Iowa (19)
SPS-7

Iowa Department of Transportation
800 Lincoln Way, Ames, Iowa 50010 515/239-1309

July 14, 1992 Ref. No.: 435

Mr. Ron Urback
Braun Intertec
1983 Sloan Place
St. Paul, Minnesota 55117

Dear Ron:

As we discussed, find enclosed two copies of the Materials Sampling and Testing Plan for SPS-7 on I-35 in Hamilton County.

If you have any questions or require additional information, please contact me at (515) 239-1309 in Ames, Iowa.

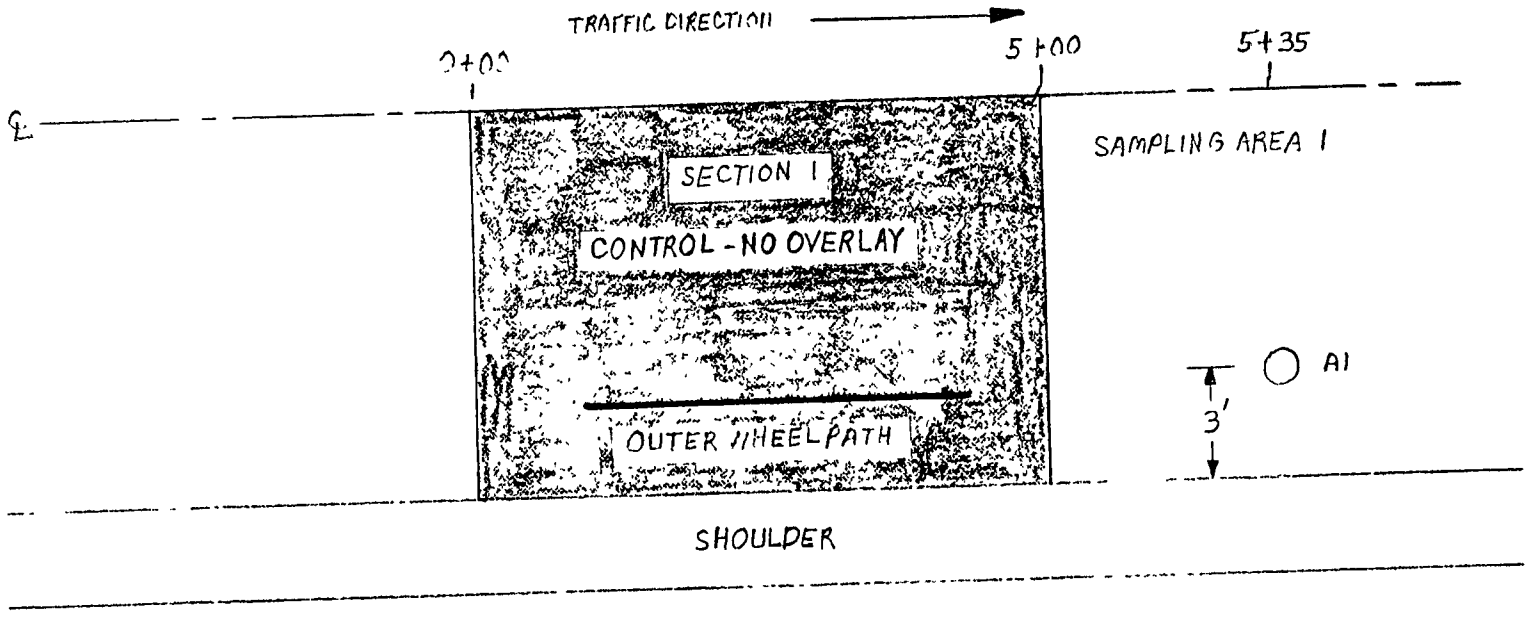
Sincerely,

Charles J. Potter

Charles J. Potter
Ass't Special Investigations Engr.
Materials

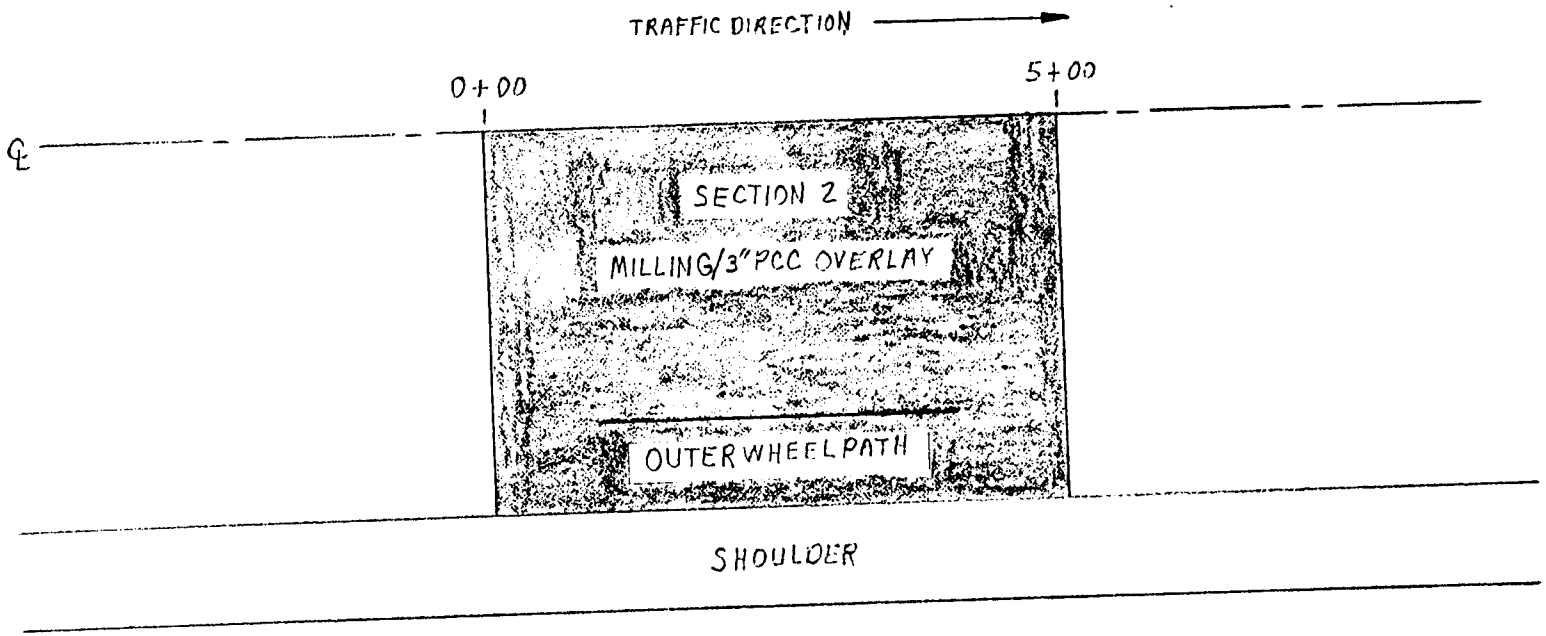
CJP:kmd
cc: B. C. Brown
O. J. Lane
K. B. Jones

Iowa Materials Sampling & Testing Plan
SPS-7, I-35, Hamilton Co.

