

SCR

27

Introduced: 5/13/83
Referred: Transportation

1 IN THE SENATE

BY THE TRANSPORTATION COMMITTEE

2

SENATE CONCURRENT RESOLUTION NO. 27 am

3

IN THE LEGISLATURE OF THE STATE OF ALASKA

4

THIRTEENTH LEGISLATURE - FIRST SESSION

5

Relating to the designation of three

6

sites for the application of high float

7

emulsion asphalt.

8

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

9

WHEREAS a substantial portion of the state's money is spent on the rehabilitation and rebuilding of our highways; and

10

11

WHEREAS the present road building techniques are ~~extremely~~ ^{expensive} expensive

12

and may not be the most cost effective method for northern climate high-

13

ways; and

14

WHEREAS the Yukon Territory Department of Highways and Transportation

15

has had success with a ~~less expensive and more durable~~ ^{surfacing} ~~surfacing~~ technique

16

known as high float emulsion asphalt; and

17

WHEREAS the climate and highway demands of Alaska are very similar to

18

the climate and highway demands of the Yukon Territory; and

19

WHEREAS there are highway surfaces in the Interior region, the ~~South-~~

20

central region, and the Southeast region that are in need of rehabilitation

21

and could therefore be designated as test sites for an alternate surfacing

22

technique;

23

BE IT RESOLVED by the Alaska State Legislature that the governor is

24

respectfully requested to direct the commissioner of transportation and

25

public facilities to designate a representative site in each of the Interi-

26

or, the Southcentral and the Southeast regions to be used as a test appli-

27

cation site for high float emulsion asphalt; and be it

28

FURTHER RESOLVED that the Department of Transportation and Public

29

Facilities document the cost effectiveness of the test applications and

engineering & const. considerations and

① Progress
with

- 1 report its findings and recommendations to the governor and legislature
- 2 within 10 days of the convening of the 14th Alaska Legislature.

Alaska State Legislature

House of Representatives

Committee on Transportation

Pouch V
State Capitol
Juneau, Alaska 99811
(907) 465-4858



Rep. Bette Cato, Chairman

Tuesday, June 21, 1983

AMENDMENTS TO SCR 27 am

- P. 1, line 11: delete the word "extremely"
- P. 1, line 15: delete the words "less expensive and more durable"
- P. 1, line 19: delete the word "South-"
- P. 1, line 29: add after the word document " engineering and construction considerations and"
- P. 2, line 1: add before the word report "progress"
- P. 2, line 1: add after the word report "with"

1 IN THE SENATE BY THE TRANSPORTATION COMMITTEE
2 SENATE CONCURRENT RESOLUTION NO. 27 am
3 IN THE LEGISLATURE OF THE STATE OF ALASKA
4 THIRTEENTH LEGISLATURE - FIRST SESSION

5 Relating to the designation of three
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↑
engineering and construction considerations and

progress
① ↓ report ↓ with its findings and recommendations to the governor and legislature
2 within 30 days of the convening of the 14th Alaska Legislature.

*Tom - excellent
witness - been
working w/Caridians
on this - gave a
slide presentation
to Senate Transp.
Committee*

SCR 27 TITLE & SPONSOR SUMMARY

12:20 6/15/83 PAGE 1 OF 3

AMENDED TITLE: SCR 27AM

RELATING TO THE DESIGNATION OF THREE SITES FOR THE APPLICATION
OF HIGH FLOAT EMULSION ASPHALT

PRIME SPONSOR: SENATE TRANSPORTATION COMMITTEE.

CO-SPONSORS:

CURRENT STATUS: 6/01/83 IN (H) TRANSPORTAT

SCR 27 SENATE ACTION

12:21 6/15/83 PAGE 2 OF 3

DATE	SEQ	PAGE	LEGISLATIVE ACTION
05/13/83	01	0977	FIRST READING -- COMMITTEE REPORTS
05/20/83	02	1057	TRAN -- DP(AM)03
05/31/83	03	1147	RLS -- OTHER04 TAKEN UP IMMEDIATELY
05/31/83	04	1151	SECOND READING
05/31/83	05	1151	AM01 ADOPTED BY UNAN CONSENT
05/31/83	06	1152	PASSED BY DIV 18-00-02

