21 South Evergreen Avenue
Suite 200
Arlington Heights, IL 60005

t: 847 788 9200
f: 847 788 9536

GreenbergFarrow

June 10, 2014

To Jennifer Andrews
City Planner
City of Waukesha, WI
201 Delafield Street
Waukesha, WI 53188
Phone: (262) 547-3750

Project Meijer-276, Waukesha, WI
Sunset Drive and Tenny Avenue

Project # 20110540.0

Re Response to Comments:
Planning comments letter dated 10/16/2013
Engineering comments letter dated 10/9/2013
Water Utility comments letter dated 10/7/2013
Fire Department comments letter dated 10/9/2013
Forestry suggestions via email 09/04/13

Ms. Andrews:

We are in receipt of the above-referenced comments and we offer the following in response:

Planning

Comment 1 The planters proposed in front of the store are unacceptable. The staff and Plan Commission are looking for an installation that provides a greater impact than four 18 SF planters. In addition, the materials of the planters themselves are not acceptable. I am attaching photos of examples of what the City is expecting. Whether the planters are permanent installations or freestanding there should be a mass of vegetation that provides some softening to the massive hardscape in front of the store. There should also be some height to the plant material to visually bring the scale of the building into perspective with the site. If freestanding they should be decorative concrete.

Response: ***Proposed built-in planters have been added along the front of Meijer main store.***

Comment 2 Trees should be added along the northerly side of the internal driveway.

Response: ***Trees will be added in future during development of Lot 2 and Lot 3.***

Comment 3 There is a detail in the plan set for chain link gates. It is unclear where these gates are proposed. All gates should be decorative fencing or wood board on board gates. Please clarify.

Response: ***Gates are proposed at trash enclosure to the convenience store. Gates will be wood slat.***

Comment 4 The staff has consistently asked for windows on the east elevation. A photo is attached showing an example. Looking at the floor plan it appears that this can be achieved since there are offices and stock rooms along that wall.

Response: ***There are not offices along the east side of the building. There is storage area, receiving area, and mechanical/electrical rooms along this side of the building. Meijer prefers not to add windows along this side of the building as there is no advantage to interior to do so. In addition, this will not be a visible side of the building what with the existing tree line to the east that will be maintained.***

Comment 5 The lighting plan needs to be adjusted to show the following:
a.) Foot candles not over .5 at property lines.
b.) HPS or LED fixtures, catalog cuts show some LED but photometrics sheet calls for MH.
c.) Clarify – are poles 24 feet high or 20 feet high on 4 foot bases. Drawing is unclear.

Response: ***The photometric plan has been revised. The light fixtures along the west side of the garden center will have deflectors attached to them to cut off the light. However, the program we use for creating the photometric plan doesn't have an option to add the deflectors therefore the photometric levels are not properly shown on the plan. The light levels will be less than what is shown. For safety the light levels at the driveway entrances are higher. From a common sense view point, the streets will have 30' tall double cobra lights located approximately every 75' to provide lighting along the street. A little spill over from the site into the street will be negligible. HPS light fixtures with a mounting height (MH) of 24' (20' pole on 4' base) will be used.***

Comment 6 Bus stop needs to be elongated to meet transit's requirements.

Response: ***Bus stop meets the requirements as provided by Brian Engelking from Waukesha Transit.***

Comment 7 Signs do not meet the City sign ordinance.

Response: ***As part of the PUD, we are asking for a code exception to allow Meijer to install their prototypical sign package.***

Comment 8 Verify that there will only be 2 transformers on site.

Response: ***There are two transformers and switch gear equipment proposed for the project at this time. One transformer is located along the east side of the Meijer store. The second transformer is located SE of the gas station building. The switch gear equipment is located at the NE corner of the parking lot.***

Fire

Comment 1 Per City of Waukesha Municipal Ordinance 21.07 and the State of Wisconsin Building Codes, this building will be required to be fully protected by an automatic sprinkler system. The sprinkler system will need to be monitored by an automatic fire alarm panel in accordance with International Fire Code Chapter 9. The applicant will also need to ensure that the facility has adequate emergency responder radio coverage. If this facility does not, it will need to install some type of secondary device to improve the emergency responder radio coverage in accordance with International Fire Code Section 510.

