

NJDOT, Bureau of Structural Evaluation and Bridge Management

EXPLANATION OF NBIS & <20 feet SCOPE OF WORK for CONSULTANT CONTRACTS

Revised 08/19/2019

This document combines explanations for both the NBIS, State Minor Bridge, and County Minor Bridge efforts, as well as the ramifications of working in **CombIS**. As our business reengineering efforts **continue to make** major changes to both how the engineering inspections are documented, as well as the project deliverables, please discuss the changes that are likely to unfold during the time frame of each project.

Web Site: <http://www.state.nj.us/transportation/eng/structeval/>

TABLE OF CONTENTS

- I. **Materials For Consultant:**
- II. **Items For Reference:**
- III. **Specifications:**
- IV. **Qualifications Of Key Personnel:**
- V. **Correspondence & Invoicing:**
- VI. **Phase A Work:**
- VII. **Consultant Cost Proposal:**
- VIII. **Field Schedule:**
- IX. **Bridge Inspection Security:**
- X. **Inspection Procedures:**
- XI. **Priority Repairs:**
- XII. **National Bridge Element (NBE) and SI&A Coding, and Various CombIS Procedures:**
- XIII. **Load Rating & Load Posting:**
- XIV. **Inspection Reports:**
- XV. **Additional Notes for Movable Bridges:**
- XVI. **New Technologies:**
- XVII. **Additional or Extra Work:**
- XVIII. **Phase B Work:**
- XIX. **2nd Cycle Inspection:**
- XX. **File PDFing and Scanning (Old Reports) Procedure:**
- XXI. **CD Submission and Inspection Cycle Wrap-Up:**

I. MATERIALS FOR CONSULTANT:

- A.** Copy of actual **Scope of Work** (Attachment A), with structure list, from solicitation.
- B.** If needed - Copy of the Mechanical, Electrical, or Hydraulic Scope of Work (Level I, II or III)*
- C.** Draft copy of State-Consultant Lump Sum/Cost Plus Agreement
- D.** Proposal program seed file containing Group data, including bridge list
- E.** Field Inspection & Report Submission Schedule Template *
- F.** Any Bridge plans needed (to be requested by Consultant, if necessary)
- G.** CD of previous inspection cycle files, including word processing files, sketch files, etc. AND/OR access to CombIS.
- H.** NBIS qualification forms*
- I.** Current Bridge Inspection Report Templates (Format A, B, C, and D) unless CombIS project*
- J.** Current Underwater Inspection Report Template*
- K.** blank
- L.** MOT/Equipment/RR usage spreadsheet*

*Items available on our website.

II. ITEMS FOR REFERENCE:

- A.** Consultant Evaluation System (CES) standards*
- B.** SDMS Contractors Specifications, Version 3.1, January, 2006 *
- C.** NBIS Compliance Bridge Inspection Forum and Clarifications*
- D.** Sample completed bridge survey reports*
- E.** Priority Repair Categories memorandum dated **3/11/2019***
- F.** Guidelines for Determining Load Capacity Ratings through Engineering Judgement, June 2017*
- G.** Procedure for Transmitting Traffic Interference Reports
- H.** List of suggested underwater inspection vendors
- I.** National Highway System (NHS) Route List*
- J.** How to Review SI&A Data - review aid*
- K.** blank
- L.** National Electric Code (NEC)
- M.** National Electric Safety Code (for Utilities)
- N.** National Fire Protection Act (NFPA)
- O.** OSHA / PEOSHA Guidelines
- P.** CombIS Manuals and online Help
- Q.** Waterway Safety (Memo date July 13th, 2015).

*Items available on our website.

III. SPECIFICATIONS:

- A.** Current (2018) AASHTO The Manual for Bridge Evaluation, 3rd Edition with all Interim Revisions.
- B.** Current AASHTO LRFD Bridge Design Specification, 8th Edition, with all Interim Revisions.
- C.** AASHTO LRFD Movable Highway Bridge Design Specifications, 2nd Edition with all Interim Revisions.
- D.** AASHTO Movable Bridge Inspection, Evaluation, & Maintenance Manual, 2nd Edition 2017.
- E.** Current FHWA Bridge Inspector's Reference Manual.
- F.** 1994 NJDOT Underwater Inspection and Evaluation Guidelines Manual - Revised 1997 & 2008.*
- G.** 1995 FHWA Recording and Coding Guide for the Structure Inventory & Appraisal (SI&A) of the Nation's Bridges - Revised 2003.
- H.** blank
- I.** AASHTO Manual for Bridge Element Inspection, 1st Edition, with 2015 Interim Revisions.
AND/OR NJDOT Bridge Element Inspection Manual - May 2, 2014 as revised in 2015.
- J.** 2003 NJDOT Recording and Coding Guide - Revised 2009.*
- K.** blank
- L.** NJDOT Combined Inspection System (CombIS) Manual - May 2014*
- M.** 2016 NJDOT Design Manual for Bridges and Structures, 6th Edition, Sections 43 and 44.
- N.** 2012 NJDOT Highway Bridge Load Rating Manual.*

*Items available on our website.

IV. QUALIFICATIONS OF KEY PERSONNEL:

A. GENERAL

1. The Consultant shall use the Project Manager and Team Leader(s) as specified in the Expression of Interest. Other personnel will not be permitted to function in either capacity. The Department does not encourage changes in key staff (including proposing alternate key staff). A change will be entertained only when extreme situations, such as resignations, make the change necessary. **Any change of Project Manager or Team Leader must be approved in writing, in advance, by the Department.** Qualifications must be equal to or better than the personnel indicated in the Expression of Interest.
2. Informal roles, such as Assistant Project Manager or Assistant Team Leader, do not exist with regard to any representation of the function of personnel who have worked on Bureau of Structural Evaluation and Bridge Management contracts.
3. For bridges over active railroad lines, in addition to the qualifications below, the Consultant Team Leader and other field inspection engineers must complete annual training provided by the concerned company. Training of the Project Manager may also be required depending on the number of bridges over a particular railroad. The man-hours for attending mandatory railroad safety training courses may be directly charged against the project (Consultants are only allowed to charge once in a year, and only against one project).

B. PROJECT MANAGER QUALIFICATIONS

Registered Professional Engineer in New Jersey with a minimum of 5 years of NBIS (bridge inspection) experience.

---OR---

Graduate Civil Engineer (BSCE) with a minimum of 10 years of NBIS (bridge inspection) experience.

-AND-

Completion of NHI-130053, NHI-130055, or NHI-130056 within the last 5 years where Pontis CoRe Elements or National Bridge Elements was covered in the course agenda.

NOTE: The “Certifying Engineer” is the person tasked with signing and sealing the inspection report. Typically it is the Project Manager. If the Certifying Engineer is other than the Project Manager then the Certifying Engineer shall be a Registered Professional Engineer in New Jersey with a minimum of 5 years of NBIS (bridge inspection) experience an ASCE Grade of P5 or above, and is not permitted to be a Team Leader assigned to this project.

C. TEAM LEADER QUALIFICATIONS (EXCLUDING ELECTRICAL AND MECHANICAL INSPECTIONS – SEE BELOW D & E)

Registered Professional Engineer with a minimum of 3 years of NBIS (bridge inspection) experience in a responsible capacity.

-AND-

Completion of NHI-130055 or NHI-130056 (only needs to be taken once). The Basic Course (13 Day) offered by PennDOT can meet this requirement IF Pontis CoReElements or National Bridge Elements is included in the syllabus.

-AND-

Completion of NHI-130053 is required every 5 years*. NJDOT will only accept NHI training for the BI Refresher course. Training from other vendors will not meet this requirement. Additionally, Pontis CoReElements or National Bridge Elements must be covered in the course agenda.

---OR---

Graduate Engineer with a minimum of 5 years of NBIS (bridge inspection) experience in a responsible capacity.

-AND-

Completion of NHI-130055 (only needs to be taken once). The Basic Course (13 Day) offered by PennDOT can meet this requirement IF Pontis CoReElements or National Bridge Elements is included in the syllabus.

-AND-

Completion of NHI-130053 is required every 5 years*. NJDOT will only accept NHI training for the BI Refresher course. Training from other vendors will not meet this requirement. Additionally, Pontis CoReElements or National Bridge Elements must be covered in the course agenda.

* Upon completion of NHI-130055 or NHI-130056, you will be required to take NHI-130053 within 5 years to remain an eligible Team Leader.

D. TEAM LEADER ELECTRICAL BRIDGE INSPECTION QUALIFICATIONS

Registered Professional Engineer with a minimum of 4 years Electrical Movable Bridge Inspection Experience.

---OR---

Graduate Electrical Engineer (BSEE) with a minimum of 6 years Electrical Movable Bridge Inspection Experience.

E. TEAM LEADER MECHANICAL AND HAYDRAULIC BRIDGE INSPECTION QUALIFICATIONS

Registered Professional Engineer with a minimum of 4 years Mechanical Movable

Bridge Inspection Experience.

---OR---

Graduate Mechanical Engineer (BSME) with a minimum of 6 years Mechanical Movable Bridge Inspection Experience.

F. UNDERWATER BRIDGE INSPECTION DIVER QUALIFICATIONS

Divers working on only underwater inspections may substitute NHI-130091 (Underwater Bridge Inspection) in place of a comprehensive inspection course (NHI-130055 or NHI-130056 or PennDOT Basic Course).

V. CORRESPONDENCE & INVOICING:

A. All correspondence is to be addressed to the “Manager, Bureau of Structural Evaluation and Bridge Management” and to the attention of the appropriate Project Engineer.

B. **Invoicing** (moved from Section XVI.)

Note: The way invoicing is handled is likely to change during the time frame of this project. The NJDOT is moving to electronic submission and handling of invoices, including electronic submission and routing. This new software, called PMRS (eBuilder), is likely to be implemented for Bridge Inspection projects sometime in 2019.

1. Invoices, and other original documents, are to be signed in blue (not black) ink.
2. The Consultant is not permitted to submit invoices within 30 days of each other. Less than 30 days between any two invoices will result in the invoice being returned to the Consultant.
3. The Consultant shall notify the State Project Manager as soon as it is apparent that a cost overrun due to any reason is occurring on the project. Failure to promptly notify the State Project Manager will result in a lower Consultant Evaluation System (CES) rating.
4. The Final invoice is to be submitted as described in Section XXI.E.

