ROUTING AND TRANSMITTAL SLIP

Date 14 JUL 1986

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. ADDA		14 JUL 1986
2.		
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Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

Hank —

Per your request. Let me know if you need anything else.

STAT

Hank

We are in the process of putting together a memo re NPD expansion

ILLEGIB

STAT

5041-102 OPTI Presc

P&PD EXPANSION STUDY rev 6/18/85

SECTION I

A. This report provides a comparison of seven variations to add more space to the P&PD building for office and computer equipment; a summary of the schemes is in Table 1-1. A discussion of factors and issues influencing expansion at P&PD is in Section II. Section III provides the time schedule of activities necessary to build the expansion. Conclusions and Recommendations are in Section IV. Detailed explanations of the schemes and their estimates are found in the attachments to Section V.

B. Purpose and Scope

The purpose of this study is to define the feasible expansion at P&PD which could provide space for requirements anticipated by the COMPUTER STUDY PANEL in their report of 15 February 1985, and to provide some additional office space on the compound beyond that amount to be made available by 1988.

TABLE I-1

COST AND SCHEDULE SUMMARY

Alternative Number	Approach	Computer Space (SF)	Office Space (SF)	Total Net SF	Total Gross SF	Estimated Cost	Design and Const. Mos.	Parking Reqd.
STAT 1	One story addition above existing	34,000 4,000 UPS	4,800	42,800*	49,200	$ 9,643,000	35	
2	Two story addition above existing	6,600 2,200 UPS	68,000	76,800*	87,600	$12,622,000	38	
3	Two story addition adjacent to existing	50,000 5,000 UPS	8,800	63,800*	85,100	$13,487,000	38	
4	Two story addition above plus two story addition adjacent	50,000 5,000 UPS	76,800	131,800*	161,300	$30,447,000	39	
5	Two story addition above plus four story addition adjacent	50,000 5,000 UPS	131,800	186,800*	235,000	$38,194,000	40	
6	Separate New Building	50,000 5,000 UPS	5,000	60,000	80,000	$20,110,000	36	
7	One story addition above plus three story addition adjacent	6,600 2,200 UPS	65,400 plus 43,000 - Printshop	117,200*	151,650	$26,144,000	38	

*Includes 8,800 SF expansion of basement of existing building.

SECTION II

A. NCPC and Community Issues.

The concerns relative to the local community and the National Capital Planning Commission (NCPC) are interlaced by issues of traffic on local feeder roads to Headquarters, the amount of parking in the compound and the neighbors' fear that growth of CIA facilities and population will diminish their property values. The Agency has made promises that parking and population will be held to levels approved for the New Headquarters Building (NHB) and has agreed that peak traffic flow through the gates will not exceed levels measured by the State in 1982.

Traffic Flow: Current planning for the NHB has already exceeded the NCPC guidelines for population growth on the compound. The larger proposals in this study increase
STAT population by [redacted] to over [redacted] people. Although some of this impact might be reduced by traffic management, it will be impossible for the Agency to keep its commitment to hold peak hour traffic at the 1982 level. Failure to do so will result
STAT in the Agency's escrow fund [redacted] being spent to widen Route 123. Such expenditure may be only a moderate cost impact, but local community reaction will be very extensive.

STAT
STAT Parking: Only [redacted] parking spaces will be available when NHB is completed; an estimated shortage of [redacted] parking spaces is predicted. The degree to which expansion at P&PD makes the shortage worse varies with each of the schemes; Table 1-1 shows the parking recommended for each. Unfortunately, more parking cannot be built without either constructing more multilevel parking structures or denuding the site of its trees - either will enflame the neighbors. The cost estimates provided in Appendix A only account for simple surface parking and not parking structures.

Public Review: Expansion schemes 2 through 7 are of such size that full NCPC reviews will be required with environmental assessment hearings and master plan revisions prior to detailed project reviews. Scheme 1 may possibly be considered by NCPC to be small enough in impact to require only staff review with out public hearings.

SECTION II.

B. Central Utility System Capacity.

Scheme 2 can be supported by the 1987 plant capacity that is now being installed.

Schemes 1,3 and 6 are borderline cases that would consume the spare cooling and electric capacity reserved for future demand in the main office buildings; some additional cooling and electric capacity should be added to preserve this spare capacity.

Schemes 4,5, and 7 or a combination of 6 with any other scheme, will overrun the 1987 plant and will require a major expansion of cooling and electrical facilities estimated at 5 million dollars. That amount has been included in the total construction estimates for these schemes.

C. Interference with P&PD Operations

Only scheme 6 would not cause adverse impact to P&PD operations. Scheme 3 would minimize interruptions but would cause outages to utilities and vibration intermittently for about 8 to 10 months at the beginning of construction. Schemes 1 and 2, being equal in impact, would increase the frequency and duration of outages over those of scheme 3. Schemes 4, 5, and 7 present the greatest adversity to operations. Further study with P&PD experts is necessary to fully understand the real extent of predicted impacts and to develop a plan to accomplish essential daily work elsewhere.

SECTION II

D. Rental Facilities Compared with New Construction.

The feasibility of leasing custom built facilities was also investigated. Annual rents for facilities similar to those in schemes 1 - 6 range from $17.50 to $24.00 per sf in STAT [redacted] For an additional $2 per sf per year, 3.6 auto parking spaces are provided with each 1000 sf of space rented. At those rates, scheme 5 would range from 3.7 to 4.9 million dollars per year and the rental costs would equal construction cost on the compound in about 6 to 9 years. Local developers may also be interested in making lease-purchase agreements which would be attractive to the Agency.

The advantages of leasing or lease-purchases are several: first, renting offers the ability to acquire parking and to avoid the community/traffic problems at Headquarters; second, overrunning the capacity of the utilities,food service and support systems at Headquarters is avoided ; third, the problem of providing major funding for lumpsum construction contracts is diffused to relatively small annual payments.

SECTION III

A. Project Schedule.

The estimates of time required to design and build the schemes are based the traditional sequential process of design development, contract documents, bidding, contract award and construction; these estimates assume that the Agency program and detailed statement of user-requirements are established beforehand. The period of 35 to 40 months could be reduced to about 28 months if fast-tracking methods of overlapping design and construction efforts would be used; however that would require assurance that all NCPC/community approvals and special arrangements with the contracting agency were in place before activities began.

SECTION IV

A. Conclusions:

1. All of the schemes are technically feasible, but schemes 4, 5, 6, and 7 are very costly. This is due in part to the assumed need for full RFI shielding around computer rooms and the need to expand basic utilities.
Also note that the cost estimates are based on 1985 prices and will rise with inflation.

2. The 1987 facilities now under construction are planned to support only the population of original and new Headquarters buildings. Each of these schemes over-burden to some extent the capacity of the 1987 facilities.

3. Schemes 2, 4, 5, and 7 with their high populations impose severe burdens in the areas of traffic flow, parking and food service. Expansion of parking structures and cafeterias would be necessary with these schemes.

4. Schemes 4, 5, and 7 will require major upgrading of the utility systems. Combinations of scheme 6 with any of the others cannot be supported by the compound.

SECTION IV.

A. Conclusions.

5. The relationship with the community is volatile. Public reviews of the master plan revisions and environmental assessments are unavoidable. Public reaction will be dependent on the manner in which traffic and parking problems are handled; these issues must be resolved at the conceptual stage because they have such a basic effect on the project.

6. All schemes except number 6 will have an adverse impact on P&PD production; if any of these schemes are approved for further development, a plan to accomplish necessary P&PD work during the construction should be made.

7. It should be recognized that construction of any of these schemes would not fulfill the Computer Study Panel recommendation for expandable computer facilities, because facilities in this part of the compound cannot be further expanded.

8. Construction of even the largest of these schemes will not provide the amount of office and computer space that will be needed in the 1990's.

B. Recommendations:

In lieu of Schemes 1 through 7 , it is recommended that the Agency space requirements for the period of 1988 to 1999 be satisfied by the acquisition of facilities STAT STAT which can initially provide 300,000 net sf of office and 55,000 net sf of computer space. These facilities should be expandable so that the computer space may be doubled and the office space may be increased by one third after 1992. Such facilities should be acquired through lease-purchase agreements.

SECTION V.

Appendicies:

Appendix A - A copy of the analysis and estimates of of each scheme, which were prepared by DICON, are attached.

Appendix B - A copy of the Rental Costs information is attached.

Copy 1

ALTERNATIVE DESIGN CONCEPTS

AND

BUDGETARY ESTIMATES

FOR

EXPANSION

OF

PRINTING AND PHOTOGRAPHY DIVISION BUILDING

DICON ARCHITECTS AND ENGINEERS
8133 Leesburg Pike, Suite 910
Vienna, Virginia 22180
Tele. (703) 827 - 8370

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ALTERNATIVE DESIGN CONCEPTS

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BUDGETARY ESTIMATES

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PRINTING AND PHOTOGRAPHY DIVISION BUILDING

SUBMITTED 6-5-85

REVISED 6-6-85, 6.17.85

Contents

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Preparation of the Alternative Design Concepts and Budgetary Estimates was commissioned by the Agency on May 30, 1985. The object has been to describe and define features of seven (7) alternatives for the expansion of the Printing and Photography Division Building. Alternative design concepts were identified by the Agency and have been developed in the detail required for reasonable cost estimates. Cost estimates were then developed from the concept designs from data on similar facilities which have been or are substantially completed by DICON's parent companies. The cost estimates recognized the different circumstances under which construction of each Alternative would take place. Although the time available for preparation of the Alternative Design Concepts and Budgetary Estimates was relatively short, four (4) days, the quality of the work in terms of program planning estimates has not suffered. DICON's parent companies have been involved in the design and construction of many similar facilities during the past five (5) years. Their specialization in the design and construction of unique defense facilities housing large data processing centers has provided a substantial data base for estimating the cost of every feature of each Alternative. Estimated costs have been adjusted to reflect the differential between the Washington, D.C. area and the several other locations in the United States used in the data source. In addition, the cost increase or decrease to accommodate special features as directed by the Agency has been recognized in the estimates.

Table ES-1 shows the principal feature and the estimated cost of each alternative considered.

TABLE ES-1

COST AND SCHEDULE SUMMARY

Alternative Number	Approach	Computer Space (SF)	Office Space (SF)	Total Net SF	Total Gross SF	Estimated Cost	Design and Const. Mos.
1	One story addition above existing	34,000 4,000 UPS	4,800	42,800*	49,200	$ 9,643,000	35
2	Two story addition above existing	6,600 2,200 UPS	68,000	76,800*	87,600	$12,622,000	38
3	Two story addition adjacent to existing	50,000 5,000 UPS	8,800	63,800*	85,100	$13,487,000	38
4	Two story addition above plus two story addition adjacent	50,000 5,000 UPS	76,800	131,800*	161,300	$30,447,000	39
5	Two story addition above plus four story addition adjacent	50,000 5,000 UPS	131,800	186,800*	235,000	$38,194,000	40
6	Separate New Building	50,000 5,000 UPS	5,000	60,000	80,000	$20,110,000	36
7	One story addition above plus three story addition adjacent	6,600 2,200 UPS	65,400 plus 43,000 Printshop	117,200*	151,650	$26,144,000	38

*Includes 8,800 SF expansion of basement of existing building.

SECTION 1
ALTERNATIVE CONCEPTS

SECTION 1

ALTERNATIVE CONCEPTS

The pages that follow provide detailed descriptions of seven (7) Alternative Concepts for potential expansion of the Printing and Photography Division (P&PD) Building. These concepts vary from a minimal one story addition producing a total building area of 115,880 sq. ft. to a major vertical and horizontal expansion producing a total building area of more than 300,000 sq. ft. This selection therefore provides the reviewer with a wide range of alternatives.

To support the individual descriptions, Figures 1A thru 7A provide aerial perspective sketches illustrating the physical characteristics of each Scheme and Figures 1B thru 7B provide three dimensional "Exploded Plan" Diagrams of each scheme showing the physical relationships between its expansion areas and the existing building.

One special consideration, not shown on the following pages, is the effect of proposed construction on the operations that are currently conducted in the existing building. Schemes 1,, 2, 4, 5 and 7, because of the vertical expansion required, will create considerable disturbance to existing personnel. Scheme 3, which involves only lateral expansion, would minimize but not eliminate such disturbance and Scheme 6, being a totally independent building would have no effect on the existing operation.

Expansion Scheme No. 1

This Alternative Concept would provide for addition of the following areas to the existing P&PD Building:

A. One (1) additional floor on top of the existing building having exactly the same configuration as the upper level.

B. A three (3) story infill of the 30' x 50' north-east corner of the existing building.

C. A 10,800 sq. ft. underground expansion of the south end of the existing basement level.

The new Second Floor would not adversely effect the existing superstructure since its original design anticipated the future addition of two (2) full floor levels. The additional story would provide a net increase of 34,000 SF of computer space. The basement level expansion would provide a net increase of 8,800 SF of which 4,000 SF would be allocated for UPS equipment and the remaining 4,800 SF for office space. An additional 6,400 SF would be required for Service Areas consisting of stairs, new elevators, toilets and circulation.

In summary, Scheme No. 1 would provide New Construction totalling 49,200 Square Feet as follows:

	Building Area (Sq. Ft.)
Computer Areas	34,000
UPS Area	4,000
Office Areas	4,800
Additional Net Area	42,800 SF
Service Areas	6,400
Additional Gross Area	49,200 SF
Existing P&PD Building Area	66,680
Resultant Total Building Area	115,880 SF

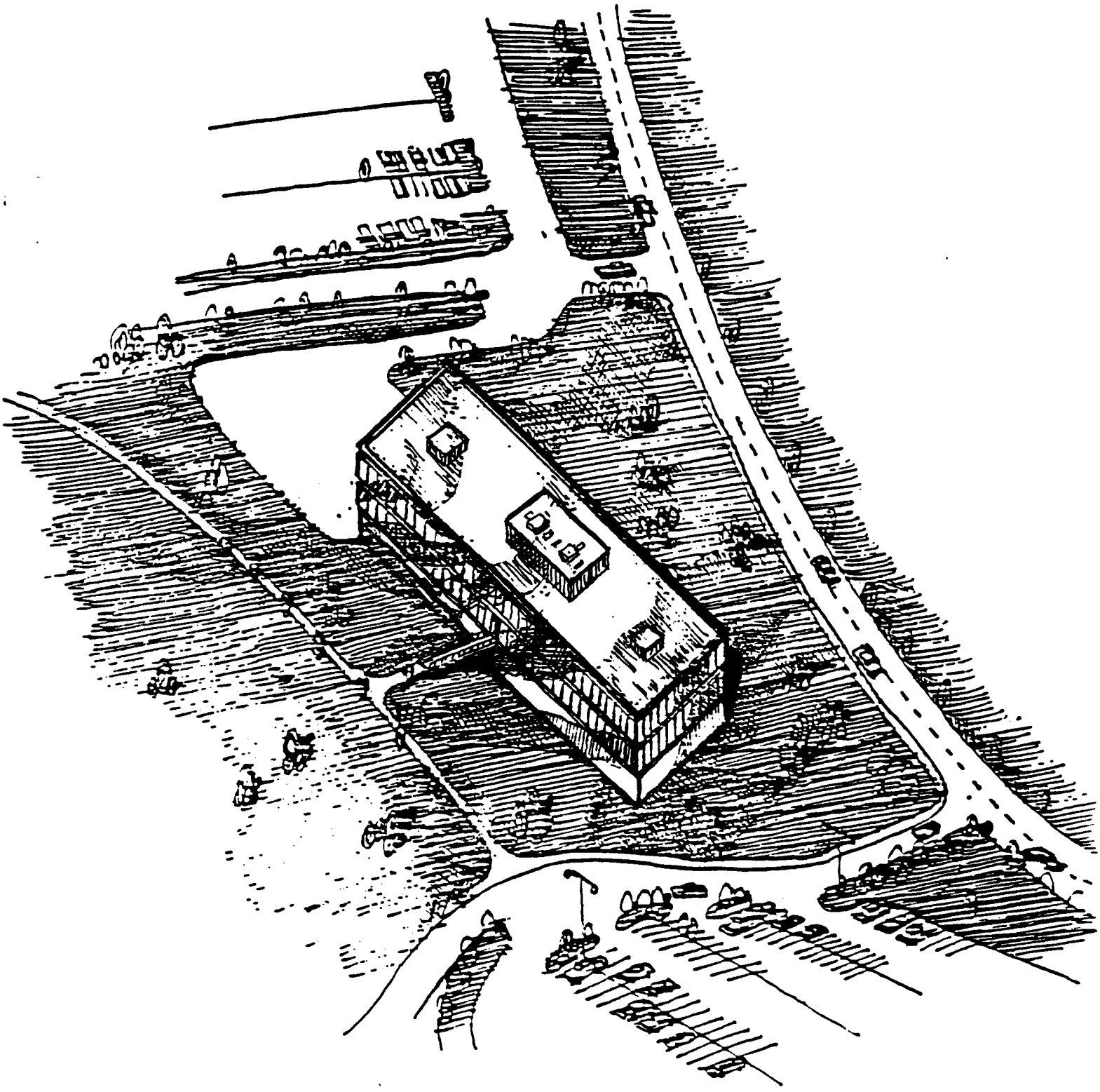
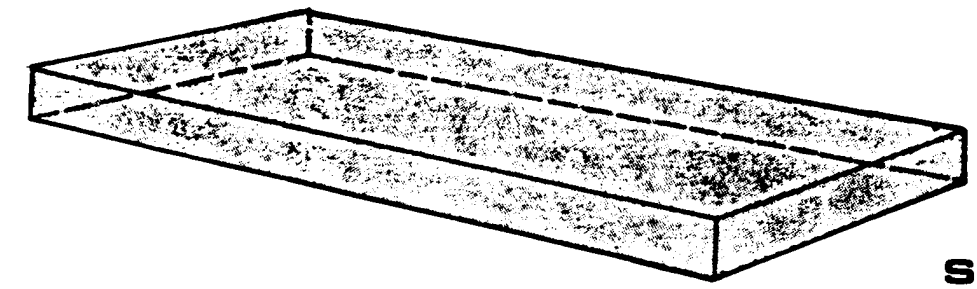


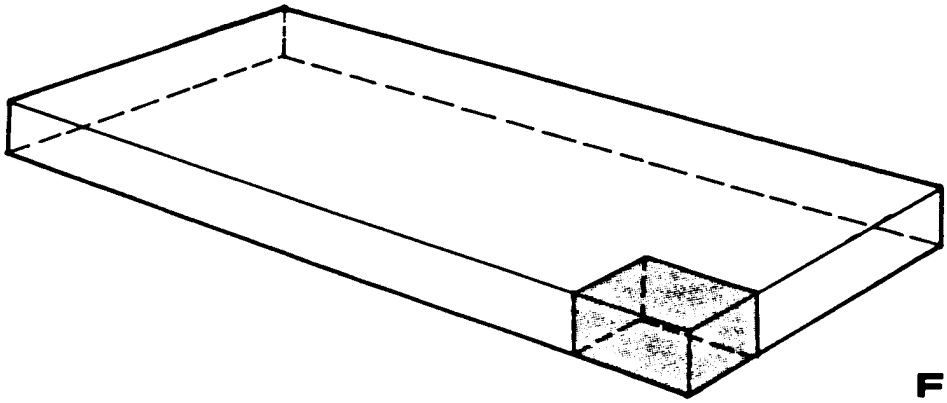
Figure 1A

SCHEME 1



34,000 S.F.

