Qualifications

Conditions Analysis, Design Documents, and Resident Engineering Services

South End Renewal Area
Hayes Park

Boston Redevelopment Authority

Submitted by **Vanasse Hangen Brustlin, Inc.**
· *Boston, MA*

VH
Vanasse Hangen Brustlin, Inc.
60 Birmingham Parkway
Boston, Massachusetts 02135
617 783 7000

Consulting Engineers
& Planners

October 28, 1988

Ref: 88-789.15

Mr. Paul Reavis
Assistant Director for Engineering and
Design Services
Boston Redevelopment Authority
One City Hall Plaza - Room 943
Boston, MA 02201

Re: South End Urban Renewal Area
Hayes Park

Dear Mr. Reavis:

Thank you for the invitation to submit qualifications for the referenced project. Please accept this letter as an expression of Vanasse Hangen Brustlin, Inc.'s (VHB) interest to provide the Authority with the professional services required for a successful and timely completion of design documents for the repair and improvements to Hayes Park and subsequent services during construction.

The proposed Project Team, under the direction of Ronald E. Thompson, P.E. and the management of Joseph D. Magni, Jr., P.E., has been structured to provide the talents and capabilities necessary for the analysis of existing conditions, the preparation of design documents, and the provision of resident engineering services.

To supplement its in-house capabilities and to encourage minority participation in Authority-sponsored projects, VHB has arranged for the subconsultant affiliations:

Geotechnical:	The need for an analysis of subsurface conditions is clearly indicated by the settlement problems being experienced in Hayes Park. VHB has arranged for the participation of Haley & Aldrich in investigations of soils and settlement.
Park Design:	To ensure a viable, functional, and aesthetic park design, VHB has added the SWA Group to the Project Team. Their experience with local

participation in the design development process uniquely qualifies them for participation in this assignment.

Lighting: To make the park attractive and usable in the evening hours, Chandra Associates, a DBE, will provide illumination design and specifications.

Resident Engineering: Key VHB staff will direct the efforts of construction and resident engineering services to be provided by a DBE subconsultant, DMC Engineering, Inc.

A project organization graphic in the Qualification Statement identifies the aforementioned firms and key personnel of VHB by major responsibility. We also recognize the need to establish a two-way dialogue between neighborhood residents and the Project Team. VHB will designate this responsibility to Robert M. Kaye who has significant experience from the early days of urban renewal in the South End.

In summary, VHB has assembled a Project Team of in-house professionals and specialty subconsultants to provide the Authority with a complete, single-source responsibility option for the execution of design and resident engineering services. We look forward to a favorable review of the accompanying credentials and to an opportunity to submit a proposal for the improvement of Hayes Park.

Very truly yours,

VANASSE HANGEN BRUSTLIN, INC.

Charles C. Crevo, P.E.
Senior Vice President

CCC/jhb

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PROJECT ORGANIZATION

AFFIRMATIVE ACTION

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- Relevant Experience
- Resumes

Project Issues

Project Issues

A number of project issues must be addressed to successfully complete this project and achieve the objectives. The particular issues requiring the attention of the Design Team are:

SOIL STABILIZATION

Hayes Park has experienced significant settlement causing drainage to the existing facilities and pavement. A geo-technical evaluation of the Park's underlying soils should be performed to troubleshoot the cause of the settlement. The Design Team will then develop stabilization techniques to halt the ground movement and insure the success of park improvements.

PROJECT DEVELOPMENT

The Preliminary Landscaping Plan identifies specific urban design elements such as trees, fencing, artwork, etc. The Design Team will accommodate the use of these elements throughout the Park to achieve the goals of neighborhood groups and the Authority.

LANDSCAPING MATERIALS AND LOCATION

Specific plant materials will need to be designed to enhance the Park. Landscaping materials must not form a barrier between the open area. The materials must also be selected and designed to enhance pedestrian security in the area.

Project Management

Organization

BOSTON REDEVELOPMENT AUTHORITY
Hayes Park

PRINCIPAL–IN–CHARGE	*Ronald E. Thompson, P.E.*
PROJECT MANAGER	*Joseph D. Magni, Jr., P.E.*

DESIGN SERVICES

PROJECT ENGINEER	*James R. Avitabile, P.E.*
UTILITIES	*Pompeo Casale, P.E.*
GEOTECHNICAL	*Haley & Aldrich, Inc.*
LANDSCAPE ARCHITECTURE	*The SWA Group*
PARK LIGHTING	*Rama K. Chandra, P.E.*

COMMUNITY/NEIGHBORHOOD LIAISON	*Robert M. Kaye*

CONSTRUCTION SERVICES

CONSTRUCTION SERVICES MANAGER	*George L. Woodcock*
SENIOR CONSTRUCTION INSPECTOR	*Edward B. Pratt*
CONSTRUCTION INSPECTORS	*DMC Engineering, Inc.*

Produced by VHB CAD

Management

MANAGEMENT APPROACH

Management of the Hayes Park project requires an administrative process, a definition of organization, and personnel assignments and roles. VHB has extensive experience in the development, design and implementation of urban roadway and intersection projects. Previous projects have ranged from construction costs of $200,000 to $12.5 million. Many of these projects had particular design issues associated with them which are similar to this project.

VHB will be responsible for directing the efforts of Team and maintaining liaison with the Authority. VHB proposes to institute careful project management techniques to ensure timely and efficient completion of tasks, and client satisfaction. To accomplish these, we will define project tasks and work packages with definitive products or milestones. In-house monitoring of milestone deliveries will be accomplished and finally, we will extensively and actively involve the Client throughout the design process. In more detail, these elements of project management are:

(1) Milestone Definition - Effective project management requires definition of specific work packages with specific products. Management of all projects dictates that small work elements be defined to maintain job control. Without this approach, neither VHB nortthe Authority can track performance. Budgets and time of performance are determined for each work package with a target date provided for delivery of each product. Personnel assignments and responsibilities are clearly developed during this phase.

(2) Monitoring - VHB will monitor achievement of milestones on a weekly basis using analysis of time/budget variances to determine if the project is proceeding according to schedule. By frequent monitoring. necessary adjustments in personnel assignments can be determined at early stages and variances in performance kept at minimum levels.

(3) Project Direction - VHB is committed to a project management team that includes principals of the firm who are familiar with the Boston Redevelopment Authority's South End reneval goals and with similar projects. This management team will provide the necessary skills to ensure the project is proceeding according to plan.

(4) Authority/VHB Interaction - VHB proposes to actively involve the Boston Redevelopment Authority in the design process. Communications between the Authority and the VHB team are vitally necessary to ensure your satisfaction and, most importantly, achievement of project objectives.

Throughout the entire design process, regular project meetings will be held. Progress will be reported and key decisions relative to project products will be reached jointly. The project director will be present at all of these meetings. Our experience in similar size projects leads us to believe this approach is the only way to successfully carry out a project such as this.

(5) Liaison - VHB proposes to maintain a constant contact with Authority representatives for all phases of work.

ROLES OF THE FIRMS

Vanasse Hangen Brustlin has committed to this project a team of in-house and subconsultant specialists who have a successful track record working together on comparable design projects.

The roles of the firms are clearly defined through their project responsibilities. VHB will provide day-to-day and overall responsibility to the City of Salem for the successful completion of this project. Project responsibilities are defined as follows:

- Vanasse Hangen Brustlin, Inc.:

  -- Overall project management and coordination
  -- Field survey
  -- Conceptual design
  -- Preliminary design
  -- Street and sidewalk design
  -- Final design
  -- Landscape architecture

- Chandra Associates

  -- Street lighting design

- DMC Engineering, Inc.

  -- Construction inspection services.

- Haley & Aldrich, Inc.

  -- Geotechnical Investigations

- The SWA Group

  -- Landscape Architecture

Affirmative Action

Affirmative Action

Vanasse Hangen Brustlin Inc's (VHB) Affirmative Action Program has been in effect since the firm incorporated. The firm is currently near the 10 percent mark in minority employment and is continually striving to improve this ratio.

The policy at VHB has always been to provide employment opportunity and to undertake affirmative action ensuring that no person will be discriminated against on the grounds of race, color, sex, religion, national origin, age, marital status, physical handicap, criminal record, ancestry or political beliefs.

The firm will further attempt to ensure that no reduction occurs in the present percentage of minority and women employees and to make a concerted effort to increase the number of minority and women applicants in the professional positions. We are in the process of updating and strengthening our Affirmative Action Plan and have placed great emphasis on this effort.

Our continued goal at VHB is to improve our Affirmative Action Program through hiring procedures, personnel procedures, and contractual agreements with minority subconsultants. To eliminate any discrimination, each project manager is critically analyzed to assure that equal opportunity is provided each employee. We undertake positive and aggressive measures to eliminate possible discrimination in recruiting, hiring, training, and promoting. We have also established a college recruiting program which places great emphasis on hiring minority and disadvantaged graduates.

VHB also believes in coupling with our services the talents of qualified minority owned (MBE) and woman-owned (WBE) business enterprises whenever warranted by the project under consideration. We maintain a current file of such firms to ensure that VHB's professional capabilities are complemented by equally capable professionals at these MBEs and WBEs. For this study, we are affiliating with of two MBE firms we regard highly and with whom we have worked in the past.

Presently, Vanasse Hangen Brustlin, Inc. has contracts with the City of Boston involving professional planning, design, and construction inspection services. We have taken and continue to take steps to meet the important goals and objectives held by the City of Boston for minority participation and resident preferred project staffing.

Standard
Forms 254

STANDARD FORM (SF)

254

Architect-Engineer and Related Services Questionnaire

1. Firm Name / Business Address:

Vanasse Hangen Brustlin, Inc.
60 Birmingham Parkway
Boston, MA 02135

2. Year Present Firm Established: 1978

3. Date Prepared: 8/25/88

4. Specify type of ownership *and* check below, if applicable.

Corporation

A. Small Business
B. Small Disadvantaged Business
C. Woman-owned Business

1a. Submittal is for [x] ☐ Parent Company ☐ Branch or Subsidiary Office

5. Name of Parent Company, if any:

N/A

5a. Former Parent Company Name(s), if any, and Year(s) Established:

Vanasse/Hangen Design, Inc. 1978
Vanasse/Hangen Associates, Inc. 1979
Vanasse/Hangen Engineering, Inc. 1979
Vanasse/Hangen, Inc. 1986

6. Names of not more than Two Principals to Contact: Title / Telephone

1) Richard E. Hangen, P.E., Principal (617) 783-7000
2) Robert S. Brustlin, P.E., Principal (617) 783-7000

7. Present Offices: City / State / Telephone / No. Personnel Each Office

7a. Total Personnel 268

60 Birmingham Parkway, Boston, MA 02135	(617) 783-7000	201
2611 Technology Drive, Orlando, FL 32804	(305) 291-1002	17
405 Broadway, Providence, RI 02903	(401) 273-1890	32
6 Bedford Farms, Kilton Rd, Bedford, NH 03102	(603) 644-0888	18

8. Personnel by Discipline: *(List each person only once, by primary function.)*

45 Administrative	Electrical Engineers	Oceanographers	
Architects	1 Estimators	8 Planners: Urban/Regional	32 Engineering Aides
Chemical Engineers	Geologists	Sanitary Engineers	
52 Civil Engineers	1 Hydrologists	1 Soils Engineers	
12 Construction Inspectors	Interior Designers	2 Specification Writers	
31 Draftsmen	4 Landscape Architects	8 Structural Engineers	
Ecologists	Mechanical Engineers	20 Surveyors	
Economists	Mining Engineers	46 Transportation Engineers	
5			

9. Summary of Professional Services Fees Received: (Insert index number)

	Last 5 Years (most recent year first)				
	19 87	19 86	19 85	19 84	19 83
Direct Federal contract work, including overseas	1	1	1	1	1
All other domestic work	8	7	7	6	6
All other foreign work*	1	1	1	1	1

*Firms interested in foreign work, but without such experience, check here: ☐.

Ranges of Professional Services Fees

INDEX
1. Less than $100,000
2. $100,000 to $250,000
3. $250,000 to $500,000
4. $500,000 to $1 million
5. $1 million to $2 million
6. $2 million to $5 million
7. $5 million to $10 million
8. $10 million or greater

Experience Profile Code Numbers for use with questions 10 and 11

001 Acoustics; Noise Abatement
002 Aerial Photogrammetry
003 Agricultural Development; Grain Storage; Farm Mechanization
004 Air Pollution Control
005 Airports; Navaids; Airport Lighting; Aircraft Fueling
006 Airports; Terminals & Hangars; Freight Handling
007 Arctic Facilities
008 Auditoriums & Theatres
009 Automation; Controls; Instrumentation
010 Barracks; Dormitories
011 Bridges
012 Cemeteries *(Planning & Relocation)*
013 Chemical Processing & Storage
014 Churches; Chapels
015 Codes; Standards; Ordinances
016 Cold Storage; Refrigeration; Fast Freeze
017 Commercial Buildings *(low rise);* Shopping Centers
018 Communications Systems; TV; Microwave
019 Computer Facilities; Computer Service
020 Conservation and Resource Management
021 Construction Management
022 Corrosion Control; Cathodic Protection; Electrolysis
023 Cost Estimating
024 Dams *(Concrete; Arch)*
025 Dams *(Earth; Rock);* Dikes; Levees
026 Desalinization *(Process & Facilities)*
027 Dining Halls; Clubs; Restaurants
028 Ecological & Archeological Investigations
029 Educational Facilities; Classrooms
030 Electronics
031 Elevators; Escalators; People-Movers
032 Energy Conservation; New Energy Sources
033 Environmental Impact Studies, Assessments or Statements
034 Fallout Shelters; Blast-Resistant Design
035 Field Houses; Gyms; Stadiums
036 Fire Protection
037 Fisheries; Fish Ladders
038 Forestry & Forest Products
039 Garages; Vehicle Maintenance Facilities; Parking Decks
040 Gas Systems *(Propane; Natural, Etc.)*
041 Graphic Design
042 Harbors; Jetties; Piers; Ship Terminal Facilities
043 Heating; Ventilating; Air Conditioning
044 Health Systems Planning
045 Highrise; Air-Rights-Type Buildings
046 Highways; Streets; Airfield Paving; Parking Lots
047 Historical Preservation
048 Hospital & Medical Facilities
049 Hotels; Models
050 Housing *(Residential, Multi-Family; Apartments; Condominiums)*
051 Hydraulics & Pneumatics
052 Industrial Buildings; Manufacturing Plants
053 Industrial Processes; Quality Control
054 Industrial Waste Treatment
055 Interior Design; Space Planning
056 Irrigation; Drainage
057 Judicial and Courtroom Facilities
058 Laboratories; Medical Research Facilities
059 Landscape Architecture
060 Libraries; Museums; Galleries
061 Lighting *(Interiors; Display; Theatre, Etc.)*
062 Lighting *(Exteriors; Streets; Memorials; Athletic Fields, Etc.)*
063 Materials Handling Systems; Conveyors; Sorters
064 Metallurgy
065 Microclimatology; Tropical Engineering
066 Military Design Standards
067 Mining & Mineralogy
068 Missile Facilities *(Silos; Fuels; Transport)*
069 Modular Systems Design; Pre-Fabricated Structures or Components
070 Naval Architecture; Off-Shore Platforms
071 Nuclear Facilities; Nuclear Shielding
072 Office Buildings; Industrial Parks
073 Oceanographic Engineering
074 Ordnance; Munitions; Special Weapons
075 Petroleum Exploration; Refining
076 Petroleum and Fuel *(Storage and Distribution)*
077 Pipelines *(Cross-Country—Liquid & Gas)*
078 Planning *(Community, Regional, Areawide and State)*
079 Planning *(Site, Installation, and Project)*
080 Plumbing & Piping Design
081 Pneumatic Structures; Air-Support Buildings
082 Postal Facilities
083 Power Generation, Transmission, Distribution
084 Prisons & Correctional Facilities
085 Product, Machine & Equipment Design
086 Radar; Sonar; Radio & Radar Telescopes
087 Railroad; Rapid Transit
088 Recreation Facilities *(Parks, Marinas, Etc.)*
089 Rehabilitation *(Buildings; Structures; Facilities)*
090 Resource Recovery; Recycling
091 Radio Frequency Systems & Shieldings
092 Rivers; Canals; Waterways; Flood Control
093 Safety Engineering; Accident Studies; OSHA Studies
094 Security Systems; Intruder & Smoke Detection
095 Seismic Designs & Studies
096 Sewage Collection, Treatment and Disposal
097 Soils & Geologic Studies; Foundations
098 Solar Energy Utilization
099 Solid Wastes; Incineration; Land Fill
100 Special Environments; Clean Rooms, Etc.
101 Structural Design; Special Structures
102 Surveying; Platting; Mapping; Flood Plain Studies
103 Swimming Pools
104 Storm Water Handling & Facilities
105 Telephone Systems *(Rural; Mobile; Intercom, Etc.)*
106 Testing & Inspection Services
107 Traffic & Transportation Engineering
108 Towers *(Self-Supporting & Guyed Systems)*
109 Tunnels & Subways
110 Urban Renewals; Community Development
111 Utilities *(Gas & Steam)*
112 Value Analysis; Life-Cycle Costing
113 Warehouses & Depots
114 Water Resources; Hydrology; Ground Water
115 Water Supply, Treatment and Distribution
116 Wind Tunnels; Research/Testing Facilities Design
117 Zoning; Land Use Studies
201 Parking Studies
202 _____
203 _____
204 _____
205 _____

10. Profile of Firm's Project Experience, Last 5 Years

	Profile Code	Number of Projects	Total Gross Fees (in thousands)		Profile Code	Number of Projects	Total Gross Fees (in thousands)		Profile Code	Number of Projects	Total Gross Fees (in thousands)
1)	011	4	200	11)	089	3	10	21)			
2)	021	6	200	12)	096	4	100	22)			
3)	033	20	400	13)	101	4	30	23)			
4)	039	8	200	14)	102	60	400	24)			
5)	046	50	1200	15)	104	12	200	25)			
6)	059	18	200	16)	107	340	2400	26)			
7)	072	60	1800	17)	112	6	100	27)			
8)	078	12	100	18)	115	6	100	28)			
9)	079	30	600	19)				29)			
10)	088	6	100	20)				30)			

11. Project Examples, Last 5 Years

Profile Code	"P", "C", "JV", or "IE"	Project Name and Location	Owner Name and Address	Cost of Work (in thousands)	Completion Date (Actual or Estimated)
011	P	1 Davol Street Bridge Replacement Fall River, MA	Massachusetts DPW Boston, MA	2,300	1987
011	P	2 I-93 Viaduct Rehabilitation Boston, MA	Massachusetts DPW Boston, MA	1,250	1989
011	P	3 Bridge W-3-20 West Street/CONRAIL Bridge Replacement	Massachusetts DPW Boston, MA Walpole, MA	875	1989
011	P	4 I-91 Ramp Demolition and Viaduct Modifications	Department of Public Works Springfield, MA 01103 Springfield, MA	800	1988
033	P	5 I-93 Interchange and River Road Environmental Impact Report Andover, MA	Town of Andover Planning Department Andover, MA	104 (fee)	1987
033	P	6 Supplemental EIS Woonsocket Industrial Highway Woonsocket, RI	Rhode Island Dept. of Transportation State Office Building	200 (fee)	1986
033 117	P	7 Mystic Center Transportation Planning, Environmental Assessment, Permitting, Medford, MA	Cabot, Cabot & Forbes 60 State Street Boston, MA	75 (fee)	1988

