



# FAIRFAX COUNTY

**RZ/FDP APPLICATIONS AMENDED:** May 15, 1999  
**PLANNING COMMISSION PUBLIC HEARING:** June 17, 1999  
**PLANNING COMMISSION DECISION:** April 13, 2000  
**BOARD OF SUPERVISORS:** April 24, 2000

V I R G I N I A

April 12, 2000

## STAFF REPORT ADDENDUM II

**APPLICATIONS PCA 84-V-131, SEA 84-V-131  
& RZ/FDP 1998-MV-059**

### MOUNT VERNON DISTRICT

**APPLICANT:** Shawnee Road, L. C.

**PRESENT ZONING:** PCA/SE A  
R-5 (52.77 acres)  
  
RZ/FDP (60.55 acres)  
R-4 (12.70 acres)  
C-2 (47.85 acres)  
Historic Overlay (HD) (3.65 acres)

**REQUESTED ZONING:** PDH-4 (60.55 acres)  
HD (3.65 acres)  
R-5 (40.07 acres to remain R-5)

**PARCEL(S):** 108-1 ((1)) 47A and 47B (PCA and SEA)  
108-1 ((1)) 47 and 47A (RZ/FDP)

**ACREAGE:** 52.77 acres (PCA/SEA)  
60.55 acres (RZ/FDP)

**DENSITY:** 9.53 acres (Existing Elderly Housing on 40.07 acres  
remaining in R-5 District)  
4.23 du/ac (Proposed PDH-4 District)

**OPEN SPACE:** 22.50 acres (55 percent of area Remaining R-5)  
15.14 acres (25 percent of Proposed PDH-4)

**PLAN MAP:** Residential at 5-8 du/ac (Parcels 47A and 47B) and  
Office (Parcel 47) with an option for Residential  
Development at 4-6 du/ac on Parcel 47 and 47A

**SE CATEGORY:**

Category 3, Housing for the Elderly

**PROPOSAL:**

PCA/SEA: Reduce land area; reduce the number of elderly housing units; reduce the density of the Housing for the Elderly

RZ/FDP: Rezone to PDH-4 to develop 108 single family attached dwelling units and 148 single family detached dwelling units for a total of 256 units

**REQUESTED WAIVERS:**

Two Hundred (200) square foot privacy yard for single family attached dwelling units  
Service Drive on Richmond Highway  
Limitation on the Length of Private Streets  
Peripheral Parking Lot Landscaping

**STAFF RECOMMENDATIONS:**

Staff recommends that PCA 84-V-131 be approved subject to the execution of the draft proffers contained in Attachment 1.

Staff further recommends that SEA 84-V-131 be approved subject to the proposed development conditions contained in Attachment 2 and that the peripheral parking lot landscaping be modified as depicted on the SE Plat.

Staff further recommends that RZ 1998-MV-059 be approved subject to the execution of the draft proffers contained in Attachment 3 and that FDP 1998-MV-059 be approved subject to the Board of Supervisors approval of RZ 1998-MV-059 and the proposed development conditions contained in Attachment 4.

Staff further recommends that, in conjunction with the approval of RZ 1998-MV-059, the requirement for a 200 square foot privacy yard for single family attached dwelling units be modified pursuant to the provisions of Sect. 6-107, that the limitation on the length of private streets be waived, and that the requirement for a service drive on Richmond Highway be waived.

It should be noted that the sewer pump station serving this property may be inadequate. It is the responsibility of the applicant to ensure that the pump station is adequate and to make any necessary modifications to provide sufficient capacity. Should the Board approve this application, that approval in no way guarantees that sewer capacity will be available to serve this site when the property is developed.

It should be noted that it is not the intent of the staff to recommend that the Board, in adopting any conditions proffered by the owner, relieve the applicant/owner from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

It should be noted that the content of this report reflects the analysis and recommendation of staff; it does not reflect the position of the Board of Supervisors.

For information, contact the Zoning Evaluation Division, Department of Planning and Zoning, 12055 Government Center Parkway, Suite 801, Fairfax, Virginia 22035-5505, (703) 324-1290.



Americans with Disabilities Act (ADA): Reasonable accommodation is available upon 7 days advance notice. For additional information on ADA call (703) 324-1334.

## **BACKGROUND**

At the previously scheduled date for Planning Commission decision on these cases, the Planning Commission deferred the decision date for one month. This action was taken in response to a request from the Office of the Garrison Commander, Fort Belvoir, to allow time for the Army to prepare a response to the noise study undertaken by the applicant. A copy of the letter sent by the Garrison Commander to James P. Zook, Director, Fairfax County Department of Planning and Zoning is in Attachment 1.

The deferral was granted with an understanding that the response from the Army would be delivered to the County by April 3, 2000, which would have allowed the County staff time to analyze the data and conclusions presented by Fort Belvoir and to provide the Commission with a staff analysis prior to the scheduled decision date of April 13, 2000. However, the Army's report was not delivered to staff until Tuesday, April 11, 2000, and staff has not had an opportunity to evaluate it fully. A copy of the report prepared by the Army is included as Attachment 2. This report recommends that the noise exposure be further refined due to what the Army identifies as the 'failures' of the agreed upon protocol, the NOISEMAP computer model, to address helicopter noise impacts adequately due to the particular nature of helicopter noise, and the effects of topography and weather conditions. The report recommends that additional study be undertaken to measure noise impacts of actual helicopter operations at the height of the highest windows of the units to be constructed on the application property in a variety of weather conditions.

Revised proffers for RZ 1998-MV-059 are included as Attachment 3. A copy of the revised Proposed Development Conditions for the Final Development Plan (FDP 1998-MV-059) are included as Attachment 4. A copy of the proffers for PCA 84-V-131 are in Attachment 5 and the proposed development conditions for SEA 84-V-131 are in Attachment 6. A reduction of the Conceptual/Final Development Plan (CDP/FDP) for the PDH-4 District is included as Attachment 7 and a reduction of the combined Generalized Development Plan/Special Exception Plat (GDP/SE Plat) is in Attachment 8. The development plans are unchanged since the publication of the previous addendum. Copies of the Locator Maps are in Attachment 9.

## **DISCUSSION**

### **Noise Related to Activities at Davison Army Air Field**

As noted in the previous staff report addendum, dated March 9, 2000, the noise analysis prepared by Wyle Laboratories, using the Department of Defense approved model to simulate noise, concluded that the application property would not be subjected to noise levels above 60 dBA. This conclusion remains the same even if the current level of traffic at Davison Airfield were to increase by 500 percent. The noise analysis was based on a protocol for the study that was mutually agreed to by the Army, the County Staff and the applicant.

Staff further recommends that SEA 84-V-131 be approved subject to the proposed development conditions contained in Attachment 2 and that the peripheral parking lot landscaping be modified as depicted on the SE Plat.

Staff further recommends that RZ 1998-MV-059 be approved subject to the execution of the draft proffers contained in Attachment 3 and that FDP 1998-MV-059 be approved subject to the Board of Supervisors approval of RZ 1998-MV-059 and the proposed development conditions contained in Attachment 4.

Staff further recommends that, in conjunction with the approval of RZ 1998-MV-059, the requirement for a 200 square foot privacy yard for single family attached dwelling units be modified pursuant to the provisions of Sect. 6-107, that the limitation on the length of private streets be waived, and that the requirement for a service drive on Richmond Highway be waived.

It should be noted that the sewer pump station serving this property may be inadequate. It is the responsibility of the applicant to ensure that the pump station is adequate and to make any necessary modifications to provide sufficient capacity. Should the Board approve this application, that approval in no way guarantees that sewer capacity will be available to serve this site when the property is developed.

It should be noted that it is not the intent of the staff to recommend that the Board, in adopting any conditions proffered by the owner, relieve the applicant/owner from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

It should be noted that the content of this report reflects the analysis and recommendation of staff; it does not reflect the position of the Board of Supervisors.

## **ATTACHMENTS**

1. March 9, 2000 Letter from Garrison Commander, Fort Belvoir to James Zook, Director, Department of Planning and Zoning
2. Environmental Noise Consultation 52-EN-4828-00, Noise Monitoring at Davison Airfield, February-March 2000, Fort Belvoir, Virginia
3. Revised Proffers for RZ 1998-MV-059 dated April 6, 2000
4. Proposed Development Conditions for FDP 1998-MV-059
5. Proffers for PCA 84-V-131
6. Proposed Development Conditions for SEA 84-V-131
7. Reduction of the CDP/FDP for RZ 1998-MV-059
8. Reduction of the GDP/SE Plat for PCA 84-V-131 and SEA 84-V-131
9. Locator Maps

To aid in addressing possible concerns by the staff at Fort Belvoir, the applicant has proffered to extend an existing easement, put in place pursuant to the proffers for RZ 84-V-131, to allow aircraft noise up to 75 dBA and point source noise up to 130 dBA to impact the site. The proffers continue to include provisions requiring notice of the proximity of Davison Airfield at the time of sale, in the Homeowner's Association documents and as part of each deed. In addition, staff recommends that a development condition requiring noise attenuation to attenuate an assumed 65 dBA noise impact to a level of 45 dBA in the interior of a dwelling be provided as part of the construction of all units on the property. The applicant has proffered to provide such attenuation for the units affected by noise from Richmond Highway but has declined to provide a proffer for all units. However, the staff recommended development conditions for the FDP include this requirement.

#### Inter-parcel Connection to Belvoir Woods Drive

To address the issue of providing an inter-parcel connection to Belvoir Woods Drive, a compromise solution has been reached. Staff recommended that a connection be provided so that the residents of the Fairfax Retirement Community and the future residents of the proposed residential development would have access to the future signalized intersection on Richmond Highway and to Telegraph Road. The proffers have been revised to include an option for a future connection provided that the residents of the Fairfax determine that such a connection is desirable. Left turns to go north on Richmond Highway are possible now because there is no median precluding such turns. However, the VDOT project to improve the intersection of Richmond Highway and Telegraph Road will construct a median and left turns from Belvoir Woods Drive will no longer be possible.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

The information and analysis provided by the noise study prepared by Wyle Laboratories demonstrates that none of the proposed dwelling units would be located within an area projected to be impacted by noise above 60 dBA based on a noise model that is similar to those used to determine the impacts of other airports in the County. The conclusions of that analysis and the noise projections derived from that analysis were based upon an agreed upon protocol for that study.

The compromise solution regarding Belvoir Woods Drive is appropriate in that it provides an opportunity for the residents of the Fairfax to determine if the connection should be made after the closing of left turn access onto Richmond Highway at Belvoir Woods Drive.

### **Recommendations**

Staff recommends that PCA 84-V-131 be approved subject to the execution of the draft proffers contained in Attachment 1.



**DEPARTMENT OF THE ARMY**  
**HEADQUARTERS, U. S. ARMY GARRISON, FORT BELVOIR**  
**9820 FLAGLER ROAD, SUITE 215**  
**FORT BELVOIR, VIRGINIA 22060-5928**

ATTACHMENT 1

REPLY TO  
ATTENTION OF

March 9, 2000

Office of the Garrison Commander

Re: RZ/FDP 1998-MV-059, Shawnee Road LCC

Mr. James Zook, Director  
Fairfax County Department of Planning & Zoning  
12055 Governmental Center Parkway, Suite 801  
Fairfax, Virginia 22035-5509

Dear Mr. Zook:

This correspondence is the U.S. Army Fort Belvoir interim response to the proposed rezoning of the Shawnee Road LCC property adjacent to Davison Army Airfield (DAAF) at Fort Belvoir. Any rezoning decision at this time is unwise and does not have Army concurrence for the reasons detailed below.

I realize the importance of making a timely decision on this matter to both the zoning board and the property owner, but I believe it is in the best interest of all concerned parties for you to make an informed decision based on all available facts. Therefore, I ask that you postpone the scheduled decision date of March 16, 2000, for approximately one month for the reasons explained below.

As explained in previous correspondence and other communications with you, DAAF performs missions critical to the United States Department of Defense (DoD) and the Army. My obligation, as the representative of DoD and the Army on this matter is, first and foremost, to protect the capability of DAAF to perform its current mission, as well as future missions. Also of importance to me is protecting the potential homeowners who might reside in the planned property development from unreasonable nuisance noise levels. I do not desire to unreasonably interfere with the current property owner's development plans provided those plans are compatible with airfield operations.

**"EXCELLENCE THROUGH SERVICE"**

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Fort Belvoir only recently received the January 2000 draft Wyle Laboratories Noise Study of DAAF that was prepared for JCE, Inc. The report was originally scheduled to be completed April 1, 2000, but was finished a month early. My staff, as well as the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), the Army's noise "experts", have reviewed the report. Comments on this report, as submitted to Wyle Laboratories, are included as an enclosure to this letter. The report leaves significant noise issues unresolved.

As discussed in the enclosed comments, the Wyle noise study was unable to create data for and assess impulse noise; a significant issue at DAAF given the high density use of helicopters that produce impulse noise from rotor blades. The NoiseMap program used to model the noise conditions at DAAF does not adequately assess "blade slap", a form of impulse noise generated by helicopter blades. The subject report makes no mention of the "blade slap" issue or impulse noise in general, but rather describes noise conditions based on Day-Night Average Sound Levels (DNL). When the impulse noise issue was originally identified during noise study discussions between Wyle Laboratories and USACHPPM, Fort Belvoir made arrangements to conduct an additional impulse noise study and still meet the previously established completion date, 1 April, for the Wyle noise study. The Army is currently gathering data and creating a noise report devoted strictly to the issue of "blade slap" levels at DAAF. Wyle Laboratories is aware of this deficiency and the Army's current testing. USACHPPM is scheduled to complete their test report on April 1, 2000, coinciding with the originally planned completion date of the Wyle Laboratories noise study.

In addition to the "blade slap" issue, the USACHPPM comments also point out another problem with the Wyle Laboratories noise study. The study does not discuss the projected noise levels once the subject property has been cleared of vegetation for development, nor does it discuss the projected noise levels one would expect to encounter at elevations similar to those of three-story housing, the style planned for this development. Clearly, the noise levels would be higher than those documented in the Wyle Laboratories noise study.

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The reason impulse noise level information, as well as vegetation clearing and height levels, must be considered in this zoning decision is that the Wyle Laboratories noise study documented noise levels near the property line very close to the limit of 60 dBA for residential construction set out in the Fairfax County noise ordinance. If average sound levels at the property line are already near the county ordinance limit, removing large amounts of vegetation, having three-story level construction, and generating significant amounts of impulse noise on top of average noise could clearly violate the county ordinance and subject potential property owners to unreasonable "nuisance" noise levels.

Basing the rezoning decision strictly on the results of the Wyle Laboratories noise study, is in my judgement, premature. The Army's supplemental noise study includes the placement of direct measurement noise monitors in two directions between DAAF and Route 1 in order to capture the actual noise levels of individual events from the airfield (impulse noise), as well as traffic noise. This study will describe the current noise levels generated from Route 1 traffic and will project future noise levels by considering future traffic conditions, including the planned widening of Route 1. The Army is taking these extra precautions because the noise levels indicated in the Wyle Laboratories draft noise report near the subject property line are borderline to the threshold level of 60dBA set in the Fairfax County noise ordinance.

The Army requests that any rezoning decision be delayed for approximately 30 days pending further evaluation of the Wyle study and receipt of a final report from USACHPPM concerning the additional impulse noise study. I ask that you notify Mr. Patrick McLaughlin, Chief, Environmental and Natural Resource Division, Fort Belvoir, at (703) 806-3193 if you decide not to grant my request so that Fort Belvoir representatives can attend and participate in the currently planned March 16 rezoning proceedings.

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As a final matter, should the Planning Commission determine to proceed to decision without waiting for this additional noise study, I want to make clear that the Army does not concur in rezoning the subject property. In addition, should the commission rezone the property over the Army's objection, then I request the commission set, as a condition of rezoning, a requirement for the property owner to provide the Army a formal noise easement for the entire property that is identical to the noise easement the Army already possesses on approximately one-third of the subject property for which rezoning is sought.

I appreciate your consideration and patience in this matter. I hope you agree that the Army's concerns are just and fair, and that a postponement of the decision date is warranted and outweighs any short-term inconvenience.

