AMADOR COUNTY, CALIFORNIA

IONE QUARRY EXPANSION PROJECT

PROJECT DESCRIPTION

FEBRUARY | 2021

Lead Agency:
Amador County Planning Department

Prepared for:
Specialty Granules (Ione) LLC

AMADOR COUNTY, CALIFORNIA

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Lead Agency:
Amador County Planning Department
810 Court Street Jackson, CA 95642

Prepared for:
Specialty Granules (Ione) LLC
1900 CA-104, Ione, CA 95640

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1. OVERVIEW

Specialty Granules (Ione) LLC (SGI) currently operates a hard rock quarry in Ione, California within a County Mineral Resource Zone (MRZ) which has been in operation for 31 years. The quarry excavates hardrock, (primarily metaandesite). SGI proposes to expand the existing footprint and depth of Ione Quarry to access additional rock reserves. This expansion requires an amended Conditional Use Permit (CUP) and an amended Reclamation Plan that allows for the expanded proposed mining area and additional stockpiling area(s) for the additional cap rock (the proposed project). The project does not propose an increase in the current rates of production at the quarry. After the expansion, the quarry's total surface disturbance will be approximately 136 acres and the depth will be approximately 280 feet below mean sea level [msl]. The stockpile area's total surface disturbance will be approximately 86 acres and have a maximum elevation of 560 feet msl.

2. PROJECT PURPOSE AND OBJECTIVES

The primary purpose of the project is to allow for the expansion of mining into a reserve of sufficient quality to support production of granules for roofing material and other products. The rock type and quality suitable for producing granules is very specific and very rare. The rock must be hard, competent, hold color, and not be subject to erosion or leaching. Only 12 facilities in North America produce these granules. To that end, SGI has the following project objectives:

- Expand reserves to provide for an estimated additional 100 years of operation beyond the current use permit expiration date (2075) at current annual production rates.
- Locate the project on property that SGI owns with existing infrastructure and near other necessary, separately permitted, granules production and loadout facilities.
- Secure access to a large and uniform rock reserve of sufficient quality to support production of roofing granules at the adjacent, separately permitted, roofing granules facility.
- Continue to produce and supply aggregate and other products to the region.
- Expand mining by-product stockpiles and storage on-site to accommodate approximately 10.3 million cubic yards of overburden soils and cap rock up to an elevation of 560 feet msl.
- Continue to provide approximately 85 local jobs that provide a living wage for educated and skilled workers.
- Continue to provide property and sales tax revenue to the County.
- Reclaim the project site to grazing, open water, and open space.
- Minimize impacts to biological resources located on the property and, mitigate any such impacts identified.

3. REQUESTED ENTITLEMENTS

The following primary entitlements and discretionary actions from Amador County (County) are anticipated for the project:

- approval of an amended use permit that will allow:
  - expanding the surface disturbance footprint to approximately 290 acres;
  - mining to a maximum depth of 280 feet below msl;
  - extending operations through 2175; and

- approval of a reclamation plan and associated financial assurance cost estimate to reclaim the project site to grazing, open water, and open space, as allowed under the properties' existing zoning.

4. SITE SETTING

Key features of the existing project site conditions are summarized in Table 1, "Existing Site Conditions Summary." Figure 1, "Regional Location," and Figure 2, "Site Location," shows the location of the site within the regional and local area. Figure 3, "Existing Conditions and Surrounding Land Uses," shows an aerial photograph of the site and the location of the project site features. The following sections provide descriptions of the existing setting on and surrounding the project site.

TABLE 1
EXISTING SITE CONDITIONS SUMMARY

Feature	Details
PERMIT AND PROPERTY DATA	
CA Mine Id.	91-03-0011
County Use Permit Numbers	UP-89; 3-4 (approved March 1989) UP-91; 3-1 (asphalt batch plant, approved July 1992)
Assessor Parcel Numbers	005-080-016-502 and 005-080-020-000 (previously 05-080-003 and -004)
Land Use Designations	**Amador County General Plan:** Mineral Resource Zone (MRZ) **Zoning Ordinance:** Single Family Residential and Agriculture (R1A)
Permit Acreage	330 acres
Current Surface Disturbance (approximate)	• **Quarry:** 56 acres • **Cap Rock & Overburden Soils Stockpile:** 34 acres • **Ancillary Areas (e.g., access roads, solar farm, crushing plant, etc.):** 65 acres
OPERATIONAL DATA	
Types of Mined Materials and Products Sold	• Hardrock (primarily metaandesite) • Feedstock for production of roofing granules • Construction aggregate, railway ballast, and similar materials • Agricultural supplement, soil amendment, carbon sequester and similar materials
Operating Hours	• **Mining:** 24 hour a day, 7 days a week • **Blasting:** 9 a.m.–6 p.m., Monday–Saturday, maximum 80 times a year
Typical Mining Operations	Stripping, drilling, blasting, breaking, and transporting to crushing facility; three-stage crushing (jaw crusher with double deck screen and two cone crushers with triple deck screen); mobile and other forms of crushing, storage, and stockpiling
Facilities	Crushing plant and truck loading, scale and scale house, maintenance shop, storage facilities, support trailers and fuel and oil storage area, pollution control equipment, roads, conveyers, environmental & safety controls, solar farm, mobile equipment, vehicles, and utilities
Traffic and Off-Site Transport	• Off-site hauling to existing, separately permitted, roofing granules plant • Off-site hauling to other facilities and local construction market
Annual Average Production Rate	• 6000,000 tons of mined material
Buildings and Fuel Storage	• **Shop and Fuel Storage:** 10,000 sq. ft.
Water Source	• Well • Sump in quarry bottom
Stormwater Facilities	Quarry: drains internally