039	P	8 Buffum Street Parking Garage Design and Construction Inspection, Lynn, MA	City of Lynn Parking Department Lynn, MA	3,000	1989
039	P	9 South Street Parking Garage Athol, MA	Office of Community Development Town Hall Athol, MA	1,000	1987
039 & 201	P	10 Maynard CBD Parking Facility Feasibility, Design, Construction Maynard, MA 01754	Town of Maynard Bd. of Selectmen	740	1984
039	P	11 Mountain Avenue Municipal Parking Graage Design and Construction Inspection Malden, MA	City of Malden Redevelopment Authority Malden, MA	700	1985
046 021	& P	12 Vernon Street Connector and Interchange Design and Construction Engineering Springfield, MA	City of Springfield DPW, Division of Engineering, Springfield, MA	1,300	1986
046 021	& P	13 Middlesex Turnpike Reconstruction Design and Construction Engineering Bedford, Billerica and Burlington, MA	Towns of Bedford, Billerica and Burlington, MA	12,000	1992
046 101	P	14 Rte 140 Road and Bridge Relocation Franklin, MA	Massachusetts Dept. of Public Works, 10 Park Plaza Boston, MA 02116	6,000	1990
046	& P	15 Massachusetts Bay Transp Authority Stations Design Metro Boston, Eastern MA communities	Massachusetts Bay Transportation Authority 10 Park Plaza Boston, MA		10,0
046	P	16 South and North Access Roads Design for Construction Lebanon, NH	Dartmouth Hanover Medical Center Lebanon, NH	1,500	1989
046 021	& P	17 Cambridge Street Design and Construction Engineering Burlington, MA	Town of Burlington Public Works Department Burlington, MA 01803		70
046 021	& P	18 Station Avenue Reconstruction Design and Construction Engineering Yarmouth, MA	Town of Yarmouth Public Works Department Yarmouth, MA	1,200	1988
072	P	19 Parcel Distribution Facility Design - Office building, garages, site plan, etc. Chelmsford, MA	United Parcel Service New York, NY	21,000	

072	P	20 Whitehall Farms Condominium Complex, site engineering, Middletown, RI	Whitehall Farms	15,000	1988
072	P	21 Woodman Development Condominium Complex, site engineering Portsmouth, RI	Woodman Development Boston, MA	15,000	1990
078	C	22 Central Artery/Third Harbor Crossing Travel Demand Forecast/Analysis South and East Boston, MA	MASSPORT 10 Park Plaza Boston, MA 02116	75 (fee)	1984
102	P	23 Dudley Road Detail Survey, Bedford, MA	Codman Company 211 Congress Street Boston, MA 02110	24 (fee)	1987
107	P	24 Brookline Village CBD Traffic Signal Plan & Design Urban Systems Project Brookline, MA	Brookline Redevelopment Authority Brookline DPW Brookline, MA 02146	200	1983
107	P	25 Statewide Signal Rehabilitation Program Boston, MA	Massachusetts Dept. of Public Works 10 Park Plaza Boston, MA 02116	150	1987
107	P	26 Traffic Signal Update Statewide, VT	Vermont Agency of Transportation Monpelier, VT	98 (fee)	1986
107	P	27 StationPark Joint Use Development Program Transportation Planning Dedham/Westwood, MA	Gilbane Properties Providence, RI	95 (fee)	1985
107 & 079	P	28 Braintree Hill Office Park Access/ Parking Planning, Route 128 Quincy/Braintree, MA	The Flatley Company 150 Wood Road Braintree, MA	600 (fee)	1985
107	P	29 MDC Parkway Evaluation Project Pavement Management Program Massachusetts	Metropolitan District Commission 20 Somerset Street Boston, MA 02108	900 (fee)	1987
201	P	30 Logan Airport Parking Study Boston, MA	Massachusetts Port Authority 10 Park Plaza Boston, MA	138 (fee)	1984

12. The foregoing is a statement of facts

Signature: Richard E. Hangen Typed Name and Title: Richard E. Hangen, P.E. President

Date: October 4, 1988

STANDARD FORM (SF)

254

Architect-Engineer and Related Services Questionnaire

1. Firm Name / Business Address:

DMC Engineering, Inc.
1 Kendall Street
Framingham, MA 01701

2. Year Present Firm Established: 1982

3. Date Prepared: 9/7/86

4. Specify type of ownership *and* check below, if applicable.

Corporation

A. Small Business
B. Small Disadvantaged Business X
C. Woman-owned Business

1a. Submittal is for ☒ Parent Company ☐ Branch or Subsidiary Office

5. Name of Parent Company, If any:

N/A

5a. Former Parent Company Name(s), If any, and Year(s) Established:

DMC Construction Engineering - 1982

6. Names of not more than Two Principals to Contact: Title / Telephone

1) Daniel M. Carson, President 617-872-8030
2)

7. Present Offices: City / State / Telephone / No. Personnel Each Office

7a. Total Personnel 10

Framingham, MA 01701
PH. 617-872-8030

8. Personnel by Discipline: *(List each person only once, by primary function.)*

1 Administrative	___ Electrical Engineers	___ Oceanographers	___
___ Architects	___ Estimators	___ Planners: Urban/Regional	___
___ Chemical Engineers	___ Geologists	___ Sanitary Engineers	___
2 Civil Engineers	___ Hydrologists	___ Soils Engineers	___
1 Construction Inspectors	___ Interior Designers	___ Specification Writers	___
1 Draftsmen	___ Landscape Architects	2 Structural Engineers	___
___ Ecologists	___ Mechanical Engineers	3 Surveyors	___
___ Economists	___ Mining Engineers	___ Transportation Engineers	___

9. Summary of Professional Services Fees Received: (Insert index number)

	Last 5 Years (most recent year first)				
	19 86	19 85	19 84	19 83	19 82
Direct Federal contract work, including overseas	___	___	___	___	___
All other domestic work	4	3	2	1	1
All other foreign work*	___	___	___	___	___

*Firms interested in foreign work, but without such experience, check here: ☐

Ranges of Professional Services Fees

INDEX
1. Less than $100,000
2. $100,000 to $250,000
3. $250,000 to $500,000
4. $500,000 to $1 million
5. $1 million to $2 million
6. $2 million to $5 million
7. $5 million to $10 million
8. $10 million or greater

10. Profile of Firm's Project Experience, Last 5 Years

Profile Code	Number of Projects	Total Gross Fees (in thousands)	Profile Code	Number of Projects	Total Gross Fees (in thousands)	Profile Code	Number of Projects	Total Gross Fees (in thousands)
1) 011	4	57.0	11)			21)		
2) 021	4	58.0	12)			22)		
3) 023	50	110.6	13)			23)		
4) 046	1	4.0	14)			24)		
5) 089	3	4.8	15)			25)		
6) 096	2	51.0	16)			26)		
7) 097	5	15.6	17)			27)		
8) 101	70	56.4	18)			28)		
9) 102	4	160.0	19)			29)		
10) 106	2	14.7	20)			30)		

11. Project Examples, Last 5 Years * Engineering Fee

Profile Code	"P", "C", "JV", or "IE"	Project Name and Location	Owner Name and Address	Cost of Work (in thousands)	Completion Date (Actual or Estimated)
011	P	1 Eel Weir Bridge Windham, ME	Maine Dept. of Transportation Transportation Bldg., Station House 16 August, ME 04333	$300.0	Nov. 1986
	C	2 MPA Weston Weston, MA	Massachusetts Turnpike Authority Boston, MA	$200.0	Dec. 1985
	C	3 Conn. Emergency Bridge Insp. State Proj. No. 170-381 Conn. various locations	Conn. Dept. of Transportation 24 Wolcott Hill Road Wethersfield, CT 06109	* $40.0	June 1986
021	C	4 Franklin Field Housing Project Boston, MA	Boston Housing Authority 52 Chauncy St. Boston, MA	$2000.0	Dec. 1985
	P	5 Consulting Construction Management Contract	Maine Dept. of Transportation Office of Equal Opportunity Transportation Bldg, Station 16 Augusta, ME 04333	* $10.0	Nov. 1986
023	C	6 MBTA Lynn Garage Lynn, MA	Massachusetts BayTransportation Authority 10 Park Square Boston, MA 02116	* $40.0	Nov. 1988
	P	7 Consulting Construction Management Services	Contractors Association of Boston 27 Centre Street Roxbury, MA 02119	* $40.0	Sept. 1985

023	P	8 MBTA Ruggles Station Boston, MA	Wescott Construction North Attleboro, MA	* $4.0	July 1986
046	P	9 Westwood Office Bldg. Westwood, MA	Damon Corporation Needham, MA	$120.0	May 1984
	IE	10 Street Resurfacing-Cont. #82-2-E Lowell, Concord Ave., Lincoln & Adams Streets Lexington, MA	Town of Lexington Lexington, MA	$118.0	Oct. 1982
056	IE	11 Grant Street Drain & Sidewalk Construction -Cont. #84-4-E	Town of Lexington Lexington, MA	$100.0	Nov. 1984
	IE	12 Flecher Ave. Street & Drain Construction	Town of Lexington Lexington, MA	$25.0	Sept. 1977
089	C	13 MBTA Gloucester Draw Bridge Gloucester, MA	Massachusetts Bay Transportation Authority	$960.0	Dec. 1983
	P	14 Rtes 85 & 20 Office Bldg. Marlboro, MA	The Gentry Co. Marlboro, MA	$40.0	Sept. 1985
	P	15 U-Store-It structures Framingham, MA	U-Store-It Framingham, MA 01701	$30.0	March 1985
096	IE	16 Sanitary Sewer Construction Moonhill Road, Swan Lane	Town of Lexington Lexington, MA	$282.0	May 1977
	P	17 Hillcrest Willage Plainville, MA	Stanley Widak Plainville, MA	* $4.0	Oct. 1985
	C	18 MDC Management Constract Boston, MA	Metropolitan District Commission Boston, MA	* $100.0	Dec. 1985
097	P	19 Saugus Cofferdam for Saugus Pumping Station	P. Gioioso & Sons Hyde Park, MA	$200.0	Jan. 1985

097	IE	20 Bissel Paint Treatment Plant St. Louis, MO	City of St. Louis St. Louis, MO	$1000.0	UNK
	C	21 MBTA Needham Branch Boston, MA	Massachusetts Bay Transportation Authority	$12000.0	April 1986
101	P	22 Hansen Building Natick , MA	Steven Hansen Natick, MA	$300.0	July 1985
	C	23 Rochester Treatment Plant Rochester, N.H.	Town of Rochester Rochester, N.H.	$300.0	Sept. 1984
	C	24 Nashua Treatment Plant Nashua, N.H.	City of Nashua Nashua, N.H.	$1000.0	Aug. 1986
102	C	25 MBTA Central Subway Track Rehabilitation	Massachusetts Bay Transportation Authority	$5000.0	Jan. 1987
	C	26 Middleton Phase I Water Collection System	Town of Middleton Middleton, MA	$2000.0	UNK
106	C	27 Withrop Wastewater Collection System Winthrop, MA	Town of Winthrop Winthrop, MA	$400.0	Nov. 1985
	C	28 Various Locations In Eastern Maine	McDonalds Corporation Westwood, MA	* $3.2	Mar. 1985
115	IE	29 Marrett Road Water Main Construction Cont. #82-3-E Lexington, MA	Town of Lexington Lexington, MA	$205.0	Aug. 1982
	IE	30 Massachusetts Avenue Water Main Construction Cont. #84-5-E	Town of Lexington Lexington, MA	$385.0	May 1985

12. The foregoing is a statement of facts

Signature: Daniel M. Carson Typed Name and Title: Daniel . Carson, President

Date: September 7, 1986

STANDARD FORM 254 (REV 10-83)
* GPO : 1983 0 - 381-526 (9063)

SUPPLEMENT TO SF 254

SMALL BUSINESS

A small business concern for the purpose of Government procurement is a concern, including its affiliates, which is independently owned and operated, is not dominant in the field of operation in which it is bidding on Government contracts and can further qualify under the criteria concerning number of employees, average annual receipts, or other criteria as prescribed by the Small Business Administration.

Architect-Engineer and Consultant firms are considered as small businesses if they are bidding on a contract for services other than marine engineering or naval architecture and average annual receipts for their preceding 3 fiscal years do not exceed $7.5 million.

concern is _x_ is not ____ a small business

WOMAN-OWNED BUSINESS

A woman-owned business is a business which is, at least, 51 percent owned, controlled, and operated by a woman or women. Controlled is defined as exercising the power to make policy decisions. Operated is defined as actively involved in the day-to-day management.

For the purposes of this definition, businesses which are publicly owned, joint stock associations, and business trusts are exempted. Exempted businesses may voluntarily represent that they are, or are not, women-owned if this information is available.

concern is ____ is not _X_ a woman-owned business

STANDARD FORM (SF)

254

Architect-Engineer and Related Services Questionnaire

1. Firm Name / Business Address:

CHANDRA ASSOCIATES
135 Selwyn Road
Newton Highlands, Mass 02161

2. Year Present Firm Established: 1982

3. Date Prepared: September 1988

4. Specify type of ownership *and* check below, if applicable.

Sole Proprietership

- [ ] A. Small Business
- [x] B. Small Disadvantaged Business
- [ ] C. Woman-owned Business

1a. Submittal is for ☒ Parent Company ☐ Branch or Subsidiary Office

5. Name of Parent Company, if any:

NA

5a. Former Parent Company Name(s), if any, and Year(s) Established:

NA

6. Names of not more than Two Principals to Contact: Title / Telephone

1) Rama K. Chandra, President, (617) 969-8401
2)

7. Present Offices: City / State / Telephone / No. Personnel Each Office

7a. Total Personnel 5

Newton Highlands, Mass., (617) 969-8401, 5

8. Personnel by Discipline: *(List each person only once, by primary function.)*

___ Administrative	1 Electrical Engineers	___ Oceanographers	___
___ Architects	___ Estimators	___ Planners: Urban/Regional	___
___ Chemical Engineers	___ Geologists	1 Sanitary Engineers	___
___ Civil Engineers	___ Hydrologists	___ Soils Engineers	___
___ Construction Inspectors	___ Interior Designers	___ Specification Writers	___
2 Draftsmen	___ Landscape Architects	___ Structural Engineers	___
___ Ecologists	1 Mechanical Engineers	___ Surveyors	___
___ Economists	___ Mining Engineers	___ Transportation Engineers	___

9. Summary of Professional Services Fees Received: (Insert index number)

	Last 5 Years (most recent year first)				
	1987	1986	1985	1984	1983
Direct Federal contract work, including overseas					
All other domestic work	1	1	1	1	1
All other foreign work*					

*Firms interested in foreign work, but without such experience, check here: ☐.

Ranges of Professional Services Fees

INDEX
1. Less than $100,000
2. $100,000 to $250,000
3. $250,000 to $500,000
4. $500,000 to $1 million
5. $1 million to $2 million
6. $2 million to $5 million
7. $5 million to $10 million
8. $10 million or greater

Experience Profile Code Numbers for use with questions 10 and 11

001 Acoustics; Noise Abatement
002 Aerial Photogrammetry
003 Agricultural Development; Grain Storage; Farm Mechanization
004 Air Pollution Control
005 Airports; Navaids; Airport Lighting; Aircraft Fueling
006 Airports; Terminals & Hangars; Freight Handling
007 Arctic Facilities
008 Auditoriums & Theatres
009 Automation; Controls; Instrumentation
010 Barracks; Dormitories
011 Bridges
012 Cemeteries *(Planning & Relocation)*
013 Chemical Processing & Storage
014 Churches; Chapels
015 Codes; Standards; Ordinances
016 Cold Storage; Refrigeration; Fast Freeze
017 Commercial Buildings *(low rise);* Shopping Centers
018 Communications Systems; TV; Microwave
019 Computer Facilities; Computer Service
020 Conservation and Resource Management
021 Construction Management
022 Corrosion Control; Cathodic Protection; Electrolysis
023 Cost Estimating
024 Dams *(Concrete; Arch)*
025 Dams *(Earth; Rock);* Dikes; Levees
026 Desalinization *(Process & Facilities)*
027 Dining Halls; Clubs; Restaurants
028 Ecological & Archeological Investigations
029 Educational Facilities; Classrooms
030 Electronics
031 Elevators; Escalators; People-Movers
032 Energy Conservation; New Energy Sources
033 Environmental Impact Studies, Assessments or Statements
034 Fallout Shelters; Blast-Resistant Design
035 Field Houses; Gyms; Stadiums
036 Fire Protection
037 Fisheries; Fish Ladders
038 Forestry & Forest Products
039 Garages; Vehicle Maintenance Facilities; Parking Decks
040 Gas Systems *(Propane; Natural, Etc.)*
041 Graphic Design
042 Harbors; Jetties; Piers; Ship Terminal Facilities
043 Heating; Ventilating; Air Conditioning
044 Health Systems Planning
045 Highrise; Air-Rights-Type Buildings
046 Highways; Streets; Airfield Paving; Parking Lots
047 Historical Preservation
048 Hospital & Medical Facilities
049 Hotels; Models
050 Housing *(Residential, Multi-Family; Apartments; Condominiums)*
051 Hydraulics & Pneumatics
052 Industrial Buildings; Manufacturing Plants
053 Industrial Processes; Quality Control
054 Industrial Waste Treatment
055 Interior Design; Space Planning
056 Irrigation; Drainage
057 Judicial and Courtroom Facilities
058 Laboratories; Medical Research Facilities
059 Landscape Architecture
060 Libraries; Museums; Galleries
061 Lighting *(Interiors; Display; Theatre, Etc.)*
062 Lighting *(Exteriors; Streets; Memorials; Athletic Fields, Etc.)*
063 Materials Handling Systems; Conveyors; Sorters
064 Metallurgy
065 Microclimatology; Tropical Engineering
066 Military Design Standards
067 Mining & Mineralogy
068 Missile Facilities *(Silos; Fuels; Transport)*
069 Modular Systems Design; Pre-Fabricated Structures or Components
070 Naval Architecture; Off-Shore Platforms
071 Nuclear Facilities; Nuclear Shielding
072 Office Buildings; Industrial Parks
073 Oceanographic Engineering
074 Ordnance; Munitions; Special Weapons
075 Petroleum Exploration; Refining
076 Petroleum and Fuel *(Storage and Distribution)*
077 Pipelines *(Cross-Country—Liquid & Gas)*
078 Planning *(Community, Regional, Areawide and State)*
079 Planning *(Site, Installation, and Project)*
080 Plumbing & Piping Design
081 Pneumatic Structures; Air-Support Buildings
082 Postal Facilities
083 Power Generation, Transmission, Distribution
084 Prisons & Correctional Facilities
085 Product, Machine & Equipment Design
086 Radar; Sonar; Radio & Radar Telescopes
087 Railroad; Rapid Transit
088 Recreation Facilities *(Parks, Marinas, Etc.)*
089 Rehabilitation *(Buildings; Structures; Facilities)*
090 Resource Recovery; Recycling
091 Radio Frequency Systems & Shieldings
092 Rivers; Canals; Waterways; Flood Control
093 Safety Engineering; Accident Studies; OSHA Studies
094 Security Systems; Intruder & Smoke Detection
095 Seismic Designs & Studies
096 Sewage Collection, Treatment and Disposal
097 Soils & Geologic Studies; Foundations
098 Solar Energy Utilization
099 Solid Wastes; Incineration; Land Fill
100 Special Environments; Clean Rooms, Etc.
101 Structural Design; Special Structures
102 Surveying; Platting; Mapping; Flood Plain Studies
103 Swimming Pools
104 Storm Water Handling & Facilities
105 Telephone Systems *(Rural; Mobile; Intercom, Etc.)*
106 Testing & Inspection Services
107 Traffic & Transportation Engineering
108 Towers *(Self-Supporting & Guyed Systems)*
109 Tunnels & Subways
110 Urban Renewals; Community Development
111 Utilities *(Gas & Steam)*
112 Value Analysis; Life-Cycle Costing
113 Warehouses & Depots
114 Water Resources; Hydrology; Ground Water
115 Water Supply, Treatment and Distribution
116 Wind Tunnels; Research/Testing Facilities Design
117 Zoning; Land Use Studies
201 _____
202 _____
203 _____
204 _____
205 _____

