

THE  
MONARCH  
PRIVATE RESIDENCES



PRELIMINARY PUD APPLICATION FOR THE CITY OF TROY  
REVISED MAY 12th, 2005

  
JOSEPH FREED AND ASSOCIATES LLC  
A COMPANY OF THE FREED GROUP

# THE MONARCH PRIVATE RESIDENCES



## TABLE OF CONTENTS

<b>TAB 1</b>	<b>PROJECT NARRATIVE</b> PUD Application Narrative Description Economic and Demographic Report LEED Certification Checklist
<b>TAB 2</b>	<b>PROOF OF OWNERSHIP</b> Real Estate Agreements Ownership Map
<b>TAB 3</b>	<b>PUD JUSTIFICATION AND UNIFORMITY ANALYSIS</b> PUD Justifications Public Benefit Uniformity Analysis Landscape Plan Rezoning Traffic Study for Proposed Monarch
<b>TAB 4</b>	<b>ARCHITECTURAL PLANS</b> C1.1 Topographic Survey C2.1 Tree Survey C3.1 Site Plan C4.1 Utility Plan C5.1 Proposed Grading/Stormwater Plan C6.1 Snow Removal Plan L.1 Landscape Concept L.2 Tree Demolition Plan A2.0 Ground Level Floor Plan A2.1 Building Plan – Level 2 A2.2 Building Plan – Level 3 A2.3 Building Plan – Level 4 A2.4 Building Plan – Level 5 A2.5 Building Plan – Level 5.5 A2.6 Building Plan – Level 6 – Podium Level A2.7 Building Plan – Level 8 – Typical Residential Floor Plate A2.8 Building Plan – Level 19 A2.9 Building Plan – Level 20 A3.0 Big Beaver South Elevation A4.0 Unit Plans A10 Sommerset Bridge Perspective A10.1a Big Beaver Perspective A10.2a Alpine Road Perspective A10.2 Height Study A10.3 Townhomes/Villa units A10.4 Sales Center Signage Program A10.5 Signage (1 of 2) A10.6 Signage (2 of 2)
<b>TAB 5</b>	<b>ARCHITECTURAL SPECIFICATIONS</b> Material Specifications (Monarch Towers) Material Specifications (Villa Units) Lighting/Photometric Plan Lighting Specifications

THE  
**MONARCH**  
PRIVATE RESIDENCES



- TAB 6 ENVIRONMENTAL IMPACT ASSESSMENT**  
Physical Conditions  
Project Description  
Project Impact Analysis: Systems – 07.41.00  
Traffic Impact Study – Parsons
- TAB 7 PUBLIC INPUT SESSION**  
Renderings/exhibits presented at 2/7/05, 4/27/05 and 4/28/05 neighborhood meetings
- TAB 8 APPENDIX**  
Boundary Survey  
Location Map  
City of Troy Master Land Use Plan  
City of Troy Zoning District Map  
Aerial Photograph  
Wetlands Determination and 100 Year Flood Plain Determination  
Letter to FAA

# CITY OF TROY PLANNED UNIT DEVELOPMENT APPLICATION

CITY OF TROY PLANNING DEPARTMENT  
500 W. BIG BEAVER  
TROY, MICHIGAN 48084  
248-524-3364  
FAX: 248-524-3382  
E-MAIL: [planning @ ci.troy.mi.us](mailto:planning@ci.troy.mi.us)



P.U.D. FILE NUMBER \_\_\_\_\_  
DATE FILED \_\_\_\_\_  
P.U.D. PRELIMINARY FEE (\$1500.00) \_\_\_\_\_  
CONSULTANT FEES \_\_\_\_\_ PAID   
P.U.D. FINAL FEE (\$1500.00) \_\_\_\_\_

## NOTICE TO THE APPLICANT

REGULAR MEETINGS OF THE TROY CITY PLANNING COMMISSION ARE HELD ON THE SECOND TUESDAY OF EACH MONTH AT 7:30 P.M. AT THE CITY HALL. APPLICATIONS FOR PLANNED UNIT DEVELOPMENTS SHALL BE FILED NOT LATER THAN THIRTY (30) DAYS BEFORE THE SCHEDULED DATE OF THE MEETING.

APPLICATIONS FOR PLANNED UNIT DEVELOPMENTS SHALL AT A MINIMUM FOLLOW THE REQUIREMENTS FOR SPECIAL USE APPROVAL WHICH OCCUR IN CONJUNCTION WITH SITE PLAN APPROVALS CONTAINED IN SECTION 03.30.00 OF THE TROY ZONING ORDINANCE. APPLICATIONS FOR P.U.D. APPROVAL INVOLVING AN ENVIRONMENTAL IMPACT STATEMENT SHALL BE FILED NOT LATER THAN FORTY-FIVE (45) DAYS BEFORE THE SCHEDULED MEETING DATE.

**PLEASE FILE TWO (2) ORIGINAL APPLICATION FORMS**

1. NAME OF THE PROPOSED DEVELOPMENT: THE MONARCH
  2. LOCATION OF THE SUBJECT PROPERTY: BIG BEAVER ROAD AND ALPINE ROAD  
 THE SUBJECT PROPERTY HAS A FRONTAGE OF 360 FEET <sup>ON BIG BEAVER</sup> AND A DEPTH OF 688 FEET ON ALPINE STREET, LOCATED BETWEEN ALPINE AND MCCLURE STREETS.
 

{  
 LOT 90-92 - 0-1  
 LOT 93 - VEHICULAR PARKING  
 LOT 94, 95, 123, 124 - R-1B
  3. ZONING CLASSIFICATION OF THE SUBJECT PROPERTY: \_\_\_\_\_
  4. TAX ID NUMBER(S) (SIDWELL) OF SUBJECT PROPERTY: SEE ATTACHED SCHEDULE
- 
5. APPLICANT FOR P.U.D.:
 

NAME <u>BIG BEAVER ALPINE LLC</u> COMPANY <u>JOSEPH FREED AND ASSOCIATES</u> ADDRESS <u>220 N. SMITH ST. SUITE 300</u> CITY <u>PALATINE</u> STATE <u>IL</u> ZIP <u>60067</u> TELEPHONE <u>847-215-5500</u> FAX <u>847-215-5282</u> CONTACT: <u>JENNIFER HOONEY</u>	OWNER OF THE SUBJECT PROPERTY: NAME <u>BIG BEAVER OFFICE, LLC</u> COMPANY <u>TADIAN HOMES, LLC</u> ADDRESS <u>210 TOWN CENTER DRIVE</u> CITY <u>TROY</u> STATE <u>MI</u> ZIP <u>48084</u> TELEPHONE <u>248-457-3000</u> FAX <u>248-457-3075</u> CONTACT: <u>TOM WARDLOW</u>
--	--
  6. THE APPLICANT BEARS THE FOLLOWING RELATIONSHIP TO THE OWNER OF THE SUBJECT PROPERTY: CONTRACT HOLDER

7. THE SUBJECT PROPERTY IS ACREAGE OR IS A PART OF A RECORDED PLAT, AND, ATTACHED TO THIS APPLICATION IS A **CERTIFIED BOUNDARY SURVEY** WHICH INCLUDES A LEGAL DESCRIPTION AND A BOUNDARY SURVEY OF THE PROPERTY, INCLUDING A SCALED DRAWING, PREPARED BY A LICENSED LAND SURVEYOR. THE LEGAL DESCRIPTION AND DRAWINGS SHALL BE PROVIDED ON 8 1/2" X 11" PAGES ATTACHED TO THE APPLICATION. THE LEGAL DESCRIPTION OF ACREAGE PARCELS SHALL BE TIED TO A SECTION CORNER.
8. A **LOCATION MAP** (MINIMUM SCALE OF 1" = 400') INDICATING THE SUBJECT PROPERTY AND THE ZONING CLASSIFICATIONS AND USES OF ABUTTING AND ADJACENT PROPERTIES, ON 8 1/2" X 11" PAGES, IS ATTACHED TO THIS APPLICATION.
9. IT IS PROPOSED THAT THE PROPERTY WILL BE PUT TO THE FOLLOWING USES:

REFER TO ATTACHED PRELIMINARY PUD APPLICATION

10. IT IS PROPOSED THAT THE FOLLOWING BUILDINGS WILL BE CONSTRUCTED:

165 RESIDENTIAL UNITS IN HIGH RISE STRUCTURE, APPROX 11,000 SF RETAIL SPACE,  
308 STRUCTURED PARKING, 54 LOW RISE VILLA UNITS.

11. ATTACHED HERETO IS PROOF OF SINGLE OWNERSHIP OR CONTROL OF THE DEVELOPMENT SITE.
12. ATTACHED HERETO IS A DETAILED RESPONSE TO EACH ITEM OF CONCERN LISTED IN THE UNIFORMITY OF ANALYSIS MEMO.
13. **NINE (9) FOLDED** COPIES OF A PROPOSED SITE PLAN PREPARED AND SEALED BY A MICHIGAN REGISTERED ARCHITECT, ENGINEER, OR LANDSCAPE ARCHITECT INDICATING THE INTENDED USES OF THE SUBJECT PROPERTY AND CONTAINING THE INFORMATION, STATISTICS, AND DRAWINGS INDICATED IN THE TROY ZONING ORDINANCE ARE ATTACHED TO THIS APPLICATION.
14. **EIGHT (8) COPIES** OF THE ARCHITECTURAL ELEVATIONS, LANDSCAPE PLANS, LIGHTING PLANS, AND PEDESTRIAN PLANS ARE ATTACHED TO THIS APPLICATION.
15. ATTACHED HERETO IS A **NARRATIVE** PROVIDING A DETAILED DESCRIPTION OF THE PROPOSED PLANNED UNIT DEVELOPMENT.
16. AN **ENVIRONMENTAL IMPACT STATEMENT** (12) COPIES, SHALL BE SUBMITTED WITH THIS APPLICATION IN THOSE INSTANCES WHERE SUCH IS REQUIRED IN ACCORDANCE WITH ARTICLE VII OF THE ZONING ORDINANCE.
17. ATTACHED HERETO IS A **STATEMENT** BY THE APPLICANT PROVIDING JUSTIFICATION FOR THE USE OF A PLANNED UNIT DEVELOPMENT PER ARTICLE 35.30.00 (C) OF THE ZONING ORDINANCE.

18. **SIGNATURE OF THE PROPERTY OWNER:**   
BY THIS SIGNATURE, THE PROPERTY OWNER AUTHORIZES PLACEMENT OF A SIGN ON THE PROPERTY TO INFORM THE PUBLIC AS TO THIS REQUEST FOR PLANNED UNIT DEVELOPMENT.

17. **SIGNATURE OF THE APPLICANT:**  U.P. DEVELOPMENT  
JOSEPH FREED AND ASSOC.

THE APPLICANT HEREBY ACKNOWLEDGES THAT ALL PLANNING CONSULTANT FEES RELATING TO THIS APPLICATION SHALL BE DIRECTLY BILLABLE TO SAID APPLICANT.

\_\_\_\_\_  
SIGNATURE OF THE APPLICANT

# P.U.D. REQUEST CHECKLIST

REQUIRED    PROVIDED

- |                                     |                                     |   |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | PROPOSED USE(S) OF THE PROPERTY.  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | PROPOSED BUILDING(S) TO BE CONSTRUCTED.   |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | PROOF OF SINGLE OWNERSHIP OR CONTROL OF DEVELOPMENT SITE.   |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | RESPONSE TO UNIFORMITY OF ANALYSIS.   |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | A CERTIFIED BOUNDARY SURVEY WHICH INCLUDES A LEGAL DESCRIPTION AND A SCALED DRAWING, PREPARED BY A LICENSED LAND SURVEYOR. THE LEGAL DESCRIPTION OF ACREAGE PARCELS SHALL BE TIED TO A SECTION CORNER.  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | A LOCATION MAP INDICATING THE SUBJECT PROPERTY AND THE ZONING AND USES OF THE ABUTTING AND/OR ADJACENT PROPERTIES.  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | STATEMENT BY THE APPLICANT PROVIDING JUSTIFICATION FOR THE USE OF A PLANNED UNIT DEVELOPMENT PER ARTICLE 35.30.00 (C) OF THE ZONING ORDINANCE.  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | NARRATIVE PROVIDING A DETAILED DESCRIPTION OF THE PROPOSED PLANNED UNIT DEVELOPMENT.  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | NINE (9) FOLDED COPIES OF A PROPOSED SITE PLAN PREPARED AND SEALED BY A MICHIGAN REGISTERED ARCHITECT, ENGINEER, OR LANDSCAPE ARCHITECT INDICATING THE INTENDED USES OF THE SUBJECT PROPERTY AND CONTAINING THE INFORMATION, STATISTICS, AND DRAWINGS INDICATED IN THE TROY ZONING ORDINANCE. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | EIGHT (8) COPIES OF THE ARCHITECTURAL ELEVATIONS, LANDSCAPE PLANS, LIGHTING PLANS, AND PEDESTRIAN PLAN.   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | TWELVE (12) COPIES OF AN ENVIRONMENTAL IMPACT STATEMENT WHEN REQUIRED BY THE PROVISIONS OF ARTICLE VII OF THE TROY ZONING ORDINANCE.  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | A PRELIMINARY TREE PRESERVATION PLAN / TREE INVENTORY (OR WAIVER BY THE CITY OF TROY PARKS & RECREATION DEPT.)  |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | A WETLANDS DETERMINATION.   |
| <input type="checkbox"/>            | <input type="checkbox"/>            | NOTIFICATIONS TO THE MICHIGAN DEPARTMENT ENVIRONMENTAL QUALITY, FEDERAL AVIATION ADMINISTRATION, THE MICHIGAN AERONAUTICS COMMISSION AND SIMILAR AGENCIES WHICH MAY OR/MAY NOT HAVE JURISDICTION OVER THIS PROJECT.   |

## NOTICE TO APPLICANT

**Public Hearing Notices regarding requests for Planned Unit Developments will be sent to property owners within 300 feet of the site involved in the request. The opinions of adjacent property owners are taken into consideration by the Planning Commission and the City Council in the course of their Public Hearings.**

**Applicants for P.U.D. Approval should provide information to adjacent property owners regarding their proposals, in advance of or in conjunction with the filing of the Application. The provision of such information will often serve to resolve concerns, and enable the Public Hearing process to proceed more efficiently.**



## **Narrative**

The Monarch Tower Homes and Villas are being proposed to be built on Big Beaver Road at Alpine in Troy, Michigan. The project encompasses the new construction of 155 condominium units in a two-tower high-rise structure and 52 villa units behind the tower structure spanning the block between Alpine Road and McClure. The tower contains 11,166 square feet of ground floor retail space and 308 indoor heated parking spaces. There are also 59 surface spaces to serve the retail and additional guest parking spaces located on the north side of the tower to serve the entire project.

### **THE PARTNERSHIP**

The project is being developed by a partnership between Joseph Freed and Associates, Tadian Homes and Whitehall Real Estate who have come together to meld their expertise to execute this project.

- Joseph Freed and Associates is taking the lead on the project and brings over 40 years as a full-service real estate development business engaged in retail, residential and mixed-use project throughout the United States. Now in its third generation, it brings to each project a deep sense of commitment and integrity. The company earned the reputation as an innovator, seeking complex real estate challenges, while working collaboratively with municipality's downtown development initiatives. Its current retail portfolio contains nearly 10 million square feet of retail space and it has delivered over 3500 residential condominium units to the market place.
- Tadian Homes has consistently been an organization of the cutting edge of residential home building practices and technology. Tadian Homes has become the fastest growing builder in Southeast Michigan and will continue to deliver homes built with the same high-quality standards and values on which Gary Tadian built the company.
- Whitehall Real Estate Interests is a full-service real estate organization committed to excellence in land acquisition, finance, development and property management services. Over the last two decades, Gary Steven Jonna has spearheaded several prominent commercial developments in Southeast Michigan.



## **THE TEAM**

The developers have assembled a world-class team to implement this project:

- **SB Architects, San Francisco, California**

Sandy and Babcock International (SBA) has built a long-standing reputation for excellence in the planning and design of large-scale multi-family residential, mixed-use, hotel, resort and vacation ownership projects. The firm's portfolio of work includes projects throughout the United States, South America, the Caribbean, the Mediterranean, Japan, China, Indonesia and the Middle East. Known for site-sensitive, contextually appropriate design, SB Architects has received over 185 awards for excellence.

- **Robert Charles Lesser and Company, LLC, Washington, D.C.**

Robert Charles Lesser (RCLCo) is the leading independent real estate advisory firm in the nation. With offices throughout the country it advises on more than 300 projects each year for national and international real estate companies, corporations, institutional investors, municipalities and financial institutions. It has developed a reputation for its ability to understand future market and demographic trends and is recognized nationally as the leading market research consultant firm for PUD's, Traditional Neighborhood Design Developments and Mixed-Use Developments.

- **Grissim Metz Andriese Associates Landscape Architects, Northville, Michigan**

Founded nearly forty-five years ago, Grissim Metz Andriese is a progressive landscape architecture and civil engineering firm. The firm is noted for its distinguished work and recognized in over 55 design awards. The Somerset Collection garnered the recognition of national, as well as, regional awards and publicity.

- **Landry + Newman Architecture, Birmingham, Michigan**

With a commitment to "hands on" involvement and local reputation for design excellence, Landry Newman will assist the project in coordinating local entitlements and code interpretation.



- **Professional Engineering Associates, Troy Michigan**

PEA has been selected as the site and civil engineers for the project whose experience encompasses a wide range of projects and experience in Troy and the Detroit area.

### **THE MONARCH TOWER HOMES**

The Monarch, as currently envisioned, would consist of ground floor retail, structured parking and 155 luxury for-sale condominiums in two towers of 12 and 23 stories respectively. Located at the base of the building, along Alpine Road and the north elevation, nine townhomes wrap around the parking structure and serve as a transition to the adjacent villa community while masking the parking structure. To the north of the tower building are 52 villa units that serve as a transition in scale of the project from the single-family neighborhood to the tower structure. The parking structure contains 308 interior, heated parking spaces for the residents.

The Tower residences will offer one bedroom, one bedroom with den and two bedroom units ranging in size from 950 square feet to 1600 square feet. The main tower floors contain only five units per floor and as the building sets back are reduced to four units per floor. Two penthouse units of approximately 3500 square feet will anchor the top of the building. At the base of the building nine street level units will afford the opportunity to create the possibility for live-work space.

With its close proximity to the Somerset Collection, the project is able to capture some of the first-class cache of the Somerset that is reflected in the architectural design. The building, designed by the acclaimed architectural firm of Sandy and Babcock International from San Francisco, incorporates brick, stone, precast and glass materials in a contemporary and elegant architectural design that will have lasting value and create an icon for the Big Beaver Corridor. The scale of the building, at 23 stories, will establish a visual center for Troy, both from a distance and from each direction along Big Beaver. A distinctive circular drive leading up to the building and a stately porte cochere will create a strong Big Beaver identity and focal point.

A mixed-use building providing multiple functions creates a more visually interesting project. The design of the building has been carefully contemplated to

# THE MONARCH PRIVATE RESIDENCES



avoid the standard practice of building structured parking independent from the principle building. The concept created at the Monarch is to meld the uses of the structure while creating attractive articulated façades and elevations on all sides by wrapping the structured parking with residential units and burying the parking within. The podium level (the roof of the parking structure located between the two towers) will contain an attractive landscaped courtyard, which will be visible from Big Beaver. Two townhouse units on the podium level will also articulate the architectural form.

The front façade, oriented along Big Beaver, will have a detailed recessed glass curtain wall framed by precast panels to add dramatic effect to the elevations. Horizontal overhangs are used to create visual breakpoints as the tower steps back and the floor plates are reduced. At the Penthouse level, the floors are recessed and the tops of the towers are treated with vertical elements to raise the eye skyward. The mechanical penthouse on the roof is screened with architectural elements.

## **RETAIL**

Having an interesting retail component in the project is an attractive amenity and effectively serves to distinguish this location to prospective purchasers. Retail uses must be considered based upon compatibility with a luxury residential standard. Uses such as a jewelry store, financial services office and café are being considered. A day spa is also a potential use that would be compatible with the club amenities while serving the public and the residents.

## **THE VILLAS AT THE MONARCH**

The Villas at The Monarch are located north of the tower and are situated between Alpine and McClure Roads. A total of 54 units will share the common entrance with the tower accessed off Alpine Road. Two large open spaces serve as landscaped courtyards and frame the front doors of the townhome units. Units facing Alpine and McClure create a strong street edge. The units are efficiently organized around auto courtyards with enough capacity to accommodate landscaping elements. Guest parking is located along the entrance road and is adjacent to the villas on the northern edge of the site. The existing vegetative growth between the villas and the single-family residence will be preserved to the greatest extent possible to maintain a green buffer. The design of the villas reflects the contemporary and urban design of the Tower utilizing brick and stone elements and carrying forth the horizontal banding used in the design of the Tower.

# THE MONARCH PRIVATE RESIDENCES



The Villas offer floor plans of 1400 and 1600 square feet containing two bedrooms. The first floor units have a duplex to the second floor master bedroom and bath. The second unit located on the second floor is all one level. Each unit will have two parking spaces within the building structure. The product is intended to attract a move-down household, empty nester and single professional Household.

## **PARKING**

All of the residential units contain internal covered parking. The parking for the tower residences is located within the parking structure internal to the building and the villa homes also have internal parking. The parking provided for each unit is a two to one ratio. The retail space will be served by 38 surface parking spaces located on the south and east sides of the building. Additional 26 guest parking spaces are located on the north side of the tower and along the access road between Alpine and McClure.

PROJECT STATISTICS						
	RETAIL	RESIDENTIAL - SUPPORT SF	RESIDENTIAL - NET SF	UNIT COUNT	PARKING GSF	PARKING COUNT
GROUND LEVEL	11,166	30,708				38
EAST TOWER		3,429	156,992	98	120,247	308
WEST TOWER		1,736	96,175	57		
VILLAS			80,100	52		104
VISITOR PARKING						26
<b>TOTAL</b>	11,166	35,873	333,267	209	120,247	476

## **MARKET ANALYSIS**

Market analysis completed by Robert Charles Lesser and Company, demonstrates a unique opportunity to develop a well-executed luxury high-rise condominium target to an underserved affluent move-down/empty nester household. There is a large base of age and income qualified households in the Troy and immediately surrounding communities that are expected to be downsizing their homes and looking to find amenity-rich, secure and maintenance-free housing. Nationally this segment of the market is expected to become the fastest growing market segment nationwide as boomers start retiring. In the Troy this segment represents approximately 25% of the market.

# THE MONARCH PRIVATE RESIDENCES



The Monarch will present an opportunity for Troy residents to choose a more traditional condominium living alternative within their community.

A second area of market concentration is a young professional and persons employed in the Troy business district that want the option to reduce their commute time.

Critical factors in the success of targeting these market segments are reflected in the design and execution of the building. To achieve the low-maintenance and rich-amenity lifestyle that this market segment desires the development has incorporated the following critical characteristics:

- Height and views. The two towers will offer a range of product offering all with spectacular views and higher floors will command premiums.
- Iconic Architecture – The Sandy and Babcock design will create an immediate and positive image in the minds of the prospective purchasers that will have lasting value.
- Proximity to office-based employment concentrations – The site is easily accessible to 11 million square feet of multi-tenant office space.
- Proximity to shopping and restaurants. The primary attribute of the site is its adjacency to the Somerset Collection and excellent Troy restaurants.
- Small number of units per floor – The two-tower configuration allows smaller floor plates with fewer doors per floor. The floors step back as the building rises to reduce the units per floor from five on the lower floors to four units per floor to two units on the Penthouse levels.
- Residential building amenities will include:
  - Private indoor deeded parking with secured access for residents.
  - Private balconies and outdoor spaces for each unit.
  - A luxury clubhouse for resident's use that includes an indoor swimming pool and locker rooms, an entertaining room with kitchenette, fitness center and a theatre room.
  - A grand residential lobby with a full glass façade cuts through the building to the entrance on the North facing the Townhomes creating a visual link through the building. Finish lobby materials will be a mix of granite, stone, glass and wood.
  - Podium level, private garden courtyard.
  - 24-hour security and concierge desk.

# THE MONARCH PRIVATE RESIDENCES



- High ceiling heights, hardwood flooring, granite countertops, large walk-in closets and luxury finishes.

## **LANDSCAPING**

The Landscape plan is being designed by Grissim Metz Andriese, an award winning landscape architectural firm noted for its excellent implementation of landscape design at the Somerset Collection. Grissim Metz has created a classically oriented plan for The Monarch that reflects some of the high-end materials used at the Somerset and is consistent with the type of green materials such as hedges and substantial street trees that will maintain the first class continuity along Big Beaver corridor.

At each corner of the block along Big Beaver at Alpine and McClure, the proposal creates a passive sitting area that creates a block long identity to Big Beaver and anchors the corners of the project. The sitting areas are surrounded by hedges, which frame ground level planting beds. At the Alpine intersection, the opportunity is expanded to create a neighborhood amenity by the addition of a small dog park that will energize the corner by drawing residents from the neighborhood and project to socialize around their pets. This element will be attractively designed to specifically accommodate pets with a fenced in area and permeable surface to cater to the pets needs. This socializing environment is found to be widely successful in enabling neighborhood residents to get to know each other through their pets by creating a quality outdoor experience. We believe that this activity will begin to establish the pedestrian atmosphere that is sought for Big Beaver in the long term.

The Big Beaver, Alpine and McClure street fronts are designed to echo the clean lines of the Big Beaver Corridor and the residential nature of the neighborhood by lining the edges of the parkways with substantial street trees. The edges of the front circular drive are defined by low hedges that frame the drive and opportunities for substantial landscaping around the perimeter of the building. The circular drive will be paved with stone pavers that create the quality look and feel of a luxury building.

The Villa open spaces are crafted to take into account a similar use of materials in the hard scape by utilizing stone pavers to accentuate the connections between the tower and the villas. The interior courtyards will be framed by landscape plantings that define each space differently. The Western courtyard is classically designed to frame the front doors and create a passive recreation

# THE MONARCH PRIVATE RESIDENCES



zone, while the Eastern courtyard is defined by an architectural element at the northern edge, creating an interesting visual statement leading into a space intended to be open and used more actively.

## **LEED CRITERIA**

The LEED (Leadership in Energy and Environmental Design) Green Building Rating System<sup>®</sup> is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. The Monarch development team has established LEED criteria for this project as an important goal in creating a cutting-edge development and setting standards for future Troy development.

The LEED certification process provides a framework for assessing the building performance on an integrated basis towards meeting sustainability goals. A wide range of sustainability technologies are being evaluated including a green roof system on the podium level, as well as, other strategies that will effect water savings, energy efficiency, materials selection and indoor environmental quality. SB Architects is a LEED certified architect and the other team members are knowledgeable about LEED state-of-the-art strategies for sustainable development and green building.

**ROBERT CHARLES LESSER & CO., LLC**

---

**DEMOGRAPHIC/ECONOMIC REPORT  
FOR THE MONARCH CONDOMINIUM  
TROY, MICHIGAN**

*Prepared for:*

**JOSEPH FREED AND ASSOCIATES, LLC**

**December 13, 2004**

# **JOSEPH FREED AND ASSOCIATES, LLC**

---

## **DEMOGRAPHIC/ECONOMIC OVERVIEW**

The Primary Market Area (PMA) is the area from which the subject property will draw the bulk of its prospects. The PMA for the subject property was determined by analyzing the concentrations of age and income qualified households, historical residential patterns in the marketplace, and qualitative information with regard to origin of prospects and buyers at comparable projects. Based on this analysis, the PMA for the subject property has been defined to include Troy, Rochester, Rochester Hills, Auburn Hills, Royal Oak, Birmingham, Bloomfield, Bloomfield Hills, and Pontiac. The Secondary Market Area (SMA) is the area from which the subject property may draw some additional prospects. For the purposes of this analysis, the SMA has been defined as the balance of Oakland County.

The primary target market for luxury high-rise condominiums at the site will consist of affluent empty nesters and move down households. These are households with head of householder between the ages of 45 and 74 and annual household incomes of \$75,000 or more. A number of these households will likely have second (or possibly third) home elsewhere in the country and may split their time between Detroit and their other homes.

A key secondary target market for condominiums at the site are mature DINK (dual-income, no kids) households, or "never nesters." These are households with head of householder generally between 25 and 44 and annual household income of \$75,000 or more. These households are younger and have somewhat less purchasing power by virtue of the fact that while their incomes may be similar to the empty nesters, they lack the home equity to afford the priciest units. Although a significant number of these households are looking for a single-family detached home, there is an opportunity to attract those households that want the condominium lifestyle but are not interested in an "edgy" location like Royal Oak (see below).

Based on interviews with local real estate professionals and other anecdotal evidence, a third potential market is from international workers who are associated with the automotive industry. These individuals are often in the area for several years and expect to travel back and forth between Detroit and their home country with some frequency. They value the security offered by luxury condominiums. They may be individuals or families, depending on their personal circumstances. While it is difficult to quantify the size of this market, we believe that employees of certain foreign owned automotive companies, their subsidiaries and suppliers, could be a productive source of prospective purchasers.

There is a high concentration of age and income qualified households in the PMA. There are currently over 41,000 households that meet the primary target market definition (head of householder 45-74 with household income of \$75,000+). These households represent 27% of the

# **JOSEPH FREED AND ASSOCIATES, LLC**

---

total households in the PMA and are projected to be one of the fastest growing segments over the next five years. In fact, between 2003 and 2008, these primary target market households are projected to grow at a rate four times faster than total households in the PMA (5% annual growth for primary target market households vs. 1% annual growth for total households). By 2008, primary target market households will increase by 2,100 net new households each year, reaching an estimated 51,700 households, or 33% of total households in the PMA.

In addition, in 2003 there were an estimated 83,500 primary target market households (again, head of householder 45-74 with household income of \$75,000+) in the SMA, representing 25% of the total household base. Primary target market households are expected to grow at an even faster pace in the SMA, increasing by 5,700 net new households on an average annual basis, which represents a 7% annual growth rate. This is compared with total households, which are expected to grow at a 1% annual growth rate. By 2008, these primary target market households will reach 112,000, or 32% of total households in the SMA.

There are relatively fewer secondary target market households (head of householder 25-44 with annual household incomes of \$75,000 or more) in both the PMA and SMA, but these households do represent a potential market for the subject property. In 2003, there were an estimated 27,500 such households in the PMA, representing 18% of total households. There are an additional 63,000 secondary target market households in the SMA, representing 19% of total households. These households are expected to increase relatively slowly in the PMA, adding 65 net new households per year on average between 2003 and 2008. In the SMA, these households will increase by an estimated 618 per year.

From a demographic standpoint, there is a tremendous pool of age and income qualified households in the vicinity of the subject property. Using a conservative annual turnover rate of existing primary target market households ( $41,113 * 10\% = 4,111$  per year), plus projected average annual net increases in primary target market households (2,120 per year), the subject property would have to capture only 2.5% of this annual demand pool to absorb 154 units in one year. This is a very low capture rate for a residential project, and does not even include demand emanating from primary target market households in the SMA, or secondary target market households (those in the 25 to 44 age group) in either the PMA or SMA. Nor does this capture rate include any potential demand emanating from corporate or pied-de-terre purchasers.

# JOSEPH FREED & ASSOCIATES, LLC

## Exhibit 1

### LOCATION OF SUBJECT PROPERTY



# JOSEPH FREED & ASSOCIATES, LLC

## Exhibit 2

### POPULATION AND HOUSEHOLD TRENDS PRIMARY AND SECONDARY MARKET AREAS 2000-2008

PRIMARY MARKET AREA 1/	CENSUS DATA		CLARITAS ESTIMATES	
	2000 CENSUS	2003 ESTIMATE	2003 ESTIMATE	2008 PROJECTION
<b>Population</b>	354,913	355,376	355,376	357,001
Average Annual Change	-	154	154	325
Compounded Annual Growth Rate	-	0.0%	0.0%	0.1%
<b>Households</b>	142,588	144,841	144,841	149,422
Average Annual Change	-	751	751	916
Compounded Annual Growth Rate	-	0.5%	0.5%	0.6%
<b>Average Household Income</b>	\$90,182	\$100,806	\$100,806	\$116,402
<b>Median Household Income</b>	\$64,568	\$72,713	\$72,713	\$83,379

SECONDARY MARKET AREA 2/	CENSUS DATA		CLARITAS ESTIMATES	
	2000 CENSUS	2003 ESTIMATE	2003 ESTIMATE	2008 PROJECTION
<b>Population</b>	839,243	849,360	849,360	858,794
Average Annual Change	-	3,372	3,372	1,887
Compounded Annual Growth Rate	-	0.4%	0.4%	0.2%
<b>Households</b>	328,527	340,216	340,216	361,535
Average Annual Change	-	3,896	3,896	4,264
Compounded Annual Growth Rate	-	1.2%	1.2%	1.2%
<b>Average Household Income</b>	\$81,926	\$89,969	\$89,969	\$99,740
<b>Median Household Income</b>	\$62,867	\$67,352	\$67,352	\$73,482

1/ The Primary Market Area consists of Troy, Rochester, Rochester Hills, Auburn Hills, Pontiac, Royal Oak, Birmingham, Bloomfield, and Bloomfield Hills

2/ The Secondary Market Area consists of the rest of Oakland County, Michigan not included in the PMA.

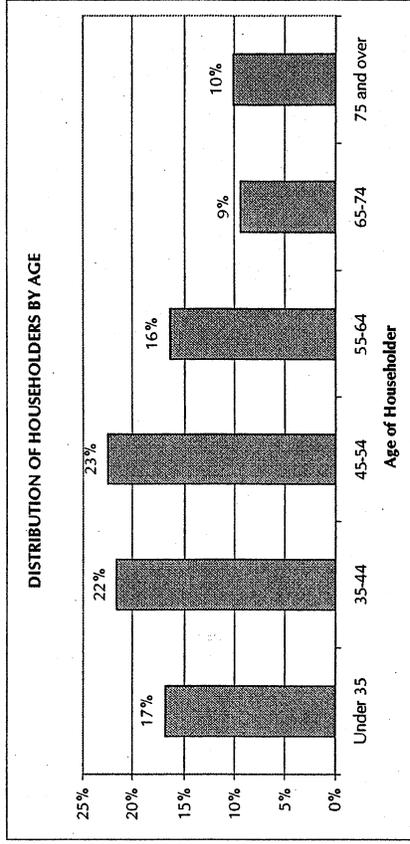
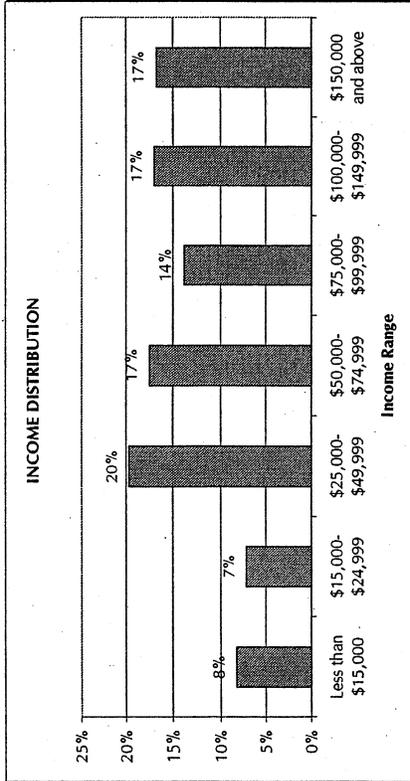
SOURCE: Claritas; RCLCO

# JOSEPH FREED & ASSOCIATES, LLC

## Exhibit 3

### 2003 HOUSEHOLDS BY AGE AND INCOME PRIMARY MARKET AREA

Income Range	Under 25		25-34		35-44		45-54		55-64		65-74		75 and over		TOTAL	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Less than \$15,000	1,240	24%	1,860	7%	1,923	6%	1,514	4%	1,415	6%	1,598	11%	3,005	19%	12,555	8%
\$15,000 - \$24,999	723	14%	1,772	7%	1,591	5%	1,106	3%	1,232	5%	1,550	11%	2,898	19%	10,872	7%
\$25,000 - \$34,999	809	16%	2,186	9%	2,127	6%	1,617	5%	1,534	6%	1,500	10%	2,175	14%	11,948	8%
\$35,000 - \$49,999	910	18%	4,036	16%	3,409	10%	3,236	9%	2,263	9%	2,159	15%	2,040	13%	18,053	12%
\$50,000 - \$74,999	852	17%	5,872	23%	6,036	18%	5,390	16%	3,661	15%	2,588	18%	2,185	14%	26,584	17%
\$75,000 - \$99,999	284	6%	4,168	16%	5,299	16%	5,183	15%	3,291	13%	1,650	11%	1,210	8%	21,085	14%
\$100,000 - \$124,999	155	3%	2,476	10%	4,222	13%	4,161	12%	2,710	11%	1,020	7%	738	5%	15,482	10%
\$125,000 - \$149,999	58	1%	1,351	5%	2,675	8%	3,075	9%	2,265	9%	617	4%	277	2%	10,318	7%
\$150,000 - \$199,999	34	1%	1,021	4%	2,404	7%	3,556	10%	2,469	10%	639	4%	338	2%	10,461	7%
\$200,000 and above	26	1%	737	3%	3,178	10%	5,456	16%	3,972	16%	1,049	7%	571	4%	14,989	10%
<b>TOTAL</b>	<b>5,091</b>	<b>100%</b>	<b>25,479</b>	<b>100%</b>	<b>32,864</b>	<b>100%</b>	<b>34,294</b>	<b>100%</b>	<b>24,812</b>	<b>100%</b>	<b>14,370</b>	<b>100%</b>	<b>15,437</b>	<b>100%</b>	<b>152,347</b>	<b>100%</b>
<b>Percent of Total</b>	<b>3%</b>		<b>17%</b>		<b>22%</b>		<b>23%</b>		<b>16%</b>		<b>9%</b>		<b>10%</b>		<b>100%</b>	
<b>Median Income</b>	<b>\$32,918</b>		<b>\$62,285</b>		<b>\$81,351</b>		<b>\$95,662</b>		<b>\$92,478</b>		<b>\$53,655</b>		<b>\$33,346</b>			



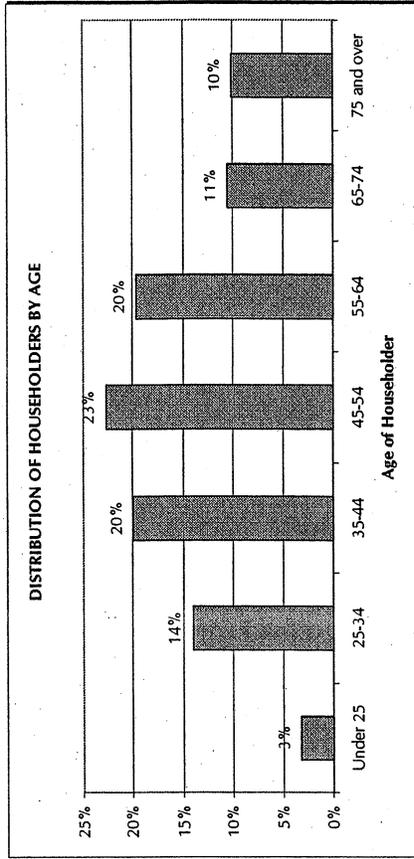
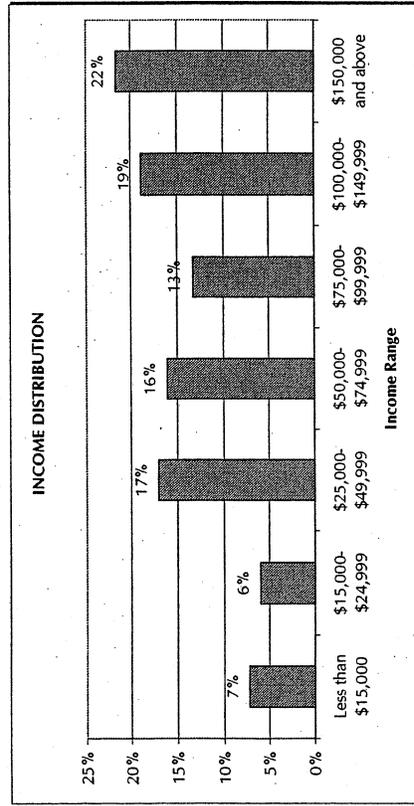
SOURCE: Claritas; RCLCO

# JOSEPH FREED & ASSOCIATES, LLC

## Exhibit 4

### 2008 HOUSEHOLDS BY AGE AND INCOME PRIMARY MARKET AREA

Income Range	Under 25		25-34		35-44		45-54		55-64		65-74		75 and over		TOTAL		Primary Secondary		Total			
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	45-74	25-44	25-74	25-74		
Less than \$15,000	1,047	21%	1,496	7%	1,835	6%	1,422	4%	1,515	5%	1,409	8%	2,497	16%	11,221	7%						
\$15,000 - \$24,999	612	12%	1,260	6%	1,448	5%	1,012	3%	1,226	4%	1,344	8%	2,495	16%	9,397	6%						
\$25,000 - \$34,999	657	13%	1,610	7%	1,864	6%	1,333	4%	1,502	5%	1,373	8%	2,198	14%	10,537	7%						
\$35,000 - \$49,999	882	18%	2,855	13%	3,112	10%	2,877	8%	2,262	7%	2,176	13%	2,070	13%	16,234	10%						
\$50,000 - \$74,999	969	19%	4,560	21%	5,586	18%	5,190	15%	3,907	13%	2,823	17%	2,230	14%	25,265	16%						
\$75,000 - \$99,999	389	8%	3,587	16%	4,834	15%	4,905	14%	3,852	13%	2,072	12%	1,366	9%	21,005	13%	10,829	8,421	19,250			
\$100,000 - \$124,999	229	5%	2,561	12%	3,950	13%	4,357	12%	3,337	11%	1,545	9%	982	6%	16,961	11%	9,239	6,511	15,750			
\$125,000 - \$149,999	121	2%	1,636	7%	2,895	9%	3,508	10%	2,828	9%	1,063	6%	636	4%	12,687	8%	7,399	4,531	11,930			
\$150,000 - \$199,999	54	1%	1,385	6%	2,602	8%	4,135	12%	3,704	12%	1,036	6%	474	3%	13,390	9%	8,875	3,987	12,862			
\$200,000 and above	56	1%	1,219	5%	3,188	10%	6,995	20%	6,615	22%	1,763	11%	904	6%	20,740	13%	15,373	4,407	19,780			
<b>TOTAL</b>	5,016	100%	22,169	100%	31,314	100%	35,734	100%	30,748	100%	16,604	100%	15,852	100%	157,437	100%	51,715	27,857	79,572			
<b>Percent of Total</b>	3%		14%		20%		23%		20%		11%		10%		100%		33%	18%	51%			
<b>Median Income</b>	\$38,270		\$71,180		\$84,372		\$106,474		\$108,317		\$67,710		\$40,334									



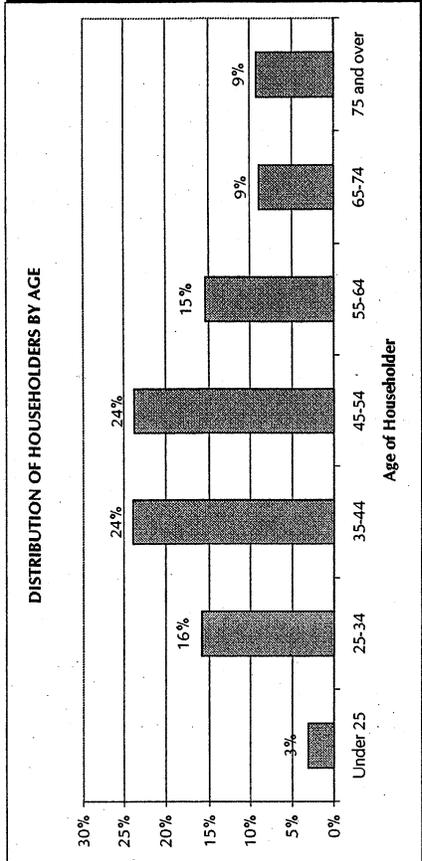
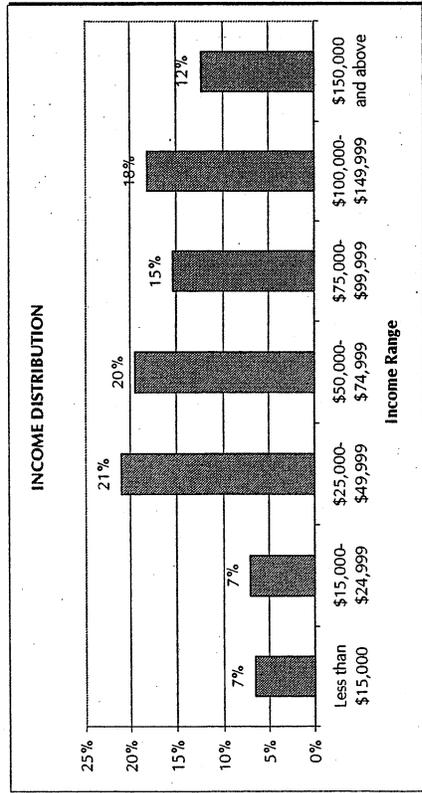
SOURCE: Claritas; RCLCO

# JOSEPH FREED & ASSOCIATES, LLC

## Exhibit 5

### 2003 HOUSEHOLDS BY AGE AND INCOME BALANCE OF OAKLAND COUNTY, MI

Income Range	Under 25		25-34		35-44		45-54		55-64		65-74		75 and over		TOTAL		Primary Secondary		Total			
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Less than \$15,000	1,894	19%	2,577	5%	2,586	3%	2,717	3%	2,591	5%	3,205	11%	6,208	20%	21,778	7%	24,675	23,683	48,358			
\$15,000 - \$24,999	1,486	15%	3,060	6%	3,261	4%	2,853	4%	2,811	5%	3,772	13%	6,204	20%	23,447	7%	19,220	16,186	35,406			
\$25,000 - \$34,999	1,635	16%	4,496	9%	4,947	6%	3,736	5%	3,677	7%	3,845	13%	4,216	14%	26,552	8%	13,465	9,347	22,812			
\$35,000 - \$49,999	1,767	17%	8,738	17%	9,732	12%	7,815	10%	5,466	11%	5,021	17%	4,904	16%	43,443	13%	12,376	7,125	19,501			
\$50,000 - \$74,999	2,097	21%	13,521	26%	16,287	21%	14,110	18%	9,156	18%	5,647	19%	4,068	13%	64,886	20%	13,730	6,612	20,342			
\$75,000 - \$99,999	703	7%	9,200	17%	14,483	18%	13,540	17%	8,105	16%	3,030	10%	1,972	6%	51,033	15%	83,466	62,953	146,419			
\$100,000 - \$124,999	261	3%	5,547	10%	10,639	13%	10,937	14%	6,456	13%	1,827	6%	1,114	4%	36,781	11%	19,220	16,186	35,406			
\$125,000 - \$149,999	118	1%	2,690	5%	6,657	8%	8,098	10%	4,393	9%	974	3%	615	2%	23,545	7%	13,465	9,347	22,812			
\$150,000 - \$199,999	89	1%	1,761	3%	5,364	7%	7,276	9%	4,051	8%	1,049	4%	547	2%	20,137	6%	12,376	7,125	19,501			
\$200,000 and above	87	1%	1,272	2%	5,340	7%	7,700	10%	4,788	9%	1,242	4%	679	2%	21,108	6%	13,730	6,612	20,342			
<b>TOTAL</b>	<b>10,137</b>	<b>100%</b>	<b>52,862</b>	<b>100%</b>	<b>79,296</b>	<b>100%</b>	<b>78,782</b>	<b>100%</b>	<b>51,494</b>	<b>100%</b>	<b>29,612</b>	<b>100%</b>	<b>30,527</b>	<b>100%</b>	<b>332,710</b>	<b>100%</b>	<b>83,466</b>	<b>62,953</b>	<b>146,419</b>			
<b>Percent of Total</b>	<b>3%</b>	<b>16%</b>	<b>24%</b>	<b>24%</b>	<b>15%</b>	<b>9%</b>	<b>9%</b>	<b>9%</b>	<b>15%</b>	<b>9%</b>	<b>9%</b>	<b>9%</b>	<b>9%</b>	<b>100%</b>	<b>100%</b>	<b>25%</b>	<b>19%</b>	<b>44%</b>				
<b>Median Income</b>	<b>\$34,290</b>	<b>\$63,466</b>	<b>\$80,284</b>	<b>\$91,616</b>	<b>\$48,622</b>	<b>\$32,123</b>																



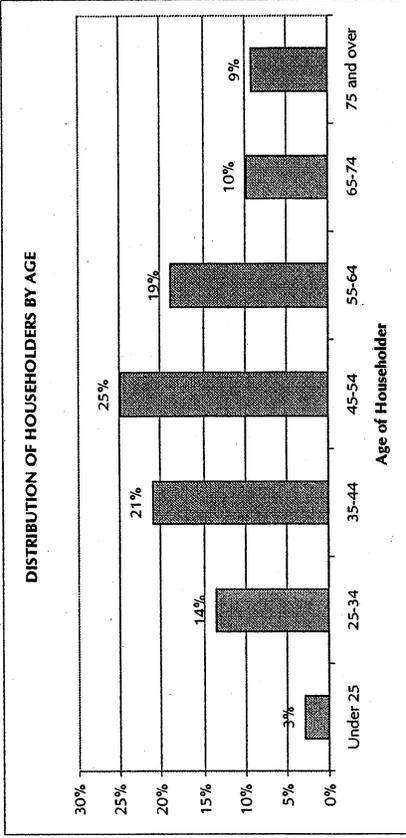
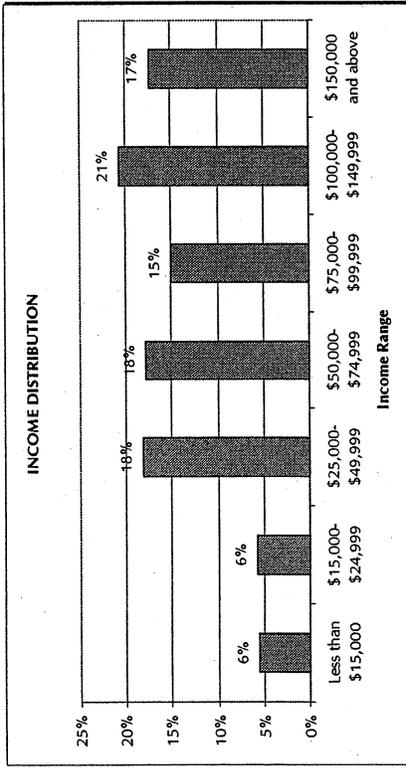
SOURCE: Claritas; RCLCO

