

Director's Report

Project Name: Comfort Care White Lake
 Description: Rezoning & Preliminary Site Plan Approval
 Date on Agenda this packet pertains to: January 20th, 2022

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|--|--|
| <input checked="" type="checkbox"/> Public Hearing | <input type="checkbox"/> Special Land Use |
| <input checked="" type="checkbox"/> Initial Submittal | <input checked="" type="checkbox"/> Rezoning |
| <input type="checkbox"/> Revised Plans | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Preliminary Approval | |
| <input type="checkbox"/> Final Approval | |

Contact	Consultants & Departments	Approval	Denial	Approved w/Conditions	Other	Comments
Sean O'Neil	Planning Director	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Revise and resubmit to address comments from staff and consultants
DLZ	Engineering Consultant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See letter dated 1/3/2022
Justin Quagliata	Staff Planner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See letter dated 1/4/2022
Jeanine Smith	Assessor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See memo dated 12/17/2021



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

January 3, 2022

Sean O' Neil
Community Development Department
Charter Township of White Lake
7525 Highland Road
White Lake, Michigan 48383

RE: Comfort Care Assisted Living- Preliminary Site Plan Review – 2nd Review

Ref: DLZ No. 2145-7233-19

Design Professional: Griggs Quaderer Inc.

Dear Mr. O' Neil,

Our office has performed the above mentioned Preliminary Site Plan review for the revised plan dated December 13, 2021. The plans were reviewed for feasibility based on general conformance with the Township Engineering Design Standards.

General Site Information

This site is located on the west side of Union Lake Road between Hutchins and Cooley Lake Roads. The property abuts the existing Preserve at Hidden Lake residential development just to the north and the future West Valley residential development to the southwest. Total site acreage is approximately 8.6977 acres.

Site Improvement Information:

- Construction of a (1) one story assisted living and memory care building totaling 67,270 square feet.
- Associated paved and curbed parking including ADA accessible parking spaces and maneuvering aisles.
- Site to be serviced by watermain and sanitary sewer.
- Storm water runoff is proposed to be detained in a proposed detention basin located on the south side of the parcel. Discharge is proposed to the future West Valley development's storm sewer located to the southwest.

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Comments from our previous review letter dated November 24, 2021 are in *italics*. Responses to those comments are in **bold**. New comments are in standard typeface. Note that our office did not receive a response letter from Griggs Quaderer, Inc., the design engineer, with respect to our initial review.

The following items should be noted with respect to Planning Commission review:

- a) *The plan proposes a future emergency access drive with connection to the emergency access drive stub for the West Valley development. DLZ notes the West Valley development is not constructed, thus rendering the proposed stub with no connection should the West Valley site not move forward. In addition, the proposed location of the Comfort Care stub as shown on the plan does not align with the proposed stub location shown on the previously approved West Valley Final Engineering Plan which would require modification of the West Valley plans and easement documents. We request a turning radius profile be provided for this proposed access route utilizing a 40-foot vehicle to demonstrate feasibility.* **Comment outstanding. While a turnaround radius profile for a 40' vehicle has been provided for the emergency access route, the design engineer still proposes the emergency access drive in a location that does not align with the stub shown on the approved West Valley engineering plan. Revisions to the West Valley plans/easements will be required for use of this access route.**
 - b) *Should the proposed plan not be able to achieve emergency access to the future West Valley development, a means of secondary access to the proposed facility should be considered due to the nature of the use of the facility. In addition, there is the concern that only one means of access to the site could pose access issues for the existing residence that would also utilize the sole entrance to Comfort Care. Should this entrance become blocked, the existing residence would have no other means of egress from their property. We also question whether the language for the existing 60' access easement allows for multiple users of this easement for access.* **An alternate emergency access drive is now shown on the plans with connection to Union Lake Road, presumably in the event the West Valley Development is not available for connection. Details regarding proposed alternate emergency access drive width and turning radius profile for a 40' emergency vehicle shall be provided. Provide details on whether this access drive would also be utilized for site access and if not, how would the drive be blocked off from use. Note also that the existing and proposed steep grades in the area of the alternate drive may pose a difficulty in placement of such drive with respect to emergency vehicle access, provide details to demonstrate the angle of approach will not pose an issue for fire trucks.**
 - c) *Developer for Comfort Care will need to ensure that a means of access to the existing house to the west is maintained at all times during construction, especially during construction of the proposed*
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drive and drive approach. A separate construction entrance for construction vehicles is recommended. Comment addressed. A separate construction entrance is proposed. DLZ notes the existing grades in this area are steep and additional details will be required at the time of final site plans to demonstrate temporary grading.

- d) It is not clear as to whether the western drive proposed behind the building is proposed as a one way or two-way drive. It is currently proposed as 22' wide. Township Zoning Ordinance 5.11Q.v. requires a width of 20' for one way drives and a minimum width of 24' for two way drives. Comment addressed. Drive is now shown as 24' wide.*
 - e) The sidewalk along Union Lake Road is proposed at 5' wide. Township Zoning Ordinance 5.21 requires a minimum of 6' width for sidewalks along major roadways. Comment addressed. Sidewalk is now proposed as 6' wide.*
 - f) It will need to be clarified as to how the proposed retaining wall adjacent to the three existing trees on the residential property to the west shall be installed without damage (particularly root damage) to these trees. The proposed wall location is extremely close to these trees. Plans do not appear to address this concern; it should be noted by the Planning Department and Planning Commission that damage/loss of these trees is likely.*
 - g) There is a concern regarding the proximity of the proposed storm sewer along the southwestern side of the site relative to the proposed retaining wall; the storm sewer will need to be located outside of the influence of the wall (at a minimum of 10' horizontal separation) with respect to lateral and vertical stresses. The storm sewer location has been adjusted slightly, there is still a concern near the south building corner where the proposed storm sewer is shown approximately 3' off of the decorative retaining wall. This item can be considered addressed for this level of review; however further revisions will be required at the time of final site plan review.*
 - h) An off-site grading easement may be required from the property owner(s) to the west due to the close proximity of the proposed retaining walls to the property line (approximately 5' from the property line). Comment addressed; plans show proposed grading limits terminate onsite.*
 - i) The plan will need to show the method of stormwater pretreatment. Comment addressed. The plan now proposes Stormceptor structures for the two separate basin inlets.*
 - j) The design for the detention basin proposes discharge into the future West Valley storm sewer. The existing West valley storm system will need to be redesigned to accommodate this additional discharge as the proposed West Valley system was at hydraulic capacity prior to accounting for these discharges. This additional discharge will require modification to the West Valley storm water discharge permit. Comment outstanding.*
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- k) *Consideration should be given to providing access for a future water main service for the existing home to the west. **Comment addressed. A 1" diameter lead has now been shown at the western property line to service the existing home to the west.***
- l) *The layout for the water main proposes a second connection to the watermain stub to the southwest provided by the future West Valley development. Note that West Valley has not been constructed so a second connection point for the watermain will not be feasible until West Valley has been constructed. This would result in a dead end main >600' in length which is not allowable per WLT Engineering and Design Standards. Note watermain easements are required to be 20' wide; plan currently proposes 15' wide easements. Wording on plan should also be revised on the Site Utility Plan from existing West Valley stub to proposed stub. **Comment partially addressed. The proposed watermain is now shown in a 20' wide easement. The remaining portion of this comment remains outstanding. If the West Valley development is not available for connection, the proposed watermain extension would be a dead end of approximately 1,000 feet with the last 400 feet being stagnant, which is undesirable from a water quality standpoint. An alternate layout may need to be considered in the event West Valley is not constructed.***

The following comments can be addressed on the Final Site Plan/Final Engineering Plan:

Final Site Plan/Final Engineering Plan Comments-

General

1. *Plan shall contain notes per White Lake Township Engineering Design Standards Section A. 8. a.-d. **Comment outstanding.***
2. *Provide parcel ID on plan. **Comment outstanding.***

Paving/Grading

1. *ADA accessible ramps will be required on sidewalk adjacent to ADA parking spaces. Ramp slopes shall meet ADA requirements. **Comment addressed. A ramp detail shall be required on the Final Site Plan/Final Engineering Plan.***
 2. *Structural wall calculations, that have been signed and sealed by a Registered Structural Engineer, verifying the wall integrity and the ability to support lateral and vertical stresses will need to be provided for retaining walls over 30" tall. **Comment outstanding.***
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3. A retaining wall may be required in the greenspace area between the proposed sidewalk along Union Lake Road and the southeast corner of the building; the grades will need to be verified in this area to ensure they do not exceed 33%. **Comment outstanding.**

Watermain

1. We defer to the Fire Department regarding items related to fire suppression and hydrant coverage. **Comment remains as a notation.**
2. Remove all references to Genesee County on the water main notes on Sheet C400- Site Utility Plan. Note that all notes regarding proposed utilities shall be per White Lake Township standards. **Comment outstanding.**
3. Hydrant leads exceeding 40' must be 8" diameter piping. **Comment addressed.**

Sanitary Sewer

1. Additional details regarding the sanitary lead and connection will be required; a monitoring manhole shall be provided as well as a wye in the lead line which will bypass the oil and grease separator. The line with the oil and grease separator shall be directly connected only and to all kitchen/food prep areas. **Comment partially addressed. The monitoring manhole shall be located downstream of the proposed oil and grease separator.**

Stormwater Management

1. MH6 will need to be moved such that there is a minimum of 10' of horizontal separation between it and the proposed building. **Comment addressed.**
 2. The design engineer will need to demonstrate that the proposed storm sewer material (ADS HD) will maintain its integrity when located under proposed pavement, otherwise use CLIV Reinforced Concrete pipe within pavement influence. **Comment outstanding.**
 3. Sheet C300 – Site Grading Plan indicates a 15' wide storm sewer easement for West Valley; easement width is 12'. **Comment outstanding.**
 4. Clarify on the Soil Erosion Plan as to why the OCS structure in the basin is to be temporary. **Comment outstanding.**
 5. Clarify reference to South Pond on OCS#2 detail on Site Details sheet. **Comment outstanding.**
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Landscape Plan

1. *Landscaping shall be revised such that proposed trees are located a minimum of 10' horizontal separation from all watermain, sanitary sewer, and storm sewer. Note that proposed trees appear too close to storm sewer along the western property line. **Comment outstanding.***

Recommendation

The plans are dependent on modifications to the West Valley Site and that site moving forward with construction. The storm and watermain systems are dependent on the West Valley Utilities being available for connection. Any motions for approval of the current plan set would need to include reference to the West Valley modifications, construction, and agreements for connection/maintenance. Without the West Valley site, the current plans do not currently demonstrate engineering feasibility. **Please provide a detailed response letter with the resubmittal. A response letter to the above comments will help facilitate our rereview of the plan.**

Please feel free to contact our office should you have any questions.

Sincerely,

DLZ Michigan



Michael Leuffgen, P.E.
Department Manager



Victoria Loemker, P.E.
Senior Engineer

Cc: Justin Quagliata, Community Development, *via email*
Hannah Micallef, Community Development, *via email*
Aaron Potter, DPS Director, White Lake Township, *via email*
John Holland, Fire Chief, White Lake Township, *via email*
Jason Hanifen, Fire Marshal, White Lake Township, *via email*

WHITE LAKE TOWNSHIP PLANNING COMMISSION

REPORT OF THE COMMUNITY DEVELOPMENT DEPARTMENT

TO: Planning Commission

FROM: Sean O'Neil, AICP, Community Development Director
Justin Quagliata, Staff Planner

DATE: January 4, 2022

RE: Comfort Care
Rezoning and Preliminary Site Plan – Review #2

Staff reviewed the revised site plan prepared by Griggs Quaderer Inc. (revision date December 13, 2021). The following comments from the first review dated December 1, 2021 are listed below. Responses to those comments are provided in **(red)**.

Comfort Care has requested rezoning to PD (Planned Development) and preliminary site plan approval to construct an independent living, assisted living, and memory care facility at Parcel Number 12-36-176-002 **(the parcel number shall be provided on the site plan), (comment outstanding)** located on the west side of Union Lake Road, south of Preserve at Hidden Lake. The approximate 8.37-acre (gross area; **the net area of the site shall be listed on the plans**) **(comment outstanding)** site is zoned LB (Local Business) and contains over 800 feet of frontage on Union Lake Road **(the recorded property description varies from the measured property description. The Township Engineering Consultant shall review the legal description of the parcel. Additionally, the dimensions of the parcel shall be labeled on the site plan).** **(Comment outstanding. Contrary to a statement in the response letter provided to the first review, the parcel dimensions are not labeled on Sheet C200).**

The applicant is proposing to construct a single-story, 67,270 square foot facility containing 70 units (**the conceptual floor plan indicates the building would be ~~67,280~~ 66,842 square feet in size. The plans shall be reconciled for consistency.** **(Comment outstanding – there is a 428 square foot discrepancy between the size of the building labeled on the site plan and conceptual floor plan).** Overall, there would 40 assisted living units consisting of 10 studio units, 10 one-bedroom units, four two-bedroom units, 16 memory care studio units and 30 independent living units (apartments) consisting of two, 918 square foot studio units, fourteen, 685 square foot one-bedroom units, and fourteen, 1,038 square foot two-bedroom units. Each apartment unit would contain a porch (if at the exterior of the building) or a patio (for interior (courtyard facing) units). Apartments accessed from the exterior of the building would also have a door provided to a common hallway circulating through the wing of the building. Near the center of the building, the conceptual floor plan shows a theater and salon. Common areas would be provided for each section of the building, with dining areas centrally located within the assisted living and memory care areas.

The minimum lot size requirement in the PD zoning district is 10 acres. The Township Board, after receiving a recommendation from the Planning Commission, may permit a smaller parcel than otherwise required in the PD district if the proposed project has unique characteristics and benefits, or the parcel has unique characteristics significantly impacting development. At its meeting on August 19, 2021 the Planning Commission recommended waiving the minimum lot size requirement, and at its meeting on September 21, 2021 the Township Board approved the waiver request. At the time, some Board members questioned the public benefit provided by the project. A public benefit(s) must offset the impact(s) of development on the community. **The applicant shall submit the required Community Impact Statement (CIS) and provide information on the public benefit(s) provided by the project.** **(Comment addressed. The applicant submitted a CIS for consideration by the Planning Commission and Township Board. Providing housing to the senior population is the stated community benefit. Other items listed as public benefits in the CIS, including provision of an alternate emergency access and utility connections, are ordinance requirements and not considered community benefits. Community benefits are intended to be for the use and enjoyment of the public-at-large. The Planning Commission and Township Board shall determine if the stated public benefit is commensurate with the waivers requested for the project).**

Rezoning

For Planned Developments, rezoning and preliminary site plan requests are processed concurrently. Review of the rezoning request should focus on whether the proposed PD zoning is appropriate for the site. The intent of the PD district is to provide for the location of various types of planned land use on large parcels held in common ownership and include preservation of open space. While primarily a residential zoning district, local commercial business, office uses, and similar activities are permitted in the PD district.

Master Plan

The Future Land Use Map from the Master Plan designates the subject site in the Planned Neighborhood category, which is envisioned as a primarily residential land use of mixed densities and multiple product types, in a setting that may occasionally include a limited number of neighborhood retail, office, and personal service clusters. Connections to and segments of the Township’s community-wide pathway system are required as an integral part of all developments. All Planned Neighborhood development is intended to be served by Township sanitary sewers and either Township public water or community well systems. Net residential densities are anticipated to range between 2.0 and 8.0 units per acre, and nonresidential elements should not exceed 25 percent of the net land area after preservation of natural features. With 70 total units on approximately eight net acres, density of the proposed project is 8.75 dwelling units per acre (du/a). **As the building could be converted to general multiple-family occupancy in the future (if approved by the Township), a reduction of six units, from 70 units to 64 units, would reduce the density to eight du/a. (Comment remains as a notation. The number of units was not reduced from 70. The Planning Commission and Township Board may consider requiring a reduction of units as previously described).**

FUTURE LAND USE MAP



Zoning

The subject site is located in the LB (Local Business) zoning district, which requires a minimum of 120 feet of lot width and one acre of lot area. The requested PD zoning district does not have a minimum lot width requirement. The following table illustrates the lot width and lot area standards for the existing LB and proposed PD zoning districts:

ZONING DISTRICT	LOT WIDTH	LOT AREA
LB	120 feet	1 acre
PD	No minimum; Determined by Planning Commission	10 acres (waiver granted)

ZONING MAP



Physical Features

The site is currently undeveloped, with elevations ranging from 980 feet above mean sea level near the east side of the site and declining to 956 feet above mean sea level near the west side of the site. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) Wetland Map and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map indicate neither wetlands nor floodplain are present on or near the site.

Access

The site fronts on Union Lake Road, which along the property is a two-lane public road without curb and gutter designated as a thoroughfare with a 120-foot right-of-way requirement by the Road Commission for Oakland County (RCOC). **The applicant will be required to dedicate (if not already completed) the additional portion of the future right-of-way at the west side of Union Lake Road to the RCOC. (Comment remains as a notation).** A 20-foot emergency access drive is proposed to connect to the adjacent parcel to the southeast, which was previously granted site plan approval for a 69-unit ranch-style apartment complex known as West Valley, which has not yet commenced construction. An 8-inch aggregate top course (road gravel) is the proposed surface of the emergency access drive. **The emergency access drive shall be provided with asphalt or concrete surfacing in accordance with specifications approved by the Township Engineering Consultant and Township Fire Marshal. (Comment addressed. The plans now show asphalt pavement as the surface of the emergency access drive. Additionally, should West Valley not be constructed, the plans show an alternate emergency access onto Union Lake Road. The location of driveways is subject to approval of the RCOC and the Township.)**

The zoning ordinance requires a minimum six-foot-wide sidewalk placed one-foot from the inside edge of the right-of-way along the Union Lake Road property frontage, which the applicant will be required to install as part of the project. The submitted site plan shows a five-foot concrete sidewalk along the property frontage; **the plans shall be revised to provide the required six-foot-wide sidewalk.** (Comment addressed. The sidewalk along Union Lake Road was revised to six-feet in width).

The most recent (2017) traffic count information from the Southeast Michigan Council of Governments (SEMCOG) Regional Traffic Count Database for Union Lake Road, between Hutchins Road and Cooley Lake Road, showed a total of 7,800 vehicles in a 24-hour period. A rezoning traffic study (RTS) is required to describe relevant existing traffic conditions and compare the potential trip generation of a site’s use under existing and proposed zoning classifications. The applicant submitted a trip generation analysis (dated December 13, 2021) which estimates future vehicle trips that could be generated by development of the property under the current zoning and the proposed project. The Institute of Transportation Engineers (ITE) trip generation rates for ~~Senior Adult Multi Family Housing (Land Use Code 252)~~ **Assisted Living (Land Use Code 254) and Congregate Care Facility (Land Use Code 253)** were selected to represent the proposed 70-unit facility and Shopping Plaza (Land Use Code 821) were selected to represent a 40,000 square foot building developed under the existing LB zoning. The following table summarizes findings from the submitted trip generation analysis.

Land Use	ITE Code	Quantity	Unit	Daily Trips	AM Peak Hour Trips	PM Peak Hour Trips
Senior Adult Multi Family Housing	252	70	Dwelling Unit	133	3	3
Assisted Living	254	67,270 square feet	10,000 square feet of building area	282	26	32
Congregate Care Dwelling Unit	253	70	Dwelling Unit	155	6	13
Shopping Plaza	821	40,000 square feet	1,000 square feet of building area	2,680	70	208

A traffic impact assessment is required if the proposed use(s) would generate between 500 and 749 driveway trips per day, or between 50 and 99 peak-hour, peak-direction driveway trips. An average day is the average 24-hour total of all vehicle trips counted to and from a study site from Monday through Friday. A peak hour of traffic is the hour of highest volume of traffic entering and exiting the site during the morning and afternoon hours. A traffic impact statement is required if the proposed use(s) would generate 750 or more driveway trips per day, or 100 or more peak-hour, peak-direction driveway trips. Based on the projected traffic volumes, neither a traffic impact assessment nor traffic impact statement was required.

A revised rezoning traffic study shall be submitted for review by the Township Engineering Consultant and staff. No evaluation of existing traffic conditions or conditions with the proposed improvements was provided. Additionally, Land Use Code 252 is not acceptable to represent the proposed facility. Generally, the ITE defines the aforementioned category as apartment style senior housing without social/recreational areas, medical services not provided. Other Land Use Codes, such as Congregate Care Facility, Assisted Living, and Continuing Care Retirement Community may be utilized, potentially in combination with a multi-family Land Use Code, to represent the proposed facility. Additionally, as no information was provided to indicate the independent living units would be age-restricted for only senior occupancy, Land Use Code 252 may not be comparable to the traffic generated by the apartments. (Comment partially addressed. This review utilized information from the trip generation analysis dated December 13, 2021. A revised RTS dated December 29, 2021 was submitted on January 2, 2022. A separate review will be completed on the revised RTS. The review of the prior trip generation analysis is attached for reference. Furthermore, a note shall be provided on the site plan indicating “Independent living units are restricted to age 55 and older”).

The facility would be accessed from a driveway on Union Lake Road (the proposed driveway is located within an existing 60-foot access easement which currently contains a gravel driveway serving an existing residence on an adjacent parcel). Internal sidewalks are five-foot-wide at the rear and west side of the building and seven-foot-wide along the front and east side of the building. **It is not clear if the drive behind the building is proposed as a one-way or two-way drive; currently it is proposed as 22-foot-wide. The zoning ordinance requires a minimum width of 20 feet for one-way drives and a minimum width of 24 feet for two-way drives. The plans shall be revised to clearly indicate the on-site circulation pattern. (Comment addressed. The drive behind the building would be a two-way drive and was revised to 24-foot-wide. While not indicated on the plans as requested, drive aisles and maneuvering lanes around the site are intended to serve two-way traffic).**

Utilities

The project would be served by both the municipal water and sanitary sewer systems. The Township Engineering Consultant will perform an analysis of stormwater, location and capacity of utilities, and grading to ensure compliance with all applicable ordinances as well as the Township Engineering Design Standards.

Staff Analysis – Rezoning

In considering any petition for an amendment to the Official Zoning Map, the Planning Commission and Township Board shall consider the following criteria from Article 7, Section 13 of the zoning ordinance in making its findings, recommendations, and decision:

- A. *Consistency with the goals, policies and future land use map of the White Lake Township Master Plan, including any subarea or corridor studies. If conditions have changed since the Master Plan was adopted, the consistency with recent development trends in the area.* The Future Land Use Map from the Master Plan designates the subject site in the Planned Neighborhood category, which is envisioned as a primarily residential land use of mixed densities and multiple product types, in a setting that may occasionally include a limited number of neighborhood retail, office, and personal service clusters. The proposed PD zoning allows for the aforementioned uses. Additionally, convalescent or nursing homes, and multiple-family dwellings, which is the intended use for the site, is permitted in PD zoning and compatible with the development in the vicinity.
- B. *Compatibility of the site's physical, geological, hydrological and other environmental features with the host of uses permitted in the proposed zoning district.* If the property is rezoned to PD, the project would not directly or indirectly have a substantial adverse impact on the natural resources of the Township.
- C. *Evidence the applicant cannot receive a reasonable return on investment through developing the property with one (1) of the uses permitted under the current zoning.* No such evidence has been submitted.
- D. *The compatibility of all the potential uses allowed in the proposed zoning district with surrounding uses and zoning in terms of land suitability, impacts on the environment, density, nature of use, traffic impacts, aesthetics, infrastructure and potential influence on property values.* The majority of the permitted and special land uses in the PD district are compatible with the surrounding uses and the nature of the uses anticipated in the Township Master Plan. Only the Township Assessor may provide comment on property values.
- E. *The capacity of Township utilities and services sufficient to accommodate the uses permitted in the requested district without compromising the "health, safety and welfare" of the Township.* The site is in an area intended to be serviced by public water and sanitary sewer. The Community Development Department defers to the Director of Public Services and Township Engineering Consultant on this matter.
- F. *The capability of the street system to safely and efficiently accommodate the expected traffic generated by uses permitted in the requested zoning district.* **A revised rezoning traffic study shall be prepared as described in Article 6, Section 3 of the zoning ordinance. (A revised rezoning traffic study (RTS) dated December 29, 2021 was submitted and is currently under review. Attached to this memorandum is the review letter for the previously submitted trip generation analysis).**
- G. *The apparent demand for the types of uses permitted in the requested zoning district in relation to the amount of land in the township currently zoned and available to accommodate the demand.* Evidence of the demand in the Township for additional convalescent or nursing homes and multiple-family dwellings has not been submitted. However, the location is appropriate for such uses, given the traffic, residential units, and general density in the project area.

- H. The boundaries of the requested rezoning district are reasonable in relationship to its surroundings, and construction on the site will be able to meet the dimensional regulations for the zoning district listed in the Schedule of Regulations. The property is adjacent to PD zoned property (Preserve at Hidden Lake) to the northwest. Based on the submitted site plan, development on the site would require waivers from zoning requirements. **A list of all requested waivers shall be provided by the applicant, and included on the site plan.** (Comment outstanding).*
- I. The requested zoning district is considered to be more appropriate from the township's perspective than another zoning district. The PD zoning district provides flexibility in development standards, which is appropriate for this site. The uses allowed in the PD district are appropriate for the site and the proposed use is a permitted use in the PD district.*
- J. If the request is for a specific use, is rezoning the land more appropriate than amending the list of permitted or special land uses in the current zoning district to allow the use? Rezoning would be the most appropriate way to allow for the proposed use. Amending the LB (Local Business) zoning district to allow convalescent or nursing homes and multiple-family dwellings would not be advised.*
- K. The requested rezoning will not create an isolated and unplanned spot zone. Planned Developments by nature stand on their own. However, the uses allowed within the PD zoning district should be consistent with the use of land surrounding it. The proposed facility is consistent with the surrounding land uses. The property is adjacent to PD zoned property (Preserve at Hidden Lake) to the northwest. Independence Village (senior living apartments) is located across Union Lake Road.*
- L. The request has not previously been submitted within the past one (1) year, unless conditions have changed or new information has been provided. This request is a new application.*
- M. An offer of conditions submitted as part of a conditional rezoning request shall bear a reasonable and rational relationship to the property for which rezoning is requested. This standard is not applicable.*
- N. Other factors deemed appropriate by the Planning Commission and Township Board. For PD requests, a public benefit must be provided by the project. A public benefit(s) must offset the impact(s) of development on the community. As previously stated, **the applicant shall submit the required Community Impact Statement (CIS) and provide information on the public benefit(s) provided by the project. Any public benefit shall be commensurate with the waivers requested for the project.** (See page 2 of this review addressing the submitted CIS). The Planning Commission and Township Board could also consider other factors which may be relevant to the rezoning request.*

Staff Analysis – Preliminary Site Plan

The Planned Development review process is summarized by the following steps:

1. Preliminary Site Plan: During this review, the number of units and road layout are established, the amount of open space is determined, and other project details are decided upon. The Planning Commission holds a public hearing on the rezoning, reviews the PD proposal, and makes a recommendation to the Township Board. The Township Board takes final action, approving or denying the preliminary site plan. The rezoning request is reviewed concurrently with the preliminary site plan and is decided by the Township Board.
2. Final Site Plan: At this time, building materials and colors are finalized and all conditions of preliminary site plan approval must be satisfied. The Planning Commission reviews and takes action to approve or deny the final site plan, and also reviews the proposed Development Agreement and makes a recommendation to the Township Board.
3. Development Agreement: Upon recommendation by the Planning Commission, the Township Board takes final action on the Development Agreement.

The development standards for the PD district allow for 40-foot front yard setbacks and 25-foot side yard setbacks; rear yard setbacks are determined by the Planning Commission (no minimum rear yard requirement). **All setback dimensions shall be labeled on the site plan.** (Comment partially addressed; the proposed side setbacks are not labeled on the site plan). The maximum building height allowed is 30 feet or two stories, whichever is less. Article 4, Section 16 provides additional standards for convalescent or nursing homes, including all buildings must be setback at least 75 feet from all property lines. **The following waivers for building setbacks are required:**

- North: 56-foot waiver – 19-foot proposed front canopy setback
- South: 30-foot waiver – 45-foot proposed rear building setback

Building Architecture and Design

Generally, exterior building materials should be composed primarily of high quality, durable, low maintenance material, such as masonry, stone, brick, glass, or equivalent materials. Buildings should be completed on all sides with acceptable materials. Overall, the single-story building is 16'-2" in height as measured at the midpoint of the peak and eaves. The proposed building materials for the project are a mix of cedar composite siding (horizontal) and face brick (vener) with a rowlock sill three feet up around the base of the building, with asphalt shingle roofing. All of the dormers would be covered by prefinished metal roof panels. Cultured stone veneer is proposed on the posts of the covered entry (canopy); this structure may be referred to as a porte cochere. A height clearance of 14 feet is provided under the porte cochere. A fiber cement panel system (block) is proposed on the front facade around the building entrance and both side facades of the building. **Cement block shall not be permitted on the front facade of the building. The proposed face brick (vener) or cultured stone veneer shall be utilized on the front facade around the building entrance. The exterior elevations shall be revised accordingly.** (Comment addressed. Cultured stone veneer is now proposed around the main entrance in place of the previous fiber cement panel finish. However, Sheet A2 shall be revised to remove the "fiber cement panel system" label from the north elevation).

Generally, the proposed building materials and architecture on the front facade of the building are inferior in nature and not acceptable for a development of this magnitude. The building is 49'-8" wide and could be considered imposing in appearance from Union Lake Road. In order to soften the appearance from the road so the building does not resemble a sanitarium, **the front facade shall be divided vertically into segments no greater than 60 feet wide. Articulation and relief of the facade shall be achieved by utilizing variegated, high quality building materials, with each of the aforementioned segments recessed/off-set (change in the building plane) at least two and no more than five feet across the front facade of the building. At least 70 percent of the front facade shall be finished with a combination of masonry, stone, brick, glass, or equivalent materials. Additionally, horizontal cladding (siding) shall not be permitted on the front facade; vertical (board and batten style) siding (e.g., Hardie Plank) may be utilized outside of the aforementioned 70 percent requirement. The exterior elevations shall be revised accordingly.** (Comment partially addressed. The aforementioned change in the building plane was not incorporated into the design – the Planning Commission may consider requiring said change in building architecture and design. However, the proposed building materials were improved. A majority of the front facade would be surfaced with face brick (vener), with cultured stone veneer around the doors to the independent living units. As requested, the horizontal cladding was replaced with "Board and Batten" siding (fiber cement). Materials proposed on the west elevation were also revised to utilize the same materials proposed on the front facade. However, horizontal cladding is still shown on the east elevation; this appears to be an error. In any case, the horizontal cladding on the east elevation shall be replaced with the same Board and Batten siding proposed on the front facade. Similarly, the south elevation shows Board and Batten siding; however, the siding is still labeled as horizontal cladding. The south elevation shall be revised to properly show Board and Batten siding on the building).

During a phone conversation with staff, the architect indicated planter boxes are proposed on the north side of the building. If proposed, the plans shall be revised to clearly identify these items.

While elevations of the building were submitted showing the different building materials for the project, finalized colors were not noted on the elevations. **A sample board of building materials to be displayed at the Planning Commission meeting, and elevations in color are required by the zoning ordinance and must be submitted at final site plan. Additionally, the address (street number) location shall be shown on the building. Six-inch-tall numbers visible from the street shall be required. The address location is subject to approval of the Township Fire Marshal. (Comment outstanding – must be addressed at final site plan).**

A 400 square foot accessory building is proposed on the west side of the building. **Exterior elevations shall be provided for the accessory building at final site plan. Building materials for the accessory building shall match the principal building. (Comment no longer applicable – the accessory building was removed from the plans).**

An outdoor patio is located on the west side of the building. **Details for the items to be located on the patio and details for the patio surfacing shall be provided at final site plan. An ornamental paving treatment should be required by the Planning Commission. (Comment partially addressed. Sheet C200 of the site plan indicates the patio would be stamped concrete pavement. Four-foot-tall decorative aluminum fencing is proposed around the patio. Contrary to a label on Sheet C200 indicating a detail of the fence is provided on Sheet C600, said detail is not on Sheet C600; revise accordingly).** The treatment should be something either decorative or something to provide aesthetic quality to the patio. Potential options for ornamental paving treatments include, but are not limited to, CMU pavers; brick; stone; or stamped, stained, and sealed concrete. Accessory items such as railings, benches, trash receptacles, outdoor seating (such as tables and chairs), or sidewalk planters located in the vicinity of sidewalks and/or outdoor seating areas are required to be of commercial quality and complement the building design and style. **These details shall be provided at final site plan. (Comment outstanding – must be addressed at final site plan).**

Landscaping and Screening

Proposed landscaping must generally comply with the provisions of the zoning ordinance. Landscaping should be designed to preserve existing significant natural features and to buffer service areas, parking lots, and dumpsters. A mix of evergreen and deciduous plants and trees are preferred, along with seasonal accent plantings. A landscape plan is not required as part of the preliminary site plan, but was provided for consideration and will be reviewed in detail during final site plan review if the preliminary siter plan is approved.

Following are initial comments on the landscape plan:

- Article 4, Section 16.D – Convalescent or Nursing Homes: All parking and service areas shall be screened from view of an adjoining residential district, as approved by the Planning Commission.

