CITY OF SACRAMENTO

(1)

DEPARTMENT OF PUBLIC WORKS
915 I STREET SACRAMENTO, CALIFORNIA 95814
CITY HALL ROOM 207 TELEPHONE (916) 449-5281

M. H. JOHNSON
Director

March 1, 1985

Transportation & Community
Development Committee
Sacramento, California

Honorable Members in Session:

SUBJECT: Noise Study for City Landfill Expansion Project

SUMMARY:

This report transmits a City landfill expansion noise study conducted by Peter Klaveness, Consulting Acoustical Engineer. The study reveals that a noise barrier on the landfill berm will only be minimally effective and that even without a barrier the landfill noise impact as assessed is minimal. Thus, Public Works recommends that a noise barrier not be placed on the expanded landfill berm, and that a six-foot high cyclone fence with redwood slats be placed on the landfill berm.

BACKGROUND:

Mr. Klaveness, who prepared the attached report, has a Master of Science degree in Engineering Physics and over 15 years of acoustical engineering experience on an international level, having worked in Norway, New Zealand and the United States. His expertise encompasses architectural acoustics, industrial noise control, and environmental noise control. In the Sacramento area some of the acoustical study projects he has conducted include: (1) the Sacramento Regional Wastewater Treatment Plant, (2) SHRA Alkali Housing Project, (3) Davis City Hall, (4) Sutter Hospital Master Plan, (5) Sacramento Convention Center's movable partitions, and (6) Traffic Noise Study on I-880.

Mr. Klaveness' study is attached hereto as Enclosure A.

From Mr. Klaveness' study, Public Works staff has concluded that:

(a) A landfill berm noise barrier is not required because it would be minimally effective for only four (4) months of the landfill's life.

(b) The major noise problem for homes in River Park is traffic noise and not landfill noise.

(c) The benefit to River Park of a freeway noise barrier would be to attenuate freeway traffic noise rather than landfill noise.

In the attached letter CalTrans in 1982 estimated the cost of freeway sound barrier walls in this area to be $200,000 (see attached Enclosure B). It is staff's opinion that this cost has escalated a minimum of 25% to $250,000. CalTrans also indicates that it will not expend funds on a freeway sound barrier in the area. Public Works recommends that City funds not be expended on a freeway sound barrier as a freeway barrier would reduce freeway traffic noise, not landfill noise.

FINANCIAL:

This report contains to financial data.

RECOMMENDATION:

It is recommended that: (1) noise barriers not be placed on the landfill expansion berms, and (2) that a six (6) foot high cyclone fence with redwood slats be placed on the landfill expansion's berms.

Respectfully submitted,

Reginald Young
Deputy Director of Public Works,
Public Services

Recommendation Approved:

Solon Wisham, Jr.
Assistant City Manager

Approved:

Melvin H. Johnson
Director of Public Works

Enclosure: (A) Noise Study for Sacramento Landfill Expansion Project.

(b) Letter to M. H. Johnson, Director of Public Works, from W. R. Green, CalTrans District Director, dated November 14, 1984, Subject: Business 80 Sound Barrier

ENCLOSURE (A)

PETER KLAVENESS

Physicist • Consulting Acoustical Engineer

NOISE STUDY

FOR

CITY OF SACRAMENTO

LANDFILL EXPANSION PROJECT

PREPARED FOR THE

CITY OF SACRAMENTO

PUBLIC WORKS DEPARTMENT

BY

Peter Klaveness

PETER KLAVENESS

FEBRUARY 25, 1985

4600 Minnesota Avenue, Fair Oaks, Ca. 95628 Tel. (916) 967-6312

I. Introduction

This noise study has been performed to evaluate the potential noise impact of activites at the expanded City of Sacramento Sanitary Landfill on the River Park residential area.

The study has included measurement of existing noise levels at River Park from Business I-80 freeway and from the Southern Pacific train movements, and measurements of noise levels generated by the landfill activities. The topography of the area, as well as the planned operation characteristics, have been studied in detail. The calculated noise levels in River Park have been compared with the existing noise levels to determine audibility and eventual impact. Possible mitigation measures, including barriers along the freeway corridor and along the new landfill berm, as well as operational changes, have also been studied.

In performing the analysis, the emphasis has been placed on assessing the "worst-case" impact, as well as a more "normal" situation. The influence of the changeable atmospheric conditions on the noise levels has been studied, and the results are described herein.

II. Environmental Setting

The River Park housing tract is separated from the landfill expansion area by the Business I-80 freeway and the Southern Pacific Railroad tracks. The elevation of the streets in River Park varies between approximately 26 and 30 feet above sea level. The railroad runs on a levee with the top of the tracks at about 45 foot elevation. To the north River Park is bounded by the American River levee.

To the west, the freeway runs at a lower elevation than the site, under the railroad overpass, then increases in elevation toward the east to pass over the river levee onto the American River bridge. At the west side of River Park, the south freeway shoulder is approximately on grade with the homes, and near the levee it is approximately 20 feet above the elevation of the homes.

The south and east levee enclosing the landfill area is built up to elevation 48 and tapered down to merge with the railroad levee at its east end. The landfill levee is curved to provide a minimum distance to the nearest River Park home of 700 feet. The bottom of the landfill pit will be at an elevation of approximately 20 feet.

Business I-80 in this vicinity carries approximately 125,000 vehicles per day. Around 2 percent of this traffic are heavy trucks, and around 12 percent of the traffic occurs during the nighttime hours, between 10 p.m. and 7 a.m.

The Southern Pacific Railroad operations on the tracks near River Park are relatively numerous and include both shifting operations and through trains. The train speed is generally below 20 mph, and there is a sparing use of the warning horns. Since three tracks come together at this location, trains often have to wait for green lights, and they will stand idling along River Park for prolonged periods of time.