# JOSEPH FREED & ASSOCIATES, LLC

## Exhibit 6

### 2008 HOUSEHOLDS BY AGE AND INCOME BALANCE OF OAKLAND COUNTY, MI

Income Range	Under 25		25-34		35-44		45-54		55-64		65-74		75 and over		TOTAL		Primary 45-74		Secondary 25-44		Total 25-74		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
Less than \$15,000	1,682	17%	2,081	4%	2,271	3%	2,594	3%	2,752	4%	2,806	8%	5,344	16%	19,530	6%	28,004	21,366	49,370				
\$15,000 - \$24,999	1,207	12%	2,104	4%	2,658	4%	2,575	3%	2,802	4%	3,362	10%	5,531	17%	20,239	6%	23,855	16,185	40,040				
\$25,000 - \$34,999	1,327	13%	3,204	7%	3,919	5%	3,476	4%	3,688	6%	3,881	11%	4,710	15%	24,205	7%	18,664	11,060	29,724				
\$35,000 - \$49,999	1,717	17%	6,351	13%	8,143	11%	6,845	8%	6,165	9%	5,399	16%	5,142	16%	39,762	11%	19,219	9,163	28,382				
\$50,000 - \$74,999	2,241	22%	11,101	23%	14,121	19%	13,654	16%	10,167	15%	6,676	19%	4,850	15%	62,810	18%	22,317	8,268	30,585				
\$75,000 - \$99,999	1,022	10%	8,538	18%	12,828	17%	13,968	16%	9,846	15%	4,190	12%	2,492	8%	52,884	15%	11,059	32%	66,042	19%	178,101		
\$100,000 - \$124,999	469	5%	5,985	12%	10,200	14%	12,365	14%	8,688	13%	2,802	8%	1,552	5%	42,061	12%	18,664	11,060	29,724				
\$125,000 - \$149,999	209	2%	3,767	8%	7,293	10%	10,024	11%	6,875	10%	1,765	5%	928	3%	30,861	9%	18,664	11,060	29,724				
\$150,000 - \$199,999	154	2%	2,705	6%	6,458	9%	10,655	12%	6,977	11%	1,587	5%	859	3%	29,395	8%	19,219	9,163	28,382				
\$200,000 and above	158	2%	2,136	4%	6,132	8%	11,796	13%	8,360	13%	2,161	6%	1,030	3%	31,773	9%	22,317	8,268	30,585				
<b>TOTAL</b>	10,186	100%	47,972	100%	74,023	100%	87,952	100%	66,320	100%	34,629	100%	32,438	100%	353,520	100%	112,059	66,042	178,101				
<b>Percent of Total</b>	3%		14%		21%		25%		19%		10%		9%		100%		32%	19%	50%				
<b>Median Income</b>	\$41,170		\$72,523		\$85,915		\$102,979		\$97,900		\$60,176		\$37,850										



SOURCE: Claritas, RCLCo



# Version 2.1 Registered Project Checklist

The Monarch  
Troy, MI

Yes ? No

## 4 6 4 Sustainable Sites 14 Points

Y			Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	Required
Y			Credit 1	<b>Site Selection</b>	1
	?		Credit 2	<b>Development Density</b>	1
		N	Credit 3	<b>Brownfield Redevelopment</b>	1
	?		Credit 4.1	<b>Alternative Transportation, Public Transportation Access</b>	1
	?		Credit 4.2	<b>Alternative Transportation, Bicycle Storage &amp; Changing Rooms</b>	1
		N	Credit 4.3	<b>Alternative Transportation, Alternative Fuel Vehicles</b>	1
		N	Credit 4.4	<b>Alternative Transportation, Parking Capacity and Carpooling</b>	1
	?		Credit 5.1	<b>Reduced Site Disturbance, Protect or Restore Open Space</b>	1
		N	Credit 5.2	<b>Reduced Site Disturbance, Development Footprint</b>	1
	?		Credit 6.1	<b>Stormwater Management, Rate and Quantity</b>	1
	?		Credit 6.2	<b>Stormwater Management, Treatment</b>	1
Y			Credit 7.1	<b>Landscape &amp; Exterior Design to Reduce Heat Islands, Non-Roof</b>	1
Y			Credit 7.2	<b>Landscape &amp; Exterior Design to Reduce Heat Islands, Roof</b>	1
Y			Credit 8	<b>Light Pollution Reduction</b>	1

Yes ? No

## 1 2 2 Water Efficiency 5 Points

Y			Credit 1.1	<b>Water Efficient Landscaping, Reduce by 50%</b>	1
		N	Credit 1.2	<b>Water Efficient Landscaping, No Potable Use or No Irrigation</b>	1
		N	Credit 2	<b>Innovative Wastewater Technologies</b>	1
	?		Credit 3.1	<b>Water Use Reduction, 20% Reduction (Low Flow toilets)</b>	1
	?		Credit 3.2	<b>Water Use Reduction, 30% Reduction (Low Flow appliances)</b>	1

Yes ? No

## 4 4 Energy & Atmosphere 17 Points

Y			Prereq 1	<b>Fundamental Building Systems Commissioning</b>	Required
Y			Prereq 2	<b>Minimum Energy Performance</b>	Required
Y			Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>	Required
Y			Credit 1	<b>Optimize Energy Performance</b>	1 to 10
		N	Credit 2.1	<b>Renewable Energy, 5%</b>	1
		N	Credit 2.2	<b>Renewable Energy, 10%</b>	1
		N	Credit 2.3	<b>Renewable Energy, 20%</b>	1
Y			Credit 3	<b>Additional Commissioning</b>	1
Y			Credit 4	<b>Ozone Depletion (HVAC System; MECH?)</b>	1
Y			Credit 5	<b>Measurement &amp; Verification</b>	1
		N	Credit 6	<b>Green Power (Offer as HOA tenant option; If available in MI)</b>	1

Yes ? No

**6 4 3 Materials & Resources 13 Points**

Y			Prereq 1	<b>Storage &amp; Collection of Recyclables (TRASH ROOM)</b>	Required	
		N	Credit 1.1	<b>Building Reuse, Maintain 75% of Existing Shell</b>		1
		N	Credit 1.2	<b>Building Reuse, Maintain 100% of Shell</b>		1
		N	Credit 1.3	<b>Building Reuse, Maintain 100% Shell &amp; 50% Non-Shell</b>		1
Y			Credit 2.1	<b>Construction Waste Management, Divert 50% (REQ'S GC TO PRVD BIN)</b>		1
	?		Credit 2.2	<b>Construction Waste Management, Divert 75%</b>		1
Y			Credit 3.1	<b>Resource Reuse, Specify 5%</b>		1
	?		Credit 3.2	<b>Resource Reuse, Specify 10%</b>		1
Y			Credit 4.1	<b>Recycled Content, Specify 5% (post-consumer + 1/2 post-industrial)</b>		1
	?		Credit 4.2	<b>Recycled Content, Specify 10% (post-consumer + 1/2 post-industrial)</b>		1
Y			Credit 5.1	<b>Local/Regional Materials, 20% Manufactured Locally (500 MILES)</b>		1
Y			Credit 5.2	<b>Local/Regional Materials, of 20% Above, 50% Harvested Locally</b>		1
	?		Credit 6	<b>Rapidly Renewable Materials (FLOORING ?)</b>		1
Y			Credit 7	<b>Certified Wood</b>		1

Yes ? No

**12 3 Indoor Environmental Quality 15 Points**

Y			Prereq 1	<b>Minimum IAQ Performance</b>	Required	
Y			Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	Required	
Y			Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>		1
Y			Credit 2	<b>Ventilation Effectiveness</b>		1
Y			Credit 3.1	<b>Construction IAQ Management Plan, During Construction</b>		1
Y			Credit 3.2	<b>Construction IAQ Management Plan, Before Occupancy</b>		1
Y			Credit 4.1	<b>Low-Emitting Materials, Adhesives &amp; Sealants</b>		1
Y			Credit 4.2	<b>Low-Emitting Materials, Paints</b>		1
Y			Credit 4.3	<b>Low-Emitting Materials, Carpet</b>		1
Y			Credit 4.4	<b>Low-Emitting Materials, Composite Wood &amp; Agrifiber</b>		1
Y			Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control (PRESSURIZED LOBBY)</b>		1
Y			Credit 6.1	<b>Controllability of Systems, Perimeter (UNIT CONTROL)</b>		1
	?		Credit 6.2	<b>Controllability of Systems, Non-Perimeter (ZONES PER UNIT ?)</b>		1
Y			Credit 7.1	<b>Thermal Comfort, Comply with ASHRAE 55-1992</b>		1
Y			Credit 7.2	<b>Thermal Comfort, Permanent Monitoring System</b>		1
	?		Credit 8.1	<b>Daylight &amp; Views, Daylight 75% of Spaces</b>		1
	?		Credit 8.2	<b>Daylight &amp; Views, Views for 90% of Spaces</b>		1

Yes ? No

**3 2 Innovation & Design Process 5 Points**

Y			Credit 1.1	<b>Innovation in Design: Provide Specific Title (ACOUSTICAL ASMBLY)</b>		1
Y			Credit 1.2	<b>Innovation in Design: Provide Specific Title (COMMUNITY "GIVE BACK")</b>		1
	?		Credit 1.3	<b>Innovation in Design: Provide Specific Title (PUBLIC ART ?)</b>		1
	?		Credit 1.4	<b>Innovation in Design: Provide Specific Title</b>		1
Y			Credit 2	<b>LEED™ Accredited Professional</b>		1

Yes ? No

**30 17 13 Project Totals (pre-certification estimates) 69 Points**

Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-69 points

## Property Identification

Parcel ID	Description	Address
88-20-20-402-018	SEC20 Muer's Garden Farms Lot 94	3088 Alpine
88-20-20-403-032	SEC20 Muer's Garden Farms Lot 124	3085 McClure
88-20-20-404-036	SEC20 Muer's Garden Farms Lot 90	2080 Big Beaver
88-20-20-405-042	SEC20 Muer's Garden Farms Lot 92	2080 Big Beaver
88-20-20-406-047	SEC20 Muer's Garden Farms Lot 91	2080 Big Beaver
88-20-20-407-048	SEC20 Muer's Garden Farms Parts of Lots 91,92 & 93	2080 Big Beaver
88-20-20-408-031	SEC20 Muer's Garden Farms Lot 123	3113 McClure
88-20-20-409-017	SEC20 Muer's Garden Farms Lot 95	3108 Alpine
88-99-00-301-340	Personal Property	

COMMITMENT FOR TITLE INSURANCE

**Lawyers Title  
Insurance Corporation**

AGREEMENT #1

COMMITMENT NO. 153111 LTC

Revised on July 28, 2004 at 3:34:49 PM  
EFFECTIVE DATE: June 27, 2004 at 8:00 AM

**FORM OF POLICY TO BE ISSUED:**  
A.L.T.A. OWNERS POLICY

Amount \$

A.L.T.A. MORTGAGE POLICY  
(without exceptions)

Amount To Be Determined

**PARTY TO BE INSURED:**  
(Owner's Policy)

To Be Determined

**PARTY TO BE INSURED:**  
(Mortgage Policy)

TO BE DETERMINED

**DESCRIPTION OF REAL ESTATE**

Situated in City of Troy, County of Oakland, State of Michigan:

SEE ATTACHED RIDER A FOR LEGAL DESCRIPTION

**OWNER, ENCUMBRANCES, EXCEPTIONS TO TITLE, UNPAID TAXES  
AND REQUIREMENTS FOR ISSUANCE OF POLICY**

1. OWNER: Big Beaver Office, L.L.C.

Lawyers Title Insurance Corporation  
8359 Office Park Drive  
Grand Blanc MI 48439  
(810) 695-3400

dg

*Deborah M. Barbours*

Authorized Officer or Agent

This commitment is invalid unless the Insuring Provisions and Schedules A & B are attached.  
Form No. 91-88 (SCH. A) 035-1-038-001/5  
Schedule A-Page 1

SEE ATTACHED SCHEDULE B FOR CONTINUATION

COMMITMENT NO. 153111 LTC

Revised on July 28, 2004 at 3:34:49 PM

RIDER A

Parcel 1 - Lot 91, except the South 42 feet thereof and the East 26 feet of the North 140 feet of the South 182 feet of Lot 92 and Lot 93, except the North 91 feet of the West 120 feet thereof, Muer's Garden Farms, a subdivision, as recorded in Liber 15, page 45 of Plats, Oakland County Records.

PARCEL 2 - Lot 90, except the South 42 feet thereof, Muer's Garden Farms, a subdivision as recorded in Liber 15, page 45 of Plats, Oakland County Records.

PARCEL 3 - Lot 92, except the South 42 feet and also except the East 26 feet of the North 140 feet of the South 182 feet thereof, Muer's Garden Farms Subdivision, as recorded in Liber 15, page 45 of Plats, Oakland County Records.

PARCEL 4 - The North 91 feet of the West 120 feet of Lot 93, Muer's Garden Farms Subdivision, as recorded in Liber 15, page 45 of Plats, Oakland County Records.

Countersigned:  
dg

*Deborah M. Barkley*

Authorized Officer or Agent

This commitment is invalid unless the Insuring Provisions and Schedules A & B are attached.  
Rider A-Page 1



REAL ESTATE PURCHASE AGREEMENT

THIS REAL ESTATE PURCHASE AGREEMENT ("Agreement") is dated as of August 31, 2004 by and between Diane & David Ries, 3113 McClure, Troy, Mi. 48084, ("Seller") and Tadian Homes LLC, 210 Town Center Drive, Troy, Mi. 48084 ("Purchaser").

IN CONSIDERATION of the respective agreements hereinafter set forth, Seller and Purchaser agree as follows:

**1. Property Included in Sale.** Seller hereby agrees to sell and convey to Purchaser and Purchaser hereby agrees to purchase from Seller, subject to the terms and conditions set forth herein, that certain real property located in the City of Troy, County of Oakland, in the State of Michigan, more particularly described as follows:

Commonly Known As: 20-20-402-031 aka 3113 McClure

A complete legal description of the Property shall be attached to this Agreement as an exhibit when the Title commitment is issued.

**2. Purchase Price.** The Purchase Price of the Property is (\$ ) Dollars. The Purchase Price shall be paid by certified check or by wire transfer to the account of Seller at Closing.

**3. Deposit.** On or before five (5) business days after the Effective Date, Buyer shall deposit Twenty Five Thousand (\$25,000.00) dollars with Lawyers Title Company, 1050 Wilshire Drive #310, Troy, Michigan, 48084 (Title Company) in accordance with an escrow agreement in form mutually acceptable to the parties hereto, as a deposit (the Deposit) which will be held by the Title Company in accordance with the terms of this Agreement and such escrow agreement. The deposit shall be fully refundable during the Inspection Period. However, in the event Purchaser satisfies its Conditions of Closing and fails to close, the Deposit shall be retained by Seller as liquidated damages in full satisfaction of this Agreement.

**4. Title to the Property.** At the Closing, Seller shall convey marketable title to the Property to Purchaser, by the usual warranty deed. Evidence of delivery of marketable and insurable fee simple title shall be issued by Lawyers Title Company, 1050 Wilshire Drive #310, Troy Michigan, 48084 ("Title Company") at Closing, a commitment for an ALTA Owner's Policy of Title Insurance, in the full amount of the Purchase Price, insuring fee simple title to the Property and Purchaser subject only to easements and restrictions of record acceptable to Purchaser and to current but unpaid taxes, shall be issued to the Purchaser.

Purchaser shall as soon as possible after executing this Agreement order a current commitment for an owner's title insurance policy on the Property issued by the Title Company, (the "Title Commitment") guaranteeing title in the condition required herein. Purchaser shall advise the Seller within Thirty (30) Days (the "Title Inspection Period") after actual receipt of the Title Commitment, what exceptions to title, if any, will be accepted by Purchaser. Seller shall have Thirty (30) Days after receipt of Purchaser's objections to remedy the title or to obtain title insurance as above required; or if Seller fails to remedy the title or obtain the title policy within the specified time, then at Closing, Purchaser may (i) elect to accept property as is or (ii) elect to terminate this Agreement. Once approved, the Title Commitment shall be extended, without change, to the date of closing.

**5. Conditions to Closing.** The following conditions are conditions precedent to Purchaser's obligation to purchase the Property:

A) Purchaser entering into binding contracts to acquire additional real estate ("Additional Acquisitions") surrounding and in the vicinity of the Property necessary to permit Purchaser's intended development, within One Hundred Eighty (180) Days from the date of the signing by both parties of this Agreement.

- B) Purchaser obtaining zoning, site plan approval and building permits with respect to the property and the Additional Acquisitions in form acceptable to Purchaser to the extent necessary for Purchaser's intended development within Fifteen (15) Months from the date of its receipt of the Title Commitment. Seller agrees that it will, at no cost to Seller, cooperate with Purchaser in obtaining the necessary Governmental Approvals, and hereby authorizes Purchaser to apply for the Governmental Approvals in its own name or in the name of Seller.
- C) In the event that Purchaser has submitted to the City of Troy, Michigan for those approvals described in Section 5B herein, but has not received a conclusive decision from the planning commission and the city council, Purchaser shall be entitled to up to six (6) thirty (30) day extensions. However, once Purchaser has received said necessary approvals, then no additional extension periods will be granted and Purchaser must make an election to close per paragraph 6 herein.
- (D) All Seller's of Additional Acquisition depositing closing documents with escrow agent per paragraph 6 herein, in the event that all Seller's have not deposited their closing documents the closing date shall be delayed by one day for every day the documents have not been deposited with the escrow agent.
- (E) In the event that Seller elects to close this transaction prior to Purchaser satisfaction of the above conditions of Paragraph 5, Purchaser agrees to waive the conditions and close within 60 days after receiving written notice from Seller of its intent to close. However, Purchaser and Seller acknowledge that Purchaser would require satisfaction of the conditions stipulated in Paragraph 4, Title, and Paragraph 9f, inspections. Purchaser shall have 30 days from Sellers notice of intent to close to complete its studies.

In the event any of the foregoing conditions is not satisfied or waived by Purchaser within the time limits set forth above, then either party may terminate this Agreement, and neither Seller nor Purchaser shall have any further rights or obligations hereunder.

**6. The Closing.** The Closing hereunder shall be held and delivery of all items to be made at the Closing under the terms and conditions of this Agreement shall occur at the offices of the title Company, on or before (i) Ninety (90) Days following the satisfaction of all of the conditions precedent set forth in Paragraph 5 above, or (ii) such other date prior thereto as Purchaser and Seller may agree to in writing (the "Closing Date"). All of Seller's closing documents shall be executed and placed in escrow at least Fifteen (15) Days prior to Closing. Seller's closing documents shall include the following: (i) the duly executed and acknowledged good and sufficient Warranty Deed; (ii) at Purchaser's option, a Real Estate Valuation Affidavit; (iii) an affidavit as required by federal law that Seller is a non-foreign entity; (iv) the Title Policy, and (v) a closing statement.

Current real property taxes shall be prorated as of 12:01 am on the Closing Date on a due date basis. Taxes due and payable for the years prior to the year of Closing shall be paid by Seller without proration. Seller shall be responsible for and shall pay all general assessments existing, with respect to the Property; and Seller shall be responsible for the payment of assessments which have not yet been entered onto the tax rolls, but for which work or improvements have commenced. Taxes are to be considered as paid in advance.

At Closing: (i) Seller shall pay, all transfer taxes now existing or hereafter imposed, hereinafter described and the recording costs of any deeds or discharges necessary to vest title in Seller; and (ii) Purchaser shall pay all recording costs of the Deed and any charges imposed by Title Company for the escrow of closing documents and/or for the Closing. Purchaser to pay for Title Insurance.

**7. Condition of Property.** Purchaser acknowledges that Seller has not made any warranty or representation, expressed or implied, written or oral, concerning the Property, except that Seller

represents and warrants to Purchaser that Seller has no knowledge that any toxic or hazardous materials exist or are located in, on, about, under or affecting the Property.

**8. Possession.** Possession of the property shall be delivered to Purchaser no later than sixty (60) days after closing. In the event that Seller occupies the Property beyond 60 days after closing, Seller shall pay the sum of \$1000.00/day as damages to Purchaser.

**9. Miscellaneous:**

**a. Notices.** Any notice required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been given when deposited in the United States mail, registered or certified mail, postage prepaid, return receipt required, and addressed to Seller, or to Purchaser, ATTENTION THOMAS WARDLOW, at the address set forth on Page 1 hereof or such other address as either party may from time to time specify in writing to the other.

**b. Broker.** The Purchaser represents it has contacted no broker with respect to the Subject Property other than Solo Commercial Real Estate, Inc. of Eastpointe, Michigan. Purchaser will pay a six (6%) commission as a result of this transaction and Broker will be paid by Purchaser and that Purchaser will indemnify and hold Seller harmless from the payment of any commissions.

**SELLER ACKNOWLEDGES THAT BROKER HAS DISCLOSED THAT IT IS ACTING IN THE CAPACITY OF PURCHASER'S (BUYER'S) AGENT IN THIS TRANSACTION.**

**c. Successors and Assigns.** This Agreement shall be binding upon, and inure to the benefit of, the parties hereto and their respective heirs, administrators, successors and assigns. Purchaser reserves the right to freely assign this Agreement and/or take title to the Property in a name or assignee other than Purchaser.

**d. Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

**e. Default.** In the event of default by the Purchaser hereunder, the Seller may declare a forfeiture hereunder and terminate their agreements as Seller's sole remedy. However, Seller shall in addition receive the earnest money deposit as liquidated damages from the Purchaser. Seller acknowledges that Purchaser is acquiring the Property as part of an assemblage of property and that a default by Seller will result in significant damages to Purchaser and in the event of Seller's default, Purchaser shall have the right to enforce this Agreement by action for specific performance. In the event of default by either party, that results in litigation, the prevailing party shall be entitled to receive actual court costs and reasonable attorney fees.

**f. Inspections.** Seller hereby grants Purchaser the right to perform any tests or studies on the property that Purchaser deems necessary throughout the term of this Agreement. In the event that Seller advises Purchaser sixty days in advance of its intent to close, Purchaser shall have 30 days to complete its inspections. Any inspections shall not unreasonably interfere with existing tenants occupancy and if sale does not close, Purchaser shall restore the property to its original condition.

**g. Confidentiality, Memorandum of Agreement.** Purchaser and Seller agree that the terms and conditions of this Agreement shall be confidential and shall not be disclosed by Purchaser or Seller to any party, other than their respective attorneys, accountants, assignees and/or Purchaser's investors and any financing source, nevertheless, Purchaser, but not Seller, may record a memorandum of this Agreement or a claim of interest to the Property in the Office of the Oakland County Register of Deeds. In the event this Agreement shall terminate and the sale shall not be consummated, Purchaser

shall provide Seller with an appropriate discharge, in recordable form, of any such recorded instrument.

h. The individual executing the contract on Purchaser's behalf is licensed as a real estate broker in the State of Michigan.

i. Seller may remove anything from the Property prior to vacating.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.

"PURCHASER"

Tadian Homes LLC  
a Michigan LLC

By: \_\_\_\_\_

Its: \_\_\_\_\_

*Procleant*

"SELLER"

David Ries

Date

Diane Ries

Date

*David E. Ries 8-27-2004*

*Diane Ries 8-27-04*

**LEGEND**



AGREEMENT #1 - BIG BEAVER OFFICE, LLC.

AGREEMENT #2 - TADIAN HOMES, LLC.

AGREEMENT #3 - DAVID AND CHANE RIES





**Justification for the use of a Planned Unit Development (per Article 35.30.00(C))**

**35.30.00 Eligibility:**

In order to qualify for the Planned Unit Development option, it must be demonstrated that the following conditions will be met:

- A. The proposed development site is under a single ownership and control. The site is currently comprised of five sites that have been assembled. The tower site is under the control of Big Beaver Office, LLC, a wholly owned entity of Tadian Homes LLC. The other lots are either under contract or owned by Tadian Homes LLC. (Please refer to Parcel Map).
- B. The proposed development is located within the City Center Area, as defined in the code. The land area proposed for development consists of 8 contiguous land parcels. Three of the parcels are on Big Beaver and zoned as low-rise Office Building District (O-1), four lots extend between Alpine and McClure and are currently zoned as One-Family Residential District (R1-B) and the last lot that fronts on Alpine Road is located north of the three office lots on Big Beaver and area zoned as Vehicular Parking district (P-1). As presently zoned, high-density residential development is not allowed. The Master Plan labels this area as Low Rise Office. Given the high office vacancies in Troy, the site is not an economically viable office location. The plan, as presented, creates an economically viable option for the site and transforms a prominent location that is currently underutilized into an attractive mixed-use complex suitable for today's market conditions.
- C. The applicant must show that a sufficient number of the following objectives, which would not be accomplished without the use of the PUD are met:
  - 1) Provide development Quality objectives such as those referred to in Section 35.30.00 B-2.

Overall development quality objectives are greatly in excess of what could be developed on the site under the current zoning. The proposal calls for a mixed-use complex containing retail, residential and parking. The residential mix includes traditional condominiums and villa units. The project is targeted at a higher income market that would not be attracted to this site but for the type of building configuration, design

# THE MONARCH PRIVATE RESIDENCES



and materials as proposed in this project. The high-end luxury market calls for a design that dictates fewer units per floor and views to create the value for this buyer profile. This dictates an architectural design that results in tall slender buildings. Shorter buildings with large floor plates would only be appropriate for a middle market residential buyer who is not as concerned with exclusivity. The luxury condominium buyer also requires an amenity-rich environment, which would include a private club, fitness center, pool, heated, structured parking, and personal service. The building must also be designed with higher end building materials for both the exterior and the interior. A luxury residential development, which meets all of the requirements demanded by the market, must be built to the density of this project shown to be economically feasible.

- 2) The proposed project provides for a mix of land uses, which would otherwise not be allowed.

The mixed-use nature of the project which contains retail, parking and a variety of residential types including classic condominiums in a tower structure and low-rise villa units would not be permitted under the current zoning.

- 3) Provide a public improvement used by the public which would otherwise not be required, that would further the public health safety and welfare or protect existing or future uses from the impacts of the proposed uses.

The project will create a public improvement in a multiple of ways:

- It will create a new symbol of value and economic development on a prime Troy parcel that is currently underdeveloped. Specifically, additional revenue to the City of nearly 1.9 million is expected at full build out.
- It will contribute to the overall improvement of landscaping and streetscape along Big Beaver, Alpine Road and McClure by dramatically improving the pedestrian atmosphere.
- Offsite landscaping improvements will be made to better identify the entire block between Alpine and McClure Road. These offsite improvements include street trees along McClure Road and Big Beaver Road and well-manicured seating areas at McClure Road and Alpine and Big Beaver, including soft hedging and decorative pavers.

# THE MONARCH PRIVATE RESIDENCES



- The landscape areas and neighborhood dog park will create opportunities for neighborhood socialization, thereby connecting residents together and enabling residents to further enhance the security of their neighborhood.
- The project will become an architectural icon for the City of Troy that will be visible from each direction along Big Beaver.
- The site makes maximum use of its surface area through use of structured parking for all its residential units and subsurface stormwater detention, thereby increasing the amount of green and permeable surface area.
- The project will lead Troy in creating a structure that is sustainable and meets the LEED certification requirements.

#### 4) Alleviate traffic congestion.

A traffic study conducted for The Monarch by Parsons evaluates the traffic impacts made by the proposed project. Since the project is primarily residential and not an office use, it has a considerably lower impact than if the site continued to be utilized as an office use. As proposed, the project does not create any traffic impacts on the surrounding vehicular network.

#### 5) Provide for the appropriate redevelopment or re-use of sites that are occupied by obsolete uses.

The site is currently occupied by an out-dated two-story office building, surrounded by asphalt parking. This project would redevelop this site into a catalyst project, which will continue the world-class quality development initiated by The Somerset Collection.

#### 6) Provide a complementary variety of housing types that is in harmony with the adjacent uses.

The Monarch development offers a range of housing types and price ranges for a broad segment of Troy residents who are seeking high-quality residential living. A study undertaken by Charles Lesser and Company has extensively evaluated the depth of the market and has identified a significantly underserved market niche in the Troy region, that of an affluent move down/empty nester households. This large base of age and income qualified households is expected to be the fastest growing segment of the market over the next few years as they are preparing for

THE  
MONARCH  
PRIVATE RESIDENCES



retirement age and being propelled to sell their single family homes. There are few opportunities for this market segment to find maintenance-free, secured housing this market.

The project extends the contiguous residential neighborhood to Big Beaver and is designed to transition from the single-family neighborhood to the north with the villa units before stepping into the scale of the tower structure. The townhomes units at the base of the tower structure reinforce the neighborhood residential feeling.





## **PUBLIC BENEFIT**

The project will offer a public benefit in several ways:

- It will create a new symbol of value and economic development on a prime Troy parcel that is currently underdeveloped. Specifically, additional revenue to the City of nearly 1.9 million is expected at full build out.
- It will contribute to the overall improvement of landscaping and streetscape along Big Beaver, Alpine Road and McClure by dramatically improving the pedestrian atmosphere.
- Offsite landscaping improvements will be made to better identify the entire block between Alpine and McClure Road. These offsite improvements include ornamental pole fixtures along both McClure and Alpine from Big Beaver Road to the northernmost property line, street trees along McClure Road and Big Beaver Road and well-manicured seating areas at McClure Road and Alpine and Big Beaver, including soft hedging and decorative pavers.
- The landscape areas and neighborhood dog park will create opportunities for neighborhood socialization, thereby connecting residents together and enabling residents to further enhance the security of their neighborhood.
- The project will become an architectural icon for the City of Troy that will be visible from each direction along Big Beaver.
- The site makes maximum use of its surface area through use of structured parking for all its residential units and subsurface storm water detention, thereby increasing the amount of green and permeable surface area.
- The project is bringing forth a type of housing to the City of Troy.
- As a mixed-use development, it will create a more exciting and interactive environment within the corridor.
- Over sixty percent (60%) of the onsite parking will be housed in a structured indoor parking facility, a significant long-term improvement over the existing surface parking lot.
- The project will lead Troy in creating a structure that is sustainable and meets the LEED certification requirements.
- As a key component to the redevelopment of the Big Beaver corridor, The Monarch Residences will include one of the following (listed in order of preference):

THE  
MONARCH  
PRIVATE RESIDENCES



- Two parcels, located at 3141 McClure and 3128 Alpine, will be acquired. These parcels total approximately 1.5 acres and will be dedicated to the City as a future buffer/development area.

OR

- One parcel, located at either 3141 McClure or 3128 Alpine, will be acquired. This parcel totals approximately 0.75 acres and will be dedicated to the City as a future buffer/development area and a contribution of \$100,000 will be made to a Big Beaver Improvement Fund.

OR

- A contribution of \$200,000 will be made to a Big Beaver Improvement Fund.



## Response to Uniformity of Analysis

### Environment

- What is being done to preserve natural features and open space areas?

To the extent possible, mature trees located in areas, where a suitable preservation program can be achieved, will be preserved. A prominent line of trees creating a buffer between the single family neighborhood to the north and the proposed townhomes will be preserved to maintain a natural, green buffer zone. The attached Tree Preservation Plan identifies trees that are marked for preservation and trees that will be investigated for potential relocation on the site. Otherwise, there are no other natural features or quality open space areas worth preserving on the site. Protection of the trees during construction will occur.

The landscape plan makes maximum use of open space by providing all residential parking within the structure and limiting a small amount of surface parking. The site of 5.85 acres contains 1.55 acres of landscaped area. In addition, podium level of the tower structure contains significant green areas in the form of an open landscaped plaza and green roof. Please refer to the attached landscape plan prepared by Grissm Metz.

- Is any area being designated as a conservation easement?

The site does not possess any natural areas that would be appropriate for designation as a conservation easement.

- Is any blight to be eradicated?

The existing 2-story office building on the site is considered obsolete. The balance of the site is vacant mostly consisting of worn asphalt paving. Given the location of the site along the Big Beaver corridor and adjacency to first-class office uses, the site itself could be considered blighted in the broader context of the environment given that it is economically under performing relative to its value to the community.



## Traffic

- Identify traffic volumes of the proposed development to what could be generated from maximum density under existing zoning classifications. Relate to peak and non-peak times.
  - Refer to the attached traffic study
- Analysis to also include comparison of traffic patterns and points of ingress/egress from proposed development to what could be developed under existing zoning.
  - Refer to the attached traffic study

## Durability of Design and Use

- What architectural features, materials, and building elements are being proposed that exceed industry standards?

The Monarch, as currently envisioned, would consist of ground floor retail, structured parking and luxury for-sale condominiums in two towers of 12 and 23 stories respectively. Located at the base of the building, along Alpine Road and the north elevation, nine live-work units wrap around the parking structure and serve as a transition to the adjacent two-story villa units while masking the parking structure. To the north of the tower building are 52 villa units which transition the scale of the project from the single-family neighborhood to the tower structure.

With its close proximity to the Somerset Collection, the project is able to capture some of the first-class cache of the Somerset that is reflected in the architectural design. The building designed by the acclaimed architectural firm of Sandy and Babcock International from San Francisco, incorporates brick, stone, precast and glass materials in a contemporary and elegant architectural design that will have lasting value and create an icon for the Big Beaver Corridor. The scale of the building, at 23 stories, will establish a visual center for Troy, both from a distance and from each direction along Big Beaver. A distinctive circular drive leading up to the building and a stately porte cochiere will create a strong Big Beaver identity and focal point.

# THE MONARCH PRIVATE RESIDENCES



A mixed-use building providing multiple functions creates a more visually interesting project. The design of the building has been carefully contemplated to avoid the standard practice of building structured parking independent from the principle building. The concept created at the Monarch is to meld the uses of the structure while creating attractive articulated façades and elevations on all sides by wrapping the structured parking with residential units and burying the parking within. The podium level (the roof of the parking structure located between the two towers) will contain an attractive landscaped courtyard, which will be visible from Big Beaver. Two townhouse units on the podium level will also articulate the architectural form.

The front façade, oriented along Big Beaver, will have a detailed recessed glass curtain wall framed by precast panels to add dramatic effect to the elevations. Horizontal overhangs are used to create visual breakpoints as the tower steps back and the floor plates are reduced. At the Penthouse level, the floors are recessed and the tops of the towers are treated with vertical elements to raise the eye skyward. The mechanical penthouse on the roof is screened with architectural elements.

The villas located north of the tower are situated between Alpine and McClure Roads. The villas share a common entrance with the Tower from Alpine. Two large open spaces serve as landscaped courtyards framing the front doors of the units. Villas facing Alpine and McClure create a strong street edge. The units are efficiently organized around auto courtyards with enough capacity to accommodate landscaping elements. The existing vegetative growth between the townhomes and the single-family residence will be preserved to the greatest extent possible to maintain a green buffer. The design of the villa units reflects the contemporary design of the Tower utilizing brick and stone elements and carrying over the horizontal banding used in the design of the Tower.

The Market analysis, completed by Robert Charles Lesser and Company, demonstrates a unique opportunity to develop a well-executed luxury high-rise condominium targeted to an underserved affluent move-down/empty nester household. There is a large base of age and income qualified households in Troy and immediately surrounding communities that are expected to be downsizing their homes and looking to find amenity-rich, secure and maintenance-free housing. Nationally, this segment of the market is expected to become the fastest growing market segment nationwide as boomers start retiring. In Troy this segment represents approximately 25% of the market. The Monarch will present an opportunity for Troy residents to

# THE MONARCH PRIVATE RESIDENCES



choose a more traditional condominium living alternative within their community.

A second area of market concentration is a young professional and persons employed in the Troy business district that want the option to reduce their commute time.

Critical factors in the success of targeting these market segments are reflected in the design and execution of the building. To achieve the low-maintenance and rich-amenity lifestyle that this market segment desires the development has incorporated the following critical characteristics:

- Height and views. The two towers will offer a range of product with spectacular views and higher floors that will command premiums.
- Iconic Architecture – The Sandy and Babcock design will create an immediate and positive image in the minds of the prospective purchasers that will have lasting value.
- Proximity to office-based employment concentrations – The site is easily accessible to 11 million square feet of multi-tenant office space.
- Proximity to shopping and restaurants. The primary attribute of the site is its adjacency to the Somerset Collection and excellent Troy restaurants.
- Small number of units per floor – The two-tower configuration allows smaller floor plates with fewer doors per floor. The floors step back as the building rises to reduce the units per floor from five on the lower floors to four units per floor to three units on the Penthouse levels.
- Residential building amenities will include:
  - Private indoor deeded parking with secured access for residents.
  - Private balconies and outdoor spaces for each unit.
  - A luxury clubhouse for resident's use that includes an indoor swimming pool and locker rooms, an entertaining room with kitchenette, fitness center and a theatre room.
  - A grand residential lobby with full glass façade cuts through the building to the entrance on the North facing the villa units which creates a visual link through the building. lobby finish materials will be a combination of granite, stone, glass and wood.
  - Podium level, private garden courtyard.

# THE MONARCH PRIVATE RESIDENCES



- 24-hour security and concierge desk.
- High ceiling heights, hardwood flooring, granite countertops, large walk-in closets and luxury finishes.

Having an interesting retail component in the project is an attractive amenity and effectively serves to distinguish this location to prospective purchasers. Retail uses must be considered based upon compatibility with a luxury residential standard. Uses such as a jewelry store, financial services office and café are being considered. A day spa is also a potential use that would be compatible with the club amenities that would both serve the public and the residents.

Also delineate obstacles developer had or will overcome in achieving this particular site development, and include any assemblage of adjacent parcels in your commentary.

To create a unified site that enabled the construction of both townhouses and the tower structure while assembling parcels owned by four single-family homeowners. The site assembly enabled the site plan to achieve the successful transition between the single-family residences to the north and the Big Beaver higher density portion of the site.

Comment on how landscaping on the proposed site compares to basic requirements.

The proposed form of the structure will create an interesting and articulated design that brings retail space closer to the Big Beaver Corridor. This architectural feature will capture the eye and create an exciting landscape opportunity at the intersection of Alpine and Big Beaver. This space is designed to create a private space for passive recreation.

Grism Metz Landscape Architects have been retained to prepare the landscape architecture for the project. They have been responsible for the landscape design of The Somerset Collection and other notable first-class office and retail settings. They have conducted an evaluation of existing trees on the site to determine what trees can remain and what trees can be relocated, if possible. Overall the landscape plan will be substantial relative to the present Big Beaver conditions. A determination of whether this plan is considered basic, above and beyond the City of Troy zoning ordinance is a subjective matter. It is believed

# THE MONARCH PRIVATE RESIDENCES



that the proposed landscape plan will be a significant contribution to the quality of Big Beaver corridor and set an example for future developments.

Long-range plans for Big Beaver contemplate a pedestrian friendly atmosphere that would encourage pedestrian activity between the Somerset Collection and the site. The site plan contemplates improving the site between McClure and Alpine with an improved pedestrian streetscape, including planting beds, pedestrian friendly sitting areas and substantial streetscape plantings.

Alpine will be also improved with sidewalks, boulevard and landscaping. The Townhomes will have two generous open greenspace areas that will be attractively landscaped for use by the residents

## If you were to visit the site in 50 years, what do you think you'd see?

The Somerset Collection has set a world class standard for development on Big Beaver for retail. The Monarch will have the same impact on Big Beaver for residential development in the City of Troy, creating a timeless piece of architecture that will set the standards for future residential projects. The location and accessibility of the site will create the first opportunity to provide meaningful pedestrian links to the Somerset Collection and help create a pedestrian friendly atmosphere in the center of Troy. It is anticipated, with the conclusion of the Big Beaver Corridor Study, that the goals of creating Big Beaver as a world class destination will be set forth in a plan of action. This project will be the first step toward making that vision a reality.

In 50 years this project will also be recognized for the impact of the building on the future of the environment. To the extent possible, the building is being evaluated for LEED certification that will take into account energy efficiency policies, including energy efficient building systems, storm water management, green roof system, low-emitting materials uses, and use of local and regional materials. Some specific techniques that are being proposed for the project include:

- Green roof system located at the Podium level
- Common energy efficient hot water system used for heating and cooling and domestic hot water.
- Selection of Materials

Joseph Freed and Associates LLC  
Tadian Homes  
Whitehall Real Estate, LLC



How does the proposal compare with general direction of the master plan?

Since the Master Land Use Plan was adopted in 1971, the City of Troy has seen significant growth and change, and, as a result has responded with appropriate sensitivity to changes in the built environment through amendments to the Plan. The intent of the Master Land Use Plan was to focus large scale, urban development along the Big Beaver Corridor, and, as a result, Big Beaver has attracted a large volume of commercial and office developments. Until this application was presented, the concept of a mixed-use residential and retail project with a variety of residential product types had not yet been contemplated and thus, was not addressed in the Master Land Use Plan.

In 1993, the City of Troy created the Downtown Development Authority, (DDA) to further monitor and make recommendations to the City Council pertaining to the continued economic development of the big Beaver Corridor. The DDA has overseen recent improvements to roadway configuration and has enabled Big Beaver to continue to encourage and accommodate large-scale growth.

On September 22, 2004, the DDA and City Council met to discuss the long range plan for the business district and the revitalization of the City of Troy's downtown development district. In the presentation made that day, certain trends were noted. Among these, an identifiable increase in office vacancy rates and a consequential impact on tax base and taxable value. These trends challenged the City to address strategies to maintain the status of Troy as a world-class environment. At that meeting the City Council voted to approve the funding of a study that would propose a new land-use vision that would be enable future development opportunities to occur along Big Beaver in a strategic and cohesive manner.

In 2002, the City of Troy issued the "Future Land Use Plan", which consists of additional policies intended to supplement the Master Land Use Plan. In it, it states, "By its nature, The Future Land Use Plan must be flexible so that it can be sensitive and responsive to the social, economic and physical development trends and realities of the City as well as the total region of which Troy is part. " While the 1971 Master Plan did not contemplate the mixed-use, high-density concept, The Monarch project is representative of current trends, with shifting population demands, a changing market and needs of its residents. When taken into account with the PUD process, the City has crafted the tools necessary to respond to the issues presented by The Monarch application and make subjective and qualitative interpretations of the needs of the City of Troy.

Joseph Freed and Associates LLC  
Tadian Homes  
Whitehall Real Estate, LLC

# THE MONARCH PRIVATE RESIDENCES



The Future Land Use Plan identifies the following goals and objectives to guide the basic framework of planning:

- “To guide the development of the City of Troy as a dynamic urban community with a diversified and balanced land use base, and a humane environment.
- To guide the development of the City of Troy in such a manner that new development shall enhance the existing development for the benefit of residential and non-residential areas of the community.
- To maintain desirable and environmentally sound residential areas as the dominant element of the City’s development pattern.
- To establish guidelines for the development or redevelopment of non-residential areas to provide a cohesiveness and identity for the individual areas as they relate to the whole community.
- To encourage the highest standard of stability, utility and aesthetics in all developments within the City of Troy.”

The Monarch development effectively responds to each one of these goals by creating a focal point to the center of Troy by tying together the quality and aesthetics already established along Big Beaver and the Somerset Collection. It will benefit the residents of Troy by creating new housing alternatives where none exist today. Currently, the site is highly underutilized for its location in the city. This redevelopment will assist in supporting subsequent economic development along Big Beaver and will also encourage the private sector businesses in Troy to continue to reinvest in their business and to reinforce Troy as a progressive location from which to continue their operations.

The Monarch will further reinforce the pedestrian link along Big Beaver to the Somerset Collection. Each corner of the site at Alpine and McClure will provide a passive landscaped area for sitting. The streetscape will be improved with street trees and will establish a new standard for landscape design along the corridor.

The Master Plan did not contemplate this type of density or residential development along the corridor. To maintain the long-term viability of the City, mixed-use projects such as the Monarch should be encouraged in appropriate locations to respond to market demands for high-density condominium living and that increased development densities may be necessary to achieve this goal. When developed pursuant to the PUD application, The Monarch will generate long-term viability and stability to the corridor and environs.



## **Economics**

Determine if proposed PUD will be a catalyst to improve and/or support surrounding area.

The Monarch development offers the City of Troy an opportunity to create a mixed-use complex offering a range of housing options that are otherwise unavailable in the City of Troy. The location of the site with close proximity to the Somerset Collection and one of the largest concentrations of office-based employment will appeal to a broad base of the market. The market segment consisting of mature professional singles and couples, who are interested in low maintenance and high service lifestyle choices, is currently not available in the Troy market area. This market segment is primarily older (45 to 65), “well-heeled”, empty nester/pre-retiree couples moving down from large single-family houses. Many of these people will be residing in Troy or immediate vicinity and will want to stay near their families and social environments. Households aged 45-54 and 55-64 in the Primary Market Area (PMA) have median incomes of \$95,662 and \$92,478 respectively and make up 24% of all households in the PMA. In addition to household income these households have significant equity built up in their primary residences and as they move down from a larger home will look to reinvest in smaller homes with the tendency to age in place near their family ties.

A secondary market segment will include a mixture of younger single and married professionals who want to live closer to their jobs thereby reducing their commute time and improving their quality of life. Proximity to the significant employment base in Troy will attract his segment of the population. Within the PMA, there are over 90,000 households aged 25-44 with annual incomes exceeding \$75,000, including 57,000 who earn more than \$100,000.

Historically, single-family detached units have dominated residential permitting in Troy and Oakland County. However, in the past few years, there has been an increase in condominium permits, particularly in Oakland County. This trend will continue as land suitable for lower density development within a reasonable commuting distance of major employment concentrations becomes increasingly scarce. There is also a renewed interest on the part of both Baby Boomers and their children, in living in complex urban and active mixed-use environments. There are no truly competitive communities in Troy itself. All of the relevant actively selling condominium communities are located in Birmingham and Royal Oak, which are characteristically very different from the City of Troy which offers a competitive alternative to Troy residents.

Joseph Freed and Associates LLC  
Tadian Homes  
Whitehall Real Estate, LLC

# THE MONARCH PRIVATE RESIDENCES



## Tax Impact of Project:

Current Taxes generated for the sites are: \$ 39,149.

Proposed tax impact of the site, assuming current mill rates and assessment practices are estimated at::

Retail Taxes per year:	\$ 94,422
Residential Taxes per year:	\$ 1,873,109
Total tax for site:	\$ 1,967,531

If a density incentive is being proposed, determine differential from maximum density under applicable zoning.

Pursuant to the current zoning, it was determined that 25,785 square foot, low-rise office building and seven single family homes are the maximum density that would be permitted under the current zoning.

Under this application for PUD approval, the Property would provide 470,255 of gross square feet of buildable area comprising of approximately 11,166 square feet of specialty retail use, 154 condominium units, 52 villa units and a 308 car parking deck.

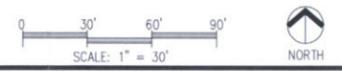


- KEY NOTES:**
- ARRIVAL AUTO COURT (DRIP OFF WITH PARKING)
  - THE MONARCH MAIN BUILDING ENTRANCE
  - SPECIAL PAVING (2 COLORS)
  - SCULPTURE IN ISLAND
  - SPA ENTRANCE (SPECIAL PAVING)
  - CONCRETE PAVING
  - SEEDS / IRRIGATED LAWN (TYPICAL)
  - PROJECT SIGN
  - SITTING GARDEN WITH BENCHES AND SPECIAL PAVING
  - DOG PARK WITH BENCHES
  - EXISTING TREES TO BE SAVED (TREE # 1984,1987,1988,1989)
  - SERVICE COURT
  - PODIUM LEVEL TERRACE WITH SPECIAL PAVING, TABLES, CHAIRS, UMBRELLAS
  - LARGE PLANTER
  - PODIUM LEVEL PRIVATE TERRACES (PAVING AND PLANTINGS BY TOWNHOUSE ASSOCIATION)
  - GREEN ROOF (PODIUM LEVEL) SEDUM VARIETIES
  - UTILITY SERVICE COURTYARD
  - THE MONARCH NORTH ENTRANCE AND DROP-OFF COURT WITH SPECIAL PAVING
  - MASONRY PIERS
  - A.C. UNIT COURT (TYPICAL) WITH MASONRY WALLS
  - MULTI FAMILY GARAGE COURT
  - GUEST PARKING
  - GUEST PARALLEL PARKING
  - SPECIAL PAVING AT GARAGE COURT ENTRANCE
  - COMMUNITY PARK WITH OPEN SPACE LAWN AND SCULPTURE
  - EXISTING TREES AND HEDGE ROW VEGETATION
  - RETAIL ENTRANCE
  - PROPOSED LIGHT POLE, TYP.
  - GARDEN ART
  - LOW 30' HT. MASONRY WALLS

**PLANT LIST:**

Code	Qty	Description	Comments
<b>Deciduous Trees</b>			
AF	74	Acer x Armoniacum Armstrong Red Maple	3" cal. matched
AR	2	Acer rubrum Clump Red Maple	14" ht. clumped B&B
AG	4	Alnus glutinosa European Alder	8" cal. matched
OH	1	Cornus rubra Red Flowering Dogwood	8" cal. B&B
OB	25	Syringa alba Madrinet Tree	3" cal. B&B
OT	33	Gleditsia L. 'Skyline' Skyline Honeylocust	3" cal. B&B
PC	41	Fynx c. 'Cleveland Select' Cleveland Select Pear	4" cal. B&B, matched
TC	18	Tilia c. 'Greenspire' Littoral Linden	3" cal. B&B
<b>Evergreen Trees</b>			
AB	12	Abies concolor Concolor White Fir	10" ht. B&B, unsharpened Null to ground
<b>Ornamental Trees</b>			
AS	10	Azalea x canadensis 'Autumn Brilliance' Autumn Brilliance Sanicloby	6-10" ht. B&B, multi-stem
OS	7	Corylopsis glabrescens Fragrant Witchhazel	8" ht. matched B&B
OK	1	Cornus kousa Kousa Dogwood	8" ht. matched B&B
OK10	2	Cornus kousa Kousa Dogwood	10" ht. matched B&B
OP	7	Crataegus phaeocorymbium Washington Hawthorn	8" height. B&B, multi-stem
MC	19	Malus sargentii Sargent Crab	3" cal. B&B, single stem
SR	19	Syringa reticulata 'Iory Silk' Japanese Tree Lilac	3" cal. B&B, multi-stem
<b>Shrubs</b>			
BW	496	Buxart i. 'Wintergreen' Wintergreen Boxwood	3-gal. Cont.
HN	46	Hydrangea m. 'Nikko Blue' Nikko Blue Hydrangea	48" ht. Plant 3" o.c.
JK6	210	Juniperus ch. 'Keteleeri' Keteleeri Juniper	8" ht. B&B
JK10	300	Juniperus ch. 'Keteleeri' Keteleeri Juniper	10" ht. B&B, 3" o.c.
LO	45	Ligustrum o. 'Reginae' Regal Privet	3-gal.
RA	186	Rhus a. 'Gro-Low' Gro-Low Fragrant Sumac	3-gal. Cont.
RNN	150	Rosa 'Newly Wild' Newly Wild Rose	3-gal. Cont.
SB	85	Spiraea x 'Ivan' Anthony Waterer Spiraea	3-gal. Cont.
TM	278	Taxus m. 'Danaeiformis' Danae Yew	34" 36" ht. B&B, plant 30" o.c.
TH	259	Taxus m. 'Hicksii' Hicks Yew	36" ht. Plant 24" o.c.
VP	78	Viburnum plicatum tomentosum 'Mariesi' Mariesi Double Viburnum	36" ht. B&B
<b>Perennials / Groundcovers</b>			
EA	80	Echinacea a. 'Aller' White Coneflower	1-gal. Plant 18" o.c.
EP	80	Echinacea p. 'Magnus' Purple Coneflower	1-gal. Plant 18" o.c.
HF	80	Heister l. 'Francesca' Francesca Hosta	3-gal. Cont. Plant 24" o.c.
HH	530	Hemerocallis 'Happy Returns' Happy Returns Daylily	1-gal. Plant 18" o.c.
HP	178	Heuchera micrantha 'Palace Purple' Palace Purple Coral Bells	1-gal. Plant 18" o.c.
PT	12500	Pachysandra terminalis Pachysandra	3 1/4" pots 60 per flat, 8" o.c.

NOTE:  
\*SA = INDICATED MIXED SEDUM THAT SHALL BE PLANTED AS PLUGS.  
QUANTITY TO BE DETERMINED ONCE ARCHITECTURE AND ROOF AREA HAS BEEN FINALIZED.



