

Source: King County Roads (Renton)

KC Project No. (ID#1) 16

Binder No. (ID#2) Red Vol. 1, 1-37

Site Address Lakemont Blvd, Newcastle Rd to FA190

Date Copied 7/13/07 By KMP

- Title page with the following information:**
 - Company (Author) name
 - Report date
 - Project Name
 - Company's job number
 - Site address
- Executive Summary / Introduction of the report
- Table of contents
- Project Location Map / Vicinity Map
- Site / Exploration Plans, Boring Location Plans**
- Cross-sections / Subsurface profiles
- Exploration Logs**
- Monitoring Well Logs
- Cone Penetrometer Logs
- Groundwater Elevation Tables / Data

Includes data from Previous Reports

No new data / data review

Missing Data / Illegible Data
Explanation No site map in folder, just vicinity map

Comments: _____

OFFICE OF
DEPARTMENT OF PUBLIC WORKS
MEMORANDUM

202-35

6701

To..... Stuart MacVeigh, Division Engineer..... Date..... June 5,..... 1970.....
From..... Larry Bishop for Robert Gingrich, Materials Engineer.....
Subject..... Soil Survey of Lakemont Boulevard, Newcastle Road to FAI 90.....

The first portion of this survey was submitted December 10, 1969, and included all of the data gathered up to Station 41+00. At this point, the alignment was scheduled for a cut section, with depths up to 50 feet. A review of the available geological literature dealing with the Newcastle Hills area indicated the possibility of marine sandstone and shale strata lying near the planned subgrade elevation. Since these particular formations have been tapped for well water, it was recommended that drilling equipment capable of reaching the necessary depths be employed. The information received from this operation would also include that required to set reasonable slope angles and to provide an adequate pavement thickness design. The remaining portion of the soil survey was to be completed and submitted following the execution of this drilling contract.

The drilling firm of Soil Sampling Service was retained on April 23, 1970 and, following the completion of a pioneer road into the cut area, completed the boring of two holes to depths of 44½ feet and 59½ feet. Standard penetration tests were made at 5 foot intervals in each of the borings and undisturbed samples recovered from each. With the attainment of this data, the survey field work was completed and the following report will conclude the survey and recommendations for this project.

RWG/LB:dp

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All station references are made from the project centerline.

Between Stations 41+00 and 42+50, the alignment crosses a steep-sided ravine that requires a 40 foot fill to bridge. The sides of the ravine, as well as the creek bottom indicate a continuation of the sandy gravels found in the test hole at Station 41+00.

<u>Station</u>			<u>Sample No.</u>
→ 42 + 50	. . . . .	at centerline	
	0 to 1'	Dark brown organic silty sand topsoil	
	1' to 2½'+	Dark brown gravelly, silty sand (#4+ = 36%)	# 13
For description of soils found in test borings at 44+50 and 46+50 see the attached boring logs marked Exhibits 1 and 2.			
- 48 + 50	. . . . .	50' Left centerline	
	0 to 3'+	Medium brown gravelly, silty sand (#4+ = 27%) This soil was <u>moist to wet</u>	# 14
~ 51 + 00	. . . . .	50' Right centerline	
	0 to 2'+	Yellow-brown plastic silty clay (#4+ = 0%) This soil was near its plastic limit in the field. In all likelihood, this material will be <u>too wet</u> during the construction phase of this road to use as fill soil with/ ^{out} aeration.	# 15
A small creek parallels the alignment from 54+00 to 57+00, where it crosses the centerline. A smaller creek joins the project approximately 50 feet to the right of centerline and crosses at 57+75.			
→ 54 + 85	. . . . .	at centerline	
	0 to 2½'+	Yellow brown plastic silty clay (#4+ = 0%) This soil was at or near its <u>plastic limit</u> , and included lenses of dark brown <u>organic clay</u> .	# 16
- 57 + 00	. . . . .	at centerline	
	0 to 3½'+	Medium brown gravelly, silty sand (#4+ = 39%)	# 17

Soil Survey of Lakemont Boulevard, Newcastle Road to FAI 90 cont.

Station Sample No.

- 61 + 00 50' Left centerline
 - 0 to 3'+ Medium brown sandy clay (#4+ = 2%) # 18
This soil, classified as an SC, A-7-6(10), has an in-place moisture content approximating its plastic limit.

- 63 + 25 at centerline
 - 1' to 2½'+ Dark brown, silty clay with yellow mottling (#4+ = 4%) # 19
This material had the highest plastic index of any of the soils found on this alignment.

At station 63+40, a small creek crosses the centerline, with an approximate flow of 50-75 gallons per minute. Probes taken in the nearly vertical sides of this creek revealed a continuation of the yellow, rust-mottled silty clay found at the preceding station.

Another small rivulet or creek, apparently of an intermittent nature, crosses the alignment at Station 68+75. This channel runs parallel to the project from approximately 66+50, crosses the alignment and veers away at 69+50.

- 71 + 00 at centerline
 - 0 to 3½'+ Medium brown sandy silt (#4+ = 0%) # 20
This soil was moist to wet, indicating the probable closeness of the water table.

- 73 + 00 at centerline
 - 1' to 2½'+ Dark brown gravelly, silty sand (#4+ = 23%) # 21

At Station 74+00, and to the right of centerline, there is a relatively low area that extends eastward to the creek channel. Probes in this area indicated little, if any organic material short of the normal covering of forest litter.

The county's portion of this project ends at 74+50, with the remaining connection to FAI 90 the responsibility of the State of Washington.

Soils

In the first 900 feet of this section of the alignment, a continuation of the predominantly granular soils that typified the first half of the project was found. These materials, classified under the AASHO System as A-1-b and A-2-4 soils, are

Soil Survey of Lakemont Boulevard, Newcastle Road to FAI 90 cont.

generally the best soils for road construction purposes. Their only engineering drawback is their susceptibility to frost action and damage.

Beyond Station 50+00, however, the construction quality of the soils deteriorated rapidly. The remainder of the project consisted primarily of moderate to highly plastic, silty clays. These soils, derived from lacustrine deposits, were classed as A-7-5 and A-7-6's and had plasticity indices ranging from 29% to 55%. It is recommended that this material be excluded from any consideration as fill material. It should also be anticipated that aeration may be required through the cut sections in order to reduce the in-place moisture content to within specifications.

R Values and Design

The 'R' Values of the second half of this project reflected the rapid change of soil character from the predominately granular to the plastic fine-grained. These values ranged from a low of 5 up to 76, with a corresponding decrease in expansive tendencies.

The design 'R' Value for this portion, based upon the evaluated 10th percentile, is 27. With a Traffic Index of 5.2, the gravel equivalent necessary to prevent subgrade disruption is 15½ inches. Using the current substitution ratios, the design alternates are as follows:

3 inches Asphalt Concrete Class B

6 inches Asphalt Treated Base

or

3 inches Asphalt Concrete Class B

1½ inches Crushed Surfacing Top Course

2½ inches Crushed Surfacing Base Course

7 inches Gravel Base Class B

Slopes and Erosion Control

It is our understanding that emphasis is being placed on retaining as much of the natural setting and vegetation as possible on this alignment. With this in mind, special accord should be given to methods of preventing slope erosion and promoting slope beautification. The following observations and recommendations are made under those considerations.

