ROAD CONSTRUCTION QUALITY
Table of Contents

1. GENERAL

1.1 Purpose. The mission of the Road Construction Program is ".....to provide an adequate network of roads serving Indian Lands..."57 BIAM 1.1.

The BIA Roads function is to assure that roads are constructed by the most economical, efficient and safe method. The construction of a project, the work process, the quality, the costs, the inspection, the sampling and testing, the construction staking, and the final product, should not vary because of the method of construction.

DEFINITIONS

A. Process Review - A review of the construction procedures and the manner in which the laws, regulations and policies are adhered to and documented. Processes included are project planning, design and specifications, construction methods, quality control and audit procedures. For the purpose of Supplement 2 the latter three apply.

B. Quality Inspection Program - Written instructions for interim inspections and construction project monitoring procedures with respect to sampling, testing, certification of materials and accurate record keeping for quality assurance and conformance with plans and specifications.

C. Project Control - A daily inspection process to assure the road is constructed in reasonably close conformity with the plans and specifications. Project control requires a thorough knowledge of on-going operations, familiarity with construction methods, and the use of approved sampling procedures.

D. Force Account Management Review - A review of force account construction project management to assure adequate procedures and sound construction practices for the utilization of manpower, equipment and materials.

E. Audit - An indepth review of all documents pertaining to the finished road construction project to assure the work performed is according to the plans, specifications and estimates.

F. Evaluation - A review to determine if the road construction project met its planned objectives.

1.2 Responsibility - The responsibilities at each level of the Bureau's Road Construction Program for the assurance of Construction Quality (Table #1) are as follows:

A. Central Office - Performs an annual process review of the Area Offices. Performs a Force Account Management procedural review of the Area Offices which engage in force account construction. Reviews construction procedures on randomly selected projects with the Area Offices and recommends appropriate action when necessary. Depending on the magnitude of the deficiencies, a plan for remedial action will be transmitted from the Area Offices to Central Office within 60 days, unless immediate corrective action is required due to hazardous conditions. The plan for remedial action will include specific actions to be taken and time frames within which the action is to take place. The action plan will then be approved and monitored by the Central Office staff.

B. Area Offices - Initiates and utilizes a Quality Inspection Program for all road construction within their respective area. Performs a Force Account Management Procedural Review on all force account projects. Performs periodic inspections and final audit on all construction projects. Performs an evaluation of the finished project with the Agency and Tribe. Any deficiencies found will be subject to immediate corrective action by the appropriate official responsible for the construction quality of the project.

C. Agency Office - Performs all functions necessary for Project Quality Control on all phases of construction. Assists in performing an evaluation of the completed project with the Area Office and Tribal personnel.

NOTE: If Area Office Roads personnel performs all or part of the functions of the Agency office, then an individual not directly responsible for that function will perform the necessary review of the work.

TABLE No. 1

Performed By	Type of Work					
	Process Review	Quality Inspection Program	Project Control	Force Acct. Mgmt. Proced. Review	Audit	Evaluation
F H W A		X				
Central Office	X			X	Random review	Random review
Area Office		X		X	X	X
Agency Office			X	X	X	X
Tribe						X

1.3 Project Master File - A Project Master File shall be maintained on all road construction projects. The Project Master File shall consist of five sections; Planning, Design, Construction, Audit, and Evaluation. The Project Master File shall be maintained in the Area Office. All information and documents pertaining to a road project from the planning stage to the finished road shall be placed in the Project Master File or cross-indexed to the location where they are stored.

If the documents are not in the Project Master File, a memorandum will be inserted from the holder of the documents indicating where the information is located, the date, and the individual responsible for maintaining the documents. A check list (Illustration #1) shall be placed in the front of each section of the Project Master File. Entries shall be placed on the checklist that (1) indicate where the documents are being maintained and (2) date of entry of the documents into the Project Master File.

2. CONSTRUCTION

The following information is to be inserted into the PROJECT MASTER FILE under the construction section. Some of this information which is to be kept at the Agency location will require appropriate memorandum to the PROJECT MASTER FILE, construction section, indicating where the material is located, the date, and who is responsible for its safe keeping.

2.1 Notification of Construction Start - Source: Memorandum of Agreement, Section 13, "The Division Administrator will be notified by the Area Road Engineer of the date beginning construction..." This will be the first entry in the PROJECT MASTER FILE, construction section.

2.2 Inspections - Source: Memorandum of Agreement, Section 13, "... The Division Administrator will arrange for inspections to be made of the construction from time to time..." Each inspection by the FHWA and Area officials will be entered into the PROJECT MASTER FILE, construction section. If there are other project inspections made by personnel other than FHWA, these inspections will also be entered.

2.3 Correspondence - All correspondence that is pertinent and directly related to the project during construction will be filed.

2.4 Project Diary - The Project Engineer or individual in charge of the construction project shall maintain a diary which shall contain daily entries made and signed by himself. If the Project Engineer is absent from the project, the daily entries will be made and signed by the person in charge during his absence.

The project diary is one of the most important records made during the progress of the construction project whether it be by Force Account or Contract construction methods. Diary entries should, therefore, be factual, concise, complete, and legible. When properly maintained, the project diary provides invaluable information and evidence in the event of later controversies. Any information that has a bearing on any probable claim against the Government should be recorded in detail. The use of tape recorders, sketches and photographs during the construction of a road is considered very beneficial for documentation to the files.

The project diary is considered an official Government document. It is to be safeguarded and to be turned in with all other project records at the conclusion of a project.

2.5 Inspector's Daily Report - The inspector's daily report (Illustration #2) will be used at the discretion of the Area Road Engineer on all road construction projects. This means that some of the information presently contained in the Project Diary would also be maintained in the Inspector's Daily Reports. The major difference is, the Project Diary always contains information regarding discussions with the contractor or his representative and a narrative of the progress of the project. The Inspector's Daily Report contains specific day-to-day information in the project i.e., weather, locations and number of men and equipment working, and amount of production.

The Inspector's Daily Report of Construction Operations shall be used to document the details of all the construction and operations which require inspections for conformance with plans and specifications. This form will provide a concise, readily retrievable record of equipment time and man-hours for each significant construction operation underway at any worksite on the project. The record will facilitate verification of Contractor's costs in connection with equitable adjustments and claims.

