

Empire Laboratories, Inc.

MATERIALS AND FOUNDATION ENGINEERS

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July 25, 1979

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M & I, Inc.
4710 South College Avenue
Fort Collins, Colorado 80525

Attention: Mr. Lloyd McLaughlin

Re: Cedar Village, Fifth Filing
Fort Collins, Colorado
ELI Project No. 3704-79

Gentlemen:

We are pleased to submit a "Report of a Pavement Design" for Cedar Village, Fifth Filing, Fort Collins, Colorado. The investigation was carried out by means of obtaining samples by hand and performing laboratory tests on these samples. The objective of this report is to make pavement design and subgrade recommendations for the proposed streets/

The field investigation, carried out on July 18 and 19, 1979, consisted of hand sampling five (5) test holes. The locations of the test holes are as follows:

- #1 - Center of intersection of Tawson and Dunbar Avenues
- #2 - Center of Haywood Place cul-de-sac
- #3 - Center of intersection of Haywood Court and Dunbar Avenue
- #4 - Center of intersection of West Swallow Road and Claremont Drive
- #5 - Center of intersection of Trenton Way and Dunbar Avenue

The site is an open, rolling area vegetated with knee-high thistle and hay. The property is high on the north side and low to the south, and the northern portion is traversed by irrigation ditches. Land to the east and west is undeveloped. The property to the south is being developed, and residences exist to the north.

The site is generally overlain by one (1) foot of silty topsoil. The upper six (6) inches of the topsoil have been penetrated by root growth and organic matter. The topsoil is underlain by sandy silty clay. The clay contains varying amounts of sand and is moderately plastic in situ.



Soils were classified and group indexes determined at various locations within the proposed subdivision for the purpose of developing criteria for the pavement design. Group indexes of the upper soils at the site range from 3.9 to 11.3. Using these criteria for pavement design, recommended pavement thicknesses for this area are as follows:

Residential Streets

Select Gravel Base Course	5"
Asphaltic Concrete	<u>2"</u>
Total Pavement Thickness	7"

Collector Streets

Select Gravel Base Course	8"
Asphaltic Concrete	<u>2"</u>
Total Pavement Thickness	10"

Arterial Streets

Select Subbase	5"
Select Gravel Base Course	6"
Asphaltic Concrete	<u>2"</u>
Total Pavement Thickness	13"

All topsoil, organic matter, and other unsuitable materials should be stripped and removed from the street subgrade prior to placing any fill material, subbase, or base course. All subbase, base course, and asphaltic concrete shall meet City of Fort Collins Specifications and should be placed in accordance with these specifications.

<u>Steve Size</u>	<u>% Passing</u>
1"	90-100
3/4"	60-90
#4	30-65
#10	20-55
#200	5-15
Liquid Limit - 25 Maximum	
Plasticity Index - 5 Maximum	

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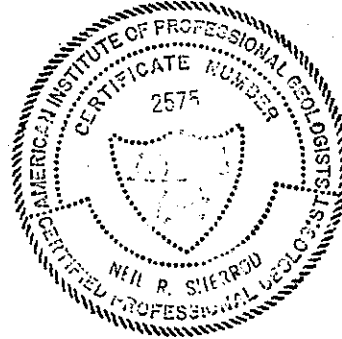
If streets are paved prior to construction, we recommend that the asphaltic concrete consist of two (2) lifts, each one and one-half (1½) inch thick. The final lift should be placed following completion of all construction. Any failed sections resulting from the construction traffic should be removed and replaced prior to placement of the final lift.

Very truly yours,

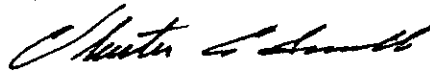
EMPIRE LABORATORIES, INC.



Neil R. Sherrod
Vice-President



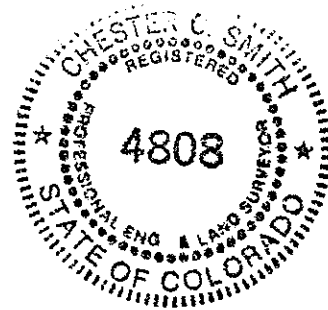
Reviewed by:



Chester C. Smith, P.E.
President

clc

Enclosure



SUMMARY OF TEST RESULTS

Atterberg Summary

Boring Number	1	2	3	4	5
Depth (Ft.)	1.0-2.0	1.0-2.0	1.0-2.0	1.0-2.0	1.0-2.0
Liquid Limit	35.5	34.0	33.0	40.8	33.9
Plastic Limit	18.8	19.8	18.8	20.4	20.4
Plasticity Index	16.7	14.3	14.2	20.4	13.5
% Passing #200 Sieve	50.5	59.0	47.6	70.1	76.1
Group Index	5.5	6.5	3.9	11.3	9.4

Classification

Unified	CL	CL	SC	CL	CL
AASHTO	A-6(6)	A-6(7)	A-6(4)	A-7-5(11)	A-6(9)