**GRISSIM  
METZ  
ANDRIESE**  
Landscape Architecture  
Civil Engineering  
300 East Cliff Street  
Northville, MI 48157  
Ph: 248.347.7010  
Fax: 248.347.7005  
Email: mab@grissim.com

THE  
**MONARCH**  
PRIVATE RESIDENCES

20380 West Big Beaver Road  
Troy, Michigan  
Joseph Freed & Associates

**CONCEPTUAL  
LANDSCAPE  
PLAN**

DATE	May 19, 2005	
PROJECT NUMBER	JF5-051	
DRAWN BY	SRB	
SCALE	1" = 30' 0"	
NO	REV. DESCRIPTION	DATE
	PLD SUBMITTAL	12/20/04
	SCHEMATIC DESIGN BOOK	12/27/05
	ADDITIONAL LANDSCAPE DETAILS & LIGHTING PLAN (See Site map)	4/7/05
	REVISED LIGHTING PLAN	4/7/05
	REVISED LANDSCAPE PLAN	5/18/05

SHEET NUMBER

L-11



GARAGE SIDE ELEVATION

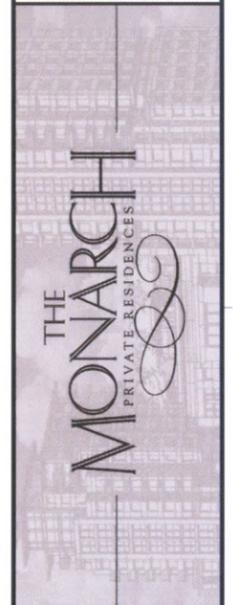


TYP. END ELEVATION



COURT SIDE ELEVATION

**GRISSIM  
METZ  
ANDRIESE**  
ASSOCIATES  
Landscape Architecture  
Civil Engineering  
300 East Oak Street  
Warren, MI 48090  
P: 734.477.7111  
F: 734.477.7112  
E: info@grissimmetzandriese.com



20380 West Big Beaver Road  
Troy, Michigan  
Joseph Freed & Associates

**THE VILLAS  
LANDSCAPE  
ELEVATIONS**

DATE	May 19, 2005		
PROJECT NUMBER	JIS-051		
DRAWN BY	SKB		
SCALE	1" = 30'-0"		
NO	REV	DESCRIPTION	DATE
		PLD SUBMITTAL	12/20/04
		SCHEMATIC DESIGN BOOK	1/27/05
		ADDITIONAL LANDSCAPE DETAIL & LIGHTING PLAN (see City req.)	4/18/05
		REVISED LIGHTING PLAN	4/19/05
		REVISED LANDSCAPE PLAN	5/18/05

SHEET NUMBER

L-13



# PARSONS

26777 Central Park Boulevard • Suite 275 • Southfield, Michigan 48076 • (248) 262-0013 • Fax: (248) 262-0988 •  
www.parsons.com

## MEMORANDUM

**TO:** Joseph Freed and Associates

**FROM:** Roger K. Walther, Principal Associate  
Emadeddin Alsaidi, P.E.

**DATE:** December 13, 2004

**SUBJECT:** Rezoning Traffic Study for Proposed Monarch Mixed Use Development  
Troy, Michigan

Parsons has completed a rezoning traffic study for a proposed mixed use development that will be constructed on approximately six acres of land on the north side of Big Beaver Road between Alpine and McClure Drives. The development would include approximately 6,900 square feet of specialty retail use, a 4,266 square foot day spa, 150 condominiums, 54 townhomes and a 316 space parking deck. The land area proposed for development consists of 8 contiguous land parcels. Three of these parcels are on Big Beaver Road and zoned as a low-rise Office Building District (O-1), four lots extend between Alpine and McClure and are currently zoned as a One-Family Residential District (R-1B) and the last lot that fronts on Alpine Road is located north of the three office lots on Big Beaver Road and is zoned as a Vehicular Parking District (P-1). The purpose of this study was to compare the trip generation, traffic patterns and traffic at points of ingress and egress of the proposed development under PUD zoning with what could be developed under existing zoning. The following represents the data collection, analysis, and findings of this review.

### TRIP GENERATION FOR PROPOSED SITE TRAFFIC

The number of trips that would be generated by the proposed development was estimated based on rates and equations published in the *ITE Trip Generation, 7th Edition*. ITE land-use category #814 (Specialty Retail Center) was determined best to represent trip generation for the proposed retail portion in addition these trips were reduced to account for pass-by trips. ITE land-use category #492 (Health/Fitness Club) was determined best to represent trip generation for the proposed spa. ITE land-use category #233 (Luxury Condominium/Townhouse) was determined best to represent trip generation for the proposed condominium and town homes. The trips estimated to be generated by the proposed development are shown in Table 1.

Table 1  
**TRIP GENERATION FOR PROPOSED MORARCH MIXED USE DEVELOPMENT**

Proposed Use, Size & ITE Code #	Trip Type	A.M. Peak-Hour			P.M. Peak-Hour			Daily Trips
		Entering	Exiting	Total	Entering	Exiting	Total	
Specialty Retail Center (6,900 sq. ft.) ITE #814	All Trips	NEG	NEG	NEG	17	21	38	333
	Pass-by (35%)	NEG	NEG	NEG	-6	-7	-13	-117
	New Trips	NEG	NEG	NEG	11	14	25	216
Day Spa (4,266 sq. ft.) ITE #492	All Trips	2	4	6	9	9	18	154
Luxury Condos and Town homes (204 Units) ITE #233	All Trips	23	75	98	84	50	134	993
<b>Total Trips</b>		<b>25</b>	<b>79</b>	<b>104</b>	<b>110</b>	<b>80</b>	<b>190</b>	<b>1480</b>
<b>Total New Trips</b>		<b>25</b>	<b>79</b>	<b>104</b>	<b>104</b>	<b>73</b>	<b>177</b>	<b>1363</b>
Reduction for Trips Generated by Existing Office Building (50% of 11,000 sq. ft. trips) ITE#710		-14	-3	-17	-8	-38	-46	-122
Reduction for Trips Generated by Existing Single Family Homes (4 Units) ITE #210		-3	-9	-12	-4	-2	-6	-54
<b>Proposed Use Net Total Trips</b>		<b>8</b>	<b>67</b>	<b>75</b>	<b>98</b>	<b>40</b>	<b>138</b>	<b>1304</b>
<b>Proposed Use Net Total New Trips</b>		<b>8</b>	<b>67</b>	<b>75</b>	<b>92</b>	<b>33</b>	<b>125</b>	<b>1187</b>

NEG: Negligible

An 11,000 square feet office building and a 4 single family home units currently exist on the site of the proposed development. A trip generation analysis was conducted for these existing uses as shown in Table 1. Since the existing office building is only 50% occupied, the estimated projected trips were estimated accordingly. All trips generated by existing partially occupied office building and the single family homes were deducted from site-generated trips. The trips generated by the proposed development with reductions for pass-by trips and trips generated by the office and homes on the site are presented in Table 1. The net total trips and the net total new trips are also given in this Table.

**TRIP GENERATION FOR EXISTING ZONING**

Based on discussions with a City of Troy planning representative, and a review of the City's current zoning for the site, it was determined that a 25,785 sq. ft. low-rise office building and seven single-family homes are the maximum density of development use that would be permitted under the current zoning designations.

The numbers of trips generated by each of these uses were estimated based on rates and equations published in *ITE Trip Generation, 7th Edition*. The ITE land-use category #210 (Single-Family Homes) and #710 (General Office Building) were found to best represent the land uses under existing zoning. The estimated trips generated by these uses under existing zoning are shown in Table 2. In addition, Table 2 presents reductions of trips for the existing partially occupied office building and the four single family homes that currently exist on the site. The last row in Table 2 shows the net total trips with maximum density use of the parcels under existing zoning.

Table 2  
**TRIP GENERATION FOR MAXIMUM ALLOWED UNDER EXISTING ZONING**

Development	A.M. Peak-Hour Trips			P.M. Peak-Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	
Single Family Homes, 7 units, ITE#210	4	11	15	6	4	10	90
General Office Building, 25,785 sq. ft., ITE#710	56	7	63	18	90	108	470
<b>Total New Trips</b>	<b>60</b>	<b>18</b>	<b>78</b>	<b>24</b>	<b>94</b>	<b>118</b>	<b>560</b>
Reduction for Trips Generated by Existing Office Building (50% of 11,000 sq. ft. trips) ITE#710	-14	-3	-17	-8	-38	-46	-122
Reduction for Trips Generated by Existing Single Family Homes (4 Units) ITE #210	-3	-9	-12	-4	-2	-6	-54
<b>Existing Zoning Net Total New Trips</b>	<b>43</b>	<b>6</b>	<b>49</b>	<b>12</b>	<b>54</b>	<b>66</b>	<b>384</b>

### TRIP GENERATION COMPARISON

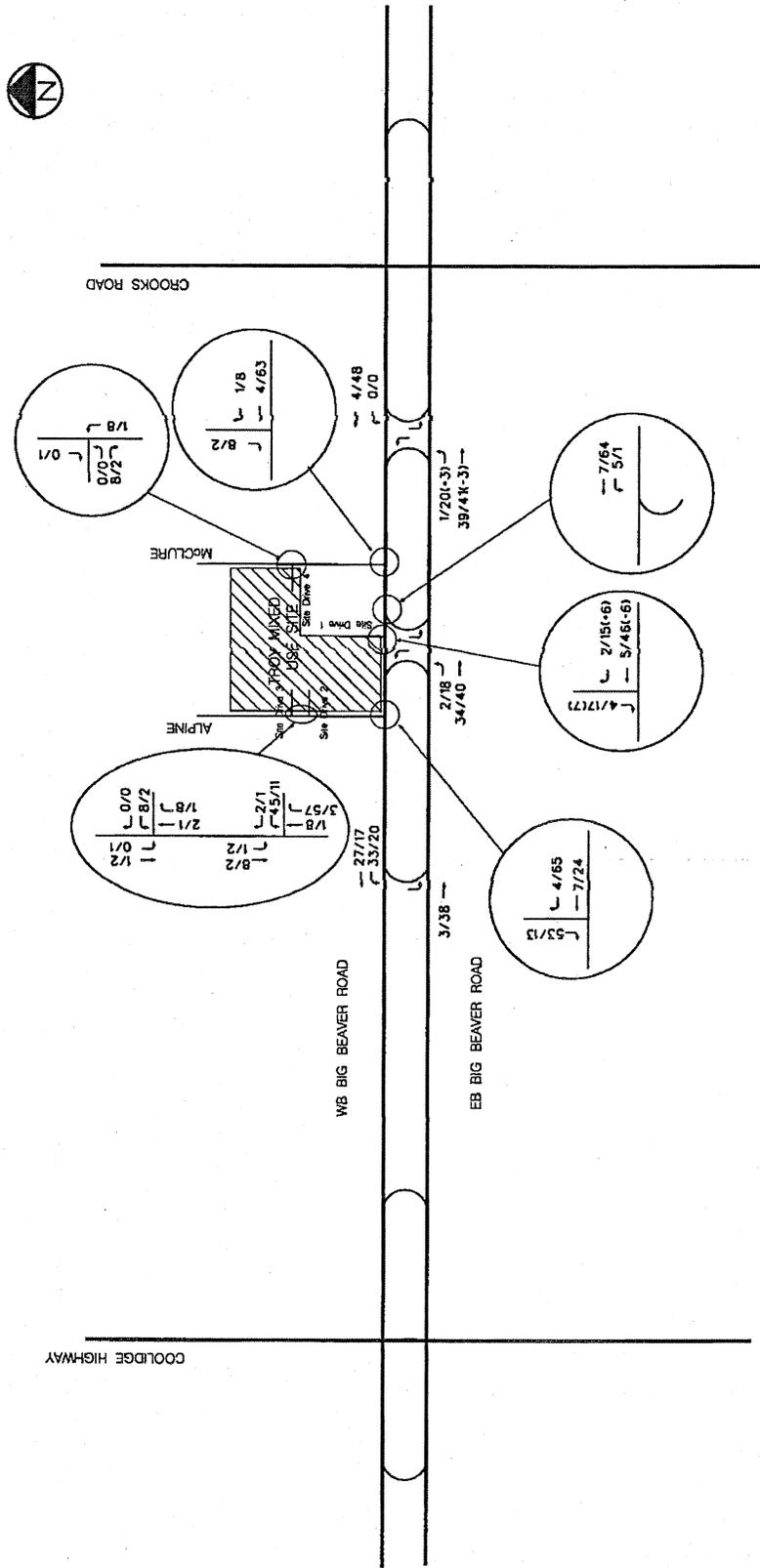
Table 3 compares the net total new trips for the existing zoning with the net total new trips for the proposed Monarch mixed use development taken from Parsons December 2004 *Traffic Impact Study* for this development. The last row of the table shows the differences between the two uses. A review of Table 3 indicates that during the A.M. peak hour, the proposed use would generate 35 less inbound trips and 61 more outbound trips than that under existing zoning. This is a total increase of 26 trips during the A.M. peak hour. During the P.M. peak hour, the proposed use would generate 80 more inbound trips and 21 less out bound trips than that under existing zoning. This is a total increase of 59 trips during the P.M. peak hour. In addition, the proposed use would generate 803 more daily trips compared to that of the existing zoning.

Table 3  
**TRIP GENERATION COMPARISON**

Development	A.M. Peak-Hour Trips			P.M. Peak-Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	Total
Existing Zoning Net Total New Trips	43	6	49	12	54	66	384
Proposed Monarch Mixed Use Development Net Total New Trips	8	67	75	92	33	125	1187
Difference	-35	+61	+26	+80	-21	+59	+803

### INGRESS/EGRESS TRAFFIC PATTERN COMPARISON

In order to be able to compare ingress/egress traffic patterns of the proposed and the existing uses, Figures 1 and 2 were generated. Figure 1 presents the Monarch projected trip distribution at the proposed site drives, local roads (Alpine and McClure Roads), and adjacent crossovers along Big Beaver Road. The direction of approach for the Monarch proposed mixed use development were based on data found in the *Traffic Impact Study* conducted for this development by Parsons in December 2004. Figure 2 presents the trip distribution for the existing zoning at the expected drive locations, local roads, and adjacent crossovers along Big Beaver Road. The same direction of approach utilized for the proposed use was also utilized for the existing zoning trips presented in Figure 2. The expected drive locations were based on the location of each land use under existing zoning. Trip distribution assumptions for the existing zoning are discussed in the following paragraph.

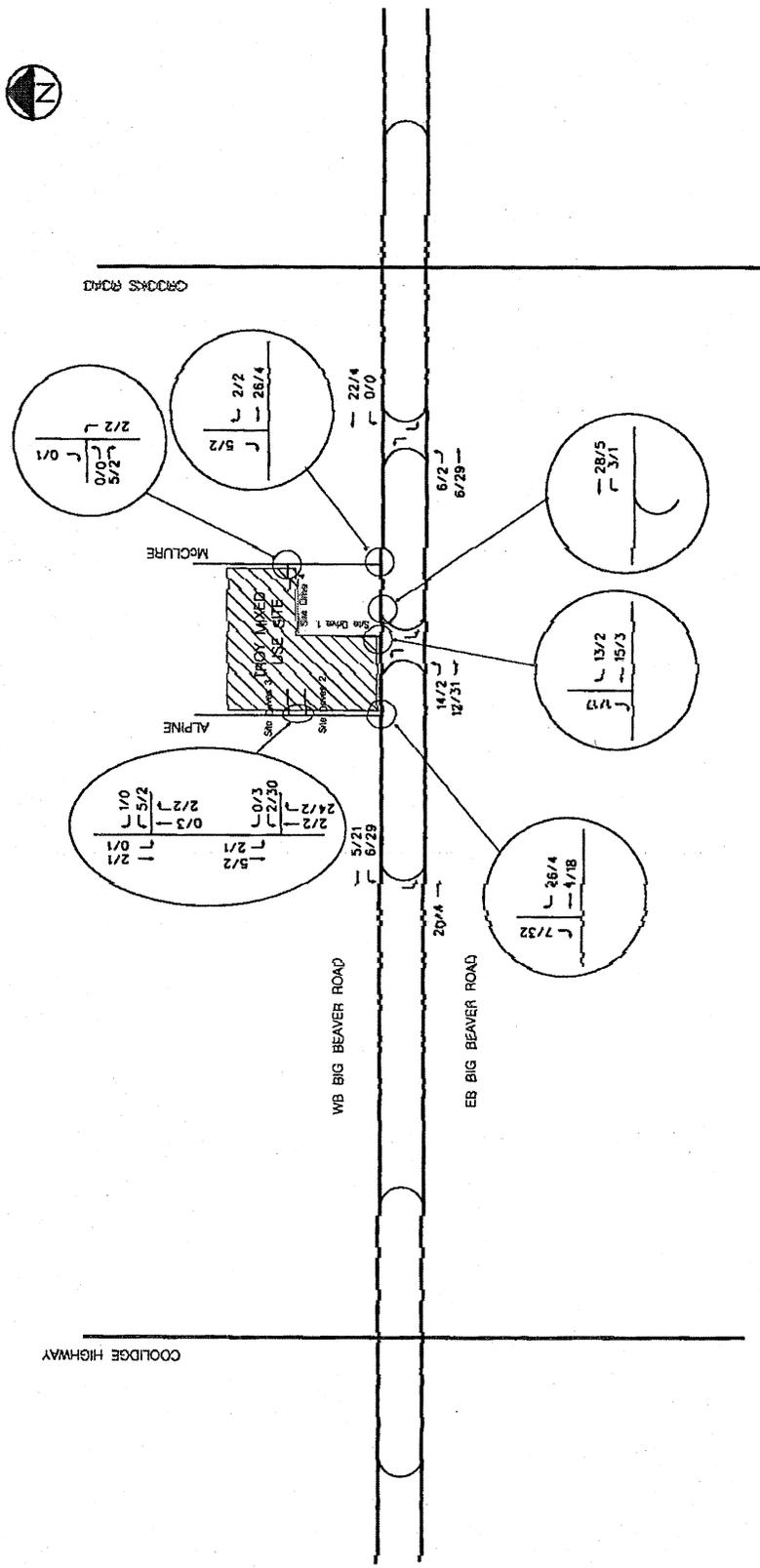


LEGEND:  
 XX /XX (XX) - AM PEAK HOUR (7:45 - 8:45/PM PEAK HOUR (4:30 - 5:30) (PASS-BY)

PEAK-HOUR INGRESS /EGRESS TRAFFIC PATTERNS FOR PROPOSED MONARCH DEVELOPMENT

PARSONS

FIGURE 1  
 12102004



LEGEND:  
 XX /XX (XX) - AM PEAK HOUR (7:45 - 8:45) PM PEAK HOUR (4:30 - 5:30)

PEAK-HOUR INGRESS / EGRESS TRAFFIC PATTERNS FOR AN ALTERNATE USE UNDER EXISTING ZONING

PARSONS

FIGURE 2  
 12/10/2004

The existing zoning trip distribution found in Figure 2 is based on the following assumptions:

- Two drives would serve the single family homes, one on Alpine and the other on McClure.
- A separate drive would serve the adjacent off-street parking lot that would be provided on Alpine for the office building.
- One drive on Big Beaver Road (shared drive) would serve the office building.
- Two thirds of the office building generated traffic will park in the off-street parking lot on Alpine Street.
- One third of the office building generated traffic will park in the available spaces near the office building and will use the shared drive on Big Beaver Road.

A review of Figures 1 and 2 indicate that during the A.M. peak hour, the proposed use projects 3 vehicles to arrive from the west and 4 from the east on Big Beaver while an existing zoning use projects 20 vehicles to arrive from the west and 22 from the east on Big Beaver. This indicates that the proposed use would generate less inbound trips during the A.M. peak hour. During the P.M. peak hour, the proposed use projects 38 vehicles to arrive from the west and 48 from the east on Big Beaver while an existing zoning use projects 4 vehicles to arrive from the west and 4 from the east on Big Beaver. This indicates that the proposed use would generate higher inbound trips during the P.M. peak hour. Ingress/egress comparisons for Alpine, McClure and all site drives are summarized in Table 4.

Table 4  
**INGRESS/EGRESS TRAFFIC PATTERN COMPARISON FOR ALPINE, McCLURE,  
 AND SITE DRIVES**

Road or Drive	A.M. Peak-Hour Trips					P.M. Peak-Hour Trips				
	Proposed Monarch		Existing Zoning		Trip Change with Monarch	Proposed Monarch		Existing Zoning		Trip Change with Monarch
	In	Out	In	Out		In	Out	In	Out	
Alpine Road	4	53	26	7	+24	65	13	4	32	+42
McClure Road	1	8	2	5	+2	8	2	2	2	+6
Shared Site Drive (#1)	2	4	13	1	-8	21	24	2	17	+26
Alpine South Drive (#2)	4	47	26	2	+23	59	12	3	33	+35
Alpine North Drive (#3)	1	8	2	6	+1	9	2	3	2	+6
McClure Drive (#4)	1	8	2	5	+1	9	2	3	2	+6

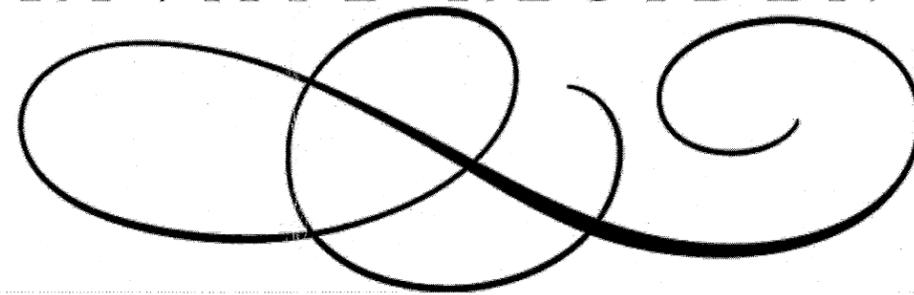
A review of Table 4 data indicates that during the A.M. peak hour, the proposed use would generate fewer inbound trips and higher outbound trips than that of an existing zoning use. During the P.M. peak hour, the proposed use would generate more inbound trips and fewer outbound trips than that of the existing zoning use. It may be noted from Table 4 that the greatest number of increased trips during the A.M. and P.M. peak hours would occur at the Alpine Road intersection with Big Beaver Road as a result of the high exiting traffic at the Alpine south site drive.

## **FINDINGS**

The following represent the findings based on the results of this study:

1. During the A.M. peak hour, the proposed use would generate 35 fewer inbound trips and 61 more outbound trips than an alternate use under existing zoning. This is a total increase of 26 trips.
2. During the P.M. peak hour, the proposed use would generate 80 more inbound trips and 21 fewer outbound trips than an alternate use under existing zoning. This is a total increase of 59 trips.
3. The proposed use would generate 803 more daily trips compared to that of an alternate use existing zoning.
4. During the A.M. peak hour, the proposed use projects three vehicles to arrive from the west and four from the east on Big Beaver Road while an alternate use existing zoning projects 20 vehicles to arrive from the west and 22 from the east on Big Beaver.
5. During the P.M. peak hour, the proposed use projects 38 vehicles to arrive from the west and 48 from the east on Big Beaver while an alternate use existing zoning projects four vehicles to arrive from the west and four from the east on Big Beaver.
6. The proposed use would generate fewer inbound trips during the A.M. peak hour than an alternate use under existing zoning.
7. The proposed use would generate higher inbound trips during the P.M. peak hour than an alternate use under existing zoning.

# THE MONARCH PRIVATE RESIDENCES



PRELIMINARY PUD APPLICATION TO THE CITY OF TROY  
REVISED MAY, 12th 2005

## DRAWING INDEX

C11 TOPOGRAPHIC SURVEY	A20 BUILDING PLAN - GROUND LEVEL	A30 EXTERIOR ELEVATION - BIG BEAVER (SOUTH) ELEVATION
C21 TREE SURVEY	A21 BUILDING PLAN - LEVEL 2	A31 EXTERIOR ELEVATION - NORTH ELEVATION
C31 SITE PLAN	A22 BUILDING PLAN - LEVEL 3	A32 EXTERIOR ELEVATION - EAST & WEST ELEVATIONS
C41 UTILITY PLAN	A23 BUILDING PLAN - LEVEL 4	
	A24 BUILDING PLAN - LEVEL 5	A40 UNIT PLANS - LEVELS 3-5 & 8-18
L1 LANDSCAPE CONCEPT	A25 BUILDING PLAN - LEVEL 5.5	
L2 TREE DEMOLITION PLAN	A26 BUILDING PLAN - LEVEL 6	A101 PERSPECTIVES
	A27 BUILDING PLAN - LEVEL 8	A102 HEIGHT STUDIES
	A28 BUILDING PLAN - LEVEL 19	A103 TOWN HOMES
	A29 BUILDING PLAN - LEVEL 20	A104 SALE CENTER SITE PLAN



JOSEPH FREED AND ASSOCIATES LLC

A COMPANY OF THE FREED GROUP

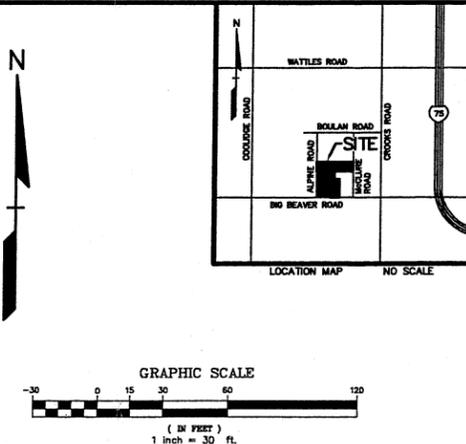
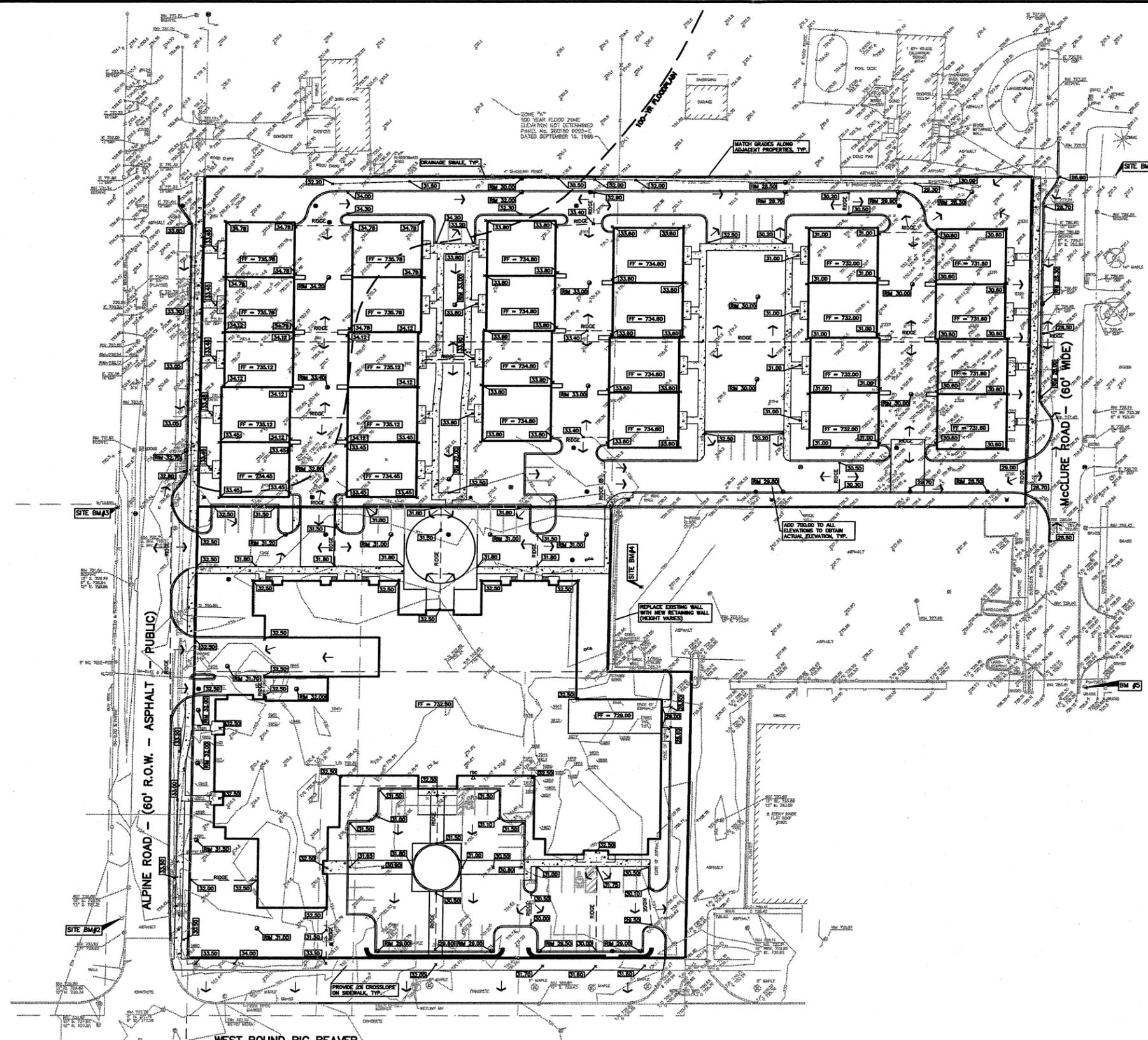












**LEGEND**

● BENCH MARK	○ BRASS PLUG SET	○ CORNER FOUND
○ BENCH MARK	○ BENCH MARK SET	○ FOUND
○ BENCH MARK	○ BENCH MARK SET	○ FOUND
○ BENCH MARK	○ BENCH MARK SET	○ FOUND

**REFERENCE DRAWINGS**

1. 2004-04-01	2. 2004-04-01	3. 2004-04-01	4. 2004-04-01
5. 2004-04-01	6. 2004-04-01	7. 2004-04-01	8. 2004-04-01

**ARCHITECTS**  
 SANDY BRADCOCK  
 200 N. WATLES ROAD  
 TROY, OHIO 45424-2000  
 TEL: 513-253-2000  
 FAX: 513-253-2000  
 WWW.ASBARCHITECTS.COM

**THE MONARCH**  
 PRIVATE RESIDENCES

20380 West Big Beaver Road  
 Troy, Michigan  
 Joseph Freed & Associates

**GRADING PLAN**

DATE	12/20/04	
PROJECT NUMBER	2429	
DRAWN BY	JM-1	
SCALE	1" = 30'-0"	
NO. REV.	DESCRIPTION	DATE
1	PUD SUBMITTAL	12/20/04
2	SCHEMATIC DESIGN 100%	01/27/05
3	REVISED PER CLIENT	02/14/05
4	REVISED PER CLIENT	03/14/05
5	REVISED PER CLIENT	05/18/05

SHEET NUMBER  
**C5.1**

**CAUTION !!!**  
 THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

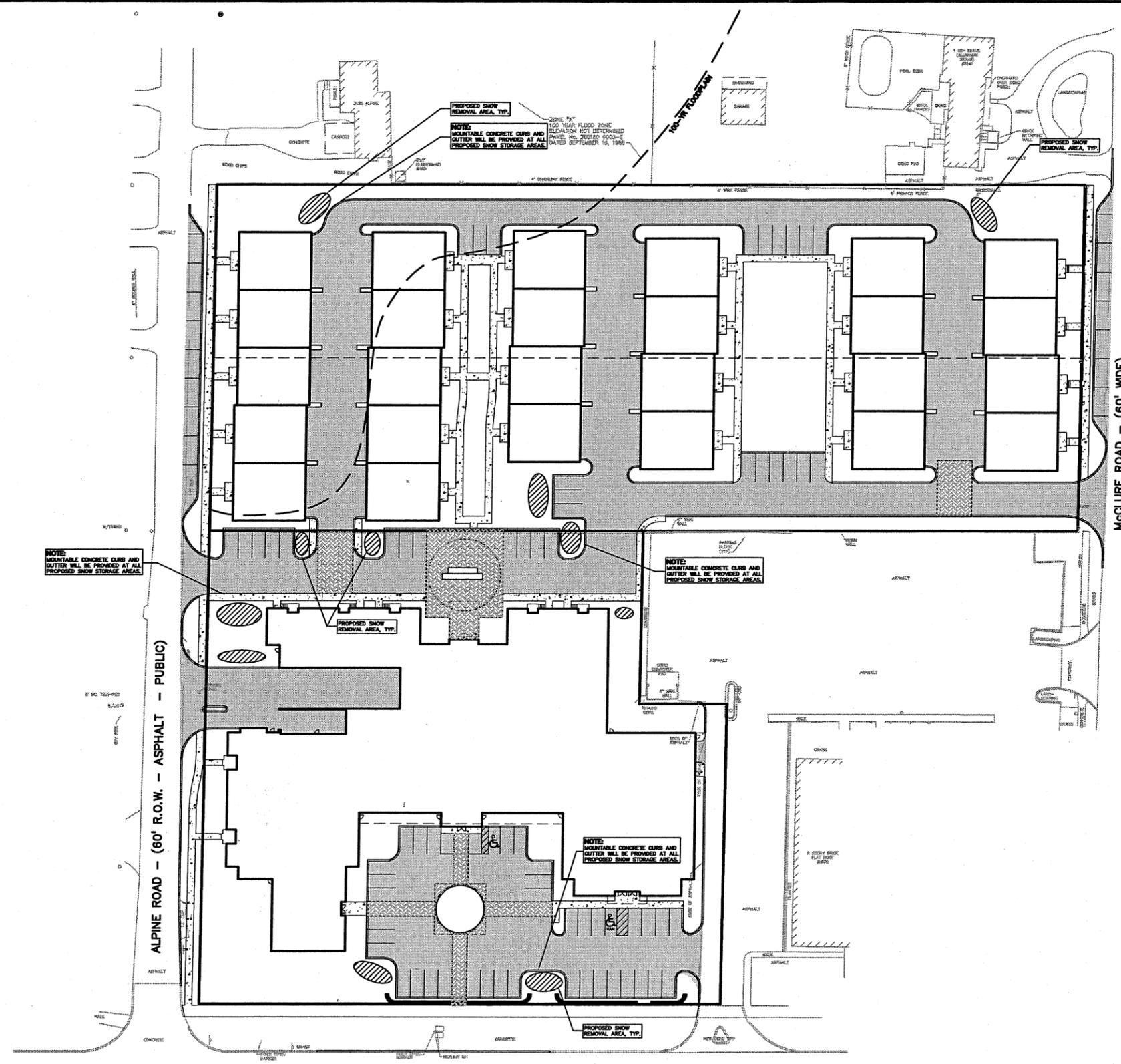
CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES, THE CONTRACTOR SHALL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING THE SAFETY OF ALL PERSONS, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ANY AND ALL AGENCIES BEING APPLICABLE IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

**JOSEPH FREED AND ASSOCIATES**  
 220 NORTH SMITH STREET, SUITE 300  
 PALATINE, ILLINOIS 60067  
**GRADING PLAN**  
 TROY - MIXED USE PROJECT  
 PART OF LOTS 80, 81, 82 & LOTS 83, 84, 85, 123, 124 & 125  
 OF "MURKIN GARDEN FARMS SUBDIVISION"  
 CITY OF TROY, OKLAHOMA COUNTY, OKLAHOMA  
 DRS. RLS [SUR. N/A] SCALE 1" = 30' JOB NO. 2004-198  
 DRN. RLS P.M. DNH DATE 12-20-04 DWG. NO. C5.1

**PEA**  
 PROFESSIONAL ENGINEERING ASSOCIATES  
 2430 Buchanan Ct, Suite 100  
 Troy, MI 48065-1876  
 (248) 689-9090



One Month Warranty, 24 Hr. 24/7  
 Troy, Michigan, MI 48063  
 Tel: 482.774.8900  
 Fax: 482.774.2923  
 www.josephfreed.com  
 A. Castelli & Associates

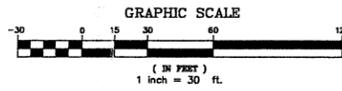


ALPINE ROAD - (60' R.O.W. - ASPHALT - PUBLIC)

McCLURE ROAD - (60' WIDE)

WEST BOUND BIG BEAVER  
 (204' R.O.W.-PUBLIC)

PROPOSED SNOW REMOVAL AREA



**LEGEND**

● IRON FOUND	■ BRASS PLATE SET	○ REC. CORNER FOUND
■ IRON SET	○ MOVEMENT FOUND	■ RECORDED
■ IRON FOUND	■ MOVEMENT SET	■ RECORDED
■ WALK & CAP SET	■ CALCULATED	■ CALCULATED

**REFERENCE DRAWINGS**

● IRON FOUND	○ REC. CORNER FOUND
■ IRON SET	■ RECORDED
■ IRON FOUND	■ RECORDED
■ WALK & CAP SET	■ CALCULATED

CITY OF TROY ENCL. DEPT. (ENTER A NUMBER) AND NO. 20-10-00  
 CITY OF DETROIT WATER - SECTION MAP  
 ENGINEER POWER CO. ENCL. 20-10-00

PARCEL IS IN ZONE "A", AREA OF 100-YEAR FLOOD. BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS NOT DETERMINED AND AREA "C", AREA OF MINIMAL FLOODING PER FLOOD INSURANCE RATE MAP, COMMUNITY-PANEL No. 260180 0003-E, DATED SEPTEMBER 16, 1995.

1. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
2. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
3. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
4. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
5. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
6. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
7. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
8. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
9. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05
10. (All) (Not) (Revised) (per) (Client) (This) (Sheet) (Addition)	02-10-05

**JOSEPH FREED AND ASSOCIATES**  
 220 NORTH SMITH STREET, SUITE: 300  
 PALATINE, ILLINOIS 60067  
**SNOW REMOVAL PLAN**  
**TROY - MIXED USE PROJECT**  
 PART OF LOTS 90, 91, 92 & LOTS 93, 94, 95, 123, 124 & 125  
 OF "MIERS GARDEN FARMS SUBDIVISION"  
 CITY OF TROY, OAKLAND COUNTY, MICHIGAN  
 DRS. JAB SUR. N/A SCALE 1" = 30' JOB NO. 2004 198  
 DR. JM P.M. DMH DATE 12-20-04 DWG. NO. C6.1



**PROFESSIONAL ENGINEERING ASSOCIATES**  
 2430 Rochester Ct. Suite 100  
 Troy, MI 48063-1872  
 (248) 888-9590

DATE	12/20/04
PROJECT NUMBER	2429
DRAWN BY	JM-1
SCALE	1" = 30'-0"
NO. REV. DESCRIPTION DATE	
PUD SUBMITTAL	12/20/04
SCHEMATIC DESIGN 100%	01/27/05
REVISED PER CLIENT	02/14/05
REVISED PER CLIENT	03/14/05
REVISED PER CLIENT	05/19/05

SHEET NUMBER  
**C6.1**

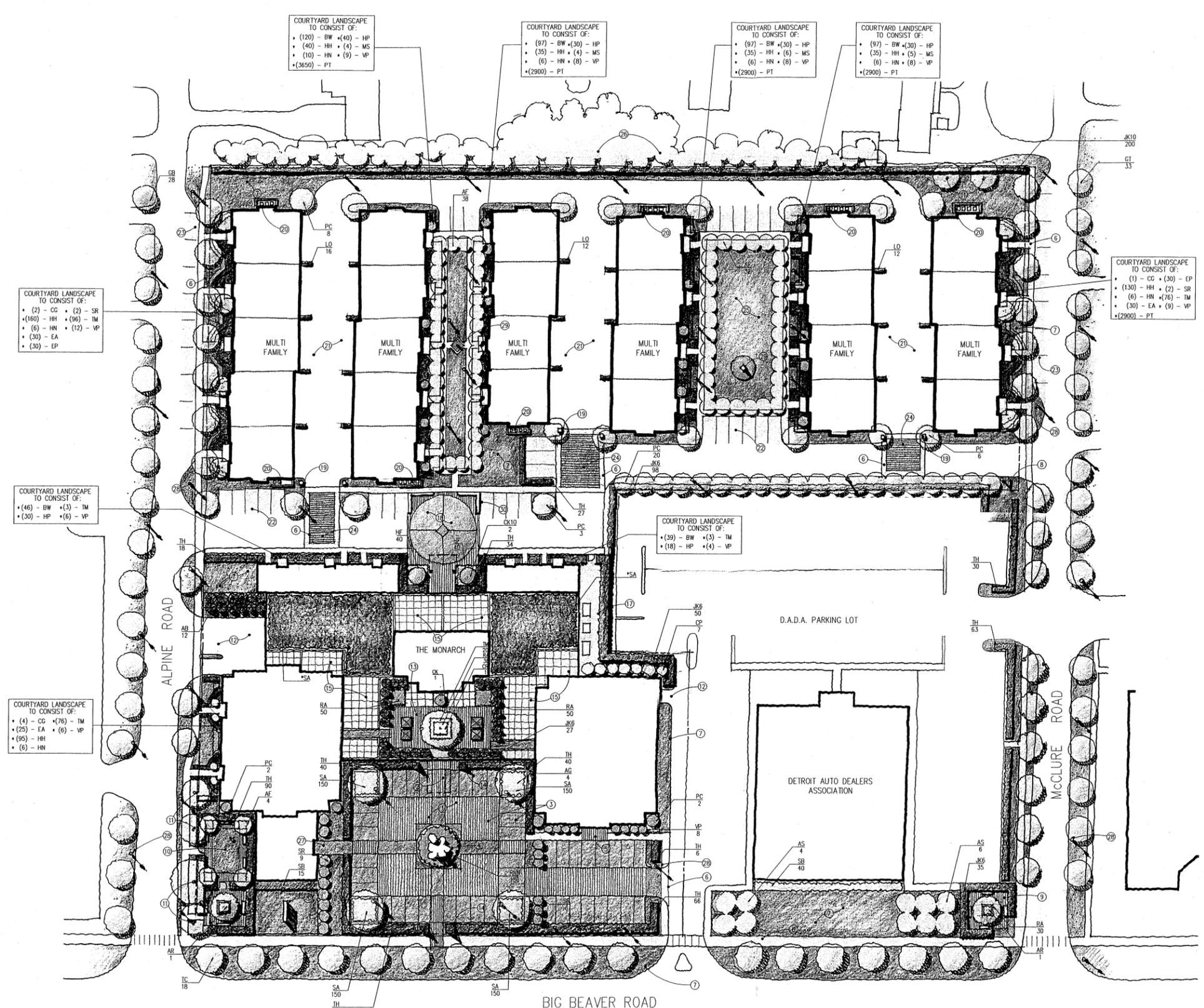
THE MONARCH  
 PRIVATE RESIDENCES

20380 West Big Beaver Road  
 Troy, Michigan

Joseph Freed & Associates

**CAUTION !!!**  
 THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.





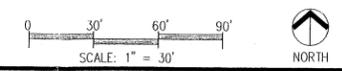
**KEY NOTES:**

- ① ARRIVAL AUTO COURT (DROP OFF WITH PARKING)
- ② THE MONARCH MAIN BUILDING ENTRANCE
- ③ SPECIAL PAVING (2 COLORS)
- ④ SCULPTURE IN ISLAND
- ⑤ SPA ENTRANCE (SPECIAL PAVING)
- ⑥ CONCRETE PAVING
- ⑦ SOAKED / IRRIGATED LAWN (TYPICAL)
- ⑧ PROJECT SIGN
- ⑨ SITTING GARDEN WITH BENCHES AND SPECIAL PAVING
- ⑩ DOG PARK WITH BENCHES
- ⑪ EXISTING TREES TO BE SAVED (TREE # 1986,1987,198A,1989)
- ⑫ SERVICE COURT
- ⑬ PODIUM LEVEL TERRACE WITH SPECIAL PAVING, TABLES, CHAIRS, UMBRELLAS
- ⑭ LARGE PLANTER
- ⑮ PODIUM LEVEL PRIVATE TERRACES (PAVING AND PLANTINGS BY TOWNHOUSE ASSOCIATION)
- ⑯ GREEN ROOF (PODIUM LEVEL) SEEM VARIEGES
- ⑰ UTILITY SERVICE COURTYARD
- ⑱ THE MONARCH NORTH ENTRANCE AND DROP-OFF COURT WITH SPECIAL PAVING
- ⑲ MASONRY PIER
- ⑳ A.C. UNIT COURT (TYPICAL) WITH MASONRY WALLS
- ㉑ MULTI-FAMILY GARAGE COURT
- ㉒ GUEST PARKING
- ㉓ GUEST PARALLEL PARKING
- ㉔ SPECIAL PAVING AT GARAGE COURT ENTRANCE
- ㉕ COMMUNITY PARK WITH OPEN SPACE LAWN AND SCULPTURE
- ㉖ EXISTING TREES AND HEDGE ROW VEGETATION
- ㉗ RETAIL ENTRANCE
- ㉘ PROPOSED LIGHT POLE, TYP.
- ㉙ GARDEN ART
- ㉚ LOW 30' HT. MASONRY WALLS

**PLANT LIST:**

Code	Qty	Description	Comments
AF	34	Deciduous Trees Acer l. 'Worming' Amelanchier Field maple	3" cal., matched
AR	2	Acer rubrum Clump Red Maple	14" H., clumped, BAB
AG	4	Alnus glutinosa European Alder	6" cal., matched
CR	1	Cornus rubra Red Flowering Dogwood	6" cal., BAB
ER	28	Crataegus Chicago Blkca Maidenhair Tree	3" cal., BAB
ST	33	Deciduous L. 'Skyline' Skyline Honeylocust	3" cal., BAB
PC	41	Pyrus c. 'Chisledon Select' Chisledon Select Pear	4" cal., BAB, matched
YC	18	Tilia c. 'Greenspire' Littleleaf Linden	3" cal., BAB
<b>Evergreen Trees</b>			
AB	12	Abies concolor Concolor White Fir	10" H., BAB, unshaved fall to ground
<b>Ornamental Trees</b>			
AS	10	Amelanchier canadensis 'Autumn Brilliance' Autumn Brilliance Serviceberry	8-10" H., BAB, multi stem
CS	7	Corylus glabrescens Fragrant Walhazael	6" H., matched, BAB
CK	1	Cornus kousa Kousa Dogwood	6" H., matched, BAB
CK10	2	Cornus kousa Kousa Dogwood	10" H., matched, BAB
CP	7	Crataegus phaeopyrum Washington Hawthorn	8' height, BAB, multi stem
MC	19	Malus sargentii Sargent's Crab	2" cal., BAB, single stem
SA	19	Springer coccinea 'Kory Silk' Japanese Tree Lilac	3" cal., BAB, multi stem
<b>Shrubs</b>			
BW	416	Buxus s.l. 'Winstedgreen' Winstedgreen Boxwood	3 gal., Cont.
HN	46	Hydrangea m. 'Nikko Blue' Nikko Blue Hydrangea	40" H., Plant 3" c.c.
JK6	210	Jurinea ch. 'Kaleidos' Kaleidos Juniper	6" H., BAB
JK10	200	Jurinea ch. 'Kaleidos' Kaleidos Juniper	10" H., BAB, 3" c.c.
LO	40	Ligustrum o. regelianum Regal Privet	3 gal.
RA	166	Rhus a. 'Glo-Low' Glo-Low Fragrant Sumac	3 gal., Cont.
FRN	150	Rosa 'Newly Wild' Newly Wild Rose	3 gal., Cont.
SB	55	Spiraea s. 'Anthony Waterer' Anthony Waterer Spirea	3 gal., Cont.
TM	229	Taxus m. 'Densiformis' Gordon View	24"-30" H., BAB, plant 30" o.c.
TH	259	Thuja m. 'Hicksii' Hicks View	30" H., Plant 24" o.c.
VP	70	Viburnum plicatum tomentosum 'Munro' Munro Doxlobella Viburnum	30" H., BAB
<b>Perennials / Groundcovers</b>			
EA	60	Erigeron p. 'Alloy' White Coneflower	1 gal., Plant 18" o.c.
EP	60	Erigeron p. 'Magnus' Purple Coneflower	1 gal., Plant 18" o.c.
FR	80	Hosta l. 'Francis' Francis Hosta	2 gal., Cont. Plant 24" o.c.
FR	500	Hemerocallis 'Happy Returns' Happy Returns Daylily	1 gal., Plant 18" o.c.
HP	128	Heuchera micrantha 'Palace Purple' Palace Purple Cord Grass	1 gal., Plant 18" o.c.
PT	15000	Pachystima terminalis Pachystima	2 1/2" prec 50 per sq. ft., 17" o.c.

NOTE:  
\*SA = INDICATED MIXED SEDUM THAT SHALL BE PLANTED AS PLUGS.  
QUANTITY TO BE DETERMINED ONCE ARCHITECTURE AND ROOF AREA HAS BEEN FINALIZED.