The Inspector's Daily Records are to be filed in the PROJECT MASTER FILE, construction section at completion of the project.

2.6 Weekly Construction Report - The submission of weekly reports to the Area Roads Office by the officer in charge of the construction project will be at the discretion of each Area Contracting Officer or the Area Road Engineer. These reports have proven to be of considerable value in keeping the Area Road Engineer and Contracting Officer currently informed of the progress on the project.

Weekly reports are to be completed on the prescribed form shown in this manual supplemental (Illustration #3). The report generally covers the major portions of the project as follows:

A. Construction - The major items of work being performed during the reporting period and units of work accomplished.

B. Delays - Delays in the construction progress are in two categories, weather and other. Other delays are to be explained in the narrative portion of the report.

C. Working day summary - A current balance of authorized days remaining to project completion.

D. Equipment - Amount of major units of equipment on the project and the status of the equipment, i.e., idle, down for repair, removed from project.

E. Narrative - A brief summary of the overall progress of the projects which will include; problems on the project; instruction given to the contractor, and explanation of any delays.

2.7 Minimum Sampling Schedule - A minimum sampling schedule shall be used on all construction projects. As stated in the Design Section, the minimum sampling schedule shall contain sampling and testing requirements not less than the current FHWA Minimum Sampling Guide and will generally be included in the project specifications. (See Illustration #4).

The objective of the sampling and testing performed on construction projects is to ascertain whether materials used or proposed for use, and the construction work accomplished or in progress conform with project plans and specification requirements. Sufficient sampling and testing should be done to assure that the objective is accomplished. It is the Project Engineer's responsibility to see that all materials used in the work are approved and comply under the governing specifications. A materials sub-section should be maintained in the construction portion for the Project Master File for ready reference to project specification compliance.

2.8 Control Sheet for all Testing Compliance - A sampling and testing control sheet will be prepared for each project. This control sheet will indicate the minimum tests to be taken for each item of construction. This will assure adequate samples and tests during each phase of construction (See Illustration #5).

This control sheet and a tabulation of all tests results will be maintained and a copy submitted weekly to the Area Roads Office. Any tests that indicate non-compliance with the specifications will be retested. The individual test sheets shall be kept at the project until completion.

2.9 Materials Certificate - A certification of compliance as required for materials used in place in the permanent roadway shall be furnished by the contractor. The certifications may be retained by the Project Engineer at the project site, but must be cross-referenced in the Project Master File on a weekly basis.

2.10 Culvert Book - A culvert book is the primary source of field information and is to be kept in such a manner that others can readily use and interpret the recorded information.

The culvert book should have the record of structural excavation, if payment is provided.

All structure stakeout notes should be complete and detailed for each installation. Sketches are to be provided to show in detail what stakes were set and the information shown on each stake, including topography if necessary.

Sufficient space is to be provided in the book so that each stakeout has definite indexed pages for the data. The type of structure is to be described, i.e., cattleguard, culvert, reinforced concrete box culvert, bridge, catch basin, drop inlets, etc. Other structure data which is to be shown includes size, length, location, skew, heat numbers and manufacturer of steel products, dates of structure staking and dates the structure is installed or constructed. The quantities of rock, steel and/or concrete installed for slope protection, rip-rap or other are to be recorded for each installation.

These bound notebooks will be kept at the project site until completion of the project. After completion the notebooks will be sent to the Area Office for filing into the PROJECT MASTER FILE, construction section.

2.11 Weight or Yardage Tickets - All materials paid for on a ton (SF 5-1135) or yard basis shall be accounted for by a haul ticket for each load furnished. In preparing the tickets, it is important that each ticket be dated with project number and the surfacing contract number also shown. Each ticket should be signed by the BIA scalemaster and also signed by the BIA dumpman.

If both signatures do not appear on the ticket, the ticket should be considered void and the weight of the material thereon should not be included in the pay tonnage for the day's production. It is important that each ticket be properly prepared with legible printing.

One copy remains in the bound materials receipt book to be delivered to the Project Engineer when the book is complete. All receipts are to be accounted for, whether or not payment was made.

In addition, the inspector is to record the beginning number when a receipt book is put into use and the ending number of final issuance, to prevent difficulty in accounting for all tickets.

A copy of the ticket summaries may be sent to the Area Roads Office weekly for review and filing in the PROJECT MASTER FILE, construction section.

2.12 Asphalt - A record of asphalt delivered to the project must be kept in bound notebooks for payment purposes. This information is secured from a Bill of Lading, Vendor's Certificate or Manifest furnished with each load by the vendor, before unloading.

The documents should contain substantially the following information:

Project Designation	Type of Asphalt
Sp. Gravity	Gallonage
Loading Temperature	Name of Producer and/or Supplier
Weight Ticket	Certified Laboratory Analysis Indicating Specification Compliance
Tank Car No.	
Certificate Number	Seal Number

Each day the total applied quantities and plan quantities for that day's operation will be recorded on ticket summaries for plant mix asphalt, prime coat asphalt, road mix asphalt, seal coat asphalt, tack coat and bituminous stabilized base asphalt. A copy of the ticket summaries may be sent weekly to the Area Roads Office for review and filing into the PROJECT MASTER FILE, construction section. A copy of all tickets will be retained by the Project Engineer until completion of the project, then will be sent to the Area Roads Office for filing into the PROJECT MASTER FILE, construction section.

2.13 Project Safety - All traffic control devices used on road or street construction shall conform to the applicable specifications of the current MUTCD, Part VI. Traffic control devices shall be installed at the beginning of construction operations, and shall be properly maintained during construction. This conformance or non-conformance shall be recorded on the Inspector's Daily Report. (Illustration #2)

2.14 Personnel Safety - Authority: Occupational Safety and Health Act, 1979, Title 23, U.S. Code 109(b), 109(d) and 402(a). It shall be the employer's responsibility to insure that employees wear appropriate personnel protective equipment where there is an exposure to hazardous conditions or where standards indicate the need for using such equipment to reduce the hazards to the employees. The Project Engineer shall monitor the contractor on contract projects and also enforce these regulations on Bureau force account projects. The documentation for conformance or non-conformance is recorded on the Inspector's Daily Report.

2.15 Measurement of Quantities - The project specifications and/or special provisions contain a subsection entitled "Method of Measurement" and "Basis of Payment" for each item of work. Measurements for payment will be made only as stated in the specifications and/or special provisions and only for those items contained in the contract bid schedule.

