



Freeport-McMoRan Tyrone Inc.
P.O. Drawer 571
Tyrone, NM 88065



July 30, 2019

Certified Mail #9171999991703580022478
Return Receipt Requested

Mr. David Ohori
New Mexico Energy, Minerals and Natural Resources Department
Mining and Minerals Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Dear Mr. Ohori:

Re: Modification to the Closeout Plan GR010RE; Construction of the CSG Stockpile

In a letter dated June 26, 2019, Tyrone applied for a modification to permit GR010RE for the construction of the CSG Stockpile. The New Mexico Environment Department (NMED) and Mining and Minerals Division (MMD), provided Freeport-McMoRan Tyrone Inc. (Tyrone) with verbal feedback on this application during July 2019. This letter is intended to replace the original application as a result of this feedback.

Tyrone is proposing to extend the 5A Stockpile to the north by constructing the CSG Stockpile with Gila Conglomerate cover material (Gila) (see Figure 1). This will be a cover material or borrow stockpile (as per 19.10.1.7.M.3) and will be located within the Tyrone Mine permit and design limit boundaries and on existing disturbed land (see Figure 1 - showing general mine area and project area). The CSG Stockpile will be approximately 87.2 acres in size, of which approximately 49.3 acres will be located within the existing and approved 5A Stockpile footprint and approximately 55.7 acres will be located within the 2013 Tyrone CCP reclaimed footprints (old Mill Site, 5A and 3A/3B Stockpiles).

Tyrone is currently mining in the area called '5A Stockpile' and 'Mohawk Area' (Figures 3 and 4) and during the natural progression of mining Tyrone will encounter Gila. The material to be placed in the CSG Stockpile will be mined from the Mohawk Pit Expansion (including areas shown as 5A Stockpile and the 'Mohawk Area' (see Figures 3 and 4)) Construction of this stockpile will allow continued mining at the Tyrone Mine and facilitate future reclamation by providing a source of borrow material proximal to facilities that will be reclaimed. Tyrone is seeking MMD concurrence that the proposed CSG Stockpile does not require additional financial assurance (FA) for this facility because creating this stockpile will actually decrease reclamation costs. A check for \$1,000 for the permit modification fee was submitted June 26, 2019.

Environmental Opportunity

The proposal to establish this location as a borrow material stockpile would facilitate closure of the nearby leach and waste rock stockpiles. The new Gila borrow material source will be excavated from approximately 50 feet below the existing 5A Stockpile, the overlying 5A Stockpile material will be placed in areas permitted for sulfide waste. Tyrone has successfully demonstrated the use of this material for cover material in both test plots and large-scale reclamation. Gila borrow material was successfully used for a number of reclamation projects at Tyrone including the #1 Stockpile, 1C/7A Stockpile Unit, and the tailing dams.

Staging borrow material closer to reclamation sites reduces the overall hauling cost directly reducing FA (see Table 1). It also results in reduced fuel consumption and associated emissions during reclamation.

The CSG Stockpile will be constructed at angle of repose and Tyrone intends to use the borrow material placed in the proposed CSG Stockpile for future reclamation projects. At closure the borrow material within the stockpile will be excavated for use in reclamation or regraded in a manner that facilitates reclamation (see Figure 5). The sites that are likely to receive material from the CSG Stockpile include the 5A, 3A, 3B, and 2A/2B Stockpiles. The haul distance to these stockpiles is closer than the currently approved Closure/Closeout Plan's haul distance to access cover material. The cover requirement for the Tyrone Mine is approximately 13 million yd³ based on the current permit requirements.

The material from the CSG Stockpile that covers the existing 5A Stockpile will be re-graded to achieve the final reclaimed surface topography and become the final cover. This will reduce the amount of cover required and the amount of stockpile regrading at the existing 5A Stockpile. The material that will be removed from the Mohawk Area (Figure 3 and 4) will also result in a larger pit waiver area. These activities will result in a decrease in FA required at Tyrone Mine by approximately \$1.4M.

