



Freeport-McMoRan Chino Mines Company
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RECEIVED

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MINING & MINERALS DIVISION

August 15, 2018

Certified Mail #70173040000031904665
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Mr. David Ennis
Energy, Minerals and Natural Resources Department
Mining and Minerals Division
Mining Act Reclamation Program
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Dear Mr. Ennis:

Re: Freeport-McMoRan Chino Mines Company –
Permit GR009RE Technical Comments on
Revision Application 18-1 for the Updated Closure Closeout Plan

Freeport-McMoRan Chino Mines Company (Cobre) submitted an update to Chino's Closure Closeout Plan (CCP) on February 14, 2018. The Mining and Minerals Department (MMD) in a letter dated June 18, 2018 requested Chino to respond to agency and public review comments. Where the comments included multiple questions within a paragraph, and in the hope that the response will be easier to track, the response is often located directly below the comment. The comments are listed in italics, followed by Chino's responses.

1. *Section 3.1.2, Page 10 states "Chino has dedicated the upper lifts of the STS2 and Upper South stockpiles for storage of RCM (Reclamation Cover Material) for future reclamation." Please provide a map/figure delineating the RCM portion(s) of the STS2 stockpile. Also, please report the base elevation of RCM stored in the STS2 Stockpile.*

The upper two lifts of the STS2 are designated as RCM and contain approximately 2.2 million cubic yards (MCYs). Since the area was not truly flat prior to the dumping of the STS2 RCM, the north and south end base elevations differ. The north end base elevation is 6850 while the south end is 6975. Please see the attached aerial and topo maps titled "STS2 Stockpile Reclamation Cover Material Boundary."

2. *Page 27 reports 20.6 million yd³ of RCM in the north mine area. Please provide a table with the estimated volume of RCM stored within the STS2 Stockpile, Upper South Stockpile and Whitehouse Stockpile versus the total volume of RCM required for the reclamation of the north mine area. Chino should also provide an anticipated reject percentage from the existing RCM volumes.*

Attached Table 1 summarizes the RCM requirements for the North Mine Area (NMA) and the associated sources of the RCM for each facility to be reclaimed. As indicated in Table 1, approximately 13.15 million cubic yards (MCYs) of RCM is required for reclamation of the NMA. Note, this volume includes leaving 3 feet of RCM on the Upper South and STS2 stockpiles following completion of reclamation of the NMA. Table 2 presents the material

balance for the NMA using only RCM from the Upper South Stockpile, STS2 Stockpile and Whitehouse Stockpile. As shown in this table, there is a projected excess of approximately 4 MCYs of RCM in the NMA.

3. *Figure 021 identifies Rubio Peak Conglomerate, Rubio Peak Flows, Sugarlump Tuff, Bear Springs Basalt and Kneeling Nun Tuff as either potential cover borrow areas or riprap areas. Please note that for the CCP and financial assurance cost estimate, only Kneeling Nun Tuff and approved ACM material from the Upper South Stockpile, STS2 Stockpile and Whitehouse Stockpile shall be considered for reclamation. Material from the Rubio Peak Formation is currently being tested by Chino on a test plot and was conditionally approved by MMD for the North Lampbright Waste Rock Stockpile under Revision 16-1. However, the Rubio Peak Formation material is not approved for wider use at Chino on facilities such as Main Lampbright, South Lampbright, or Southwest Lampbright as currently proposed in the CCP. The haul routes depicted in Figure 021 should be modified accordingly for the cost estimate.*

Chino is disappointed in the MMD position taken above to limit the use of the conditionally approved Rubio Peak material for FA purposes. Preliminary results from the Rubio Peak demonstration plots shows that the material is on the right trajectory to meet the MMD and NMED cover material standards. Construction of the Rubio Peak test plots was completed in June 2018. Chino will collect data on these plots and present it to the agencies. It is already obvious that the material is a useful reclamation cover material and it is reasonable that any party reclaiming the site will take advantage of it. Chino will continue to list it as a potential reclamation cover source for various stockpiles, but for financial assurance estimating only use material approved by MMD. Chino has updated the material takeoff tables (see response to comment #2 above) and has updated the haul routes depicted in Figure 021 in Appendix A to reflect MMD's requested change in comment #3. Updated Figure 021 is attached to this response letter.

4. *Page 34-35, Section 5.1.3. The CCP indicates that Chino will update the MMD waiver during or after MMD review. Page 34 states that due to mining, 'portions of the open pit lie outside the geographic area defined when the conditional waiver was granted in 2003.' Please propose adjustments to the 2003 MMD waiver to become consistent with the 2018 Updated CCP. This might best be provided in one comprehensive figure showing:*
 - *the waiver area pursuant to Mining Act Rules*
 - *the area of open pit hydraulic containment (AOPHC)*
 - *the open pit surface drainage area (OPSDA).*

Thanks for your comments. Please see the attached revised Figure 8-1 which shows the original 2003 waiver area, the proposed End of Year 2018 expanded waiver area, the open pit capture zone (OPCZ), and the OPSDA.

5. *Access to the mine maintenance facilities area (which is proposed for an industrial PMLU) is currently provided via the road located between the South and West Stockpiles. At closure, these stockpiles coalesce as shown in Figure 5-1 and Appendix A Figure 003. Please describe how access to the mine maintenance facilities area will be provided at closure in order to facilitate the proposed industrial PMLU for this area.*

As correctly mentioned in the comment above, the South and West stockpiles will coalesce during final closure. An access road will however be provided along the base of the reclaimed stockpiles (adjacent to the proposed West Stockpile-South Stockpile surface water channel) to provide access to the reclaimed facilities and the facilities designated as industrial post mining land use.

6. *Please define the anticipated slope direction(s) and grade of the top surface of the STS2 Stockpile at closure (see Figure 004 in Appendix A).*

The top surface will be graded to drain toward the constructed downdrains and ultimately to the exterior of the mine, in a general westerly/northwesterly direction. Figure 004 in Appendix A has been updated to show the slope direction and grade of the top surface of the STS2 Stockpile at closure and is attached to this response letter.

7. *Figure 022 in Appendix A - "Typical reclaimed outslope section" shows a toe collection feature. Please provide a typical design detail for the toe collection feature. Will toe channels require riprap? What is the approximate width and what storm event will the toe channels be designed to meet? Further, Chino should define areas in the Appendix A reclamation drawings where the toe channel will/will not be constructed for water conveyance since this will likely affect the cost estimate for construction.*

The toe collection feature depicted in detail 2/022 on Figure 022 in Appendix A - "Typical Reclaimed Outslope Section" was originally included in the reclamation drawing package in the 2007 CCP report and was inadvertently left in the 2018 Updated CCP report. Outside of the downdrain structures, runoff will be allowed to flow as sheet flow to natural ephemeral channels once the flow leaves the reclaimed facility. Detail 2/022 on Figure 022 in Appendix A has been revised to show the typical reclaimed outslope section for the areas outside the downdrains and is attached to this response letter. Toe energy dissipation structures will be constructed at the base of each downdrain structure. Typical details for the toe energy dissipation structures have been added to new Figure 022A in Appendix A and is attached to this response letter.

8. *Section 6.1.5.2 describes the use of 18-24 inches of cover over footings, slabs, pavement, etc. located on non-acid generating materials while Section 6.1.6 describes the use of 36 inches of cover material over similar facilities. Please clarify.*

The description in Section 6.1.6 is incorrect. It should read:

"Footings, slabs, walls, pavement, manholes, vaults, storm water controls and the foundations located outside the OPSDA that are not included in the industrial PMLU, and are located on non-acid generating materials will be abandoned in place and covered with topdressing to a depth of 18- 24 inches minimum".

9. *Figure 027 should show the approximate aerial extent of the proposed HDPE geomembrane for the outlet channel at the NE corner of Tailing Pond 7. Additionally, please provide justification for two feet of cover over the HDPE geomembrane (see Figure 029) instead of three feet of cover proposed for the remainder of the impoundment.*

The primary purpose of the cover over the HDPE geomembrane is to provide an adequate seedbed for vegetation and have erosion resistant characteristics since the underlying geomembrane acts as an effective barrier to downward infiltration of meteoric water into the tailing material. In contrast, the three-foot cover being placed over tailing in the remaining impoundment area is designed as a store and release cover system capable of sustaining plant growth without continuous augmentation and has erosion resistant characteristics. Figure 027 in Appendix A has been updated to show the approximate aerial extent of the proposed HDPE geomembrane for the outlet channel at the NE corner of Tailing Pond 7 and is attached to this response letter.

10. *Chino states on page 28, Section 3.3.8 and page 67 (earthwork material take-off summary table), that borrow material volume in borrow areas E, F and H is approximately 4 million yd³, while the earthwork take-off summary indicates a need for 9.77 million yd³ for the 2,019 acres yet to be reclaimed. Chino should clarify the volumetric discrepancy and indicate an anticipated reject percentage based on previous SMA reclamation using Gila Conglomerate. Additionally, Figure 030 shows borrow areas E and H located NW of Tailing Pond 7. These borrow areas could be affected by Chino's tentative plans to construct a new tailing pond in this area in the future. If/when a tailing impoundment is proposed, new borrow areas may need to be identified at that time.*

Results of previous borrow investigations in the South Mine Area (SMA) indicate that approximately 200,000,000 CY of potentially suitable borrow materials are present in the vicinity of the Chino Tailing Impoundments (DBS&A, 1998; Golder, 2006). The Gila Conglomerate and associated soils in the SMA have no inherent chemical limitations (DBS&A, 1998; Golder and URS, 2007b) and have proven to be suitable RCM for the reclaimed facilities in the SMA. A portion of the available borrow material in the SMA was utilized as part of the reclamation of Lake One; Older Tailings Ponds 1, 2, 4 East, 4 West, B, and C; and partial reclamation of older Tailings Ponds 6 East and 6 West. Remaining borrow areas E, F, and H will be utilized as the reclamation cover source for the remaining facilities within the SMA. These three borrow areas are estimated to contain over 4 million CY of suitable RCM. The area between Highway 180 and the western boundary of Borrow areas E and H shown on Figure 030 has been identified as an area containing suitable RCM and will be utilized for RCM in the SMA. The area to the north of Borrow Area F has also been identified as containing suitable cover material and will be utilized for RCM in the SMA. There are still substantial borrow material areas identified in the SMA that have not been utilized and are not included in this plan. The surplus of cover material available in the SMA will allow flexibility of configuring borrow areas, as well as providing for potential contingencies.

Attached Table 3 summarizes the RCM requirements for the SMA and the associated sources of the RCM for each facility to be reclaimed. As indicated in Table 3, approximately 9.773 MCYs of RCM is required for reclamation of the SMA. Table 4 presents the material balance for the SMA. As shown in this table, there is a projected excess of approximately 635,000 CYs of RCM in the borrow areas identified in this plan. Based on the substantial borrow material areas identified in the SMA that have not been utilized and are not included in this plan, no assumed reject percentage has been applied to the available RCM volumes. Figure 030 in Appendix A, Section 3.3.8, and the earthwork material take-off summary table on page 67 of the CCP will be updated to reflect these changes. Updated Figure 030 has been revised to show the updated haul routes depicted on the figure and is attached to this response letter.

11. *Table 5-2 provides a summary of buildings and structures to be removed/reclaimed. Please provide a map/figure identifying the buildings listed in Table 5-2.*

Chino has developed a new Figure 2 which is now labelled Figure 2A, 2B and 2C that shows the locations of the buildings listed in Table 5-2 and is attached to this response letter.

12. *MMD notes that some plans continue to have alternatives (e.g., sources of cover material and sludge disposal, salt disposal and water treatment facility, etc.), and evaluation of alternatives as part of the CCP evaluation process as well as the implementation of a reclamation plan. In order to provide a cost estimate, the Chino CCP must select one option in the 2018 plan even if alternative location(s) or options are mentioned in the Chino CCP.*

The cover sources for the NMA are provided above in our response to comment #2. The cover sources in the South Mine Area (SMA) are provided above in our response to comment

#10. The locations of the proposed sludge disposal facility and the STS water treatment facility are shown on new Figure 3 to Appendix C. This new Figure 3 is attached to this response letter. The location of the proposed salt disposal facility has been added to Figure 3 of Attachment A to Appendix C and is also attached to this response letter.