**** ** ** *** ** *

SCR 27 HOUSE ACTION

12:21 6/15/83 PAGE 3 OF 3

DATE	SEQ	PAGE	LEGISLATIVE ACTION
06/01/83	07	1626	FIRST READING -- COMMITTEE REPORTS TRANSPORTATION RULES

**** ** ** *** ** *

COMMITTEE REPORT

HOUSE

FURTHER:

(9)

5/1/83

Date:

6/21/83

Speaker:

The Committee on TRANSPORTATION has had SCR 27am

"Relating to the designation of three sites for the application of high float emulsion asphalt.

under consideration and reports it back as follows:

[X] do pass [] do not pass

[] do pass with attached amendments(s)

[X] replace with CS for SCR 27 (Transportation) [^] same title [] new title and recommends _____

[] AND attaches a "Letter of Intent" [] New Fiscal Note [] Zero Fiscal Note Attached

[] reports it back without recommendation

[] referred to the _____ Committee

MEMBERS SIGNING DO PASS

MEMBERS HAVING OTHER RECOMMENDATIONS:

[Signature]
[Signature]
[Signature]
M.W. Miller
[Signature]
[Signature]
[Signature]
[Signature]
[Signature]
[Signature]

[Signature]
CHAIRMAN

SCR 27 TITLE & SPONSOR SUMMARY 1 11:09 6/27/83 PAGE 1 OF 3
AMENDED TITLE: HCSSCR 27(TRSF)
RELATING TO THE DESIGNATION OF THREE SITES FOR THE APPLICATION
OF HIGH FLOAT EMULSION ASPHALT

PRIME SPONSOR: SENATE TRANSPORTATION COMMITTEE.

CO-SPONSORS:

CURRENT STATUS: 6/25/83 (S) CONCURRD (H) AM

SCR 27 SENATE ACTION 11:09 6/27/83 PAGE 2 OF 3

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05/13/83	01	0977	FIRST READING -- COMMITTEE REPORTS
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05/31/83	05	1151	AM01 ADOPTED BY UNAN CONSENT
05/31/83	06	1152	PASSED BY DIV 18-00-02
06/25/83	12	1501	CONCURRED IN HOUSE AMS BY DIV 15-00-05
****	**	**	*** ** *

SCR 27 HOUSE ACTION 11:09 6/27/83 PAGE 3 OF 3

DATE	SEQ	PAGE	LEGISLATIVE ACTION
06/01/83	07	1626	FIRST READING -- COMMITTEE REPORTS
06/23/83	08	1929	TRAN -- CS06
06/24/83	09	1956	SECOND READING
06/24/83	10	1956	TRAN CS ADOPTED BY UNAN CONSENT
06/24/83	11	1956	PASSED BY DIV 37-00-03

Alaska State Legislature

SENATOR
H. PAPPY MOSS
PO BOX 182
DELTA JUNCTION, ALASKA 997. 7
(907) 895-4384



WHILE IN JUNEAU
POUCH V
JUNEAU, ALASKA
99811
(907) 465-4921

State Senate

MEMORANDUM

June 24, 1983

FROM: M. Clyde Stoltzfus
TO: H. Pappy Moss
SUBJECT: House Committee Subsitute to SCR 27am

I have attached, for your information, a copy of the amended Transportation version and a copy of the House Committee subtitute for SCR 27 "Relating to the designation of three sites for the application of high float emulsion asphalt." The words highlighted in orange on the Senate version were left out by the House while the words highlighted in yellow on the House version were added by the House Transportation Committee. None of the changes change the orginal intent of the legislation.

Introduced: 5/13/83
Referred: Transportation

1 IN THE SENATE BY THE TRANSPORTATION COMMITTEE
2 SENATE CONCURRENT RESOLUTION NO. 27 am
3 IN THE LEGISLATURE OF THE STATE OF ALASKA
4 THIRTEENTH LEGISLATURE - FIRST SESSION
5 Relating to the designation of three
6 sites for the application of high float
7 emulsion asphalt.
8 BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:
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18 the climate and highway demands of the Yukon Territory; and
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20 central region, and the Southeast region that are in need of rehabilitation
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22 technique;
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26 or, the ~~Central~~ central and the Southeast regions to be used as a test appli-
27 cation site for high float emulsion asphalt; and be it
28 FURTHER RESOLVED that the Department of Transportation and Public
29 Facilities document the cost effectiveness of the test applications and

