Local Project Administration Manual & Reference Guide

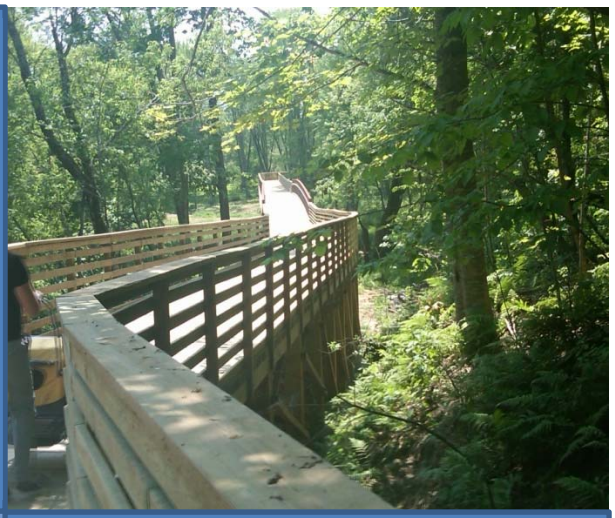
Construction Documentation

MaineDOT

Integrity - Competence - Service

2016 Edition

PROJECT RECORD KEEPING MANUAL



2013

GUIDE FOR CREATING, MAINTAINING AND SUBMITTING, CONSTRUCTION PROJECT DOCUMENTATION AND RECORDS

MaineDOT

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REVISIONS

Rev No.	Revision Description	Page(s)
1	Added FHWA Construction Inspection Requirements	Appendix D
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4	Clarified the Definition of Lump Sum re: Contract Modifications	109.7
5	Pro-rating Lump Sum items in Contract Modifications	109.70
	Added the What, Why and How description to Contract Modifications	109.30
6	Figure; Contents of a Contract Modification	109.7
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SECTION 108 – MEASUREMENT AND PAYMENT

108.1 General.

This Section describes, in general, Departmental policies and acceptable methods for measuring and computing contract quantities for progress and final payments. Divisions 200 through 600 and 900 of this Manual explain in more detail, the requirements and procedures to follow.

There are two systems in use and acceptable to the Department for documenting and measuring quantities for payment: the traditional “paper” method, the computer software program Field Manager – Field Book and Field Pad method. Residents are encouraged to use the software program when feasible.

If the Resident chooses to use the paper method, they will have the following project records; a Final Quantity Book, a Final Quantity Computations Book, a Project Diary, Testing file and a Construction Book. Other fieldbooks may be required, such as a Drainage Book, depending on the complexity of the project. If Field Manager is used, the project records will consist of an Item History to Date instead of the Final Quantity Book, a Daily Diary, and Inspectors’ Daily Reports. The Inspector’s Daily Report is needed to generate progress estimate quantities. A Construction Book is almost always necessary; it is policy of the Department and good record practice that original field measurements must be entered in a bound fieldbook or PDA. The Final Quantity Computations Book may or may not required, depending on the extent of computations needed to figure quantities.

Division 900 of this Manual explains further, and in more detail, project records required. It is suggested that you study Division 900 before proceeding beyond Sections 108 and 109.

For anyone needing training in the use of Field Manager, the Contracts Section will provide instruction in the application of this software program. You should contact the Contracts Section either directly or through your Supervisor for help.

Quantities for Progress Payments

After the formalities of contract award have been completed, the Contracts Section will initiate the first payment, which is Mobilization. The Resident will receive either a paper copy of the first estimate paid or an electronic transfer, depending on whether or not Field Manager is being used. The Resident should advise the Contracts Section, preferably before the contract is awarded, whether their will use paper or Field Manager to make progress payments. The Department encourages the use of Field Manager.

It is important to our highway and bridge contractors that they receive prompt and full payment of all monies due them for work satisfactorily performed. Unnecessary delay in paying the Contractor increases his or her cost of doing business, and these costs are ultimately passed on to the Department in the form of higher bid prices on future contracts. The Contractor is to be paid, on each progress estimate, the full estimated value of the work satisfactorily completed. The Resident should not hold payment of money due the Contractor other than what is sufficient to cover work still remaining to be done under a particular item. Quantities should be current to the end of the pay period, particularly for hot mix asphalt items because of the time-dependent nature of the asphalt escalator price adjustment Specifications. If a significant overpayment or underpayment is detected following the submission of a progress estimate, an additional estimate correcting the error should be submitted to the Contracts Section immediately. Section 108.2 of the Specifications further explains procedures for making progress payments

Contract Specifications require the Department to pay the Contractor a minimum of once a month, but it is policy to make a progress payment every two weeks. The Resident will determine the quantities or the Contractor may submit, as allowed in Section 108.2, a requisition for payment. The Resident will review the figures submitted by the Contractor and so note in the project records. The estimate will then be forwarded to the Contracts Section, either electronically or on a paper copy, for payment. The Contracts Section will process the progress estimate for payment minus a retent. This retained amount is based upon Section 108.3 of the Specifications.

Quantities for progress payment will be estimated with the help of the following guidelines:

Quantities paid by the unit: Progress estimates can be based on a percent of the estimated quantity or on actual field measurements of the work done to date. The Resident is cautioned not to pay too high a percent of the estimated quantity without first checking the Engineer's Estimate for accuracy.

Quantities paid lump sum: The Resident may pay a percent of the bid price, as work progresses; amount paid is dependent on amount of work done. Contract Specifications will state, for some items paid lump sum, what portion to pay as work progresses.

Quantities paid load count: Whether by weight or by volume, quantity to date can be readily determined from daily totals entered in the Final Quantity Book/Item History to Date.

Quantities paid by the hour or force account: Hourly work items and force account work are determined from Daily Reports of Labor and Equipment Rental.

Regardless of the methods used to arrive at quantities for progress payments, the Resident will keep on file the notes and measurements used to document payments.. These records may be needed to explain to Auditors and to the Contractor how Quantities were determined.

108.21 Using the Progress Estimate Form – Paper Copy

Estimates must be made out on the computerized print-out generated by the Contracts Section. The first form the Resident will receive will be labeled "Payment Voucher Summary" number 0001, and it will show partial payment for Item 659.10 – Mobilization. The Resident will also receive, at the same time, "Progress Estimate" number 0002. Present policy is to fax the completed estimate form to the Contracts Section for processing The resulting "Payment Voucher Summary" and the next "Progress Estimate" will be sent to the Resident as e-mail attachments.

Tracking of funding allocations requires separate cost figures for highway and bridge expenditures, for what is federally participating and federally non-participating, and for town and utility reimbursements. Each category of funds is designated by a number as, for example: 0001 for highway, 0002 for bridge. Categories are assigned by the Project Manager. Work done under the original contract items or added to the project, whether unit price, lump sum or force account, must be coded to the correct category, i.e., highway, bridge, non-participating, etc.

Progress Estimate. Final Quantity Estimate or Final Estimate. During the progress of work, the Resident will place a checkmark on the "Progress Estimate" line. When the project is closed out with the Contracts Section, the "Final Quantity Estimate" line will be checked and the words "Final Quantity Estimate" will be written on the "Comment" line in the upper right-hand corner of the estimate. The Final Estimate will be made out by the Contracts Section when the retent is released and paid off.

Pay Period Ending – Year, Month, Day. The date, entered by the Resident, should be the end date for the period the work has been done. This end date will be as current with the work as is practicable; it will be the middle and/or the last day of the month and not the first day of the next month for the purposes of figuring asphalt escalator price adjustments.

New Items. This section is used to make modifications to the contract, such as: items from one Pin to another Pin under the same contract, new items added by contract modification paid by agreed unit price, lump sum or force account, categories added, or work made non-participating.

Modifications are made as follows:

Catg #: Enter the appropriate four digit category number.

Item # (Or None): The item number can be obtained from the Bid Item Dictionary located at http://www.maine.gov/mdot/contractor-consultant-information/item_dictionary_english.htm . If the item does not appear in the Dictionary, print the word "None" in its place, and write a very brief description of the item or work order in the "Description" column.

Authorized Quantity: Enter the estimated quantity shown on the Work Order. If there is no work order, enter the actual quantity.

Quantity to Date: Enter the quantity you want to pay at this time. Figures can be carried to two decimal places.

Unit Price: Enter the unit price shown on the Work Order, or defined in the contract or in the Specifications.

RWO/EWO: Enter the Work Order or a Resident's Work Order number. To move an existing bid item from one Pin to another Pin on the same contract, use the same item number and use RWO/EWO zero. Items that are to be added to the Schedule of items through existing mechanisms in the contract without a RWO/EXO, such as; rock excavation, structural excavation-major structures-below grade and HMA pay adjustment, can be added by writing SS, standard Specifications, in lieu of a RWO/EXO number.

Description: Enter a description only if "None" was entered as the Item #.

Changes to lump sum items will be done as separate line item entries under the New Items section described above. The lump sum item originally in the contract will show a zero quantity for payment and will be re-entered under New Items with the new price.

The "New Item" procedure, or more pertinently, contract modification, will be processed by the computer and print it in the body of the next estimate at the end of the appropriate code section or in a newly coded section.

Specifications provide a mechanism for paying for certain items added to the contract without the need of a price quote from the Contractor. The following is a list of items commonly used and how to pay for them

To Pay For	**Use Item**	**Unit Price**
Rock Excavation	203.20 ComExc	6 X Bid
Struct. Rock Excavation – Drainage	203.20 Com Exc	16 X Bid
Excavation for Slope Blanket	203.20 Com Exc	2 X Bid
Struct Rock Excavation ─ Major Str	206.082 Str Ea Exc – Major Sit	6 X Bid
Str Ea Exc – Major Str, Below Grade	206.082 Str Ea Exc – Major Str	1 ½ X Bid
Str Rock Exc – Mjr Str, Below Grade	206.092 Str RockExc – Mjr Str	1 ½ X Bid
Aggr Sub Crse – For Foundations	304.10 Aggr Subbase Crse – Grav	2 X Bid
Aggr Sub Crse ─ Slope Blanket	304.10 Aggr Subbase Crse – Grav	2 X Bid

Specifications provide a mechanism for paying for certain items that were bid to be measured using one method, but may have been measured using a different method. The following is a list of commonly used shrink and swell factors.

Item Measured	**Original Source Method**	**Shrink/Swell Measured Quantity**
203.20 Common Exc	IN-Place	
In-place		1.0
Truck Measured		.90
203.25 Borrow	In a Pit	
Pit		1.0
In-Place		1.15
Truck Measured		.90
304.10 ASCG	In-Place	
In-place		1.0
Truck Measured		.80
203.27 Rock Borrow	In-Place	
In-place		1.0
Truck Measured		.75
Measured Stockpile		.75

Stockpiled Materials. This section is used by the Resident to pay for stockpiled materials. Section 108.4 of the Specifications allows for the payment of non-perishable materials stored for future use on the project.

Departmental policy is as follows:

1. Partial payments may be made for certain materials delivered to the project but not yet incorporated into the work.
2. Payment will be shown on the progress estimate as a separate line item entry.
3. Materials will not be paid until the Contractor furnishes the Resident with copies of receipted bills.
4. As the stockpiled material is incorporated into the project and paid under the bid item, the stockpiled quantity should be reduced proportionally.
5. When work involving the stockpiled item is complete, that portion remaining in the stockpile, if any, shall be reduced to a “0” quantity on the progress estimate.

Payment for a stockpiled item is entered on the progress estimate as follows:

Category No.: Enter the appropriate four digit category number. Refer to New Items above, if necessary.
Item No: Enter the same item number as shown for the pay item in the contract.
Quantity To Date: Enter the quantity, typically 1, or a portion of 1. Figures can be carried to two decimal places.
Unit Price: The unit price for payment under the stockpiled item is determined from receipted bills. The unit price shall equal the dollar amount shown on receipted bills divided by the quantity.
RWO/EWO: MA, material allowance, shall be used designate this item as allowable stockpile payment After the first estimate is processed with the above information, the stockpiled item will appear in the body of the next estimate directly following the item as originally bid.

Retent Modification. This line is used by the Contracts Section to control the retent status of the Project.

Body of the Estimate. The Resident fills in only the "Quantity to Date" column of this section for each item that has changed since the previous estimate. The total quantity to date may be an increase or a decrease from the previous estimate. Entries will be made in red ink.

Quantities will be entered as follows: whole numbers to the left of the decimal point and tenths and hundredths, if required, to the right of the decimal point. Quantities or percentages can be entered to three decimal places. Numbers are free read; for example, 2 is the same as 2.0 or 2.00.

For quantities with a unit of Lump Sum, show the quantity for progress payment from 0.01 to 1.00. Be careful to place the number on the correct side of the decimal point, i.e., whole numbers to the left and tenths/hundreths to the right.

For items with a unit of Each, show the quantity as a decimal, for example, for a Field Office, 0.33 or 0.67 or 1.00.

If you are adding a Lump Sum item by work order, enter the quantity for payment as 1 L.S. and not 100% L.S. If payment shows as 100% LS, the mistake of paying 100 times the L.S. price can result.

108.22 Using the Progress Estimate Form – Field Manager.

Progress estimates may also be submitted to the Contracts Section electronically, using the Field Manager construction management software program.

To use Field Manager, the Resident must import the database file of his or her project to the Field Manager program. This file will be obtained from the Contracts Section, either by network transfer or by floppy disk. If a Resident is using Field Manager solely for the generation of progress estimates, it will be necessary to generate an IDR (Inspector's Daily Report) posting the quantities for each item that needs to be paid, prior to each progress estimate submittal.

Once the IDRs' have been generated and saved, the next estimate can be added. After adding and before generating the next estimate, it should be checked for accuracy. When the Resident is confident in its accuracy, their then generates it.

When an estimate is generated, a file is automatically created in the "outbox" folder of the "fieldmgr" folder, which is accessed by using "Windows Explorer" or "My Computer". This file should then be transferred to the appropriate project folder located on the Network Neighborhood at Dotaugl/$com-Cons/Field ManagerProjects for processing by the Contracts Section. If network connections are not possible, the file can be transferred by using a floppy disk.

When the Contracts Section receives the file, it is then processed in the Transport System and a "turnaround" file is created. This file is then picked up by the Resident, as described above, and imported back to the Field Manager program before the next estimate can be generated.

108.3 Quantities for Payment

Method of measurement and payment for items in the contract and for extra work are grouped as follows:

1. Plan Quantities.
2. Lump Sum Quantities.
3. Measured Quantities.

Specifications, under Sections "Method of Measurement" and "Basis of Payment" state how items in the contract are to be paid.

Plan Quantities. Quantity for final payment will be the figure shown in the Schedule of Items as defined in the contract Specifications or as mutually agreed to by the Resident and the Contractor.

If the Specifications state, that for some items, final payment will be based on the quantity shown in the Schedule of Items, more commonly referred to as the "plan quantity", that figure will be paid whether the amount is estimated correctly or not. It may be altered only if a design change is made in the field. Example items are: granular borrow backfill and structural excavation for bridge abutments, granular borrow backfill for multi-plate pipes, and shoulder rehabilitation.

Final payment can also be based on plan quantity by agreement between the Resident and the Contractor.

Examples are: common excavation and gravel. For such an agreement to take place, two conditions have to be met: (1) the estimated quantity must be reasonably accurate and (2) work done under the item must be to the same limits as shown in the Engineer's Estimate. Reasonably accurate is defined as the Estimate being within five percent of the true figure. The Resident must check the Estimate before proposing the agreement. Errors and changes to limits of work will be taken into consideration and corrections made.

Payment based on "plan quantity" will be documented by notes of inspection and acceptance entered in the project records.

Lump Sum Quantities. Some items in the contract will be designated lump sum for payment as defined in the Specifications. Examples are: field office, structural concrete, and maintenance of traffic. "Lump sum" quantities must be documented by notes of inspection and acceptance recorded in the project records.

Measured Quantities. Payment for some items in the contract will be determined from measurements and computations of the actual work done. Sources for measured quantities can be: surface area measurements, three-dimensional volume measurements, average end area measurements, delivery slip measurements, weight measurements, hourly measurements, and force account measurements.

Surface Area Measurements. By Specifications, some items in the contract will be measured and paid based on surface areas. Examples are: clearing, butt joints, shoulder rehab, cold recycled-in-place pavement, and rehabilitation of structural concrete deck slab. Measurements and any sketches will be entered in a bound fieldbook; these can be taken in the field or scaled off the plans or a combination of both. Computations will be done in the same fieldbook or in the Final Quantity Computations Book.

Volume Measurements. Items measured by volume will be specified in the Contract. Examples are: common excavation, borrow, gravel, and concrete. Volumes can be figured using three dimensional field measurements, such as for roadway undercuts, or trench boulders. For large quantities, the average end area method will be used to figure earth excavation, rock excavation, and borrow. Any basic route survey textbook will explain in detail the average end area method. "Typical factors" will be used for figuring aggregate subbase course – gravel. Computer programs are available from the Survey Section to compute borrow and excavation.

If the Resident chooses to figure their own quantities rather than having the Survey Technicians do this, they must consider correcting between stations on curves as on ramps, for example. Also, it must be remembered that the average end area method is not usually accurate between any two stations, particularly if the areas cross sectioned differ considerably. This method is only accurate when at least three cross-sectional. Areas are used to compute a quantity.

Load Count Measurements, by Volume: Items paid load count will be identified by Special Provision in the Contract. In addition, Specifications allow load count Measurement up to specified maximum limits. Load count is used when it is not practical to measure the quantities by cross-section or by three dimensions.

When materials are measured by load count, the following rules apply

a) A delivery slip must accompany each load.
b) The slip must be of a printed format and it must be serially pre-numbered.
c) It will contain the project number, item description, and truck number.
d) It must be issued by the truck driver or Foreman present at the site and signed by him or her.
e) The Inspector or Ticket Taker must witness every load dumped and as evidence, will sign the slip. Partial loads will be noted as: "3/4 full", for example.

Volume need not be shown on the slip but the Inspector will measure every truck body and enter measurements in a bound fieldbook, signed and dated. The Correct shrinkage factors will be applied when the quantities are figured for payment. Borrow and excavation measured load Count are reduced 10 percent; gravel is reduced 20 percent; concrete, riprap, and loam are measured on a "yard for yard" basis, i.e., no shrinkage or swellage is applied. Refer to the Specifications under the appropriate items for swellage and shrinkage factors.

Load Count Measurements, by Weight: Specifications require that hot mix asphalt items be measured by weight. A delivery slip will accompany each truckload of *mix* delivered to the job. Slips ill contain the following information:

a) Slips will be serially pre-numbered.

b) Weight of each batch and total weight of the load will show on the slip if the plant weigh system is computerized. If not, only the total weight of the load needs to be shown, and the slip must be signed by a certified weigh master.
c) The Paving Contractor's name must appear at the heading, in print.
d) Every slip will be signed by the Ticket Taker.
e) A Cover slip showing the day's total will be made out and signed by the Contractor's Representative and the Resident.

All weigh slips for hot mix asphalt must be kept in the Resident's office for the duration of the project. When the Resident submits their records to the Contracts Section for final review and close-out, delivery slips may be discarded but the Cover slips will remain with the project records.

The Testing Technician will do some check weighing to verify the accuracy of the scales. Check weighing procedures are explained in Division 100, Section 108, of the Specifications.

Hourly Work Items. Extra work, unforeseen, is sometimes measured and paid by the hour. This work can be paid by using the hourly bid items in the contract, by force account or by a combination of both. Section 109.07, of the Specifications and Section 109 of this Manual explain in detail, rules covering extra work. The Daily Report of Labor and Equipment Rental will be used to document the hours of labor and equipment, and materials used. Authorization for the work by the Resident or by Contract Modification and description will be noted in the Remarks portion of the Report which will be signed by both the Inspector or the Resident and the Contractor's Foreman or Superintendent.

This Section, Quantities for Final Payment, is intended to describe only in general, methods used to measure and pay final quantities. The Resident will refer to Divisions 200 through 600 and 900 for more detailed discussion of the requirements for field documentation, measurement, and payment.

SECTION 109 – CONTRACT MODIFICATIONS

General.

Specifications require the Contractor, as directed by the Resident, to perform extra or unforeseen work added to the contract a supplemental agreement, in the form of a contract modification, will be written to authorize and to document the added work.

Conditions Requiring Contract Modifications.

Contract Modifications will be initiated and written by the Department, normally by the Resident, and will be **signed** by the Resident. All Contract Modifications, except those initiated by standard Specifications i.e.; rock excavation & Quality Assurance Pay Adjustments, will require the **signature** of the Contractor and may also require the **signature** of administrative personnel within the Department, as explained further in the next Section. A contract modification will be written when the following conditions are present on the project:

1. Changes in Specifications.
2. Substitution of materials.
3. Changes in Testing Requirements.
4, Changes or Extra work with –in the scope of the contract.
5. Changes in design beyond the scope of the contract.
6. Adding or changing a D.B.E. subcontractor. (Requires a signature from Human Resources)
7. Adding payment or credit for Incentives / Disincentives to Contract Items.
8. Changes that result in an increase or decrease of 25 percent or more in major items of the contract. A major item is one that exceeds 10 percent of the original contract amount, as awarded. These changes may result in an increase or decrease in unit bid prices. Section 109.1.2 defines a major change.
9. Changes in deadline dates, completion dates, or time extensions not covered elsewhere.
10. Additional driveways, copy to Right of Way team member.
11. Municipal Government, County Government, or other State Agency request for additional work or change in proposed work. If the Agency involved requests additional work, it will be required to pay the non-federal share. The Contract Modification will clearly state what portion will be paid by the Agency and will be signed by a responsible person from that Agency.

109.3 Contents of a Contract Modification.

Every Contract Modification shall include the What, Why and How of the scope of work within the Contract Modification. The What describes the work that is to be incorporated, the Why is the reason(s) for adding the work and the How is a detail description(s) of how the work is to be paid. A more detailed list of contents is listed below.

1. Description and location of work.
2. Reason for the change or for the added work.
3. Method of payment, i.e. existing bid items, contractor quoted work, force account, and benefits to the project.
4. Procedures to be followed by the Contractor. Time constraints, Special Provisions, and Supplemental Specifications are to be made part of the Contract Modification, as applicable.

5. Price quotations, if required on Contractor Letterhead.

6. Time extensions and reasons for the extra time, if needed. A time extension is not granted unless the work directly affects the Contractor's progress, known as the "critical path".

7 Right-of-way acquisitions or easements if needed.

8. Cost estimates. The Resident will include with the Modification, his or her estimate of the cost of doing the work, whether it is done by unit price, lump sum, or force account. The Resident should arrive at the cost estimate independently of the Contractor's figures as much as possible. It should be more than just a review of the Contractor's numbers. An excellent source of historical data is the MDOT Bid History by items, which is located at http://dot0dta1asora14.mdot.w2k.state.me.us:7778/freeprod/pBidHistEnglish.display.

9. Approvals and **signatures**. The Contractor's **signature** shall be on all Modifications; it signifies their concurrence with performing and payment of the work. A Contract Modification is a supplemental agreement and is not legally part of the original contract unless it contains the **signatures of both parties**. Contract Modifications may be required to be submitted to the Resident's Supervisor for his or her approval and signature. Section 109.4 Contract Modifications – Resident Authority and 109.5 Contract Modifications Requiring Supervisor Approval explain further, and in more detail under what conditions additional signature are required.

10. Federal participation. All Contract Modifications on federally funded projects must be designated **"participating" or "non-participating",** i.e., whether or not Federal funds will be expended in the costs involved. In general, the FHW A will participate in the cost of all work except when an outside agency such as a Town, County, or a private developer requests the work, or the work is beyond the scope of the contract and is of no direct benefit to the project. Conditions under which FHW A approval is needed are outlined in Section 109.6 of this Manual and what approvals are required,

109.4 Contract Modifications - (Residents Authority)

The Department has authorized the Resident to execute certain work orders at the project level without the approval of their Supervisor, but subject to the following limitations:

1. Each Contract Modification is limited to $10,000.00, not to exceed a cumulative cost of 3 percent of the awarded contract amount.

2. The Resident's authority is limited to construction of the project as intended and designed and does not extend beyond the original scope of the contract.

In addition to the above limitations, the requirements of Section 109.3-Contents of the Contract Modification will apply, as applicable.

109.5 Contract Modifications Requiring Supervisor Approval.

The following types of changes are considered to be beyond the limits of the Resident's authority to approve and therefore must be submitted to the Supervisor for concurrence and **signature:**

1. Changes in geometric design of the project or structural design of bridges, including foundations, and culverts greater than 1.8 m. in diameter.

2. Revision of typical plan cross-sections.

3. The addition, deletion, or relocation of any bridge or other structure which affects the function or intent of the approved design.

4. Changes in Right-of Way

5. The addition of work outside project limits. An exception is work necessary for erosion control, in which

case the property owner's permission is needed and put in writing.

6. Changes that alter contract Specifications or other requirements of the contract.

7. Changes that will affect the safety and operation of traffic other than what is allowed under the terms of the contract.

2. Changes that result in an increase or decrease of 25 percent or more in major items of the contract. A major item is one that exceeds 10 percent of the awarded contract amount. These changes may result in increases or decreases in bid prices. Section 109.1.2, Division 100 of the Specifications – Green Cover, defines a major change.

9. Changes that exceed $10,000.00 in cost and result in negotiated prices or payment by force account.

10. Changes which may require modification to previously approved environmental permits.

2. Quality Control/Quality Assurance provisions added to the contract.

2. Significant changes in completion dates or other time constraints, if not addressed as part of other work orders.

All of the above situations, the Resident can obtain verbal approval from his or her Supervisor before the Contractor does the work, and will follow up by a signed work order. The Supervisor's approval will be noted on the Contract Modification.

109.6 Contract Modifications Requiring Federal Approval.

Every construction season, the Federal Highway Administration will designate certain federally funded projects as "Direct Involvement" projects. On these jobs the FHW A will be involved in the design and construction more so than on other projects, and will do on-site visits on a regular basis. The Resident should ask their Supervisor or the Designer if his or her job is a Direct Involvement project.

Types of work orders described in Section 109.5 –Contract Modifications Requiring Supervisor Approval will also need concurrence from the FHW A on Direct Involvement projects. The Resident can obtain Federal approval verbally and so note on the Contract Modification this can be done by phone or when the FHWA Engineer visits the project, preferably prior to the work being done. Details of the conversation such as name of the FHW A Engineer and date the conversation took place should be recorded on the Contract Modification. A copy of the Contract Modification should be mailed to the FHW A for documentation. Copies of all Resident's Contract Modifications should also be sent to the FHW A prior to project completion.

109.7 Method of Payment for the Work.

The Specifications, Section 109.7 – Equitable Adjustments to Compensation, specifies that payment for extra work will be made by any one or a combination of the following methods:

1. Agreed Unit Prices.
2. Lump Sum.
3. Force Account.

Agreed Unit Price includes miscellaneous extras such as, but not limited to: labor, materials, equipment, supervision, overtime, travel time, benefits, small tools, transportation, profit, overhead, and other incidental items of work.

Lump Sum is all inclusive and includes extraneous items such as: profit, overhead, regular and overtime labor,

supervision, benefits, materials, equipment, and miscellaneous small tools.

Lump Sum payments for work included in a contract modification should be reserved for work that is difficult to measure, for example a temporary signal. A Lump Sum payment may also be used to track the cost of a particular scope of work, for example, the change(s) may include using several existing or added items. In this case the resident shall measure, inspect and accept the quantities and pay items per standard specification(s), and then when the scope of the work is complete, make the payment of all work Lump Sum.

It is becoming common practice for the contractors to request additional compensation for existing lump sum item(s) in the contract when work is added through contract modifications. For example, the resident decides to add 1000' of underdrain to a project and the contractor request that the lump sum items of Traffic Control, Erosion Control and Field Office be pro-rated for any days that may be added to the completion date. The resident may honor this request, but special attention should be given to the reasonableness of the cost before the agreement is reached. For example, a week is added to the contract and the pro-rated value for a field office is $200 per day, then the resident should decide to move toward force account to pay for the actual cost of the contractor.

If agreement cannot be reached between the Contractor and the Resident on methods 1 or 2, the Contractor must accept payment on a force account basis. Reference is made to Specifications, Sections 109.3 – Extra Work and 109.7.2 – Basis of Payment.

Force Account should be used only when either of the following conditions are present:

1. The extent of the work is difficult to predict, and therefore the cost cannot be estimated with any degree of accuracy.
2. The Resident and the Contractor cannot come to an agreement on unit prices *or* lump sum prices. Sections 109.7.3, 109.7.4, and 109.7.5 of Division 100 – Specifications, explain in detail how to calculate payment made by force account.

The following is a brief summary of the contents of the Sections noted above:

Materials: actual cost supported by receipted bills plus 15 percent mark-up

Labor: payroll cost for regular and overtime plus 90 percent for laborers and foremen directly involved in the work.

Equipment: "Blue Book" rates, available from the Contracts and Specifications Section.

Mark-Ups: The Prime Contractor is allowed a 5 percent mark-up on a subcontractor's bill for profit and handling of paperwork. When force account work is involved, a 90 percent mark-up is allowed on payroll labor rates and a 15 percent mark-up is allowed on materials. No further mark-ups are permitted.

Regardless which method is used to pay for extra work, whether agreed unit prices, lump sum, or force account, estimating the cost before the work is done is necessary. The Resident should have an idea of what the work will cost before the Contractor submits their price. The figures will be submitted to the Supervisor with the Work Order; other documentation such as receipted bills and price quotes will remain in the Resident's project files. Back-up documentation and cost estimates for Resident's Contract Modification will be kept in the project files on site also.

Contract Modification

MDOT

3/12/2007 11:26 AM
FieldManager 4.1a

Contract: 002852.10, KENNEBUNK

Cont. Mod. Number	Revision Number	Cont. Mod. Date	Net Change	Awarded Contract Amount
21		3/12/2007	$-1,000.00	$2,373,386.00

Route

Contract Location
RTE.35

Short Description
This section will contain the scope of work that is added by this contract modification

Description of Changes
This section will contain the infomation on how the added work is to be paid.
Such as;
1) using existing bid items
2) new bid items that include a quote from the contractor
2) Lump sum quote from the contractor, see attached
3) Force account

Also note all other considerations that are to be included with this contractor modifications
Such as but not limited to;
1) Specification and or testing revisions
2) Design revisions
3) Time extensions

New Items
Project: 002852.10, KENNEBUNK
Category: 0001, HIGHWAY ITEMS

Item Description	Item Code	Prop.Ln.	ItemType	Unit	Proposed Qty.	Unit Price	Dollar Value
TRAFFIC CONTROL PENALTY	652.3901	1215	CHANGE	EA	-1.000	1,000.00000	$-1,000.00

Reason: Note the reason for adding this item to the contract.
Such as: ref project Diary date 8-17-07

Subtotal for Category 0001: $-1,000.00

Subtotal for Project 002852.10: $-1,000.00

Figure; Contents of a Contract Modification

Division 200 – Earthwork

201.5 Clearing, Tree and Stump Removal- Field Documentation. Measurement. and Payment.

This Section describes the recordkeeping necessary to document and measure clearing and the removal of single trees and stumps.

Field Documentation.

Project Diary, Inspector's Diary/Inspector's Daily Report: The Resident or Inspector will keep notes describing the subcontractor's clearing and selective clearing operations; equipment, personnel, and station to station limits of work will be noted. Workers and equipment need not be recorded every day unless there are frequent changes.

The Contractor, or more commonly the clearing subcontractor, will take the clearing limits from the plans and flag them in the field. If the Resident makes substantial changes or if the limits are not shown on the plans, a clearing list will be made up by the Resident and a copy given to the Contractor. For sample Inspector Diary entry, ref pg 90

Measurement and Payment.

Final quantity for payment can be plan quantity providing the estimated quantity is accurate and work is done as estimated. The Resident will adjust the plan quantity, upward or downward, according to changes made in the field.

Should the Resident find it necessary to establish new limits for the entire job, final pay quantity will be figured from these revised limits flagged in the field. A list of new limits will be made part of the project records.

Whether the Resident makes final payment based on plan quantity or based on a list of revised clearing limits, he/she must substantiate final payment by notes stating that clearing has been completed and accepted to limits flagged. These notes will be made in the Final Quantity Book or in the Construction Book.

Single trees and stumps required to be removed outside clearing areas will be field counted and entered directly in the Final Quantity Book for payment. All measurements will be signed and dated.

Final quantity for payment will be entered in the Final Quantity Book and labeled as such; reference to measurements, clearing limits flagged, and statements of inspection will be made as necessary. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

202.5 Removal of Structures, Obstructions, Pavement - Field Documentation, Measurement and Payment.

This Section describes the recordkeeping necessary to document and measure the removal of structures, pavement, and other existing structures designated to be removed under pay items in Section 202.

Field Documentation.

Project Diary, Inspector's Diary/Inspector's Daily Report: The Resident or Inspector will keep notes describing, for example, demolition of buildings, removal of bridge superstructures and substructures, removal of pavement and other obstructions for which there is a pay item in the contract. Station to station limits of work done by the Contractor, if appropriate, and disposal will be noted. Disposal usually consists of hauling materials to a waste dump, turning over to a State or Town Official, or stockpiling for future use.

The Contractor may need a permit to dispose of certain building materials off the project. The Resident should review the special Provisions of the Contract and contact the Environmental Services Section in Augusta for advice regarding permits.

Special Provisions of the Contract may require that certain components of the existing bridge become property of the State or the Town. The Resident should obtain the signature of the individual receiving such materials.

Measurement and Payment.

Final quantity for payment will be entered in the Final Quantity Book arid labeled as such.