13. *Page 28 states that Chino plans on updating the material handling plan to include additional RCM in the near future. MMD agrees that the following two material handling plans should be updated by Chino and will be a condition within Revision 18-1:*

- *Materials Handling Plan South Pit Area, dated July 7, 2006. This plan should be updated to describe waste and ore handling for all areas of the Chino pit(s) being actively mined or planned for active mining in the future. Updates to the pit material handling plan should be on the same approximate 5-year schedule as updates to the CCP.*
- *Quality Control - Standard Operating Procedure, Cover Material Handling Plan and Placement, West Stockpile Test Plots, dated March 16, 2007. This plan should be updated to describe ACM handling and placement procedures on the same approximate 5-year schedule as updates to the CCP.*

Chino has been implementing the material handling plan since 2006 and it is working very well. Chino agrees that the material handling plan dated July 7, 2006 should be updated to describe how the various types of cover material should be handled but disagrees that this needs to be updated every 5 years if plan is working. Chino however suggest that this plan is updated if a different cover material type (in terms of geology) discovered or there is a substantial change in technology.

14. *Page 33, Section 5.1.1.; Page 8, Section 3.1.2 & Table 3-1; and Page 67, Earthwork Takeoff Summary. The estimated stockpile acreage is somewhat contradictory. The CCP indicates 2,340 acres, 2,565 (less 222 acres of Upper South and STS2) acres and 2,718 acres of stockpiles to be reclaimed. Chino should clarify what is the best estimate for the total acreage for stockpiles surfaces to be reclaimed for EOY2018 estimate.*

As presented in Table 1 associated with comment #2, there is a total of 2,718 acres of stockpiles targeted for reclamation. The stockpiles cover an area of approximately 2,565 acres at the end of year 2018 (in an unreclaimed condition). Any other discrepancies within the CCP report will be corrected.

15. *Figure 8-1 PMLU designation at mine site. Chino should clarify whether its design includes the boundaries between unreclaimed (waived) and reclaimed for PMLU of wildlife habitat. For example, will these locations include some combination of berms, fencing, drainage ditch, rock armor or other design elements?*

Some berms and channels may be useful between reclaimed and unreclaimed facilities; however, this is a final design detail that is not warranted to specify at a conceptual level and so Chino has not included these features and they will be captured in the contingency of the estimate.

16. *Please describe the methods to be used at closure to protect wildlife during the short-term and long-term water treatment periods.*

Chino currently uses a combination of hazers and bird deterrents to prevent wildlife from accessing the ponds. This method of wildlife protection has been very effective, and Chino proposes to continue using hazers and other bird deterrents during the post closure period.

17. *Appendix C. Section 4.2.4 Maintenance, Page 13. Chino references 2013 Tyrone CCP Update estimate of 1.5 to 1.0% for routine maintenance and capital replacement costs. Chino should provide additional detail of what items and frequency of capital replacement costs would encompass.*

The 1.5 and 1.0 percentages for routine maintenance and capital replacement costs, respectively, are estimated from previous Golder operations contracts. Routine maintenance includes materials needed for preventative maintenance such as mechanical seals, lubricant, valve sleeves, fuses, etc. Capital replacement cost can include replacement of full pieces of equipment such as valves, pumps, mixers, etc. The estimated capital replacement cost may vary year to year but it is assumed to average 1% of the total installed cost based on previous Golder engineering experience. This is equivalent to one complete replacement of the STS water treatment system/facility over the 100 year treatment period.

18. *Appendix C Water Treatment, Page 8, Section 2.3; Page 10, Section 3.2; and Table 6 of Attachment A - ETS memo. Chino proposes sludge and salt disposal associated with water treatment. In order to more accurately assess capital costs for the financial assurance proposal, Chino should provide some additional detail with the understanding that some aspects may change at the actual time of construction:*
- *proposed location of water treatment facilities*
 - *proposed location of SDF & dimensions of lined pond*
 - *proposed location of salt disposal facility & dimension of lined pond, and*
 - *provide map(s) that show specific locations for treatment and disposal.*

The locations of the proposed sludge disposal facility and the STS water treatment facility are shown on new Figure 3 to Appendix C. The proposed sludge disposal facility will cover an area of approximately 30 acres on the unreclaimed portion of Pond 6E, and the STS treatment facility will be located nearby on the unreclaimed portion of Pond 6W. New Figure 3 is attached to this response letter. The location of the proposed salt disposal facility has been added to Figure 3 of Attachment A to Appendix C and is also attached to this response letter. The proposed salt disposal facility will cover approximately 10 acres on the east side of the Mine Maintenance Facilities Area.

Department of Cultural Affairs, Historic preservation Division

This letter is in response to the updated closeout plan for the Chino Mine received at the Historic Preservation Division (HPD) on March 8, 2018. The HPD has no comments on the updated close out plan.

Thank you for taking the time to review the updated Chino CCP.

EMNRD-Forestry Division:

Thank you for giving me the opportunity to review and comment on the Sitewide Closure/Closeout Plan Update 2018, Revision 18-1, for the Chino Mine in Grant County, NM (Permit Tracking No. GR009RE). I do not anticipate any impacts to state listed endangered plants from the updated closeout plan.

Thank you for taking the time to review the updated Chino CCP.

Air Quality Bureau Comment:

Freeport-McMoRan Chino Mines Company (Chino) holds a Title V Operating Permit #P066R2 and a revised NSR Permit# 0298-M8 that was issued on July 12, 2016. To ensure compliance with state and federal air regulations, the permit includes conditions that limit the emissions, hours of operation, production rate, and conditions that will require record keeping and reporting to the Department.

Details

The purpose of the 2018 Updated Closure/ Closeout Plan (CCP) is to present a comprehensive reclamation plan for Chino that is consistent with all applicable federal and state regulatory requirements and permit conditions so that a financial assurance cost estimate can be calculated to meet the financial assurance requirements of 19.10.12 NMAC.

Recommendation

The AQB has no objection to the current request for permit modification. The applicant is expected to comply with all requirements of federal and state laws pertaining to air quality. This written evaluation does not supersede the applicability of any forthcoming state or federal regulations.

Chino appreciates the AQB review of the Chino CCP update. Chino will continue to work closely with the AQB to comply with P066-R2.

Surface Water Quality Bureau Comment:

The site wide closure/closeout plan (CCP) is an update to previous plans submitted by Freeport- McMoRan for the Chino Mine. CCP updates are a requirement under permit no. GR009RE and New Mexico Mining Act rules. This plan updates the 2007 CCP and incorporates new reclamation requirements established in December 2013 with the adoption of the Copper Rule (NMAC 20.6.7) by the New Mexico Water Quality Control Commission.

Closure-Closeout Plan Comments

Perennial and intermittent waters within Smelter Tailing Soils Investigation Unit ("STSIU") lands at the Chino mines company, are listed under 20.6.4.808 NMAC, and include, but are not limited to, the mainstream of Lampbright Draw, beginning at the confluence of Lampbright Draw with Rustler Canyon, all tributaries that originate west of Lampbright Draw, and all tributaries of Whitewater Creek that originate east of Whitewater Creek from Bayard Canyon to U.S. 180. Waters under 20.6.4.808 NMAC have designated uses of warm water aquatic life, livestock watering, wildlife habitat and primary contact. Ephemeral waters within STSIU lands at the Chino mines company are listed under 20.6.4.809 NMAC, and are limited to Chino mines property subwatershed drainages A, B, C, D, and E, but exclude the tributary containing Ash spring, reaches containing Bolton spring, the Chiricahua Leopard Frog critical habitat transect and all reaches in subwatershed C that are upstream of the critical habitat, and the tributary in drainage DI that contains Brown spring. Ephemeral waters under 20.6.4.809 NMAC have designated uses of limited aquatic life, livestock watering, wildlife habitat and secondary contact.

Intermittent water quality standards under 20.6.4.98 NMAC apply to all other unclassified waters of the state, not described above, until a hydrology protocol (HP) survey is conducted and a Use Attainability Analysis (UAA) is approved by the Water Quality

Control Commission (WQCC) in accordance with 20.6.4.15 NMAC. This would include portions of Whitewater Creek, Lampbright Draw and Hanover Creek discussed in Surface Water Hydrology section (sec 3.3.4, page 20).

NPDES Permits NM0020435, NMRO0A101, NMR00A106, and NMRO0A107 listed in table 2-1 are terminated or expired. Freeport-McMoRan Chino Mine is currently covered under 2015 Multi-Sector General Permit (MSGP) Tracking Number NMR053259 for Sector G2 Metal Mining and J2 Mineral Mining and Dressing. The Stormwater Pollution Prevention Plan (SWPPP) for this facility must be updated to incorporate this change in design, operations, or maintenance at the facility. Reclamation and closure activities are considered "active mining activities" under the MSGP and monitoring and inspections as required by this permit must continue until the Notice of Termination requirements have been met. In addition to the general and sector specific requirements, permittees should ensure they incorporate Section 9.6.2.2 of the MSGP Permit which describes additional New Mexico specific requirements for inspections and stabilization.

The SWQB finds that the updated CCP will achieve compliance with relevant water quality regulations if implemented as described and operations adhere to permit conditions, the New Mexico Water Quality Act, and Copper Rule

Chino appreciates your comments and will continue to comply with all applicable surface water permit requirements.

Ground Water Quality Bureau Comment:

The updated CCP was submitted to MECS as part of the discharge permit renewal and modification application for the Supplemental Discharge Permit for Closure (DP-1340) dated August 28, 2007 and supplemented with the updated CCP on February 15, 2018. Technical review of the CCP 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 underway. MECS will have additional comments based on technical review of the CCP. As such, comments will be submitted under separate letterhead directly to Freeport-McMoRan Chino Mines Company with copy to MMD to ensure technical completeness of the CCP which is critical to development of the draft Ground Water Discharge Permit. MECS will coordinate response to these documents with MMD prior to issuance of a comment letter to Freeport-McMoRan Chino Mines Company.

NMED Summary Comment

NMED is withholding issuance of the determination pending completion of technical review of the application and CCP associated with DP-1340 and the Copper Mine Rule.

The Ground Water Quality Bureau (GWQB) in a letter dated May 17, 2018 requested additional information regarding this CCP. Chino is currently responding to the comments and will continue to work directly with the GWQB on groundwater related issues.

The New Mexico Department of Game and Fish:

The New Mexico Department of Game and Fish (Department) has reviewed the Chino Mine 2018 Updated Closure/Closeout Plan (CCP) submitted by Freeport-McMoRan Chino Mines Company (FM!), and provides the following comments. Page 44, Section 6.1.3.2 states that a 6-foot high continuous chain link security fence will be constructed around the perimeter of the Santa Rita open pit. The Department believes that wildlife should be excluded from accessing potentially harmful pit lake water. In order

to effectively exclude deer and elk, fencing should have a minimum height of 8 feet and be constructed of corrosion-resistant chain link or woven or welded wire mesh. The bottom portion of the fence should include a barrier of durable and corrosion-resistant material that would extend to a minimum of two feet in height for excluding small mammals and other terrestrial species. In addition, the fence should be secured at the ground and buried to prevent animals from digging underneath. The Department is available for consultation regarding specific sizes and containment types of exclusion options.

Thanks for your comment. Chino has advised against reclamation near pit lake areas; however, other state agencies continue to insist on this practice which may attract wildlife to undesired locations. Chino's CCP includes a design for a pit perimeter fence that will protect against human and large mammal access to these areas. This design has been utilized in numerous places around the operating mines successfully. Chino does not believe it is practical to construct and maintain a barrier for "small mammals and other terrestrial species" mentioned in the comment. Chino will also continue to use hazers to prevent wildlife from accessing the impacted ponds.

