STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

BUREAU OF CONSTRUCTION

Engineering Audit Section

September 2005

Engineering Audit Process

FOREWORD

This manual establishes a uniform reference for the engineering audit process implemented by the Engineering Audit Section on completed construction project records. Fundamentally, the engineering audit process is a thorough review of the project records to verify the final pay quantities and to account for paperwork required to close out a project. The engineering audit is not intended to be a substitute for good record keeping practices in the field. In fact, good record keeping facilitates the audit both in its accuracy and timeliness. While all projects administered by the Bureau of Construction are subject to an engineering audit, not all projects will necessarily be audited. Nonetheless, the goal is to audit as many projects as possible given the limitations of available time and resources.

The various tasks involved in completing an engineering audit are collectively referred to as the Engineering Audit Process. The phases and individual steps in the audit and the responsibilities of those involved in the audit are described in this manual. In addition, the supporting documents used in the audit are included in the Appendices in the back of the manual for reference.

The Engineering Audit Process begins at the advertisement of a construction contract, and it continues until the project records are archived, a period of time that can extend from several months to several years. The audit process from advertising of a project through its construction phase consists mainly of project tracking and providing assistance to specific requests from construction personnel. Requests from field personnel cover many areas, but generally involve interpreting specifications, setting up records and providing new cross-sections for quantity determinations. Also, Construction Management System database support is provided through the Engineering Audit Section. The construction phase of the audit process is a period in which the Section has the opportunity to provide meaningful customer support.

The majority of work involved with auditing occurs after the project records are turned into the Engineering Audit Section. The objective is to complete the actual audit of the project records within a 90-day period. The audit is usually performed in the Engineering Audit office, but sometimes it is conducted in an outside office by temporarily assigned help. Like construction projects, audit work tends to peak seasonally. The greatest amount of audit work occurs in the late fall and winter when records from the previous construction season are completed and turned in.

The Engineering Audit Process is not intended to be inflexible or static. The steps or forms used in the audit process are all subject to revision and modification to meet the aim of a timely and accurate audit. In this light, those performing the audits are encouraged to always look for ways to improve the process and make suggestions accordingly.

Chief of Engineering Audit
Engineering Audit Section
Bureau of Construction

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Overview of the Engineering Audit Process

The Engineering Audit Process is established to satisfy the general requirements of 23 CFR 635.123, which is the federal law covering the "Determination and Documentation of Pay Quantities" on federally funded projects. In summary, the NHDOT is required to have procedures in place that ensure quantities of completed work are determined accurately and on a uniform basis, and that all source documents used to determine payments are made a part of the permanent record. This standard is also applied to non-federal aid highway projects as a matter of routine procedures in the NHDOT. The Engineering Audit Process is thus established to ensure that fair and proper payments are made in all federally funded and non-federally funded highway contracts. Properly executed audits preserve the records for future reference and protect the State from unsubstantiated claims.

The Engineering Audit Process is broken down into 8 distinct phases, which are shown below in the general sequence in which they occur. Actions to be performed in each of these phases are described in this manual. Variations from the prescribed process are sometimes necessary to address special situations or circumstances of a project. The desired goal is to have a project complete the auditing related portion of the Audit Process, phases 2 through 7, within a 90-day period as measured from when the project records are accepted for auditing to when the final estimate is sent to the Bureau of Construction. Some projects may take substantially longer to complete the entire Audit Process because of factors such as unfinished work, claims and incomplete records, which are generally beyond the control of the Engineering Audit Section.

Phases of the Engineering Audit Process

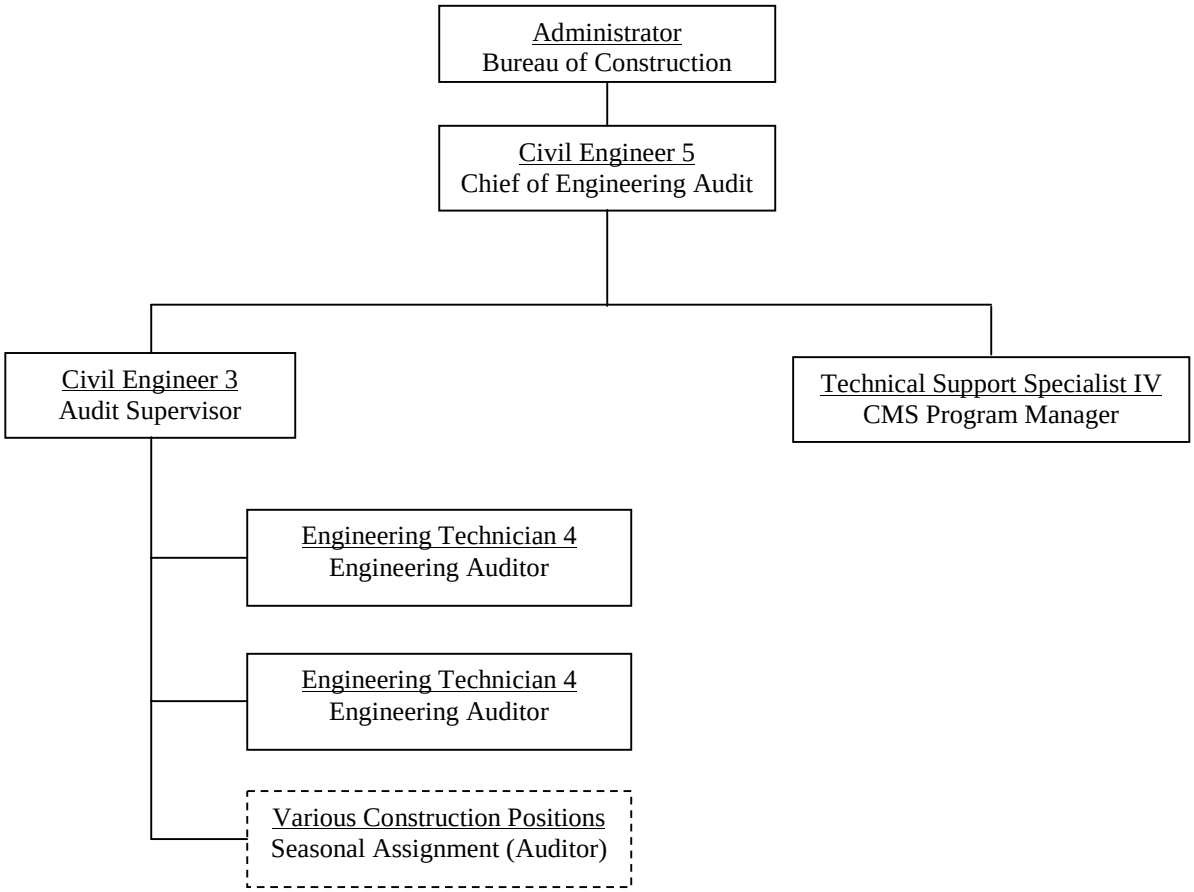
1. Project Initiation
2. Project Records Receipt
3. Pre-Audit Records Review
4. Project Records Audit
5. As-Built Plans Completion
6. Supervisory Review
7. Final Estimate Process
8. Project Records Wrap-Up

The Chief of Engineering Audit, as needs require, may temporarily or permanently modify the Engineering Audit Process. Modifications to the Engineering Audit Process may be required to contend with limited resources available for auditing or to address timeliness of the audits. Some projects may be subject only to spot checks, abbreviated audits or cursory reviews, depending upon the type and dollar value of the project. Any modifications to the Engineering Audit Process will be consistent with meeting the goals of making fair and proper payments to Contractors, preserving project records and timeliness of the process.