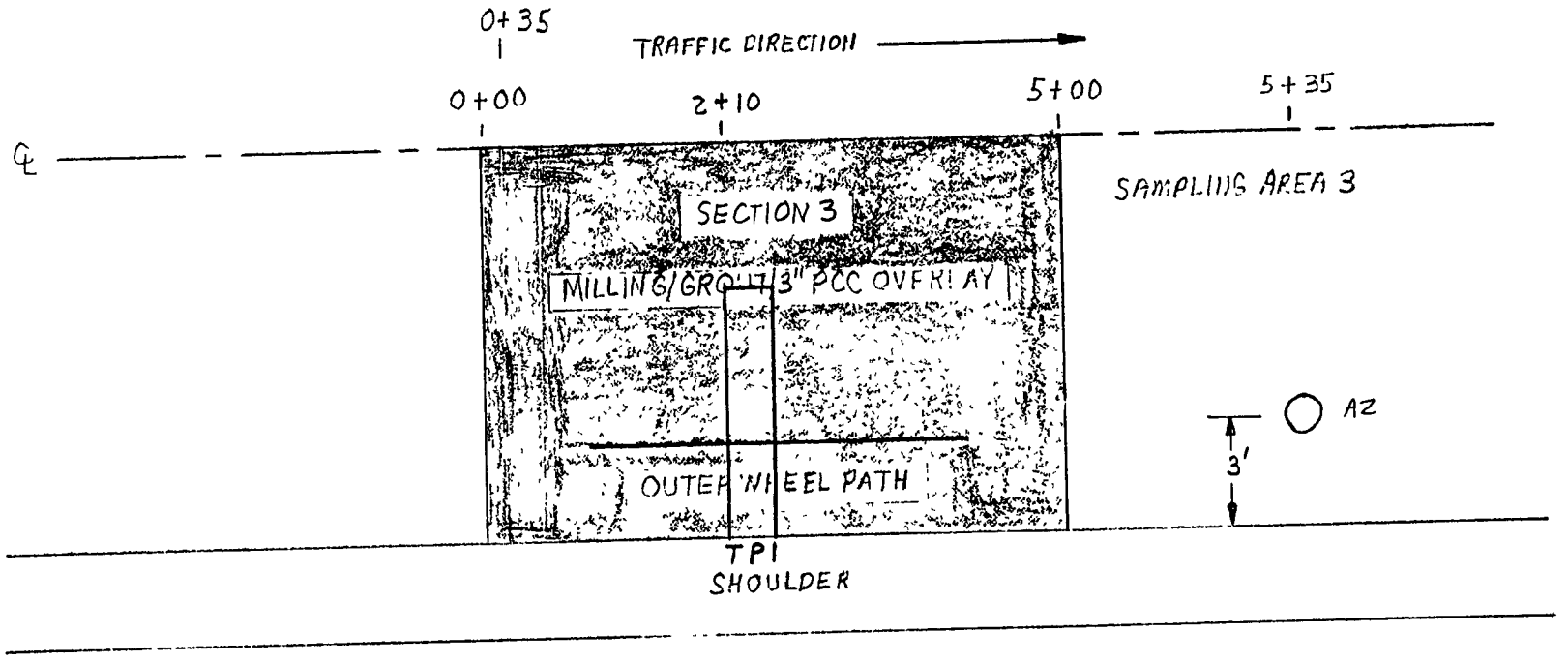


○ 6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

"Pre-Construction" Sampling Plan for Test Section 1



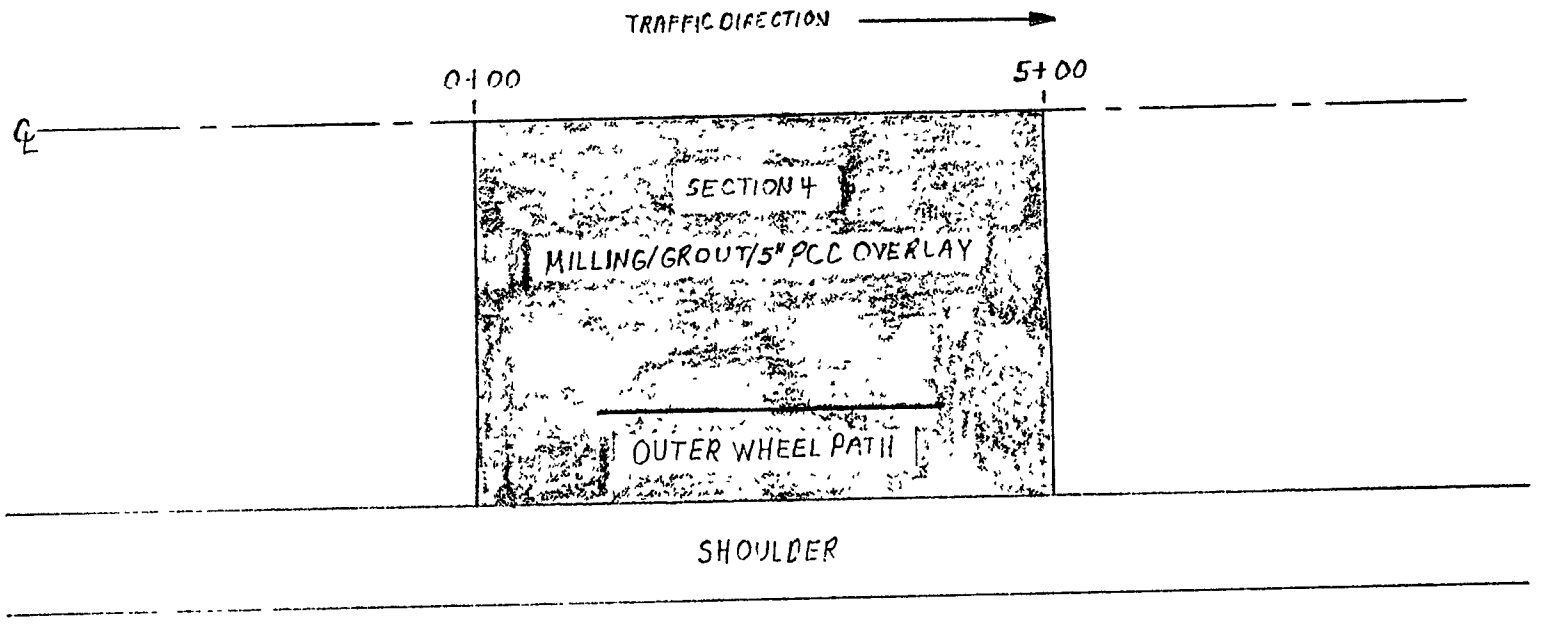
"Pre-Construction" Sampling Plan for Test Section 2



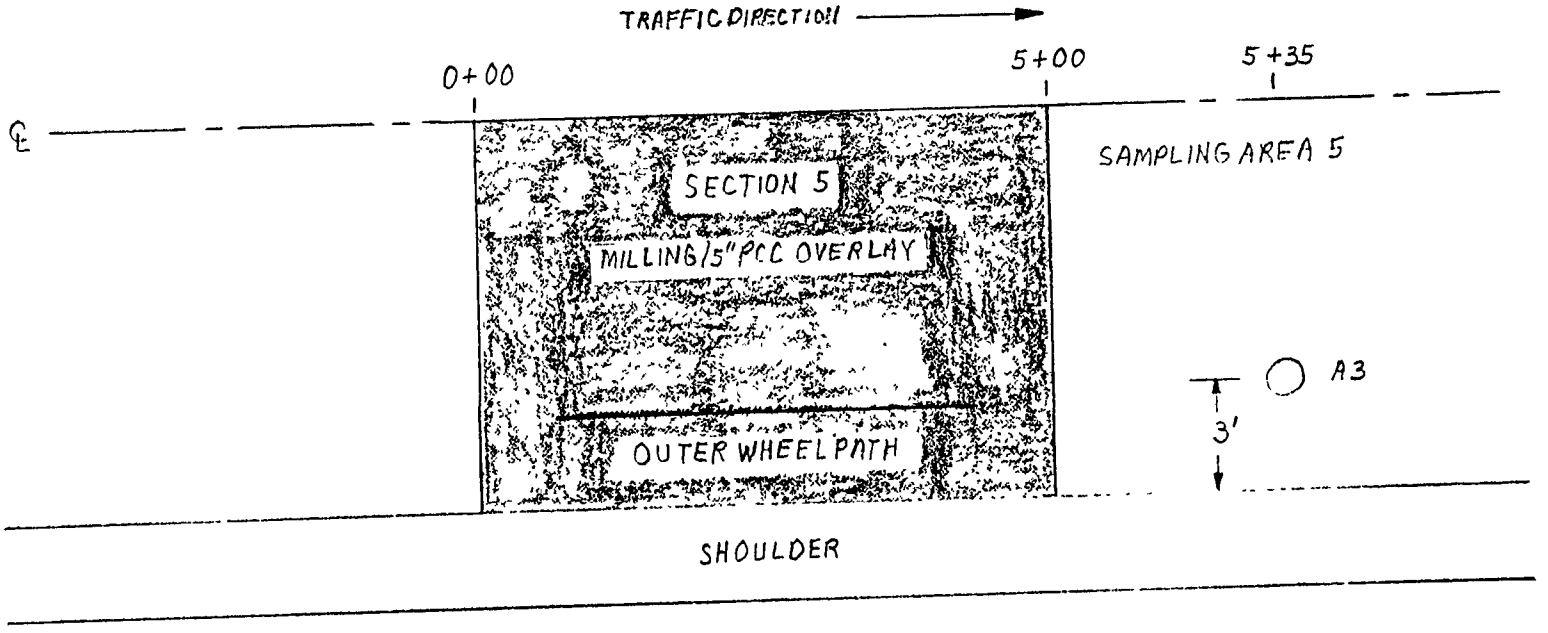
6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