Response: ***Noted.***

Water Utility

Tenny Avenue:

Comment 1 The Developer/Owner must send a letter to the General Manager of the Waukesha Water Utility requesting the public water system extension. Following receipt of this letter the official review of the proposed water main can begin. All costs associated with the water main extension will be the responsibility of the Developer/Owner(s) and pertain to the current rules and regulations on file with the Public Service Commission for the State of Wisconsin. Design and construction of the water main shall be coordinated with the Waukesha Water Utility. All aspects of the water main plans will need to follow the Utility's specifications as on file with the DNR.

Response: ***Comment is noted; no changes were made to the road improvement plan due to this comment.***

Comment 2 The Developer/Owner(s) will be required to sign and return a Developers Agreement, written by the Water Utility, and all associated Water Main Easements to the Water Utility. These will then be taken to the Water Commission for consideration.

Response: ***Comment is noted; no changes were made to the road improvement plan due to this comment.***

Comment 3 The water main, currently listed as "Future" must be construction with the sanitary sewer and roadway. It is not acceptable to cut into a new roadway for water main installation if it is avoidable, and in discussions with the Fire Marshall, they do not want to see a roadway without fire hydrants.

Response: ***This is an issue with the plans from Trio Engineering which were submitted along with the GreenbergFarrow set of plans for information purposes only. Trio Engineering has been informed that such language will need to be removed from its plans when they are submitted.***

Comment 4 The water main design shown on the Tenny Avenue Extension plans will need modifications prior to approval as it does not follow the Utility specifications on file with the DNR. Water main must have 6 feet of cover in all locations, hydrants must be moved to be located at high points to remove potential air in the system, or additional hydrants added, appurtenances such as valves and hydrants must be show in the profiles view with their station and invert elevations noted, the water main must be at least 8 feet from the edge of any sanitary manhole (this may be an issue at Sanitary MHs #12 and #13) , where the proposed sanitary sewer or its laterals cross the future water main, the vertical separation distance must meet NR811.74 and be shown on the plan set.

Response: ***Hydrant locations have been revised as necessary. Labels have been added for valves, bends, and PVIs. Cover and separation have been reviewed and revised as necessary. Crossings have adequate separation and dimensions have been added to the plan.***

Comment 5 The Developer/Owner has sent a letter to the General Manager of the Waukesha Water Utility requesting the public water system extension. All costs associated with the water main extension will be the responsibility of the Developer/Owner(s) and pertain to the current rules and regulations on file with the Public Service Commission for the State of Wisconsin. Design and construction of the water main shall be coordinated with the Waukesha Water Utility. All aspects of the water main plans will need to follow the Utility's specifications as on file with the DNR.

Response: ***Noted.***

Comment 6 The Developer/Owner(s) is reviewing, and will be required to sign and return a Developers Agreement, written by the Water Utility, and all associated Water Main Easements to the Water Utility. These will then be taken to the Water Commission. The Water Commission has approved the water main extension to this proposed development; however, Common Council has not taken action on that item. The Developer Agreement will include a Guarantee of Improvements, prepayment of Engineering and Inspection Fees and a Certificate of Insurance. The Developer/Owner(s) must provide all of these items to the Water Utility and they must be fully executed and recorded prior to the start of the water main construction.

Response: ***Noted.***

Comment 7 The contractor chosen to do the water main work must be pre-approved by the water utility.

Response: ***Noted.***

Comment 8 To adequately supply water to this property, a 12" water main would need to be installed in Sunset Drive from an existing 16" water main, in the Southeast Pressure Zone, just east of Sunset View and connect to the water main in the intersection of Tenny Avenue and Sunset Drive – the plans for the main in Sunset Drive have not yet been submitted to the water utility for review.

Response: ***Refer to plan sheets C503R, C504R, and C505R for information about the water main in Sunset Drive.***

Comment 9 The Developer will need to contact the water utility as a water lateral application form must be completed to determine the appropriate water lateral and meter size for the proposed building; a 4-inch domestic connection and 10-inch fire line are shown on the plans.

Response: ***Noted.***

Comment 10 The shut off for the water service to the gas station shall be located at the 12-inch main rather than 95 feet off of the main as shown on the plans.

Response: ***Revised.***

Comment 11 For any connection to an existing water main: Please add the following note at the location of the water main connection; 12"x12" TAPPING SLEEVE & 12" TAPPING VALVE & VALVE BOX (TO BE PROVIDED AND INSTALLED BY THE WAUKESHA WATER UTILITY – CONTRACTOR TO PROVIDE TRENCH, SHIELD AND MEANS FOR LOWERING TAPPING MACHINE).