10. Profile of Firm's Project Experience, Last 5 Years

Profile Code	Number of Projects	Total Gross Fees (in thousands)	Profile Code	Number of Projects	Total Gross Fees (in thousands)	Profile Code	Number of Projects	Total Gross Fees (in thousands)
1) 008	1	3	11) 049	5	40	21) 094	4	10
2) 009	5	IE	12) 050	6	30	22) 104	5	IE
3) 016	2	30	13) 052	2	10	23)		
4) 017	15	40	14) 057	1	20	24)		
5) 027	3	10	15) 058	1	5	25)		
6) 029	2	30	16) 061	20	70	26)		
7) 039	2	5	17) 062	5	30	27)		
8) 042	1	IE	18) 072	2	10	28)		
9) 043	4	50	19) 082	2	IE	29)		
10) 048	1	0	20) 089	5	30	30)		

11. Project Examples, Last 5 Years

Profile Code	"P", "C", "JV", or "IE"	Project Name and Location	Owner Name and Address	Cost of Work (in thousands)	Completion Date (Actual or Estimated)
008	C	1 Chevalier Auditorium and Gene Mack Gymnasium, Medford, MA	City of Medford, MA	200	84
009	IE	2 Monroe County Resource Recovery Plant, New York	Monroe County, NY	1000	82
009	C	3 Somerville CSO Storm Drainage Facility	MDC, Boston, MA	150	87
016	C	4 IRS Andover, MA	GSA, New York	300	88
017	C	5 Coolidge Bank Building Cambridge, MA	InterContinental Developers Boston, MA	400	84
017	C	6 West St. Building Boston, MA	Bennett Associates, Boston, MA	300	84
027	C	7 InTech Cambridge, MA	Intech. Cambridge, MA	200	87

027	IE	8 SMEF 2 Hanscome AFB Bedford, MA	U.S.Air Force	1000	84
029	C	9 Burke High School Boston, MA	Public Facilities Dept. Boston, MA	100	88
029	C	10 Tobin High School Boston, MA	Public Facilities Dept. Boston, MA	150	88
039	C	11 Athol Parking Garage Athol, MA	City of Athol, MA	60	88
042	IE	12 Nantucket Ferry Terminal Nantucket, MA	Nantucket Steamship Authority	600	85
043	C	13 Courthouses 6,7 & 8 Boston, MA	GSA, Boston, MA	400	88
048	C	14 Fuller Memorial Hospital N.Attleborough, MA	Fuller Hospital	300	87
049	C	15 Travelodge East Lyme, CT	Travelodge	200	84
049	C	16 Hilton, Dedham, MA	Hilton	800 ,	88
050	C	17 Harborview Apartments Clinton, MA	Clinton Housing Authority	400	83
050	C	18 Beach & Tyler ST. Apartments Boston, MA	Link Associates	50 ,	83
052	C	19 Steven's Linen Dudley, MA	Steven's Linen	200	84

057	C	20 Courthouses 6,7 & 8 Boston, MA	GSA, Boston, MA	400	88
058	C	21 Brigham & Women's Hospital Research Building. Boston, MA	BWH, Boston, MA	2000	85
061	C	22 IRS Andover, MA	GSA, New York	300	88
061	C	23 Courthouses 6,7 & 8 Boston, MA	GSA, Boston, MA	400	88
062	C	24 T Stations Metropolitan Boston	Massachusetts Bay Transportat- ion Authority, Boston, MA	150	89
062	C	25 Park St., Adams, MA	City of Adams	300	89
072	C	26 Dedham Office Park Dedham, MA	Kurt Sarancen Associates Newton, MA	1000	88
082	IE	27 Postal Facility Boston, MA	USPS, Lexington, MA	300	83
089	C	28 Courthouses 6,7 & 8 Boston, MA	GSA, Boston, MA	400	88
094	C	29 Burke High School Boston, MA	Public Facilities Dept Boston, MA	100	88
104	IE	30 Somerville CSO Storm Drainage Facility	MDC, Boston. MA	150	87

12. The foregoing is a statement of facts

Signature: Rama K. Chandra Typed Name and Title: Rama K. Chandra, President

Date: September 1988

STANDARD FORM (SF)

254

Architect-Engineer and Related Services Questionnaire

1. Firm Name / Business Address:

Haley & Aldrich, Inc.
58 Charles Street
Cambridge, MA 02141

2. Year Present Firm Established: 1957

3. Date Prepared: 5 January 1988

4 Specify type of ownership *and* check below, if applicable
Corporation

- A Small Business
- B Small Disadvantaged Business
- C. Woman-owned Business

1a. Submittal is for ☒ Parent Company ☐ Branch or Subsidiary Office

5. Name of Parent Company, if any:

5a. Former Parent Company Name(s), if any, and Year(s) Established:

Haley & Aldrich (Partnership)
Established 1957

6. Names of not more than Two Principals to Contact: Title / Telephone

1) Harl P. Aldrich, Chairman (617) 494-1606
2) Thomas K. Liu, President (617) 494-1606

7. Present Offices: City / State / Telephone / No. Personnel Each Office

7a. Total Personnel 240

58 Charles St. Cambridge, MA 02141 (617) 494-1606	622 Congress St. P. O. Box 4076 Portland, ME 04101 (207) 772-7869	110 National Drive Glastonbury, CT 06033 (203) 659-4248	Pine Tree Place 360-8 Route 101 Bedford, NH 03102 (603) 472-2054	Affiliate: H&A of New York 189 North Water St. Rochester, NY 1460 (716) 232-7386
Personnel: 166	Personnel: 20	Personnel: 25	Personnel: 6	Personnel: 22

8. Personnel by Discipline: *(List each person only once, by primary function)*

57 Administrative	___ Electrical Engineers	___ Oceanographers	1 Hydrogeochemist
___ Architects	___ Estimators	___ Planners: Urban/Regional	16 Environmental Geologists
___ Chemical Engineers	7 Geologists	___ Sanitary Engineers	10 Scientists
___ Civil Engineers	11 Hydrogeologists	87 Soils Engineers	3 Instrumentation Specialist
11 Construction Inspectors	___ Interior Designers	___ Specification Writers	26 Technicians-Exploration/la
8 Draftsmen	___ Landscape Architects	___ Structural Engineers	1 Librarian
___ Ecologists	___ Mechanical Engineers	___ Surveyors	2 Computer Technicians
___ Economists	___ Mining Engineers	___ Transportation Engineers	___

9. Summary of Professional Services Fees Received: (Insert index number)

Last 5 Years (most recent year first)	19 87	19 86	19 85	19 84	19 83
Direct Federal contract work, including overseas	2	5	2	2	2
All other domestic work	8	8	7	7	7
All other foreign work*	2	2	2	2	2

*Firms interested in foreign work, but without such experience, check here: ☐.

Ranges of Professional Services Fees

INDEX
1 Less than $100,000
2 $100,000 to $250,000
3 $250,000 to $500,000
4 $500,000 to $1 million
5 $1 million to $2 million
6 $2 million to $5 million
7 $5 million to $10 million
8 $10 million or greater

Experience Profile Code Numbers for use with questions 10 and 11

001 Acoustics; Noise Abatement
002 Aerial Photogrammetry
003 Agricultural Development; Grain Storage; Farm Mechanization
004 Air Pollution Control
005 Airports; Navaids; Airport Lighting; Aircraft Fueling
006 Airports; Terminals & Hangars; Freight Handling
007 Arctic Facilities
008 Auditoriums & Theatres
009 Automation; Controls; Instrumentation
010 Barracks; Dormitories
011 Bridges
012 Cemeteries *(Planning & Relocation)*
013 Chemical Processing & Storage
014 Churches; Chapels
015 Codes; Standards; Ordinances
016 Cold Storage; Refrigeration; Fast Freeze
017 Commercial Buildings *(low rise)*; Shopping Centers
018 Communications Systems; TV; Microwave
019 Computer Facilities; Computer Service
020 Conservation and Resource Management
021 Construction Management
022 Corrosion Control; Cathodic Protection; Electrolysis
023 Cost Estimating
024 Dams *(Concrete; Arch)*
025 Dams *(Earth; Rock)*; Dikes; Levees
026 Desalinization *(Process & Facilities)*
027 Dining Halls; Clubs; Restaurants
028 Ecological & Archeological Investigations
029 Educational Facilities; Classrooms
030 Electronics
031 Elevators; Escalators; People-Movers
032 Energy Conservation; New Energy Sources
033 Environmental Impact Studies, Assessments or Statements
034 Fallout Shelters; Blast-Resistant Design
035 Field Houses; Gyms; Stadiums
036 Fire Protection
037 Fisheries; Fish Ladders
038 Forestry & Forest Products
039 Garages; Vehicle Maintenance Facilities; Parking Decks
040 Gas Systems *(Propane; Natural, Etc.)*
041 Graphic Design
042 Harbors; Jetties; Piers; Ship Terminal Facilities
043 Heating; Ventilating; Air Conditioning
044 Health Systems Planning
045 Highrise; Air-Rights-Type Buildings
046 Highways; Streets; Airfield Paving; Parking Lots
047 Historical Preservation
048 Hospital & Medical Facilities
049 Hotels; Motels
050 Housing *(Residential, Multi-Family; Apartments; Condominiums)*
051 Hydraulics & Pneumatics
052 Industrial Buildings; Manufacturing Plants
053 Industrial Processes; Quality Control
054 Industrial Waste Treatment
055 Interior Design; Space Planning
056 Irrigation; Drainage
057 Judicial and Courtroom Facilities
058 Laboratories; Medical Research Facilities
059 Landscape Architecture
060 Libraries; Museums; Galleries
061 Lighting *(Interiors; Display; Theatre, Etc.)*
062 Lighting *(Exteriors; Streets; Memorials; Athletic Fields, Etc.)*
063 Materials Handling Systems; Conveyors; Sorters
064 Metallurgy
065 Microclimatology; Tropical Engineering
066 Military Design Standards
067 Mining & Mineralogy
068 Missile Facilities *(Silos; Fuels; Transport)*
069 Modular Systems Design; Pre-Fabricated Structures or Components
070 Naval Architecture; Off-Shore Platforms
071 Nuclear Facilities; Nuclear Shielding
072 Office Buildings; Industrial Parks
073 Oceanographic Engineering
074 Ordnance; Munitions; Special Weapons
075 Petroleum Exploration; Refining
076 Petroleum and Fuel *(Storage and Distribution)*
077 Pipelines *(Cross-Country—Liquid & Gas)*
078 Planning *(Community, Regional, Areawide and State)*
079 Planning *(Site, Installation, and Project)*
080 Plumbing & Piping Design
081 Pneumatic Structures; Air-Support Buildings
082 Postal Facilities
083 Power Generation, Transmission, Distribution
084 Prisons & Correctional Facilities
085 Product, Machine & Equipment Design
086 Radar; Sonar; Radio & Radar Telescopes
087 Railroad; Rapid Transit
088 Recreation Facilities *(Parks, Marinas, Etc.)*
089 Rehabilitation *(Buildings; Structures; Facilities)*
090 Resource Recovery; Recycling
091 Radio Frequency Systems & Shieldings
092 Rivers; Canals; Waterways; Flood Control
093 Safety Engineering; Accident Studies; OSHA Studies
094 Security Systems; Intruder & Smoke Detection
095 Seismic Designs & Studies
096 Sewage Collection, Treatment and Disposal
097 Soils & Geologic Studies; Foundations
098 Solar Energy Utilization
099 Solid Wastes; Incineration; Land Fill
100 Special Environments; Clean Rooms, Etc.
101 Structural Design; Special Structures
102 Surveying; Platting; Mapping; Flood Plain Studies
103 Swimming Pools
104 Storm Water Handling & Facilities
105 Telephone Systems *(Rural; Mobile, Intercom, Etc.)*
106 Testing & Inspection Services
107 Traffic & Transportation Engineering
108 Towers *(Self-Supporting & Guyed Systems)*
109 Tunnels & Subways
110 Urban Renewals; Community Development
111 Utilities *(Gas & Steam)*
112 Value Analysis; Life-Cycle Costing
113 Warehouses & Depots
114 Water Resources; Hydrology; Ground Water
115 Water Supply, Treatment and Distribution
116 Wind Tunnels; Research/Testing Facilities Design
117 Zoning; Land Use Studies
201 Hydrogeology
202 Hazardous Waste
203 Instrumentation
204 Research
205 _____

10. Profile of Firm's Project Experience, Last 5 Years

Profile Code	Number of Projects	Total Gross Fees (in thousands)	Profile Code	Number of Projects	Total Gross Fees (in thousands)	Profile Code	Number of Projects	Total Gross Fees (in thousands)
1) 011	14	1,012	11) 114	57	3,137	21)		
2) 025	42	2,649	12) 201	171	2,505	22)		
3) 033	6	960	13) 202	590	4,881	23)		
4) 042	26	5,889	14) 203	19	885	24)		
5) 046	45	2,810	15) 204	5	352	25)		
6) 087	25	5,477	16)			26)		
7) 095	22	670	17)			27)		
8) 097	1,334	19,905	18)			28)		
9) 106	53	1,906	19)			29)		
10) 109	19	2,592	20)			30)		

11. Project Examples, Last 5 Years

Profile Code	"P", "C", "JV", or "IE"	Project Name and Location	Owner Name and Address	Cost of Work (in thousands)	Completion Date (Actual or Estimated)
097	C	1 75 State Street Building Boston, MA	The Beacon Companies Boston, MA	300	Underway
097	C	2 Suffolk County Jail Boston, MA	State of Massachusetts Department of Planning and Operations Boston, MA	100	Underway
097	C	3 Cutter Financial Center, Design Phase Hartford, CT	Cutter Realty Group Hartford, CT	30	Underway
011 046 097	C	4 Nashua-Hudson Circumferential Highway Preliminary Field Services Nashua, NH	New Hampshire Department of Public Works and Highways Concord, NH	900	Underway
097	C	5 Boston Main and East Side Interceptor Boston, MA	Boston Water and Sewer Commission Boston, MA	228	Underway
011 097	C	6 Charter Oak Bridge Hartford, CT	Connecticut Department of Transportation Hartford, CT	367	Underway
097	c	7 Emerson College New Campus Lawrence, MA	Emerson College Boston, MA	217	Underway

097 109	C	8 Rehabilitation and Expansion of the Cairo Wastewater System Cairo, Egypt	The Arab Republic of Egypt	555	Underway
202	P	9 Remedial Action Plans for Hazardous Waste Sites, Hanscom Air Force Base New Bedford, MA	U.S. Army Corps of Engineers Omaha, NE	2,000	Underway
097 042	C	10 Explosives Handling Wharf Kings Bay, GA	U.S. Navy	276	1987
097 109	C	11 MBTA Southwest Corridor Project Sections I and II Boston and Roxbury, MA	Mass. Bay Transportation Authority Boston, MA	1,160	1987
097 042	C	12 Rowes Wharf Development Boston, MA	The Beacon Companies Boston, MA	400	1987
097	C	13 The Danbury Fair Danbury, CT	Wilmorite, Inc. Rochester, NY	396	1987
203 204	P	14 Spread Footings for Highway Bridges Various U.S. Locations	U.S. Highway Dept. of Transportation Federal Highway Administration Washington, DC	485	Underway
097 046 106	C	15 I-295 Interchange Complex Portland, ME	Maine Department of Transportation Augusta, ME	61	1986
097 201	C	16 Fort Drum Infrastructure II Project Watertown, NY	U.S. Army Corps of Engineers	1,000	1986
097 201	C	17 Hynes Convention Center Prudential Center, Boston, MA	Mass. Convention Authority Boston, MA	962	1986
097 203	C	18 The Gallery at Harbor Place Baltimore, MD	The Rouse Company Baltimore, MD	339	1986
097 203	C	19 International Place Boston, MA	The Chiofaro Company Boston, MA	300	1986

097 114 201	C	20 IBM Headquarters Facility Somers, NY	IBM Corporation Somers, NY	1,192	1986
202 114	P	21 Groundwater Contamination Study Dover, MA	Texaco, Inc. Cherry Hill, NJ	310	1985
114 201	P	22 Lime Lagoon Closure Peabody, MA	Eastman-Gelatine Corp. Peabody, MA	125	1985
097 025 203	P	23 Great Salt Lake Causeway Utah	Southern Pacific Transportation Co. San Francisco, CA	1,200	1984
097 046 095	P	24 Franconia Notch Parkway Lincoln, NH to Franconia Notch, NH	State of New Hampshire Dept. of Public Works and Highways	920	1984
097 106	C	25 Copley Place Boston, MA	Urban Investment and Development Corp. Boston, MA	755	1984
097 011	C	26 Rouses Point Bridge Alburg, VT to Rouses Point, NY	State of Vermont Transportation Agency, Montpelier, VT	175	1984
097 033 109	C	27 Third Harbor Tunnel, Interstate 90/ Central Artery, Interstate 93 EIS/EIR Boston, MA	Executive Office of Transportation and Construction, Massachusetts Dept. of Public Works, Boston, MA	330	1983
097 109	C	28 Southwest/Westpark Transit Project Houston, TX	Houston Transit Authority Houston, TX	755	1983
097 109	C	29 Phase II Combined Sewer Overflow Abatement Project Rochester, NY	Monroe County Pure Water District Rochester, NY	1,200	1983
097 109 203	C	30 MBTA Red Line Extension Porter Square Subway Station Cambridge, MA	Massachusetts Bay Transportation Authority Boston, MA	821	1983

12. The foregoing is a statement of facts

Signature: Thomas K. Liu Typed Name and Title: Thomas K. Liu, President

Date: 5 January 1988

STANDARD FORM (SF) **254**
Architect-Engineer and Related Services Questionnaire

1. Firm Name / Business Address:
The SWA Group
711 Boylston Street
Boston, MA 02116

1a. Submittal is for ☐ Parent Company ☐ Branch Office

2. Year Present Firm Established: 1960

3. Date Prepared: June 19, 1987

4. Type of Ownership:

4a. Minority Owned ☐ yes ☐ no

5. Name of Parent Company, if any:
The SWA Group
2200 Bridgeway Blvd.
Sausalito, CA 94965

5a. Former Firm Name(s), if any, and Year(s) Established:
Sasaki Walker Roberts Associates, Inc. - 1973
Sasaki Walker Associates, Inc. - 1965
Sasaki Walker Lackey Associates, Inc. - 1964
Sasaki Walker & Associates, Inc. - 1960

6. Names of not more than Two Principals to Contact: Title / Telephone

1) Thomas A. Adams, Principal (617) 266-4703
2) Albert R. Lamb, Principal (617) 266-4703

7. Present Offices: City / State / Telephone / No. Personnel Each Office

7a. Total Personnel 106

Boston, Massachusetts	(617) 266-4703	20
Sausalito, California	(415) 332-5100	28
Houston, Texas	(713) 868-1676	14
Laguna Beach, California	(714) 497-5471	21
Deerfield Beach, Florida	(305) 427-0666	15
Dallas, Texas	(214) 954-0016	8

8. Personnel by Discipline:

2 Administrative	___ Electrical Engineers	___ Oceanographers	1 Remote Sensing Spec.
___ Architects	___ Estimators	2 Planners: Urban/Regional	
___ Chemical Engineers	___ Geologists	___ Sanitary Engineers	
___ Civil Engineers	___ Hydrologists	___ Soils Engineers	
1 Construction Inspectors	___ Interior Designers	1 Specification Writers	
___ Draftsmen	13 Landscape Architects	___ Structural Engineers	
___ Ecologists	___ Mechanical Engineers	___ Surveyors	
___ Economists	___ Mining Engineers	___ Transportation Engineers	

9. Summary of Professional Services Fees Received: (insert index number)

	Last 5 Years (most recent year first)				
	19 86-87	19 85-86	19 84-85	19 83-84	19 82-83
Direct Federal contract work, including overseas	1	1	1	1	2
All other domestic work	7	7	7	7	6
All other foreign work*	2	1	3	3	3

*Firms interested in foreign work, but without such experience, check here: ☐.