Sincerely,



Kurt A. Weaver  
Colonel, U.S. Army  
Garrison Commander

Enclosure

CF: (via FAX)  
Mr. Gerry Hyland, Mt. Vernon District Supervisor  
Mr. John Byers, Chairman, Mount Vernon Planning Commission  
Mr. John Cowles, President, JCE, Inc.

9 March 2000

**Fort Belvoir's Comments on Wyle Draft Noise Study (DAAF) dated  
January 2000**

General Comments:

- "Blade Slap", which is commonly used to describe the impulse noise generated by the blades of helicopters, is not addressed in the report. From a practical standpoint, this report is the result of the observed potential for noise complaints, should the subject property be developed. Impulse noise is the general source of nuisance noise, and should be addressed as such. See next comment.
- There is a constant use of the Day-Night Average Sound Level (DNL) values, when the maximum levels of the individual events should be used (i.e., speech interference paragraph A2.4).
- NoiseMap Version 6.5 does not include terrain or vegetation in its propagation algorithms. Clearing the subject property will have some effect on the actual noise levels that will be observed, potentially increasing them by five dB.
- Noise levels observed on the third floor of a townhouse located within the subject property will be higher than the predicted contours because the ground attenuation will not be present. Although there is no accepted means to analyze these conditions, it is expected to increase the noise levels as much as 5 dB.
- From the data presented, the number of annual busy day operations cannot be determined. The approach of using 91 percent of the operations over 56 days appears valid, but it is not clear how this approach was implemented. There should be an appendix containing the NOISEMAP inputs.
- The noise contours generated and displayed in the report terminate at 55 dB. Since NoiseMap does have the capability to model noise levels at lower intervals, the report should indicate what levels (as projected by NoiseMap) would intrude upon the subject property.
- Fort Belvoir agrees with the operational numbers indicated in the report as verified by CPT Ivey.

Specific Comments:

1. Page 1-2, paragraph 1, change "Environmental Hygiene Agency" to "Center for Health Promotion and Preventive Medicine"
2. Page 1-4, paragraph 1, change "Noise Limit Zone" to "Noise Zone" (4 Places)
3. Pages 3-2 and 3-3, Table 3-1, Number of arrivals do not equal number of departures.
4. Page 3-4, Table 3-2, Same as comment 3.
5. Pages 4-2 and 4-3, Table 4-1, Same as comment 3.
6. Page A-12, paragraph 2, non-auditory health effects can occur at lower levels than hearing loss.
7. Page A-13, paragraph 6, the threshold of community noise annoyance depends on the ambient levels, and in many locations is lower than 55 dB
8. Page A-14, Section A2.4 - Speech interference is a function of the instantaneous sound level and cannot be compared with the long-term average as implied.
9. Pages A-18 and A-19, the thresholds of 0.5 m/s/s and 1.0 m/s/s are very low. The thresholds are usually 0.5 m/s and 1.0 m/s.
10. Pages A-19 and A-21, references A23 and A24 are not included in the listing of references.
11. Page A-20, Section A2.8 has no value in this assessment since there are no hills that could cause a landslide or avalanche.
12. Figures B-58-B-66, the power setting for the UH-60A should not be 120 percent.



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE  
5158 BLACKHAWK ROAD  
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

MCHB-TS-EEN (200)

07 APR 2000

MEMORANDUM FOR Commander, U.S. Army Garrison, ATTN: DIS-  
ENRD (Mr. McLaughlin), Fort Belvoir,  
VA 22060-5130

SUBJECT: Environmental Noise Consultation 52-EN-4828-00, Noise  
Monitoring at Davison Army Airfield, February-March 2000, Fort  
Belvoir, Virginia

- 1. REFERENCES. List of the references used in this consultation are in enclosure 1.
- 2. AUTHORITY. Telephone conversation between Mr. Mark McCullars, Fort Belvoir, and Dr. George Luz USACHPPM, 20 December 1999.
- 3. PURPOSE. Measure the noise environment from aircraft operations and Route 1 traffic near Davison Army Airfield, Fort Belvoir, VA, in response to proposed residential development and related compatible land use and zoning concerns.

4. BACKGROUND.

a. This study was conducted at the request of Fort Belvoir in response to concerns related to a proposed residential development located along the west boundary of Davison Army Airfield (DAAF) and immediately north of and adjacent to Route 1 (Shawnee Road L.C. property, Cook Inlet).

b. In 1997, in response to increased awareness and concern regarding environmental noise in Fairfax County, the 1990 Comprehensive Plan was amended to minimize human exposure to unhealthful levels of transportation noise. Indicating that multifamily development is not appropriate in areas designated as "Low Density Residential Area", county officials determined that areas subject to airport noise greater than DNL 60 dBA should be avoided, rather than the previously stated DNL 65 dBA threshold. The U.S. Environmental Protection Agency cites 55 dBA as a long term goal.

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- March 2000, Fort Belvoir, Virginia

c. Several studies assessing the noise environment in this area have been completed to date, including the Wyle Laboratories Draft Aircraft Noise Study dated January 2000. Although these studies, performed under contract to the developer, fail to identify noise levels which are considered incompatible with residential land use per Fairfax County policy, Fort Belvoir continues to recognize the potential for noise complaints from future landowners. Mission critical operations, both present and future, could be compromised through persistent noise complaints from the public.

d. In spite of noise contours generated with the computer model, NOISEMAP, by Wyle Laboratories (enclosure 2), Fort Belvoir officials continue to believe there is a potential for noise complaints from the proposed development. Residents living outside the 55 dB contour (EPA, 1974) would not be expected to complain about noise from DAAF. Yet people do complain, and at least one has complained to a Congressman. In November 1998, in response to noise complaints from Newington, located northwest of DAAF, Fort Belvoir asked the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) to measure the DNL at the home of the complainant. Measured DNL was 55.2 dB, a level that approaches the U.S. Environmental Protection Agency's long-term goal for U.S. homes (EPA, 1974). During the measurements, the sound of aircraft from DAAF was audible but not measurable. While conceding that the noise was not annoying at that time, the complainant and two neighbors maintained that the noise is very annoying on some occasions (enclosure 3).

e. In seeking an explanation for intermittent annoyance, USACHPPM noted that the homes in Newington were at a higher altitude than DAAF. Differences in elevation pose a special problem for computer-based modeling of community noise, because most of the computer models, including the version of NOISEMAP used by Wyle Laboratories, are "flat-terrain" models. Some experts adjust the prediction of flat-terrain models upward to compensate for higher levels at the top of hills. For example, San Luis Obispo County, California, adds an adjustment to the Federal Highway Administration (FHWA) model when a hillside overlooks a roadway (SLO County, 1992). There is no adjustment for properties less than 200 feet from the road, a 1

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dB adjustment for properties between 200 and 400 feet, and 3 dB at distances greater than 400 feet. Similarly, USACHPPM found that troops training with grenade simulators should keep the explosions at least 300 meters from homes if the explosions and homes are on the same plain and at least 1,000 meters from homes located uphill from the explosions (USACHPPM, 1999).

f. The possibility that noise from DAAF propagates more efficiently to elevated locations than over level ground is significant in understanding the potential for complaints at Cook Inlet, which is elevated in comparison to the airfield. Not only are these home sites receiving aircraft noise from DAAF but traffic noise from Route 1 as well. If elevated structures receive more noise than predicted by flat terrain models, the residents of the proposed two and three story homes in Cook Inlet may experience a higher noise exposure than predicted in the Wyle Laboratories report.

g. CHPPM conducted onsite noise measurements over the period 7 February to 7 March 2000 in order to evaluate the importance of the traffic noise and interaction between helicopter noise and elevated terrain.

## 5. Procedures.

a. Measurement Sites. Enclosure 4 shows the location of the seven measurement sites. These sites are arranged along two vectors. One vector started at the DAAF runway and moved out from that runway southwest toward the subject property and Route 1. The other vector started at Route 1, near the boundary of Shawnee Road property, and moved out due north perpendicular to Route 1 and in the direction of runway. The highway vector included three sites, the farthest of which was on top of a small hill. In this report, this last site is referred to as the "hill site." The runway vector included five sites with the fourth site being the "hill site."

b. Plotting of data. Sound levels are routinely plotted as the logarithm of distance (enclosures 5-7). This is done because noise sources drop by an even number of decibels for every doubling of the distance.

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c. Measurement Instrumentation. Sound level measurements were collected with automated noise monitors manufactured by Larson-Davis Laboratories (LDL Model 870). Each instrument registered sound levels through a 1/2 inch microphone. These instruments operated 24 hours a day. Each instrument was calibrated with a calibrator certified to be in compliance with NTIS standards before the measurement period began and recalibrated at the end of the measurement period. Measurement periods extended up to 7 days. At the end of a measurement period, the data were downloaded into a computer in the form of Excel spreadsheets.

d. Acoustic Measures. We used three measures of sound. The simplest was the maximum A-weighted sound level. This measure is the highest decibel reading, A-weighted fast, during a single pass by of an aircraft. The equipment was programmed to register the highest maximum level in each successive minute of the study. The equipment also registered the energy-average sound level during each minute, i.e. the one-minute equivalent level or  $LEQ_{(1 \text{ min})}$ . For a single pass by of an airplane, the  $LEQ_{(1 \text{ min})}$  is less decibels than the maximum. The third measure, the day-night level or DNL, was calculated from the  $LEQ_{(1 \text{ min})}$  data. In calculating the DNL, the  $LEQ_{(1 \text{ min})}$  data were energy-averaged into a 15 hour daytime LEQ (all data between 0700 and 2200) and a 9 hour nighttime LEQ (all data between 2200 and 0700). The 9 hour night LEQ was then given a 10 dB penalty and combined with the day LEQ to give a 24 hour time-weighted LEQ. The DNL is the measure reported by Hessler Associates (1999) and predicted by Wyle (2000). Not used in this study were data on unweighted peak. Although unweighted peak would be the purest measure of impulsivity and although we have these data for each successive minute, they are subject to contamination from wind. The CHPPM noise team generally does not use peak levels unless an observer is present to confirm the source.

e. Interpreting Maximum Level. Rylander et.al. (1974) and Rylander and Bjorkman (1988) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day, is the maximum level of the three noisiest events. DAAF averages 85 operations per day (Wyle, 2000). The guidelines from Rylander are shown in Table.

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Measurement of Aircraft Noise at Davison Army Airfield, February  
- March 2000, Fort Belvoir, Virginia

TABLE PERCENTAGE OF POPULATION HIGHLY ANNOYED  
FROM AIRCRAFT NOISE.

Maximum Level, dBA	Percentage Highly Annoyed
70	5
75	13
80	20
85	28
90	35

## 6. FINDINGS.

a. Weekday vs. Weekend. At all sites, the DNL was higher on weekdays than on weekends. Enclosure 5 shows these differences for the three sites perpendicular to Route 1. Enclosure 6 shows these differences for the five sites in succession from the runway. (President's Day was treated as part of the weekend.)

b. Traffic Noise. On the weekend, the DNL from traffic noise decreased by a little less than 3 dB for every doubling of distance from Route 1. Acousticians refer to a source that decreases by 3 dB for every doubling as a "line source," and a straight, busy highway is a line source. In practice, field measurements of highways usually find the noise decreasing by about 4 dB per doubling of distance. The fact that the DNL from Route 1 decreased by 3 dB per doubling suggests that the sound levels were elevated because of the rising terrain. During the weekdays, the road sites received aircraft noise, and the pattern of the line source was disrupted.

c. Aircraft Noise. Enclosure 6 also shows noise levels dropping at a faster rate on weekdays than on weekends. This pattern indicates that weekday noise was mainly from the airfield. The one-decibel increase between the third and fourth sites during the weekday measurements and the two-decibel increase between the same sites suggests that the hill has some effect on the DNL. To further isolate the effect of the hill,

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we focused on the noise levels during times when aircraft were actually operating at DAAF.

d. Effect from Hill. To calculate the LEQ for times when aircraft were operating at DAAF, we screened the data for times when the one minute LEQ at the closest airfield site was above 70 dB. We then calculated the LEQ for those same times at the other sites. The results are shown in enclosure 7. From this comparison, it is clear that the aircraft noise propagates very efficiently to the top of the hill.

e. Maximum Levels. The LEQ at the hill site was 67 dBA during times when aircraft were operating at DAAF. Enclosure 8 shows the maximum levels associated with each one minute LEQ from which the 67 dB was calculated. These maximum levels fall into two statistical distributions. The upper distribution shows that there were over 400 minutes during the month when the maximum level exceeded 110 dBA. To extrapolate this distribution to what could be expected at Cook Inlet, we found the point on the Cook Inlet where the elevation is the same as the elevation of the monitor on the hill site. This point is about twice as far from the runway as the hill site. If the level decreased by 6 decibels per doubling of distance, the same elevation on Cook Inlet would have received maximum levels in excess of 104 dBA over 400 times during the one-month sampling period. Given the high decibel levels, it is reasonable to assume that these high levels were impulsive. It is also reasonable to assume that they would generate complaints if they were experienced by a homeowner. Although our monitoring sites stopped at the boundary, there is more direct evidence suggesting high levels on the Cook Inlet property.

f. Other Evidence. Additional evidence for high levels in the Cook Inlet property comes from Hessler (1999). Although the Hessler study sample was shorter than our sample, it was long enough to capture three days when the DNL was above 60 dBA at the highest point sampled on Cook Inlet. These were 20 June (64.9 dBA), 21 June (61.8 dBA) and 28 June (63.7 dBA). On each of these days, the DNL at the boundary with DAAF was slightly lower. The Hessler boundary line site was also farther from Route 1 than our boundary line site. Both boundary line sites were screened from DAAF noise by a wooded ridge. Thus, the

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Measurement of Aircraft Noise at Davison Army Airfield, February  
- March 2000, Fort Belvoir, Virginia

rising portion of Cook Inlet received more noise from DAAF than the boundary line site even though the boundary line site was closer to DAAF. Of particular significance is the one hour period between 1600 and 1700 on the afternoon of 28 June when the one hour LEQ was 76.7 dBA at the higher Cook Inlet site and 76.4 dBA at the lower boundary site.

## 7. DISCUSSION.

a. The noise measurements provide circumstantial evidence that levels of aircraft noise at Cook Inlet are higher than predicted by NOISEMAP and levels of traffic noise are higher than predicted by the Federal Highway Administration (FHWA) model (SLO County, 1992). Planned expansion of Route 1 would be expected to lead to a further increase in traffic noise. Although some shielding would result from planned staggering of houses in rows along the side of the hill, the top floor of each house would be relatively unshielded. Presumably, the top floor will contain bedrooms.

b. Disturbance would be much more likely in the morning. In addition to the general increase in level because of elevation, there are two reasons to expect the most disturbances in the morning:

(1) Low lying temperature inversions form frequently during the night, burning off after the sun has heated the ground. Sound can be ducted through the warmer air layer of the temperature inversion. For example, people living some distance from the Washington Beltway frequently hear traffic noise better in the early morning than in the afternoon.

(2) Helicopter pilots preparing for take off must go through a number of safety checks requiring hovering in place. During this time, the noise from the main rotor blades propagates in a horizontal direction. This directivity is not considered in the version of NOISEMAP used for the contours, because NOISEMAP was designed for jet noise.

c. A final reason for expecting noise complaints is low-frequency impulsive noise from the main rotor blades of helicopters. This low frequency noise is obscured in NOISEMAP

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by the use of A-weighting. NOISEMAP uses A-weighting because A-weighting predicts loudness. Loudness is the primary annoyance from fixed wing aircraft. In contrast, helicopters can annoy people by being both loud and by rattling windows or bric-a-brac. Low frequency sound is different from higher frequency sound in four ways:

(1) It travels through the air with less loss due to molecular relaxation than higher frequency sound.

(2) It passes over barriers more efficiently than higher frequency sound.

(3) It passes through windows to interior rooms more efficiently than higher frequency sound.