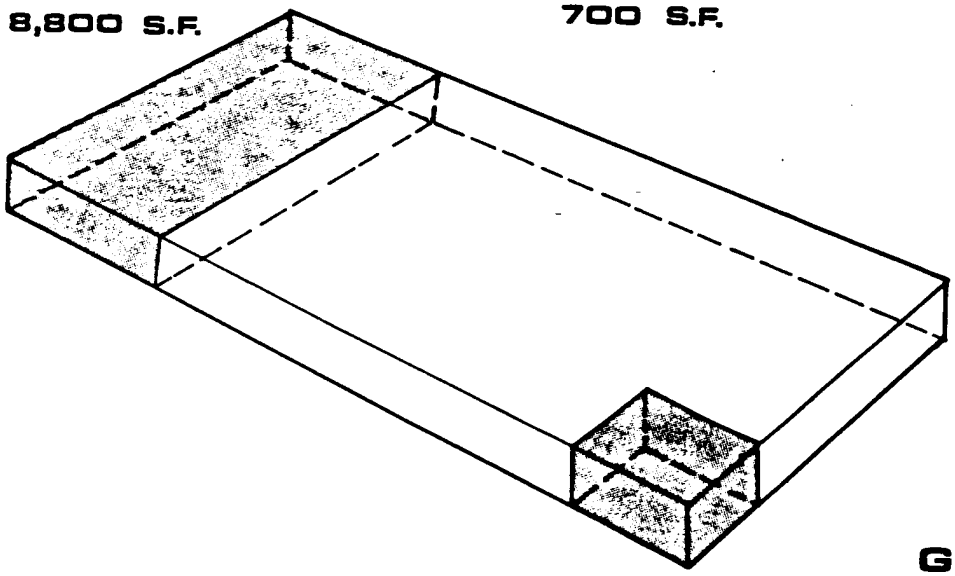
SECOND FLOOR



FIRST FLOOR

8,800 S.F.

700 S.F.



GROUND FLOOR

700 S.F.

EXISTING

NEW

Figure 1B

SCHEME 1

Expansion Scheme No. 2

This Alternative Concept would provide for the addition of the following areas to the existing P&PD Building:

A. Two (2) additional floors on top of the existing building having exactly the same configuration as the upper level.

B. A four (4) story infill of the 30' x 50' north-east corner of the existing building.

C. A 10,800 sq. ft. underground expansion of the south end of the existing basement level.

The weight contributed by the new Second and Third Floors would not adversely effect the existing superstructure since its original design anticipated the future addition of two (2) full floor levels. The additional stories would provide a net increase of 68,000 SF of office space. The basement level expansion would provide a net increase of 8,800 SF of which 2,200 SF would be allocated for UPS equipment and the remaining 6,600 SF for computer space. An additional 10,800 SF would be required for Service Areas consisting of stairs, new elevators, toilets and circulation.

In summary, Scheme No. 2 would provide New Construction totalling 87,600 Square Feet as follows:

	Building Area (Sq. Ft.)
Computer Areas	6,600
UPS Area	2,200
Office Areas	68,000
Additional Net Areas	76,800 SF
Service Areas	10,800
Additional Gross Area	87,600 SF
Existing P&PD Building Area	66,680
Resultant Total Building Area	154,280 SF

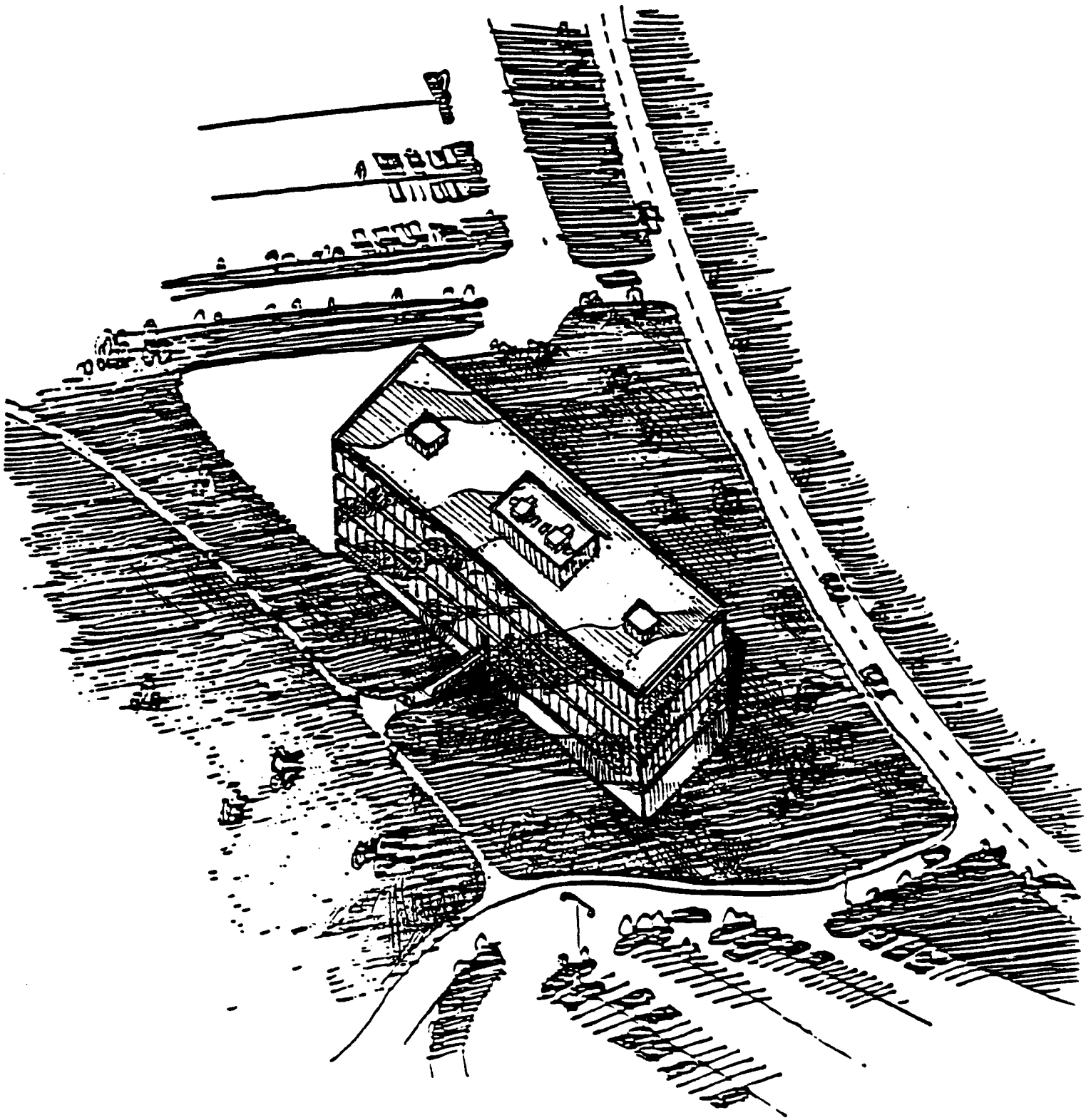


Figure 2A

SCHEME 2

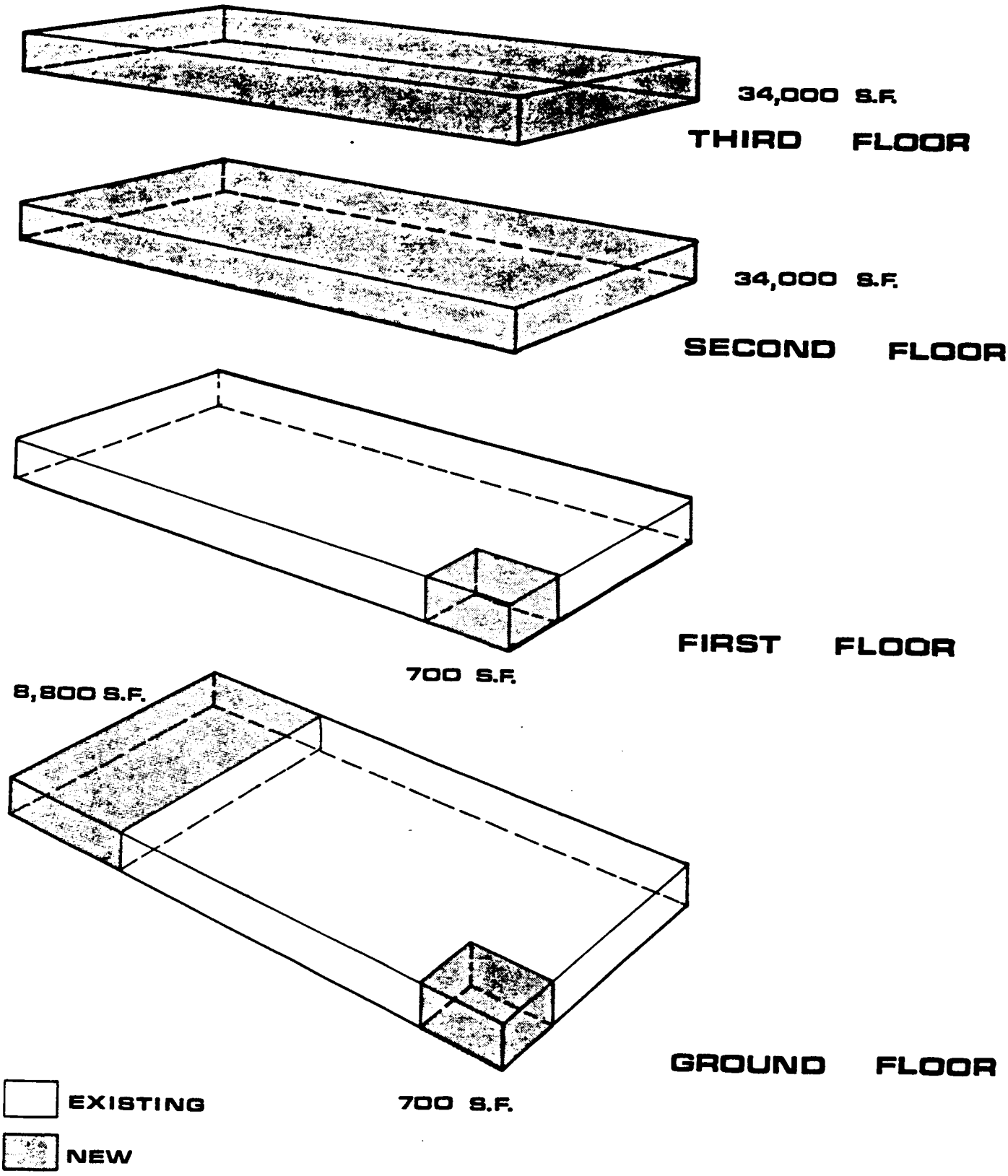


Figure 2B

SCHEME 2

Expansion Scheme No. 3

This Alternative Concept would provide for addition of the following areas to the existing P&PD Building:

A. An irregularly shaped two (2) story addition abutting the north and west sides of the existing P&PD Building.

B. A two (2) story infill of the 30' x 50' north-east corner of the existing building.

C. A 10,800 sq. ft. underground expansion of the south end of the existing basement level.

D. An irregularly shaped two (2) story stairs/elevators/entrance tower appended to the east wall of the existing building.

Areas A and D, above, being new horizontal additions, will require new caisson foundations similar to those of the existing building. The building addition would provide a net increase of 50,000 SF of computer space and 5,000 SF for UPS equipment. The basement level expansion would provide a net increase of 8,800 SF of office space. An additional 21,300 SF would be required for Service Areas consisting of stairs, new elevators, toilets and circulation.

In summary, Scheme No. 3 would provide New Construction totalling 85,100 Square Feet as follows:

	Building Area (Sq. Ft.)
Computer Areas	50,000
UPS Area	5,000
Office Areas	8,800
Additional Net Area	63,800 Sq. Ft.
Service Areas	21,300
Additional Gross Area	85,100 Sq. Ft.
Existing P&PD Building Area	66,680
Resultant Total Building Area	151,780 Sq. Ft.

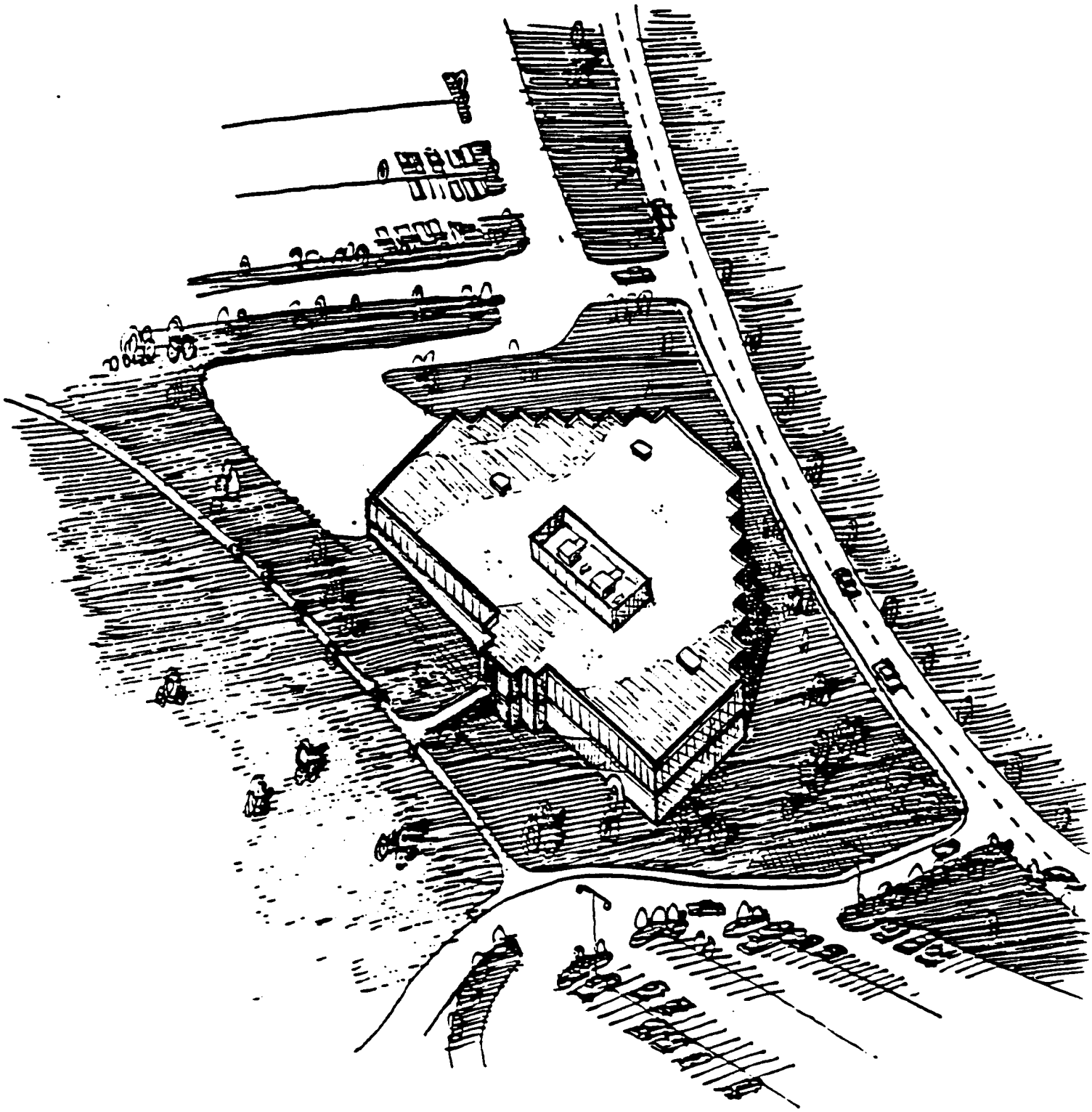


Figure 3A

SCHEME 3

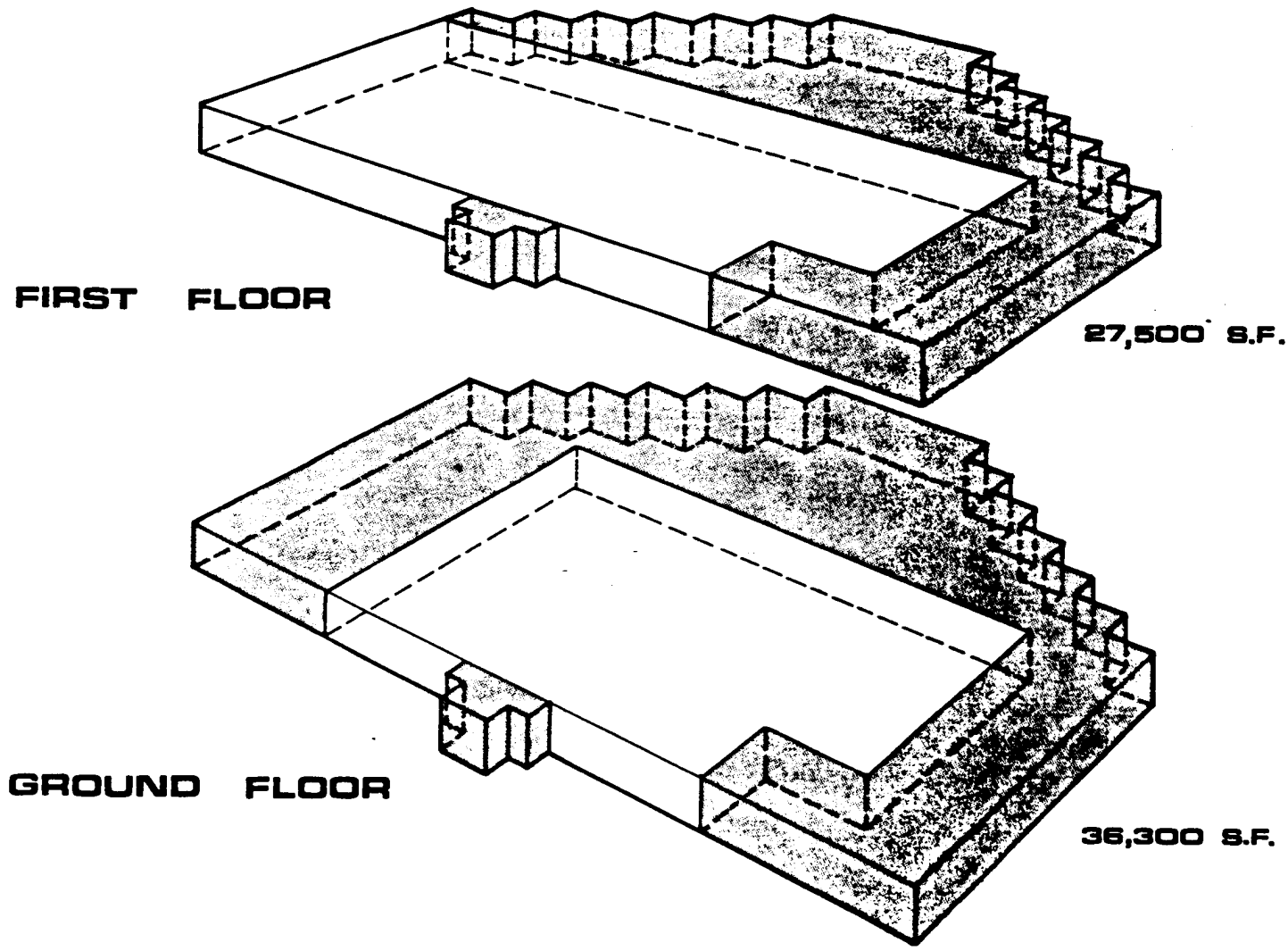


Figure 3B

SCHEME 3

Expansion Scheme No. 4

This Alternative Concept would provide for addition of the following areas to the existing P&PD Building:

A. An irregularly shaped two (2) story addition abutting the north and west sides of the existing P&PD Building.

B. Two (2) additional floors on top of the existing building having exactly the same configuration as the upper level.

C. A four (4) story infill of the 30' x 50' north-east corner of the existing building.

D. A 10,800 sq. ft. underground expansion of the south end of the existing basement level.

E. An irregularly shaped four (4) story stairs/elevators/entrance tower appended to the east wall of the existing building.