Feature	Details
	Cap rock stockpile: manmade detention basins and channels around the western perimeter
Utilities	**Sewer:** Portable restroom facilities **Power:** Electrical power (including onsite solar power generation)
Quarry Size	1,600 feet long, 1,000 feet wide, depth of 325 msl
Quarry Slopes and Heights	Approximately 1:0.6–1:0.1 (horizontal to vertical); three benches approximately 25 feet (top), 45 feet (middle), and 55 feet (lower) high
Stockpile Slopes and Height	Approximately 1.3:1 to 1.5:1 (horizontal to vertical); 60 to 75 feet high
End Use	Grazing and open space
Termination Date	2075

Notes: sq. ft. = square feet

4.1 Project Location and Access

The project site is located at 1900 California Highway 104, within Assessor's Parcel Numbers [APN] 005-080-016-502 and 005-080-020-000 (Figure 3 shows the boundaries) approximately 3 miles west of the city of Ione, in unincorporated Amador County, California (see Figure 2). The site is accessed from the access road off State Route (SR) 104 (see Figure 3), just south of where Michigan Bar Road meets SR 104. The project site is within Section 17, Township 6 North, Range 9 of the Mt. Diablo Baseline and Meridian U.S. Geological Survey 7.5-minute quadrangle.

4.2 Existing Land Uses and Entitlements on the Project Site

The project site consists of undisturbed land, an active quarry, materials stockpiles, a crushing plant and related equipment, conveyors, a scale, equipment, fuel storage, maintenance and storage building, a solar farm, constructed drainage ditches and stormwater containment, and access roads. These uses and entitlements are further described below. Figure 3 shows the location of the project site features.

Existing Operations

The County permitted the mine, crushing, and rail load-out operations in 1989 (UP-89; 3-4) through 2038 (extended in 2012 to 2075). In 1991 the County approved the addition of an asphalt batch plant on-site (UP-91; 3-1), which is no longer in use. In 1998 the County permitted a plant for producing granules (used in the off-site manufacture of roofing materials). The granules plant was permitted under a separate CUP and reclamation plan (UP-98; 2-6) and is not within the boundaries of this project site.

Existing operations include stripping materials, drilling, blasting, breaking, crushing, transporting materials, storage, loading and stockpiling materials. The current quarry is approximately 1,600 feet long, 1,000 feet wide, and up to 125 feet deep. As shown in Figure 3, it is oriented northwest-southeast and consists of three benches. The uppermost bench is approximately 25 feet high; the middle bench is approximately 45 feet high, and the lower bench is approximately 55 feet high. Slope angles are currently approximately 1:0.6 (horizontal to vertical) (1H:0.6V) to 1H:0.1V.

The current cap rock/overburden soils stockpile has angle-of-repose slopes that are approximately 60 to 75 feet high and inclined at an angle of approximately 1.4H:1V along the southern perimeter of the stockpile. Locally, these slopes may be as steep as 1.3H:1V and as flat as 1.5H:1V.

The quarry is developed as a typical hard-rock quarry bench/highwall configuration. The quarry is created through successively deeper cuts (levels) in the rock until the design depth is reached. Rock reserves are

removed through a combination of drilling, blasting, and excavation equipment. A working level was established at the upper quarry limit. After the initial level was extended laterally along the quarry face, a new level was established at the next lower elevation. The quarry depth is increased by successive levels, with each level off-set by a bench and a highwall, until the planned quarry design depth is reached. Successive benches are developed as the quarry progresses downward. Loaders or similar excavating equipment remove the rock for crushing after blasting. Blasted rock is loaded onto haul trucks and transported to the appropriate crushing plant (for aggregate or granule crushing).

During mining operations three material types are encountered that are handled in different ways:

- **Overburden soil:** New mining areas overlain by overburden soil are stripped before mining. Stripped overburden soils are stockpiled. Selected overburden soils may be used for concurrent reclamation. For example, this material could be used to cover completed slopes on the cap rock stockpiles before revegetation begins. The overburden soils are also stockpiled for future reclamation uses.
- **Cap rock:** The rock stockpile located west of the quarry is used to store the slightly weathered hardrock located nearest the surface, which is referred to as "cap rock." This cap rock is generally suitable for use in producing high-quality construction aggregates and other products. After it is removed, it is generally stockpiled next to the quarry and crushed and screened at the crushing plant. The crushed material is trucked off-site. SGI has a 2011 agreement with the County requiring a minimum of 100,000 tons of the stockpiled material to be transported off-site per year, on average for the next 20–25 years. Remaining overburden soils and cap rock are added to the stockpile on-site.
- **Hardrock:** After the overburden soils and cap rock are removed, the underlying hardrock is removed via blasting. The material is split as needed, transported, crushed, and screened through primary and secondary crushing at the south end of the quarry (and other crushers as needed) and then hauled via trucks to the separately permitted granules plant for additional crushing, to produce roofing granules, head lap, or other products.

Open Space

The project site is located within the western foothills of the Sierra Nevada mountain range. Topography consists of gently to moderately undulating hills and swales, circling the existing quarry area. Undeveloped portions of the project site are predominantly non-native annual grasslands with patches of oak woodland, interspersed seasonal wetlands, and water features.