7.6' X 9.6' TEST PIT

"Pre-Construction" Sampling Plan for Test Section 3

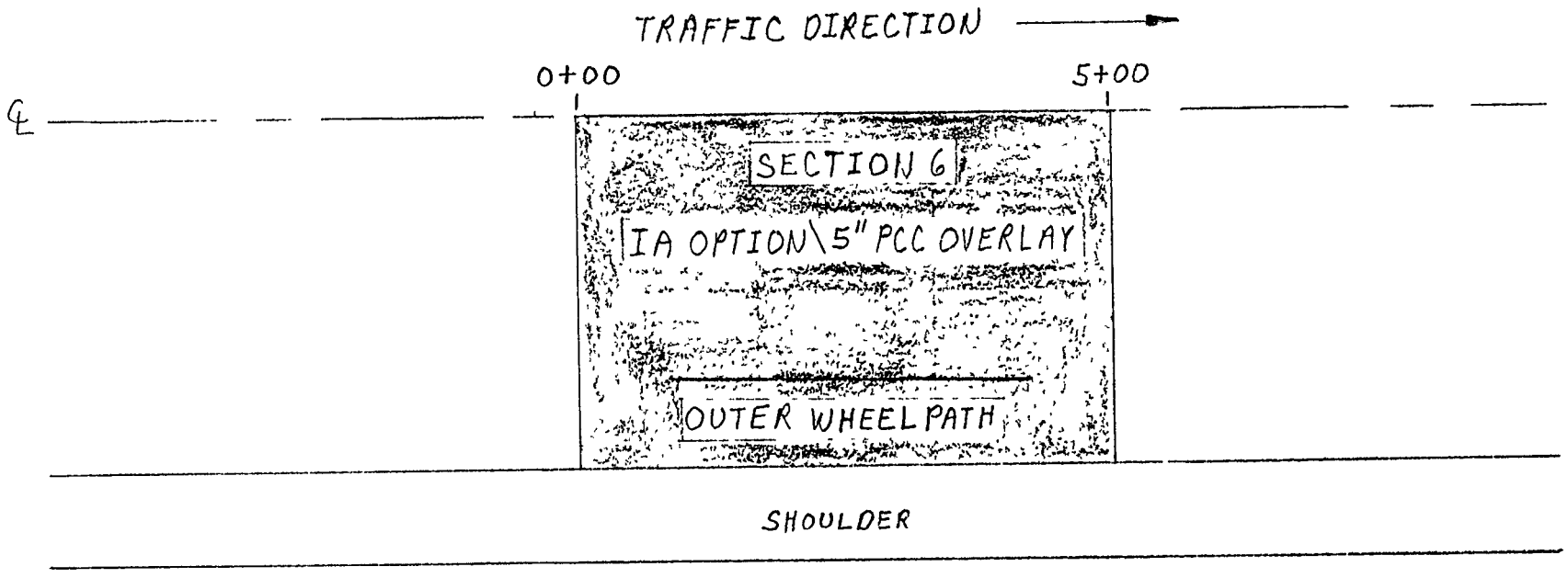


"Pre-Construction" Sampling Plan for Test Section 4

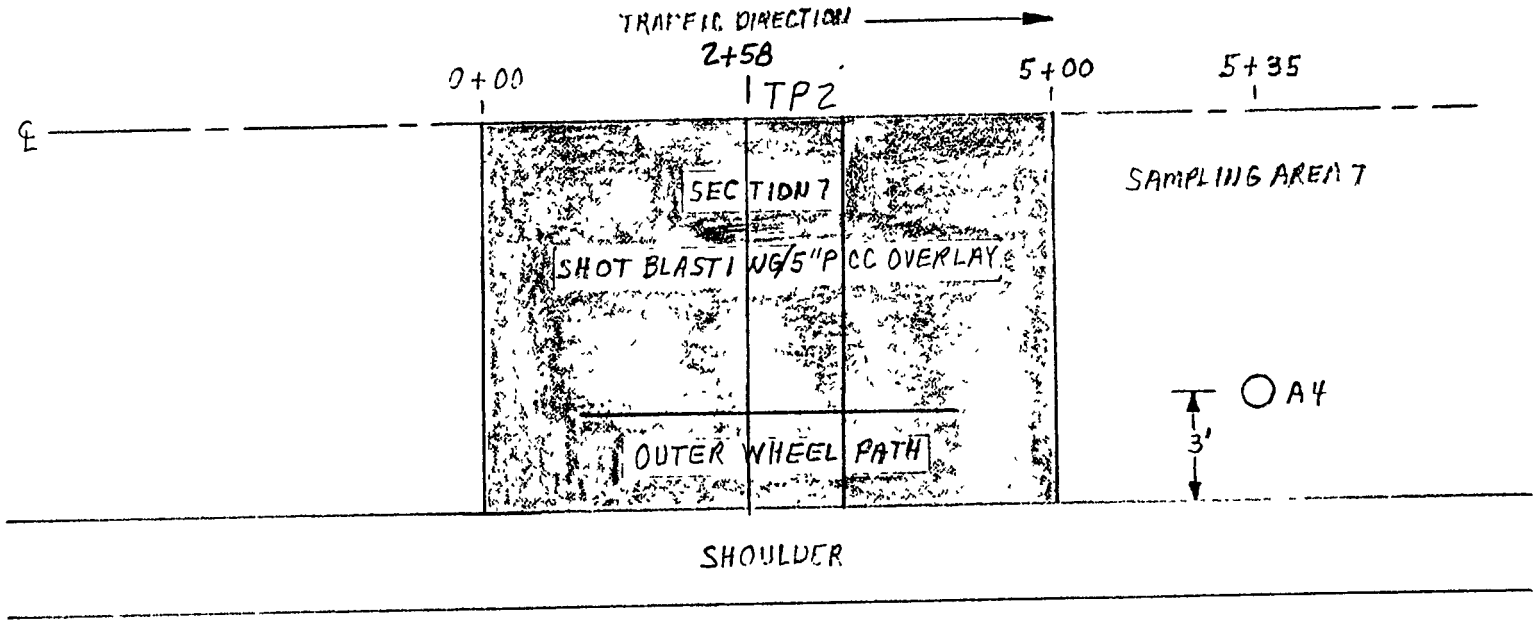


○ 6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

"Pre-Construction" Sampling Plan for Test Section 5



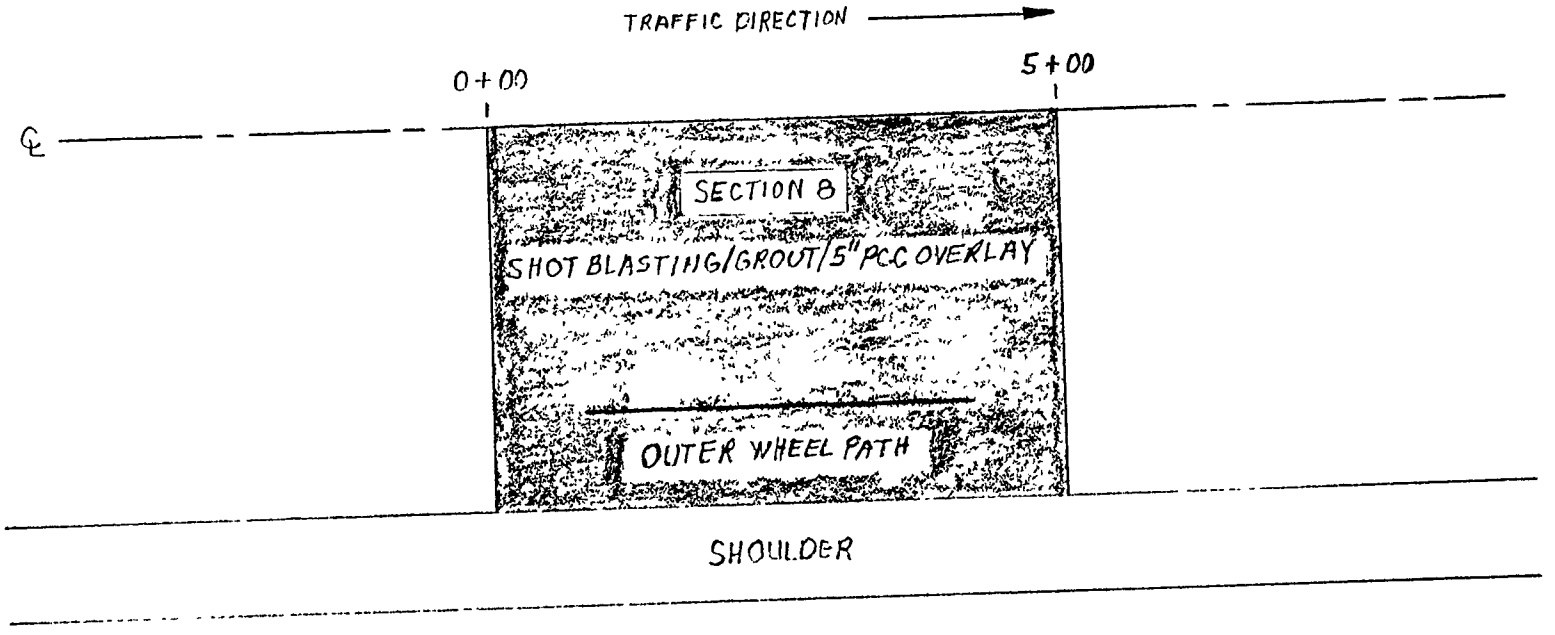
"Pre-Construction" Sampling Plan for Test Section 6



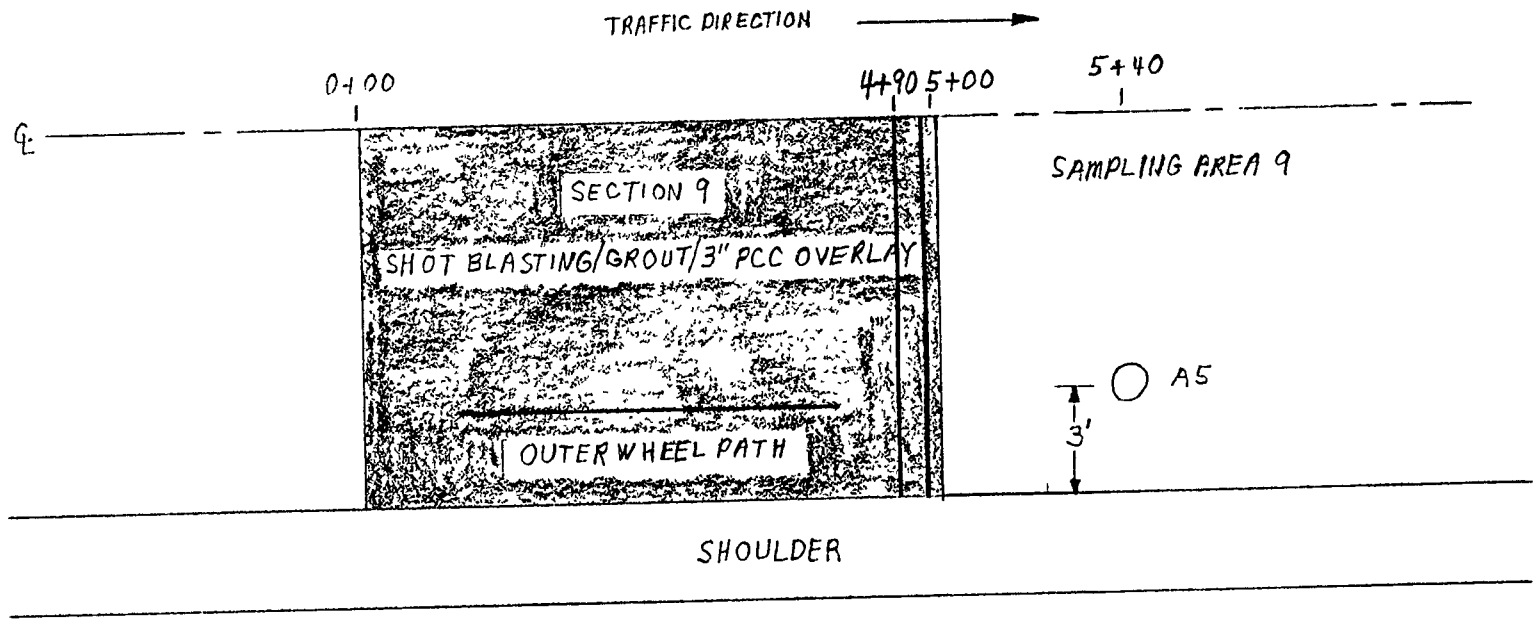
○ 6" CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

