

**WHITE LAKE TOWNSHIP
INTER-OFFICE MEMORANDUM
COMMUNITY DEVELOPMENT DEPARTMENT**

DATE: June 13, 2022

TO: Rik Kowall, Supervisor
Township Board of Trustees

FROM: Sean O'Neil, AICP
Community Development Director

**SUBJECT: Comfort Care White Lake
Rezoning request and preliminary site plan approval**
Property described as parcel number 12-36-176-002, located on the west side of Union Lake Road, between Hutchins Road and Cooley Lake Road, consisting of approximately 8.7 acres. Applicant requests to rezone the property from (LB) Local Business to (PD) Planned Development or any other appropriate zoning district.

The above request is now ready for Township Board Consideration. The matter was considered by the Planning Commission at their regular meeting of May 19, 2022 at which time the **Planning Commission recommended approval** of the rezoning request and preliminary site plan approval. The requests are now ready to be considered by the Township Board.

Please find enclosed the following related documents:

- Draft minutes from the Planning Commission meeting held on May 19, 2022.
- Review letter prepared by Michael Leuffgen, Township Engineer, dated May 12, 2022.
- Review letter prepared by Justin Quagliata, Staff Planner, dated May 11, 2022.
- Review letter prepared by Jason Hanifen, White Lake Township Fire Marshal, dated May 11, 2022.
- Memo prepared by Jeanine Smith, Assessor, dated April 27, 2022.
- Plans and elevations submitted by the applicant.

Please place this matter on the next available Township Board agenda. Do not hesitate to contact me should you require additional information.

**WHITE LAKE TOWNSHIP
PLANNING COMMISSION**

Township Annex, 7527 Highland Road
White Lake, MI 48383
May 19, 2022 @ 7:00 PM

CALL TO ORDER

Commissioner Anderson called the meeting to order at 7:00 PM and led the Pledge of Allegiance. Roll was called.

ROLL CALL

Debby Dehart
Scott Ruggles
Mark Fine
Steve Anderson
Merrie Carlock
Pete Meagher
Matt Slicker
T. Joseph Seward

Absent: Robert Seeley

Also Present: Sean O'Neil, Community Development Director
Justin Quagliata, Staff Planner
Mike Leuffgen, DLZ
Lisa Kane, Recording Secretary

Visitors: 14 members of the public were present

APPROVAL OF AGENDA

Director O'Neil asked to amend the agenda, adding *8B. Elizabeth Lake Retail Conceptual Discussion*.

Commissioner Dehart moved to approve the amended agenda of the May 19, 2022 Planning Commission Meeting.

Commissioner Fine supported and the MOTION CARRIED with a voice vote: 8 yes votes.

APPROVAL OF MINUTES

- a. Regular meeting minutes of May 5, 2022
- b. Correction of minutes as noted by Commissioner Seward of a typographical error.

Commissioner Fine moved to approve the amended Minutes of May 5, 2022.

Commissioner Seward supported and the MOTION CARRIED with a voice vote: 8 yes votes.

CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)

John Hunt of 871 Oxhill Drive had concerns about snow removal at the proposed Black Rock site and made suggestions on how to accommodate snow removal in the parking lot.

PUBLIC HEARING

A. 1392 S. Williams Lake

Property described as parcel number 12-36-476-002 (1392 S. Williams Lake Road) located on the west side of Williams Lake Road, north of Cooley Lake Road and contains approximately 386.60 feet of frontage on Williams Lake Road. Consisting of approximately 2.50 acres.

Request: **Applicant requests to rezone the parcel from AG (Agricultural) to RM-1 (Attached Single-Family).**

Applicant: Justin Jundy
1392 S. Williams Lake Road
White Lake, MI 48386

Applicant Present: Justin Jundy of 1392 S. Williams Lake Rd, Azher Matty and Andrew Markell of J & D Architectural Engineering

Director O'Neil stated the rezoning request was consistent with the Master Plan. This property could be served by public utilities would have no access to Whetherstone's roads, storm sewer, or other utilities. The concept drawing, which was not reviewed for compliance with the zoning ordinance and not under consideration by the Planning Commission, indicated the only road access being on Williams Lake Road. DLZ did not have any objections to the rezoning traffic study submitted. Staff recommends approval of the rezoning.

Commissioner Slicker asked staff if Stony Court met the standards for a dead-end road.

Director O'Neil explained Stony Court was compliant 19 years ago and was considered an extended driveway. There was an ongoing issue of traffic cutting through Whetherstone and adding another access point to Williams Lake Road would have a negative impact.

Commissioner Dehart asked staff about RM-1 zoning density and if units had to be owner-occupied.

Director O'Neil stated the density for RM-1 was 6 to 8 units per acre and any development of this site would be expected to present 6 to 8 units per acre.

Mr. Matty presented the conceptual drawing and discussed the rezoning traffic study.

Mr. Jundy stated they would like to bring more families to the area.

Commissioner Carlock stated natural vegetation was preferred over new, young trees.

Mr. Matty stated they intend on having an arborist visit the site and give recommendations.

Commissioner Slicker confirmed the Commission was only considering the rezoning request at this time and inquired about the conceptual drawing.

Commissioner Anderson opened the public hearing at 7:26 p.m.

Bruce Scarcella of 8052 Stony Court inquired about the density proposed and the zoning of his neighborhood.

Director O'Neil answered the resident and encouraged him to contact the Community Development Department for more information regarding the zoning of his neighborhood.

Joellen Bennett of 1357 Waverly Drive inquired about the utilities available to this development and if this would be accessible through her neighborhood.

Commissioner Anderson explained those matters were not considered during a rezoning request.

Director O'Neil explained a new development would not be allowed to access any utilities or roads without the consent of Whetherstone.

Christine Grimes of 1373 Waverly Drive was concerned about traffic and asked when the traffic study was completed.

Mr. Quagliata stated the rezoning traffic study utilized traffic count information from July 2021 and December 2021.

Michael Bennett of 1357 Waverly Drive was also concerned about traffic.

Corey Fowler of 8624 Newport co-owns a unit on Waverly Drive and was concerned about the animals in the nearby wooded area.

Marilyn Waltz of 1365 S. Williams Lake Road (Waterford) had concerns about the increase of traffic.

Commissioner Anderson closed the public hearing at 7:39 p.m.

Commissioner Anderson asked the applicants to take the feedback from the public hearing into consideration when preparing their site plan.

Commissioner Seward moved to recommend approval to the Township Board of the rezoning from AG (Agricultural) to RM-1 (Attached Single Family), for parcel number 12-36-476-002.

Commissioner Fine supported, and the MOTION CARRIED with a roll call vote (8 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seward/yes, Slicker/yes, Ruggles/yes)

B. VCA

Property described as parcel number 12-21-276-023 (7755 Highland Road) located on the north side of Highland Road, west of Elizabeth Lake Road. Consisting of approximately 1.27 acres.

Request: **1) Amended final site plan**

2) Special land use to establish and operate a veterinary clinic

Applicant: VCA Animal Hospitals, Inc

12401 West Olympic Blvd

Los Angeles, CA 90064

Applicant Present: Rebecca Wilson of 5434 Mancelona Dr., Grand Blanc

Director O'Neil introduced the request and explained how the zoning ordinance was previously amended to allow for the special land use of a veterinary clinic in the LB (Local Business) zoning district. The applicant requested an amendment to the final site plan for the outdoor pet areas. The site was already on municipal water and sewer. Staff recommended approval of the special land use and the amended final site plan, and suggested to include hours of operation as a condition of the special land use approval.

Commissioner Seward asked staff if the neighboring business, Auto Zone, operated 24 hours a day.

Director O'Neil stated it did not.

Commissioner Carlock asked staff about the other tenants in the building.

Director O'Neil explained there would be a second tenant occupying one unit and an unoccupied unit in between the veterinary clinic and the carry out restaurant on the opposing end of the building.

Commissioner Slicker inquired about the turf used in the outdoor pet areas and cleaning of the areas.

Ms. Wilson stated the VCA needed two exterior areas for walking dogs, one for those who had communicable illnesses and a separate area for dogs that had a medical procedure. The artificial turf would be cleaned every day. The facility would not offer grooming, or boarding besides surgical stays. No after-hours emergency services would be offered; the VCA referred patients to 24-hour veterinary hospitals in the area. Ms. Wilson stated the requested hours of operation were Monday through Friday from 9 a.m. to 7 p.m. and Saturday from 9 a.m. to 1 p.m. The clinic was closed Sundays.

Commissioner Anderson opened the public hearing at 8:00 p.m.

No members of the audience spoke during the public hearing.

Commissioner Anderson closed public hearing at 8:02 p.m.

Commissioner Meagher moved to approve the amendment of the final site plan subject to all staff and consultants' review comments being addressed, for Parcel Number 12-21-276-023 (7755 Highland Road).

Commissioner Dehart supported, and the **MOTION CARRIED** with a roll call vote (8 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seward/yes, Slicker/yes, Ruggles/yes)

Commissioner Meagher moved to approve the Special Land Use subject to the stipulated hours of operation to establish and operate a veterinary clinic, for Parcel Number 12-21-276-023 (7755 Highland Road).

Commissioner Dehart supported, and the MOTION CARRIED with a roll call vote (8 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seward/yes, Slicker/yes, Ruggles/yes)

CONTINUING BUSINESS

A. Comfort Care White Lake

Property described as parcel number 12-36-176-002, located on the west side of Union Lake Road, between Hutchins Road and Cooley Lake Road, consisting of approximately 8.7 acres.

Request: **i) Rezoning (from (LB) Local Business to Planned Development (PD)**
ii) Preliminary site plan approval

Applicant: Comfort Care, LLC
4180 Tittabawassee Road
Saginaw, MI 48604

Applicant Present: Doug Boehm, Owner & Executive Director of Comfort Care
John Costa, Architect and Rudy Quaderer, Site Engineer

Mr. Quagliata stated the size of the building and density were reduced from the previous plan. The secondary access to Union Lake Road had been removed; an emergency/secondary access through the West Valley site (if the project was constructed) was proposed. Staff recommended posting 'No Parking' signs and designating the secondary access as a fire lane. A public benefit of \$20,000 to the Parks and Recreation fund was offered by the applicant. Five waivers (deviations from the zoning ordinance) were requested. The facade of the building had been changed with improved quality of materials used. A screen wall had been added to provide screening at the rear property line. Staff recommended approval subject to all comments being addressed and the Commission discussing the community benefit with the applicant.

Commissioner Meagher asked staff what the difference was between a waiver and a variance.

Director O'Neil explained Planned Development zoning allowed for deviations from the zoning ordinance through the development agreement.

Commissioner Ruggles asked staff about the proposed public benefit.

Mr. Quagliata referenced the waivers requested and stated a community benefit must be for the use and enjoyment of the public-at-large.

Commissioner Fine had concerns about the amount of greenbelt landscaping.

Commissioner Dehart asked staff about the number of waivers requested and if there were any comparable developments that could help them determine the public benefit.

Mr. Quagliata answered five waivers were requested.

The Commission discussed the proposed public benefit.

Commissioner Slicker noted the plan indicated a retaining wall and stated that could increase the adjacent homeowner's potential for drainage issues.

Mr. Quagliata stated screening of the neighbor's property had been increased compared to the previous plan and screen wall details would need to be clarified on the final site plan.

Mr. Leuffgen noted the plans had not changed significantly from an engineering standpoint and this project's feasibility remained entirely dependent on the West Valley project being redesigned and constructed.

Mr. Boehm stated he spoke with the resident of 900 Union Lake Road regarding the retaining wall.

Mr. Quaderer reviewed the landscaping on the plan.

The Commission reviewed the renderings provided by the applicant, and deliberated the waivers requested and required setbacks.

Commissioner Dehart inquired about the size of the Comfort Care Clarkston facility.

Commissioner Meagher asked Commissioner Dehart her opinion about how the Zoning Board of Appeals would respond if the Board had to hear this case.

The Commission discussed the proposed public benefit.

Mr. Boehm stated he had discussed the public benefit with his team and increased the proposed amount from \$5,000 to \$20,000.

Commissioner Meagher moved to recommend approval to the Township Board the rezoning of Parcel Number 12-36-176-002 from LB (Local Business) to PD (Planned Development), subject to the applicant obtaining preliminary site plan approval from the Township Board. Commissioner Fine supported, and the MOTION CARRIED with a roll call vote (8 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seward/yes, Slicker/yes, Ruggles/yes)

Commissioner Meagher moved to recommend approval to the Township Board approval of the preliminary site plan for Parcel Number 12-36-176-002, subject to the applicant addressing all of the staff and consultant comments and recommendations, West Valley being redesigned and constructed, no parking signs being placed in the secondary access drive, landscaping meeting all zoning ordinance requirements, and an increased public benefit commensurate with the waivers requested.

Commissioner Fine supported, and the MOTION CARRIED with a roll call vote (7 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seward/no, Slicker/yes, Ruggles/yes)

B. Elizabeth Lake Retail Conceptual Discussion

Commissioner Ruggles recused himself from the case and left the meeting.

Commissioner Anderson explained the applicant had fifteen minutes to present and for the Commission to discuss the matter.

Director O'Neil provided an update on the project.

Joe Maynard of Washtenaw Engineering presented the project. The applicant was seeking Planning Commission input on the residential aspect of the project and indicated a wetland permit had been applied for through EGLE.

Nazir Jawich explained the history of the project and the concerns about the future demand of mixed use.

Discussion by the Commission regarding appropriate zoning and the residential component of the project.

NEW BUSINESS

None.

OTHER BUSINESS

None.

LIAISON'S REPORT

Commissioner Dehart: On behalf of the Zoning Board of Appeals thanked the Planning Commission for its input on a project brought before them.

Commissioner Carlock: Ms. Carlock was not able to attend the last Parks and Recreation Committee meeting and asked Mr. Quagliata to provide an update. Mr. Quagliata stated the National Parks Service required a biological assessment for the Stanley Park grant application. The 5-Year Parks & Recreation Master Plan would be updated this year. A community event was planned for June 25, 2022 – a family fun day at Hawley Park from 3 p.m. to 9 p.m.

DIRECTOR'S REPORT

The Capital Improvements Plan (CIP) update would begin in June. The draft would be presented to the Planning Commission in August followed by a public hearing in September. Ultimately the CIP would be presented to the Township Board for approval.

Implementation of Corridor Improvement Authority was upcoming.

The contract with River Caddis expired and the Township was reconsidering its options.

COMMUNICATIONS

No meeting on June 2, 2022.

NEXT MEETING DATES: June 16, 2022

ADJOURNMENT

Commissioner Fine moved to adjourn the meeting at 9:21 PM

Commissioner Carlock supported and the MOTION CARRIED with a voice vote: 7 yes votes

DRAFT



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

May 12, 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 – 4th 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 of the revised plan dated April 12, 2022. 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 57,443 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.

Comments from our previous review letter dated January 27, 2022 are in *italics*. Responses to those comments are in **bold**. New comments are in standard typeface.

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. Comment addressed. The design engineer in their response letter has stated that they are working with the designer of West Valley; West Valley is flexible on the final location of the emergency access drive. We find this acceptable at the Preliminary Site Plan level of review. However, final details shall be required at the time of Final Site Plan/Final Engineering Plan submittal. We also note that consideration of the emergency access drive location proposed on the West Valley site should be evaluated to determine if there are any setback requirements relative to the proposed adjacent residential structure.*
- 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,*
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*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. Comment partially addressed. The design engineer has stated that either emergency access through West Valley or off Union Lake Road will be provided. Drive width and a turning radius profile for a 40' emergency vehicle has been provided for the proposed emergency access drive off Union Lake Road. The access drive would be gated with a Knox Box provided for emergency vehicle access only. The concern regarding the existing and proposed steep grades for this drive has not been addressed but can be further clarified at the time of Final Site Plan. **Comment rescinded. The applicant is no longer pursuing an emergency access off Union Lake Road and the secondary access is entirely dependent upon West Valley being developed.***

- 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 drive and drive approach. A separate construction entrance for construction vehicles is recommended. Comment addressed and remains as a notation. 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 Plan/Final Engineering Plan submittal to demonstrate temporary grading. **Comment addressed. A separate construction entrance is now shown in an area of less steep grades. Additional details can be provided at the time of Final Site Plan/Final Engineering Plan.***
- d) *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. **Comment addressed at this level of review and remains as a notation. Design engineer has stated that wall has been moved back toward the curb to line up with back of curb, which will provide an additional 3' of separation for a total of 12' of separation between the wall and the existing trees. A note indicating that any existing damaged trees shall be replaced by the responsible party shall be added to the Final Site/Final Engineering Plan.***
- e) *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*
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*the south building corner where the proposed storm sewer is shown approximately 3' off of the decorative retaining wall. **The proposed wall has been moved further west and away from the proposed storm sewer. Note that off-site grading easements from the property to the west and from West Valley may be required for construction of the retaining wall as the proposed retaining wall is now shown 3' from the west property line. This item can be considered addressed for this level of review; however further revisions may be required at the time of Final Site/Final Engineering Plan review.***

- f) *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. Design engineer has stated the following in their response letter dated January 11, 2022: "West Valley will revise their storm water system to incorporate the additional runoff from this site. Should West Valley not be able to incorporate the additional runoff, we will revise the storm water management utilizing a retention basin. The soils for this site are sandy and suitable for a retention basin based on initial conversation with the geotechnical consultant. We will have the final soils report during final site plan review." DLZ notes that the change from detention to retention will require additional pond area and relocation of proposed landscaping. We defer to the Township as to whether such a change with respect to stormwater management on the Final Site/ Final Engineering Plan would require a revised Preliminary Site Plan to be submitted for administrative review. **Comment remains as a notation. Design engineer has stated in their April 11, 2022 response letter that West Valley will revise their storm sewer system and incorporate the restricted runoff from the Comfort Care detention basin.***
- g) *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*
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*in the event West Valley is not constructed. An alternate route has been provided showing a secondary water main connection to the existing water main along Union Lake Road in the event that connection to the West Valley water main is not feasible. Further analysis will be required at the time of Final Site Plan submittal to determine pressure reducing valve requirements if the connection to West Valley is not feasible. The applicant needs to be prepared for the need for a second pressure reducing valve and vault at the second watermain connection. **Comment addressed. The design engineer has indicated that this site will tie into West Valley's watermain system as a secondary watermain connection.***

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.