Other potentially toxic tanks, ponds, and reservoirs that will be present post-closure should be similarly fenced to exclude wildlife. The CCP does not indicate what measures will be in place to deter migratory birds from landing in areas containing contaminated water that may be hazardous to wildlife. Chino Mine currently has a program that addresses avian protection, and the Department strongly recommends that avian protection measures continue post-mining.

As mentioned in response to the MMD comment 16, Chino will continue the methods currently used for avian protection during post closure.

Page 46, Section 6.1.4.1 states that power poles may be left in place as bird habitat, in support of the post-mining land use designation as wildlife habitat. The Department believes that there are abundant perching locations in the project vicinity and that all unused power poles should be removed, especially those in proximity to the Santa Rita pit area.

Comment Noted

Page 49, Section 6.1.7 states that although reclamation of borrow areas are not subject to the rules and regulations listed in the New Mexico Mining Act, including the post-mining land use criteria, FMI has voluntarily proposed a reclamation plan for all mine borrow sites. The Department strongly supports and appreciates FMI's commitment to reclaim all borrow areas as part of the CCP.

Thanks for your comment.

*For the reclamation seed mix, the Department recommends using a native seed mix that is certified weed-free, and requesting seed test results from the vendor to avoid inadvertently introducing exotic species to the reclamation sites. Any alternate seeds used to substitute for primary species that are unavailable at the time of reclamation should also be native. Table 8-1 lists white sweet clover (*Mefilotus alba*), which is not native to the area, as an alternate species for reclamation. The Department recommends that American vetch (*Vicia americana*) be substituted for white sweet clover as a suitable*

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August 15, 2018
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alternate native seed. When possible, the Department recommends using seeds that are sourced from the same region and habitat type as the reclamation site.

FMI has reclaimed several thousands of acres and is committed to a successful reclamation program. Chino over the years have only purchased weed free native and adapted plant species approved by the MMD under permit Modification 08-2. Chino also request seed vendors to provide seed test results.

White sweet clover (*Melilotus alba*) was an approved alternate forb for reclamation, however Chino has not used this plant because of earlier objections from the NMGF. White prairie clover (*Dalea candida*) has been used in its place with good success. The seed mix used for reclamation at every point in time depends on the availability of the plant species for purchase. Chino, with the approval of the MMD, can substitute any of the proposed seed mix with any of the approved alternates plant species depending on seed availability. Chino will continue to work with the NMGF and the MMD to use seeds that will provide a long-term sustainable ground cover, erosion control, and diversity.

Please contact Ms. Rita Lloyd-Mills at (575) 912- 5778 if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Sherry Burt-Kested". The signature is written in a cursive style.

Sherry Burt-Kested, Manager
Environmental Services

SBK:rlm
20180814-003
Enclosures

c: Brad Reid, NMED

Table 1. Reclamation Cover Material Requirements for the North Mine Area

Stockpile	Top Area (ft²)	Top Area (acres)	Outslope Area (ft²)	Outslope Area (acres)	Required RCM Vol. (CY)	Cover Source
South Stockpile	3,729,480	85.6	21,735,774	499.0	2,829,473	STS2/Upper South
West Stockpile	4,230,866	97.1	22,204,645	509.7	2,937,279	Upper South
3A Stockpile	5,427,636	124.6	3,840,247	88.2	1,029,765	Upper South
Santa Rita Stockpile	2,637,618	60.6	—	—	293,069	Upper South
Northwest Stockpile	174,504	4.0	183,527	4.2	39,781	Upper South
Lee Hill Stockpile	1,106,676	25.4	—	—	122,964	Upper South
North Stockpile	237,112	5.4	63,822	1.5	33,437	Upper South
Northeast Stockpile	533,461	12.2	—	—	59,273	Upper South
Lampbright Stockpile ¹	3,608,260	82.8	34,710,227	796.8	4,257,610	Upper South/Whitehouse
Southwest Lampbright	227,835	5.2	3,879,770	89.1	456,400	Upper South/Whitehouse
STS2 Stockpile	2,294,867	52.7	1,354,480	31.1	405,483	STS2
Upper South Stockpile	1,570,313	36.0	4,643,954	106.6	690,474	Upper South
Total:	25,778,628	592	92,616,446	2,126	13,155,008	

Notes:

¹ - Lampbright Stockpile includes the Main and South Lampbright Leach Stockpiles

Table 2. Reclamation Cover Material Balance for the North Mine Area

Borrow Source	Available (CY)	RCM Used in Reclamation Plan (CY)
STS2	2,203,450	2,203,450
Upper South	13,943,641	9,956,558
Whitehouse	995,000	995,000
Rubio Peak	4,901,076	0
Kearney Culvert Fill	502,000	0
Total Available RCM (CY):		17,142,091
Total Required RCM (CY)		13,155,008
Excess RCM¹ (CY):		3,987,083

Note:

¹ - Excess RCM only accounts for material from the Upper South, STS2, and Whitehouse Stockpiles.

Table 3. Reclamation Cover Material Requirements for the South Mine Area

Stockpile	Top Area (ft ²)	Top Area (acres)	Outslope Area (ft ²)	Outslope Area (acres)	Required RCM Vol. (CY)	Cover Source
Axi-flow Lake	2,598,413	59.7	1,631,151	37.4	469,952	Borrow Area F & Area to the North
TP6-W	4,148,184	95.2	1,447,374	33.2	621,729	Borrow Area F
TP6-E	4,405,555	101.1	1,396,710	32.1	644,696	Borrow Area F
TP7	57,014,017	1,308.9	15,316,705	351.6	8,036,747	Borrow Areas E & H, Area to the West of Borrow Areas E & H, and Area to the North of Borrow Area F
Total:	68,166,169	1,565	19,791,940	454	9,773,123	

Table 4. Reclamation Cover Material Balance for the South Mine Area

Borrow Source	Available (CY)	RCM Used in Reclamation Plan (CY)
Borrow Area E	2,688,816	2,685,000
Borrow Area F	1,657,136	1,655,000
Borrow Area H	1,037,000	1,035,000
Expanded Borrow Area West of Borrow Areas E and H	3,792,590	3,790,000
Expanded Borrow Area North of Borrow Area F	1,232,590	608,123
Total Available RCM (CY):		10,408,132
Total Required RCM (CY)		9,773,123
Excess RCM (CY):		635,009



Figure 2A
Ivanhoe Concentrator/Precipitation Plant Area

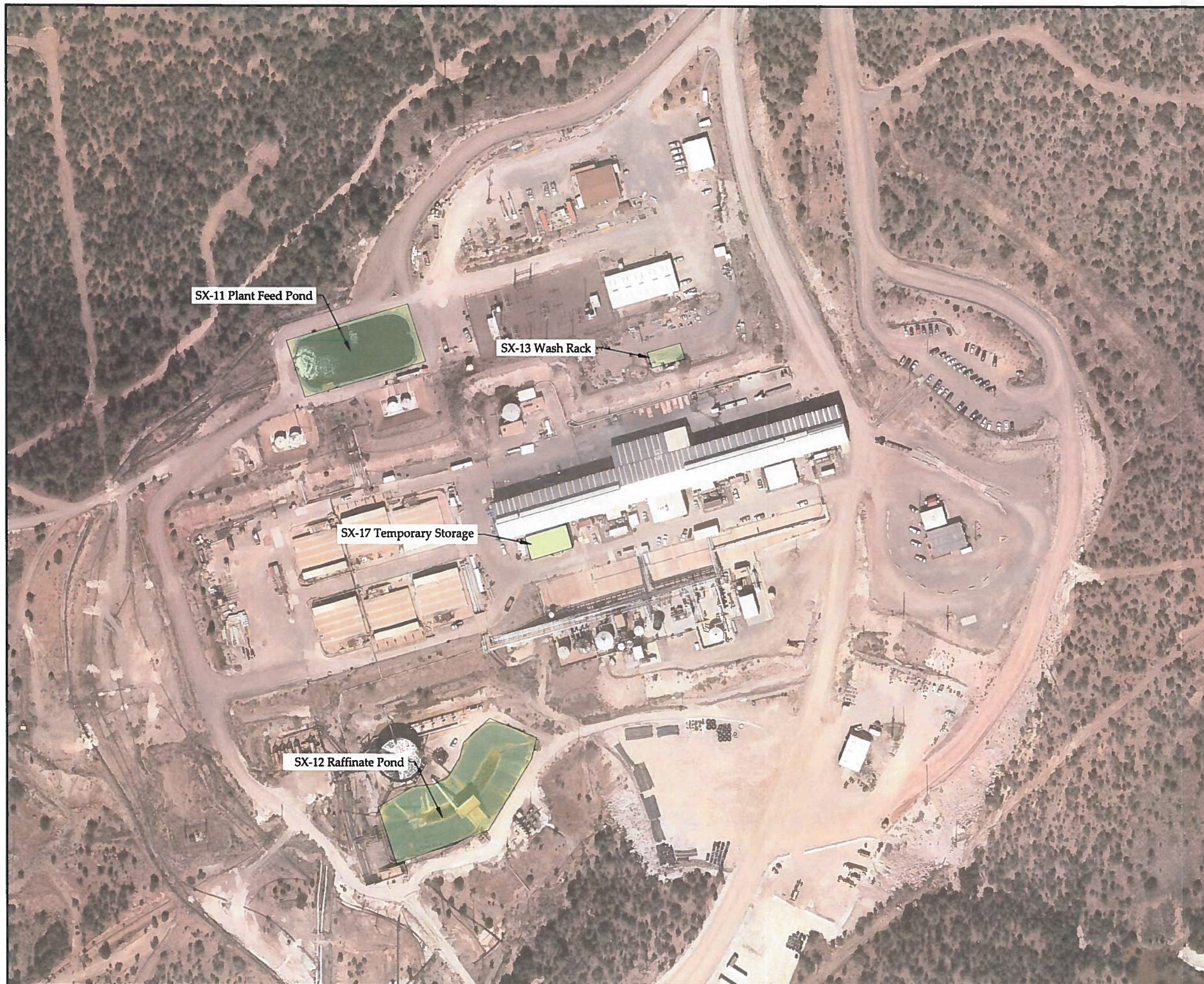
Scale: As Noted	Date: 8-2-2018	Notes:
Dept. Environmental Services		
Drawn By: SMG	Checked By: RLM	



FMC **FREEPORT-McMORAN**
CHINO MINES COMPANY

Figure 2B
Mine Maintenance Facilities Area

Scale: As Noted	Date: 8-10-2018	Notes:
Dept. Environmental Services		
Drawn By: SMG	Checked By: RLM	



