

Working Drawing Procedures Including Shop Drawing and Falsework Review Procedures

Version 10/24/24, Recent changes highlighted

To make the review process more efficient, the Department encourages the Contractor to submit electronic copies of shop drawings and design calculations for approval in lieu of printed copies. Every submittal must include the contract number, **DES/project number**, Contractor's name, and contact person with contact information. All drawings and calculations should be submitted in the units used for the contract. Regardless of the submittal process described below, Contractors shall communicate directly with the Engineer to keep them informed of the status of submittals.

Abbreviations

Wherever the following abbreviations are used herein, they are to be construed the same as the respective expressions represented.

ASTM	American Society for Testing and Materials
EOR	Engineer of Record
ERMS	Electronic Records Management System
ITAP	INDOT Technical Application Pathway
LPA	Local Public Agency
LRRR	Load Rating Request Application
MSE	Mechanically Stabilized Earth
RFI	Request for Information

A. LPA Contracts

For LPA contracts, review of all shop drawings and other items listed in Part C are the responsibility of the LPA or their designated representative. Contractors on LPA projects are to submit shop drawings and falsework plans as directed by the LPA. Questions about LPA procedures should be directed to the District Local Projects Administrator.

1. Structural Members and Components

Shop drawings for structural members and components are to be submitted to the LPA or their designated representative for review and approval. Since the Department is responsible for fabrication inspection of structural members, upon completion of the shop drawing review, the LPA or their representative should forward an electronic copy of the approved shop drawings to the Department's Division of Bridge Design, at BridgeDesignOffice@indot.IN.gov.

2. Approval of Pile Driving Equipment

The Contractor shall submit to the LPA or designated representative, a completed pile and driving equipment data form at least 15 calendar days prior to driving piles. The EOR shall review for acceptance the pile and driving equipment data form. The pile and driving equipment data form is available on the Department's website. The Contractor will be notified by the LPA or designated representative, of the acceptance of the proposed pile driving system within 15 calendar days of the receipt of the pile and driving equipment data form. Acceptance of pile and driving equipment does not relieve the Contractor of the responsibility to provide

equipment suitable for driving the specified piling to the required bearing without damage. The LPA or designated representative shall notify the Department's Geotechnical Services Division at geotech@indot.in.gov and the Engineer of the acceptance of the proposed pile driving system.

B. Design-Build Contracts

Responsibilities and procedures for shop drawing review and approval are typically described in the design-build contract documents. If not otherwise described in the contract, then the procedures or portions thereof for State Contracts are to be followed.

1. Structural Members and Components

Once the shop drawings for structural members and components are approved by the responsible party as called out in the contract documents, they are to be submitted by the Contractor directly to Burgess & Niple, Inc. at shopplanreview@burgessniple.com for contract document management and to be archived to ERMS.

Depending on the design-build contract documents, either the Department or Contractor will be responsible for fabrication inspection of structural members and components. If inspection is the responsibility of the Department, then the Contractor shall email StructuralMemberQAInspection@indot.in.gov prior to shop drawing approval. This will ensure inspection services are coordinated and available, as fabrication cannot begin without them.

C. State Contracts

The following procedures have been implemented for submittal and review of shop drawings, falsework drawings, and related items as described below. If the District has any concerns about the structural integrity of any shop drawings submitted with a Professional Engineer stamp, they should contact their Division of Construction Management and District Support Field Engineer for further assistance.

1. Structural Members & Components

Shop drawings for the following items are to be submitted by the fabricator or supplier directly to Burgess & Niple, Inc. for review and approval. Shop drawings must be in accordance with the applicable specifications. These items do not require a Professional Engineer stamp for submittal. Any RFI correspondence between the fabricator/supplier and EOR that occurred post bid must be submitted with the shop drawings.

- Structural steel & structural concrete members
- Modular expansion joints
- S-S joints
- Elastomeric bearings.

Shop Drawings must include the following criteria:

- Contract Number with Prefix
- DES/Project Number and Lead DES Number
- Bridge File Number
- County
- State
- Location Description

Shop drawings are to be sent to Burgess & Niple at shopplanreview@burgessniple.com. Their office phone number is 317-237-2760. Burgess & Niple will send approved shop drawings to the Department's Division of Bridge Design at BridgeDesignOffice@indot.IN.gov for distribution to the District Construction office.