Paving/Grading

1. *ADA accessible ramps will be required on sidewalk adjacent to ADA parking spaces. Ramp slopes shall meet ADA requirements. **Comment remains as a notation. 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.***
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 Genessee 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 addressed.***
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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. *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.**
2. *Sheet C300 – Site Grading Plan indicates a 15' wide storm sewer easement for West Valley; easement width is 12'.* **Comment addressed. Easement now shown as 12' wide.**
3. *Clarify on the Soil Erosion Plan as to why the OCS structure in the basin is to be temporary.* **Comment outstanding.**
4. *Clarify reference to South Pond on OCS#2 detail on Site Details sheet.* **Comment addressed.**

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

Engineering feasibility for the proposed site is entirely dependent on the West Valley development being modified and constructed before the Comfort Care development in order to have utility access and secondary emergency access. DLZ recommends approval contingent upon successful modification to the West Valley plans and completion of the West Valley Watermain, Storm Sewer, and roads for beneficial use of the Comfort Care development.



INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

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: May 11, 2022

RE: Comfort Care
Rezoning and Preliminary Site Plan – Review #4

Staff reviewed the revised site plan prepared by Griggs Quaderer Inc. (revision date April 12, 2022). At its February 3, 2022 meeting the Planning Commission tabled the rezoning and preliminary site plan (PSP) applications to provide the Developer an opportunity to address issues raised with the prior proposal. Comfort Care has requested rezoning to PD (Planned Development) and PSP approval to construct an independent living, assisted living, and memory care facility at Parcel Number 12-36-176-002, located on the west side of Union Lake Road, south of Preserve at Hidden Lake. The subject site is approximately 7.49-acres in size (net area) and currently zoned LB (Local Business).

The building was reduced in size from 66,842 square feet and 70 units to 57,443 square feet and 60 units (9,399 square foot and 10-unit reduction). With the reduction of area, the building width was reduced from 497'-8" to 420'-8" (77-foot reduction). 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 20 independent living units (apartments) consisting of two, 918 square foot studio units, ten, 685 square foot one-bedroom units, and eight, 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.

Access

The previously proposed alternate emergency access onto Union Lake Road is no longer shown on the site plan. A 20-foot-wide asphalt emergency access drive is proposed to connect to the adjacent parcel to the south, 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. **The curb and gutter across the north end of the emergency access drive shall be removed. Additionally, curb and gutter shall be installed on each side of the secondary access drive. Furthermore, staff recommends the Planning Commission require the posting of ‘No Parking’ signs within the drive (designation of fire lane).**

Community / Public Benefit

A public benefit must be provided, in part, to offset the impact(s) of development on the Township. When Comfort Care was last before the Planning Commission, the Developer verbally offered \$5,000 to the Parks and Recreation Fund as a community/public benefit. Commissioners expressed the amount of the proposed contribution was not adequate and suggested adding a zero to the contribution amount initially proposed. The Developer previously indicated this was an approximately \$12,000,000 project. If Comfort Care offered \$50,000 as suggested by the Planning Commission, close to 0.5% of the overall project cost would be provided as a public benefit. Without a community/public benefit to justify allowing a Planned Development (PD), staff would not recommend rezoning the property to PD, but rather RM-1 (Attached Single Family) or RM-2 (Multiple Family). If the property is not rezoned to PD but rather RM-1 or RM-2, then there would be no public benefit required and the Developer could request variances from the Zoning Board of Appeals to deviate from the ordinance. Staff supports the suggestion of the Planning Commission; if the proposed public benefit is materially different, staff recommends RM-1 or RM-2 zoning for this property.

Density

Per the Master Plan, in Planned Neighborhood net residential densities are anticipated to range between 2.0 and 8.0 units per acre. As requested by the Planning Commission, the number of units was reduced by ten (10), from 70 to 60. With 60 total units on approximately 7.49-acres, density of the proposed project is eight (8) dwelling units per acre (du/a).

Building Architecture and Design

Starting with the first PSP review, staff recommended the front facade of the building be divided vertically into segments no greater than 60 feet wide and relief of the facade be achieved by utilizing varying high-quality building materials, with each of the articulated segments recessed/off-set (change in the building plane) at least two and no more than five feet across the front facade. The conceptual floor plan and exterior elevations incorporate the above-mentioned design features. The public entrance to the building (where the porte cochere projects outward) is 55’–8” wide, with said segment off-set seven (7) feet from the main plane of the front facade. There are also two, 47’–4” wide building segments, located east and west of the public entrance to the building, which off-sets 2’–6” from the main plane of the front facade.

Landscape and Screening

A 20-foot greenbelt is now proposed along the future Union Lake Road right-of-way; therefore, the previously requested waiver from the minimum greenbelt width is no longer necessary. A retaining/screen wall is now proposed along the drive aisle/maneuvering lane parallel to the rear property line. The zoning ordinance requires a screen wall be six feet in height, eight inches in width (faced with a decorative masonry product), with a five-foot greenbelt adjacent to the screen wall for its entire length planted with one large deciduous or evergreen tree and eight shrubs for every 30 linear feet. The masonry wall cross sections on Sheet C600 show the wall is 8-inch split-face block (color to match building) with 2-inch high, 1'-4" wide precast concrete or sandstone cap. The wall detail said the height varies; **the detail shall be revised to indicate a minimum six-foot wall height.**

Other initial landscape plan comments include:

- The 980 square foot landscape area is not considered parking lot landscaping and shall be removed from said calculation. **Revise accordingly.**
- Trees shall not be planted closer than four feet to a property line. **Add note to landscape plan at final site plan.**
- 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. **An irrigation plan shall be provided at final site plan.**
- 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. **Add note to plans at final site plan.**
- Note 9 on the landscape plan mentions mulch. Sheet C500 also contains a mulch and edging detail. The zoning ordinance states the mulch product itself shall be at least doubled-shredded quality. **Revise accordingly.**
- The Planting Requirements table on Sheet C500 shall be revised to indicate the screen wall requirements for the 'Residential Buffer (west side)' minimum requirement.
- Trees identified for protection during construction and the means of protection shall be identified at final site plan. No construction shall occur until tree protection has been installed and approved by the Community Development Director.

Parking

Additional parking is shown on the revised site plan. Previously, 56 parking spaces were provided (56 spaces are required to serve the development). On the revised plan, 62 parking spaces are provided.

Waivers

Based on the submitted site plan, the following waivers are required:

- Building setback: 19-foot front canopy setback (56-foot waiver)
- Building setback: 45-foot rear building setback (30-foot waiver)
- The zoning ordinance requires three loading spaces for a development of this size. A waiver to eliminate two of the three required loading spaces is requested.
- For a majority of its length, the screen wall is three feet from the rear property line. Therefore, a two-foot waiver from the required screen wall greenbelt width is required.
- 766 shrubs are required for interior landscaping, and 722 interior shrubs are proposed. Therefore, a 44-shrub waiver from the required interior landscaping is requested.

An updated list of all requested waivers shall be provided on Sheet C200 of the site plan.

Other miscellaneous comments and/or notations

- The Developer’s architect previously indicated there would be bay windows across the front of the building. **Bay windows are not labeled on Sheet A1 or Sheet A2; clarify if bay windows are proposed and revise accordingly.**
- 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 remains as a notation – must be addressed at final site plan.**
- Details for the items to be located on the patio...shall be provided at final site plan.
 - **Comment remains as a notation – must be addressed at final site plan.**
- 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 remains as a notation – must be addressed at final site plan.**
- If units revert to general occupancy, then two parking spaces per unit shall be provided.
 - **Comment remains as a notation.**
- Information on site lighting will be reviewed in detail during final site plan review.
 - **Comment remains as a notation.**
- The frontage sidewalk along Union Lake Road shall be constructed through the driveway (concrete sections through the approach). **Revise accordingly.**

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 at 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~~ ~~January 12, 2022~~ **April 12, 2022**), 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~~ ~~January 7, 2022~~ **February 14, 2022**), subject to revisions as required.



Fire Department
Charter Township
of White Lake

Site / Construction Plan Review

To: Sean O'Neil, Planning Department Director

Date: 05/11/2022

Project: Comfort Care Senior Living

Job #: 210303

Date on Plans: 04/12/2022

The Fire Department has the following comments with regards to the 4th review of preliminary site plans for the project known as Comfort Care Senior Living.

The Fire Department has no further comments at this time.

Jason Hanifen
Fire Marshal
Charter Township of White Lake
(248)698-3993
jhanifen@whitelaketwp.com

Plans are reviewed using the International Fire Code (IFC), 2015 Edition and Referenced NFPA Standards.

Memo

To: Sean O'Neil, Planning

From: Jeanine A Smith

Date: April 27, 2022

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 48386

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:

●	04-12-2022	C000 — COVER SHEET
○	04-12-2022	C100 — BOUNDARY & TOPOGRAPHIC SURVEY
○	04-12-2022	C101 — SITE REMOVAL PLAN
○	04-12-2022	C200 — SITE LAYOUT PLAN
○	04-12-2022	C300 — SITE GRADING PLAN
○	04-12-2022	C301 — SOIL EROSION CONTROL PLAN
○	04-12-2022	C302 — DRAINAGE AREA MAP & STORM CALCULATIONS
○	04-12-2022	C400 — SITE UTILITY PLAN
○	04-12-2022	C401 — SITE PHOTOMETRIC PLAN
○	04-12-2022	C500 — SITE LANDSCAPE PLAN
○	04-12-2022	C501 — SITE LANDSCAPE PLAN (NORTH DETAIL)
○	04-12-2022	C502 — SITE LANDSCAPE PLAN (SOUTH DETAIL)
○	04-12-2022	C600 — SITE DETAILS
○	04-12-2022	A1 — FLOOR PLAN
○	04-12-2022	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

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

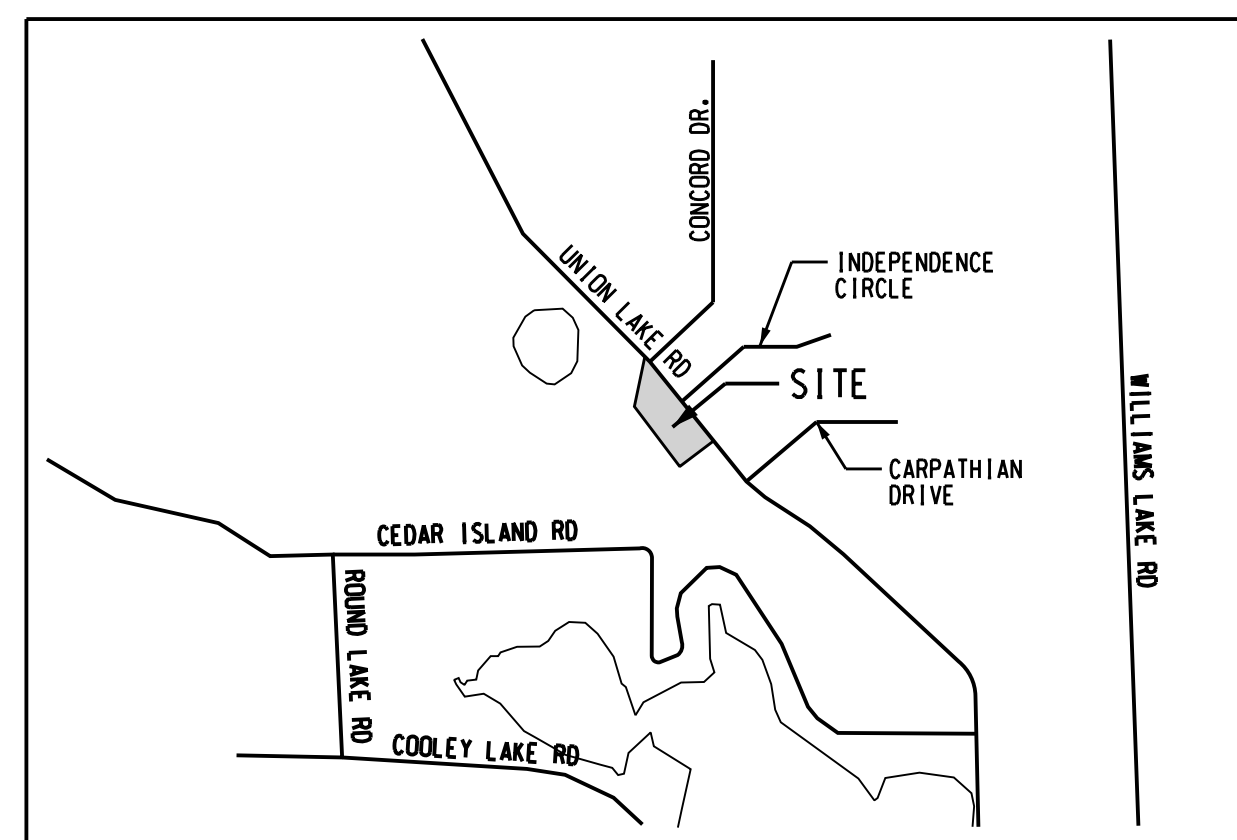
TOPOGRAPHIC SURVEY STATEMENT:

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.

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



LOCATION MAP
NOT TO SCALE

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.

NO.	DATE	SUBJECT
	04-12-22	REISSUED TO WHITE LAKE TWP.
	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

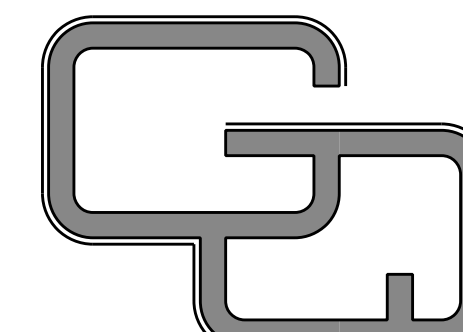
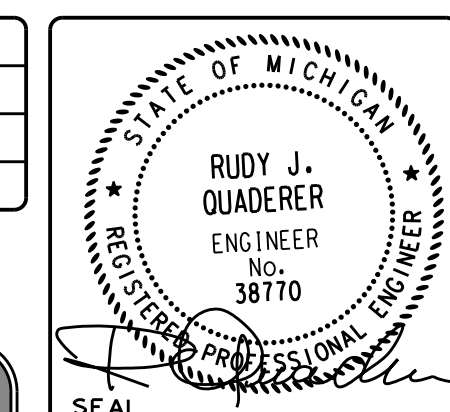
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