SX-11 Plant Feed Pond

SX-13 Wash Rack

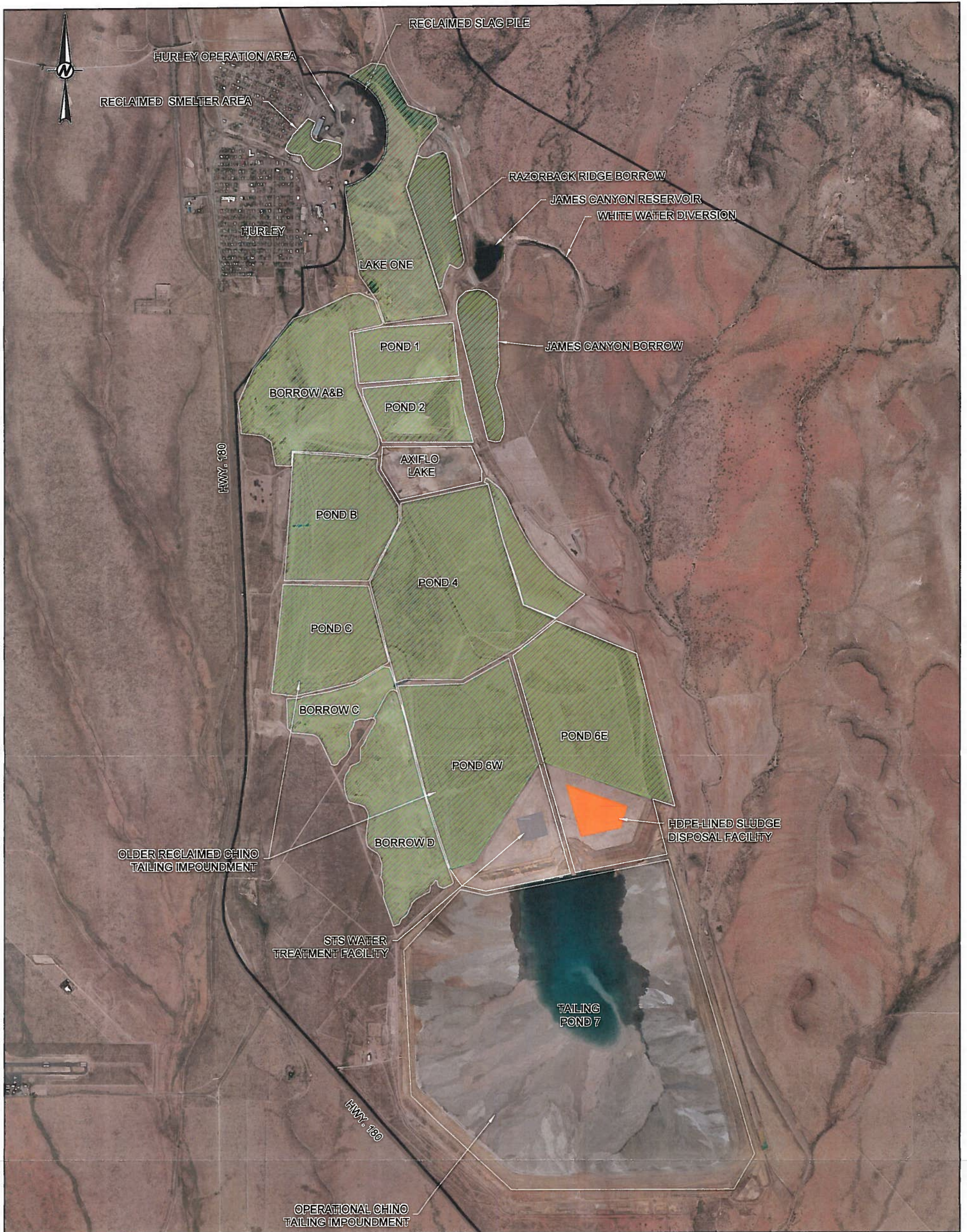
SX-17 Temporary Storage

SX-12 Raffinate Pond

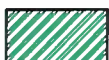


Fm **FREEPORT-McMORAN**
CHINO MINES COMPANY

Figure 2C
SX/EW Plant Area

Scale: As Noted	Date: 8-2-2018	Notes:
Dept. Environmental Services		
Drawn By: smc	Checked By: RLM	



LEGEND

-  RECLAIMED AREAS
-  APPROXIMATE FACILITY BOUNDARY
-  CHINO MINE PERMIT BOUNDARY

NOTE

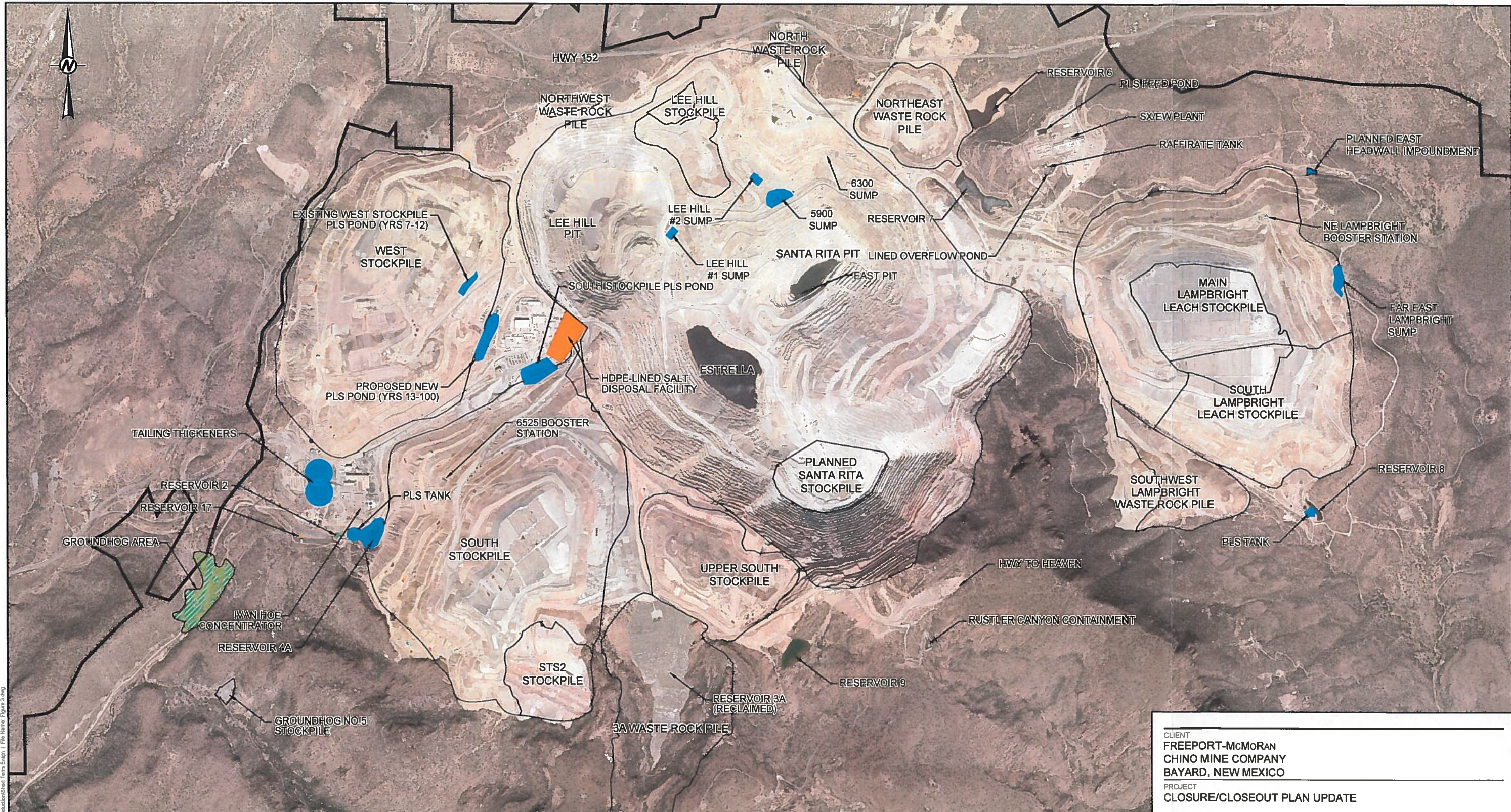
SOURCE: SEPTEMBER 2014 AERIAL IMAGE FROM CHINO MINE COMPANY.
 MAP COORDINATES BASED ON CHINO MINE COMPANY COORDINATE SYSTEM

CLIENT
 FREEPORT-McMoRAN
 CHINO MINE COMPANY
 BAYARD, NEW MEXICO
 PROJECT
 CLOSURE/CLOSEOUT UPDATE

TITLE
**PROPOSED STS WATER TREATMENT SYSTEM
 AND SLUDGE DISPOSAL FACILITY LOCATION**

CONSULTANT	YYYY-MM-DD	2017-05-25
	PREPARED	CM
	DESIGN	TS
	REVIEW	TS
	APPROVED	TS





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

LEGEND

- RECLAIMED AREAS
- APPROXIMATE END OF YEAR 2018 FACILITY BOUNDARY
- CHINO MINE PERMIT BOUNDARY
- AREAS TO BE USED FOR THE NORTH MINE AREA LONG-TERM EVAPORATIVE TREATMENT SYSTEM (PASSIVE EVAPORATION AND SPRAY EVAPORATION)

NOTE

SOURCE: AUGUST 2016 AERIAL IMAGE FROM CHINO MINE COMPANY.
 MAP COORDINATES ARE BASED ON CHINO MINE COORDINATE SYSTEM.

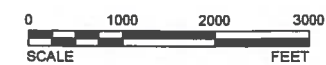
CLIENT
FREEPORT-McMoRan
CHINO MINE COMPANY
BAYARD, NEW MEXICO

