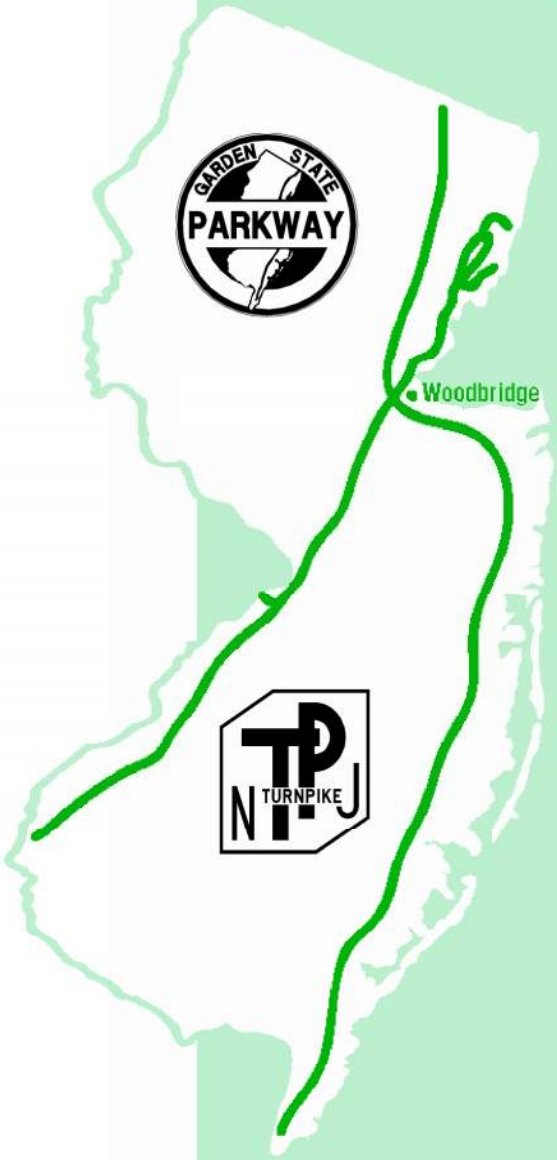
NEW JERSEY TURNPIKE AUTHORITY

GARDEN STATE PARKWAY

NEW JERSEY TURNPIKE



BRIDGE INSPECTION PROGRAM QUALITY MANAGEMENT PLAN

VERSION 1.3
JULY 2021

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SUMMARY OF VERSION 1.3 REVISIONS (JULY 2021)

The Bridge Inspection Quality Management Plan, Version 1.2, August 2020 has been updated to Version 1.3, July 2021. The major changes are as follows:

- Updated links to the Authority Deficiency Category Definitions and Qualifications of Key Bridge Inspection Personnel throughout the document, including QAF-3 (NJTA Qualification Record Form).
- Updated Appendix A QCF 1 forms as follows:
    - QCF 1.1: expanded on the discussion in the "Order of Photograph" section; changed the order of "Report Sections" and revised the previous language in the "Underclearance Sketches"; removed "Element Baseline" from "File Uploads" and added "Clearance Photo".
    - QCF 1.2: expanded on the discussion in the "Order of Photograph" section; changed the order of "Report Sections" and revised the previous language in the "Underclearance Sketches"; removed "Element Baseline" from "File Uploads" and added "Clearance Photo".
    - QCF 1.3: expanded on the discussion in the "Order of Photograph" section; removed "Element Baseline" from "File Uploads".
    - QCF 1.4: updated the discussion in “Work Done” under the “General” section; expanded on the discussion in the "Order of Photograph" section; changed the order of "Report Sections", removed “Load Rating Summary Sheets” and added “ Location Map” and “Distortion Sketch"; removed "Element Baseline" from "File Uploads".
    - QCF 1.5: Removed “Contract Info” from “General” section and added “Work Done”; expanded on the discussion in the "Order of Photograph" section; Removed “Flange Sheets” and “Base Plate Sheets” from “Report Section” and added “Category A Reports”, “Sign Foundation Sketches” and “Chord Splice Sheets”; removed "Flange Sheets" and “Base Plate Sheets” from "File Uploads" and added “Sign Foundation Sketches”, “Chord Splice Sheets”, “Ultrasonic Testing Report”, “Working Files” and “Final Report”.
    - QCF 1.8: Removed “Category A & History/Note” and “Contract Info” from “General” section and added “Contract History” and “Work Done”; expanded on the discussion in the "Order of Photograph" section; added “Category A Reports” to “Report Sections”; added “File Upload” Section.
- Added QCF 1.6 – Retaining Wall / Noise Barrier Checklist.
- Added QCF 1.7 – Antenna Tower Checklist.
- Added QCF 1.9 – Interim Inspection Checklist

Please review the entire Bridge Inspection Quality Management Plan for additional revisions not listed above but included as part of the Version 1.3 revisions.

SUMMARY OF VERSION 1.2 REVISIONS (AUGUST 2020)

The Bridge Inspection Quality Management Plan, Version 1.1, July 2019 has been updated to Version 1.2, August 2020. The major changes are as follows:

- Updated Section 6b (Field QA Review) to revise the QA review team to two or more BIPTM team members with the option of the Authority’s LE to join when available.
- Revised wordings of disciplinary actions to corrective actions in Section 8 and throughout the document.

- Updated QAF 1 – Consultant Field Audit Checklist.
- Added QAF 7 – Tech. Manager Qualification Form.
- Added QAF 10 – Load Rating Review Checklist.
- Added QCF 2 – Consultant Field Checklist.
- Added Appendix B – Flow Chart.

Please review the entire Bridge Inspection Quality Management Plan for additional revisions not listed above but included as part of the Version 1.2 revisions.

1. PURPOSE

This Quality Management Plan provides overall guidance on the Quality Assurance and Quality Control (QA/QC) procedures implemented as part of the Authority's Bridge Inspection Program to meet State and Federal requirements as described in 23 CFR 650.313(g). The Authority's Annual Bridge Inspection Program includes regularly scheduled inspections of their structural assets, including but not limited to bridges, culverts (minor structure), sign structures, retaining walls, noise barriers, high mast light poles and antenna towers. The largest component of the Authority's inspection program is undoubtedly the structural inspection of both routine and major/complex bridges.

QA/QC procedures shall be integrated into all aspects of inspection of the Authority's assets included in the Bridge Inspection Program. These procedures contain the requirements needed to confirm that care, skill and diligence has been used to maintain a high degree of accuracy and consistency throughout the inspection program.

The Authority's Bridge Inspection Program relies heavily upon the accuracy of the inventory and condition assessment information contained in their asset management database. Infrastructure repairs and improvements involving multi-million dollar contracts are made annually based in part on the findings from the inspections. Information obtained during the inspections is used for determining needed repairs, prioritizing rehabilitations and replacements, allocating resources, and evaluating and improving designs for new structures. The accuracy and consistency of the field inspection activities and subsequent documentation is vital since it not only impacts programming and funding appropriations, but also affects public safety. Therefore, it is paramount that the data is accurate and consistent.

In order to be successful with the implementation of an overall Bridge Inspection Program, the following have been identified as key objectives:

- Clearly define roles and responsibilities of the Inspection Consultants, the Authority's Bridge Inspection Program Technical Manager, and the Authority;
- Open and efficient communication amongst the Inspection Consultants, the Authority's Bridge Inspection Program Technical Manager, and the Authority;
- Understanding and prioritizing critical inspection findings;
- Generation of an accurate and complete inventory of Inspection Data, which the Authority can use to maintain their infrastructure in a state of good repair.

The Authority has further established numerous QA/QC procedures to be used to maintain a high degree of accuracy and consistency within the Bridge Inspection Program. The procedures that have been identified throughout this document have been established to achieve the following goals:

- Maintain the minimum education, training and certification qualifications for inspection, load rating and QA\QC personnel;
- Efficiently gather, maintain and share information related to inventory and condition assessment;
- Maintain accurate bridge load ratings which incorporate the latest inspection

findings and member deterioration (if applicable);
- Ensure the accuracy of the information and conditions detailed in inspection reports through report review, office review and field verification;
- Ensure compliance with the State and Federal requirements;
- Ensure that all Authority-specific defect identification procedures are being correctly followed and implemented as detailed in the Authority Deficiency Category Definitions, https://www.njta.com/media/5394/authority-deficiency-category-definitions-v20-6-2020.pdf
- Provide Authority-specific interpretation, evaluation and updating of policy, procedures, and standards;
- Utilize annual Bridge Inspection Program seminars and supplemental coaching / training to effectively communicate the needs of the Authority with regards to any ongoing or future inspection assignments.

This Quality Management Plan is a living document which may be modified from time to time to changes to State or Federal requirements, changes to Authority policy, or changes associated with the inspection and documentation of the Authority's structures.

2. BEST PRACTICES

It is important to consider additional practices throughout the course of the project that can help to improve the quality of the work or save on costs. It is also important to allow for a mechanism for new quality methods and management strategies to be tested for effectiveness prior to full implementation.

Best Practices may include but are not limited to additional management techniques, inspection means and methods, or independent verification of consultant work that are not directly required by the Authority for inspection of the Authority's assets, but have been recognized as having the potential to significantly improve quality or efficiency. Best Practices afford the Authority the ability to test new quality management and improvement concepts and techniques prior to formal inclusion in the scope of work document. As specific Best Practices are proven to add significant value to the Authority's Bridge Inspection Program through test implementation, they can then be formally introduced as a requirement within the scope of work document.

The Authority's Best Practices have been divided into three groups. The first group involves Best Practices that are within the control of the Authority. These practices cannot be implemented directly by the inspection consultant, and must be facilitated by the Authority's Liaison Engineer (LE) and/or Program Manager (PGM). The second group involves Best Practices that can be directly implemented by the Authority's Bridge Inspection Program Technical Manager (BIPTM). The third group involves Best Practices that can be directly implemented by inspection consultants throughout the duration of their assignment. Some of the Best Practices will require more time, and may be better suited for structures with previously noted deficiencies or other unique features.

At the discretion of the Authority's LE, the practices below that are deemed to be applicable to a given inspection assignment shall be discussed with the inspection consultant(s) during the project kick-off meeting for implementation during the project. At this time, the inspection consultant can be asked to present any additional Best Practices to the LE for consideration.

a. Authority Best Practices

- Conduct training seminars – the Authority may conduct regular training seminars to educate the inspection consultants currently under contract with the Authority. Seminars allow for an opportunity to review and discuss the Authority's specific policies and procedures in a classroom setting, amongst peers and subject matter experts. The seminars shall ideally occur at the onset of a given contract, such that all information learned or reiterated can be applied to each inspection project. Seminars can include but are not limited to topics such as bridge inspection, reporting, NBI and Element Level coding and data entry, and/or bridge load ratings. Seminars may also include field trips to perform inspections in a group environment, or may involve performance of sample bridge load ratings under the supervision of the Load Rating Representative.
- Conduct independent Authority inspection field audits (not to be confused with an Inspection Findings Field Review, refer to Section 6.b.) – Perform random and occasional field verifications of inspection findings for structures coded to be in poor or below condition. If deemed necessary by the Authority, a representative from the Authority's BIPTM can also participate in the field audit. This audit would allow for periodic verification of inspection findings for structures that are nearing the end of their service life. The audit will also help to confirm that future repairs or replacement of a given structure, which would typically be based upon inspection findings, are warranted.
- Share results of QA reviews – Make issues identified during QA Reviews which may require corrective action available to inspection consultants. By sharing those findings that require some level of corrective action, it alerts the inspection community to these issues and may greatly reduce the likelihood of re-occurrence. It is expected that the subject of the QA Review would take the appropriate action to prevent any future repeat errors or issues, and would learn from the results of the audit. By sharing these findings, similar benefits and increased focus on the work product can be realized across many consultants. The means of sharing these findings shall be generic in presentation (consultants at fault shall not be identified), and can utilize a wide range of media venues. Information can be shared with only those consultants actively working on Authority projects, or, can be shared with the entire engineering community.
- Follow-up – Provide each inspection TL feedback as to the results of the QA Reviews of their work, so they can better understand the specific areas that might need improvement. Areas of strength for a given TL shall also be identified during this follow-up, so the TL can better understand how he or she compares with others in terms of their inspection capabilities. Feedback can be provided and shall be formally documented. Formal documentation allows for future comparison of QA Review findings, in order to verify that past issues requiring corrective action do not continue. If deemed necessary by the Authority, a formal meeting between the Authority and the reviewed TL can be

requested. For any repeated corrective action (3rd offense following initial finding), the Authority may enact inspection consultant Corrective Action (See Section 8).

b. Bridge Inspection Program Technical Manager Best Practices

- Stay current – As a major contributor to the management of quality for the Authority, it is incumbent for this consulting firm to utilize their expertise to keep the Authority's Bridge Inspection Program current with regards to technology and practices. This could include presentations or discussions with the Authority Program Manager regarding new methods for inspection, data recording, or preparation of inspection reports. Such recent advances in inspection technology include the potential use of drones for inspection, as well as recording inspection data using laptops or tablets directly from the field (elimination of paper field notes). The BIPTM shall always be in search of ways to improve the Authority's Bridge Inspection Program, both for quality and economy by conducting discussion with Authority's reliable ICs and outside agencies.
- Perform field reviews in teams of two – As discussed later in this Quality Management Plan, field reviews are a part of the BIPTM's roles and responsibilities. While it may be possible for these field reviews to be performed by an individual engineer, there are added benefits that can be realized if they utilize the services of an assistant. While the primary field review individual will be in charge and responsible for the audit, the presence of a second individual can have the following beneficial results:
  - Additional findings or revelations, perhaps through visual observations or through conversations with the primary reviewer;
  - An opportunity to train and educate additional staff, which could prove useful if field reviews are needed and the primary reviewer is not available;
  - The training and education of additional staff also helps to maintain a seamless transition if staff separated from the firm, retired or promoted to a new position.
- Educate and diversify office QA/QC staff – Similar to the performance of field reviews in teams of two, many benefits can be realized by educating multiple engineers to assist with the quality assurance and quality control aspects of the Authority's Bridge Inspection Program. In the case of more technical or detailed reviews needed for bridge load rating reports or bridge inspection reports, it is critical for multiple staff members to be trained in the consistent and proper performance of these reviews. This approach benefits the Authority since it makes more staff capable and available to assist with the review work. Additionally, this benefits the BIPTM consultant, since they are able to diversify their staff and train multiple engineers.

c. Inspection Consultant Best Practices

- Conduct independent inspection by a peer inspection team – For projects where an inspection consultant plans to use multiple inspection teams to perform inspection, the inspection consultant can propose to have a structure initially inspected by one inspection team, then verified via a second peer inspection team (possibly prime's oversight of a sub-consultant inspection team). The peer inspection team shall be another inspection team scheduled to work on that same inspection project. This would allow for all teams involved

in a given project to assure that they are consistently assessing, documenting and reporting conditions throughout all structures inspected.

- Promote diversity in bridge inspections by using different TL or ATL – To minimize or eliminate complacency, utilize different inspection personnel for each cyclical bridge inspection. Ensuring that a given bridge is inspected by a different team each cycle provides a “fresh look”, and may help to identify new issues or conditions not previously identified. Based on budget, project size and selected consultant, this may not always be practical.
- Maintain inspection teams of two or more – It is general practice for inspections to be performed by a minimum of two-person teams comprised of a TL and an ATL. However, once arriving on site, the two-person team can work separately, each focusing on specific areas in need of inspection. While this can be done for many reasons, the inspection team can ensure higher quality work by working side-by-side. Working together allows for open discussion of inspection findings, member condition, and structural behavior and may lead to additional findings or realizations by either party.
- Maintain consistency from field to office – Utilize the same field inspection staff (TL and ATL) to input field findings and bridge coding data into the Authority’s asset management database. To ensure consistency between the field and office activities, someone present during the field inspection, and knowledgeable regarding the major findings, should be used to input the findings.
- Utilize the same inspection team for specific structures - For consultants that are utilizing multiple inspection teams to complete an inspection assignment, use of one inspection team to inspect all structures comprised of a similar structure type can be beneficial. Similar types of structures often exhibit similar deficiencies. By assigning one inspection team to all structures of a given type, that team is given the ability to become an expert in the inspection and evaluation of those type of structures. They can more accurately assign condition evaluation to the required elements, and can more easily identify the onset of problems. They may even identify new problems that had previously been overlooked.
- Perform imitation First Cycle Bridge Inspection – Inspection teams are expected to review the previous cycle inspection report prior to conducting the field inspection. In nearly all cases, bridge inspection is performed in the field by reviewing and verifying the previous notes. This can potentially lead to complacency, with a tendency to agree with the previous cycle consultant's findings. During a small number of bridge inspections for a given assignment, the inspection can be performed without directly reviewing and verifying the previous field notes. After the independent inspection, the inspection team would review the current inspection field notes and the previous inspection report while still in the field to ensure all previous noted conditions have been verified. This best practice would reinforce the use of engineering judgement while verifying the previous noted conditions, and will result in an improved work product.
- Quality Control during field inspection is often more difficult to perform and document. Typically, two individuals perform an inspection and no one from that inspection team or inspection consultant returns to the structure to verify findings. It is reasonable to assume that field verification by the QCE for every structure inspected as part of a given assignment would be extremely excessive and not supported by the available budget. However, some minimal

level of field quality control is advisable for several reasons. First, reviews by another individual can help to ensure consistency in coding across all bridge types and physical conditions. Secondly, independent reviews of all inspection teams working on a given assignment can help to ensure consistency in coding and assessment of physical condition between individual inspection teams. The data gathered during a bridge inspection is valuable, since it serves as the foundation of program planning and allocation of financial resources.

3. DEFINITIONS

Asset Management Database - A comprehensive web-based program utilized by the Authority for storing current and historical data related to inspection, maintenance, and management of infrastructure assets. This database is mainly used to record inspection findings, generate inspection reports, and transmit required bridge inventory and condition data to NJDOT and FHWA.

Assistant Team Leader (ATL) – An individual of the Inspection Consultant supporting the Team Leader with planning, preparing, and performing field inspection of a given structure. (Refer to New Jersey Turnpike Authority Bridge Inspection Program Qualifications of Key Bridge Inspection Personnel)

Audit Statement – A formal statement issued by the Authority's Program Manager or Liaison Engineer indicating repeated errors associated with an inspection contract, thus resulting in a possible Corrective Action Plan from the IC.

Bridge Inspection Location (BILOC) – Daily notification submitted by the Inspection Consultant's Team Leader to notify the Bridge Inspection Program Technical Manager and Liaison Engineer of the location and access being used for the inspection of bridges and all ancillary structures.

Inspection Consultant (IC) - A consulting (or subconsultant) firm under contract to provide bridge inspection, reporting, bridge load ratings, or other inspection related services to the Authority.

Bridge Inspection Program – The Authority's comprehensive inspection program that includes regularly scheduled inspections of their numerous structural assets in accordance with Federal and State regulations. Assets inspected as part of this program include bridges (Routine and Major), culverts (minor structures), sign structures, retaining walls and noise barriers, high mast light poles and antenna (microwave) towers.

Bridge Inspection Program Technical Manager (BIPTM) - The consulting firm contracted to assist the Authority by providing additional oversight of the Authority's Bridge Inspection Program, and who has been assigned or delegated the duties and responsibilities for quality assurance regarding inspection, reporting, load rating and report submissions. The Bridge Inspection Program Technical Manager provides overall guidance to the Inspection Consultants.

Corrective Action Plan – A plan prepared by an inspection consultant representative, in response to the Authority's Audit Statement, which includes a recommended step-by-step process to correct the previously noted error(s) in the Audit Statement.

Liaison Engineer (LE) - The Authority's employee responsible for assisting the Program Manager to establish and implement all aspects of the Authority's Bridge Inspection Program to ensure adherence to Federal and State inspection criteria, laws, codes, standards and regulatory requirements. The Liaison Engineer coordinates with the Bridge Inspection Program Technical Manager and Inspection Consultants to evaluate and resolve any inspection and/or reporting issues. Each inspection contract has an assigned Liaison Engineer who manages the project, including the scope of work and budget.

Load Rating - The determination of the live load carrying capacity of a bridge's primary members using As-Built plans and supplemented with information gathered from a field inspection.

Load Rating Engineer (LRE) - An engineer from the Inspection Consultant satisfying the requirements of Section 2.2 of the Authority's Load Rating Manual, and who is responsible for performing bridge load ratings.

Load Rating Representative (LR Rep) – An employee of the Bridge Inspection Program Technical Manager satisfying the requirements of Section 2.2 of the Authority's Load Rating Manual, who is responsible for providing expert technical support to the Authority and Inspection Consultants regarding all aspects of bridge load ratings.

Load Rating Reviewer (LRR) - A professional engineer in the State of New Jersey from the Inspection Consultant satisfying the requirements of Section 2.2 of the Authority's Load Rating Manual and tasked with supervising bridge load ratings, including detailed reviews of all work, and signing and sealing of the load rating calculations.

MPT - Vehicular traffic control used to maintain a safe work site which may include advanced warning signs, cones, arrow boards, variable message signs, traffic attenuator vehicles, etc. in accordance with the MUTCD and NJTA regulations.