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

DRAWING TITLE
COVER SHEET

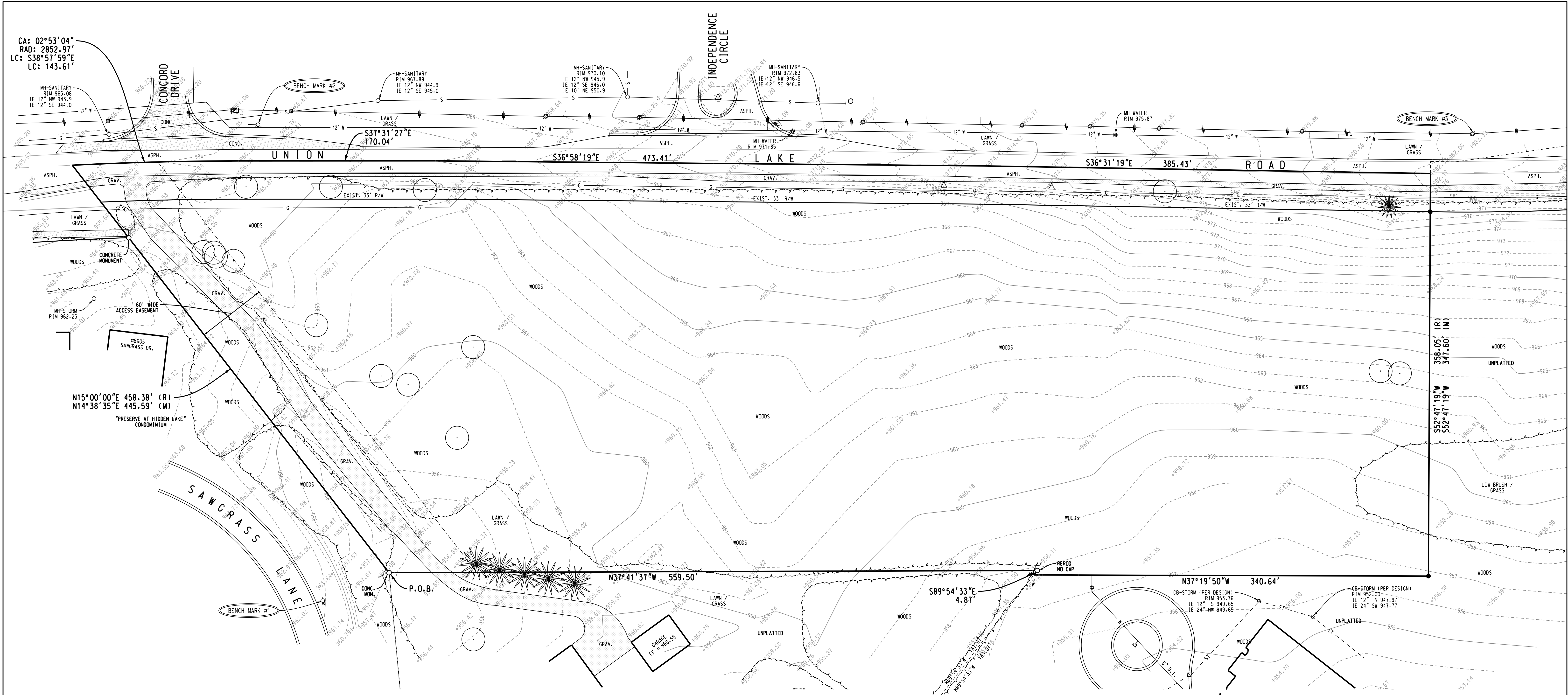
DRAWN
DESIGNED BRZEZINSKI
CHECKED QUADERER
FIELD WORK



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



PROJECT NUMBER	210303	SHEET	C000
PROJECT PHASE	SPA		



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

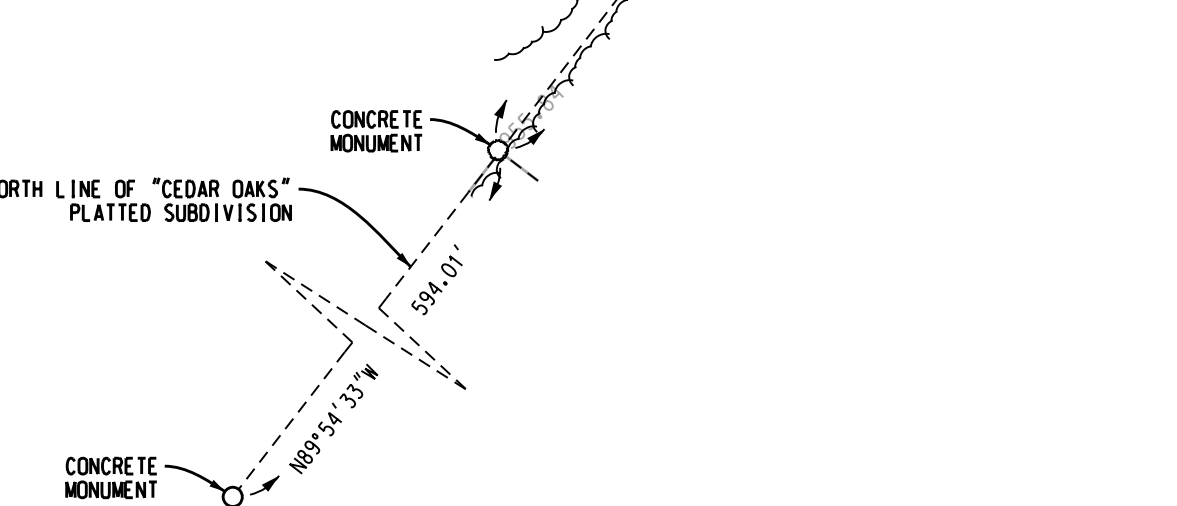
STANDARD LEGEND	
DESCRIPTION	EXISTING
BUILDING	—
STORM SEWER	—
SANITARY SEWER	—
WATER	—
GAS LINE	—
ELECTRIC LINE	—
TELEPHONE LINE	—
MANHOLE	○
CATCH BASIN	□
FIRE HYDRANT	△
VALVE	●
UTILITY POLE W/GUY WIRE	—
UTILITY RISER	□
LIGHT POLE	☆
STON	△
CURB & CUTTER	—
FENCE	—
GUARD RAIL	—
INVERT ELEVATION	1E 6" 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.
 ALSO SAID PARCEL BEING SUBJECT TO A 60 FOOT EASEMENT FOR INGRESS AND EGRESS DESCRIBED AS 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 TO A POINT ON THE CENTERLINE OF UNION LAKE ROAD; THENCE ALONG SAID LINE, ALONG A CURVE TO THE RIGHT, RADIUS 2,864.93 FEET, AN ARC DISTANCE OF 173.46 FEET; THENCE SOUTH 15 DEGREES 00 MINUTES 00 SECONDS WEST 462.47 FEET; THENCE NORTH 37 DEGREES 19 MINUTES 50 SECONDS WEST 75.80 FEET TO THE POINT OF BEGINNING.



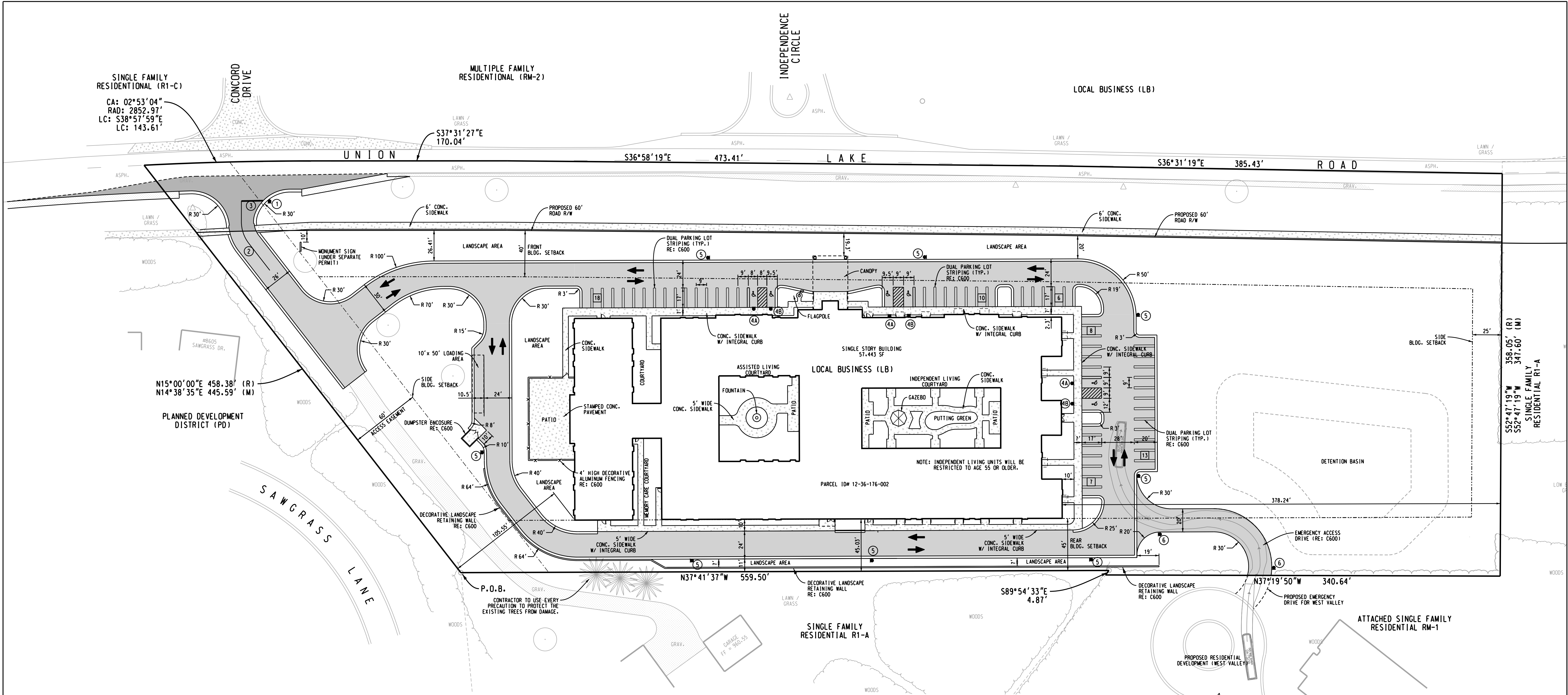
PROPERTY DESCRIPTION (MEASURED):
 PART OF THE NORTHWEST 1/4 OF SECTION 36, TOWN 3 NORTH, RANGE 8 EAST, WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT A POINT DISTANT NORTH 00 DEGREES 12 MINUTES 01 SECONDS WEST 892.33 FEET AND DUE EAST 424.46 FEET AND SOUTH 84 DEGREES 30 MINUTES 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.

0 40 80 120
 SCALE: 1"=40'
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NO.	DATE	SUBJECT
04-12-22		REISSUED TO WHITE LAKE TWP.
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

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



SINGLE FAMILY RESIDENTIAL (R1-C)
 CA: 02°53'04"
 RAD: 2852.97'
 LC: S38°57'59"E
 LC: 143.61'

MULTIPLE FAMILY RESIDENTIAL (RM-2)

LOCAL BUSINESS (LB)

UNION LAKE ROAD

UNION LAKE ROAD

UNION LAKE ROAD

PLANNED DEVELOPMENT DISTRICT (PD)

LOCAL BUSINESS (LB)

SINGLE FAMILY RESIDENTIAL R1-A

SAWGRASS LANE

SINGLE FAMILY RESIDENTIAL R1-A

ATTACHED SINGLE FAMILY RESIDENTIAL RM-1

PARKING DATA:			
USE	REQUIREMENTS	PARKING REQUIRED	PARKING PROVIDED
NURSING HOME	1 SPACE/4 BEDS + 1 SPACE/EMPLOY. 44 BEDS/4 + 10 EMPLOY. =	21 SPACES	62 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	62 SPACES

PAVEMENT LEGEND:	
	ASPHALT PAVEMENT SECTION (ON-SITE) RE: C600
	ASPHALT PAVEMENT SECTION (WITHIN ROAD R/W) RE: C600
	CONCRETE PAVEMENT SECTION 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: 57,443 SF
 LOT COVERAGE BY BLDG: 17.6%
 TOTAL NO. OF UNITS: 60
 UNIT DENSITY: 8 UNITS/AC.
 MAX. BLDG. HEIGHT: 30 FT
 PROPOSED BLDG. HEIGHT: 22 FT

YARD SETBACKS:	BUILDING	ART. 4, SECT. 16
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)
- 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.

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-B & 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)

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SCALE: 1"=40'

COMFORT CARE

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	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 LAYOUT PLAN

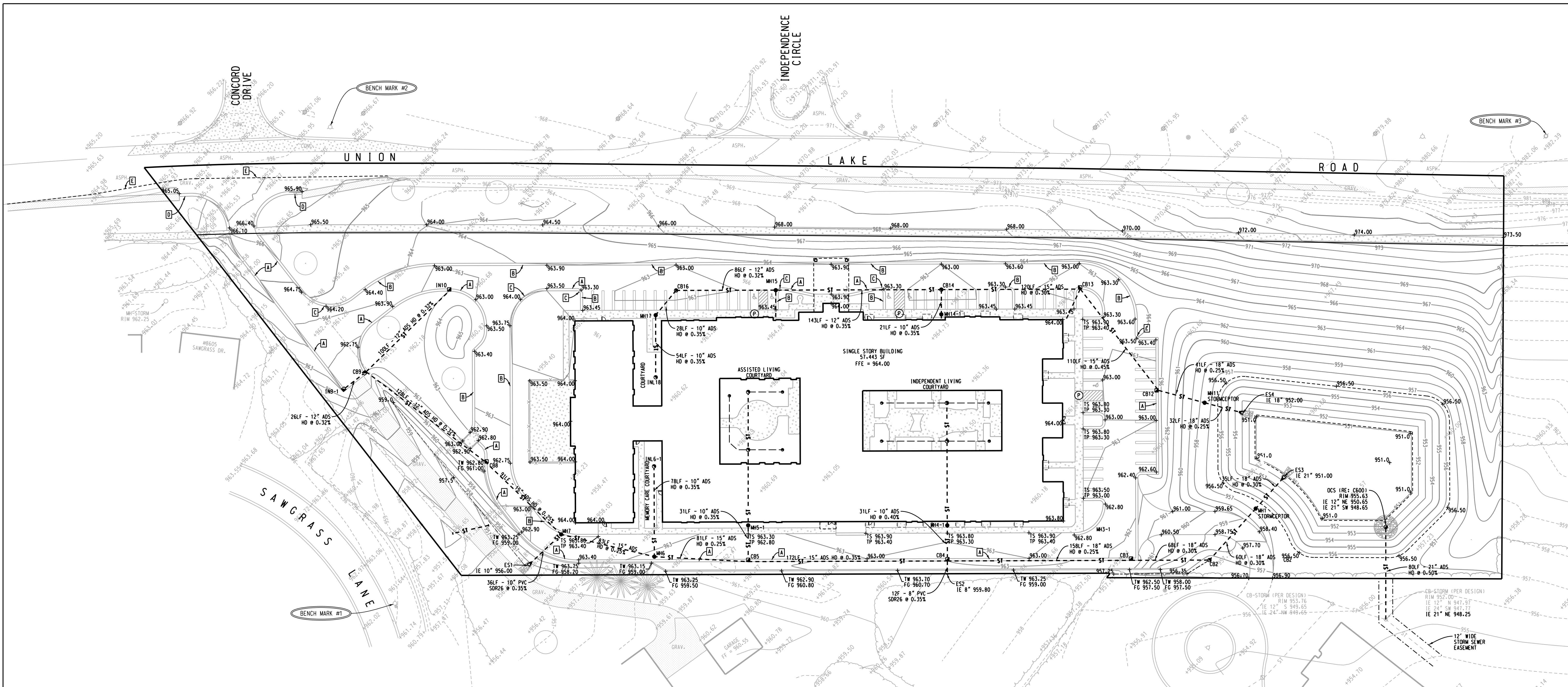
DRAWN: [Signature]
 DESIGNED: BRZEZINSKI
 CHECKED: QUADERER
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PROJECT NUMBER	210303	SHEET
PROJECT PHASE	SPA	C200



DRAINAGE STRUCTURE SCHEDULE:

MH1 (STORMCEPTOR) RIM 962.80 IE 18" NE 951.10 IE 12" W 956.50	CB9 (14" DIA.) IE 12" S 956.41 IE 12" W 956.50
CB2 (14" DIA.) RIM 956.00 IE 18" NE 951.28 IE 18" NW 951.28	IN10 (12" DIA.) IE 12" W 956.82
CB3 (14" DIA.) RIM 961.60 IE 18" SE 951.48 IE 18" NW 953.50 IE 10" NE 958.00	MH11 (STORMCEPTOR) RIM 957.10 IE 18" SW 952.08 IE 18" NW 952.08
CB4 (14" DIA.) RIM 962.50 IE 18" SE 953.90 IE 15" NW 954.00 IE 18" NE 957.50 IE 10" NE 958.00	CB12 (14" DIA.) RIM 962.40 IE 18" SE 952.18 IE 15" NE 954.50
MH4-1 (14" DIA.) RIM 963.40 IE 10" SW 957.62	CB13 (14" DIA.) RIM 962.50 IE 15" SW 955.00 IE 10" NW 955.10 IE 10" W 958.00
CB5 (14" DIA.) RIM 962.00 IE 15" SE 954.60 IE 15" NW 954.60 IE 10" NE 957.50	CB14 (14" DIA.) RIM 962.50 IE 15" SE 955.46 IE 12" NW 956.00 IE 10" SW 958.00
MH5-1 (14" DIA.) RIM 963.40 IE 10" SW 957.61	MH14-1 (14" DIA.) RIM 963.95 IE 10" SE 959.07
MH6 (14" DIA.) RIM 962.80 IE 15" SE 954.80 IE 15" NW 954.80 IE 10" NW 957.50	MH15 (14" DIA.) RIM 963.30 IE 12" SE 956.50 IE 12" NW 956.60 IE 10" SW 958.00
MH7 (14" DIA.) RIM 963.25 IE 15" S 955.01 IE 15" W 955.10 IE 10" W 955.87	CB16 (14" DIA.) RIM 962.30 IE 12" SE 956.88 IE 10" W 957.00
CB8 (14" DIA.) RIM 962.50 IE 15" S 955.33 IE 12" W 956.00	MH17 (14" DIA.) RIM 963.95 IE 12" SE 957.10 IE 10" NW 957.20
	IN18 (12" DIA.) RIM 962.50 IE 12" W 957.39

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 F2881. 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 8" 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 #1040 TYPE M1 GRATE
 -CATCH BASIN - GRASS AREA - EJIW #1130 TYPE O2 BEHIVE GRATE
 -INLET - GRASS AREA - EJIW #1040 TYPE O2 BEHIVE 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:

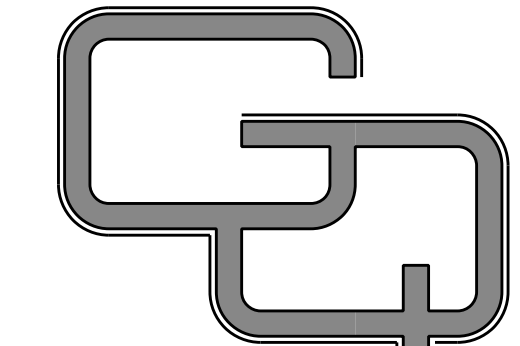
- A STANDARD CURB AND GUTTER
- B STANDARD CURB AND GUTTER WITH REVERSE SLOPE
- C 10 FOOT TRANSITION BETWEEN TYPE A AND TYPE B
- D 5 FOOT CURB END TRANSITION.
- E MATCH EXISTING PAVEMENT OR CURB ELEVATION.
- F TYPE F RAMP, PER MDT DETAIL R-28-J

GRADING NOTES:

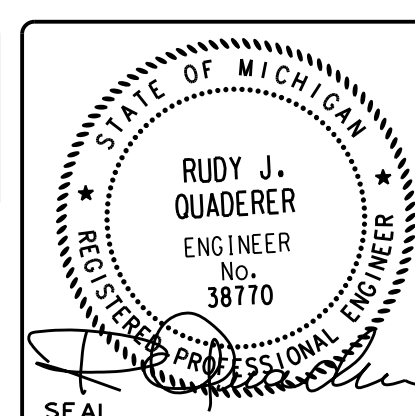
- ALL PROPOSED SPOT ELEVATIONS IN PAVED AREAS ARE TO TOP OF PAVEMENT UNLESS NOTED OTHERWISE.
 TS - TOP OF SIDEWALK
 TP - TOP OF PAVEMENT
 TW - TOP OF WALL
 FG - FINISHED GRADE
- CONTOURS SHOWN ARE FOR REFERENCE ONLY. BASE CONSTRUCTION EFFORTS ON PROPOSED SPOT ELEVATIONS ONLY.
- "BARRIER FREE" PARKING AND SIDEWALK RAMP 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 BOXES, 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 PRODDERLED & 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

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

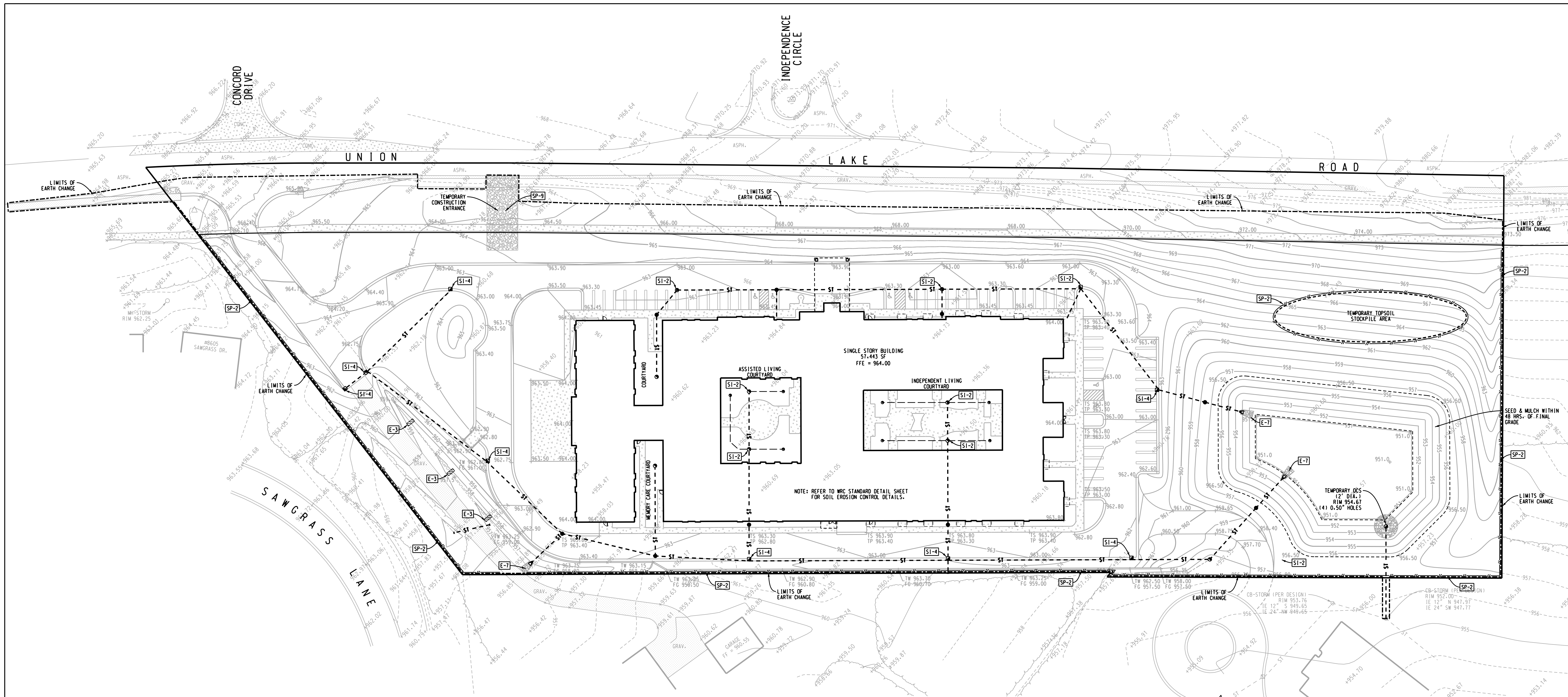
COMFORT CARE

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

DRAWING TITLE
SITE GRADING PLAN

PROJECT NUMBER	210303	SHEET	
PROJECT PHASE	SPA		

C300



CONSTRUCTION SEQUENCE:

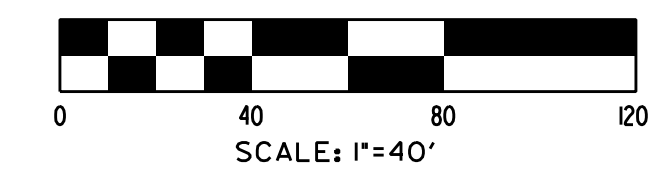
1. PROVIDE EROSION CONTROL MEASURES THAT WILL BE USED AS PART OF THIS WORK. INSTALL ADDITIONAL MEASURES AS REQUIRED BY THESE DRAWINGS AND AS FIELD CONDITIONS DICTATE IN ACCORDANCE WITH OAKLAND COUNTY DRAIN COMMISSION STANDARDS AND SPECIFICATIONS.
2. STRIP TOPSOIL AND STOCKPILE AS DIRECTED BY OWNER.
3. 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 ARE INSTALLED AND MAINTAINED.
15. THE OAKLAND COUNTY DRAIN COMMISSION SHALL INSPECT 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:

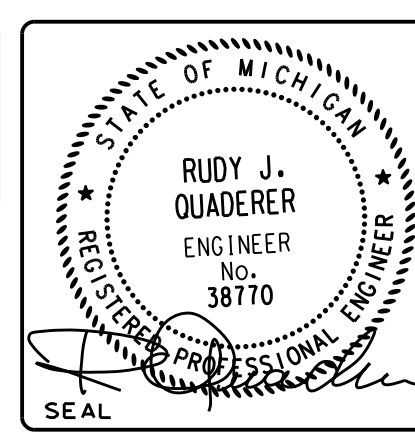
1. THE CONTRACTOR SHALL INSPECT THE SOIL EROSION AND SEDIMENT CONTROL DEVICES ONCE EACH WEEK AND WITHIN TWENTY-FOUR (24) HOURS OF A PRECIPITATION EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. A LOG OF INSPECTION REPORTS SHALL BE MAINTAINED AND ACCESSIBLE IN ACCORDANCE WITH NPDES REQUIREMENTS. 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 BUILT-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.
9. 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 GRASS 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.



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DESIGNED	BRZEZINSKI
CHECKED	QUADERER
FIELD WORK	



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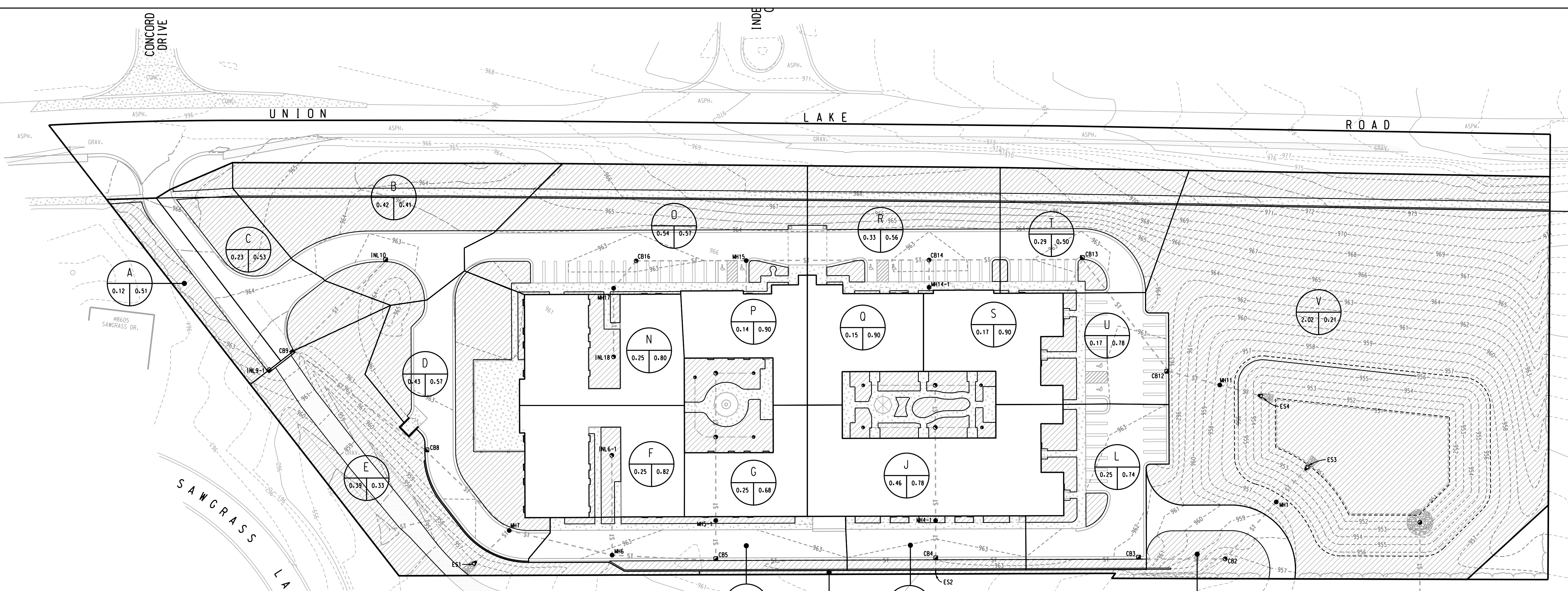
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

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

DRAWING TITLE
SOIL EROSION CONTROL PLAN

PROJECT NUMBER	210303	SHEET	C301
PROJECT PHASE	SPA		



Runoff Coefficient Calculations

Drainage Area	Pervious			Impervious			Roof Top			Runoff			Drainage Area
	Area (ft²)	Area (Acres)	C	Area (ft²)	Area (Acres)	C	Area (ft²)	Area (Acres)	C	Area (ft²)	Area (Acres)	C	
A	2961.0	0.07	0.20	2303.0	0.05	0.90	0.0	0.00	0.90	5284.0	0.12	0.51	A
B	12703.0	0.29	0.20	5567.0	0.13	0.90	0.0	0.00	0.90	18270.0	0.42	0.41	B
C	5198.0	0.12	0.20	4617.0	0.11	0.90	0.0	0.00	0.90	9815.0	0.23	0.53	C
D	8830.0	0.20	0.20	9881.0	0.23	0.90	0.0	0.00	0.90	18711.0	0.43	0.57	D
E	13970.0	0.32	0.20	3211.0	0.07	0.90	0.0	0.00	0.90	17181.0	0.39	0.33	E
F	1220.0	0.03	0.20	4466.0	0.10	0.90	0.0	0.00	0.90	5916.0	0.14	0.73	F
G	3468.0	0.08	0.20	1654.0	0.04	0.90	5774.0	0.13	0.90	10894.0	0.25	0.68	G
H	1969.0	0.05	0.20	7658.0	0.18	0.90	0.0	0.00	0.90	9627.0	0.22	0.76	H
I	553.0	0.01	0.20	0.0	0.00	0.90	0.0	0.00	0.90	553.0	0.01	0.20	I
J	3485.0	0.08	0.20	2759.0	0.06	0.90	13592.0	0.31	0.90	19836.0	0.46	0.78	J
K	1450.0	0.03	0.20	4466.0	0.10	0.90	0.0	0.00	0.90	5916.0	0.14	0.73	K
L	2502.0	0.06	0.20	8577.0	0.20	0.90	0.0	0.00	0.90	11079.0	0.25	0.74	L
M	3896.0	0.09	0.20	3038.0	0.07	0.90	0.0	0.00	0.90	6934.0	0.16	0.51	M
N	1620.0	0.04	0.20	174.0	0.00	0.90	9039.0	0.21	0.90	10833.0	0.25	0.80	N
O	11100.0	0.25	0.20	12410.0	0.28	0.90	0.0	0.00	0.90	23510.0	0.54	0.57	O
P	0.0	0.00	0.20	0.0	0.00	0.90	6229.0	0.14	0.90	6229.0	0.14	0.90	P
Q	0.0	0.00	0.20	0.0	0.00	0.90	6475.0	0.15	0.90	6475.0	0.15	0.90	Q
R	6957.0	0.16	0.20	7574.0	0.17	0.90	0.0	0.00	0.90	14531.0	0.33	0.56	R
S	0.0	0.00	0.20	0.0	0.00	0.90	7457.0	0.17	0.90	7457.0	0.17	0.90	S
T	7822.0	0.17	0.20	5361.0	0.12	0.90	0.0	0.00	0.90	12643.0	0.29	0.50	T
U	1395.0	0.17	0.20	6248.0	0.12	0.90	0.0	0.00	0.90	7853.0	0.29	0.50	U
V	86043.0	1.98	0.20	1743.0	0.04	0.90	0.0	0.00	0.90	87786.0	2.02	0.21	V
Total	176510.0	4.19	0.20	87241.0	1.98	0.90	89295.0	1.34	0.90	322046.0	7.51	0.51	Total

Storm Design

Manhole/Inlet Number	Area (ft²)	Area (Acres)	C	A (Ax)	I	I	D	S	L	V	Q			
												15 min	10 yr	
INL9-1 CB8	A	0.12	0.51	0.06	0.06	15.00	4.38	0.88	10 in.	0.35%	82	3.10	0.44	1.69
INL10 CB9	B	0.42	0.41	0.17	0.17	15.00	4.38	0.74	12 in.	0.32%	100	3.34	0.50	2.63
CB9 CB8	C	0.23	0.53	0.12	0.35	15.50	4.32	1.51	12 in.	0.32%	128	3.34	0.64	2.63
CB8 MH7	D	0.43	0.57	0.24	0.59	16.14	4.25	2.51	12 in.	0.32%	91	3.34	0.45	2.63
ES1 MH7	E	0.39	0.33	0.13	0.13	15.00	4.38	0.57	10 in.	0.35%	97	3.10	0.52	1.69
MH7 MH6	-	-	-	0.72	16.59	4.21	3.03	15 in.	0.25%	83	3.43	0.40	4.21	
INL6-1 MH6	F	0.25	0.82	0.21	0.21	15.00	4.38	0.92	10 in.	0.35%	78	3.10	0.42	1.69
MH6 CB5	G	0.25	0.68	0.17	0.17	15.00	4.38	0.74	12 in.	0.32%	91	3.34	0.45	2.63
MH5-1 CB5	H	0.22	0.76	0.17	1.10	17.39	4.13	4.54	15 in.	0.35%	172	4.06	0.71	4.98
MH4-1 CB4	J	0.46	0.78	0.35	0.35	15.00	4.38	1.53	10 in.	0.40%	31	3.31	0.16	1.81
ES2 CB4	I	0.01	0.20	0.00	0.01	15.00	4.38	0.04	8 in.	0.50%	12	3.19	0.06	1.11
CB4 CB3	K	0.14	0.73	0.10	1.46	18.09	4.06	5.93	18 in.	0.25%	158	3.87	0.68	6.85
CB3 CB2	L	0.25	0.74	0.19	1.65	18.77	4.00	6.60	18 in.	0.30%	68	4.24	0.27	7.50
CB2 ES3	M	0.16	0.51	0.08	1.73	19.04	3.97	6.87	18 in.	0.30%	95	4.24	0.37	7.50
INL18 CB16	N	0.25	0.80	0.20	0.20	15.00	4.38	0.88	10 in.	0.35%	82	3.10	0.44	1.69
CB16 MH15	O	0.54	0.57	0.31	0.51	15.44	4.33	2.21	12 in.	0.32%	86	3.34	0.43	2.63
BLDG MH15	P	0.14	0.90	0.13	0.13	15.00	4.38	0.57	10 in.	0.35%	23	3.10	0.12	1.69
MH15 CB14	-	-	-	0.64	15.87	4.28	2.74	12 in.	0.35%	143	3.50	0.68	2.75	
MH14-1 CB14	Q	0.15	0.90	0.13	0.13	15.00	4.38	0.57	10 in.	0.35%	21	3.10	0.11	1.69
CB14 CB13	R	0.33	0.56	0.19	0.96	16.55	4.21	4.04	15 in.	0.30%	120	3.76	0.53	4.81
BLDG CB13	S	0.17	0.90	0.15	0.15	15.00	4.38	0.66	10 in.	0.35%	132	3.10	0.71	1.69
CB13 CB12	T	0.29	0.50	0.14	1.25	17.08	4.16	5.20	15 in.	0.45%	110	4.60	0.40	5.65
CB12 ES4	U	0.17	0.78	0.13	1.38	17.48	4.12	5.68	18 in.	0.25%	23	3.87	0.10	6.85
OCS OUTLET	V	2.02	0.21	0.43	3.54	19.41	3.94	13.95	21 in.	0.50%	23	6.07	0.06	14.80

1yr Detention Requirement

Site Information
 Design Return Period = 1 yrs
 Site Area (A) = 7.51 acre
 C = 0.51
 Allowable Outlet = 0.20 cfs/acre
 Allowable Outlet (Q_a) = 1.50 cfs

Storage Computations

Calculate Q_a

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

$$Q_a = 0.393$$

Maximum Storage Time (T₁)

$$T_1 = -25 + \sqrt{\frac{2700}{Q_a}}$$

$$T_1 = 57.9 \text{ min.}$$

Maximum Storage (V_{S1})

$$V_{S1} = \frac{4.320 \cdot T_1}{T_1 + 25} - 40 \cdot Q_a \cdot T_1$$

$$V_{S1} = 2108.1 \text{ ft}^3/\text{ac}$$

Total Storage Required (V_{T1})

$$V_{T1} = V_{S1} \cdot C \cdot A$$

$$V_{T1} = 8066.7 \text{ ft}^3$$

100yr Detention Requirement

Site Information
 Design Return Period = 100 yrs
 Site Area (A) = 7.51 acre
 C = 0.51
 Allowable Outlet = 0.20 cfs/acre
 Allowable Outlet (Q_a) = 1.50 cfs