Response: ***Note added at applicable locations.***

Comment 12 Connection to main on Tenny Avenue should be planned as part of this project, as the water main south on Tenny will be required if the roadway is going in.

Response: ***Water main is being shown as ending with a temporary hydrant. Refer to the preliminary plans by Trio Engineering for information regarding the continuation of the water main.***

Comment 13 There is landscaping shown in the water main easement in one of the northeastern curb areas, and at the entrance off Sunset – confirm the type of planting falls within the allowed planting restriction of our easement.

Response: ***Revised.***

Comment 14 There is a planting shown over the water lateral to the gas station – the lateral is owned by the property owner, but in general it is not a good idea to plant a tree that close.

Response: ***Revised.***

Comment 15 The hydrant that is located on the northwest side of the building is within a curbed area, however it is not shown on the landscaping plan – verify that the tree shown meets the planning restrictions of our easement.

Response: ***Revised.***

Engineering

General:

Comment 1 The following items should be submitted for review and approval:

a.) Applicable fees per Chapter 32.07(b). The Engineering Division requires any financial assurance bonds, fees or agreements required by the Plan Commission and Council or Chapter 32.08(c).

b.) The Site Plan shows 3 proposed lots. A Certified Survey Map (CSM) will need to be submitted to subdivide the lots.

c.) Once all submittal items are completed, submit all items listed in sub.(b)(1)(A)-(G) in digital form for City filing.

Response: ***Noted.***

Comment 2 Permits will be needed for the Meijer project. Provide copies of approved project permits to the City for filing. Needed permits include but are not limited to:

a.) Wisconsin Department of Natural Resources NR 216 N.O.I. Permit
b.) Wisconsin Department of Natural Resources Water Main Extension Permit
c.) Wisconsin Department of Natural Resources Sanitary Sewer Main Extension Permit
d.) State of Wisconsin Private Building Sanitary Sewer approval
e.) City of Waukesha Construction Permit
f.) City of Waukesha Erosion Control Permit
g.) City of Waukesha Street Opening Permit

Response: ***Noted.***

Overall Site Layout Plan C200:

Comment 1. Verify street cross-section of Tenny Avenue and Sunset Drive with City Staff.

Response: ***Typical section is included in plans. Section is based on attached Subsurface Exploration and Pavement Evaluation dated 10/11/13 and prepared by MES.***

Comment 2. Provide street lighting on both Tenny Avenue and E. Sunset Drive.

Response: ***Refer to sheets C800R through C802R of the road improvement plans.***

Comment 3. Indicate locations of truncated domes. Verify locations of detectable warning fields needed along entire length of flush curb and pavement match on north side of building.

Response: ***Truncated domes and detectable warnings are located where concrete walkways and pavement are flush. Along the front of Meijer main store, convenience store, and sidewalk crossings.***

Comment 4. Extend sidewalk to south and east lot lines.

Response: ***Revised.***

Comment 5. Chapter 6.13 Driveways (4): The driveway width should not be greater than 35' at the curb and 30' at the sidewalk, unless the property is in a district zoned for industrial use. In a district zoned for industrial use, the driveway width cannot be greater than 50' at the curb and 45' at the property line. The total frontage of all driveways servicing the premises in any district cannot exceed 90' without approval of the Council.

a.) The southerly driveway along Tenny Avenue is 50 feet wide at the sidewalk and 95 feet wide at the curb.
b.) The northerly driveway along Tenny Avenue is 75 feet wide at the sidewalk and 110 feet wide at the curb.
c.) The driveway along E. Sunset Drive is 63 feet wide at the sidewalk and 125 feet wide at the curb.
d.) The total width of all driveways exceeds the City total maximum width of 90 feet. Approval of the Council will be needed.

Response: ***Noted.***

Comment 6. The City of Waukesha typical driveway detail can be sent

Response: ***City of Waukesha typical driveway detail has been added to sheet C100R of the road improvement plans.***

Truck Turn Plan C204:

Comment 1. The bus stop should be labeled on the plan. The bus route through the site should be checked.

Response: ***Bus stop has been added adjacent to the Convenience Store.***

Comment 2. Verify the location of the bus shelter and route with the Transit Division.