**GRISSIM  
MEIZ  
ANDRIESE**  
Landscape Architecture  
Civil Engineering  
300 East Galy Street  
Northville, MI 48167  
Ph: 248-347-7010  
Fax: 248-347-7005  
Email: msohn@grissim-meiz-andriese.com

THE  
**MONARCH**  
PRIVATE RESIDENCES

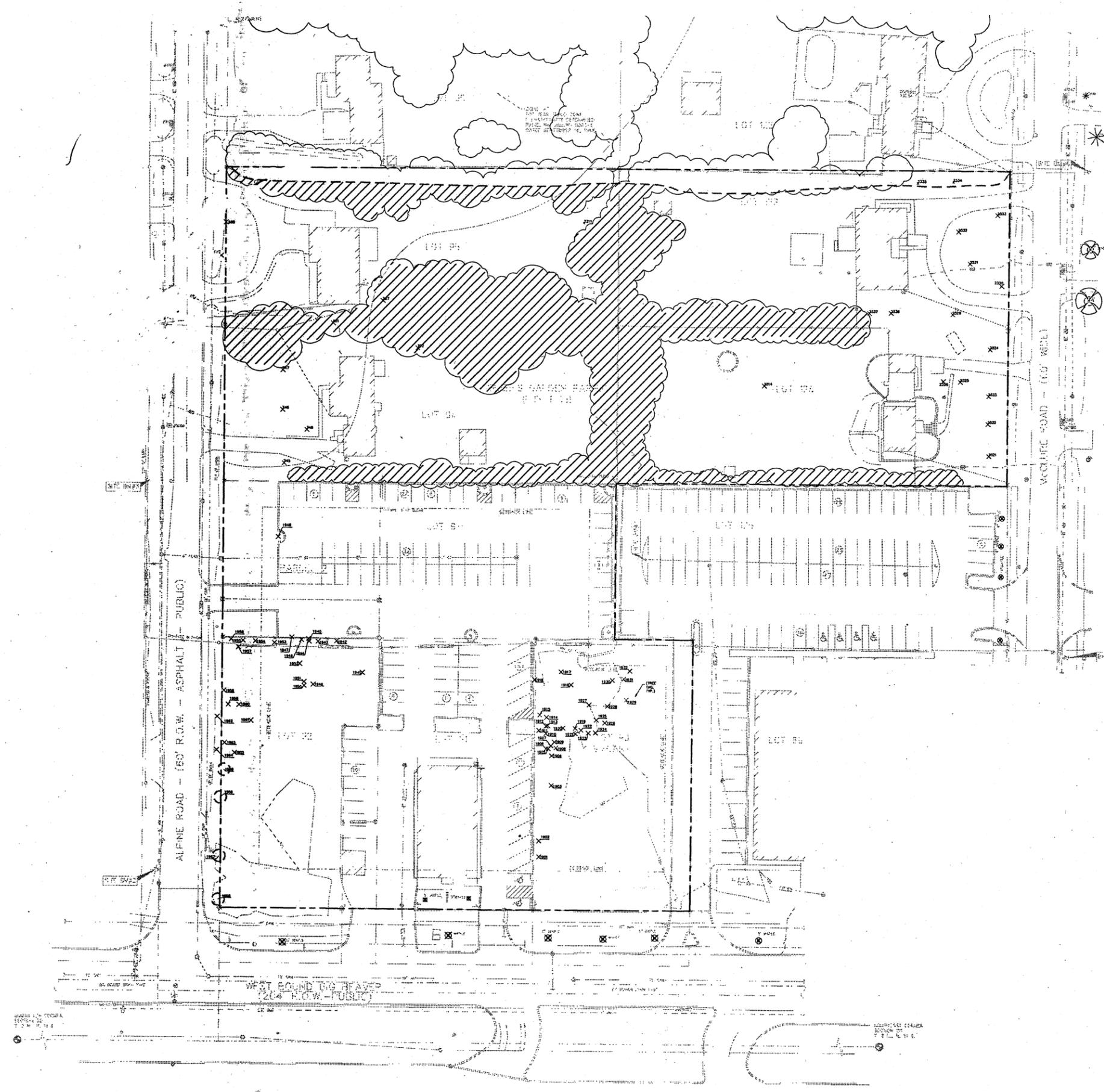
20300 West Big Beaver Road  
Troy, Michigan  
Joseph Fred & Associates

**CONCEPTUAL  
LANDSCAPE  
PLAN**

DATE	May 19, 2005	
PROJECT NUMBER	J15-051	
DRAWN BY	SRB	
SCALE	1" = 30' 0"	
NO.	REV. DESCRIPTION	DATE
	PUD SUBMITTAL	12/20/04
	SCHEMATIC DESIGN 100%	1/27/05
	ADDITIONAL LANDSCAPE DESIGN & 150' FINIC PLAN (per City req.)	4/18/05
	REVISED LIGHTING PLAN	4/19/05
	REVISED LANDSCAPE PLAN	5/18/05

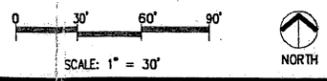
SHEET NUMBER

L-11



NO.	DATE	DESCRIPTION	BY	CHECKED	SCALE
1	12/20/04	PLD SUBMITTAL			
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
89					
90					
91					
92					
93					
94					
95					
96					
97					
98					
99					
100					

NOTES:  
 - SHADDED TREES TO BE REMOVED  
 LEGEND:  
 - TREES TO BE REMOVED  
 - TREE PROTECTION FENCE  
 - TREES TO REMAIN  
 - TREES TO BE REMOVED



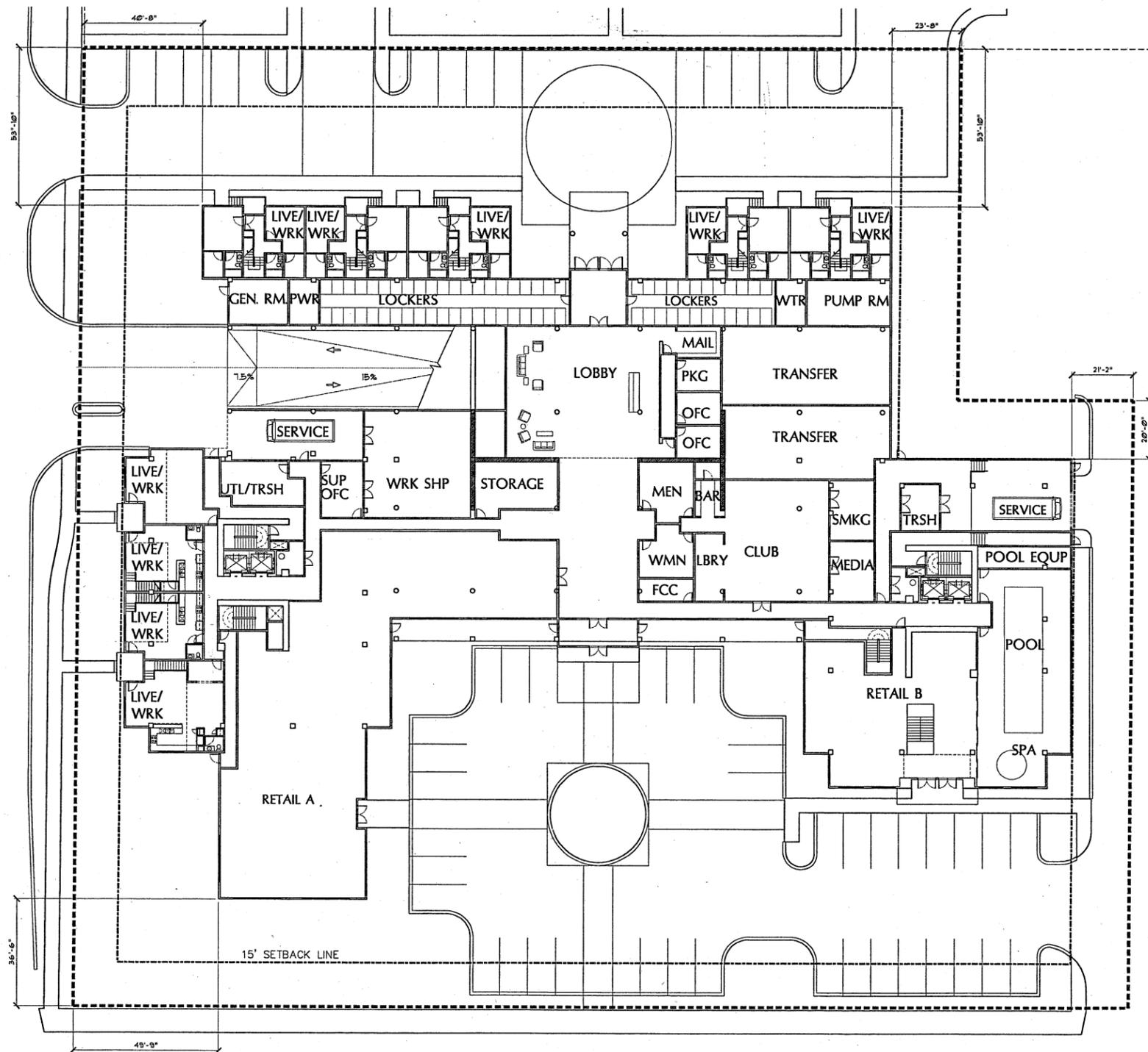
**GRISSIM METZ ASSOCIATES ANDRIESE**  
 Landscape Architects  
 300 East Oak Street  
 Berkeley, CA 94710  
 Tel: 415.877.8800  
 Fax: 415.877.8801  
 www.grissimmetz.com  
 A California Corporation

**SB ARCHITECTS**  
 SANDY BABCOCK

# THE MONARCH

Big Beaver Road  
 Joseph Freed and Associates

TREE DEMOLITION PLAN		
DATE	DEC. 8, 2004	
PROJECT NUMBER	2429	
DRAWN BY	JF	
SCALE	1" = 30'-0"	
NO.	REV. DESCRIPTION	DATE
	PLD SUBMITTAL	12/20/04
SHEET NUMBER		
L-2		



1 GROUND FLOOR  
1/8" = 1'-0"

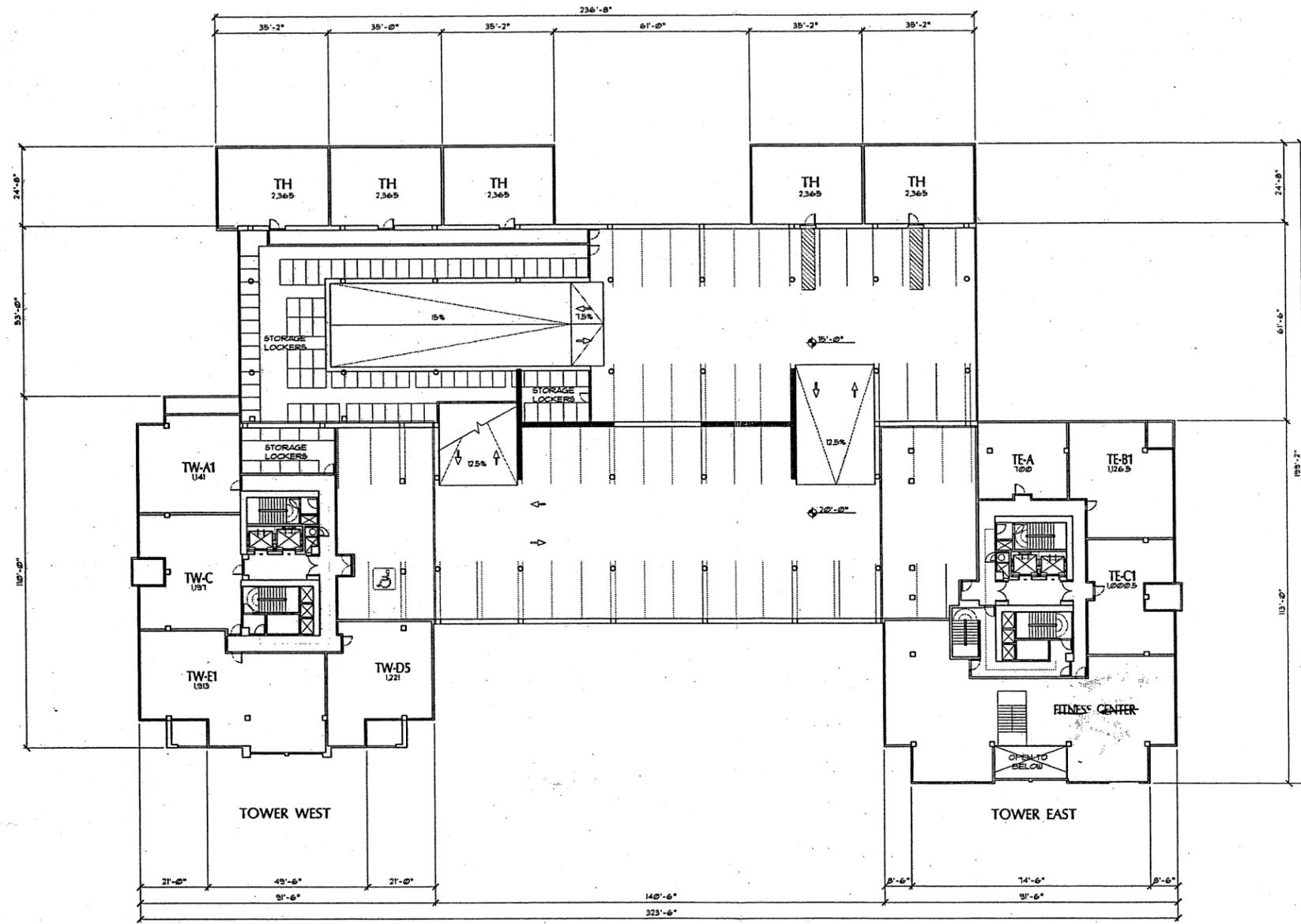
**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

**GROUND LEVEL  
 FLOOR PLAN**

DATE	02/14/05		
PROJECT NUMBER	2429		
DRAWN BY	ASH		
SCALE	1/8"=1'-0"		
NO	REV	DESCRIPTION	DATE
		PLD SUBMITTAL	02/20/04
		PLD REVISION 1	02/14/05
		PLD REVISION 2	05/12/05

SHEET NUMBER

A2.0



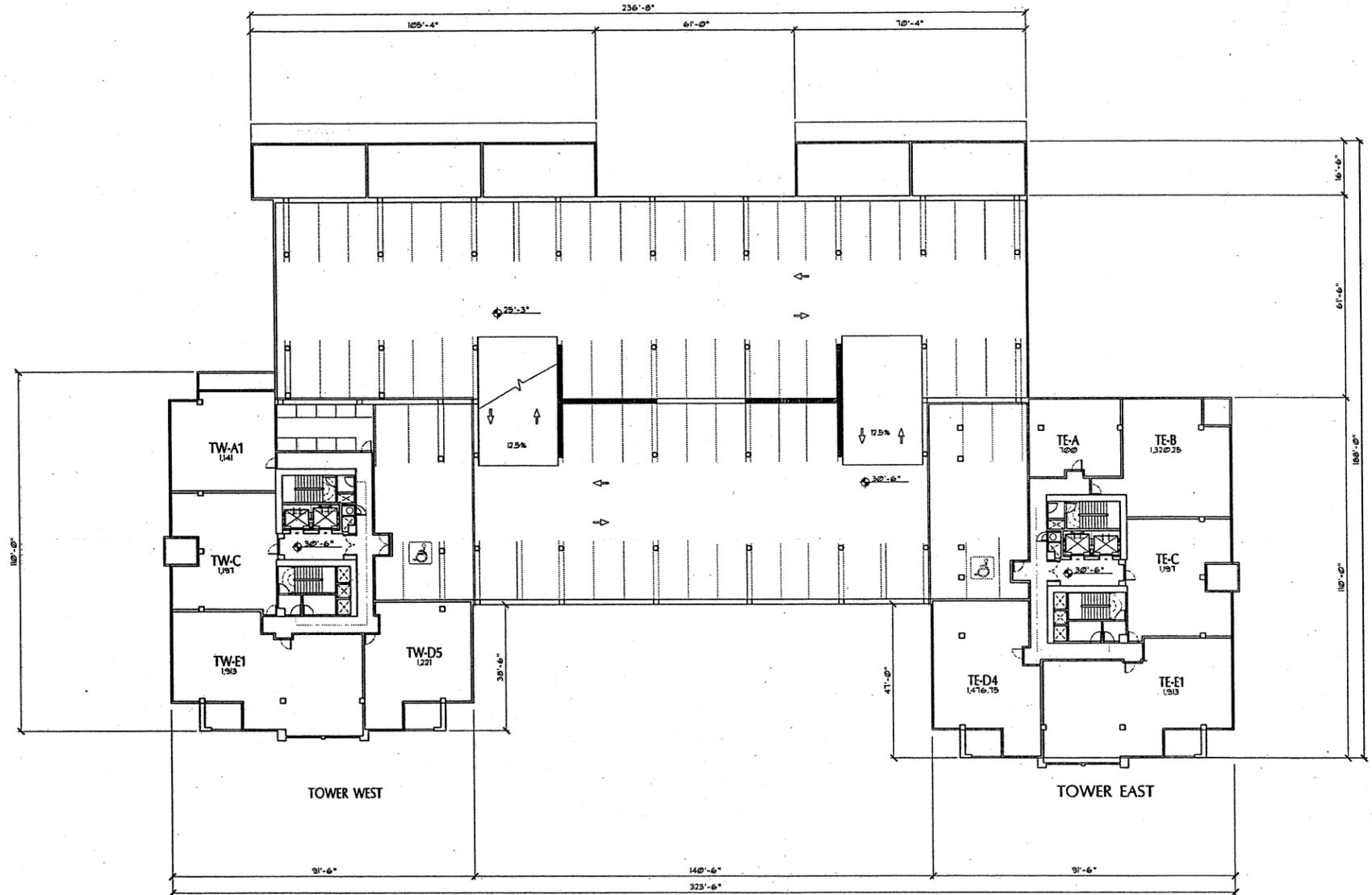
1 LEVEL 2  
1/8" = 1'-0"

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

**BUILDING PLANS  
 LEVEL 2**

DATE	12/20/04		
PROJECT NUMBER	2429		
DRAWN BY	XC		
SCALE	1/8" = 1'-0"		
NO.	REV.	DESCRIPTION	DATE
		FLD SUBMITTAL	12/20/04

SHEET NUMBER  
**A2.1**



1 LEVEL 3  
1/8" = 1'-0"

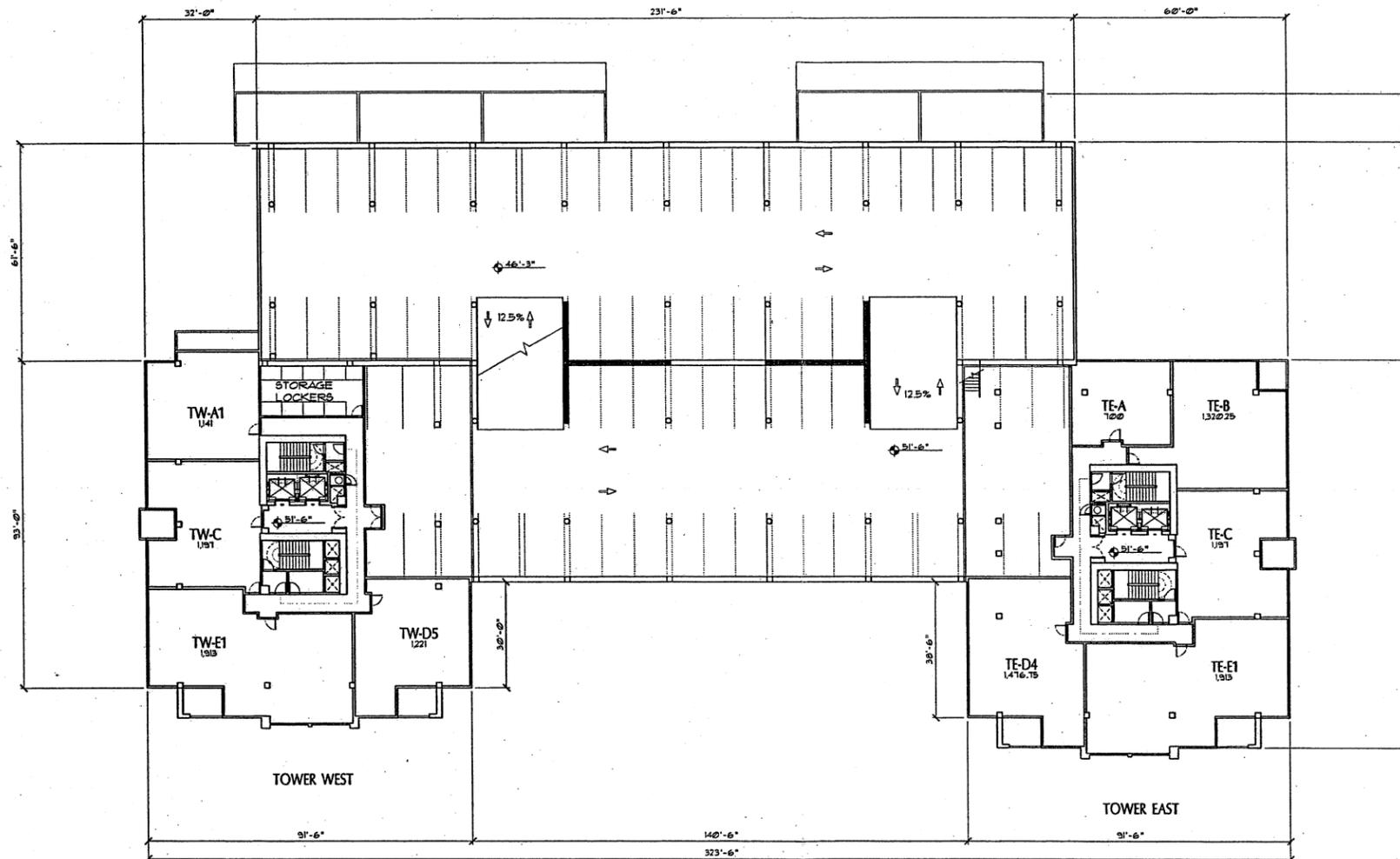
**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

**BUILDING PLANS  
 LEVEL 3**

DATE	12/20/04	
PROJECT NUMBER	2429	
DRAWN BY	XX	
SCALE	1/8" = 1'-0"	
NO	REV. DESCRIPTION	DATE
	PLD SUBMITAL	12/20/04

SHEET NUMBER  
**A2.2**

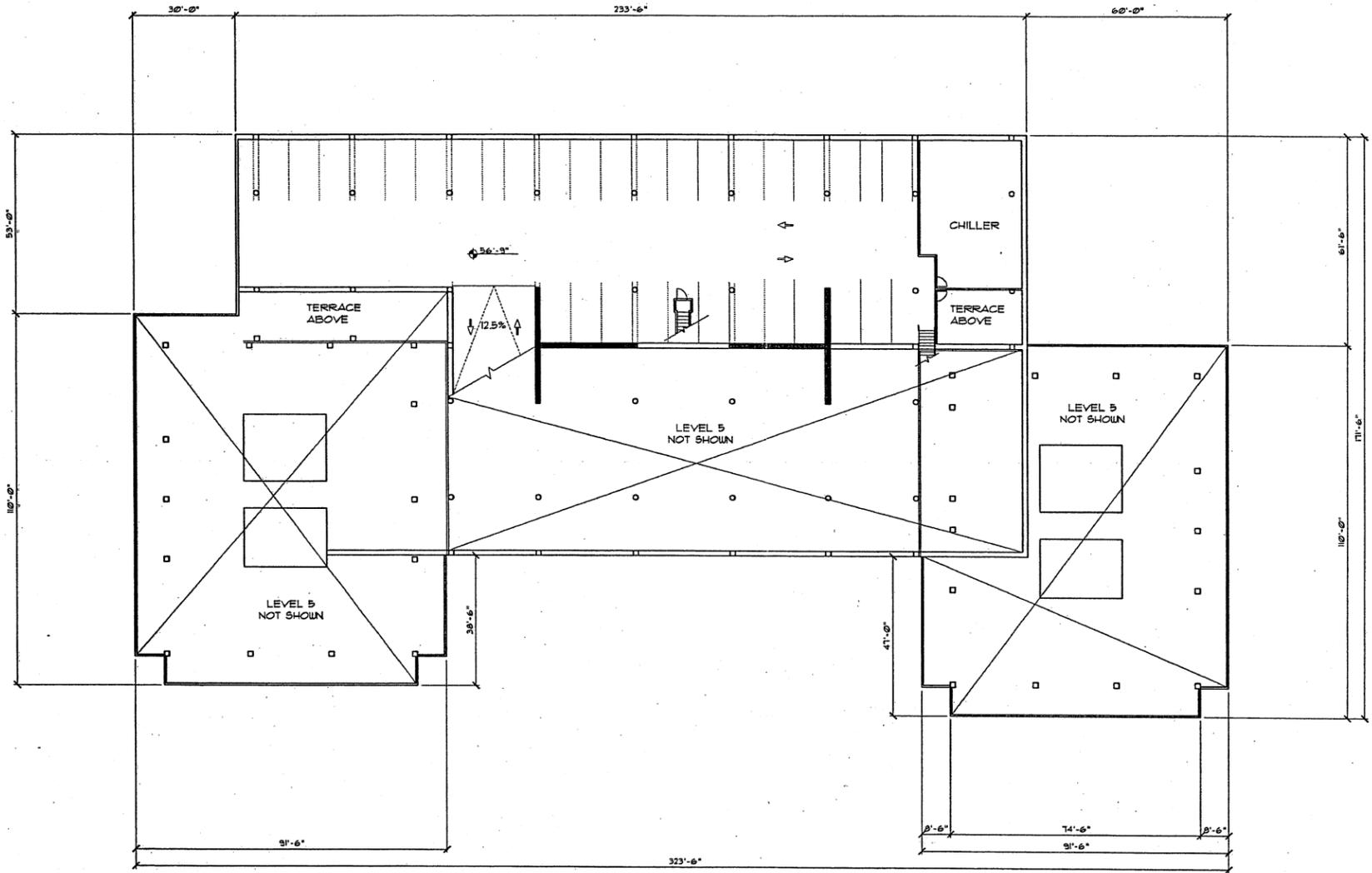




1 LEVEL 5  
1/8" = 1'-0"

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

<b>BUILDING PLANS</b>		
<b>LEVEL 5</b>		
DATE	12/20/04	
PROJECT NUMBER	2429	
DRAWN BY	XX	
SCALE	1/8" = 1'-0"	
NO.	REV. DESCRIPTION	DATE
	RJD SUBMITAL	12/20/04
SHEET NUMBER		
A2.4		



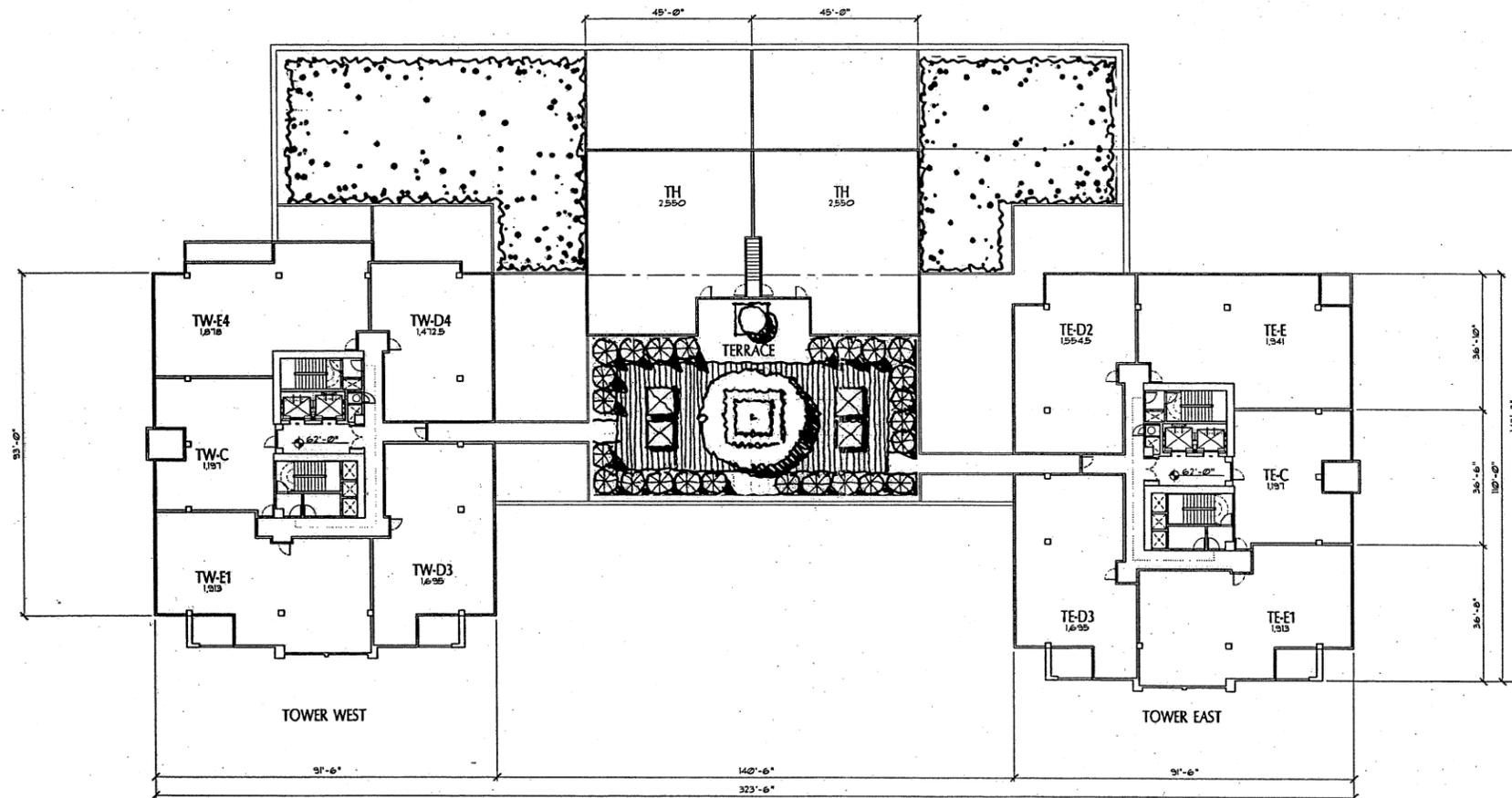
1 LEVEL 5.5 (TOP PARKING LEVEL)  
1/8" = 1'-0"

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

BUILDING PLANS  
 LEVEL 5.5

DATE	12/20/04		
PROJECT NUMBER	2429		
DRAWN BY	XX		
SCALE	1/8" = 1'-0"		
NO.	REV.	DESCRIPTION	DATE
		PLD SUBMITAL	12/20/04

SHEET NUMBER  
**A2.5**



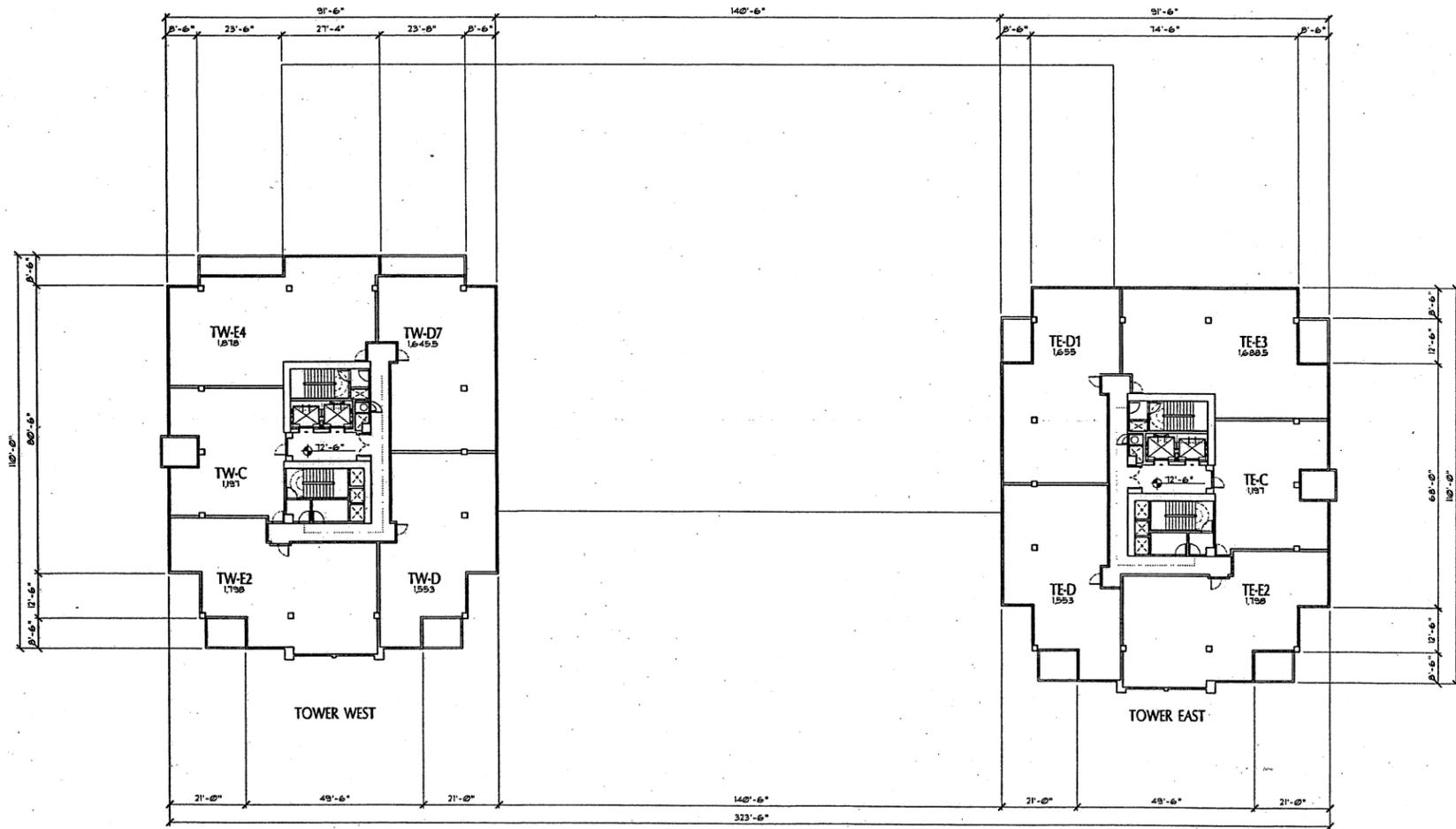
1 LEVEL 6  
1/8" = 1'-0"

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

**BUILDING PLANS  
 LEVEL 6**

DATE	12/20/04		
PROJECT NUMBER	2429		
DRAWN BY	XX		
SCALE	1/8" = 1'-0"		
NO.	REV.	DESCRIPTION	DATE
		FLD SUBMITTAL	12/20/04

SHEET NUMBER  
**A26**



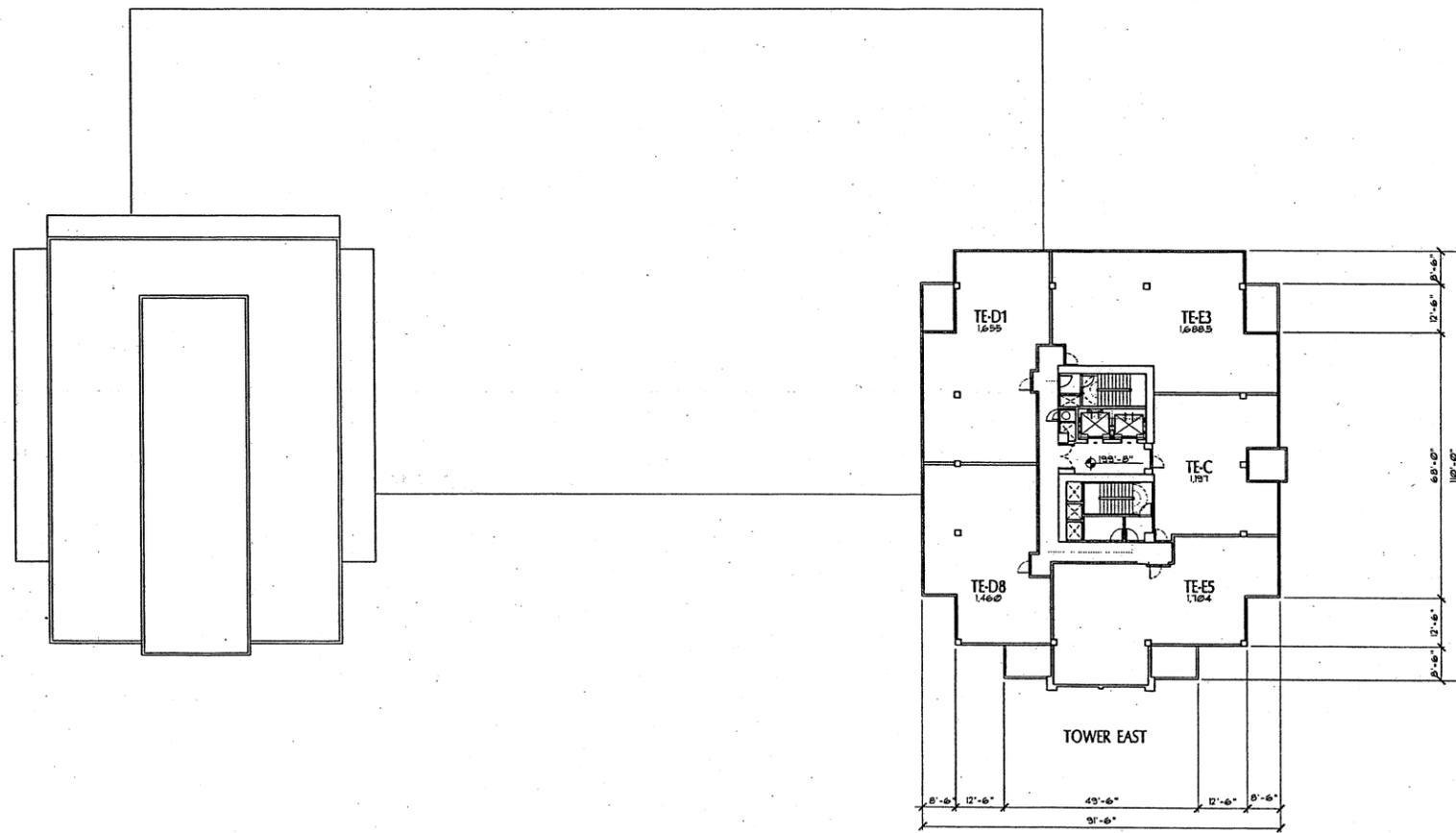
1 LEVEL 8  
1/8" = 1'-0"

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

BUILDING PLANS  
 LEVEL 8

DATE	12/20/04	
PROJECT NUMBER	2429	
DRAWN BY	XX	
SCALE	1/8" = 1'-0"	
NO	REV. DESCRIPTION	DATE
	PLD SUBMITTAL	12/20/04

SHEET NUMBER  
**A27**



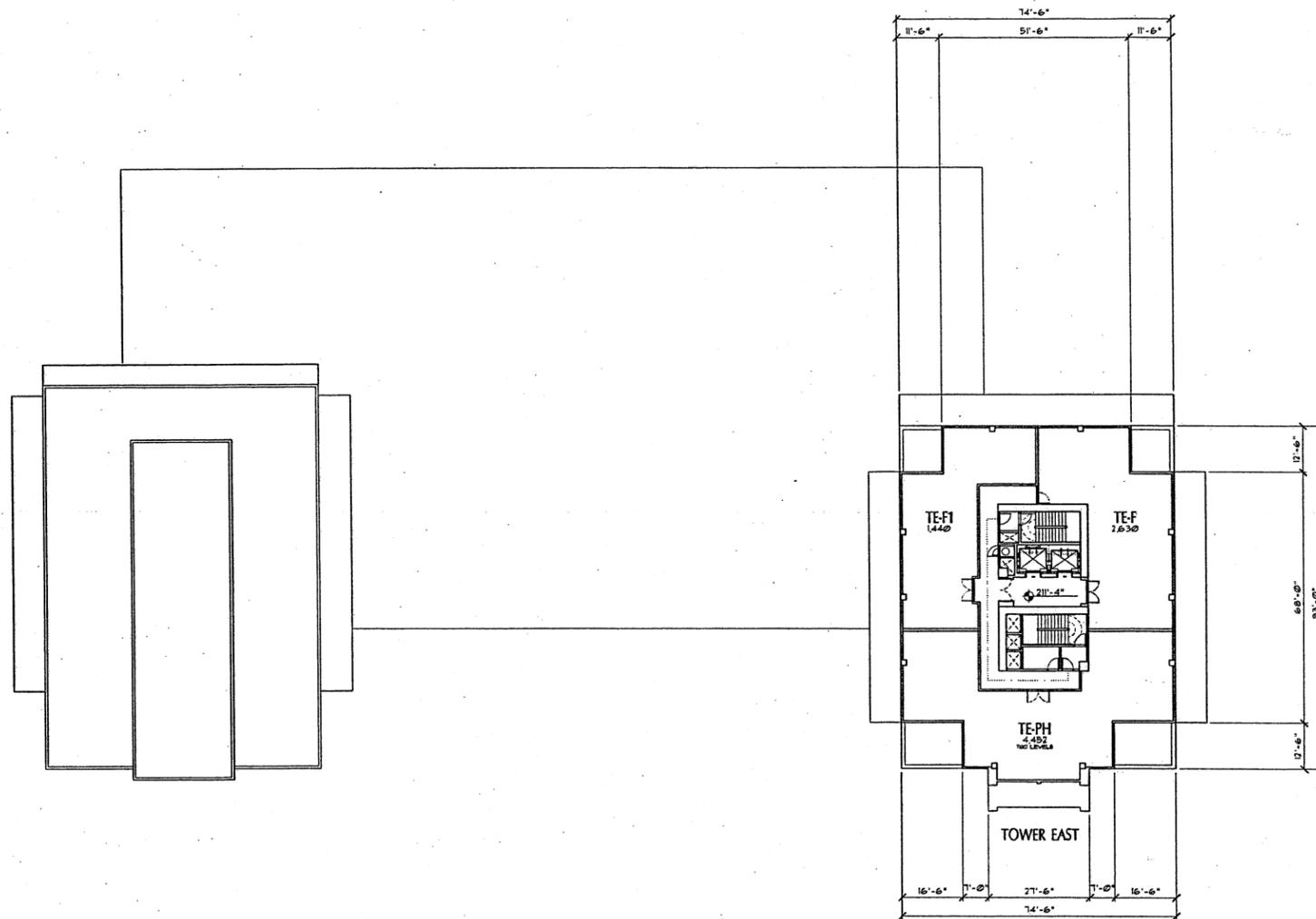
1 LEVEL 19  
1/8" = 1'-0"

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

BUILDING PLANS  
 LEVEL 19

DATE	12/20/04		
PROJECT NUMBER	2429		
DRAWN BY	JK		
SCALE	1/8" = 1'-0"		
NO.	REV.	DESCRIPTION	DATE
		FLD SUBMITAL	12/20/04

SHEET NUMBER  
**A2.8**



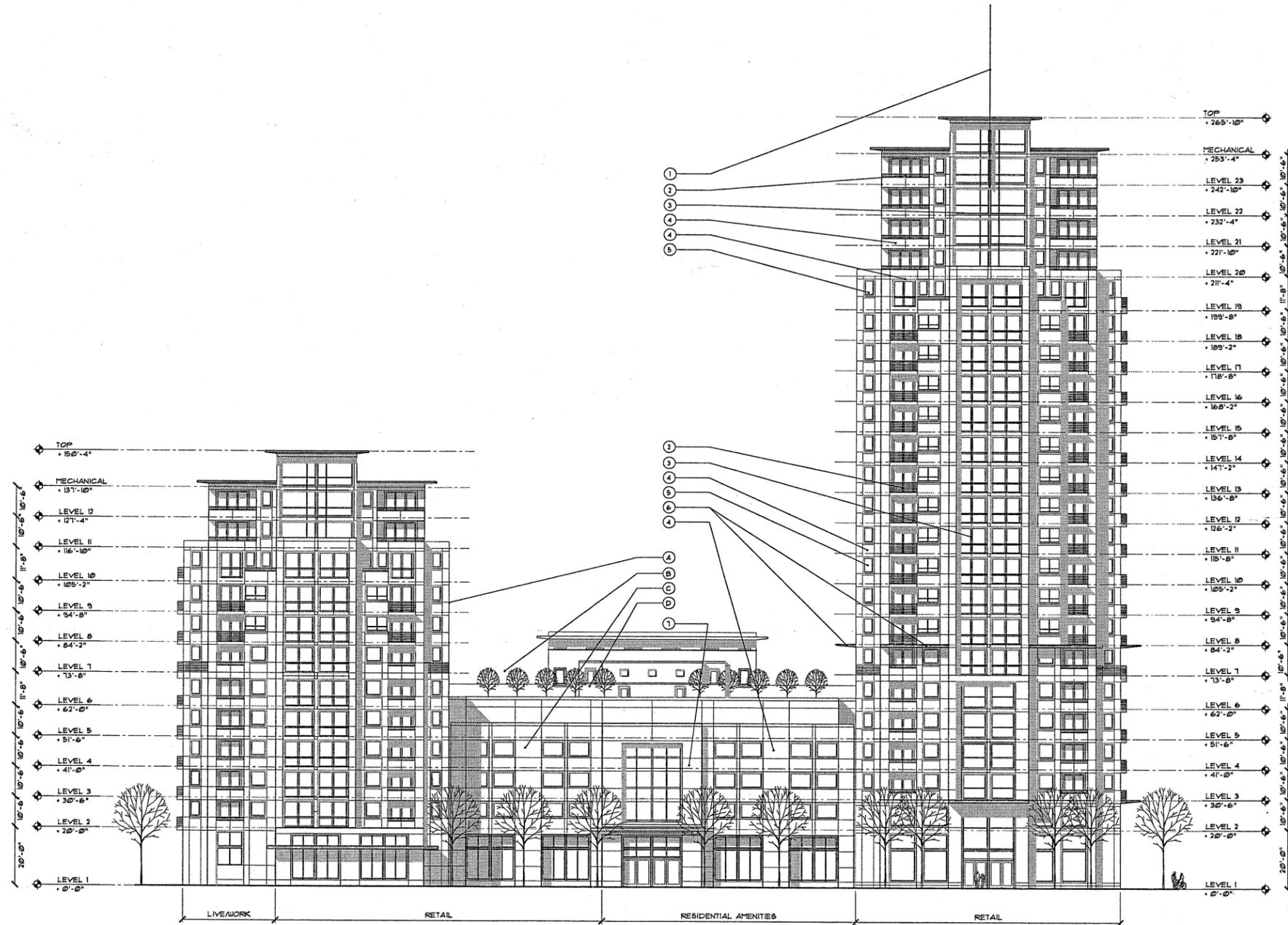
**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

**BUILDING PLANS  
 LEVEL 20**

DATE	12/20/04		
PROJECT NUMBER	2429		
DRAWN BY	JK		
SCALE	1/8" = 1'-0"		
NO.	REV.	DESCRIPTION	DATE
		PLD SUBMITTAL	12/20/04

SHEET NUMBER

A29



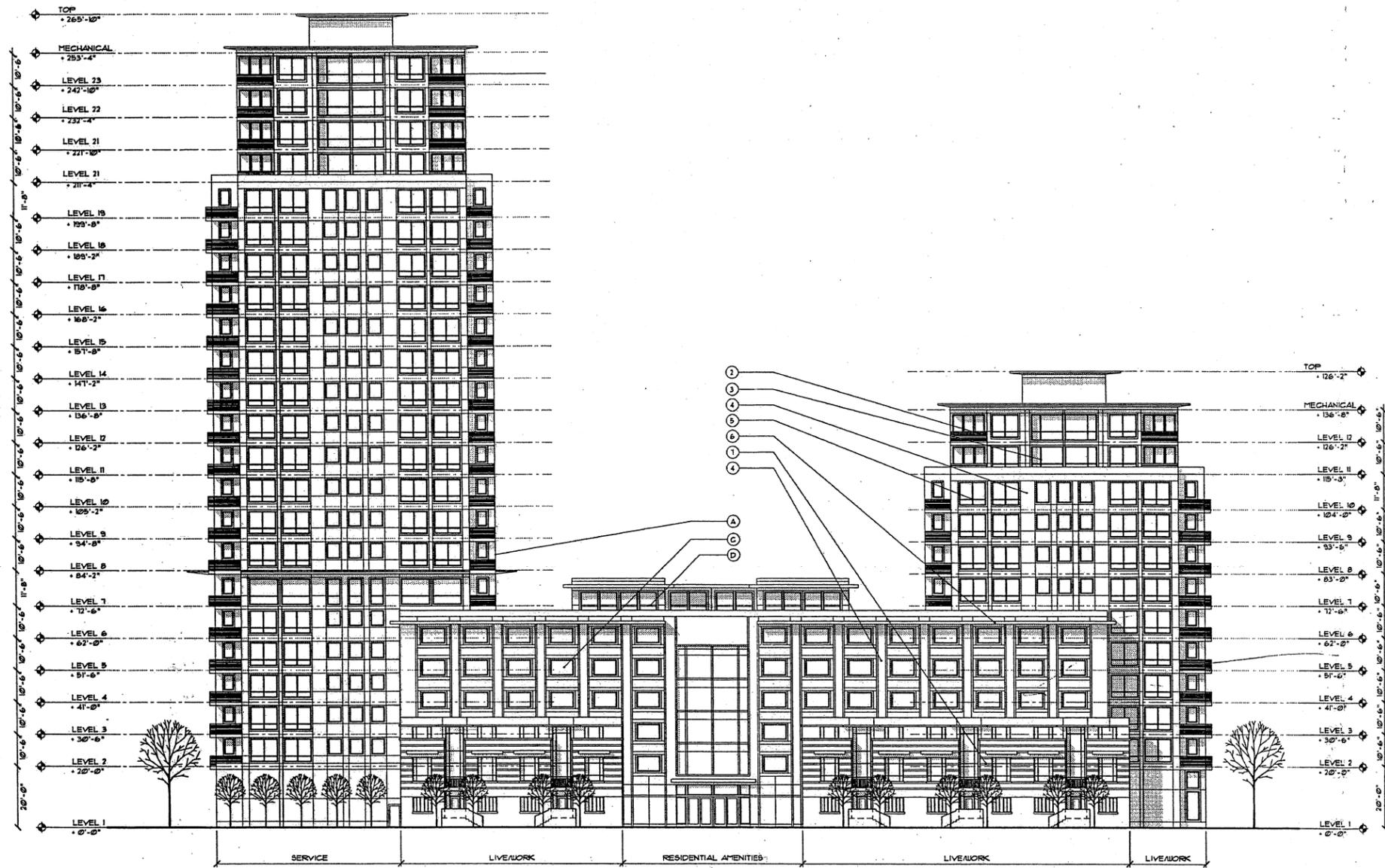
1 BIG BEAVER (SOUTH) ELEVATION  
1/8" = 1'-0"

- LEGEND
- ① ANTENNA
  - ② METAL RAILING W/ LAMINATED GLASS PANELS
  - ③ METAL WINDOW WALL SYSTEM
  - ④ PRE-CAST PANELS
  - ⑤ METAL WINDOW
  - ⑥ METAL CANOPY
  - ⑦ BRICK & STONE VENEER
- 
- Ⓐ RESIDENTIAL TOWER
  - Ⓑ ROOF GARDEN
  - Ⓒ PARKING GARAGE
  - Ⓓ PODIUM LEVEL TOWNHOUSE

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

EXTERIOR ELEVATIONS

DATE	02/14/05		
PROJECT NUMBER			
DRAWN BY	JF		
SCALE	1/8" = 1'-0"		
NO.	REV.	DESCRIPTION	DATE
		PLD SUBMITTAL	12/20/04
		PLD REVISION 2	05/12/05
SHEET NUMBER			
A3.0			