Engineering Audit Section Organization

The Engineering Audit Section (Audit), which is located in Room 270 of the John O. Morton Building, is part of the Bureau of Construction, reporting directly to the Construction Bureau's Administrator. Audit consists of a full-time office staff that is augmented by temporary or permanent assignment of various positions from within the Bureau of Construction. Temporary staff is usually assigned during periods of slow construction activity, which tend to be periods of increased auditing activity. The Engineering Audit Section consists of a mix of Civil Engineer and Engineering Technician positions, as shown on the organization chart below. Also included in Audit is a Technical Support Specialist, who is responsible for managing and maintaining the Construction Management System database.

Organization Chart



Position Roles and Responsibilities

Chief of Engineering Audit: The Chief of Engineering Audit (Chief) directs and supervises all Engineering Audit procedures and work practices, and has overall responsibility for determining final contract quantities and payments made to Contractors. The Chief makes audit assignments and determines the degree of auditing to be performed on a project. The Chief maintains the Project Tracking Database and prepares various reports to track progress of the work. Final Estimates are reviewed and approved by the Chief prior to submission to the Bureau of Construction. The Chief provides final guidance on questions that cannot be resolved at the Auditor or Supervisor level, negotiating or mediating if necessary with Department and Contractor personnel.

Engineering Audit Supervisor: The Engineering Audit Supervisor (Supervisor) reviews the project audit completed by an Engineering Auditor, verifying all changes made to the quantities and spot-checking the accuracy of the audit. The Supervisor also ensures that paperwork requirements have been met and approvals have been obtained for a project to complete the audit. The Supervisor seeks answers to questions and resolves disputes that arise from the audit with Contractors and Contract Administrators. The Final Estimate is prepared by the Supervisor and forwarded to the Chief of Engineering Audit for approval. The Supervisor also completes project audits.

Engineering Auditor: The Engineering Auditor (Auditor) completes the audit of project records to obtain accurate final quantities. The Auditor performs a detailed analysis of the quantity for each individual pay item in the contract, making revisions and notes as needed to complete the audit. The Auditor ensures that measurements and calculations of quantities follow applicable specifications. The Auditor presents questions that arise during the audit to the Engineering Audit Supervisor or project Contract Administrator. Projects that have completed the audit process are prepared for archiving by the Auditor.

CMS Program Manager: The Construction Management System (CMS) Program Manager is responsible for all aspects of the CMS program both in the field and in the Morton Building. Routine duties include database management, code development and maintenance, and the collection and processing of estimates. The CMS Program Manager also trains users of CMS and ensures construction jobsite computers are configured properly for CMS. The CMS Program Manager develops new methodologies and software programs, and also acts as a liaison in collaborative efforts with higher-level Information Technology Agencies. The Program Manager does not perform audits, but assists them through CMS data retrieval.

Non-Audit Duties: Besides engineering audit duties, the full-time staff has other responsibilities that vary by position. Tasks such as computer aided design work, equipment inventory management, and information input for the Internet-based CARS program are completed by the full-time staff. Audit maintains the Bureau's storage area, Room 182, for newly printed plans and contracts for upcoming construction projects. Another major responsibility of Audit is the processing for payment of invoices from Consultants for material testing performed on active construction projects.

Engineering Audit Project Tracking Database

The Chief of Engineering Audit utilizes a database to monitor the status of all projects in the Engineering Audit Process. Projects are entered into the database when they are first advertised and they are tracked until they are archived. Key information about a project is placed in the database, as well as audit information such as dates for the completion of sub-tasks or the receipt of certain documents. Various reports are generated from the database to track the progress of the projects through the Engineering Audit Process. The following is recorded in the database for each project:

- Project Name
- State Number
- Federal Number
- General project type
- Planned completion date
- Assigned District Construction Engineer and Contract Administrator
- Contractor and winning bid amount
- Status as a CARS project
- Status as an I-95 Corridor project
- FHWA Form 47 requirements and date of completion
- Dates when the records are stored in Audit and when the records are accepted for auditing
- Shelf location of the records in the bin storage unit
- Slot location of the original mylars in the tub storage container
- Date the initial Worksheet #1 is requested from Mainframe Operations
- Status of As-Built Plans and their date of completion
- Date all Material Certificates are verified as received
- Status of payrolls on federal projects and the date of approval
- Assigned Engineering Auditor
- Target date for completion of the audit
- Dates when the audit actually begins and ends
- Percent complete of the audit
- Status of a Worksheet #1 correction
- Date a Final Estimate is requested from Finance & Contracts
- Amount on the Final Estimate after the audit
- Amount of retainage on to be released with the Final Estimate
- Final total amount of the project
- Date the Final Estimate is signed by the Chief
- Date the Final Estimate is sent to the Bureau of Construction
- Actual project completed and accepted date
- Date of the Completion Certificate
- Date of the Final Estimate Payment letter issued by the Bureau of Construction
- Date the records are sent to archives and the assigned box number
- Any notes relevant to the audit or record status
- Records quality score

Project Initiation

The Engineering Audit Process is initiated when Engineering Audit receives an Invitation for Bids sheet for a project. Phase 1 of the Engineering Audit Process covers the time period from when a project is advertised for bidding to when the project records are turned into Engineering Audit. This period includes the active construction phase of a project, which can last from several months to several years in length.

Audit Phase 1 Actions

1. The Chief initiates the project in the Engineering Audit Database.

2. Engineering Audit personnel create a file folder in the Projects in Construction File that contains the Invitation for Bids, a legal size manila folder and a letter-sized folder, red in color. Any document received in Engineering Audit during the active construction phase of a project is placed in this file.

3. Engineering Audit personnel pick up any available full and half scale plans, Right-of-Way plans and proposals from the Print Shop and/or the Finance and Contracts Office. These documents are stored in Room 182 in an organized manner, and an inventory of these documents is maintained in the Project Tracking Database.

4. The Bids Result sheet is printed from the Project Advertising portion of the NHDOT Internet Business Center Site, when the bid sheet is available. Information from the Bid Results sheet is entered in the Engineering Audit Database.

5. Assistance is provided to field personnel on an as-requested basis for various items. Help setting up CMS, records, answering questions about payment items, providing cross-sections, etc. are examples of assistance that Engineering Audit personnel provide during the construction phase of a project.

6. Field personnel will be allowed the use of computers, the digitizer and/or desk space in the Engineering Audit office to perform work on their project, if these resources are available. The project records for active may also be stored in Engineering Audit if requested by field personnel.

Project Records Receipt

Phase 2 of the Engineering Audit Process involves the receipt of project records from the field, and it also includes the time period prior to any audit work being completed while the records reside in Audit. Records will usually be turned into Room 270 of the Morton Building after completion of the project; however, some projects will be turned in before their completion for storage. ALL the various documents received when a project is turned in are kept until project wrap-up in Phase 8. If the project records are to be audited in an outside office, the records will be transferred to that location only after the Engineering Audit Section has logged in the records.

Audit Phase 2 Actions

1. Engineering Audit personnel log in project records delivered by Bureau of Construction field personnel, completing Part A and Part B of the Project Log sheet contained in Appendix A, noting the date when the records have been turned in for storage and/or for auditing. Project records turned in prior to the project work being finished on a project will only have the storage date noted. Incomplete records turned in for finished projects will also only have the storage date noted until the missing information is received, at which point the in for audit date will be entered. Complete records turned in for finished projects will have the same date entered for in for storage and in for audit.

2. The Verification for Certificates of Compliance sheet contained in Appendix B is completed during project log in.

3. The Project Log sheet is forwarded to the Supervisor for review and then to the Chief, who updates the Project Tracking Database and places the Log sheet in the Received Projects book.

4. The project records are placed in one or more storage bin locations, as needed, by the person logging in the records, and the bin slot(s) used is noted on Part A of the log sheet.

5. The person logging in the records moves the project folder in Audit from the ‘Projects in Construction’ file to the ‘Projects in Audit’ file.

