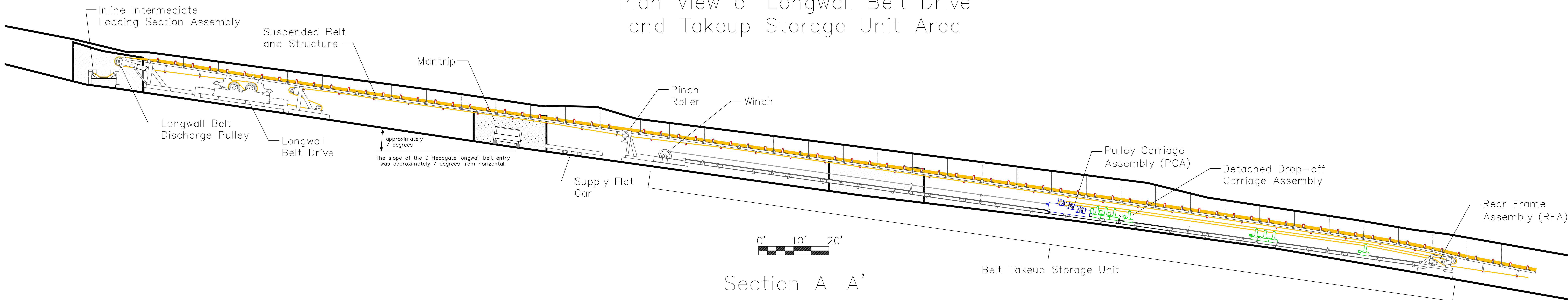
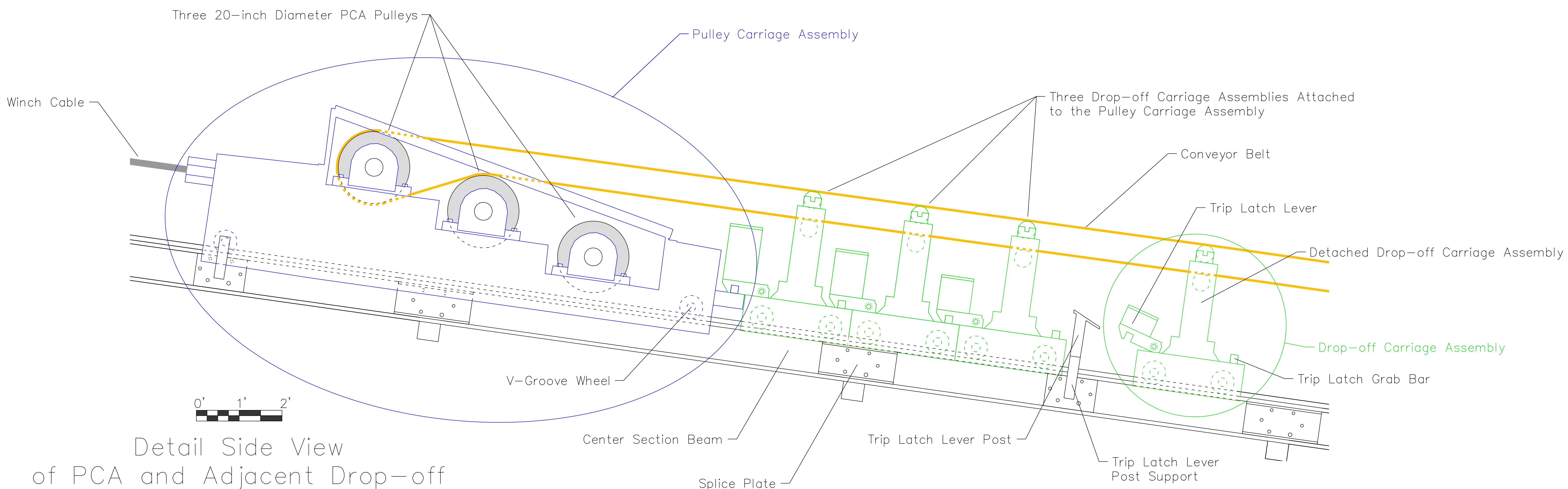


Plan View of Longwall Belt Drive and Takeup Storage Unit Area



Section A-A'



Detail Side View of PCA and Adjacent Drop-off Carriage Assemblies

**BASIC SYSTEM COMPONENTS**

**Center Section Beam** – The I-Beams provided with an angled top that the PCA and drop-off carriage assemblies travel on. Pairs of approximately 10-foot long beams are connected in series, one of each pair on either side of the takeup storage unit, between the RFA and the winch frame.