5' X 12' TEST PIT

"Pre-Construction" Sampling Plan for Test Section 7



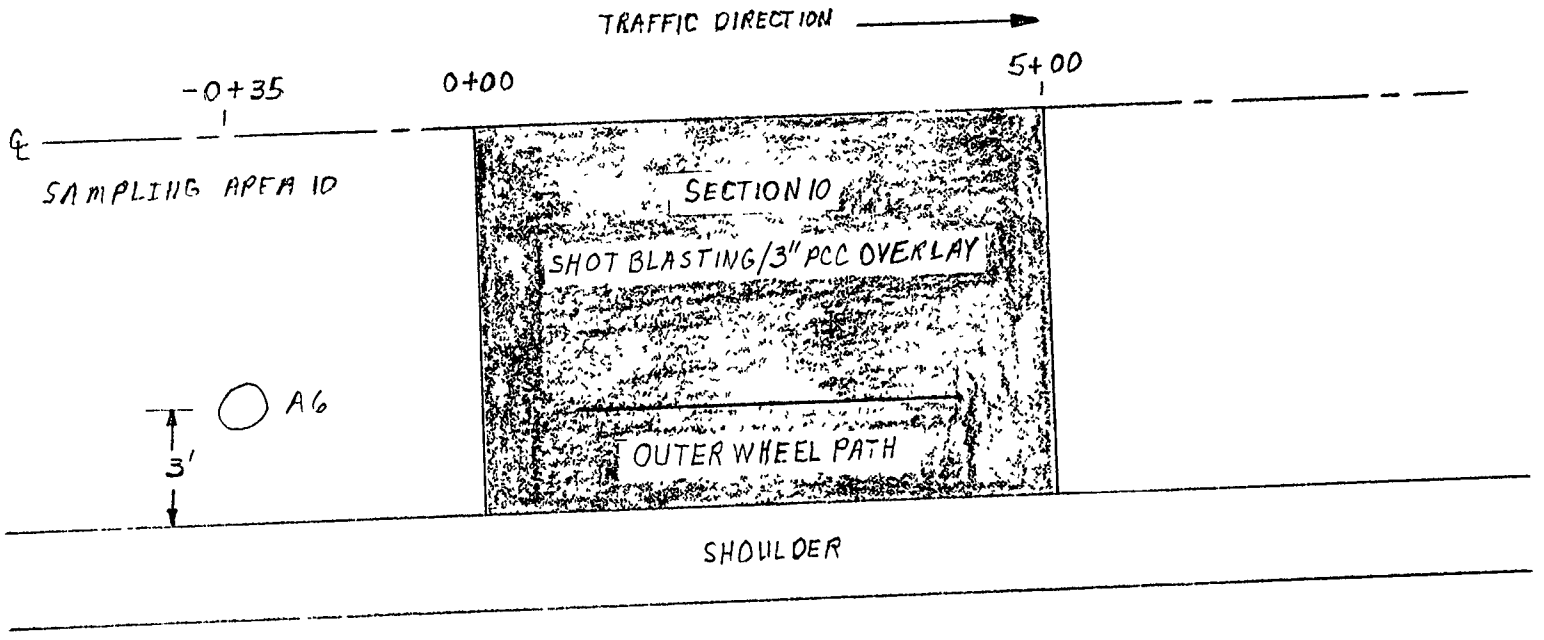
"Pre-Construction" Sampling Plan for Test Section 8



6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

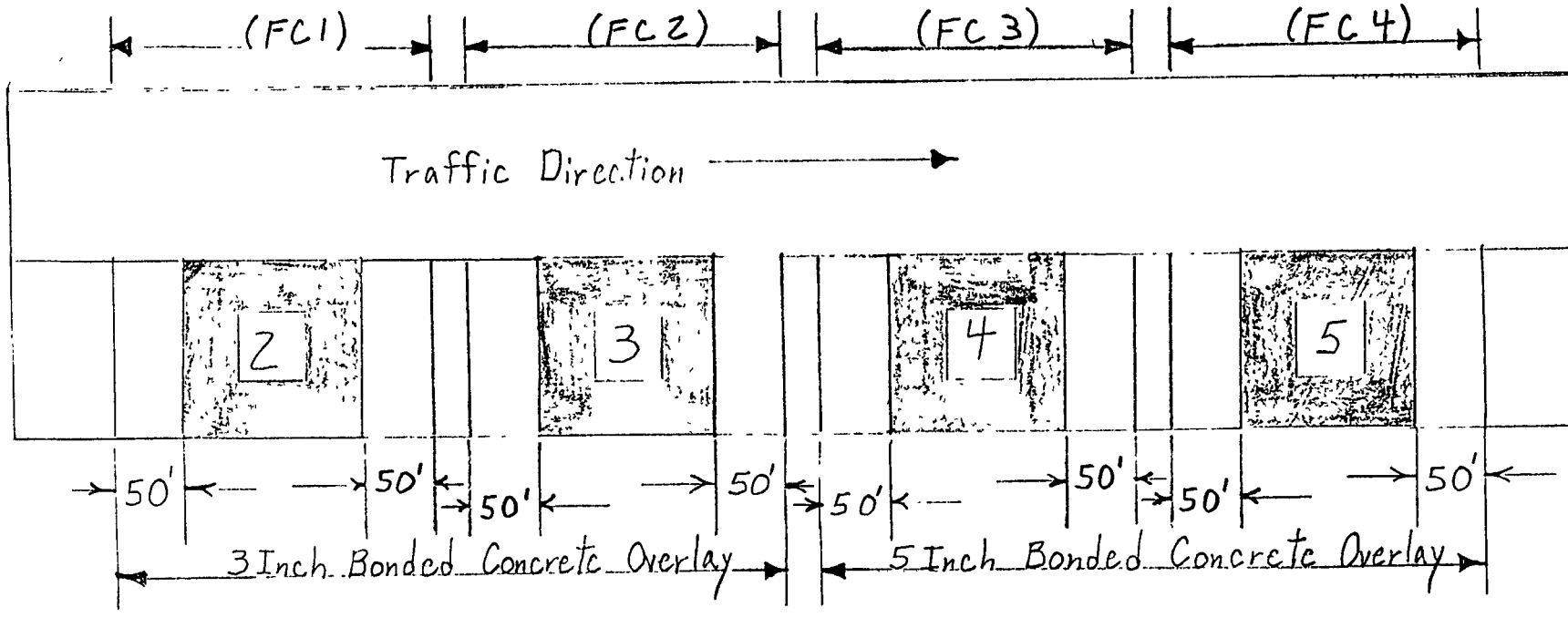
5' x 12' TEST PIT

"Pre-Construction" Sampling Plan for Test Section 9



○ 6" OD CORE AND AUGER BORING TO 4' BELOW TOP OF SUBGRADE

"Pre-Construction" Sampling Plan for Test Section 10



Bulk Sampling of Fresh Concrete Minimum Requirements

FC1-Sample from Bulk Sampling Area 1, concrete for Test Section 2

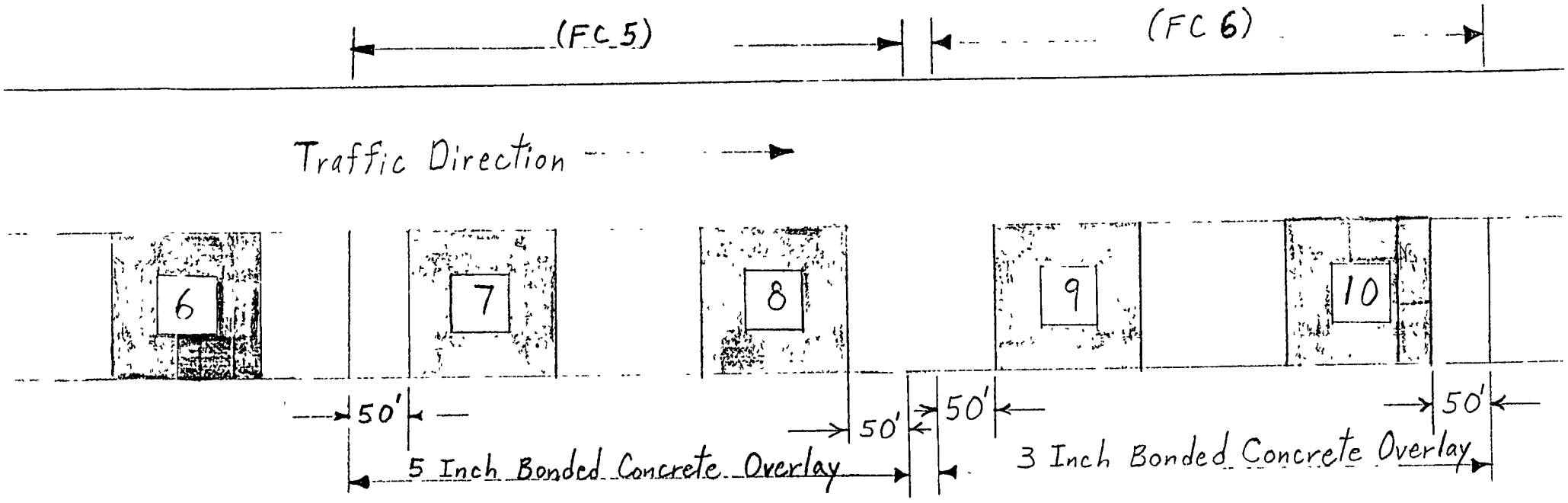
FC2-Sample from Bulk Sampling Area 2, concrete for Test Section 3