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III. Proposed Landfill Operation

The noise from the landfill is generated by packer trucks and other trucks moving and dumping, as well as by the compactors and bulldozers moving and compacting the waste and covering it with fill material. The packer trucks and other trucks bringing in material will follow a route along the bottom of the pit and dump from a rock base which is to be established near the north-east end of the pit.

The top of the rock base will be approximately 14 feet above the pit floor. The dozers and compactors will move the waste over the edge of the rock base, gradually enlarging it, eventuall filling the bottom of the north side of the pit. At that point, the waste will be packed up toward the south, building the elevation to full height, approximately 8 feet above the top of the landfill berm, elevation 56 feet. With this full height fill as a barrier, the filling will proceed back toward the north, remaining shielded as much as possible from River Park.

IV. Existing River Park Noise Levels

In order to assess the existing noise levels in River Park, measurements were performed for a total of 25 hours during January 24 and 25, 1985. Since the major noise source is the freeway, a main monitoring station was established hear the freeway right-of-way, near the west side of the residential development. At this location, the freeway shoulder is approximately on-grade with the homes, and the location represents the maximum freeway noise impact on the homes.

At the main monitoring station continuous measurements were performed using microprocessor controlled equipment. In adddition, noise levels were sampled throughout the neighborhood, back to a distance of approximately 1,200 feet from the freeway. The most distant monitoring location was at the intersection of Jennings and Breuner closest to Moddison Avenue.

These sample measurements were typically made over 15-20 minute time periods, using a manual sampling technique. The measurements were subsequently standardized against the concurrent data obtained at the continuous measurement stations. In this way, a relatively reliable mapping of the noise levels across the subdivision was possible.

The continuous measurements were performed using a Norwegian Electronics Sound Meter Type 108. This instrument measures the energy-average sound level, L_{eq}, which is used to calculate the day-night sound level, L_{dn}, and the Community Noise Equivalent Level, CNEL. It also measures other statistical parameters, such as the maximum and minimum levels, as well as those levels exceeded for certain percentages of the time, L_x. The results were presented on an alphanumeric printer, Norwegian Electronics Type 205.

The microphone was a Bruel and Kjaer 1/2 inch Condenser Microphone, Type 4165, equipped with a windshield, and extended away from the sound level meter on a tripod to an elevation of 6 feet above the ground. The A-weighted noise levels were measured, using "Fast" meter response. All instrumentation was calibrated before and after the measurements to assure accuracy.

The sample noise measurements were performed using a Genrad Company Sound Level Meter, Type 1933. Samples were taken approximately every 4 seconds, and the total number of samples determined by visual judgement of a clear trend in distribution. The analysis of these data was accomplished using a microcomputer based technique.

Traffic volumes on Business I-80 were registered simultaneously with the noise measurements.

The results of the noise measurements and traffic counts are presented graphically in Figures 1 and 2. The day-night sound level (L_{dn}) at the continuous measurement location was 75 dB. A summary of the noise level data measured at the sample locations is shown in Table I.

Table I

Noise Levels Measured at
River Park, Sacramento, January 24-25, 1985

Location and Time Period	Noise Levels, dBA L_{eq}	L_1	L_{10}	L_{50}	L_{90}	L_{99}
Baseball Field						
1420	54.6	58.0	55.4	53.7	52.5	52.0
1620	55.6	58.8	56.3	54.6	53.4	52.9
0010	46.2	50.5	48.0	45.1	42.2	40.0
0750	55.2	60.0	56.4	54.3	52.4	51.2
0955	54.0	56.0	54.9	53.4	51.8	50.5
3767 Erlewine Back Yard						
1520	68.2	74.0	69.9	67.9	66.1	64.0
2100	64.3	72.0	65.6	62.0	59.0	57.0
0315	58.5	71.0	60.5	53.0	44.2	38.9
1115	65.8	72.5	67.5	64.0	62.0	61.0
Jennings/Breuner						
1845	52.2	54.5	53.4	51.3	50.2	49.5
0105	36.1	39.5	37.0	35.3	33.6	33.0
0905	47.8	50.0	48.5	47.3	45.5	45.0
3811 Erlewine, Front Yard						
1640	57.9	60.0	59.0	57.1	55.7	55.0
0020	47.4	56.5	48.7	44.6	40.7	39.0
0900	53.7	56.0	54.7	53.0	51.5	51.0
3819 Moddison, Back Yard						
1745	54.9	58.0	56.0	53.9	52.5	52.0
3779 Erlewine, Front Yard						
0115	48.5	57.0	50.3	46.9	42.6	41.0
1105	56.6	63.5	57.5	55.6	53.6	53.0

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The data demonstrate that the noise environment is relatively stable during the daytime hours. These are the hours when a noise impact from the landfill operations would be most apparent, since these are the hours of landfill activity. Figure 3 shows some representative noise levels circled for various areas of the River Park subdivision. Double circled values are based on the field measured data, while values enclosed by only one circle have been calculated based on the topography of the area as well as the measurement data. These values have been used for evaluation of the intruding noises from the landfill operation.

Also within shorter time periods the noise levels vary only slightly once one is away from the direct presence of the freeway. The variation between the highest and lowest noise levels is, during daytime hours, typically within 4 dB (see the L_{10} and the L_{90} values, Table I).

The noise data registered along the freeway include all sources which, besides the freeway, mainly means the train traffic. The highest maximum noise levels are generated by train whistles. Also, the equivalent levels, L_{eq}, are at times strongly influenced by the trains, the most notable example being between 1 and 2 a.m. on the graph, where a train was stopped for approximately 45 minutes waiting for a green light.

