

JOB GUIDE**CONCRETE PAVING INSPECTION****1. Review Contract and Plans:**

- Obtain plans and special provisions and study them in detail.
- Attend the pre-construction meeting.
- Attend the pre-paving meeting.

2. Determine Random Numbers:

- Determine random numbers for testing locations using the *Probing, Coring, Texture and MIT-SCAN T2 Report*.

3. Become familiar with concrete paving equipment and paving operations.

- Check paving equipment for proper adjustment and compliance with specifications.
- Understand the function of each piece of equipment.
- Become familiar with paving sequence and review field controls for line and grade.
- Verify string line is set sufficiently in advance to avoid delays.
- Check vibration equipment and verify vibration monitors are operating correctly.
- Verify that utility work and conduits are complete. Pre-locate utility fixtures to be incorporated into the pavement.

4. Placement on Grade:

- Check that the grade is in a moist condition ahead of the concrete placement.
- Trucks hauling concrete are not allowed on the finished grade unless authorized by the Engineer.

5. Placement on Asphalt:

- Clean the milled surface by sweeping and patching, or as directed by the Engineer.
- Maintain the asphalt surface in a moist condition and at a surface temperature not greater than 120 °F [50 °C] before or during concrete placement.
- Ensure the Contractor trucks don't tear up the asphalt during turning movements.

6. Placement on Geotextile:

- Clean the surface of the concrete prior to placing the geotextile fabric by power sweeping and air blasting.
- Ensure fabric is tight without excess wrinkles or folds.
- Maintain the surface in a slightly damp, not saturated, condition before placing the concrete.
- Ensure the Contractor trucks don't tear up the geotextile during turning movements.

7. Reinforcing Steel and Keyway Placement:

- Check size, spacing, and placement of reinforcing steel, and any other special reinforced panels.
- Verify proper reinforcement size, grade, lap ties, depth and spacing.
- Check size and length of centerline steel and keyway tie steel.

- Check if the required mechanical placer is placing it at the proper depth.
- Assure location at proper elevation.
- Make sure bars are the right size and length, and properly spaced.
- Make sure keyway tie steel is not placed at a doweled joint.

8. Dowel Basket Assemblies:

- Check proper size and type of dowel bar assembly.
- Review Quality Control Plan for Anchoring Dowel Basket Assemblies.
- Observe for approval the Contractor's fastening method for dowel bar assemblies before the beginning of concrete placement and each day prior to beginning paving.
- Check dowel bar assemblies for proper placement to assure that they are parallel with the base and centerline of road, properly supported and staked.
- Make sure dowel baskets are securely anchored on the bottom rail using the correct number of anchors. Refer to the Standard Plates for details.
- If a bond breaker layer is used, make sure dowel baskets are securely fastened through the bond breaker layer into the concrete below.
- Check the placement of dowel assemblies at catch basins and manholes; keep joint at least 3 ft (1 m) from structure.
- Make sure an approved form release agent has been applied to dowel bars.
- Confirm joint sawing locations are marked at the same location as the dowel baskets.
- Mutually use the MIT-SCAN T2 device for locating dowel basket assemblies in the plastic concrete.

9. When using forms:

- Inspect pavement forms, as necessary, to ensure cleanliness and compliance with form requirements.
- Verify the forms are set to the alignment and grade shown on the plans for a distance equal to at least 3 hours ahead of concrete placement.
- If rain or cold weather occurs, ensure forms are removed and reset as necessary to allow drainage.

10. Verify the Contractor's prepared for inclement weather (rain or cold weather conditions).

- Review the Contractor's written cold weather protection plan.

11. During Concrete Placement:

- Make sure concrete is placed within the time specification.
- Check that no concrete is lost on the haul road or sticks in the truck after it dumps.
- Stencil the stationing into the edge of the pavement every 500 ft (200 m) as directed by the Engineer.
- When placing concrete adjacent to in-place concrete pavement, protect the existing transverse joints and the edges of the pavement.
- Set manhole and catch basin frames or rings to the elevation shown on the plans during the paving operations.

12. Monitor paving operation for continuous placement and consolidation of concrete.

- Make sure concrete is spread uniformly and ensure there is uniform strike-off.

- Check to see that paver is not over or under loaded, and that concrete is “rolling” not “sliding” in front of the screed.
- Check if vibrating tubes are operating
- Spot check vibration equipment daily and verify vibration monitors are operating correctly.
- Computerized vibration monitors are required on slipform pavers. Obtain an electronic copy of all vibration monitor data from the Contractor at the end of the project.