For items to be paid lump sum, the Resident will make reference to notes in the Project Diary that document progress of work. A statement of final inspection and acceptance will be made in the Final Quantity Book.

For items to be paid by the unit, such as removal of existing concrete, reference will be made to field measurements. These measurements will be entered in a Construction Book or directly in the Final Quantity Book; all measurements will be signed and dated.

For items to be paid plan quantity, such as removing existing pavement, the estimated quantity must be accurately figured and the actual work limits must be the same as those shown in the Engineer's Estimate. The Resident may have to adjust the Estimate to reflect field changes. As for lump sum items, the Resident will make references to Diary notes verifying that work has been done as estimated. These notes may be made directly in the Final Quantity Book. If the plan quantity is a "throw-in" quantity, i.e., has no basis other than a guess, the work in question will have to be field measured.

Removal of curb, fence, and guardrail will be incidental to the work in general. No separate payment will be made unless there exists specific pay items in the contract for these items.

All calculations and data entries must signed, dated and checked; the checker must sign and date their work.

203.5 Excavation - Field Documentation, Measurement, and Payment.

This section describes the recordkeeping necessary to document and measure excavation. It is recommended that you read Division 900 - Project Records of this Manual to better acquaint yourself with project recordkeeping in general.

Field Documentation.

Project Diary, Inspector's Diary/Inspector's Daily Report. By Specifications, the Contractor is required to place usable excavation within the slopes of the embankment;

no excavation can be hauled off the project without the Resident's approval. It is their responsibility to determine what material can be used on the job, or can be wasted, or stockpiled for future use. This becomes particularly important on a "borrow job" as the amount of wasted excavation directly affects the amount of borrow required. A project is a "borrow job" when material from off the project is required to meet the fill requirements of the contract.

The Resident, or the Inspector if one is assigned to cover excavation items, will keep daily notes of the Contractor's activities relative to earth and rock excavation. It is the Resident's option, whether or not the Inspector is to keep a Diary or Daily Report. The Resident may prefer to have all daily documentation entered directly in the Project Diary. Entries will be made documenting station to station limits of material excavated and locations where placed. It is important to record such information as: material directed to be placed within the core of the embankment or in waste storage areas within embankment limits, or to be stockpiled for future use on the project, or hauled to waste dumps off the job.

Circumstances surrounding the hauling of excavation off the project must be explained, particularly if the project is a borrow job. Material suitable to be placed in the embankment, but wasted without the Resident's permission will be deducted from borrow. Likewise, material only suitable to be placed in waste storage areas outside the core of the embankment, but wasted without permission will also be deducted from borrow. Excess excavation, not required for embankment construction, will be hauled off the project and disposed in waste dumps or other locations approved by the Resident. Excavation that the Contractor stockpiles away from the job for future use on the project will or will not be measured for a second payment, depending on whether or not the Resident has allowed stockpiling. Section 203 of the Specifications, Basis of Payment, allows payment for the rehandling of excavation when it is not possible for the Contractor to do otherwise.

Added undercuts, changes in ditches either in grade or offset, changes in backslopes such as flattening, changes in excavation limits to the approaches, and changes in drives must also be noted and measured for payment.

Grade Check Book. It is a requirement of the Department that the Resident or Inspector spot check the Contractor's grading operations to assure that fine-grading is done within construction tolerances stated in the Specifications. It is recommended although not a requirement, that a "Grade Check Book" be made part of the project records. This book will serve as a convenient and ready reference for checking sub grade, sidewalks, ditches, and backslopes on mainline and side roads, and also for keeping tract of what areas the Contractor has fine-graded and what areas have been spot checked. This book should be set up prior to the start of excavation and borrow operations so that the Resident, when in the process of figuring offsets and grades, will discover possible errors in the plans and will also become familiar with the geometrics of the job before work begins.

Whether or not the Resident uses a Grade Check Book, some written documentation must be entered in the project records that the Contractor's fine-grading operations have been checked and approved. These entries may be made in the Project Diary, Inspector's Diary, Daily Report, directly in the Final Quantity Book, or in the Grade Check Book if there is one.

For sample project diary documentation ref page 64, Final Quantity Entries ref page 65 & 66 and Construction Book entries ref page 80,82,85,88 & 92.

Measurement and Payment

Final quantity for payment can be the figure shown in the Schedule of Items in the contract, more frequently called the “plan quantity”. The Resident may pay plan quantity as final payment but the following two conditions must be met: the quantity estimated, i.e., the Engineer’s Estimate, must be reviewed for accuracy and considered reasonably accurate, and the limits of excavation in the field must approximate those estimated.

Frequently the plan quantity must be adjusted, upward or downward, because of changes made in the field and also because of increases or decreases in quantity of rock excavation estimated. The Engineer’s Estimate must be reviewed to assure that rock is not included in the quantity of earth figured. Changes will be measured and recorded directly in the Final Quantity Book or in the Construction Book. Types of changes are described under Field Documentation, above. The Final Quantity Book and the Construction Book are described in Division 900, Section 901.3 of this Manual.

Field changes and added work will be measured by load count, by length, width, and depth, or by original and final cross-sections. Load count will be reduced by 10 percent to arrive at a quantity equivalent to what would be measured in its original position. Computations may be done in the Final Quantity Book, in the Construction Book, or on computation sheets that are part of the Final Quantity Computations Book. If the Resident uses the computer program “Field Manager”, the Item History to Date will be generated in lieu of a Final Quantity Book.

Wasting of excavation without the Resident’s permission will be measured and deducted from borrow. Measurement will be by load count or by length, width, and depth. Load count excavation will be reduced to 90 percent for deduction purposes; excavation measured in-place off the project will be deducted at 100 percent of quantity so measured.

Muck and grubbing excavated beyond limits shown on the plans will not be measured for payment unless the Resident has authorized a change in the limits. Lateral excavation limits for muck excavation are determined by the intersection of the bottom of the excavation and a l: 1 slope line drawn down from the finish shoulder break. Borrow placed in over excavated areas will not be deducted unless the excavation beyond lateral limits is deliberate or due to negligence by the Contractor.

All pay quantities will be entered in the Final Quantity Book and referenced to the source document; the final pay quantity will be so labeled. A chain of referencing from the

Final Quantity Book to the original record is always needed. All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.

Rock Excavation: Unlike earth excavation, it is usually the case that the actual quantity of rock excavated will not agree with the Engineer’s Estimate. Since soundings are normally taken some distance apart, original ledge cross-sections drawn on the plans do not accurately describe top of ledge, particularly where there is earth overburden. Abrupt changes in elevations are not always detected and also, boulders may be mistaken for solid ledge. This lack of detailed information results in errors in the estimated quantity, and therefore the “plan quantity” cannot be used to make final payment. If earth is paid plan quantity, it must be adjusted according to actual quantity or rock paid.

Rock has to be re-sectioned before removal; but, if the Contractor does not want to strip ledge prior to blasting, top of ledge elevations can be determined, by recording from a known elevation, depth the drill rig has to go before hitting solid rock. Section 203.04 General, requires that the Contractor remove overburden before original cross-sections are taken; it is the Resident’s prerogative, therefore, whether or not to allow the Contractor to leave the earth in place before blasting.

Quantity of ledge for payment will be figured from “new” originals to the design cross- section if rock is removed to the construction limits described in Section 203.05 of the Specifications. No payment will be made for rock removed beyond the design cross-sections unless the Resident has directed a change in design. Section 203.18 Method of Measurement, Specifications, defines pay limits. Quantities will be computed by the average end area method. A computer program is available from the Augusta Office, Survey, to figure ledge quantities. Print-outs will be made part of the Final Quantity Computations Book.

Boulders, concrete, solidly mortared masonry, all defined in Section 203.01(b), and small quantities of rock

such as ledge nubbles, will be measured by three dimensions. Boulders encountered at sub grade during excavation operations will be measured as rock excavation and the portion estimated to be above sub grade will be deducted from earth excavation. A “pay” boulder is defined in Section 203.1(b) referred to above.

The situation may arise where ledge is not measured in its original position but is measured load count or in its final location as riprap or rock fill. The quantity so measured will be reduced to 75 percent to determine the amount of rock excavation for payment, the reason being that ledge swells after it is excavated. Measurements and sketches if needed for clarification will be entered in a bound field book, which would be the Construction Book or the Final Quantity Book.

If the job is bid “unclassified”, the Resident should make note of the elevation of actual top of ledge where backs lopes are designed on a Y4: 1. In deep ledge cuts, pay limits of earth overburden have to be adjusted depending on the elevation of the ledge.

If the Contractor wastes rock without the Resident’s permission and the result is an increase in the amount of borrow needed to meet the fill requirements of the contract, the quantity of rock wasted will be deducted from borrow at 100 percent of the quantity so measured. All measurements and load counts will be entered in a bound field book.

All quantities for payment will be entered in the Final Quantity Book and referenced to the source document. There must always be a trail of reference from the Final Quantity Book to the original record. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work. The final quantity for payment must be labeled as such and signed, checked, and dated.**

Item History to Date

3/12/2007 12:13 PM

MDOT

FieldManager 4.1a

Contract: 002852.10, KENNEBUNK

Item Description	Item Code	Prop. Line	Unit	Type	Unit Price
COMMON EXCAVATION	203.20	0050	M3	ORIGINAL ITEI	8.00000

Authorized Quantity	Authorized Amount	Quantity Placed	Quantity Paid	Quantity Unpaid	Item Completed
23,500.000	188,000.00	23,523.000	23,523.000	0.000	No

Documentation	Attention	Notes
All material that is not used on this project is being wasted at Cooper waste area	No	Ref book #4, Grade check book for subgrade checks

Projects And Categories

Project	Project Description	Catg	Category Description	Authorized Quantity	Pending Changes	Quantity Placed	Quantity Paid	Quantity Unpaid
002852.10	KENNEBUNK	0001	HIGHWAY ITEMS	23,500.000	0.000	23,523.000	23,523.000	0.000

Contractors

Contractor	Remarks
A & V CONSTRUCTION, CORP.	

FIGURE: COMMON EXCAVATION – PACKAGING REFERENCES

203.6 Borrow - Field Documentation, Measurement, and Payment.

This section describes the recordkeeping necessary to document and measure borrow required to meet the fill requirements of the contract.

Field Documentation.

Project Diary, Inspector's Diary/Inspector's Daily Report: Specifications, Section 203.03, Unauthorized Use of Materials, and Section 203.04 General, require that no excavation suitable for embankment construction be hauled off the project. The Resident or the Inspector is to make note of wasted excavation and the nature of it, since the more excavation the Contractor removes from the project, whether authorized or not, the more borrow is needed to construct the embankments.

The Resident or the Inspector will keep daily notes in the Project Diary or the Inspector's Diary/Daily Report relative to the Contractor's operations. Name of the pit that borrow is being hauled from and station to station limits it is being placed, whether in the core of the embankment or in waste storage areas. These areas, which are beyond the 1: 1 slope from the finish shoulder break, are to be reserved for the placement of grubbings or other excavation not suitable for constructing the core of the embankment. The Contractor should not be allowed to place borrow in these areas if there is waste excavation available.

Ideally, the Contractor should complete all excavation operations prior to hauling borrow to the project. Ifhe/she places borrow on the job before all excavation is complete, the Resident should advise the Contractor that he/she is doing so at the risk of having some borrow deducted from the final pay quantity at a later time. As stated previously, no excavation is to be removed from the project if it can be placed either in the core of the embankment or in waste storage areas. The case may arise, usually because traffic has to be maintained on the existing road, where borrow has to hauled to the job before excavation is complete. The result is that good excavation is wasted; in this situation the Contractor is not penalized. Discussions relating to these matters must be noted in the Diaries.

Borrow diverted for the Contractor's own use must be documented as well; materials used to maintain a haul road or town road, or to grade the equipment yard is all to be deducted from borrow if the material comes from a sectioned pit.

Grade Check Book. As stated previously under Section 203.5 - Excavation, documentation of subgrade checks is a requirement of the Department, whether the operation is in a cut or in a fill. Refer to Section 203.5, Grade Check Book, for further discussion of grade checks.

For sample final quantity book entries ref page 67, for construction book entries ref page 82 and for inspectors diary entries ref page 90 & 91

Measurement and Payment

Borrow: While common excavation can be paid plan quantity, borrow cannot. An exception is when the plans require backfill behind abutments and around multi-plate pipes to be granular borrow or gravel borrow. Specifications, Section 203, Method of Measurement, allow backfill around bridge structures to be paid plan quantity.

When the Designer estimates the quantity of borrow required for the project, he/she makes assumptions that may or may not be representative of what actually happens in the field, particularly on bridge projects. Quantity of excavation estimated to be available for fills is, to some extent, guesswork. Some of the excavation mayor may not be suitable for embankment construction or a situation may exist on the job that makes excavation not available in a timely manner; an example would be traffic maintenance on the existing roadway. The result is that the actual quantity of borrow used on the job is usually not what is estimated.

For these reasons, final quantity of borrow must be determined from actual measurements. The Resident will use the following methods or a combination thereof:

Cross Sections. By Standard Specifications, the contract bid price for borrow is based on the material being

measured in its original position, i.e., in the pit. When measured any other way, the quantity must be adjusted as explained below. Original cross-sections are taken in the pit after the Contractor has stripped the surface and before excavating and hauling operations begin. The Survey Crew should flag the pit limits to alert the equipment operators not to remove material beyond the outer limits of the original cross-sections. Final sections will be taken after the pit has been graded and before grubbings, loam, or other material that can support a growth of grass has been spread. Specifications, Division 105.8.6, addresses pit rehabilitation.

Borrow pushed up and beyond the edge of pit at its perimeter will be deducted from the overall quantity measured for payment. The Survey Section uses a “total station” computer program to take cross-sections and to compute quantities; a print-out of each cross-section is available.

Load Count. It is frequently not practical to figure borrow quantities by cross-sectioning the source. Since nearly all borrow pits are commercial pits and therefore are available to the public, it is nearly impossible for the Contractor to guarantee or even assure the Resident that all material taken out of a sectioned pit will be hauled to the job.

Load count, providing the total quantity measured is less than 5000 cm, offers an alternative to the cross-sectional method. There are two problems common to load counted material: trucks not being fully loaded and drivers reporting more trips than what they actully haul. For these reasons, it is advisable to assign an inspector or ticket taker to witness and to collect delivery slips for every load hauled. If, because of lack of personnel, this cannot be done, the Resident or Inspector assigned must do a random check of the Contractor’s hauling operations. The Resident should do a “time study”, i.e., determine how long it takes for a driver, or more than one, to make a round trip from the pit to the site, and also to visually observe if the trucks are fully loaded.

Section 203.18, Method of Measurement, Specifications, requires that borrow by load count must be reduced to 90 percent of the quantity so measured.

In-Place Measure. A third method of measuring borrow is to compute the quantity in its final position, more commonly called “in-place-measure”. This method is particularly suited to bridge projects. The procedure to follow is to figure the total quantity in the embankment from the design template to original ground or to bottom of grubbing limits. The excavation placed in the fill would be deducted from the total embankment and the resulting figure would be swelled 15 percent for final payment.

If earth excavation that is placed in fills is measured in its original position, it will be shrunk 15 percent before being deducted from the total embankment quantity. If it is measured in its final position, i.e., in the embankment, it will be deducted at 100 percent of the quantity so measured. If it is measured load count, it will be shrunk 25 percent before deduction.

If rock excavation that is placed in fills is measured in its original position, it will be swelled 33 percent before being deducted from the total embankment quantity. If it measured in its final position or by load count, it will be deducted at 100 percent of the quantity so measured.

Borrow Deductions. When the Resident computes the final pay quantity of borrow, he/she must determine if any of the material should be excluded from payment.

Unless directed by the Resident, all usable excavation will be placed in the core of the embankment and all waste excavation will be placed in waste storage areas, either as shown on the plan cross-sections or as directed in the field. Only excess excavation can be hauled offsite. Borrow diverted for the Contractor’s own use or placed in unauthorized areas will be at their expense. Specifications, Section 203.18 - Method of Measurement, states that material placed outside the embankment will not be eligible for payment.

For deduction purposes, the following situations are to be considered:

Borrow is placed ahead of excavation operations which results in a surplus of excavation: Common excavation and rock excavation wasted will be swelled 15 percent before deduction; reference is made to Section 203.04.

Excavation is hauled off the job instead of being placed in the embankment and then later replaced with borrow because of convenience and ease of operation to the Contractor: The quantity of excavation that could have been placed in the embankment will be deducted from borrow at 100 percent of the quantity so measured.

Excavation is placed in the embankment beyond the design template in concentrated areas as opposed to being distributed throughout all fills, thus creating “fat” slopes: Earth and rock excavation placed beyond the

pay limits defined in Section 203.18 - Method of Measurement, Specifications – 6", will be deducted from borrow at 100 percent of the quantity so measured.

Borrow is placed in embankments beyond the design template, the result being "fat" slopes: Quantity placed beyond the pay limits defined in Section 203.18 will be deducted from borrow. Deduction will be made at 100 percent of the quantity so measured.

Borrow is diverted for the Contractor's own use: Material used to dress the Contractor's equipment yard or a waste dump, or to upgrade a haul road or town road will not be included for payment. Deduction will be made at 115 percent of the quantity so measured; refer to Section 203.03 - Unauthorized Use of Materials, Specifications.

Final quantity for payment will be entered in the Final Quantity Book. Subtotals, and deductions making up the final quantity for payment will be entered in the Final Quantity Book and referenced back to source. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

206.5 Structural Excavation - Field Documentation, Measurement, and Payment.

This Section describes the recordkeeping necessary to document and measure the excavation of earth and rock required to install culverts, bridge abutments, and other structures.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report, Drainage Book, and Construction Book: The Resident or Inspector will keep notes describing the Contractor's excavation operations required for the installation of drainage, bridges, and other structures. These notes will describe location and final disposition of the material, whether on the job or off the job.

Documentation of installation of culverts, underdrain, catch basins, and manholes will be entered in the Project Diary. If the drainage is extensive, a Drainage Book should be set up prior to the work being done and all notes pertaining to drainage work will be entered in the Drainage Book. Reference is made to Division 900 of this Manual for further explanation of the Drainage Book. Undercutting to provide a stable foundation, bedding, excavating rock, and material used to maintain traffic will be noted and measured for payment.

Documentation of construction of bridge abutments, pier footings, wingwalls, retaining walls, multiplate pipes, and other major structures will be entered in the Project Diary or Construction Book. The Construction Book will be used if layout and/or field measurements and sketches are required. Typical measurements would be for rock excavation and undercutting. Division 900 of this Manual explains the Construction Book and how it is used.

Documentation of installation of other miscellaneous minor structures will be entered in the Project Diary or the Construction Book. The Construction Book will be used if layout and measurements for removal of rock or unstable foundation material are required.

For sample construction book entries ref page 84 & 86 and for inspectors diary entries ref page 89,90,91 & 93.

Measurement and Payment.

Drainage and Minor Structures: In areas of full width construction and reconstruction of shoulders, excavation for culverts, catch basins, and other minor structures is incidental from sub grade down to 12" below the flow line of the pipe or bottom of the base. Excavation required below that point for stable foundation or change in grade will be paid under the item "Structural Earth Excavation-Below Grade". That quantity will not be paid plan quantity; this figure is a "throw-in" and is not necessarily based on work anticipated to be done. Quantity for payment must be field measured. Measurements and sketches will be entered in the Drainage Book, signed and dated. Depth will be as directed by the Resident and width will be the limits defined in Section 206.04 of the Specifications and sheet #605(1) of the Standard Details for underdrain.

Rock excavation for drainage and other minor structures will be the quantity actually excavated to the pay limits defined in Section 206.04 of the Specifications. Measurements and sketches will be entered in the Drainage Book, signed and dated.

Bedding material will be computed to depth authorized beginning at the flow line of the pipe or bottom of the base in the case of catch basins; width will be as defined in the Specifications.

Major Structures: Section 206.04 of the Specifications states that final payment for earth excavated for bridge abutments and piers will be the quantity shown on the plans unless the structure is founded on ledge. In this case payment for earth and rock removed would be based on field measurements. Since top of ledge shown on the plans is not accurate, new ledge originals would be needed. Original cross-sections will be taken at right angles to the centerline of bearing at close intervals.

Quantity of earth will be figured vertically from original ground or roadway sub grade to top of ledge and horizontally to pay limits shown on the plans or to 18" beyond the footing. If actual top of ledge is lower than the elevation shown on the plans, earth excavated below that elevation will be paid at I 1/2 times the bid price for structural earth excavation. Typically, elevation of top of ledge is shown on the plans as, for example: 26 +/- . Such a designation would be interpreted to mean that only earth excavated below elevation 25 would be paid at I 1/2 times the price. Another example would be: if the elevation shown were 26.0+/-, earth excavated below 25.9 would be paid at 1 1/2 times the price. Likewise, if the elevation of bottom of footing is lowered due to change in design, excavation below, the original elevation shown would also be paid at 1 1/2 times the price.

If the plans call for excavating into ledge for the footing, the Contractor is allowed a pay tolerance of up to 12"

below the elevation of the bottom of the footing. Rock excavated and concrete placed below the 12” tolerance will not be paid. If the Resident directs the Contractor to remove rock below bottom of footing elevation because of a change in design or because of the soft nature of the ledge, it will be paid at 1 ½ times the bid price for structural rock excavation.

“Pay” boulders, defined in Section 203.0l(b) of the Specifications, that are found partly within the excavation limits for drainage and major structures will be measured and computed for payment as follows: that portion estimated to be within the structural excavation pay lines will be paid as such and the remainder will be paid as common rock excavation.

There will be no payment for rehandling structural excavation; the bid price includes excavating, rehandling as many times as necessary, and placing in its final position, whether it be in the embankment, waste storage areas, or off the project.

Final quantities of structural earth excavation-below grade and structural rock excavation will be entered in the Final Quantity Book and labeled as such. References will be made, as appropriate, to the Drainage Book or Construction Book for measurements and computations.

All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.

Division 300 – Bases

304.5 Aggregate Base and Subbase - Field Documentation. Measurement. and Payment.

This Section describes the recordkeeping necessary to document and measure aggregate base and subbase on the project.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes describing the Contractor's aggregate base and subbase operations. Information recorded will be: name of pit the material is coming from, station to station limits where it is placed, and whether placed in one lift or two lifts.

The Resident is responsible for quality assurance testing; he/she must assure that a Technician from the Department is available to do the testing required. Tests the Contractor may take are not to be counted toward the total number needed; these tests are to be considered as quality control for the Contractor's benefit only. Reference is made to Division 900, Section 901.4, of this Manual for further discussion of "Minimum Testing requirements".

Gravel can fail gradation or density or both. Corrective action directed by the Resident will be documented; more compactive effort may be required or material failing in gradation may have to be removed.

Sections 304.03 and 304.04 of the Specifications requires the Contractor to place the material in two lifts, but he/she can be allowed to place it in one. Gravel placed in one lift must meet density requirements full depth and therefore the lower portion of the one lift will be tested. If it fails, the Contractor must take whatever action necessary to attain passing density full depth.

Grade Check Book: The Department requires that the Resident or Inspector do random checks of sub grade and top of gravel to assure that the Contractor is placing gravel within construction tolerances. Checks should be done between stations as well as on station. Reference is made to Division 900, Section 901.3 and to Division 200, Section 203.5 for further discussion of the Grade Check book.

For sample project diary entries ref page 64, for final quantity book entries ref page 69, for construction book entries ref page 81 & 82 and for inspectors diary entries ref page 91 & 92.

Measurement and Payment.

Final quantity for aggregate base and subbase can be figured by anyone or a combination of the following methods:

Plan Quantity. Quantity for payment can be plan quantity providing the Resident reviews Engineer's Estimate for accuracy and the work is done to the limits estimated. It is often the situation that side streets and mainline approaches and drives are changed to match field conditions; the Estimate should be adjusted to meet these field conditions as necessary. Payment by plan quantity shall be documented by written agreement in the form of a Resident's Work Order. The agreement should state that the plan quantity will be adjusted upward or downward if changes are made in the field. Changes will be measured by three dimensions or load count described below.

In-Place Measurement. If the estimated quantity has no basis, commonly referred to as a "throw in" figure, gravel for the project will have to be refigured. Typical factors should be used for mainline travelway and shoulders where possible. Three dimensional measurements and/or plan dimensions can be used for drives, approaches and intersection areas. Gravel used to backfill undercut areas or to provide bedding for drainage can also be measured and computed by three dimensions to limits authorized. For drainage, depth will be figured from flow line of the pipe and width will be figured to the lateral pay limits defined in Section 206.04 of the Specifications.

Load Count. Gravel can be measured load count if: there is not a large quantity involved and the work involves mostly traffic maintenance or matching into, existing material. By Specifications, gravel measured load count will be reduced 20 percent for payment to arrive at an equivalent quantity measured in its final position. Refer to Section 304.06 of the Specifications for clarification.

Final quantity for payment will be entered in the Final Quantity Book and labeled as such. Reference will be made to grade checks, measurements, load count delivery slips, and computations in the project records, as necessary. Measurements and delivery slip totals must be entered in a bound book which can be the Final Quantity Book or the Construction Book. Reference is made to Division 900, Section 901.3 of this Manual for further discussion of field books. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

Item History to Date

3/12/2007 11:36 AM

MDOT

FieldManager 4.1a

Contract: 002852.10, KENNEBUNK

Item Description	Item Code	Prop. Line	Unit	Type	Unit Price
AGGR SUBB COURSE - GRAVEL	304.10	0080	M3	ORIGINAL ITEI	16.00000

Authorized Quantity	Authorized Amount	Quantity Placed	Quantity Paid	Quantity Unpaid	Item Completed
12,400.000	198,400.00	12,701.000	12,701.000	0.000	No

Documentation	Attention	Notes
All material coming from the Smith Pit in Biddeford	No	See Book #5, Grade check book for all notes on Finegrade checks

Projects And Categories

Project	Project Description	Catg	Category Description	Authorized Quantity	Pending Changes	Quantity Placed	Quantity Paid	Quantity Unpaid
002852.10	KENNEBUNK	0001	HIGHWAY ITEMS	12,400.000	0.000	12,701.000	12,701.000	0.000

Contractors

Contractor	Remarks
A & V CONSTRUCTION, CORP.	

Figure: 304.10 ASCG PACKAGING REFRENCES

307, 309 & 310 Recycled Pavement - Field documentation. Measurement, and Payment.

This Section describes the recordkeeping necessary to document and measure the recycling of existing pavement.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes describing the Contractor's operations on the road and in the plant.

Full Depth Recycled Pavement. Field notes will include weather conditions, station to station limits of work, and description of equipment used: pulverizer, grader/spreader, rollers. The Inspector will also document inspection procedures and check measurements of work done, such as: depth of grinding operations, cross-slope, and density of the finished product. Any added aggregate or recycled pavement used as necessary to restore cross-slope will also be noted, tested, and measured for payment if required.

Plant Mixed Recycled Pavement, Foamed Asphalt & CIP require a QC/QA plan to be submitted. Field notes will be the same as for recycled pavement with additional documentation regarding plant inspections.

For sample final quantity book entries ref page 70.

Method of Measurement.

Final quantity of recycled pavement can be figured by either of the two following methods:

Plan Quantity. Quantity for payment can be "plan quantity" providing the estimated quantity shown in the Schedule of Items is reasonably accurate and work is done to the limits estimated. Payment by plan quantity should be documented by written agreement such as a memo or Resident's Work Order, between the Resident and the Contractor.

The agreement must stipulate that the plan quantity will be adjusted upward or downward if changes are made in the field. Quantities paid "plan quantity" will be documented by notes of inspection and acceptance entered in the Project Diary, or directly in the Final Quantity Book.

In-Place Measurement. If the estimated quantity is not figured accurately enough to pay as a final figure, the final pay quantity will be determined from field measurements, or will be refigured from the plans, or a combination of both. Length will be distance between stations and width will be field measured Frequency of width measurements will depend on road width consistency. All measurements, and sketches if required, will be recorded in a Construction Book or directly in the final Quantity Book and signed and dated. Irregularly shaped areas such as ramp and side street approaches and intersections will be broken down into basic geometric shapes and measured by length and width. Dimensions taken from the plans land corresponding notes of inspection and acceptance also recorded in a Construction Book or the Final Quantity Book.

Added Material. If specified in the contract, material added to maintain cross-slope in areas not designated on the plans or in the construction notes will be paid separately under the item used. Measurement will be by load count reduced by 20 percent for final payment. Every load will be documented by a delivery slip that has been signed and dated at the point of delivery by the Resident or Inspector. Daily totals will be entered in the Final Quantity Book. Refer to Section 304.06 - Method of Measurement of the Specifications and Special Provisions for further explanation of shrinkage factors.

The Special Provisions, Section 108 should also be reviewed for the incorporation of Asphalt Pay Adjustment and the procedure how to determine the adjustment.

Final Quantity. Final quantity for payment will be entered in the Final Quantity Book and so labeled.
References will be made to statements of inspection and acceptance, plan dimensions, field measurements, and delivery slips, as necessary. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

Division 400 – Pavements

401.5 Hot Mix Asphalt Pavement - Field Documentation. Measurement. and Payment.

This Section describes the recordkeeping necessary to document and measure hot mix asphalt placed on the project.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report, Paving Report, Tally Sheet, Test and Data Reports: The Resident or Paving Inspector will document on a daily basis, the Contractor's paving operations. He/she will keep notes regarding: station to station limits of paving, inspection problems, observations regarding quality control, equipment, personnel, weather, and temperatures. It is strongly suggested that the Paving Inspector use the Paving Report. This document has a preprinted format that serves as a reminder to record all of this information. This report is to be filled in on a daily basis, prior to the start of the next day. Ticket taker will keep a tally of all loads delivered by noting delivery slip number, the location where placed and sign the delivery slip upon delivery. The primary purpose of the Truck Tally Sheet is to control the yield and to determine which loads are involved if a problem area develops. If the Resident can isolate the loads, he/she can correlate the questionable material with specific batching data on record in the plant and in this way the cause for the bad mix may be determined.

Contract Specifications state that quality of mix will be controlled by following the "QC/QA" requirements of Sections 401 and 106 of the Specifications. The Contractor will provide quality control by testing and inspection and will propose their quality control procedures by submitting a Quality Control Plan to the Resident for Departmental approval. Specifications, Section 401 outline the basic requirements of the Plan and also procedures for quality assurance testing that the Department will perform.

Section 401 of the Special Provisions defines the quality control and quality assurance requirements at three levels: Methods A, B, and C. Method A provides for pay incentives and disincentives. Method B provides for disincentives only. Quality control and quality assurance procedures are the same for Methods A and B.

Method C is used for mixes with quantities less than 250 tons, sidewalks, drives, and other mixes behind the curb that are generally referred to as "hand-placed". Quality control requirements are not as stringent as for Methods A and B. Section 401 defines the types and frequencies of QA tests to be taken.

Special Provision, Section 403, designates which method is to be used for a particular pavement item, usually based on quantity. To better understand quality control, quality assurance, and Methods A, B, and C, the contents of Specifications - Section 401 and Special Provision - Section 403 should be thoroughly read by the Resident and the Paving Inspector before paving operations begin. All quality control records and quality assurance records will be filed together in the Testing File daily.

For sample final quantity book entries ref page 71 and for inspectors diary entries ref page 93.

Measurement and Payment.

The delivery slip for each load of hot mix asphalt delivered to the project will be signed at the point of delivery by the Resident, Inspector or Ticket Taker. Daily total quantities for each pay item will be documented by a cover slip signed by the Contractor's Representative and the Resident or Inspector, and will be entered in the Final Quantity Book; all entries will be signed and dated. Delivery slips will be kept in the Resident's field office until the records are submitted to the Project Review Unit for final review. At that time the weigh slips may be discarded, but the cover slips will be kept as part of the project records.

Occasionally a load will be split between two pay items. Quantities will be determined by fractions noted on the slip, example: "pay 1/3 load as hand-placed". A rejected load will be documented by a note on the slip stating the reason such as: segregation, dry load, or low temperature.

Check weighing to verify the accuracy of the scales will be done twice during every five days of production. Section 401.085 of the Specifications explains the check weighing procedures.

Pay factor computations for incentives, disincentives, and penalties will be part of the Testing File but final cost figures will be entered in the Final Quantity Book with the digits 01 and descriptions added to the pertinent pay item number, for example: 403.20801 Incentive-HMA-9.5 mm.

Final quantity for payment will be figured in the Final Quantity Book from daily totals. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

Division 500 – Structures

501.5 Foundation Piles - Field Documentation. Measurement. and Payment.

This Section describes the recordkeeping required to document the installation and measurement of foundation piles.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Pile Driving Inspector will keep notes describing the Contractor's pile driving operations; personnel, equipment, working hours, and which abutment or pier being worked will be recorded.

The Resident will make a note in the Project Diary of the following: approval of the pile driving equipment, approval of driving procedures, approval of driving hammer, inspection and approval of pipe piles before Contractor places concrete. Sections 501.03 - Equipment and 501.04 - Driving Procedures and Tolerances of the Specifications address, in detail, equipment and driving of piles.

The Resident will document static and dynamic load testing. Static load testing: approval of testing procedures and the results will be recorded in the Project diary. Dynamic load testing: a report of test results will be submitted to the Resident and placed in the Testing File. Specifications, Section 501.07 - Pile Testing and Acceptance explains the requirements of load testing.

Pile tips and pile splicing procedures must be approved by the Resident. Notes will be made in the Project diary. Reference is made to Section 501.09 of the Specifications.

The Resident or the Pile Driving Inspector will complete the following records and make them part of the Final Quantity Computations Book:

Pile Layout Diagram. The layout diagram is a sketch of the outline of the foundation and the batter, identification, and location of each pile by number.