VI. PHASE A WORK:

Phase A work shall include routine or in-depth inspections (ground level or hands-on) as approved for redundant, non-redundant or fracture critical bridges or members. Also, Phase A work shall include underwater inspections, testing, load analysis, and report preparation in an approved format.

Some County Minor Bridge projects require an inventory to be performed prior to

complete inspection. See “ATTACHMENT A – Scope of Work Services” for details.

Note: For County Minor projects, the firm is expected to contact all Bridge Owners assigned within their projects shortly after project initiation. In addition, they are expected to contact all Bridge Owners assigned within their projects as required and/or expected during the project execution. They are to maintain information on these contacts (this information is to be provided to the NJDOT on request).

VII. CONSULTANT COST PROPOSAL:

- A.** The project will be a **Lump Sum** agreement (unless a Cost Plus Fixed Fee agreement is specifically negotiated and approved).
- B.** For all contracts, the Consultant shall obtain at least three (3) bids for underwater inspection, access equipment, traffic safety (MOT), and special testing and include these costs as Direct Expenses (reimbursable and out-of-pocket expenses). Also, for bridges over railroads, obtain the costs for the railroad permit and flagging from the concerned railroad and include as Direct Expenses (reimbursable). For underwater diving inspections, as an alternative to this method, the diving firm may be hired as a sub-Consultant. For underwater inspections, qualifications for Bridge Inspection Team Leader or Engineer/Diver (also see Section IV.F) need to be provided by the diving firm with their proposal (also see Section X.D.). Vendors for special testing also need to submit qualifications for testing personnel with their proposals.

NOTE: Attempting to obtain more than 3 bids is recommended for items where the cost will be a significant percentage of the contract. This ensures that you receive at least 3 valid bids. Also, in this situation, we are willing to entertain the possibility of awarding to 2 bidders – especially in categories like MOT, where there is a need to obtain equipment within a tight range of dates. Discuss with State PM if you are considering this. Also, this intention must be disclosed in your request for bids.

- C.** The Consultant must familiarize themselves with all bridges before submitting the cost estimate and associated expenses such as Direct Expenses (reimbursable and out-of-pocket). Include all third party costs such as equipment and labor including snoopers, traffic control, diver for underwater inspection, railroad flagging and insurance, etc., wherever needed.

NOTE: The State is not obligated to pay NJ state taxes for services obtained. If billed for NJ state taxes, please require the vendor to remove the charge prior to submitting the bill for payment.

- D.** The Midpoint of the project (typically based on a twelve (12) month contract) will be _____ (typically allowing three (3) months from the scope meeting to the consummation of the Agreement/Notice to Proceed).

As per the NJDOT directive letter dated October 19, 2009, budget salary cost escalation will be allowed in any Agreements and Modifications (until further

notice) of 3 percent per annum (based on the mid-point of the contract) for titles in the ASCE P1-P4/NICET I-II categories. No salary cost escalation will be allowed for higher level titles for the first eighteen (18) months of planned contract duration.

Certified wage rates are required to be submitted with the preliminary cost proposal (or e-mailed directly to the Project Manager prior to proposal submission). In addition, a copy is to be attached to the Agreement when signed.

NOTE: If two Team Leaders were specified in the Expression of Interest then both Team Leaders are to be utilized. The proposal must use the second Team Leader for at least 1/3 of all inspections.

- E.** Fixed fee shall be negotiated as a percentage of the final negotiated salaries. For computing fees, the latest audited overhead shall be used and the fixed fee factor will typically be 18% of the salaries for all types of bridges and sign structures. Exceptions are individual “movable” or “complex” bridges, or for Rail Road bridge Projects (such as NJ Transit), where the fixed fee factor will be 21% of the salaries.
- F.** Prior written approval must be obtained from the State for employing any outside services (reimbursable expenses listed in the agreement) within two (2) weeks from Notice to Proceed. The State Project Manager must be copied on all correspondence for solicitation notices for outside services. The consultant must ask for the qualification from the vendors for their proposed key personnel for Underwater Inspection or Special Testing.

The Consultant must assemble all bids received from outside vendors, prepare a recommendation, and send to the State Project Manager for review, along with a copy of the scope-of-work document the Consultant sent to the Vendors. The Consultant will not be reimbursed otherwise. Please note that no bridge inspection functions shall be sublet to sub-Consultants without prior written approval, and such approval will not be given except in extreme situations. Special testing during inspection shall be considered as a vendor item.

- G.** In compliance with Section 6 of the NJDOT Procedures Manual, Quality Assurance/Quality Control (QA/QC), the Consultant shall submit with their cost proposal a written narrative that describes their Quality Assurance and Quality Control policies.
- H.** The State does not allow the leasing of a car for inspection purposes and expects the Consultant to have their own inspection vehicle and other essential equipment. The Consultant, however, will be reimbursed for business vehicle mileage in accordance with the Federal Highway Administration’s current reimbursement rate for travel, either directly, if their accounting system is considered sufficiently robust by NJDOT Accounting for this use, or else as part of their overhead. Personal vehicle mileage is not considered for direct reimbursement for any inspection project.
- I.** The NJDOT Proposal Program is required for preparing all proposals. In addition, please be aware that data generated directly from this program will be the source for the initial Project Schedule spreadsheet and the monthly progress report form.

NOTE: The category “Other” is typically to be used only for unusual work relating to the bridge. If the scope of work is typical for the bridge, the work costed out in the proposal program can be described without using the “Other” category. For example, NBE inspection is typical work after, and is not to be placed in the “Other” row. Also, all work is to be described in the structure for which it will be performed. Do not place the cost and hours of a lump of work covering multiple structures in one structure, or in a dummy structure, without SPECIFIC concurrence from Harjit Bal or Jack Evans.

- J.** All proposals shall be submitted in a 3-ring binder and shall include the bridge list, scope of work, a complete certified wage rate listing (most-recently approved), a sheet describing the derivation of wage rates used in the proposal, the resumes of the personnel anticipated to be used for this project, and a copy of all relevant training certificates. Also in the proposal, include cost estimate sheets bridge-by-bridge, summary sheets by funding category (NHPP, STP On-System, and STP Off-System), summary sheets for both Phase A and Phase B work separately, and a general summary sheet showing the total cost of the project. Include a properly labeled photograph of each bridge to be inspected in the NJDOT Proposal Program database.
- K.** Two copies of the preliminary proposal shall be submitted to the State directly to the Manager, Bureau of Structural Evaluation and Bridge Management.
- L.** For County-owned bridge projects, an additional copy of the proposal shall be sent to the County Engineer.
- M.** For NJT, DEP, or PIP bridges, an additional copy of the proposal shall be sent to the Owner.
- N.** For Movable bridges, a separate copy of the proposal containing only the movable bridges shall be submitted to: Jack Longworth, Manager, Bureau of Operations Support and Engineering.
- O.** After negotiation of the project costs, the Consultant shall submit only revised pages (two copies - properly marked so that there is no confusion as to where they are to be inserted in the proposal) to the State.
- P.** Submit a copy of the final proposal database file to the Bureau of Structural Evaluation and Bridge Management via e-mail (or via other alternatives if file is too large). Include a proposal database CD with the final proposal.

VIII. FIELD SCHEDULE:

- A.** For NBIS bridges the field schedule must be developed according to a 23 month inspection cycle. For minor bridges, the field schedule is to be developed according to a 48 month inspection cycle. Please see the Appendix A Titled “Inspection Frequency” for frequency of all appropriate inspections required for any bridge.

NOTE: Where most or all of the bridges were previously scheduled for the same month, it is permissible and often preferable to spread out the inspections from the 22 to the 23½ month mark.

- B.** The field schedule must indicate any special inspections such as fracture critical or underwater, any special testing such as ultrasonic, and/or any special equipment such as a snooper, where necessary.
- C.** The Consultant must obtain State approval for the field schedule, report submission schedule, and the proposed Project Manager and Team Leader before starting the inspection work.
- D.** Significant changes to the project schedule must be pre-approved. For security reasons, the Consultant shall notify the NJDOT Project Manager via e-mail of all changes to the schedule, including minor changes.
- E.** The standard project schedule form must be submitted biannually (at end of June and December via e-mail and hard-copy).
- F.** As per the requirements of Department's Policy and Procedure No. 328, (Section IV.A.24.) the Consultant will be monitored, on a frequency determined by the NJDOT, in the field and/or in their office.

IX. BRIDGE INSPECTION SECURITY:

Since 2011, the Department of Homeland Security (DHS) replaced the color-coded alerts to the Homeland Security Advisory System (HSAS) with National Terrorism Advisory Systems (NTAS), designed to more effectively communicate information about terrorist threats by providing timely detailed information to the American public.

NTAS advisories – may be Alerts or Bulletins. NTAS encourage individual to follow the guidance provided by State and Local officials and to report suspicious activity. Where possible and applicable, NTAS advisories will include steps that individuals and communities take to protect themselves from the treat as well as help detect or prevent an attack before it happens. Individuals should review the information contained in the Alert or Bulletin (can be found on the Department of Homeland Security website), and based upon the circumstances, take the recommended precautionary or preparedness measures for themselves and their workers.

The NJ Office of Homeland Security and Preparedness relies heavily on the public to report any and all suspicious activity. Consultants and subcontractors (vendors) shall report any suspicious activity immediately by calling the State's 24-hours toll free tip line (1-866-4-SAFE-NJ). All inspection activities must cease in this situation until the situation is declared to be under control.