The longest cut slopes on the project are those between Stations 42+30 and 48 + 00, which necessitated the drilling contract with Soil Sampling Service for complete investigation. These slopes will be on the order of 55 feet in height, with the material varying between moderately compacted gravelly, silty sand, clean medium sands, and sandy silts. These high slopes should be set no steeper than 1½:1, with the additional provision of a pronounced vertical curve near the top of the cut. Strong consideration should also be given to benching these slopes approximately half way up. This bench should be 4 - 8 feet in width and back sloped slightly, and provided with drainage tile to remove surface runoff from the cut face. Following the completion of all grading work on the slope, the entire face should be planted with a mixture of grass seeds (primarily Fescues, Ryegrass, and Clover) and fertilizers. These procedures will reduce or eliminate erosion problems on these slopes and reduce maintenance expenditures. If further beautification is required, selected hardy bushes or evergreens may be planted, or encroachment by native vegetation encouraged.

The lower slopes, located between 48+00 and 67+00, are composed primarily of the plastic silty clays. In order to minimize any slope stability problems in this material, it is recommended that slope angles be no steeper than 2:1, and that the seeding requirements outlined previously for the high slopes be followed.

Soil Survey of Lakemont Boulevard, Newcastle Road to FAI 90 cont.

Drainage

In addition to those areas covered in the soils log that had standing water or where creeks or rivulets crossed the alignment, there was one additional section where plans for drainage must be made. It may be noted from the attached Boring Log marked exhibit 2 that a water-bearing, coarse sand is present from about 55 feet to 59 feet. This corresponds to subgrade elevation through this area and provisions must be made to divert this water from the roadway prism. It is also conceivable that removal of this water from the base of the cut slope will be necessary after excavating for maintaining slope stability. In which case, horizontal slotted pipe may be needed to effect this removal. No measurements of pore water pressure were made in this boring and total flow to be expected is unknown. Remedial action, if necessary, will necessarily await the opening of the cut section, but the possibilities should be kept in mind.

Summary

With the completion of the deep borings at Stations 44+50 and 46+50, the necessary soils work on Lakemont Boulevard was finished. The work had been divided into two sections, based upon the 50 foot plus cuts that were anticipated. The first report, covering the beginning of the project to Station 41+00, was submitted in December, 1969, and included all pertinent design data to that point.

The materials found in the first 900 feet of the second section were quite similar to those found in the first section. However, from Station 50+00 to near the end of the project, the soil rapidly changed from a predominantly granular nature to highly plastic, fine grained material. Stability values for this soil were quite low, requiring a fairly thick typical section for adequate cover.

Soil Survey of Lakemont Boulevard, Newcastle Road to FAI 90 cont.

Slope treatment will be of particular interest and concern on this project. In an effort to prevent erosion and to beautify the slope, recommendations for benching were made for the high cut, followed by seeding and fertilizing of all of the slopes.

Drainage will be taken care of by normal practice for the most part. The only portion that may provide trouble is the water-bearing sand lense found in the deep boring at 46+50. Final disposition of this problem may have to await construction excavation.

RWG/LB:dp

KING COUNTY SOILS & MATERIALS LABORATORY
7735 LEARY WAY N. E. - REDMOND, WASH.

BORING LOG

PROJECT Lakemont Blvd. DRILLER Soil Sampling Service

DATE 4-29-70 STATION 44+50 30' left median & BORING NO. 1

DEPTH (FT)	SOIL CLASSIF.	SOIL DESCRIPTION	SAMPLES (M.C.)	DEPTH (FT)	STANDARD PENETRATION (BLOWS/FOOT)
		Yellow-brown gravelly, silty sand moist to wet, medium density	I		0
10	SM	Gray-brown silty sand with small gravels - damp to moist - very dense - yellow to orange mottling	I (9.8%)	10	8 1/2"
20			I (11.0%)	20	
30			I		4"
	SP	Gray, medium grained, clean sand - damp to moist -	I (7.7%)	30	5 1/2"
40			I (21.4%)	40	11"
50	ML	Gray sandy silt - orange mottling - moist to wet -		50	
					Total Depth = 44 1/2'
				60	

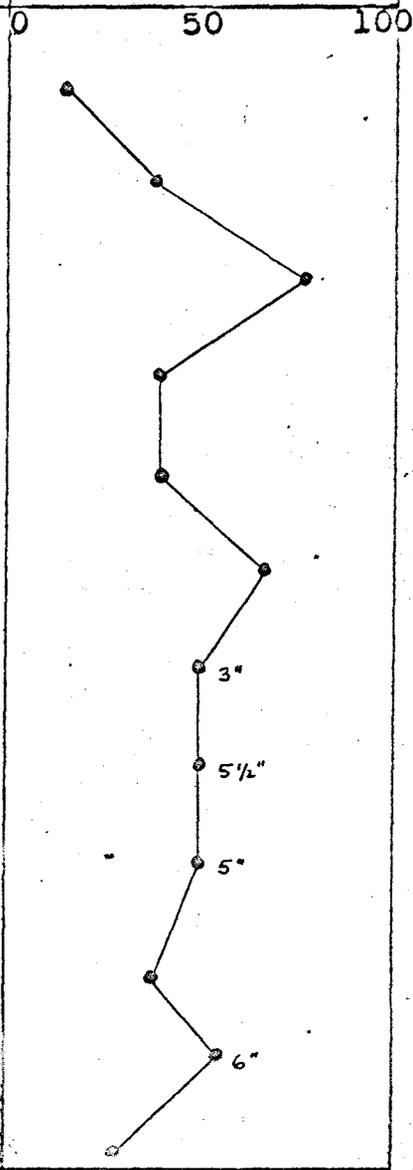
KING COUNTY SOILS & MATERIALS LABORATORY
7735 LEARY WAY N. E. - REDMOND, WASH.

BORING LOG

PROJECT Lakemont Blvd. DRILLER Soil Sampling Service

DATE 4-29-70 STATION 46+50 @ median & BORING NO. 2

DEPTH (FT)	SOIL CLASSIF.	SOIL DESCRIPTION	SAMPLES (M.C.)	DEPTH (FT)	STANDARD PENETRATION (BLOWS/FOOT)
		Yellow-brown gravelly, silty sand - medium to dense - damp to moist	I		
10	SM	Gray-brown silty sand with small gravels - some orange-mottling - damp to moist - dense to very dense	I (9.2%)	10	
20			I	20	
30			I	30	
		lense of blue gray fine sand with admixture of silt - dry to damp	I		
40			I (13.0%)	40	
	SP-SM	Gray to gray-brown silty coarse sand - damp to moist - dense	I		
50			I (9.8%)	50	
	SP-SM	Gray-brown slightly silty sand with medium gravels - very dense - water on top of sample - water-bearing coarse sand	I (5.4%)		
	ML	Blue-gray fine sand and silt	I (21.5%)	60	



Total Depth = 59 1/2'

KING COUNTY SOILS & MATERIALS LABORATORY
7735 LEARY WAY N.E.
REDMOND, WASHINGTON
TU 5-1211

PROJECT Lakemont Boulevard

SECTION Newcastle Road to FAI 90

SOILS ANALYSIS TEST DATA

STATION	2 + 00	9 + 00	12 + 90	12 + 90	15 + 50	22 + 00	22 + 00
DEPTH OF SOIL	0-2'+	1'-2'+	0-2'+	2'-4'+	0-2½'+	1'-2'	2'-3½'+
MAXIMUM SIZE	2"	2"	2"	2"	1"	2"	¾"
% PASSING 1½"	99.3	97.0	97.6	98.6	100.0	92.5	
% PASSING 1"	95.4	89.1	92.1	92.3	97.6	90.1	100.0
% PASSING ¾"	92.6	86.2	88.1	87.5	96.4	86.6	99.0
% PASSING ½"	88.7	75.4	83.8	82.2	94.4	82.5	97.6
% PASSING 3/8"	86.5	70.3	80.8	79.8	92.8	80.0	95.6
% PASSING # 4	74.8	57.9	69.8	70.3	84.0	69.6	92.0
% PASSING # 10	65.0	49.6	64.9	65.4	77.7	63.1	88.9
% PASSING # 40	45.7	35.2	52.1	53.2	59.3	48.9	71.0
% PASSING # 200	22.6	17.4	26.6	26.8	14.8	22.9	32.4
% SAND							
% SILT							
% CLAY							
LIQUID LIMIT	NP	NP	NP	25.8	NP	NP	NP
PLASTICITY INDEX	NP	NP	NP	NP	NP	NP	NP
SAND EQUIVALENT	39	24	19	19	28	26	27
'R' VALUE	69	69	69	69	74	69	57
AASHO CLASSIF.	A-1-b(0)	A-1-b(0)	A-2-4(0)	A-2-4(0)	A-2-4(0)	A-1-b(0)	A-2-4(0)
UNIFIED CLASSIF.	SM	SM	SM	SM	SM	SM	SM

