

MEMORANDUM

TO: Grace Merkes, Assembly President
Members, Kenai Peninsula Borough Assembly

THRU: John J. Williams, Kenai Peninsula Borough Mayor

FROM: Gary Davis, Road Service Area Director

DATE: March 27, 2008

SUBJECT: Ordinance 2008-05, (Substitute) Amending KPB Chapter 14.06, Road Standards

On Tuesday March 4, 2008, the RSA board held a regularly scheduled public meeting and unanimously voted to recommend the Assembly approve Ordinance 2008-05 with amendments described below. These amendments have been incorporated into a substitute ordinance for clarity, Ordinance 2008-05 (Substitute). This memorandum describes in detail the differences between the original and substitute ordinance. For each difference, the memorandum will first discuss the changes, then provide the proposed substitute language in bold followed by the original ordinance language.

1. The substitute incorporates changes to the allowable percentage of binder material in pit run gravel (Type I) from a 3 percent minimum to a zero percent minimum (no binder necessary) for the tables that accompany all the typical sections within the ordinance as shown below. Additionally Type IV material is deleted from the chart itself in the substitute and instead defined in the definitions section. Type IV material is defined as earth, sand, rock or combinations thereof containing no muck, peat, frozen material, roots, sod, or other deleterious matter. Type IV is a compactable road sub-base often encountered in the Homer area. As an aside for purposes of explanation generally, these tables designate the types of material that can be used for road embankments (gravel fill). The numbers along the top of the chart designate the maximum size of material. Type I is pit run; no more than 5 percent of the material can be greater than 4 inches. Type II is screened to prevent any material greater than 2 inches. Type III is screened to prevent any material greater than 1 inch. The Sieve Designations on the left-hand side of the chart designate the screen sizes used. For example Pit Run Type I gravel must have 95 to 100 percent of the material pass through a 4-inch screen, 85 to 100 percent must pass through a 2-inch screen and 30 - 60 percent must pass through a No. 4 screen which screens out material larger than sand and so on. No 16 is a little smaller and No. 200 screens out material larger than silt or powder.

Requirements for Embankment Material
Percent Passing by Weight
Category I, II, & III Roads Table

| <u>Sieve Designation</u> | <u>Type I</u> | <u>Type II</u> | <u>Type III*</u> |
|--------------------------|---------------|----------------|------------------|
| <u>4 Inch</u> | <u>95-100</u> | <u>--</u> | <u>--</u> |
| <u>2 Inch</u> | <u>85-100</u> | <u>100</u> | <u>100</u> |
| <u>1 Inch</u> | <u>--</u> | <u>--</u> | <u>95-100</u> |
| <u>No. 4</u> | <u>30-60</u> | <u>30-65</u> | <u>40-75</u> |
| <u>No. 16</u> | <u>--</u> | <u>--</u> | <u>20-43</u> |
| <u>No. 200</u> | <u>0</u> | <u>6-10</u> | <u>4-10</u> |

- **Type III relates to Category IV Gravel Roads: Typical Section**

Requirements for Embankment Material
Percent Passing by Weight
Category I, II, & III Roads Table

| <u>Sieve Designation</u> | <u>Type I</u> | <u>Type II</u> | <u>Type III*</u> | <u>Type IV</u> |
|--------------------------|---------------|----------------|------------------|----------------|
| <u>4 Inch</u> | <u>95-100</u> | <u>--</u> | <u>--</u> | <u>--</u> |
| <u>2 Inch</u> | <u>85-100</u> | <u>100</u> | <u>100</u> | <u>--</u> |
| <u>1 Inch</u> | <u>--</u> | <u>--</u> | <u>95-100</u> | <u>--</u> |
| <u>No. 4</u> | <u>30-60</u> | <u>30-65</u> | <u>40-75</u> | <u>--</u> |
| <u>No. 16</u> | <u>--</u> | <u>--</u> | <u>20-43</u> | <u>--</u> |
| <u>No. 200</u> | <u>3-6</u> | <u>6-10</u> | <u>4-10</u> | <u>0-12</u> |

* **Type III relates to Category IV Gravel Roads: Typical Section**

2. KPB 14.06.050(B). Application for Maintenance:

The substitute contains a change to allow for applications for maintenance to be accepted at any time up until September 1 for consideration for certification for that calendar year. Any applications received after September 1 would not be considered until the following year as weather conditions allow.

