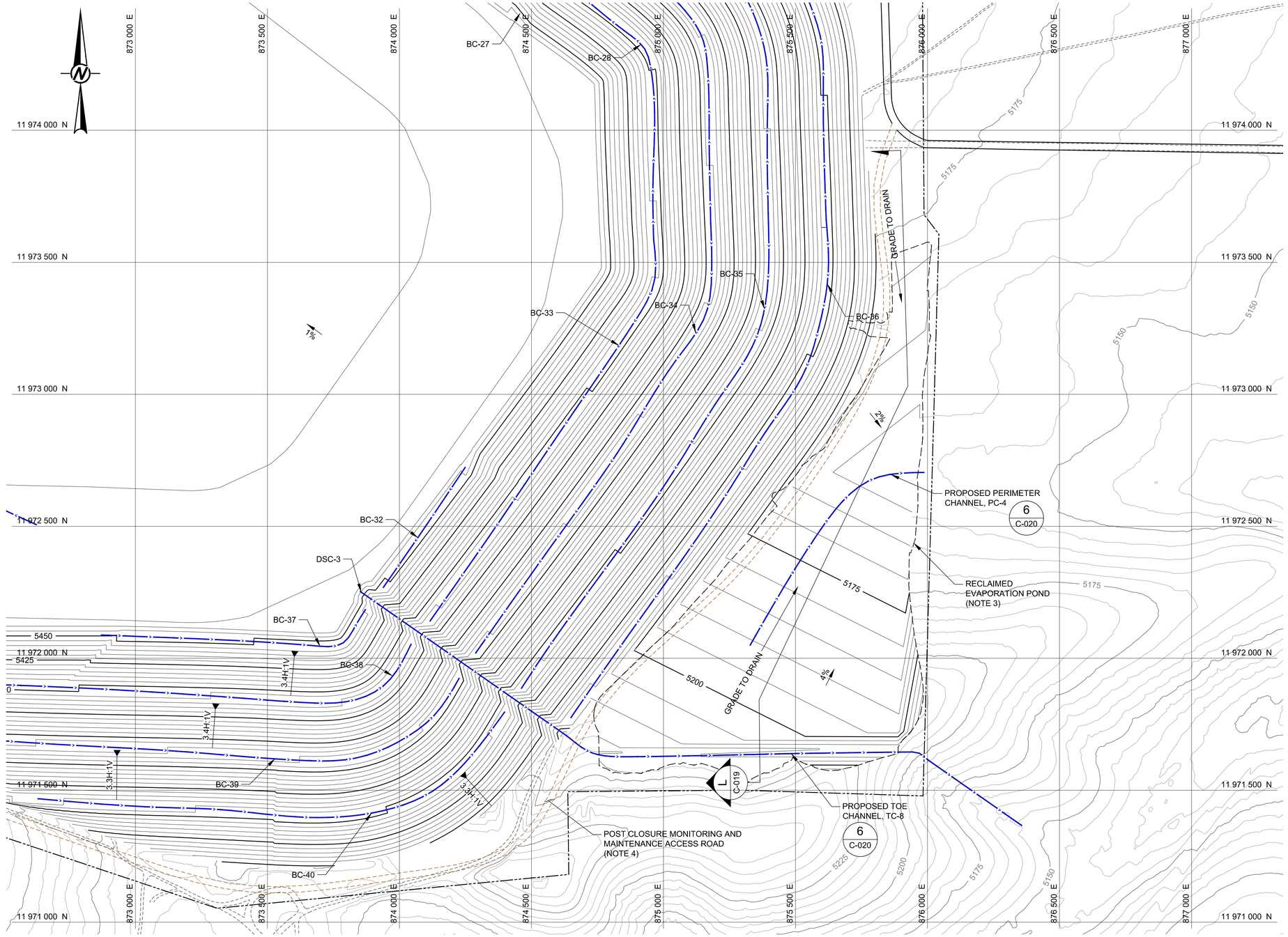
PROJECT NO.	CONTROL	REV.	16 of 26	DRAWING
1531453	0300	E		C-012

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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15651



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 5)
- MINE PERMIT BOUNDARY
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 4)
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT (DETAIL ID / DRAWING LOCATION)
- A / C-017 — SECTION CALLOUT (SECTION ID / DRAWING LOCATION)
- WRSP — WASTE ROCK STOCKPILE
- TSF — TAILING STORAGE FACILITY
- SLOPE ARMORING

NOTES

1. RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 0.5% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(1). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
2. FOOTPRINT OF RECLAIMED EVAPORATION POND WILL BE FILLED, GRADED, RIPPED AND VEGETATED TO PROMOTE POSITIVE DRAINAGE TOWARD PROPOSED PERIMETER CHANNEL PC-4 AND THE EXISTING DRAINAGE.
3. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
4. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
C	2017-07-10	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
B	2017-06-28	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2017-06-28	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
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MINE PERMIT CLOSURE DESIGN

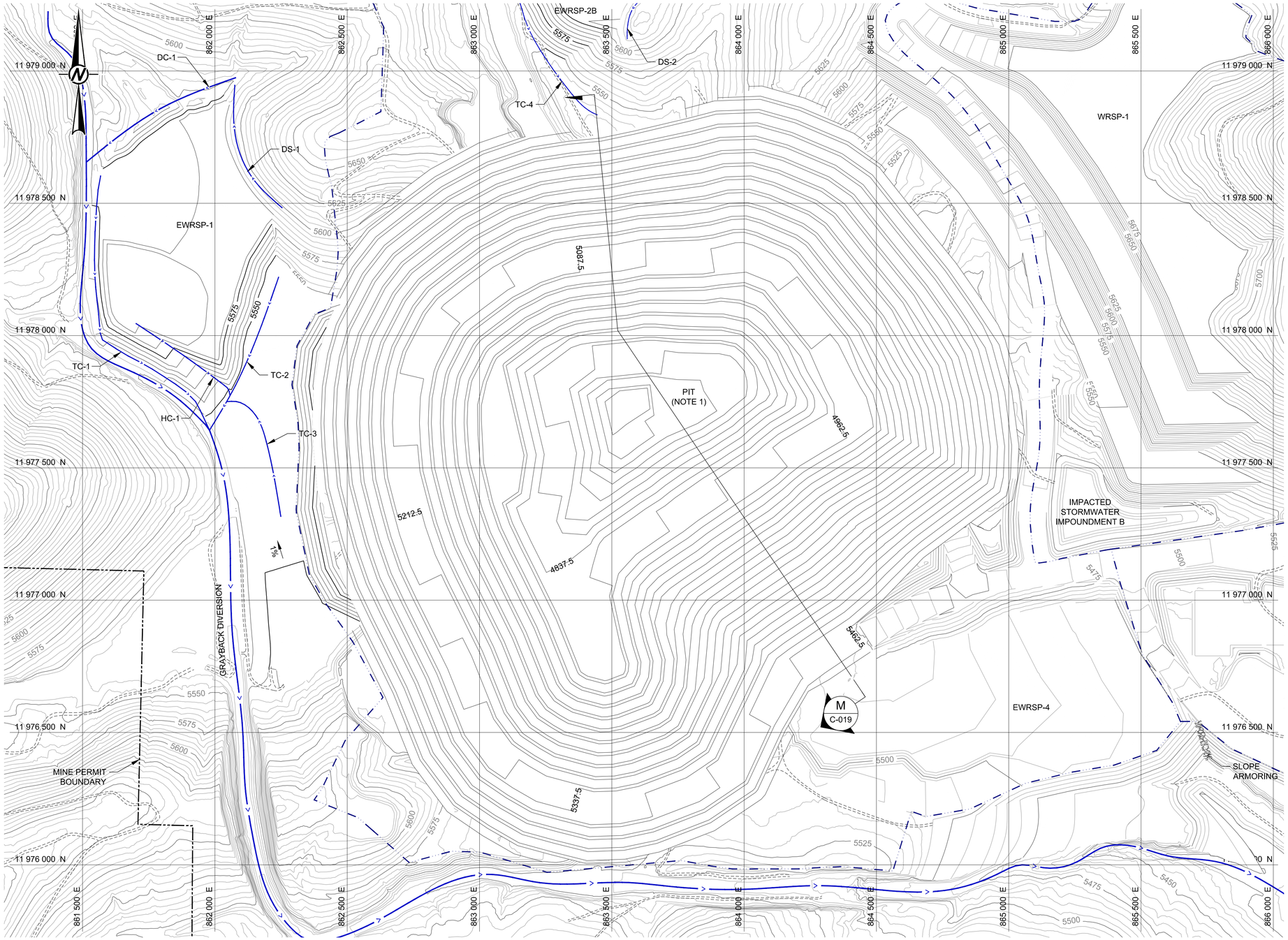
TITLE
EVAPORATION POND RECLAMATION AND DRAINAGE PLAN

PROJECT NO.	CONTROL	REV.	DRAWING
1531453	0300	C	C-012A

17 of 26

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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LEGEND

- EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL)
- MINE PERMIT BOUNDARY
- EXISTING FACILITY BOUNDARY (APPROXIMATE)
- PROPOSED FACILITY BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- SECTION CALLOUT / SECTION ID / DRAWING LOCATION (A / C-017)
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- SLOPE ARMORING

NOTES

1. PLANNED END OF MINE LIFE TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
E	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

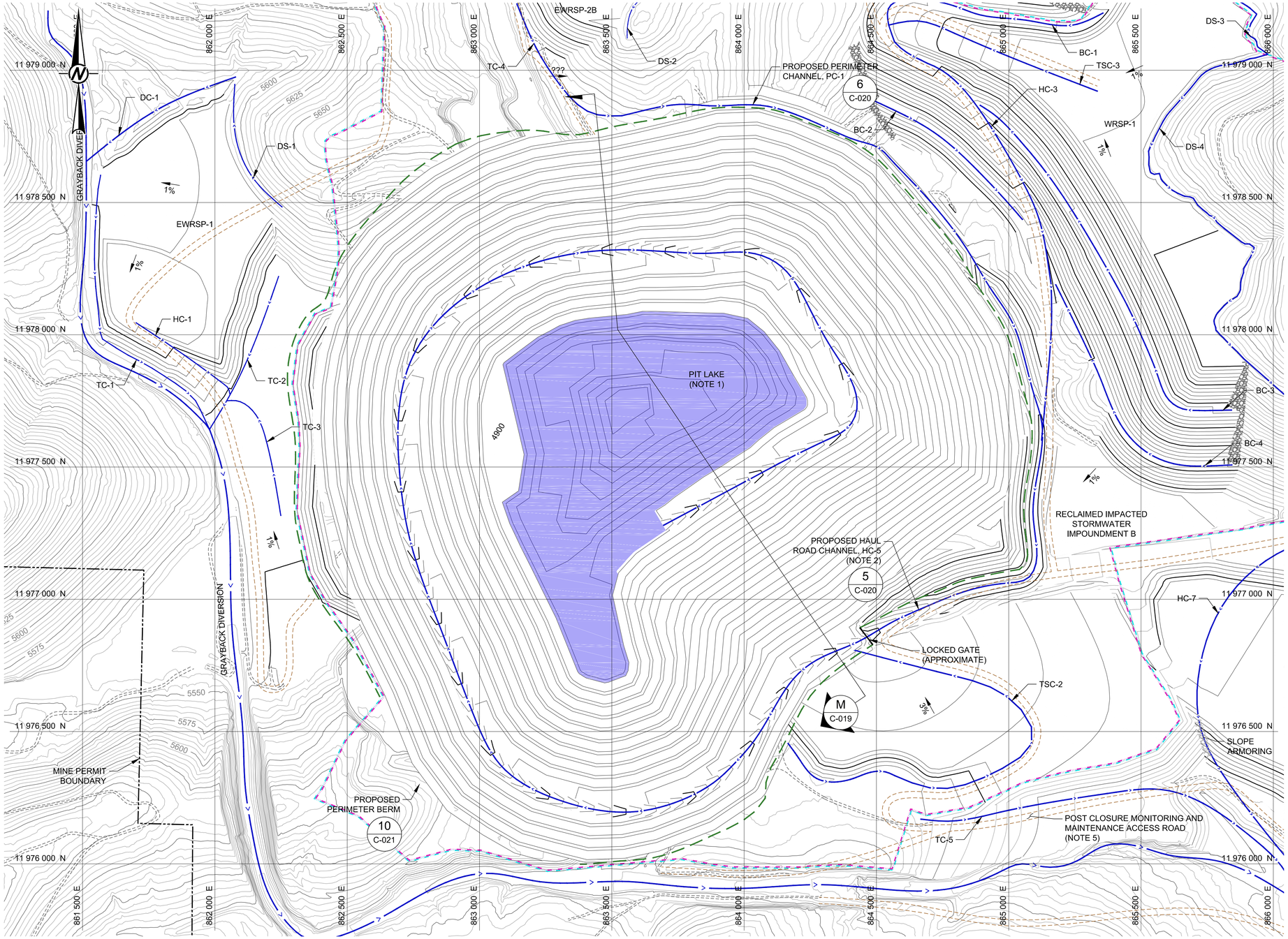
TITLE
PIT AT FINAL BUILDOUT

PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	E	17 of 26	C-013

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 4)
- MINE PERMIT BOUNDARY
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 5)
- PROPOSED PERIMETER BERM
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT (DETAIL ID, DRAWING LOCATION)
- A / C-017 — SECTION CALLOUT (SECTION ID, DRAWING LOCATION)
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- PIT LAKE (NOTE 1)
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC. PIT LAKE ELEVATION PROVIDED BY NMCC.
2. THE PLANNED HAUL ROADS SHALL BE UTILIZED FOR STORMWATER CONVEYANCE TO THE PIT.
3. DISTURBANCE AREAS AROUND THE PERIMETER OF THE PIT ARE TO BE RECLAIMED WHERE THEY OCCUR. FOR PLANNING PURPOSES, IT IS ASSUMED THAT AN AVERAGE 100 FOOT WIDTH OF DISTURBANCE FROM THE PIT BOUNDARY WILL OCCUR DURING MINING OPERATIONS. THE ACTUAL WIDTH WILL VARY; IN SOME AREAS THE DISTURBANCE MAY BE GREATER THAN A 100 FOOT WIDTH FROM THE PIT BOUNDARY AND IN OTHER AREAS THERE MAY BE LITTLE OR NO DISTURBANCE.
4. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
5. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
E	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
D	2017-03-20	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PERMIT