**Rear Frame Assembly (RFA)** – The portion of the belt storage unit containing three 20-inch diameter pulleys, attached to the center section beams, that provides the stationary end support for the laps of belt in the storage unit.

**Pulley Carriage Assembly (PCA)** – The portion of the belt storage unit containing three 20-inch diameter pulleys that travels along the center section beams on four V-grooved wheels. The PCA provides the movable end of the storage unit that supports the laps of belt that are contained in the unit. The further the PCA is located from the RFA, the more belt that is stored in the belt takeup storage unit.

**Drop-off Carriage Assembly** – A drop-off carriage assembly contains multiple belt rollers that support the laps of belt in the belt takeup storage unit between the PCA and RFA. Eight drop-off carriage assemblies were observed in the 9 Headgate longwall belt takeup storage unit. These assemblies travel along the center section beams on four V-grooved wheels. Each drop-off carriage assembly is fitted with trip latch grab bars and trip latch levers that enable connection of the drop-off carriage assemblies to each other and the PCA.

**Winch** – The winch pulls the PCA with the winch cable to remove stock belt from the conveyor belt system as the longwall tailpiece is pushed toward the drive.

**Trip Latch Grab Bar** – Trip latch grab bars are located on each side of the drop-off carriage assembly and the end of the PCA facing the drop-off carriage assemblies. The trip latch grab bars enable the trip latch levers on the drop-off carriage assemblies to attach the drop-off carriage assembly to the PCA or to the preceding drop-off carriage assembly.

**Trip Latch Lever** – Trip latch levers are installed in pairs at regular intervals along each of the drop-off carriage assemblies. Each pair is to be the same height. The height of each pair of trip latch levers ascends from the shortest, which is to be fitted to the drop-off carriage assembly closest to the RFA, to the tallest, which is to be fitted to the drop-off carriage assembly that attaches to the PCA.

**Trip Latch Lever Post** – Trip latch lever posts are installed in pairs at regular intervals along each of the drop-off carriage assemblies. Each pair is to be the same height. The height of each pair of trip latch lever posts ascends from the shortest, which are to be installed closest to the RFA, to the tallest, which are to be installed closest to the winch.

**SYSTEM OPERATION**

The belt is pulled around the tail pulley and discharge pulleys in the belt conveyor system by the two electric motor driven drive pulleys of the belt drive. The belt takeup storage unit functions as the takeup by maintaining tension in the belt to enable the drive pulleys to move the belt. The belt takeup storage unit enables storage of belt to facilitate its removal in a practical manner for operation of the longwall mining system. When the PCA is located closest to the RFA, the drop-off carriage assemblies are connected to the PCA sequentially in a "train".

Belt is added to the storage unit as the winch pulls the PCA. Drop-off carriage assemblies connected to the PCA are detached and left in place as the PCA advances toward the winch. A specific drop-off carriage assembly becomes detached from the trip latch grab bar of the succeeding drop-off carriage assembly or PCA when the trip latch lever is raised as it contacts the top portion of the appropriate trip latch lever post.

As belt is removed from the storage unit, the PCA is pulled toward the RFA and drop-off carriage assemblies are sequentially reattached to the PCA/drop-off carriage assembly "train".

The pinch roller is a hydraulically powered unit used to facilitate removal of belt from the takeup storage unit. The belt is "pinched" between two rollers and forced out of the takeup storage unit by the turning action of the rollers. The removed belt was manually loaded onto a supply flat car positioned adjacent to the pinch roller.

The belt in the takeup storage unit is depicted as wrapped around the upper PCA pulley. However, it was not determined which PCA pulley the belt was actually wrapped around.

**Notes:**

Floor elevations were determined from elevations depicted on mine maps provided by the mine operator. Roof elevations were estimated from photographs depicting objects of known size.

Individual components of the belt conveyor system, many of which were coated by a total station survey jointly conducted by MSHA and the mine operator, are intended to be depicted for visual descriptive purposes only. All structural and mechanical components are not shown.

Portions of the suspended belt structure shown in the Section A-A' side view was damaged by the fire and fell from the roof. The belt structure and other conveyor belt system components shown are depicted as similar to how they likely existed, based on information collected during the investigation, before the fire and is for demonstrative purposes only.

This mine map and drawing is not intended to be a detailed mechanical drawing. Specific objects may not be to scale. Observed damage of some takeup storage unit components is identified.