Offered: 6/23/83
Referred: Rules

Original sponsor: Transportation Committee

1 IN THE SENATE BY THE TRANSPORTATION COMMITTEE
2 HOUSE CS FOR SENATE CONCURRENT RESOLUTION NO. 27 (Transportation)
3 IN THE LEGISLATURE OF THE STATE OF ALASKA
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29 tions and the cost effectiveness of the test applications and submit a

1 progress report with its findings and recommendations to the governor and
2 legislature within 10 days of the convening of the Fourteenth Alaska Legis-
3 lature.

Alaska State Legislature
House

ALASKA

MESSAGE TO THE SENATE

Date June 23, 1983

MR. PRESIDENT:

The House ~~has~~ passed SCR 27am (designation of three sites for the application of high float emulsion asphalt) with the following amendment:

HCSSCR 27(Trsp) ~~(same title)~~

and ~~it is~~ returned for consideration.

concur-?

Copy - Moss ✓

Bessie Cackren
Chief Clerk of the House

COMMITTEE REPORT
SENATE

5/13/83

FURTHER:

Date: May 19, 1983

Mr. President:

The Committee on Transportation has had SCR 27

Relating to the designation of three sites for the application of high float emulsion asphalt.

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

- do pass do not pass
- do pass with attached amendments(s) same title
- replace with CS for _____ new title
- and recommends _____
- AND attaches a "Letter of Intent" New Fiscal Note
- reports it back without recommendation
- referred to the _____ Committee

MEMBERS SIGNING
DO PASS

MEMBERS HAVING
OTHER RECOMMENDATIONS:

[Signature]

[Signature]

CHAIRMAN

Introduced: 5/13/83
Referred: Transportation

1 IN THE SENATE BY THE TRANSPORTATION COMMITTEE
2 SENATE CONCURRENT RESOLUTION NO. 27
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28 FURTHER RESOLVED that the Department of Transportation and Public
29 Facilities document the cost effectiveness of the test applications and

- 1 report its findings and recommendations to the governor and legislature within 10 days of the convening of the 14th Alaska Legislature.
- 2 ~~within an appropriate period after the application of high float emulsion~~
- 3 ~~asphalt to the three test sites.~~

STATE OF ALASKA
FISCAL NOTE

I. REQUEST

Bill/Resolution No.: SR 6/SCR 27
 Title: Re. designation of 3 sites/asphalt
 Sponsor: Transportation Committee
 Requestor: Ray

II. FISCAL DETAIL

Agency Affected: DOT&PF
 Program Category Affected: Research
 BRU, Program or Subprogram(s) Affected: Interior Region

EXPENDITURES/REVENUES: (Thousands of Dollars)

	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88
OPERATING						
100 PERSONAL SERVICES		8.0	2.5	2.5	2.5	2.5
200 TRAVEL		2.6	.9	.9	.9	.9
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC						
TOTAL OPERATING		10.6	3.4	3.4	3.4	3.4
CAPITAL		80.0				
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND		90.6	3.4	3.4	3.4	3.4
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

III. SOURCE OF FUNDS TO OFFSET FISCAL IMPACT OF BILL:

IV. ANALYSIS: Attach a separate page for any Analysis

Prepared By: Billy Connor

Phone: 479-2281

Division: Research

Date: 5/17/83

Approved by Commissioner: H. Glenzer, Jr.

Date: 5/17/83

Department: DOT&PF

Distribution:

- Original to Legislative Finance
- Copy to Office of Management and Budget (for Legislature introduced bills)
- Copy to Department (for Governor introduced bills)
- Copy to Sponsor
- Copy to Requestor (if different from Sponsor)

3/8/83

IV ANALYSIS

Operating Funds

FY 84

100 personal services
 2 researchers 10 days \$800/day \$ 8,000

200 travel
 1 trip to Haines \$1,600
 1 trip to Soldotna 1,000
2,600

TOTAL FY 84 \$10,600

FY85-88

1 trip to each location

100 personal services \$ 2,500
 200 travel 850

TOTAL \$ 3,350

Estimate of Costs

Central

Asphalt: 35 X \$250 \$8,750
 Aggregate: 328 X \$12 3,940
 Reconditioning: 7,920
 Subtotal \$20,610

