ADS HDPE SEWER PIPE

I-90, Third Lake Washington Bridge Maintenance Facility

WA-RD 344.1

Post-Construction Report
April 1994

Washington State Department of Transportation

Washington State Transportation Commission
Transit, Research, and Intermodal Planning (TRIP) Division
in cooperation with the U.S. Department of Transportation
Federal Highway Administration

TECHNICAL REPORT STANDARD TITLE PAGE

1. REPORT NO.	2. GOVERNMENT ACCESSION NO.	3. RECIPIENT'S CATALOG NO.
WA-RD 344.1		

4. TITLE AND SUBTITLE	5. REPORT DATE
ADS HDPE SEWER PIPE I-90, Third Lake Washington Bridge Maintenance Facility	April 1994
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Keith W. Anderson and Jeff Gubbe	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Washington State Department of Transportation Materials Laboratory 1655 South Second Tumwater, Washington 98504-7365	10. WORK UNIT NO.
	11. CONTRACT OR GRANT NO. Contract 4140
12. SPONSORING AGENCY NAME AND ADDRESS Washington State Department of Transportation Transportation Building PO Box 47370 Olympia, Washington 98504-7370	13. TYPE OF REPORT AND PERIOD COVERED Post-Construction Report Experimental Feature WA92-07
	14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES

This study was conducted in cooperation with the U.S. Department of Transportation, Federal Highway Administration.

16. ABSTRACT

The construction and pressure testing of a field installation of ADS HDPE corrugated PVC sewer pipe is documented in this report.

17. KEY WORDS	18. DISTRIBUTION STATEMENT
drainage, pipes, plastic, PVC	No restrictions. This document is available to the public through the National Technical Information Service, Springfield, VA 22616

19. SECURITY CLASSIF. (of this report)	20. SECURITY CLASSIF. (of this page)	21. NO. OF PAGES	22. PRICE
None	None	2	

ADS HDPE SEWER PIPE

I-90
Third Lake Washington Bridge
Maintenance Facility

by

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Experimental Feature WA92-07
Post-Construction Report

Prepared for
Washington State Department of Transportation
and in Cooperation with
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Federal Highway Administration