NJTA Load Rating Manual - A supplement to the AASHTO Manual for Bridge Evaluation which contains agency-specific guidance regarding the performance of Load and Resistance Factor Ratings (LRFR) for Authority bridges.

Personal Protective Equipment (PPE) - The minimum personal safety equipment required to perform bridge inspections for the Authority. Required equipment includes a reflective vest, hard hat, safety glasses and hard-soled work boots. Additional equipment, including but not limited to a full-body harness with shock absorbing lanyard, safety gloves, or flotation device, may be required based on the type of inspection being performed.

Program Manager (PGM) – The Authority's employee responsible for establishing and implementing all aspects of the Authority's Bridge Inspection Program to ensure adherence to Federal and State inspection criteria, laws, codes, standards and regulatory requirements. The Program Manager provides overall leadership to the Liaison Engineers, Bridge Inspection Program Technical Manager and Inspection Consultants.

Project Manager (PM) – The individual Inspection Consultant employee responsible for all aspects of the project including planning, procurement and execution. Also serves as a representative to the Authority in implementation of the Authority's Bridge Inspection Program to ensure adherence to Federal and State inspection criteria, laws, codes, standards and regulatory requirements. (Refer to New Jersey Turnpike Authority Bridge Inspection Program Qualifications of Key Bridge Inspection Personnel)

Quality Assurance (QA) - The use of sampling and other measures to assure the adequacy of quality control procedures and to verify or measure the quality level of the entire inspection program. Quality Assurance involves select reviews of a portion of the work product to ensure that Quality Control was adequately performed.

Quality Assurance Reviewer (QAR) – An employee of the Inspection Consultant who is responsible for verifying and maintaining qualification and training records of all project staff, and who also ensures that all required quality control reviews have been conducted on consultant work products. (Refer to New Jersey Turnpike Authority Bridge Inspection Program Qualifications of Key Bridge Inspection Personnel)

Quality Assurance / Quality Control Plan (QA/QCP) - A project-specific plan prepared by an Inspection Consultant that identifies the roles and responsibilities of project staff, defines specific processes to be followed, and serves as an overall guidance document to ensure quality work.

Quality Assurance Review Team (QA Review Team) - A review team which consists of two or more staff of Bridge Inspection Program Technical Manager and who together are responsible for performing an inspection findings field review.

Quality Control (QC) – Standardized and documented procedures that are intended to maintain the integrity of an inspection and/or load rating at or above a specified level. Quality Control involves the detailed review of all work performed in order to verify accuracy prior to formal submission.

Quality Control Engineer (QCE) - A qualified employee of the Inspection Consultant who is responsible for performing detailed reviews of all work products, such as field work, submitted reports, and additional duties. (Refer to New Jersey Turnpike Authority Bridge Inspection Program Qualifications of Key Bridge Inspection Personnel)

Quality Management Program - A program for quality management implemented by a consulting firm to aid in the adequate and efficient completion of any number of project

types. This plan is generally understood to be an in-house guide to the performance of work to ensure the highest levels of quality.

Quality Manager (QM) - An employee of the Bridge Inspection Program Technical Manager who is responsible for either performing multiple types of reviews of a given Inspection Consultant's work, or supervising those reviews performed by other Bridge Inspection Program Technical Manager staff.

Structure Folder – Folder for storage of documents from an inspected structure which may contain inspection field notes, photo logs, load rating documents QC documents and QA documents.

Team Leader (TL) – A trained and certified individual in charge of an inspection team who is ultimately responsible for planning, preparing, performing field inspection, and can accurately evaluate and document findings of a given bridge (Refer to New Jersey Turnpike Authority Bridge Inspection Program Qualifications of Key Bridge Inspection Personnel). During inspection, the Team Leader is accompanied by at least one Assistant Team Leader.

4. ROLES AND RESPONSIBILITIES

The overall responsibility for Quality Assurance and Quality Control (QA/QC) activities rests with the Inspection Consultants (IC). Involvement by the Authority's Program Manager (PGM), Liaison Engineer (LE), and the Bridge Inspection Program Technical Manager (BIPTM) allows for additional oversight to minimize errors or poor-quality work. See below for a detailed description of roles and responsibilities:

a. New Jersey Turnpike Authority

Program Manager (PGM): The PGM has the overall responsibility for establishing and implementing the QA/QC activities applicable to the Authority's Bridge Inspection Program. The PGM oversees the LE and BIPTM to ensure proper quality reviews have been implemented.

The PGM is responsible for reviewing findings recommended by the LE which have been received from the QM and LR Rep and acting on those findings. After completion of the review, the PGM shall discuss with the LE on the recommended action for the findings. Action could include enforcement of corrective measures, completion of omitted tasks, preparation of a consultants Corrective Action Plan, or any other identified remedy.

Liaison Engineer (LE): The Liaison Engineer is an Authority employee who performs management and coordination duties for a given inspection assignment. The LE coordinates with the IC prior to the start of work, arranges for kick-off meetings or future meetings, supervises progress, monitors schedule and budget, and makes determinations regarding the need for potential out-of-scope work. The

LE oversees the work done by the IC, and primarily utilizes the services of the BIPTM to verify that all aspects of the Bridge Inspection Program adhere to Federal and State inspection criteria, laws, codes, standards, and regulatory requirements. LE assists the PGM on corrective actions. If corrective measures are needed by the IC, the LE shall be responsible for mandating the use of those corrective measures.

b. Bridge Inspection Program Technical Manager

Quality Manager (QM): The QM shall be an employee of the Authority's consulting firm serving as the BIPTM. The QM shall be responsible for verifying that inspection procedures, gathered data, and prepared reports are in accordance with Authority, State, and Federal requirements. Verification is done through cursory reviews of a given work product. The scope of work for the BIPTM shall specifically define the types and number of reviews to be performed. Findings of the QA Reviews, including non-compliance, shall then be summarized and presented to the Authority LE for assessment and then present to the PGM for determination of next steps. Unless otherwise noted, those reviews shall include inspection findings, data entry into NBI and Element Inspection Forms, proper use of the asset management database, inspection report reviews, and bridge load rating report reviews. The QM is also responsible for maintaining the master inspection and report submission schedule, and working with inspection consultants to assist with adherence to that schedule. The QM performs annual inspection field audits, responds to questions, and requests assistance from the inspection consultants.

Load Rating Representative (LR Rep): The LR Rep shall be an employee of the Authority's consulting firm serving as the BIPTM, and is designated in Appendix A2 of the Authority's Load Rating Manual. The LR Rep serves as the technical expert in the field of bridge load ratings, and provides many technical services to the Authority and their Bridge Inspection Program. Services include detailed reviews of select bridge load ratings or bridge load rating updates, guidance regarding proper use of load rating software, performance of technical training seminars, maintenance, and update of the Authority's master listing of bridge load ratings, annual updates to the Authority's Load Rating Manual, and any other bridge load rating related service. The LR Rep also provides additional technical support and As-Designed bridge load rating reviews done by design consultants. The scope of work for the BIPTM shall specifically define the types and number of reviews to be performed. While the LR Rep assists in the maintenance and upkeep of the Authority's bridge load rating program, the LR Rep's effectiveness is heavily reliant on effective coordination with both the Authority's PGM and LE. It is critical for the PGM and LE to engage the LR Rep on load rating related items to ensure accuracy, consistency, and completeness of work performed.

c. Inspection Consultant

Project Manager (PM): The PM shall be an employee of the Inspection Consultant (IC) and is responsible for planning, executing and closing the inspection projects. The PM is also responsible for defining the project, building the comprehensive work plan and managing the budget.

Quality Control Engineer (QCE): The QCE shall be an employee of the Inspection Consultant (IC) and is responsible for the review of field work, submitted reports, and additional duties as detailed below:

Field Work: The QCE is required to perform field evaluations of all inspection teams as detailed in Section 7.b of this Quality Management Plan. The QCE is responsible for documenting the field evaluations through the use of a QCF 2 – Consultant Field Checklist, as shown in Appendix A.

Inspection Reports: The QCE shall perform a detailed review of all inspection reports. The reviews shall include but not be limited to the report content, critical findings, photographs, report format, NBI coding, Element level inspection data, bridge load rating data (if applicable), and conformance to all applicable requirements and standards. Increased scrutiny shall be applied to the review of all bridge inspection reports that have an assigned and / or downgraded numerical coding of 5 or below for NBI Items 59 (Deck), 59 (Superstructure), 60 (Substructure) or 62 (Culvert). The QCE is responsible for completing the QCF 1 – Consultant Database Report Checklist, as shown in Appendix A, after thoroughly reviewing the asset management database entries.

The QCE's review of the inspection reports will at a minimum, consist of the following:

- Overall review of the inspection report for accuracy (ensure that the correct format has been used, all required information has been entered and all required documents have been uploaded);
- Review that all information has been correctly entered in accordance with the FHWA Coding Guide, The Recording and Coding Guide for the Structural Inventory and Appraisal of New Jersey Bridges, and the Authority's format and requirements. This review will include but not be limited to a check that proper coding conventions, format, significant digits, or correct units have been used;
- Check that all NBI and Element Level Inspection coding directives as posted on the Authority's website have been addressed: (https://www.njta.com/inspecttech/bridge-inspection-program-notifications);
- Check that the Condition Ratings for Items 58 through 62 are consistent with the condition states of each element;
- Check that there is adequate documentation for element level condition states of 3 or higher;

- Check that proper documentation was incorporated into the inspection report for any changes that may have occurred since the previous NBI data was coded (previous inspection);
- Check that all photographs and/or sketches (underclearances soundings, section losses, etc.) have been properly described and cross referenced to the inspection report;
- Check for coding consistency throughout the report.
- Check that there is consistency of information between the current inspection report and previous inspection reports, as well as the Underwater Report, and/or Load Rating Report, if applicable;
- Check for contract number are properly updated and contract repair work correctly identified.
- For first cycle inspections, cross reference the NBI inventory data and Element Inspection data including, elements and quantities, with the As-Built plans to ensure that the data is consistent;
- For every inspection report, verify that a set of inventory photos have been taken and included in the report and saved in the database;
- For every routine inspection, the element level inspection data shall be reviewed for accuracy, including all elements, defect codes and condition states;
- Upon completion of data entry for each asset, verify that the required documents have been correctly uploaded or input in the asset management database.

Following these verifications, the QCE will complete QCF 4 - Consultant Quality Control Checklist in Appendix A verifying that the specified report(s) have been thoroughly reviewed and accurately represent the current condition of the bridge(s). This individual shall be responsible for the overall quality of a given inspection assignment.

Load Rating Engineer (LRE): An employee of the IC who satisfies the requirements specified in the Authority's Load Rating Manual. LRE is responsible for performing bridge load ratings including load rating calculations, bridge load rating models, preparation of the load rating report, and any revisions to existing load rating files.

Load Rating Reviewer (LRR): An employee of the IC who satisfies the requirements specified in the Authority's Load Rating Manual. The LRR is responsible for performing a thorough review of all bridge load rating deliverables, including load rating calculations, bridge load rating models, and any revisions to existing load rating files. Following these reviews, the LRR will complete QCF 3 – Consultant Load Rating Checklist in Appendix A verifying that the specified bridge load rating(s) have been thoroughly reviewed. The LRR shall be a Professional Engineer in the State of New Jersey and is responsible for signing and sealing the load rating summary sheet for new or updated bridge load ratings.

Quality Assurance Reviewer (QAR): The QA Personnel shall be an employee of the IC and shall have the responsibility to assure that all aspects of the inspection contract adhere to Authority, State and Federal requirements. QAR responsibilities

include but are not limited to assurance that the inspection staff is qualified, properly trained, and meet the specific requirements for their position; their performance meets acceptable standards; and the QC documentation of the inspections, inspection reports, load rating reports (if applicable), and data entry are completed and within the permitted time frame. It is preferred that the QAR and QCE consist of different personnel, however the QAR and QCE may be the same person with approval of the Authority.

The QAR will verify that the required quality control reviews have been properly performed throughout the duration of the project. Following this verification, QAR shall document the QA review and file the QA review document within the structure folder.

The QAR shall maintain a current list of all qualified bridge inspection personnel with their current personal data regarding professional titles, education, experience, certifications, and additional training. The QAR or PM shall provide this current list to the Authority's BIPTM prior to the start a given assignment, with additional information as required on the form titled "QAF 3 – Consultant Qualification Form". This form can be found in Appendix A.

Team Leader (TL): The Team Leader is the individual in charge of an inspection team and is ultimately responsible for all aspects of inspection, including planning, performance, evaluation and documentation of findings. The TL is responsible for a visual verification of the ATL findings at the time of the inspection including accuracy and integrity of all documentation. The TL also generates inspection reports, makes repair recommendations and is responsible for communicating with IC project manager regarding critical findings and such findings shall be reported to the Authority by IC project manager. The TL is required to submit Bridge Inspection Location (BILOC) to the Authority's LE and a representative of the BIPTM on a daily basis. Each inspection TL is responsible for certifying that all work was performed in accordance with the QC procedures contained in their project specific scope of work. The TL shall not serve as QAR or QCE under the same project.

Assistant Team Leader (ATL): The Assistant Team Leader is under the direct supervision of the TL, and works together with the TL to complete the bridge inspection. All aspects of the duties assigned to the ATL shall be checked by the responsible TL. Typical duties include assisting the TL with inspection planning, performance, and documentation of findings.

5. NJ TURNPIKE AUTHORITY QUALITY ASSURANCE

Representatives of the Authority will perform QA reviews on work performed by both the Bridge Inspection Program Technical Manager (BIPTM) and the Inspection Consultant (IC).

Qualification Review: All BIPTM personnel intending to perform work under the Authority's Bridge Inspection Program shall complete QAF 7 – Tech. Manager Qualification Form (See Appendix A). This form lists the requirements for common roles on BIPTM assignments, and is required to be completed prior to start of work and submitted at the scheduled kick off meeting. All forms will be reviewed by the PGM or the Authority's designee.

Category A Deficiencies: Deficiency that requires prioritized attention with prompt notification given to the Authority. Once the deficiency is confirmed by the Authority as a Category A defect (Category A1, A2, A3, Guide Rail, Utility or Inadequate Clearance), a report shall be issued through the asset management database by the IC. The report moves through a predetermined workflow in the asset management database involving the Authority's Maintenance and Engineering Departments.

Report Review: Upon submittal of the final reports, the LE shall verify that all comments made by the BIPTM during draft report reviews were incorporated into the final report and or justification made as to why the comment weren't addressed. The report itself shall serve as the comment resolution document.

Office Review: Once a year, a QA Review will be conducted on the BIPTM by the Authority PGM and/or LE. This review will be performed at the BIPTM's office, and will be immediately followed by a discussion of findings. During this review, the Authority's PGM and/or LE will conduct a comprehensive office review of the QA process used by the BIPTM. The QA office review will focus on the overall completeness and accuracy of the qualification review of IC and the QA review and associated documentation generated by the BIPTM. The Authority will review the BIPTM's records of field, report, load rating and/or office reviews. Verification of complete, accurate, efficient, and professional work by the BIPTM will also be performed. The review will be documented using QAF 11 – Office Review Checklist in Appendix A. An official memo of findings and recommendations would be submitted by the Authority along with the QAF 11 form as supplemental information. Any violations of the QA practice shall be documented in the QAF 6 – Authority Review Form as shown in Appendix A.

Once all the reviews are complete, the LE will schedule close-out meetings with the PGM to discuss the findings and any recommendations for improvement. The QM and/or PM are encouraged to join. Issues to be covered include how the inspection results on selected structures compare with field review findings. The comparison will focus on appropriate assignment of elements, reasonable consistency with element conditions, states, and the NBI condition ratings for bridge inspection contracts. Specific limits for the expected consistency between the two inspections shall be discussed. Every effort will be made to define the results quantitatively. For example, document the number of errors per inspection when compared to the QA review; document the number of coding errors per submission; document the number of errors or omissions per review by the Quality Control review process; document the number of folders missing data for load rating calculations;

the office review and findings of the BIPTM. An important item for discussion is to identify the sources of discrepancies and solutions.

6. BRIDGE INSPECTION PROGRAM TECHNICAL MANAGER QUALITY ASSURANCE

BIPTM will perform QA reviews on the IC including personnel qualification, field, inspection report, data validation, load rating calculations and office review.

a. Qualification Review

IC qualification forms will be reviewed by the BIPTM and only properly qualified individuals will be permitted to perform work for the Authority. It is the responsibility of the BIPTM to review the completed forms and supplemental information including years and type of experience, training completed, and certifications / registrations and determine whether the proposed individual is qualified for the proposed role. Following review, the BIPTM will notify both the Authority and the IC regarding approvals or disapprovals for each individual reviewed.

Individuals who do not satisfy the Authority's requirements will be disapproved by the BIPTM and will be restricted from performing any work in the specified role for the Authority. Disapproved individuals can become reapproved by ensuring that all the necessary requirements for their intended role are satisfied, as specified on QAF 3 Form. Once the deficient requirements are satisfied, the individual shall update and resubmit the QAF 3 Form to the BIPTM. In some cases, attendance in required training courses may be lacking, and enrollment and completion could result in approval. Disapproved IC individuals shall coordinate with the BIPTM to ensure that actions taken to correct the disapproval will be sufficient prior to engaging in those actions (training, certifications, etc.).

The BIPTM will review qualifications for all proposed staff on all inspection assignments. IC found to have performed any work for the Authority with individuals not currently qualified by the BIPTM will be issued an Audit Statement from the Authority, resulting in a Corrective Action Plan from the IC, explained later in this document.

Qualification requirements and Authority-approved training courses for key personnel performing bridge inspection can be found via the following link:
https://www.njta.com/media/5658/updated-bi-key-personnel-requirements_100120.pdf

b. Field QA Review

Field QA reviews are an important part of the Bridge Inspection Program Quality Management Plan and will be conducted by the BIPTM. These reviews evaluate all aspects of a bridge inspection, including but not limited to the consistency and accuracy of component ratings, element data, adequacy of photographic documentation and field notes, recommended repairs, and critical findings. The

field review also includes a performance review which evaluates the processes used to conduct the inspection. An IC's performance is assessed through review of their field notes, inspection equipment, methods of access, maintenance and protection of traffic and safety of the inspection team throughout the inspection process.

Consultant Field Audit: A Consultant Field Audit is conducted by the BIPTM (using a team of two) and may be scheduled or unscheduled. In most cases, members of the inspection team shall not be given any prior knowledge of the review. Therefore, TLs are required to keep the BIPTM informed of the team's current location and proposed schedule by means of daily email notifications (BILOC). The results of the field review, including supplemental notes or comments on the inspection team, shall be documented by the BIPTM on the QAF 1 – Consultant Field Audit Checklist (See Appendix A).

This review shall document the bridge, specific location, names of inspectors, arrival time, proper use of equipment, safety practices, on site availability of resources to conduct the inspection, access methods, MPT and the quality and thoroughness of each inspection team's activities.

Maintaining safety is a vital element in the Authority's Bridge Inspection Program. The inspections must ensure safety of the traveling public, but also must be performed in a way that ensures the safety of the entire inspection team. With this in mind, field reviews shall include a review of the team's compliance with the Authority safety requirements as well as all applicable state and federal safety regulations. The field review is also a suitable time to discuss current safety issues and overall safety awareness with the team.

After each Consultant Field Audit, the BIPTM shall submit a summary letter with completed and signed QAF 1 form, IC TL and/or ATL QAF 3 form, photographs and BILOC to the Authority for review. If it's determined that review of an inspection team is unsatisfactory to the Authority, the BIPTM will conduct another unannounced field review on that particular inspection team within 30 days of receiving notification from the Authority. If an inspection team receives three consecutive unsatisfactory reviews, it may become grounds for the Authority to issue an Audit Statement, resulting in a Corrective Action Plan from the IC (Refer to Section 8 for details).

Inspection Findings Field Review: An Inspection Findings Field Review shall be an independent inspection conducted by a QA review team composed of two or more representatives of the BIPTM. The Authority's LE has the option of joining the QA review team to conduct the independent inspection. The Inspection Findings Field Reviews will be conducted on an annual basis, and is intended to allow for the BIPTM staff to stay informed of the current condition of the Authority's structures and to assess the performance of the ICs. These

reviews will be on a select number of structures based upon the following considerations:

- The suggested number of reviews shall be one each annually per OPS. Due to the size and number of spans for several of the major bridges, a representative span, ideally including fracture critical members, may be selected for field review.
- Structures selected for Inspection Findings Field Review shall typically satisfy one or more of the following criteria:
    1. Structures on the prioritized bridge replacement list or having a status requiring follow-up action;
    2. Structures with urgent or Category A repair recommendations;
    3. Structures that have temporary repairs in-place;
    4. Structures that are in need of rehab / replacement actions;
    5. Structures that contain complex or unusual structural details.

In preparation for the field review, and in order to ensure that the review is as thorough as possible, the QA review team shall have the following items on hand:

- A copy of all relevant plans (including rehabilitations and modifications, if present);
- Blank inspection forms;
- The previous and current cycle (if available) inspection report;
- Proper inspection and safety equipment.