Pile Driving Report. This report identifies each pile driven by number, location, driving length, pay length, and cut-off length. It also gives the type of hammer and other data pertinent to the operation. This report must be kept current with the work and must be signed by the Inspector.

Report of Record Pile. This report is a driving log of a pile; it is an indication of the energy required and the resistance encountered during the driving operation. Two record piles are required for each foundation unit. These reports must also be signed and dated.

For sample project diary entries ref page 87 and for inspectors diary entries ref page 94.

Measurement and Payment.

Foundation Piles. Payment for piles furnished will be based on quantities ordered in writing by the Resident. Cut-off piles in excess of 10 feet for each piece will become property of the Department. A Special Provision in the Contract will designate how the excess will be disposed.

Payment for piles installed will be determined from pay lengths shown on the Pile Driving Report; pay length is the difference between the driving length and the cut-off length. In the case of pipe piles, there is no payment for concrete in them.

Splices and Tips. These will be recorded for payment on the Pile Driving Report.

Loading Tests. These tests will be paid per each; reference will be made to appropriate Diary notes and test results for documentation of quantities paid.

All final quantities for payment for piles delivered, piles driven, load tests, splices, and tips will be entered in the Final Quantity Book. References to documentation of quantities will be made to pile driving reports, to test results, and to entries in the Project Diary or Inspector's Diary for statements of approval. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their entries.**

502.5 Structural Concrete - Field Documentation Measurement and Payment.

This Section describes the recordkeeping necessary to document and measure concrete for major and minor structures.

Field Documentation. -

Project Diary, inspector's Diary/Daily Report: The Resident or inspector will keep notes describing the Contractor's pre-placement and placement activities, such as: excavation and preparation for erection of forms and installation of reinforcing steel. Equipment, personnel, weather, temperatures, and location of work site will be recorded also.

It is policy of the Department that the Inspector document in writing the inspection and approval of forms and reinforcing steel before a concrete placement. The Contractor is also required to do a "dry run" with the screed machine before the deck placement. The Inspector will note their observations during the dry run and also measure and record thickness of the deck slab as the concrete is placed. Notes can be entered in the Project Diary or Inspector's Diary or directly in the Final Quantity Book.

Concrete for sign bases, light bases, traffic signal bases, and other minor structures will be documented by Inspector's statements verifying that placement of forms, steel cages or mesh, anchor rods, and conduit have been checked and accepted.

For sample final quantity book entries ref page 72 & 73, for construction book entries ref page 84 and for inspectors diary entries ref page 89.

Measurement and Payment.

Final quantity for payment will be lump sum or by the cubic meter computed in-place as specified in the Schedule of Items in the Contract Book.

Lump Sum. This method of payment is specified in the bid schedule if the dimensions of the structure, be it abutment, pier, or deck, are clearly defined and not subject to change in the field. Final quantity for payment will be entered in the Final Quantity Book as "Lump Sum" and reference will be made to inspection and approval of forms, dry run of screed machine, check of the slab thickness, as appropriate.

Cubic Meter. Concrete paid by the unit is usually specified when the dimensions of the structure are not clearly identified, as when the footing is on ledge, or when the work consists of extending an existing abutment or placing a new footing on dry laid granite. In this situation, concrete is measured by delivery slip. The Inspector will sign the slip when the concrete is delivered to the site and he/she will also note amount wasted if any. The note will say, for example: "wasted l!4 cu meter", Quantity of concrete wasted shall be co-signed by the Contractor's Representative to show agreement with the amount in question. Delivery slip daily totals will be entered in the Final Quantity Book. The concrete may also be measured in-place providing a sufficient number of field measurements are taken; measurements will be entered in the Construction Book. All delivery slip totals and field measurements will be signed and dated.

Seal Concrete. When the item Structural Concrete - Placed Under Water, also known as "seal concrete", is bid by the cubic meter, and the distribution slab above it, part of the item Structural Concrete - Piers or Abutments, is also bid by the cubic meter, the following shall apply:

1. Top of seal is below plan elevation: Quantity of distribution slab is figured from plan measurements for payment and the difference between the plan measured quantity and the delivery slip quantity is paid as seal concrete. Presumably the delivery slip quantity for the distribution slab will be greater than the plan measured quantity.
2. Top of seal is above plan elevation: Quantity of distribution slab is determined from delivery slips for payment and the difference between the plan measured quantity and the delivery slip quantity is paid as seal concrete. Presumably in this case, the delivery slip quantity for the distribution slab will be less than the plan measured quantity.

To determine whether top of seal is above or below plan elevation, check shots will have to be taken to determine the approximate elevation of the seal.

Occasionally the Schedule of Items will specify concrete to be paid by the cubic meter as opposed to lump

sum even though the dimensions of the substructure are clearly shown on the plans and will not change in the field. In this situation the concrete can be paid plan quantity providing the estimated amount is figured to the same degree of accuracy as it would be for final payment. The Resident will check the calculations and so note in the Final Quantity Book.

Where a footing is founded on ledge, concrete placed more than 12” below the designated bottom elevation of the footing will not be included in the pay quantity of concrete figured in-place. Likewise, if the concrete is figured by load count, quantity below the 12” line will be figured in-place and deducted from the total delivery slip quantity.

Since final ledge cross-sections will have already been taken to figure structural rock excavation, these same cross-sections will be used to compute quantity of concrete for payment or to figure quantity for deduction.

If the item “concrete fill” is added to the contract by work order, the lateral pay limits of the fill must be specified in the work order and the final quantity must reflect a deduction or non-payment for concrete placed beyond pay limits.

Contract Specifications stipulate that quality of concrete will be controlled by following the “QC/QA” requirements of Sections 502 and 1 06 of the Specifications. The Contractor will propose their quality control procedures by submitting a Quality Control Plan to the Department for approval. The Contractor will do quality control testing and the Resident will do quality assurance testing.

There are basically three levels of QC/QA: Method A, Method B, and “Non-QC/QA “; Special Provisions will specify the method for each item. Method A provides for incentives and disincentives; Method B provides for disincentives only. The Non- QC/QA method is used when the concrete in question must only meet the minimum quality standards in the Specifications. Examples are: armored joint repairs, surface repairs to wingwalls, bridge decks, abutments, piers, or box culverts, and modifications to concrete endposts. Cylinder breaks below what is allowed in the Specifications will be reason for either rejection of the concrete, or negotiation of a price credit. Quality control and quality assurance are explained in detail in Sections 106 and 502 of the Specifications.

Final quantity for payment will be entered in the Final Quantity Book: References will be made to source documentation, such as: Final Quantity Computations Book, delivery slips, form checks, and reinforcing steel checks. Delivery slip quantities and form checks, and re-steel checks will be entered in the Construction Book or directly in the Final Quantity Book.

Quality control records, quality assurance records, and pay factor computations will be filed in the Testing File for each day’s placement. Incentive and disincentive computations and cost figures will be entered in the Final Quantity Book with digits 01 and descriptions added to the pertinent pay item number, for example: 502.2101 Incentive-Str Conc Abuts & Ret Walls. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their entries.**

503.5 Reinforcing Steel - Field documentation Measurement and Payment.

This section describes the recordkeeping necessary to document and measure reinforcing steel delivered and placed in the structure.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes describing the Contractor's progress on this item; also to be noted are crew, equipment, weather, and location work is taking place, i.e., abutment, footing, pier, deck, or sign base.

When the steel is delivered, the Resident/Inspector will inspect the material for condition and proper storage. He/she will record inspection and acceptance in the Project Diary or directly in the Final Quantity Book. Delivery invoices will be kept as part of the project records.

When the Contractor places the re-steel, the Resident/Inspector will inspect for bar size, length, splice assembly, and proper positioning within the forms. He/she will document acceptance of reinforcing steel and splices by notes entered in the Project Diary or directly in the Final Quantity Book. Inspection will also be noted in the project records for re-steel placed in minor structures, such as traffic signal bases, sign bases, or concrete sidewalks.

Measurement and Payment.

Quantity for payment of reinforcing steel delivered and placed will be the quantity shown on the Steel Schedule in the contract plans, checked and corrected as necessary.

Final quantities of re-steel will be entered in the Final Quantity Book, signed and dated. Reference will be made to the Steel Schedule, computations in the Final Quantity Computations Book, and to statements of inspection and acceptance in the Project Diary or other proj ect records.

Final quantity of splices will be entered in the Final Quantity Book. Reference will be made to the plans for the number paid; additional splices requested by the Contractor and approved by the Resident will not be measured for payment. Reference will also be made to Project Diary entries for documentation of splices installed and accepted.

Steel mesh placed in sidewalks, sign bases and traffic signal bases will not be measured for payment but is included in the bid price per unit. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their entries.**

504.5 Structural Steel - Field Documentation. Measurement. and Payment.

This Section describes the recordkeeping necessary to document payment, delivery, and erection of structural steel.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will record, on a daily basis, the Contractor's progress in the erection of structural steel. He/she will keep notes regarding, but not limited to: the installation of beams, splices, diaphragms, and bearing assemblies. Crew, equipment, weather, and location, i.e., which span, girder, or abutment being worked on and lot numbers of materials will be noted.

Documentation for payment will be as follows:

Fabrication and Delivery. When the steel is brought on the job, the Resident and or Inspector will identify and record which girders, braces, bearing assemblies, and other hardware are delivered, and he/she will inspect for fabricating and shipping defects. Items to consider are:

1. Full bearing of bearing stiffeners.
2. Web buckles in welded girders within tolerance.
3. Welds in proper locations.
4. Burrs and roughness removed.
5. No loose or scaly rust in splice areas.

Notes will be made in the Project Diary or directly in the Final Quantity Book, signed and dated.

The Department will perform through the services of a private Testing Agency, shop and mill inspection of structural steel fabrication. The Fabrication Engineer will forward a copy of the Inspection Reports to the Resident. In addition, the Inspector should become familiar with the many other details of inspection explained in Section 504.4 of this Manual.

Erection. The following tests will be done and documented in the project records at the time steel is erected:

Rotational Capacity Test. Specifications, Sections 504.28 and 713.02 require that a "rotational capacity" be done on two sets of nuts, bolts, and washers in every lot delivered to the project. This test determines the compatibility of the components. The results will be noted in the Project Diary or directly in the Final Quantity Book.

Bolt Tension Test. Specifications require the Contractor to install and test bolt tension in girder splice connections and diaphragm/cross-brace connections using the following methods:

1. Calibrated Wrench Method. If the Contractor makes use of a calibrated torque wrench to do QC testing, the Resident or Inspector will use the Calibrated Wrench Method to perform QA testing. Ten percent of all bolts or a minimum of two bolts per connection in all girder splices will be checked and noted on the splice inspection diagram.
2. Turn of the Nut Method. If the Contractor uses this method, the Inspector will witness the tightening of all bolts in the girder splices and so note on the splice inspection diagram. This inspection procedure should be verified weekly with a calibrated torque wrench. For diaphragm and cross-brace connections, the Inspector will observe the Contractor doing the turn of the nut method is acceptable; other test procedures are not required.
3. DTI Method. The DTI method of installation will be checked by the Inspector with a "feeler gauge". The Inspector will further verify the accuracy of the feeler gauge by checking bolt tension with a calibrated torque wrench on a weekly basis.
4. Inspection of Tension Control Bolts. The Inspector will inspect the bolts to verify that the spline has been snapped off. A spot check with the calibrated torque wrench will be done every week as required for methods noted above.

Departmental policy requires that the Inspector verify bolt tension in girder splices and cross-brace and diaphragm connections. Any of the above methods will be used and the results will be recorded in the Project Diary, Construction Book, or in the Final Quantity Book. On a multi-span structure, a splice layout diagram is suggested to keep account, on a daily basis, of which splices have been checked and accepted; notes will be made directly on the diagram. This sheet will become part of the project records. An overview of the structural steel layout, such as the one found in the contract plans may be used.

Measurement and Payment.

Final quantity for payment will be entered in the Final Quantity Book; references will be made to field inspections, rotational capacity tests, bolt tension tests, and other notes of inspection. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their entries.**

505.5 Shear Connectors - Field documentation. Measurement. and Payment.

This Section describes the recordkeeping necessary to document and measure for payment, stud welded shear connectors.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes documenting the Contractor's progress on this item; crew, equipment, and location of work, i.e., which span and which girder, will be noted. Field welding will be done by a prequalified welder, as required under Section 504.49 of the Specifications.

The Resident or Inspector will inspect all shear connectors to assure an acceptable 360 degree weld and will also perform the "bend test" described in Section 505.04 of the Specifications. These inspection procedures will be recorded in the Project Diary or directly in the Final Quantity Book.

Measurement and Payment.

Quantity for payment, lump sum, will be recorded in the Final Quantity Book, signed and dated. Reference will be made to statements of inspection and acceptance in the project records. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their entries.**

507.5 Railings - Field Documentation. Measurement. and Payment.

This Section describes the recordkeeping necessary to document and measure for payment, the installation of bridge railing.

Field Documentation

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes documenting the Contractor's progress on this item. Crew, equipment, and location of work will be noted, for example: which span if a multi-span structure, and which side, left or right, will be recorded.

Measurement and Payment.

If the item is paid lump sum, notes of inspection and acceptance will be made in the Project Diary or directly in the Final Quantity Book. If the item is paid plan quantity, the Resident will check the accuracy of the computations and will refigure the quantity from the plans if necessary. He/she will also make entries in the Project Diary or Final Quantity Book relative to inspection and acceptance. If the item is paid by the unit, field measurements will be entered in the Construction Book or the Final Quantity Book, signed and dated.

Final quantity for payment will be entered in the Final Quantity Book, and referenced to source documentation, such as: field measurements, plan calculations, or statements of inspection and acceptance, as appropriate. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their entries.**

508.5 Membrane Waterproofing - Field Documentation. Inspection and Payment.

This Section describes the recordkeeping required to document and measure the installation of membrane waterproofing on bridge decks.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes describing the Contractor's preparation and installation of membrane waterproofing on bridge decks. Crew, equipment, weather conditions, and temperatures will be noted. Manufacturers' names of primer, membrane, and mastic will be recorded and verified with the Department's Qualified Products List before approval for use. Acceptance of the item after work is completed will be recorded in the Project Diary.

For sample inspectors diary entries ref page 93

Measurement and Payment.

Final quantity for payment will be lump sum entered in the Final Quantity Book. Reference will be made to notes of inspection and final acceptance. **All calculations and data entries must be signed, dated, and checked; the checker must sign and their entries**.

509.5 Structural Plat Pipe and Arches-Field documentation, Measurement and Payment.

This Section describes the recordkeeping required to document and measure the assembly and installation of structural plate pipes and pipe arches.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes describing the Contractor's progress of the installation of the structural plate pipe. Notes will be made regarding, but not limited to: assembly in the dry or in the trench, excavation, bedding, torque checks, stream diversion, cofferdams, and backfilling. Crew, equipment, and weather will also be noted.

To document payment for the item, the Resident/Inspector will inspect and note acceptance of bedding and will check the tension in 10 % of the bolts using a calibrated torque wrench. Bolts are to be torqued to 100-300 ft-lbs. A wrench should be available from the Contractor.

For sample inspectors diary entries ref page 94.

Measurement and Payment

Final quantity for payment will be lump sum and will be entered in the Final Quantity Book, signed and dated. Reference will be made to notes in the Project Diary that document inspection and acceptance of bedding and the checking of bolt tension. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their entries.**

There is no separate payment for excavation. Sections 206.01 (a) and 206.04(a) of the Specifications state that payment for excavation is incidental to the price bid for the structure. The quantity of granular borrow for payment will be that shown on the plans; reference is made to Section 203.18, second paragraph, of the Specifications.

510.5 Special Detour - Field Documentation. Measurement. and Payment.

This Section describes the recordkeeping required to document and measure for payment the installation of a detour on the project.

Field Documentation.

Project Diary, Inspector's Diary/Inspector's Daily Report: The Resident or Inspector will keep notes describing the Contractor's progress in the construction of the detour. The Inspector must be familiar with the contract Specifications, Section 510, to assure that the detour has been designed and constructed according to plan. Acceptance, maintenance, satisfactory removal, and clean-up of the site will be noted. Crew, equipment, and weather conditions will also be recorded.

Measurement and Payment.

Final quantity for payment will be lump sum and will be entered in the Final Quantity Book, signed, and dated. Reference will be made to notes of inspection, acceptance, and disposal recorded in the project records**. All calculations and data entries must be signed, dated, and checked; the checker must sign and date their** entries.

Departmental policy is: If, during removal of the detour, the Contractor uses some of the excavation as permanant fill and if the use of this excavation does not cause a waste of usable excavation elsewhere on the project, the material in question will be measured and paid as common borrow.

511.5 Cofferdams - Field Documentation. Measurement. and Pavment.

This Section describes the recordkeeping required to document and measure the installation, maintenance, and removal of cofferdams.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep a record describing the inspection and acceptance Contractor's work and submittal, approval and adherence to their Water Pollution Control Plan. Type and size of cofferdam, type of pumping operations and adequacy of the sedimentation basin and sedimentation control will be noted.

For sample final quantity book entries ref page 76, inspectors diary entries ref page 93 & 94.

Measurement and Payment.

Final Quantity Book: Final quantity for payment, lump sum, will be entered in the Final Quantity Book, signed and dated. References will be made to Project Diary entries that document acceptance of the item. The item is not accepted until the removal and clean-up of the cofferdam(s), Sedimentation Basin(s), and pump(s) has been disposed in a manner satisfactory to the Resident. Payment is made regardless of the extent of work required to build the cofferdam.**All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

513.05 Slope Protection - Field Documentation, Measurement. and Payment.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes describing the Contractor's progress on this item. Preparation for placing concrete or crushed stone as called for on the plans, i.e., setting grades, excavating as necessary, compacting the slope, as well as crew, equipment and weather will be recorded.

Measurement and Payment.

Final Quantity Book: Final quantity for payment will be entered in the Final Quantity Book and referenced to field measurements or plan dimensions. Measurements and calculations will be entered in the Construction Book, signed and dated. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

515.5 Protective Coating for Concrete, Surfaces - Field Documentation. Measurement. and Payment.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will record the Contractor's work activities on this item such as surface preparation and condition before applications, note the name of manufacturers material being used, verification of the material with the Departments Approved Product list, application rate of each coat, and notes of inspection and acceptance, crew, equipment, time of each application and weather conditions will also be documented.

Measurement and Payment.

Final Quantity Book: Final quantity for payment will be by the square meter or lump sum. Total units will be computed from field measurements or from dimensions scaled from the plans. Measurements, dimensions, and calculations will be entered in the Construction Book and the total transferred to the Final Quantity Book. Lump sum will be entered directly in the Final Quantity Book.

Final quantity for payment will be signed and dated. References will be made to measurements, calculations, and notes of inspection and final acceptance. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

518.5 Rehabilitation of Structural Concrete - Field Documentation. Measurement. and Payment.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will keep notes describing the Contractor's activities on this item; crew, equipment, weather conditions, location of work, i.e., which lane and which span if appropriate, will be recorded. Also to be documented are: name brand of patching material, bonding grout, and verification of the material with the Departments Approved Product list.

Measurement and Payment.

Final Quantity Book: Final quantity for payment will be determined from field measurements recorded in the Construction Book, signed and dated. Rehabilitation of Structural Concrete can involve one or a combination of three items: above re-steel, to re- steel, or below re-steel. If these items overlap in area, the item involving the largest surface area should be measured first and should be all encompassing, i.e., include the other items. These other items should then be measured after and deducted from the largest area. This method of measurement will avoid confusion and result in greater accuracy.

The final quantity will be entered in the Final Quantity Book and referred to field measurements in the Construction Book. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

520.5 Expansion Devices. Non-Modular- Field Documentation, Measurement. and Payment.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will make notes regarding: type of seal used, whether gland or compression, manufacturer's name, preparation of surface areas prior to installation, name of lubricant or sealant, and other Specifications requirements. Crew, equipment, weather conditions and temperatures will also be recorded.

Measurement and Payment.

Final Quantity Book: Final quantity for payment will be entered in the Final Quantity Book by the unit. Reference will be made to appropriate Diary entries that document inspection and acceptance. **All calculations and data entries must be signed, dated and checked; the checker must sign and date their entries**.

523.5 Pot Bearings - Field Documentation. Measurement. and Payment.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will inspect and note approval of : 1) when the bearings have been delivered to the site and properly stored 2) when the bearing area has been prepared; 3) when the holes are drilled and the anchor bolts grouted in place 3) note the manufactures name and verification of grout on the Department Approved product list 3) when the preformed pads, plates, and bearings are set; and 4) when the temperature adjustments have been made and the sole plates are welded to the girders. Any or all of these steps may be combined along with a final acceptance of the work.

Approved shop drawings, shop inspection reports and test results will be forwarded to the Resident by the Fabrication Engineer in advance of delivery of the bearing assemblies to the site.

Measurement and Payment.

Final Quantity Book: Final quantity for payment bid and measured by the unit for each assembly will be entered in the Final Quantity Book. References will be made to notes of inspection and acceptance of seating areas and test results for the grout**. All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

525.5 Granite Masonry - Field Documentation. Measurement. and Payment.

Field Documentation.

Project Diary, Inspector's Dairy/Daily Report: The Resident or Inspector will note inspection and acceptance of granite stones, anchors, mortar, and caulking material. He/she will also inspect and note the Contractor is preparing the areas prior to setting the stones.

Measurement and Payment.

Final Quantity Book: Final quantity for payment will be calculated from field measurements or plan dimensions recorded in the Construction Book. Final quantity will be entered in the Final Quantity Book, signed, dated, and referred to notes of inspection and acceptance in the Project Diary. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

526.5 Concrete Barrier - Field Documentation Measurement and Payment

Field Documentation.

Project Diary, Inspector's Diary/Daily Report: The Resident or Inspector will note when the type of barrier installed, the inspection and acceptance of forms and re-steel. Sometimes this item is pre-cast. In this situation, refer to the inspection reports written by the Inspector at the plant at the time the barriers were cast. When it is necessary to reset, a note of a spot check of the dimensions for plan conformity and will also inspect for location as shown in the traffic control plan or other contract documents.

Measurement and Payment.

Final Quantity Book: Final quantity for payment will be lump sum or by the meter.

If the Temporary Concrete Barrier is measured and paid by the linear foot, measure the total length acceptable and enter it directly in the Final Quantity Book. If the item is measured and paid Lump Sum, enter the "Lump Sum" in the Final Quantity Book.

Permanent Concrete Barrier Type II, IIIa, and IIIb will be measured for payment by Lump Sum complete in place and entered directly in the Final Quantity Book.

Permanent Transition Concrete Barrier will be measured by each barrier connecting bridge rail to guardrail complete in place and entered directly in the Inspectors Daily Report or the Final Quantity Book.

The final figure will be entered in the Final Quantity Book, signed, dated, and referenced to Diary entries for inspection and acceptance and to field measurements recorded in the Construction Book if the item is measured by the unit. **All calculations and data entries will be signed, date, and checked; the checker will sign and date their work.**

Division 600 – Miscellaneous Construction

603.5 Pipe Culverts and Storm Drains

604.5 Manholes and Catch Basins

605.5 Underdrain

Field Documentation

Drainage Book, Construction Book: The Resident or Inspector will keep drainage installation notes in the Drainage Book if the drainage is extensive, or in a Construction Book. If the drainage is a minor item in the contract. Section 901.3 - Field Books in Division 900, of this Manual describes in more detail the contents of these fieldbooks.

The Resident or Inspector should note the inspection of the material as it arrives on the project to insure that the material meets specifications, fits the application and is free of damage from delivery. The installation notes should include the inspection of line and location, grade, special connections, bedding & backfill material and compactive effort.

The Resident or Inspector will note the placement of any excavated material that is not used for backfilling. Excavated material should not be wasted unless there is no possible use for it on the project.

For sample project diary entries ref page 63 and for inspectors diary entries ref page 90 & 91.

Measurement and Payment

Excavation to install drainage is incidental to the item except for rock and excavation “below grade”, defined in the Specifications. If a boulder or a concrete obstruction measuring two cubic meters or more is encountered in the excavation, that portion within the limits of the trench is paid as structural rock and the portion outside the limits is paid as common rock excavation. Portions within and outside the trench limits can be estimated in fractions, example “ *1/2* boulder outside trench”.

In a “full construction” area, if a portion of the boulder or concrete is above subgrade, that quantity will be paid as rock excavation and deducted from common excavation.

Underdrain special connections (elbows, wyes or tees) will be counted and 3 feet added per connection to the overall length of the run of pipe.

After acceptance of the catch basin or manhole, the height from floor to top of grate should be measured and recorded for final payment. Units up 2.5 meters [8 ft] will be 1 each. One fifth of a unit [one eighth of a unit] will be added for each additional 0.5 meters [1 ft] over 2.5 meters [8 ft] measured to the nearest 0.5 meters [1 ft]. Rebuild, alter and adjust items are measured as 1 each.

Section 206.5 in Division 200 of this Manual further describes structural excavation for drainage.

Final Quantity Book: Final quantity for payment will be by the linear measurement. The final figure will be entered in the Final Quantity Book, signed, dated, and referenced to Diary entries for inspection and acceptance and to field measurements recorded in the Construction Book if the item is measured by the unit. **All calculations and data entries will be signed, date, and checked; the checker will sign and date their work.**

606.5 Guard Rail - Field Documentation. Measurement. and Payment.

Field Documentation

Project Diary, Inspector's Diary/Daily Report, Guardrail Book: The Resident or Inspector will document the Contractor's progress on guard rail items. If guardrail work on the project is extensive and if several items are involved, for example: remove, modify, and reset, or adjust, or remove and reset, the Resident should set up a "Guardrail Book". Each run of guardrail to be worked on will be entered in this book primarily by location, i.e., station to station, left or right, and further identified by type of work to be done, whether remove, modify, and reset, or adjust, etc. As a run is completed and accepted, it will be so noted by the Inspector and dated.

All of the above documentation can be entered in the Construction Book if guardrail is not a major item in the contract.

Measurement and Payment

Final Quantity Book: Final quantity for payment will be entered in the Final Quantity Book, signed, dated, and referenced to source documentation in the Guardrail Book, or in the Construction Book for lesser quantities. Final quantities will be field measured or figured from station to station. **All calculations and data entries must be signed, dated, and checked; the checker must sign their entries**.

609.5 Curbing- Field Documentation. Measurement. and Payment.

Field Documentation

Project Diary, Inspector's Diary/Daily Report, or Construction Book: The Resident or Inspector will note the Contractor's progress on these items; approximate station to station limits of work, crew, equipment will be recorded and notes of inspection and acceptance.

Notes of inspection will include, in the case of vertical curbing, the condition of the curbing when it arrives on the project to insure size and tolerance specification. Notes will also include the bedding and backfill material and line and grade.

Field measurements will be entered directly in the Final Quantity Book or in the Construction Book after the curb is complete, accepted and installed. If the curbing is extensive, the Resident should set up a "Curb Book" or at least dedicate a part of the Construction Book before the Contractor begins work. The location of each item of curb, i.e., "new", "reset", or "circular", and terminal, should be identified by sketches, station to station limits, left or right shall be noted.

Final Quantity Book: Final quantity for payment will be entered in the Final Quantity Book, signed, dated, and referenced to measurements.

For sample project diary entries ref page 64.

Measurement and Payment

No separate payment is made for excavation to install curb, whether new or reset. Excavation is incidental to the curb item or to roadway excavation. There is no payment to remove existing curb; only curb that is reset is measured for payment. Removal of existing curb that is not used is incidental to other items in the contract.
All calculations and data entries will be signed, dated, and checked; the checker must sign and date their work.

610.5 Stone Fill. Rip Rap, Blanket. and Stone Ditch Protection.

Field Documentation

Project Diary, Inspector's Diary/Daily Report, Construction Book: The Resident or Inspector will make notes documenting progress of work on these items. They will record source of material, whether rock from within the excavation limits on the project, pit tailings, or rock quarry.

Measurements, sketches, and computations will be recorded in the Construction Book or directly in the Final Quantity Book.

Final Quantity Book: Final quantity for payment will be entered in the Final Quantity Book, signed, dated, and referenced to measurements and calculations. Quantities will be determined from surface area measurements to limits authorized by the Resident and to depths shown on the plans.

If riprap or stone fill is placed under water or on rough, irregular ground as required by the Resident or called for on the plans, quantity for payment can be measured by delivery slip with no reduction in volume. Reference is made to Section 610.05 of the Specifications.

Measurement and Payment

If the source of material is rock excavation, there will be no deduction from borrow, even though rock excavation is designated for use in the embankment, i.e., even though the project is a "borrow" job. Specifications, Division 100, Section 104.3.13 allows the use of ledge for items designated under this Section without deduction from borrow.

There will be no payment for excavation beyond the face of riprap, stone ditch protection, and stone blanket; only the excavation from original ground to face of the finished slope is allowed, i.e., excavation is incidental to riprap where rock is actually placed. More detailed explanation is given in Section 610 of the Specifications. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

615.5 Loam. 616.5 Sod. 618.5 Seed. 619.5 Mulch - Field Documentation. Measurement. and Payment.

These Sections describe the recordkeeping necessary to document and measure for payment loam, sod, seed, and mulch placed on the project.

Field Documentation.

Project Diary, Inspector's diary/Daily Report: The Resident or Inspector will keep notes describing the Contractor's loam, sod, seed, and mulch operations. They will record location of areas worked, personnel, equipment, and weather conditions. Depth of loam will be spot checked and recorded; loading of the hydroseeder with seed, lime, fertilizer, and mulch will also be documented.

Contract Specifications require that, at the Resident's directive, a second seeding be applied within 60 calendar days of the first seeding at the Contractor's expense if there is no acceptable growth of grass at the first seeding. The Resident must notify the Contractor before the end of the 60-day period for the Specifications requirements to remain valid. Reference is made to seed Specifications in the Contract Book for further clarification.

Measurement and Payment.

Final quantity for payment will be plan quantity or the quantity determined from measurements.

Plan Quantity. Specifications state that final payment for seed and mulch will be based on the quantities shown in the Schedule of Items if estimated areas agree within 15 percent of actual areas. A review and check of the Engineer's Estimate for reasonableness is an acceptable way to verify the quantity shown in the Schedule of Items. The plan quantity will be adjusted, upward or downward, if changes are made in the field.

Measurements. If the plan quantity is inaccurately figured or has no basis, i.e., is a "throw in" amount, quantities of seed and mulch will be determined from field measurements or from dimensions scaled off the plans.

The accuracy and frequency of measurements will depend on the project. On a rural overlay job, station-to-station limits and typical widths scaled off the plans or field measured are acceptable. On an urban job, areas will be divided into common shapes and field measured by length and width.

Loam and sod will be field measured. Field measurements and scaled measurements will be entered in the Construction Book, signed, and dated. Final pay quantity will be entered in the Final Quantity Book and labeled as such, signed and dated; references will be made to source documentation such as measurements and loading of the hydroseeder. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their entries.**

626.5 Foundations. Conduit, and Junction Boxes for Highwav Signing. Lighting, and Signals - Field Documentation. Measurement. and Payment.

Field Documentation.

Project Diary, Inspector's Diary/Daily Report, Sign Book: The Resident or Inspector will keep notes regarding the Contractor's progress of work on the installation of foundations, poles, signs, lights, and traffic signals. The Resident or Inspector will document inspection and approval of forms, re-steel or steel wire mesh, anchor rods, and conduit in the foundation units.

The Resident or Inspector should keep a log of foundations installed, lengths of conduit buried, junction boxes sign locations, signal support poles and light pole foundations and documented in an Inspectors Diary or Construction book

If the project is primarily a signing or lighting job, the Resident should set up a "Sign Book" before the Contractor begins work. Signs will be identified in this book by location. The Resident or Inspector will note type of sign required and will record when the foundation is placed, when the poles, signs and lights are erected, and length of conduit and wiring installed. As noted above, inspection and acceptance of forms, re-steel, anchor rods, and conduits will be recorded; other pertinent information will be noted as required.

Measurement and Payment.

Final Quantity Book: Final quantity for foundations, junction boxes, conduit, and wiring will be entered under the appropriate items in the Final Quantity Book. Reference will be made to field counts or field measurements. The Sign Book can be eliminated if signing and lighting are not a major portion of the contract; measurements and documentation can be entered directly in the Final Quantity Book or in the Construction Book. **All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.**

629.5 Hand Labor 631.5 Equipment Rental Field Documentation. Measurement. and Payment.

Field Documentation.

Daily Report of Labor and Equipment Rental: The Resident will use this form to document hours for payment. Approval for hourly work, if not bid items, will be in writing by Work Order, and verbally by the Resident if bid items are involved. A detailed explanation of the work performed, inspected and accepted, and reference to the pertinent work order or “authorization by the Resident” should be noted in the Remarks section of the Report.

For sample project diary entries ref page 63, for final quantity book entries ref page 77, for inspectors diary entries ref page 90 & 91, and for a sample DREW from ref page 98

Measurement and Payment.

Whereas payment for hourly work often is extra and unforeseen and therefore authorized by work order, the Resident should refer to Division 100 of this Manual and the Specifications for explanation of price determination for labor and equipment.

Section 109 of this Manual further explains the circumstances under which a Work Order is required.

Specifications, Section 629, allow payment for overtime labor under the following circumstances:

A. When the Resident requires the work to be done during the Contractor’s normal overtime hours.

B.. When the Resident directs the Contractor to do the work within a limited period of time and overtime is necessary to complete the work.

C. When the work is of an emergency nature and overtime is required.

Final Quantity Book: Final quantities for payment will be entered under the appropriate hourly items as bid, and will be signed, dated and referred to Daily Reports of Labor and Equipment Rental.