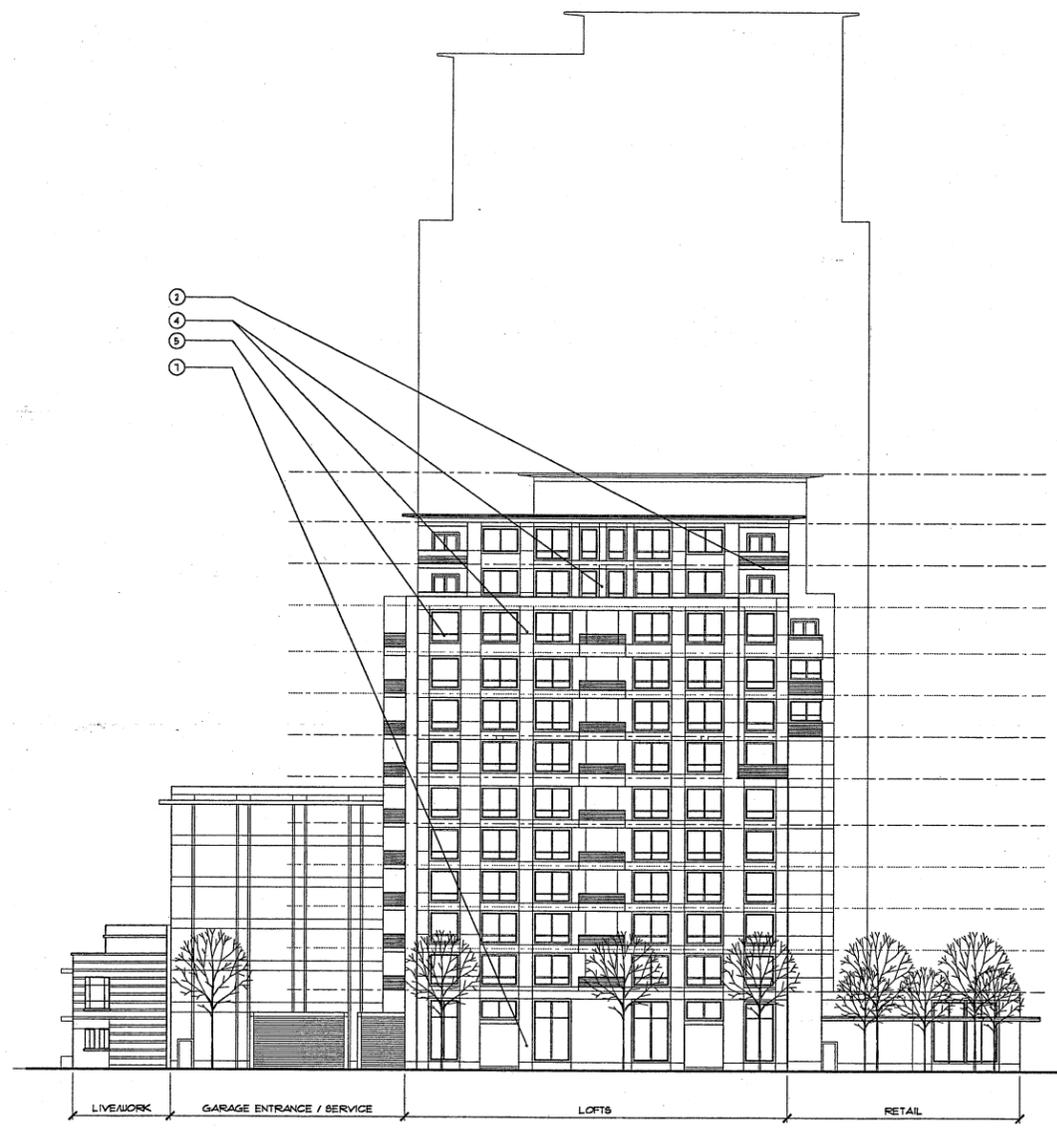


1 NORTH ELEVATION  
1/8" = 1'-0"

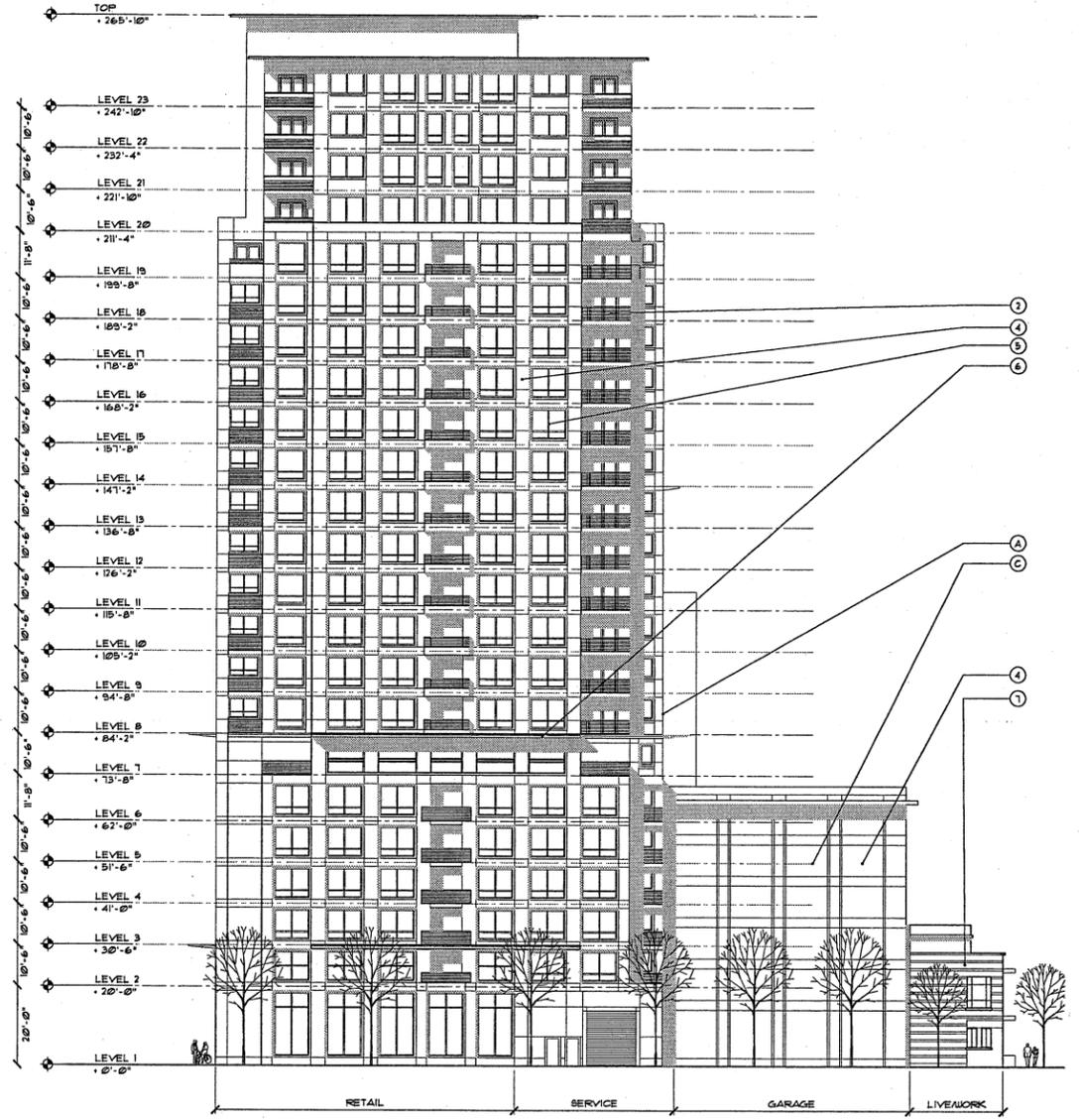
- LEGEND
- ① ANTENNA
  - ② METAL RAILING
  - ③ METAL WINDOW WALL SYSTEM
  - ④ PRE-CAST PANELS
  - ⑤ METAL WINDOW
  - ⑥ METAL CANOPY
  - ⑦ BRICK & STONE VENEER
  - A RESIDENTIAL TOWER
  - B ROOF GARDEN
  - C PARKING GARAGE
  - D PODIUM LEVEL TOWNHOUSE

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

ELEVATIONS	
DATE	12/20/04
PROJECT NUMBER	
DRAWN BY	XX
SCALE	1/8" = 1'-0"
NO.	REV. DESCRIPTION
	DATE
	PUD SUBMITTAL
	12/15/04
SHEET NUMBER	
A3.1	



2 WEST ELEVATION  
1/8" = 1'-0"



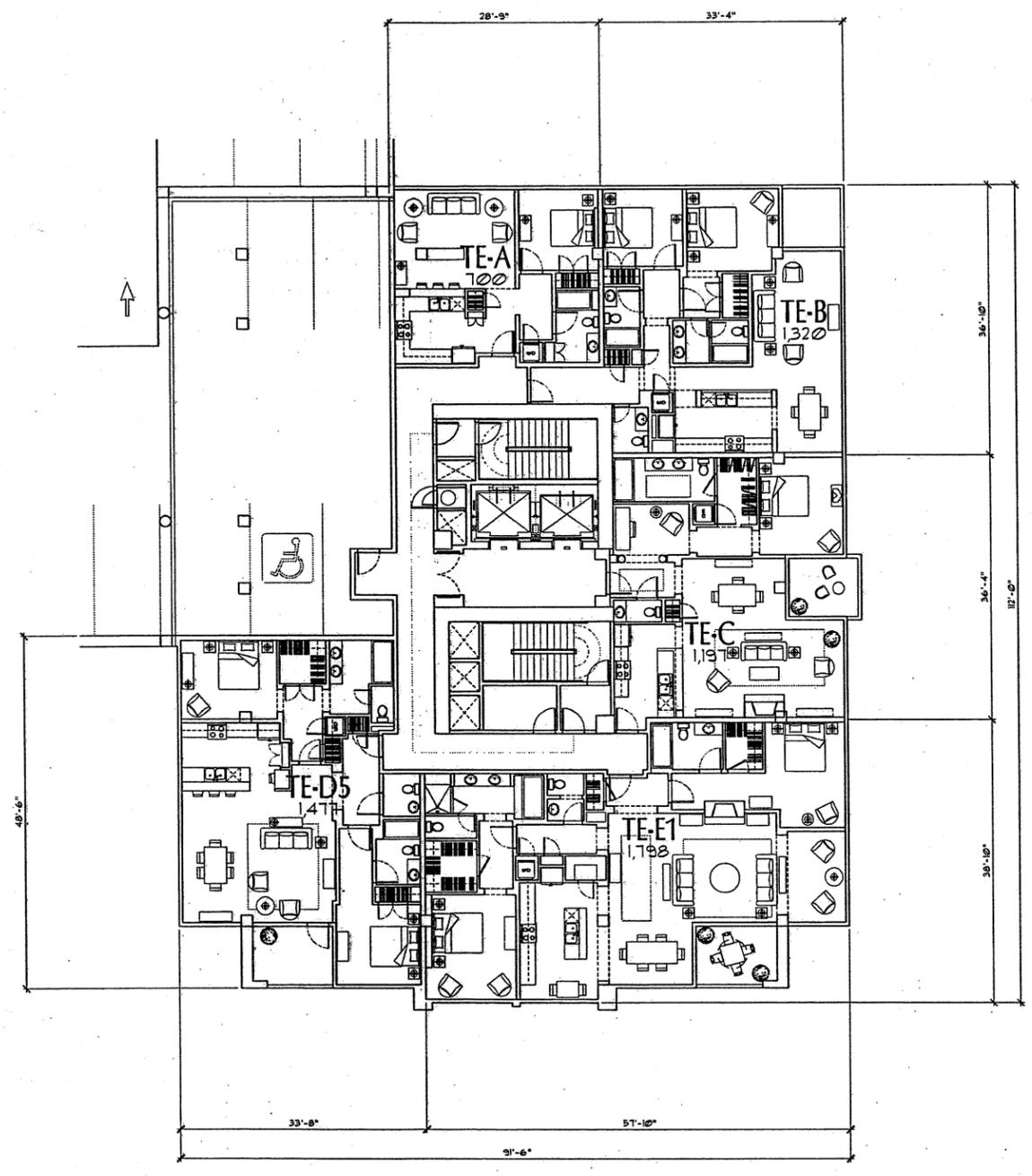
1 EAST ELEVATION  
1/8" = 1'-0"

- LEGEND
- ① ANTENNA
  - ② METAL RAILING W/ LAMINATED GLASS PANELS
  - ③ METAL WINDOW WALL SYSTEM
  - ④ PRE-CAST PANELS
  - ⑤ METAL WINDOW
  - ⑥ METAL CANOPY
  - ⑦ BRICK + STONE VENEER
  - ⑧ RESIDENTIAL TOWER
  - ⑨ ROOF GARDEN
  - ⑩ PARKING GARAGE
  - ⑪ PODIUM LEVEL TOWNHOUSE

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

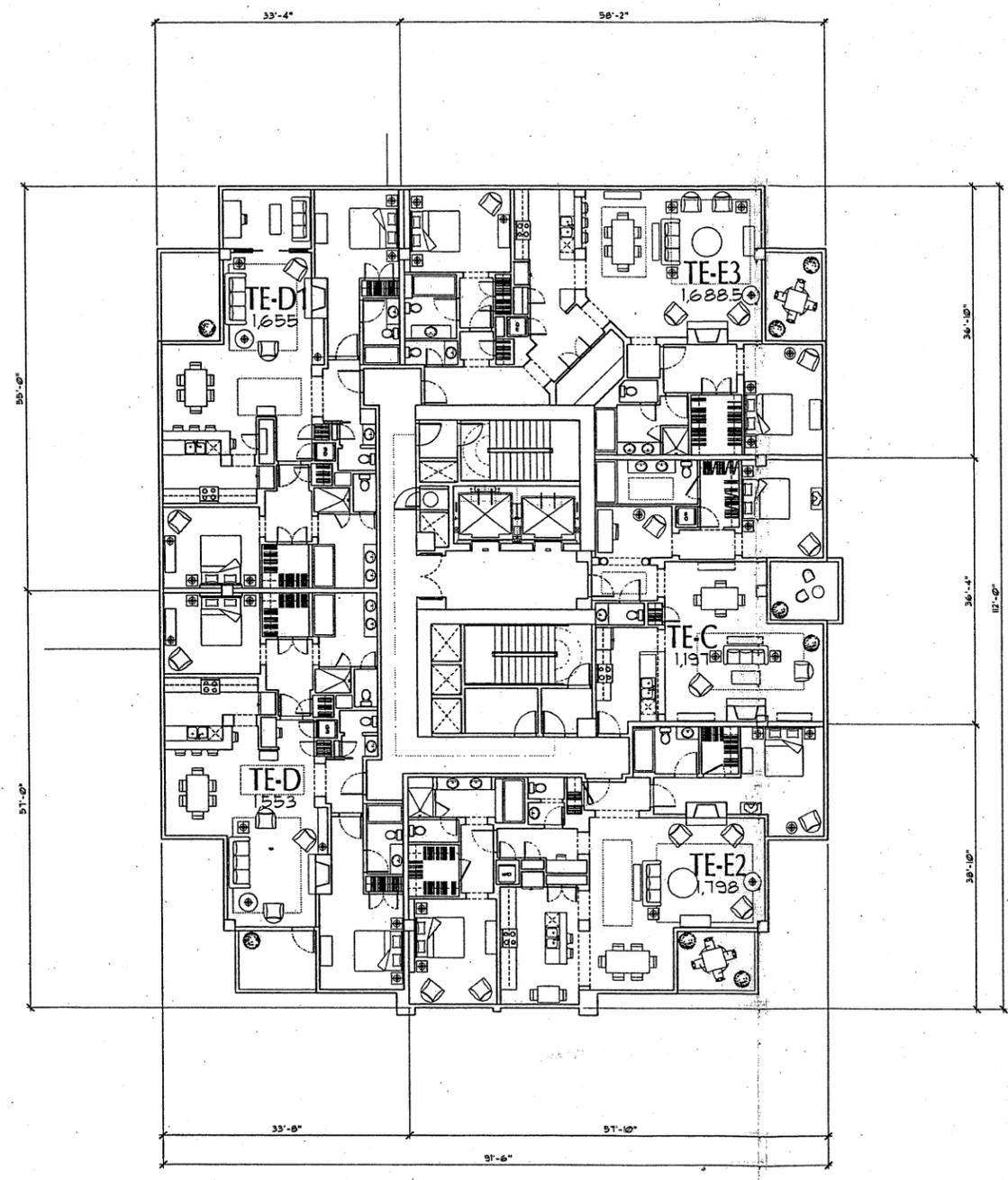
ELEVATIONS

DATE	02/14/05	
PROJECT NUMBER		
DRAWN BY	JF	
SCALE	1/8" = 1'-0"	
NO.	REV. DESCRIPTION	DATE
	PLD SUBMITTAL	12/20/04
	PLD REVISION 2	05/12/05
SHEET NUMBER		
A32		



TOWER EAST

2 LEVEL 3 TO 5  
1/8" = 1'-0"



TOWER EAST

1 LEVEL 8 TO 18  
1/8" = 1'-0"

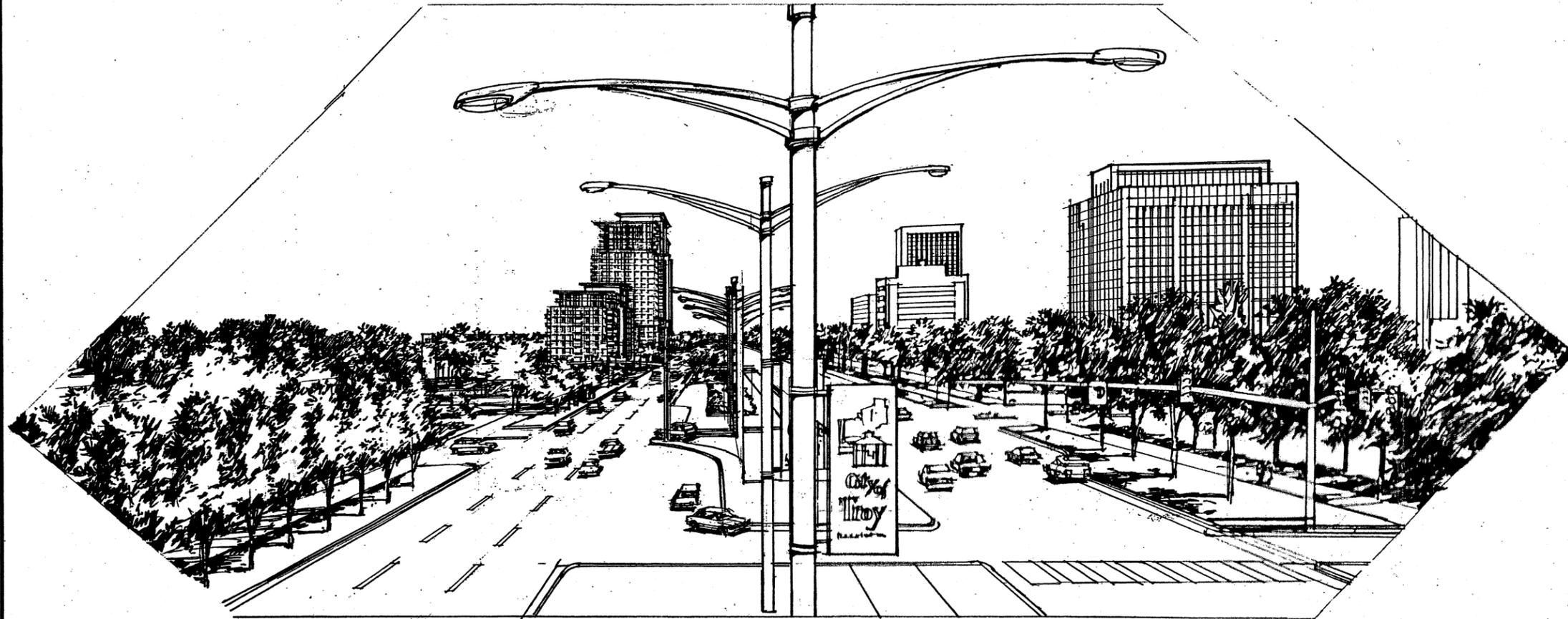
# THE MONARCH

Big Beaver Road  
 Joseph Freed and Associates

UNIT PLANS  
 LEVELS 3 - 5  
 LEVELS 8 - 18

DATE	12/20/04	
PROJECT NUMBER		
DRAWN BY	XX	
SCALE	1/8" = 1'-0"	
NO.	KEY DESCRIPTION	DATE
	PLD SUBMITAL	12/20/04

SHEET NUMBER  
**A4.0**



# THE MONARCH

Big Beaver Road  
Joseph Freed and Associates

**SB** ARCHITECTS

One Beach Street, Suite 201  
Troy, MI 48063-1111  
TEL: 419.473.2000  
FAX: 419.473.2002  
www.sandymb.com  
A Collaborative Corporation

SANDY  
BARCOCK

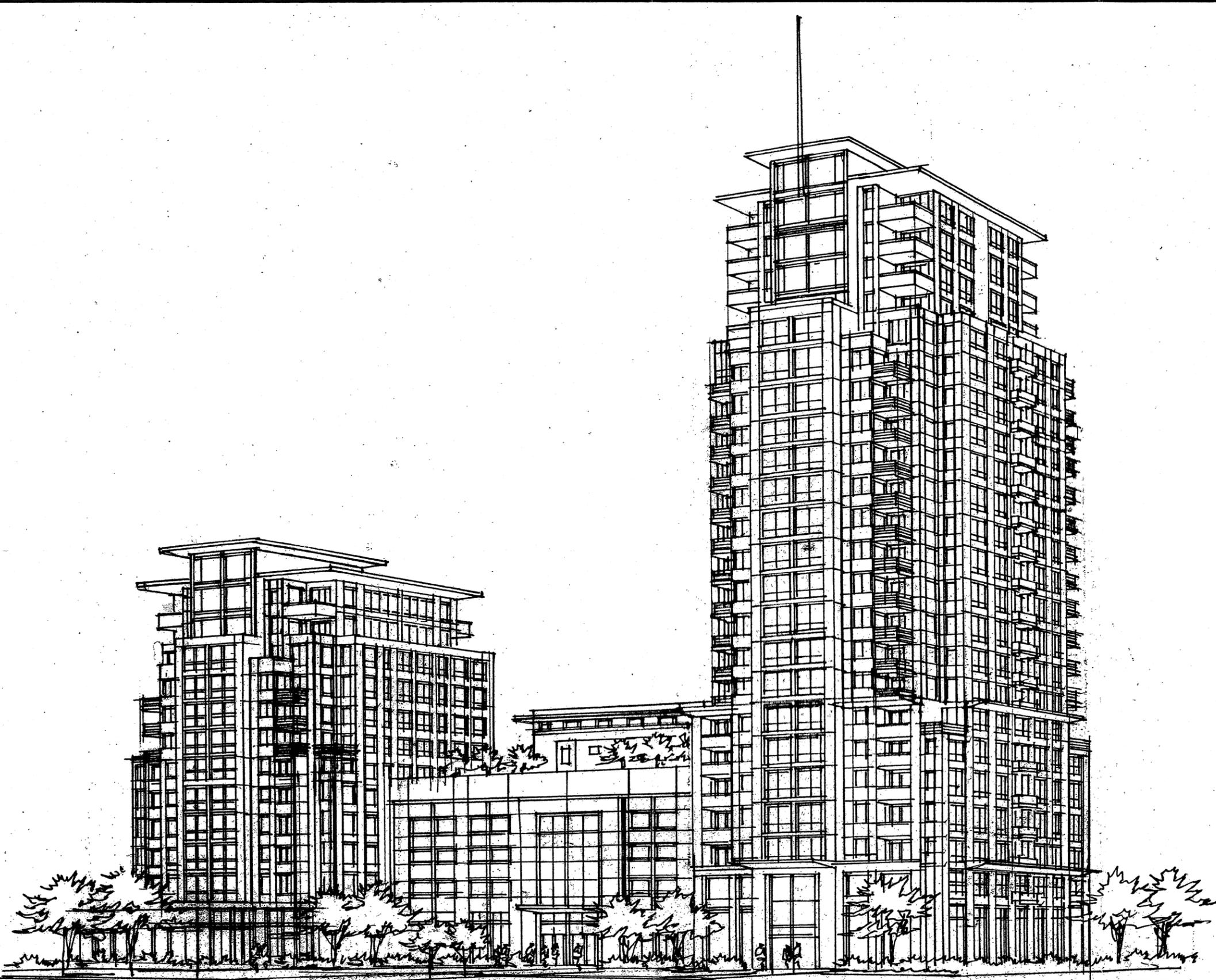
**SOMERSET BRIDGE  
CONCEPTUAL  
3D STUDY**

DATE	09/10/06	
PROJECT NUMBER	2429	
DRAWN BY	JJ	
SCALE	NO SCALE	
NO	REV. DESCRIPTION	DATE
	PLD SUBMITAL	12/28/04
	PLD REVISION 1	02/16/05

SHEET NUMBER

**A10.1**

① VIEW from SOMERSET BRIDGE (CONCEPT STUDY)



1 VIEW from BIG BEAVER RD. (CONCEPT STUDY)

**SB** ARCHITECTS  
 One Beach Blvd., Suite 201  
 Westborough, MA 01581  
 TEL: 415.773.8800  
 FAX: 415.773.0200  
 www.sandysbarcock.com  
 A California Corporation

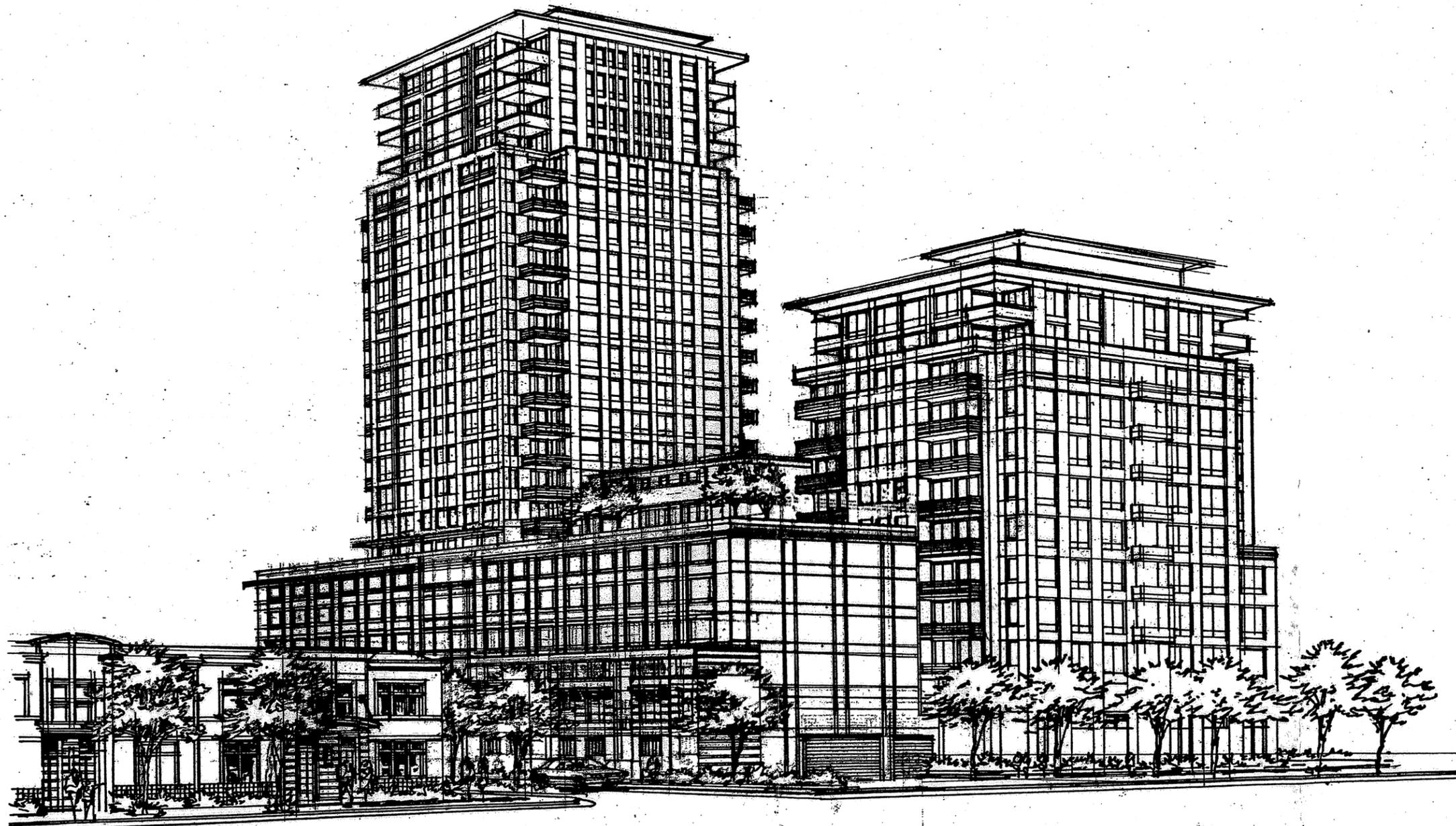
SANDY  
 BARCOCK

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

BIG BEAVER ROAD  
 CONCEPTUAL  
 3D STUDY

DATE	BY/REV		
PROJECT NUMBER	20P		
DRAWN BY	XX		
SCALE	NO SCALE		
NO.	REV.	DESCRIPTION	DATE
		PLD SUBMITTAL	02/20/11
		PLD REVISION 1	02/20/11

SHEET NUMBER  
**A10.1a**



1 VIEW from ALPINE ST. (CONCEPT STUDY)

**SB** ARCHITECTS  
 SANDY BARCOCK

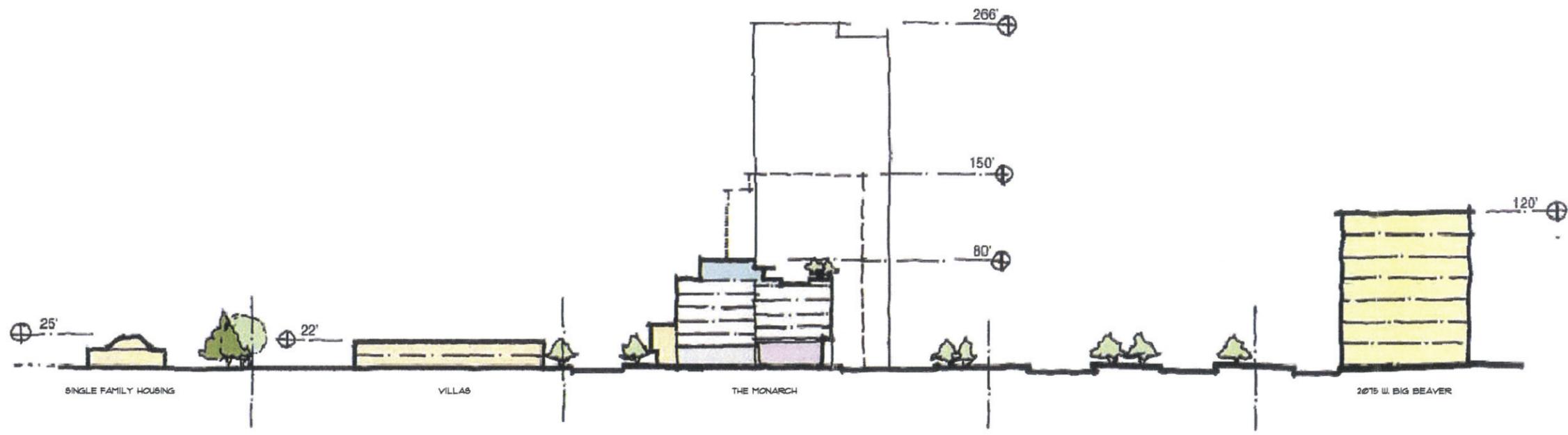
**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

**ALPINE STREET  
 CONCEPTUAL  
 3D STUDY**

DATE	OFFICE	
PROJECT NUMBER	233	
DRAWN BY	JCF	
SCALE	NO SCALE	
NO.	REV. DESCRIPTION	DATE
	PLD BARCOCK	10/20/05
	PLD BARCOCK 1	05/20/06

SHEET NUMBER  
**A10.1b**

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates



1 HEIGHT TRANSITION



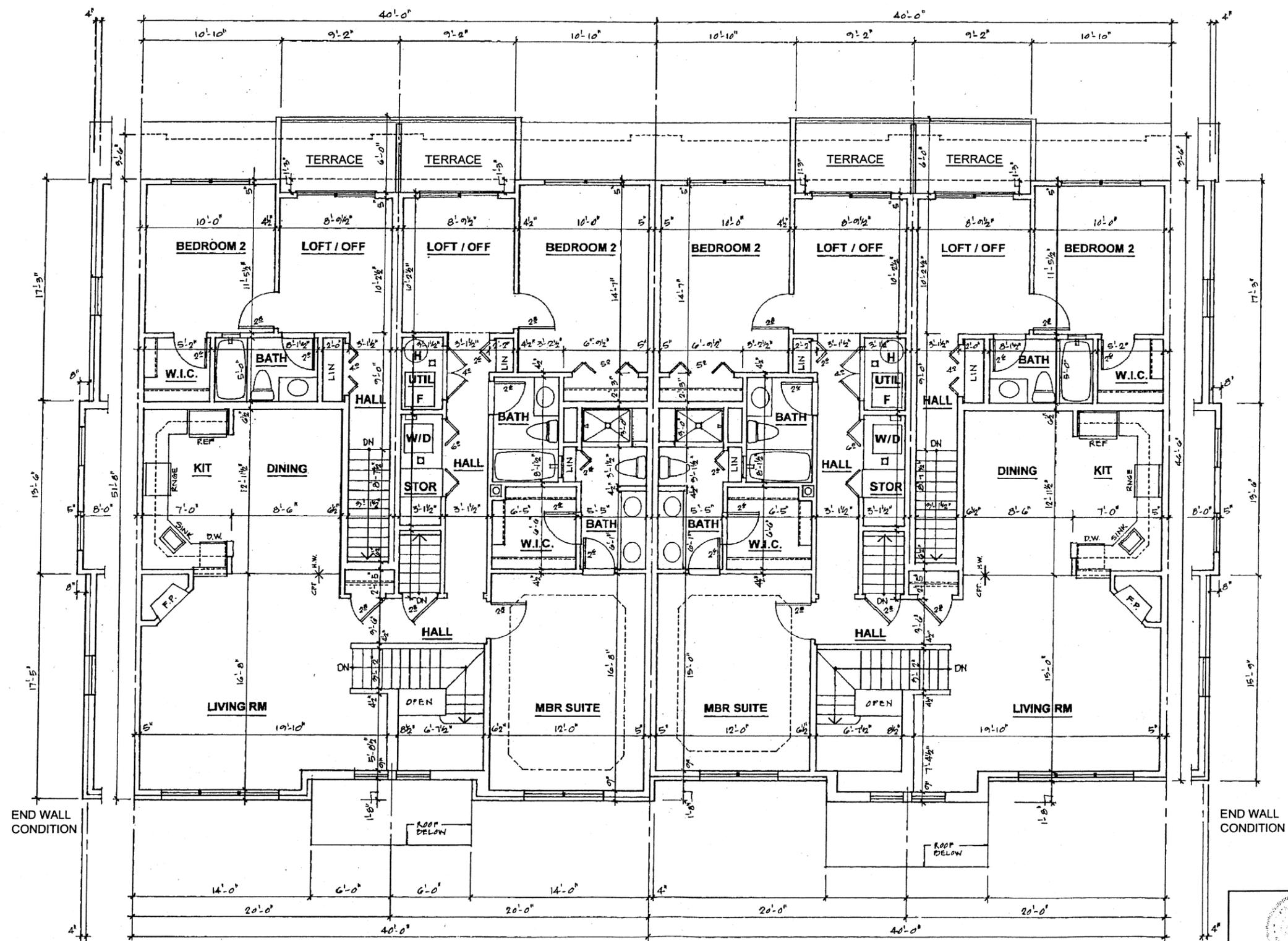
2 HEIGHT COMPARISON

HEIGHT STUDIES

DATE	02/14/15	
PROJECT NUMBER		
DRAWN BY	JK	
SCALE	NO SCALE	
NO.	REV. DESCRIPTION	DATE
	PLD SUBMITTAL	12/20/14
	PLD REVISION 1	02/14/15

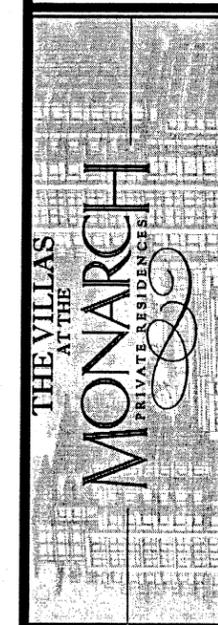
SHEET NUMBER  
**A10.2**





DESIGN RESOURCES  
 Architects, L. L. C.  
 6445 CITATION DR., SUITE "C", CLARKSTON, MI 48346  
 PHONE: (248) 827-9403  
 FAX: (248) 827-9403  
 email: info@designresources.com  
 website: www.designresources.com

**Tadian Homes**  
 Your Idea is a Dream.  
 210 Town Center Drive  
 Troy, MI 48064

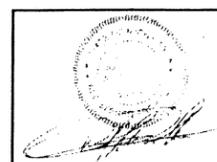


70380 West Big Beaver Road  
 Troy, Michigan  
 Joseph Freed & Associates

**SECOND FLOOR**

DATE	05-10-05	
PROJECT NUMBER	05-026	
DRAWN BY	P. BERTIN	
SCALE	1/4" = 1'-0"	
NO.	REV. DESCRIPTION	DATE

SHEET NUMBER  
**A-2**





GARAGE SIDE ELEVATION



TYP END ELEVATION



COURT SIDE ELEVATION



DESIGN RESOURCES  
Archides, L. L. C.  
6445 CANTON DR. SUITE 'E', CLARKSTON, MI 48346  
PHONE: (248) 627-9423 FAX: (248) 627-9443  
website: www.designresources.com email: info@designresources.com

**Tadian Homes**  
Your Move is Our Move  
210 Town Center Drive  
Troy, MI 48064

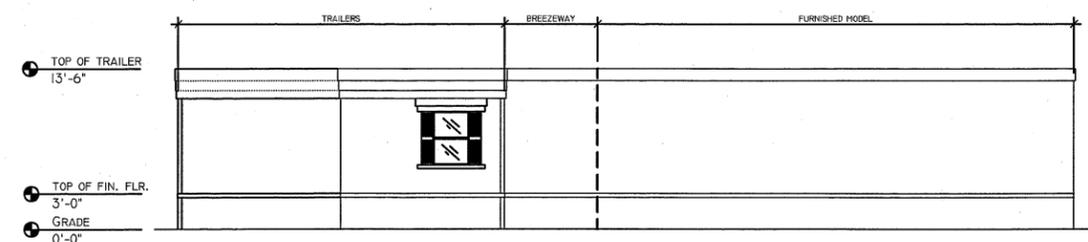
THE VILLAS  
AT THE  
**MONARCH**  
PRIVATE RESIDENCES

3000 West Big Beaver Road  
Troy, Michigan  
48064-1000  
313.791.8800

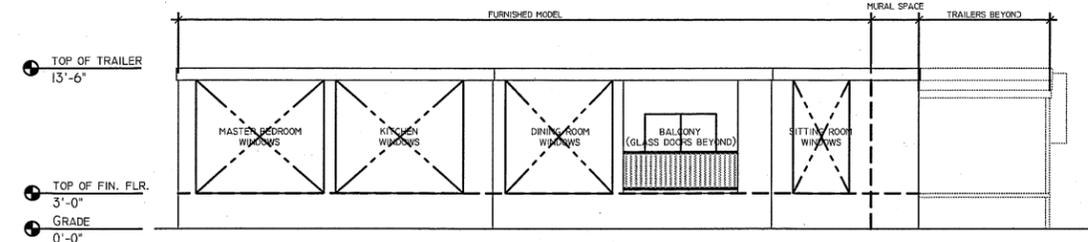
ELEVATIONS

DATE	05-10-09	
PROJECT NUMBER	05-026	
DRAWN BY	P. BERTIN	
SCALE	1/4" = 1'-0"	
NO.	REV. DESCRIPTION	DATE

SHEET NUMBER  
**A-3**

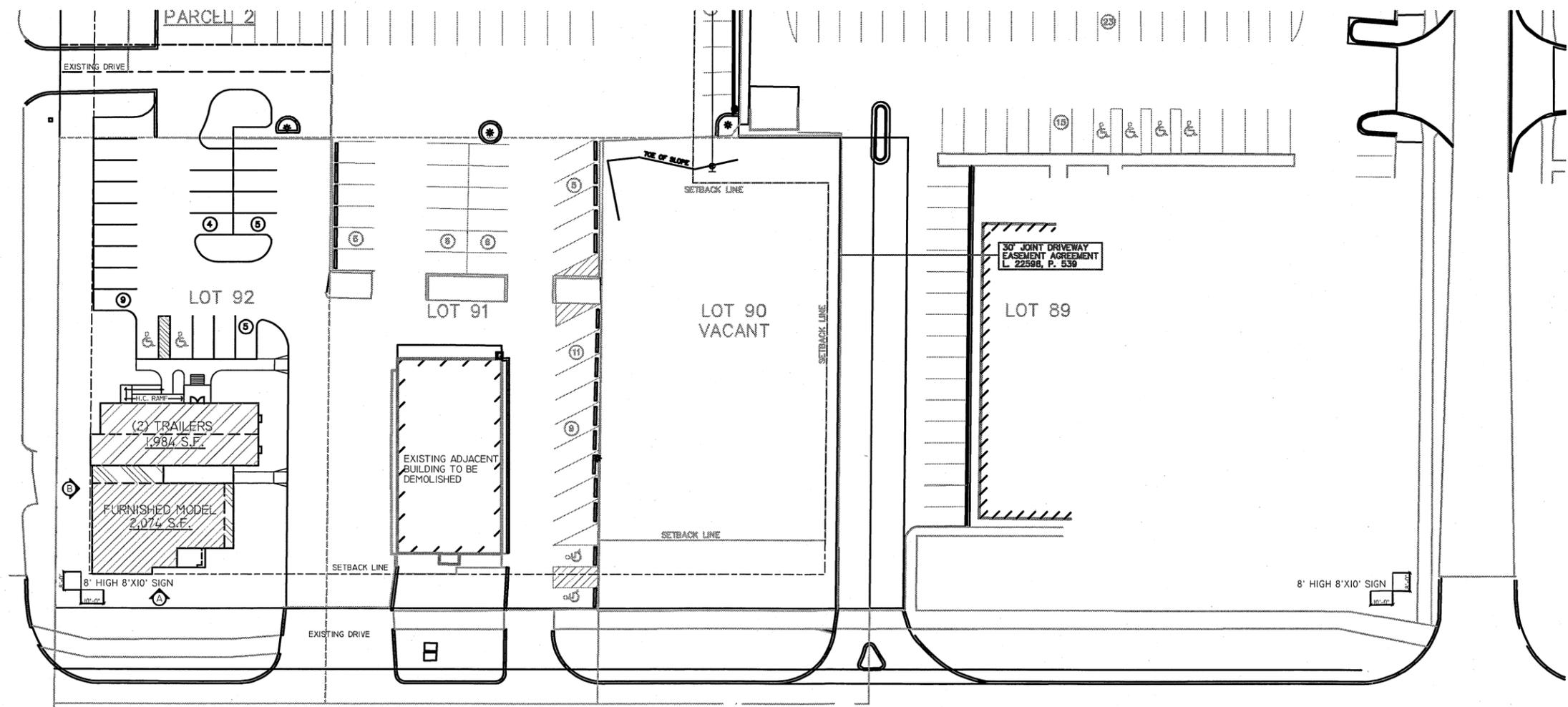


CONCEPTUAL  
 WEST ELEVATION 'B'  
 SCALE: 3/16" = 1'-0"



CONCEPTUAL  
 SOUTH ELEVATION 'A'  
 SCALE: 3/16" = 1'-0"

**NOTE:**  
 1. ALL ELEVATIONS ARE SCHEMATIC & NOT ACTUAL.  
 2. USE FOR REFERENCE ONLY



**NOTES:**  
 1. TWO ADDITIONAL DIRECTIONAL SIGNS MAX. 8SF IN SIZE LOCATED ON-SITE (TBD).  
 2. TWO INFORMATION SIGNS MAX. 8SF IN SIZE LOCATED ON-SITE (TBD).  
 3. TWO 8'X10' SIGNS LOCATED OFF-SITE AS SHOW ON SITE PLAN.  
 4. ALL TEMPORARY & PERMANENT SIGNAGE SHALL BE LOCATED OUTSIDE ALL SITE DISTANCE TRIANGLES.

**PRELIMINARY SITE PLAN**  
 SCALE: 1" = 200'  
 NORTH

**THE MONARCH**  
 Big Beaver Road  
 Joseph Freed and Associates

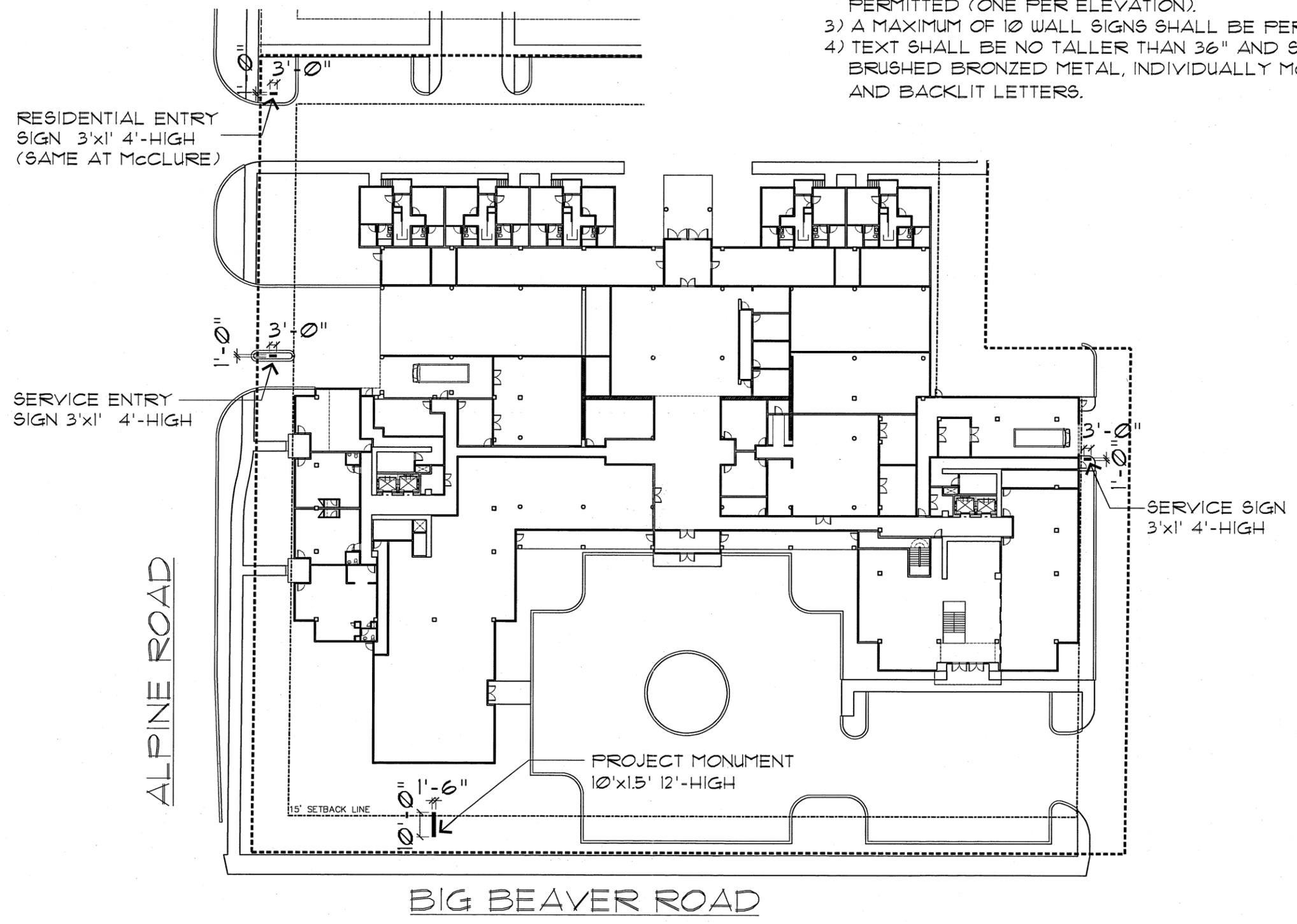
**SALES CENTER &  
 SIGNAGE PLAN**

DATE	02/14/05	
PROJECT NUMBER		
DRAWN BY	AFH	
SCALE	NO SCALE	
NO	REV. DESCRIPTION	DATE
	FUD SUBMITTAL	12/20/04
	FUD REVISION 1	02/14/05

SHEET NUMBER  
**A10.4**

SIGNAGE NOTES:

- 1) 1 SF PER 1 LF OF FRONTAGE SHALL BE PERMITTED FOR EACH RETAIL SPACE.
- 2) NO MORE THAN 1 SIGN PERMITTED PER RETAIL SPACE EXCEPT WHEN SUCH SPACE IS A CORNER SPACE, IN WHICH CASE NO MORE THAN TWO SIGNS SHALL BE PERMITTED (ONE PER ELEVATION).
- 3) A MAXIMUM OF 10 WALL SIGNS SHALL BE PERMITTED.
- 4) TEXT SHALL BE NO TALLER THAN 36" AND SHALL BE BRUSHED BRONZED METAL, INDIVIDUALLY MOUNTED, AND BACKLIT LETTERS.



THE MONARCH

Big Beaver Road  
 Joseph Freed and Associates

SIGNAGE  
 SITE PLAN

DATE	02/14/05	
PROJECT NUMBER	3429	
DRAWN BY	AM	
SCALE	NOT TO SCALE	
NO	REV. DESCRIPTION	DATE
	PLD REVISION 2	05/12/05

SHEET NUMBER

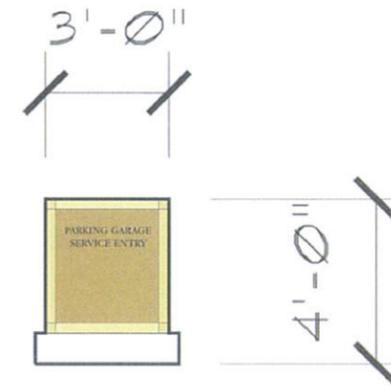
A10.5

SIGNAGE NOTES:

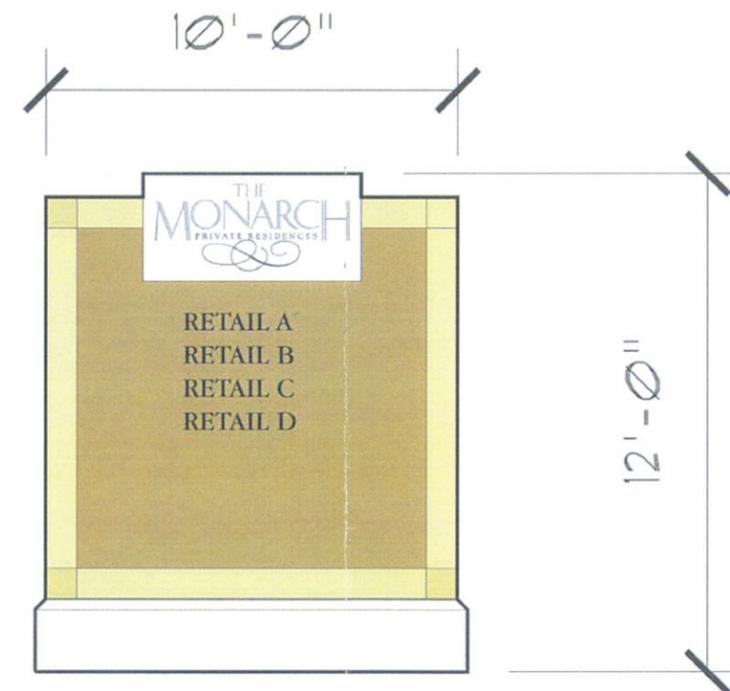
- 1) 1 SF PER 1 LF OF FRONTAGE SHALL BE PERMITTED FOR EACH RETAIL SPACE.
- 2) NO MORE THAN 1 SIGN PERMITTED PER RETAIL SPACE EXCEPT WHEN SUCH SPACE IS A CORNER SPACE, IN WHICH CASE NO MORE THAN TWO SIGNS SHALL BE PERMITTED (ONE PER ELEVATION).
- 3) A MAXIMUM OF 10 WALL SIGNS SHALL BE PERMITTED.
- 4) TEXT SHALL BE NO TALLER THAN 36" AND SHALL BE BRUSHED BRONZED METAL, INDIVIDUALLY MOUNTED, AND BACKLIT LETTERS.
- 5) MONUMENT AND SIGNS MATERIAL TO MATCH EXTERIOR BUILDING MATERIALS AND COLORS.