For the other measurement locations, where manual sampling was performed, train noise was systematically excluded from the samples, both because the train noise is sporadic and it would require much longer sampling times to accurately include the train noise, and because the train noise is generally short-lived and therefore does not serve to mask the landfill noise in the way the constant freeway noise does. The train noise is considered an intrusion in the same manner as the landfill noise, and the registered train noise levels are presented to give a comparison, for the residents to subjectively evaluate the calculated landfill noise levels presented below.

Train noise levels measured throughout the study area range from the background values of 50-55 dBA to high values of 70 dBA or more, depending on train speed, the use of horns, etc.

V. Landfill Generated Noise Levels

Noise levels emitted by the landfill equipment were measured at the existing landfill. The vehicles generating the majority of the sound energy are the compactor and the two bulldozers distributing, compacting and covering the waste material. Of these, the compactor and the Komatsu dozer, are of new design and relatively quiet, emitting a maximum of 85-87 dBA at a 15 foot distance. These noise levels are typical of this type of heavy equipment, as was confirmed through measurement on two of the contractor's vehicles, a smaller Caterpillar D6 and a new Caterpillar D8L bulldozer. The final bulldozer, an older Caterpillar tractor, is significantly louder, generating up to 100 dBA at a 15 foot distance. This noise is generated mainly by the engines and exhaust systems. Track noise is minimal.

The backup warning horns mounted at the rear of the tractors radiate their sound very selectively toward the rear. At certain angles the level emitted by these may reach 100 dBA at a 15 foot distance, whereas at other

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angles the level can be lower than that of the engine. (These horns have to be loud enough that they are audible above the engine noise. However, because of their pure tone character they can be audible even though their level is below that of the engine noise.) The sound energy from the warning horns is concentrated above 1,000 Hertz.

Packer trucks and other heavy trucks dumping waste and cover material may sporadically generate levels as high as those of the heavy equipment. For the calculations of this report it has been assumed that one compactor and one bulldozer are operating, together with two trucks dumping. The total noise level for this combination will be approximately 92 dBA at an equivalent 15 foot distance.

For a worst case analysis, the older Caterpillar tractor has also been assumed running, with a total noise level of 100 dBA at 15 feet. The backup warning horns have likewise been assumed to generate 100 dBA at a 15 foot distance, for a worst case analysis.

VI. Discussion of Sound Transmission Phenomena

The transmission of the sound depends on several factors, including the operating elevation, the distance from the equipment to the River Park homes, and, to some extent, on the atmospheric conditions: wind speed and direction, as well as temperature gradients. In the case of the backup warning horns the orientation of the heavy equipment will also play a role for the audibility of the noise. It is a common experience when listening to a distant backup horn that it suddenly becomes stronger and then fades, depending on the aspect of the tractor.

Noise decreases with increasing distance from the source, since the available sound energy will disperse over a larger and larger area. Normally, this decrease is 6 decibels per distance doubling. However, for sound transmission between a source and a receiver close to the ground, sound absorbed in the ground itself adds to the sound attenuation, justifying a commonly accepted distance attenuation of 7.5 decibels per distance doubling. The maximum amount of excess attenuation from terrain absorption is, however, limited to around 10 dB.

Under certain atmospheric conditions sound is transmitted more, or less, effectively. For temperature inversion effects, where a layer of cold air is trapped near the ground, noise transmission is particularly effective; noise barriers become almost ineffective, and ground absorption is no longer effective, since the sound is reflected from the warm air layer above. This is a condition which rarely persists throughout the day, but which is normally limited to early morning hours on completely calm and clear days. Under these conditions, the normal dispersion model, allowing 6 dB per distance doubling, gives a relatively reliable estimate of the noise transmitted. Unusual conditions may occur in extreme cases, which are not considered in environmental impact analyses.

Wind affects sound transmission, mainly in providing extra attenuation for upwind or crosswind conditions. For downwind sound transmission no ground absorption is allowed.

When the equipment is below the berm, there will be an excess attenuation due to shielding. For equipment operating at the first proposed rock base at elevations around 40 feet (i.e., 6 feet above the 34 foot elevation rock base), the additional attenuation will be approximately 14 dBA. Shielding is, for most transmission paths, provided by the railroad levee as well as by the landfill berm. For the most northerly locations there is only one barrier, the railroad levee. For sound transmitted along this sightline, the distance is also greater, compensating in practical terms for the loss of one barrier. For equipment operating at the maximum landfill elevation, there will be no barrier attenuation.

The effect of a sound barrier is to force the noise to go "around a corner", which it does not do very well, and a "shadow zone" is thereby created. However, the barrier also raises the effective elevation of the sound source to the top of the barrier, so that one then has a weaker source at a higher elevation. This causes a loss of ground absorption which sometimes causes disappointing performance of highway barriers. Also, a sound barrier on top of the landfill berm will reduce the effective shielding of the railroad levee.

VII. Calculated Landfill Noise At River Park

The following noise levels have been calculated assuming a receiver elevation of 33 feet and source elevations of 40 and 60 feet, corresponding to the typical first "bench" elevation and maximum elevation, respectively. Atmospheric absorption is not included and may reduce actual noise levels by 1-3 dBA.

Table II shows calculated noise levels for "normal" conditions, i.e., no extreme transmission conditions. Noise levels are indicated both for a 100 dB and for a 92 dBA source. 700 feet is the closest any landfill vehicle will be to the residents of River Park. Measuring from the closest point on the landfill, a 1,000 foot radius will extend about to the cul-de-sac on Erlewine, 1,500 feet to the rear of the park with the baseball field, and 2,000 feet approximately to Jennings Way.

Table II

Calculated Landfill Noise Levels at River Park
Normal Sound Transmission Conditions, Source Elevation 40 Feet

Source Distance	Dist. Att'n.	Barr. Att'n.	Received Noise Levels, dBA 100 dBA Source	92 dBA Source
700'	42	14	44	36
1,000'	45	14	41	33
1,500'	50	13	37	29
2,000'	52	13	35	27

Table III shows the equivalent noise levels for a source elevation of 60 feet.