FC3-Sample from Bulk Sampling Area 3, concrete for Test Section 4

FC4-Sample from Bulk Sampling Area 4, concrete for Test Section 5

AS-DELIVERED CONCRETE

SAMPLING PLAN

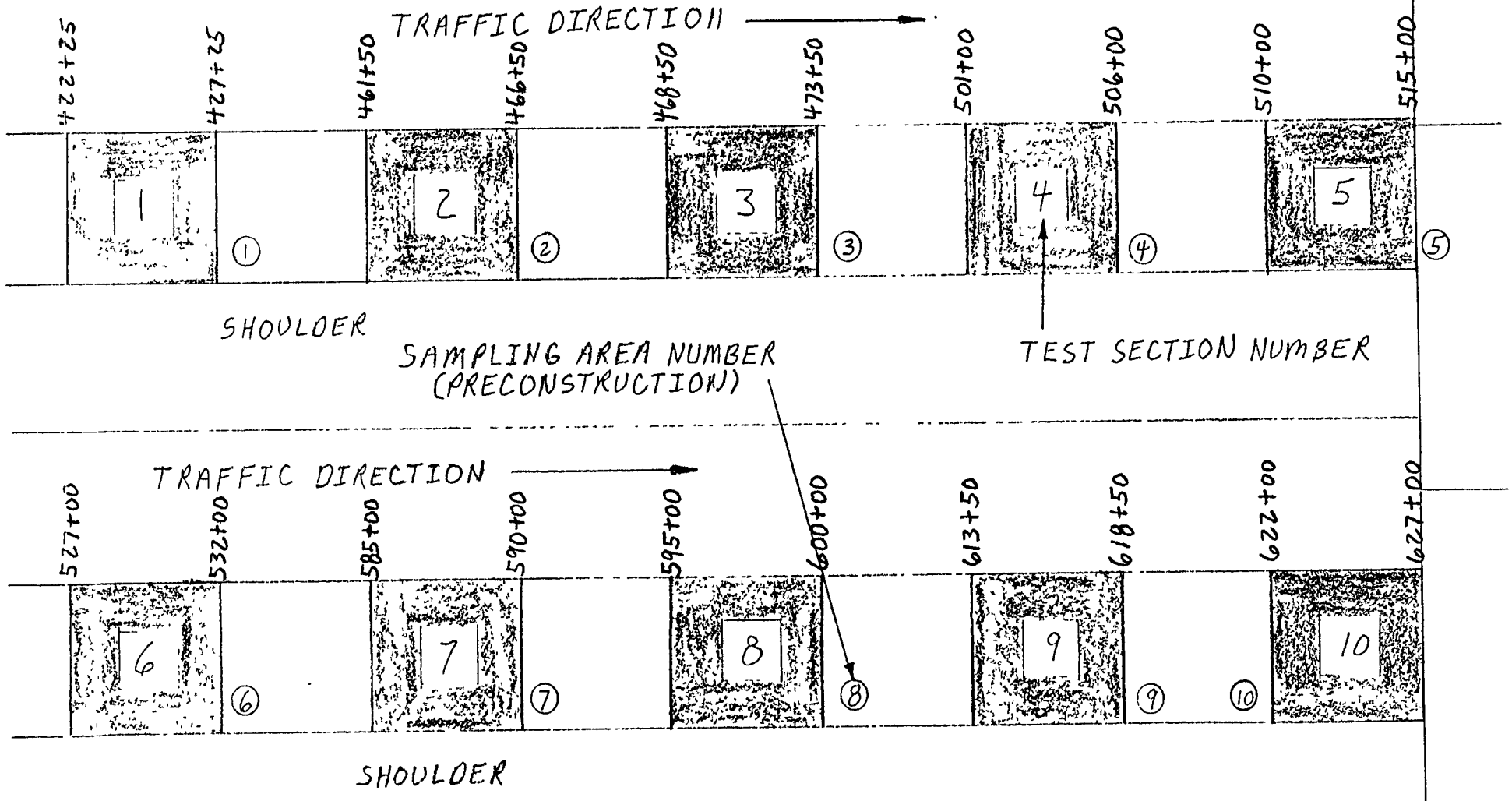


Bulk Sampling of Fresh Concrete Minimum Requirements

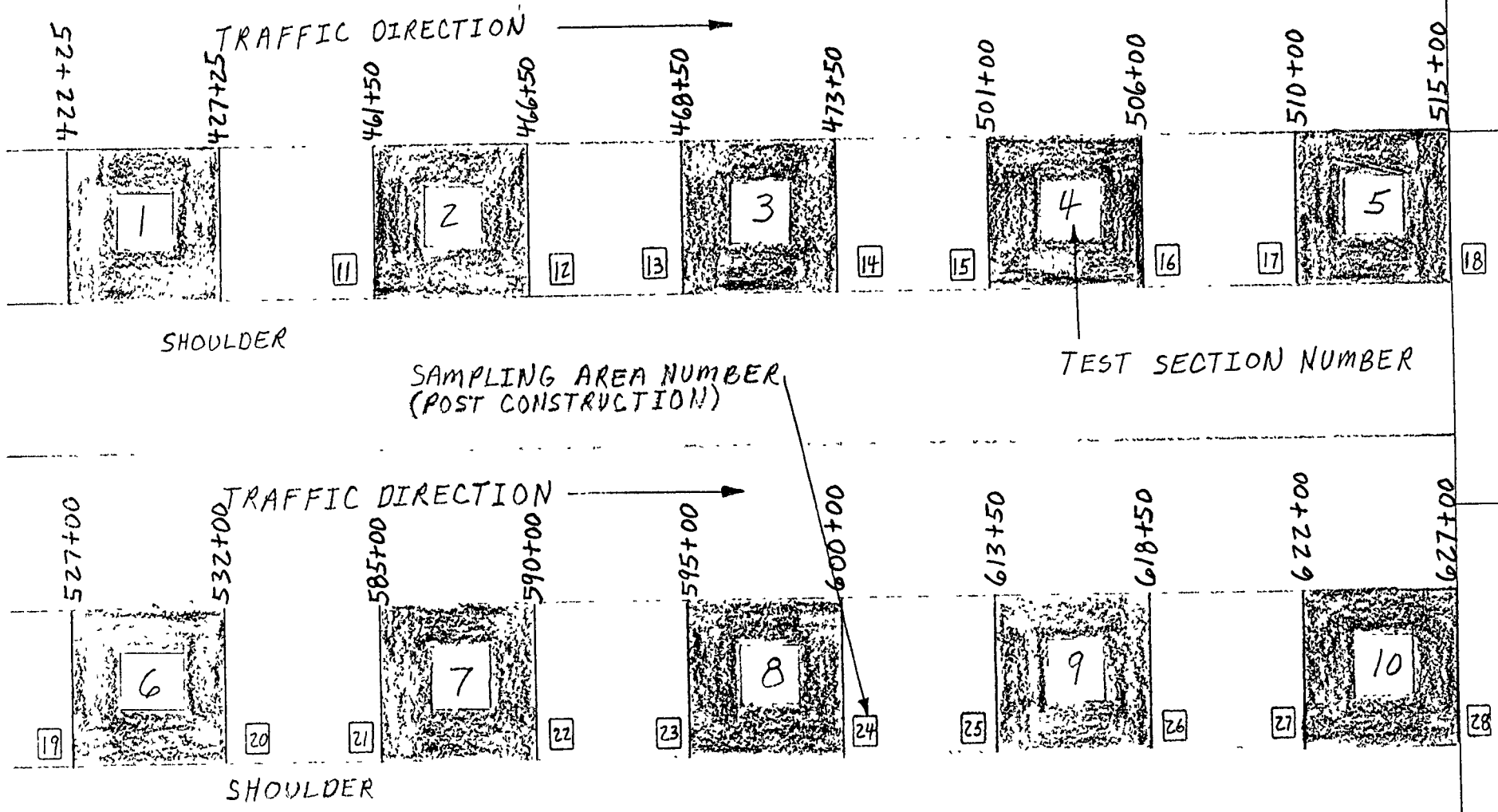
FC5 - Sample from Bulk Sampling Area 5, concrete for Test Sections 7/8

FC6 - Sample from Bulk Sampling Area 6, concrete for Test Sections 9/10

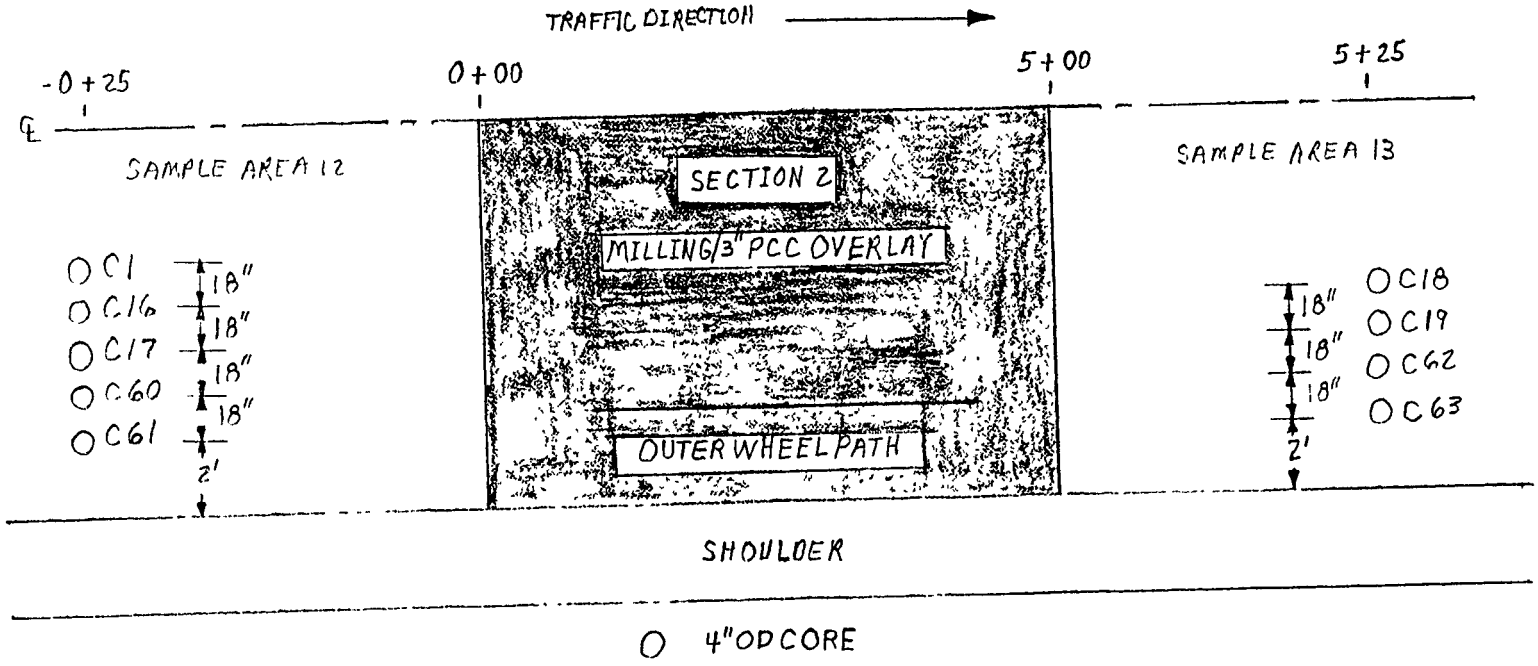
AS-DELIVERED CONCRETE SAMPLING PLAN (CONTINUED)



