



Ecological Resource Consultants, Inc.

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Date: July 19, 2021

To: U.S. Army Corps of Engineers
Northwestern Colorado Branch (Albuquerque District)
Benjamin R. Wilson, Project Manager

Project: Colorado Stone Quarries-Response to Request for Additional Information (June 17, 2021)
(U.S. Army Corps of Engineers Project Number: SPK-2019-00889)

On behalf of Lewicki and Associates (f/k/a Greg Lewicki and Associates) and Colorado Stone Quarries, Inc. (applicant) (CSQ), Ecological Resource Consultants, Inc. (ERC) provides this response to portions of the US Army Corps of Engineers (USACE) Request for Additional Information dated June 17, 2021 (RAI 6-17-21).

RAI 6-17-21 states that the Yule Creek Mitigation Plan (March 2021) (March 2021 Mitigation Plan) is not complete because it does not provide ecological lift sufficient to account for temporary impacts sustained during construction, temporal losses of function due to mitigation project delay, the associated risk and uncertainty of success and the use of smooth cut marble block rather than naturally rough surfaces.

While CSQ disagrees with the USACE assessment of the March 2021 Mitigation Plan, in the spirit of cooperation and in order to keep the permit review process moving forward, CSQ is providing this supplement. CSQ's supplemented conceptual compensatory mitigation plan presented herein is in general accordance with the 2008 Mitigation Rule for the purpose of offsetting presumed adverse impacts (such as temporary impacts and temporal function loss) associated with relocation of a portion of Yule Creek. The 2008 Mitigation Rule, in summary, states that compensatory actions should be undertaken when practicable, in areas adjacent or contiguous to the discharge site (on-site compensatory mitigation). If on-site compensatory mitigation is not practicable, off-site compensatory mitigation should be undertaken in the same geographic area if practicable (i.e., in close proximity and, to the extent possible, the same watershed). In determining compensatory mitigation, the functional values lost by the resource to be impacted must be considered. Generally, in-kind compensatory mitigation is preferable to out-of-kind. (<https://www.epa.gov/cwa-404/memorandum-agreement-regarding-mitigation-under-cwa-section-404b1-guidelines-text>).

The following discussion identifies key elements of the 2008 Mitigation Rule and how CSQ proposed conceptual compensatory mitigation plan satisfies those elements.

1. No approved mitigation banks or in-lieu fee programs service the project area, therefore permittee responsible mitigation is required. Permittee-responsible mitigation can be located at or adjacent to the impact site (i.e., on-site compensatory mitigation) or at another location generally within the same watershed as the impact site (i.e., off-site compensatory mitigation).
 - CSQ is proposing on-site permittee-responsible mitigation within the same parcel and location as the impact (within the Pride of America (PAM) mine permit boundary).

2. Compensatory mitigation should follow a watershed approach which considers the importance of landscape position and resource type of compensatory mitigation projects for the sustainability of aquatic resource functions within the watershed.
 - Site selection for potential mitigation opportunities followed a watershed approach by taking a landscape view of the Yule Creek watershed, how it functions, and its need for improvement. The 2008 Mitigation Rule emphasizes the strategic selection of mitigation sites on a watershed basis and the desire to maintain and improve the quantity and quality of other aquatic resources.
 - In evaluating the overall watershed along the Yule Creek, the vast majority of the Yule Creek is on US Forest Service controlled lands, is relatively undisturbed and is of high ecological function. Therefore, site selection focused on more disturbed and lower ecological functional reaches situated on private property that could be enhanced and preserved to better serve the entire watershed.
3. Compensatory mitigation can be carried out through four methods: the *restoration* of a previously-existing wetland or other aquatic site, the *enhancement* of an existing aquatic site's functions, the *establishment* (i.e., creation) of a new aquatic site, or the *preservation* of an existing aquatic site.
 - CSQ is proposing a combination of enhancement, establishment and preservation mitigation methods.
 - Yule Creek was re-aligned into the eastern alignment, which is considered the first mitigation method, or establishment. Establishment (creation) means the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. The eastern alignment was established in 2018.
 - The 2021 Mitigation Plan was presented as both an enhancement and establishment mitigation methods to the re-aligned eastern alignment. Enhancement means the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource functions.
 - Preservation is proposed to the unimpacted reaches of Yule Creek (aquatic resource) within the mine permit boundary. Preservation means the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms.
 - Preservation of variable buffers along Yule Creek within the mine permit boundary are proposed. Buffer means an upland, wetland, and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses.
4. In general, in-kind mitigation is preferable to out-of-kind mitigation because it is most likely to compensate for the functions and services lost at the impact site.
 - CSQ is proposing in-kind mitigation specifically for the establishment and enhancement to Yule Creek (same as impacted aquatic resource) and preservation of Yule Creek and buffers in the immediate vicinity of the impact (all within the mine permit boundary).
5. The Colorado Mitigation Procedures Version 2.0 (June 2020) (COMP) states compensatory mitigation for stream impacts may include a combination of stream corridor restoration (re-establishment or rehabilitation), enhancement, establishment, or preservation. However, rehabilitation and enhancement activities typically are preferred because streams are considered to be difficult-to-