Quantities allowed for payment on progress estimates must be supported by documentation in permanent field records. "Measurement of Quantity" books shall be used on all construction projects. Each construction project shall have a continuous numbering system for field staking and quantity books. The first page of each book shall give a complete and detailed index of the contents. Pages should be numbered for ready reference. All notes must be neat, consistent, concise and legible. Do not erase an incorrect entry. Draw a line through the incorrect data and write the correct entry above.

2.16 Contractors Payment Schedule - All documents relative to the payment of a contractor shall be filed in sequential order in the PROJECT MASTER FILE, construction section.

2.17 Major Changes - FHWA approval is required before any major changes in location, type or design are initiated on a force account or contract construction project.

2.18 Notification of Completion - The Area Road Engineer shall notify the FHWA upon completion of the road construction project and include the final costs relating to the project.

2.19 Right-of-Way - Source: 25 CFR 161.16 "Upon the completion of the construction of any right-of-way, the applicant shall promptly file with the Secretary an affidavit of completion...."

2.20 Financial Printout Use - The Bureau's financial printouts shall be used to check and verify all costs charged to the road construction project on a monthly basis. Any miscoding will be corrected immediately.

3. AUDIT

General - An ethical program of checking BIA performance does not reflect on the honesty or ability of the individual being checked, but it is necessary to the public and to those in the BIA who must finally authorize the payment of public funds for the quality of work completed.

A project audit and review (final inspection) shall be performed by the Area Office Roads staff at the completion of every project. The audit shall include the review of the plans, specifications and the actual work performed for reasonably close conformance. All records shall be reviewed for completeness and accuracy. An on-site inspection shall be made on the project to assure the completed product is in accordance with the approved plans and specifications as revised and is properly shown on the final as-built plans. All testing and sampling records shall be reviewed for compliance with the project specifications. All project records shall be checked for accuracy regarding final quantities and payment calculation before the final payment is made to the contractor. Final Audit and Review sample documents are shown in Illustration #6. The following is a general list of items to be audited and reviewed. Additional items of work may require audit on specific projects.

3.1 Project Correspondence File - All letters, memorandum and documented phone conversations regarding the work on the project shall be reviewed for content. This could alleviate possible situations and misinterpretations which involve future litigation, change orders or misdirections of the construction activities; especially information exchanged between the Contracting Officer, the contractor, or the Area and Agency Roads personnel.

3.2 Certificates of Compliance - Review all certificates for specification compliance and to insure all required materials have certificates of compliance as required.

3.3 Final Measurement of Quantities - The most important record reviewed is the Measurement of Quantities Book. This book is kept by the project engineer or the contracting officer's representative during the life of the project. Every unit of measurement, by pay item, is maintained in this book and updated daily. The Measurement of Quantities Book should be updated each time a measurement or count is made on the project. As an example, an inspector would record the length of pipe, diameter, station, plus the number of end sections installed in the Measurements of Quantities Book. All quantity measurement books must be checked and recalculated before final payment is made to the contractor. Any discrepancies in either the calculations or quantities must be noted and reconciled, either by recross-sectioning, verifying of weight tickets, recalculation of asphalt weight, etc. Such checking and verifing may lead to final change orders or adjustment of final quantities and payment.

Some pay items which should be reviewed when auditing the Measurement Quantities Book are as follows:

A. Clearing and Grubbing - When the pay quantity for this item is based on an acre pay unit, it is necessary to record the clearing limits, right and left of centerline, for each station so the area of this item can be computed and verified.

B. Reconditioning of Roadbed - The final quantity for this item is determined from computing the total length of the project where this work was actually performed. In many cases, the Area Design Section will establish the plan quantity to be the total length of the Project. However, after construction begins, the Project Engineer may require the contractor to recondition only portions of the roadbed. These station-to-station sections should be documented, so only the length of the actual amount of work performed will be calculated for final payment.

C. Unclassified Excavation - If payment for this pay item is other than "plan-quantities", a summary of quantities determined by either computer generated or field calculations is entered in the Measurement Quantities Book with reference to the field survey books containing the cross-section and slope stake notes. A careful review of these books and calculations is very important in the auditing of a project before final payment is made.

D. Structures - Payment for concrete and reinforcing steel is by plan quantity unless modifications have been made to the Method of Measurement in the Special Provisions. If payment is to be for actual quantities of concrete and reinforcement, the payment for concrete would be by neat section only and the payment for reinforcing steel would be the actual number of pounds placed and accepted.

E. Curb and Gutter - The final quantity of curb and gutter is obtained from the entries made in the Measurement Quantities Book. If more than one type curb and gutter is employed, measurements must be made and verified for each type.

F. Structure Excavation - This item is measured in accordance with the project specifications. It is very important that the elevations of the original ground be obtained prior to disturbance by the contractor. If the structure excavation is located below an area of unclassified excavation section, the grade of the completed unclassified excavation is used as the original ground line to avoid possible double payment.

G. Piling - Complete data is to be reviewed in the notes for each pile, showing position, tip and cut-off elevations, total length in place, and length of the cut-off. If splices are employed, this information should also be recorded in the Measurement of Quantities Book.

H. Asphalt Cement - Final quantity for this item is based on the total weight of material received, less the weight of any material left in the storage tank at the end of the project and any asphalt which is used in any materials wasted at the project or used at a non-contract project. If quality control tests obtained during the course of construction indicate a price reduction is necessary, this amount is also deducted prior to the computation of the final pay quantity.

I. Fencing, Gates, Cattleguards and Guardrail - Quantities for these items are obtained from the periodic entries made in the Measurements of Quantities Book which must be reviewed for accuracy.

J. Guide Posts, Right-of-Way Markers, and Signs - The locations and numbers of each of these items are recorded in the Measurement of Quantities Book.

K. Traffic Markings - The lengths and locations of all traffic markings are recorded in the Measurement of Quantities Book.

3.4 Administration - In the audit of any project, a list of all approved subcontractors and their specific work items is prepared. It should be determined by the auditor that the prime contractor completes the minimal amount of work required by the contract.

