DATE: June 10, 2014

TO: Region Engineers
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TSC Construction Engineers

FROM: Gregory C. Johnson, P.E.
Chief Operations Officer

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SUBJECT: Bureau of Highway Instructional Memorandum 2014-06
Progress Clause for Steel Superstructure Projects
(Supersedes BOH IM 2008-12)

This document provides guidance to the TSC construction/project engineer in determining contract milestones for the progress clause in projects requiring steel beams or steel girders, and large format steel foundation piling. This information is to be used to estimate timeframes for the progress clause for the order and delivery of steel piling, and beams/girders after the project award.

Once a project is awarded, the contractor will place an order with a structural steel fabricator. The structural steel fabricator will then need to place an order with a steel mill for the required plates and shapes. The steel mills produce heats of different types and sizes of steel. For example, a mill may produce 36-inch rolled beams one week and piling the following week, and other mills may exclusively produce plates, but only roll certain thicknesses once or twice a month. Structural steel rolled in a given heat is typically devoted to an already placed order, and the mill rolling typically occurs between four to twelve weeks after the order has been placed. Many factors influence when a fabricator can take delivery from a mill, including demand from other states’ bridge programs, demand from other domestic and international industries, cost, availability, and stockpiles of raw material; and production status of mills around the country. Fabricators do not stockpile most types of beams or plate steel. This is consistent with the just-in-time concept of manufacturing common in industry today.

For some small orders or certain types of steel, such as pin and hangers (link plates and pins), fabricators can purchase the needed steel through warehouses or they may have their own supply. For emergencies, such as from a high load impact, fabricators can purchase
the needed steel items from national warehouses. However, the cost of this steel may be much higher, and is not economically feasible (to the fabricator or the state) for large orders.

The table below details the recommended timelines in which steel delivery to the project site can be expected.

<table>
<thead>
<tr>
<th>Work Item – Order and Delivery of Steel Beams</th>
<th>Time</th>
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<tbody>
<tr>
<td>Plate Girders and Rolled Beams – with flange thicknesses less than three inches</td>
<td>26 weeks after award</td>
</tr>
<tr>
<td>Bascule, Arch, Tub Girders, High Performance Steel (HPS Grade 70 or 100), Plate Girders and Rolled Beams – with flange thicknesses three inches or greater</td>
<td>*Consult Structural Fabrication Unit</td>
</tr>
<tr>
<td>Pipe pile in excess of 14 inches nominal diameter, and HP shapes greater than 14 inches in depth</td>
<td>12 weeks after award</td>
</tr>
</tbody>
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* Contact Matthew Filcek (517-322-5709) or Jeff Weiler (517-322-1235) of the Operations Field Services Division’s Structural Fabrication Unit for assistance in developing the timeframes for order and delivery of steel in preparing the progress clause.

For plate girders and rolled beams with flange thicknesses less than three inches, the recommended time from award to delivery at the project site is based on the following:

- Up to three months for steel delivery from mill to fabricator,
- Up to two months for fabrication,
- Up to one month for submittal and approval of requests for information (RFI’s) and shop drawings, and shipping of the fabricated product to the project site.

Smaller diameter pipe pile and pile shapes such as HP12 and HP14 are rolled by multiple steel mills on a regular basis and should be readily available. For pile sections greater than 14 inches in diameter or depth, such as HP16 and HP18 shapes, and 16 inch diameter pipe pile, there are fewer mills to choose from and the rolling schedules are less frequent. Therefore, the recommended time frame for those shapes is 12 weeks after award. This is based only on delivery since fabrication time and shop drawings are not required.

While in many cases for structural steel, delivery can occur before the 26 week time frame, there are many variables which can influence steel delivery and frequently they cannot be determined at the time the progress clause is written. In addition to the factors influencing delivery of steel from the mill to the fabricator, the contractor that is awarded the contract and the fabricator they choose can affect the timeline. The fabricator chosen by the contractor may have less work or greater production capabilities than another fabricator. Some fabricators may try to book their production schedules such that by late winter or early spring they are fully booked through the
summer or into fall. For this reason, jobs let in the spring may have fewer fabricators available to complete the work and the jobs can be difficult to complete in one season especially if designed for part-width construction. In addition, the timeline to deliver steel beams for stage one of a part-width project may take the majority of the recommended timeline for delivery of both stages as the fabricator may elect to apply some aspects of fabrication to both stages instead of completing stage one in total before starting on stage two. The mill order and other milestones may take equal time whether they include one or both stages.

For the reasons outlined in this memorandum, it is recommended that the above table be used when developing progress clauses for projects with steel superstructures or large format piling. Careful consideration is to be made on projects with staged construction, or interim completion or interim open to traffic dates.

If you have any questions, please contact Matthew Filcek, Structural Fabrication Engineer, at FilcekM@michigan.gov or 517-322-5709.

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BOFS:OFS:POJ:mmn

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