SPS-7 "PRE-CONSTRUCTION" SAMPLING AREA PLAN



SPS-7 "POST-CONSTRUCTION" SAMPLING AREA PLAN



Coring at 14 days After Placement

C1

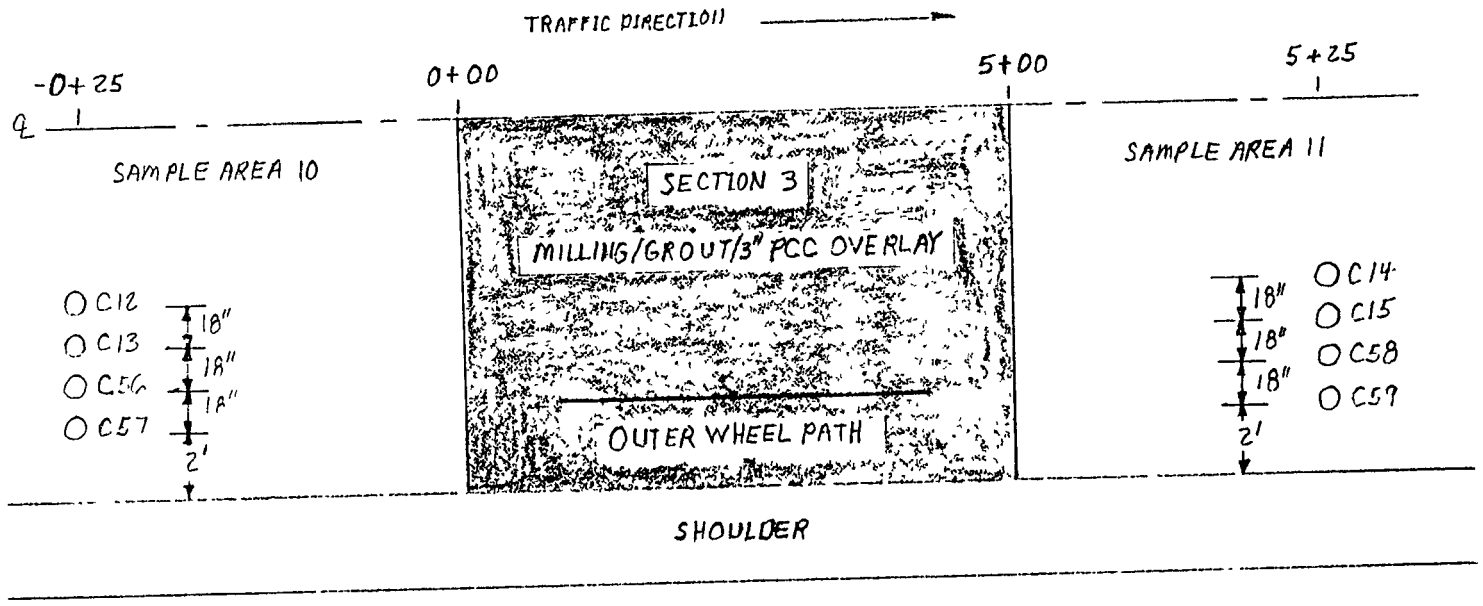
Coring at 28 days After Placement

C16, C17, C18, C19

Coring at 365 days After Placement

C60, C61, C62, C63

"Post-Construction" Sampling Plan for Test Section 2



O 4"OD CORE

Coring at 14 days After Placement

None for this section

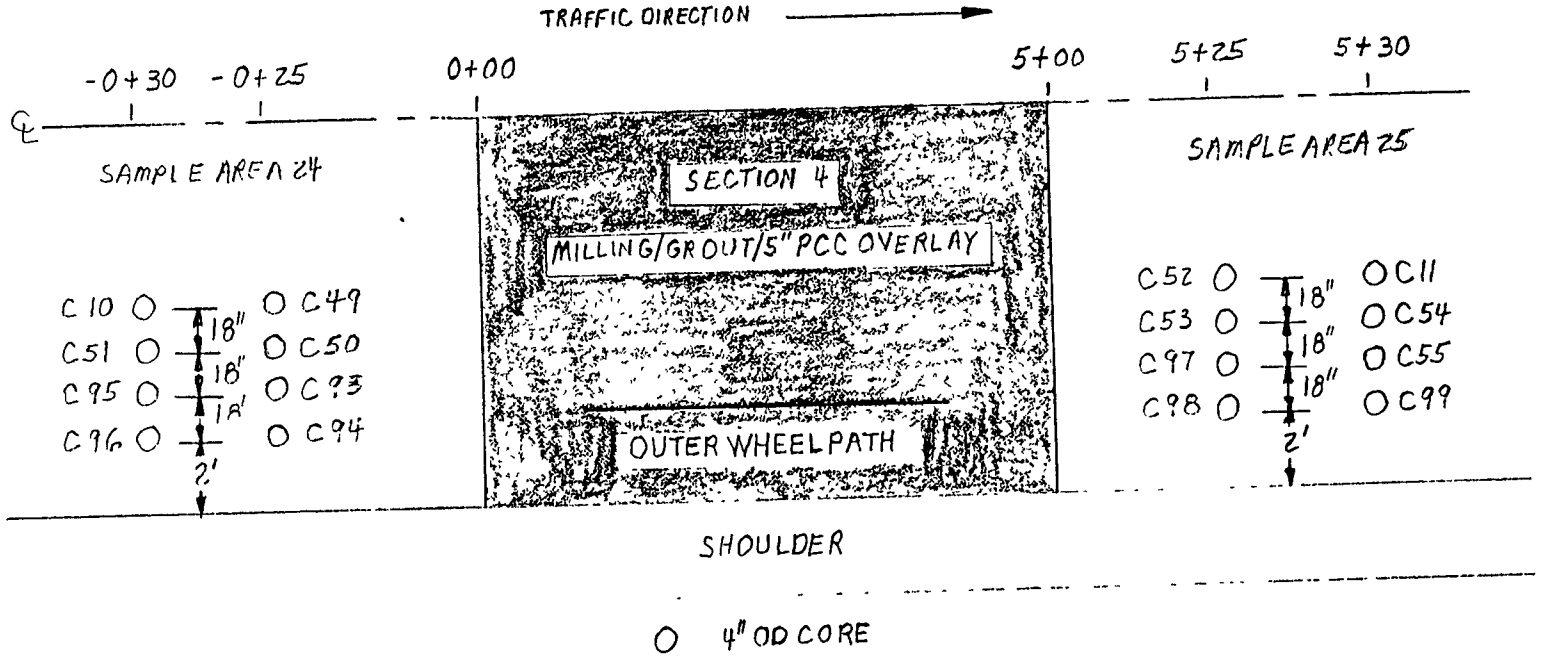
Coring at 28 days After Placement

C12, C13, C14, C15

Coring at 365 days After Placement

C56, C57, C58, C59

"Post-Construction" Sampling Plan for Test Section 3



Coring at 14 days After Placement

C10, C11

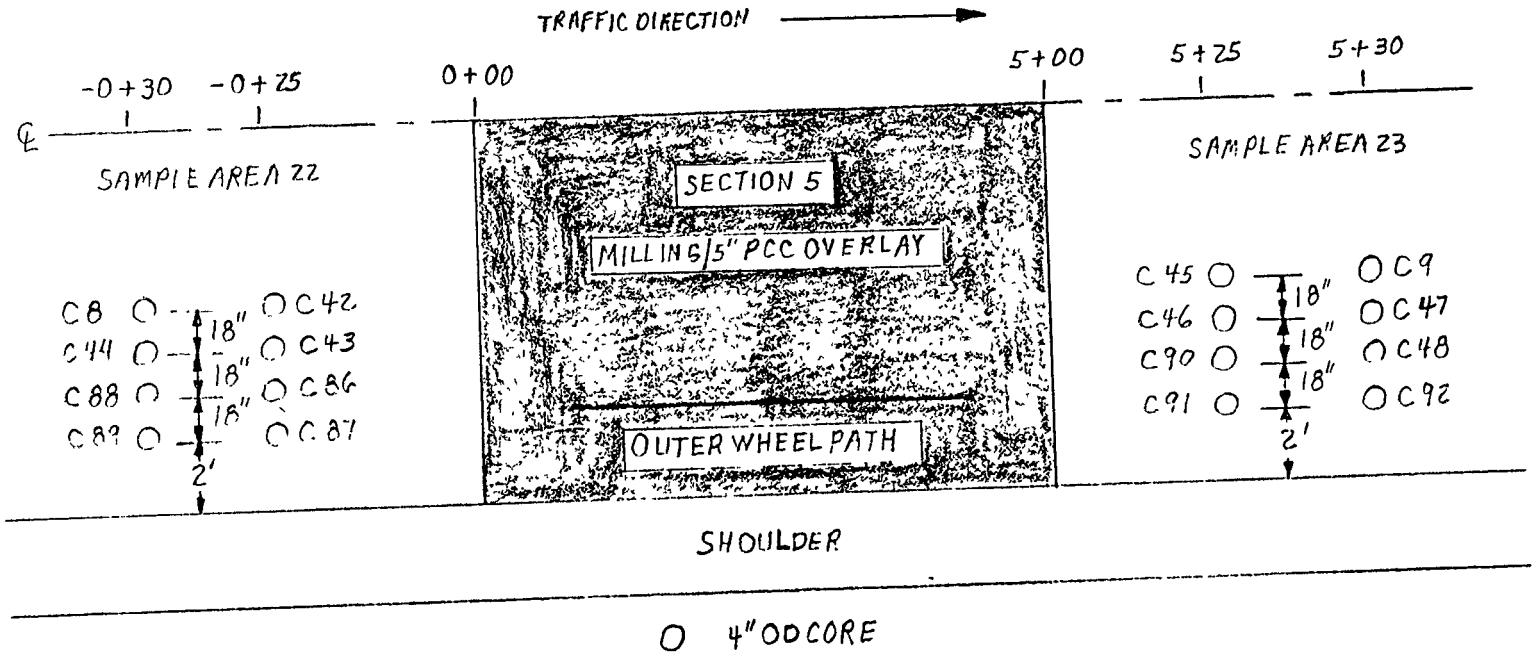
Coring at 28 days After Placement

C49, C50, C51, C52, C53, C54, C55

Coring at 365 days After Placement

C93, C94, C95, C96, C97, C98, C99

"Post-Construction" Sampling Plan for Test Section 4



Coring at 14 days After Placement

C8, C9

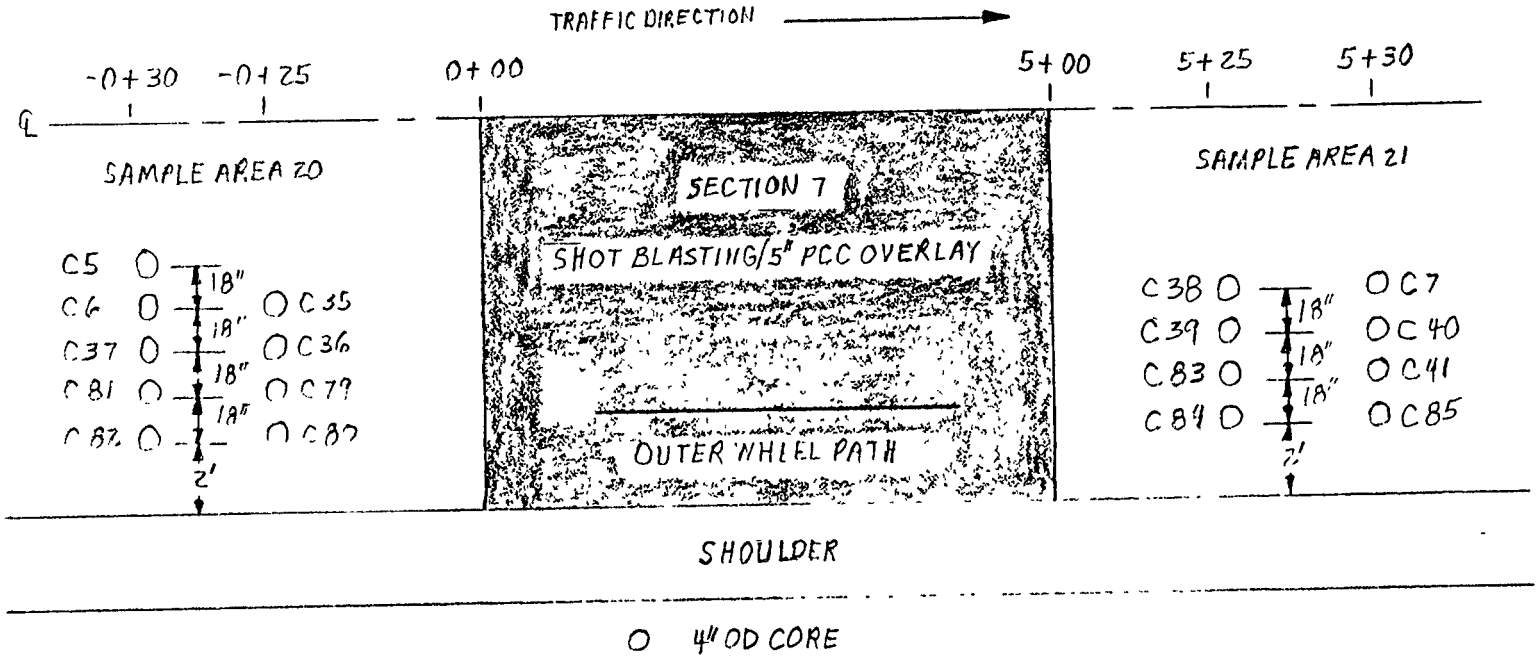
Coring at 28 days After Placement

C42, C43, C44, C45, C46, C47, C48

Coring at 365 days After Placement

C86, C87, C88, C89, C90, C91, C92

"Post-Construction" Sampling Plan for Test Section 5



Coring at 14 days After Placement

C5, C6, C7

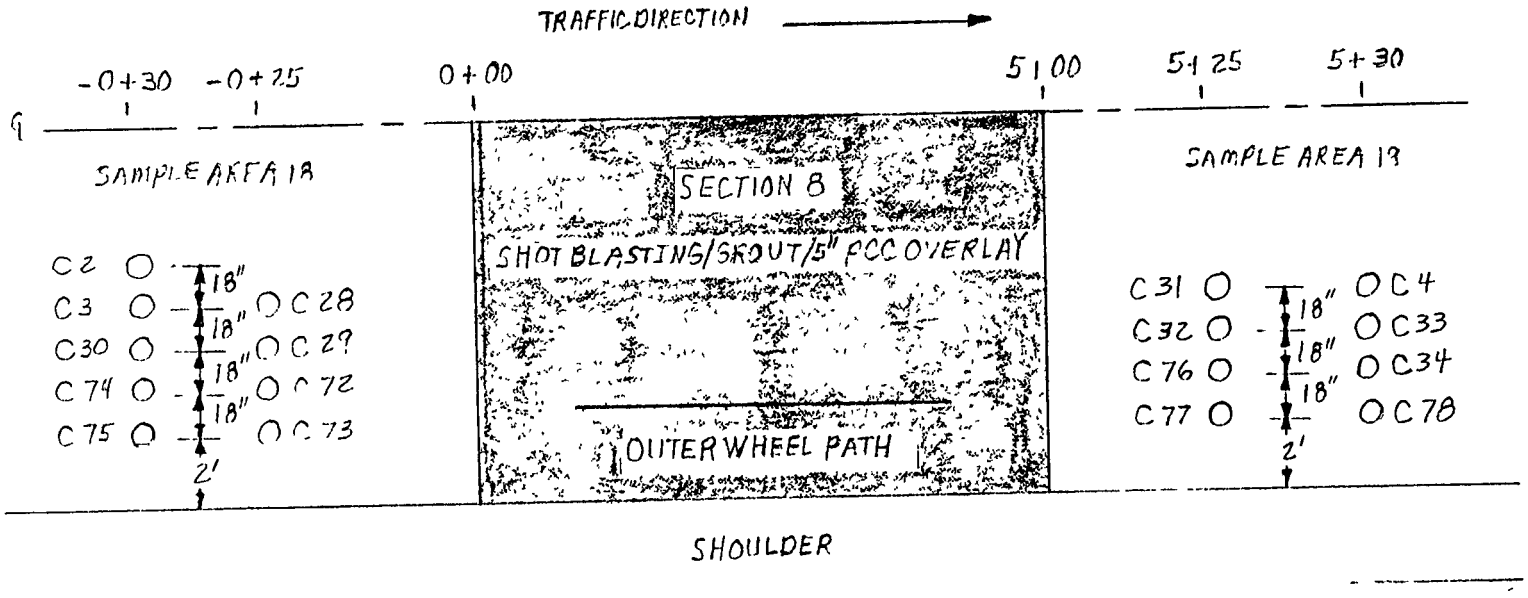
Coring at 28 days After Placement

C35, C36, C37, C38, C39, C40, C41

Coring at 365 days After Placement

C79, C80, C81, C82, C83, C84, C85

"Post-Construction" Sampling Plan for Test Section 7



O 4"OD CORE

Coring at 14 days After Placement

C2, C3, C4

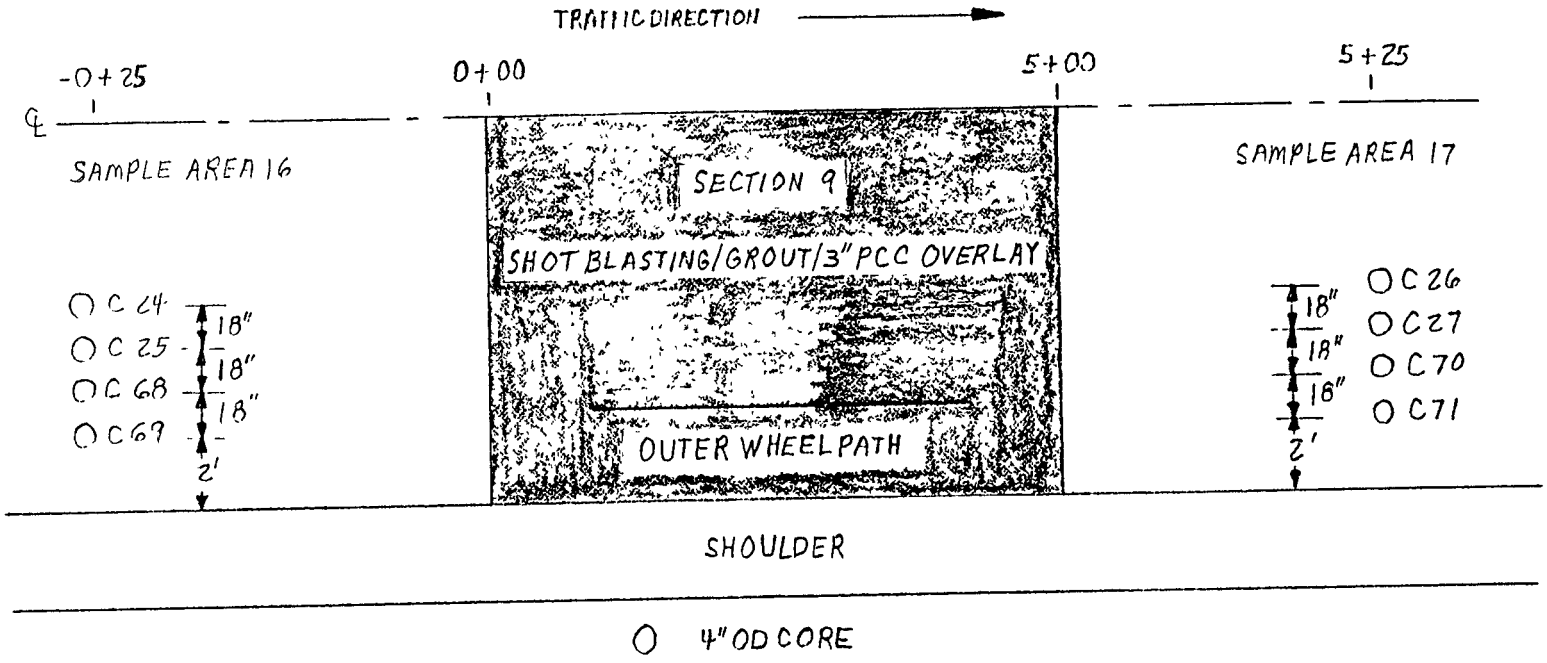
Coring at 28 days After Placement

C28, C29, C30, C31

Coring at 365 days After Placement

C72, C73, C74, C75

"Post-Construction" Sampling Plan for Test Section 8



Coring at 14 days After Placement

None for this section

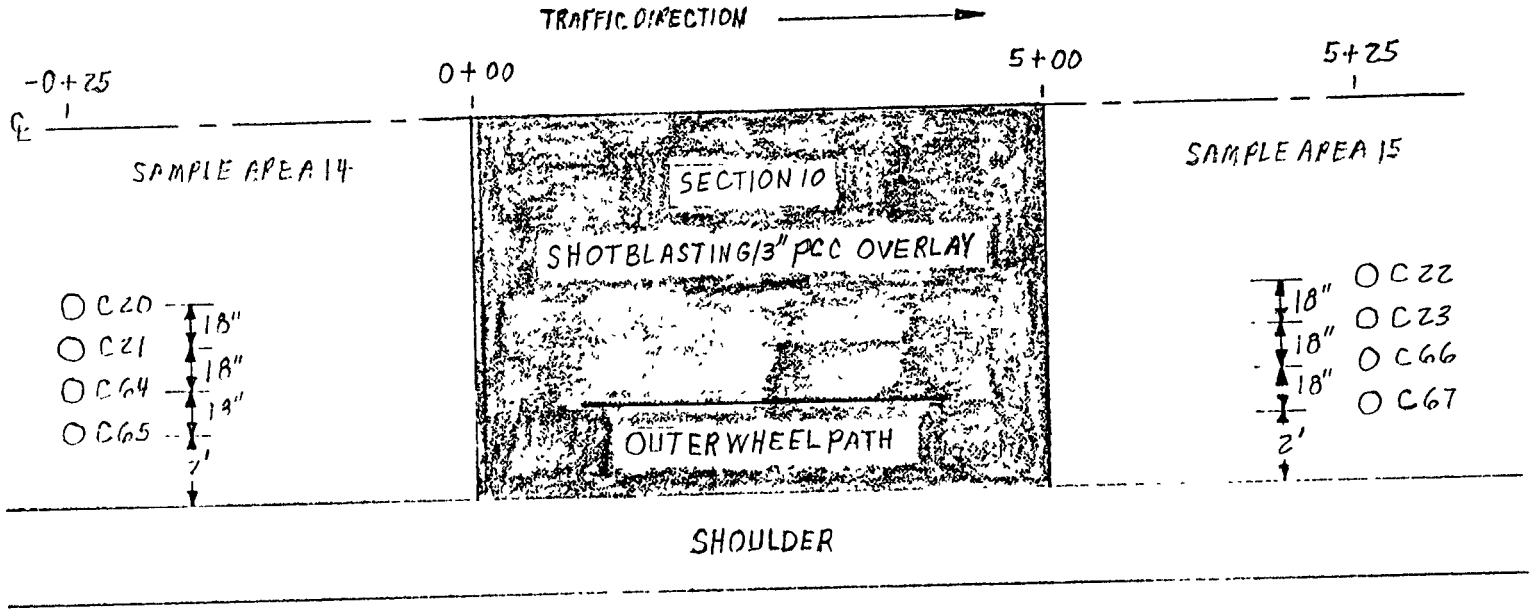
Coring at 28 days After Placement

C24, C25, C26, C27

Coring at 365 days After Placement

C68, C69, C70, C71

"Post-Construction" Sampling Plan for Test Section 9