(4) On some helicopters, it has an impulsive component (blade slap). The importance of blade slap is controversial in its effect.

d. The proposed Cook Inlet homes would be more likely to receive impulsive noise from helicopter operations than the existing Fairfax Retirement Community. The reason relates to the dominant direction of helicopter landings. About 85% of helicopters approach the runway from the south over Route 1 and land toward the north. Helicopters make more noise on landing than on takeoff, and U.S. helicopters make more noise to the left than to the right. This difference, which is not incorporated into NOISEMAP, is due to the direction of rotation of the main rotor blades. Because Cook Inlet is located to the left (west) of a helicopter landing to the north, it receives the major amount of noise. Residents of the retirement homes receive noise from the takeoff of helicopters, which is much reduced in comparison to the landing noise.

8. CONCLUSIONS. Due to site-specific topographic conditions, there is good reason to expect some residents to complain about helicopter noise. Complaints are most likely to occur when a helicopter is hovering when a low-lying temperature inversion is present. The combined noise impact of the planned expansion of Route 1 and the high impulsive aircraft noise levels documented here is expected to lead to land use conflicts.

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- March 2000, Fort Belvoir, Virginia

9. RECOMMENDATIONS. In view of the failure of NOISEMAP to account for the directivity of noise from the main rotors of Army helicopters at elevated receivers, we recommend the following actions to further refine the noise exposure at Cook Inlet:

a. During times when helicopters are landing or hovering at DAAF, calibrated digital tape recordings should be made with microphones at the same height as the bedroom windows of the highest homes planned at Cook Inlet. These recordings should be representative of the weather and airfield operations responsible for the propagation of low frequency impulsive noise. These tapes should then be analyzed for low frequency noise and impulsivity.

b. Future traffic noise levels expected after expansion of Route 1 should be modeled using the FHWA Traffic Noise Model. The projections for elevated portions of Cook Inlet should be corrected using the terrain adjustments adopted by San Luis Obispo County, California, due to similar topographic conditions.

FOR THE COMMANDER:



GEORGE A. LUZ, Ph.D.  
Program Manager  
Environmental Noise

8 Encls  
as

## REFERENCES

EPA, 1974, " Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of safety," Report 550/9-74-004, U.S. Environmental Protection Agency, March 1974

Rylander, et.al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept", Journal of Sound and Vibration, Volume 36, pages 399-406.

Rylander and Bjorkman, 1988, "Maximum Noise Levels as Indicators of Biological Effects", Journal of Sound and Vibration, Volume 127, pages 555-563.

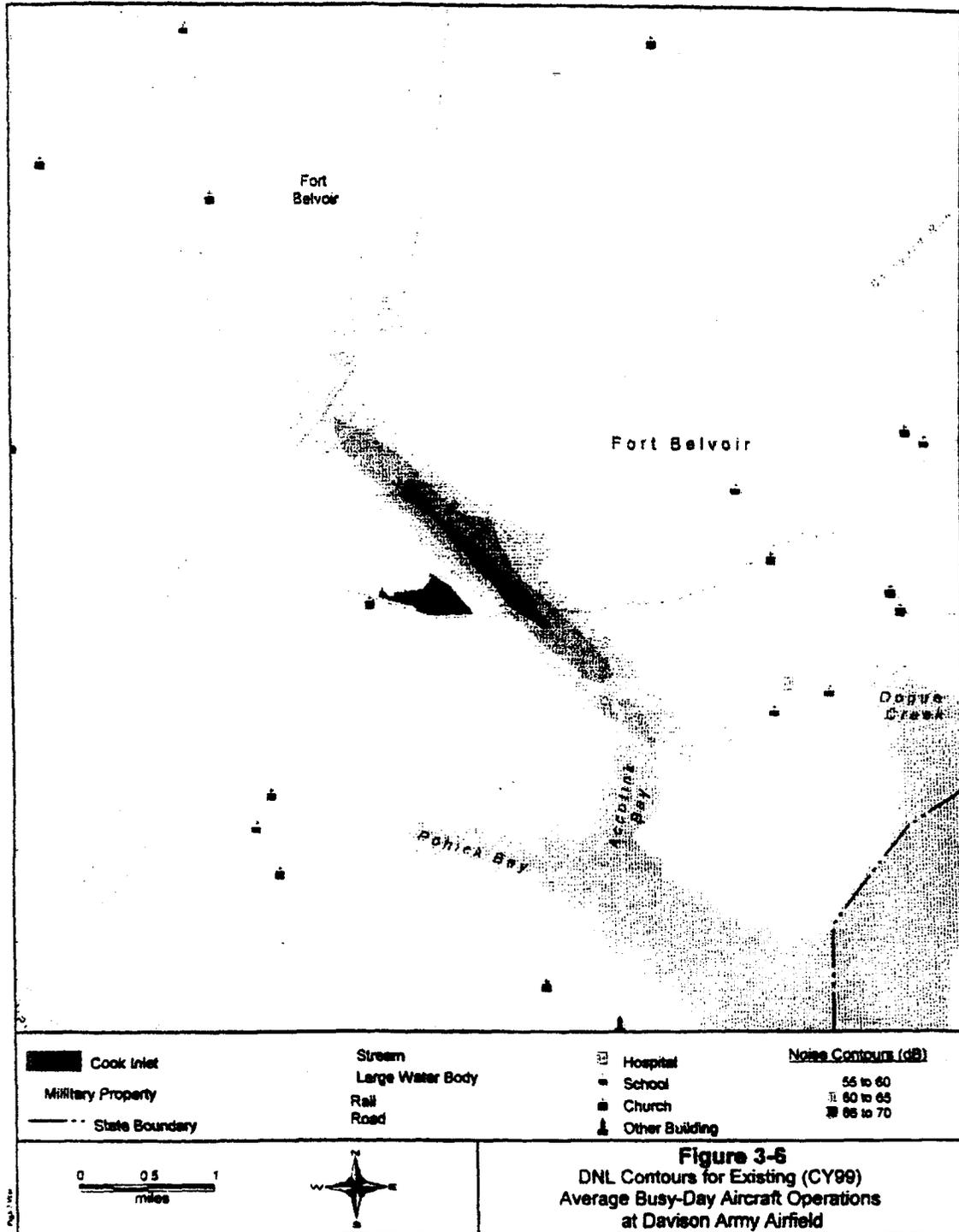
SLO County, 1992, Noise Element Technical Reference Document, Prepared by Brown-Buntin Associates, Inc, and accepted by the San Luis Obispo County Board of Supervisors, May 5, 1992 - Resolution 92-227.

U.S. Army, 1997, Army Regulation 200-1, Environmental Protection and Enhancement.

USACHPPM, 1999, Environmental Noise Management Plan for Camp Bullis, Texas, April 1999, U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, Maryland.

Wyle Laboratories, 2000, Aircraft Noise Study for Davison Army Airfield, WR 2000-01, Wyle Research Laboratories, January 2000, Arlington, Virginia.

# Airfield Noise Contours – Wyle Laboratories



Source: StreetMap 1993, NOISEMAP 8.5



DEPARTMENT OF THE ARMY  
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE  
6158 BLACKHAWK ROAD  
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REF ID: A66713

MCHB-TS-EEN (40)

30 NOV 1998

MEMORANDUM FOR Commander, 12<sup>th</sup> Aviation Battalion, Echo Company, ATTN: Airfield Safety Officer (CW3 Robert Monroe), Fort Belvoir, VA 22060-5123

SUBJECT: Environmental Noise Monitoring Davison Army Airfield

1. Reference memorandum, Commander, 12<sup>th</sup> Aviation Battalion, ATTN: ANAV-CBE (CW3 Robert Monroe), Fort Belvoir, VA, 04 November 1998, subject: Request for environmental noise services.
2. As requested, we monitored the noise from the rotary and fixed wing aircraft operations of Davison Army Airfield (DAAF) during period of 10-13 November 1998.
3. Mrs. Dupell's residence was chosen because she has been complaining about the noise from rotary wing aircraft operations that fly over her residence. Her residence is located on the arrival/departure pattern for DAAF.
4. The Day-Night Level (DNL) for the 10-13 November 1998 monitoring was 55.2. This level shows that Mrs. Dupell's residence was in an Acceptable (Zone I) noise zone during the monitoring. A level of 55 dB meets the Environmental Protection Agency's long term goal for the United States.
5. At the same time, we believe that "worst case" conditions did not occur during this monitoring period. Due to the prevailing winds, rotary wing operations did not overfly her residence. When analyzing the data we could only find what appears to be 10 rotary wing operations from DAAF.
6. Without direct overflights and a with a holiday lull during the monitoring period, the residents in the Newington area could object that the Army was "loading the deck" in our favor.

*Readiness thru Health*

MCHB-TS-EEN

SUBJECT: Environmental Noise Monitoring Davison Army Airfield

7. If Fort Belvoir wishes to counter such an assertion, we suggest extending the monitoring period to span a two week period of normal activity. However, we are not in a position to provide this service without supplementary funds. The cost would be \$2,500.00.

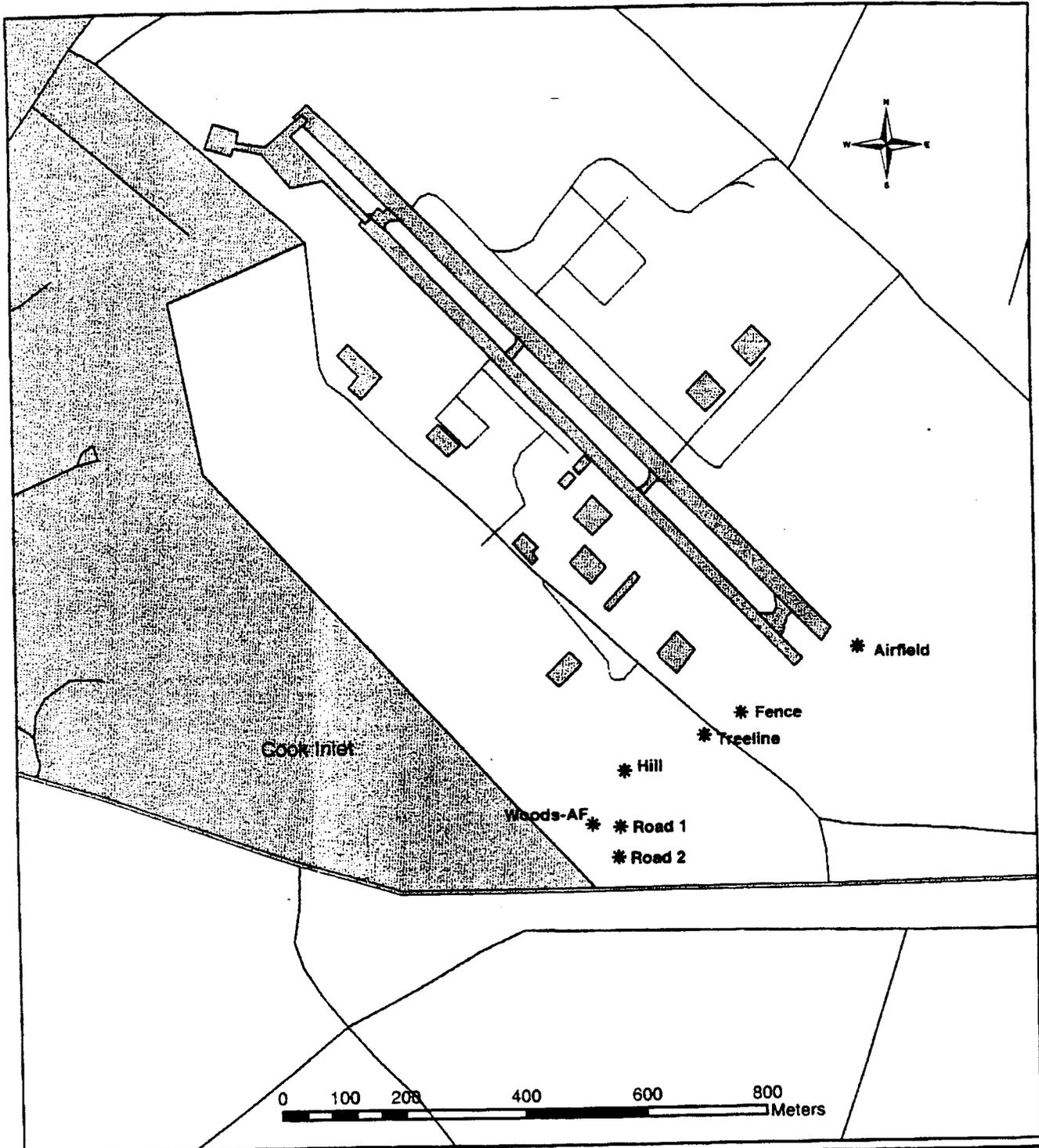
8. Ordinarily, we would not be recommending monitoring to assess DAAF. In the past, the Army Environmental Hygiene Agency has provided Fort Belvoir with noise contour maps generated by the Air Force's NOISEMAP computer model. For the current situation, assessment through monitoring is preferable to assessment by NOISEMAP because of the terrain. Mrs. Duppel's home is at a higher altitude than DAAF, and there is reason to believe that the helicopter noise carries farther than predicted by NOISEMAP.

9. Please contact our Project Officer, Mr. David H. Bensch at Commercial (410)436-3829, DSN 584-3829 or by email (David\_Bensch@chppm.ccmil.apgea.army.mil) to discuss the opportunities to conduct the noise monitoring at DAAF.

FOR THE COMMANDER:

GEORGE A. LUZ  
Program Manager  
Environmental Noise

# Davison Army Airfield - Noise Monitoring Sites



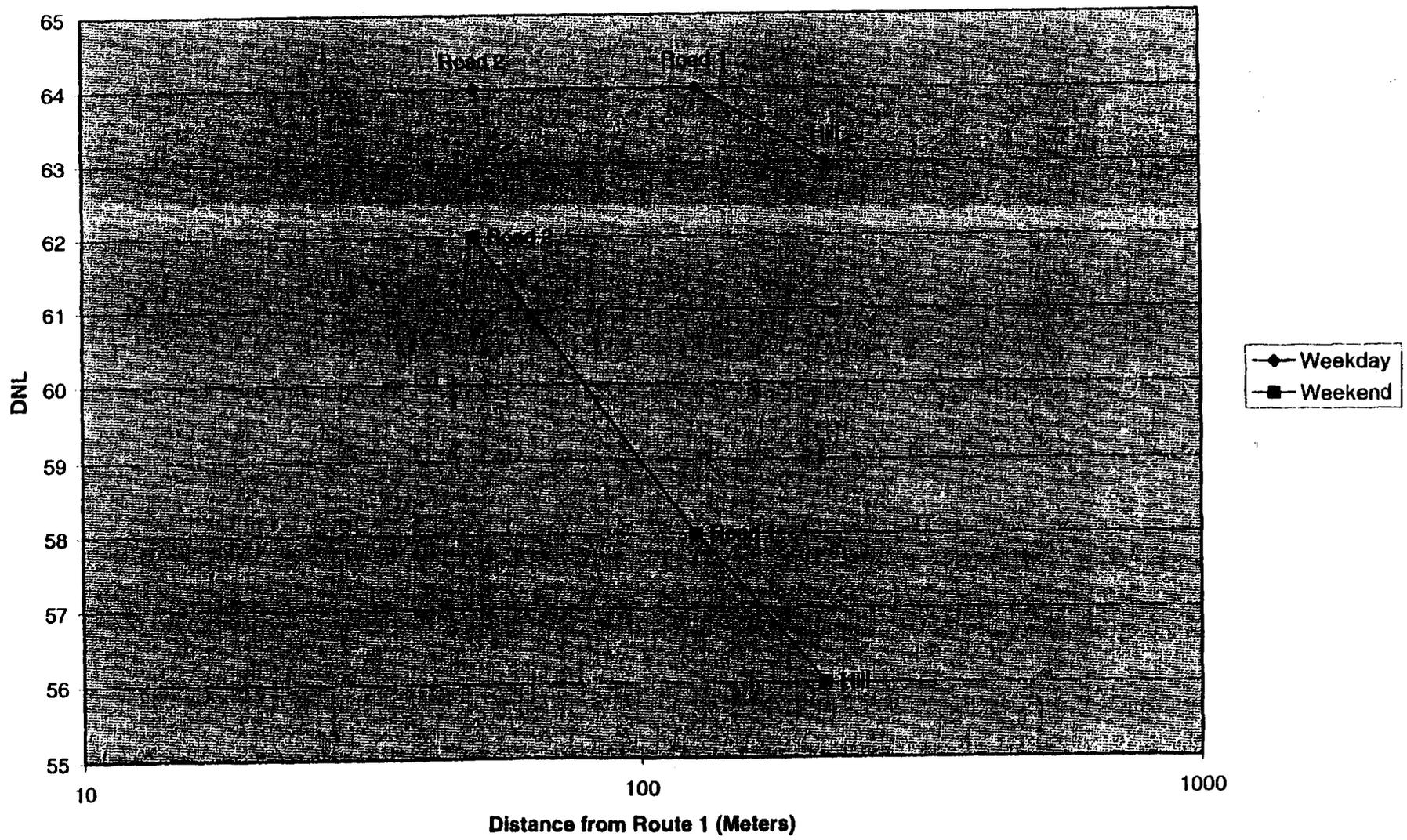
## Legend

- \* Noise Monitoring Sites
-  Davison Army Airfield
-  Route 1
-  Fort Belvoir Boundary

