Section 601 PORTLAND CEMENT CONCRETE FOR PAVEMENTS

601.01. Description. This work consists of providing and placing a concrete mixture of portland cement, blended portland cement, supplemental cementitious materials, fine aggregate, coarse aggregate, water, and admixtures, combined in proportions for the grades of concrete required.

The term "sack" refers to a 94 pound sack of cement.

601.02. Materials. Provide materials in accordance with the following:

- Cement ........................................................................................................ 901
- Slag Cement ............................................................................................. 901
- Fly Ash ........................................................................................................ 901
- Coarse Aggregate 4AA, 6A, 6AA, 6AAA, 26A, 29A ..................................... 902
- Fine Aggregate 2NS .................................................................................. 902
- Concrete Admixtures ................................................................................. 903
- Water .......................................................................................................... 911

Select coarse aggregate for the required grade of concrete in accordance with Table 601-2.

Use stone sand 2SS only in concrete not exposed to vehicular traffic.

Provide concrete having an entrained air content of 5.0 to 8.5 percent unless otherwise required by the contract. The Department will not reject concrete, based solely on an air content less than 5.0 percent, provided the concrete is incorporated into the finished work at least 3 feet below the surface of the ground or is entirely under water.

The Contractor may use slag cement and fly ash as an optional portion of the cementing material with portland cement.

601.03. General Requirements.

A. Certified Batching Plants. Provide portland cement concrete from certified portable and stationary concrete batch plant facilities that meet the current requirements of the National Ready Mixed Concrete Association (NRMCA) or other Department approved certification programs for automatic control and automatic systems including the following:

1. Plant Certification.
   a. Stationary Concrete Batch Plants. Maintain plant equipment, facilities, associated weighing and batching devices during production. Schedule inspections, and maintain valid plant certification. Meet the requirements specified in the NRMCA
Certification of Ready Mixed Concrete Production Facilities Quality Control Manual or other Department-approved program requirements.

Provide for scale inspections that conform to Item 2.1.2 of the NRMCA Certification of Ready Mixed Concrete Production Facilities Quality Control Manual, Section 3, “Plant Certification Check List” (the NRMCA checklist), or other Department-approved program requirements, at intervals no longer than six months.

Check the batching accuracy of volumetric admixture dispensers and volumetric water batching devices (including water meters) in accordance with Item 2.5.3 and Item 2.5.4 of the NRMCA checklist, or other Department-approved program requirements, at intervals no longer than 90 days.

b. Portable Concrete Batch Plants. At the start of production, and annually thereafter, ensure portable concrete batch plants meet the requirements of subsection 601.03.A.1.a. After each move, verify by inspection that the plant meets the requirements for certification. Provide documentation of inspection to the Engineer. Enlist the services of a registered private scale inspection agency to certify the calibration and working order of the weighing system after each move, before production.

Clearly display current inspection reports, certifying that scales and volumetric batching devices meet the required tolerances at each plant facility. Conduct inspections using qualified company personnel, outside agencies, or scale companies. Display a photocopy of the inspection checklist, completed by the inspecting engineer, at each plant facility before providing material to the project. Display the Certificate of Conformance at each plant facility, provided by the NRMCA or other Department-approved program administrator. Send current copies of the Certificate of Conformance, scale inspection reports, and inspection reports on volumetric batching devices to the Engineer.

Correct nonconformance to certification requirements before continuing concreting operations.

The Department may inspect batching equipment, facilities, and associated weighing and batching devices, and review the qualifications of private plant and scale inspectors, or inspection agencies.
2. **Batch Tolerances.** Provide batching equipment meeting the tolerances specified in the inspection checklist.
   a. **Cementitious Materials.** Provide cementitious materials within ±1 percent of the required weight, or for loads less than 30 percent of the scale capacity, within ±0.3 percent of the scale capacity.
   b. **Aggregates.** Provide aggregates within one of the following tolerances:
      i. ±2 percent of the required weights;
      ii. ±1 percent of the required intermediate and final cumulative weights in aggregate batchers; or
      iii. ±0.2 percent of the scale capacity for intermediate weights below 15 percent of the scale capacity and for final cumulative weights, 30 percent below scale capacity.
   c. **Water.** Provide water within ±1.5 percent of the required quantity, or ±1.0 gallon, whichever is greater.
   d. **Admixtures.** Provide admixtures within ±3 percent of the required quantity, or plus or minus the minimum dosage rate per 100 pounds of cementitious material, whichever is greater.

