Hangmans Gulch Channel Improvements – Phase III

By: Barbara Horton, P.E., Project Manager

This project is located along the Hangmans Gulch Trail between I-25 and the confluence with East Plum Creek (EPC). The primary objective of this project was to address sediment deposits and scour along the trail system due to the incomplete infrastructure.

In accordance with the Stormwater Master Plan, Phase I and II Hangmans Gulch Channel Improvements were completed in 2011 and 2012 at the time the Hangmans Gulch Trail was constructed. Due to budget limitations, the first phases of improvements were understood to only partially stabilize the drainageway and that future improvements would be required as budget became available. Phase III drainageway improvements generally included additional grade control structures to further stabilize the channel downstream of I-25, and reduce erosion and sedimentation along the Hangmans Gulch and EPC Trails.

Soils along the channel bottom and banks of Hangmans Gulch are highly erosive and regular channel maintenance has been necessary since completion of the trail in 2012 to protect the safety of trail users. In addition to grade control, Phase III improvements also included construction of a larger culvert under the EPC trail and modifications at the Union Pacific Railroad crossing to minimize flooding impacts, reduce trail closures and prolong the time period between required maintenance efforts.

Hudick Excavating, Inc., dba HEI Civil was awarded the construction contract. Construction began in June and was substantially completed in September. The total construction cost for the project is approximately $615,000.

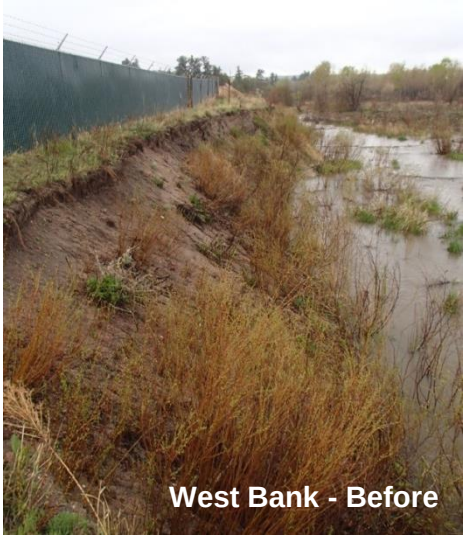
After – 10'x6' box culvert at the EPC trail.

Before – 3-24" culverts following March 2015 maintenance effort.

Before – Culverts completely filled in with sediment following June 2015 storm event.

East Plum Creek Stream and South Well Field Improvements

By: Barbara Horton, P.E. Project Manager



The primary objectives of this project were to protect existing utilities and Town infrastructure along East Plum Creek (EPC) and provide stream stabilization improvements consistent with the Stormwater Master Plan. Improvements include stream and bank stabilization adjacent to the Town's water supply wells.

The stream improvements were needed to address a severely eroded stream bank immediately adjacent to the well field. The wells are a critical component of the Town's renewable water supply system needed to keep up with the projected water demands.

53 Corporation, LLC was awarded the construction contract which began in March and was substantially completed in August. The total construction cost for the Project is approximately $1.2M. This was a multi-disciplined project utilizing Water, Stormwater and Water Resources funds to cover engineering and construction costs.

Steel sheet pile cutoff walls were installed across the stream and sculpted concrete drop structures were constructed to mimic exposed sedimentary rock. This provides an attractive feature in the live stream while guiding and controlling stream flow in EPC.

A critical component of this project is the revegetation effort. We have obligations under Town, State and Federal permitting to restore construction disturbances, which includes wetlands and woody vegetation to restore this area as a vibrant riparian habitat for wildlife and water quality. The construction zone has been seeded and our contractor will be returning in the spring to plant trees, shrubs and wetland plugs.

The Parks Department is working on a designated foot path to the creek and drop structures for limited public access. A concrete trail extension east of the well field is currently under design and Parks has plans to extend a soft surface trail loop thru the project area in the spring. The Town asks that users please refrain from accessing the project area where revegetation is underway.

Overlook of completed project

Douglas Lane Tributary Stabilization

By: Barbara Horton, P.E., Project Manager

This project is located between the Union Pacific Railroad and Plum Creek Boulevard, near the new Fire Station 152. The primary objectives of this project were to manage stormwater runoff, minimize flood hazards and improve water quality along Douglas Lane Tributary, and provide stream stabilization improvements consistent with the Stormwater Master Plan.

Before – looking upstream at Drop 4

After – looking upstream at Drop 4

Channel improvements generally included six grade control structures, with fill and riprap lining along the degraded low flow, to restore the historic channel invert, reduce erosion and protect existing foliage along the drainageway. Due to aggressive stream degradation, several trees have been lost in recent years due to undercutting and erosion in the channel. Although it was impossible to save all existing trees during construction, significant effort was made in the design process to minimize the number of trees to be removed as a result of construction. Additionally, the improvements will help restore essential root support along the drip line of existing trees to maintain ecological health along the corridor.

The project also included improvements to the existing Heckendorf Regional Detention Pond, which was frequently silted in due to channel instabilities, to ensure adequate storage volume during storm events. Storm flows are now being diverted into the northeast corner of the pond, while base flows are continuing along the original channel alignment. This diversion allowed for a new forebay to be constructed further away from the existing outfall. Along with the construction of trickle channels, a micropool with defined boulder edge and replacement of the outlet structure orifice plate and trash rack, the improvements are expected to improve the overall function of the pond and help ensure the outlet structure remains unobstructed to comply with stormwater release requirements.

Drop 3 – flows being diverted into pond

Lawrence Construction Company was awarded the construction contract which began in March and was substantially completed in August. The total construction cost for the project is approximately $800,000.