3.5 Miscellaneous Contract Clauses - The field records must be audited and compared with the Miscellaneous clauses in the contract specification documents. Example: The plans and specifications are prepared for an upcoming BIA project. These documents include the requirement that the contractor is to furnish a field laboratory for the BIA's use in conducting quality control tests during the course of the contract work. The cost of furnishing the lab is incidental to other contract items. A later review on the project reveals the contractor failed to provide a field laboratory for the BIA project. It is the responsibility of the auditor to recommend a cost reduction in the final audit for the contractor's failure to provide the field laboratory. This type of action is recommended in all other situations where the contractor fails to furnish the specified work or equipment.

3.6 Change Orders - The project revisions such as change orders are reviewed and summarized including all modifications to the contract costs and time extensions.

The costs for all force account work, unforeseen work, extra work, etc., are audited to insure correct calculations where employed by the contractor in the computation of these charges. These costs are included in the final audit, if authorization and approval for the additional work was received from the Contracting Officer.

3.7 Sampling and Testing - The audit of the project includes the review of all of the project testing records to insure that a sufficient number of tests were obtained for each of the project items. If sufficient numbers of tests were not taken and depending on the magnitude of the problem, additional tests will have to be taken using procedures, such as core sampling, to assure adherence to specifications.

3.8 Weight Tickets - It should be determined while auditing weight tickets whether there are any missing tickets, voided tickets, ticket numbers out of sequence, any breaks in ticket number series, unsigned tickets, or any incorrect entries on the tickets. All tickets must be accounted for prior to contract payment. No material should be paid for if not accepted by a weight ticket properly signed and documented.

3.9 Utility Adjustments

A. BIA Force Account. Telephone and powerline relocations, natural gas and oil pipelines and certain other privately owned utility systems adjustments are generally non-contract items and are paid for through normal BIA procurement procedures. These items will be audited and included in the Financial Completion Report.

B. Contractor Force Account Work. Utility adjustments which are required, i.e., water and sewer line relocation or repair, which are not provided for in the contract documents will normally be paid for by Change Order. The Change Order may represent a negotiated, not-to-exceed, total amount or it may be the result of actual labor, materials, equipment and profit costs. This work and these costs will be audited and included in the Financial Completion Report.

3.10 Liquidated Damages - A recommendation by the audit engineer or person responsible for the audit is included, as needed, for any assessment of liquidated damages. The rate of liquidated damages is shown in the contract documents. The number of days the contractor employs to substantially complete the project in excess of the contract expiration date is calculated to compute any liquidated damages. This amount, if any, is deducted from the final sum due to the contractor at the time of final payment.

3.11 Penalty Clause Price Adjustments - On projects that have price adjustment clauses which provide for acceptance of non specification workmanship or materials at a reduced price a compilation of such items shall be made and a price reduction calculated as set forth in the specifications.

This amount is deducted from the final payment to the contractor.

3.12 Financial - A copy of the Financial Report will be placed in the project file at the Area Office.

3.13 Final As-built Plans - A part of all final audit procedures is to insure a set of final plans is completed and submitted to the Area Roads Office for filing and future reference.

In the compilation of the final as built plans there are many changes which should be marked in red pencil to be shown in accordance with the following schedule:

A. Title Sheet

1. Length of project in miles
2. B.O.P. and E.O.P. Stations
3. Station Equations (all equations shall be listed)
4. Note major structures with span of each.

B. Typical Section
Typical section changes shall be shown or "No Changes" indicated.

C. Haul Roads
Lengths of haul roads from borrow pits and surfacing pits shall be shown so that final quantities of overhaul, haul, or ton-mile haul can be checked as required.

D. Right-of-Way Markers
Stations where right-of-way markers are built shall be shown on plan and profile sheets.

E. Summary of Quantities
Final quantities shall be shown on the as-built plans for all items of work.

F. Turnouts
Widths and locations of turnouts, with radii indicated, shall be shown on plan and profile sheets.

G. Material Pits
Show locations of all materials sources noted; if there is a change in the location, review project files for proper documentation and clearances of the pit.

H. Line and Grade Changes
All such changes shall be noted on plan and profile sheets and on all structure location sheets. If there is a line change, it must be supported by proper redesign documentation which could involve additional right-of-way and clearances.

I. Fencing, Gates, Cattleguards and Guardrails
All fencing and gates, remaining and built, shall be shown on the plan and profile sheets. Payment for these items are obtained from entries in the Final Measurements Book which must be reviewed for accuracy.

J. Utilities
Relocation and clearance of utility lines shall be shown on the plan and profile sheets. Service lines to private property need not be included outside of the right-of-way.

K. Surfacing Depths
Depth of surfacing in place shall be shown on the plan and profile sheets. The thickness of each type of surfacing (subbase, base course, etc.) shall be shown.

L. Structures (Pipe culverts, storm sewers, box culverts, etc.)
All structures, as built, shall be shown on the plan and profile and structure sheets. The record should be checked regarding the size, length, skew, and stationing of each culvert. Note: Size changes must be be supported by proper redesign documentation.

M. Bridges
All changes shall be shown on the structure location sheet and detail sheets. The tip elevation of the longest and shortest pile at each pier and abutment shall be shown on the appropriate bridge sheets.

N. Curb and Gutter
All curb and gutter placements, as built, shall be shown on the plan and profile sheets.

O. Other
All physical features within the R/W, whether man made or natural, which are readily discernable should be shown on the plan and profile sheets.

Prominent features outside of the R/W may be added to the plan and profile sheets at the discretion of the project engineer.