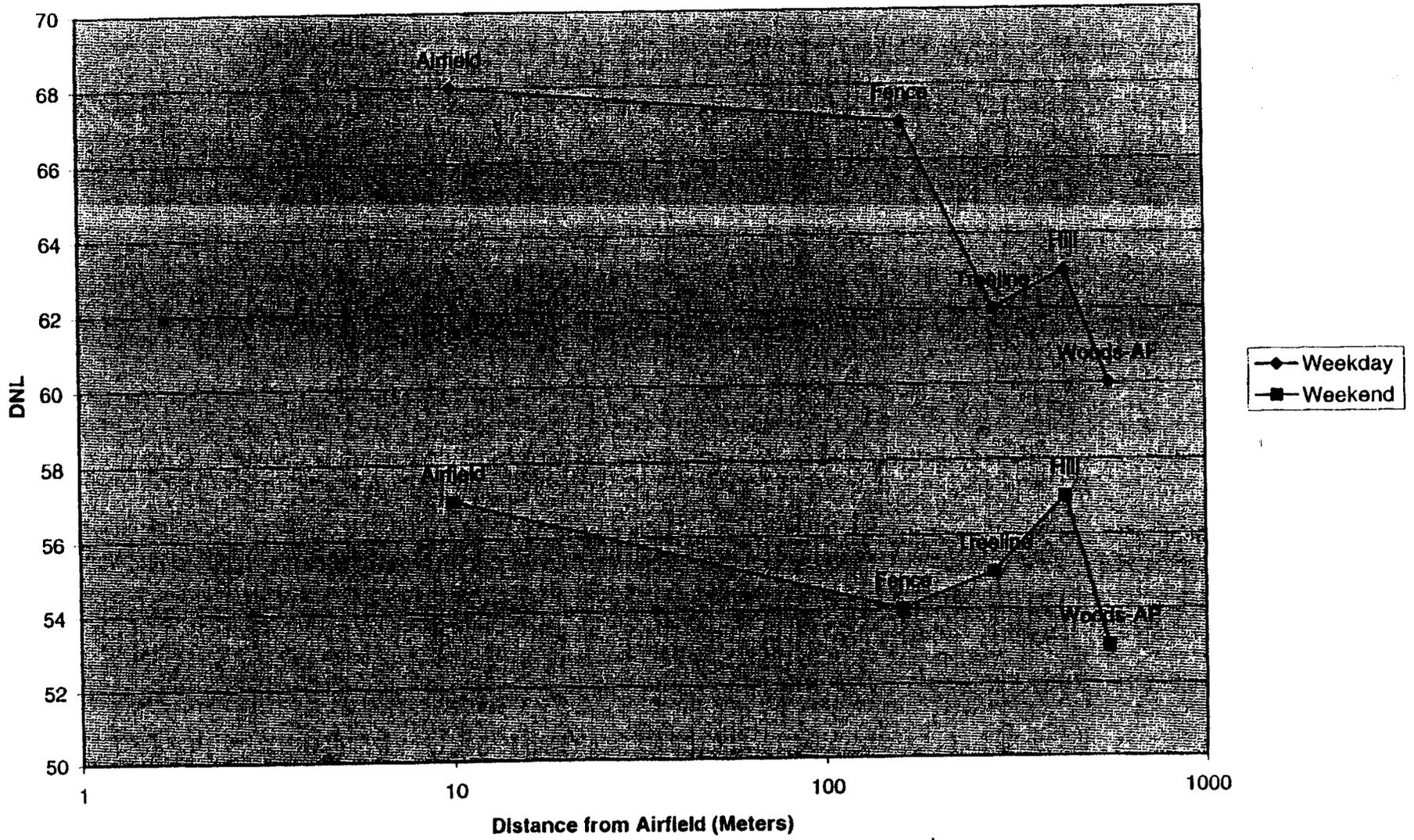


U.S. ARMY CENTER FOR HEALTH  
 PROMOTION AND PREVENTATIVE MEDICINE  
 ENVIRONMENTAL NOISE PROGRAM  
 UTM NAD 27, ZONE 18

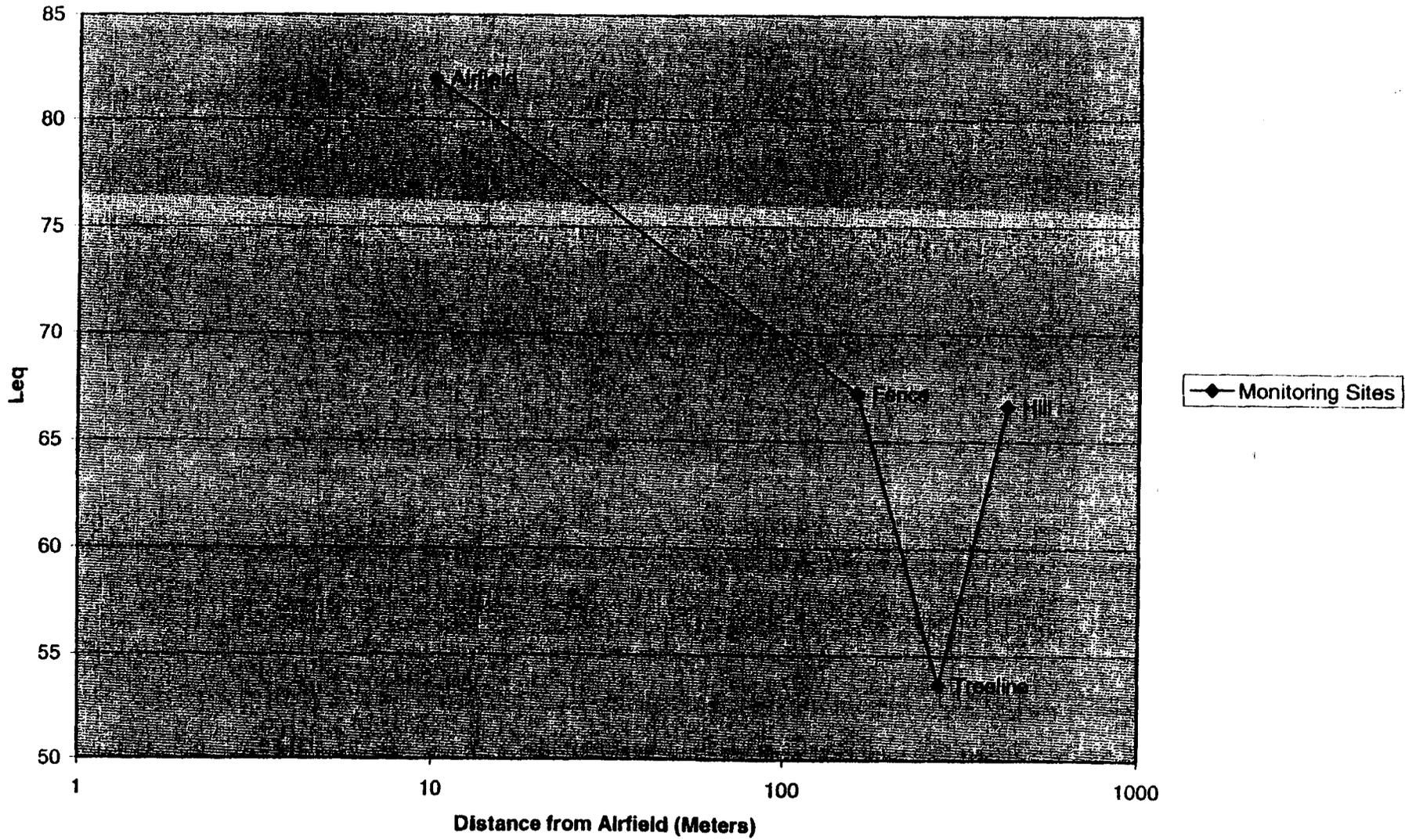
### DNL Average - Road Sites



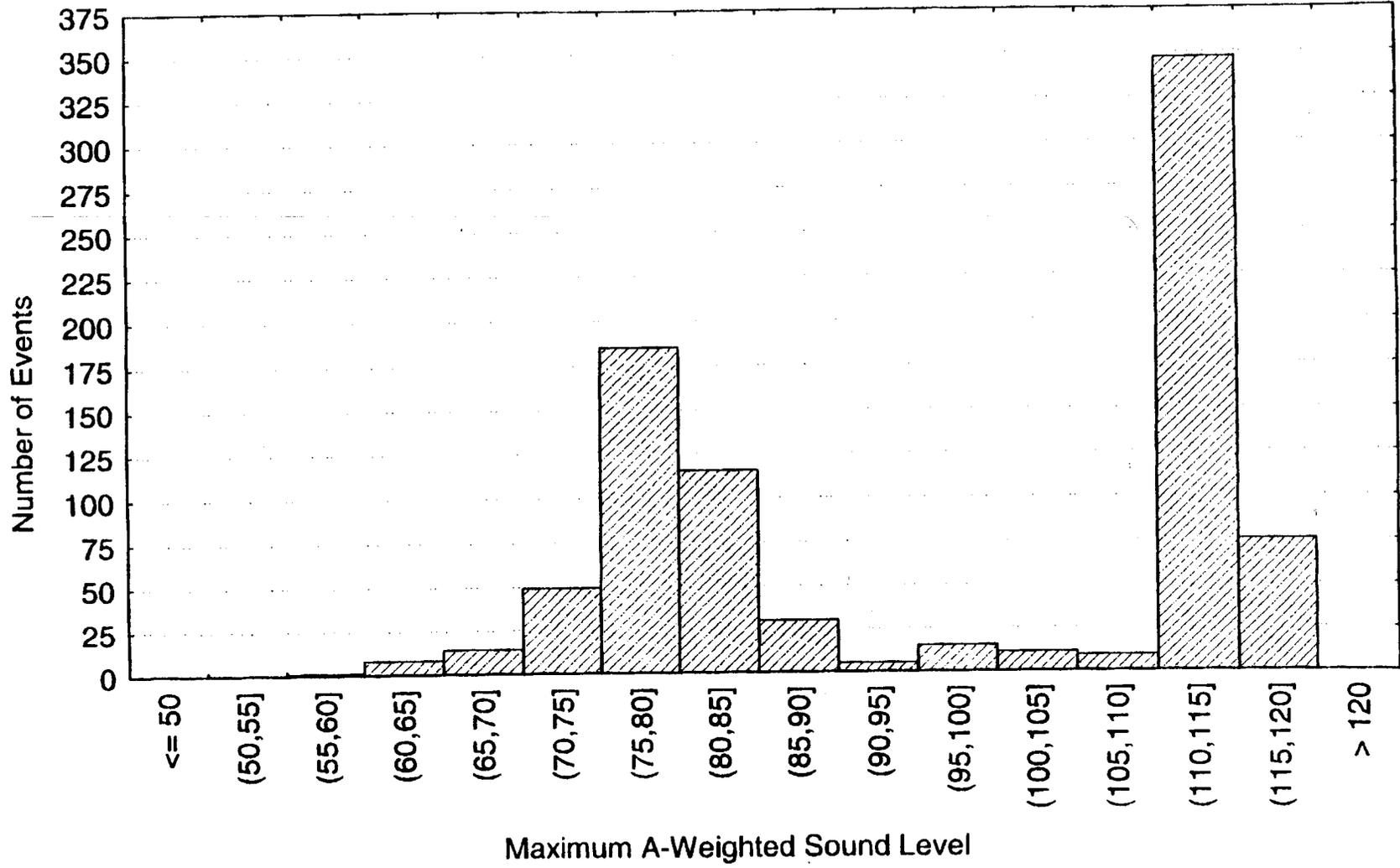
### DNL Average - Airfield Sites



### Leq Average - Airfield Sites



Distribution of Maximum Levels at Hill Site



**PROFFERS**  
**SHAWNEE ROAD, L.L.C.**  
**RZ/FDP 1998-MV-059**

April 6, 2000

Pursuant to Section 15.2-2303(A), of the Code of Virginia, 1950 as amended, and Section 18-204 of the Zoning Ordinance of Fairfax County, the property owner and applicants, for themselves and their successors or assigns (hereinafter collectively referred to as the "Applicant") in this rezoning, proffer that the development of the parcel under consideration and shown on the Fairfax County Tax Map as 108-1 ((1)) 47 and 47A (hereinafter the "Property") will be in accordance with the following conditions, subject to approval of this rezoning application. If accepted, these proffers shall replace and supersede those proffers previously approved with RZ 86-V-092 which shall become null and void. The proffered conditions are:

**1. DEVELOPMENT PLAN -**

- a. The Property shall be developed in substantial conformance with the Conceptual/Final Development Plan (CDP/FDP) dated June 24, 1999 (11 sheets) prepared by Dewberry & Davis; provided, however, that minor modifications may be permitted when necessitated by sound engineering or which may become necessary as part of final engineering, as determined by the Department of Public Works and Environmental Services (DPWES). The Applicant shall have the flexibility to modify the layout shown on the CDP/FDP without requiring approval of an amended FDPA provided such changes are in substantial conformance with the FDP as determined by the Department of Planning and Zoning (DPZ) and do not change access to the site, increase the total number of units, decrease the amount of open space, tree preservation or the landscaped areas or the location of common open space areas. Such changes may include, increasing the width of the single-family attached units; shifting the number of single-family attached units from one group of units to another; and adjusting the internal lot lines of the single-family detached dwelling units.
- b. Notwithstanding that the CDP/FDP is the subject of Proffer of 1.a. above, the Applicant, its successors and assigns shall have the option to request Final Development Plan Amendments (FDPA) from the Planning Commission for the entire plan or portions thereof in accordance with the provisions set forth in Section 16-402 of Zoning Ordinance without the need for the approval of a proffered condition amendment.
- c. Applicant shall develop no more than 256 units on the Property, consisting of a mix of single-family detached units and single-family attached units consistent with Note 20 on the CDP/FDP.

- d. Some or all of the single-family detached units may be zero lot line or patio styled dwellings. House locations and building footprints may shift or be modified as a result of final engineering in the location of utilities as well as to accommodate a zero lot line or a patio or single-family detached dwelling consistent with Note 20 on the CDP/FDP. The minimum lot size for the single-family detached dwellings shall be 2,500 square feet. All single-family detached units shall be provided with a minimum of two parking spaces per unit and the single-family attached units shall be provided with a minimum of 2.3 parking spaces per unit including those single-family detached units converted to single-family attached units. The minimum distance between buildings in the single family detached sections as shown on the CDP/FDP shall be 6 feet.
- e. Pursuant to Part 8 of Article 2, the Applicant shall provide affordable dwelling units (ADUs) on the Property subject to such modifications and/or amendments which may occur to the Zoning Ordinance. Applicant shall ensure that the ADUs are distributed in various locations of the single-family attached section of the proposed community.
- f. No development, other than grading and utility installation shall occur on the "Lake Parcel" (9.469 acres), "Preserve Parcel" (4.687 acres) or the "Pohick Parcel" (3.65 acres). The Applicant shall dedicate and convey in fee simple the Lake, Preserve and Pohick Parcels, at time of subdivision plan approval, to the Fairfax Foundation or its designee for its use and enjoyment as open space. Any subsequent subdivision of the Property must include as part of any subdivision and/or site plan the following note which provides that the entire area of RZ 1998-MV-059 will be considered as a single unit for purposes of application of the Zoning Ordinance:

The entire land area of 60.55 acres as shown on the plat entitled \_\_\_\_\_ and recorded in Deed Book \_\_\_\_\_ at Page \_\_\_\_\_ is to be considered a single lot for the purposes of application of the Fairfax County Zoning Ordinance. Any future subdivision plat and/or site plan which may be filed on a portion of the original 60.55-acre site shall include this notation and reference the most recently approved site plan and most recently recorded record plat of subdivision. Such future subdivision plat and/or plan must include a running tabulation as an indication of compliance with the applicable Zoning District requirements with regard to density.