Areas A and E, above, being new horizontal additions, will require new caisson foundations similar to those of the existing building. The vertical two story addition would provide a net increase of 68,000 SF of office space. The horizontal two level addition would provide a net increase of 50,000 SF of computer space and 5,000 SF for UPS equipment. The basement level expansion would provide a net increase of 8,800 SF of office space. An additional 29,500 SF would be required for Service Areas consisting of stairs, new elevators, toilets and circulation.

In summary, this Scheme No. 4 would provide total New Construction of 131,800 Square Feet as follows:

	Building Area (Sq. Ft.)
Computer Areas	50,000
UPS Area	5,000
Office Areas	76,800
Additional Net Area	131,800 Sq. Ft.
Service Areas	29,500
Additional Gross Area	161,300 Sq. Ft.
Existing P&PD Building Area	66,680
Resultant Total Building Area	227,980 Sq. Ft.

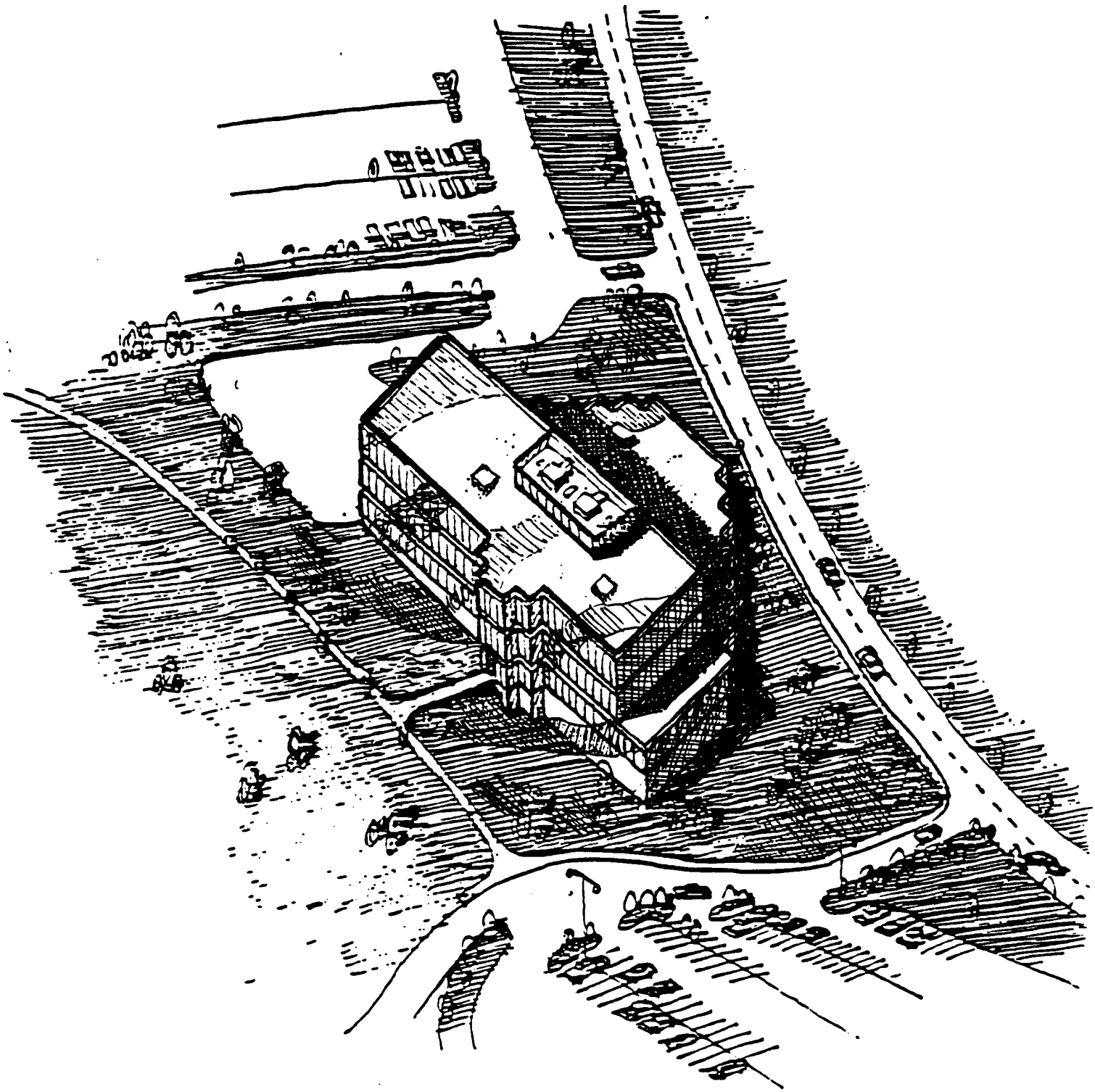


Figure 4A

SCHEME 4

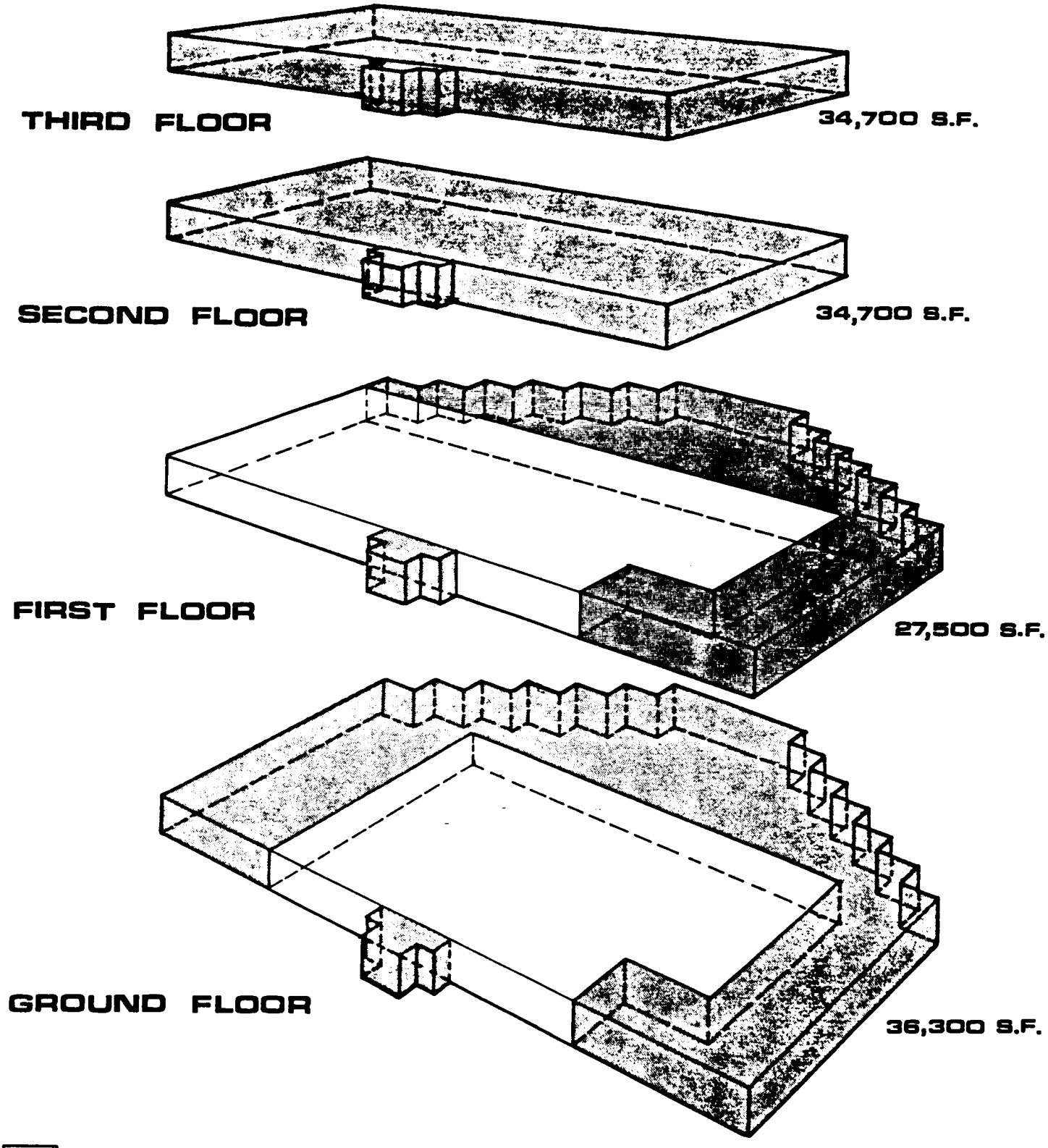


Figure 4B

SCHEME 4

Expansion Scheme No. 5

This Alternative Concept would provide for addition of the following areas to the existing P&PD Building:

A. An irregularly shaped four (4) story addition abutting the north and west sides of the existing P&PD Building.

B. Two (2) additional floors on top of the existing building having exactly the same configuration as the upper level.

C. A four (4) story infill of the 30' x 50' north-east corner of the existing building.

D. A 10,800 sq. ft. underground expansion of the south end of the existing basement level.

E. An irregularly shaped four (4) story stairs/elevators/entrance tower appended to the east wall of the existing building.

Areas A and E, above, being new horizontal additions, would require new caisson foundations similar to those of the existing building. The vertical two story addition would provide a net increase of 68,000 SF of office space. The horizontal four level addition would provide a net increase of 50,000 SF of computer space, 55,000 SF of office space and 5,000 SF for UPS equipment. The basement level expansion would provide a net increase of 8,800 SF of office space. An additional 48,200 SF would be required for Service Areas consisting of stairs, new elevators, toilets and circulation.

In summary, Scheme No. 5 would provide New Construction totalling 235,000 Square Feet as follows:

	Building Area (Sq. Ft.)
Computer Areas	50,000
UPS Area	5,000
Office Areas	131,800
Additional Net Area	186,800 Sq. Ft.
Service Areas	48,200
Additional Gross Area	235,000 Sq. Ft.
Existing P&PD Building Area	66,680
Resultant Total Building Area	301,680 Sq. Ft.

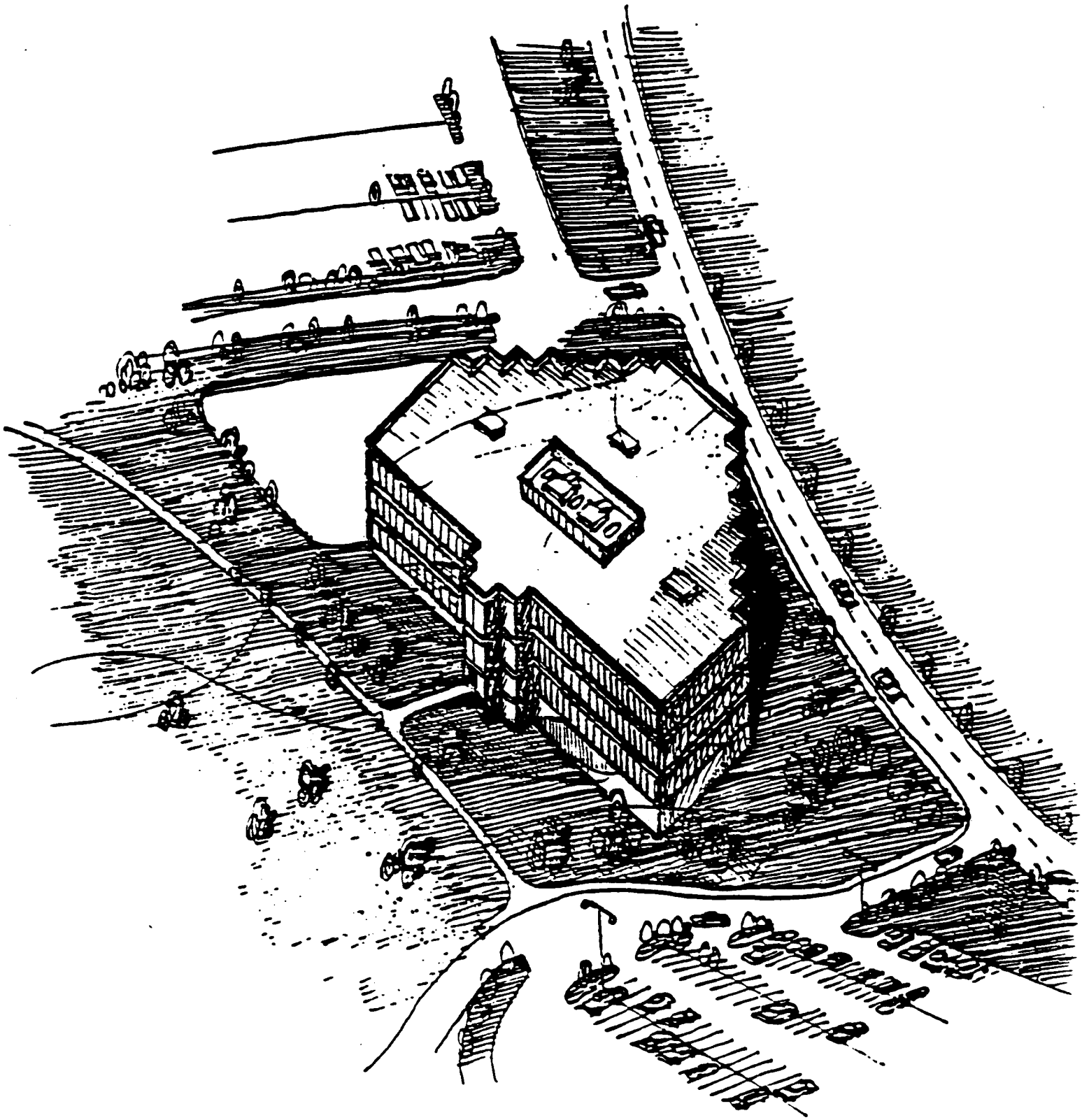


Figure 5A

SCHEME 5

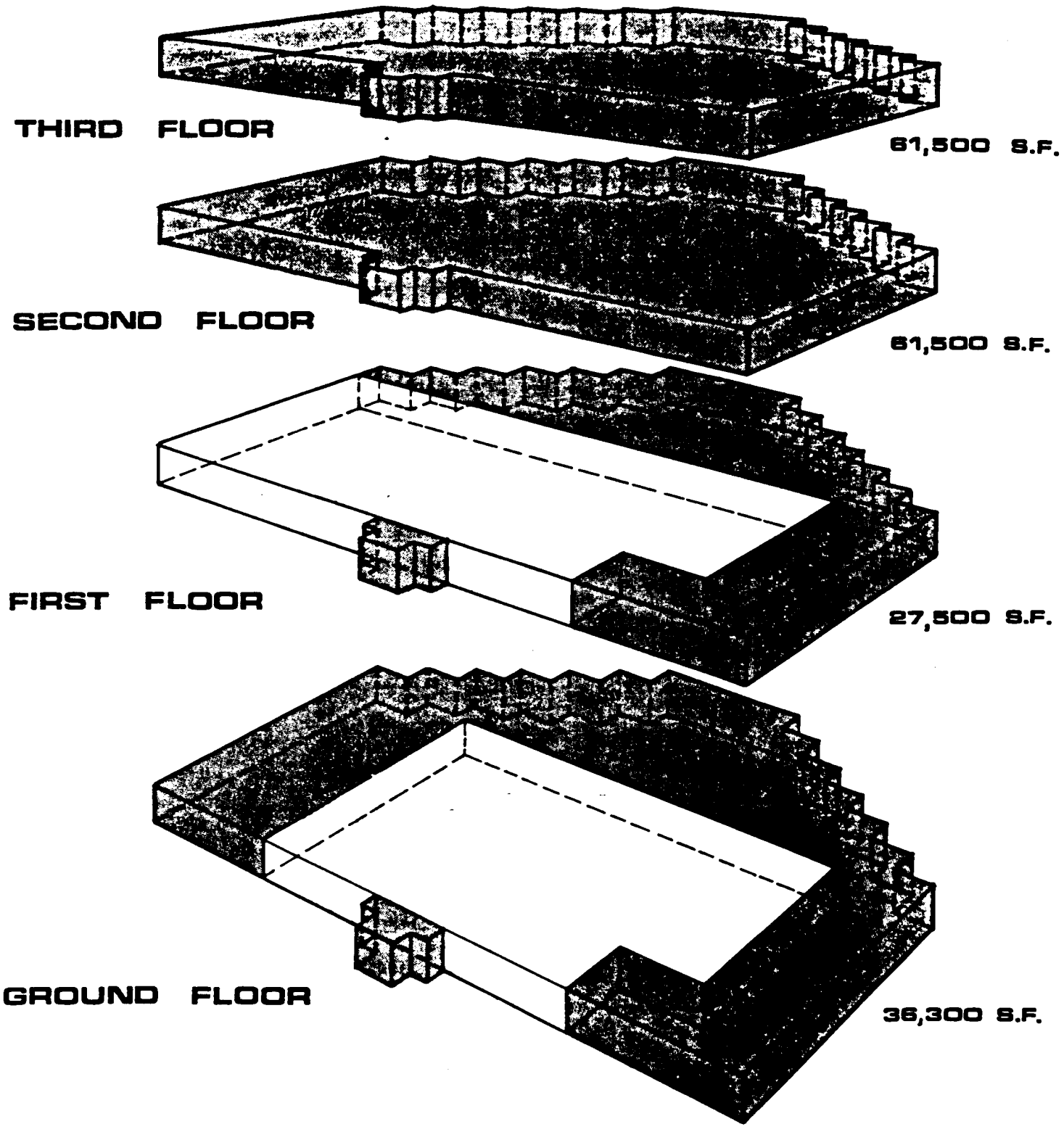


Figure 5B

SCHEME 5

Expansion Scheme No. 6

This Alternative Concept would provide for construction of a separate new building as follows:

A. A rectangular two (2) story building measuring approximately 125' x 320' with its long axis in a northeast-southwest orientation and located so that its easternmost corner would be approximately 275 feet due west of the north end of the existing P&PD Building.

B. This Scheme assumes that there would be no new construction added to the existing P&PD Building.

Being a new structure, this Scheme would require new caisson foundations similar to those of the existing building. The new structure, configured as two levels above grade would provide 50,000 SF of computer space, 5,000 SF of office space and 5,000 SF for UPS equipment. An additional 20,000 SF would be required for Service Areas consisting of stairs, new elevators, toilets and circulation.

In summary, Scheme No. 6 would provide New Construction totalling 80,000 Square Feet as follows:

	Building Area (Sq. Ft.)
Computer Areas	50,000
UPS Area	5,000
Office Areas	5,800
Additional Net Area	60,000 Sq. Ft.
Service Areas	20,000
Additional Gross Area	80,000 Sq. Ft.
Existing P&PD Building Area	66,680
Resultant Total Area of Both Buildings	146,680 Sq. Ft.