Table 1: CSG Stockpile FA Summary				
Task	Current Cost (May 2019 Submittal)	Savings/Acre	Total Savings	Comments
Regrade Stockpile	\$ 3,124,017	\$ 8,421	\$ 463,129	Only area covered by CSG
Cover Haulage	\$ 1,964,244	\$ 5,294	\$ 291,195	Only area covered by CSG
Cover Haulage	NA	NA	\$ 619,433	Reduction in Haul Distance
Vegetation Costs	\$ 880,646	\$ (1,071)	\$ (34,277)	Increase in Cost, Currently in FA
¹ Change in Waiver	NA	\$ 6,438	\$ 218,891	
Change in Channels	NA	NA	\$ (137,982)	Assume 10% Increase in Channel Lengths (~9.2% Change in Outslope Acreage)
Total Estimated Savings			\$ 1,420,389	
CSG Stockpile Area		87 acres		
5A +3A/3B Stockpile Acres Covered by CSG		55 acres		
Current 5A Stockpile Area		371 acres		
Acres Outside Current Reclaimed 5A & 3A/3B Footprints		32 acres		
Waiver Area Change (Decrease)		34 acres		
¹ Assumes Top Surface for Regrading Stockpile and Cover				

Regulatory Land Status

Tyrone is regulated by the MMD under Permit GR010RE. The CSG Stockpile will not be a discharging facility for purposes of the Water Quality Control Commission Ground Water Regulations because the stockpiled material will not discharge contaminants at levels in excess of ground water quality standards. The CSG Stockpile occurs within the MMD approved Tyrone Mine design limit boundary. The CSG Stockpile is also located on land owned by Tyrone. The CSG Stockpile is for storing borrow materials used for reclamation.

Existing Conditions

Mine Facilities

The CSG Stockpile will be constructed adjacent to the existing 5A Stockpile (Figure 1, location map) and east of the 3A Leach Stockpile. The CSG Stockpile footprint during operations is approximately 87.2 acres in size when placed at angle of repose. The stockpile will be constructed on currently disturbed ground, some of which was already reclaimed (Mill Site).

Climate, Soils and Vegetation

Information on the climate, soils and vegetation at Tyrone can be found in the 2013 Tyrone CCP Update that was submitted in 2015.

Geology

The Gila borrow material that will be used to construct the CSG Stockpile will be derived from the Tyrone Mine. The Gila Conglomerate and associated soils and Precambrian granite are the principal cover materials identified for use at the Tyrone Mine.

The Gila Conglomerate Formation, the oldest of the younger sedimentary rocks, is a semi-consolidated unit that was deposited as basin fill and fan sediments derived from late Tertiary and earlier uplifts. The youngest sedimentary units are unconsolidated and were deposited unconformably on Gila Conglomerate and as valley fill along present-day drainages.

Physically, the fine-earth fraction (i.e., <2mm) of the Gila Conglomerate and associated soils is dominantly moderately coarse-textured and mainly represented by loamy sand and sandy loam textures. Fine-, moderately fine- and coarse-textured soils also occur locally. In general, the coarse textured soils are more prevalent in and around the mine area, and the somewhat finer textured soils tend to occur on the flanks of the Little Burro Mountains east of the tailing dams. The soils around Tyrone typically contain about 30 to 50 percent rock fragments (>2 mm diameter) by volume. Saturation percentages for the soils generally range from 18 to 75 percent.

Chemically, the Gila Conglomerate and associated soils have few inherent limitations. The pH of the soils range from about 5.0 to 7.8 and the salinity levels are low (0.2 to 3.8 dS/m). These materials are universally nonsodic and have favorable calcium to magnesium ratios. Soluble selenium and boron levels are low. The materials range from noncalcareous to calcareous and contain 0.5 to 9.2 percent calcium carbonate equivalent. The highest levels of CaCO₃ are found in the subsurface of the soils in the Mangas Valley.

Groundwater and Storm Water

The reclamation borrow material placed at this location will meet all regulations and conditions specified for the approved Gila. The water chemistry of meteoric water that comes into contact with the reclamation borrow material will not be affected. There will be no surface water discharges of stormwater runoff from the stockpile, as all runoff will be contained and recycled into the Tyrone Mine water management system. Similarly, groundwater will not be affected. There are no perennial streams present in the CSG Stockpile watershed.

Stockpile Construction and Closure

Operational Stockpile Construction

The operational phase of the CSG Stockpile is scheduled to begin in early September 2019. To ensure that non-acid generating material is placed at the CSG Stockpile and used as cover, Tyrone will utilize the following material handling plan:

- The current 5A Stockpile material, as of today, contains zones of Gila and acid generating waste rock. To simplify the procedure, Tyrone's mine planners, geologists, and mine operations will target only natural deposits of Gila Conglomerate well below the 5A Stockpile material to be placed on the CSG Stockpile:
 - Material located approximately 50 ft. below the existing 5A Stockpile and lower will be placed at CSG Stockpile.
 - Geologist and engineers will utilize a geology block model to assist in identifying the natural deposits of Gila.
 - Block model incorporates all of the available geologic information into what can be considered the best geologic and mineralogical interpretation of the deposit
 - Quality Control (QC) testing will confirm results
 - Targets for Gila will be identified in the field (flags) and/or in the dispatch system utilizing the geology block model.
 - Shovel operator will selectively mine Gila
 - Shovel operator will designate where each truck is to haul material to based on type of material identified by the block model
- Conduct a pre-stockpile as-built survey of the CSG Stockpile area.
 - Maps will be submitted to the state within 30 days of starting construction of the CSG Stockpile.
- Conduct QC testing at the shovel pit two times a day while mining Gila.
 - Visual inspections for sulfide rock by the Geologist or other qualified professional.
 - If sulfide material is observed in the pit, the material will be routed to an approved sulfide waste stockpile.
 - pH testing by the Geologist or other qualified professional.
 - Utilizing a Hellige-Truog Soil Reaction (pH) Tester
 - pH \geq 5.0 is considered cover material
 - If material with pH < 5.0 is identified, it will be routed to areas permitted for sulfide waste.

- Conduct Quality Assurance (QA) testing at the CSG Stockpile material by the Geologist or other qualified professional two times a day, while mining Gila.
 - Visual inspections
 - pH testing
- Prepare a quarterly report on volume of material placed, pH results, and results of visual inspections.
- Prepare post-stockpile as-built survey of CSG Stockpile area.
 - Maps will be submitted to the state within 30 days of full construction of the CSG Stockpile.
- Additional QC and QA will be completed at closure.

At full build-out, the stockpile will contain an estimated 32 million tons of potential borrow material and occupy approximately 87.2 acres (49.3 of those acres will occur within the existing 5A Stockpile footprint), resulting in a stockpile expansion of approximately 37.9 acres. This acreage includes other disturbance required for the construction of the CSG Stockpile (see Figure 2, 'Stockpile Boundary'), including but not limited to:

- Access road(s)
- Pipeline and other utility corridor(s)
- Stormwater channels and BMP's
- Berms to prevent material from entering the Mangas Wash and existing ponds

The CSG Stockpile will have a maximum thickness of approximately 355 feet (Figure 5). The borrow material will be placed at angle of repose to maximize the stockpile capacity. During the operational phase of stockpile construction, stormwater will be controlled to meet the requirements of Tyrone's coverage under the Multisector General Stormwater permit (MSGP).

As the stockpile construction progresses, Tyrone will move or demolish facilities found within the stockpile's footprint (buildings, powerlines, etc.), as needed.

Site Stabilization and Revegetation

Tyrone plans to use the CSG Stockpile as a borrow source for future reclamation projects due to its close proximity to other stockpiles. In the unlikely event of a default scenario, MMD would remove most of the CSG Stockpile and haul the cover material to the 5A, 3A/3B, and 2A Stockpiles, resulting in a shorter cover haul distance. The CSG Stockpile would be removed in a way to further facilitate reclamation of the CSG Stockpile by removing or regrading the material to an overall 3.5H:1V configuration. These activities will result in a decrease in reclamation cost for these stockpiles (see Table 1). Figure 5 illustrates the conceptual designs for the slope configuration. The final closure designs will be submitted prior to reclamation.

The CSG Stockpile will be constructed from Gila reclamation borrow material from the Tyrone Mine with no potential to release acid solution. Revegetation will be accomplished using the methods specified in Appendix C of Permit Revision 01-1 and Permit Modification 06-3 to Permit GR010RE to meet the approved post-mining land use.

Conceptual Closure Cost Estimate

The 5A Stockpile and Mill Site currently have FA for their closure and the construction of CSG Stockpile will further reduce the FA required at Tyrone Mine. Therefore, Tyrone does not propose additional FA for the construction of the CSG Stockpile (see Table 1).

Summary

As a normal course of practice, Tyrone continuously evaluates its mine plans in response to ongoing business needs. Approval of this modification will result in operational and reclamation opportunities. To maximize the volume of Gila stockpiled for future reclamation use, Tyrone needs this permit approved in early September.

The MMD and New Mexico Department of Game and Fish inspected the site of the CSG Stockpile on May 30, 2019 (see Figure 1, 'Updated CSG Stockpile Boundary'). The 'Updated CSG Stockpile Boundary' includes all disturbance required for the construction of the CSG Stockpile, including but not limited to berms, stormwater channels, BMP's, etc. The actual footprint of the CSG Stockpile maybe smaller than the 'Updated CSG Stockpile Boundary' to accommodate all other disturbance, as needed.

In Tyrone's May 6, 2019 Closure/Closeout Plan (CCP) Earthwork Cost Estimate Update submittal and during the May inspection, Tyrone referred to this area as the 'Mill Site Stockpile'. The Tyrone CCP will be updated to reflect the name and design change in a later submittal (see Figure 1, 'Old Stockpile Boundary' used in the May CCP submittal).