replace resources, and these methods of mitigation generally will provide greater certainty that permitted impacts will be successfully offset (33 CFR 332.3(e)(3)).

- CSQ is proposing a combination of enhancement, establishment and preservation mitigation methods to Yule Creek.
6. To form the basis of a conceptual compensatory mitigation plan, the aquatic resource impacted and subject of this Clean Water Act Section 404 Individual Permit review has been quantified as part of ERC's Aquatic Resource Delineation Report (9-17-2020) (2020 Delineation Report). The western alignment of Yule Creek that was impacted (direct fill) consisted primarily of riverine habitat (as defined by the Cowardin classification system for wetlands and deepwater habitats (Cowardin et al. 1979)) covering approximately 0.6 acre along 1,575.08 linear feet of stream below the ordinary high-water mark (OHWM).
 7. The 2020 Delineation Report determined the eastern alignment of Yule Creek, which was constructed (establishment) as an alternative flow path for the western alignment in 2018, consists primarily of riverine habitat covering 0.58 acre along 1,670.94 linear feet. This represents a net increase in total stream length of approximately 95.86'. The approximate 0.02 acre reduction in total area is a result in the estimated OHWM width. The initially established eastern alignment OHWM was slightly narrower than the impacted western alignment OHWM. This mitigation method is considered a 1:1 establishment mitigation ratio of the impacted aquatic resource.
 8. The March 2021 Mitigation Plan presented enhancement and additional establishment to the constructed eastern alignment along 1,689 linear feet.
 - The enhancement portion of the March 2021 Mitigation Plan results in an ecological functional uplift of 92.5 functional feet according to the Colorado Stream Quantification Tool.
 - The plan also presented additional establishment measures, by reconfiguring the channel cross-section creating a slightly wider average bankfull width of 20' and a narrower low flow channel bottom width of 10'. This configuration was determined most appropriate based on channel geomorphology and channel hydraulics. This reconfiguration establishes an overall net increase of 0.17 acre of aquatic resource (riverine-channel) over the impacted area of the western alignment. In addition, the plan will develop 0.3 acre of riparian habitat above the OHWM. The channel reconfiguration and riparian habitat represents a combined net mitigation increase of 0.47 acres of aquatic resource establishment over the 0.6 acres impacted. This mitigation method is considered a 1.7:1 establishment, enhancement and preservation mitigation ratio of the impacted aquatic resource.

9. CSQ proposes additional compensatory mitigation in the form of the following Yule Creek Preservation Plan (Preservation Plan) (paragraph 9, Table 1 and the Conceptual Compensatory Mitigation Map). The Preservation Plan will preserve the undisturbed portions of select segments of Yule Creek upstream and downstream of the eastern alignment and establish protective buffers on either side. Preservation of the Yule Creek and buffers will ensure the long-term ecological integrity of the aquatic resource by removing the threat of future mining activities or other landuse changes. The preservation areas are all within the mine permit boundary, contain potential marketable resource and could be used as part of future mining operations. Through preservation, the threat of future disturbances is removed.

Preservation will include:

- 1.22 acres of unimpacted portion of Yule Creek;
- 1.60 acres of 100' protective buffer on either side of Yule Creek along the northern undisturbed reach;
- 2.92 acres of 50' protective buffer on the west side of Yule Creek along the southern undisturbed reach and
- 5.34 acre variable (upwards of 260' maximum) protective buffer on the east side along the southern undisturbed reach.
- This mitigation method is considered a 18.4:1 preservation mitigation ratio of the impacted aquatic resource.

