State of Ohio

Department of Transportation

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Construction Inspection Forms Booklet

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Ohio Department of Transportation
Division of Construction Management
1980 W. Broad Street
Columbus, Ohio 43223

Phone: (614) 466-3598

Web Address: WWW.DOT.STATE.OH.US

Construction Documentation Forms

Introduction

The Ohio Department of Transportation is devoted to maintaining high levels of project inspection and documentation across the State. The forms and instructions contained herein are provided to project personnel to assist in the proper determination of compliance with the provisions of the contract, the measurement of quantities for payment, and the documentation of compliance and measurements.

In no instance does this document alter the provisions of the contract.

These procedures will be used to provide a uniform and fair basis of operations wherever the Ohio Department of Transportation provides supervision or engineering services for the acquisition, construction, or maintenance of materials or services. This is not a contract document, and is not to be construed in any way to obligate the Ohio Department of Transportation to perform any duties. These forms should be used in conjunction with the Construction Administration Manual of Procedures.

Reference Documents

Documents normally used for detailed interpretation of substantiation requirements, practices, and test methods are:

1. Ohio Manual of Uniform Traffic Control Devices
2. Sampling and Testing Manual, Testing Administration Manual
3. Traffic Engineering Manual
4. Construction Administration Manual of Procedures

Other documents may also be used as they are developed and published.

More testing forms (those beginning with TE) can be found online here:

http://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/Pages/TE_Forms.aspx

Districts are permitted to customize forms as long as ***all*** of the data listed on the standard forms published here is also included on the modified forms.

Many of these forms are available in Excel format with automated calculation fields. They can be found online here:

http://www.dot.state.oh.us/Divisions/ConstructionMgt/Admin/Pages/InspectionForms.aspx

Forms called for in the Contract Administration area such as DBE Certification, Payroll, EDGE, and EEO may be found online here:

http://www.dot.state.oh.us/Divisions/ContractAdmin/Contracts/Pages/DBE.aspx

Instruction Codes

The following instructions, grouped by measurement type, supplement the general instructions and have particular application to specific pay items. Match the Instruction Code listed in the Index of Pay Items tables (starting on page 4) to the following Instruction Codes to determine specific documentation requirements. Special and unlisted pay items will be documented using the guidelines outlined in the Construction Administration Manual of Procedures (MOP).

Instruction Code	Description
	Conversion Type Measurements
C-1	Summarize the final weight to nearest ton (metric ton) from validated weight tickets and determine the final volume to the nearest cubic yard (cubic meter) by using conversion factor.
C-2	Summarize and convert to nearest ton (metric ton) for the final quantity by conversion from validated tickets. Convert sack and brine shipments to weight as specified.
C-3	Summarize the final quantity to nearest cubic yard (cubic meter) by conversion from validated weight tickets. Include a daily coordination of weight tickets with placement and location. Where there is a moisture limitation, at least one moisture test must be made (more if necessary) to provide for an appropriate deduction.
C-4	Determine volume to nearest gallon (liter) by conversion from validated weight tickets. Where source validation is missing, or for partial loads, determine volume by conversion from weigh-back or by measurement of tank. Where basic measurement is by volume, record temperature.
C-5	Determine the final quantity to nearest cubic yard (cubic meter) from plan quantity adjusted for errors and changes. Use for new construction on new subgrade. For variable thickness or resurfacing determine quantity to nearest cubic yard (cubic meter) by conversion from validated weight tickets.
C-6	For direct volume measurements determine volume to nearest cubic yard (cubic meter) from cross-sections before and after removal. For converted volume measurements, summarize validated weight tickets and convert to nearest cubic yard (cubic meter) using density tests as basis for conversion. Adjust measured quantity by deducting embankment in excess of allowable tolerances, if any, in accordance with the Earthwork section of the MOP.
C-7	Determine the area by field measurement to nearest square yard (square meter). Substantiate rates of application by means of at least one test area made at time of application. Determine rate of application on test area by calculation from verified quantities of material placed and measured in the area over which it is applied. For seeding and mulching, record number of square yards (square meters) having substantiated rates of application.
	Volume Type Measurements
V-1	Determine volume to nearest cubic yard (cubic meter) using recorded verified plan dimensions, which include a verification of depth and thickness.
V-2	Record verified plan dimensions of the forms and calculate the volume of each unit. Summarize the final quantity to the nearest cubic yard (cubic meter) or decimal as indicated by the estimated bid quantity (Ref. No.).
V-3	Determine the volume before removal or determine the volume from verified plan dimensions to the nearest cubic yard (cubic meter).
V-4	Plan quantity must be paid as per specification 203.09. Any plan changes must be documented using cross-sections per C-6 or measurements per V-1.
V-5	Determine the volume loose in a vehicle at the point of delivery and summarize to the nearest cubic yard (cubic meter).
V-6	Determine the volume to the nearest cubic yard (cubic meter) using specified dimensions and vertical measurements between bottom plane of footing and top of rock or shale excavation.
V-7	Determine the volume to the nearest cubic yard (cubic meter) from summarization of validated delivery tickets. Tickets must record cubic yard (cubic meter) from predetermined tank size or sizes, converted weight, or meter readings. Tickets for each load must be issued by the contractor and must be collected, identified, and validated by the inspector at the point of delivery.
V-8	Determine the volume to the nearest cubic yard (cubic meter) by using horizontal dimensions established by 503.10 of the specifications.
	Weight Type Measurements
W-1	Summarize the weight to the nearest 100 pounds (50 kilograms) by using validated scale weight tickets or weights calculated from the verified dimensions and steel handbook.
W-2	Obtain a copy of a memorandum from the Office of Structural Engineering for approved pay weights.
W-3	Summarize the validated delivery tickets to the nearest ton (metric ton). Determine the volume of the embankment, if any, in excess of the allowable tolerances, convert to tons (metric tons), and deduct from the summarized weight.
W-4	Summarize to the nearest ton (metric ton) from the validated weight tickets.
W-5	Summarize to the nearest pound (kilogram) from the validated weight tickets.
	Linear Type Measurements
L-1	Measure the length of the item and summarize to the nearest foot (meter).
L-2	Measure the length of an item to the nearest foot (meter), include data as to its re-use and storage.
L-3	Measure the length of the item to the nearest 1/100th mile (1/100 kilometer, e.g. 19.98 kilometer), etc.
L-4	Measure the length to the nearest 0.1 ft (0.1 meter, e.g. 14.8 meter), etc.
L-5	Guardrail quantities are normally determined in standard 12 feet 6 inch (3.81 meter) panel lengths with adjustments for end assemblies, in multiples of 6.25 feet (1.905 meter).
L-6	Measure the length of an item to the nearest 1/100th mile (1/100 kilometer, e.g. 19.98 kilometer), etc. and include deficiency data as per the specifications.
L-7	Measure the length of piles between extreme point and cut-off to the nearest 0.1 ft (25 millimeters). Measure the inside of cast-in-place piles and make a conformance statement relative to the measurement and length marks. Summarize the measurements to the nearest foot (meter). Locate the piles by use of the numbering system on the piling layout.
L-8	For items 603 and 605 measure the length of the item and round up to the next foot (0.5 meter).
	Area Type Measurements
A-1	Measure the surface dimensions of the item, calculate the area, and summarize to the nearest square yard (square meter).

A-2	Adjust the plan area for changes, errors, and deviations in excess of the allowable tolerances, and summarize to the nearest square yard (square meter).
A-3	Determine the specified plan areas of each size and type from verified shop drawings and summarize to the nearest 1/10 square yard (1/10 square meter).
A-4	Plan quantity as per specification 659.24. Check application rates and deduct area if the application rates are below specifications for seed, mulch, and emulsion.
	Unit (each) Type Measurements
U-1	Determine the number of units.
U-2	Determine the number of units visible on completion and make a statement relative to the conformance with the contract requirements.
U-3	Determine the number of units and include the data as to reuse or storage or disposal by Contractor.
	Lump Sum Type Measurements
LS-1	Verify that the work is in accordance with the plans.
LS-2	Record driving log of first test pile or the results of the test loads and locate by use of the numbering system on the piling layout.
	Miscellaneous Type Measurements
M-1	Summarize the final rolling time to the nearest hour. Include the data on weight and tire pressure.

Index of Pay Items for the Construction Inspection Forms

Earthwork (200)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
201	**Clearing and Grubbing**				
201	trees or stumps removed, _____ size	each	U-1	CA-D-1A/1B or CA-D-3SM	
201	clearing and grubbing	lump	LS-1	CA-D-3SM	
202	**Removal of Structures and Obstructions**				
202	structures removed	lump	LS-1	CA-D-3SM	
202	portions of structures removed	lump	LS-1	CA-D-3SM	
	portions of structures removed	1 yd^3	V-3	CA-D-1A/1B	X
	portions of structures removed	100 pound	W-1	CA-D-1A/1B weight	
202	pipe removed for reuse or storage	1 foot	L-2	CA-D-1A/1B or CA-D-3SM	
202	pipe removed	1 foot	L-1	CA-D-1A/1B or CA-D-3SM	
202	pavement removed	0.1 yd^2	A-1	CA-D-1A/1B	
202	wearing course removed	0.1 yd^2	A-1	CA-D-1A/1B	
202	base removed	0.1 yd^2	A-1	CA-D-1A/1B	
202	walk removed	0.1 yd^2	A-1	CA-D-1A/1B	
202	steps removed	lump	LS-1	CA-D-3SM	
202	curb removed	1 foot	L-1	CA-D-1A/1B or CA-D-3SM	
202	curb and gutter removed	1 foot	L-1	CA-D-1A/1B or CA-D-3SM	
202	gutter removed	1 foot	L-1	CA-D-1A/1B or CA-D-3SM	
	gutter removed	0.1 yd^2	A-1	CA-D-1A/1B	
202	curb removed for storage	1 foot	L-2	CA-D-1A/1B or CA-D-3SM	
202	precast traffic dividers removed for re-use and storage	each	U-3	CA-D-1A/1B or CA-D-3SM	
202	buildings demolished	lump	LS-1	CA-D-3SM	
202	underground storage tank removed	each	U-1	CA-D-3SM	
202	regulated storage tank removed	each	U-1	CA-D-3SM	
202	septic tank removed	each	U-1	CA-D-3SM	
202	privy vault removed	each	U-1	CA-D-3SM	
202	guardrail removed	1 foot	L-1	CA-D-2 or CA-D-3SM	
202	guardrail removed for re-use or storage	1 foot	L-2	CA-D-2 or CA-D-3SM	
202	fence removed for re-use or storage	1 foot	L-2	CA-D-2 or CA-D-3SM	
202	rpm's removed for disposal by contractor	each	U-3	CA-D-2 or CA-D-3SM	
202	manhole removed	each	U-1	CA-D-3SM	
202	manhole abandoned	each	U-1	CA-D-3SM	
202	catch basin of inlet removed	each	U-1	CA-D-3SM	
202	catch basin or inlet abandoned	each	U-1	CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
203	**Roadway Excavation and Embankment**				
203	excavation	1 yd^3	V-4	CA-EW-1, CA-D-3SM	
203	embankment	1 yd^3	V-4	CA-EW-1, CA-D-3SM	
203	granular embankment	1 yd^3	V-4	CA-EW-1	X
				CA-D-3SM	
203	granular material, type-__	1 yd^3	V-4	CA-EW-1	X
				CA-D-3SM	
203	borrow	1 yd^3	C-6	Cross-Sections	
	borrow	1 ton	W-3	WEIGHT	
204	**Subgrade Compaction and Proof Rolling**				
204	subgrade compaction	1 yd^2	A-2	CA-D-1A/1B	
204	proof rolling	0.1 hour	M-1	CA-EW-2	
204	excavation of subgrade	1 yd^3	V-4	CA-EW-8	
				CA-D-3SM	
204	embankment	1 yd^3	V-4	CA-EW-8	X
				CA-D-3SM	
204	granular embankment	1 yd^3	V-4	CA-EW-8	X
				CA-D-3SM	
204	granular material, type-__	1 yd^3	V-4	CA-EW-8	X
				CA-D-3SM	
204	geotextile fabric	1 yd^2	A-2	CA-D-3SM	
205	**Lime Modified Soil**			CA-EW-8	
205	lime modified soil-dry method	1 yd^3	V-1	CA-D-1A/1B, CA-EW-1	
205	lime modified soil-wet method	1 yd^3	V-1	CA-D-1A/1B, CA-EW-1	
205	Contractor designed lime soil	Lump	LS-1	CA-D-3SMA	
205	lime	0.1 ton	W-4	WEIGHT	X
205	water	0.1 m gal	V-7	CA-D-1 and CA-D-2	
206	**Lime Stabilized Subgrade**				
206	lime soil stabilized subgrade	0.1 yd^2	A-1	CA-D-1A/1B	
206	Contractor designed lime soil	Lump	LS-1	CA-D-3SM	
206	lime	0.1 ton	W-4	WEIGHT	X
206	water	0.1 m gal	V-7	CA-D-1 and CA-D-2	
206	Test rolling	0.1 hour	M-1	CA-EW-2	
804	**Cement Stabilized Subgrade**				
804	Cement stabilized subgrade	0.1 yd^2	A-1	CA-D-1A/1B	
804	Cement	0.1 ton	W-4	Weight	X
804	Test rolling	0.1 hour	M-1	CA-EW-2	
804	Contractor designed cement soil	Lump	LS-1	CA-D-3SM	
832	**Temporary Erosion Control**				

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
832	construction seeding and mulching	1 yd^2	C-7 A-1	CA-EC-2	
832	slope drains	1 foot	L-1	CA-D-3SM	
832	benches, dams, sediment basin	1 yd^3	V-1	CA-D-1A/1B	
832	straw or hay bales	each	U-1	CA-D-3SM	
832	filter fabric fence	1 foot	L-1	CA-D-3SM	
832	temporary dikes	1 yd^3	V-1	CA-D-1A/1B	
832	Construction ditch protection	1 yd^2	A-1	CA-D-1A/1B	
832	rock channel protection	1 yd^3	V-1	CA-D-1A/1B	
832	sediment removal	1 yd^3	V-1	CA-D-1A/1B	
832	filter fabric ditch check	1 foot	L-1	CA-D-3SM	
832	sediment basins and dams	1 yd^3	V-1	CA-D-1A/1B	
832	bale filter dike	1 foot	L-1	CA-D-3SM	
832	inlet protection	1 foot	L-1	CA-D-3SM	
832	construction fence	1 foot	L-1	CA-D-3SM	
208	**Rock Blasting**				
208	pre-splitting	1 yd^2	A-1	CA-D-1 and CA-D-2	
208	pre-blast condition survey	lump sum	LS-1	CA-D-3SM	
208	Scaling	0.5 hr.	M-1	CA-D-3SM	
208	blasting consultant	lump sum	LS-1	CA-D-3SM	
208	airblast and noise control	lump sum	LS-1	CA-D-3SM	
208	vibration control and monitoring	lump sum	LS-1	CA-D-3SM	
208	Hydrologist	lump sum	LS-1	CA-D-3SM	

Pavement Repairs (250)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
251	**Partial Depth Pavement Repair**				
251	partial depth pavement repair	0.1 yd^2	A-1	CA-D-6	
252	**Full Depth Rigid Pavement Removal and Flexible Replacement**				
252	full depth rigid pavement removal and flexible replacement	0.1 yd^2	A-1	CA-D-6	
252	full depth pavement sawing	0.1 foot	L-1	CA-D-6	
253	**Pavement Repair**				
253	pavement repair pavement repair	0.1 yd^2 0.1 yd^3	A-1 V-1	CA-D-6 CA-D-6	
254	**Pavement Planing**				

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
254	pavement planing, bituminous	0.1 yd^2	A-1	CA-D-1A/1B	
254	pavement planing, concrete	0.1 yd^2	A-1	CA-D-1A/1B	
254	patching planed surfaces	0.1 yd^2	A-1	CA-D-1A/1B	
255	**Full Depth Pavement Removal and Rigid Replacement**				
255	full depth pavement removal and rigid replacement, class _____	0.1 yd^2	A-1	CA-D-6	
255	full depth pavement sawing	0.1 foot	L-1	CA-D-6	
256	**Bonded Patching of Portland Cement Concrete Pavement**				
256	bonded patching of Portland cement conc., type __	0.1 ft^2	A-1	CA-D-6	
257	**Diamond Grinding Portland Cement Concrete Pavement**				
257					
258	**Dowel Bar Retrofit**				
258					

Bases (300)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
301	**Asphalt Concrete Base**				
301	bituminous aggregate base	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-3, 4, and 5	X
302	**Asphalt Concrete Base**				
302	asphalt concrete base	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-3, 4, and 5	X
304	**Aggregate Base**				
304	aggregate base	0.1 yd^3	V-1 C-5	CA-D-1 and 2	X
305	**Portland Cement Concrete Base**				
305	concrete base	0.1 yd^2	A-2	CA-D-1A/1B	
320	**Rubblize and Roll**				
320	rubblize and roll	0.1 yd^2	A-1	CA-D-3SM	
320	filler aggregate	0.1 yd^3	V-1	CA-D-3SM	
321	**Cracking and Seating Existing Plain Concrete Pavement**				
321	cracking and seating existing plain concrete pavement	0.1 yd^2	A-1	CA-D-1A/1B	

Flexible Pavement (400)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
407	**Tack Coat**				
407	tack coat	1 gallon	C-4	CA-FP-6	X
407	tack coat for intermediate course	1 gallon	C-4	CA-FP-6	X
408	**Prime Coat**				
408	bituminous prime coat	1 gallon	C-4	CA-FP-6	X
409	**Sawing and Sealing Asphalt Concrete Pavement Joints**				
409	Saw and seal asphalt joints	0.1 ft	L-4	CA-D-1A/1B	X
410	**Traffic Compacted Surface**				
410	traffic compacted surface type a or b	0.1 yd^3 0.1 ton	C-3 W-4	CA-D-1A/1B WEIGHT	X X
410	traffic compacted surface type c	0.1 yd^3 0.1 ton	C-3 W-4	CA-D-1A/1B WEIGHT	X X
411	**Stabilized Crushed Aggregate**				
411	stabilized crushed aggregate	0.1 yd^3	C-5	CA-D-1A/1B	X
421	**Microsurfacing**				
421	microsurfacing, surface course	0.1 yd^2	A-1	CA-D-1A/1B	
421	microsurfacing, leveling course	0.1 yd^2	A-1	CA-D-1A/1B	
421	microsurfacing, rut fill course	0.1 ton	W-4	CA-D-1A/1B	X
422	**Chip Seal with Polymer Binder**				
422	single chip seal with polymer binder	0.1 yd^2	A-1	CA-D-1A/1B, CA-D-2	
422	double chip seal with polymer binder	0.1 yd^2	A-1	CA-D-1A/1B, CA-D-2	
423	**Crack Sealing, Hot Applied**				
423	crack sealing	1 pound	W-5	CA-D-1A/1B	X
424	**Fine Graded Polymer Asphalt Concrete**				
424	Fine Graded Polymer Asphalt Concrete, A or B	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-3 and 4	X
442	**SuperPave Asphalt Concrete**				
442	asphalt concrete, intermediate course, __ mm, type __	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-2	X
442	asphalt concrete, surface course, __ mm, type __	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-2	X
443	**Stone Matrix Asphalt Concrete**				
443	Stone Matrix Asphalt Concrete	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-3 and 4,	X
446	**Asphalt Concrete**				
446	asphalt concrete, intermediate course type_	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-3 and 4, TE 217	X

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
446	asphalt concrete, surface course type_	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-3 and 4, TE 217	X
448	**Asphalt Concrete**				
448	asphalt concrete, intermediate. course type_	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-3 and 4	X
448	asphalt concrete, surface course type_	0.1 yd^3	C-5	CA-D-1A/1B CA-FP-3 and 4	X

Rigid Pavement (450)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
451	**Reinforced Portland Cement Concrete Pavement**				
451	reinforced concrete pavement	0.1 yd^2	A-2	CA-D-3SM, CA-D-9	
452	**Non-Reinforced Portland Cement Concrete Pavement**				
452	plain concrete pavement	0.1 yd^2	A-2	CA-D-3SM, CA-D-9	
455	**Concrete Quality Control**				
499	**Concrete General**				

Structures (500)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
502	**Structures for Maintaining Traffic**				
502	temporary structures	lump sum	LS-1	CA-D-3SM	
503	**Excavation for Structures**				
503	cofferdams, cribs, and sheeting	lump sum	LS-1	CA-D-3SM	
503	unclassified excavation	1 yd^3	V-8	CA-D-1A/1B	
503	unclassified excavation	lump sum	LS-1	CA-D-3SM	
503	unclassified excavation including rock	1 yd^3	V-8	CA-D-1A/1B	
503	unclassified excavation including shale	1 yd^3	V-8	CA-D-1A/1B	
503	unclassified excavation including shale or rock	1 yd^3	V-8	CA-D-1A/1B	
503	rock excavation	1 yd^3	V-8	CA-D-1A/1B	
503	shale excavation	1 yd^3	V-8	CA-D-1A/1B	
504	**Sheet Piling Left in Place**				
504	steel sheet piling left in place _____	0.1 ft^2	A-1	CA-D-1A/1B	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
505	**Pile Driving Equipment Mobilization**				
505	pile driving equipment mobilization	lump sum	LS-2	CA-D-3SM	
506	**Static Load Test**				
506	static load test	lump sum	LS-2	CA-D-3SM	
506	subsequent static load test	each	LS-2	CA-D-3SM	
507	**Bearing Piles**				
507	steel piles hp_____x_____, furnished	0.1 foot	L-7	CA-D-3SM	
507	steel piles hp_____x_____, driven	0.1 foot	L-7	CA-S-3, BR-2-75A	
507	__in cast-in-place, reinforced concrete piles, furnished	0.1 foot	L-7	CA-D-3SM	
507	__in cast-in-place, reinforced concrete piles, driven	0.1 foot	L-7	CA-S-3, BR-2-75A, TE-45	
507	timber piles, creosoted	0.1 foot	L-7	CA-S-3, BR-2-75A	
507	timber piles, untreated	0.1 foot	L-7	CA-S-3, BR-2-75A	
507	pre-bored holes	0.1 foot	L-1	CA-D-3SM	
507	steel points or shoes	each	U-1	CA-D-3SM	
508	**Falsework and Forms**				
509	**Reinforcing Steel**				
509	epoxy coated reinforcing steel	1 pound	W-5	CA-D-1A/1B, CA-S-9	
510	dowel holes with cement grout	each	U-1	CA-D-3SM	
510	dowel holes with nonmetallic grout	each	U-1	CA-D-3SM	
511	**Concrete for Structures**				
511	class ____ concrete,_____	0.1 yd^3	V-2	CA-D-1A/1B, TE-45	
511	class_____ concrete, bridge deck	0.1 yd^3 0.1 yd^2	V-2 A-2	CA-D-1A/1B, TE-45, CA-S-4, CA-S-6, CA-S-22, D10-S-31	
512	**Waterproofing**				
512	type_____ waterproofing	0.1 yd^2 lump sum	A-1 LS-1	CA-D-1A/1B CA-D-3SM	
512	Sealing of Concrete Surfaces	0.1 yd^2	A-1	CA-D-1A/1B CA-D-3SM, CA-S-21	
513	**Structural Steel Members**				
513	structural steel (_____)	100 pound lump sum	W-2 LS-1	SEE W-2 CA-D-3SM, CA-S-20	
513	welded stud shear connectors	each	U-1	CA-D-3SM	
514	**Painting of Structural Steel**				
514	surface preparation, existing steel, system __	lump sum Sq. Ft.	LS-1	CA-D-3SM, CA-S-7, CA-S-11, CA-S-12,CA-S-13,CA-S-14, CA-S-32	
514	field painting of existing steel, prime coat, system_____	lump sum Sq. Ft.	LS-1	CA-D-3SM, CA-S-2, CA-S-7, CA-S-15,CA-S-32	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
514	Field painting of structural steel, intermediate coat, system_____	lump sum Sq. Ft.	LS-1	CA-D-3SM, CA-S-2, CA-S-7, CA-S-16, CA-S-17, CA-S-37	
514	field painting of structural steel, finish coat, system _____	lump sum Sq. Ft.	LS-1	CA-D-3SM, CA-S-2, CA-S-7, CA-S-17, CA-S-32	
514	Grinding fins, tears, slivers on existing structural steel	Lump sum	LS-1	CA-D-3SM, CA-S-16	
514	Final Inspection Repair	Each	U-1	CA-D-3SM, CA-S-18, CA-S-19	
515	**Prestressed Concrete Bridge Members**				
515	prestressed concrete bridge members	each 0.1 foot	U-1 L-4	CA-D-3SM, CA-S-20 CA-D-3SM	
515	intermediate diaphragms	each	U-1	CA-D-3SM	
516	**Expansion and Contraction Joints, Joint Sealers, and Bearing Devices**				
516	structural steel expansion joints	0.1 foot 100 pound	L-4 W-2	CA-D-3SM SEE W-2	
516	structural expansion joints including elastomeric _____ seals	0.1 foot	L-4	CA-D-3SM	
516	elastomeric compression seals for structural steel joints, _____ width	0.1 foot	L-4	CA-D-3SM	
516	folder copper strip _____	0.1 foot	L-4	CA-D-3SM	
516	vertical extension of structural expansion joints	0.1 foot	L-4	CA-D-3SM	
516	_____ preformed expansion joint filler	0.1 yd^2	A-1	CA-D-1A/1B	
516	joint sealer	0.1 foot	L-4	CA-D-3SM	
516	bearing devices	each 0.1 foot 0.1 yd^2 100 pound	U-1 L-4 A-1 W-2	CA-D-3SM CA-D-3SM CA-D-1A/1B SEE W-2	
516	_____in elastomeric bearing pad	each 0.1 yd^2	U-1 A-1	CA-D-3SM CA-D-1A/1B	
516	elastomeric bearing with internal laminates only ___x___x___	each	U-1	CA-D-3SM	
516	elastomeric bearing with internal laminates with load plate___x___x___	each	U-1	CA-D-3SM	
516	1/8 inch preformed bearing pads	0.1 yd^2	A-1	CA-D-1A/1B	
517	**Railings**				
517	railing (_____)	0.1 foot	L-1	CA-D-3SM	
518	**Drainage of Structures**				
518	porous backfill	0.1 yd^3 lump sum	V-1 LS-1	CA-D-1A/1B CA-D-3SM	
518	porous backfill with filter fabric	0.1 yd^3 lump sum	V-1 LS-1	CA-D-1A/1B CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
518	____in _____ pipe include specials	0.1 foot	L-4	CA-D-3SM	
518	scuppers, including supports	each	U-1	CA-D-3SM	
518	trough horizontal conductors	100 pound 0.1 foot	W-2 L-1	SEE W-2 CA-D-3SM	
518	pipe horizontal conductors	100 pound 0.1 foot	W-2 L-1	SEE W-2 CA-D-3SM	
518	___ in ___ pipe downspout	1 foot	L-1	CA-D-3SM	
519	**Patching Concrete Structures**				
519	patching concrete structures	0.1 ft^2	A-1	CA-D-1A/1B	
520	**Pneumatically Placed Mortar**				
520	pneumatically placed mortar	0.1 ft^2	A-1	CA-D-1A/1B	
522	**Structural Plate Corrugated Metal Structures on Footings**				
522	___in ___ structural plate corrugated metal structure, _____in	0.1 foot	L-1	CA-D-3SM	
523	**Dynamic Load Test**				
523	dynamic load testing	each	U-1	CA-D-3SM	
523	re-strike	each	U-1	CA-D-3SM	
524	**Drilled Shafts**				
524	drilled shafts, ___in diameter, above bedrock	0.1 foot	L-1	CA-S-1, TE-45, CA-S-30	
524	drilled shafts, ___in diameter, into bedrock	0.1 foot	L-1	CA-S-1, TE-45, CA-S-30	
524	drilled shafts, ___in diameter	0.1 foot	L-1	CA-S-1, TE-45, CA-S-30	
526	**Approach Slabs**				
526	reinforced concrete approach slabs	0.1 yd^2	A-1	CA-D-1A/1B	

Incidentals (600)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
601	**Slope and Channel Protections**				
601	riprap	0.1 yd^2	A-1	CA-D-1A/1B	
601	crushed aggregate slope protection	0.1 yd^2	A-1	CA-D-1A/1B	
601	concrete slope protection	0.1 yd^2	A-1	CA-D-1A/1B	
601	dump rock fill, type _____	0.1 yd^3	V-1	CA-D-1A/1B	
601	rock channel protection, type ____ with filter	0.1 yd^3	V-1	CA-D-1A/1B	
601	rock channel protection, type ____ without filter	0.1 yd^3	V-1	CA-D-1A/1B	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
601	paved gutter	0.1 foot	L-1	CA-D-3SM	
602	**Masonry**				
602	brick masonry	0.1 yd^3	V-2	CA-D-1A/1B	
602	block masonry	0.1 yd^3	V-2	CA-D-1A/1B	
602	concrete masonry	0.1 yd^3	V-2	CA-D-1A/1B	
605	**Underdrains**				
605	___in unclassified pipe underdrains	0.1 foot	L-8	CA-P-2	
605	___in shallow pipe underdrains	0.1 foot	L-8	CA-P-2	
605	___in deep pipe underdrains	0.1 foot	L-8	CA-P-2	
605	aggregate drains	0.1 foot	L-8	CA-D-3SM	
605	___in rock cut underdrain	0.1 foot	L-8	CA-P-2	
605	___in prefabricated edge underdrain	0.1 foot	L-8	CA-P-2	
606	**Guardrail**				
606	guardrail, type_____	0.1 foot	L-5	CA-D-2 OR CA-D-3SM	
606	guardrail, barrier design, type_____	0.1 foot	L-5	CA-D-2 OR CA-D-3SM	
606	guardrail, rebuilt, type_____	0.1 foot	L-5	CA-D-2 OR CA-D-3SM	
606	anchor assembly, type_____	each	U-1	CA-D-3SM	
606	anchor assembly, type ___, barrier design	each	U-1	CA-D-3SM	
606	bridge terminal assembly, type _____	each	U-1	CA-D-3SM	
606	guardrail post	each	U-1	CA-D-3SM	
607	**Fence**				
607	fence, type _____	0.1 foot	L-1	CA-D-2 OR CA-D-3SM	
607	gate, type _____	each	U-1	CA-D-3SM	
608	**Walks, Curb Ramps, and Steps**				
608	concrete walk	0.1 yd^2	A-1	CA-D-1A/1B	
608	bituminous walk	0.1 yd^2	A-1	CA-D-1A/1B	
608	aggregate walk	0.1 yd^2	A-1	CA-D-1A/1B	
608	curb ramps	0.1 yd^2 each	A-1 U-1	CA-D-1A/1B CA-D-3SM	
608	concrete steps	0.1 foot	L-1	CA-D-3SM	
609	**Curbing, Concrete Medians, and Traffic Islands**				
609	sandstone curb	0.1 foot	L-1	CA-D-3SM	
609	curb, type_____	0.1 foot	L-1	CA-D-3SM	
609	combination curb and gutter	0.1 foot	L-1	CA-D-3SM	
609	asphalt concrete curb	0.1 foot	L-1	CA-D-3SM	
609	concrete traffic island	0.1 yd^2 0.1 yd^3	A-1 V-1	CA-D-1A/1B CA-D-1A/1B	
609	concrete median	0.1 yd^2 0.1 yd^3	A-1 V-1	CA-D-1A/1B CA-D-1A/1B	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
610	**Cellular Retaining Walls**				
610	cellular retaining wall	0.1 yd^2	A-1	CA-D-1A/1B	
611	**Pipe Culverts, Sewers, and Drains**				
611	____ in conduit, type _____	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	_____x_____ conduit, type _____	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	____ in conduit reconstructed, type ___	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	type a precast reinforced concrete flat topped three-sided culvert ___in span x ___in rise	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	type a precast reinforced concrete arch section ___in span x ___in rise	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	___in rise x ___in span conduit, type a corrugated steel box culvert, ___in min. cover, ___in max. cover	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	___in rise x ___in span conduit, type a corrugated aluminum box culvert, ___in min. cover, ___in max. cover	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	___in conduit, type ___, field paving	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	___in conduit, type ___, field paving of existing pipe	0.1 foot	L-8	CA-P-1(611) by Contractor	
611	manholes	each	U-1	CA-P-3(611) by Contractor	
611	inlets	each	U-1	CA-P-3(611) by Contractor	
611	catch basins	each	U-1	CA-P-3(611) by Contractor	
611	manhole, catch basin, or inlet reconstructed to grade	each	U-1	CA-P-3(611) by Contractor	
611	manhole, catch basin, inlet, or monument bas adjusted to grade	each	U-1	CA-P-3(611) by Contractor	
611	precast reinforced concrete outlet	each	U-1	CA-P-3(611) by Contractor	
611	inspection wells	each	U-1	CA-D-3SM	
611	junction chambers	each	U-1	CA-D-3SM	
613	**Low Strength Mortar Backfill**				
613	low strength mortar backfill	0.1 yd^3	V-1	CA-D-1A/1B	
613	low strength mortar backfill, type___	0.1 yd^3	V-1	CA-D-1A/1B	
614	**Maintaining Traffic**				
614	maintaining traffic	lump sum	LS-1	CA-D-3SM	
614	temporary pavement markings	each 1 foot 0.01 mile	U-1 L-1 L-3	CA-D-3SM CA-D-3SM CA-D-3SM	
614	temporary raised pavement marker	each	U-1	CA-D-3SM	
614	portable changeable message board	Each 1 month	U-1 U-1	CA-D-3SM CA-D-3SM	
614	Work zone speed limit sign	Each	U-1	CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
614	Work zone marking sign	Each	U-1	CA-D-3SM	
614	law enforcement officer w/patrol car	1 hour	U-1	CA-D-3SM	
614	barrier reflector	Each	U-1	CA-D-3SM	
614	temporary crossover lighting system	Each	U-1	CA-D-3SM	
614	temporary impact attenuator	Each	U-1	CA-D-3SM	
614	temporary lane line class_____	0.01 mile	L-3	CA-D-3SM	
614	temporary center line class _____	0.01 mile	L-3	CA-D-3SM	
614	temporary channelizing line, class I ___	1 foot	L-1	CA-D-3SM	
614	temporary edge line class I, _____	0.01 mile	L-3	CA-D-3SM	
614	temporary gore marking, class II , ____	1 foot	L-1	CA-D-3SM	
614	temporary stop line, class I , _____	1 foot	L-1	CA-D-3SM	
614	temporary crosswalk line, class I , _____	1 foot	L-1	CA-D-3SM	
614	temporary dotted line, class I ,_____	1 foot	L-1	CA-D-3SM	
614	bituminous concrete for maintaining traffic	0.1 yd^3	C-5	CA-D-1A/1B	X
615	**Roads and Pavements for Maintaining Traffic**				
615	temporary pavement, class a	0.1 yd^2	A-1	CA-D-1A/1B	X
615	temporary pavement, class b	0.1 yd^2	A-1	CA-D-1A/1B	X
615	temporary roads	lump sum	LS-1	CA-D-3SM	
616	**Dust Control**				
616	water	0.1 m gal	V-7	CA-D-3SM	X
616	calcium chloride	0.1 ton	C-2	CA-D-3SM	X
617	**Reconditioning Shoulders**				
617	shoulder preparation	1 yd^2	A-1	CA-D-1 and 2	
617	compacted aggregate, type___	0.1 yd^3	C-1	WEIGHT	X
617	water	0.1 m gal	V-7	CA-D-1 and 2	X
618	**Rumble Strips on Shoulders**				
618	rumble strips, type 1	1 foot 0.1 mile	L-1 L-3	CA-D-3SM CA-D-3SM	
618	rumble strips, type 2 (asphalt)	1 foot 0.1 mile	L-1 L-3	CA-D-3SM CA-D-3SM	
618	rumble strips, type 2 (concrete)	1 foot 0.1 mile	L-1 L-3	CA-D-3SM CA-D-3SM	
618	rumble strips, type 3	1 foot 0.1 mile	L-1 L-3	CA-D-3SM CA-D-3SM	
619	**Field Office**				
619	field office, type _____	lump sum	LS-1	CA-D-3SM	
619	field office, type _____	½ month	U-1	CA-D-3SM	
620	**Delineators**				
620	delineator, type____, post mounted	Each	U-1	CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
620	delineator, type ____, bracket mounted	Each	U-1	CA-D-3SM	
620	temporary delineator, type_____	Each	U-1	CA-D-3SM	
620	delineator removed for storage or removal	Each	U-3	CA-D-3SM	
620	reflector, type _____	Each	U-1	CA-D-3SM	
621	**Raised Pavement Markers (RPM)**				
621	raised pavement marker	Each	U-1	CA-D-3SM	
621	raised pavement marker, reflector	Each	U-1	CA-D-3SM	
621	two-way radio equipment	lump sum	LS-1	CA-D-3SM	
622	**Concrete Barrier**				
622	concrete barrier, type_____	0.1 foot	L-1	CA-D-3SM	
622	portable concrete barrier, _____in	0.1 foot	L-1	CA-D-3SM	
622	portable concrete barrier, __in bridge mount	0.1 foot	L-1	CA-D-3SM	
623	**Construction Layout Stakes**				
623	construction layout stakes	lump sum	LS-1	CA-D-3SM	
623	monuments assemblies	each	U-1	CA-D-3SM	
623	reference monuments	each	U-1	CA-D-3SM	
623	Right of Way monuments	each	U-1	CA-D-3SM	
624	**Mobilization**				
624	mobilization	lump sum	LS-1	CA-D-3SM	
625	**Highway Lighting**				
625	light pole	Each	U-2	CA-D-3SM	
625	light pole foundation	Each	U-2	CA-D-3SM	
625	light tower	Each	U-2	CA-D-3SM	
625	light tower foundation	Each	U-2	CA-D-3SM	
625	light tower maintenance platform	Each	U-2	CA-D-3SM	
625	luminaire	Each	U-2	CA-D-3SM	
625	bracket arm	Each	U-2	CA-D-3SM	
625	glare shield	Each	U-2	CA-D-3SM	
625	ground rod	Each	U-2	CA-D-3SM	
625	pull box, (type), (size)	Each	U-2	CA-D-3SM	
625	trench	0.1 foot	L-1	CA-D-2	
625	trench in paved areas, type____	0.1 foot	L-1	CA-D-2	
625	conduit, (type), (size)	0.1 foot	L-1	CA-D-2	
625	conduit jacked or drilled under pavement (size ___)	0.1 foot	L-1	CA-D-2	
625	no.___awg,__ volt distribution cable	0.1 foot	L-1	CA-D-2	
625	no.___awg,__, pole and bracket cable	0.1 foot	L-1	CA-D-2	
625	__in duct-cable w/ __no.__awg,__-volt cable	0.1 foot	L-1	CA-D-2	
625	connector kit, type____	Each	U-2	CA-D-2	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
625	cable splicing kit	Each	U-2	CA-D-2	
625	power service	Each	U-2	CA-D-3SM	
625	structural grounding system	Each	U-2	CA-D-3SM	
625	light pole anchor bolts on structure	Each	U-2	CA-D-3SM	
625	junction box	Each	U-2	CA-D-3SM	
625	portable power unit	Each	U-2	CA-D-3SM	
625	high voltage test	lump sum	LS-1	CA-D-3SM	
626	**Barrier Reflectors**				
626	barrier reflector, type a	Each	U-1	CA-D-3SM	
626	barrier reflector, type b	Each	U-1	CA-D-3SM	
626	barrier reflector, type a2	Each	U-1	CA-D-3SM	
626	barrier reflector, type b2	Each	U-1	CA-D-3SM	
630	**Traffic Signs and Sign Supports**				
630	ground mounted beam support foundation.	Each	U-1	CA-D-3SM	
630	rigid overhead sign support foundation	Each	U-1	CA-D-3SM	
630	span wire sign support foundation	Each	U-1	CA-D-3SM	
630	ground mounted support, _____post	0.1 foot	L-4	CA-D-2	
630	ground mounted support, _____beam	0.1 foot	L-4	CA-D-2	
630	one way support, _____post	0.1 foot	L-4	CA-D-2	
630	temporary sign support	0.1 foot Each	L-4 U-1	CA-D-2 CA-D-3SM	
630	street name sign support	0.1 foot	L-4	CA-D-2	
630	breakaway beam connection	Each	U-1	CA-D-3SM	
630	overhead sign support, type tc-_____, design _____	Each	U-1	CA-D-3SM	
630	combination overhead sign support, type___, design____	Each	U-1	CA-D-3SM	
630	sign attachment assembly	Each	U-1	CA-D-3SM	
630	luminaire support assembly, type tc-____	Each	U-1	CA-D-3SM	
630	span wire sign support, type tc-17.10, design___	Each	U-1	CA-D-3SM	
630	overpass structure mounted sign support, type tc - _____, design___	Each	U-1	CA-D-3SM	
630	sign hanger assembly, (span, wire, mast arm)	Each	U-1	CA-D-3SM	
630	sign support assembly, (pole or bridge mount)	Each	U-1	CA-D-3SM	
630	sign, (flat sheet, extrusheet, temp. overlay)	0.1 ft^2	A-3	CA-D-2	
630	sign, double faced, (street name, mile marker)	Each	U-1	CA-D-3SM	
630	sign erected, (flat sheet, extrusheet, temp. overlay)	0.1 ft^2	A-3	CA-D-2	
630	sign backing assembly	Each	U-1	CA-D-3SM	
630	covering sign	0.1 ft^2	A-3	CA-D-1A/1B	
630	barrier wall assembly, type tc-design	each	U-1	CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
630	removal of ground mounted (major) sign and (storage, re-erection, or disposal)	each	U-1	CA-D-2	
630	removal of ground mounted (beam, post) support and (storage or disposal)	each	U-1	CA-D-2	
630	removal of overhead mounted sign and (storage, re-erection, or disposal)	each	U-1	CA-D-2	
630	removal of overhead sign support and (storage, re-erection, of disposal), type tc- _____	each	U-1	CA-D-2	
630	removal of overlay sign	each	U-1	CA-D-2	
631	**Sign Lighting and Electrical Signs**				
631	sign service	each	U-1	CA-D-2	
631	sign wired	each	U-1	CA-D-2	
631	sign wired, overpass structure mounted	each	U-1	CA-D-2	
631	disconnect switch with enclosure, type_	each	U-1	CA-D-2	
631	switch enclosure mounting bracket assembly	each	U-1	CA-D-2	
631	ballast (integral or remote), type ___	each	U-1	CA-D-2	
631	ballast wiring enclosure, type ___	each	U-1	CA-D-2	
631	ballast wiring enclosure mounting bracket	each	U-1	CA-D-2	
631	photoelectric control	each	U-1	CA-D-3SM	
631	mercury vapor luminaire, type ___, with _____-watt lamp	each	U-1	CA-D-2	
631	changeable message sign, electrical type(limited, unlimited) message	each	U-1	CA-D-3SM	
631	changeable message sign, drum type	each	U-1	CA-D-3SM	
631	internally illuminated fixed message sign, type _____	each	U-1	CA-D-3SM	
631	sign flasher assembly	each	U-1	CA-D-3SM	
631	school speed limit sign assembly, __in	each	U-1	CA-D-3SM	
631	timer with enclosure	each	U-1	CA-D-3SM	
631	removal of (luminaire, disconnect switch, ballast, etc.) and (storage or re-erection)	each	U-1	CA-D-2	
632	**Traffic Signal Equipment**				
632	vehicular signal head,__-section___ in lens _____-way	each	U-1	CA-D-3SM	
632	vehicular signal head, optically programmed, __ -section, ___in lens, __way	each	U-1	CA-D-3SM	
632	pedestrian signal head, type ____	each	U-1	CA-D-3SM	
632	pedestrian pushbutton	each	U-1	CA-D-3SM	
632	loop detector unit	each	U-1	CA-D-3SM	
632	detector loop	each	U-1	CA-D-3SM	
632	magnetometer detector unit	each	U-1	CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
632	magnetometer sensor probe	each	U-1	CA-D-3SM	
632	strain pole foundation	each	U-1	CA-D-3SM	
632	signal support foundation	each	U-1	CA-D-3SM	
632	pedestal foundation	each	U-1	CA-D-3SM	
632	signal support, type tc-____,design___	each	U-1	CA-D-3SM	
632	combination signal support, type tc-___, design___	each	U-1	CA-D-3SM	
632	strain pole, type tc-___, design___	each	U-1	CA-D-3SM	
632	combination strain pole, type tc-___, design ____	each	U-1	CA-D-3SM	
632	strain pole embedded, type tc-__,design_	each	U-1	CA-D-3SM	
632	comb. strain pole embedded, type tc-___ design -____	each	U-1	CA-D-3SM	
632	wood pole, class ____, (length) ft	each	U-1	CA-D-3SM	
632	down guy	each	U-1	CA-D-3SM	
632	pedestal, (length) ft	each	U-1	CA-D-3SM	
632	pedestal, (length) ft, transformer base	each	U-1	CA-D-3SM	
632	conduit riser, _____in dia.	each	U-1	CA-D-3SM	
632	messenger wire, (no.) strand _____in	0.1 foot	L-1	CA-D-3SM	
632	signal cable, _____-conductor no.__awg	0.1 foot	L-1	CA-D-3SM	
632	interconnect cable,____-conductor no.__	0.1 foot	L-1	CA-D-3SM	
632	interconnect cable, integral messenger wire type, ____-conductor no.___awg	0.1 foot	L-1	CA-D-3SM	
632	loop detector lead-in cable	0.1 foot	L-1	CA-D-3SM	
632	magnetometer lead-in cable	0.1 foot	L-1	CA-D-3SM	
632	power cable, ___-conductor no.___awg	0.1 foot	L-1	CA-D-3SM	
632	service cable, ___-conductor no.____awg	0.1 foot	L-1	CA-D-3SM	
632	power service	each	U-1	CA-D-3SM	
632	covering of vehicular signal head	each	U-1	CA-D-3SM	
632	removal of traffic signal installation	each	U-1	CA-D-3SM	
632	removal of (item) and (storage or re-erection)	each	U-3	CA-D-3SM	
632	reuse of (item)	each	U-3	CA-D-3SM	
633	**Traffic Signal Controllers**				
633	controller unit, type ___, with cabinet, type ___	each	U-1	CA-D-3SM	
633	controller unit, type ___	each	U-1	CA-D-3SM	
633	controller unit, type ___, furnish only	each	U-1	CA-D-3SM	
633	cabinet, type ___	each	U-1	CA-D-3SM	
633	cabinet, type___, furnish only	each	U-1	CA-D-3SM	
633	cabinet riser	each	U-1	CA-D-3SM	
633	controller, master, traffic responsive	each	U-1	CA-D-3SM	
633	controller, master, traffic responsive, furnish only	each	U-1	CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
633	remote monitoring station	each	U-1	CA-D-3SM	
633	telephone service	each	U-1	CA-D-3SM	
633	training	each	U-1	CA-D-3SM	
633	system analysis	each	U-1	CA-D-3SM	
633	cabinet foundation	each	U-1	CA-D-3SM	
633	controller work pad	each	U-1	CA-D-3SM	
633	flasher controller	each	U-1	CA-D-3SM	
638	**Water Mains and Service Branches**				
638	___in water main, ductile iron, ANSI class___, joints and fittings	0.1 foot	L-1	CA-D-3SM	
638	___in water main, polyvinyl chloride pipe and fittings	0.1 foot	L-1	CA-D-3SM	
638	___in copper service branch	0.1 foot	L-1	CA-D-3SM	
638	___in polyethylene service branch	0.1 foot	L-1	CA-D-3SM	
638	___in polybutylene service branch	0.1 foot	L-1	CA-D-3SM	
638	polyethylene encasement	0.1 foot	L-1	CA-D-3SM	
638	___in steel pipe encasement (open cut, bored)	0.1 foot	L-1	CA-D-3SM	
638	___in gate valve and valve box	each	U-1	CA-D-3SM	
638	___in inserting valve and valve box	each	U-1	CA-D-3SM	
638	___in cutting-in sleeve, valve, and box	each	U-1	CA-D-3SM	
638	__in x __in tapping sleeve, valve & box	each	U-1	CA-D-3SM	
638	meter, setting, stop and chamber	each	U-1	CA-D-3SM	
638	fire hydrant extended and adjusted	each	U-1	CA-D-3SM	
638	fire hydrant adjusted to grade	each	U-1	CA-D-3SM	
638	fire hydrant removed and reset	each	U-1	CA-D-3SM	
638	fire hydrant and gate valve removed and reset	each	U-1	CA-D-3SM	
638	fire hydrant removed and disposed of	each	U-1	CA-D-3SM	
638	valve box adjusted to grade	each	U-1	CA-D-3SM	
638	service box adjusted to grade	each	U-1	CA-D-3SM	
638	meter and chamber removed and reset	each	U-1	CA-D-3SM	
638	sheeting and bracing left in place	0.1 yd^3	V-2	CA-D-1A/1B	