All calculations and data entries must be signed, dated, and checked; the checker must sign and date their work.

Division 900 – Project Record and Closeout

This Division explains how the Resident is to prepare project records for close-out and final payment.

Section	Title
901	Preparation of Project Records
902	Review, Close-out, Final Payment

SECTION 901 - PREPARATION OF PROJECT RECORDS

901.1 General This Section describes the requirements for preparation of the project records by the Resident for final review. Field record-keeping and testing procedures for the individual pay items are explained in the appropriate sections of this Manual.

Project Records. Project records are grouped as follows:

Section	Title
901.2	Project Diary
901.3	Final Quantity Book
901.4	Construction Book
901.5	Drainage Book
901.6	Inspectors Diary
901.7	Final Quantity Computation Book
901.8	Testing File
901.9	Miscellaneous Records
901.10	Responsibility of the Checker

901.2 Contents of a Project Diary

Every job must have a Project Diary, or, in the case of Field Manager, a Daily Diary or a combination Daily Diary and Inspector's Daily Report. The Project Diary is intended to give the reader a general accounting of the Contractor's and subcontractors' day by day activities such as: pay items worked and ,locations, source and disposition of excavation, borrow, gravel, and pavement grindings, All Directives given to the Contractor and non-routine matters must be recorded as well. Examples are: Traffic Accidents, the Contractor adherance to traffic maintenance and erosion control, disregarding contract Specifications, not staffing the job appropriately to complete work within required time limits, and other issues that could result in contractor claims. Matters dealing with town officials, utilities, developers, and other abutters should also be recorded. Information recorded in the Project Diary/Daily Diary should be factual and pertinent information; personal opinions and speculative remarks should not be included.

Examples of a project Diary template and typical boilerplate entries are located in Appendix A pgs 89 through 94.

901.3 Contents of a Final Quantity Book

Final Quantity Book/Item History to Date: The Final Quantity Book, or Item History to Date if the job is set up using Field Manager, is the mainspring of the project records. Every bid item originally in the contract and all

work orders involving additional payment must be entered in this book; no job can be paid off without it.

Funding of a contract is sometimes divided into several funding sources, which usually result in pay items being grouped under different categories and PINs within the contract. The Final Quantity Book must be organized to reflect the different categories and pin numbers. PINs and categories will show on the first progress estimate, but if the Resident needs this information before the first estimate is issued, the Contracts Section will provide it.

A reference trail from the final pay quantity to the original documentation, whether it is notes of inspection and acceptance, measurements, or computations, must always be provided. It is suggested that the Resident and their inspectors enter original documentation and calculations to the extent feasible, directly in the Final Quantity Book

Urban full construction or reconstruction projects usually involve the town, sewer/water districts or other utilities. A formal agreement called a Municipal Agreement or a City- State Agreement drawn up between the parties will stipulate payment responsibilities and other contractual responsibilities. These agreements will frequently make the Town or the Utility District liable for a share of the project cost. The Resident should have a copy of these agreements; there may be several and they are available from the Project Manager. Items involved will normally show as a category in the progress estimate, but if not, they still need to be entered as a separate entity in the Final Quantity Book.

The Final Quantity Book/Item History to Date will have no more than one item per page. Item number, description, and estimated quantity will be entered at the top of the page. Final pay quantity will be entered at the bottom and so labeled. **All entries in the Final Quantity Book must be signed, dated, and checked; the checker must sign and date each entry as well. All final quantitites in the Item History to Date must also be signed, dated, and checked, and the checker must sign and date the entries. Signatures in the Item History to Date may be signed manually or an electronic signature can be used.**

Examples of Final Book entries are located in Appendix A pgs 65 through 79.

901.4 Contents of a Construction Book

Construction Book: This book is a catch-all; whether the Resident uses Field Manager or the conventional method of keeping project records, i.e., field books, a “construction book” is handy to have and usually necessary. Complex field measurements, field data, or sketches that must be recorded before that work is buried and cannot be easily recorded in the Final Quantity Book/Item History to Date can be entered in the Construction Book.

Typically, measurements for riprap, loam, seed, mulch, undercuts, top of ledge elevations, boulders, gravel used for traffic maintenance, grade checks on concrete forms and drainage systems, and layout in general will be entered in the Construction Book.

One form of a Construction book is referred to as a Grade Check Book. On a large, full construction project a grade check book should be set up prior to the work being done. This book will provide the Inspector with a handy tool to use for checking subgrade, top of gravel (“fine-grading”), ditches and backslopes. A copy may be given to the Contractor’s grade foreman for them to use. The Contractor’s foreman is in effect performing a Quality Control activity and the Department’s Inspector is performing a Quality Assurance activity by checking, at random, the Contractor’s grading accuracy.

Examples of a Construction Book entries are located in Appendix a pgs 80 through 88.

Examples of a Grade Check Book entries are located in Appendix a pgs 81 and 83 .

901.5 Contents of a Drainage Book

Drainage Book: If a job has a large quantity of drainage, such as on a complex urban project, documentation of drainage installations should be entered in a separate book called a Drainage Book. This book should be organized before the work is done; each run of pipe and each catch basin or manhole would have its own page or pages.

As the work progresses, inspector’s notes and measurements would be entered under the appropriate run: length of pipe and catch basins installed, gravel used for traffic maintenance, undercutting and bedding material used, ledge removed, riprap at pipe iniets or outlets, or utilities encountered, could be part of the daily entries. Quantities for payment would then be summarized in this book and transferred into the Final Quantity Book/Item History to Date.

Examples of Drainage Book entries are located in Appendix a pgs 84, 86, 90 & 91.

901.6 Contents of an Inspectors Diary

Inspector's Diary or Inspector's Daily Report: If a job is staffed by more than one inspector, the Resident may want the inspectors to keep diaries. This diary would contain the same boilerplate information as the Project Diary but would have a more detailed accounting of the Contractor's activities and progress of work. The Inspector's observation notes and some measurements may also be recorded. Again, only pertinent and factual information should be included; no personal opinions or speculative statements should be included.

Examples of an Inspectors Diary entries are located in Appendix a pgs 89 through 94.

901.7 Contents of a Final Quantity Computations Book.

This book contains all computations that support pay quantities and that are done on 8 ½ by 11 sheets or other loose sheets. These computations may be done manually or may be computer generated. Whether the Resident uses the conventional paper method or the software program Field Manager, a Final Quantity Computations Book will be needed, as necessary. Dimensions, measurements, and computer data used in the computations must be referenced to source, whether it is plans or field measurements. **All calculations and data entries must be signed, dated, and checked; the checker must also sign and date all calculations and data entries.**

Computation sheets will be filed by pay item, beginning with the lowest numbered. Example: Item 201 - Clearing. A summary sheet will precede the computations for each pay item. Totals shown on each summary sheet will be transferred to the appropriate pay item in the Final Quantity Book. The pages of each item should be numbered consecutively. Computation sheets will be bound together in a red binder, titled in one inch lettering: Project Number, Project Identification Number (PIN), Town, and Final Quantity Computations Book.

Daily Reports of Hourly Work and Flagger Reports should be filed in the Final Quantity Computations Book, located as items 629-631, and item 652, respectively. Following the item computation sheets is a copy of all Extra Work Orders, and Resident's Work Orders. A list of plotting rolls and plans, and a list of field books is also required. Index tabs will be used to locate each pay item or list.

901.8 Content of the Testing File.

The Minimum Testing Requirements, also known as the "Minimums", specify the frequencies and types of tests to be taken of materials used on the project. The Minimums are determined by the Materials Section in Bangor, and are available at the following network: Network Neighborhood/DOTBGRI/Shared/Minimums. General testing requirements will be found in each Section of this Manual. The Minimums may vary from these general testing requirements to meet the needs of each particular project. The Northern Area Acceptance Testing Supervisor issues the "Minimums" for all projects; he will e-mail the requirements to the Resident. Alternately, the "Minimums" are available at the above noted address.

Exhibit 20 is a sample set of Minimum Testing Requirements.

The Resident is to use the list of Minimum Testing Requirements as a guide to test job materials. The minimum number of any particular test should not be less than the listed requirement without justifiable reason. Changes are to be explained by memo filed with the item involved. The most frequently seen change is a decrease in the number of densities required. However, due to changes in material sources, borderline materials, or work being done in several small sections (mostly on urban projects), more tests than the minimum may be necessary. The Resident must use his discretion to determine when more tests are necessary. The Resident must also explain the outcome of failing materials, i.e., removed and replaced, or accepted on the basis of substantial conformance.

If a contract contains Acceptance Methods that allow pay adjustments for hot bituminous pavement and for concrete, the Contractor's QC test data and the Engineer's Q A test data will be filed together for each day such testing is performed under the pertinent item. Pay adjustment computations will also be flied with the test

data. These calculations will be done by the Resident and checked by someone knowledgeable in the calculation of pay adjustments.. The Contractor should be given the opportunity to review the adjustments before the Resident submits the project records to the Contracts Section for review.

The Testing File documents the quality of materials incorporated into the project. Reports and related data will be filed chronologically with the most recent on top and will be grouped and tabbed by pay item in the same order as shown on the list of Minimum Testing Requirements, a copy of which must be included in the front. The Testing File will be bound by a black acco-press binder and with the following information on white labels: Testing File, Project No., PIN, and Town. Index tabs will be used to separate and identify the items.

901.9 Miscellaneous Project Records

Project files consist of job records exclusive of final quantity computations, field books, and test data, turned in to the Contracts Section at the completion of the project. The following types of records should be grouped and submitted in manila envelopes: general correspondence, right-of-way records, utility records, submittals (shop drawings), permits, payrolls, payroll interviews, delivery slips, and cover slips. The envelopes should be labeled with the project number, town, and contents. Work orders, flagger reports, and daily work reports become part of the Final Quantity Computations Testing File. The preliminary engineering file, known also as "PE" file, the engineer's estimate and one copy of the bid book (Special Provisions) should also be turned in with the project records. Extra copies of the proposal book, delivery slips for hot mix asphalt, and progress estimates, vouchers, and estimate computations may be discarded before the project records are submitted for final review. The most recent progress estimate must be kept, as it will be used to prepare the Final Quantity Estimate during final review.

901.10 Responsibility of the Checker

All entries to the project records that generate payment to the contractor must be checked. The responsibility of the checker is to;

1. Check any and all quantities from Final Quantity book or Item History to date back to the original source measurements.

   Example: Item 203.21 Rock Excavation

   The checker will start with the Final Quantity book or Item History to date and locate that the reference(s) back to the original source measurement(s), usually a construction book or Inspectors Daily Report, and check the calculations and insure the quantity was deducted from common excavation if the rock was located above subgrade.

2. Check to insure that all required references to any notes of inspection and acceptance accompany the quantities that are to be paid.

   Example: Item 304.10 Aggregate Subbase Course-Gravel

   The checker will start with the Final Quantity book or Item History to date and insure that references are made from any pay quantity to source of material being placed, station to station limits, compactive effort and number and depths of lifts and finegrade checks.

3. Check to insure that the specifications were applied correctly.

   Example: Item 206.61 Structural Earth Excavation – Drainage and Minor Structures Below Grade

   The checker will insure that the quantity for payment doesn't include the first foot of excavation.

SECTION 902 – Review, Closeout and Final Payment

This Section describes the procedure the Resident is to follow when project records are submitted to the Project Review Unit of the Contracts Section for final review and close-out of the project.

902.1 General

The purpose of the final review is to assure that both the quality and quantity of materials and work performed by the Contractor are tested and documented according to Departmental policy and procedure.

After the job records have been assembled as described in Section 901, the Resident will contact the Project Review Unit and make an appointment to submit the records for final review. This should take place within 60 calendar days of physical completion of the project. Physical completion is described in Section 107.9, Division 100, of the Specifications.

902.2 Review

The Resident and someone in the Contracts Section, the "Reviewer", will go over the project records together to assure that the final quantities for payment are substantiated by field measurements and other original documentation as required. A project review checklist, copy following, is to be used as a guide. Also at this time, the Testing File will be reviewed to verify that materials have been tested according to the list of Minimum Testing Requirements and Departmental policy.

Pages 99 through 102 are sample final review checklists and page 103 is a sample on-site review checklist.

Work and materials that are not documented and tested in accordance with Departmental policy may require additional tests, measurements, or field documentation, or may be shown as ,"non-participating" on the Final Quantity Estimate, that is, ineligible for Federal funds.

As part of the review, the Final Quantity Estimate will be made out and labeled as such used to make progress payments, the Resident should contact the Project Review Unit, prior to submitting records for review, so that a paper copy of the most recent progress estimate can be prepared. This estimate will then be used to make out the Final Quantity Estimate. Every project must have a paper copy of the Final Quantity Estimate as part *of* the final contract documents.

Quantities to be billed to Towns, Sewer & Water Districts, Utility Companies, Developers, and Abutters are to be summarized and forwarded to the Bureau of Finance & Administration. Municipal Agreements, discussed under section 901.3 are to be reviewed and billings done accordingly. The Reviewer and the Resident will prepare together, at the time of final review, the bills to be sent; the Reviewer will present these bills to the Bureau of Finance and Administration.

It is sometimes the case that it is necessary to go back to the job to do repair work or to make changes after the project has been completed and the Contractor has been released from further obligations. By FHW A agreement, work done after project completion that involves a change in design is participating. Work that consists of restoring to original condition as designed would be considered maintenance work and not eligible for Federal Funds.

It may be done by the original Contractor or a Contractor on an active project nearby, by Town forces, or Maintenance Division forces, depending upon costs and the availability of crews and equipment. Transfer of costs from the active project to the project involved, payments to the Town, and transfer of funds to the Maintenance Division will be done by the Contracts Section with the assistance of the Resident. A work order will be required to document costs and payment procedure.

In addition to the Final Quantity Estimate, the following final documents are also required:

Time Charge Report: This report shows the required contract completion date and actual completion date. The Resident will discuss time overruns with their supervisor and document resolution of such overrun by a memo to the Project Review Unit, whether it is a time extension or assessment of liquidated damages. A meeting with the Contractor may be required in the process. Exhibit 25 is a sample Time Charge Report.

Right-of-Way Encroachment Memo: This memo lists kind and location of encroachments within the right-of-way, only if new right-of-way is taken. Pre-existing encroachments need not be reported. Page 97 is a sample

Right-of-Way Encroachment memo.

Contractor Evaluation: This form is an evaluation of the Contractor's performance during construction of the project. It must be completed and signed by the Resident and co-signed by the Contractor's' Superintendent. Page 105 is a sample Contractor Evaluation packet.

Explanation of Overruns and Underruns: Written explanations of overruns and underruns are no longer required when final records are submitted for review. Significant quantity overruns and underruns will be discussed at the final team meeting. The final team meeting will be coordinated by the Resident With the Project Manager. Minutes of the meeting will be written by the Resident and distributed to team members and functional managers.

The Resident should complete the above three documents prior to final review; these documents are available from the Contracts Section in Augusta. The Final Quantity Estimate will be made out during the final review process.

Two brief reports, in the form of memos to the project file and usually one page each in length, will be written by the Reviewer. One memo addresses final quantities and the other addresses testing of materials. The "Final Quantities" memo states that project records have been reviewed and properly substantiate quantities of work incorporated into the job, with exceptions if any. The "Testing Memo" states that the testing records have been reviewed and properly substantiate the quality of materials incorporated into the project, and again, exceptions are noted, if any. Secondary documentation and explanations are made part of the memos when there are exceptions.

It may be the situation that, at the completion of final review, there remains contractor issues that are unresolved, usually: potential liquidated damages, disagreement over pay factors for hot-mix asphalt or concrete, or contractor claims. The Resident likely will be called on to help settle these items by meeting in Augusta with their Supervisors and with the Contractor; this will be done before the Project Review Unit makes final payment and the project is closed out.

902.3 Close-Out and Final Payment.

A project cannot be closed out until all outstanding issues are resolved on the project and final payment is made.

Following the final review, the Contracts Section will send a copy of final quantities to the Contractor with a cover letter stating that the final quantities are included and what final documents are to be submitted arid issues remaining to be settled before final payment can be made. Contractor's final documents are:

1. Certificate of Materials, Section 700 - Specifications.
2. "Buy America" Statement, Appendix A, Section 3, Buy America, Div 100, Specifications.
3. Letter" All Bills Paid", Subs 1 0 1.2, Definitions-Closeout Documentation, Div-100, Specifications.
4. FHWAForm "PR-47" on projects with full Federal oversight over $1 million in estimated cost - Division 100,
5. A statement of "Agreement with Final Quantities"

Section 101.2 - Closeout Documentation of Division 100, Specifications, discusses the above listed documents. Contractor Evaluation Forms, and PR-47 Forms are available from the Contracts Section.

Contractors will not generally submit the "All Bills Paid" letter until they have seen the Final Quantity Estimate and have settled all items of contention with the Department, liquidated damages being the most frequent one.

A portion of the monies withheld from the Contractor (the "retent") may be paid at the time of final review or prior to it, depending on the status of the job. If there are no liquidated damages, no claims or disagreements with quantities, or no remaining work to be done in the field (such as clean-up), most of the retent may be paid. A fixed amount will be held pending the receipt of final documents.

After the Contractor submits the final documents to the Project Review Unit and all issues have been settled, final payment is made. This payment includes final adjustments, and also the remainder of the retent. When the "Final Estimate" is paid, the project records are filed with the Program. The Bureau of Finance and Administration will continue the close-out process by issuing the last check to the Contractor, and working with the FHW A for reimbursement for the Federal share of the project.

APPENDIX A

SAMPLE DOCUMENTATION

THE FOLLOWING IS A LIST OF REQUIRED DUTIES BY THE PROJECT RESIDENT:

- REVIEW THE WAGE SCHEDULE BEFORE THE PRE-CONSTRUCTION MEETING.
- IDENTIFY MISSING WAGE RATES
- ENSURE THE PRIME CONTRACTOR HAS SUBMITTED REQUESTS FOR ALL THE MISSING WAGE RATES TO THE CIVIL RIGHTS OFFICE RICK.STEPHENS@MAINE.GOV FORMS ARE AVAILABLE ON ELATIONS.
- REQUEST THE DBE UTILIZATION SHEET FROM SHERRY.TOMPKINS@MAINE.GOV
- CHECK TO MAKE SURE YOU HAVE SUBCONTRACTOR COMPLIANCE PACKETS FROM JEAN.TUKEY@MAINE.GOV
- CONTACT ANN.LIBURT@MAINE.GOV TO ATTAIN LOGIN AND PASSWORD TO THE HTTPS://WWW.ELATIONSYS.COM WEBSITE IN ORDER TO BE ABLE TO REVIEW THE PAYROLL FROM THE GENERAL AND SUBCONTRACTORS.
- THE ELATIONS SYSTEMS MANUAL CAN BE FOUND AT: http://www.maine.gov/mdot/contractors/publications/
- CHECK THE CONTRACTORS BULLETIN BOARD FOR ACCURACY AND COMPLETENESS, REFERENCE THIS IN THE PROJECT DIARY
- START AND COMPLETE YOUR PAYROLL TRACKING SHEET WEEKLY
- REVIEW THE SUBMITTED PAYROLLS FOR APPROPRIATE CLASSIFICATIONS
- COMPLETE THE (CUF) COMMERCIALLY USEFUL FUNCTION FORM FOR EACH DBE /WBE DURING THE PROJECT AND SUBMIT TO SHERRY.TOMPKINS@MAINE.GOV
- **CONDUCT 2 PAYROLL INTERVIEWS EVERY 90 DAYS FOR THE PRIME CONTRACTOR AND EACH SUB THAT WORKS 5 OR MORE DAYS ON THE PROJECT DURING EACH 90 DAY PERIOD. Please enter payrolls into the Elations System.**
- FOR ANY UNRESOLVED PAYROLL ISSUES, CONTACT THE CIVIL RIGHTS OFFICE RICK.STEPHENS@MAINE.GOV
- FOR ELATIONS SOFTWARE ISSUES CONTACT ANN.LIBURT@MAINE.GOV
- ON–THE-JOB TRAINING (OJT) AND CONTRACTOR COMPLIANCE QUESTIONS CONTACT: GIGI.OTTMAN-DEEVES@MAINE.GOV

DATE DAY WEATHER

MDOT:
PERSONEL

CONTRACTOR
PERSONEL
EQUIPMENT
WORKING HOURS

SUB CONTRACTOR
PERSONEL
EQUIPMENT
WORKING HOURS

VISITORS

PROJECT ACTIVITIES:

- ITEM NUMBER, LOCATION & LIABLE CONTR/SUB
- SOURCE AND DISPOSITION OF ANY EXCAVATION
- SOURCE AND DISPOSITION OF GRAVEL AND BORROW
- NON-ROUTINE ACTIVITIES

A: CONTRACTORS' NON ADHERANCE TO CONTRACT SPEC'S: MTCD'S & SEWPC

B: MDOT DIRECTIVES GIVEN TO CONTRACTOR IE: C.O.RELOCATIONS, CHANGES IN DESIGN, UNDERCUTING & REWORK.

C: CONTRACTOR IS INADEQUETLY STAFFING THE JOB FOR THE TYPE OF WORK

D: ANYTHING RELATED TO POTENTIAL CONTRACTOR CLAIMS

E: ANY DISCUSIONS WITH TOWN OFFICIALS. UTILITIES, DEVELOPERS AND ABUTTERS

G: TRAFFIC ACCIDENTS & OTHER HAZARDS

ENTERED BY : NAME & DATE

6/12/2002 FRIDAY SUNNY 80'S

MDOT: BILL BITTERMAN, RESIDENT
BILLY BOB BENNET, INSPECTOR

M&H: 6:00AM TO 5:00 PM

1 SUPT	1 COMPRESSOR
5 WORKERS	2 TRUCKS
2 LARGE EXC.	1 5 TON VIB ROLLER
1 APE	1 CHAMPION GRADER
1 D6 DOZER	

HASTINGS TREE REMOVAL SERVICES

ITEMS 652.361 AND 656.75
MTCD AND SEWPC INSPECTED AND ACCEPTED FOR THE WEEK

ITEM 201.23 SINGLE TREE
HASTINGS CUT AND REMOVED SINGLE TREE AT THE THE CORNER OF PINE STREET AND RT 4

ITEM 603.159 12" OPT III CULV PIPE
INSTALLED 12" OPT I CULV PIPE AT STA 12+56 RT

ITEM 604.097 6' B1-C CATCH BASIN
INSTALLED AT STA 12+56 RT

ITEM 631.2 STUMP CHIPPER
HASTINGS USED STUMP CHIPPER TO GRIND 2 STUMPS

M&H MULCHED ALL DISTURBED AREAS

COMPLAINT FROM BILL SIMPSON , PROJ SUPT ABOUT DELAYS FROM UTILITIES NOT SHOWN ON PLANS AS WELL AS SLOW PRODUCTION. HE THEY WILL KEEP RECORDS FOR POSSIBLE CLAIM. HE HAS ALSO REQUESTED INFORMATION ON ALTERNATE WORK AT THE OTHER END OF THE PROJECT STA 42+50 TO 45+75

ENTERED BY : BILL BITTERMAN 6-12-02

6/16/02 MONDAY FAIR 60'S 3

MDOT: BILL BITTERMAN, RESIDENT
BILLY BOB BENNET, INSPECTOR

M&H: 6:00AM TO 5:00 PM
1 SUPT 1 COMPRESSOR
5 WORKERS 2 TRUCKS
2 LARGE EXC. 1 5 TON VIB ROLLER
1 APE 1 CHAMPION GRADER

ITEM 304.10 ,STA 3+00 TO 4+25
AFTER PLACING/COMPACTING LOWER LAYER OF ASC GRAVEL, THE SUBGRADE MATERIAL BEGAN TO PUMPING INTO THE LOWER ASC GRAVEL LIFT. THE RESIDENT DIRECTED THE CONTRACTOR TO EXCAVATE AND REMOVE THE CONTAMINATED GRAVEL. ROADWAY STABILIZATION GEOTEXTILE WAS THEN PLACED ON THE SUB-GRADE SURFACE BEFORE PLACING ASC GRAVEL. THIS WORK WILL BE PAID UNDER ITEM 203.20 COMMON EXC AND 304.10 ASC-GRAVEL. REF TO BOOK 4 PAGES 5 THROUGH 7 FOR FIELD MEASUREMENTS ROADWAY STABILIZATION GEOTEXTILE WILL BE PAID PER RESIDENTS WORK ORDER #1 (AMOCO 2006 INSTALLED)

THERE WAS AN ACCIDENT ON THE PROJECT TODAY AT STA 2+25 AT 10:00 AM +/-. VEHICLE NO 1 (FORD EXPLORER PLATE NO 4356 JJ) REAR-ENDED VEHICLE NO 2 (CHEVY S-10 PLATE NO 763784 I) WHICH WAS STOPPED FOR FLAGGER ED KNOWLES WITHIN THE WORK ZONE. THE ACCIDENT WAS INVESTIGATED BY JOEL RAMICH OF THE FARMINGTON POLICE DEPT. ALL SIGNS WERE UP AND TRAFFIC CONTROL DEVICES WERE SATISFACTORY. REFER TO CORRESPONDENCE FILE FOR A COPY OF THE POLICE/ACCIDENT REPORT COMPLETED ACCIDENT REPORT AND FORWARDED TO THE MDOT LEGAL DEPT.

ENTERED BY : BILL BITTERMAN 06-16-02

6/17/02 MONDAY FAIR 70'S

MDOT: BILL BITTERMAN, RESIDENT
BILLY BOB BENNET, INSPECTOR

M&H: 6:00AM TO 6:00 PM
1 SUPT 1 COMPRESSOR
5 WORKERS 2 TRUCKS
2 LARGE EXC. 1 5 TON VIB ROLLER

SUB: PIKE IND, 4 ROLLERS, 1 PAVER, 12 TRUCKS, 1 SERVICE TRUCK, 1 WATER TRUCK & 1 BOBCAT.

PERSONNEL: 1 SUPT, 1 FOREMAN,7 SKILLED, 12 UNSKILLED, 2 LABORERS & 2 QC/QA WORKERS

ITEM 304.104
FINEGRADE COMPLETE AND ACCEPTED STA 22+00 TO 35+25

ITEM 403.207
PAVING OPERATIONS BEGAN AT STA 22+00 TO 35+25

CALL FROM BILL COBURN-FABRICATION INSPECTOR
RE: CONRETE CURBING. BILL HAD SOME CONCERNS ABOUT THE PERMABILITY. HE WILL VIST GAGNE THEIR VEAZIE TOMORROW AND WILL E-MAIL ME THE RESULTS OF THE TEST IF THERE IS A PROBLEM, REFER TO CORRES. FILE FOR RECORD.

ITEM 211.20
STA 2+00 TO 5+00, EXCESS MATERIALS FROM INSLOPE WORK REMOVED AND TAKEN TO APPROVED WASTE AREA (SMITH PIT)

ITEM 203.20
STA 2+00 TO 12+00, PIKES RECLAIMER ON PROJECT, STA 2+00 TO STA 5+00 TO REMOVE PVMT IN FULL EXCAVATION AREA, LOADER PLACING MAT'L IN TRUCKS TO BE STOCKPILED ON SITE AND PLACED AS ASG AT A LATER DATE. TO BE PAID AS COMMON EXC AND ASG. RECLAIMED STA 5+00 TO 12+00, GRADED AND COMPACTED, TO BE PAID AS 307.

DENNY DOYLE, MDOT, ON SITE TO TEST 307 COMPACTION

ENTERED BY : BILL BITTERMAN 6-17-02

202.20 COMMON EXCAVATION 600 CY @ $12.00

STA	STA	QTY	ACC. QTY	ENT BY	DATE
15+00	21+00	600	600 ✓	BBB	37478
20+00	21+25	144.44 ✓	744.44 ✓		
16+25		68.67 ✓	813.11 ✓		
16+50		-1.46 ✓	811.65 ✓	BBB	
17+00	17+80	-11.59 ✓	800.06 ✓		
19+00	19+75	58.2	858.25		

FINAL PAY QUANTITY: 800.06 CY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03 ✓

REF

NOTE: THE ENGINEERS ESTIMATE WAS REVIEWED AND APPEARS TO BE REASONABLE AND ACCURATE.

REF: RWO NO 1; CONTRACTOR AGREED TO PLAN QTY PAYMENT PLUS ANY ADDITIONAL EXCAVATION OUTSIDE OF EXCAVATION LIMITS OR AS DIRECTED.

BK 3 PG 2 FOR SUBGRADE CHECKS

BK 3 PG 1

BK 3 PG 1

DEDUCT ROCK EXC, BK 4 PG 3

DEDUCT ROCK EXC, BK 3 PG 6

BK 4 PG X

203.21 ROCK EXCAVATION 600 CY @ $12.00

STA	STA	QTY	ACC. QTY	ENT BY	DATE
17+50	17+80	11.59 ✓	11.59 ✓	BBB	8/20/2002
16+50		2.46 ✓	14.05 ✓	BBB	8/12/2002
21+25	22+20	14.6 ✓	28.65 ✓	BBB	8/12/2002

FINAL PAY QUANTITY: 24.64 CY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03 ✓

202.20 COMMON EXCAVATION (2)

REF

CONSTRUCTION BK 3 PG 6

INSP DIARY BK 4 PG 3

CONSTRUCTION BK 3 PG 10

203.25 GRANULAR BORROW 600 CY @ $12.00

STA	STA	QTY	ACC. QTY	ENT BY	DATE
30+00	32+00	275	275	BBB	37478
33+28 RT		21.43	276.43	BBB	
19+00	19+75	42.5	318.93		

FINAL PAY QUANTITY: 318.93 CY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

REF

NOTE: THE ENGINEERS ESTIMATE WAS REVIEWED AND APPEARS TO BE REASONABLE AND ACCURATE.

REF: RWO NO 1; CONTRACTOR AGREED TO PLAN QTY PAYMENT PLUS ANY ADDITIONAL EXCAVATION OUTSIDE OF EXCAVATION LIMITS OR AS DIRECTED.

BK 4 PG 2 MULTI PLATE BACKFILL COMPLETED TO PLANS & SPEC
BK 4 PG 2 FOR ADDITIONAL EXCAVATION (UNDERCUT)
BK 4 PG 2 MAINTENACE OF TRAFFIC

211.2 INSLOPE EXCAVATION — 1500 FEET @ $3.00/ft

STA	STA	LENGTH	ACC. LENGTH	ENT BY	DATE
2+00RT	3+25RT	125' ✓	125' ✓	BBB	6/20/2002
4+05FT	5+00RT	95' ✓	220' ✓	BBB	6/20/2002
5+40RT	6+00RT	60' ✓	280' ✓	BBB	6/20/2002
6+35RT	6+75RT	40' ✓	320' ✓	BBB	6/20/2002
8+25RT	9+50RT	125' ✓	445' ✓	BBB	6/21/2002
10+80RT	11+90RT	160' ✓	605' ✓	BBB	6/21/2002
1+00 LT	12+00 LT	435' ✓	1040' ✓	BBB	6/26/2002
21+50RT	22+50RT	100' ✓	1140' ✓	BBB	6/27/2002
23+25RT	24+50RT	125' ✓	1265' ✓	BBB	6/27/2002
25+35RT	25+55RT	25' ✓	1290' ✓	BBB	6/27/2002
26+50RT	26+75RT	25' ✓	1315' ✓	BBB	6/27/2002
27+75 RT	28+25RT	50' ✓	1365' ✓	BBB	6/27/2002
28+50RT	29+50RT	100' ✓	1465' ✓	BBB	6/27/2002
21+00LT	30+00LT	325' ✓	1790' ✓	BBB	7/1/2002

FINAL PAY QUANTITY: 1790 FT ✓

ENTERED BY : BILL BITTERMAN 11-08-02

✓ CHECKED BY: BWD1-2-03

REF.

DIRECT ENT.

completed accord to plan/spec, waste hauled to Smith's waste area

REF TO INSP DIARY #1 PAGE 5

DIRECT ENT.

completed accord to plan/spec, waste hauled to Ames waste area

REF TO INSP DIARY #1 PAGE 8

304.104 AGGREGATE SUBBASE COURSE GRAVEL-PLAN QTY

STA	STA	QTY	ACC. QTY	ENT BY	DATE
15+00	21+00	600	600	BBB	37489
20+00	21+25	69.44	669.44		

FINAL PAY QUANTITY: 669.44 CY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

600 CY @ $16.00/CY

REF

NOTE: THE ENGINEERS ESTIMATE WAS REVIEWED AND APPEARS TO BE REASONABLE AND ACCURATE.

REF: RWO NO 1; CONTRACTOR AGREED TO PLAN QTY PAYMENT PLUS ANY ADDITIONAL EXCAVATION OUTSIDE OF EXCAVATION LIMITS OR AS DIRECTED.

BK 3 PG 4 THRU 16 FOR FINEFRADE CHECKS

ADDITION MATL USED IN DRIVES, REF INSP DIARY PG 22-32

307.32 FULL DEPTH RECYLED PAVEMENT (UNTREATED

STA	STA	AREA	ACC. LENGTH	ENT BY	DATE
30+50	58+75	7,525	27,525	BBB	

FINAL PAY QUANTITY: 27,525 SY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

27,525 SY @ $4.00/SY

8

REF

NOTE: THE ENGINEERS ESTIMATE WAS REVIEWED AND APPEARS TO BE REASONABLE AND ACCURATE.

REF: RWO NO 1; CONTRACTOR AGREED TO PLAN QTY PAYMENT PLUS ANY ADDITIONAL EXCAVATION OUTSIDE OF EXCAVATION LIMITS OR AS DIRECTED.