- g. No development shall be permitted in that portion of the property located within the Pohick Church Historic Overlay District, the "Pohick Parcel" (3.65 acres) other than roads, trails (and associated benches and passive recreation areas), and the development of necessary utility connections and extensions as determined by the Applicant, as approved by DPWES.

**2. NOISE ATTENUATION -**

- a. In order to achieve a maximum interior noise level of approximately 45 dBA Ldn, all units located between the 65-70 dBA Ldn highway noise impact contours (448 feet from centerline of Route 1) as may be reduced by walls, berms, fencing and/or the location of structures shall have the following acoustical attributes:
  1. Exterior walls shall have a laboratory sound transmission class (STC) rating of at least 39.
  2. Doors and windows shall have a laboratory STC rating of at least 28. If windows constitute more than 20% of any facade, they shall have the same laboratory STC rating as walls.
  3. Measures to seal and caulk between surfaces shall follow methods approved by the American Society for Testing and Materials to minimize sound transmission.
  
- b. In order to achieve a maximum interior noise level of approximately 45 dBA Ldn, all units located between the 70-75 dBA Ldn highway noise impact contours (208 feet from centerline of Route 1) as may be reduced by walls, berms, fencing and/or the location of structures shall have the following acoustical attributes:
  1. Exterior walls shall have a laboratory sound transmission class (STC) rating of at least 45.
  2. Doors and windows shall have a laboratory STC rating of at least 37. If windows constitute more than 20% of any facade, they shall have the same laboratory STC rating as walls.
  3. Measures to seal and caulk between surfaces shall follow methods approved by the American Society for Testing and Materials to minimize sound transmission.
  
- c. In order to reduce exterior noise levels in affected rear/side yards of the proposed units to 65 dBA Ldn or less, one or more noise barriers shall be provided. The barrier(s) shall be of a height sufficient to break all lines of sight between a line eight feet above the centerline of the highway and a plane 6 feet above the ground in the affected outdoor recreational areas. The barrier(s) shall be architecturally solid from the ground up and shall contain no gaps or openings. A berm, architecturally solid

wall, or berm-wall and/or fence combination can be used as a noise barrier. If the Applicant desires, noise barriers can be substituted as rear/side yard privacy fencing.

- d. Other methods of mitigating highway noise may be pursued, including the placement of structures and/or dwelling units, if it can be demonstrated, through an independent noise study for review and approval by DPWES, that these methods will be effective in reducing exterior noise levels to 65 dBA Ldn or less and interior noise levels to 45 dBA Ldn or less.
- e. All prospective purchasers of units shall be notified in writing at the time of contract execution by the Applicant of the proximity of Davison Airfield and the potential for periodic noise from aircraft. A notation to this effect shall be included in every Deed of Conveyance to ensure proper notification to all future purchasers.

**3. STORMWATER MANAGEMENT/BEST MANAGEMENT PRACTICES -**

- a. Stormwater management (SWM) and Best Management Practices (BMP) shall be provided within the proposed and existing ponds shown on the CDP/FDP, as determined by DPWES.
- b. The Applicant shall provide landscaping around the facilities and preserve vegetation within the facilities as approved by DPWES and the Urban Forester, in accordance with the policy regarding planting around SWM facilities adopted by the Board on March 8, 1999.
- c. The Applicant shall design storm water management pond #1 as shown on the CDP/FDP to accommodate VDOT project 0001-29-F20, PE 101, C501, RW207.

**4. HOMEOWNERS' ASSOCIATION -**

- a. Any conversion of garages that will preclude the parking of vehicles within the garage is prohibited. A covenant setting forth this restriction shall be recorded among the land records of Fairfax County in a form approved by the County Attorney prior to the sale of any lots and shall run to the benefit of homeowners' association (HOA), which shall be established, and the Board of Supervisors. Prospective purchasers shall be advised of this use restriction at time of entering into a contract of sale.
- b. Applicant shall record a covenant prohibiting the storage and/or parking of recreational vehicles and trailers (boats, trailers, and mobile homes) on the private street system within the Property, except in specific areas designated by the HOA. Each Deed of Conveyance to the purchasers of lots shall expressly contain this

disclosure and prospective purchasers shall be advised of this restriction prior to entering into any contracts of sale.

- c. The covenants referenced the Proffer numbers 4.a. and 4.b. above shall run to the benefit of the HOA and Fairfax County and will be approved by the County Attorney prior to the recordation of the Deed of Subdivision.
- d. All private streets shall be constructed pursuant to PFM pavement section standards as to the thickness for public subdivision streets.
- e. Prior to conveying ownership of private streets to the HOA, the Applicant shall establish and fund an initial escrow in the amount of \$10,000 as adjusted by increases in the construction cost index as published in the Engineering News Record by McGraw Hill from the date of Board approval of this rezoning application to the date of site plan approval for the purpose of private street maintenance. The HOA dues and budget shall include annual assessments to be deposited into the escrow account for private street maintenance.
- f. The Applicant shall make the following disclosures to all purchasers of units as a part of the contract execution process and within HOA documents:
  1. That on-site private streets are to be privately owned and maintained by the HOA;
  2. Pursuant to an agreement between the Applicant and Marriott Continuing Care, Inc., the HOA shall be responsible for 50% of the annual maintenance cost of the existing 9.5-acre lake to include, but not be limited to, the cost of liability insurance; grounds keeping; slope maintenance; periodic dredging of the lake; dam and outlet structure repairs and repairs, if required, to the access road to the lake;
  3. The potential for noise emanating from the use of Davison Airfield as noted in paragraph 2e above.

5. **TREE PRESERVATION -**

- a. The Applicant shall contract a certified arborist to prepare a tree preservation plan to be submitted as part of the first site or subdivision plan submission, whichever comes first.

The plan shall be reviewed and approved by the Urban Forestry Branch. The certified arborist responsible for preparation of the tree preservation plan shall be referred to

as the Project Arborist. The tree preservation plan shall specifically include the Route 1 buffer, the "Pohick Parcel" and the tree save area between the SFA units and SFD units near the northernmost site entrance and shall consist of a tree survey for areas within the limits of clearing and grading as shown on the CDP/FDP, which includes the location, species, size, crown spread and condition rating percent of all trees 12 inches or greater in diameter within 20 feet on either side of all limits of clearing and grading. A tree survey shall not be necessary for other portions of the Property, based upon concurrence of the Urban Forester, such areas may include but are not limited to the far eastern property line adjacent to Davison Airfield, and the northern property line. The condition analysis shall be prepared using methods outlined in the eighth edition of The Guide for Plant Appraisal. Specific tree preservation activities designed to maximize the survivability of trees designated for preservation shall be incorporated into the tree preservation plan. Activities should include, but are not limited to crown pruning, root pruning, mulching, and fertilization.

- b. All trees shown to be preserved on the tree preservation plan shall be protected by fencing. Tree protection fencing shall be erected at the limits of clearing and grading in accordance with the Tree Preservation Plan. Materials and installation of tree protection fencing shall conform to the two following standards:
  1. For tree preservation areas along Richmond Highway, a 4-foot wire mesh fence shall be provided on all sides of the preservation area.
  2. For all other areas, four foot high, orange plastic fence attached to 6 foot steel posts driven 18 inches into the ground and placed no further than 6 feet apart.

The tree protection fencing shall be made clearly visible to all construction personnel. The fencing shall be installed prior to the performance of any clearing and grading activities on the site. All tree preservation activities, including the installation of tree protection fencing shall be performed under the supervision of the Project Arborist. Prior to the commencement of any clearing or grading activities on the site, the Project Arborist shall verify in writing that the tree protection fence has been properly installed.

- c. During the site or subdivision plan review, if it is determined that as a result of final engineering the areas designated to be preserved on the CDP/FDP are modified or cannot be preserved, substitute tree cover shall be provided elsewhere as determined by the Urban Forester.
- d. A transplanting plan shall be prepared by the Project Arborist and submitted as part of the tree preservation plan. The type of vegetation and the area where it will be relocated to will be shown on this plan. The transplanting plan should include a) an

assessment of the condition and survival potential of the plants, b) the proposed time of year of transplanting and the timing of transplanting in the development process, c) the transplant methods to be used, including tree spade size if one is used, d) relocation site preparation, e) initial care after transplanting, including mulching and watering specifications, and f) long-term care during the development process, including tree protection fencing and watering schedule.

- e. At time of subdivision and/or site plan submission, the Applicant shall notify in writing and allow access to the site to native plant societies so that they may from time of site plans submission to site plan approval remove and relocate native wildflowers, ferns, small trees, and other herbaceous plants that would otherwise be destroyed. The plants that are to be rescued and removed, may be relocated to other appropriate sites within the development or moved to locations off-site. These efforts shall be conducted prior to any construction activities on-site. Further, these societies/organizations shall each indemnify and hold harmless the Applicant and its agents, successors and assigns from any loss, and/or liability of any kind resultant from the entry of such entities or persons upon the Property for any purpose.
- f. During site plan processing of land bays containing areas of undisturbed open space, the Applicant shall identify limits of clearing (consistent with the FDP) in conjunction with the Urban Forester and shall protect trees outside the limits of clearing with preconstruction flagging and fencing. The limits of clearing and grading as shown on the CDP/FDP shall be honored, however, if as a result of final engineering and subject to the approval of the Urban Forester, tree save areas on the CDP/FDP are modified or cannot be preserved, equivalent tree save areas or equivalent landscape areas shall be substituted on the site as determined by the Urban Forester.
- g. The areas of existing vegetation to be preserved on the site shall be supplemented, as determined by the Urban Forester, with either existing vegetation transplanted from other areas of the site or with under-story supplemental plantings.

## 6. LANDSCAPING -

- a. The Applicant shall plant the following vegetation within noted areas as shown on the CDP/FDP as follows, subject to Urban Forestry approval:
  - 1. Street trees planted along all private streets, as shown on the CDP/FDP. The species of the trees and the areas in which they are located shall be in accordance with the provisions of the Public Facilities Manual.
  - 2. Building foundation and internal parking lot landscaping as shown on the illustrative drawings in the CDP/FDP.

3. Entrance feature landscaping as shown on the CDP/FDP.
4. Supplemental plantings in the buffers along the Property's Route 1 frontage shall be provided where the Urban Forester determines existing vegetation is insufficient to provide a buffer that achieves a visual screen equivalent to Transitional Screening I in Article 13 of the Ordinance.

7. **TRANSPORTATION -**

- a. At the time of Site Plan/Subdivision Plan approval or upon written request from VDOT or Fairfax County, whichever occurs first, the Applicant shall dedicate and convey in fee simple to the Board of Supervisors the right-of-way and ancillary construction easements along the Property's frontage as shown on the CDP/FDP. This dedication shall be in accordance with VDOT Project 0001-29-F20, PE101, C501, RW207.
- b. Along the remainder of the property frontage, north of VDOT Project 0001-29-F20, PE101, C501, RW207, the Applicant shall dedicate the right of way necessary for a six (6) lane divided U.S. Route 1 to include 68 feet of right of way dedication from construction centerline and in addition, the right of way necessary for right and left turn lanes into the project where these turn lanes require right of way above and beyond the 68 foot dedication improvements as shown on the CDP/FDP, . Applicant shall provide ancillary easements along the road frontage if the VDOT road project precedes development of the Application Property, as determined by the specific requirements of the approved and funded VDOT project.
- c. Provided that the storm water management for this VDOT project is provided in Cook Inlet storm water management Pond #1, the dedication referenced in paragraph 7.a. shall not include the dedication shown on the VDOT project for storm water management pond associated with the project. In the event VDOT and the Applicant do not reach a SWM agreement and additional right-of-way is required for VDOT SWM purposes, revisions to the CDP/FDP which relocate a maximum of 3 units may be sought through the administrative approval of a minor FDP modification. Major modifications may be subject to approval of an amendment through the public hearing process.
- d. The Applicant shall provide for the construction across the entire property's Route 1 frontage for a one-half section of a six (6) lane divided roadway with right and left turn lanes into the property's western and eastern entrances and including provision of a 10 foot asphalt trail.

These improvements shall be provided in the following manner:

1. With respect to the western half of the property and those improvements required for the construction of the western entrance to the site, the Applicant shall escrow sufficient funds as determined by DPWES or construct along the frontage of the subject property curb, gutter and pavement widening on the property side of the ultimate six (6) lane divided U.S. Route 1 as well as a right turn lane serving the western entrance to the site with transitions and pavement striping within the right of way referenced in 7a. and 7b. above and proposed property side widening to provide a temporary left turn lane into the western entrance to the site.
2. With respect to the eastern entrance, the Applicant shall prepare and submit for approval a Supplemental Road Improvement Plan detailing property side improvements to tie into the VDOT Project 0001-29-F20, PE101, C501, RW207 to widen and provide curb, gutter and trail along the eastern portion of the property frontage at the ultimate location of the six (6) lane divided U.S. Route 1 with permanent left turn lane and right turn lane providing access to the eastern entrance of the site.

In the event VDOT implements Project 0001-29-F20, PE101, C501, RW207 prior to the final bond release of the Applicant's Cook Inlet Route 1 Public Improvement Plan, the Applicant will bond and implement this Supplemental Road Improvement Plan to tie into the improvements of the VDOT Project.

In the event that VDOT does not proceed with the above referenced U.S. Route 1 project prior to final bond release of the Applicant's Cook Inlet Route 1 Public Improvement Plan, the Applicant shall construct only interim improvements at the eastern entrance to provide right turn in and right out access only and escrow funds for the Supplemental Road Improvement Plan based upon certified cost estimates prepared by the Applicant's engineer in accordance with the Fairfax County DPWES bond unit prices or costs based upon actual contractor bids for such work as approved by DPWES.

The escrow shall be reduced by the cost of any interim improvements which serve to reduce the cost of or serve to benefit the completion of the VDOT Route 1 Project 0001-29-F20, PE101, C501, RW207 such as but not limited to:

- Construction of the 10 foot wide asphalt trail within the right of way in the ultimate location of the trail;
- The cost of storm water management including the cost of land area shown on the VDOT plan no longer required for acquisition by

VDOT as a result of the construction of Pond #1 by the Applicant on the Cook Inlet property to accommodate the storm water management and BMPs required by the VDOT project;

- Clearing and grading of part or all of the right of way for the VDOT Project; and
- Any stone base and/or pavement widening which may be utilized by VDOT with its ultimate Route 1 construction.

Such escrow shall be posted by the Applicant with Fairfax County prior to the release of the last Subdivision Bond for the property if the VDOT Project remains incomplete/unstarted as of that time.

- e. Subject to the Applicant's preparation of a Warrant Study conforming to the MUTCD and its acceptance by Fairfax County and VDOT for installation of a signal, the Applicant shall design and install a traffic signal at the property's east entrance including a simulated timing and offset analysis acceptable to Fairfax County and VDOT where the signal may be inserted into an existing or proposed VDOT signal-coordinated corridor.
- f. The Applicant shall reserve land area for future right-of-way dedication or future ingress/egress easement in such amount as will minimally be required to facilitate a private street access between the Applicant's property and The Fairfax existing private entry road, (the "Reservation Area"). Neither the Applicant, nor the owner of the Fairfax Retirement Community (the "Fairfax Owner") or the Army Retirement Residence Foundation - Potomac (the "Foundation") shall have any obligation or requirement to construct any improvements in the Reservation Area or make any road connection in any manner unless and until the following occur:
  1. That the Fairfax Owner, the Foundation and any duly constituted organization of residents of the Fairfax Retirement Community ("Residents' Association") by duly authorized written notice to the Applicant, its successors and/or assigns and to the requisite agencies and officials of Fairfax County shall give notice that the Fairfax Owner, the Foundation and the Residents' Association all desire a connection for vehicular ingress/egress between the Applicant's property and the private entry road to The Fairfax;
  2. That the Fairfax Owner or the Foundation, as the case may be, shall dedicate right-of-way and/or record the requisite permanent ingress/egress easement from The Fairfax private entry road to the application property to enable such connection;

3. The cost of construction, to include all costs of design, plan submission and approval, engineering and physical construction, of each portion of any private road connection shall be borne by the party upon whose property the private road connection is located.
4. Upon completion of the connection between the application property and The Fairfax private entry road, a free flow of vehicular traffic shall occur over private streets via public ingress/egress easement or right-of-way.