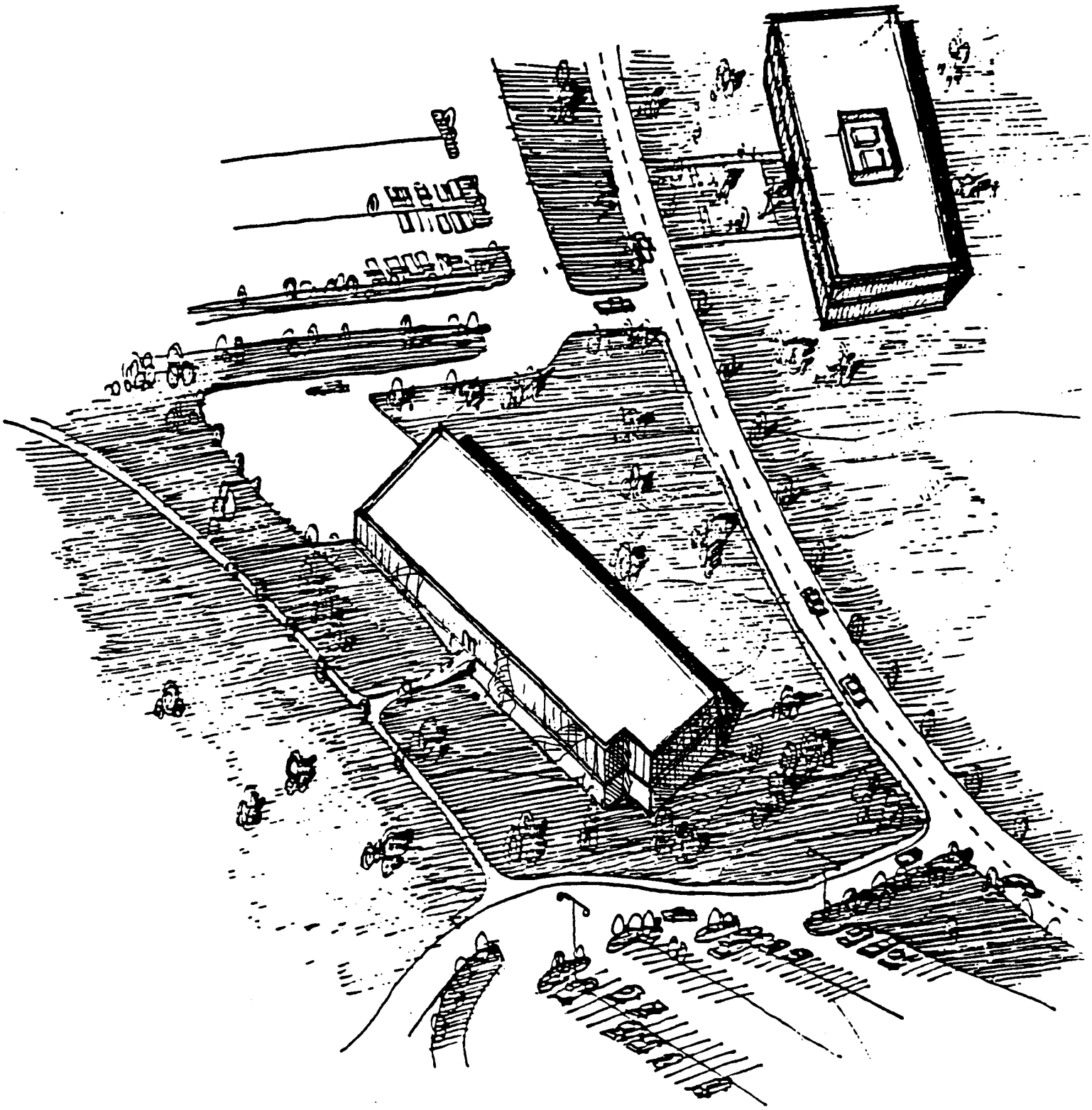


Figure 6A

SCHEME 6

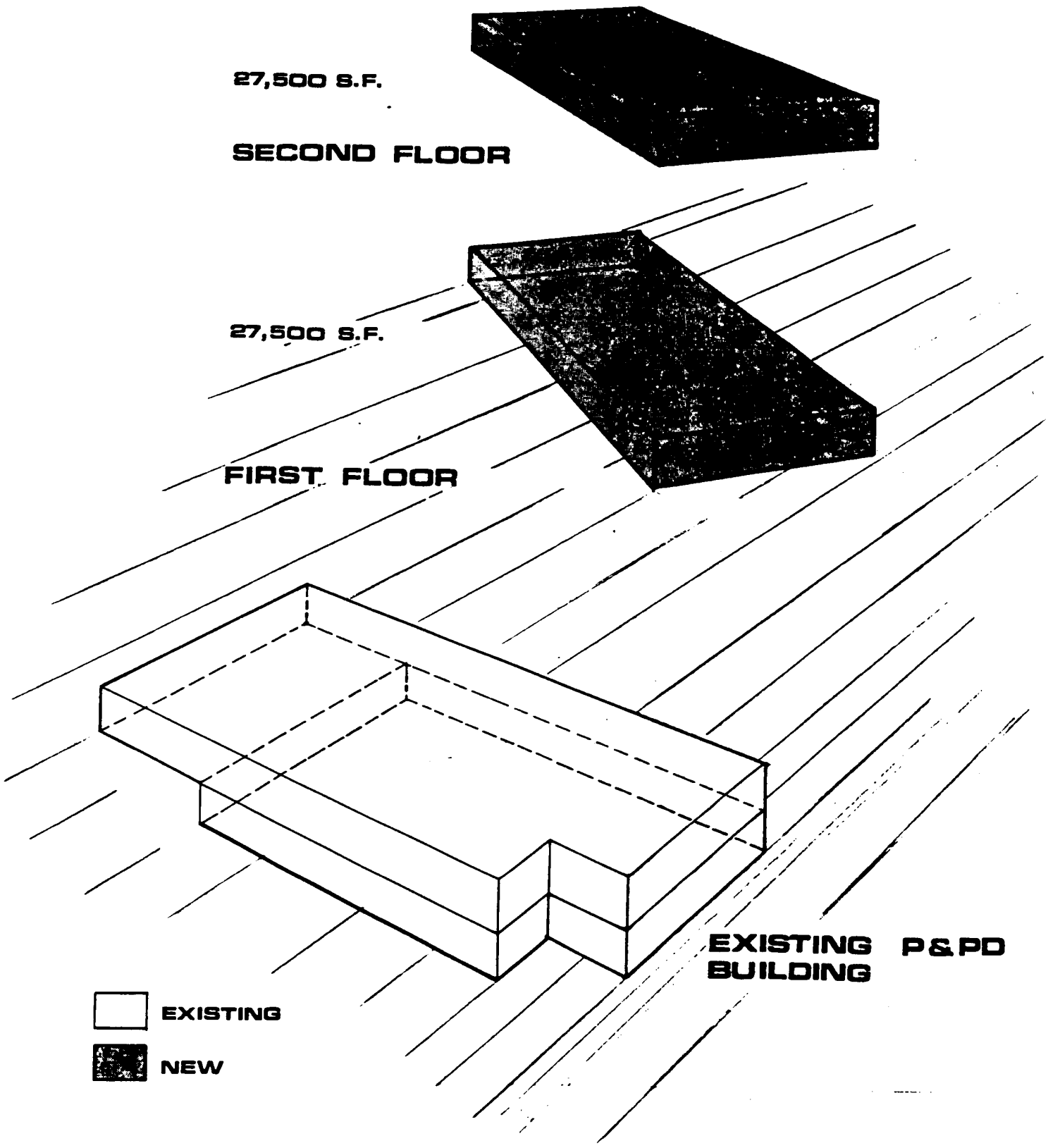


Figure 6B

SCHEME 6

Expansion Scheme No. 7

This Alternative Concept would provide for addition of the following areas to the existing P&PD Building:

A. An irregularly shaped three (3) story addition abutting the north and west sides of the existing P&PD Building.

B. One (1) additional floor on top of the existing building having exactly the same configuration as the upper level.

C. A three (3) story infill of the 30' x 50' north-east corner of the existing building.

D. A 10,800 sq. ft. underground expansion of the south end of the existing basement level.

E. An irregularly shaped three (3) story stairs/elevators/entrance tower appended to the east wall of the existing building.

Areas A and E, above, being new horizontal additions, would require new caisson foundations similar to those of the existing building. The vertical one story addition would provide a net increase of 34,000 SF of office space. The horizontal three level addition would provide a net increase of 31,400 SF of office space and 43,000 SF of Industrial Photoshop space. The basement level expansion would provide a net increase of 6,600 SF of computer space and 2,200 SF for UPS equipment. An additional 34,450 SF would be required for Service Areas consisting of stairs, new elevators, toilets and circulation.

In summary, Scheme No. 7 would provide New Construction totalling 151,650 Square Feet as follows:

	Building Area (Sq. Ft.)
Industrial Photoshop Areas	43,000
Computer Areas	6,600
UPS Area	2,200
Office Areas	65,400
Additional Net Area	117,200 Sq. Ft.
Service Areas	34,450
Additional Gross Area	151,650 Sq. Ft.
Existing P&PD Building Area	66,680
Resultant Total Building Area	218,330 Sq. Ft.

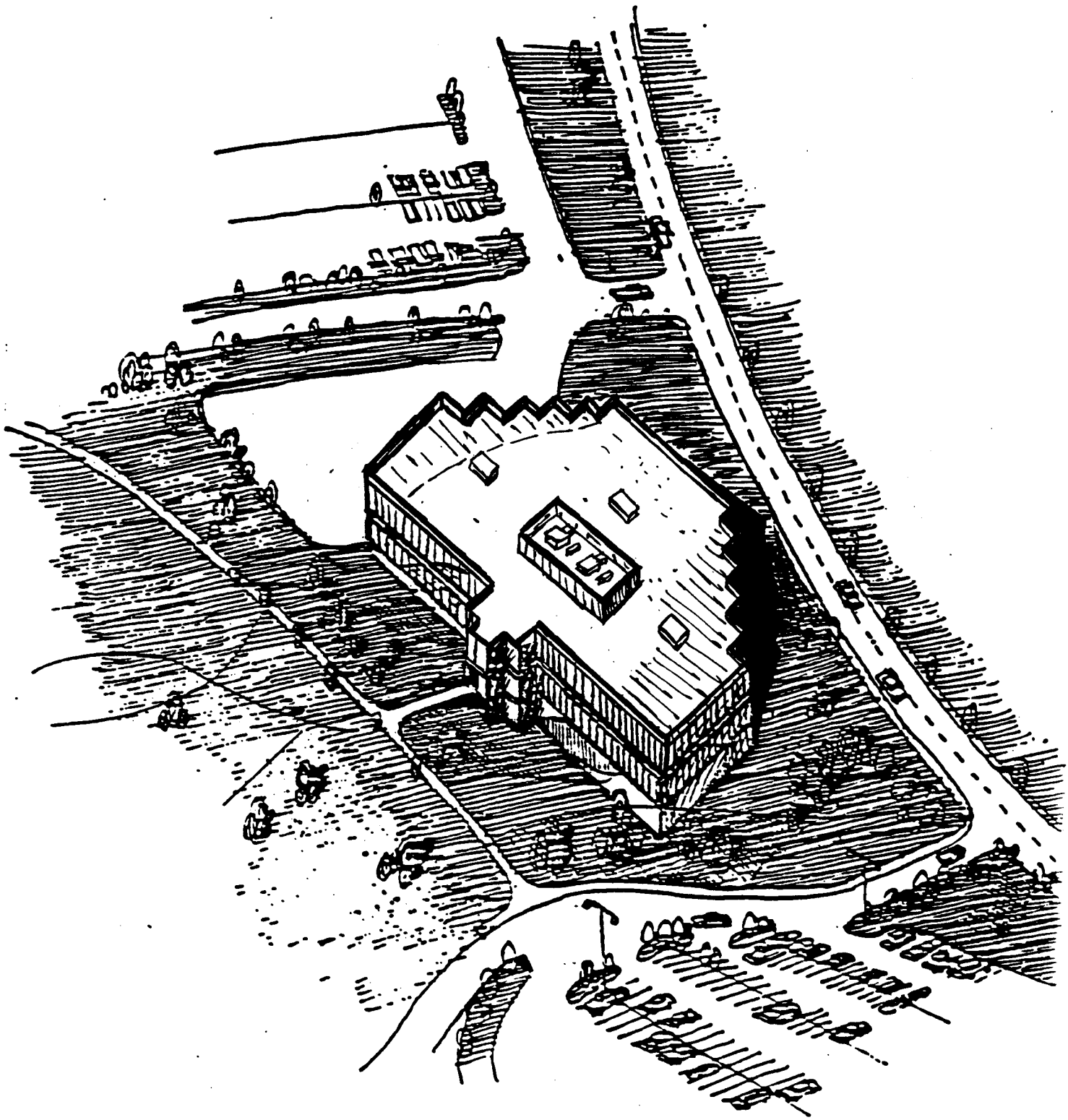


Figure 7A

SCHEME 7

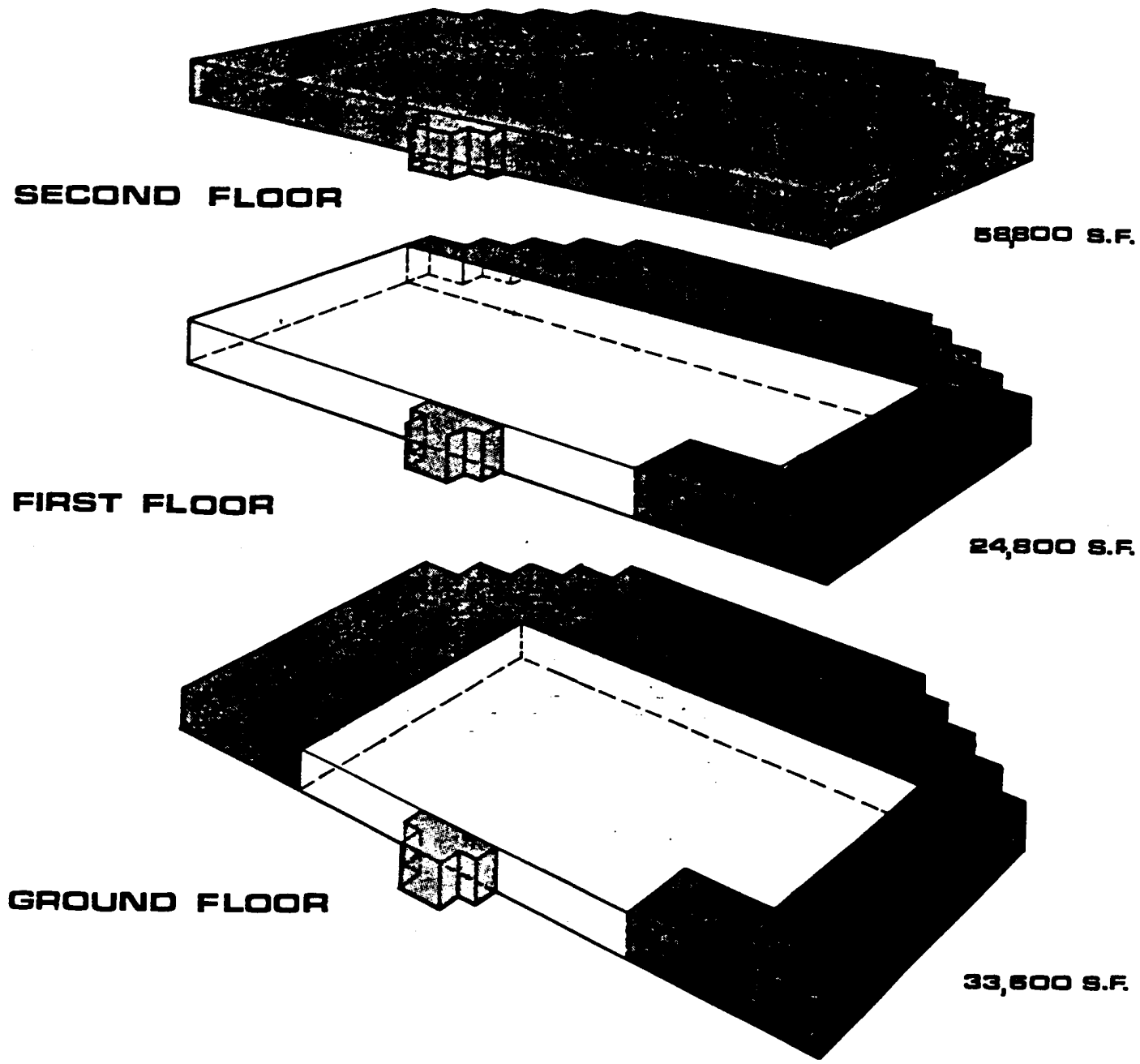


Figure 7B

SCHEME 7

SECTION 2
DESIGN FEATURES

SECTION 2

DESIGN FEATURES

2.0 BASIS OF DEVELOPMENT:

Criteria for the development of the character of the proposed expansion have been basically furnished by the Agency. DICON has, where necessary, made judgements on the conditions under which the final design would be executed. For example, bearing values were assumed and in the case of the existing building additional foundation capacity was not required.

2.1 DESIGN FEATURES:

Requirements are basically the same for all seven Alternative Concepts. Schemes 1 through 5 and 7 are additions to the existing Printing and Photography Building and therefore must be compatible with this structure. Scheme 6 is conceived as a separate building and therefore may be provided with an exterior which is different. Building interiors for all schemes are required to provide space for two primary functions - offices and computer rooms. Service areas required for corridors, rest rooms, stairs, elevators, mechanical and electrical systems and equipment have been provided in addition to the spaces specified for administrative and computing functions and for UPS equipment.

2.2 CRITERIA:

Criteria for the structural, mechanical and electrical features of the PP&D Building Expansion have been developed according to requirements provided by the Agency and are listed below.

2.2.1 Office Space Requirements

- Floor live loading, minimum - 100 psf.
- Floor finish - 8" pedestal floor, no carpet.
- Exterior walls - vault-like, no windows.
- Interior walls - corridor and separations between organizations to be VTR-like, 1-hour rating.
- Interior partitions - relocatable gypsum wallboard, finish floor to finish ceiling, 35 STC.
- Wall finishes - vinyl wall covering.
- Suspended ceilings - 2 x 4 lay-in acoustic tile, non-shedding, NRC 75.
- Interior doors - solid core wood, paint grade, 3^{0} x 7^{0}.
- Corridor doors - B-label, hollow metal.
- Work stations - One station per 135 sf, each to have black phone, green phone, (1) CRT power & signal connection, (1) utility power outlet.
- Electrical power - 4 watts per sf, minimum, including lighting; 2 watts per sf on emergency generator.
- Lighting - 75 fc, switch to 50% in ceiling; task lighting at work stations.
- Smoke detection - at ceiling and air plenums.
- Fire protection - ordinary hazard sprinkler system throughout.
- Alarms - safety and security to guard station.
- HVAC - $72^{0} \pm 5^{0}$F., 55% $\pm$ 10% RH

2.2.2 Computer Space Requirements

- o Floor live loading, minimum - 150 psf.
- o Floor finish - 18" pedestal floor, plasilaminate.
- o Exterior walls - no windows, vault-like.
- o Interior partitions - vinyl wall covering.
- o Corridor walls, etc. - VTR-like, 1-hour rating.
- o Suspended ceiling - 2 x 4 lay-in acoustic tile, non-shedding, NRC 70-75.
- o Doors - 5' wide x 8' height.
- o Lighting - 100 fc, switch to 50 fc or 30-60-100%.
- o UPS - 60 Hz .07 KW per sf; 400 Hz .02 KW per sf.
- o Power load overall - estimate 45 watts per sf.
- o Smoke detection - at 3 levels; underfloor, ceiling, above ceiling.
- o Fire protection - drypipe pre-action sprinkler system.
- o HVAC - computer room type, floor standing, downflow to underfloor plenum, maintain $68^{o} \pm 2^{o}F$, 50% ± 5% RH. House fresh air ventilation (tempered) ducted from ceiling.
- o Water detection underfloor.
- o RF shielding - "Tempest" shield 60 dB minimum, power filters, penetrations, optical isolators for signals leaving (allow 1 for 500 sf).
- o Alarms - safety and security to guard station.

2.3 SITE UTILITIES:

For schemes 1, 2 and 3, the existing site utilities have been considered adequate. For schemes 4, 5, 6 and 7 it will be necessary to upgrade the central utilities distribution systems from the Powerhouse. Additional utilities required for these schemes include chilled water supply and return piping, fire water piping, sanitary sewer and electrical power.

