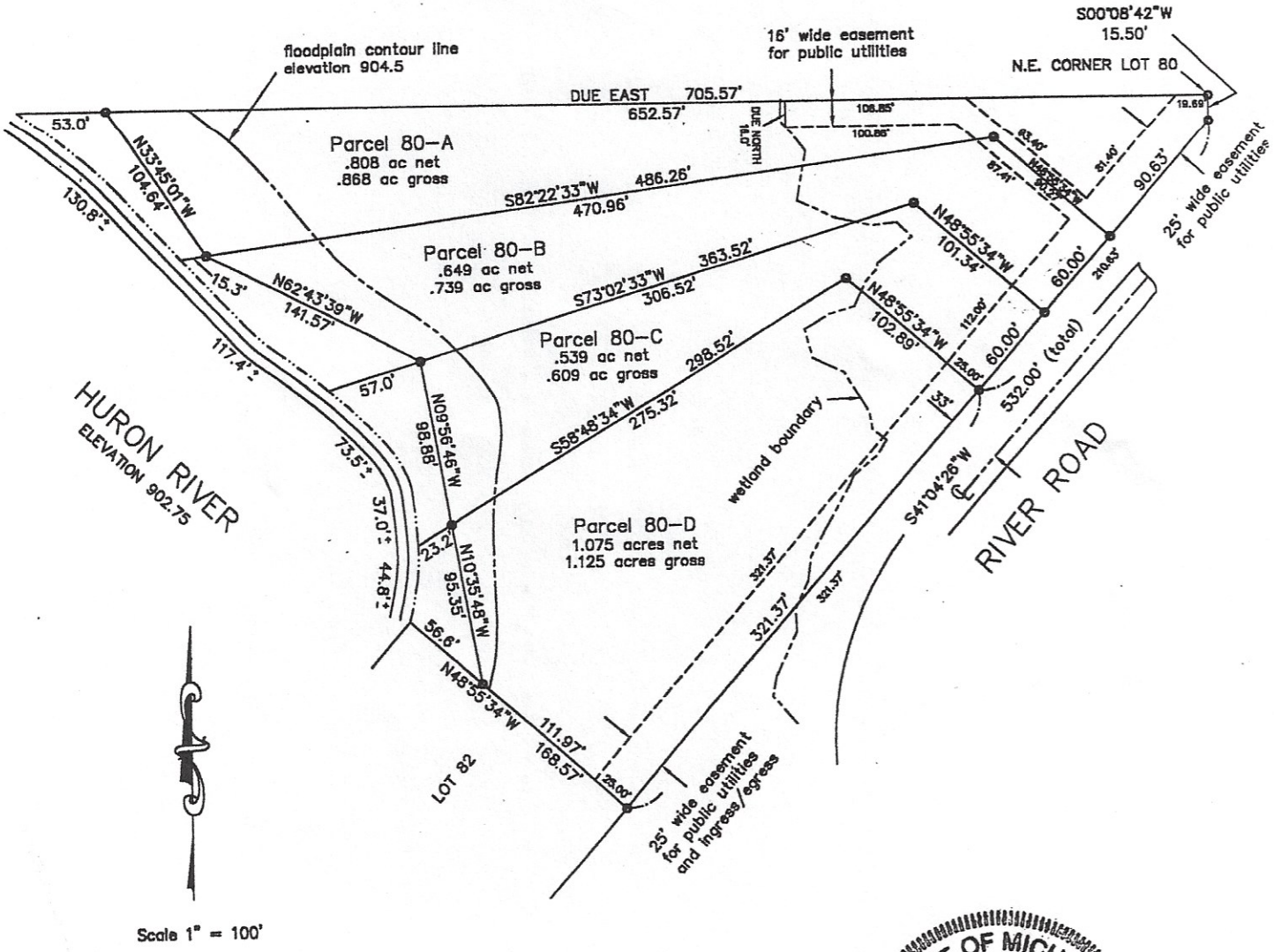
Lot 80, the Assessor's Plat of the Village of Milford as recorded in Liber 49, pages 10 and 10A of Plats, Oakland County Records.