The homeowner documents and sales materials and Disclosure Memoranda to be signed by each homeowner within the application property shall disclose the possibility of this future connection and payment therefor.

5. To ensure that funding is available for the completion of the portion of the private street tie-in on the application property, at time of plat recordation of the townhouse section in closest proximity to the common boundary with the Fairfax Owner, proximate The Fairfax entry road, the Applicant shall post an escrow for future construction with Fairfax County. Said escrow shall be in the amount of \$10,000 to facilitate the private street connection on the application property only. In the event said connection is not requested by the joint request of the Fairfax Owner, the Foundation and the Residents' Association as hereinabove provided, by the date which is five (5) years from the date of release of the last subdivision bond for sections/improvements within the application property, then in such event said escrow funds shall be returned together with accrued interest to the Applicant, its successors and/or assigns.
6. If such a connection is requested, it shall not require a PCA, FDPA, or SEA on the Application Property.

8. **RECREATION -**

- a. Applicant shall provide the active and passive recreational facilities as shown on the CDP/FDP which include:
  - Community pool and club/bath house.
  - One (1) tot lot.
  - Trails to be field located prior to the construction generally as shown on the CDP/FDP.
  - One (1) play area.
- b. Prior to bond release of proffered recreation facilities, the Applicant shall provide written estimates from its contractor(s) to DPWES that the Applicant has expended,

or will expend, the equivalent of \$955.00 per unit (exclusive of ADUs) for recreation facilities within the development. In the event that the recreation facilities provided by the Applicant do not equal \$955.00 per unit (exclusive of ADUs) the Applicant shall contribute the balance of the amount in accordance with provisions of Section 2-704 of the Zoning Ordinance to the Fairfax County Park Authority for improvements in a nearby park.

- c. The placement of recreational facilities including picnic facilities shall not necessitate land disturbance or the removal of trees 10 inches or greater within the tree preservation areas noted on the CDP/FDP. These areas shall remain completely natural and shall not be seeded or sodded.

9. **ARCHITECTURE -**

- a. All single-family detached and attached buildings shall be constructed with architectural features generally conforming to the illustrative elevations shown on the CDP/FDP.
- b. Entrance features (stone or masonry entry wall, fence and berm along Route 1, stone or masonry wall at SWM pond and community pavement patterns) shall be constructed generally conforming to the illustrative elevations shown on the CDP/FDP as shown on Sheet 11.
- c. Street lighting, generally conforming to the illustrative detail on the CDP/FDP, shall be provided in the locations shown on the CDP/FDP.
- d. All homes shall meet the thermal guidelines of the Virginia Power Energy Saver Program for energy efficient homes or its equivalent, as determined by DPWES for either electric or gas energy systems.

10. **GEOTECHNICAL STUDY -**

If required by DPWES and in accordance with the provisions of the PFM, Applicant shall submit a Geotechnical Study of the Application Property to the Geotechnical Review Board and shall incorporate appropriate engineering practices as recommended by the Review Board and DPWES into the design to alleviate potential structural problems.

11. **SEWER PUMP STATION -**

At time of site plan submission, the Applicant shall demonstrate to the satisfaction of DPWES that the existing pump station has adequate capacity to serve both the existing "Fairfax" development and the proposed development. Applicant shall provide necessary improvements

to the pump station to ensure that it has the capacity to accommodate the additional flow, if required, and subject to the approval of DPWES.

**12. RESTRICTIVE COVENANT -**

If and to the extent that the property covered by the application is not already subject to the operation of those certain reservations and/or restrictive covenants contained in the deed recorded in Deed Book 6382 at page 1930 among the land records of Fairfax County, Virginia, the applicant agrees to grant in favor of the United States Government restrictive covenants in a form identical to those contained in the Quitclaim Deed dated April 23, 1986, recorded in Deed Book 6382 at page 1930 among the land records of Fairfax County, Virginia.

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[SIGNATURE LINES BEGIN ON THE FOLLOWING PAGE]

Proffers  
RZ/FDP 1998-MV-059  
Page 14

APPLICANT/TITLE OWNER:  
Tax Map 108-1 ((1)) 47

CONTRACT PURCHASER:  
Tax Map 108-1 ((1)) 47A

SHAWNEE ROAD, L.L.C.

By: John E. Conley  
Its: Manager

Proffers  
RZ/FDP 1998-MV-059  
Page 15

TITLE OWNER:-

Tax Map 108-1 ((1)) 47A and 47B

MARRIOTT CONTINUING CARE, INC.

By: Michael Giacopelli  
Its: V.P.



**PROPOSED DEVELOPMENT CONDITIONS**

**FDP 1998-MV-059**

**April 12, 2000**

If it is the intent of the Planning Commission to approve FDP 1998-MV-059, staff recommends that the approval be subject to the following development conditions.

1. The play area shall include equipment suitable for ages 6 years through 10 years only, as documented by the applicant to the satisfaction of DPWES.
2. In the area adjacent to the parking area for the Fairfax Retirement Community that abuts this PDH-4 District in the easternmost portion of the proposed development, a double row of trees shall be planted. The trees in each row shall be forty (40) feet on center and the rows shall be staggered.
3. All the proposed dwelling units shall be constructed in a manner that would reduce interior noise to a level of approximately 45 dBA, if the units were to be constructed in an area affected by airplane noise between 65 dBA and 75 dBA. Therefore, all units shall be constructed such that the following acoustical attributes:
  - Exterior walls and roofs shall have a laboratory sound transmission class of at least 39.
  - Doors and windows shall have a laboratory STC rating of at least 28. If fenestration constitutes more than twenty (20) percent of any façade, they shall have the same STC rating as walls.
  - Measures to seal and caulk between surfaces shall follow methods approved by the American Society for Testing and Materials to minimize sound transmission.

**PROFFERS**  
**SHAWNEE ROAD, L.L.C.**  
**PCA-84-V-131**

**April 11, 2000**

Pursuant to Section 15.2-2303(A), of the Code of Virginia, 1950 as amended, and Section 18-204 of the Zoning Ordinance of Fairfax County, the property owner and applicant, for themselves and their successors or assigns (hereinafter collectively referred to as the "Applicant") in this proffered condition amendment, proffer that the development of the parcel under consideration and shown on the Fairfax County tax map as 108-1 ((1)) Parcel 47B (hereinafter the "Property") will be in accordance with the following conditions, subject to approval of this proffered condition amendment application. These proffers reaffirm those proffers previously approved with RZ 84-V-131 as they relate to tax map 108-1 ((1)) Parcel 47B only. The proffered conditions are:

1. **REAFFIRMATION OF PROFFERS -**

The Applicant hereby reaffirms those proffers as approved with RZ 84-V-131 in their entirety, subject to the following amendment as set forth in Paragraph 2 below.

2. **DEVELOPMENT PLAN -**

The Property shall be developed in substantial conformance with the generalized development plan/special exception amendment plat (GDP/SEA plat) dated October 19, 1998 prepared by Dewberry & Davis.

**[SIGNATURES BEGIN ON FOLLOWING PAGE]**

Proffers  
PCA 84-V-131  
Page 2

APPLICANT/CONTRACT PURCHASER:

Tax Map 108-1 ((1)) 47A

SHAWNEE ROAD, L.L.C.

By:   
Its: Manager

TITLE OWNER:

Tax Map 108-1 ((1)) 47A and 47B

MARRIOTT CONTINUING CARE, INC.

By: Michael Giacopelli  
Its: V.P.

PROPOSED DEVELOPMENT CONDITIONS

SEA 84-V-131

March 9, 2000

If it is the intent of the Board of Supervisors to approve SEA 84-V-131 located at Tax Map 108-1 ((1)) 47B (Belvoir Woods Drive) to amend SE 84-V-131 for Housing for the Elderly to reduce land area pursuant to Sect. 3-504 of the Fairfax County Zoning Ordinance, the staff recommends that the Board condition the approval by requiring conformance with the following development conditions:

1. This Special Exception Amendment is granted for and runs with the land indicated in this application and is not transferable to other land.
2. This Special Exception Amendment is granted only for the purpose(s), structure(s) and/or use(s) indicated on the Special Exception Amendment plat approved with the application, as qualified by these development conditions.
3. This Special Exception Amendment is subject to the provisions of Article 17, Site Plans, as may be determined by the Department of Public Works and Environmental Services (DPW & ES). Any plan submitted pursuant to this Special Exception Amendment shall be in substantial conformance with the approved Special Exception Amendment Plat **entitled The Fairfax and JCE Cook Inlet prepared by Dewberry & Davis, which is dated September 8, 1998 as revised through May 20, 1999 and these conditions**. Minor modifications to the approved Special Exception Amendment may be permitted pursuant to Par. 4 of Sect. 9-004 of the Zoning Ordinance.
4. The purpose of this special exception amendment is to delete land area. All development within the area subject to this special exception amendment shall be subject to these conditions and all the conditions adopted with the approval of SE 84-V-131 incorporated herein by reference, with the exception of Conditions Number 1, 2 and 3, which are superseded by the above conditions.

The above proposed conditions are staff recommendations and do not reflect the position of the Board of Supervisors unless and until adopted by that Board.

This approval, contingent on the above noted conditions, shall not relieve the applicant from compliance with the provisions of any applicable ordinances, regulations, or adopted standards.

This use shall be considered established with the approval of this Special Exception Amendment by the Board of Supervisors.

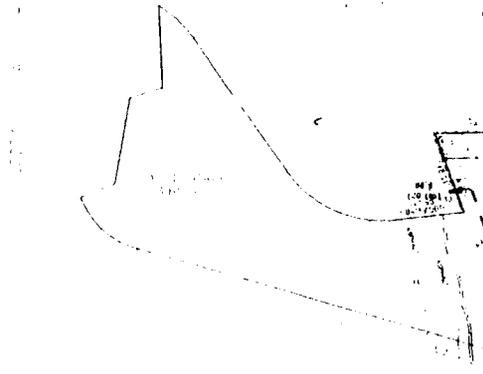




MATCH LINE - SEE SHEET 2

CURVE TABLE

STATION	CHORD BEARING	CHORD DIST.	ARC DIST.	ANGLE
1+00	113.00	113.00	113.00	90.00
2+00	113.00	113.00	113.00	90.00
3+00	113.00	113.00	113.00	90.00
4+00	113.00	113.00	113.00	90.00
5+00	113.00	113.00	113.00	90.00
6+00	113.00	113.00	113.00	90.00
7+00	113.00	113.00	113.00	90.00
8+00	113.00	113.00	113.00	90.00
9+00	113.00	113.00	113.00	90.00
10+00	113.00	113.00	113.00	90.00



1. THE PROPOSED DEVELOPMENT SHALL BE CONFORMANT WITH THE ZONING ORDINANCE AND ALL APPLICABLE REGULATIONS AND ORDINANCES OF THE CITY OF FAIRFAX, VIRGINIA.

2. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES AND AGENCIES OF THE CITY OF FAIRFAX, VIRGINIA.

3. THE DEVELOPER SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO ADJACENT PROPERTIES CAUSED BY THE DEVELOPMENT.

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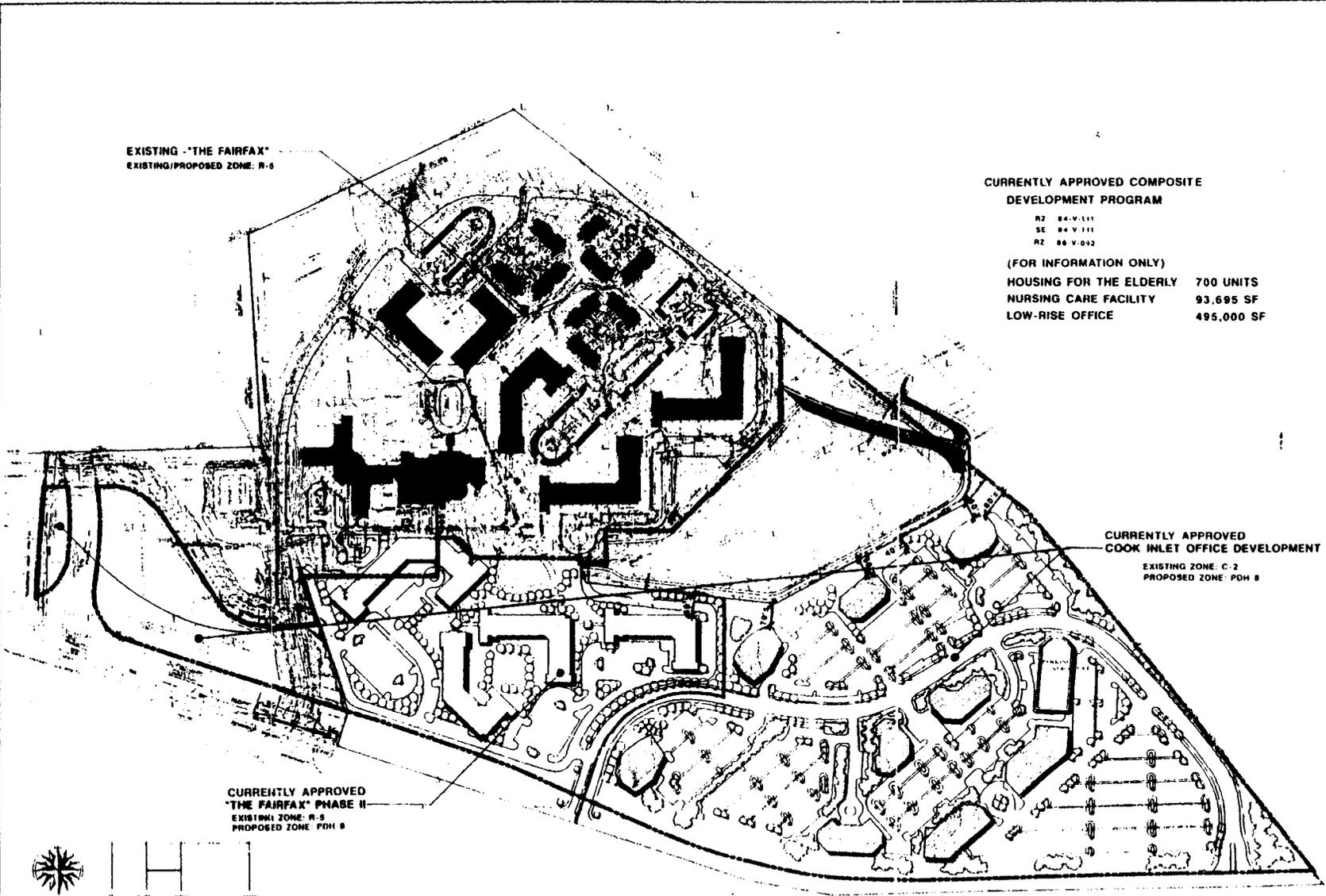
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EXISTING "THE FAIRFAX"  
EXISTING/PROPOSED ZONE: R-5

CURRENTLY APPROVED COMPOSITE  
DEVELOPMENT PROGRAM

RZ 84-V-111  
SE 84-V-111  
RZ 86-V-012

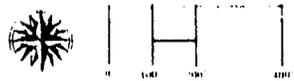
(FOR INFORMATION ONLY)

HOUSING FOR THE ELDERLY	700 UNITS
NURSING CARE FACILITY	93,695 SF
LOW-RISE OFFICE	495,000 SF

CURRENTLY APPROVED  
COOK INLET OFFICE DEVELOPMENT

EXISTING ZONE: C-2  
PROPOSED ZONE: PDH 8

CURRENTLY APPROVED  
"THE FAIRFAX" PHASE II  
EXISTING ZONE: R-5  
PROPOSED ZONE: PDH 8



THIS PLAN REFERS TO THE COMPOSITE DEVELOPMENT PROGRAM  
PREPARED BY: [unreadable]