2. Mechanically Stabilized Earth (MSE) Retaining Walls

MSE Wall shop drawings and design calculations must be stamped by a Professional Engineer and submitted by the Contractor electronically to the Department's Geotechnical Services Division at MSEWallShopDrawings@indot.in.gov and the EOR for review and approval. The contract number shall be part of the subject line.

The EOR, as part of review, should complete the MSE Wall Shop Drawing Review Checklist. An editable copy of the MSE Wall Shop Drawing Review Checklist is available from the Department's [Editable Documents webpage](#), under Geotechnical.

The EOR will attach a cover letter and send a copy of approved shop drawings to the Contractor/submitter and to the District Construction office for further distribution.

3. Post Tensioning Systems

Shop drawings and design calculations are to be submitted by the Contractor for all post tensioned structural members and components. Shop drawings and design calculations must be stamped by a Professional Engineer. Shop drawings and calculations should be submitted by the Contractor to the Engineer. The Engineer should send the shop drawings and calculations directly to the EOR for review and approval and copy the Division of Bridge Design at BridgeDesignOffice@indot.IN.gov. The EOR will send approved shop drawings to the Engineer for distribution to the Contractor. The Division of Bridge Design should be copied on the approval.

4. Sound Barrier Systems

Shop drawings and calculations for sound barrier systems are to be submitted by the Contractor or fabricator directly to the EOR for review and approval. The plans and calculations must be stamped by a Professional Engineer. The designer will attach a cover letter and send a copy of approved plans and calculations to the submitter and to the District Construction office for further distribution.

5. Precast Concrete 3-Sided Structures and Box Culverts

Shop drawings and design calculations must be in accordance with the applicable specifications for 3-sided structures section 723 and box structures section 714. Shop drawings and design

calculations must be stamped by a Professional Engineer. Shop drawings for 3-sided structures must include details to provide sufficient horizontal restraint (prior to backfill being placed) unless the design demonstrates such restraint is not required. Load rating calculations must be included for structures whose span measured along the centerline exceeds 20 ft, except where factored vertical live load pressure at the surface of the culvert is less than 10 percent of the sum of the factored vertical earth load plus factored vertical live load pressure.

Plans and calculations should be submitted by the Contractor to the Engineer. The Engineer should send the shop drawings directly to the EOR for review and approval. The EOR should return the reviewed shop drawings to the Engineer for distribution to the Contractor.

For structures that require load rating, the Contractor should copy the EOR on the submittal to the Engineer, and the EOR should submit a New Design request in the Load Rating Request Application (LRRRA) via ITAP. The EOR should upload the shop drawings, load rating calculations, and load rating summary (RPD 700-B-301d) with the New Design LRRRA request. An automated email notification will be sent from LRRRA to the EOR when the load rating review is complete. If the EOR's review requires revisions to the shop drawings that affect the load rating, a resubmittal in LRRRA is required.

6. Welded Wire Reinforcement

Shop drawings must be stamped by a Professional Engineer. Shop drawings and design calculations are to be submitted to the Engineer for locations where the Contractor proposes to substitute welded wire reinforcement in lieu of the reinforcing bars shown on the plans.

The Engineer should send the drawings and calculations directly to the EOR for review and approval and copy the Division of Bridge Design at BridgeDesignOffice@indot.IN.gov. The EOR will send approved shop drawings to the Engineer for distribution to the Contractor.

7. Traffic Items

Shop drawings for Signing, Signals, and Lighting will be reviewed and approved by the Department's Office of Traffic Design and Review. These items typically include all overhead sign structures, signal strain poles and cantilevers, high mast lighting, luminaries, and light poles. Plans and calculations should be submitted by the Contractor to the Engineer and forwarded to the Office of Traffic Design Manager at: TrafficDesignReview@indot.IN.gov for review and approval.

The Office will distribute approved shop drawings to the Engineer for distribution to the Contractor.