Response: ***This has been coordinated.***

Overall Grading Plan C300:

Comment 1. A temporary cul-de-sac was added to the drawings. The cul-de-sac appears to be outside the right-of-way lines. Please verify if temporary street and grading easements are needed to extend the street at a later date.

Response: ***Temporary cul-de-sac is called for on sheet C500R of the road improvement plans.***

Comment 2. Road construction drawings and a storm water management plan for Tenny Avenue and Sunset Drive should be submitted for review and approval. The roadway designs are needed to verify match-ins of contours, and ditching limits and concrete curb and gutter limits along both roadways.

Response: ***Refer to the road improvement plans.***

Enlarged Grading Plan C301:

Comment 1. Verify if a retaining wall design report is needed.

Response: ***Please review the Retaining Wall plans prepared by a Structural Engineer within the Meijer engineering plan set.***

Enlarged Grading Plan C302:

Comment 1. Verify if inlet should be added behind sidewalk and west of E. Sunset Avenue driveway entrance to reduce runoff from crossing sidewalk.

Response: ***Refer to sheet C504R of the road improvement plans.***

Comment 2. Extend sidewalk along E. Sunset Avenue to east lot line. Verify final location for north pond outlet pipe. A right-of-way jurisdictional transfer may be an option for grading and sidewalk installations to work together.

Response: ***Refer to the road improvement plan.***

Enlarged Grading Plan C303:

Comment 1. Coordinate plans for extension of sidewalk along Tenny Avenue to south lot line.

Response: ***This item will be addressed on the plans by Trio Engineering. Sidewalk extension will be coordinated with the removal of the temporary cul-de-sac.***

Overall Erosion Control Plan C304:

Comment 1. Verify if straw wattles are needed in ditch area along E. Sunset Avenue.

Response: ***Refer to sheet C402 of the road improvement plans.***

Stormwater Pollution Prevention Details and Notes C305:

Comment 1. No comments.

Overall Utility Plan C400:

Comment 1. Plan and profile sheets should be created for public sanitary sewer.

Response: ***Refer to sheets C500R through C506R of the road improvement plans.***

Comment 2. Public sanitary sewer and storm sewer shall be constructed in accordance with the standard Specifications for Sewer and Water Construction in Wisconsin and Administrative Code Chapters Comm 81-87 and City specifications. Additional specifications are needed for the public sanitary sewer installations including the product specifications, installation procedures, testing procedures, and connection procedures.

Response: ***A note stating this has been added to sheet C100R of the road improvement plans.***

Comment 3. Public sanitary sewer, and storm sewer services and mains shall be provided with tracer wire.

Response: ***A note stating this has been added to sheet C100R of the road improvement plans.***

Enlarged Utility Plan C401:

Comment 1. Plan and profile sheets should be created for public sanitary sewer.

Response: ***Refer to sheets C500R through C505R of the road improvement plans.***

Enlarged Utility Plan C402:

Comment 1. The sanitary sewer manhole and pipeline located at the northwest corner of the site that was originally planned to be connected to for this project should be abandoned since the design will not use the manhole and pipeline. Specifications for this work should be added to the Drawings. The lines should be bulkheaded and the manhole top removed and the structure backfilled with stone.

Response: ***Lot 2 and Lot 3 (future outlots) located on the south side of Sunset Drive shall have sanitary service from this manhole.***

Comment 2. Please verify if flooding of existing downstream culverts will occur along the south side of East Sunset Drive. The culverts may need to be upsized. The proposed roadway plans are needed to coordinate with this site design.

Response: ***The culverts being replaced have been calculated to provide adequate capacity to convey runoff generated upstream for a 100-year storm.***

Signage Plan C501:

Comment 1. The traffic street signage classifications should be added to the Drawing.

Response: ***Revised.***

Overall Landscape Plan C600:

Comment 1. The proposed force main route along the south and north sides of E. Sunset Avenue should be shown on the Drawing.

Response: ***Existing force main has been added to sheets C503R through C505R of the road improvement plans. City has not completed a design of the proposed force main for inclusion as of this submittal.***

Comment 2. Proposed landscaping should remain outside of the vision triangle at the intersections with Tenny Avenue and E. Sunset Avenue.

Response: ***Noted.***

Comment 3. Verify that proposed locations of the trees around the north pond will not compromise the pond berm.

Response: ***Trees are outside of gravel maintenance path for pond.***

Standard Detail Plan C702:

Comment 1. Verify the design and location of the bus shelter with the Transit Division.