Ranges of Professional Services Fees

INDEX
1. Less than $100,000
2. $100,000 to $250,000
3. $250,000 to $500,000
4. $500,000 to $1 million
5. $1 million to $2 million
6. $2 million to $5 million
7. $5 million to $10 million
8. $10 million or greater

Standard Form 254 July 1975
Prescribed By GSA Fed. Proc. Reg. (41 CFR) 1-16.8m

Experience Profile Code Numbers
for use with questions 10 and 11

001 Acoustics; Noise Abatement
002 Aerial Photogrammetry
003 Agricultural Development; Grain Storage; Farm Mechanization
004 Air Pollution Control
005 Airports; Navaids; Airport Lighting; Aircraft Fueling
006 Airports; Terminals & Hangars; Freight Handling
007 Arctic Facilities
008 Auditoriums & Theatres
009 Automation; Controls; Instrumentation
010 Barracks; Dormitories
011 Bridges
012 Cemeteries *(Planning & Relocation)*
013 Chemical Processing & Storage
014 Churches; Chapels
015 Codes; Standards; Ordinances
016 Cold Storage; Refrigeration; Fast Freeze
017 Commercial Buildings *(low rise)*; Shopping Centers
018 Communications Systems; TV; Microwave
019 Computer Facilities; Computer Service
020 Conservation and Resource Management
021 Construction Management
022 Corrosion Control; Cathodic Protection; Electrolysis
023 Cost Estimating
024 Dams *(Concrete; Arch)*
025 Dams *(Earth; Rock)*; Dikes; Levees
026 Desalinization *(Process & Facilities)*
027 Dining Halls; Clubs; Restaurants
028 Ecological & Archeological Investigations
029 Educational Facilities; Classrooms
030 Electronics
031 Elevators; Escalators; People-Movers
032 Energy Conservation; New Energy Sources
033 Environmental Impact Studies, Assessments or Statements
034 Fallout Shelters; Blast-Resistant Design
035 Field Houses; Gyms; Stadiums
036 Fire Protection
037 Fisheries; Fish Ladders
038 Forestry & Forest Products
039 Garages; Vehicle Maintenance Facilities; Parking Decks
040 Gas Systems *(Propane; Natural, Etc.)*
041 Graphic Design
042 Harbors; Jetties; Piers; Ship Terminal Facilities
043 Heating; Ventilating; Air Conditioning
044 Health Systems Planning
045 Highrise; Air-Rights-Type Buildings
046 Highways; Streets; Airfield Paving; Parking Lots
047 Historical Preservation
048 Hospitals & Medical Facilities
049 Hotels; Motels
050 Housing *(Residential, Multi-Family; Apartments; Condominiums)*
051 Hydraulics & Pneumatics
052 Industrial Buildings; Manufacturing Plants
053 Industrial Processes; Quality Control
054 Industrial Waste Treatment
055 Interior Design; Space Planning
056 Irrigation; Drainage
057 Judicial and Courtroom Facilities
058 Laboratories; Medical Research Facilities
059 Landscape Architecture
060 Libraries; Museums; Galleries
061 Lighting *(Interiors; Display; Theatre, Etc.)*
062 Lighting *(Exteriors; Streets; Memorials; Athletic Fields, Etc.)*
063 Materials Handling Systems; Conveyors; Sorters
064 Metallurgy
065 Microclimatology; Tropical Engineering
066 Military Design Standards
067 Mining & Mineralogy
068 Missile Facilities *(Silos; Fuels; Transport)*
069 Modular Systems Design; Pre-Fabricated Structures or Components
070 Naval Architecture; Off-Shore Platforms
071 Nuclear Facilities; Nuclear Shielding
072 Office Buildings; Industrial Parks
073 Oceanographic Engineering
074 Ordnance; Munitions; Special Weapons
075 Petroleum Exploration; Refining
076 Petroleum and Fuel *(Storage and Distribution)*
077 Pipelines *(Cross-Country—Liquid & Gas)*
078 Planning *(Community, Regional, Areawide and State)*
079 Planning *(Site, Installation, and Project)*
080 Plumbing & Piping Design
081 Pneumatic Structures; Air-Support Buildings
082 Postal Facilities
083 Power Generation, Transmission, Distribution
084 Prisons & Correctional Facilities
085 Product, Machine & Equipment Design
086 Radar; Sonar; Radio & Radar Telescopes
087 Railroad; Rapid Transit
088 Recreation Facilities *(Parks, Marinas, Etc.)*
089 Rehabilitation *(Buildings; Structures; Facilities)*
090 Resource Recovery; Recycling
091 Radio Frequency Systems & Shieldings
092 Rivers; Canals; Waterways; Flood Control
093 Safety Engineering; Accident Studies; OSHA Studies
094 Security Systems; Intruder & Smoke Detection
095 Seismic Designs & Studies
096 Sewage Collection, Treatment and Disposal
097 Soils & Geologic Studies; Foundations
098 Solar Energy Utilization
099 Solid Wastes; Incineration; Land Fill
100 Special Environments; Clean Rooms, Etc.
101 Structural Design; Special Structures
102 Surveying; Platting; Mapping; Flood Plain Studies
103 Swimming Pools
104 Storm Water Handling & Facilities
105 Telephone Systems *(Rural; Mobile; Intercom, Etc.)*
106 Testing & Inspection Services
107 Traffic & Transportation Engineering
108 Towers *(Self-Supporting & Guyed Systems)*
109 Tunnels & Subways
110 Urban Renewal; Community Development
111 Utilities *(Gas & Steam)*
112 Value Analysis; Life-Cycle Costing
113 Warehouses & Depots
114 Water Resources; Hydrology; Ground Water
115 Water Supply, Treatment and Distribution
116 Wind Tunnels; Research/Testing Facilities Design
117 Zoning; Land Use Studies
201 _____
202 _____
203 _____
204 _____
205 _____

Standard Form 254 July 1975
Prescribed By GSA Fed Proc Reg. (41 CFR) 1-16.8

10. Profile of Firm's Project Experience, Last 5 Years

Profile Code	Number of Projects	Total Gross Fees (In thousands)	Profile Code	Number of Projects	Total Gross Fees (In thousands)	Profile Code	Number of Projects	Total Gross Fees (In thousands)
1) 002	8	280	11) 042	18	350	21) 060	5	100
2) 008	4	200	12) 045	153	2760	22) 066	4	150
3) 012	6	150	13) 046	200	2000	23) 067	5	200
4) 017	533	8280	14) 047	25	500	24) 078	77	1753
5) 020	10	260	15) 048	9	1670	25) 079	255	6150
6) 027	5	150	16) 049	35	700	26) 087	5	250
7) 028	5	100	17) 050	306	8520	27) 088	60	1830
8) 029	78	960	18) 052	75	1200	28) 089	10	750
9) 033	40	1040	19) 056	300	1500	29) 110	389	9551
10) 038	10	260	20) 059	765	18450	30) 117	89	2760

11. Project Examples, Last 5 Years

Profile Code	"P", "C", "JV", or "IE"	Project Name and Location	Owner Name and Address	Cost of Work (In thousands)	Completion Date (Actual or Estimated)
		1 Spark Street Mall 3 Block Section Ottawa, Canada	City of Ottawa, Canada	$5,500,000	1987
012	P	2 Alcobendas, Cemetary Madrid, Spain	PARCESA Madrid, Spain	$ 25,000 Fee	1986
045	C	3 Worldwide Center New York, New York	The Zeckendorf Company & World Wide Realty New York, New York	$2,000,000	1990
038	P	4 Weyerhaeuser Company Headquarters Building & Master Plan Tacoma, Washington	Weyerhaeuser Company Tacoma, Washington	$ 250,000 Fee	1972- Present
048	C	5 Presbyterian Community Hospital New York, New York	Presbyterian Hospital New York, NewYork	$ 40,000 Fee	1987
089	C	6 Presbyterian Hospital New York, New York	Presbyterian Hospital New York, New York	$ 75,000 Fee	1987
052	C	7 Boston Globe Satellite Facility Billerica, Massachusetts	The Boston Globe Boston, Massachusetts	$ 950,000	1985

Standard Form 254 July 1975
Prescribed By GSA Fed. Prop. Reg. (41 CFR) 1-16.8

059	C	8 Citicorp Plaza Los Angeles, California	Oxford Properties, Inc. 700 S. Flower Street Los Angeles, California	$5,800,000	1986
		9			
		10			
		11			
		12			
		13			
		14			
		15			
		16			
		17			
		18			
		19			

Standard
Form 255

STANDARD FORM (SF) **255**
Architect-Engineer Related Services for Specific Project

1. Project Name / Location for which Firm is Filing:

HAYES PARK
Existing Conditions Analysis, Preparation of Full Design Documents, Services for Resident Engineering Boston Redevelopment Authority

2a. ***Commerce Business Daily*** Announcement Date, if any:

2b. Agency Identification Number, if any:

3. Firm (or Joint-Venture) Name & Address

Vanasse Hangen Brustlin, Inc.
60 Birmingham Parkway
Boston MA 02135

3a. Name, Title & Telephone Number of Principal to Contact

Richard E. Hangen, P.E.
President
(617) 783-7000

3b. Address of office to perform work, if different from Item 3

4. Personnel by Discipline: (List each person only once, by primary function.)

4 Administrative	___ Electrical Engineers	___ Oceanographers	34 Engr. Aides
___ Architects	1 Estimators	8 Planners: Urban/Regional	3 Graphic Designers
___ Chemical Engineers	___ Geologists	___ Sanitary Engineers	___
5 Civil Engineers	1 Hydrologists	1 Soils Engineers	___
12 Construction Inspectors	___ Interior Designers	2 Specification Writers	___
31 Draftsmen	4 Landscape Architects	8 Structural Engineers	___
6 Ecologists	___ Mechanical Engineers	20 Surveyors	___
___ Economists	___ Mining Engineers	47 Transportation Engineers	278 Total Personnel

5. If submittal is by JOINT-VENTURE list participating firms and outline specific areas of responsibility (including administrative, technical and financial) for each firm: (Attach SF 254 for each if not on file with Procuring Office.)

N/A

5a. Has this Joint-Venture previously worked together? ☐ yes ☐ no

6. Outside Key Consultants/Associates Anticipated for this Project (Attach SF 254 for Consultants/Associates Listed, if not already of file with the Procuring Office)

Name & Address	Specialty	Worked with Prime before (Yes or No)
1) DMC Engineering 1 Kendall Street Framingham, MA 01701	Construction Inspection	Yes
2) Chandra Associates 135 Selwyn Road Newton Highlands, MA 02161	Lighting Design	Yes
3) Haley and Aldrich 58 Charles Street Cambridge MA 02141	Geotechnical	Yes
4) The SWA Group 711 Boylston Street Boston, MA 02111	Landscape Architecture	Yes
5)		
6)		
7)		
8)		

Standard Form 255 July 1975
Prescribed By GSA Fed. Proc. Reg. (41 CFR) 1-16.803

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name & Title: James R. Avitabile, P.E.	a. Name & Title: Pompeo Casale, P.E.
b. Project Assignment: Project Manager	b. Project Assignment: Utilities
c. Name of Firm with which associated: Vanasse Hangen Brustlin, Inc.	c. Name of Firm with which associated: Vanasse Hangen Brustlin, Inc.
d. Years experience: With This Firm ___ 5 With Other Firms ___ 4	d. Years experience: With This Firm ___ 4 With Other Firms ___ 4
e. Education: Degree(s) / Year / Specialization B.S.C.E., Northeastern University, 1980 M.S.C.E., Northeastern Universtiy, 1987	e. Education: Degree(s) / Years / Specialization B.S. Northeastern University, 1980, Civil Engineering
f. Active Registration: Year First Registered/Discipline P.E., 1984, Civil Engineering, ME; 1985, MA	f. Active Registration: Year First Registered/Discipline 1988, PE, Civil Engineering, MA, ME, NH Licensed Construction Supervisor, MA
g. Other Experience and Qualifications relevant to the proposed project: Mr. Avitabile has served as Project Manager/Senior Project Engineer on a number of urban revitalization and public works improvement projects throughout the New England region including East Road, Adams, MA, Mishawum Road in Woburn, MA, and Brodie Mountain Road, Hancock, MA. In addition to his experience in public works design, Mr. Avitabile is well versed in the areas of field inspection techniques, design coordination, as well as in community liaison. Prior to joining VHB, Mr. Avitabile gained extensive experience through inspection, evaluation and design improvements to public works facilities including the 140-mile Massachusetts Turnpike, the MBTA's Southwest Corridor Orange Line reconstruction, expansion of the Maine Turnpike, and the Boston Third Harbor Tunnel projects.	g. Other Experience and Qualifications relevant to the proposed project: Mr. Casale is responsible for coordination and preparation of utility relocation plans, geometric design, lighting, signalization, preparation of land court plans and calculations, drainage design, roadway grading, and preparation of construction and right-of-way documents for primary, secondary and urban roadways. Recent projects include geometric design and signalization of four high hazard intersections in Lowell, MA; geometric design, including realignment, roadway drainage improvements and preparation of construction plans, of Storey Street (Route 113) in Newburyport, Bixby Crossing in Haverhill, Haverhill Street in Andover; geometric design and major drainage improvements to Hartwell Road, Lexington, MA; and roadway realignment and reconstruction, including relocation of overhead utilities, for a portion of Route 129 in Chelmsford, MA.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name & Title: Rama K. Chandra, P.E., Electrical Consulant	a. Name & Title: Robert M. Kaye, Director-Urban Planning
b. Project Assignment: Lighting	b. Project Assignment. Community/Neighborhood Liaison
c. Name of Firm with which associated: Chandra Associates	c. Name of Firm with which associated: Vanasse Hangen Brustlin, Inc.
d. Years experience. With This Firm 5 With Other Firms 25	d Years experience With This Firm 2 With Other Firms 14
e. Education: Degree(s) / Year / Specialization B.S., 1952, Science B.S., 1955, Electrical Engineering	e Education Degree(s) / Years / Specialization B.A. Cum Laude, Oberlin College, 1970, Biology M.A. Boston University, 1975, Urban/Economic Geography
f. Active Registration: Year First Registered/Discipline 1971, Electrical Engineering	f Active Registration Year First Registered/Discipline
g. Other Experience and Qualifications relevant to the proposed project: Mr. Chandra has engineered, designed, produced contract documents, and overseen construction for power, control, lighting, fire alarm and security systems for installations ranging from simple residences to complex water, wastewater and waste resource recovery plants for new as well as existing facilities. He has total familiarity with one line formulation and with creating and maintaining professional relationships with government agencies. Mr. Chandra's working knowledge of Code, Life-Safety and energy savings requirements are invaluable assets.	g. Other Experience and Qualifications relevant to the proposed project: Mr. Kaye directs the firm's Urban Planning Department. He has directed planning and environmental assessment studies for major urban and transportation projects including: the Massport CHART project; the Northeast Corridor Improvements project; and the expansion of the Dulles International Airport. Mr. Kaye has prepared guidebooks for Federal agencies concerning methodologies for the assessment of areawide environmental impacts. Finally, Mr. Kaye has directed site planning and EIR studies for numerous urban development project in Eastern Massachusetts including Rowes Wharf, Fan Pier, Mystic Center (Medford) and Hancock Woods (West Roxbury).

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name & Title: George Woodcock	a. Name & Title: Edward B. Pratt
b. Project Assignment: Construction Services Manager	b. Project Assignment: Senior Construction Inspector
c. Name of Firm with which associated: Vanasse Hangen Brustlin, Inc.	c. Name of Firm with which associated: Vanasse Hangen Brustlin, Inc.
d. Years experience: With This Firm ___ 4 With Other Firms ___ 20	d. Years experience: With This Firm ___ 1 With Other Firms ___ 39
e. Education: Degree(s) / Year / Specialization	e. Education: Degree(s) / Years / Specialization
f. Active Registration: Year First Registered/Discipline	f. Active Registration: Year First Registered/Discipline
g. Other Experience and Qualifications relevant to the proposed project: Mr. Woodcock has managed construction inspection on several major paving projects and highway construction projects in the New York and New England area. Mr. Woodcock has worked for private construction companies as well as State and Federal agencies. His responsibilities include supervision of major paving projects, utility construction, and highway reconstruction projects. Recently, Mr. Woodcock was responsible for inspection of reconstruction of Vernon Street, Springfield, MA, for various roads in Yarmouth and Dennis, MA, and has ongoing responsibility as Chief Resident Inspector for the various roadways reconstruction projects in Nantucket, MA.	g. Other Experience and Qualifications relevant to the proposed project: Mr. Pratt was a resident construction engineer with the Massachusetts Department of Public Works for 35 years. He was responsible for large scale limited access highway construction projects with construction costs of up to $69 million. Since joining VHB, he has had inspection responsibility for roadway reconstruction projects in Rhode Island and on Cape Cod.

7. Brief Resume of Key Persons, Specialists, and Individual Consultants Anticipated for this Project

a. Name & Title:

Albert R. Lamb III, Principal

b. Project Assignment:

Project Designer/Landscape Architect/Urban Designer

c. Name of Firm with which associated:

The SWA Group

d. Years experience: With This Firm 5 With Other Firms 12

e. Education: Degree(s) / Year / Specialization

F.A.A.R./1968-70/Landscape Architecture
MLA/1968/Landscape Architecture
BSLA/1966/Landscape Architecture

f. Active Registration: Year First Registered/Discipline

Massachusetts 1974-L.A. Member ASLA
Maryland 1984-L.A. Member ULI
New Jersey 1985-L.A.

g. Other Experience and Qualifications relevant to the proposed project:

Mr. Lamb is a landscape architect with significant experience on urban and planning projects of multiple scales. Prior to his association with The SWA Group, Mr. Lamb headed his own consulting practice and was a Consulting Associate with Benjamin Thompson and Associates. There he collaborated on award winning projects including: The Faneuil Hall Market-Place in Boston; Harbor Place, Baltimore; The Alaska Competition and on three Intercontinental Hotels in the Middle East. From 1968-1970, he was a Rome Prize Fellow in Landscape Architecture, American Academy Rome, Italy. Presently, he has been responsible for the project coordination on such diverse design projects as the New Seabury Master Plan and several related projects; Jefferson Park in Cambridge; Springside in Poughkeepsie, New York; Sunset Beach on Longboat Key, Florida; Charles Square in Cambridge, Massachusetts; and the Hingham Shipyard, Hingham, MA.

a. Name & Title:

Thomas A. Adams, Vice President

b. Project Assignment:

Project Manager/Urban Designer/Recreational Planner

c. Name of Firm with which associated:

The SWA Group

d. Years experience: With This Firm 18 With Other Firms 1

e. Education: Degree(s) / Years / Specialization

BSLA/1967/Landscape Architecture

f. Active Registration: Year First Registered/Discipline

Member: ASLA, Institute for Urban Design

g. Other Experience and Qualifications relevant to the proposed project:

Mr. Adams for the past three years has been in charge of the operation of SWA's Boston office. Here he has been Principal in Charge for such projects as Citicorp Plaza, a complex of structure park and plaza in Los Angeles; Piers 1,2,3,4, waterfront mixed-use development in Boston; University Place and Charles Square in Cambridge; The Boston Globe Satellite Facility in Billerica; 1300 New York Avenue in Washington, D.C.; Presbyterian Hospital in New York City; and the Air and Space Garden for California Museum of Science & Industry, Los Angeles. While running the Sausalito office, he was involved in such projects as Fort Mason Center; Refugio Valley Community Park; Weyerhaeuser Company Corporate Headquarters and Research Building; The Columbus Indiana, City Hall; and Moscone Convention Center in San Francisco. In all of these projects he has carried contractual and design quality responsibilities, coordination with other consultants and owners as well as coordinating community participation.