REF CONSTRUCTION BK 3, PG 10-12 FOR FINEGRADE CHECKS

403.208 HOT MIX ASPHALT, 12.5 MM

COVER SLIP NO	DATE	QTY	ACCUM QTY	M.L.	ACCUM M.L.
3456	8/4/2002	1,856.25 ✓	1,856.25	1,856.25 ✓	1,856.25 ✓
3457	8/5/2002	1,795.50 ✓	3,651.75	1,795.50 ✓	3,651.75 ✓
3458	8/6/2002	1,601.25 ✓	5,253.00	1,300.00 ✓	4,951.75 ✓
3460	8/7/2002	1,109.50 ✓	6,362.50		
3461	8/16/2002	1,649.25 ✓	8,011,75	1,649.25 ✓	6,601.00 ✓
3466	8/17/2002	1,780.50 ✓	9,792.25	1,540.50 ✓	8,141.50 ✓
3469	8/18/2002	963.75 ✓	10,756.00		
TOTALS			10756.50 ✓		8,141.50 ✓
3470	37487	230.50	** ✓		

FINAL PAY QUANTITY: 10,756.00 MG (PARTICIPATING)

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03 ✓

FINAL PAY QUANTITY: 230.50 TONS ✓ (NON-PARTICIPATING)

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03 ✓

10,850 MG TONS @ $41.00/TON 600 CY @ $

SHLDR QTY	ACCUM QTY	LOT NO	ENT BY	DATE	
		1	BBB	8/5/2002	
		1	BBB	8/6/2002	
301.25 ✓	301.25 ✓	1	BBB	8/7/2002	*
1,109.50 ✓	1,410.75 ✓	1	BBB	8/8/2002	
		2	BBB	8/17/2002	
240.00 ✓	1,650.75 ✓	2	BBB	8/18/2002	
963.75 ✓	2614.50 ✓	2	BBB	8/19/2002	
	2614.50 ✓				

* REF INSPECTORS DIARY BK 4 PAGE 23FOR QTY BREAKDOWN

** NON-PARTICIPATING MIX ON MAPLE LANE TO BE PAID BY TOWN OF FARMINGTON

502.21 STRUCTURAL CONCRETE, ABUTMENTS AND

DATE PLACED	LOCATION	QTY (CY)	ACCUM QTY	ENT BY
5/17/2002	N. ABUTMENT FTG	18.35 ✓	18.35	BBB
5/19/2002	S. ABUTMENT BREASTWALL	8.03 ✓	26.38	BBB
6/2/2002	S. ABUTMENT FTG	17.39 ✓	43.77	BBB
6/4/2002	S. ABUTMENT BREASTWALL	8.41 ✓	52.18 ✓	BBB

FINAL PAY QUANTITY: 52.18 CY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03 ✓

RETAINING WALLS. 250 CY @ $525.00/CY

12

DATE	REF
	F.Q. COMP SECTION 502 FOR F.Q. CALCULATIONS
	PROJECT TESTING FILE SECTION 502
5/17/2002	BK 5 PG 10 FOR FORMS/RE-STEEL CHECKS
5/19/2002	BK 5 PG 10 FOR FORMS/RE-STEEL CHECKS
6/2/2002	BK 5 PG 11 FOR FORMS/RE-STEEL CHECKS
6/4/2002	BK 5 PG 11 FOR FORMS/RE-STEEL CHECKS

502.22 STRUCTUAL CONCRETE, ABUTMENTS AND RETAINING WALLS (PLACED UNDER WATER) $325/CY

13

DATE PLACED	LOCATION	QTY (CY)	ACCUM QTY	ENT BY
5/2/2002	N. ABUTMENT FTG	9.56	9.56	BBB
5/20/2002	S. ABUTMENT FTG	10.51	20.07	BBB

FINAL PAY QUANTITY: 20.07 CY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

DATE	REF
5/3/2002	DEL SLIP #5832, WASTED 2 CY, INSP. DIARY PG 12 FOR ELEV CHECKS
5/21/2002	DEL SLIP #5832, WASTED 1.26 CY, INSP. DIARY PG 12 FOR ELEV CHECKS

F.Q. COMP SECTION 502 FOR F.Q. CALCULATIONS

503.12 REINFORCING STEEL, FABRICATED AND DELIVERED

LOCATION	LBS	ACCUM LBS	ENT	DATE
N ABUT FTG	1563	1563	BBB	3/7/2003
N ABUT BRST WALL	2525	4088		
N ABUT WEST WING	1375	5463		
N ABUT EAST WING	1375	6838		
S ABUT FTG	1563	8401		
S ABUT BRST WALL	2525	10926		
S ABUT WEST WING	1250	12176		
S ABUT EAST WING	1410	13586		

FINAL PAY QUANTITY: 13,536 lbs

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

13,536 LB @ $0.50/LB

REF	
BK 3 PAGE 7	BK 2 for notes of inspection and acceptance
BK 3 PAGE 8	
BK 3 PAGE 9	
BK 3 PAGE 10	
BK 3 PAGE 11	
BK 3 PAGE 12	
BK 3 PAGE 12	
BK 3 PAGE 12	

509.12 STEEL STRUCTURAL PLATE PIPE ARCH

DATE

7/18/2002 PIPE DELIVERED ON PROJECT TODAY AND FOUND TO BE FREE ANY DAMAGE DUE TO DELIVERY.

7/23/2002 REMOVED EXISTING STEEL PIPE

7/25/2002 INSTALLED 1 STRUCTURAL STEEL PLATE ARCH PER LINE, GRADE AND SPEC. AND IS ACCEPTED AS OF THIS DAY.

FINAL PAY QUANTITY: 1 LUMP SUM

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

1 L.S. @ $32,000

15

REF:

FOR NOTES OF INSPECTION REF INSP. DIARY PG 8-12

TORQUE CHECKS BK 4 PG 32

511.07 COFFERDAM

DATE INSTALLED	DATE REMOVED	ENT BY	DATE:
7/19/2002		BBB	
7/20/2002		BBB	
	7/22/2002	BBB	

FINAL PAY QUANTITY: 1 LS

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

1 LS @ $11,000

REF

DOWNSTREAM COFFERDAM INSPECTED AND ACCEPTED, INSP DIARY BK 4 PG 3

UPSTREAM COFFERDAM INPSECTED AND ACCEPTED, INSP DIARY BK 4 PG 22

UPSTREAM/DOWNSTREAM COFFERDAM REMOVED TODAY AND THIS ITEM IS COMPLETE.

REF INSP DIARY BK 4 PG 5-20 FOR NOTES OF INSPECTION

631.12 ALL PURPOSE EXCAVATOR (INCL OPERATOR)

DREW NO.	NO OF HRS	ACCUM HRS	ENT BY	DATE
1	2 ✓	2 ✓	BBB	7/1/2002
2	10 ✓	12 ✓	BBB	7/6/2002
3	3 ✓	15 ✓	BBB	7/16/2002
5	8 ✓	23 ✓	BBB	7/25/2002
6	10 ✓	33 ✓	BBB	8/5/2002
8	8 ✓	41 ✓	BBB	8/12/2002
TOTAL		41 ✓		

FINAL PAY QUANTITY: 41 HRS ✓

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03 ✓

20HRS @ 100.00/HR

REF

INSP DIARY BK4 PAGE 4
INSP DIARY BK 4 PAGE 12
INSP DIARY BK 4 PAGE 13
INSP DIARY BK 4 PAGE 22
INSP DIARY BK 4 PAGE 55, REF CONTRACT MOD #5
INSP DIARY BK 4 PAGE 56, REF CONTRACT MOD #5

652.33 DRUMS

DATE COUNTED	EA	REF		ENT BY	DATE
9-27-01	10	DIRECT ENT		BBB	9/27/2002
10-15-01	22			BBB	10/05/2002
10-30-01	22			BBB	10/10/2002
10-25-01	36			BBB	10/25/2002
11-05-01	66	BK 3 PGE XX	✓	BBB	11/5/2002
11-10-01	25	DIRECT ENT		BBB	11/20/2002
11-17-01	30	DIRECT ENT		BBB	12/5/2002

MAXIMUM AMOUNT = 66 DRUMS ✓

FINAL PAY QUANTITY: 66 EA ✓

ENTERED BY : BILL BITTERMAN 12-10-02

CHECKED BY: ABC 1-2-03 ✓

50 EA @ $65.00

1

656.75 TEMP SOIL EROSION AND WATER POLLUTION

ACCEPTED	INSPECTED	WEEK ENDING
O.K.		8/8/2002
	O.K.	8/15/2002
	O.K.	8/22/2002
	O.K.	8/29/2002
	O.K.	9/6/2002
	REF TO REMARKS	9/10/2002
	REF TO REMARKS	9/11/2002
	O.K.	9/13/2002
	O.K.	9/20/2002

FINAL PAY QUANTITY: 1 LS OF $20,000 ✓

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03 ✓

1 L.S. @ $20,000

REMARKS

MIKE CLARK, OES, REVISED AND APPROVED SEWPCP, PAY 10%

PAID 50%

✓ DEDCUT $100 FOR NON COMP TO PLAN, REF TO CORRESPENCE DATED 9/10/02 AND PROJECT DIARY PAGE 45

✓ DEDCUT $100 FOR NON COMP TO PLAN, REF TO CORRESPENCE DATED 9/11/02 AND PROJECT DIARY PAGE 70

NOTE: THE DEDUCTIONS ARE MADE UNDER SAME ITEM # W.O. SS, FOR A $200 LS DEDUCT

202.20 COMMON EXCAVATION

COMMON EXC STA 20+00 TO 21+25 (TAPERED ENDS)
FROST HEAVE AREA

SECTION	W1	W2	DEPTH	AREA SF	LENGTH	VOLUME
1	0	0	0	0		
					25	487.5
2	24'	28'	1.5'	39		
					75	2925
3	24'	28'	1.5'	39		
					25	487.5
4	0	0	0	0		
				TOAL VOLUME =		3900 CF

ITEM 202.20
TOTAL VOLUME FOR THIS SECTION = (3900)/27 = 144.44 CY

ITEM 304.104 ASG QTY = 144.44 CY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

DEPTH = 18"

202.20
COMMON EXC STA 16+25 L
REGRADING ENTRANCE TO MATCH NEW ROADWAY ELEV

DATE	TRUCK NO	NO OF LOADS	VOLUME VOL/LOAD	VOLUME CY
37530	117	2	10.5	21
37530	120	3	11.2	33.6
10/2/2002	117	1	10.5	10.5
10/2/2001	120	1	11.2	11.2
			TOTAL	76.3 CY
		T.M. QTY REDUCTION		
ITEM 202.2 TOTAL QTY			.9(76.3) =	68.67 CY

REFER TO BOOK #4 PAGE 60 FOR TRUCK MEASUREMENTS

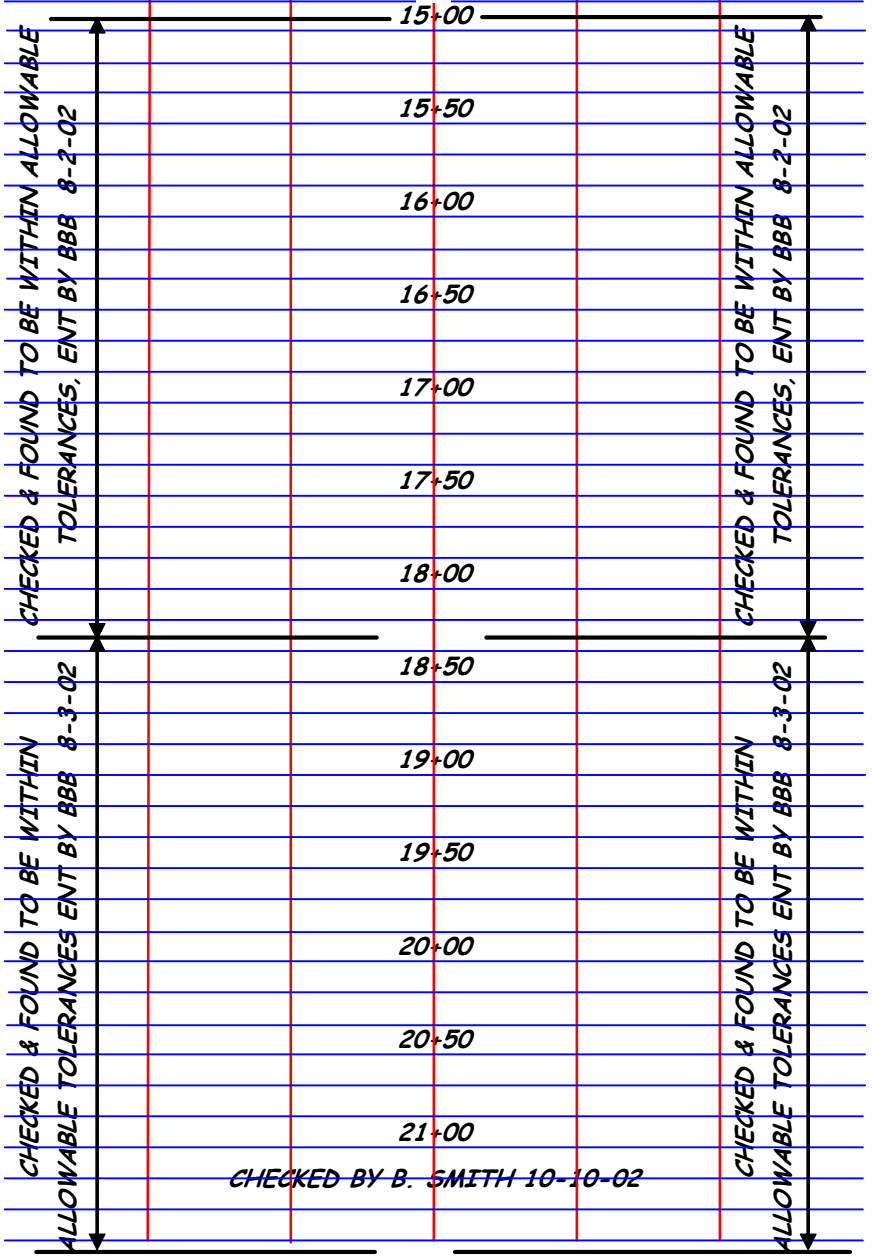
ITEM 304.104
NOTE: TRUCK REMOVED EXC AND RETURNED WITH ASC
WITH ONE ADDITIONAL LOAD BY TRUCK NO 117

			TOTAL	76.3 CY
			TRK #117	10.5
				86.8 CY
		T.M. QTY REDUCTION		
ITEM 304.104 TOTAL QTY			.8(86.8) =	69.44 CY

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03

SUBGRADE CHECKS



NOTE: DEPTHS EXPRESSED IN INCHES BELOW C-1' F.G (2)

LEFT		STA	RIGHT	
16'	12'	℄	12'	16'
-2%	-2%	15+00	-2.0%	-2%
25"	24"	21"	24"	24.75"
-2%	-1.50%	15+50	-2.0%	-2%
24.25"	23.25"	21"	24"	24.75"
-2%	-1.0%	16+00	-2.0%	-2%
23.5"	22.5"	21"	24"	24.75"
-2%	-0.50%	16+50	-2.0%	-2%
22.75"	21.75"	21"	24"	24.75"
-2%	+1.0%	17+00	-2.0%	-2%
20.5"	19.5"	21"	24"	24.75"
-2%	+2.5%	17+50	-3.0%	-3.0%
18.5"	17.5"	21"	25.25"	26.75"
-2%	+4.0%	18+00	-4.0%	-4.0%
16.25"	15.25"	21"	26.25"	28.75"
-2%	+4.0%	18+50	-4.0%	-4.0%
16.25"	15.25"	21"	26.25"	28.75"
-2%	+2.5%	19+00	-3.0%	-3.0%
18.5"	17.5"	21"	25.25"	26.75"
-2%	+1.0%	19+50	-2.0%	-2%
20.5"	19.5"	21"	24"	24.75"
-2%	-0.5%	20+00	-2.0%	-2%
22.75"	21.75"	21"	24"	24.75"
-2%	-1.5%	20+50	-2.0%	-2%
24.25"	23.25"	21"	24"	24.75"
-2%	-2.0%	21+00	-2.0%	-2%
25"	24"	21"	24"	24.75"

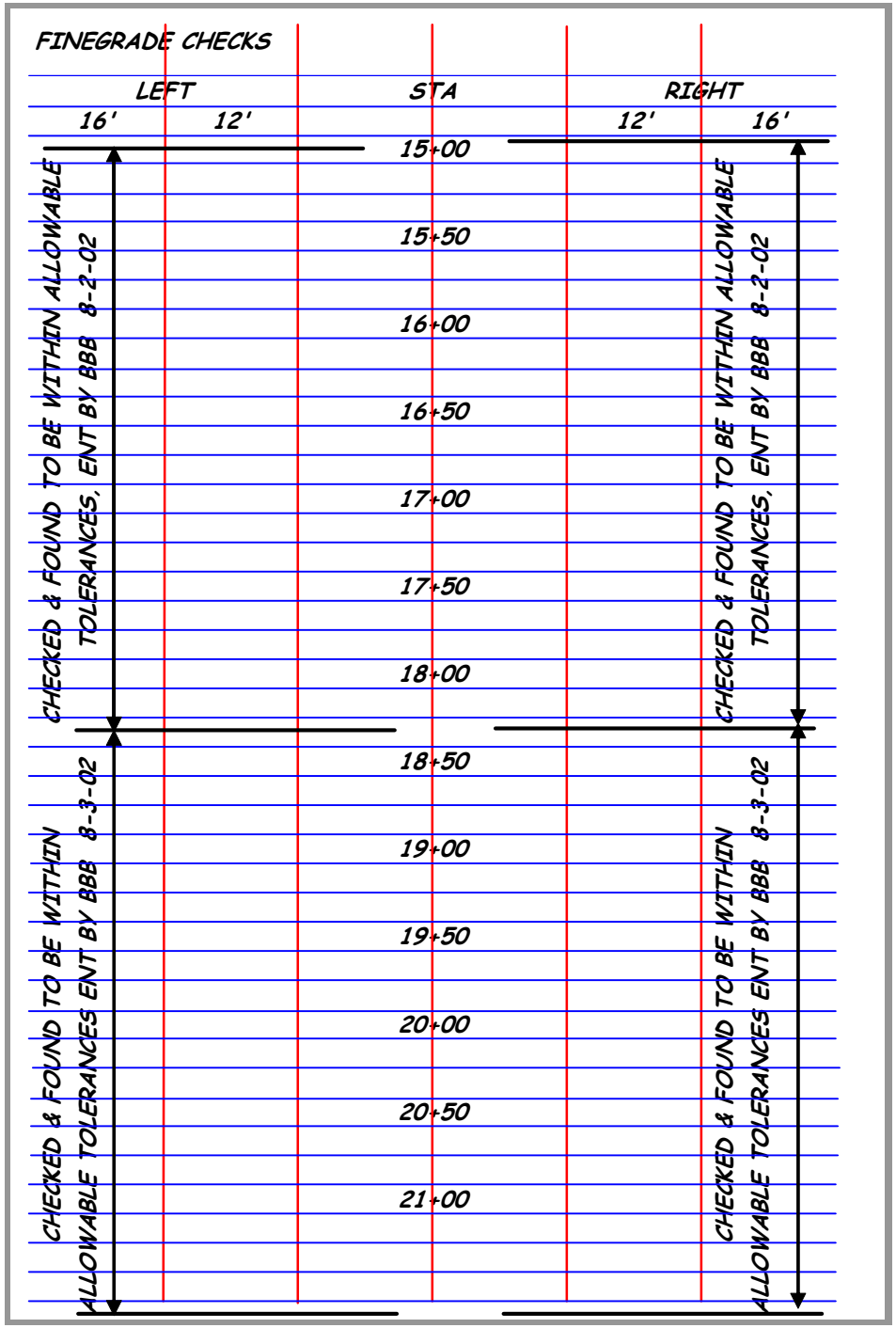
CHECKED BY B. SMITH 10-10-02

TRUCK MEASUREMENTS

TRUCK	MEASUREMENTS	QTY M3
M# H	LXWXH	
#017	3,93X2.21X1.22=10.6	
	MINUS HOIST = 1.22X.46X.2=.112	
	TOTAL FOR TRUCK #017 = 10.6-.112 =	10.5
M# H	LXWXH	
#03	X2.21X1.22=10.6	
MINUS HOIST = 1.22X.46X.2=.112		
	TOTAL FOR TRUCK #03 = 10.6-.112 =	10.5
M# H	LXWXH	
#032	3.83X2.11X1.12=9.05	
	MINUS HOIST = 1.22X.46X.2=.112	
	TOTAL FOR TRUCK #032 = 10.6-.112 =	8.9
M# H	LXWXH	
#08	3.83X2.11X1.12=9.05	
	MINUS HOIST = 1.22X.46X.2=.112	
	TOTAL FOR TRUCK #08 = 10.6-.112 =	8.9

CHECKED BY: ABC 1-2-03

ENT BY	DATE
BBB	37470
BBB	37470
BBB	37470
BBB	37470



NOTE: DEPTHS EXPRESSED IN INCHES BELOW C-1' F.G

LEFT		STA	RIGHT	
16'	12'	℄	12'	16'
-2%	-2%	15+00	-2.0%	-2%
4"	3"	0"	3"	4"
-2%	-1.50%	15+50	-2.0%	-2%
3.25"	2.25"	0"	3"	4"
-2%	-1.0%	16+00	-2.0%	-2%
23.5"	1.5"	0"	3"	4"
-2%	-0.50%	16+50	-2.0%	-2%
1.75"	.75"	0	3"	4"
-2%	+1.0%	17+00	-2.0%	-2%
-0.5"	-1.5"	21"	3"	4"
-2%	+2.5%	17+50	-3.0%	-3.0%
-2.5"	-3.5"	0"	4.25"	5.25"
-2%	+4.0%	18+00	-4.0%	-4.0%
-4.75"	-5.75"	0"	5.75"	6.75"
-2%	+4.0%	18+50	-4.0%	-4.0%
-4.75"	-5.75"	0"	5.75"	6.75"
-2%	+2.5%	19+00	-3.0%	-3.0%
-2.5"	-3.5"	0"	4.25"	5.25"
-2%	+1.0%	19+50	-2.0%	-2%
-0.5"	-1.5"	0"	3"	4"
-2%	-0.5%	20+00	-2.0%	-2%
1.75"	0.75"	0"	3"	4"
-2%	-1.5%	20+50	-2.0%	-2%
3.25"	2.25"	0"	3"	4"
-2%	-2.0%	21+00	-2.0%	-2%
4"	3"	0"	3"	4"

CHECKED BY B. SMITH 10-10-02

7/24/1900 STRUCTURAL EARTH EXC-MAJOR STRUCTURES

	BS	HI	FS	ELEV	REMOVAL DEPTH BELOW FTG ELEV 8.5'
TMB #3	3.8'	19.3'			
EL = 15.5'					
1			12.0	7.3	1.2'
2			12.3	7.0	1.5'
3			12.1	7.2	1.3'
4			12.5	6.8	1.9'

AVERAGE DEPTH OF UNDERCUT BELOW ELEV 8.5' = 1.5'

ITEM 206.082 STRUCT EARTH EXC-MAJOR STRUCT
VOLUME = .5(12+14) X 4' X 1.5' = 78 CF/27 = 2.89 CY

ITEM 203.25 GRAVEL BORROW
VOLUME = 2.89 X 1.15 (SWELL) = 3.32 CY

ITEM 206.092 STRUCT ROCK EXC-MAJOR STRUCT

TOP OF LEDGE ELEVATIONS

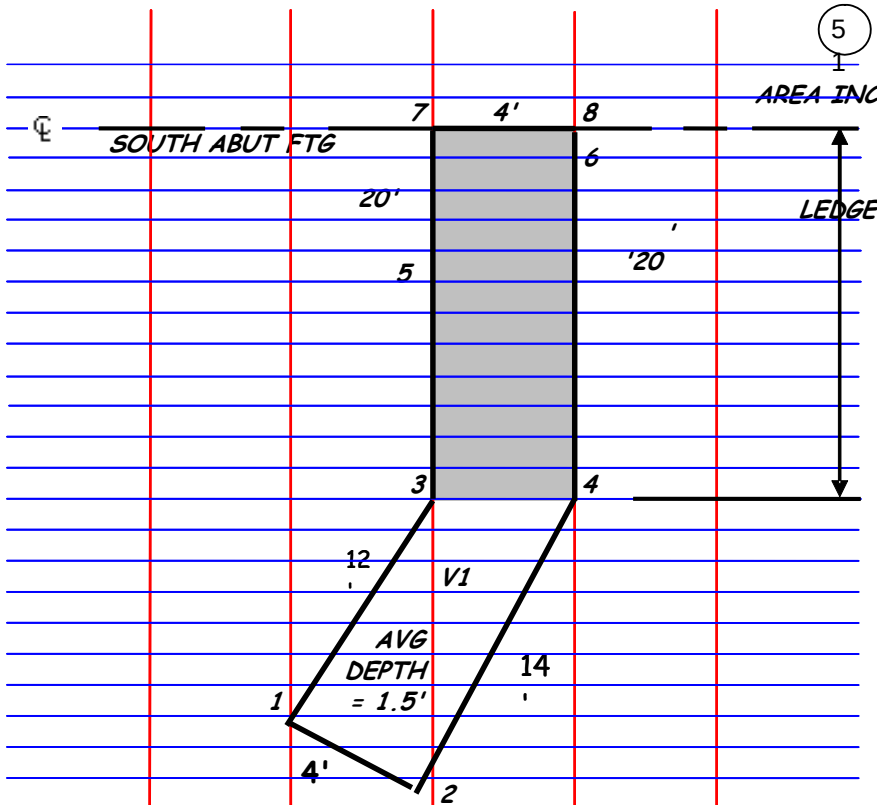
	BS	HI	FS	ELEV
3	3.8	19.3'	10.0	9.3'
4			10.2	9.1'
5			9.2	10.1'
6			8.8	10.5
7			8.4	10.9'
8			8.2	11.1'

TOP OF LEDGE WEIGHTED AVERAGE ELEVATION
= (9.3 + 9.1 + 2(10.1+10.5) + 10.9 + 11.1)/8 = 10.2'

BOTTOM OF LEDGE ELEVATIONS

	BS	HI	FS	ELEV
3	3.8	19.3'	12.3	7.0
4			12.2	7.1'
5			12.0	7.3'
6			12.1	7.2'
7			12.2	7.1
8			12.3	7.0

BOTTOM OF LEDGE WEIGHTED AVERAGE ELEVATION
= (7.0 + 7.1 + 2(7.3+7.2) + 7.1 + 7.0)/8 = 7.16



ITEM 206.092
VOLUME OF LEDGE ABOVE PLAN ELEV OF 8.5
VOLUME = (10.2-8.5) X 21.5 X 5.5' (18" PAY LIMIT) = 201.0 CF
VOLUME = 201.0 / 27 = 7.44 CY ✓

ITEM 000.00, STRUCT ROCK BELOW PLAN ELEV TO BE PAID
1.5 TIME 206.092
VOLUME OF LEDGE BELOW PLAN ELEV OF 8.5'
VOLUME = (8.5-7.15)' X 21.5' X 5.5' = 159.64 CF / 27 = 5.9 CY ✓

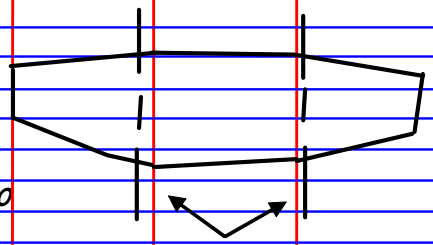
ITEM 502.22 CONCRETE UNDERWATER
REF DELIVERY SLIP NO BRI-9046
QTY PLACED ON LEDGE TO PLAN ELEV = 6.5 CY ✓

MEASURED/CALCULATED BY:BILL BITTERMAN 8-30-02
CHECKED BY: ABC 1-2-03 ✓

203.21 ROCK EXCAVATION

REMOVING ROCK ABOVE SUBGRADE STARTING AT STA 17+00

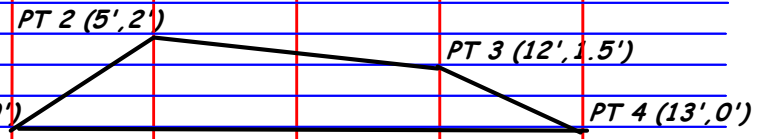
PLAN



TWO SECTIONS WERE TAKEN AT STA 17+60 AND 17+72

SECTION AT STA 17+60

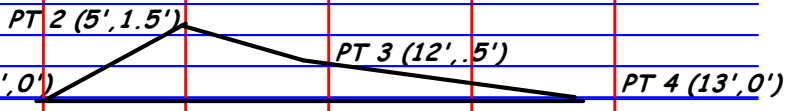
NOTE: ZERO ELEV DEPICTS SUBGRADE



TBM	BS	HI	FS	ELEV	
= SG	5.5	5.5			
PT 1			5.5	0'	✓
PT 2			3.5	2.0'	✓
PT 3			4.0	1.5'	✓
PT 4			5.5	0'	✓

SECTION AT STA 17+72

NOTE:ZERO ELEV DEPICTS SUBGRADE



TMB = SG	BS	HI	FS	ELEV	
		5.5			
PT 1			5.5	0	✓
PT 2			4.0	1.5'	✓
PT 3			5.0	.5"	✓
PT 4			5.5	0	✓

ENTERED BY : BILL BITTERMAN 11-08-02

CHECKED BY: ABC 1-2-03 ✓

AREA OF SECTION =
$.5((X_1(Y_4-Y_2)+X_2(Y_1-Y_3)+X_3(Y_2-Y_4)+X_4(Y_3-Y_1))$

AREA OF SECTION AT 17 + 60

POINT	X	Y	DIFFERENCE OF Y'S	DOUBLE AREA +	DOUBLE AREA -
1	0	0	0-2=-2		0 ✓
2	+5	+2	0-1.5=-1.5		7.5 ✓
3	12	+1.5	2-0=2	24 ✓	
4	+13	0	1.5-0=1.5	19.5 ✓	
1	0	0	0		0
				43.5 ✓	-7.5 ✓

TOTAL =+43.5-7.5=36 ✓

AREA = 36 X .5 = 18 SF ✓

AREA OF SECTION AT 17+ 80

POINT	X	Y	DIFFERENCE OF Y'S	DOUBLE AREA +	DOUBLE AREA -
1	0	0	0-1.5=-1.5		0 ✓
2	5	1.5	0-.5=-.5		2.5 ✓
3	12	0.5	1.5-0=1.5	18 ✓	
4	13	0	.5-0=.5	7.5 ✓	
1	0	0	0		0
				25.5 ✓	2.5 ✓

TOTAL =+25.5-2.5= 23 ✓

AREA= 23 X .5 = 11.5 SF ✓

VOLUME OF ROCK REMOVED

STA	AREA SF	AVERAGE AREA SF	LENGTH FT	VOLUME CF
17+50	0			
		9 ✓	10 ✓	90 ✓
17+60	18			
		14.75✓	12 ✓	177 ✓
17+72	11.5			
		5.75 ✓	8 ✓	46 ✓
17+80	0			

TOTAL VOLUME = 313/27 = 11.59 CY ✓

ITEM 203.21 = 11.59 CY, ITEM 203.20 DEDUCT 11.59 CY ✓

206.07 STRUCTURAL ROCK EXCAVATION

206.07 STRUCTURAL ROCK EXCAVATION FOR 12" UD TYPE C
FROM STA 10+80 TO 11+90

TRENCH PAY WIDTH = DIA + 18" = 30" = 2.5' ✓

TOP OF ROCK ELEV.