8. Falsework and Cofferdam Drawings

Shop drawings for the following items are to be submitted to the Engineer. Each drawing must include the contract number, Contractor's name and must be stamped by a Professional Engineer.

- Cofferdams & Dikes
- Deck falsework – temporary
- Coping falsework

- Falsework for reinforced concrete slab superstructures
- Falsework for hammerhead pier caps

The Engineer will review drawings for compliance with the specifications and the specific job conditions only. Questions should be directed through the Area Engineer and District Construction office.

9. Temporary Bridges

Load rating is required for Temporary Bridges to ensure safety under live traffic loadings and accurate structural evaluation for oversize-overweight (OSOW) vehicle permits while the bridge is in use. For temporary bridges and other temporary structures open with total spans greater than or equal to 20' that will be open to traffic, the Contractor should submit a shop drawing package to the Engineer and the EOR that includes the following:

- Maintenance of Traffic plans
- Initial traffic phasing schedule
- Stamped Temporary Bridge shop drawings
- Stamped design calculations

Once the EOR has reviewed the submittal and taken no exceptions, the EOR should forward the submittal to INDOT Load Rating at LoadRating@indot.IN.gov. All initial recipients should be included in the notification. Within 30 working days of notification, INDOT Load Rating will reply with final ratings. The Engineer will update INDOT Load Rating on exact dates for when the temporary bridge will be open to traffic and phase changes. To align with OSOW permit approval windows, these updates need to be made 2 weeks ahead of each traffic change in the field. The Engineer (or other delegated district representative) will also update CARS entries as traffic phasing changes.

10. Permanent Metal Deck Forms

Shop drawings submitted by the Contractor must be stamped by a Professional Engineer. Shop drawings for permanent metal deck forms are to be submitted by the Contractor to the Engineer for review for compliance with the specifications and the specific job conditions only. The Division of Construction Management and District Support maintains a deck form calculation spreadsheet that can assist in review of metal deck forms if concerns arise.

11. Foundation Seals and Deck Pour Sequences

Requests for use of foundation seals not shown in the plans are to be submitted to the Department's Geotechnical Services Division at geotech@indot.in.gov for review and approval. The submittal must include the contract number, the contractor's name, and indicate the location and dimensions of the seal. The Office will distribute approved requests.

Planned deck pour sequences are to be submitted by the Contractor to the Engineer. The Engineer should send the deck pour sequence directly to the EOR for review and approval and copy the Division of Bridge Design at BridgeDesignOffice@indot.IN.gov. The EOR will send approved shop drawings to the Engineer for distribution to the Contractor.

12. Approval of Pile Driving Equipment

The Contractor shall submit to the Department's Geotechnical Services Division, a completed pile and driving equipment data form at least 15 calendar days prior to driving piles. A copy shall also be furnished to the Engineer. The pile and driving equipment data form is available on the Department's website. The Contractor will be notified of the acceptance of the proposed pile driving system within 15 calendar days of the receipt of the pile and driving equipment data form. Acceptance of pile and driving equipment does not relieve the Contractor of the responsibility to provide equipment suitable for driving the specified piling to the required bearing without damage.

13. Temporary Causeways (timber mat bridge, culverts)

Proposals for stream crossings and work bridges for construction traffic are to be submitted to the District Construction office for review and approval. If the proposal varies from any of the contract's environmental permit conditions, the Contractor must obtain approval for the change from the appropriate agency.

14. Retaining Walls

Shop drawings and design calculations are to be submitted by the Contractor for all structural retaining walls and components (Cast in place, Precast concrete tee or bin walls, Modular Block, Cut Wall, Temporary Wire Faced MSE Wall). Shop drawings and design calculations must be stamped by a Professional Engineer. Shop drawings and calculations shall be submitted by the Contractor to the Engineer. The Engineer should send the shop drawings and calculations directly to the EOR for review and approval and copy the Division of Bridge Design at BridgeDesignOffice@indot.IN.gov. The EOR will send approved shop drawings to the Engineer for distribution to the Contractor.

15. Miscellaneous

Shop drawing and design calculation submittals for miscellaneous items not covered by the above should be submitted through the Engineer. The Engineer should work through the District Construction office and the Division of Construction Management and District Support to determine the approval process for these items.