Interior

Asphalt: 35 X \$250 8,750
 Aggregate: 328 X \$18 5,900
 Reconditioning: 7,920
 Subtotal \$22,570

SE

Asphalt: 35 X \$250 8,750
 Aggregate: 328 X \$18 5,900
 Reconditioning: 7,920
 Subtotal \$22,570

\$65,750

20% mobilization 13,150

TOTAL \$78,900

STATE OF ALASKA

BILL SHEFFIELD, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

P. O. BOX 1467
JUNEAU, ALASKA 99802

April 29, 1983

RE: Meeting with Yukon Territory
Highway and Transportation
Officials

FILE: 1802



Honorable Randy E. Phillips
Representative
Alaska State Legislature
Transportation Committee
Pouch V
Juneau, AK 99811

THROUGH: Fred Seeger, Deputy Commissioner

Dear Representative Phillips:

Attached for your information is a copy of the trip report by Department representatives who visited Yukon Territory highway officials on April 21 and April 22, 1983.

Although I was originally scheduled to make the trip, I was unable to go for medical reasons. I have talked to Mr. Larry Blackman in Whitehorse over the telephone several times. We have extended to him the courtesy of reciprocating information exchange trips whenever he sees the need. In fact, since the meeting in Whitehorse, Mr. Blackman has asked for copies of our truck size and weight statutes and regulations. Apparently, they intend to require the same limitations on the Canadian portion of the Klondike Highway from Whitehorse to Skagway that we do.

In regard to the High Float Emulsion Surface treatments that were investigated during the trip, I have also spoken to Mr. Tom Neunaber of the local Federal Highway Administration and Mr. Coley Wycoff of Chevron, USA.

Mr. Neunaber was one of the FHWA representative on the "Shakwak" project on which the Alaska Highway in Canada is being upgraded and surfaced. He has personal experience with High Float emulsion surface treatments that were done on the highway by contractor forces. He has a slide show which reveals many of the "tricks of the trade" in placing this material.

After viewing these slides as narrated by Mr. Neunaber, I am convinced that we could place this material successfully if we can utilize his experience and/or

April 29, 1983

that of Yukon Territory representatives to get the contractor started off right.

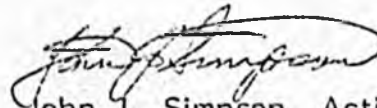
Mr. Wycoff is somewhat skeptical of our chances of success with this material. He stated that Chevron made High Float emulsion several years ago. This practice was discontinued because of the lack of success with it. He also cites several failures with it in British Columbia and claims that they have discontinued its use in favor of a cationic medium-set emulsion (CMS) which has given excellent results.

I think that one of the keys to success with High Float emulsion may be strict compliance to temperature and weather limitations and a knowledge of the "do's" and "don'ts" in placing the material. Another is experience, which is pointed out in the report.

My recommendation would be that we try two projects in different Regions with the High Float emulsion and a CMS emulsion for comparison. We are arranging to have Mr. Wycoff travel to Juneau and Fairbanks to discuss his product now.

As a final note, Mr. Neunaber's slides and the on-site inspection confirm the fact that many of the road sections in the Yukon where High Float emulsion was used have very shallow side ditches. Some are on the order of one foot or less. Our standards require a minimum of a three-foot ditch which would provide vastly improved drainage. Hardly anything is worse for a paved surface than water in the subgrade, so we should have some advantage in this respect.

Sincerely,



John J. Simpson, Acting Director
Standards and Technical Services Division

cc: Fred Seeger, Deputy Commissioner, Standards and Statewide Programs
Jon Scribner, Acting Deputy Commissioner, Southeast Region
H. Glen Glenzer, Deputy Commissioner, Interior Region
Dave Haugen, Deputy Commissioner, Central Region
Ray Miller, Materials Engineer, Southeast Region
Paul Misterek, Materials Engineer, Interior Region
Ben Harding, Special Staff Assistant, Office of the Governor
Emil Notti, Legislative Liaison, Office of the Governor
Representative Mitch Abood
Representative Bob Bettisworth
Representative Bette Cato
Representative Milo Fritz
Senator Don Gilman:
Representative Niilo Koponen
Representative Jack McBride
Senator Pappy Moss
Representative Richard Schultz