The following steps should be followed while the QA Review Team is performing an Inspection Findings Field Review:

Step one: Perform an independent inspection with a focus on the findings of inspection, field notes and conclusions.

The inspection information is documented on the blank inspection form, then discussed upon completion of the independent inspection. Any necessary revisions are made according to the consensus of the QA review team personnel.

Step two: The findings from the current cycle bridge inspection report are compared with the findings of the independent inspection by the QA Review Team.

- NBI data must meet expectations;
- The element list for the bridge and their total quantities and condition states must meet expectation;
- Remarks in the conclusions report section to help clarify the condition rating must meet expectations;

Step three: Specific areas that exhibit differences between QA review team findings and the current cycle inspection that are beyond the prescribed acceptable thresholds are then identified and openly discussed by the QA review team to better determine which is correct and why.

Step four: Upon completion of review, the results are summarized in a letter format. Copies of each QA review are given to the IC on record for their review to determine whether the inspection report needs to be amended.

Step five: The results of each QA Review are tabulated so the information can be used as follows:

- Assess whether an inspector is identifying all conditions and assigning repairs as needed;
- Assess the effectiveness the Authority's Bridge Inspection Program;
- Assess areas where additional training or discussion is needed which may be discussed during training seminar the following year.

c. Inspection Report Review

The inspection reports prepared by the IC teams shall be reviewed by the Authority's Bridge Inspection Program Technical Manager (BIPTM). The review, along with Field Reviews, are conducted to ensure a uniform presentation of the individual bridge inspection reports between all consultants. Also, the review is also performed to determine completeness, thoroughness, consistency, and accuracy of the inspection report. The BIPTM shall use QAF 2 – NBIS Bridge Report Review Checklist as shown in Appendix A to document the review findings.

The BIPTM will review 100 percent of all major bridge inspection reports and approximately 25 percent of the routine bridge and other structural asset inspection reports. Upon receiving the notice of report completion, the BIPTM then starts the QA process. This includes the following:

- Verify that the inspection report checklist is properly completed and submitted as part of the draft report submittal;
- Verify that the report uses correct photo and file references;
- Verify that the appropriate documents are included in the reports and the correct report format was used;
- Verify if a structural asset inspection requires underwater inspection or soundings. If required per the OPS Scope of Work, verify that they are conducted and documented;
- Verify that the appropriate resources needed for safety, access, and adequate inspection are being used;
- Verify that the element condition states are supported by the inspection report content;
- Verify that appropriate repairs and repair priorities are recommended based on inspection report content;
- Verify that inspection reports have updated information added such as completed repairs;
- Review inspection findings for completeness and clarity;
- Review photographs and sketches for agreement with the inspection findings;
- Verify changes made to all asset and report values for reasonableness and

consistency;
- Verify NBI codes (Items 1 through 116) and required/select NJDOT codes are coded accurately;
- Check to make sure that if a Deck (58), Superstructure (59), Substructure (60), Channel (61), or Culvert (62) rating is coded a 5 or less that an appropriate remark and recommendation has been recorded.
- Verify that the Element Level inspections are complete and accurate;

d. Data Validation Check by State/FHWA

The Authority submits bridge inspection data to the NJ Department of Transportation (NJDOT) and the FHWA utilizing the following process:

- Data is sent to the NJDOT electronically on a monthly basis or as needed to update NJDOT's CombIS system. The submission is performed through the Authority's asset management database at the request of the Authority's BIPTM who provides the list of structures to be sent;
- NJDOT (CombIS) runs data checks on the Authority's NBI/Element Level data periodically throughout the year. These data checks are performed to reduce the amount of FHWA errors that might occur during the State's annual submission;
- NJDOT (CombIS) submits errors generated from their data checks to the Authority. If the errors are due to miscoding of the NBI or Element Level Inspection, the BIPTM shall correct the errors and resubmit to the State/FHWA;
- The BIPTM runs periodic data queries for verification of performance of inspections by the next anniversary date. Other data checks are performed as needed when a typical coding issue is found during the review process;
- The Authority may require a period of time to formally cease all bridge NBI and Element Level Inspection data entry by the IC while corrections are being made to the data prior to submittal to the State. The Authority will provide dates to all IC staff when this will occur, if necessary.

e. Load Rating Review

Load Rating Quality Assurance and Quality Control Reviews:

The BIPTM's LR Rep is responsible for all quality control activities associated with IC bridge load ratings. Other qualified BIPTM staff, including qualified LRE, LRR, or other staff familiar with Load and Resistance Factor Ratings (LRFR) and the Authority's specific load rating requirements, may assist with the technical reviews of the load rating submission. QAF 10 – Load Rating Review Checklist, as shown in Appendix A, shall be used to document the review of the IC bridge load ratings.

QA reviews are important because initial load ratings by past IC did not receive any type of additional QA review by the Authority or BIPTM. To date, detailed quality control reviews have been performed on a small percentage of the Authority's bridge inventory. Those reviews have shown that multiple bridge load ratings contain inaccuracies and errors that require correction. For this reason, it is important to perform detailed quality control reviews as well as brief QA reviews to ensure accuracy of the reported bridge load rating data.

Each bridge inspection contract which includes the initial performance of bridge load ratings or updates to existing bridge load rating files shall receive quality control reviews by the BIPTM. The number of bridge load rating reviews performed varies based on the size of the inspection contract, the total number of bridge load ratings performed by the IC, and the results of the initial quality control reviews. In general, 5 to 10 percent of the bridges load rated by a given IC will be reviewed. If the typical quality control reviews reveal significant errors or inaccuracies, the BIPTM will identify additional bridges for review. In these cases, the total number of reviews will exceed 10 percent of the bridges load rated.

Bridge load ratings will be selected for review based on bridge and member type, load rating software used, and the timing of the completed bridge load ratings. Reviews will ideally include a range of bridge types, since different modeling techniques or load rating calculations may be needed. If multiple load rating software programs are utilized for a given assignment, one bridge load rating using each type of software is routinely reviewed. As further noted below, the initial load ratings completed by a consultant are typically selected for review. This approach intends to identify potential errors early in a given project, and seeks to reduce the number of repetitive revisions that could be required for multiple bridge load files.

The quality control review by the BIPTM represents a detailed review of a select number of bridge load ratings to ensure accuracy and confirm adherence to the Authority's Load Rating Manual. Reviews typically begin with a detailed review of the submitted load rating summary sheet, and confirmation of all data presented on that sheet. Important information such as the bridge surface roughness rating coding, legal load impact, condition factors, system factors, and ADTT are all reviewed and confirmed by referencing the appropriate documents (current bridge inspection report, or the Authority's Load Rating Manual). For new bridge load ratings, the BIPTM will also thoroughly review the assumptions or written description of the load rating process. For updated bridge load ratings, the BIPTM will thoroughly review the summary of updates to understand the reason for the updates, and to confirm accuracy.

The bridge load rating model (AASHTOWare's Bridge Rating file, or other) will be reviewed in detail to ensure accuracy and consistency with the data reported on the load rating summary sheet. The supporting load rating calculations will be cross referenced with the bridge load rating model, and may be reviewed in detail if deemed necessary. The BIPTM will also perform an analysis of select members summarized using the provided files and applicable load rating software, to ensure that the load rating factors are reported accurately, and the IC has used the load rating software correctly.

At the conclusion of the quality control review for a given bridge, the BIPTM reviewer will send an email to the IC summarizing the results of the review

including a completed QAF 10 – Load Rating Review Checklist (see Appendix A). See below for a detailed step-by-step listing of the typical quality control process:

- IC's are advised to contact the BIPTM LR Rep when their first load rating or load rating update is completed;
- The BIPTM will make every effort to review the initial load ratings in a timely fashion so any findings can be applied to ongoing and future load ratings by the same consultant, thereby minimizing the need for future revisions;
- The IC is asked to submit all load rating files to the BIPTM by use of the asset management database. Specifically, files shall be uploaded to the bridge asset, and located within the load rating section of the specified cycle inspection report. This allows for tracking of submission dates, an easy way to transfer files, and for file access to multiple individuals (Authority and BIPTM staff);
- Once all load rating files are placed in the asset management database for BIPTM review, the IC shall email the BIPTM LR Rep to notify them that the bridge load rating files are ready and accessible for review;
- The BIPTM will perform a quality control review of the submitted files;
- When review is complete, the BIPTM will summarize the findings of the QC review and email this summary to the IC, PGM, and LE;
- The IC then shall review the comments (if any), and respond to each with their assessment. If a load rating resubmission is required, the IC shall remove the previous load rating files from the asset management database, and resubmit in accordance with the above noted process. Responses to comments shall typically consist of some variation of the following:
    - Agree and will revise accordingly;
    - Disagree (give reason and plans for revisions).
- If needed, this process will be repeated until the BIPTM reviewer deems the load rating sufficient, accurate, and free from all significant errors;
- Once deemed sufficient, the BIPTM reviewer will respond to the latest email and will conclude the review, stating that they have no further comments;
- The IC shall finalize all load rating files, have the LRR sign and seal the load rating summary sheet, and submit all final load rating files using the asset management database. Revised load rating files shall be removed from the asset management database such that there are no duplicate load rating files or possible sources for confusion;
- In addition to quality control reviews, the BIPTM is responsible for performing QA reviews on all bridge load ratings performed. These reviews are less detailed, and typically include only a brief review of the submitted load rating summary sheet and Summary of Updates / load rating assumptions.

f. Office Review

The BIPTM may conduct an office audit to review the IC's office QA/QC procedures when the quality of the inspection report or load ratings are deemed unsatisfactory. This may include load rating procedures, filing procedures and bridge file content, consultant's in-house quality control plan, procedures and

results, consultant's procedures for notification and follow-up with the Authority. The BIPTM shall document the findings on QAF 11 form.

The Office Review will consist of the following, at a minimum:

- Review working copies of inspection reports;
- Verify correct and appropriate level of follow-up on identified Category A deficiencies;
- Verify the presence of complete and organized structure files;
- Verify the use and correctness of current master lists;
- Verify accurate documentation of bridge load ratings;
- Verify the presence of thorough and accurate documentation of inspections performed;
- Verify the presence of thorough documentation confirming the IC's QA and QC processes;
- Verify the follow up procedure used by the IC for reviewed documents;

Once all the reviews are complete, the BIPTM shall submit the completed QAF 11 form to the Authority for review and approval. Once the findings are approved by the Authority, the LE will schedule a close-out meeting with the QM and QCE/PM to cover the findings and any recommendations for improvement. The QAR and TL are encouraged to join.

g. Training

As part of the QA/QC process, the Authority may conduct training seminars for all inspectors and the QA/QC engineers. The seminars typically include sharing best practices, a review of common errors / miscoding found during inspection program quality reviews, FHWA compliance review findings, load rating issues, inspection manual updates and report format changes. Comprehensive training provides an opportunity to thoroughly familiarize participants with bridge inspection terminology and techniques along with data collection practices and procedures to ensure consistency and reliability of the Bridge Inspection Program. Each TL and QCE / PM, at a minimum, will be required to attend the training session. Training records will be maintained by the BIPTM and failure to attend will be grounds for the Authority to issue an Audit Statement, resulting in a Corrective Action Plan from the IC as described in Section 8 of this document.

The following courses are provided by the National Highway Institute (NHI). Some courses are required in order to meet NJTA qualifications as previously noted.

The following training courses are required for TL, ATL, PM, QCE and QM:

- "Safety Inspection of In-Service Bridges" - FHWA-NHI-130055
- "Safety Inspection of In-Service Bridges for Professional Engineers" - FHWA-NHI-130056
- "Bridge Inspection Refresher Training" - FHWA-NHI-130053 (If applicable)
- "Fracture Critical Inspection Techniques for Steel Bridges" - FHWA-NHI-130078 for FCM Bridges

- "Inspection and Maintenance of Ancillary Highway Structures" - FHWA-NHI-130087 For Signs and Ancillary Structure Inspections.
- "Underwater Bridge Inspection" - FHWA-NHI-130091 For Underwater Inspections.

The following courses are required for LRE, LRR and LR Rep:

- "Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures" - FHWA-NHI-130092
- "Applications of LRFR for Bridge Superstructures" - FHWA-NHI-130092B

The following courses are recommended but not required:

- "Underwater Bridge Repair Rehabilitation and Countermeasures" - FHWA-NHI-130091A
- "Bridge Inspection Non-Destructive Evaluation Showcase (BINS)" - FHWA-NHI-130099
- "Stream Stability and Scour at Highway Bridges" - FHWA-NHI-135046
- "Stream Stability and Scour at Highway Bridges for Bridge Inspectors" - FHWA-NHI-135047
- "Inspection of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes" - FHWA-NHI-132080
- Bridge Inspection Nondestructive Evaluation Seminar (BINS)" – FHWA-NHI-130099A

7. INSPECTION CONSULTANT QA/QC REQUIREMENTS

a. Development of Project Specific Quality Assurance / Quality Control Plan

Immediately following Notice to Proceed, the Inspection Consultant (IC) shall submit a Project-Specific Quality Assurance/Quality Control (QA/QC) Plan for the Authority's review and approval. This plan shall clearly explain how the consultant's firmwide Quality Management Program will be utilized to satisfy the requirements of the Authority's Quality Management Plan for this assignment. The QA/QC Plan shall identify all certified QA/QC personnel and their roles, and explicitly outline measures to be followed throughout the duration of the assignment, including the quality management of subconsultants and their work. The IC is solely responsible for the quality of submittals for their inspection assignment, including the submittals developed by subconsultants, and will be monitored by the Authority on a continuous basis for adherence to the approved QA/QC Plan.

At a minimum, the QA/QC Plan shall:

- Provide an organizational chart which identifies all staff involved with the project, including the QAR and QCE;
- Restrict the QAR or QCE from serving in multiple roles (such as TL and QCE) which would place them in a position to review their own work product;
- List the QCE's experience and qualification. This person shall have at least 10 years of bridge inspection experience and shall be familiar with Authority's inspection procedures and requirements;
- Identify a filing system to be used for all project related documents (both

electronic and hard copy);
- Identify specific and possibly unique ways that the consultant intends to ensure quality;
- Outline the methods for performing detailed reviews which ensure Quality Control, and further detail how quality control documents (electronic or hard copy) are to be generated, saved, and retained;
- Detail the methods for performing high-level QA, including the number of reviews, level of detail for each review, and creation and management of QA documents (electronic or hard copy);
- Include a schedule with estimated dates of inspection, preliminary report submission, QC review, QA review, and final report submission.
- Provide copies of all QA/QC forms shall be approved by the Authority and BIPTM, or mandatory use of the QCF 4 – Consultant Quality Control Checklist will be enforced.

b. Field Inspection Quality Control

Inspection Team

Given the complex and varied nature of inspection work, it is imperative that inspectors use multiple QA and QC methods to minimize the risk of errors or omissions while also employing important safety measures for the inspection staff. It is the ultimate responsibility of the inspection TL to ensure that the field inspection is performed in a complete, correct, and safe manner. The following information identifies ways in which typical field inspection activities can be conducted to maintain the highest level of quality, and highlights specific areas that have proven to be problematic for the IC in the recent past. This section does not represent a complete listing of field quality control measures to be employed during inspection.

Prior to the commencement of inspection activities, the inspection TL shall prepare and complete an equipment checklist to ensure that all equipment and materials required to execute the inspection are available for use. In the event of a field audit, the list can be presented to the BIPTM representative to expedite the audit.

The inspection team shall conduct daily safety briefings to verbally discuss the upcoming possible safety hazards, current events with regards to safety, or a summary of past safety hazards or potentially dangerous experiences. The safe use of inspection equipment, as well as the use of Personal Protective Equipment, shall also be discussed. These types of hazard assessments and associated recommended safety equipment shall be discussed well before being exposed to these conditions so that the inspection team can adequately prepare.

Careful attention shall be given to the methods for recording the condition of the structure during inspection. The inspection team shall be thorough in all situations. All items shall be clearly marked or confirmed on the field note sheets or previous reports which can be utilized as field notes. A few minutes of additional time spent

in the field to ensure notes are legible, clear, and complete will be beneficial when report writing in the office begins.

All photographs will be taken with a digital camera during inspection. The inspection team shall also have the ability to transmit electronic photos from the field to their office, should Category A1 (critical findings) be discovered that require immediate action. This could be accomplished by using a laptop or smartphone while on-site. Clear records of all photographs taken during a bridge inspection shall be kept for future reference during report preparation.

No less than one-week prior to arriving on site to perform the inspection, the inspection team shall review the previous inspection report and findings to ensure that there are no conditions which could potentially require the use of unique inspection equipment, access, or tools. The team shall also check the asset management database for any Category A Reports or Bridge Notes that may have been created outside of the last routine inspection for that structure. Upon completion of the inspection for each structure, the original field notes and photo logs shall be promptly scanned and saved electronically.

It is standard inspection practice to hand-clean selected areas to allow close, hands-on inspection for corrosion, deterioration, or other otherwise hidden defects. Debris, vegetation, fungus, marine growth, vines, litter, and many other obscuring coverings can accumulate and hide problem areas. This cleaning may require simple brushing away by hand, scraping or wire brushing with unpowered hand tools, or in some cases, use of a shovel to clear accumulated detritus. Exposure to certain types of debris or litter may be hazardous to the inspection team's health. Various forms of safety equipment (gloves, safety glasses, respirators, etc.) may be needed to conduct the inspection safely. Where vegetation is too dense or widespread to be moved or removed by the inspection team, the IC should coordinate with the Authority’s Maintenance Department through the LE to allow for clearing of the vegetation. It is the responsibility of the inspection TL to identify and report areas requiring vegetation, dirt and debris removal in a timely manner so that the inspection schedule is not delayed. Obscured or hidden areas shall not be omitted from the inspection simply due to difficult access.

On metal structures, particularly on fracture critical members, it may be necessary to remove cracked or peeling paint for proper inspection. Laminar or pack rust often requires chipping with a hammer or using other means to remove the corrosion down to base metal. If the overall paint system on an element is damaged during inspection cleaning, field inspection practices shall include recoating the damaged areas to minimize the chance for future corrosion. A coat of rust retardant spray primer is often sufficient.

On concrete structures, leaching, lime encrustation, and debris may cover heavily corroded steel reinforcing. Debris on precast concrete piles can obscure heavy

spalling or cracking. If the debris are not removable by the inspection team, TL shall coordinate with the LE to schedule removal of debris by the Authority's maintenance department.

Quality Control Engineer / Project Manager

For every inspection contract, the IC's QCE / PM shall select five structures (not more than 5 percent of the total number of structures being inspected) to review in the field for each TL (the QCE / PM must be someone other than the TL). Recommended criteria for selection of the structures to receive additional field review by the QCE are as follows:

- Bridges shall be selected using the following criteria, when possible:
  - Multiple superstructure types shall be selected, to allow for a diverse sampling during review;
  - If present, least one bridge in Fair or Poor overall condition shall be selected;
  - Other bridges selected shall cover a range of overall conditions;
  - If present, bridges with low load ratings shall also be selected for review.
- Sign structures, high mast light poles, retaining walls, or other structures shall be selected as follows:
  - Include the structures which exhibit the worst overall condition;
  - Remaining structures selected shall cover a range of varying shapes and overall conditions.

This field review shall consist of the QCE \ PM assessing the correctness and completeness of the inspection, including safety protocols, State and Federal coding, elements and quantities (for bridges), photos required by the contract as well as those needed to depict critical conditions, etc. This review and independent verification of inspection procedures shall be done concurrent with the TL inspection activities so that any questions raised during the review can be discussed and immediately corrected.

Field reviews performed by the QCE shall be recorded and documented using a QCF 2 – Consultant Field Checklist as shown in Appendix A. This form shall include all the details of the field review and findings, including but not limited to the structure number, arrival and departure times, inspection access methods, safety of the inspection team, independent coding of reviewed items, notes summarizing the on-site discussions with the TL and ATL, and final conclusions. The IC shall retain the completed QCF 2 form, and the forms shall be made available to either the Authority or the BIPTM, if requested.

c. Inspection Report Quality Control

The inspection report is considered a legal document, and all rehabilitation and replacement work decisions are based on the information it contains. Therefore, it

is imperative that the inspection report has accurate, thorough, and defensible information. Reports shall include notes, photos, sketches, or other information necessary to document the condition of the structure adequately and thoroughly.

The use of photographs to convey condition assessment and supplement report narrative text is required, therefore, an efficient system is recommended for recording the photos taken in the field, such that pertinent photos can be easily selected and inserted into the inspection report. The use of photograph logs in the field, identification of important photos while in the field, and organized filing and storing of electronic images are a few effective techniques to ensure photograph organization.

Inspection reports shall be as concise as possible while still conveying important and meaningful information. Refrain from inclusion of a narrative or graphics which fail to describe the structure condition. The inspection report shall follow the pre-established format.

