

TECH MEMO NO: TMEC-19

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FILE: T-001 (P1-SPS-34)

DISTRIBUTION: Gene Skok, Dick Ingberg, Jim Walls, Amir Hanna

SUBJECT: Material sampling plan for SPS-5 Manitoba project

Enclosed are tables and figures which present the recommended material sampling plan for the SPS-5 site in Manitoba. This plan was prepared based on the information provided to us in the May 26, 1989 memo from Braun Pavement Technologies. Adjustments may be necessary in the field based on site specific considerations. This plan contains what we feel is the minimum to meet the materials characterization needs for the SPS-5 experiment. The other guidelines for test section numbering, test section marking, before and after monitoring measurements, materials sampling during construction, etc. as contained in the report on Sampling, Testing and Monitoring Activities, SPS-5 in Yazoo County Mississippi, June 1989, should be followed for the other data collection activities at this site. The before and after material sampling plans contained in this memo should be used in place of those contained in the document prepared for Mississippi. We are currently preparing a complete report revised specifically for the Manitoba site. This report should be completed in the near future.

The following tables and figures are attached to this memo:

Table 1. Summary of sampling area locations and sampling plan.

Figure 1. Overall layout of sampling areas.

Figures 2 - 12. Details of pre-construction sampling.

Figures 13-23. Details of post-construction sampling.

The field material sampling and testing activities should be performed in accordance with SHRP directives for sampling and testing of GPS test sections.

Table 1. Summary of sampling area locations and sampling plan for SPS-5 pavement site in Manitoba.

Sampling Area	Direction Station	SAMPLING BEFORE OVERLAY PLACEMENT			SAMPLING AFTER OVERLAY
		AC Pavement Cores	Granular Base Samples	Subgrade Soil Samples	AC Overlay Cores
S1	W/907+60	A1, BA1	BA1	A1, BA1	-
+S2	W/914+10	C1-C9, A2, BA2 ⑨	BA2	A2, BA2	C1 - C12
S3	E/920+70	-	-	-	C13
S4	W/926+70	-	-	-	-
S5	E/932+40	C14-C22, A3, BA3 ⑨	BA3	A3, BA3	C14 - C25
S6	W/934+70	-	-	-	C26
S7	E/940+60	-	-	-	C27
+S8	W/947+10	C28-C36, A4 ⑨	TP	A4, TP	C28 - C39
S9	E/952+80	-	-	-	-
S10	E/958+90	C40-C48, A5 ⑨	BA5	A5, BA5	C40 - C51
S11	E/965+50	-	-	-	C52
TOTAL CORES/SAMPLES					
* C-Type Cores		36	-	-	52
A-Type Cores/Samples		5	-	5	-
BA-Type Cores/Samples		4	4	4	-
Test Pit Samples		1	1	1	-
* Includes					
Extra C-Type Cores:		9	-	-	12

+ Shoulder Auger probes (AP1 and AP2) in sampling areas S2 and S8.

SPS-5 LAYOUT, WEST BOUND HIGHWAY 1, MANITOBA

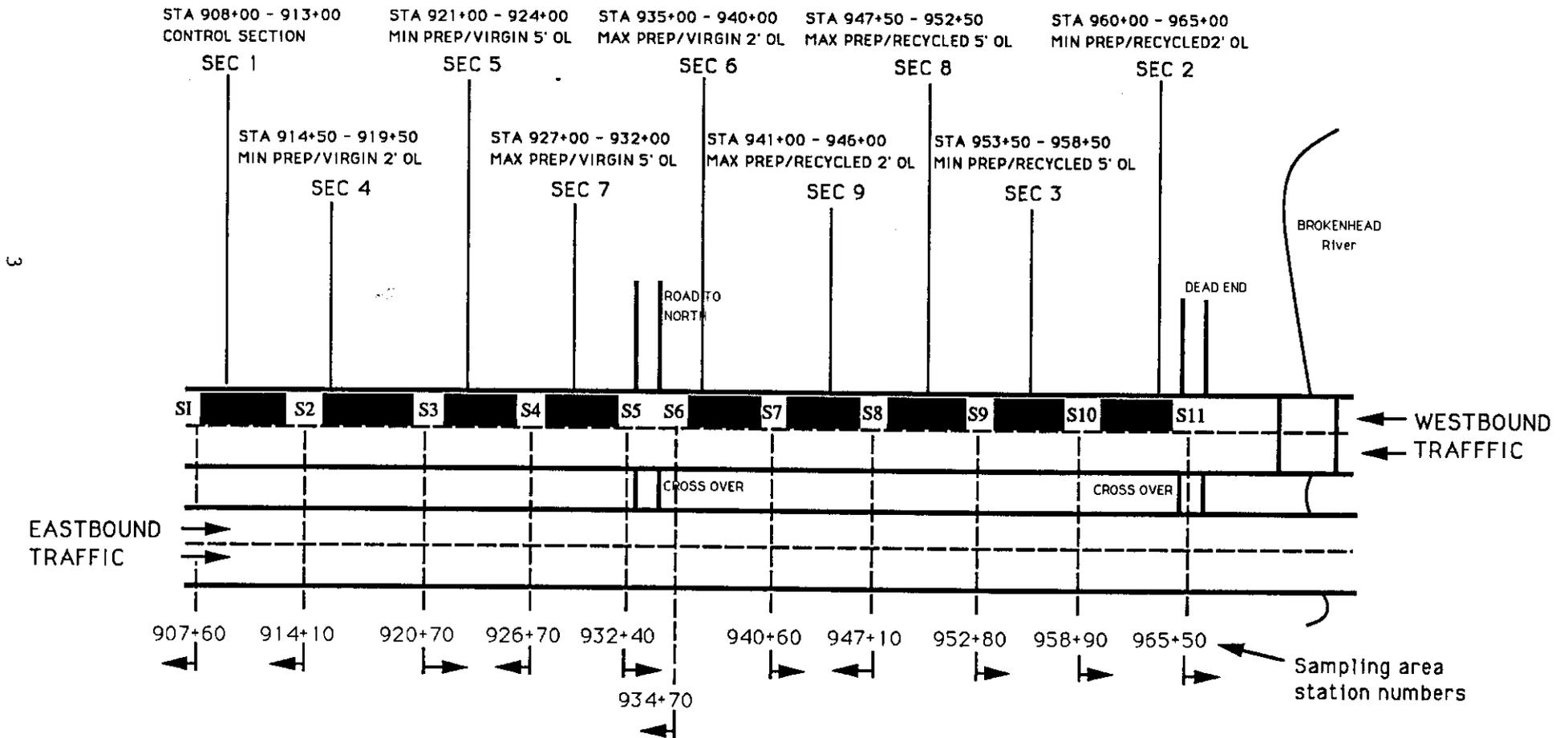
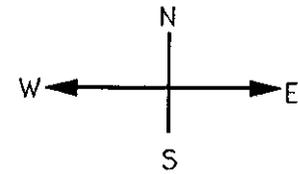
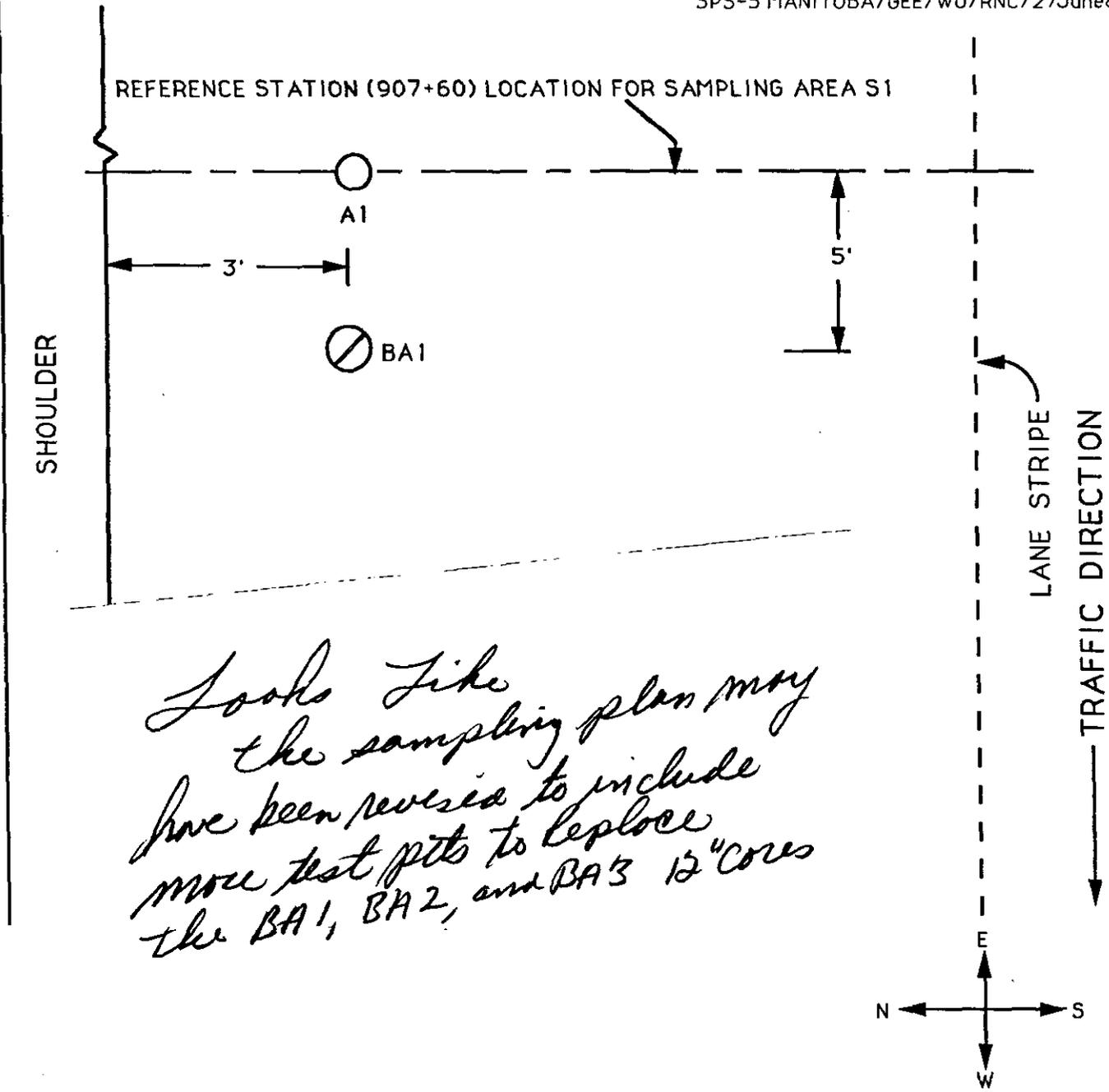