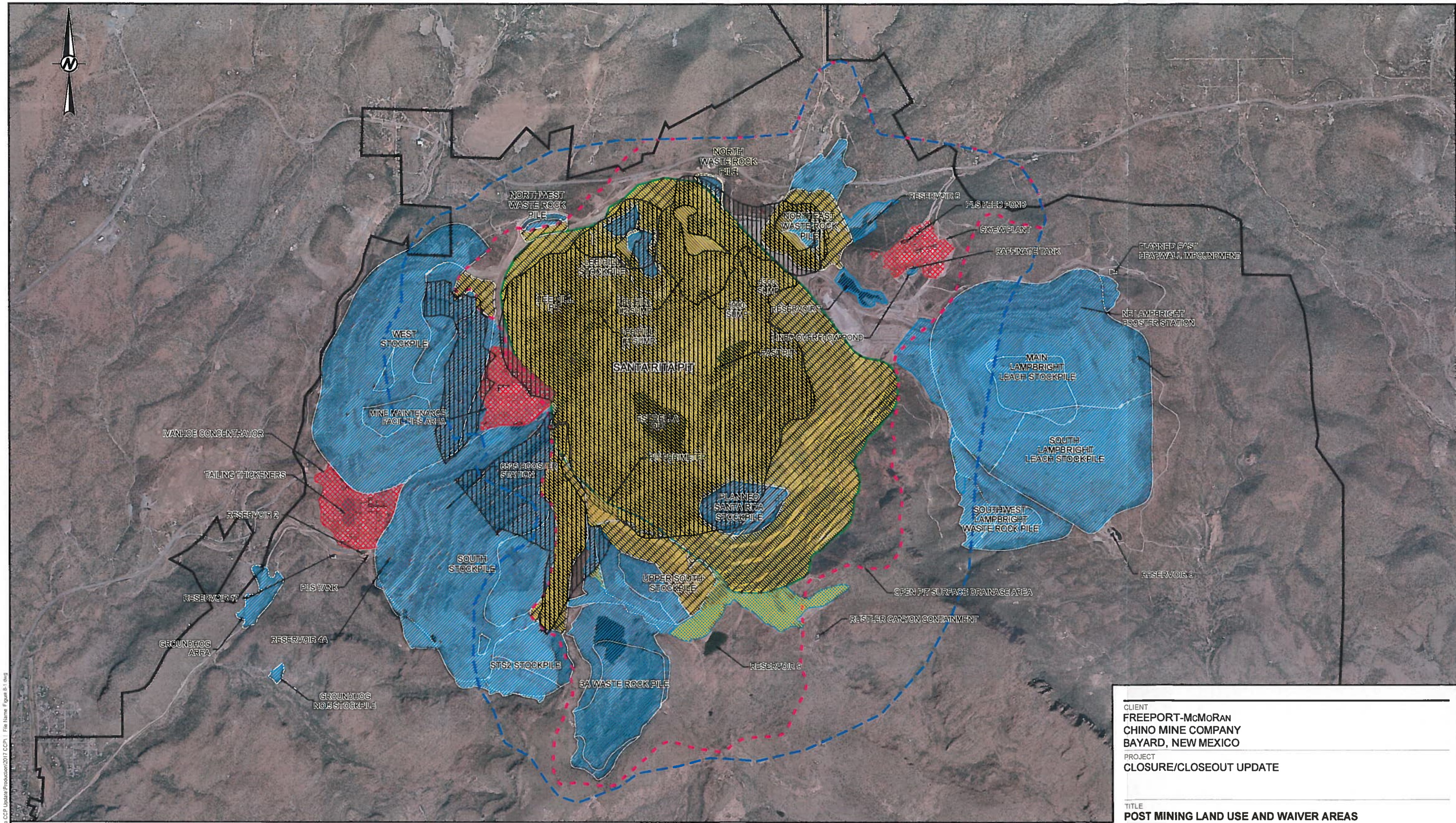
PROJECT
CLOSURE/CLOSEOUT PLAN UPDATE

TITLE
AREAS TO BE UTILIZED FOR THE NORTH MINE AREA
LONG-TERM EVAPORATIVE TREATMENT SYSTEM

CONSULTANT	YYYY-MM-DD	2017-08-04
	PREPARED	CM
	DESIGN	TS
	REVIEW	TS
	APPROVED	TS

PROJECT No 11301153 PHASE 6 Rev 0 FIGURE 3



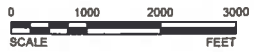


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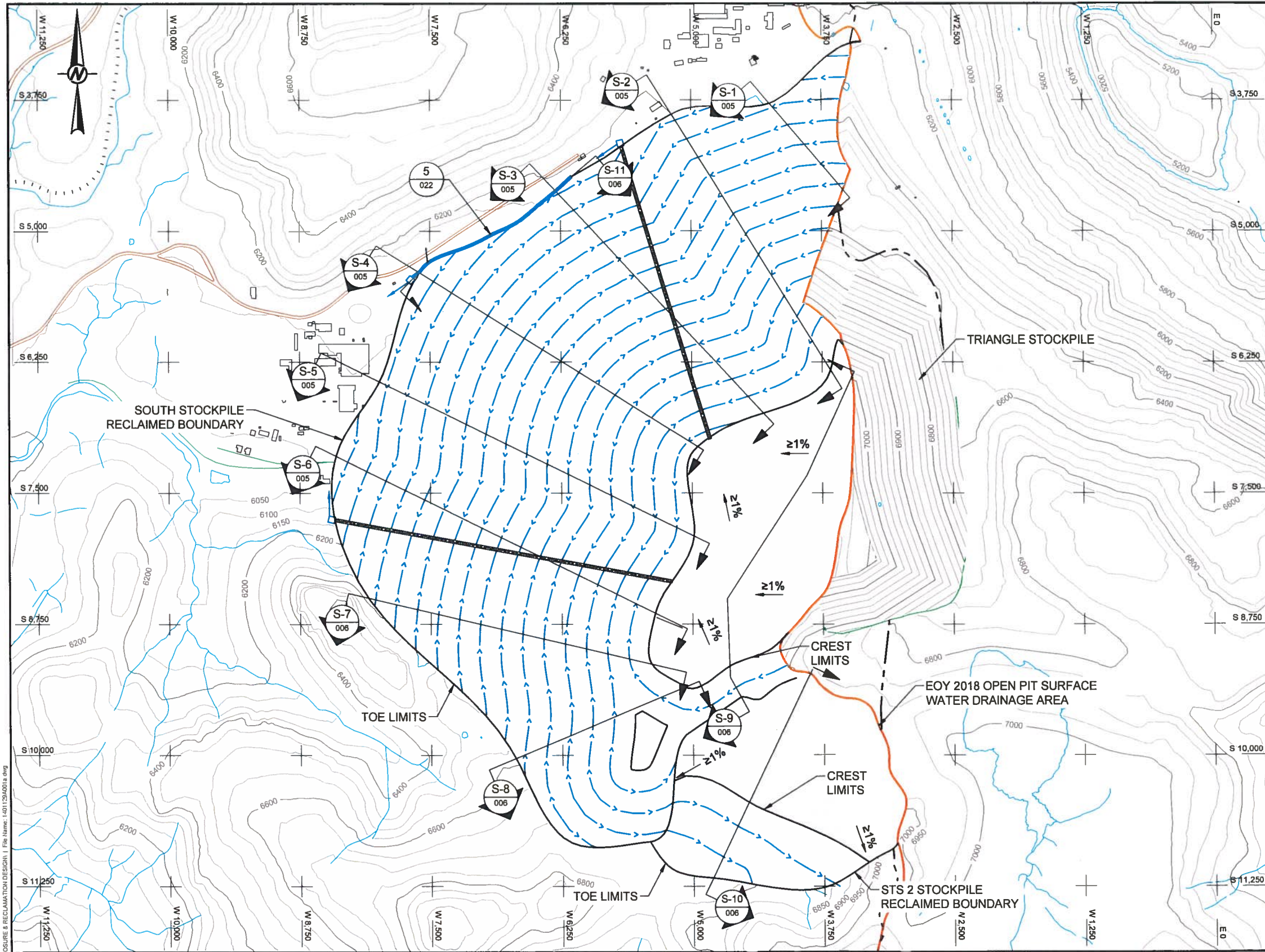
LEGEND	
	END OF YEAR 2018 CONDITIONAL WAIVER AREAS
	INDUSTRIAL PMLU
	WILDLIFE PMLU
	APPROXIMATE RECLAIMED FACILITY BOUNDARY (FOLLOWING REGRADING)
	END OF YEAR 2018 CLOSURE OPEN PIT SURFACE DRAINAGE AREA (OPSDA) PROVIDED BY CHINO MINE COMPANY ON 6/07/2017.
	PIT PERIMETER (FROM FMI "END OF YEAR 2018 TOPOGRAPHY CHINO MINE)
	CHINO MINE PERMIT BOUNDARY
	OPEN PIT CAPTURE ZONE BY FMI
	2003 WAIVER AREA
	END OF YEAR 2018 EXPANDED WAIVER AREA

NOTES

1. MAP COORDINATES ARE BASED ON THE NEW MEXICO STATE PLANE (NMSP) NAD 83, WEST ZONE
2. SOURCE: AUGUST 2016 AERIAL IMAGE FROM CHINO MINE COMPANY.



CLIENT FREEPORT-McMORAN CHINO MINE COMPANY BAYARD, NEW MEXICO		
PROJECT CLOSURE/CLOSEOUT UPDATE		
TITLE POST MINING LAND USE AND WAIVER AREAS IN THE NORTH MINE AREA		
CONSULTANT	YYYY-MM-DD	2017-06-01
	PREPARED	CM
	DESIGN	TS
	REVIEW	TS
	APPROVED	TS
PROJECT No 11301153	PHASE 6	Rev 0
		FIGURE 8-1



LEGEND

- EOY 2018 TOPO
- BUILDINGS
- PAVED ROAD
- DOWNDRAIN OUTFLOW
- EXISTING DRAINAGE
- BENCH CHANNEL
- DOWNDRAIN
- TOE AND TOP SURFACE OUTLINE
- EOY 2018 OPEN PIT SURFACE WATER DRAINAGE AREA
- SURFACE WATER DRAINAGE CHANNEL
- ENERGY DISSIPATOR
- CROSS SECTION LETTER
- SHEET WHERE SECTION IS REFERENCED

REFERENCE
 1. END OF YEAR 2018 TOPOGRAPHY PROVIDED BY CHINO MINES CO.



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D	2018-08-13	ADDRESS AGENCY COMMENTS	SAF	SAF	TMF	BRB
C	2016-04-12	INCORPORATE CLIENT COMMENTS & ISSUE FOR CLIENT REVIEW	CM	DET	TMF	BRB
Rev.	YYYY-MM-DD	DESCRIPTION	PREPARED	DESIGN	REVIEW	APPROVED

CLIENT
CHINO MINES COMPANY

CONSULTANT

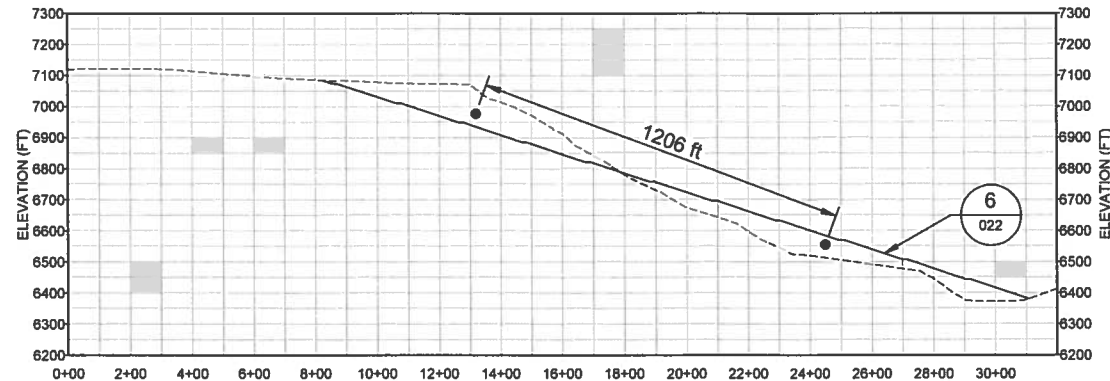
GOLDER

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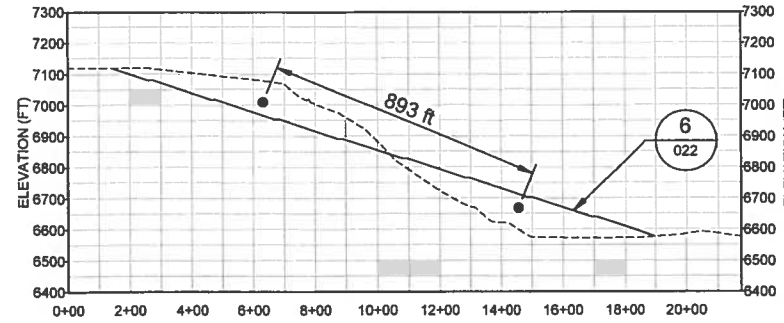
PROJECT
**CHINO MINES AREA RECLAMATION
 HURLEY, NEW MEXICO**

TITLE
**SOUTH STOCKPILE, STS2 STOCKPILE AND TRIANGLE
 STOCKPILE GRADING AND DRAINAGE PLAN**

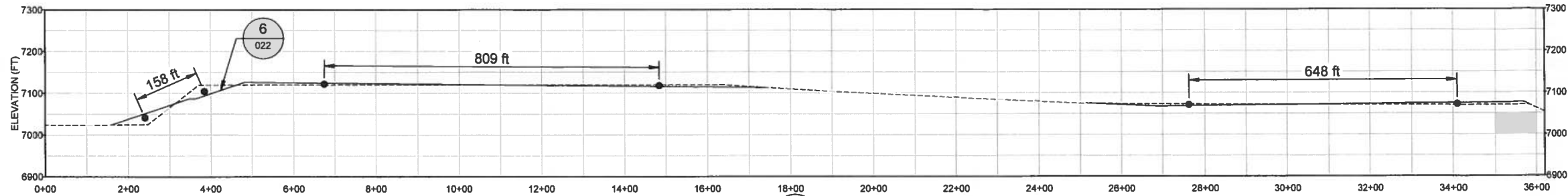
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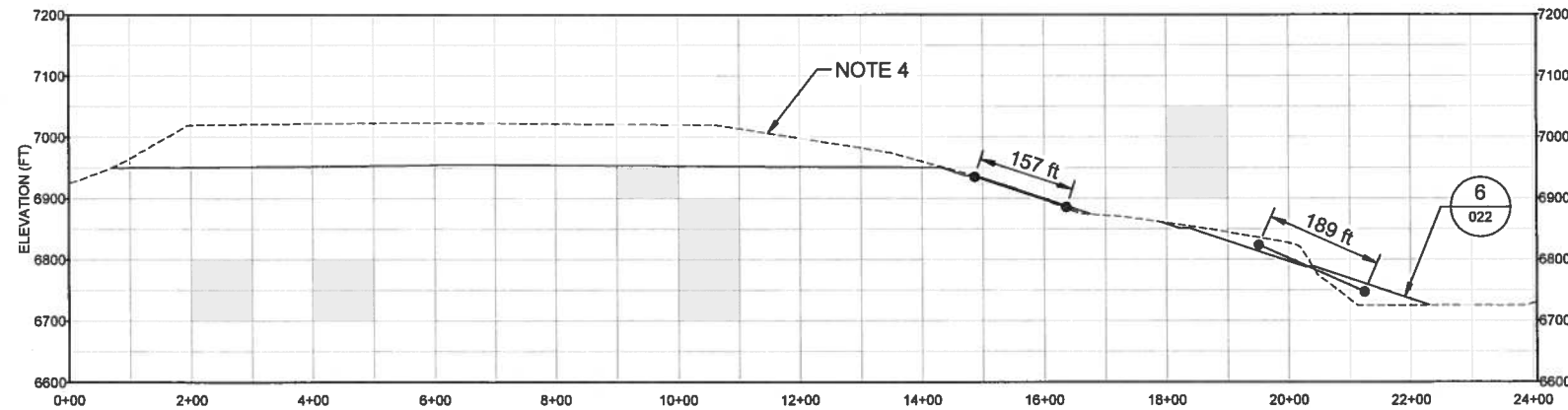
SCALE B (S-7) SECTION S-7
004