KING COUNTY SOILS & MATERIALS LABORATORY
7735 LEARY WAY N.E.
REDMOND, WASHINGTON
TU 5-1211

PROJECT Lakemont Boulevard SECTION Newcastle Road to FAI 90

SOILS ANALYSIS TEST DATA

STATION	25 + 70	32 + 50	32 + 50	37 + 50	41 + 00		
DEPTH OF SOIL	0-3'+	0-2½'	2½'-4'+	0-3'+	0-4'+		
MAXIMUM SIZE	2½"	2"	1½"	2"	2"		
% PASSING 1½"	93.5	97.6	100.0	97.1	99.6		
% PASSING 1"	89.9	96.2	99.5	95.6	96.3		
% PASSING ¾"	87.5	93.5	99.1	95.2	92.6		
% PASSING ½"	82.4	90.4	97.2	94.1	82.4		
% PASSING 3/8"	80.3	89.0	96.3	93.8	77.8		
% PASSING # 4	68.1	74.3	88.9	88.6	58.3		
% PASSING # 10	56.7	69.2	85.6	85.5	49.8		
% PASSING # 40	40.4	60.6	72.9	73.5	24.8		
% PASSING # 200	18.3	39.4	37.9	46.3	5.1		
% SAND							
% SILT							
% CLAY							
LIQUID LIMIT	NP	30.9	22.0	29.2	NP		
PLASTICITY INDEX	NP	NP	NP	NP	NP		
SAND EQUIVALENT	40	16	12	11	32		
'R' VALUE	69	57	57	57	72		
AASHO CLASSIF.	A-1-b(0)	A-4(1)	A-4(1)	A-4(2)	A-1-a(0)		
UNIFIED CLASSIF.	SM	SM	SM	SM	SW-SM		

KING COUNTY SOILS & MATERIALS LABORATORY
7735 LEARY WAY N.E.
REDMOND, WASHINGTON
TU 5-1211

PROJECT Lakemont Boulevard

SECTION Newcastle Road to FAI 90

SOILS ANALYSIS TEST DATA

STATION	42+50	44+50	46+50	46+50	48+50	51+00	54+85
DEPTH OF SOIL	1'-2½'+	@40'	18'-23'	53'-58'	0-3'+	2'-3'+	0-2½'+
MAXIMUM SIZE	2"	1½"	1½"	3"	3"	#4	#4
% PASSING 1½"	92.5	98.6	100.0	99.4	93.3		
% PASSING 1"	87.0	97.2	98.9	95.0	89.5		
% PASSING ¾"	82.6	95.6	98.5	89.7	88.2		
% PASSING ½"	78.0	94.5	96.3	82.6	83.5		
% PASSING 3/8"	75.1	93.1	94.4	76.8	81.5		
% PASSING # 4	63.8	90.8	90.9	68.2	72.7	100.0	100.0
% PASSING # 10	57.9	88.2	87.4	64.0	67.4	99.8	99.5
% PASSING # 40	43.4	47.5	75.6	51.6	55.7	98.5	97.9
% PASSING # 200	17.9	13.5	44.4	27.8	27.4	85.1	88.7
% SAND							25
% SILT							18
% CLAY							57
LIQUID LIMIT	NP	NP	21.1	20.1	NP	69.9	87.5
PLASTICITY INDEX	NP	NP	4.3	NP	NP	34.0	45.1
SAND EQUIVALENT		42	11	12	20	1	6
'R' VALUE	72	76	69	73	69	17	
AASHO CLASSIF.	A-1-b(C)	A-1-b(C)	A-4(2)	A-2-4(0)	A-2-4(0)	A-7-5(20)	A-7-5(20)
UNIFIED CLASSIF.	SM	SM	SM-SC	SM	SM	MH	MH

KING COUNTY SOILS & MATERIALS LABORATORY
 7735 LEARY WAY N.E.
 REDMOND, WASHINGTON
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PROJECT Lakemont Blvd. SECTION Newcastle Road FAI 90

SOILS ANALYSIS TEST DATA

STATION	57+00	61+00	63+25	71+00	73+00		
DEPTH OF SOIL	0-3½'+	0-3'+	1'-2½'+	0-3½'+	1'-2½'+		
MAXIMUM SIZE	4"	1½"	1½"	#4	2½"		
% PASSING 1½"	86.5	100.0	100.0		97.3		
% PASSING 1"	81.0	98.9	99.9		93.5		
% PASSING ¾"	76.8	98.4	97.9		90.8		
% PASSING ½"	72.7	98.4	97.3		88.5		
% PASSING 3/8"	70.2	98.4	96.8		86.5		
% PASSING # 4	60.8	98.3	96.2	100.0	76.9		
% PASSING # 10	55.4	97.6	94.7	98.6	74.1		
% PASSING # 40	45.9	92.0	91.1	97.9	63.4		
% PASSING # 200	24.7	40.3	77.1	47.7	36.6		
% SAND			27				
% SILT			17				
% CLAY			56				
LIQUID LIMIT	31.0	57.9	83.4	40.0	37.7		
PLASTICITY INDEX	NP	29.1	54.9	NP	NP		
SAND EQUIVALENT	15	3	1	5	11		
'R' VALUE	69	17	5	43	43		
AASHO CLASSIF.	A-1-b(0)	A-7-6(10)	A-7-6(20)	A-4(3)	A-4(1)		
UNIFIED CLASSIF.	SM	SC	CH	SM	SM		

*These gradations are those made also taken from the recovered standard penetration samples supplied by Soil Sampling Service.

KING COUNTY SOILS & MATERIALS LABORATORY
7735 LEAHY WAY N.E.
REDMOND, WASHINGTON
TU 5-1211

PROJECT Lakemont Boulevard SECTION Newcastle Road to FAI 90

SOILS ANALYSIS TEST DATA

STATION	44+50	44+50	44+50	44+50	46+50	46+50	46+50
DEPTH OF SOIL	13'-14½'	18'-19½'	38'-39½'	43'-44½'	13'-14½'	38'-39½'	48'-49½'
MAXIMUM SIZE	½"	¾"	1/2"	#10	1"	1"	3/8"
% PASSING 1½"							
% PASSING 1"					100.0	100.0	
% PASSING ¾"		100.0			89.2	90.8	
% PASSING 1/2"	100.0	98.7	100.0		85.1	85.6	
% PASSING 3/8"	96.1	96.9	98.6		79.8	81.2	100.0
% PASSING # 4	90.7	90.0	94.5		73.9	69.9	99.8
% PASSING # 10	85.8	84.7	91.1	100.0	69.0	60.1	99.7
% PASSING # 40	73.8	70.2	36.9	98.7	59.8	46.0	73.2
% PASSING # 200	30.6	31.2	2.3	67.7	28.3	21.7	5.9
% SAND							
% SILT In-place Moisture Con.	9.8%	11.0%	7.7%	21.4%	9.2%	13.0%	9.8%
% CLAY							
LIQUID LIMIT							
PLASTICITY INDEX							
SAND EQUIVALENT							
'R' VALUE							
AASHO CLASSIF.	A-2-4(0)	A-2-4(0)	A-1-b(0)	A-4(7)	A-2-4(0)	A-1-b(0)	A-3(0)
UNIFIED CLASSIF.	SM	SM	SP	ML	SM	SM	SP-SM

*These gradations are those materials taken from the recovered standard penetration samples supplied by Soil Sampling Service.