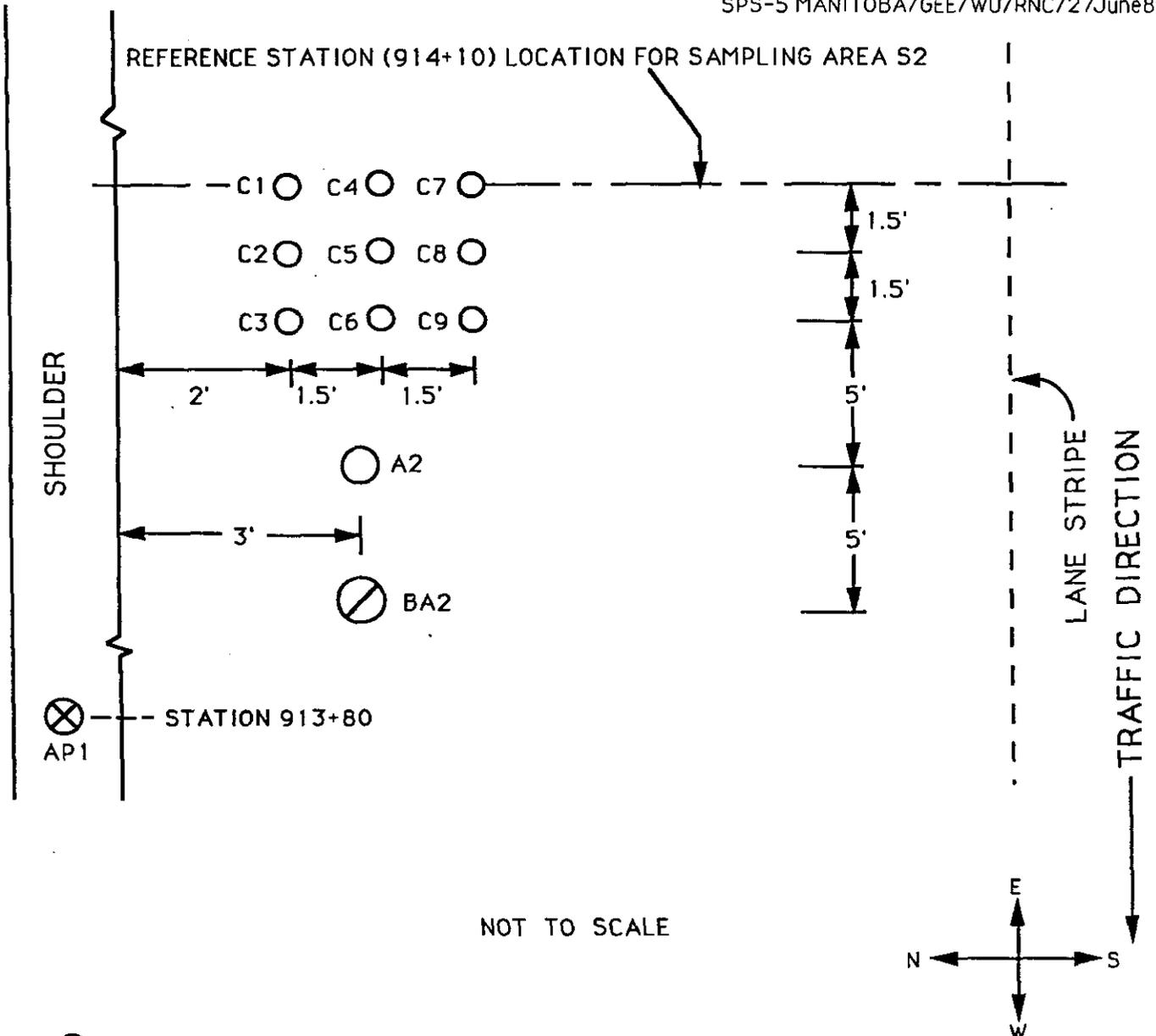
Figure 1. Schematic layout of test sections for SPS-5, Manitoba showing locations S1 through S11 of in-place sampling areas.



Looks like the sampling plan may have been revised to include more test pits to replace the BA1, BA2, and BA3 12" Cores

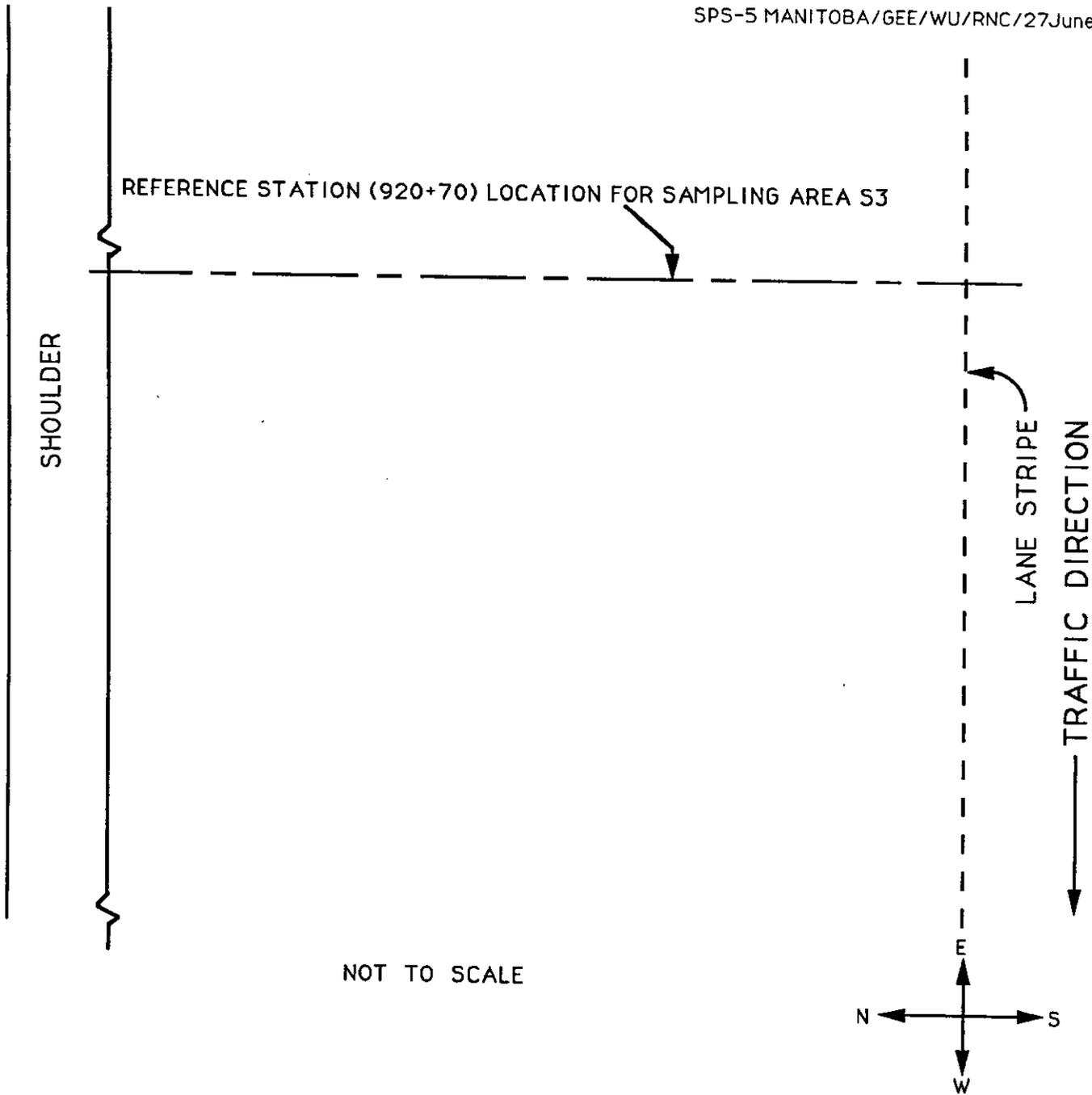
- 6 inch OD core through AC pavement surface; augering of granular base; thin-walled tube sampling and/or spitspoon sampling of subgrade to a depth 5 feet below top of subgrade, as directed by SHRP authorized representative: A1.
- ⊘ 12 inch OD core of AC pavement surface; augering of granular base and subgrade to a depth of 12 inches below top of subgrade for bulk sample retrieval: BA1.

Figure 2. Before overlay sampling plan for station 907+60 before section 1. Sampling area S1.



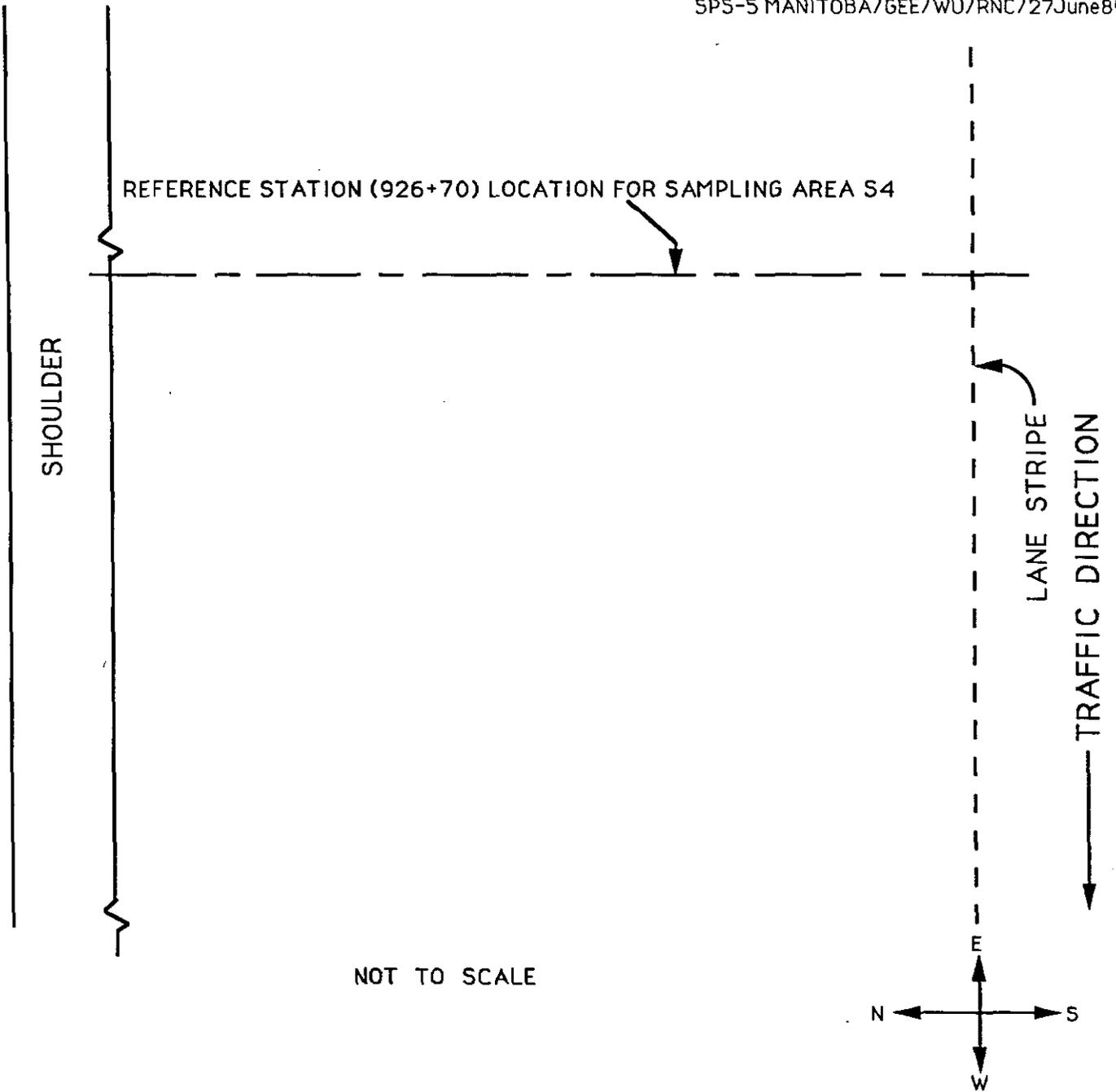
- 4 inch OD core of AC pavement: C1-C9.
- 6 inch OD core through AC pavement surface; augering of granular base; thin-walled tube sampling and/or splitspoon sampling of subgrade to a depth 5 feet below top of subgrade, as directed by SHRP authorized representative: A2.
- ⊘ 12 inch OD core of AC pavement surface; augering of granular base and subgrade to a depth of 12 inches below top of subgrade for bulk sample retrieval: BA2.
- ⊗ 4 inch or 6 inch OD auger probe through shoulder to a maximum depth of 20 feet or until refusal is encountered: AP1.

Figure 3. Before overlay sampling plan for station 914+10 before section 4. Sampling area S2.