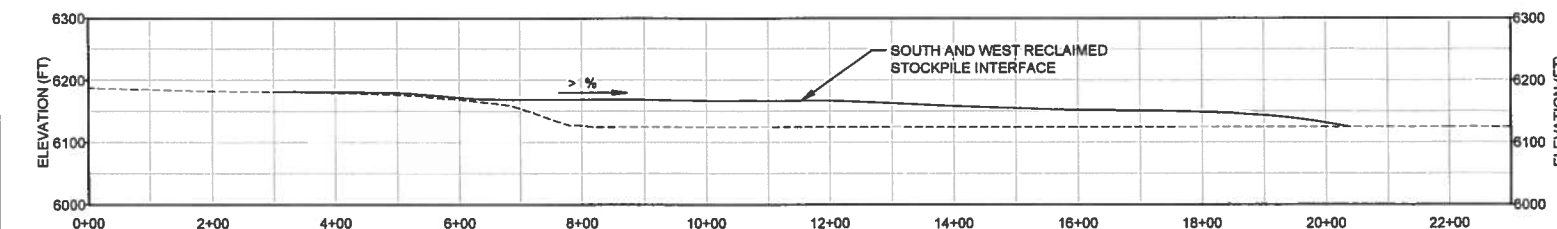
SCALE B (S-8) SECTION S-8
004



SCALE A (S-9) SECTION S-9
004



SCALE A (S-10) SECTION S-10
004



SCALE A (S-11) SECTION S-11
004

LEGEND
 - - - - - EOY 2018 TOPOGRAPHY
 ——— CCP GRADING DESIGN
 ● CENTROID OF CUT/FILL AREA

REFERENCE
 1. END OF YEAR 2018 TOPOGRAPHY PROVIDED BY CHINO MINES CO.



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SEAL	CLIENT	CHINO MINES COMPANY
	CONSULTANT	DENVER OFFICE 44 Union Boulevard, Suite 300 Lakewood, Colorado USA 80228 [+1] (303) 980 0540 www.golder.com
	PROJECT	CLOSURE/CLOSEOUT PLAN UPDATE CHINO MINES COMPANY GRANT COUNTY, NEW MEXICO
	TITLE	SOUTH STOCKPILE, STS2 STOCKPILE AND TRIANGLE STOCKPILE DESIGN SECTIONS (2 OF 2)
Rev. 2016-04-12	INCORPORATE CLIENT COMMENTS & ISSUE FOR CLIENT REVIEW	DET DET TMF BRB
Rev. YYYY-MM-DD	DESCRIPTION	PREPARED DESIGN REVIEW APPROVED

CLIENT: CHINO MINES COMPANY

CONSULTANT: **GOLDER**

PROJECT: CLOSURE/CLOSEOUT PLAN UPDATE
CHINO MINES COMPANY
GRANT COUNTY, NEW MEXICO

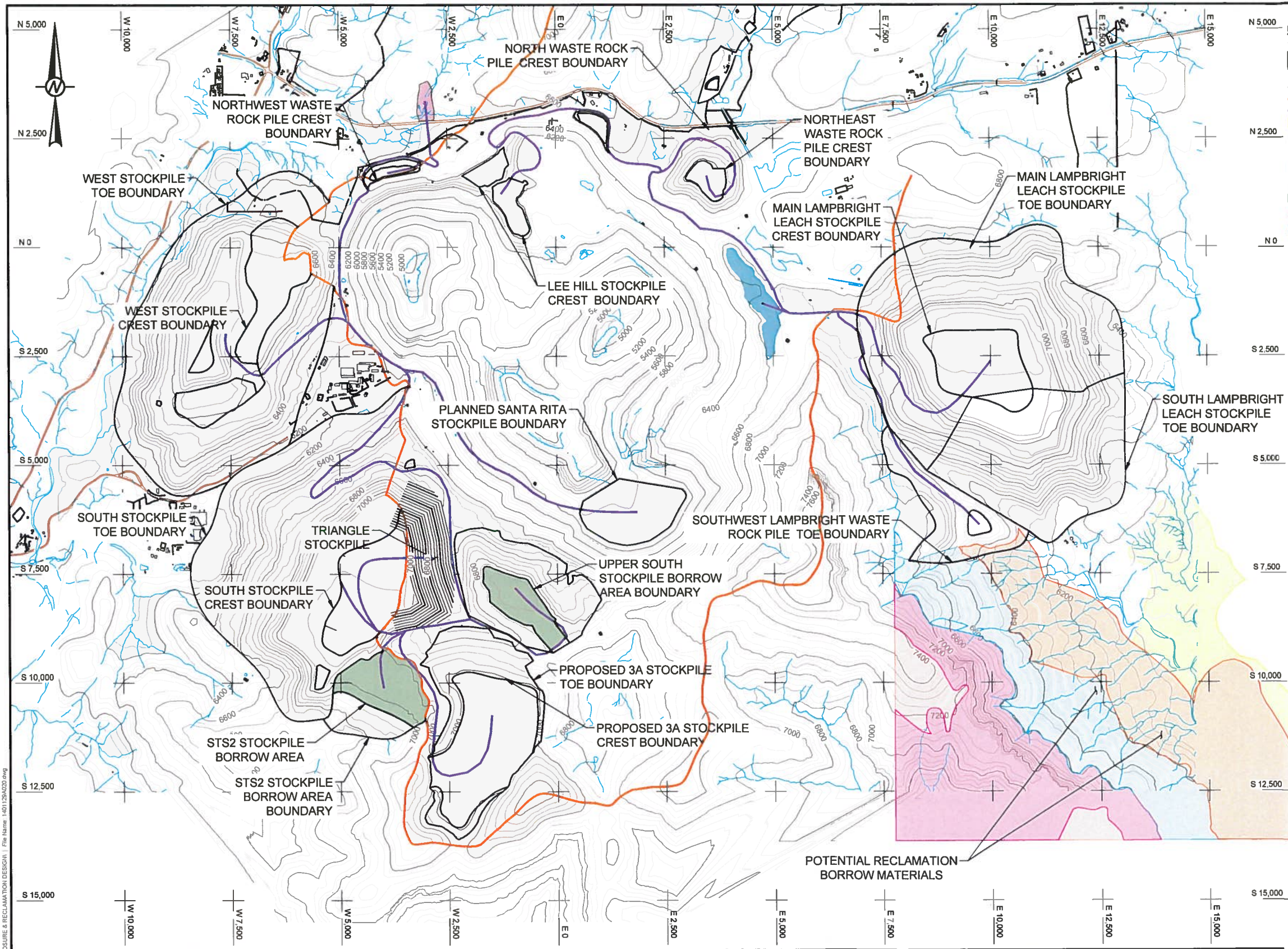
TITLE: SOUTH STOCKPILE, STS2 STOCKPILE AND TRIANGLE
STOCKPILE DESIGN SECTIONS (2 OF 2)

PROJECT No: 1401129 CONTROL

Rev. 5 of 30 C

FIGURE 006

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D 11 IN



LEGEND

- 5600 EOY 2018 TOPO
- BUILDINGS
- PAVED ROAD
- TOE AND TOP SURFACE OUTLINE
- EOY 2018 OPEN PIT SURFACE WATER DRAINAGE AREA
- COVER MATERIAL HAUL ROUTE
- RUBIO PEAK CONGLOMERATE
- RUBIO PEAK FLOWS (RIPRAP)
- SUGARLUMP TUFF (COVER BORROW AREA)
- BEAR SPRINGS BASALT (RIPRAP)
- KNEELING NUN TUFF (RIPRAP)
- UPPER SOUTH AND STS2 STOCKPILE COVER BORROW AREAS
- KEARNEY CULVERT FILL MATERIAL
- WHITE HOUSE TEMPORARY COVER STAGING AREA

REFERENCE

1. END OF YEAR 2018 TOPOGRAPHY 50 FOOT INTERVAL PROVIDED BY CHINO MINES CO.



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SEAL	CLIENT	CHINO MINES COMPANY				
	CONSULTANT	GOLDER				
D	2016-08-13	ADDRESS AGENCY COMMENTS	SAF	SAF	TMF	BRB
C	2016-04-12	INCORPORATE CLIENT COMMENTS & ISSUE FOR CLIENT REVIEW	DET	DET	TMF	BRB
Rev.	YYYY-MM-DD	DESCRIPTION	PREPARED	DESIGN	REVIEW	APPROVED