4.3 Surrounding Land Uses

The project site is surrounded by undeveloped open space, agriculture, industrial, low-density residential development, and commercial uses. Table 2, "Surrounding Land Uses and Closest Receptors," provides a summary of the locations of the surrounding land uses and the receptors closest to the project site. Figure 3 shows the location of the features described below.

SOURCES: ESRI World Shaded Relief accessed Jan. 2020, ESRI World Topographic Map accessed Jan. 2020; ESRI World Streetmap, 2009;

Project Location
City Boundary
County Boundary
Major Highway
Highway

N
0 2.5 5 10 Miles

Regional Location
IONE QUARRY EXPANSION PROJECT
RECLAMATION PLAN
Figure 1

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SOURCES: ESRI World Shaded Relief accessed Jan. 2020, ESRI World Topographic Map accessed May 2019; ESRI World Streetmap, 2009

Project Boundary
City Boundary
County Boundary
State Route
Street
Waterway

N
0 1,000 2,000 4,000 Feet

Site Location
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PROJECT DESCRIPTION
Figure 2

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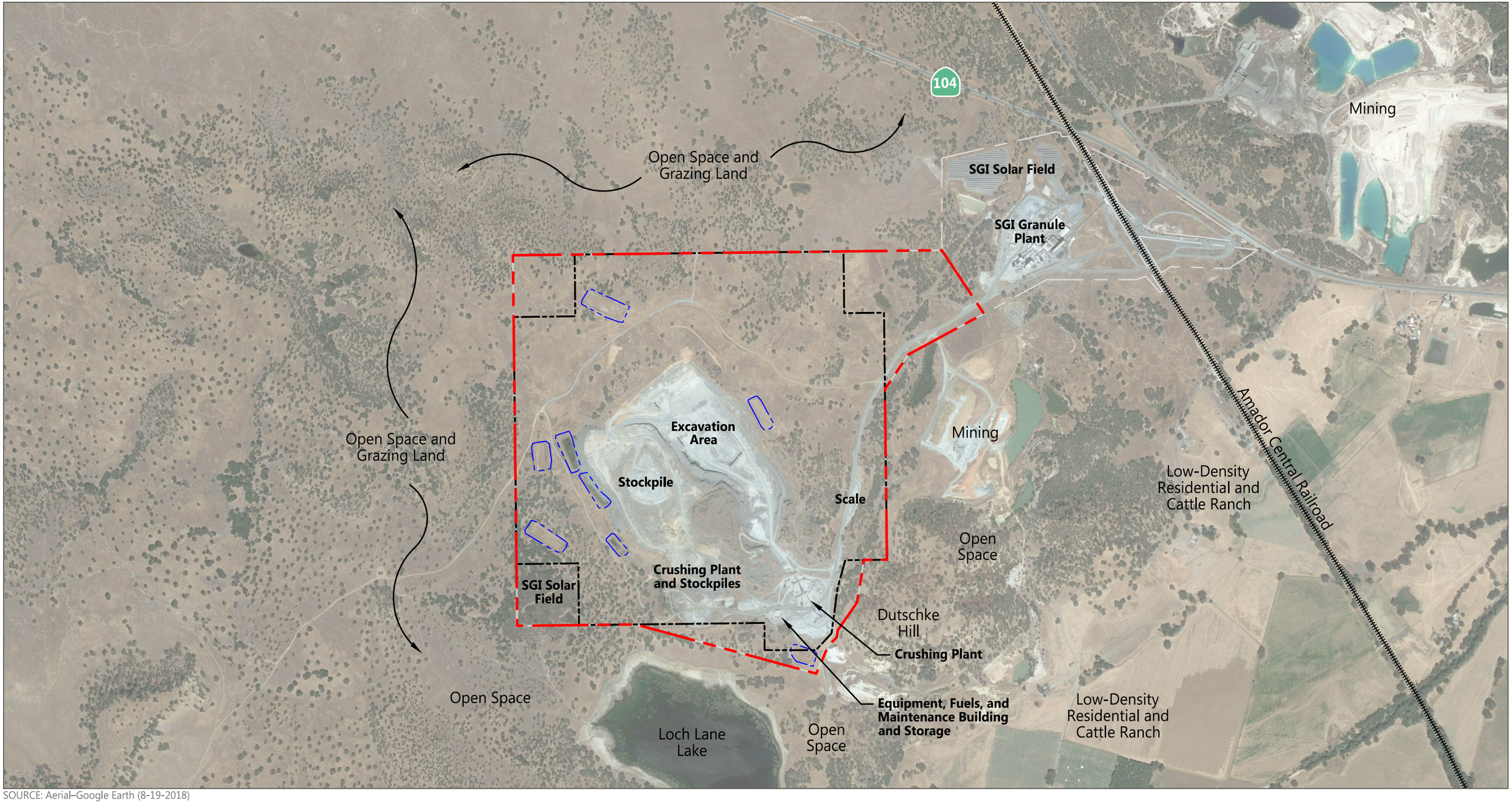

SOURCE: Aerial–Google Earth (8-19-2018)

Project Boundary
Parcel 005-080-020-000
Parcel 005-080-016-502
Railroad
Settling Pond

N
0 500 1,000 2,000 Feet

Existing Conditions and Surrounding Land Uses
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PROJECT DESCRIPTION
Figure 3