	BM	BS	HI	FS	ELEV
	#3 = 23.5'	4.5	19.0		
STA					
10+90				9.0	10.0 ✓
11+00				8.8	10.2 ✓
11+10				8.6	10.4 ✓
11+20				8.5	10.5 ✓
11+30				8.2	10.8 ✓
11+40				8.1	10.9 ✓
11+50				8.4	10.6 ✓
11+60				8.6	10.4 ✓
11+70				8.5	10.5 ✓
11+80				8.8	10.2 ✓
11+90				9	10 ✓

BOTTOM OF ROCK ELEVATIONS

	BM	BS	HI	FS	ELEV
	#3 = 23.5'	4.2	19.3'		
STA					
10+85				9.7	9.6 ✓
10+90				9.6	9.7 ✓
11+00				9.4	9.9 ✓
11+10				9.5	9.8 ✓
11+20				9.5	9.8 ✓
11+30				9.4	9.9 ✓
11+40				9.6	9.7 ✓
11+50				9.5	9.8 ✓
11+60				9.4	9.9 ✓
11+70				9.5	9.8 ✓
11+80				9.6	9.7 ✓
11+90				9.5	9.8 ✓
11+95				9.7	9.6 ✓

STA	TOP LEDGE	BOTTOM LEDGE	AREA	AVG AREA L'	VOLUME
(BEGIN OF ROCK EXC)					
10+85	0	9.6	0		
				.25 X 5	1.25 ✓
10+90	10.0	9.8	0.5		
				.875 X 10	8.75 ✓
11+00	10.2	9.7	1.25		
				1.25 X 10	12.5 ✓
11+10	10.4	9.9	1.25		
				1.5 X 10	15 ✓
11+20	10.5	9.8	1.75		
				2.13 X 10	21.3 ✓
11+30	10.8	9.8	2,5		
				2.75 X 10	27.5 ✓
11+40	10.9	9.7	3		
				2.5 X 10	25 ✓
11+50	10.6	9.8	2		
				1.63 X 10	16.3 ✓
11+60	10.4	9.9	1.25		
				1.5 X 10	15 ✓
11+70	10.5	9.8	1.75		
				1.5 X 10	15 ✓
11+80	10.2	9.7	1.25		
				.875 X 10	8.75 ✓
11+90	10	9.8	0.5		
				.25 X 5	1.25 ✓
11+95	0	9.6	0		
(END OF ROCK EXC)					
			TOTAL VOLUME =		167.6 CF ✓

NOTE: ALL FINAL ROCK ELEV ABOVE THE FLOW LINE -1 FT
PAY LIMIT (PIPE ELEV. 10.4 TO 10.0)

ITEM 206.07
TOTAL VOLUME = 167.6/27=6.2 CY ✓

MEASURED & CALCULATED BY : BILL BITTERMAN 11-08-02
CHECKED BY: ABC 1-2-03 ✓

501.36 STEEL H-PILES

PILE NO.	HEAT NO.	DATE DRIVEN	LENGTH (FT)	CUT OFF	LENGTH
1	191244	5-2-02	50.32	4.1"	
	194352	5-6-02	40.26	11.33'	
DRIVEN LENGTH					89.3 ✓
2	191248	5'-2'-02	50.32	7.2"	
	194350	5-6-02	40.27	11'-6"	
DRIVEN LENGTH					89.0 ✓
3	191248	5'-2'-02	50.33	6"	
	194348	5-6-02	40.27	11'-0"	
DRIVEN LENGTH					89.2' ✓
4	191244	5'-2'-02	50.31	4"	
	194427	5-6-02	40.25	11'-6"	
DRIVEN LENGTH					89.3' ✓
5	191246	5'-2'-02	50.31	6"	
	194352	5-6-02	40.26	11'-2"	
DRIVEN LENGTH					89.1' ✓

	501.361		501.36		
PILE NO.	DRIVEN LENGTH (FT)	ACCUM (FT)	PILES DELIVERED (FT)	(FT)	ACCUM (FT)
1	89.3' ✓	89.3'	50.32' ✓	40.26' ✓	90.58
2	89.0' ✓	178.3	50.32' ✓	40.27' ✓	181.17
3	89.2' ✓	267.5	50.33' ✓	40.27' ✓	271.77
4	89.3' ✓	356.8	50.31' ✓	40.25' ✓	362.33
5	89.1' ✓	445.9 ✓	50.31' ✓	40.26' ✓	452.9' ✓

PILE NO: 1 2 3 4 5

H H H H H

NORTH ABUTMENT

STREAM ←

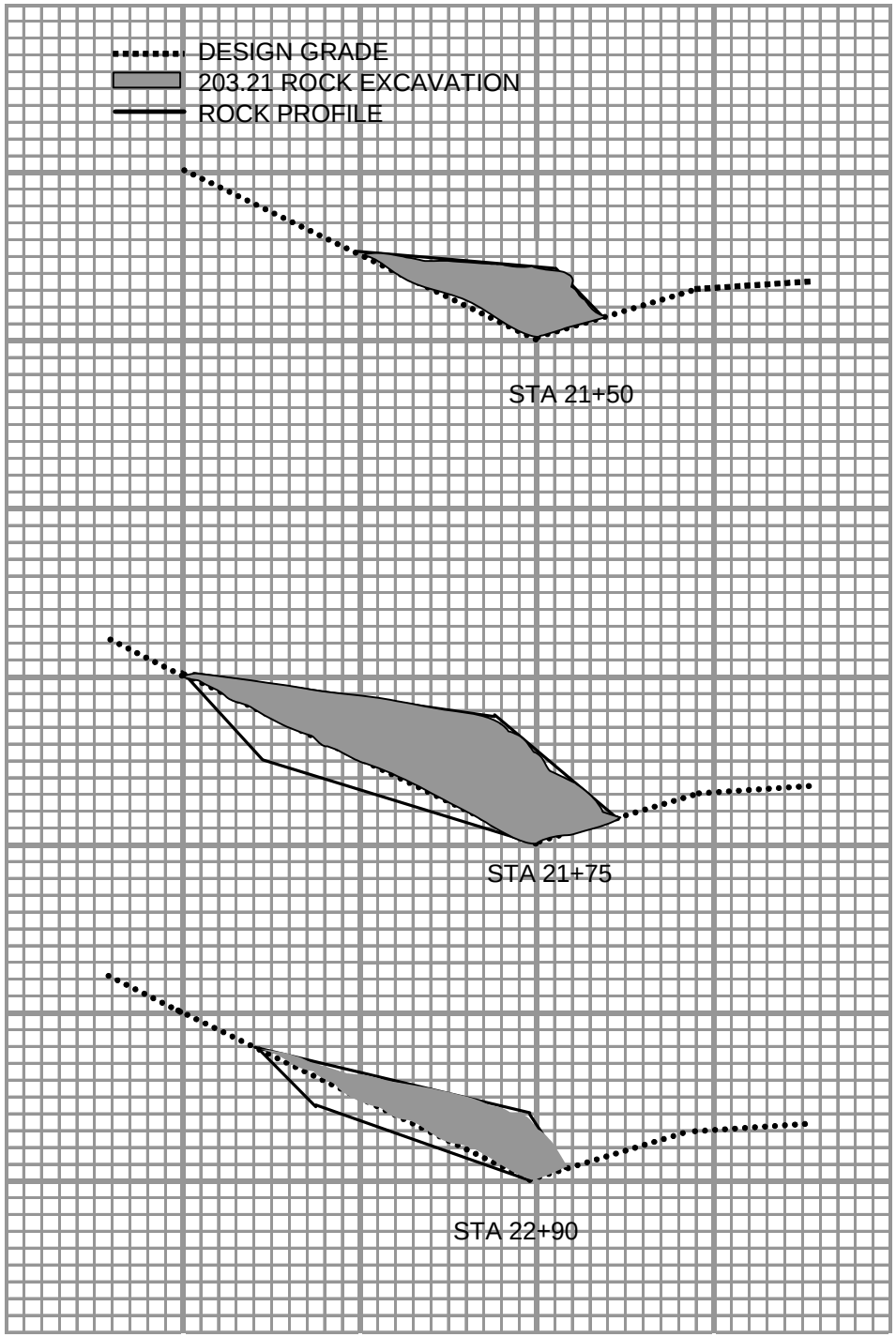
NOTE: THE PILE #'S ARE NOT THE SAME AS THE BEAM #'S
ALL PILES ARE HAVE A 10 DEGREE SKEW

ITEM 501.36: PILES DELIVERED = 452.9'

ITEM 501.361: PILES IN PLACE = 445.9'

MEASURED/COMPS BY BILL BITTERMAN 5-7-02

CHECK BY: ABC 8-08-02 ✓



11

ITEM 203.21

NOTE: ALL AREAS' WERE MEASURED WITH A PLANIMETER FROM THE ADJACENT CROSS SECTIONS

STA	AREA	AVERAGE AREA	LENGTH (FT)	VOLUME (CY)	
21+25	0				
		2.9	25	2.7	✓
21+50	5.8				
		7.5	25	6.9	✓
21+75	9.2				
		6.5	15	3.6	✓
21+90	3.8				
		1.9	20	1.4	✓
22+10	0				
		TOTAL		14.6	✓

ITEM 203.21 TOTAL = 14.6 CY ✓

MEASURED/CALC BY: BILL BITTERMAN 8/20/02

CHECKED BY: ABC 1-2-03

DATE DAY WEATHER

PROJECT ACTIVITIES:

- ☐ ITEM NUMBER, LOCATION & LIABLE CONTR/SUB
- ☐ SOURCE AND DISPOSITION OF ANY EXCAVATION
- ☐ SOURCE AND DISPOSITION OF GRAVEL AND BORROW
- ☐ NON-ROUTINE ACTIVITIES

A: CONTRACTORS' NON ADHERANCE TO CONTRACT SPEC'S: MTCD'S & SEWPC

B: MDOT DIRECTIVES GIVEN TO CONTRACTOR IE: RELOCATIONS, CHANGES IN ALIGNMENT UNDERCUT & REWORK

C: CONTRACTOR IS INADEQUETLY STAFFING THE JOB FOR THE TYPE OF WORK

D: ANYTHING RELATED TO POTENTIAL CONTRACTOR CLAIMS

E: ANY DISCUSIONS WITH TOWN OFFICIALS. UTILITIES, DEVELOPERS AND ABUTTERS

G: TRAFFIC ACCIDENTS & OTHER HAZARDS

ENTERED BY : NAME & DATE

7/16/2002 SUNNY 70'S 1

ITEM 206.082

COMPLETED EXCAVATION AT THE NORTH ABUTMENT SECTION, UPSTREAM OF CENTERLINE, DEWATERED AREA, CLEANED OFF LEDGE, AND PLACE 12.2 CY OF CONCRETE

ITEM 502.26
PLACED 10.82 CY OF CONCRETE FILL, 1.25 CY OF CONCRETE WAS SPILLED BEYONDTHE FORMS AND WILL NOT BE PAID FOR. THE REMAINING CONCRETE WAS PLACED IN THIS SECTION TO THE ELEV OF THE BOTTOM THE FOOTING SHOWN ON THE PLANS. SECTION CURED WITH WATER AND CONT'D WETTED

BILL SIMPSON, OES CONSULTANT ON -SITE TO REVIEW SEWPC DEVICES AND 3 ISSUES WERE BROUGHT TO MY ATTENTION, AND WERE DIRECTED IMMEDIATELY TO JEFF SIMPSON, W&S SUPER. AND WERE ALL ISSUES WERE RESOLVED.

ITEM 206.082
ALL EXCAVATED MATERIAL WAS DETERMINED TO BE UNUSABLE AND WAS TAKEN TO THE SMITH WASTE AREA

ITEM 652.36 AND 656.75
ALL MTCD'S AND SEWPC DEVICES ARE INPLACE AND IN GOOD WORKING CONDITION AT THE END OF THE DAY

ENTERED BY: BILL BITTERMAN 7-16-02

7/17/2002 TUESDAY FAIR 50'S

ITEM 211.20

WHILE PERFORMING INSLOPE WORK, DISCOVERED THAT THE EXISTING BACK SLOPES ARE NOT AS SHOWN ON THE X-SECTIONS AT STA 20+00 TO 21+35 LEFT DO NOT DEPICT ACTUAL FIELD CONDITIONS, EXISTING SLOPES ARE STEEPER AND INFRINGE ON DETAILED GUARDRAIL PLACEMENT.

DIRECTED CONTRACTOR TO REMOVE 9 STUMPS AND TO CUT BACKSLOPES TO FIELD STAKED MATCH POINT (WITHIN THE R O W,

DIRECTED THE CONTRACTOR TO REMOVE 9 SINGLE TREES THESES TREES WERE OUTSIDE OF THE CLEARING LIMITS BUT REQUIRED REMOVAL DUE TO ACTUAL BACKSLOPES MATCH POINTS AND SIGHT DISTANCE, AND OVERALL POOR CONDITION OF THE TREES.
THE 9 TREES POSED A VERY SERIOUS HAZARD TO VEHICULAR TRAFFIC.

STUMP & TREE REMOVAL WILL BE PAID BY RWO, EXCAVATING AND SHAPING BACKSLOPES WILL BE PAID WITH EXISTING BID ITEMS (MANPOWER AND EQUIPMENT RENTAL TIME)

ENTERED BY: BILL BITTERMAN 7-17-02

6/7/01 FRIDAY SUNNY 70'S 2

ITEM 603.159 CULVERT PIPE OPTION III
REMOVED EXISTING 12" CMP AND
INSTALLED 48' OF 12" CORR. POLYETHYLENE PIPE
AT STA 12+75. PIPE WAS INSTALLED PER LINE,
GRADE AND SPEC. BACKFILLED WITH EXCAVATED
MATERIAL AND COMPACTED EACH 8" LIFT
THERE WAS ALSO AN UNDERCUT BELOW THIS PIPE
BECAUSE OF UNSTABLE UNDERLYING BLUE CLAY.
THIS UNDERCUT WAS APPROVED BY THE RESIDENT
ENGINEER.

UNDERCUT MEASUREMENTS
ITEM 206.061 STRUCT EARTH EXC.- BELOW GRADE
THE PIPE WAS UNDERCUT BY 24"+/- FROM PROPOSED
FLOW LINE
AVERAGE DEPTH =22+27.5+26+24.5+23.5/5=24.7"
MAX WIDTH=PIPE DIA + 15"(EACH SIDE)=42"
LENGTH = 40'
QTY = (24.7"-12")X(15"+12"+15")X40'/27=5.5 CY

ITEM 203.25 GRANULAR BORROW
ITEM USED TO BACKFILL UNDERCUT
TOTAL QTY =5.5 CY

BORROW MEASUREED IN PLACE MUST BE
SWELLED BY 15%

TOTAL QTY =5.5 X 1.15 = 6.33 CY

ENTERED BY : BILL BITTERMAN 6-7-02

9/10/2002 FRIDAY SUNNY 70'S

ITEM 603.159

CONTRACTOR ARRIVED AT THE SITE TODAY WITH THE OPTION III, ALL PIPE IS CERTIFIED ASHTO M-294 STAMP.

ITEM 631.12

USED 2 HRS OF APE, REF TO DREW NO. 3, TO CREATE A BETTER SWALE THROUGH THE PROPERTY OF MRS SMITH. MRS SMITH BROUGHT TO OUR ATTENTION THAT THE WATER RUNOFF FROM THE ROAD COLLECTS NEAR HER HOUSE AND ASKED THE MDOT TAKE REMOVE A HIGH SPOT IN HER LAWN TO ALLOW FOR BETTER DRAINAGE THE HIGH SPOT WAS LOCATED WITHIN THE ROW

ITEM 652.33

COUNTED 22 DRUMS USED ON THE PROJECT TODAY

ITEM 304.10

CONTINUED TO PLACE ASC-GRAVEL IN WELL COMPACTED LIFTS FROM ST 12+00 TO 15+50

NOTE: D. WEISNER ON PROJECT TODAY TO TEST COMPACTIONS

ENTERED BY: BILL BITTERMAN 9-10-02

6/8/2001 TUESDAY SUNNY 70'S 3

603.09 CB STA 33+28 RT

INSTALLED 8' PRECAST CB WITH 2' SUMP FOR EXISTING 24" CIP. REMOVED A PORTION OF A LARGE CONCRETE STRUCTURE IN ORDER TO INSTALL CB SUMP. SEE OPPOSITE PAGE FOR PAY DEPTH & QTY'S BACKFILLED WITH STONE FOR CB BEDDING. OUTSIDE CB = 4' DIAMETER EXCAVATED 18" OUTSIDE WALL AND USED A 235 B'HOE WITH HOE RAM TO REMOVE CONCRETE BACKFILLED WITH EXCAVATED MATERIAL, AND COMPACTED EACH LIFT. ALL WORK DONE ACCORDING TO PLANS & SPEC

ITEM 203.07 STRUCTURAL ROCK EXCAVATION

BROKE OFF EXISTING CONCRETE STRUCTURE TO INSTALL CB SUMP

BOTTOM OF SUMP CONC ELEV = 90.5' FROM PLANS ✓

AVERAGE ELEV OF TOP OF BURIED CONCRETE

TBM # 5	BS	HI	FS	ELEV.	
101.5	3.5	105 ✓			
			9.0	96 ✓	TP OF CONC
			9.3	95.7 ✓	TP OF CONC
			9.9	95.1 ✓	TP OF CONC
			10.0	95 ✓	TP OF CONC

AVERAGE TOP ELEV OF BURIED CONCRETE =95.45'

BOTTOM OF UNDERCUT ELEV = 89.5'

DEPTH OF CONCRETE REMOVED =95.45-89.5 = 5.95' ✓

WIDTH OF CONCRETE REMOVED

= 4' + 2(1.5') = 7' ✓

ITEM 203.07 STRUCT ROCK EXCAVATION

VOLUME = 3.14 X (7/2)2 X 5,95 = 65.42 CF / 27 = 2.42 CY ✓

ENTERED BY : BILL BITTERMAN 06-08-02

CHECKED BY: ABC 1-2-03 ✓

4

37422 MONDAY SUNNY 70'S

ITEM 202.20

CONTRACTOR IS MILLING EXISTING PAVEMENT AND STOCKPILING MAT'L AT APPROVED STAGING AREA TO BE USED LATER AS ASG GRAVEL. CONTRACTOR IS EXCAVATING MAT'L FROM STA 15+00 TO 21+00. QTY TO BE MEASURED PLAN QTY. REF TO BK 3 PG 2 FOR SUBGRADE CHECK AND CONTRACTOR IS TAKING MAT'L TO THE SMITH'S WASTE AREA.

ITEM 304.104

CONTRACTOR IS BACKFILLING EXC AREAS WITH MAT'L FROM THE ALLISON PIT AND PLACING AND COMPACTING IN LIFTS FROM STA 15 + 00 TO STA 21+00. MILLINGS WAS USED TO PLACE THE FINAL LIFT.QTY IS TO BE MEASURE PLAN QTY REF TO BK 3 PG 3 FOR FINEGRADE CHECKS

ITEM 203.21

ROCK WAS REMOVED FROM STA 16+50
FIELD MEASURED
VOLUME = 4.5'X 3.3' X 4' = 59.4 CF / 27 = 2.2 CY

ITEM 202.20

DEDUCT ROCK QTY OF 1.46 CY FROM ITEM 202.2

ENTERED BY : BILL BITTERMAN 6-15-02

ITEM 203.25

GRANULAR BORROW
THE CONTRACTOR OPTED TO USE A BEDDING OF CRUSHED STONE FOR THE CB
THE BEDDING WILL BE PAID AT THE CONTRACT PRICE OF 203.35 GRANULAR BORROW

VOLUME OF GRANULAR BORROW

ELEV OF BOTTOM OF CONC SUMP = 92.00 ✓

ELEV OF BOTTOM OF UNDERCUT = 87.5' ✓

MEASURE UNDERCUT FOR PAYMENT ✓
92.00 -4"(CONC) - 12" (FIRST FT FREE)=90'-8"

DEPTH OF UNDER CUT
90.75-87.5 = 3.25' ✓

VOLUME

(3.14 X (7/2)2 X 3.25') / 27 = 4.63 CY ✓

SWELL = 4.63 X 1.15 = 5.32 CY ✓

ENTERED BY : BILL BITTERMAN 11-08-02
CHECKED BY: ABC 1-2-03

6/10/2002 MONDAY SUNNY 70'S

ITEM 403.208
PAVING 12' ML AND 4' SHOULDERS IN ONE PASS.
BOTH ARE METHOD A, DENSITIES ARE EXCLUDED FROM
THE PAY FACTOR FOR THE MATERIAL PLACED ON THE
THE VARIABLE WIDTH SHOULDERS ONLY.
MIKE SMITH, PAVING SUPT. AND MYSELF AGREED THAT
THE TONAGE ON M.L. AND SHLDR ARE TO SPLIT
IN THE FOLLOWING MANNER.
ML = (7,100' X 12' X 2) / 9 X 110#/SY/IN /2000 = 3,000 TONS
1,601.25 T - 3,000 T = 301.25 TONS

REF COVER SLIP #3458 QTY OF 1601.25 TONS FOR ITEM 403.208

ITEM 508.13
AD ROSSI ON SITE TO INSTALL MEMBRANE
ON BRIDGE DECK. THE DECK WAS "SHOT BLASTED" USING A
BLASTRAC MACHINE USING SMALL BLACK STEEL PELLETS.
THE DECK WAS BLASTED COMPLETED AND FREE OF LATANCE.
3 MOISTURE READING WERE TAKEN BY THE CONTRACTOR USING
A SOVEREIGN PORTABLE ELECTRONIC MOISURE MASTER
WITH RESULTS OF 3.2, 3.2 & 3.3., THE READINGS
WERE TAKEN AT STA 1+005, CL, STA 1+009 1.5 M RT, AND STA
1+112; 2M LT RESPECTIVELY.
ROSSI PRIMED THE DECK USING ROYSTON RAYBOND 713
BATCH NO. BA A 23908
ROSSI PLACED 32.4 SM OF ROYSTON 10AN EASYPAVE
MEMBRANE AND ALL EDGES WERE SEALED WITH MASTIC
THE PRIMER AND MEMBRANE PRODUCTS ARE ON THE MDOT
APPROVED PRODUCT LIST

37110 MONDAY SUNNY 70'S

ITEM 511.07
CONTRACTOR INSTALLING UPSTREAM
AND DOWNSTREAM COFFERDAMS. BUILDING
SEDIMENTATION BASINS ON DOWNSTREAM
SIDE OF BRIDGE ON EXISTING LOGGING. THE
CONTRACTOR WAS NOTIFIEDTHAT THE BASIN
NEEDS MORE BALES PER EROSION CONTROL PLAN.
CONTRACTOR IS TAKING MAT'L TO THE SMITH'S
WASTE AREA.

ITEM 509.12
CONTRACTOR HAS FINISHED ERECTING
PIPE ARCH THIS A.M. AND STARTED TIGHTENING
THE BOLTS WITH COMPRESSOR. PERFORMED TORQUE
CHECK ON BOLTS

ITEM 203.21
ROCK WAS REMOVED FROM STA 16+50
FIELD MEASURED
VOLUME = 5' X 3.3' X 4' = 66 CF / 27 = 2.44 CY

ITEM 202.20
DEDUCT ROCK QTY OF 2.44 CY FROM ITEM 202.2

ITEM 206.061
DIRECTED CONTRACTOR TO UNDERCUT UD TO AVOID
EXISTING UTILITY, THE UTILITY IS NOT LOCATED AS PER
PLAN.

FIELD MEASURE FROM FLOW LINE
DETH BELOW FLOWLINE =AVG 2.5 FT
WIDTH = 2.5'
LENGTH =45'
QTY = (2.5-1' PAY LIMIT) X 2.5' X 45' / 27 = 6.25 CY

ENTERED BY : BILL BITTERMAN 8-7-02

37109 MONDAY SUNNY 70'S

ITEM 511.07
UPSTREAM AND DOWNSTREAM COFFERDAMS COMPLETED PER PLAN AND SPEC AND GOODWIN'S WAS ONSITE TO DELIVER PUMP AND PIPES. WATER IS NOW BEING DIVERTED FROM ABOVE COFFERDAM TO DOWNSTREAM BASIN.

ITEM 509.12
SPOT CHECKED TORQUE ON BOLTS AFTER PIPE WAS IN THE GROUND AND RE-TORQUE AND FOUND TO BE WITHIN SPECIFICATIONS.

ITEM 652.36
MTCD ARE OF FOR THE DAY. ROAD WAS CLOSED THIS AM TO TRAFFIC. ALL DETOUR SIGNS WERE PUT INTO PLACE THIS MORNING AS PER PLAN.

ITEM 652.312 AND 526.301
TYPE III BARICADES IN PLACE AND TEMP CONC BARRIERS PUT IN PLACE BEHIND TYPE III AS PER PLAN ON THE NORTH ANDOVER ROAD ENTERING AND EXITING THE WORK AREA NEAR THE MULTIPLATE.

ENTERED BY: BILL BITTERMAN 8-06-02

7/2/2002 TUESDAY HOT & HUMID 6

ITEM 501.36 AND 501.361
COMPLETE ASSEMBLY OF DELMAR D19-42 DIESEL HAMMER,

TECH ANDY PETREE ON SITE TO OVERSEE ASSEMBLY & OPERATION OF HAMMER.

ABUTMENT NO. 1
THE LAST OF THE SPLICES ARE COMPLETED AS TODAY BY KEN DUNLOP, CERTIFIED WELDER ID NO 564-9873

ITEM 501.02
CONTRACTOR USED PREFABRICATED PILE SPLICES (AFF CHAMPION SPLICES), WELDED SPLICES TO INSIDE OF FLANGE ALSO WELDED OUTSIDE OF FLANGES. A PARTIAL PENETRATION GROOVE WELD WITH 45 DEGREE BEVEL ON THE UPPER MEMBER.

USED AIRCO CODE ARC7018MR SHIELDED METAL ARC WELDING ELECTRODES (ACCORDING TO MDOT APPROVED LIST)

ITEM 501.361
DROVE PILES # 1,2,3,4 & 5 TO REFUSAL AND CUT PILES TO REQ'D ELEVATIONS

NOTE:
FRED AGHARAZI, AATECH, ON SITE TO PERFORM PILE DRIVING ANALYSIS, (DYNAMIC LOAD TEST) ON FIRST DRIVEN PILE PILE #5, PILE CAPACITY AND ALLOWABLE DRIVING STRESSES CONFIRMED, PILE REFUSAL DETERMINED BY 4 BLOWS/ 0 "
REF TO TESTING FILE FOR ITEM 501.361

ENTERED BY: BILL BITTERMAN 7-02-02

APPENDIX B

EXAMPLE MEMO'S AND FORMS

Maine Department of Transportation - Contracts Division
Time Charge Report

Project No. **12999.00**

Town/City **Augusta** Calculated By: **B. Bitterman**

Contractor: **General Corp.** Checked By: **Robert Clark**

All following documents must have same completion date; Diary Entry, Physical Work Completion Letter and Time Charge Report

Contract Completion Information		This section for Road/Bridge Open Deadlines	
Orig. Contract Completion Date	**10/14/2013**	Road / Bridge Open	**9/1/2013**
Days Added by Contract Mods	**4**	Days over (Subject to LDs)	**6**
Revised Completion Date	**10/18/2013**	LD Value	$ **375.00**
Physical Work Complete Date	**10/18/2013**	Total LDs applied	$ **2250.00**
Days over (Subject to LDs)		**This section for Fabrication Deadlines**	
LD Value	$	Days over (Subject to LDs)	
Total LDs applied	$	LD Value	$
		Total LDs applied	$

This section for use in case of approved/scheduled shutdown

(Winter) Suspension Date _____ Work Resumed Date _____

CM#	DAYS	CM#	DAYS	CM#	DAYS

List work not subject to Time Charge (for example; paving postponed, or remedial):

Additional Remarks:

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0016

JOHN ELIAS BALDACCI
GOVERNOR

DAVID A. COLE
COMMISSIONER

Example No 1; Memo free of Encroachments

Project 009999.00 - Augusta

ENGINEERS STATEMENT OF RIGHT OF WAY ENCROACHMENT

The above mentioned project was inspected on February 9, 2005 and appears to be free of all Right of Way Encroachments.

Bill Bitterman
Resident Engineer

Example No 2; Memo with Encroachments

Project 009999.00 - Augusta

ENGINEERS STATEMENT OF RIGHT OF WAY ENCROACHMENT

The above mentioned project was inspected on February 9, 2005 and appears to be free of all Right of Way Encroachments with the following exceptions:

1. Sta. 18+576 LT. Easy Self Storage sign on post.
2. Sta 22+320 LT. Granite Mailbox post.

Bill Bitterman
Resident Engineer

Maine Department of Transportation - Project Development
Waste Area Permit

Project No: _____

Town: _____

Upon receipt of written permission from _____
(Property Owner)

_____ is authorized to place waste material from this project at
(Contractor)

_____
(Description of Waste Area)

, in accordance with Sections 104.3.2 & 105.8.3 & 203.06 & 211.08, State of Maine, Department of Transportation, Standard Specifications Highways and Bridges, Revision of December 2002.

All waste areas and entrances to the waste area shall be uniformly graded to drain, loamed or covered with other earthly material that will support growth of grass, seeded and hay mulched.

All trees which are damaged, uprooted or otherwise moved as a result of the waste material, and trees which have had waste material placed around them to the extent that they will die, shall be cut and removed.

Grading, Loaming, Seeding and Hay Mulching shall not be paid directly, but shall be incidental to other items in the contract.

The contractor is responsible for relocating and disposing of waste. Any fill material generated from this Project shall not be placed, stored, or disposed of in a wetland at an off-site location unless the Contractor provides the Department with written evidence that all Permits necessary for such use have been obtained. Such evidence must be signed by the Owner of such site, and otherwise acceptable to the Department.

If no Permits are required due to **no impact** to a natural resource, then this should be stated.

Approval: _____
Property Owner

Agreed: _____
Contractor's Representative

*original copy to Contractor and additional copy for Resident's file.

MAINE DEPARTENT OF TRANSPORTATION
DAILY REPORT OF EQUIPMENT RENTAL

TOWN	Augusta	REPORT No.	12
PROJECT NUMBER:	9999	AUTHORIZATION	Residents Directive
CONTRACTOR	M&H	DATE	Thursday, August 21, 2004

LABOR

ITEM NO.	CLASS	RATE	TIME	TOTAL
				0
629.05	Hand Labor	$35	6	210
				0
				0
				0
				0
				0
			TOTAL	210

EQUIPMENT RENTAL

ITEM NO.	TYPE	RATE	TIME	TOTAL
				0
631.12	APE	$100	6	600
631.15	Earth Roller (Inc. Op)	$75	2	150
631.172	Truck Large, (Inc. Op)	$55	6	330
				0
				0
				0
			TOTAL	1080

MATERIAL

QUANTITY	DESCRIPTION	RATE	TOTAL
			0
			0
			0
			0
			0
			0
			0
		TOTAL	0

SUMMARY	
TOTAL LABOR	$210.00
TOTAL EQUIPMENT	$1,080.00
TOTAL MATERIAL	$0.00
TOTAL THIS REPORT	$1,290.00
PREVIOUS REPORT	
TOTAL DATE	$2,580.00

APPROVED: _____ RESIDENT

APPROVED: _____ CONTRACTOR REPRESENTATIVE

DESCRIPTION OF WORK:
Worked performed as directed at Sta 5+40 to 5+70 RT at the entrance to Bittermans Gas-n-Go. The Entrance was re-graded to insure drainage from the parking lot to the new Catch Basin at Sta 5+28 RT. Ref bk 1 page 28 for notes of inspection and acceptance.

RESIDENT: _____ *PROJ. NO.* _____

DATE: _____ _____

REVIEWED BY: _____ *TOWN/BRIDGE:* _____

CLOSEOUT REVIEW GUIDLELINES FOR OVERLAY PROJECTS

LABOR COMPLIANCE

Verify that employees are paid at wages not less than those contained in applicable wage decision	
Verify receipt of hourly breakdown for fringe benefits from Contractor	
Review documented employee interviews by appropriate MDOT personnel - Notify supervisor if missing	
Reviewer check of certified payrolls for accuracy	
Has Wage Rate Compliance Officer been notified of any problems?	

PROJECT DIARY

Daily entries showing working hrs, crew, equipment, weather, contractor and state personnel	
Time charge report	
MTCD and maint of Erosion Control items, weekly notes:	
Description of work done by item	
Other entries relating to contacts, claims and other potential problems	

FINAL QUANTITY BOOK

Book set up same as progress estimates	
Extra work & agreed unit prices documented, and referenced to Proj Diary	
Plan quantity per Resident Work Order & references proper documentation *(check engineers est)*	
Force Account Blue Book rates (maximum), receipted bills of mat'l + 15%, specialty 15%	
Quantities checked, signed, and referenced to construction book entries	
Billings & quantites: DOT to Municipality, DOT Maintenance or utility company	
QC/QA incentive/disincentive calculated	

GENERAL DOCUMENTATION REQUIREMENTS

Unit price Item, field measurements, sta to sta, limits, signed, checked	
LS Item ref to record of work done, inspec & accept documented in Pro diary, Final Quantity Book	
Force Account Items, doc by Daily Reports of Extra Work, receipted bills for specialty work and mat'l	
Participating	
Approval by Design and/or Supervisor if required	
Copy to FHWA on projects with Federal Oversight	
Copy to Finals Folder for scanning	

PAVEMENT ITEMS

Delivery slips, Cover slips totals signed, dated and entered in Final Quantity Book	
Tack coat delivery invoices, referenced to Certification of Analysis	
Daily reports of Extra Work	
Flaggers certified	
QC/QA test file	
Asphalt esclator for recycling if 108 Special Provision	

DRAINAGE

Drainage diary & installaion notes and layout notes, sta to sta & offsets documented	
Ledge removal quantity measured	

MISCELLANEOUS ITEMS

Have appropriate DBE letters and reports been completed	
Waste area Authorizations	
Contractor E-vals	
ROW Encroachment letter	
QC/QA for any fill and base material	
Hourly equipment rental items entered on DREWS	
Third party billing	

Notes:

PROJ. NO. _____

RESIDENT: _____ _____

CLOSEOUT REVIEW GUIDELINES FOR FULL CONSTRUCTION PROJECTS

LABOR COMPLIANCE

Verify that employees are paid at wages not less than those contained in applicable wage decision	
Verify receipt of hourly breakdown for fringe benefits from Contractor	
Review documented employee interviews by appropriate MDOT - Notify supervisor if missing	
Reviewer check of certified payrolls for accuracy	
Has Wage Rate Compliance Officer been notified of any problems?	