6. The mylars for the project plans, if available, are obtained from the Bureau of Bridge Design and/or Highway Design (Final Design or Consultant Design), and the right-of-way plans, if available, are obtained from the Bureau of Right of Way by the person logging in the records. The mylars are placed in the tub and the tub slot(s) used is noted on Part A of the log sheet.

7. The person logging in the records separates federal payrolls out from the records, and the payrolls are forwarded to the Labor Compliance Office at Human Resources for approval.

8. The person logging in the records or the Supervisor notifies the CMS Technical Support Specialist that the project has been turned into Engineering Audit, so a final CMS update can be made.

9. The secretarial staff in the Bureau of Construction is notified by the Supervisor or Chief that the records for the project have been turned into Audit.

10. The Supervisor or Chief requests the initial Worksheet #1 electronically from Mainframe Operations.

11. The Supervisor or Chief assigns the project to an Engineering Auditor.

Pre-Audit Records Review

Phase 3 of the Engineering Audit Process involves the preliminary work that is necessary to prepare for the actual audit completed in the next phase. The Auditor becomes familiarized with all the records and plans associated with a project during this phase. The Auditor, in an efficient and effective manner as possible, completes all of the tasks below before performing a detailed audit. As determined by the Auditor, some of the activities in this phase can be postponed and incorporated into Phase 4, when the detailed auditing is done, if it better facilitates understanding of the project and completion of the audit.

Audit Phase 3 Actions

1. The supplementary specifications, special provisions, and prosecution of work in the project contract are reviewed.

2. The correspondence file and the daily reports are reviewed.

3. The field record plans and cross-sections are reviewed.

4. The general notes in the Record Book are checked. The general notes are referenced to the item summary pages and the field notebook pages where applicable.

5. Any other material associated with the project is examined for its relevance to the audit.

6. The Audit Reference Log sheet contained in Appendix C or a similarly constructed list on a blank sheet of paper is used to note any issues or potential questions that are identified during the preliminary review.

Project Records Audit

The Auditor conducts a detailed audit of the project records in Phase 4 of the Engineering Audit Process. For large projects, a team of auditors could accomplish the auditing of the various items in a project. The recommended or typical number of workdays for the Auditor to audit a project, based on the final dollar value of a project, as shown below.

Project Total Dollar Value	Typical # of Workdays to Complete Audit
Up to $50,000	1
$50,000 to $500,000	1 to 5
$500,000 to $1 Million	6 to 10
$1 Million to $3 Million	11 to 15
$3 Million to $6 Million	16 to 20
$6 Million to $10 Million	21 to 25
Over $10 Million	Approximate # of Days = Value/$400,000

The Engineering Audit consists of a study, an analysis, and an investigation of construction project records. The Auditor should look for backup data, source notes, cross-references, etc., for every entry in the Record Book. It is not sufficient to just mechanically check computations. The Auditor should understand the intent of the project plans and specifications when checking the records. The Auditor follows the steps below to complete the audit, unless directed otherwise by the Supervisor or Chief.

Audit Phase 4 Actions

1. The Auditor chooses a colored pencil that will be used throughout the audit. The color should be different than any color used by field personnel or another Auditor on the same project. THE AUDITOR WILL NOT USE RED except for the standard red color used for preparation of any As-Built plans in the next phase of the audit.

2. Using the colored pencil chosen, the Auditor signs and dates the Record Book title page at the front of the Record Book.

3. Each pay item in the contract is reviewed and analyzed in the audit. The Auditing Guidelines in Appendix D summarize important points to consider in the audit for numerous, but not all pay items, and the Guidelines should be referred to as needed while auditing the records. Also, the method of measurement and basis of payment in the standard specifications or special provisions of the contract must be checked. Carefully check any item designated as a final pay quantity (F), ensuring Standard Specification 109.11 has been followed for computing the (F) item quantity.

Minor adjustments to non-conforming decimal payments do not necessarily need to be made. These should be referred to the Supervisor or the Chief for disposition.

4. All computations in the Record Book are checked and marked by the chosen colored pencil. Make no erasures of any notes on slips, the Record Plans, the Record Book or any other records turned in by the Contract Administrator. Prior to changing figures in the Record Book, redo the computation on a separate sheet or on a photocopy of the record page. A major error found will require a change on the record book page. DO NOT MUTILATE THE RECORD BOOK FOR MINOR DISCREPANCIES. Where a figure may be slightly incorrect mathematically, but not off enough to make a significant difference in the total, write 'OK' beside it instead of a check mark. All work performed on computation sheets is dated and identified with project name and number, and sheet totals and entries in the Record Book must be cross-referenced 'To' and 'From'. Another auditor or the Supervisor should check changes made in the record book from the audit, and this check is referred to as a BACK-CHECK.

5. When an entry in the Record Book has been eliminated, a note of explanation showing the source of the change is added on that line.

6. When making corrections, cross out the whole figure, not individual digits.

CORRECT:	255.2	INCORRECT:	5.2
	~~258.2~~		25~~8.2~~

7. When pages in the Record Book are prepared by Engineering Audit they are to be marked with the following: (These pages may be in pencil)

   (A) "This page prepared in Engineering Audit"

   (B) Computed by _____ Date_____
   Checked by _____ Date_____

   (C) Project name and number in the upper left hand corner.
   EXAMPLE: Pittsfield-Barnstead, RF-F-123-1(8), P-7440-B.

   (D) Page numbers to be sequential to item numbering system - see Construction Manual, Section 803.

8. In many instances, the Record Book item totals will not agree with the quantity book totals in CMS. Some entries in the computer may not have been entered in the Record Book. Refer to the quantity book in CMS for missing entries. Missing entries found in the quantity book should be reviewed with the Contract Administrator and/or the Supervisor prior to entering them in the Record Book. There may be a reason why the entries were not brought forward to the record book.

9. Use the Audit Reference Log in Appendix C or a notepad to record questions regarding contract pay items, pay limits, weight slips, special provisions, etc., which will later be answered by the Contract Administrator. Each page used will be identified with the project name and auditor recording the problems. Each question and problem will be further identified as to item number,

general note number, or any other source data. Questions should be detailed enough so that someone else could take over and not have to spend time determining what the questions mean. Questions should be answered in the records in such a way that the same question should not occur again.

10. DIGITIZING - The use of the digitizer is one accepted method of determining final excavation volumes. A digitizer, which measures areas in square inches, is available in the Engineering Audit Office. Most of the digitizing will be done on rolls or cross-section sheets with various scales, depending on whether the project is in English or Metric units. When checking digitizing done by others, locate the limits used originally and re-digitize the area. The reading should be within 0.05 square inches to be an accurate check, or the accuracy must be within good engineering judgment, in which case the term 'OK' is used. When checking digitized areas and a consistent discrepancy is found, either always higher or lower than the original, the Supervisor should be informed and the cause determined. Do not compute the final quantity sheets until the digitized areas have been back-checked. Determine the correct scale of the work before computing the quantities. For digitizing plan and cross section areas use the following conversions.

    N in^2 x **C** ft^2/in^2 (m^2/in^2) = **A** ft^2 (m^2)

    N = number of in^2 digitized; **C** = conversion factor; **A** = area ft^2 (m^2)

    For example:
    Digitized 6.32 inches of common excavation on a 20 scale x-section.
    Area of excavation at that section:
    N in^2 x C ft^2/in^2 = A ft^2
    6.32 in^2 x 400 ft^2/in2 = 2,528 ft^2

English	Conversion Factor (C)
1" = 10' (10 scale)	100 ft^2 / in^2
1" = 20' (20 scale)	400 ft^2 / in^2
1" = 50' (50 scale)	2500 ft^2 / in^2

Metric	Conversion Factor (C)
1:50	1.61 m^2 / in^2
1:100	6.45 m^2 / in^2
1:25	40.32 m^2 / in^2
1:500	161.29 m^2 / in^2

11. When the audit on a pay item is completed, the Item Total on the record book page is marked with a checkmark or a corrected total, indicating that the item has been audited. All checkmarks or corrected item totals are made using the colored pencil chosen by the Auditor.