Thank you for taking the time to review this modification request and Tyrone looks forward to discussing this proposal in the near future. If you have any questions, please contact Ms. Mandy Lilla at (575) 912-5388 or mlilla@fmi.com.

Sincerely,



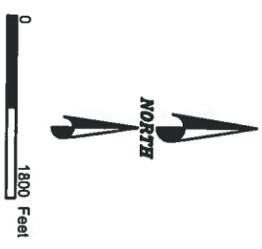
Anna McMullen
Environmental Manager
Environmental Services

AM:mjl
Attachments
20190730-100

c: Holland Shepherd - MMD
Kurt Vollbrecht - NMED
Keith Elhert - NMED

Attachment A

CSG Stockpile Figures

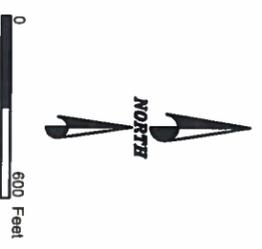
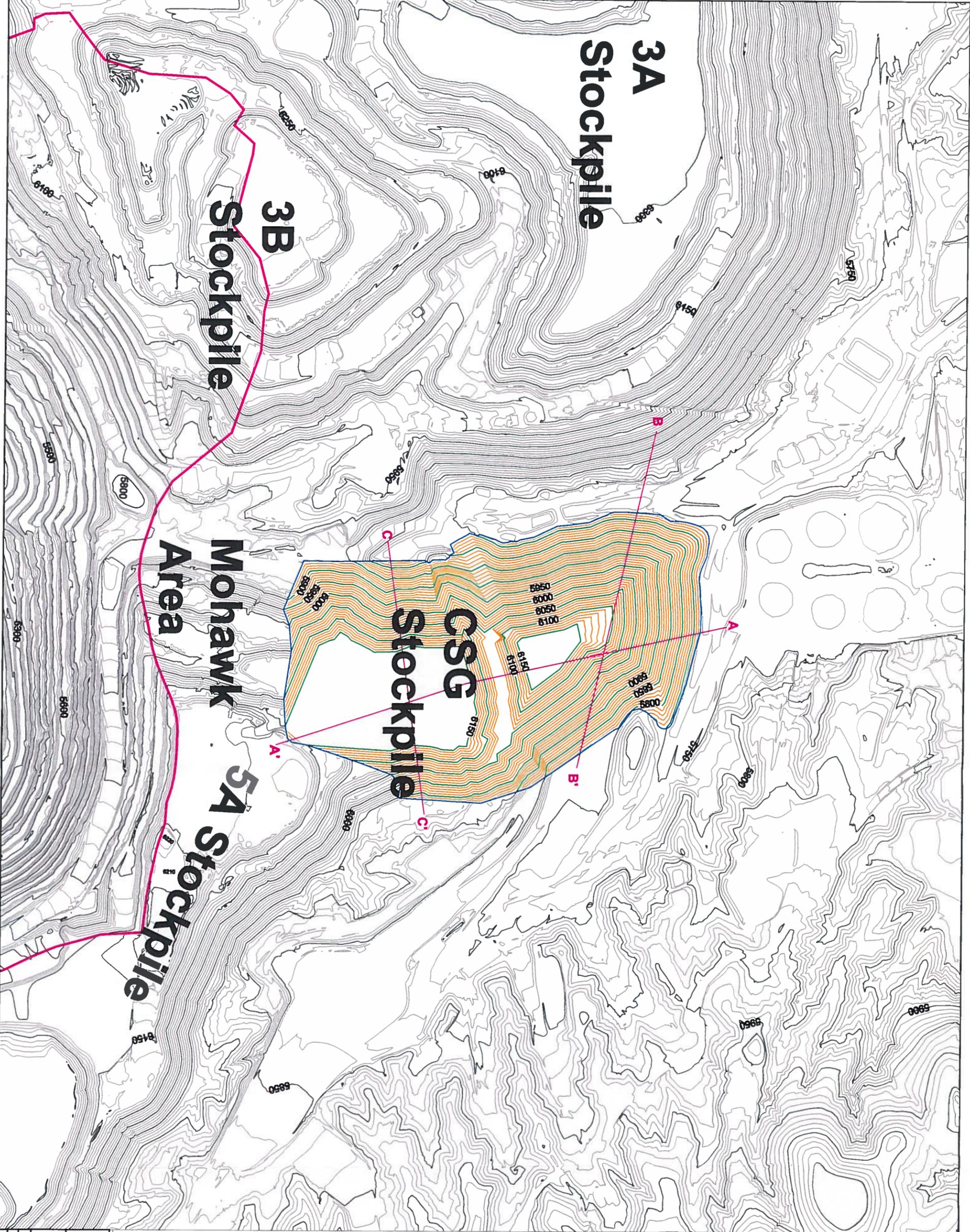