2.4 STRUCTURAL AND ARCHITECTURAL CONSIDERATIONS:

A. The existing building is a poured in place concrete structure with 24" x 24" concrete columns, creating 25'-0" x 30'-0" bays, supporting 10" thick two way reinforced flat plate concrete floor and roof slabs. At each column the slabs thicken 5" with 9'-0" x 10'-0" shear dropheads. It is anticipated that the same structure will be used for all building expansion in Schemes 1 through 5 and 7. Scheme 6, an independent building, could employ either a similar or independently designed structure.

B. The exterior treatment of the existing building is composed of a horizontal band, at the First (top) Floor, of 5'-0" wide x 12'-9 1/2" high shaped precast architectural concrete framed panels with a sand blasted slightly exposed aggregate finish. It has been assumed, for estimating purposes, that relocated panels and new identical precast concrete panels will be used as architectural treatment for any horizontal expansion of the First Floor as well as for vertical addition of Second and Third Floors. The separate building of Scheme 6 may have a similar design or an independent design.

C. For the purpose of achieving a realistic estimate, the following Architectural/Structural assumptions have been made:

- o The concrete floor construction will have to be "stepped" to accommodate the varying depths of access flooring.
- o Exterior walls shall be composed of 6" thick precast concrete panels with an interior separate but adjacent to 8" thick concrete block wall. This is similar to existing building.
- o All door frames shall be hollow metal.
- o Vinyl wall covering shall be medium grade.
- o Relocatable walls shall be modular metal edged to allow for multiple relocations.

2.5 HEATING VENTILATING AND AIR CONDITIONING:

In general, all new office spaces will be provided with a new central station, variable air volume air handling system consisting of the following components:

- o Supply air fan
- o Chilled water coil
- o Filter box
- o Return air fan
- o Distribution ductwork
- o VAV boxes
- o Return air ductwork
- o Chilled water piping
- o Thermal insulation for piping and ducting
- o Automatic temperature controls

Provisions will be made for adequate fresh air make up and energy conservation features.

Where Computer Room type HVAC units will be utilized these will contain chilled water coils, filters, humidifiers and reheat coils as necessary. Automatic controls will maintain required dry bulb temperature and relative humidity.

Mechanical Equipment Rooms will be provided to house the central air conditioning units.

Exhaust Systems will be provided to exhaust toilet rooms and mechanical and electrical equipment rooms.

2.6 PLUMBING:

New toilet fixtures will be installed as required by Code. Plumbing work will include the installation of hot and cold water service piping as well as drain, waste and vent piping. Fixtures will include drinking fountains, water closets, lavatories, service sinks and urinals, including fixtures for handicapped persons.

2.7 FIRE PROTECTION:

New sprinkler risers will be installed which will tie into the existing or newly extended Fire Water Supply line. All spaces will be covered as noted previously. New alarm check valves and water flow switches will be installed, in both the wet pipe and dry pipe systems.

2.8 ELECTRICAL POWER SUPPLY:

2.8.1 Normal (Existing) Supply. The existing electrical service is provided to the Printing & Photography Building by 2 parallel 1000 KVA, 13,200 - 208/120 volt transformers located in the Electrical Room. Current loading on these transformers is estimated at only 25% (500 KVA). Therefore, even though the transformers are operating at a level far below their rated capacities, only Alternative No. 2 could safely be served by existing facilities. The other Alternatives would require additional transformer and switchgear capacity at the P&PD Building. The existing 13.2 KV cables which serve the building have an approximate combined capacity of 8500 KVA and are adequate.

2.8.2 Emergency Generator. Each scheme will require an emergency generator to provide the 2 watts per square foot needed in office spaces. The generator size will vary from 10 KW for scheme 1 to 275 KW for scheme 5. Generators will be diesel-driven and housed in the mechanical equipment room.

2.8.3 UPS Units. The size of UPS units required varies from 750 KW for Alternative No. 2 to 5000 KW for Alternatives 3 through 7. It is planned that for Alternatives 1, 3, 4, 5, 6 and 7 a new 13.2 KV feeder will be extended from the powerhouse to the P&PD Building to serve solely the UPS load.

SECTION 3
ESTIMATING PROCEDURES

SECTION 3

ESTIMATING PROCEDURES

3.0 METHODOLOGY:

Estimates of construction costs for the Alternative Concepts were developed by the simulation technique. The simulation technique develops units costs from completed facilities similar in whole or part to the proposed construction. The simulation technique differs from the averaging method by eliminating from the data base all of the costs which are not directly and specifically similar to the types and kinds of facilities and installations being estimated. For example, there is a substantial national data base on traditional commercial-type office buildings. This data is not acceptable to any of the Alternative Concepts for at least the following reasons:

- Floor loadings in commercial office buildings are normally 70-100 pounds per square foot as opposed to 150 pounds per square foot specified for large areas of the PP&D Building Expansion.

- Air circulation rates and air conditioning tonnage are significantly lower in standard commercial offices than will be required in the PP&D Expansion.

- Power density allowances per square foot will be substantially greater in the PP&D Building Expansion than in commercial office buildings.

DICON searched the data base maintained by the Parent Companies, and isolated facilities successfully completed, which matched closely the requirements of the PP&D Building Expansion. For example:

- Data on 10 recently completed large computer facilities were used to determine electrical and air conditioning requirements and costs.

- Data on reinforced concrete structures in the range of 50,000 to 200,000 square feet with floor loadings in excess of 100 pounds per square foot were evaluated to identify and estimate the structural frame.

- Interior finish costs from 7 recently completed computer facilities were used for the interior finish costs.

- Current market costs were obtained for items such as precast exterior elements, elevators, and other significant architectural features.

Typical projects from which cost information was obtained were TRW Defense & Space System Group Facilities in Washington, D.C. and Los Angeles, and a large data processing facility now nearing completion for Farmers Insurance Company. These facilities have a high degree of similarity with the proposed expansion of the PP&D Building.

3.1 APPROACH:

The cost data described above was adjusted to reflect current costs where the data was more than 2 years old. The sample projects locations were known and costs could be adjusted on a geographical basis using national statistical indices.

The impact of escalation or inflation has not been calculated. This will be a mmatter of programming the selected Alternative. Each of the Alternatives will be impacted differently. For example, the Alternative with the largest floor space will require the longest period of time to complete, and will therefore experience the largest escalation.

3.2 SPECIAL COST CONSIDERATION:

Alternatives 1, 2, 3, 4, 5 and 7 involve additions to the existing PP&D Building. Estimated total construction cost has considered the work needed to prepare the existing PP&D Building and/or to provide the temporary construction required to make the existing building habitable during construction.

It has been assumed that the existing building will accept the additional stories without the need for new foundations and/or strengthening of columns in Alternatives 1, 2, 4, 5 and 7. On the other hand, it has also been assumed that protective measures will be required to retain occupancy of the existing facility during construction.

Alternative No. 3 involves a horizontal expansion and joining of the new and existing buildings. An allowance has been made to meet all of the life safety requirements for corridors, doors, etc.

The need for site development work was recognized and estimated on the basis of an allowance for one automobile parking space for 320 to 400 square feet of building expansion. Site development costs include shrubs, plants, and trees in an area equal to the parking area.

SECTION 4

COST ESTIMATES

SECTION 4

COST ESTIMATES

4.0 COMPARISONS:

The summary and comparison of estimated total cost for each Alternative Concept is shown below.

Alternative	Description	Estimated Cost
1	Addition of one (1) floor vertically	$ 9,643,000
2	Addition of two (2) floors vertically	12,622,000
3	Addition of two (2) floors horizontally	13,487,000
4	Addition of two (2) floors vertically and two (2) floors horizontally	30,447,000
5	Addition of two (2) floors vertically and four (4) floors horizontally	38,052,000
6	Construction of a new building	20,110,000
7	Addition of one (1) floor vertically and three (3) floors horizontally	26,144,000

Tables I through VII are cost breakdowns for the major features of each of the Alternatives.

TABLE I

ALTERNATIVE NUMBER 1

ADD ONE FLOOR ABOVE EXISTING CONSTRUCTION

FEATURES

34,000 Sq. Ft. Computer Space

4,800 Sq. Ft. Office Space
4,000 Sq. Ft. UPS

4 MW Uninterruptable Power Supply

Total Gross Sq. Ft. 49,200

Total Net Sq. Ft. 42,800

Cost Code	Description	Estimated Costs ($1,000)
1	False Work/Temporary Construction	$ 200
2	Foundations	NR
3	Basement	701
4	Structure	430
5	Exterior Finish	200
6	Interior Finish	1,326
7	Computer Floor	795
8	Plumbing	40
9	Heating Ventilating and Air Conditioning	475
10	Fire Protection	120
11	Electrical	670
12	Utilities and Services	175
13	Special Features, UPS, etc.	500
14	Site Development	175
15	Security Features and Systems	1,000
16	Allowance for Upgrade of Central Utilities	NR
	Total Direct Cost:	$6,807

Cost Code	Description	Estimated Costs ($1,000)
17	Contractor's Plant Equipment, Overhead and Profit (12%)	$ 816
	Sub Total:	7.623
18	Contingency (15%)	1,143
	Total Estimated Construction Costs:	8,766
19	Engineering Fees-Concepts, Plans Specifications, Construction Support Services (10%)	877
	Total Estimated Costs:	$9,643

TABLE II

ALTERNATIVE NUMBER 2

ADD TWO FLOORS ABOVE EXISTING CONSTRUCTION

FEATURES

6,600 Sq. Ft. Computer Space

68,000 Sq. Ft. Office Space
2,200 Sq. Ft. UPS

Total Gross Sq. Ft. 87,600

0.75 MW Uninterruptable Power Supply

Total Net Sq. Ft. 76,800

Cost Code	Description	Estimated Costs ($1,000)
1	False Work/Temporary Construction	$ 220
2	Foundations	NR
3	Basement	701
4	Structure	765
5	Exterior Finish	400
6	Interior Finish	1,818
7	Computer Floor	834
8	Plumbing	75
9	Heating Ventilating and Air Conditioning	746
10	Fire Protection	160
11	Electrical	590
12	Utilities and Services	350
13	Special Features, UPS, etc.	100
14	Site Development	350
15	Security Features and Systems	1,800
16	Allowance for Upgrade of Central Utilities	NR
	Total Direct Cost:	$8,909

Cost Code	Description	Estimated Costs ($1,000)
17	Contractor's Plant Equipment, Overhead and Profit (12%)	$ 1,069
	Sub Total:	9,978
18	Contingency (15%)	1,497
	Total Estimated Construction Costs:	11,475
19	Engineering Fees-Concepts, Plans Specifications, Construction Support Services (10%)	1,147
	Total Estimated Costs:	$12,622

TABLE III

ALTERNATIVE NUMBER 3

ADD TWO STORY BUILDING
ADJACENT TO EXISTING CONSTRUCTION

FEATURES

50,000 Sq. Ft. Computer Space

8,800 Sq. Ft. Office Space
5,000 Sq. Ft. UPS

5.0 MW Uninterruptable Power Supply

Total Gross Sq. Ft. 85,100

Total Net Sq. Ft. 63,800

Cost Code	Description	Estimated Costs ($1,000)
1	False Work/Temporary Construction	$ 75
2	Foundations	260
3	Basement	701
4	Structure	740
5	Exterior Finish	250
6	Interior Finish	2,202
7	Computer Floor	727
8	Plumbing	64
9	Heating Ventilating and Air Conditioning	780
10	Fire Protection	160
11	Electrical	661
12	Utilities and Services	300
13	Special Features, UPS, etc.	600
14	Site Development	300
15	Security Features and Systems	1,700
16	Allowance for Upgrade of Central Utilities	NR
	Total Direct Cost:	$9,520

Cost Code	Description	Estimated Costs ($1,000)
17	Contractor's Plant Equipment, Overhead and Profit (12%)	$ 1,142
	Sub Total:	10,662
18	Contingency (15%)	1,599
	Total Estimated Construction Costs:	12,261
19	Engineering Fees-Concepts, Plans Specifications, Construction Support Services (10%)	1,226
	Total Estimated Costs:	$13,487

TABLE IV

ALTERNATIVE NUMBER 4

ADD TWO FLOORS ABOVE EXISTING CONSTRUCTION AND TWO FLOORS ADJACENT

FEATURES

50,000 Sq. Ft. Computer Space

76,800 Sq. Ft. Office Space
5,000 Sq. Ft. UPS

5.0 MW Uninterruptable Power Supply

Total Gross Sq. Ft. 161,300

Total Net Sq. Ft. 131,800

Cost Code	Description	Estimated Costs ($1,000)
1	False Work/Temporary Construction	$ 350
2	Foundations	260
3	Basement	701
4	Structure	1,505
5	Exterior Finish	640
6	Interior Finish	3,726
7	Computer Floor	1,495
8	Plumbing	125
9	Heating Ventilating and Air Conditioning	1,240
10	Fire Protection	260
11	Electrical	1,518
12	Utilities and Services	400
13	Special Features, UPS, etc.	600
14	Site Development	470
15	Security Features and Systems	3,200
16	Allowance for Upgrade of Central Utilities	5,000
	Total Direct Cost:	$21,490

Cost Code	Description	Estimated Costs ($1,000)
17	Contractor's Plant Equipment, Overhead and Profit (12%)	$ 2,579
	Sub Total:	24,069
18	Contingency (15%)	3,610
	Total Estimated Construction Costs:	27,679
19	Engineering Fees-Concepts, Plans Specifications, Construction Support Services (10%)	2,768
	Total Estimated Costs:	$30,447

TABLE V

ALTERNATIVE NUMBER 5

ADD TWO FLOORS ABOVE EXISTING CONSTRUCTION AND FOUR FLOORS ADJACENT

FEATURES

50,000 Sq. Ft. Computer Space

131,800 Sq. Ft. Office Space
5,000 Sq. Ft. UPS

Total Gross Sq. Ft. 235,000

5.0 MW Uninterruptable Power Supply

Total Net Sq. Ft. 186,800

Cost Code	Description	Estimated Costs ($1,000)
1	False Work/Temporary Construction	$ 425
2	Foundations	390
3	Basement	701
4	Structure	2,245
5	Exterior Finish	750
6	Interior Finish	5,200
7	Computer Floor	2,100
8	Plumbing	182
9	Heating Ventilating and Air Conditioning	1,800
10	Fire Protection	285
11	Electrical	1,550
12	Utilities and Services	450
13	Special Features, UPS, etc.	600
14	Site Development	580
15	Security Features and Systems	4,700
16	Allowance for Upgrade of Central Utilities	5,000
	Total Direct Cost:	$26,958

Cost Code	Description	Estimated Costs ($1,000)
17	Contractor's Plant Equipment, Overhead and Profit (12%)	$ 3,235
	Sub Total:	30,193
18	Contingency (15%)	4,529
	Total Estimated Construction Costs:	34,722
19	Engineering Fees-Concepts, Plans Specifications, Construction Support Services (10%)	3,472
	Total Estimated Costs:	$38,194

TABLE VI

ALTERNATIVE NUMBER 6

SEPARATE BUILDING

FEATURES

50,000 Sq. Ft. Computer Space

5,000 Sq. Ft. Office Space
5,000 Sq. Ft. UPS

Total Gross Sq. Ft. 80,000

5.0 MW Uninterruptable Power Supply

Total Net Sq. Ft. 60,000

Cost Code	Description	Estimated Costs ($1,000)
1	False Work/Temporary Construction	$ 50
2	Foundations	240
3	Basement	NR
4	Structure	695
5	Exterior Finish	400
6	Interior Finish	2,100
7	Computer Floor	705
8	Plumbing	65
9	Heating Ventilating and Air Conditioning	729
10	Fire Protection	130
11	Electrical	1,130
12	Utilities and Services	300
13	Special Features, UPS, etc.	600
14	Site Development	450
15	Security Features and Systems	1,600
16	Allowance for Upgrade of Central Utilities	5,000
	Total Direct Cost:	$14,194

Cost Code	Description	Estimated Costs ($1,000)
17	Contractor's Plant Equipment, Overhead and Profit (12%)	$ 1,703
	Sub Total:	15,897
18	Contingency (15%)	2,385
	Total Estimated Construction Costs:	18,282
19	Engineering Fees-Concepts, Plans Specifications, Construction Support Services (10%)	1,828
	Total Estimated Costs:	$20,110

TABLE VII

ALTERNATIVE NUMBER 7

ADD ONE FLOOR ABOVE EXISTING CONSTRUCTION AND THREE FLOORS ADJACENT

FEATURES

43,000 Sq. Ft. Printshop Space
6,600 Sq. Ft. Computer Space

65.400 Sq. Ft. Office Space
2,200 Sq. Ft. UPS

5.0 MW Uninterruptable Power Supply

Total Gross Sq. Ft. 151,650

Total Net Sq. Ft. 117,200

Cost Code	Description	Estimated Costs ($1,000)
1	False Work/Temporary Construction	$ 275
2	Foundations	340
3	Basement	701
4	Structure	1,450
5	Exterior Finish	500
6	Interior Finish	2,637
7	Computer Floor	805
8	Plumbing	105
9	Heating Ventilating and Air Conditioning	1,140
10	Fire Protection	210
11	Electrical	1,465
12	Utilities and Services	375
13	Special Features, UPS, etc.	250
14	Site Development	450
15	Security Features and Systems	2,750
16	Allowance for Upgrade of Central Utilities	5,000
	Total Direct Cost:	$18,453

Cost Code	Description	Estimated Costs ($1,000)
17	Contractor's Plant Equipment, Overhead and Profit (12%)	$ 2,214
	Sub Total:	20,667
18	Contingency (15%)	3,100
	Total Estimated Construction Costs:	23,767
19	Engineering Fees-Concepts, Plans Specifications, Construction Support Services (10%)	2,377
	Total Estimated Costs:	$26,144

SECTION 5

CONSTRUCTION

SCHEDULES

SECTION 5

CONSTRUCTION SCHEDULES

5.0 ASSUMPTIONS:

Scheduling of the design and construction of the expansion of the P&PD Building was based on design and construction being accomplished on a traditional Government type contract with an Architect-Engineer and a Construction Contractor being separately and sequentially retained.

Overall management of the Architect-Engineer and construction program was assumed to conform to Government requirements for competitive award of contracts.

5.1 MAJOR MILESTONES AND PROJECT SCHEDULES:

The overall management plan for design and construction established the control and departure milestones and schedules as indicated on the following summary sheets and diagrams for each of the six Alternatives. These milestones and schedules were selected to follow traditional standards and to provide the Agency with the review opportunities that would assure obtaining the specified functional and performance capabilities on budget without unnecessary schedule restraint. The schedules include allowances for design review by the Agency at 35%, 60%, 90% and 100% completion.