The QCE \ PM shall perform detailed reviews of all inspection reports and ensure that the condition of the structure was properly assessed and documented. Responsibilities for review include but are not limited to detailed verification of the overall structural assessment (comparison of photos, field notes, and condition assessments), review of photos and photo captions, verification of all coding data, general format review, and review of all other components of the inspection report. The QCE shall be made aware of the inspection and report submission schedule, and shall perform the detailed reviews to allow ample time for review of comments, corrections (if needed), and formal submission to the Authority. QCE shall complete a QCF 1 – Consultant Database Report Checklist (see Appendix A) and include with the draft report for submission. All reviews performed by the QCE shall be fully documented, and shall be made available to either the Authority or BIPTM, if requested. The QCE / PM shall discuss any apparent problems regarding report accuracy with the TL.

Upon completion of the QC review for a given bridge, QCE shall complete and sign the form titled QCF 4 - Consultant Quality Control Checklist (See Appendix A), verifying that the report has been thoroughly reviewed and accurately represents the current condition of the bridge. The signed QCF 4 form shall be filed with the given bridge folder as an evidence of QC review.

d. Inspection Data Entry Quality Control

IC Team Leaders shall follow all NBI and Element Level Inspection coding directives as well as report preparation notifications as posted on the Authority's website:https://www.njta.com/inspecttech/bridge-inspection-program-notifications

Upon recommendation from an IC Team Leader to update a bridge's numerical condition coding to/from a 4 or less for NBI Items 58, 59, 60, or 62, the Authority

and BIPTM shall verify the condition and concur with the decision. The IC's TL shall be made explicitly aware that the Authority desires accurate and impartial condition assessments of bridge elements. It is the responsibility of the IC's TL to identify potential structurally deficient conditions and report them for final concurrence. Intentionally and inaccurately reporting a higher or lower than actual coding for a given bridge item is a potentially dangerous practice that may result in the Authority to issuing an Audit Statement, resulting in a Corrective Action Plan from the IC.

It is preferred that the PM immediately notify the Authority and BIPTM of the reduction or increase of the coding when it is first identified in the field (same day) so that the BIPTM may utilize any required inspection equipment (lift truck, under-bridge inspection unit, etc.) or MPT that the TL is currently using for prompt and economical field verification. If there is concurrence with the decision to reduce the numerical condition coding of the element, member, or bridge, the BIPTM will ensure the data entry into the asset management database is revised accordingly and special inspections are included if warranted.

e. Load Rating Quality Control

All load rating quality control reviews shall be performed in accordance with Section 4.3 of the current NJTA Load Rating Manual. Load rating calculations shall be performed by the LRE, and thoroughly reviewed in accordance with Section 4.3 by the LRR. Upon completion of the load rating review, the LRR shall complete a QCF 3 – Consultant Load Rating Checklist (see Appendix A) to include with the load rating submission.

f. Quality Assurance

The IC’s Quality Assurance Reviewer (QAR) shall ensure that all aspects of the bridge inspection contract adhere to Authority, State and Federal requirements. The QAR's responsibilities include but are not limited to assurance that the consultant staff is qualified and properly trained, all personnel satisfy the specific requirements for their position, their performance meets acceptable standards, and the QC documentation of the inspections, inspection reports, data entry, and other associated tasks are completed and within the permitted time frame. The QA's review shall also include confirmation that quality control reviews have been properly performed and documented in accordance with established time frames indicated in the report submittal schedule. Confirmation shall involve reviews of hard copy or electronic records of all reports to confirm that all deliverables have received a detailed quality control review. Reviews shall also be performed where comments or revisions were recommended to ensure that they were addressed to the satisfaction of both the originator and reviewer.

Qualification requirements for key personnel performing bridge inspection for the Authority are listed on their website:

https://www.njta.com/media/5658/updated-bi-key-personnel-requirements_100120.pdf

The QAR shall maintain a current list of all qualified personnel with their current information regarding professional titles, education, experience, certifications, and additional training. Electronic copies of all required certifications shall be maintained in a personnel file for each employee. The QAR shall provide this current list to the Authority's BIPTM prior to the start of a given assignment, with additional information as required on the form titled "QAF 3 – Consultant Qualification Form" (See Appendix A). The list shall also be updated if new employees are approved by the applicable LE and subsequently added to the IC's organization chart.

8. INSPECTION CONSULTANT CORRECTIVE ACTIONS

Where quality assurance and quality reviews by the Bridge Inspection Program Technical Manager (BIPTM) or the Authority reveal repetitive errors by the Team Leader (TL) or any representative of the Inspection Consultant (IC), the Authority reserves the right to request corrective action from the IC at fault.

Repetitive errors that could potentially result in corrective actions are hereby defined as:

- Three or more instances of the same or similar error in one inspection contract where the consultant had previously been alerted to the presence of the error by the BIPTM or the Authority for all prior instances.

When three or more repetitive errors are identified, the Authority PGM or LE will issue an Audit Statement to the IC. The Audit Statement will be made in writing, and will alert the IC to the ongoing nature of the noted errors, and will serve as the initial step in the following detailed corrective action process:

- Upon receiving Audit Statement from the Authority, the IC shall:
  - Review the findings of the Audit Statement
  - Prepare and submit a Corrective Action Plan, to the Authority which will correct the noted errors and assure the Authority that they will not be repeated
- Upon the Authority's receipt of the Corrective Action Plan the overall quality of work by the IC for that assignment shall be reviewed by the Authority or the BIPTM for similar errors and overall quality.
- If the same or similar errors are identified, the IC and the responsible individual will be notified that an office audit will be conducted by the Authority and/or the BIPTM. The Authority may instruct the IC to halt all work if deemed necessary.
- If the errors persist after the office audit, a QAF 4 - Corrective Action form (see Appendix A) will be filed by the Authority to notify the IC, and the responsible individuals (at a minimum PGM, LE, QM, PM, QAR) will be required to attend an in-person meeting with the Authority's leadership personnel at NJTA Headquarters.

Types of Errors

Typical errors resulting in possible Corrective Action can be, but are not limited to, the following:

- Lack of notification provided to the Authority with regards to critical structural findings, such as damaged load carrying primary members, critical scour at foundations, vehicular impact damage which could adversely affect the capacity of load carrying primary members, bridges requiring closure, etc.
- Lack of notification for structures with low legal loads requiring further analysis to potentially increase the values.
- Lack of internal QA/QC reviews of inspection reports prior to submitting to the Authority and BIPTM.
- Failure to adequately document and address findings from Quality Control or Quality Assurance reviews.
- Errors identified during reviews of submitted bridge load ratings or load rating updates that, when corrected, result in a 10 percent or more change in previously reported controlling rating factors, or, a 5 percent or more decrease in previously reported controlling rating factors. Submissions include both Preliminary and Final load rating reports.
- Recurring miscoded critical inventory items such as NBI Items 36, 43, 51, 53, 54, 92, 93B, 93C, and 113.
- Recurring miscoded critical elemental items such as structural elements and Category A deficiencies. This can include improper or omitted element numbers, quantities and/or condition states.
- Failure to submit completed inspection data and/or corrections in accordance with the approved schedule.

Other action may be subject to Corrective Action:

- Failure to comply with the Authority's personnel qualification.
- Failure to attend Authority's mandatory training seminar.
- Failure to meet conformance on PPE.

APPENDIX A – FORMS

New Jersey Turnpike Authority:

- QAF 4 – Corrective Action Form (To Be Created)
- QAF 6 – Authority Review Form (To Be Created)

Bridge Inspection Program Technical Manager:

- QAF 1– Consultant Field Audit Checklist
  - QAF 1.1 – Bridges Checklist
  - QAF 1.2 – Bridge Culverts Checklist
  - QAF 1.3 – Minor Culverts Checklist
  - QAF 1.4 – Sign Structures Checklist
  - QAF 1.5 – Retaining Walls / Noise Barriers Checklist
  - QAF 1.6 – Antenna Towers Checklist
  - QAF 1.7 – High Mast Light Poles Checklist
- QAF 2 – NBIS Bridge Report Review Checklist
- QAF 7 – Tech. Manager Qualification Form
- QAF 10 – Load Rating Review Checklist
- QAF 11 – Office Review Checklist

Inspection Consultants:

- QAF 3 – Consultant Qualification Form
- QCF 1 – Consultant InspectTech Report Checklist
  - QCF 1.1 – Major Bridge Report Checklist
  - QCF 1.2 – Routine Bridge Report Checklist
  - QCF 1.3 – Bridge Culvert Checklist
  - QCF 1.4 – Minor Culvert Checklist
  - QCF 1.5 – Sign Structures Checklist
  - QCF 1.6 – Retaining Wall / Noise Barriers Checklist
  - QCF 1.7 – Antenna Tower Checklist
  - QCF 1.8 – HMLP Checklist
  - QCF 1.9 – Interim Inspection Checklist
- QCF 2 – Consultant Field Checklist
  - QCF 2.1 – Bridges Checklist
  - QCF 2.2 – Bridge Culverts Checklist
  - QCF 2.3 – Minor Culverts Checklist
  - QCF 2.4 – Sign Structures Checklist
  - QCF 2.5 – Retaining Walls / Noise Barriers Checklist
  - QCF 2.6 – Antenna Towers Checklist
  - QCF 2.7 – High Mast Light Poles Checklist
- QCF 3 – Consultant Load Rating Checklist
- QCF 4 - Consultant Quality Control Checklist

NEW JERSEY TURNPIKE AUTHORITY

QAF 4 – Disciplinary Action Form

TO BE PUBLISHED AT A LATER DATE

NEW JERSEY TURNPIKE AUTHORITY

QAF 6 – Authority Review Form

TO BE PUBLISHED AT A LATER DATE

BRIDGE INSPECTION PROGRAM TECHNICAL MANAGER

QAF 1 – Consultant Field Review Checklist

QAF 1.1 – Bridges Checklist
QAF 1.2 – Bridge Culverts Checklist
QAF 1.3 – Minor Culverts Checklist
QAF 1.4 – Sign Structures Checklist
QAF 1.5 – Retaining Walls / Noise Barriers Checklist
QAF 1.6 – Antenna Towers Checklist
QAF 1.7 – High Mast Light Poles Checklist

	Document Number: QAF 1.1 Bridges Checklist	
NJTA Bridge Inspection Oversight QAF 1.1 - Bridges Checklist	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Consultant: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

Auditor's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing (top side / underside)?

_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ UBIU - Model _____
- ☐ Bucket Truck - Model _____
- ☐ Manlift - Model _____
- ☐ Large Ladder - Feet _____
- ☐ Boat

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If Inspection Equipment is being used, the inspection team members are certified and instructed regarding its use.
- ☐ If the bridge is classified as a confined space, the inspection team members are trained in confined space safety.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Identification of Category D, E & E’ welds.
- ☐ 100% hands-on inspection of FCMs. FCMs identification and documentation.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior and primary load paths of bridge.
- ☐ Section loss measurements, section loss sheets, and proper documentation. (Section Loss Workbook)
- ☐ Clearance sketches and vertical clearance postings.
- ☐ Underwater inspection, channel cross-section, soundings / substructure profile measurement, scour / undermining.
- ☐ Coding of SI&A condition ratings and Bridge Element inspection ratings.
- ☐ Photo documentation and referencing.

General Remarks:

_____

HNTB	Document Number: QAF 1.1 Bridges Checklist	
NJTA Bridge Inspection Oversight QAF 1.1 - Bridges Checklist	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Schematic or method for collecting NBE data (top of deck)
- ☐ Framing Plan or method for collecting NBE data (underside of deck)
- ☐ Section Loss Workbook Procedure
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ Inspection of Fracture Critical Bridge Members (FHWA-IP-86-26)
- ☐ Recording and Coding Guide for SI&A of the Nation's Bridges (FHWA-PD-96-001)
- ☐ Recording and Coding Guide for SI&A of New Jersey Bridges (NJDOT)
- ☐ Bridge Element Inspection Manual

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

Bridge Inspection Technical Manager’s Auditor Signature

_____

Consultant Team Lead Signature

HNTB	Document Number: QAF 1.2 Bridge Culverts Checklist	
NJTA Bridge Inspection Oversight QAF 1.2 - Bridge Culverts Checklist	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Consultant: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

Auditor's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing (top side / underside)?

_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ Boat

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If inspection equipment is being used, the inspection team members are certified and instructed regarding its use.
- ☐ If the bridge culvert is classified as a confined space, the inspection team members are trained in confined space safety.
- ☐ If the bridge culvert requires an underwater inspection, a qualified Type-2 underwater inspector is on-site.
- ☐ The culvert is noted as previously requiring an underwater inspection.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior and primary load paths of culverts.
- ☐ Section loss measurements, section loss sheets, and proper documentation.
- ☐ Underwater inspection, channel cross-section, soundings / substructure profile measurement, scour / undermining.
- ☐ Coding of SI&A condition ratings and Bridge Element inspection ratings.
- ☐ Photo documentation and referencing.

General Remarks:

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_____
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	Document Number: QAF 1.2 Bridge Culverts Checklist	
NJTA Bridge Inspection Oversight QAF 1.2 - Bridge Culverts Checklist	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Schematic or method for collecting NBE data (top of deck)
- ☐ Framing Plan or method for collecting NBE data (underside of deck)
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ Culvert Inspection Manual, 1986, FHWA-IP-86-2
- ☐ Underwater Inspection and Evaluation of NJ Bridges Guidelines Manual, June 1994 Edition with August 2008 Revisions
- ☐ Recording and Coding Guide for SI&A of the Nation's Bridges (FHWA-PD-96-001)
- ☐ Recording and Coding Guide for SI&A of New Jersey Bridges (NJDOT)
- ☐ Bridge Element Inspection Manual

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight Edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

Bridge Inspection Technical Manager’s Auditor Signature

_____

Consultant Team Lead Signature

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Consultant: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

Auditor's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing (top side / underside)?

_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

	Document Number: QAF 1.3 Minor Culverts Checklist	
NJTA Bridge Inspection Oversight QAF1.3 - Minor Culverts Checklist	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ Boat

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If inspection equipment is being used, the inspection team members are certified and instructed regarding its use.
- ☐ If the culvert is classified as a confined space, the inspection team members are trained in confined space safety.
- ☐ If the culvert requires an underwater inspection, a qualified Type-2 underwater inspector is on-site
- ☐ The culvert is noted as previously requiring an underwater inspection.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation and direction of waterway flow.
- ☐ Understanding of structural behavior and primary load paths of culverts.
- ☐ Section loss measurements, section loss sheets, and proper documentation.
- ☐ Underwater inspection, channel cross-section, soundings / substructure profile measurement, scour / undermining.
- ☐ Coding of SI&A condition ratings and Bridge Element inspection ratings.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

	Document Number: QAF 1.3 Minor Culverts Checklist	
NJTA Bridge Inspection Oversight QAF1.3 - Minor Culverts Checklist	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ Culvert Inspection Manual, 1986, FHWA-IP-86-2
- ☐ Underwater Inspection and Evaluation of NJ Bridges Guidelines Manual, June 1994 Edition with August 2008 Revisions

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____

_____

_____

_____

_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight Edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

Bridge Inspection Technical Manager’s Auditor Signature

_____

Consultant Team Lead Signature

	Document Number: QAF 1.4 Sign Structures Checklist	
NJTA Bridge Inspection Oversight QAF 1.4 - Sign Structures	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Consultant: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

Auditor's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing?

_____
_____
_____
_____
_____

- ☐ If the sign is an overhead sign, a close-up visual inspection is being perfromed by climbing.
- ☐ If the sign is a vierendeel overheard sign, an eight point binocular inspection is being performed.
- ☐ If the sign is a cantilever or butterfly, an articulating bucket truck is being used to perform the inspection.
- ☐ If the sign is an A-frame VMS / hybrid, an access ladder is being used inside the caged walkway.

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

		Document Number: QAF 1.4 Sign Structures Checklist
NJTA Bridge Inspection Oversight QAF 1.4 - Sign Structures	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs
- ☐ If climbing a sign over the roadway, the TMA is in the roadway below that sign.

Access Equipment

- ☐ Bucket Truck - Model _____

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If Inspection Equipment is being used, the inspection team members are certified and instructed regarding its use.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior and primary load paths of sign structure.
- ☐ Section loss measurements, and proper documentation.
- ☐ Clearance sketches.
- ☐ Understanding of flange categories.
- ☐ Documentation / measurement of the mast plumbness and arm levelness for cantilever / butterfly signs.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

	Document Number: QAF 1.4 Sign Structures Checklist	
NJTA Bridge Inspection Oversight QAF 1.4 - Sign Structures	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ NJTA - Sign Structure Inspection Procedure, Version 2.0, February 2016
- ☐ FHWA - Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs Luminaries and Traffic Signals, March 2005

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

	Document Number: QAF 1.4 Sign Structures Checklist	
NJTA Bridge Inspection Oversight QAF 1.4 - Sign Structures	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Screwdriver / Ice Pick / Scrapers
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level
- ☐ Equipment is secured to the inspector while climbing over a travel lane.

General Remarks:

_____

_____
Bridge Inspection Technical Manager’s Auditor Signature

_____
Consultant Team Lead Signature

		Document Number: QAF 1.5 Retaining Walls / Noise Barriers Checklist
NJTA Bridge Inspection Oversight QAF 1.5 - Quality Assurance Audit: Field Review Checklist - Retaining Walls and Noise Barriers	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

General Information

Structure No: _____

Structure Name: _____

Structure Type: Retaining Wall / Noise Barrier

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Consultant: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

Auditor's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing? Close visual inspection from ground or supplemental hands-on inspection with ladders or special equipment?_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ Bucket Truck - Model _____
- ☐ Large Ladder - Feet _____
- ☐ Boat

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If Inspection Equipment is being used, the inspection team members are certified and instructed regarding its use.
- ☐ If the noise barrier / retaining wall requires an underwater inspection, a qualified Type-2 underwater inspector is on-site.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior of retaining walls and noise barriers.
- ☐ Section loss measurements and proper documentation.
- ☐ Underwater inspection, wall profile measurement, scour / undermining.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

		Document Number: QAF 1.5 Retaining Walls / Noise Barriers Checklist
NJTA Bridge Inspection Oversight QAF 1.5 - Quality Assurance Audit: Field Review Checklist - Retaining Walls and Noise Barriers	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ NJTA - Manual for Retaining Wall and Noise Barrier Inspection, Version 1.0, March 2017
- ☐ NJDOT - Underwater Inspection and Evaluation of NJ Bridges Guidelines Manual, June 1994 Edition with August 2008 Revisions

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____
Bridge Inspection Technical Manager’s Auditor Signature

_____
Consultant Team Lead Signature

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Consultant: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

Auditor's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing?

_____
_____
_____
_____
_____

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection.
- ☐ The inspection team members are trained in tower climbing safety and rescue.
- ☐ Climbing apparatus & hardware inspected for functionality and OSHA / PEOSHA conformance.
- ☐ Contacted Gerry Minneci of ITS for access to tower (towers are enclosed by locked security fence).

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior and primary load paths of tower.
- ☐ Section loss measurements and proper documentation.
- ☐ Wind speed / tension in guy wire is checked.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ TIA/EIA-222-G Standard
- ☐ Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs, Luminaires and Traffic Signals, March 2005

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Screwdriver / Ice Pick / Scrapers
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

Bridge Inspection Technical Manager’s Auditor Signature

_____

Consultant Team Lead Signature

General Information

Structure No: _____

Location: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Consultant: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

Auditor's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing?

_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ Man Lift Model _____

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If Inspection Equipment is being used, the inspection team members are certified and instructed regarding its use.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior of HMLP.
- ☐ Section loss measurements and proper documentation.
- ☐ Drone inspection procedures.
- ☐ Pilot responsibilities.
- ☐ Drone requirements.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob

- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Screwdriver / Ice Pick / Scrapers
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____
Bridge Inspection Technical Manager's Auditor Signature

_____
Consultant Team Lead Signature

Auditors General Review

Consultant Performed Inspection of:

- ☐ Lighting pole
- ☐ Telescopic slip joint
- ☐ Access door and hand hole, remove door and inspect inside.
- ☐ Inspect hand hole area for fatigue cracks.
- ☐ Base and anchor bolts, make sure they are tight.
- ☐ Lighting halo
- ☐ Winching system including winch pulleys and supports
- ☐ Foundation
- ☐ Check for abrasion, section loss (using a D-meter), or loss of the weathering coating.
- ☐ Cracks - especially in welds and other areas vulnerable to fatigue.
- ☐ Plumbness of pole
- ☐ Check leveling nut is making contact with base plate, and for any signs of distress in the area of leveling nut.
- ☐ Inspection of the pole shafts and lighting halos can be accomplished using unmanned aircraft systems (UAS, or Drones).
- ☐ Hands-on inspection of suspected areas (required).
- ☐ Ultrasonic wall thickness measurements utilizing a D meter shall be taken in the four cardinal directions at all mast bases and a borescope shall be used for the mast base interior inspections after vacuum cleanout at all first-generation lighting masts with small 6" x 8" base access openings.
- ☐ Concrete pedestal and base elements shall be cleared of foliage and excavated by shovel when required, to allow inspection of anchor bolt to substructure interface, and the surface of the pedestal.
- ☐ Measure, probe or otherwise make all efforts to determine the nature or cause of any abnormal movements or shifting detected or suspected, including due to wind of each High Mast Light Pole or its foundation (not including the use of special services) where feasible.