Response: ***Bus shelter dimensions were revised based on correspondence with the Transit Division.***

Tenny Avenue and East Sunset Drive Drawings:

General:

Comment 1. Specifications for work should be added.

Response: ***Specifications will be drafted for the construction documents. All design pertinent information is included in the plan set.***

C950X:

Comment 1. Proposed sidewalk should be installed at 1.5% cross-slope.

Response: ***Revised sections. Refer to sheet C101R and C102R.***

C952X-C958X:

Comment 1. Concrete curb and gutter should be installed in the cul-de-sac, depending on the timing for the work to the south.

Response: ***Curb and gutter is not necessary based on the timing of Tenny Avenue extension.***

Comment 2. The timing for the grading and street extension to the south is not finalized. The proposed timing of grading and construction sequence for the proposed ground profile to the south should be provided.

Response: ***Tenny Avenue is anticipated be extended within a year of the construction shown on these plans. More detail shall be provided by Trio Engineering with its submission.***

Comment 3. A smooth transition should be provided from the connection point on Tenny Avenue. Existing pavement or concrete curb and gutter may need to be removed to provide the transition area.

Response: ***Existing pavement shall be removed and replaced to accommodate this "smooth transition" as requested. Refer to sheet C502R.***

Comment 4. An existing ramp crossing is shown at station 30+75. An additional ramp may be needed at the east side.

Response: ***The ramp on the west side of Tenny Avenue at 30+90 is proposed. The ramp on the east side of Tenny Avenue at that station is to be constructed as part of the retail store contract; it is shown on this plan for reference.***

Comment 5. Add storm sewer pipe classes.

Response: ***All storm sewer pipe shall be Class III. Refer to note added to sheet C100R.***

C959X-C961X:

Comment 1. Add signage and pavement marking classifications to Drawings.

Response: ***Refer to sheets C300R through C302R.***

Pavement Design Report:

Comment 1. The pavement section of both Tenny Avenue and E. Sunset Drive should be determined by geotechnical recommendations and traffic ADT from the Traffic Impact Study.

Response: ***Pavement section has been modified based on recommendations by geotechnical consultant. Refer to attached supplemental geotechnical report by Midwest Engineering Services dated 10/11/13.***

Storm water Management Plan:

Comment 1. Chapter 32.10(b)(A): Preserve natural watershed boundaries and drainage patterns. The peak discharge rates do comply with the City's Ordinance. It is noted that the total volumes of flow directed toward the Northeast corner of the site will be increased. The acreage draining towards the Northeast corner was 8.18 acres and is now proposed to be 17.12 acres.

Response: ***The existing drainage area towards the Northeast corner was 11.20 acres and now proposed 12.45 acres (which will be detained within the proposed North Detention Pond). Discharge rates at the northeast corner to Sunset Drive under proposed conditions have been reduced by fifty percent compared to existing conditions. In addition, the City has asked that off-site drainage areas (which include portions of Sunset Drive and Tenny Avenue) be collected and conveyed to the North Detention Pond.***

Comment 2. If needed, verify that appropriate measures, such as an oil/gas separator, are in place to collect gasoline runoff prior to the runoff entering the wet retention pond.

Response: ***Environmental catchbasins are proposed within the convenience store pavement areas (refer to detail on Sheet C700).***

Comment 3. Based on the emergency spillway computation designs, please verify if the top of basin needs to be slightly raised 1 foot.

Response: ***The emergency overflow weir has been sized to bypass stormwater based on the 100-year storm (see spillway calculations within Appendix B of Stormwater Report).***

Comment 4. For future use, state impervious percentages for development of outlots.

Response: ***The percent impervious was assumed 80% for future development of Lot 2 and Lot 3 in the stormwater management design of North Detention Pond and storm sewer collection system.***

Storm Water Maintenance Agreement:

Comment 1. Chapter 32.12: The storm water agreement should comply with said Section. The City's storm water facility easement agreement template can be sent.

Response: ***GF is in receipt of the City's template and is working with Meijer to customize for the Meijer project.***

Suggestions from Waukesha Parks and Forestry Operations Manager, Peter Traczek dated September 4, 2013:

Trees best suited for the south side of Sunset in the city R.O.W in front of the Meijer project would be one of the new hybrid American Elms.

GF has modified the entire plant list for this project to include species recommendations from Forestry. This includes the use of a variety of American Elms per Peter's suggestions.