All the consultants and their subcontractors shall follow the guidance as follows:

1. All the consultants and their subcontractors shall have the following with them at all times while conducting Bridge Inspection.
 - a. Photograph ID for each team member issued by the employing firm.
 - b. Letter of authorization from the Department (Notice to Proceed Letter).
 - c. Properly identified inspection vehicle. Magnetized sign with firm name is acceptable.
 - d. Additionally for subcontractors, a letter from the Consultant authorizing their presence at the site on dates specified. The letter shall also indicate the type of work being done and equipment being used. In addition, a copy of the vendor approval letter from the Department shall be in possession.
 - e. While performing initial scoping of the bridges in a project, Consultants shall have a copy of the Selection Notification Letter with the bridge list from the Department in lieu of the Notice to Proceed Letter.
2. Staff shall dress appropriately for bridge inspection activities. This means wearing safety vests, hard hats, and other clothing to help security personnel identify you as a bridge inspector.
3. Copies of previous cycle bridge survey reports and other related materials help to further confirm the reason for your presence at the bridge site.
4. Lane or shoulder closures on State highways are to be processed for permits through the appropriate Traffic Operations Office or Region.
5. Drawbridge Operations must be notified 72 hours or three (3) working days prior to the inspection activity for all movable bridges. This is also a requirement for underwater diving inspections or other subcontractors. Also, if applicable, the Coast Guard shall be contacted prior to the inspection to request approval for your presence in navigable waterways.
6. Any such situations found shall be brought to the Department's attention by writing a letter or e-mail to the Manager, Bureau of Structural Evaluation and Bridge Management as soon as possible after the situation is identified.
7. While conducting bridge inspections, staff shall consider the potential security vulnerabilities of the structure. Examples of security vulnerability issues are:
 - a. Missing locks on box beam access doors.
 - b. Holes cut through chain link fencing.
 - c. Lack of access control to Fracture Critical Members (FCM's), pin-hanger connections, movable bridge machinery, etc.
 - d. Industrial sites located close enough to the structure where objects thrown from the bridge could impact the site - tank farms, chemical sites, industrial sites, etc.
8. In case of obvious evidence of theft or vandalism (missing bridge element or graffiti that is vulgar, racial or generally offensive in nature) is observed during the inspection, for State owned bridges, consultant must notify the

situation/condition to State Project Manager via email with supporting documents or photos. For other bridge owners, discuss with State Project Manager and bridge owner representative during the Scope of Work meeting for procedure to follow for theft or vandalism.

NOTE: All State Project Manager is responsible for creating IG99 and informing Local Police for investigation, if needed.

NOTE: For additional information, please visit the following web-site:
<https://www.dhs.gov/national-terrorism-advisory-system>

X. INSPECTION PROCEDURES:

A. GENERAL

Visual inspection of structures, within the approach limits of the bridge, shall also be made and shall typically include any overhead sign structures, signs attached to the bridge, and noise reduction walls.

B. PHOTOGRAPHY

Use of a digital camera is mandatory. Consultants shall ensure that their photography and printing process produces a result equal to or better than 35 MM photography. Any angular views of elevations or roadways will be rejected. Panoramic photographs must be used when necessary for larger bridges.

Photographs shall be at least 5 megapixels, with 5-8 megapixels being an optimum range. Images over 8 megapixels are recommended only for images requiring unusually high detail (Photos over 8 MP offer diminishing returns when comparing file size, and therefore storage cost, against value added due to the higher resolution).

Make sure that all photographs are not dark and show the intended defects or feature clearly. Any photograph not meeting these requirements will be rejected (This is important for scanning or PDF quality). The Consultant will be asked to resubmit clear and sharp photographs at their cost.

Photograph sheets are to be prepared in portrait orientation. Only panoramic views (where necessary) may be in landscape orientation.

When photos are loaded to CombIS, take care to define the photo categories properly.

The following photographs, at a minimum, are required during inspection:

1. Both elevations along the bridge centerline (which shall be for the full bridge length) showing clearly all the features of the bridge and also features intersected.

2. Each roadway direction (along the center line).
3. For structures over water, photographs of the approximate thalweg looking upstream and downstream are required. Each photograph must be taken from beneath the structure (not from the deck), and is to provide the best sense of the waterway approach. If multiple waterways or multiple branches of a single waterway cross under a structure, provide upstream and downstream channel photographs for each.
4. Underdeck to clearly show each type of superstructure.
5. All Emergency or Priority Repair conditions.
6. All elements with condition ratings of ‘6’ or below.
7. Defects that require monitoring during future cycle inspections (settlement, lateral movements, wide cracks, tilted bearings, etc.).
8. Any posting signs (vertical clearance, load, etc.).
9. Any “work done” since the previous inspection.
10. Any “special equipment” used for inspection.
11. Any “special conditions” such as significant quantities of materials stored near or under the bridge – especially potentially flammable materials, etc.

C. MAINTENANCE OF TRAFFIC AND ACCESS EQUIPMENT

1. The State cannot provide the use of Department-owned equipment or traffic control for inspection.
2. Proper safety procedures must be maintained during all operations including the use of safety harnesses, shadow vehicles, flagman, etc.
3. All lane closures shall, at a minimum, meet NJDOT standards; however, the Consultant needs to use their professional judgment to ensure that all MOT is adequate for the site. Any violations will be the Consultant’s personal responsibility. No mobile lane closures are permitted for bridge inspection projects. All lane or shoulder closures on State bridges shall be coordinated with the appropriate Traffic Operations Office and/or Regional Maintenance Permits Office. Use the ‘NJDOT Structural Evaluation Work Zone Set-Up Guide’ for State highways.

Traffic Operations North: Phone # (732) 697-7360
 Fax # (732) 324-6217

Traffic Operations South: Phone # (856) 486-6650

Fax # (856) 486-6802

Regional Maintenance North: Phone # (973) 601-6625
Fax # (973) 601-6623

Regional Maintenance Central: Phone # (732) 625-4330
Fax # (732) 625-4344

Regional Maintenance South: Phone # (856) 486-6688

4. State Police may not be used for any traffic control operation (with the possible exception of controlling traffic at a signalized intersection, or total temporary road closures). If you ever have either of these two situations, you shall flag this clearly in the proposal and bring it to the State Project Manager's attention (as they must then seek formal approval from the Operations side of the Department for the use of State Police).

Please be advised that the State Police and/or Regional Permits personnel monitor all sites where traffic control is set up. If the State Police find deficiencies, they will fill out a Safety Improvement Report, and may order the Consultant off the highway. If you are issued a Safety Improvement Report you must immediately (before we hear from the State Police about this) forward a copy to the State Project Manager (Note: This will impact your CES rating).

5. Consultants shall contact the appropriate Traffic Operations office and complete required documents in order to obtain permission to be on the highway. Their requirements typically involve submitting weekly (TO-100) and daily (TO-101) lane closure requests. A copy of these documents is to be carried with you in the field.

NOTE: Form MT120A (Application for Highway Occupancy) is no longer required for the Inspection purpose.

D. UNDERWATER INSPECTION

1. Bridges over waterways shall be inspected in accordance with the 1994 NJDOT Underwater Inspection and Evaluation Guidelines Manual and OSHA Guidelines CFR 1910, Subpart T.

Please also review the following memo: "Waterway Safety" dated July 13th, 2015. It was written for in-house personnel, however, it contains good advice that we ask you to consider.

2. The Consultant must ensure that the RFP is sent to the diving vendors based on the overall location of the bridges (North or South Jersey) and at least three responses shall be confirmed. A list of diving vendors will be made available; however, the RFP does not have to be limited to the diving firm names listed with this office. All vendors are to be required to submit individual qualification for each proposed diver with their Response to RFP.

3. It is acceptable to obtain underwater diver inspection services as a Sub-Consultant provided that the diving firm provides a qualified Bridge Inspection Team Leader or Diver.

NOTE: Just because a Sub-Consultant is proposed (whether in the EOI of after) does not mean that one will be accepted. We reserve the right to require the standard 3-bid approach at any time.

4. All required underwater inspections shall be completed on a 48 month inspection cycle or on a 24 month inspection cycle for scour critical bridges and bridges with low free board (See the Appendix A Titled “Inspection Frequency”). Scour critical (Item 113 coded ‘3’ or less) bridges that have a depth of water not less than 4 feet at the substructure units shall have underwater inspections performed every cycle (24 month frequency). Additionally, bridges with low free board must have an underwater diving inspection performed every cycle (24 month frequency). For other bridges requiring underwater diving inspection, the frequency will typically be 48 months. The depth of water in the channel near the substructure units must be verified by the Team Leader prior to the underwater inspection, to verify that an underwater inspection is indeed required.

NOTES:

1. If a bridge required an U/W Inspection in prior cycles, but current conditions do not warrant a diving inspection (due to low water level), **code U/W Inspection Date** same as Item 90 Date, keep U/W box checked, and document in the summary and conclusion sheet that “the bridge doesn’t need a Type 2, (or Type 3, or Type 4 – for which a bridge specific scope-of-work would be provided) U/W inspection this cycle due to.....”. Also, the team leader must notify the diver used not to inspect the bridge in the current cycle (Refer to the memo dated 01/30/2012).
2. The Consultant must include language in their request for Underwater Inspection Services that some bridges may be taken out of the contract due to low water level, or for other reasons if the bids are based on bridge-by-bridge bids. The Consultant shall do their best not to include bridges that will likely not require a UW inspection in Lump Sum bids.
3. With consultant projects where the underwater inspector is a sub-consultant, the sub will not bill for work not performed. The amount of unneeded U/W Insp. must be a leftover balance at the end of the project.
5. Diving shall be performed by a fully-qualified diver, experienced in the underwater inspection of concrete, steel and timber structures. The underwater inspection must be conducted under the direct supervision of a fully-qualified bridge inspection Team Leader (the Consultant’s Team Leader shall be present at the site during the underwater inspection unless the dive team includes a qualified Team Leader). As per NBIS, “an underwater bridge inspection diver must complete an FHWA approved comprehensive bridge inspection training course or other FHWA approved underwater diver bridge inspection training course.”

6. The underwater inspection report shall be reviewed by the Consultant and included in the inspection report as an appendix.

For projects in CombIS, until the Underwater Inspection report format is fully incorporated into the system, it needs to be formatted as a stand-alone report that is referenced to the main bridge inspection report. The report is to be PDFed and attached to the main report within the CombIS system.

The Consultant shall include comments and necessary repairs in the Conclusions and Recommendations section of the main report based on the diver's report.

E. FRACTURE CRITICAL MEMBERS

1. Check closely (hands-on) areas vulnerable to fatigue with special emphasis given to Fracture Critical and non-redundant members during routine inspection. Hands-on inspection of hangers and welded Fracture Critical Members (FCM's) and close visual inspection of riveted members shall be performed. Perform U.T. of pins and hangers (as per approved plan), hanger connections and sheave trunnions, wire ropes (lift bridges), and other members as necessary. Note that floor beams are to be considered as being fracture critical members if one or more of the following conditions exist:
 - a. Flexible or hinged connection to support at the floor beam connection.
 - b. Floor beam spacing greater than 14'-0".
 - c. No stringers supporting the deck.
 - d. Stringers are configured as simple beams.