14.06.[040]050. Application for maintenance.

- B. Applications for maintenance will only be accepted until September 1 for consideration for that calendar year.**

14.06.[040]050. Application for maintenance.

- B. Applications for maintenance will only be accepted between April 1 and September 1 of each year.

3. KPB 14.06.050(D). Application for Maintenance and 14.06.060 Certification and Inspections:

The substitute moves 14.06.050(D) to KPB 14.06.060(C) as it focuses on inspections more than applications. Additionally the last sentence is deleted as it is redundant with KPB 14.06.060(B).

14.06.[040]050. Application for maintenance.

- A. Any person or entity may apply for maintenance for an existing or planned road which lies within the borough road service area. The [KENAI PENINSULA BOROUGH ROAD SERVICE AREA] RSA board shall adopt procedures for making applications for road maintenance consistent with the provisions of this chapter.**
- B. Applications for maintenance will only be accepted until September 1 for consideration for that calendar year.**
- C. An application for maintenance shall be submitted on a form approved by the RSA board.**

14.06.[050]060. Certification and Inspections.

- A. Only roads that meet the design and construction standards set forth in this chapter may be certified by the [ROAD SERVICE AREA] RSA board for inclusion in the [ROAD SERVICE AREA] RSA maintenance program.**
- B. Prior to certification, [AN] inspections shall be performed by the [KENAI PENINSULA BOROUGH ROAD SERVICE AREA] RSA director or [HIS DESIGNEE] staff to [DETERMINE] ensure that [THESE] applicable standards have been met. The applicant for maintenance is responsible for all costs, other than RSA staff time, associated with inspections for certification. All work on the project must be completed by October 1 of each year to allow for a final inspection.**
- C. Applications for maintenance of existing roads shall be subject to inspection by the RSA for road certification and may include test holes every 150 feet; engineering analysis of road geometry, drainage, and general adequacy for anticipated traffic; and an as-built survey of the road scaled by a professional land surveyor registered in the State of Alaska under AS 8.48.**
- D. The RSA Director or staff shall make a [A] written recommendation to the [ROAD SERVICE AREA] RSA board [MUST BE MADE] prior to the board's certification of the road for the maintenance program. The level of maintenance is subject to available funding.**

14.06.[040]050. Application for maintenance.

- A. Any person or entity may apply for maintenance for an existing or planned road which lies within the borough road service area. The [KENAI PENINSULA BOROUGH**

ROAD SERVICE AREA] RSA board shall adopt procedures for making applications for road maintenance consistent with the provisions of this chapter.

- B. Applications for maintenance will only be accepted between April 1 and September 1 of each year.
- C. An application for maintenance shall be submitted on a form approved by the RSA board.
- D. Applications for maintenance of existing roads shall be subject to inspection by the RSA for road certification and may include test holes every 150 feet; engineering analysis of road geometry, drainage, and general adequacy for anticipated traffic; and an as-built survey of the road scaled by a professional land surveyor registered in the State of Alaska under AS 8.48. Applicant shall be responsible for the costs associated with inspection.

14.06.[050]060. Certification and Inspections.

- A. Only roads that meet the design and construction standards set forth in this chapter may be certified by the [ROAD SERVICE AREA] RSA board for inclusion in the [ROAD SERVICE AREA] RSA maintenance program.
- B. Prior to certification, [AN] inspections shall be performed by the [KENAI PENINSULA BOROUGH ROAD SERVICE AREA] RSA director or [HIS DESIGNEE] staff to [DETERMINE] ensure that [THESE] applicable standards have been met. The applicant for maintenance is responsible for all costs, other than RSA staff time, associated with inspections for certification. All work on the project must be completed by October 1 of each year to allow for a final inspection.
- C. The RSA Director or staff shall make a [A] written recommendation to the [ROAD SERVICE AREA] RSA board [MUST BE MADE] prior to the board's certification of the road for the maintenance program. The level of maintenance is subject to available funding.

4. KPB 14.06.080(C). Road Construction Standards—Construction Categories:

The substitute deletes references to the maintenance application so as not to unnecessarily limit the use of the standards.