Storage Computations

Calculate Q_a

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

$$Q_a = 0.393$$

Maximum Storage Time (T₁₀₀)

$$T_{100} = -25 + \sqrt{\frac{10312.5}{Q_a}}$$

$$T_{100} = 137.1 \text{ min.}$$

Maximum Storage (V_{S100})

$$V_{S100} = \frac{16,5000 \cdot T_{100}}{T_{100} + 25} - 40 \cdot Q_a \cdot T_{100}$$

$$V_{S100} = 11802.6 \text{ ft}^3/\text{ac}$$

Total Storage Required (V_{T100})

$$V_{T100} = V_{S100} \cdot C \cdot A$$

$$V_{T100} = 45162.6 \text{ ft}^3$$

Detention Capacity

Measured from 3D analysis

Elevation	Volume (ft³)	Total Volume (ft³)
951.00	0.0	0.0
951.50	4682.0	4682.0
952.00	5302.0	9984.0
952.50	5953.0	15937.0
953.00	6638.0	22575.0
953.50	7355.0	29930.0
954.00	8100.0	38030.0
954.50	8874.0	46904.0
955.00	9677.0	56581.0
955.50	10507.0	67088.0
956.00	11366.0	78454.0
956.50	12268.9	87722.9
957.00	10689.3	97791.2
957.50	10897.5	108688.7
958.00	11756.7	120445.4
958.50	12645.7	133091.1
959.00	13564.6	146655.7
Total Detention Capacity	146656	
1-YR Storm (Volume)	8067	
1-YR Storm (Elevation)	951.84	
100-YR Storm (Volume)	45163	
100-YR Storm (Elevation)	954.54	

Temporary Outlet Control

Orifice Calculations:
 The 1-yr orifice has been designed so that the pond is emptied in 48 hours.
 Allowable Release Rate

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

Definitions:
 7.51 A Existing Drainage Area (acres)
 0.20 Q_a Temp. Allowable outlet rate (ft³/s/acre)
 0.62 C Orifice Coefficient
 32.2 g Acceleration due to gravity (ft/s²)
 3.54 h Maximum head condition at the design storage level (ft)

Maximum head condition:
 954.54 h_{max} Maximum head elevation
 951.00 h_{min} Minimum head elevation

$$h = h_w - h_{min}$$

$$h = 3.54 \text{ ft}$$

Solve for Area:

$$O = \frac{Q_a}{C \cdot \sqrt{2 \cdot g \cdot h}}$$
 Q_a 0.04 ft³/sec
 C 0.62
 h 3.54 ft

$$O = 0.59 \text{ in}^2$$

Use the following:
 Diameter: 0.5 in.
 Area: 0.20 in²
 No. of Holes: 3
 Drainage T: 58.5 yrs

Outlet Control

Orifice Calculations:
 Allowable Release Rate

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

Definitions:
 7.51 A Existing Drainage Area (acres)
 1.50 Q_a Total Allowable outlet rate (ft³/s/acre)
 0.62 C Orifice Coefficient
 32.2 g Acceleration due to gravity (ft/s²)
 3.54 h Maximum head condition at the design storage level (ft)

Maximum head condition:
 954.54 h_{max} Maximum head elevation
 951.00 h_{min} Minimum head elevation

$$h = h_w - h_{min}$$

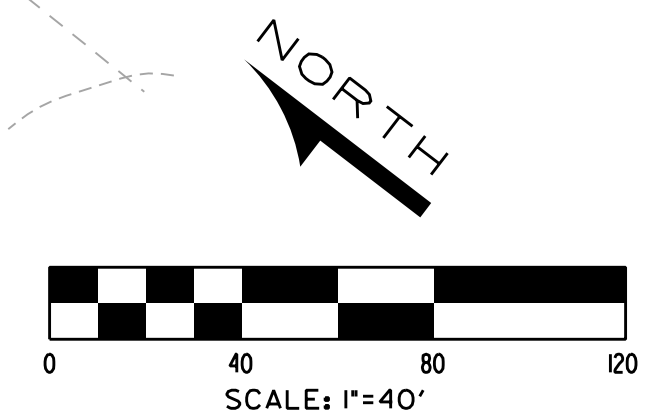
$$h = 3.54 \text{ ft}$$

Solve for Area:

$$O = \frac{Q_a}{C \cdot \sqrt{2 \cdot g \cdot h}}$$
 Q_a 1.50 ft³/sec
 C 0.62
 h 3.54 ft

$$O = 0.16 \text{ in}^2$$

Use the following:
 Diameter: 3 in. (minimum)
 Area: 7.07 in²
 No. of Holes: 1
 Drainage T: 27.3 yrs



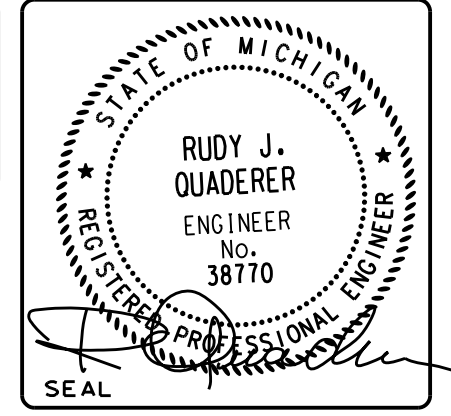
NO.	DATE	SUBJECT
04-12-22	REISSUED TO WHITE LAKE TWP.	
01-12-22	REISSUED TO WHITE LAKE TWP.	
12-13-21	REISSUED WHITE LAKE TWP.	
10-28-21	WHITE LAKE TWP. (SITE PLAN)	
04-13-21	TOPOGRAPHIC SURVEY	

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

COMFORT CARE

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

DRAWN
 DESIGNED BRZEZINSKI
 CHECKED QUADERER
 FIELD WORK

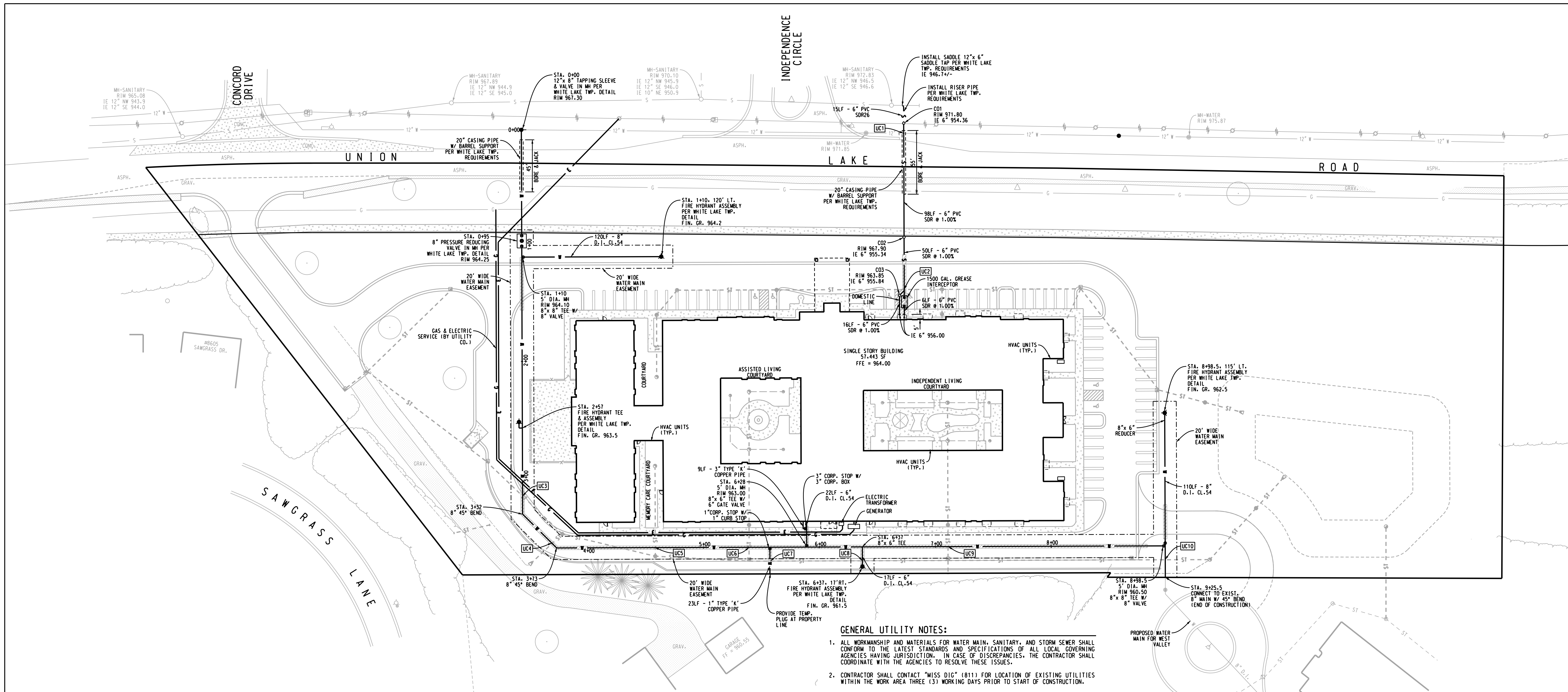


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DRAWING TITLE
DRAINAGE AREA MAP & STORM CALCULATIONS

PROJECT NUMBER	210303	SHEET	C302
PROJECT PHASE	SPA		



SANITARY SEWER NOTES:

1. MATERIAL AND CONSTRUCTION METHODS FOR THE INSTALLATION OF SANITARY SEWER SHALL BE IN ACCORDANCE WITH WHITE LAKE TOWNSHIP REQUIREMENTS.
2. ALL SANITARY SEWER PIPE SHALL BE PVC SDR 26 AND MEET OR EXCEED ASTM D-3034 FOR HEAVY WALL PIPE UNLESS OTHERWISE NOTED.
3. TESTING PROCEDURE OF NEW SANITARY LINE SHALL BE IN ACCORDANCE WITH WHITE LAKE TOWNSHIP REQUIREMENTS. CONTRACTOR TO COORDINATE INSPECTIONS WITH AGENCIES.
4. REFER TO MUNICIPALITY'S STANDARD DETAIL SHEET FOR SANITARY DETAILS AND STANDARD NOTES.

WATER MAIN NOTES:

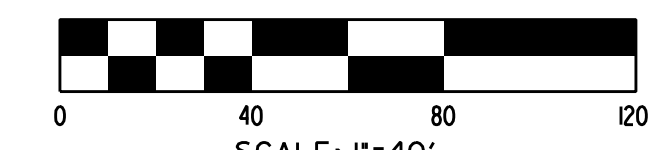
1. INSTALL WATER MAIN WITH A MINIMUM OF 6' OF COVER.
2. PROVIDE A MINIMUM OF 18" OF VERTICAL SEPARATION AND 10' OF HORIZONTAL SEPARATION BETWEEN WATERMAIN AND ALL SANITARY AND STORM SEWERS.
3. PROVIDE THRUST BLOCKS AT ALL WATER MAIN BENDS, AND TEES PER WHITE LAKE TOWNSHIP DESIGN STANDARDS.
4. ALL WATER MAIN MATERIALS SHALL CONFORM TO WHITE LAKE TOWNSHIP DESIGN STANDARD SPECIFICATIONS. NO SECOND HAND OR SALVAGED MATERIALS SHALL BE PERMITTED.
 - 12" AND LARGER WATER MAIN PIPE SHALL BE DUCTILE IRON CLASS 54 CONFORMING TO ANSI/AWWA A21.51 / C151
 - 4" TO 10" WATER MAIN PIPE SHALL BE DUCTILE IRON CLASS 53 CONFORMING TO ANSI/AWWA A21.51 / C151
 - 2" AND SMALLER WATER LEAD PIPE SHALL BE TYPE "K" COPPER.
5. THE WATER MAIN SHALL BE TESTED IN ACCORDANCE WITH WHITE LAKE TOWNSHIP REQUIREMENTS. THE INSPECTOR OF THE MUNICIPALITY SHALL BE PRESENT DURING THE TESTING PROCEDURE. CONTRACTOR SHALL COORDINATE INSPECTIONS WITH AGENCIES.

UTILITY CROSSING SCHEDULE:

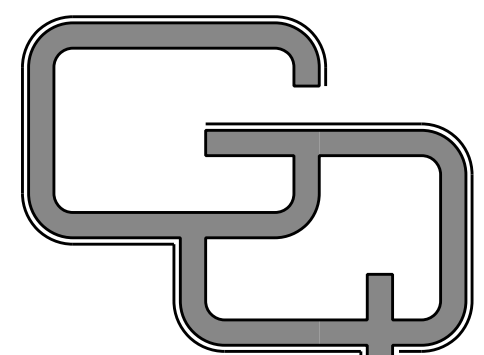
UC1	TOP SAN 955.00 BOT WATER 965.00	UC6	TOP WATER 956.40 BOT STORM 959.05
UC2	TOP SAN 956.30 BOT STORM 957.00	UC7	TOP STORM 954.00 BOT WATER 956.20
UC3	TOP WATER 955.50 BOT STORM 957.00	UC8	TOP STORM 953.90 BOT WATER 956.50
UC4	TOP WATER 955.30 BOT STORM 956.80	UC9	TOP WATER 956.50 BOT STORM 958.10
UC5	TOP STORM 954.20 BOT WATER 956.50	UC10	TOP STORM 953.50 BOT WATER 956.00

GENERAL UTILITY NOTES:

1. ALL WORKMANSHIP AND MATERIALS FOR WATER MAIN, SANITARY, AND STORM SEWER SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF ALL LOCAL GOVERNING AGENCIES HAVING JURISDICTION. IN CASE OF DISCREPANCIES, THE CONTRACTOR SHALL COORDINATE WITH THE AGENCIES TO RESOLVE THESE ISSUES.
2. CONTRACTOR SHALL CONTACT "MISS DIG" (811) FOR LOCATION OF EXISTING UTILITIES WITHIN THE WORK AREA THREE (3) WORKING DAYS PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND STABILIZING (IF REQUIRED) ALL TRENCH EXCAVATIONS TO ACCOMPLISH WORK INDICATED ON PLANS AND TO ACHIEVE REQUIRED COMPACTION OPERATIONS AS INDICATED IN THE PROJECT SPECIFICATIONS OR ON THESE DOCUMENTS. DEWATERING, IF DETERMINED NECESSARY BY THE CONTRACTOR, WILL BE CONSIDERED INCIDENTAL TO THE INSTALLATION COST OF UTILITIES OR STRUCTURES.
4. UTILITY SERVICE LEADS SHALL END 5 FEET FROM THE BUILDING UNLESS NOTED OTHERWISE. COORDINATE WITH BUILDING CONTRACTOR (IF NECESSARY).
5. PROTECT AND MAINTAIN 18 INCH CLEARANCE AT ALL UTILITY CROSSINGS.
6. REFER TO TRENCH DETAIL(S) SHOWN ON THESE DOCUMENTS FOR BEDDING AND BACKFILL MATERIAL REQUIREMENTS.
7. TRENCH EXCAVATIONS SHALL BE COMPACTED IN CONTINUOUS LAYERS NOT EXCEEDING 8 INCH LOOSE LIFTS. COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ANSI/ASTM D 1557 MODIFIED PROCTOR.
8. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
9. CONTRACTOR SHALL COORDINATE INSTALLATION OF GAS, ELECTRIC, AND TELEPHONE WITH THE APPROPRIATE UTILITY COMPANIES.
10. TESTING PROCEDURES FOR SANITARY AND WATER MAIN SHALL BE IN ACCORDANCE WITH LOCAL GOVERNING AGENCY REQUIREMENTS. CONTRACTOR SHALL COORDINATE WITH ALL GOVERNING AGENCIES AND HAVE INSPECTORS PRESENT DURING THE TESTING PROCEDURES. ALL TESTING MUST BE APPROVED BY ALL GOVERNING AGENCIES PRIOR TO CONNECTION INTO EXISTING UTILITIES.
11. CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER.
12. CONTRACTOR SHALL ADJUST ANY UTILITY ELEMENT MEANT TO BE FLUSH WITH NEW GRADE (CLEAN OUT, VALVE BOXES, MANHOLES, CATCH BASINS, INLETS, ETC.) THAT ARE AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT. THE CONTRACTOR SHALL OBTAIN ANY NECESSARY PERMITS FOR ADJUSTMENT AT THE CONTRACTOR'S EXPENSE (IF APPLICABLE).
13. THE CONTRACTOR SHALL PAY FOR AND OBTAIN ALL PERMITS REQUIRED BY FEDERAL, STATE, LOCAL, OR PRIVATE AGENCIES AND PAY ALL CHARGES FOR INSPECTION AND TESTING.
14. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONSTRUCTION LAYOUT AND GRADE ELEVATIONS FOR THEIR WORK IN ACCORDANCE WITH DATA SHOWN ON THESE DOCUMENTS.
15. THE CONTRACTOR SHALL CONTROL NOISE AND LIMIT WORKING HOURS TO TIMES AS ESTABLISHED BY THE LOCAL MUNICIPALITY.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN-UP OF WORK AREA AT COMPLETION OF THE PROJECT AND LEAVE THE SITE IN AN ACCEPTABLE CONDITION AS DETERMINED BY THE ENGINEER/INSPECTOR AND/OR OWNER.