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Table III

Calculated Landfill Noise Levels at River Park
Normal Sound Transmission Conditions, Source Elevation 60 Feet

Source Distance	Dist. Att'n.	Barr. Att'n.	Received Noise Levels, dBA 100 dBA Source	92 dBA Source
700'	42	3	55	47
1,000'	45	3	52	44
1,500'	50	2	48	40
2,000'	52	2	46	38

Tables IV and V show similar noise data for two typical "worst case" sound transmission situations. Table IV shows levels calculated for a downwind condition, with equipment working below the landfill berm. Table V shows noise levels for the least favorable conditions envisioned. North-west winds, which under certain circumstances may cause such conditions, are relatively common during the winter months. Strong and stable inversion, causing barriers to be ineffective, is expected to be quite rare.

Table IV

Calculated Landfill Noise Levels at River Park
Downwind Sound Transmission Conditions, Source Elevation 40 Feet

Source Distance	Dist. Att'n.	Barr. Att'n.	Received Noise Levels, dBA 100 dBA Source	92 dBA Source
700'	33	14	53	45
1,000'	36	14	50	42
1,500'	40	13	47	39
2,000'	42	13	45	37

Table V

Calculated Landfill Noise Levels at River Park
Worst Case Sound Transmission Conditions, All Source Elevations
Also Representative of Downwind Transmission, Source Elev. 60 Feet

Source Distance	Dist. Att'n.	Barr. Att'n.	Received Noise Levels, dBA 100 dBA Source	92 dBA Source
700'	33	0	67	59
1,000'	36	0	64	56
1,500'	40	0	60	52
2,000'	42	0	58	50

One purpose in showing Tables II through V is to demonstrate the influence of the atmospheric conditions on the noise transmission. The difference between the noise levels received at a 2,000 foot distance (for the closest operating location, approximately at Jennings and Breuner) is as much as 23 dBA. This represents as much as a 500 percent increawse in perceived loudness. In other words, the sound may go from being undetectable to being quite noticeable.

VIII. Evaluation of the Noise Impact

For an impact evaluation, the above calculated noise levels must be compared with the existing background levels, which are indicated in Table I and in Figure 3.

Table II shows that for "normal" transmission conditions and with the equipment working down inside the pit, they will not be audible at all at River Park, as the noise levels reaching the homes will be up to 15-20 dBA below the existing daytime background levels.

The levels in Table III, for equipment working on top of the landfill at elevation 60, are also lower than those of the existing background noise, and the engine and exhaust noise is not expected to be audible. The landfill noise levels are as much as 10-12 dB below the ambient near the freeway, but this difference is reduced to 3 dB at the Jennings/Breuner location. The backup horns will, however, be audible throughout most of the subdivision for this condition. See discussion below.

The noise levels shown in Table IV for downwind conditions are similar to thos of Table III. The loss of ground attenuation is gained by the interposing landfill berm.

For the extreme noise transmission condition, landfill noise levels are comparable to the freeway noise near the freeway and about 10 dB higher at more distant locations. Noise from heavy trucks on the freeway will still be louder than the landfill operations. The numbers in Table I and on Figure 3 will not be accurate for extreme noise transmission conditions, since freeway noise, as well as landfill noise, will be transmitted more effectively under these conditions.

To assess the audibility and impact of the noise from the backup warning horns, the specific frequency content of the horn noise and the traffic noise must be considered. Figure 4 shows typical octave band noise levels at the baseball field and at the Jennings/Breuner location. Most of the sound energy of the backup horns is concentrated in the 1,000 Hertz octave band, so the dBA levels of Tables II through V should be compared with the levels shown for this band, i.e., 43 dB at Jennings/Breuner and 50 dB at the baseball field. This shows that the backup horns will basically be inaudible for normal conditions with the equipment operating below the edge of the pit. Equipment at elevation 60 will be audible when oriented with the maximum horn radiation toward River Park. For other orientations audibility of the backup horns will be marginal and not a dominating feature in the noise environment at River Park.

In conclusion, the above discussion shows the landfill operation to present no noise impact on the River Park community for the majority of the operation, where the equipment will be located below the level of the landfill berm.

During northwest wind conditions and when located above the level of the berm, the equipment will be audible at River Park. The noise of the heavy equipment will tend to blend with the noise of heavy trucks on the freeway, although it will probably be distinguishable because of its slightly different character. The backup warning horns will, for this condition, be audible much of the time, especially away from the freeway.

The River Park community is exposed to relatively high environmental noise levels in the area near the freeway. In addition, the train movements generate a significant short term noise impact. The levels generated by the trains on a regular basis generally exceed the highest levels calculated from the landfill for the least favorable conditions, i.e., for temperature inversion and no wind.

The total noise impact of the landfill operation on River Park residents must therefore be considered minor. The degree of impact is influenced by the mode of operation of the landfill. As long as the equipment is operated at lower elevations, there is little or no noise impact, and if this can be the prevailing operating condition, the impact will be minimized.

Section IX below presents a discussion of mitigation measures.

IX. Discussion of Noise Mitigation Measures

A. Noise Barriers

There are three existing noise barriers in the study area: the landfill berm, the railroad levee and the freeway shoulder. As summarily discussed above, these will give some attenuation of noise, to a varying degree depending on equipment location and operating elevation. For the north-easternmost homes in River Park the freeway shoulder provides shielding of both highway and potential landfill noise. For the more south-westerly homes, the existing roadway shoulder is too low to provide shielding of the landfill, and it mainly reduces the freeway noise by a smaller or larger extent.