Drone Inspection Procedures (guidelines set forth in Part 107 of the FAA Rules)

- ☐ The drone shall never fly over live traffic or persons while performing the inspection.
- ☐ The inspections shall include slow descending / ascending flight, at a distance between 5 to 10 feet preferred, from base to tip along the shaft at three vantage points and slow orbiting flight, within 10 feet preferred, above and below the luminaire assembly to allow the team leader to visually observe any features to be inspected while simultaneously recording video.
- ☐ After the visual inspection is completed, still images shall be taken of the high mast light pole to create a seamless image of the light pole for viewing later.
- ☐ Drone pilots must meet the FAA requirements for the type of operation they are conducting. Pilots flying under the Part 107 small UAS rule (i.e. Drones weighting less than 55 lbs.) must be certified as a remote pilot with a small UAS rating.

Pilot Responsibilities

- ☐ The pilot in command shall ensure that persons directly participating in the small UAS operation are informed about the operating conditions, emergency procedures, contingency procedures, roles and responsibilities, and potential hazards.
- ☐ The pilot shall also be responsible for complying with all restricted airspaces including any temporary flight restrictions and shall be responsible for coordinating with nearby air traffic control if required.

Drone Requirements

- ☐ Have a "vision system" that provides the ability to sense and avoid objects while airborne and operating at speeds of less than 31 mph. This includes the ability to inspect from a distance of less than 10 feet.
- ☐ Have the ability to stay airborne for more than 20 minutes per battery.
- ☐ Have a GPS / GLONASS system installed and operating.
- ☐ Have the ability to autonomously map areas and provide a mapping resolution of up to one (1) inch per pixel with wind conditions of less than 10 mph.
- ☐ The on-board camera should have at least a one (1) inch CMOS sensor (or similar) with an effective resolution of 20 megapixels or higher.
- ☐ The on-board camera should have the ability to record video with a resolution of up to 4096 x 2160 and at frames rates up to 60 fps.

General Remarks:

_____
_____
_____
_____
_____

BRIDGE INSPECTION PROGRAM TECHNICAL MANAGER

QAF 2 – NBIS Bridge Report Review Checklist

Structure Name:		Structure No:	
Project Name:		Garden State Parkway or NJ Turnpike (circle one):	GSP / TPK
Carried:		Crossed:	
No. of Spans / Bridge Type:			
Consultant:			
Team Leader:		Assistant Team Leader:	
Other Team Members:		QC Engineer:	

GUIDELINES

The Bridge Technical Manager shall ensure the inspection report is complete, thorough and accurate to the limit of available resources. The Bridge Technical Manager is encouraged to use the following rules and checks for reviewing bridge inspection reports.

GENERAL REMARKS: _____

_____

_____

_____

Bridge Inspection Technical Manager's Auditor Signature Date

The Bridge Technical Manager performs the technical QA review. This may include:

GENERAL

YES	NO	N/A	
☐	☐	☐	Forms – Were all applicable and necessary forms completed?
☐	☐	☐	All rated elements, comments, photos, sketches, etc. are carefully checked for technical accuracy and compliance with this manual. This review may be as detailed as the quality control review.
☐	☐	☐	Who inspected the bridge? Are they approved for bridge inspection work?
☐	☐	☐	Date in the Report – For new bridges, reconstructed bridges or major rehabs, is the inspection started within 90 days of reopening to traffic of the newly constructed bridge or any portion thereof?
☐	☐	☐	Is the actual access used to inspect the bridge noted on the form? Are they applicable or in need of update?
☐	☐	☐	Is the load posting coded correctly?
☐	☐	☐	Ensure photos, ratings and comments are consistent with each other and NBI rating guidance.
☐	☐	☐	Does the report include a section on fatigue-prone details, if applicable?
☐	☐	☐	Was a 100% Hands-On Inspection completed for fracture-critical members?
☐	☐	☐	Is the 100% hands-on inspection completed/waived for weld categories D, E, and/or E' welds? If so, is the correct cycle being maintained for 100% hands on inspection of the details?
☐	☐	☐	Were Category welds D, E, and E' located on sketches in the Report?
☐	☐	☐	Were all D, E, and E' Category welds properly identified?
☐	☐	☐	Field Notes - Are the date, arrival, departure, temperature and weather lines completed?
☐	☐	☐	Are all cross references correct?
☐	☐	☐	Are the proper bridge components included and rated?

Notes:

CLEARANCES

YES	NO	N/A	
☐	☐	☐	Were vertical clearances measured if the bridge crosses a highway? Is the minimum clearance and its location noted? Are vertical clearances on and/or under the bridge coded correctly?
☐	☐	☐	Were the vertical clearances measured, if the bridge crosses a railroad? Is the minimum clearance and its location noted? ? Are vertical clearances on and/or under the bridge coded correctly?

Notes:

CATEGORY A DEFICIENCIES

YES	NO	N/A	
☐	☐	☐	Category A Deficiencies – Check to see if documentation and actions are consistent with the previous and current Category A status.
☐	☐	☐	Are substandard vertical clearances on and/or under the bridge posted correctly?

Notes:

CONCLUSIONS AND RECOMMENDATIONS

YES	NO	N/A	
☐	☐	☐	Is the structural integrity affected?
☐	☐	☐	Any changes in bridge condition and bridge elements since previous inspection & work done?
☐	☐	☐	Safety features meet current standards?
☐	☐	☐	Ratings adequate? (List Controlling Member, %Overstress)
☐	☐	☐	Interim inspection required and why if it is needed?
☐	☐	☐	Waterway opening adequate, if applicable?
☐	☐	☐	Vertical underclearance matches SI&A?
☐	☐	☐	Posting of vertical underclearance required?
☐	☐	☐	Does one repair make another useless?
☐	☐	☐	Do the defects match field notes?
☐	☐	☐	Repair Priority and Defect codes match SI&A?

Notes:

SI&A RATINGS

YES	NO	N/A	
☐	☐	☐	Year of ADT changed to current cycle year (30)?
☐	☐	☐	Item 115 updated to current cycle year + 20?
☐	☐	☐	Latest inspection date updated (90)?
☐	☐	☐	Cycle number updated (CI)?
☐	☐	☐	Consultant updated (CM)?
☐	☐	☐	Condition Ratings match field notes?
☐	☐	☐	Items 64 & 66 match Rating Summary Sheet?

Notes:

LOAD RATINGS

YES	NO	N/A	
☐	☐	☐	Does the report contain a statement regarding the current bridge ratings?
☐	☐	☐	Did the inspector adhere to the established direction of orientation when providing ratings and comments?
☐	☐	☐	Does the Inspection Consultants' letter or transmittal provide a statement justification to perform an update of the bridge load ratings calculations?

Notes:

ADDITIONAL REPORTS

YES	NO	N/A	
☐	☐	☐	Diving – Does scour documentation indicate water depths of 4 feet or more at any substructure indicating the need for a diving inspection?
☐	☐	☐	Diving – Did inspector properly reference previous diving report in the bridge inspection report, where applicable?
☐	☐	☐	Diving - Are channel profiles near substructures taken if water depth and/or turbidity prohibit a visual inspection?
☐	☐	☐	Diving - Is the extent of scour documented by sketches?
☐	☐	☐	Diving - If there are any stream channel alignment problems, is there a stream alignment sketch?
☐	☐	☐	Diving - Is water depth measured and documented to determine if diving is required?
☐	☐	☐	Diving - Are substructure deficiency (underwater) sketches done, if necessary?
☐	☐	☐	Sounding Survey- Soundings shown at 10' intervals along both fascias and along longitudinal centerline of bridge?
☐	☐	☐	Sounding Survey - Sufficient soundings along abutment/pier & relationship to footing?
☐	☐	☐	Sounding Survey - Exposed/undermined footings shown on sketch?
☐	☐	☐	Sounding Survey - Benchmark & waterline references shown on sketch(s)?
☐	☐	☐	Sounding survey - Does the Sounding documentation include flow direction?
☐	☐	☐	Pin and Hangers - Does the report include a section on pins and hangers, if applicable?

Notes:

BRIDGE INSPECTION PROGRAM TECHNICAL MANAGER

QAF 7 – Tech. Manager Qualification Checklist

Applicant Name:		**Telephone Number (Home):**
		Telephone Number (Work):
Address:		**E-mail Address:**
State:	**Zip Code:**	

Applicant is applying for the Title: _____

Part 1: Registration / Training – Complete all Information

Graduate Engineer	Yes or No
New Jersey Registered Professional Engineer Reg. No.:	Yes or No Emphasis: Structural
Circle the minimum number of years of NBIS Bridge Inspection Experience	3 5 10
NICET Level III or IV Reg. No.:	Yes or No If Yes, Attach Copy of Certificate
NHI Course No. 130053 - Bridge Inspection Refresher Training	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130055 – Safety Inspection of In-Service Bridges	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130078 - FCM Inspection Course	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130087 – Ancillary Structures	Yes or No Date: If Yes, Attach Copy of Certificate
Course for Confined Space Inspections (Firms such as Applegate Associates, (732) 292-9956, offer a 3 to 4 hour training course).	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130091 – Underwater Bridge Inspection	Yes or No Date: If Yes, Attach Copy of Certificate
Association of Commercial Diving Educators (ACDE) accredited	Yes or No Date:
Minimum of 5 years of bridge design and/or load rating experience	Yes or No
Demonstrates a working knowledge of LRFD Specifications and the NJTA Load Rating Manual	Yes or No
NHI Course No. 130092 Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures	Yes or No Date: If Yes, Attach Copy of Certificate

Part 2: Experience - Attach Additional Sheets If Needed

Applicant is required to complete Part 2 in its entirety or submit a resume showing projects with relevant experience. A minimum of 10 years of bridge inspection experience for Quality Manager and a minimum of 5 years of load rating experience for Load Rating Representative must be shown.

Experience

Please state your inspection and/or load rating experience in various types of bridges (i.e., steel girders, concrete girders, trusses, slabs, prestressed girders, culverts, movable bridges, other complex structures, etc.).

Date From	Date To	Experience Description	Name & Telephone No. for References	Approx. %*

*** Percent of year devoted to bridge safety inspection field work or load ratings.**

Company:	Address:

I, the undersigned, affirm that all statements and data in Parts 1 and 2 are true and correct. I understand that any misrepresentation may constitute fraud, and may be punishable to the full extent of the law. Furthermore, I understand that it is my responsibility to stay current on bridge inspection and load rating issues, and that I will notify the Authority of any name or mailing address changes in writing within 30 days.

(APPLICANT SIGNATURE) **(DATE)**

APPROVAL: FOR NJTA PERSONNEL USE ONLY! DO NOT WRITE BELOW THIS LINE

Qualified As:

Quality Manager (Meets Criteria 1 OR 2)

1.	☐ Registered Professional Engineer in the State of New Jersey **AND** _____Years of NBIS Bridge Inspection Experience > 10 Years **AND ALL of the following:** ☐ NHI Course No. 130053 - Bridge Inspection Refresher Training within past years (every 5 years) **OR** ☐ NHI Course No. 130055 – Safety Inspection of In-Service Bridges (required to be taken only once within past 5 years) ☐ NHI Course No. 130078 - FCM Inspection Course (every 5 years) ☐ NHI Course No. 130087 – Ancillary Structures (every 5 years)
2.	☐ Graduate Engineer **AND** _____Years of NBIS Bridge Inspection Experience > 10 Years **AND ALL of the following:** ☐ NHI Course No. 130053 - Bridge Inspection Refresher Training within past years (every 5 years) **OR** NHI Course No. 130055 – Safety Inspection of In-Service Bridges (required to be taken only once within past 5 years) ☐ NHI Course No. 130078 - FCM Inspection Course (every 5 years) ☐ NHI Course No. 130087 – Ancillary Structures (every 5 years)

Load Rating Representative (Meets Criteria 1 OR 2)

1.	☐ Registered Professional Engineer in the State of New Jersey **AND** _____Years of Load Rating Experience > 5 Years **AND :** ☐ NHI Course No. 130092 - Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures within past years (every 5 years)
2.	☐ Graduate Engineer **AND** _____Years of NBIS Bridge Inspection Experience > 10 Years **AND either of the following:** ☐ NHI Course No. 130092 - Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures within past years (every 5 years) **OR** ☐ NHI Course No. 130092B – Applications of LRFR for Bridge Superstructures within past years (every 5 years)

Reviewed By:

(APPROVER SIGNATURE) **(DATE)**

BRIDGE INSPECTION PROGRAM TECHNICAL MANAGER

QAF 10 – Load Rating Review Checklist

	HNTB	Document number: QAF 10 Load Rating Review Checklist Page 1 of 1
NJTA Bridge Inspection Oversight Load Rating Review Checklist	Revision Number: 1	Revision Date: 06/17/2020
Project Name:	Project No.:	

Structure No.: _____ Bridge Type: _____

No. of Spans: _____ Span Type: _____

No. of Units: _____ _____

Consultant: _____ OPS No.: _____

Load Rating Engineer (LRE): _____ Load Rating Reviewer (LRR): _____

Applicable Load Rating Manual Version: _____

GUIDELINES

The Bridge Inspection Program Technical Manager (BIPTM) shall perform targeted load rating reviews of consultant load ratings with the goal of obtaining complete, thorough, and accurate load ratings which adhere to the applicable version of the Authority's Load Rating Manual (LRM). The BIPTM is encouraged to use the following checks as a basis for a detailed load rating review. Detailed review comments shall be provided by the BIPTM to the Inspection Consultant via email.

LOAD RATING SUBMISSION:

YES	NO	N/A		
☐	☐	☐	All deliverables are provided and named in accordance with LRM Sections 4.1.1 and 4.1.2	Notes:
☐	☐	☐	Load Rating Report contains required components with bookmarks in accordance with LRM Section 4.1.1	Notes:
☐	☐	☐	The listed LRE and LRR meet the qualification requirements of LRM Section 2.2	Notes:
☐	☐	☐	Load Rating Summary Sheet(s) is(are) signed, sealed, and dated	Notes:
☐	☐	☐	All LRSS data, including rating factors and notes, accurately represents current bridge and rating status	Notes:
☐	☐	☐	Summary of Updates clearly identifies, in detail, all updates performed and reasons for updates	Notes:
☐	☐	☐	Supplemental calculations are accurate and consistent with the data reported in the load rating report	Notes:
☐	☐	☐	Section Loss documentation provided, if losses are incorporated in rating	Notes:
☐	☐	☐	Bridge model is accurate and consistent with the data reported in the load rating report	Notes:

Elements of load rating submission receiving review:

_____

_____

_____

_____

_____

_____

Bridge Inspection Program Technical Manager's Signature Date

BRIDGE INSPECTION PROGRAM TECHNICAL MANAGER

QAF 11 – Office Review Checklist

Part 1: Office Review

Firm Name:		**Firm Location:**	
Principle-In-Charge:		**Quality Assurance Manager:**	
Reviewer:		**Date of Quality Review:**	

Office Quality Review	Response	Comments
Organization:		
1. Is a Quality Assurance Manager (QAM) in place?	☐ Yes ☐ No ☐ N/A	
Management:		
1. Do Project Specific Quality Plans (PSQP) exist for active projects?	☐ Yes ☐ No ☐ N/A	
2. Are approved Quality and Administration procedures in place for all active projects?	☐ Yes ☐ No ☐ N/A	
3. Are quality check and review activities accounted for within PSQP?	☐ Yes ☐ No ☐ N/A	
4. Is each employee familiar with the PSQP?	☐ Yes ☐ No ☐ N/A	
5. Are Corrective Action Reviews conducted on projects in the office? a. Who facilitates? b. What records are maintained? Are they shared with the client?	☐ Yes ☐ No ☐ N/A _____ ☐ Yes ☐ No ☐ N/A	
6. Are internal audits conducted on PSQP in the office? a. Who facilitates? b. What records are maintained? Are they shared with the client?	☐ Yes ☐ No ☐ N/A _____ ☐ Yes ☐ No ☐ N/A	
Training:		
1. Has the staff received training on the PSQP? a. Do training records exist?	☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	
2. Do new hires receive training on the PSQP? a. Does any documented evidence exist?	☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	
3. Are there opportunities when quality performance or quality related information is routinely shared with office staff?	☐ Yes ☐ No ☐ N/A	

Part 2: Project Quality Audit

Project % Complete:			
Project Manager:		**Quality Assurance Manager:**	
Reviewer:		**Date of Quality Review:**	

Project Quality Audit:	Response	Comments
Project Team Organization:		
1. Has a Quality Assurance Manager (QAM) been assigned?	☐ Yes ☐ No ☐ N/A	
Project Quality Plan:		
1. Has a Project Specific Quality Plan (PSQP) Approval Form been completed and shows evidence of approval?	☐ Yes ☐ No ☐ N/A	
2. Has a Project Delivery Schedule been completed, including the assignment of check and review dates?	☐ Yes ☐ No ☐ N/A	
4. Was NJTA approval of the PSQP necessary? a. If so, is there record of that approval?	☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	
5. Are subconsultants utilized on this project? Are subconsultants following the PSQP or a Quality Plan (QP) of their own? a. If PSQP, was it provided to subs? b. If their own, is it available and is there evidence of QAM review and approval?	☐ Yes ☐ No ☐ N/A ☐ PSQP ☐ Sub QP ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	
6. Has the project team been trained on the PSQP? a. Do training records exist?	☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	
7. What method is used for review?	☐ Electronic Copy ☐ Hardcopy ☐ Comment Resolution Forms	
Project Quality Records:		
8. Has a project quality record repository been established and included in the PSQP? a. Does it include folders/meta data for storing of Project Quality Records? b. Is a copy of the approved PSQP Approval Form posted in that repository? c. Are subconsultant QPs (if applicable) posted in that repository? d. Does the project team (including subconsultants if applicable) have access to that repository?	☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	

Record Keeping:		
9. Are folders available for each individual structure?	☐ Yes ☐ No ☐ N/A	
a. Are filed notes available?	☐ Yes ☐ No ☐ N/A	
b. Are records available **in the repository** to demonstrate the Quality Control (QC) checks and Quality Assurance (QA) reviews have occurred?	☐ Yes ☐ No ☐ N/A	
c. Have QC checks and QA reviews been conducted in accordance with the PSQP? (e.g. proper reviewer color used, Project Manager and reviewer signatures and date, etc.)	☐ Yes ☐ No ☐ N/A	
d. Do records indicate that reviewer(s)' comments been resolved and verified?	☐ Yes ☐ No ☐ N/A	
e. Is there an office copy of the submitted reports?	☐ Yes ☐ No ☐ N/A	
f. Have Client Review Comments been addressed?	☐ Yes ☐ No ☐ N/A	
g. Are there records of comment resolution?	☐ Yes ☐ No ☐ N/A	
h. Are records available **in the repository** to demonstrate QC checks and QA reviews have occurred prior to final report submission?	☐ Yes ☐ No ☐ N/A	
Continual Improvement Feedback:		
10. Have any quality issues been encountered on the project, since the development of the PSQP?		
11. What challenges if any, have you encountered in executing the PSQP?		
12. What has went well or was benefited in executing the PSQP?		
13. Have you made any changes to the PSQP, which has resulted in higher quality deliverables or greater efficiency?		
Additional Space for Reviewers Notes:		

BRIDGE INSPECTION CONSULTANTS

QAF 3 – Consultant Qualification Form

Applicant Name	Employer	
E-Mail Address	Telephone Number - Work	
Employer Address:City	State	ZIP Code

Refer to the Authorities website https://www.njta.com/media/5658/updated-bi-key-personnel-requirements_100120.pdf for required qualifications. Submit this form to the technical manager. If deemed qualified the project liasison will be notified via email and you may commence work on this project after their approval.

The Applicant is applying for the Project Title: _____

PART I - REGISTRATION/TRAINING - Complete All Information

Graduate Civil Engineer (BSCE)	Yes or No
New Jersey Registered Professional Engineer (Emphasis: Structural) Reg. No.:	Yes or No
Circle the minimum number of years of NBIS Bridge Inspection Experience	3 5 10
Circle the minimum number of years of Sign Structure Inspection Experience	1 2
Circle the minimum number of years of High Mast Light Pole Inspection Experience	1 2
NICET Level III or IV Reg. No.:	Yes or No If Yes, Attach Copy of Certificate
NHI Course No. 130053 - Bridge Inspection Refresher Training	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130055 – Safety Inspection of In-Service Bridges	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130056 – Safety Inspection of In-Service Bridges for Professional Engineers	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130078 – Fracture Critical Inspection Techniques for Steel Bridges	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130087 – Inspection and Maintenance of Ancillary Highway Structures	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130091 – Underwater Bridge Inspection	Yes or No Date: If Yes, Attach Copy of Certificate
Course for Confined Space Inspections (Firms such as Applegate Associates, (732) 292-9956, offer a 3 to 4 hour training course).	Yes or No Date: If Yes, Attach Copy of Certificate
Association of Commercial Diving Educators (ACDE) accredited school complying with the requirements of ANSI/ACDE-01-1993, "Commercial Diver Training –Minimum Standard" (or a military diving school meeting the same standards)	Yes or No Date: If Yes, Attach Copy of Certificate

Course for Tower Climbing Safety and Rescue (Firms such as Comtrain www.comtrainuse.com, offer a training course).	Yes or No Date: If Yes, Attach Copy of Certificate
NHI Course No. 130092 Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures (4 days)	Yes or No Date: If Yes, Attach Copy of Certificate
Minimum of 5 years of bridge design and/or load rating experience	Yes or No
Demonstrates a working knowledge of LRFD Specifications and the NJTA Load Rating Manual	Yes or No

Additional Specialized Certifications:

APPROVAL: FOR NJTA BRIDGE TECHNICAL MANAGER USE ONLY! DO NOT WRITE BELOW THIS LINE.

