

DRAINAGE PLAN

ECCO INDUSTRIAL PARK 2ND ADD

Wichita, Sedgwick County, Kansas

OCTOBER 3, 2006
REVISED OCTOBER 17, 2006
REVISED DECEMBER 6, 2006

EXISTING CONDITIONS

Ecco Industrial Park 2nd Addition is located just south of 31st Street South and Hoover Road. The site is currently platted as Ecco Industrial Park. The site is bordered on the north by JI Case Addition, west by open agricultural land, and to the south by a residential subdivision. The site is fronted by Hoover Road to the east.

The site consists of approximately 78 acres of agricultural farmland. For runoff curve number purposes, a cover type of 'pasture – poor condition' was used. The site drains to the east into the Hoover Road right of way and through existing 4-36"x48" HECMP. These pipes then drain to the east and eventually into the Wichita-Valley Center Flood Control ditch. To the east of the HECMP, the drainage flows to the base of the ditch and into Sedgwick County property (per ¼ section maps, part of the Big Ditch Condemnation Case). The flow into the ditch is via 4-36" RCP with flap gates.

The north (JI Case Addition) drains to the south and into a concrete lined ditch on their property. This ditch then drains east into the Hoover ROW ditch. The south subdivision drains to the north through an existing 8'x5' RCBC under 35th Street, through a ditch section, then to the existing 4 HECMP.

There does not appear to be any offsite drainage encroaching the property from the west. The adjoining lots to the south appear to drain to the east and into the ditch section. There may be minimal sheet flow onto the proposed site from these lots.

DEVELOPED CONDITIONS

The site will eventually be developed as industrial. No layout or plan has been presented to Baughman Company, PA for the future development as of this plan date. A curve number of 88 was used for industrial areas in Type B soils.

Two dry detention ponds will be utilized adjacent to Hoover Road to detain the developed runoff. Developed runoff will be directed to the pond via storm water sewer, flumes, ditches, or approved methods. The ponds will drain into the existing right of way via storm water sewer.

A crossing will be utilized near the center of east property line off of Hoover Road. This crossing will require two structures. There are currently two ditch sections in the Hoover Road ROW. A shallower ditch adjacent to Hoover, which drains the Hoover ROW and a larger ditch which drains the south offsite drainage. Two ditches are utilized due to gas pipelines running in the center of the ROW. Crossing the shallower ditch will require an 18" RCP. The larger ditch will require at least a 8'x5' RCBC.

DETENTION

The pond was designed to limit the total site runoff to existing conditions. Upon development, the site will drain into two similar detention ponds located near Hoover Road. The north 39 acres as well as the south 39 acres will drain into the proposed ponds and then will discharge into the Hoover Road right of way, as the runoff currently does.

The existing 5-year flow to the HECMP from the site is 103 cfs. Upon development, the flow to this point after detention will be 80 cfs. The 100-year discharge to the existing pipes currently is 270 cfs. After detention, the flow from the site will be 270 cfs. Detention to existing conditions has been provided per City of Wichita standards. Flow to the pond and Hoover ditch sections will be provided via storm water sewer, swales, ditches, or other approved method. The ponds are expected to drain into the Hoover ROW via 24" RCP's with a 30' grass-maintained overland flow weir section at an elevation of 1292.5.

The detention will limit the overall site to existing conditions. The detention analysis as well as the peak runoff calculations did not consider the storage capacity in any of the ditch sections. Based on rough observations, there may be up to 10 ac-ft of storage in the ditch sections to the north and south of the proposed site.

NOTES

There is no FEMA mapped floodplain or floodway on this property as of October 3, 2006. The entrance crossing will utilize the same size of box structure as the 35th Street crossing downstream. Based on capacity, the HECMP under Hoover appears to be sized for the 5-year flow. The Hoover ROW ditch section and existing HECMP will need to be cleaned out upon construction of the new entrance. No storage was calculated for the adjacent JI Case concrete lined ditch as well storage from the south offsite ditch.

It appears the structure under Hoover Road is properly sized for the 5 year storm. To our knowledge, there is no history of overtopping of Hoover Road. As stated previously, no storage was calculated in the existing ditch sections. Hoover Road is not expected to overtop based on these conditions. Peak Flows were used for the capacity of the structures. No unsteady flow model was produced, PondPack software was used to calculate peak flows from all basins.