CHECKLIST - PLANNING

Requirement Reports A. Planning	Date	Comments
1. Project Justification Checklist (57-16)		
2. Highest Priority Listing of Road Projects (57-17)		
3. Control Schedule (57-05)		
4. Public Hearings		
5. Archaelogical Clearances		
6. Flood Hazard Clearance (Corridor)		
7. Environmental Clearance		

CHECKLIST - DESIGN

Requirement Reports B. Design	Date	Comments
1. Survey		
2. Hydrology		
3. Foundation		
4. Standards		
5. Right-of-way		
6. Minimum Sampling Guide		
7. Erosion Control		
8. Material Sources		
9. Federal Water Pollution Control Act		
10. Utility Agreements		

CHECKLIST - DESIGN

Requirement Reports B. Design	Date	Comments
11. Engineers Estimate		
12. PS & E Approval		

CHECKLIST - Construction

Requirement Reports C. Construction	Date	Comments
1. Notification of Construction Start		
2. Inspections		
3. Correspondence		
4. Project Diary		
5. Inspector's Daily Report		
6. Weekly Construction Report		
7. Minimum Sampling Schedule		
8. Control Sheet for All Testing Compliance		

CHECKLIST - Construction

Requirement Reports C. Construction	Date	Comments
9. Materials Certificate		
10. Culvert Book		
11. Weight or Yardage Tickets		
12. Asphalt		
13. Project Safety		
14. Personnel Safety		
15. Measurment of Quantities		
16. Contractor's Payment Schedule		
17. Major Changes		

CHECKLIST - Construction

Requirement Reports C. Construction	Date	Comments
18. Completion Notice		
19. Right-of-way		
20. Financial Printout Use		
21. Force Account Construction		

CHECKLIST - AUDIT & REVIEW

Requirement Reports D. Audit & Review	Date	Comments
1. Project Correspondence File		
2. Certificates of Compliance		
3. Final Measurement of Quantities		
4. Administration		
5. Miscellaneous Contract Clauses		
6. Change Orders		
7. Liquidated Damages		
8. Financial		
9. Testing and Sampling		

CHECKLIST - AUDIT & REVIEW

Requirement Reports D. Audit & Review	Date	Comments
10. Weight Tickets		
11. Utilities		
12. Final As-Built Plans		

INSPECTOR'S DAILY RECORD
OF CONSTRUCTION OPERATIONS

AREA/AGENCY | | | | PROJECT I.D. | | | |

PROJECT # _____ DATE _____

WEATHER _____

PAY ITEM AND STATION

SHIFT HRS. ___ To ___

NO.	PERSONNEL TYPES	No.	GEN. EQUIP. TYPE	PRODUCTION TIME (Man Hours)	EQUIP. TIME WORK	EQUIP. TIME IDLE
	TOTALS (Man Hours)					

PRODUCTION SUMMARY

ITEM NO.	STA. TO STA.	QUANTITIES/UNITS	ITEM NO.		QUANTITIES/UNITS

MATERIALS RECEIVED:

REVIEWED BY		REPORTED BY	
Signature (Project Engineer)	Date	Signature (Inspector)	Date

SAFETY

If requirements are not met, describe items or personnel categories in violation.

	MEETS REQUIREMENTS	DOES NOT MEET REQUIREMENTS	ACTION TAKEN: NONE	REPAIRED OR REPLACED	PURCHASED	NOT PROVIDED	PROVIDED BUT NOT USED	FIRST AID KIT
MUTCD Signing (Test 6)								
OSHA								
Equipment								
ROPS (Sec. 1926.1000)								
Seat Belts (Sec. 1926.602)								
Audible Alarms (Sec. 1926.602)								
Personnel								
Head protection (Sec. 1926.100)								
Eye and Face Protection (Sec. 1926.102)								
Noise Exposure (1926.101)								
First Aid and Medical Services (Sec. 1926.50)								

The above are general categories only. Additional space is provided for additional categories when needed. Authority Occupational Safety and Health Act. 1970, Title 23 U. S. Code 109(b), 109(d) and 402(a).

WEEKLY CONSTRUCTION REPORT

See 57 BIAM, Supp. 2, Illustration 3, for instruction for preparing this report.

AREA/AGENCY [ ] PROJ. NAME _____

CONTRACT NO. _____ PROJ. NUMBER _____

BRIDGE	31	☐
GRADE	32	☐
GRAVEL	33	☐
PAVED	34	☐
INCIDENTAL	35	☐
CONTR. MON.	92	☐

PROJECT ENGINEER
CONTRACTOR

REPORT NO. _____ FOR THE WEEK ENDING SATURDAY _____, 19____

CONTRACT STARTING DATE _____

TYPE OF CONTRACT (NO. OF DAYS)

_____ WORKING DAY _____ CALENDAR DAY

A. PROGRESS-CONTROLLING OPERATIONS or MAJOR TYPES of WORK		Daily Sched. Hrs.	Daily Sched. Men
Contract-as-a-whole	(1)		
	(2)		
	(3)		

B. WORKING DAY SUMMARY	Contract as-a-whole
Total Days Previously Remaining	
Total Days Charged This Week	
Total Working Days Remaining to Complete Work	

C. CONSTRUCTION PROGRESS based on CONTRACT QUANTITIES of MAJOR ITEMS						
1. Contract Item						
2. Item No.						
3. Contract Quantity						
4. Contr. Quan. Change						
5. Reported Previously						
6. Done this Week						
7. Total to Date						
8. % Complete						

D. Day	Date 19__	Weather Conditions	Temp. Hi	Temp. Low
S				
M				
T				
W				
Th				
F				
S				

E. CONTRACT - AS - A - WHOLE

Day	Hrs. Worked (1)	Hrs. Worked (2)	Hrs. Worked (3)	Hours Delayed (1) W	(1) O	(2) W	(2) O	(3) W	(3) O	Working Days Charged
S										
M										
T										
W										
T										
F										
S										

Total Working Days Charged This Week _____

W = Weather O = Other Explain in Narrative

F. EQUIPMENT

Major Units Placed in Service	Major Units Removed from Service

Signed _____ Title _____

DISTRIBUTION:

- ☐ Contracting Officer
- ☐ Contractor
- ☐ Area Engineer
- ☐ Project Engineer

See Quality Construction Manual Supplement for Instructions Relative to the Preparation of this Report

8.

DAILY COMMENTS & EXPLANATION OF DELAYS

WEEKLY CONSTRUCTION REPORT

I. Instructions for Report Preparation

Section A. Progress Controlling Operations on Major Types of Work.

The information included in this section should be the major types of work including the progress controlling operation used to determine force account or contractor's progress. This should be the major work and controlling operation during the week covered by the report and will change during the term of the contract. When the contractor's schedule and work force varies during the week enter the minimum and maximum number of hours and men scheduled for each operation reported. This information is intended as a guide in determining the working days and the contractor's efforts; therefore, reasonable estimates should be used rather than detailed extractions from the contractor's payrolls.

Section B. Working Day Summary.

Total working days mean either working days or calendar depending on measurement of project time. Enter "Total Working Days Charged This Week" from box E and subtract these figures from "Total Working Days Previously Remaining" to obtain the "Total Working Days Remaining to Complete Work".