Perhaps on the north side of Sunset a blended mixture of some of the following might work:
Locust - either 'Skyline' or 'shademaster'
Several oaks could do well like chinkapin or the Swamp / Bur hybrid.
We could also try some Catalpa if not a mowed turf, seedless Kentucky Coffeetree like Espresso.

Let's try to avoid Lindens and Hackberry.
Absolutely no Maples for this one.

Plant material within the R.O.W. have been specified per Forestry recommendations. Species within the project site have also been adjusted.
Evergreens are limited but preferred species would include:
Arborvitae's like Dark Green, Techny or Trautman.
Spruce would be limited to Black Hills or Norway.

Black Hills Spruce and Norway Spruce have been specified along the north side of Sunset.

Ornamentals for the Islands could include:
Japanese tree lilac
Callery Pear (Autumn Blaze or Cleveland)
Serviceberry
Crabapple like (Red Jewel, Prairie Fire)
And recently tried some Dogwood (Golden Glory)

Varieties of Ornamental trees have been modified per Forestry recommendations.

Thank you for your consideration in this matter. Should you have any questions or require clarification, please call me directly at (847) 788-9200.

Sincerely,

Keri Williams, P.E., CFM
Civil Engineering Dept. Manager

Enclosures

midwest engineering services, inc.

geotechnical • environmental • materials engineers

821 Corporate Court
Suite 102
Waukesha, WI 53189-5010
262-521-2125
FAX 262-521-2471
www.midwesteng.com

October 11, 2013

Mr. Dave Gilmore
Site Development Manager - Properties
Meijer, Inc.
2929 Walker Ave., NW
Grand Rapids, Michigan 49504

Mr. Paul Phillips
GreenbergFarrow
21 South Evergreen Ave., Suite 200
Arlington Heights, Illinois 60005

SUBJECT: Subsurface Exploration and Pavement Evaluation
Proposed Meijer Waukesha Store
Sunset Drive and Tenny Avenue
GF No. 20110540.0
Waukesha, Wisconsin
MES Project No. 7-123104A

Dear Mr. Gilmore and Mr. Phillips,

The additional subsurface exploration and pavement evaluation for the above-referenced project has been completed. After you have had the opportunity of reviewing the report, please call at any time with any questions or comments you may have. Midwest Engineering Services, Inc. appreciates the opportunity to be of service on this project, and looks forward to continuing as your geotechnical consultant during the design and construction phases, as well as your upcoming projects.

Sincerely,

MIDWEST ENGINEERING SERVICES, INC.

James M. Becco, P.E.
Region Manager

Daniel B. Anderson, P.E.
Department Manager

General

This report presents the results of the additional borings as part of the Sunset Dr. and Tenny Ave. asphalt pavement evaluation for the proposed Meijer Store, in Waukesha, Wisconsin. The work was performed for Meijer, Inc. and GreenbergFarrow (GF) at the request of Mr. Paul Phillips. The GF project number is 20110540.0. This addendum report must be read and considered in complete context with the original subsurface exploration, MES No. 7-123104R, dated May 30, 2013

Purpose

The purpose of this study was to evaluate the subsurface conditions at additional boring locations, and to provide a section design for pavements extending or abutting existing City of Waukesha roadways.

Scope

The scope of services included a site reconnaissance, the subsurface exploration, a determination of soil characteristics by field and laboratory testing, and an evaluation and analysis of the data obtained. The scope of the field exploration program, including the number, location, and planned depth of the borings was determined by MES.

Site Location and Description

The property is at the southeast corner of Sunset Drive and Tenny Avenue. The northern and western portions of the parcel are approximately 13.5 acres in size, and are within the City of Waukesha. The remainder of the parcel is within the Town of Waukesha. The subject site lies within the Northwest ¼ of Section 14, in Township 6 North, and Range 19 East of Waukesha County. It is vacant and covers about 32 acres. The central to northwestern portion is hilly, and topography generally slopes down to the south and southeast, with about 80 feet difference in elevation. The western boundary appears to have been previously cut, and slopes down to about EL. 925 alongside Tenny Avenue.

The site is predominantly moderately to heavily brush and tree covered, making access to the boring locations extremely difficult, even with the use of an ATV rig. Environmental corridors and wetlands are present near the southeast and southwest corners of the property. Tall grass and weeds generally covered the northwestern portion of the site, with the exception of a small soccer field that is to the southwest of the end of Tenny Avenue. Small to large trees and dense underbrush covered the remainder of the site. It appears that the northwestern portion of the subject site, generally along Tenny Avenue, has been cut and graded in the past. Grading also appears to have been performed around the area of the existing soccer field.

