



Dare County Planning Board Meeting

**Dare County Board of Commissioners Meeting Room
954 Marshall C. Collins Drive
Manteo, NC 27954**

April 8, 2019

Agenda

- I. Call to order **6:00 PM**
- II. Roll call
John Finelli, Chairman
Michael Barr
Terry Gore II
David Hines
Beth Midgett
David Overton
Buddy Shelton
- III. Approval of minutes for the March 11, 2019 meeting
- IV. Public Comment
- V. Old Business
- VI. New Business
 - a. Request to Amend Conditional Use Permit 3-2014, Hours of Operation, Commercial Ready Mix Concrete, 25691 NC 12 Highway, Waves
- VII. Other Business
- VIII. Adjournment



County of Dare

P.O. Box 1000 | Manteo, North Carolina 27954 | 252.475.5000

March 19, 2019

CRMP Inc has submitted a request to amend CUP 3-2014 issued by Dare County for a concrete plant at 25691 NC 12 Hwy in Waves, NC to expand the hours of operation. CUP 3-2014 as approved by Dare County in 2014 includes the following condition:

Normal working hours of operation shall be Monday –Friday from 8:00 a.m. and 5:00 p.m. These normal working hours of operation shall apply to the delivery of materials and supplies to the site, operation of heavy equipment used at the site, movement of aggregate materials at the site, clean-up of trucks and equipment, and all other administrative functions that occur at the site.

CRMP Inc. is seeking to revise these hours of operation to allow hours of operation of 3:00 a.m. to 5:00 p.m. for any three days Monday to Friday through project completion. A copy of the letter submitted to Dare County is included with this notice. The Dare County Planning Board will review this request at their April 8, 2019 meeting. The hours of operation are the only condition that will be discussed. Notice of this request has been mailed to all abutting property owners of 25691 NC 12 as required by North Carolina law and Dare County zoning regulations. The Planning Board will review the request and make a recommendation to the Board of Commissioners. Additional notice of the Board of Commissioners review of the item will be forwarded at a later date.

Questions about this matter may be directed to Dare County Planning Director Donna Creef at 252-475-5873 or by email at donnac@darenc.com



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- VII. Other Business
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Commercial Ready Mix Products, Inc.

P.O. Box 189
Winton, North Carolina 27986
Office Phone: (252) 358-5461
Fax: (252) 358-4912

March 14, 2019

Ms. Donna Creef, Planning Director
County of Dare - Dept of Planning
954 Marshall C. Collins Dr.
Manteo, NC 27954

RE: NC 12 – Rodanthe Breach Long Term Improvements (Phase IIb)
Contract ID #C203474
Dare County conditional Use Permit No. 3-2014: Requested Modifications

Ms. Creef,

The purpose of this correspondence is to request a modification to the Conditional Use Permit NO. 3-2014 which limits the "Normal Working Hours" described in condition seven (7). The modification that we are requesting is as follows:

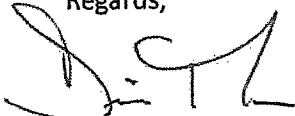
- Adjust the working hours from 8:00 am to 5:00 pm to 3:00 am to 5:00 pm for any three days from Monday to Friday through project completion.

The anticipated timeframe that we would require these adjusted working hours should commence in mid-2019 and conclude in early 2021.

Also, we would like to include the attached letter from Mr. Edward Holmes, PE, the Sr. Project Manager with Flatiron Constructors, Inc. detailing the importance of the above requested modifications.

We are requesting that you add this modification to the Dare County Planning Board's agenda for the ~~April~~ ^{April} 9, 2019 meeting. If you have questions or need more information, please contact me at 252-287-9636.

Regards,



Tim Newsome, VP
CRMP Inc.

April 8



Flatiron Constructors, Inc.
26200 West Vista Drive
Waves, NC 27982
www.flatironcorp.com

March 6, 2019

Letter No. NCDOT-026

Tim Newsome
Vice President
Commercial Ready Mix Products, Inc.
PO Box 189
115 US Hwy 158 West
Winton, NC 27986

RE: NC 12 – Rodanthe Breach Long Term Improvements (Phase IIb)
Contract ID #: C203474
Dare County Conditional Use Permit No. 3-2014: Requested Modifications

Mr. Newsome,

As previously discussed, we've reviewed the subject Conditional Use Permit issued by Dare County and its impact on the project. Whereas it is possible to operate within the stated conditions, the "Normal Working Hours" described in condition seven (7) will have adverse effects on the quality of the bridge deck. For this reason, we are requesting the following modifications to the aforementioned conditional use permit:

- Adjust the working hours from 8:00 am to 5:00 pm to 3:00 am to 5:00 pm for any three days from Monday to Friday through project completion.