A noise barrier on the landfill berm was considered by the City Public Works staff to mitigate the landfill noise. However, as described above, it will only be minimally effective, and only for the situation where the equipment is operating above 50 foot elevation. For the most acoustically favorable landfill operation this should only be a small proportion of the time. When the equipment operates at lower elevations, a noise barrier on the landfill berm will provide no, or at best, very little, additional attenuation.

In order for a mitigation measure to result in a detectable, it must reduce the noise impact by approximately 3 dB. Even without a barrier the noise impact as assessed in this study is minimal, and the extra cost for a noise barrier on the landfill berm will not be justified.

A noise barrier at the freeway shoulder will provide a degree of attenuation for both landfill and freeway generated noise. However, its usefulness will be limited to homes near the freeway alignment. An 8 foot high barrier along the freeway shoulder will provide approximately 6 dB attenuation of landfill noise levels and 6-10 dB attenuation of freeway noise, the higher value pertaining to the western portions of the frontage, where the existing shielding by the roadway shoulder is minimal. Farther east, away from the freeway, the noise attenuation from both sources due to the barrier will be limited to 3-4 dB at most.

The net effect of the highway noise barrier would, however, not reduce the audibility of the landfill noise, since both the impacting (landfill) and the masking (freeway) sources are approximately equally attenuated. Since freeway noise may even be more effectively attenuated than the landfill noise, the freeway noise barrier may increase the audibility of the landfill sources. As a landfill noise mitigation measure it is therefore not really effective.

The major noise problem near the freeway is the traffic noise and not the landfill noise, and a highway noise barrier will alleviate this problem and not appreciably the landfill noise.

B. Administrative Measures

The most effective noise mitigation measure available for this project appears to be in structuring the operation of the landfill to keep the equipment at a low elevation and/or shielded as much as possible. Thus, if the dumping from the packer trucks can still be performed at a low elevation after completion of the first "layer", up to elevation 34, and compaction occur uphill as much as possible, noise impact at River Park would be practically eliminated. This would also keep the bulldozers oriented with their backup warning horns pointed away from River Park.

If uphill compaction is found infeasible, another advantageous mode of operation would be to complete a full height landfill berm along the southern rim of the pit, up to elevation 56 or even higher, if fill dirt can be stockpiled in this area. The dumping could then occur at a higher elevation, but effectively shielded behind this temporary barrier.

X. Conclusion

Except for periods of extreme sound transmission conditions, the City of Sacramento expanded landfill will generate only a minor to insignificant noise impact on the River Park community south-east of Business I-80. A major reason for the low impact is that the area is already subject to substantial noise impact from highway sources, which will mask the landfill noise almost entirely.

Train generated noise represents a sporadic intrusion with levels up to over 70 dBA. Landfill noise will be significantly less intrusive than the railroad noise.

The only mitigation measures recommended for the operation concern the mode of operation of the landfill, keeping the heavy equipment and dump trucks at as low an elevation as possible and shielded from view from River Park.

