

AETRON-BLUME-ATKINSON

INTER-OFFICE MEMORANDUM

March 8, 1963

TO: G. G. Bawden
FROM: W. B. Biebesheimer

SUBJECT: TITLE I REPORT FOR THE LOOP ROAD - ABA-69 MARCH 8, 1963

Forwarded herewith are 20 copies of the finished subject report for transmittal to SLAC, and 10 copies for distribution to the Technical Board and ABA Operations Division.

W. B. Biebesheimer
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Project Engineer

WBB/dr
Encl.
cc: R. L. Sharpe
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File 401-1

SLAC AHO 1991-012B14

TITLE I REPORT
FOR THE
LOOP ROAD
AND
ASSOCIATED SITE IMPROVEMENTS

REPORT TO STANFORD LINEAR ACCELERATOR CENTER NO. ABA-69
STANFORD UNIVERSITY SUBCONTRACT S-136
UNDER AEC CONTRACT AT(04-3)-400

Submitted by W. B. Biebesheimer Approved by R. L. Sharpe
W. B. Biebesheimer R. L. Sharpe

AETRON-~~BLUME~~-ATKINSON
A Joint Venture
Architect-Engineer-Manager
Palo Alto, California

March 8, 1963

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INTRODUCTION

This report presents the design criteria for performing the Title I Design of the remainder of the Loop Road and associated site improvements. Included also is information for the design and budget allowances for the site improvements associated with the Central Laboratory which were previously covered by ABA-54. Authorization for this report is contained in a memorandum from B. Hooley to W. Biebesheimer dated January 10, 1963. The outline specifications are based on Criteria issued in a memorandum from B. Hooley to W. Biebesheimer dated February 4, 1963.

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BASIS FOR DESIGN

The Road will consist of a double seal coat surface on a 6 inch base course. Drainage will be accomplished by flow along the Asphalt Concrete Curbs at the pavement edges, and directed to inlets located at the low points on the profile and discharged through culverts to existing natural drainage channels.

The road has been located to preserve the maximum number of existing Oak trees possible without sacrificing safety by limiting sight distances on the curves and access from the various parking areas.

The road will typically crown 2% both ways from the centerline with the exception that around the cruves a 2% transverse slope will be used to give a more comfortable ride while traversing the curve. A maximum speed of 25 miles per hour has been adopted for the design speed of the road.

Normal cut and fill banks of 3:1 will be used and slope rounding will be provided. Certain trees that are close to the road will be saved by increasing the cut and fill banks to a 1:1 slope as required in the immediate area of the tree involved.

It is proposed to set the profile of the road so as to conform to the existing terrain as nearly as possible. The maximum cut at the centerline of the road will be approximately 5 feet at the beginning and the end in order to meet existing construction. The profile along the road will vary between a 2½ foot average fill and a 2½ foot average cut.

The Parking Areas will be surfaced with a double seal coat on a 6 inch base course. The drainage of the parking lots will tie into the road drainage system.

The visitors' parking lot near the entrance to the site containing an area of 1850 square yards will provide parking for approximately 40 vehicles. A one way traffic pattern and 60° Angle parking has been adopted for this lot in order that the exit to the lot will not be close to the main site entrance thus avoiding a potential traffic hazard.

The parking area adjacent to the Central Lab containing an area of 6650 square yards will provide parking for approximately 142 vehicles. As this parking lot is also the main access to the Central Lab a 2 way road width of 24 feet with 20 feet of 90° parking on either side has been used.

Topsoil will be placed to a depth of 8 inches on all graded areas not to receive other surface treatment.

Road Stripes, Marking and Signs

Painted directional arrows and parking stall marks will be provided for all parking areas both existing and proposed. Traffic safety signs will be installed as required.

Earthwork for Central Laboratory

The earthwork necessary to bring the site and service areas to building sub-grade is to be accomplished at an early date in accordance with the schedule shown. Approximately 6000 cubic yards of excavation and 4000 cubic yards of embankment will be required.

Electrical ducts, at anticipated road crossings only, for future street and parking lot lighting will be provided.

OUTLINE SPECIFICATIONS

EARTHWORK To include pavement removal and placement of topsoil.

AGGREGATE BASE COURSE

Material: Aggregate Base Course shall consist of broken stone or crushed gravel of 2" maximum size, meeting the grading requirements of the California Division of Highways Standard Specification.

Construction Methods: The construction methods will conform to the California Division of Highways Standard Specifications.

DOUBLE SEAL COAT

Materials: Prime Coat shall be M.C.O., MC-1 or SC-1 liquid Asphalt. Bituminous Binder shall be an Asphalt emulsion using a 200-300 penetration type paving asphalt.

The rates of application for the screenings and binder will be within the range of the following table.

	Screenings (Pounds)	Binder (Gallons)
1st Application	23 to 28	0.15 to 0.3
2nd Application	12 to 16	0.3 to 0.4

Screenings shall be 1/2" x No. 4 for the first application and 1/4" x No. 10 for the second application.

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Construction Methods: The construction methods will conform to the California Division of Highways Standard Specifications.

STORM DRAINS

General: The storm drain system consists of inlets, Asphalt paved ditches, Asphalt Concrete Curbs and corrugated metal pipe culverts with metal end sections.

Materials: Inlets will be reinforced concrete with galvanized steel covers. Corrugated metal pipe will conform to the requirements of AASHO M-36.

Construction Methods: Construction methods will conform to the California Division of Highways Standard Specifications.

SIGNS, STRIPING AND MARKING

General: The shape, size, color and style of the Traffic Control signs to be used shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, a U. S. Bureau of Public Roads publication. All signs shall be reflectorized.

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COST ESTIMATE

Account No.	Description	Quantity	Unit Price	Cost	Total Cost
4-100	Excavation (Roads & Parking)	14,000 C.Y.	.60	8,400	
	Excavation (Central Lab)	6,000 C.Y.	.60	3,600	12,000
4-200	Storm Drain System	JOB		8,500	8,500
4-400	Double Seal Coat Surface & Base	14,850 S.Y.	1.60	23,750	
	A. C. Curbs	6,260 L.F.	.60	3,750	
	Red Rock Walks	2,200 S.Y.	1.00	2,200	
	Topsoiling	1,500 C.Y.	1.00	1,500	
	Painted Markings	1,000 S.F.	.25	250	
	Traffic Signs	25	30.00	750	
	Street Lighting Ducts	JOB		1,000	<u>33,200</u>
				TOTAL CONSTRUCTION COSTS	\$ 53,700

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DESIGN AND CONSTRUCTION SCHEDULE

ABA Title I Draft Submittal	February 11, 1963
SLAC-AEC Review and Comments	March 4, 1963
ABA Final Title I Report Submittal	March 11, 1963
SLAC AEC Title I Review and Approval	March 25, 1963
ABA 50% Title II Submittal	April 22, 1963
ABA 90% Title II Submittal	May 13, 1963
SLAC-AEC Review and Comments	May 27, 1963
ABA Revision and 100% Review	June 3, 1963
ABA Issue Bidding Documents	June 6, 1963
Bid Opening	June 27, 1963
ABA Review and Recommendation	July 1, 1963
SLAC-AEC Approval for Contract Award	July 9, 1963
Issue Notice to Proceed	July 18, 1963
Construction	
I Central Lab	
Grading and Drainage	August 16, 1963
II Loop Road (balance of contract)	October 17, 1963

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DRAWINGS

Title	Number
1. Loop Road - Civil Site Plan	SK 02113

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