NOTE: New Jersey considers three steel girder spans to be a fracture critical structure.

All concrete encased Fracture Critical steel members shall receive a close visual / hands on inspection. Look closely at the encasement to assess the condition of underlying steel by looking for typical signs of steel corrosion & delamination, i.e., rust stained or hollow sounding concrete, cracking & spalling of concrete, etc. If conditions warrant, recommend concrete encasement removal from the member to allow for a hands-on inspection of bare steel.

2. Dye penetrant testing is encouraged for areas suspected of developing fatigue cracks or for checking for propagation of cracks previously arrested by drilled holes.
3. In-depth inspection of selected fracture critical bridges and bridges with pin/hanger details is carried out every four (4) years - every alternate cycle - consistent with the approved fracture critical scope of work under separate Consultant projects. However, the important information contained in such special FCM inspection reports (inspection findings and recommendations) shall also be included in the routine bridge inspection survey reports.

4. Complete the Fracture Critical Checklist within CombIS.
5. For all Fracture Critical Bridges it is necessary to obtain and/or create fracture critical bridge plans and incorporate them into bridge inspection reports. The bridge specific fracture critical plans will define the location and type of each fracture critical member, and document the procedures established for their inspection. All required fields for this purpose are incorporated in the Fracture Critical Checklist in CombIS. In addition, Consultant shall attach Member identification sketch with FCM member descriptor in CombIS for all Fracture Critical bridges.

The Consultant must verify that contract plans showing the fracture critical members have been loaded into CombIS. If not present, the Consultant must obtain and upload these plans prior to submitting the report for bridge owner review (See Section XII.L. for specifications on submitting Plans).

F. NOTES FOR INSPECTING ADJACENT PRESTRESSED CONCRETE SUPERSTRUCTURES

When inspecting prestressed concrete adjacent box beam/voided slab bridges, the inspector needs to be aware of the following defects which may be indicative of a serious problem that shall be brought to the attention of the Bridge Owner:

1. When no reinforced concrete deck is present (asphalt overlay directly on top flange of beams) and where no waterproofing membrane is provided, water may be trapped in the overlay creating an environment for corrosion and cracking. Water will infiltrate the boxes through cracks in the top flanges.
2. Check the bottom of the beams for longitudinal cracks which may be caused by an accumulation of water in the boxes (freeze-thaw action). The cracks will become incipient spalls/spalls along the bottom edges of the beams on voided slabs and spalls in the bottom flange of box beams as the condition progresses.
3. Check for rust stains in the bottom flange which indicate corrosion of steel reinforcement.
4. Check the underside of adjacent box beams for evidence of water leakage between the boxes. This is an indication of failed shear keys. Failed shear keys on bridges without reinforced concrete deck slabs can cause a situation where the lateral tie rods have insufficient strength to transfer loads between beams making the bridge non-redundant and vulnerable to partial collapse.

NOTE: If the condition warrants, the beam drainage weep holes are to be probed to ensure that they are functioning properly. Note that modern box beams and voided slabs have weep holes that are internally sealed to keep moisture out. The seals are designed so that they can be punctured at a later date if water infiltration into the internal void is suspected. The inspector shall use proper discretion when choosing to open sealed weep holes as to avoid creating unnecessary paths for moisture to enter.

G. NOTES FOR INSPECTING GUSSET PLATES

1. Check all gusset plates connecting primary load carrying members for signs of cracking, bowing, distortion, and section losses.
2. When full access for visual inspection to determine section is lacking, then non-destructive testing (NDT) must be used. A hands-on inspection of gusset plates on non-redundant members is required. If conditions do not permit this, or access would be prohibitively expensive, then the Project Manager must be advised and alternatives discussed.

H. UTILITIES

Care must be taken to perform inspection safely around all Utilities on or adjacent to the structure and maintain minimum safe distances.

I. CONCRETE ADHESIVE ANCHORS

1. Any concrete adhesive anchors must be identified and carefully checked. All adhesive anchors locations, function, loading and other details must be noted and explained in the inspection report. Particular attention must be given for any adhesive anchors supporting any overhead elements or members.
2. Check to make sure no concrete adhesive anchors are in sustained tension. Any adhesive anchors observed in sustained tension must be immediately reported to the State Project Manager with a corresponding priority repair letter.
3. Check all connections. Any connections that involve dissimilar metals must be immediately reported to the State Project Manager with a corresponding priority repair letter.

XI. PRIORITY REPAIRS:

- A. The Priority Repair is to be entered into the CombIS system according to CombIS procedures. Please note that the Priority Repairs functionality has been separated from that of the inspection report. Therefore, from here forward, you will need to manually write in the inspection report Conclusions and Recommendations area a summary of the priority repairs recommended. (Note: No photo references will be required in this section.)

If the bridge is owned by a Local Bridge Owner not participating in the CombIS system, they must also be notified directly, according to the standards defined in the: **NJDOT Standard Policies for CombIS Users.**

If the full report for a particular bridge is not being prepared in CombIS, or if

instructed (possibly due to the InspectTech 7.5 implementation), the priority repairs shall be submitted electronically (in both Word and PDF formats).

Priority repairs are to include a complete recommendation and an appropriate repair scheme.

The Consultant shall verify that the electronically sent priority files are actually received by the State Project Engineer and Assigned Engineer by requesting a reply e-mail acknowledging receipt of the files, and following up if a timely (based on Priority level) response is not received. This is especially important for the first couple sent for each project cycle for those processed in CombIS, and must be done for all bridges where the priority was not submitted within CombIS.

(NOTE: the NJDOT had a 10MB inbound limit for email messages. If your email is even close to this limit, please follow up with a request for confirmation as a separate email)

In the subject area of the priority repair letter, always provide the structure number and name, route and mile post, name of the Town/City and County, and the Project Group Number. In addition, please lead the Subject line of your e-mail with the Group number (for example: ST0A – Priority 1 Repair for Structure xxxx-xxx).

If the Bridge Owner is not the State, the original Priority Repair letter shall be sent to the actual Bridge Owner with a copy sent to **the** Manager, Bureau of Structural Evaluation and Bridge Management.

During the Scoping meeting, discuss the actual priority repair submission procedure and establish a process for submission of new or previously identified priorities and work done notification for previously identified priorities.

Note: All Priority Repairs, including previously issued ones that are not yet complete, are to be entered into the CombIS system during this cycle (if not entered in CombIS previously), with the exception that repairs previously issued for State Maintained bridges will typically not have to be input if there has been no change. **If recent inspection revealed that the defects identified in the previous cycle have worsened, please amend the existing priority with new photos and new priority level (if needed).**

Note: As of May 2016, priority repairs submitted in CombIS were to be prepared in CombIS and “submitted” to the bridge owner. This generates an email to the bridge owner (Note: All email addresses now have to be typed or cut/paste into the Additional Emails section on the Priority Repair tab).

(Just FYI) For State Maintained bridges, in-house staff will then:

- Use this email as the basis of the Work Order System entry, and either create a new entry, or append the document to an existing entry and update the entry as appropriate.
- Enter the Work Order number in the Interim Recommendations area of the Engineering portion of the CombIS Priority Repairs form.
- Once the Priority Repair is performed, fill in basic summary information

on what was done, and flag the repair as complete (see CombIS procedures).

The Consultant SHALL maintain sufficient contact with the State Project Manager to ensure that all Priority Repairs are received by the bridge owners and acted upon.

- B. The Consultant will notify the State Project Manager (or Assigned Engineer), or the Bridge Owner if not a State owned bridge, immediately by phone if they encounter any structural or safety problems/critical findings of an emergency type that need IMMEDIATE ATTENTION. (Note: The State equates an Emergency condition/repair to the FHWA concept of a Critical Finding)

The Consultant must issue High Priority 1(HP1) and Priority 1 repair letters within 1 week (7 days) of the inspection date. Priority 2 repair letters must be issued within 1 month (30 days) of the inspection date. Priority letters must be sent electronically to the State Project Manager within the allotted time frame.

- C. Priority repairs can only be combined into a single document if they are off the same priority level (E, HP1, 1, or 2). For State-owned bridges (or if requested by the bridge owner), keep steel and concrete repairs in separate letters, even if they are at the same priority level. Any guiderail or scupper priority repair letters must always be issued separately.
- D. All bridges with a minimum underclearance of less than 14'-9" are required to be posted for vertical clearance if the Department is responsible for the posting (bridges above State jurisdiction roadways). Bridges over non-State jurisdiction roadways will be posted with a vertical clearance cut-off of 14'- 6". The vertical clearance posting of bridges is mandated under NJSA 27:5G-3.

A Priority 1 Action letter is required to notify that the vertical clearance posting is required. If a Priority letter was generated during a previous cycle, no additional changes were observed in the field, and the Consultant has verified that the appropriate posting authority has been notified, then no additional Priority letter is required.

For all projects in CombIS, the Priority Action for vertical underclearance postings is to be listed as a Priority 1 (until a separate category is added to the system). It is to be entered into the CombIS system according to CombIS procedures. (Note: In-house staff will use the generated email to prepare and send a memo to Traffic Engineering. Attach a copy of this memo to the hard copy report.)

NOTE: Priority 1 Action letter is required in case of missing under clearance posting signs mounted on Fascia girders for all bridges (State and other owners).

- E. For all priority repair recommendations involving fenders, navigation lighting, tide markers/gauges, and/or deficiencies on movable bridges, a notification must be submitted to the State PM and to Jack Longworth, Manager, Bureau of Operations Support and Engineering, for review and comments.
- F. Bridges over navigable waterways with marine navigation lighting must be

maintained at all times in accordance with U.S. Coast Guard regulations. Bridges with aerial obstruction lighting must be maintained at all times in accordance with Federal Aviation Administration regulations. Any marine or aerial navigation lighting that is observed to be non-functional or missing is a condition requiring immediate corrective action. The Consultant must proceed with emergency notification and prepare an Emergency Letter (Priority E) as per the requirements above. The requirements for all bridge marine navigation lighting and aerial obstruction lighting are listed in *Code of Federal Regulations CFR-2010-Title33-Voll-Part118* and *FAA Advisory Circular AC 70 7460-1K*.