Scale 1" = 100'

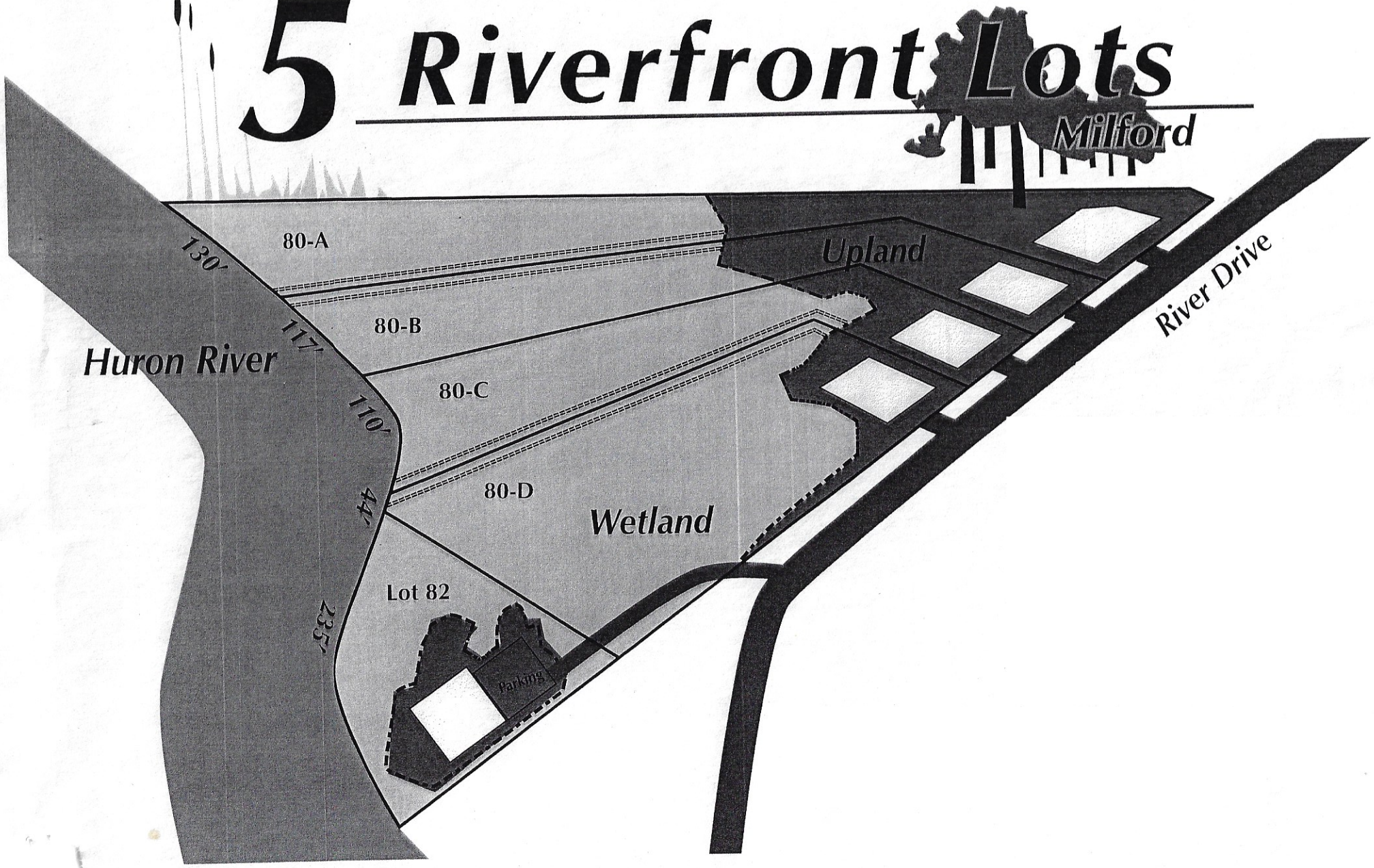
STATE OF MICHIGAN
MICHAEL D. KOSTECKE
PROFESSIONAL SURVEYOR
NO. 43059
LICENSED PROFESSIONAL SURVEYOR

248-887-7676
248-889-1585

BOUNDARY SURVEY FOR Pies Sheet of

I hereby certify that this survey was prepared by me or under my direct supervision, that I am a duly Registered Land Surveyor under the laws of the State of Michigan, that this survey complies with the requirements of Sections no. 3, P.A. no. 132 of 1970, and the error of closure is 1 in 15,000 (unadjusted).

5 Riverfront Lots



Rivers, Wetlands, and Railroad Tracks: A Real Estate Investment

City wetlands bordering rivers are an amenity in today's land markets. Years ago, people thought them smelly swamps and filled them in, destroying the natural surroundings that wetlands provide. But numerous sources (Doss and Taff 1996; Boyer and Polasky 2002; Bin and Polasky 2003) indicate that many buyers appreciate a wetland's features. James Boykin (*Land Valuation: Adjustment Procedures and Assignments*, 2001) found that marsh front lots brought double the price of lots without marsh front, and realtors typically say that waterfront parcels are a commodity in today's real estate. Place this in the middle of a city like Milford with a nearby railroad track (adds to the "Americana" said one source) and the property becomes a good investment. Interestingly, rural marshes do not have the same attraction as city marshes because of their availability. Researchers suggest that riverfront wetlands in cities are scare, provide wildlife seclusion, enable waterfront activities, and do it all minutes from downtown.

