ITCO ALLIED ENGINEERING CO.

AN ALLIANCE OF INSTANT TESTING COMPANY AND ALLIED TEST DRILLING
Jobsite and Laboratory Testing, Geotechnical Services
Commercial, Residential and Municipal
4029 West 125th Street, Savage, MN 55378
Telephone: 952-890-7366 50 th anniversary 2018 Fax: 952-890-5883

February 16, 2022

Ron Olson Construction.
6970 Inwood Road
Cologne, Minnesota 55322

Re: Joyce Road & 159th Street
San Francisco Township, Carver County, Minnesota

This memo updates the information obtained in Soil Boring Report 21031, Test pits made September 23, and addendum's 1 & 2.

Current MNDOT design standards call for a pavement GE of 21" and a minimum bituminous GE of 7" for a HCADT of 151 to 300 and a soil factor of 100.

It is planned to remove the upper 4 inches of class 5 limestone before building the section. This will be recycled and replaced on top of the granular layer.

In order to meet these standards I propose to use the following section:

1. Bituminous wearing course	2 inches at 2.25 =	4.50"
2. Bituminous base course	3 inches at 2.25 =	6.75" or 10.75" req'd 7"+
3 . New Class 5	3 inches at 1.00 =	3.00"
4. Recycled Class 5 Limestone	4 inches at 1.00 =	4.00"
5. Pit run sand from pit	12 inches at 0.50 =	6.00"
Total pavement GE		24.25" req'd 21 inches

Questionable soils were observed in borings B-3 and B-4. These soils were identified as topsoil in our original report dated June 31, 2021. Organic content tests run by others (Soil Engineering Testing) showed that the soil in B-3 had an organic content of 2.0 percent. This type soil is approved by MNDOT standards and can remain in place. The soil in B-4 had an organic content of 4.1 percent. It was classified as a silty sand by them. A soil of this type has a porosity approaching 30 percent. In my opinion, there is plenty of room for the organics without affecting the bearing of the sand grains on each other.

This soil was reinforced by placing sixteen inches of 3138 Class Limestone above it. The design calls for placing 12 inches of granular soil and an additional 3 inches of Class 5 above it. Total 31 inches below the grade of the bituminous. In my opinion this soil will not be detrimental to the roadway.

Additionally, The roadbed has not had a history of frost boils or any problems occuring because of buried organics.

The dark horizon B material in Test Pit 10 is to be covered by 33 inches of granular soil and can be approved for the same reasons.

I hope this clarifys the foregoing reports.

Sincerely,
Itco Allied Engineering Co.

Gordon J. Kopacek, P. E.
Pres.

Gordon J. Kopacek, P. E.
President
Registration No. 7254