8. Work by Firm or Joint Venture Members which Best Illustrates Current Qualifications Relevant to this Project (List not more than 10 Projects)

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Owner's Name & Address	d. Completion Date (actual or estimated)	e. Estimated Cost (in thousands)	
				Entire Project	Work for which Firm was/is responsible
MDC Metro Parkway Rehabilitation (VHB)	Parkway landscaping for 160+ mile MDC Metro Boston Parkway system	Metropolitan District District Commission South Boston, MA	1987	1,000	100%
Grimmons Park Somerville, MA (VHB)	Site grading and miscellaneous site design, structural design to relocate portal & foundation and to rehabilitate wall.	Division of Capital Planning and Operations Boston, MA	1984	200	10%
North Blocks CBD Springfield, MA, Urban Systems Project (VHB)	Design of street and sidewalk improvements including landscape architecture, period lighting, ornamental fence, sidewalk reconstruction, street furniture utilities, and and signal upgrades.	City of Springfield Department of Public Works Engineering Division Springfield, MA	1987	3,200	100%
Vernon Street Connector, I-91 Ramp Demolition and Viaduct Modifications Springfield, MA (VHB)	Design new roadway connecting Springfield CBD and West Springfield, design of interchange for I-91 and construction engineering services.	City of Springfield Department of Public Works Engineering Division Springfield, MA	1988	4,200	100%
On Call Construction Inspection Services Boston, MA (VHB)	Inspection of urban street full depth reconstruction for fifteen projects citywide.	City of Boston Department of Public Works Boston, MA	1988	200	100%
Charles Square Mixed Use Development, Harvard Square Cambridge, MA (SWA)	Full landscape architectural services for project that integrates hotel, retail, office use and luxury condominiums into an urban setting.	Charles Square Associates Cambridge, MA	1987		100%
U/Mass Harbor Campus Dorchester, MA (H&A)	Geotechnical engineering to determine and evaluate subsurface soil conditions, recommend foundation design and site criteria and monitor installation of 100 miles of pile foundation.	Massachusetts Bureau of Building Construction Boston, MA			100%

9. All work by firms or Joint Venture members currently being performed directly for Federal agencies

a. Project Name & Location	b. Nature of Firm's Responsibility	c. Agency (Responsible Office) Name & Address	d. Percent complete	e. Estimated Cost (In Thousands)	
				Entire Project	Work for which firm is responsible
NONE					

10. Use this space to provide any additional information or description of resources supporting your firm's qualifications for the proposed project

Vanasse Hangen Brustlin, Inc. (VHB) is a full service engineering and planning firm with demonstrated capability for carrying projects from the conceptual planning phase, through design, and following up with construction services. As noted in an earlier section of this submission, we have assembled a team of qualified professsionals to provide the diversity of engineering services that will be required for engineering design, contract documentation, bid preparation and resident engineering services associated with the Boston Redevelopment Authority's Hayes Park project in Boston's South End. VHB's design responsibilities would include survey, planning, engineering design, participation in streetscape and landscape architecture, and coordination. VHB would also take the lead in this project, calling upon the following very capable firms, with whom VHB has worked on past projects who are familiar to the Authority, for their indicated expertises:

- o Chandra Associates for lighting design
- o DMC Engineering, Inc. for construction inspection.
- o Haley & Aldrich, Inc. for geotechnical investigations.
- o The SWA Group for landscape architecture.

This team will be able to execute assignments in a timely and cost effective manner. Their efficiency is attributable to the coupling of team members' experience gained in prior associations with expertise developed as participants in their firms' current projects.

VHB maintains an aggressive Affirmative Action Program, in effect since the firm incorporated. The firm's policy is to provide employment opportunity to qualified candidates without regard to race, color, sex, religion, national origin, age, marital status, physical condition, criminal record, or political beliefs. In addition, we believe in coupling with our services the talents of minority-owned (MBE) and woman-owned (WBE) business enterprises whenever possible. Two of the firms participating on the VHB team - Chandra Associates and DMC Engineering, Inc. - are certified MBEs.

VHB is housed in up-to-date facilities in which the various departments are organized to most efficiently perform challenging assignments. We maintain computer systems to assist the engineers, and technicians in design calculations, drafting and construction engineering applications. An integrated word processing system enables support personnel to produce reports and specifications in response to demanding client schedules.

On any VHB project, the client is given personal attention regardless of the size of the project. Designation of a project director for each assignment ensures the client of an identifiable point of responsibility and offers an assurance that the project will receive proper treatment. For this project Ronald E. Thompson, Senior Associate will direct the project, and Joseph D. Magni, Jr., P.E., with considerable experience in public works project development and design, will manage the project on a day-to-day basis.

11. The foregoing is a statement of facts.

Signature: Richard E. Hangen Typed Name and Title: Richard E. Hangen, President

Date: 10/31/88

Relevant Experience

Vanasse Hangen Brustlin, Inc.

Vanasse Hangen Brustlin, Inc. (VHB) was founded in 1979 as a transportation and highway engineering firm. The firm has experienced a steady growth in size and range of services offered. Today we provide comprehensive services in transportation, environmental planning and civil engineering having completed more than 2,000 diverse planning and design projects. The firm's rapid and controlled growth results in Vanasse Hangen Brustlin, Inc. being ranked in 1988 by Engineering News Record as 237th of the top 500 design firms nationally. Furthermore, when the list is reviewed, as a Consulting Engineering firm based in New England and specializing in Transportation, VHB is ranked number one.

Our constantly expanding staff includes a large complement of registered professional engineers, urban planners, landscape architects and land surveyors. These top professionals have helped to create a corporate environment that strives for excellence. Technical competence is maintained at the highest level through active participation in professional organizations including the American Society of Civil Engineers, Institute of Transportation Engineers, American Planning Association and Urban Land Institute.

Vanasse Hangen Brustlin, Inc's broad client base allows the firm to bring a unique breadth of experience to individual projects. Clients include state highway departments, cities and towns, transit and port authorities, real estate developers, hospitals, universities, members of industry, architects and other consulting firms. Services provided encompass all phases of engineering practice from concept formulation to design and construction management.

- Traffic Engineering
- Transportation Planning
- Environmental Studies
- Urban Planning
- Parking Studies
- Public Works Management
- Traffic Signal Design
- Civil/Site Engineering
- Structural Engineering
- Landscape Architecture
- Wastewater Treatment Design
- Construction Services
- Land Survey

VHB is organized to provide quality and timely service to clients. Our staff is large enough to handle the most complex projects. Resources can be applied to individual assignments to meet the most demanding project schedule. Our roots as a small firm that gives personal attention to client needs have not been forgotten. Each project is organized around a select team of professionals. This team concept fosters a staff commitment to project success which is unique in a firm our size.

Client service and technical quality, two of the keys to VHB's success, are complemented by communication with clients, government agencies and the public. We take pride in our ability to carry projects through the regulatory and review process expeditiously by presenting the issues and solutions clearly.

388/mkp.AA0

Crosby Drive Relocation
Bedford, Massachusetts

Crosby Drive and Route 62 comprise a heavily used arterial in Bedford, Massachusetts. Vanasse Hangen Brustlin, Inc.'s involvement with Crosby Drive began with the preparation of a corridor master plan for the Towns of Bedford, Billerica, and Burlington. This study recognized the need for capacity and safety improvements to meet increased traffic demands caused by a growing high tech industry. Vanasse Hangen Brustlin, Inc. was also retained to develop detailed engineering and contract documents for this project.

This project is adjacent to a major sanitary sewer project and extensive coordination was required with the utility companies. Vanasse Hangen Brustlin, Inc. also provided project liaison and coordination among the three communities, MDPW/FHWA and the developers.

Funding was through the Public Works Economic Development (PWED) program. Improvements consisted of the relocation of Crosby Drive and traffic signalization. This $900,000 project required the preparation of state highway layout plans. Vanasse Hangen Brustlin, Inc. provided all construction monitoring services including full-time resident engineering services on site.

Photo © Frank Giuliani

Union Square Urban Systems Design
Somerville, Massachusetts

Union Square, Somerville is the confluence of urban arterials which connect to Route 28 and serve as major connectors to Boston. It suffered severe traffic congestion and coincident safety hazards for pedestrians and vehicles.

The City of Somerville retained Vanasse Hangen Brustlin, Inc. to provide complete planning, engineering design and urban design services for this $2.0 million Urban Systems Project, constructed by Massachusetts Department of Public Works. Design included roadway reconstruction, including rerouting traffic and enclosing a street to expand parking availability, signing, signalization, extensive landscaping, and creation of urban space for pedestrians. Improvements to the Union Square infrastructure have significantly improved traffic flow and encouraged redevelopment of the area.

Photo: © Frank Giuliani

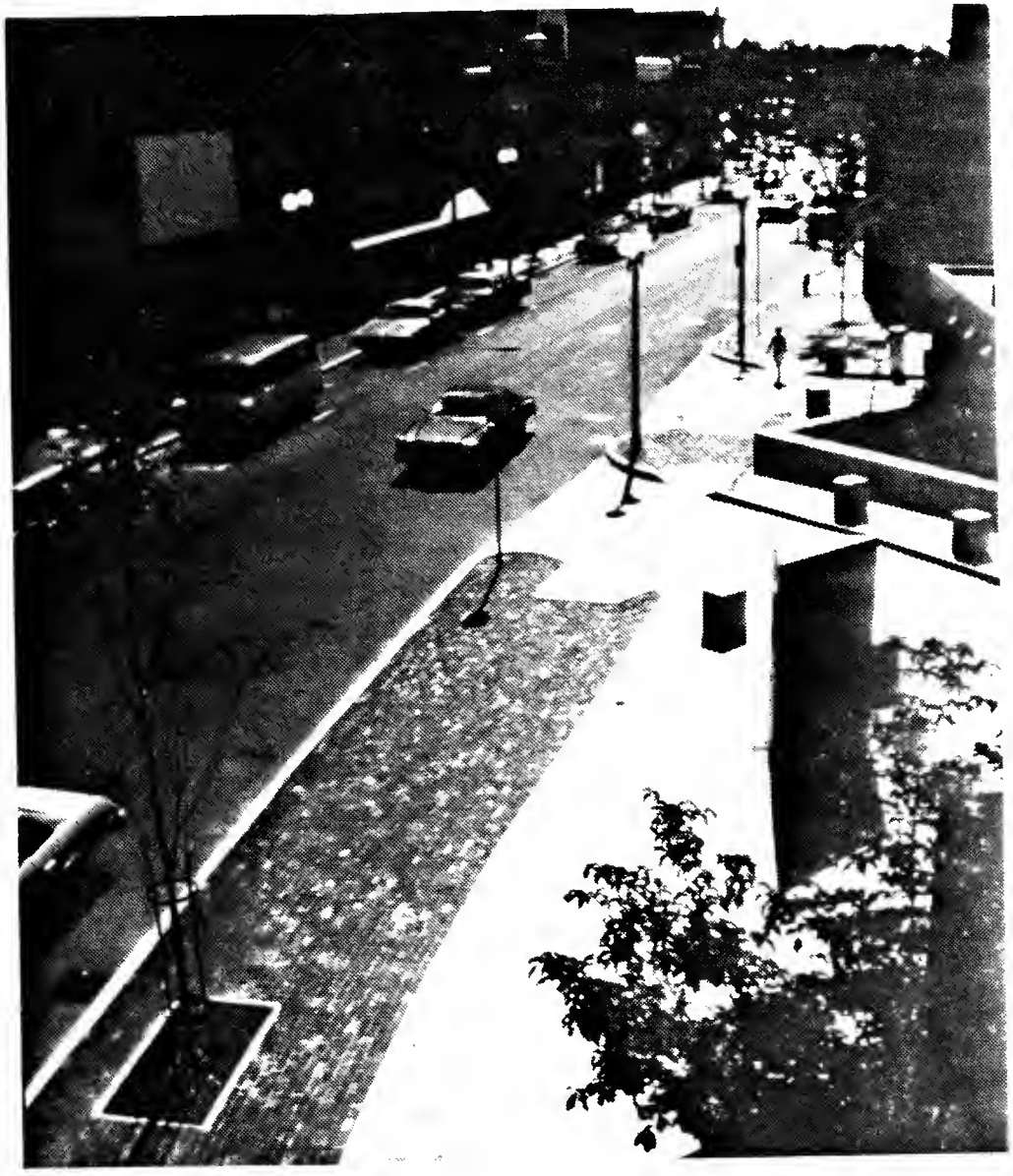
High Street–Oliver Street Improvements Boston, Massachusetts

As a result of the development of International Place, a major mixed-use complex constructed in phases adjacent to Boston's Central Artery and city streets, traffic and safety improvements were required for High and Oliver Streets. For this completed project, VHB designed the improvements and obtained Public Improvement Commission (PIC) permits. VHB designed for two phase construction pedestrian access improvements including sidewalks and streetscaping along High and Oliver Streets, and signalization at their intersection to correspond with the project construction phasing. VHB also provided extensive traffic management at this heavily used intersection, which incorporates an existing off-ramp from the Central Artery, to minimize adverse impacts to traffic flow during construction.

Mary Ellen McCormack Housing Project Boston, Massachusetts

VHB provided field survey, engineering design and construction services for the rehabilitation/reconstruction of eight city streets, totalling 8,000 linear feet of roadway, in the Mary Ellen McCormack Housing Project, Boston, MA. Design included a variety of improvements to the roads ranging from pavement overlay to full depth reconstruction, as well as construction of sidewalk on both sides of each street, and drainage revisions. In addition, VHB engaged in extensive community liaison to ensure that the abutters were apprised of each project's progress and purpose. VHB provided full-time resident engineering services during the construction phase of this fast-track design and construction project.

Downtown Fitchburg Revitalization



In the mid-1970's the City of Fitchburg recognized the need to revitalize its downtown area by providing traffic and streetscape improvements. Members of Vanasse Hangen Brustlin's transportation staff assisted the City in developing an overall plan for the Main Street corridor. This planning effort, which involved traffic and circulation studies, parking studies and urban design, formed the basis for detailed engineering performed by Vanasse Hangen Brustlin for the reconstruction of 0.7 mile of urban arterial including new signalization and extensive improvements for pedestrians. The Main Street project, constructed by the Massachusetts Department of Public Works under the Federal Aid Primary Program, was successfully completed at a cost of approximately $1.0 million.

The City of Fitchburg has now engaged Vanasse Hangen Brustlin to design the lower Main Street corridor for traffic, pedestrian and parking improvements and signal upgrading.

North Blocks Revitalization Springfield, MA

As part of the planned revitalization of the Springfield downtown, the City is committed to the redevelopment of the architecturally historic North Blocks area of its Central Business District. Vanasse Hangen Brustlin was retained by the City to provide planning and engineering design services for this project.

The North Blocks Urban System Project consisted of nine streets over a ten (10) block area. The $4.0 million construction project funded by the Massachusetts Department of Public Works included street reconstruction, utility adjustments, drainage system improvements, traffic signalization, special street lighting and the construction of pedestrian plazas, and extensive landscaping and urban/streetscape improvements.

CONSTRUCTION ENGINEERING SERVICES

DMC Engineering, Inc. provides complete construction engineering services. Assistance to the construction industry has been a major thrust at DMC. Mr. Carson, P.E., began his career as a construction engineer. DMC is very familar with the requirements of site work as well as the blend of planning and control that is necessary to render a profit.

DRAFTING

- Lift drawings, form drawings,
- Earthwork drawings, utility layouts, etc.

ENGINEERING

- Quantity take-offs
- Checking shop drawings
- Construction Design; Earth support systems, underpinning, dewatering systems, pile foundations, tiebacks, structural steel erection schemes, etc.

CONSTRUCTION MANAGEMENT

- Manage construction projects including negotiating with subcontractors, scheduling, inspection, monitoring contract compliance, review shop drawings, claims, etc.

PILE FOUNDATION MANAGEMENT

- Monitor pile driving operations, prepare driving logs, monitor load tests
- Prepare load test reports per Mass. State Building Code and ASTM. Reports on pile driving operations.

DMC ENGineering INCorporated
Structural and Civil Engineering

CORRIDOR EXPRESS

Volume 1, Number 4 March, 1983

Daniel Carson

The best way to get public construction contracts

After interviewing Daniel Carson of DMC Construction Engineering, I am convinced that one of the best ways to land profitable public contracts is to have DMC prepare the estimate.

DMC was established in 1982 to provide construction engineering services to contractors in the New England area. Since its inception, DMC has provided estimates on multi-million dollar projects for both minority and majority contractors. They have also designed the "earth support systems" for some of the major construction projects in the area. DMC has assisted contractors in contract negotiations, claims, marketing, surveying, CPM scheduling, pre-construction surveys and cost monitoring. The company is still small, but because of the wide range of services offered, DMC is probably the most complete construction engineering service around, and is destined to become one of the area's largest consultants. DMC clients vary in size from those with annual volumes of $40,000 to $50,000 to firms like Perini Corp., with a volume of approximately $1,000,000,000.

The firm was founded by Daniel Carson, who has a uniquely strong background in both engineering and hands-on construction. Carson has worked for national contractors, local contractors and consulting engineers.

He has held such positions as projects engineer, project superintendent, estimator, structural/foundations engineer and chief engineer. It was this varied background that prepared Carson for his present undertaking. In Carson's own words, "I wanted to create a company that would fill the present gap that exists in the construction industry. There are many excellent contractors, but for the most part, they do not possess the engineering talents required of an increasingly complex construction industry. There are many excellent architects and engineers, but they possess little or no understanding of construction. There are other estimating services, but not many of them have a staff that has actual construction experience. In fact, many of them are simply "quantity take-off services" and prepare estimates by multiplying a quantity by a unit cost from some estimating book. DMC does not consider this estimating **I feel that anyone who prepares an estimate by multiplying a quantity by a unit cost is headed for trouble."**

Carson's knowledge and professionalism are the major assets of DMC. He received his Bachelors of Civil Engineering degree from the City College of New York and did graduate work at Case Western University in Cleveland. He is also licensed as a professional engineer in Massachusetts and Ohio. He moved into the Boston area in 1977 with Eastern Seaboard Engineering Corp. Since then, Carson has spent about 70 percent of his time working on public works projects. He was Eastern Seaboard's project superintendent on their first major contract; he designed the earth support systems on many major projects; served as superintendent on the Southwest Corridor Track Removal Project; supervised the installation of tieback anchors on the Harvard Steel Bridge Project, and he has worked on many estimates for many other projects in the public arena. In the private arena, Carson has worked on the Copley Place Project, the Greenhouse Apartments and Madison Park, to name a few.

Walter E. Williams of CAB was quick to recognize Carson's talents and hired him as a part-time consultant on CAB's staff. Some comments made by others familiar with Carson and DMC are:

***"If I was unable to do my own estimating, I would consider using someone with actual field experience, such as Dan Carson of* DMC."**
—*John Franklin, Sepia Underground*

"I will probably use* DMC *to assist Metro Boston in entering new areas of construction."
—*Dan Fernandez, Metro Boston*

With such a strong background, one can readily see why the best way to land profitable public construction contracts is to have DMC prepare the estimate.

Earth support system at Washington Street Project, Everett, Mass

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MetroWest

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MetroWest Edition

Hard work, long hours paying off

By MICHAEL SEREDA
News Staff Writer

FRAMINGHAM — Four years ago, Dan Carson's dream of his own engineering company started as a one-man operation in the basement of his house.

Working 14-hours a day, seven days a week, Carson turned his DMC Engineering into a company that now has approximately $500,000 in sales and 15 employees.

DMC performs structural and civil engineering, as well as providing cost estimates and control for contractors. Among its services, the firm designs residential, office and commercial buildings, as well as sewage treatment and drainage systems.

Carson, 41, who lives in the Nobscot section of Framingham with his wife and two children, worked for four different engineering firms before deciding to start his own company.