O 4" OD CORE

Coring at 14 days After Placement

None for this section

Coring at 28 days After Placement

C20, C21, C22, C23

Coring at 365 days After Placement

C64, C65, C66, C67

"Post Construction" Sampling Plan for Test Section 10

PRECONSTRUCTION LABORATORY TESTING PLANS

Material Type and Properties	SHRP Designation	SHRP Protocol	Tests per Layer	Material Source/ Test Locations
PRE-CONSTRUCTION				
I. UNBOUND GRANULAR BASE AND SUBBASE				
Particle Size Analysis	UG01	P41	3	TP1 TP2 TP3
Sieve Analysis (washed)	UG02	P41	3	TP1 TP2 TP3
Atterburg Limits	UG04	P43	3	TP1 TP2 TP3
Moisture-Density Relations	UG05	P44	3	TP1 TP2 TP3
Resilient Modulus	UG07	P46	3	TP1 TP2 TP3
Classification	UG08	P47	3	TP1 TP2 TP3
Permeability	UG09	P48	3	TP1 TP2 TP3
Natural Moisture Content	UG10	P49	3	TP1 TP2 TP3
II. SUBGRADE				
Sieve Analysis	SS01	P51	3	TP1 TP2 TP3
Hydrometer to 0.001 mm	SS02	P42	3	TP1 TP2 TP3
Atterberg Limits	SS03	P43	3	TP1 TP2 TP3
Classification	SS04	P52	6	TP1 TP2 TP3 A1 A3 A5
Moisture-Density Relations	SS05	P55	3	TP1 TP2 TP3
Resilient Modulus	SS07	P46	3	A1 A3 A6
Unit Weight	SS08	P56	6	A1 A2 A3 A4 A5 A6
Natural Moisture Content	SS09	P49	3	TP1 TP2 TP3

DELIVERED CONCRETE LABORATORY TESTING PLANS

Material Type and Properties	SHRP Designation	SHRP Protocol	Tests* per Layer	Material Source/ Test Locations: Concrete for 3-inch Overlays	Material Source/ Test Locations: Concrete for 5-inch Overlays
PORTLAND CEMENT CONCRETE OVERLAY:					
Compressive Strength					
14 day	PC01	P61	6	FC1 FC2 FC6	FC3 FC4 FC5
28 day	PC01	P61	6	FC1 FC2 FC6	FC3 FC4 FC5
365 day	PC01	P61	6	FC1 FC2 FC6	FC3 FC4 FC5
Tensile Strength					
14 day	PC02	P62	6	FC1 FC2 FC6	FC3 FC4 FC5
28 day	PC02	P62	6	FC1 FC2 FC6	FC3 FC4 FC5
365 day	PC02	P62	6	FC1 FC2 FC6	FC3 FC4 FC5
Flexural Strength					
14 day	PC09	P69	6	FC1 FC2 FC6	FC3 FC4 FC5
28 day	PC09	P69	6	FC1 FC2 FC6	FC3 FC4 FC5
365 day	PC09	P69	6	FC1 FC2 FC6	FC3 FC4 FC5
Air Content	ASTM	TBA	2	FC1 or FC2 or FC6	FC3 or FC4 or FC5