Pavement Marking (640)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
642	**Traffic Paint**				
642	edge line, type____	0.01 mile	L-6	CA-D-3SM	
642	lane line, type _____	0.01 mile	L-6	CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
642	center line, type ___	0.01 mile	L-6	CA-D-3SM	
642	channelizing line, type _____	1 foot	L-1	CA-D-3SM	
642	stop line, type _____	1 foot	L-1	CA-D-3SM	
642	crosswalk line, type _____	0.1 foot	L-1	CA-D-3SM	
642	transverse line, type _____	0.1 foot	L-1	CA-D-3SM	
642	curb marking, type _____	0.1 foot	L-1	CA-D-3SM	
642	island marking, type _____	0.1 yd^2	A-1	CA-D-1A/1B	
642	handicap symbol marking, type _____	each	U-1	CA-D-3SM	
642	railroad symbol marking, type _____	each	U-1	CA-D-3SM	
642	school symbol marking, __in, type ____	each	U-1	CA-D-3SM	
642	parking lot stall marking, type _____	0.1 foot	L-1	CA-D-3SM	
642	lane arrow, type _____	each	U-1	CA-D-3SM	
642	word on pavement, ____in, type _____	each	U-1	CA-D-3SM	
642	dotted line, ___in, type _____	1 foot	L-1	CA-D-3SM	
642	removal of pavement marking	1 foot 0.1 yd^2	L-1 A-1	CA-D-3SM CA-D-1A/1B	
642	two-way radio equipment	lump sum	LS-1	CA-D-3SM	
643	**Polyester Pavement Marking**				
643	edge line	0.01 mile	L-6	CA-D-3SM	
643	lane line	0.01 mile	L-6	CA-D-3SM	
643	center line	0.01 mile	L-6	CA-D-3SM	
643	channelizing line	0.1 foot	L-1	CA-D-3SM	
643	stop line	0.1 foot	L-1	CA-D-3SM	
643	crosswalk line	0.1 foot	L-1	CA-D-3SM	
643	transverse line	0.1 foot	L-1	CA-D-3SM	
643	curb marking	0.1 foot	L-1	CA-D-3SM	
643	island marking	0.1 yd^2	A-1	CA-D-3SM	
643	handicap symbol marking	each	U-1	CA-D-3SM	
643	railroad symbol marking	each	U-1	CA-D-3SM	
643	school symbol marking, ____in	each	U-1	CA-D-3SM	
643	parking lot stall marking	0.1 foot	L-1	CA-D-3SM	
643	lane arrow	each	U-1	CA-D-3SM	
643	word on pavement ____in	each	U-1	CA-D-3SM	
643	dotted line, ___in	1 foot	L-1	CA-D-3SM	
643	removal of pavement marking	1 foot 0.1 yd^2	L-1 A-1	CA-D-3SM CA-D-1A/1B	
643	two-way radio equipment	lump sum	LS-1	CA-D-3SM	
644	**Thermoplastic Pavement Marking**				
644	edge line	0.01 mile	L-6	CA-D-3SM	

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
644	lane line	0.01 mile	L-6	CA-D-3SM	
644	center line	0.01 mile	L-6	CA-D-3SM	
644	channelizing line	0.1 foot	L-1	CA-D-3SM	
644	stop line	0.1 foot	L-1	CA-D-3SM	
644	crosswalk line	0.1 foot	L-1	CA-D-3SM	
644	transverse line	1 foot	L-1	CA-D-3SM	
644	handicap symbol marking	each	U-1	CA-D-3SM	
644	railroad symbol marking, ____in	each	U-1	CA-D-3SM	
644	school symbol marking, ____in	each	U-1	CA-D-3SM	
644	parking lot stall marking	0.1 foot	L-1	CA-D-3SM	
644	lane arrow	each	U-1	CA-D-3SM	
644	word on pavement, ____in	each	U-1	CA-D-3SM	
644	dotted line, _____in	1 foot	L-1	CA-D-3SM	
644	removal of pavement marking	1 foot 0.1 yd^2	L-1 A-1	CA-D-3SM CA-D-1A/1B	
644	two-way radio equipment	lump sum	LS-1	CA-D-3SM	
645	**Preformed Pavement Marking**				
645	edge line, type_____	0.01 mile	L-6	CA-D-3SM	
645	lane line, type_____	0.01 mile	L-6	CA-D-3SM	
645	center line, type _____	0.01 mile	L-6	CA-D-3SM	
645	channelizing line, type _____	0.1 foot	L-1	CA-D-3SM	
645	stop line, type _____	0.1 foot	L-1	CA-D-3SM	
645	crosswalk line, type _____	0.1 foot	L-1	CA-D-3SM	
645	transverse line, type _____	0.1 foot	L-1	CA-D-3SM	
645	handicap symbol marking, type _____	each	U-1	CA-D-3SM	
645	railroad symbol marking, type _____	each	U-1	CA-D-3SM	
645	school symbol marking, ___in, type ___	each	U-1	CA-D-3SM	
645	parking lot stall marking, type_____	0.1 foot	L-1	CA-D-3SM	
645	lane arrow, type _____	each	U-1	CA-D-3SM	
645	word on pavement, ___in , type ___	each	U-1	CA-D-3SM	
645	dotted line, _____in, type _____	1 foot	L-1	CA-D-3SM	
645	removal of pavement markings	1 foot 0.1 yd^2	L-1 A-1	CA-D-3SM CA-D-1A/1B	
645	two-way radio equipment	lump sum	LS-1	CA-D-3SM	
646	**Epoxy Pavement Marking**				
646	epoxy pavement markings	see 642 above			
647	**Heat-Fused Preformed Plastic Pavement Marking**				
647	heat-fused preformed plastic pavement markings	see 642 above			

Roadsides (650)

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
651	**Topsoil Stockpiled**				
651	topsoil stockpiled	1 yd^3	V-3	CA-D-1A/1B	
652	**Placing Stockpiled Topsoil**				
652	placing stockpiled topsoil	1 yd^3	V-5	CA-D-1A/1B	
653	**Topsoil Furnished and Placed**				
653	topsoil furnished and placed	1 yd^3	V-5	CA-D-1A/1B	
654	**Renovating Existing Soil**				
654	renovation existing sod	1 ft^2	A-1	CA-D-1A/1B	
654	commercial fertilizer	0.01 ton	W-4	CA-D-3SM	
656	**Roadside Cleanup**				
656	roadside cleanup	1 ft^2	A-1	CA-D-1A/1B	
657	**Riprap for Tree Protection**				
657	riprap for tree protection	1 yd^2	A-1	CA-D-1A/1B	
658	**Tree Root Aeration**				
658	tree root aeration	1 yd^3	V-5	CA-D-1A/1B	
659	**Seeding and Mulching**				
659	Commercial fertilizer	0.01 ton	W-4	CA-D-3SM	
659	Agricultural liming	0.01 ton	W-4	CA-D-3SM	
659	seeding and mulching	1 yd^2	A-4	CA-D-1A/1B	
659	seeding and mulching for wildlife	1 yd^2	A-4	CA-D-1A/1B	
659	repair seeding and mulching	1 yd^2	A-1	CA-D-1A/1B	
659	Water	1 m gal	V-7	CA-D-3SM	X
659	Mowing	1 yd^2	A-1	CA-D-1A/1B	
660	**Sodding**				
660	sodding unstaked	1 yd^2	A-1	CA-D-1A/1B	
660	sodding staked	1 yd^2	A-1	CA-D-1A/1B	
660	sodding reinforced	1 yd^2	A-1	CA-D-1A/1B	
661	**Planting Trees, Shrubs, and Vines**				
661	tree seedling, (size), (species)	each	U-2	CA-D-3SM	
661	perennials, (size), (species)	each	U-2	CA-D-3SM	
661	ground cover , (size), (species)	each	U-2	CA-D-3SM	
661	deciduous shrub , (size), (species)	each	U-2	CA-D-3SM	
661	evergreen shrub, (size), (species)	each	U-2	CA-D-3SM	
661	deciduous tree, (size), (species)	each	U-2	CA-D-3SM	
661	evergreen tree, (size), (species)	each	U-2	CA-D-3SM	
662	**Landscape Watering**				

ITEM	DESCRIPTION	UNITS Required Accuracy Daily Entries	CODE	FORM	TKTS
662	landscape watering	gallon	V-7	CA-D-3SM	X
666	**Pruning Existing Trees**				
666	pruning existing trees __in to __in dia.	each	U-2	CA-D-3SM	
670	**Erosion Protection**				
670	slope erosion control	0.1 yd^2	A-1	CA-D-1A/1B	
670	ditch erosion control	0.1 yd^2	A-1	CA-D-1A/1B	
671	**Temporary Erosion Control Mats**				
671	seeding and paper blanket	0.1 yd^2	A-1	CA-D-1A/1B	

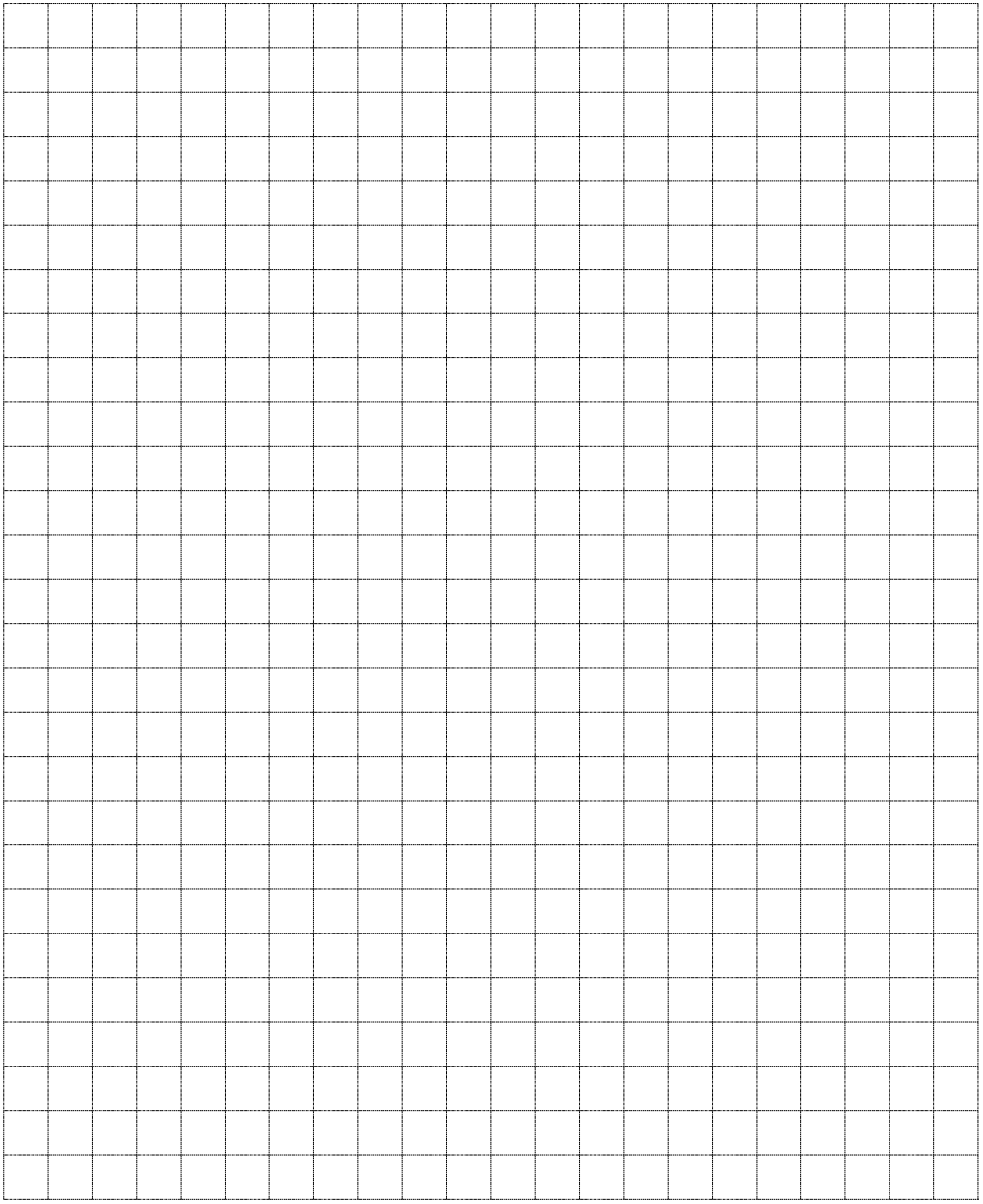
List of Forms

CA-S-1 Inspection Record for Drilled Shafts

Project No:	**Bridge No:**	**SFN:**
Drilling Contractor:	**Project Engineer:**	**Date:**
Type of Equipment:	**Inspector:**	**Item No:**
Max Continuous Torque (FtLb)(Nm):		**Cost Above Rock($/LF):**
CROWD (Max cont. Downward Force)-(Lbs)(N):		**Cost in Rock($/LF):**
Cost of Concrete pumping($/LF):		**Type of Rock:**

Drilled Shaft Number:			**Units**					
Date & Time of Drilling	**Started**		**Date**					
			Time					
	Finished		**Date**					
			Time					
Elevation of Top of Overburden			**Ft (m)**					
Length of Drilled Shafts above Bedrock Socket	**Through air**		**Ft (m)**					
	Through Overburden		**Ft (m)**					
	Pay Length		**Ft (m)**					
Obstructions Encountered	**Number**		**-**					
	Size		**Ft (m)**					
	Time of Removal		**Hours**					
Length of Drilled Shaft in the Rock Socket	**Elev. Top of Socket**		**Ft (m)**					
	Elev. Bottom of Socket		**Ft (m)**					
	Length of Socket		**Ft (m)**					
Steel Casing	**Casing Thickness**		**In(mm)**					
	Casing Left in Place		**Ft (m)**					
Reinforcing Steel	**Vertical**	**Bar Size Number**	**---**					
		No. of Bars	**---**					
	Spiral	**Bar Size Number**	**---**					
		Pitch	**In(mm)**					
Concrete	**Slump**		**In(mm)**					
	Cylinder Strength		**PSI(MPa)**					
	Air Temp		**F(C)**					
	Time to Place Concrete		**Hr**					
Tolerances	**Deviations from Plumb**	**N-S**	**In(mm)**					
		E-W	**In(mm)**					
	Deviations of column top center from plan		**In(mm)**					
Plan Shaft Diameter (Bedrock / Overburden)			**In(mm)**					
Constructed Diameter (Bedrock / Overburden)			**In(mm)**					

CA-S-1 Inspection Record for Drilled Shafts (back)



CA-S-2 Paint Thickness (QCP #5, #8, #10)

CA-S-2 **Paint Thickness**

D10, 01-07

Project No:	Bridge No:	Date:
Ref No:	Item No:	
Inspector Signature:		
Coat: ☐ Prime ☐ Intermediate ☐ Finish		
Inspection Location: ☐ Top Flange ☐ Bottom Flange ☐ Web ☐ Cross Bracing ☐ Stiffener ☐ Other		

Bridge Area = 0 - 300 (CMS 514.20.A)		

Bridge Area = 301 - 1000 (CMS 514.20.B)		

Bridge Area = 1001 to Infinity (CMS 514.20.C)							
301 - 1000			1001	2001	3001	4001	5001
6001	7001	8001	9001	10001	11001	12001	13001
14001	15001	16001	17001	18001	19001	20001	21001

Span/Beam Line										
Reading #1										
Reading #2										
Reading #3										
Total of 3 Readings:										
Spot Average (Total / 3):										
	Sum of Spot Averages=					Sum of Spot Averages=				
	Area Average (Sum of Spot Averages/5)=					Area Average (Sum of Spot Averages/5)=				

Span/Beam Line										
Reading #1										
Reading #2										
Reading #3										
Total of 3 Readings:										
Spot Average (Total / 3):										
	Sum of Spot Averages=					Sum of Spot Averages=				
	Area Average (Sum of Spot Averages/5)=					Area Average (Sum of Spot Averages/5)=				

CA-S-2 Paint Thickness (QCP #5, #8, #10) (back)

Top Section:	This section is used for general information.
Middle Section:	This section is to help you determine how many 100 square foot areas must be tested. See CM&S 514.20
Bottom Section:	This section is used to calculate and record the dry film thickness (DFT) readings on a member in a particular area. The spot averages should be compared to the minimum and maximum spot thinknesses given in the table in CM&S 514.20. The Area Averages should be compared to the minimum and maximum specified thicknesses given in the table in CM&S 514.20

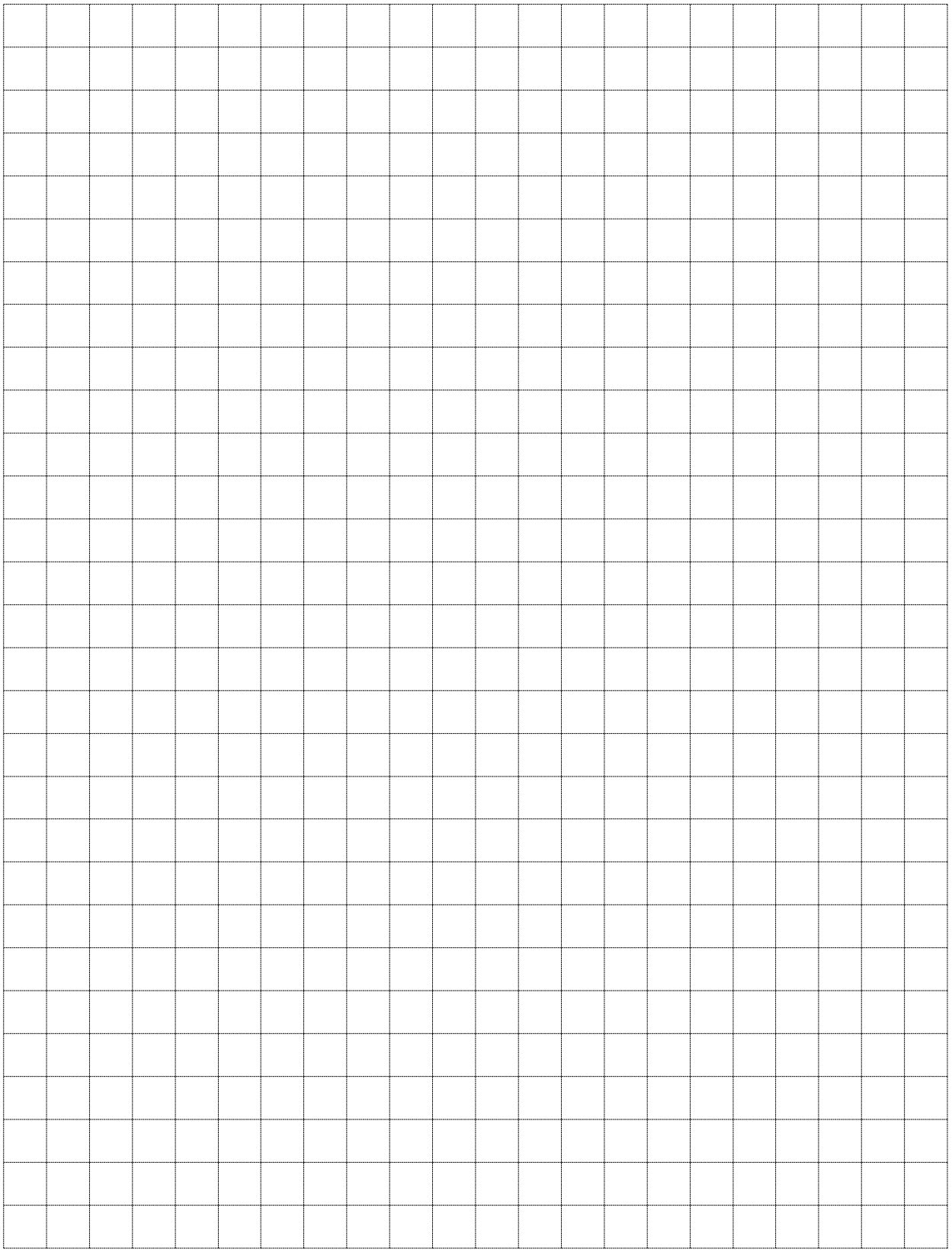
CA-S-3 (BR-2-75) Pile Driving Log

Project No:	**County/Route/Section:**
Bridge No:	**Object Bridge Over:**
SFN:	**Date:**

Substructure Unit:	**Date Driven:**	**Pile Number:**
Pile Type:	**Wall Thickness:**	**Hammer:**
Required Ultimate Bearing:	**Batter:**	**Drop Hammer Ram Weight:**
Cutoff Elevation:	**Ground Elevation:**	**No. of Splices:**

Penetration	Blows /Ft	Stroke or Pressure	Penetration	Blows/Ft	Stroke or Pressure	Remarks
Inspectors Name:				**Signature:**		

CA-S-3 (BR-2-75) Pile Driving Log (back)



CA-S-3A (BR-2-75A) Pile Driving Log Summary

BR-2-75A Revised June 2007

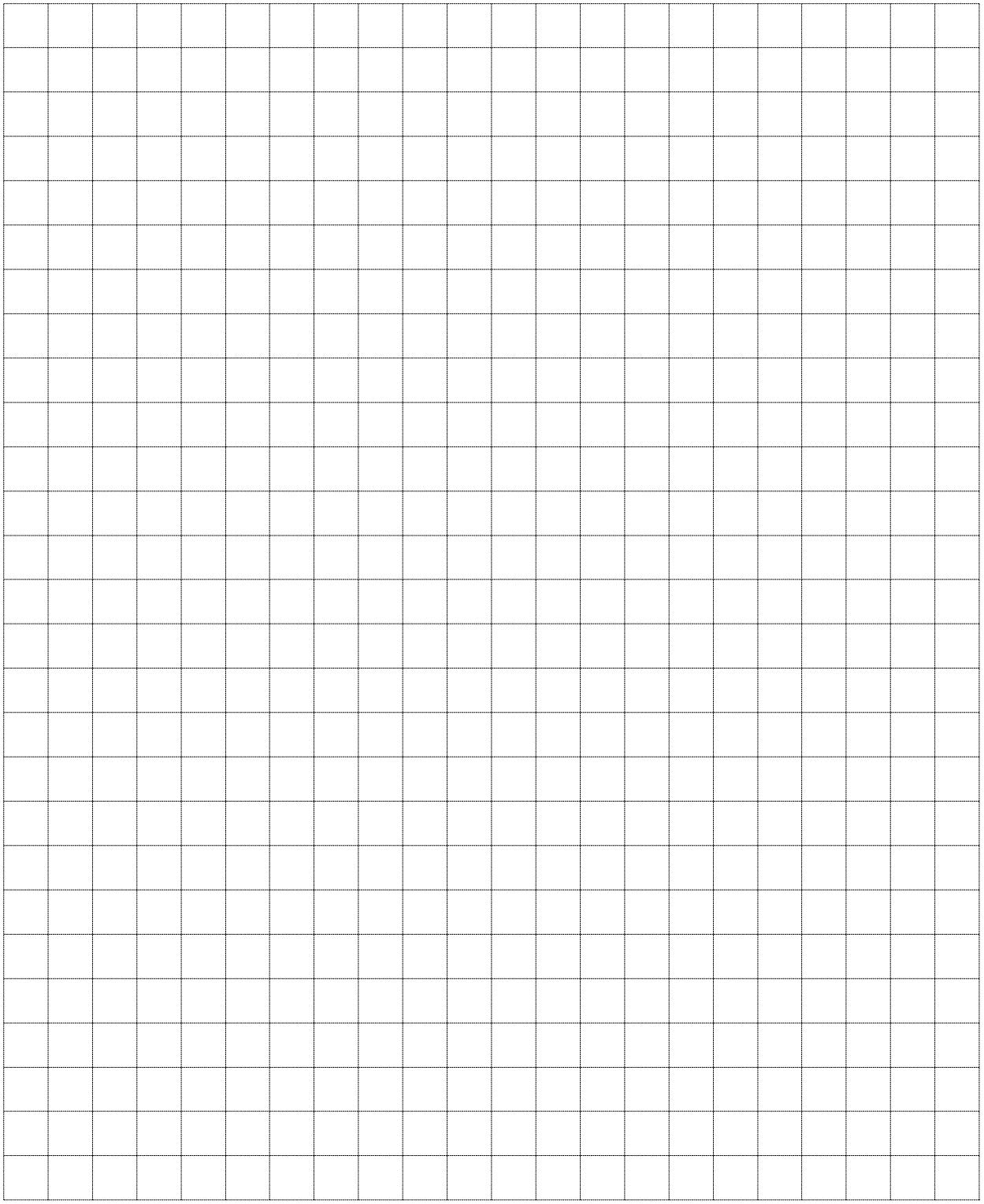
Depth in Feet	Pile Driving Log in Blows Per Feet					Depth in Feet	Pile Driving Log in Blows Per Feet				
	Pile No.__	Pile No.__	Pile No.__	Pile No.__	Pile No.__		Pile No.____	Pile No.____	Pile No.____	Pile No.____	Pile No.____
1						41					
2						2					
3						3					
4						4					
5						5					
6						6					
7						7					
8						8					
9						9					
10						50					
1						1					
2						2					
3						3					
4						4					
5						5					
6						6					
7						7					
8						8					
9						9					
20						60					
1						1					
2						2					
3						3					
4						4					
5						5					
6						6					
7						7					
8						8					
9						9					
30						70					
1						1					
2						2					
3						3					
4						4					
5						5					
6						6					
7						7					
8						8					
9						9					
40						80					

Pile No.	Total Length	Cut Off	Pay Length	Date Driven

Project Personnel _____

Date _____

CA-S-3A (BR-2-75A) Pile Driving Log Summary (back)



CA-S-4 High Performance Concrete Pre-Pour Meeting - 1/3

PROJECT: _____ DATE: _____

LOCATION: _____ TIME: _____

PRESENT: _____

_____

_____

DRY RUN:

– Check height of rail over enddams at all four corners - *Equal heights for left rear and fwd and for right rear and fwd

– Check any change in cross-slope and discuss method of performance

- Confirm appropriate depth of roller fins
- Check reinforcing steel clearances

TIME AND LOCATION OF POUR:

– Date: _____ Time:_____

– Pour to begin on _____ side and commence on the _____ side

– Location of pumps, if used

– Lighting plan if at night

PLAN AND SPECIFICATION REVIEW:

– Need a written statement, from the admixture supplier verifying the compatibility of materials, a mix design, and a batching sequence

– Need successful test pour prior to concrete placement

– A technical representative is required during concrete placement

– Calendar restrictions for flyash are waived

– Need verification of vibration frequencies on finishing machine

– No rain to be forecasted during placement; if rain occurs, operations cease

– Surface evaporation rate must be equal to or less than 0.1 pound per square foot per hour DURING the pour as determined and documented by the contractor

– Vibrators shall be used

– Mix characteristics shall be adjusted off the deck before placement

– Maximum mix temperature is 90 degrees

– 7 day water cure: 1 layer of burlap with continuous water covered with plastic sheeting, apply membrane cure as per 511.19 method (b) within 12 hours of burlap removal

– Prior to opening to traffic, check top and bottom for cracks and, if necessary, reseal from the top

– Can open to traffic after membrane cure is applied, unless between October 15 and March 30, then must wait 30 days

– Seal joints with HMWM

– Re-apply membrane cure after grooving, unless concrete is older than 30 days

CA-S-4 High Performance Concrete Pre-Pour Meeting - 2/3

PROJECT: _____ DATE: _____

CONCRETE PLANT:

– Presoak limestone 24 hours and allow to drain overnight - *Don't charge bins with dry material

– Batching to begin at _____

– Expel all water from the mixers before loading / reloading (especially important for micro-silica mixes)

– Dissolvable micro-silica bags are not allowed

– A slow ribbon feed of cement is required

– Mix 5 minutes at plant

– Pour consists of approximately _____ C.Y.

– Time between trucks _____ minutes

– Pour _____ cy./hr.

– Radio communication with plant for mix design changes

– Haul distance: _____ minutes

QUALITY CONTROL

– High Performance Concrete

– Mix no. _____

– Proportioning and batching changes are contractor's responsibility

– W/C max = 0.40, (mix 3 and 4), based on total cementitious material

– Maximum slump = 8 inches

– Air 7% ± 2

– Flyash, unless use slag, shall be type C

– Type F or G admixture is required for workability; suggest using type A for finishing advantages

– Any admixtures added at the jobsite shall be mixed a minimum of 5 minutes

– Air and slump tests are to be taken at point of placement

– Discharge time = 90 minutes

  – No "balling" of mix, if balling occurs load will be rejected and mixing process revised

CONTRACTOR'S OPERATION

– Tools

  * broom finish
  * vibrating pan or rollers
  * straightedge
  * presoaked burlap
  * plastic for bad weather protection
  * extra vibrator

CA-S-4 High Performance Concrete Pre-Pour Meeting - 3/3

PROJECT: _____ DATE: _____

CONTRACTOR'S OPERATION (Continued)

– Concrete Placement

* wet deck continuously in front of placement
* place plastic sheeting to avoid deck contamination
* straightedge checking at bulkheads and enddams
* need 2 walk-bridges (1 for finishers and 1 for burlap)
* smooth finish along curbs and/or parapets only
* burlap shall follow as close as possible to deck overlay

PROJECT INSPECTION Personnel (If available)

– Moisture tests to be run at _____

– 1 Plant Inspector

* Checking aggregate moistures
* checking revolutions
* checking no wash water, no wash down water after batching

– 2 Concrete Quality Control Testers _____

* chase air on every truck _____
* Air, slump, yield
* Cylinders made every 200 CY.
* various pump, if used, configuration correlation tests
* make beams
* check concrete temperature

– 1 Concrete Quality Control Inspector _____

* documenting any added materials
* check batch tickets
* time from start to discharge
* insuring 5 minute mixing time if materials added
* documenting test results
* fill out TE-45

– 1 Placement Inspector _____

* make depth checks
* make reinforcing steel depth checks
* insure curing is placed ASAP

MISCELLANEOUS

– Traffic Control

CA-S-4 High Performance Concrete Pre-Pour Meeting - 3/3 (back)

CA-S-5 Micro-Silica Overlay Pre-Pour Meeting - 1/3

PROJECT: _____ **DATE:** _____

LOCATION: _____ **TIME:** _____

PRESENT: _____

_____

_____

DRY RUN:

– Check height of rail over enddams at all four corners - *Equal heights for left rear and fwd and for right rear and fwd

– Check any change in cross-slope and discuss method of performance

– Confirm appropriate depth of roller fins

TIME AND LOCATION OF POUR:

– Date: _____ Time:_____

– Pour to begin on _____ side and commence on the _____ side

– Lighting plan if at night

PLAN AND SPECIFICATION REVIEW:

– The Contractor shall obtain a written statement from the manufacturer of the micro-silica admixture stating that he is satisfied with the compatibility of the combination of materials and the sequence in which they are combined.

– At the option of the laboratory, a trial batch may be made (4) four days prior to overlay

– Manufacturer representative shall be present during overlay

– No micro-silica overlays after October 15

– No rain to be forecasted during placement; if rain occurs, operations cease

– Air temperature must be below 85 degrees and not predicted to go over during concrete placement

* Must be a minimum of 45 degrees during placement and curing period

– Surface evaporation rate must be equal to or less than 0.1 pound per square foot per hour as determined and documented by the contractor

– Wet deck prior to concrete placement but no ponding

– Mix characteristics shall be adjusted off the deck before placement of the overlay

– Maximum mix temperature is 90 degrees

– Vibrators shall be used in variable depth areas, edges and along enddams or bulkheads

– During short delays, overlay and grout shall be covered with wet burlap

*Excess delays require bulkheads

– 3 day water cure: 1 layer of burlap with continuous water covered with plastic sheeting

– Contractor to stencil date of construction and the letters MS into the overlay

– Deck to be sounded after overlay to insure no delaminated areas

CA-S-5 Micro-Silica Overlay Pre-Pour Meeting - 2/3

PROJECT: _____ DATE: _____

CONCRETE PLANT:

– Presoak limestone 24 hours and allow to drain overnight *Don't charge bins with dry material

– Batching to begin at _____

– Expel all water from the mixers before loading / reloading

– Add super on jobsite if long haul distance

– Minimum of 70 revolutions on mixers before leaving plant unless central mixed

– Pour consists of approximately _____ CY

– Time between trucks _____ minutes

– Pour _____ cy./hr.

– Radio communication with plant for mix design changes

– Haul distance: _____ minutes

QUALITY CONTROL

– Modified micro-silica concrete

– W/C max = 0.36

– Slump 6 inches ± 2

– Air 8% ± 2

– Type A or D and F admixture shall be used

– Transit mixers are limited to carrying ¾ of its rated capacity or 6 cy whichever is less

– Any admixtures added at the jobsite shall be mixed a minimum of 5 minutes

– Discharge time = 90 minutes

CONTRACTOR'S OPERATION

– Tools

* broom finish, * vibrating pan or roller, * straightedge, * presoaked burlap
* plastic for bad weather protection, * extra vibrator

– Concrete Placement

* abrasive or water blast deck within 24 hours of overlay
* air blast deck immediately before overlay
* place plastic sheeting to avoid deck contamination
* straightedge checking at bulkheads and enddams
* need 2 walk-bridges (1 for finishers and 1 for burlap)

CA-S-5 Micro-Silica Overlay Pre-Pour Meeting - 3/3

PROJECT: _____ DATE: _____

PROJECT INSPECTION Personnel (If available)

– Moisture tests to be run at _____ followed by design of the mix.

– 1 Plant Inspector _____

* check moistures
* checking revolutions
* checking no wash water

– 2 Concrete Control Testers _____

* full test on every truck _____
* Cylinders as required every 50 CY
* check concrete temperature

– 1 Concrete Quality Control Inspector _____

* documenting any added materials
* check batch tickets
* time from start to discharge
* insuring 5 minute mixing time if materials added
* documenting test results
* fill out TE-45

– 1 Placement Inspector _____

* make depth checks
* Ensure curing is placed ASAP

MISCELLANEOUS

– Traffic Control

CA-S-5 Micro-Silica Overlay Pre-Pour Meeting - 3/3 (back)

CA-S-6 Superstructure Concrete Pre-Pour Meeting - 1/2

PROJECT: _____ **DATE:** _____

LOCATION: _____ **TIME:** _____

PRESENT: _____

_____

_____

DRY RUN: _____

– Check height of rail over enddams at all four corners - *Equal heights for left rear and fwd and for right rear and fwd

– Check any change in cross-slope and discuss method of performance

- Confirm appropriate depth of roller fins
- Check reinforcing steel clearances

TIME AND LOCATION OF POUR:

– Date: _____ Time:_____

– Pour to begin on _____ side and commence on the _____ side

– Location of pumps, if used

– Lighting plan if at night

PLAN AND SPECIFICATION REVIEW:

– Air temperature must be below 85^{o} and not predicted to go over during concrete placement

– Surface evaporation rate must be equal to or less than 0.2 lbs/sq. ft. per hour

– Must water cure: 2 layers of burlap with continuous water, or plastic coated/covered burlap with positive moisture seal.

– Cure (5) five days with beam test

CONCRETE PLANT:

– Presoak limestone 24 hours and allow to drain overnight

*Don't charge bins with dry material

– Batching to begin at _____

– Expel all water from the mixers before loading / reloading

– Add super on jobsite if long haul distance

– Minimum of 70 revolutions on mixers before leaving plant unless central mixed

– Pour consists of approximately _____ C.Y.

– Time between trucks _____ minutes

– Pour _____ cy./hr.

– Radio communication with plant for mix design changes

CA-S-6 Superstructure Concrete Pre-Pour Meeting - 2/2

ROJECT: _____ DATE: _____

QUALITY CONTROL (Air and Slump tests to be checked at the point of Placement)

– Class QC2 or QC 3 Concrete – Slump 2-4 inches (6" nom. And 7" max. with addition of type F or G admixture) – W/C max = 0.44 – Type B or D admixture (retarder) to be used if over 60^{o} F.

– Air 6% ± 2

– Discharge time = 60 minutes (90 minutes with retarder)

CONTRACTOR'S OPERATION

– Tools

* broom finish, * straightedge, * wet burlap, * plastic for bad weather protection, * extra vibrator,
* weather gauges

– Concrete Placement

* air blast deck before pour
* wet forms before placement
* straightedge checking at bulkheads and enddams
* need 2 walk-bridges (1 for finishers and 1 for burlap)
* Groove as per 511.20
* smooth finish along curbs and/or parapets only
* wet burlap shall follow immediately after finishing

PROJECT INSPECTION Personnel (if available)

– Moisture tests to be run at _____

followed by design of the mix.

– 1 Plant Inspector: _____

* writing tickets, * checking revolutions, * checking no wash water

– 2 Concrete Control Testers _____

* chase air on every truck, * various pump, if used, configuration correlation tests
* make beams, * check concrete temperature

– 1 Concrete Quality Control Inspector _____

* documenting any added materials, * checking rev's
* documenting test results, * fill out TE-45

– 1 Placement Inspector _____

* make depth checks, * make reinforcing steel depth checks
* insure curing is placed ASAP without marring surface

MISCELLANEOUS

– Traffic Control

CA-S-7 QCS Inspection Documentation

Name (print clearly): _____
Project: _____ **Bridge (Co, Rt, Section):** _____
Area Inspected (ie span, beam lines etc.): _____

_____

Item(s) Inspected:

- □ QCP1, Removing asphalt cement, oil, grease, etc.
- □ QCP2, Grinding flange edges
- □ QCP3, Abrasive blasting
- □ QCP4, Containment/Waste disposal
- □ QCP5, Prime coat application
  - □ Surface cleaned prior to application of coating
  - □ Coating thickness
- □ QCP6, Removing fins, tears, & slivers
- □ QCP7, Washing of shop primer
- □ QCP8, Intermediate coat application:
  - □ Surface cleaned prior to application of coating
  - □ Coating thickness
- □ QCP9, Caulking
- □ QCP10, Finish coat application:
  - □ Surface cleaned prior to application of coating
  - □ Coating thickness
- □ QCP11, Final review:
  - □ All required patching performed
  - □ Surface cleaned
- □ Compressor checked - Time: _____
- □ New grit checked for oil

The above checked item(s) have been inspected by me and found to be in complete compliance with the requirements of the specifications.

Signature: _____ Date: _____

CA-S-7 QCS Inspection Documentation (back)

Area Inspected:	This should be very specific. If a defect occurs we need to be able to validate that the Quality Control Specialist (QCS) signed of for the work in this area. It may require that you measure from a fixed part of the structure (i.e. from the east abutment to 6 feet west of Pier #1).
QCP #5, #8, #10:	Each of these Quality Control Points (QCP) will need two separate sign offs. One prior to applying the coat of paint to ensure proper surface cleanliness and one after applying the coat of paint to ensure proper dry film thickness.
Compressor check:	This is only applicable when performing QCP #3 abrasive blasting or when performing QCPs #5, #8 and #10 if a conventional (non-airless) spray gun is used.
Grit check for oil:	This is only applicable when performing QCP #3 abrasive blasting

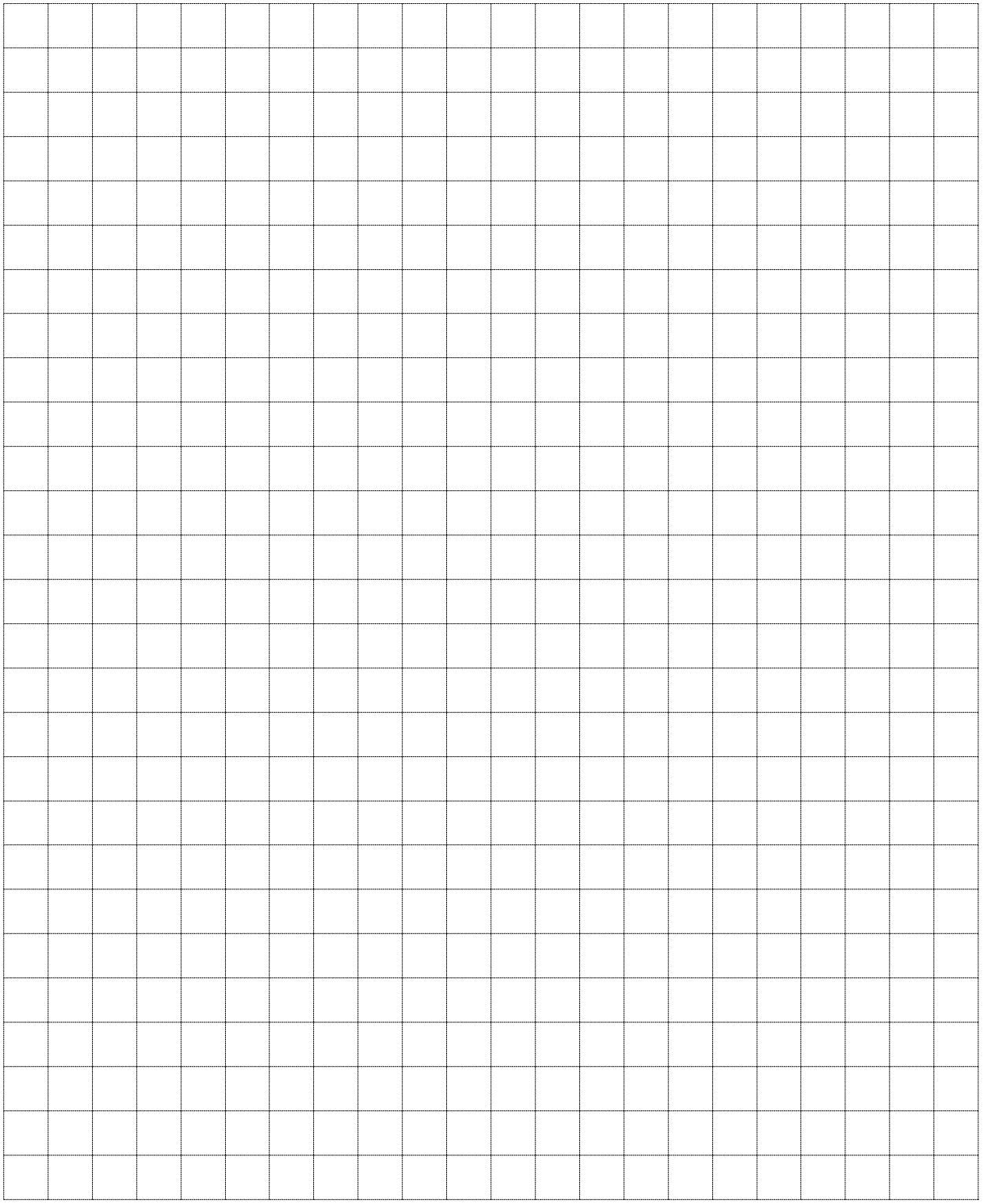
CA-S-8 (BR-5) Piling Record

Project No:	**County/Route/Section:**
Bridge No:	**Object Bridge Over:**
SFN:	**Date:**

Substructure Unit:	**Date Driven:**	**Hammer:**
Pile Type:	**Required Resistance:**	
Required Ultimate Bearing:	**Batter:**	**Drop Hammer Ram Weight:**
Cutoff Elevation:	**Ground Elevation:**	

Pile Number	Pile Length	Blows/Ft at end of Driving	Stroke or Pressure at end of Driving	Batter	No. of Splices	Remarks
Inspectors Name:				**Signature:**		

CA-S-8 (BR-5) Piling Record (back)



CA-S-11 QCS & Visual Standards Information

Diary Date _____

Page _____ of _____

Quality Control Specialist

Names/Names _____

Formal Training by _____

Dates of Training _____

Note: Obtain copy of training certificate for project records.