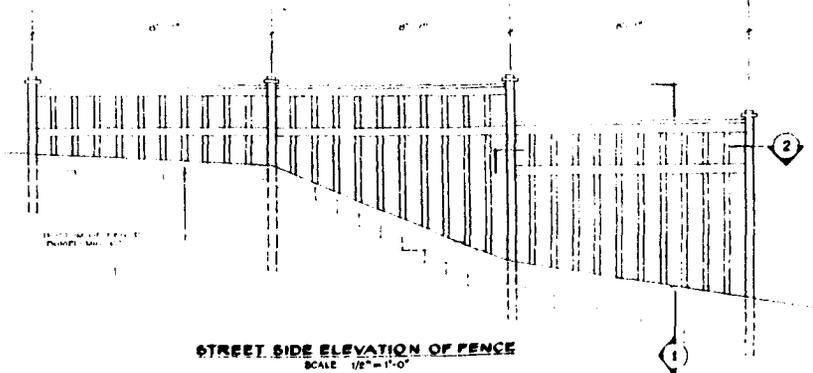
APPROVED PLAN FOR "THE FAIRFAX" AND COOK INLET OFFICE DEVELOPMENT

10/22/95

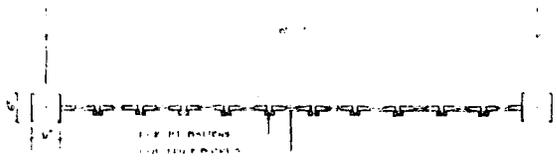


Dewberry & Davis  
 THIS SHEET FOR INFORMATION ONLY.  
 FAIRFAX COUNTY, VIRGINIA  
 JCE/COOK INLET  
 MOUNT VERNON DISTRICT  
 CURRENTLY APPROVED COMPOSITE DEVELOPMENT PROGRAM





**STREET SIDE ELEVATION OF FENCE**  
SCALE 1/8"=1'-0"



**TYPICAL FENCE DETAIL (2)**  
SCALE 1/4"=1'-0"

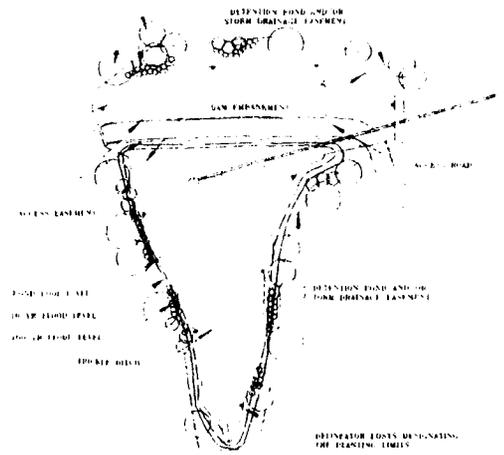
- 2x4 PT. RM
- 2x4 PT. CAP
- 2x2 PT. STRAIGHT
- 2x4 PT. GRINDER
- 1x6 PT. FENCE BANDS
- 1x2 PT. RAILINGS

NOTE: ALL 2x4 PT. RAILS AND BANDS SHOULD BE GRADED ONLY WITH PROFF. 3/8" 6-HOLE BUSHING AT EACH END.

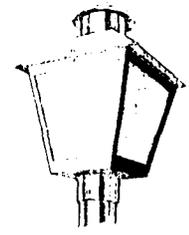


**TYPICAL FENCE DETAIL (1)**  
SCALE 1/4"=1'-0"

EMPLOYED ITEMS AND NOTES



**TYPICAL EXTENDED TIA FOND**  
SCALE 1/8"=1'-0"



Typical Site Lighting

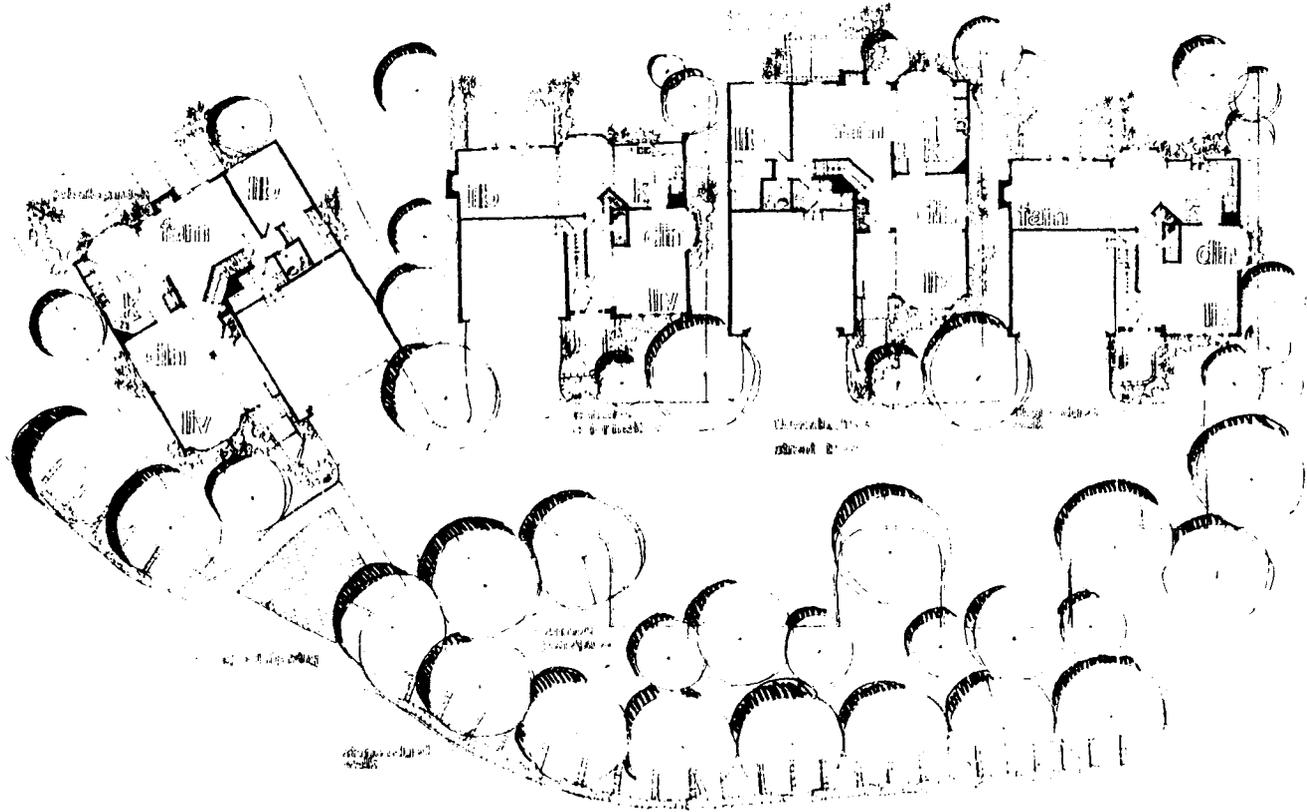


THE DETAILS AND TYPICAL EXHIBITS REPRESENTED ON THIS SHEET ARE PRELIMINARY. THEY ARE PRESENTED TO ILLUSTRATE THE GENERAL CHARACTER AND SCOPE OF THE PROPOSED DEVELOPMENT PROGRAM. THEY WILL BE REVISIONED AND SUBJECT TO MINOR MODIFICATIONS WITH FINAL ENGINEERING AND LANDSCAPE DESIGN.

STATE OF VIRGINIA  
**JOE COOK INLET**  
 MOBILE SERVICE CENTER

REG. NO. 13497-AP-0059  
 VIRGINIA LICENSED PROFESSIONAL ENGINEER

**Dewberry & Davis**  
 5401 AVENUE OF THE ARTS, FORTLAUDERDALE, FLORIDA 33404  
 PHONE: 352-433-0100 FAX: 352-433-0119



JCE

Dewberry & Davis  
 COOK INLET

THE LANDSCAPE AND HARDSCAPE ELEMENTS REPRESENTED ON THIS SHEET ARE PRELIMINARY. THEY ARE PRESENTED TO ILLUSTRATE THE GENERAL CHARACTER AND THEME OF THE PROPOSED TYPICAL SINGLE FAMILY DETACHED DWELLING DEVELOPMENT PROGRAM. THE ELEMENTS WILL BE REFINED AND SUBMITTED TO MINDOR CORPORATION WITH FINAL ENGINEERING AND LANDSCAPE DESIGN.

For Information Only

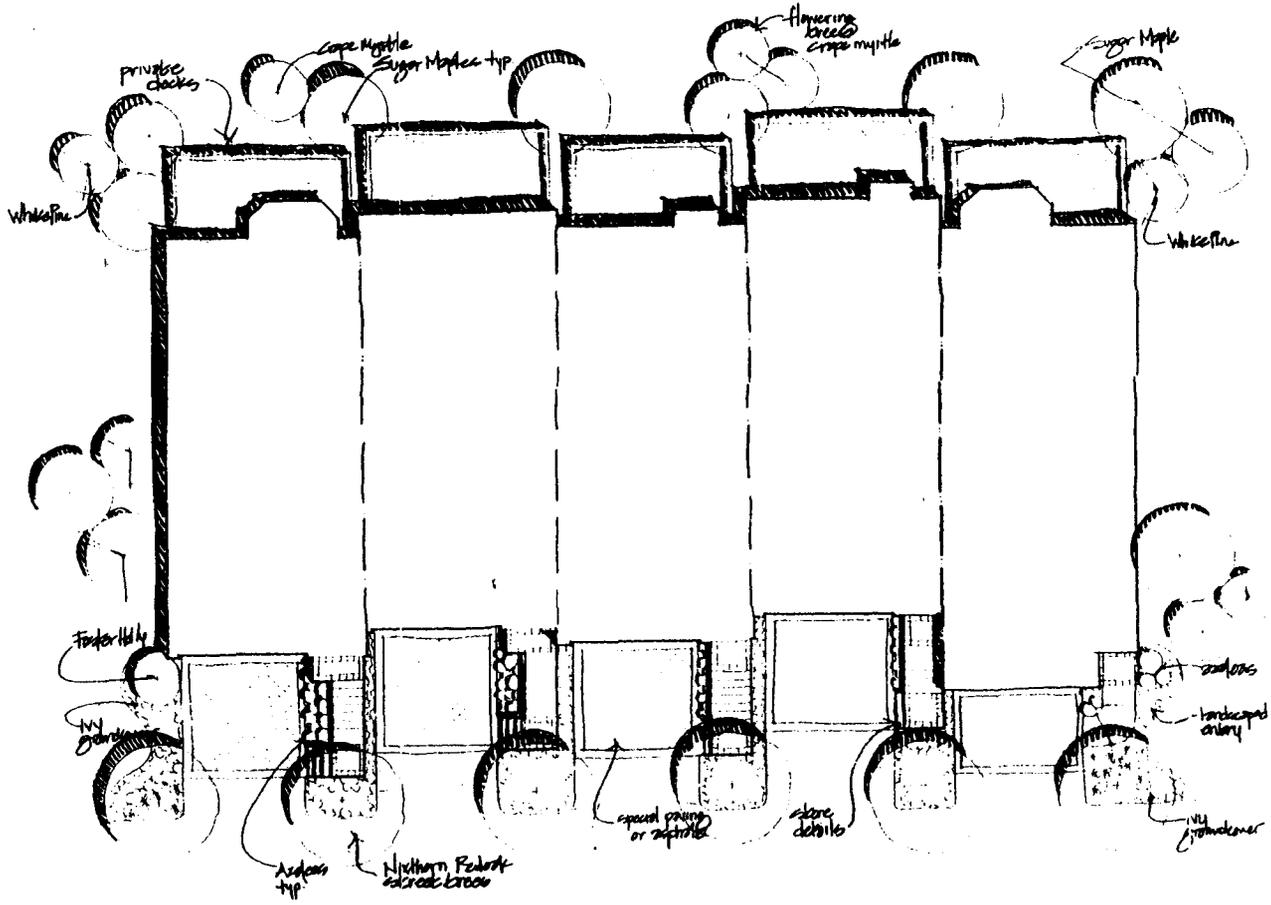
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 5-20-00  
 5-17-00

Dewberry & Davis  
 1101 Arlington Road - Fairfax, VA 22031  
 Telephone: (703) 441-9900 FAX: (703) 441-9915 Website: www.dewberry.com

JCE/COOK INLET  
 10000 VULCAN DISTRICT  
 COOK, VIRGINIA DISTRICT

PROJECT NO. 1500-MV-039  
 VIRGINIA



JCE

Dewberry & Davis  
 Cook Inlet  
 JCE/COOK INLET

preliminary 2/20/11 10/20/11

For Information Only  
 2/20/11  
 10/20/11

THE LANDSCAPE AND HARDSCAPE ELEMENTS REPRESENTED ON THIS SHEET ARE PRELIMINARY. THEY ARE PRESENTED TO ILLUSTRATE THE GENERAL CHARACTER AND THEME OF THE PROPOSED SINGLE FAMILY ATTACHED DWELLING DEVELOPMENT PROGRAM. THE EXACT PAVING MATERIALS AND SPECIES OF TREES AND SHRUBS WILL BE REFINED AND SUBJECT TO MINOR MODIFICATIONS WITH FINAL ENGINEERING AND LANDSCAPE DESIGN.

JCE/COOK INLET  
 SINGLE FAMILY ATTACHED  
 LANDSCAPE AND HARDSCAPE

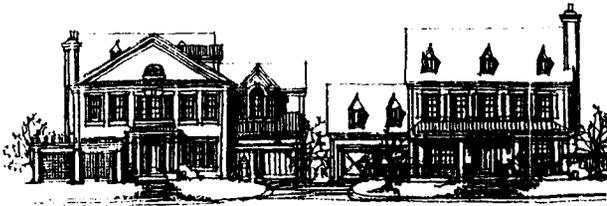
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JCE/COOK INLET  
 MOUNTAIN VIEW, VIRGINIA

**Dewberry & Davis**  
 8161 Arlington Road Fairfax VA 22031  
 703-819-0100 FAX 703-819-0112

10/20/11  
 10/20/11

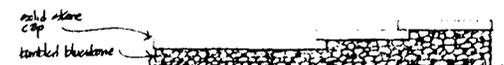
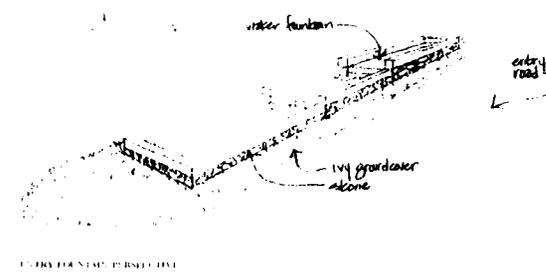
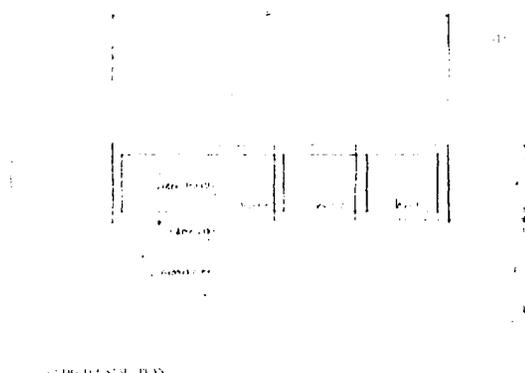




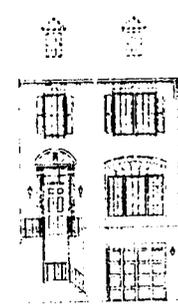
TYPICAL CLUSTERED SINGLE-FAMILY DETACHED HOUSING



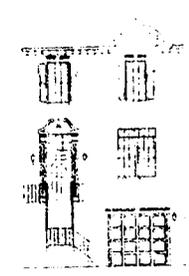
TYPICAL SINGLE-FAMILY DETACHED HOUSING



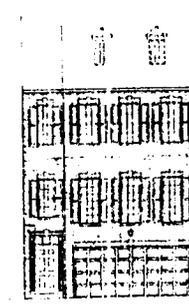
Dewberry & Davis  
COOK HILLET  
JCE



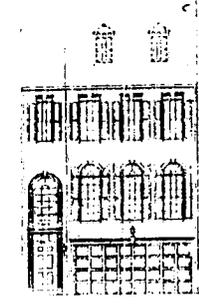
22" BRICK



22" SIDING



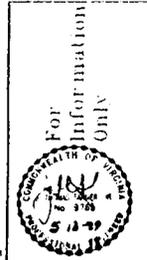
24" BRICK



24" SIDING

TYPICAL SINGLE-FAMILY ATTACHED HOUSING

THE LANDSCAPE FEATURE AND BUILDING ELEVATIONS REPRESENTED ON THIS SHEET ARE PRELIMINARY. THEY ARE PRESENTED TO ILLUSTRATE THE GENERAL CHARACTER AND ARCHITECTURAL THEMES OF THE PROPOSED DEVELOPMENT PROGRAM. THE FINAL MATERIALS AND ELEVATIONS WILL BE RECOMMENDED BY THE ARCHITECT IN CONSULTATION WITH FINAL ENGINEERING AND LANDSCAPE ARCHITECTURAL DESIGN.