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TABLE 2
SURROUNDING LAND USES AND CLOSEST RECEPTORS

Direction	Land Use
North	Open space and grazing land, SGI's granules plant and solar farm, Amador Central Railroad (running north-northwest), and SR 104
West	Open space
South	Open space (including Loch Lane lake)
Southeast and East	Low-density residential and cattle ranch (approximately .25 and .3 mile southeast), open space (including Dutschke Hill), historic mining areas

4.4 General Plan Land Use Designations and Zoning Classifications

The *Amador County General Plan* (County General Plan) designates the project site as a Mineral Resource Zone (MRZ) (Amador County 2016) and the site is zoned Single Family Residential and Agriculture (R1A) (Amador County 2019). The MRZ is described in the Land Use Element of the County General Plan as follows:

> Lands having current mining operations or significant mineral resource deposits. This classification is intended to prevent premature conversion of these lands to other land uses and to restrict the encroachment of land uses which would preclude or seriously hamper the extraction of mineral resources. Such uses include high density residential and non-compatible industrial, commercial, or public uses. Compatible uses may include residential (less than 0.025 du [dwelling unit]/acre), industrial (related to extracting, manufacturing, or processing of the mineral resources), passive recreation, agricultural, silviculture, grazing, and open space.

The County Zoning Code (Title 19.24.045) describes R1A as follows:

> This district classification is intended to be applied to areas presently zoned as U, unclassified district, and suited to residential and agricultural land uses, subject to such regulations as necessary to protect the public health, safety, convenience, and general welfare within the district and adjacent districts.

Uses permitted subject to first securing an approved use permit includes:

> 11. Oil and gas wells, drilling, mining, and excavation of natural minerals….

4.5 Agricultural Use and Agricultural Preserve Contracts

The California Department of Conservation Farmland Mapping and Monitoring Program rates the project site as "Other" (where mining has occurred) and "Grazing" (where the property is undisturbed) lands (DOC 2019). None of the land within the project site is rated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. In addition, the property is not subject to a Williamson Act contract.

5. MINE PLAN

The mine plan consists of expanding the quarry and stockpile areas and extending operations to 2175. Figure 4, "Mine Expansion Design," Figure 5, "Quarry Cross Sections," and Figure 6, "Stockpile Cross Sections," show the quarry and stockpile expansion design. No changes in the current rates of production are proposed. The following sections describe the expanded quarry and stockpile designs and the resulting changes to the operations (i.e., dewatering and stormwater management) during mining.

5.1 Quarry Expansion

The quarry expansion design is shown in Figures 4 and 5. This design will include expanding the quarry to the northwest, north, and east to a total of approximately 136 acres and deepening it an additional 605 feet. A single 100-foot-wide ramp beginning at the south crest will spiral clockwise down the slopes to the quarry bottom. Interramp slope angles will be 1H:1V, and overall slope angles will range from 1H:1.3V to 1H:1.07V (which are currently 1H:0.6V to1H:0.1V). The final quarry bottom elevation will be 280 feet below msl. The working face height will be 55 feet, with a 26-foot-wide catch bench, and an approximately 1H:0.6V working face slope.

The quarry expansion will continue to be developed as described in Section 4.2, previously. Generally, the quarry will continue to be created through successively deeper cuts (levels) in the rock until the design depth is reached. Rock reserves will be removed in the same manner as under existing operations: through a combination of drilling, blasting, and excavation equipment.