Major concrete placements should commence in mid-2019 conclude early 2021. We anticipate requiring these adjusted working hours for approximately this duration.

Should you agree, please request adding this modification to the Dare County Planning Board's agenda for the April 9, 2019 meeting.

We offer the following for the Planning Board's consideration in advance of the meeting:

I. PROBLEM STATEMENT:

Our concern regarding the bridge deck quality is the ambient weather condition during concrete placement. Immediately after bridge deck concrete is placed the surface of the concrete is exposed to the environment until curing measures take place. This period is critical to the long-term durability of the bridge deck. The specific concern is the development of plastic shrinkage cracks and maintaining the correct percentage of entrained air.

A simplified sequence of how plastic shrinkage cracks cause premature bridge deck deterioration is as follows:

1. Water enters the plastic shrinkage cracks. For coastal locations, the water typically has a high concentration of chlorides (salt)
2. Freeze thaw cycles cause the water to expand and contract which further cracks the top surface of the deck.
3. The original cracks, as well as the new cracks allow chlorides to infiltrate the concrete protecting reinforcing steel
4. Chlorides cause a reaction that corrodes reinforcing steel.
5. Reinforcing steel expands as it corrodes which, in turn, fails the concrete above the reinforcing steel.

Entrained air allows moisture to disburse within the concrete during freeze/thaw cycles and is a primary lifecycle defense mechanism in properly built decks. Without entrained air, bridge deck deterioration is accelerated in a similar to steps 2 through 5 above.

II. RATIONALE:

The modified working hours allow Flatiron to schedule concrete pours during weather conditions favorable to placement of a durable bridge deck. We are specifically trying to avoid weather where evaporation rates are high.

According to the Portland Cement Association (PCI) (2002) "*These cracks occur when the water evaporates from the surface faster than it can travel to the surface during the bleeding process*" (p. 235). Further, PCI (2002) states "*The following conditions, singly or collectively, increase evaporation of surface moisture and increase the possibility of plastic shrinkage cracking: 1. Low air temperature; 2. High concrete temperature; 3. Low humidity; 4. High wind speed*" (p. 235). Weather conditions at night are historically less problematic for bridge deck placements as evaporation rates are typically lower.

Whereas the Nags Head plant is permitted to operate when required, the travel times associated with testing, hauling to Rodanthe, staging in Rodanthe, and placement are such that air entrainment percentages are compromised. According to PCI (2002), the amount of entrained air can drop 40-70% from over 90 minutes of continued agitation (p. 143) which occurs as the drum on the truck revolves during transit.

The NCDOT, according to section 1000-(B) of the 2012 Standard Specifications for Roads and Structures, requires 1.5% to 5% of entrained air which is in accordance with widely accepted best practice throughout the United States for similar environments (p. 10-2). Further, Table 1000-2 of the same requires concrete to be placed no greater than 75 minutes from initial mixing when the temperature is 90°F (p. 10-6). This requirement is also in agreement with generally accepted best practice. In this regard, the NCDOT specifications are not onerous and modifications to the specifications by the NCDOT will result in premature deck deterioration.

Should the deck prematurely deteriorate, and overlay would be required to correct the deficiency. As the bridge is two lanes wide, with one lane in each direction, an overlay would likely result in one way traffic, controlled by temporary signals (similar to the Alligator River Bridge rehabilitation in 2017/18) for multiple seasons.

III. CLOSING:

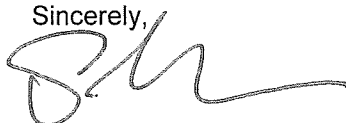
There is significant empirical data, and nationally accepted practice, which prescribe optimal conditions for bridge deck placements and the effects of the same on bridge deck durability. Whereas it is possible to construct a bridge deck within the currently permitted "*Normal Working Hours*" Flatiron can provide a better product to the citizens of Dare County with the modified hours.

It is not our intent to dismiss the concerns of the citizen of Waves and Rodanthe, but rather to insist that these impacts to the community are the less adverse of two choices:

- Approximately 18 months where the plant operates a maximum of 15 additional hours per week.
- A rehabilitation project 10-15 years versus 20-30 years from project completion.

If you have any questions or need anything further, please feel free to contact me at 252-489-5100.

Sincerely,



Edward Holmes, PE
Sr. Project Manager