Table 1. Summary of Conceptual Compensatory Mitigation Plan (July 19, 2021)					
	Aquatic Resource Impact	Acre	Linear Feet	Type	Comment
	Impacted Aquatic Resource (Western Alignment Yule Creek)	0.6	1,575.08	Riverine	Direct Fill
	Proposed Mitigation				
1	Eastern Alignment of Yule Creek				
	Constructed Aquatic Resource	0.58	1,670.89	Riverine	Establishment (Completed 2018) (~1:1 Mitigation Ratio)
	Net Mitigation Difference from Impacted Aquatic Resource	-0.02	+95.81		
2	Yule Creek Mitigation Plan (March 2021)				
	Channel Design	0.77	1,689	Riverine	Enhancement and Establishment to the active channel below the OHWM. (1,698 linear feet by 20' bankfull width)
	Riparian Habitat Design	0.3		Riparian	Enhancement and Establishment to riparian habitat above the bankfull width.
	Total:	1.07	1,689		Enhancement, Establishment and Preservation (1.7:1 Mitigation Ratio) (Mitigation 1.07 acres: Impact 0.6 acre)
	Net Mitigation Difference from Impacted Aquatic Resource	+0.47			
3	Yule Creek Preservation Plan (July 19, 2021)				
	Preservation of Unimpacted Portion of Yule Creek within the Mine Permit Boundary	1.22	2,307.98	Riverine	Preservation of Aquatic Resource
	Protective Buffer along Unimpacted Portion of Yule Creek within the Mine Permit Boundary	9.86		Upland and Riparian	Preservation of Protective Aquatic Resource Buffer (<i>exact acreage will be verified upon pending boundary survey</i>)
	Total Preservation:	11.08			Preservation (18.4:1 Mitigation Ratio) (Mitigation 11.08 acres: Impact 0.6 acre)