TITLE
PIT RECLAMATION AND DRAINAGE PLAN

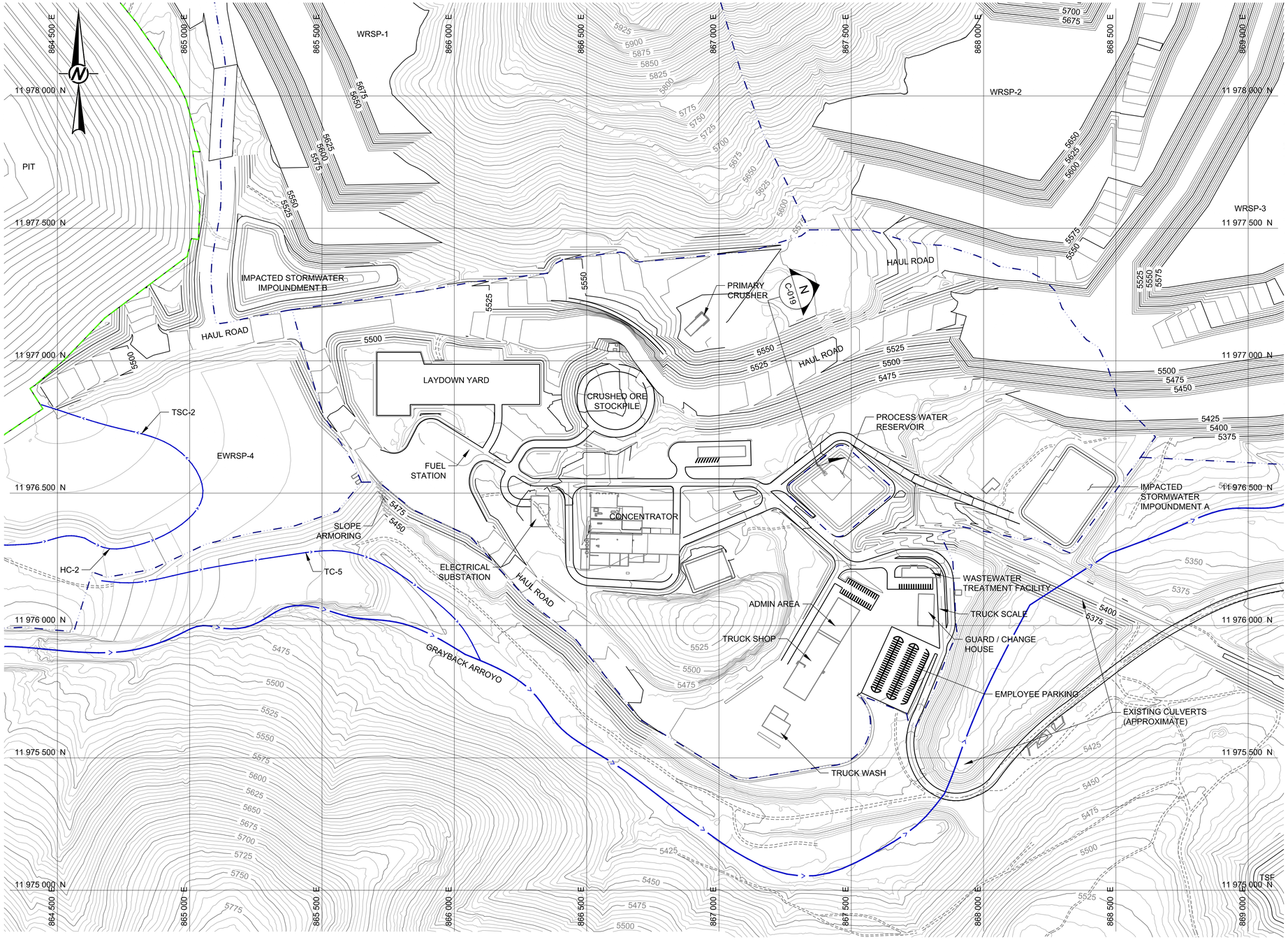
PROJECT NO.	CONTROL	REV.		DRAWING
1531453	0300	D	18 of 26	C-014

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in

Path: \\ausoncad01\NMCC\Copper Flat\99_Projects\1531453_THEMACPermitSupport\0300_ReclamationPlans | File Name: 1531453-0300-C-014.dwg

15654



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 1)
- PROPOSED FACILITY BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- A / C-017 — SECTION CALLOUT (SECTION ID / DRAWING LOCATION)
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-02	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
PLANT AREA AT FINAL BUILDOUT

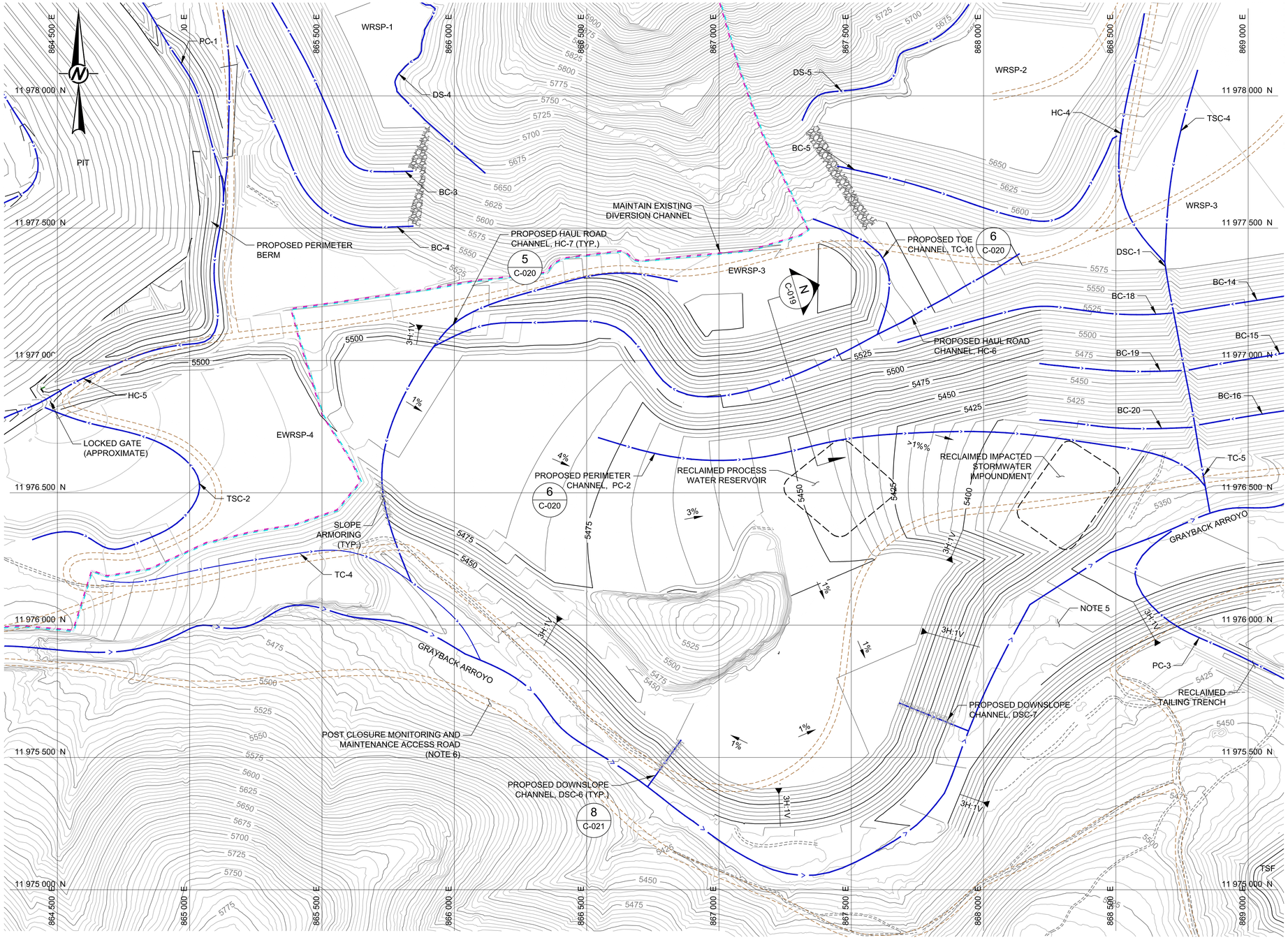
PROJECT NO.	CONTROL	REV.	DRAWING
1531453	0300	D	C-015

19 of 26

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 1 in



LEGEND

- 7600 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 7580 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 4)
- RECLAMATION WATERSHED BOUNDARY
- OPEN PIT SURFACE DRAINAGE AREA (OPSDA) (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 6)
- PROPOSED PERIMETER BERM
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- 1 / C-020 — DETAIL CALLOUT (DETAIL ID / DRAWING LOCATION)
- A / C-017 — SECTION CALLOUT (SECTION ID / DRAWING LOCATION)
- WRSP — WASTE ROCK STOCKPILE
- EWRSP — EXISTING WASTE ROCK STOCKPILE
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. FINAL BUILDOUT TOPOGRAPHY FOR THE TSF WAS DEVELOPED BY GOLDER AND IS FROM THE 30K TPD TAILINGS STORAGE FACILITY FEASIBILITY DESIGN REPORT (GOLDER, 2015).
3. PLANNED HAUL ROADS WILL BE UTILIZED FOR STORMWATER CONVEYANCE TO THE PIT.
4. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
5. EXISTING VEGETATION CONDITIONS TO BE MAINTAINED.
6. POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD LOCATIONS ARE APPROXIMATE AND WILL BE FIELD FIT TO MINIMIZE EROSION AND ACCOMMODATE OTHER FIELD CONDITIONS.

0 200 400 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
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C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
PLANT AREA RECLAMATION AND DRAINAGE PLAN

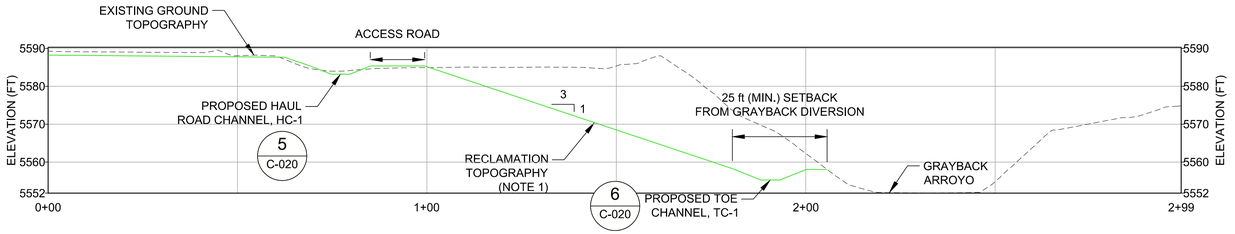
PROJECT NO.	CONTROL	REV.		DRAWING
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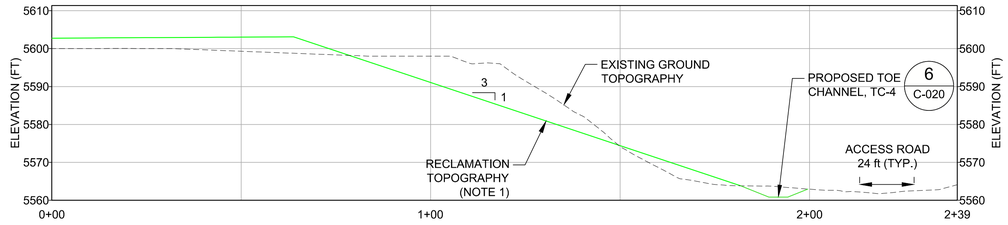
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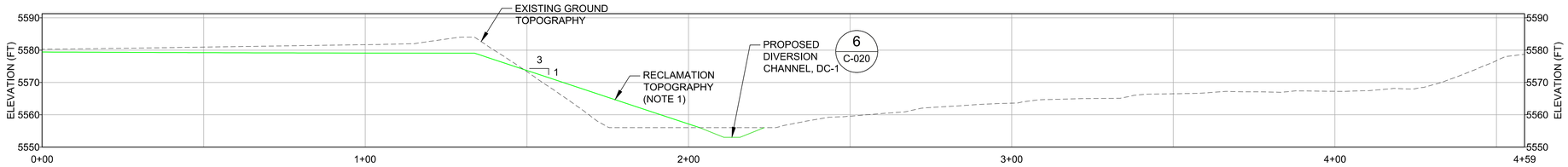
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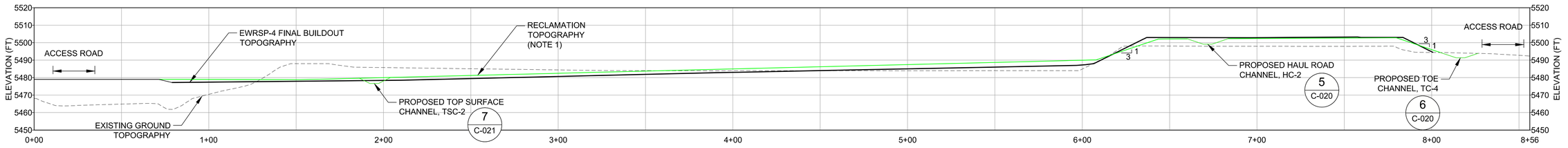
EWRSP-1 OUTSLOPE SECTION A
SCALE N.T.S. A C-017
(SEE DRAWINGS C-001 AND C-002)



EWRSP-2B OUTSLOPE SECTION C
SCALE N.T.S. C C-017
(SEE DRAWINGS C-003 AND C-004)



EWRSP-1 OUTSLOPE SECTION B
SCALE N.T.S. B C-017
(SEE DRAWINGS C-001 AND C-002)



EWRSP-4 SECTION D
SCALE N.T.S. D C-017
(SEE DRAWINGS C-005 AND C-006)

NOTES

1. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-15	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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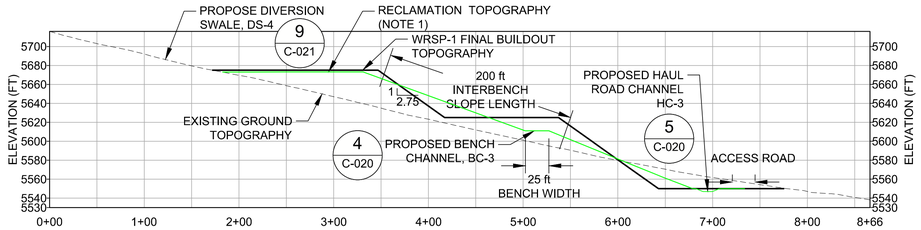
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
EWRSP RECLAMATION SECTIONS