PROJECT DIARY

Daily entries showing working hrs, crew, equipment, weather, contractor and state personnel	
Time charge report	
MTCD and maint of Erosion Control items, weekly notes:	
Description of work done by item	
Other entries relating to contacts, claims and other potential problems	

FINAL QUANTITY BOOK

Book set up same as progress estimates	
Extra work entered, agreed unit prices and ref to Proj Diary or written documentation	
Plan quantity per RWO references documentation *(check engineers est)*	
Force Account Blue Book rates, receipted bill mat'l + 15%	
Quantities checked, signed, and references construction books	
Billings quantites: DOT to City, maintenance or utilities	
QC/QA incentive/disincentive calculated	
Copy to Finals Folder for scanning	

GENERAL DOCUMENTATION REQUIREMENTS

Unit price Item, field measurements, sta to sta, limits, signed, checked	
LS Item ref to record of work done, inspec & accept documented in Pro diary, Final Quantity Book	
Force Account Items, doc by Daily Reports of Extra Work, receipted bills for specialty work and mat'l	
Contract Modifications (Change Orders - Resident Work Orders) - signed, Part & non Part	
Approval by Design and/or Supervisor if required	
Copy to FHWA on projects with Federal Oversight	

EXCAVATION AND BORROW

Source and Final placement noted in Project Diary (Pit author and waste areas)	
Checks on-subgrade, finegrade, ditch and backslopes	
Field changes documented by measurements	

AGGREGATE BASE AND SUBBASE

Finegrade checks, field measurements of drives and other changes	
QC/QA gradation and compaction	

DRAINAGE

Drainage diary notes and layout notes, sta to sta & offsets	
Ledge removal measured	

PAVEMENT ITEMS

Delivery, Cover and Tack slips totals signed, dated and entered in FQB (certificate of analysis)	
QC/QA test file	

MISCELLANEOUS

Flaggers certified	
Waste area Authorizations	
Contractor E-vals	
ROW Encroachment letter	
Hourly equipment rental items entered on DREWS & signed	
Third party billing	

REVIEWERS' NAME: _____ ***DATE:*** _____

RESIDENT: _____ *PROJ. NO.* _____

DATE: _____ *TOWN* _____

CLOSEOUT REVIEW GUIDELINES FOR BRIDGE PROJECTS

LABOR COMPLIANCE

- Verify that employees are paid at wages not less than those contained in applicable wage decision
- Verify receipt of hourly breakdown for fringe benefits from Contractor
- Review documented employee interviews by appropriate MDOT - Notify supervisor if missing
- Reviewer check of certified payrolls for accuracy
- Has Wage Rate Compliance Officer been notified of any problems?

PROJECT DIARY

- Daily entries showing working hrs, crew, equipment, weather, contractor and state personnel
- Time charge report and ROW encroachment letter
- MTCD and maint of Erosion Control items, weekly notes:
- Description of work done by item
- Other entries relating to contacts, claims and other potential problems

FINAL QUANTITY BOOK

- Book set up same as progress estimates
- Extra work entered, agreed unit prices and ref to Proj Diary or written documentation
- Plan quantity per RWO references documentation *(check with Engineers est.)*
- Force Account Blue Book rates, receipted bill mat'l + 15%, specialty 15%
- Quantities checked, signed, and references construction books
- Billings quantites: DOT to City, maintenance or utilities
- QC/QA incentive/disincentive calculated

GENERAL DOCUMENTATION REQUIREMENTS

- Item by unit, field measurements, sta to sta, limits, signed, checked
- item by LS, ref to record of work done, inspection and acceptance, in Proj diary, FQB
- Item force account, documented by DREWS, receipted bills for specialty work and mat'l
- CO's, EWO's and RWO:
- Approval by Design and/or Supervisor if required
- Copy to Finals Folder for scanning
- Copy to FHWA on projects with Federal Oversight

BRIDGE ITEMS

- Pile reports, layouts, record piles
- Forms and re-steel checks, summary sheets, elev requirements
- Structural steel, inspection and acceptance, torque checks, calibrations, rotational capacity
- shear commectors, bent test and weld inspection
- Painting , coat thickness:

BRIDGE APPROACH WORK

- Roadway excavation, waste site, grade checks
- Base mat'l, source, QC/QA, finegrading

DRAINAGE

- Drainage diary and installation notes and layout notes, sta to sta & offsets
- Ledge removal measured

PAVEMENT ITEMS

- Delivery, Cover and Tack slips totals signed, dated and entered in FBQ (certificate of analysis)
- Flaggers certified
- QC/QA test file

MISC:

- Contractor E-vals, Waste Area authorization
- Third party billing

REVIEWERS' NAME: _____ ***DATE:*** _____

NOTES

RESIDENT: _____ *PROJ. NO.* _____

DATE: _____

REVIEWED BY: _____ *TOWN/BRIDGE:* _____

REVIEW GUIDELINES FOR ONSITE REVIEWS

LABOR COMPLIANCE	Dates	
Wage Rate Posters & Presentation of Wage-Hour Outline & EEO Outline		
Copy of applicable wage decision available		
Are payrolls and certifications received within the 7 days allowed		
If not received within allowable time, what action taken to correct		
Verify that employees are paid correct wages		
Verify receipt of hourly breakdown for fringe benefits from Contractor		
Reviewer spot check of certified payrolls for accuracy		
Document & review employee interviews by appropriate MDOT personnel		
Has Wage Rate Compliance Officer been notified of any problems?		

FIELD BOOKS	Dates		
Signatures, weather, working day number, contract hours, personnel,			
Eqpmnt, State Personnel, survey notes identified, crew names & duties			

CLEARING	Dates		
Measuring referenced to source			
Inspection of limits after work done.			
If paid plan qty, verify work done according to plan			

EXCAVATION	Dates		
Source and final placement noted in diary			
Embankment core staked out, waste storage areas designated/owner sign			
Design changes in backslopes.			
Documentation of excavation limits in backslopes and ditches			
Grubbing, undercuts, muck excavation, measured, documented			
If paid plan, verify accuracy of estimate & work done to plan			

excavation by truck measure reduce 10%

BORROW	Dates		
Source and final placement noted in diary.			
Pit rehabilitation.			
Location of pit described, layout shown			
Final cross-section or statement of inspection plus 500' check section			

measurements :ip swell 15%, truck measure deduct 10%, & check Engineers est

STRUCTURAL EXCAVATION AND DRAINAGE	Dates		
Culverts: drainage installation notes regarding backfill, line and grade			
Bedding, width and depth measurement for undercut			
Length of pipe measured or documented.			
Catch Basins: diameter of hole measured for undercut			
Multiplate: depth of bedding, width of excavation, disposition of over-			
Compensation for over-excavation if a borrow job			

rock w/0 rock ex minor struct pay 16 times common ex/ rock w/0 rock major struct pay 6 times struct earth

GRAVEL BASE SUBBASE	Dates		
Gravel checks,sub grade & top of gravel checks for mainline, side roads			

truck measure reduce 20% & check Engineers est & how to measure plan or truck measure

Maine Department of Transportation
Contractor's Performance Rating

The Resident shall complete the rating and should use those personnel that actively participated in the inspection of the work and/or the administration of the contract. At the project closeout meeting the rating will be discussed with the Assistant Project Manager and Contractor's Superintendent. The Rating will be forwarded to the Contractor's area office, the Program Manager and included in the contract closeout documentation. The Resident shall assure that the rating reflects the contractor's performance on the contract indicated. Below and above standard performance shall include a memo referencing documentation in the project records. Categories listed reflect areas of performance the Contractor demonstrated in completing the terms and conditions of the Contract. The Resident shall use the attached *RATING DESCRIPTIONS.*

DATE:	CONTRACTOR:
PROJECT TOWN(S):	PIN(S):
Project Type:	Resident:
☐ Bridge Construction	Project Manager:
☐ Highway Construction	Project Start Date:
☐ Paving	Project Completion Date:
☐ Marine Construction	Contract Amount $
☐ Buildings	Subcontract Amount$
☐ Traffic Signals and/or Lighting ☐ Other:	Type of Report ☐ Annual ☐ Interim ☐ Final

Signatures

_____ _____

MaineDOT Resident Contractor's Superintendent

Cc:

☐ MaineDOT Program Manager

☐ Contractors District Office

CONTRACTOR PERFORMANCE RATING

QUALITY OF WORK	ABOVE STANDARD	STANDARD	BELOW STANDARD
1. Contractor Quality Control			
2. Workmanship			
3. Compliance with Contract Requirements			
4. Adequacy of Personnel			
5. Contractor Engineering and Survey Layout			
6. Adequacy of Equipment			

SUBCONTRACTORS

7.General Contractor's Management of Subcontractor(s)			

COOPERATION

8. Partnering (Team Building)			
9. Attitude (Cooperation)			

ENVIRONMENTAL

10. Compliance with Environmental Requirements			

SAFETY

11. Compliance with Traffic Requirements			
12. Compliance with Safety Requirements			

IMPLEMENTATION OF FEDERAL, STATE, LOCAL, PROCEDURES AND REGULATIONS

13. Compliance with Labor Standards and EEO Requirements			
14. Compliance with DBE Requirements			
15. Compliance with OJT Requirements			

PROCEDURAL/ADMINISTRATIVE

16. Adequacy of Supervision			
17. Adequacy of Processing Paperwork			
18. Adherence to Progress Schedule			

NOTE: **All <u>Above and Below Standard</u> ratings must be submitted with a Memo to project file with reference to supporting documentation.**

Maine Department of Transportation
Accident Report Form

Date of Accident_____	Project #_____
Resident / Inspector_____	Project Location_____
Contractor_____	Time of Accident _____AM / PM
Contractors Rep._____	Personal Injury? YES / NO

Invstigated By (check one) ☐State Police ☐Local Police ☐County Sheriff Officers; Name._____
Police report Available? Yes / No Pictures Available? Yes / No

Total # Vehicles _____	Total Occupants_____	Total People Injured_____

Date/Time Date /Time

Project Manager notified Yes / No _____ Risk Management Notified Yes / No _____
Safety Coordinator Notified Yes / No_____ 624-7422 or 1-800-525-1252

Driver(s) Name & Address

1)_____
2)_____
3)_____

ACCIDENT DESCRIPTION:

Comments_____

Any Witnesses Yes / No Please list name and address.

1)
2)
3)

1 copy project File
1 copy Legal Division : Phone 207-624-3020, Fax 207-624-3021
1 copy Risk Management: Phone 1-800-525-1252

MDOT Labor Interview Questionnaire

(1) *Project #*	(2) *Town*	(3) *County*

(4) *Prime Contractor*	(5) *Subcontractor*

(6) Employee	*(7) Social Security #*	*(8) Classification*	*(9) Wage Rate*	*(10) Fringe*

(11) Are you satisfied that you are paid and classified correctly?

☐ *Yes* ☐ *No*	*If answer is no, please explain below*

(12) Is any money deducted from your pay except Income Tax, Social Security or Court Ordered Deduction?
☐ *Yes* ☐ *No* *If answer is yes, please explain below*

(13) Signature of employee

(14) Is permission given to divulge to your employer, the information in this statement?

☐ *Yes* ☐ *No*

(15) Interviewers comments

(16) Interviewer's Signature

State of Maine – Department of Transportation

FRINGE BENEFIT STATEMENT

October 26, 2004

CONTRACTOR/SUBCONTRACTOR	CONTRACT NUMBER	FEDERAL AID PROJECT #	DATE

TO: RESIDENT ENGINEER/LABOR COMPLIANCE OFFICER	BUSINESS ADDRESS

The following information (as shown on wage rate determinations) paid to or on behalf of employees in various crafts or classifications is used to check payrolls or applied to force account work on the above contract.

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH THE FIRST CERTIFED PAYROLL, OR WHEN THERE HAVE BEEN ANY CHANGES.

CLASSIFICATION	FRINGE BENEFIT HOURLY AMOUNT	NAME AND ADDRESS OF PLAN, FUND, OR PROGRAM
Effective Date _____ _____ Travel Pay $_____	Vacation $_____ Health & Welfare $_____ Pension $_____ Apprentice/ Training $_____ Other $_____	_____ _____ _____ _____
CLASSIFICATION	FRINGE BENEFIT HOURLY AMOUNT	NAME AND ADDRESS OF PLAN, FUND, OR PROGRAM
Effective Date _____ _____ Travel Pay $_____	Vacation $_____ Health & Welfare $_____ Pension $_____ Apprentice/ Training $_____ Other $_____	_____ _____ _____ _____
CLASSIFICATION	FRINGE BENEFIT HOURLY AMOUNT	NAME AND ADDRESS OF PLAN, FUND, OR PROGRAM
Effective Date _____ _____ Travel Pay $_____	Vacation $_____ Health & Welfare $_____ Pension $_____ Apprentice/ Training $_____ Other $_____	_____ _____ _____ _____

Inspector's Daily Report

MDOT

3/10/2006 10:21 AM
FieldManager 4.1a

Contract: 012115.00, TRAINING FMGR 2006

IDR Date	Day of Week	Sequence No.	Import Date	Project / Resident Engineer
3/10/2006	Friday	1	N/A	LENNY LIDBACK
Inspector's Initials-Name			**Federal Project Number**	
SA Administrator			STP-1211(500)X	
Prime Contractor				
LANE CONSTRUCTION CORP. (THE)				

Entered By	Revised By	Revision Date	Revision No.
SA, Administrator	SA, Administrator	3/10/2006 8:54 AM	1

Temperatures	Weather
Low: 21 ° F **High:** 28 ° F	Sunny

Comments

This IDR is for the purposs os creating an estimate for payment only.

Contractors

Contractor's Name	Personnel	No.	Hrs.	Equipment	No.	Hrs.
LANE CONSTRUCTION CORP. (THE)						

Item Postings

Project: 012115.00, EASTON

Category: 0001, HIGHWAY ITEMS

Item/ Material Description	Item Code	Prop.Ln.	Location	Quantity	Unit	Brkdwn ID	Attn
AGGR SUBB COURSE - GRAVEL	304.10	0120	Sta 10+00 to Sta 12+00	163.000	CY		
Contractor: LANE CONSTRUCTION CORP. (THE)							
Item Remarks: Ref inspectors notes in contsruction book #2 pages 2,5,6,7,& 8. For finegrade checks ref book 3 pages 2 & 3. For comps see FQCB.							
ALL-PURPOSE EXC (INC OPERATOR)	631.12	0450	On Project	7.000	HR		
Contractor: LANE CONSTRUCTION CORP. (THE)							
Item Remarks: Ref Drew # 8 located in FQCB. and Inspecters notes in Book 2 page 13.							
COMMON EXCAVATION	203.20	0050	Sta 10+00 to Sta 12+00	163.000	CY		
Contractor: LANE CONSTRUCTION CORP. (THE)							
Item Remarks: Ref inspectors notes in contsruction book #2 pages 2,5,6,7,& 8. For subgrade checks ref book 3 pages 2 & 3. For comps see FQCB.							
FLAGGER	652.38	0560	On Project	207.000	HR		
Contractor: LANE CONSTRUCTION CORP. (THE)							
Item Remarks: Ref Flagger report # 2 & 3 located in FQCB.							
MAINT OF TRAFFIC CONTR DEVICES	652.36	0550	On Project	10.000	CD		
Contractor: LANE CONSTRUCTION CORP. (THE)							
Item Remarks: ref construction book 3 pages 5 & 10 for notes of acceptance							

Reviewed By: _____ (Signature) _____ (Date)

Inspector's Daily Report

Contract: 012115.00, TRAINING FMGR 2006

IDR Date	Day of Week	Sequence No.	Import Date	Project / Resident Engineer
3/10/2006	Friday	3	N/A	LENNY LIDBACK

Inspector's Initials-Name	Federal Project Number
SA Administrator	STP-1211(500)X

Prime Contractor
LANE CONSTRUCTION CORP. (THE)

Entered By	Revised By	Revision Date	Revision No.
SA, Administrator			

Temperatures	Weather
Low: 56 ° F High: 72 ° F	sunny

Comments
This IDR is for the sole purpose of creating an estimate to pay fopr Butt Joints.

Item Postings

Project: 012115.00, EASTON

Category: 0001, HIGHWAY ITEMS

Item/Material Description	Item Code	Prop.Ln.	Location	Quantity	Unit	Brkdwn ID	Attn
PAVEMENT BUTT JOINTS	202.203	0040	Throughout the project, drives and entrances.	413.000	SY		

Contractor: LANE CONSTRUCTION CORP. (THE)

Item Remarks: Ref Construction bk 2, pgs 20 &21 for notes of inspection. Ref bk. 4 for pgs. 1-3 for measurments and comps.

Reviewed By: _____ (Signature) _____ (Date)

Inspector's Daily Report

Contract: 012115.00, TRAINING FMGR 2006

IDR Date	Day of Week	Sequence No.	Import Date	Project / Resident Engineer
3/10/2006	Friday		N/A	LENNY LIDBACK

Inspector's Initials-Name	Federal Project Number
SA Administrator	STP-1211(500)X

Prime Contractor
LANE CONSTRUCTION CORP. (THE)

Entered By	Revised By	Revision Date	Revision No.
SA, Administrator			

Temperatures	Weather
Low: 58 ° F **High:** 76 ° F	sunny

Comments
This IDR is for the sole purpose of payment for Structural pipe arch. Work order # 3

Item Postings

Project: 012115.00, EASTON

Category: 0001, HIGHWAY ITEMS

Item/ Material Description	Item Code	Prop.Ln.	Location	Quantity	Unit	Brkdwn ID	Attn
STEEL STR PL PIPE ARCH:	509.12	0605	on Project	1.000	LS		

Contractor: LANE CONSTRUCTION CORP. (THE)

Item Remarks: The pipe arch assembly ref bk. 2 pg.10 for torque readings. Installing coffer dams to prepare for pipe installation. Ref. Inspector notes bk. 2, pages 10,11, & 12. Ref bk 2, pgs. 15-16 for excavation and installation grade checks ref.bk.3 pg. 21 -22.

Reviewed By: _____ _____
(Signature) (Date)

PIN____________________ Town_________________________________ Resident____________________________

WEEK ENDING	PRIME	SUB	SUB	SUB	SUB	SUB	SUB
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
XXXXXXXXXXXXXXXX	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW
XXXXXXXXXXXXXXXX	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
XXXXXXXXXXXXXXXX	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW
XXXXXXXXXXXXXXXX	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
XXXXXXXXXXXXXXXX	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW
XXXXXXXXXXXXXXXX	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
XXXXXXXXXXXXXXXX	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW
XXXXXXXXXXXXXXXX	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
XXXXXXXXXXXXXXXX	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW
XXXXXXXXXXXXXXXX	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
XXXXXXXXXXXXXXXX	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW
XXXXXXXXXXXXXXXX	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐	NEED ☐ HAVE ☐
XXXXXXXXXXXXXXXX	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW	PAYROLL INTERVIEW
XXXXXXXXXXXXXXXX	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐	DONE 1/MONTH ☐

APPENDIX C

Project Records
Final Documentation
Inventory List

PROJECT RECORDS
FINAL DOCUMETATION INVENTORY LIST AS NEEDED

1. **COMPLETION OF PHYSICAL WORK NOTIFICATION (E-MAILED TO CONTRACTOR, FINALPAYMENT.MDOT@MAINE.GOV AND CC TO NAMES LISTED ON LETTER).**
2. **PROJECT PLANS – ½ SIZE**
3. **SPECIAL PROVISIONS BOOK WITH ADDENDUMS**
4. **TIME CHARGE REPORT**
5. **RIGHT OF WAY ENCROACHMENT LETTER**
6. **CONTRACTOR EVALUATION**
7. **PAYROLL TRACKING SHEET, PAYROLLS AND INTERVIEWS**
8. **SUBCONTRACTS**
9. **SCHEDULE OF WORK**
10. **SOILS REPORT**
11. **PERMIT(S)**
12. **TRAFFIC CONTROL PLAN**
13. **EROSION CONTROL PLAN WITH CONTRACTOR LOG**
14. **PROGRESS MEETING MINUTES**
15. **ENGINEERS ESTIMATE**
16. **PROJECT DIARY (FIELD MANAGER-CONVERT TO PDF)**
17. **FINAL QTY BOOK (FIELD MANAGER-CONVER TO PDF)**
18. **FINAL QUANTITY CHECKER'S SHEET (FIELDMANAGER ONLY)**
19. **CONSTRUCTION BOOK(S)**
20. **INSPECTORS DIARY(S)**
21. **DRAINAGE BOOK(S)**
22. **GRADE CHECK BOOK(S)**
23. **FINAL QUANTITY COMPUTATIONS FILE**
24. **TESTING FILE**
25. **FABRICATION REPORTS**
26. **INSPECTOR SUBMITTAL REPORTS (BRIDGE PAINTING)**
27. **CORRESPONDENCE FILE**
28. **COVER SLIPS (MANILA ENVELOPES)**
29. **TRUCK AND DELIVERY SLIPS (MANILA ENVELOPES)**
30. **AS-BUILTS (TO BE SUBMITTED TO PROGRAM-NOT CONTRACTS)**

APPENDIX D

FHWA Inspection and Documentation Requirements

Labor Compliance

Become familiar with the U.S. Department of Labor (USDOL) labor compliance provisions contained in Form FHWA 1273. Evaluate the effectiveness of the contractor and the contracting agency in administering these requirements:

- Weekly payrolls are submitted from the prime contractor and all subcontractors.
- Statements of compliance are signed and attached to payrolls.
- Seven-day pay periods are established and constant.
- Wages and fringe benefits are at rates not less than those predetermined by the Secretary of Labor as contained in the contract provisions.
- Work performed by any specific class of employees, including helpers and apprentices, conforms to the classifications set forth in the contract provisions.
- Employee classifications are correct for the work performed.
- Payroll forms reflect number of hours worked per day and per week.
- Gross and net wages are shown.
- When hours worked exceeds 40 in any work week, 1.5 base rate is paid.
- All weeks to date are accounted for.
- There is no evidence of any disproportionate employment of laborers, helpers, or apprentices that would indicate avoidance of the appropriate journeyman wage rate provisions.
- Trainee/apprentice documentation on file.
- Spot check interviews with employees of the contractor and subcontractors; comment on how these interviews are documented in project records. Make several spot interviews with employees and document findings.
- The contract wage rates are posted and available to the contractor's and subcontractor's employees.
- Unresolved violations are properly dealt with in accordance with STA, FHWA, and USDOL procedures.
- FHWA representatives are kept aware of labor discrepancies.
- The STA is preparing and submitting the Semi-Annual Labor Compliance Enforcement Report, Form FHWA 1494.

Bulletin Board

Verify that the prime contractor maintains a bulletin board in a prominent location where employees congregate. Refer to the appendix of FHWA's Contract Administration Core Curriculum Manual for a listing of job site posters and Federal forms to be displayed (www.FHWA.dot.gov/programadmin/contracts/poster.htm).

Construction Safety

Become familiar with the USDOL Occupational Safety and Health Administration (OSHA) provisions contained in 29 CFR 1926 (see the OSHA Web site: www.osha.gov).

- Evaluate the effectiveness of the contractor and the contracting agency in administering safety and health requirements.
- Document STA guidance provided to field engineers and inspectors on their role and responsibility.
- Inspect the project to identify potential safety and health hazards; photograph concerns for discussion with the STA and the contractor.
- Document how many contractor personnel workdays have been lost to project injury.
- Obtain a copy of OSHA Document 2202 for a quick reference.

APPENDIX D

Guide for Making Inspections-in-Depth on Federal-Aid Highway Construction Projects

General

Purpose of Inspections-in-Depth

The need for and purpose of making inspections on Federal-aid highway construction projects can be found in 23 United States Code (USC). Representing the Secretary of Transportation, we are charged with certain responsibilities. 23 USC 114 states:

> The construction of any highways or portions of highways located on the Federal-aid system shall be undertaken by the respective State transportation departments or under their direct supervision....such construction shall be subject to the inspection and approval of the Secretary.

This responsibility is further clarified in memoranda dated June 22, 2001, Policy on the Stewardship and Oversight of the Federal Highway Programs, and January 8, 2003, Stewardship and Oversight of the FHWA Construction Programs (see Appendix A).

It is recognized that because of staffing and time limitations, it will not be possible to make thorough inspections of all active projects with FHWA oversight. From time to time, however, the division field engineer should designate a number of representative projects upon which comprehensive, thorough, complete, and detailed inspections and analyses of a selected phase or phases of the construction and engineering are to be made. The primary purpose of an inspection-in-depth (IID) and analysis of the findings is to evaluate the accuracy, adequacy, and effectiveness of procedures, methods, controls, and operations used by the contractor and the State to assure high quality construction, accurate determination of quantities, and correct payment in accordance with the contract provisions. Should the findings on these inspections disclose the need for additional controls, supervision, or improvements, a statewide process review/product evaluation (PR/PE) should be conducted.

Intent of Guide

IIDs, like PR/PEs, are a tool to support the State transportation agency's (STA's) construction management program. This guide is intended to provide assistance to field engineers in the performance of IIDs. It is neither practicable nor desirable to specify precisely each step to be taken on an IID because of the many variations encountered on different projects and the specific reasons for making a particular inspection. It is expected that divisions may supplement this guide by adding material applicable to the conditions in their particular jurisdictions.

Scope of Inspection-in-Depth

IIDs may be specific or broad in nature. Steps presented herein are intended to facilitate the inspection of the more common types of work and to obtain a reasonable degree of uniformity. This guide is not a substitute for the exercise of good judgment, especially in determining the scope and depth of the inspection.

Refer to the generic inspection guidelines linked to the FHWA headquarters Construction and Maintenance Web page (www.fhwa.dot.gov/construction/reviews.htm).

Basis of Evaluation

Base the engineering evaluation of construction work on the approved plans, specifications, special provisions, contract provisions and applicable agency standards, instruction manuals, and operating procedures. Ensure that program or project concerns are brought to the attention of the appropriate officials with a recommendation for effecting desirable improvements on present and future work.

Responsibility of Inspecting Engineer

The field engineer is directly responsible for all work in his or her assigned area. *Make the IID as defined in the division's operating procedures.* If specialized knowledge of the construction project work is necessary, ensure that the IID is a team effort with the appropriate technical specialists as team members.

Reach agreement with State personnel on corrective action that will be taken to address findings, and establish a time frame for implementing the action. Elevate the discussion to the STA's resident engineer, district office, or central office if required. Notify the FHWA division office if a condition or deficiency requires immediate attention and resolution cannot be obtained on-site. In situations where immediate attention is not required, the following approaches are available to assure the appropriate action is taken:

a. Transmit the inspection report by letter requesting appropriate corrective action (this should always be the first step when resolution cannot be resolved at the project level).
b. Make the affected item of work nonparticipating.
c. Suspend Federal participation in progress payments (49 CFR 18.43).
d. Make the project nonparticipating.

The goal is for FHWA field engineers and STA field personnel to reach agreement on appropriate action to address findings of concern; in rare situations, more aggressive action is required. Consult with the FHWA division office management when these situations occur.

Selection of Project or Phase of Operations

Select the particular projects and phases of operations for an IID in consultation with your supervisor and construction management program. Base the selection on defined objectives. Schedule the inspection of any individual phase when that particular phase is actively under way on the project. Evaluate new construction techniques whenever possible and prepare a summary report for posting on the FHWA headquarters Construction Web page (www.fhwa.dot.gov/construction/reviews.htm).

Frequency of Inspections-in-Depth

The number and frequency of IIDs will vary according to the need for such reviews and according to the availability of personnel to make them. Inspections-in-depth are preferred to more general contact reviews. Contact reviews typically do not provide adequate knowledge of the substantive operations underway. Contact reviews do provide an opportunity to review project time and cost status, as well as to maintain rapport with the project team. Within each division, there will be certain areas of the State that will warrant more emphasis than others; similarly, there will be certain phases of operations that will require more concentration of effort.

Time Required for Inspection

The time required for each inspection will depend upon the extent of inquiry and investigation considered warranted by the circumstances encountered and the number of construction operations involved. Ensure that sufficient time is available to thoroughly investigate the phases of the operations that are the objective of the inspection. Adequate review of paving operations on a major project, for example, may require about three days at the project site.

Contract Documents

Prior to visiting the site of the project selected for inspection, study the plans and specifications governing the work to assure familiarity with all phases of the project. Place special emphasis on the features that are anticipated to be the focal points of concern during the inspection. In States where the contractor is required to develop a project-specific quality control plan, ensure that the plan is an integral part of any IID that involves material or product acceptance.

State Construction and Materials Manuals

Prior to visiting the site of the project selected for inspection, review the STA's construction and materials manuals for applicability to the work. These documents set forth the basic operating instruction to STA field personnel and generally define inspection and acceptance procedures.

Quality Assurance Requirements

23 CFR 637 sets forth the policies, procedures, and guidelines to assure the quality of materials and construction on Federal-aid highway NHS projects. Become familiar with the requirements within this regulation and ensure that they are being properly administered on the project. Focus specific attention on these processes:

- Random quality control sampling and testing performed by qualified personnel employed by the contractor or vendor.
- Random verification sampling and testing by qualified testing personnel employed by the STA or its designated agent, excluding the contractor or vendor (split samples not acceptable).
- Optional use of contractor's quality control for the acceptance decision when properly verified by the owner.
- Use of qualified laboratories for all testing of materials as a basis of acceptance.
- Independent assurance sampling and testing by qualified personnel employed by the STA or its designated agent, excluding the contractor or vendor.

Evaluation of Project Personnel

Evaluate the STA and contractor personnel assigned to the project for adequacy as to number, knowledge, skills, and abilities. Consider findings made on previous inspections on the same project or other projects that may be reoccurring.

Obtain information by general and technical discussion of the work and by reviewing diaries and project records. Strive for open communication and to develop an atmosphere of trust. Avoid focusing on minor issues of very low risk.

Observe the attentiveness and effectiveness demonstrated by the project personnel at the site. The on-site review quite often provides a better basis for evaluation than the specifics of an individual's education or on-the-job experience as documented in personnel records. Include comments on the attentiveness and effectiveness of the project personnel in the report. Adequate and assertive responses to questions are good indications of proper experience. Comment on education and experience data only when it appears that certain individuals are not adequately performing their duties and their performance is believed to result from lack of training and experience.

Adequacy of Delegated Authority

Evaluate the extent of the authority that has been delegated to project engineering personnel; verify that delegation of authority is adequate to permit conducting the work effectively. Ascertain whether inspectors and other engineering personnel below the level of the project engineer have been given sufficient instruction to have adequate understanding of their authority and responsibilities. Verify that project personnel understand and have an appropriate number of contract documents and other guidance material.

Preconstruction Conference

Determine if a preconstruction conference was held and, if so, who participated, whether an agenda was used, and if minutes were developed. Read the minutes to familiarize yourself with the project. Confirm that issues raised during the preconstruction conference have been properly resolved.

Report Summary, Recommendations, and Followup

Prepare a report of each IID and distribute in accordance with division office procedures. Refer to example forms for inspections as shown in Appendix G and on the FHWA headquarters Construction Web page: www.fhwa.dot.gov/construction/reviews.htm.

Within the report, identify the project, location, contractor, and project engineer; provide a general description of the work and a more detailed description of the particular phases of work involved in the inspection. Use inspection questionnaires based on the specific contract requirements and STA procedures.

Discuss deficiencies, irregularities, and concerns, along with exemplary work, in adequate detail to provide an understanding of the issue. Emphasize recurring concerns by using photographs, charts, and tabulations.

Avoid overemphasizing deviations from desirable procedures that are trivial in character or that do not have significant effect on the value or serviceability of the completed project nor on the effectiveness of the control over the work.

Include a concise summary statement of the important findings and recommendations for corrective actions if any are required. Whenever improvements are necessary or desirable, ensure that there is appropriate followup to verify that corrective action is taken and that the desired results are accomplished. In some instances, conditions and practices found on one project will indicate the need for checking whether similar conditions and practices exist throughout the State or jurisdictional subdivision thereof or on other projects where the same engineers and contractors are involved. Establish reasonable time frames for the resolution of issues.

Document followup in subsequent reports. When the conditions and actions are limited to one project, report further developments in either special followup reports or in subsequent regular intermediate or final inspection reports. When the conditions are found to exist generally or on a number of projects and the corrective actions have corresponding application, report specific followup actions in special reports. Cross-reference the original IID report and provide the same distribution as the original IID report.

Consider withholding further Federal funds from the project or projects as appropriate when the necessary improvements are not accomplished.

Ensure that the original of the report and all significant work papers are made a part of the division's project files.

Project Supervision and Control

Preconstruction Conferences

Most STAs require that a preconstruction conference be held prior to work commencing. All parties involved in the contract—and representatives from other contracts that could affect the project—should attend. Minutes from the conference should have been prepared and should document, as a minimum:

- Railroad or utility adjustments
- Public relations and the interests of abutting property owners
- Contractor's work plan and schedule of operations
- Contractor's backup plan for major stages of construction
- Specific contract requirements
- Safety measures, traffic management, and traffic control considerations
- Environmental commitments
  - Erosion and sedimentation control
  - Dust abatement
  - Noise mitigation
- Rights-of-way available for use by the contractor
- Time limits and performance of operations including materials delivery considerations
- Construction time and cost control
- Emergency response to incidents

Attend these meetings on full involvement projects, if possible, or review the minutes during inspection trips.

Project Diary, Inspectors' Daily Reports, and Orders to Contractor

Examine the project diary, inspectors' daily reports, progress charts, and other data compiled in the field office to facilitate job control. Diaries and inspectors' daily reports are very important documents and must be complete yet concise, accurate, and factual to be effective. Ensure that diary entries are signed and dated and have been reviewed by the engineer in charge. Verify that discussions with the contractor are confirmed in writing and are made a part of the official project file. Review and confirm that there is a complete audit trail for work performed, measured, and paid.

Subcontracting

Ensure the STA's subcontracting procedures on NHS projects meet the requirements set forth in 23 CFR 635.116. State procedures should be followed for non-NHS projects. Review and comment on the extent of subcontracted work. Verify that each subcontract has been approved by the State or that an FHWA-approved contractor certification process is being followed. Review copies of the subcontracts to see that they comply with the contract and contain Form FHWA 1273. Assess the prime contractor's general administration of subcontract work. Ensure that Disadvantaged Business Enterprise (DBE) subcontractors are performing a commercially useful function.

Engineering Surveys

Evaluate the adequacy of the project base control and subsequent construction survey procedures. When the staking of part or all of the work is by the contractor or a consultant, it is recommended that there be adequate verification checks by the STA to assure that the work is correct. If there are survey errors that have led to contract change orders, determine if FHWA participation is appropriate.