NOTE: The navigation lighting on some structures is operational 24 hours a day while other structures have dusk-to-dawn navigation lighting. **Inspector must cover the photocell to verify the navigation lights are working or not. If the navigation light is out of reach for inspection,** please check with the State Project Manager for the type of navigation lighting present on the structure before issuing priority letter.

- G. If the structure has a structure number sign on it but it displays an incorrect structure number issue a Priority 2 Action (Repair) to have the sign replaced. Incorrect MP on structure number sign does not require a priority action.

XII. NATIONAL BRIDGE ELEMENT (NBE) AND SI&A CODING, AND VARIOUS COMBIS PROCEDURES:

NOTE: The Department is in the process of revising how inspection data and information is collected and reported. This will likely impact how some or all of the inspection information is to be provided to the Department during the life of this contract. DISCUSS THIS DURING THE SCOPING MEETING.

- A. For all new projects or project cycles, update SI&A data, and field collect National Bridge Element (2013) data and code into CombIS. For first-cycle bridges, NBE and SI&A data must be coded in its entirety.
- B. Within 30 days of performing the field inspection, enter all field collected data in CombIS.

Once this is accomplished, on the CombIS Inspection Report Information screen, check the box that indicates that: “All basic data and field collected information has been input.”

Note: Checking this box tells us that you have finished entering this data, and we can rely upon it for various types of reporting. **DO NOT CHECK THIS BOX** until the data is actually in CombIS.

- C. Within 90 days of the date of inspection, complete updating all of the SI&A (NBI) and National Bridge Element (NBE) data. However, for inspections occurring near the end of the year, less than 90 days will be available as we are requiring that all data be input by JANUARY 31st.

Note: If you cannot complete the data input, due to a portion of the inspection still pending or due to the size or complexity of the bridge, communicate with the State Project Manager via email so they are aware of which structures are impacted by this situation. Where this situation can reasonably be predicted, please discuss with the State Project Manager during the scoping meeting and come to an agreement. Please note that, due to Federal reporting requirements, the State Project Manager is not to permit data input to extend past January of the following year without signoff from Asset Management.

Important Note: In order to stabilize the data flowing from CombIS to our BrM software the following requirements are in effect from January through March of each year:

Data for inspections where the Item 90 inspection date is prior to January 1st of the current year:

- 1) At least the SI&A data and NBE data for all reports is expected to be in CombIS by January 31st.
- 2) Each report in CombIS needs to have been submitted in the CombIS workflow at least once (for example, from **In Progress** to **Consultant Review** or **InHouse Review**) in order for the data in the report to be staged for transfer from our CombIS system to our BrM system.

(Once you have done this, you can continue to work on the report as needed. If you are still developing the report you can then submit it back to **In Progress** and complete it.)

Data for inspections where the Item 90 inspection date is in the current year:

THIS IS CRITICAL - Do **NOT** submit your report in CombIS, not even to your own project manager. It shall remain in **In Progress** until after March 15th.

Once this is accomplished, on the CombIS Inspection Report Information screen, check the box that indicates that: “All field collected information has been thoroughly reviewed (by the PM or QA/QC Engr.)”

Note: Checking this box tells us that you have FINISHED entering ALL SI&A and NBE data and that the data can reasonably be relied upon. DO NOT CHECK THIS BOX until the data has been fully updated to reflect the current status of the bridge in CombIS.

Note: We will perform checks of this data as it exists on the date the box was checked, and will consider a significant number of errors as major deductions in any Consultant rating. By significant, we are not referring to the occasional adjustment that occurs during final review. Rather, we are referring to a pattern of checking the box before the data in the system fully reflects the current status of the bridge.

General Note: Over the next year or two, we will be looking at ways to shorten the time between the inspection date and the individual report delivery date. This is partly in response to pressure from the FHWA to do so. For example, we will be

looking at ways to achieve a goal of reports being submitted within 5 months of the date of inspection for typical bridges (when load ratings are not performed).

- D. Special attention shall be paid when upgrading the code of SI&A Items 58, 59, 60, 62, etc. that will change the status of a deficient or obsolete bridge included in the Select List. Any proposed revisions shall be specifically discussed with the State Project Manager and/or bridge owner if not the State. Also, changes in SI&A items that result in changes in SI&A Items 68 (Deck Geometry) or 69 (Underclearances) that are automatically coded shall be similarly discussed.
- E. Latitude & Longitude must be correct for all bridges (click “Show on Map” in CombIS as a quick check). Although we report Items 16 & 17 to the FHWA, we actually use Item **M84** & **M85** to enable entry of decimal degree versions of these values in CombIS, which must be entered to the following accuracy: xx.xxxxx Degrees.

Establishment of GPS coordinates utilizing CombIS itself is encouraged.

If coordinates are determined via field measurement, the required level of accuracy can be obtained by using a hand-held WAAS enabled GPS receiver (WAAS stands for the Wide Area Augmentation System - a system of satellites and ground stations providing GPS timing corrections which are capable of improving the accuracy of the final reading to within a few meters).

- F. **The SRI and Item 11 (Milepoint) are now KEY fields, and shall always be coded correctly.**

The **SRI** (State Route Identifier) and Item 11 (Milepoint) coding must be verified using the current version of the Straight Line Diagrams in effect when the bridges are inspected.

Also, the **SRI** and Item 11 (Milepoint) shall be coded for all roadways. Where incorrect, make the necessary changes. Remember, the SRI is for the ACTUAL route (including Ramp designation, if appropriate). If the structure is only on a ramp (and not on both the main line and a ramp), please verify or add this portion of the SRI number to the SI&A data.

NOTE: The Straight Line data can always be downloaded from the Department’s website. Also, Mile point information for County roads and most Local roads is now available on the Straight Line Diagrams and shall be coded whenever possible.

- G. Item 36 (Highway Safety): make sure that the guide rails meet the NJDOT Roadway Design Manual criteria listed under Section 8. BCT’s on all State roads shall be considered as inadequate and Item 36(D) shall be coded zero. However, BCT’s can be considered to be adequate on local roads (city, county, municipal, etc.) depending on the Owner’s design standards. In all cases, BCT’s located on NHS highways are to be considered inadequate. Refer to the Commentary on Item 36 (Safety Features) included as State Appendix F in the 2003 SI&A Coding Manual, as modified by the March 15, 2005 clarification memo.

- H.** The Consultant must make sure that all SI&A and National Bridge Element data, whether existing, new or corrected, is reviewed, verified, and complete in all respects.

For bridges for which the full report will not be done in CombIS this cycle, submitted paper inspection reports must include copies of the updated SI&A and National Bridge Element data sheets from CombIS. In addition to the updated sheets, copies of the previous cycle sheets (**including Element sheets**), with the corrections made in the updated sheets indicated in red, must be submitted bound in **all inspection** reports. The marked-up copies of the previous cycle data sheets (**SI&A and NBE**), indicating revisions, are not to be PDFed as part of the final report.

- I.** Additional fields will be added in **2019** for the collection of vertical under-clearance information. These fields, which will initially only apply to state routes, must be populated by all consultants when they are made available. These fields will be used to directly provide vertical under-clearance data to our SuperLoad system.
- J.** For all new structures (Cycle 1 inspections), verify that the structure number is correct. When necessary, the Consultant shall submit a Structure Numbering request so we can determine if a structure number has been issued for the new structure or not.
- K.** For ALL Structures, enter the following data:
Item **M119** – Full name of the Certifying Engineer
Item **M120** – Certifying Engineer P.E. License No.
Item **M121** - Full name of the Field Team Leader

Also enter/verify the “**Funding Category**” after creating the report in CombIS for EACH CYCLE of inspection. This field, located in the CLASSIFICATION section of the Structural Data tab, tells the system how this bridge inspection is intended to be funded, and enables the correct data to be presented in several other fields that used to have to be entered manually. Also, update Items 26 & 104 if incorrect.

NOTE: This may, on rare occasion, result in the bridge being reported in a category other than how it was listed in the proposal. This is OK. If it was improperly categorized in the proposal, at least now it is properly categorized.

L. File formats:

- Any correspondence not done within the system is to be in Microsoft Word file format (“*.doc” or “*.docx” only).
- Any spreadsheets provided are to be in Microsoft Excel file format (“*.xls” or “*.xlsx” only).
- All newly created “CAD” files and sketches

(Note: If unusual circumstances for State projects are to be in Microsoft Visio 2007 or newer file format, dictate the use of a formal CAD product,

our standard is Microstation 2-dimensional “.dgn” file format. Existing AutoCAD files are to be provided in “.dxf” format if unable to easily convert to “.dgn” format, or if this is the standard for the bridge owner.)

- Load Rating files as source for, or produced by, a load rating application are to be submitted in their native format so that the files can be used in the future.
- Photos are to be in “.JPG” file format only. The version preferred, and generally produced by most cameras, is called “JPEG_EXIF” (JPEG Encoded File with Exif Metadata).

Note: We will soon be looking to take advantage of the geolocation capabilities of most modern cameras. To this end, by the end of 2016, we will be providing guidance on how to turn on this capability in your devices so that each photo’s metadata contains this information.