Qualified As:

Project Manager (Meets Criteria 1 OR 2)

1. ☐ Registered Professional Engineer in the State of New Jersey
   AND
   _____Years of NBIS Bridge inspection Experience (minimum 5 years)
   AND any of the following (within the past 5 years):
   - ☐ NHI Course No. 130053 - Bridge Inspection Refresher Training within past_____years (required every 5 years)
   - **OR**
   - ☐ NHI Course No. 130055 – Safety Inspection of In-Service Bridges within past_____years (required to be taken only once)
   - **OR**
   - ☐ NHI Course No. 130056 – Safety Inspection of In-Service Bridges for Professional Engineers within past_____years (required to be taken only once)

2. ☐ Graduate Civil Engineer (BSCE)
   AND
   - ☐ _____Years of NBIS Bridge inspection Experience (minimum 10 years)
   AND either of the following (within the past 5 years):
   - ☐ NHI Course No. 130053 - Bridge Inspection Refresher Training within past_____years (required every 5 years)
   - **OR**
   - ☐ NHI Course No. 130055 – Safety Inspection of In-Service Bridges within past_____years (required to be taken only once)

Team Leader (Meets Criteria 1 OR 2)

1. ☐ Registered Professional Engineer in USA (NJ preferred)
   AND
   _____Years of NBIS Bridge inspection Experience (minimum 3 years)
   AND any of the following (within the past 5 years):
   - ☐ NHI Course No. 130053 - Bridge Inspection Refresher Training within past_____ years (required every 5 years)
   - **OR**
   - ☐ NHI Course No. 130055 – Safety Inspection of In-Service Bridges within past _____ years (required to be taken only once)
   - **OR**
   - ☐ NHI Course No. 130056 – Safety Inspection of In-Service Bridges for Professional Engineers within past_____ years (required to be taken only once)

2. ☐ Graduate Engineer
   AND
   - ☐ _____Years of NBIS Bridge inspection Experience (minimum 5 years)
   AND either of the following (within the past 5 years):
   - ☐ NHI Course No. 130053 - Bridge Inspection Refresher Training within past_____ years (required every 5 years)
   - **OR**
   - ☐ NHI Course No. 130055 – Safety Inspection of In-Service Bridges within past _____years (required to be taken only once)

Team Leader(s) and ATL(s) performing FCM Inspections

- ☐ NHI Course No. 130078 - Fracture Critical Inspection Techniques for Steel Bridges within past_____years (required every 5 years)

Underwater Inspection Diver(s) performing Underwater Bridge Inspections

- ☐ NHI Course No. 130091 – Underwater Bridge Inspection within past_____years (required every 5 years)

Team Leader(s) performing Sign and Ancillary Structure Inspections

- ☐ NHI Course No. 130087 – Inspection and Maintenance of Ancillary Highway Structures within past_____years (required every 5 years)
- ☐ _____Years of Sign Structure inspection Experience (minimum 1 year w/PE, 2 year w/o)
- ☐ Course for Tower Climbing Safety and Rescue within past_____ years

Assistaint Team Leader (Meets Criteria 1 OR 2)

1. ☐ Graduate Engineer
   AND
   - ☐ _____Years of NBIS Bridge inspection Experience (minimum 3 years)

2. ☐ Graduate Engineer
AND either of the following (within the past 5 years):
☐ NHI Course No. 130053 - Bridge Inspection Refresher Training within past_____ years (required every 5 years)
OR
☐ NHI Course No. 130055 - Safety Inspection of In-Service Bridges within past _____ years (required to be taken only once)

Assistant Team Leader performing Sign and Ancillary Structure Inspections

☐ NHI Course No. 130087 – Inspection and Maintenance of Ancillary Highway Structures within past_____years (required every 5 years)

☐ _____Years of Sign St inspection Experience (minimum 1 year)

Quality Control Engineer (Meets Criteria 1 OR 2)

1. ☐ Registered Professional Engineer in New Jersey
AND
☐ _____Years of NBIS Bridge inspection Experience (minimum 5 years)
AND any of the following (within the past 5 years):
☐ NHI Course No. 130053 - Bridge Inspection Refresher Training within past_____ years (required every 5 years)
OR
☐ NHI Course No. 130055 - Safety Inspection of In-Service Bridges within past_____ years (required to be taken only once)
OR
☐ NHI Course No. 130056 - Safety Inspection of In-Service Bridges for Professional Engineers within past _____ years (required to be taken only once)

2. ☐ Graduate Civil Engineer (BSCE)
AND
☐ _____Years of NBIS Bridge inspection Experience (minimum 10 years)
AND either of the following (within the past 5 years):
☐ NHI course No. 130053 - Bridge Inspection Refresher Training within past_____ years (required every 5 years)
OR
☐ NHI Course No. 130055 - Safety Inspection of In-Service Bridges within past _____ years (required to be taken only once)

Load Rating Engineer

☐ _____Years of bridge design and/or load rating experience (minimum 5 years)
AND
☐ Demonstrates a working knowledge of LRFD Specifications and the NJTA Load Rating Manual
AND
☐ NHI Course No. 130092 Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures (4 days) within past _____ years (required to be taken only once)

Load Rating Reviewer

☐ _____Years of bridge design and/or load rating experience (minimum 5 years)
AND
☐ Demonstrates a working knowledge of LRFD Specifications and the NJTA Load Rating Manual
AND
☐ NHI Course No. 130092 Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures (4 days) within past _____ years (required to be taken only once)
AND
☐ Registered Professional Engineer in New Jersey

NOTES

Reviewed By	Date
Bridge Technical Manager's Auditor Signature	

PART II - EXPERIENCE - Attach Additional Sheets If Needed

Persons other than a P.E. are required to complete Part II in its entirety. A minimum of 5 years of responsible bridge inspection experience for Team Leaders and 10 years for Project Managers must be shown. P.E.'s. List all relevant experience. Resume may be included in place of this sheet.

Bridge Safety Inspection Field Experience

Please state your inspection experience in various types of bridges (i.e., steel girders, concrete girders, trusses, slabs, prestressed girders, culverts, movable bridges, other complex structures, etc.).

Date From	Date To	Describe Bridge Type(s) and Inspection Type(s)	Name & Telephone No. for References	*Approx. %**

*** Percent of year devoted to bridge safety inspection field work.**

I, the undersigned, affirm that all statements and data in Parts I and II are true and correct. I understand that any misrepresentation may constitute fraud, and may be punishable to the full extent of the law. Furthermore, I understand that it is my responsibility to stay current on bridge inspection issues, and that I will notify the Authority and the Authority's Bridge Technical Manager of any name or mailing address changes in writing within 30 days.

_____ (APPLICANT SIGNATURE)

_____ (DATE)

BRIDGE INSPECTION CONSULTANTS

QCF 1 – Consultant InspectTech Report Checklist

QCF 1.1 – Major Bridge Report Checklist

QCF 1.2 – Routine Bridge Report Checklist

QCF 1.3 – Bridge Culvert Checklist

QCF 1.4 – Minor Culvert Checklist

QCF 1.5 – Sign Structures Checklist

QCF 1.6 – Retaining Wall / Noise Barrier Checklist

QCF 1.7 – Antenna Tower Checklist

QCF 1.8 - HMLP Checklist

QCF 1.9 - Interim Inspection Checklist

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date: Cycle:

REPORT CHECKLIST QCF 1.1 - MAJOR BRIDGES REPORT CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC:

Date:

Number of most recent notification:

General

Contract History	☐	Add list of construction contracts which have worked on the bridge.
NBI Calcs	☐	Open the NBI Calcs Form to recalculate values for NBI 67, BSR and SD when NBI data is changed.
Work Done	☐	Check for work done on the bridge between inspection cycles. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.

Photographs

Order of Photographs	☐	General Photos: Elevation (2), Approach (All), Top of Deck (All / Each type), Superstructure (Each type), FCM Members, Waterway (Upstream/Downstream) Category A Photos: A1, A2, A3, GR, Inadequate Clearance, Utility Defect Photos (In order of field notes): Approach, Deck, Superstructure, Bearings, Substructure, Miscellaneous Work done photos are incorporated with defect photos by element. Utility Photos (if they have not already been included). Specify type and location in description. Equipment and MPT Photos (If they have not already been included). It is preferred that equipment photo is taken while equipment is in use. Include photos of Special Equipment used for Hands on Inspection of FCMs.

Defect Photos	☐	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Load Rating Summary Sheets	☐	Add Load Rating Summary Sheets as a PDF attachment to the Report Sections. If prior LRSS is available upload that section. If new ratings / updates are performed use the InspectTech forms (Load Rating Summary, Load Rating Member Summary, Supplemental Load Rating Member Summary) to produce an output report which will be signed / sealed and uploaded accordingly. Check the values against the NBI data and alert NJTA if they do not match. Load rating data cannot be edited by inspectors.
FCM Member Summary	☐	Include FCM In-Depth Inspection Plan, Location plan, Box Girder Inventory form and detail plates as required.
Section Loss Information	☐	Add Section Loss Sheets and Documentation as a PDF attachment to the Report Sections.
Underwater Inspection Report/Soundings Survey	☐	Add Underwater Inspection Report or Soundings Survey as a PDF attachment to the Report Sections.
Navigation Lighting Status Sketch	☐	Add Navigation Lighting Status Sketch as a PDF attachment to the Report Sections where required.
Category A Reports	☐	Select to include all open Category A Reports and reports completed since last inspection with the current inspection report on the Category A report form.
Underclearance Sketches	☐	Add Underclearance Sketches as a PDF attachment to the Report Sections. LIDAR should be available for ML or Ramp crossings; when not available use the existing Microstation drawing file or create a new drawing. There should be one drawing for each span crossing a roadway or railroad (this includes an annotated elevation photo for all local roads and railroads and Authority roadways where LIDAR is not available).

File Uploads

Deck Framing Plan	☐	Upload framing plan or deck schematic, used to collect field data, to "Element Calculations". Particularly for bare decks for use during the next inspection.
Clearance Photo	☐	Upload PDF of Annotated Clearance Photo to "Clearance".
Working Files	☐	Upload all working files to their own File Type. This includes: load rating, clearance, soundings, underwater inspection report, navigation lighting survey sketch, FCM inspection plan, detail plates, element baseline, etc.
Final Report	☐	Upload the Final Report PDF to "NBIS Report".

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date: Cycle:

REPORT CHECKLIST QCF 1.2 - ROUTINE BRIDGES REPORT CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC:

Date:

Number of most recent notification:

General

Contract History	☐	Add list of construction contracts which have worked on the bridge.
NBI Calcs	☐	Open the NBI Calcs Form to recalculate values for NBI 67, BSR and SD when NBI data is changed.
Work Done	☐	Check for work done on the bridge between inspection cycles. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.

Photographs

Order of Photographs	☐	General Photos: Elevation (2), Approach (All), Top of Deck (All / Each type), Superstructure (Each type), FCM Members, Waterway (Upstream/Downstream) Category A Photos: A1, A2, A3, GR, Inadequate Clearance, Utility Defect Photos (In order of field notes): Approach, Deck, Superstructure, Bearings, Substructure, Miscellaneous Work done photos are incorporated with defect photos by element. Utility Photos (if they have not already been included). Specify type and location in description. Equipment and MPT Photos (If they have not already been included). It is preferred that equipment photo is taken while equipment is in use. Include photos of Special Equipment used for Hands on Inspection of FCMs.

Defect Photos	☐	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Load Rating Summary Sheets	☐	Add Load Rating Summary Sheets as a PDF attachment to the Report Sections. If prior LRSS is available upload that section. If new ratings / updates are performed use the InspectTech forms (Load Rating Summary, Load Rating Member Summary, Supplemental Load Rating Member Summary) to produce an output report which will be signed / sealed and uploaded accordingly. Check the values against the NBI data and alert NJTA if they do not match. Load rating data cannot be edited by inspectors.
FCM Member Summary	☐	Include FCM In-Depth Inspection Plan, Location plan, Box Girder Inventory form and detail plates as required.
Section Loss Information	☐	Add Section Loss Sheets and Documentation as a PDF attachment to the Report Sections.
Underwater Inspection Report/Soundings Survey	☐	Add Underwater Inspection Report or Soundings Survey as a PDF attachment to the Report Sections.
Navigation Lighting Status Sketch	☐	Add Navigation Lighting Status Sketch as a PDF attachment to the Report Sections where required.
Category A Reports	☐	Select to include all open Category A Reports and reports completed since last inspection with the current inspection report on the Category A report form.
Underclearance Sketches	☐	Add Underclearance Sketches as a PDF attachment to the Report Sections. LIDAR should be available for ML or Ramp crossings; when not available use the existing Microstation drawing file or create a new drawing. There should be one drawing for each span crossing a roadway or railroad (this includes an annotated elevation photo for all local roads and railroads and Authority roadways where LIDAR is not available).

File Uploads

Deck Framing Plan	☐	Upload framing plan or deck schematic, used to collect field data, to "Element Calculations". Particularly for bare decks for use during the next inspection.
Clearance Photo	☐	Upload PDF of Annotated Clearance Photo to "Clearance".
Bearing Matrix File	☐	Upload Bearing Matrix working file to "File". Bearing Matrix from 2015 or 2016 inspection (where defects were included in matrix) should be saved, converted to excel and used in the field to collect data.
Working Files	☐	Upload all working files to their own File Type. This includes: load rating, clearance, soundings, underwater inspection report, navigation lighting survey sketch, FCM inspection plan, detail plates, element baseline, etc.
Final Report	☐	Upload the Final Report PDF to "NBIS Report".

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date: Cycle:

REPORT CHECKLIST QCF 1.3 - BRIDGE CULVERTS CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC:

Date:

Number of most recent notification:

General

Contract History	☐	Add list of construction contracts which have worked on the bridge culvert.
NBI Calcs	☐	Open the NBI Calcs Form to recalculate values for NBI 67, BSR and SD when NBI data is changed.
Work Done	☐	Check for work done on the bridge culvert between inspection cycles. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.

Photographs

Order of Photographs	☐	General Photos: Elevation (2), Approach (All), Roadway above culvert (All), Culvert (Each type), Waterway (Upstream/Downstream) Note: Take photos of all segments (original section, widened section, etc.). Take photos of all transitions (junction boxes, inlets/manholes). This includes if the culvert terminates in an inlet/manhole/junction box. Category A Photos: A1, A2, A3, GR, Utility Defect Photos (In order of field notes): Roadway, Culvert, Headwalls / Wingwalls, Waterway, Miscellaneous. Work done photos are incorporated with defect photos by element. Utility Photos (if they have not already been included). Specify type and location in description. Equipment and MPT Photos (If they have not already been included). It is preferred that equipment photo is taken while equipment is in use.

Defect Photos	☐	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Load Rating Summary Sheets	☐	Add Load Rating Summary Sheets as a PDF attachment to the Report Sections. If prior LRSS is available upload that section. If new ratings / updates are performed use the InspectTech forms (Load Rating Summary, Load Rating Member Summary, Supplemental Load Rating Member Summary) to produce an output report which will be signed / sealed and uploaded accordingly. Check the values against the NBI data and alert NJTA if they do not match. Load rating data cannot be edited by inspectors.
Underwater Inspection Report/Soundings Survey	☐	Add Underwater Inspection Report or Soundings Survey as a PDF attachment to the Report Sections.
Category A Reports	☐	Select to include all open Category A Reports and reports completed since last inspection with the current inspection report on the Category A report form.

File Uploads

Working Files	☐	Upload all working files to their own File Type. This includes: load rating, clearance, soundings, underwater inspection report, navigation lighting survey sketch, FCM inspection plan, detail plates, element baseline, etc.
Final Report	☐	Upload the Final Report PDF to "NBIS Report".

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date: Cycle:

REPORT CHECKLIST QCF 1.4 - MINOR CULVERTS CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC:

Date:

Number of most recent notification:

General

Contract History	☐	Add list of construction contracts which have worked on the minor culvert.
NBI Calcs	☐	Open the NBI Calcs Form to recalculate values for NBI 67, BSR and SD when NBI data is changed.
Work Done	☐	Check for work done on the minor culvert between inspection cycles. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information.

Photographs

Order of Photographs	☐	General Photos: Elevation (2), Approach (All), Roadway above culvert (All), Culvert (each type), Waterway (Upstream/Downstream) Note: Take photos of all segments (original section, widened section, etc.). Take photos of all transitions (junction boxes, inlets/manholes). This includes if the culvert terminates in an inlet/manhole/junction box. Category A Photos: A1, A2, A3, GR, Utility Defect Photos (In order of field notes): Roadway, Culvert, Headwalls / Wingwalls, Waterway, Miscellaneous. Note: Upload photos of all defects to InspectTech and in the report. Photos should be taken at angles which show deflection issues. Work done photos are incorporated with defect photos by element. Utility Photos (if they have not already been included). Specify type and location in description. Equipment and MPT Photos (If they have not already been included). It is preferred that equipment photo is taken while equipment is in use.

Defect Photos	☐	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Underwater Inspection Report/Soundings Survey	☐	Add Underwater Inspection Report or Soundings Survey as a PDF attachment to the Report Sections.
Category A Reports	☐	Select to include all open Category A Reports with the current inspection report on the Category A report form.
Location Map	☐	Add Location Map as a PDF attachment to the Report Sections. Include an aerial view from google maps showing location of culvert and identifying the inlet and outlet.
Distortion Sketch	☐	Add Distorition Sketch as a PDF attachment to the Report Sections.Include MicroStation drawing depicting the distortion at both ends and intermediate points as needed.

File Uploads

Working Files	☐	Upload all working files to their own File Type. This includes: soundings, underwater inspection report, distortion sketch, element baseline, etc.
Final Report	☐	Upload the Final Report PDF to "NBIS Report".

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date:

REPORT CHECKLIST QCF 1.5 - SIGN STRUCTURES CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC:

Date:

Number of most recent notification:

General

Contract History	☐	Add list of construction contracts which have worked on the sign.
Work Done	☐	Check for work done on the sign between inspection cycles. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.

Photographs

Order of Photographs	☐	General Photos: Front and Rear Elevations (showing entire sign structure), close-up of sign panels (All), general view of end frames and foundations, including electrical equipment Category A Photos: A1, A2, A3, GR Defect Photos (In order of field notes): Foundations and Protectve Features, Structure Elements, Sign Panels, Connections, Inspection Access, Electrical Equipment and Housekeeping Work done photos are incorporated with defect photos by element. Equipment and MPT Photos (If they have not already been included). It is preferred that equipment photo is taken while equipment is in use.
Defect Photos	☐	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Category A Reports	☐	Select to include all open Category A Reports and reports completed since last inspection with the current inspection report on the Category A report form.
Sign Foundation Sketches	☐	Add Sign Foundation Sketches as a PDF attachment to the Report Sections.
Chord Splice Sheets	☐	Add Chord Splice Sheets as a PDF attachment to the Report Sections.
Clearance	☐	Add annotated photo with vertical underclearances shown (taken where access is available) as a PDF attachment to the Report Section.

File Uploads

Clearance Photo	☐	Upload PDF of Annotated Clearance Photo to "Clearance".
Sign Foundation Sketches	☐	Upload PDF of Foundation Sketches to "Sign Foundation Sketch".
Chord Splice Sheets	☐	Upload PDF of Chord Splice Sheets to "Flange sheets".
Ultrasonic Testing Report	☐	Upload Ultrasonic Testing Report used in field to collect data to "Ultrasonic Testing (Signs)".
Working Files	☐	Upload all working files to their own File Type. This includes: chord splice sheets, foundation sketches, annotated clearance photo, etc.
Final Report	☐	Upload the Final Report PDF to "NBIS Report".

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date: Cycle:

REPORT CHECKLIST QCF 1.6 - RETAINING WALL/NOISE BARRIER CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC:

Date:

Number of most recent notification:

General

Contract History	☐	Add list of construction contracts which have worked on the retaining wall or noise barrier.
Work Done	☐	Check for work done on the retaining wall or noise barrier between inspection cycles. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.

Photographs

Order of Photographs	☐	General Photos: Elevation (2: Front Face and Rear Face for NB / Top of Roadway for Retaining Wall along the Asset) Category A Photos: A1, A2, A3, GR Defect Photos (In order of field notes): Wall/Panel, Veritical Support, Construction/Expansion Joint, Foundation, Anchorage, Connection, Guide Rail Protection, Barrier, Fence, Lighting Standard and Junction Boxes Work done photos are incorporated with defect photos by element. Equipment and MPT Photos (If they have not already been included). It is preferred that equipment photo is taken while equipment is in use.
Defect Photos	☐	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Category A Reports	☐	Select to include all open Category A Reports and reports completed since last inspection with the current inspection report on the Category A report form.
Underwater Inspection Report/Soundings Survey	☐	Add Underwater Inspection Report or Soundings Survey as a PDF attachment to the Report Sections.