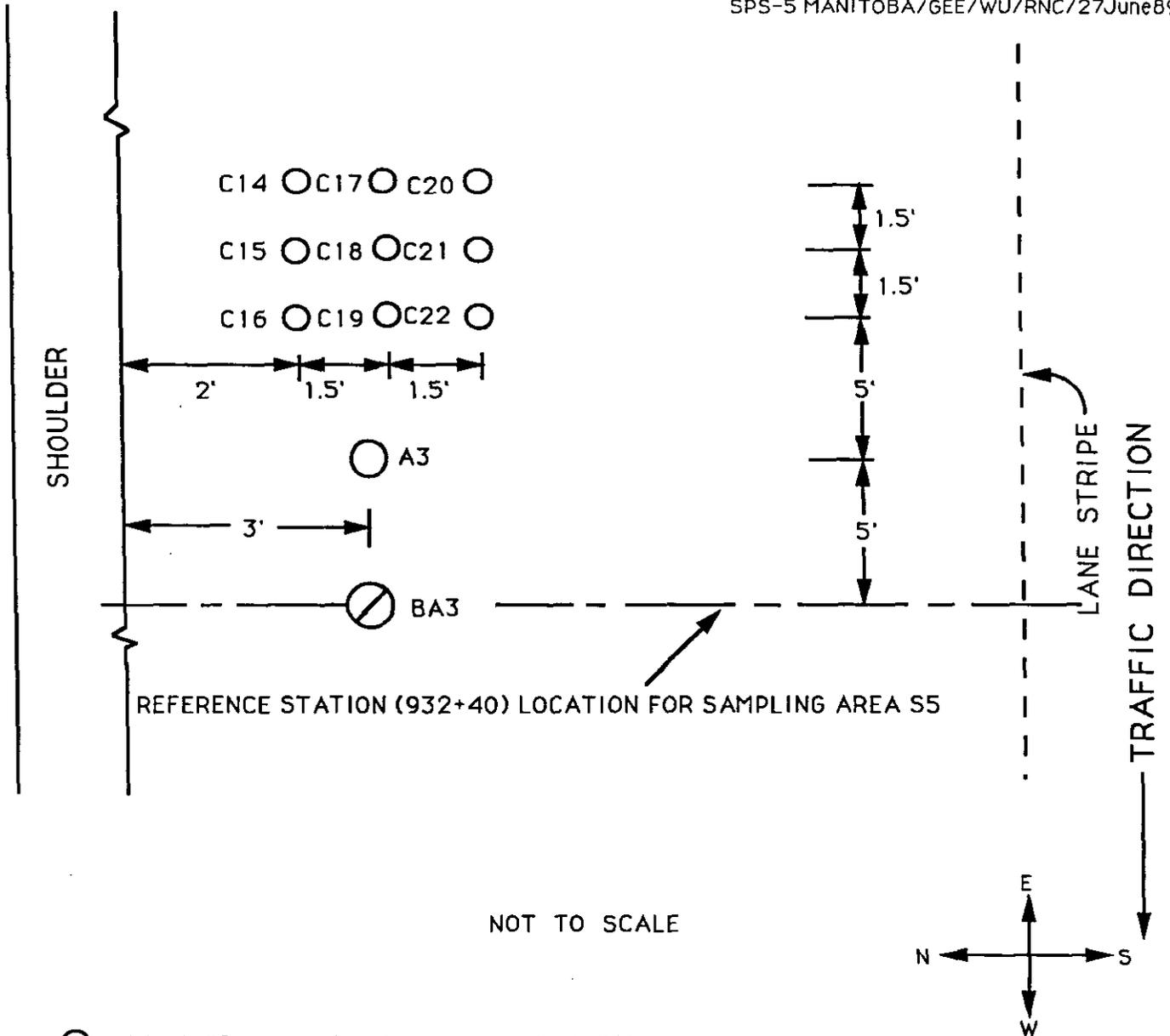
NO SAMPLES PLANNED BEFORE OVERLAY

Figure 4. Before overlay sampling plan for station 920+70 before section 5. Sampling area S3.



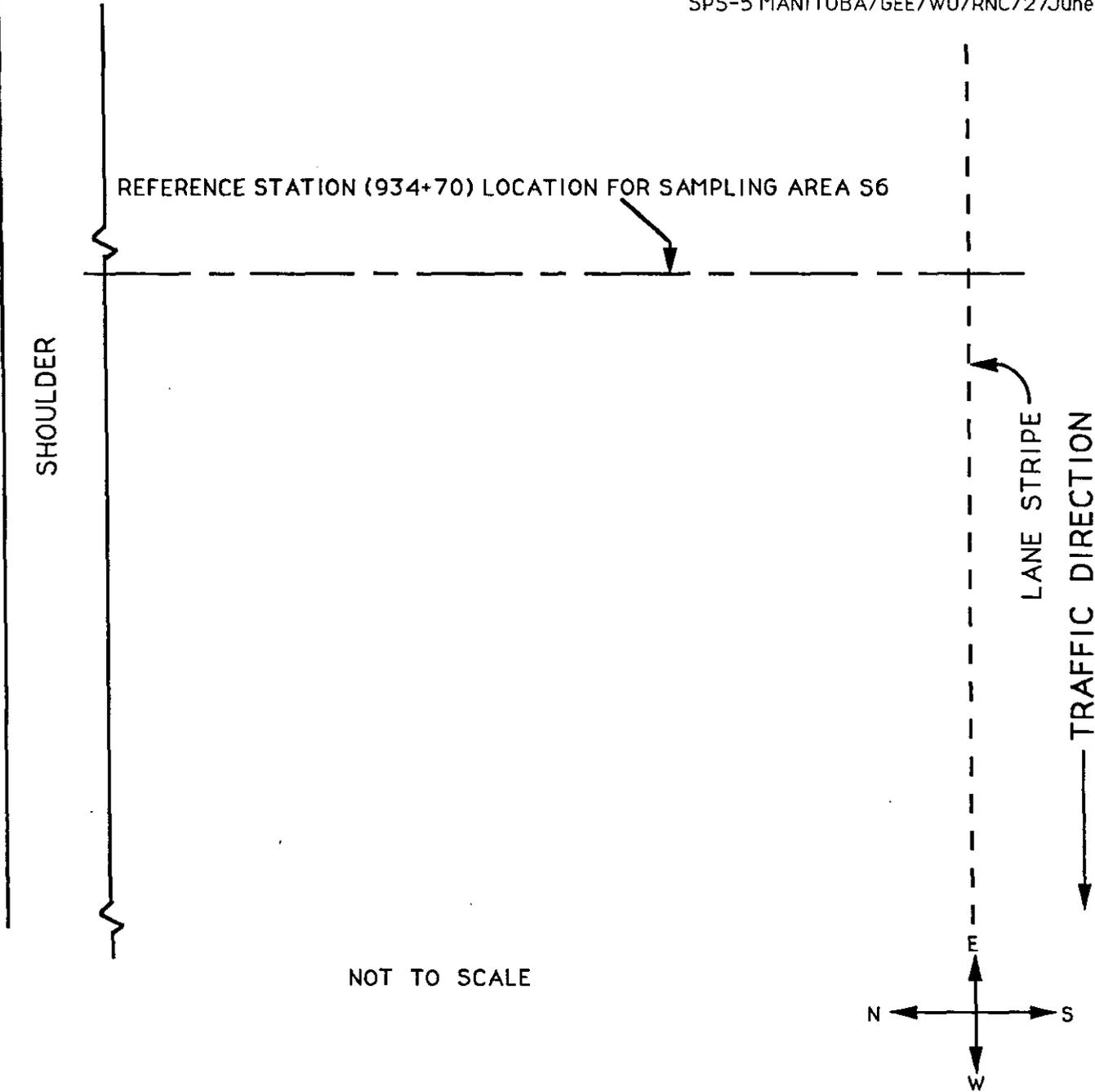
NO SAMPLES PLANNED BEFORE OVERLAY

Figure 5. Before overlay sampling plan for station 926+70 after section 5. Sampling area S4.



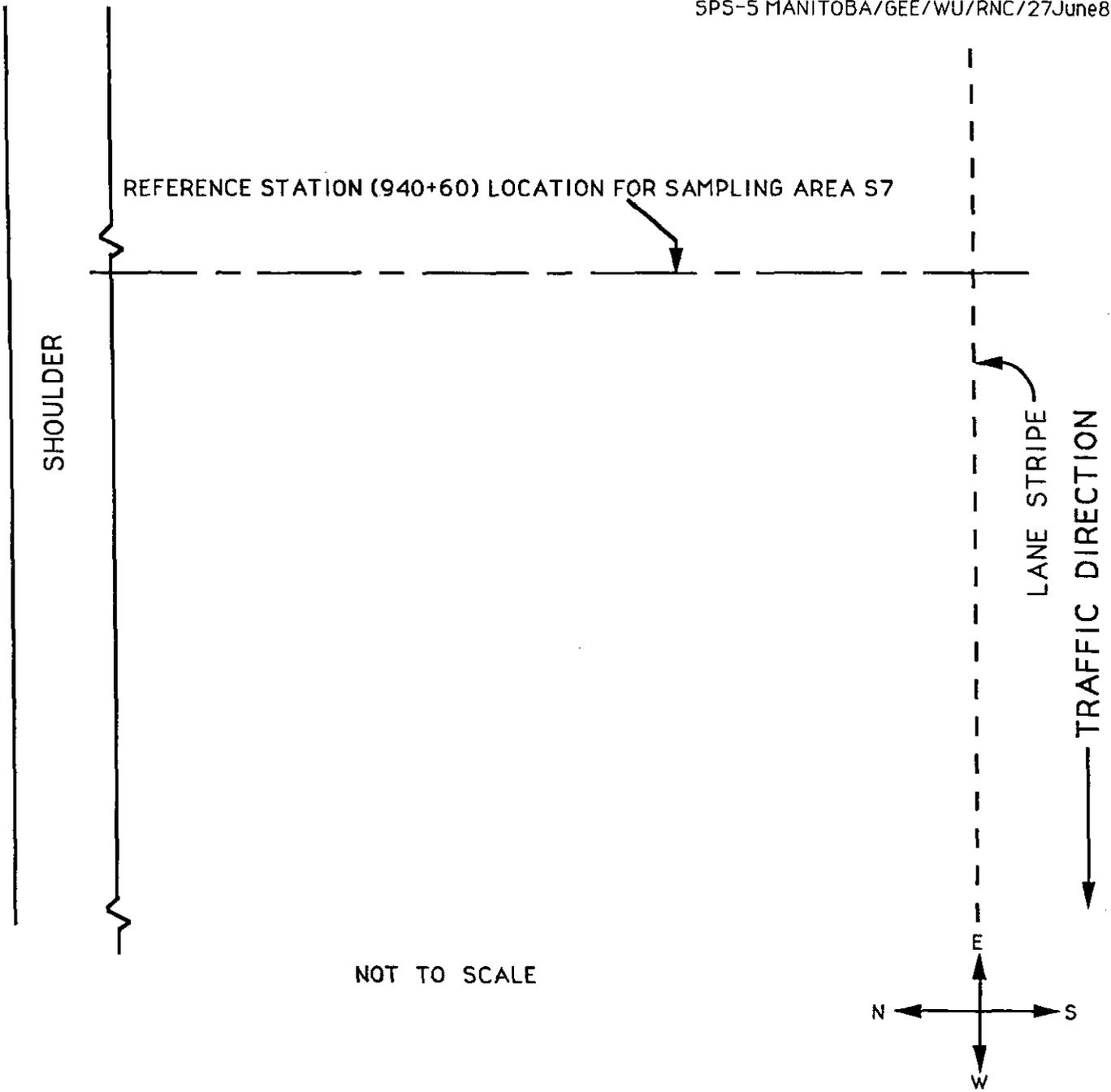
- 4 Inch OD core of AC pavement: C14-C22.
- 6 Inch OD core through AC pavement surface; augering of granular base; thin-walled tube sampling and/or spitspoon sampling of subgrade to a depth 5 feet below top of subgrade, as directed by SHRP authorized representative: A3.
- ⊘ 12 Inch OD core of AC pavement surface; augering of granular base and subgrade to a depth of 12 inches below top of subgrade for bulk sample retrieval: BA3.

Figure 6. Before overlay sampling plan for station 932+40 after section 7. Sampling area S5.