12. Once all the items in the project have been audited, Worksheet #1 is completed in accordance with the following instructions:

    Worksheet #1 Preliminary Tasks

- Check the quantity book in CMS to see that everything has been accounted for, such as supplementary agreements, extra work orders, etc.

Project Records Audit (Cont.)

- Check all project field notebooks to see that the appropriate check has been made in the upper right hand corner of the page showing that all items on that page have been checked and brought forward to the Record Book.
- Check the storage bin(s) for the project to be sure everything is accounted for, such as drainage rolls, bridge rolls, etc.
- Check that all general notes are accounted for and cross-referenced.

Worksheet #1 Preparation

- All quantity items filled in under the "THIS FINAL" column, using the summary pages in the Record Book. For items not used, enter a 0.00 in the "THIS FINAL" column.
- Added items - check entries under per specifications, supplementary agreements and extra work. Write item number, description of work, unit, and price. Contract quantity must be 0.00 for all added items that have $ (dollars) units.
- Unit items entered as 1.00, not 100%.
- Money ($) items entered as money total. Do not use lump sum.
- Submit Worksheet #1 to the Data Processing office with a signed cover sheet (Appendix E).
- When the worksheet is returned, be sure that the Computer output's "LAST FINAL" column agrees with Record Book entries.
- An asterisk (*) on a "LAST FINAL" entry indicates a possible error in the decimal of a unit.
- On subsequently revised finals, only the revised amount(s) are entered in the "THIS FINAL" column and resubmitted to the Data Processing office.

As-Built Plans Completion

The As-Built Plans for projects that have record plans are completed in Phase 5 of the Engineering Audit Process. The mylars obtained in Phase 2 are used to prepare the As-Built plans. Some projects do not have As-Built plans and for other projects, such as bridge projects, the preparation of the As-Built plans may not be necessary. If the As-Built Plans are for a bridge, they are returned to Bridge Design. Otherwise, the As-Built Plans are archived with the records. The preparation of As-Built plans is done to ensure that the archived plans contain accurate information.

Audit Phase 5 Actions

The following procedures will be used in the preparation of the As-Built plans. All pertinent information will be transferred from the Contract Administrator's Record Plans to the original drawings. Many original project plan sheets will not have enough physical space to apply all the information needed. In these cases, a new sheet will be prepared for the As-built information. Right-of-Way bound locations, underground utilities layout and summary sheets are some areas that may need new sheets. All changes and additions will be made with a standard red color, either No. 921 Vermilion Red or No. 924 Crimson Red by Berol Prismacolor. The following is a list of items that will need to be checked for changes. Each of these items will be addressed herein separately.

1. FRONT SHEET
2. TYPICAL SHEETS
3. SUMMARY SHEETS
4. BRIDGE SHEETS
5. ROADWAY SHEETS
    A. General
    B. Drainage Pipe and Ditches
    C. Slope Lines and Clearing & Grubbing
    D. Driveways, Guard Rail, Fencing, Curbing and Stone Walls
    E. Profiles
    F. Right-of-Way Bounds
    G. Underground Utilities

AS-BUILT PROCEDURES

1. FRONT SHEET

    A. At bottom center – letter AS-BUILT PLANS 3/8" high.

    B. At bottom center underneath AS-BUILT PLANS – letter DATE 3/16" high.

2. TYPICAL SHEETS

    A. Show changes in stationing of base courses and pavement.

    B. Show changes in widths and depths of base courses and pavement.

3. SUMMARY SHEETS

    A. To make changes, line out original numbers and letter in new.

    B. For totals, letter in "As-built Totals" in line above, or next to, totals.

    C. Change stationing, lengths and totals for:

        1. Drainage

        2. Fencing

        3. Guardrail

        4. Curbing

        5. Conduit

4. BRIDGE SHEETS

    A. Show changes in actual ledge location at abutments.

    B. Show revisions in footings, wings and abutment concrete volumes.

    C. Revise bridge summaries.

5. ROADWAY SHEETS

    A. GENERAL

        1. To note changes, line out original note and letter new information.

        2. On left center of page letter in appropriate survey book and page for bounds.

        3. Add "AS-BUILT PLANS" 3/16" high on right side of page above title block.

        4. Do not plot physical changes of less than 10 feet.

B. DRAINAGE PIPES AND DITCHES

1. Check each drainage run from field books. Indicate and plot any existing drainage found and located by Construction personnel. Find appropriate drainage note on flat plans and make the following changes:

   a. As each run is checked, darken the dashed pipeline in red. If pipes, C.B.'s, headers, etc. have been moved, show new locations. If they have been deleted, than X out run.

   b. Removal items, if removed, show ☑ on note. If not removed, use word DELETED on note.

   c. Correct stationing and offset distances.

   d. Correct length and type of pipe.

2. Inlet and outlet ditches, check the note. If not built, line out note and write DELETED. Same for stone lining. Show ditches added or changed, include whether they are stone lined or not.

C. SLOPE LINES AND CLEARING & GRUBBING

1. From final cross-sections and record plans, plot any major revised slope lines and clearing & grubbing lines.

D. DRIVEWAYS, GUARDRAIL, FENCING, CURBING AND STONE WALLS

1. From field books and record plans, check all drives, guardrail, fencing, curbing and stonewalls.

2. Correct stations and offsets and show changes as needed.

E. PROFILES

1. When there is a grade change, cross out existing grade and write new grade elevation above the old one.

2. Change grade percents, but do not change grade line unless change is more than 1 foot. Show base course depth changes.

F. RIGHT OF WAY BOUNDS

1. From survey book find bounds that were located as set.

2. The original note for the bound on the flat plan is to be left intact.

3. Add a new note for each bound.

EXAMPLE:

BOUND AT STATION 75+50.40 RIGHT 99.97 ′

4. If a bound is deleted, write DELETED on the original bound note.

G. UNDERGROUND UTILITIES

1. Check and correct all conduit location, type and sizes installed during construction.

2. Record all utilities constructed by others. These will show on the Contract Administrator's Record Plans.

Supervisory Review

The Audit Supervisor conducts a review of the completed audit in Phase 6 of the Engineering Audit Process. The review concentrates on any changes made in the quantities and in ensuring that the records are complete, so the Final Estimate can be prepared in the next phase. The Supervisor performs the following tasks, preparing written notes during this review if needed.

Audit Phase 6 Actions

1. Verifies that a signed completion certificate has been received.

2. Checks the daily rate used by the Bureau of Construction if liquidated damages are assessed. (See page 71 of the Standard Specifications.) Liquidated damages are entered on Worksheet #1 as Item 900 with the number of days being negative.

3. Accounts for all general notes.

4. Determines if all questions by Audit personnel have been answered.

5. Ensures that all items have been checked.

6. Reviews project items that fall into one of the following categories:

   - Excavation quantities for all item numbers starting with 203, 206, 207 and 504;
   - Police and flagger quantities for item numbers starting with 618;
   - Quantities for final pay (F) items that vary from the bid amount;
   - Supplemental Agreement and Alteration Order quantities and item numbers;
   - QC/QA pay adjustments;
   - Items paid by force account method including Item 699, Items 1002 through 1009, Extra Work Orders and Per Specification work;
   - Items with quantity adjustments made by the Auditor not already covered above.

7. Confirms that all certificates of compliance have been received.

8. Contacts the Contract Administrator to tell him/her the final quantities are all set and asks if he/she would like to review them.

9. Any changes made during this review are entered by the Supervisor into the Record Book and back-checked. If changes are made, the Supervisor or Auditor resubmits Worksheet #1 with the changes.

10. **CMS Update:** If the project is in CMS, the Auditor and/or Supervisor adjusts item quantities in the CMS Quantity Book and Record Book resulting from the audit.