QCS listed on Office of Construction Administration Website? _____

REMARKS: _____

_____

_____

Test Section of Abrasive Blasting (Job Site Visual Standards)

Bridge Number _____ Proj. Number _____

Location _____

Test Section compared to SSPC Visual Standards? _____

Substrate Deduction _____

Surface Profile _____

Test Section Approved? _____

Photos taken? _____

Attach Replica Tape

Signature _____ Date _____

REMARKS: _____

_____

_____

CA-S-11 QCS & Visual Standards Information (back)

Quality Control Specialist: It is not necessary to document training credentials of the Quality Control Specialist (QCS) as long as they are listed on the Office of Construction Administration website.

Test Section of Abrasive Blasting: Where asked to list the SSPC Visual Standards that were used for comparison make sure you include the condition indicator (i.e. B-SP-10)

CA-S-12 Bridge Painting Quality Control Points (QCP #1 & #2)

03-05

Diary Date _____

Page ____ of ____

QCP #1: Solvent Cleaning

Bridge Number _____ Proj. Number _____

Location _____

_____

Solvent Cleaning

Product Used _____

Washing

Potable Water Yes _____ No _____

Nozzle Pressure _____ (1000 psi min.)

Delivery Rate _____ (4 gal/min. minimum)

Reference Number _____ Total Square Feet _____

Signature _____ Date _____

REMARKS: _____

_____

_____

_____

_____

QCP #2: Grinding Flange Edges

Bridge Number _____ Proj. Number _____

Location _____

_____

_____

Method of Measruement: Grinding of all 4 bottom flange edges along one linear foot of beam costitutes one linear foot for payment.

Reference Number _____ Total Lineal Feet _____

Signature _____ Date _____

REMARKS: _____

_____

_____

_____

_____

CA-S-12 Bridge Painting Quality Control Points (QCP #1 & #2) (back)

QCP #2: Grinding Flange Edges: This item is usually considered incidental to the abrasive blasting. If it is to be quantified and paid for separately, there will be a bid item set up in the contract documents.

CA-S-13 Abrasive Blasting (QCP#3)

03-05

Diary Date _____

Page _____ of _____

Bridge Number _____ Proj. Number _____

Location _____

All dirt, debris, etc removed from scuppers, bulb angles, and abutment seats? _____

Containment in accordance with Contract Documents? _____

Adjacent areas covered and protected? _____

All testing equipment available? _____

Washing facility provided? _____

Atmospheric and Equipment Conditions

Time							
Dry Bulb Temperature							
Wet Bulb Temperature							
Dew Point							
Steel Temperature (at least 5° above dew point)							
Contamination Test on air OK? (test every 4 hours)							
Contamination Test on grit OK? (test every 4 hours)							

REMARKS _____

Type of Steel Grit and Size _____

Blasted area inspected by QCS? _____

Time _____

Inspection access in conformance with Contract Documents? _____

Average Surface Profile _____ (1.5 - 3.5 mil)

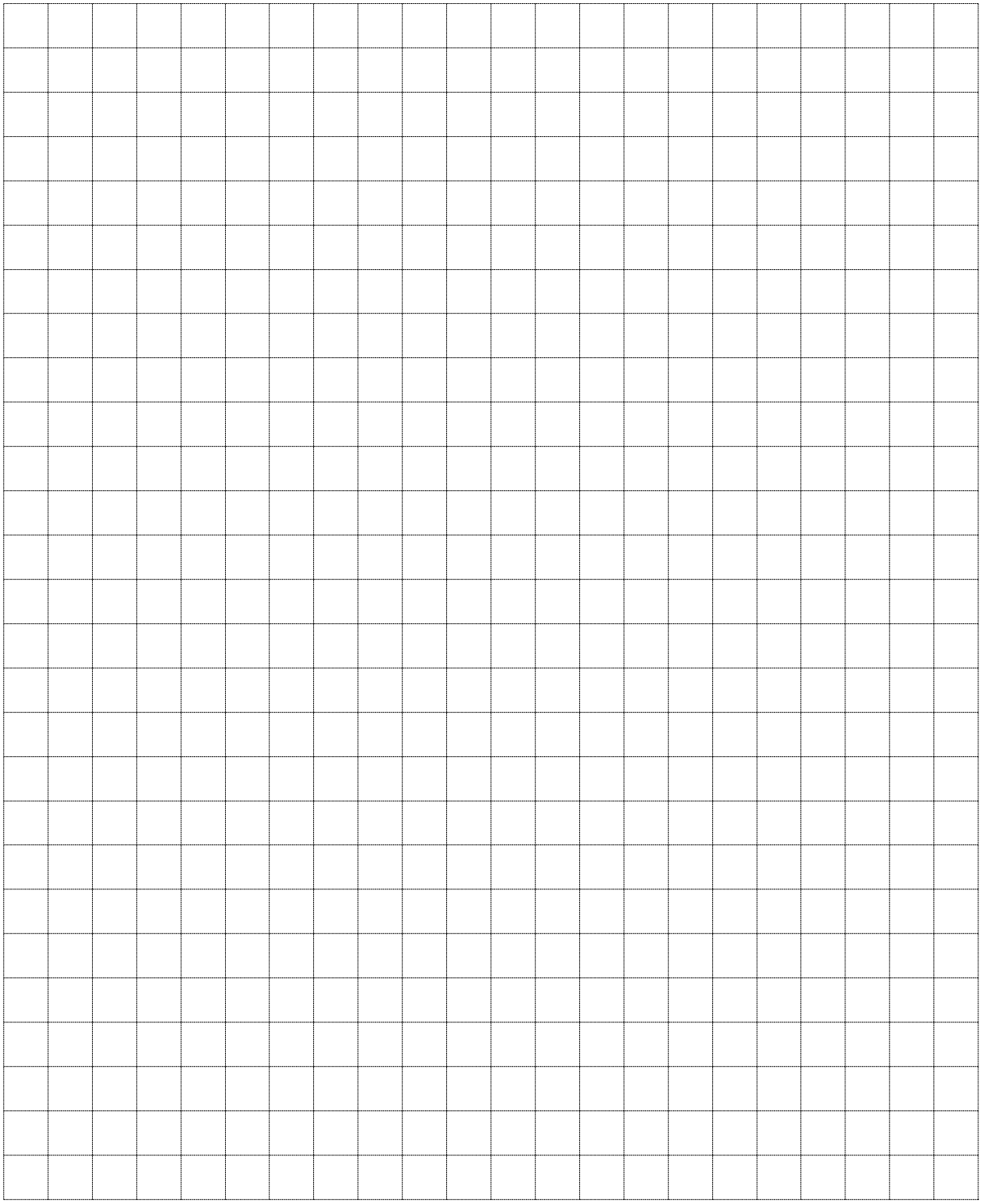
QCP #3 Completed and Accepted? _____

Reference Number _____ Quantity or Lump Sum Amount _____

Signature _____ Date _____

REMARKS: _____

CA-S-13 Abrasive Blasting (QCP#3) (back)



CA-S-14 Disposal of Hazardous / Non- Hazardous Waste for Bridge Painting (QCP#4)

Project Number _____ Bridge Number _____

Date Abrasive Residue First Generated _____

Date Abrasive Residue Sampled by Testing Laboratory _____

(Within first week of production)

Type of Storage at Bridge Site _____

(Steel dumpster or steel drums, each with **LOCKED LIDS**)

Testing Laboratory: Name _____

Address _____

_____

Sampler's Name _____

Date Test Results & Chain of Custody Received _____

Test Results (Hazardous or Non-Hazardous?) _____

Date Test Results & Chain of Custody Sent to Central Office _____

Date Generator Number Received from Director (Hazardous Waste only) _____

Hazardous Waste Hauler (licensed by U.S. EPA)

Name _____

Address _____

_____

_____

Hazardous Waste Landfill

Name _____

Address _____

_____

_____

Non-Hazardous Waste Hauler

Name _____

Address _____

_____

_____

Non-Hazardous Waste Landfill

Name _____

Address _____

_____

_____

Waste containment and waste removal shall abide by all **FEDERAL, STATE and LOCAL ENVIRONMENTAL PROTECTION LAWS, REGULATIONS and ORDINANCES.**

Date Hazardous/Non-Hazardous Waste Removed from Bridge Site _____

Date Completed Waste Removal Manifest Received _____

Signature _____

Date _____

CA-S-14 Disposal of Hazardous / Non-Hazardous Waste for Bridge Painting (back)

CA-S-15 Prime Coat Application (QCP#5)

01-06

Diary Date _____

Page _____ of _____

Bridge Number _____ Proj. Number _____

Location _____

_____

Containment in accordance with Contract Documents? _____

All testing equipment available? _____

Blasted area inspected by QCS? _____

Time _____

Abrasives and residue removed and surfaces clean? _____

Atmospheric and Equipment Conditions

Time							
Dry Bulb Temperature							
Wet Bulb Temperature							
Dew Point							
Humidity							
(not greater than 85%)							
Steel Temperature							
(at least 5° above dew point)							
Paint Temperature							
OK TO PAINT?							

REMARKS _____

Paint Handling

Paint container markings checked? _____

Shelf life checked, paint acceptable? _____

Oldest on hand used first? _____

Mixing with high shear mixer? _____

"Sweat-In" time _____

(see manufacturer's recommendations)

Primer continuously agitated? _____

Thinner needed? _____

Paint Application

Type of application? (brush or spray) _____

If spray, airless or air spray? _____

Spray gun test acceptable? _____

Spray equipment clean? _____

Spray pattern checked? _____

Spray operator's ability acceptable? _____

Traps and separators used? (air spray only) _____

Paint Batch Numbers _____

Gallons used today _____

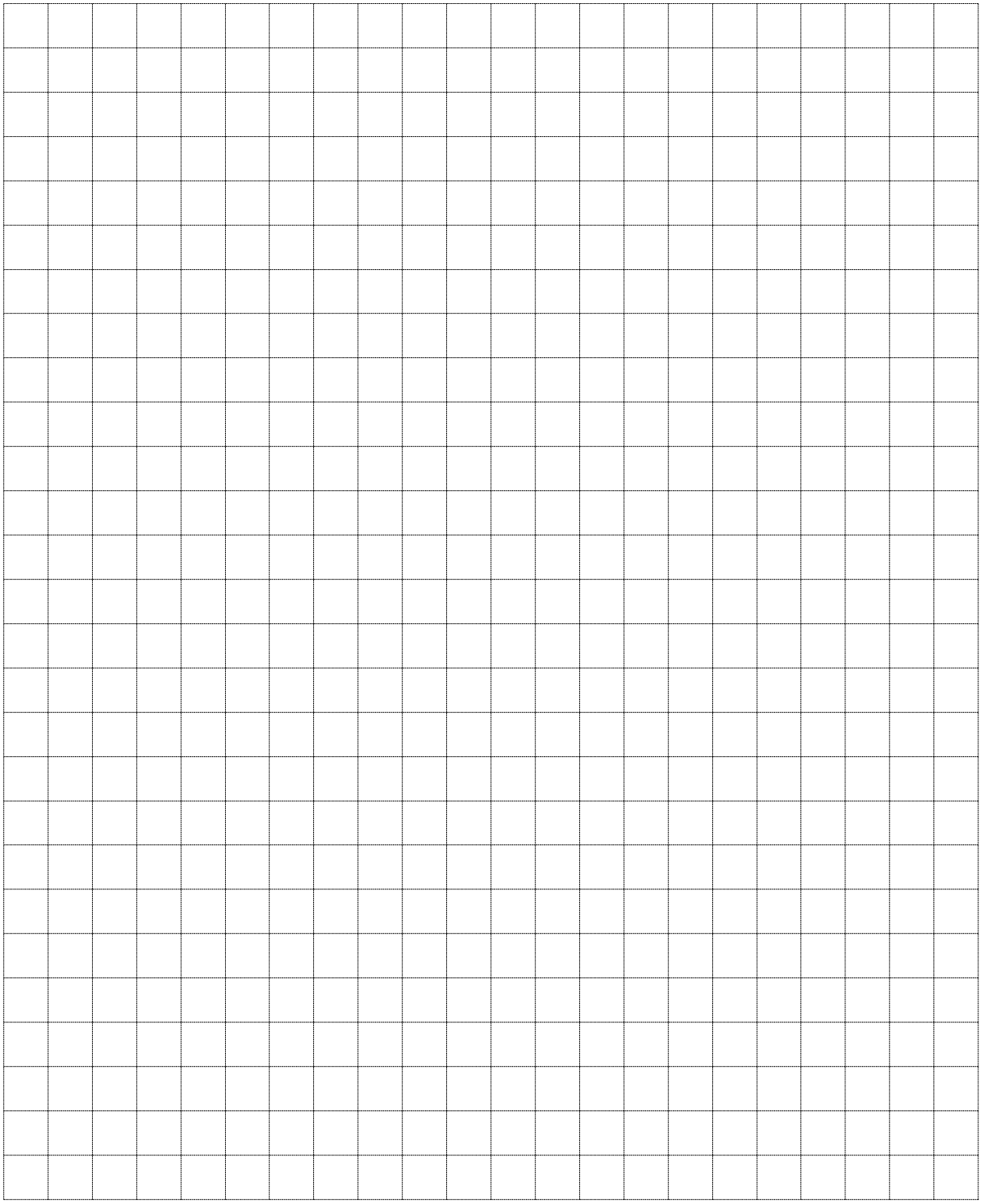
Date to overcoat (+30 days for OZ only) _____

Reference Number _____ Quantity or Lump Sum Amount _____

Signature _____ Date _____

REMARKS: _____

CA-S-15 Prime Coat Application (QCP#5) (back)



CA-S-16 Bridge Painting: Grinding Fins, Tears, and Slivers; and Caulking (QCP #6, #9)

03-05

Diary Date _____

Page ____ of _____

QCP#6: Grinding Fins, Tears, and Slivers

Bridge Number _____ Proj. Number _____

Location _____

_____

Number of workers actually grinding _____

Hours of grinding: Start _____ Stop _____

Repairs made to prime coat? _____

QCP #6 Completed and Accepted? _____

Reference Number _____ Total Man Hours _____

Signature _____ Date _____

REMARKS: _____

_____

_____

QCP #9: Caulking

Bridge Number _____ Proj. Number _____

Location _____

_____

Material Used _____

All joints 1/8" wide or greater sealed? _____

Reference Number _____ Total Lineal Feet _____

Signature _____ Date _____

REMARKS: _____

_____

_____

CA-S-16 Bridge Painting: Grinding Fins, Tears, and Slivers and Caulking (QCP #6, #9) (back)

QCP #9: Caulking:

This item is usually incidental to the intermediate coat of paint. If it is to be quantified and paid for separately there will be a bid item set up in the contract documents. If it is to be paid for separately it is to be by the foot of crack which is sealed, not by the lineal feet of caulk used (i.e. it may take three beads of caulk to fill in a crack)

CA-S-17 Intermediate & Finish Coat Application (QCP #8 & #10)

03-05

Diary Date _____

Page _____ of _____

Bridge Number _____ Proj. Number _____

Location _____

_____

Containment in accordance with Contract Documents? _____

All testing equipment available? _____

Area inspected by QCS? _____

Abrasives and residue removed and surfaces clean? _____

Defects in preceeding coat corrected (holidays, runs, dry spray, etc)? _____

Atmospheric and Equipment Conditions

Time							
Dry Bulb Temperature							
Wet Bulb Temperature							
Dew Point							
Humidity							
(not greater than 85%)							
Steel Temperature							
(at least 5° above dew point)							
Paint Temperature							
OK TO PAINT?							

REMARKS: _____

Paint Handling

Paint container markings checked? _____

Shelf life checked, paint acceptable? _____

Oldest on hand used first? _____

Mixing with high shear mixer? _____

"Sweat-In" time _____

(see manufacturer's recommendations)

Thinner needed? _____

Paint Application

Type of application? (brush or spray) _____

If spray, airless or air spray? _____

Spray gun test acceptable? _____

Spray equipment clean? _____

Spray pattern checked? _____

Spray operator's ability acceptable? _____

Traps and separators used? (air spray only) _____

Paint Batch Numbers _____

Gallons used today _____

Date to overcoat (+13 days) _____

Reference Number _____ Quantity or Lump Sum Amount _____

Signature _____ Date _____

REMARKS: _____

CA-S-17 Intermediate & Finish Coat Application (QCP #8 & #10) (back)

CA-S-18 Bridge Painting Destructive Test Log (QCP #11)

10-05

Project No. _____

Evaluator _____ Structure No. _____ Test No. _____ Date _____

Test Location:

Beam _____ Span _____ Bay _____ Area _____
(web, x-frame, etc.)

Condition Before Testing:

Good Slight Rust Rust Grit Old Paint Mill Scale Other: _____

DFT Spot Reading:

Spot	Reading 1	2	3
1 (required)			
2 (optional)			
3 (optional)			

Removal Method: _____

Profile: _____

Place Replica Tape Here

Condition After Testing:

Good Slight Rust Rust Grit Old Paint Mill Scale Other: _____

Comments: _____

Sketch (optional):

Photo Log:

Photo No.	Description

CA-S-18 Bridge Painting Destructive Test Log (QCP #11) (back)

Condition before testing: This condition should generally be "Good", but it is possible that the area being tested has already started to rust or deteriorate. If this is the case, it should be indicated here.

Sketch: A sketch should be used for locations on cross frames or multi-member assemblies. This will assist in finding the test locations in the future if defects are discovered.

CA-S-19 Bridge Painting Final Review (QCP #11)

10-05

Project Number _____

Bridge Number _____

QCS _____

Inspector _____

Abrasives and residue removed and surfaces clean?

	Yes	No	Comments
Roadway			
Steel Surfaces			
Parapet Walls			
Riprap Areas			

Destructive Testing

Number of removals performed: _____

Number of removals not in complete conformance with the specifications and pertinent contract documents: _____

Percent of removals not in complete conformance: _____

Project Documentation:

Is all required documentation for all painted areas under consideration in order? _____

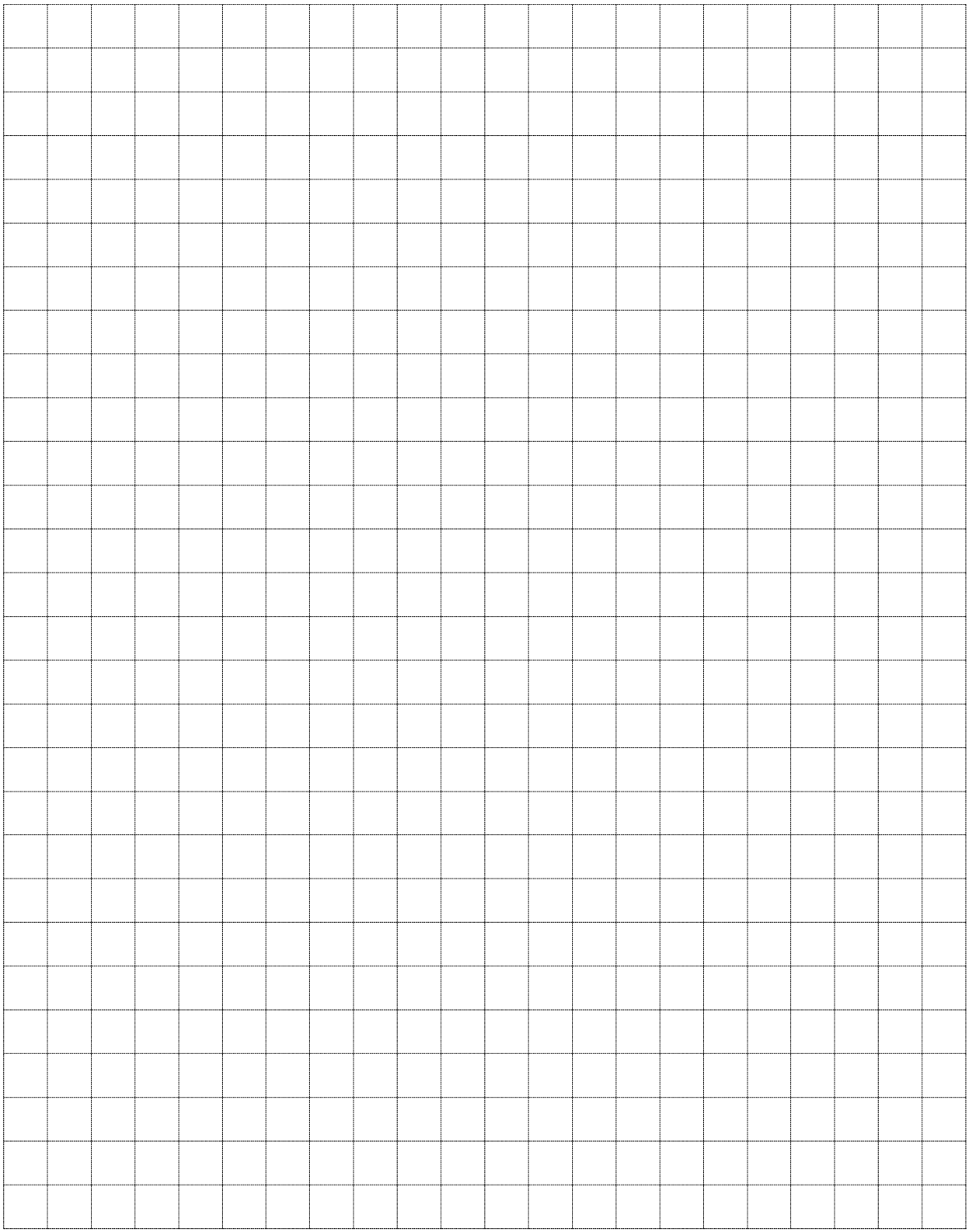
Comments: _____

Final Acceptance: Granted or Rejected

Signature _____

Date _____

CA-S-19 Bridge Painting Final Review (QCP #11) (back)



CA-S-20 Erection (Demolition) Procedure Checklist

Name (print clearly): _____

Project: _____ Bridge (Co, Rt, Section): _____

Description: _____

Items Inspected:

Plan:

□ Contractor's Erection (Demolition) Plan stamped by two PE's.

□ Contractor's Erection (Demolition) Plan accepted by regulatory agencies, Railroads, Coast Guard, U.S. Army Corps of Engineers, etc., if applicable.

Details:

□ Erection (Demolition) sequence for all members.

□ Maintenance of Traffic during erection (demolition) operations.

□ Location of permanent support structures, roads, railroads, waterways, utilities.

□ Member delivery location and orientation for erection.

□ Member removal location and orientation for demolition.

□ Location and radius of each crane during each pick.

□ Location of crane support (barges, mats, etc.) , during each pick.

□ Crane capacities shown for each crane configuration and boom length used.

□ Lifting weights of primary member picks, including all rigging.

□ Rigging weights, capacities, and arrangements for primary member picks.

□ Locations of the centers of gravity and lifting points for primary members.

□ Temporary supports or bracing.

□ Blocking for bridge bearings.

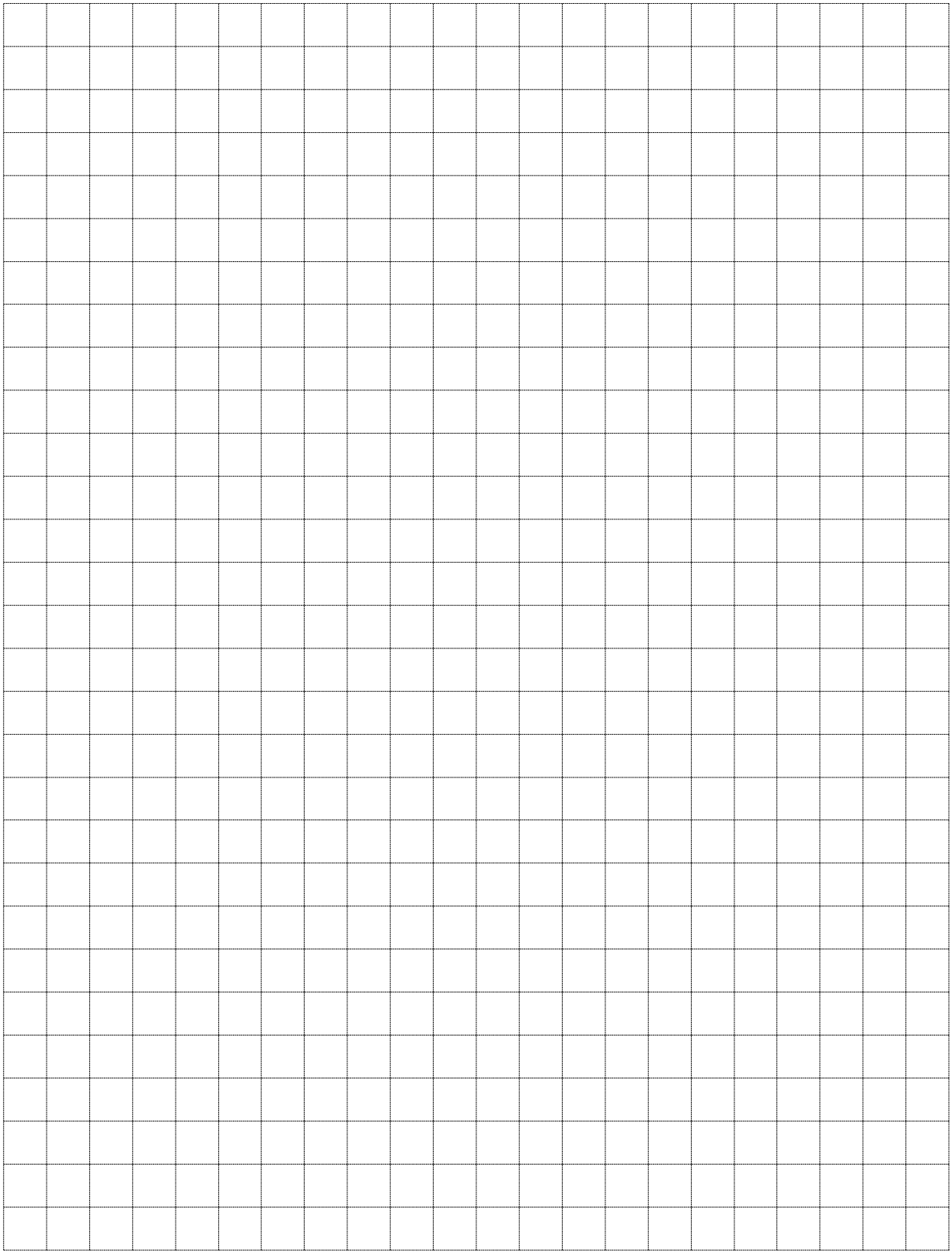
Calculations:

□ Load capacity and stability of crane(s), temporary supports and rigging for each pick and release.

□ Structural adequacy and stability of members for each erection (demolition) step.

Signature: _____ Date: _____

CA-S-20 Erection (Demolition) Procedure Checklist (back)



CA-S-21 Sealing of Concrete Surfaces Checklist

Name (print clearly): _____
Project: _____ Bridge (Co, Rt, Section): _____
Description: _____
Items Inspected:

Storage:

□ Thermometer to check for manufacturer's acceptable range

□ Sealer stored not frozen nor in sun

□ Shelf life

Submittals made:

□ Technical and application data

□ Material Safety Data Sheet

□ 100 Grit Sandpaper supplied by Contractor for comparison

Equipment for proper preparation:

□ Correct water blast equipment (7000 psi minimum)

□ Correct abrasive blast equipment (followed by cleaning)

Equipment mixing and application:

□ Equipment meets manufacturer's requirements:

Surface Preparation, clean concrete with 100 grit sandpaper texture:

□ Test site set up

□ Test all surfaces, (not just vertical)

□ Surface checked for texture

□ Acid Test performed if curing compound used

Mixing:

□ Material used within manufacturer's shelf life □ Mix time and pot life marked

□ Mixed per manufacturer's recommended procedures

Application:

□ Conditions acceptable

□ Material applied within pot life

□ Minimum coating rates met in test sections

- Epoxy – 120 Ft^2/gal, (150 Ft^2/gal if authorized)
- Urethane - 200 Ft^2/gal,(even coverage, no skips or sags)
- Non-Epoxy – 100 Ft^2/gal, Decks, 125 Ft^2/gal, Vert. Surfaces

Signature: _____ Date: _____

CA-S-21 Sealing of Concrete Surfaces Checklist (back)

CA-S-22 Bridge Deck Concrete Placement Dry Run Form (Outline)

Name (print clearly): _____

Project: _____ Bridge (Co, Rt, Section): _____

Description Side/Phase):_____

Record of measurements of Deck thicknesses, Reinforcing Steel clearances, under rollers of deck finishing machine during dry run.

Plan Deck Thickness_____

(Abutment, Pier, Span Point, Splice, Joint)								

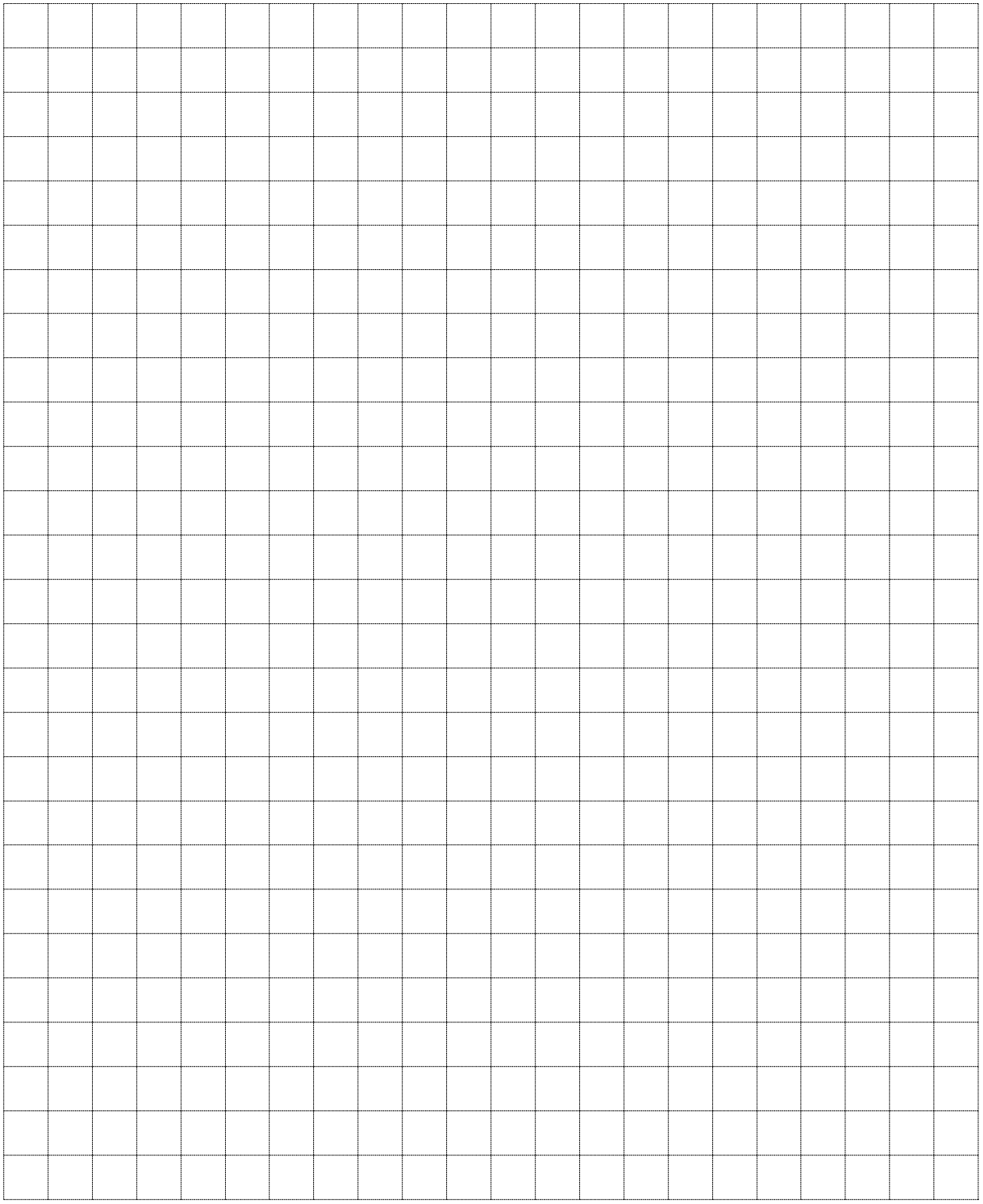
□ Check Frequency of Vibrating Pan or Roller

□ Check Depth of Roller Fins

Use other forms of documentation as necessary

Signature:_____ Date:_____

CA-S-22 Bridge Deck Concrete Placement Dry Run Form (Back)



CA-S-30 Reinforcing Steel Verification

Revised 01-2007

Project No.: _____ Reference No.: _____

Structure No.: _____ Participation Code No.: _____

Item No. & Desc.: _____

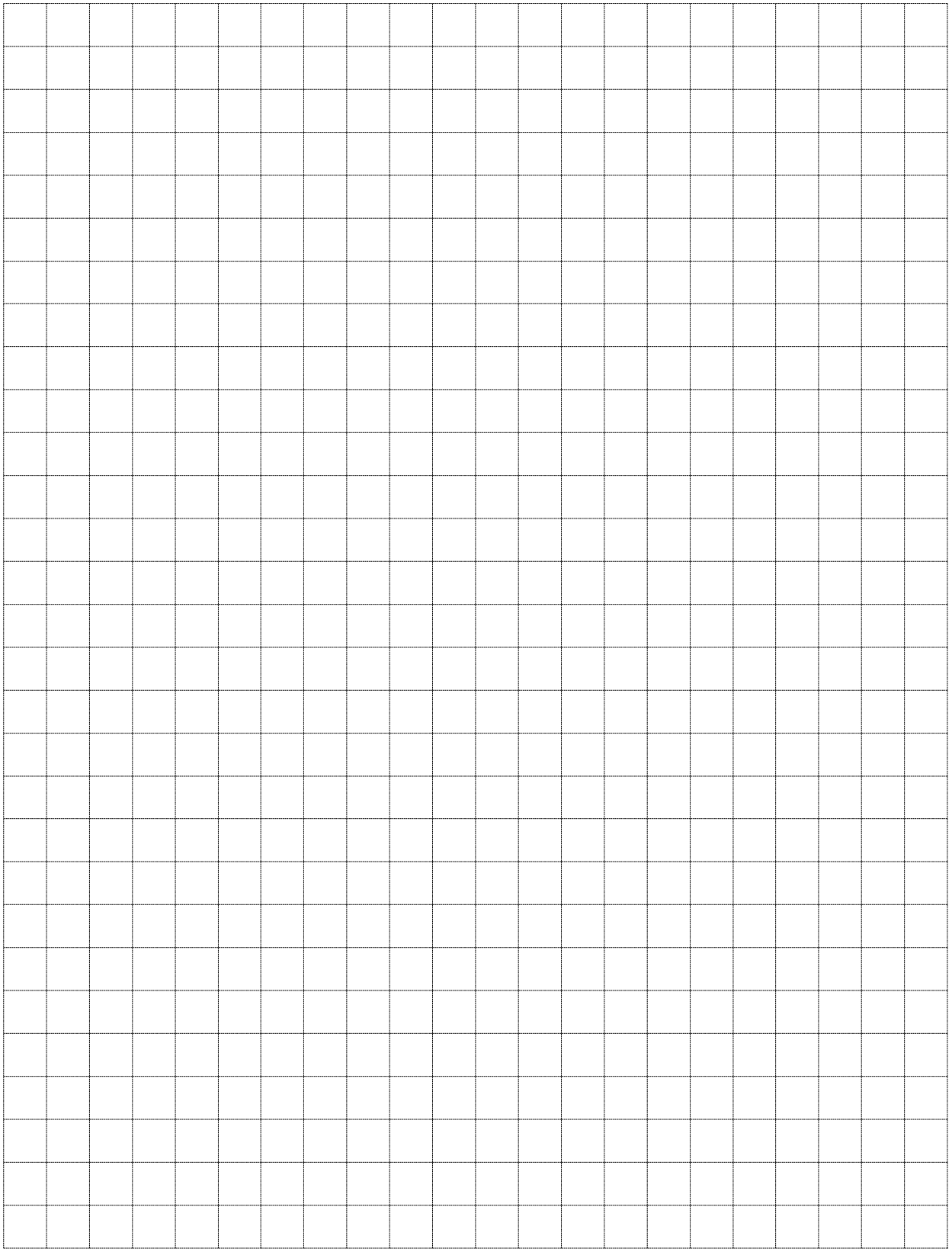
Contract Quantity: _____ Unit: _____ Unit Price: _____

Bar Mark or Number	As per Plan No. of Bars	Date	No. Bars Installed	Date	No. Bars Installed	Date	No. Bars Installed	Date	No. Bars Installed	Total No. of Bars Installed

_____ _____

Inspectors Signature Date

CA-S-30 Reinforcing Steel Verification (back)



CA-S-31 Air Tests for Superstructures

Revised 01-2007

Project No.: _____ Co./Rt./Sec.: _____ Date: _____

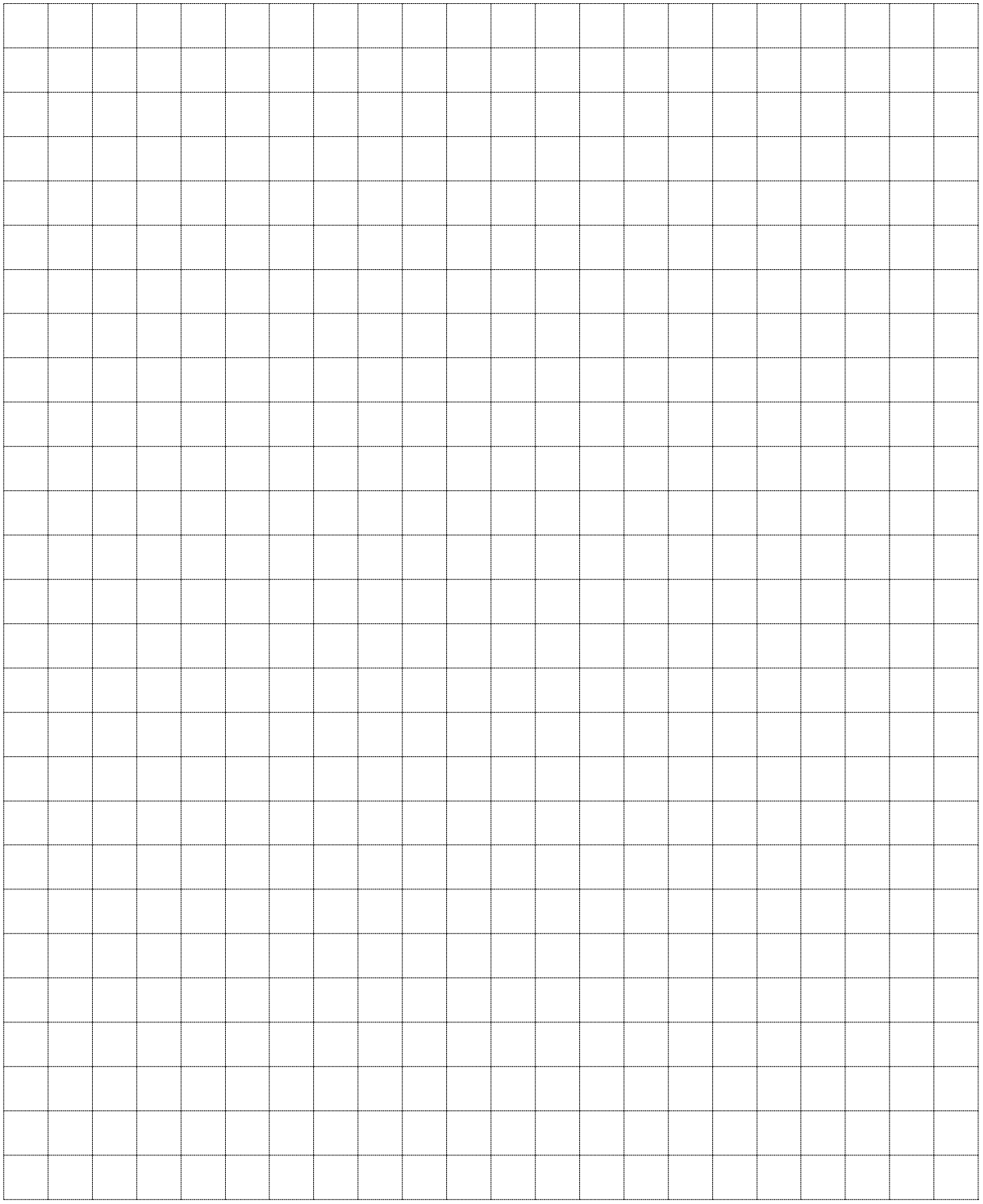
Producer: _____ Structure No.: _____ Conc. JMF: _____

Class Conc.: _____ A.E. Agent: _____ Cem. Type: _____

Batch No.	% Air	Oz. Agent Used per C.Y.	Type of Meter ("Pressure" or "Chase")	Remarks

NOTE: At least one air test to be performed on each load of concrete.

CA-S-31 Air Tests for Superstructures (back)



CA-S-32 Structure Temperature Records

Revised 01-2007

Project No.: _____ Co./Rt./Sec.: _____

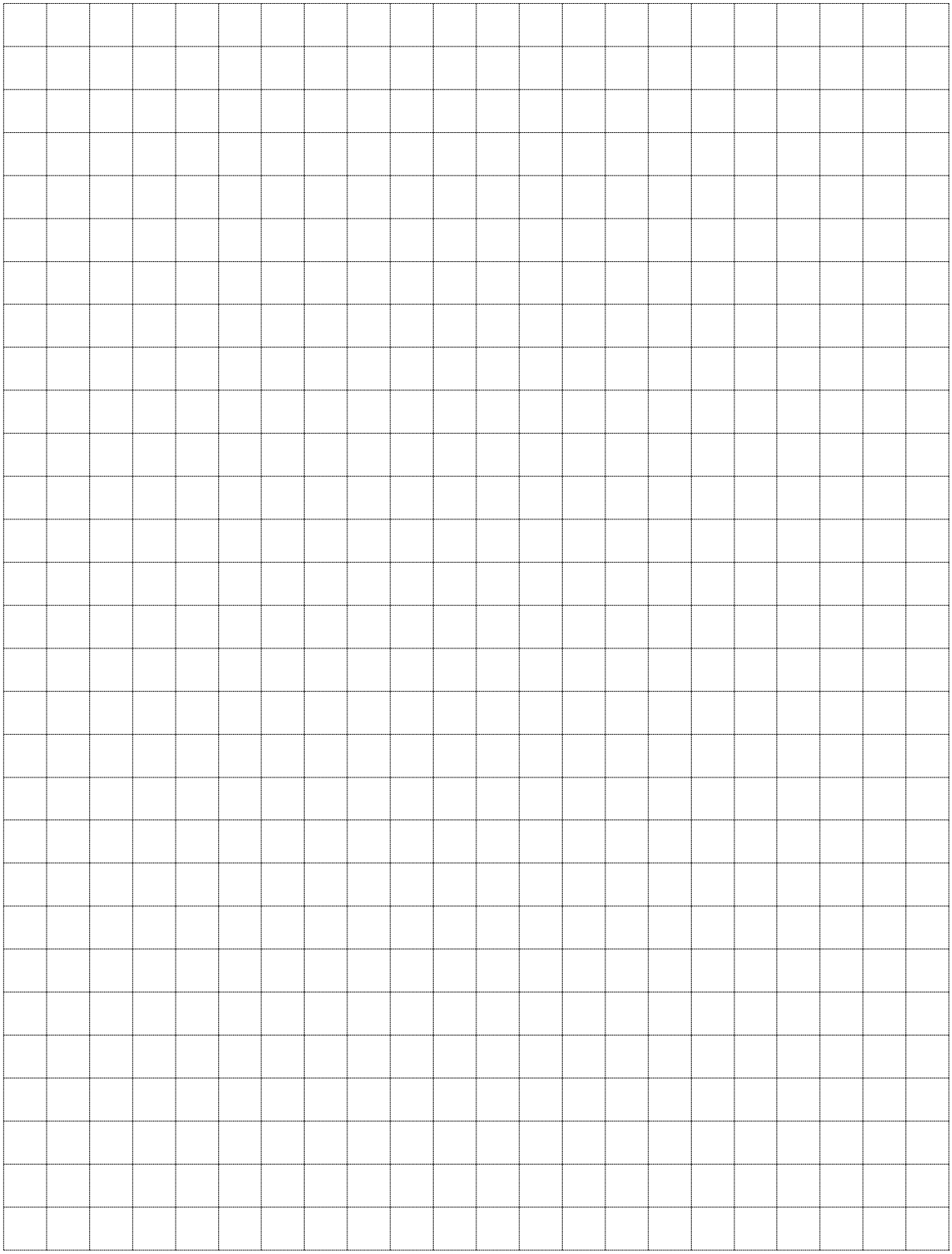
Pour Location: _____ Type of Heaters Used: _____

Date	Time	Enclosure Temp.		Outside Temp.	Signature of Inspector Reading Temperatures	Remarks
		Max	Min			

_____

Project Engineer / Supervisor

CA-S-32 Structure Temperature Records (back)



CA-C-1 Concrete Control Test Form

Project No.: _____ Co./Rt./Sec.: _____

Name: _____ Date: _____ Truck No.: _____

Arrival Time: _____ Discharge Time: _____

Placement Description: _____

Placement Location: _____

Cylinder Sample Numbers: _____ Class ____ Concrete

Full Pot Weight = (+) _____ lbs.