When DMC was in its infancy, Carson would work during the day to rustle up contracts and then do engineering work at night. Financing for the one-man firm was hard to come by.

After about eight months, there was enough business to warrant hiring another engineer, he said. He was able to get a loan of about $8,000 by getting a second mortgage on his house, he said.

A year later, the business, still located in Carson's basement, added a third staff member. When another engineer was hired, the firm moved to its present quarters at 1 Kendall St.

Cash flow was a problem for the young company, so Carson had to be aggressive when collecting his accounts.

"In many cases, I insisted on payment when I delivered the services," he said. "It was the only way to do it. I couldn't wait 90 days for a check to be issued."

Carson said as a small, minority-run business, DMC must make sure that the work it receives from governmental agencies is substantive enough to keep the firm growing.

In many state and federal projects, contractors are required to hire minority subcontractors. Often, he said, the prime contactor will give a subcontractor "meaningless" work that limits its growth.

For instance, he said the prime contractor could hire DMC to do drafting work, which is less complex and pays less than engineering.

The high cost of professional liability insurance is another obstacle minority and small businesses face, he said. Many firms cannot afford the insurance and then go without it, he said. Since government contracts often require contractors to hold the coverage, minority businesses that can't afford the insurance get cut out of their share of business, he said.

Sales in DMC's first year were about $50,000 and have doubled every year since, Carson said.

Carson passes on his knowledge in the field by holding seminars for minorities interested in starting in business, and by going to high schools to talk about engineering.

To cap his success story, Carson is one of two finalists for the award of New England Minority Small Business Person of the Year, given by the U.S. Small Business Administration. Companies considered for the award are judged on a variety of criteria, including growth, management, ability to bid competitively and participation in community projects.

DAN CARSON
...dream coming true

Carson was nominated for the award by the MetroWest Chamber of Commerce. He also serves on the chamber's Small Business Council and has worked on the project to widen Rte. 30.

"I think it's quite an honor," Carson said of his nomination for the award. "Obviously we're not the largest minority business in MetroWest, so I like to think that we were selected because the company and its business practices are outstanding."

CORPORATE ORGANIZATION, QUALIFICATIONS AND EXPERIENCE

GENERAL

The following information provides a brief description of the history of Haley & Aldrich, Inc., its staff organization, awards, scope of services, laboratory facilities, quality assurance, and cost control.

HISTORY

Haley & Aldrich, Inc. is the outgrowth of a partnership founded in 1957 to provide professional engineering services in the field of soil and foundation engineering. Incorporated in 1962, the firm's work now includes soil and rock mechanics, foundation engineering, engineering geology, hydrogeology, groundwater management, seismic risk analysis and geotechnical instrumentation. Project experience has ranged from highways, dams, water supply and waste water treatment facilities, tunnels and oil storage tanks; to waterfront structures, parking garages, shopping centers, and buildings ranging from 1-story warehouses to high-rises in excess of 40 stories.

In 30 years of practice, Haley & Aldrich, Inc. together with its affiliate H&A of New York, has participated in more than 7,000 projects, primarily as professional consultants to engineers, architects, contractors, government agencies and private industry. Originally concentrated in New England, the firm's experience has expanded to include projects throughout the United States and in numerous foreign locations.

STAFF ORGANIZATION

Haley & Aldrich is wholly owned by its twenty-two Principals, Associates and senior professional personnel, all of whom are full-time employees of the firm. The principal office and laboratories are located in Cambridge, Massachusetts. There are three branch offices, in Portland, Maine; Glastonbury, CT and Bedford, New Hampshire, and an affiliate office, H&A of New York, is located in Rochester, New York.

The total staff numbers approximately 190 with over 70 civil engineers, geologists, hydrogeologists, and scientists most of whom have received graduate degrees. Six hold doctoral degrees in geotechnical engineering and geology.

AWARDS

During the past fifteen years, Haley & Aldrich has won several engineering excellence awards in the annual American Consulting Engineers Council (ACEC) competition. The award presentations have included "Instrumented Bracing System for Deep Excavation", Employers-Commercial Union Insurance Groups, One Beacon Street, Boston, Massachusetts; "Interstate 95 - Interchange with U.S. 4 and N.H. 16", Portsmouth, New Hampshire; and "Geotechnical Exploration", Quarry Street Planned Unit Development, Quincy, Massachusetts.

In 1976, Haley & Aldrich received the top award in New England for its work on "Sixty State Street, Protecting the Cradle of Liberty", Boston, Massachusetts. The firm served as geotechnical consultant for design and construction of the Trident drydock, Bangor, Washington, the project receiving the New England Grand Conceptor's Award in 1981. The firm received a 1984 Award of Excellence for a "Lime Lagoon Closure Program" for the Eastman Gelatine Corporation in Peabody, Massachusetts, and most recently received a 1985 Award of Excellence for the Massachusetts Bay Transportation Authority Porter Square Subway Station in Cambridge, Massachusetts.

SCOPE OF SERVICES

Haley & Aldrich normally serves as either a project design team member or in direct consultation with the Owner, providing reports containing soil, rock and groundwater data, interpretation of these data and conclusions and recommendations relative to geotechnical engineering, geologic and hydrogeologic aspects of the project.

A typical full-service Haley & Aldrich project includes the following scope and sequence. This list is routinely modified as needed to suit client needs and objectives:

- Geologic studies including literature reviews, air photo interpretation, reconnaissance and field mapping, as required to define subsurface conditions, feasibility of the site for construction and to determine preliminary foundation and site development requirements.

- Monitoring of subsurface explorations and conduct of field tests including boreholes, test pits, geophysical surveys, groundwater observation wells and piezometers, field permeability tests and groundwater sampling.

- Laboratory testing to classify soil and rock and determine engineering properties for design purposes.

- Engineering, geologic and hydrogeologic analyses and recommendations for foundations, earthwork, groundwater control or protection, and other geotechnical features of the project.

- Specification provisions for construction including foundations, dewatering and earthwork.

- Construction monitoring including observation of foundation construction and earthwork, associated field and laboratory testing, and geotechnical instrumentation required to monitor the behavior of the structure and adjacent property during and following construction.

- Client support in the regulatory process associated with environmental impact and permitting.

Some of the special services and capabilities of the firm and its key personnel include:

- Hydrogeologic studies related to groundwater, with special emphasis given to controlled and uncontrolled waste disposal sites.

- Design, installation and monitoring of geotechnical instrumentation.

- Blast and construction vibration monitoring.

- Seismic risk evaluations, earthquake engineering, and soil dynamics.

- Use of vertical sand and wick drains.

- Evaluation of frost and permafrost problems.

LABORATORY FACILITIES

Haley & Aldrich maintains fully-equipped soil and rock testing laboratories capable of performing standard classification, strength, consolidation and permeability tests. In addition, dynamic testing equipment is maintained for specialized cyclic triaxial and resonant column testing. A full array of rock mechanics laboratory equipment is used for the engineering classification of core and block samples recovered for rock engineering projects.

QUALITY ASSURANCE

The Quality Assurance Program has been developed in accordance with current and accepted industry practices and standards. It provides the framework by which geotechnical engineering, field and laboratory services are conducted. Manuals of technical procedures for laboratory testing and for field exploration and testing have been prepared. These procedures are the basis by which the firm's laboratory and field work are performed. The manuals are also used for orientation and training of new personnel under the supervision of experienced key personnel. Quality assurance in engineering services provides control over the quality of studies and analyses and the presentation of data, results and recommendations in reports.

COST CONTROL

Haley & Aldrich exercises financial control of its geotechnical services, initially through a policy of having project proposals prepared by those who will manage the work. Thereafter, financial control includes a weekly posting of manpower and expenses, all furnished to the project manager on a category-related and percentage-expended computer printout. Weekly reports are reviewed by the Business Manager.

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HALEY & ALDRICH, INC.
PARTIAL LIST OF EXPERIENCE IN LARGE SITE DEVELOPMENT

Project and Client	Haley & Aldrich Services
North Point Area Study Cambridge, MA (Cambridge Community Development Dept.)	Conducted three major areas of study for site bound by Msgr. O'Brien Highway, the Somerville and Boston City lines and the Charles River. The first area of study was subsurface soil, rock and groundwater conditions; the second, a preliminary evaluation of building foundation and site development requirements and approximate premium costs; and the third was a preliminary assessment of the probability of oil or hazardous material being present at the site and its impact on site development, including estimated costs for "clean-up" of a site.
Massachusetts Biotechnology Research Park Worcester, MA (Worcester Business Development Corporation)	The Mass Biotech Research Park project consists of 12 3-story manufacturing and office buildings, each with a plan area of approximately 25-30,000 sq. ft. with adjacent parking lots on a 74-acre previously undeveloped site. Some structures will include loading docks, pedestrian bridges and underslab utility tunnels. Three of the buildings are completed at this time and there are plans for 4 more in the near future. Haley & Aldrich is providing geotechni- cal engineering services including subsurface explorations consisting of test borings and groundwater observation wells, laboratory soil testing, geotechnical recommendations for foundation design and construction, and construction monitoring.

HALEY & ALDRICH, INC.
PARTIAL LIST OF EXPERIENCE IN
LARGE SITE DEVELOPMENT

Project and Client	Haley & Aldrich Services
Emerson College Campus Master Plan (Stopfel Associates)	Geotechnical engineering and site environmental studies involving oil and hazardous material site evaluations, subsurface explorations, laboratory testing and geotechnical aspects of campus design for master plan development of 140-acre college campus site. Campus facilities will include several 2 to 3 story buildings, athletic fields, parking areas, roadways, student housing, and associated utilities.
IBM Group Headquarters Facility Somers, NY (I. M. Pei & Partners)	Haley & Aldrich provided geotechnical and hydrogeological services for the proposed IBM Group Headquarters Facility being constructed on a 750 acre site in Somers, NY. Haley & Aldrich is conducted subsurface explorations and provided design recommendations on the geotechnical aspects of site development and building construction. Project facilities include 1,800,000 sq. ft. of building area, 2,000,000 sq. ft. of at-grade parking, 10,000 lin. ft. of on-site roads, on-site wastewater treatment facilities, etc. In addition, H&A conducted comprehensive geological and hydrogeological investigations to develop on-site groundwater supplies from both soil and bedrock aquifers to meet project water demands. Construction monitoring and consultation services being provided.

HALEY & ALDRICH, INC.
PARTIAL LIST OF EXPERIENCE IN
LARGE SITE DEVELOPMENT

Project and Client	Haley & Aldrich Services
Kendall Square, Cambridge Center Project Cambridge, MA (Boston Properties)	The Cambridge Center project involves the planned construction of eighteen buildings, including; office buildings, 3 parking garages, a 300-room hotel, and 6 office towers on 2.5 million sq. ft. Haley & Aldrich is providing subsurface explorations, laboratory testing, and foundation design studies; and is monitoring construction for the various structures.
Fort Drum Infrastructure II Program Watertown, NY (Seelye/Urbahn)	Provided geotechnical engineering, hydrogeological and geological services during design phase services for the Infrastructure II Program of the Ft. Drum development. Facilities in the program include: o Over 30 miles of two and four lane roadways o Groundwater supply system for 5 mgd. demand o Water treatment facility, elevated storage tanks and distribution system o Sewage treatment plant, pump stations, interceptor sewers and force main outfall to the Black River o Electrical substation o Telephone exchange building o Hot water distribution system. Consultation during construction being provided.

HALEY & ALDRICH, INC.
PARTIAL LIST OF EXPERIENCE IN
LARGE SITE DEVELOPMENT

Project and Client	Haley & Aldrich Services
Sun Life Executive Park Wellesley, MA (1983) (Sun Life of Canada)	Haley & Aldrich served as geotechnical consultant throughout site development studies, design and construction of the U.S. headquarters office complex for Sun Life of Canada. The complex includes 3 office buildings, (3 levels each) totaling approximately 250,000 sq. ft. and a six-level parking structure (218,000 sq. ft.) Subsurface conditions at the site were determined by a detailed investigation program and were found to be extremely heterogeneous, compounded by a relatively high groundwater table. Haley & Aldrich developed a unique foundation improvement program enabling use of conventional spread footing foundations, thus avoiding the need for costly pile foundations. On-site construction monitoring services were provided.
Copley Place Project Boston, MA (1982) (Urban Investment and Development Co.)	Construction commenced in November 1980 on the Copley Place project, one of the largest private development projects undertaken in the Boston area. Copley Place includes an 800-room luxury hotel, an 1100-room convention hotel, a 370,000 sq. ft. retail center and about 700,000 sq. ft. of office space. Haley & Aldrich provided geotechnical engineering services for the entire project, ranging from initial site evaluations to a major test boring program, foundation engineering studies, preparation of pile specifications and construction monitoring.

HALEY & ALDRICH, INC.
PARTIAL LIST OF EXPERIENCE IN
LARGE SITE DEVELOPMENT

Project and Client	Haley & Aldrich Services
Wang Laboratories, Inc. Pawtucketville Facility Lowell, MA (1980) (Davison Construction Co., Inc.)	Provided geotechnical services during planning, design and construction of a new 842,000 sq. ft. manufacturing and office plant. Due to the presence of near surface soil deposits vulnerable to earthquakes, Haley & Aldrich investigated and determined the optimal location for the facilities. Based on the results obtained from two test areas, H&A developed an approach which by improving the competency of near surface soils made a shallow foundation scheme possible with significant cost savings. H&A provided final design recommendations for the special foundation treatment.
Digital Equipment Corp. Augusta, ME (1976) (Salter Corporation)	Determined subsurface soil, rock and groundwater conditions for a 200-acre site. H&A conducted seismic surveys, performed laboratory testing and evaluated the conditions encountered, and provided recommendations for the geotechnical aspects of the project design and construction of a new 520,000 sq. ft. office/plant.
North Meadows Project Hartford, CT (1973) (Hartford Redevelopment Agency)	Conducted study to determine the subsurface soil and rock conditions on 775 acre site for foundation design of low-rise industrial and warehouse facilities, high rise structures, roadways and underground utility systems.

HALEY & ALDRICH, INC.
PARTIAL LIST OF EXPERIENCE IN
LARGE SITE DEVELOPMENT

Project and Client	Haley & Aldrich Services
U/Mass Harbor Campus Dorchester, MA (1972/1973) (Massachusetts Bureau of Building Construction)	The development of the harbor campus involved construction of nine buildings to date on a 60-acre refuse-filled site. Haley Aldrich provided geotechnical engineering services from the master planning studies through construction. Engineering services included determination and evaluation of subsurface soil conditions, recommended foundation design and site development criteria, and monitoring the installation of 100 miles of pile foundation. Site development criteria were established to reflect the unique problems of long-term settlement and weak soils characteristics of refuse fill material.

SUMMARY STATEMENT OF THE SWA GROUP PROFESSIONAL SERVICES

The SWA Group is a professional consulting practice offering capabilities for solving contemporary urban design and planning problems. For more than twenty-seven years the firm has been engaged in a wide range of urban, suburban, regional and institutional projects of all sizes, bringing knowledge in urban design, landscape architecture, site planning, interior planting, regional and urban planning and environmental analysis into play with related disciplines to accomplish innovative and workable environments. The scope of services provided by The SWA Group is broadened by the ability to offer staff assistance in citizen involvement and processing of development permits, environmental impact studies and reports, and audio-visual communications.

URBAN DESIGN

The SWA Group has developed an international reputation in the design of innovative urban environments by way of proper analysis and solution of physical problems. Urban design can be described as the organization of physical features in an urban setting. Further, the urban design process is one which synthesizes physical spaces and infrastructure to create the fabric of urban space. Through the urban design process, The SWA Group provides policies and standards for creating and enhancing the visual quality of large-scale urban landscapes with special emphasis on the psychological impact of environmental form. Within the context of Urban Design, the firm offers expertise in site development planning, program development, governmental processing and overall coordination of multi-disciplinary consultants. Utilizing such tools as Landscape Architecture, Land Use and Environmental Planning, and Audio-Visual Communications in support of its endeavors in Urban Design, The SWA Group establishes the environmental quality for ensuing development and creates a sense of place in the urban scape.

LANDSCAPE ARCHITECTURE

The SWA Group offers the full range of services in landscape architecture, from site planning through working drawings and construction observation. SWA initially prepares site development concepts to indicate preliminary development concepts and subsequently prepares design developement plans which further define the character of the project including the selection of materials. SWA provides budgetary construction cost estimates in conjunction with both conceptual site development and design development, and offers expertise in the development and preparation of drawings, technical specifications, and final cost estimates to construct the work. In order to assure construction proceeds in accordance with the firm's design intent, SWA extends construction observation services to clients.

WA Group
oylston Street
n, MA 02116
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PARKS AND RECREATIONAL DEVELOPMENT

Extensive involvement in the planning and the development of open space and recreational facilities in planned communities, institutional settings, resorts, and residential developments has given The SWA Group a strong background in the development of parks and recreational facilities. With SWA's creative planning and design experience coupled with its extensive capabilities in environmental analysis, a truly integrated interdisciplinary approach to parks and recreational projects can be realized. Clients have ranged from the National Park Service through small municipalities in the public sector and from large corporations to individual developers for the design of private parks.

LAND USE PLANNING

The SWA Group maintains expertise in land use planning at both the urban and regional levels, emphasizing the creation of plans and policies that determine the amount, distribution, location, and phasing of uses and activities to achieve economic, social, and physical objectives. The scale of planning at SWA ranges from project to regional, and the staff has the expertise to provide services in matters of land use regulations, growth management systems, jurisdictional processing, and citizen participation programs. The firm assists public and private clients of all scales of development with the increasingly complex problems attendant with the preparation and processing of plans in dynamic social and political settings.

ENVIRONMENTAL PLANNING AND MANAGEMENT

The SWA Group offers a range of environmental science and management services for conservation and development projects. Broadly categorized these services include natural resource inventory and analysis; environmental impact statement and report preparation under NEPA, CEQA and other state jurisdictions; and environmental management consultation. SWA prepares both natural and social resource inventories for all types of projects where a comprehensive understanding of the resources and their interrelationships becomes the basis for planning or impact assessment. The firm also provides consultation in environmental criteria for land or forest use policies and providing environmental impact report evaluation services. The SWA Group offers environmental management consultation to clients faced with the need to understand governmental enviromental policies and/or establish corporate policies and objectives relating to complex environmental issues in the development, reclamation or management of land and land-based resources.

VA Group
ylston Street
, MA 02116
6-4703

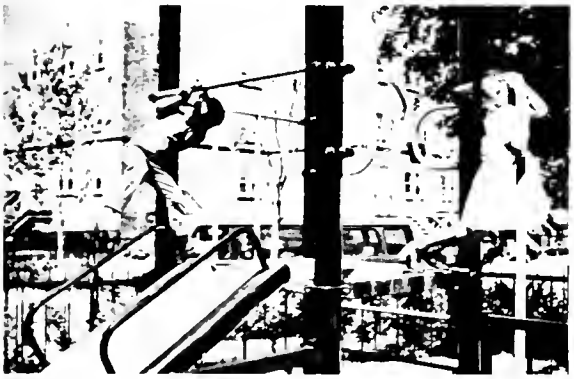
Jefferson Park

Location: Cambridge, Massachusetts
Owner: Cambridge Housing Authority
Architect: Boston Architectural Team

The SWA Group was responsible for the landscape design and implementation of a seven-acre public housing project for the Cambridge Housing Authority, under a HUD grant. Services included redesign improvements for the conversion of 225 units to 175 units, and coordination with tenant groups, the Cambridge Housing Authority and the HUD review. The design addressed entry, circulation, playground and garden areas to improve the overall appearance of the housing project and encourage a greater sense of pride by the residents. The project won the 1985 Honor Award from the Boston Chapter of the American Society of Landscape Architects

Left: Direct walks and bike paths connecting the buildings emphasize the circulation pattern. Hedges and shade trees further define circulation and points of entry, and provide privacy for the individual units. Brick gateways mark the entry to each cluster.

