

WATERSTONE

OXFORD, MI



Midwestern Consulting provided complete consulting engineering services for this 1,400-acre mixed use development on the site of a former gravel pit. Services included surveying, planning, design, and construction related work for the development's sanitary sewer, water mains, and storm drainage system, as well as traffic analysis

for internal roadways. Innovative approaches minimized the impact of the site's highly granular soils and preserved as much area as possible for residential, commercial, and recreational use.

The storm water management system was designed to minimize the impact of the site's utility infrastructure on the surrounding area while actually improving the quality of the environment. It was designed as a completely self-contained watershed.

An onsite golf course allows surface water runoff to pond and filter through its fairways via a system of swales and ponds. Native vegetation was planted to enhance storm water infiltration.



M I D W E S T E R N C O N S U L T I N G

COUNTRY CLUB VILLAGE

ROCHESTER HILLS, MI



This 256-lot single-family residential project consists of detached condominiums on a 118-acre site of an existing golf course. The Oakland County Drain Commissioner's Office and the Clinton River Watershed Council worked with the developer to facilitate creek restoration as part of the proposed development.

The project involved an extensive backwater analysis to determine hydraulic parameters and facilitate design of the creek restoration. Midwestern Consulting also performed the analysis to obtain MDEQ permits and a FEMA, Letter of Map Revision. An existing dam and approximately 9500 cubic yards of sediment were removed on the McIntyre Drain as part of the restoration.

The storm water management design was based on limited impact design (**LID**) concepts. Best management practices included infiltration basins, sedimentation basins, detention/infiltration basins, native plantings and rain gardens.



M I D W E S T E R N C O N S U L T I N G

ZARAGON PLACE

ANN ARBOR, MI



Zaragon Place is a new mixed use student housing development in the heart of the University of Michigan campus just 1,000 feet from the Diag. The 9-story building consists of ground floor retail, 66 residential units (with 248 bedrooms), and two underground heated parking levels. The site is also in the heart of a vibrant downtown commercial district, as well as an urban single-family residential area. Formerly occupied by a run down apartment complex, the new development is designed to combine traditional campus

gothic architecture with an edgy industrial loft feel.

Midwestern Consulting provided surveying, site planning, design engineering, and construction related services to the developer. The project's complexity rested on its need to be designed and built to complement its varied surroundings on a very tight urban redevelopment site. Specific surveying services included:

- **Boundary surveying** to determine all existing features of the area, including numerous existing infringements along the boundary that would impact the new site plan
- **Construction layout** surveying to replace existing underground utilities, including storm and sanitary sewers and water main, all of which was accomplished without rerouting vehicle or pedestrian traffic. We performed curb and sidewalk layout and provided horizontal and vertical control from the ground floor to the roof.
- **ALTA surveying** to document the as-built project.



M I D W E S T E R N C O N S U L T I N G

HILTON GARDEN INN AND TOWNE PLACE SUITES

ANN ARBOR, MI



Midwestern Consulting provided surveying, site planning, civil engineering, traffic engineering, and landscape architecture services for a pair of hotels on two residual parcels along the ring road at the Briarwood Mall, Ann Arbor, Michigan. The site is highly visible from the adjacent I-94 freeway.

Specific project requirements included:

- Surveying the site to locate a woodlot, a county drain, and two on-line detention ponds that flank and define the developable area
- Rezoning the parcels to create a new Planned Unit Development that will permit two hotels with the proposed number of rooms
- Site planning, including a traffic study, civil plans, and preliminary landscape plans that included parking lot buffers, interior islands and trees, and street trees
- Construction plans, including fully detailed landscape plans to create immediate impact, accents at site and building entries, patios, and a rain garden



M I D W E S T E R N C O N S U L T I N G

GLACIER HILLS SENIOR LIVING COMMUNITY

ANN ARBOR, MI

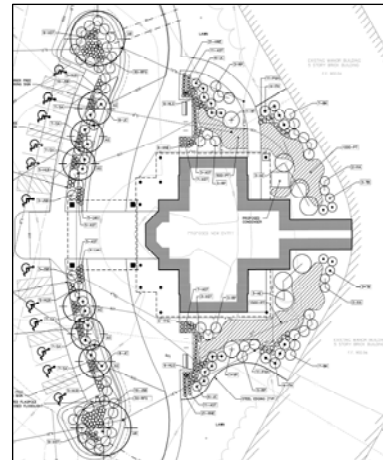


Glacier Hills is a continuing care senior living community providing a range of living options in Washtenaw County. Founded in 1973, its original 37-acre campus has grown to include a variety of neighborhoods, multiple care and lifestyle facilities, and outdoor amenities.

Midwestern Consulting has provided site planning, civil engineering, and landscape architecture services to the

facility since 1983 on multiple expansion and renovation projects, including:

- New condominiums, apartments, and subacute facility
- Additions of a 2-story skilled care facility, a maintenance building, expanded and reconfigured drives and parking lots, storm water detention
- Renovations for new entries, relocated ambulance access, truck dock and compactor areas, building interior modifications
- Site improvements as needed to meet revised ordinance requirements



Low impact design (LID) has been an important goal in expanding and renovating the facility and has resulted in:

- Open space remains at 67.5% in spite of additional buildings and increased parking.
- Soil disturbance has been limited by using retaining walls.
- No additional earthwork was required to provide additional storm water detention. Instead, normal water elevation in an existing pond was lowered and the outlet was reconstructed.



M I D W E S T E R N C O N S U L T I N G