DRAWN	
DESIGNED	BRZEZINSKI
CHECKED	QUADERER
FIELD WORK	



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	04-12-22	REISSUED TO WHITE LAKE TWP.
	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		

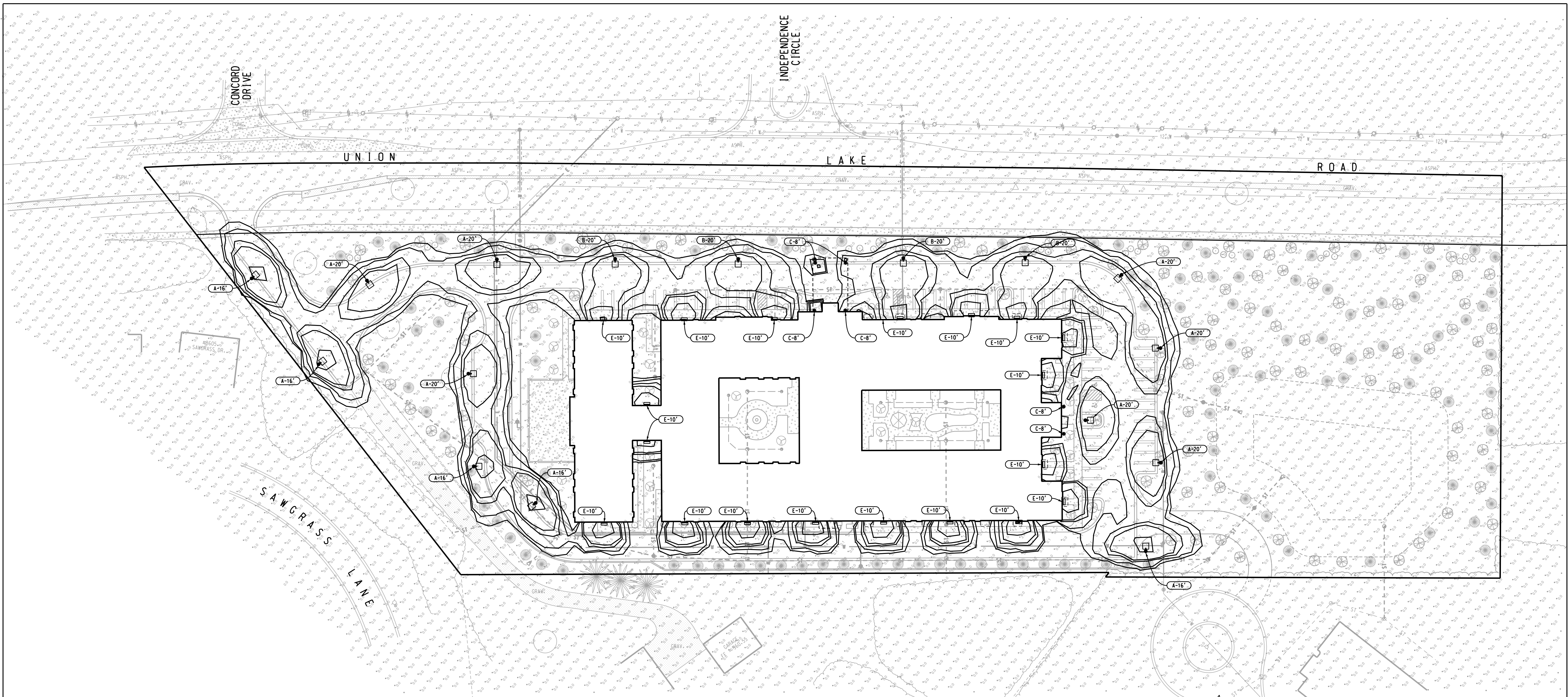
NORTHWEST 1/4
SECTION 36
T-3N, R-8E

COMFORT CARE

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

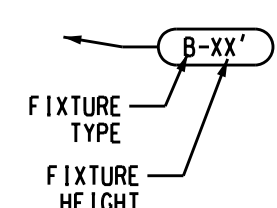
DRAWING TITLE
SITE UTILITY PLAN

PROJECT NUMBER	210303	SHEET	C400
PROJECT PHASE	SPA		

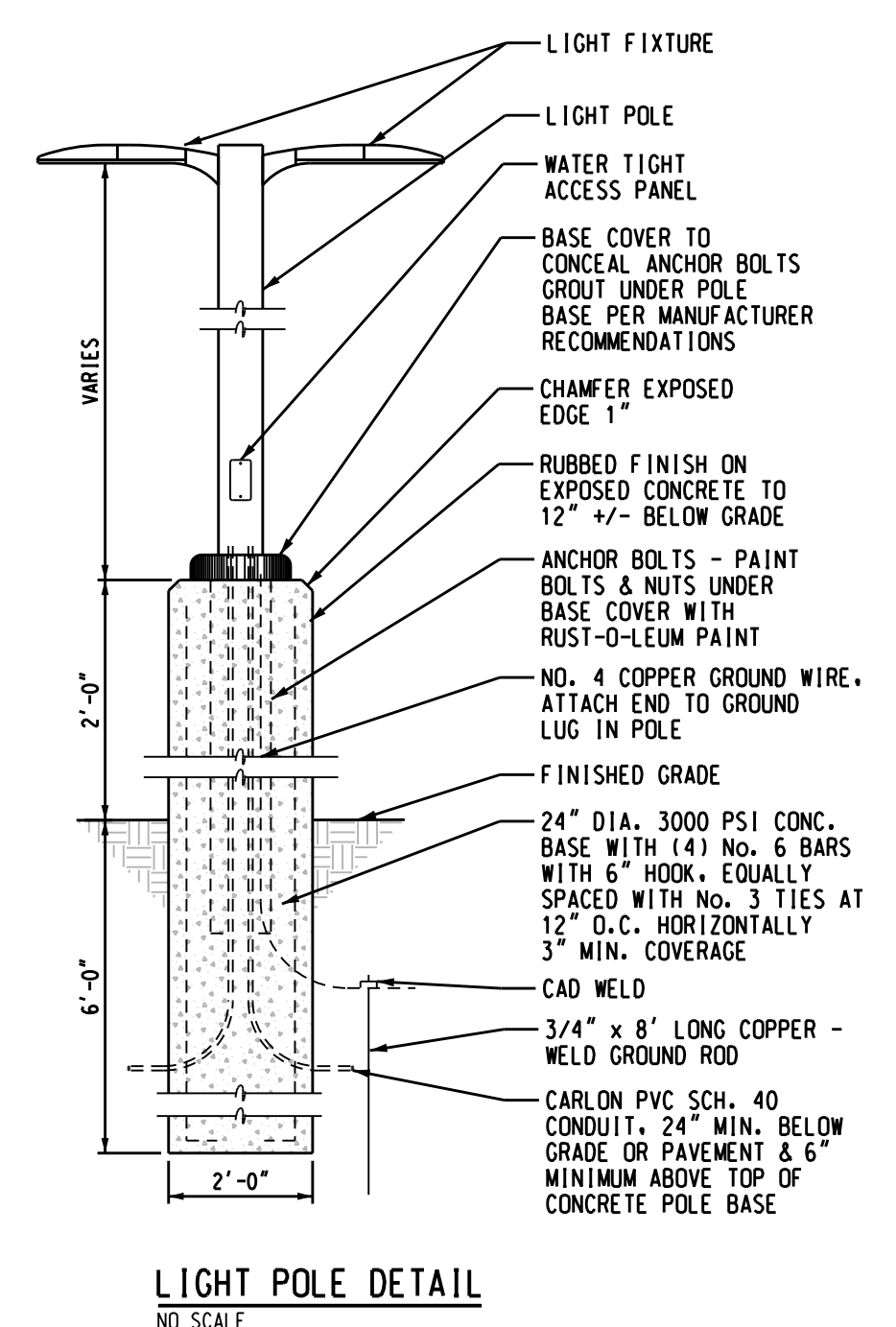
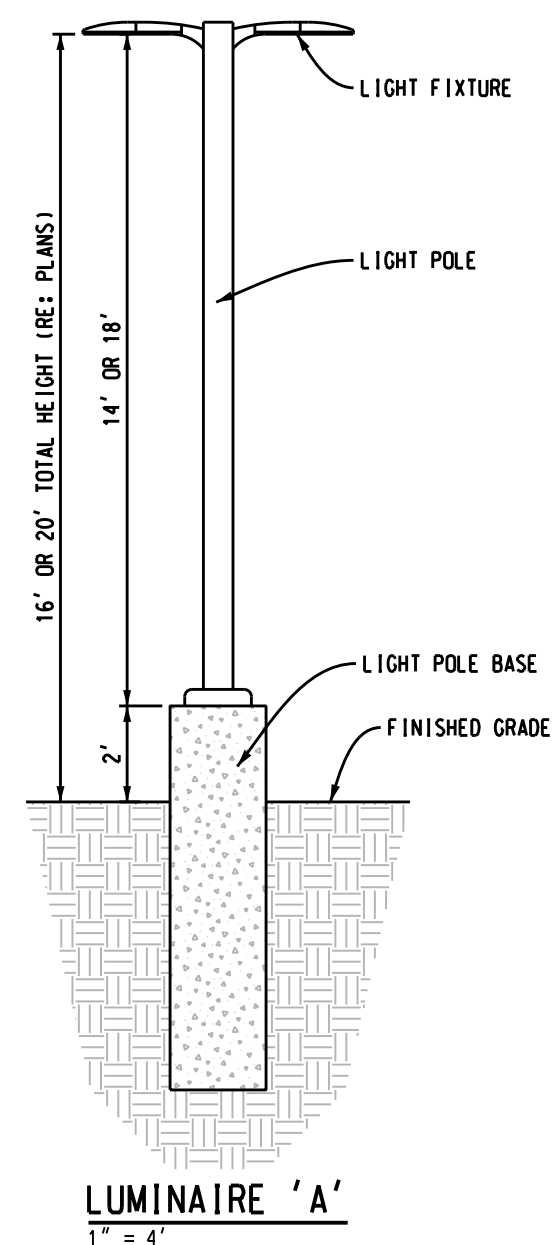
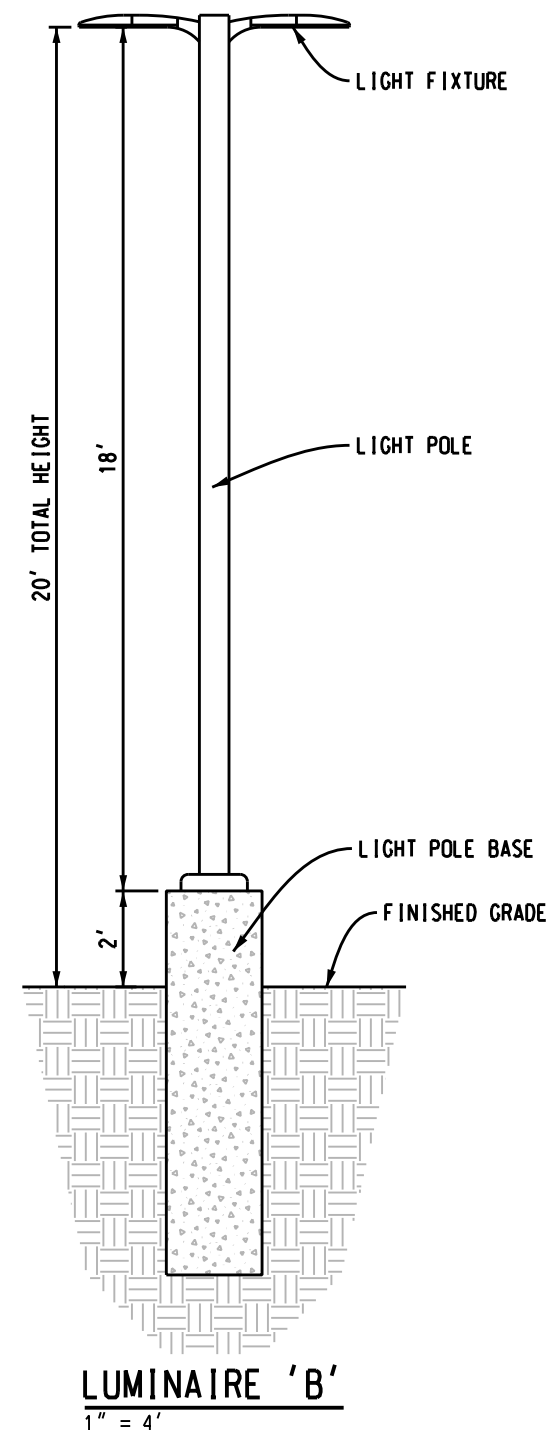


LIGHTING NOTES:
 - THE FOOTCANDLES SHOWN HEREON HAVE BEEN CALCULATED AT APPROXIMATELY SIX FEET ABOVE GRADE.
 - THE CATALOG DETAILS OF THE LIGHTING FIXTURE HAVE BEEN PROVIDED IN FULL BUT SEPARATELY FROM THESE SITE PLAN DOCUMENTS.

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



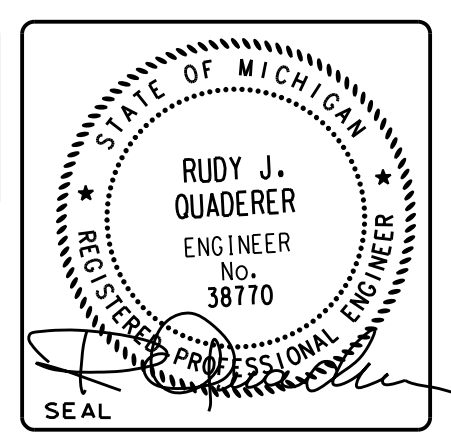
LUMINAIRE SCHEDULE							
QTY	LABEL	ARRANGEMENT	MANUFACTURER	CATALOG NO.	DESCRIPTION	LAMP	WATTAGE
12	A	SINGLE	LITHONIA	DSXO LED P1 30K T2M MVOLT HS	D-SERIES AREA SIZE 0. POLE MOUNTED, SINGLE (ONE) LIGHT FIXTURE W/ HOUSE SIDE SHIELD	LED	38
4	B	SINGLE	LITHONIA	DSXO LED P1 30K T4M MVOLT HS	D-SERIES AREA SIZE 0. POLE MOUNTED, SINGLE (ONE) LIGHT FIXTURE W/ HOUSE SIDE SHIELD	LED	38
7	C	SINGLE	LITHONIA	OLLWD LED P1 40K MVOLT	WALL MOUNTED, DOWN LIGHT ONLY, CYLINDRICAL	LED	9
19	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



0 40 80 120
SCALE: 1"=40'

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NO.	DATE	SUBJECT
04-12-22		REISSUED TO WHITE LAKE TWP.
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

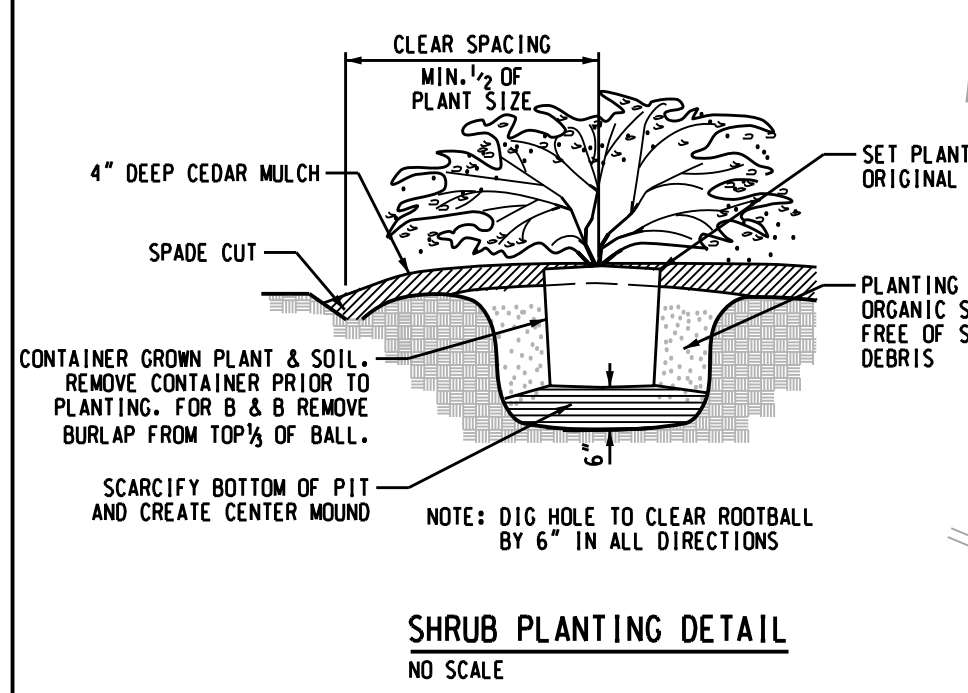
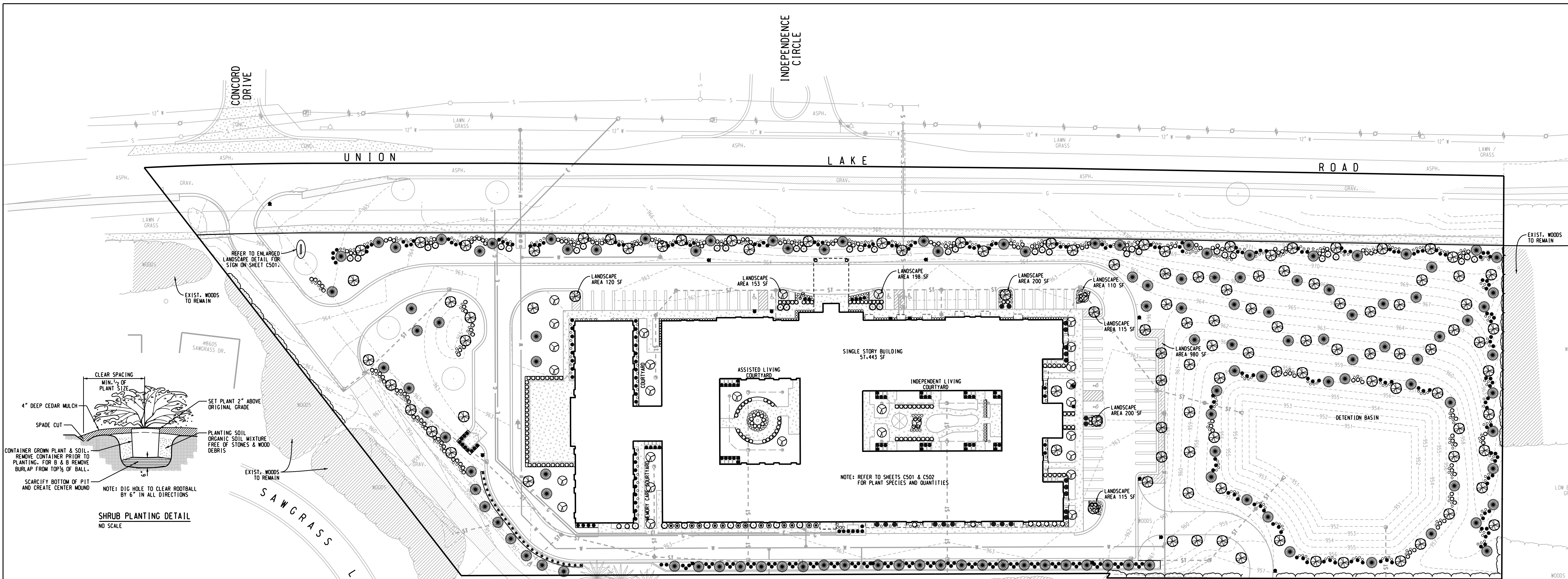
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

