

Project Narrative

3260 Route 9w Highlane NY LLC

Concrete Batch Plant

NYS ROUTE 9w

Town of Llyod

Ulster County, New York

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Shaping the physical environment

The attached plan represents the concept development plan for a Proposed concrete Batch Plant to be located at 3260 Route 9W. The site is identified as tax parcel 80.3-2-8 and zoned LI Light industrial. The plan illustrates the general intent of the site development and the configuration for the major elements of the proposed design program. The Site Plan Application was compiled in accordance with the Town of Llyod Zoning Ordinance. The plan is to develop a 4600± sf Batch plant with conveyer system and aggregate piles the existing on-site building will be repurposed as office and support space for the plant.

The project will disturb greater than one acre and will be subject to the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-20-002). A Full Stormwater Pollution Prevention Plan SWPPP) that includes erosion and sediment control measure will be provided.

Beyond the local Land use boards, the project will requires permitting from USACE for wetland disturbance and from NYSDOT for curb cut modification.

Below is a general overview of the Batch Plant Operations.

Concrete is sold by the cubic yard which is a volumetric measurement equal to 27 cubic feet. There are 5 ingredients that, when combined through a mixing process in the mixer drum, will produce ready mix concrete. There is sand (also called fine aggregate), stone (also called coarse aggregate), cement (the powdered binder), admixtures (concrete enhancement water-based solutions) and water (reacts with the cement to make the hardened finished product). Each load of concrete has a specific recipe or mix design to create specific physical characteristics such as compressive strength of the placed concrete.

There are four primary components to a concrete batch plant: Ground aggregate hoppers, conveyor systems, inside aggregate storage and batching building and cement silos.

The ground hoppers are loaded with dump trucks with sand and stone. These hoppers are fully enclosed on four sides and bottom, but open on top to allow for dump truck to dump the sand and stone into the grated hopper. There are small gates on the bottom of the hoppers that are powered by compressed air and electricity. As needed, the batch computer controls an electrical signal that is sent to the requested gate which operates a pneumatic ram that opens and allows the material needed to flow onto the conveyor. The conveyor belt is covered and transports the sand and stone to the aggregate hoppers inside the aggregate building. These hoppers are a set of storage bins separated by steel walls. These internal storage bins are positioned over an aggregate scale. Based on the required mix design, the materials are weighed through a system of pneumatic rams controlled by the batch computer using electrical signals and sensors to make every batch of concrete an exacting recipe. During the

manufacturing process, when the batch computer determines it is time to add the aggregate to the concrete mixer, a long gate at the bottom is the scale opens. In a controlled and continuous manner, the material falls out of the scale onto a running conveyor belt below the scale and elevates the material into a loading hopper that allows the aggregate to fall into the concrete mixer below.

Next to the aggregate building there is a rectangular cement silo containing three individual and separate compartments. The cement silos are designed at a height that facilitates the gravity feeding of the cement into the mixer. Cement is transported to the site using fully enclosed cement haulers. Cement is discharged into the cement silos pneumatically (using low pressure compressed air). The cement hauler is pressurized to pneumatically deliver the cement product to the top of the cement silo using an enclosed and sealed pipe from the cement hauler. In order to prevent over pressurizing of the cement silos during loading, excess air pressure is relieved through a bag house (aka fabric filters) at the top of the cement silo. Such discharges are scrubbed of particulates prevent discharge of fugitive cement emissions to the environment. These filters are routinely inspected in order to maintain efficient and effective filtration. The cement is discharged from the silo using a fully enclosed rubber boot at the bottom of the cement silo into a scale. The batch computer controls a butterfly valve to facilitate and control the flow of cement out of the silo and into the cement scale. Once the batch computer determines the cement is ready to go into the concrete mixer it will use another butterfly valve to control the continuous and gradual flow of material out of the scale and into the concrete truck below. The plant will be equipped with a shroud that is inserted around the discharge hopper at the mixer drum opening. This shroud will utilize a vacuum system with separate filtration to catch fugitive cement emissions during the mixer loading process. The captured cement emissions are recycled, through a blower system, back into the cement silo to be used on the next load. As the cement is placed in the mixer drum it immediately comes into contact with the wet aggregate already in the mixer drum which quells the potential for dust coming from the mixer drum.

There are small portions of water-based admixtures added to the mix (typically measured in ounces) to enhance the desired concrete product as needed for project requirements or weather conditions. The admixtures are stored in tanks inside the aggregate building. The batch computer controls the pumping and metering of the liquid admixture. The admixture is introduced into the waterline at the discharge hopper where it immediately flows into the concrete mixer as the aggregate is being loaded into the concrete mixer.

Well water is also added to the mixer during the loading of the sand, stone, and cement. The water used in the concrete is stored inside a large water tank inside the aggregate building. In the winter, the water is heated using a steam diffuser from a boiler run on nature gas/propane. The water tank is piped into a pump that delivers the necessary water into the concrete mixer

as it is being loaded. If there is water contained in the washout basins, such water will be used in the concrete mix. If the recycle washout basins are empty, well water is used.

The ground floor of the aggregate building will contain a closed-loop three side-by-side wash out basins that are used to rinse the mixer drums at the end of each day for final washout. The washout water is discharged into the first basin to allow the heavier aggregates to settle out. The washout water from the first basin travels to the second basin where the finer material settles out. The washout water continues to the third basin where it is relatively clear of sand and aggregate. The washout water is recovered and is reused in plant operations. The residual sand, stone and cement are recycled and used in future concrete production.

The sand and stone will generally come from aggregate mines generally located within Ulster, Orange and Dutchess counties. The cement will typically be procured from regional cement providers. The cement for this plant will generally be transported from over 2 hours away. The water is sourced from an on-site well and the admixtures are transported from New Jersey. The sand and stone make up about 70 percent of the final combined volume, water making up about 16% and cement making up about 14 percent.

Once all the stone, cement, water, and admixtures are loaded into the truck, the truck will then move to wash out basin where the ingredients are mixed together (at about 17 revolutions a min for 7-10 mins to create the final combined concrete product) and any material on the truck is washed into the washout basin. Once the concrete is of a consistent uniform mix, the truck is ready to leave and deliver the concrete to the local homeowner or business.

Attached for your consideration are some pictures of an existing concrete plant owned by us