KING COUNTY SOILS & MATERIALS LABORATORY
 7735 LEARY WAY N.E.
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 TU 5-1211

PROJECT Lakemont Boulevard

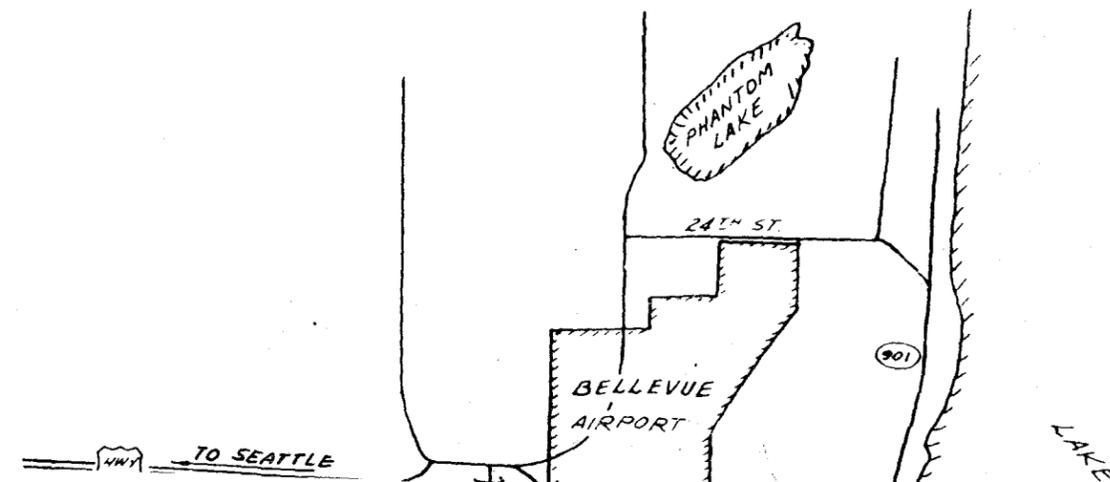
SECTION Newcastle Road to FAI 90

SOILS ANALYSIS TEST DATA

STATION	46+50	46+50					
DEPTH OF SOIL	53'-54½'	58'-59½'					
MAXIMUM SIZE	1/2"	1½"					
% PASSING 1½"		100.0					
% PASSING 1"		91.3					
% PASSING 3/4"		91.3					
% PASSING 1/2"	100.0	86.4					
% PASSING 3/8"	93.2	84.0					
% PASSING # 4	75.7	80.9					
% PASSING # 10	54.6	78.1					
% PASSING # 40	30.7	74.7					
% PASSING # 200	11.4	69.6					
% SAND							
% GMP In-place Moisture	5.4%	21.5%					
% CLAY							
LIQUID LIMIT							
PLASTICITY INDEX							
SAND EQUIVALENT							
'R' VALUE							
AASHO CLASSIF.	A-1-b(0)	A-4(7)					
UNIFIED CLASSIF.	SP - SM	ML					

KING COUNTY
DEPARTMENT OF PUBLIC WORKS
FORWARD THRUST PROJECT
LAKEMONT BOULEVARD
(NEWCASTLE ROAD TO FAI-90)

RIGHT OF WAY SCHEDULE	
-- NEWCASTLE ROAD --	
. 95+65.53 TO STA. 84+37.56	30' Lt.
. 95+65.53 TO STA. 89+17.07 Bk. =	
TA. 0.00 AHD	30' Rt.
211+37.56 VARIES TO STA. 4+10	

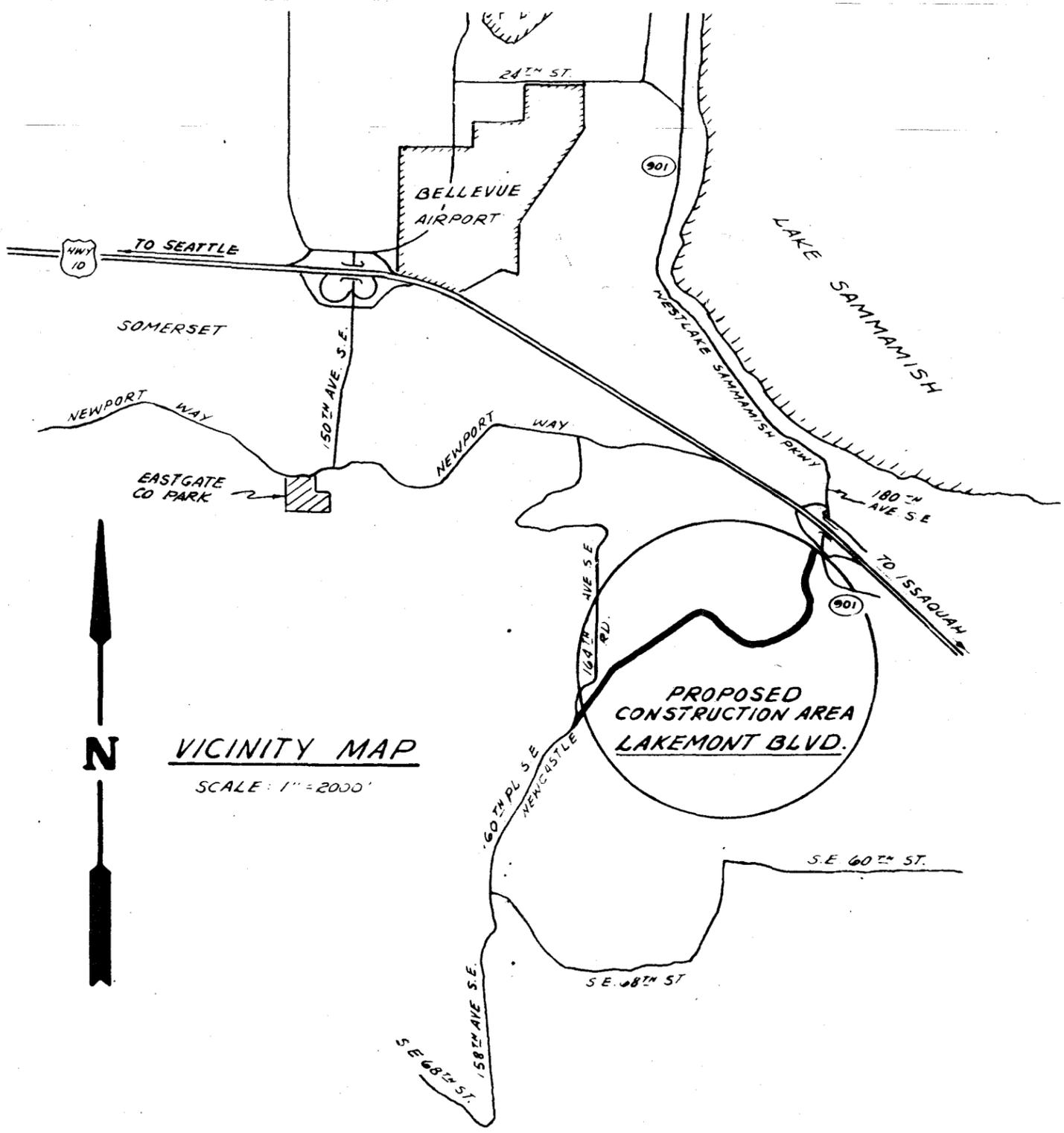


RIGHT OF WAY SCHEDULE

E ROAD -- 84+37.56 89+17.07 Bk. =	30' Lt. 30' Rt. 30' Lt. to 41' Lt.
TO STA. 4+10	
BOULEVARD -- 9+7 STA. 9+79.7 66 E.O.P. E.O.P.	41' Lt. 41' Lt. to 40' Lt. 40' Lt. 40' Rt.