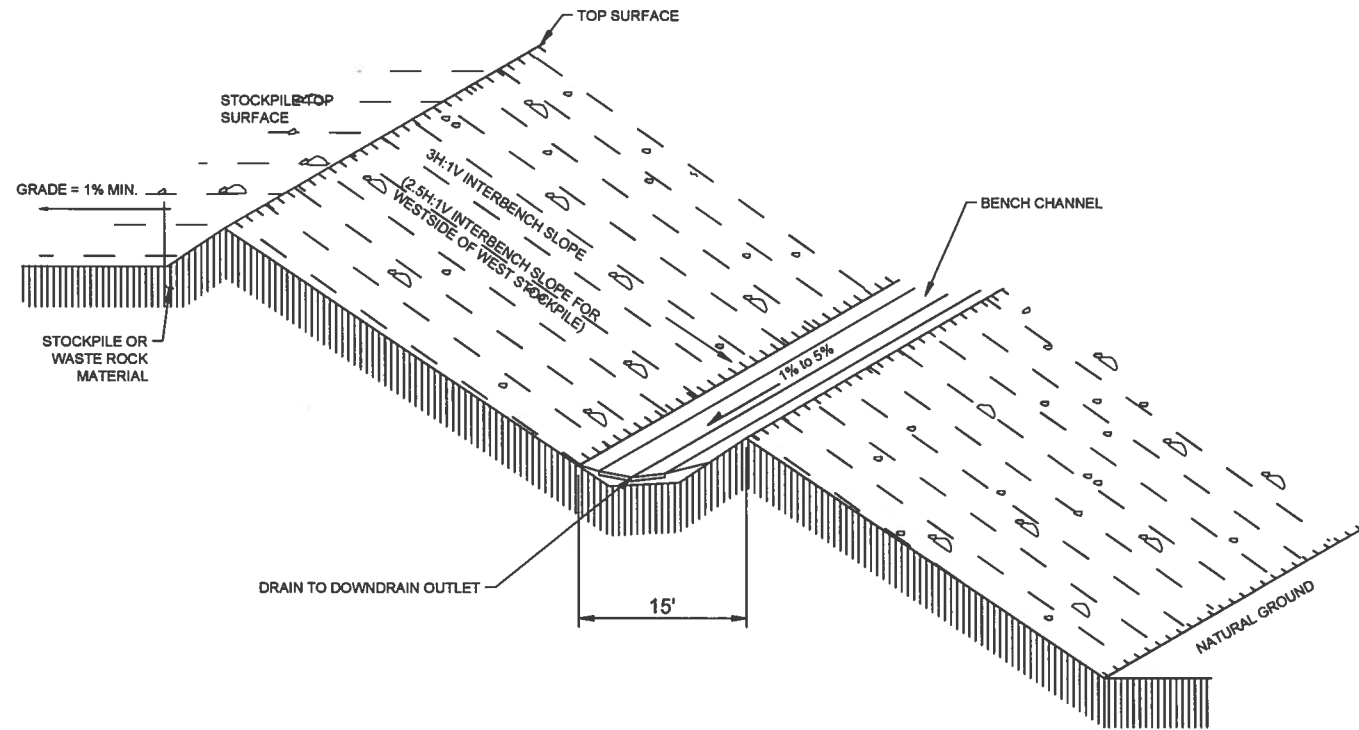
PROJECT
CHINO MINES AREA RECLAMATION
HURLEY, NEW MEXICO

TITLE
NORTH MINE AREA BORROW LOCATIONS AND HAUL ROUTES

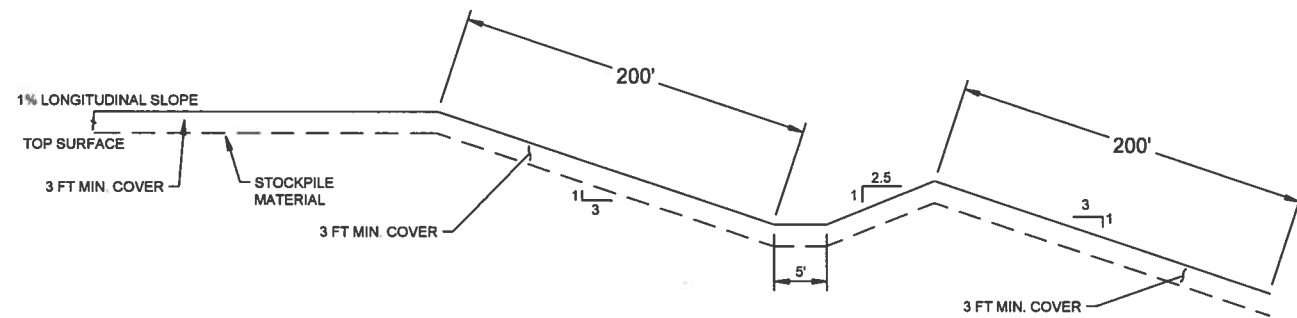
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USA 80228
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PROJECT No.	CONTROL	Rev.	21 of 30	FIGURE
1401129		D		021

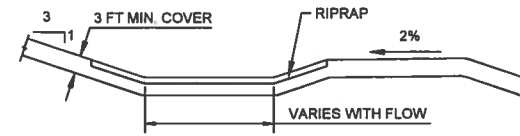
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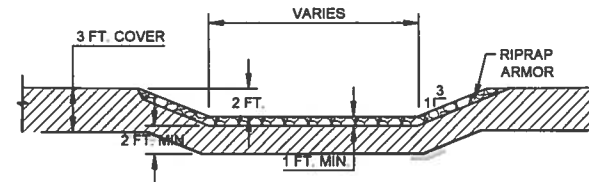
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022



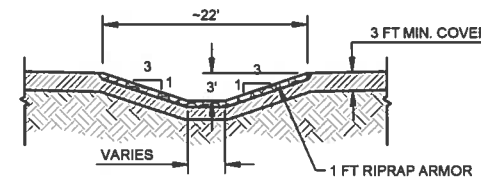
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022



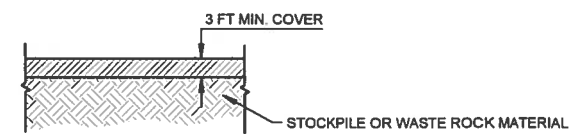
SCALE N.T.S. **3** TYPICAL OUTSLOPE BENCH
022



SCALE N.T.S. **4** DOWNDRAIN DETAIL
022



SCALE N.T.S. **5** WEST STOCKPILE - SOUTH STOCKPILE CONTACT SURFACE WATER CHANNEL
022



SCALE N.T.S. **6** RECLAMATION COVER DESIGN DETAIL
022

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

SEAL

CLIENT

CHINO MINES COMPANY

CONSULTANT

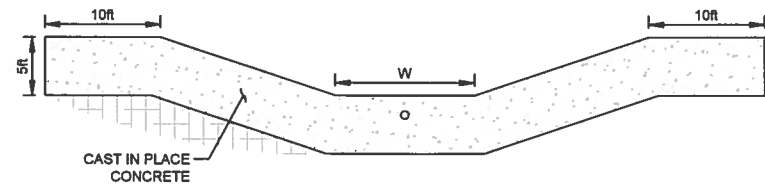


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Lakewood, Colorado
USA 80228
[+1] (303) 980 0540
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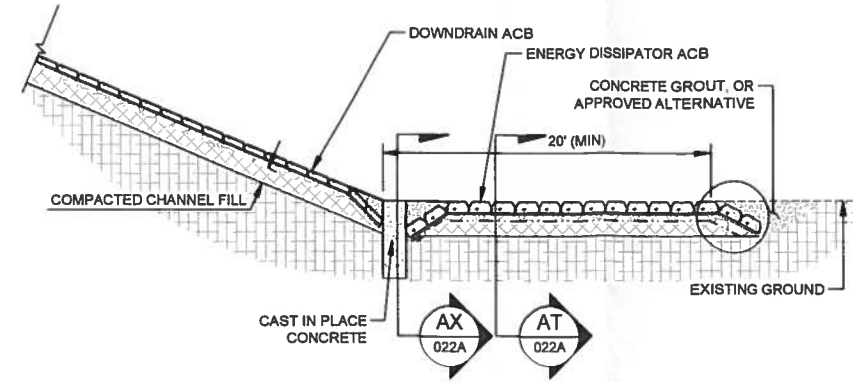
PROJECT
CHINO MINES AREA RECLAMATION
HURLEY, NEW MEXICO

TITLE
TYPICAL RECLAMATION GRADING DETAILS

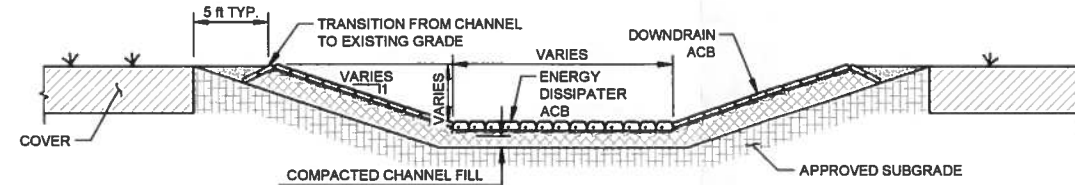
Rev	YYYY-MM-DD	DESCRIPTION	PREPARED	DESIGN	REVIEW	APPROVED
D	2018-08-13	ADDRESS AGENCY COMMENTS & CORRECT DETAILS 1 AND 2	SAF	SAF	TMF	BRB
C	2016-04-12	INCORPORATE CLIENT COMMENTS & ISSUE FOR CLIENT REVIEW	DET	DET	TMF	BRB



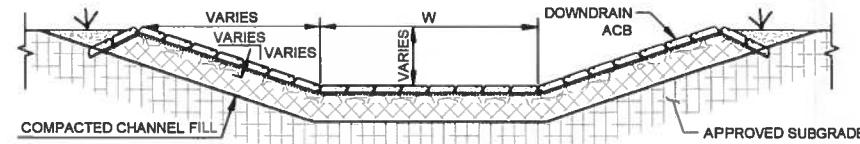
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022A



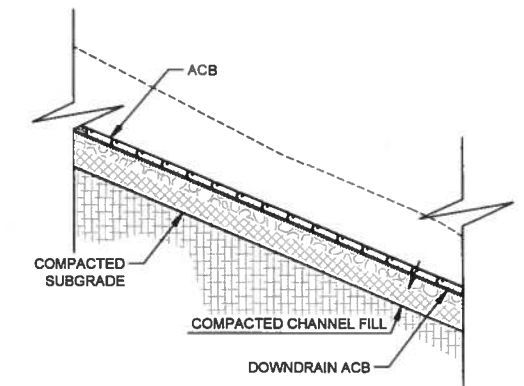
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022A



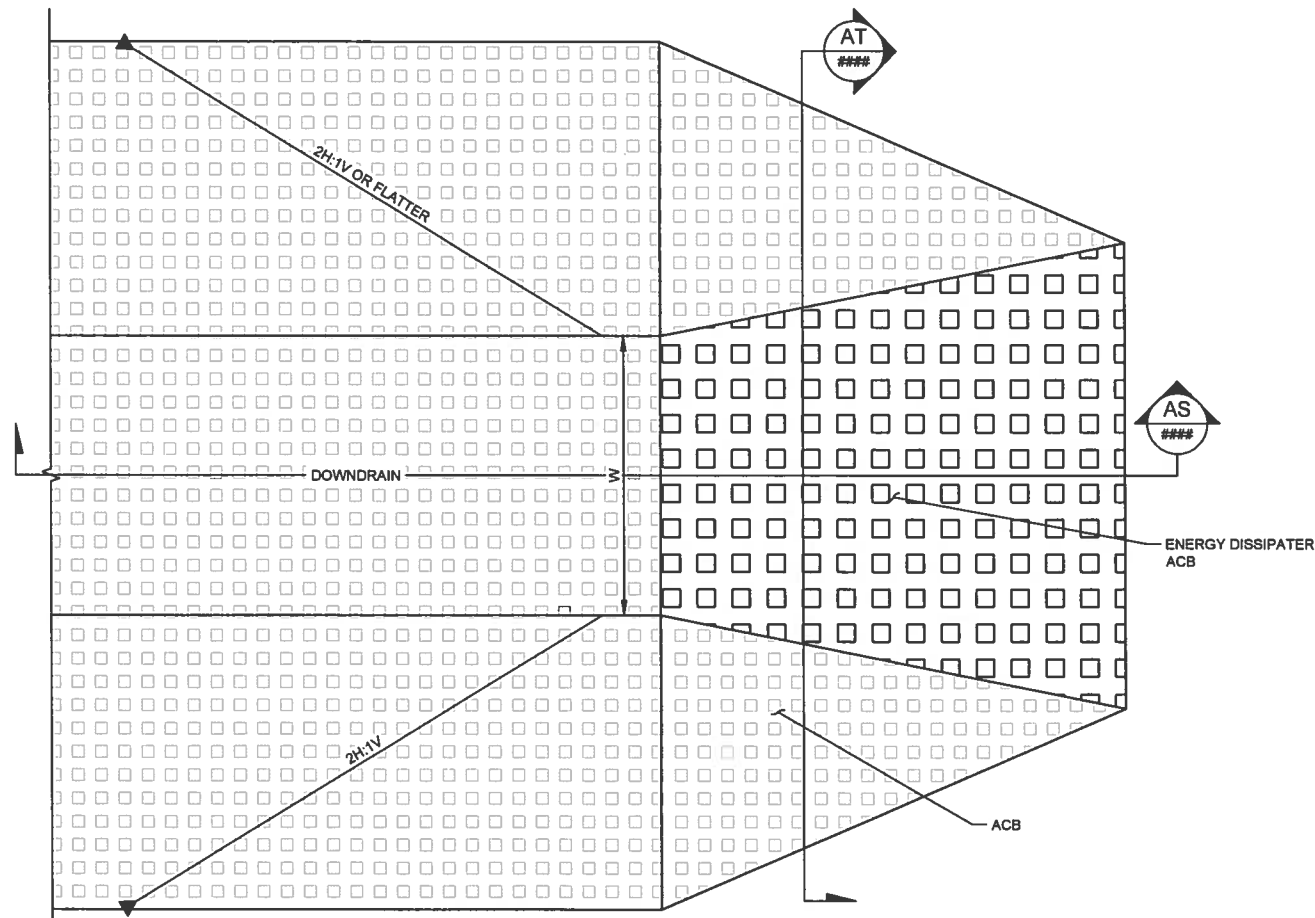
N.T.S. **AT** TYPICAL TOE ENERGY DISSIPATER SECTION
022A



