

**New Jersey Department of Transportation
QUALITY IMPROVEMENT ADVISORY**

QUALITY MANAGEMENT SERVICES

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QIA No. QIA003

Approved

Date: September 30, 1996

Process Affected:

Scope Design Right of Way Utilities Environmental Historic Construction

Bureaus Affected: All CPM Units

Procedure(s) Affected: Project Delivery Schedule

Route & Section: Route 206, Section 12E & 13F

Project Summary: This project is currently under construction. The scope includes resurfacing approximately 6.7 miles of Route 206 from MP 53.2 to MP 59.883. The existing pavement base is concrete with 2% cross slopes with a variable amount of bituminous overlay at different cross slopes. The pavement is to receive an average 3" milling and a 4" bituminous overlay constructed to 2% cross slopes.

Nature of Problem(s): There are several drainage problems areas within the project limits as listed below:

- Existing concrete pavement had been previously overlaid with bituminous material. The existing concrete was sloped at 2% but the cross slopes of the bituminous overlay were generally much steeper than this. Included in the scope of the proposed project was milling and resurfacing and revising the pavement cross slopes to the current standard of 2%. However, the method of accomplishing the milling was not specified. When the milling machine was set to mill 2% cross slopes, milling was only accomplished over the center portion of the road surface. This resulted in the shoulder area (outside) not being milled at all. Consequently, when the bituminous overlay was applied, there was an excessive build up of overlay in the gutter area. As a result, gutter inlets were covered by the overlay and drainage problems occurred including flooding of residents' driveways and lawns.
- An inlet in the project area was not sufficient to collect the amount of runoff that was coming to it. Therefore, runoff bypassed this inlet and caused drainage problems downstream. In addition, a nearby culvert was clogged with silt which reduced its capacity and contributed to the drainage problems.
- Newly installed curb was placed at the request of local residents. The curbing and raised berm acts like a dam, restricting sheet runoff which previously drained to the roadway. Erosion behind the newly installed curbing resulted.

Recommendation(s): The following is a list of recommendations developed from this particular project which can be applied to other similar projects to prevent recurrences.

1. When a proposal is made to modify existing cross slopes, designers should take special precaution to carefully evaluate and specify how this modification will be accomplished, what the associated impacts will be, and how the effects of these impacts will be mitigated. This will necessitate surveying and plotting the cross slopes during the design phases to determine the existing cross slopes and evaluate what the effects of the proposed cross slopes will be.
2. Pavement cores should be obtained during the design phase in order to accurately determine the amount of bituminous overlay over the existing concrete and to verify the cross slopes of the existing concrete.
3. Existing drainage systems must be checked to determine if they function adequately and ensure that they conform to acceptable design criteria, specifications and details. They should be upgraded and/or maintained (e.g. cleaned) as needed.
4. Major plan modifications must first be approved by project managers. They must also be contacted for assistance as soon as a major problem becomes evident so as to minimize impacts to as great a degree as possible. Contractors must also advise field personnel that a problem exists as soon as it becomes apparent.

Implementation: For future similar projects.

Impact Assessment:

Schedule Quality Cost Scope

Cost Impact:

Unknown at this time