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

DRAWING TITLE
SITE PHOTOMETRIC PLAN

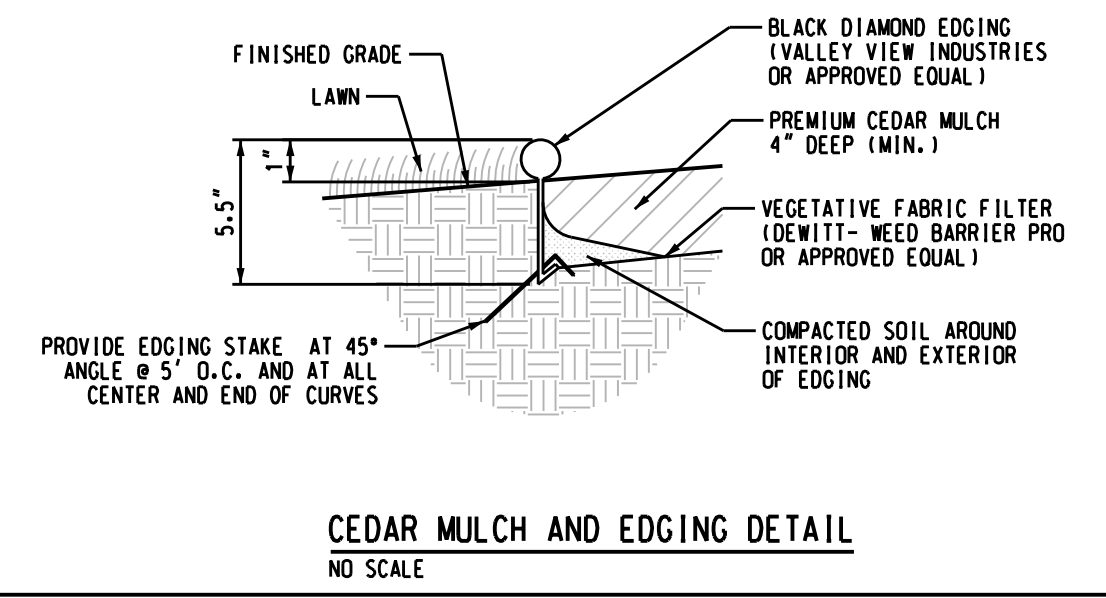
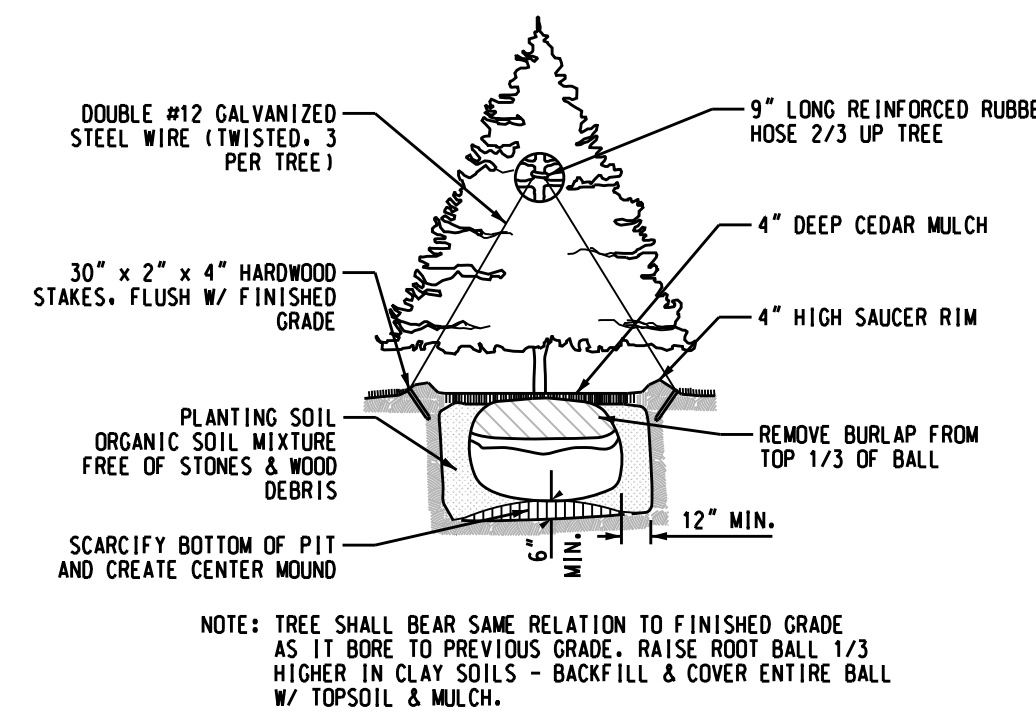
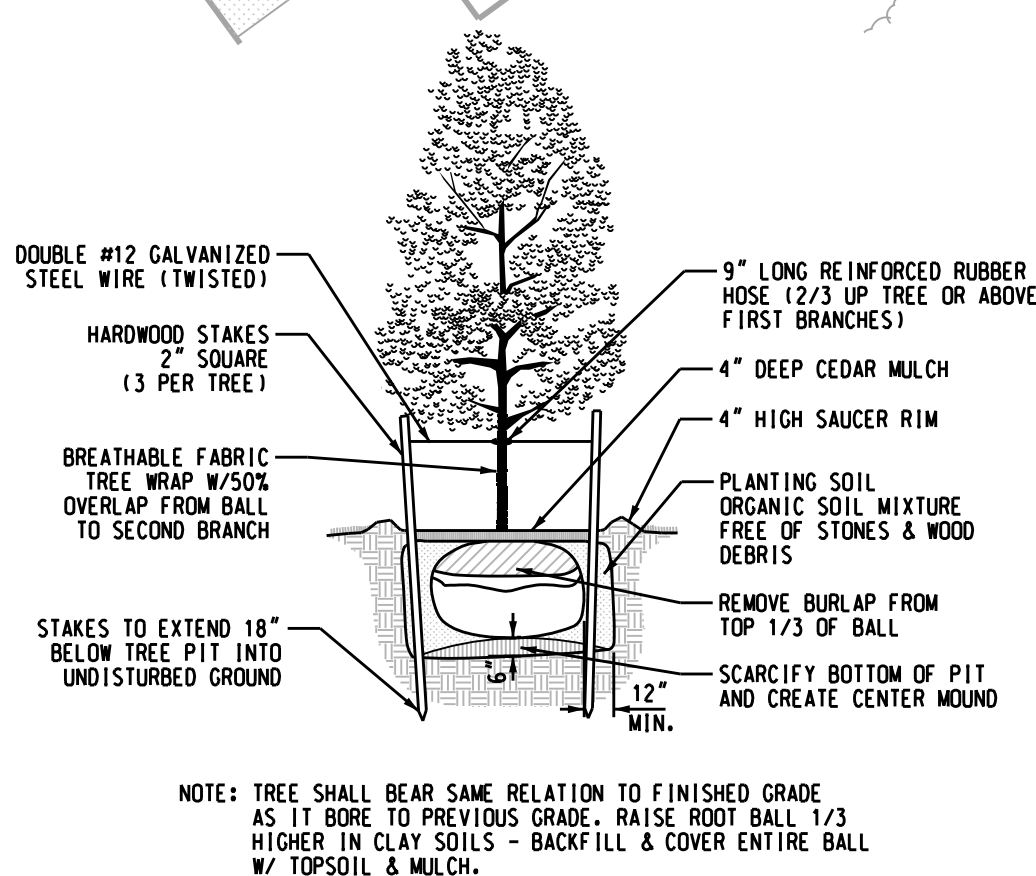
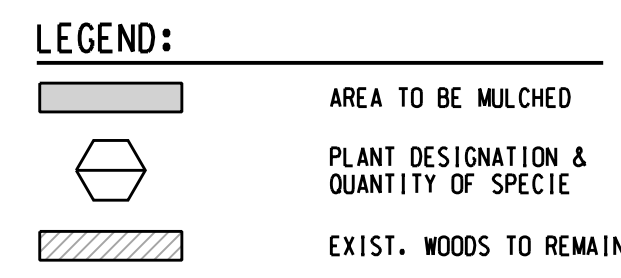
PROJECT NUMBER	210303	SHEET	C401
PROJECT PHASE	SPA		



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, MOWED 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.

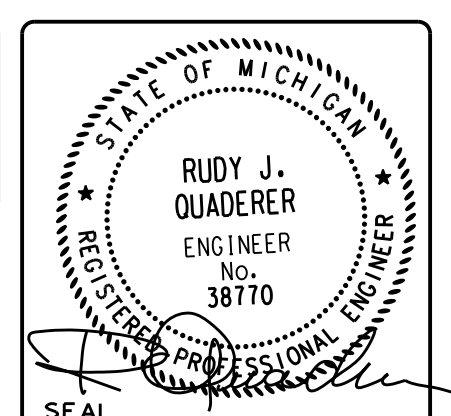
PLANTING REQUIREMENTS		
LOCATION	MINIMUM REQUIREMENT	PROVIDED
ROAD R/W GREENBELT	20' WIDE GREENBELT: 1 DECIDUOUS OR EVERGREEN TREE + 8 SHRUBS / 30LF = 1,127/30 = 38 TREES + 304 SHRUBS	57 TREES - 358 SHRUBS
PARKING LOT AREA	15SF PER PARKING SPACE = 62 SPAC. (15) = 930 SF	2,190 SF OF LANDSCAPE AREA
RESIDENTIAL BUFFER (SOUTH SIDE)	LAND FORM BUFFER A-2 = 1 TREE + 8 SHRUBS PER 30LF = 288/30 = 10 TREES + 80 SHRUBS	17 TREES - 74 SHRUBS, EXIST. WOODS
RESIDENTIAL BUFFER (WEST SIDE)	LAND FORM BUFFER A-2 = 1 TREE + 8 SHRUBS PER 30LF = 372/30 = 13 TREES + 104 SHRUBS	18 TREES, EXIST. TREES & WOODS, NEW WALL 82 SHRUBS
INTERIOR LANDSCAPING	15% OF THE TOTAL LOT AREA 1 TREE / 300 SF + 5 SHRUBS TOTAL AREA = 364,591 SF -PAVED AREA = 58,100 SF NET AREA = 306,491 SF 15% NET AREA = 45,975 SF 45975/300 = 153 TREES + 766 SHRUBS	147 TREES, 6 EXIST. TREES 722 SHRUBS



0 40 80 120
SCALE: 1"=40'

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REVISION OR ISSUE		

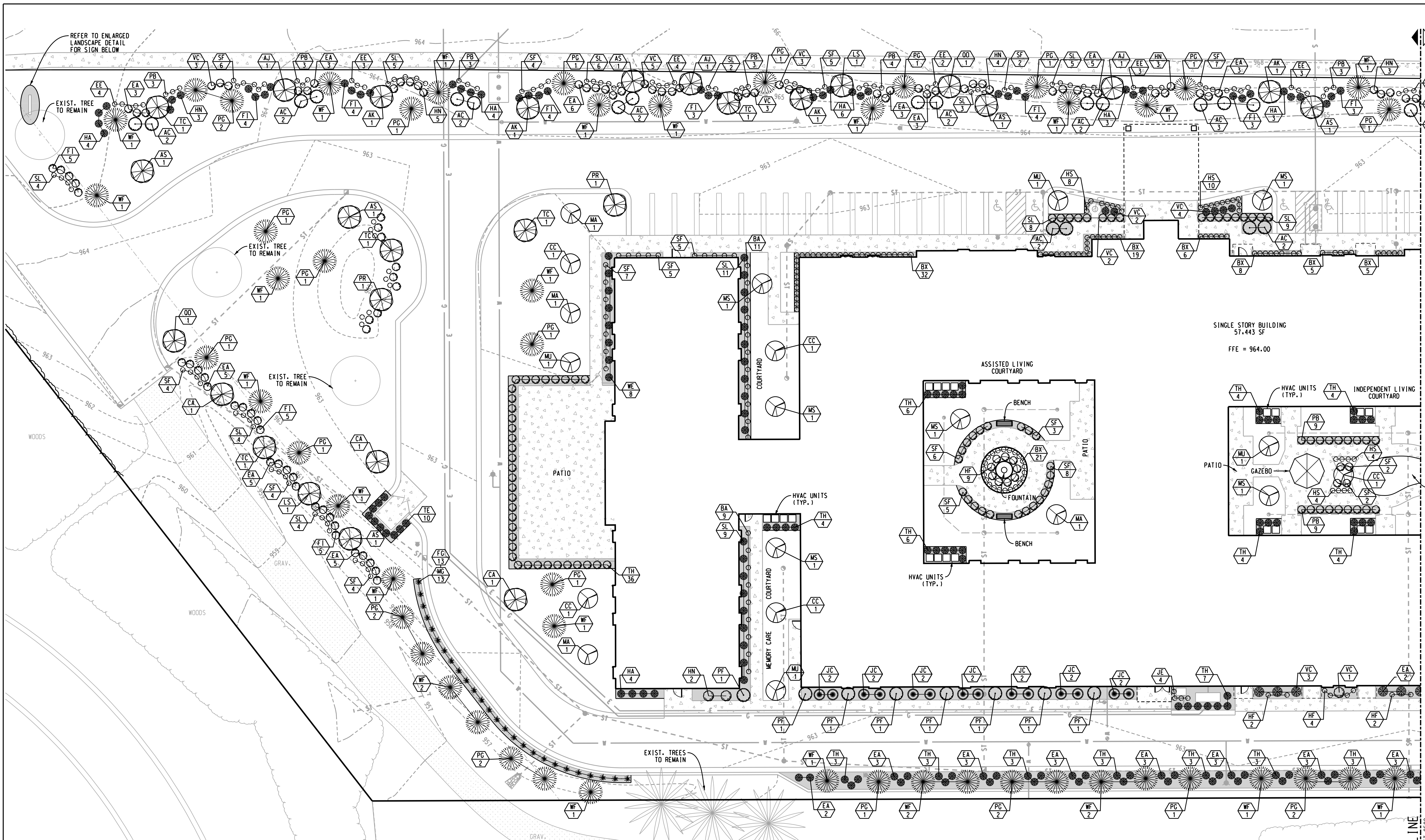
NORTHWEST 1/4 SECTION 36 T-3N, R-8E

COMFORT CARE

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

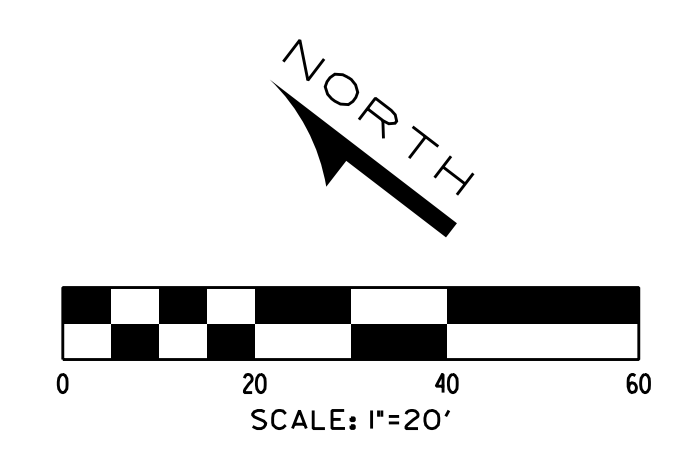
DRAWING TITLE
SITE LANDSCAPE PLAN

PROJECT NUMBER	210303	SHEET	C500
PROJECT PHASE	SPA		



NOTE: FOR PLANTING REQUIREMENTS AND LANDSCAPE DETAILS REFER TO SHEET C500.