3 BUILDING ELEVATION - TOWER EAST



1 ENLARGED SIGN ELEVATION



2 ENLARGED MONUMENT ELEVATION

SIGNAGE ELEVATION			
DATE	02/14/15		
PROJECT NUMBER	3429		
DRAWN BY	ABH		
SCALE	NOT TO SCALE		
NO.	REV. DESCRIPTION	DATE	
	PLD REVISION 2	05/12/15	



Limestone / Cast Stone with Banding



Brick Bases



Metal Windows, Awnings & Railings



Limestone / Cast Stone

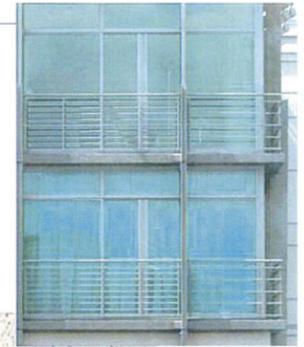


North Elevation



Big Beaver (South) Elevation

WINDOWS



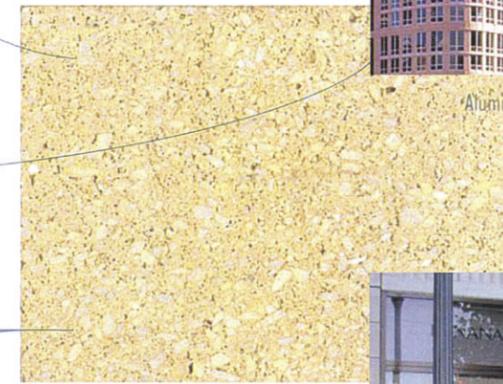
Curtainwall



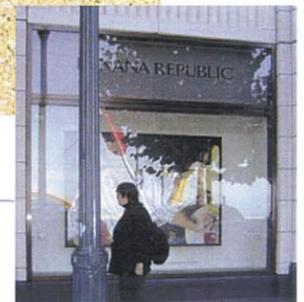
Precast Concrete Type 2



Aluminum Window System



Precast Concrete Type 1



Storefront

Exterior Materials

April 22, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES



Brick



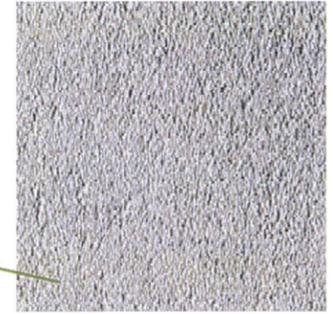
Windows



Garage Door



COURT SIDE ELEVATION



EIFS



EIFS



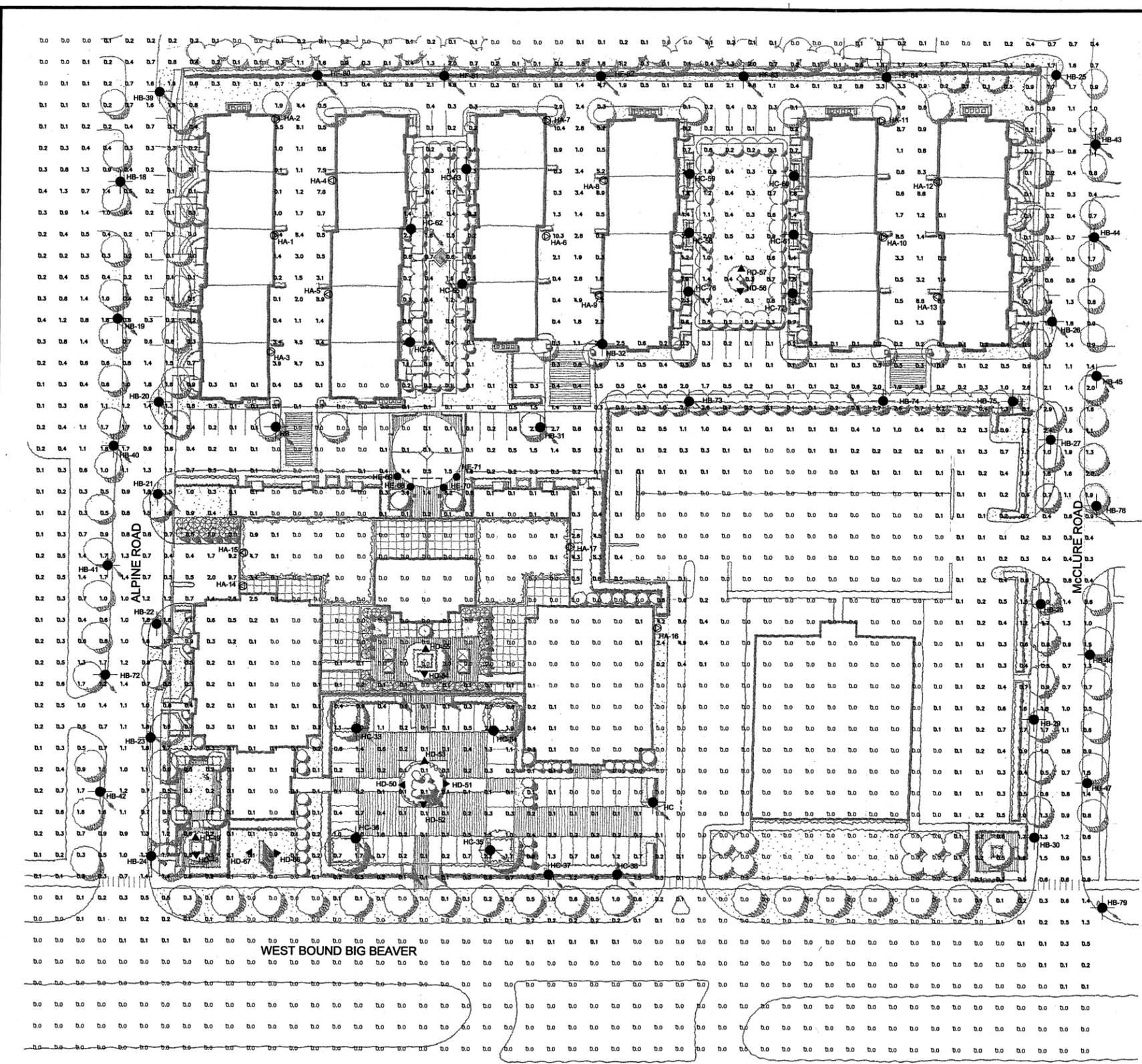
GARAGE SIDE ELEVATION



Deck/Railings

210 TOWN CENTER DRIVE  
TROY, MICHIGAN  
TADIAN HOMES

THE  
*Villas*  
AT THE MONARCH



**LUMINAIRE SCHEDULE**

Symbol	Label	Qty	Calling Number	Description	Lamp	Fits	Lumens	LFZ
HA	17	LITONERA #187	178477	WALL MOUNTED ARCHITECTURAL SCENE OUT SHEET WITH FORMER PANEL DISTRIBUTION AND CLEAR PLACEMENT LINE	ONE 175 WATT CLEAR DEEP METAL HALIDE, REFRACTORLESS	LITONERA	1200	0.72
HB	30	SELUX SATURN #3418410		POST TOP LUMINAIRE WITH SPINAL ALUMINA REFLECTOR PANEL, POLYCARBONATE HOUSING WITH CLEAR ALUMINA FRAME	ONE 175 WATT COATED METAL HALIDE, DEEP LAMP	SANBORNE	1080	0.72
HC	18	SELUX SATURN #3418410		POST TOP LUMINAIRE WITH SPINAL ALUMINA REFLECTOR PANEL, POLYCARBONATE HOUSING WITH CLEAR ALUMINA FRAME	ONE 180 WATT COATED METAL HALIDE, DEEP LAMP	SANBORNE	1760	0.72

**STATISTICS**

Symbol	Label	Qty	Calling Number	Description	Lamp	Fits	Lumens	LFZ
HA	17	LITONERA #187	178477	INVERSE 12" DIA X 3" DEEP LUMINAIRE WITH REFRACTORLESS HOUSING AND INTERNAL SURFACE BRUSH COATING TO BE DETERMINED	ONE 175 WATT CLEAR METAL HALIDE E-17	LITONERA	1400	0.72
HE	4	SELUX SATURN #3418410		GROUND MOUNTED BOLLARD WITH REFRACTORLESS HOUSING AND INTERNAL SURFACE BRUSH COATING TO BE DETERMINED	ONE 175 WATT COATED METAL HALIDE, DEEP LAMP	SANBORNE	800	0.72
HF	8	SELUX SATURN #3418410		POST TOP CUTOFF LUMINAIRE WITH REFRACTORLESS HOUSING AND CLEAR PLAT QUAD LENS	ONE 175 WATT CLEAR METAL HALIDE, DEEP LAMP	LITONERA	800	0.72

**NOTES**

- SEE IFC COLUMN OF LUMINAIRE LOCATIONS FOR MOUNTING HEIGHTS.
- SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTORS.
- CALCULATIONS ARE SHOWN IN FOOTNOTES AT DROPPED SURFACE.
- THE CUT SHEETS GRAPHICALLY REPRESENTED REFLECT THE CONCEPTUAL INTENT AND ACTUAL MANUFACTURE MAY VARY.
- THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO DESIGN/FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS.
- THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM RELIABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE COMPLIANCE.

**LUMINAIRE LOCATIONS**

No.	Label	X	Y	Z	LFZ
1	HA	184.0	671.0	12.0	12.0
2	HA	184.0	662.0	12.0	12.0
3	HA	163.0	480.0	12.0	12.0
4	HA	234.0	610.0	12.0	12.0
5	HA	222.0	520.0	12.0	12.0
6	HA	375.4	671.0	12.0	12.0
7	HA	375.4	662.0	12.0	12.0
8	HA	414.4	610.0	12.0	12.0
9	HA	414.4	520.0	12.0	12.0
10	HA	608.8	671.0	12.0	12.0
11	HA	608.8	662.0	12.0	12.0
12	HA	647.8	610.0	12.0	12.0
13	HA	647.8	520.0	12.0	12.0
14	HA	194.0	320.0	12.0	12.0
15	HA	194.0	340.0	12.0	12.0
16	HA	400.0	290.0	12.0	12.0
17	HA	380.0	340.0	12.0	12.0
18	HB	80.0	650.0	18.0	18.0
19	HB	61.0	610.0	18.0	18.0
20	HB	102.0	470.0	18.0	18.0
21	HB	154.0	360.0	18.0	18.0
22	HB	124.0	290.0	18.0	18.0
23	HB	102.0	210.0	18.0	18.0
24	HB	102.0	130.0	18.0	18.0
25	HB	292.0	600.0	18.0	18.0
26	HB	292.0	510.0	18.0	18.0
27	HB	292.0	430.0	18.0	18.0
28	HB	292.0	310.0	18.0	18.0
29	HB	292.0	230.0	18.0	18.0
30	HB	292.0	150.0	18.0	18.0
31	HB	371.0	430.0	14.0	14.0
32	HB	414.0	480.0	14.0	14.0
33	HB	344.0	290.0	12.0	12.0
34	HC	340.0	220.0	12.0	12.0
35	HC	380.0	140.0	12.0	12.0
36	HC	340.0	140.0	12.0	12.0
37	HC	370.0	120.0	12.0	12.0
38	HC	427.0	120.0	12.0	12.0
39	HB	102.0	671.0	18.0	18.0
40	HB	67.0	421.0	18.0	18.0
41	HB	67.0	340.0	18.0	18.0
42	HB	67.0	260.0	18.0	18.0
43	HB	78.0	640.0	18.0	18.0
44	HB	78.0	560.0	18.0	18.0
45	HB	78.0	480.0	18.0	18.0
46	HB	78.0	400.0	18.0	18.0
47	HB	78.0	320.0	18.0	18.0
48	HD	122.0	130.0	0.0	0.0
49	HD	122.0	140.0	0.0	0.0
50	HD	272.0	140.0	0.0	0.0
51	HD	320.0	140.0	0.0	0.0
52	HD	370.0	140.0	0.0	0.0
53	HD	380.0	140.0	0.0	0.0
54	HD	391.0	140.0	0.0	0.0
55	HD	391.0	140.0	0.0	0.0
56	HD	391.0	140.0	0.0	0.0
57	HD	391.0	140.0	0.0	0.0
58	HC	410.0	120.0	12.0	12.0
59	HC	410.0	120.0	12.0	12.0
60	HC	447.0	120.0	12.0	12.0
61	HC	447.0	120.0	12.0	12.0
62	HC	290.0	120.0	12.0	12.0
63	HC	317.0	120.0	12.0	12.0
64	HC	290.0	47.0	12.0	12.0
65	HC	310.0	47.0	12.0	12.0
66	HD	180.0	120.0	0.0	0.0
67	HD	180.0	140.0	0.0	0.0
68	HC	180.0	120.0	12.0	12.0
69	HC	200.0	120.0	12.0	12.0
70	HE	271.0	400.0	3.6	3.6
71	HE	310.0	400.0	3.6	3.6
72	HB	61.0	260.0	18.0	18.0
73	HB	470.0	480.0	14.0	14.0
74	HB	671.0	480.0	14.0	14.0
75	HB	370.0	480.0	14.0	14.0
76	HC	414.0	520.0	12.0	12.0
77	HC	447.0	520.0	12.0	12.0
78	HB	780.0	380.0	18.0	18.0
79	HB	780.0	10.0	18.0	18.0
80	HF	310.0	600.0	12.0	12.0
81	HF	301.0	600.0	12.0	12.0
82	HF	411.0	600.0	12.0	12.0
83	HF	611.0	600.0	12.0	12.0
84	HF	611.0	620.0	12.0	12.0

**LUMINAIRE CUT SHEET (HB)**

KTS

**LUMINAIRE & POST CUT SHEET (HB)**

KTS

**UPLIGHT CUT SHEET (HD)**

KTS

**Saturn Cutoff**

KTS

**WALL MOUNTED ARCHITECTURAL SCENE OUT SHEET (HA)**

KTS

**Saturn 2**

KTS

**Saturn 2**

KTS

**LUMINAIRE & POST CUT SHEET (HB)**

KTS

**UPLIGHT CUT SHEET (HD)**

KTS

**Saturn Bollard**

KTS

**GRISSIM MELTZ ASSOCIATES ANDRIESE**  
 Lighting Architecture  
 Civil Engineering  
 300 East Cady Street  
 Northville, MI 48167  
 Ph: 248-347-7010  
 Fax: 248-347-7005  
 Email: mltz@grissim.com

**THE MONARCH PRIVATE RESIDENCES**

20080 West Big Beaver Road  
 Troy, Michigan

Joseph Freed & Associates

**CONCEPTUAL LIGHTING PLAN**

DATE	MAY 19, 2005	
PROJECT NUMBER	J15-051	
DRAWN BY	SRB	
SCALE	1" = 30'-0"	
NO. REV. DESCRIPTION	DATE	
1	PLD SUBMITTAL	12/20/04
2	SCHEMATIC DESIGN	1/27/05
3	ADDITIONAL LANDSCAPE DETAIL & LIGHTING PLAN ONE ONE ONE	4/7/05
4	REVISED LIGHTING PLAN	4/7/05
5	REVISED LANDSCAPE PLAN	5/19/05

SHEET NUMBER

**L-12**

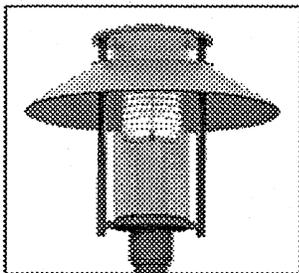
SCALE: 1" = 30'

NORTH

H:\J15-051\Drawings\Shets-L-1.2 J15-051 Lighting-01.dwg, 5/20/2005 12:02:23 PM

# Saturn 2

# selux



**Project:** \_\_\_\_\_

**Type:** \_\_\_\_\_ **Qty:** \_\_\_\_\_

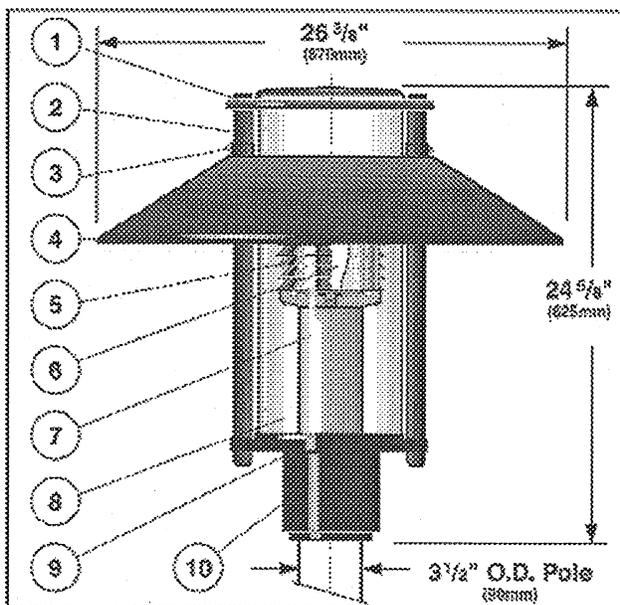
<b>SA2</b>						
Fixture Series	Shielding	Mounting	Lamp Type/Wattage	Finish	Voltage	Option
Pole Series	Height	Finish	Options			

Series	Shielding	Mounting	Lamp Type / Wattage	Finish	Voltage	Options
SA2 Saturn 2	SP Type V Silver Louver	1 Single	<u>Metal Halide</u>	WH White	120	HS House
	WP Type V White Louver	2 Double	H050** 50w	BK Black	208	SD Side
	MR Type V MTR* 150 Refractor	W Wall Mount	S050** 50w	BZ Bronze	240	SH Shield (180°)
	M0 Type IV MTR* 180 Refractor		H070 70w	SV Silver	377	Consult factory for details
	M5 Type V MTR* 180 Refractor		S100 100w	SP Specify RAL#	347	
	B3 Type III Borosilicate Glass Refractor		H150*** 150w			
B5 Type V Borosilicate Glass Refractor			S150*** 150w			
			H175** 175w			

\* US Patent No. 4,880,034

\*\* Only available in 120v and 277v

\*\*\* Only available with B3, B5, M0 and M5 refractors



**1. Fixture Cover** - Aluminum cover with white painted interior for maximum fixture efficiency, has industrial felt gasketing for air circulation. Cover removes for lamp access.

**2. Cover Support** - Machined support connected to fixture cover with architectural Allen head nut detail.

**3. Cover Set Screw** - Two stainless steel, socket head cup screws provide attachment of fixture cover and support to 1" (25mm) diameter connection rods. Loosening screws allows removal of fixture cover without tools.

**4. Fixture Hood** - Aluminum shade with white painted interior for maximum reflectivity.

**5. Shielding** - Select one of the following: Type V silver louver, Type V white louver, Type V MTR 150 refractor, Type IV MTR 180 refractor, or borosilicate glass refractor in either Type III or Type V distributions.

**6. Lamp** - One coated, base down, medium base ED-17 metal halide up to 175w or high pressure sodium up to 150w. Lamp provided by others.

**7. Electroblock** - Extruded aluminum tubing houses core and coil ballast. Pulse rated porcelain, medium base socket is mounted to die-cast aluminum socket cup for maximum heat dissipation and is pre-wired to ballast. Socket cup attaches to electroblock with two stainless steel screws and is easily removable for ballast service. Consult

factory for more detailed ballast information.

**8. Diffuser** - Clear, U.V. stabilized, acrylic with minimum wall thickness of 0.125" (3mm).

**9. Gasketing** - Continuous molded neoprene gasket provides weatherproofing, dust, and insect control at diffuser base.

**10. Pole Fitter** - Self-leveling, die-cast aluminum, fitter base secured to pole with two stainless steel, Allen head set screws. 3 1/2" (90mm) I.D. external fitter for 3 1/2" (90mm) O.D. poles.

**Exterior Luminaire Finish** - SELUX utilizes a high quality Polyester Powder Coating. All SELUX luminaires and poles undergo a five stage intensive pretreatment process where product is thoroughly cleaned, phosphated and sealed. SELUX powder coated products provide excellent salt and humidity resistance as well as ultra violet resistance for color retention. All products are tested in accordance with test specifications for coatings from ASTM and PCI.

Standard exterior colors are White (WH), Black (BK), Bronze (BZ), and Silver (SV). RAL colors (SP) are available, please specify RAL #.

In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Specification sheets found at [www.selux.com](http://www.selux.com) are the most recent versions and supersede all other printed or electronic versions.



Union Made  
Affiliated with  
IBEW Local 363

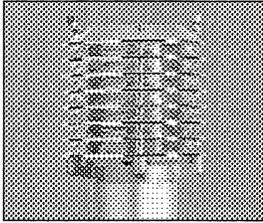
SELUX Corp. © 2002  
PO Box 1060, 5 Lumen Lane  
Highland, NY 12528-1060  
TEL: (516) 691-7723  
FAX: (516) 691-6749  
E-mail: [selux@selux.com](mailto:selux@selux.com)  
Web Site: [www.selux.com](http://www.selux.com)  
SA2-1003-01 (ss-V3.1)

# Saturn 2

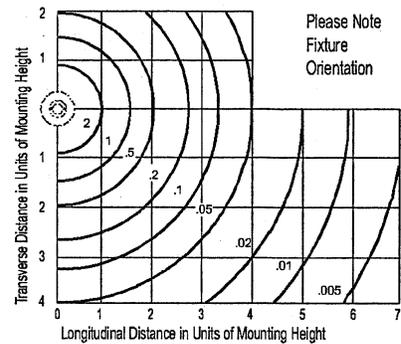
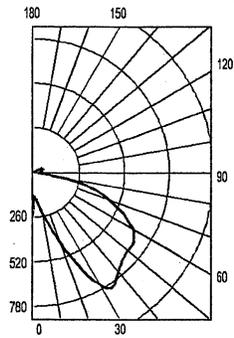


## Silver Louver

Catalog # SA2-SP-1-H100  
ITL Report # 40335

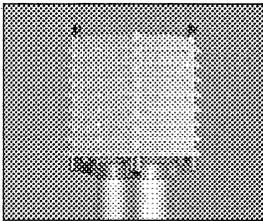


- Mirror finish with prismatic underside shields light source and controls glare..
- Resulting "dark light" effect offers superior visual comfort.
- Maximum candela of 784.7 at 35° from vertical.
- IES classification, Type V Cutoff.

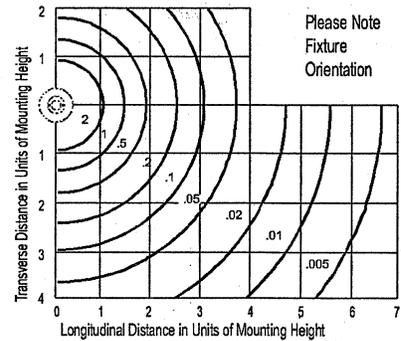
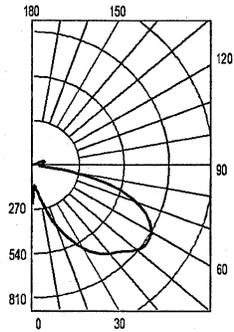


## White Louver

Catalog # SA2-WP-1-H100  
ITL Report # 40336

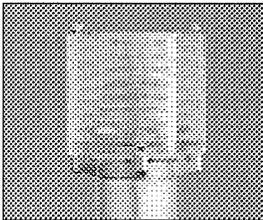


- A se'lux variation of a classic louver design.
- Combines brightness control with a subtle luminance around the source.
- Maximum candela of 833.8 at 55° from vertical.
- IES classification, Type V Cutoff.

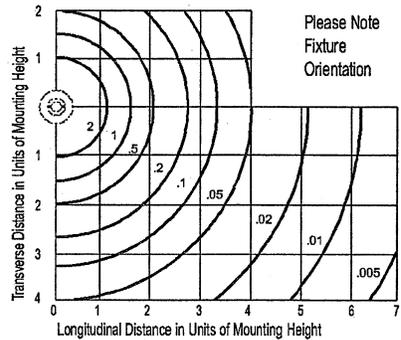
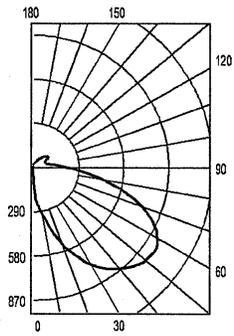


## MTR Refractor

Catalog # SA2-MR-1-H100  
ITL Report # 40334

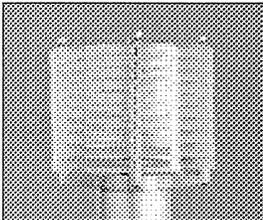


- Innovative "multi-prisms for total reflection" incorporates light-bending characteristics of a prism. US patent no. 4,669,034.
- Directs light precisely with minimum intensity at critical viewing angles.
- Blends efficiency with visual comfort.
- Maximum candela of 893.1 at 55° from vertical.
- IES classification, Type V Cutoff.

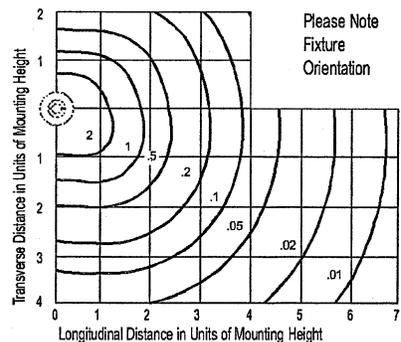
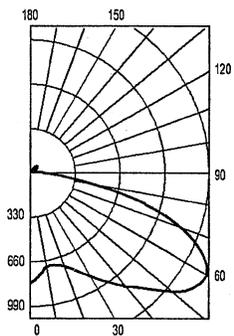


## MTR 180 Refractor

Catalog # SA2-M3-1-H100  
For M5 expect results similar to MTR 150  
ITL Report # SX7666



- Innovative "multi-prisms for total reflection" incorporates light-bending characteristics of a prism. US patent no. 4,669,034.
- Directs light precisely with minimum intensity at critical viewing angles.
- Blends efficiency with visual comfort.
- Maximum candela of 1476.4 at 60° from vertical.
- IES classification, Type IV Semi-cutoff.



### HID Lamp Prorate Table (ED-17 Coated, Base-Down Lamp)

High Pressure Sodium			Metal Halide		
Wattage	Factor	Initial Lumens	Wattage	Factor	Initial Lumens
50	0.47	3700	50	0.44	3400
70	0.74	5800	70	0.64	5000
100	1.13	8800	100	1.00	7800
150	1.86	14500	150	1.60	12500
			175	1.79	14000

### Conversion Chart

Values based on 12' mounting height.

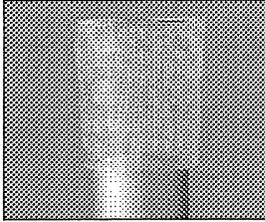
Mounting Height	Multiply
10'	1.44
12'	1.00
14'	0.73
16'	0.56
18'	0.44

# Saturn 2

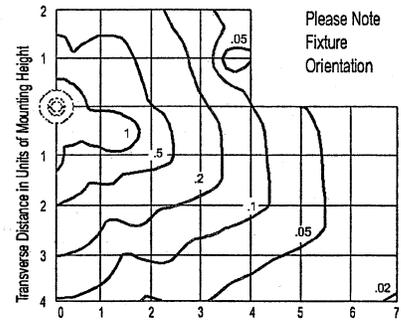
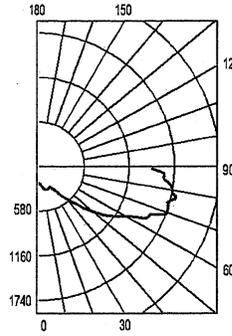


## B3 Refractor

Catalog # SA2-B3-1-H100  
ITL Report # 40332

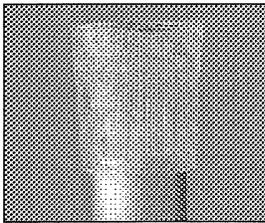


- High efficiency, molded borosilicate refractor system.
- Accommodates HID lamp types up to 175W.
- Ideal for applications demanding maximum spacing.
- Maximum candela distribution of 1749.0 at 77.5° from vertical
- IES classification, Type III Non-cutoff.

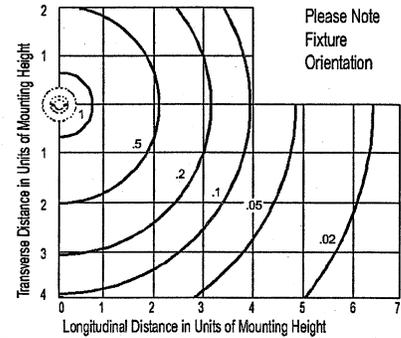
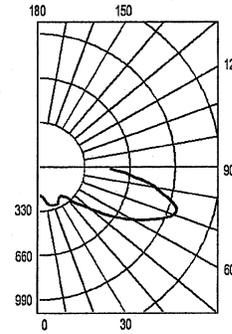


## B5 Refractor

Catalog # SA2-B5-1-H100  
ITL Report # 40333



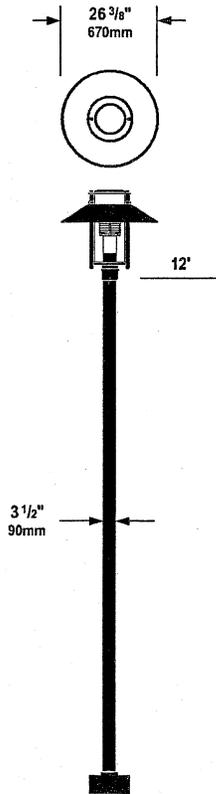
- High efficiency, molded borosilicate refractor system.
- Accommodates HID lamp types up to 175W.
- Ideal for applications demanding maximum spacing.
- Maximum candela distribution of 1012.0 at 72.5° from vertical
- IES classification, Type V Non-cutoff.



## Mounting

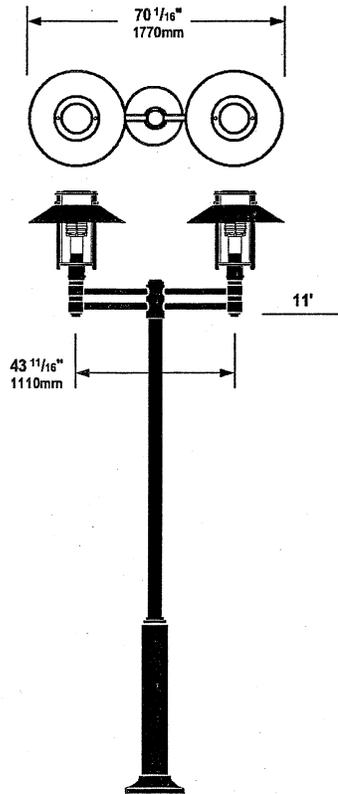
### Single

Die-cast aluminum fitter base secured to pole with three, stainless steel, Allen head set screws.



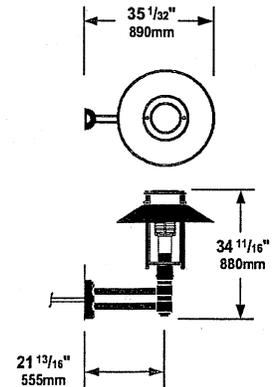
### Double

Die-cast aluminum double round luminaire mounting arm secured to pole with four stainless steel, Allen head set screws. Outer slip fitter for 3 1/2" tenon.

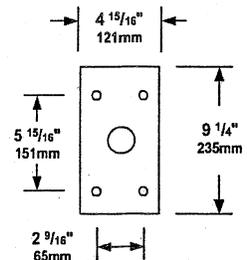


### Wall

Die-cast aluminum double round wall mount arm. Secured to wall with 1/4" diameter threaded fasteners (by others).



**Wall Arm Mounting Detail**  
(Conduit and mounting hardware by others.)



# Saturn 2

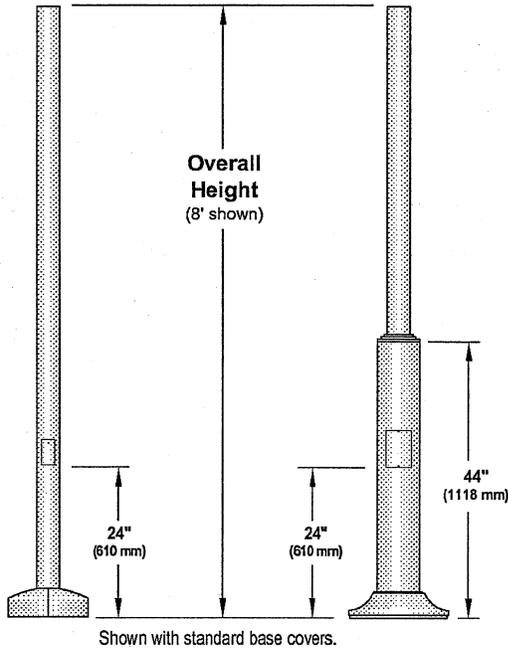


## Pole Information

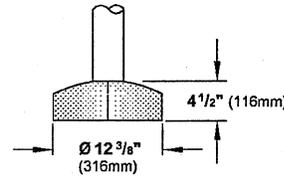
Refer to A35, S635, or S35 Pole specification sheets for construction details, anchorage information and additional options.

**A35 & S35**  
Round Straight Aluminum  
& Round Straight Steel Poles

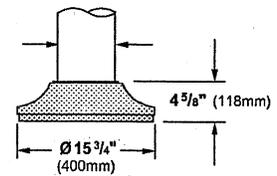
**S635**  
Round Stepped  
Steel Pole



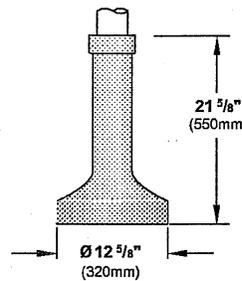
**Straight Poles (A35 & S35)**  
**BC5 Standard Base Cover**  
Two-piece cast aluminum



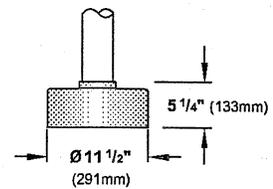
**Stepped Steel Pole (S635)**  
**BC6 Standard Base Cover**  
One-piece cast aluminum



**BC1 Optional Base Cover**  
(A35 & S35) One-piece cast aluminum



**BC4 Optional Base Cover**  
(A35 & S35) One-piece cast aluminum



Pole Series	Bolt Circle	EPA Information (ft <sup>2</sup> )					Height	Finish	Options
		70 mph	80 mph	90 mph	100 mph	110 mph			
<b>S635</b> 3 1/2" Diameter Stepped Steel Pole	9"	57.6	44.3	34.6	27.5	22.8	8 8 ft.	WH White BK Black	BC1 Decorative Cast Aluminum Base Cover (for A35 & S35 poles only)
<b>A35</b> 3 1/2" Diameter Straight Aluminum Pole	7 3/4"	16.1	12.2	9.4	7.3	5.9			
<b>S35</b> 3 1/2" Diameter Straight Steel Pole	7 3/4"	14.8	11.3	8.6	6.7	5.4			
<b>S635</b> 3 1/2" Diameter Stepped Steel Pole	9"	45.6	35.0	27.3	21.6	17.8	10 10 ft.	BZ Bronze SV Silver	BC4 One-piece Cast Aluminum Base Cover (for A35 & S35 poles only)
<b>A35</b> 3 1/2" Diameter Straight Aluminum Pole	7 3/4"	12.4	9.3	7.1	5.4	4.3			
<b>S35</b> 3 1/2" Diameter Straight Steel Pole	7 3/4"	11.4	8.6	6.5	4.9	3.9			
<b>S635</b> 3 1/2" Diameter Stepped Steel Pole	9"	37.6	28.7	22.3	17.5	14.4	12 12 ft.	SP Specify RAL#	REC GFCI Receptacle with weatherproof cover*
<b>A35</b> 3 1/2" Diameter Straight Aluminum Pole	7 3/4"	9.9	7.3	5.4	4.0	3.1			
<b>S35</b> 3 1/2" Diameter Straight Steel Pole	7 3/4"	9.1	6.7	4.9	3.6	2.8			
<b>S635</b> 3 1/2" Diameter Stepped Steel Pole	9"	31.7	24.2	18.6	14.6	11.9	14 14 ft.		PCT Photocell Tenon
<b>A35</b> 3 1/2" Diameter Straight Aluminum Pole	7 3/4"	8.0	5.8	4.2	3.0	2.2			
<b>S35</b> 3 1/2" Diameter Straight Steel Pole	7 3/4"	7.3	5.3	3.8	2.7	1.9			
<b>S635</b> 3 1/2" Diameter Stepped Steel Pole	9"	21.7	15.8	12.3	9.6	7.6	16 16 ft.		
<b>A35</b> 3 1/2" Diameter Straight Aluminum Pole	7 3/4"	4.9	3.2	2.2	1.4	.08			
<b>S35</b> 3 1/2" Diameter Straight Steel Pole	7 3/4"	4.4	2.8	1.9	1.2	0.6			

Other pole configurations available, consult factory. EPA Calculations allow for 1.3 Gust Factor

Effective Projected Area of Single Luminaire = 0.92 ft<sup>2</sup> (0.09m<sup>2</sup>) / Weight of Luminaire = 35.0 lbs (15.9kg)

Effective Projected Area of Double Luminaire = 2.37 ft<sup>2</sup> (0.22m<sup>2</sup>) / Weight of Double Luminaire (includes arms) = 94.0 lbs (42.6kg)

SELUX Corp. © 2003

PO Box 1060, 5 Lumen Lane  
Highland, NY 12528-1060  
SA2-0503-04 (6-49014-00)

TEL: (845) 691-7723 • FAX: (845) 691-6749  
E-mail: seluxus@selux.com  
Web Site: www.selux.com/usa

In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Specification sheets found at www.selux.com/usa are the most recent versions and supercede all other printed or electronic versions.



## FEATURES & SPECIFICATIONS

**INTENDED USE**— For building- and wall-mounted applications.

**CONSTRUCTION** — Rugged, die-cast, single-piece aluminum housing. Die-cast door frame has a 1/8" thick tempered glass lens. Door frame is fully gasketed with one-piece solid silicone.

**FINISH** — Standard finish is **new** textured dark bronze (DDBT) corrosion-resistant polyester powder finish, with other architectural colors available.

**OPTICAL SYSTEM** — Segmented reflectors for superior uniformity and control. Reflectors are interchangeable. Three full cutoff distributions available: FT (forward throw), MD (medium throw) and WT (wide throw).

**ELECTRICAL SYSTEM** — 50W-150W utilizes a high reactance, high power factor ballast. 35S utilizes a reactance high power factor ballast. 175W utilizes a constant-wattage autotransformer ballast. Quick disconnect plug easily disconnects reflector from ballast. Ballasts are copper-wound and 100% factory-tested. Porcelain, medium-base socket with copper alloy, nickel-plated screw shell and center contact. UL listed 660W, 600V 4KV pulse rated.

**INSTALLATION** — Universal mounting mechanism with integral mounting support allows fixture to hinge down. Bubble level provides correct alignment with each installation.

**LISTING** — UL Listed (standard). CSA Certified (see Options). Suitable for wet locations (damp location listed in lens-up orientation). WLU option offers wet location listing in up orientation (see Options). IP65 rated.

Catalog Number	
Notes	Type

### Decorative Wall-Mounted Lighting

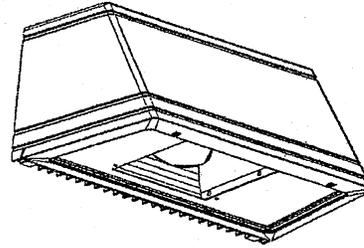
# WST

**METAL HALIDE**

50W-175W

**HIGH PRESSURE SODIUM**

35W-150W



#### Standard Dimensions

Length: 16.25 (41.2)

Depth: 9.13 (23.2)

Overall Height: 7.25 (18.4)

Max. Weight: 30 lbs (13.6 kg)

All dimensions are inches (centimeters) unless otherwise specified.

## ORDERING INFORMATION

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line.

Example: **WST 175M FT 120 SF LPI DNAT**

WST					
Series	Wattage/Source	Distribution	Voltage	Options	
<b>WST</b>	<b>Metal Halide</b>	<b>FT</b> Forward throw	<b>120</b>	<b>Shipped Installed in Fixture</b>	
	<b>50M</b>	<b>MD</b> Medium throw	<b>208<sup>2</sup></b>	<b>SF</b> Single fuse (120, 277, 347V, n/a TB)	<b>Architectural Colors<sup>8</sup></b>
	<b>70M</b>	(coated lamp std.)	<b>240<sup>2</sup></b>	<b>DF</b> Double fuse (208, 240V, n/a TB or TBV)	<b>Standard Textured Colors</b>
	<b>100M</b>	<b>WT</b> Wide throw	<b>277</b>	<b>EC</b> Emergency circuit (25W max 120V, incandescent lamp included)	<b>DDBT</b> Dark bronze (std.)
	<b>150M</b>		<b>347</b>	<b>DC12</b> Emergency circuit 12 volt (35W lamp included std.) <sup>5</sup>	<b>DSST</b> Sandstone
	<b>175M</b>		<b>TB<sup>3</sup></b>	<b>QRS</b> Quartz restrike system (100W max 120V, quartz lamp not included)	<b>DNAT</b> Natural aluminum
	<b>High Pressure Sodium</b>		<b>TBV<sup>4</sup></b>	<b>CR</b> Enhanced corrosion resistance	<b>DWHG</b> White
	<b>35S<sup>1</sup></b>			<b>CRT</b> Non-stick protective coating (black only)	<b>DBLB</b> Black
	<b>50S</b>			<b>PE</b> Photoelectric cell-button type (n/a TB/TBV) <sup>6</sup>	<b>Optional Textured Colors</b>
	<b>70S</b>			<b>WLU</b> Wet location door for up orientation	<b>DBNH</b> Bronze
	<b>100S</b>			<b>IBS</b> Internal backlight shield <sup>7</sup>	<b>DSPD</b> Dark gray
	<b>150S</b>			<b>DFL</b> Diffusing lens	<b>DSPJ</b> Light gray
				<b>LPI</b> Lamp included (std)	<b>DSPE</b> Green
			<b>L/LP</b> Less lamp	<b>DSPG</b> Dark red	
			<b>CSA</b> CSA Certified	<b>DSPF</b> Rust	
				<b>DSPH</b> Red	
				<b>Striping</b>	
				<b>SDDB</b> Dark bronze	
				<b>SDWH</b> White	
				<b>SDBL</b> Black	
				<b>SDNA</b> Natural aluminum	
				<b>SDSS</b> Sandstone	
				<b>SDTG</b> Tennis green	
				<b>SDBR</b> Bright red	
				<b>SDBUA</b> Dark blue	
				<b>SDGYM</b> Gray	
				<b>SDYLB</b> Yellow	
				<b>Shipped Separately</b>	
				<b>WSBBW</b> Surface-mounted back box	
				<b>UT5</b> Uptilt 5 degrees	
				<b>WSTWG</b> Wire guard <sup>6</sup>	
				<b>WSTVG</b> Vandal guard <sup>6</sup>	

**NOTES:**

- 120V only.
- Consult factory for availability in Canada.
- Optional multi-tap ballast (120, 208, 240, 277V); (120, 277, 347V in Canada).
- Optional penta-tap ballast (120, 208, 240, 277, 480V; not available in Canada). 175W metal halide only.
- Not available with SF, DF or QRS.
- Must be ordered with fixture; cannot be field installed.
- Not available with medium throw (MD) distribution.
- Additional architectural colors available; see [www.lithonia.com](http://www.lithonia.com) for more information.

**PRELIMINARY ENVIRONMENTAL IMPACT STATEMENT**

**TROY MIXED USE PROJECT**

**P.E.A. JOB NO. 2004-198**

**DECEMBER 2004**

**PREPARED FOR**

**JOSEPH FREED AND ASSOCIATES, LLC  
220 NORTH SMITH STREET  
SUITE 300  
PALATINE, ILLINOIS, 60067**

**PREPARED BY**

**PROFESSIONAL ENGINEERING ASSOCIATES, INC.**

## PRELIMINARY ENVIRONMENTAL IMPACT STATEMENT

### 07.20.00 PHYSICAL CONDITIONS

#### 07.20.01(A) Certified Boundary Survey

A Certified Boundary Survey at a scale of 1" = 100' is attached and identified as Appendix A.

#### 07.20.02(B) Location Map

The Location Map is attached and identified as Appendix B.

#### 07.20.03(C) Land Use Map

The City of Troy Master Land Use Plan and Zoning District Map is attached and identified as Appendix C and D, respectfully.

#### 07.20.04(D) Site Conditions

##### 1. Natural Features

The 5.85-acre site consists of eight subdivision lots within the existing Muer's Garden Farms Subdivision. The site lies along the north side of Big Beaver Road (a six lane divided highway), the east of Alpine Road (a two-lane roadway) and west of McClure Road (a two-lane roadway). The site topography of all the lots is fairly flat. The lots have been graded to drain to the surrounding road right-of-ways. Lots 90, 91 and 92 front on Big Beaver Road, Lot 90 and 92 each consist of mostly grassy areas with a small amount of parking lot on Lot 92. Lot 91 consists of an office building and accessory parking lot. Lot 93 consists of more accessory parking. Lots 94, 95, 123 and 124 currently consist of one family residential homes. Trees exist on site and are identified in the tree survey document. No wetlands were determined to exist on the property. (see letter from King and McGregor dated 10-27-04 in Appendix)

Per the current Federal Emergency Management Agency Maps parts of Lots 94, 95 and 124 are within an approximate Zone A – 100 year floodplain area. FEMA in cooperation with Oakland County and the local governmental agencies are currently updating and "modernizing" the Flood Insurance Studies and Flood mapping for Oakland County. The current draft modernized maps indicate the subject lots are not in the floodplain. (see maps included in the Appendix)

The site has currently has direct access from Big Beaver, Alpine and McClure Roads. The site is adjacent to Office Building (O-1) zoned property to the east and west and office service center (O-S-C) zoned property to the south. To the north the property is zoned One-Family Residential (R-1B)

##### 2. Facilities

The site has access to underground phone and electric service located along the north side

of Big Beaver Road. Access to water and sanitary sewer is available in all the surrounding road right-of-ways. An adequate storm sewer is readily available to the site from Big Beaver Road.

07.20.05(E) Limitation Due to Proximity to Airports

Troy Airport is located approximately 2 miles south of the site. There are no known limitations to the development.

07.30.00 PROJECT DESCRIPTION:

07.30.01(A) Description of Intended Uses

The site will consist of two residential condominium buildings with a parking structure located along Big Beaver Road with low-rise townhomes in the rear. The ground floor of the residential towers will consist of retail space along with a lobby for the residential buildings. The site is currently zoned: Office Building (O-1), Vehicular Parking (P-1) and One-Family Residential (R-1B). It is being requested that this site be approved for a Planned Unit Development (PUD) to be developed as a mixed-use development.

07.30.02(B) Quantities of Proposed Elements

DENSITY CHARACTERISTICS:

Note: For comparison purposes this proposed development is being compared with RM-3 Zoning Requirements.

Intensity Required: 35 units per net acres of site area.

$$(5.85 \text{ acres}) \times (35 \text{ units/acre}) = 205 \text{ units}$$

Intensity Proposed: 209 units.

LANDSCAPING REQUIREMENTS:

Required: 209 units x 450 sq. ft./ unit = 94,050 sq. ft

Provided: 67,475 sq. ft.

PARKING:

Required: Residential: 209 units x 2 sp/unit = 418 spaces

Retail: 11,166 sq. ft. x 1 sp/ 200 sq. ft. of GFA = 56 spaces

Provided: A minimum of 480 spaces will be provided.

07.30.03(C) Anticipated Number of Employees, Residents, School Children and Senior Citizens

The development, as proposed, will generate approximately 20 new employment opportunities for local residents.

07.30.04(D) Anticipated Vehicular Generation

Based on the "Traffic Impact Study" prepared by Parsons, the anticipated vehicular generation is as follows:

AM Peak Generation = 75 Trips (8 Inbound/67 Outbound)  
PM Peak Generation = 125 Trips (92 Inbound/33 Outbound)

07.41.00 PROJECT IMPACT ANALYSIS: SYSTEMS

07.41.01(A) Thoroughfares

The site has access to Big Beaver Road, which is a major thoroughfare running east-west. Big Beaver Road is currently a divided boulevard with three lanes in each direction. The impacts to Big Beaver Road and surrounding roads are summarized in the traffic study.

07.41.02(B) Water Service Facilities

The existing twelve and eight inch diameter water mains located in the Alpine and McClure Road right-of-way, respectively, can serve the proposed development. The proposed development will require a "looped" water main onsite.

07.41.03(C) Wastewater Systems

The existing eight-inch diameter sanitary sewers located in the Alpine and McClure Road right-of-way can serve the proposed development.

07.41.04(D) Storm Sewers and Detention

On-site storm water detention will be provided in underground detention systems located in various areas within the development. It is anticipated that the detention system will outlet to storm sewer located in the Alpine and McClure Road right-of-way, which is tributary to the storm sewer, located in the Big Beaver Road right of way. The detention system will be designed in accordance with the OCDC 10-year requirements.

Detention Required = 32,220 cubic feet  
Detention Provided = more than 32,200 cubic feet

**Traffic Impact Study  
for  
THE MONARCH  
A Proposed Mixed-Use Development  
In the  
City of Troy, Michigan**

**Prepared for:  
Joseph Freed Associates LLC**

**Prepared by:  
PARSONS**

**Traffic Impact Study  
for  
THE MONARCH  
A Proposed Mixed-Use Development  
In the  
City of Troy, Michigan**

Prepared for:

**Joseph Freed Associates LLC**

Prepared by:

**PARSONS  
December 2004**

## **Table of Contents**

---

<b>List of Figures and Tables</b>	<i>ii</i>
<b>1. Summary of Findings and Recommendations</b>	1
Summary of Findings	1
Summary of Recommendations	4
<b>2. Area Conditions</b>	5
Introduction	5
Area Road Network	5
Planned Roadway Improvements	7
Site Accessibility	7
Existing Traffic Volumes and Conditions	7
<b>3. Projected Traffic</b>	10
Background Developments	10
Roadway Historical Growth Rate	10
Trip Generation for Proposed Development	12
Trip Distribution	13
Trip Assignment	14
<b>4. Traffic Analyses</b>	17
Capacity Analyses	17
Crossover Queue Length Analysis	29
<b>5. Conclusions</b>	32

### **Appendices**

*Appendix A – Existing Turning Movement and 24-Hour Machine Traffic Counts*

*Appendix B – Existing and Mitigated Existing Conditions Analysis Worksheets*

*Appendix C – Background Conditions Analysis Worksheets*

*Appendix D – Future and Mitigated Future Conditions Analysis Worksheets*

## List of Figures and Tables

---

### Figures

1. Site Location	6
2. Existing Peak-Hour Traffic Volumes	9
3. Background Peak-Hour Traffic Volumes	11
4. Site-Generated Peak-Hour Traffic Volumes	15
5. Future Peak-Hour Traffic Volumes	16

### Tables

1. Projected Peak-Hour Site-Generated Volumes	12
2. Estimated Directional Distribution	13
3. Level of Service Criteria for Signalized Intersections	17
4. Level of Service Criteria for Unsignalized Intersections	18
5. Capacity Analyses – Existing and Mitigated Existing Traffic Conditions	19
6. Capacity Analyses – Background, Future and Future Mitigated Traffic Conditions	23
7. Crossover Queue Lengths – Existing, Background And Future Conditions	30

# 1.

## **Summary of Findings and Recommendations**

---

A mixed use development is proposed on Big Beaver Road in the City of Troy. The proposed development would be constructed on approximately six acres of land on the north side of Big Beaver Road between Alpine and McClure Drives. The development would include approximately 6,900 square foot of specialty retail use, a 4,266 square foot day spa, 150 condominiums, 54 townhome residential units and a 316 space parking deck. It is anticipated the development would be constructed over the next three years (by 2007). The following represents the findings and recommendations of the traffic impact analysis for the proposed development:

### **Summary of Findings**

1. The peak traffic periods for the proposed use would typically occur during weekday mornings and afternoons. The peak-hours for existing street traffic were determined to occur from 7:45 A.M. to 8:45 A.M. and from 4:30 P.M. to 5:30 P.M.
2. Site access is proposed via Alpine, McClure and Big Beaver Road with two access drives onto Alpine, one onto McClure and an existing access to be shared with an adjacent development onto Big Beaver Road.
3. The number of trips that would be generated by the proposed development was estimated based on rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation*, 7<sup>th</sup> Edition. Pass-by trips were also considered in this analysis based on information contained in *ITE Trip Generation Handbook*. The proposed multi-use development will increase trips over the existing uses by 75 trips during the A.M. peak hour and 125 trips during the P.M. peak hour.
4. The directional distribution of new trips generated by the development was determined based on the existing A.M. and the P.M. peak hour traffic patterns. The resulting directional distribution is shown in the table below.