Examine a sample of survey notes covering slope staking for grading operations or layout for bridges and culvert construction to determine the degree of clarity and orderliness of procedures. Verify that checks have been made to avoid errors in layout.

Examine a sample of survey notes used for measurement of pay quantities, such as cross-sections, to determine accuracy and correctness of procedures used.

Ensure that project control staking is adequately protected during construction operations.

Quality Assurance

Evaluate the project's quality control and acceptance procedures, personnel, and facilities. If required by the contract, the contractor must develop a quality control plan to define sampling, testing, and inspection procedures to be followed. Refer to Appendix B and Appendix E for samples of quality control plan requirements and actual project-specific plans. The contract will also define required acceptance testing, whether by the STA or by the contractor with STA verification. Ensure that adequate quality control and acceptance is being exercised and that materials incorporated in the work are in substantial conformity with the contract.

Project Laboratory

Verify that contractor-furnished laboratories meet contract requirements. Ensure that scales and measuring devices have current certifications for accuracy. Typical equipment requirements for various construction operations are as follows:

(1) Grading: sieves, scales, liquid limit devices, compaction test equipment, field density equipment, hot plates or field stove, oven, sampling equipment, sample containers, and drying pans.

(2) Subbase and base course: sieves, sample splitters, scales, hot plates, devices for determination of moisture content and liquid limit, drying pans, and apparatus for making laboratory compaction tests and for determining in-place densities.

(3) Hot mix asphalt (HMA): thermometers, sieves, sample splitters, scales, hot plates or field stove, burn-off oven, equipment for taking samples from the pavement, and apparatus for determining pavement density and stability of the HMA mixture.

(4) Portland cement concrete: slump cone or other specified equipment for determining consistency of the mix, air meter, concrete cylinder or beam molds, sieves, sample splitters, scales, pans, stove or hot plate, and containers for determining unit weights.

Determine what method is used by the STA to "qualify" the laboratories used for NHS project testing as required by 23 CFR 637. If the IID permits review of the STA's central laboratory, verify that it has been accredited by the Accreditation Program of the American Association of State Highway and Transportation Officials (AASHTO) or a comparable laboratory accreditation program approved by FHWA (23 CFR 637). District laboratories may be accredited by the AASHTO Accreditation Program or a comparable laboratory accreditation program approved by FHWA or reviewed by the STA's central laboratory.

Materials Inspection Personnel

Identify the inspectors assigned to the particular phases of the work and discuss their responsibilities with them. Focus on these responsibilities:

- Inspection duties
- Field diary entries
- Tests required and frequency
- Test results and statistical summaries
- Action on marginal or failing tests
- Records forwarded to the project engineer
- Inspectors' particular sampling and testing qualifications

Appraise the technical ability and effectiveness of the inspector and evaluate the adequacy of the control methods applied on the project. Observe the inspector's sampling and testing techniques to ensure that the specified procedures are being followed.

Test Reports

Check the project files to verify these testing conditions:

- All materials are covered by adequate quality control and acceptance tests, and the frequency of sampling and testing is in accordance with the contract's schedule of test requirements.
- The statistical method used to verify the contractor's test population has been validated by independent random STA tests.
- Third-party independent assurance test results (split samples) compare favorably with project quality control and acceptance tests.

Report minimum and maximum test results and statistical summaries with appropriate remarks regarding the suitability of the material. Evaluate project office procedures for filing test reports, checks made to ensure that all necessary reports have been received, methods to readily identify unsatisfactory or borderline materials, and general housekeeping methods in the handling of the reports.

Ensure that any deviations from the specifications indicated by the test results are explained and that all corrective actions taken are documented. Comment on the disposition of all nonconforming materials received on the project. Verify the process for getting deviations listed in the project's final material certification on NHS projects (23 CFR 637.201).

Verify that certifications, inspections, and test reports on manufactured materials document conformity with the specification and that the test reports on file cover the materials actually delivered to the project. Determine whether certifications for iron and steel products conform to Buy America requirements.

Witness the sampling and testing of quality control and acceptance tests to the extent practical. Take independent measurements of width and depth of bases, surfaces, and other components of the construction, including structures, to validate that the project is being constructed in substantial compliance with the plans and specifications.

Measurement of Quantities

Ensure that the methods used in the measurement of quantities meet contract requirements (23 CFR 635.123).

Determine the frequency of contractor progress payments. Verify that the appropriate quantities of completed work are reported for progress payments. Comment on whether or not a new overall estimate is made for each progress estimate or if computed monthly work quantities are merely added on the estimate of work done during each succeeding period; the latter could result in cumulative errors of consequence. Check the quantity calculations for two or three major items and one or more minor items. Note significant digits. The validity of final estimates cannot be greater than the accuracy exercised in making the field measurements used in the computations. Careless field measurements are difficult to detect, but an examination of the field books will provide some indication as to the extent to which good survey and measurement practices are being followed. Identify in the report what bid items or stockpiled materials were reviewed, if properly identified, dates and personnel making the measurements, proper explanations and initials on corrections, and overall legibility.

At the final estimate stage, review final quantities in considerable detail on a few items. Note assumptions made, significant figures, accuracy observed, and amount of checking done. Indicate the extent of checks and reviews made beyond the project level, such as in the district and central offices. Where appropriate, evaluate the additional checks to assure the sufficiency of the validation.

The following is a summary of recommended inspection techniques:

- Verify that the items reviewed were measured in the units called for in the contract provisions and that the methods of measurement prescribed in the contract and in authorized instructions were followed.
- Examine project records to insure that all materials measured for payment were delivered and incorporated into the project or stockpiled for future incorporation.
- When payment is based on weight or mass, verify the accuracy of the measurements; consider the calibration of scales, checking of truck tare weights, and weighing of haul loads.
- Where payment is based on loads delivered to the project, either on a weight or volume basis, verify the procedures followed for assuring validity in receipt of haul tickets. Discuss the procedures in effect with the project personnel. Focus on practical concepts (falsified haul tickets can be determined by analyzing project records and determining that the number of trips reported was impossible considering time and length of haul involved).
- Where area methods of measurement are specified, make dimensional checks to the extent necessary to verify the actual work performed. Ensure that measurements were made at the proper time and prior to the subsequent placement of other courses of materials.
- Where final quantities are determined by volume computations, verify the method of measurement and documentation of calculations.

Construction Changes and Extra Work

On full oversight projects, be aware of circumstances that required the changes in the plans and specifications. Comment on the need for the construction change and whether the revisions and additions are necessitated by conditions that could not be reasonably anticipated before the project was advertised for bids. Discuss weaknesses in the preparation of plans, specifications, and estimates, and other deficiencies of this nature to assist in funding determinations and in strengthening the State's design procedures and the FHWA's review procedures. Document the steps taken by the Construction Unit to inform Design of plans errors and omissions resulting in change orders.

Verify that proposed changes are consistent with sound design and construction practices and are compatible with the objectives sought in the original design and environmental clearances. Ensure that decisions are in the public interest, are not swayed by the expediency of construction convenience, and are not counter to the intended design concepts.

Support cost-effective changes that improve aesthetics, reduce overall construction costs, and improve the safety of the highway. Verify if project personnel take steps to incorporate these advantages into the project (e.g., an unexpected surplus of excavation becomes available that could be placed within an interchange loop or used to flatten embankment slopes, thus eliminating guardrail and increasing the safety features of the highway).

Become familiar with the Division/STA Stewardship Plan, the definition of major and minor changes, and the approval process on full oversight projects; refer to 23 CFR 635.102 and 23 CFR 635.120. Evaluate the reasonableness of unit prices, labor, overheads (field and unabsorbed home office), and rental rates established for items of work to be performed. Since the cost to process a change order is a direct project expense, consider the following "rules of thumb" when evaluating changes: obtain a better product at no increase in cost or time; obtain an equivalent product at a savings in cost or time; use a change when the product as designed can not be constructed at no fault of the contractor (differing site conditions, "acts of God," etc.).

Ensure that project personnel have evaluated and documented the effect of the contract change to the approved project schedule. Include the appropriate time extension on the change order; refer to 23 CFR 635.121.

Contract Time Charges, Time Extension, Liquidated Damages, and Cost Control

Verify that project personnel are assessing the correct time charges. Compare work completed, as noted in project diaries, to contract time charges. Evaluate the contractor's critical path method schedule to support time charges. Ensure that contractors are provided formal warning when work is behind schedule and that corrective actions are requested.

Ensure that the correct liquidated damages are assessed on projects that exceed the allowable contract time; refer to 23 CFR 635.127.

Review contract expenditures and changes to ensure that the work is constructed in accord within the approved scope, cost, and termini.

Grading and Associated Items

Maintenance of Traffic

Verify that maintenance of traffic and preservation of abutting property owners' interests are in accordance with contract provisions. Observe that the proper barricades, signing, striping, and flagging are in place to ensure the maximum safety to the public and the workers. Examine the project diaries and other project records to verify that revisions to the approved traffic control plans are documented. Drive through the project and verify that a stranger to the area can satisfactorily pass through or reach a destination within the project termini. Ensure that maintenance of traffic is reviewed daily by project personnel, followups on findings are made, and field corrections documented.

Utilities

Observe the coordination of the work between the contractor and railroad or utility companies, the supervision and inspection by the project personnel, and the efficiency and economy with which the work is being performed. Where the work is reimbursable, verify project record documentation:

- Labor used, including classifications, number of personnel, and hours worked.
- Equipment used (including type, capacity, and amount of usage).
- Materials utilized (whether they are used or new).
- Materials retired and their disposition (e.g., salvaged, returned to stock, or junked). Evaluate the procedures and practices used to determine if retired materials should be left in place, salvaged, returned to stock, reused, or junked, and the appropriate credits.
- Special features such as unusual soil conditions, rock, presence of excessive moisture, dewatering required, adequacy of backfilling operations, weather, and unusual conditions that affect the prosecution and cost of the work.
- Contract units constructed if time and material reimbursement is not used.

Removal of Structures and Obstructions

Verify that any structures and other improvements removed were disposed of in compliance with contract provisions. Ensure that any hazardous materials, such as lead-painted girders, were sent to the appropriate disposal site and that the required documentation is in the contract files. Where salvage value is required, verify that the appropriate Federal share is credited to the contract.

Clearing and Grubbing

Prior to work beginning, verify that these conditions are met:

- Clearing limits are clearly marked.
- Trees, shrubs, and other items that are to remain are marked and protected.
- Project survey control is marked and protected.
- Erosion control features are in place.
- Project personnel are familiar with environmental commitments.
- A plan is in place for stockpiling merchantable timber unless it is the property of the contractor.
- Burning plans have been approved by the appropriate jurisdiction.

Observe the adequacy of operations for removal of stumps, organic materials, and other objectionable materials to the specified depth throughout the required limits of construction. Verify procedures for stockpiling topsoil including stockpile erosion control.

Grading and Drainage

Review the soil survey report or soil profile sheets to become familiar with conditions:

- Identification or classification of the soil or rock types expected to be encountered throughout the project (Note: this information is useful should a differing site claim be submitted by the contractor.) Verify if the bidding contractors had access to the soils report.
- Location of areas requiring special treatment and the type of treatment specified.
- Location of borrow materials for embankment and subgrade improvement if specified.
- Requirements for soil selection in placing poorer soils in lower portions of fill sections and better soils in top lifts.

Verify that the quality control and acceptance procedures are being followed to ensure that specification requirements are met.

Ensure that information on the following conditions is included in the project records:

- Depth of lifts compacted.
- General conditions under which embankments are placed.
- Moisture and density tests required.
- Density curves utilized and method for matching the curve to the soil type(s) being compacted.
- Test results obtained.
- Subexcavation required, the quality of replacement material, and the methods used for measuring and paying. Note whether subexcavation was anticipated and properly provided for in the contract or if payment is by contract change order.
- Examine and comment on the uniformity of embankment and cut sections, compliance with contract requirements, and proper slope for drainage. (Assuming the catch points remain as designed, fill slopes constructed with a steeper slope than designed can significantly increase embankment quantities and can result in excessive erosion and safety concerns.)
- Erosion control procedures.
- Control exercised to secure the required finished grade and cross-section including slope rounding.
- Measurement of roadway cross-sections as to conformity with plans.
- Final measurements of borrow areas.
- Borrow area appearance and drainage.
- Roadway and borrow excavation quantity calculations including overhaul.
- Actual versus anticipated (design) shrink or swell and the method used to calculate actual values.
- Watering quantities unless subsidiary to the bid item.
- Culvert material certifications, backfill densities, and alignment.

Pay particular attention to those areas that are difficult to properly control, such as the outside edges of embankments, shallow fills, small work areas, and transitions from cuts to fill.

Review and comment on underdrain installations. Note if underdrain quantities were as anticipated or if major overruns have occurred. Overruns could indicate that additional predesign geotechnical investigation would have been appropriate. Comment on the liaison between the project personnel and the central laboratory in resolving major soil and foundation problems arising during construction.

Review and comment on the waterway, ditches, and drainage structures. Note whether there are abrupt changes in ditch alignment, horizontal or vertical, that could result in future erosion. Verify compliance with the approved Storm Water Pollution Prevention Plan on file in the project office. Verify that appropriate permanent erosion control measures are incorporated at the discharge of culverts and other waterways. Check for sediments leaving the right-of-way.

Match test reports covering the acceptance of corrugated metal culvert pipe and concrete pipe against the actual pipe delivery reports. Verify that the alignment, bedding, and joint construction were examined prior to the backfilling operations and a determination made that the pipe has not been damaged in handling and placing operations. Observe backfilling operations and witness density tests to ensure proper inspection control is being exercised. Evaluate installation procedures and inspection control.

Ensure grade and drain operations are properly supervised and inspected and that the STA has a qualified grade inspector at the point of grading operations during all grading operations.

Structures

Included in this category along with bridges are poured-in-place culverts of any span length.

- Verify that the quality assurance procedures maintain effective inspection at all points of work. Ensure that operations performed away from the actual site of work, such as the production of concrete at a central plant or manufacturer facility, are covered.
- Include the division structural engineer in reviews.

The structures inspection category covers driven piling, drilled shafts, shallow foundations, structural steel, general structural concrete, prestressed concrete members, and temporary structures.

Driven Piling

For more information, see "Design and Construction of Driven Pile Foundations, Volume II," FHWA-HI-97-014.

Evaluate pile driving documentation:

- Equipment and procedures to be followed.
- Inspector responsibility (observational or directional).
- Primary contact if problems are encountered.
- Routing of copies of driving records and daily inspection reports.
- Required data in the pile driving report.
- Material certificates.

Inspect piles and equipment prior to driving:

- Spot check that piles meet specifications for type, size, length, strength, and quantity.
- Confirm driving shoes and splices (if specified) and connection requirements.
- Confirm that piles are not damaged.
- Confirm proper handling and storage.
- Pile driving hammer is the specified type and size.
- Hammer cushion is of approved material type, size, and thickness.
- Helmet properly fits the pile.
- Pile cushion is correct type material and thickness (concrete piles only).
- Predrilling, jetting, or spudding equipment (if specified) meets specifications.
- Lead system meets specifications.

Evaluate inspection of test or indicator pile driving (if required by contract):

- Correct test pile location.
- Test pile driving criteria followed.
- Proper ram weight.
- Hammer in good working order.
- Proper alignment of hammer with pile.
- Helmet remains properly seated on the pile.
- Hammer hoist line is always slack during driving.
- Requirements for dynamic testing met.
- Ground heave noted and recorded.
- Cut-off elevation checked and recorded.
- Visual damage of pile recorded.
- Static testing criteria met.
- Coordination with designer if additional test piles are required.
- Coordination with designer when production pile driving is allowed.

Evaluate inspection during production pile driving:

- Pile driving sequence is proper.
- Pile plumbness is within tolerance.
- Driving shoes and splices meet contract requirements.
- Pile driving logs are properly maintained (see below).
- Dynamic testing indicates capacity and no damage during driving.
- Periodic checks are made on the hammer and pile cushions.
- Ground heave is noted and recorded.
- Visual damage of pile is recorded.
- Hammer is warmed up prior to retap.
- Pipe piles are visually inspected prior to concrete filling.

Ensure that pile driving records contain these items:

- Project identification number.
- Project name and location.
- Structure identification number.
- Date and time of driving (start, stop, interruptions).
- Name of contractor.
- Hammer information.
- Hammer and pile cushions.
- Pile location, type, size, and length.
- Pile number or designation matching pile layout plans.
- Pile ground surface, cut-off, final tip elevation, and embedded length.
- Driving resistance data throughout driving.
- Cut-off length, length in ground, and order length.
- Comments on unusual observations, including reasons for all interruptions.
- Signature and title of the inspector.

Drilled Shafts

For more information see "Drilled Shaft Foundation Inspection" (National Geotechnical Inspector Qualification Program), NHI Course No. 132070A.

Evaluate preconstruction preparation items as applicable:

- Review contract requirements.
- Preconstruction meeting held and minutes documented.
- Drilled shaft installation plan submitted and approved.
- Concrete mix design approved.
- Trial mix designed and concrete slump loss test run.
- Procedure for taking required soil or rock core samples shaft bottom.
- Procedures for protection of existing structures.
- Site preparation completed in accordance with the plans.
- Procedures for coffer dam inspection.
- On-site equipment and tools meet the approved drilled shaft installation plan.
- Correct size(s) casing.
- Correct slurry mixing equipment.
- Desanding equipment.
- Proper tremies.
- Proper drilled shaft inspection forms are utilized.

Review the findings from the trial shaft installation:

- Not a production shaft unless allowed by contract.
- Met contract requirements.
- Problems encountered resulted in positive revisions to installation techniques or equipment.

Verify production drilled shaft excavation and cleaning procedures as applicable:

- Shafts are constructed in the correct location and within horizontal tolerances.
- A benchmark is available and is used to record shaft elevations.
- Required soil or rock core samples of shaft bottoms are obtained.
- Slurry levels, tests, and test reports are conducted according to specifications.
- Soil/rock excavation inspections forms have been completed.
- Permanent/temporary casings meet specifications.
- Belling meets specifications.
- Excavation logs for each shaft are maintained.
- Completed shafts are within vertical alignment tolerances and to the proper depths.
- Shaft excavation time meets the specified time limit.
- Shaft over-reaming is performed in accordance with specifications.
- Shaft bottoms meet cleanliness requirements.
- Shaft inspection forms are completed.

Inspect reinforcing cages to ensure:

- Correct size, configuration, and tying of reinforcing steel.
- Use of proper spacers.
- Correct length of splices.
- A positive method to secure cages from settling or floating during concrete placement.
- Proper elevation of the top of the cage.

During concreting operations, ensure these conditions:

- Slurry is tested prior to concrete placement (if applicable).
- Temporary casings are removed in accordance with specifications.
- The discharge end of the tremie is maintained at least 1.5 m (5 ft) into concrete mass.
- The concrete head in tremie is maintained at least 1.5 m (5 ft) above top of slurry.
- The height of concrete free-fall (dry shaft only) is limited as specified.
- Placement of concrete occurs within the specified time limit.
- Concrete placement and volume forms are completed for each shaft.
- Contaminated concrete overflows shafts until good concrete appears.
- Concrete acceptance tests are performed as required.

Verify the following postinstallation steps:

- In open water, shafts are protected 7 days or until concrete reaches specified strength.
- Permanent casing is cut off at proper elevation.
- Nondestructive evaluations are completed (if required).
- Shafts meet all applicable construction tolerances.
- Drilled shaft logs have been completed.
- All pay items have been documented.

Shallow Foundations

For more information, see "Shallow Foundations," FHWA-NHI-01-023.

Evaluate foundation preparation:

- All unsuitable materials are removed to the approved subgrade.
- A shoring system is used for excavations greater than 1.5 m (5 ft) deep, or appropriate slopes are constructed.
- If blasting is required, the blasting program is designed to limit overblasting.
- Bearing soils exposed overnight or to rain are protected from degradation.
- Compacted subgrade fill meets material and compaction specifications.

Evaluate groundwater control:

- The contractor has a site drainage plan to prevent surface water intrusion.
- Bearing soils softened by intrusion of water are removed prior to footing placement.
- The contractor has a groundwater control plan when groundwater table is near bottom of excavation.
- Sump pumps are an option for controlling ground water intrusion in cohesive soils.
- The contractor's groundwater control plan includes method(s) to control perched water tables in cohesionless soils without causing piping (well points are an option to control ground water intrusion in cohesionless soils).

Verify:

- Foundation-bearing stratum in the field is the same as that considered in design.
- All unsuitable material is removed from below the footing.
- Required fill material is placed in accordance with specifications.
- Reinforcing steel and concrete are placed in accordance with contract plans and specifications.
- Limits of pay for structural excavation.

Structural Steel

Review these items:

- Procedures for fabrication shop inspection. Verify compliance on current project.
- Erection sequence and equipment requirements for lifting. Verify compliance with the approved erection plan.
- Field connecting and splicing. Focus on field splicing, specifically the inspection procedures employed for field welds and high-strength bolting; welder certifications; required and field-applied torque; method for calibrating torque wrenches.
- Bearing seats at correct elevation and alignment.
- Expansion devices properly set.
- Field cleaning, priming, and painting.

General Structural Concrete

Review:

- Minutes from the prepour meeting (attend if possible).
- Forms for support, tightness, form release agent, defects in the lumber, and removal of debris.
- Approvals of the formwork and falsework and means of checking deflections during concrete placement operations.
- Approved mix design and source of materials; verify proper sequence for adding admixtures.
- Condition, tying, and support of the reinforcing steel and other imbedded items such as conduits, void spaces, bolts for railings, etc.; ensure damage to coatings is repaired.
- Inspection and record procedures used for documenting that reinforcing steel and other imbedded items are placed in accordance with the plans and that the number, sizes, and splice lengths of bars are verified and correctly summarized for pay purposes.
- Record heat numbers of reinforcement delivered and installed; verify correlation to test reports or certifications.
- Methods used in placing and finishing the concrete.
- Air content and strength testing.
- Time between batching and placement of each load of concrete.
- Procedures for assuring that the riding surface, curbs, and walks, etc., conform to the proper grades and cross-section.
- Final finishing and curing procedures.
- Fabrication, erection, alignment, and quality of workmanship in the railings.

Examine those physical features of completed work that are visible:

- Apparent workmanship and degree of care given by the quality control and acceptance process.
- Visual lines and grades.
- Straightness of overhangs, curb chamfers, railings.
- Uniformity of the surface texture.
- Surface drainage and outfalls.
- Uniformity of position of roller-bearing devices.
- Conformance of expansion plates to the grades of the deck and required gap.
- Final cleanup; the removal of temporary supports, detour facilities, and debris.

Review field office documentation:

- Test reports.
- Pay quantities. Verify that calculations meet standard specification requirements.
- Delivery records (invoices, delivery tickets, reports, etc.) on incorporated materials.
- Verify that test and inspection reports covering materials incorporated in the minor structures document compliance with the contract.

Prestressed Concrete Members

Review during construction:

- Procedures for prestress plant inspection; verify compliance on current project.
- Erection sequence and equipment requirements for lifting; verify compliance with the approved erection plan.
- Bearing seats at correct elevation and alignment.
- Inspect beams for correct camber, length, alignment, and damage.

Temporary Structures

Ensure:

- Shop drawings or plans are signed by a registered professional engineer.
- Structure meets plan requirements for minimum roadway width, vertical clearance, and minimum opening size.

Subbase and Base

- Verify if this should include subgrade.
- Verify that the quality control and acceptance procedures maintain effective inspection at all points of work.

Subgrade

- Verify procedures used to document subgrade preparation for grade, cross-section, surface uniformity, moisture content, density, and correction of soft spots prior to placing subsequent pavement structure.
- Verify subbase and base as-constructed and material properties.

On projects where the final thickness of the pavement structure is established from test results obtained from the constructed subgrade, verify the frequency and adequacy of the on-site sampling and testing; check that the recommended thickness is in conformity with the State's design criteria for thickness of flexible pavements.

Aggregate Material Sources

- Examine material sources (pits or quarries) for uniformity of materials, presence of pockets or lenses of deleterious material, pit operations, supervision, and other production procedures.
- Check on any materials source testing and approvals.
- Comment on the uniformity of product.
- Document whether the source has been designated by the STA or selected by the contractor and approved by the STA.
- Verify that appropriate environmental clearances were obtained.
- Inspect processing equipment for compliance with specifications. If more than one material is proportioned and mixed into a combined subbase or base material in order to comply with the specifications, either in a central plant or by road mixing operations, determine the types, quality, and proportions of the materials used and the tests performed to ensure that the specified proportions are followed and that the end product complies with the specified requirements.

On-site Production

- Review quality control and acceptance moisture, density, aggregate quality, and gradation tests.
- Verify subbase and base width and compacted thickness.
- Ensure that soft or failing subgrade areas were replaced prior to placement of subbase or base.
- Verify method used for documenting pay quantities.

Paving

Verify that the quality control/quality acceptance procedures maintain effective inspection at all points of work.

Conventional Seals

Evaluate:

- Contractor's equipment and procedures.
- Condition (properly cleaned, patched, and graded) of the surface to receive the prime or surface treatment asphalt.
- Control of heating and means for the verification of the quantity and temperatures of the asphalt.
- Quality and quantity of aggregate.
- Weather conditions at the time of application.
- Technique for application of cover stone and the attention given to the obtainment of uniformity and completeness of coverage.
- Rolling and subsequent maintenance of the cover stone during the curing or setting period.
- Requirements for opening to traffic.

Hot-Mix Asphalt Pavements

Prior to observing work, examine the prepave meeting minutes. Use these notes to become familiar with work processes to be observed. Discuss procedures established to maintain continuous and effective inspection at all points of work and proper liaison between quarry, plant, and paving operations. Verify that plant production has been designed to meet delivery, laydown, and compaction rates (i.e., continuous production with minimal stops and starts).

Evaluate:

- Equipment, to determine whether its type, size, and operation comply with the contract requirements, if applicable.
- Backup equipment in case of breakdowns.
- Procedures for checking and maintaining payment records for asphalt and the asphalt mix, and for documenting that all items paid for are actually incorporated into the pavement; pay particular attention to criteria established to define acceptance.
- Diaries, plant and road reports, and other day-to-day records of the operations.
- Use of control charts to control operations.
- Operation of cold-feed proportioning, the dryer, screening, and batching equipment.
- Mixing time.
- Substrata condition ahead of the placement of the hot-mix asphalt (i.e., tack or prime coat, cleaning, patching, absence of raveling, etc.).
- Adequacy and effectiveness of the contractor's operations and the STA's inspection of the laying operations.
- Continuity in the delivery, laydown, and compaction (minimal stops and starts).
- Temperature of the mix versus required range (plant and laydown).
- Thickness and calculated spread rate.
- Slope pavement (eliminate edge dropoffs for errant vehicles).
- Density results.
- Finished section smoothness, cross-section, and transitions.
- Grade match into manholes, curb and gutter, and water valves.
- Work zone safety and control.
- Uniformity of gradation, asphalt content, and other mix properties.
- Applicable contract warranties.

Observe field inspector and laboratory personnel as they perform their normal duties. Comment on inspections of the batching operations, weighing of trucks (both empty and full), collection of samples at all points and where they are taken, performance of the various tests, adequacy of the facilities and equipment, etc. Comment on how soon test results are available and necessary adjustments or corrections are made based on this information.

Portland Cement Concrete Pavement

Verify that the QA procedures maintain effective inspection at all points of work.

Prior to observing the work:

- Examine the prepave meeting minutes.
- Become familiar with work processes to be observed.
- Discuss procedures established to maintain continuous and effective inspection at all points of work and proper liaison between quarry, plant, and paving operations.
- Verify that the mix design and material sources have been approved.

Forms

Examine completed forms in advance of concrete placing operations:

- Take sufficient measurements to ensure compliance with applicable specifications; identify the location of measurements by station.
- Quality of foundations material under forms.
- Line and grade.
- Method of securing forms to substrata.

Joints

Verify:

- Alignment of the dowel bars meets contract requirements (generally bars should be parallel to the centerline of the slab—not necessarily at right angles with joint, i.e., skewed joints—and parallel to surface pavement). Document the frequency and results of checks made after paving operations have been completed; this is particularly important when dowel bar inserters are used in the paving train.
- Dowel baskets are securely fastened to the substrata.
- Dowel bars are lubricated, free of deformities, and properly capped.
- Preformed expansion joints are properly secured; comment if they are tilted or displaced by strike-off or finishing equipment.

Paving Operations

Allow sufficient time to become reasonably familiar with all the operations involved; this should include the beginning and ending of the day's operations.

Verify:

- Type of equipment used and if in compliance with contract requirements.
- Mixing and delivery time is in compliance with contract requirements.
- Adequacy of batch design and batch control.
- Tests for slump, or consistency, and air content.
- Methods of making, transporting, and curing concrete test specimens; when possible, witness flexural or compressive tests.
- Frequency and adequacy of control tests.
- Theoretical yield against actual yield to ensure conformity with the specified mix proportions.
- Method of placing concrete.
- Finishing operations including micro and macro texture.
- Curing operations.
- Joint forming, sawing, depth of cut, uncontrolled cracking before or during sawing operations, cleaning, and sealing operations.
- Surface smoothness.
- Pavement thickness as determined from core measurements.
- Applicable contract warranties.

Environmental Commitments

Verify:

- Environmentally sensitive areas fenced off as appropriate.
- Certified biologist and archeologist available as needed.
- Mitigation features (temporary and permanent) constructed as defined within environmental (NEPA) clearance documents such as noise, erosion, dust, and sediment control, etc.

Signs

Review:

- Procedures for shop inspection; verify compliance on current project requirements.
- Shop drawings or plans; ensure they are signed by a registered professional engineer if applicable.
- Material certifications.
- Sign placement relative to field conditions and safety requirements.
- Tightening procedures for bolts.
- Structural members for cracking or defects in coatings.
- Proper retroreflectiveness.
- Proper coverage of signs when not in use.
- Proper breakaway features.

Guardrail and End Treatments

Strong Post W-Beam Guardrail

Verify:

Height

- Roadside installations: 706 mm (27-28 in) to top of w-beam rail.
- Median installations: 550 mm (22 in) to center of rail with no rubrail, or 610 mm (24 in) to center of rail and 300 mm (12 in) to center of rubrail.

Blockout

- Wood blockouts with wood posts toenailed to prevent rotation of blockout.
- Wood blockouts with steel posts routed and fit around edge of steel post.
- Steel blockouts only if speeds are 72 km (45 mph) or less.
- Recycled or composite blockouts connected in a manner that prevents rotation.

Rail

- Splices lapped to prevent snagging for the direction of traffic nearest the rail.

Location

- Slope in front of w-beam guardrail no steeper than 1:10.
- Preferred minimum offset from shoulder is 0.6 m (2 ft).
- No rigid objects within 0.9 m (3 ft) of the back of the line of posts unless measures have been taken to further stiffen the system.

Terminals

- Strut on ground or partially buried.
- Wood post holes near ground (see manufacturer's drawing for height and number of drilled posts as well as need for soil tubes).
- Steel posts hinged for breakaway design.
- Slope approaching and around terminal no steeper than 1:10.

Concrete Barrier

Verify:

Height

- Basic: 810 mm (32 in) minimum to top of w-beam barrier.
- Heavy truck traffic: 1070 mm (42 in) to top of barrier.

General

- Ensure that all concrete barriers are terminated in a backslope with an approved crash cushion or with an approved transition to guardrail design.

NOTE: Substantiate the above dimensions with the approved plans and details or manufacturers recommendations prior to the review. For further information on these issues or other types of roadside hardware, see the AASHTO Roadside Design Guide (see Appendix E).

Miscellaneous

Landscaping and Planting

Ensure the contract-specified landscaping and planting items meet design concepts of aesthetics and erosion control.

Fertilizing, seeding, and mulching

- Evaluate both quality and rate of application of the materials used.
- Record information from tags on seed bags and compare to contract requirements.
- Examine project test reports on the materials used and the rates of application.
- Verify that the time or season of planting is appropriate.
- Where sufficient time has elapsed since planting, examine and document apparent growth as a percentage of the surrounding undisturbed area (70 percent growth is generally required by the National Pollutant Discharge Elimination System [NPDES] permit).

Shrubs, trees, and other plantings

- Check to assure that the quantity, size, and quality meet specifications.
- Visit the source nursery or other source of supply if possible.
- Document methods and procedures used in planting, watering, and caring for trees and shrubs.
- Discuss applicable warranty provisions and procedures for administering.

Other Items

There are many items that may be included in projects that are not specifically mentioned in this Guide. Some are incidental to other bid items, and some are bid separately. Become familiar with the specific contract requirements and inspect in a similar manner.

There are other items of work that consist principally of the assembly and erection of components of manufactured products that are delivered to the project site. Examples of these items are signs, signals, lighting, and pump station equipment. Confirm the method of acceptance of these types of work. Generally, a manufacturer's certification that verifies the material characteristics of the product is required for acceptance. Ensure that these certifications are on file in the project records.

Project Cleanup

Evaluate the overall effectiveness of the contractor's operations in successfully completing all items of work. Field review the entire project and note:

- Surplus materials including stumps and brush have been disposed of in accordance with the contract.
- The project presents a pleasing appearance.
- Encroachments exist upon the right-of-way; pay particular attention to signs that overhang the right-of-way in urban areas.
- Borrow pits and ditches drainage are as required.
- Borrow areas, both on the right-of-way and on private property, have been regraded and seeded, and pit releases have been obtained from the owners.
- Haul roads have been restored and abandoned roadbeds obliterated.