Section C. Construction Progress based on Contract Quantities of major Items.

This section of the report assists in keeping a record of the contractor's progress and will alert those concerned if there is probability of the contractor not completing the contract on time. Therefore, the major progress controlling items should be selected. When construction of one or more bridges is included in the contract, one column should be used to report the progress with the unit of measure being a dollar and the total value of the bridges on the contract being the contract quantity. Similar items may be combined and reported in one column by a common unit of measure or dollar amount the same as bridges. The major items selected for this section should remain the same throughout the term of the contract. Lines 1, 2 and 3 are to be the same as the information for the same items in the statement of quantities in the contract. The unit of measure should be included in line 3. Line 4 is used to report quantity changed by supplemental agreements and change orders. The information required for lines 5, 6 and 7 should be obtained from Project Engineer's diary or daily inspection report. The information on lines 1, 2 and 3 is non-changing and should be included on preheaded forms.

Section D. Weather Conditions.

Weather conditions reported should be as factual as possible and all conditions which might affect progress on the project should be reported. For example, wind or humidity conditions may be affecting the rate of

drying. Weather conditions such as temperature or amount of rainfall taken from newspapers, radio and television reports do not necessarily reflect weather conditions on the job site.

Section E.

Completion Dates.

This section of the form is used to document all delays that may occur and provide data for administering any time extensions which might be warranted.

The hours-worked column is used to report the hours actually worked on each of the operations listed in Section A of the report. The hours delayed column is used to report delays in the progress of the operations shown in Section A by recording the difference between the hours worked and the hours scheduled for each operation. Delays are classified as Avoidable (A) if they are due to the contractor's negligence and can be avoided, or Unavoidable (U) if the delays are through no fault of the contractor. One working day or a fraction thereof is recorded for each day the contractor is able to work on the controlling operation within the limits of the specifications and special provisions.

Section F. Equipment.

Information for this section is obtained from Project Engineer's diary or daily inspection report. On the first report submitted, after the contractor starts moving in his equipment, list the major items of equipment moved onto the job. Thereafter, only the major items added or removed from service during the week are to be shown. In lieu of itemizing the equipment the first week, a copy of the equipment schedule may be attached. If there is an authorized work suspension period of two weeks or longer, then a new list of major items of equipment shall be prepared at resumption of work. List may be shown under Section G.

Section G. Engineer's Comments and Explanation of Delays. Summarize

the weekly accomplishments, problem areas and overall progress of the work as they occur, all pertinent dates such as suspension and resumption dates, date liquidated damages started, dates of major traffic changes, date liquidated damages are waived and pertinent completion dates.

In this portion, the engineer should make remarks covering the overall progress and general location of the work. Any inadequacies in the contractor's forces or equipment, proposed plan changes, and any other than routine instructions given to authorized representatives of the contractor, should be reported. Also, any other pertinent information

relative to other than ordinary construction, procedures or methods used in performing the work. Report any equipment that is idle or down for repairs longer than one working day on the project and when equipment was repaired and available for service. This section is also to be used to explain any delays, both avoidable and unavoidable, which have been reported in Section E of this report.

GUIDE SCHEDULE FOR SAMPLING AND TESTING

MATERIAL	TEST FOR	Guide Frequency			REMARKS
		Job Control	Progress Record	Final Record	
EXCAVATION	Classification	1 per soil class			
	Moisture-Density	1 per soil class			(J) Additional determination for each noticeable change in material
EMBANKMENT	Compaction (1)	1 per layer per 1,000 ft.		1 per (2) 100,000 c.y.	(J) Immediately after placing and compacting
SUBGRADE	Classification	1 per 1,000 ft.	1 per 2-lane mile		
	Compaction (1)	1 per 1,000 ft.		1 per (2) 2-lane mile	
SELECTED BORROW FOR TOPPING	Gradation, L.L. and P.I.	1 per 2,000 c.y.	1 per 20,000 c.y.	1 per 2-lane mile	(J) & (P) On grade before compacting
	Compaction (1)	1 per layer per 1,000 ft.		1 per (2) lane mile	(J) Immediately after placing and compacting
	Grade Tolerance	1 per lane station			Before approving for base construction
AGGREGATE BASE	Quality	1 per source per year			By Central Laboratory
	Gradation, L.L. & P.I.	1 per 1,000 tons	1 per 10,000 tons	1 per 2-lane mile	On grade before compacting
	Compaction (1)	1 per 1,000 tons		1 per (2) lane mile	(J) Immediately after placing and compacting
	Grade Tolerance	1 per lane station			

FOOTNOTES: (J) = Job Control; (P) = Progress Record; (F) = Final Record
(J) & (P) -- Take Progress Record Samples at approximately same locations and time in production process as job control samples.
(1) = Measure thickness and width in conjunction with compaction tests.
(2) = Make occasional Proctor curves for material being tested.

GUIDE SCHEDULE FOR SAMPLING AND TESTING

MATERIAL		TEST FOR	Guide Frequency: Job Control	Guide Frequency: Progress Record	Guide Frequency: Final Record	REMARKS
CHEMICAL ADDITIVES FOR BASE COURSE AGGREGATES AND SUBGRADE MODIFICATION						Manufacturer's certificate for each shipment
Materials for Bituminous Pavements	MINERAL AGGREGATE	Quality	1 per source per year			By Central Laboratory
		Gradation, L.L. & P.I.	1 per 500 tons	1 per 5,000 tons		From plant bins
		Fractured faces; thin elongated pieces; deleterious	1 per day	1 per 10,000 tons		From plant bins or stockpile
	MINERAL FILLER	Gradation and general Characteristics	1 per 50 tons		1 per project	
	ASPHALT CEMENT, LIQUID ASPHALTS & EMULSIONS	See Project Specifications				Sampling and certificates of compliance with Subsection 106.03, FP-74
	MIXTURE	Gradation	1 per 500 tons	1 per 5,000 tons		
		% Asphalt	1 per 1,000 tons	1 per 10,000 tons		
		Retained Strength	1 per 5,000 tons	1 per 50,000 tons		
		Compaction	1 per 1,000 tons		1 per mile	
		Surface Tolerances	Continuous			