- Legend**
- Updated CSG Stockpile Boundary
 - 2018 Pit Waiver
 - Cross-Sections Areas
 - Old Stockpile Boundary

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Figure 1: General Mine and Project Area

Scale:	As Noted	Date:	6-18-2019	Notes:	
Dept:	Reclamation	Drawn By:	ms	Checked By:	ms

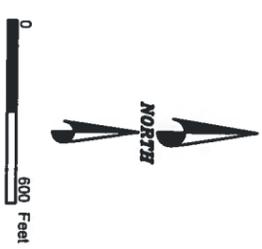
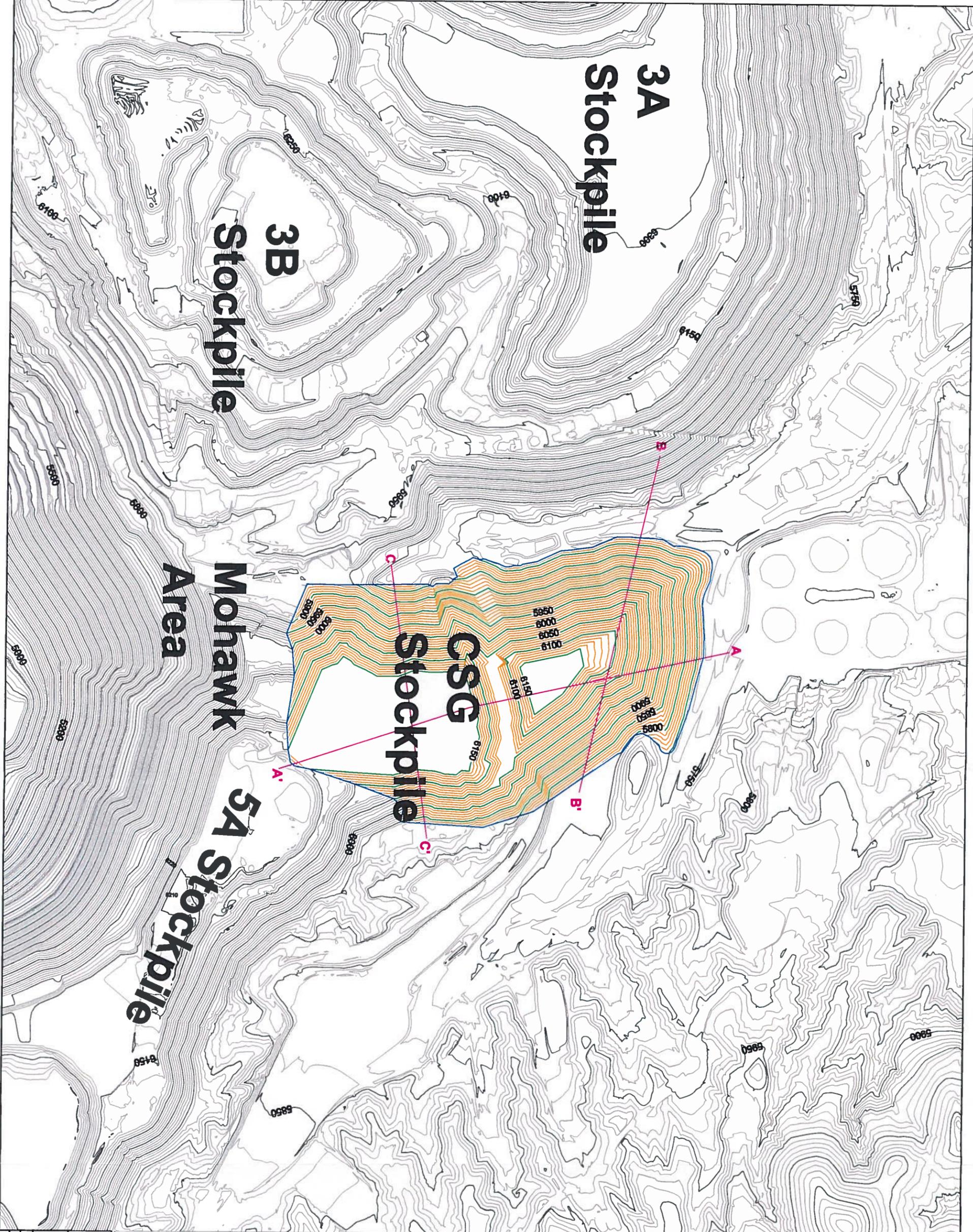