- Article 5, Section 19.E – Interior Landscaping Requirements: For every new development requiring site plan review, except site condominiums as regulated in Article 6, Section 1, interior landscaping areas shall be provided, equal to at least 15 percent of the total lot area. These landscaped areas shall be grouped near all building entrances, building foundations, pedestrian walkways, and service areas, and may also be placed adjacent to fences, walls, or rights-of-way. These planting areas shall be so located as to breakup an otherwise continuous abutment of building facade with sidewalks and/or parking areas. All interior landscaping shall provide one large deciduous, small ornamental deciduous, or evergreen tree and five shrubs for every 300 square feet of required interior landscaping area.
- Article 5, Section 19.G – Parking Lot Landscaping: Within every parking area containing 10 or more spaces, there shall be parking lot landscaping in accordance with this Subsection. These landscaping areas shall be located so as to better define parking spaces and drives. Landscaping on the perimeter of the parking lot does not satisfy the parking lot landscaping requirement. Island locations shall also be considered in a manner that will assist in controlling traffic movements. The requirements, for trees and islands, may be modified when it is found through careful coordination of parking lot landscaping with peripheral and building plantings an unnecessary duplication of plantings would be created. In addition, consideration shall be given to situations when an excess number of small islands would be created that would only serve to disrupt reasonable traffic patterns and maintenance activities.
- Article 5, Section 19.N.ii – Transformer and Mechanical Equipment Screening: All ground mounted transformers, climate control, and similar equipment shall be screened from view from any street or adjacent property by a wall constructed of the same decorative exterior materials as the building and not less than the height of the equipment to be screened. As an alternative, the equipment may be screened by landscaping approved by the Planning Commission. All rooftop climate control equipment, transformer units, and similar equipment shall be screened. The materials used to screen the equipment shall be compatible in color and type with exterior finish materials of the building. All rooftop equipment shall conform to the maximum height regulations of this Ordinance. **The plans do not show proposed locations for mechanical units or provide the method of screening. The plans shall be revised accordingly to provide the location(s) and method of screening. (Comment partially addressed. The response letter provided to the first review indicates all mechanical units would be located in the interior of the building. However, the applicant shall state specifically where air conditioning compressor units and any generator(s) are proposed to be located).**
- Two decorative landscape retaining walls (8-inch split-face block (color to match building) with 2-inch high, 1’–4” wide precast concrete or sandstone cap) are located along the rear property line.
- Article 5, Section 19.B.vii: trees shall not be planted closer than four feet to a property line.

- Article 5, Section 19.B.iii.a: all required landscape areas in excess of 200 square feet shall be irrigated to assist in maintaining a healthy condition for all plantings and lawn areas.
- Article 5, Section 19.B.iii.b: all required site irrigation systems shall include a rain sensor or similar measure to ensure irrigation does not occur during or shortly after precipitation events. All site plans shall note installation of required irrigation.

Parking screening waivers were not requested, but based on the proposed plan are required for the site. The zoning ordinance requires parking for non-single family residential and non-residential uses to meet the front yard setback requirement of the underlying zoning district; however, parking in a required front yard may be permitted, except for the first 20 feet which must be a greenbelt and landscaped in conformance with the standards of the ordinance. The minimum front yard setback in the PD zoning district is 40 feet. At its closest point (the southeast end of the parking area, northwest of the alternate emergency access drive) the greenbelt is located approximately 17.5 feet **(the dimension at this location shall be provided on the site plan)** from the proposed right-of-way line of Union Lake Road. **A 20-foot greenbelt is not proposed, so a 22.5-foot waiver for the front parking setback is required.**

Parking for non-single family residential and non-residential uses may be permitted in a side or rear yard setback, if all greenbelt and/or screening requirements of the ordinance have been met. The zoning ordinance offers options to provide an appropriate amount of screening between properties based on the zoning of an adjacent parcel. Following are the screening options outlined in the zoning ordinance based on the proposed PD zoning of the subject site and adjacent properties to the south and west **(the site plan improperly labels the zoning of the West Valley property as R1-A (Single-Family Residential); the correct zoning designation of RM-1 (Attached Single-Family Residential) shall be listed):**

- Extensive Land Form Buffer
 - Height: 6-foot berm with a 2-foot crown and maximum 3:1 slope; 38 feet in width
 - Planting Requirements: 1 large deciduous, 1 evergreen tree and 4 shrubs for every 15 linear feet, planted in two offset rows
- Land Form Buffer
 - Height: 3-foot berm with a 2-foot crown and maximum 3:1 slope; 20 feet in width
 - Planting Requirements: 1 large deciduous, 1 evergreen tree and 8 shrubs for every 30 linear feet
- Buffer Strip and Obscuring Fence
 - 1 large deciduous or evergreen tree and 4 shrubs for every 15 linear feet; 20 feet in width
 - 6-foot-tall fence

- **Screen Wall**
 - Height: 6 feet
 - Width: 8 inches of brick, or decorative concrete
 - Planting Requirements: 5-foot greenbelt (1 large deciduous or evergreen tree and 8 shrubs for every 30 linear feet) adjacent to screen wall for its entire length

The parking lot is located 11 feet from the adjacent R1-A and RM-1 zoning districts, with no screening as previously described proposed; therefore, a waiver for the rear screening is required.

Trash Receptacle Screening

The zoning ordinance requires dumpsters to be surrounded by a six-foot-tall wall on three sides and an obscuring wood gate on a steel frame on the fourth side, located on a six-inch concrete pad extending 10 feet in front of the gate, with six-inch concrete-filled steel bollards to protect the rear wall and gates. **As proposed, the pad does not satisfy zoning ordinance standards. The depth of the pad shall be clarified on the Sheet C600. A six-foot concrete apron is proposed; therefore, a four-foot waiver is requested.** (Comment partially addressed. The plans were revised to extend the concrete apron to 10 feet as required. The depth of the pad shall be indicated on the trash enclosure detail). The proposed enclosure is located west of the building. A six-foot-tall block (8-inch) wall is proposed around three sides of the dumpster enclosure, with a steel backed wood gate on the northeast side of the structure. The zoning ordinance states dumpsters and trash storage enclosures shall be constructed of the same decorative masonry materials as the buildings to which they are accessory. Brickform concrete (simulated brick pattern) or stained, decorative CMU block are not permitted where the principal building contains masonry. Plain CMU block is also prohibited. **As a condition of site plan approval, the dumpster enclosure shall match the same brick veneer as the facade of the building with a steel backed wood gate painted a complementary color to the brick veneer. The trash enclosure detail on Sheet C600 of the site plan shall be revised to show a brick face on the outside walls of the enclosure and indicate the color of the gate.** (Comment addressed. The facade of the dumpster enclosure was revised to match the building facade (brick veneer).

Parking

The zoning ordinance requires convalescent homes and nursing homes to provide one parking space per each four beds plus one parking space per employee (working on the largest shift). For the independent living units (apartments), the applicant utilized the Housing for the elderly use category in the zoning ordinance, which requires one parking space per unit plus one parking space per employee (working on the largest shift). **If units revert to general occupancy, then two parking spaces per unit shall be provided.** (Comment remains as a notation). The following table describes the submitted parking data:

Parking Data			
Use	Requirements	Parking Required	Parking Provided
Nursing Home	1 space/4 beds + 1 space/employ. 30 44 beds/4 + 10 employ.	18 21 spaces	53 56 spaces
Independent Living	1 space/unit + 1 space/employ. 30 units + 5 employ.	35 spaces	
Barrier Free	51-75 spaces	3 spaces	6 spaces
Total		53 56 spaces	53 56 spaces

As there would be 44 beds among the assisted living and memory care units, 21 parking spaces are required to serve these units (11 parking spaces plus 10 parking spaces for employees). Therefore, **56 total parking spaces are required. A waiver of three parking spaces is required. Additionally, the applicant shall verify the employee information provided with the parking data represents the number of employees working on the largest shift. (Comment addressed. 56 total parking spaces are now provided. The response letter provided to the first review indicates the applicant’s engineer verified the number of employees (10 during largest shift) with the owner).**

The zoning ordinance requires each individual parking space be delineated by dual stripes, two feet apart centered on the dividing lines and painted white. The site plan shall be revised accordingly to indicate the required striping. A “Van Accessible” sign detail for the barrier-free parking shall also be provided on Sheet C600 of the site plan. (Comment addressed. Paint striping was revised to dual striping as required, and the ‘Van Accessible’ sign detail is now shown on Sheet C600).

Off-Street Loading Requirements

The zoning ordinance requires three loading spaces for a development of this size. Such loading and unloading space must be an area 10 feet by 50 feet, with a 15-foot height clearance. The proposed loading area is located at the east side of the building and 10 feet by 50 feet; **however, the proposed loading area is located in a fire lane. The loading area shall not block a fire lane and must be relocated, subject to the approval of the Township Fire Marshal. Additionally, a waiver is requested to eliminate two of the three required loading spaces. (Comment partially addressed. The response letter provided to the first review indicates most deliveries to the site would be made by small vehicles which would park in one of the available parking spaces. Larger delivery vehicles (once or twice per week) would utilize a loading area, which has been relocated outside of the fire lane, on the west side of the site. The applicant requested a waiver to eliminate two of the three required loading spaces).**

Signs

The zoning ordinance requires the area, quantity, location, and dimensions of all signs to be provided with the preliminary site plan. The site plan shows the location of a monument sign setback 10 feet from the right-of-way line. **While signage details were not provided, staff can administratively review and approve the sign design. The monument sign would be required to comply with residential district sign regulations, including: one monument sign not more than 30 square feet in area and six feet in height.** (Comment addressed. The response letter provided to the first review indicates the monument sign permit would be obtained separately. Additionally, the letter indicates the applicant understands the sign would be subject to administrative approval and must comply with residential district sign regulations).

Lighting

Proposed site lighting is required to comply with the zoning ordinance. Information on site lighting was provided and will be reviewed in detail during final site plan review. Following are initial comments on the lighting (photometric) plan:

- Outdoor lights must meet the performance standards of Article 5, Section 18.G of the zoning ordinance.
- Footcandles shall be measured at approximately six feet above grade. **Revise accordingly, and the plan must contain a note confirming footcandles are measured at six feet above grade.** (Comment addressed. A note has been added to Sheet C401 indicating footcandles have been calculated at approximately six feet above grade).
- **Complete catalog details (lighting fixture specification sheets) for all proposed fixtures shall be provided.** (Comment addressed. However, the proposed Lightway wall-mounted fixture is not permissible. The zoning ordinance states floodlights, wall pack units, and other types of unshielded lights, and lights where the lens or bulb is visible outside of the light fixture are not permitted. The intent is wall-mounted decorative or architectural lighting must be fully shielded and directed downward – up-lighting or outward shining lighting are not permitted. The conceptual exterior elevations and photometric plan shall be revised to eliminate the Lightway fixtures).
- No wall-mounted decorative or architectural lighting is proposed on the building. **(Wall-mounted lighting is now proposed).**
- Parking lot luminaries shall not exceed 16 feet in height within 25 feet of a lot line. **The two northern luminaries are within 25 feet of the lot line and shall be relocated, or a waiver requested.** (Comment addressed. Per the revised plans, the two aforementioned luminaries would not exceed 16 feet in height).

- **The light pole detail indicating height is inconsistent with the height labeled on the plan. Revise accordingly to provide the total height, including the base, pole, and light fixture.** (Comment addressed. The light pole details correlate with the proposed heights labeled on the plan).
- **A separate light pole detail, drawn to scale, shall be provided for Luminaire “A” and Luminaire “B.”** The provided light pole detail may represent the type “B” luminaire. (Comment addressed. Separate light pole details were provided for Luminaire ‘A’ and Luminaire ‘B’).
- **The light pole detail does not represent the fixture depicted on the provided partial catalog detail. For reference, the fixture is the assembly holding a lamp (bulb). Revise accordingly.** (Comment addressed. Fixtures on the light pole detail are consistent with the lighting fixture specification sheets).
- **The Luminaire Schedule shall be revised; both luminaries are labeled “A” and the plan shows a type “B” luminaire.** (Comment addressed. The Luminaire Schedule was revised accordingly).
- The Planning Commission may require special conditions for properties adjacent to residential uses and districts.

Planning Commission Options / Recommendation

The Planning Commission may recommend approval or denial of the rezoning request, or it may recommend a different zoning designation than proposed by the applicant to the Township Board. The Planning Commission may recommend approval, approval with conditions, or denial of the preliminary site plan to the Township Board. **Staff recommends approval of the rezoning, and approval of the preliminary site plan subject to the items identified in this memorandum being addressed prior to final site plan.**

The following notations summarize the preliminary site plan review:

- Recommendation of approval is in accordance with the plans prepared by Griggs Quaderer Inc. (revision date ~~October 28~~ **December 13**, 2021), subject to revisions as required. The utility, grading, and storm drainage plans for the site are subject to the approval of the Township Engineering Consultant and shall be completed in accordance with the Township Engineering Design Standards.
- Recommendation of approval is in accordance with the exterior elevations and floor plan prepared by John K. Costa, AIA dated June 1, 2021 (revision date **December 8**, 2021), subject to revisions as required.

Attachment:

1. **Comfort Care rezoning traffic study – review #3 dated December 27, 2021.**

Rik Kowall, Supervisor
Anthony L. Noble, Clerk
Mike Roman, Treasurer



Trustees
Scott Ruggles
Liz Fessler Smith
Andrea C. Voorheis
Michael Powell

WHITE LAKE TOWNSHIP

7525 Highland Road • White Lake, Michigan 48383-2900 • (248) 698-3300 • www.whitelaketwp.com

December 27, 2021

Union Lake Road LLC
4180 Tittabawassee Road
Saginaw, MI 48604

ATTN: Douglas Boehm

**RE: Comfort Care
Rezoning Traffic Study – Review #3**

Dear Mr. Boehm:

Staff has reviewed the revised rezoning traffic study (RTS) prepared by Beaubien Engineering dated December 13, 2021. Contrary to a statement in the RTS expressing otherwise, the study continues to lack information and is unacceptable to the Township. As previously indicated, only anticipated trips to the site were provided, with no actual evaluation of existing conditions or conditions with the proposed improvements. Article 6, Section 3.D of the zoning ordinance outlines the requirements for a RTS, which includes:

- Describe Requested Rezoning / Proposed Use(s)
 - When rezoning is requested, the study shall identify a range of feasible permitted uses under existing zoning as well as a range of feasible permitted uses under the proposed new zoning; justify the use sizes assumed within each range; and ensure the sized uses represent a reasonably robust range of potential trip generation. When a site plan is proposed, the study shall include (where feasible) the conceptual site plan assumed as the basis for the study, along with the anticipated phasing and build-out year(s) for the development.
- Describe Site, Surroundings, and Study Area
 - At a minimum, existing abutting land use(s) and roadway conditions shall be described. Special attention should be paid to features potentially affecting the required provision of safe and efficient site access, such as road alignment and sight distance limitations; speed limits; surface type; lane configuration and traffic control devices; existing or approved intersections and driveways within 300 feet of the proposed site access points (on both sides of abutting road(s)); and compliance or non-compliance with established access-management standards.
- Obtain and Evaluate Current Traffic Data: Daily Traffic Volumes (latest available); Hourly Traffic Volumes (generally low counts); Other Data if Indicated in Letter to Applicant
 - The Preparer shall obtain the latest available daily traffic counts for area roads, and determine (where possible) the proportion of traffic within the AM and PM peak hours (the K-factor).

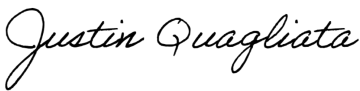
- Describe Anticipated Future Changes to Area Land Uses and Roads
 - All traffic studies shall document pending changes, other than the proposed site development, that might influence future traffic conditions. These changes should include, but not necessarily be limited to,
 - a. other developments that could increase traffic at the selected offsite intersections by 5% or more, and
 - b. planned road improvements in the study area, with those actually approved and funded clearly distinguished from other improvements merely discussed or recommended.
- Forecast Driveway Trip Generation in Manner Recommended by Institute of Transportation Engineers
 - Forecasts of driveway trip generation must be based on data and methodology found in the latest editions of the following two ITE publications: Trip Generation (rate data) and Trip Generation Handbook – An ITE Recommended Practice (methodology and pass-by percentages; hereafter referred to as the Handbook). The Handbook’s recommended procedure for choosing between Trip Generation’s average rates and regression equations should be followed, with the exception no regression with a correlation coefficient (R^2) of less than 0.75 shall be used, regardless of sample size. The Preparer should contact the Director of the Community Development Department if questions arise regarding the best forecasting method or what to do when ITE data appear unsuitable. Regardless of which statistical approach is taken (average rates or equations), it is critical that
 - a. the size of the development under analysis be within the range of ITE’s sample data (especially important when the illustrated regression equation is non-linear);
 - b. the line representing the weighted average rate or regression equation lie within the cluster of data points near the size of the development site; and
 - c. a regression equation with a nonzero intercept not be applied for small developments (to avoid illogical results).
- Discount Driveway Trips as Appropriate
 - For some land uses, such as those involving shopping or dining, it may be appropriate to reduce
 - a. the above-predicted number of trips at site access points, due to transit usage or so-called “internal or downtown capture” (i.e., walking trips), or
 - b. the number of new driveway trips assumed to pass through off-site intersections, due to “pass-by or diverted” traffic (drivers already using area roads en route to primary destinations elsewhere). Driveway trips less pass-by and diverted trips are known as “new” or “primary” trips. To be conservative, the pass-by percentages recommended in Evaluating Traffic Impact Studies – A Recommended Practice for Michigan Communities (ETIS, sponsored by MDOT, et al.) should be used as applicable; in no cases shall percentages larger than the averages found in the Handbook be used.

- Forecast and Compare Trip Generation by Uses Permitted within Existing and Proposed Zoning Districts
 - Where site development under existing zoning could involve more than a single density or development size, at least two uses representing a range of potential trip generation must be identified and evaluated. For the proposed new zoning, at least one assumed development must be forecasted to generate a quantity of trips near the higher end of what might be generated by all feasible uses permitted under that new zoning (the use envisioned by the rezoning Applicant may or may not meet this requirement). The report must explain in some detail the planning and traffic engineering basis of the assumed development scenarios. The trip generation comparison must address the total number of driveway trips generated by the site, and if applicable, the number of new (or primary) trips passing through all offsite intersections (if less than total driveway trips).

Based on the items identified in this letter, the RTS shall be revised and resubmitted. Please be advised your applications for rezoning and preliminary site plan may be tabled by the Planning Commission if an acceptable RTS is not submitted and reviewed prior to the January 20, 2022 public hearing.

If you have any questions regarding this matter, please contact me at (248) 698-3300 ext. 177 or by email at justinq@whitelaketwp.com.

Sincerely,



Justin Quagliata
Staff Planner

cc: Sean O'Neil, AICP, Community Development Director
Hannah Micallef, Community Development
Michael Leuffgen, DLZ
Victoria Loemker, DLZ
Leigh Merrill, DLZ

Memo

To: Sean O'Neil, Planning

From: Jeanine A Smith

Date: December 17, 2021

Re: Project Name: Comfort Care
Assisted Living

File No:

Parcel Number: 12-36-176-002

Comments: No comment

COMFORT CARE

NEW ASSISTED LIVING & MEMORY CARE

SITE PLAN APPROVAL PACKAGE

PROPERTY DESCRIPTION (MEASURED): (PARCEL ID# 12-36-176-002)

PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE EAST 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 00 SECONDS EAST 280.00 FEET AND NORTH 68 DEGREES 00 MINUTES 00 SECONDS EAST 270.00 FEET AND NORTH 46 DEGREES 30 MINUTES 00 SECONDS EAST 310.00 FEET FROM THE WEST 1/4 CORNER OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST; SAID POINT OF BEGINNING ALSO BEING THE SOUTHEAST CORNER OF THE "PRESERVE AT HIDDEN LAKE" CONDOMINIUM AS RECORDED AT THE OAKLAND COUNTY REGISTER OF DEEDS;

THENCE FROM SAID POINT OF BEGINNING AND ALONG THE SOUTH EAST LINE OF SAID CONDOMINIUM, NORTH 14 DEGREES 38 MINUTES 35 SECONDS EAST 445.59 FEET TO A POINT OF THE CENTERLINE OF UNION LAKE ROAD; THENCE ALONG SAID CENTERLINE ON A CURVE TO THE RIGHT WITH RADIUS 2,852.97 FEET, A CENTRAL ANGLE OF 02 DEGREES 53 MINUTES 04 SECONDS AND WHOLE CHORD BEARS SOUTH 38 DEGREES 57 MINUTES 59 SECONDS EAST A DISTANCE OF 143.61 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 37 DEGREES 31 MINUTES 27 SECONDS EAST, 170.04 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 58 MINUTES 19 SECONDS EAST, 473.41 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 31 MINUTES 19 SECONDS EAST, 395.43 FEET; THENCE SOUTH 52 DEGREES 47 MINUTES 19 SECONDS WEST, 347.60 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST, 340.64 FEET; THENCE SOUTH 89 DEGREES 54 MINUTES 33 SECONDS EAST, 4.87 FEET; THENCE NORTH 37 DEGREES 41 MINUTES 37 SECONDS WEST, 559.50 FEET TO SAID POINT OF BEGINNING; SAID PARCEL CONTAINS 8.37 GROSS ACRES OF LAND.

UNION LAKE ROAD
WHITE LAKE TWP., MI 48439

PART OF THE NORTHWEST 1/4 OF SECTION 36
TOWNSHIP 3 NORTH, RANGE 8 EAST
WHITE LAKE TOWNSHIP, COUNTY OF OAKLAND, STATE OF MICHIGAN

DRAWING INDEX:

●	01-12-2022	C000 — COVER SHEET
○	01-12-2022	C100 — BOUNDARY & TOPOGRAPHIC SURVEY
○		C101 — SITE REMOVAL PLAN
○	01-12-2022	C200 — SITE LAYOUT PLAN
○	01-12-2022	C300 — SITE GRADING PLAN
○	01-12-2022	C301 — SOIL EROSION CONTROL PLAN
○	01-12-2022	C302 — DRAINAGE AREA MAP & STORM CALCULATIONS
○	01-12-2022	C400 — SITE UTILITY PLAN
○	01-12-2022	C401 — SITE PHOTOMETRIC PLAN
○	01-12-2022	C500 — SITE LANDSCAPE PLAN
○	01-12-2022	C501 — SITE LANDSCAPE PLAN (NORTH DETAIL)
○	01-12-2022	C502 — SITE LANDSCAPE PLAN (SOUTH DETAIL)
○	01-12-2022	C600 — SITE DETAILS
○	01-12-2022	A1 — FLOOR PLAN
○	01-12-2022	A2 — EXTERIOR ELEVATIONS
○	-	— SANITARY SEWER DETAILS (WHITE LAKE TWP.)
○	-	— WATER MAIN DETAILS (WHITE LAKE TWP.)
○	-	— STORM SEWER DETAILS (WHITE LAKE TWP.)
○	-	— WRC SOIL EROSION CONTROL DETAILS

DATE
MOST RECENT ISSUE / REVISION DATE
FILLED CIRCLE INDICATES SUBMITTED DRAWING

OWNER: DOUG BOEHM
COMFORT CARE
4180 TITTABAWASSEE ROAD
SACINAW, MI 48604
PH: (248) 930-7875
EMAIL: DOUG@COMFORTCARES.COM

ARCHITECT: JOHN COSTA, AIA
ARCHITECTURAL DESIGN & CONSULTATION, PLLC
417 OLMILL DRIVE
FLUSHING, MI 48433
PHONE: (810) 659-5275
EMAIL: JNL.COSTA@SBCGLOBAL.NET

ENGINEER: RUDY QUADERER, PE
GRIGGS QUADERER, INC.
8308 OFFICE PARK DR.
GRAND BLANC, MI 48439
PH: (810) 695-0154
EMAIL: RQUADERER@GQINCORP.COM

STANDARD LEGEND	
DESCRIPTION	EXISTING
BUILDING	—
STORM SEWER	— S —
SANITARY SEWER	— S —
WATER	— W —
GAS LINE	— G —
ELECTRIC LINE	— E —
TELEPHONE LINE	— T —
MANHOLE	○
CATCH BASIN	⊗
FIRE HYDRANT	△
VALVE	•
UTILITY POLE W/GUY WIRE	⊕
UTILITY RISER	⊞
LIGHT POLE	*
SIGN	△
CURB & GUTTER	—
FENCE	— x —
GUARD RAIL	—
INVERT ELEVATION	IE 6" 750.00
CONTOUR	--- 750 ---
SPOT ELEVATION	
ASPHALT SURFACE	ASPH.
CONCRETE SURFACE	CONC.
GRAVEL SURFACE	GRAV.
TREE LINE	—
TREE	+

GENERAL NOTES:

- STANDARD SPECIFICATIONS:** ALL MATERIALS AND CONSTRUCTION METHODS FOR THIS PROJECT SHALL CONFORM WITH THE REQUIREMENTS OF ALL GOVERNING AGENCIES HAVING JURISDICTION (LOCAL, COUNTY, STATE). UNLESS OTHERWISE NOTED, CONSTRUCTION MATERIALS SHALL COMPLY WITH THE LATEST EDITION OF THE STATE OF MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND PROJECT SPECIFICATIONS. IN CASE OF DISCREPANCIES BETWEEN REQUIREMENTS, THE MOST STRINGENT SHALL APPLY.
- EXISTING BACKGROUND INFORMATION:** THE EXISTING FEATURES SHOWN ON THESE DOCUMENTS ARE FROM AN ACTUAL TOPOGRAPHIC SURVEY PERFORMED BY GRIGGS QUADERER, INC. IN JUNE OF 2021. THE UNDERGROUND UTILITIES SHOWN WERE EITHER VERIFIED BY THIS SURVEY OR WERE OBTAINED FROM THE BEST AVAILABLE DOCUMENT INFORMATION. NO GUARANTEES ARE GIVEN TO THE ACCURACY OF ALL UTILITY INFORMATION SHOWN OR THAT ALL UTILITIES ARE INDICATED ON THIS DOCUMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND ELEVATIONS BEFORE COMMENCING WORK AND TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- MISS DIG UTILITY PROTECTION SERVICES:** THE CONTRACTOR SHALL CONTACT MISS DIG UTILITY SERVICES (811) THREE (3) WORKING DAYS PRIOR TO BEGIN OF CONSTRUCTION TO VERIFY LOCATIONS OF UTILITIES. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ANY UTILITY DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH THE IDENTICAL MATERIAL IN ACCORDANCE WITH THE UTILITY OWNERS REQUIREMENTS. THE CONTRACTOR SHALL VERIFY THE DEPTH AND HORIZONTAL LOCATION OF ALL EXISTING UTILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
- SUBSURFACE SOIL CONDITIONS:** A SOIL INVESTIGATION FOR THIS SITE IS AVAILABLE FOR REVIEW. THE CONTRACTOR IS RESPONSIBLE TO ACQUAINT HIMSELF WITH CURRENT SOIL AND GROUNDWATER CONDITIONS FOR HIS OWN INFORMATION PRIOR TO BIDDING. NO MODIFICATIONS TO UNIT PRICES OR FINAL BID WILL BE MADE DUE TO VARIABLE SUBSURFACE CONDITIONS. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR, WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION COST OF UTILITIES OR STRUCTURES.
- PERMITS:** THE CONTRACTOR IS RESPONSIBLE FOR SECURING ALL PERMITS REQUIRED TO PERFORM ALL WORK SHOWN ON THESE DOCUMENTS. THE CONTRACTOR SHALL PAY FOR AND OBTAIN ALL PERMITS REQUIRED BY FEDERAL, STATE, LOCAL OR PRIVATE AGENCIES INCLUDING REQUIRED BONDS. COSTS INSPECTION AND TESTING SERVICES SHALL BE PAID FOR BY THE CONTRACTOR.
- SOIL EROSION CONTROL:** CONTRACTOR SHALL OBTAIN SOIL EROSION CONTROL PERMIT PRIOR TO BEGIN OF CONSTRUCTION. THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF ACT 451, PART 91 FOR SOIL EROSION & SEDIMENTATION CONTROL, AND WILL BE RESPONSIBLE FOR ALL MAINTENANCE UNTIL THE FINAL ACCEPTANCE OF THE PROJECT. CONTRACTOR SHALL PROTECT ALL EXISTING AND PROPOSED STORM WATER FACILITIES ON SITE DURING CONSTRUCTION.
- MICHIGAN SAFETY REQUIREMENTS:** ALL WORK CONSTRUCTION METHODS AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE STATE AND FEDERAL SAFETY, OCCUPATIONAL, HEALTH AND ENVIRONMENTAL REGULATIONS AS WELL AS NFPA AND ANSI CODES AS APPLICABLE.
- PRE-CONSTRUCTION MEETING:** CONTRACTOR SHALL ATTEND PRE-CONSTRUCTION MEETING FOR COORDINATION WITH MUNICIPALITY, AGENCIES AND UTILITY COMPANIES. ITEMS FOR DISCUSSION WILL INCLUDE SCHEDULE, INSPECTION SERVICES, TESTING OF PUBLIC UTILITIES AND FINAL AS-BUILT DOCUMENTS.
- CONSTRUCTION INSPECTIONS & FINAL TESTING:** CONTRACTOR IS RESPONSIBLE TO NOTIFY ALL INSPECTION AGENCIES THREE (3) WORKING DAYS PRIOR TO START OF CONSTRUCTION AND ARRANGE FOR ON-SITE INSPECTION. PUBLIC UTILITIES SHALL BE TESTED PER LOCAL AND COUNTY AGENCY REQUIREMENTS WITH INSPECTORS FROM BOTH AGENCIES PRESENT. THE CONTRACTOR SHALL NOT CONNECT TO THE EXISTING PUBLIC UTILITY UNTIL THE NEW UTILITY IS TESTED AND APPROVED BY THE AGENCIES.

BENCHMARKS (NAVD88 DATUM):

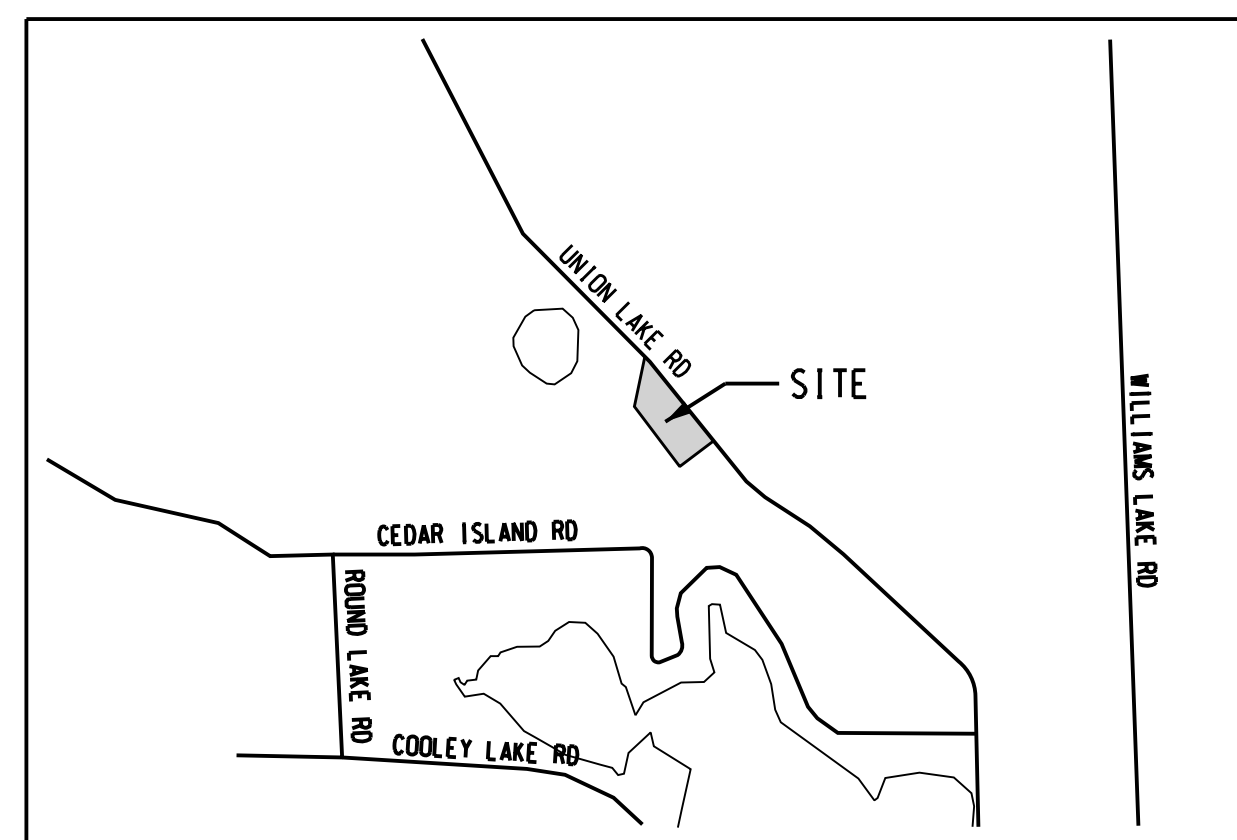
- BM #1 TOP ARROW ON FIRE HYDRANT LOCATED APPROXIMATELY 5' EAST OF SAWGRASS LANE, 230' SOUTH OF HOUSE #8605 SAWGRASS LN AND 380' WEST OF UNION LAKE ROAD. ELEVATION = 964.69
- BM #2 TOP ARROW ON FLANGE OF FIRE HYDRANT LOCATED APPROXIMATELY 75' SOUTH OF CONCORD DRIVE AND 52' EAST OF UNION LAKE ROAD. ELEVATION = 966.21
- BM #3 TOP BENCHMARK MARKER ON WEST FACE OF UTILITY POLE LOCATED APPROXIMATELY 650' SOUTH OF INDEPENDENCE CIRCLE, 34' EAST OF UNION LAKE ROAD AND 107' SOUTH OF FIRE HYDRANT. ELEVATION = 983.51

NPDES STATEMENT:

THE OWNER WILL NEED TO OBTAIN AN NPDES STORM WATER DISCHARGE PERMIT FROM EGLE. TOTAL DISTURBED AREA: 7.84 ACRES

TOPOGRAPHIC SURVEY STATEMENT:

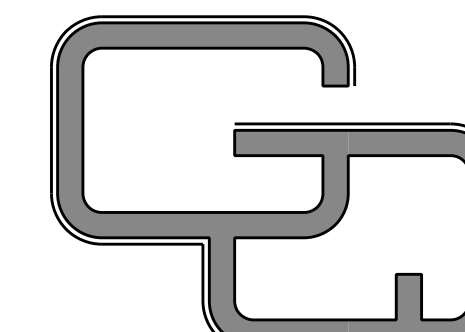
THE EXISTING FEATURES SHOWN ON THIS PLAN ARE FROM AN ACTUAL TOPOGRAPHIC SURVEY PERFORMED BY GRIGGS QUADERER, INC. IN JUNE OF 2021. THE UNDERGROUND UTILITIES SHOWN WERE EITHER VERIFIED BY THIS SURVEY OR WERE PLOTTED IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE. NO EXISTING UTILITIES WERE EXPOSED FOR VERIFICATION OF LOCATION AND ELEVATION. NO GUARANTEES ARE GIVEN THAT THE LOCATIONS ARE ABSOLUTELY ACCURATE OR THAT UTILITIES OTHER THAN THOSE SHOWN ARE NOT PRESENT.