11. **Record Quality Score:** The project records are evaluated and scored based on the criteria in Appendix H by the Auditor and/or Supervisor. The Chief enters the score into the Audit Database and ranks the project by score and by category for a given time period, usually a year. Scoresheets are stored in the Accepted Projects binder for the year it was accepted for audit.

Final Estimate Process

The Final Estimate is prepared in Phase 7 of the Engineering Audit Process, and it is submitted to the Bureau of Construction. The Final Estimate will not be prepared if there are any known outstanding or unresolved issues that could lead to revisions of the Final Estimate. Nevertheless, revisions to the Final Estimate may still be necessary after its submission to obtain Contractor acceptance. This phase extends until the Contractor, who is given 60 days to review the Final Estimate, accepts final payment; however, longer periods can elapse if the Contractor disputes quantities or makes a claim. Dispute resolution may be needed to settle disagreements on the quantities.

Audit Phase 7 Actions

Preparation of the Final Estimate – The Supervisor determines if a partial estimate was paid while the project records resided in Audit. If a partial estimate had been processed, then a new Worksheet #1 is requested to get updated quantities and dates. Once a current worksheet is obtained, a final request is made to the Bureau of Finance and Contracts by the Chief either via email or on paper using the first page of the last partial estimate. The final request should include the project name, number and estimate date range, which is from the day after the last paid estimate to the current date.

Submission of the Final Estimate to Construction – The Supervisor reviews the Final Estimate for errors upon its receipt from Finance & Contracts. The Final estimate should consist of 2 copies of the Final Estimate, 1 copy of the Balance and Excess Report, 1 copy of the Fuel Usage Summary and 1 copy of the Final Breakdown Summary. Correct Final Estimates are signed and dated by the Supervisor and Chief. The Final Estimate is forwarded to the Bureau of Construction with the memorandum in Appendix F.

Revising the Final Estimate - On Worksheet #1 the items to be revised are written under the "New Final" column. The word CORRECTION is written in large red letters at the upper center of Worksheet #1 and on the worksheet cover sheet (Appendix E). The worksheet with the cover sheet is submitted to the Data Processing office. When the worksheet is returned, Page 1 of the previously printed Final Estimate is submitted to Finance & Contracts, with the date range revised.

Dispute Resolution - If dispute resolution is needed, the Supervisor or Chief should schedule a meeting to include the following personnel as needed: Contractor or Contractor's representative, District Construction Engineer, Contract Administrator, and personnel involved in the Audit. The meeting should be a forum where all facts and views regarding the issue under discussion are presented, so a resolution consistent with the plans and specifications can be reached. The Chief will present unresolved issues to the Bureau of Construction Administrator for guidance.

Database Update - The Chief updates the database with the dates that the Final Estimate was submitted to Finance & Contracts and the Bureau of Construction. The date the Final Estimate was signed by the Chief is also recorded. If a revision to the Final estimate was needed, this is noted in the database. The dollar amount on the Final Estimate, the dollar amount of Retainage on the Final Estimate and the total dollar cost of the project are recorded in the database when the Final Estimate is sent to the Bureau of Construction.

Project Records Wrap-Up

Phase 8, which begins when the Contractor has accepted the final payment, is the culmination of the Engineering Audit Process. This phase involves the preparation of the project records for Archives. The records are divided into several categories, based upon how long they will be retained in storage. Some records are discarded during the wrap-up, some records are kept for a pre-determined number of years and certain records are kept permanently.

Audit Phase 8 Actions

1. The Supervisor or Chief assigns projects for wrap-up to the Engineering Audit staff.

2. The project to be wrapped is assigned an Archive Box Number. The Archive Box Number is the next number in sequence from the last archived project as shown in the Audit Database or Accepted Project binder for the current year.

3. The assigned staff member completes the project wrap-up using the Wrap-Up Guide sheet contained in Appendix G and also completes the wrap-up information in Part C of the original Project Log sheet. The project records are organized into various code groups for storage, based on the retention schedule. Most records are stored in manila envelopes that are placed in cardboard boxes. Each envelope is labeled with the contents, the project name and number, the Archive Box Number, and the retention code. Each box is labeled using a large ink marker with the project name and number along with the Archive Box Number using a small card (about 4 inches square) taped to each box.

4. After the records have been prepared, the Records Section of Highway Design is contacted, so they may pick up the records for archiving.

5. The Wrap-Up Guide sheet and original Project Log sheet are forwarded to the Chief for updating of the Project Tracking Database.

6. The Wrap-Up Guide sheet and original Project Log sheet are placed in the Accepted Projects binder for the current year.

APPENDICES

A to H

Project Log

Part A

PROJECT NAME: _____ **STATE NUMBER:** _____
IN STORAGE DATE: ____/____/____ **BIN NUMBER:** _____
IN AUDIT DATE: ____/____/____ **TUB NUMBER:** _____

Part B

☐ CMS PROGRAM MANAGER NOTIFIED ☐ No ☐ Yes ☐ Non-CMS Project
☐ LAST PAID ESTIMATE #____ End Date ____/____/____
☐ RECORD BOOK Number of Books ____
☐ RECORD PLANS Number of Rolls ____
☐ CONTRACT
☐ PAVING SLIPS
☐ CONCRETE SLIPS
☐ LAB REPORTS
☐ ROAD FIELDBOOKS Number of Books ____
☐ BRIDGE FIELDBOOKS Number of Books ____
☐ DRAINAGE FIELDBOOKS Number of Books ____
☐ LIGHTING FIELDBOOKS Number of Books ____
☐ OTHER FIELDBOOKS Number of Books ____
☐ ROADWAY ROLLS Number of Rolls ____
☐ LEDGE ROLLS Number of Rolls ____
☐ DRAINAGE ROLLS Number of Rolls ____
☐ BRIDGE ROLLS Number of Rolls ____
☐ OTHER ROLLS Number of Rolls ____
☐ CORRESPONDENCE FILE
☐ DESIGN COMPUTATIONS
☐ DAILY REPORTS ☐ Paper ☐ Electronic (CMS)
☐ SURVEY BOOKS Number of Books ____ **(Send to Survey Section)**
☐ VIDEOS OR PHOTOS **(Send to Construction Office)**
☐ FEDERAL PAYROLLS & LOGSHEET **(Send to Labor Compliance Office)**
☐ SIGNED SUMMARY OF NONCONFORMING MATERIALS SHEET
☐ CERTIFICATES OF COMPLIANCE ☐ In Record Book ☐ In Separate Folder
☐ CERTIFICATES OF COMPLIANCE VERIFICATION SIGNED BY C.A.
☐ CERTIFICATES OF COMPLIANCE CHECKED BY AUDIT Date Checked ____/____/____
☐ INITIAL WORKSHEET #1 REQUESTED Date Requested ____/____/____

Part C

WRAP-UP OF PROJECT → COMPLETE "RECORDS WRAP-UP GUIDE" FORM
WRAP-UP DATE ____/____/____ **BY:** _____ **BOX #**_____
TO: **Records Section**

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
CONSTRUCTION BUREAU
ENGINEERING AUDIT SECTION

VERIFICATION
FOR
CERTIFICATES OF COMPLIANCE

PROJECT NAME _____

PROJECT NUMBER _____

I VERIFY THAT ALL CERTIFICATES OF COMPLIANCE HAVE BEEN SUBMITTED AS PART OF THE PROJECT RECORDS.

_____

CONTRACT ADMINISTRATOR DATE

_____

REVIEWED BY ENGINEERING AUDIT DATE

Appendix C

Audit Reference Log

Project: _____ Auditor:_____

SOURCE	REMARKS OR NOTES (Items should be listed here then crossed out when taken care of.)	REFER TO R.B. PAGE NO.