- C. ***Internal subdivision roads. The standard to which a road [SUBJECT TO A MAINTENANCE APPLICATION] is constructed [IN ORDER TO BE CERTIFIED FOR MAINTENANCE] shall be based on [THE CATEGORIES] number of lots served as set forth below and the other factors set out in this subparagraph. The category shall also be determined by lots indirectly served where the road [SUBJECT TO A MAINTENANCE APPLICATION] is a collector or subcollector and provides necessary access to lots not otherwise served by a borough- or state-maintained collector or subcollector***

C. *Internal subdivision roads.* The standard to which a road subject to a maintenance application is constructed in order to be certified for maintenance shall be based on [THE CATEGORIES] number of lots served as set forth below and the other factors set out in this subparagraph. The category shall also be determined by lots indirectly served where the road subject to a maintenance application is a collector or subcollector and provides necessary access to lots not otherwise served by a borough- or state-maintained collector or subcollector

5. KPB 14.06.100(A)(5-8) & (B) & (C). Road construction standards—Construction standards for maintenance certification:

(A)(5) the RSA Board recommends a 2 percent higher maximum density for embankment compaction from 90 percent to 92 percent;

(A)(6) narrowing the available area within 60-foot rights-of-way for in-place usable excavation material and specifies that backfill must be placed in lifts and equipment tracked;

(A)(7 & 8) specifying that engineered designs must be pre-approved by the RSA director;

(B) specifying that the proof roll test will be done by a dump truck loaded to the maximum legal limit, not necessarily a fully loaded truck.

(C) specifying that engineered designs be pre-approved by the RSA director, and changing peat bogs to peatlands for specificity.

14.06.[120]100. Road construction[s] standards—Construction standards for maintenance certification.

5. The roadway embankment shall be placed in lifts of 12 inches or less and compacted to not less than ~~90~~ 92 percent of maximum density. Maximum density shall be determined by AASHTO T 180, Method D.

6. In place usable excavation material within the outside 12 feet of 60-foot or greater rights-of-way meeting the specifications of the required embankment material may be utilized in lieu of borrow. Backfill must be placed in lifts and equipment tracked. No organic debris may be buried within the right of way.

7. The RSA requires a 2.5:1 fore slope in ditchlines. Fill areas over 6 feet must be an engineered design, preapproved by the RSA director.

8. Roads constructed in level terrain susceptible to ponding require the applicant to submit to the RSA director for approval drainage designs which may include approved drainage galleries or elevated road sections.

B. Roads must pass a proof roll test at the RSA director's discretion if expected or intended traffic volume or use of the road has not materialized prior to release of the applicant's security as provided in KPB 14.06.140. The RSA director or his staff shall make written findings stating the reason(s) a proof roll test is required. The applicant must provide the means to conduct a proof roll test

during the final inspection. The proof roll test will consist of a 12-cubic-yard end dump truck loaded to maximum legal capacity traversing the road as directed by the RSA director or designee. The minimum proof rolling is full length of the road, on both lanes. If excessive rutting, greater than three-inch-depth tracks, occurs, remedial work will be required. The RSA director or designee will designate the defective areas in a written report.

C. Roads constructed across wetlands, including peatlands, must be designed and certified by a licensed civil engineer preapproved by the RSA director.

14.06.[120]100. Road construction[s] standards—Construction standards for maintenance certification.

5. The roadway embankment shall be placed in lifts of 12 inches or less and compacted to not less than 90 percent of maximum density. Maximum density shall be determined by AASHTO T 180, Method D.

6. In place usable excavation material within the outside 15 feet of the 60-foot right-of-way meeting the specifications of the required embankment material may be utilized in lieu of borrow. Backfill must be compacted. No organic debris may be buried within the right of way.

7. The RSA requires a 2.5:1 fore slope in ditchlines. Fill areas over 6 feet must be an engineered design.

8. Roads constructed in level terrain susceptible to ponding require the applicant to submit drainage designs which may include approved drainage galleries or elevated road sections.