5.2 PROJECT SCHEDULES:

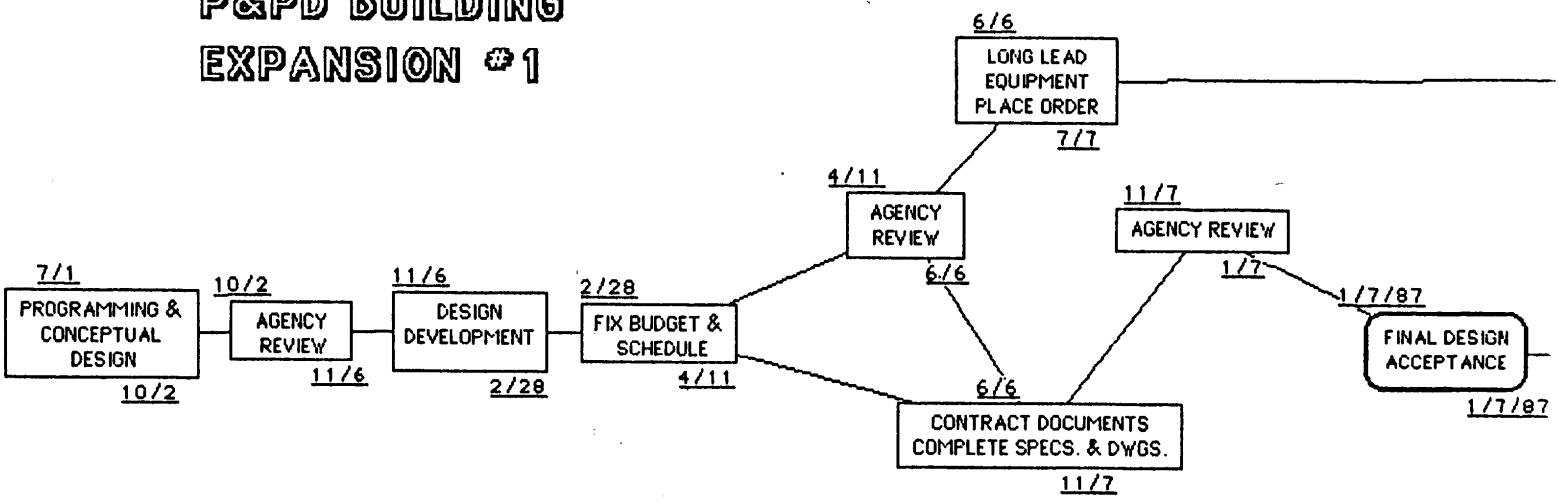
Table VII is a Summary Schedule for the milestones described above for each of the seven Alternative Concepts.

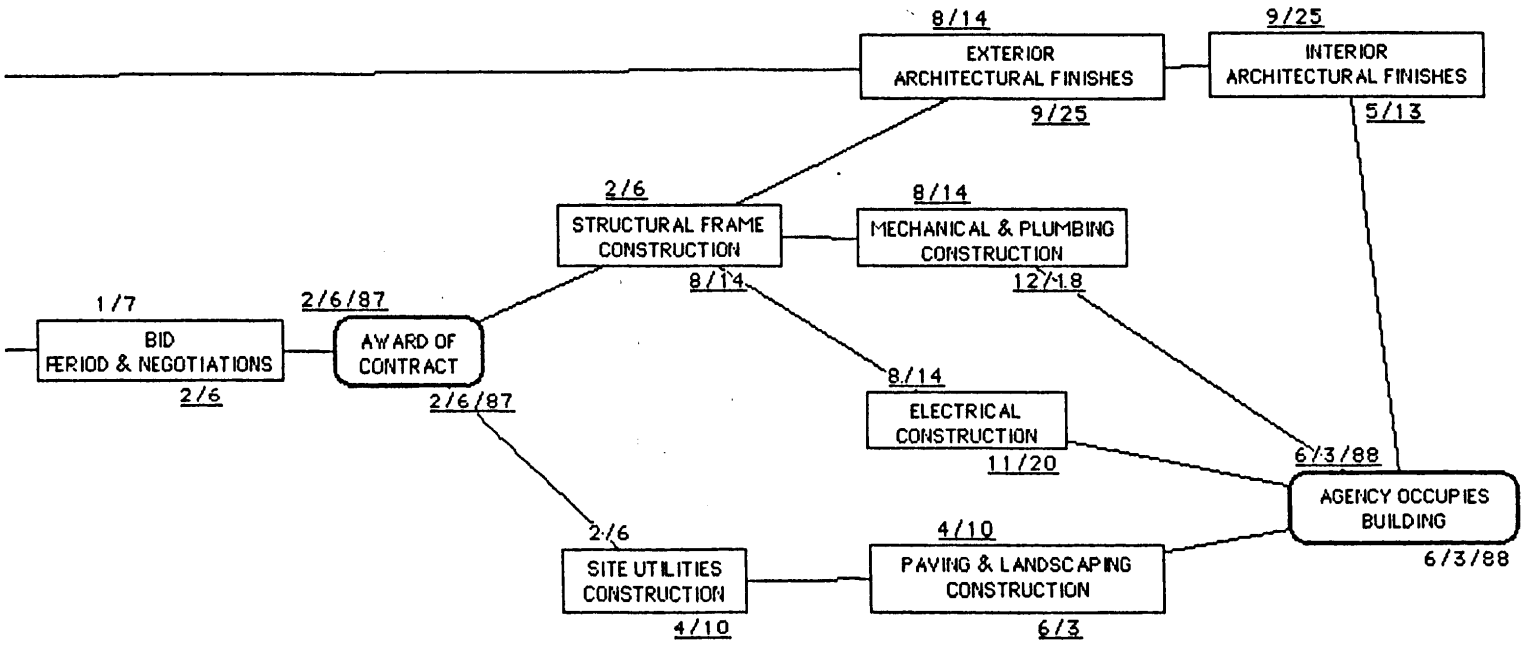
TABLE VII

SUMMARY SCHEDULES
DESIGN AND CONSTRUCTION
ELAPSED TIME IN MONTHS

Milestone	Description	Alternatives 1	2	3	4	5	6	7
1	Programming & Conceptual Design	3	3	3	3	3	3	3
2	Agency Review	4	4	4	4	4	4	4
3	Design Development	8	8	10	10	10	8	10
4	Fix Budget and Schedule	9	9	11	11	11	9	11
5	Agency Review	11	11	13	13	13	11	13
6	Long Lead Equipment Order	12	12	14	14	14	12	14
7	100% Completion Contract Documents	16	16	18	18	18	16	18
8 - 9	Agency Review & Design Acceptance	18	18	20	20	20	18	20
10-11	Bid Period & Award of Contract	19	19	21	21	21	19	21
12	Site Utilities Construction	21	21	24	24	24	21	24
13	Structural Frame Construction	25	27	25	27	29	27	26
14	Electrical Construction	29	32	34	36	37	32	35
15	Mechanical/Plumbing Construction	30	33	35	36	37	33	35
16	Exterior Architectural Finishes	27	30	31	31	31	30	31
17	Paving & Landscaping Construction	35	38	38	39	42	36	38
18	Interior Architectural Construction	34	36	35	38	40	34	37
19	Building Occupancy by Agency	35	38	38	39	41	36	38

P&PD BUILDING EXPANSION #1





ELAPSED TIME = 35 MONTHS

LEGEND

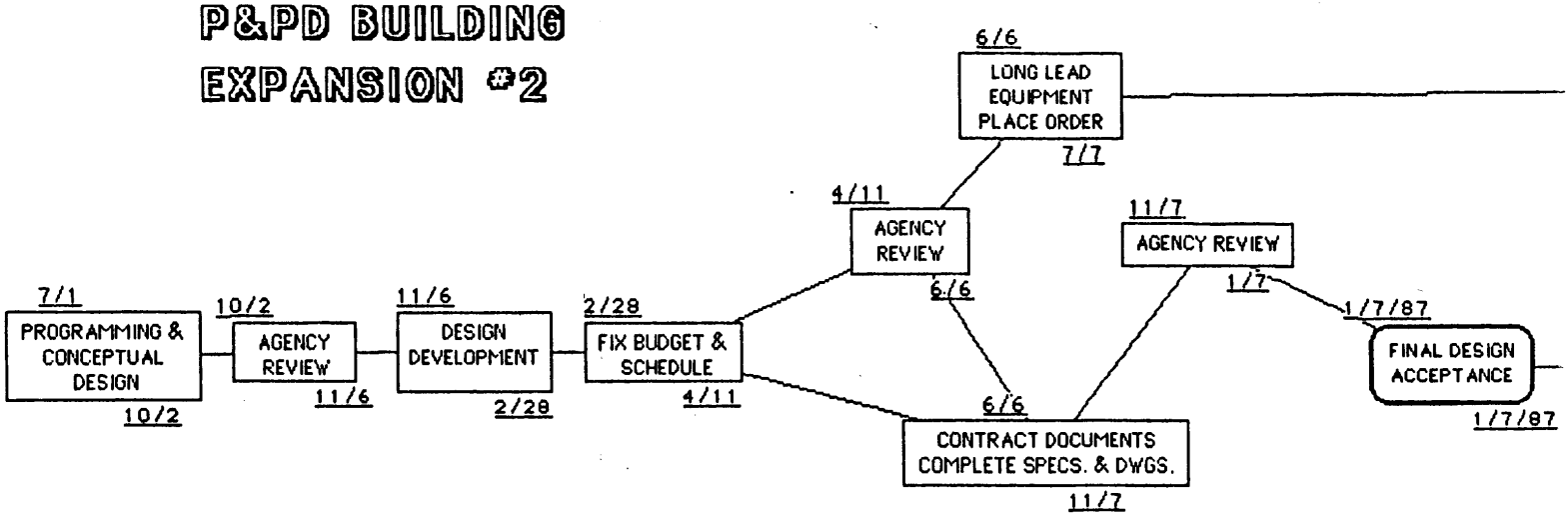
Earliest Start 7/1

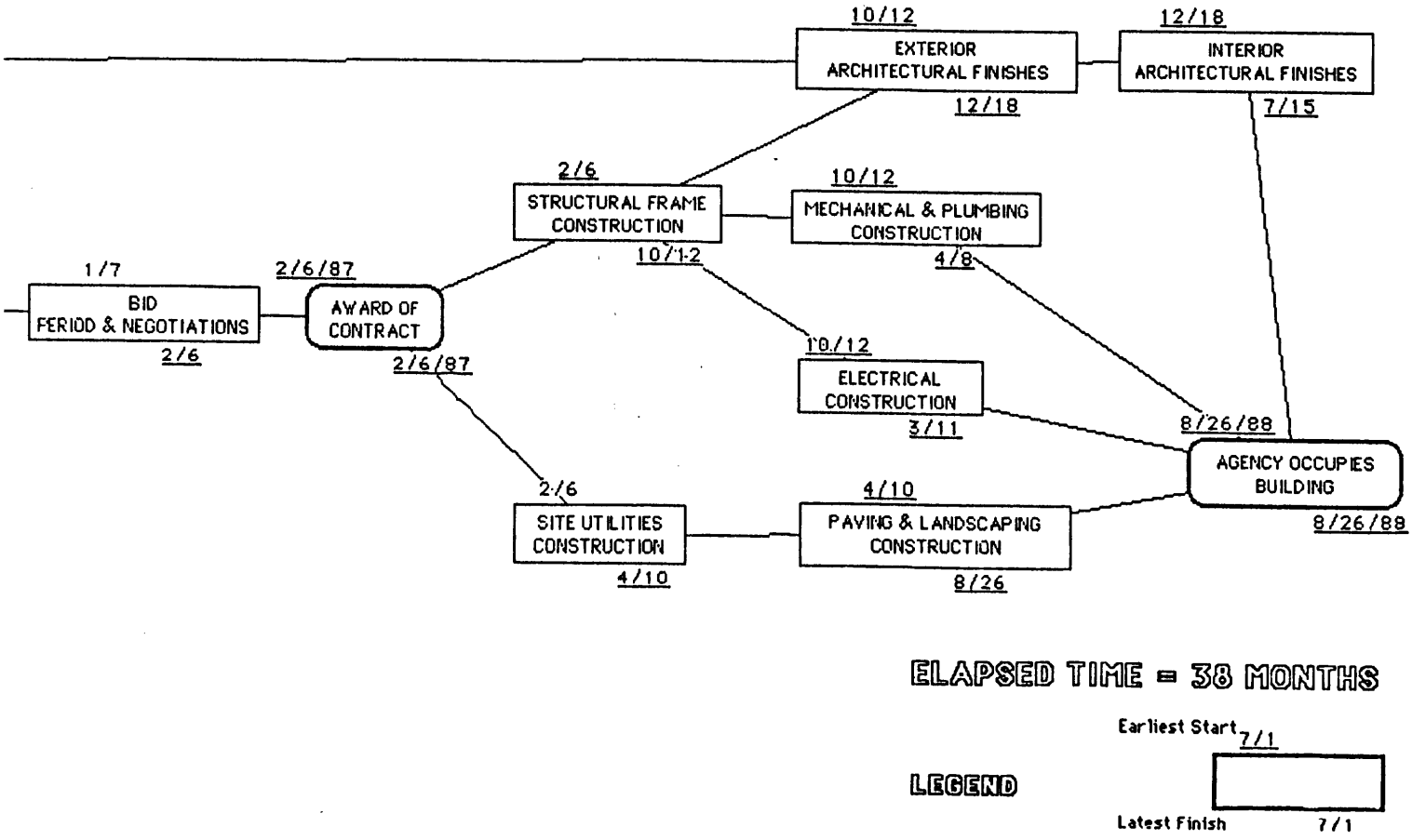
Latest Finish 7/1

P&PD BUILDING EXPANSION #1

	Task Name	Months	Earliest Start	Earliest Finish	Latest Start	Latest Finish
1	PROGRAMMING & CONCEPTUAL	4	7/1/85	7/1/85	10/2/85	10/2/85
2	AGENCY REVIEW	1	10/2/85	10/2/85	11/6/85	11/6/85
3	DESIGN DEVELOPMENT	3	11/6/85	11/6/85	2/28/86	2/28/86
4	FIX BUDGET & SCHEDULE	2	2/28/86	2/28/86	4/11/86	4/11/86
5	AGENCY REVIEW	2	4/11/86	4/11/86	6/6/86	6/6/86
6	LONG LEAD EQUIPMENT PLACE	1	6/6/86	6/6/86	7/7/86	7/7/86
7	CONTRACT DOCUMENTS	6	6/6/86	6/6/86	11/7/86	11/7/86
8	AGENCY REVIEW	2	11/7/86	11/7/86	1/7/87	1/7/87
9	**FINAL DESIGN ACCEPTANCE**	**0**	**1/7/87**	**1/7/87**	**1/7/87**	**1/7/87**
0	BID PERIOD & NEGOTIATIONS	2	1/7/87	1/7/87	2/6/87	2/6/87
1	**AWARD OF CONTRACT**	**0**	**2/6/87**	**2/6/87**	**2/6/87**	**2/6/87**
2	SITE UTILITIES CONSTRUCTION	3	2/6/87	2/6/87	4/10/87	4/10/87
3	STRUCTURAL FRAME	6	2/6/87	2/6/87	8/14/87	8/14/87
4	ELECTRICAL CONSTRUCTION	3	8/14/87	8/14/87	11/20/87	11/20/87
5	MECHANICAL & PLUMBING	4	8/14/87	8/14/87	12/18/87	12/18/87
6	EXTERIOR ARCHITECTURAL	1	8/14/87	8/14/87	9/25/87	9/25/87
7	PAVING & LANDSCAPING	2	4/10/87	4/10/87	6/3/88	6/3/88
8	INTERIOR ARCHITECTURAL	9	9/25/87	9/25/87	5/13/88	5/13/88
9	**AGENCY OCCUPIES BUILDING**	**0**	**6/3/88**	**6/3/88**	**6/3/88**	**6/3/88**
0	*LEGEND*	0	7/1/85	7/1/85	7/1/85	7/1/85