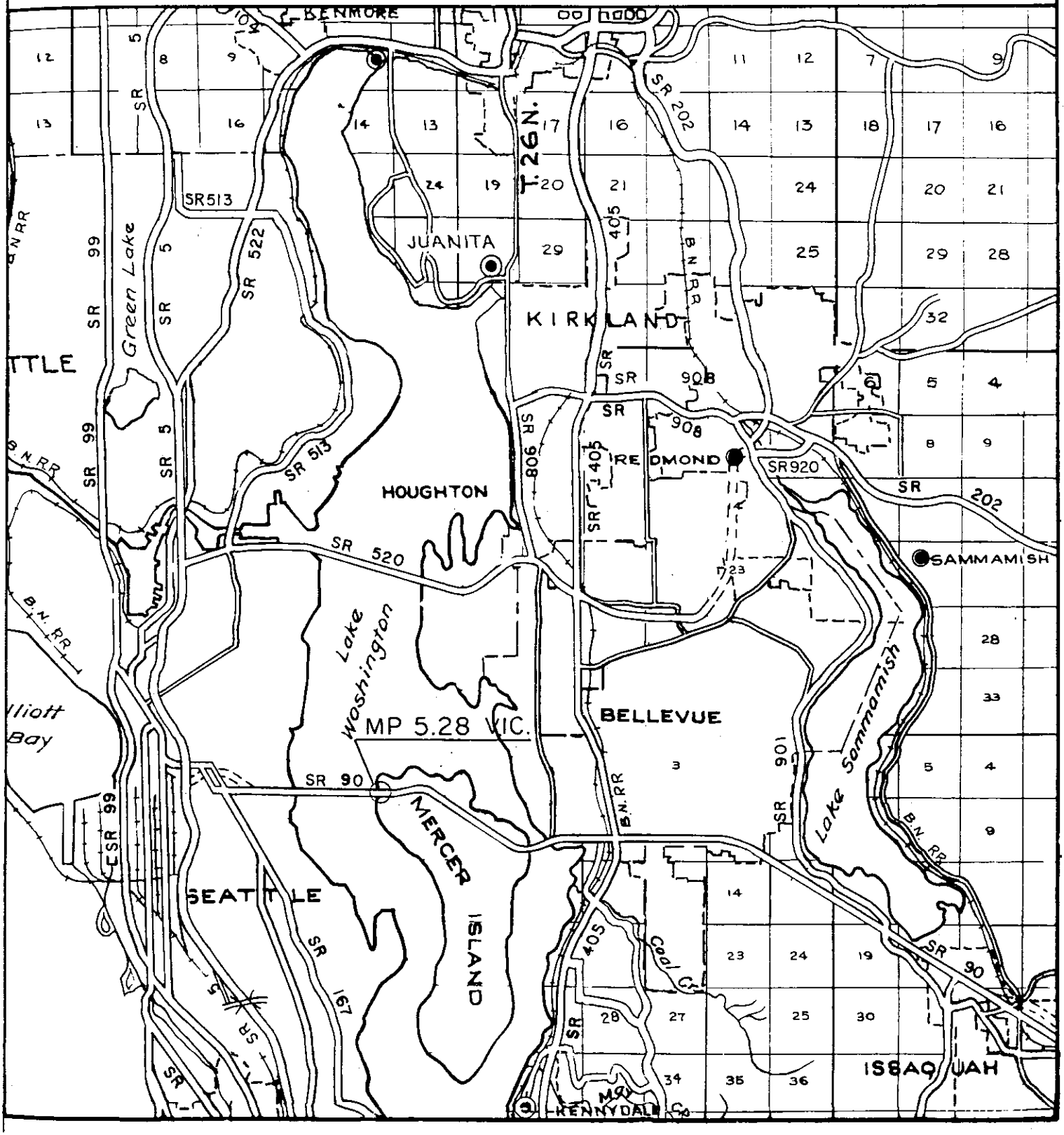
April 1994

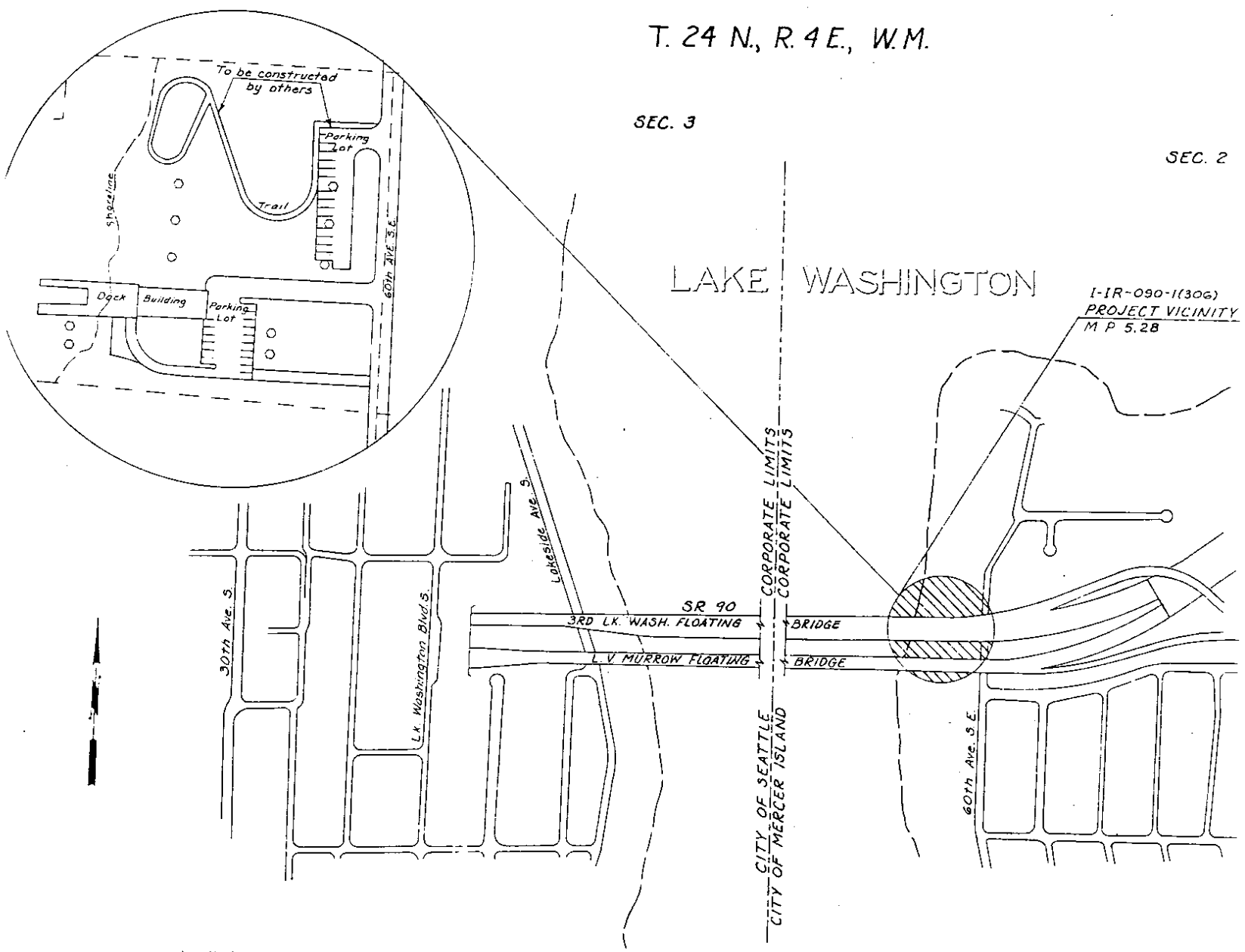
SR 90
THIRD LAKE WASHINGTON BRIDGE
MAINTENANCE FACILITY

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

OLYMPIA, WASHINGTON

MAP OF STATE HIGHWAYS




T. 24 N., R. 4 E., W.M.
SEC. 3
SEC. 2
To be constructed by others
Parking Lot
Trail
Shoreline
Dock
Building
Parking Lot
60th Ave. S.E.
LAKE WASHINGTON
I-IR-090-1(306)
PROJECT VICINITY
M P 5.28
Lakeside Ave. S.
30th Ave. S.
Lk. Washington Blvd. S.
SR 90
3RD LK. WASH. FLOATING
BRIDGE
L.V MURROW FLOATING
BRIDGE
CORPORATE LIMITS
CORPORATE LIMITS
CITY OF SEATTLE
CITY OF MERCER ISLAND
60th Ave. S.E.
CITY OF SEATTLE
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Introduction

The objective of this experimental feature is to evaluate the performance of ADS HDPE pipe in a field installation.

Study Site

The ADS HDPE pipe was installed on a project located on I-90 underneath the west approach to the Third Lake Washington Floating Bridge as shown on the vicinity map. The District 1 contract for the installation of the ADS pipe is described below in tabular form for easy reference.

Contract Number: 4140
Title: Third Lake Washington Bridge Maintenance Facility
Route Number: I-90
County: King
Project Mileposts: MP 5.28 Vic.
Storm Sewer Location: Under the West End of the Third Lake Washington Bridge
Plan Quantity: 290 L.F. of 12 inch diameter pipe
Pipe Fill Height: 2 to 5 feet
Project Engineer: Ingo Goller

Project Description

The ADS HDPE pipe is a double walled (smooth interior) corrugated polyethylene pipe meeting the requirements of AASHTO M 294. It was substituted by change order for plain concrete sewer pipe.

Construction Summary