Empty Pot Weight = (-) _____ lbs.

Concrete Weight = _____ lbs.

Air Pot Factor = × _____

Weight of One Cubic Foot (Unit Weight) = _____ lbs / ft^3

Batch Weight

Fine Aggregate Weight:	_____	lbs /	_____	yd^3 =	_____	lbs
Coarse Aggregate Weight	_____	lbs /	_____	yd^3 =	_____	lbs
Cement Weight	_____	lbs /	_____	yd^3 =	_____	lbs
Water Batch Weight	_____	lbs /	_____	yd^3 =	_____	lbs
Additional Weight	_____	lbs /	_____	yd^3 =	_____	lbs
			One Cubic Yard Batch Weight	=	_____	lbs

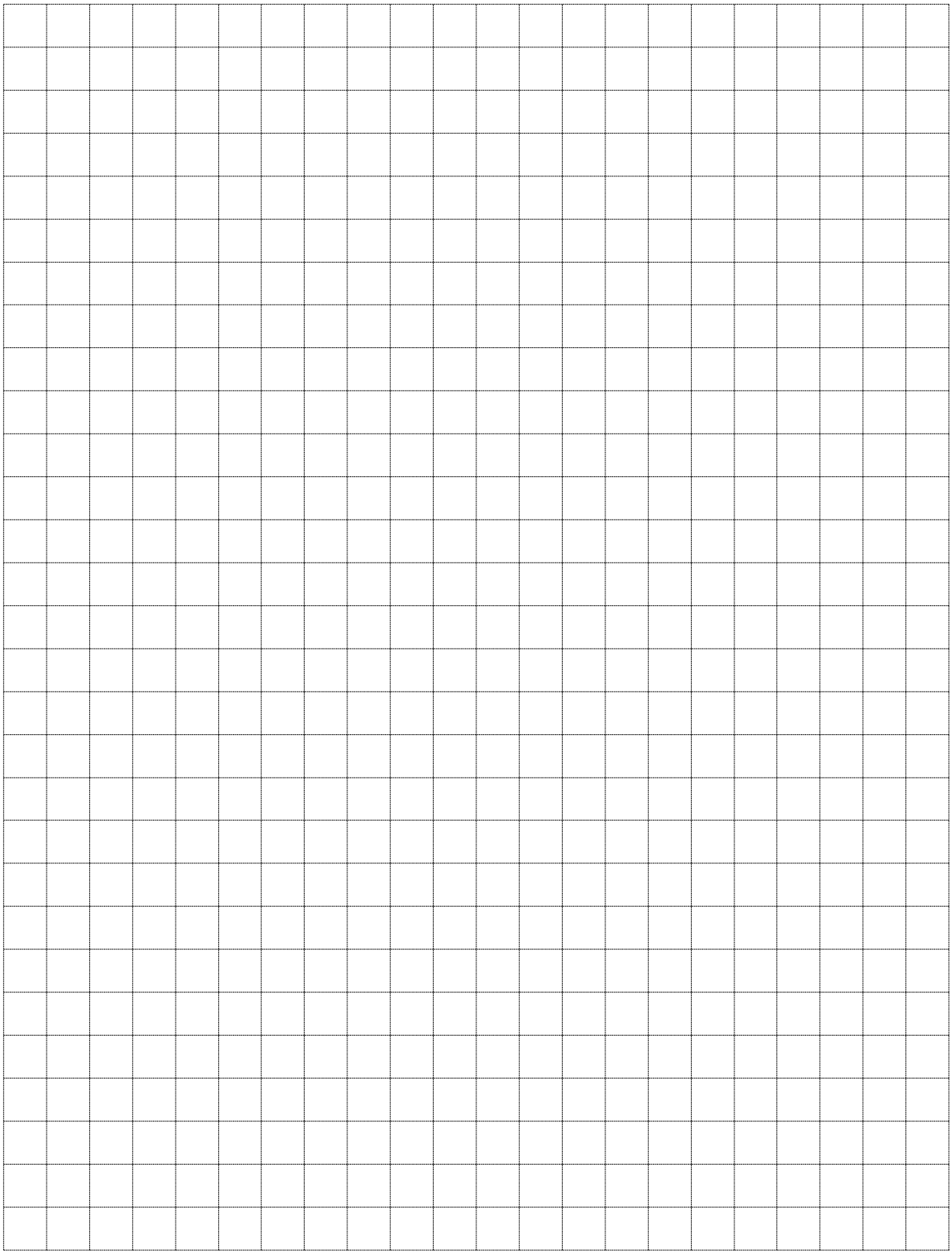
Yield Test Results

$$Yield = \frac{One\ Cubic\ Yard\ Batch\ Weight}{Unit\ Weight\ of\ the\ Sample} =$$

_____ Cubic Feet

Air = ____ % , Slump = _____ inch , Air Temp. = ____ , Concrete Temp.= _____

CA-C-1 Concrete Control Test Form (back)



CA-C-2 QC/QA Concrete QCP Checklist – 1/4

Project No.: _____ Co./Rt./Sec.: _____

Contractor: _____

Submission Date: _____ Original Approval Date: _____

A. Basic Information

	1.	The name and location of the Department inspected and approved concrete producer.
	2.	The Department accepted Job Mix Formula (JMF) to be used for each item.
	3.	The name and accreditation of the AMRL Accredited Laboratory to be used for testing the strength samples for structures or pavements.
	4.	Name of the person(s) who is responsible for compliance with the QCP; acting as liaison to the Department; reporting any non-specification test results and assuring that adjustments are made to remedy problems.
	5.	Names of all technicians who will perform plant or field site inspection, sampling and testing. Use ACI Grade I certified technicians to perform concrete sampling and testing. Provide copies of their ACI certificates.
	6.	Calibration records of test equipment to be used on the project.
	7.	Develop and provide example forms for reporting QC test results to the Engineer conforming to 455.03.C or 455.04.G.

CA-C-2 QC/QA Concrete QCP Checklist - 2/4

B. Minimum Quality Control at the Concrete Source

	1. Verify that the material sources are certified for the type of work in which they are to be used.
	2. Verify that aggregates, cementitious materials and admixtures sources and design weights match the proposed JMF.
	3. Describe how aggregates will be hauled, stockpiled and handled to minimize segregation, avoid contamination, and assure a uniform gradation.
	4. Describe procedures and frequency used to control and measure aggregate moistures.
	5. Provide the batching sequence and mixing procedures to be used to assure that material balling does not occur.
	6. Describe how adjustments to the SSD aggregate design weights in the JMF are made to compensate for moisture contained in the aggregates during batching.
	7. Describe how adjustments to mix water will be made to compensate for aggregate moistures to assure the JMF's water-cementitious ratio (W/Cm) is not exceeded.
	8. Define how the batching tolerances of 499.06 are assured.
	9. Provide the information reported on the batch ticket and how it will be validated that it meets the requirements of 499.07.
	10. Describe the method and frequency of assuring that the combined aggregate gradation remains within Zone II of the Coarseness Factor Chart. If adjustments are made to the JMF proportions, provide the individual aggregate gradations, combined aggregate gradation, and verification that the proportions remain within Zone II of the Coarseness Factor Chart to the Engineer prior to placement.
	11. If using a non-potable water source, describe the procedures and frequency to verify that the water meets the requirements of ASTM C1602. a. If a reclaiming system is used, describe the method and frequency of testing to ensure that the water contains no more than 0.06% chlorides.
	12. Describe how and when the water is removed from the mixer prior to batching a new load of concrete.
	13. Describe methods to verify that the storage and dispensing methods for the admixtures comply with the manufacturer's recommendations.
	14. Describe methods to keep the concrete temperature within specifications and how to mitigate effects of changes to the set time.
	15. Define the desired slump and tolerance for concrete in each construction item.
	16. Define the acceptable yield range, testing frequency to verify that the concrete is maintained within the range.

CA-C-2 QC/QA Concrete QCP Checklist - 3/4

C. Additional Quality Control Plan Requirements for Concrete Pavement

	1. In the QCP define the lots for the project. The Engineer will approve the lot division.
	2. Provide the placement sequence and placement widths for the pavement work and determine the sublot division conforming to Supplement 1064. Provide the Engineer the proposed sublots. The Engineer will approve the sublot division.
	Material Control Requirements
	1. Check the aggregate stockpile conditions, gradation and moisture condition daily. a. Provide the name and OAIMA Level II certification of the person(s) performing the aggregate gradation. b. Define the methods of reporting results to the Engineer including whether the concrete aggregate proportions still conform to the mix's well graded requirements.
	2. For portable plants, assure that the plant is inspected by the Department prior to placing concrete. Describe the procedures and frequencies to verify the mixer blades condition and the scale, gage, meter and admixture dispenser operation.
	3. During paving, perform the following: a. Yield. Define the tolerance and determine the frequency for testing the yield. At a minimum, test the first day of paving, then every fifth day of placement thereafter. b. Air, Slump and Temperature. Sample and test the concrete at least each ½ day of operation at the placement location.
	4. Testing for opening the pavement to traffic early according to 451.18. Describe the methods to be used to assure the modulus of rupture obtains 600 psi (4.2 MPa). Define the methods to report results to the Engineer.
	Pavement Cores for Compression and Thickness. Define at what age the sublot cores for strength and thickness will be taken. Define the age the cores will be tested for compressive strength. Take strength cores at the same location as the cores for thickness determination. Determine sublot core locations according to Supplement 1064.
	1. Pavement Thickness Measurement. Define who will be measuring the pavement thickness according to Supplement 1064. Define the frequency of reporting pavement thickness results to the Engineer. When the sublot core's thickness is deficient, follow the requirements of 451.18 for additional core locations to determine the deficiency's limits.
	2. Define how the Engineer will be provided access to witness the measurements.
	3. Define the method and frequency of reporting pavement thickness results to the Engineer
	Concrete Strength. For each sublot, test the core strengths using an AMRL accredited laboratory.
	1. Propose the method and frequency of reporting the results to the Engineer for acceptance.

CA-C-2 QC/QA Concrete QCP Checklist - 4/4

C. Additional Quality Control Plan Requirements for Concrete Pavement

	Construction Process Requirements
	1. Define the minimum required rate of concrete delivery for continuous placement and assure that the equipment and transportation is adequate to provide the concrete at that rate.
	2. Describe the methods of protecting the concrete in the case of inclement weather.
	3. Describe the methods and frequency of controlling and checking the plastic thickness during paving and reporting issues to the Engineer.
	4. Define fine grading methods and equipment
	5. Define the procedure and frequency of conditioning the subbase or subgrade before pavement placement.
	6. Define who will perform the HIPERPAV analysis required in 451.09 and the proposed timeframe the Engineer will have to review the report.
	7. Describe equipment and methods for consistently delivering and evenly spreading the concrete in front of the paver.
	8. Describe the procedure for dowel bar or load transfer device installation and methods for determining proper placement location after concrete placement. Assure methods conform with 451.09.B.
	9. Describe methods of monitoring the vibrator operation and frequency, time of day, station location and track speed according to 451.05.B
	10. Define materials, methods and controls for curing and joint sealing and assuring application requirements.
	11. Describe joint sawing methods and proposed timing to the sawing operation.
	12. Describe finishing and pavement grooving methods.
	13. Pavement Smoothness. a. Define methods to check pavement smoothness conforming to 451.13 and reporting to the Engineer b. If other smoothness tolerances are required in the contract define the methods to measure, evaluate, and report the results to the Engineer

CA-C-2 QC/QA Concrete QCP Plan Activity Log - 1/2

Project No.: _____ Co./Rt./Sec.: _____

Contractor: _____

Submission Date: _____ Original Approval Date: _____

Date:	**Activity Description**

CA-C-2 QC/QA Concrete QCP Plan Activity Log- 2/2

Project No.: _____ Co./Rt./Sec.: _____

Contractor: _____

Submission Date: _____ Original Approval Date: _____

Date:	**Activity Description**

Completed by: _____ Date: _____

CA-EW-1 Earthwork Quantity Calculations

Project No. ____________ Co-Rt-Sec ____________ Date ____________

	CUTS Ref. No. ________				**FILLS** Ref. No. ________			
Station	End Area ft^2	Average End Area ft^2	Length Between Stations ft	Volume yd^3	End Area ft^2	Average End Area ft^2	Length Between Stations ft	Volume yd^3
			Total cuts, yd^3	________			Total fills, yd^3	________

(Area 1 + Area 2) ÷ 2 = Average End Area   Average End Area × Length ÷ 27 = Volume

ft^2 — square foot yd^3 — cubic yard

______________________________   ______________________________

Calculated by   Date   Checked by   Date

CA-EW-1 Earthwork Quantity Calculations (back)

CA-EW-2 Proof Rolling Documentation

Project No. _____ Co-Rt-Sec _____ Date _____

Ref. No. _____ Item No. and Description _____

Time		Elapsed Time		Location		Wt. of Roller	Tire Pressure	
Start	Stop	Hours	Min.	Station to Station	Lane Lt/Rt	tons	psi	Remarks
		Hours	Min.			Wt. of	Tire	

Daily Total _____ _____
(round to the nearest 6 minutes, 0.1 hour)

C&MS 204.06	Roller	Pressure
silt, clay, and fine sand	35	120
granular soil types	50	150

Areas to Correct or Investigate

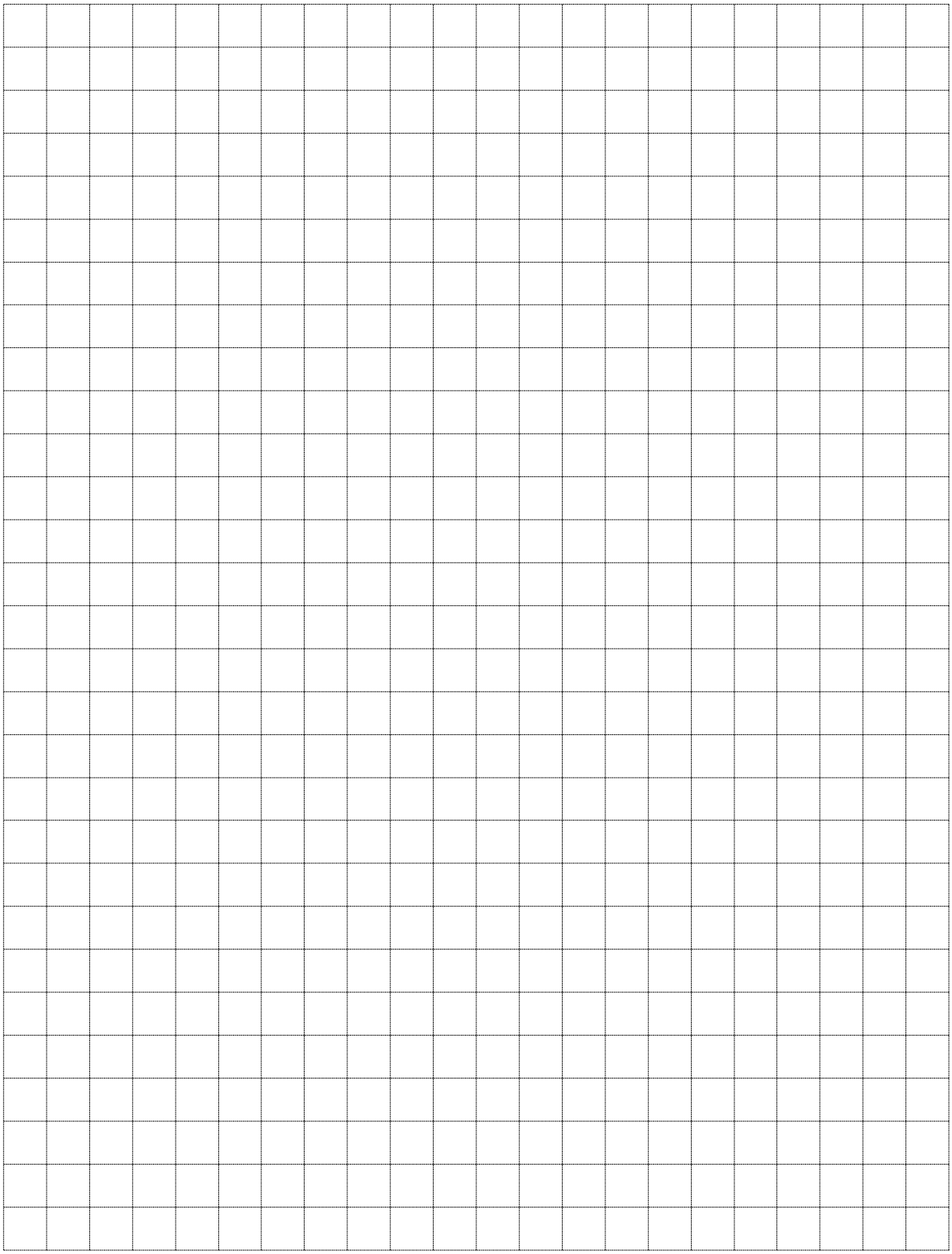
Station to Station	Lane Lt/Rt	Rut Depth	Cracking	Elastic or Plastic Movement

Signatures

_____ _____
Inspector Date

_____ _____
Contractor Date

CA-EW-2 Proof Rolling Documentation (back)



CA-EW-3 Log of Test Pit Investigation

Project No. _____ Co-Rt-Sec _____ Date _____

Proof Rolling Results

Station to Station	Lane Lt/Rt	Rut Depth	Cracking	Elastic or Plastic Movement

Test Pit Location

Station _____ Offset _____ Subgrade Elevation _____

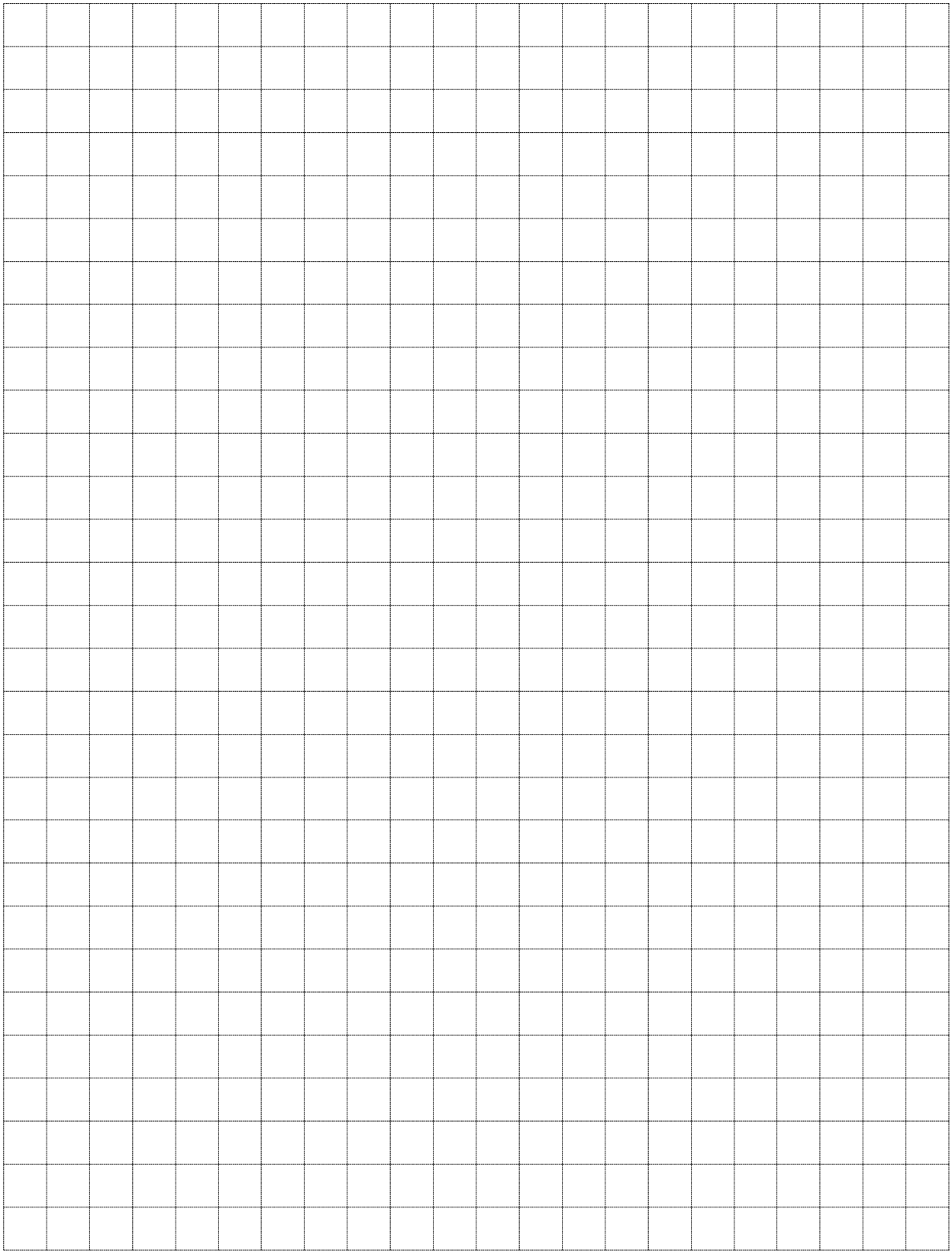
Depth from	Depth to	Hand Penetrometer ton/ft²	Layer Description
		U1 =	Material type:
		U2 =	Layer thickness (ft):
		U3 =	Soil / rock conditions:
		Avg =	Comments:
		U1 =	Material type:
		U2 =	Layer thickness (ft):
		U3 =	Soil / rock conditions:
		Avg =	Comments:
		U1 =	Material type:
		U2 =	Layer thickness (ft):
		U3 =	Soil / rock conditions:
		Avg =	Comments:
		U1 =	Material type:
		U2 =	Layer thickness (ft):
		U3 =	Soil / rock conditions:
		Avg =	Comments:

Material Types - clay, silt, sand, gravel, shale, rock (see Construction Inspection MOP 203.02)
Soil conditions - wet, dry, organic, roots, water seepage, soup, jello, hard or soft peanut butter

Take photographs of test pit.
Draw diagram of test pit and relevant features on back.

_____
Inspector Date

CA-EW-3 Log of Test Pit Investigation (back)



CA-EW-4 Moisture Density Curve Calculation

Project No. _____ Co-Rt-Sec _____ Date _____

Ref. No. _____ Item No. and Description _____

Wt. of compacted sample and 1/30 ft³ container [1] lb	Wt. of 1/30 ft³ container [2] lb	Wt. of sample [3] lb	Wet density of sample [4] lb/ft³	Moisture Content Determination							Dry density of sample [12] lb/ft³
				Dish No. [5]	Wet wt. & dish [6] g	Dry wt. & dish [7] g	Wt. of water [8] g	Wt. of dish [9] g	Wt. of dry sample [10] g	Moisture content [11] %	

Remarks:

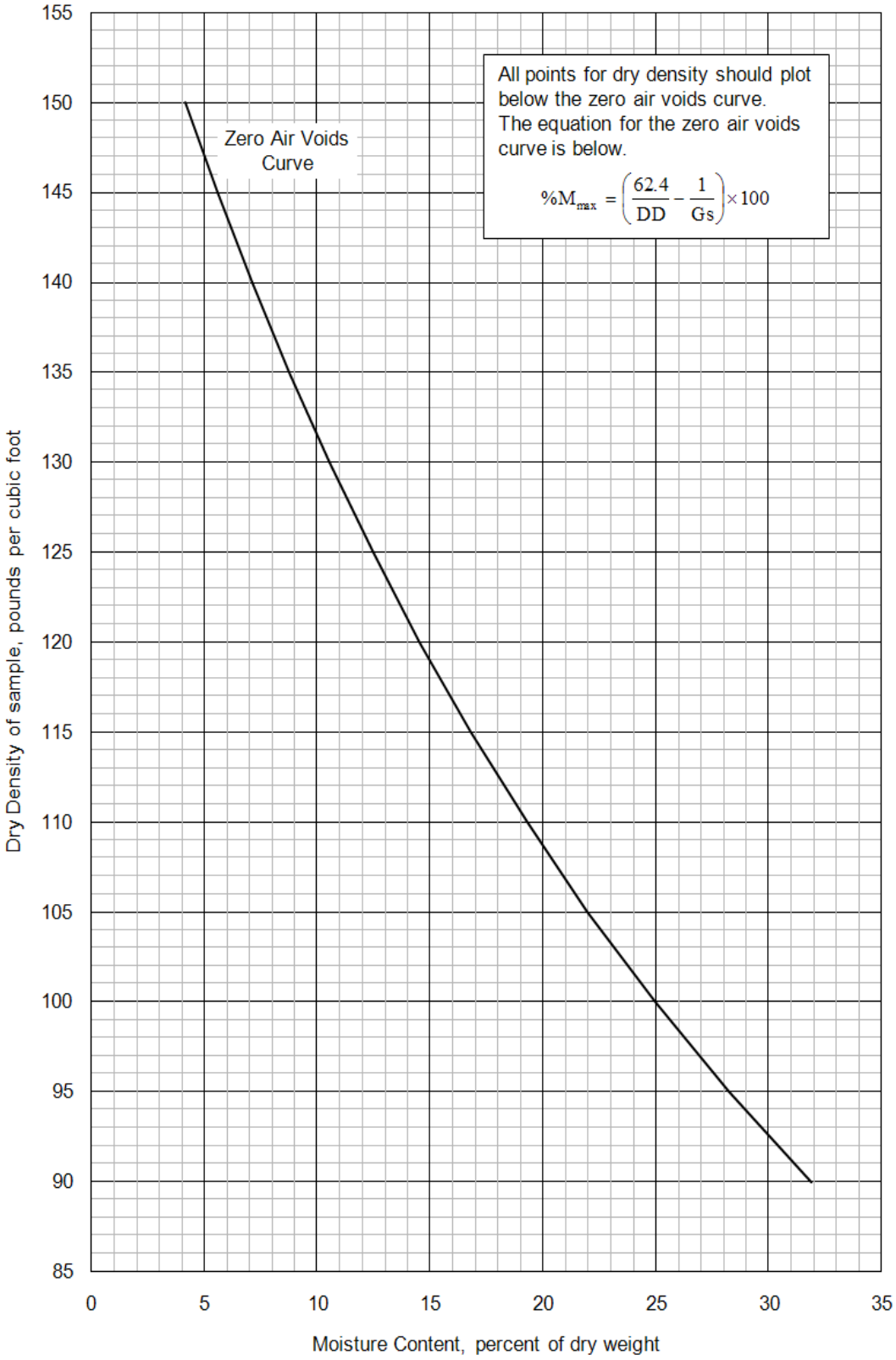
Maximum dry density, lb/ft³ _____

Optimum moisture content, % _____

Curve _____

Equations		Units
[3] Weight of sample	[1] − [2] = [3]	lb — pound
[4] Wet density of sample	[3] × 30 = [4]	lb/ft³ — pounds per cubic foot
[8] Weight of water	[6] − [7] = [8]	g — grams
[10] Weight of dry sample	[7] − [9] = [10]	
[11] Moisture content	[8] ÷ [10] × 100 = [11]	
[12] Dry density of sample	[4] ÷ (1 + [11] ÷ 100) = [12]	

CA-EW-4 Moisture Density Curve Calculation (back)



For Zero Air Voids Curve, Specific Gravity, Gs = 2.67

CA-EW-5 Nuclear Gauge Compaction Form

Sample ID: _____ Personnel ID: _____ Date Sampled: _____ Material Code: _____
Type of Inspection: _____ Producer Code: _____ Contractor: _____ Test Results: _____

Project No.: _____ Item Code: _____ Ref. No.: _____ Notes: _____

Test of (check which): ☐ Embankment ☐ Subgrade ☐ Base ☐ Other _____ Min. Compaction Req.: _____ %
Test of (check which): ☐ Limestone ☐ Gravel ☐ Slag ☐ Sandstone ☐ Granulated Slag ☐ Other _____
From Sta. _____ + _____ at _____ ft _____ (Rt/Lt) of centerline to Sta. _____ + _____ at _____ ft _____ (Rt/Lt) of centerline, at Elev. _____ ft
Report No. _____ (check which): ☐ Wet ☐ Dry Maximum Density from Test Section _____ lb/ft³ Optimum Moisture _____ %
98% of Max. Density _____ lb/ft³ Check method used: ☐ Direct Transmission ☐ Backscatter Probe Depth _____ inches

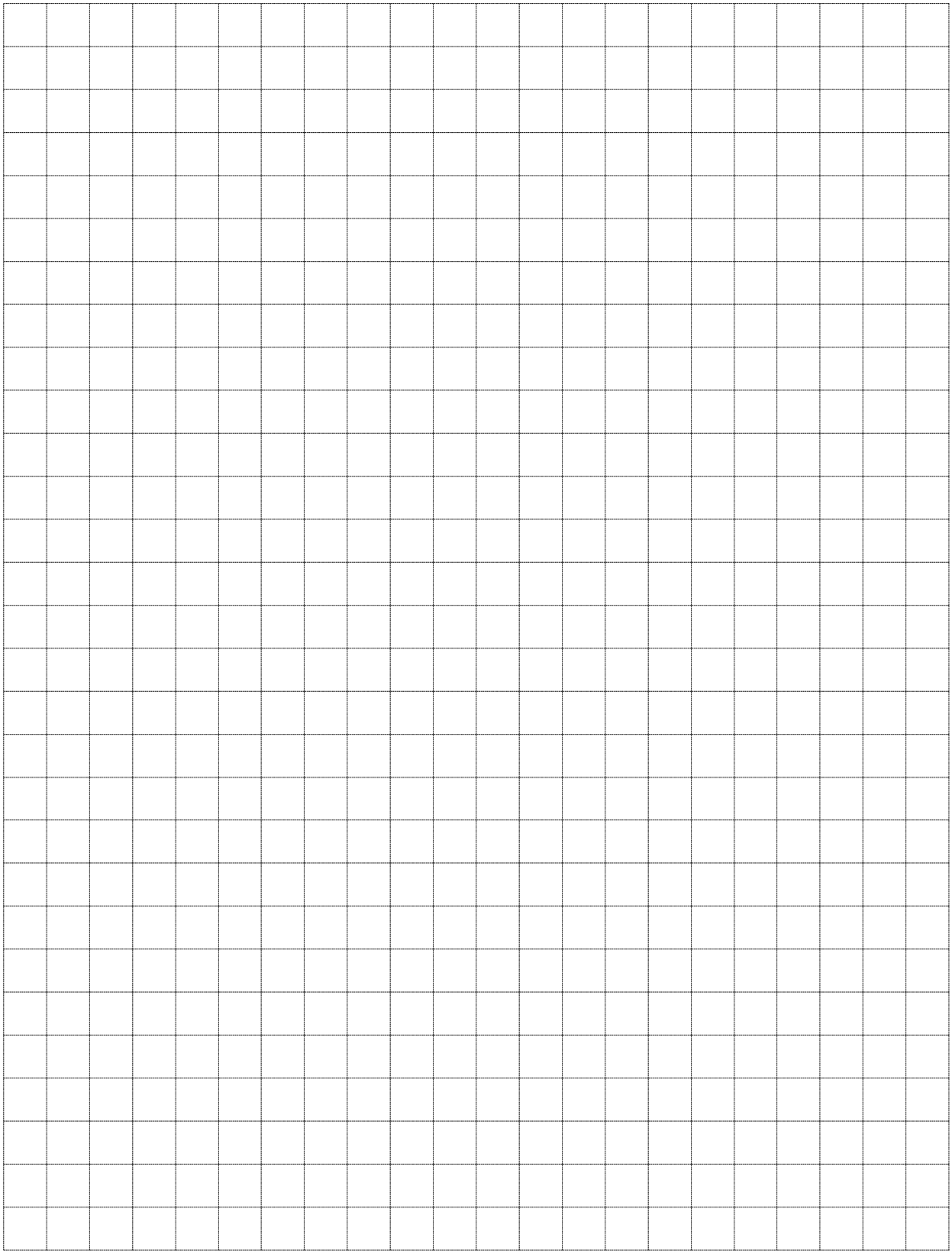
Location		1	2	3	4	5	6
1. Station of test	1.						
2. Distance right or left of centerline if different than above ____ ft	2.						
3. Approximate elevation if different than above ____ ft	3.						
Nuclear gauge readings							
4. Standard Count for Density DS	4.						
5. Wet Density of soil from gauge WD lb/ft³	5.						
6. Dry Density of soil from gauge DD lb/ft³	6.						
7. Standard Count for Moisture MS	7.						
8. Moisture content of soil from gauge %M %	8.						
9. Number of Passes	9.						
Take sample (about 10 lb) of material from area tested for density.		Curve	Curve	Curve	Curve	Curve	Curve
Procedure when sample contains less than 10% total weight of the stone retained on ¾" sieve.*							
10. Weight of 1/30 ft³ compacted wet soil + weight of container lb	10.						
11. Weight of 1/30 ft³ container lb	11.						
12. Weight of 1/30 ft³ compacted wet soil #10 – #11 lb	12.						
13. Density of compacted wet soil #12 × 30 lb/ft³	13.						
14. Optimum moisture from dry density curve %	14.						
15. Maximum dry density lb/ft³	15.						
16. Amount above or below optimum moisture #8 – #14 %	16.						
17. Percent compaction #6 ÷ #15 × 100 %	17.						
18. Max. moisture from the zero air voids curve using line 6 ____ %	18.						
19. Does material tested meet Specification requirements? Yes / No	19.						
20. "A" Rolling ordered; "B" Aerating ordered; "C" Watering ordered	20.						
21. Date Tested	21.						

ODOT Form date: 3/17/2009

* Use CA-EW-6 when sample contains more than 10% total weight in stone retained on ¾" sieve.

Calculated by _____ Checked by _____

CA-EW-5 Nuclear Gauge Compaction Form (back)



CA-EW-6 Nuclear Gauge Compaction with Aggregate Correction

Sample ID: _____ Date Sampled: _____

Type of Inspection: _____ Producer Code: _____ Contractor: _____

Material Code: _____ Test Results: _____

Project No.: _____ Item Code: _____ Ref. No.: _____

Notes: _____

Test of (check which): ☐ Embankment ☐ Subgrade ☐ Base ☐ Other _____

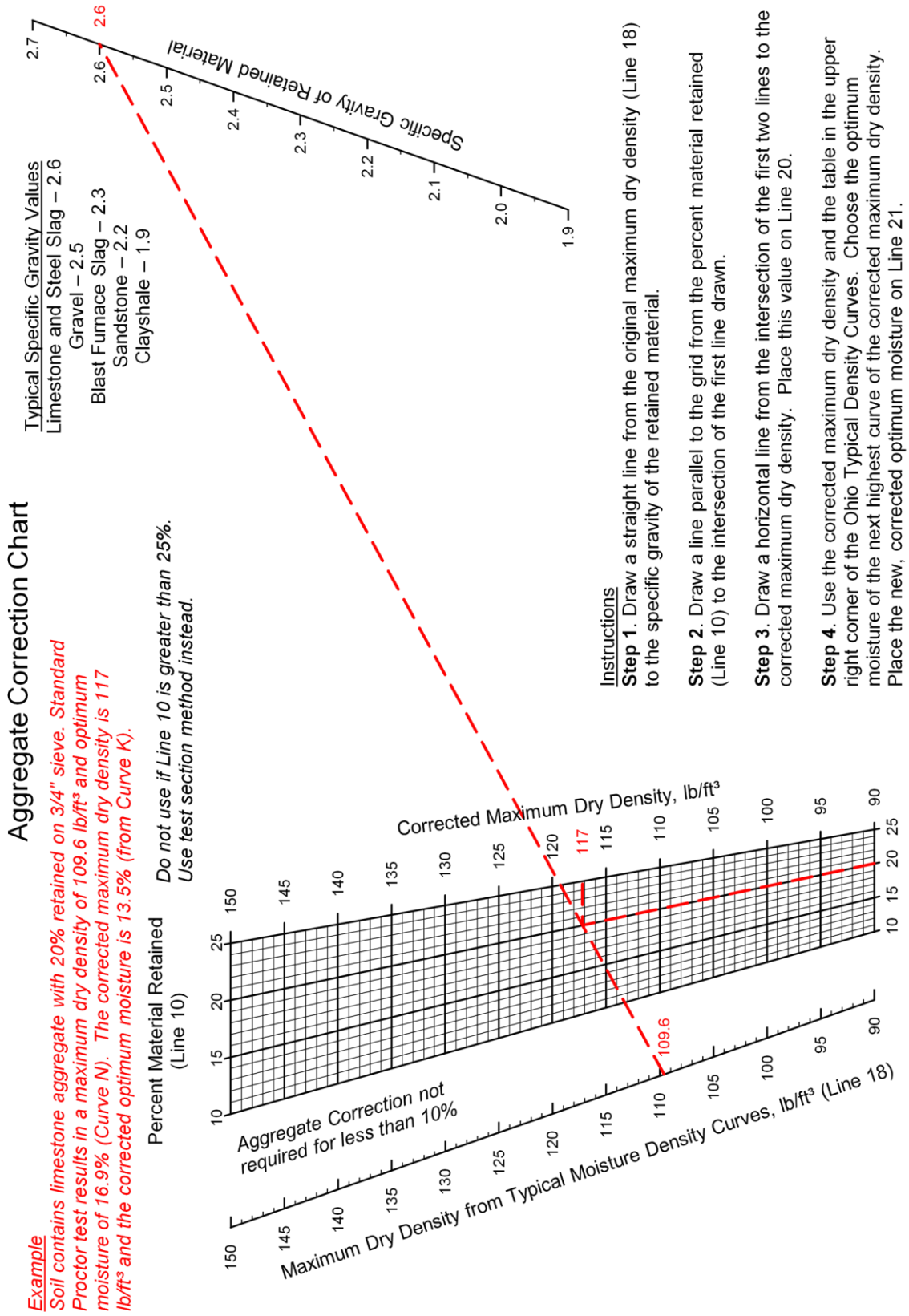
Min. Compaction Requirement: _____ %

From Sta. _____ + _____ at _____ ft _____ (Rt/Lt) of centerline, at Elev. _____ ft

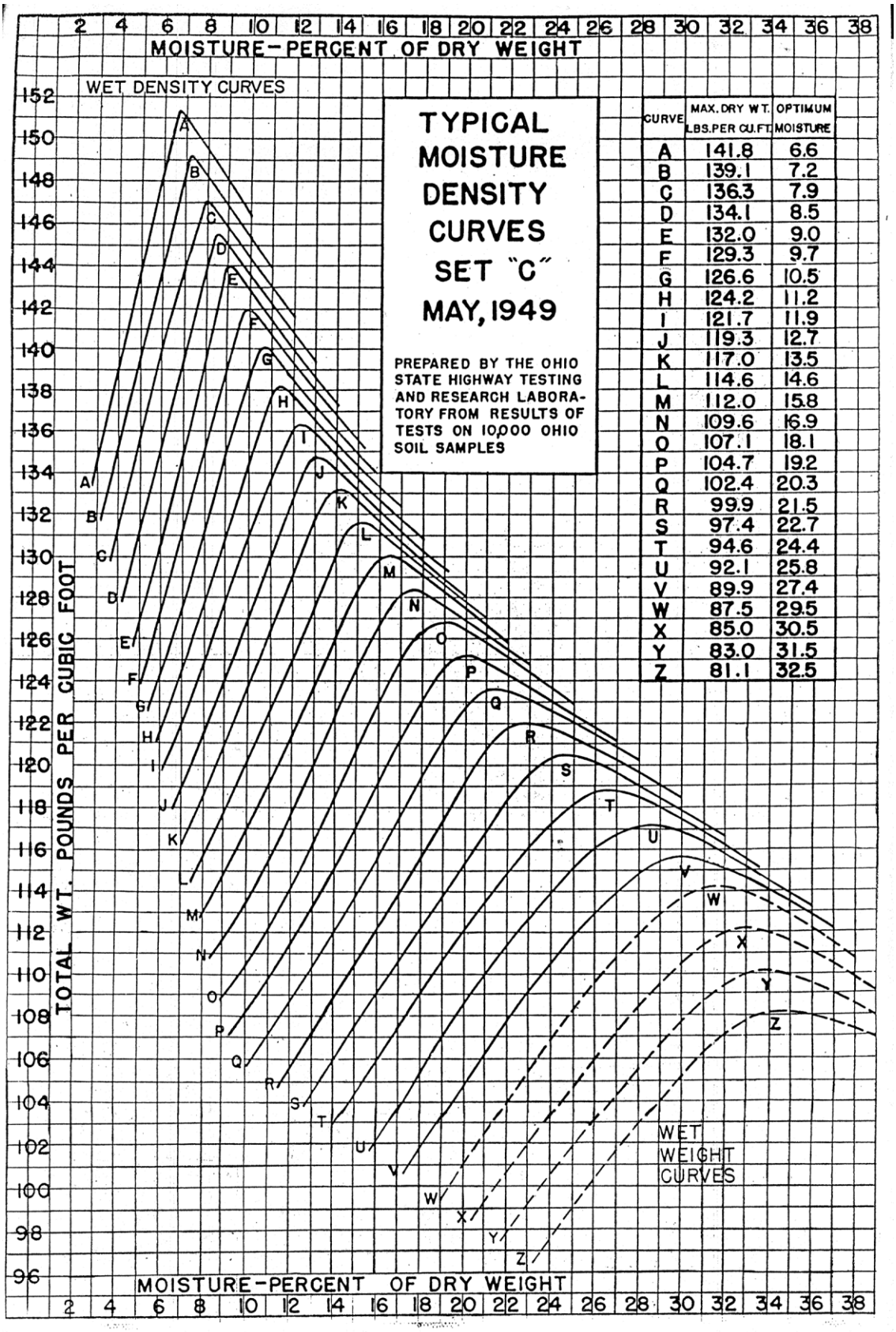
				1	2
Nuclear gauge readings					
1. Standard Count for Density	DS		1.		
2. Standard Count for Moisture	MS		2.		
3. Wet Density of soil from gauge	WD	lb/ft³	3.		
4. Dry Density of soil from gauge	DD	lb/ft³	4.		
5. Moisture content of soil from gauge	%M	%	5.		
Take sample from under gauge and pass through a ¾" sieve.					
6. Weight of total sample + weight of container		lb	6.		
7. Weight of container		lb	7.		
8. Weight of total sample	#6 – #7	lb	8.		
9. Weight of stone and container (sieve or pan)		lb	9.		
9a. Weight of container (sieve or pan)		lb	9a.		
9b. Weight of stone retained on ¾" sieve	#9 – #9a	lb	9b.		
10. Percent stone in sample	#9b ÷ #8 × 100	%	10.		
Proctor Test on the soil passing ¾" sieve					
11. Weight of 1/30 ft³ compacted wet soil + weight of container		lb	11.		
12. Weight of 1/30 ft³ container		lb	12.		
13. Weight of 1/30 ft³ compacted wet soil	#11 – #12	lb	13.		
14. Density of compacted wet soil	#13 × 30	lb/ft³	14.		
Select curve from Typical Density Curves using lines 14 and 5				Curve	Curve
15. Optimum moisture from dry density curve		%	15.		
16. Moisture from line 5		%	16.		
17. Amount above or below optimum moisture	#16 – #15	%	17.		
18. Maximum dry density		lb/ft³	18.		
Calculation procedure when line 10 is less then 10%					
19. Percent compaction	#4 ÷ #18 × 100	%	19.		
Calculation procedure when line 10 is between 10% and 25% *					
20. Corrected max. dry density using Graph A and lines 10 & 18		lb/ft³	20.		
21. Corrected opt. moisture using line 20 and Typical Density Curves		%	21.		
22. Percent compaction	#4 ÷ #20 × 100	%	22.		
23. Amount above or below optimum moisture	#16 – #21	%	23.		
24. Max. moisture from the zero air voids curve using line 4		%	24.		
25. Does material tested meet Specification requirements? Yes / No			25.		
26. "**A**" Rolling ordered; "**B**" Aerating ordered; "**C**" Watering ordered			26.		

* If line 10 is greater than 25%, make a granular moisture density curve and use the Test Section Method.