- Any files PDFed shall be according to the **PDF/A-1b** standard (technically, this file format is considered to be “PDF for Long-term Preservation”, and is based on PDF 1.4, Level B Conformance). File resolution is to be 300 DPI minimum, with 400 DPI preferable for most situations.
- Scanned or electronically converted images, including Plans (see note 4 below for more guidance), for inclusion in CombIS as part of the report are to be in one of the following formats (in order of preference). File resolution is to be 300 DPI minimum, with 400 DPI preferable (for most situations):
 - **.TIF** – TIFF_6, Revision 6.0 (there are 3 acceptable sub-formats of TIFF)
 - TIFF_G4, TIFF Bitmap with Group 4 Compression – designed for bitonal (black & white) images (huge space saver)
(Note: Currently, NJDOT Document Control provides scanned plans in this format at 300dpi)
 - TIFF_LZW, TIFF Bitmap with LZW Compression (lossless)
 - TIFF_UNC, TIFF Uncompressed Bitmap (grayscale or color)
 - **.PNG** - PNG (Portable Network Graphics) Specification, Version 1.2

NOTES:

1. “.BMP” is no longer acceptable for new submissions. Convert to TIFF or PNG.
2. Do not allow the files to be unnecessarily large. For example, if the image is black & white (one that could have been submitted as a TIF) it is to be submitted as a Monochrome Bitmap (1-bit depth).
3. Many applications will default the creation of an image to “screen” resolution. This is often 72 or 96 DPI (sometimes expressed as PPI – pixels per inch), and is not acceptable. We require that all images be “print” quality, which is 300 DPI minimum and ranging up to 600 DPI (or possibly even greater for bitonal images).
4. When structure plans are acquired, they are to be scanned and included in CombIS. Load to the structure, not to the inspection report, unless there is a specific purpose in doing so. When you have control over the scanning of Plans, they are to be provided in TIFF file format. However, if they were provided to you in PDF format then DO NOT try to convert them. Provide the PDF files that were provided to you, being careful not to do anything to degrade the stored images.

NOTE: The intention here is as follows: Where there is no existing electronic archive of a bridge owner's bridge plans, the best format is TIFF for long term preservation. Although PDF is theoretically usable, most people do not know how to ensure that the images stored in a PDF file are stored with a high level of quality. Therefore, while you have access to them, let's preserve them.

Plan Sheet File naming convention:

1234567_YYYYMM_*OptionalData*_*OptionalData*.filetype

1234567 = State Structure Number

YYYYMM = Year and month of plans (use one date for the entire set)

OptionalData = One or more of the following:

Sxxx = S001 = Starting sheet num – Use leading 0 so files sort in sequence
(use when multiple files constitute one set of plans)

(1234567) = (M11.1) = Bridge Owners str. no. (whatever length is needed)

source = for example: AtlanticCountyLibrary (no blanks)

general = Any other notation – must be rightmost *OptionalData* item

XIII. LOAD RATING & LOAD POSTING:

1. LOAD RATING:

- A.** Use both Load Factor/Working Stress and Load and Resistance Factor methods for load ratings in accordance with the current AASHTO Manual for Condition Evaluation of Bridges and the NJDOT Highway Bridge Load Rating Manual.

Load Factor Rating (LFR) shall be used for the majority of structure types, with the following exceptions, where Allowable Stress Ratings (ASR) method can be used for computing load ratings:

1. Timber structures
 2. Masonry structures
 3. Wrought Iron structures
- B.** Load rating calculations must be made utilizing the latest version of one of the following computer programs:
1. LARS Bridge – Longitudinal girders, floorbeams, stringers, trusses, slabs
<http://www.bentley.com/en-US/Products/LARS+Bridge/Index.htm>
 2. PennDOT Box Culvert Program–Culverts and Frames for 1 span or 2 spans.
 3. STAAD Pro – Culverts and Frames more than 2 span and Arches
 4. NJDOT SPREADSHEET – Bolted, riveted & welded gusset/splice plates, Corrugated Metal Culvert/Flexible Culverts Structures.

5. Discuss with State Project Manager – Straight Box Girders and Curved Box Girders, Curved I-Girders, Superstructure components of Movable span and Anchor span.
- C. Perform load ratings for the following live loads for all bridges:
HS20, HL93, 3, NJ3S2, 3-3, SU-4, SU-5, SU-6, SU-7, EV2, EV3
H15/H20 live load ratings are also required for other owners. Refer to Structural Evaluation website for the live load configuration of EV2 and EV3 type vehicles.

In the SI&A Report Section 2, Inventory and operating ratings shall be provided for AASHTO HS-20; the three New Jersey Legal loads of AASHTO Type 3, AASHTO Type 3-3, and NJDOT-modified Type 3S2; and the Specialized Hauling Vehicles SU4, SU5, SU6, and SU7. Inventory and operating rating factors shall also be provided for AASHTO HL-93.

- D. Where plans are not available and previous ratings were assigned using Engineering Judgment, the new ratings shall be obtained based on the existing condition and other factors as per the new guidance provided for assigning Engineering Judgment ratings, without referring to the load ratings used in the previous reports. This is only applicable to concrete encased steel, stone masonry, reinforced concrete, and prestressed concrete type structures. **This can also be used for rigid culverts and flexible culverts on case to case basis.** For steel bridges with no encasement, and for timber structures, please discuss with the appropriate Project Manager for additional guidance. The NJDOT Engineering Judgment Memorandum, dated June 5, 2017, has been revised. A copy of the revised memorandum can be obtained from the Structural Evaluation website.
- E. When re-calculating or revising previous load ratings **by using LARS program**, existing .bmd file must be used. All existing .bmd files and previous load rating assumptions must be reviewed for accuracy. Any inconsistencies with previous load rating approach, .bmd files and assumptions need to be discussed with the State Project Manager before updating the load rating calculations.

For previously load rated bridges by non LARS software/program, the previous load rating approach, assumptions and load rating summary comments must be reviewed for accuracy. Any inconsistencies must be discussed with the State Project Manager before updating the load rating calculations.

- F. Provide a Load Rating Summary Sheet (LRSS) including the summary of current ratings, even if ratings were done as part of a previous cycle report. The controlling member(s) must be clearly identified. The full name, seal, and signature of the Load Rating Reviewer shall appear on the Load Rating Summary Sheet (LRSS) with the Load Rating Engineer's name and initials (if ratings were performed in current cycle). Also include all assumptions made, posting requirements, specific reasons for rating the bridge, members that have not been considered (with justification), **etc.**
- G. The term “unique member” will be used to classify a member with different section properties (but not variations in spacing, length, skew, etc). The number of unique members will be considered during negotiating of rating hours.
- H. Both the “As-Built” and “As-Inspected” ratings must be reported for all members

that handle vehicular live load. Always field measure section loss (do not estimate) and make a note in the field notes of remaining steel section. Compare this remaining section with “As-Built” section, either field measured or from “As-Built” plans for assessing the need for re-rating. Typically, primary load-bearing members that exhibit section loss of 10% or more from the “As-Built” condition will be considered as a unique member that requires rating. Any section loss below 10% is not to be modeled (except when special condition exists) for rating purposes unless the State Project Manager directs otherwise. In addition, any additional section loss for the previously rated member will require rerating. The “As-Built” and “As-Inspected” conditions shall be modeled in separate input files, each containing all members subject to vehicular live load.

- I.** It’s important to identify the structures that may require updated load capacity ratings during the current cycle due to additional dead loads, significant section losses, **any major changes in structural configuration (e.g. Addition of additional members, retrofitting existing members, new deck etc.)** etc. A site visit to each structure and a review of previous inspection records prior to submitting a preliminary proposal is required.
- J.** Load Factor and Load and Resistance Factor ratings shall be calculated for Maximum Strength or Serviceability Strength and not for Fatigue. If fatigue ratings are required, they will be negotiated separately.
- K.** Steel Pier cap/Cross girder and Timber caps shall be load rated. If any structure has these components, the load rating approach should be discussed /agreed with the State Project Manager before starting any work.
- L.** Use Load Factor/Working Stress and Load and Resistance Factor methods for rating Gusset Plates in accordance with the current AASHTO Manual for Bridge Evaluations, **2018** (including all Interim Revisions). The load rating method for the gusset plate is determined by the method used to rate the main load carrying member. Revised load capacity ratings are to be performed for the gusset plates, if the members connected to the gusset plate are the primary load carrying members of a truss. Subsequently, the load capacity ratings for the gusset and/or splice plates on truss members are to be updated for the section loss of the gusset/splice pate and for additional dead loads on the structure. Prior approval from State Project Manager is required.
- M.** Load rating computer input and output files shall be provided electronically to the Bridge Owner at the end of the project with the working files CD submission.

OR

For CombIS projects, all working files are to be loaded into CombIS according to CombIS procedures BEFORE the report is submitted as “Final” to the Bridge Owner. Contract plans obtained are to be scanned and **loaded into** CombIS (see File formats Section).

File formats provided are to be as specified in Section XII (above).

2. LOAD POSTING:

- A.** Any bridge with an Operating Rating for the Type 3 (25T), NJ3S2 (40T) or 3-3 (40T) trucks which is below the maximum legal weights for these vehicles must be posted for load carrying capacity. All bridge owners other than NJDOT are authorized to post a bridge for load carrying capacity using the Inventory Rating or any level between the Inventory and Operating Rating based on their own policy.
- B.** The bridge load postings are to be made as soon as possible, but no later than 30 days after load rating determines a need for such posting.

XIV. INSPECTION REPORTS:

NOTE: Inspection reports are not to be created/initiated in CombIS until the following is satisfied:

- 1. The previous cycle report has been completely Approved (bring any issues to the State Project Manager's attention).
- 2. Any restriction on timing specified in Section XII.C.
- 3. Too far in advance (typically one month max.) of expected bridge inspection date.

A. CONSULTANT REPORT SUBMISSION

- 1. All State bridge evaluation reports shall be completed in the appropriate format (Format A, B, C, or D as required), either via CombIS or according to the template version on the Bureau of Structural Evaluation and Bridge Management website at the time of inspection is required.
- 2. All reports submitted by Consultants are to be submitted as final documents; all Consultants are to sign (using blue, not black, ink) and certify all reports before submitting them to the State, and/or into CombIS. Additionally, the designation of "preliminary" shall not appear on the report cover or anywhere within the report body.
- 3. The first report submission of each project shall consist of format reports, which will be reviewed and returned to the Consultant in their entirety, or else reviewed within CombIS. To the extent possible, format reports are to cover a bridge in each of the following categories below (unless directed otherwise by State Project Engineer):
 - a. a Structurally Deficient bridge with the lowest sufficiency rating
 - b. a Functionally Obsolete bridge with the lowest sufficiency rating
 - c. a rehabilitated or rebuilt bridge
 - d. a bridge in fair to very good condition or a first-cycle inspection report (if applicable)

At least two of the format reports above must contain load rating analysis (when applicable to the project). Include one format rating of a steel superstructure and one format rating of a prestressed concrete superstructure (if no prestressed concrete bridges exist in a project, rate any other concrete superstructure).

For contracts with less than 25+ bridges, or for projects consisting of major structures and/or movable bridges, less than four format reports may be submitted if approved by the NJDOT Project Manager.