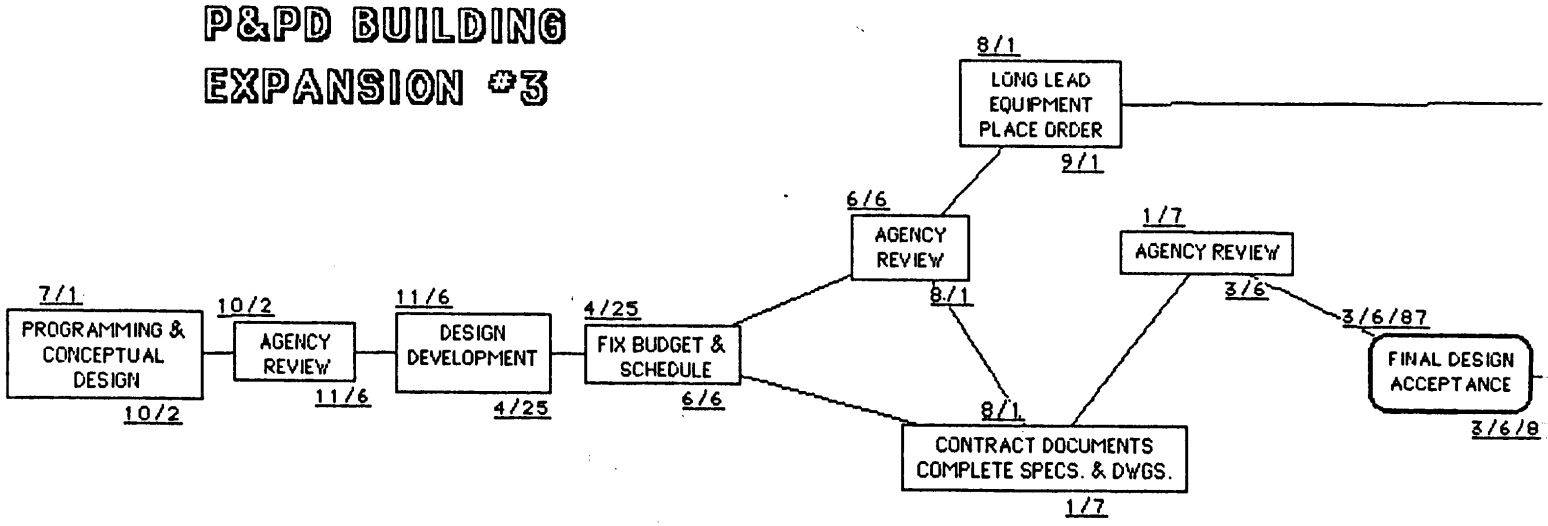
P&PD BUILDING EXPANSION #2

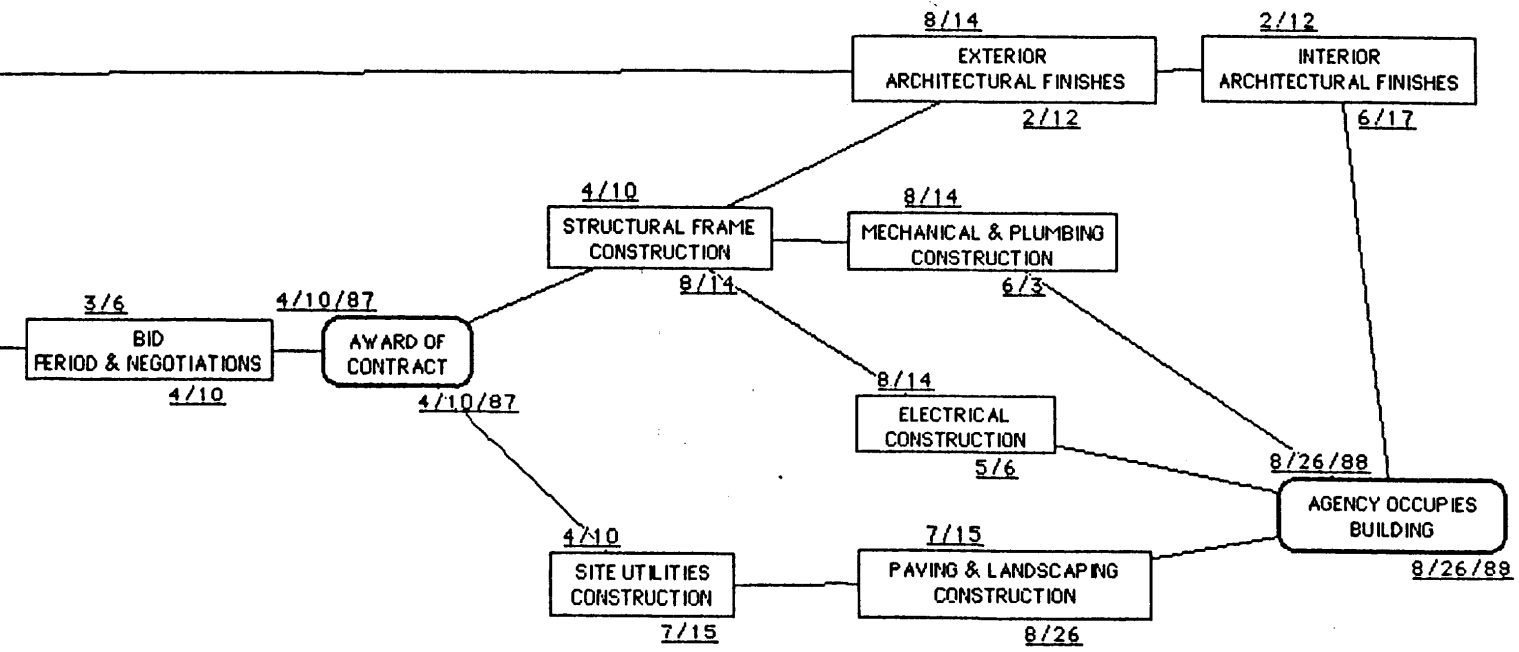




P&PD BUILDING EXPANSION #2

	Task Name	Months	Earliest Start	Earliest Finish	Latest Start	Latest Finish
1	PROGRAMMING & CONCEPTUAL	4	7/1/85	7/1/85	10/2/85	10/2/85
2	AGENCY REVIEW	1	10/2/85	10/2/85	11/6/85	11/6/85
3	DESIGN DEVELOPMENT	3	11/6/85	11/6/85	2/28/86	2/28/86
4	FIX BUDGET & SCHEDULE	2	2/28/86	2/28/86	4/11/86	4/11/86
5	AGENCY REVIEW	2	4/11/86	4/11/86	6/6/86	6/6/86
6	LONG LEAD EQUIPMENT PLACE	1	6/6/86	6/6/86	7/7/86	7/7/86
7	CONTRACT DOCUMENTS	6	6/6/86	6/6/86	11/7/86	11/7/86
8	AGENCY REVIEW	2	11/7/86	11/7/86	1/7/87	1/7/87
9	**FINAL DESIGN ACCEPTANCE**	**0**	**1/7/87**	**1/7/87**	**1/7/87**	**1/7/87**
10	BID PERIOD & NEGOTIATIONS	2	1/7/87	1/7/87	2/6/87	2/6/87
11	**AWARD OF CONTRACT**	**0**	**2/6/87**	**2/6/87**	**2/6/87**	**2/6/87**
12	SITE UTILITIES CONSTRUCTION	3	2/6/87	2/6/87	4/10/87	4/10/87
13	STRUCTURAL FRAME	9	2/6/87	2/6/87	10/12/87	10/12/87
14	ELECTRICAL CONSTRUCTION	4	10/12/87	10/12/87	3/11/88	3/11/88
15	MECHANICAL & PLUMBING	5	10/12/87	10/12/87	4/8/88	4/8/88
16	EXTERIOR ARCHITECTURAL	1	10/12/87	10/12/87	12/18/87	12/18/87
17	PAVING & LANDSCAPING	2	4/10/87	4/10/87	8/26/88	8/26/88
18	INTERIOR ARCHITECTURAL	9	12/18/87	12/18/87	7/15/88	7/15/88
19	**AGENCY OCCUPIES BUILDING**	**0**	**8/26/88**	**8/26/88**	**8/26/88**	**8/26/88**
20	***LEGEND***	**0**	**7/1/85**	**7/1/85**	**7/1/85**	**7/1/85**





ELAPSED TIME = 38 MONTHS

LEGEND

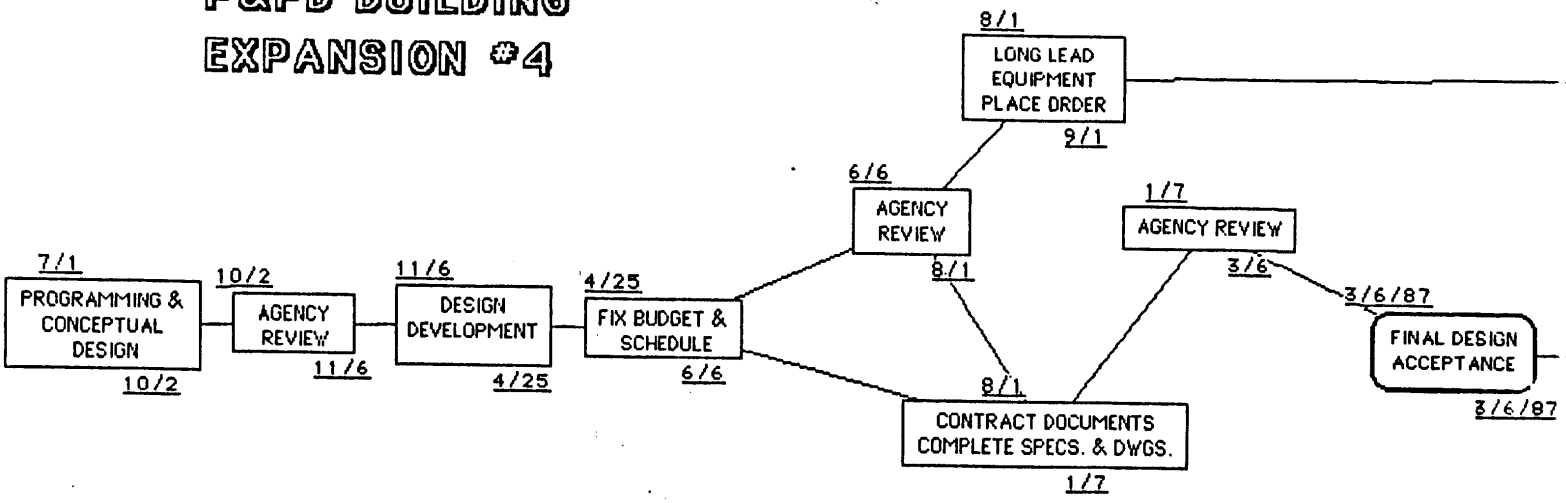
Earliest Start 7/1

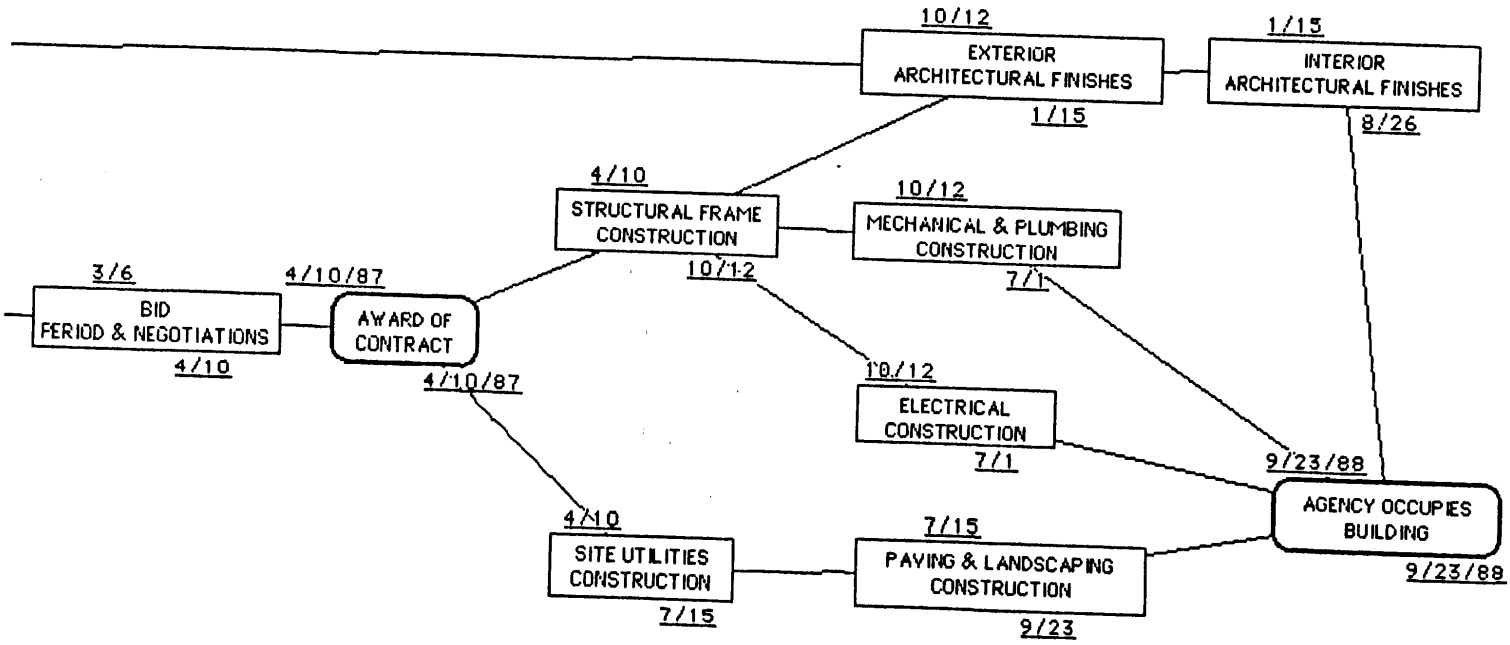
Latest Finish 7/1

P&PD BUILDING EXPANSION #3

	Task Name	Months	Earliest Start	Earliest Finish	Latest Start	Latest Finish
1	PROGRAMMING & CONCEPTUAL	4	7/1/85	7/1/85	10/2/85	10/2/85
2	AGENCY REVIEW	1	10/2/85	10/2/85	11/6/85	11/6/85
3	DESIGN DEVELOPMENT	5	11/6/85	11/6/85	4/25/86	4/25/86
4	FIX BUDGET & SCHEDULE	2	4/25/86	4/25/86	6/6/86	6/6/86
5	AGENCY REVIEW	2	6/6/86	6/6/86	8/1/86	8/1/86
6	LONG LEAD EQUIPMENT PLACE	1	8/1/86	8/1/86	9/1/86	9/1/86
7	CONTRACT DOCUMENTS	6	8/1/86	8/1/86	1/7/87	1/7/87
8	AGENCY REVIEW	2	1/7/87	1/7/87	3/6/87	3/6/87
9	**FINAL DESIGN ACCEPTANCE**	**0**	**3/6/87**	**3/6/87**	**3/6/87**	**3/6/87**
10	BID PERIOD & NEGOTIATIONS	2	3/6/87	3/6/87	4/10/87	4/10/87
11	**AWARD OF CONTRACT**	**0**	**4/10/87**	**4/10/87**	**4/10/87**	**4/10/87**
12	SITE UTILITIES CONSTRUCTION	4	4/10/87	4/10/87	7/15/87	7/15/87
13	STRUCTURAL FRAME	9	4/10/87	4/10/87	8/14/87	8/14/87
14	ELECTRICAL CONSTRUCTION	4	8/14/87	8/14/87	5/6/88	5/6/88
15	MECHANICAL & PLUMBING	5	8/14/87	8/14/87	6/3/88	6/3/88
16	EXTERIOR ARCHITECTURAL	1	8/14/87	8/14/87	2/12/88	2/12/88
17	PAVING & LANDSCAPING	2	7/15/87	7/15/87	8/26/88	8/26/88
18	INTERIOR ARCHITECTURAL	7	2/12/88	2/12/88	6/17/88	6/17/88
19	**AGENCY OCCUPIES BUILDING**	**0**	**8/26/88**	**8/26/88**	**8/26/88**	**8/26/88**
20	*'LEGEND'*	0	7/1/85	7/1/85	7/1/85	7/1/85

P&PD BUILDING EXPANSION #4





ELAPSED TIME = 39 MONTHS

LEGEND

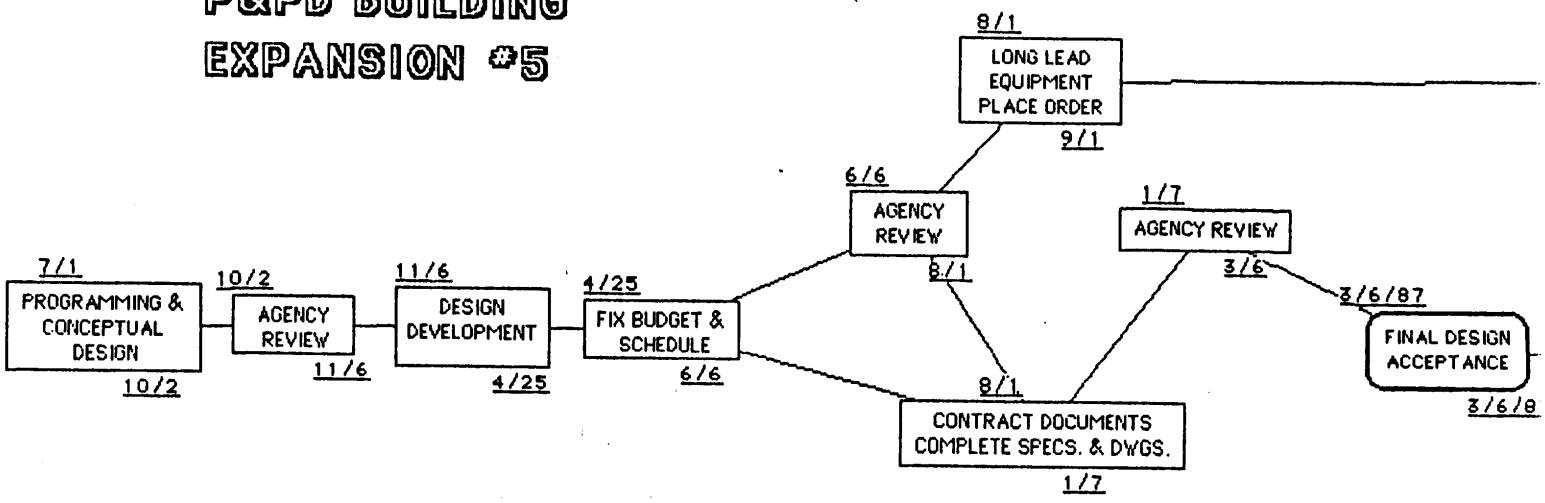
Earliest Start 7/1

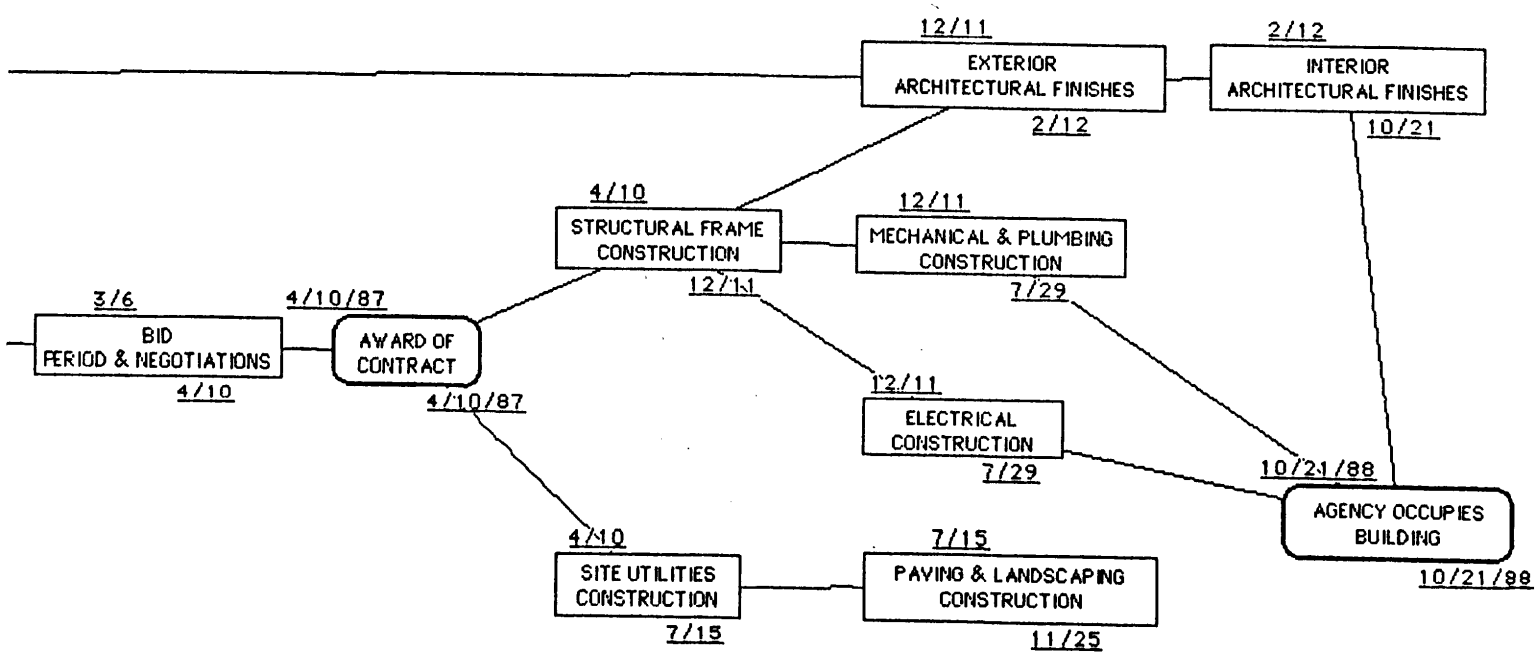
Latest Finish 7/1

P&PD BUILDING EXPANSION #4

	Task Name	Months	Earliest Start	Earliest Finish	Latest Start	Latest Finish
1	PROGRAMMING & CONCEPTUAL	4	7/1/85	7/1/85	10/2/85	10/2/85
2	AGENCY REVIEW	1	10/2/85	10/2/85	11/6/85	11/6/85
3	DESIGN DEVELOPMENT	5	11/6/85	11/6/85	4/25/86	4/25/86
4	FIX BUDGET & SCHEDULE	2	4/25/86	4/25/86	6/6/86	6/6/86
5	AGENCY REVIEW	2	6/6/86	6/6/86	8/1/86	8/1/86
6	LONG LEAD EQUIPMENT PLACE	1	8/1/86	8/1/86	9/1/86	9/1/86
7	CONTRACT DOCUMENTS	6	8/1/86	8/1/86	1/7/87	1/7/87
8	AGENCY REVIEW	2	1/7/87	1/7/87	3/6/87	3/6/87
9	**FINAL DESIGN ACCEPTANCE**	**0**	**3/6/87**	**3/6/87**	**3/6/87**	**3/6/87**
10	BID PERIOD & NEGOTIATIONS	2	3/6/87	3/6/87	4/10/87	4/10/87
11	**AWARD OF CONTRACT**	**0**	**4/10/87**	**4/10/87**	**4/10/87**	**4/10/87**
12	SITE UTILITIES CONSTRUCTION	4	4/10/87	4/10/87	7/15/87	7/15/87
13	STRUCTURAL FRAME	8	4/10/87	4/10/87	10/12/87	10/12/87
14	ELECTRICAL CONSTRUCTION	7	10/12/87	10/12/87	7/1/88	7/1/88
15	MECHANICAL & PLUMBING	7	10/12/87	10/12/87	7/1/88	7/1/88
16	EXTERIOR ARCHITECTURAL	1	10/12/87	10/12/87	1/15/88	1/15/88
17	PAVING & LANDSCAPING	2	7/15/87	7/15/87	9/23/88	9/23/88
18	INTERIOR ARCHITECTURAL	9	1/15/88	1/15/88	8/26/88	8/26/88
19	**AGENCY OCCUPIES BUILDING**	**0**	**9/23/88**	**9/23/88**	**9/23/88**	**9/23/88**
20	***'LEGEND'***	**0**	**7/1/85**	**7/1/85**	**7/1/85**	**7/1/85**

