

General Project Description/Stormwater Management

GENERAL PROJECT DESCRIPTION

Boer Brothers Heating and Cooling is proposing to re-develop the subject tract (Parcel Identification Numbers: 9769217639 and 9769219629) located along northerly side of NC 54, to the east of the intersection with Carrie Road (Private Road) in Orange County, North Carolina. The existing site consists of a partially wooded lot with a concrete foundation and asphalt driveways and parking areas. The proposed project area is approximately 2.63 acres and will include the construction of one (1) office building and two (2) warehouse buildings, totaling 13,772 square feet. Associates site improvements such as parking/loading areas, a stormwater conveyance system, enhanced infiltration basin, enhanced water and septic facilities, landscaping and lighting necessary to support the development. Access to the site will be provided by the two (2) existing full access driveways; one (1) onto NC-54 and one (1) onto Carrie Road. Minor modifications to the existing driveways will be made to facilitate access to the site. Pertinent data characterizing the existing and proposed site conditions are shown on the accompanying Site Plans.

STORMWATER MANAGEMENT

As previously indicated, the proposed project is a re-development of this site. The current proposal is to reduce existing on-site impervious area on-site from 43,903 sf to 40,505 sf; a 3,398-sf reduction. Based on the impervious area reduction and the new NC statute, the proposed development is exempt from water quality requirements. Additionally, the Applicant is requesting that the current non-conforming situation be allowed to remain with regard to the current standards for the WM-3 zoning district. An impervious area reduction will also create a reduction in stormwater runoff from the site. Even though a stormwater BMP is not required (based upon the impervious area reduction), the applicant has agreed to propose an infiltration basin to improve water quality in the area as well as further attenuate peak flows from the site. Design calculations for the 1-, 2-, 5-, 10- and 25-year storms will be analyzed for the site.

Under pre-development conditions, one (1) point of interest. POI#1 (located at the southeasterly portion of the drainage area) will be analyzed. This point of interest has been depicted on the Pre-development Drainage Area Plan (included at the end of this report) with associated drainage path and time of concentration for the watershed. Hydrographs have been generated for the 1-, 2-, 5-, 10- and 25-year storm events.

The post development conditions maintain the point of interest for the site. The overall drainage area has been subdivided into three drainage areas due to the proposed development. Post development area #1A follows the existing ditch traveling along Carrie Road and NC 54. Post development area #1B travels through the site via a stormwater conveyance system to be collected by an infiltration basin. Post development area #1C travels along the easterly property line of the site via concentrated surface flow until it reaches the common POI#1. Hydrographs have been generated for the 1-, 2-, 5-, 10- and 25-year storm events.

The infiltration basin has been designed in accordance with the Town of Carrboro Stormwater Regulations and NCDENR Stormwater BMP Manual requirements. The infiltration basin has been designed to drain in 48 hours as specified in the Town's regulations. The infiltration basin will also provide stormwater runoff rate control, and has been designed to reduce the post-development peak flows rates for the 25-year storm events to at or below the corresponding pre-development peak flow rates.

The USDA NRCS Hydrologic Urban Hydrology for Small Watersheds was utilized for calculating the peak runoff rates and generating hydrographs for the pre-development and post-development as defined in the computer watershed software "Hydraflow Hydrographs Extension for AutoCAD Civil 3D 2015". The hydrographs were generated based upon the precipitation amounts provided by NOAA Atlas 14, Volume 2, Version 3 for each storm event.

The storm drainage system was designed to intercept runoff at topographic low points and areas of significant runoff quantities and convey the stormwater runoff to the infiltration basin. Bently® StormCAD® V8i has been utilized for designing the stormwater conveyance system. Conveyance design precipitation amounts are based upon NOAA Atlas 14, Volume 2, Version 3 for each storm event.