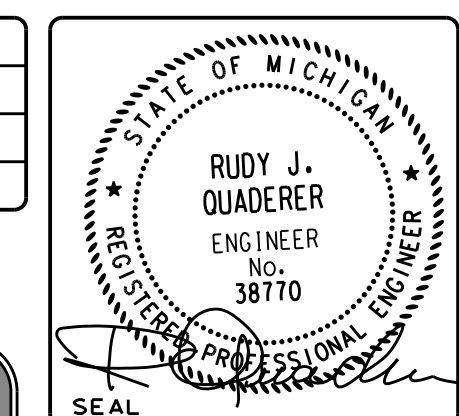
LOCATION MAP
NOT TO SCALE



DRAWN
DESIGNED BRZEZINSKI
CHECKED QUADERER
FIELD WORK



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01-12-22	REISSUED TO WHITE LAKE TWP.
12-13-21	REISSUED WHITE LAKE TWP.
10-28-21	WHITE LAKE TWP. (SITE PLAN)
04-13-21	TOPOGRAPHIC SURVEY

NO.	DATE	SUBJECT

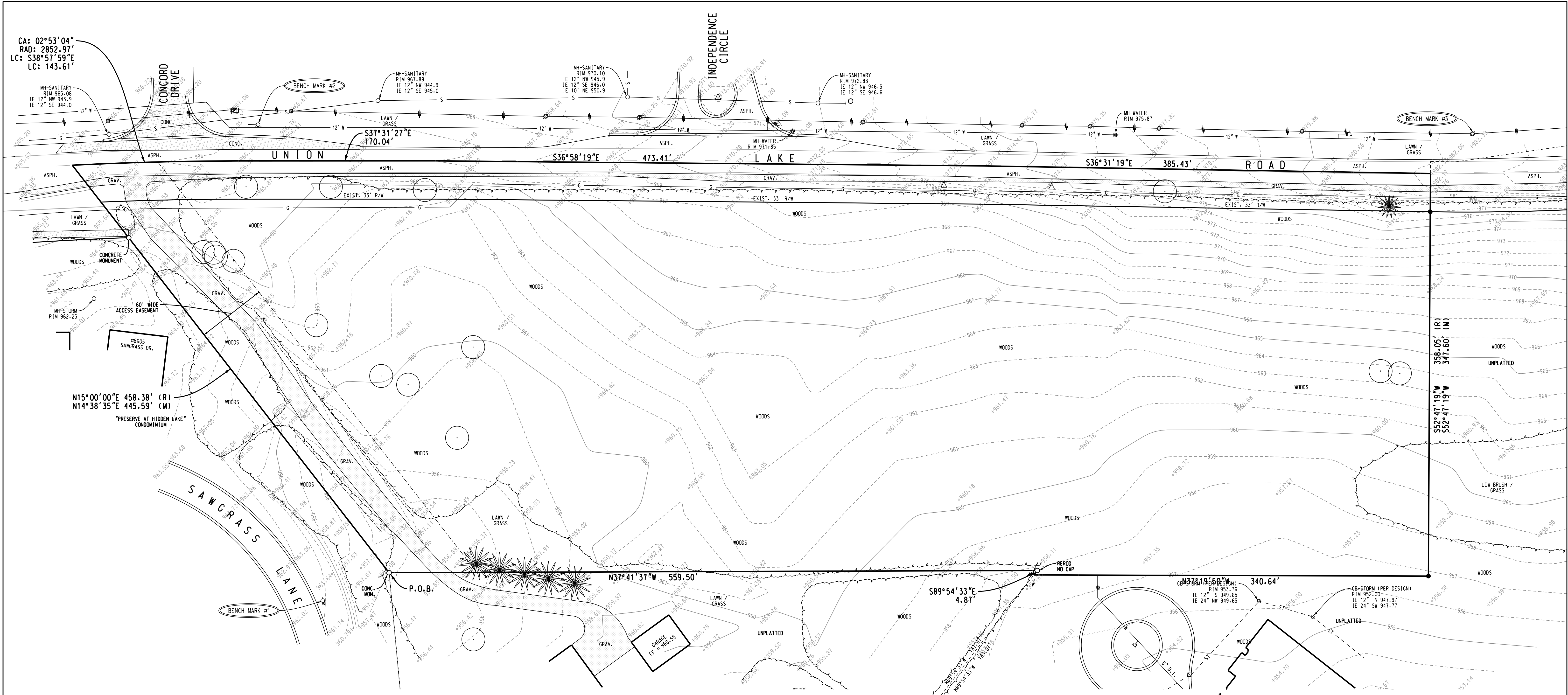
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
COVER SHEET

PROJECT NUMBER	210303	SHEET	C000
PROJECT PHASE	SPA		



CA: 02°53'04"
 RAD: 2852.97'
 LC: S38°57'59"E
 LC: 143.61'

STANDARD LEGEND	
DESCRIPTION	EXISTING
BUILDING	—
STORM SEWER	—
SANITARY SEWER	—
WATER	—
GAS LINE	—
ELECTRIC LINE	—
TELEPHONE LINE	—
MANHOLE	○
CATCH BASIN	□
FIRE HYDRANT	△
VALVE	●
UTILITY POLE W/GUY WIRE	—
UTILITY RISER	□
LIGHT POLE	☆
STON	△
CURB & CUTTER	—
FENCE	—
GUARD RAIL	—
INVERT ELEVATION	1E 6" 750.00
CONTOUR	— 750
SPOT ELEVATION	
ASPHALT SURFACE	ASPH.
CONCRETE SURFACE	CONC.
GRAVEL SURFACE	GRAV.
TREE LINE	—
TREE	—

GENERAL UTILITY NOTE:
 THE UTILITIES AS SHOWN ON THIS DOCUMENT WERE EITHER VERIFIED BY AN ACTUAL FIELD SURVEY OR WERE PLOTTED IN ACCORDANCE WITH THE BEST INFORMATION AVAILABLE. GRIGGS QUADERER MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN INCLUDE ALL POSSIBLE UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHERMORE, GRIGGS QUADERER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH GRIGGS QUADERER DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THE UNDERGROUND UTILITY PIPE SIZES AS SHOWN ON THIS DOCUMENT WERE OBTAINED EITHER BY RECORD PLAN INFORMATION OR BY FIELD MEASUREMENTS. GRIGGS QUADERER CAN NOT GUARANTEE THE ACCURACY OF THE PIPE SIZES OR THEIR LOCATIONS EITHER BY FIELD MEASUREMENT OR BY RECORD DATA AND SHALL NOT BE HELD RESPONSIBLE FOR ANY DISCREPANCIES REGARDING THESE UTILITIES.

BENCHMARKS (NAVD88 DATUM):
 BM #1 TOP ARROW ON FIRE HYDRANT LOCATED APPROXIMATELY 5' EAST OF SAWGRASS LANE, 230' SOUTH OF HOUSE #8605 SAWGRASS LN AND 380' WEST OF @ UNION LAKE ROAD. ELEVATION = 964.69
 BM #2 TOP ARROW ON FLANGE OF FIRE HYDRANT LOCATED APPROXIMATELY 75' SOUTH OF CONCORD DRIVE AND 52' EAST OF @ UNION LAKE ROAD. ELEVATION = 968.21
 BM #3 TOP BENCHMITE MARKER ON WEST FACE OF UTILITY POLE LOCATED APPROXIMATELY 650' SOUTH OF @ INDEPENDENCE CIRCLE, 34' EAST OF @ UNION LAKE ROAD AND 107' SOUTH OF FIRE HYDRANT. ELEVATION = 983.51

PROPERTY DESCRIPTION (RECORDED):
 PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE EAST 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 00 SECONDS EAST 280.00 FEET AND NORTH 68 DEGREES 00 MINUTES 00 SECONDS EAST 270.00 FEET AND NORTH 46 DEGREES 30 MINUTES 00 SECONDS EAST 310.00 FEET FROM THE WEST 1/4 CORNER OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, AND PROCEEDING THENCE NORTH 15 DEGREES 00 MINUTES 00 SECONDS EAST 458.38 FEET; THENCE ALONG A CURVE TO THE RIGHT RADIUS 2,864.93 FEET, CENTRAL ANGLE 03 DEGREES 35 MINUTES 36 SECONDS, AN ARC DISTANCE OF 179.67 FEET, AND WHOSE CHORD BEARS SOUTH 38 DEGREES 46 MINUTES 05 SECONDS EAST A DISTANCE OF 179.64 FEET; THENCE SOUTH 36 DEGREES 58 MINUTES 20 SECONDS EAST 615.98 FEET; THENCE SOUTH 36 DEGREES 31 MINUTES 20 SECONDS EAST 385.35 FEET, (THE LAST THREE COURSES BEING ALONG THE CENTERLINE OF UNION LAKE ROAD); THENCE SOUTH 52 DEGREES 47 MINUTES 19 SECONDS WEST 358.05 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST 900.00 FEET TO THE POINT OF BEGINNING, CONTAINING 8.6977 ACRES MORE OR LESS.

SAID PARCEL BEING SUBJECT TO THE RIGHTS OF THE PUBLIC FOR UNION LAKE ROAD OVER THE EASTERLY 33.00 FEET THEREOF.

ALSO SAID PARCEL BEING SUBJECT TO EASEMENTS FOR MICHIGAN BELL TELEPHONE COMPANY AS RECORDED IN LIBER 5157, PAGES 872, 873 AND 874, OAKLAND COUNTY RECORDS AND TO ANY OTHER EASEMENTS THAT MAY BE OF RECORD OVER SAID PARCEL.

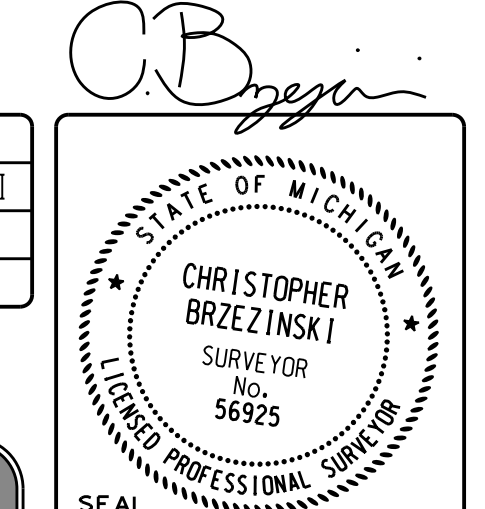
PROPERTY DESCRIPTION (MEASURED):
 PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE EAST 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 00 SECONDS EAST 280.00 FEET AND NORTH 68 DEGREES 00 MINUTES 00 SECONDS EAST 270.00 FEET AND NORTH 46 DEGREES 30 MINUTES 00 SECONDS EAST 310.00 FEET FROM THE WEST 1/4 CORNER OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, SAID POINT OF BEGINNING ALSO BEING THE SOUTHWEST CORNER OF THE "PRESERVE AT HIDDEN LAKE" CONDOMINIUM AS RECORDED AT THE OAKLAND COUNTY REGISTER OF DEEDS;

THENCE FROM SAID POINT OF BEGINNING AND ALONG THE SOUTH EAST LINE OF SAID CONDOMINIUM, NORTH 14 DEGREES 38 MINUTES 35 SECONDS EAST 445.59 FEET TO A POINT OF THE CENTERLINE OF UNION LAKE ROAD; THENCE ALONG SAID CENTERLINE ON A CURVE TO THE RIGHT WITH RADIUS 2,852.97 FEET, A CENTRAL ANGLE OF 02 DEGREES 53 MINUTES 04 SECONDS AND WHOSE CHORD BEARS SOUTH 38 DEGREES 57 MINUTES 59 SECONDS EAST A DISTANCE OF 143.61 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 37 DEGREES 31 MINUTES 27 SECONDS EAST, 170.04 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 58 MINUTES 19 SECONDS EAST, 473.41 FEET; THENCE CONTINUING ALONG SAID CENTERLINE SOUTH 36 DEGREES 31 MINUTES 19 SECONDS EAST, 385.43 FEET; THENCE SOUTH 52 DEGREES 47 MINUTES 19 SECONDS WEST, 347.60 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST, 340.64 FEET; THENCE SOUTH 89 DEGREES 54 MINUTES 33 SECONDS EAST, 4.87 FEET; THENCE NORTH 37 DEGREES 41 MINUTES 37 SECONDS WEST, 559.50 FEET TO SAID POINT OF BEGINNING; SAID PARCEL CONTAINS 8.37 GROSS ACRES OF LAND.



Griggs Quaderer Inc.
 CIVIL ENGINEERING · LAND SURVEYING · SITE PLANNING

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 GRAND BLANC, MI 48439
 PH: (810) 695-0154
 FX: (810) 695-0158
 WWW.GQINCORP.COM



NO.	DATE	SUBJECT
01-12-22		RE ISSUED TO WHITE LAKE TWP.
12-13-21		RE ISSUED WHITE LAKE TWP.
10-28-21		WHITE LAKE TWP. (SITE PLAN)
04-13-21		TOPOGRAPHIC SURVEY

COMFORT CARE

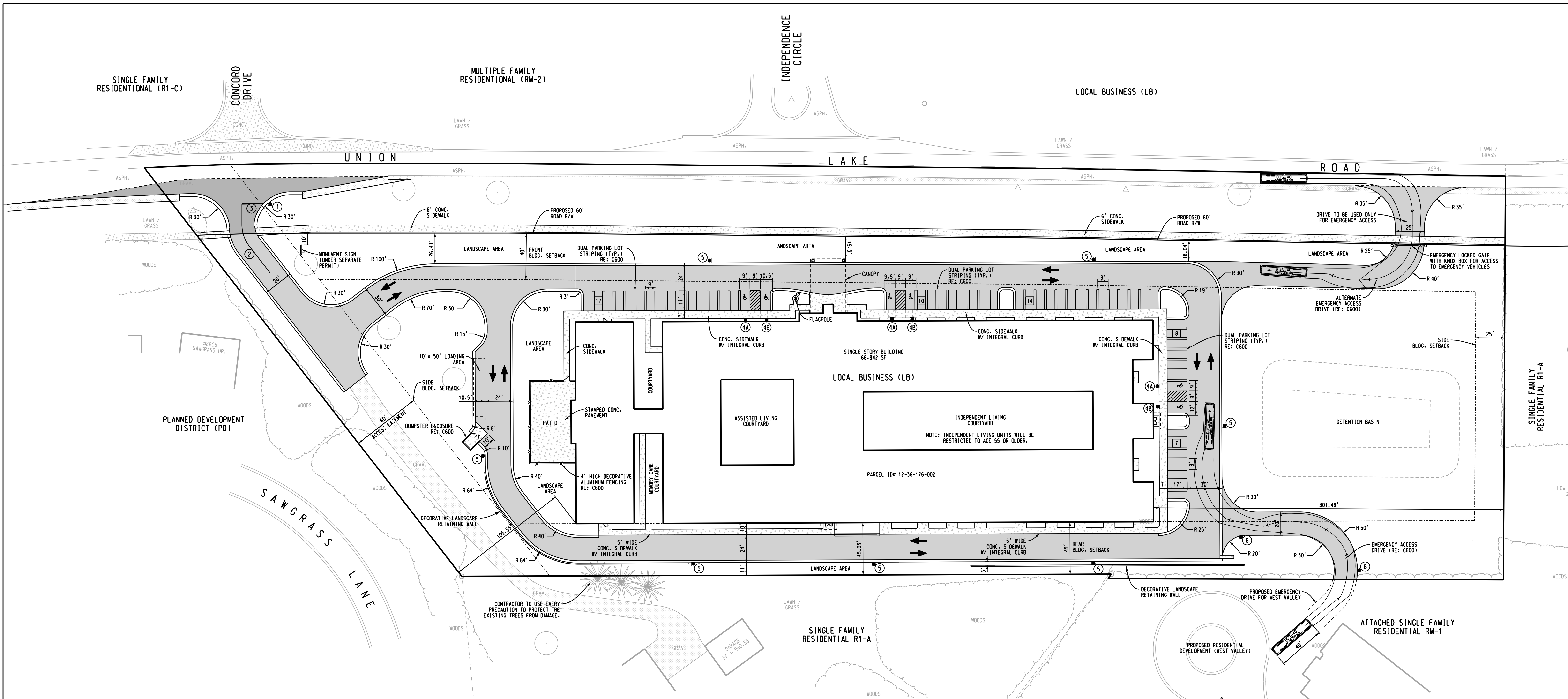
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

UNION LAKE ROAD WHITE LAKE TWP., OAKLAND COUNTY STATE OF MICHIGAN

BOUNDARY AND TOPOGRAPHIC SURVEY

PROJECT NUMBER: 210303
 PROJECT PHASE: SPA

SHEET: C100



PARKING DATA:			
USE	REQUIREMENTS	PARKING REQUIRED	PARKING PROVIDED
NURSING HOME	1 SPACE/4 BEDS + 1 SPACE/EMPLOY. 44 BEDS/4 + 10 EMPLOY. =	21 SPACES	56 SPACES
INDEPENDENT LIVING	1 SPACE/UNIT + 1 SPACE/EMPLOY. 30 UNITS + 5 EMPLOY. =	35 SPACES	
BARRIER FREE	51 - 75 SPACES	3 SPACES	6 SPACES
TOTAL		56 SPACES	56 SPACES

PAVEMENT LEGEND:	
	ASPHALT PAVEMENT SECTION (ON-SITE) RE: C600
	ASPHALT PAVEMENT SECTION (WITHIN ROAD R/W) RE: C600
	CONCRETE PAVEMENT SECTION RE: C600
	EMERGENCY ACCESS ROUTE RE: C600

LAND USE INFORMATION:	
CURRENT ZONING:	LOCAL BUSINESS (LB)
PROPOSED ZONING:	PLANNED DEVELOPMENT DISTRICT (PD) (REZONE APPROVED)
CURRENT USE:	VACANT
PROPOSED USE:	NURSING HOME/INDEPENDENT LIVING
MIN. SITE AREA:	10.0 AC.
ACTUAL SITE AREA:	8.37 AC. GROSS (VARIANCE OBTAINED)
NET SITE AREA:	7.49 AC. 326-268 SF
TOTAL BUILDING AREA:	66,842 SF
LOT COVERAGE BY BLDG.:	20.5%
MAX. BLDG. HEIGHT:	30 FT
PROPOSED BLDG. HEIGHT:	22 FT

YARD SETBACKS:		ART. 4, SECT. 16
BUILDING		
FRONT YARD	40LF	75LF
SIDE YARD	25LF (TOTAL 50LF)	75LF
REAR YARD	TO BE DETERMINED BY PLANN. COMM. (45LF PROVIDED)	75LF

- REQUESTED WAIVERS:**
- BUILDING SETBACK: 19 FOOT FRONT CANOPY SETBACK (56 FEET WAIVER) 45 FOOT REAR BUILDING SETBACK (30 FOOT WAIVER)
 - FRONT GREENBELT VARIES IN DEPTH FROM 26 FEET AT NORTH END TO 18' AT ITS CLOSEST POINT AT THE SOUTHEAST END OF THE PARKING AREA. THE REQUIREMENT IS A MINIMUM 20' GREENBELT. ASKING FOR A 2 FOOT WAIVER.
 - PER CODE, THREE (3) LOADING SPACES REQUIRED. MOST DELIVERIES MADE BY SMALL DELIVERY VEHICLES. LARGER VEHICLES WILL VISIT SITE ONLY ONCE OR TWICE A WEEK. ONE LOADING SPACE PROVIDED. ASKING TO WAIVE THE ADDITIONAL TWO (2) LOADING SPACES.
 - SCREENING ALONG REAR PROPERTY LINE. ASKING TO WAIVE SCREEN WALL ALONG REAR PROPERTY LINE. PROPOSE LANDSCAPE SCREEN ALONG BACK PROPERTY LINE. REFER TO SHEETS C501 & C502 FOR INFORMATION.

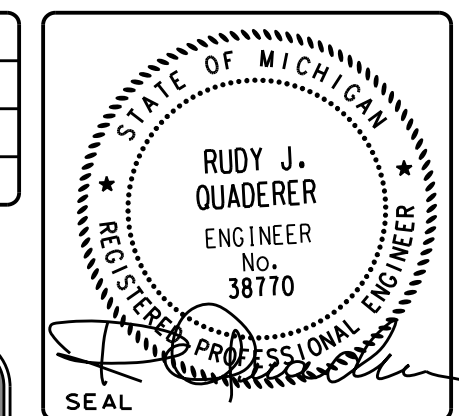
- MARKING / SIGNAGE LEGEND:**
- ① STOP SIGN (R1-1)
 - ② 4" SINGLE SOLID LINE, YELLOW
 - ③ 24" WIDE STOP LINE, WHITE
 - ④ ACCESSIBLE SIGN (R7-8)
 - ⑤ ACCESSIBLE SIGN (R7-8 & R7-8A)
 - ⑥ NO PARKING - FIRE LANE
 - ⑦ STOP EMERGENCY VEHICLES ONLY
- NO PARKING / NO DRIVING AREAS
4" WIDE WHITE PAINT STRIPING
2" ON CENTER @ 45° - REFER TO PAVEMENT MARKING NOTE #2 FOR BARRIER FREE PARKING

- PAVEMENT MARKING & SIGNAGE NOTES:**
- PARKING STALL WIDTH DIMENSIONS ARE TO CENTERLINE OF STRIPING.
 - ALL PAVEMENT MARKINGS SHALL BE 4" WIDE WHITE PAINT STRIPING UNLESS OTHERWISE INDICATED. ALL BARRIER FREE STRIPING SHALL BE COLORED BLUE AND IN ACCORDANCE WITH THE LATEST ADA STANDARDS FOR ACCESSIBLE DESIGN.
 - CONTRACTOR SHALL NOT APPLY TRAFFIC MARKING PAINT ON NEW ASPHALT UNTIL PAVEMENT HAS CURED A MINIMUM OF SEVEN (7) DAYS.
 - PAINT SHALL BE APPLIED WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. APPLY IN TWO COATS AT MANUFACTURER'S RECOMMENDED RATES TO PROVIDE MINIMUM 10.0 TO 15.0 MILS WET THICKNESS.
 - ALL TRAFFIC CONTROL SIGNS SHALL CONFORM WITH ALL REQUIREMENTS AS STIPULATED IN THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - NUMBER OF PARKING SPACES (FOR INFORMATION ONLY)

811 Know what's below. Call before you dig.

SCALE: 1"=40'

DRAWN	
DESIGNED	BRZEZINSKI
CHECKED	QUADERER
FIELD WORK	



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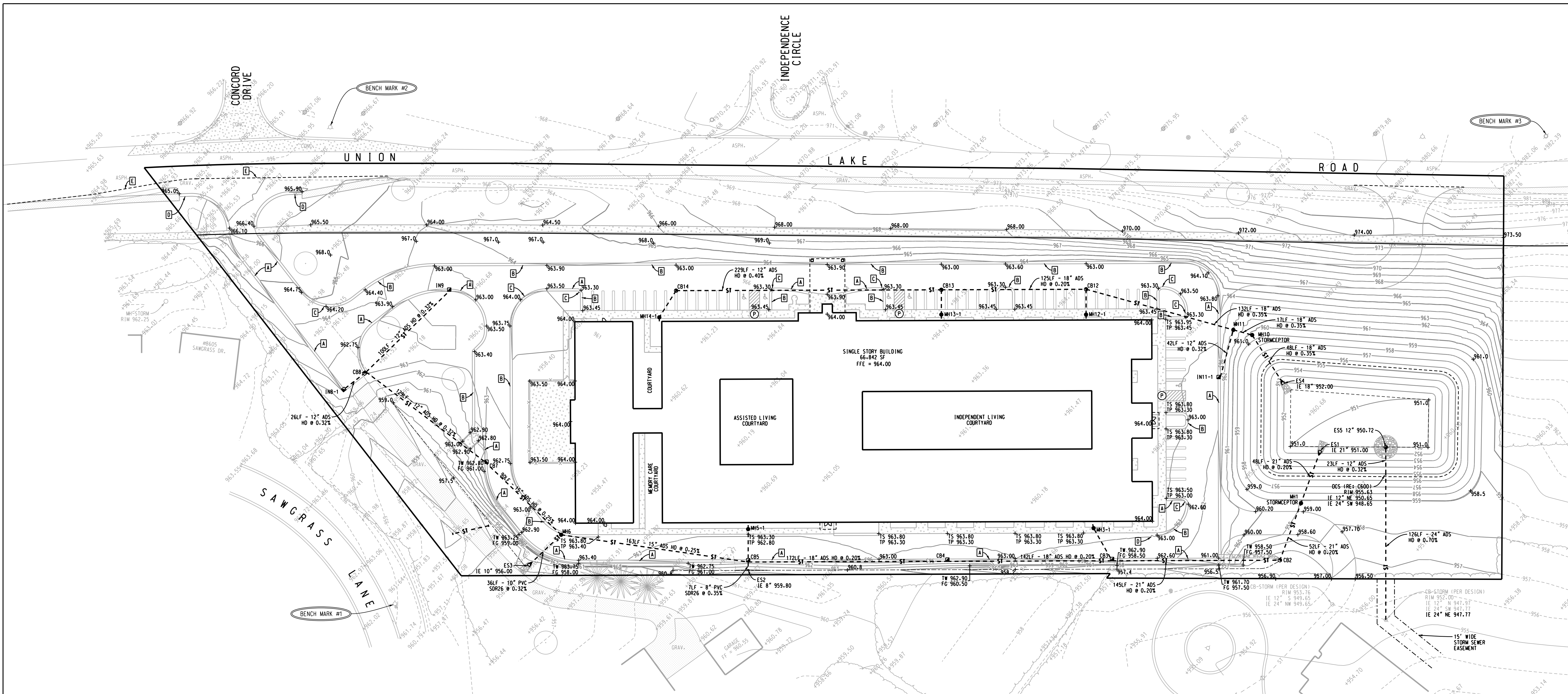
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NO.	DATE	SUBJECT
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NORTHWEST 1/4 SECTION 36 T-3N, R-8E
COMFORT CARE
UNION LAKE ROAD
WHITE LAKE TWP., OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
SITE LAYOUT PLAN

PROJECT NUMBER	210303	SHEET	C200
PROJECT PHASE	SPA		



DRAINAGE STRUCTURE SCHEDULE:

MH1 (STORMCEPTOR) RIM 959.00 IE 21° NE 951.10 IE 21° SW 951.10	MH9 (12" DIA.) RIM 962.50 IE 12° W 958.17
CB2 (14" DIA.) RIM 956.00 IE 21° NE 951.20 IE 21° NW 951.20	MH10 (STORMCEPTOR) RIM 960.00 IE 18° SW 952.17 IE 18° NW 952.17
CB3 (14" DIA.) RIM 962.30 IE 21° SE 951.49 IE 18° NW 951.69 IE 10° NE 958.00	MH11 (14" DIA.) RIM 962.00 IE 18° SE 952.23 IE 18° NW 951.63 IE 12° SW 957.63
MH3-1 (14" DIA.) RIM 963.90 IE 10° S 958.14 IE 10° N 958.14	MH11-1 (12" DIA.) RIM 962.40 IE 12° E 957.76
CB4 (14" DIA.) RIM 962.50 IE 18° SE 951.97 IE 18° NW 951.97	CB12 (14" DIA.) RIM 962.50 IE 18° SE 954.69 IE 18° NW 954.23 IE 10° SW 958.22
CB5 (14" DIA.) RIM 962.00 IE 18° SE 952.31 IE 15° NW 952.51 IE 10° NE 958.00 IE 8° SW 959.78	MH12-1 (14" DIA.) RIM 963.95 IE 10° NE 958.31
MH5-1 (14" DIA.) RIM 963.40 IE 10° SW 958.09	CB13 (14" DIA.) RIM 962.50 IE 18° SE 955.75 IE 12° NW 957.00 IE 10° SW 958.00
MH6 (14" DIA.) RIM 963.25 IE 15° SE 952.89 IE 15° NW 957.00 IE 10° NW 955.88	MH13-1 (14" DIA.) RIM 963.95 IE 10° SE 958.09
CB7 (14" DIA.) RIM 962.50 IE 15° S 957.22 IE 12° NW 957.42	CB14 (14" DIA.) RIM 962.30 IE 12° SE 957.92 IE 10° NW 958.49
CB8 (14" DIA.) RIM 962.50 IE 12° S 957.83 IE 12° W 957.83 IE 12° E 957.83	MH14-1 (14" DIA.) RIM 963.95 IE 10° SE 958.64

STORM SEWER NOTES:

- ALL MATERIALS SHALL COMPLY WITH MOST STANDARD SPECIFICATIONS AND/OR LOCAL GOVERNING AGENCIES.
- STORM SEWER CONVEYANCE: STORM SEWER PIPE 12" AND LARGER SHALL BE ADS HD STORM PIPE AND SHALL MEET OR EXCEED ASTM F2001. ALL JOINTS SHALL BE BELL & SPIGOT AND SHALL CONFORM TO ASTM D3212. STORM SEWER PIPE 10" AND SMALLER SHALL BE PVC SDR 26 OR AS REQUIRED BY LOCAL GOVERNING AGENCY.
- STORM SEWER STRUCTURES: REINFORCED CONCRETE IN CONFORMANCE WITH ASTM C478. DEPTH AS INDICATED ON DOCUMENTS. IF MASONRY STRUCTURES ARE ALLOWED, CONCRETE BLOCKS SHALL BE STANDARD 6" x 8" x 12" CURVED UNITS FOLLOWING ASTM C139, CONCRETE BRICK UNITS SHALL BE 2" x 4" x 8" AND FOLLOW ANSI/ASTM C55. GRADE N° TYPE 1.
- FRAME & COVERS: ALL CATCH BASINS & MANHOLES SHALL BE MANUFACTURED BY EAST JORDAN IRON WORKS (UNLESS ALTERNATE IS APPROVED BY ENGINEER).
 -CATCH BASIN - CURB LINE - EJIW #7045 TYPE M2 GRATE W/ T1 BACK
 -CATCH BASIN - PAVEMENT AREA - EJIW #1130 TYPE O2 BEEHIVE GRATE
 -INLET - GRASS AREA - EJIW #1040 TYPE O2 BEEHIVE GRATE
 -MANHOLE - ALL AREAS - EJIW #1040 TYPE A SOLID COVER
- UNDERDRAIN: 4" PERFORATED, FLEXIBLE HOPE TUBING, COUPLING BAND. PIPE SHALL BE FILTER SOCK WRAPPED AND FITTED WITH END CAPS. PERFORATIONS SHALL BE UNIFORMLY DISTRIBUTED ALONG THE TOP OF THE BOTTOM SECTION IN ACCORDANCE WITH AASHTO M252 PERFORATION REQUIREMENTS.

CURB, GRADING & SIDEWALK RAMP NOTATIONS:

- A STANDARD CURB AND CUTTER
- B STANDARD CURB AND GUTTER WITH REVERSE SLOPE
- C 10 FOOT TRANSITION BETWEEN TYPE A AND TYPE B
- D 5 FOOT CURB END TRANSITION.
- E MATCH EXISTING PAVEMENT OR CURB ELEVATION.
- F TYPE F RAMP; PER MDOT DETAIL R-28-J

GRADING NOTES:

- ALL PROPOSED SPOT ELEVATIONS IN PAVED AREAS ARE TO TOP OF PAVEMENT UNLESS NOTED OTHERWISE.
 TS - TOP OF SIDEWALK
 TP - TOP OF PAVEMENT
 TW - TOP OF WALL
 FG - FINISHED GRADE
- CONTOURS SHOWN ARE FOR REFERENCE ONLY. BASE CONSTRUCTION EFFORTS ON PROPOSED SPOT ELEVATIONS ONLY.
- "BARRIER FREE" PARKING AND SIDEWALK RAMPS SHALL CONFORM IN ALL RESPECTS TO THE MICHIGAN ADA (AMERICANS WITH DISABILITIES ACT) REQUIREMENTS.
- CONTRACTOR SHALL ADJUST ANY UTILITY ELEMENT/STRUCTURE MEANT TO BE FLUSH WITH GRADE (CLEAN OUT, VALVE BODIES, MANHOLES, CATCH BASINS, INLETS, ETC.) WHICH ARE AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT. NO ADDITIONAL COSTS FOR THIS WORK WILL BE ACCEPTED. THE CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS FOR ADJUSTMENT AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR IS RESPONSIBLE FOR CUT AND FILL QUANTITIES. ADDITIONAL COMPENSATION WILL NOT BE ACCEPTED FOR HAULING OF EXCESS AND BORROW MATERIAL TO AND FROM SITE AS WELL AS LABOR COSTS FOR PLACEMENT AND/OR REMOVAL. OFF-SITE BORROW MATERIAL MUST BE CLEAN COMPACTIBLE STRUCTURAL FILL MATERIAL (NO ORGANIC MATERIAL) WHICH WILL BE INSPECTED PRIOR TO USE FOR ON-SITE FILL MATERIAL.
- SITE CONTRACTOR IS RESPONSIBLE TO PROVIDE A STABLE SUBGRADE AT DESIGN ELEVATIONS. ALL PAVED AREAS INCLUDING BUILDING PAD SHALL BE PRODFORULATED & COMPACTED TO MEET 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH ANSI/ASTM D1557.
- CONTRACTOR SHALL STORE SUFFICIENT TOPSOIL MATERIAL ON-SITE FOR RE-USE IN ALL DISTURBED GREEN AREAS AND NEW LANDSCAPE AREAS.
- PROVIDE POSITIVE DRAINAGE AT ALL TIMES TO ENSURE NO STANDING WATER. MAINTAIN A MINIMUM SLOPE OF 1.00% IN ALL NEW BITUMINOUS AREAS.