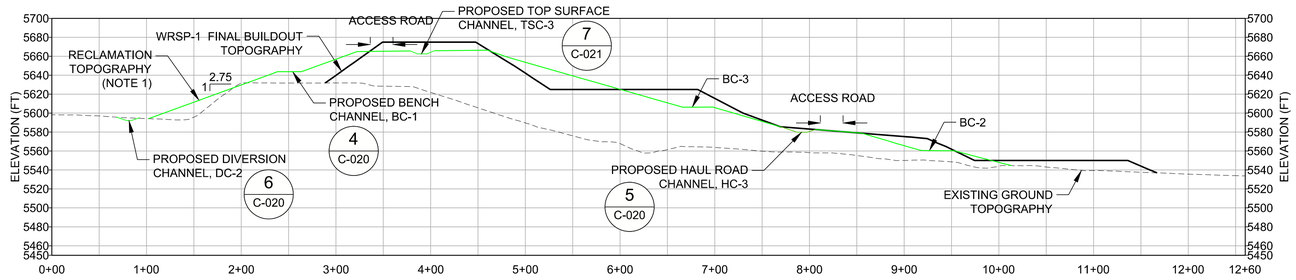
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1531453	0300	D	21 of 25	C-017

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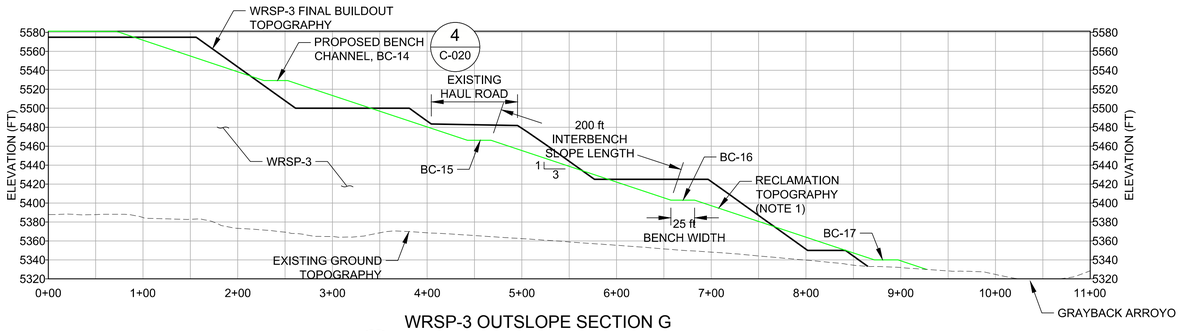
WRSP-1 OUTSLOPE SECTION E
(SEE DRAWINGS C-007 AND C-008)

SCALE N.T.S. E C-018



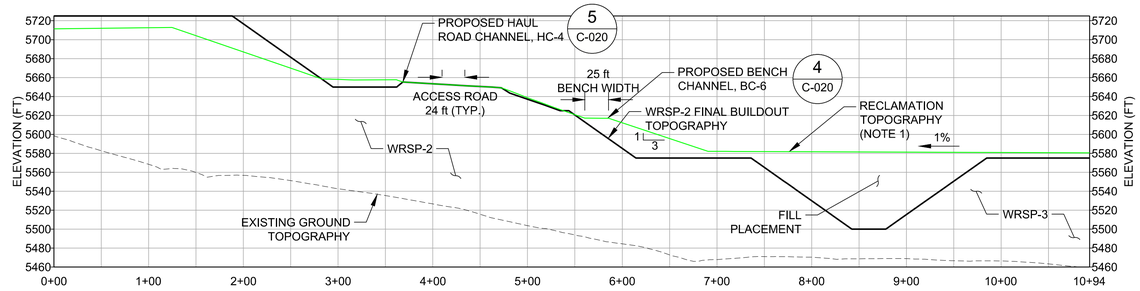
WRSP-1 SECTION F
(SEE DRAWINGS C-007 AND C-008)

SCALE N.T.S. F C-018



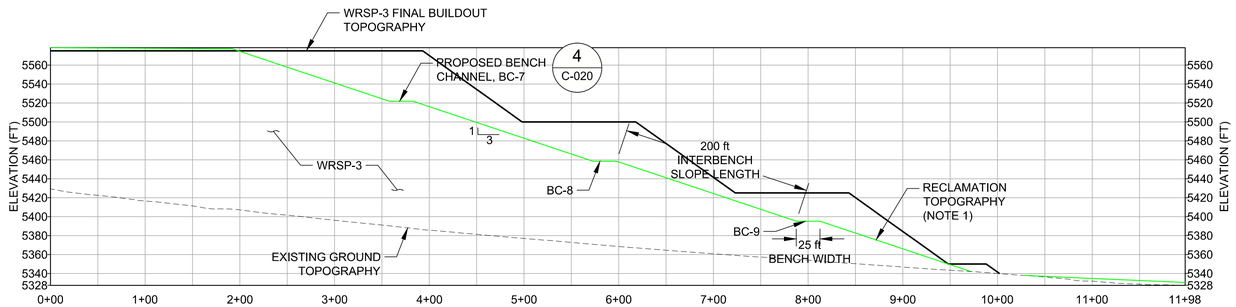
WRSP-3 OUTSLOPE SECTION G
(SEE DRAWINGS C-009 AND C-010)

SCALE N.T.S. G C-018



WRSP-2 AND WRSP-3 OUTSLOPE SECTION H
(SEE DRAWINGS C-009 AND C-010)

SCALE N.T.S. H C-018



WRSP-3 OUTSLOPE SECTION I
(SEE DRAWINGS C-009 AND C-010)

SCALE N.T.S. I C-018

NOTES

1. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

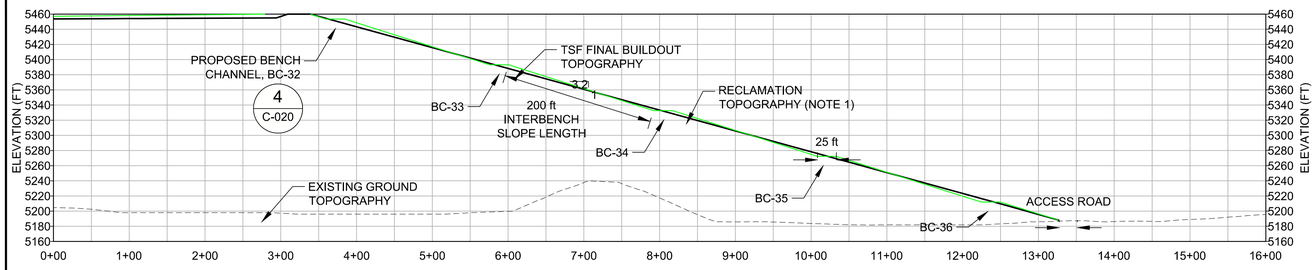
TITLE
WRSP RECLAMATION SECTIONS

PROJECT NO.	CONTROL	REV.	22 of 25	DRAWING
1531453	0300	D		C-018

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

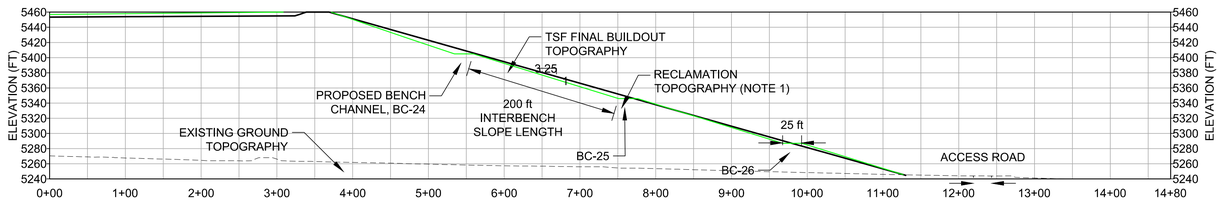
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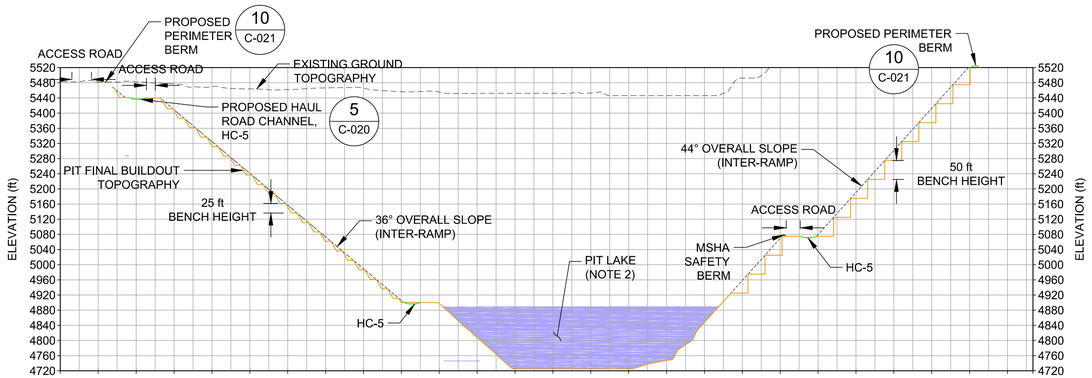
TSF OUTSLOPE SECTION J
(SEE DRAWINGS C-011 AND C-012)

SCALE N.T.S. J C-019



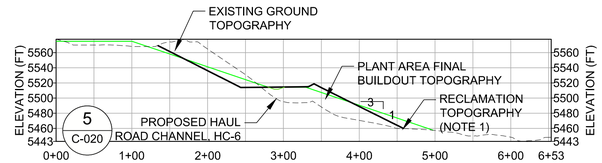
TSF OUTSLOPE SECTION K
(SEE DRAWINGS C-011 AND C-012)

SCALE N.T.S. K C-019



PIT SLOPE SECTION M
(SEE DRAWINGS C-013 AND C-014)

SCALE N.T.S. M C-019

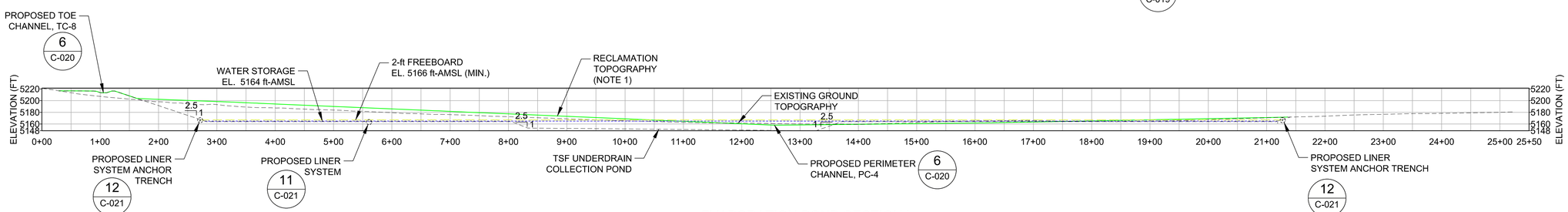


PLANT AREA OUTSLOPE SECTION N
(SEE DRAWINGS C-015 AND C-016)

SCALE N.T.S. N C-019

NOTES

1. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.
2. PIT LAKE ELEVATION PROVIDED BY NMCC.



EVAPORATION POND SECTION L
(SEE DRAWINGS C-012 AND C-012A)

SCALE N.T.S. L C-019

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
TSF, PIT AND PLANT RECLAMATION SECTIONS

PROJECT NO.	CONTROL	REV.	DRAWING
1531453	0300	D	C-019

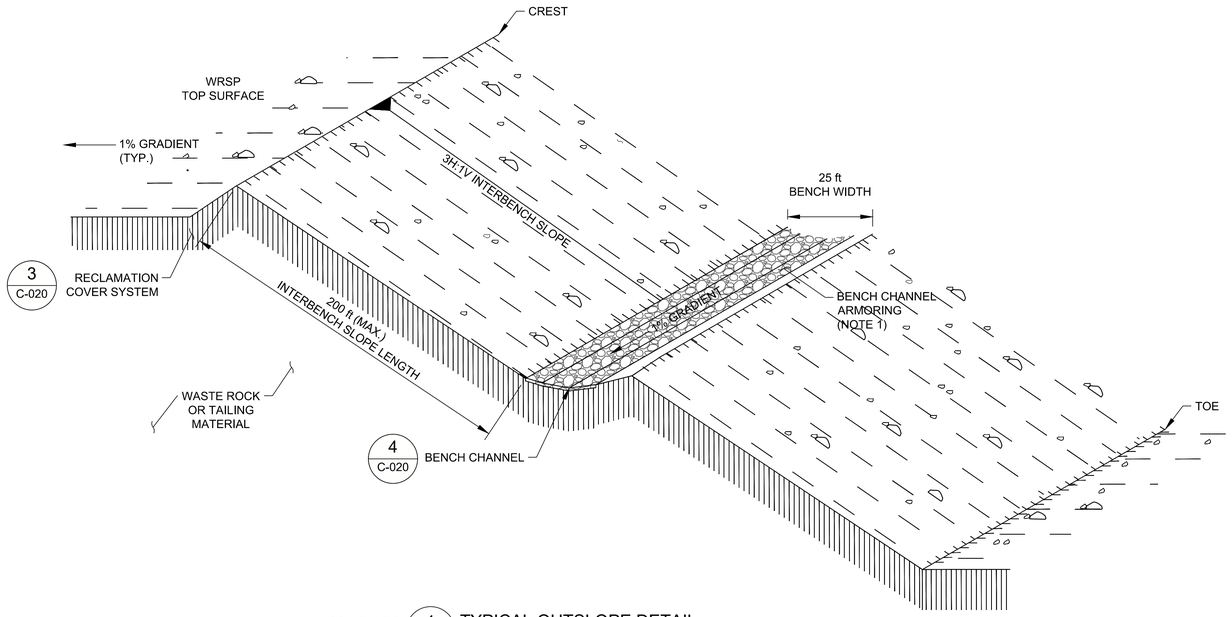
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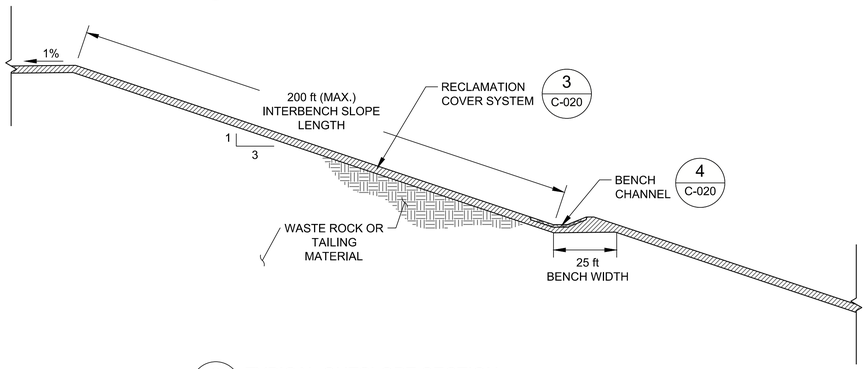
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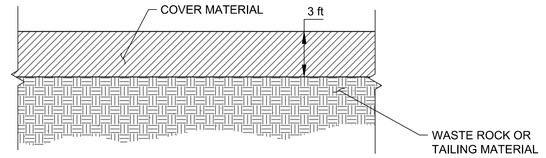
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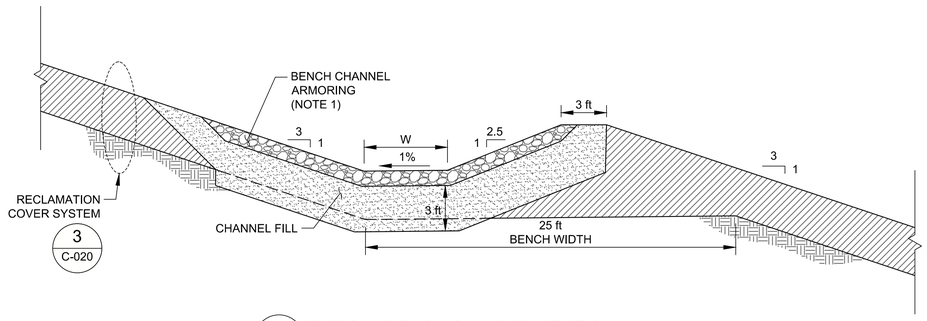
SCALE N.T.S. 1 C-020 TYPICAL OUTSLOPE DETAIL