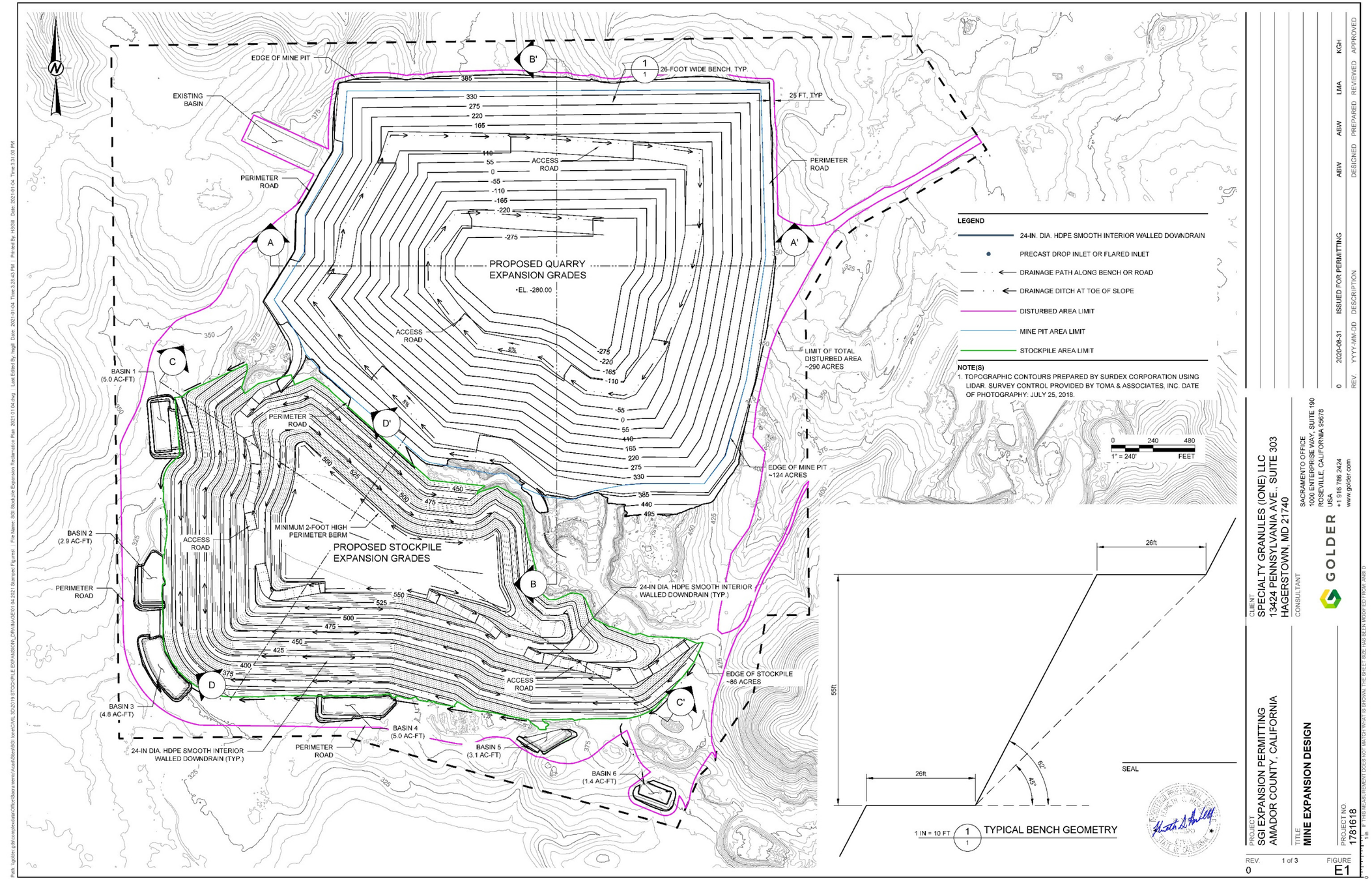
Before undisturbed surfaces are disturbed, vegetation will be removed in the immediate working areas and managed on-site (e.g., mulched for erosion control, stockpiled for blending with topsoil) or transported off-site (e.g., landfill/greenwaste facility, sold as product) depending on the type of vegetation removed and available uses. Overburden soil salvaged from the site will be handled and stored depending on current site needs. If areas for concurrent or final reclamation are available, then overburden soil will be placed on final surfaces within cap rock stockpile or ancillary disturbance areas. Otherwise overburden soil will be stockpiled separately for future distribution within the cap rock stockpile or other ancillary disturbance areas during reclamation. Overburden soil used in concurrent and final reclamation may be amended with silts and fines from silts ponds and stormwater facilities if necessary and available.

After the overburden soil is stripped and stockpiled, the cap rock (i.e., weathered rock material) will continue to be removed and stockpiled near the quarry. Some cap rock is crushed, screened and sold for construction aggregates or other uses.

5.2 Stockpile Expansion

Cap rock will continue to be stockpiled next to the quarry for crushing at the adjacent plant. The quarry expansion will require additional stockpile area for storing the additional overburden soil that will be excavated to gain access to the underlying hardrock used to create granules. The stockpile expansion design is shown in Figure 4 and 6. The stockpile area's total surface disturbance will be approximately 86 acres and have a maximum elevation of approximately 560 feet msl. The stockpile will be set back from the quarry by a minimum of 25 feet. The proposed cap rock stockpile will include 2H:1V interbench slopes and 30-foot-wide benches every 50 vertical feet.

Cap rock stockpiles are typically constructed by placing the rock in a temporary angle-of-repose slope inclination and then later compacting and regrading the slope to flatten the slopes to the final grade. This regrading will be completed as each stockpile bench is completed. In addition, the regraded slopes may be covered with overburden and topsoil (if available) and revegetated.



SOURCE: Golder Associates, 2020.