Right: Entries, open space, vehicular and pedestrian areas were redesigned to improve transitions from interior to exterior spaces and to encourage social interaction. The site plan creates entries to single or small groups of apartments, thereby providing identification with front steps and entrances to individual units. Pedestrian and vehicular circulation is separated, and the central asphalt area is transformed to an attractively landscaped oval dropoff. The landscape consists of lawns, clipped hedges and deciduous shade trees, designed to meet the low maintenance requirements.



Below: Each cluster of buildings has a common area offering access to individual units as well as a place to sit, mingle, and watch children play. Front lawns are enclosed by wrought iron fences for privacy and ease of maintenance.

Above: At the front of the buildings are fenced play areas associated with the four "corners" of the oval. The play areas are designed to allow children to play within secure areas, away from vehicular traffic and under the surveillance of their parents.

The SWA Group

Charles Square

Location: Cambridge, Massachusetts
Owner: Charles Square Associates
Architect: Cambridge Seven Associates

SWA provided full landscape architectural services for a major, mixed-use complex located on four acres in the center of Harvard Square. The design successfully integrates a first-class hotel, retail stores, offices and luxury condominiums into the project's urban setting, by means of stepped terraces, courtyards and carefully selected paving and plant materials.

Above: A group of linden trees complements the architectural materials of the building facades and paving at the main entrance to the complex, providing human scale and a soft edge to the retail and hotel structures that face the street.

Left: In the middle of the complex, a major on-structure courtyard forms a central focus for the hotel, restaurants and shops. This open-air courtyard is paved with three types of brick and planted with tall Zelkova trees surrounded by granite seatwalls. Restaurant tables, trellises and planters contribute human scale to the space. The plaza also serves as an informal gathering place for concerts, art exhibits, plays and other events.

Right: From Brattle Square, the public entrance to the plaza proceeds through a passageway under the building, up monumental granite stairs to the central courtyard.

The SWA Group

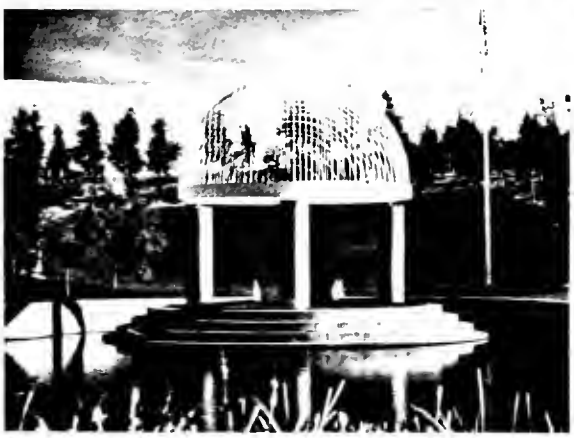
Refugio Valley Community Park

Location: Hercules, California
Client: City of Hercules
Architectural Consultant: John O'Brien & Associates

SWA consulted to the City on site planning, site engineering and landscape development for an 18-acre community park and a 1.5-mile linear park on the site of an historic eucalyptus shelter belt and the old Hercules Powder Works railroad alignment. Complete landscape services covered all site elements including children's play areas, amphitheater, two-acre lake, and extensive recreational facilities. In 1986, the project won an Honor Award in the Design Category from The American Society of Landscape Architects.

Below: The design program emphasizes family recreation facilities such as play structures, picnic areas, informal sports fields and community gardens. The playhill provides an ideal overlook point for the whole park. At the top, a sculptural jungle gym is encircled by a spiral of lombardy poplars.

Left: Located in a stream valley overlooked by a regional freeway and high-density housing, the park is intended to provide visual focus and community image to the new center of Hercules. Visitors enjoy a view of the park as they enter Hercules from the freeway that connects the City to the rest of the Bay Area. The new City offices and retail shopping will face on the park, complementing the "village green" concept and increasing the park's use and symbolic importance to the City. The design preserves the eucalyptus groves within the linear park leading up the valley, while new eucalyptus plantings supplement existing trees and form a protective border along the perimeter of the park.



Left: The pavilion is the focus of the park. Designed as a modern expression of a classical form, it "floats" on the water and serves as the stage for the amphitheater beyond. A eucalyptus grove encloses the amphitheater and provides a backdrop to the park.

Above: A curvilinear two-acre lake evokes a pastoral setting with its classical English garden shapes. Weeping willows and ivy plantings along the lake edge soften the contour and help prevent erosion. The southern view reveals the pavilion and play structure beyond.

Dallas West End Historic District

Location: Dallas, Texas
Client: City of Dallas
Engineer Turner, Collie & Braden Engineers

Consultant to the Department of Public Works for the development of a district master plan for land use and public open space policy of a major segment of the Dallas Downtown. Major elements of this historic district include Dealey Plaza, the Kennedy Memorial, Pioneer Square, several government buildings and a significant number of old warehouse structures intended for preservation and reuse. The study concluded in specific design plans for the reconstruction of Market Street in the warehouse area to enhance visual and pedestrian appeal and thereby aid private redevelopment interest.

Above: The Market Street project edge is defined by a brick archway with architectural features borrowed from district buildings which exhibit Chicago School influence. This portal structure frames and defines a pedestrian plaza detailed with custom designed benches, brick paving, trees and period tree grates and light fixtures.

Below: The lighting concept for the District was to reinforce its historic character example through the use of low pedestal type fixtures which provide a warm light characteristic of an earlier time.

Center: Market Street is partially terminated by an angled building which visually encroaches into the public right-of-way. This space is defined by a radial paving pattern, bold concrete bands and a radius of painted steel cylinder bollards which protect a pedestrian plaza in the street area.

Right: The key cross street is reinforced with another arch, lighting, brick paving, special benches and trees. The intersection is defined with a concrete patterned intersection with a brick surround forming pedestrian crosswalks. The architecturally significant side of the street is featured while the discontinuous side is buffered with regular tree planting

The SWA Group

Resumes

Ronald E. Thompson

Education	Iowa State University, B.S.C.E., 1976 The Pennsylvania State University, M.S.C.E., 1978
Affiliations	American Society of Civil Engineers Institute of Transportation Engineers
Registration	Registered Professional Engineer: Connecticut, Delaware, Florida, Maine, Massachusetts, Rhode Island, New Hampshire, Vermont, Virginia

As a civil engineer, Mr. Thompson has participated in various projects in the United States. He has participated in project management, civil engineering design, construction document preparatation, cost estimating, construction services, traffic and environmental impact assessment and priority programming of highways, traffic signal systems and the redevelopment of city streets.

As Senior Associate in Charge for Public Works Engineering and Construction Administration Services, Mr. Thompson has been responsible for over $40 million of public works engineering design including roadways, drainage improvements and municipal utilities. His responsiblities with respect to construction administration services include overall management, product delivery, scheduling and implementation of quality management/quality control procedures.

Following is a summary of Mr. Thompson's projects:

Administration of the design for the upgrade of nine rapid transit and commuter rail stations north and west of Boston for the Massachusetts Bay Transportation Authority. Improvements include expanding parking lots, station improvements, parking garage construction, landscaping and handicapped access.

Planning and design for a connector road and air rights development under Interstate 91 No. Springfield, MA. This $4 million project included roadway construction, ramp demolition, drainage improvements, utility relocations and urban design elements. The planning process required extensive liaison between local public officials and private sector representatives to allow for federal, state, and local approvals and permits.

Design of a portion of Route 53 in Hanover, MA. This project includes the upgrading of approximately two miles of roadway corridor to a four-lane arterial highway. Corridor improvements consist of roadway widening, drainage improvements and traffic signalization.

Planning and design of the relocation of approximately one mile of Route 140 in Franklin, MA. The project includes the construction of a four-lane divided primary roadway, bridge and culvert construction, drainage improvements and environmental protection of wetlands. This project is a joint development between the

Development of engineering feasibility and environmental assessment for expansion of the Interstate 93/River Road interchange and River Road corridor. Improvements consist of bridge widening, ramp reconstruction and widening of a rural roadway to a four-lane arterial roadway.

Development of engineering feasibility report for expansion of the Interstate 95/Route 128/Totten Pond interchange. Improvements constist of bridge widening, ramp construction and coordination of drainage improvements to Route 128.

Planning and design of a $12.5 million improvement project on the Middlesex Turnpike in the towns of Bedford, Billerica and Burlington, MA. The project was developed jointly be all three towns cooperating as a single group, Tri-town. The project consists of widening an existing two-lane roadway to five lanes and installing a series of traffic signals. Extensive construction staging and maintenance of traffic are incorporated into this project.

Design of serveral arterial streets for the North Blocks area of Springfield, MA. This $3.2 million project involved the design of street reconstruction, traffic system signalization, drainage improvements and landscaping.

Design of 25 miles of roadway improvements on Nantucket. This $12 million project involved the implementation of a roadway priority program. Roadway reconstruction consisted of reclamation, pavement overlays and complete reconstruction of roadways.

Design of a major redevelopment project in Medford Square, Medford, MA. This $2.5 million project included construction and reconstruction of downtown streets, construction of a pedestrian mall, transitway, several off-street parking areas, traffic signalization and design of several utilities.

Previous Experience

As City Traffic Engineer for the City of Olathe, Kansas, Mr. Thompson was responsible for the Transportation Department. Responsibilities included the development of an annual transportation improvement program for the City and preparation of budgets for operation of the Department. Project responsibilities included the design of street and traffic signal projects.

Joseph D. Magni, Jr.

Education	Northeastern University, B.S.C.E. Lowell Technical Institute - Civil Engineering in Service Training Program Newton Junior College - Associate in Arts
Affiliations	American Society of Civil Engineers Boston Society of Civil Engineers
Registration	Professional Engineer: Massachusetts, Maine

Mr. Magni is a Senior Project Manager in Vanasse Hangen Brustlin's Highway Department. His areas of expertise include geometric design of primary, secondary and urban roadways, preparation of state highway layout documents, roadway and parking lot grading and drainage design, highway lighting design, construction document preparation and preparation of land court subdivision plans and related calculations.

Mr. Magni has been involved with several highway projects including:

Project Manager for four consecutive phases of the Nantucket Priorty Program for the rehabilitation of Public Road in Nantucket, Massachusetts. Each phase involved the development of a variety of road improvement techniques to upgrade streets within the available funding limitations. Cobblestone pavers, Belgium block pavers, pavement reclamation, full depth reconstruction, and stone sealing are examples of project techniques utilized in this combined $14 million project.

Project Manager for the 2.1 mile North Dennis Road Project in Yarmouth, Massachusetts. This project involved the full depth reconstruction of an arterial connection providing regional access to Yarmouth from the northern Cape Cod communities. The work included major drainage improvements, installation of a Class I regional Bike Path, extensive wetlands, mitigation measures, replacement of a 60 foot - 5' x 6' box culvert (tidal stream) and extensive wetland permitting.

Project Manager for the Madaket, Nantucket Island, bikepath, a 5.2 mile long Class I bicycle path adjacent to a heavily traveled route connecting downtown Nantucket with Madaket beach. The project involved basic route location and geometric design, wetland replication, design of bike rest areas, design of wood deck bridge structures at major culvert crossings, specifications and bid documents.

Project Manager for the Springfield North Blocks Urban System Project. This $4.8 million project involved full depth reconstruction of nine downtown streets, structural design of 22 underground utility vaults, coordination of nine signalized intersections, extensive streetscaping, TV inspection of 10,000 feet of combined sewer/drainage piping, the development of a parking study and part time construction inspection.

Project Manager for the Station Avenue Reconstruction Project in Yarmouth. This $1.1 million project involved the flare widening of existing corridor to provide a four-lane roadway, signalization of two major intersections, a railroad crossing renewal, major drainage improvements, specifications and bid documents.

Project Manager of the Route 134 Transportation Improvements Project in Dennis. This $1.3 million project involved the widening of an existing corridor to provide a five-lane section with a two-way continuous center left-turn lane, signalization of two intersections, design of a concrete bikeway under Route 134, major drainage alterations, specificaitons and bid documents.

Mr. Magni was responsible for the safety improvements to 2.0 miles of Conant Street in Danvers and Beverly, MA. This $1.0 million project involved inter-coordination between two neighboring municipalities for the reconstrucion of a vital arterial, improvement of intersection geometrics, replacement of 3,700 feet of water main, roadway reconstruction and realignment, major drainage improvements, specifications and bid documents.

Senior Project Engineer for the site improvements to Merrimack Plaza in Methuen, MA. Responsibilities included redesign of a 700+/- stall parking lot for improved traffic circulation patterns, landscape improvements, major drainage alterations, and design modifications to an existing traffic signal system.

Previous Experience

Prior to his association with Vanasse Hangen Brustlin, Inc., Mr. Magni conducted and participated in numerous bridge replacement projects in the State of MA. These projects involved major roadway geometric improvements, sophisticated utility replacement, special roadway profiling to accommodate required minimum railroad clearances, design of unique revetment techniques for slope erosion control, bridge hydraulic analysis and development of phased construction traffic mangement.

James R. Avitabile

Education

Northeastern University, B.S.C.E., 1980
Northeastern University, M.S.C.E., 1987

Affiliations

American Society of Civil Engineers
Boston Society of Civil Engineers
Construction Specification Institute
American Water Works Association

Registration

Registered Professional Engineer: Maine, Massachusetts

As a Transportation/Civil Engineer, Mr. Avitabile has directed and participated in the design efforts on a variety of projects throughout the New England region. His responsibilities include design coordination, construction document preparation, cost estimation, right-of-way, hydraulic analysis, environmental impact assessment and planning studies associated with the design and construction of transportation facilities and roadway improvement projects.

As Senior Project Manager on the highway design staff, Mr. Avitabile has been responsible for the design efforts for a number of public works and private developmnet projects, as represented by the following:

Traffic improvements to the Route 53 corridor in Hanover, MA. Project includes the widening, reconstruction and traffic signalization of a major commercial arterial. As the first phase of this four-phase project, $2.5 million worth of construcion improvements will be made to the first mile of this 3.7-mile corridor.

The reconstruction of East Street in Pittsfield, MA, consisting of safety improvements and traffic signalization to this four-lane urban arterial. This $3 million project included significant drainage system improvements, utility relocations and the safe coordination of construction activities to maintain continuous traffic flow.

Transportation improvements to a 1.5 mile section of Route 8 in the Town of Adams, MA. Project involved $4 million of improvements to an existing urban highway. Geometric improvements proposed include horizontal realignment, widening and intersection improvements to provide additional capacity and improve safety.

Major roadway reconstruction and traffic signal improvements for 1.5 mile section of Middlesex Turnpike in Burlington, MA. This $3.5 million Urban Systems project included the upgrading and coordination of seven key intersections along a major commercial corridor. Design efforts included capacity improvements, retaining wall design and extensive utility relocation.

The reconstruction of Hillcrest Parkway in Winchester, MA. This $1.2 million MDC project involved the development of contract documents for the realignment of a 3/4 mile residential roadway which borders the MDC North Reservior. Major efforts included drainage and water system improvements, street lighting design, evaluation of environmental impacts and community liaison.

The design of safety improvements for the relocation of Crosby Drive at Burlington Road in Bedford, MA. This project, funded under the Public Works Economic Development Program, consisted of alignment and capacity improvements to two key intersections along a major commuter corridor.

North Summer Street Urban Systems Project in Adams, MA. Project included reconstruction of 3/4 mile of residential roadway and replacement of existing retaining walls.

The design of safety improvements on a 1/2 mile section of Nahatan Street in downtown Norwood, MA. The project involved roadway widening and the design of a coordinated traffic signal system at four intersection locations.

East Road highway reconstruction project in Adams, MA. The geometric design for 1.5 mile section of residential highway included structural improvements to several major culvert crossings and widening of an existing bridge structure.

Mishawum Road intersection capacity and traffic signal improvement project in Woburn, MA.

Previous Experience

As Assistant Transportation Engineer for the preliminary design of the MBTA South Station Transportation Center.

Infrastructure evaluation and pavement inventory studies for roadway and bridge structures for the 140-mile Massachusetts Turnpike.

Pompeo Casale

Education	Northeastern University, B.S.C.E., 1980
Affiliations	American Society of Civil Engineers Boston Society of Civil Engineers
Registration	Registered Professional Engineer: Massachusetts, New Hampshire, Maine Liscensed Construction Supervisor: Massachusetts

Mr. Casale, a Project Manager in VHB's Highway Design Department, has considerable experience in the civil design of highway projects throughout the Commonwealth of Massachusetts and the State of New Hampshire. His responsibilities include geometric design of primary, secondary, and urban roadways, preparation of construction right-of-way documents, roadway grading, highway lighting and traffic signalization plans.

Mr. Casale is currently involved in design efforts for a number of public works projects, as represented by the following.

Project Manager for civil engineering design and development of construction documents for roadway construction and traffic signal installation on a section of Cambridge Street (Route 3A) in Burlington, MA.

Project Manager for transportation safety improvements to the High Street and Haverhill street intersection in Andover, MA. This project involves the design of a traffic signal system, roadway alterations and modifications to the existing drainage system.

Project Manager for intersection signalization of various locations throughout the Commonwealth of Massachusetts and New Hampshire. Some are these projects are Dascomb Road/I-93 Frontage Road, Andover, MA; Bridge Street/West 6th Street, Lowell, MA; Lowell Road (NH Route 3A)/Wason Road, Hudson, NH; Lawrence/Rogers/Wamesit Streets, Lowell, MA; and NH Route 25/NH Route 25B, Center Harbor, NH.

Project Manager for civil engineering design and development of construction documents for roadway construction and traffic signal installation on a one mile section of Derry Street (NH Route 102) in Hudson, NH.

Previous Experience

Senior Project Engineer for Plaistow Road (NH Route 125) reconstruction project in Plaistow, NH. Responsible for geometric design, drainage and traffic signal installation.

Senior Project Engineer for the design and development of construction documents for a 0.5 mile section of Lowell Road/River Road (NH Route 3A) in Hudson, NH. Included was the design and realignment of Lime Brook through the project area.

Senior Project Engineer for transportation safety improvements to Storey Avenue (Route 113) in Newburyport, MA. This project involved the design of two traffic signal systems, roadway alterations and modifications to the existing drainage system.

Senior Project Engineer for the design and development of construction documents for roadway construction and traffic signal installation for a section of Route 5 (Riverdale Street) in West Springfield, MA.

Project Engineer for the design and reconstruction of a 4.5 mile section of Route 143 in the Town of Peru, MA.

Project Engineer for intersection improvements at Route 2 and Bedford Road in the town of Lincoln, MA.

Project Engineer for safety improvements to the Winter Street/I-95/Route 128 interchange in Waltham, MA. Included were the redesign of Winter Street from a two-way system, and the realignment of both on- and off-ramps.

Project Engineer for the design and reconstruction of a one mile section of Route 8 in the City of North Adams, MA.

Project Engineer for numerous bridge replacement projects in the State of Massachusetts. These projects involved roadway geometric redesign, utility replacement, roadway profiling to accommodate required railroad clearances, and development of phase construction plans.

Robert M. Kaye

Education

Boston University, M.A., Urban/Economic Geography, 1975
Oberlin College, B.A., Cum Laude, Biology, 1970

Affiliations

American Planning Association
Association of American Geographers
Conservation Law Foundation of New England
The Nature Conservancy
Urban Land Institute

Appointments

Task Force to Evaluate New Treatment Technology, Massachusetts Department of Environmental Quality Engineering, 1983
Special Advisory Committee on Water Supply, Massachusetts Department of Environmental Quality Engineering, 1982
Research Evaluator, National Science Foundation, 1980 -
Advisory Committee, Massachusetts Department of Environmental Quality Engineering, 1979 -
Salt Task Force, Massachusetts Department of Public Works, 1975-1976

Awards

Teaching Fellowship and Staff Scholarship, Boston University, 1973-1975
National Science Foundation/Great Lakes College Association Marine Biology Study Grant, University of California, Santa Barbara, 1969

Mr. Kaye joined Vanasse Hangen Brustlin, Inc. to direct the firm's Urban Planning Department. He brings to the firm skills in diverse planning topics including resource management, environmental assessment, community revitalization, economic analysis, land use regulations and citizen involvement in planning and decision making processes.