3. **Capacity.** Provide weighing and batching equipment capable of weighing, in a single weighing, the quantity of each material required to complete the final batch, unless the plant is equipped to weigh the materials using one of the following alternate methods:
   a. A device that automatically cycles to provide the required number of increments; or
   b. An automatic recording device that provides a permanent record of the quantity of cement, aggregate, and water measured in each individual batch.

4. **Ticketing System and Weekly Summary.** Provide a ticketing system conforming to the NRMCA or other Department-approved program requirements. Ensure the information on the delivery ticket is computer generated. Customer information may be hand printed on each ticket.

   Provide a space on each ticket for the inspector to sign at the project. If producing concrete for more than one project, include on each ticket, certification executed by the concrete producer. Include a certification statement that concrete materials are tested and approved, or certified as meeting Department specifications. If using a dedicated batch plant for only one paving project, the Department
601.03

does not require an inspector signature or the concrete producer’s certification on the delivery ticket. Provide one signature for the daily production, accompanied by the daily summary of concrete production.

Provide an automated printout of target and actual batch weights with each delivery ticket. If target and actual batch weight information is computer generated on a separate document, include the serial number of the corresponding delivery ticket, or other means of cross reference. Attach the automated printout of target and actual batch weights to the corresponding delivery ticket. Collect tickets accompanying loads of concrete and provide them to the inspector.

The Engineer may require additional information and a signature on the tickets.

Provide a weekly summary of daily batching operations with shipments identified by project to the MDOT region materials staff for projects located in the region.

B. Non-Certified Batching Plants. Provide automatic cement and aggregate batchers.

1. Weighing and Batching Equipment. Provide weighing and batching equipment capable of weighing, in a single weighing, the quantity of each material required to produce proportioned concrete, unless the plant is equipped to weigh the materials using one of the following methods:

   a. A device that automatically cycles to provide the required number of increments for a batch; or
   b. A Department-approved automatic recording device that shows the number of increments placed in each batch.

With each method, make batch increments of equal size, unless the weighing equipment automatically meets the requirements specified in subsection 601.03.A.3 for varying batch sizes.

Weigh cement and aggregates on separate scales in separate weigh hoppers, except in plants equipped to weigh cement cumulatively with aggregates by first weighing cement in an enclosed compartment of a single weigh hopper. If weighing cement cumulatively with aggregates, conform to the batching tolerances specified in subsection 601.03.A.2.

Discharge cement and aggregate in accordance with subsection 601.03.A, except discharge cement within ±1 percent of the cement
batch weight. Discharge aggregates within ±1 percent of the combined aggregate batch weights, or 94 pounds, whichever is less.

If using fly ash or slag cement as a blending material, weigh fly ash or slag cement separately or cumulatively with the portland cement.

2. **Bins and Hoppers.** Provide the following:
   a. Equipment to load aggregate bins capable of transporting and discharging the aggregate into the bins without spilling into other stockpiles, bins, or compartments;
   b. Weather tight bins for cement, fly ash, and slag cement;
   c. Weighing hoppers of a size and shape capable of holding the material without leaking, supported entirely on the scales;
   d. Hoppers and appurtenances designed and constructed to prevent loss of material by air currents or other means during weighing and discharge; and
   e. Protection for the material against loss or damage while transferring from the weigh hoppers to the mixer.

3. **Scales.** Enlist a registered private scale inspection agency to certify the calibration and working order of the weighing system before production. Display current inspection reports certifying that scales and volumetric batching devices meet the required tolerance at each plant facility. Send current copies of the scale inspection reports and inspection reports to the Engineer.

4. **Automatic Controls.** Provide automatic controls for batching equipment with individual starting mechanisms for each material, or a single starting mechanism that when actuated controls all functions of the weighing and metering operations for the materials. For each material weighed, ensure placement of the required weight in the weigh hopper and that the scale indicator balances within the required tolerances for at least 1 second before continuing succeeding operations.

   Equip the automatic control for each batching scale system with a device for stopping the automatic cycle in the underweight and overweight check positions for each material.