MEMORANDUM

State of Alaska

Department of Transportation & Public Facilities

SOUTHEASTERN REGION

DATE: April 26, 1983

TO: John Simpson
Director, S & TS
Southeastern Region

FILE NO: 244E-1802

TELEPHONE NO: (907) 789-0841, Ext. 215
(907) 452-1911

FROM: Ray D. Miller
Materials Engineer
Southeastern Region

SUBJECT: Surface Treatments,
Yukon Territory

Paul Misterek *PM*
Materials Engineer
Southeastern Region

Presented, herewith, are the observations made by the writers during their April 21 and 22 visit to Whitehorse, Yukon Territory, the purpose of which was to meet with officials of the Yukon Department of Highways and Transportation and discuss primarily their use of High Float Emulsion Asphalt with well graded aggregate on surface treatments.

A meeting was held in the office of the Department of Highways and Transportation at Whitehorse on the afternoon of April 21, 1983. Those in attendance were:

L.W. Blackman, P.E. Deputy Minister, Yukon Territory
Colin Farr, Director of Highways, Yukon Territory
Raymond Magnuson, Manager of Maintenance Branch, Yukon Territory
Ray Miller, Alaska Department of Transportation
Paul Misterek, Alaska Department of Transportation

The meeting was very cordial and discussion centered around Yukon Territory's use of High Float Emulsion Surface Treatments, typical projects where used, problems associated with and possible avoidance of same. A schedule was set up for the following day to visit typical projects where this type surface treatment has been used. Following is a summary of observations noted during the discussion and site visits:

I. DESCRIPTION OF PROCESS

High float (HF) is a medium setting anionic emulsion that has a quality imparted by the addition of certain chemicals that prevent the emulsion from breaking immediately on contact with the aggregate. The surface treatment reacts to surface rolling by allowing the emulsion to migrate within the aggregate. While the regular asphalts have a tendency to flow, or migrate, at 60° C (140° F) the high floats are designed to stay in place up to 70° C (160° F). As a result, the HF residues are less susceptible to changes in temperature and are harder in the summer and do not harden as much in the winter. The high content of petroleum solvent enables the HF

to penetrate through a heavy application of sand and gravel. Consequently, the final surface may be many stones thick while it provides the advantage of resisting flushing or bleeding better than a standard emulsion.

The fact that HF emulsions set up a slower rate can be a disadvantage when it is necessary to get the road back into service as soon as possible, such as in the case on major highways.

While HF asphalts are being used for the treatment of a large number of roads in areas of scattered populations with low traffic volumes, there is a general feeling within the industry that they are not adequate for Bituminous Surface Treatment's carrying high traffic volumes on major main roads.

II. TYPICAL USES BY YUKON TERRITORY

1. The process is used as an interim surfacing on new construction where the subgrade has been reconstructed to current standards.
2. The application is used with minimal upgrading of the existing roadway where traffic volume does not warrant a higher level of surfacing, such as pavement. Generally a base course is placed prior to application of the surface treatment.
3. It is used as a substitution for other dust palliatives until reconstruction. The treatment is applied on the existing surface materials, which have been reshaped and re-compacted.

It should be noted that this application has not been placed over existing pavement, but this is being contemplated, using a smaller size ($\frac{1}{2}$ inch minus) aggregate.

III. COST ESTIMATES

During the 1982 season, Yukon Territory incurred costs of \$22,500* (Canadian) for surface treatments with a twenty-six foot width. This includes costs for labor, equipment, and materials and utilizing their own forces. It does not include any base preparation costs.

During 1981, Public Works of Canada awarded contracts for work of this type. Costs were approximately 25 percent higher than those incurred using their own forces. This higher cost recognizes the risk factor, as well as the fact that the State forces worked continuously on the same type of work all season and gained a high degree of proficiency.