File Uploads

Field Sketches	☐	Upload Field Sketches to "File". Applicable only when the template for the field sketch is used to collect data during the inspection.
Working Files	☐	Upload all working files to their own File Type. This includes: underwater inspection report or soundings survey, field sketches, etc.
Final Report	☐	Upload the Final Report PDF to "NBIS Report".

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date: Cycle:

REPORT CHECKLIST QCF 1.7 - ANTENNA TOWER CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC:

Date:

Number of most recent notification:

General

Work Done	☐	Check for work done on the antenna tower between inspection cycles. Refer to requests for antenna tower structural review of equipment and changes to the mounted apparatus. Go to the Maintenance tab for Category A's. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.

Photographs

Order of Photographs	☐	General Photos: Views of the antenna tower structure (min. 2), foundation, guy system, climbing ladders, equipment building/shelter, antennas, grounding system, lighting system, the top of the tower lightening rod, grounding wires, site identification sign, electrical equipment inside of the shelter, on-site fencing Category A Photos: A1, A2, A3 Defect Photos (In order of field notes): Foundations, Antenna Tower Structure, Equipment Shelter, Lighting System, Groudning, Electric System, Antennas and Connections, Site Security and Safety Features Work done photos are incorporated with defect photos by element.
Defect Photos	☐	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Category A Reports	☐	Select to include all open Category A Reports and reports completed since last inspection with the current inspection report on the Category A report form.

Site Plan	☐	Add Site Plan as a PDF attachment to the Report Sections.
Elevation View(s)	☐	Add Elevation View(s) as a PDF attachment to the Report Sections. An updated elevation view showing the antenna tower configuration; dimensions; leg, bracing and bolt schedule (including material types); type and location of antennas.
Cable Plan	☐	Add Cable Plan as a PDF attachment to the Report Sections.
Plumbness Plan	☐	Add Plumbness Plan as a PDF attachment to the Report Sections.

File Uploads

Site Plan	☐	Upload PDF of Site Plan to "Drawings".
Elevation View	☐	Upload PDF of Elevation View(s) to "Drawings".
Plumbness Plan	☐	Upload PDF of Plumbness Plan to" Drawings".
Cable Layout	☐	Upload PDF of Cable Layout to "Drawings".
Working Files	☐	Upload all working files to Drawings. This includes: site plan, plumbness plan, cable layout, elevation views, etc.
Final Report	☐	Upload the Final Report PDF to "NBIS Report".

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date: Cycle:

REPORT CHECKLIST QCF 1.8 - HIGH MAST LIGHT POLES CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

I have reviewed the drone footage and accept it as the deliverable. I certify that I have included any findings in the report based on what was observed and documented by the drone inspection footage and photographs.

QA/QC:

Date:

Number of most recent notification:

General

Contract History	☐	Add list of construction contracts which have worked on the high mast light poles.
Work Done	☐	Check for work done on the high mast light poles between inspection cycles. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.

Photographs

Order of Photographs	☐	General Photos: Elevations of the pole / tower (at least two in opposite directions), foundations / pedestal, halo / fixtures, access area / hand hole (opened), electrical equipment Category A Photos: A1, A2, A3 Defect Photos (In order of field notes): Pedestal, Base Plate, Anchor Bolts, Pole, Access Doors, Lowering Machinery, Hand Holes, Halo, Electical Work done photos are incorporated with defect photos by element. Equipment and MPT Photos (If they have not already been included). It is preferred that equipment photo is taken while equipment is in use.

Defect Photos	☐	Upload photos of all defects or conditions requiring monitoring (E) to the asset files. Only typical / representative defect photos need to be included in the Photographs Report Section. Photo references should be included in the field forms when a repair is recommended (A or B/C) else leave blank and include representative defect photo in photographs section only.

Report Sections

Category A Reports	☐	Select to include all open Category A Reports and reports completed since last inspection with the current inspection report on the Category A report form.
Location Map	☐	Add Location Map as a PDF attachment to the Report Sections.

File Uploads

Final Report	☐	Upload the Final Report PDF to "NBIS Report".

NEW JERSEY TURNPIKE AUTHORITY

Str.: Date: Monitoring No.:

REPORT CHECKLIST QCF 1.9 - INTERIM INSPECTION REPORT CHECKLIST

CONSULTANT INSPECTECH REPORT QUALITY CONTROL REVIEW

QA/QC:

Date:

General

Work Done	☐	Check for work done on the structure between inspections. Go to the Maintenance tab for Category A's, the Asset Info Tab for History/Notes, and the Quick View for Contract Information. Note: Only Open Category A Reports are shown on the Maintenance Tab you must check the box to show completed maintenance items and include any information for work completed since the previous inspection.
Attachment(s)	☐	Additional report sections, as applicable, including but not limited to field notes, sketches, tables, plans, or other necessary documents to supplement the write up.
Structural Inventory & Appraisal Forms	☐	To be edited / updated when Interim Inspection Date (Item 93C) is coded to reflect the most recent inspection date or a change in frequency of inspection (92C) is required.
Category A Report	☐	To be included when the deficiency being monitored warrants prioritized repair. To be created once and updated during subsequent inspections to reflect changes in condition or memorialize work done.
Photographs	☐	All photos taken should be uploaded to the Pics / Files page under Photographs. Select representative photos should be included in the report, the cover photo should reflect the typical element / deficiency.
Working Files	☐	Upload all working files to their own File Type.
Final Report	☐	Upload the Final Report PDF to "NBIS Report".

BRIDGE INSPECTION CONSULTANTS

QCF 2 – Consultant Field Checklist

QCF 2.1 – Bridges Checklist
QCF 2.2 – Bridge Culverts Checklist
QCF 2.3 – Minor Culverts Checklist
QCF 2.4 – Sign Structures Checklist
QCF 2.5 – Retaining Walls / Noise Barriers Checklist
QCF 2.6 – Antenna Towers Checklist
QCF 2.7 – High Mast Light Poles Checklist

HNTB	Document Number: QCF 2 Consultant Field Checklist	
NJTA Bridge Inspection Oversight QCF 2.1 - Bridge Checklist	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

QCE's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing (top side / underside)?

_____

_____

_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ UBIU - Model _____
- ☐ Bucket Truck - Model _____
- ☐ Manlift - Model _____
- ☐ Large Ladder - Feet _____
- ☐ Boat

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If Inspection Equipment is being used, the inspection team members are certified and instructed regarding its use.
- ☐ If the bridge is classified as a confined space, the inspection team members are trained in confined space safety.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field review:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Identification of Category D, E & E' welds.
- ☐ 100% hands-on inspection of FCMs. FCMs identification and documentation.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior and primary load paths of bridge.
- ☐ Section loss measurements, section loss sheets, and proper documentation. (Section Loss Workbook)
- ☐ Clearance sketches and vertical clearance postings.
- ☐ Underwater inspection, channel cross-section, soundings / substructure profile measurement, scour / undermining.
- ☐ Coding of SI&A condition ratings and Bridge Element inspection ratings.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Schematic or method for collecting NBE data (top of deck)
- ☐ Framing Plan or method for collecting NBE data (underside of deck)
- ☐ Section Loss Workbook Procedure
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ Inspection of Fracture Critical Bridge Members (FHWA-IP-86-26)
- ☐ Recording and Coding Guide for SI&A of the Nation's Bridges (FHWA-PD-96-001)
- ☐ Recording and Coding Guide for SI&A of New Jersey Bridges (NJDOT)
- ☐ Bridge Element Inspection Manual

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

_____

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

QCE's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing (top side / underside)?

_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ Boat

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If inspection equipment is being used, the inspection team members are certified and instructed regarding its use.
- ☐ If the bridge culvert is classified as a confined space, the inspection team members are trained in confined space safety.
- ☐ If the bridge culvert requires an underwater inspection, a qualified Type-2 underwater inspector is on-site.
- ☐ The culvert is noted as previously requiring an underwater inspection.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior and primary load paths of culverts.
- ☐ Section loss measurements, section loss sheets, and proper documentation.
- ☐ Underwater inspection, channel cross-section, soundings / substructure profile measurement, scour / undermining.
- ☐ Coding of SI&A condition ratings and Bridge Element inspection ratings.
- ☐ Photo documentation and referencing.

General Remarks:

_____

_____

_____

_____

_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Schematic or method for collecting NBE data (top of deck)
- ☐ Framing Plan or method for collecting NBE data (underside of deck)
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ Culvert Inspection Manual, 1986, FHWA-IP-86-2
- ☐ Underwater Inspection and Evaluation of NJ Bridges Guidelines Manual, June 1994 Edition with August 2008 Revisions
- ☐ Recording and Coding Guide for SI&A of the Nation's Bridges (FHWA-PD-96-001)
- ☐ Recording and Coding Guide for SI&A of New Jersey Bridges (NJDOT)
- ☐ Bridge Element Inspection Manual

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____

_____

_____

_____

_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight Edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

_____

		Document Number: QCF 2 Consultant Field Checklist
NJTA Bridge Inspection Oversight QCF 2.3 - Minor Culvert Checklist	Revision Number: 0	Revision Date: 06/30/2020
Company:	Address:	

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

QCE's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing (top side / underside)?

_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ Boat

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If inspection equipment is being used, the inspection team members are certified and instructed regarding its use.
- ☐ If the culvert is classified as a confined space, the inspection team members are trained in confined space safety.
- ☐ If the culvert requires an underwater inspection, a qualified Type-2 underwater inspector is on-site
- ☐ The culvert is noted as previously requiring an underwater inspection.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation and direction of waterway flow.
- ☐ Understanding of structural behavior and primary load paths of culverts.
- ☐ Section loss measurements, section loss sheets, and proper documentation.
- ☐ Underwater inspection, channel cross-section, soundings / substructure profile measurement, scour / undermining.
- ☐ Coding of SI&A condition ratings and Bridge Element inspection ratings.
- ☐ Photo documentation and referencing.

General Remarks:

_____

_____

_____

_____

_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ Culvert Inspection Manual, 1986, FHWA-IP-86-2
- ☐ Underwater Inspection and Evaluation of NJ Bridges Guidelines Manual, June 1994 Edition with August 2008 Revisions

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____

_____

_____

_____

_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight Edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

_____

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

QCE's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing?

_____
_____
_____
_____
_____

- ☐ If the sign is an overhead sign, a close-up visual inspection is being perfromed by climbing.
- ☐ If the sign is a vierendeel overheard sign, an eight point binocular inspection is being performed.
- ☐ If the sign is a cantilever or butterfly, an articulating bucket truck is being used to perform the inspection.
- ☐ If the sign is an A-frame VMS / hybrid, an access ladder is being used inside the caged walkway.

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs
- ☐ If climbing a sign over the roadway, the TMA is in the roadway below that sign.

Access Equipment

- ☐ Bucket Truck - Model _____

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If Inspection Equipment is being used, the inspection team members are certified and instructed regarding its use.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior and primary load paths of sign structure.
- ☐ Section loss measurements, and proper documentation.
- ☐ Clearance sketches.
- ☐ Understanding of flange categories.
- ☐ Documentation / measurement of the mast plumbness and arm levelness for cantilever / butterfly signs.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ NJTA - Sign Structure Inspection Procedure, Version 2.0, February 2016
- ☐ FHWA - Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs Luminaries and Traffic Signals, March 2005

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level
- ☐ Equipment is secured to the inspector while climbing over a travel lane.

General Remarks:

_____

_____

General Information

Structure No: _____

Structure Name: _____

Structure Type: Retaining Wall / Noise Barrier

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

QCE's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing? Close visual inspection from ground or supplemental hands-on inspection with ladders or special equipment?_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ Bucket Truck - Model _____
- ☐ Large Ladder - Feet _____
- ☐ Boat

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If Inspection Equipment is being used, the inspection team members are certified and instructed regarding its use.
- ☐ If the noise barrier / retaining wall requires an underwater inspection, a qualified Type-2 underwater inspector is on-site.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior of retaining walls and noise barriers.
- ☐ Section loss measurements and proper documentation.
- ☐ Underwater inspection, wall profile measurement, scour / undermining.
- ☐ Photo documentation and referencing.

General Remarks:

_____

_____

_____

_____

_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ NJTA - Manual for Retaining Wall and Noise Barrier Inspection, Version 1.0, March 2017
- ☐ NJDOT - Underwater Inspection and Evaluation of NJ Bridges Guidelines Manual, June 1994 Edition with August 2008 Revisions

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

_____

General Information

Structure No: _____

Structure Name: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

QCE's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing?

_____
_____
_____
_____
_____

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection.
- ☐ The inspection team members are trained in tower climbing safety and rescue.
- ☐ Climbing apparatus & hardware inspected for functionality and OSHA / PEOSHA conformance.
- ☐ Contacted Gerry Minneci of ITS for access to tower (towers are enclosed by locked security fence).

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior and primary load paths of tower.
- ☐ Section loss measurements and proper documentation.
- ☐ Wind speed / tension in guy wire is checked.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ Bridge Inspector's Reference Manual (BIRM)
- ☐ TIA/EIA-222-G Standard
- ☐ Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs, Luminaires and Traffic Signals, March 2005

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Respirator / Dust Mask
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ Life Jacket
- ☐ Chest or Hip Waders
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Ladder
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Scrapers
- ☐ Screwdriver / Ice Pick
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Underclearance Rod / Laser Measure
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

_____

General Information

Structure No: _____

Location: _____

Field Review Date: _____

Field Arrival Time: _____

Field Departure Time: _____

Weather: _____

OPS No.: _____

Project Name: _____

Team Leader: _____

Assistant Team Leader: _____

Other Team Members: _____

QCE's General Review

- ☐ The company vehicle is properly identified with company name.
- ☐ The company vehicle has a flashing yellow light.

What inspection work is being performed? What are inspectors doing?

_____
_____
_____
_____
_____

Work Zone Protection / Access

- ☐ Work zone traffic control is being used.
- ☐ Work zone traffic control is set up by the contractor.
- ☐ Work zone traffic control is set up by the Authority.
- ☐ The consultant obtained approval for lane / shoulder closing.
- ☐ The set-up is in conformance with NJTA Standards and MUTCD Standards.

Traffic Control Equipment

- ☐ Arrow Board
- ☐ Shadow Vehicle (Truck)
- ☐ Flaggers (Highway or Railroad)
- ☐ Shadow Vehicle (Van)
- ☐ Impact Attenuator (TMA)
- ☐ Cones
- ☐ Signs

Access Equipment

- ☐ Man Lift Model _____

Fall Protection / Access

- ☐ The inspection team members are trained in fall protection and scaffolding safety.
- ☐ If Inspection Equipment is being used, the inspection team members are certified and instructed regarding its use.

Identification

- ☐ Inspection Team Members have Photo ID present.
- ☐ Team Leader in the field matches the Team Leader listed in the BILOC.

The following items were reviewed with the inspection team during this field audit:

- ☐ Previous inspection report onsite to determine problem areas.
- ☐ Understanding and implementation of Category A reporting procedures.
- ☐ Determination and use of direction of orientation.
- ☐ Understanding of structural behavior of HMLP.
- ☐ Section loss measurements and proper documentation.
- ☐ Drone inspection procedures.
- ☐ Pilot responsibilities.
- ☐ Drone requirements.
- ☐ Photo documentation and referencing.

General Remarks:

_____
_____
_____
_____
_____

Required Documents

- ☐ Structure List
- ☐ Previous Category A Reports
- ☐ Category A Repair Procedure
- ☐ Authority Deficiency Category Definitions
- ☐ Structural Drawings
- ☐ Emergency Contact List
- ☐ NJTA Traffic Permit
- ☐ 2011 NJTA Manual for Traffic Control in Work Zones

Personal Protective Equipment

- ☐ Hard Hat
- ☐ Work Boots
- ☐ Reflectorized Safety - ANSI Class 3
- ☐ Protective Eyewear
- ☐ Safety Harness and Lanyard
- ☐ Gloves
- ☐ The appropriate Personal Protective Equipment is being used.

General Remarks:

_____
_____
_____
_____
_____

General Equipment

- ☐ Binoculars
- ☐ BoreScope
- ☐ Camera
- ☐ Calipers
- ☐ Chalk, Keel, Paint Sticks, Markers
- ☐ Chipping Hammer
- ☐ D-Meter
- ☐ Dye Penetrant Kit
- ☐ Feeler Gauge
- ☐ First Aid Kit
- ☐ Flashlight
- ☐ Inspection Mirror
- ☐ Line Level and String Line
- ☐ Magnifying Glass
- ☐ Optical Crack Gauge
- ☐ Pliers
- ☐ Pocket Knife
- ☐ Plumb Bob
- ☐ Probing Rod
- ☐ Ruler / Tape Measure
- ☐ Screwdriver / Ice Pick / Scrapers
- ☐ Shovel
- ☐ Sounding Hammer
- ☐ Sounding Rod
- ☐ Straight edge
- ☐ Thermometer / Temperature Gauge
- ☐ Wire Brush
- ☐ Wisk Broom
- ☐ Wrenches
- ☐ 4 Foot Carpenter's Level

General Remarks:

_____

_____

QCE's General Review

Consultant Performed Inspection of:

- ☐ Lighting pole
- ☐ Telescopic slip joint
- ☐ Access door and hand hole, remove door and inspect inside.
- ☐ Inspect hand hole area for fatigue cracks.
- ☐ Base and anchor bolts, make sure they are tight.
- ☐ Lighting halo
- ☐ Winching system including winch pulleys and supports
- ☐ Foundation
- ☐ Check for abrasion, section loss (using a D-meter), or loss of the weathering coating.
- ☐ Cracks - especially in welds and other areas vulnerable to fatigue.
- ☐ Plumbness of pole
- ☐ Check leveling nut is making contact with base plate, and for any signs of distress in the area of leveling nut.
- ☐ Inspection of the pole shafts and lighting halos can be accomplished using unmanned aircraft systems (UAS, or Drones).
- ☐ Hands-on inspection of suspected areas (required).
- ☐ Ultrasonic wall thickness measurements utilizing a D meter shall be taken in the four cardinal directions at all mast bases and a borescope shall be used for the mast base interior inspections after vacuum cleanout at all first-generation lighting masts with small 6" x 8" base access openings.
- ☐ Concrete pedestal and base elements shall be cleared of foliage and excavated by shovel when required, to allow inspection of anchor bolt to substructure interface, and the surface of the pedestal.
- ☐ Measure, probe or otherwise make all efforts to determine the nature or cause of any abnormal movements or shifting detected or suspected, including due to wind of each High Mast Light Pole or its foundation (not including the use of special services) where feasible.

Drone Inspection Procedures (guidelines set forth in Part 107 of the FAA Rules)

- ☐ The drone shall never fly over live traffic or persons while performing the inspection.
- ☐ The inspections shall include slow descending / ascending flight, at a distance between 5 to 10 feet preferred, from base to tip along the shaft at three vantage points and slow orbiting flight, within 10 feet preferred, above and below the luminaire assembly to allow the team leader to visually observe any features to be inspected while simultaneously recording video.
- ☐ After the visual inspection is completed, still images shall be taken of the high mast light pole to create a seamless image of the light pole for viewing later.
- ☐ Drone pilots must meet the FAA requirements for the type of operation they are conducting. Pilots flying under the Part 107 small UAS rule (i.e. Drones weighting less than 55 lbs.) must be certified as a remote pilot with a small UAS rating.

Pilot Responsibilities

- ☐ The pilot in command shall ensure that persons directly participating in the small UAS operation are informed about the operating conditions, emergency procedures, contingency procedures, roles and responsibilities, and potential hazards.
- ☐ The pilot shall also be responsible for complying with all restricted airspaces including any temporary flight restrictions and shall be responsible for coordinating with nearby air traffic control if required.

Drone Requirements

- ☐ Have a "vision system" that provides the ability to sense and avoid objects while airborne and operating at speeds of less than 31 mph. This includes the ability to inspect from a distance of less than 10 feet.
- ☐ Have the ability to stay airborne for more than 20 minutes per battery.
- ☐ Have a GPS / GLONASS system installed and operating.
- ☐ Have the ability to autonomously map areas and provide a mapping resolution of up to one (1) inch per pixel with wind conditions of less than 10 mph.
- ☐ The on-board camera should have at least a one (1) inch CMOS sensor (or similar) with an effective resolution of 20 megapixels or higher.
- ☐ The on-board camera should have the ability to record video with a resolution of up to 4096 x 2160 and at frames rates up to 60 fps.