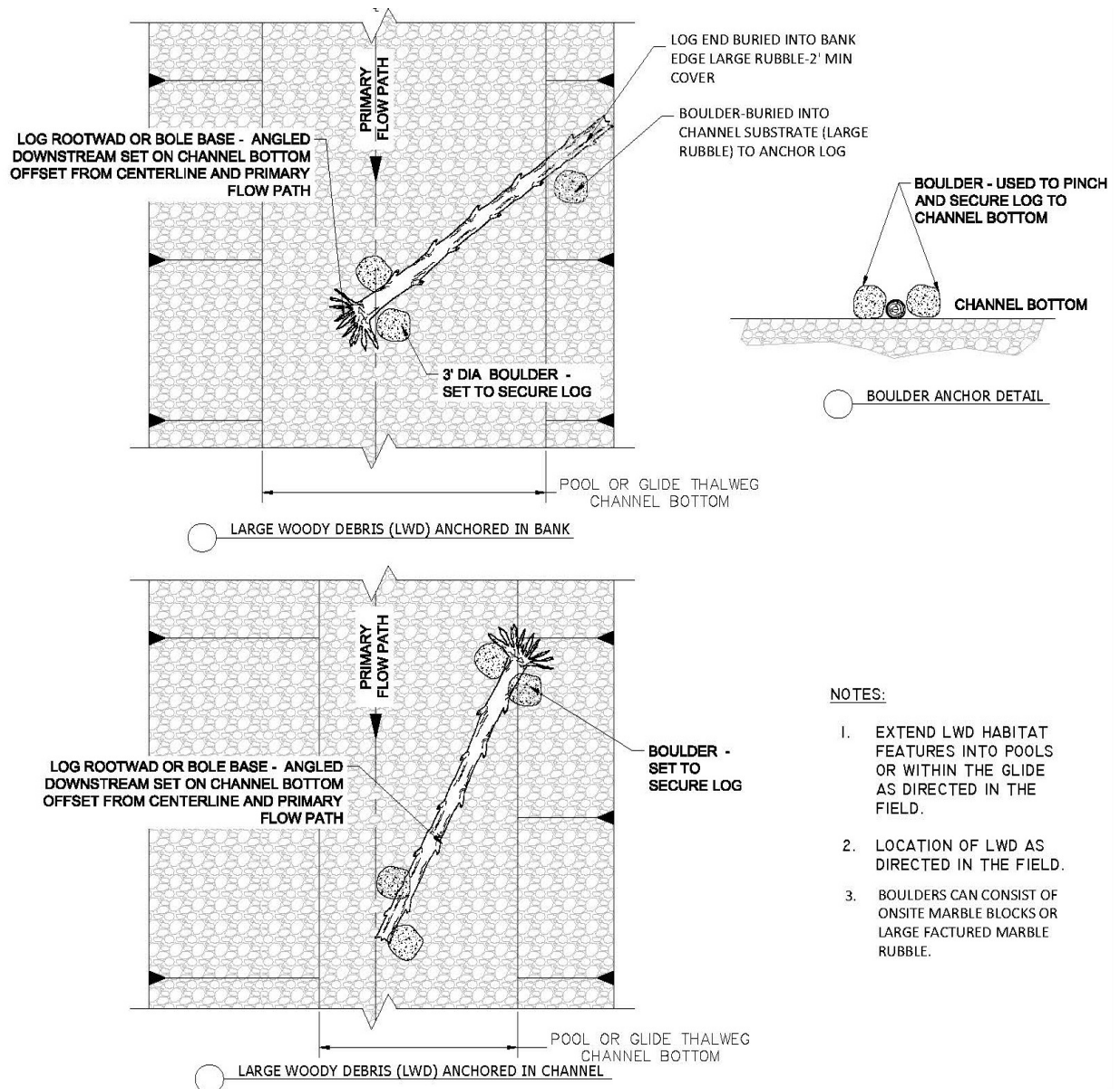
10. USACE has expressed concern of the use of smooth cut marble block rather than naturally rough surfaces within the constructed eastern channel. CSQ proposes to roughen the surface of exposed block surfaces with a drum cutter to create a more natural surface. Marble is the natural bedrock in much of this section of Yule Creek. Photo 1 provides an example of the roughening technique. The resulting roughened surface more closely mimics the natural rough surface of substrate and bedrock material in the area and will allow for greater biomass accumulation on the surface.

Photo 1. Red circle depicts the smooth cut marble. Blue circle depicts roughened surface.



11. Item 2c-Narrative description of how the log root wads will be anchored in the streambed or bank, including any additional design drawings that were not provided.

- Sheet 8 of the 2021 Mitigation Plan details how large woody debris will be anchored into the channel within pools. The intent of this design element is to create instream aquatic habitat diversity and increase biomass in the channel utilizing onsite logs and trees to mimic naturally occurring large woody debris in portions in the channel. The logs will be secured or “pinned” within the channel using large onsite rubble and boulders. The length of the log will be adjusted to fit within the channel and not require extensive disturbance to undisturbed stream banks. A typical detail of the anchoring technique follows. Large woody debris is a naturally occurring element in undisturbed sections of Yule Creek. Refer to Photo 2.



12. *Item 2d-Please revisit and specify the proposed design goals and provide specific performance standards related to the extent and cover of the woody riparian species along the banks of the eastern channel. Any changes to the proposed design goals would need to be incorporated into an updated report of the SQT assessment. Performance standards should be in accordance with the South Pacific Division Uniform Performance Standards (enclosed).*

- In order to obtain the ecological function uplift as determined per the CSQT, Riparian Extent per the 2021 Mitigation Plan shall be established along 2,600 linear feet of the Yule Creek bankfull edge covering approximately 13,000 square feet. The Plan assumes 75% linear coverage of woody riparian coverage along the bank (total length of both stream banks equals $3,378 \times .75 = 2,600'$ @ approximately 5' width or 13,000 square feet). This will be accomplished through the planting of willow stakes or nursery potted willows at approximately 3' on-center spacing. Willows are naturally occurring along the margins of the streams around bedrock and rubble in undisturbed areas of Yule Creek. Photo 2
- The performance standard and determination of success of this Riparian Extent Parameter was outlined in the ERC Yule Creek Monitoring Plan (3-22-21) (March 2021 Monitoring Plan). The target CSQT Field value has been established at 75% for Riparian Extent and Woody Vegetation Cover as determined per the Riparian Vegetation Form.
- CSQ does not need to revisit this parameter and is committed to achieving the performance standard as indicated.
- Please note that the performance standards and measurement methods have been established as part of the March 2021 Monitoring Plan and follow the specific methods of CSQT. Field data forms are included in the March 2021 Monitoring Plan. Performance Standards are defined by achieving the target field values of 92.5 functional feet as determined by CSQT.