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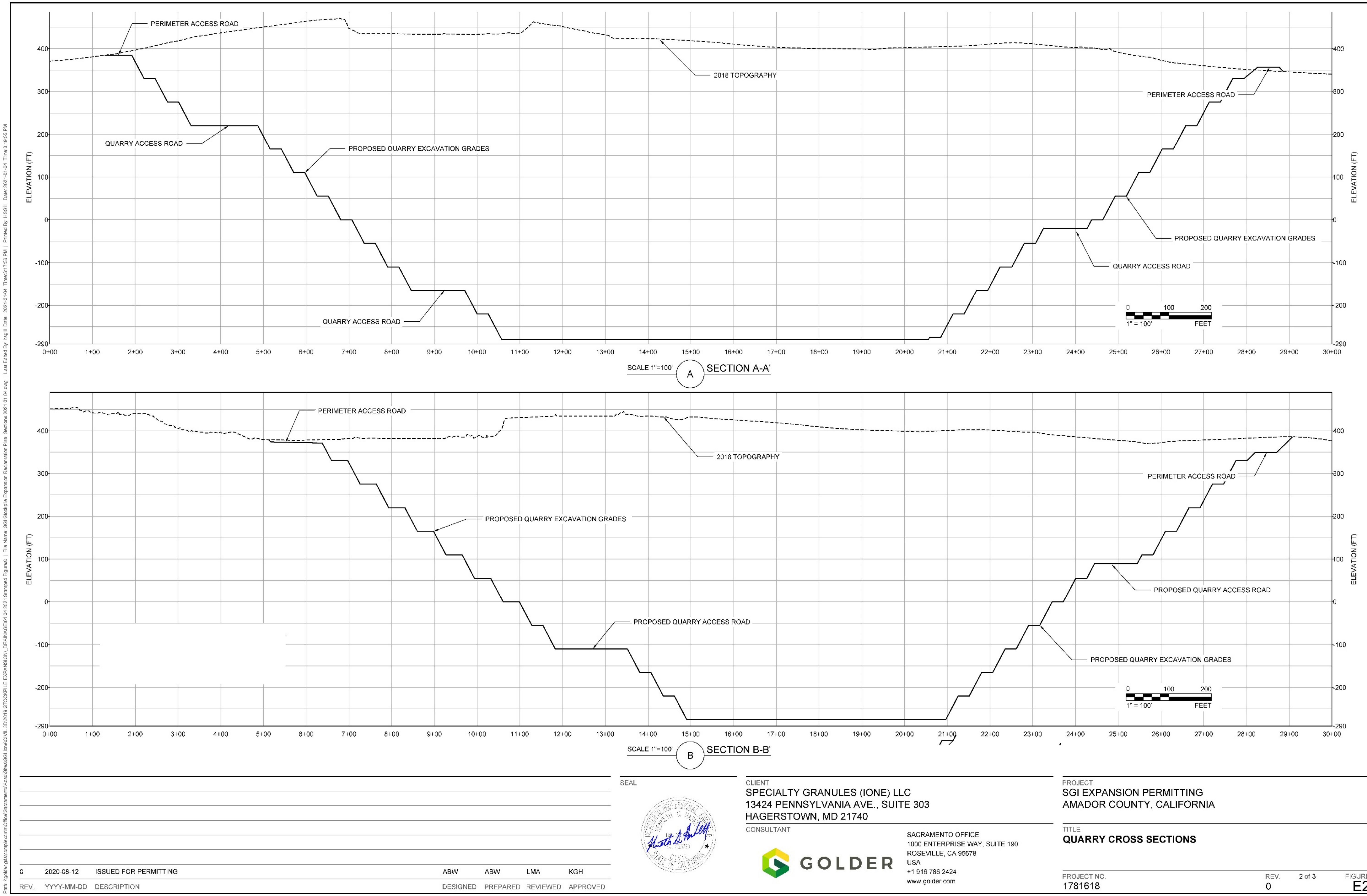
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2018 TOPOGRAPHY
QUARRY ACCESS ROAD
PROPOSED QUARRY EXCAVATION GRADES
PROPOSED QUARRY ACCESS ROAD
ELEVATION (FT)
SCALE 1"=100'
A
SECTION A-A'
B
SECTION B-B'
0 100 200
1" = 100' FEET
SEAL
CLIENT
SPECIALTY GRANULES (IONE) LLC
13424 PENNSYLVANIA AVE., SUITE 303
HAGERSTOWN, MD 21740
CONSULTANT
GOLDER
SACRAMENTO OFFICE
1000 ENTERPRISE WAY, SUITE 190
ROSEVILLE, CA 95678
USA
+1 916 786 2424
www.golder.com
PROJECT
SGI EXPANSION PERMITTING
AMADOR COUNTY, CALIFORNIA
TITLE
QUARRY CROSS SECTIONS
PROJECT NO. 1781618
REV. 0
2 of 3
FIGURE E2
0 2020-08-12 ISSUED FOR PERMITTING ABW ABW LMA KGH
REV. YYYY-MM-DD DESCRIPTION DESIGNED PREPARED REVIEWED APPROVED

SOURCE: Golder Associates, 2020.

Quarry Cross Sections
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PROJECT DESCRIPTION
Figure 5