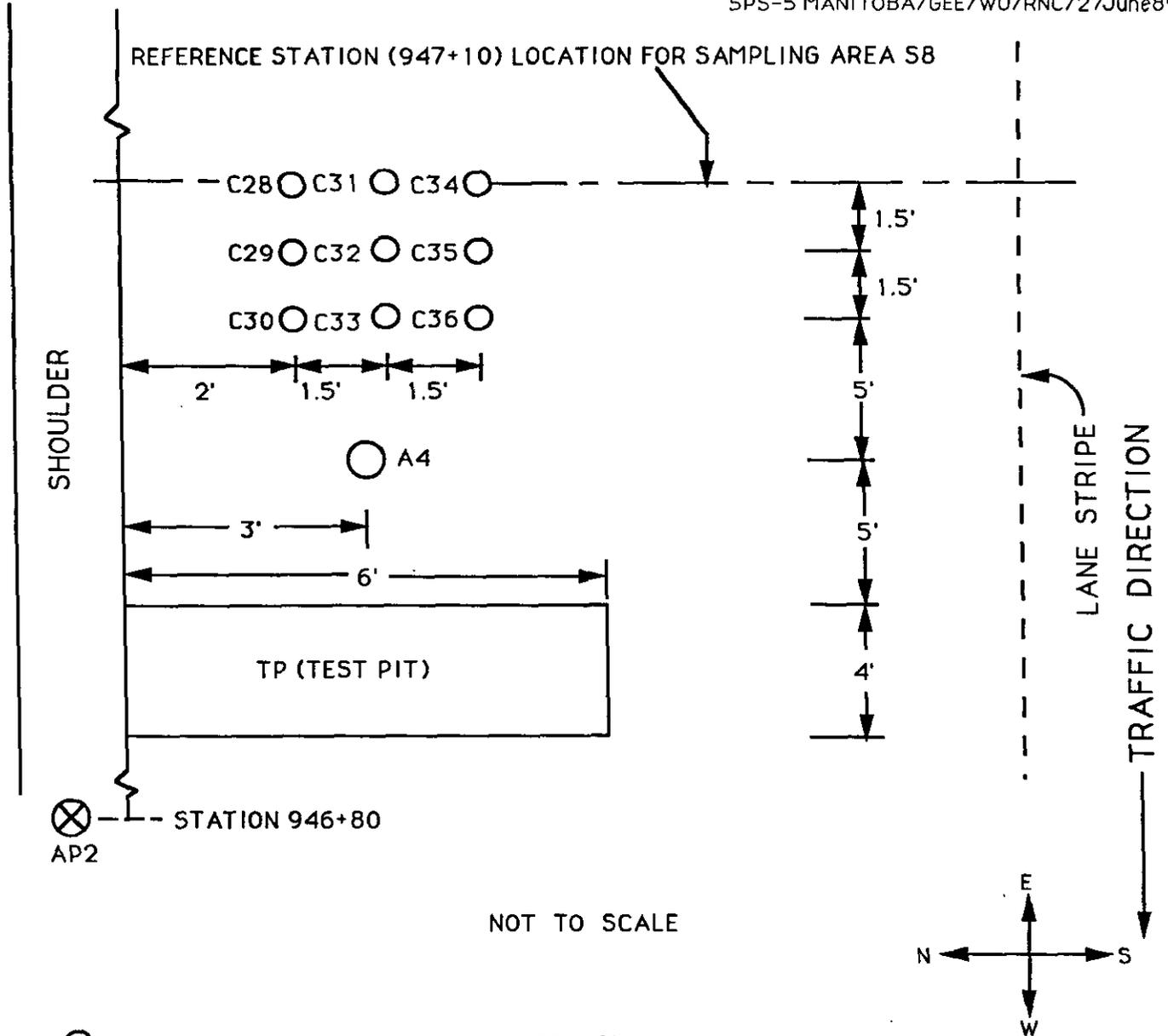
NO SAMPLES PLANNED BEFORE OVERLAY

Figure 7. Before overlay sampling plan for station 934+70 before section 6. Sampling area S6.



NO SAMPLES PLANNED BEFORE OVERLAY

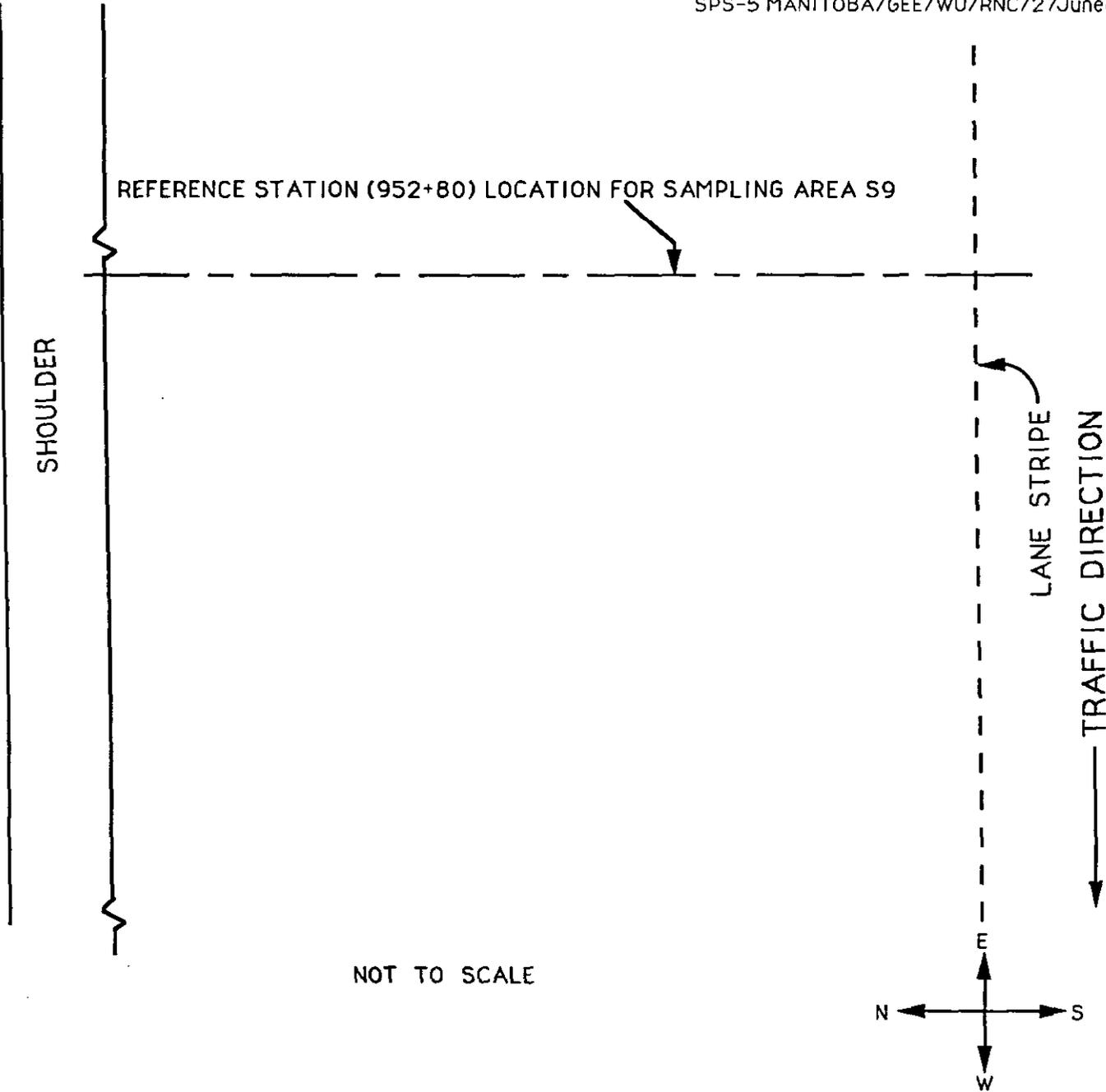
Figure 8. Before overlay sampling plan for station 940+60 before section 9. Sampling area S7.



- 4 Inch OD core of AC pavement: C28-C36.
- 6 Inch OD core through AC pavement surface; augering of granular base; thin-walled tube sampling and/or splitspoon sampling of subgrade to a depth 5 feet below top of subgrade, as directed by SHRP authorized representative: A4.
- ⊗ 4 inch or 6 inch OD auger probe through shoulder to a maximum depth of 20 feet or until refusal is encountered: AP2.

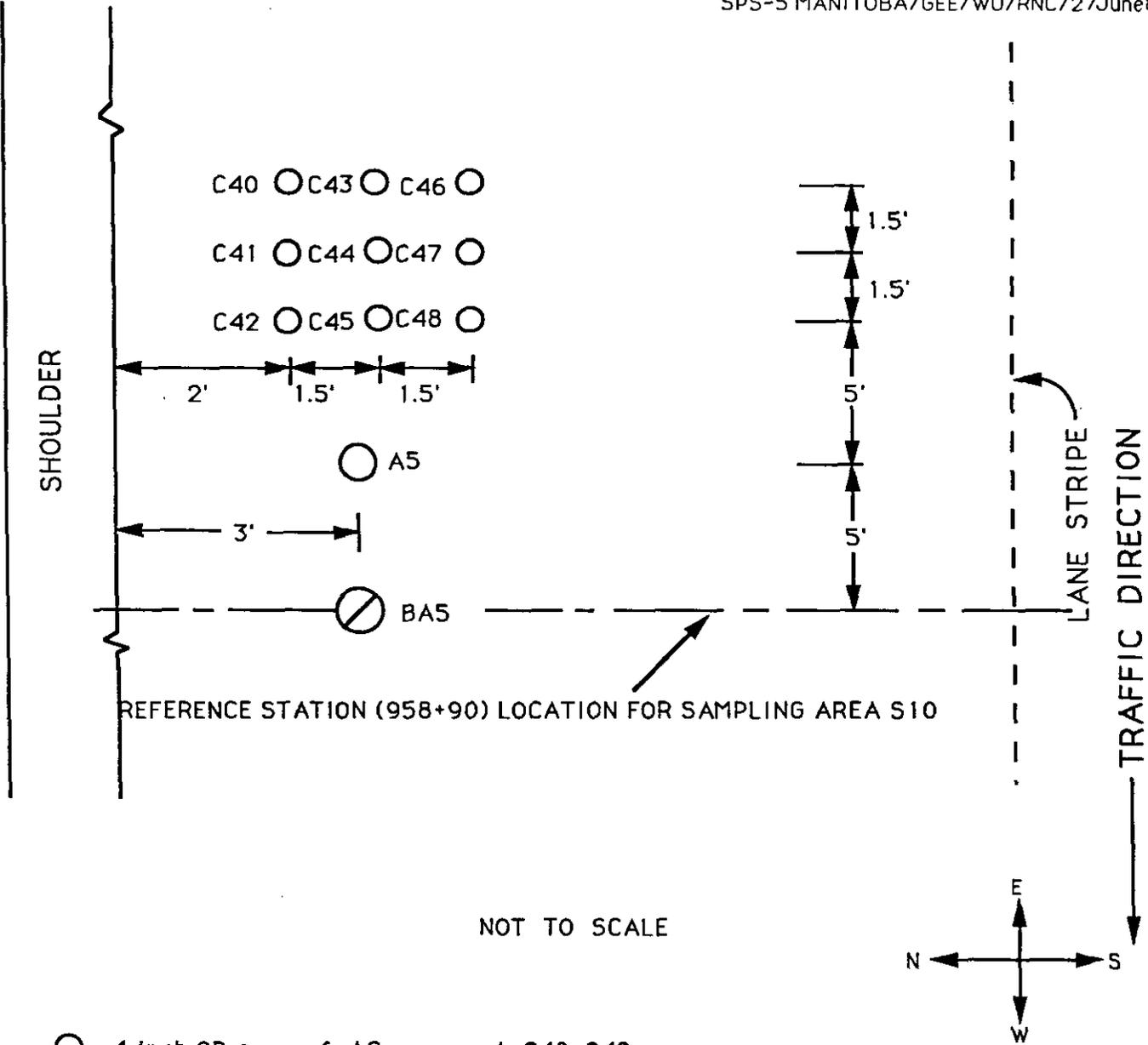
Test pit (4' x 6' x 12" below top of subgrade). Removal of pavement layers; collection of pavement slabs; nuclear density and moisture measurements on granular base and subgrade; bulk sampling of granular base and subgrade: TP.

Figure 9. Before overlay sampling plan for station 947+10 before section 8. Sampling area S8.