EXPLORATION AND LABORATORY PROCEDURES

Scope Summary

The field data utilized in the evaluation and analysis of the subsurface materials were obtained by drilling exploratory test borings, securing soil samples by the Standard Penetration Test method utilizing a split-spoon sampling device, and subjecting the samples to laboratory testing. A total of two (2) additional soil test borings were performed for this project to a depth of 6.5 feet below the existing surface. A third boring had been planned, however, the City of Waukesha would not allow access to the portion of Sunset Dr., just east of Tenny Ave. The soil test borings were performed with a truck-mounted all-terrain rotary drilling rig utilizing continuous flight hollow stem augers (HSA) and mud rotary techniques to advance the boreholes. Representative soil samples were obtained by the Standard Penetration Test (SPT) method in general accordance with ASTM D-1586 procedures at the intervals indicated on the Boring Logs. The SPT provides a means of determining the relative density of granular soils and comparative consistency of cohesive soils, thereby providing a method of determining the relative strength and compressibility characteristics of the subsoil.

The SPT soil samples were transferred to clean glass jars immediately after retrieval, and returned to the laboratory upon completion of the field operations. Samples will be stored for a period of 30 days at which time they will be discarded unless other instructions are received. Composite samples were also collected from auger cuttings at selected borings for laboratory testing. All soil samples were visually classified by a soils engineer in general accordance with the Unified Soil Classification System (ASTM D-2488-75).

A copy of the Soil Boring Logs and Boring Location Diagram are included in the Appendix. The soil stratification shown on the logs represents the soil conditions at the actual boring locations at the time of the exploration. The terms and symbols used on the logs are described in the General Notes found on the last page of the Appendix. After completion of the borings, the boreholes were backfilled with bentonite chips.

Laboratory Testing

Soil samples obtained from the exploration were visually classified by a soils engineer in the laboratory, and subjected to moisture content determination. The values of strength tests performed on soil samples obtained by the Standard Penetration Test Method (SPT) are considered approximate, recognizing that the SPT method provides a representative but somewhat disturbed soil sample.

A discussion of the laboratory testing is included in the Soil Conditions section of this report. The laboratory testing was performed in general accordance with the respective ASTM methods, as applicable, and the results are shown on the boring logs and data sheets in the Appendix.

DESCRIPTION OF SUBSURFACE CONDITIONS

General

A description of the subsurface conditions encountered at the test boring locations is shown on the Soil Boring Logs. The lines of demarcation shown on the logs represent approximate boundaries between the various soil classifications. It must be recognized that the soil descriptions are considered representative estimates for the specific test hole locations, and that variations may occur between and beyond the sampling intervals and boring locations. Soil depths, topsoil and layer thicknesses, and demarcation lines utilized for preconstruction planning, should not be expected to yield exact and final quantities. A summary of the major soil profile components is described in the following paragraphs.

Soil Conditions

The surface of the site at the borings generally consisted of about 2 feet of sand and gravel fill. The underlying soils consisted of silty sand and gravel, with probable cobbles and boulders. The soils were in a very dense condition, with N-values generally ranging from about 34 to 99 blows per foot.

The foregoing discussion of soil conditions on this site represents a generalized soil profile as determined at the test boring locations. A more detailed description and supporting data for each test boring can be found on the individual Soil Boring Logs in the Appendix.

Groundwater Observations

Groundwater levels were observed during the drilling operations and measured in the open boreholes upon completion. Groundwater was not encountered during auger advancement or upon completion and removal of the augers.

On the basis of the soil colorations, the relative moisture contents, and the observations during drilling, the groundwater level at the time of the exploration is considered to have been at depths below the maximum depths explored.

EVALUATION AND RECOMMENDATIONS

Based upon information provided by Meijer, specific traffic loading design details include a design life of 20 years and a projected average daily traffic volume for light duty areas of 3.7 and 5.5-18 kip Equivalent Single Axle Loads (ESALs) per day for flexible and rigid pavement, respectively. For heavy duty areas, specific traffic loading design details include a design life of 20 years and a projected average daily traffic volume of about 27 and 41-18 kip ESALs per day for flexible and rigid pavement, respectively.