13. Concrete Appearance:

- Check that the concrete is maintained at a uniform consistency.
- Monitor the surface and edge slump.
- Make sure the tamping bar is properly adjusted so large aggregate is tucked below the surface and not dragged.

14. Verify pavement dimensions:

- Measure pavement width, thickness, crown, superelevation, edge slump, and joints match to ensure it meets plan requirements.
- Observe the Contractor’s probing operations.

15. Air Content and Slump Testing in accordance with the Schedule of Materials Control:

- Observe Contractor perform air content testing for slipform placement before and after consolidation.
- Observe Contractor perform air content and slump testing for fixed form placement.
- Contractor test results should be recorded on the *MnDOT Air Content Chart*.
- Perform correlation air content testing for slipform placement before and after.
- Verify the air content and slump test results are within Specifications.
- Record all test results on the Contractor’s *Air Content Chart* and compare.

16. Flexural Strength Testing (Opening Pavement to Traffic):

- Observe Contractor make beams as required in the Schedule of Materials Control.
- Contractor removes beams from boxes, cleans boxes, and reassembles boxes.
- Agency cures and breaks beams.
- Record beam break results on *Concrete Test Beam Data (MnDOT Form 2162)*.
- Verify minimum strength requirements for opening pavements to construction and to general traffic.
- Cylinders may be substituted for beams at the discretion of the Engineer.

17. Finishing:

- Do not allow the Contractor to add water to the surface of the concrete to aid in finishing without the approval of the Engineer.
- Check surface using a 10 ft (3 m) straightedge to check for tolerance.

18. Texturing:

- Ensure texturing is properly performed at the appropriate time
- Check texture marks for uniformity.
- Provide random sand patch test locations to the Contractor.
- Verify texture by observing Contractor sand patch testing.

- Contractor test results should be recorded on the *Probing, Coring, Texture and MIT-SCAN T2 Report*.
- Review the Contractor's *Concrete Texture* results for compliance.

19. Headers:

- Construct construction headers, temporary headers, and permanent headers as shown on the plans and Standard Plates.
- Do not allow incorporating any concrete accumulated in the grout box of the paver into the pavement. Construct all headers such that the concrete contained in the grout box is removed from the project.
- Use internal vibration to consolidate the concrete along header joints before final finishing.

20. Curing:

- Verify an approved curing compound lot/batch is used by checking the Approved/Qualified Products list.
- Check application rate of curing compound for uniformity, yield, and timely placement.
- Ensure compliance with cold weather protection requirements.

21. Sawing Joints:

- Check joint sawing operation. Check joint location adjustments at side streets, inlets, manholes, etc.
- Check appearance, depth, and width of sawed joints on a daily basis. No raveling and no random cracking should occur at the time of initial sawing.

22. Sealing Joints:

- Verify joints are clean and dry before approving.
- Do not allow traffic on the slab until the joints are sealed.

23. MIT-SCAN T2 Dowel Bar and Tie Bar Testing in Plastic Concrete:

- Use the *Probing, Coring, Texture and MIT-SCAN T2 Report* to provide random testing locations to the Contractor
- Observe the Contractor scan the tie bar steel and dowel bar anchoring.
- Contractor test results should be recorded on the *Probing, Coring, Texture and MIT-SCAN T2 Report*.

24. Thickness (Cores) Verification:

- Observe the Contractor's coring operation to verify authenticity.
- Field measure concrete cores, record the results on the *Field Coring Report* and submit cores to the MnDOT Laboratory for official measurement and testing.

25. Pavement Surface Smoothness:

- Make sure the Inertial Profiler (IP) is certified and displaying the certification sticker on the vehicle. Make sure IP operator is certified. See MnDOT Smoothness website for a list of the certified IP's, required settings for individual certified IP's, and certified operators.
- Observe all Contractor profiling, unless approved by the Engineer.

- Review the Contractor's printouts containing the IP's settings, each segment's left and right IRI values, the signature of the operator and electronic ERD files submitted on the same day of the profiling.
- Review the Smoothness Assurance analysis for contract compliance.
- Determine if grinding is needed or required.
- Check the final Concrete Profile Summary reports for contract compliance.

26. Maintain Agency Daily Diary:

- Includes hours of production, equipment, concrete temperatures, air content, slump reading, cylinder and beam data, stations paved, width, depth, yield, weather, air temperatures, and problems or unique circumstances encountered.

27. Submit the following to the MnDOT Concrete Engineering Unit:

- Weekly Concrete Reports – Form 2448
- Concrete Test Beam Data – Form 2162
- Field Coring Reports
- Field Probing Reports
- Concrete Texture Reports
- Concrete Profile Summary Worksheets
- Change orders and Supplemental Agreements