SCALE N.T.S. 2 C-020 TYPICAL OUTSLOPE SECTION

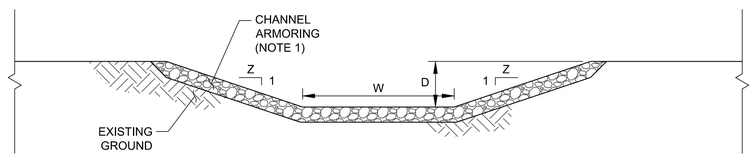


SCALE N.T.S. 3 C-020 COVER SYSTEM DETAIL



SCALE N.T.S. 4 C-020 TYPICAL BENCH CHANNEL SECTION

SCALE N.T.S. 5 C-020 TYPICAL HAUL ROAD CHANNEL SECTION



SCALE N.T.S. 6 C-020 TYPICAL DIVERSION, TOE, AND PERIMETER CHANNEL

NOTES

1. SEE CHANNEL SCHEDULE FOR DIMENSION AND ARMORING REQUIREMENTS. MINIMUM RIPRAP THICKNESS SHALL BE 2 X D_{50}. MINIMUM BEDDING THICKNESS IS 6 in.

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
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C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
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A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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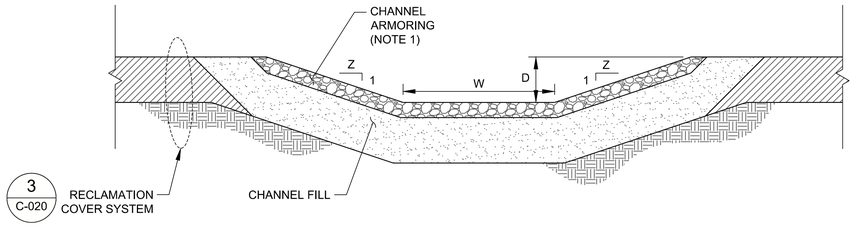
PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
TYPICAL SECTIONS AND DETAILS (1 OF 2)

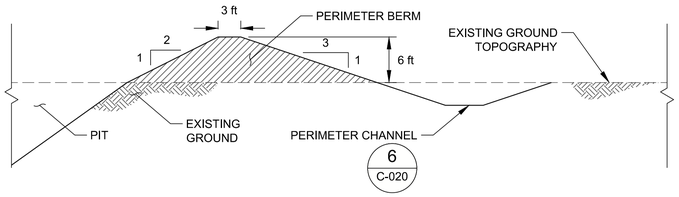
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1531453	0300	D		C-020

15660

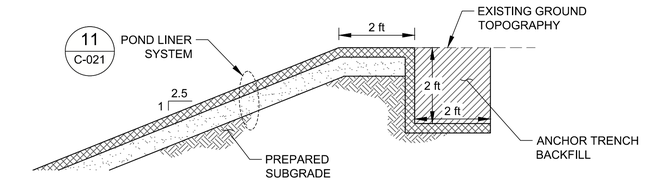
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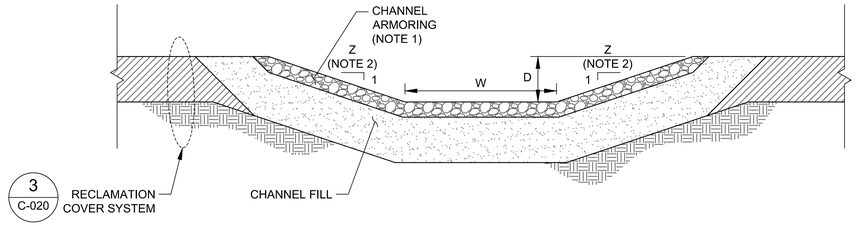
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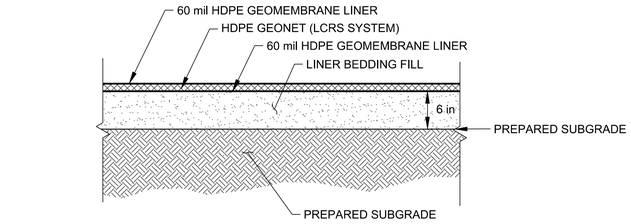
SCALE N.T.S. 10 C-021 PERIMETER BERM DETAIL



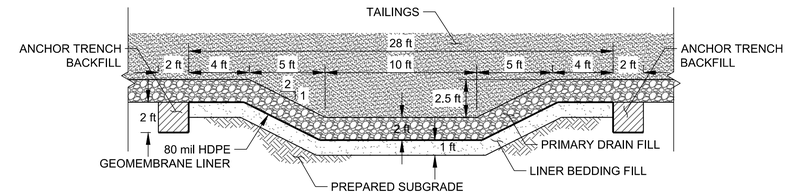
SCALE N.T.S. 12 C-021 EVAPORATION POND LINER SYSTEM ANCHOR TRENCH



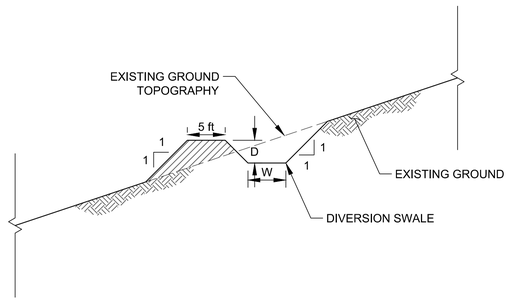
SCALE N.T.S. 8 C-021 TYPICAL DOWNSLOPE CHANNEL SECTION



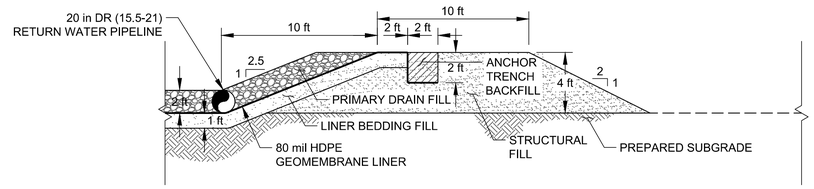
SCALE N.T.S. 11 C-021 EVAPORATION POND LINER SYSTEM



SCALE N.T.S. 13 C-021 SEEPAGE COLLECTION CHANNEL



SCALE N.T.S. 9 C-021 TYPICAL DIVERSION SWALE DETAIL



SCALE N.T.S. 14 C-021 FINAL TOE BERM

NOTES

1. SEE CHANNEL SCHEDULE FOR DIMENSION AND ARMORING REQUIREMENTS. MINIMUM RIPRAP THICKNESS SHALL BE 2 X D_{50}. MINIMUM BEDDING THICKNESS IS 6 in.
2. DOWNSLOPE CHANNEL SIDESLOPES SHALL MAINTAIN A 3H:1V SLOPE PERPENDICULAR TO THE FLOW DIRECTION.

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-10-14	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

SEAL

PRELIMINARY
FOR AGENCY REVIEW

CLIENT

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CONSULTANT

Golder Associates

TUCSON OFFICE
4730 N. ORACLE ROAD, SUITE 210
TUCSON, ARIZONA
UNITED STATES OF AMERICA
[+1] (520) 888 8818
www.golder.com

PROJECT
COPPER FLAT PROJECT
MINE CLOSURE AND RECLAMATION PLAN

TITLE
TYPICAL SECTIONS AND DETAILS (2 OF 2)

PROJECT NO.	CONTROL	REV.	25 of 25	DRAWING
1531453	0300	D		C-021

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Date:	July 12, 2017	**Made by:**	HNL
Project No.:	1531453	**Checked by:**	TLS
Subject:	Channel Schedule	**Reviewed by:**	TLS
Project Short Title:	COPPER FLAT MORP AND MINE PERMIT APPLICATION		

CHANNEL SCHEDULE

Reach Designation[1]	Q_{design} (cfs)	Reach Design							
		Bottom Width (ft)	Bed Slope (%)	Left Side Slope (H:1V)	Right Side Slope (H:1V)	Normal Flow Depth (ft)	Average Velocity (fps)	Min. D50 (in)	Reports to
EWRSP-1									
Diversion Channel, DC-1	100.0	10	0.5	3.0	3.0	2.1	3.0	3.0	Grayback Diversion
Diversion Swale, DS-1	12.0	10	0.5	3.0	3.0	0.6	1.6	-	Grayback Diversion
Toe Channel, TC-1	27.0	10	3.0	3.0	3.0	0.6	3.7	3.0	Grayback Diversion
Toe Channel, TC-2	17.0	10	0.5	3.0	3.0	0.8	1.8	3.0	Grayback Diversion
Toe Channel, TC-3	37.3	10	1.0	3.0	3.0	1.0	2.9	3.0	Grayback Diversion
Haul Road Channel, HC-1	12.9	10	10.0	3.0	3.0	0.3	4.2	6.0	Grayback Diversion
EWRSP-2B									
Top Surface Channel, TSC-1	81.2	10	1.0	3.0	3.0	0.3	1.0	3.0	Pit
Toe Channel, TC-4	125.6	10	2.9	3.0	3.0	1.5	3.6	12.0	Pit
Diversion Swale, DS-2	3.4	10	0.5	3.0	3.0	1.5	6.0	-	Pit
EWRSP-4									
Top Surface Channel, TSC-2	86.0	10	2.5	3.0	3.0	1.2	5.1	3.0	Pit
Haul Road Channel, HC-2	20.0	10	3.7	3.0	3.0	0.4	4.4	3.0	Pit
Toe Channel, TC-5	13.0	10	7.4	3.0	3.0	0.3	3.9	3.0	Grayback Arroyo
WRSP-1									
Diversion Swale, DS-3	27.0	10	0.5	3.0	3.0	1.0	2.0	-	Off Site
Diversion Swale, DS-4	69.0	10	0.5	3.0	3.0	1.7	2.7	-	Pit
Diversion Channel, DC-2	39.0	10	0.5	3.0	3.0	1.3	2.3	3.0	Off Site
Top Surface Channel, TSC-3	32.5	10	5.6	3.0	3.0	0.6	4.9	6.0	Pit
Bench Channels, BC-1 through BC-4	97.0	10	1.0	3.0	3.0	0.4	1.7	3.0	Pit
Haul Road Channel, HC-3	97.0	10	10.3	3.0	3.0	0.9	8.6	12.0	Pit
WRSP-2 and WRSP-3									
Diversion Swale, DS-5	119.9	10	0.5	3.0	3.0	2.3	3.2	-	Grayback Arroyo
Diversion Swale, DS-6	52.2	10	0.5	3.0	3.0	1.5	2.5	-	Off Site
Diversion Swale, DS-7	26.3	10	0.5	3.0	3.0	1.0	2.0	-	Off Site
Haul Road Channel, HC-4	62.7	10	10.0	3.0	3.0	1.3	5.2	6.0	Grayback Arroyo
Top Surface Channel, TSC-4	42.0	10	1.0	3.0	3.0	1.1	3.0	3.0	Grayback Arroyo
Top Surface Channel, TSC-5	100.0	10	1.0	3.0	3.0	1.7	3.8	3.0	Grayback Arroyo
Downslope Channel, DSC-1	185.3	20	29.0	3.0	3.0	0.7	12.8	ACB	Grayback Arroyo
Downslope Channel, DSC-2	231.5	20	30.2	3.0	3.0	0.8	13.9	ACB	Grayback Arroyo
Toe Channel, TC-6	184.5	10	13.0	3.0	3.0	1.2	11.3	ACB	Grayback Arroyo
Toe Channel, TC-7	242.9	10	8.6	3.0	3.0	1.6	10.7	ACB	Grayback Arroyo
Bench Channels, BC-5 through BC-20	39.0	10	1.0	3.0	3.0	1.0	2.9	3.0	Grayback Arroyo
TSF									
Downslope Channel, DSC-3	181.8	20	27.6	3.0	3.0	0.4	24.9	ACB	Off Site
Downslope Channel, DSC-4	165.6	20	27.8	3.0	3.0	0.3	24.0	ACB	Grayback Arroyo
Downslope Channel, DSC-5	478.0	20	29.0	3.0	3.0	0.6	36.1	ACB	Grayback Arroyo
Top Surface Channel, TSC-6	243.0	15	0.5	3.0	3.0	2.8	3.7	3.0	Grayback Arroyo
Top Surface Channel, TSC-7	236.4	15	0.5	3.0	3.0	2.8	3.7	3.0	Grayback Arroyo
Bench Channels, BC-21 through BC-42	38.0	10	0.5	3.0	3.0	1.0	2.8	3.0	Off Site or Grayback Arroyo
Toe Channel, TC-8	213.2	10	0.5	3.0	3.0	3.0	3.7	3.0	Grayback Arroyo
Toe Channel, TC-9	192.5	10	3.5	3.0	3.0	1.7	7.3	6.0	Grayback Arroyo
Perimeter Channel, PC-3	487.7	10	3.5	3.0	3.0	4.5	4.6	12.0	Grayback Arroyo
Perimeter Channel, PC-4	89.1	10	0.5	3.0	3.0	1.9	2.9	6.0	Off Site
PIT									
Perimeter Channel, PC-1	320.0	10	2.0	3.0	3.0	2.6	6.8	6.0	Pit
Haul Road Channel, HC-5	800.4	10	10.0	3.0	3.0	2.8	15.8	-	Pit
PLANT									
Downslope Channel, DSC-6	43.7	20	33.3	3.0	3.0	0.4	9.1	ACB	Grayback Arroyo
Downslope Channel, DSC-7	25.5	20	33.3	3.0	3.0	0.4	9.4	ACB	Grayback Arroyo
Haul Road Channel, HC-6	96.2	10	8.0	3.0	3.0	1.3	9.1	12.0	Grayback Arroyo
Haul Road Channel, HC-7	36.6	10	8.0	3.0	3.0	0.6	5.7	6.0	Grayback Arroyo
Perimeter Channel, PC-2	154.5	10	4.0	3.0	3.0	1.2	6.3	6.0	Grayback Arroyo
Toe Channel, TC-10	33.4	10	8.0	3.0	3.0	0.5	5.5	3.0	Grayback Arroyo