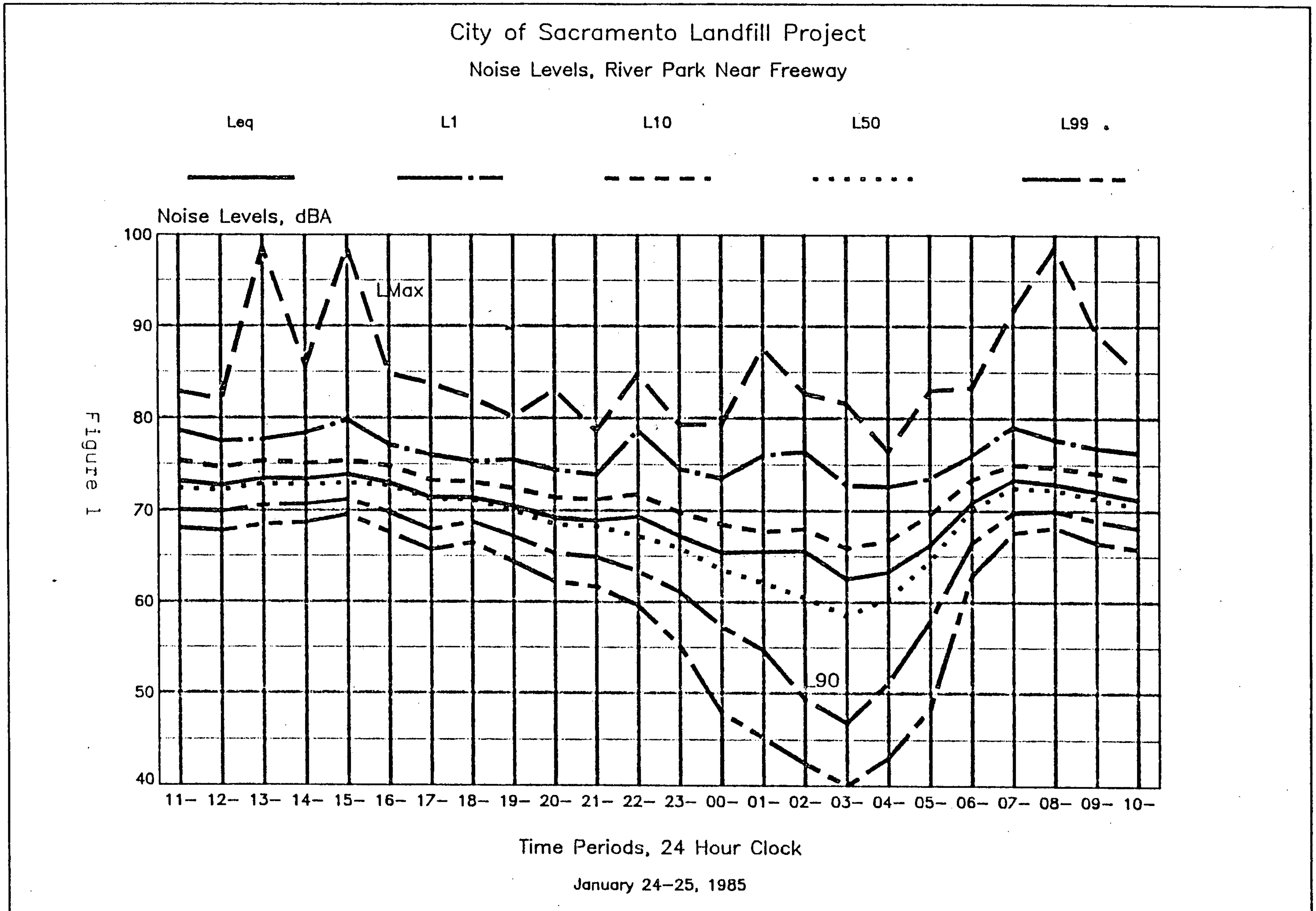
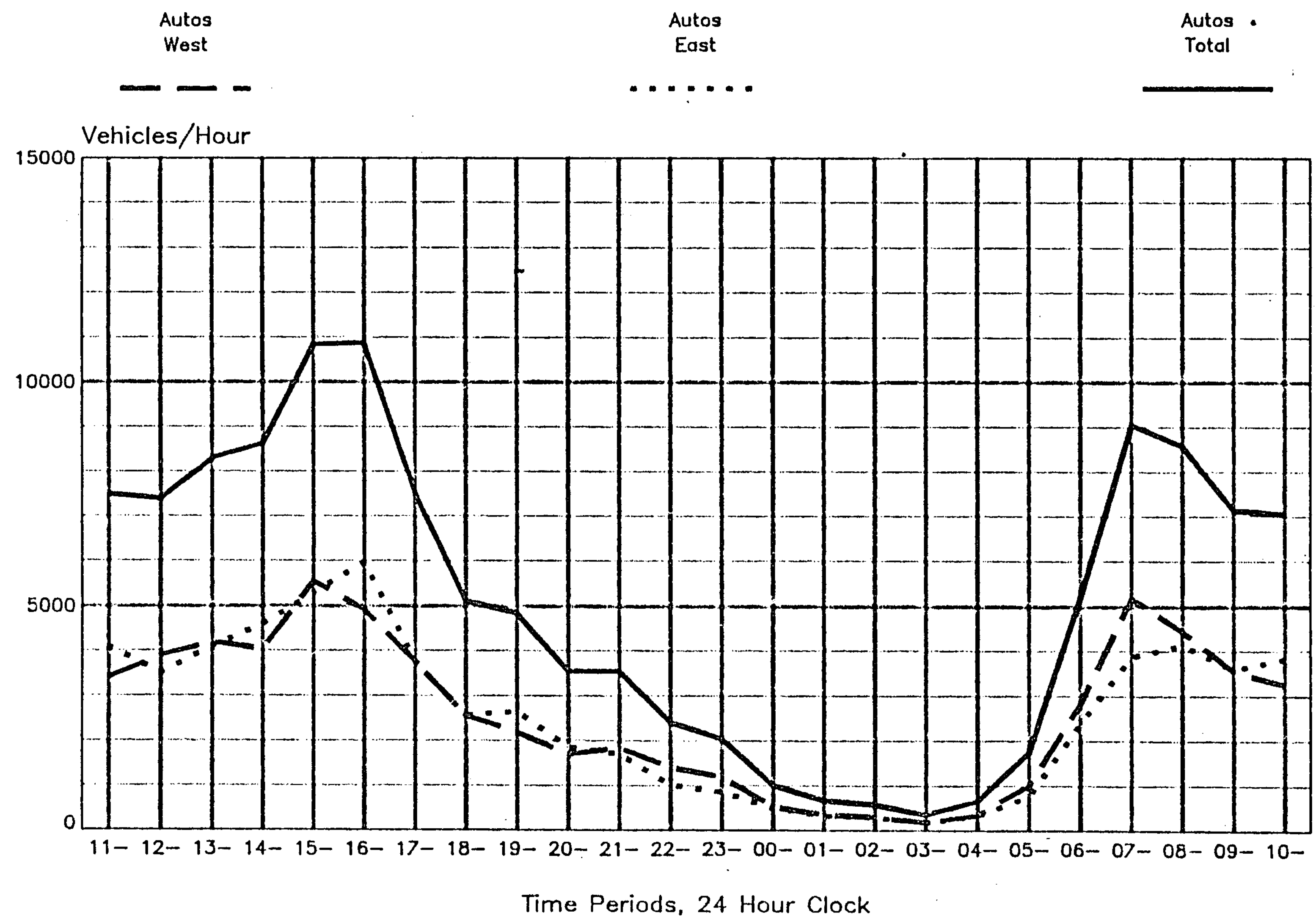