CA-EW-6 Nuclear Gauge Compaction with Aggregate Correction (back)

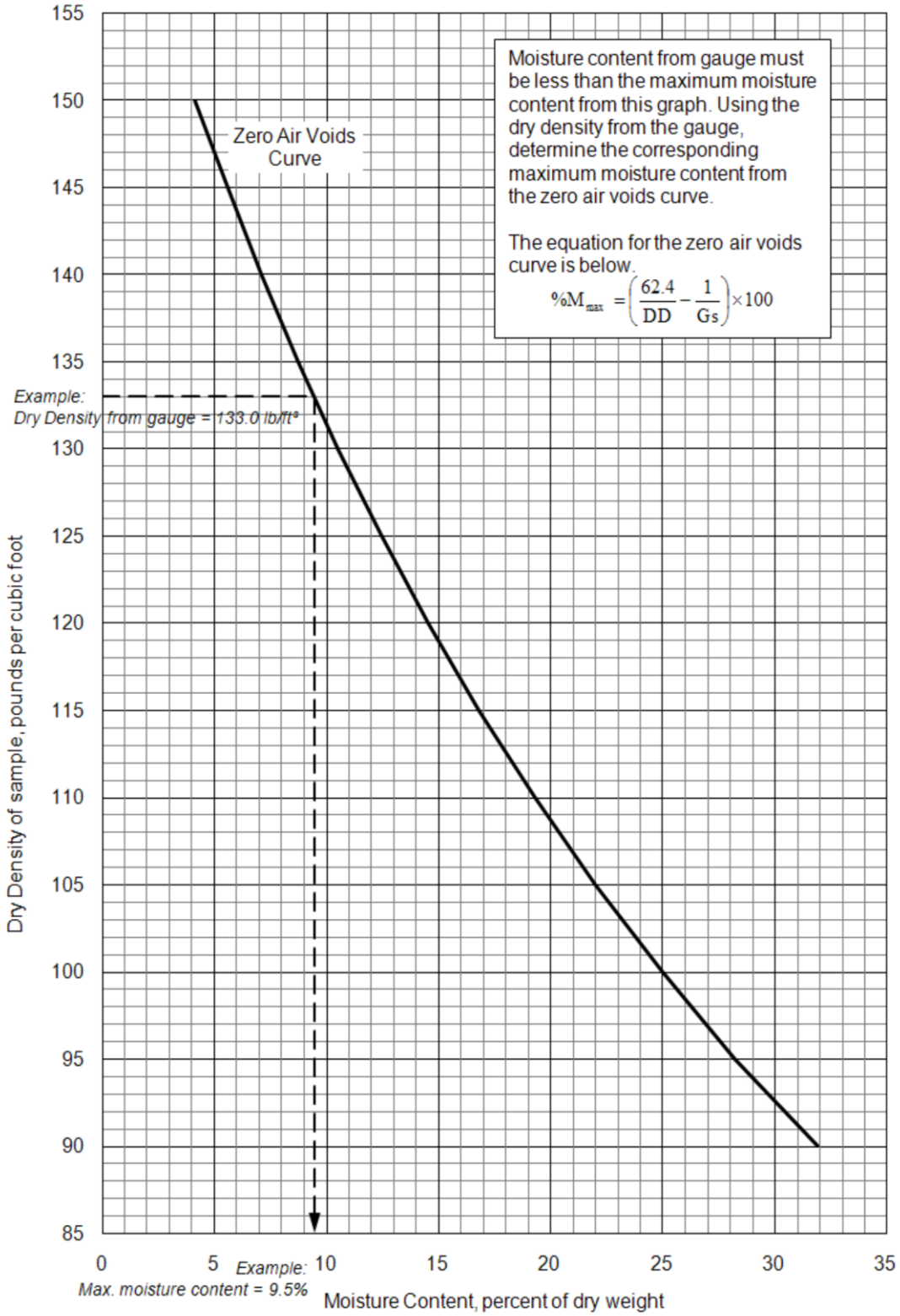


Typical Moisture Density Curves - Set C - May, 1949



CURVE	MAX. DRY WT. LBS. PER CU. FT.	OPTIMUM MOISTURE
A	141.8	6.6
B	139.1	7.2
C	136.3	7.9
D	134.1	8.5
E	132.0	9.0
F	129.3	9.7
G	126.6	10.5
H	124.2	11.2
I	121.7	11.9
J	119.3	12.7
K	117.0	13.5
L	114.6	14.6
M	112.0	15.8
N	109.6	16.9
O	107.1	18.1
P	104.7	19.2
Q	102.4	20.3
R	99.9	21.5
S	97.4	22.7
T	94.6	24.4
U	92.1	25.8
V	89.9	27.4
W	87.5	29.5
X	85.0	30.5
Y	83.0	31.5
Z	81.1	32.5

Zero Air Voids Curve



For Zero Air Voids Curve, Specific Gravity, G_s = 2.67

CA-EW-7 Non-Stabilized Drainage Base Compaction

Sample ID: _____ Personnel ID: _____ Date Sampled: _____
Type of Insp.: _____ Producer Code: _____ Contractor: _____
Code: _____ Test Results: _____

1) Moisture Testing

SSD Moisture _____ Required Moisture Content (M%) _____ Added Water (yes/no) _____
Location _____

Note: Required Specification Moisture = SSD + 3% at Pugmill and SSD + 1.5% at Compaction
Take random samples to ensure the moisture is maintained at the pugmill and during compaction.

2) Test Section Tests for Dry Density and Moisture in Control Strip (@400 SY)

Number of Passes to Seat Material _____ M% = Actual Moisture Content AVG = Avg. Dry Density at 3 Random Loc.

	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
Dry Density 1						
Dry Density 2						
Dry Density 3						
AVG						
M%						

Total Passes = Seating Passes + Testing Section Passes to Obtain Maximum Dry Density _____ (Minimum # for Production Compaction)

Note: One coverage is 2 Passes
Minimum Passes: 2 Type NJ, 4 Type IA, 6 Type CE
Circle the Maximum Dry Density

3) Average Dry Density from Control Strip

1 _____ 2 _____ 3 _____ 4 _____ 5 _____
6 _____ 7 _____ 8 _____ 9 _____ 10 _____

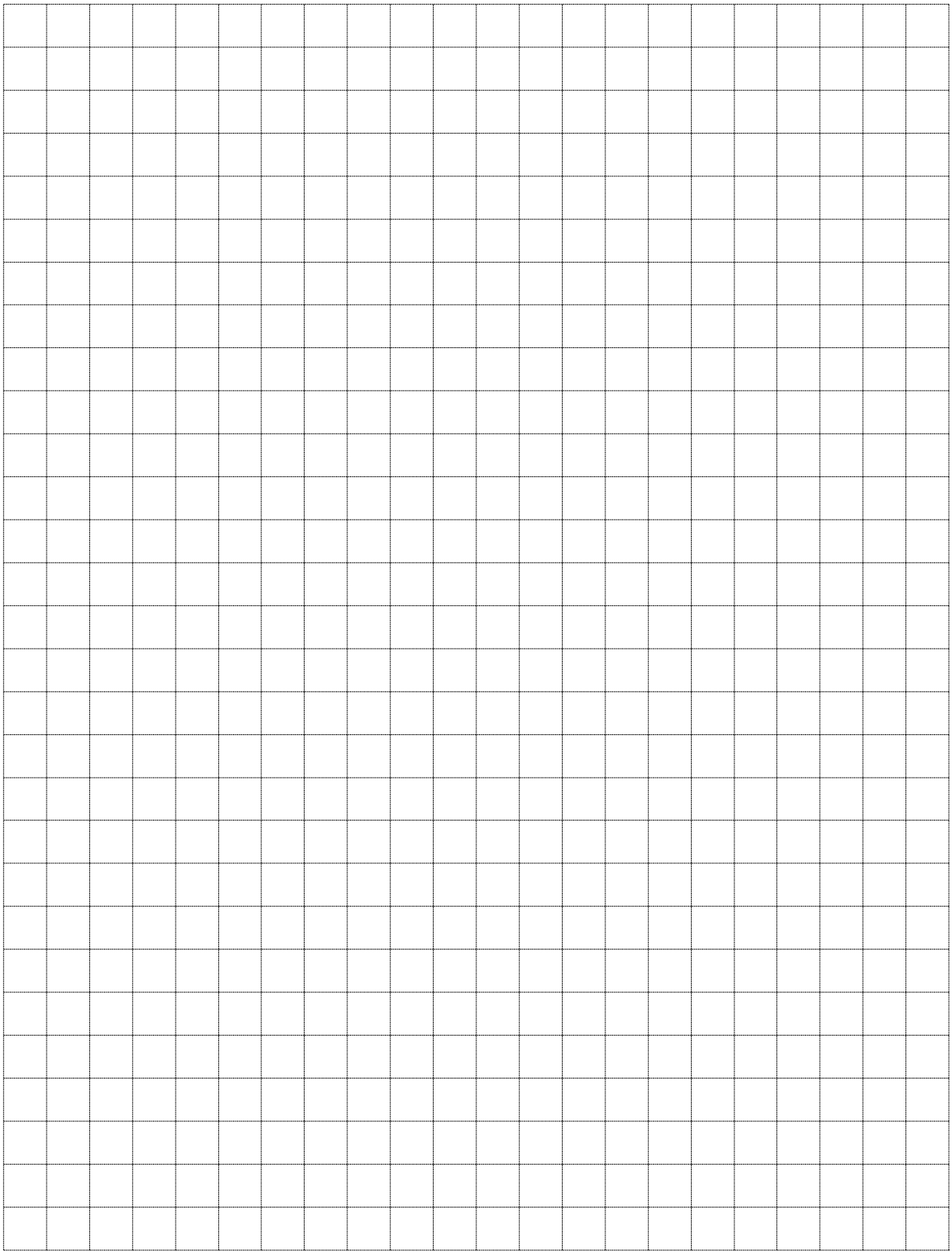
Average Dry Density _____ 95% of Control Strip _____

4) Production Dry Density Compaction Tests (@ 5000 SY Lots)

Lot #	Location			Number of Passes Actually Used	1	2	3	4	5	Average	Pass/Fail
	Station	to	Station								
		to									
		to									
		to									
		to									

Computed By: _____ Checked By: _____

CA-EW-7 Non-Stabilized Drainage Base Compaction (back)



CA-EW-8 Authorization of Undercuts

Project No. _____ Co-Rt-Sec _____ Date _____

Description _____

Instructions

1. All undercuts to be paid for shall be performed as directed by the Engineer and in accordance with the MOP.
2. Measurements may be made by cross-sections or average length, width and depth, whichever is more appropriate.
3. Furnish material removed, backfill, measurement type and location information.
4. Submit origional copy to District Construction Office immediately. Furnish copy to Contractor if requested.

Material Removed

- ☐ Suitable and used for fill
- ☐ Suitable and wasted
- ☐ Unsuitable

Backfill

- ☐ Material from right-of-way
- ☐ Earth from borrow
- ☐ Granular from borrow

Measurement Type

- ☐ Cross-sections per attached notes
- ☐ Measurements per drawing

Location

_____ Right or Left of centerline

_____ Elevation bottom of undercut

Ref. No.	Item No.	Location Station to Station	Lane Lt/Rt	Average Length ft	Average Width ft	Average Depth ft	Quantity Allowed for Payment yd^3
		to					
		to					
		to					
		to					
		to					

Drawings or Calculations

Signatures

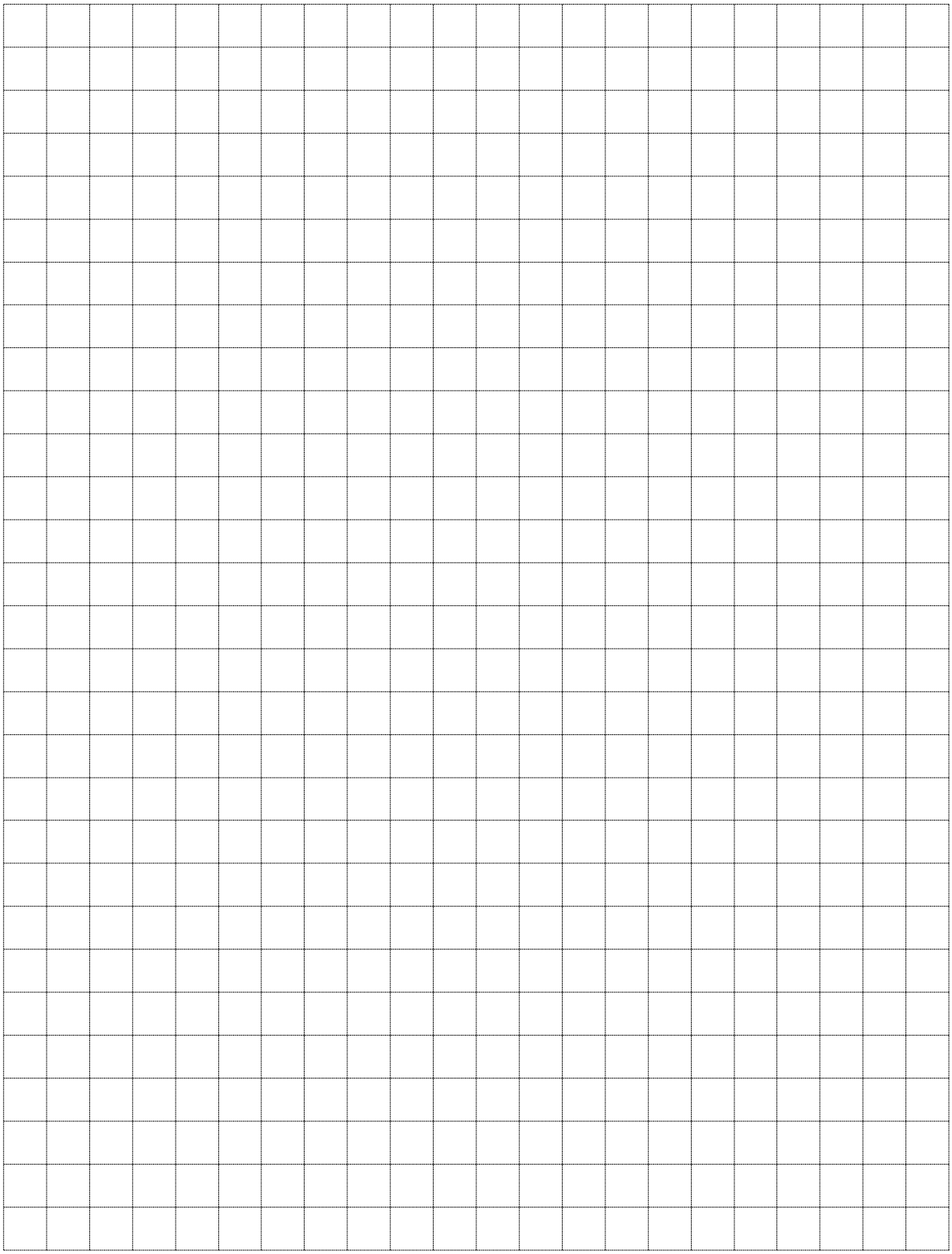
Inspector performing measurements Date

Contractor's Superintendent or Foreman Date

Inspector performing calculations Date

Project Engineer or Supervisor Date

CA-EW-8 Authorization of Undercuts (back)



CA-EW-9 Rock Blasting Inspection Form

Project No. _____ Co-Rt-Sec _____ Date _____

Blast No. _____ Station _____

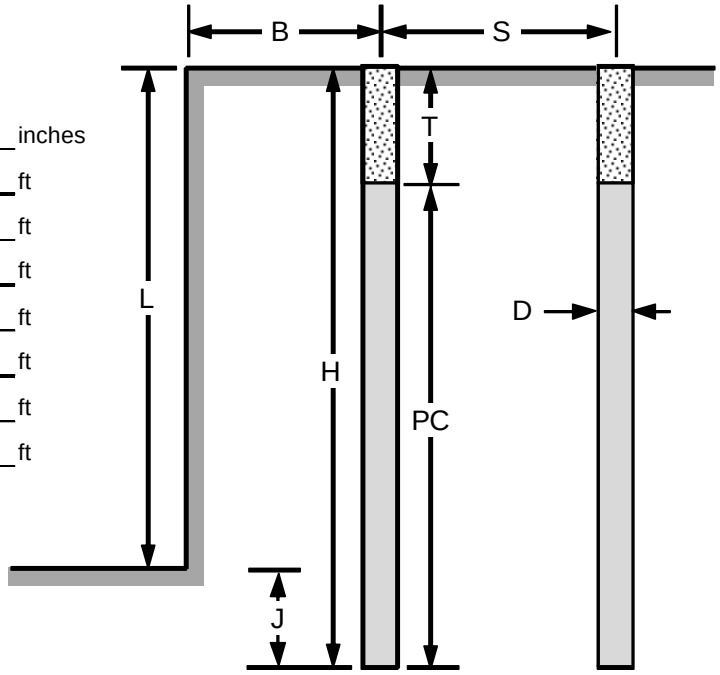
Blast Type: ☐ Test Section ☐ Production ☐ Presplit ☐ Trench

Number of holes _____

Hole diameter	D	_____	inches
Bench height	L	_____	ft
Burden	B	_____	ft
Spacing	S	_____	ft
Blast hole depth	H	_____	ft
Stemming	T	_____	ft
Powder column length	PC	_____	ft
Subdrilling	J	_____	ft

$\frac{L}{B}$ = _____ ? 1.0

0.7 B = _____ ? T



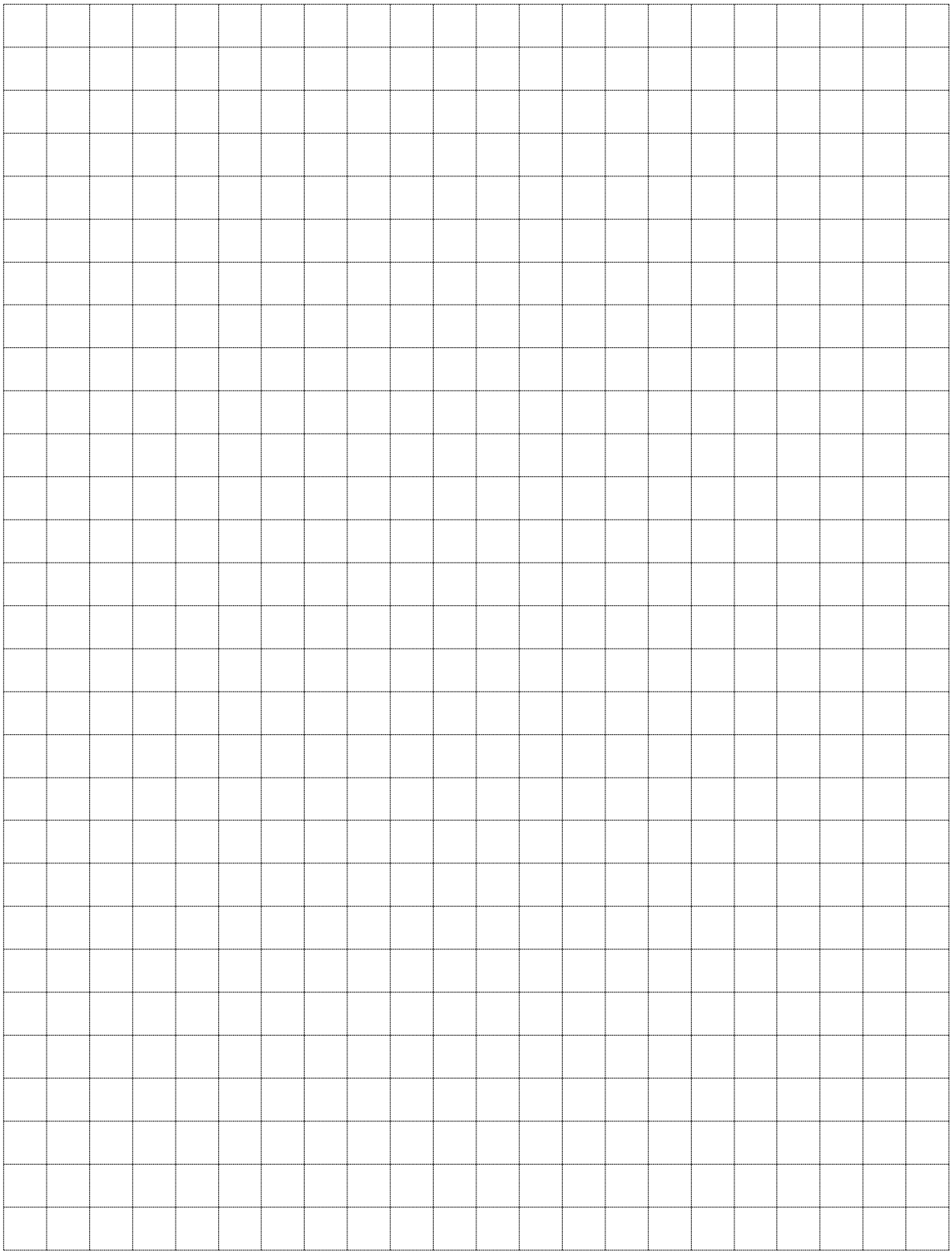
Nearest Critical Structure _____ Distance _____ ft

Comments

_____

Inspector Date

CA-EW-9 Rock Blasting Inspection Form (back)



CA-EW-10 Rock Blasting Drilling Log

Project No. _____ Co-Rt-Sec _____ Date _____

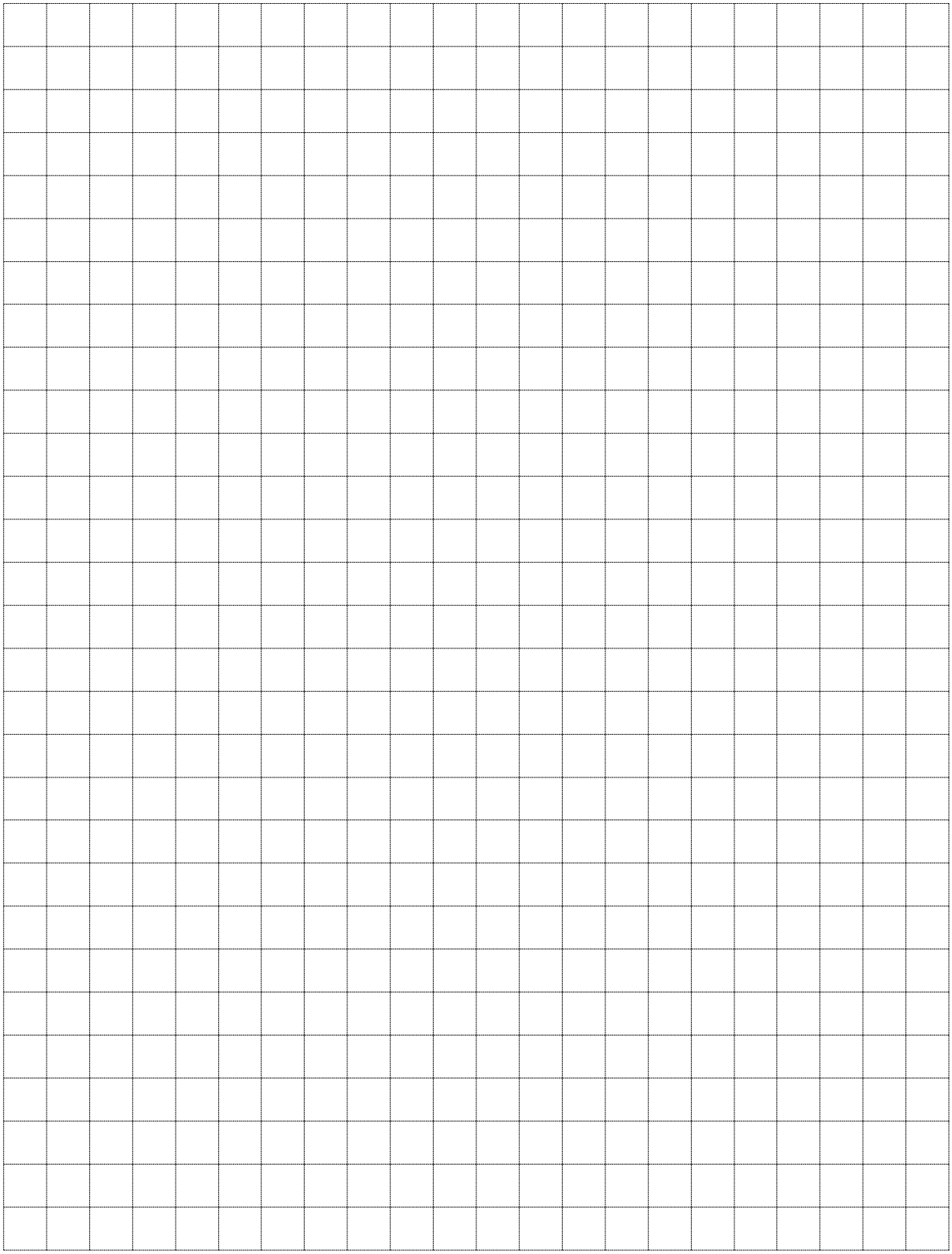
Drilling Company _____ Driller in Charge _____

Burden _____ ft Spacing _____ ft Bench Height _____ ft

Hole No.	Depth ft	Subdrill ft	Angle degrees	Diameter inch	Comments (voids, seams, mud, lack of cuttings, etc.)

_____
Driller Date

CA-EW-10 Rock Blasting Drilling Log (back)



CA-EW-11 Blast Site Security Plan

Project No. _____ Location _____ Date _____

Prime Contractor _____

Blasting Contractor _____

Blasting Times and Frequency _____

Blast Signal Type _____ dB _____

_____

Blasting Signal Procedures

Site Security Procedures

Blaster(s) in charge

Name	Signature	Date

Contractor's Superintendent

Name	Signature	Date

CA-EW-11 Blast Site Security Plan (back)

1. Project Number as given by Ohio DOT

2. Location of project (example: US 52 Bypass Portsmouth, OH)

3. Prime Contractor's name

4. Blasting Contractor's name if different from Prime Contractor

5. Blasting Times and Frequency (example: Monday – Friday, 10 AM - 4 PM)

6. Type of Blast Signal (example: Siren will be located at ODOT trailer mounted on 30 foot pole)

7. Blasting Signal Procedures: Give complete description of what the blasting signals are. Example: A siren will be sounded for 60 seconds 5 minutes prior to blasting followed by 3 short blasts of the siren 30 seconds prior to blasting.

8. Site Security Procedures: Give a complete detailed description of how the blast site is to be defined and cleared prior to blasting. Give complete description of who is responsible for blocking and maintaining access to blast site and what means of communication is being used to monitor and maintain access to the blast site. List responsible parties for each step.

9. List each blaster in charge on the project and signature showing receipt and acknowledgement of the Blast Site Security Plan.

10. Name and signature of prime contractor's superintendent acknowledging review and approval of plan.

CA-EW-12 Daily Earthwork Inspection Form

Project No. _____ Co-Rt-Sec _____ Date _____

Ref. No. _____ Item No. and Description _____

Location of Excavation or Borrow Pit _____

Location of Embankment or Waste Area _____

Equipment (number and type)

Dozers		Backhoes		Vibratory Rollers	
Graders		Draglines		Tamping Foot Rollers	
Scrapers		Clam Buckets		Sheepsfoot Rollers	
Dozer/Scrapers		Water Trucks		Pad Foot Rollers	
		Other		Other	
Dump Trucks					
		Other		Other	
Excavators					

Type of soil (sand, clay, silt, shale, random, etc.) _____

Was water added to fill today? ☐ Yes ☐ No if yes, list station limits _____ to _____

Was soil aerated (dried) today? ☐ Yes ☐ No if yes, list station limits _____ to _____

Measured loose lift thickness _____ inches Was fill rolled full width? ☐ Yes ☐ No

How was thickness measured? _____

Location of compaction tests and results: _____

Today's load count _____ Est. CY/load _____ Average round trip time _____

Estimated quantity calculations _____

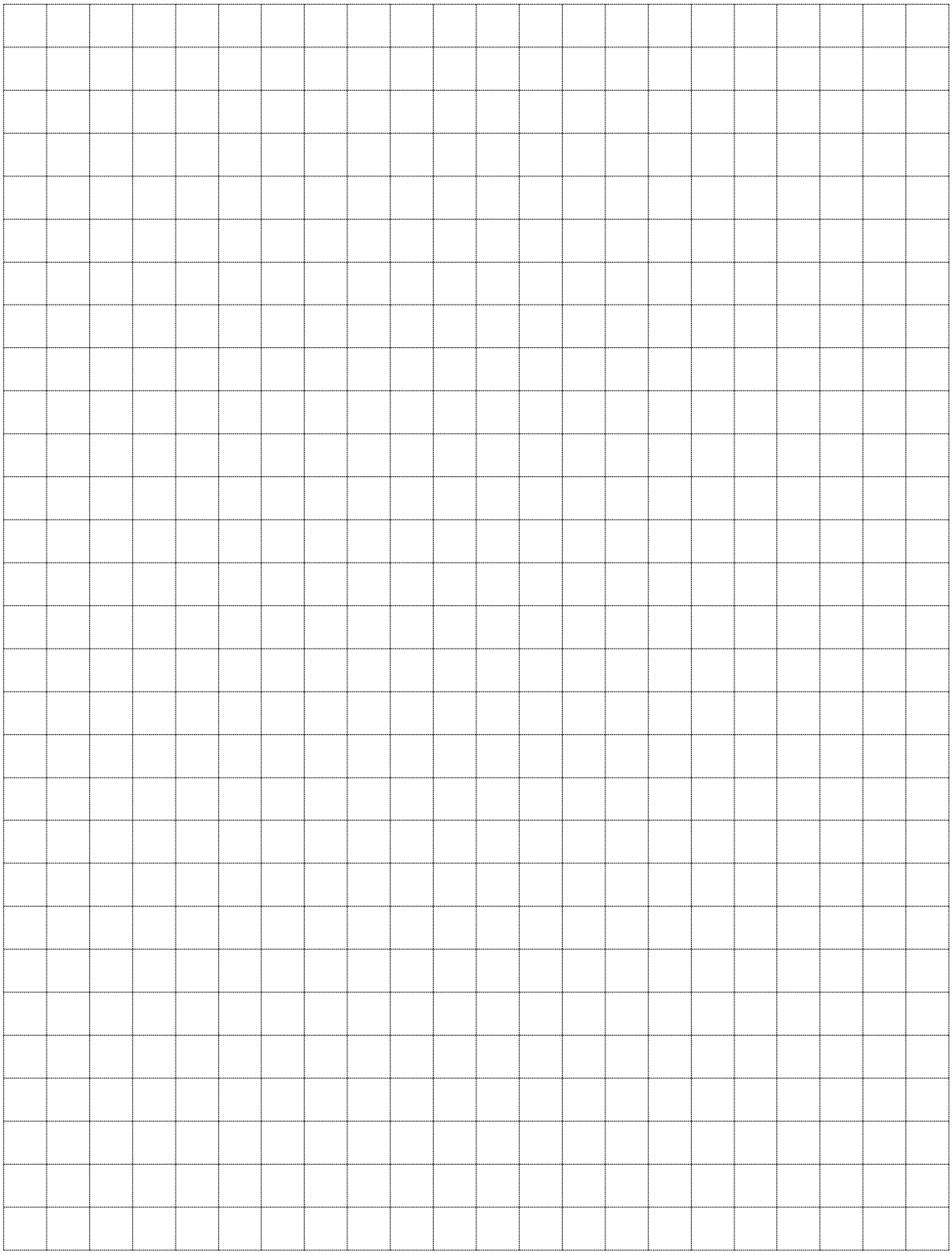
Instructions given today (from whom, to whom, and to do what):

Comments

Provide a copy of this form to the contractor.

_____
Inspector Date

CA-EW-12 Daily Earthwork Inspection Form (back)



CA-EC-1 Weekly and Rain Event Checklist

Project No.: _____ Co./Rt./Sec.: _____ Perc. Type & Amt.:

Sun	Mon	Tue	Wed	Thur	Fri	Sat

R=Replacemenet W= Working M= Mainterance I= Install D= Delete

Location of Concern					Balloon Ref.	Perimeter Control	Inlet Protection	Construction Seed	Dikes Fill Slopes	Ditch Cut Slopes	Slope Drain	FF Ditch Check	Rock Ditch Check	Bale Filter Dike	Sediment Basin	Stream Relocate	Stream Crossing	Remarks	Date completed. By Others
Station	to	Station	Side	Offset															
	to																		
	to																		
	to																		
	to																		
	to																		
	to																		
	to																		
	to																		
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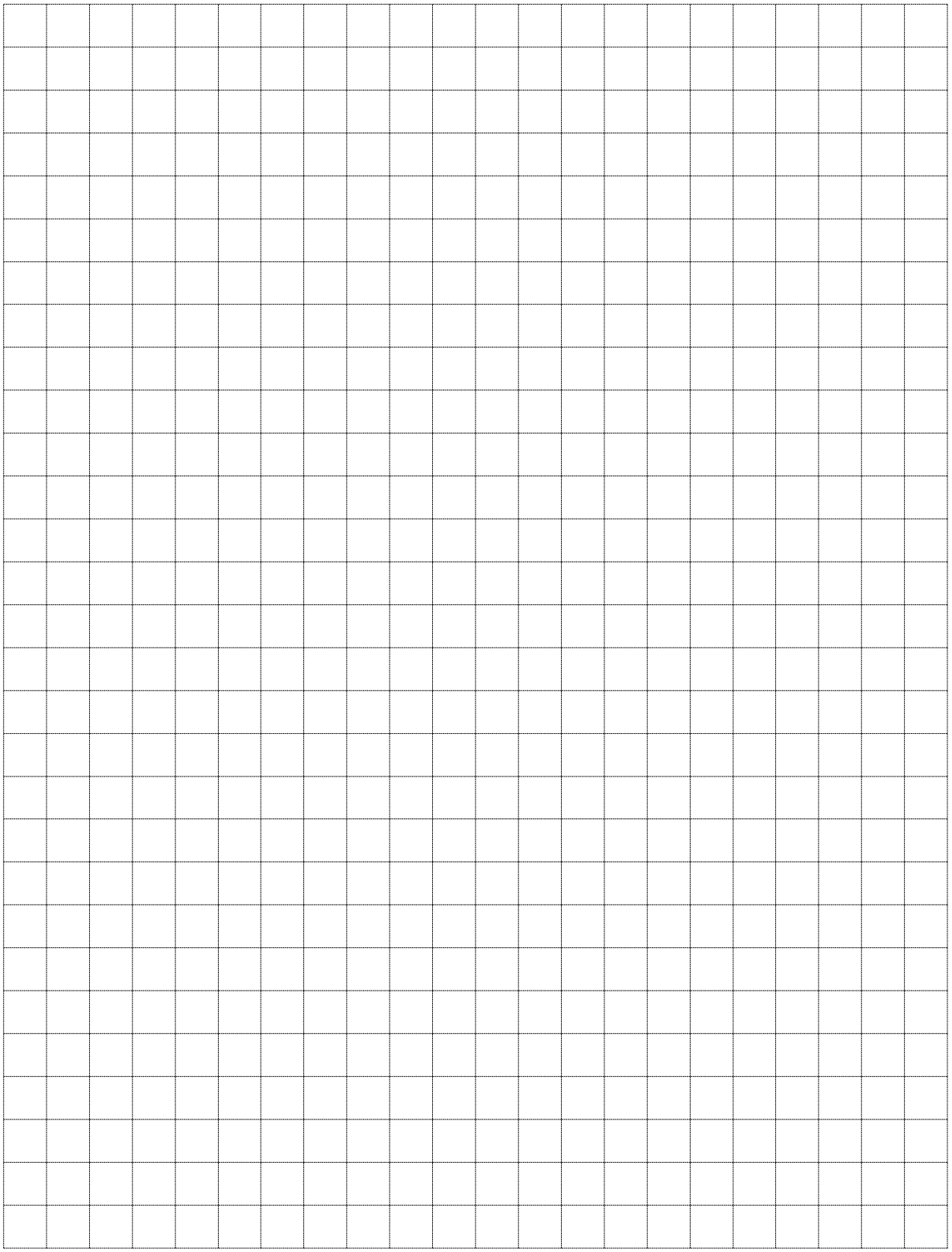
	to																		
	to																		
	to																		

All Sediment & Erosion Control Devices from Sta. _____ to _____ were inspected this date. Areas of deficience have been listed.

Contractor's Inspector	Title	Date	Engineer's/Supt. Signature	Date copy given to ODOT

CA-EC-1 Weekly and Rain Event Checklist (back)



CA-EC-2 Seeding Calculations

Project No:	County/Route/Section:
Ref. No:	Item & Description:

Left				
Station	Width	Sum	Dist	Sq. Yd.
		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----
Total				

Right				
Station	Width	Sum	Dist	Sq. Yd.
		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

		----	----	----

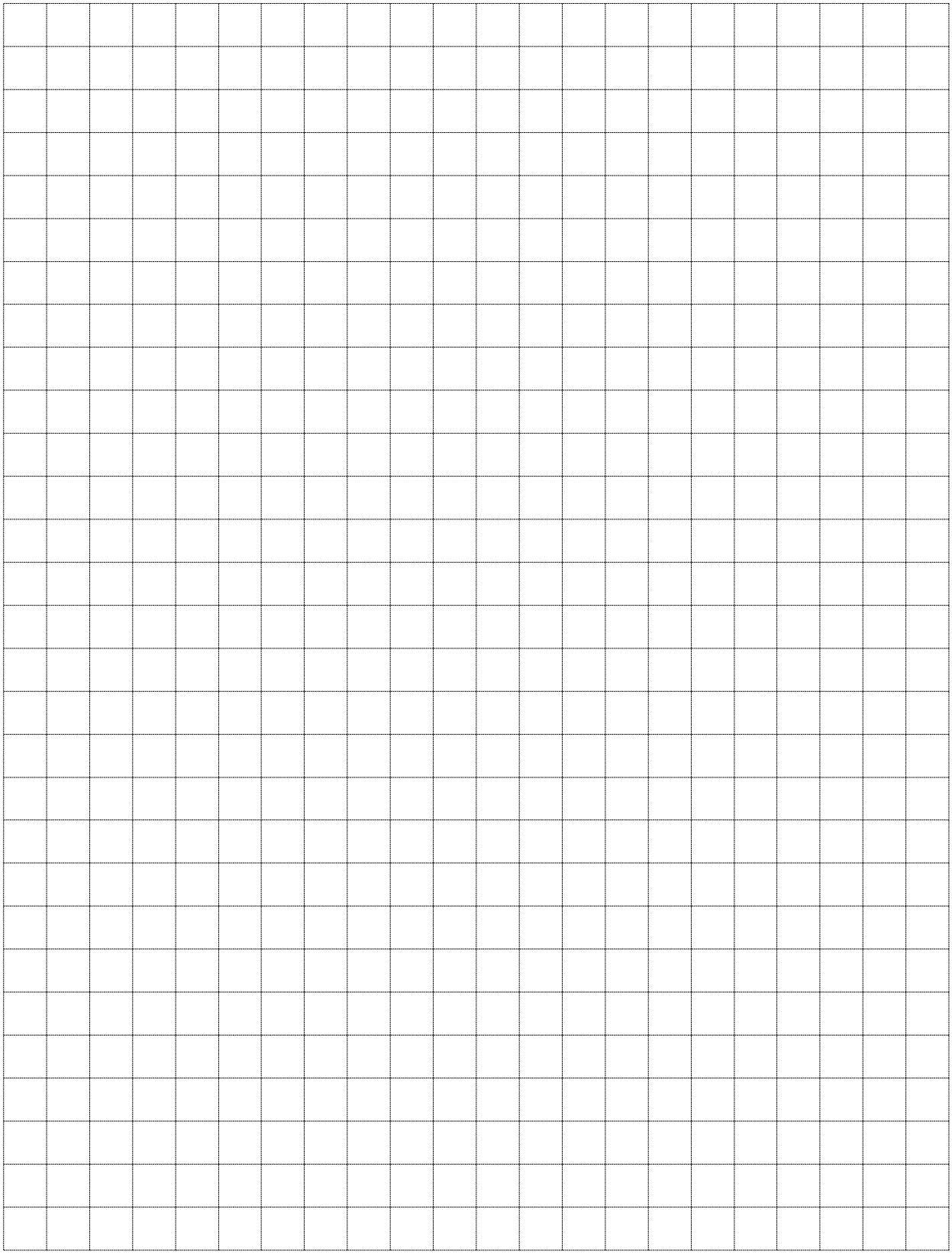
		----	----	----
Total				

Remarks: _____

_____

Test conducted by:			
Inspected By:		Date:	
Checked By:		Date:	

CA-EC-2 Seeding Calculations (back)



CA-FP-1 Warranty Asphalt Checklist

Date _____

Project # _____ County, Route, Section _____

Contractor _____ Item # _____ Ref # _____

Description _____

Location _____ Bubble # _____ Plan Pg _____

Asphalt Supplier _____ JMF # _____

Date						
Time						
Insp Initials						
STA						
Lane (In/Out)						
Material Type						
Air Temp						
Asphalt Temp						
Surface Temp						
Lift Thickness						
Width						
Tack (Y/N)						
Precipitation						

General Observations

Rollers Used: _____

Pavement Cleanliness: _____

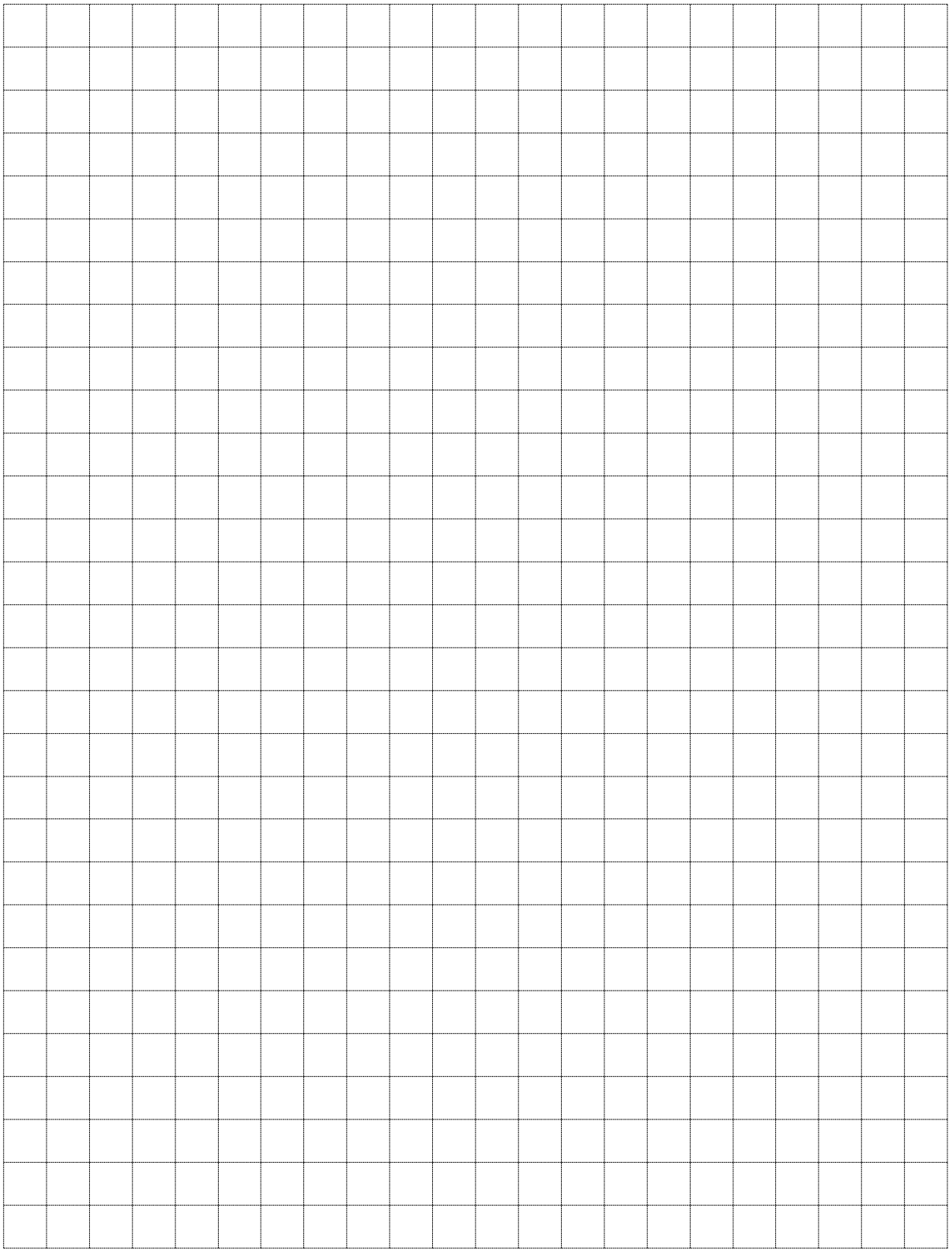
Subbase Conditions: _____

Remarks: _____

_____ _____

Inspector's Signature Date P.E./P.S. Signature Date

CA-FP-1 Warranty Asphalt Checklist (back)



CA-FP-2 Random Selection of Asphalt Field Samples (448, 403)

Date _____

Project # _____ County, Route, Section _____

Contractor _____ Item # _____ Ref # _____

Description _____

Location _____ Bubble # _____ Plan Pg. _____

Asphalt Supplier _____ JMF # _____

		A	B	C	D
1	Initial accumulative total, tons				
2	Sublot size of partial estimate, tons				
3	Random percentage number from table				
4	Ton in sublot to be sampled (#2 x #3)				
5	Accumulative tonnage at sample location (#1 + #4)				
6	Initial accumulative total for next sublot (#1 + #2)				
7	Sample station location				
8	Lane				
9	Width of mat (feet)				
10	Random percentage number from table				
11	Distance in feet from edge, R to L (#9 x #10)				
12	Location of sublot				
13	Dates placed				
14	Inspector's initials				

Notes: Field sampling of Item 448 asphalt is not routine. Typically the Contractor takes random samples for acceptance at the plant. This procedure will be used only as directed by the District Monitoring Team.