NORTH

01-12-22	REISSUED TO WHITE LAKE TWP.	
12-13-21	REISSUED WHITE LAKE TWP.	
10-28-21	WHITE LAKE TWP. (SITE PLAN)	
04-13-21	TOPOGRAPHIC SURVEY	
NO.	DATE	SUBJECT
REVISION OR ISSUE		

DRAWN
DESIGNED BRZEZINSKI
CHECKED QUADERER
FIELD WORK

Griggs Quaderer Inc.
CIVIL ENGINEERING · LAND SURVEYING · SITE PLANNING

RUDY J. QUADERER
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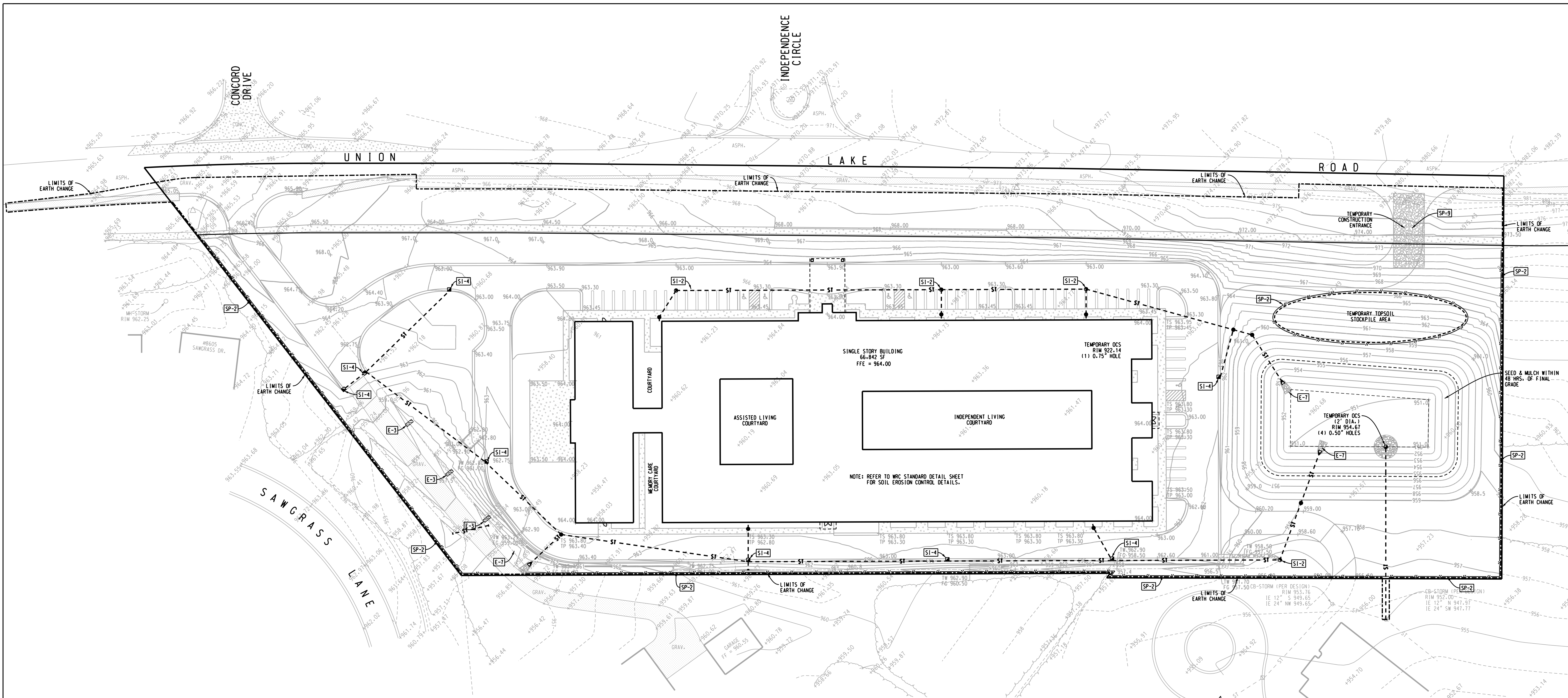
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
SITE GRADING PLAN

PROJECT NUMBER	210303	SHEET	C300
PROJECT PHASE	SPA		



NOTE: REFER TO WRC STANDARD DETAIL SHEET FOR SOIL EROSION CONTROL DETAILS.

CONSTRUCTION SEQUENCE:

1. PROVIDE EROSION CONTROL MEASURES THAT WILL BE USED AS PART OF THIS WORK. INSTALL ADDITIONAL MEASURES AS REQUIRED BY THESE DRAWINGS AND AS FIELD CONDITIONS DICTATE IN ACCORDANCE WITH OAKLAND COUNTY DRAIN COMMISSION STANDARDS AND SPECIFICATIONS.
2. STRIP TOPSOIL AND STOCKPILE AS DIRECTED BY OWNER.
3. PERFORM DEMOLITION WORK AND MASS GRADING.
4. BEGIN CONSTRUCTION OF BUILDING PAD AND FOUNDATION.
5. CONSTRUCT STORM SEWER SYSTEM COMPLETE. IMMEDIATELY INSTALL STONE FILTERS ON ALL CATCH BASINS AND INLETS.
6. INSTALL ALL UTILITIES.
7. INSTALL ALL PAVEMENT AND CURBING.
8. DAILY, OR AS REQUIRED, CONSTRUCT AND MAINTAIN TEMPORARY BERMS, DRAINS, SILT FENCE, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.
9. FINISH GRADE, REDISTRIBUTE AND/OR PROVIDE TOPSOIL AND ESTABLISH VEGETATION ON ALL DISTURBED GROUND AREAS.
10. COMPLETE INSTALLATION OF PERMANENT EROSION CONTROL MEASURES, INCLUDING SEEDING OPERATIONS AND PAVEMENT INSTALLATION.
11. CLEAN PAVEMENT AND STORM SEWERS OF ALL SEDIMENT.
12. REMOVE SOIL EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED AS DIRECTED.
13. INSTALL LANDSCAPING.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL SOIL EROSION CONTROL MEASURES, ADDITIONAL MEASURES SHALL BE CONSTRUCTED AND MAINTENANCE WORK SHALL BE PERFORMED IF REQUESTED BY OAKLAND COUNTY DRAIN COMMISSION.

SESC MAINTENANCE SCHEDULE NOTES:

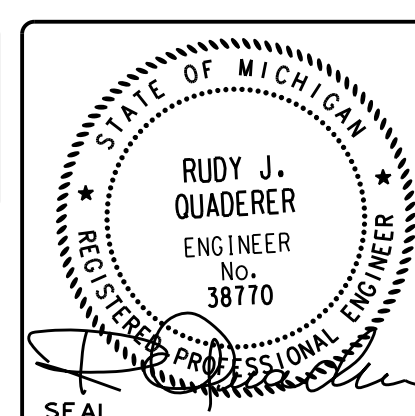
1. THE CONTRACTOR SHALL INSPECT THE SOIL EROSION AND SEDIMENT CONTROL DEVICES ONCE EACH WEEK AND WITHIN TWENTY-FOUR (24) HOURS OF A PRECIPITATION EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. A LOG OF INSPECTION REPORTS SHALL BE MAINTAINED AND ACCESSIBLE IN ACCORDANCE WITH ADOPTED REQUIREMENTS. IMPLEMENT THE FOLLOWING STEPS IF ANY DAMAGE HAS RESULTED FROM CONSTRUCTION OR WEAR.
 2. CONSTRUCTION ACCESS ROADS (CLEAN STONE EXITS) MUST BE MAINTAINED AS NECESSARY. ADD ADDITIONAL STONE WHEN ACCESS ROAD BECOMES INEFFECTIVE DUE TO LOSS OF STONE OR COVERED WITH MUD.
 3. SILTATION CONTROL FENCE SHOULD BE TRENCHED IN, BACKFILLED, AND STAPLED OR STAKED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. MAINTENANCE INCLUDES THE REMOVAL OF BUILD-UP SEDIMENT WHEN THE SEDIMENT ACCUMULATES TO 1/3 OF THE HEIGHT OF THE FENCE. CONTRACTOR MAY HAVE TO REMOVE, REPLACE, RETRENCH, OR RE-BACKFILL THE FENCE IF IT FAILS. IT WOULD ALSO BE NECESSARY TO REINSTALL IF ANY PORTION OF THE FENCING WAS DAMAGED BY CONSTRUCTION MACHINERY.
 4. INSPECT INLET FILTERS FOR BUILD-UP OF SILT AND OTHER DEBRIS. EXCESSIVE BUILD-UP IS EVIDENT IF GEOTEXTILE / STONE STRUCTURE IS CAUSING FLOODING. MAINTENANCE CONSISTS OF REMOVING ALL SEDIMENT WITH A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTER IS BEYOND THIS LEVEL OF REPAIR, IT MAY BE NECESSARY TO REPLACE BOTH THE STONE AND GEOTEXTILE FILTER FABRIC.
 5. PREPARE EROSION CONTROL SEEDING ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR / INSPECTOR SHALL INSPECT THE AREA AFTER SEEDING IS COMPLETED. REPAIR AREAS THAT ARE BARE OR NOT MULCHED PROPERLY BY SPOT SEEDING AND / OR RE-MULCHING.
 6. MAINTAIN DUST CONTROL AT ALL TIMES DURING CONSTRUCTION. SPRINKLING TANK TRUCKS SHALL BE AVAILABLE AT ALL TIMES AND USED ON HALL ROADS, ON-SITE DISTURBED AREAS, OR OTHER PLACES WHERE DUST BECOMES A PROBLEM AS A RESULT OF CONSTRUCTION EFFORTS.
 7. PROMPTLY REMOVE ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THIS SITE.
 8. REMOVE SILT DEPOSITS FROM TEMPORARY SEDIMENT TRAPS WHEN TRAP IS HALF FULL.
- THE SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM BY THE SITE SUPERINTENDENT.

SOIL EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE OAKLAND COUNTY DRAIN COMMISSION REQUIREMENTS AND SPECIFICATIONS.
2. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
3. ANY EROSION OR SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MANMADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
4. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND AS DIRECTED ON THESE PLANS. CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER EARTH CHANGES HAVE BEEN ESTABLISHED.
5. DUST CONTROL WILL BE EXERCISED AT ALL TIMES WITHIN THE PROJECT BY THE CONTRACTOR. SPRINKLING TANK TRUCKS SHALL BE AVAILABLE AT ALL TIMES TO BE USED ON HALL ROUTES OR OTHER PLACES WHERE DUST BECOMES A PROBLEM.
6. ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR NO LESS THAN ON A DAILY BASIS. ALL MUD, DIRT AND DEBRIS TRACKED OR SPILLED ONTO PAVED SURFACES SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
7. SP-2 & SI-4 REFER TO OAKLAND COUNTY STANDARD DETAIL SHEET FOR EROSION CONTROL AND SEDIMENTATION DETAILS.
8. PROVIDE EROSION CONTROL BLANKET FOR SIDE SLOPES 1:3 AND GREATER TO ESTABLISH VEGETATION. USE NORTH AMERICAN GREEN 1550 OR APPROVED EQUAL. (IF APPLICABLE)
9. THIS PROJECT WILL CONTINUOUSLY BE INSPECTED FOR SOIL EROSION AND SEDIMENT CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED BY THE CONTRACTOR WITH 24 HOURS.
10. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE THROUGH SWALES OR OVERLAND SHEET FLOW FOR THE ENTIRE SITE. SEDIMENT SHALL BE REMOVED PRIOR TO DISCHARGE FROM LIMITS OF CONSTRUCTION. NO STANDING WATER SHALL BE PERMITTED ON SITE.
11. ALL GREEN AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED PER MICHIGAN UNIFIED KEY #6 IMMEDIATELY AFTER CONSTRUCTION IS COMPLETED.
12. DISTANCE TO NEAREST LAKE, STREAM POND, OPEN DRAIN, OR WETLAND: REGULATED WETLAND APPROXIMATELY 150 FT NORTHEAST FROM NORTHEAST CORNER OF SITE.

NORTH

DRAWN	
DESIGNED	BRZEZINSKI
CHECKED	QUADERER
FIELD WORK	



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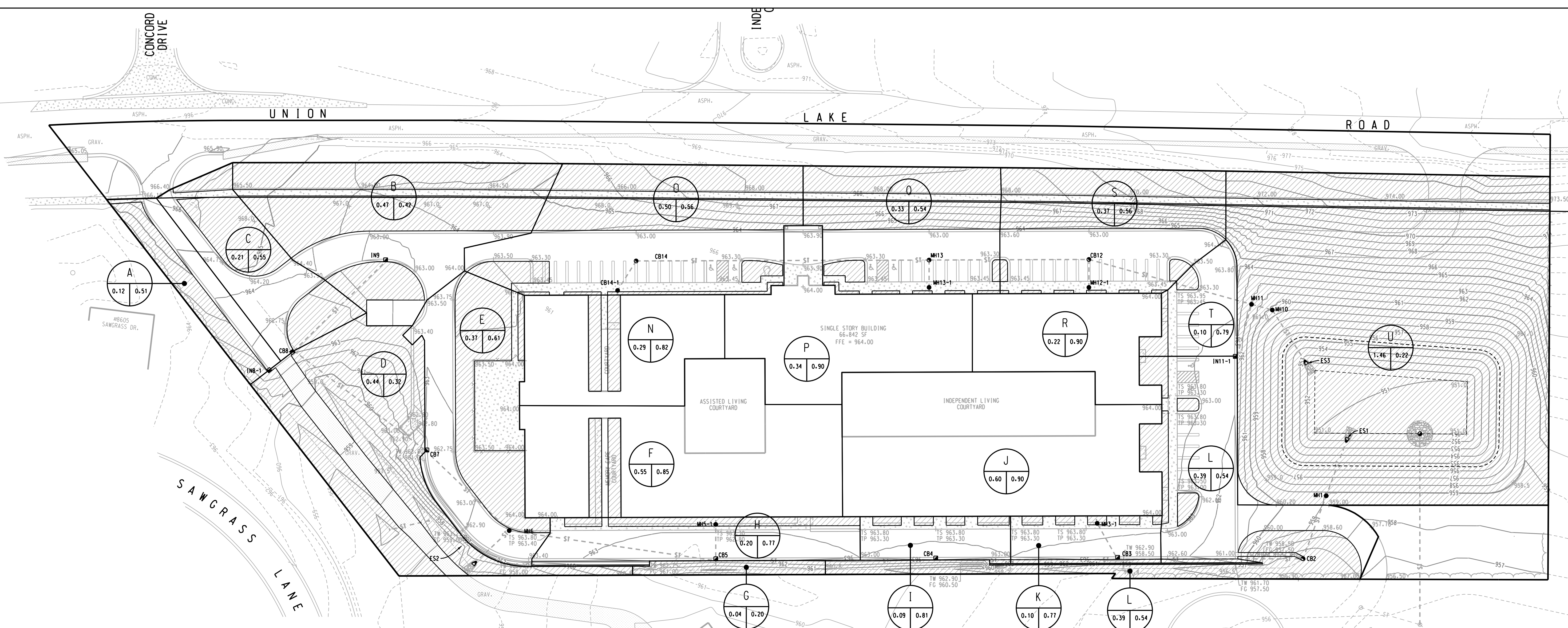
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NORTHWEST 1/4
SECTION 36
T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE		SHEET
SOIL EROSION CONTROL PLAN		
PROJECT NUMBER	210303	C301
PROJECT PHASE	SPA	



Runoff Coefficient Calculations

Drainage Area	Pervious		Impervious		Roof Top		Runoff			Drainage Area		
	Area (ft²)	C	Area (ft²)	C	Area (ft²)	C	Area (ft²)	C	C			
A	2961.0	0.07	2303.0	0.05	0.00	0.00	5264.0	0.12	0.51	A		
B	13833.0	0.32	6452.0	0.15	0.00	0.00	20285.0	0.47	0.42	B		
C	4735.0	0.11	4625.0	0.11	0.00	0.00	9360.0	0.21	0.55	C		
D	15945.0	0.36	3265.0	0.07	0.00	0.00	19110.0	0.44	0.32	D		
E	6718.0	0.15	3494.0	0.22	0.00	0.00	10212.0	0.37	0.61	E		
F	1549.0	0.04	5053.0	0.12	0.00	0.00	24002.0	0.55	0.85	F		
G	1609.0	0.04	0.00	0.00	0.00	0.00	1609.0	0.04	0.20	G		
H	1568.0	0.04	7191.0	0.17	0.00	0.00	8759.0	0.20	0.77	H		
I	534.0	0.01	3506.0	0.08	0.00	0.00	4042.0	0.09	0.81	I		
J	0.0	0.00	9921.0	0.23	0.00	0.00	26117.0	0.60	0.90	J		
K	833.0	0.02	3515.0	0.08	0.00	0.00	4348.0	0.10	0.77	K		
L	8682.0	0.20	8287.0	0.19	0.00	0.00	16969.0	0.39	0.54	L		
N	1503.0	0.03	375.0	0.01	0.00	0.00	12451.0	0.29	0.82	N		
O	10626.0	0.24	11195.0	0.26	0.00	0.00	21821.0	0.50	0.56	O		
P	0.0	0.00	14707.0	0.34	0.00	0.00	14707.0	0.34	0.90	P		
Q	7505.0	0.17	6907.0	0.16	0.00	0.00	14412.0	0.33	0.54	Q		
R	0.0	0.00	0.00	0.00	0.00	0.22	9690.0	0.22	0.90	R		
S	7815.0	0.18	8166.0	0.19	0.00	0.00	15981.0	0.37	0.56	S		
T	743.0	0.02	3803.0	0.09	0.00	0.00	4546.0	0.10	0.79	T		
U	62016.0	1.42	1464.0	0.03	0.00	0.00	63480.0	1.46	0.22	U		
Total	149075.0	3.42	95524.0	2.19	0.90	68566.0	1.57	0.90	313165.0	7.19	0.57	Total

1yr Detention Requirement

Site Information
 Design Return Period = 1 yrs
 Site Area (A) = 7.19 acre
 C = 0.57
 Allowable Outlet = 0.20 cfs/acre
 Allowable Outlet (Q_a) = 1.44 cfs

100yr Detention Requirement

Site Information
 Design Return Period = 100 yrs
 Site Area (A) = 7.19 acre
 C = 0.57
 Allowable Outlet = 0.20 cfs/acre
 Allowable Outlet (Q_a) = 1.44 cfs

Storage Computations

Calculate Q_a
 $Q_a = \frac{Q_p}{A \cdot C}$
 Q_a = 0.353

Maximum Storage Time (T₁₀₀)
 $T_{100} = -25 + \sqrt{\frac{2700}{Q_a}}$
 T₁₀₀ = 146.0 min.

Maximum Storage (V_{S100})
 $V_{S100} = \frac{4.320 \cdot T_1}{T_1 + 25} - 40 \cdot Q_a \cdot T_1$
 V_{S100} = 2203.5 ft³/ac

Total Storage Required (V_{T100})
 $V_{T100} = V_{S100} \cdot C \cdot A$
 V_{T100} = 8979.8 ft³

Detention Capacity

Measured from 3D analysis

Elevation	Volume (ft³)	Total Volume (ft³)
951.00	0.0	0.0
951.50	2918.9	2918.9
952.00	3419.4	6338.3
952.50	3949.8	10288.1
953.00	4510.1	14798.2
953.50	5100.3	19898.5
954.00	5720.4	25618.9
954.50	6370.3	31989.2
955.00	7050.1	39039.3
955.50	7759.9	46799.2
956.00	8499.5	55298.7
956.50	9268.9	64567.6
957.00	10068.3	74635.9
957.50	10897.5	85533.4
958.00	11756.7	97290.1
958.50	12645.7	109935.8
959.00	13564.6	123500.4
Total Detention Capacity	123500.4	

1-YR Storm (Volume) 8979
 1-YR Storm (Elevation) 952.33
 100-YR Storm (Volume) 49007
 100-YR Storm (Elevation) 955.63

Temporary Outlet Control

Orifice Calculations:
 The 1-yr orifice has been designed so that the pond is emptied around 48 hours

Allowable Release Rate
 $Q = C \cdot O \cdot \sqrt{2 \cdot g \cdot h}$

Definitions:
 7.19 A Existing Drainage Area (acres)
 0.06 Q_a Temp. Allowable outfall rate (ft³/s)
 0.62 C Orifice Coefficient
 0.22 O Area of Orifice (ft²)
 32.2 g Acceleration due to gravity (ft/s²)
 4.63 h Maximum head condition at the design storage level (ft)

Maximum head condition:
 955.63 h_{max} Maximum head elevation
 951.00 h_{min} Minimum head elevation
 $h = h_{max} - h_{min}$
 h 4.63 ft

Solve for Area:
 $O = \frac{Q_a}{C \cdot \sqrt{2 \cdot g \cdot h}}$
 Q_a 0.06 ft³/sec
 O 0.01 ft²
 O 0.79 in²

Use the following:
 Diameter 0.5 in.
 Area 0.20 in²
 No. of Holes 4
 Drainage T 42.7 hrs.

Outlet Control

Orifice Calculations:
 Allowable Release Rate
 $Q = C \cdot O \cdot \sqrt{2 \cdot g \cdot h}$

Definitions:
 7.19 A Existing Drainage Area (acres)
 0.20 A_{allow} Allowable outfall rate (ft³/acre)
 1.44 Q_a Total Allowable outfall rate (ft³/s)
 0.62 C Orifice Coefficient
 0 Area of Orifice (ft²)
 32.2 g Acceleration due to gravity (ft/s²)
 4.63 h Maximum head condition at the design storage level (ft)

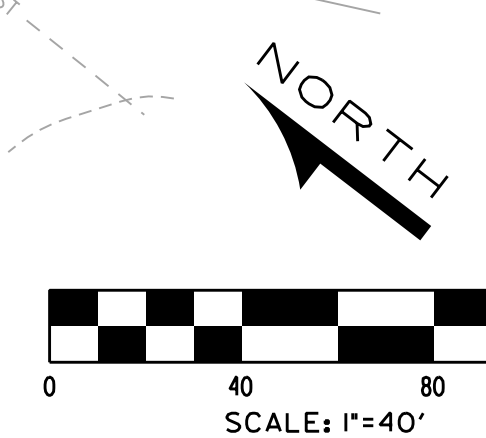
Maximum head condition:
 955.63 h_{max} Maximum head elevation
 951.00 h_{min} Minimum head elevation
 $h = h_{max} - h_{min}$
 h 4.63 ft

Solve for Area:
 $O = \frac{Q_a}{C \cdot \sqrt{2 \cdot g \cdot h}}$
 Q_a 1.44 ft³/sec
 O 0.13 ft²
 O 19.34 in²

Use the following:
 Diameter 3 in. (minimum)
 Area 7.07 in²
 No. of Holes 1
 Drainage T 25.9 hrs.

Storm Design

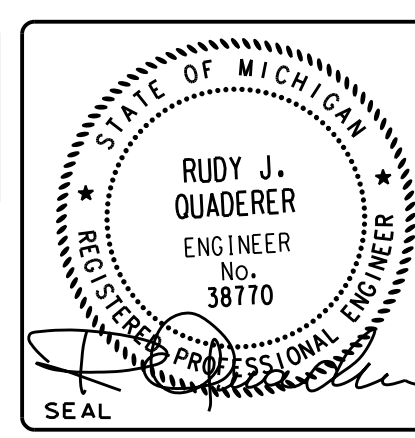
Runoff Entering Manhole No.	To Downstream Manhole No.	Area Designated For Adiac Area	A		C		Equivalent Area (AxC)	Time of Concentration (min)	15 min	10 yr	Q	D	S	L	V	Q
			Area (ft²)	C	Area (ft²)	C										
INL8-1	CB8	A	0.12	0.51	0.06	0.06	15.00	4.38	0.26	12 in.	0.32%	26	3.34	0.13	2.63	
INL9	CB8	B	0.47	0.42	0.20	0.20	15.00	4.38	0.88	12 in.	0.32%	100	3.34	0.50	2.63	
CB8	CB7	C	0.21	0.55	0.12	0.38	15.00	4.32	1.64	12 in.	0.30%	129	3.34	0.64	2.63	
ES3	MH6	D	0.44	0.32	0.14	0.14	15.00	4.38	0.61	10 in.	0.32%	49	2.96	0.28	1.62	
CB7	MH6	E	0.37	0.61	0.23	0.61	16.14	4.25	2.59	15 in.	0.25%	97	3.43	0.47	4.21	
MH6	CB5	-	-	-	-	0.75	16.61	4.21	3.15	15 in.	0.25%	152	3.43	0.74	4.21	
MH5-1	CB5	F	0.55	0.85	0.47	0.47	15.00	4.38	2.06	12 in.	0.34%	26	3.46	0.13	2.72	
ES2	CB5	G	0.04	0.20	0.01	0.01	15.00	4.38	0.04	8 in.	0.35%	7	2.67	0.04	0.93	
CB5	CB4	H	0.20	0.77	0.16	1.39	17.35	4.13	5.74	18 in.	0.20%	172	3.47	0.83	6.12	
CB4	CB3	I	0.09	0.81	0.07	1.46	18.18	4.05	5.92	18 in.	0.20%	142	3.47	0.68	6.12	
MH3-1	CB3	J	0.60	0.90	0.54	0.54	15.00	4.38	2.36	12 in.	0.45%	32	3.97	0.13	3.12	
CB3	CB2	K	0.10	0.77	0.08	2.08	18.86	3.99	8.30	21 in.	0.20%	145	3.84	0.63	9.24	
CB2	MH1	-	-	-	-	2.08	19.49	3.93	8.16	21 in.	0.20%	52	3.84	0.23	9.24	
MH1	ES1	L	0.39	0.54	0.21	2.29	19.72	3.91	8.96	21 in.	0.20%	48	3.84	0.21	9.24	
MH14-1	CB14	N	0.29	0.82	0.23	0.23	15.00	4.38	1.01	10 in.	0.40%	36	3.31	0.18	1.81	
CB14	CB13	O	0.50	0.56	0.28	0.51	15.18	4.36	2.22	12 in.	0.40%	215	3.74	0.96	2.94	
MH13-1	CB13	P	0.34	0.90	0.30	0.30	15.00	4.38	1.31	10 in.	0.40%	22	3.31	0.11	1.81	
CB13	CB12	Q	0.33	0.54	0.18	0.99	16.14	4.25	4.21	18 in.	0.20%	125	3.47	0.60	6.12	
MH12-1	CB12	R	0.22	0.90	0.20	0.20	15.00	4.38	0.88	10 in.	0.40%	22	3.31	0.11	1.81	
CB12	MH11	S	0.37	0.56	0.20	1.39	16.74	4.19	5.83	18 in.	0.35%	132	4.68	0.48	8.10	
IN11-1	MH11	T	0.10	0.79	0.08	0.08	15.00	4.38	0.35	12 in.	0.32%	42	3.34	0.21	2.63	
MH11	MH10	-	-	-	-	1.47	17.22	4.14	6.09	18 in.	0.35%	17	4.58	0.06	8.10	
MH10	ES4	-	-	-	-	1.47	17.28	4.14	6.08	18 in.	0.35%	48	4.58	0.17	8.10	
ES5	OC5	U	1.46	0.22	0.31	4.07	19.72	3.91	15.93	12 in.	0.32%	23	3.34	0.11	2.63	
OC5	EXST	-	-	-	-	4.07	19.83	3.90	15.89	24 in.	0.70%	126	7.85	0.27	24.67	



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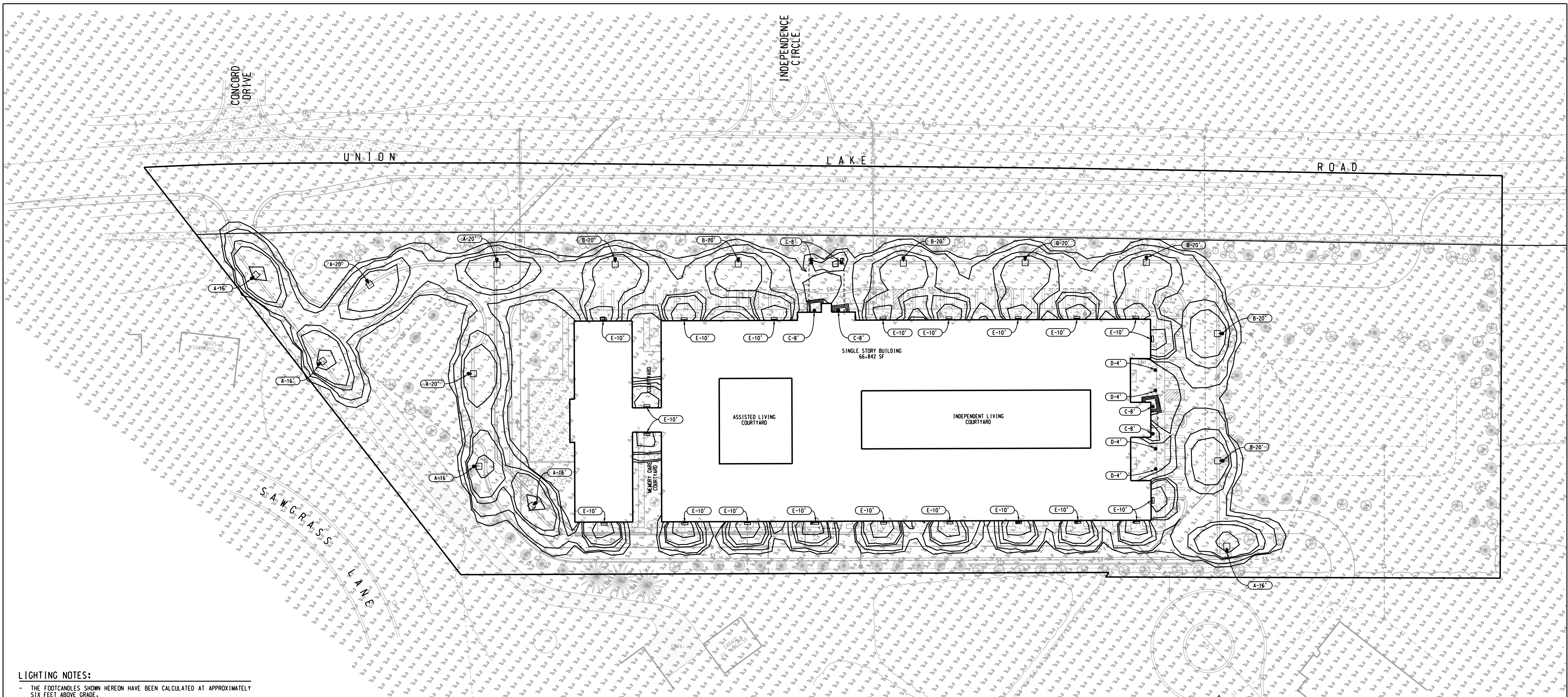
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COMFORT CARE
 UNION LAKE ROAD WHITE LAKE TWP., OAKLAND COUNTY STATE OF MICHIGAN