Figure 1

PETER KLAVENESS

City of Sacramento Landfill Project

Traffic Volumes, Business Loop 80



January 24–25, 1985

Figure 2

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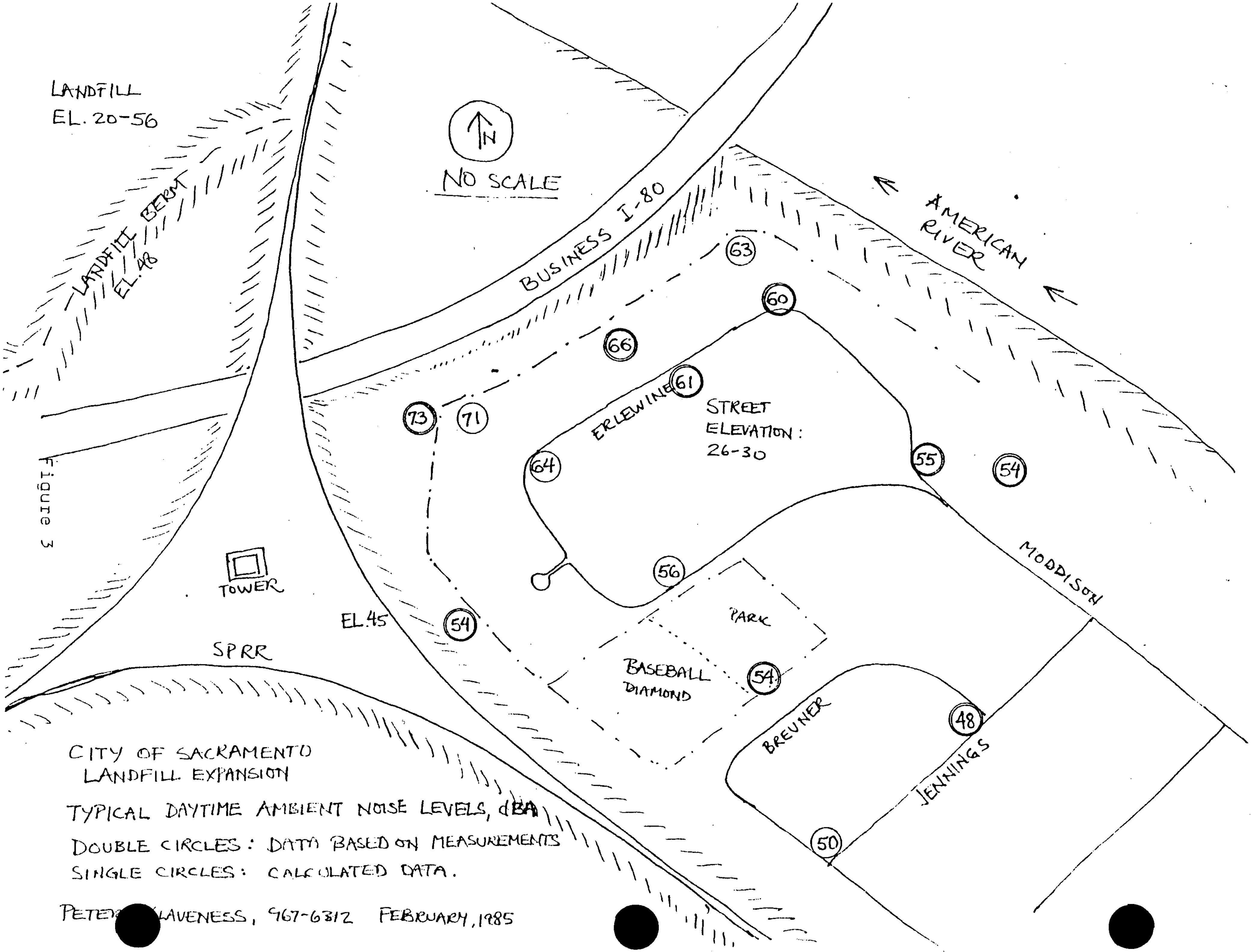
LANDFILL
EL. 20-56
NO SCALE
N
LANDFILL BERM
EL. 48
BUSINESS I-80
AMERICAN RIVER
63
60
66
61
73
71
64
55
54
ERLEWINE
STREET
ELEVATION:
26-30
TOWER
56
MODDISON
EL. 45
54
PARK
SPRR
BASEBALL
DIAMOND
54
48
BREUNER
JENNINGS
50
CITY OF SACRAMENTO
LANDFILL EXPANSION
TYPICAL DAYTIME AMBIENT NOISE LEVELS, dBA
DOUBLE CIRCLES: DATA BASED ON MEASUREMENTS
SINGLE CIRCLES: CALCULATED DATA.
LAVENESS, 967-6312 FEBRUARY, 1985