General Observations:

_____

_____

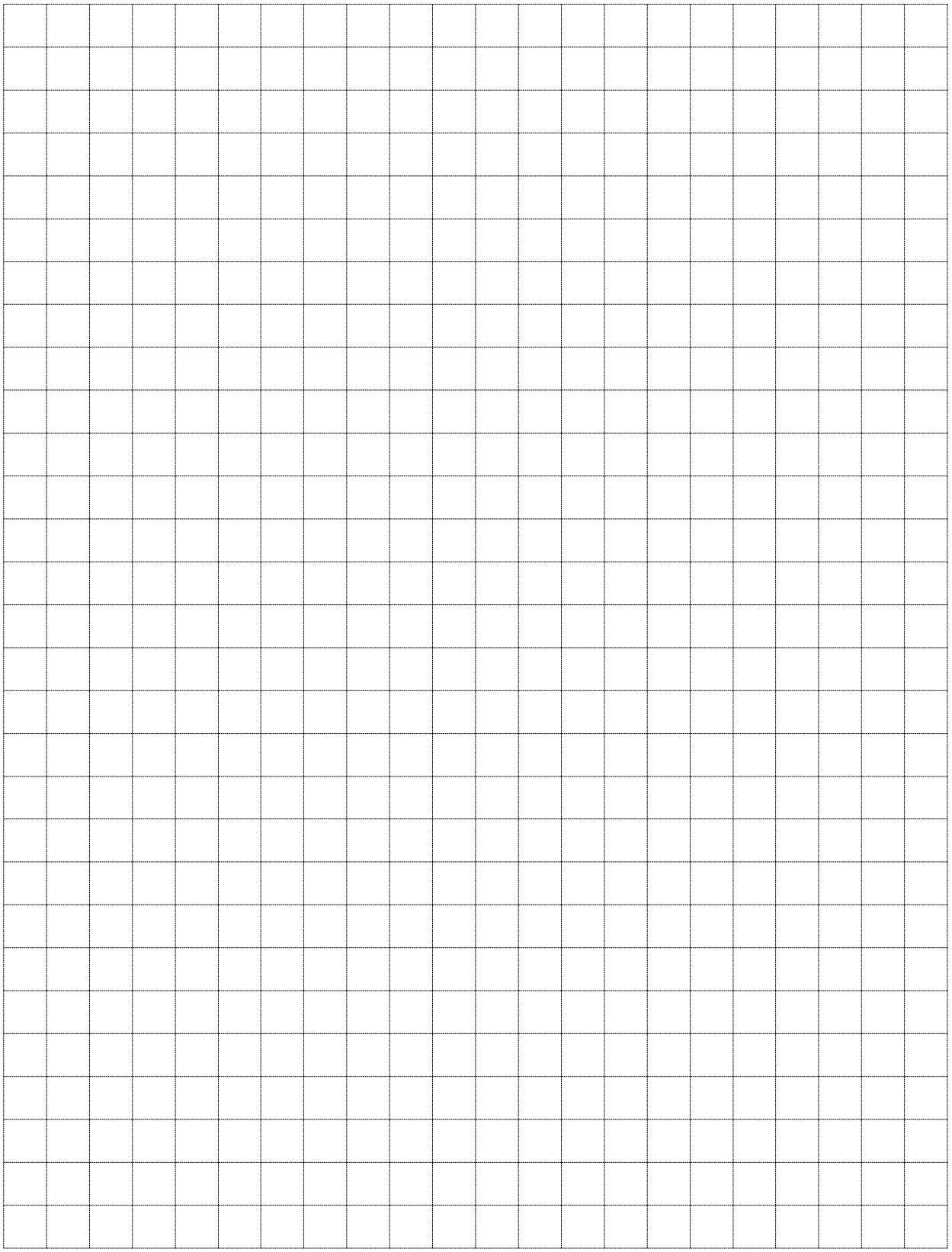
_____

_____

Inspector's Signature Date

P.E./P.S. Signature Date

CA-FP-2 Random Selection of Asphalt Field Samples (448, 403) (back)



CA-FP-3 Summary of Asphalt Concrete Quantities

Date _____

Project # _____ County, Route, Section _____

Contractor _____ Item # _____ Ref # _____

Description _____

Location _____ Bubble # _____ Plan Pg _____

Asphalt Supplier _____

Ref #	Ref #	Ref #	Ref #
E/W #	E/W #	E/W #	E/W #
JMF #	JMF #	JMF #	JMF #
Type:	Type:	Type:	Type:

Date	TONS	Date	TONS	Date	TONS	Date	TONS
Total TONS	0	Total TONS	0	Total TONS	0	Total TONS	0
Conv Factor		Conv Factor		Conv Factor		Conv Factor	
Total CY	0	Total CY	0	Total CY	0	Total CY	0

TOTAL TONS on Page 0

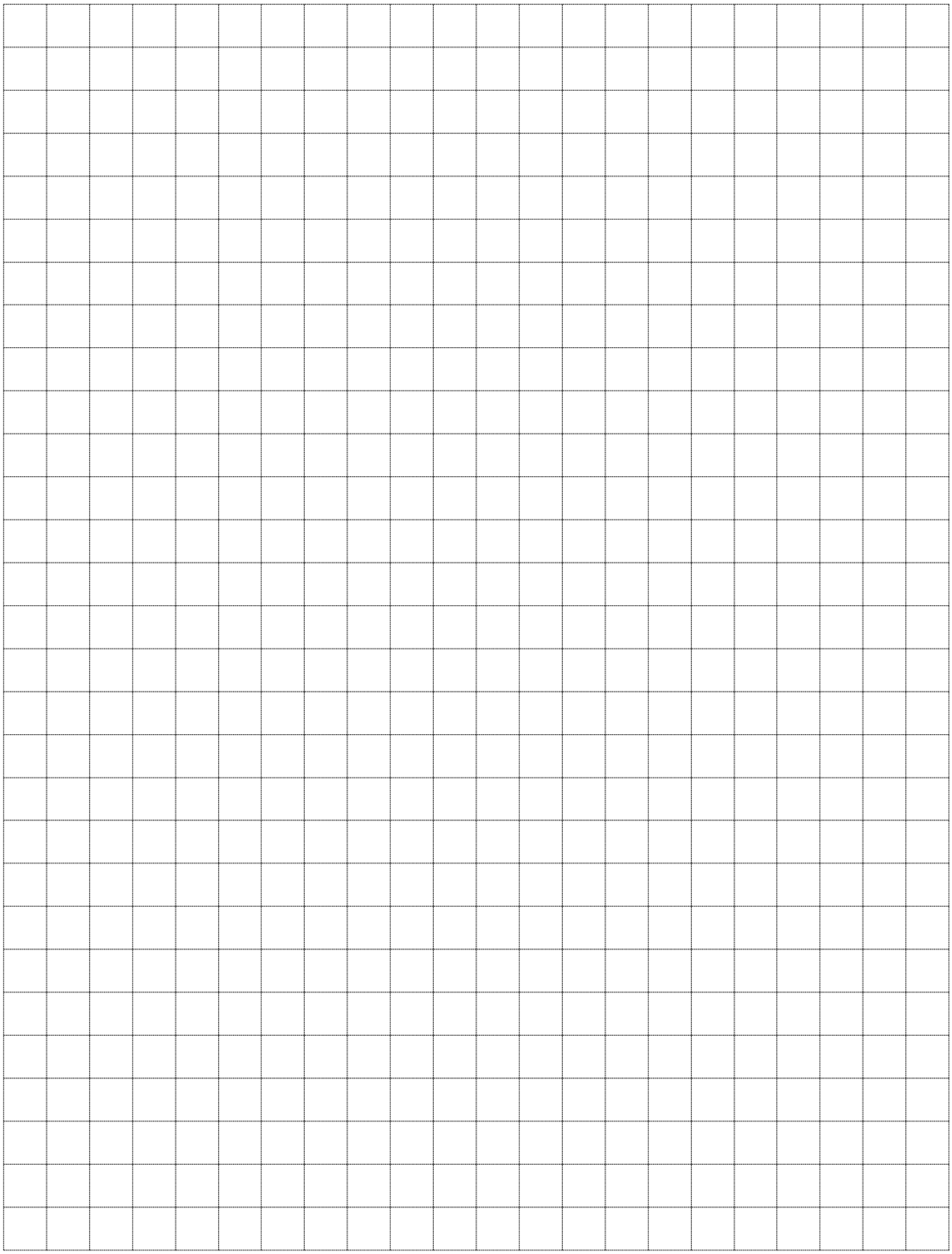
TOTAL CY on Page 0

_____ _____

Inspector's Signature Date

P.E./P.S. Signature Date

CA-FP-3 Summary of Asphalt Concrete Quantities (back)



CA-FP-4 Asphalt Concrete inspection

Date _____

Project # _____ County, Route, Section _____

Contractor _____ Item # _____ Ref # _____

Description _____

Location _____ "Bubble" # _____ Plan Pg _____

Weather _____

Surface Condition _____

Air Temperature _____ Surface Temperature _____

Material Conversion Factor (Ton/CY) _____

Amount of Material Used (Tons by ticket) _____

Required placement rate per station (RPRS),	recorded in tons per station (Ton/STA)
RPRS = [(100 ft/STA) x Lane Width x Mat Thickness) / 27] x Material Conversion Factor = Ton/STA	
Actual placement rate per station	recorded in tons per station (Ton/STA)
APR = (Material used (tons) / [Test section length (feet) / (100/STA)] = Ton/STA	
% Spreading Rate Tolerance	recorded in % (and to be maintained at ±5%)
% = [1 - (RPRS / APR)] x 100	

		Test 1	Test 2	Test 3	Test 4	Test 5
Location of Test	STA*					
	to STA*					
Length of Section	(FT)					
Mat Thickness	(IN)					
	(FT)					
Width of Section	(FT)					
RPRS	(Ton/STA)					
APR	(Ton/STA)					
% Spreading Rate Tolerance						

* Input station in feet. I.E., STA 200+00 = 20,000 feet

Remarks

_____

_____

_____

Inspector's Signature Date

P.E./P.S. Signature Date

CA-FP-4 Asphalt Concrete inspection (back)

CA-FP-5 Roller Capacity and Placement Rate

Date _____

Project # _____ County, Route, Section _____

Contractor _____ Item # _____ Ref # _____

Description _____

Location _____ Bubble # _____ Plan Pg _____

1) Check rollers used; fill in the total weight and compare to requirements in 401.13-2 and -3. Contractor is to provide weights.
2) Calculate the total roller train capacity in (square yards per hour) and compare it the calculated placement rate.
3) Check compression rolls for steel wheel rollers and compare to requirements in 401.13-2.
4) This procedure must be used for asphalt concrete courses that do not have a density specification.

	Roller Type *(Check all that apply)*	Weight** (Lbs)	Roller Capacity (SY/HR)	# Rollers	# Drums	Width* (in.)	**Total** Roller Capacity (SY/HR)
	Tandem		700		→	→	0.0
	Three-Wheeled		700		→	→	0.0
	Trench		15 SY/HR per Inch Width*				0.0
	Pneumatic Tire, Type 1		1000		→	→	0.0
	Pneumatic Tire, Type 2		700		→	→	0.0
	Vibratory Roller, vibration mode		15 SY/HR per Inch Width*				0.0
	Vibratory Roller, static mode		3 SY/HR per Inch Width*				0.0

* Width = width of the roller drum. ** Weight - Check for compliance with 401.13-2 and -3. Contractor to provide roller weight.

Compression Roll Check for Steel Wheel Rollers

	Roller Type *(Check all that apply)*	Weight (Lbs)	Width (IN)	Compression Roll* (Lbs/IN)
	Tandem			
	Three-Wheeled			
	Trench			
	Vibratory Roller, static mode			

* Check for compliance with 401.13-2

Thickness of Pavement Mat _____ (Inches)

Material Conversion Factor _____ (Ton/CY)

Maximum Roller Capacity 0.0 (SY/HR)

Maximum Pavement Placement Rate 0.0 (Ton/HR)

Remarks

_____

_____

_____

_____

Inspector's Signature Date P.E./P.S. Signature Date

CA-FP-5 Roller Capacity and Placement Rate (back)

Example: Calculate maximum roller capacity and placement rate

A contractor is using one three-wheeled roller, one vibratory roller with 66 inch drums (both vibrating), and one Type 2 pneumatic tire roller to compact a mat that is 5 inches thick.

The material has a Lab Conversion Factor of 2.0 (tons/CY).

From 401.13-1 Roller Capacity Table

Three Wheel Roller (1)	700 SY/HR
Vibratory Roller (1)	2 drums x 66 inches/drum x 15 SY/HR per inch width = 1980 SY/HR
Type 2 Pneumatic Roller (1)	) SY/HR

Calculate Maximum Roller Capacity

700 SY/HR + 1980 SY/HR + 700 SY/HR = **3380 SY/HR**

Calculate Maximum Placement Rate

5 in. x (1 YD/36 in.) = 0.1389 YD

0.1389 YD x 3380 SY/HR = 469.48 CY/HR

469.48 CY/HR x 2 Ton/CY = **938.88 Ton/HR**

If the Contractor is placing 938.88 Ton/HR or less there will be adequate roller coverage.

Example: Check compression roll

A contractor is using a tandem roller with 53 inch width drums. The weight of the roller is 8 tons.

Calculate compression roll:

Compression Roll Lbs/in. = weight of roller (Lbs) / total width of all drums (in.)

= (8 tons x 2000 Lbs/ton) / (2 drums x 53 in.) = **150.9 Lbs/in.**

This compression roll does not meet the requirements of 401.12-2 (200 Lbs/in.)

CA-FP-6 Calculation of Liquid Asphalt Materials

Date _____

Project # _____ County, Route, Section _____

Contractor _____ Item # _____ Ref # _____

Description _____

Location _____ Bubble # _____ Plan Pg _____

Supplier _____ Distributor No. _____ Distributor Capacity _____ (GAL)

Name and Location of Plant _____

Material Code _____ JMF _____

1	Gross Wt		(LBS)		
2	Tare Wt		(LBS)		
3	Net Wt		(LBS)	→	*(Gross Wt - Tare Wt)*
					*… (**#1** - #**2**)*
4	Temp Factor				
5	Specific Gravity				
6	Volume		(GALS)	→	*(Net Wt / (Temp Factor x Specific Gravity)*
					*… (**#3** / (#**4** x #**5**)*

Inspector's Signature Date

CA-FP-6 Calculation of Liquid Asphalt Materials (back)

Notes:

This formula calculates volume at the specified pay temperature (109.01) for the asphalt material. If the actual temperature, as measured in the tank truck or distributor, differs from the specified pay temperature, the pay volume must be adjusted as per Supplement 1060.

Values for Temperature Factor, ""K"", and Coefficient of Expansion are included in ODOT Supplement 1060, Table A. Table B provides Pay Temperature and an index of formulas to be used for calculating volume based on actual measured temperature."

TE-217 Bituminous Concrete Density Determination - 446 Cores

TE-217 Non-Electronic Version — **Bituminous Concrete Density Determination - 446 Cores**

Sample ID: _____ Personnel ID: _____ Type of Inspection: _____

Producer Code: _____ Material Code: _____ Date Sampled: _____

Quantity: _____

Project: _____ Item: _____ Reference: _____ JMF: _____

Lane Paved: _____ Lot: _____

Beginning Station: _____ Day: _____

Ending Station: _____ Date Placed: _____

Does sublot include shoulder? Y or N _____

Width of Sublot (feet): _____

Sublot Number	Core Number	Beginning Station	Length of Sublot (feet)	Ending Station	Longitudinal Random Number - 2 per sublot	Station - Location of Core	Width of Sublot Lane (feet)	Transverse Random Number - 2 per sublot	Distance in feet Left or Right of Centerline (for joint cores see joint core instructions)	Joint Core? Y or N	Confined or Unconfined Joint? Y or N	Remarks/Notes
1	1											
	2											
2	3											
	4											
3	5											
	6											
4	7											
	8											
5	9											
	10											

TE-217 Bituminous Concrete Density Determination - 446 Cores

Test Lab Data:

Core No.	Thickness (inches)	Received Weight	Pan Number	Wet Wt.	Constant Wt.	Pan Tare	Wt. in Air gms.	S.S.D. Wt. gms.	Weight in H2O gms.			TESTING INFORMATION
1												Spec Year:
2												Daily M.S.G. Ave:
3												Water Temperature:
4												Tested By:
5												Test Results:
6												Date Test Completed:
7												Remarks:
8												
9												
10												

TE-217 Bituminous Concrete Density Determination - 446 Form Instructions

Day	Day Number (maybe greater than Lot number)
Date Placed	Date asphalt was placed
Beginning Station	Beginning station for the day
Ending Station	Ending station for the day
Width of Sublot	Paving lane width in feet
At Joint? Y or N	Enter Y for joint cores or N for non joint cores (see joint core tab)
Confined or Unconfined Joint?	Enter C for confined or U for unconfined (see joint core tab)
Generate Random Numbers	Use the random number table
Review and Print Form	Use the printed worksheet to layout the cores at paving site

Log into CMS to create a sample ID number and record it on the TE-217 form
Write in tonnage placed for the day in the Quantity box
Make any updates or comments to the form
Make a copy of the TE-217 for the project records
Send in the original TE-217 with cores

TE-217 Bituminous Concrete Density Determination - 446 Cores Instructions

Notes on 446 Density Acceptance and Joint Cores

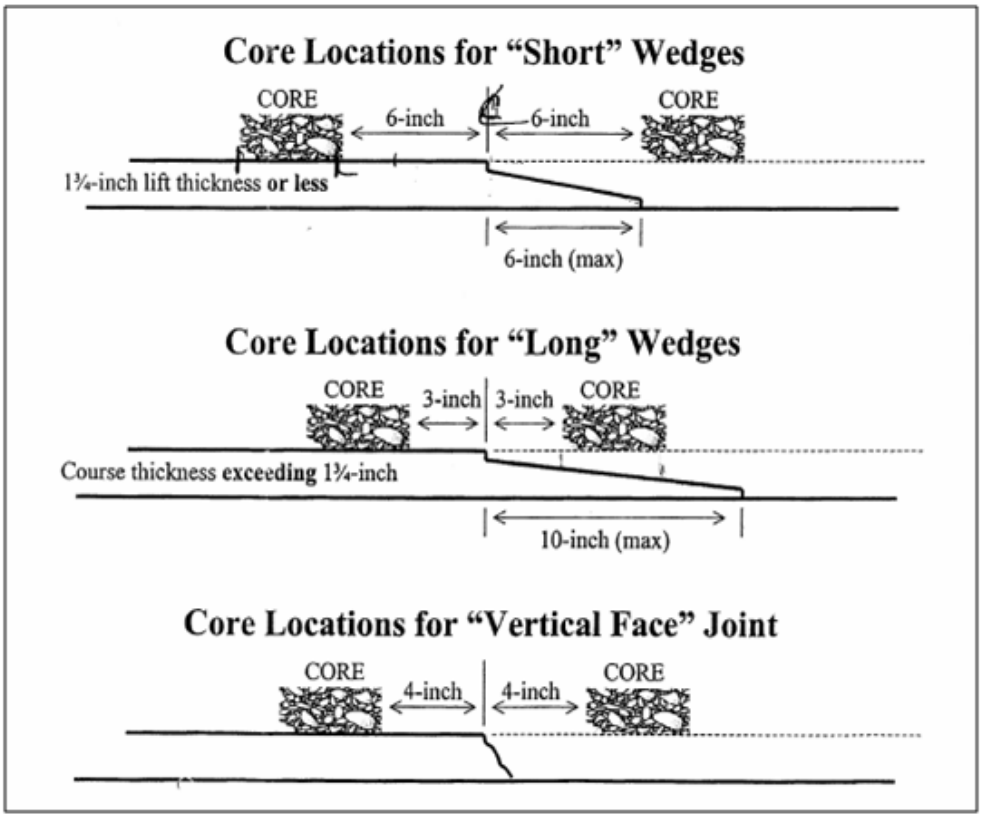
Each production day = one lot = total tonnage
Each lot is divided into 5 sublots
Take 2 cores from each sublot for a total of 10 cores
Take 3 cold longitudinal joint cores*
Do not locate other mat cores closer than 12" to upper notch (or wedge joint) or vertical face of cold longitudinal join

*** For cold longitudinal joint cores - take 3 cores:**

Take one random core from Sublot 1
Take one random core from the one of the middle three Sublots, 2, 3, or 4
Take one random core from Sublot 5
Randomly determine if joint core is from confined or unconfined joint
See core location table and transverse location diagrams below.

LOCATIONS OF LONGITUDINAL JOINT CORES

Sublot 1		Sublot 2		Sublot 3		Sublot 4		Sublot 5	
Core 1	Core 2	Core 3	Core 4	Core 5	Core 6	Core 7	Core 8	Core 9	Core 10
1 Core Here		**1 Core Here**						**1 Core Here**	



TE-217 Bituminous Concrete Density Determination - 446 Random Number Table

RANDOM NUMBER TABLE

1	1048	0150	1015	3602	0118	1647	9164	6691	7914	1946	2590	3620	7209	6999	5709	1291	9070
2	2236	8465	7325	5958	5393	3309	9589	1982	7982	5340	2939	6534	0955	2666	1917	4396	1599
3	2413	0483	6022	5279	7265	7639	3648	0915	1792	4830	4934	0320	8130	6801	9655	6334	4858
4	4216	7930	9306	2436	1680	0785	6163	7639	4405	3537	7134	1570	0400	8497	4917	9775	8163
5	3757	0399	7581	8371	6656	0612	1917	8260	4688	1305	4968	6067	2141	1006	9270	1263	5461
6	7792	1069	0711	0084	2751	2775	6534	9818	6027	0659	9065	5150	5321	9168	1825	4439	4428
7	9956	2729	0556	4206	9994	9887	2310	1671	1941	8738	4401	3488	4063	2132	1069	1063	4129
8	9630	1919	7705	4630	7972	1887	6209	2294	5955	6869	6901	4600	4518	1842	5849	0342	2508
9	8957	9143	4263	6611	0281	1745	3181	0357	7740	8437	8253	3112	5665	8678	4494	7055	8556
10	8547	5368	5753	3425	3988	5306	0595	3886	7623	0008	1581	7983	1643	9114	5818	1859	3649
11	2891	8695	7888	2313	3276	7099	7799	3656	8650	0585	9901	0631	5950	1547	8559	0916	1078
12	6355	3409	6148	2350	0342	7496	2669	4451	8663	7269	5521	8020	8471	2234	9051	1337	7039
13	0942	9939	6952	2636	9273	7889	7433	4883	6320	0176	1730	0150	8272	8411	5271	5630	6137
14	1036	5611	2987	5298	5689	9482	3752	2676	6768	9933	9401	5112	6358	8510	4202	8529	9758
15	0711	9973	3671	0480	8178	7723	3139	1647	5648	1056	9773	5859	7729	3727	4461	2855	1907
16	5108	5127	6551	8215	1259	7745	2163	0860	7569	2144	4944	2539	0070	9606	3990	7560	1407
17	0236	8213	8252	4046	0268	8936	8198	8555	3224	4819	0118	8652	5564	8354	4919	0594	4551
18	0101	1540	9233	3629	4904	3127	3041	4618	5942	9852	7158	5850	3051	1320	1915	9274	7649
19	5216	2539	1646	3695	8586	2321	6145	1383	1499	8736	2349	5643	5094	7381	7752	3515	6357
20	0705	6976	2833	7870	9998	4269	8066	9176	9881	3602	5185	1461	0488	9161	9509	2562	5581
21	4866	3912	4585	8281	4346	0917	2301	6890	2290	4734	5919	3221	7830	4216	1666	9990	4328
22	5416	4584	9222	4217	4103	4707	0253	0676	4682	6384	5815	1066	4621	5241	5227	9690	9445
23	3263	9323	6305	5972	4200	1336	3380	0594	3422	8728	3580	6069	1217	0126	4161	1829	6228
24	2933	4270	0187	6378	7308	5873	1002	5645	8341	5398	4655	7411	3510	3670	7684	3618	8185
25	0248	8330	6228	8340	7351	1973	1924	2060	5261	2805	0001	6765	8325	8686	6795	0720	9495
26	8152	5722	9504	8399	6423	2487	8826	5166	5661	4778	7679	7147	8013	3008	7074	7966	6957
27	2967	6205	9168	0862	6432	4690	1208	4989	7688	1536	8664	5126	5992	2595	7102	8042	8252
28	0074	2573	9239	0646	6432	8467	3400	2732	8326	1362	9894	7960	6764	7606	4584	9609	6982
29	0536	6042	1325	6692	6422	4440	7440	4837	9376	3904	4576	6661	3475	4706	6520	3469	3904
30	9192	1264	1864	1179	4305	2676	6259	4039	9722	2209	7150	0645	6891	4024	2416	0784	4696

How to determine random numbers for purpose of determining core locations:

1. Randomly select a starting number from the table.
2. The following number can be the next number in that row or in that column. The choice is purely a matter of preference as long as the chosen method is consistently followed.
3. The number chosen shall be treated as a decimal (If random number = 5241; decimal is 0.5241)
4. For longitudinal core location; multiply the random number by length of sublot and add to the lot's beginning station.
5. For transverse core location; multiply the random number by the width of the sublot.

Example:
Length of sublot = 9000 feet; Width of Sublot = 12 feet; Beginning Station = 0+00; Longitudinal random number = 0.5241; Transverse random number = 0.4621

Calculate longitudinal core location:

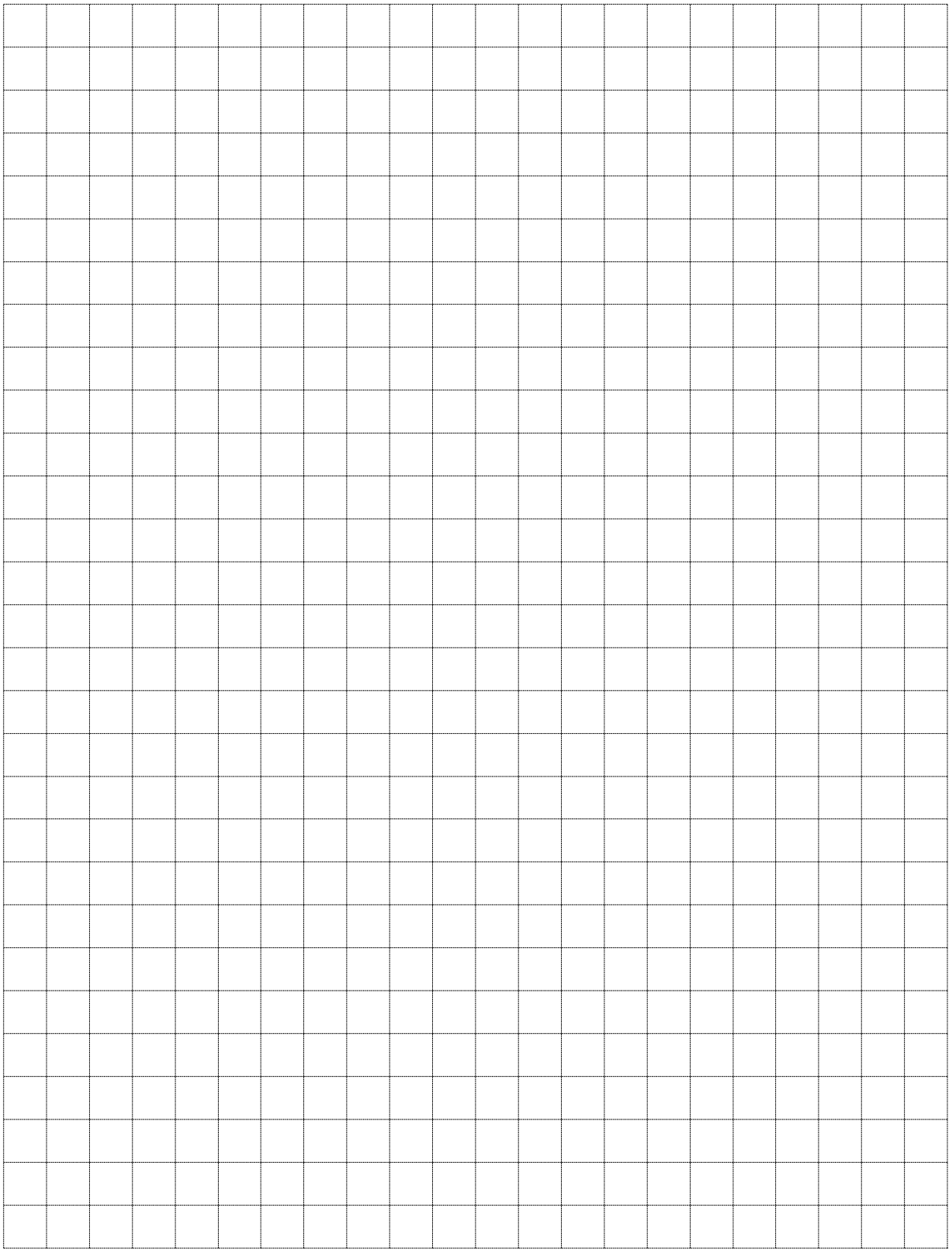
0.5241 x 9000 feet = 4716.9 feet

Beginning station = 0+00 = 0 feet; Then core location = 0 + 4716.9 = 47+16.9

Calculate transverse core location:

0.4621 x 12 feet = 5.54 feet from right or left edge of pavement

TE-217 Bituminous Concrete Density Determination



CA-P-1(603) Pipe Construction Inspection Form - 1/2

Project # _____ County, Route & Section _____

Sample ID_____ Personnel ID _____ Date Sampled _____

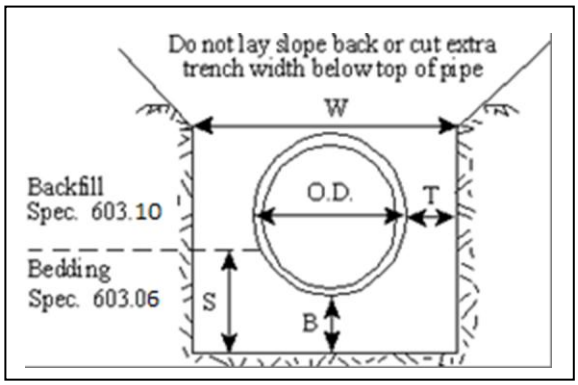
Item # _____ Ref. # _____ Producer Code_____ Contractor _____

Description _____

Location _____ Balloon Ref. # _____Plan Page _____ Pipe Material (RCP, Metal, HDPE, Other)

Type of Pipe *(circle one)* A B C D E F Pipe Markings _____

Provide a 2 to 1 slope from top of pipe in a cut to the top of excavation
Provide a 2 to 1 slope from spring-line of pipe in a fill to the top of excavation



W = Width of trench at Top of Pipe. _____ Refer to Spec. 603.05

B = Thickness of bedding under pipe. _____

T = Outside diameter of pipe to trench wall. _____

S = Depth of bedding. _____

OD = Outside diameter of pipe. _____

* *Type 2 Bedding is Shown See Specification and SCD For Type 1,3,4*

For Type 2 Bedding Plastic: B= 6"(150 mm) S= B + 30% OD

For Type 2 Bedding Non Plastic: B= 3"(75 mm) S= B + 30% OD

TRENCH & BEDDING CHECKS (ACTUAL FIELD MEASUREMENTS)

Check Stations & Location	T	W	B	S	O.D.	Initial	Date

* Recommended checks every 50 feet, with a minimum of two checks per run. Check locations may be related to starting point such as outlet end, catch basin, C/L station, etc.

Field Measurements Lf. (meter)	Plan Pay Length Lf. (meter)	Grade Check Method	Backfill			Compaction Form#	Initials & Date
			Compaction Method Tamp, Flood, etc.	Type: Soil or Structural Backfill 1,2 or 3	Lift Depth		

Type of Joints (603.08) _____ Joints Installed Satisfactorily? □ Yes □ No

Materials: All tested and approved prior to incorporation into the project.

CA-P-1(603) Pipe Construction Inspection Form - 2/2

Balloon Ref. # (s):_____ Plan Page (s):_____

Station to Station: _____

Plan Quantity: _____ LF (meters)

Remarks: _____

Daily Total Field Measured: _____ LF (meters) *

Remarks: _____

Daily Total Authorized Pay: _____ LF (meter)**:_____

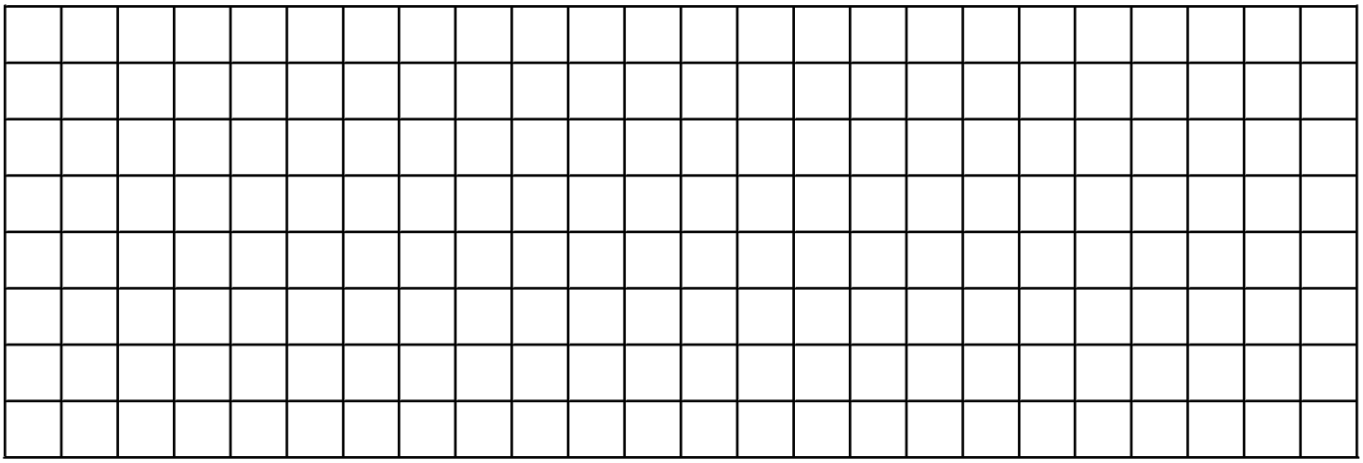
* Explain field measurements and authorized pay. Pay in accordance with 603.14 Method of Measurement?
a) Structure or pipe end location moved or least cost to State when accommodating full sections.
b) Measured to C/L of structure when inside structure dimension is under 6 linear feet (2 meters) in direction of flow or only one structure on the run of pipe.
c) You must account to "Lab" for pipe length due to creep & measurements to C/L of structures.

** Round all Items Reference to nearest 0.1 foot (0.03 meter).

Remarks: Record problems, soft foundations, under cuts, rock, instructions, utilities encountered, etc. Describe and note location of existing conduits encountered, whether connected, plugged and abandoned, reconnected, etc.

_____
_____
_____
_____
_____
_____

Sketch area:



_____ _____

Inspector's Signature **Date** **P.E./P.S. Signature**

CA-P-2 Underdrain Construction Inspection Form - 1/2

Project # _____ County, Route & Section _____

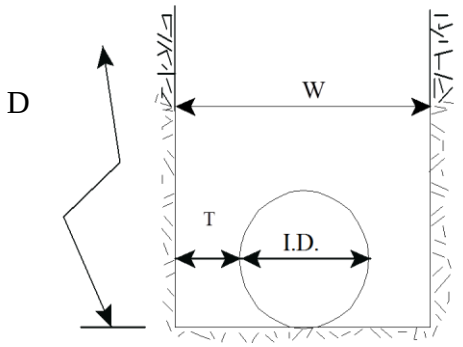
Sample ID_____ Personnel ID_____ Date Sampled_____

Item # _____ Ref. #_____ Producer Code_____ Contractor_____

Description _____

Location _____Balloon Ref. # _____Plan Page_____ Pipe Material (RCP, Metal, HDPE, Other)

Underdrain Markings_____ Filter Fabric Required _____Underdrain Joint Type_____ (coupler, bell & Spigot)



W = Width of trench._____

D= Depth of Trench _____

T =Outside pipe to trench wall. _____

ID = Inside diameter of pipe. _____

TRENCH & BACKFILL CHECKS (ACTUAL FIELD MEASUREMENTS)

Station to Station Right, Left Side Every 50 feet (20m)	T	W	I.D.	Backfill Material 8,9,89's	Outlet Station	How Outlet Catch Basin Slope	Initial	Date	Date Pav't Placed

CA-P-2 Underdrain Construction Inspection Form - 2/2

Balloon Ref. # (s):_____ Plan Page (s):_____

Station to Station: _____

Plan Quantity: _____ LF (meters)

Remarks: _____

Daily Total Field Measured: _____ LF (meters) *

Remarks: _____

Daily Total Authorized Pay: _____ LF (meter)**: _____

* Explain field measurements and authorized pay. Pay in accordance with 603.12 Method of Measurement?
a) Structure or pipe end location moved or least cost to State when accommodating full sections.
b) Measured to C/L of structure when inside structure dimension is over 6 linear feet (2 meters) in direction of flow or only one structure on the run of pipe.
c) You must account to "Lab" for pipe length due to creep & measurements to C/L of structures.

** Round all Items Reference to nearest 0.1 foot (0.03 meter).

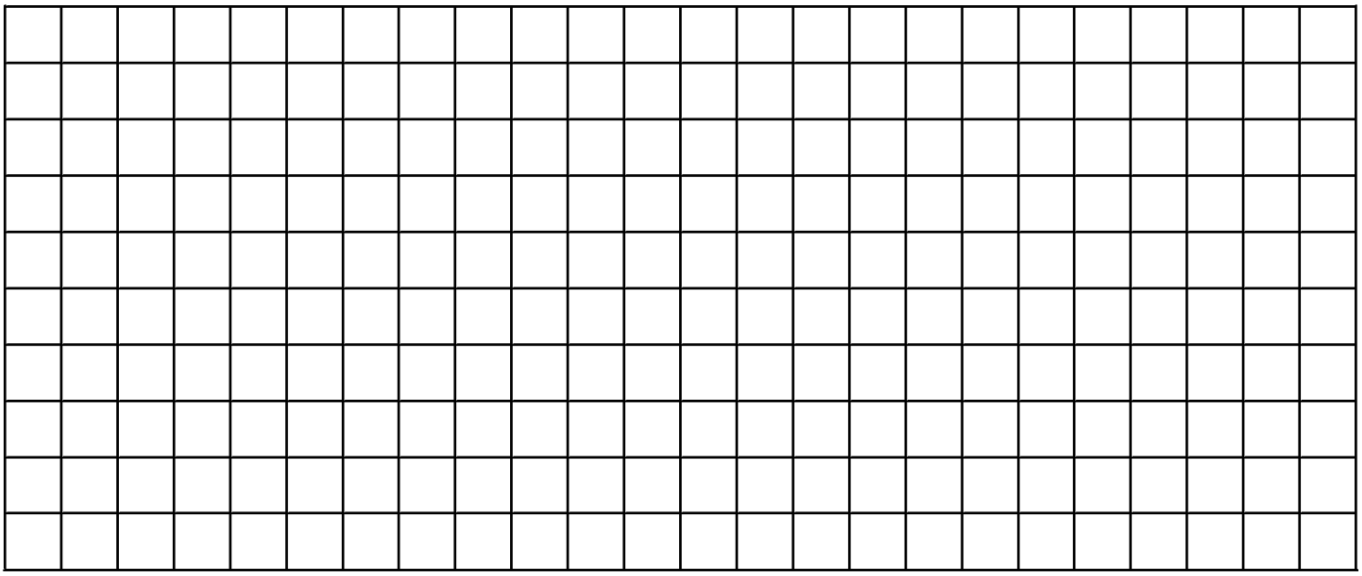
Remarks: Record problems, soft foundations, under cuts, rock, instructions, utilities encountered, etc. Describe and note location of existing conduits encountered, whether connected, plugged and abandoned, reconnected, etc.

_____

_____

_____

Sketch area:



_____ _____

Inspector's Signature **Date** **P.E./P.S. Signature**

CA-P-3(604) Drainage Structure Inspection Form - 1/2

Project # _____ County, Route & Section _____

Sample ID_____ Personnel ID_____ Date Sampled _____

Item # _____ Ref. # _____ Producer Code_____ Contractor _____

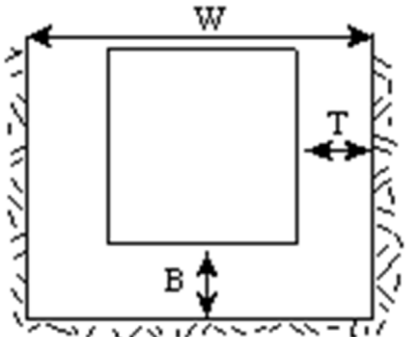
Description_____

Location _____ Balloon Ref. # ____Plan Page ____ Material (Precast, Brick-Block, Other)

Temperature _____ Structure Temperature _____ Mortar Temperature _____

Type of Pipe being placed in structure *(circle all that apply)* A B C D E F , Structure Markings _____

Lifting Devices are to remain in place. Manhole top type furnished _____



W = Width of trench at Top of the Structure._____
B = Thickness of bedding under Structure. _____
T = Structure to trench wall thickness _____
Type of Bedding Material Furnished _____
Type of Backfill material furnished _____
Type of Structure (Catch Basin, Inlet, Manhole, 604.02) _____
Type of Joint Material being used (604.06) _____

Pipe OD					
Structure Opening Dia.					

Backfill

Compaction Method Tamp, Flood, etc.	Type: Soil or Structural Backfill 1, 2, 3	Lift Depth	Compaction Form	Initials And Date

CA-P-3(604) Drainage Structure Inspection Form - 2/2

Circle the Application: 1 Proposed Structure, 2 Reconstruction Structure, 3 Adjustment to Grade

Balloon Ref. # _____ Plan Page _____ Plan Station _____ Offset _____ Elevation _____

Structure Top Field Station _____ Field Offset_____ Field Elevation_____

Manhole Plan Base Station _____ Offset _____ Elevation _____

Manhole Field Base Station _____ Field Offset_____ Field Elevation_____

Reconstruction Structure removal depth_____ Outlet Pipe Elevation _____ Field Outlet Pipe Elevation_____

Is the Sump Finished Per the Standard Drawing: YES __ NO__ Explain: _____

Is the Consults Finished Per the Standard Drawing: YES __ NO__ Explain: _____

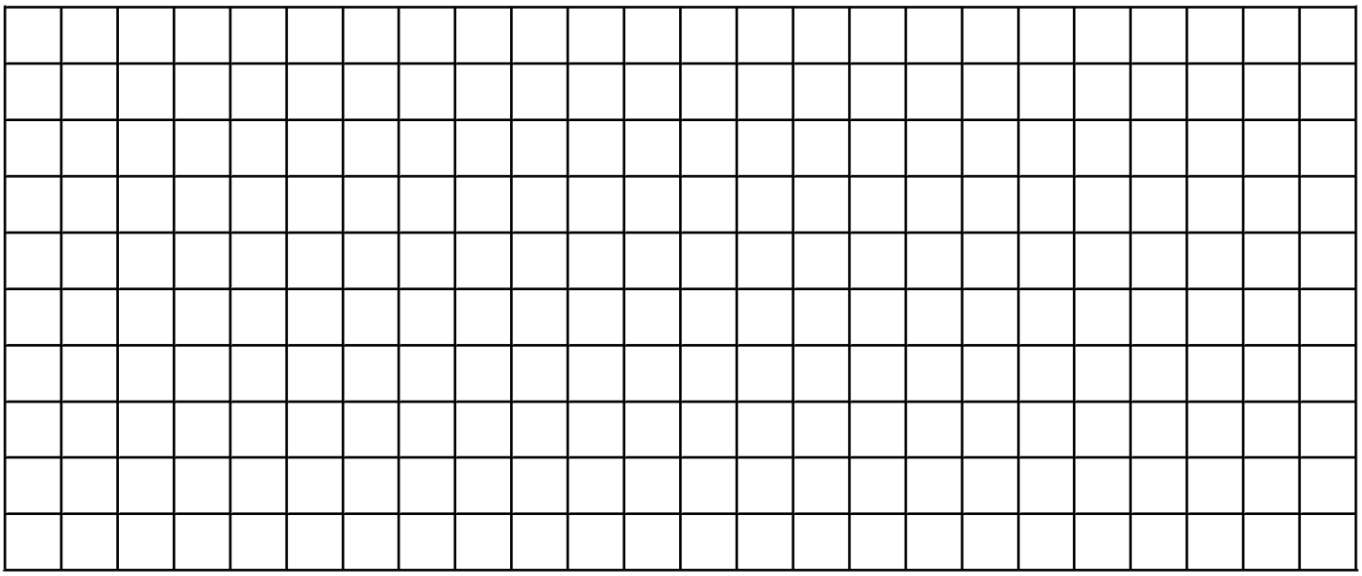
Authorized Pay: YES _____NO_____ Reference Number_____

Explain field measurements and authorized pay. Pay in accordance with 604.08 Method of Measurement

Remarks: Record problems, soft foundations, under cuts, rock, instructions, utilities encountered, etc. Describe and note location of existing conduits encountered, whether connected, plugged and abandoned, reconnected, etc. Provide locations and size of any laterals that are not part of a 603 pay Item in a sketch.

_____

Sketch area:



_____ _____

Inspector's Signature **Date** **P.E./P.S. Signature**

CA-P-3(611) Drainage Structure Inspection Form - 1/2

Project # _____ County, Route & Section _____

Sample ID_____ Personnel ID_____ Date Sampled _____

Item # _____ Ref. # _____ Producer Code_____ Contractor _____

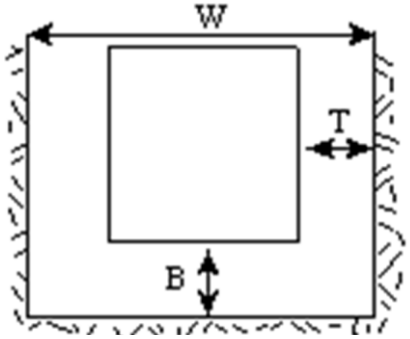
Description_____

Location _____ Balloon Ref. # ____Plan Page ____ Material (Precast, Brick-Block, Other)

Temperature _____ Structure Temperature _____ Mortar Temperature _____

Type of Pipe being placed in structure *(circle all that apply)* A B C D E F , Structure Markings _____

Lifting Devices are to remain in place. Manhole top type furnished _____



W = Width of trench at Top of the Structure._____
B = Thickness of bedding under Structure. _____
T = Structure to trench wall thickness _____
Type of Bedding Material Furnished _____
Type of Backfill material furnished _____
Type of Structure (Catch Basin, Inlet, Manhole, 611.10) _____
Type of Joint Material being used (611.10) _____

Pipe OD					
Structure Opening Dia.					