   Electrically operate and interlock automatic batchers to provide the following controls for each material weighed:

   a. Interlock the hopper inlet mechanism to prevent opening if the discharge gate is open; and
   b. Interlock the hopper discharge mechanism to prevent the following:
601.03

i. Opening while filling the hopper;
ii. Opening before the full batch is in the hopper and the scale balanced;
iii. Opening if the batch in the hopper is overweight or underweight by more than the required tolerances; and
iv. Closing and locking and starting the next batch before emptying the hopper to less than 1 percent of the batch weight for the scale, or 94 pounds.

Do not allow the automatic control system sensing mechanism to exert a force on the scale weighing mechanism or indicating mechanism within the weighing range of the indicator.

Equip each dial scale system with a removable dial puller that inspectors can attach to the dial lever system to check the automatic control system settings by moving the dial smoothly and slowly through its range.

Provide weighing systems equipped with load cells, including a device capable of simulating load conditions to enable verification of proportioning setpoints and interlocking tolerances for each material. Equip the device with the ranges or adjustments to enable a display of each consecutive value of digital indication, held for the time necessary for inspection.

Ensure the plant operator completes the automatic control system checkout procedure periodically, as requested by the Engineer.

5. Dispensers and Controls for Liquid Admixtures. Provide dispensers capable of measuring the admixture volumetrically. Ensure batching controls are clearly visible to allow the operator to monitor the accuracy of admixture delivery. Start the admixture dispenser system using the single starting mechanism for the entire batching system, or for one of the primary ingredients of the mixture. Introduce the admixture into the sand, the water line, or directly into the mixing drum.

Use a separate dispenser for each admixture. If using more than one admixture, avoid intermixing admixtures before introduction into the mixture by dispensing admixtures as follows:

a. Outlet into different portions of the sand in the weigh hopper;
b. Outlet into different locations in the water line;
c. Use separate outlets into the sand, the water line, and the mixer drum; or
d. Cycle through a common outlet to dispense only one admixture at a time.
Provide a dispenser piping system free of leaks with valves to prevent backflow or siphoning.

Provide a dispenser system for admixtures capable of measuring and dispensing the quantity required for each batch. Include a device on the dispensing system showing the flow of admixture, or showing if admixture is in the dispenser.

Provide a dispensing device with an accuracy within ±3 percent of the required material volume batched, or within ±1.0 fluid ounces, whichever is greater. Equip the plant with the calibrated devices to check the dispensed volume to the required accuracy.

Provide batching controls that start the batching operation and stop the flow automatically when the required volume is measured. Ensure controls show when the batching operation is complete.

Interlock the admixture dispenser system with the batching operations to ensure the dispenser resets to start before charging. Interlock the dispenser to ensure it does not start admixture discharge unless the controls are cleared of the previous batch with the volumetric devices resetting to start or signaling empty.

6. **Water Measuring Equipment.** Measure water by volume or weight. If directed by the Engineer, demonstrate the accuracy of water measuring equipment. Ensure the water system discharges the required water into the mixer drum during the first ⅓ of the required mixing time and stops the flow automatically after discharging the required quantity of water. Provide an indicator to show the quantity of water used in each batch.

7. **Mixers.** Provide Department-approved batch mixers meeting the requirements of this subsection. Ensure mixers combine the aggregates, cement, water, and admixtures and discharge the mixture without segregation.

Provide portable and central batch type mixers. Equip batch type mixers with a timing device that automatically locks the discharge mechanism during mixing and releases at the end of the mixing period. Provide a mixer capable of mixing the entire volume of batched material in one operation.

Provide revolving drum truck mixers in good condition. Ensure mix materials, including water, do not leak or spill from the time of charging until discharged. Equip the mixer with a Department-approved revolution counter. Use truck mixers capable of removing wash water collected in the mixer drum.
Ensure mixers have an attached metal plate showing the following information:

a. Serial number;
b. Maximum mixing capacity in volume of mixed concrete;
c. Mixing speed of the drum; and
d. The maximum agitating capacity in volume of mixed concrete, or on truck mixers and agitators, the agitating speed of the drum or blades.

8. Concrete Hauling Units. Provide hauling units capable of delivering concrete in a non-segregated condition. Maintain equipment in good condition. Ensure mix materials, including water, do not leak or spill from the time of loading until discharged.

9. Continuous Batching and Mixing. Provide continuous batching and mixing equipment meeting the requirements of ASTM C 685. Only use continuous batching and mixing equipment for proportioning latex modified concrete or prepackaged hydraulic fast set patching mixtures.

10. Inspector Facilities. Provide space for the inspector to observe batching operations, and provide desk space in commercial plants, for the inspector's use.