*Cost per mile in length

IV. DESIGN CONSIDERATIONS

1. Yukon Territory officials consider this treatment to have a five year life expectancy, although in low traffic problem areas over a good base, a longer use period is anticipated.
2. A four percent crown is recommended. Experience in Yukon Territory has shown that the texture of the surface slows drainage, and the greater crown is desirable, especially at near-freezing temperatures.
3. Yukon Territory does not use a prime coat, but officials there feel it would be beneficial, especially for maintaining a surface prior to application of the treatment.
4. Gradation of the surfacing aggregate used by Yukon Territory approximates our Base Course D-1 specification, and it is felt that this gradation could be used.
5. The surfacing aggregate should be slightly moist at the time of application. Specifications should require moisture content of two percent minimum to four percent maximum.
6. Only emulsified asphalt of grade HF-350S has been used by Yukon Territory. For initial projects, specifications should be developed using that grade of asphalt or a product very similar.
7. Weather limitations noted in the example specifications from Yukon Territory should be strictly enforced. Yukon Territory officials credit this with their high success rate. During adverse or marginal weather, the crew can be diverted to advance preparation activities such as aggregate stockpiling. A copy of the Canadian specifications are attached for your information.
8. Application rates found to be desirable are:

Asphalt	0.50 gal./sq. yd.
Aggregate	40 lb./sq. yd. max.

It has been found that too much aggregate can have an adverse effect on the product.

V. CONSTRUCTION TECHNIQUES

1. Experienced personnel are mandatory for a high degree of success. Mr. Blackman emphasized that he felt that surfacing treatment is 80 percent art and 20 percent science.
2. Adequate equipment is essential. Yukon Territory has new equipment with duplication to assure a continuous operation (i.e., two distributors, adequate trucks, etc.)

3. Specifications regarding traffic control and opening of the newly constructed roadway to traffic should be strictly observed.

Initially, Yukon Territory crews placed approximately two miles of 26 foot width surface treatment per day. As the techniques improved this increased to a maximum of approximately ten miles of 26 foot width under very good conditions.

VI. PERFORMANCE AND MAINTENANCE EVALUATION

1. During 1932, Yukon Territory incurred costs of \$6000 per kilometer without the surfacing and \$4000 per kilometer with the treatment for maintaining roadway sections.

2. Maintenance of the surface is critical. Small holes must be patched as they develop. Asphalt emulsion and chips can be used, but a cold mix is preferable for small areas and potholes.

3. The surface texture is rougher than normal pavement or a two coat surface treatment. At regular highway speeds, there is a noticeable increase in noise level and a somewhat rougher ride, however, not so much as to be objectionable. At reduced speeds, neither is noticeable.

Traffic tends to knead the aggregate and with time produces a tight compact surface.

4. Most of the surface treatments observed during this visit were relatively new in age, that is, less than five years old. Conditions varied from excellent to poor with poor subgrade and inadequate drainage most likely a contributing factor in those areas appearing less than acceptable. Again, as stated in the Design Considerations, this process is interim in nature and life expectancy is five years

VII. SUMMARY

Yukon Territory will have projects under construction adjacent to the Alaska border on the Klondike and Alaska Highways. It is recommended that personnel of Alaska Department of Transportation involved in design, construction, and maintenance should be allowed to observe these projects. A copy of Yukon's surface treatment schedule is attached.

It is recommended that a project should be designed and constructed using this process in Alaska. The initial project should be monitored and necessary revisions made to project specifications prior to proceeding with additional contracts. The Interior Region has tentatively selected a road project; Southeast might consider its use on a small airport, possibly Haines or Skagway.

Yukon officials have expressed an interest in our adoption of this surfacing method and may be available to advise us during construction and it is recommended they be extended an invitation to participate.

Also, it should be noted that discussions with Chevron Asphalt Company (USA) have indicated that Anionic Emulsified Asphalt products are not now available nor have they been available for quite some time (+ 15 years). Consequently, the HF350S may be difficult to obtain in the United States.

The visit, we believe, will prove very beneficial to both Yukon and Alaska as many items of mutual interest were discussed. The communication door is now open and a closer association between the two departments will provide both with the opportunity to exchange ideas in the field of highway design, construction and maintenance. Should you have any further questions regarding this process, please feel free to contact Mr. Misterek or Mr. Miller.