The following table presents the recommended thicknesses for flexible pavement structures

based upon the City of Waukesha minimum requirements, as provided to MES by the Engineering Department. These standard sections are considered sufficient, based upon the conditions encountered in the recent and previous borings, and upon the traffic loading conditions provided by Meijer.

RECOMMENDED ASPHALT PAVEMENT SECTION THICKNESS

Pavement Components	Sunset Dr.	Tenny Ave.	Wisconsin DOT Specifications
Hot Mix Asphalt Surface Course	1.5" E-3 9.5 mm	1.5" E-1 9.5 mm	Section 460, (a=0.44)
Hot Mix Asphalt Binder Course (1st lower)	2.5" E-3 17.5 mm	none	Section 460, (a=0.44)
Hot Mix Asphalt Binder Course (2nd lower)	2" E-3 19.0 mm	3.5" E-1 19.0 mm	Section 460, (a=0.44)
Aggregate Base Course	10"	9"	Section 305,1.25" Crushed Stone (a=0.14)

The asphaltic base and surfacing course should be placed and provided in accordance with Section 460 of the State of Wisconsin Standard Specification for Road and Bridge Construction. The crushed aggregate base course should be provided and placed in accordance with Sec. 305 of the Standard Specification. The preparation of the pavement subgrade should be in accordance with the Site Preparation section of the original report.

GENERAL COMMENTS

This geotechnical exploration has been prepared to aid in the evaluation of the subgrade conditions on this site. The final design plans and specifications should also be reviewed by the soils engineer to determine that the recommendations presented herein have been interpreted and implemented as intended.

This geotechnical study has been conducted in a manner consistent with that level of care ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. The findings, recommendations and opinions contained herein have been promulgated in accordance with generally accepted practice in the fields of soils mechanics, and engineering geology. No other representations, expressed or implied, and no warranty or guarantee is included or intended in this report.

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SOIL BORING LOG: B-1

Project: Proposed Meijer Store

Project No.: 7-123104

Location: Waukesha, Wisconsin

Drill Date: October 1, 2013

Depth Below Surface/Elev. (ft)	VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 0.0	Sample No.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	PID (ppm)	Remarks
1 / -1.0	Brown to grayish brown SAND and GRAVEL, damp (Fill)	1-AU	-	-	-	4	-	
2 / -2.0								
3 / -3.0		2-SS	85	-	-	8	-	
4 / -4.0	Tan Silty SAND and GRAVEL, probable cobbles and boulders, damp to moist							
5 / -5.0								
6 / -6.0		3-SS	99	-	-	5	-	

End of Boring: 6½'

Notes:

Water Level / Caving Observations:

Water Level $_{\text{During Drilling}}$: None

Water Level $_{\text{Upon Completion}}$: None

Caved at $_{\text{Upon Completion}}$: 2 ± ft (El. -2±)

Additional Comments:

Boring Location Offset: None

*Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.*

midwest engineering services, inc.

SOIL BORING LOG: B-2

Project: Proposed Meijer Store | **Project No.: 7-123104**

Location: Waukesha, Wisconsin | **Drill Date: October 1, 2013**

Depth Below Surface/Elev. (ft)	VISUAL SOIL CLASSIFICATION Ground Surface Elevation: 0.0	Sample No.	N (bpf)	Qp (tsf)	Qu (tsf)	MC (%)	PID (ppm)	Remarks
1 / -1.0	4"± Brown Crushed SAND and GRAVEL, moist (Aggregate Base)	1-AU	-	-	-	5	-	
2 / -2.0	Brown SAND and GRAVEL, moist (Fill)							
3 / -3.0		2-SS	34	-	-	12	-	
4 / -4.0	Tan Silty SAND and GRAVEL, probable cobbles and boulders, damp to moist							
5 / -5.0								
6 / -6.0		3-SS	81	-	-	7	-	

End of Boring: 6½'

Notes:

Water Level / Caving Observations:

Water Level $_{\text{During Drilling}}$: None

Water Level $_{\text{Upon Completion}}$: None

Caved at $_{\text{Upon Completion}}$: 2 ± ft (El. -2±)

Additional Comments:

Boring Location Offset: None

*Lines of demarcation represent **approximate** boundaries between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual.*

Soil Boring Location Plan
Proposed Meijer Store
Waukesha, Wisconsin
MES No. 7-123104A