GUIDE SCHEDULE FOR SAMPLING AND TESTING

Materials for Structural Concrete

MATERIAL	TEST FOR	Guide Frequency: Job Control	Guide Frequency: Progress Record	Guide Frequency: Final Record	REMARKS
COARSE AGGREGATE	Quality	1 per source per year			By Central Laboratory
	Gradation	1 per 100 c.y.	1 per 1,000 c.y.		
	Deleterious	1 per 1,000 c.y.	1 per (1) 10,000 c.y.		
FINE AGGREGATE	Quality	1 per source per year			By Central Laboratory
	Gradation F.M.	1 per 100 c.y.	1 per (1) 1,000 c.y.		
	Organic, deleterious	1 per 1,000 c.y.	1 per (1) 10,000 c.y.		
PORTLAND CEMENT	Quality	1 per (2) 5,000 bbls.	1 per project		By Central Laboratory
REINFORCING STEEL	Quality	1 per 20 tons	1 per 200 tons		Manufacturer's certificate and report (each shipment) acceptable in lieu of job control
WATER		1 per questionable source			
CONCRETE	Strength	4 cylinders per 100 c.y.	1 per 1,000 c.y.		Minimum of 4 cylinders per pour of 10 c.y. or more
	Air and Slump	1 per 25 c.y.	1 per 500 c.y.		
	Yield, cement factor, unit weight	1 per 50 c.y.	1 per 500 c.y.		
ADMIXTURES AND CURING COMPOUNDS					Manufacturer's Certificate for each shipment

Footnotes: (1) Minimum 1 per project.

(2) Unless cement is obtained from pretested and approved bins at the mill.

GUIDE SCHEDULE FOR SAMPLING AND TESTING

MATERIAL	TEST FOR	Guide Frequency: Job Control	Guide Frequency: Progress Record	Guide Frequency: Final Record	REMARKS
Culvert Pipe: CORRUGATED METAL AND CORRUGATED ALUMINUM	See Project Specifications and/or Special Provisions				Manufacturer's certification and guarantee and inspection of fabrication, or fabricator's certification, for each shipment.
Culvert Pipe: ASPHALT COATING	Quality				
Culvert Pipe: REINFORCED CONCRETE	Load Test, absorption test	1 each size			Or test for materials and inspection of manufactured pipe
TIMBER: POSTS, PILING, STRUCTURAL TIMBER					Producer's certificate of compliance for each shipment; inspection of timber and treatment
SEED					Certificate by recognized seed laboratory for each shipment
FERTILIZER					Producer's certificate of compliance for each shipment.
JOINT FILLERS					
GUARDRAIL, FENCE AND MISC. ITEMS					
GRANULAR BACKFILL	Gradation	1 per 200 c.y.			Minimum 1 per project

SCHEDULE OF MATERIALS SAMPLE SIZES

Material		Tests	Size Lab. Sample	Min. Wt. Sample From Field
1 - Subgrade Soils	1.	LL-PL	4 lbs.	
	*2.	Hydrometer	1 lb.	
	*3.	Specific Gravity	1 lb.	
	4.	Compaction T-99 (New Material used in each determination 1/30 cu. ft. mold)	25 lbs.	30 lbs.
	5.	Gradation		
		Coarse	10 lbs.	
		Fine	5 lbs.	
	*6.	R-value		
		a. 3/4"-0	35 lbs.	
		b. 3"-0	75 lbs.	
	*7.	CBR	30 lbs.	
	8.	Subgrade Evaluation		
		Items 1,2,3,5 & 6a		40 lbs.
		Items 1,2,3,5, & 6b		80 lbs.
		Items 1,2,3,5, & 7		70 lbs.
2 - Selected Borrow for Topping and Special	1.	Gradation	80 lbs.	
	2.	LL-PL	4 lbs.	
	3.	Sand Equivalent (if specified)	4 lbs.	
	*4.	R-Value		
		a. 3/4"-0	35 lbs.	
		b. 3"-0	75 lbs.	
	**5.	Granular Compaction		
		Max. size less than 1"	100 lbs.	
		Max. size larger than 1"	150 lbs.	
	6.	Suitability for use	See Base Course Requirements	80 lbs.
	7.	Subbase Evaluation for design Items 1,2,3,4 and Suitability for use		120 lbs.

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* Tests not required by FP-74; used for design purposes.
** Samples to be taken from material as crushed for use.

SCHEDULE OF MATERIALS SAMPLE SIZES

Material	Tests	Size Lab. Sample	Min. Wt. Sample From Field
3 - Aggregate Base (Samples to be job crushed)**	1. Gradation & Wash.	80 lbs.	
	2. L.A. Abrasion	18 lbs.	
	3. Durability-Coarse (if specified)	18 lbs.	
Preliminary Investigation of Pits & Quarries	4. LL-PL	4 lbs.	
	5. Sand Equivalent (if specified)	4 lbs.	
	*6. Soundness-Fine	5 lbs.	
	7. Specific Gravity		
	AASHTO-Coarse	15 lbs.	
	AASHTO-Fine	4 lbs.	
	*8. R-Value		
	a. 3/4"-0	35 lbs.	
	b. 3"-0	75 lbs.	
	9. Granular Compaction		
	Max. size less than 1"	100 lbs.	
	Max. size larger than 1"	150 lbs.	
	10. Suitability of Material		
	Items 1,2,3,4,5,6 & 7		100 lbs.
4 - Asphaltic Plant Mixtures (Samples to be job crushed)**	1. Stabilometer & Cohesiometer		
	With mineral filler	70 lbs.	
	Without mineral filler	35 lbs.	
	2. Swell Tests	35 lbs.	
	3. Immersion Compression		
	With mineral filler	120 lbs.	
	Without mineral filler	90 lbs.	
	4. Mix Design 1,2, _ 3		
	5. Confirmation of Mix Design	20 lbs.	

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* Tests not required by FP-74; used for design purposes.
** When uncrushed ledge rock samples are to be submitted for tests, special instructions should be obtained from the laboratory.