Division 100 – General Provisions

- If item is paid as a Final Pay Quantity (F) item, then check if payment complies with Standard Specification 109.11.

Extra Work/Change Orders

- Account for all supplementary agreement items added by an alteration order.
- Check required signature on Supplementary Agreements, based on total estimated value:
  - Value up to $10,000 - signed by Contract Administrator.
  - Value from $10,000 to $50,000 - signed by District Construction Engineer.
  - Value above $50,000 - signed by the Director of Project Development.
- Check that Daily Reports of Extra Work are completed including labor, materials and equipment with computations made in accordance with the Special Provision, if applicable, and Section 109.04 in the Standard Specifications.
- Review labor burden rates to determine if they are justified or are excessive.
- Check the Blue Book regional adjustment factor used for equipment computation (0.95).
- Ensure the Daily Reports for specialized work paid as extra work are included in the Record Book and have 15% added to the total invoice.
- Ensure Daily Reports for approved subcontractor completing extra work have 5% added.

0.80, 0.81, 0.82, Etc. Per Specifications Extra Work

- Review for work that falls under this category including trimming trees, calcium chloride, roadside cleanup, and value engineering.
- Refer to the Standard Specification 104.15 for value engineering proposals.
- Check that extra work is paid using the Daily Report of Extra Work form.
- Ensure the Daily Reports of Extra Work are in the Record Book with the Contract Administrator's signature.

Division 200 - Earthwork Items

- Review design quantity computations and compare with final computations. Large discrepancies must be resolved.
- Review quantities entered in the Record Book as "Built Per Plan" and the design calculations included as back up in the Record Book.

201 Clearing and Grubbing

- Ensure trees and stumps paid for are outside the clearing and grubbing limits.
- Ensure stumps show measurements, and if removing stumps is not an item in the contract, see Spec. 201.5.2.1.

203.1 Common Excavation

- In ledge areas, check the template for correct backslope from subgrade.
- Ensure that line and grade changes are clearly defined.
- Drives and approaches should be clearly defined for excavation. On the cross-sections, write the field notebook page number and the Record Book page number where it is computed.
- Check that the muck is plotted on the record cross-sections. Limits are based on a 1:1 slope from shoulder break to the bottom of the existing muck; see Standard Sheet EW-1, unless the Contract Administrator or plans allowed a deviation.

- Check for pay limits from field notes regarding unsuitable excavation, topsoil, muck, and abandoned roadway and check Record Book and cross-sections for any double payment.
- Digitize the cross-sections to the template lines, with earth and ledge together including any overbreakage areas, if applicable.
- Ensure that odd plus stations are correctly indicated and computed.
- Ensure all original odd stations taken for original quantities are used in final computations.
- Check for overlap or gaps between cross-sections and flat plans. Match lines in excavations should cover the entire area without duplicating quantities.
- Adjust excavations on sharp radius curves for radial sections - use radial section form.

203.2 Rock Excavation

- Check the typical and specifications.
- Check the template on all sections, ledge rolls and cross-sections.
- Ensure presplit ledge areas are defined - station to station, left or right.
- Ensure no payment is made beyond the presplit line unless authorized by specific general note that identifies additional limits by station.
- Presplit holes – ensure pay length equals original ledge to subgrade.
- Non-presplit ledge – ensure maximum 24" (600 mm) overbreakage, measured horizontally, not exceeded.
- Check that overbreakage backslope extends to subgrade elevation.
- Boulders – check out of section portion added to common excavation. If boulder measures 2 c.y. (1.5 m3) or greater, pay as Item 203.2.
- If no rock excavation item is in contract, check that payment is made per specification under Item 203.2 at a price of 5 times the contract price for common excavation.
- Ensure rock excavation is deducted from combined total excavation.
- Check that all deducted rock is included in combined quantity and note any exceptions to this case.

203.6 Embankment-in-Place

- Check for any changes made to old ground or to the final template because it could result in a change to embankment-in-place quantity.
- Refer to the Earthwork Summary for items to be included in the embankment-in-place item.

206.1 Common Structure Excavation

- Check for subsidiary limits for all items that this item is involved with. Items 603, 604, 605, etc. Example: pipes = 9 feet (2.7 meters).
- Review closely for upper and lower limits. If within roadway limits, then the subgrade is upper limit. Over 9 feet (2.7 m) excavation is paid the actual quantity.
- Review each drainage run in its entirety prior to auditing another run.
- Check each page in the field notebook's top right corner that the audited quantities have been carried to the summary pages of the various items involved.
- Ensure exploratory excavation is clearly noted by Contract Administrator, and paid per specification under Item 206.19 at 5 times the unit price of the class of excavation encountered.
- Check drainage summary for design intent. Excavation for stone fill items and/or ditches is generally paid under item of excavation being performed, i.e., channel - paid as channel excavation, ditch in a cut area - common excavation.

- Check for changed elevations - Lowering the elevation of a planned pipe more than one foot (300 mm) requires payment of common structure excavation, except underdrain pipe.
- When unsuitable material is removed, refer to spec 206.4.1.1 for the correct limits of payment.

206.2 Rock Structure Excavation

- If not in the contract, check that any excavation is paid under Item 206.2 per specification at a price of 5 times the bid price of Item 206.1.
- Check the subgrade elevations used for cross pipe excavation quantities.
- Check that the outside bottom of the sump is used as the lower limit for catch basin, drop inlet, and manhole excavations.
- Ensure that the underdrain excavation limit is 0.5 feet (150 mm) below flow line elevation in ledge.
- Ensure that the cross pipe excavation is 1.0 foot (300 mm) below the bottom of the pipe in ledge.
- Check that all solid rock encountered within the limits specified by Spec. 206.4.1.1 is measured for payment.

Division 300 - Base Courses

- Check drive quantities.
- Review the general notes, record sections, record profiles, and field notebooks for changes affecting base materials i.e., ledge section changes, excavation depth changes and unsuitable material removed in cut sections.
- Check crushed gravel for shoulder leveling, which is measured by the cubic meter (cubic yard) determined by using 80% of the loose volume of material measured in vehicles.

Division 400 - Pavements

403 and 411 Plant Mixes

- Check that hot bituminous pavement slips are identified as to project name and number.
- Check that roadway and bridge splits are cross-referenced in both Record Books.
- Verify that other projects are cross-referenced in both Record Books.
- Account for notes on individual slips.
- Check computations for tonnage deducted from the slip totals. Ensure reasons for deductions are clearly stated.
- Run an adding machine tape of the tonnage for each day's slips when inaccuracies are found or splits are made.
- If pavement is QC/QA, check that pay adjustments have been computed for Quality of Hot Bituminous Pavement (Item 51.400 or 1010.3) and Quality of Ride Smoothness (Item 51.401 or 1010.4). See the Special Provisions in the contract for QC/QA information.

410 and 413 Bituminous Surface Materials

- Ensure that delivery slips are in order and identified with project name and number.
- Check that split loads to other projects are noted in the Record Book and verified with other project records.
- Ensure deductions recorded in Record Book.

Division 500 – Structures

502 Removal of Existing Bridge Structure

- Check bridge plans closely for limits, both horizontal and elevation of removal, and show those limits on any sections so that duplication of payment under another item will not occur.

504 Bridge Excavation

- Soil excavation more than one foot below the plan elevation or assumed bedrock elevation is paid at 150% of the bid price of the appropriate bridge excavation under Item 504.4131 per specification.
- Ensure no payment for bedrock excavation more than one foot below plan elevation is made.
- If plan elevation not clearly indicated on bridge plans, check with Supervisor for determination of correct elevation.
- Material removed from existing structures is considered bridge excavation if not paid under Item 502.
- If no item for rock bridge excavation, rock removed is paid at 5 times the contract price for common bridge excavation under Item 504.2 per specification.