I N D E X

- PLAN AND PROFILE
- TYPICAL SECTION,
SUPER ELEVATIONS & DETAILS
- STRUCTURE NOTES
- INTERSECTION DETAIL
- DRAINAGE SECTIONS & PROFILES



VICINITY MAP

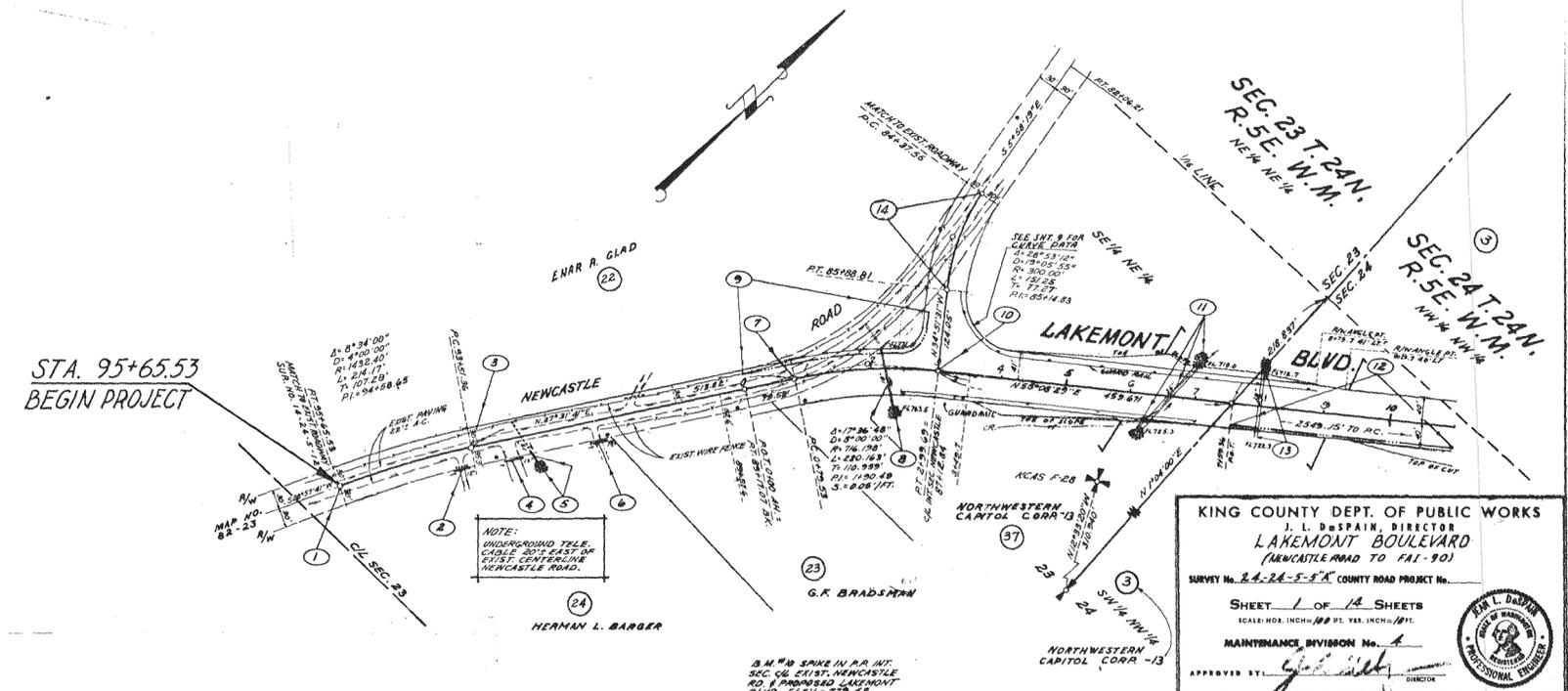
SCALE: 1" = 2000'

APPROVED
 SOILS & MATERIALS
 LABORATORY
 JAN 10 1974

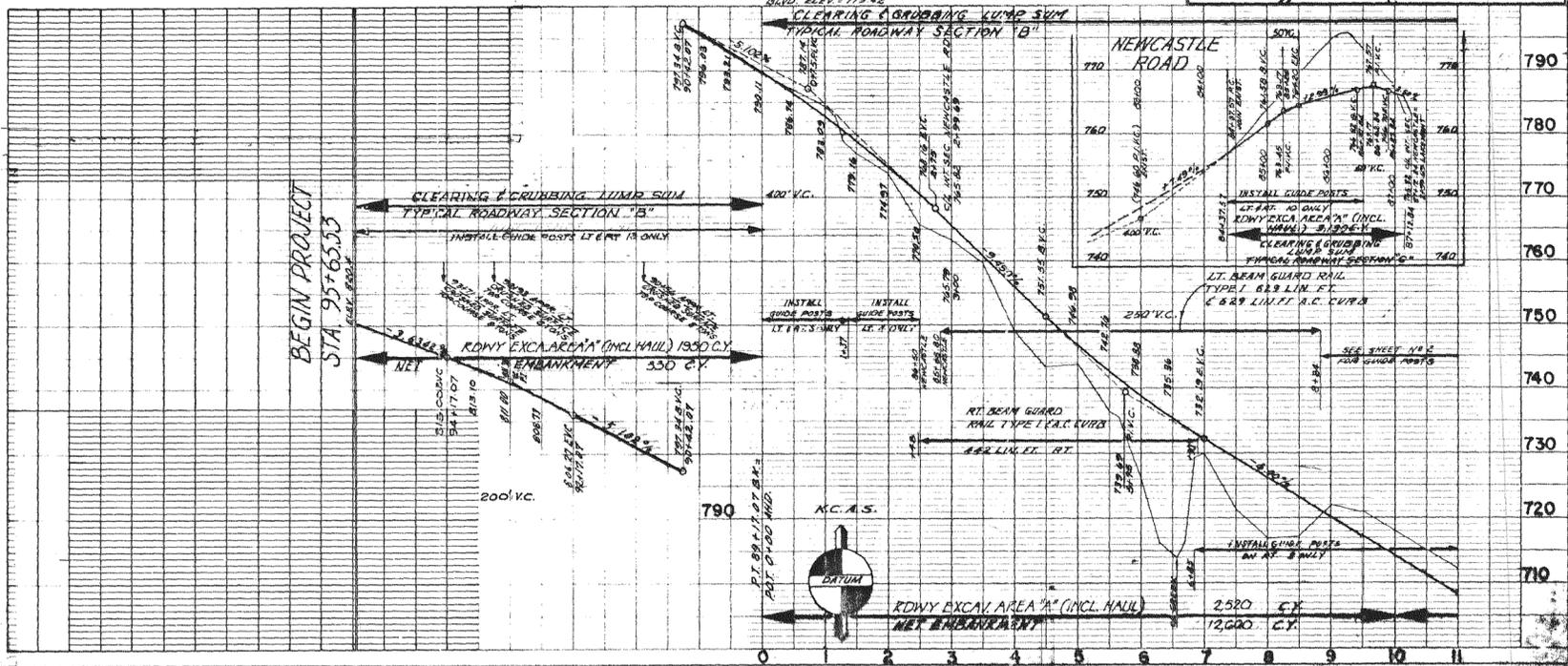
KING COUNTY DEPT. OF P
 J. L. DeSPAIN, DIRE
LAKEMONT BOULE
 (NEWCASTLE ROAD TO FAI
 SURVEY No. 24-24-5-5 "A" COUNTY ROAD PROJE
 MAINTENANCE DIVISION, No. _____