General Remarks:

_____
_____
_____
_____
_____

BRIDGE INSPECTION CONSULTANTS

QCF 3 – Consultant Load Rating Checklist

Structure Name: _____ Structure No: _____

Carries: _____ Crosses: _____

No. of Span(s): _____ Bridge Type: _____

Consultant: _____

Load Rating Reviewer (LRR): _____ Load Rating Engineer (LRE): _____

Other Team Member(s): _____

SECTION I: LRFR LOAD RATING UPDATES OF EXISTING STRUCTURES

(USE: To be used to determine if load rating updates are required)

The consultant shall perform a cursory review of each bridge following inspection to determine if a re-analysis is required. Refer to Section 2.1.2 and Appendix A3 of the current NJTA Load Rating Manual (LRM) for further guidance on when updates are required and for details on the conditions listed below. If a structure is found to require load rating updates, the load rating consultant shall first contact their Authority Liaison and gain approval prior to commencing with load rating updates.

AS-INSPECTED CONDITIONS:

YES	NO	N/A	
☐	☐	☐	Have the section properties of controlling and/or non-controlling members changed due to deterioration, rehabilitation, re-decking, or other structural alterations?
☐	☐	☐	Per "engineering judgement," could the section losses negatively affect the controlling load rating of the member(s), thereby requiring load rating updates?

Note(s): _____

CHANGES IN LOADING:

YES	NO	N/A	
☐	☐	☐	Has the dead load of any primary member changed due to rehabilitation, re-decking, re-surfacing, or other structural alterations?

Note(s): _____

CHANGES TO THE ITEM 59 CODING:

YES	NO	N/A	
☐	☐	☐	Has the superstructure condition rating (SI & A Item 59) decreased since the last inspection?
☐	☐	☐	If the superstructure condition rating has increased, does the structure also exhibit legal load rating factors less than 1.00?

Note(s): _____

ONE-WAY ADTT REVISIONS:

YES	NO	N/A	
☐	☐	☐	Has there been significant changes to truck traffic volume (one way ADTT) on the structure? (Note that load rating updates typically need not be performed solely due to changes in one way ADTT)

Note(s): _____

CHANGES TO THE SURFACE ROUGHNESS RATING:

YES	NO	N/A	
☐	☐	☐	Has there been an increase to the surface roughness rating (increase in coding value) since the last inspection?
☐	☐	☐	If rideability has improved (decrease in coding value), does the structure also exhibit legal load rating factors less than 1.00 for longitudinal members with span lengths greater than 40 feet?

Note(s): _____

IDENTIFICATION OF PREVIOUS LOAD RATING ERRORS OR OMISSIONS:

YES	NO	N/A	
☐	☐	☐	Are there significant errors, inaccuracies, or omissions to the previous load rating files? If yes, please identify and explain within the notes section below. It is expected that the consultant will perform a cursory review of the bridge load rating documents as part of this check. While Section II of this Checklist is intended to be used following completion of load rating updates, portions of this checklist can also be used as a tool to spot-check critical areas of the bridge load rating calculations, model, and report.

Note(s): _____

RATING SPECIFICATION CHANGES:

YES	NO	N/A	
☐	☐	☐	Has there been any updates to the load rating specifications that could affect the critical ratings for the structure?
☐	☐	☐	Are the current legal load rating factors below 1.0 and a brief review of the load ratings indicates that an increase in the controlling ratings may be realized by updating using the latest specifications?

Note(s): _____

Note*:* A "Yes" in any of the options above should typically warrant a re-rating of the structure. If a re-rating is not warranted, the "Note(s)" section should further clarify the decision-making process.

RECOMMENDATION:

YES ☐ NO ☐ N/A ☐ Are rating updates recommended for this structure? If yes, list the reasons below.

Reason(s): _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Note: Section II of this checklist is not required to be submitted nor completed if updates are not recommended for the structure.

SECTION II: REVIEW OF UPDATED LOAD RATING

(USE: Once load rating updates are deemed necessary per Section I and updates have been performed, Section II shall be used by the LRR to verify that all major aspects of the load rating are accurate and current.)

The Load Rating Reviewer (LRR) is responsible for reviewing all load rating work using sound engineering judgement and shall sign, date, and seal the Load Rating Summary Sheet. Once updates are performed, the consultant performing these updates shall be fully responsible for the correctness of the complete load rating submission. Refer to the NJTA Load Rating Manual for complete load rating guidance.

LOAD RATING SUMMARY SHEET:

YES	NO	N/A	
☐	☐	☐	Is the existing bridge data accurate and current?
☐	☐	☐	Is the dead load data accurate and current?
☐	☐	☐	Does the surface roughness rating match the current bridge inspection report?
☐	☐	☐	Is the dynamic load allowance (IM-Legal) correct and accurately reflects the value used in the load rating analysis?
☐	☐	☐	Does the condition factor correlate with the current SI&A Item 59 coding and accurately reflect the value used in the load rating analysis?
☐	☐	☐	Is the one-way ADTT accurate and current?
☐	☐	☐	Have all the controlling members and rating factors been verified?
☐	☐	☐	Are the Load Rating Engineer (LRE) and Load Rating Reviewer (LRR) qualified as per LRM Section 2.2?

Note(s): _____

_____

_____

SUMMARY OF UPDATES:

YES	NO	N/A	
☐	☐	☐	Is the primary reason(s) for the load rating update clearly documented?
☐	☐	☐	Have all updates/corrections made to the BrR model been documented and described accurately/clearly?
☐	☐	☐	Have all updates/corrections made to the calculations been documented and described accurately/clearly?
☐	☐	☐	Have all updates/corrections made to the LRSS been documented and described accurately/clearly?
☐	☐	☐	Have all other relevant notes been clearly documented?

Note(s): _____

_____

_____

CALCULATIONS:

YES	NO	N/A	
☐	☐	☐	Have all supplemental calculations been reviewed for accuracy?
☐	☐	☐	Have all section loss calculations been reviewed for accuracy?
☐	☐	☐	Have all other calculations been reviewed for accuracy?

Note(s): _____

_____

_____

AASHTOWare BrR MODEL:

YES	NO	N/A	
☐	☐	☐	Does the ADTT value match the value shown on the LRSS?
☐	☐	☐	Are correct material strengths used in the model?
☐	☐	☐	Are the appurtenance shapes modeled according to the current cross-sections?
☐	☐	☐	Have unused factor files been removed from the BrR model?
☐	☐	☐	Does the span and member numbering follow the bridge inspection report numbering?

YES	NO	N/A	
☐	☐	☐	Does the Framing Plan Detail accurately portray the stringer spacing, stringer orientation, diaphragm layout, and diaphragm dead load?
☐	☐	☐	Does the Structure Typical Section accurately portray the deck thickness, deck strength, barrier/sidewalk layout, lane positions, and wearing surface properties?
☐	☐	☐	Are all spans modeled at the Superstructure Definition and Bridge Alternative levels?
☐	☐	☐	Is all dead load applied correctly?
☐	☐	☐	Are all members modeled at the Member Alternative level?
☐	☐	☐	Have all specifications and factors been updated and verified?
☐	☐	☐	Does the condition factor accurately represent the current SI&A Item 59 coding?
☐	☐	☐	Is the system factor correct for all member types?
☐	☐	☐	Are the LRFR Control Options applied correctly?
☐	☐	☐	Have the Live Load Distribution Factors been left blank to allow BrR to automatically compute the values?
☐	☐	☐	Are all section properties modeled correctly for all members?
☐	☐	☐	Are all structural deck properties modeled correctly for all members?
☐	☐	☐	Are all transverse and/or longitudinal stiffeners modeled correctly for all members?
☐	☐	☐	Is lateral support correctly defined for all members?
☐	☐	☐	Are section losses correctly applied according to section loss calculations?

AASHTOWare BrR MODEL – CULVERT SPECIFIC:

☐	☐	☐	Is the geometry and all dimensions modeled accurately?
☐	☐	☐	Are the reinforcement properties correct and have been modeled in the correct layout?
☐	☐	☐	Is the dead load (fill, water depth, etc.) modeled accurately?
☐	☐	☐	Are all LRFR Control Options correctly applied?

☐	☐	☐	Including items not listed above, does the BrR model accurately represent the current structure?

Note(s): _____

_____

_____

OTHER SOFTWARE USED: _____

YES	NO	N/A	
☐	☐	☐	Are the correct material strengths used in the model?
☐	☐	☐	Does the span and member numbering follow the bridge inspection report numbering?
☐	☐	☐	Does the framing plan accurately reflect the current structure?
☐	☐	☐	Does the cross-section accurately reflect the current structure?
☐	☐	☐	Are all member section properties modeled correctly?
☐	☐	☐	Are all deck properties modeled correctly?
☐	☐	☐	Is all dead load applied correctly?
☐	☐	☐	Is the live load distribution applied correctly?
☐	☐	☐	Are all section losses applied correctly?
☐	☐	☐	Including items not listed above, does the bridge model accurately represent the current structure?

Note(s): _____

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LRFR LOAD RATING REPORT:

YES	NO	N/A	
☐	☐	☐	Does the file naming follow the provisions outlined in the LRM Section 4.1.2?
☐	☐	☐	Has the LRSS been signed, dated, and sealed by a qualified LRR?
☐	☐	☐	Is the Summary of Updates and all associated assumptions included in the report?
☐	☐	☐	Are all supporting calculations provided in the report?
☐	☐	☐	Are all relevant bridge plans provided in the report?
☐	☐	☐	Is all other relevant information included within the report?
☐	☐	☐	Are bookmarks provided in the PDF file per the provisions outlined in the LRM Section 4.1.1?

Note(s): _____

_____

_____

BRIDGE INSPECTION CONSULTANTS

QCF 4 - Consultant Quality Assurance Checklist

Structure Name: _____ **Structure No:** _____
Carries: _____ **Crosses:** _____
No. of Span(s): _____ **Bridge Type:** _____

Consultant: _____
Team Leader: _____ **Assistant TL:** _____
Other Team Members: _____ **QC Engineer:** _____

GUIDELINES

The QC Engineer shall ensure the inspection report is complete, thorough and accurate to the limit of available resources. The QC Engineer is required to adhere to utilize the following checklist when reviewing bridge inspection reports. Records of this QC check need not be submitted with the bridge inspection report but should be retained and kept readily accessible if requested by the Authority (electronical or hard-copy).

GENERAL REMARKS: _____

_____

QC Engineer's Signature Date

Part 1:

Contract History	Response
1. Were as-built plans or card files utilized to determine work done on this structure?	☐ Yes ☐ No ☐ N/A
2. Were all contracts included on the form?	☐ Yes ☐ No ☐ N/A

Part 2:

Load Ratings	Response
1. Were previous load rating calculations reviewed?	☐ Yes ☐ No ☐ N/A
2. Were updates needed or was the load rating performed during this cycle?	☐ Yes ☐ No ☐ N/A
3. Were section loss sheets included in the report, If applicable?	☐ Yes ☐ No ☐ N/A
4. Did the inspector adhere to the established direction of orientation when providing ratings and comments?	☐ Yes ☐ No ☐ N/A
5. Was the consultant load rating checklist (QAF-3) properly completed and included with the bridge inspection report submission?	☐ Yes ☐ No ☐ N/A

Part 3:

General	Response
1. Was the structural inventory information verified by the preparer and reviewer?	☐ Yes ☐ No ☐ N/A
2. Were all rated elements, comments, photos, sketches, etc. carefully checked for technical accuracy in accordance with the Project Specific Quality Management Plan.	☐ Yes ☐ No ☐ N/A
3. Were photos, ratings and comments verified to be consistent with each other and NBI rating guidance.	☐ Yes ☐ No ☐ N/A
4. Were the proper bridge elements included and rated on the Element Inspection Form?	☐ Yes ☐ No ☐ N/A
5. Was the SI&A data properly coded and verified?	☐ Yes ☐ No ☐ N/A
6. Was the QCF-1 Consultant InspectTech Report Checklist completed?	☐ Yes ☐ No ☐ N/A

Part 4:

Conclusions	Response
1. Does the Overall Condition statement match and describe the condition reflected in the SI&A input?	☐ Yes ☐ No ☐ N/A

2. Were there any changes in bridge condition and/or bridge elements since the previous inspection?	☐ Yes ☐ No ☐ N/A
3. Does the load rating statement include justification for performing updating ratings during this cycle?	☐ Yes ☐ No ☐ N/A
4. Was scheduled, ongoing or completed work properly documented and referenced?	☐ Yes ☐ No ☐ N/A
5. Does the structure contain any Fracture Critical Members?	☐ Yes ☐ No ☐ N/A
6. Does the structure require an underwater inspection?	☐ Yes ☐ No ☐ N/A
7. Do the defects described in the conclusions section match findings stated in the field notes section?	☐ Yes ☐ No ☐ N/A
8. Was Channel Rating (Item-61), Waterway Opening Adequate Evaluation (Item-71) and Scour Critical (Item-113) properly coded, if applicable?	☐ Yes ☐ No ☐ N/A
9. Do safety features meet current standards?	☐ Yes ☐ No ☐ N/A
10. If an Interim inspection or Monitoring is currently required, has the reason for this inspection been explained or detailed?	☐ Yes ☐ No ☐ N/A

Part 5:

Field Notes	Response
1. Was the proper repair category check box checked off?	☐ Yes ☐ No ☐ N/A
2. Were defect quantities recorded for defects in Category B/C?	☐ Yes ☐ No ☐ N/A
3. Were photos included for defects in Category A and/or B/C?	☐ Yes ☐ No ☐ N/A
4. Were nocturnal surveys performed for the navigation lighting fixtures and was a sketch included in the report?	☐ Yes ☐ No ☐ N/A
5. Does the bridge have security features warranting use of the “Bridge Security Feature” Form?	☐ Yes ☐ No ☐ N/A

Part 6:

Fatigue / FCM Members	Response
1. Was a statement for fatigue prone details included in the general information form?	☐ Yes ☐ No ☐ N/A
2. Was a 100% Hands-On Inspection completed for all fracture-critical members?	☐ Yes ☐ No ☐ N/A
3. Does the report include a section on pins and hangers, if applicable?	☐ Yes ☐ No ☐ N/A

4. Was the internal box girder inventory form completed, if applicable?	☐ Yes ☐ No ☐ N/A
5. Was an FCM location plan included in the report and are all FCM members clearly identified?	☐ Yes ☐ No ☐ N/A
6. Were FCM Detail Plates included in the report, if applicable?	☐ Yes ☐ No ☐ N/A
7. Was a Fracture Critical Member Inspection Plan included in the files section?	☐ Yes ☐ No ☐ N/A

Part 7:

Photographs	Response
1. Was the proper orientation used in the description: roadway direction, waterway stream flow, etc.	☐ Yes ☐ No ☐ N/A
2. Were proper photos included in the report as per QCF-1 Consultant InspectTech Report Checklist?	☐ Yes ☐ No ☐ N/A
3. Was a typical photo included for each defect type?	☐ Yes ☐ No ☐ N/A
4. Do captions describe all deficiencies shown in each photo?	☐ Yes ☐ No ☐ N/A
5. Do photos of deterioration include an estimated defect quantity in the description?	☐ Yes ☐ No ☐ N/A
6. Were photos provided for new bridges, following major rehabilitation or work done?	☐ Yes ☐ No ☐ N/A

Part 8:

Underwater Inspection	Response
1. Does scour documentation indicate water depths of 4 feet or more at any substructure indicating the need for a diving inspection?	☐ Yes ☐ No ☐ N/A
2. Did the inspector properly reference current or previous diving reports in the bridge inspection report, where applicable?	☐ Yes ☐ No ☐ N/A
3. Were channel profiles near substructures taken if water depth and/or turbidity prohibited a visual inspection?	☐ Yes ☐ No ☐ N/A
4. Was the extent of scour documented in sketches?	☐ Yes ☐ No ☐ N/A
5. Was there a stream alignment sketch provided (if stream channel alignment problems exist)?	☐ Yes ☐ No ☐ N/A
6. Were substructure deficiency (underwater) sketches provided?	☐ Yes ☐ No ☐ N/A

Part 9:

Soundings	Response
1. Was the template provided by NJTA used to document the sounding measurements?	☐ Yes ☐ No ☐ N/A
2. Were soundings shown at 10' intervals along both fascias and along the longitudinal centerline of the bridge?	☐ Yes ☐ No ☐ N/A
3. Were soundings provided along abutment/pier with relationship to the footing shown?	☐ Yes ☐ No ☐ N/A
4. Were exposed/undermined footings shown on the sounding survey sketch(es)?	☐ Yes ☐ No ☐ N/A
5. Were benchmark and waterline references shown any provided sounding survey sketch(es)?	☐ Yes ☐ No ☐ N/A
6. Does the sounding survey sketch include direction of flow?	☐ Yes ☐ No ☐ N/A

Part 10:

Clearances	Response
1. Were LIDAR sketches available for NJTA Mainline Roadway or Ramp crossings, and were they included in the report?	☐ Yes ☐ No ☐ N/A
2. Were vertical clearances measured and included in the report for bridges crossing a non-NJTA roadway, railroad, or if LIDAR was not available?	☐ Yes ☐ No ☐ N/A
3. Was the template for the underclearance sketch provided by NJTA used to create a record of the measurements, indicating the necessary NBI fields?	☐ Yes ☐ No ☐ N/A
4. Were vertical clearances on and/or under the bridge coded correctly in the SI&A sheets?	☐ Yes ☐ No ☐ N/A
5. Is posting for inadequate underclearance required?	☐ Yes ☐ No ☐ N/A
6. Were vertical clearances measured at bridges that are currently posted with signs for minimum underclearance?	☐ Yes ☐ No ☐ N/A
7. Was a Category A (VUC) created and submitted to NJTA for installation of the required signs if not properly posted?	☐ Yes ☐ No ☐ N/A

Part 11:

Category A	Response
1. Category A Deficiencies – Was a review performed to determine if documentation and Maintenance and/or Engineering comments are consistent with the current report status?	☐ Yes ☐ No ☐ N/A

APPENDIX B – FLOW CHART

NEW JERSEY TURNPIKE AUTHORITY
BRIDGE INSPECTION PROGRAM QUALITY MANAGEMENT PLAN
FLOWCHART

Responsibilities:

- NJTA Engineering (Authority)
- Bridge Inspection Program Technical Manager (BIPTM)
- Inspection Consultant (IC)

CONSULTANT QUALIFICATIONS → PREPARE AND SUBMIT QAF-3 CONSULTANT QUALIFICATION FORM AND BACKUP → REVIEW AND APPROVE; SUBMIT TO AUTHORITY

BIPTM QUALIFICATIONS → PREPARE AND SUBMIT QAF-7 TECH. MANAGER QUALIFICATION FORM AND BACKUP → REVIEW AND APPROVE

NJTA BRIDGE INSPECTION PROGRAM → DEVELOP AND SUBMIT QA/QC PLAN → REVIEW AND APPROVE → PERFORM FIELD INSPECTION; CONDUCT FIELD QC AND PREPARE QCF-2 FORM CONSULTANT FIELD CHECKLIST → CONDUCT FIELD AUDIT AND PREPARE QAF-1 CONSULTANT FIELD AUDIT CHECKLIST; SUBMIT TO AUTHORITY

- PERFORM LOAD RATINGS; CONDUCT LOAD RATING QC AND PREPARE QCF-3 CONSULTANT LOAD RATING CHECKLIST; CONDUCT QA AND PREPARE QCF-4 CONSULTANT QUALITY CONTROL CHECKLIST → CONDUCT LOAD RATING REVIEWS; PREPARE QAF-10 LOAD RATING REVIEW CHECKLIST
- PREPARE INSPECTION REPORT; CONDUCT REPORT & DATA QC AND PREPARE QCF-1 CONSULTANT DATABASE REPORT CHECKLIST; CONDUCT QA AND PREPARE QCF-4 CONSULTANT QUALITY CONTROL CHECKLIST → CONDUCT REPORT AND DATA REVIEWS; PREPARE QAF-2 NBIS BRIDGE REPORT REVIEW CHECKLIST

ANNUAL CONSULTANT OFFICE AUDIT → PREPARE QA/QC RECORDS FOR OFFICE AUDIT → PREPARE QAF-11 OFFICE AUDIT CHECKLIST; SUBMIT TO AUTHORITY

ANNUAL BIPTM OFFICE AUDIT → PREPARE QA RECORDS FOR OFFICE AUDIT → PREPARE QAF-11 OFFICE REVIEW CHECKLIST AND PREPARE QAF 6 – AUTHORITY REVIEW FORM (IF REQUIRED)

CORRECTIVE ACTIONS → IDENTIFICATION OF REPETITIVE ERRORS → **ISSUE AUDIT STATEMENT** → PREPARE CORRECTIVE ACTION PLAN → **REVIEW AND APPROVE** → IDENTIFICATION OF SIMILAR ERRORS AFTER CORRECTIVE ACTION PLAN; CONDUCT MANDATED OFFICE REVIEW AND PREPARE QAF-11 OFFICE AUDIT CHECKLIST; SUBMIT TO AUTHORITY → PREPARE QA/QC RECORDS FOR MANDATED OFFICE AUDIT → ERRORS PERSIST AFTER MANDATED OFFICE AUDIT → **PREPARE QAF 4 CORRECTIVE ACTION FORM AND NOTIFY IC** → ATTEND MANDATED IN-PERSON MEETING WITH AUTHORITY'S LEADERSHIP AT NJTA HEADQUARTERS