510 Bearing Piles

- Pile record should be analyzed completely for correct pay quantities under this item.
- Steel pile cut-off material will be paid for at the invoice costs plus 15 percent.

520. Portland Cement Concrete

- Check class of concrete for computation limits and unit of measure.
- Compute tapered volumes by the prismoidal formula $V=L/6(A_o + 4A_m + A_l)$.
- Class T concrete may be computed based on the actual yield as determined in the field, instead of computing to the neat lines as shown on the plans.
- Concrete calculations -– Do not make calculation changes in field records until reviewed by Supervisor.
- If concrete is QC/QA, check that the pay adjustment has been computed and paid under Item 51.510 or 1010.41. Refer to the Special Provisions in the contract for the correct methods of calculating the pay adjustment.

582 Slope Paving

- All items relative to slope paving except granular backfill and concrete sealer are subsidiary.

583, 585, 586 and 587.1 Stone Fill

- Excavation required to place these items paid as type of excavation performed.
- Gravel blanket material will be paid under Item 209.

Division 600 - Incidental Construction

603, 604 and 605 Drainage

- Review final sections, record flat plans, cross-sections, drainage rolls, field survey books, field notebooks, and design quantities.

- Review general notes for drainage information.
- Review each drainage run in its entirety prior to auditing other runs.
- Put a check mark on each item total in the field notebook to indicate the run has been checked, and a check mark on the upper right corner of the page to indicate the totals have been carried to the item summary page in the Record Book.
- When checking pipe runs in ledge areas, check ledge rolls to make sure height of ledge agrees with survey notes - ledge rolls help to determine the limits in ledge runs.
- Check measured lengths of pipes against flat plans – account for survey stationing equations.
- For a catch basin and manhole, up to the first 8 feet (2.5 m) equals one unit. Divide additional depth by 8 feet (2.5 m), add to the unit and round to the nearest tenth of a unit.
- For a drop inlet, up to the first 5 feet (1.5 m) equals one unit. Divide additional depth by 5 feet (1.5 m), add to the unit and round to the nearest tenth of a unit.
- Check that reconstructed CB's, DI's & manholes are measured to the nearest tenth of a foot (meter). At least 6 inches (150 mm) of reconstructing will be allowed in all cases.
- Check that field-measured depths go from the bottom of the frame to top of the base.
- When a unit is placed in excavated ledge, check that 1.358 c.y./ft. (3.3 m3/m) of excavation is paid if precast reinforced units are used or 1.564 c.y./ft. (3.80 m3/m) is paid if other standard units are used. Paid as item 206.2, rock structure excavation.
- Review the special CB's, DI's, and manholes details shown in the plans.
- Ensure no payment is made for excavation or granular backfill below the outside bottom of the base unless specifically ordered by the Contract Administrator.

606 and 607 Guardrail & Fence

- Check plans for design lengths (or number of units) against measured lengths (or number of units) from field notebooks.
- Ensure any differences explained in Record Book.
- Check the general notes for pertinent changes.
- Check that hot bituminous base courses placed adjacent to concrete barrier are paid for under 403.12.
- Ensure that clearing for fence lines item are accounted for under Item 201.6.

608. Sidewalks

- Check all base course material for payment.

609. Curb

- Check design quantities against measured lengths from field notebooks, for inconsistencies.
- Bituminous curb - check all paving slips for possible double payment where split loads were used.

614. Electrical Conduit

- Check for proper upper limit of excavation.
- Check that unsuitable excavation, earth excavation over 9 feet (2.7 m), and all rock excavation are paid under Item 206.

618. Flaggers & Uniformed Officers

- Check that flaggers are paid by the actual hours authorized, as recorded in the records.

- Check that uniformed officers and uniformed officers with vehicles are paid for at the invoice price plus a 5 percent mark-up.
- Ensure the time reports and invoices are included in the Record Book.

619. Maintenance of Traffic

- Check that calcium chloride used for maintenance purposes is paid as extra work, materials + 15%. Labor and equipment is subsidiary.

622. Markers and Bounds

- Check that rock excavation for placement of bounds is paid as Per Spec. Extra Work, Item 0.80 series.

641. Loam

- Check all loam and humus computations prior to auditing any landscaping items (640 Items); seed, fertilizer, limestone and mulch.
- Check for overlap in loam and humus areas.
- Review the slope lengths and widths used for the method of measurement.

642. Limestone

- Check that limestone is paid based on delivery slips, not to exceed the rate ordered.

643. Fertilizer For Grasses

- Check that fertilizer is paid based on delivery slips or weight slips, not to exceed maximum rate specified, multiplied by the appropriate measurement factor from Table I, Spec. Book, page 515.

644. Grass Seed

- Check that grass seed is measured by the pound (kilogram), based on delivery slips, but not to exceed the rate specified or ordered.
- Determine if the Contract Administrator authorized excessive application.

645. Erosion Control

- Review computations for mulch on all loam and humus areas.

647. Humus

- Review the slope lengths and widths used for the method of measurement.
- Account for deductions for drives, sidewalks, stone fill areas, and work done under Item 699 or other pay items.
- Check that the humus depth is the typical 3-½ inches (90 mm).
- Check that excavations required to undercut slopes, in order to accommodate the material, are subsidiary.

698. Field Facilities

- Check that periods of less than one month are computed at the rate of 1/30 of the unit price per month for field offices and testing laboratories.

699. Temporary Project Water Pollution Control

- Review the specification thoroughly. Work under this item will be computed on a dollar basis like extra work; where work falls within the specifications for a contract item, a computation will be made using the appropriate quantity multiplied by the contract unit price.
- Ensure that the daily reports of extra work are in the Record Book with Contract Administrator's signature.
- Ensure that the invoices or billings for materials are in the Record Book.

Miscellaneous - Special Attentions

Asphalt Adjustment - 50.01 or 1010.2

- Check the contract for the asphalt adjustment special attention.
- The asphalt adjustment price is based on the actual month the pavement is placed.
- Monthly asphalt price letters are kept in a binder in Engineering Audit.
- Computations are automatically generated by the CMS system. Check the monthly quantity used, the asphalt factor, the monthly price and the fixed base price only.
- The asphalt factor is based on the job mix formula and not values from test results.
- There must be an increase or decrease greater than 10% of the fixed base price before any adjustment is to be paid.
- The asphalt adjustment summary page is included in the Record Book, whether or not adjustments were necessary.

Fuel Adjustments – Diesel 50.04 or 1010.11 and Gasoline 50.05 or 1010.12

- Check the contract for the fuel adjustment special attention.
- Monthly fuel price letters are kept in a binder in Engineering Audit.
- Computations are automatically generated by the CMS system. Check the monthly fuel price and fixed base price only.
- There must be an increase or decrease greater than 10% of the fixed base price before any adjustment is to be paid.
- No price adjustment is allowed beyond the Project completion date unless there is a Department-approved extension of time.
- The fuel adjustment summary pages (diesel and gasoline) are included in the Record Book, whether or not adjustments were necessary.

STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

TO Office of Information Technology

FROM Bureau of Construction
Engineering Audit Section

COVER SHEET for **WORKSHEET #1 - COMPUTATIONAL**
(Please run the attached worksheet data under WORKS1)

WORKSHEET TYPE:

- ☐ **Initial Worksheet**
- ☐ **Supervisor Worksheet**
- ☐ **Correction Worksheet**

Project Name: _____ Project Number: _____

Submitted By: _____ Date Submitted: _____
Engineering Audit Personnel

Please return completed worksheet to the Engineering Audit Section, Bureau of Construction

To be completed by Office of Information Technology Personnel:

Completed By: _____ Date Completed: _____
OIT Personnel

STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE:

FROM: Chief of Engineering Audit **AT:** Engineering Audit Section

SUBJECT: ☐ **INITIAL FINAL ESTIMATE**

☐ **REVISED FINAL ESTIMATE**

for

TO: Bureau of Construction

MEMORANDUM

Transmitted herein are the following documents:

1. Two copies of the Final Contract Estimate (one signed)
2. Engineer's Estimate of Balances and Excesses (signed)
3. Fuel Usage Summary
4. Final Breakdown Summary

According to the records in Engineering Audit, the status of required contract documents for this project that could affect release of the final payment is as follows. If your records indicate a different status than shown, please let us know.

