Primrose Creek Restoration Project
Site Plan Narrative
New Hope Crushed Stone Quarry
Solebury Township, Bucks County, Pennsylvania

The Pottsville District Mining Office of the Pennsylvania Department of Environmental Protection is requesting Waiver 16 approval under 25 PA Code Chapter 105.12(a)(16) for a proposed stream restoration project on the site of the forfeited New Hope Crushed Stone quarry permit and property in Solebury Township, Bucks County, PA. The Pottsville District Mining Office is responsible for reclaiming the site in order to close the quarry's mining permit. During quarry operations, the flow of Primrose Creek was altered after the quarry was permitted to expand the quarry pit through the creek. Water flowing into the quarry pit from upstream reaches of Primrose Creek would be pumped to the downstream reach of Primrose Creek. As such, the restoration of Primrose Creek is a component of the proposed reclamation of the entire site. Pursuant to this effort, the Pottsville District Mining Office is submitting the following information as justification for the waiver.

An approximately 435 feet long, two-tiered channel and floodplain is proposed to restore Primrose Creek to natural flows by connecting the now water filled quarry pit with the downstream reaches of Primrose Creek. The lower tier will be designed to accommodate a 10-Year storm and the flood plain upper tier will be designed to accommodate a 100-Year storm without allowing the water level in the quarry pit to increase more than 1 foot above the interpolated 100-year flood elevation of 103.0' MSL, [See FEMA Flood Insurance Study, Bucks County, PA , 2015, (Rev 2017), Flood Profile Chart in Appendix 1, Exhibit 3, Plate 1]. The horizontal alignment and vertical alignment of the proposed channel have been chosen to ensure it will discharge at least a 100-year storm and reside in the native soil beneath the spoil material surrounding the quarry. The proposed channel has been designed in the following manner:

- The Department engaged Tetra Tech, Inc. to assist the Department to research and determine the channel invert at the quarry edge as well as design the channel to convey the upgradient Primrose Creek flow filling the quarry pit to the downstream reach of Primrose Creek. [See Appendix 1]
- The Department also engaged Michael Baker International to perform a Hydrologic and Hydraulic Report to determine the effect reestablishing natural flow to downstream Primrose Creek would have on the floodplain of the creek. [See Appendix 3]

The information collectively gained from these studies was used to determine the proposed final elevation of 98' MSL and provided the parameters under which the final channel was designed.

Determination of the Final Elevation:

Appendix 1 contains the information used in determination of the final elevation of the quarry outlet. This information includes the initial study and results from the first series of excavated test pits performed in June of 2022. The initial study proposed a channel invert elevation of 93.3' MSL which was met with concern from interested stakeholders.

A second series of test pits were dug in July of 2023 and after discussion with the stakeholders consultant, a 98.0' MSL elevation was proposed with the final "as built" elevation to be determined where natural ground would be exposed when the excavation of the channel was performed. Details of

how the excavation will be performed are in the construction notes in the Tetra Tech Quarry Discharge Outlet Project drawings.

The Michael Baker International Hydrologic and Hydraulic Report [See Appendix 3] assessed the effect that reconstruction of the channel would have on the downstream floodplain. In this report, effects at the originally proposed 93.3' MSL channel invert elevation as well as the later proposed 98.0' channel invert elevation. In both cases the quarry served to attenuate the 100-year flood with the 98.0' level attenuating the 100-year flood slightly more than the 93.3' level.

Channel Design

Tetra Tech used the runoff data provided in the Michael Baker International study in their design of the channel. Their design found in this section serves to attenuate the 100-year flood to greater extent as compared to the Michael Baker International study (62% vs. 56%).

The Tetra Tech design would allow the elevation of the water in the quarry to rise to a maximum of 101.0' MSL which is less than the 103.0' MSL elevation providing a margin of 2' below flood stage.