For CombIS bridge reports, submit a hard copy of each format report to the bridges owner, as well as the State, in order to facilitate review. These hard copies can, but do not have to be, signed and sealed.

NOTE: Format reports are to be used as a tool to prevent the need for preliminary report rewrites when the reports produced are not in conformance with the agreed format. This type of situation is much more likely to occur when the Consultant is not familiar with the State's requirements or when the format of the reports has changed substantially. In light of this, the need for format reports will be evaluated at the Scope of Work meeting and agreed upon at that time.

4. The remaining bridge survey reports (non-format) are generally to be submitted only after the approval of the format reports. For each report, either the NJDOT and/or the bridge owner (if not the State) will either accept the report as final or provide comments back to the Consultant. Any comments or corrections offered by the State and/or the bridge owner will be provided back to the Consultant, either via paper mark-up or via CombIS, for incorporation into the corrected final report. However, for structures that will require an Interim inspection, the report must be submitted to the bridge owner no later than one half the number of months until the interim inspection will be due (typically six months for an interim inspection due in one year), and the report must be finalized prior to the date of interim inspection. Discuss 6-month and 3-month Interims with the State Project Manager.
5. When a bridge owner does have comments, correct and resubmit the report according to CombIS procedures.

If approved by the State Project Manager/Bridge Owner, the Consultant needs to re-submit only the hard copy pages that require modification (the Consultant does not have to re-submit the report in its entirety). If this is permitted, the Consultant must speak with the State Project Manager/Bridge Owner to determine a method for the replacement of edited report pages into the final report. If the Consultant is not comfortable with others substituting pages into their signed-and-sealed report, then they are to submit a new, complete, signed-and-sealed report.

6. The NJDOT Straight Line Diagrams (SLD) provides data that must be utilized for inspection reports. Data contained in the reports is to be verified with the most recent edition of the SLD (available online).

When a ramp is included in the structure name, the structure name is to reflect the purpose of the ramp, rather than an arbitrary name of the ramp. See the NJDOT Bridge Design Manual, Section 35 - Structure Numbers and Names.

7. All portions of all reports are to be prepared in such a way as to be fully able to be PDFed.
8. The submission of bridge survey reports must occur within ten (10) months from the notice to proceed and the final submission of any corrected reports will occur within twelve (12) months from the notice to proceed. Stagger report submission where possible to enable reasonable rates of review. The State acceptance of all reports is to occur within fourteen (14) months from the notice to proceed. A different schedule may be allowed, if negotiated at the Scoping Meeting, for some non-NBIS projects.

Note: A non-mandatory goal is for reports to be submitted within 5 months of date of inspection for typical bridges (when load ratings are not performed).

9. All electronic working files used for report preparation shall be loaded into the CombIS system. These must be loaded PRIOR to submitting the report electronically for Bridge Owner Review.

NOTE: Inspectors are not allowed to create new Inspection report in CombIS before day or two before actual inspection date.

B. CONCLUSIONS AND RECOMMENDATIONS

1. Provide the overall condition of the structure and indicate which item controls (Item 59, 60, 62, or Inventory Rating).
2. Provide comments on any major components (Items 58, 59, 60, 61, 62 and/or BA) rated at 6 or below.
3. Indicate any changes since the previous cycle, if applicable. Provide justification for any upgrades or downgrades of Items 58, 59, 60, 61, and 62.
4. Provide a statement on non-redundancy which makes bridge a FC Structure and description of any fracture critical members with a brief summary of in-depth FCM inspection findings if applicable.

If a component of the bridge receives a separate In-Depth Fracture Critical and/or Pin & Hanger inspection, incorporate the findings of these inspections into the regular inspection report.

5. Comment on conditions that require revisions to the load rating calculations.
6. Provide a statement on scour potential. For scour critical bridges, include proposed countermeasures with costs under major work section below. Include the findings of underwater inspection report.

7. Indicate reasons why the structure is structurally deficient and/or functionally obsolete, if applicable. Provide a major work statement and major work details (including escalated costs). For scour critical structures, include improvement costs from NJDOT Memorandum dated May 2, 2008 titled "Bridge Scour Countermeasures Conceptual Design and Cost Estimates for Inspection Reports". This information will now need to be put in two locations. This first is inside the report, as usual. The second is in the Maintenance Items area, where we will use the entry to track action on the major work identified.
8. Indicate any required priority repair work, and reference the Priority Repairs issued for the bridge.
9. Provide recommendations for interim inspections, monitoring of any elements, etc.

C. SOUNDINGS

1. Sounding sketches must be prepared in accordance with the format shown in the 1994 Underwater Inspection and Evaluation of New Jersey Bridges Guidelines Manual, pages 13 through 22. The Plan View and elevation sketch with soundings will be required for this purpose.
2. In addition to the current sounding plot, the immediate previous cycle and the oldest available sounding plot shall be shown to assess long term changes in the streambed.
3. On bridges of two lanes or less, take soundings along both fascias only. For bridges with more than two lanes, provide additional soundings along the centerline of the bridge and around the substructure units.
4. Make sure the sounding plot is referenced to a permanent benchmark (abutment bearing seat, etc.) and indicates the elevation of the bottom of substructure footings as they relate to the benchmark. If a Consultant has requested plans for a structure (for load rating or other purposes), they shall verify that all substructure elevations provided on the sounding sketch adhere to those shown on the plans.
5. Sounding plots are to be loaded into CombIS (or included in the working files CD for reports not entirely within CombIS). If the previous cycle sounding plots provided by the State are not in conformance with the requirements (see sketch examples on web page), include time in the cost proposal to update the drawings to meet standards.

D. PLANS

When structure plans are required as per the report format, include the "As-Built" plans if possible. If "As-Built" plans are unavailable, then the information contained on the Construction plans must be verified by the Consultant, preferably with the

Resident Engineer of the construction project.

E. FIELD NOTES

1. Typed field notes are mandatory. No Handwritten field notes are allowed.
2. The full name (not initials) of the Team Leader involved in the bridge inspection must appear on the field notes.
3. It is required that the field notes document any conditions that result in element condition ratings of '6' or less, Emergency (Critical Findings)/Priority repair conditions, and/or conditions that will require monitoring during subsequent inspection cycles. It is not required to document areas of minor deterioration resulting in element condition codes of '7' or greater.
4. Provide a breakdown of estimated repair quantities in the field notes for all major recommendations (to eliminate Structurally Deficient or Functionally Obsolete conditions) or Emergency/Priority repair items. These quantities shall be consistent with the repair recommendations.

F. INSPECTION REPORT QUALITY ASSURANCE AND QUALITY CONTROL

1. As a minimum, ALL evaluation reports must be thoroughly reviewed for completeness and accuracy, before being submitted to the Department, by a senior level engineer (namely the Project Manager) who is intimately familiar with the NJDOT and NBIS requirements for bridge and other Bureau of Structural Evaluation and Bridge Management projects. Also, the field observations and data must be spot checked for accuracy by a NBIS-qualified Project Manager or QA/QC Engineer.
2. All final reports must be signed (preferably using blue, not black, ink) and sealed (certified) by a Professional Engineer registered in the State of New Jersey before submission to the Department. This engineer is to be the Project Manager, unless the Project Manager does not have a NJ PE license in which case a separate engineer (ASCE Grade P5 or above, and not permitted to be a Team Leader assigned to this project), will be allowed to be the Certifying Engineer and will be permitted to sign and seal the report.
3. Final reports are to be submitted as soon after the report is submitted electronically in CombIS as possible. If comments are subsequently received, the Consultant must send any corrected sheets to the State or County for inclusion in the final report. **Please discuss this timing DURING the Scoping Meeting.**

Note: It is the general preference of the NJDOT that the hard copy reports be submitted at same time as the report is electronically sent to the bridge owner.

G. STATE REVIEW POLICY

The Consultant is responsible for the quality of the bridge inspections and reports produced. The State uses a reduced report review policy whereby it is unlikely that errors in the reports will be identified. In addition, the reviews by many of the other Bridge Owners are also minimal. The State's review policy is geared towards establishing a proper Consultant Evaluation Rating system score for the Consultant's project; therefore, the responsibility of the Consultant for the quality of the work product cannot be overemphasized. NJDOT's current (as of 2016) policy is as follows:

1. State/Orphan Bridges - 20% of the reports will be thoroughly reviewed. The remaining 80% will receive a focused review on certain aspects of the report. In addition, approximately 10% of the reports will be verified in the field for accuracy. Bridges included in Movable or Complex Bridge projects will continue to be fully reviewed due to their criticality and our inability to perform field verifications without the use of inspection access equipment.
2. County/Municipal/NJT/DEP/PIP Bridges - 10% of the reports will be thoroughly reviewed. The remaining 90% will receive a 'focused' review and approximately 10% will be field-verified.

XV. ADDITIONAL NOTES FOR MOVABLE BRIDGES:

- A. For movable bridges, provide the type of Electrical/Mechanical/Hydraulic inspection required (Type I – In-depth Inspection; Type II – Intermediate Inspection; and Type III – Routine Inspection)
NOTE: Please see Appendix A titled Inspection Frequency for details.
- B. A bound hard-copy of the preliminary Electrical, Mechanical, and Hydraulic (where applicable) inspection report must be submitted directly to: Jack Longworth, Manager, Bureau of Operations Support and Engineering. They will then forward their comments directly to the Consultant with copy to the Bureau of Structural Evaluation and Bridge Management (Attn: Project Manager). The Consultant must also send bound hard copies of the final reports (complete inspection report including E/M/H report) and CD (See Section XX) to: Jack Longworth, Manager, Bureau of Operations Support and Engineering.
- C. For vertical lift bridges, a visual inspection of the wire ropes (for all types of inspection) are to be performed, especially at the sheaves and counterweights. Include wire rope inspection in the structural and mechanical inspection sections of the report. See Section 2.6.4.1 of AASHTO Manual for Movable Bridge Inspection.
- D. For vertical lift bridges, a thorough inspection shall be made of trunnions that have incorporated an abrupt change in section of the shaft and is subjected to more than 90° of rotation. Stress analysis may be required.
- E. For all priority repair recommendations involving deficiencies on movable bridges, a notification must be submitted to the State PM and to: Jack Longworth, Manager, Bureau of Operations Support and Engineering, for review and comments. Any

deficiency related to safety of the traffic system must be immediately reported to State and a Priority repair letter must be generated to correct the deficiency.