If the contract requires determination of the water to cementitious material ratio, provide sample-drying equipment, work, and storage areas for performing moisture tests and storing equipment.

C. Waiver of NRMCA Certification and/or Automation Requirements. If no fully automated, certified facility is located within 25 miles of the project, the Engineer may waive certification, automation requirements, or both.

1. Waiver of Certification. The Engineer may allow the use of non-certified, automated plants if no fully automated, certified facility is located within 25 miles of the project. Provide an automated plant that meets the requirements of subsection 601.03.B.

2. Waiver of Automation and Certification. The Engineer may allow the use of non-certified, manual plants if no automated plant with batching facilities meeting the requirements of subsection 601.03.B, is located within 25 miles of the project. If no automatic plant is located within 25 miles of the project, the Engineer will not require the following devices specified in subsection 601.03.B:

a. Automatic incremental batch cycling devices,
b. Interlocking devices for cement and aggregate,
c. Electrical tolerance indicator devices, and
   d. Automatic dispensers for admixtures.

D. Providing and Handling Materials

1. Aggregates. Provide, stockpile, and handle aggregates to minimize segregation. Place each aggregate source and type in a separate bin or stockpile. Do not intermix aggregate sources. Provide firm, level ground for stockpiles and clean the area of deleterious material before importing aggregates. If stockpile areas are not paved, do not use the bottom 12 inches of the stockpile. Do not use lumps of frozen aggregate. Use appropriate equipment and stockpile management procedures to ensure that the aggregates are maintained within specifications.

   Maintain a uniform aggregate moisture content during each day's run, without evidence of surplus water. Keep stockpiles of slag and other highly absorptive aggregates at a uniform saturated surface-dry moisture content using the methods specified in the Department-approved Contractor Concrete Quality Control Plan.

   Store fine and coarse aggregates for Department work in separate piles or bins, separate from aggregates for other work. If the coarse aggregate consists of a blend of at least two gradations, stockpile each gradation separately.

2. Cementitious Material. Store cementitious material provided in bulk form in separate weatherproof bins. Do not use wet or contaminated material.

   Before refilling bins with new material of a different type or grade of cementitious material, empty bins to a quantity less than the quantity necessary for two concrete batches.

   Changes in cementitious material sources will require a new mix design.

   Provide the Engineer with a copy of the shipment notice showing the quantity of each cementitious material for each shipment and certification that material meets Department specifications.

3. Chemical Admixtures. Handle, store, and protect chemical admixtures in accordance with the manufacturer's recommendations.

E. Mixing Concrete.

1. General. Produce and deliver ready-mixed concrete as central-mixed or truck-mixed concrete. The Department considers central-mixed concrete completely mixed in a central mixer and transported...
601.03

to the project in a truck agitator, a truck mixer, or Department-approved non-agitating equipment. The Department considers truck-mixed concrete completely mixed at the plant site in a truck mixer with a Department-approved revolution counter.

Provide communication service from the project to the batching plant and make the service available to the Engineer during concreting operations.

Empty the mixer drum completely after each batch and before recharging. Do not exceed the capacity of the mixer shown on the metal plate attached to the mixer. For agitating units and truck mixers used to transport central-mixed concrete, do not exceed the manufacturer's recommended batch size for the maximum agitating capacity of the equipment.

2. **Batch Mixing.** Rotate the drum or blades at the speeds recommended by the manufacturer and shown on the metal plate attached to the mixer. Measure mixing time from the time all cement and aggregates are in the mixer until the start of concrete discharge. For multi-compartment mixers the mixing time includes the transfer time between drums. Charge the ingredients into the mixer so some water enters before the cement and aggregate, and all the water enters the drum before \( \frac{3}{4} \) of the required mixing time elapses.

a. **Central Mixed Concrete.** Mix each batch of central-mixed concrete 45 seconds for turbine mixers and 60 seconds for revolving drum and pugmill mixers, or as otherwise specified in the quality control plan. For revolving drum and pugmill mixers with a capacity of 1 cubic yard or less, mix for at least 90 seconds.

b. **Truck Mixed Concrete.** Mix each batch of truck mixed concrete for more than 70 revolutions at mixing speed.

3. **Elapsed Time.** Do not exceed the time limits specified in Table 601-1 from the time of charging the mixer to complete concrete discharge.

Charging begins when the cement contacts the mixing water or damp aggregates.