NO SAMPLES PLANNED BEFORE OVERLAY

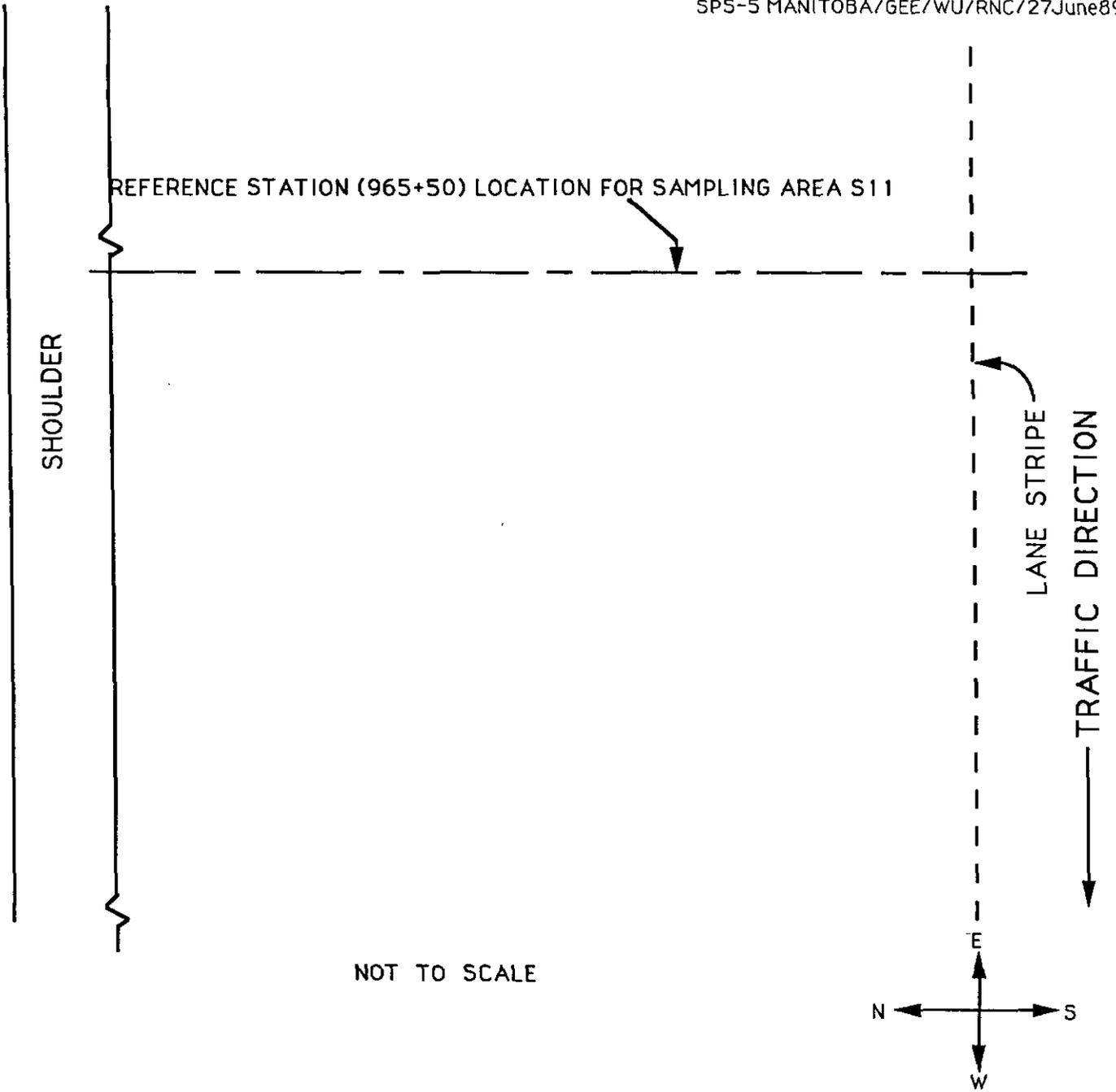
Figure 10. Before overlay sampling plan for station 952+80 after section 8. Sampling area S9.



NOT TO SCALE

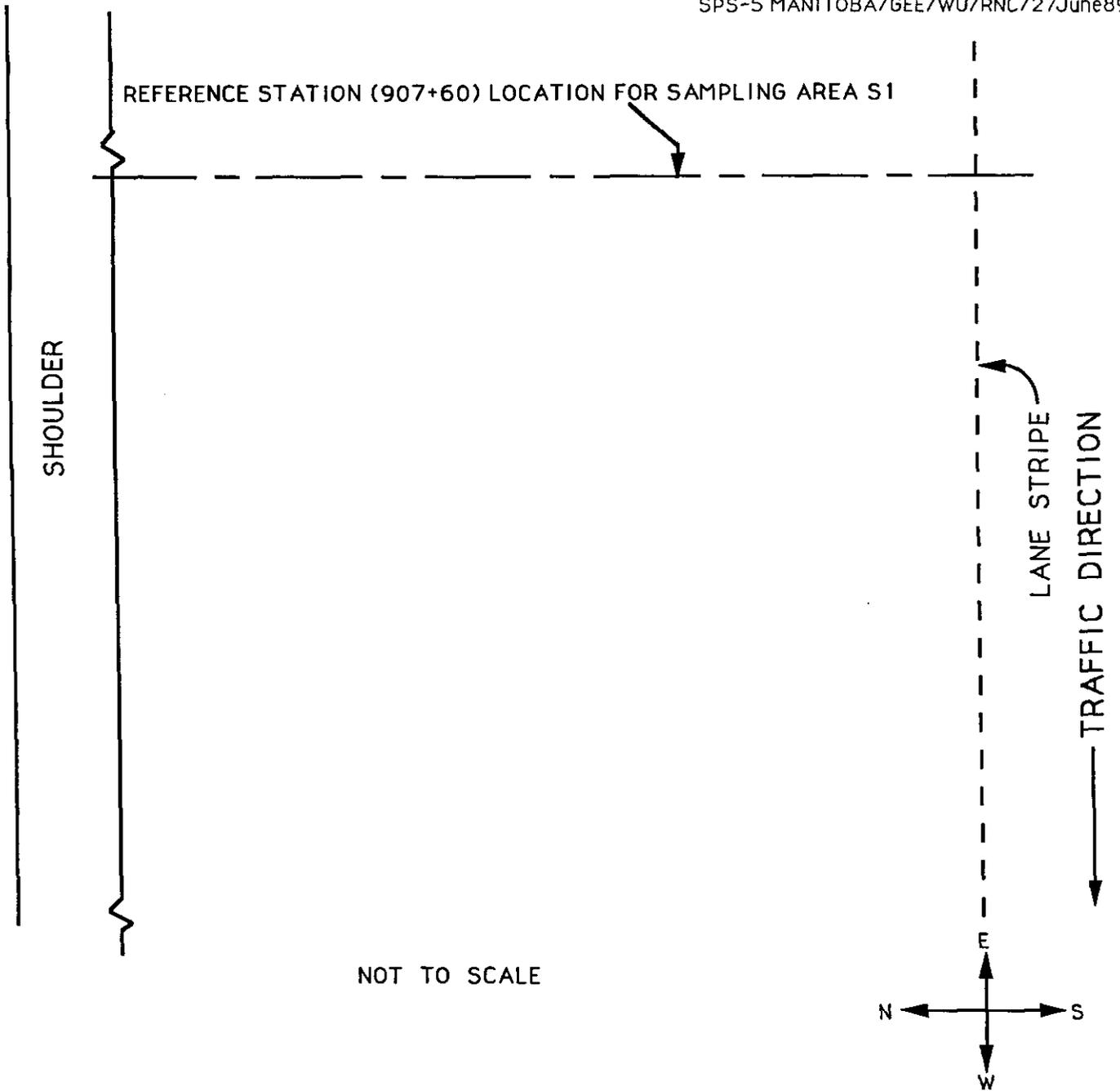
- 4 inch OD core of AC pavement: C40-C48.
- 6 inch OD core through AC pavement surface; augering of granular base; thin-walled tube sampling and/or splitspoon sampling of subgrade to a depth 5 feet below top of subgrade, as directed by SHRP authorized representative: A5.
- ⊗ 12 inch OD core of AC pavement surface; augering of granular base and subgrade to a depth of 12 inches below top of subgrade for bulk sample retrieval: BA5.

Figure 11. Before overlay sampling plan for station 958+90 after section 3. Sampling area S10.



NO SAMPLES PLANNED BEFORE OVERLAY

Figure 12. Before overlay sampling plan for station 965+50 after section 2. Sampling area S11.



CONTROL SECTION; NO OVERLAY; NO SAMPLES PLANNED.

Figure 13. After overlay sampling plan for station 907+60 before section 1. Sampling area S1.

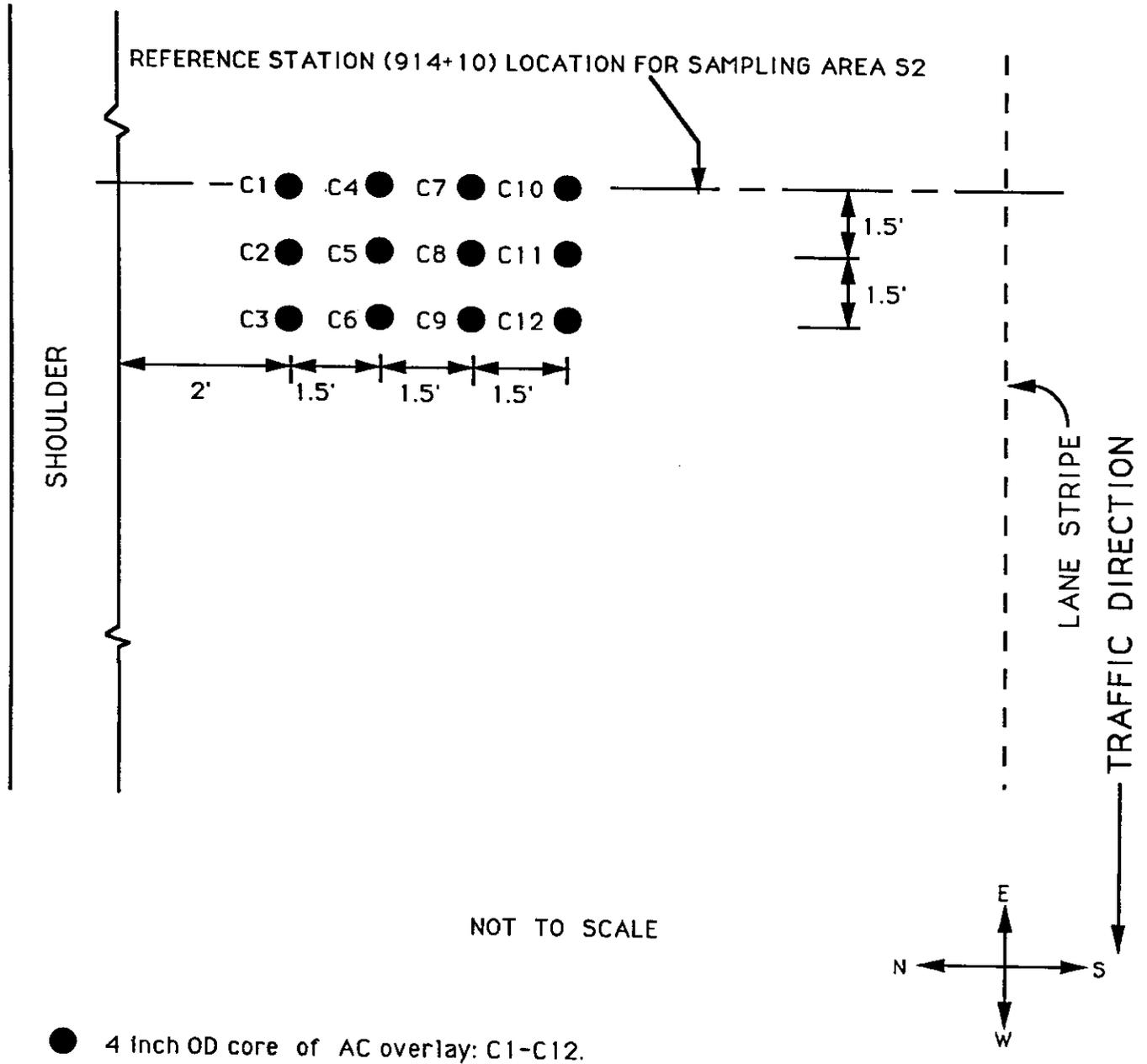


Figure 14. After overlay sampling plan for station 914+10 before section 4. Sampling area S2.