XVI. NEW TECHNOLOGIES

Over the lifespan of this project, the Bureau of Structural Evaluation and Bridge Management may implement and/or consider the use of various new technologies, such as Drones (UAV) or other Unmanned Aerial Systems (UAS), LIDAR and other types of imaging technologies, etc. If you believe that a particular technology will solve a particular problem and/or improve the quality of inspections without increasing overall inspection cost, discuss the possible use with the State Project Manager, preferably before the scoping meeting.

- A. Drones –The use of Drones, if considered for a project, will be subject to Bureau and Departmental approval, and will be subject to Departmental Policies and Procedures, as well as Federal (especially FAA) and State laws.
- B. LIDAR (also called Lidar, LiDAR, and LADAR) is a surveying method that measures distance to a target by illuminating that target with a pulsed laser light, and measuring the reflected pulses with a sensor. This technology is approaching cost-effectiveness for various bridge applications including corridor clearance measurements. If considered for a project, will be subject to Bureau Manager approval.
- C. Other technologies are rapidly evolving. The most important test for a new technology is if it solves a particular problem and is reliable, safe, and cost-effective in its use.

XVII. ADDITIONAL OR EXTRA WORK:

The Consultant must notify the State Project Manager, in writing, as soon as it is evident that Additional or Extra Work (as defined in the standard Agreement) may be necessary and must negotiate the associated costs. The Department will only reimburse for work that has been specifically authorized by Agreement, Contract Modification, Letter of Intent, or, when appropriate, a letter from the Manager, Bureau of Structural Evaluation and Bridge Management.

XVIII. PHASE B WORK:

- A. Those bridges that qualify for interim inspections (typically one year frequency) shall include field verification of the specific member(s) for bridges that have been load posted for operating ratings, or the condition rating of superstructure (Item 59), substructure (Item 60), and/or culvert (Item 62) is coded as ‘3’ or less, or recommended in the previous cycle of inspection.
- B. A list of bridges requiring interim inspections shall be submitted as per the Agreement and inspections carried out, if required, upon approval by the State. The report format for Phase B work (interim) shall be in accordance with Format D. It

may be necessary for the Consultant to request a time extension in order to conduct the interim inspections within the authorized time.

XIX. 2nd CYCLE INSPECTION:

The Consultant will notify the NJDOT Project Manager (through e-mail with copy to Supervising Engineer and/or Manager) that it is time to initiate the 2nd cycle inspection addendum (if applicable) at least 6 months (8 months for railroad projects) before the inspection due date for the first bridge in the project (based on a 23 month schedule for NBIS bridges). For projects involving bridges over active railroads, this time needs to be extended to at least 8 months, as the Consultant will need a notice-to-proceed at least 3 months before the first bridge is due.

XX. FILE PDFing AND SCANNING (Old Reports) PROCEDURE:

(This is included in case some reports are not fully in CombIS this cycle.)

- A.** For Structural Document Management System (SDMS) procedures, refer to the current version of the SDMS Contractors Specifications. All Consultants will be required to use the SDMS Contractors Specifications for all projects.
- B.** All PDF files created/generated must be compliant with **PDF/A-1b** (sRGB version).
Note: PDF/A standards (ISO 19005-1:2005) are defined by the International Organization for Standardization (ISO). PDF/A standards apply to long-term archiving of electronic documents. PDF/A-1b is the less strict of the two PDF Archival standards.
- C.** All current final reports, for other than CombIS projects, are to be PDFed and possibly submitted on CD. The CD must include an index file (in two formats – Excel and XML) which applies only to the reports physically present on the CD. NJDOT expects PDFing to be performed by the Consultant unless specific written permission is granted by the State.
- D.** All sheet scanning (old reports) and file PDFing is to be performed using the current version of the SDMS Contractors Specifications in effect at the time the scanning or PDFing is actually performed. Therefore, if scanning or file PDFing does not occur for some time after the initiation of the project, make sure that all involved have and use a copy of the current specifications. This also applies to the indexing process. Use the version of the SDMS Specifications in effect at the time the indexing is actually performed.
- E.** If needed, the Consultants may obtain from the State Project Manager the names of some of the vendors tentatively approved who can be contacted to obtain bids for scanning services. However, the Consultant is also encouraged to contact other vendors.
- F.** For State projects, submit at least one CD containing the PDFed reports of **ONLY** those bridges in the current cycle that were not able to be fully inside CombIS. If

prior cycle reports and/or documents are to be scanned as part of this contract, they are not to be placed on the same CD as the current cycle. Instead, place all prior cycles together on a separate CD. The number of copies of each CD to be submitted to the County and other Agencies will be determined on a case-by-case basis.

- G. To designate a final PDF report as official, where the original is to be signed and sealed, add the phrase “Original Signed and Sealed” to the final PDF. This can be accomplished in one of two ways:
1. Include the text in the box where the seal is placed prior to PDFing (but AFTER you have printed the hard copy sheet that will be signed and sealed).
 2. After PDFing the file (and AFTER you have printed the hard copy sheet that will be signed and sealed), place a text box with the above phrase within the box where the seal goes.

XXI. CD SUBMISSION AND INSPECTION CYCLE WRAP-UP:

- A. Even for bridges where the entire report is not in CombIS, both the PDF and the working files can be loaded into CombIS at the appropriate locations. **This is now the preferred method of submitting these files, and negates the need for submitting CDs.**

The following is OLD:

For State bridges, the PDF CD (or scanned, if authorized) of only those bridges in the current cycle that were not able to be fully inside CombIS. will be submitted without delay. For County and other State Agency bridges, the CD containing the final scanned or PDFed reports (or scanned, if authorized) shall be submitted to this office for review and acceptance. The Consultant must make sure the quality of the scanned images included in any PDF file is acceptable and consistent with our standards. All CD’s submitted must comply with the current version of the SDMS Contractors Specifications.

- B. All electronic records used for report preparation and CADD sheets shall be handed over to the Department or the County or other Bridge Owners at the completion of the project via CD(s). For bridges where the reports are done in CombIS, these files are also to be loaded into CombIS – PRIOR to finalizing the report.

Use of Microsoft Word is recommended for report word processing. All newly created CADD files for State projects must be saved as Microstation 2-dimensional “.dgn” file format or Microsoft Visio. Existing AutoCAD files are to be provided in “.dxf” format if unable to easily convert to “.dgn” format.

- C. The following is OLD:

Provide _____ copies of the working files (CADD and word processing files) disks at the end of each cycle inspection, _____ for the County (for County owned bridges) and two copies to the State, for each bridge with _____ hard copies of the report. This is applicable to the State and other agency bridges.

All CD’s must be submitted in a properly labeled hard (jewel type) plastic case.

Working files including underwater inspection reports (MS Word, CAD,

Visio, etc.), must be properly named (#####_YYYYMMDDcy##). IF not loaded into CombIS, they are required to be on a separate CD from the PDF files (see SDMS Contractors Specifications – Section VII). Working file CDs are not to be indexed.

For bridge reports prepared in CombIS, these files are also to be loaded into CombIS – PRIOR to finalizing the report.

- D. Return the bridge plans, if prepared or provided, to the Department or Bridge Owner at the completion of the project.
- E. The consultant can submit their final invoice within 30 days from their final submission of all final reports in CombIS with all required deliverables uploaded in CombIS. For Non-CombIS projects (i.e. Complex bridge project), the Consultant is to submit their final invoice within 30 days from their final submission of the PDF CD. Do not wait for the State approval of the final PDF CD; however, the Consultant will still be responsible to correct any issues with the PDF CD if it does not meet the SDMS Specifications.

The consultant is now required to submit a letter at the end of work for EACH portion of separately invoiced work set up for the contract (work specified in the agreement, in any addendum, and each contract modification, for which separate tracking of costs is required). The letter must be separate from the final invoice, although it can serve as the transmittal letter for the final invoice package. This letter will contain the typical waiver language, releasing the Department from further claims, for the specific portion of work each final invoice is for. When ready to submit a final invoice, request an approved sample for the State Project Manager.

- F. At the conclusion of each cycle of the inspection contract, the Consultant must complete the MOT/Equipment/RR usage spreadsheet. This excel spreadsheet shall be e-mailed to the State Project Manager.

Appendix A - INSPECTION FREQUENCY

Type of Structure	Type of Inspection	Frequency in Months	Remarks
NBIS Bridge	Routine/NBE	24	
	Underwater	24/48	1. Scour Critical Bridges, UW Inspection frequency will be 24 Months.
			2. Bridges with Low Free Board, UW Inspection frequency will be 24 Months.
			3. For other bridges requiring UW inspection frequency will be 48 Months.
	FCM Hands On Inspection	24	All FCM bridges will have Hands on Inspection every 24 month with the routine inspection cycle.
	FCM In-Depth Inspection	48	FCM In-depth inspection performed on structures with Welded Steel pier Caps/Cross Girders, less than 4 Rolled steel girders with welded cover plates, bridges with Pin/Hanger Details.
	Interim	12 or may be less	Any structure that falls in one or more of the categories below will require interim inspection.
			1 Superstructure with serious condition (SI&A Item 59 \leq 3).
			2 Substructure with serious condition (SI&A Item 60 \leq 3).
			3 Culvert with serious condition (SI&A Item 62 \leq 3).
			4 Posted Structure (SI&A Item 70 < 5 for Operating Rating).
			For the above four categories, generally the interim inspection frequency is 12 Months, but may be less.
	5 Interim inspection may be required at reduced interval for FCM members where the defects exists and may be mitigated (Frequency is determined by the inspectors based on the severity of the defect).		
	6 Interim inspection recommended by inspector based on observed conditions that warrant more frequent inspections than 24 months (Frequency is determined by the inspectors).		
Mechanical, Electrical and Hydraulic Inspection	24	M & E inspections will be done every 24 month with different scope every cycle such as Regular (Type III), Intermediate (Type II), and In-Depth (Type I).	
		Note:	
		a. In-Depth inspection will be perform every 72 month.	
		b. Type H Inspection is considered as In-Depth inspection for bridges that operate via Hydraulics.	