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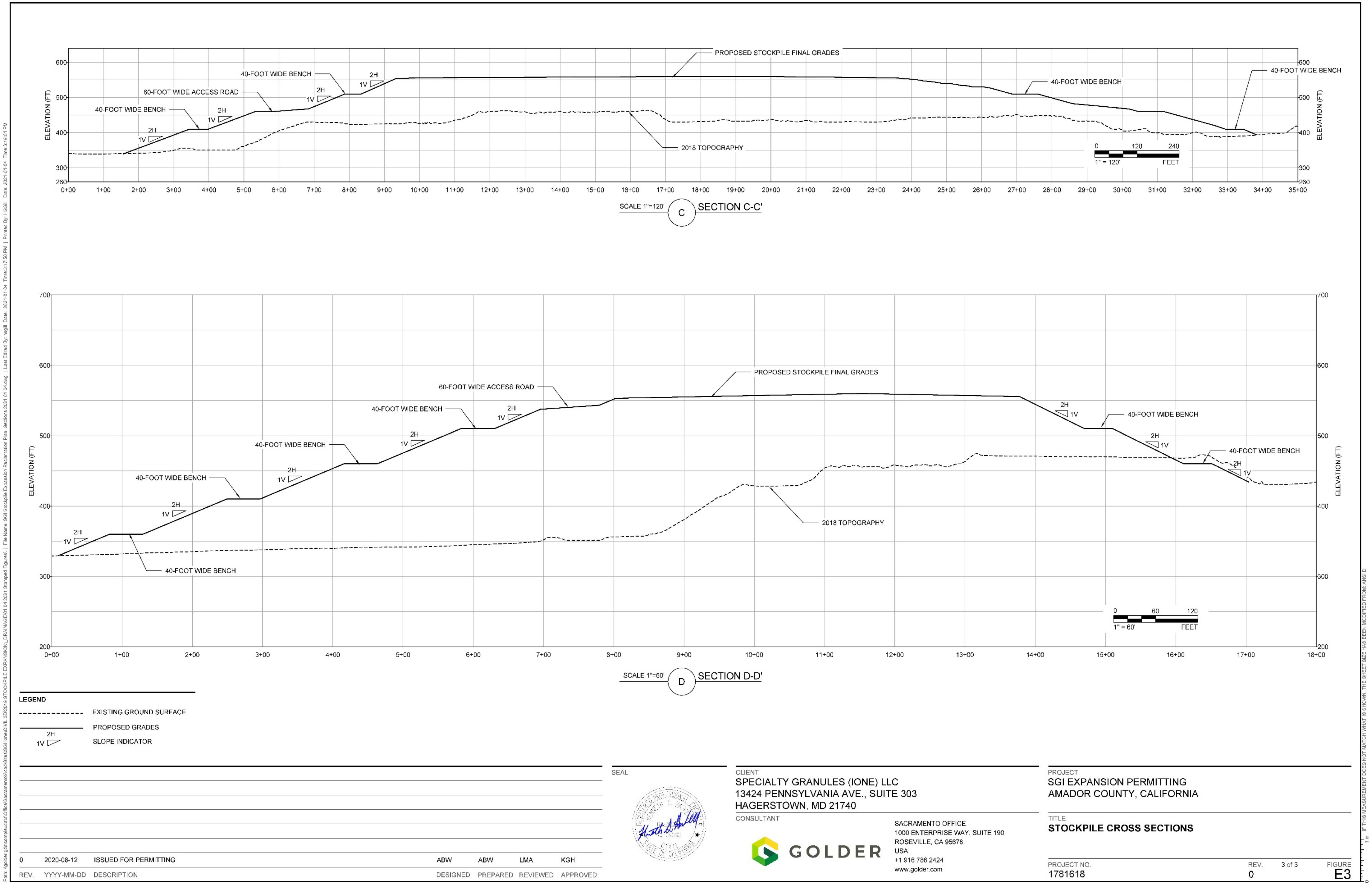
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40-FOOT WIDE BENCH
60-FOOT WIDE ACCESS ROAD
2018 TOPOGRAPHY
ELEVATION (FT)
SCALE 1"=120'
C
SECTION C-C'
SCALE 1"=60'
D
SECTION D-D'
LEGEND
EXISTING GROUND SURFACE
PROPOSED GRADES
SLOPE INDICATOR
SEAL
CLIENT
SPECIALTY GRANULES (IONE) LLC
13424 PENNSYLVANIA AVE., SUITE 303
HAGERSTOWN, MD 21740
CONSULTANT
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SACRAMENTO OFFICE
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+1 916 786 2424
www.golder.com
PROJECT
SGI EXPANSION PERMITTING
AMADOR COUNTY, CALIFORNIA
TITLE
STOCKPILE CROSS SECTIONS
PROJECT NO.
1781618
REV.
0
3 of 3
FIGURE
E3
0 2020-08-12 ISSUED FOR PERMITTING ABW ABW LMA KGH
REV. YYYY-MM-DD DESCRIPTION DESIGNED PREPARED REVIEWED APPROVED

SOURCE: Golder Associates, 2020.

Stockpile Cross Sections
IONE QUARRY EXPANSION PROJECT
PROJECT DESCRIPTION
Figure 6

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5.3 Stormwater Management

Existing on site surface water drainage is either directed to the quarry or a series of sediment basins surrounding the cap rock and overburden soils stockpile that drain towards Loch Lane lake. The run-off from the north side of the stockpile and quarry will continue to drain to the quarry floor where it will collect and be used for dust control.

As shown on Figure 4, sedimentation basins will be constructed along the perimeter of the cap rock stockpile. The drainage basins will discharge stormwater towards unnamed natural drainage courses that drain towards Loch Lane Reservoir. On the cap rock stockpile, benches will be sloped to collect and direct stormwater to down drain culverts. The down drains will convey water to a series of sedimentation basins that surround the stockpile. In addition, a perimeter berm at the top of the stockpile slopes will be constructed to prevent sheet flow over the side slopes and instead direct run-off to the down drain system.

The drainage controls discussed above and shown in Figure 4 have been sized for a 25-year, 24-hour storm event. The basins will also be designed to maintain a minimum 2-feet of freeboard and include emergency spillways armored with concrete or riprap to allow the discharge of excess volumes of water without erosion of the basin impoundment.

6. RECLAMATION PLAN

Mine reclamation is required by the Surface Mine and Reclamation Act (SMARA), which requires mines to be reclaimed to a usable condition that is readily adaptable for a productive alternative land use that creates no danger to public health or safety. A Reclamation Plan has been submitted as part of the application materials in compliance with SMARA regulations. Figure 7, "Reclamation Plan," shows the site design for the reclaimed site. The plan provides for a site that is suitable for grazing, open water, and open space.