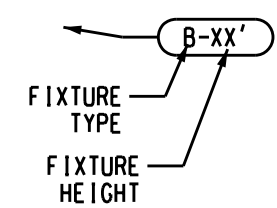
DRAWING TITLE
DRAINAGE AREA MAP & STORM CALCULATIONS

PROJECT NUMBER 210303 SHEET C302
 PROJECT PHASE SPA

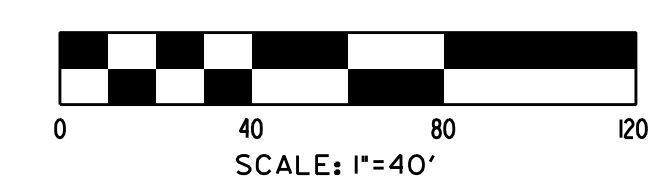
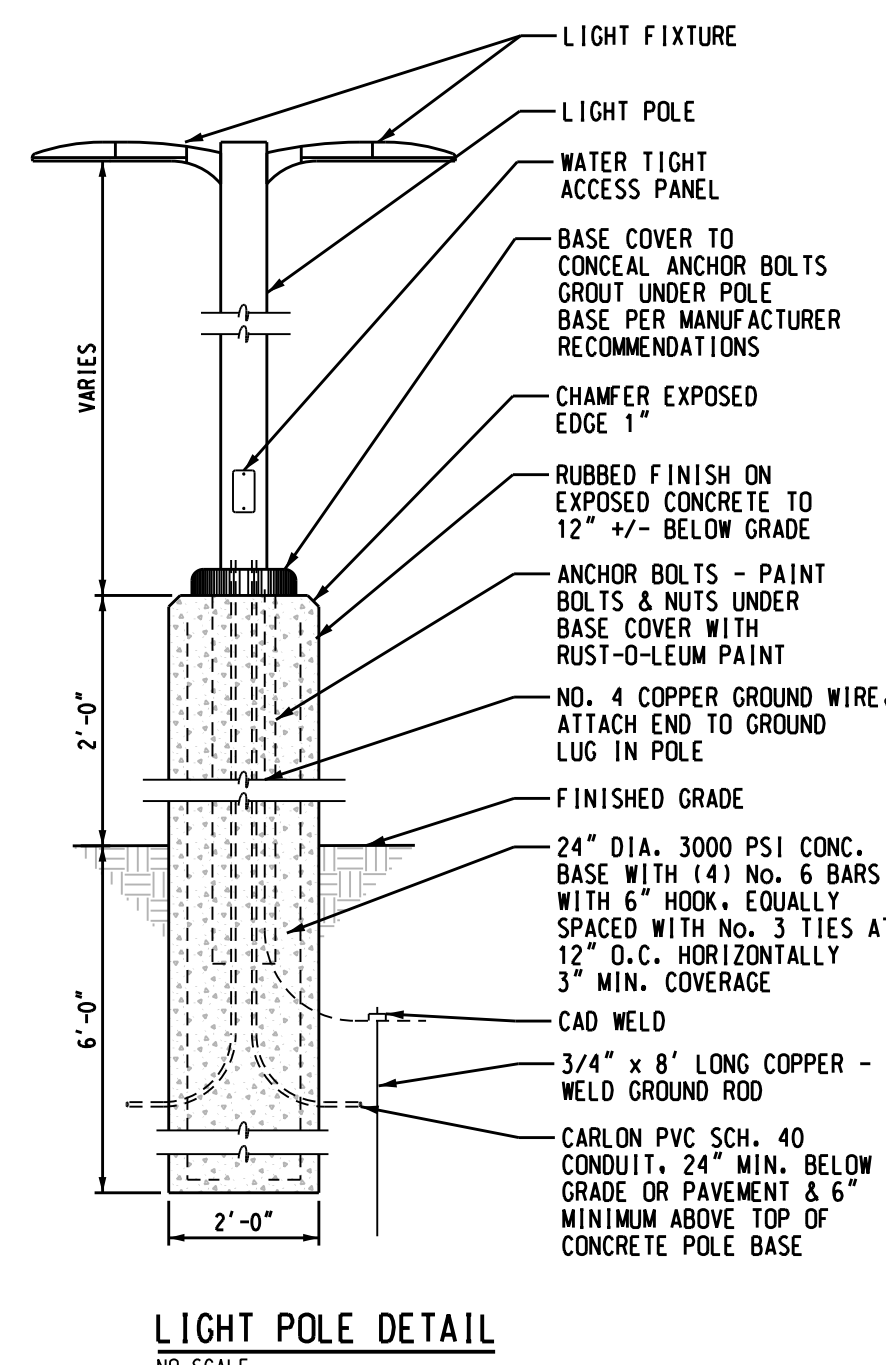
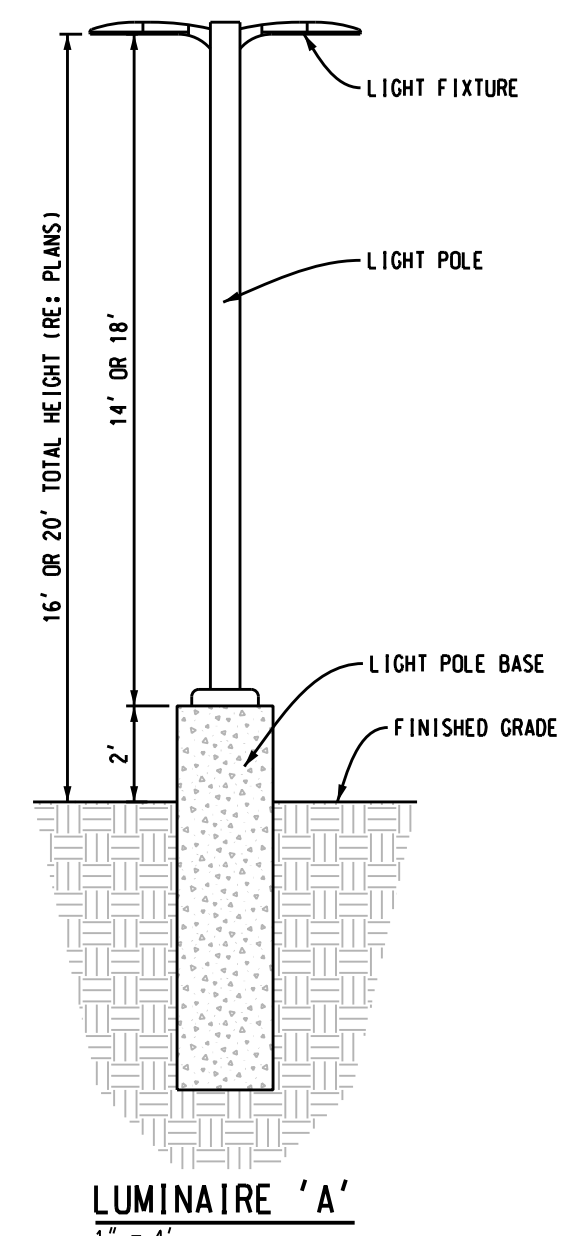
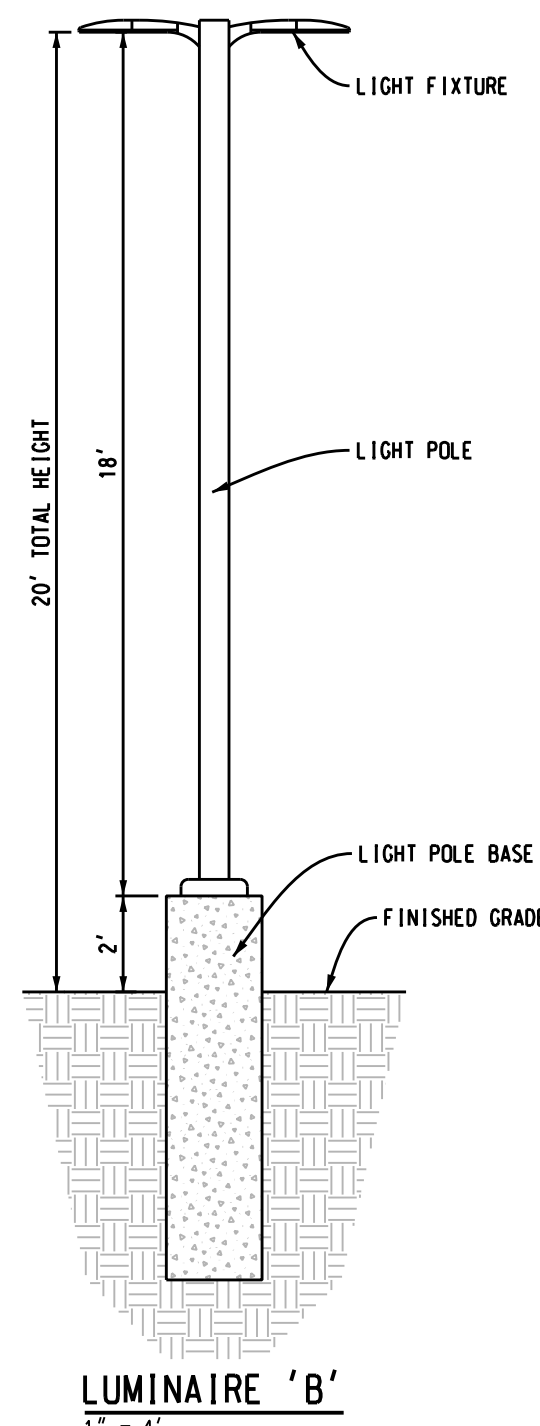


LIGHTING NOTES:
 - THE FOOTCANDLES SHOWN HEREON HAVE BEEN CALCULATED AT APPROXIMATELY SIX FEET ABOVE GRADE.
 - THE CATALOG DETAILS OF THE LIGHTING FIXTURE HAVE BEEN PROVIDED IN FULL BUT SEPARATELY FROM THESE SITE PLAN DOCUMENTS.

STATISTICAL AREA SUMMARY				
AVG	MAX	MIN	AVG/MIN	MAX/MIN
0.7	11.7	0.1	7.0 / 1	117 / 1

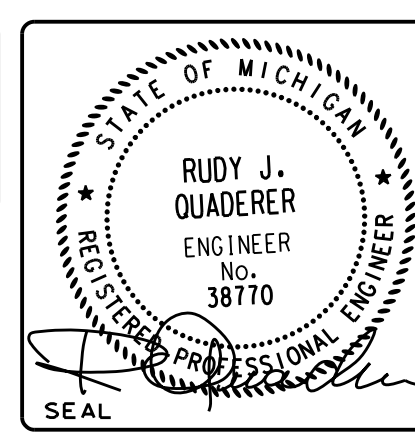


LUMINAIRE SCHEDULE							
QTY	LABEL	ARRANGEMENT	MANUFACTURER	CATALOG NO.	DESCRIPTION	LAMP	WATTAGE
8	A	SINGLE	LITHONIA	DSXO LED P1 30K T2M MVOLT HS	D-SERIES AREA SIZE 0, POLE MOUNTED, SINGLE (ONE) LIGHT FIXTURE W/ HOUSE SIDE SHIELD	LED	38
7	B	SINGLE	LITHONIA	DSXO LED P1 30K T4M MVOLT HS	D-SERIES AREA SIZE 0, POLE MOUNTED, SINGLE (ONE) LIGHT FIXTURE W/ HOUSE SIDE SHIELD	LED	38
6	C	SINGLE	LITHONIA	OLLWD LED P1 40K MVOLT	WALL MOUNTED, DOWN LIGHT ONLY, CYLINDRICAL	LED	9
4	D	SINGLE	LITHONIA	KBRB LED 12C 350 30K ASY MVOLT	BOLLARD MOUNTED, KBRB WITH 3 LIGHT BOARDS (12 LEDS), 350MA DRIVER, 3000K COLOR TEMP, AND ASYMMETRIC OPTIC	LED	16
22	E	SINGLE	LITHONIA	DSXW1 LED 10C 700 30K TFTM MVOLT	DSXW1 WITH (1) 10 LED LIGHT ENGINES, WALL MOUNTED, SINGLE (ONE) LIGHT FIXTURE	LED	26.2



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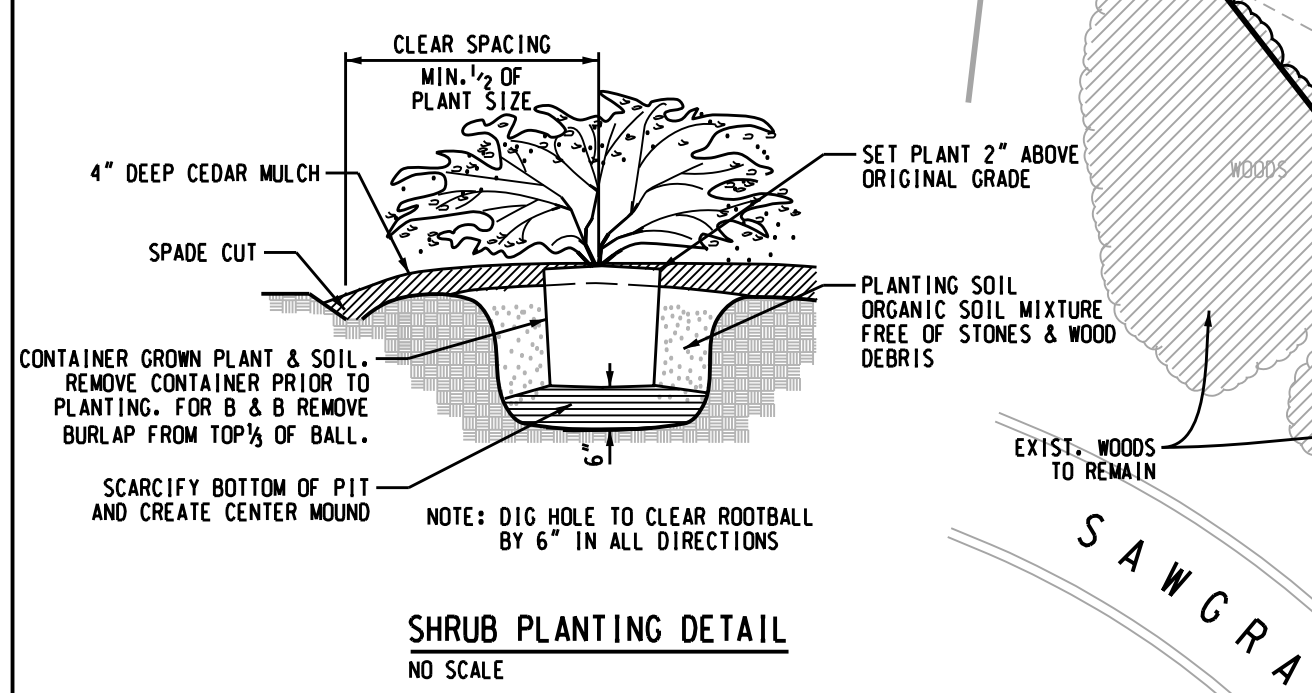
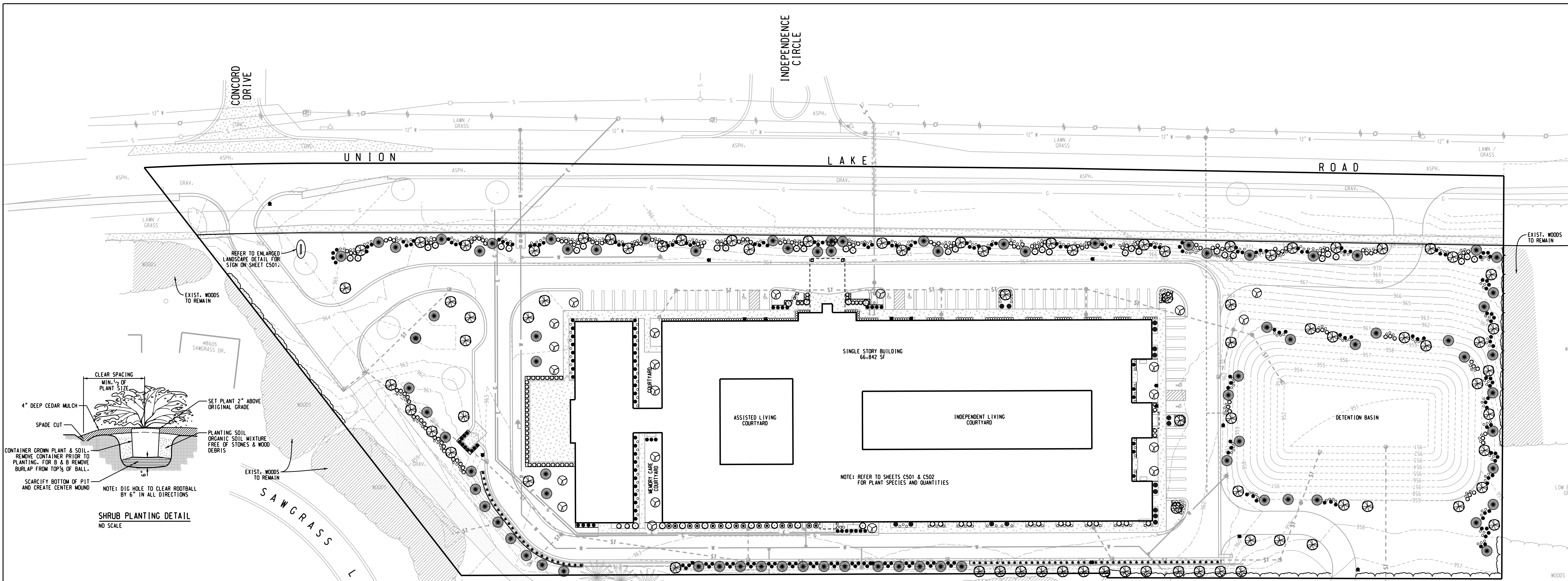
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12-13-21		REISSUED WHITE LAKE TWP.
10-28-21		WHITE LAKE TWP. (SITE PLAN)
04-13-21		TOPOGRAPHIC SURVEY

NORTHWEST 1/4 SECTION 36 T-3N, R-8E
COMFORT CARE
 UNION LAKE ROAD
 WHITE LAKE TWP.,
 OAKLAND COUNTY
 STATE OF MICHIGAN

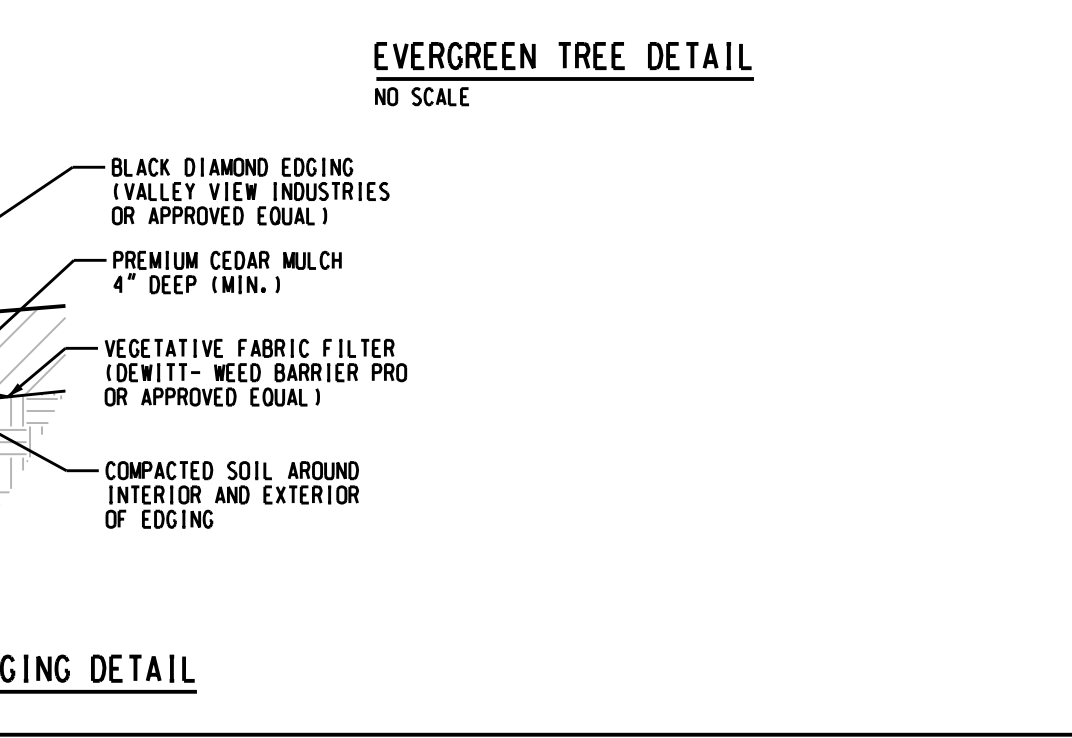
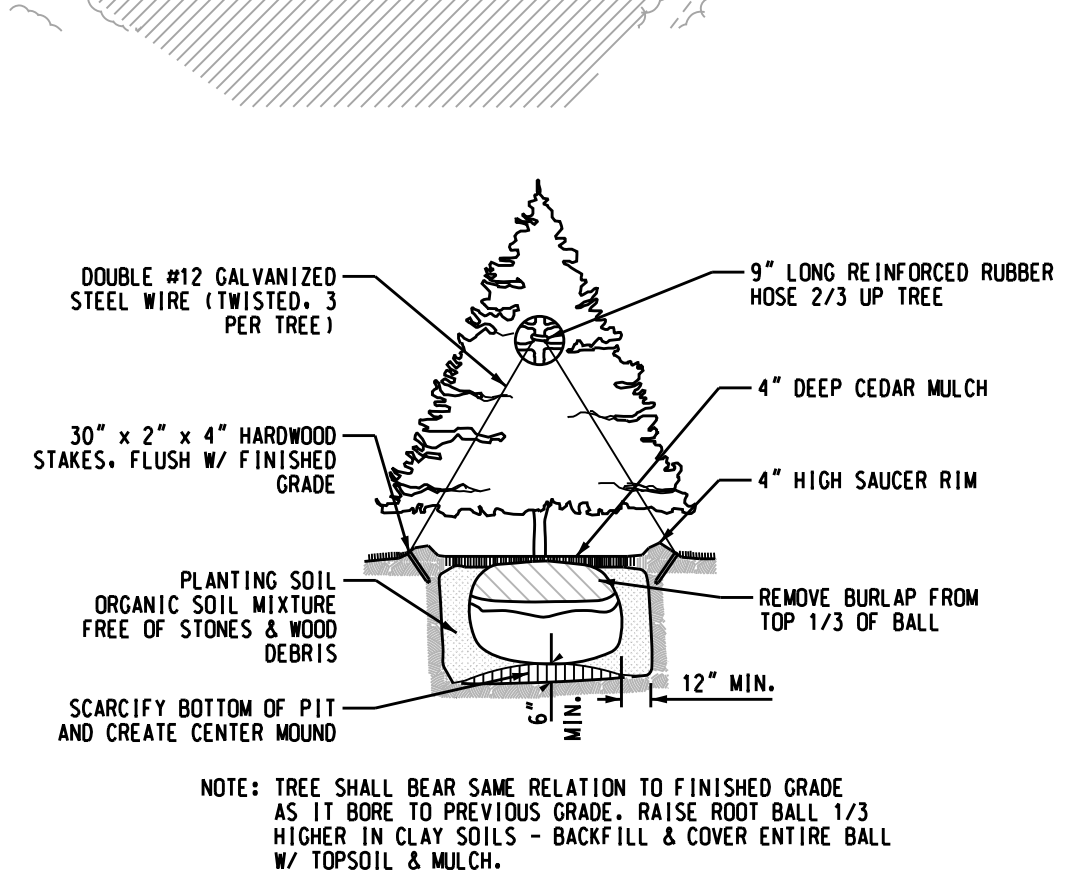
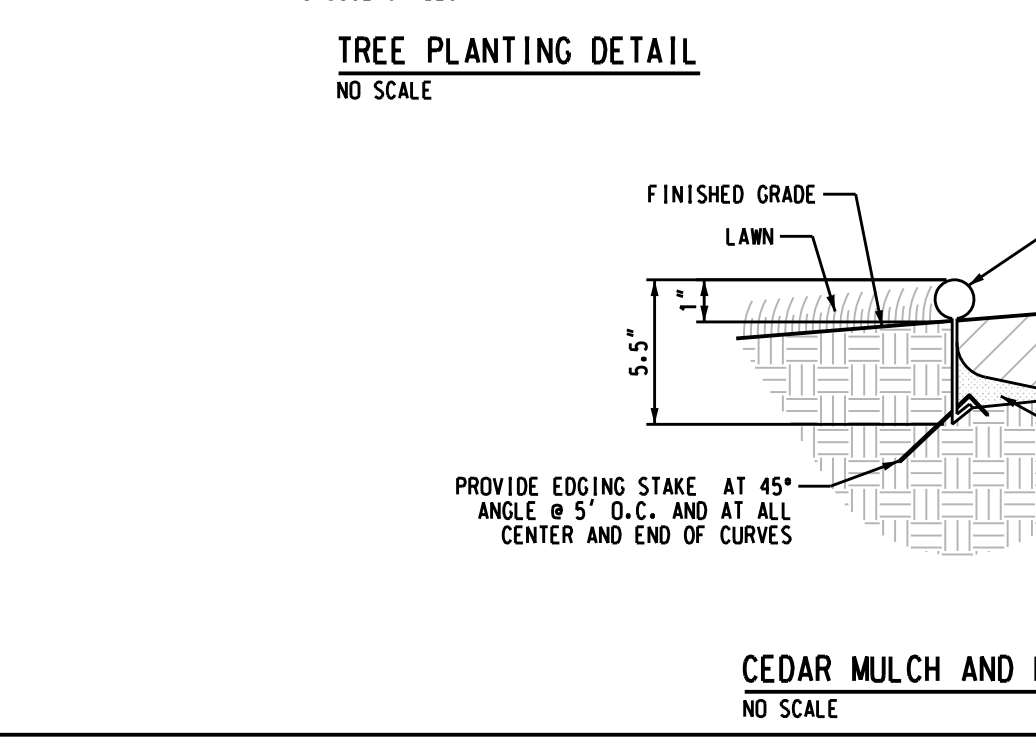
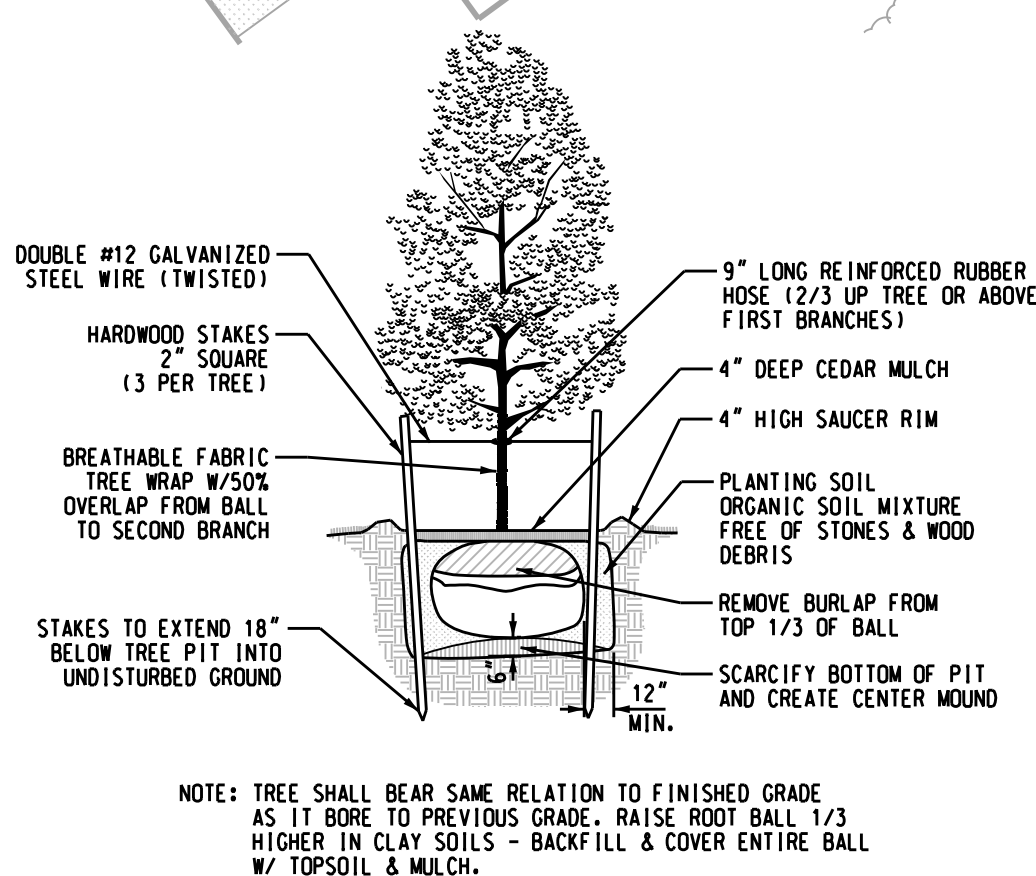
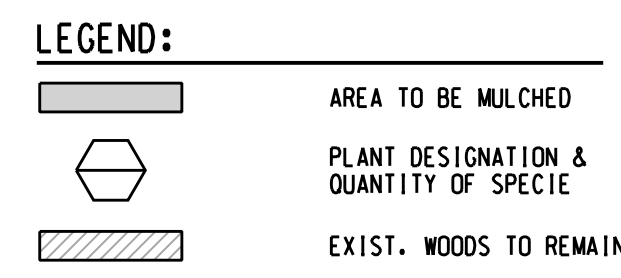
DRAWING TITLE
SITE PHOTOMETRIC PLAN

PROJECT NUMBER	210303	SHEET	C401
PROJECT PHASE	SPA		



- LANDSCAPING NOTES:**
- INSTALLATION OF PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN LANDSCAPE STANDARDS LATEST EDITION.
 - PRIOR TO BEGIN OF LANDSCAPE WORK, CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON-SITE UTILITIES, CONTRACTOR SHALL CONTACT MISS DIG (811) FOR LOCATIONS OF ALL PRIVATE UTILITIES. ANY DAMAGE OR INTERRUPTIONS OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COORDINATE ALL RELATED WORK ACTIVITIES WITH OTHER TRADES AND REPORT ANY UNACCEPTABLE WORK CONDITIONS TO OWNER PRIOR TO COMMENCING WORK.
 - NUMERICAL VALUE OF PLANT MATERIAL SHOWN SHALL TAKE PRECEDENCE OVER GRAPHIC REPRESENTATION. VERIFY AND REPORT ANY DISCREPANCIES WITH LANDSCAPE ARCHITECT.
 - SUBSTITUTIONS OR DEVIATIONS FROM THE LANDSCAPE PLAN MUST BE APPROVED BY THE MUNICIPALITY AND/OR GOVERNING AGENCY PRIOR TO COMMENCING.
 - NEW LANDSCAPE BEDS WITHIN PREVIOUS BUILDING AND PAVEMENT AREAS SHALL BE EXCAVATED OF ALL BUILDING MATERIALS AND POOR SOILS TO A MINIMUM DEPTH OF 24" AND BACKFILLED WITH GOOD MEDIUM TEXTURED ORGANIC PLANTING SOIL FREE OF ROCKS LARGER THAN 1".
 - PROTECT EXISTING TREES TO REMAIN WITH TEMPORARY FENCING PLACED AT THE DRIP LINE. NO GROUND DISTURBANCE OR STORAGE OF MATERIAL SHALL OCCUR WITHIN THE DRIP LINE LIMITS.
 - COORDINATE PLACEMENT OF PLANTS WITH UNDERGROUND UTILITY LOCATIONS. MAKE ADJUSTMENTS AS REQUIRED TO AVOID PLANTING OVER THE UTILITIES. DO NOT PLANT SHADE OR EVERGREEN TREES BELOW OVERHEAD WIRES. IF CONFLICT OCCURS, CONTACT LANDSCAPE ARCHITECT TO ADJUST LOCATION OF TREES.
 - BACKFILL ISLANDS FROM SUBGRADE TO THE TOP OF CURB WITH ON-SITE TOPSOIL UNLESS OTHERWISE NOTED ON PLAN. FINISHED GRADE IN CENTER OF ISLAND SHALL BE 4" TO 6" HIGHER THAN TOP OF CURB TO PROVIDE POSITIVE DRAINAGE TO PERIMETER OF CURB ISLAND.
 - PLACE 4" THICK BY 4" DIAMETER SHREDED CEDAR OR CYPRESS BARK MULCH RING AT THE BASE OF ALL NEW TREES IN LAWN AREA. CUT LAWN AREA IN A SMOOTH UNIFORM CIRCULAR LINE.
 - ALL GREEN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH SIDE SLOPES LESS THAN 3:1, SHALL BE GRADED AND TOPPED WITH MINIMUM 4" DEEP TOPSOIL AND SEEDED & MULCHED. REFER TO PLAN FOR SEED MIXTURE AND APPLICATION RATE.
 - ALL EXISTING TREES AND SHRUBS NOTED TO REMAIN SHALL BE PROPERLY PRUNED, TRIMMED, THINNED AND SHAPED BY A QUALIFIED NURSERYMAN OF ARBORIST. ALL DEAD LIMBS AND BRANCHES SHALL BE REMOVED FROM SITE.
 - UNLESS NOTED OTHERWISE, LANDSCAPE BEDS ADJACENT TO LAWN AREAS SHALL RECEIVE LANDSCAPE EDGING AS DETAILED ON PLAN.
 - ALL LANDSCAPING SHALL BE COMPLETED WITHIN 6 MONTHS OF COMPLETION OF BUILDING.
 - ALL STAKING MATERIALS AND WRAPPING SHALL BE REMOVED OFF SITE WITHIN ONE YEAR AFTER INSTALLATION.
 - LANDSCAPING ITEMS SHALL NOT INTERFERE WITH THE CLEAR VISION AREAS. TREES WITHIN PARKING LOT ISLANDS SHALL HAVE A CLEAR VIEW OF 4'-6" MINIMUM TO THE FIRST BRANCH AT MATURITY.
 - ALL PLANT MATERIALS INCLUDING LAWN AREAS SHALL BE WATERED, FERTILIZED, TRIMMED, MOVED AND GENERALLY MAINTAINED BY THE CONTRACTOR IN A HEALTHY GROWING CONDITION FOR A PERIOD OF 30 DAYS AFTER FINAL COMPLETION AND AFTER LAWN IS CUT FOR FIRST TIME. CONTRACTOR SHALL SUBMIT A ONE (1) YEAR WARRANTY FROM COMPLETION DATE AND BE RESPONSIBLE TO REPLACE ANY DISEASED OR DEAD PLANT MATERIAL WITHIN THAT PERIOD OF TIME WITHOUT ANY COST TO THE OWNER.