Direction	Percent Peak-Hour Distribution	
	A.M. Peak	P.M. Peak
To and from the west on Big Beaver Road (west of Coolidge Highway)	15%	16%
To and from the east on Big Beaver Road (east of Crooks)	24	25
To and from the north on Crooks (north of Big Beaver)	11	7
To and from the south on Crooks (south of Big Beaver)	17	22
To and from the north on Coolidge Hwy. (north of Big Beaver)	15	12
To and from the south on Coolidge Hwy. (south of Big Beaver)	12	14
To and from the north on Alpine via Muer Drive	4	2
To and from the north on McClure via Banmoor Drive	2	2
<b>Total</b>	<b>100%</b>	<b>100%</b>

5. To assess the impact of the proposed development on the nearby area roadways, the capacities of the following intersections were analyzed:

- Big Beaver Road and Coolidge Highway, including the eastbound-to-westbound crossover east of Coolidge and corresponding crossover west of Coolidge.
- Big Beaver Road and Crooks Road, including the eastbound-to-westbound crossover east of Crooks and corresponding crossover west of Crooks.
- Big Beaver Road and Alpine and the directional crossovers serving Alpine.
- Big Beaver Road and McClure and the directional crossovers serving McClure.

The analysis indicated that under **existing** traffic conditions (without background or site traffic from the proposed Monarch mixed-use development) all intersections operate at acceptable Levels of Service except the Big Beaver/Crooks intersection. The eastbound Big Beaver and Crooks Roads intersection during the P.M. peak hour is operating at an overall LOS “D” with the south approach operating at an unacceptable LOS “F”. The westbound Big Beaver and Crooks Roads intersection during the P.M. peak hour is operating at an overall LOS “E” with the east and south approaches operating at LOS “F” and “E”, respectively. Levels of service are expressed in a range from "A" through "F," with "A" being the highest level of service, and "F" representing the lowest level of service; Level of Service “D” is typically considered to be the lowest acceptable level.

6. Countermeasures were identified for the Big Beaver and Crooks intersection to mitigate the unacceptable level of service under **existing** traffic conditions. The mitigation identified was to provide a third northbound through lane on Crooks

Road in the vicinity of Big Beaver Road. The results of capacity analysis indicated that under mitigated existing conditions all study intersections would operate at acceptable levels of service.

7. Background traffic takes into account the additional traffic on the roadway system that will be generated by any approved developments in the area that may be completed by the time the build-out of the site occurs (estimated at three years). Discussions with the City of Troy Planning Department indicated that there is only one project that may impact the study intersections being analyzed, the Sterling Corporate Center. In addition to this development, a growth factor of two percent per year was used to account for other unknown developments that may occur prior to build-out of this site. This growth rate was recommended for use in this study by the Traffic Engineering Department of the City of Troy.
8. Under background traffic conditions (without site development traffic and with the recommended mitigation for existing conditions implemented), the capacity analysis results indicated that all intersections would operate at acceptable levels of service except the north approach of the signalized Big Beaver crossover west of Coolidge Highway which would operate at LOS "E", an unacceptable level of service, during the P.M. peak hour.
9. Analysis of future conditions (with site development and with the recommended mitigation for existing traffic conditions implemented) indicated that all intersections would continue to operate at acceptable levels of service except the north approach of the signalized Big Beaver crossover west of Coolidge Highway that would operate at LOS "E", an unacceptable level of service, during both the A.M. and the P.M. peak hours.
10. Countermeasures were investigated to mitigate the unacceptable level of service at the signalized Big Beaver crossover intersection west of Coolidge Highway. Small increases to the signal time allocated to the crossover traffic would significantly improve its operation and maintain acceptable levels of service. However, since this signal is a part of the Road Commission for Oakland County (RCOC)'s Sydney Coordinated Adaptive Traffic Signals (SCATS) system, split improvements should occur automatically as traffic volumes change.
11. A review of a full hour of traffic simulation using the *SimTraffic* model for both the A.M. and the P.M. peak hours indicated that no queuing problems should be experienced at any of the crossovers along Big Beaver Road under future traffic conditions.

## **Summary of Recommendations**

A capacity analysis of existing conditions at the Big Beaver and Crooks intersection found approaches at this location to be operating under current traffic volumes at unacceptable levels of service in the P.M. peak hour. Although no traffic generated from the development is present, countermeasures were investigated for this pre-existing condition. A third northbound through lane on Crooks Road in the vicinity of Big Beaver Road would mitigate this existing condition.

The following countermeasure was identified to mitigate the background (without development site traffic) and future (with development site traffic) conditions at the Big Beaver and Coolidge Highway intersection:

- The time allocated for crossover traffic at EB Big Beaver Road and the crossover west of Coolidge Highway should be increased from 35 to 53 seconds during the A.M. peak hour and from 35 to 50 seconds during the P.M. peak hour.

The signals along Big Beaver are a part of the RCOC's SCATS system. Therefore, the change to timing referenced above should occur automatically as the signal responds to changes in traffic demand by adjusting splits to facilitate traffic movement. The above information is given, however, to provide a basis for updating the background timing plan at this study location.

## 2.

# Area Conditions

---

## Introduction

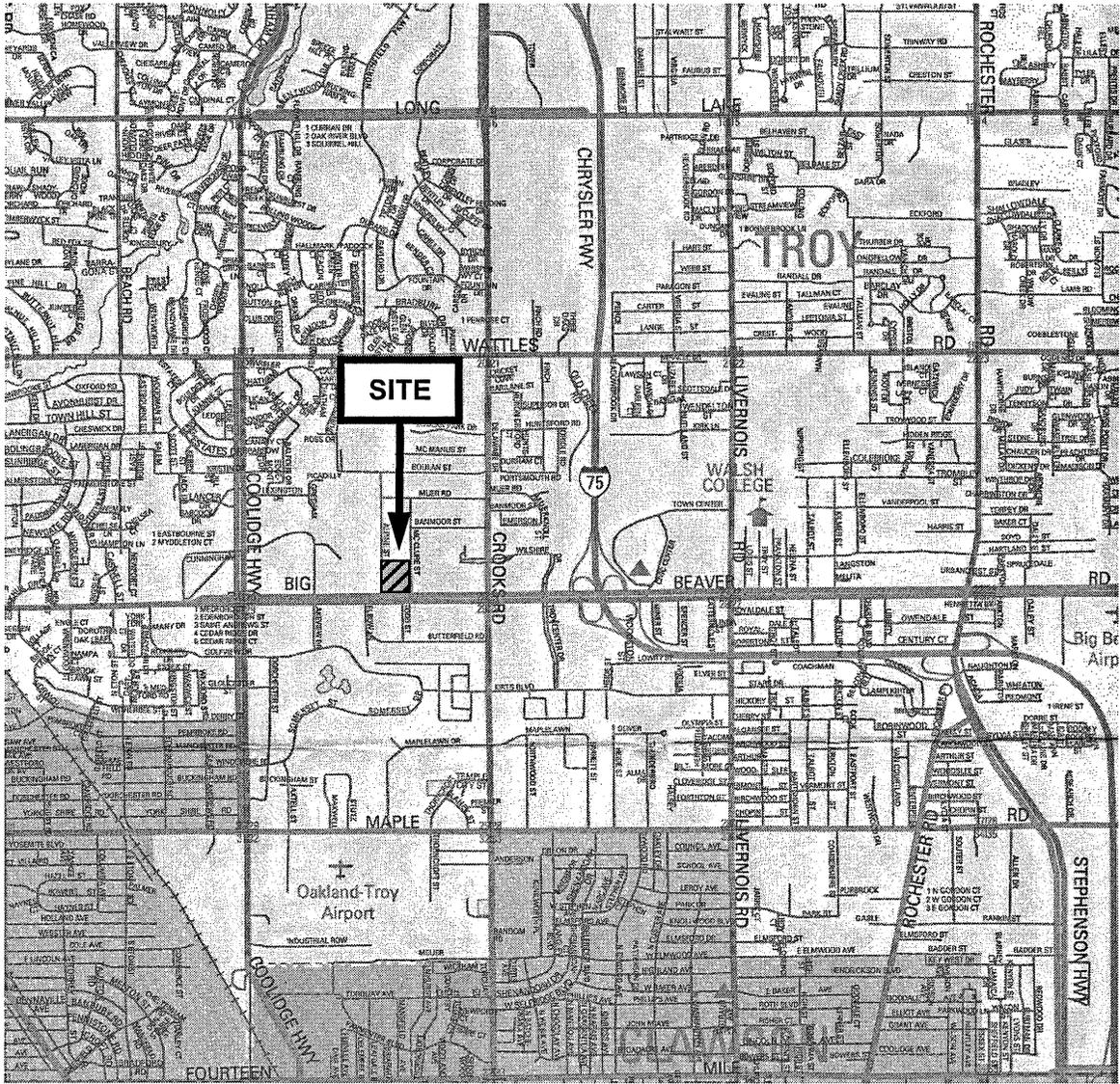
The proposed site is located on the north side of Big Beaver Road between McClure and Alpine Drives in the City of Troy, Michigan. Figure 1 illustrates the development site location. The development of the site proposes the construction of two condominium towers, the tallest being twenty-two stories, containing 150 condominium units, approximately 6,900 square-feet of specialty retail space, a 4,266 square-foot day spa and a 316-car parking garage. The site will also include 54 townhome residential units. The site is expected to be built-out by 2007. This study was conducted to assess the impact of site-generated traffic on the adjacent street system.

## Area Road Network

The primary roadways serving the proposed development site with related intersections studied in this report are described as follows:

*Big Beaver Road* is a divided east-west roadway in the site vicinity with three through lanes in each direction and directional crossovers to facilitate indirect left turns at intersections with streets and high volume site access locations. At its signalized intersection with Crooks, Big Beaver has three through lanes in each direction and an exclusive right-turn lane on both approaches. At its signalized intersection with Coolidge Highway, Big Beaver has three eastbound through lanes with an exclusive right-turn lane on its west approach and two westbound through lanes with two exclusive right-turn lanes on its east approach. Big Beaver Road is under the jurisdiction of the Road Commission for Oakland County (RCOC) and has a posted speed limit of 45 miles per hour (mph). Parking is prohibited on both sides of Big Beaver Road.

*Crooks Road* is a five-lane north-south roadway in the vicinity of Big Beaver Road. At its signalized intersection with Big Beaver Road, Crooks has two through lanes in each direction and exclusive right-turn lanes on each approach. Crooks Road is under the jurisdiction of the Road Commission for Oakland County and has a posted speed limit of 45 miles per hour (mph). Parking is prohibited on both sides of Crooks.



SITE LOCATION  
FIGURE 1

*Coolidge Highway* near its intersection with Big Beaver is a divided north-south roadway with directional crossovers to facilitate indirect left turns at intersections with streets and high volume site access locations. At its signalized intersection with Big Beaver the Coolidge north approach has three through lanes and an exclusive right-turn lane. Its south approach has two through lanes and a shared through-right lane. Coolidge Highway is under the jurisdiction of the City of Troy and has a posted speed limit of 35 mph south of Big Beaver and 40 mph north of Big Beaver. Parking is prohibited on both sides of Coolidge Highway.

*Alpine Drive* is a two-lane north-south roadway north of Big Beaver Road to Boulan Drive. It forms stop-controlled T-intersections with both Big Beaver and Boulan. Alpine is under the jurisdiction of the City of Troy and has a posted speed limit of 25 mph with parking prohibited on both sides of the street.

*McClure Drive* is a two-lane north-south roadway north of Big Beaver Road to Muer Drive. It forms stop-controlled T-intersections with both Big Beaver and Muer. McClure is under the jurisdiction of the City of Troy and has a posted speed limit of 25 mph with parking prohibited on both sides of the street.

All of the above referenced roads are paved.

## **Planned Roadway Improvements**

Discussions were held with the Road Commission for Oakland County and the City of Troy regarding planned improvements to roadways in the vicinity of the site. No current or planned roadway improvements in the site vicinity were identified.

## **Site Accessibility**

Site access is proposed via Alpine, McClure and Big Beaver with two access drives onto Alpine, one onto McClure and an existing access drive to be shared with an adjacent development onto Big Beaver Road.

## **Existing Traffic Volumes and Conditions**

A field inspection was conducted of the proposed site and its surroundings to obtain a record of existing conditions. Peak traffic periods for residential developments typically occur during weekday A.M. and P.M. peak periods for adjacent street traffic and peak periods for retail typically occur during weekday P.M. and Saturday midday. However, since the retail component of the development is quite small and the retail-residential trip generation for this proposed development for a Saturday midday would be less than that for a P.M. peak period, all traffic counts performed for this study were conducted from 7:00 A.M. to 9:00 A.M. and from 4:00 P.M. to 6:00 P.M. on a typical weekday (Tuesday, Wednesday or Thursday).

Turning movement counts were performed at the following four study intersections.

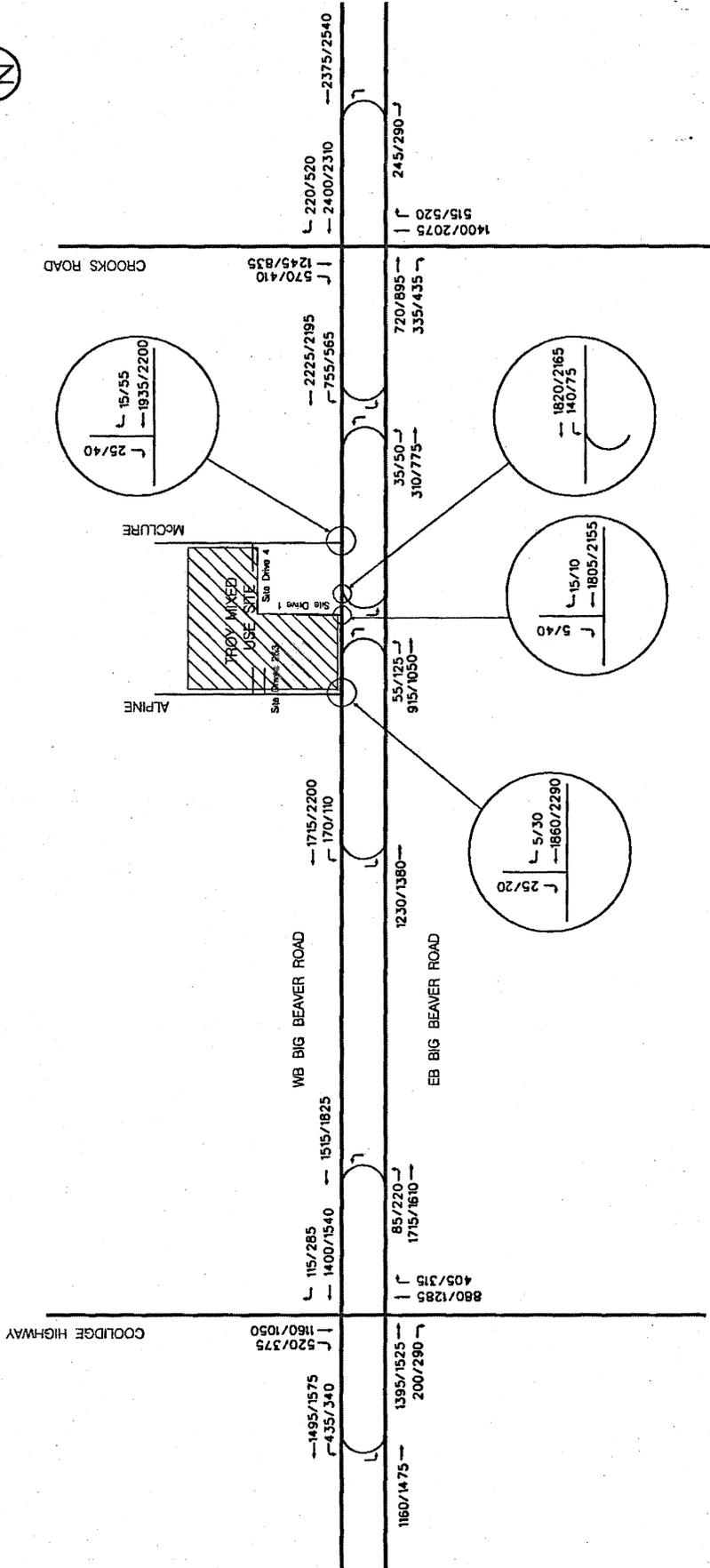
- Big Beaver Road/Crooks Road
- Big Beaver Road/Coolidge Highway
- Big Beaver Road/Alpine Road
- Big Beaver Road/McClure Road

The turning movement counts at the Big Beaver/Crooks Roads intersection and the Big Beaver Road/Coolidge Highway intersection were performed on Tuesday, September 28, 2004. The turning movement counts at the Big Beaver/Alpine Roads intersection were performed on Wednesday, September 29, 2004 and the turning movement counts at the Big Beaver/McClure Roads intersection were performed on Thursday, September 30, 2004.

In addition, automatic traffic count recorders (machine counters) were used to count crossover directional volumes. These counts were performed between 10:00 P.M. Monday September 27, 2004 and 7:00 P.M. Tuesday September 28, 2004 at the following crossovers:

- The two crossovers on Big Beaver Road east and west of Crooks Road
- The two crossovers on Big Beaver Road east and west of Coolidge Highway
- Big Beaver crossover west of Alpine Road
- Big Beaver crossover east of Alpine Road
- Big Beaver crossover west of McClure Drive
- Big Beaver crossover east of McClure Drive

The existing peak-hour traffic turning movement volumes at the study intersections and crossovers are illustrated on Figure 2. The traffic count data for all intersections is contained in Appendix A.



**LEGEND:**  
 XX/XX - AM PEAK HOUR (7:45-8:45) / PM PEAK HOUR (4:30-5:30)  
 VOLUMES ROUNDED TO THE NEAREST FIVE  
 50% OF ESTIMATED TRIPS GENERATED BY THE EXISTING OFFICE BUILDING AT WB BIG BEAVER AND MCCLURE  
 HAVE BEEN ASSIGNED TO THE SHARED DRIVE ON BIG BEAVER (SITE DRIVE #1).

**PARSONS**

**EXISTING PEAK-HOUR TRAFFIC VOLUMES**

**FIGURE 2**  
**12/08/2004**

### 3.

## **Projected Traffic**

---

A detailed analysis was completed of the projected background from other development and the future traffic demand created by the proposed mixed-use development, the Monarch.

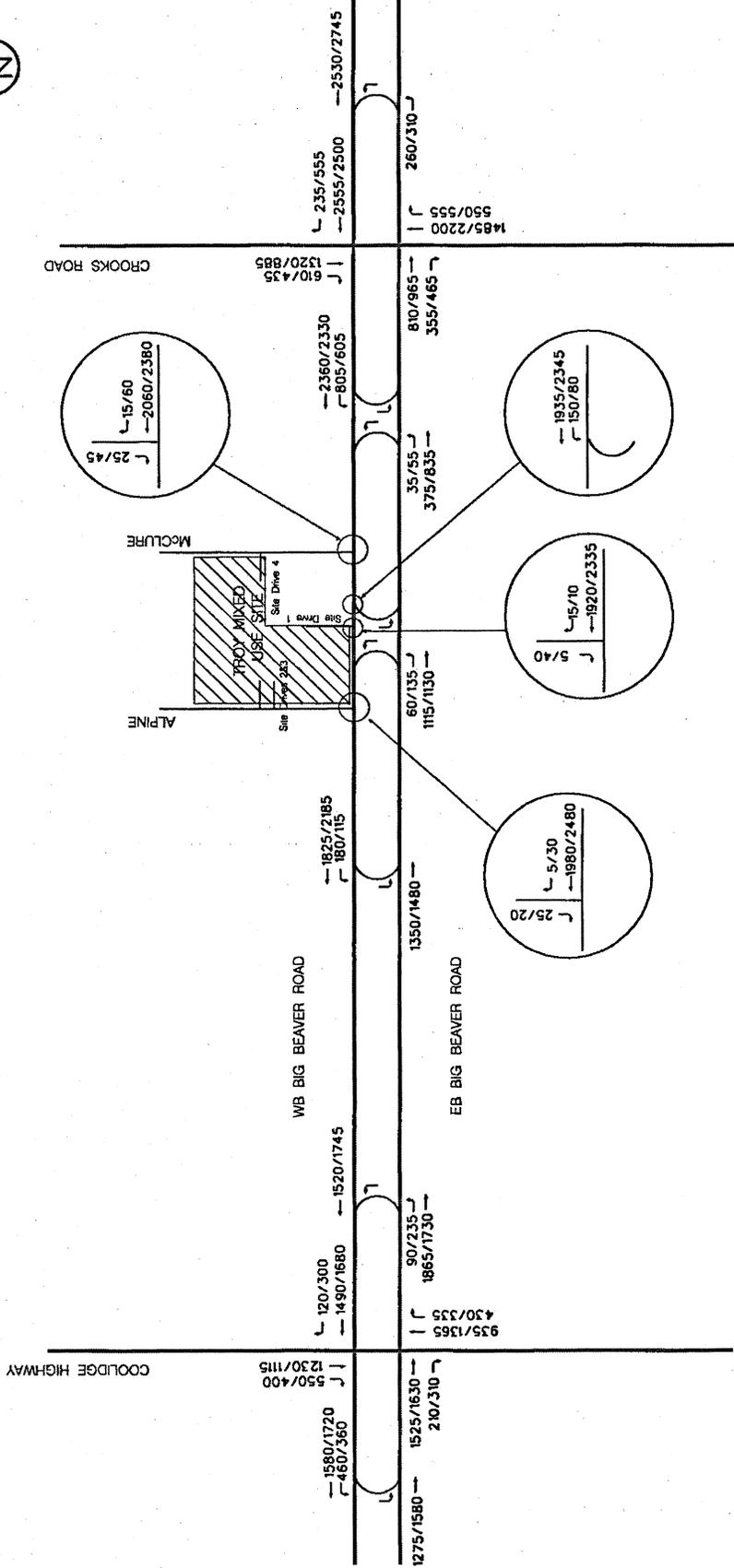
### **Background Developments**

Background traffic takes into account the added traffic on a roadway system that would be created by other approved developments in the area that may be completed by the time the proposed development site is built out. The Monarch development is expected to be completed within three years.

Discussions were held with the City of Troy Planning Department regarding planned and approved developments that may impact traffic volumes on the roads near the development site. Based on these discussions, only one approved development, the Burton-Katzman Sterling Corporate Center office development was identified. This development will be located in the northeast quadrant of Big Beaver and Wilshire Roads intersection. The trip generation and trip distribution found in the 'Office Development Traffic Impact Study' conducted by Tetra Tech MPS for the Sterling Corporate Center and dated June 2001 were used in our analysis to estimate this development's traffic as a part of the background traffic for the study.

### **Roadway Historical Growth Rate**

To account for growth in traffic and that may occur from developments that are not known at this time but that may occur over the next three years, a traffic growth factor was applied to the existing traffic volumes. The estimated annual traffic growth rate that was used for Big Beaver, Crooks and Coolidge Highway traffic was based on a discussion with the City of Troy's Traffic Engineer. It was indicated that a 1.5% to 2.0% growth rate would be appropriate to project future traffic volumes on these roadways. We have used a 2.0% growth rate in our analysis to be conservative. This growth factor was applied to the existing traffic volumes shown in Figure 2 for three years, the estimated project completion time frame, to arrive at this portion of the background volumes. These background traffic volumes were then added to the known background development traffic volumes to arrive at the Background Peak-Hour volumes that are illustrated on Figure 3.



**LEGEND:**  
 XX/XX - AM PEAK HOUR (7:45-8:45)/PM PEAK HOUR (4:30-5:30)  
 VOLUMES ROUNDED TO THE NEAREST FIVE

BACKGROUND PEAK-HOUR TRAFFIC VOLUMES

## Trip Generation for Proposed Development

The proposed Monarch development will consist of approximately 6,900 square-feet of specialty retail use, 150 luxury condominium and 54 townhome residential units and 4,266 sq. ft. day spa. The number of trips that would be generated by the proposed Monarch development was estimated based on rates published in *ITE Trip Generation, 7<sup>th</sup> Edition*. The ITE land-use categories, the size of each use and projected trips are presented in Table 1.

Table 1

### PROJECTED PEAK-HOUR SITE-GENERATED VOLUMES

Proposed Use, Size & ITE Code #	Trip Type	A.M. Peak-Hour			P.M. Peak-Hour		
		Entering	Exiting	Total	Entering	Exiting	Total
Specialty Retail Center (6,900 sq. ft.) ITE #814	All Trips	NEG	NEG	NEG	17	21	38
	Pass-by (35%)	NEG	NEG	NEG	-6	-7	-13
	New Trips	NEG	NEG	NEG	11	14	25
Day Spa (4,266 sq. ft.) ITE #492	All Trips	2	4	6	9	9	18
Luxury Condos and Townhomes (204 Units) ITE #233	All Trips	23	75	98	84	50	134
Total Trips		25	79	104	110	80	190
Total New Trips		25	79	104	104	73	177
Reduction for Trips Generated by Existing Office Building (50% of 11,000 sq. ft. trips) ITE#710		-14	-3	-17	-8	-38	-46
Reduction for Trips Generated by Existing Single Family Homes (4 Units) ITE #210		-3	-9	-12	-4	-2	-6
Net Total Trips		8	67	75	98	40	138
Net Total New Trips		8	67	75	92	33	125

NEG: Negligible

As shown in Table 1 pass-by trips were considered in this analysis for the retail use. Pass-by trips, as defined in *ITE's Trip Generation*, are "trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic

passing the site on an adjacent street that contains direct access to the generator." It should be noted that pass-by trips are not new trips. The pass-by trip percentages for the proposed development were determined based on information contained in *ITE's Trip Generation Handbook*. Although pass-by trips may also occur for the day spa, none were estimated as no ITE pass-by values are available for this use. Shared trips may also occur between the residential, retail, and day spa uses within the development. However, they were not considered in the analysis in order to present a more conservative approach when making the projected trip estimates for the development.

An 11,000 square feet office building and four single-family homes currently exist on the site of the proposed development. A trip generation analysis was conducted for these existing uses as shown in Table 1. Since the existing office building is only 50% occupied, the estimated projected trips were estimated accordingly. All trips generated by existing partially occupied office building and the single-family homes were deducted from site-generated trips. The trips generated by the proposed Monarch development with reductions for pass-by trips and trips generated by the existing office building and homes on the site are presented in Table 1. The net total trips and the net total new trips are also given in this Table.

## **Trip Distribution**

The directional distribution of traffic generated by the proposed Monarch development was estimated based on existing travel patterns. The resulting estimated residential and retail directional distributions from the analyses are shown in Table 2. The directional distribution of the development's pass-by trips was also based on existing traffic patterns near the site.

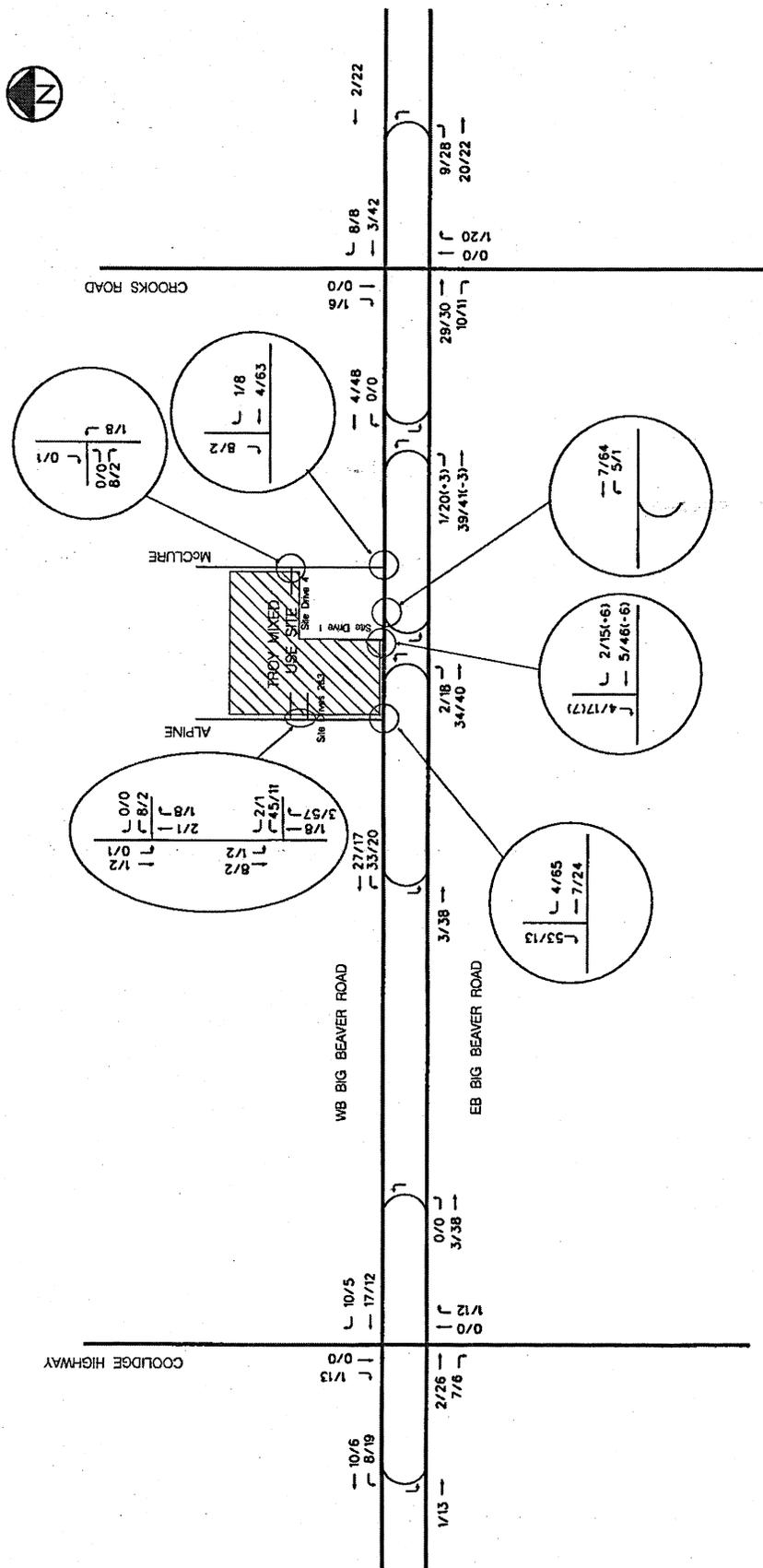
Table 2  
**ESTIMATED DIRECTIONAL DISTRIBUTION**

<b>Direction</b>	<b>Percent Peak-Hour Distribution</b>	
	<b>A.M. Peak</b>	<b>P.M. Peak</b>
To and from the west on Big Beaver Road (west of Coolidge Hwy.)	15%	16%
To and from the east on Big Beaver Road (east of Crooks)	24	25
To and from the north on Crooks (north of Big Beaver)	11	7
To and from the south on Crooks (south of Big Beaver)	17	22
To and from the north on Coolidge Hwy. (north of Big Beaver)	15	12
To and from the south on Coolidge Hwy. (south of Big Beaver)	12	14
To and from the north on Alpine via Muer Drive	4	2
To and from the north on McClure via Banmoor Drive	2	2
<b>Total</b>	<b>100%</b>	<b>100%</b>

## **Trip Assignment**

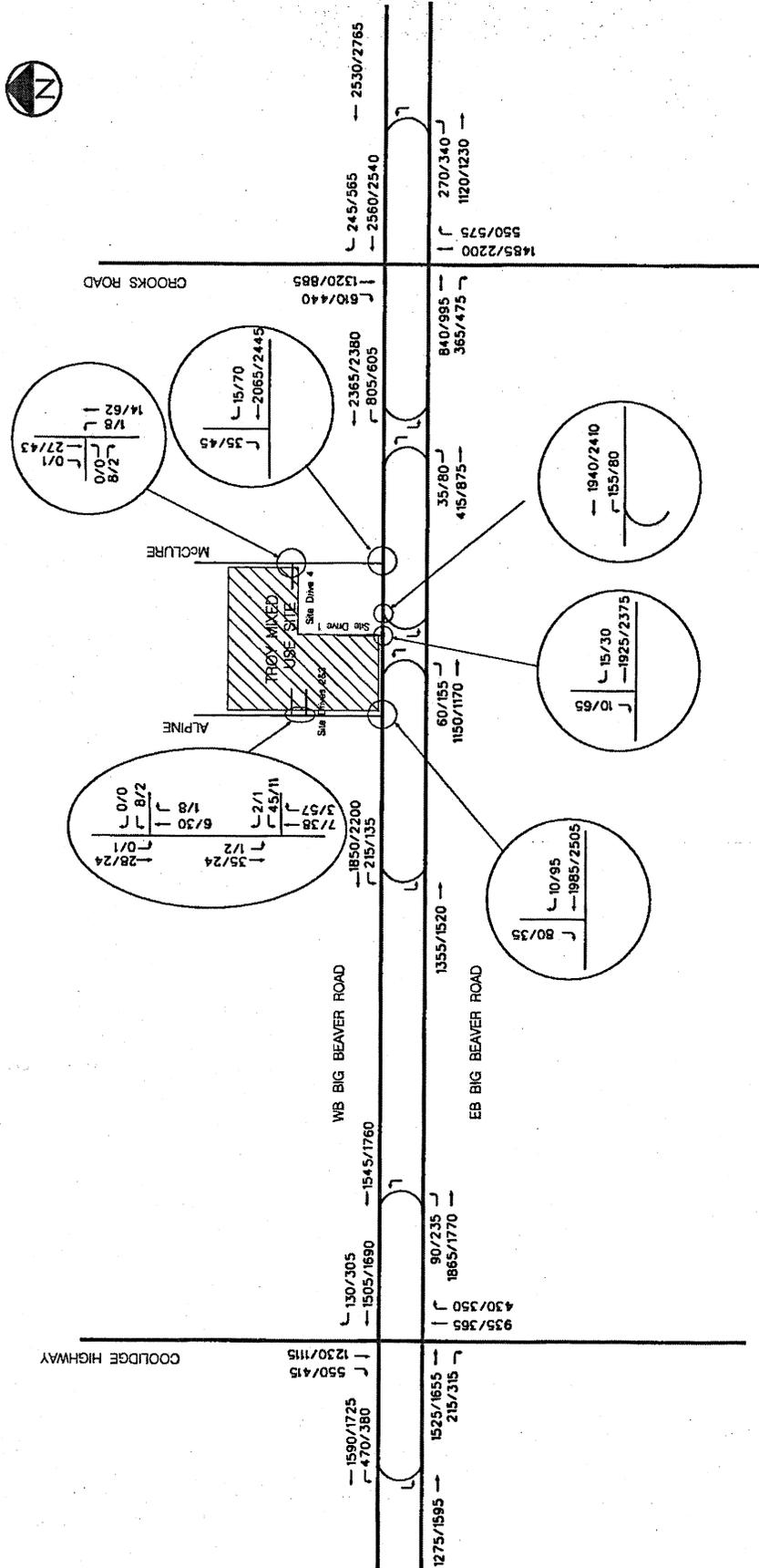
The projected peak-hour site-generated traffic volumes for the proposed development in Table 1 were assigned to the adjacent street system based on the estimated directional distribution found in Table 2. These site-generated trips are illustrated on Figures 4.

The site-generated peak-hour traffic volumes found in Figure 4 were then added to the background peak-hour traffic volumes found in Figure 3 to arrive at the future peak-hour traffic volumes shown on Figure 5.



SITE-GENERATED PEAK-HOUR TRAFFIC VOLUMES

FIGURE 4  
12/10/2004



LEGEND:  
 XX/XX - AM PEAK HOUR (7:45 - 8:45/PM PEAK HOUR (4:30 - 5:30)

FUTURE PEAK-HOUR TRAFFIC VOLUMES

FIGURE 5  
 12102004

## 4.

# Traffic Analyses

---

## Capacity Analyses

The critical intersections identified for this study were analyzed according to the methodologies published in the *2000 Highway Capacity Manual*. The analysis determines the "Level of Service (LOS)" of the intersections and is based on factors such as the number and types of lanes, signal timing, traffic volumes, pedestrian activity, etc. Levels of service are expressed in a range from "A" through "F," with "A" being the highest level of service, and "F" representing the lowest level of service. LOS "D" is typically considered the lowest acceptable level in an urban area. Tables 3 and 4 show the thresholds for Levels of Service "A" through "F" for signalized and unsignalized intersections, respectively.

Table 3

### LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service	Delay/Vehicle (seconds)	Description
A	< 10.0	Most vehicles do not stop at all.
B	10.1 to 20.0	Some vehicles stop.
C	20.1 to 35.0	The number of vehicles stopping is significant, although many pass through without stopping.
D	35.1 to 55.0	Many vehicles stop. Individual cycle failures are noticeable.
E	55.1 to 80.0	Individual cycle failures are frequent.
F	> 80.0	Unacceptable delay.

SOURCE: Transportation Research Board, *Highway Capacity Manual 2000*.

*Synchro* was the software application package used to perform the capacity analysis for the existing, background, future and mitigated future traffic conditions at the signalized intersections analyzed as part of this study. This software package employs the *2000 Highway Capacity Manual* methodologies and is used to optimize signal splits, offsets, and cycle lengths at individual intersections, along arterials, or within networks of traffic signals. Additional outputs from *Synchro* also provide 50<sup>th</sup> and 95<sup>th</sup> percentile queue lengths for each movement at a signal.

*Synchro* may also be used to create data files for *traffic* modeling with *SimTraffic* software and other third party software packages. *SimTraffic* performs micro-simulation and animation of vehicular traffic and is used to model vehicle movements and display them traversing a street network. *SimTraffic* may be used to model signalized as well as unsignalized intersections and freeway sections showing cars, trucks, pedestrian, and busses in the simulation. Congested and queue problem locations may be easily identified by observing a complete hour of recorded simulation. *SimTraffic* was used in this study to model traffic operations along Big Beaver Road.

The study unsignalized intersections were analyzed using the Highway Capacity Software (HCS 2000). This software package also employs the *2000 Highway Capacity Manual* methodologies for analysis.

Table 4

**LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS**

<b>Level of Service</b>	<b>Delay/Vehicle (seconds)</b>	<b>Description</b>
A	< 10.0	Little or no delay, very low main street traffic.
B	10.1 to 15.0	Short traffic delays, many acceptable gaps.
C	15.1 to 25.0	Average traffic delays, frequent gaps still occur.
D	25.1 to 35.0	Long traffic delays, limited number of acceptable gaps.
E	35.1 to 50.0	Very long traffic delays, very small number of acceptable gaps.
F	> 50.0	Extreme traffic delays, virtually no acceptable gaps in traffic.

**SOURCE:** Transportation Research Board, Highway Capacity Manual 2000.

Note: Capacity analyses for two-way stop controlled intersections provide the LOS at the critical movements, not for the overall intersection.

The HCS 2000 software package for unsignalized intersections does not allow analysis of a major street of more than two lanes in each direction. Big Beaver Road is a six-lane divided cross section with three lanes in each direction. At the McClure and Alpine intersections and the Big Beaver site drive westbound Big Beaver is three lanes in width. For analysis purposes, a two-lane westbound Big Beaver cross section was assumed at these locations and the westbound through volumes were reduced by one-third.

Table 5 summarizes the capacity analysis results for existing and existing mitigated traffic conditions, Table 6 summarizes the capacity results for the background traffic conditions (without site traffic), future traffic conditions (with site traffic), and future mitigated traffic conditions at each of the following study intersections, their respective directional crossovers, and the site drives.

- Big Beaver Road/Crooks Road
- Big Beaver Road/Coolidge Highway
- Big Beaver Road/Alpine Drive
- Big Beaver Road/McClure Drive

The capacity analyses worksheets are presented in Appendices B, C, and D and discussed in the following paragraphs.

Table 5

**CAPACITY ANALYSES-EXISTING AND MITIGATED EXISTING TRAFFIC CONDITIONS**

	EXISTING TRAFFIC				MITIGATED EXISTING TRAFFIC			
	A.M. Peak DELAY	LOS	P.M. Peak DELAY	LOS	A.M. Peak DELAY	LOS	P.M. Peak DELAY	LOS
<b>EB Big Beaver and Crooks Road (Signalized)</b>								
Overall	18.3	B	52.5	D	17.1	B	27.2	C
West Approach	23.5	C	26.1	C	18.5	B	21.3	C
South Approach	27	C	81.2	F	26.6	C	38.1	D
North Approach	0.9	A	0.7	A	1.9	A	0.9	A
<b>WB Big Beaver and Crooks Road (Signalized)</b>								
Overall	31.9	C	73.1	E	22.9	C	17.8	B
East Approach	50.8	D	121.2	F	24.9	C	26.1	C
South Approach	1.4	A	64.5	E	0.9	A	3.2	A
North Approach	28.0	C	16.2	B	36.6	D	24.6	C
<b>EB Big Beaver and Coolidge Hwy. (Signalized)</b>								
Overall	15.8	B	17.0	B	-	-	-	-
West Approach	19.2	B	18.9	B	-	-	-	-
South Approach	24.3	C	25.3	C	-	-	-	-
North Approach	1.0	A	1.0	A	-	-	-	-
<b>WB Big Beaver and Coolidge Hwy. (Signalized)</b>								
Overall	17.8	B	16.7	B	-	-	-	-
East Approach	20.3	C	23.6	C	-	-	-	-
South Approach	1.3	A	1.3	A	-	-	-	-
North Approach	24.1	C	21.8	C	-	-	-	-

*The Monarch Development Traffic Impact Study*

Table 5 (Continued)

	EXISTING TRAFFIC						MITIGATED EXISTING TRAFFIC					
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
<i>WB Big Beaver and Crossover East of Crooks (Signalized)</i>												
Overall	11.8	B	15.8	B	-	-	-	-	-	-	-	-
East Approach	8.5	A	11.5	B	-	-	-	-	-	-	-	-
South Approach	29.3	D	48.7	D	-	-	-	-	-	-	-	-
<i>EB Big Beaver and Crossover West of Crooks (Signalized)</i>												
Overall	5.8	A	14.0	B	-	-	-	-	-	-	-	-
West Approach	2.6	A	4.4	A	-	-	-	-	-	-	-	-
North Approach	7.1	A	27.5	C	-	-	-	-	-	-	-	-
<i>WB Big Beaver and Crossover West of Alpine (Signalized)</i>												
Overall	3.9	A	4.4	A	-	-	-	-	-	-	-	-
East Approach	2.7	A	2.6	A	-	-	-	-	-	-	-	-
West Approach	0.5	A	2.9	A	-	-	-	-	-	-	-	-
North Approach	24.8	C	21.4	C	-	-	-	-	-	-	-	-
<i>WB Big Beaver and Crossover East of Coolidge (Signalized)</i>												
Overall	3.2	A	8.6	A	-	-	-	-	-	-	-	-
East Approach	1.9	A	4.2	A	-	-	-	-	-	-	-	-
South Approach	25.2	C	40.6	D	-	-	-	-	-	-	-	-
<i>EB Big Beaver and Crossover West of Coolidge (Signalized)</i>												
Overall	17.0	B	17.6	B	-	-	-	-	-	-	-	-
West Approach	7.7	A	8.7	A	-	-	-	-	-	-	-	-
North Approach	42.3	D	49.3	D	-	-	-	-	-	-	-	-

*The Monarch Development Traffic Impact Study*

Table 5 (Continued)

	EXISTING TRAFFIC				MITIGATED EXISTING TRAFFIC			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
<i>WB Big Beaver and Alpine (Unsignalized)</i>								
Southbound Right Turn	13.4	B	15.5	C	-	-	-	-
<i>WB Big Beaver and McClure (Unsignalized)</i>								
Southbound Right Turn	13.8	B	15.8	C	-	-	-	-
<i>WB Big Beaver and Site Drive #1 (Unsignalized)</i>								
Southbound Right Turn	15.2	C	16.4	C	-	-	-	-
<i>WB Big Beaver and EB to WB Crossover East of Alpine (Unsignalized)</i>								
Northbound Left Turn	14.7	B	21.0	C	-	-	-	-
<i>EB Big Beaver and WB to EB Crossover West of McClure (Unsignalized)</i>								
Southbound Left Turn	12.0	B	11.6	B	-	-	-	-
<i>WB Big Beaver and EB to WB Crossover East of McClure (Unsignalized)</i>								
Northbound Left Turn	16.4	C	16.8	C	-	-	-	-

## Signalized Study Intersections

### Big Beaver Road and Crooks Road Intersection

As shown in Table 5 under *existing conditions*, the eastbound Big Beaver Road and Crooks Road intersection, is operating at an overall level of service (LOS) “B” during the A.M. peak hour with all approaches operating at LOS “C” or better. During the P.M. peak hour, the eastbound Big Beaver Road and Crooks Road intersection is operating at an overall LOS “D” with the south approach operating at LOS “F”. All other approaches are operating at LOS “C” or better.

The westbound Big Beaver Road and Crooks Road intersection, under *existing conditions*, is operating at an overall LOS “C” during the A.M. peak hour with all approaches operating at LOS “D” or better. During the P.M. peak hour the intersection is operating at an overall LOS “E” with the east and south approaches operating at LOS “F” and “E”, respectively. The north approach operates at LOS “B” during this time. Mitigation would be needed under existing conditions. The recommended mitigation is to provide a third northbound through lane on Crooks Road in the vicinity of Big Beaver Road.

Under *mitigated existing conditions*, the eastbound Big Beaver Road and Crooks Road intersection, would operate at an overall LOS “B” during the A.M. peak hour with all approaches operating at LOS “C” or better. During the P.M. peak hour the intersection would operate at an overall LOS “C” with all other approaches operating at LOS “D” or better.

The westbound Big Beaver Road and Crooks Road intersection, under *mitigated existing conditions*, would operate at an overall LOS “C” during the A.M. peak hour with all approaches operating at LOS “D” or better. During the P.M. peak hour the intersection would operate at an overall LOS “B” with all other approaches operating at LOS “C” or better.

As shown in Table 6, under *background conditions (without site development traffic and with the recommended mitigation under existing conditions implemented)*, the eastbound Big Beaver Road and Crooks Road intersection, would operate at an overall LOS “B” during the A.M. peak hour with all approaches operating at LOS “C” or better. During the P.M. peak hour the intersection would operate at an overall LOS “C” with all approaches operating at LOS “D” or better.

The westbound Big Beaver Road and Crooks Road intersection, under *background conditions (without site development traffic and with the recommended mitigation under existing conditions implemented)*, would operate at an overall LOS “C” during the A.M. peak hour with all approaches operating at LOS “D” or better. During the P.M. peak hour the intersection would operate at an overall LOS “C” with all approaches operating at LOS “D” or better. Therefore, no other mitigation would be needed under background conditions.

Table 6

**CAPACITY ANALYSES – BACKGROUND, FUTURE AND FUTURE MITIGATED TRAFFIC CONDITIONS**

FUTURE TRAFFIC															
BACKGROUND TRAFFIC (With Existing Mitigated)															
A.M. Peak				P.M. Peak				A.M. Peak				P.M. Peak			
DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS		
<b>EB Big Beaver and Crooks Road (Signalized)</b>															
Overall	B	18.5	C	34.8	C	18.7	B	35.0	D	35.0	D	35.0	D		
West Approach	B	19.8	C	21.7	C	20.1	C	21.9	C	21.9	C	21.9	C		
South Approach	C	28.0	D	51.7	D	28.3	C	52.0	D	52.0	D	52.0	D		
North Approach	A	2.9	A	0.9	A	2.9	A	0.9	A	0.9	A	0.9	A		
<b>WB Big Beaver and Crooks Road (Signalized)</b>															
Overall	C	29.9	C	33.0	C	29.8	C	35.4	D	35.4	D	35.4	D		
East Approach	D	35.7	D	42.8	D	35.6	D	47.9	D	47.9	D	47.9	D		
South Approach	A	0.9	C	24.6	C	0.9	A	24.6	C	24.6	C	24.6	C		
North Approach	D	43.3	C	25.2	C	43.3	D	25.2	C	25.2	C	25.2	C		
<b>EB Big Beaver and Coolidge Hwy. (Signalized)</b>															
Overall	B	16.3	B	17.5	B	16.2	B	17.6	B	17.6	B	17.6	B		
West Approach	C	20.2	B	19.3	B	20.1	C	19.5	B	19.5	B	19.5	B		
South Approach	C	24.5	C	26.2	C	24.5	C	26.3	C	26.3	C	26.3	C		
North Approach	A	1.0	A	1.0	A	1.0	A	1.0	A	1.0	A	1.0	A		
<b>WB Big Beaver and Coolidge Hwy. (Signalized)</b>															
Overall	B	18.5	B	16.7	B	18.6	B	17.4	B	17.4	B	17.4	B		
East Approach	C	22.0	C	23.2	C	22.3	C	24.5	C	24.5	C	24.5	C		
South Approach	A	1.3	A	1.2	A	1.3	A	1.2	A	1.2	A	1.2	A		
North Approach	C	24.3	C	22.3	C	24.3	C	22.4	C	22.4	C	22.4	C		

*The Monarch Development Traffic Impact Study*

Table 6 (Continued)

	BACKGROUND TRAFFIC						FUTURE TRAFFIC					
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
<i>WB Big Beaver and Crossover East of Crooks (Signalized)</i>												
Overall	12.3	B	17.3	B	13.3	B	17.3	B	13.3	17.3	B	B
East Approach	8.9	A	13.2	B	9.7	A	13.3	A	13.3	13.3	A	B
South Approach	47.5	D	49.5	D	47.4	D	49.4	D	49.4	49.4	D	D
<i>EB Big Beaver and Crossover West of Crooks (Signalized)</i>												
Overall	7.1	A	12.8	B	8.2	B	13.1	A	13.1	13.1	A	B
West Approach	3.6	A	4.5	A	3.7	A	4.7	A	4.7	4.7	A	A
North Approach	8.8	A	24.1	C	10.5	B	25.0	C	25.0	25.0	B	C
<i>WB Big Beaver and Crossover West of Alpine (Signalized)</i>												
Overall	5.9	A	4.3	A	7.2	A	5.4	A	5.4	5.4	A	A
East Approach	3.3	A	2.8	A	3.3	A	3.1	A	3.1	3.1	A	A
West Approach	0.8	A	2.6	A	0.8	A	3.0	A	3.0	3.0	A	A
North Approach	42.3	D	23.1	C	42.0	D	27.4	D	27.4	27.4	D	C
<i>WB Big Beaver and Crossover East of Coolidge (Signalized)</i>												
Overall	3.6	A	9.0	A	3.6	A	9.0	A	9.0	9.0	A	A
East Approach	2.1	A	4.3	A	2.1	A	4.4	A	4.4	4.4	A	A
South Approach	28.8	C	42.6	D	29.7	C	43.0	C	43.0	43.0	C	D
<i>EB Big Beaver and Crossover West of Coolidge (Signalized)</i>												
Overall	19.8	B	20.2	C	21.1	C	23.3	C	23.3	23.3	C	C
West Approach	8.4	A	9.3	A	8.5	A	9.5	A	9.5	9.5	A	A
North Approach	52.4	D	59.8	E	56.1	E	71.5	E	71.5	71.5	E	E

The Monarch Development Traffic Impact Study

Table 6 (Continued)

	BACKGROUND TRAFFIC						FUTURE TRAFFIC					
	A.M. Peak			P.M. Peak			A.M. Peak			P.M. Peak		
	DELAY	LOS		DELAY	LOS		DELAY	LOS		DELAY	LOS	
<b>WB Big Beaver and Alpine (Unsignalized)</b>												
Southbound Right Turn	13.9	B		15.5	C		14.6	B		16.7	C	
<b>WB Big Beaver and McClure (Unsignalized)</b>												
Southbound Right Turn	14.3	B		17.2	C		14.6	B		17.8	C	
<b>WB Big Beaver and Site Drive #1 (Unsignalized)</b>												
Southbound Right Turn	15.9	C		16.4	C		16.1	C		18.2	C	
<b>WB Big Beaver and EB to WB Crossover East of Alpine (Unsignalized)</b>												
Northbound Left Turn	15.5	C		23.9	C		15.5	C		28.3	D	
<b>EB Big Beaver and WB to EB Crossover West of McClure (Unsignalized)</b>												
Southbound Left Turn	13.1	B		12.0	B		13.4	B		12.1	B	
<b>WB Big Beaver and EB to WB Crossover East of McClure (Unsignalized)</b>												
Northbound Left Turn	17.2	C		18.0	C		17.3	C		19.8	C	
<b>FUTURE MITIGATED TRAFFIC</b>												
A.M. Peak			P.M. Peak			A.M. Peak			P.M. Peak			
DELAY			LOS			DELAY			LOS			
<b>EB Big Beaver and Crossover West of Coolidge(Signalized)</b>												
Overall	18.1	B		18.0	B		18.0	B		18.0	B	
West Approach	12.3	B		13.3	B		13.3	B		13.3	B	
North Approach	34.3	C		34.3	C		34.3	C		34.3	C	

Under *future conditions* (with site traffic and the recommended mitigation under existing conditions implemented), the eastbound Big Beaver Road and Crooks Road intersection would continue to operate at an overall LOS "B" during the A.M. peak hour with all approaches operating at LOS "C" or better. During the P.M. peak hour the intersection would operate at an overall LOS "D" with all approaches operating at LOS "D" or better.