B. Roads must pass a proof roll test at the RSA director's discretion if expected or intended traffic volume or use of the road has not materialized prior to release of the applicant's security as provided in KPB 14.06.140. The RSA director or his staff shall make written findings stating the reason(s) a proof roll test is required. The applicant must provide the means to conduct a proof roll test during the final inspection. The proof roll test will consist of a fully loaded 12-cubic-yard end dump truck traversing the road as directed by the RSA director or designee. The minimum proof rolling is full length of the road, on both lanes. If excessive rutting, greater than three-inch-depth tracks, occurs, remedial work will be required. The RSA director or designee will designate the defective areas in a written report.

C. Roads constructed across wetlands, including peat bogs, must be designed and certified by a licensed civil engineer.

6. KPB 14.06.110(E) Category I and II roads—Alternate design method:

Again the substitute changes that the proof roll test be done by a truck legally loaded to the maximum limit instead of a fully loaded truck.

E. A minimum of three RSA staff inspections will take place, consisting of initial, midway, and final inspections. The applicant must provide the means to conduct a proof roll test during the final inspection. The proof roll test will consist of a 12-cubic-yard end dump truck loaded to maximum legal capacity traversing the road as directed by the RSA director or designee. The minimum proof rolling is full length of the road, on both lanes. If excessive rutting, greater than three-inch-depth tracks, occurs, remedial work will be required. The RSA director or designee will designate the defective areas in a written report.

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7. KPB 14.06.120 (A). Category I, II, and III roads—Engineering required for project designs other than typical or alternate:

The substitute changes the distance of test holes and allows for flexibility at the RSA director's discretion for engineered designs. This change was recommended so as not to require unnecessary testing in all situations, but to allow the RSA director to require more frequent tests when conditions suggest the same is needed.

A. An engineered design may be submitted for Category I, II, and III roads if prepared and sealed by a licensed civil engineer. The design shall include typical section(s), centerline plan, and profile. The design shall provide for adequate drainage. The design shall be based on a soils investigation with test holes at least every 500 linear feet or less at the RSA director's discretion pursuant to written findings regarding topography, material used, design, and opportunity for inspections during the construction stages along with other relevant considerations. A report shall be submitted with test hole logs and soil analyses.

A. An engineered design may be submitted for Category I, II, and III roads if prepared and sealed by a licensed civil engineer. The design shall include typical section(s), centerline plan, and profile. The design shall provide for adequate drainage. The design shall be based on a soils investigation with test holes at least every 250 linear feet. A report shall be submitted with test hole logs and soil analyses.

8. KPB 14.06.180(A). Road construction standards—Structures/bridges:

The substitute deletes the requirement that all culverts need to be engineered because it is overly burdensome as applied to all culverts; for example driveway culverts. (Note that Ordinance 2008-03 will require engineering over designated anadromous streams.)

14.06.180. Road construction standards—Structures/bridges.

- A. Plans, prepared and stamped by a licensed civil engineer, shall be submitted to the RSA board prior to construction or acceptance of the road for maintenance if the road contains a bridge, bottomless culvert, guardrail, retaining wall, or other similar structure. An engineered report must also be submitted once the construction is complete. The engineered report must document or certify compliance with all relevant state and federal requirements.**

14.06.180. Road construction standards—Structures/bridges.

- A. Plans, prepared and stamped by a licensed civil engineer, shall be submitted to the RSA board prior to construction or acceptance of the road for maintenance if the road contains a bridge, culvert, bottomless culvert, guardrail, retaining wall, or other similar structure. An engineered report must also be submitted once the construction is complete. The engineered report must document or certify compliance with all relevant state and federal requirements.**

9. KPB 14.06.190. Airparks:

Specifying that the Borough will not certify roads for maintenance where aircraft interfere with vehicular use of the roadway.

14.06.190. Airparks.

No roads within or directly adjacent to an airpark will be certified for maintenance where aircraft will utilize, or interfere with vehicular use of, the roadway.

14.06.190. Airparks.

No roads within or directly adjacent to an airpark will be certified for maintenance where aircraft will utilize the roadway.

10. KPB 14.06.[200]250. Road construction standards—Definitions.

The following definitions were added to the existing definitions.

“Peatland” means wetlands containing at least one foot of substantial peat accumulation.

“Type IV material” is materials consisting of earth, sand, rock, or combinations thereof containing no muck, peat, frozen material, roots, sod, or other deleterious matter and is compactable.

11. Additionally, the administration recommends the title be changed to more accurately reflect the subject matter and summary of the ordinance.