What's for sale?

Five waterfront lots ranging in size from about 1/3 of an acre to 1 (one) acre are for sale off River Drive. Lots 80 A-D have river access via potential boardwalks. The fifth lot (82) abuts the river without going thru marsh. (A small house foundation from years ago still exists on 82.) Access to all parcels is off River Drive, close to downtown. Because the property combines wetlands (marsh) and uplands (building area), all home construction will be in the uplands. The intent is to retain the wetland integrity and intimacy. Soil borings in nine holes on lots 80-A-D suggest spread foundations/slab. Piles are not necessary. There is potential for basements but the water table is high. (Soil assessment on the fifth lot, 82, is forthcoming.) Lots 80 A-D have a potential footprint of about 1,500 to 1,900 sq ft, and lot 82 has a footprint of about 1,300 squares, changing according to buyer's design. Area is R-4 residential with two story, 30 ft height limits. City engineers are in the process of approving utility plans for water/sewage at the street. Buyers will receive copies of soil report, the survey, engineered utility plans, and other pertinent documents/permits.

How did you establish price?

It wasn't easy; the property is unique. Four realtors/brokers and one wetland consultant gave their estimation of value based on market/past sales in Milford/Oakland County. Some suggested the sophisticated "Hedonic Property Price Method" which uses land value assessment "to infer values for non-traded goods such as wetland services" (Bin and Polasky 2003). Similar size waterfront lots in Sterling Heights off the Clinton River (Utica Rd.) had asking prices from 10%-30% more than the prices below.

Lot 80-A: 0.78 acres net (0.84 gross), 99 ft at the road, 130 ft at the river: $139, 900.

Lot 80-B: 0.64 acres net (0.73 gross), 60 ft at the road, 117 ft at the river: $145, 500.

Lot 80-C: 0.53 acres net (0.60 gross), 60 ft at the road, 110 ft at the river: $147,500.

Lot 80-D: 1.07 acres net (1.12 gross), about 150 ft at the road, 44 ft at river: $125,900.

Lot 82: approx 1/3 an acre with approx 235 ft at the river: $225,000.

Interested? rebpies@aol.com 248-887-7676

PORTIONS OF SOIL BORINGS REPORT

4.2 Ground Water Observations

Water level readings were taken in the bore holes during and after the completion of drilling. These observations are noted on the respective Test Boring Logs. Ground water was observed in all nine borings. During drilling the ground water was observed at depths ranging from 1-foot to 4 feet below the surface. After the completion of drilling the ground water was observed at depths ranging from 1-foot to 6 feet below the surface.

5.0 ANALYSIS AND RECOMMENDATIONS

5.1 Proposed Development

The proposed development consists of a 4.5-acre parcel, which will be divided into three residential lots. The property borders a river. Wetlands exist along the river with upland areas closer to the road. The soil borings were performed in the upland areas. The lots will be sold for construction of conventional single-family homes. It is assumed that the homes will have basements.

↑ NO

5.2 Ground Water Conditions

The position of water levels found in test borings may vary somewhat depending on seasonal precipitation. At the level encountered in the borings, it will present some problems for design or construction of foundations and utilities.

Well points will be required for the installation of foundations and underground utilities for each lot except the northernmost. The fine grain size soil particles will require close spacing of well points. For the northern lot pumping from properly prepared sumps should be sufficient. Dewatering operations should begin prior to excavating and stripping operations. The water level should be lowered to a minimum of two feet below excavations for basements and two feet below the subgrade below pavement areas. The construction of conventional basements may not be feasible due to the high groundwater level. This will be discussed further in the Foundation Recommendations section.

5.3 Recommended Earthwork Operations

Within the limits of areas to be developed, the surface vegetation, topsoil, peat, marl, and soils with organics should be removed prior to the site being graded. The site should then be rolled with a vibrating roller to densify the loose sand. As mentioned earlier dewatering should begin prior to earthwork operations. If the groundwater is not lowered compaction with a vibratory roller could worsen the subgrade. Soft spots which cannot be stabilized should be removed and replaced.