SCHEDULE OF MATERIALS SAMPLE SIZES

Material	Tests	Size Lab. Sample		Min. Wt. Sample From Field
5 - Concrete Aggregates	1. Grading - Incl. Wash	Coarse 33#	Fine 2#	500#
	2. Sp. Gr. & Absorption	11#	2#	
	3. Soundness	12#	5#	
	4. L. A. Abrasion	18#	--	
	5. Units Wts. (Reusable)	65#	15#	
	6. Trial Mixes per class of concrete, (3 @ 110#)	220#	110#	
6 - Portland Cement	Spec's.	10#		10#
7 - Water for Concrete	Spec's.	1 gal. (in glass jar - 1 jal. rubber or glass stopper)		
8 - Porous Backfill	Grading, Permeability	25#		25#
9 - Reinf. Steel	Strength, elong., bend	2-48" bars each size		2-48" bars each size
10 - Wire Mesh	Strength	One piece, 36" x 36"		
11 - Wire or 7-wire strand	Strength, elong.,	One 7-foot piece per lot		
12 - Corrugated Metal Pipe	Spelter	6 pieces 2½" sq. (or equivalent area) each heat no.		6 pieces 2½" sq. (or equivalent area) each heat no.
13 - Concrete culvert Pipe				
(a) Reinforced	Absorption	20 sq. in. of broken pipe		
(b) Non-Reinforced	Absorption	24 sq. in. of broken pipe		

SCHEDULE OF MATERIALS SAMPLE SIZES

Material	Tests	Size Lab. Sample	Min. Wt. Sample From Field
14 - Paint	Spec's.	1 qt. each kind	1 qt. each kind
15 - Curing Agents	Spec's.	1 qt.	1 qt.
16 - Air Entraining Admixtures	Spec's.	1 qt.	1 qt.
17 - Exp. Joint Filler (Liquid)	Spec's.	½ gal.	½ gal.
(Preformed)	Spec's.	1 pc. 4' long x normal width	1 pc. 4' long x normal width
18 - Guardrail	Spec's.	1 -- 12 ft. beam	1 -- 12 ft. beam
Guardrail Fittings	Spec's.	1 pc. each kind & complete set bolts 1 joint	1 pc. each kind & complete set bolts 1 joint
19 - Fertilizer	Spec's.	15#	19#
20 - Agricultural Lime	Spec's.	15#	15#
21 - Hydrated Lime	Spec's.	15#	15#

CONTROL SHEET FOR ALL TESTING COMPLIANCE

WEEK ENDING _____

PAY ITEM	TOTAL QUANTITY	TYPE OF TEST	TO DATE				COMMENTS
			QUANTITY TO DATE	MINIMUM REQUIREMENTS	# TESTS TO DATE	# TESTS NON-SPEC.	

FINAL AUDIT

PROJECT: _____

ITEM NO.	DESCRIPTION OF WORK	UNIT PRICE	PLAN QUANTITY	PLAN AMOUNT	AUDIT QUANTITY	AUDIT AMOUNT	UNDER-RUN OVER-RUN

FINAL AUDIT

Project:_____ Page_____

Item _____( )_____

DAILY TONNAGES AND WEIGH TICKET NUMBERS

Date	Final Tonnage	Ticket Numbers	Penalty	Final Pay Tonnage
	Tons		Tons	Tons

FINAL AUDIT

Page_____

PROJECT_____

Item_____( ), _____

Date	Ticket Numbers	Total Tonnage Placed	Waste or Rejected	Penalty Reduction	Final Pay Tonnage

Page _____

PROJECT ____________________

Daily Tonnages and Weigh Ticket Numbers

Item _______( ), ____

Date: ____________ Final Tonnage: ____________ Tons

Ticket Numbers | Missing Tickets | Voided Tickets

____

____

____

Penalty: ____________ Tons Final Pay Tonnage: ____________ Tons

---

Date: ____________ Final Tonnage: ____________ Tons

Ticket Numbers | Missing Tickets | Voided Tickets

____

____

____

Penalty: ____________ Tons Final Pay Tonnage: ____________ Tons

---

Date: ____________ Final Tonnage: ____________ Tons

Ticket Numbers | Missing Tickets | Voided Tickets

____

____

____

Penalty: ____________ Tons Final Pay Tonnage: ____________ Tons

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FINAL AUDIT

Page ____

PROJECT _____

Item _____( )_____

Date	INVOICE NO.	GALLONS	NET WEIGHT	TONNAGES	DAILY TOTALS

PROJECT _____

PENALTY CALCULATIONS

Item _____( )_____

Date: _____ Tonnage: _____ Tons

Screen Sizes:						
Specification Limits:						
Test Results:						

P____ = _____

= _____

=(%)(-number--no penalty)

= _____ Tons X _____ %

P = _____ Tons

P____ = _____

= _____

=(%)(-number--no penalty)

= _____ Tons X _____ %

P = _____ Tons

P____ = _____

= _____

=(%)(-number--no penalty)

= _____ Tons X _____ %

P = _____ Tons

P____ = _____

= _____

=(%)(-number--no penalty)

= _____ Tons X _____ %

P = _____ Tons

TOTAL PENALTY = _____ Tons

Calculations by: _____ Checked by: _____

FINAL AUDIT REPORT

Sheet of

Project:

Contractor:

BID SCHEDULE ITEM NUMBER

Original Quantity							
Change Order							
Totals:							

Audited Quantity							
Quantity Paid For to Date							
Final Change Order							
Quantity for Final Payment							
Percentage Overrun Underrun							

FINAL AUDIT REPORT

Project No._____

COMMENTS:

Item_____( ) Description _____

Item_____( ) Description:_____

Item_____( ) Description:_____

All documentation referred to above is at the Agency Branch of Roads files.

FINAL AUDIT REPORT

Tests Required by the MSS

BID SCHEDULE ITEM NUMBERS

Sheet ___ of ___

Project:

Density Tests	Req'd.							
	Rec'd.							
Classification	Req'd.							
	Rec'd.							
Classification Check	Req'd.							
	Rec'd.							
Gradation, LL & PI	Req'd.							
	Rec'd.							
Gradation Check Tests	Req'd.							
	Rec'd.							
Asphalt, Penetration	Req'd.							
	Rec'd.							
Asphalt, Viscosity	Rec'd.							
	Rec'd.							
Asphalt, Extraction	Req'd.							
	Rec'd.							
Asphalt, Complete Check	Req'd.							
	Rec'd.							
Thickness-in-Place	Req'd.							
	Rec'd.							
Concrete Cylinders	Req'd.							
	Rec'd.							
	Req'd.							
	Rec'd.							
	Req'd.							
	Rec'd.							
	Req'd.							
	Rec'd.							