The westbound Big Beaver Road and Crooks Road intersection, under *future conditions*, would continue to operate at an overall LOS "C" during the A.M. peak hour with all approaches operating at LOS "D" or better. During the P.M. peak hour the intersection would operate at an overall LOS "D" with all approaches operating at LOS "D" or better. Therefore, no other mitigation would be needed under future conditions.

Big Beaver Road and Coolidge Highway Intersection

As shown in Table 5, under *existing conditions*, the intersections of both eastbound and westbound Big Beaver Road at Coolidge Highway, are operating at an overall LOS "B" during the A.M. and P.M. peak hours with all approaches operating at LOS "C" or better.

As shown in Table 6, under *background conditions* (without site development traffic), the intersections of both eastbound and westbound Big Beaver Road at Coolidge Highway, would operate at an overall LOS "B" during the A.M. and P.M. peak hours with all approaches operating at LOS "C" or better.

Under *future conditions* (with site development traffic), the intersections of both eastbound and westbound Big Beaver Road at Coolidge Highway, would continue to operate at an overall LOS "B" during the A.M. and P.M. peak hours with all approaches operating at LOS "C" or better. Therefore, no mitigation would be needed.

WB Big Beaver Road and Crossover East of Crooks Road Intersection

As show in Table 5, under *existing conditions*, the intersection of westbound Big Beaver Road at the crossover east of Crooks Road is operating at an overall LOS "B" during the A.M. and P.M. peak hours with all approaches operating at LOS "D" or better.

As shown in Table 6, under *background and future conditions* (without and with site development traffic, respectively), the intersection would continue to operate at an overall LOS "B" during the A.M. and P.M. peak hours with all approaches operating at LOS "D" or better. Therefore, no mitigation would be needed.

EB Big Beaver Road and Crossover West of Crooks Road Intersection

As show in Table 5, under *existing conditions*, The intersection of eastbound Big Beaver Road at the crossover west of Crooks Road, is operating at an overall LOS "A" during the A.M. peak hour and at LOS "B" during the P.M. peak hour with all approaches operating at LOS "C" or better for both peak hours.

As shown in Table 6, under ***background and future conditions*** (*without and with site development traffic, respectively*), the intersection would continue to operate at an overall LOS “A” during the A.M. peak hour and at LOS “B” during the P.M. peak hour with all approaches operating at LOS “C” or better. Therefore, no mitigations would be needed.

*WB Big Beaver Road and Crossover West of Alpine Road Intersection*

As show in Table 5, under ***existing conditions***, the intersection of westbound Big Beaver Road at the crossover west of Alpine Road, is operating at an overall LOS “A” during the A.M. and P.M. peak hours with all approaches operating at LOS “C” or better.

As shown in Table 6, under ***background and future conditions*** (*without and with site development traffic, respectively*), the intersection would operate at an overall LOS “A” during the A.M. and P.M. peak hours with all approaches operating at LOS “D” or better. Therefore, no mitigations would be needed.

*WB Big Beaver Road and Crossover East of Coolidge Highway Intersection*

As show in Table 5, under ***existing conditions***, the intersection of westbound Big Beaver Road at the crossover east of Coolidge Highway, is operating at an overall LOS “A” during the A.M. and P.M. peak hours with all approaches operating at LOS “D” or better.

As shown in Table 6, under ***background and future conditions*** (*without and with site development traffic, respectively*), the intersection would operate at an overall LOS “A” during the A.M. and P.M. peak hours with all approaches operating at LOS “D” or better. Therefore, no mitigations would be needed.

*EB Big Beaver Road and Crossover West of Coolidge Highway Intersection*

As show in Table 5, under ***existing conditions***, the intersection of eastbound Big Beaver Road at the crossover west of Coolidge Highway is operating at an overall LOS “B” during the A.M. and the P.M. peak hours with all approaches operating at LOS “D” or better.

As shown in Table 6, under ***background conditions*** (*without site development traffic*), the intersection would operate at an overall LOS “B” during the A.M. peak hour and at an overall LOS “C” during the P.M. peak hour. The north approach would operate at LOS “E” during the P.M. peak hour. Therefore, mitigations would be needed under background conditions.

As shown in Table 6, under ***future conditions*** (*with site development traffic*), the intersection would operate at an overall LOS “C” during the A.M. and the P.M. peak hours. The north approach would continue to operate at LOS “E” during the P.M. peak hour.

Since this intersection had a failing approach under background conditions mitigations were considered. The mitigation was to increase the time allocated for the north approach from 35 second to 53 seconds during the A.M. peak hour and from 35 seconds to 50 seconds during the P.M. peak hour.

As shown in Table 6, under *mitigated future conditions*, the intersection would operate at an overall LOS “B” during the A.M. and P.M. peak hours with all approaches operating at LOS “C” or better.

### **Unsignalized Study Intersections**

#### **WB Big Beaver and Alpine Road Intersection**

As show in Table 5, under *existing conditions*, the critical movement at the intersection of WB Big Beaver and Alpine Road is the southbound right-turn movement. This movement is operating at LOS “B” during the A.M. peak hour and at LOS “C” during the P.M. peak hour.

As shown in Table 6, under *background and future conditions (without and with site development traffic, respectively)*, the critical movement would continue to operate at LOS “B” during the A.M. peak hour and at LOS “C” during the P.M. peak hour. Therefore, no mitigations would be needed.

#### **WB Big Beaver and McClure Road Intersection**

As show in Table 5, under *existing conditions*, the critical movement at the intersection of WB Big Beaver and McClure Road is the southbound right-turn movement. This movement is operating at LOS “B” during the A.M. peak hour and at LOS “C” during the P.M. peak hour.

As shown in Table 6, under *background and future conditions (without and with site development traffic, respectively)*, the critical movement would continue to operate at LOS “B” during the A.M. peak hour and at LOS “C” during the P.M. peak hour. Therefore, no mitigations would be needed.

#### **WB Big Beaver and Site Drive #1 Intersection**

As show in Table 5, under *existing conditions*, the critical movement at the intersection of WB Big Beaver and the site drive#1 is the southbound right-turn movement. This movement is operating at LOS “C” during both the A.M. and the P.M. peak hours.

As shown in Table 6, under *background and future conditions (without and with site development traffic, respectively)*, the critical movement would continue to operate at LOS “C” during both the A.M. and the P.M. peak hours. Therefore, no mitigations would be needed.

WB Big Beaver and EB to WB Crossover East of Alpine

As show in Table 5, under **existing conditions**, the critical movement at the intersection of WB Big Beaver and the crossover east of Alpine is the northbound left-turn movement. This movement is operating at LOS “B” during the A.M. peak hour and at LOS “C” during the P.M. peak hour.

As shown in Table 6, under **background conditions** (*without site development traffic*), the critical movement would operate at LOS “C” during both the A.M. and the P.M. peak hours.

As shown in Table 6, under **future conditions** (*with site development traffic*), the critical movement would operate at LOS “C” during the A.M. peak hour and at LOS “D” during the P.M. peak hour. Therefore, no mitigation would be needed.

EB Big Beaver and WB to EB Crossover West of McClure

As show in Table 5, under **existing conditions**, the critical movement at the intersection of EB Big Beaver and the crossover west of McClure is the southbound left-turn movement. This movement is operating at LOS “B” during both the A.M. and the P.M. peak hours.

As shown in Table 6, under **background and future conditions** (*without and with site development traffic, respectively*), the critical movement would continue to operate at LOS “B” during both the A.M. and the P.M. peak hours. Therefore, no mitigations would be needed.

WB Big Beaver and EB to WB Crossover East of McClure

As show in Table 5, under **existing conditions**, the critical movement at the intersection of WB Big Beaver and the crossover east of McClure is the northbound left-turn movement. This movement is operating at LOS “C” during both the A.M. and the P.M. peak hours.

As shown in Table 6, under **background and future conditions** (*without and with site development traffic, respectively*), the critical movement would continue to operate at LOS “C” during both the A.M. and the P.M. peak hours. Therefore, no mitigations would be needed.

### Crossover Queue Length Analysis

The 50<sup>th</sup> and 95<sup>th</sup> percentile queue length outputs from the *Synchro* analysis reports for the Big Beaver Road signalized crossovers, and the 95<sup>th</sup> percentile queue length output from the Highway Capacity Software (HCS) analysis reports for unsignalized crossovers, are presented in Table 7 for the existing, background and future traffic conditions. The last column of Table 7 presents the field measured storage lane lengths at these crossovers. A review of Table 7 indicates that under both background (*without site*

traffic) and future (with site traffic mitigated) conditions the queue lengths increase during the A.M. and P.M. peak hours over existing conditions. The most noticeable increase in the 95<sup>th</sup> percentile queue length of 54 feet for **background** over **existing** conditions occurred at the crossover west of Alpine during the A.M. peak hour. All other queue length increases from existing to background conditions were less than this.

A comparison of **background** with **future** conditions queue lengths in Table 7 indicates that very minor increases in the 50<sup>th</sup> and 95<sup>th</sup> percentile queue lengths occur at all locations except at the crossover west of Coolidge and the crossover east of Crooks. At the crossover west of Coolidge the greatest increase in queue length occurred during the A.M. peak hour with a 38 foot increase in the 50<sup>th</sup> percentile queue. At the crossover east of Crooks the greatest increase in queue length occurred during the A.M. peak hour with a 30 foot increase in the 95<sup>th</sup> percentile queue. Other crossovers showed some increase in queue length but all were less than the above two.

Table 7  
**CROSSOVER QUEUE LENGTHS – EXISTING, BACKGROUND AND FUTURE CONDITIONS**

Crossover and Movement	Percentile Queue	Queue Lengths in Feet						Storage Length in Feet <sup>(2)</sup>
		Existing		Background		Future (Mitigated if Applicable)		
		AM	PM	AM	PM	AM	PM	
EB to WB left-turn at Crossover E. of Crooks	50 <sup>th</sup>	193	279	194	300	214	273	180
	95 <sup>th</sup>	270	332	264	352	294	351	
WB to EB Left-turn at Crossover W. of Crooks	50 <sup>th</sup>	63	162	85	191	103	176	380
	95 <sup>th</sup>	64	137	91	147	107	174	
EB to WB left-turn at Crossover E. of Coolidge	50 <sup>th</sup>	0	166	0	191	0	193	320
	95 <sup>th</sup>	83	249	87	271	89	271	
WB to EB Left-turn at Crossover W. of Coolidge	50 <sup>th</sup>	287	325	322	355	360	374	510
	95 <sup>th</sup>	462	361	497	378	470	389	
WB to EB Left-turn at Crossover W. of Alpine	50 <sup>th</sup>	72	33	124	39	134	60	330
	95 <sup>th</sup>	126	85	180	92	191	118	
EB to WB left-turn at Crossover E. of Alpine <sup>(1)</sup>	50 <sup>th</sup>	-	-	-	-	-	-	440
	95 <sup>th</sup>	12	43	14	54	14	73	
WB to EB Left-turn at Crossover W. of McClure <sup>(1)</sup>	50 <sup>th</sup>	-	-	-	-	-	-	420
	95 <sup>th</sup>	22	11	27	13	29	13	
EB to WB left-turn at Crossover E. of McClure <sup>(1)</sup>	50 <sup>th</sup>	-	-	-	-	-	-	180
	95 <sup>th</sup>	9	13	10	16	10	26	

<sup>(1)</sup> These unsignalized crossovers were analyzed using the Highway Capacity Software (HCS). This software only provides the 95<sup>th</sup> percentile queue length estimate in number of vehicles. An average 25 foot vehicle length was assumed in estimating queue lengths in feet.

<sup>(2)</sup> Storage length presented in this column is the length of the full width lane plus half the taper length.

Comparing the available storage lane lengths at these crossovers (last column in Table 7) with the maximum projected 95<sup>th</sup> percentile queue lengths at each location indicates that all existing crossover storage lane lengths exceed the projected queues except for the crossover east of Crooks. This crossover's projected queues are indicated as longer in length than the available storage length for existing, background and future conditions. A *SimTraffic* simulation for this location for both the A.M. and P.M. peak hours did not, however, demonstrate a queuing problem under future traffic conditions. The simulation did show long queues for short periods but these queues did not exceed the storage lane length and did not interfere with adjacent through-lane traffic movement.

## 5.

# Conclusions

---

The following represent the conclusions reached by Parsons based on the results of our study analysis:

### **Existing Conditions - 2004**

The overall level of service for existing traffic conditions at the eastbound Big Beaver and Crooks Roads intersection during the P.M. peak hour, without background or site traffic from the proposed Monarch mixed-use development, is LOS "D" with the south approach operating at an unacceptable LOS "F".

The overall level of service for existing traffic conditions at the westbound Big Beaver and Crooks Roads intersection during the P.M. peak hour, without background or site traffic from the proposed Monarch mixed-use development, is LOS "E" during the P.M. peak hour with the east and south approaches operating at LOS "F" and "E", respectively.

Because unacceptable levels of service are being experienced at these intersections mitigation would be needed under **existing** conditions. The recommended mitigation is to provide a third northbound through lane on Crooks Road in the vicinity of Big Beaver Road. With this mitigation, the eastbound and westbound intersections of Big Beaver with Crooks Road will operate at an acceptable overall level of service "C" or better during the weekday A.M. and P.M. peak-hours with all approaches operating at an acceptable level of service "D" or better.

### **Background and Future Conditions – 2007**

Under **background** traffic conditions (*without site development traffic and with existing conditions mitigated*), all intersections would operate at overall acceptable levels of service. However, the north approach at the signalized Big Beaver crossover west of Coolidge Highway would operate at LOS "E" during the P.M. peak hour.

Under **future** traffic conditions (*with site development traffic and with existing conditions mitigated*), all intersections would continue to operate at overall acceptable levels of service. However, the north approach at the signalized Big

Beaver crossover west of Coolidge Highway would operate at LOS "E" during both the A.M. and the P.M. peak hours.

Countermeasures were investigated to mitigate the above referenced crossover deficiency. Small increases to the green time allocated to the crossover volumes would significantly improve its operation and maintain acceptable levels of service. However, since this signal is a part of the RCOC's traffic responsive SCATS system, traffic signal timing split improvements would occur automatically as traffic volumes change.

A review of a full hour of traffic simulation using the *SimTraffic* model for both the A.M. and the P.M. peak hours indicated that no queuing problems should be experienced at any of the crossovers along Big Beaver Road under future traffic conditions.

# PARSONS

26777 Central Park Boulevard, Suite 275 • Southfield, Michigan 48076

248.262.0012 • 248.262.0088 Fax



View from Somerset Bridge

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES





View from Big Beaver

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES



View from Alpine Street

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES  




Big Beaver (South) Elevation

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES  
∞



North Elevation

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES





East Elevation

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES  
∞



Alpine Street (West) Elevation

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES  




Photo Montage Views from McClure Street

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES  
II



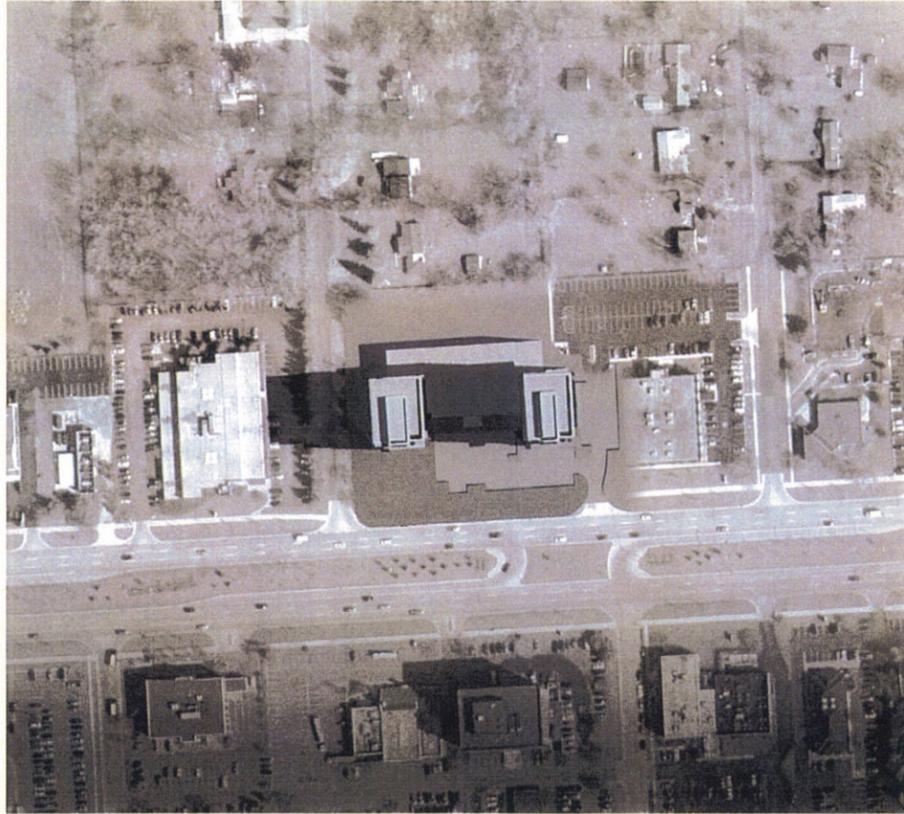
Photo Montage Views from Alpine Street

February 14, 2005

20380 West Big Beaver Road  
Troy, Michigan

Joseph Freed & Associates

THE  
**MONARCH**  
PRIVATE RESIDENCES  
&



9 AM



12 PM



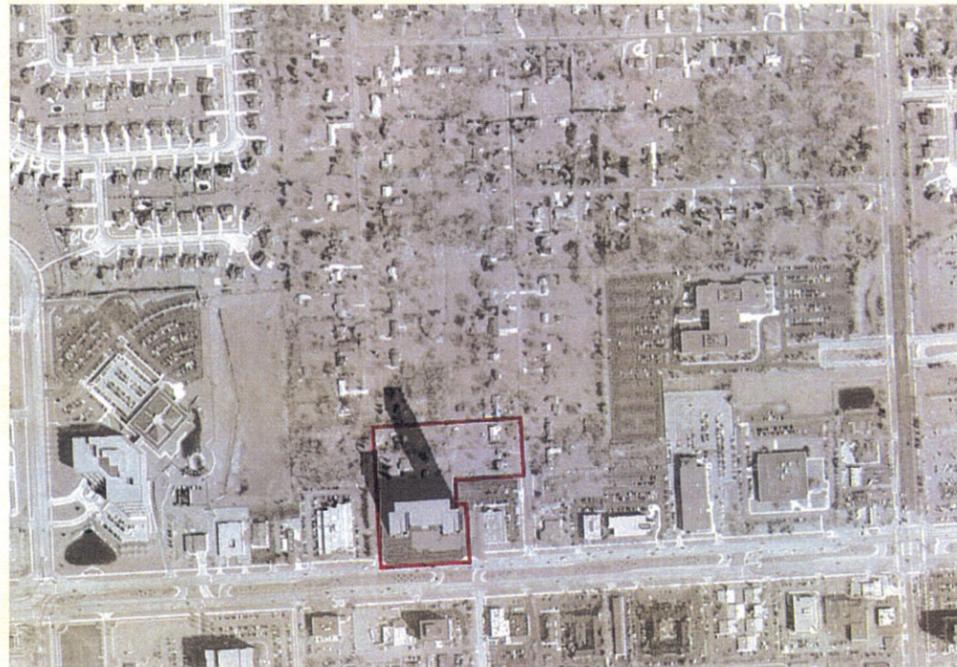
3 PM



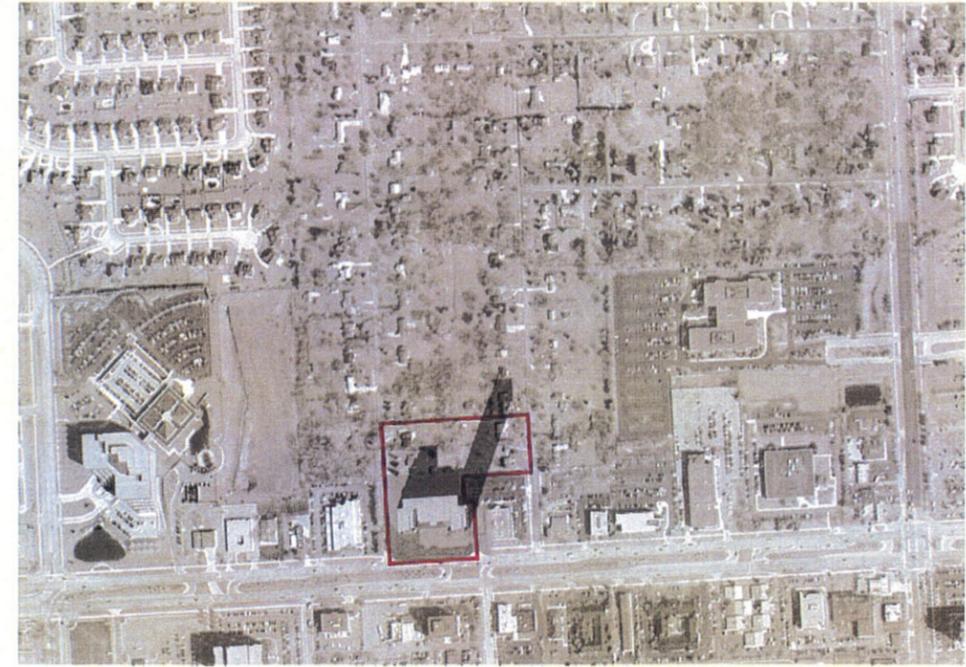
9 AM



4 PM



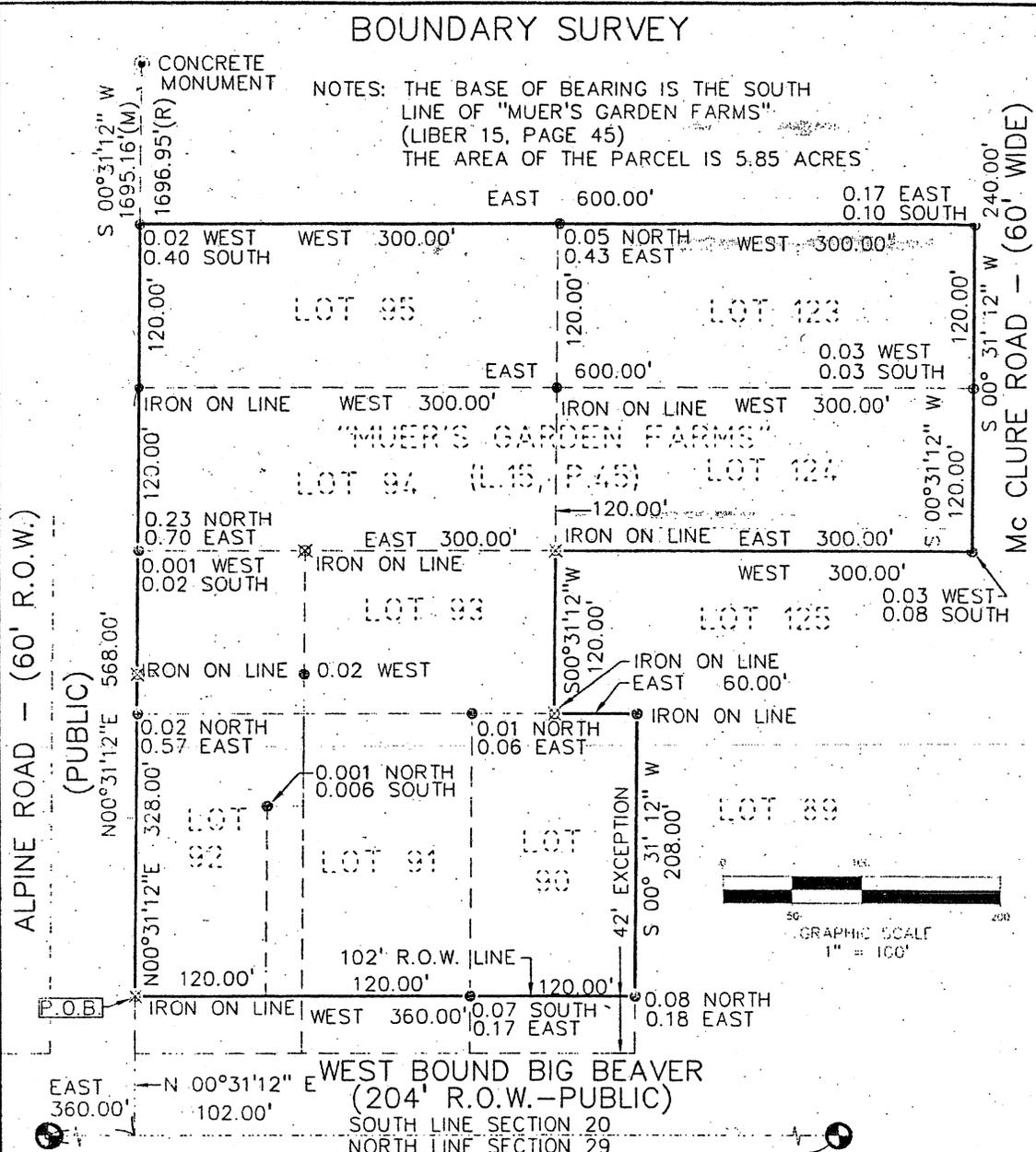
11 AM



2 PM

# BOUNDARY SURVEY

NOTES: THE BASE OF BEARING IS THE SOUTH  
 LINE OF "MUER'S GARDEN FARMS"  
 (LIBER 15, PAGE 45)  
 THE AREA OF THE PARCEL IS 5.85 ACRES



SOUTH 1/4 CORNER SECTION 20 T. 2 N., R. 11 E. (L.17055, P.765)      WEST 2648.68' (M), 2648.92' (R)      SOUTHEAST CORNER SECTION 20 T. 2 N., R. 11 E. (L.17055, P.767)

JOSEPH FREED, a Registered Land Surveyor in the State of Michigan, certifies that I have surveyed the parcel(s) of land hereon described, that there are no encroachments, and that the field error of closure is 1 part in 241,000. I have complied with the survey requirements of Public Act 132 of 1970, as amended. The seller of this property is required to record this instrument at the time of sale.

- LEGEND**
- ⊗ IRON SET
  - ⊙ IRON FOUND
  - MONUMENT SET

NOTICE: JOSEPH FREED 264865 - AGENT FOR P.E.A., INC.

CLIENT:  
**JOSEPH FREED AND ASSOCIATES**  
 220 NORTH SMITH STREET, SUITE 300  
 PALATINE, ILLINOIS 60067

SCALE: 1" = 100'	JOB No: 2004198
DATE: 11-05-04	DWG. No: 1 of 2

**PROFESSIONAL  
 ENGINEERING  
 ASSOCIATES**

2430 Rochester Ct. Suite 100  
 Troy, MI 48063 1872  
 (313) 689-9090

LEGAL DESCRIPTION

PARCEL 1 - Lot 91, except the South 42 feet thereof and the East 26 feet of the North 140 feet of the South 182 feet of Lot 92 and Lot 93, except the North 91 feet of the West 120 feet thereof, Muer's Garden Farms, a subdivision, as recorded in Liber 15, Page 45 of Plats, Oakland County Records.

PARCEL 2 - Lot 90, except the South 42 feet thereof, Muer's Garden Farms, a subdivision, as recorded in Liber 15, Page 45 of Plats, Oakland County Records.

PARCEL 3 - Lot 92, except the South 42 feet and also except the East 26 feet of the North 140 feet of the South 182 feet thereof, Muer's Garden Farms Subdivision, as recorded in Liber 15, Page 45 of Plats, Oakland County Records.

PARCEL 4 - The North 91 feet of the West 120 feet of Lot 93, Muer's Garden Farms Subdivision, as recorded in Liber 15, Page 45 of plats, Oakland County Records. Together with and subject to right of others to a joint driveway easement more particularly described in Joint Driveway Easement Agreement recorded in Liber 22598, Page 539, Oakland County Records.

PARCEL 5 - Lot 94, 95, 123 and 125 of "Muer Garden Farms Subdivision" as recorded in Liber 15, Page 45 of Plats, Oakland County Records.

SECTION CORNER WITNESSES

South 1/4 Corner of Section 20 - Remon Point 4"  
Concrete Monument in Monument Box (L. 17055, P. 765)

N38°E 149.04'; SW Corner Building No. 2100  
N85°W 75.06'; NE Corner of Concrete Base For Light Pole  
Due East 49.98'; NW Corner Concrete Base For Light Pole  
S07°E; NW Corner Building #2155

SE Corner of Section 20 - 2" Brass Cap in Monument Box (L. 17055, P. 767)

N23°E 115.67'; Top SW Bolt in Concrete Base For Light Pole  
N70°W 50.54'; Top SE Bolt in Concrete Base For Light Pole  
S23°W 123.22'; Top NE Bolt in Concrete Base For Light Pole  
S70°E 53.03'; Top NW Bolt in Concrete Base For Light Pole

CLIENT:  
JOSEPH FREED AND ASSOCIATES  
220 NORTH SMITH STREET, SUITE 300  
PALATINE, ILLINOIS 60067

SCALE: 1"= 100'

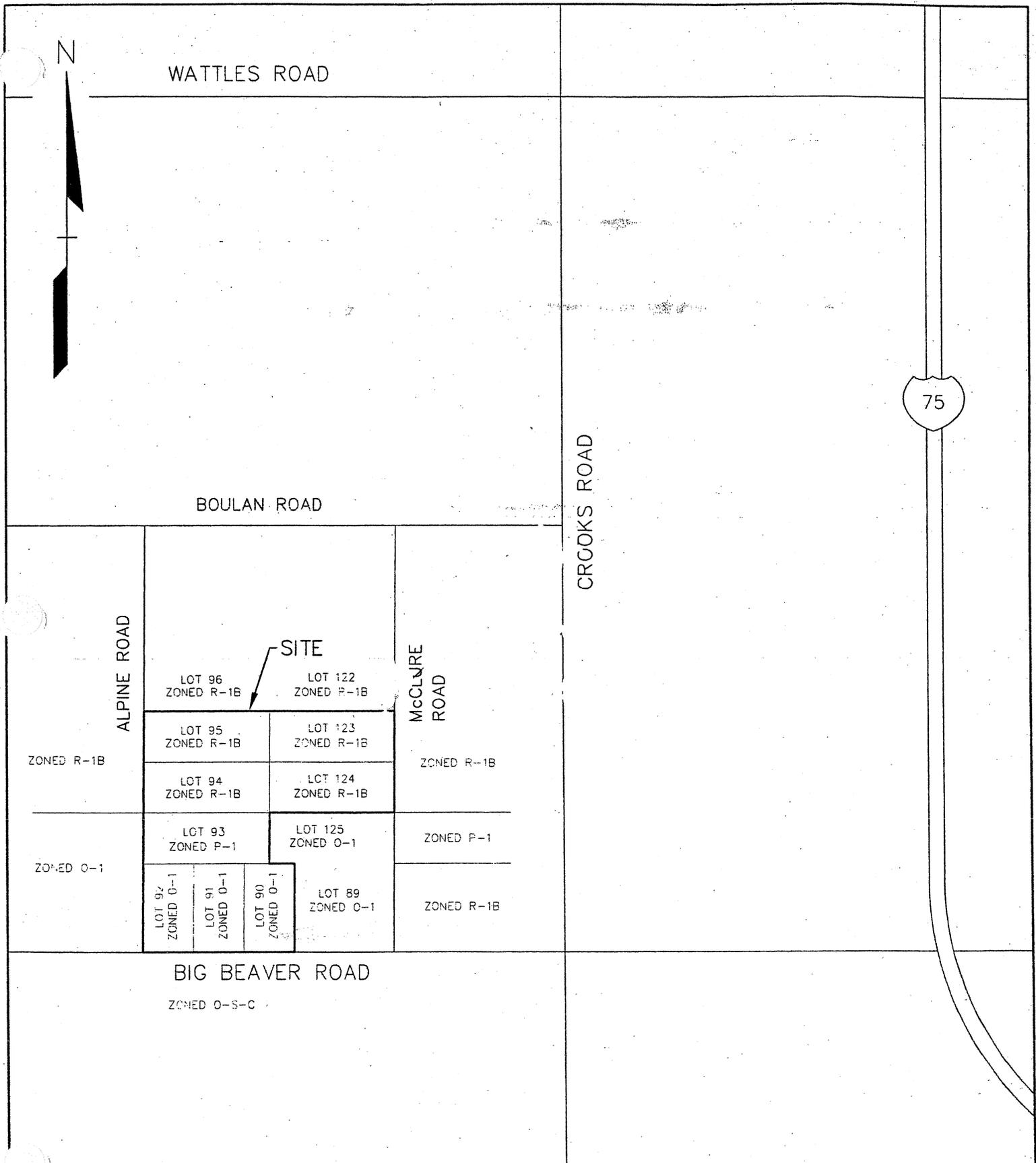
JOB No: 2004198

DATE: 11-05-04

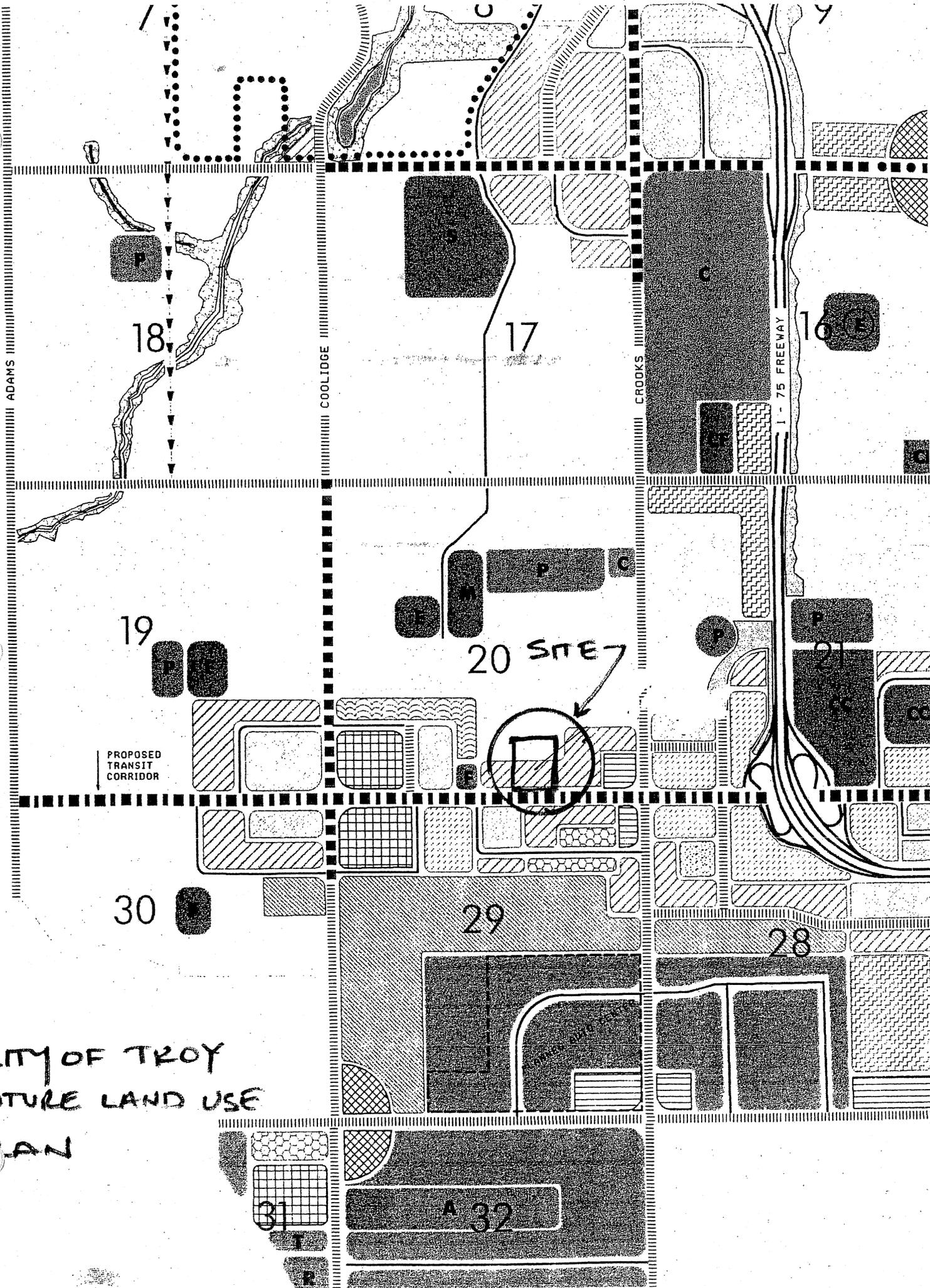
DWG. No: 2 of 2

PROFESSIONAL  
ENGINEERING  
ASSOCIATES

2430 Rochester Ct. Suite 100  
Troy, MI 48063-1872  
(248) 689-9090



LOCATION MAP AND EXISTING  
ZONING CLASSIFICATIONS



CITY OF TROY  
 FUTURE LAND USE

3-AN

LONG LAKE

#07

BLOOMFIELD TWP.

WATFELS

BIG BEAVER

SOAKS

R-1A

7

R-1B

R-1C

8

R-1B

9

R-1B

R-1B

R-1B

R-1C

CR-1

18

R-1A

R-1B

17

16

R-1B

C-F

R-1B

19

C-F

20

R-1B

21

C-F

R-1C

30

29

28

CITY OF TROY  
ZONING DISTRICT  
MAP

CITY OF BIRMINGHAM

CITY OF LAWRENCE

**LEGEND**



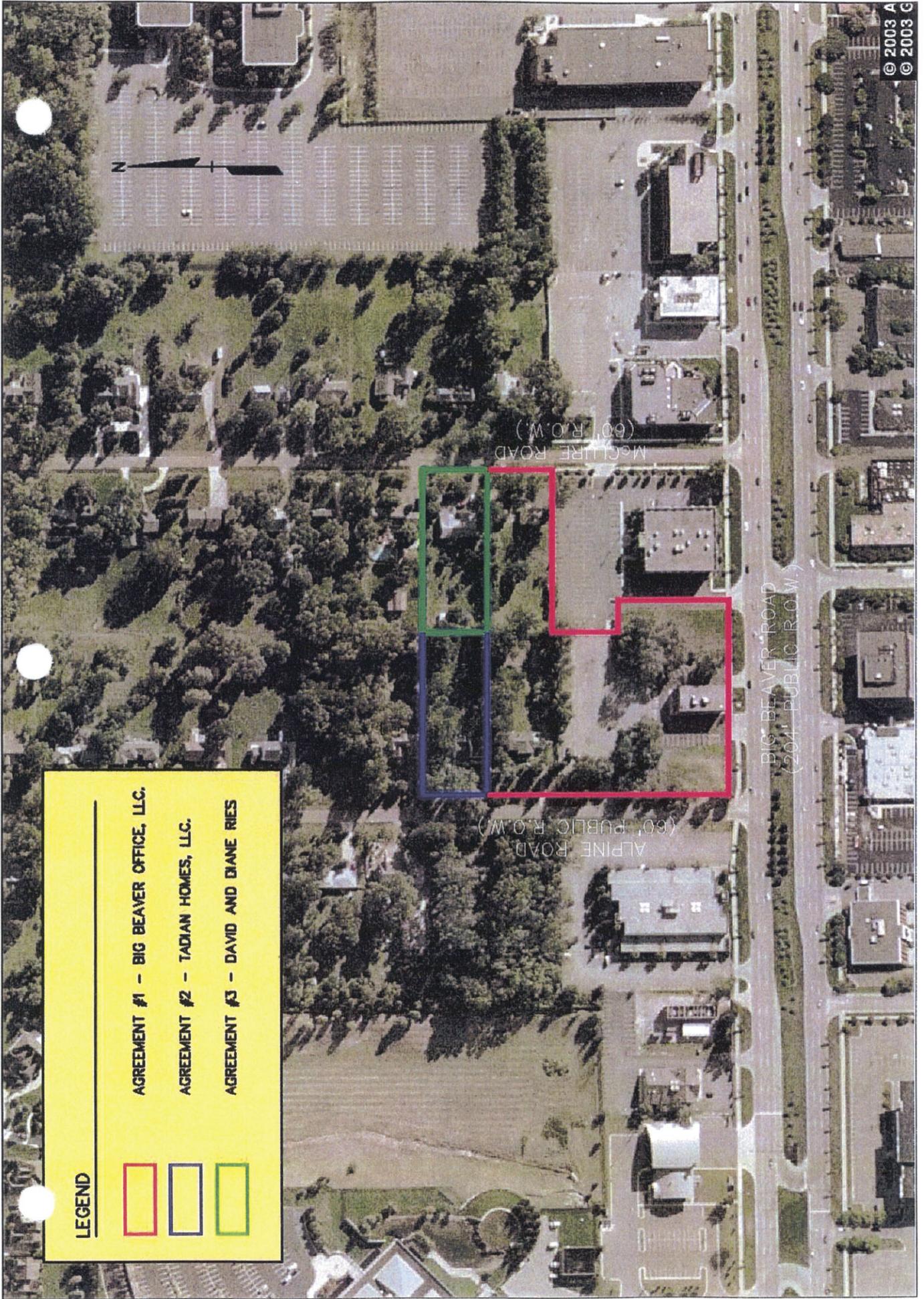
**AGREEMENT #1 - BIG BEAVER OFFICE, LLC.**



**AGREEMENT #2 - TADIAN HOMES, LLC.**



**AGREEMENT #3 - DAVID AND DIANE RIES**





King & MacGregor  
Environmental  
Inc.

October 27, 2004

Mr. Jim Butler  
Professional Engineering Associates, Inc.  
2430 Rochester Court, Suite 100  
Troy, MI 48083

PROJECT NUMBER  
2004-198 B  
RECEIVED

NOV 15 2004

Re: Preliminary Wetland Determination Report  
Northeast Corner Big Beaver and Alpine Roads  
Troy Mixed Use Project

CENTRAL FILES  
 CORRESPONDENCE MEDIA  
 COMPLIANCE REPORTS  
 CONTRACTS & AGREEMENTS  
 PERMITS & LICENSES  
J

Dear Mr. Butler:

Pursuant to your request, our firm completed a preliminary wetland determination on the above referenced subject property which included Lots 90-95, 123 and 124 of the Muer's Garden Farms Subdivision, part Section 20, T. 2N., R. 11E. The intent of this evaluation is to provide a report documenting the presence of any wetland within the subject property and an opinion as to the jurisdiction of these wetlands by the Michigan Department of Environmental Quality (MDEQ).

The methods used to conduct this wetland evaluation are consistent with the procedures and general practices of the MDEQ. This evaluation included review of in-office resource information including the Soil Survey of Oakland County, Michigan; the Birmingham, Mich. USGS quadrangle map; and, the MDEQ Oakland County Preliminary Wetland Inventory. The on-site preliminary wetland determination was conducted on October 13 and October 27, 2004 and included use of a topographic survey from Professional Engineering Associates dated 9-17-04 which included lots 90-93 and a portion of lot 94.

**Resource Information**

The soil survey indicates the property includes Urban Land to the south and a complex of Urban Land and somewhat poorly drained Thetford loamy fine sand. Urban land is characterized by the presence of predominantly structures and pavement. No wetlands were indicated on any of the documents reviewed.

**Site Conditions**

The property includes an office building and associated asphalt parking lots, four single family residences, lawn, landscape plantings, hedges, and a small group of trees on Lot 90. The dominant tree species observed growing in the hedges along the property boundaries and in the group of trees on Lot 90 included Siberian elm and Tree-of-Heaven. Other plant species observed included white mulberry, box elder, eastern cottonwood, weeping willow, common buckthorn, and honeysuckle. It was determined no wetlands are present on the subject property.

The information provided in this report is a professional opinion, the ultimate decision on wetland boundary locations and jurisdiction thereof rests with the DEQ and, in some cases, the Federal government. Therefore, there may be adjustments to boundaries based upon review of a regulatory agency. An agency determination can vary, depending on various factors including, but not limited to, experience of the agency representative making the determination and the season of the year. In

5880 N. Canton Center Rd.  
Suite 462  
Canton, MI 48187  
Phone: 734/354-0594  
Fax: 734/354-0593

Other Offices:  
Grand Rapids  
St. Clair Shores  
East Lansing  
Reed City

e-mail: kme@king-macgregor.com

Mr. Jim Butler  
Re: Big Beaver and Alpines Roads

October 27, 2004  
Page 2

In addition, the physical characteristics of the site can change with time, depending on the weather, vegetation patterns, drainage, activities on adjacent parcels, or other events. Any of these factors can change the nature and/or extent of wetlands on the site.

Thank you for the opportunity to provide this wetland determination. Should you have any questions please feel free to call me or contact me via email at [wheld@king-macgregor.com](mailto:wheld@king-macgregor.com).

Sincerely,

  
King & MacGregor Environmental, Inc  
Woody L. Held

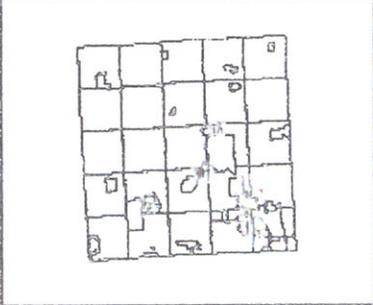
# Oakland County Preliminary DFIRM



**Oakland County Enterprise GIS**

Disclaimer: The information provided in this system has been compiled from recorded deeds, plats, tax maps, surveys and other public records and data. It is not a legally recorded map or survey and is not intended to be used as one. Users of this data are hereby notified that the information sources mentioned above should be consulted for verification of the information.

Map Printed on: 11/9/2004



**Leg**

Floodplains	Major Road
Highway and Freeway	Creek Section
Water	Base Flood Elevation
Municipalities, Michigan	Flood Hazard Area
	Flood Hazard Area

No.	By	Date	Revisions (Description)				
DES.	-	SUR.	-	SCALE	NTS	JOB NO.	2004.198
DN.	JM	P.M.	DNH	DATE	12-20-04	DWG. NO.	1

**PEA**

PROFESSIONAL ENGINEERING ASSOCIATES

2430 Rochester Ct Suite 1  
Troy, MI 48063-1872  
(248) 689-8090



# Geographical Information Systems Online



Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.



Rev.	By	Date	Revisions (Description)	
			JOSEPH FREED AND ASSOCIATES 220 NORTH SMITH STREET, SUITE 300 PALATINE, ILLINOIS 60067	
EXISTING FLOODPLAIN TROY - MIXED USE PROJECT PART OF LOTS 90, 91, 92 & LOTS 93, 94, 95, 123, 124 & 125 OF "MUER'S GARDEN FARMS SUBDIVISION" CITY OF TROY, OAKLAND COUNTY, MICHIGAN				
DES.	-	SUR.	-	SCALE NTS
DN	JM	P.M.	DNH	DATE 12-20-04
			JOB NO 2004-198	DWG NO 1

**PROFESSIONAL  
ENGINEERING  
ASSOCIATES**

2430 Rochester Ct. Suite 1  
Troy, MI 48063-1872  
(248) 689-9050



**PROFESSIONAL ENGINEERING ASSOCIATES, INC.**

CONSULTING CIVIL ENGINEERS / LAND SURVEYORS / LAND PLANNERS

Corporate Office 2430 Rochester Court, Suite 100, Troy, MI 48063-1872  
(248) 689-9090      www.peainc.com      Fax (248) 689-1044

*Joseph M. Muller, PE  
President/CEO  
James P. Butler, PE  
Vice President  
David E. Cole, PS  
Vice President  
Wendy E. Graham, PE  
Vice President  
John C. Seelbach, PE, PS  
Vice President*

January 12, 2005  
PEA Job No. 2004-198

Federal Aviation Administration  
Great Lakes Region  
O'Hare Office Center  
AGL-520 Airspace Branch  
2300 East Devon Avenue  
Des Plaines, IL 60018

**RE: PROPOSED MIXED USE DEVELOPMENT  
CITY OF TROY, OAKLAND COUNTY, MICHIGAN**

Dear Sirs:

Attached please find FAA Form 7460-1 "Notice of Proposed Construction or Alteration" completed with backup information for your review and comment.

If you should have any questions, please do not hesitate to contact our office.

Sincerely,

**PROFESSIONAL ENGINEERING ASSOCIATES, INC.**

David N. Hunter, PE  
Project Manager

DNH/dnh/jmb

Enclosures:    FAA Form 7460-1  
                  USGS Map with Location  
                  Schematic Site Plan w/ coordinates  
                  Schematic Building Elevation

Cc: Jennifer Mooney – J. Freed and Associates, LLC w/enclosures

R: 2004Proj\_2004198 Admin letter 1-12-05.doc