DATE: 10/15/53
 DRAWN BY: J. L. DASPAIN
 CHECKED BY: J. L. DASPAIN
 PROJECT: MAINTENANCE DIVISION
 SHEET NO. 1 OF 12

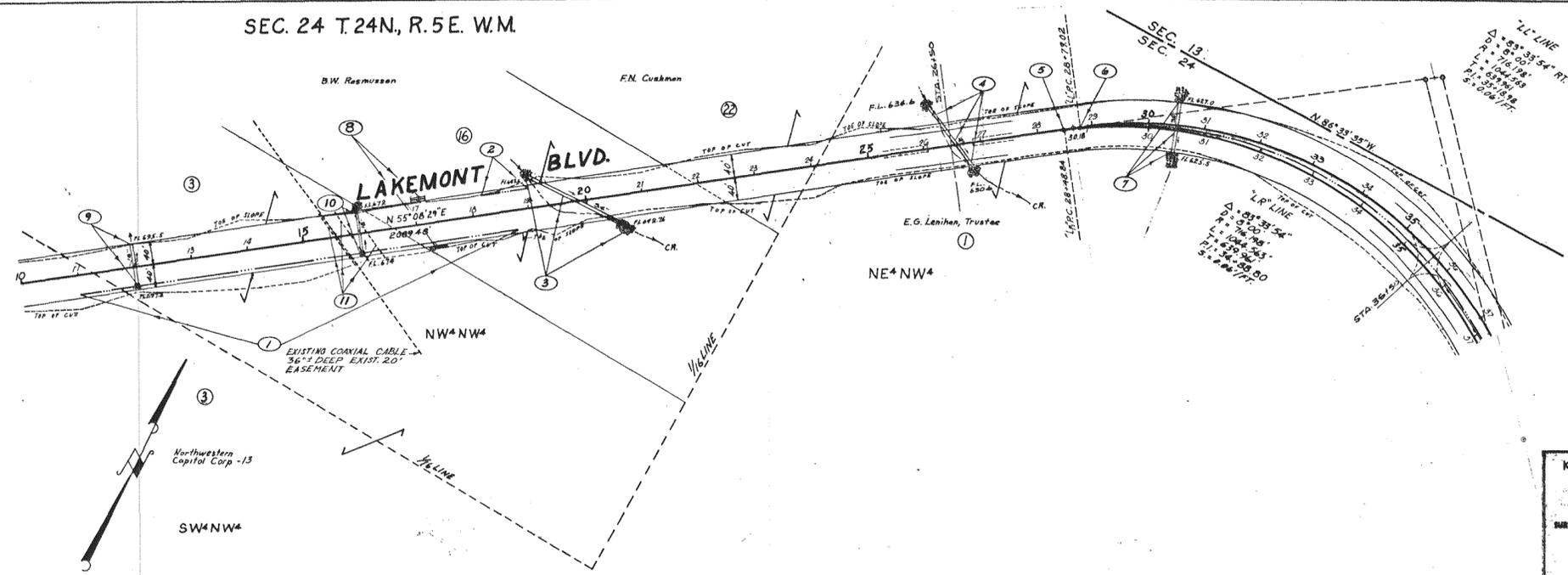
DATE: 10/15/53
 DRAWN BY: J. L. DASPAIN
 CHECKED BY: J. L. DASPAIN
 PROJECT: MAINTENANCE DIVISION
 SHEET NO. 1 OF 12



KING COUNTY DEPT. OF PUBLIC WORKS
 J. L. DASPAIN, DIRECTOR
LAKEMONT BOULEVARD
 (NEWCASTLE ROAD TO FAI-90)
 SURVEY No. 24-24-5-9" COUNTY ROAD PROJECT No. _____
 SHEET 1 OF 12 SHEETS
 SCALE: HORIZ. 1"=40' VERT. 1"=10'
 MAINTENANCE DIVISION No. _____
 APPROVED BY: *[Signature]* DIRECTOR



SEC. 24 T.24N., R.5E. W.M.



KING COUNTY DEPT. OF PUBLIC WORKS
 J. L. BOSPAIN, DIRECTOR
LAKEMONT BOULEVARD
 (MERCER ROAD TO I-90)
 SURVEY No. 24-24-5-5-A COUNTY ROAD PROJECT No.
 SHEET 2 OF 14 SHEETS
 SCALE: HOR. INCHES = 40 FT. VERT. INCHES = 10 FT.
 MAINTENANCE DIVISION No. 1
 APPROVED BY: *[Signature]*