For agitating units and truck mixers, if the time from charging the mixer to complete discharge may exceed 30 minutes, continuously agitate the concrete.
Table 601-1

<table>
<thead>
<tr>
<th>Type of Unit</th>
<th>Concrete Temperature (ASTM C 1064)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;60 °F</td>
</tr>
<tr>
<td>Open Top Trucks (b)</td>
<td>60</td>
</tr>
<tr>
<td>Open Top Agitating Units (b)</td>
<td>60</td>
</tr>
<tr>
<td>Closed Top Agitating Units and Truck Mixers</td>
<td>90</td>
</tr>
<tr>
<td>Truck Mixers and Closed Top Agitating Units with Concrete Containing Water-Reducing Retarding Admixture (c)</td>
<td>120</td>
</tr>
</tbody>
</table>

a. Times shown in this table are in minutes.
b. Not allowed for structural concrete.
c. Superstructure concrete must meet the time limits for closed top agitating units and truck mixers.

4. Additional Water at Placement Site. Add water to concrete transported in truck mixers only if additional mixing water is needed for the concrete to achieve the slump specified in the approved mix design and the batch in the truck mixer does not exceed the rated mixing capacity. Do not add more water than specified in the Department-approved concrete mix design, based on the maximum water content and maximum water to cementitious material ratio. After adding water, provide at least 30 revolutions of the truck mixer drum at mixing speed before discharging concrete. Complete additional mixing at the project within the maximum time specified in subsection 601.03.E.3. Document, on the delivery ticket, water added after batching and the resulting water to cementitious material ratio. Provide the information to the Engineer on a daily basis. Do not add water to the concrete during discharge or placement. Do not add water on truck chutes or pump or slipform hoppers beyond the minimum necessary to wet the surfaces for lubrication.

F. Concrete Temperature Requirements. At the time of concrete placement, ensure a concrete temperature from 45 °F to 90 °F.

1. Heating Concrete Constituents. Heat the water, the aggregates, or both to meet the minimum required placement temperature. Do not heat aggregates to more than 150 °F.

   If heating the concrete constituents, do not exceed a plastic concrete temperature of 80 °F, except if placing concrete in insulated forms, do not exceed a plastic concrete temperature of 70 °F. Mix the water with the aggregates before adding the cement.

   Use aggregates free of ice and frozen lumps at time of batching. Heat aggregates in stockpiles or bins using steam or hot water coils, live steam, or by indirect hot air. Do not use direct flame to heat coarse aggregate. During batching operations, compensate for
accumulated condensation from heating to maintain the slump within the required limits.

2. **Concrete Accelerators.** For concrete pavements, if the mean daily air temperature is forecast to remain below 45 °F during the curing period, the Engineer may allow or require the use of additional cement or a non-chloride accelerating admixture. Include the increased cement content or the admixture content in the mixture requirements.

G. **Concrete Quality Control.** Provide quality control for concrete in accordance with section 604. Unless otherwise required, supply concrete pavement mixtures meeting the requirements of Table 601-2. Use supplemental cementitious materials as allowed by the contract.

H. **Work Progress Specimen.** Ensure that the strength of pavement and structure concrete meets the requirements of subsection 104.11.B for opening to construction traffic or vehicular traffic, removing shoring or forms, or similar operations. Determine concrete strength by one or more of the methods specified in subsections 601.03.H.1 or 601.03.H.2. Allow the Engineer to witness testing of work progress cylinder or beam specimens and non-destructive testing, including calibration tests. Adjust operations as necessary to conform to the specified concrete strength requirements.

1. **Test Cylinders or Beams.** Make a series of test cylinders or beams. Cure the specimens in environmental conditions similar to those in which the pavement or structure will cure.

2. **Non-Destructive Tests.** Conduct non-destructive tests at locations designated or approved by the Engineer. Perform non-destructive tests according to ASTM C 803 or ASTM C 805. Calibrate non-destructive test equipment between the strength of flexure or compression test specimens at various stages of curing, and rebound number measured by a concrete test hammer, or penetration resistance. Calibrate for a given instrument and for the specific materials and concrete mix. Make and test occasional cylinders or beams to verify the calibration.

Obtain the Engineer’s approval for alternative non-destructive concrete strength test methods.

