

## **SUMMARY**

Five soil borings were made for this study to determine the subgrade soil conditions along five streets in Huber Heights, Ohio. The five streets are: Tomberg Street, Ansbury Drive, Hubbard Drive, Barnard Drive, and Hemingway Road.

Based on information from the five borings made for this study, the thicknesses of the asphalt pavement and granular base are tabulated in Table 1.

**Table 1. Thickness of Asphalt Pavement and Base**

Boring No.	Street	Thickness of Asphalt Pavement (inches)	Thickness of Granular Base (inches)
1	Hemingway Road	4.5	10.5
2	Hubbard Drive	5.0	12.0
3	Ansbury Drive	5.0	9.5
4	Tomberg Street	4.0	13.0
5	Barnard Drive	3.5	N/A

The subgrade soils encountered below the pavement and/or base consisted of silty sand with gravel, sandy lean clay, silty lean clay, and clayey silt. In the vicinity of Borings 1 and 2, the original soil is very soft or very loose with “N” values between 0 and 3 blows per foot. The very loose soil was encountered in Boring 1 at a depth of 3.5 feet. The very soft soil was encountered in Boring 2 at depths of 3.5 to 10 feet.

Based on the Soil Survey of Montgomery County, Ohio from the United States Department of Agriculture Soil Conservation Service, the soil are classified as outlined below in Table 2.

**Table 2. USDA Soil Classifications**

Boring No.	Street	USDA Classification
1	Hemingway Road	CsA (Crosby Silt Loam) & MIB (Miamian Silt Loam)
2	Hubbard Drive	MoB (Miamian – Urban Land Complex, Undulating)
3	Ansbury Drive	MoB (Miamian – Urban Land Complex, Undulating)
4	Tomberg Street	MoB (Miamian – Urban Land Complex, Undulating)
5	Barnard Drive	MoB (Miamian – Urban Land Complex, Undulating)

Based on the information provided in the Soil Survey of Montgomery County, Ohio from the United States Department of Agriculture Soil Conservation Service, the pH of the CsA soil can range from 5.1 to 7.3 within the top 28 inches and will range from 7.4 to 8.4 at a depth of 28 to 79 inches. The pH of the MIB soil can range from 5.6 to 7.8 within the top 36 inches and will range

from 7.4 to 8.4 at a depth of 36 to 79 inches. The pH of the MoB soil can range from 5.1 to 6.5 within the top 24 inches and will range from 7.4 to 8.4 at a depth of 28 to 79 inches. A detailed summary report of the chemical soil properties from the Soil Survey of Montgomery County, Ohio at each boring location is included in Section III.

As outlined in Table 2-2, the pH levels of the soils from the samples collected for this study were determined to be between 8.0 and 9.1. Again, a pH level of 5 or below can lead to extreme corrosion rates and premature pitting of metallic objects.

The water soluble sulfate levels from the soil samples collected for this study ranged from 30 to 61 mg/kg (ppm). Based on the ACI Building Code 318, a water soluble sulfate content of 1,000 mg/kg (ppm) and less can be considered negligible. Thus, the maximum detected water soluble sulfate of 61 mg/kg (ppm) can be considered negligible.

The water soluble chloride levels from the soil samples collected for this study ranged from <3 to 130 mg/kg (ppm). Based on ACI Building Code 318, water soluble chloride of 0.06% (600 ppm) by weight or greater requires corrosion protection for any pre-stressed concrete members. Thus, the maximum detected water-soluble-chloride of 130 mg/kg (ppm) is less than the maximum value of 0.06% (600 ppm) by weight.

In conclusion, the soil samples collected from the five borings are representative to the classifications provided in the Soil Survey of Montgomery County, Ohio from the United States Department of Agriculture Soil Conservation Service at the boring locations. Based on the laboratory testing of the samples, the pH levels at these test locations tend to be on the upper limit of the specified ranges (>7) outlined in the Soil Survey of Montgomery County, Ohio from the United States Department of Agriculture Soil Conservation Service. As a result, the soils at the tested locations do not have a pH level of 5 or below, which can lead to extreme corrosion rates and premature pitting of metallic objects. However, it should be noted that individual test borings are representative of the subsurface conditions at the boring locations on the dates shown, they are not necessarily indicative of subsurface conditions at other locations or at other times.