DATE: 11/15/00
 BY: J. L. BOSPAIN
 CHECKED: J. L. BOSPAIN
 TITLE: SURVEYOR
 NO. 12777

DATE: 11/15/00
 BY: J. L. BOSPAIN
 CHECKED: J. L. BOSPAIN
 TITLE: SURVEYOR
 NO. 12777

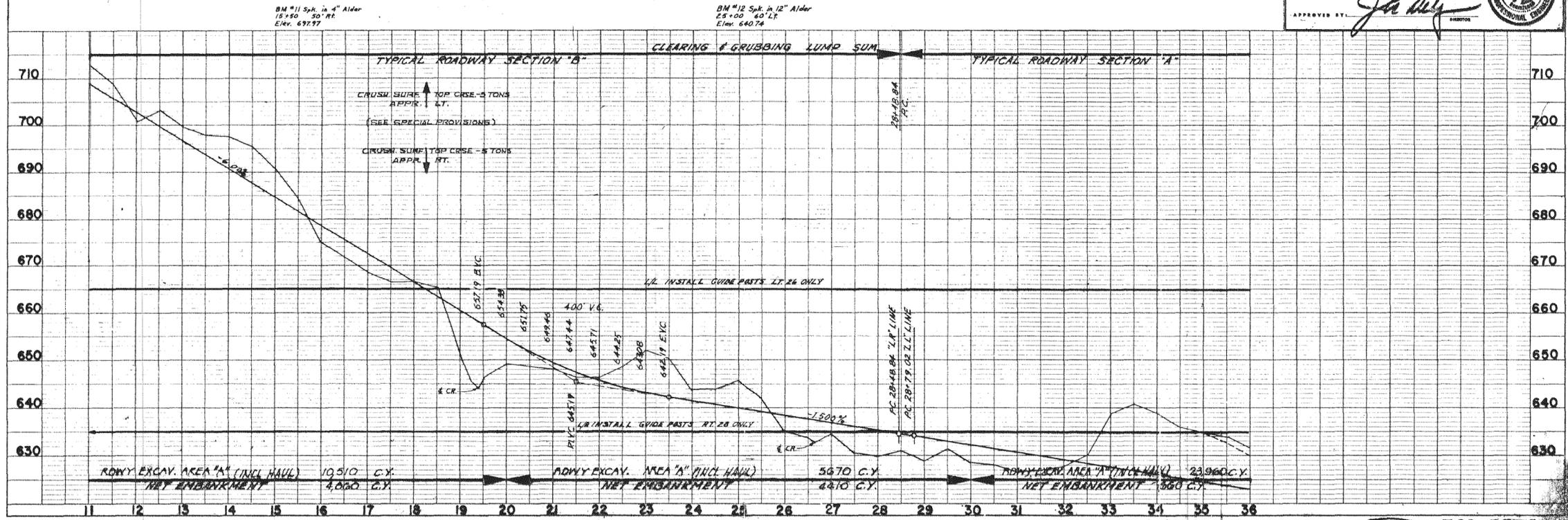
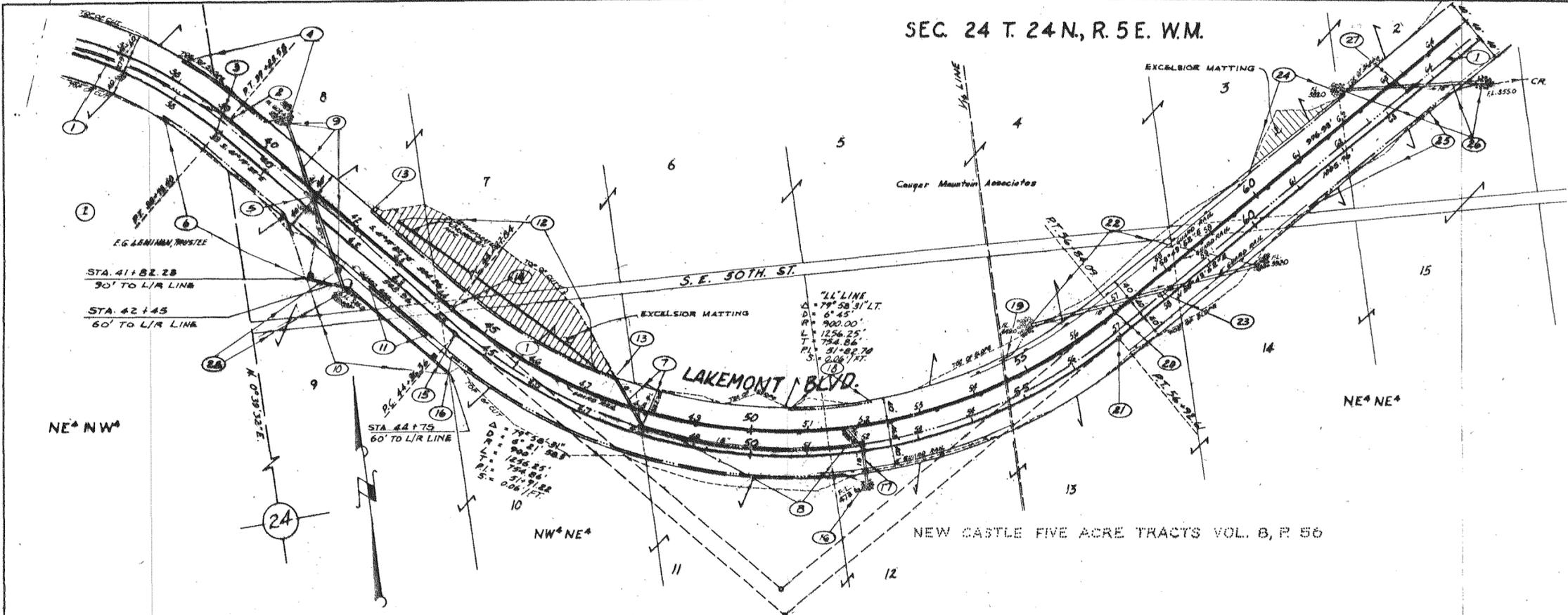


PLATE 1 PLAN - PROFILE & P. R. STANDARD
 BRUNNEN & COMPANY, CHICAGO, ILL. U.S.A.

19534 302-35"B

SEC. 24 T. 24 N., R. 5 E. W.M.

DATE	7/27/55
PROJECT	LAKEMONT BOULEVARD
DESIGNED BY	CONGER MOUNTAIN ASSOCIATES
CHECKED BY	ALBERT G. BROWN
DATE	7/27/55
SCALE	1" = 40'



KING COUNTY DEPT. OF PUBLIC WORKS
 J. L. DASPAIN, DIRECTOR
LAKEMONT BOULEVARD
 (NEWCASTLE ROAD TO FAT-90)
 SURVEY No. 24-24-N-5-E-W.M. COUNTY ROAD PROJECT No. _____
 SHEET 3 OF 14 SHEETS
 SCALE: HOR. INCHES = 40 FT. VERT. INCHES = 10 FT.
 MAINTENANCE DIVISION
 APPROVED BY: *J. L. Daspain*

DATE	7/27/55
PROJECT	LAKEMONT BOULEVARD
DESIGNED BY	CONGER MOUNTAIN ASSOCIATES
CHECKED BY	ALBERT G. BROWN
DATE	7/27/55
SCALE	1" = 40'