Completion Certificate ☐ has been received ☐ has **not** been received

FHWA Form 47 ☐ is **not** required ☐ is required, **and**

☐ has been received

☐ has **not** been received

cc: file

Job Name:_____ Number: _____ Box:_____

Records Wrap-Up Guide

Appendix G

Date Mylars Scanned: _____

SAVE

	Sent to Records Section (No Code)
	- MYLAR PROJECT PLANS - except cross sections
	- MYLAR R.O.W. PLANS – Make sure plans are "recorded"
	Sent to Records Section (Code 01)
	- ORIGINAL PLAN CROSS SECTIONS
	Sent to Records Section w/Routing Slip (Code 03)
	- NUMBER OF SURVEY BOOKS _____
	Sent to Records Section (Code 05)
	- DRAINAGE AND GUARDRAIL DESIGN CALCULATIONS
	- FIELD NOTEBOOKS - manila envelope - # of books
	- RECORD BOOK - # of books
	- UTILITY AGREEMENTS / REPORTS / PLANS
	Sent to Records Section (Code 11)
	- BARRIER MEMBRANE INSPECTION REPORTS
	- BLASTING PLAN / LOG / REPORT
	- CERTIFICATES OF COMPLIANCE
	- CONCRETE DELIVERY SLIPS
	- CONTRACTOR'S DAILY REPORTS
	- CONTRACTORS SCHEDULE
	- DESIGN QUANTITIES / CALCULATIONS
	- DISPOSAL AGREEMENTS
	- EROSION CONTROL PLANS / REPORTS
	- EXTRA WORK
	- FABRICATED STEEL REPORTS
	- *FINALS FOLDER* – assemble and label manila file folder w/elastic
	- CONTRACT – C.A.'s COPY
	- FINAL ESTIMATE MEMORANDUM
	- LAST WORKSHEET #1-single spaced
	- FINAL PAYMENT LETTER TO BUDGET & FINANCE
	- SIGNED VERIFICATION - CERTIFICATES OF COMPLIANCE
	- SIGNED COMPLETION CERTIFICATE
	- ENGINEERING AUDIT NOTES / QUESTIONS
	- FLAGGER TICKETS
	- GRAVEL / LOAM DELIVERY SLIPS
	- HAZARDOUS WASTE DOCUMENTS
	- LAB BOOKS – keep on site testing
	- LABOR COMPLIANCE - field audit "background material"
	- MILL TEST REPORTS
	- PAINT TESTS / REPORTS
	- PAVING SLIPS
	- PAYROLLS (FEDERAL)
	- PILE DRIVING NOTES / PLANS
	- PRECAST INSPECTION REPORTS
	- QC / QA REPORTS
	- SHOP DRAWINGS
	- STONE DELIVERY SLIPS
	- UNIFORMED OFFICER INVOICES
	Sent to Records Section (Code 18)
	- RECORD PLANS (full scale or 1/2 scale) remove standard sheets

SAVE

	Sent to Construction (Construction Code 05)
	- ACCIDENT REPORTS
	- CORRESPONDENCE
	- ALL ORIGINALS /HANDWRITTEN NOTES / EMAILS
	- ALL FROM CONTRACT ADMINISTRATOR
	- ALL FROM CONTRACTORS
	Sent to Bridge Design (No Code)
	- MYLAR BRIDGE PLANS - return and log in bridge book
	- ALL RECORDS/SHOP DRAWINGS STAMPED
	"BRIDGE DESIGN" - send via messenger mail

TRASH

	- 699 FOLDER
	- B & E's
	- BLUE TOPS
	- COMPUTATIONS - ON SITE
	- COPIES OF CORRESPONDENCE
	- CORRESPONDENCE
	- INTER- DEPARTMENTAL
	- FROM DISTRICT CONSTRUCTION ENGINEER
	- FROM CONSTRUCTION OFFICE
	- TRANSMITTALS
	- FROM MATERIALS & RESEARCH
	- DOT DAILY REPORTS
	- ESTIMATES
	- GEOTECHNICAL REPORTS
	- MONTHLY ASPHALT & FUEL ADJ. PRICES
	- OJT
	- PAYROLLS (NON FEDERAL)
	- PIEZOMETER READINGS
	- PROJECT STAMP
	- R.O.W. PAPER PLANS / PROPOSALS
	- ROLLS- LEDGE, DRAINAGE, BRIDGE
	- SEED TAGS
	- SIDE STAKE NOTES
	- SLOPE INCLINOMETER READINGS
	- SUBCONTRACTOR APPROVALS
	- SURVEY FOLDER
	- TEMPERATURE CHARTS
	- WELDING QUALIFICATIONS

RECORDS RETAINAGE SCHEDULE
- No Code – Saved Permanently
- Code 01 – Saved 20 Years
- Code 03 – Saved Permanently
- Code 05 – Saved 50 Years
- Code 11 – Saved 4 Years
- Code 18 – Saved Permanently
- Construction Code 05 – Saved 10 Years

Records Quality Score Criteria

ACCURACY

4. No quantity errors found in the records
3. Only a few minor quantity errors found in the records
2. Many minor quantity errors found in the records
1. One significant quantity error found in the records
0. More than one significant quantity error found in the records

NEATNESS

4. Exceptionally neat and legible records
3. Mostly neat records, some exceptions
2. Average neatness
1. Neatness of records could use improvement
0. Sloppy records

EASE OF UNDERSTANDING

4. Records complete with notes and references leaving no questions unanswered
3. One or two instances where records caused questions about source entries
2. Several instances where records caused questions about source entries
1. Many instances of records being hard to understand leading to questions
0. Instances of incomprehensible records requiring rewriting

COMPLETENESS

4. All required records, entries and backup documents in the records
3. Only a few missing required records, entries and backup documents in the records
2. Many missing required records, entries and backup documents in the records
1. Records are barely complete enough to conduct audit
0. Records are so incomplete that audit cannot be completed

DELIVERY OF RECORDS

4. Project records delivered to Audit within 10 days of project completion date
3. Project records delivered to Audit from 11 to 30 days of project completion date
2. Project records delivered to Audit from 31 to 60 days of project completion date
1. Project records delivered to Audit from 61 to 90 days of project completion date
0. Project records delivered to Audit over 90 days from project completion date

CATEGORY OF PROJECT (Determined at end of year from actual projects amount ascending from lowest to highest project values)

Category 1. Project whose total value places it in the 0% to 20% range of project values
Category 2. Project whose total value places it in the 20% to 40% range of project values
Category 3. Project whose total value places it in the 40% to 60% range of project values
Category 4. Project whose total value places it in the 60% to 80% range of project values
Category 5. Project whose total value places it in the 80% to 100% range of project values

Appendix H

Records Quality Scoresheet

Project Name _____ Number_____

Scored By:_____

ACCURACY Score:_____

NEATNESS Score:_____

EASE OF UNDERSTANDING Score:_____

COMPLETENESS Score:_____

DELIVERY OF RECORDS Score:_____ Project Completion Date _____

Records Storage / In Audit Date _____

Difference in Days _____

Total Score:_____

PROJECT INFORMATION

Contract Administrator _____

Project Personnel _____

Project Personnel _____

Project Personnel _____

Project Personnel _____

Project Personnel _____

Project Personnel _____

Total Number of Items: _____

Final Value of Project: $_____

DOLLAR VALUE CATEGORY (circle one): **1** **2** **3** **4** **5**
(To be determined at the end of the year)