PLANTING REQUIREMENTS		
LOCATION	MINIMUM REQUIREMENT	PROVIDED
ROAD R/W GREENBELT	20' WIDE GREENBELT: 1 DECIDUOUS OR EVERGREEN TREE + 8 SHRUBS / 30LF = 1,127/30 = 38 TREES + 304 SHRUBS	59 TREES, 393 SHRUBS
PARKING LOT AREA	15SF PER PARKING SPACE = 53 SPAC.(15) = 795 SF	855 SF OF LANDSCAPE AREA
RESIDENTIAL BUFFER (SOUTH SIDE)	LAND FORM BUFFER A-2 = 1 TREE + 8 SHRUBS PER 30LF = 288/30 = 10 TREES + 80 SHRUBS	15 TREES, 65 SHRUBS, EXIST. WOODS
RESIDENTIAL BUFFER (WEST SIDE)	LAND FORM BUFFER A-2 = 1 TREE + 8 SHRUBS PER 30LF	18 TREES, EXIST. TREES & WOODS, NEW WALL
INTERIOR LANDSCAPING	15% OF THE TOTAL LOT AREA 1 TREE / 300 SF + 5 SHRUBS TOTAL AREA = 364,991 SF -PAVED AREA = 58,100 SF NET AREA = 306,891 SF 15% NET AREA = 45,975 SF 45975/300 = 153 TREES + 766 SHRUBS	87 TREES, 584 SHRUBS EXIST. TREES



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0 40 80 120
SCALE: 1"=40'

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REGISTERED PROFESSIONAL ENGINEER
RUDY J. QUADERER
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SEAL

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REVISION OR ISSUE		

NORTHWEST 1/4 SECTION 36 T-3N, R-8E

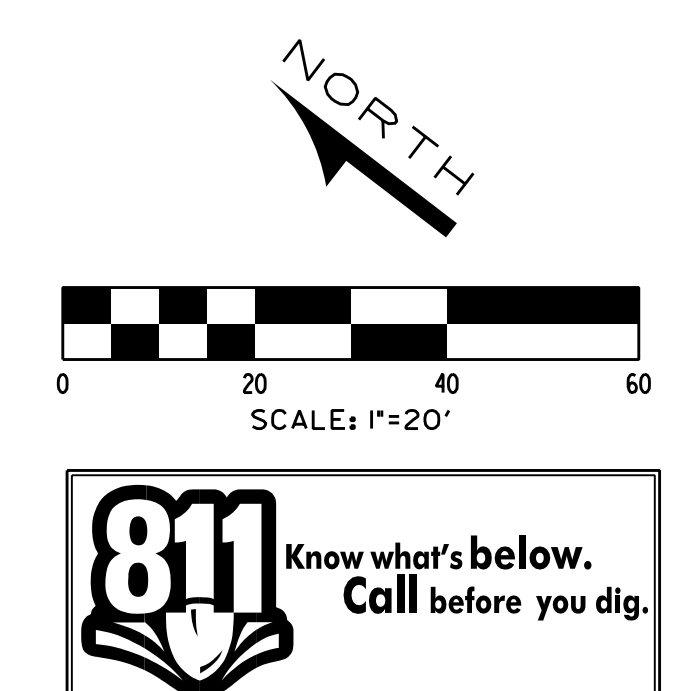
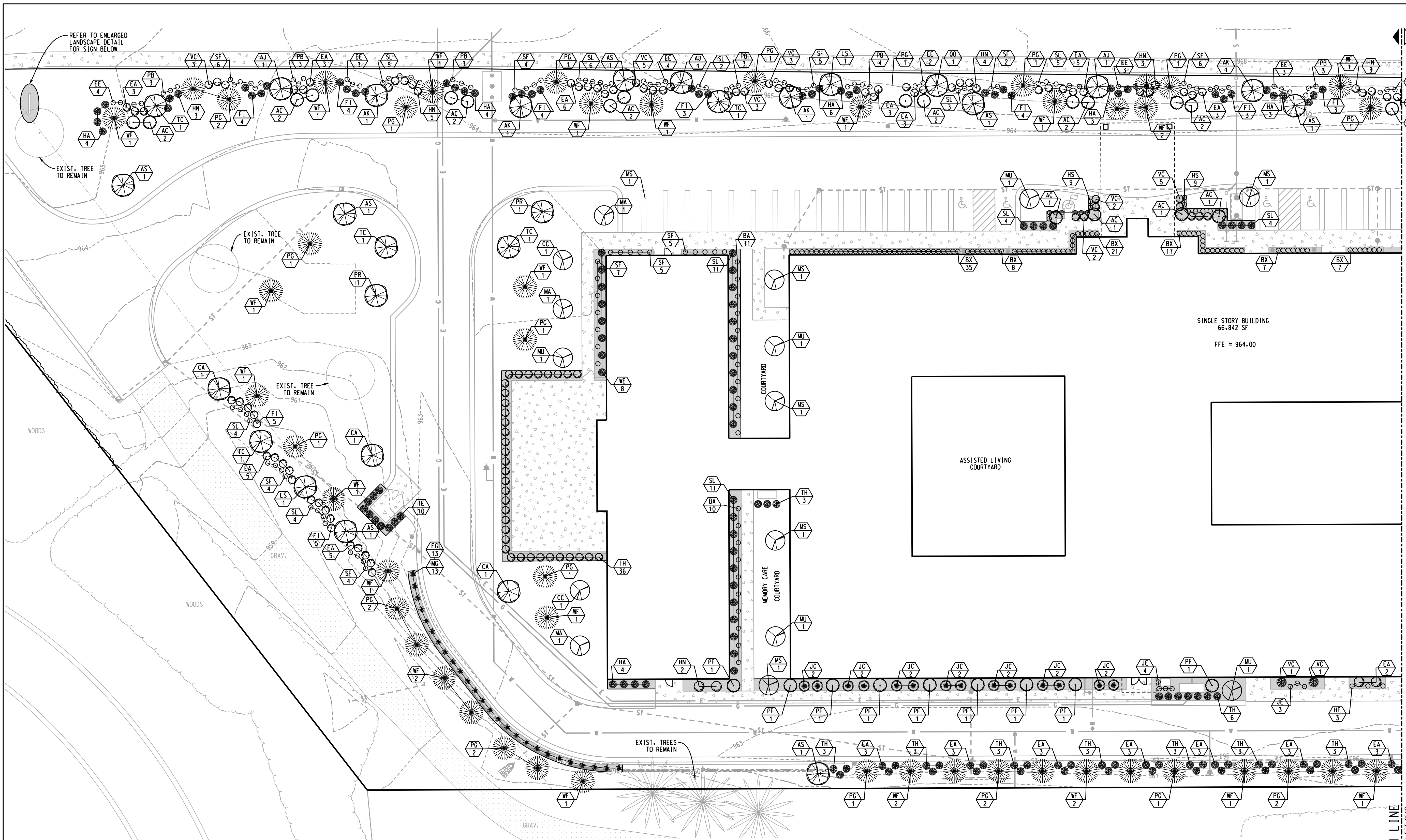
COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
SITE LANDSCAPE PLAN

PROJECT NUMBER 210303
PROJECT PHASE SPA

SHEET
C500

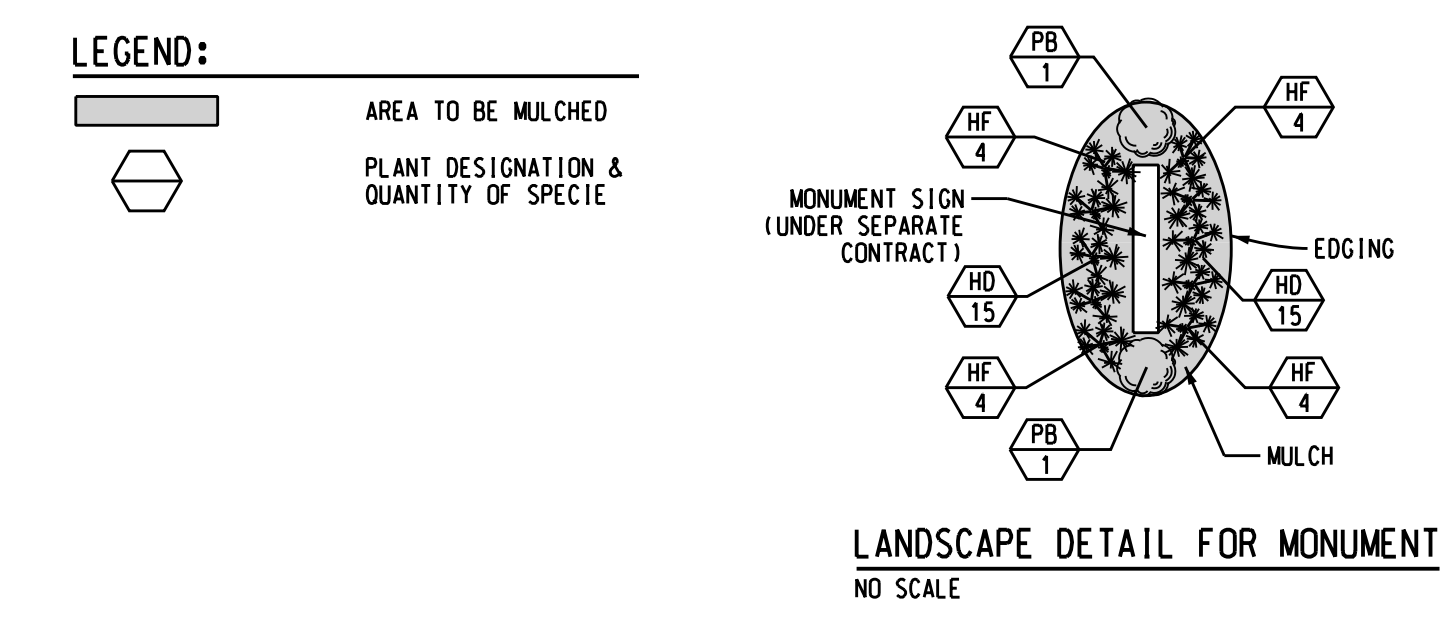


MATCH LINE
REFER TO SHEET C502

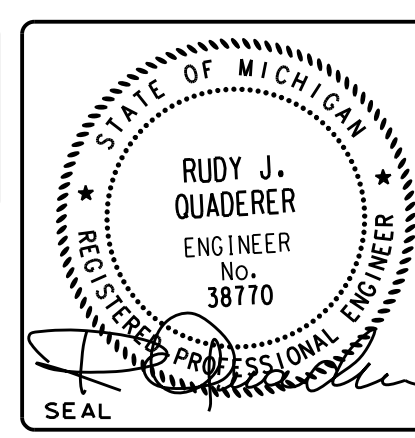
TREE SCHEDULE			
KEY	BOTANICAL NAME	COMMON NAME	SIZE QUANTITY
AF	ACER PALMATUM 'FIREGLOW'	FIREGLOW JAPANESE MAPLE	4' HT -
AK	ACER PLATANOIDES 'CRIMSON KING'	CRIMSON KING NORWAY MAPLE	2.5" CAL 4
AJ	ACER X FREEMANTII 'JEFFERSRED'	AUTUMN BLAZE MAPLE	2.5" CAL 3
AS	ACER SACCHARUM 'COMMEMORATION'	COMMEMORATION SUGAR MAPLE	2.5" CAL 6
BC	BETULA NIGRA 'CULLY'	HERITAGE RIVER BIRCH	8" HT -
CA	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2.5" CAL 2
CC	CERCIS CANADENSIS	EASTERN REDBUD	2" CAL 2
LS	LIOUIDAMBAR STYRACIFLUA 'GODUZAM'	GOLD DUST AMERICAN SWEETGUM	2.5" CAL 2
MA	MAGNOLIA ACUMINATA 'GOLDSTAR'	GOLD STAR MAGNOLIA	2" CAL 3
MS	MALUS 'SNOWDRIFT'	SNOWDRIFT CRABAPPLE	2" CAL 6
MU	MALUS 'SPRING SNOW'	SPRING SNOW CRABAPPLE	2" CAL 5
PG	PICEA GLAUCA	WHITE SPRUCE	8' HT 23
PR	PYRUS CALLARYANA 'REDSPIRE'	REDSPIRE PEAR	2.5" CAL 2
OD	QUERCUS RUBRA	NORTHERN RED OAK	2.5" CAL 1
TC	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	2.5" CAL 4
WF	ABIES CONCOLOR	CONCOLOR WHITE FIR	8' HT 24

SHRUB SCHEDULE			
KEY	BOTANICAL NAME	COMMON NAME	SIZE QUANTITY
AC	AMELANCHIER LAEVIS 'CUMULUS'	CUMULUS SERVICEBERRY	4' HT 19
BA	BERBERIS ATROPURPUREA 'CRIRUZAM'	CRIMSON RUBY BARBERRY	18" HT 21
BX	BUXUS X 'GREEN GEM'	GREEN GEM BOXWOOD	NO. 3 CONT 74
CB	CORNUS ALBA 'BAILHALD'	IVORY HALO RED TWIG DOGWOOD	18" HT -
EA	EUONYMUS ALATUS 'COMPACTUS'	COMPACT BURNING BUSH	24" HT 59
EE	EUONYMUS FORTUNEI 'EMERALD CAIETY'	EMERALD CAIETY EUONYMUS	NO. 3 CONT 19
FI	FORSYTHIA INTERMEDIA	NORTHERN GOLD FORSYTHIA	24" HT 35
HA	HAMAMELIS VERNALIS	VERNAL WITCHHAZEL	24" HT 24
HN	HIBISCUS SYRIACUS 'NOTWOODONE'	LAV. CHIFFON ROSE OF SHARON	24" HT 20
HS	HYDRANGEA MAC. H. SERRATA 'PREZIOSA'	PINK BEAUTY HYDRANGEA	24" HT 18
JC	JUNIPERUS CHINENSIS 'GOLD COAST'	GOLD COAST JUNIPER	24" SPR. 14
JE	JUNIPERUS CHINENSIS 'SEA GREEN'	SEA GREEN JUNIPER	24" SPR. 7
PF	PICEA ABIES 'MIDIFORMIS'	BIRD'S NEST SPRUCE	18" HT 9
PB	POTENTILLA FRUTICOSA 'GOLDFINGER'	GOLDFINGER POTENTILLA	NO. 3 CONT 12
SF	SPIREA JAPONICA 'GOLDMOUND'	GOLD MOUND SPIREA	NO. 3 CONT 41
SL	SYRINGA PATULA 'MISS KIM'	MISS KIM LILAC	NO. 3 CONT 57
TE	THUJA OCCIDENTALIS 'SMARAGO'	EMERALD GREEN ARBORVITAE	5' HT 10
TH	TAXUS X MEDIA 'HICKSII'	HICKS COLUMNAR YEW	24" HT 67
VC	VIBURNUM X BURKWOODII	BURKWOOD VIBURNUM	NO. 5 CONT 23
WE	WEIGELA FLORIDA 'ELVERA'	MIDNIGHT WINE WEIGELA	NO. 3 CONT 8

PERENNIALS & GRASSES SCHEDULE			
KEY	BOTANICAL NAME	COMMON NAME	SIZE QUANTITY
FG	CALAMAGROSTIS ACUTIFLORA	FEATHER REED GRASS	NO. 2 CONT 13
HD	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILLY	NO. 2 CONT 30
HF	HOSTA 'FRANCEE'	FRANCEE HOSTA	NO. 2 CONT 15
MG	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	NO. 2 CONT 13



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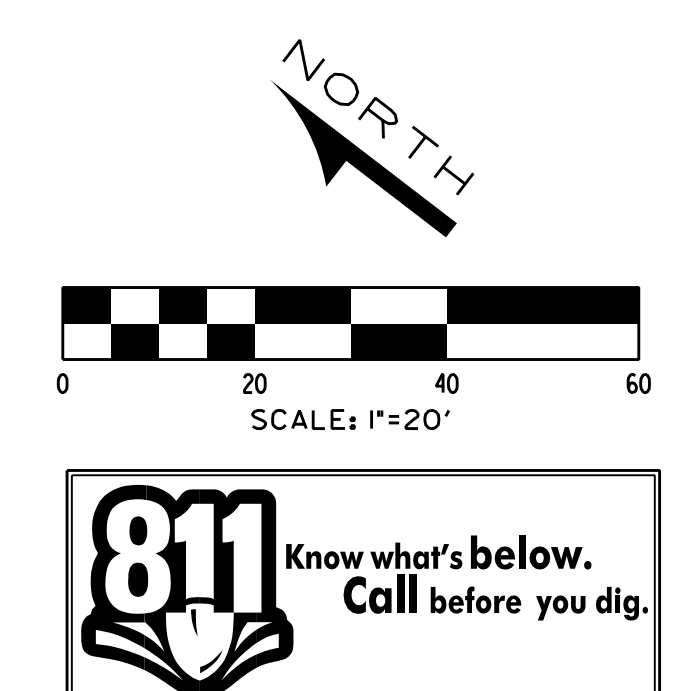
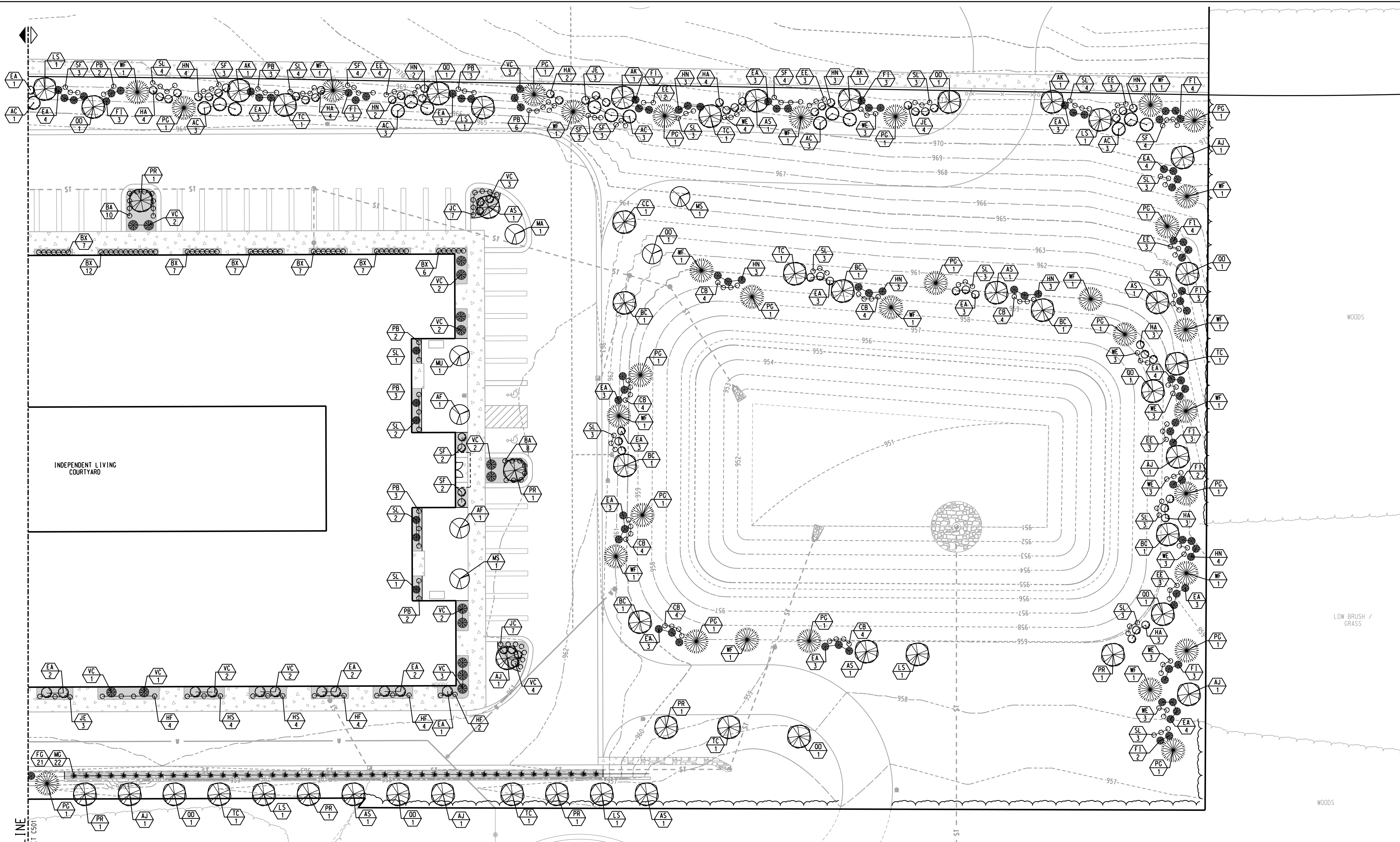
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY,
STATE OF MICHIGAN

DRAWING TITLE
SITE LANDSCAPE PLAN
(NORTH DETAIL)

PROJECT NUMBER 210303 SHEET C501
PROJECT PHASE SPA

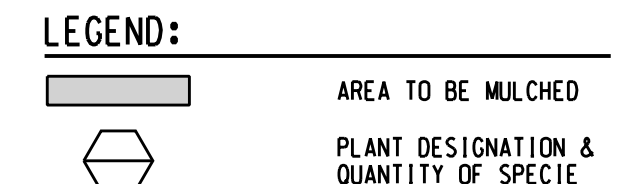


MATCH LINE
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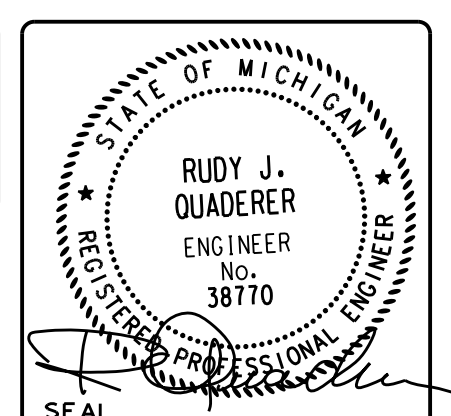
TREE SCHEDULE			
KEY BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
AF	ACER PALMATUM 'FIREGLOW'	FIREGLOW JAPANESE MAPLE 4' HT	2
AK	ACER PLATANOIDES 'CRIMSON KING'	CRIMSON KING NORWAY MAPLE 2.5" CAL	4
AJ	ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE MAPLE 2.5" CAL	6
AS	ACER SACCHARUM 'COMMEMORATION'	COMMEMORATION SUGAR MAPLE 2.5" CAL	7
BC	BETULA NIGRA 'CULLY'	HERITAGE RIVER BIRCH 8' HT	6
CA	CARPINUS CAROLINIANA	AMERICAN HORNBEECH 2.5" CAL	-
CC	CERCIS CANADENSIS	EASTERN REDBUD 2" CAL	1
LS	LIQUIDAMBAR STYRACIFLUA 'GODUZAM'	GOLD DUST AMERICAN SWEETGUM 2.5" CAL	6
MA	MAGNOLIA ACUMINATA 'GOLDSTAR'	GOLD STAR MAGNOLIA 2" CAL	1
MS	MALUS 'SNOWDRIFT'	SNOWDRIFT CRABAPPLE 2" CAL	2
MU	MALUS 'SPRING SNOW'	SPRING SNOW CRABAPPLE 2" CAL	1
PG	PICEA GLAUCA	WHITE SPRUCE 8' HT	17
PR	PYRUS CALLARYANA 'REDSPIRE'	REDSPIRE PEAR 2.5" CAL	7
OO	QUERCUS RUBRA	NORTHERN RED OAK 2.5" CAL	10
TC	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN 2.5" CAL	7
WF	ABIES CONCOLOR	CONCOLOR WHITE FIR 8' HT	17

SHRUB SCHEDULE			
KEY BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
AC	AMELANCHIER LAEVIS 'CUMULUS'	CUMULUS SERVICEBERRY 4' HT	16
BA	BERBERIS ATROPURPUREA 'CRIRUZAM'	CRIMSON RUBY BARBERRY 18" HT	18
BX	BUXUS X 'GREEN GEM'	GREEN GEM BOXWOOD NO. 3 CONT	53
CB	CORNUS ALBA 'BAILHALO'	IVORY HALO RED TWIG DOGWOOD 18" HT	28
EA	EUDONYMUS ALATAS 'COMPACTUS'	COMPACT BURNING BUSH 24" HT	59
EE	EUDONYMUS FORTUNEI 'EMERALD GALETY'	EMERALD GALETY EUDONYMUS NO. 3 CONT	20
FI	FORSYTHIA INTERMEDIA	NORTHERN GOLD FORSYTHIA 24" HT	33
HA	HAMMELIS VERNALIS	VERNAL WITCHHAZEL 24" HT	21
HN	HIBISCUS SYRIACUS 'NOTWOODONE'	LAV. CHIFFON ROSE OF SHARON 24" HT	30
HS	HYDRANGEA MAC. H. SERRATA	PINK BEAUTY HYDRANGEA 24" HT	8
JC	JUNIPERUS CHINENSIS 'GOLD COAST'	GOLD COAST JUNIPER 24" SPR.	14
JE	JUNIPERUS CHINENSIS 'SEA GREEN'	SEA GREEN JUNIPER 24" SPR.	10
PF	PICEA ABIES 'NIDIFORMIS'	BIRD'S NEST SPRUCE 18" HT	-
PB	POTENTILLA FRUTICOSA 'GOLDFINGER'	GOLDFINGER POTENTILLA NO. 3 CONT	24
SF	SPIREA JAPONICA 'GOLDMOUND'	GOLD MOUND SPIREA NO. 3 CONT	28
SL	SYRINGA PATULA 'MISS KIM'	MISS KIM LILAC NO. 3 CONT	50
TE	THUJA OCCIDENTALIS 'SMARAGO'	EMERALD GREEN ARBORVITAE 5' HT	-
TH	TAXUS X MEDIA 'HICKSII'	HICKS COLUMNAR YEW 24" HT	-
VC	VIBURNUM X BURKWOODII	BURKWOOD VIBURNUM 24" HT	20
WE	WEIGELA FLORIDA 'ELVERA'	MIDNIGHT WINE WEIGELA NO. 3 CONT	25

PERENNIALS & GRASSES SCHEDULE			
KEY BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
FG	CALAMAGROSTIS ACUTIFLORA	FEATHER REED GRASS NO. 2 CONT	21
HD	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILLY NO. 2 CONT	-
HF	HOSTA 'FRANCEE'	FRANCEE HOSTA NO. 2 CONT	14
MG	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS NO. 2 CONT	22



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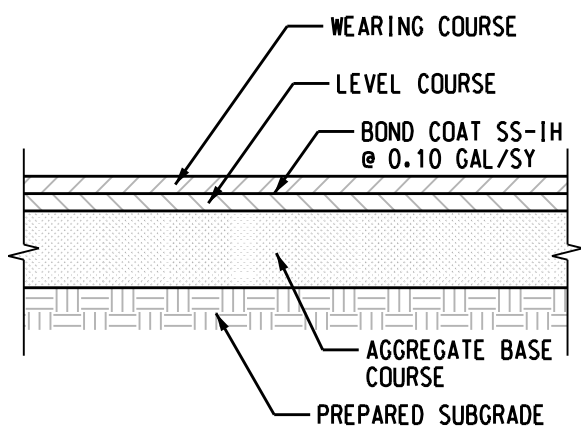
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NORTHWEST 1/4
SECTION 36
T-3N, R-8E

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
**SITE LANDSCAPE PLAN
(SOUTH DETAIL)**

PROJECT NUMBER 210303	SHEET C502
PROJECT PHASE SPA	



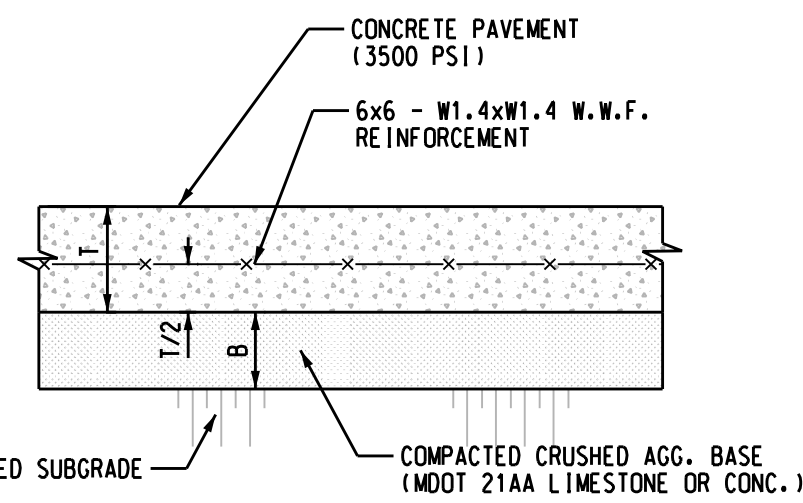
ON-SITE PAVEMENT SECTION
NO SCALE

WEARING COURSE - 1.5" MDOT 13A
LEVEL COURSE - 3" MDOT 3C
AGGREGATE BASE - 8" MDOT 21AA CRUSHED LIMESTONE

ROAD R/W PAVEMENT SECTION
NO SCALE

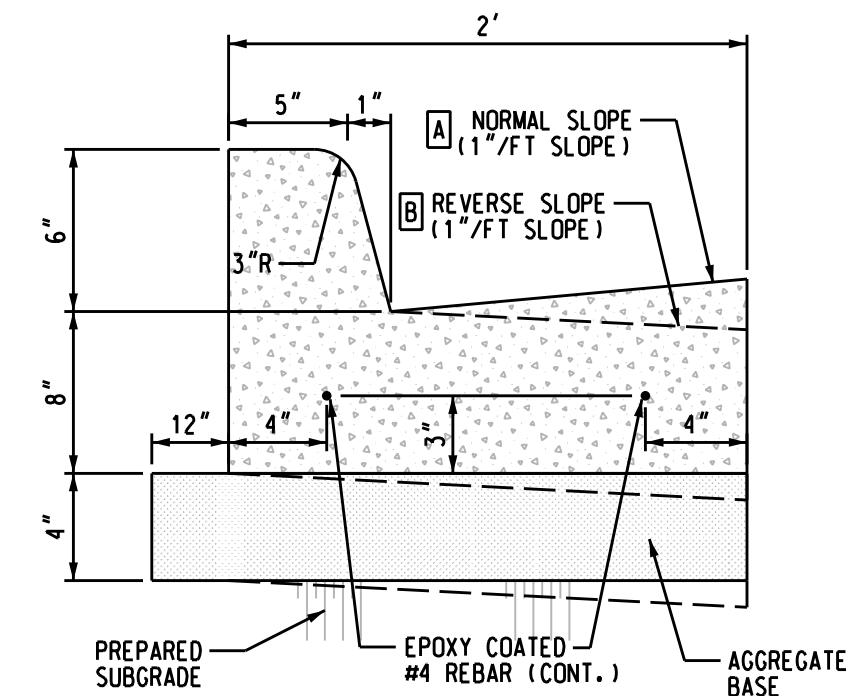
19" OF DEEP STRENGTH ASPHALT SECTION
WEARING COURSE - 2" MDOT 4C
LEVEL COURSE - 3" MDOT 3C
LEVEL COURSE - 4" MDOT 2C (FIRST LIFT)

NOTE: AS AN ALTERNATE, CONTRACTOR IS ALLOWED TO SUBSTITUTE MDOT 21AA CRUSHED CONCRETE FOR ON-SITE AGGREGATE BASE.