Mr. Kaye's project experience includes:

Master/Site Planning: Tudor Wharf, Charlestown, MA - Urban design and site planning for the creation of a residential/office/retail development on the Charlestown waterfront; Hingham Shipyard, Hingham, MA - Site Planning for mixed use development on a 56- acre waterfront site; Walter Baker Mills, Dorchester, MA - Urban design and site planning for conversion of former chocolate factory to residences and Heritage State Park; Wellington Point, Medford, MA - Master plan for 2 million square foot mixed use development on 55 acre site including air rights over Wellington MBTA station; Weston Office Park, Weston, MA - Coordinated environmental processing for 75-acre, 485,000 square foot office development; Burlington Office Park, Burlington, MA - Master planning and environmental assessment for 1 million square foot office park; Washburn Island Preserve Master Plan, Falmouth, MA - Design, resource planning and environmental assessment for 334-acre island; Rust International Site and Design Study, Birmingham, AL - Assessed various locations for an engineering firm's corporate headquarters.

Development Guidelines: Massport CHART Project, Boston, MA - Urban design and planning responsibilities for a study of cross harbor and regional transportation access to Logan Airport; Birmingham Mixed Use Development plan for 36-block area of downtown Birmingham, including housing, R&D, retail and hotel uses; Northern Avenue/Commonwealth Flats Design Guidelines, Boston, MA - Guidelines for redevelopment of a 55-acre, publicly owned site adjacent to the South Boston waterfront; Derry, NH Redevelopment Study; Whitinsville Redevelopment study, Northbridge, MA; Spencer, MA Revitalization; Parking Feasibiltiy Study, Brookline, MA; Kendall Company Site Search and Feasibiltiy Study, Eastern Massachusetts; Design Guidelines for Air Cargo Facilities, Boston, MA.

Environmental Assessments: 116 Huntington Avenue Environmental Study, Boston, MA - Environmental analysis of a 278,000 square foot office/retail development near Boston's Back Bay; 25 Huntington Avenue Environmental Study, Boston, MA - Environmental analysis of a residential/retail development in Back Bay, Boston, MA; 15 New Chardon Street, Boston, MA - Environmental studies for office/retail development in Government Center; Commonwealth Center, Boston, MA - Planning and environmental analysis for a large mixed-use development on Washington Street in Downtown Crossing area; Nobnocket, Tisbury, MA - Environmental coordination for a commercial development in Martha's Vineyard; Clippership Wharf Environmental Study, Boston, MA - Urban design/site planning, and full EIR and state permit processing for 12-acre residential development on East Boston waterfront; Fan Pier and Pier 4 Environmental Study, Boston, MA - EIR and permit documents for 5 million square foot mixed-use development; Rowes Wharf, Boston, MA - Environmental analysis and permit documentation for 650,000 square foot mixed-use waterfront development; Parcel 7 EIR Boston, MA - Environmental review of a hotel/retail development adjacent to Goverment Center.

Resource Management: Barnstable Groundwater Management Plan, Barnstable, MA - Land use and groundwater resource management plan for a Cape Cod community; Water Resources Management Study (Case Study), Stoughton, MA for U.S. Department of Interior.

As Resident Engineer and Project Superintendent, Mr. Woodcock has participated in various projects in New York and New England. He has served as resident for government agencies and as a project superintendent managing paving operations for a New York contractor.

As Senior Resident Engineer for Vanasse Hangen Brustlin, Inc., Mr. Woodcock is responsible for the supervision of resident inspection services for all construction projects monitored by Vanasse Hangen Brustlin, Inc. Mr. Woodcock is responsible for monitoring quality control of the construction projects.

As Resident Engineer, Mr. Woodcock was responsible for monitoring the construction of 12 miles of roadway improvements on Nantucket. This $4.3 million project required the monitoring of several pavement reclamation operations, safety control, project quantities, and quality of construction. Project scheduling on this summer resort was essential to maintaining a separation of construction activities and summer vacation activities.

Previous Experience

As Project Superintendent for a major New York contractor, Mr. Woodcock was responsible for paving operations and construction of various roadway projects. Several are listed as follows:

Responsible for the reconstruction of 5.5 miles of New York Route 210. This $3.3 million project included replacement of major drainage culverts, storm drainage systems and pavement reconstruction.

Responsible for reconstruction of 5 miles of New York Route 202. This $1.3 million project included replacement of deck slabs, drainage improvements, pavement and sidewalk reconstruction.

Responsible for reconstruction of various pavements for the United States Military Academy at West Point, New York. This $1.5 million project included street and sidewalk reconstruction, parking facilities, recreational facilities and utility improvements.

Responsible for construction of this bridge in Hyde Park, New York. This project involved the construction of a 65-foot span - precast box beam bridge, abutments, bridge deck and approaches.

Mr. Pratt has 38 years experience in construction engineering. For 35 years until his retirement, he was a construction engineer with the Massachusetts Department of Public Works responsible for large-scale construction projects in the eastern portion of the State including the Boston Metropolitan area.

As MDPW District 8 Construction Engineer, Mr. Pratt was responsible for the supervision of approximately $70 million of construction annually. For the last ten years of his tenure, he held the dual position of District Projects Engineer and District State Aid Engineer for the Boston District 8.

Representative of the construction projects Mr. Pratt supervised for the Massachusetts Department of Public Works are the following:

- $69 million construction of I-93 from City Square, Charlestown to Medford.
- $6 million construction of Route 3 through Weymouth, which included construction of 12 bridges.
- $7 million construction of I-95 in North Attleboro, which included 11 bridges.
- $10 million construction of several roadway State Aid projects.

DMC
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Structural and Civil Engineering

PROFESSIONAL PROFILE

DANIEL M. CARSON, P.E.

Professional Credentials:

B.S.C.E., The City College of New York, 1982

Graduate Studies, Case Western Reserve University

Registered Professional Engineer: Ohio, Massachusetts, Maine

American Consulting Engineering Council/NE Board of Directors,
Massachusetts Society of Professional Engineers

Tau Beta Pi, CHI Epsilon

Record of Employment:

1972-1976	Peter Kiewit Sons Co.
1976-1977	Havens and Emerson, Ltd.
1977-1981	Eastern Seaboard Engineering Corp.
1981-1982	Peabody N.E., Inc.
1982-Present	DMC Engineering, Inc.

Professional Experience:

Mr. Carson has a somewhat unusual backround in that he has strong experience both in contracting and design engineering. He started his career working as a "construction engineer" on the 63rd Street Tube and Tunnel project, N.Y.C. From that start Mr. Carson has gone on to supervision and management of such contracts as the MBTA South Cove Tunnel Contract ($5 million sub-contract), Lynn Sewage Treatment Plant ($50 million), and Franklin Field Housing Project ($2 million sub-contract).

He has estimated projects such as MBTA Forest Hills ($3 million subcontract), and AMTRAK Southampton Yard ($20 million). Mr. Carson also has a substantial background in the construction engineering required for such things as design of support-of-excavation systems, pile design, dewatering systems, and studies of ability of soils to withstand construction equipment loadings.

While working as a structural/foundation engineer, Mr. Carson was involved with the design of Bissel Point Treatment Plant; Dettmer-Miami Ohio Health Complex: Rochester, N.H. Treatment; and Gloucester R/R Bridge Underpinning Projects to name a few. His responsibilities included the structural design and analysis of building superstructures, above grade tanks, below grade tanks, buried conduits, shallow foundations and deep foundations. Mr. Carson has also served on value engineering teams for EPA projects.

Since starting the firm of DMC Engineering, Inc., Mr. Carson has served as principal in charge on a wide variety of projects. Examples of these projects are structural design of Nashua New Hampshire Sewage Treatment Plant, civil engineering and estimating services for Camp Dresser and McKee's prime management contract with Massachusetts Water Resources Authority, prime contract to provide engineering services on Maine DOT's Eel Weir River Bridge Project, various site development contracts up to 16 acres in size, MBTA Bridge Inspection project, structural design of Office Building projects, and contracts with McDonald's Corporation to provide structural engineering services to their restaurant facilities in the New England area.

Thomas K. Liu

Principal and President
Haley & Aldrich, Inc.

Experience

1969 - Present

Haley & Aldrich, Inc.
1969 Senior Associate and Vice President
1972 Principal and Senior Vice President
1982 Principal and Executive Vice President
1984 Principal and President

Principal-in-charge for subsurface investigation, engineering studies, construction monitoring and behavior measurement for foundations and earthwork structures. Projects include low and high-rise buildings, major site developments, mass transit facilities, tunnels, highways, bridges, water supply systems, dams, sewerage treatment facilities, refineries, processing and manufacturing plants, tank farms, communication networks, landfills, waterfront structures, pipelines and others.

The scope of experience ranges from preliminary feasibility studies, through design investigations, preparation of plans and specifications, to consultation and monitoring during construction. Individual projects have also included investigations of failures and testimony during litigation.

Dr. Liu has participated in more than 300 projects at Haley & Aldrich, Inc. In areas of highways and bridges, he has served as Principal-in-charge for the I-93 Franconia Notch Parkway and its extension from Littleton, New Hampshire to the Vermont Line, the new Rouses Point Bridge to connect Vermont and New York at the northern end of Lake Champlain. Dr. Liu has participated in many projects involving foundations and embankments on weak and compressible soils, including Taylor River Crossing on the New Hampshire Turnpike, in which sand drains were utilized.

Dr. Liu has also been Principal-in-charge of a variety of tunnel projects within New England and the north central United States including the feasibility study for the Danvers-Beverly Tunnel in Beverly, MA; the Culver-Goodman and Combined Sewer Overflow Abatement Program Tunnel Network in Rochester, NY; Scajaquada Tunnel Interceptor in Buffalo, NY; Water Transmission Tunnel in Bethesda, MD; and the Tunnel Muck Utilization Study.

Dr. Liu as a result of his many years of teaching and research often serves as a catalyst in the development of innovative solutions to geotechnical engineering problems. In 1979, Dr. Liu was a member of a delegation of the Consulting Engineers visiting China as guests of the State Capital Construction Commission of the People's Republic of China.

Dr. Liu has presented many lectures on soil mechanics and foundation engineering at professional society meetings and universities. He has authored numerous papers and publications on a wide variety of topics in geotechnical engineering. His paper, "Finite Difference Analyses for Sand Drain Problems" was awarded the highest honor by A.S.C.E. in 1975, the Norman medal.

1959 - 1969	University of Illinois, Urbana-Champaign, IL 1964-1969 Associate Professor 1961-1964 Assistant Professor 1959-1961 Research Associate

Taught graduate and undergraduate course in soil mechanics and foundation engineering. Conducted research on engineering properties of surficial soils, influence of colloidal organic material on engineering properties of soil, field measurement of soil strength and instrumentation. Developed soil exploration and mapping procedures for highway projects. Served as geotechnical engineering consultant on a variety of projects.

1956 - 1958	Knoerle, Bender, Stone & Associates, Inc.

Soils Engineer. Supervised and coordinated design and construction of the earth structures and foundations for the initial 187-mile Northern Illinois Toll Highway System.

Education

University of Illinois, Urbana-Champaign, IL Department of Civil Engineering	B.S. M.S. PhD.	1955 1956 1961

Professional Registration

Massachusetts, New York, Illinois

Professional Societies

American Society of Civil Engineers (Fellow)
Boston Society of Civil Engineers Section, ASCE (President, 1974-1975)
International Society for Soil Mechanics and Foundation Engineering
American Society for Testing and Materials
Transportation Research Board
American Consulting Engineers Council (Fellow)
(President, Boston Fellows Group, 1980-1981)

Honorary Societies and Awards

Sigma Xi, Chi Epsilon, Tau Beta Pi, Sigma Tau
University of Illinois
Foreign Student Scholarship, 1952-1954
B.S. Graduation with High Honors
University Fellow, 1958-1959
Fullbright Research Scholar at the Norwegian Geotechnical Institute in Oslo, Norway, 1967-1968
Royal Norwegian Council for Scientific and Industrial Research, Postdoctorate Fellow, 1968
American Society of Civil Engineers - Norman Medal, 1975

Publications and Papers

"An Engineering Study of Humic-Grey Soils", Ph.D. Thesis, University of Illinois, 1961.

"Investigation of Surficial Soils by Field Vane Test," with T. H. Thornburn. Symposium on Soil Exploration, ASTM, STP No. 351, pp. 44-52, 1964.

"Creek Tunnel Site, Colorado; by C.S. Robinson and F.T. Lee," Symposium on Soil Exploration, ASTM, STP No. 351, p. 28, 1964.

"Study of the Reproducibility of Atterberg Limits", with T.H. Thornburn. Color Air Photos, Soil Properties and Tests, HRB Highway Research Record No. 63, pp. 22-28, Discussion closure, p. 30, 1964.

Publications and Papers (Continued)

Statistically Controlled Engineering Soil Survey, with T.H. Thornburn, University of Illinois Civil Engineering Studies, Soil Mechanics Series No. 9, ICHRP Series No. 37, 14 pp. Abridgement - Geophysical Methods and Statistical Soil Surveys in Highway Engineering, HRB, Highway Research Record No. 81, pp. 58-60, 1965.

Engineering Index Properties of Some Surficial Soils in Illinois, with T.H.. Thornburn, University of Illinois, Engineering Experiment Station Bulletin 477, pp. 111, 1965.

"Discussion, 'Fundamental Aspects of the Atterberg Limits' by H.B. Seed, R.J. Woodward, Raymond Lundgren", with N.O. Schmidt and T.H. Thornburn, ASCE, Journal of the Soil Mechanics and Foundations Division, Vol. 91, No. SM4, pp. 217-223, 1965.

"Soil Strip Maps", with T.H. Thornburn, American Society of Photogrammetry, Photogrammetric Engineering Vol. XXXI, No. 6, pp. 1030-1038, November 1965.

Engineering Soil Report, Livingston County, Illinois, with T.H. Thornburn and R.K. Morse, University of Illinois, Engineering Experiment Station Bulletin 482, 128 pp., 1966.

"Variability of Some Selected Laboratory Soil Tests", with M.R. Thompson, Proceedings National Conference on Statistical Quality Control Methodology in Highway and Airfield Construction, University of Virginia, pp. 375-395, 1966.

"A Comparison of Clay Contents Determined by Hydrometer and Pipette Methods Using Reduced Major Axis Analysis", with R.T. Odell, W.C. Etter and T.H. Thornburn, Soil Science Society of America Proceedings, Vol. 30, No. 6, pp. 665-669, 1966.

"A Review of Engineering Soil Classification Systems", Classification, Safety Factor, Terrain and Bearing, HRB, Highway Research Board No. 156, pp. 1-22, 1967.

"Results of In-Situ Large Diameter Horizontal Shear Tests at Manglerud III", Norwegian Geotechnical Institute Report No. F 281.4, 1967.

Publications and Papers (Continued)

"A Statistically Controlled Experiment for the Evaluation of Preassembled Vibrating-Wire Strain Gauges", Norwegian Geotechnical Institute Report No. F 336, 1968.

"Results of In-Situ Large Diameter 45° Upward Shear Tests at Manglerud III", Norwegian Geotechnical Institute Report No. F281.6, 1968.

Engineering Soil Report, Will County, Illinois, with T.H. Thornburn and D.J. Hagerty, University of Illinois, Engineering Experiment Station Bulletin 501, 195 pp., 1970.

"The Use of Field Observations in Precompression of Soft Ground, Seminar on Field Observations in Foundation Design and Construction, Metropolitan Section, ASCE, 33 pp., 1970.

Engineering Soil Report, DeWitt County, Illinois, with T.H. Thornburn and E.T. Misaszek, University of Illinois, Engineering Experiment Station Bulletin 505, 103 pp., 1970.

"An Instrumented Tied-Back Deep Excavation", with J.P. Dugan, Jr., ASCE Proceedings of the Specialty Conference on Performance of Earth and Earth-Supported Structures, Vol. 1, Part 2, pp. 1323-1340, 1972.

"Predicted and Measured Settlement of the Colonnade Building, The First Church of Christ Scientist in Boston, Massachusetts", with H.P. Aldrich, Jr. and J.P. Dugan, Jr., Proceedings BGS Conference on Settlement of Structures, pp. 106-109, 1974.

"Settlement Behavior of Three Steel Storage Tanks", with J.P. Dugan, Jr., Proceedings BGS Conference on Settlement of Structures, pp. 110-115, 1974.

"Finite Difference Analyses for Sand Drain Problems", with R.E. Olson, and D.E. Daniel, ASCE Proceedings of the Conference on Analysis and Design in Geotechnical Engineering, Vol. 1, pp. 85-110, 1974.

"Ground Vibrations", with E.B. Kinner and M.K. Yegian, Sound and Vibration, Vol. 8, No. 10, pp. 26-32, October 1974.

Publications and Papers (Continued)

"BSCES Plus One", Journal of the Boston Society of Civil Engineers Section, ASCE, Vol. 62, No. 2, pp. 33-37, 1975.

"Determining Bedrock Elevation by Acoustic Sounding Technique with W.E. Stimpson and G.S. Brierley, Rock Engineering for Foundations and Slopes, ASCE, Vol. 1, pp. 1-12, 1976.

Muck Utilization Planning, with D.G. Gifford and J.P. Dugan, U.S. Department of Transportation, Report No. UMTA-MA-06-0025 -77-11, 70 pp.. 1977.

Muck Utilization in the Urban Transportation Tunneling Process, with D.G. Gifford, R.P. Stulgis, D.L. Freed, U.S. Department of Transportation, Report No. UMTA-MA-06-0025-77-15, 384 pp., 1977.

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Michael Sardina
Managing Principal

Mr. Sardina is a Landscape Architect with well developed experience in a multiple of projects including urban development, residential planning, industrial and office parks, recreational facilities and educational institutions.

He joined the SWA Group in 1972. His responsibilities include project design, development, and sharing management responsibility for the Boston office. He has been principal designer for such projects as Alameda Marina Village, Alameda, California; Sealand Corporate Headquarters, Madison, New Jersey; University Place, Cambridge, Massachusetts; Hyatt Regency Hotel, Princeton, New Jersey; General Electric Headquarters Guest Facilities, Fairfield, Connecticut; Presbyterian Hospital, New York, New York; and Deerfield Academy, Deerfield, MA. He has been responsible for design development and/or construction documents for projects such as Burnett Park in Fort Worth, Texas; Annie's Park in Rosslyn, Virginia; Cambridge Center Rooftop Park, Cambridge, Massachusetts; 1300 New York Avenue, Washington, D.C.; Fleming Beach Hotel in Kapalua, Hawaii; Oakland City Center, Oakland, California and Moscone Convention Center, San Francisco, California; and Charles Square, Cambridge, MA. He has also done planning work on mixed use projects such as the Village of Woodbridge in Newport Beach, California; Alameda Marina Village, Alameda, California; Nemocolin Woodlands, Uniontown, Pennsylvania; Conway Farms, Lake Forest, Illinois; Pier 4, Boston, Massachusetts; Weston, Cary, North Carolina; and Paragon Henrico County, Richmond, Virginia.

Education

Master of Landscape Architecture, 1972, University of Michigan

Bachelor of Landscape Architecture, 1968 Michigan State University

he SWA Group
11 Boylston Street
oston, MA 02116
17-266-4703

Professional Experience	SWA Group
	Sasaki, Walker Associates, Inc.
	University of Michigan, Department of Landscape Architecture, Teaching Fellow
Registration	Massachusetts, Connecticut, California, New York and North Carolina

SWA Group
Boylston Street
ton MA 02116
-266-4703