- Legend**
- 5900 Major Contour Topo Contour (50ft)
 - 6000 Minor Existing Topo Contour (10ft)
 - 5900 Major Stockpile Contour (50ft)
 - Minor Stockpile Contour (10ft)
 - Stockpile Boundary
 - A-A' Cross-Sections Areas
 - B-B' Cross-Sections Areas
 - C-C' Cross-Sections Areas
 - 2018 Pit Waiver

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Figure 2: CSG Stockpile – Full Build Out

Scale:	As Noted	Date:	8-18-2019	Notes:
Dept:	Reclamation	Drawn By:	uz	Checked By:
January 2019 Topo				

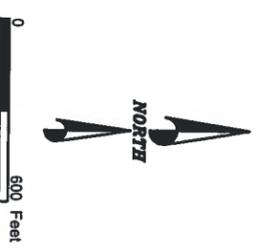
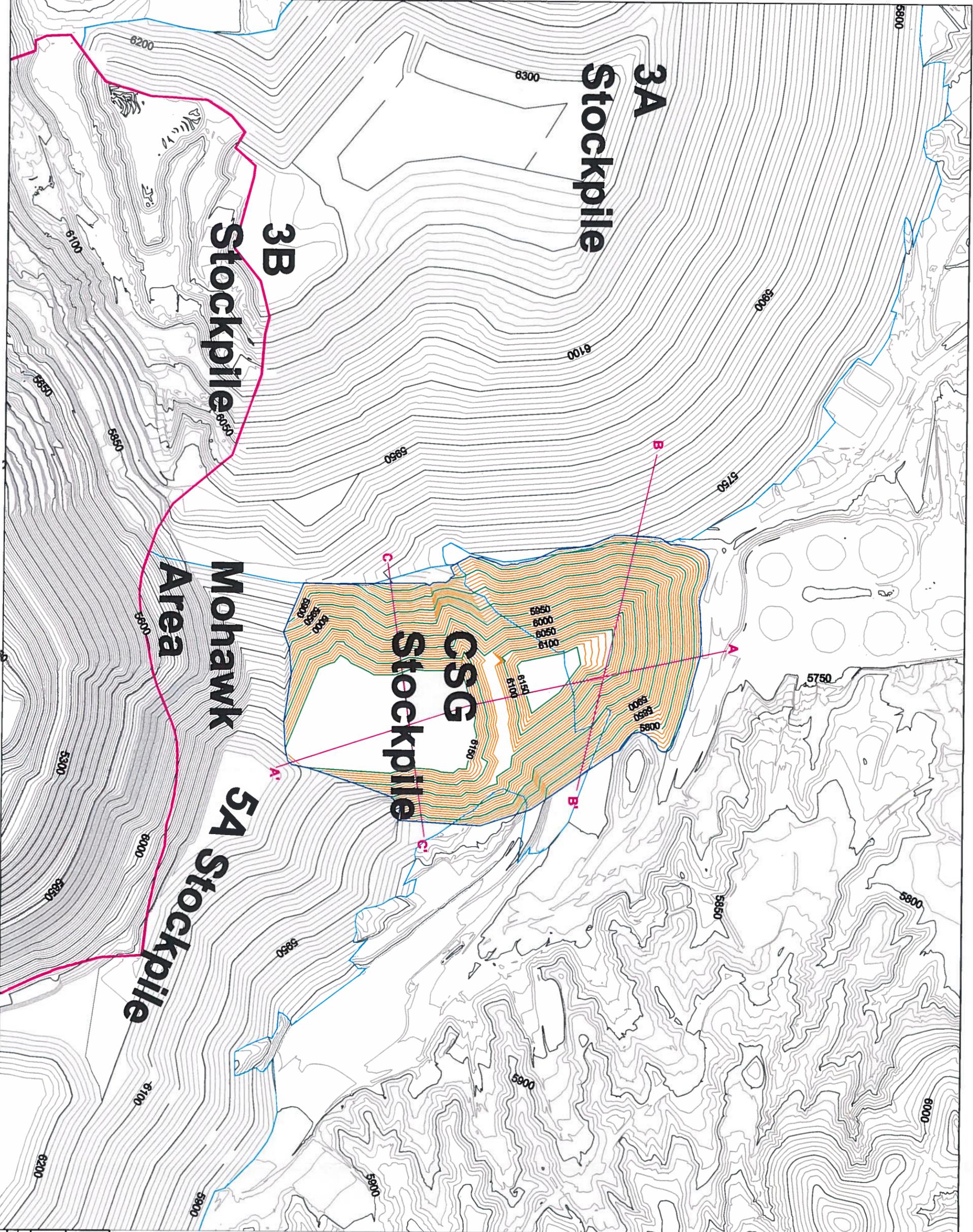