Backfill

Compaction Method Tamp, Flood, etc.	Backfill Type Description 611.04 B	Lift Depth	Compaction Form	Initials And Date

CA-P-3(611) Drainage Structure Inspection Form - 2/2

Circle the Application: 1 Proposed Structure, 2 Reconstruction Structure, 3 Adjustment to Grade

Balloon Ref. # _____ Plan Page _____ Plan Station _____ Offset _____ Elevation _____

Structure Top Field Station _____ Field Offset_____ Field Elevation_____

Manhole Plan Base Station _____ Offset _____ Elevation _____

Manhole Field Base Station _____ Field Offset_____ Field Elevation_____

Reconstruction Structure removal depth_____ Outlet Pipe Elevation _____ Field Outlet Pipe Elevation_____

Is the Sump Finished Per the Standard Drawing: YES __ NO__ Explain: _____

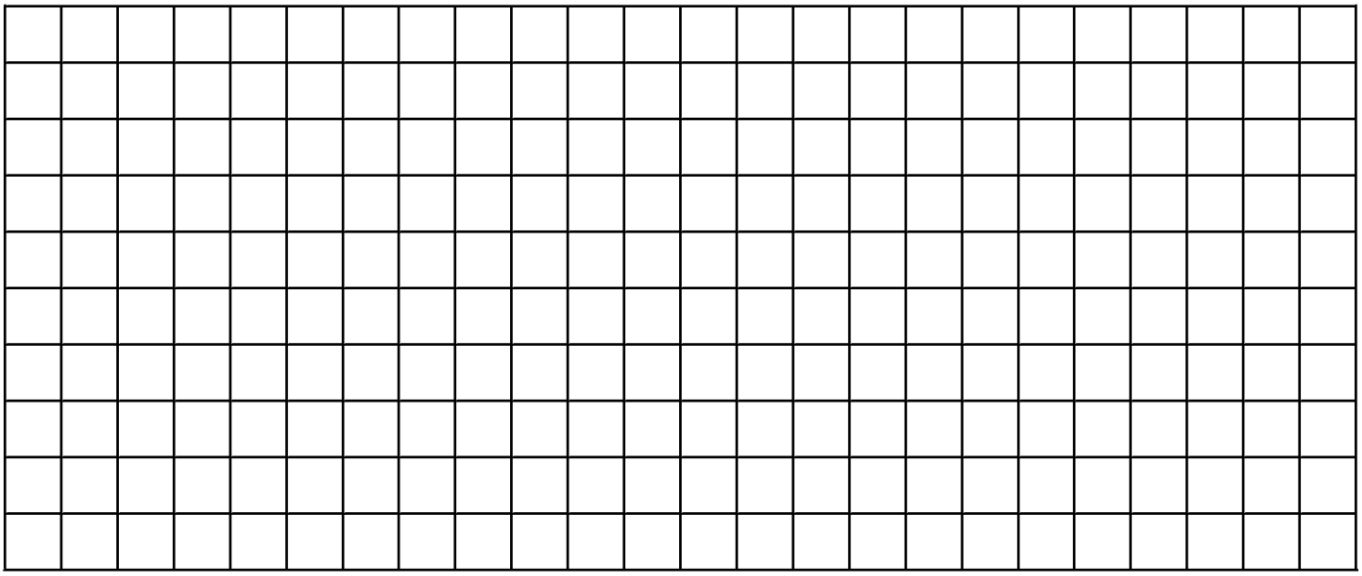
Is the Concrete bottom shaped per the Standard Drawing: YES __ NO__ Explain: _____

Payment will be made in accordance with 611.16 Method of Measurement

Remarks: Record problems, soft foundations, under cuts, rock, instructions, utilities encountered, etc. Describe and note location of existing conduits encountered, whether connected, plugged and abandoned, reconnected, etc. Provide locations and size of any laterals that are not part of a 611 pay Item in a sketch.

_____

Sketch area:



611.04 C:

"I certify that the information on this form is accurate and all deviations from the current installation plan have been noted."

_____ _____

Contractor's Representative **Date** **Print Contractor's Representative Name**

CA-P-1(611) Pipe Construction Inspection Form - 1/2

Project # _____ County, Route & Section _____

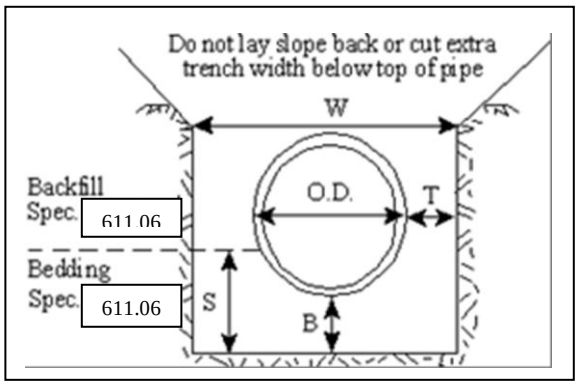
Sample ID_____ Personnel ID _____ Date Sampled _____

Item # _____ Ref. # _____ Producer Code_____ Contractor _____

Description _____

Location _____ Balloon Ref. # _____Plan Page _____ Pipe Material (RCP, Metal, HDPE, Other)

Type of Pipe *(circle one)* A B C D E F Pipe Markings _____



W = Width of trench at Top of Pipe. _____ Refer to Spec. 611.05

B = Thickness of bedding under pipe. _____

T = Outside diameter of pipe to trench wall. _____

S = Depth of bedding. _____

OD = Outside diameter of pipe. _____

TRENCH & BEDDING CHECKS (ACTUAL FIELD MEASUREMENTS)

Check Stations & Location	T	W	B	S	O.D.	Initial	Date

* Check every 50 feet, with a minimum of two checks per run. Check locations may be related to starting point such as outlet end, catch basin, C/L station, etc.

Field Measurements Lf. (meter)	Plan Pay Length Lf. (meter)	Grade Check Method	Backfill			Compaction Form#	Initials & Date
			Compaction Method Tamp, Flood, etc.	Material type as described in the installation plan	Lift Depth		

Type of Joints (611.08) _____ Joints Installed Satisfactorily? ☐ Yes ☐ No

Materials: All tested and approved prior to incorporation into the project.

CA-P-1(611) Pipe Construction Inspection Form - 2/2

Balloon Ref. # (s):_____ Plan Page (s):_____

Station to Station: _____

Plan Quantity: _____ LF (meters)

Remarks: _____

Daily Total Field Measured: _____ LF (meters) *

Remarks: _____

611.16

* The Department will measure conduit by the number of feet, measured center-to-center of small drainage structures or between open ends including the length of pipe bends and branches. The Department will not deduct conduit length for catch basins, inlets, or manholes where the distance measured in the direction of flow, including bends, is 6 feet or less. Where the location of a drainage structure or an open end is changed with the approval of the Engineer to accommodate full conduit sections, the Department will measure the length placed. Conduits placed on slopes steeper than 3H:1V or with beveled or skewed ends will be measured along the invert.

Remarks: Record problems, soft foundations, under cuts, rock, instructions, utilities encountered, etc. Describe and note location of existing conduits encountered, whether connected, plugged and abandoned, reconnected, etc.

_____
_____
_____
_____
_____

Sketch area:

611.04:

"I certify that the information on this form is accurate and all deviations from the current installation plan have been noted."

_____ _____

Contractor's Representative **Date** **Print Contractor's Representative Name**

CA-D-1A Field Calculation and Measurement

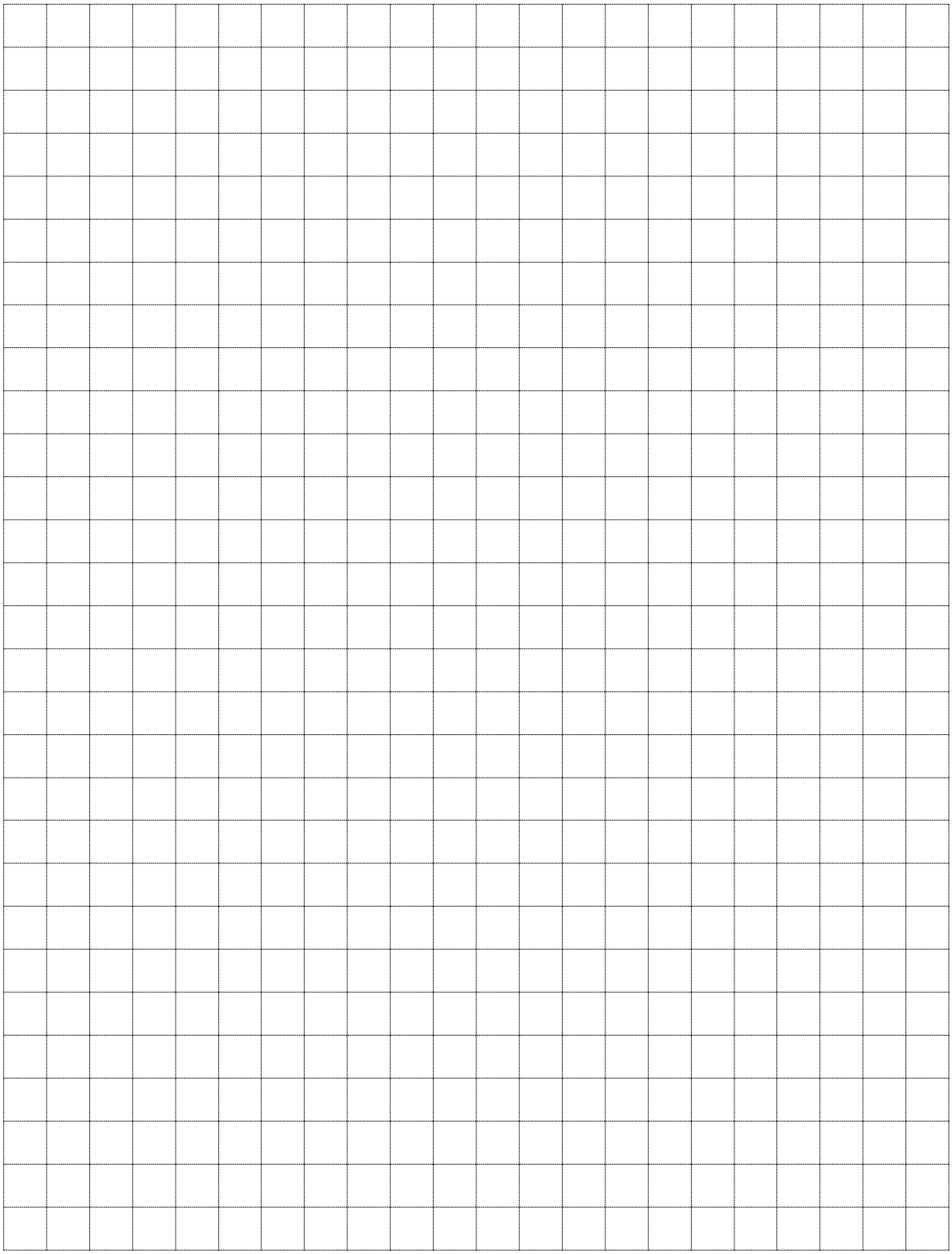
Project No:	**County/Route/Section:**
Ref. No:	**Item & Description:**

Station Location			**Plan Sheet**	**Plan Ref.**	**Plan Quantity**	**Field Quantity**	**Unit**
From	**To**	**Side**					
Describe Location							

Calculation/Sketch/Additional Remarks:
Special Notes:

Inspected By:	**Date:**
Checked By:	**Date:**

CA-D-1A Field Calculation and Measurement (back)

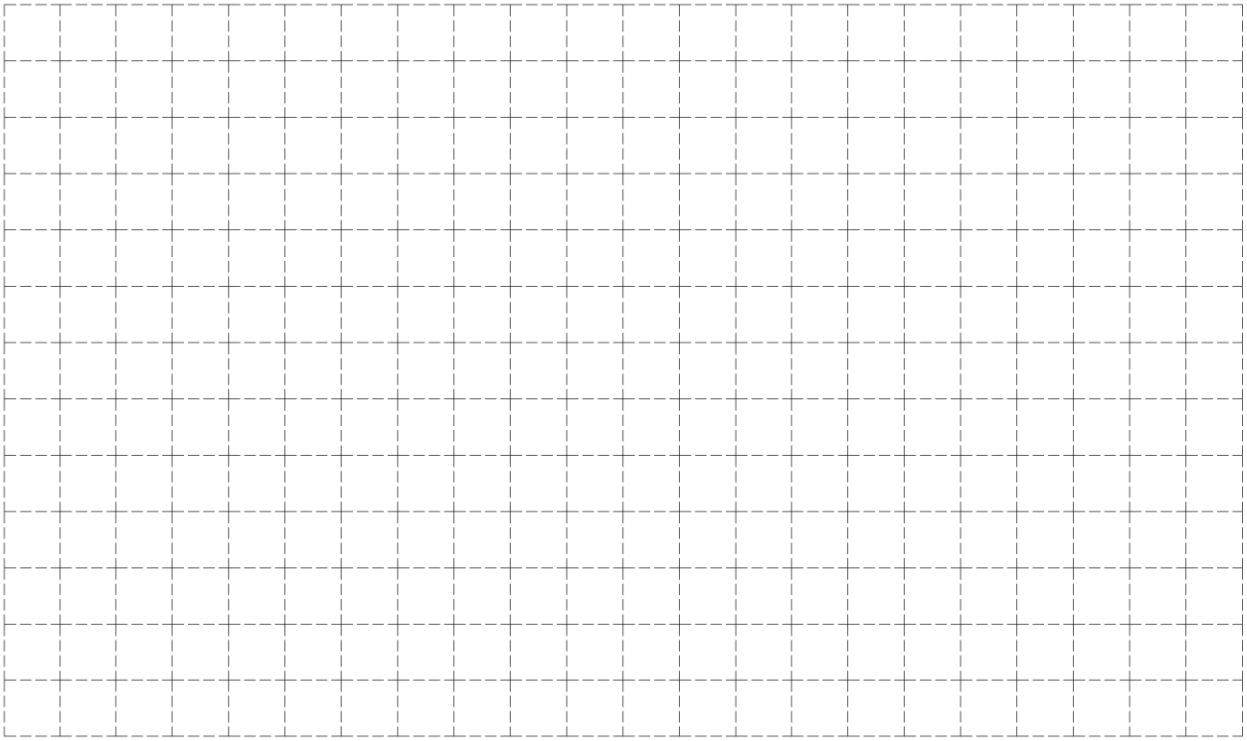


CA-D-1B Field Calculation and Measurement

Project No:	**County/Route/Section:**
Ref. No:	**Item & Description:**

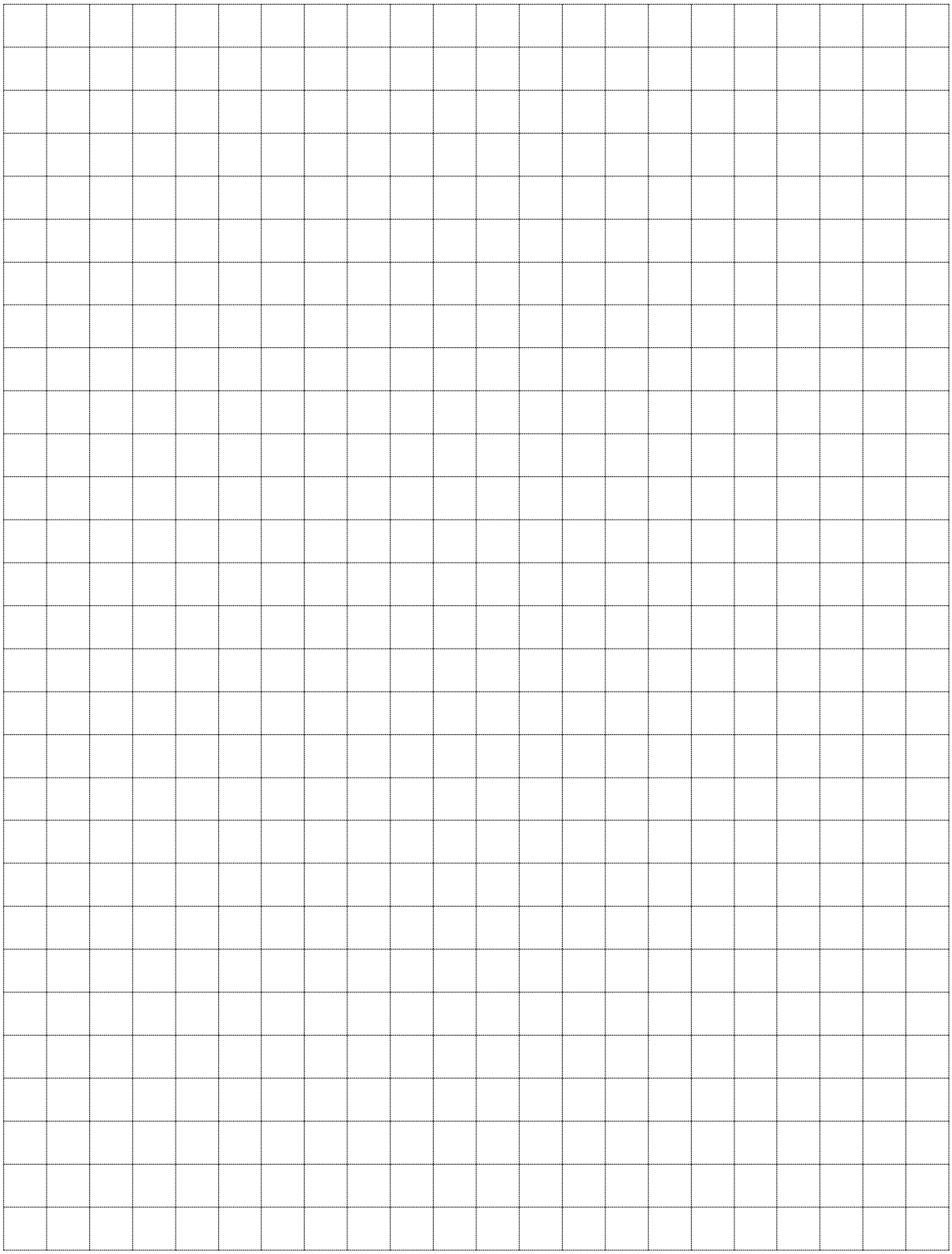
Station Location			**Plan Sheet**	**Plan Ref.**	**Plan Quantity**	**Field Quantity**	**Unit**
From	**To**	**Side**					
Describe Location							

Calculation/Sketch/Additional Remarks:



Special Notes:	
Prepared By:	**Date:**
Checked By:	**Date:**

CA-D-1B Field Calculation and Measurement (back)



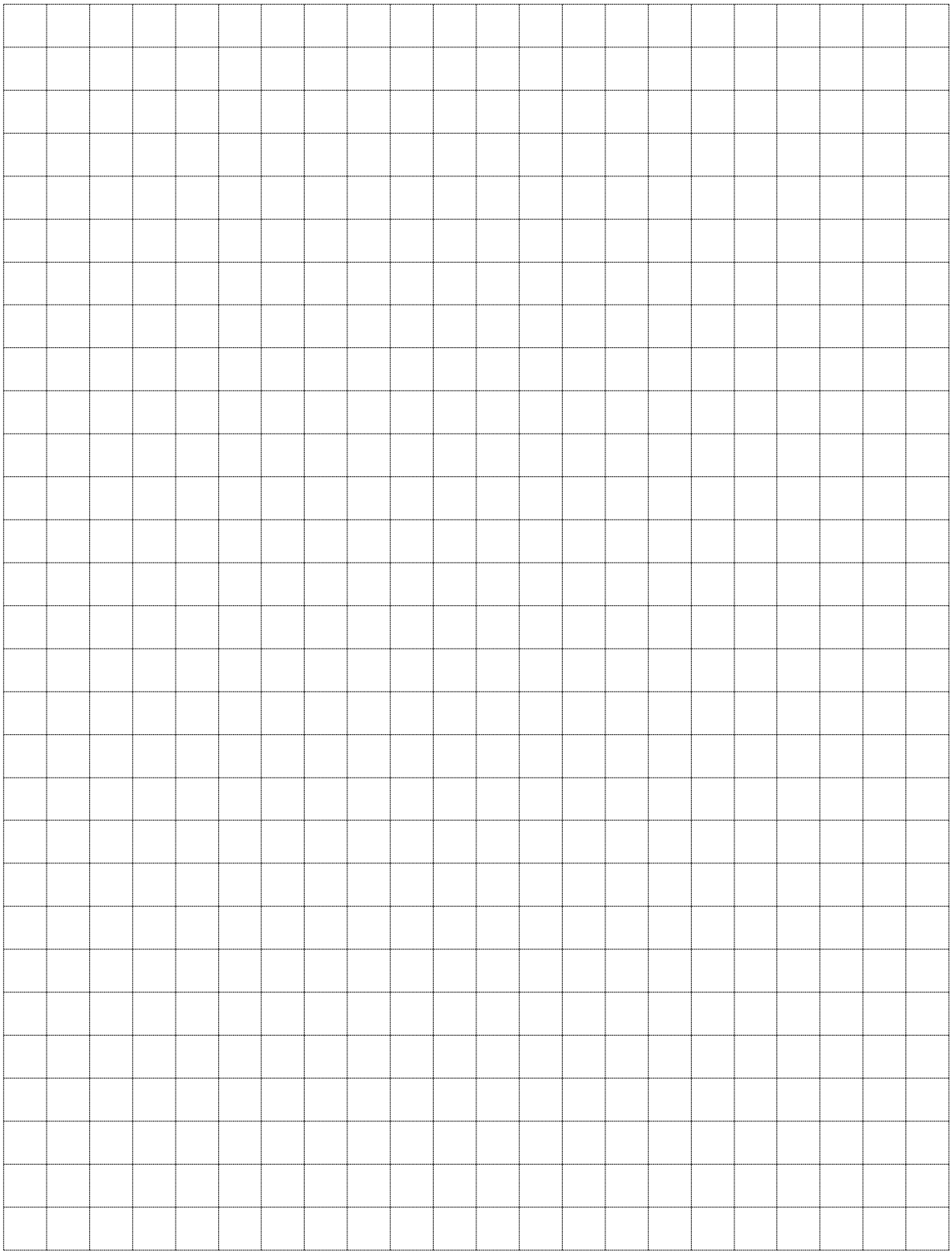
CA-D-2 Field Calculation and Measurement

Project No:	**County/Route/Section:**

Location			**Ref. #:**		**Ref. #:**		**Ref. #:**		**Ref. #:**	
			Item:		**Item:**		**Item:**		**Item:**	
			Unit:		**Unit:**		**Unit:**		**Unit:**	
Date	**Station or Plan Page**	**L/R**	**Plan Quantity**	**Measured Quantity**	**Plan Quantity**	**Measured Quantity**	**Plan Quantity**	**Measured Quantity**	**Plan Quantity**	**Measured Quantity**
TOTALS										

Special Notes:	
Inspected By:	**Date:**
Checked By:	**Date:**

CA-D-2 Field Calculation and Measurement (back)



CA-D-3SM-A ODOT Inspectors Daily Report

CONTRACTOR INFORMATION AND DESCRIPTION OF WORK (DWR Info. & Contractors)

Contract ID #	**Alt ID #**	**Co./Rte./Sec.**
Temperature: High Low	**Weather** AM	PM
Lost Day ? Yes / No		

Contractor	**CPM Activity Codes**				
Supt./Foreman	**Hours: From / To**	**Supervisor**	**Skilled**	**Other**	**Total**

Remarks / Description of Work

Contractor	**CPM Activity Codes**				
Supt./Foreman	**Hours: From / To**	**Supervisor**	**Skilled**	**Other**	**Total**

Remarks / Description of Work

Contractor	**CPM Activity Codes**				
Supt./Foreman	**Hours: From / To**	**Supervisor**	**Skilled**	**Other**	**Total**

Remarks / Description of Work

REMARKS

STATE EMPLOYEE HOURS (Daily Staff)

Inspector	PGAC Code	Hours To / From		Regular	Overtime	Overtime Explanation	Vehicle ID

CA-D-3SM-A ODOT Inspectors Daily Report (back)

WORK LINE ITEMS TO BE PAID

Line Item No.	ProjNo. #/#	Description	Location	Quantity	Contractor

REMARKS

GENERAL ☐ MOT/INCIDENT ☐ EROSION CONTROL ☐ WEATHER ☐
CLAIMS ☐ TIME IMPACTS ☐ VISITORS ☐ CPM CODES ☐ C95 ☐

INSPECTOR SIGNATURE _____ **PE/PS SIGNATURE** _____

CA-D-4SM ODOT P.E. / P.S. Daily Work Report

						Page	of	
Contract ID #			**Alt ID #**		**Co./Rte./Sec.**			
Temperature:	High	Low	**Weather**		AM	PM		

Lost Day due to Weather **Y** ☐ **N** ☐ **Lost Day due to other reason?** **Y** ☐ **N** ☐

REASON:	

CONTRACTOR	CONTRACTOR

PROJECT ACTIVITES

REMARKS

GENERAL ☐ MOT/INCIDENT ☐ WEATHER ☐ EROSION CONTROL ☐ C95 ☐

CLAIMS ☐ TIME IMPACTS ☐ VISITORS ☐ CPM CODES ☐

PE/PS SIGNATURE _____

CA-D-4SM ODOT P.E. / P.S. Daily Report (back)

ADDITIONAL WORK LINE ITEMS TO BE PAID

Line Item No.	Project No. #/#	Description	Location	Quantity	Contractor

CA-D-5 Daily Account of Force Account Work

Project No:	County/Route/Section:	Date:
Contractor:		
Sub-Contractor:		
Description of Work:		

Labor

Name	Class	From	To	Regular Hrs	OT Hrs

Equipment

A-Owned/ Bid Work, **B**-Rented/ Bid Work, **C**-Owned/ Non-Bid work, **D**-Rented/ Non-Bid work

A,B,C,D	Hrs Used	Hrs Idle	Year	Type	Model	HP, GVW, Capacity	Gas/Diesel/Elect	Equip No.

Material

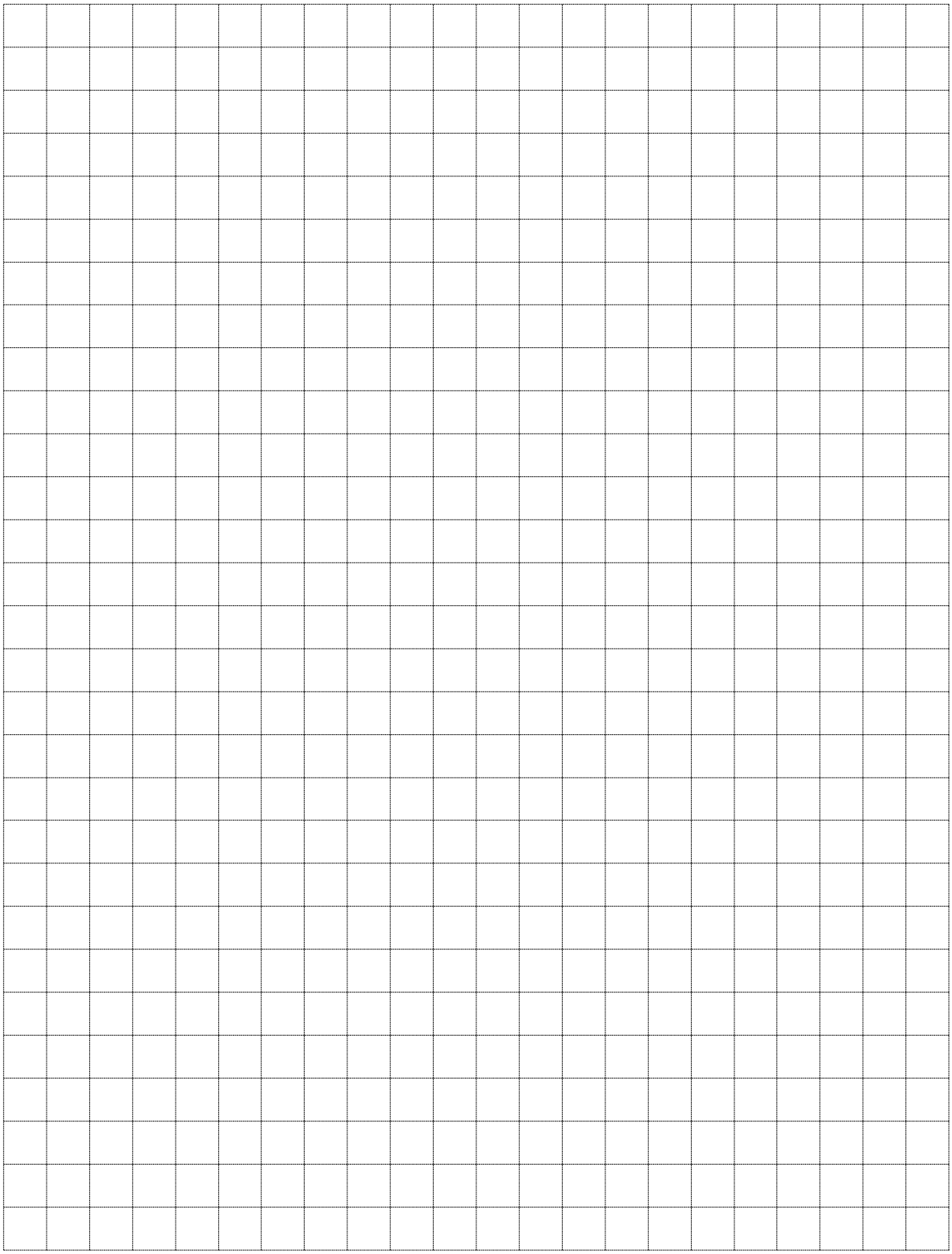
Quantity	Unit	Description

Signatures/Date

Contractor:
ODOT:

Original to ODOT File, Copy to Contractor

CA-D-5 Daily Account of Force Account Work (back)



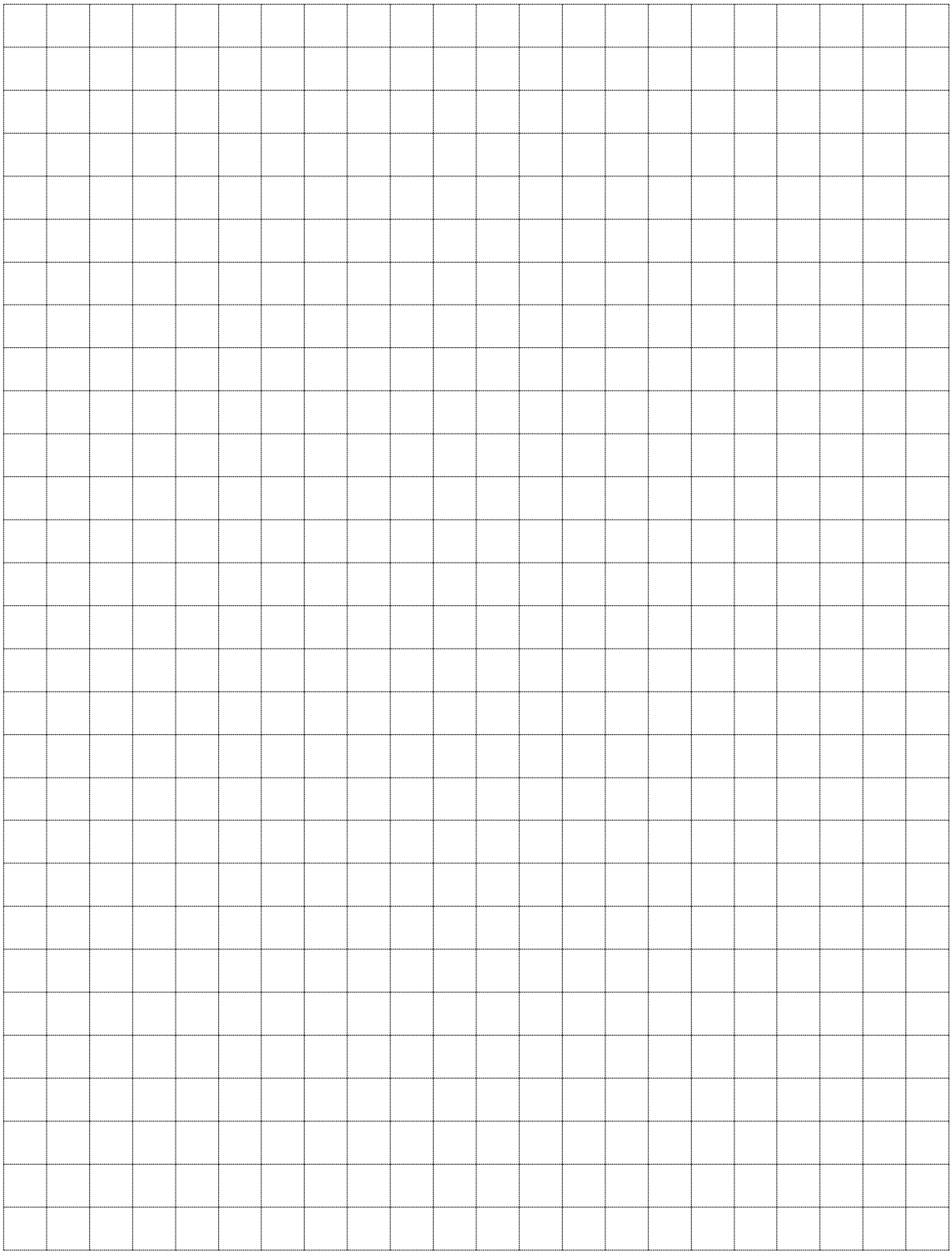
CA-D-6 Pavement Repair and Sawing Measurement

Project No:	**County/Route/Section:**
Ref. No:	**Item & Description:**

Station	Station	Lane	Length (ft)	Width (ft)	Depth (in)	Quantity of Repair (sy)	Length of Sawing (ft)	Plan Page
					TOTALS			

Special Notes:	
Inspected By:	**Date:**
Checked By:	**Date:**

CA-D-6 Pavement Repair and Sawing Measurement (back)



CA-D-7 Short Term Work Zone Review

Project No:	County/Route/Section:	Date:
Weather:	Temperature:	Time:
Type Of Traffic Control: Road Closed / Lane Closed / Stationary / Moving / Shoulder / Other		
Work performed by: ODOT / Permit / Utility / Contractor Name:		

A. Traffic Control / Safety Devices Signs, Flaggers, Cones, Drums, Arrow Boards, Signals, PCMS, etc.

None	Deficiency And Corrective Action To Be Taken	Date Corrected

B. Traffic Flow Evidence of crashes, incidents, congestion points, delays, etc.

None	Deficiency And Corrective Action To Be Taken	Date Corrected

C. Conformance with Standards Tapers, buffer areas, etc

None	Deficiency And Corrective Action To Be Taken	Date Corrected

D. Interaction of Work Vehicles and Traffic Entering/exiting work zone, mud on road, etc

None	Deficiency And Corrective Action To Be Taken	Date Corrected

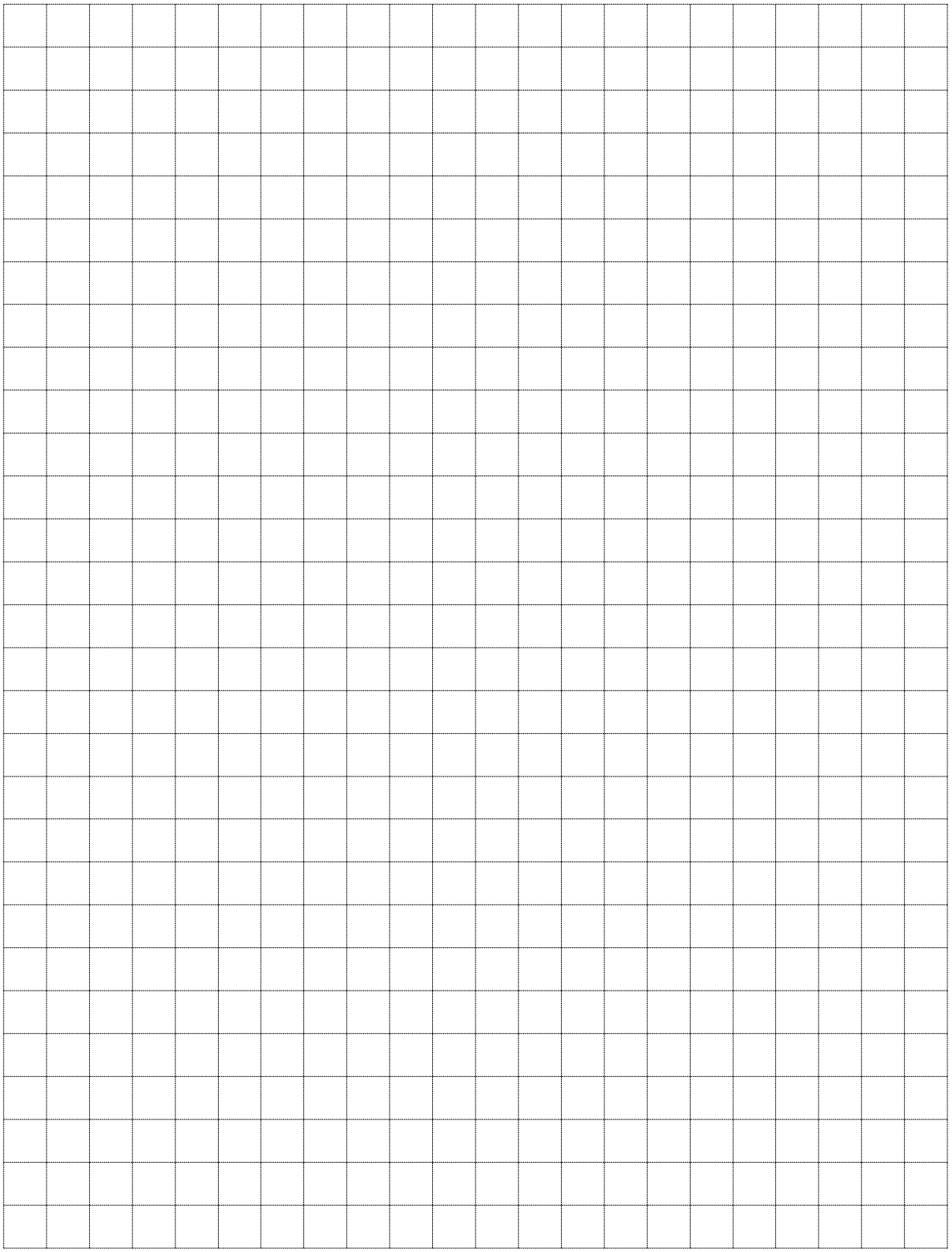
E. Storage of Equipment and Materials Protected or outside of clear zone

None	Deficiency And Corrective Action To Be Taken	Date Corrected

Action taken

Notification: Verbal / Written		Correct By Date:
Section Requiring Action:	A / B / C / D / E	Corrected promptly? Yes / No
Work Stoppage Orders?	Yes / No	Date corrected:
Estimate Held?	Yes / No	Field Review by:
Copy to: DWZTM, County Manager, Contractor , Construction or Other (Identify)		

CA-D-7 Short Term Work Zone Review (back)



CA-D-8 Long Term Work Zone Review - 1/2

ODOT PROJECT NO: _____ CONTRACTOR: _____

DATE: _____ WEATHER: Clr / Ptly Cldy / Cldy / Rain / Sunny

TIME: _____ VISIBILITY: _____

RECEIVED BY: _____ (ODOT) DATE: _____

A. DRIVE THRU/TRAFFIC	YES	NO	N/A
Work zone free of difficult or unexpected maneuvers?	☐	☐	☐
Adequate warning of hazards?	☐	☐	☐
Signing clear/uncluttered and properly spaced?	☐	☐	☐
Traffic control devicies sufficiently visible?	☐	☐	☐
Is project free of traffic accidents?	☐	☐	☐
If no, list Accident Report Number and describe on Page 2			
Equipment/materials properly stored off roadway?	☐	☐	☐
Are congestion points absent from within project limits?	☐	☐	☐
Work vehicles properly interacting with traffic?	☐	☐	☐
B. SIGNS/LIGHTS			
Working properly/visible?	☐	☐	☐
Are all permanent/temporary signs consistent with one another?	☐	☐	☐
Proper Size?	☐	☐	☐
C. PORT.CHANGABLE MESS.SIGNS/ARROW PANEL			
Application meets guidelines?	☐	☐	☐
Correct Placement?	☐	☐	☐
Delineated with cones/drums?	☐	☐	☐
Dimmed at night?	☐	☐	☐
All boards/signs working properly (bulbs correctly aligned, no bulbs out, etc.)?	☐	☐	☐
D. DRUMS/BARRICADES/PCB/IMPACT ATTENUATORS			
Acceptable taper length?	☐	☐	☐
Spacing acceptable?	☐	☐	☐
Properly aligned/cleaned/secured?	☐	☐	☐
Adequate number of devices?	☐	☐	☐
Object markers/barrier reflectors in-place/visible?	☐	☐	☐
Attenuators in place?	☐	☐	☐
Attenuators secured and in good condition?	☐	☐	☐
E. PAVEMENT MARKINGS / RAISED PAVEMENT MARKERS (RPM)			
Pavement markings visible and in good condition?	☐	☐	☐
Is striping free of conflict?	☐	☐	☐
RPM's in good condition, proper number and correspond to pavement markings?	☐	☐	☐

NOTES/COMMENTS FROM CHECKLIST: _____

VIDEOS/PHOTOS OF WORKZONE: YES ☐ NO ☐ N/A ☐

NAME OF PHOTOGRAPHER/VIDEOGRAPHER: _____

CORRECTIVE ACTION NEEDED? ***YES*** ☐ **NO** ☐

CA-D-8 Long Term Work Zone Review - 2/2

DESCRIBE TRAFFIC ACCIDENTS (IF ANY):

DAMAGED OR MISSING MOT ITEMS:

LANE CLOSURES/ROLLING ROAD BLOCKS:

NO. OF LEO'S: TOTAL LEO HOURS

LEO ACTIVITIES

I certify that this document and all attachments submitted are, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information.

INSPECTED BY: (CONTRACTOR) DATE:

CA-D-9 Daily Concrete Pavement Documentation Form - 1/5

Project: _____ County/Route/Section: _____

Reference #: _____ Item #: _____

Contractor: _____

Station: _____ to _____ Lane: _____

Placement Width: _____ Placement Depth: _____

Date: _____

Temperature and Weather: _____

PCJMF: _____

SUBBASE

Subbase material and condition: _____

Was the subbase thoroughly moistened before placing concrete? _____ (451.06)

Method used to water subbase: _____

JOINTS (451.08)

Longitudinal Joints (451.08A) – Tie Bars

Length: _____ Size: _____ Depth placed: _____

Are tie bars epoxy coated? _____

Method of placing tie bars: _____

Are tie bars being kept horizontal in the slab? _____

Tie bar spacing? _____ Number of tie bars placed per typical panel? _____

Longitudinal joint located at _____ feet from left edge of slab

_____ feet from right edge of slab

CA- D-9 Daily Concrete Pavement Documentation Form - 2/5

Load Transfer Devices (451.08 B) - Transverse Joints

Dowel Length: _____ Diameter: _____ Depth placed: _____

Are dowel bars epoxy coated? _____

Were the dowel bars oiled? _____ Entire bar or alternating ends? _____

Are dowel bars being kept in the proper alignment? _____

Method of placing dowel bars? _____

Dowel bar spacing? _____ beginning _____ from edge of slab

Number of dowels placed per panel? _____ for _____ panel width

_____ for _____ panel width

Transverse joint spacing: _____

Expansion Joints (451.08C)

Dowel Length: _____ Diameter: _____ Depth placed: _____

Are dowel bars epoxy coated? _____

Were the dowel bars oiled? _____

Were expansion sleeves installed? _____

On opposite ends of adjacent dowels? _____

Transverse joint spacing: _____

Construction Joints (451.08E)

Construction joint type: _____

Method of doweling construction joint: _____

Location of construction joint with respect to contraction joint: _____

CA- D-9 Daily Concrete Pavement Documentation Form - 3/5

PLACING CONCRETE (451.06)

Method of Construction – Fixed Form or Slip Formed? _____

Formed Construction

Forms made of steel? _____

Form depth equal to pavement thickness? _____

Forms cleaned and oiled? _____

Slip Form Construction

Slip form paver make/ model: _____

Number of internal vibrators: _____

Vibrator monitors working? _____

Were all vibrators working properly? _____

Vibration frequency range _____ to _____ ipm

Was vibrator information recorded? _____

Method of aligning paver: _____

Paver advancement rate: _____ feet/minute

Is the longitudinal face of the slab being kept vertical? _____

Any projections or ridges exceeding tolerances in 451.03B? _____

Method of depositing concrete:

Is a spreader required/used? _____

Was its use waived? / Reason: _____

CA- D-9 Daily Concrete Pavement Documentation Form - 4/5

FINISHING (451.09)

Hand finishing methods used: _____

Was 10' straightedge used? _____

Were pavement edges rounded? _____

Micro texture type: _____ applied using: _____

Macro texture type: _____ applied using: _____

Tine groove spacing: _____ Tine depth: _____

Were station numbers stamped into the shoulder pavement? _____ Spacing? _____

Station number position: _____

CURING (451.10)

Method of applying curing compound: _____

Curing compound required: Width = _____ (slab width) + 2 x _____ (slab thickness) = _____

Gallons Required = _____ (length) x _____ (width) / 150 = _____

Gallons Used = _____ (begin tank) - _____ (end tank) = _____

Curing compound applied approximately _____ minutes after final finishing

JOINT SAWING (451.08)

Was a HIPERPAV file submitted for this pour? _____

HIPERPAV predicts early age cracking beginning at _____ without joint sawing.