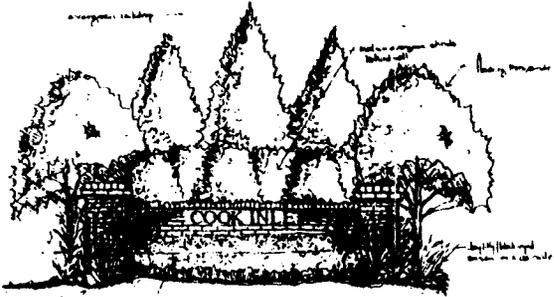


**Dewberry & Davis**  
Engineers  
Surveyors  
Landscape  
Architects  
1841 Arlington Blvd., Fairfax, Va. 22031  
703 840-0100 FAX 703 840-0116

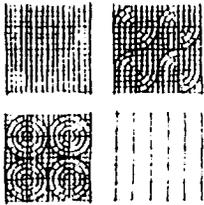
12/14/98 1998-VA-0039  
FAIRFAX COUNTY, VIRGINIA

TYPICAL ENTRY PORCH DETAIL AND ARCHITECTURAL ELEVATIONS  
**JCE/COOK INLET**  
MOUNTAIN VIEW

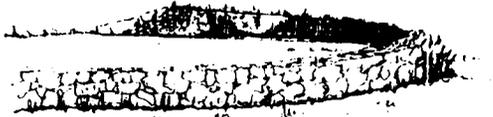
NO.	REVISION	DATE
1	ISSUED FOR PERMITS	04/27/99
2		
3		
4		
5		
6		
7		
8		
9		



FIVE FOOT STONE ENTRY WALL AND PLANTING



COMMUNITY PAVEMENT PATTERNS



STONE WALL AT STORM WATER RETENTION POND



FENCE AND BUILDING ELEVATION

Dewberry & Davis

COOK INLET



For Information Only

THE LANDSCAPE AND HARDSCAPE ELEMENTS AND DETAILS REPRESENTED ON THIS SHEET ARE PRELIMINARY. THEY ARE PRESENTED TO ILLUSTRATE THE GENERAL CHARACTER AND THIRING OF THE PROPOSED DEVELOPMENT PROGRAM. THE ELEMENTS AND DETAILS WILL BE REFINED AND SUBJECT TO MINOR MODIFICATIONS WITH FINAL ENGINEERING AND LANDSCAPE DESIGN.

TYPICAL - HARDSCAPE AND LANDSCAPE ELEVATIONS AND DETAILS  
**JCE/COOK INLET**  
 MOUNT VERNON DISTRICT

EZ/EDP 1998-MV-059

FAIRFAX COUNTY, VIRGINIA

**Dewberry & Davis**  
 8401 Arlington Blvd., Fairfax, Va. 22031  
 (703) 949-0100 FAX (703) 949-0118

Landscape Architects

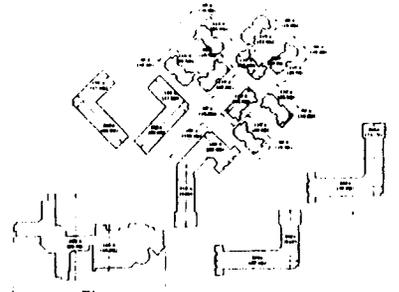


CURVE TABLE						
ID	STATION	DELTA	ARC	TANGENT	CHORD	CHORD BEARING
1	200.00	66.12	248.12	120.17	228.97	167.21 80° 4'
2	266.12	90.00	314.16	157.14	300.00	167.21 80° 4'

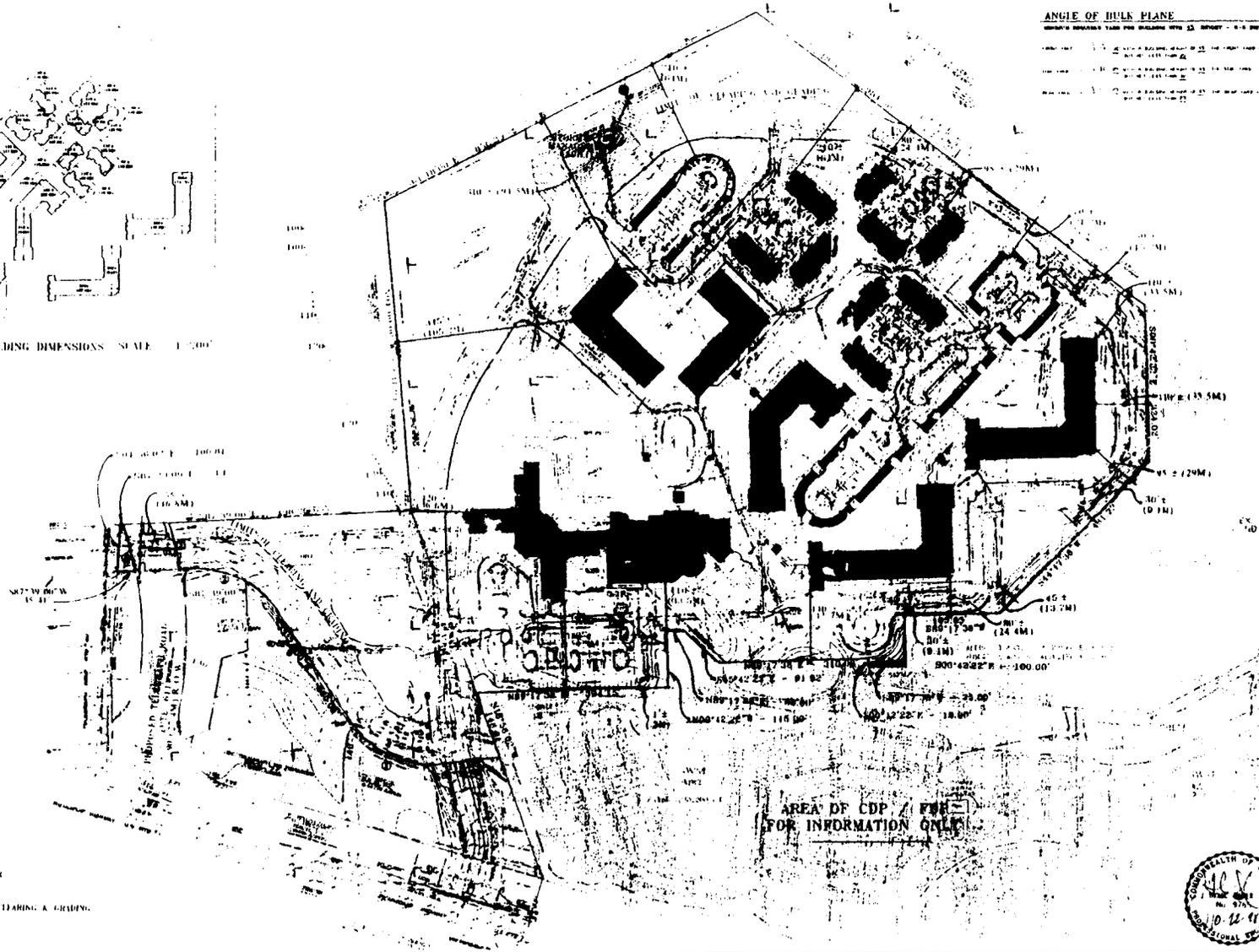
AREA OF GDPA / SEA  
EXISTING - "THE FAIRFAX"  
(NO CHANGE PROPOSED)



ANGLE OF BULK PLANE  
... ..



BUILDING DIMENSIONS SCALE 1"=200'



AREA OF CDP / FPA  
FOR INFORMATION ONLY

- LEGEND
- FASTING SANITARY SEWER
  - FASTING WATER MAIN
  - APPROXIMATE LIMITS OF CLEARING & GRADING



**Dewberry & Davis**  
Engineers  
Planners  
Architects  
9401 Arlington Blvd., Fairfax, VA 22031  
(703) 849-0100 FAX (703) 849-0118

SEA 84-V-131  
GDPA FOR PLA 84-V-131  
FAIRFAX COUNTY, VIRGINIA

GENERALIZED DEVELOPMENT PLAN AMENDMENT  
SPECIAL EXCEPTION AMENDMENT P1 V1  
**THE FAIRFAX**  
MOUNT VERSION 7/CT

DATE: 10/19/91  
SCALE: 1" = 100'  
PLAN NUMBER: 10-22-91



PROFFERED CONDITION AMENDMENT / SPECIAL EXCEPTION AMENDMENT

PCA 84-V-131

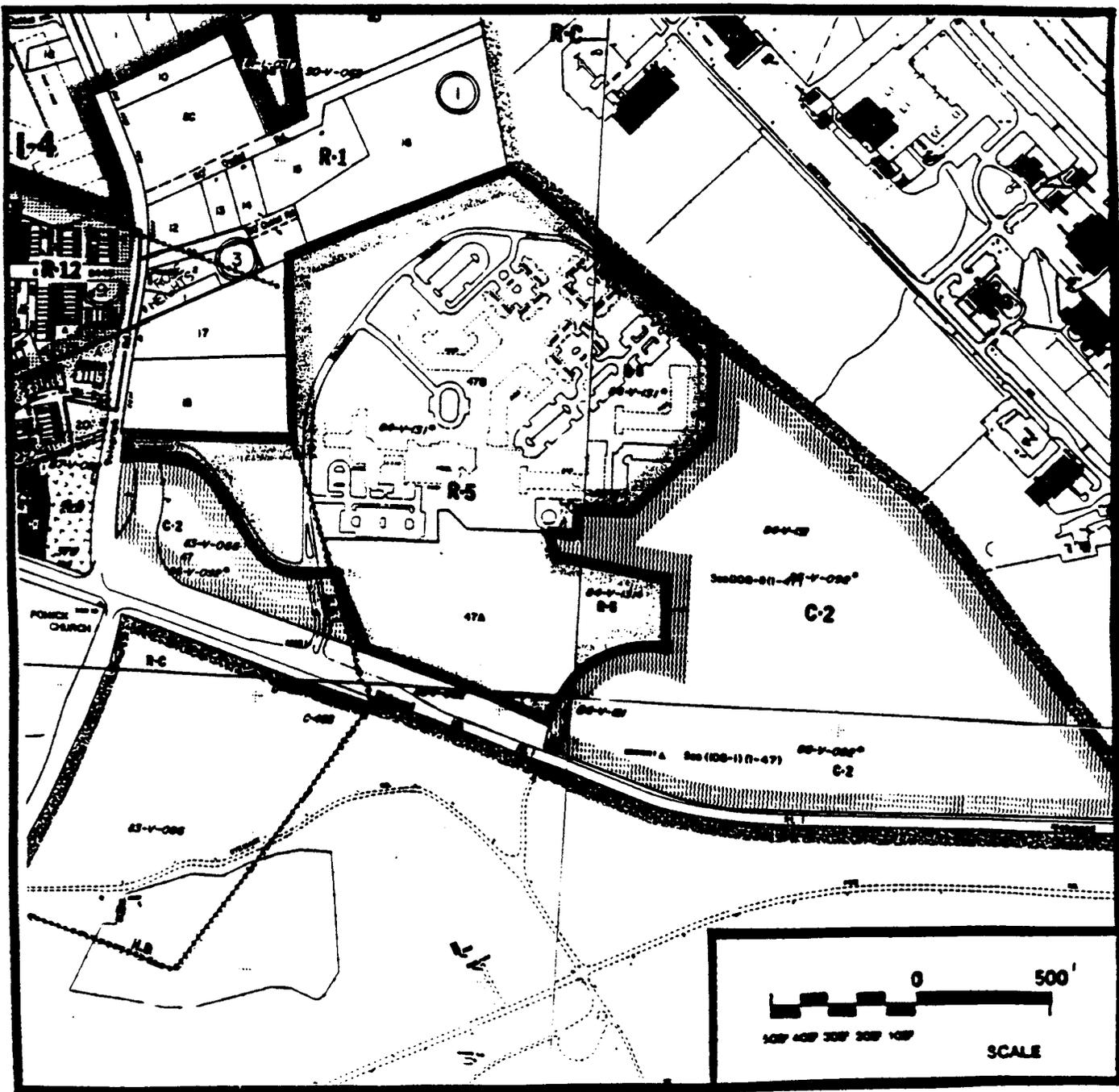
PCA 84-V-131  
FILED 11/04/98

SHAWNEE ROAD, L.C.  
PROFFERED CONDITION AMENDMENT  
PROPOSED: RESIDENTIAL DEVELOPMENT  
APPROX. 52.77 ACRES OF LAND; DISTRICT - MT VERNON  
LOCATED: NORTH SIDE OF RICHMOND HIGHWAY, APPROXIMATELY  
800 FEET EAST OF TELEGRAPH ROAD  
ZONING: R-5  
OVERLAY DISTRICT(S): HD  
108-1- /01/ /0047-A ,0047-B  
MAP REF

SEA 84-V-131

SEA 84-V-131  
FILED 11/04/98

SHAWNEE ROAD, L.C.  
AMEND SE 84-V-131 FOR HOUSING FOR THE ELDERLY  
AND MEDICAL CARE FACILITY TO PERMIT REDUCTION  
IN LAND AREA  
ZONING DIST SECTION: 03-0604 03-0604  
ART 9 CATEGORY/USE: 03-04 03-06  
52.77 ACRES OF LAND; DISTRICT - MT VER  
LOCATED: BELVOIR WOODS PARKWAY  
ZONED R-5  
OVERLAY DISTRICT(S): HD PLAN AREA 4  
108-1- /01/ /0047-A ,0047-B  
TAX MAP



**REZONING APPLICATION /  
RZ 1998-MV-059**

**FINAL DEVELOPMENT PLAN  
FDP 1998-MV-059**

FILED 11/04/98 AMENDED 5/19/99  
SHAWNEE ROAD, L.C.  
TO REZONE: 60.55 ACRES OF LAND; DISTRICT - MT VERNON  
PROPOSED: REZONE FROM THE R-5 AND C-2 DISTRICTS TO  
THE PDH-8 DISTRICT TO PERMIT RESIDENTIAL  
DEVELOPMENT  
LOCATED: INTERSECTION OF TELEGRAPH ROAD AND RICHMOND  
HIGHWAY  
ZONING: C-2 R-5  
TO: PDH-4  
OVERLAY DISTRICT(S): HD  
108-1- /01/ /0047- ,0047-A  
MAP REF

FILED 11/04/98  
AMENDED 5/19/99  
SHAWNEE ROAD, L.C.  
FINAL DEVELOPMENT PLAN  
PROPOSED: RESIDENTIAL DEVELOPMENT  
APPROX. 60.55 ACRES OF LAND; DISTRICT - MT VERNON  
LOCATED: INTERSECTION OF TELEGRAPH ROAD AND RICHMOND  
HIGHWAY  
ZONING: PDH-4  
OVERLAY DISTRICT(S): HD  
108-1- /01/ /0047- ,0047-A  
MAP REF