Slump	ASTM	TBA	2	FC1 or FC2 or FC6	FC3 or FC4 or FC5

*Each set of 6 tests is made up one specimen molded from each of six fresh concrete samples (FC1 - FC6)

POST-CONSTRUCTION LABORATORY TESTING PLANS

Material Type and Properties	SHRP Designation	SHRP Protocol	Tests per Layer	Material Source/ Test Locations
POST-CONSTRUCTION				
I. PORTLAND CEMENT CONCRETE OVERLAY:				
Compressive Strength				
14 day	PC01	P61	4	C3 C6 C8 C10
28 day	PC01	P61	4	C34 C41 C48 C55
365 day	PC01	P61	4	C77 C84 C91 C98
Splitting Tensile Strength				
14 day	PC02	P62	4	C4 C7 C9 C11
28 day	PC02	P62	4	C30 C37 C44 C51
365 day	PC02	P62	4	C78 C85 C92 C99
PCC Coefficient of Thermal Expansion*				
14 day	PC03	P63	1	C2
Static Modulus of Elasticity				
28 day	PC04	P64	4	C33 C40 C47 C54
365 day	PC04	P64	4	C74 C81 C88 C95
Interface Bond Strength				
28 day	PC07	P67	32	C12-27 C28-29 C31-32 C35-36 C38-39 C42-C43 C45-C46 C49-50 C52-53
365 day	PC07	P67	32	C56-71 C72-73 C76-77 C79-80 C83-84 C86-87 C90-91 C93-94 C97-98

POST-CONSTRUCTION LABORATORY TESTING PLANS (Cont'd)

Material Type and Properties	SHRP Designation	SHRP Protocol	Tests per Layer	Material Source/ Test Locations
Air Content of Hardened Concrete				
14 day	PC08	P68	2	C1 C5
PCC Unit Weight				
14 day	PC05	P65	4	C3 C6 C8 C10
28 day	PC05	P65	4	C34 C41 C48 C55
365 day	PC05	P65	4	C77 C84 C91 C98
Core Examination/Thickness	PC06	P66	99	C1-C11 C12-55 C56-99
II. PORTLAND CEMENT CONCRETE ORIGINAL PAVEMENT:				
Compressive Strength	PC01	P61	9	C12 C16 C20 C24 C28 C35 C42 C49 C15
Splitting Tensile Strength	PC02	P62	9	C14 C18 C22 C26 C31 C38 C45 C52 C17
PCC Coefficient of Thermal Expansion*	PC03	P63	1	C2
Static Modulus of Elasticity	PC04	P64	9	C13 C16 C21 C25 C29 C36 C43 C50 C23
PCC Unit Weight	PC05	P65	9	C12 C16 C20 C24 C28 C35 C42 C49 C19
Core Examination/Thickness	PC06	P66	99	C1-11 C12-55 C56-99

*Test to be performed by FHWA

SPS-7 Project Layer Numbering

Layer Number	Description
1	Subgrade
2	Embankment (subbase)
3	Graded Aggregate Base
4	8" CRC Pavement