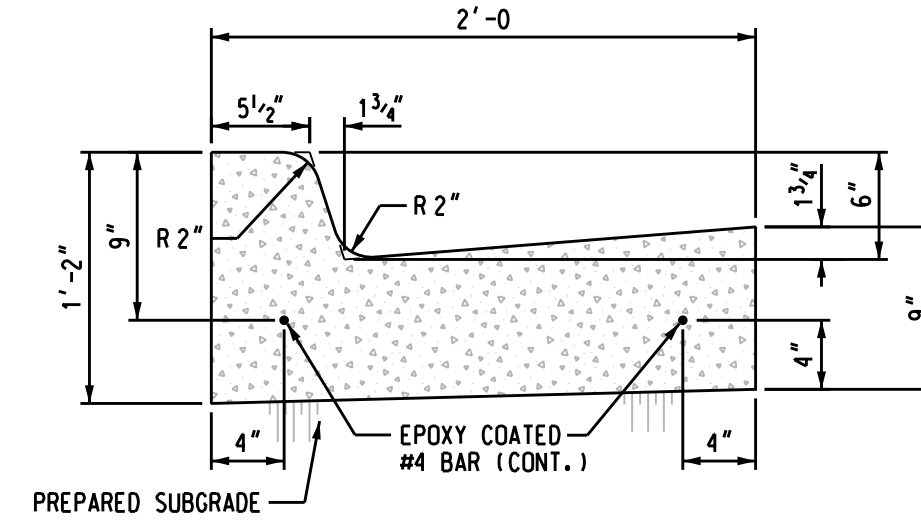
CONCRETE PAVEMENT SECTION
NO SCALE

DESIGN:
PAD UNDER CANOPY 8" 8" YES
DUMPSTER ENCLOSURE 8" 8" YES
SIDEWALK 4" 6" YES



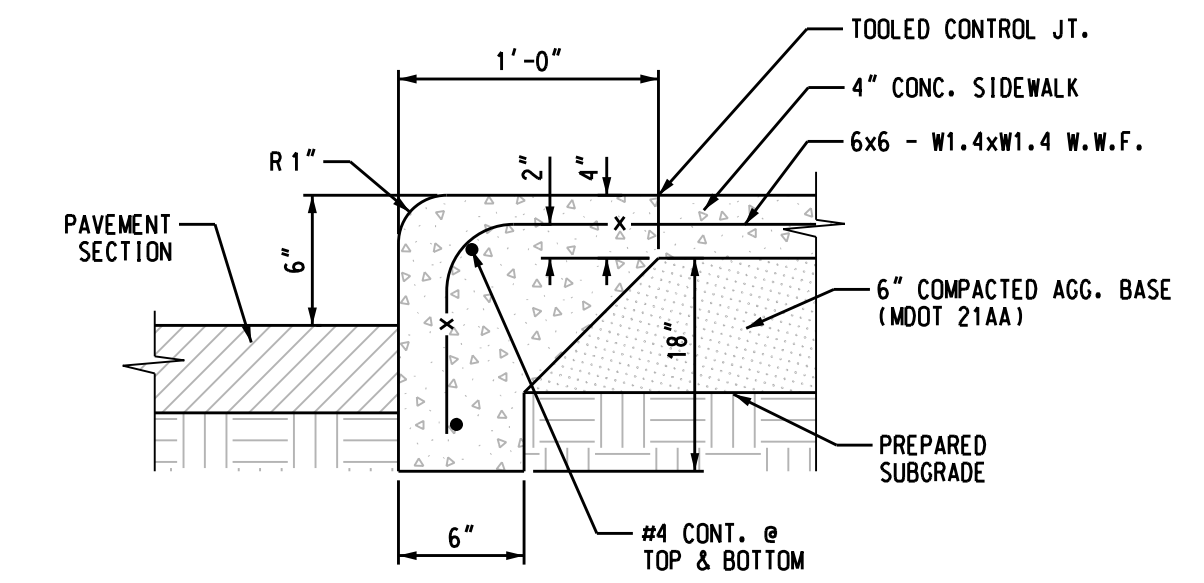
CURB & GUTTER DETAIL
NO SCALE

PROVIDE CONTROL JOINTS AT 10 FEET MAXIMUM SPACING AND DOWELED EXPANSION JOINTS AT 100 FEET MAXIMUM INTERVALS AND AT RADIUS POINTS

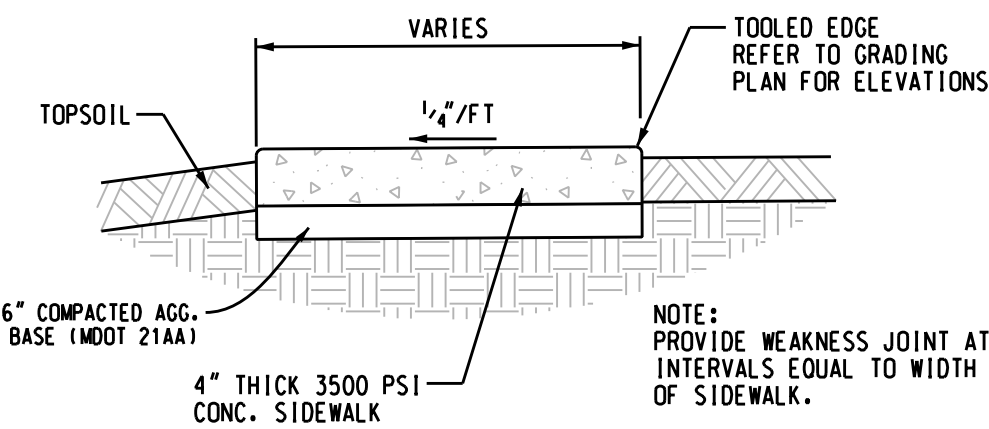


CURB & GUTTER DETAIL
NO SCALE

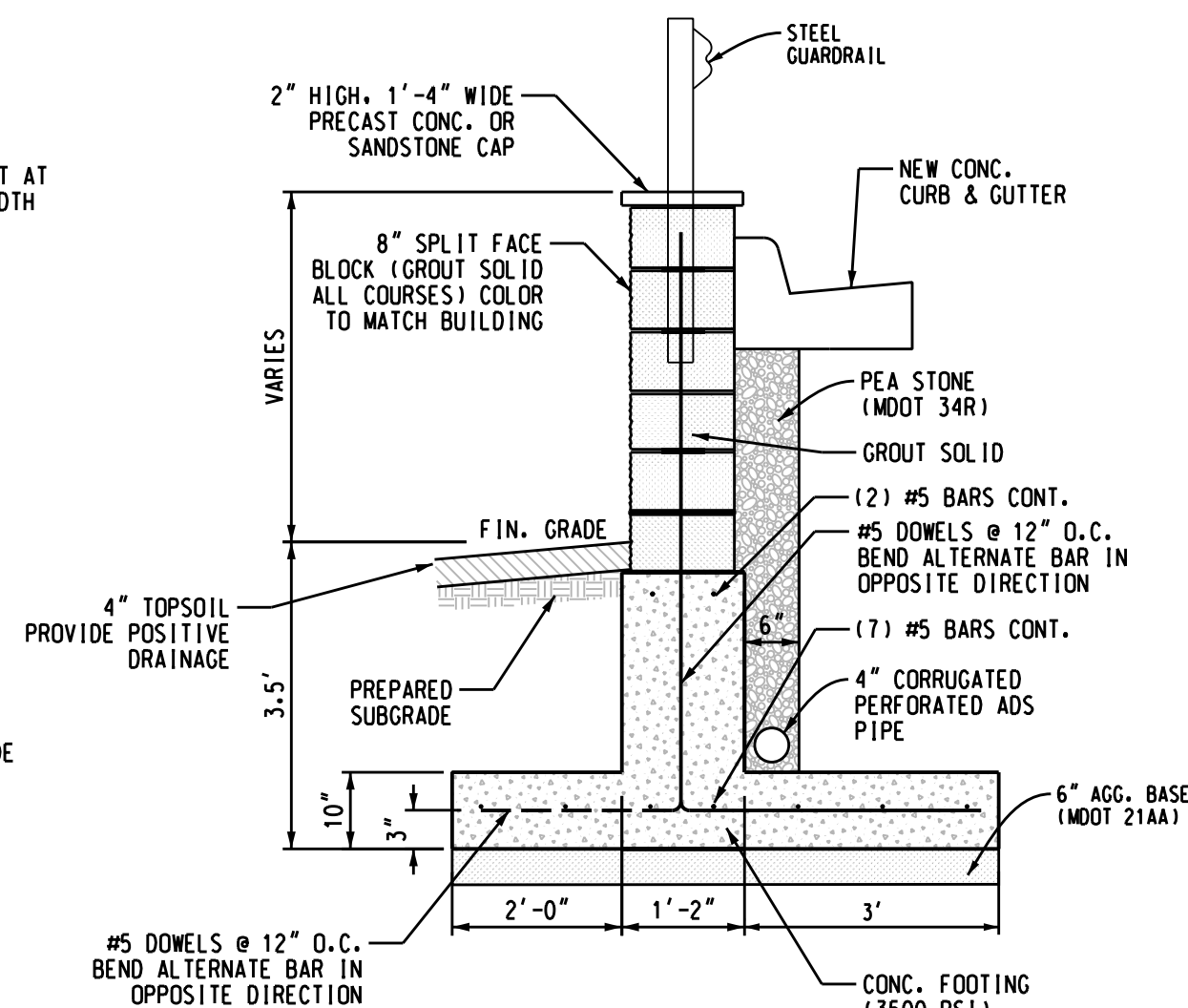
PROVIDE CONTROL JOINTS AT 10 FEET MAXIMUM SPACING AND DOWELED EXPANSION JOINTS AT 100 FEET MAXIMUM INTERVALS AND AT RADIUS POINTS



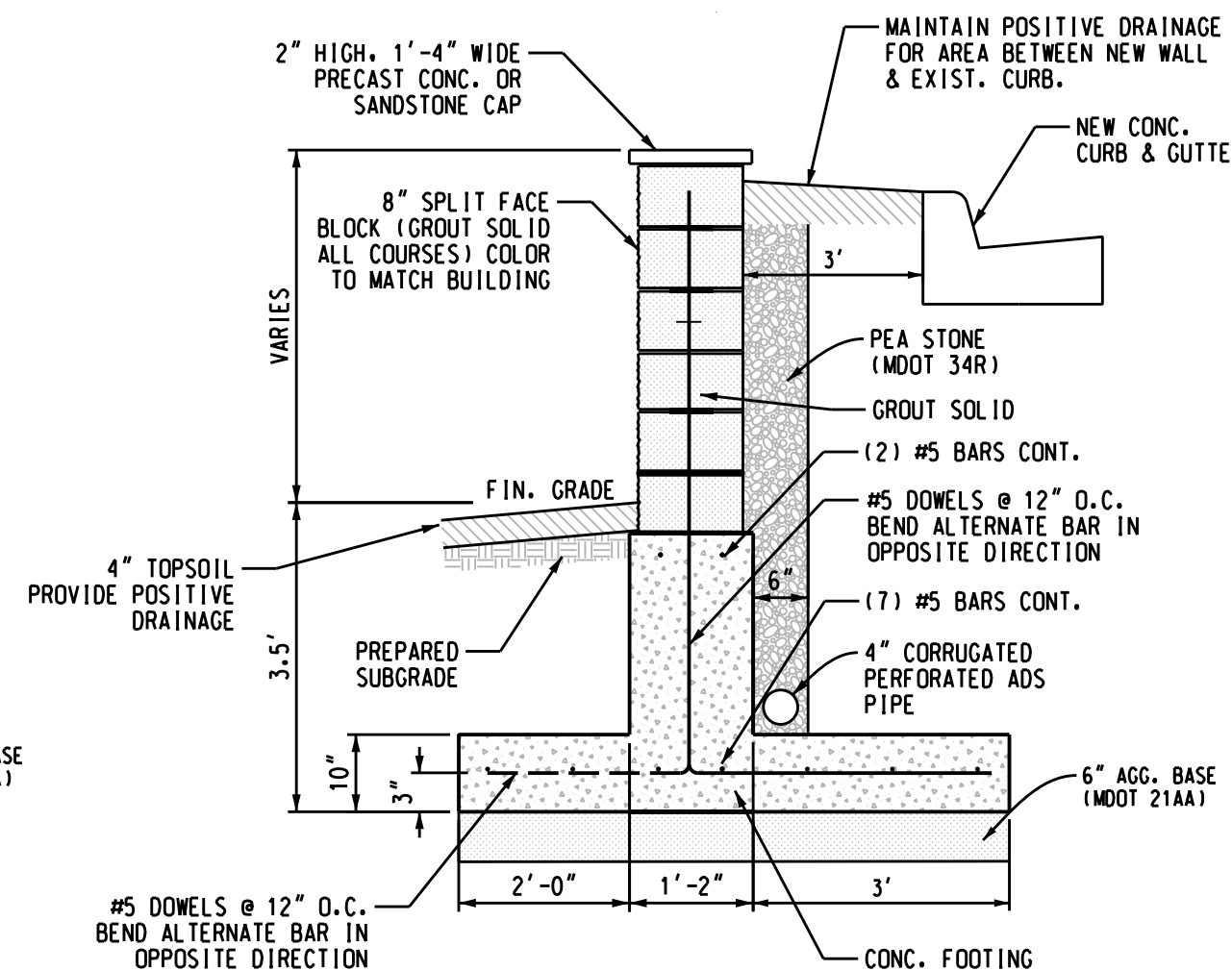
INTEGRAL CURB & SIDEWALK DETAIL
NO SCALE



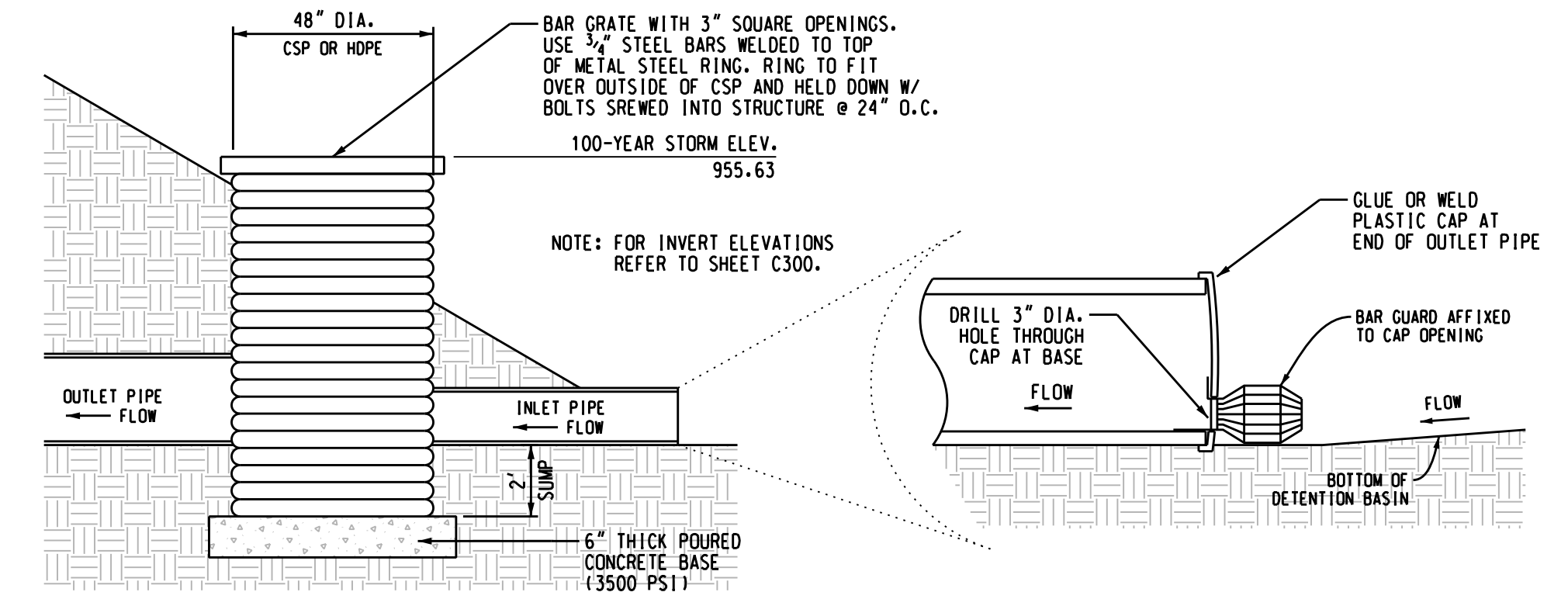
TYP. SIDEWALK DETAIL
NO SCALE



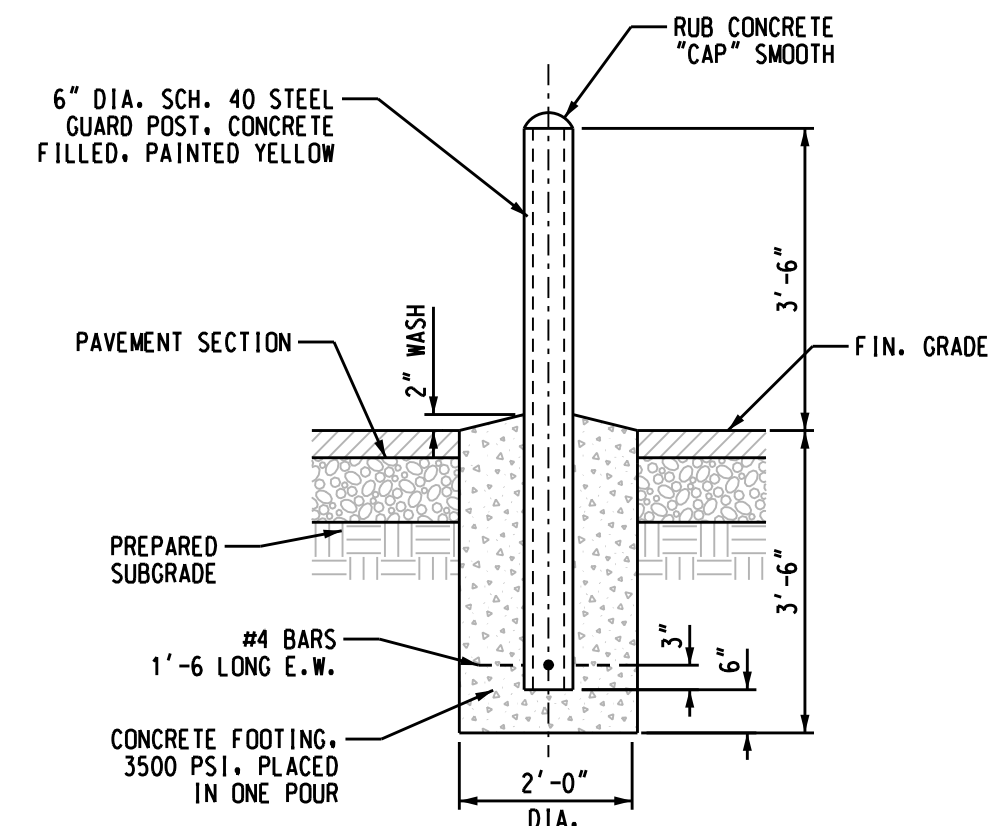
CROSS SECTION MASONRY WALL SW CORNER
NO SCALE



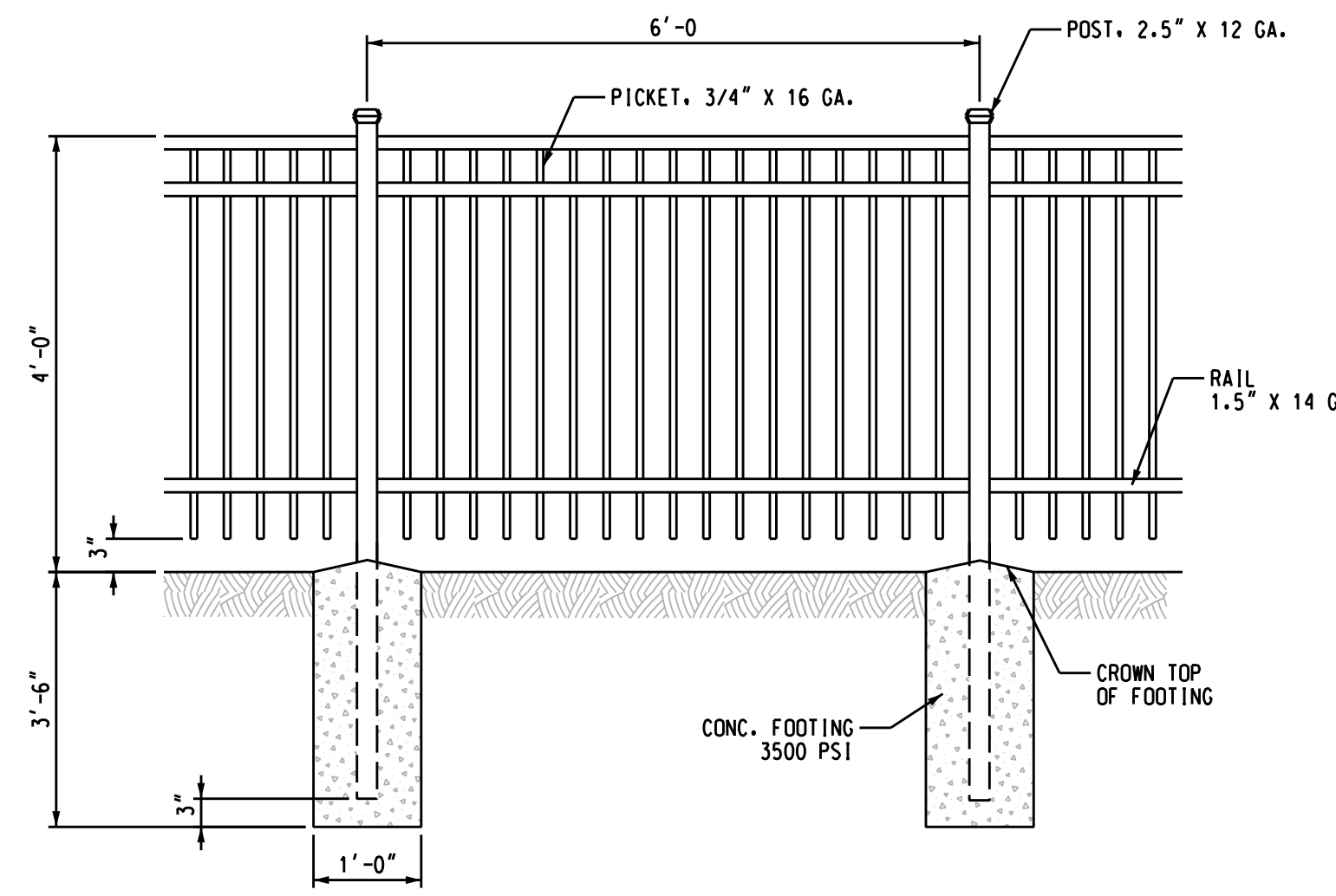
CROSS SECTION MASONRY WALL SE CORNER
NO SCALE



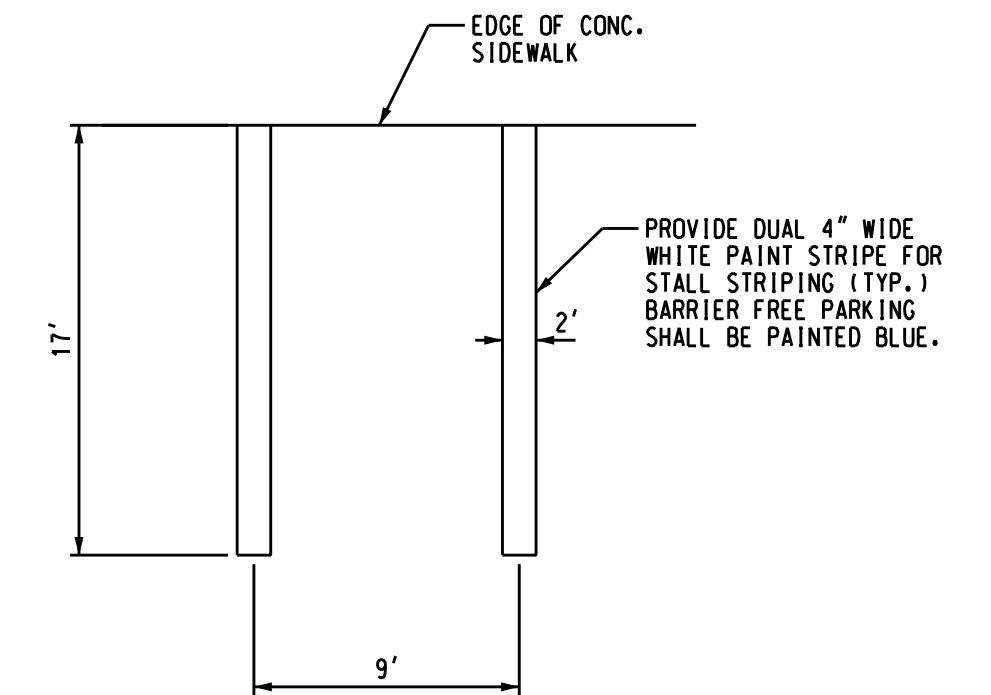
OUTLET CONTROL STRUCTURE #2 (SOUTH POND)
NO SCALE



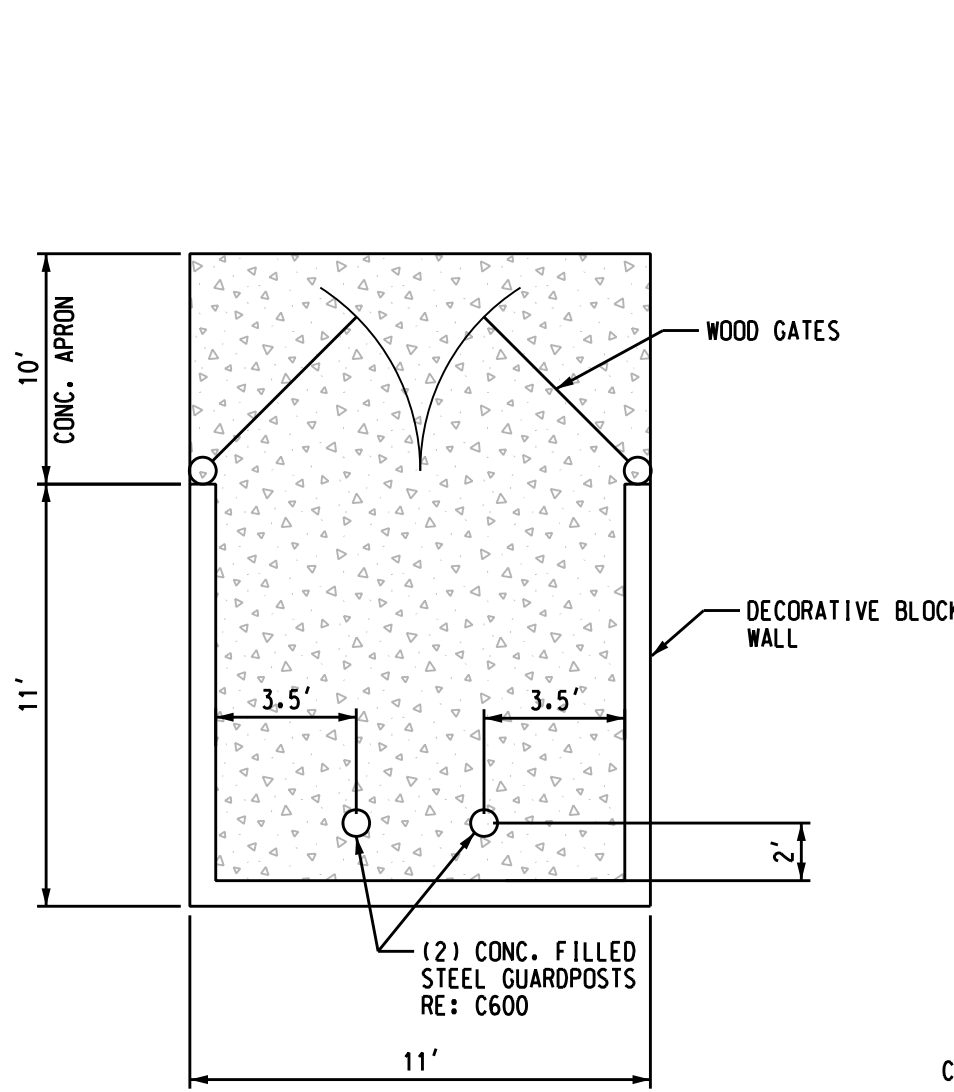
GUARD POST DETAIL
NO SCALE



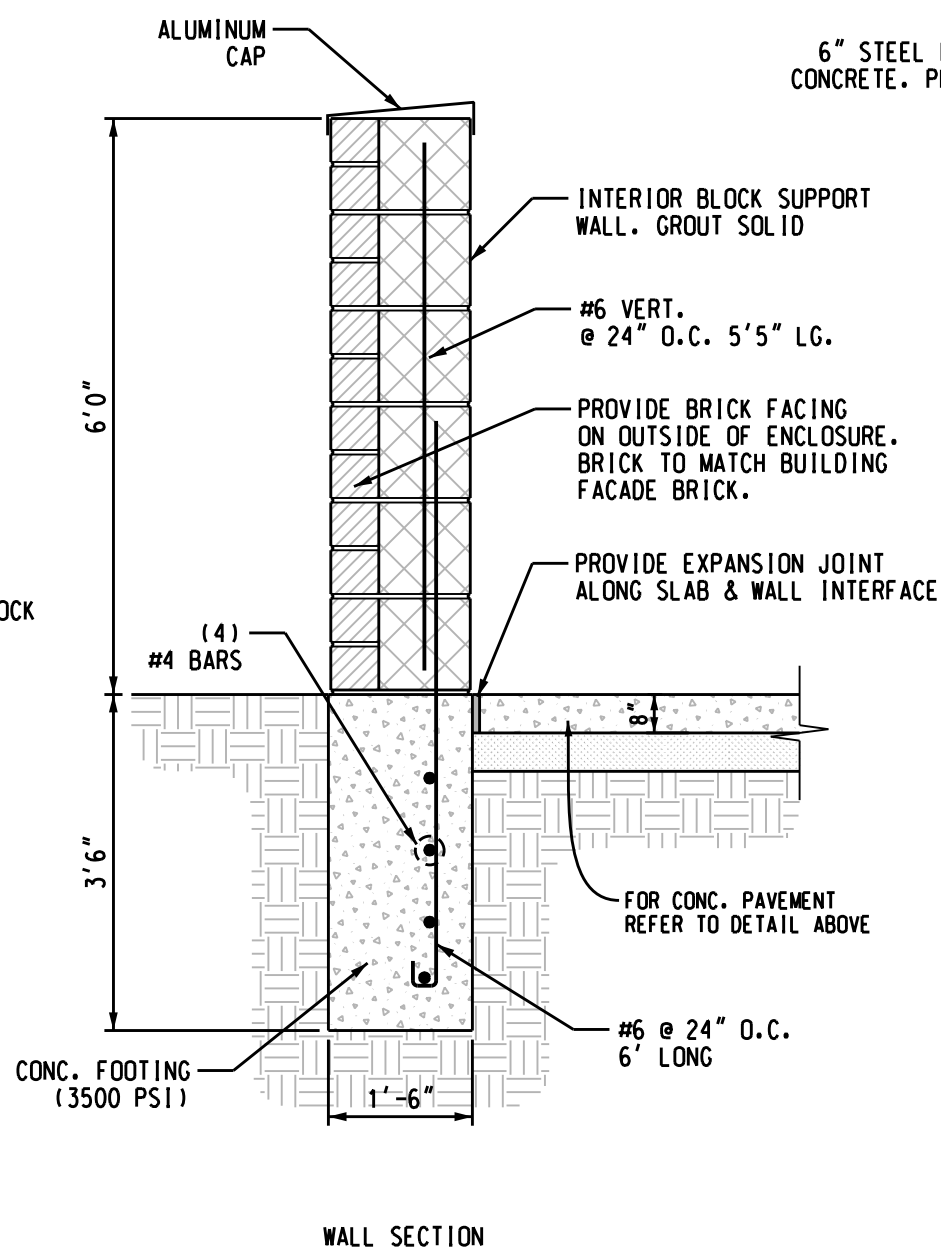
DECORATIVE ALUMINUM FENCE DETAIL
NO SCALE



PARKING STALL PAINT STRIPING DETAIL
NO SCALE

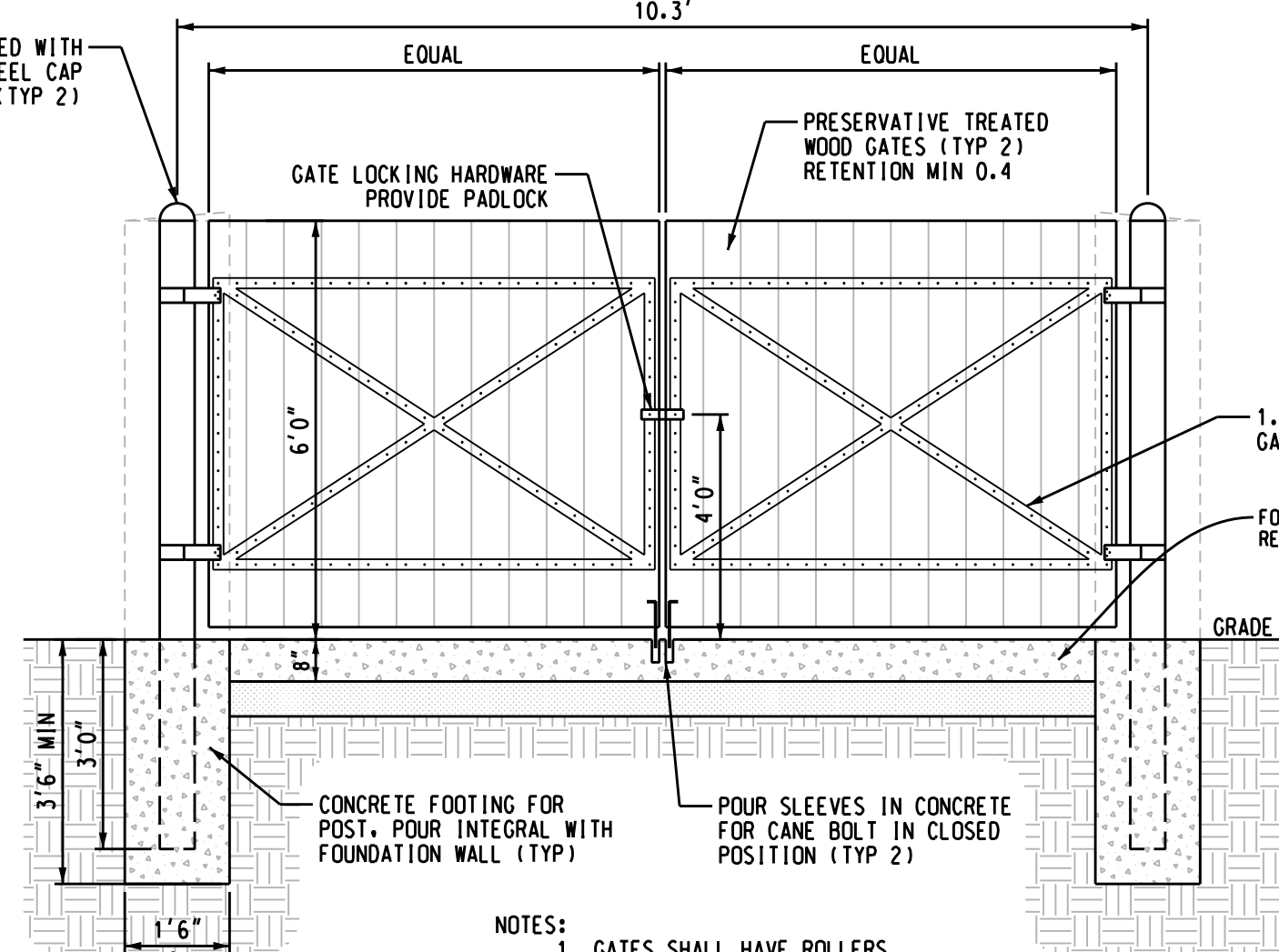


PLAN VIEW



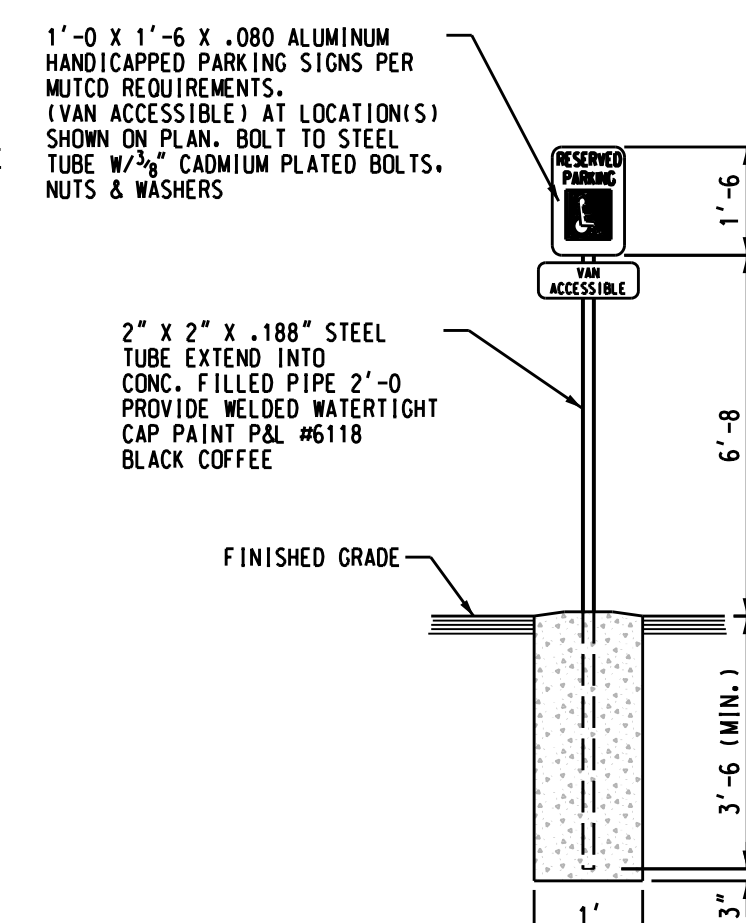
WALL SECTION

TRASH ENCLOSURE DETAIL
NO SCALE



FRONT ELEVATION

NOTES:
1. GATES SHALL HAVE ROLLERS.
2. COLOR OF GATES SHALL COMPLEMENT COLOR OF BRICK.