P&PD BUILDING EXPANSION #5





ELAPSED TIME = 40 MONTHS

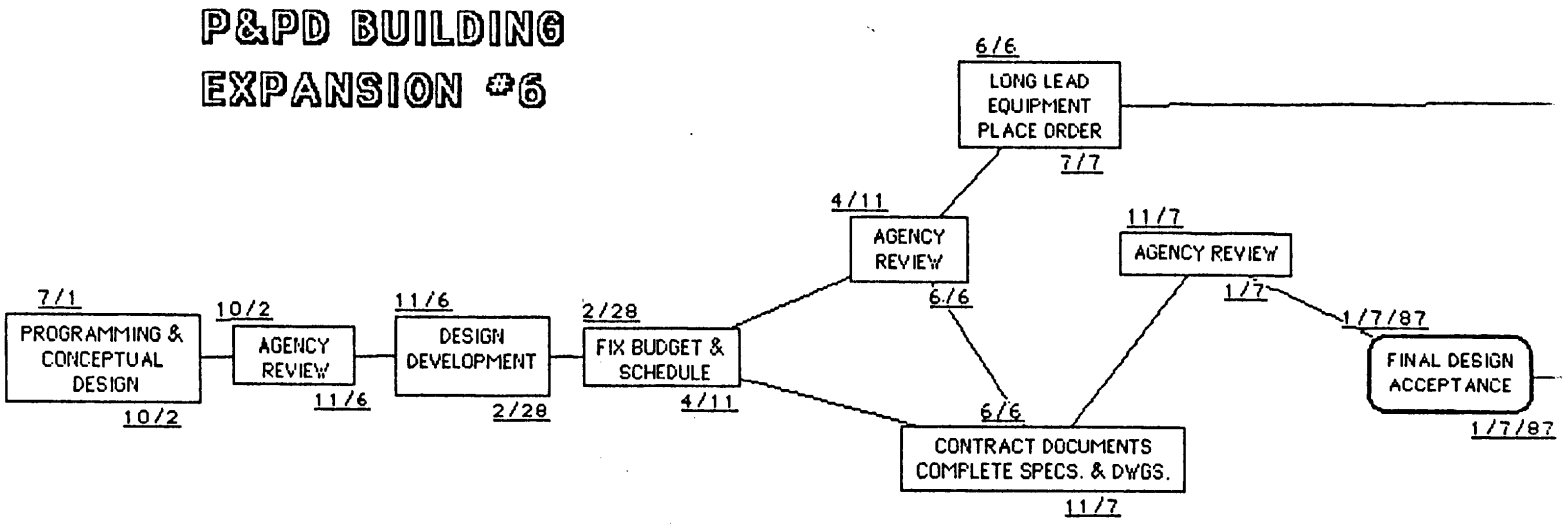
LEGEND

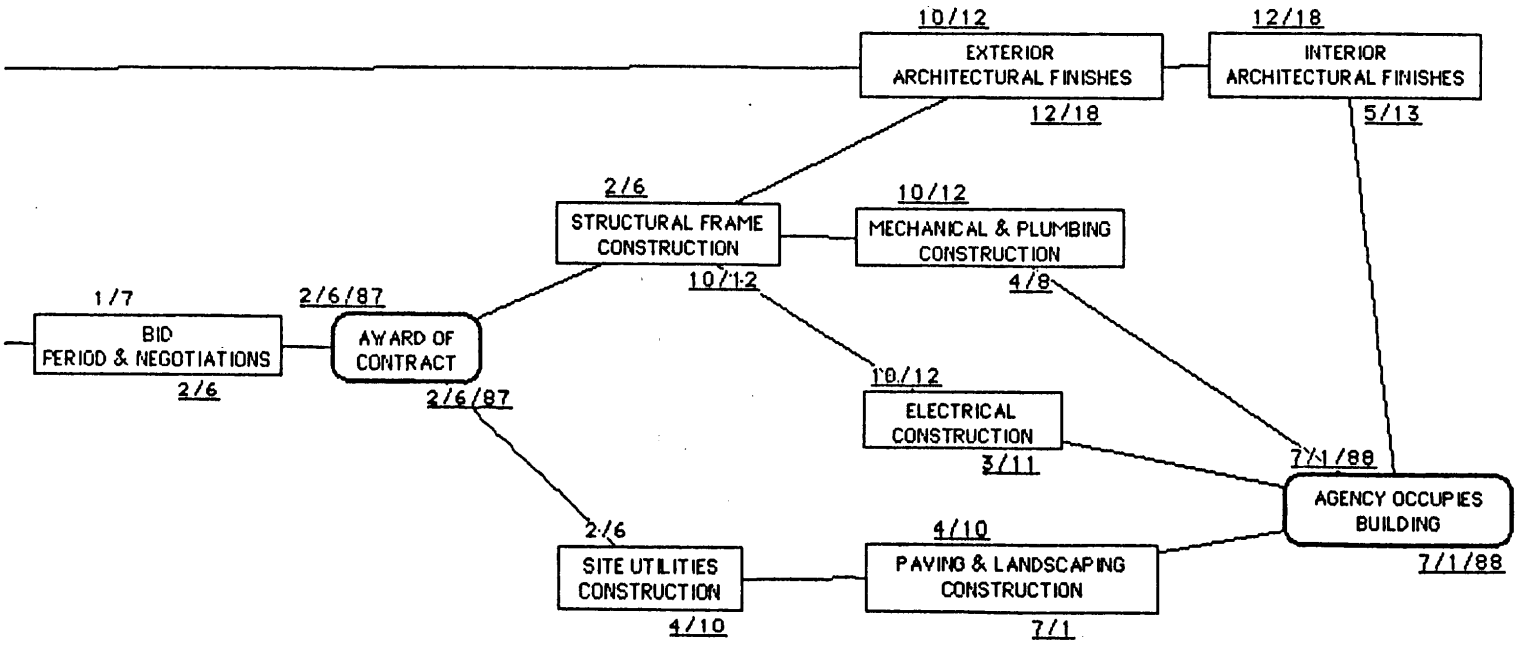
Earliest Start 7/1

Latest Finish 7/1

P&PD BUILDING EXPANSION #5

	Task Name	Months	Earliest Start	Earliest Finish	Latest Start	Latest Finish
1	PROGRAMMING & CONCEPTUAL	4	7/1/85	7/1/85	10/2/85	10/2/85
2	AGENCY REVIEW	1	10/2/85	10/2/85	11/6/85	11/6/85
3	DESIGN DEVELOPMENT	3	11/6/85	11/6/85	4/25/86	4/25/86
4	FIX BUDGET & SCHEDULE	2	4/25/86	4/25/86	6/6/86	6/6/86
5	AGENCY REVIEW	2	6/6/86	6/6/86	8/1/86	8/1/86
6	LONG LEAD EQUIPMENT PLACE	1	8/1/86	8/1/86	9/1/86	9/1/86
7	CONTRACT DOCUMENTS	6	8/1/86	8/1/86	1/7/87	1/7/87
8	AGENCY REVIEW	2	1/7/87	1/7/87	3/6/87	3/6/87
9	**FINAL DESIGN ACCEPTANCE**	**0**	**3/6/87**	**3/6/87**	**3/6/87**	**3/6/87**
10	BID PERIOD & NEGOTIATIONS	2	3/6/87	3/6/87	4/10/87	4/10/87
11	**AWARD OF CONTRACT**	**0**	**4/10/87**	**4/10/87**	**4/10/87**	**4/10/87**
12	SITE UTILITIES CONSTRUCTION	3	4/10/87	4/10/87	7/15/87	7/15/87
13	STRUCTURAL FRAME	9	4/10/87	4/10/87	12/11/87	12/11/87
14	ELECTRICAL CONSTRUCTION	4	12/11/87	12/11/87	7/29/88	7/29/88
15	MECHANICAL & PLUMBING	5	12/11/87	12/11/87	7/29/88	7/29/88
16	EXTERIOR ARCHITECTURAL	1	12/11/87	12/11/87	2/12/88	2/12/88
17	PAVING & LANDSCAPING	2	7/15/87	7/15/87	11/25/88	11/25/88
18	INTERIOR ARCHITECTURAL	7	2/12/88	2/12/88	10/21/88	10/21/88
19	**AGENCY OCCUPIES BUILDING**	**0**	**10/21/88**	**10/21/88**	**10/21/88**	**10/21/88**
20	*'LEGEND'*	0	7/1/85	7/1/85	7/1/85	7/1/85





ELAPSED TIME = 36 MONTHS

LEGEND

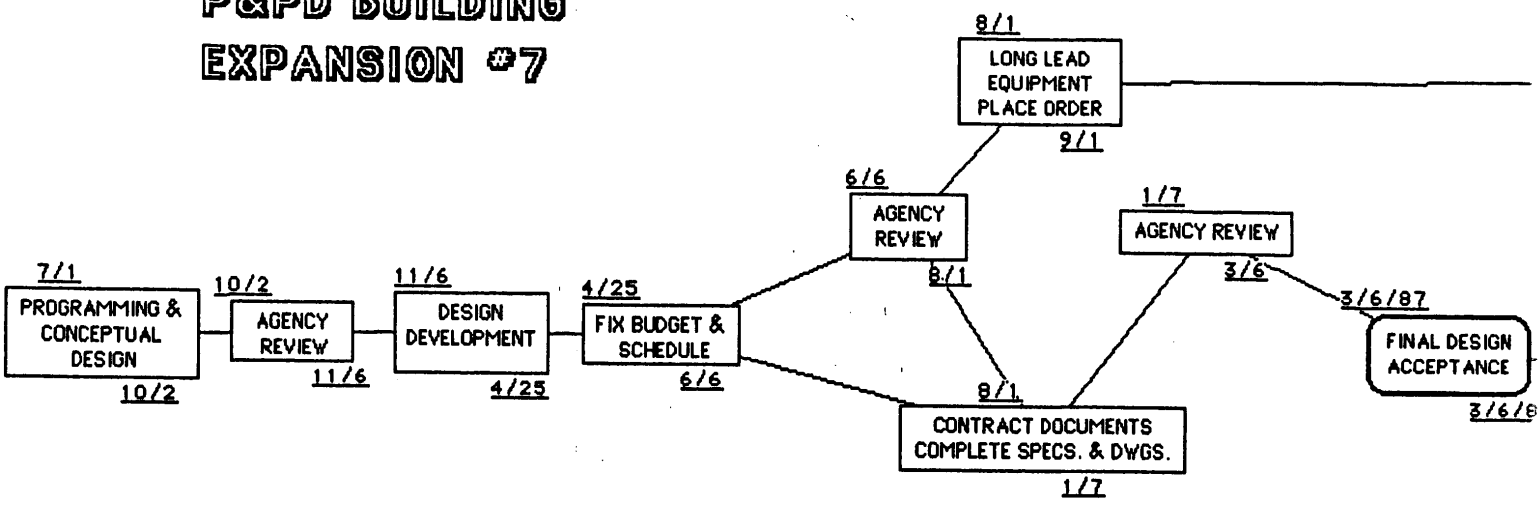
Earliest Start 7/1

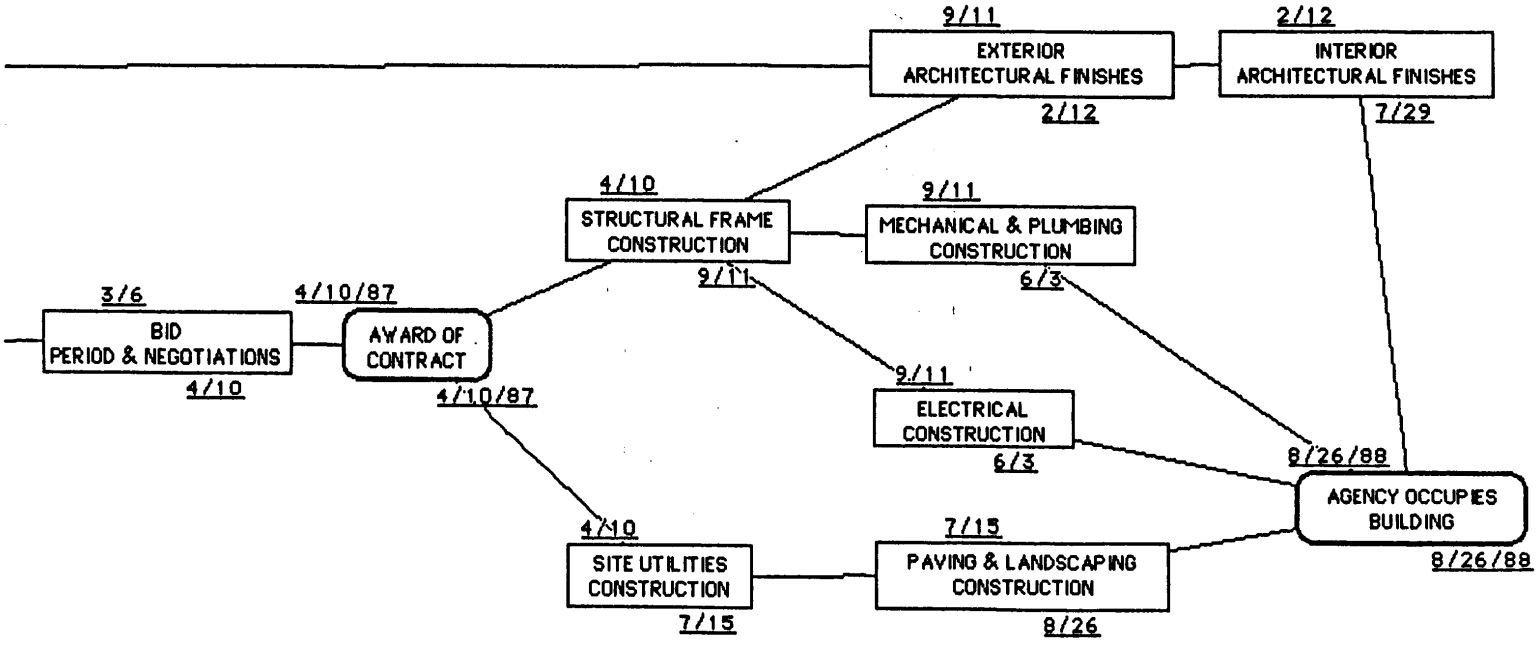
Latest Finish 7/1

P&PD BUILDING EXPANSION #6

	Task Name	Months	Earliest Start	Earliest Finish	Latest Start	Latest Finish
1	PROGRAMMING & CONCEPTUAL	4	7/1/85	7/1/85	10/2/85	10/2/85
2	AGENCY REVIEW	1	10/2/85	10/2/85	11/6/85	11/6/85
3	DESIGN DEVELOPMENT	3	11/6/85	11/6/85	2/28/86	2/28/86
4	FIX BUDGET & SCHEDULE	2	2/28/86	2/28/86	4/11/86	4/11/86
5	AGENCY REVIEW	2	4/11/86	4/11/86	6/6/86	6/6/86
6	LONG LEAD EQUIPMENT PLACE	1	6/6/86	6/6/86	7/7/86	7/7/86
7	CONTRACT DOCUMENTS	6	6/6/86	6/6/86	11/7/86	11/7/86
8	AGENCY REVIEW	2	11/7/86	11/7/86	1/7/87	1/7/87
9	**FINAL DESIGN ACCEPTANCE**	**0**	**1/7/87**	**1/7/87**	**1/7/87**	**1/7/87**
10	BID PERIOD & NEGOTIATIONS	2	1/7/87	1/7/87	2/6/87	2/6/87
11	**AWARD OF CONTRACT**	**0**	**2/6/87**	**2/6/87**	**2/6/87**	**2/6/87**
12	SITE UTILITIES CONSTRUCTION	3	2/6/87	2/6/87	4/10/87	4/10/87
13	STRUCTURAL FRAME	9	2/6/87	2/6/87	10/12/87	10/12/87
14	ELECTRICAL CONSTRUCTION	4	10/12/87	10/12/87	3/11/88	3/11/88
15	MECHANICAL & PLUMBING	5	10/12/87	10/12/87	4/8/88	4/8/88
16	EXTERIOR ARCHITECTURAL	1	10/12/87	10/12/87	12/18/87	12/18/87
17	PAVING & LANDSCAPING	2	4/10/87	4/10/87	7/1/88	7/1/88
18	INTERIOR ARCHITECTURAL	7	12/18/87	12/18/87	5/13/88	5/13/88
19	**AGENCY OCCUPIES BUILDING**	**0**	**7/1/88**	**7/1/88**	**7/1/88**	**7/1/88**
20	*'LEGEND'*	0	7/1/85	7/1/85	7/1/85	7/1/85

P&PD BUILDING EXPANSION #7





ELAPSED TIME = 38 MONTHS

LEGEND

Earliest Start 7/1

Latest Finish 7/1

P&PD BUILDING EXPANSION 87

	Task Name	Months	Earliest Start	Earliest Finish	Latest Start	Latest Finish	Fixed Cost	Resource Cost	Fixed Inc
1	PROGRAMMING & CONCEPTUAL	4	7/1/85	7/1/85	10/2/85	10/2/85	0	0	
2	AGENCY REVIEW	1	10/2/85	10/2/85	11/6/85	11/6/85	0	0	
3	DESIGN DEVELOPMENT	5	11/6/85	11/6/85	4/25/86	4/25/86	0	0	
4	FIX BUDGET & SCHEDULE	2	4/25/86	4/25/86	6/6/86	6/6/86	0	0	
5	AGENCY REVIEW	2	6/6/86	6/6/86	8/1/86	8/1/86	0	0	
6	LONG LEAD EQUIPMENT PLACE	1	8/1/86	8/1/86	9/1/86	9/1/86	0	0	
7	CONTRACT DOCUMENTS	6	8/1/86	8/1/86	1/7/87	1/7/87	0	0	
8	AGENCY REVIEW	2	1/7/87	1/7/87	3/6/87	3/6/87	0	0	
9	**FINAL DESIGN ACCEPTANCE**	0	**3/6/87**	**3/6/87**	**3/6/87**	**3/6/87**	**0**	**0**	
10	BID PERIOD & NEGOTIATIONS	2	3/6/87	3/6/87	4/10/87	4/10/87	0	0	
11	**AWARD OF CONTRACT**	0	**4/10/87**	**4/10/87**	**4/10/87**	**4/10/87**	**0**	**0**	
12	SITE UTILITIES CONSTRUCTION	4	4/10/87	4/10/87	7/15/87	7/15/87	0	0	
13	STRUCTURAL FRAME	10	4/10/87	4/10/87	9/11/87	9/11/87	0	0	
14	ELECTRICAL CONSTRUCTION	4	9/11/87	9/11/87	6/3/88	6/3/88	0	0	
15	MECHANICAL & PLUMBING	5	9/11/87	9/11/87	6/3/88	6/3/88	0	0	
16	EXTERIOR ARCHITECTURAL	1	9/11/87	9/11/87	2/12/88	2/12/88	0	0	
17	PAVING & LANDSCAPING	2	7/15/87	7/15/87	8/26/88	8/26/88	0	0	
18	INTERIOR ARCHITECTURAL	4	2/12/88	2/12/88	7/29/88	7/29/88	0	0	
19	**AGENCY OCCUPIES BUILDING**	0	**8/26/88**	**8/26/88**	**8/26/88**	**8/26/88**	**0**	**0**	
20	*'LEGEND'*	0	**7/1/85**	**7/1/85**	**7/1/85**	**7/1/85**	**0**	**0**	

TRANSMITTAL SLIP	DATE 28 July 1986
TO: DDA	
ROOM NO. 7-D-24	BUILDING Hqs.

REMARKS:

The Director of Logistics asked us to provide a copy of the attached to Mr. Donnelly. There are a few extra copies attached. We will be sending subsequent issues.

ADDA 29 JUL 1986

DDA 31 JUL 1986

MS/DDA rec'd cy

DDO/SMO rec'd cy

STAT FROM: OL/P&PD

STAT ROOM NO. 154 | BUILDING P&P

STAT

FORM NO. 1 FEB 56 241 REPLACES FORM 36-8 WHICH MAY BE USED. (47)

Next 4 Page(s) In Document Denied