Engineered backfill required for construction excavations or fill required to achieve desired grades should preferably consist of clean and well graded granular soils. Also, one to three inch crushed

5.3 Recommended Earthwork Operations (Cont'd)

concrete can be used to stabilize the subgrade. The on-site sands can be used for balancing and grading the site. However, close moisture control will be required to achieve the specified density. Fill should be placed in uniform layers not more than 9 inches in thickness with the soils in each layer compacted to a minimum of 95% of the maximum density as determined by ASTM D-1557. Fill should be at approximately the optimum moisture content during placement and compaction. Furthermore, frozen material must not be used as fill and fill should not be placed on frozen ground.

Since the soils are predominantly sands, lateral support structure or side sloping with a minimum 1H:1V ratio will be required for the anticipated excavations assuming dewatering operations have begun prior to excavating. Soils exposed in the bases of all satisfactory foundation excavations should be protected against any detrimental change in conditions such as from disturbances, rain or freezing. Surface run-off water should be drained away from the excavations and not be allowed to pond. If possible, all footing concrete should be placed the same day the excavation is made. If this is not possible, the footing excavations should be adequately protected.

5.4 Foundation Recommendations

The sands are acceptable for support of the proposed structure on shallow foundations. Local building codes and climatic conditions require that exterior foundations be placed at a minimum depth of 3 ½ feet below finished grade to provide for adequate frost protection. Interior foundations may be below the floor at a lesser depth if not exposed to frost penetration. In any case, the footings should be deep enough to bear on original soil below the fill and organic materials. At minimum depths, foundations can be designed for a maximum net allowable bearing pressure of 1500 pounds per square foot. In the area of Boring No. 7 foundations must be placed below the organic layers which extend to 6 ½ feet below existing grade. The high ground water and loose sands limit the bearing capacity.

The high groundwater table would make conventional basements difficult to construct and maintain in a relatively dry condition over the life of the structure. The design water table should be considered to be one foot below the existing ground surface. At this level conventional drains and a sump pump would not be feasible. Basements would require a good waterproofing and waterstop system and the entire structure and floor slab must be designed against the buoyant force and uplift pressure. Alternatively the sites could be raised by filling and crawl spaces or shallow basements constructed. If fill is placed it should not be placed over any organic soils in structural or pavement areas.

If crawl spaces or basements are constructed the walls will be laterally supported by the first floor and the basement slab. To minimize the lateral earth pressure, the walls should be backfilled with clean sand fill. Material meeting MDOT Class II grading requirements or approved alternate should suffice. Care should be exercised to limit the compaction of the backfill in order to avoid overstressing the wall. Light compaction equipment and thin fill lifts should be used.

5.4 Foundation Recommendations (Cont'd)

The walls should be designed to resist the at-rest lateral pressure imposed by the granular fill, i.e., they should be designed against the pressure from a liquid with an equivalent fluid weight of 60 pounds per cubic foot (pcf) above the groundwater level and 90 pcf below the (design) water table. If crawl spaces or shallow basements are constructed perimeter drains connected to a sump should be installed.

5.5 Floor Slabs and Pavements

The subgrade resulting from the site preparation, as outlined in the recommended earthwork operations section, will provide a good subgrade for support of pavements and floor slabs. Floor slabs should be placed on a 4-inch minimum drainage layer of free draining sand-gravel fill. For a crawl space or shallow basement floor the drainage layer should be placed on a vapor barrier. The subgrade should be pitched with a minimum of 1 percent slope towards the sump pits. The drainage layer should be compacted to 95 percent of its maximum dry density as determined by ASTM D1557.

6.0 DESIGN REVIEW AND FIELD MONITORING

The evaluations and recommendations presented in this report relative to site preparation and building foundations have been formulated on the basis of assumed and provided data relating to the location, type and finished grades for the proposed structure and adjacent areas. Any significant change in this data should be brought to our attention for review and evaluation with respect to the prevailing subsoil conditions.

When the building and foundation plans are finalized, a consultation should be arranged with us for a review to verify that the evaluations and recommendations have been properly interpreted.

Soil conditions at the site could vary from those generalized on the basis of test borings made at specific locations. It is therefore recommended that Testing Engineers & Consultants, Inc. be retained to provide soil-engineering services during the site preparation, excavation and foundation phases of the proposed project. This is to observe compliance with the design concepts, specifications and recommendations. Also, this provides opportunity for design changes to be made in the event that subsurface conditions differ from those anticipated prior to the start of construction.

Evagelos Bantios
Staff Engineer

Carey J. Suhan, P.E.
Vice President, Geotechnical
& Environmental Services

EB/CJS/ln
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