RDM/PM/cln

Attachments: As stated

cc: Charles Matlock
Director/S.E. Region
Design & Construction

Steve Sisk
Director/Interior Region
Design & Construction

PART 1 - GENERAL

1.1 Description

- .1 This section specifies requirements for applying single application of emulsified asphalt and aggregate to a granular base in accordance with these specifications.

1.2 Related Work Specified Elsewhere

- .1 Weight Scales: Section HC01155
- .2 Aggregates - General: Section HC02225
- .3 Granular Base: Section HC02229

1.3 Samples

- .1 Submit to Engineer following material samples at least 4 weeks prior to commencement of work:
 - .1 10 kg of aggregate
 - .2 Two 4 litres plastic containers of Asphalt Material

1.4 Measurement for Payment

- .1 Asphalt Surface Treatment Aggregate - Production, Hauling and Application: To be measured in tonnes of material incorporated into work.
- .2 Asphalt Surface Treatment Aggregate - Hauling and Application: To be measured in tonnes of material incorporated into work.
- .3 Asphalt Material: To be measured in litres at 15 deg. C., supply and delivery according to Prime Cost Sum (General Instructions, Section 01015, Article 13). Application will be paid for in litres separately under applicable Unit Price Item.

PART 2 - PRODUCTS

2.1 Materials

- .1 Asphalt Material: To CGSB 16-GP-5M grade HF-350S. Transported, stored and handled in accordance with Asphalt Institute Publication CL-21.
- .2 Aggregates:
 - .1 General Requirements: Crushed stone or gravel, clean, tough, durable fragments, free from an excess of flat, elongated, soft or disintegrated pieces and free from stone coated with dirt or other objectionable matter. Flat and elongated particles are those whose greatest dimension exceeds four times their least dimension.

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Asphalt Surface
Single Application

Section HC0255
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PART 2 - PRODUCTS CONT'D

2.1 Materials (Cont'd)

.2 Aggregates: (Cont'd)

.2 Physical Properties:

AGGREGATE GRADING

<u>Sieve Size</u>		<u>% Passing by Mass</u>
<u>ASTM</u>	<u>METRIC EQUIVALENT</u>	
3/4 inch	19.0 mm	100
1/2 inch	12.7 mm	65 - 90
3/8 inch	9.51 mm	55 - 80
No. 4	4.76 mm	35 - 55
No. 10	2.00 mm	15 - 35
No. 40	0.420 mm	5 - 20
No. 200	0.074 mm	0 - 5

.3 Los Angeles Abrasion AASHTO T96-70: Max. loss by mass 45%.

.4 Crushed fragments: Material retained on No. 4 (4.760 mm) sieve to have at least 1 fractured face: percent material by weight 60.

.5 Thin and elongated particles: max by mass 5%.

PART 3 - EXECUTION

3.1 Equipment

.1 Pressure distributor:

.1 Distributor to be so designed, equipped, maintained, and operated that asphalt material at even heat may be applied uniformly on variable widths of surface to 5 m at readily determined and controlled rates from 0.3 to 5.5 litres per square metre, with uniform pressure, and with an allowable variation from any

PART 3 - EXECUTION (CONT'D)

3.1 Equipment (Cont'd)

.1 Cont'd

- .2 Capable of distributing asphalt material in a uniform spray without atomization at rate specified and at temperature required.
- .3 Equipped with a tachometer registering metres per minute visibly located enabling truck driver to maintain constant speed required for application at specified rate.
- .4 Pump equipped with a tachometer registering litres per minute passing through nozzles and readily visible to operator. Pump to operate by a separate power unit independent of truck power unit. Have full circulating system that includes spray bar.
- .5 Equipped with an easily read, accurate and sensitive device which registers temperature of liquid in reservoir. Equipped with heating system to bring emulsion to proper spray application temperature.

.2 Mechanical aggregate spreader: A self-propelled unit of approved design, supported by at least four wheels equipped with pneumatic tires on two axles. Aggregate spreader to be equipped with positive controls so that required amount of material will be deposited uniformly over full width of asphalt material.

.3 Rollers: Self-propelled pneumatic tired rollers weighing not less than 11 tonnes, equipped with not less than seven wheels staggered back and front, and tires inflated to 415 kPa.

.4 Power Broom: Self-propelled pneumatic tired unit, capable of vertical and horizontal angular adjustment.