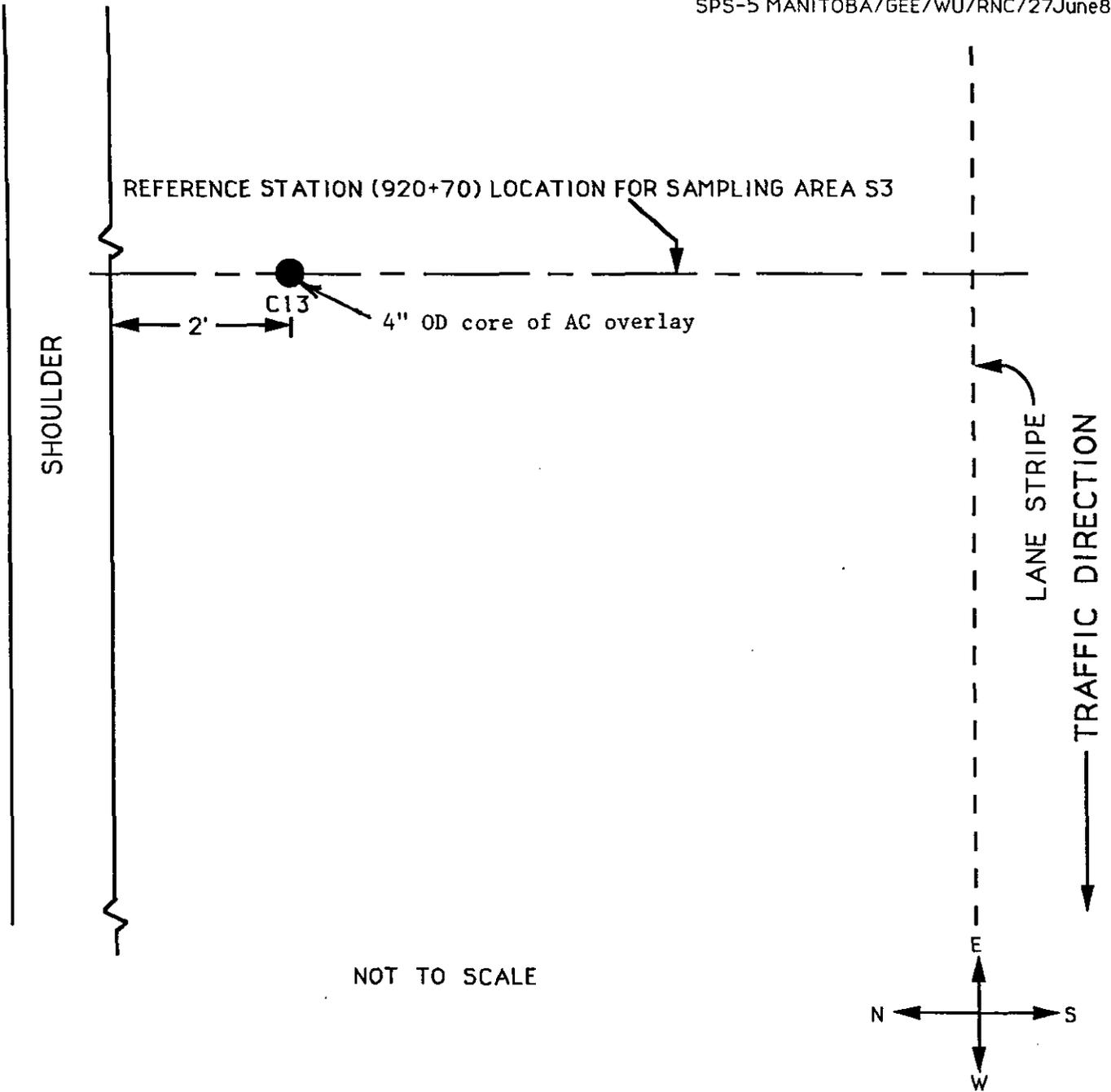
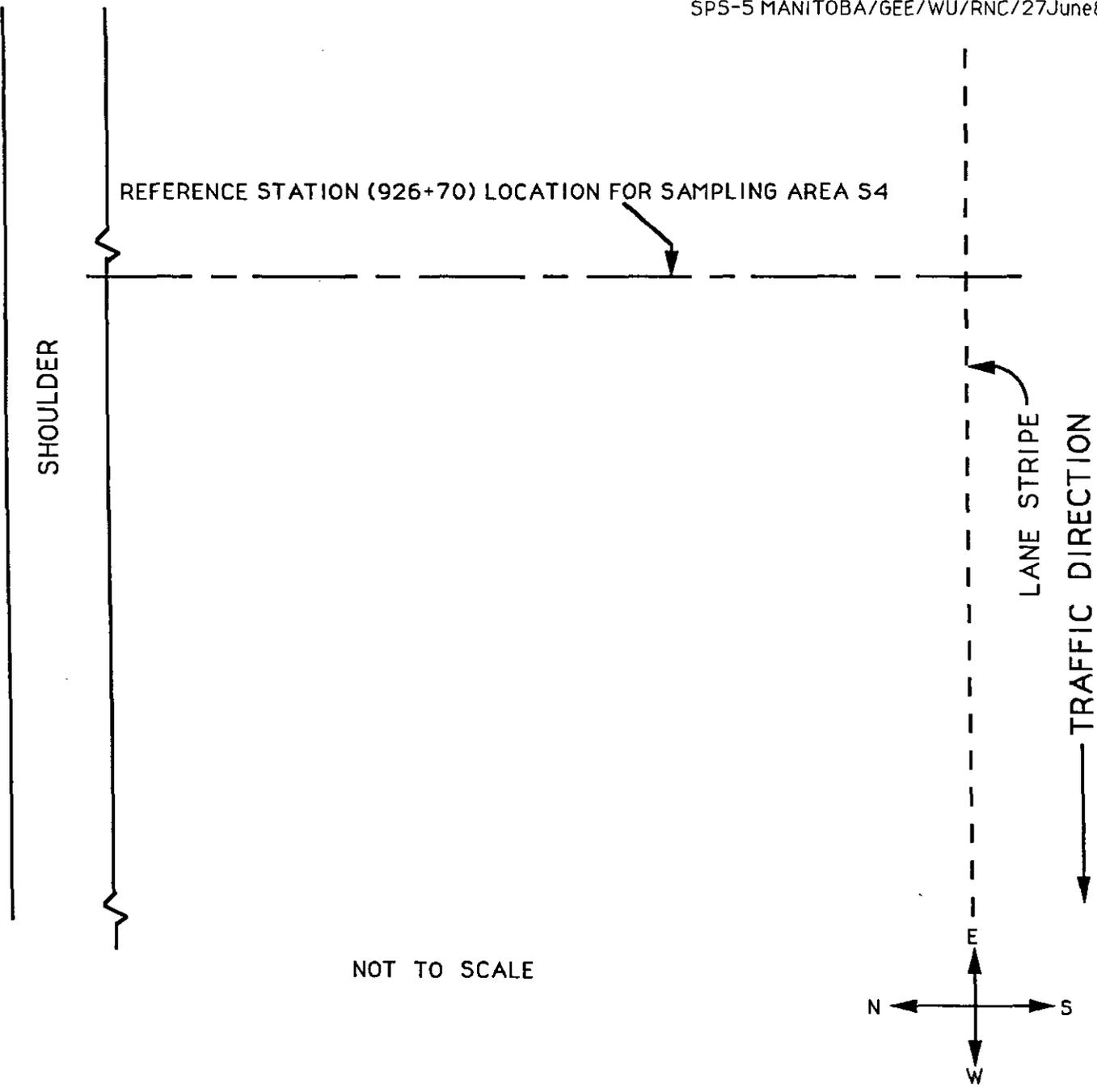


Figure 15. After overlay sampling plan for station 920+70 before section 5. Sampling area S3.



NO SAMPLES PLANNED AFTER OVERLAY

Figure 16. After overlay sampling plan for station 926+70 after section 5. Sampling area S4.

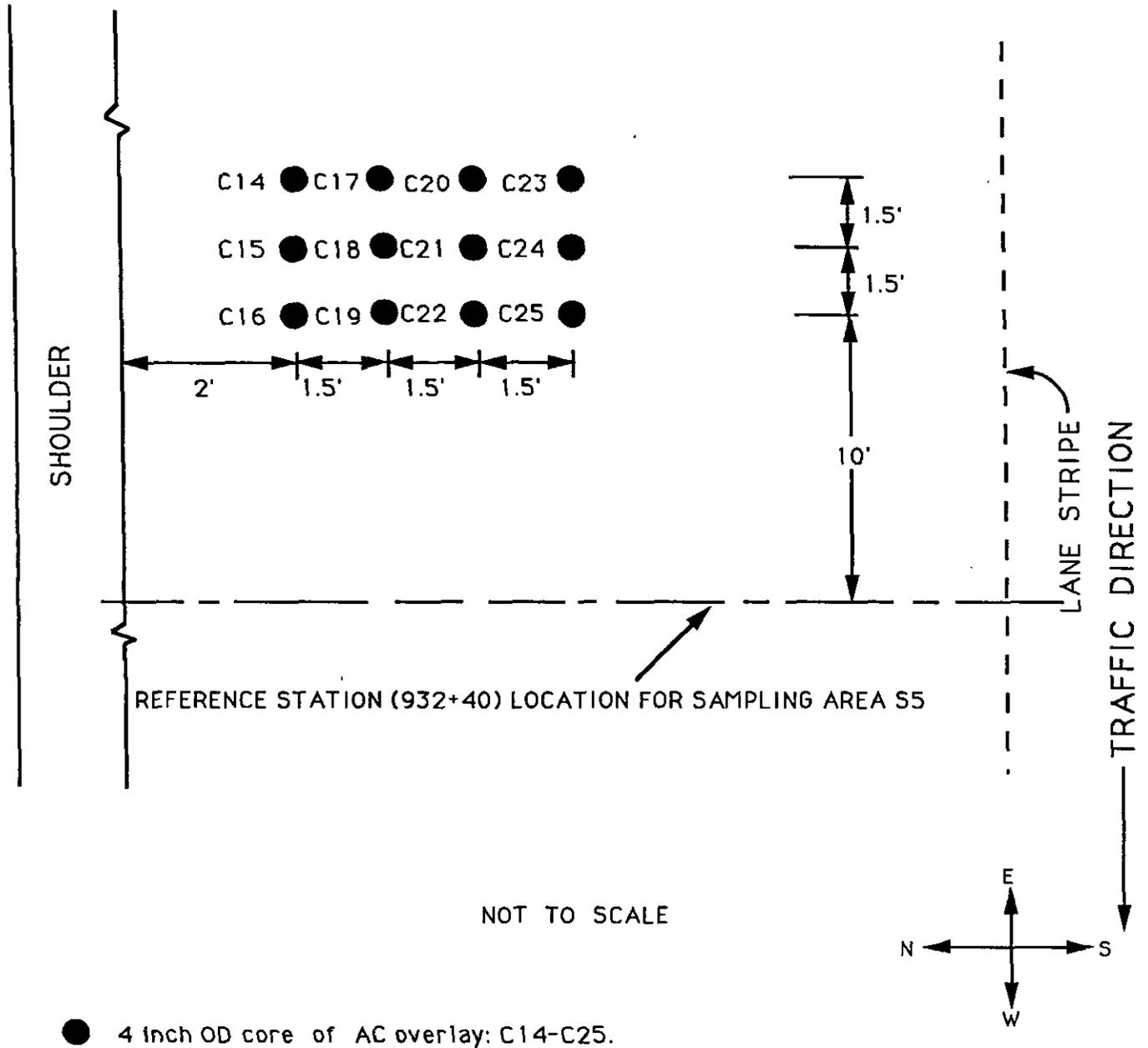


Figure 17. After overlay sampling plan for station 932+40 after section 7. Sampling area S5.

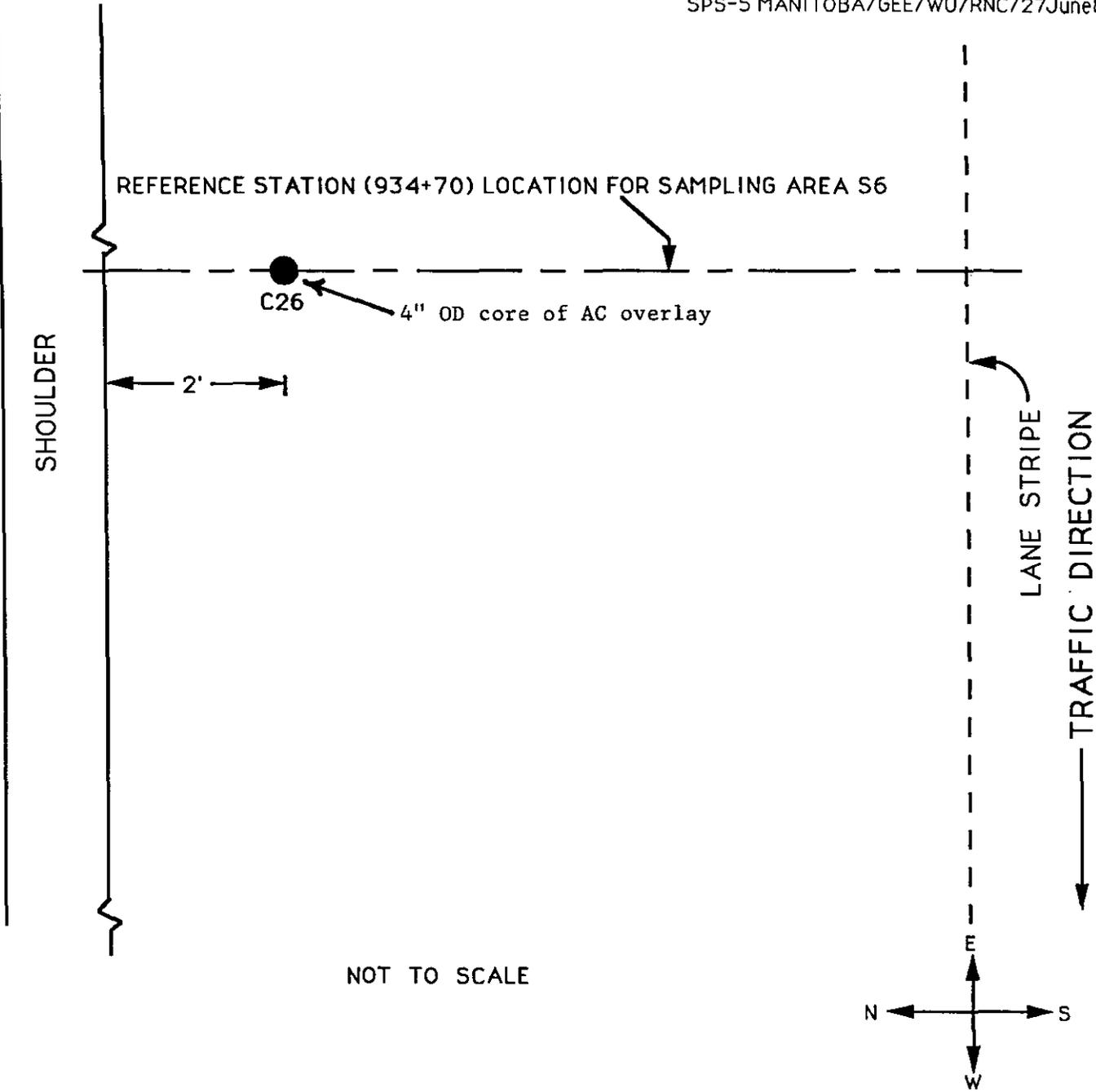


Figure 18. After overlay sampling plan for station 934+70 before section 6. Sampling area S6.