Notes:
1 - See Mine Reclamation and Closure Plan drawing set for location of specific reach. Hydrolgy and Hydraulics calculation packet available upon request.
ACB - Articulated concrete block.
cfs - Cubic feet per second
ft - Feet
fps - Feet per second
in - Inch
Qdesign - Design flows for channel determined from Hydrologic Modeling System (HEC-HMS) developed by the Hydrologic Engineering Center within the U.S. Army Corps of Engineers.
Min. D50 - median diameter or the medium value of the particle size distribution
Rip Rap size calculations based on the following criteria: U.S. Army Corps of Engineers (USACE, 1994) mild slope, <2% slopes; USACE steep slope, >2% to <20% slopes; Robinson method (1997), >20% to ,40% slopes; ACB for all downslope channels.

ATTACHMENT E2
TSF CLOSURE WATER MANAGEMENT PROGRAM

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Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 56 2 2616 2000

solutions@golder.com
www.golder.com

Golder Associates Inc.
5200 Pasadena Avenue N.E., Suite C
Albuquerque, NM 87113 USA
Tel: (505) 821-3043
Fax: (505) 821-5273

Golder Associates

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REPORT

ATTACHMENT E2

TSF POST-OPERATIONS WATER MANAGEMENT PLAN

COPPER FLAT MINE

Submitted To: Mr. Jeffrey Smith, PE
Chief Operating Officer
THEMAC Resources Group Ltd.
Copper Flat Mine Project
4253 Montgomery Blvd. NE, Suite 130
Albuquerque, NM 87109

Submitted By: Golder Associates Inc.
5200 Pasadena Avenue N.E., Suite C
Albuquerque, NM 87113 USA

Distribution:
2 Copies – Mining and Minerals Division
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October 7, 2016
Revision 1 July 17, 2017

1531453

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1.0 INTRODUCTION

Golder Associates has been contracted by New Mexico Copper Corporation (NMCC) to prepare a Reclamation and Closure Plan for its Copper Flat project located near Hillsboro, New Mexico in Sierra County (**Figure E1**). The Reclamation and Closure Plan describes the designs and strategy for reclamation of all of the disturbed areas described in NMCC's Mine Operations and Reclamation Plan document to which this document is attached as Appendix E. As part of this Plan, Golder has developed the following plan for management of drain down and surface runoff waters from the Tailings Storage Facility (TSF) following cessation of operations. The following sections detail the sources of water to be managed, the performance objectives of the water management plan, and the associated plan for management of these waters, including designs for both active and passive evaporation water management systems.

1.1 Sources of Water to be Managed

The flow components that will need to be managed from the TSF at the end of operations include drainage water collected from the impoundment and dam underdrain collection systems, and surface water runoff from the embankment. As described in Section 6.5.2 of the TSF Feasibility Level Design Report (FLDR) [Golder, 2015], the maximum underdrain flow rate from the TSF at final buildout will be approximately 66 gallons per minute (gpm) from the impoundment underdrain and approximately 448 gpm from the dam underdrain. Surface water runoff estimates from the TSF are provided in the water balance calculations included in Appendix G of the FLDR. The estimated surface water runoff from the embankment ranges between 1.4 gpm in April and 86 gpm in July. These three flow components represent the maximum flows estimated to be managed. The flows will be reduced over time as drain down from the TSF decreases and the TSF gets reclaimed and covered. Following cover placement on the TSF embankment, surface water runoff will be routed to the nearest natural drainage.

1.2 Performance Objectives

The performance objective for the water management program is to collect and eliminate, using evaporation techniques, drain down waters and surface water runoff from uncovered slopes associated with the TSF following the cessation of mining and processing operations at Copper Flat. To meet the performance objectives the following strategy will be utilized:

- A short-term active evaporative water management system (AEWMS) will be utilized to capture and evaporate all tailing drain down waters and surface water runoff from the TSF embankment outslopes for the first five years following closure, or until flows reduce to a point to where they can be managed exclusively through passive evaporation.
- A long-term passive evaporative water management system (PEWMS) will be utilized to evaporate the residual tailing drain down waters beginning in year six and continuing for an estimated 20 years thereafter.

2.0 BACKGROUND

The purpose of the TSF water management program is to provide an environmentally sound and cost effective approach to manage, reduce, and eventually eliminate drain down waters and surface water runoff from uncovered slopes associated with the TSF following cessation of mining and processing operations at Copper Flat. The water management program assumes that tailings delivery to the TSF will terminate following the cessation of processing operations at Copper Flat.

2.1 TSF Facility

Golder completed a feasibility level design of the TSF in 2015 (Golder, 2015). The proposed TSF will include an HDPE-lined tailings impoundment with an associated underdrain collection system and underdrain collection pond for the impoundment and the dam, and a water reclaim or recycle system to maximize water reuse. The TSF and associated ancillary facilities will cover approximately 564 acres in size at full capacity (**Figure E2**) and will be constructed using the centerline construction method. The TSF design will comply with the design and dam-safety guidelines of the New Mexico Office of the State Engineer Dam Safety Bureau. The tailings impoundment is designed to store 113 million tons of tailings produced over approximately 11 years, with tailings deposition occurring at an average rate of approximately 27,900 tons per day over the life of the mine.

The underdrain collection pond will be constructed along the southeastern corner of the TSF to contain drainage water from the TSF impoundment and dam underdrains, as well as runoff from the downstream face of the tailings dam. The pond is designed for full TSF operation, including dam construction. Flow to the underdrain collection pond will begin to decrease immediately once dam construction stops. The pond is sized to contain 24 hours of tailing drainage flow at maximum estimated drainage rates, runoff from the 100-year, 24-hour storm event of 3.73 inches (National Oceanic and Atmospheric Administration, 2006) incident on the downstream dam face, and an additional minimum 2-feet of freeboard. This pond will be utilized after mine operations cease as part of the TSF water management program.

At reclamation, the TSF outslope will, first, be graded down to interbench slopes of between 3.0H:1V and 3.5H:1V with 25 foot wide terrace benches on the outslope at maximum slope lengths of between 200 feet (3H:1V) and 250 feet (3.5:1V). Reclamation of the TSF includes grading of the TSF top surface to a final grade of between 1 and 5% to direct storm water to the back side of the TSF and out to Grayback Arroyo after cover placement. The top surfaces and outslopes of the TSF will be covered with 36 inches of growth media and seeded to reestablish vegetation. Surface water conveyance channels will be constructed on the top surface of the TSF and terrace benches to direct surface water off the covered TSF surfaces and ultimately to Grayback Arroyo and other natural drainages to the exterior of the mine.

2.2 Climate

The Copper Flat property is located within an arid, high desert area in the Basin and Range physiographic province subject to hot summers and relatively mild winters. Maximum summer temperatures can exceed 100 degrees Fahrenheit (°F) while the average maximum daily temperature during winter months is approximately 60 °F. Average annual rainfall is approximately 12.4 inches and the property receives snow periodically (**Table E1**).

Most rainfall occurs in July through September and is associated with high intensity, short duration, convective storms and moisture from the Gulf of Mexico. Winter precipitation is associated with west to east moving Pacific frontal storms. These storms typically produce less intense precipitation over a longer duration.

Evaporative demand in this region is high and annual evaporation far exceeds annual precipitation. Annual pan evaporation measured at Caballo Dam is approximately 107 inches, and ranges between approximately 3.5 inches in December to 14.8 inches in June (**Table E2**). Equivalent free water evaporation rates for the Copper Flat site are calculated based on these data and an applied pan coefficient of 0.7. Annual equivalent free water evaporation is estimated at approximately 74.9 inches, and ranges between approximately 2.4 inches in December to 10.4 inches in June (**Table E2**). The estimated amount of excess water evaporated from surface water bodies at the Copper Flat site is calculated as equivalent free water evaporation minus precipitation. The estimated annual excess evaporation for surface water bodies at Copper Flat is approximately 62.5 inches, and ranges between 1.6 inches in December to 9.7 inches in June (**Table E3**). Annual excess evaporation is equivalent to passive evaporation within the context of this plan.

3.0 TSF POST-OPERATIONS WATER MANAGEMENT PLAN

The FLDR for the TSF indicates that the maximum drain down flow rate will be approximately 448 gpm from the dam underdrain and 66 gpm from the impoundment underdrain. Due to the coarser nature of the tailings sands used to construct the TSF dam and the higher permeability of these materials, the TSF embankment will drain quickly in comparison to the impoundment. It is estimated that it will take approximately 2 to 3 years for the TSF embankment to drain sufficiently to begin reclamation. It is also anticipated that some reclamation of the impoundment can begin within 5 years of cessation of operations as the impoundment continues to drain and dry, allowing construction equipment to be utilized to commence cover placement.

The underdrain systems will continue to operate after cessation of mining and processing as drain-down of the TSF will continue to produce water for a number of years thereafter. This Plan assumes that drain-down will continue for 25 years. The actual amount of time required to so is a function of porosity of tailings materials in the long-term and the volume of water remaining in the TSF. An “active” water management program (short-term AEWMS) will be implemented at the end of operations. Water captured in the TSF underdrain collection pond will be pumped back to the impoundment surface of the TSF. A forced or enhanced evaporation system will be installed within the impoundment to dispose of the water. The duration of operation of the “active” water management system will be determined by the volume of water that continues to drain from the impoundment. However, for planning purposes it has been assumed that there will be 5 years of operation of the active program followed by 20 years of “passive” drain-down water management. During the active evaporation phase, reclamation of the TSF will continue such that grading will have been completed and the cover will have been placed on the TSF. Toward the end of the active evaporation phase, an evaporation pond will be constructed that will incorporate the underdrain collection pond. Once complete, the “passive” evaporation phase (PEWMS) will be initiated.

After decommissioning of the active program and full reclamation of the TSF, water that may continue to drain from the TSF will be captured and evaporated in the new evaporation pond (**Figure E3**). Details of the short-term AEWMS and the PEWMS are provided in the following sections.

3.1 Short-Term Active Evaporative Water Management System (AEWMS)

The short-term AEWMS consists of forced evaporation and wetted surface evaporation of water collected from the TSF underdrain collection system and surface water runoff from the TSF embankment. The collected waters will be pumped to the top of the TSF into a designated ponding/spray area and actively and passively evaporated (**Figure E3**). The “active” or forced evaporation system consists of a 15 acre ponding/spray area to maximize the evaporation rate of the waters. Forced evaporation will be accomplished with a mechanical spray system designed to handle flows up to 380 gpm per unit. Spray evaporation estimates are based on a daily evaporation chart for Model 1210 evaporator systems provided by Minetek (2012). The typical spray pattern for these systems covers an area approximately 500 feet long

by 300 feet wide. A 4 unit spray system with a capacity to handle up to 1,520 gpm will be installed. Passive evaporation of the TSF drain down waters will also continue to occur at the same time within the TSF impoundment surface and on the ponded surface of the TSF underdrain collection pond.

3.1.1 AEWMS Estimates

Based on the daily evaporation chart provided by Minetek (2012), it is estimated that the four unit spray system will be capable of evaporating between approximately 520 gpm (December) and 1,018 gpm (June), with an average evaporation rate of approximately 789 gpm (**Table E4**). The residual water in the ponded area will either evaporate through surface evaporation or will drain into the underlying tailing material and back to the TSF underdrain collection system. The estimated amount of passive evaporation of the waters within the TSF underdrain collection pond ranges between approximately 4 gpm in December to approximately 25 gpm in June. The estimated monthly and annual evaporation potential of the short-term AEWMS is summarized in **Table E4**.

The short-term AEWMS will continue to operate until drain down reduces to a point to where the flows can be handled through passive evaporation within the evaporation pond discussed later, herein. Underdrain flows will diminish over time once tailing discharge to the top of the TSF is discontinued. Due to the high permeability of the tailings sands used to construct the TSF embankment, drain down of the TSF embankment will occur more rapidly than within TSF impoundment area, where the permeability of the slimes fraction of the tailings is much lower. Thus, the largest flow component (448 gpm) will drop off more rapidly than the flow component from the impoundment.

A conceptual drain down curve was developed for the Copper Flat TSF based on evaluation of measured drain down flow rates from four closed tailing storage facilities in Nevada and a conceptual tailings storage facility drain down curve developed by the Nevada Department of Environmental Protection (2011). These drain down curves are presented in terms of relative flows (drain down flow relative to the maximum flow at the beginning of closure) in **Figure E4.** The conceptual Copper Flat TSF drain down curve developed for the purpose of this water management plan is also presented in **Figure E4**. **Figure E5** presents the conceptual Copper Flat TSF drain down curve in terms of estimated flows in gpm over time following cessation of mining and processing operations at Copper Flat.

It is anticipated that the TSF embankment will be regraded, covered and revegetated within three years following cessation of operations. Once the embankment area has been reclaimed, surface water runoff from the outslope of the embankment will no longer need to be captured and will be directed to the nearest drainage. However, for water management planning purposes, the surface water runoff component is included throughout the 5 year AEWMS operational period.