Figure 3

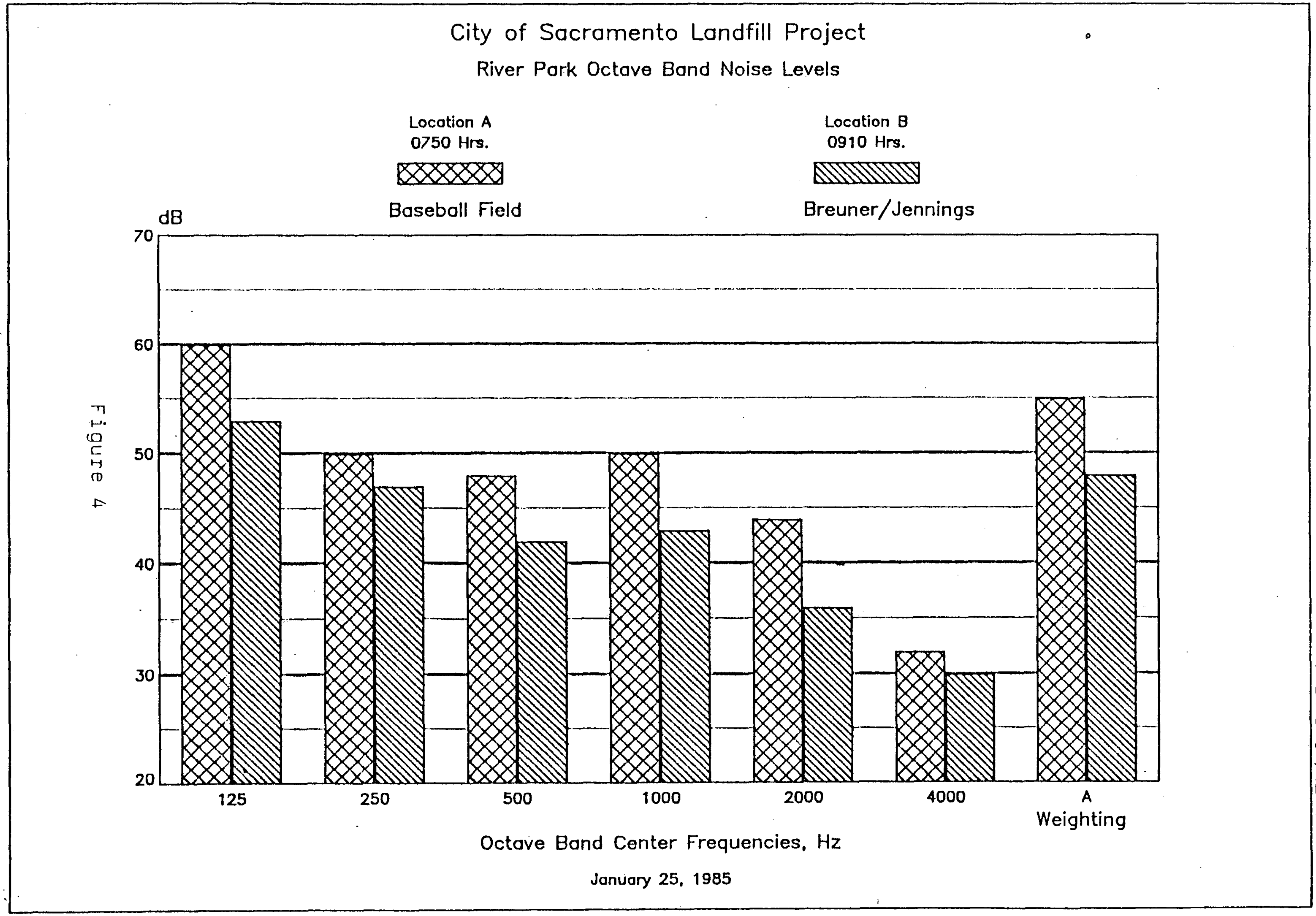

Figure 4

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ENCLOSURE (B)

STATE OF CALIFORNIA—TRANSPORTATION AGENCY

GEORGE DEUKMEJIAN, *Governor*

DEPARTMENT OF TRANSPORTATION
DISTRICT 3
P.O. BOX 911, MARYSVILLE 95901
Telephone (916) 741-4225

November 14, 1984

OCT 16 REC'D

03-Sac-51 2.4/2.6
Near River Park
Sound Barrier Inquiry
03210 - 910082 - 5924051

Mr. Melvin H. Johnson
Director of Public Works
City of Sacramento
City Hall, Room 207
915 I Street
Sacramento, CA 95814

Dear Mr. Johnson:

This is in response to your letter of November 7, 1984, regarding noise attenuation in the vicinity of River Park. The area near the proposed landfill expansion east of Business 80 (new Sac-51) is not on a sound barrier wall priority list.

The area in question is easterly from Interstate 80 between the Elvas Underpass of the railroad to the American River. Noise measurements taken in 1982 along Erlewine Circle indicated the noise levels were below the Leq. 67 dBA that Caltrans attempts to attain by construction of sound barrier walls. Therefore, this location was dropped from consideration as a candidate for the priority list for noise abatement. Any noise walls constructed at this location would have to be funded by others.

At one time it was estimated that approximately 840 feet of wall 14' to 16' high would be required at the right of way line to break the truck line of sight to the 12 or 13 homes that abut the freeway. This could cost up to $200,000.

Sincerely,

W. R. GREEN
District Director of Transportation

2. Various Zoning Ordinance Amendments

DISCUSSION: Art Gee, Principal Planner, made some general comments to the committee regarding the proposed Zoning Ordinance Amendments and answered committee questions.

REPORT(S) BACK: None

ACTION: The Commitee adopted staff's recommendation with the suggestion that staff make one last check with interested parties, i.e., Chamber of Commerce, Building Industry Association, and the Sacramento Board of Realtors, to make sure there is no misunderstanding of the contents of this report.

3. State Enterprise Zone Proposal

DISCUSSION: John Malloy discussed the report and answered committee questions.

REPORT(S) BACK: None

ACTION: The Committee acknowledged receipt of the report and approved recommendations of staff.

TRANSPORTATION AND COMMUNITY DEVELOPMENT COMMITTEE
MINUTES

Date: March 13, 1985
Time: 3:00 p.m

Committee Members Present: Terry Kastanis, Chair, Tom Chinn, William Smallman, Grantland Johnson

Non-Committee Members Present Doug Pope

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1. Noise Study for City Landfill Expansion Project

DISCUSSION: Reggie Young, Deputy Director of Public Works - Public Services, explained that based on the study performed by Peter Klaveness, Consulting Acoustical Engineer, a noise barrier on the landfill berm would only be minimally effective and that even without a barrier the landfill noise impact, as assessed, would be minimal. Mr. Young also briefly discussed staff's recommendation to place a six-foot cyclone fence with redwood slats on the landfill berm. Peter Klaveness was introduced to the Committee, discussed his study, and responsed to committee questions. He explained that the expanded landfill would only generate a minor to insignificant noise impact on the River Park community due to the substantial noise impact created by highway sources which would mask the landfill noise almost entirely. The Committee approved staff's recommendation to place the cyclone fence on the landfill berm but requested that the fence be landscaped with some type of rapid growing greenery.

REPORT(S) BACK: The committee requested that staff meet with the River Park Area Committee to get their comments on this item, and to report back with a landscaping plan that will take care of the city-owned property and the berm.

ACTION: The Committee acknowledged receipt of the report and recommended that it be filed.

Transportation & Community
Development Meeting

March 13, 1985

Agenda Items

1. Noise Study for City Landfill Expansion Project

2. Various Zoning Ordinance Amendments

3. State Enterprise Zone Proposal