BARRIER FREE PARKING SIGN
NO SCALE

NO.	DATE	SUBJECT
01-12-22	REISSUED TO WHITE LAKE TWP.	
12-13-21	REISSUED WHITE LAKE TWP.	
10-28-21	WHITE LAKE TWP. (SITE PLAN)	
04-13-21	TOPOGRAPHIC SURVEY	
REVISION OR ISSUE		

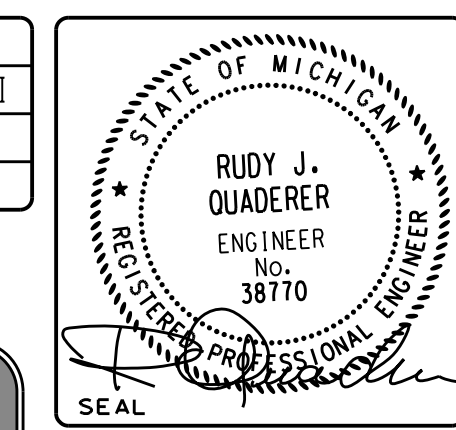
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

UNION LAKE ROAD
WHITE LAKE TWP.,
OAKLAND COUNTY
STATE OF MICHIGAN

DRAWING TITLE
SITE DETAILS

DRAWN
DESIGNED BRZEZINSKI
CHECKED QUADERER
FIELD WORK

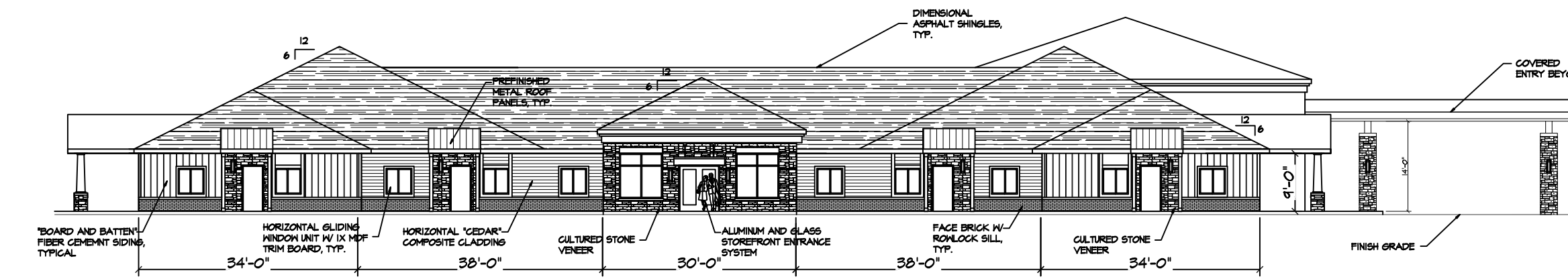


Griggs Quaderer Inc.
CIVIL ENGINEERING · LAND SURVEYING · SITE PLANNING

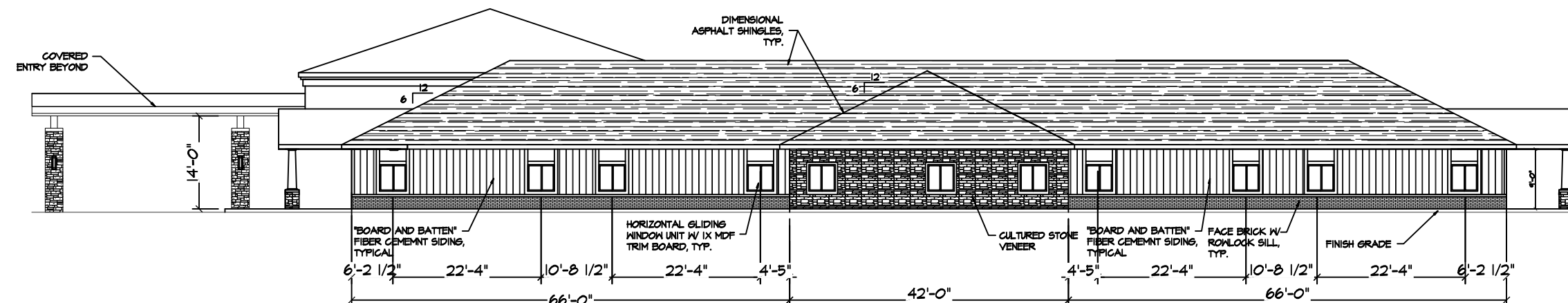
8308 OFFICE PARK DRIVE
GRAND BLANC, MI 48439
PH: (810) 695-0154
FX: (810) 695-0158
WWW.GQINCORP.COM

PROJECT NUMBER 210303
PROJECT PHASE SPA

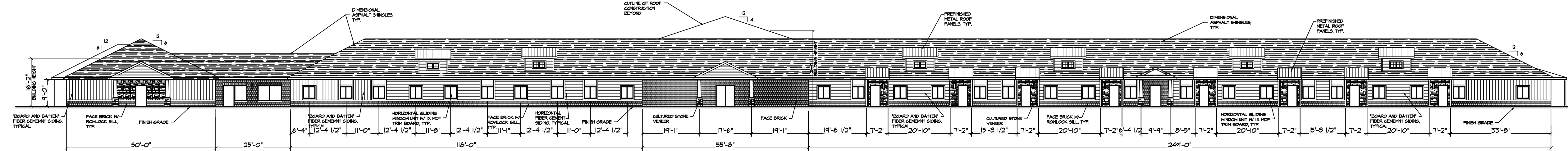
SHEET C600



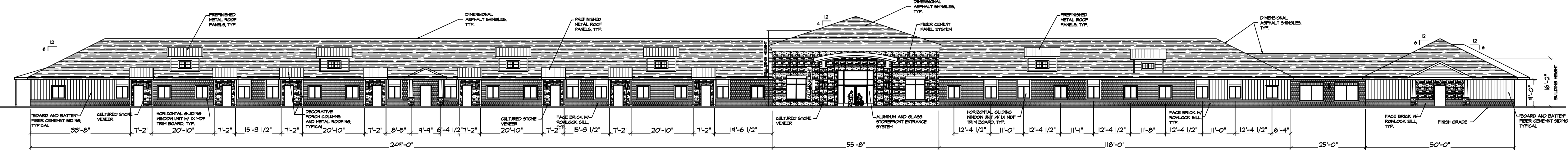
CONCEPTUAL
 EAST ELEVATION
 1" = 20'-0"



CONCEPTUAL
 WEST ELEVATION
 1" = 20'-0"



CONCEPTUAL
 SOUTH ELEVATION
 1" = 20'-0"



CONCEPTUAL
 NORTH ELEVATION
 1" = 20'-0"

REVISIONS

▲	12-8-2021
▲	
▲	
▲	

JOB NO: 021-024

DATE: 6-1-2021

DRAWN BY: JKC

SCALE: AS NOTED

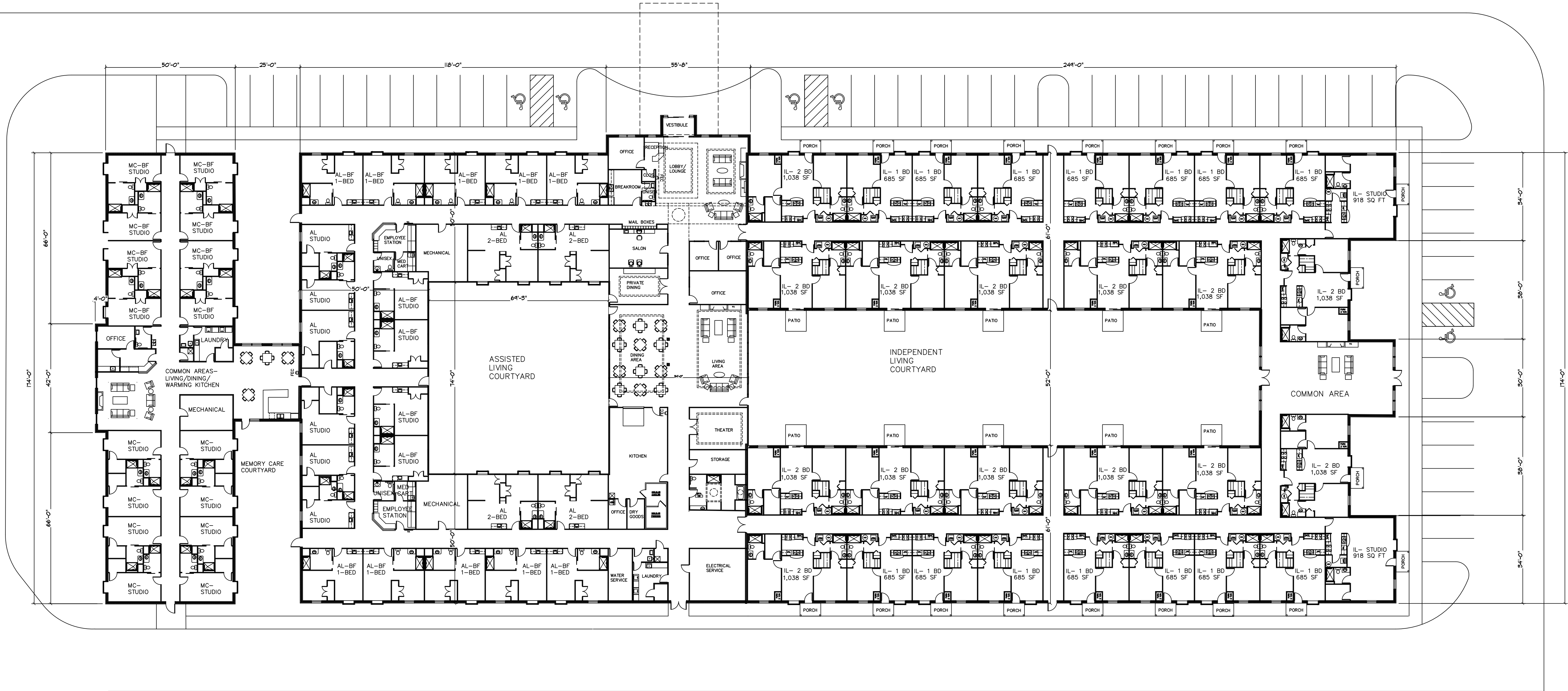
SHEET NO:

A2

OF

PROPOSED NEW SENIOR HOUSING
COMFORT CARE SENIOR LIVING
 UNION LAKE ROAD, WHITE LAKE TOWNSHIP

CONCEPTUAL FLOOR PLAN



N
 CONCEPTUAL
 OVERALL FLOOR PLAN
 1" = 20'-0"

UNIT SUMMARY	
ASSISTED LIVING	INDEPENDENT LIVING
10-AL STUDIO UNITS	2-IL STUDIO UNITS
10-AL ONE BED UNITS	14-IL ONE BED UNITS
4-AL TWO BED UNITS	14-IL TWO BED UNITS
16-MC STUDIO UNITS	
TOTAL AL UNITS = 40	TOTAL IL UNITS = 30
34,970 SQ FT	31,872 SQ FT

REVISIONS	
1	12-8-2021

JOB NO: 021-024
 DATE: 6-1-2021
 DRAWN BY: JKC
 SCALE: AS NOTED
 SHEET NO:

Community Impact Statement: White Lake Comfort Care LLC

Brief Description:

A. White Lake Comfort Care LLC is an \$13 million independent living, assisted living, and memory care development on Union Lake Road. The community is staffed 24 hours a day, 7 days a week; and visitation hours are primarily held during normal day hours. Our services will include nursing and caregiving options, dietary (full commercial kitchen to provide home cooked meals), and 70 units of independent living, assisted living, and memory care units.

The use of senior housing will have low impact on its surrounding neighbors, due to the deliveries, visitation, and appointments being conducted during the day. There will be no noise, smoke, dust impacts on the neighbors and its surrounding community.

B. The surrounding land uses include senior living community (Independence Village), single family homes, condominiums, and educational facilities (English Oaks Montessori Christian Academy).

Community Facilities and Services:

- A. No police services will be required.
- B. There will be an estimated of .5 EMS trips per occupied unit per year.
- C. 1 water and 1 sewer tap. Please see attached.
- D. There will be 1 truck unloading per every 2 weeks for food and produce orders.
- E. N/A

Economics:

- A. Construction will create 50 jobs and another 50 permanent jobs will be created once the community is operational.
- B. Summer- \$258,968.42: Oakland County, ISD, OCC and State Education, plus Walled Lake School District
- Winter- \$73,197.52: Oakland County Parks & Rec, Huron Valley Clinton Metro Parks (HCMA), Art Institute and Zoo Authority, plus the township's – Police, Fire, Library, and White Lake P&R .

Environment:

- A. There will be a detention basin located on the property with many trees and shrubs located on the property (please see the site plan for location and schedules).
- B. N/A
- C. N/A
- D. N/A

Noise:

All noises on site during construction and during operations will be below the noise standards.

Traffic:

Traffic study was previously submitted.

Mapping:

Please see attached

Other:

As a part of the PD application, this project and development will contain community benefits to satisfy the township and its stakeholders. This development will provide an emergency access point for the Westview development that is needed for emergency service vehicles. We will also tie in different engineering systems to benefit both sites.

Our development will also provide housing to the senior population that has a lack of options within the township limits and its surround areas. According to a third-party market study conducted by Vogt Strategic Insights, there is a need for 303 senior living units needed within a 5-mile radius of the site. Between 2020 and 2025, there is an estimated increase of 30.8% of the 75 and older population in the area, many which are need of help with 3 of 5 ADL categories (changing, feeding, toileting, medication administration, and housekeeping). Our development will add 70 senior housing units to the area.

Information:

Douglas Boehm
Comfort Care Senior Living
Doug@comfortcaresl.com
248-930-7875

Rudy Quaderer, PE
Griggs Quaderer Inc.
8308 Office Park Dr.
Grand Blanc, MI 48439
PH: 810.695.0154
FX: 810.695.0158



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

January 17, 2022

Sean O'Neil, Director
Community Development Department
Charter Township of White Lake
7525 Highland Road
White Lake, Michigan 48383

**Re: Comfort Care Development
Rezoning Traffic Study Review**

Ref: DLZ File No. 2145-7233-19

Date of Study: 12/29/21

Design Professional: Richard Beaubien, PE, PTOE;
Beaubien Engineering

The applicant has submitted a Rezoning Traffic Study (RTS) for rezoning P.I. 12-36-176-002, located along the west side of Union Lake Road opposite Concord Drive, from Local Business (LB) to Planned Development (PD). The proposed development in the RTS is an assisted living center with 70 proposed dwelling units. The study evaluated the potential traffic volumes generated by a development under the existing zoning, and the potential traffic volumes generated by the proposed development under the rezoning.

We have reviewed the analysis; the methodology is in line with standard practices, and the findings are supported by the data provided. The analysis indicates that the zoning change will not significantly impact the traffic volumes compared with the existing zoning classification. The RTS utilized previous Daily Traffic counts from the Southeast Michigan Council of Governments (SEMCOG) along southbound Union Lake Road, that span from 1999 to 2017, to derive the traffic volumes along this stretch of roadway. However, while a traffic volume of 7,300 ADT is used in the RTS, the SEMCOG traffic volume map indicates the traffic volume is approximately 7,800 ADT.

Based on data from the Continuing Care, Assisted Living section of the 11th edition of the "ITE Trip Generation Manual", the additional daily trips are 282 trips per day. Additionally, 26 AM Peak Hour trips per day and 32 PM Peak Hour trips per day are anticipated to be added to the existing traffic volumes. These volumes are significantly less than the volumes generated by a 40,000 square foot Shopping Plaza or a 4,000 square foot Fast Food Restaurant, either of which would fall under the existing Local Business zoning.

The study did not evaluate the existing traffic conditions along Union Lake Road, and the proposed development's impact on traffic. A RTS typically includes some traffic modeling to evaluate the level of service for all vehicular movements under existing conditions, a future no-build condition, and a future build-out condition. The modeling should demonstrate level of service information as well as any potential delays



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

Comfort Care Development
Rezoning Traffic Study Review
Page 2 of 2

added into the system. There has been significant development along Union Lake Road in the last several years and ensuring the roadway can adequately serve the residents is paramount.

The study also did not evaluate the need for turn lanes or tapers at the proposed site drive. The Road Commission for Oakland County (RCOC) often requires right turn tapers on developments of this nature. An RCOC permit will be required prior to construction.

As previously stated, we are in agreement with the conclusions and recommendation for rezoning the existing parcel from "LB" to "PD". However, there are additional tasks that should be undertaken before approval is given by the Township.

If you have any questions, please feel free to contact to me.

Respectfully,
DLZ, Inc.

Leigh Merrill, P.E.
Project Manager

Cc: Michael Leuffgen, P.E., DLZ *via email*
Justin Quagliata, Community Development *via e-mail*
Hannah Micallef, Community Development *via e-mail*



1685 Ross Drive
Troy, MI 48084
248.515.3628
beaubienengineering.com

December 29, 2021

Mr. Doug Boehm
Comfort Care
4180 Tittabawassee Road
Saginaw, Michigan 48604

Re: Rezoning Traffic Study for Alternative Land Uses in White Lake Township

Dear Mr. Boehm:

Beaubien Engineering has been retained to provide you with a Rezoning Traffic Study with trip generation estimates for the development of a New Assisted Living and Memory Care facility on Union Lake Road in White Lake Township. Independent living units are restricted to age 55 and older. We understand that the parcel is currently zoned LB (Local Business). Our assignment is to provide you with estimates of the trips that would be generated by the parcel for the proposed use in comparison with the use under existing zoning.

The site has access to the west side of Union Lake Road opposite Concord Drive. Union Lake Road is under the jurisdiction of the Road Commission for Oakland County and has an average daily traffic volume of 7300.

Section 6.3 of the White Lake Township Zoning Ordinance outlines the requirements for Traffic Impact Studies. Table 6-17 shows the content requirements based on the Traffic Study Type. Because the estimated driveway trips per day are less than five hundred, our study addresses the requirements for a Rezoning Traffic Study.

Requested Rezoning/Proposed Use

Under the current LB (Local Business) zoning, the property could be developed as a shopping plaza (ITE Land Use Code 821). Because of the parking requirements for this land use, the size of the development would be limited to 40,000 sq ft. The existing zoning would allow fast food restaurants. The proposed zoning would allow development of an assisted living and congregate care residential land use. We understand that the township prefers that the assisted living land use (ITE Land Use Code 254) be used for the traffic analysis rather than the congregate care land use (ITE Land Use Code 253) because the data on Land Use Code 253 are limited. The conceptual site plan for the site is attached. We expect that none of the driveway trips will be pass-by or diverted trips.

Site, Surroundings, and Study Area

The site has access to the west side of Union Lake Road opposite Concord Drive. Union Lake Road is under the jurisdiction of the Road Commission for Oakland County and has an average daily traffic volume of 7300. It is two lanes wide with a posted speed limit of 45 mph. Because the proposed entrance is directly opposite the Concord Drive residential driveway the potential issue of overlapping entering left turns has been addressed. This portion of Union Lake Road does not have horizontal or vertical curves that limit sight distance. There are no other intersections or driveways within 300 ft of the proposed entrance driveway. Land use on the west side of Union Lake Road is Multiple Family Residential (RM-2), Single Family Residential (R1-C), and Local Business (LB). Land Use north of the site is Planned Development District (PD). Land Use south of the site is Single Family Residential (R1-A)

Current Traffic Count Data

Union Lake Road is under the jurisdiction of the Road Commission for Oakland County and has an average daily traffic volume of 7300. The Southeast Michigan Council of Governments has documented southbound Union Lake traffic volume counts at Cooley Lake/E. Leg as shown in the following table

<u>Date</u>	<u>SB Union Lake Volume</u>
<u>8/29/2017</u>	<u>4611</u>
<u>5/16/2012</u>	<u>4673</u>
<u>4/27/2010</u>	<u>4430</u>
<u>6/19/2008</u>	<u>3687</u>
<u>4/27/2005</u>	<u>4803</u>
<u>8/26/1999</u>	<u>4829</u>

SEMCOG has documented a 2015 daily traffic volume of 3060 on southbound Union Lake Road, north of Hutchins.

Anticipated Future Changes to Land Uses and Roads

We know of no other developments that could generate traffic at offsite intersections by 5% or more. There are no planned road improvements for this section of Union Lake Road.

Forecast of Driveway Trip Generation

Traffic impacts are often derived for the estimates of traffic to be generated by a proposed development. This is usually done by using trip generation rates or equations. Trip generation rates or equations provide an estimate of all trips generated by a site.

Rates are commonly expressed in trips per unit of development. For example, trips per dwelling unit are commonly used for residential developments, while trips per 1,000 square feet of gross floor area are used for offices and retail. Equations provide a direct estimate of trips based upon development units being multiplied in a mathematical relationship.

Trips are defined as a single or one directional movement with either the origin or destination of the trip inside the study site. Thus, a car entering and leaving a site would be recorded as generating two trips. Trip generation estimates are often the most critical factors in assessing impacts and needs of a proposed development.

There are several sources for trip generation rates and equations, which are based on data collected from locations in the United States and Canada. These are compilations of data that have been gathered over many years for various land uses. The most widely used source of national trip generation data is the *Trip Generation Manual*, published by the Institute of Transportation Engineers (ITE). The information in this report is almost solely derived from suburban and urban sites. Data included in trip generation was obtained from actual driveway counts of vehicular traffic entering and exiting the site. The eleventh edition contains more than 2,000 data sets from individual trip generation studies. The report also includes discussions on the application and uses of trip generation rates and equations; descriptions of the characteristics of each land uses; maximum/minimum and average rates for weekdays, weekends, and peak hours of the generator and adjacent street traffic; and additional data regarding data variability.

Beaubien Engineering prepared trip generation estimates for the existing and proposed land uses. We understand that the Township requires that the Assisted Living Land Use Code be used to represent assisted living and memory care units. The table below show the Continuing Care, Assisted Living and Congregate Care options. The following table shows the number of trips expected on an average weekday and during the weekday AM and PM peak hours. The correlation coefficient for the Continuing Care Assisted Living option is 0.98. The correlation coefficient for the Congregate Care option is 0.96.

Land Use	ITE Code	Quantity	Unit	Daily Trips	AM Peak Hour Trips	PM Peak Hour Trips
Continuing Care Retirement Community	255	70	Unit	173	13	13
Assisted Living	254	67,270 sq ft	10,000 Sq Ft of Building Area	282	26	32
Congregate Care Dwelling Unit	253	70	Dwelling Unit	155	6	13
Shopping Plaza	821	40,000 sq ft	1,000 Sq. Ft. of Building Area	2680	70	208
Fast Food Restaurant	934	4000 sq ft	1,000 Sq Ft of Building Area	1868	176	132

The table shows that development of the site under the current LB (Local Business) zoning would generate more trips than the proposed zoning to allow an assisted living or congregate care residential development.

Discount Driveway Trips as Appropriate

The proposed land use does not involve shopping or dining. We do not expect the number of driveway trips to be reduced by transit use or internal or downtown capture. Transit service in this part of Oakland County is extremely limited. SMART does not show any routes in White Lake Township. Walking trips along Union Lake Road are a rare event. We expect that none of the driveway trips will be pass-by or diverted trips.

Forecast and Comparison of Trip Generation by Uses Permitted within Existing and Proposed Zoning Districts.

Beaubien Engineering prepared trip generation estimates for the existing and proposed land uses. We understand that the Township requires that the Assisted Living Land Use Code be used to represent assisted living and memory care units. The table below shows the Continuing Care, Assisted Living and Congregate Care options. The following table shows the number of trips expected on an average weekday and during the weekday AM and PM peak hours. We expect that none of the driveway trips will be pass-by or diverted trips.

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The table shows that development of the site under the current LB (Local Business) zoning would generate more trips than the proposed zoning to allow an assisted living or congregate care residential development.

If you have any questions or require any additional information, please contact the undersigned.

Very sincerely yours,

BEAUBIEN ENGINEERING, LLC.

A handwritten signature in cursive script that reads "Richard F. Beaubien". The signature is written in black ink and is positioned below the typed name of the company.

Richard F. Beaubien, P.E., RSP
Professional Traffic Operations Engineer

cc: Rudy Quaderer

Qualifications of Preparer

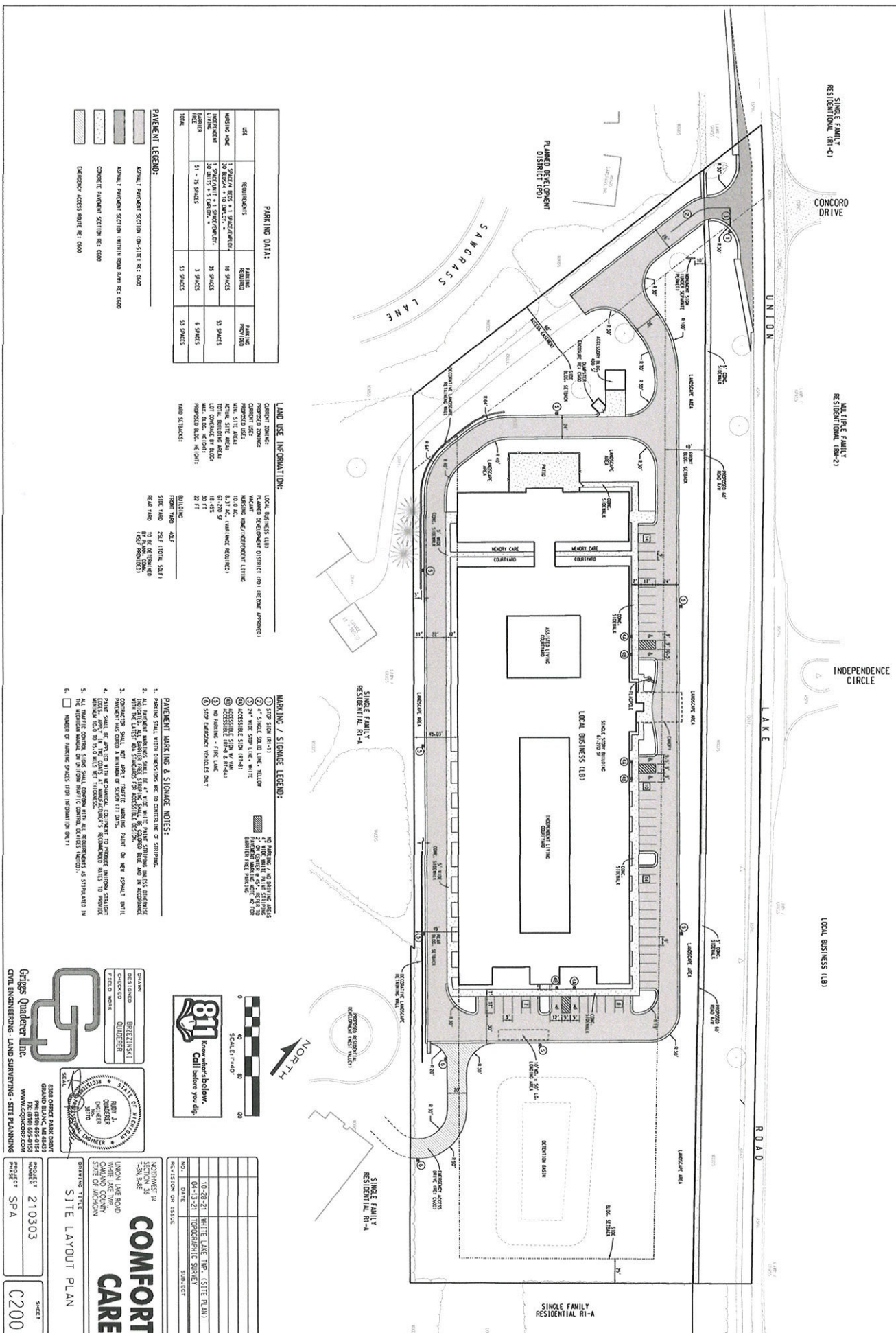
Richard Beaubien, P.E., PTOE

Mr. Beaubien is the Managing Director for Beaubien Engineering. He served as Transportation Director for Hubbell, Roth & Clark, Inc. for over 20 years and has 40 years of experience in municipal traffic engineering, transportation planning, highway design, traffic system operations, right-of-way acquisition, and Intelligent Transportation Systems. He is a Fellow member of the Institute of Transportation Engineers.

Mr. Beaubien's prior experience includes 14 years as the Transportation Director for the City of Troy, Michigan; 2 years as Chief Engineer for Reid, Cool & Michalski Traffic and Transportation Engineers; and 5 years as a Highway Engineer for the Federal Highway Administration. He chairs the Metro Detroit Traffic Incident Management Coordinating Committee. He is a Past- President of the Intelligent Transportation Society of Michigan.

Mr. Beaubien has been recognized as a traffic engineering expert in litigation involving traffic crashes. He is a registered professional engineer in Michigan, Illinois, Missouri, and Florida. He is a registered traffic engineer in California. He has been certified as a Professional Traffic Operations Engineer and a Road Safety Professional by the Transportation Professional Certification Board, Washington, D.C. He is a past International President of the Institute of Transportation Engineers and a recipient of the Institute's Marsh Award.

Mr. Beaubien holds a bachelor's degree in Civil Engineering and a master's degree in Transportation and Traffic Engineering from the University of Michigan.



PARKING DATA:

USE	REQUIREMENTS	PAVING MATERIAL	PAVING METHOD
RESIDENTIAL	1 SPACE/2 UNITS + 1 SPACE/COMMITMENT	ASPHALT	ASPHALT
OFFICE	30 RES/SPACE + 15 COM/SPACE	ASPHALT	ASPHALT
RETAIL	1.5 SPACE/COMMITMENT + 1 SPACE/COMMITMENT	ASPHALT	ASPHALT
TRUCK	15 - 15 SPACES	ASPHALT	ASPHALT
TOTAL		ASPHALT	ASPHALT

LAND USE INFORMATION:

CONCEPT ZONING	LOCAL BUSINESS (LB)
PLANNED DEVELOPMENT DISTRICT (PD) / REGIONAL IMPROVED	PLANNED DEVELOPMENT DISTRICT (PD) / REGIONAL IMPROVED
PROPOSED USES	PROPOSED USES
MIN. YIELD AREA	MIN. YIELD AREA
TOTAL SITE AREA	TOTAL SITE AREA
NET DEVELOPABLE AREA	NET DEVELOPABLE AREA
MAX. BLDG. HEIGHT	MAX. BLDG. HEIGHT
PROPOSED BLDG. HEIGHT	PROPOSED BLDG. HEIGHT
MAX. STORIES	MAX. STORIES
BLDG. TYPE	BLDG. TYPE
FROM TABS	FROM TABS
50% TYP	50% TYP
80% TYP	80% TYP
100% TYP	100% TYP

- MARKING / STORAGE LEGEND:**
- ① STOP SIGN (R-1-1)
 - ② 4" SINGLE SQUARE SIGN, YELLOW
 - ③ 4" X 4" SIGN, WHITE ON BLACK
 - ④ 4" X 4" SIGN, WHITE ON RED
 - ⑤ ACCESSIBLE SIGN W/ H&A
 - ⑥ 4" X 4" SIGN, WHITE ON RED
 - ⑦ NO PARKING - FIRE LANE
 - ⑧ STOP HANDICAPPED VEHICLES ONLY
- PARKING MARKING & STORAGE NOTES:**
- PARKING SHALL BE WITH HANDICAPPED AND TO CONFORM WITH 2009 IBC.
 - ALL PARKING MARKINGS SHALL BE 4" WIDE WHITE PAINT STRIPES UNLESS OTHERWISE NOTED. ALL MARKINGS SHALL BE 4" WIDE WHITE PAINT STRIPES UNLESS OTHERWISE NOTED.
 - CONTRACTOR SHALL NOT APPLY TRAFFIC MARKING PAINT ON THE NEW ASPHALT UNTIL 24 HOURS AFTER PAVING.
 - PAVING SHALL BE APPLIED AND COMPACTED TO ACHIEVE A FINISH SURFACE WITHIN 10% TO 15% WET THICKNESS.
 - ALL TRAFFIC MARKING SHALL BE APPLIED TO THE SURFACE AS SHOWN IN THE PLAN.
 - NUMBER OF PARKING SPACES FROM INSPECTION ONLY.

Scale: 1" = 20'

North Arrow: NORTH

811 Know what's below. Call before you dig.

CREATOR: GIGGS ENGINEERING

DESIGNED BY: GIGGS ENGINEERING

CHECKED BY: GIGGS ENGINEERING

DATE: 08/11/2011

PROJECT: SPA

SCALE: 1" = 20'

DATE: 08/11/2011

PROJECT: SPA

COMFORT CARE

PROJECT: 210303

PROJECT: SPA

SHEET: C200

DATE: 08/11/2011

PROJECT: SPA

SHEET: C200