

Pickering Fire Station #2

Pavement Report



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July 26, 2021

The Greer Galloway Group Inc.
1620 Wallbridge Loyalist Road
Belleville, Ontario
K8N 4Z5

Re: Pickering Fire Station #2
Project Number 21-3-5515

Existing Conditions

The fire station was investigated on July 20, 2021.

The existing pavement consisted of various lifts of HL3 and HL4 hot mix.
The existing pavement was in relatively poor condition, as follows.

HL3 poor condition, extensive severe multiple alligator cracking.
HL4 fair condition, some coarse aggregate loss.
HL4 patches poor condition, frequent coarse aggregate loss.
Concrete Pad frequent severe multiple map cracking. Some potholes.

Pavement Core Data

Core	HL3	HL4	HL3	HL4	Total (mm)	Observations
1	36	30	---	19	85	
3	---	27	50	30	107	
4	---	24	28	25	77	
5	---	25	---	26	51	
6	---	32	---	44	76	
7	34	---	26	---	60	full-depth cracking
8	---	41	---	46	87	
9	210	Concrete			210	

Test Hole Data

10

0	-	90	HL3 asphalt
90	-	300	cr gr & sa -dry, compact
300	-	450	br f sa so gr -moist, compact

11

0	-	60	HL4 asphalt
60	-	220	cr gr & sa -moist, dense
220	-	450	br si sa w gr -moist, compact

12

0	-	60	HL3 asphalt
60	-	200	cr gr & sa -moist, dense
200	-	400	br med sa w gr -moist, dense

The typical asphalt depth ranged from 60-90mm, with an average asphalt depth was 80mm.

The asphalt lifts were relatively thin due to past milling and resurfacing efforts.

Crushed gravel granular base materials were encountered beneath the asphalt cores.

The typical thickness of the granular base was 150mm.

The quality of the existing granular base material was acceptable.

The concrete pavement had a layer of standard horizontal wire mesh near the bottom of the slab.

Clear stone material was encountered beneath the concrete slab.

The typical subgrade soil in this area consists of stiff clay.

The surface drainage of the site is provided by a central storm drain and the general drainage appeared to be functioning well.

Recommendations

Rehabilitation

Break-up and remove the existing hot mix, and dispose off site.

Proof-roll the exposed surface with heavy compaction equipment, to check for problem areas.

Allow for fine grading with up to 50mm new Granular A throughout the pavement areas.

The Granular A should consist of a predominantly gravelly material.

Construction Issues

Should problem areas be uncovered during the proof rolling, proceed as follows.

Repair problem areas by excavating the soft soil and backfilling with compacted Granular A.

Specify a contingency allowance in the contract to repair these problem areas, to be used only if needed. The suggested quantity for the contingency allowance is 227 tonnes Granular A.

New Hot Mix

Pave with new hot mix.

40mm HL3 HS

50mm HDBC

(over compacted Granular A base)

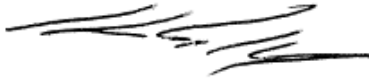
Specify materials for hot mix pavement as per OPSS 1150 (Marshall mixes).

SuperPave hot mix can be substituted for conventional Marshall mixes if desired, as per OPSS 1151. The mix types would be SP12.5 FC1, over SP19.0.

The asphalt cement for hot mix should have a minimum rating of PGAC 58 -28.

Stipulate in the contract that all hot mix paving operations shall be carried out in strict accordance with OPSS 310 specifications.

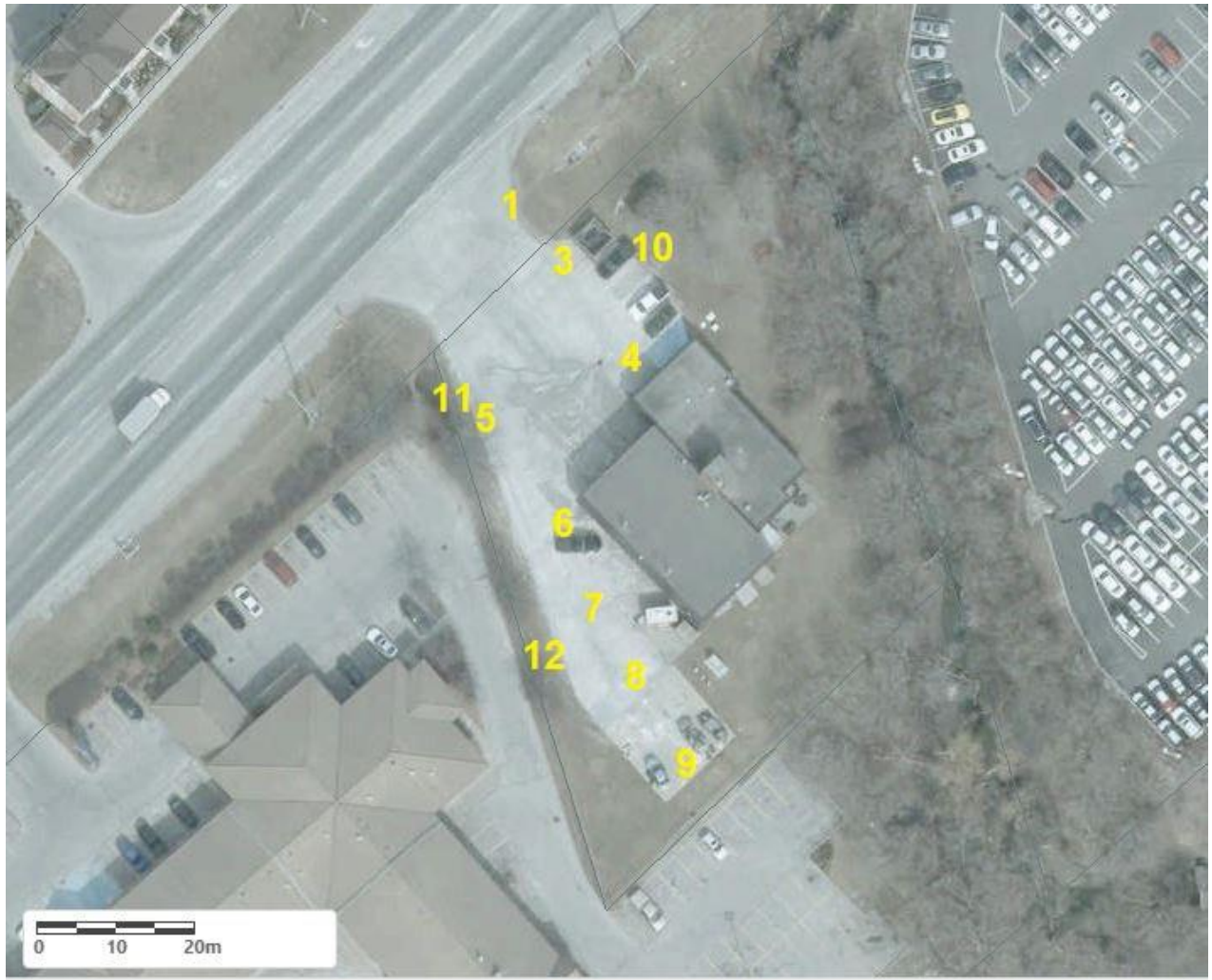
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**TERRASPEC ENGINEERING INC.
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Site Photo Showing Test Hole Locations