Installation of the 12 inch diameter pipe began on November 12, 1992. The pipe was installed as concrete pipe would be, with the exception that a backhoe was not needed to lift the pipe into the excavation. The pipe was installed by two workers, laying 10 foot sections at a time, and pushing the ends into a gasketed coupling. Connections to catch basins were performed the same as would be with concrete pipe by grouting the gap between the catch basin wall and the pipe.

The types of bedding and backfill material and methods of their placement were no different than what would be used for concrete pipe. The material was brought up to grade in the required lifts and compacted. The ADS pipe showed no deformation during compaction.

Performance Testing

Testing of the pipe was done by the low pressure air test per section 7-04.3(4)D of the 1991 Standard Specifications. All pipe runs between catch basins were plugged and filled with air to a pressure of 4 psi which was held for 3 minutes. Three of the four runs had a pressure of 4 psi at the end of the three minutes and the fourth run had a pressure of 3.5 psi. Based on these test results the pipe was accepted.

During other construction activities on the project, one section of the installed pipe suffered damage. A repair section consisting of a sliding collar was installed, but the pipe failed to pass the air test. Two 20 foot section of the pipe were then replaced and the run then passed the air test.

Construction Evaluation

The use of the ADS pipe saved time and money by not having to use a backhoe to set the pipe sections. A $507.50 credit was received by WSDOT for the use of the ADS pipe in lieu of plain concrete pipe.

Evaluation Plan

This installation will be inspected over a three year period to document any problems that might occur over the long term with this type of pipe.