- Legend**
- 5000 — Major Contour Topo Contour (50ft)
 - 6000 — Minor Existing Topo Contour (10ft)
 - 5000 — Major Stockpile Contour (50ft)
 - 6000 — Minor Stockpile Contour (10ft)
 - Stockpile Boundary
 - A-A' Cross-Sections Areas

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Figure 3: CSG Stockpile – Full Build Out

Scale: As Noted Date: 6-18-2019 Notes: EOY 2022 Topo
 Dept: Reclamation Drawn By: xxx Checked By: xxx

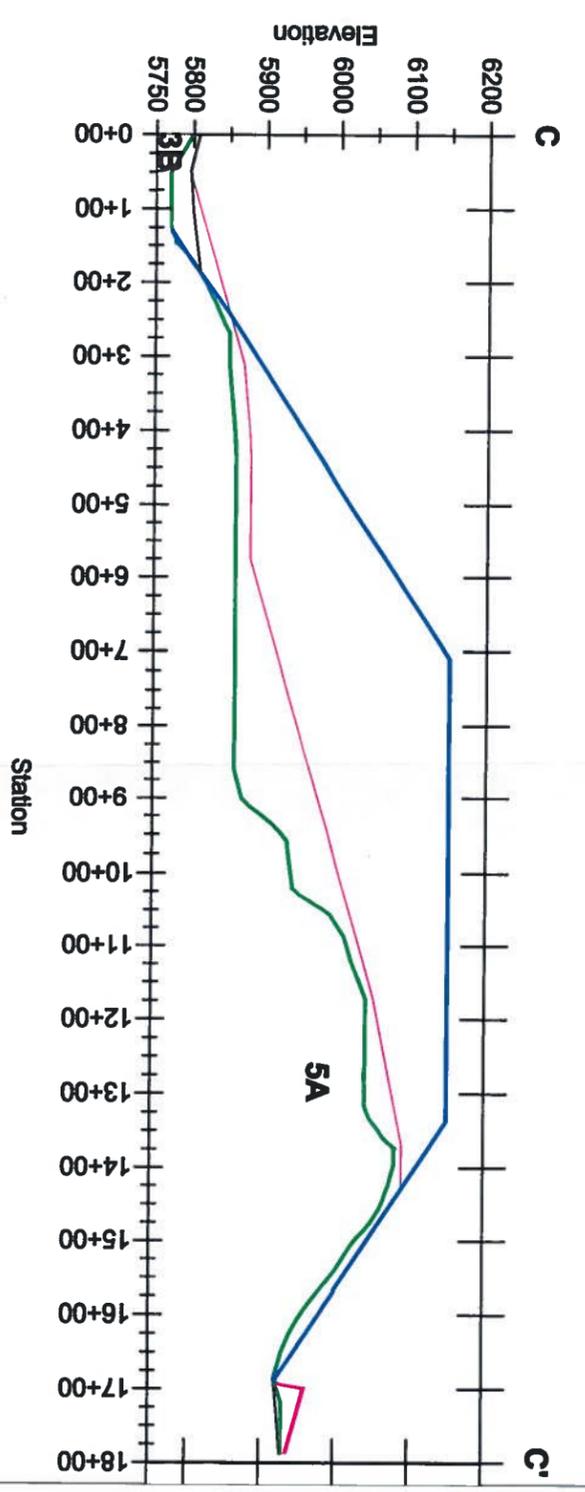
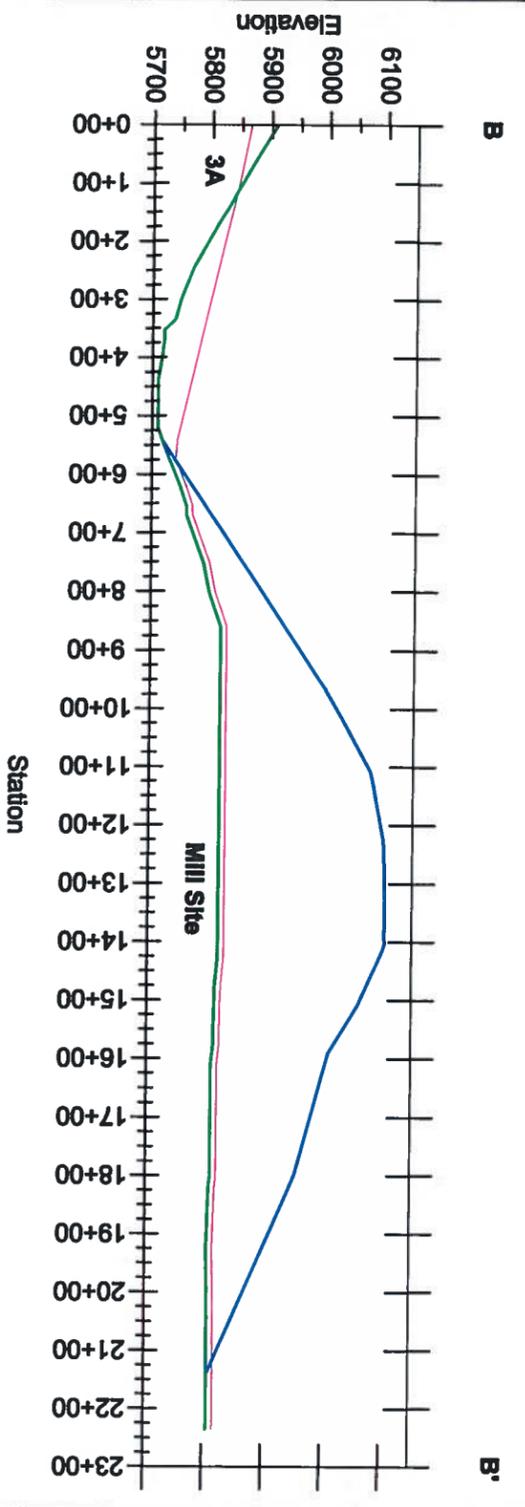
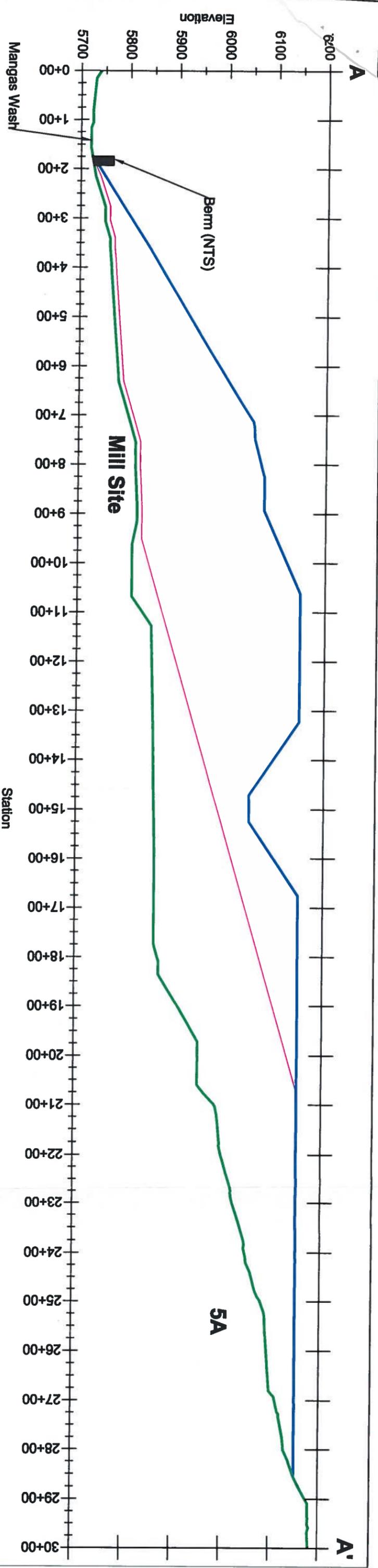


- Legend**
- 5900 Major Contour Topo Contour (50ft)
 - 6000 Minor Existing Topo Contour (10ft)
 - 6000 Major Stockpile Contour (50ft)
 - Minor Stockpile Contour (10ft)
 - Stockpile Boundary
 - Cross-Sections Areas
 - A-A' 2018 Pit Waiver
 - B-B' 5A & 3A/3B Reclaim Footprints
 - C-C'

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Figure 4: CSG Stockpile – Reclaimed 5A & 3A/3B

Scale: As Noted	Date: 6-18-2019	Notes: EOY 2022 Topo
Dept: Reclamation	Checked By: xxx	
Drawn By: xxx		



Legend

— CSG Stockpile

— Existing Topography

— Closure Topography

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Figure 5: Cross-Sections CSG Stockpile

Scale:	As Noted	Date:	7-29-2018	Notes:	
Dept:	Reclamation	Drawn By:	mm	Checked By:	mm