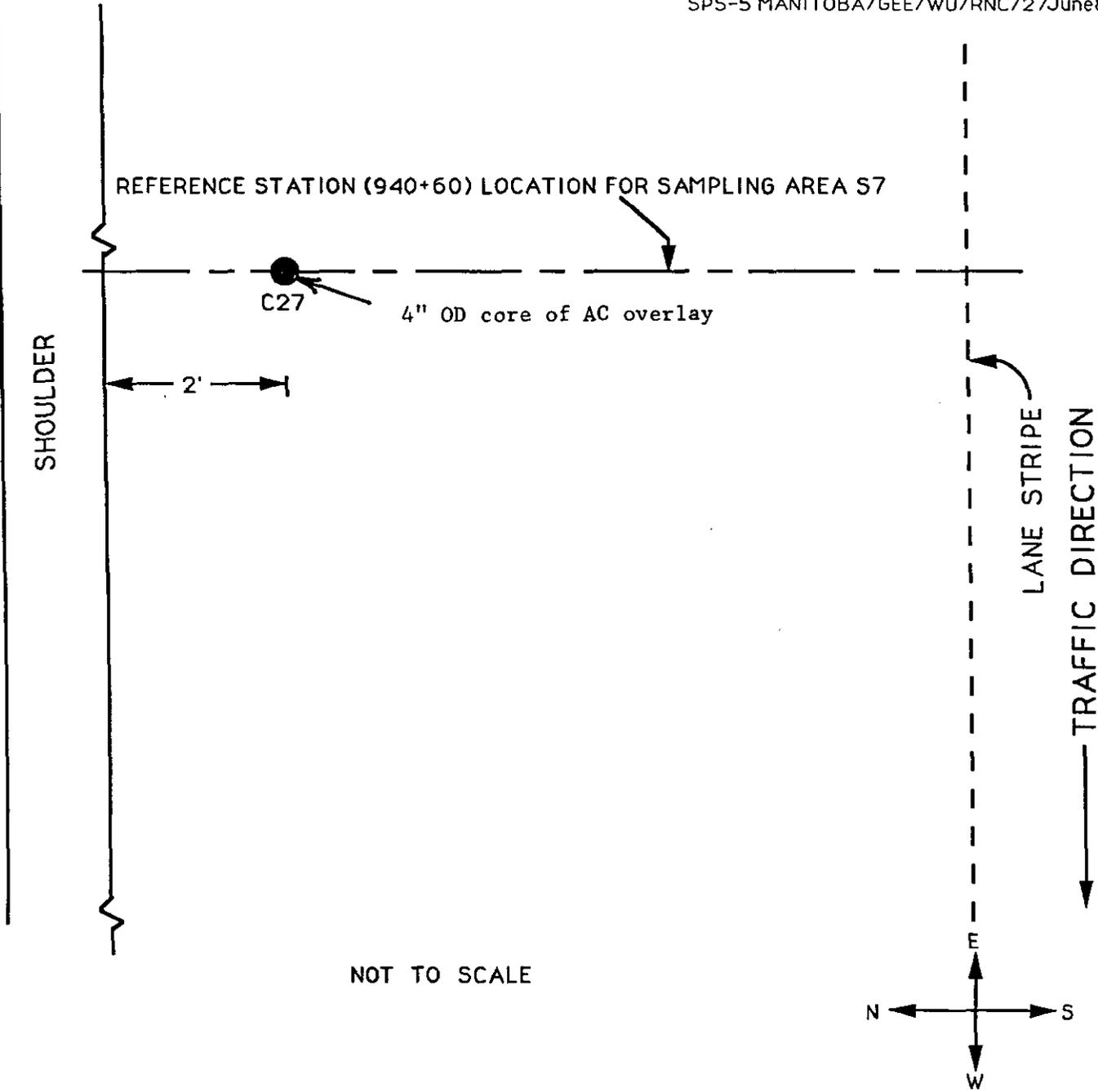


Figure 19. After overlay sampling plan for station 940+60 before section 9. Sampling area S7.

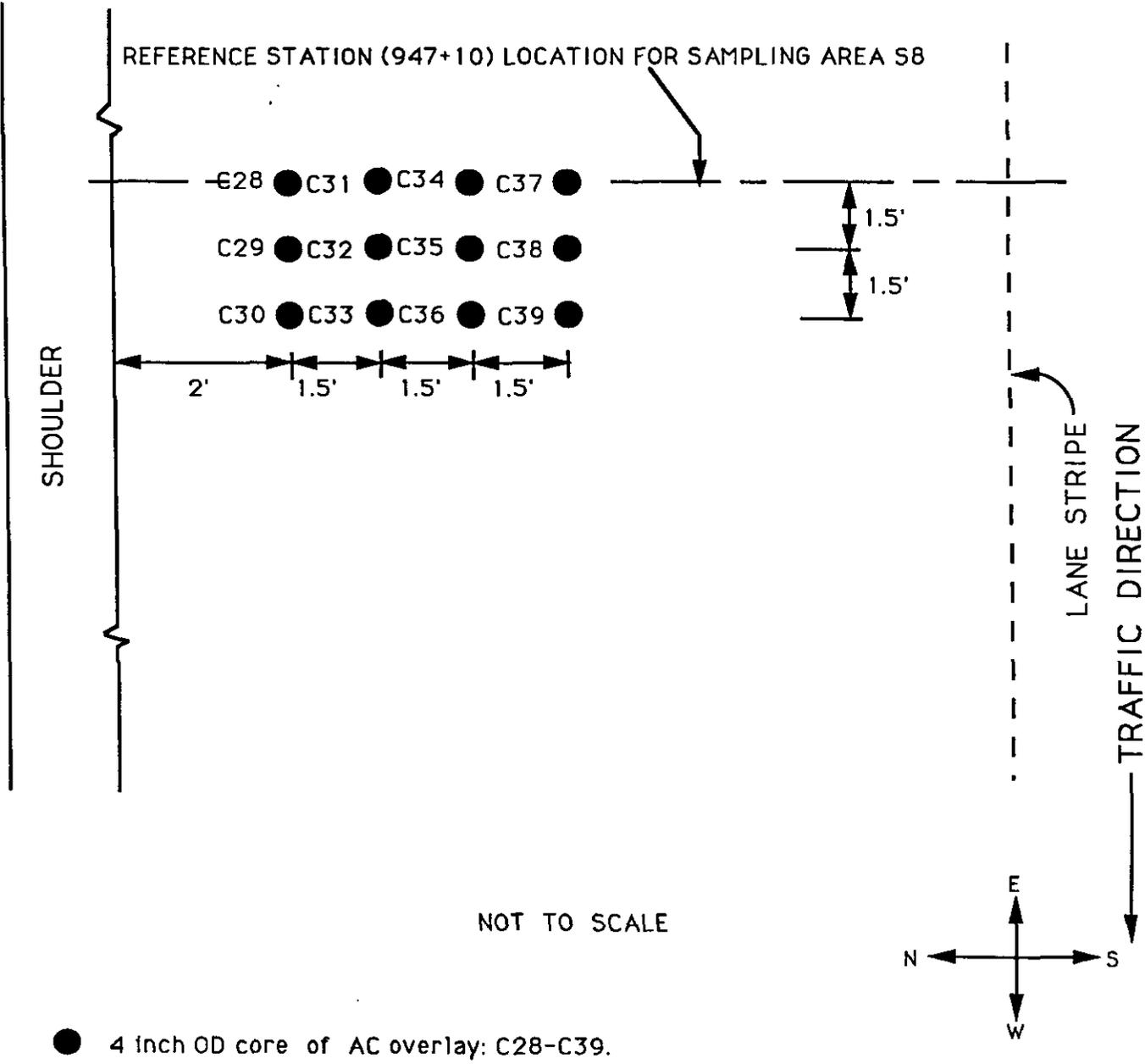
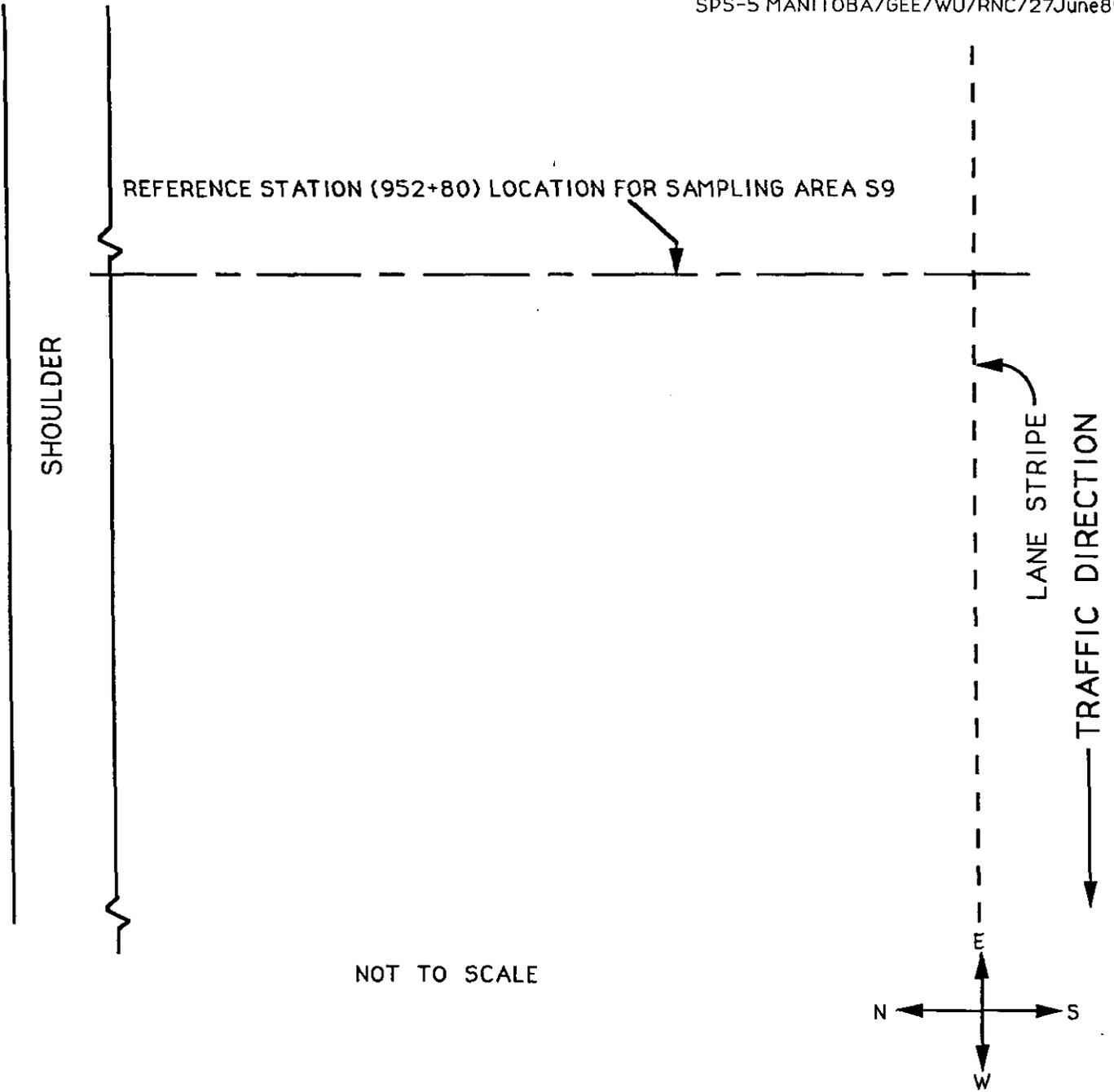


Figure 20. After overlay sampling plan for station 947+10 before section 8. Sampling area S8.