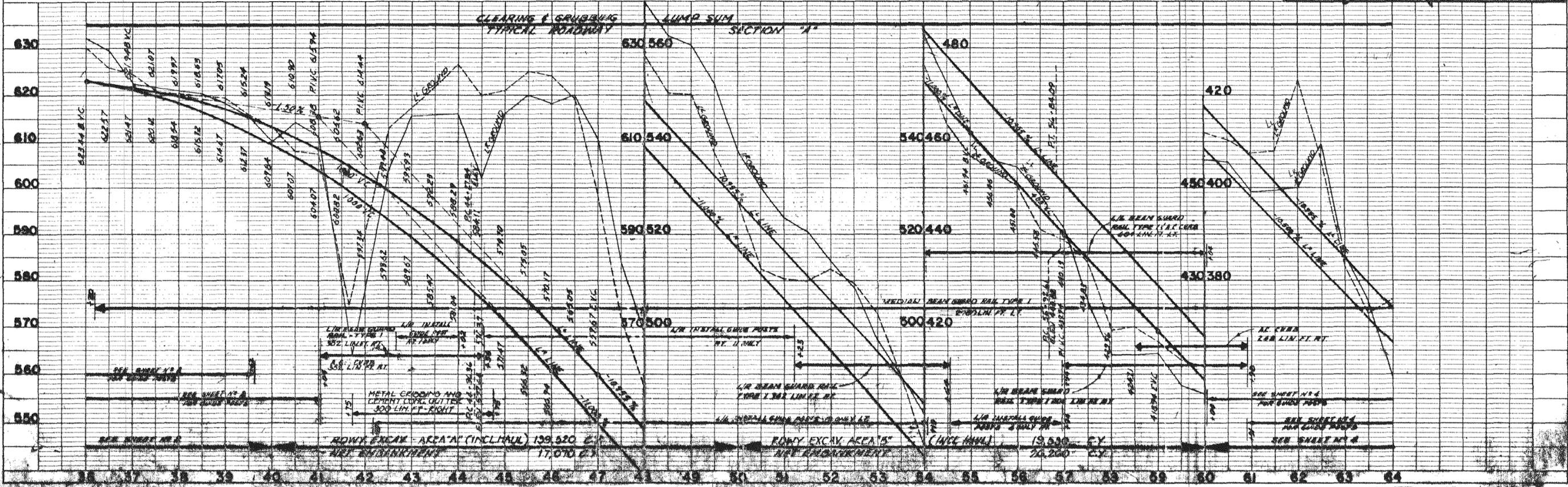
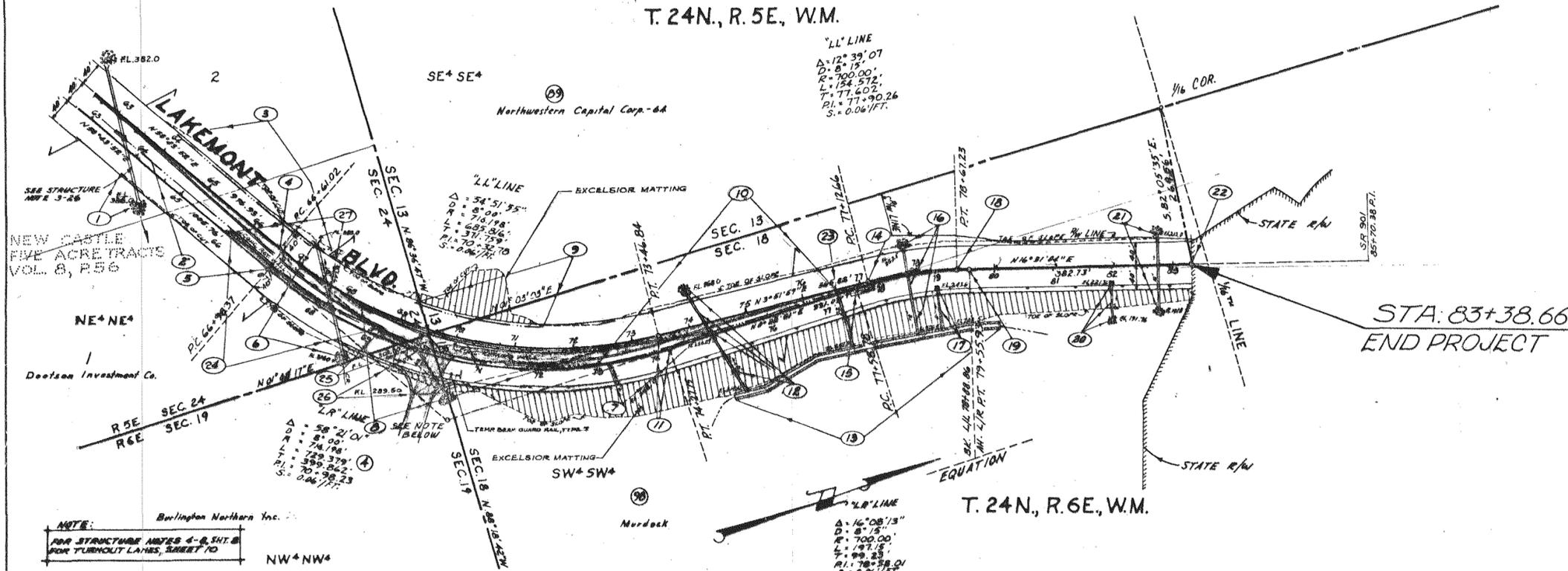


PLATE 1 PLAN - PROFILE & P.P.R. STANDARD
 CONGER MOUNTAIN ASSOCIATES, CHICAGO - NEW YORK

1955 302-3501

T. 24N., R. 5E., W.M.

"LL" LINE
Δ = 12° 39' 07"
D = 8" 1/8"
R = 700.00'
L = 154.572'
T = 77.607'
P.I. = 77.90.26
S = 0.061/FT.

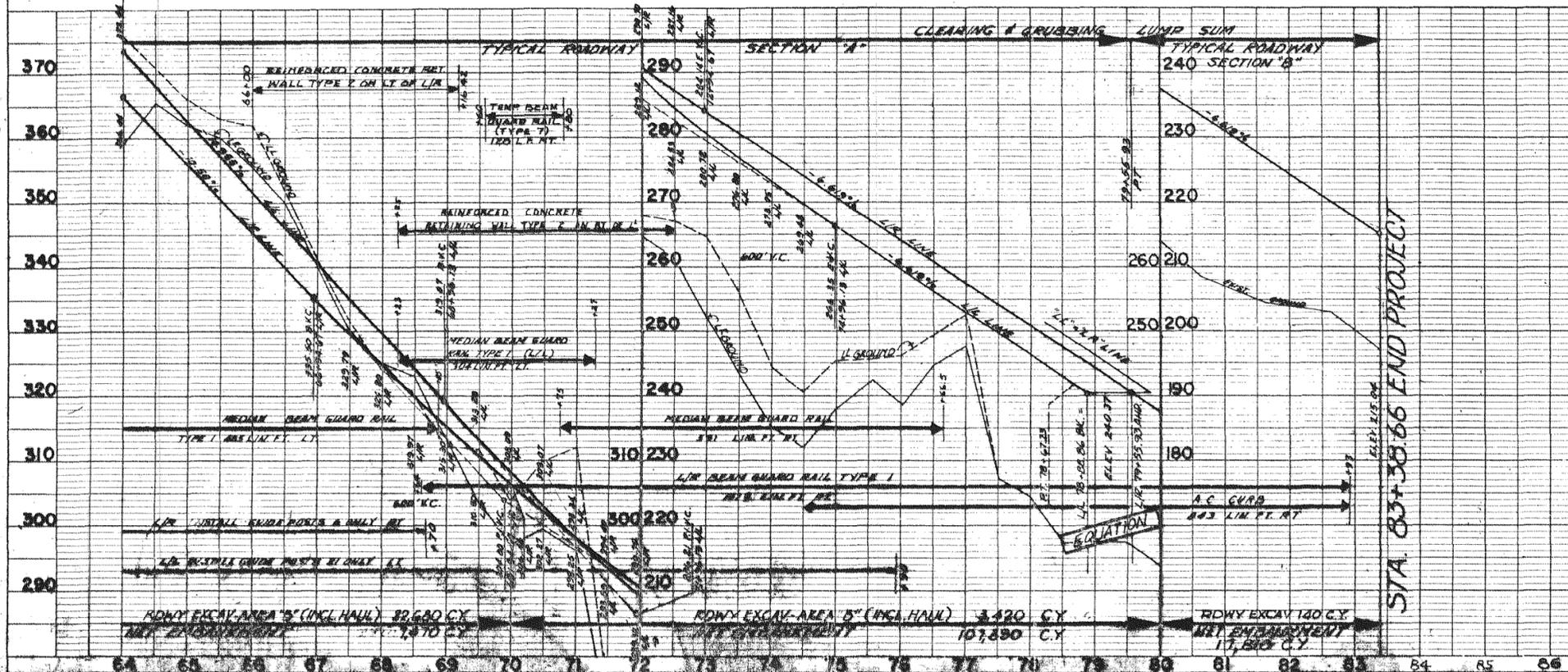


STA. 83+38.66
END PROJECT

T. 24N., R. 6E., W.M.

"LL" LINE
Δ = 16° 08' 13"
D = 8" 1/8"
R = 700.00'
L = 171.15'
T = 99.23'
P.I. = 78.58.01
S = 0.061/FT.

KING COUNTY DEPT. OF PUBLIC WORKS
J. L. DOSPAIN, DIRECTOR
LAKEMONT BOULEVARD
(ARMCASTLE ROAD TO FAI-90)
SURVEY No. 24-24-N-E-W COUNTY ROAD PROJECT No. ...
SHEET 4 OF 14 SHEETS
SCALE: HOR. INCHES = 100 FT. VEB. INCHES = 10 FT.
MAINTENANCE DIVISION No. ...
APPROVED BY: *J. L. Dospain*
PROFESSIONAL ENGINEER



STA. 83+38.66 END PROJECT

1953 302-3610