3.2 Preparation

.1 Grade granular base to specified grade and cross-section. Blade smooth, and compact. Remove foreign material as necessary immediately before asphalt binder is applied.

.2 Have surface conditions approved by Engineer

3.3 Application

- .1 Apply treatment only when existing surface is slightly damp, when atmospheric temperature in shade is above 10 deg. C and rising or about 15 deg C if falling, and when weather is not foggy or rainy. Apply light spray application of water to surface before treatment when requested by Engineer.
- .2 Schedule work to approval of Engineer. If directed, treat one lane at a time.
- .3 Spread a protective covering of building paper or other acceptable material over width of surface, and for a sufficient distance back so that spraying nozzles are fully operative when surface to be treated is reached.
- .4 Apply materials within following ranges. Engineer will direct quantities of asphalt material and aggregate to be supplied.

.1 Single Surface Treatment:

Asphalt binder, litres
per square metre 2.77 to 3.75

Kg. of aggregate
per square metre ~~524~~ ³⁴⁰ to ~~729~~ ⁴⁶⁰

- .5 Apply liquid asphalt at spraying temperature specified in applicable CGSB standard for grade used and at rate specified per square metre using approved pressure distributor.

*Note: 40 Kg/m² worked
very well. JN*

3.3 Application (Cont'd)

- .6 Remove used protective covering and dispose of by acceptable means.
- .7 Apply aggregate immediately following application of asphalt material. Apply no more aggregate than can be thoroughly incorporated into and absorbed by asphalt. Local areas of excess asphalt to be spread uniformly by hand or removed prior to aggregate application. Aggregate to be applied at a rate and manner that shall minimize the displacement of asphalt material.
- .8 Rates of application of asphalt and aggregate will be adjusted by Engineer, if needed, during course of work.
- .9 Apply aggregate in such a manner that tires of approved aggregate spreader at no time contact uncovered and newly applied asphalt material.
- .10 Immediately after aggregate is spread, cover any deficient areas with additional material.
- .11 Roll immediately after aggregate is spread, making at least 6 passes with pneumatic tired roller, until cover material is tied, or to approval of Engineer.
- .12 After completing rolling, lightly broom or otherwise maintain as directed for a period of 4 days. Maintenance to include distribution of aggregate, to absorb free asphalt and to cover any areas deficient in aggregate material. Repair to satisfaction of Engineer areas of improper or deficient surface treatment product.
- .13 Conduct maintenance in manner not to displace imbedded material. Sweep loose material from entire surface by rotary brooms at time determined by Engineer.

3.4 Traffic Control

- .1 Direct traffic through project with warning signs, flagpersons and pilot truck in a manner that provides maximum safety for workmen and least interruption of work.
 - .2 Keep traffic off freshly sprayed asphalt.
 - .3 If necessary to route traffic over new treatment, restrict speed to 10 km/h or less, until rolling is completed and asphalt has taken initial set.
 - .4 After initial set, restrict traffic to 40 km/h or less, until Engineer directs end of traffic control.
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1983 - 84 B.S.T. SCHEDULE

PLACE

DATE

Watson Lake - km 1045.9 - 1055

June 1st - 4th

Swift River - km 1208 - 1240

June 7th - 17th

Teslin - km 1265 - 1273

June 20th - 21st

Beaver Creek - km 1886 - 1968.7

June 28th - July 22nd

Teslin - km 1293 - 1308

Aug. 23rd - 26th

Patching - Alaska Highway

July 23rd - 29th

Capital Projects

Klondike Hwy. - km 146 - 159 (Skagway Road)

June 22nd - 24th

Klondike Hwy. - km 701 - 716 (Dawson)

Aug. 1st - 5th

Stewart Crossing - 1 km

Aug. 8th

Pelly - 1 km

Aug. 9th

Carmacks - km 308 - 346

Aug. 10th - 22nd

Resurfacing

Swift River

April 26th - May 27th

Beaver Creek

April 26th - June 24th

Mule Creek

June 27th - July 22th

Carcross

June 27th - July 15th

Carmacks

July 18th - Aug. 5th

Dawson

June 6th - July 15th

Stewart/Mayo

July 18th - Aug. 30th

Dempster (4-1 HC)

June 1st - Sept. 30th