601.04. **Measurement and Payment.** The cost of portland cement concrete pavement mixtures is included in unit prices for related pay items.
<table>
<thead>
<tr>
<th>Concrete Grade (b, c, g)</th>
<th>Section Number Reference (i)</th>
<th>Cement Content (d,h)</th>
<th>Flexural Strength (psi)</th>
<th>Compressive Strength (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-NC</td>
<td>603, 801</td>
<td>658</td>
<td>7.0</td>
<td>550 600 — 650 2,600 3,000 — 3,500</td>
</tr>
<tr>
<td>P1M (f)</td>
<td>602, 603</td>
<td>470 – 564</td>
<td>5.0 – 6.0</td>
<td>— 550 600 650 — 2,600 3,000 3,500</td>
</tr>
<tr>
<td>P1</td>
<td>602, 603, 801, 802, 803, 810</td>
<td>564</td>
<td>6.0</td>
<td>— 550 600 650 — 2,600 3,000 3,500</td>
</tr>
<tr>
<td></td>
<td>526 (e)</td>
<td>5.6</td>
<td>—</td>
<td>— 550 600 650 — 2,600 3,000 3,500</td>
</tr>
<tr>
<td>P2</td>
<td>602, 803, 804, 806, 808, 810, 813, 814, 819</td>
<td>517</td>
<td>5.5</td>
<td>— 500 550 600 — 2,200 2,600 3,000</td>
</tr>
<tr>
<td></td>
<td>489 (e)</td>
<td>5.2</td>
<td>—</td>
<td>— 500 550 600 — 2,200 2,600 3,000</td>
</tr>
</tbody>
</table>

**M** Commercial grade concrete containing 517 lb/cyd (5½ sacks/cyd) of cement. If substituting 1.0 lb of fly ash for each pound of cement removed, the Contractor may reduce portland cement up to 20%, by weight.

**X** Unless otherwise specified, Grade X concrete contains at least 282 lb/cyd (3.0 sacks/cyd) of cement. If substituting 1.0 lb of fly ash for each pound of cement removed, the Contractor may reduce portland cement up to 20% by weight.
a. Use flexural strength for opening to traffic and compressive strength for acceptance in other paving situations.
b. Use coarse aggregate 6A, 6AA or 6AAA for Grades P-NC, P1, P2 and M. Use Class 6AAA coarse aggregate exclusively for mainline and ramp concrete pavement if the directional ADT is greater than or equal to 5,000 vehicles per day.
c. The mix design basis for bulk volume (dry, loose) of coarse aggregate per unit volume of concrete is 72% for Grades P-NC and P1; 74% for Grade P2.
d. If the local average minimum temperature for the next 10 consecutive days after concrete placement is forecast to be below 40 °F, submit a revised quality control plan for the Engineer’s approval prior to cold weather concrete placement. The revised plan must detail changes in materials, concrete batching and mixing processes, construction methods, curing, and protection of the in situ concrete to ensure that the quality characteristics of the hardened concrete are not compromised by the cold weather.
e. Use the manufacturer’s recommended quantity of water-reducing admixture, specified in the Qualified Products List, to provide reduction in mixing water for mixes with reduced cement content.
f. Grade P1M concrete requires an optimized aggregate gradation as specified in section 604 (MTM 130). Use aggregates from only geologically natural sources. Coarse aggregates must meet the physical requirements specified in subsection 902.03.C.
g. The Contractor may use an optimized aggregate gradation, as required (MTM 130).
h. Type III cement is not permitted.

Table 601-2
Concrete Pavement Mixtures (continued)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>602</td>
<td>Concrete Pavement</td>
</tr>
<tr>
<td>801</td>
<td>Concrete Driveways</td>
</tr>
<tr>
<td>803</td>
<td>Concrete Sidewalk, Sidewalk Ramps, and Steps</td>
</tr>
<tr>
<td>810</td>
<td>Permanent Traffic Signs and Supports</td>
</tr>
<tr>
<td>814</td>
<td>Paved Ditches</td>
</tr>
<tr>
<td>603</td>
<td>Concrete Pavement Restoration</td>
</tr>
<tr>
<td>802</td>
<td>Concrete Curb, Gutter and Dividers</td>
</tr>
<tr>
<td>804</td>
<td>Concrete Barriers and Glare Screens</td>
</tr>
<tr>
<td>813</td>
<td>Slope Protection</td>
</tr>
<tr>
<td>819</td>
<td>Electrical and Lighting</td>
</tr>
</tbody>
</table>