Photo 2. A typical reference condition in undisturbed sections of Yule Creek considered as part of the 2021 Mitigation Plan and Functional Assessment (March 2021. Note the naturally occurring willows (red circles along the water line) between the bedrock and rubble (blue lines) substrate of the creek. Woody debris is also noted through (yellow circles).



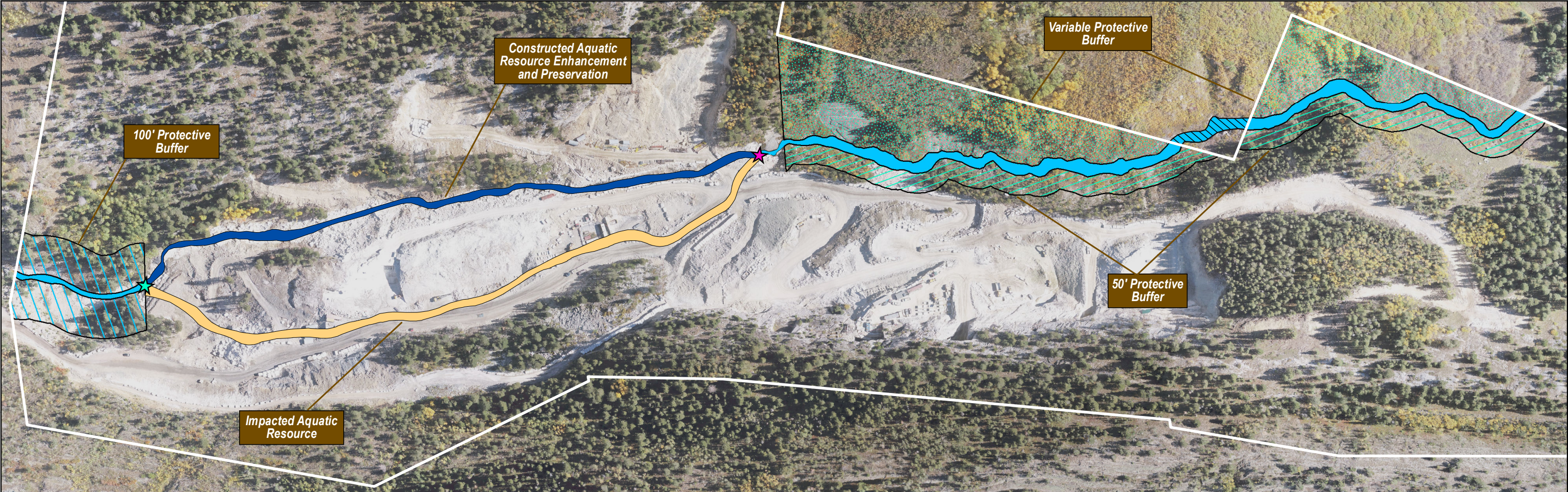


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Base Aerial Imagery from Drone - September 28, 2020

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MAP LEGEND

- Mine Permit Boundary

Point of Diversion

Approximate Point of Confluence
- Undisturbed Portion of Yule Creek

Eastern Alignment of Yule Creek Constructed Channel (Establishment, Enhancement, and Preservation)

Western Alignment of Yule Creek, Impacted Aquatic Resource

Yule Creek (Outside Mine Permit Boundary)
- Preservation Area (100' Protective Buffer from OHWM)

Preservation Area (Variable Protective Buffer from OHWM to Mine Permit Boundary)

Preservation Area (50' Protective Buffer from OHWM)

CONCEPTUAL COMPENSATORY
MITIGATION PLAN
JULY 19, 2021
SPK-2019-00889

PRIDE OF AMERICA MINE
COLORADO STONE QUARRIES
MARBLE, GUNNISON COUNTY, COLORADO



1 inch = 250 feet