3.1.1 AEWMS Water Balance

The maximum flows that will be encountered during the short-term AEWMS will occur during the first year of operation as the higher permeability sands within the TSF embankment drain. As shown on **Table E5**, the four unit spray system will provide excess evaporation potential under these maximum flow conditions. It is anticipated that the number of spray units and/or their hours of operation will be adjusted throughout the AEWMS program based on the actual flows encountered during the initial months of operation and as the TSF drain down flows decline. The AEWMS will be capable of providing even greater excess evaporation potential in the remaining four years of AEWMS operation as the TSF drain down flows decline over time. Although it is estimated that the AEWMS will operate for a period of 5 years, the duration of operation will be determined when TSF drain down reduces to a point to where the flows can be handled through passive evaporation within the evaporation pond. As described in Section 3.2, the maximum flow that can be handled with the PEWMS is approximately 70 gpm.

3.2 Long-Term Passive Evaporative Water Management System (PEWMS)

A long-term PEWMS will be utilized to evaporate residual tailing drain down waters after operation of the AEWMS is no longer required. Prior to the start of the PEWMS, a new HDPE-lined evaporation pond will be constructed to provide sufficient surface area to passively evaporate the residual drain down waters from the TSF. The following sections provide details of the evaporation pond construction and the evaporation schedule associated with the PEWMS.

3.2.1 Evaporation Pond Construction

The location of the evaporation pond is shown on **Figure E6**. The existing TSF underdrain collection pond will be incorporated into the new evaporation pond by removing the existing collection pond embankment and fusing new HDPE liner onto the remaining collection pond liner. The evaporation pond will essentially be an extension of the existing TSF underdrain collection pond and will incorporate all the design features of the underdrain collection pond. The evaporation pond will be double-lined with an 80-mil HDPE geomembrane top liner and a 60-mil HDPE geomembrane bottom liner. An HDPE geonet will be placed between the liners to serve as the evaporation pond leakage collection and recovery system (LCRS) and minimize the head on the lower pond liner. The existing TSF underdrain collection pond and LCRS pump will be utilized to recover any leakage through the upper geomembrane.

Drain down water from the TSF impoundment and dam will be conveyed to the evaporation pond through the existing underdrain collection system. The pond will cover an area of 22.3 acres and is sized to contain one foot of TSF drain down water for passive evaporation, and an additional minimum 2-feet of freeboard. At a stage of one foot, the surface area of the pond will cover 21.6 acres. The pond capacity is approximately 21.93 million gallons with 2 feet of dry freeboard below the crest of the pond (top of pond liner).

3.2.2 PEWMS Estimates

TSF drain down water will be allowed to fill to a maximum depth of one foot within the pond and will be maintained at this depth throughout the PEWMS operation for passive evaporation. At a depth of one foot, the surface area of the pond will cover 21.6 acres. Based on the surface water evaporation estimates provided in **Table E3**, it is estimated that the 21.6 acre water body will evaporate an average of approximately 135 acre-feet/year (average 84 gpm annually), and incident precipitation will amount to approximately 22 acre-feet/year (average 14 gpm annually). Excess evaporation (free water evaporation minus incident precipitation) from the 21.6 acre water body is estimated at approximately 113 acre-feet/year (average 70 gpm annually). This excess evaporation is referred to herein as passive evaporation.

3.2.3 PEWMS Water Balance

The TSF drain down estimates over the 25 year TSF water management program are summarized in **Table E6** along with the PEWMS water balance over the 20 year operational period. The maximum TSF drain down flow during the PEWMS operation is estimated at 67 gpm immediately following the AEWMS operation and will reduce to rates below 5 gpm after 16 years of PEWMS operation. The TSF water management plan assumes 20 years of PEWMS operation. The duration of the PEWMS operation will be dependent on when the volume of drain down from the TSF is reduced to a point to where the evaporation pond is no longer required. This point in time will be determined in collaboration with the Agencies and the evaporation pond will be reclaimed thereafter in accordance with the Reclamation and Closure Plan.

4.0 SUMMARY

The TSF closure water management plan includes both a short-term AEWMS and a long-term PEWMS to manage drain down waters and surface water runoff from the TSF following cessation of mining operations at Copper Flat. The TSF underdrain systems will continue to operate after cessation of operations, and the AEWMS program will commence thereafter. The AEWMS will include pumping captured water from the TSF underdrain collection pond to the impoundment surface of the TSF and use of forced or enhanced evaporation equipment to minimize or eliminate the water. The AEWMS will utilize a forced evaporation system at a dedicated spray area on top of the TSF. Forced evaporation of these waters will be accomplished with a 4 unit mechanical spray system with a capacity to handle up to 1,520 gpm. Additional passive evaporation of the TSF drain down waters will also occur on the ponded surface of the TSF underdrain collection pond.

A conceptual drain down curve was developed for the Copper Flat TSF based on evaluation of measured drain down flow rates from four closed tailing storage facilities in Nevada and a conceptual tailings storage facility drain down curve developed by the Nevada Department of Environmental Protection (2011). Based on this conceptual drain down curve and estimated surface water runoff from the TSF embankment provided in the FLDR (Golder, 2015) it is estimated that the AEWMS will operate for approximately 5 years. Although it is estimated that the AEWMS will operate this long, the duration of operation will be determined when the volume of TSF drain down water reduces to a point to where the flows can be handled through passive evaporation within a constructed evaporation pond. The maximum flow that can be handled with the PEWMS is approximately 70 gpm.

After decommissioning of the active program and reclamation of the TSF, water that may continue to drain from the TSF will be captured in a new 22.3 acre evaporation pond that will be constructed below the toe of the TSF within the mine permit area coincident with the underdrain pond. TSF drain down water will be allowed to fill to a maximum depth of one foot within the pond and will be maintained at this depth throughout the PEWMs program to be passively evaporated. At a depth of one foot, the surface area of the pond will cover 21.6 acres. Approximately 113 acre-feet/year (average 70 gpm annually) will passively evaporate from a 21.6 acre surface water body at Copper Flat. The maximum TSF drain down flow during the PEWMS operation is estimated at 67 gpm immediately following the AEWMS operation and will reduce to rates below 5 gpm over time. While the TSF water management plan assumes 20 years of PEWMS operation, the actual duration of the PEWMS operation will continue until the volume of drain down water from the TSF reduces to the point where the evaporation pond is no longer required. This point in time will be determined in collaboration with the Agencies and the evaporation pond will be reclaimed thereafter.

5.0 REFERENCES

Golder. 2015. Feasibility Level Design, 30,000 TPD Tailings Storage Facility, Copper Flat Project, Sierra County, New Mexico. Submitted to New Mexico Copper Corporation THEMAC Resources Group Ltd. November 30, 2015.

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National Oceanic and Atmospheric Administration. 2006. Precipitation-Frequency Atlas of the United States, Atlas 14, Volume 1, Version 4.0, Semiarid Southwest (Arizona, Southeast California, Nevada, New Mexico, and Utah. G. M. Bonnin, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley. National Weather Service, Silver Spring, Maryland. 2004, revised October 4, 2006.

TABLES

Table E1. Average Monthly Temperatures and Precipitation Near the Copper Flat Project Area[1]

Month	Average Temperature		Average Precipitation
	° F		Inches
	Min	Max	Total
January	25.0	55.9	0.57
February	28.1	59.8	0.56
March	33.5	66.4	0.38
April	39.7	74.4	0.32
May	47.4	82.5	0.52
June	56.1	91.7	0.71
July	61.3	91.2	2.30
August	59.6	88.5	2.42
September	52.8	83.4	2.08
October	42.0	73.8	1.17
November	31.3	62.8	0.55
December	24.9	54.3	0.83
Annual	**41.8**	**73.6**	**12.40**

Notes:
(1) Data from the Western Regional Climate Center covering the period between 1893 and 2016 from Hillsboro, NM Climate Station #294009.

Table E2. Average Monthly Pan Evaporation and Free Water Evaporation Near the Copper Flat Project Area

Period	Average Pan Evaporation[1]	Estimated Average Free Water Evaporation[2]
	inches	inches
	Total	Total
January	4.42	3.09
February	5.10	3.57
March	8.56	5.99
April	11.37	7.96
May	13.59	9.51
June	14.80	10.36
July	13.08	9.16
August	11.35	7.95
September	9.26	6.48
October	7.27	5.09
November	4.78	3.35
December	3.48	2.44
Annual	**107.06**	**74.94**

Notes:
(1) Pan evaporation data from the Western Regional Climate Center for Caballo Dam covering the period between 1938 and 2005.
(2) Estimated free water evaporation based on applying a pan coefficient of 0.7 to the measured pan evaporation values.

Table E3. Estimated Amount of Excess Water Evaporated from Surface Water Bodies at the Copper Flat Site

Month	Estimated Average Free Water Evaporation[1]	Average Precipitation[2]	Excess Evaporation[3]
	Inches	Inches	Inches
	Total	Total	Total
January	3.09	0.57	2.52
February	3.57	0.56	3.01
March	5.99	0.38	5.61
April	7.96	0.32	7.64
May	9.51	0.52	8.99
June	10.36	0.71	9.65
July	9.16	2.30	6.86
August	7.95	2.42	5.53
September	6.48	2.08	4.40
October	5.09	1.17	3.92
November	3.35	0.55	2.80
December	2.44	0.83	1.61
Annual	**74.94**	**12.40**	**62.53**

Notes:
(1) Estimated free water evaporation based on applying a pan coefficient of 0.7 to the measured pan evaporation values. Pan evaporation data from the Western Regional Climate Center for Caballo Dam covering the period between 1938 and 2005.
(2) Average monthly precipitation from the Western Regional Climate Center covering the period between 1893 and 2016 from Hillsboro, NM Climate Station #294009.
(3) Excess evaporation equals estimated free water evaporation minus precipitation.

Table E4. AEWMS Evaporation Potential at the Copper Flat Site

Month	Estimated Passive Evaporation[1]		Estimated Active Evaporation[2]		Total AEWMS Evaporation Potential[3]	
	gallons	gpm	gallons	gpm	gallons	gpm
January	278,947	6.2	24,302,594	544	24,581,542	551
February	332,659	8.3	26,454,042	656	26,786,701	664
March	620,227	13.9	35,638,915	798	36,259,142	812
April	844,247	19.5	39,994,440	926	40,838,687	945
May	993,888	22.3	44,760,458	1,003	45,754,346	1,025
June	1,066,498	24.7	43,966,426	1,018	45,032,925	1,042
July	757,711	17.0	43,450,773	973	44,208,484	990
August	610,612	13.7	39,389,900	882	40,000,511	896
September	486,500	11.3	33,221,181	769	33,707,681	780
October	433,120	9.7	29,292,662	656	29,725,782	666
November	309,008	7.2	24,491,661	567	24,800,669	574
December	177,492	4.0	23,197,969	520	23,375,461	524
Annual	**6,910,908**	**---**	**408,161,022**	**---**	**415,071,930**	**---**

Notes:
(1) Estimated passive evaporation from the TSF underdrain collection pond equals free water evaporation (surface area of 4.07 acres @ 2' of freeboard) minus incident precipitation.
(2) Estimated active evaporation based on a daily evaporation chart for Model 1210 evaporator systems provided by Duane Thompson of Minetek on June 28, 2012. Four unit system assumed for AEWMS
(3) Total AEWMS evaporation potential equals estimated passive evaporation plus estimated active evaporation.

Table E5. Estimated AEWMS Program Water Balance for the First Year Following Closure

Month	Surface Water Runoff[1]	TSF Drain Down[1]	Total Inflows to AEWMS[3]	Total AEWMS Evaporation Potential[4]	Excess Evaporation Potential[5]
	gpm	gpm	gpm	gpm	gpm
January	7.3	514	521	551	29
February	7.7	500	508	664	157
March	2.3	486	488	812	324
April	1.3	472	473	945	472
May	5.8	458	464	1,025	561
June	12.4	444	456	1,042	586
July	88.3	430	518	990	472
August	46.8	416	463	896	433
September	35.2	402	437	780	343
October	7.6	388	395	666	270
November	6.9	374	381	574	193
December	16.5	360	376	524	147

Notes:
(1) Surface water runoff from the TSF embankment prior to regrading and cover placement. Runoff estimates from the Feasibility Level Design, 30,000 TPD Tailings Storage Facility, Copper Flat Project, Sierra County, New Mexico (Golder, 2015).
(2) Estimated TSF drain down from the conceptual Copper Flat TSF drain down curve developed herein.
(3) Total inflows to the AEWMS equals surface water runoff plus TSF drain down.
(4) Total AEWMS evaporation potential equals estimated passive evaporation plus estimated active evaporation.
(5) Excess evaporation potential equals total AEWMS evaporation potential minus total inflows to the AEWMS.