Joint sawing began at _____

Method of sawing: Early-entry saw? _____ Wet Sawing? _____

	Width of Saw Cut	*Depth of Saw Cut*
Longitudinal Joints:	_____	_____
Contraction Joints:	_____	_____

CA- D-9 Daily Concrete Pavement Documentation Form - 5/5

INSTRUCTIONS GIVEN TO THE CONTRACTOR

_____
_____
_____
_____
_____
_____
_____

COMMENTS

_____
_____
_____
_____
_____
_____
_____

Signature: _____ Date: _____

CA- D-9 Daily Concrete Pavement Documentation Form - (Back)

CA-L-1 Report of Electrical Tests

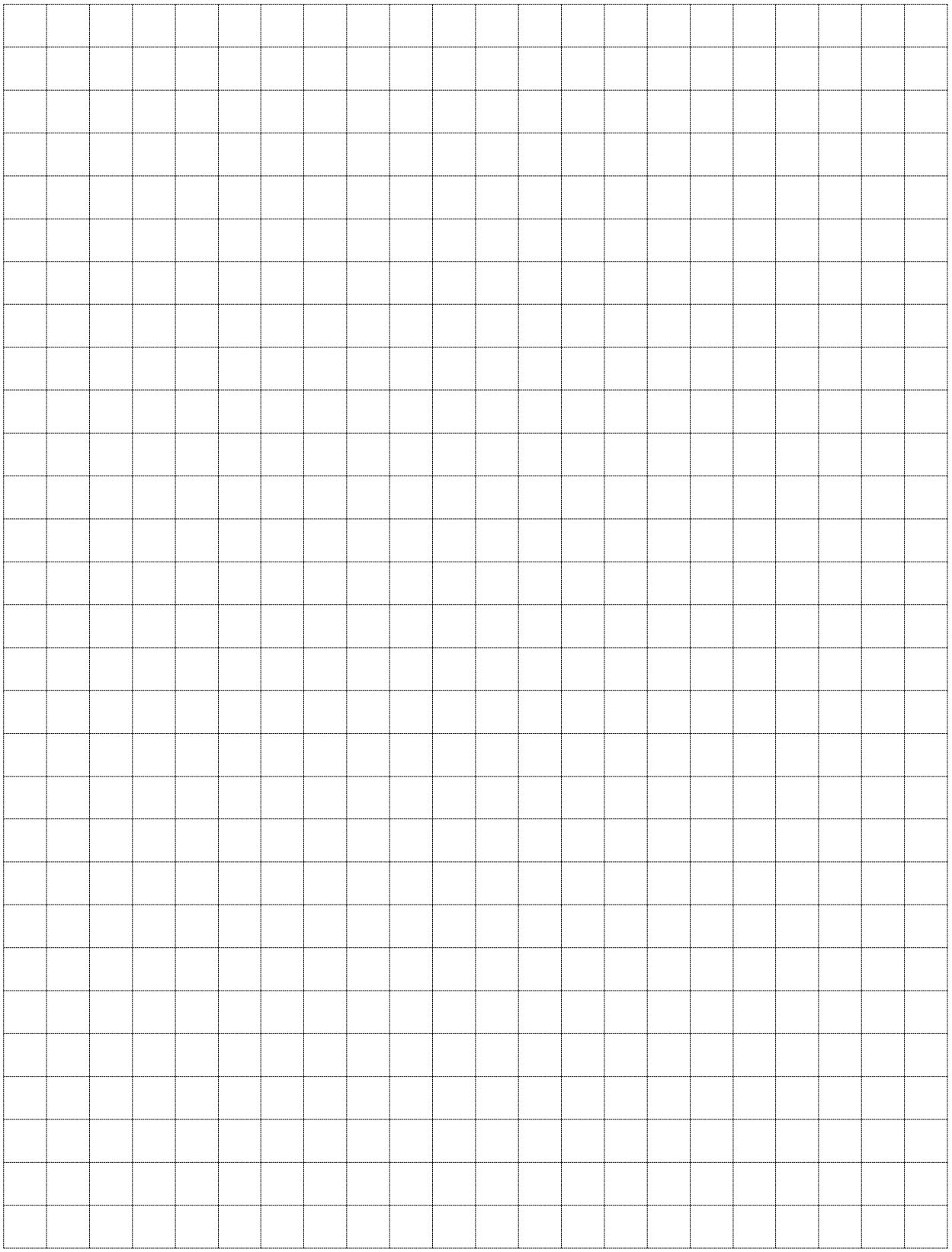
For Traffic Signals

Project No:		**County/Route/Section:**	
Ref. No:		**Item & Description:**	

Short Circuit Test (CMS 632.28C) (Infinite or very high OHMS required)				**Circuit Continuity Test (CMS 632.28D) (Zero or negligible OHMS required)**			
Pairs Measured	**OHMS**	**Pairs Measured**	**OHMS**	**Pairs Measured**	**Zero-OHMS**	**Pairs Measured**	**Zero-OHMS**
Signal Cable		**Interconnect Cable (7 cond.)**		**LOOP UNSPL.**		**Interconnect Cable (7 cond.)**	
W/R		W/R		loop unspl.		W/R	
W/ORG		W/ORG		loop unspl.		W/ORG	
W/G		W/G		loop unspl.		W/G	
W/BK		W/BL		loop + L.I.		W/BL	
R/ORG		W/WBK		loop + L.I.		W/WBK	
R/G		W/BK		loop + L.I.		W/BK	
R/BK		R/ORG		loop + L.I.		R/ORG	
ORG/G		R/G		**Signal Cable**		R/G	
ORG/BK		R/BL		W/R		R/BL	
G/BK		R/WBK		W/ORG		R/WBK	
ETC.		R/BK		W/G		R/BK	
		ORG/G		W/BK		ORG/G	
		ORG/BL		R/ORG		ORG/BL	
		ORG/WBK		R/G		ORG/WBK	
		ORG/WB		R/BK		ORG/WB	
		G/BL		ORG/G		G/BL	
ALL GRD		G/WBK		ORG/BK		G/WBK	
		G/BK		G/BK		G/BK	
Power Cable		BL/WBK		**Power Cable**		BL/WBK	
W/BK		BL/BK		W/BK		BL/BK	
W/R (3 cond.)		WBK/BK		W/R (3 cond.)		WBK/BK	
BK/R (3 cond.) Jumpered together		(9 cond. ETC.) Add sheet		BK/R (3 cond.)		(9 cond. ETC.) Add sheet	

Test conducted by:	
Inspected By:	**Date:**
Checked By:	**Date:**

CA-L-1 Report of Electrical Tests (back)



CA-L-2 Report of Electrical Tests

Signal-Ten Day Test (CMS 632.28.G)

Project No:	**County/Route/Section:**
Ref. No:	**Item & Description:**

Test Conducted By: _____ Representing _____

Test Witnessed By:_____ Representing _____

Certification

I hereby certify that the above test was conducted in conformance with the plans and specifications for Project No._____, that the test results as indicated below and that the requirements of the plans and specifications have been met.

Contractor's Representative: _____

Title: _____

Signal Control System Ten Day Performance Test

Time and Date Started: _____

Time and Date Completed: _____

Details of Outages, Trouble, Repairs, Etc., Including Locations:

_____

_____

_____

_____

_____

NOTE: If this report does not include all of the (electrical) (lighting) systems proposed on the project, indicate here the separate circuits or components covered by this test:

_____

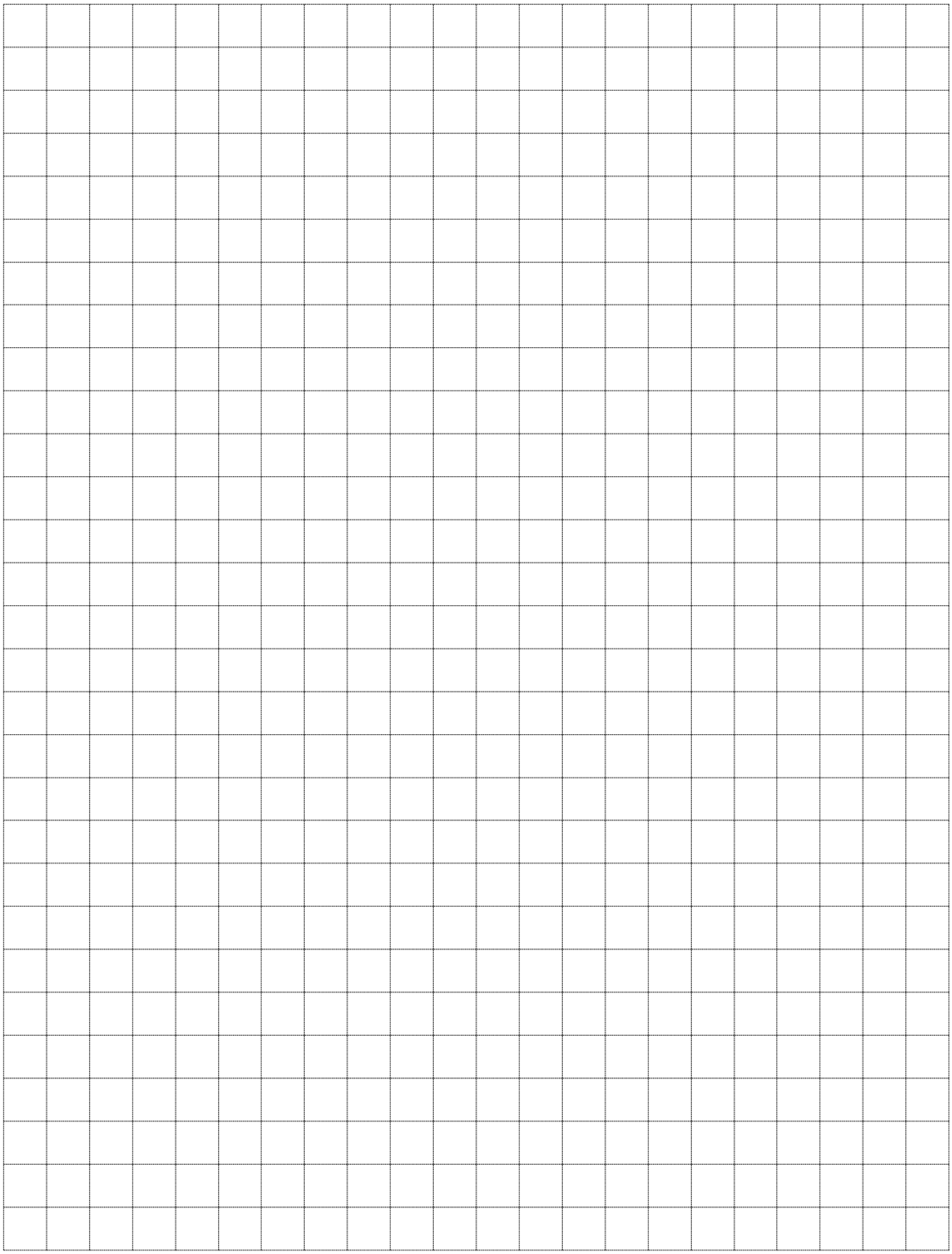
_____

_____

_____

Test Conducted By: _____ Representing: _____

CA-L-2 Report of Electrical Tests (back)



CA-L-3 Report of Electrical Tests

Sign Lighting Test (CMS 625.19)

Project No:	**County/Route/Section:**
Ref. No:	**Item & Description:**

Note: This report shall be accompanied by a written certification that test equipment used was last calibrated by an acceptable testing agency not more than 60 days prior to the date of the test.

		Ground Test [] Circuit Test []			
		Location			
Light/Sign Structure No.	**Circuit No.**	**Station**	**Route, Street, Etc**	**LT./RT.**	**Resistance in: Ohms- ☐ Megohms-☐**

Test Conducted By: _____ Date: _____

Representing: _____

Test Witnessed By: _____ Date: _____

Representing: _____

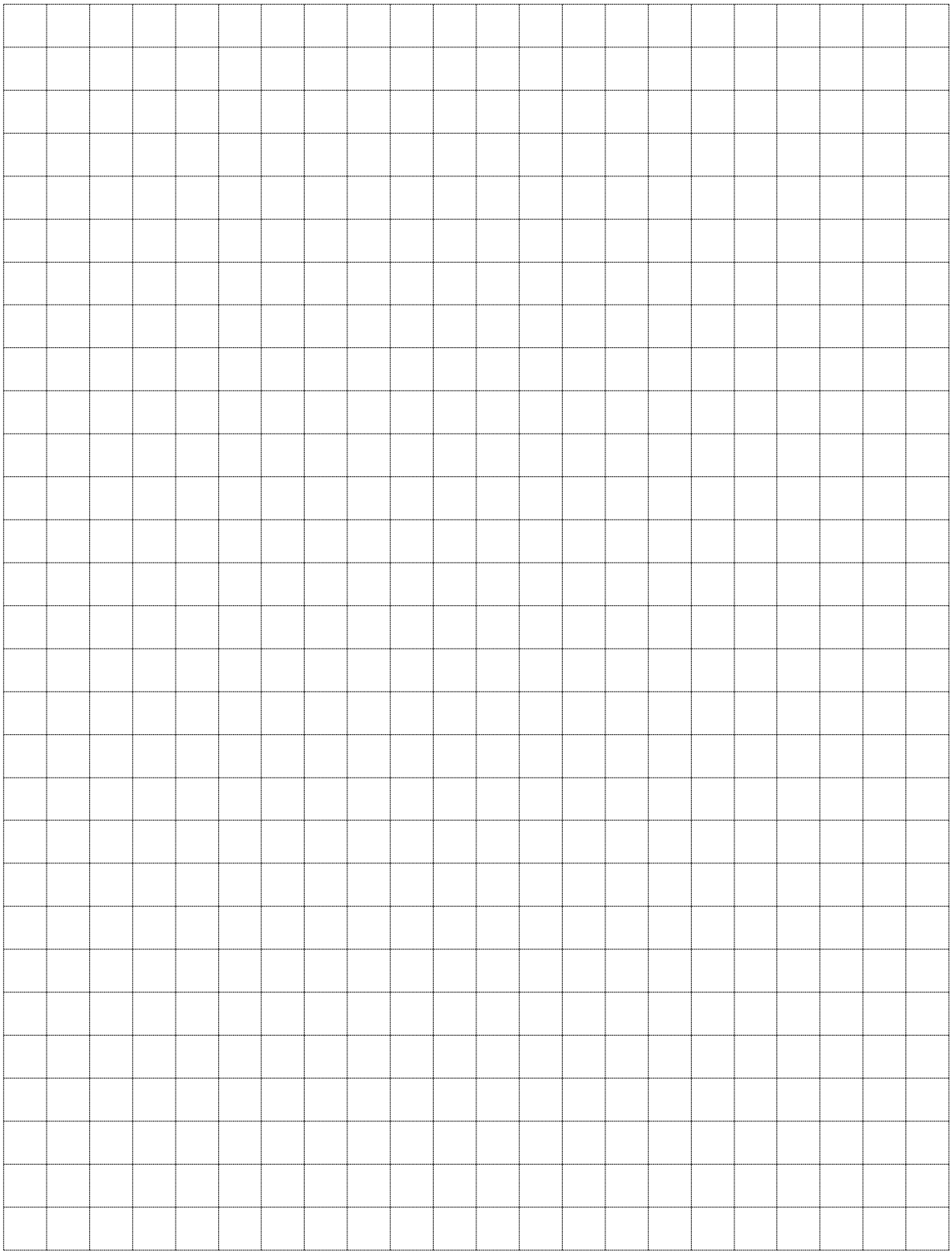
Certification

I hereby certify that the above test was conducted in conformance with the plans and specifications for Project No._____, that the test results were as indicated above and that the requirements of the plans and specifications have been met.

Contractor's Representative: _____ Date: _____

Title: _____

CA-L-3 Report of Electrical Tests (back)



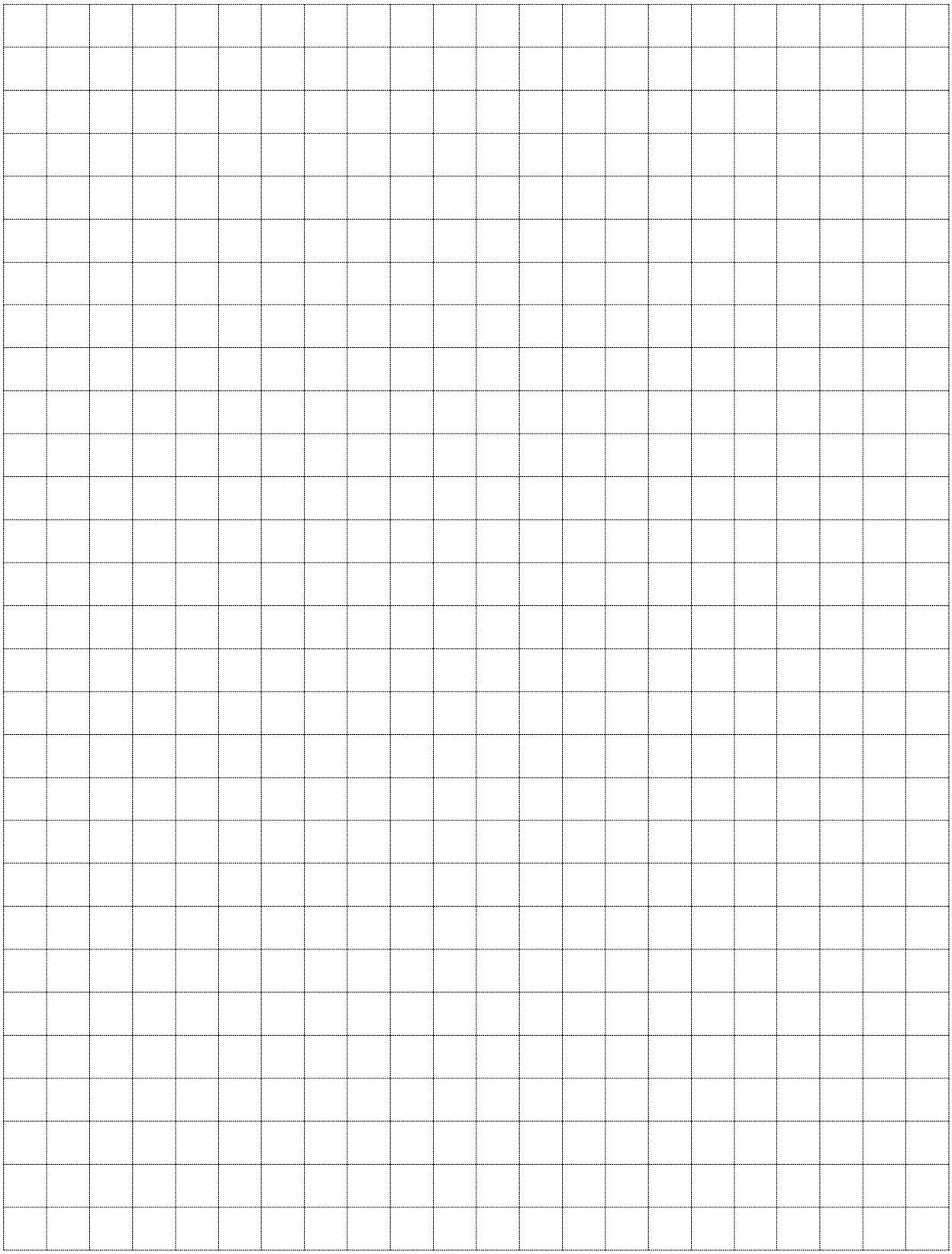
CA-L-4 Report on Sign Lighting

(CMS 625.09 and CMS 631)

Project No:			**County/Route/Section:**				
Ref. No:			**Item & Description:**				
Ref		**Ground Rod Reading:**					
Ref		**Disconnect Switch Amps:**		**Type Enclosure:**			
SIGN "A" - (Length) _____ X (Width) _____ = _____ SQ. FT.							
Ref		Ballast Type					
Ref		Lamp Size		Type		Quantity	
Ref		Lamp Size		Type		Quantity	
HEIGHT: BOTTOM OF SIGN TO TOP OF PAVEMENT: _____							
Ref		Sign Wired Complete					
SIGN "B" - (Length) _____ X (Width) _____ = _____ SQ. FT.							
Ref		Ballast Type					
Ref		Lamp Size		Type		Quantity	
Ref		Lamp Size		Type		Quantity	
HEIGHT: BOTTOM OF SIGN TO TOP OF PAVEMENT: _____							
Ref		Sign Wired Complete					
SIGN "C" - (Length) _____ X (Width) _____ = _____ SQ. FT.							
Ref		Ballast Type					
Ref		Lamp Size		Type		Quantity	
Ref		Lamp Size		Type		Quantity	
HEIGHT: BOTTOM OF SIGN TO TOP OF PAVEMENT: _____							
Ref		Sign Wired Complete					
SIGN "D" - (Length) _____ X (Width) _____ = _____ SQ. FT.							
Ref		Ballast Type					
Ref		Lamp Size		Type		Quantity	
Ref		Lamp Size		Type		Quantity	
HEIGHT: BOTTOM OF SIGN TO TOP OF PAVEMENT: _____							
Ref		Sign Wired Complete					

Test Conducted By:	
Inspected by:	**Date:**
Checked by:	**Date:**

CA-L-4 Report on Sign Lighting (back)

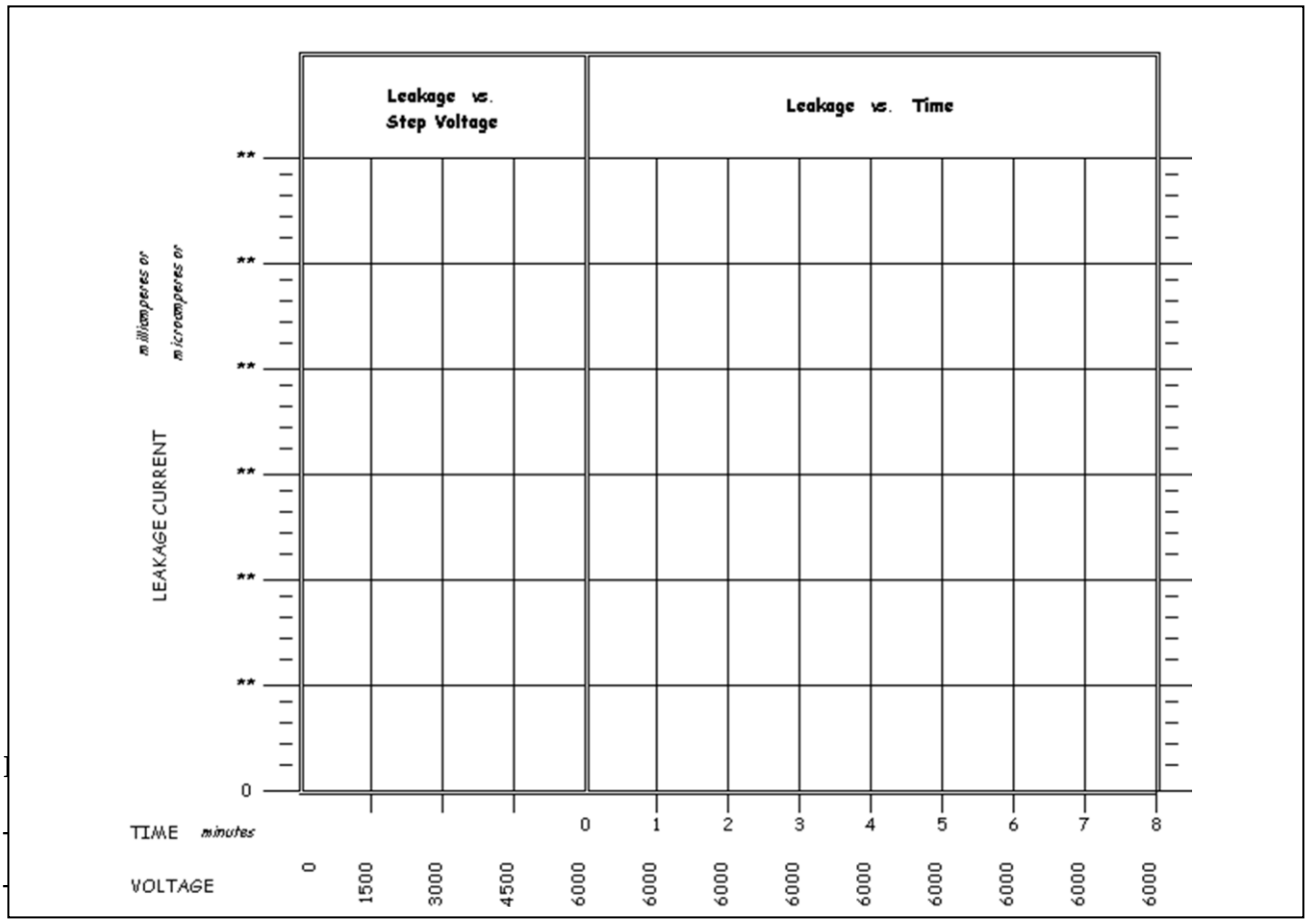


CA-L-5 Report on High Voltage Direct Current Tests

(CMS 625.19E and SS 1003)

Project No:	**County/Route/Section:**
Ref. No:	**Item & Description:**

Circuit Number	Power 1	Power 2	Neutral	Air Temperature	Relative Humidity



Test Conducted By:	
Inspected by:	**Date:**
Checked by:	**Date:**

CA-L-5 Report on High Voltage Direct Current Tests (back)

CA-T-1 DLS Report Format - Weight-Based System

DLS Report Format - Weight-Based System

Project Name	
Date	
Start Time	
Finish Time	
Total Hours	

Employee Name	

	Miles
Days Total CL	
Days Total LL	
Days Total WEL	
Days Total YEL	
Days Total CHAN	

(yellow)	Manual Entry into DLS by operator
(green)	Electronic Entry from DLS
(pink)	Calculated by spreadsheet

Notes: Program DLS to record data for each section to be painted, **by direction**, even if section length is less than 10 miles.
Do not start a new section at 10 miles even if section length exceeds 10 miles.
Whenever material or beads are loaded, end the section, record data for the completed section, reload striper, then begin new section.
Application rates and average thickness and MPH are calculated over the length of the section painted from Start Hwy SLM to End Hwy SLM.
Copy of DLS Report is to be provided to Engineer not later than one day following the application of material to a section of highway.

County	Route Number / Name	Direction	Start Time	Marking Type	Start Hwy SLM	End Hwy SLM	Road Length	Tank 1 Color	Tank 2 Color	Line Width	Tank 1 Avg Mils	Tank 2 Avg Mils	Linear Feet Painted	Equiv Miles Painted	Tank 1 Gallons Used	Tank 2 Gallons Used	Gals Paint per Mile Applied	Bead 1 Lbs Beads Used	Bead 2 Lbs Beads Used	Lbs Beads per 100 Sq Ft	Avg MPH	Tank 1 Temp	Tank 2 Temp	Humidity	Dew Point	Air Temp	Road Surface Temp	Weight per Gallon	Paint1 Batch No	Paint2 Batch No	Bead1 Batch No	Bead2 Batch No

CA-T-2 DLS Short Report Format - Weight-Based System

DLS Short Report Format - Weight-Based System

Project Name	
Date	
Start Time	
Finish Time	
Total Hours	

Employee Name	

	Miles
Days Total CL	
Days Total LL	
Days Total WEL	
Days Total YEL	
Days Total CHAN	

Colour	Legend
Yellow	Manual Entry into DLS by operator
Green	Electronic Entry from DLS
Pink	Calculated by spreadsheet

Notes:
Program DLS to record data for each section to be painted, **by direction**, even if section length is less than 10 miles.
Do not start a new section at 10 miles even if section length exceeds 10 miles.
Whenever material or beads are loaded, end the section, record data for the completed section, reload striper, then begin new section.
Application rates and average thickness and MPH are calculated over the length of the section painted from Start Hwy SLM to End Hwy SLM.
Copy of DLS Report is to be provided to Engineer not later than one day following the application of material to a section of highway.

County	Route Number / Name	Direction	Marking Type	Start Hwy SLM	End Hwy SLM	Road Length	Tank 1 Color	Tank 2 Color	Line Width	Tank 1 Avg Mils	Tank 2 Avg Mils	Linear Feet Painted	Equiv Miles Painted	Tank 1 Gallons Used	Tank 2 Gallons Used	Gals Paint per Mile Applied	Bead 1 Lbs Beads Used	Bead 2 Lbs Beads Used	Lbs Beads per 100 Sq Ft	Avg MPH

CA-T-3 DLS Report Format - Stroke Counter System

DLS Report Format - Stroke Counter System

Project Name	
Date	
Start Time	
Finish Time	
Total Hours	

Employee Name	

	Miles
Days Total CL	
Days Total LL	
Days Total WEL	
Days Total YEL	
Days Total CHAN	

(yellow)	Manual Entry into DLS by operator
(green)	Electronic Entry from DLS
(pink)	Calculated by spreadsheet

Notes: Program DLS to record data for each section to be painted, **by direction**, even if section length is less than 10 miles.
Do not start a new section at 10 miles even if section length exceeds 10 miles.
Whenever material or beads are loaded, end the section, record data for the completed section, reload striper, then begin new section.
Application rates and average thickness and MPH are calculated over the length of the section painted from Start Hwy SLM to End Hwy SLM.
Copy of DLS Report is to be provided to Engineer not later than one day following the application of material to a section of highway.

County	Route Number / Name	Direction	Start Time	Marking Type	Start Hwy SLM	End Hwy SLM	Road Length	Pump 1 Color	Pump 2 Color	Line Width	Pump 1 Avg Mils	Pump 2 Avg Mils	Linear Feet Painted	Equiv Miles Painted	Pump 1 Gallons Used	Pump 2 Gallons Used	Gals Paint per Mile Applied	Bead 1 Lbs Beads Used	Bead 2 Lbs Beads Used	Lbs Beads per 100 Sq Ft	Avg MPH	Pump 1 Temp	Pump 2 Temp	Humidity	Dew Point	Air Temp	Road Surface Temp	Weight per Gallon	Volume per Stroke Calibration Value	Number of Strokes	Pump 1 Batch No	Pump 2 Batch No	Bead1 Batch No	Bead2 Batch No

CA-T-4 DLS Short Report Format - Stroke Counter System

DLS Short Report Format - Stroke Counter System

Project Name	
Date	
Start Time	
Finish Time	
Total Hours	

Employee Name	

	Miles
Days Total CL	
Days Total LL	
Days Total WEL	
Days Total YEL	
Days Total CHAN	

	Manual Entry into DLS by operator
	Electronic Entry from DLS
	Calculated by spreadsheet

Notes: Program DLS to record data for each section to be painted, by direction, even if section length is less than 10 miles.
Do not start a new section at 10 miles even if section length exceeds 10 miles.
Whenever material or beads are loaded, end the section, record data for the completed section, reload striper, then begin new section.
Application rates and average thickness and MPH are calculated over the length of the section painted from Start Hwy SLM to End Hwy SLM.
Copy of DLS Report is to be provided to Engineer not later than one day following the application of material to a section of highway.

County	Route Number / Name	Direction	Marking Type	Start Hwy SLM	End Hwy SLM	Road Length	Pump 1 Color	Pump 2 Color	Line Width	Pump 1 Avg Mils	Pump 2 Avg Mils	Linear Feet Painted	Equiv Miles Painted	Pump 1 Gallons Used	Pump 2 Gallons Used	Gals Paint per Mile Applied	Bead 1 Lbs Beads Used	Bead 2 Lbs Beads Used	Lbs Beads per 100 Sq Ft	Avg MPH

CA-T-5 DLS Report Format - Flow Meter Based System

DLS Report Format - Flow Meter-Based System

Project Name	
Date	
Start Time	
Finish Time	
Total Hours	

Employee Name	

	Miles
Days Total CL	
Days Total LL	
Days Total WEL	
Days Total YEL	
Days Total CHAN	

(yellow)	Manual Entry into DLS by operator
(green)	Electronic Entry from DLS
(pink)	Calculated by spreadsheet

Notes:
- Program DLS to record data for each section to be painted, **by direction**, even if section length is less than 10 miles.
- Do not start a new section at 10 miles even if section length exceeds 10 miles.
- Whenever material or beads are loaded, end the section, record data for the completed section, reload striper, then begin new section.
- Application rates and average thickness and MPH are calculated over the length of the section painted from Start Hwy SLM to End Hwy SLM.
- Copy of DLS Report is to be provided to Engineer not later than one day following the application of material to a section of highway.

County	Route Number / Name	Direction	Start Time	Marking Type	Start Hwy SLM	End Hwy SLM	Road Length	Tank 1 Color	Tank 2 Color	Line Width	Tank 1 Avg Mils	Tank 2 Avg Mils	Linear Feet Painted	Equiv Miles Painted	Tank 1 Gallons Used	Tank 2 Gallons Used	Gals Paint per Mile Applied	Bead 1 Lbs Beads Used	Bead 2 Lbs Beads Used	Lbs Beads per 100 Sq Ft	Avg MPH	Tank 1 Temp	Tank 2 Temp	Humidity	Dew Point	Air Temp	Road Surface Temp	Weight per Gallon	Paint1 Batch No	Paint2 Batch No	Bead1 Batch No	Bead2 Batch No

DLS Short Report Format - Flow Meter-Based System

Project Name	
Date	
Start Time	
Finish Time	
Total Hours	

Employee Name	

	Miles
Days Total CL	
Days Total LL	
Days Total WEL	
Days Total YEL	
Days Total CHAN	

	Manual Entry into DLS by operator
	Electronic Entry from DLS
	Calculated by spreadsheet

Notes: Program DLS to record data for each section to be painted, **by direction**, even if section length is less than 10 miles.
Do not start a new section at 10 miles even if section length exceeds 10 miles.
Whenever material or beads are loaded, end the section, record data for the completed section, reload striper, then begin new section.
Application rates and average thickness and MPH are calculated over the length of the section painted from Start Hwy SLM to End Hwy SLM.
Copy of DLS Report is to be provided to Engineer not later than one day following the application of material to a section of highway.

County	Route Number / Name	Direction	Marking Type	Start Hwy SLM	End Hwy SLM	Road Length	Tank 1 Color	Tank 2 Color	Line Width	Tank 1 Avg Mils	Tank 2 Avg Mils	Linear Feet Painted	Equiv Miles Painted	Tank 1 Gallons Used	Tank 2 Gallons Used	Gals Paint per Mile Applied	Bead 1 Lbs Beads Used	Bead 2 Lbs Beads Used	Lbs Beads per 100 Sq Ft	Avg MPH

CA-T-7 DLS Report Format - ThermoPlastic System

DLS Report Format - Thermoplastic System

Project Name	
Date	
Start Time	
Finish Time	
Total Hours	

Employee Name	

	Miles
Days Total CL	
Days Total LL	
Days Total WEL	
Days Total YEL	
Days Total CHAN	

(yellow)	Manual Entry into DLS by operator
(green)	Electronic Entry from DLS
(pink)	Calculated by spreadsheet

Notes: Program Monitor to record data for each section to be marked, **by direction**, even if section length is less than 10 miles.
Do not start a new section at 10 miles even if section length exceeds 10 miles.
Whenever material or beads are loaded, end the section, record data for the completed section, reload striper, then begin new section.
Application rates and average thickness and MPH are calculated over the length of the section painted from Start Hwy SLM to End Hwy SLM.
Copy of DLS Report is to be provided to Engineer not later than one day following the application of material to a section of highway.

County	Route Number / Name	Direction	Start Time	Marking Type	Start Hwy SLM	End Hwy SLM	Road Length	Kettle 1 Color	Kettle 2 Color	Line Width	Linear Feet Painted	Equiv Miles Painted	Avg MPH	Bead 1 Lbs Beads Used	Bead 2 Lbs Beads Used	Lbs Beads per 100 Sq Ft	Kettle 1 Temp	Kettle 2 Temp	Matl 1 Temp @ Applic'n Point	Matl 2 Temp @ Applic'n Point	Humidity	Dew Point	Air Temp	Road Surface Temp	Paint1 Batch No	Paint2 Batch No	Bead1 Batch No	Bead2 Batch No

DLS Short Report Format - Thermoplastic System

Project Name	
Date	
Start Time	
Finish Time	
Total Hours	

Employee Name	

	Miles
Days Total CL	
Days Total LL	
Days Total WEL	
Days Total YEL	
Days Total CHAN	

	Manual Entry into DLS by operator
	Electronic Entry from DLS
	Calculated by spreadsheet

Notes: Program Monitor to record data for each section to be marked, **by direction**, even if section length is less than 10 miles.
Do not start a new section at 10 miles even if section length exceeds 10 miles.
Whenever material or beads are loaded, end the section, record data for the completed section, reload striper, then begin new section.
Application rates and average thickness and MPH are calculated over the length of the section painted from Start Hwy SLM to End Hwy SLM.
Copy of DLS Report is to be provided to Engineer not later than one day following the application of material to a section of highway.

County	Route Number / Name	Direction	Marking Type	Start Hwy SLM	End Hwy SLM	Road Length	Kettle 1 Color	Kettle 2 Color	Line Width	Linear Feet Painted	Equiv Miles Painted	Bead 1 Lbs Beads Used	Bead 2 Lbs Beads Used	Lbs Beads per 100 Sq Ft	Avg MPH	Matl 1 Temp @ Applic'n Point	Matl 2 Temp @ Applic'n Point

TE-31 Sample Data

Envelope No: _____

Sample ID: _____ Sample Origin: _____ Personnel ID: _____

Type of Inspection: _____ Date Sampled: _____

P/S Code (1): _____ at _____

Mix Plant Code (1): _____ at _____

Material Code: _____

Brand Name: _____

Description 1: _____ 2: _____ 3: _____

Represents Quantity (2): _____ Unit of Measure:_____

Number of Items: _____ Consigned to: _____

Sampled from: _____ Mfg. Control Number: _____

Responsible Location: _____ Test Lab: _____

Assign To	Project PO	PO Ind	Item Code	Ref No	Quantity

Lot/Day (3): _____ JMF (3): _____

Concrete Cylinder Specimen Numbers (4): _____ Bill of Lading No: _____

Remarks: _____

_____

_____

_____

_____

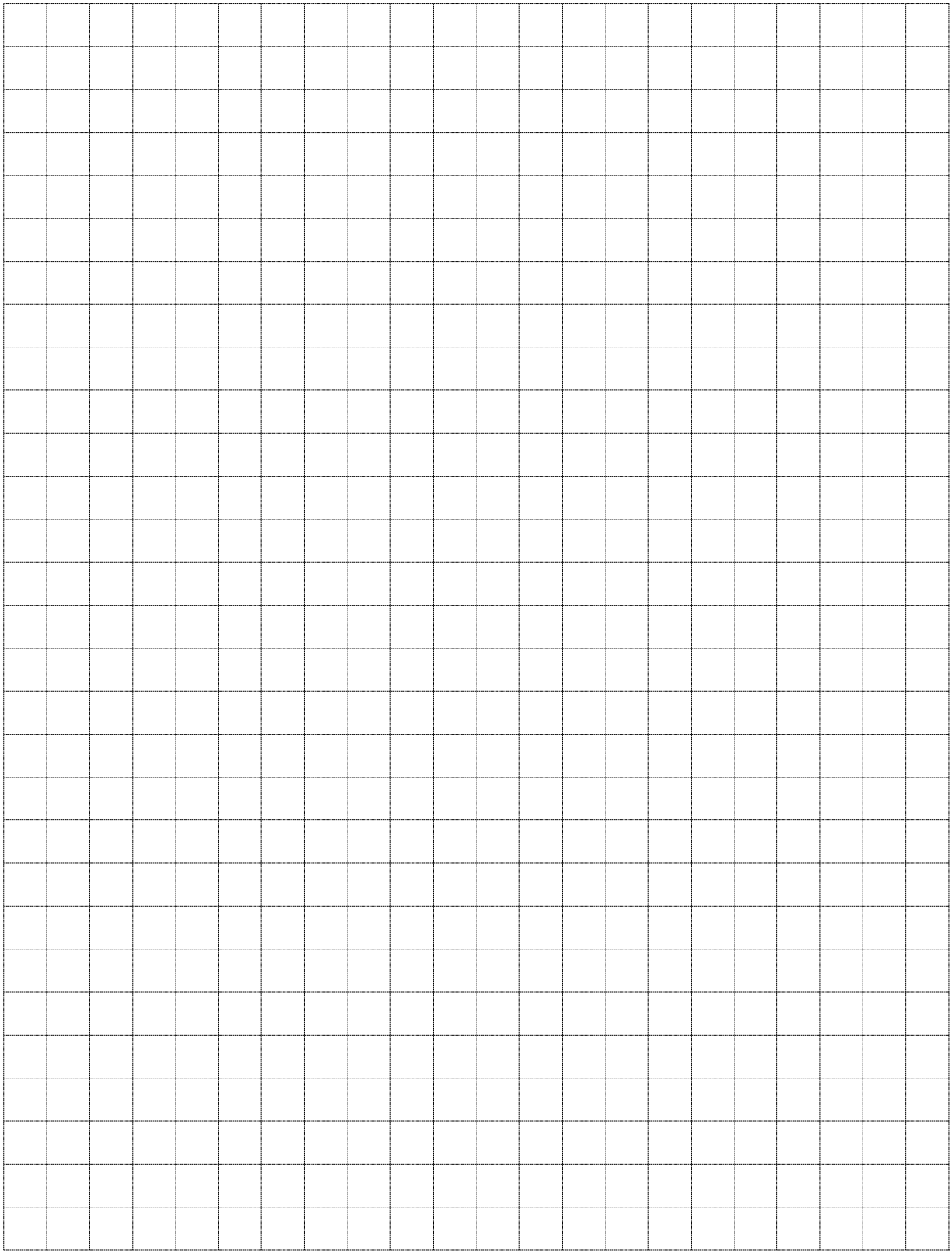
(1) Same materials are used at a Bituminous or PC Concrete mix plant and are sampled and tested by plant and not by project. For these samples the producer/supplier is identified in the P/S field and the mix plant where the material is sampled is identified in the mix plant field.

(2) Job control samples require a quantity.

(3) Rice and Extraction Samples require a JMF, 411 materials require Lot/Day No.

(4) Identifies concrete cylinders being shipped to the Test lab (TE-31 not to be entered into CIVIS - data already entered from corresponding TE-45)

TE-31 Sample Data (back)



Noise Barrier Wall Shop Drawing Review Checklist

The purpose of this checklist is to assist the Engineer with the Department's review of shop drawings submitted by the Contractor in accordance with Standard Bridge Drawing, NBS-1-09.

- ☐ The shop drawings are signed, sealed and dated by an Ohio Registered Professional Engineer. See footnote ( ).
- ☐ The Contractor has accepted the shop drawings in writing. See footnote (1).
- ☐ The acceptance letter documents all issues raised by the contractor, fabricator and Department including disposition of issues. See footnote (1).
- ☐ For absorptive walls, the absorptive wall material supplier is a pre-approved supplier in accordance with NBS-1-09 or all certified test data and performance history documentation has been provided and is in accordance with NBS-1-09. See footnote (1).
- ☐ The shop drawing top of wall elevation at each panel meets or is above the plan requirements. See footnote ( ).
- ☐ The shop drawing bottom of wall elevation at each panel meets or is lower than the plan requirements. See footnote (2).
- ☐ The total panel height at each location meets the plan requirements and is consistent with the top and bottom of wall elevations as provided in the shop drawings. See footnote (2).
- ☐ The shop drawing post height at each location meets the plan requirements. See footnote (2).
- ☐ The shop drawing individual panel designs are in accordance with NBS-1-09. See footnote (3).
- ☐ The shop drawing individual post designs are in accordance with NBS-1-09. See footnote (3).
- ☐ The shop drawing wall alignment is in accordance with the contract requirements. See footnote (3).
- ☐ The shop drawing material requirements are in accordance with NBS-1-09. See footnote (3).
- ☐ The shop drawing aesthetic treatments are in accordance with the contract requirements, including alignment of horizontal joint lines for at least 96-ft. See footnote ( ).
- ☐ The shop drawing base plate and anchor bolt requirements are in accordance with NBS-1-09. See footnote (3).

If all checklist items are met, mark documents as "ACCEPTED".

Footnotes:

1. If missing, mark documents as "NOT ACCEPTED".
2. Document all discrepancies and mark documents "ACCEPTED AS NOTED". Resubmittal is not required.
3. Document all discrepancies and mark documents "ACCEPTED AS NOTED – RESUBMIT".

Noise Barrier Wall Shop Drawing Review Checklist - (Back)

Preconstruction Meeting Agenda/Minutes

Attach signed attendance sheet with Name/Representing/Phone

Date of Meeting: _____ Location: _____
Name of Project Engineer: _____
Name of Area Engineer: _____
Designer of Record: _____
State Project No: _____, C-R-S: _____, PID: _____
Project Type / Description: _____
Bid date: _____ Awarded date: _____ Completion date: _____
Estimate dates: _____ and _____ of each month,
accepted payroll and certification of estimates is required (109.09)
Field Offices: _____

Public Relations: _____
_____
Distribute and discuss all applicable contract documents: _____
_____
_____
Explanation of Scope and Future Intents (if any): _____
_____
Safety Requirements and Protocols: _____
_____
_____
Emergency Information: _____
_____
Status of Utilities, Right of Way, RR and Local requirements: _____
_____
_____
Discussion of all DBE Goals/EEO/Prevailing Wage Requirements: _____
_____
_____
Protection and Restoration Provisions: _____
_____

CA-G-1 Preconstruction Meeting Agenda / Checklist - 2/3

Prime Contractor: _____Phone No: _____
Superintendent: _____Phone No: _____
Normal Work Hours: _____ to _____ Weekdays
Normal Work Hours: _____ to _____ Weekends
Expected Construction Start Date: _____

Environmental permit and SWPPP requirements and commitments: _____
_____
_____
Erosion Control and Best Management Practices discussion: _____
_____
_____
Initial Schedule received? _____ (Bar Chart or CPM)
Review of the Schedule: _____
_____
Partnering: _____
_____
Review of the Disputes and Claims Process: _____
_____
Review of the Change Order Process: _____
_____
Time Extensions: _____
_____
Force Account: _____
_____
Price Adjustments: _____
_____
Locations, Dates, and Descriptions of major work phases: _____
_____
_____
Haul roads designated: _____
_____
_____
Borrow/ Waste/ Agreements: _____
_____
_____
List Subcontractors to be used: _____
_____

CA-G-1 Preconstruction Meeting Agenda / Checklist - 3/3

AC / PCC plants to be used: _____
_____
_____

List of major material suppliers: _____
_____
_____

Material approval, inspection, and payment processes: _____
_____
_____

Bridge Related Items/Issues: _____
_____
_____

Maintenance of Traffic: _____
_____
_____

Other Traffic Related Items: _____
_____

Final Inspection/Punch List Requirements: _____
_____

Progress Meetings frequency: _____

Contractor Evaluation and C-95: _____

Other items for Discussion:
_____
_____
_____
_____

Distribute the Preconstruction Minutes with all attachments to: Project Engineer, Prime Contractor Superintendent, Designer, Construction Office, LPA, and others expressing interest.

CA-G-1 Preconstruction Meeting Agenda / Checklist - 3/3 back