N.T.S. **AU** TYPICAL DOWNDRAIN SECTION
022A



N.T.S. **7** DOWNDRAIN PROFILE DETAIL
022A



N.T.S. **8** TYPICAL TOE ENERGY DISSIPATER PLAN DETAIL
022A

CLIENT

CHINO MINES COMPANY

CONSULTANT



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Lakewood, Colorado
USA 80228
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PROJECT

CHINO MINES AREA RECLAMATION
HURLEY, NEW MEXICO

TITLE

TOE ENERGY DISSIPATER - TYPICAL SECTIONS AND DETAILS

PROJECT NO
1401129

CONTROL

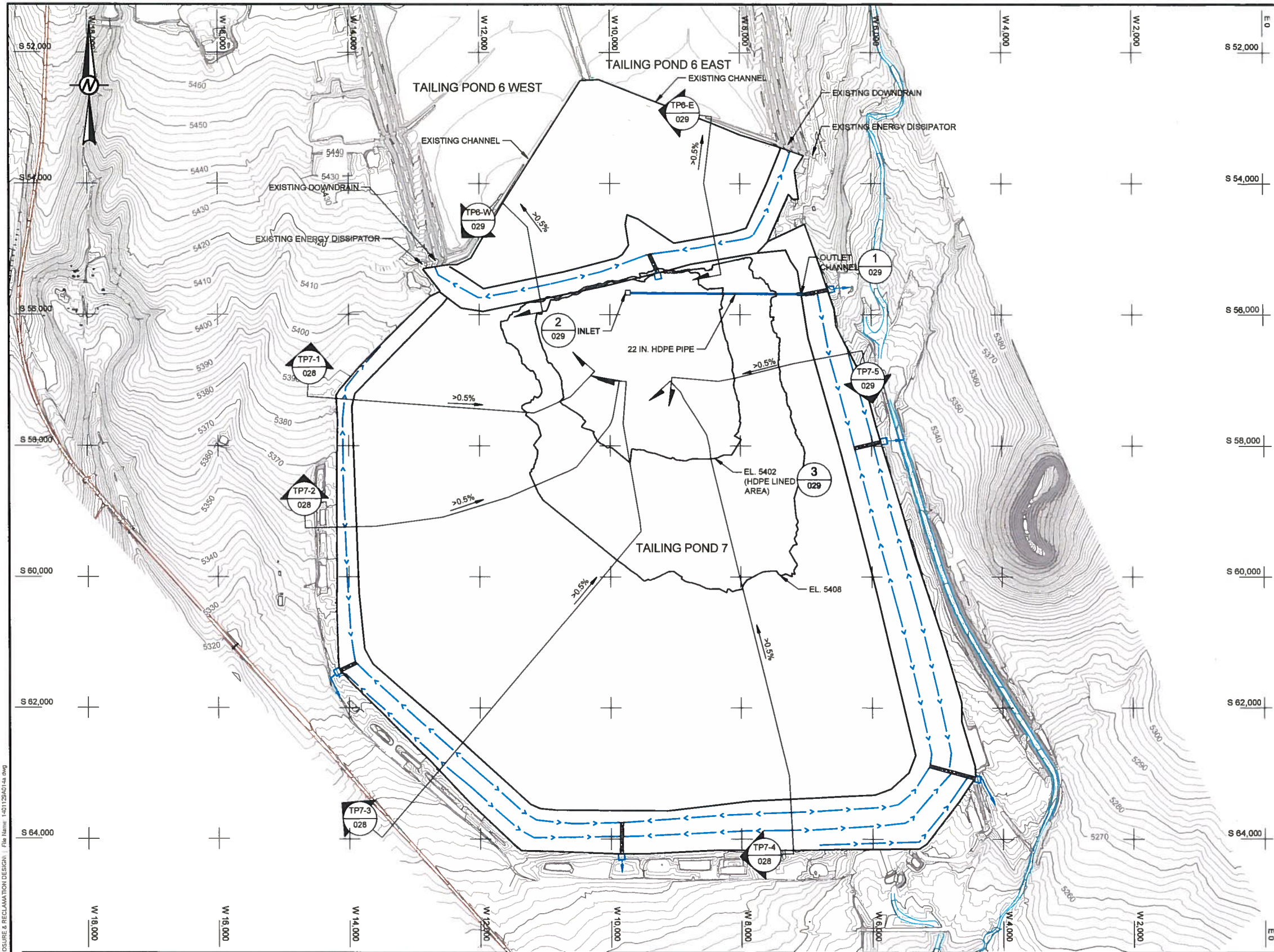
REV. 22A of 30
A

FIGURE
022A

REV. 2018-08-14 ADDRESS AGENCY COMMENTS

DESIGNED SAF SAF TMF BRB
PREPARED REVIEWED APPROVED

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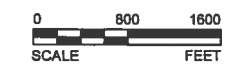


LEGEND

- EOY 2018 TOPO
- BUILDINGS
- PAVED ROAD
- DOWNDRAIN OUTFLOW
- EXISTING DRAINAGE
- BENCH CHANNEL
- DOWNDRAIN
- ENERGY DISSIPATOR
- CROSS SECTION LETTER
- SHEET WHERE SECTION IS REFERENCED
- DETAIL NUMBER
- SHEET WHERE DETAIL IS REFERENCED

REFERENCE

1. END OF YEAR 2018 TOPOGRAPHY 5 FOOT INTERVAL PROVIDED BY CHINO MINES CO.



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SEAL _____ CLIENT _____
CHINO MINES COMPANY

CONSULTANT _____
GOLDER
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 Lakewood, Colorado
 USA 80228
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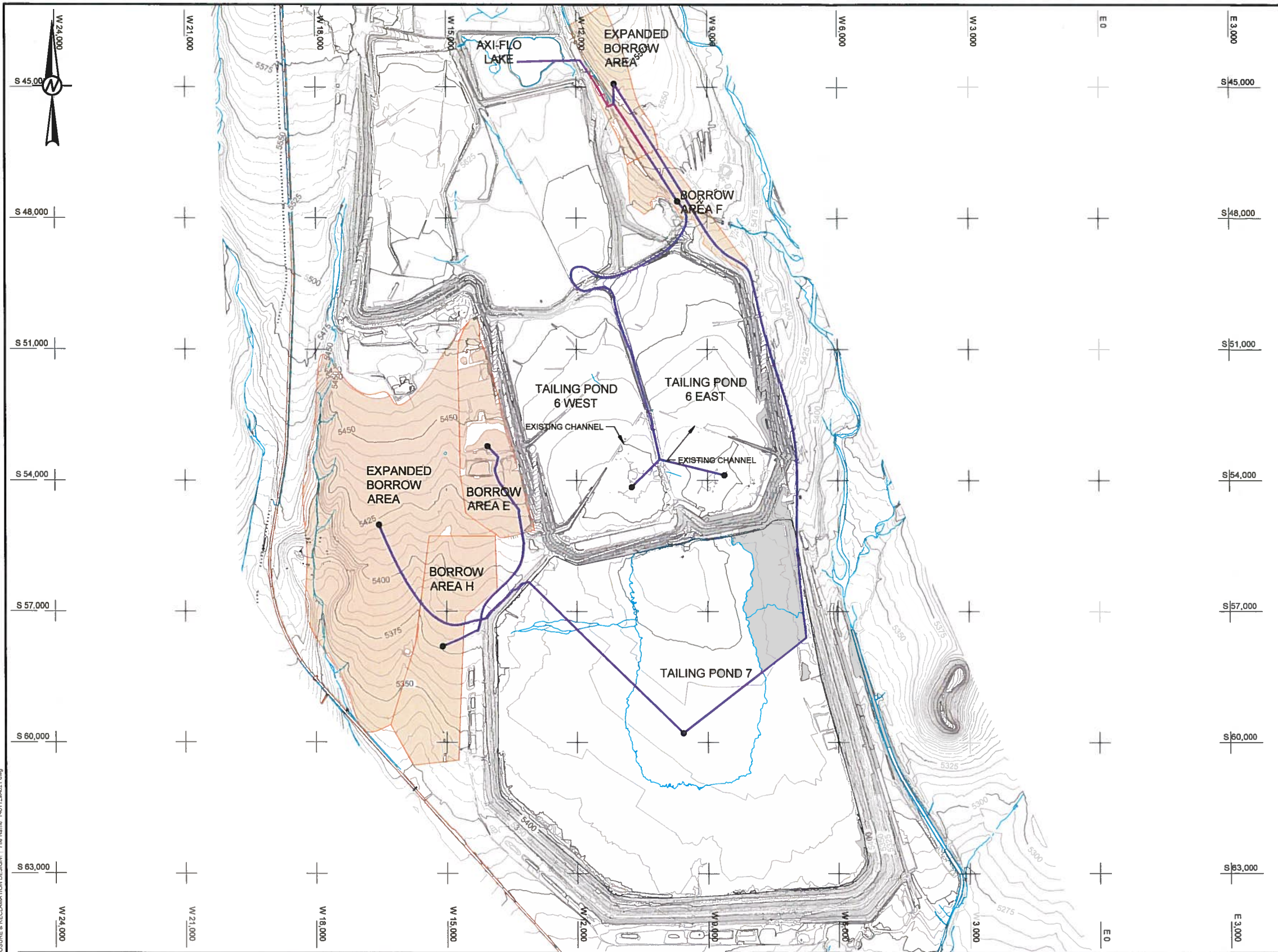
PROJECT
**CHINO MINES AREA RECLAMATION
 HURLEY, NEW MEXICO**

TITLE
**TAILING POND 6 EAST, 6 WEST AND 7 GRADING AND
 DRAINAGE PLAN**

PROJECT No. 1401129 CONTROL Rev. D 27 of 30 FIGURE 027

Rev.	YYYY-MM-DD	DESCRIPTION	PREPARED	DESIGN	REVIEW	APPROVED
D	2018-08-13	ADDRESS AGENCY COMMENTS	SAF	SAF	TMF	BRB
C	2016-04-12	INCORPORATE CLIENT COMMENTS & ISSUE FOR CLIENT REVIEW	DET	DET	TMF	BRB

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



LEGEND

	EOY 2018 TOPO
	BUILDINGS
	PAVED ROAD
	COVER MATERIAL HAUL ROUTE
	BORROW AREA

REFERENCE
 1. END OF YEAR 2018 TOPOGRAPHY 5 FOOT INTERVAL PROVIDED BY CHINO MINES CO.



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SEAL	CLIENT					
CHINO MINES COMPANY						
CONSULTANT						
DENVER OFFICE 44 Union Boulevard, Suite 300 Lakewood, Colorado USA 80228 [+1] (303) 980 0540 www.golder.com						
D	2018-08-13	ADDRESS AGENCY COMMENTS	SAF	SAF	TMF	BRB
C	2016-04-12	INCORPORATE CLIENT COMMENTS & ISSUE FOR CLIENT REVIEW	DET	DET	TMF	BRB
Rev.	YYYY-MM-DD	DESCRIPTION	PREPARED	DESIGN	REVIEW	APPROVED

PROJECT
CHINO MINES AREA RECLAMATION
HURLEY, NEW MEXICO

TITLE
SOUTH MINE AREA BORROW AREAS & HAUL ROUTES

PROJECT No. 1401129 CONTROL Rev. D 30 of 30 FIGURE 030

1 in. = 1 in. IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D



F&M **FREEPORT-McMORAN**

CHINO MINES COMPANY

STS2 Stockpile Reclamation Cover Material
Boundary-Aerial Photo

Scale: As Noted	Date: 7-10-2018	Notes:
Dept. Environmental Services		
Drawn By: SMG	Checked By: RLM	