Table E6. Estimated PEWMS Program Water Balance Over 20 Year Operating Period

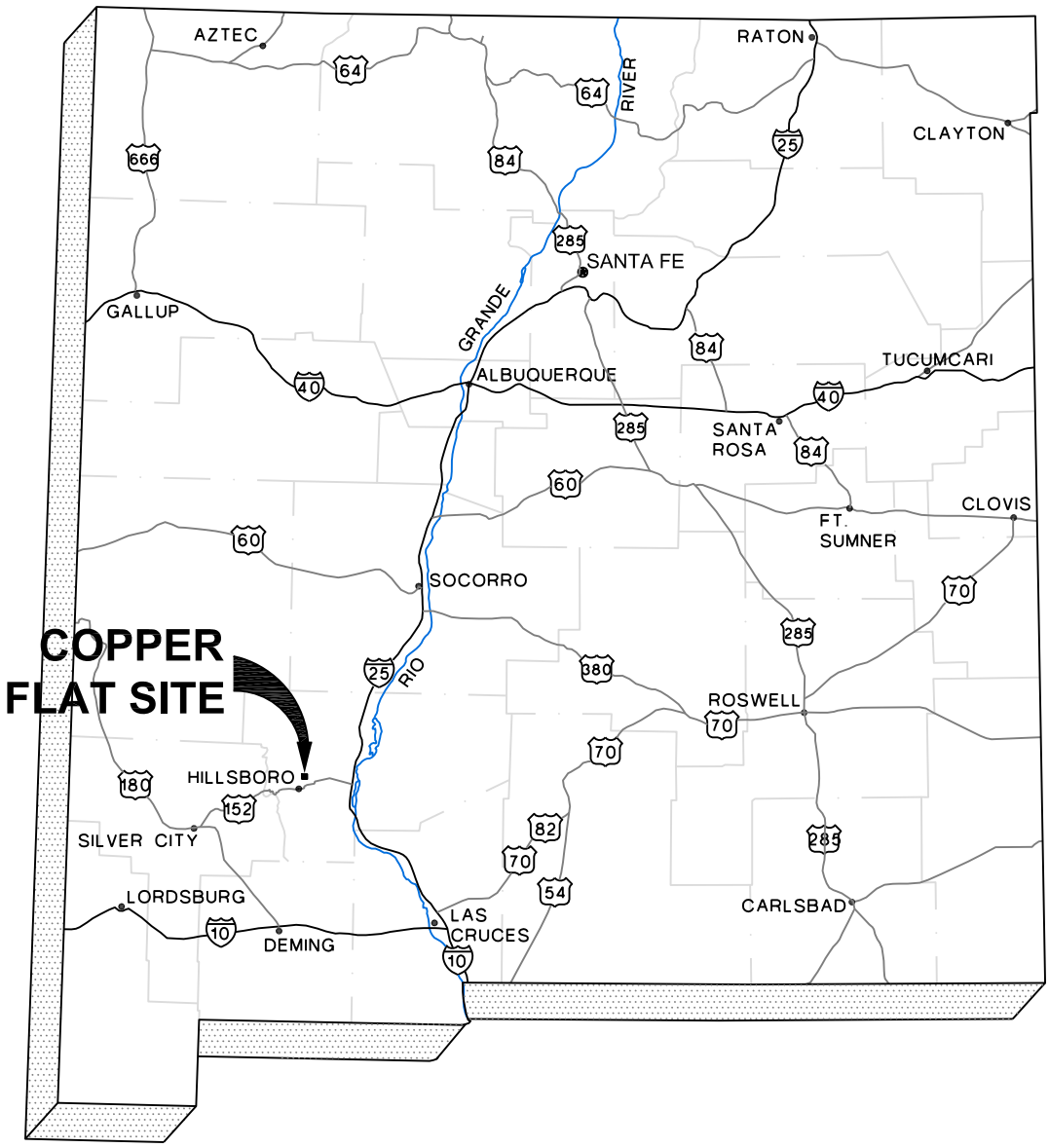
Year[1]	TSF Drain Down [2]	Passive Evaporation[3]	Excess Evaporation Potential[4]
	gpm	gpm	gpm
Short-Term Active Evaporative Water Management System Operation			
1	514	NA	NA
2	360	NA	NA
3	252	NA	NA
4	170	NA	NA
5	113	NA	NA
Long-Term Passive Evaporative Water Management System Operation			
6	67	70	3
7	51	70	18
8	44	70	26
9	39	70	31
10	33	70	36
11	28	70	42
12	23	70	47
13	21	70	49
14	18	70	52
15	12.9	70	57
16	11.3	70	58
17	10.3	70	60
18	9.8	70	60
19	9.3	70	61
20	7.2	70	63
21	5.1	70	65
22	4.1	70	66
23	3.9	70	66
24	3.8	70	66
25	3.6	70	66

Notes:
NA – Not applicable
(1) Closure year. Cessation of operations = Year 1.
(2) Maximum estimated drain down flows for the year based on conceptual Copper Flat TSF drain down curve.
(3) Estimated passive evaporation from the 21.6 acre ponded surface within the evaporation pond.
(4) Excess evaporation potential from the 21.6 acre surface within the evaporation pond.

FIGURES

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PREPARED	CM
DESIGN	TS
REVIEW	TS
APPROVED	TS

PROJECT

COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE

SITE LOCATION MAP

PROJECT No.	PHASE	Rev.	FIGURE
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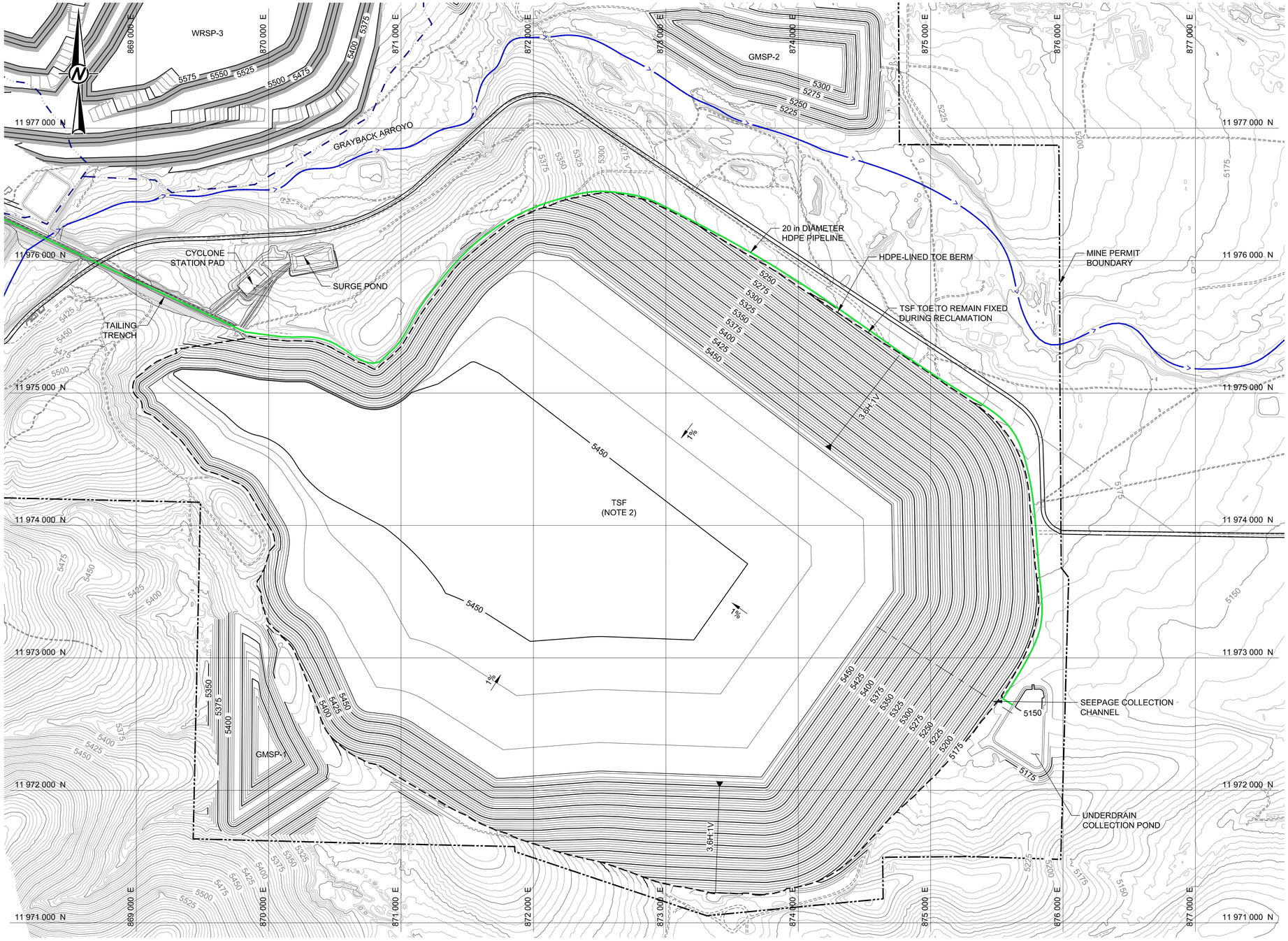
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LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTES 1 AND 2)
- MINE PERMIT BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- WRSP — WASTE ROCK STOCKPILE
- GMSP — GROWTH MEDIA STOCKPILE
- TSF — TAILING STORAGE FACILITY

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. FINAL BUILDOUT TOPOGRAPHY FOR THE TSF WAS DEVELOPED BY GOLDER AND IS FROM THE 30K TPD TAILINGS STORAGE FACILITY FEASIBILITY DESIGN REPORT (GOLDER, 2015).

0 400 800 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-09-10	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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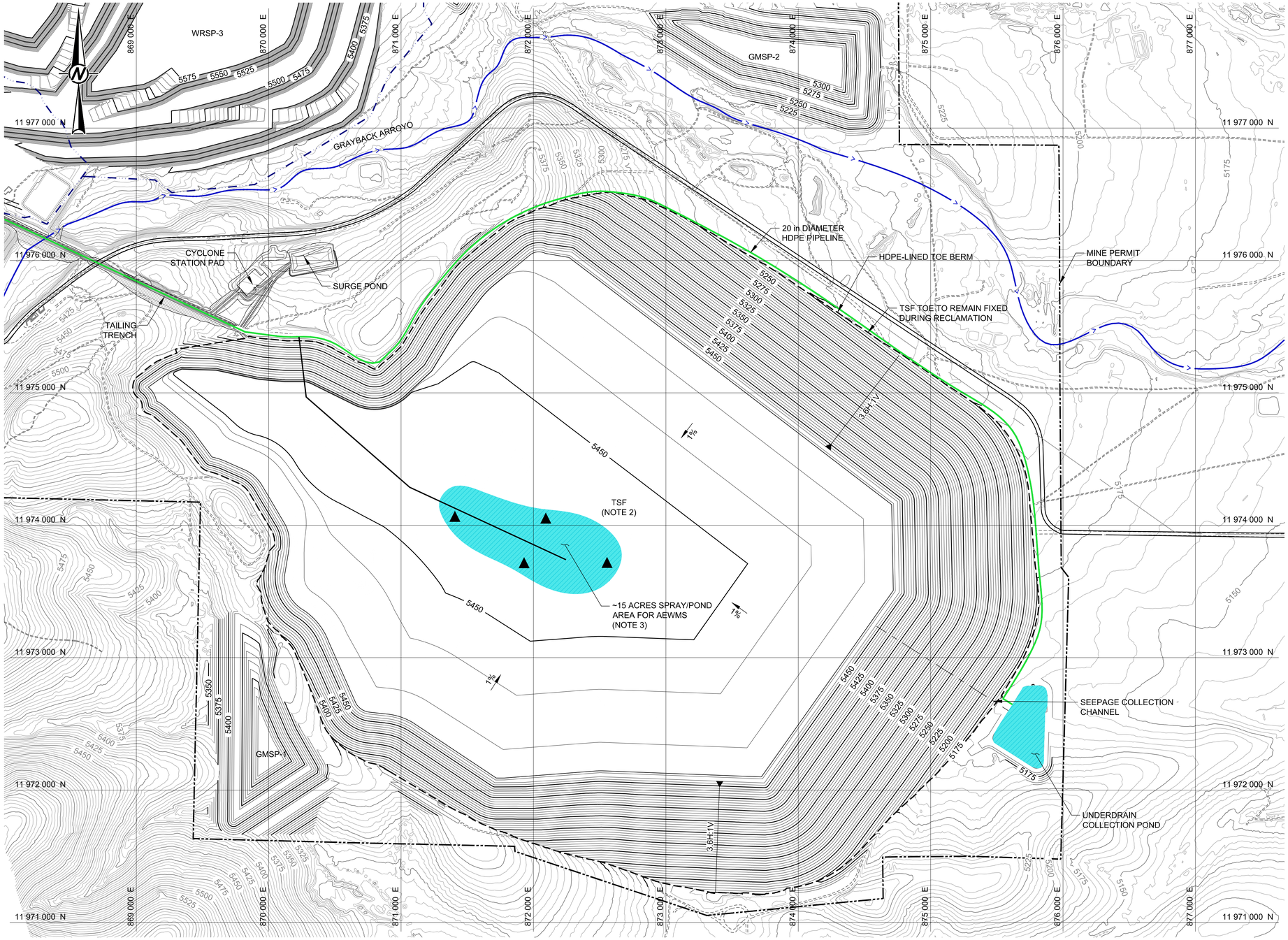
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PROJECT
COPPER FLAT PROJECT
MINE RECLAMATION AND CLOSURE PLAN

TITLE
GENERAL ARRANGEMENT TSF AREA AT FINAL BUILD OUT

PROJECT NO.	CONTROL	REV.		FIGURE
1531453	0500	D	1 of 1	E2

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LEGEND

- EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTES 1 AND 2)
- MINE PERMIT BOUNDARY
- WATERSHED BOUNDARY (BY OTHERS)
- EXISTING DIVERSION OR ARROYO
- EXISTING ROAD
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- WRSP — WASTE ROCK STOCKPILE
- GMSP — GROWTH MEDIA STOCKPILE
- TSF — TAILING STORAGE FACILITY
- AEWMS — ACTIVE EVAPORATION WATER MANAGEMENT SYSTEM
- MECHANICAL SPRAY SYSTEM

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. FINAL BUILDOUT TOPOGRAPHY FOR THE TSF WAS DEVELOPED BY GOLDER AND IS FROM THE 30K TPD TAILINGS STORAGE FACILITY FEASIBILITY DESIGN REPORT (GOLDER, 2015).
3. APPROXIMATE LOCATION OF SPRAY/POND. SIZE AND LOCATION MAY BE ADJUSTED TO MAXIMUM EVAPORATION CAPACITY BASED ON ACTUAL FLOWS TO BE MANAGED.