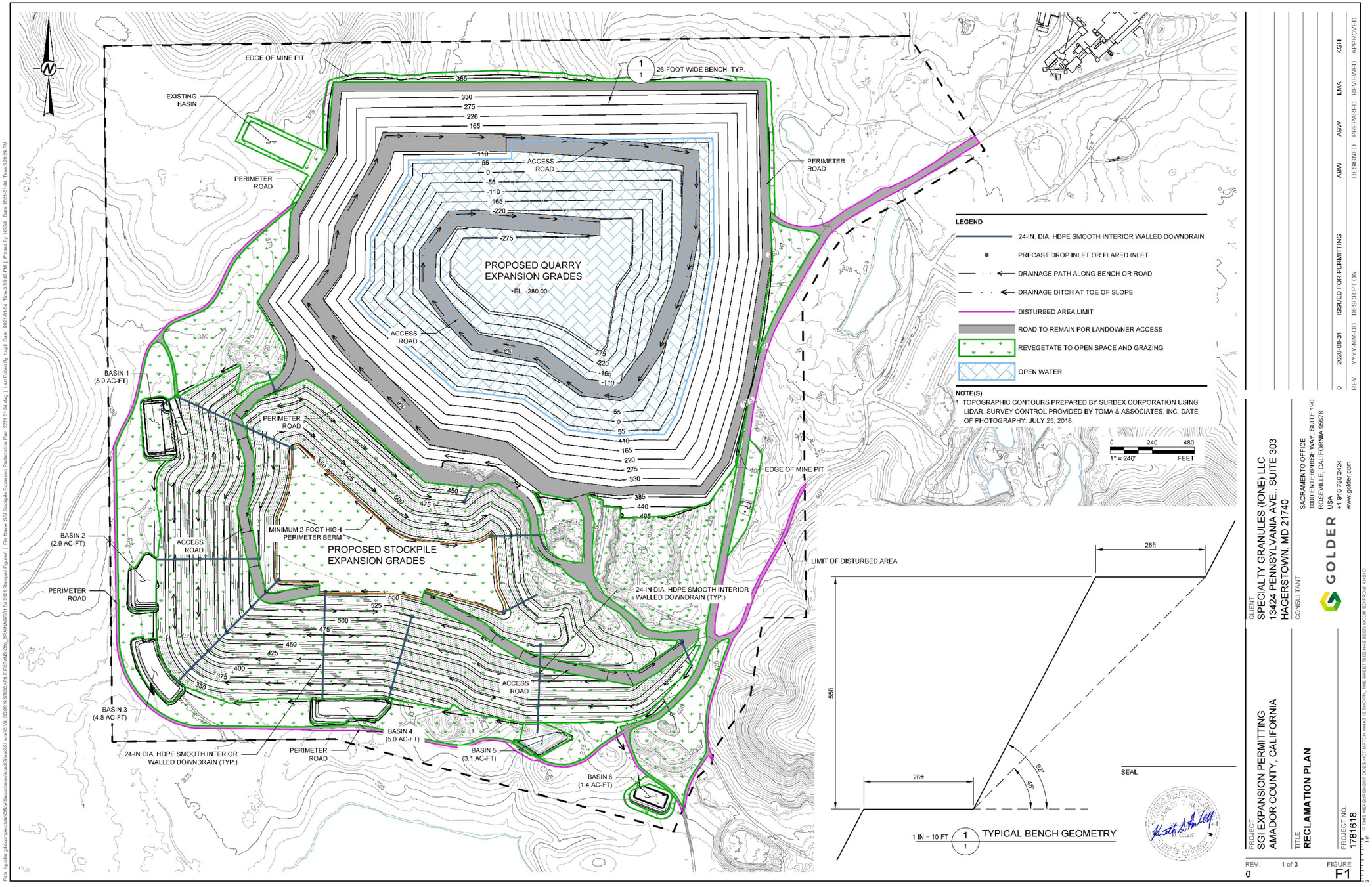
Final stockpile slopes will be graded to final design as the stockpile is expanded. Regraded stockpile slopes will be revegetated if suitable overburden soils are available. This phased grading of the stockpile will control erosion and sedimentation transport associated with the stockpile.

The quarry would be reclaimed as each level is completed. Slopes of the completed level will be graded to final design (see Section 5.1). The benches and highwalls will not be revegetated. A portion of the quarry will gradually fill with ground and surface waters to create an open water area. The final elevation of the open water surface is anticipated to be 105 feet msl.

Ancillary surface disturbance areas will be graded and revegetated at the completion of mining activities. The revegetation plan will result in self-sustaining revegetation that supports open space and grazing land uses. The vegetation communities established will mature over time to be similar to surrounding natural areas. Revegetation success will be ensured through performance standards, which will be demonstrated by monitoring and measuring for species richness, density, and cover. The site will be monitored until the success criteria are met. Supplemental planting and weed control will be applied as determined necessary.

Except for equipment required for reclamation purposes, equipment and structures supporting mining will be removed at final reclamation. This includes rolling stock such as loaders, dozers, excavators, haul trucks, storage vans, and water trucks. This also includes buildings and facilities such as conveyors, crushers, trailers, maintenance buildings, and fuel storage tanks. Surplus equipment and supplies stored within the quarry limits will be transported off-site. Trash and miscellaneous debris will be collected and hauled to an appropriate disposal facility pursuant to the state and local health and safety ordinances.

Facilities and infrastructure to remain post-mining include access roads and stormwater control structures (e.g., basins, down drains, ditches). Access roads will remain to support post-reclamation land uses and allow for monitoring. In addition, stormwater facilities will remain to capture and direct stormwater flows from the stockpile to the detention basins.



SOURCE: Golder Associates, 2020.

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REFERENCES AND RESOURCES

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BENCHMARK RESOURCES

Sacramento • Oakland