NO SAMPLES PLANNED AFTER OVERLAY

Figure 21. After overlay sampling plan for station 952+80 after section 8. Sampling area S9.

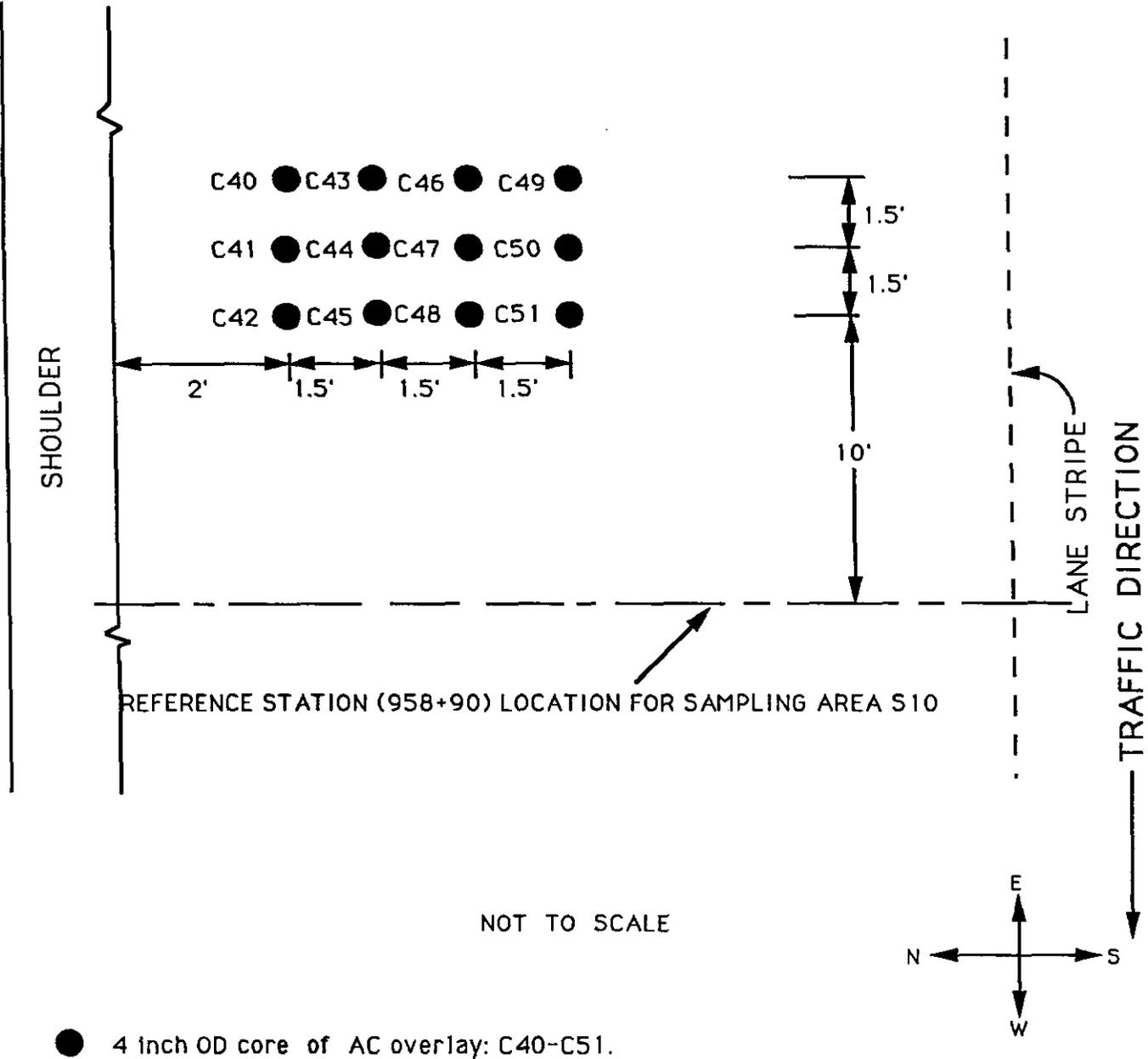


Figure 22. After overlay sampling plan for station 958+90 after section 3. Sampling area S10.

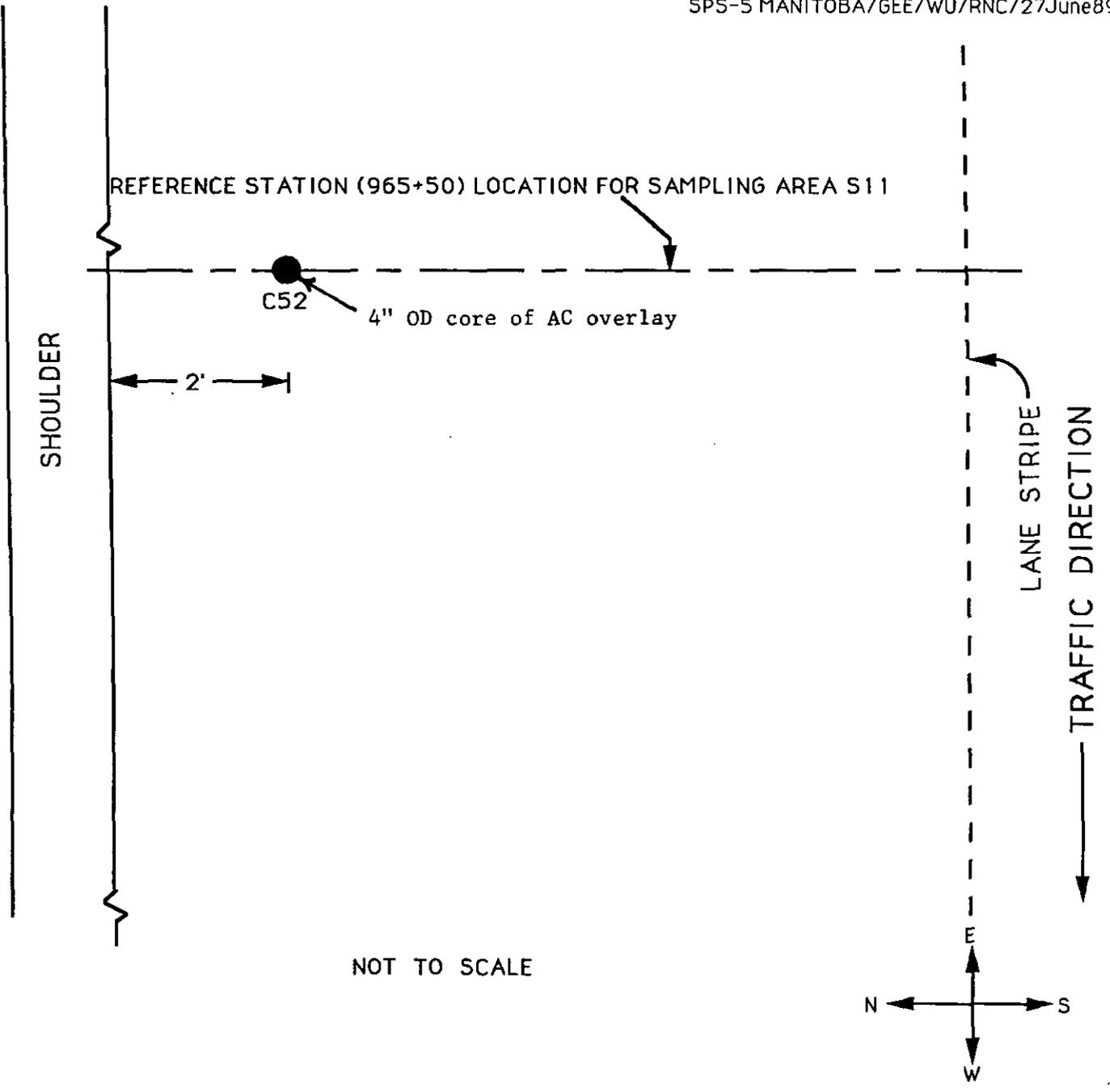


Figure 23. After overlay sampling plan for station 965+50 after section 2. Sampling area S11.

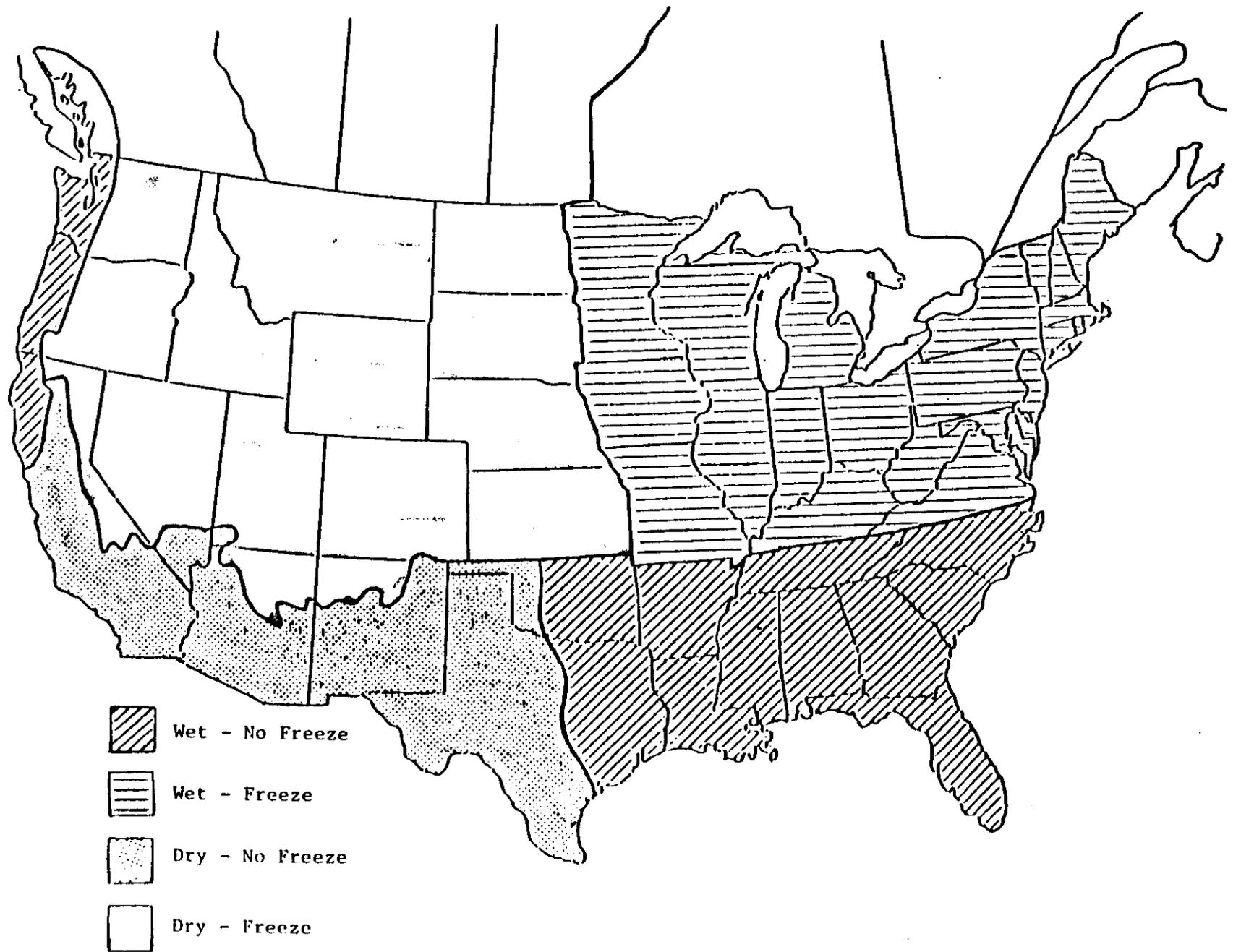


Figure 4.1. Environmental zones for SHRP-LTPP studies.