0 400 800 FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	JC
C	2016-09-10	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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PROJECT
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TITLE
ACTIVE EVAPORATION WATER MANAGEMENT SYSTEM LAYOUT

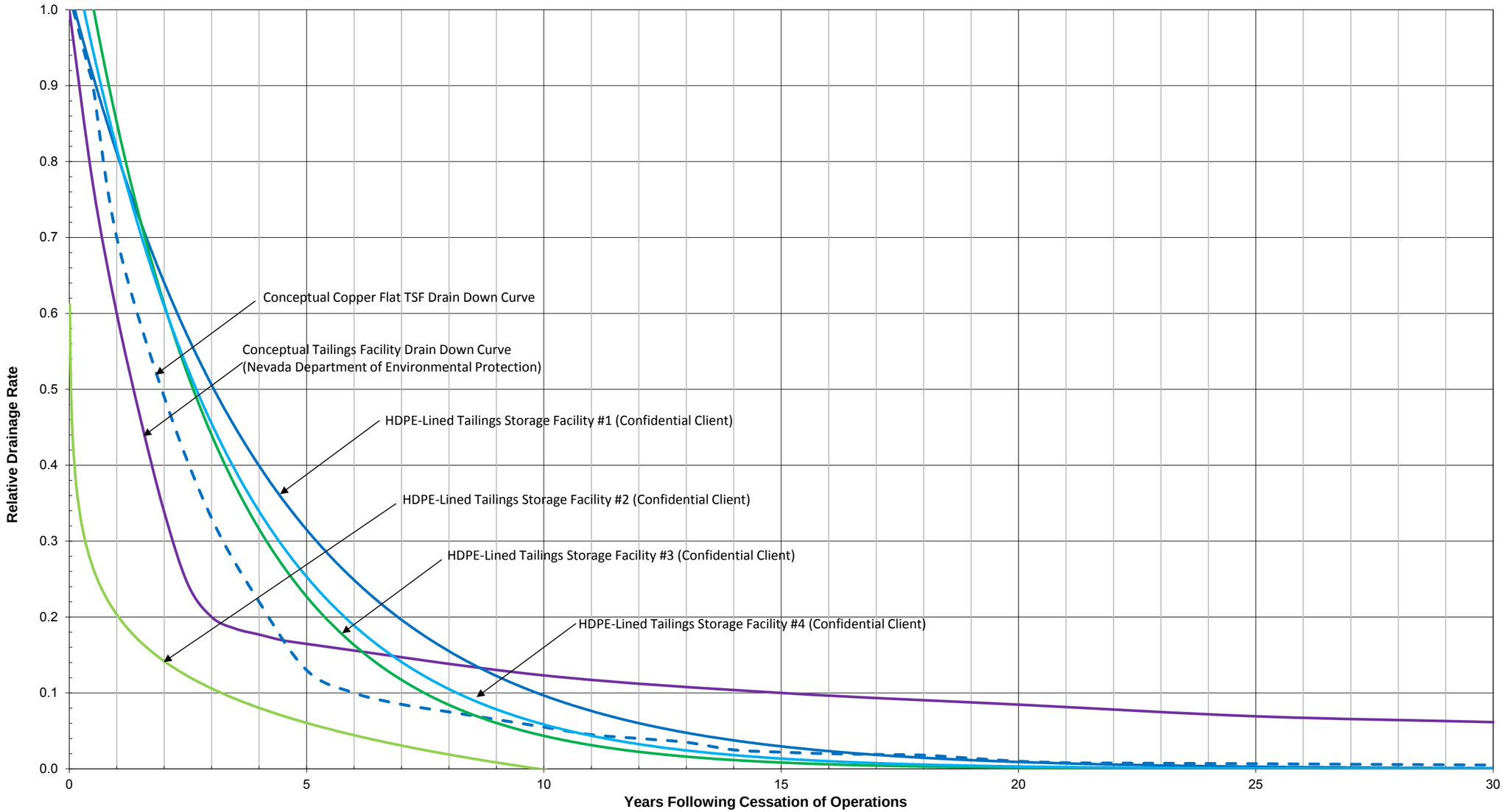
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1531453	0500	D	1 of 1	E3

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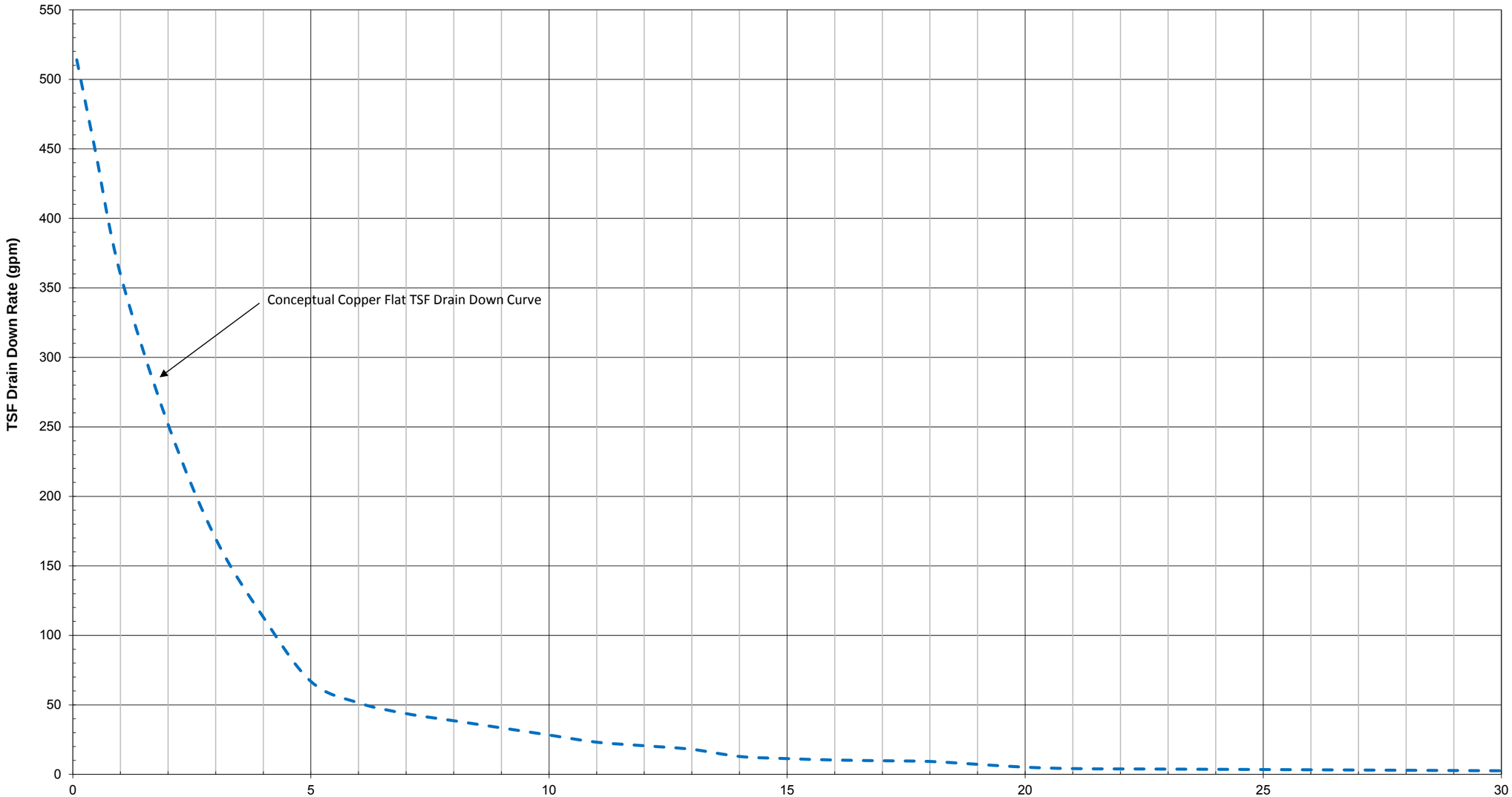
TITLE

Example Tailings Storage Facility Drain Down Curves

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Copper Flat Mine Project

DRAWN	TS	DATE 09/29/2016	JOB NO. 153-1453
CHECKED	TS	SCALE NA	**FIGURE E4**
REVIEWED	TS	FILE Copper Flat Water Balance 09072016	



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Albuquerque, New Mexico

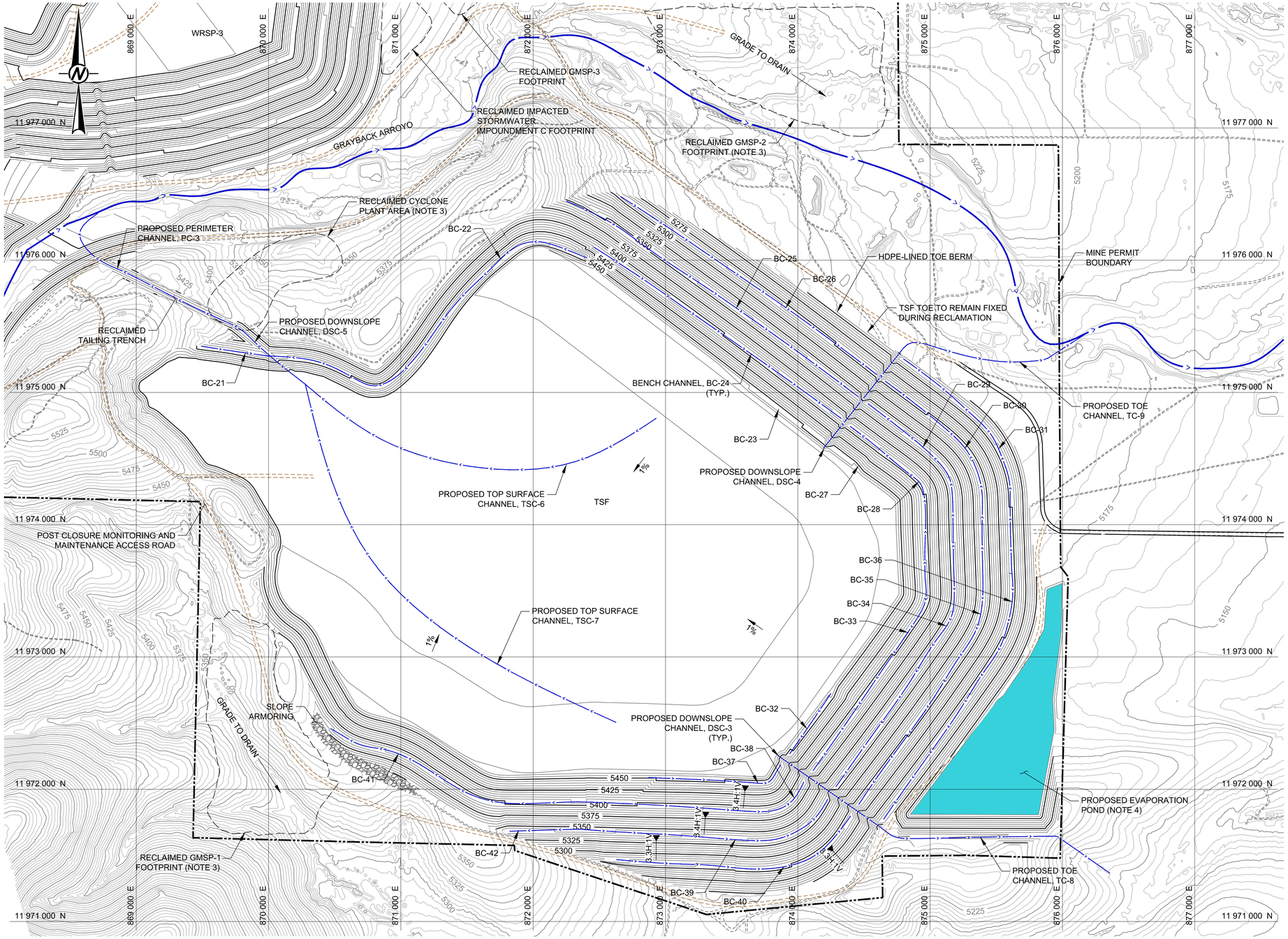
TITLE

Conceptual Copper Flat TSF Drain Down Curve

CLIENT/PROJ

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DRAWN	TS	DATE 09/29/2016	JOB NO. 153-1453
CHECKED	TS	SCALE NA	**FIGURE E5**
REVIEWED	TS	FILE Copper Flat Water Balance 09072016	



LEGEND

- 5400 — EXISTING GROUND CONTOURS - 5 ft INTERVAL (ft-MSL)
- 5400 — PROPOSED DESIGN CONTOURS - 5 ft INTERVAL (ft-MSL) (NOTE 5)
- MINE PERMIT BOUNDARY
- EXISTING DIVERSION OR ARROYO
- PROPOSED CHANNEL CENTERLINE (APPROXIMATE)
- EXISTING ROAD
- POST CLOSURE MONITORING AND MAINTENANCE ACCESS ROAD (NOTE 6)
- 3H:1V — SLOPE INDICATOR
- 1% — GRADE INDICATOR
- WRSP — WASTE ROCK STOCKPILE
- TSF — TAILING STORAGE FACILITY
- SLOPE ARMORING

NOTES

1. FINAL BUILDOUT TOPOGRAPHY FOR THE PIT, WRSPs, AND GMSPs WAS DEVELOPED BY OTHERS AND PROVIDED BY NMCC.
2. RECLAMATION DESIGN SHALL UTILIZE 3H:1V INTERBENCH REGRADE SLOPES AND 200 FOOT INTERBENCH SLOPE LENGTHS PER NMAC 20.6.7.33. C(3). A 0.5% (MIN.) TOP SURFACE REGRADE GRADIENT SHALL BE ESTABLISHED PER NMAC 20.6.7.33. C(1). A 25 FOOT BENCH WIDTH, 1% BENCH CROSS SLOPE GRADIENT AND 1% LONGITUDINAL BENCH SLOPE GRADIENT WILL BE UTILIZED FOR STORMWATER CONVEYANCE.
3. FOOTPRINT OF RECLAIMED GROWTH MEDIA STOCKPILES AND THE CYCLONE PLANT AREA WILL BE GRADED TO APPROXIMATE SURROUNDING TOPOGRAPHY, RIPPED AND REVEGETATED.
4. EVAPORATION POND WILL BE CONSTRUCTED IN YEAR 5 FOLLOWING CESSATION OF MINING, NEAR THE END OF THE ACTIVE EVAPORATION PROGRAM. EVAPORATION POND WILL BE RECLAIMED AT THE END OF THE PASSIVE EVAPORATION PROGRAM.
5. PROPOSED DESIGN CONTOURS REPRESENT THE RECLAMATION SUBGRADE, PRE-COVER PLACEMENT TOPOGRAPHY.

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2017-07-10	REVISED - ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
C	2016-09-30	ISSUED FOR AGENCY REVIEW	HNL	HNL	TS	TS
B	2016-09-09	ISSUED FOR CLIENT REVIEW	HNL	HNL	TS	TS
A	2016-09-02	ISSUED FOR INTERNAL REVIEW	HNL	HNL	TS	TS

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MINE PERMIT CLOSURE DESIGN

TITLE
PASSIVE EVAPORATION WATER MANAGEMENT SYSTEM LAYOUT

PROJECT NO.	CONTROL	REV.		FIGURE
1531453	0500	D	1 of 1	E6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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Africa	+ 27 11 254 4800
Asia	+ 852 2562 3658
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 56 2 2616 2000

solutions@golder.com
www.golder.com

Golder Associates Inc.
5200 Pasadena Avenue N.E., Suite C
Albuquerque, NM 87113 USA
Tel: (505) 821-3043
Fax: (505) 821-5273

Golder Associates

Engineering Earth's Development, Preserving Earth's Integrity

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