SINGLE STORY BUILDING
57,443 SF
FFE = 964.00



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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

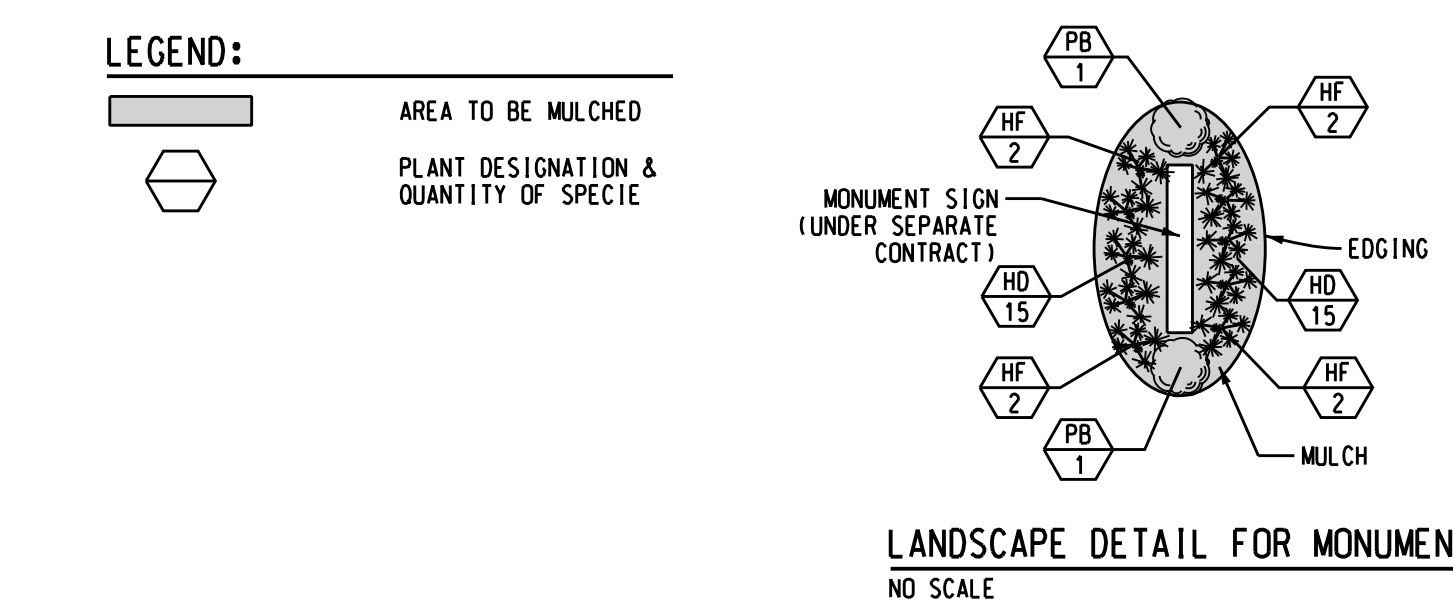
DRAWING TITLE
SITE LANDSCAPE PLAN (NORTH DETAIL)

PROJECT NUMBER	210303	SHEET	C501
PROJECT PHASE	SPA		

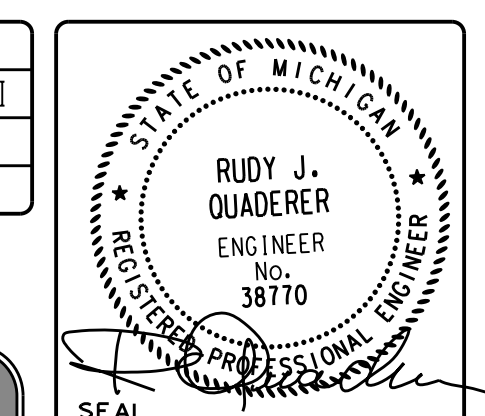
TREE SCHEDULE			
KEY	BOTANICAL NAME	COMMON NAME	SIZE QUANTITY
AF	ACER PALMATUM 'FIREGLOW'	FIREGLOW JAPANESE MAPLE	4' HT -
AK	ACER PLATANOIDES 'CRIMSON KING'	CRIMSON KING NORWAY MAPLE	2.5" CAL 4
AJ	ACER X FREEMANTII 'JEFFERSRED'	AUTUMN BLAZE MAPLE	2.5" CAL 3
AS	ACER SACCHARUM 'COMMEMORATION'	COMMEMORATION 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 5
LS	LIGULIDAMBAR 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 4
PG	PICEA GLAUCA	WHITE SPRUCE	8' HT 24
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 5
WF	ABIES CONCOLOR	CONCOLOR WHITE FIR	8' HT 25

SHRUB SCHEDULE			
KEY	BOTANICAL NAME	COMMON NAME	SIZE QUANTITY
AC	AMELANCHIER LAEVIS 'CUMULUS'	CUMULUS SERVICEBERRY	4' HT 20
BA	BERBERIS ATROPURPUREA 'CRIRUZAM'	CRIMSON RUBY BARBERRY	18" HT 20
BX	BUXUS X 'GREEN GEM'	GREEN GEM BOXWOOD	NO. 3 CONT 96
CB	CORNUS ALBA 'BAILHALD'	IVORY HALD RED TWIG DOGWOOD	18" HT -
EE	EUONYMUS ALATUS 'COMPACTUS'	COMPACT BURNING BUSH	24" HT 43
EE	EUONYMUS FORTUNEI 'EMERALD CAIETY'	EMERALD CAIETY EUONYMUS	NO. 3 CONT 19
FI	FORSYTHIA INTERMEDIA	NORTHERN GOLD FORSYTHIA	24" HT 40
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 26
JC	JUNIPERUS CHINENSIS 'GOLD COAST'	GOLD COAST JUNIPER	24" SPR. 14
JE	JUNIPERUS CHINENSIS 'SEA GREEN'	SEA GREEN JUNIPER	24" SPR. 4
PF	PICEA ABIES 'MIDIFORMIS'	BIRD'S NEST SPRUCE	18" HT 8
PB	POTENTILLA FRUTICOSA 'GOLDFINGER'	GOLDFINGER POTENTILLA	NO. 3 CONT 36
SF	SPIREA JAPONICA 'GOLDMOUND'	GOLD MOUND SPIREA	NO. 3 CONT 69
SL	SYRINGA PATULA 'MISS KIM'	MISS KIM LILAC	NO. 3 CONT 65
TE	THUJA OCCIDENTALIS 'SMARAGO'	EMERALD GREEN ARBORVITAE	5' HT 10
TH	TAXUS X MEDIA 'HICKSII'	HICKS COLUMNAR YEW	24" HT 85
VC	VIBURNUM X BURKWOODII	BURKWOOD VIBURNUM	NO. 5 CONT 24
WE	WEIGELA FLORIDA 'ELVERA'	MIDNIGHT WINE WEIGELA	NO. 3 CONT 8

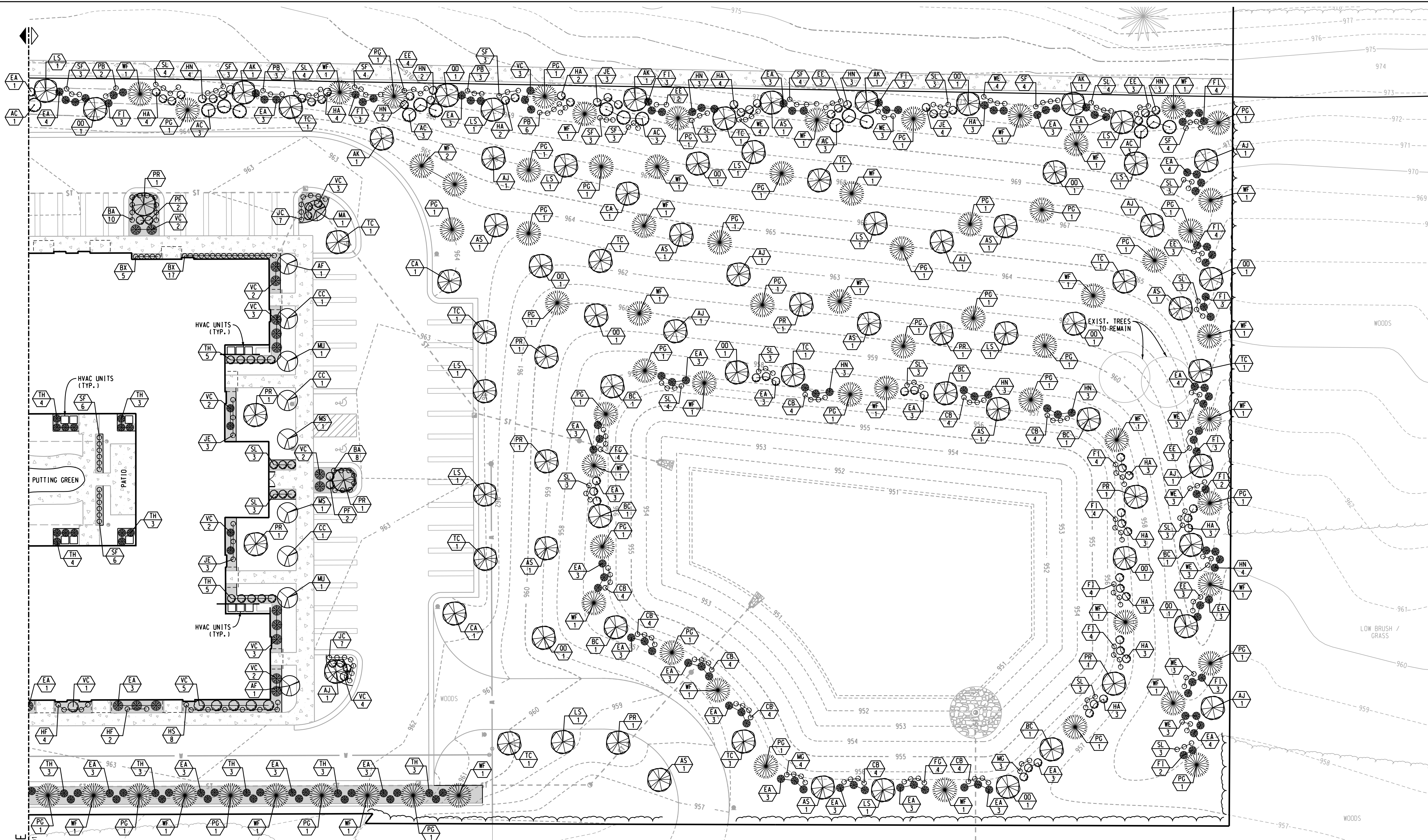
PERENNIALS & GRASSES SCHEDULE			
KEY	BOTANICAL NAME	COMMON NAME	SIZE QUANTITY
FG	CALAMAGROSTIS ACUTIFLORA	FEATHER REED GRASS	NO. 2 CONT 13
HD	HEMEROCALLIS 'STELLA D'ORO'	STELLA D'ORO DAYLILLY	NO. 2 CONT 30
HF	HOSTA 'FRANCEE'	FRANCEE HOSTA	NO. 2 CONT 25
MG	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	NO. 2 CONT 13



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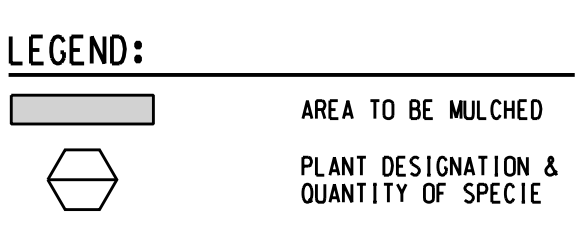
NORTH

MATCH LINE
REFER TO SHEET C501

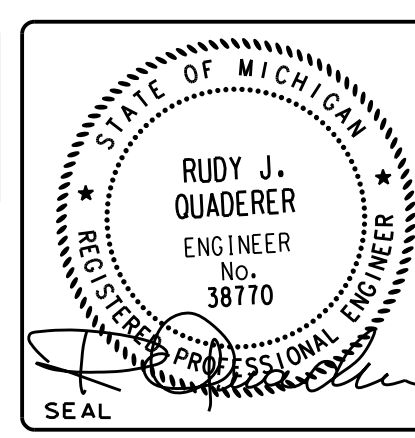
TREE SCHEDULE			
KEY BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
AF	ACER PALMATUM 'FIREGLOW'	FIREGLOW JAPANESE MAPLE	4' HT 2
AK	ACER PLATANOIDES 'CRIMSON KING'	CRIMSON KING NORWAY MAPLE	2.5" CAL 5
AJ	ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE MAPLE	2.5" CAL 7
AS	ACER SACCHARUM 'COMMEMORATION'	COMMEMORATION SUGAR MAPLE	2.5" CAL 9
BC	BETULA NIGRA 'CULLY'	HERITAGE RIVER BIRCH	8' HT 6
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LS	LIQUIDAMBAR STYRACIFLUA 'GODUZAM'	GOLD DUST AMERICAN SWEETGUM	2.5" CAL 8
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 2
PG	PICEA GLAUCA	WHITE SPRUCE	8' HT 35
PR	PYRUS CALLARYANA 'REDSPIRE'	REDSPIRE PEAR	2.5" CAL 9
OO	QUERCUS RUBRA	NORTHERN RED OAK	2.5" CAL 10
TC	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	2.5" CAL 11
WF	ABIES CONCOLOR	CONCOLOR WHITE FIR	8' HT 33

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 22
CB	CORNUS ALBA 'BAILHALO'	IVORY HALO RED TWIG DOGWOOD	18" HT 36
EE	EUDONYMUS ALATAS 'COMPACTUS'	COMPACT BURNING BUSH	24" HT 93
EA	EUDONYMUS FORTUNEI 'EMERALD GAIEITY'	EMERALD GAIEITY EUDONYMUS	NO. 3 CONT 20
FI	FORSYTHIA INTERMEDIA	NORTHERN GOLD FORSYTHIA	24" HT 33
HA	HAMAMELIS VERNALIS	VERNAL WITCHHAZEL	24" HT 21
HN	HIBISCUS SYRIACUS 'NOTWOODONE'	LAV. CHIFFON ROSE OF SHARON	24" HT 30
HS	HYDRANGEA MAC. H. SERRATA 'PREZIOSA'	PINK BEAUTY HYDRANGEA	24" HT 8
JE	JUNIPERUS CHINENSIS 'GOLD COAST'	GOLD COAST JUNIPER	24" SPR. 14
JC	JUNIPERUS CHINENSIS 'SEA GREEN'	SEA GREEN JUNIPER	24" SPR. 13
PF	PICEA ABIES 'NIDIFORMIS'	BIRD'S NEST SPRUCE	18" HT 4
PB	POTENTILLA FRUTICOSA 'GOLDFINGER'	GOLDFINGER POTENTILLA	NO. 3 CONT 14
SF	SPIREA JAPONICA 'GOLDMOUND'	GOLD MOUND SPIREA	NO. 3 CONT 36
SL	SYRINGA PATULA 'MISS KIM'	MISS KIM LILAC	NO. 3 CONT 55
TE	THUJA OCCIDENTALIS 'SMARAGO'	EMERALD GREEN ARBORVITAE	5' HT -
TH	TAXUS X MEDIA 'HICKSII'	HICKS COLUMNAR YEW	24" HT 39
VC	VIBURNUM X BURKWOODII	BURKWOOD VIBURNUM	24" HT 21
WE	WEIGELA FLORIDA 'ELVERA'	MIDNIGHT WINE WEIGELA	NO. 3 CONT 29

PERENNIALS & GRASSES SCHEDULE			
KEY BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
FG	CALAMAGROSTIS ACUTIFLORA	FEATHER REED GRASS	NO. 2 CONT 8
MG	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	NO. 2 CONT 7



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04-13-21	TOPOGRAPHIC SURVEY	

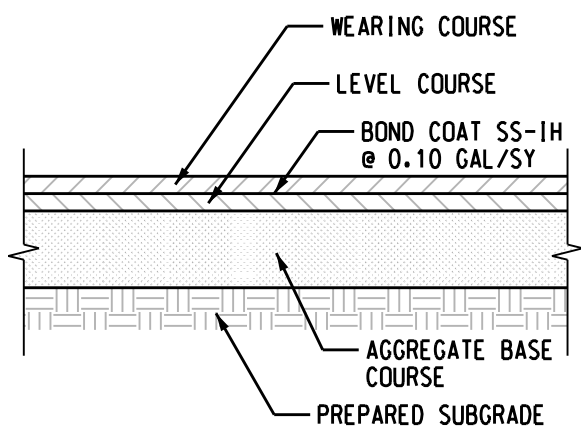
NORTHWEST 1/4
SECTION 36
T-3N, R-8E

COMFORT CARE

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

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

PROJECT NUMBER	210303	SHEET	C502
PROJECT PHASE	SPA		



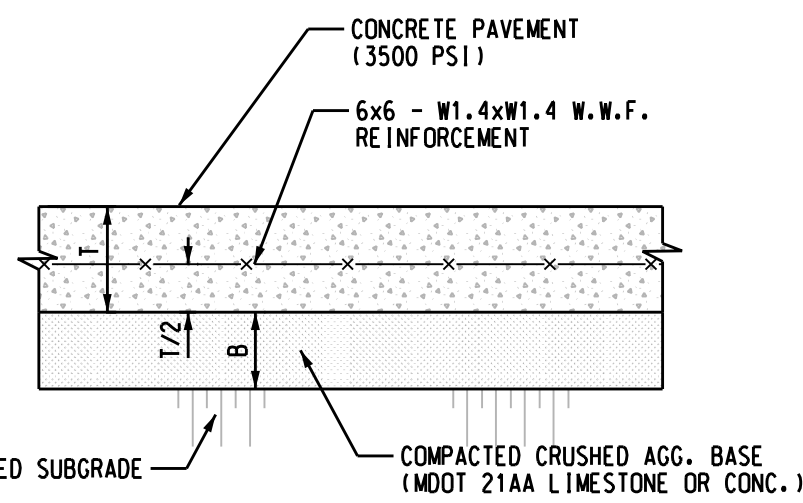
ON-SITE PAVEMENT SECTION
NO SCALE

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

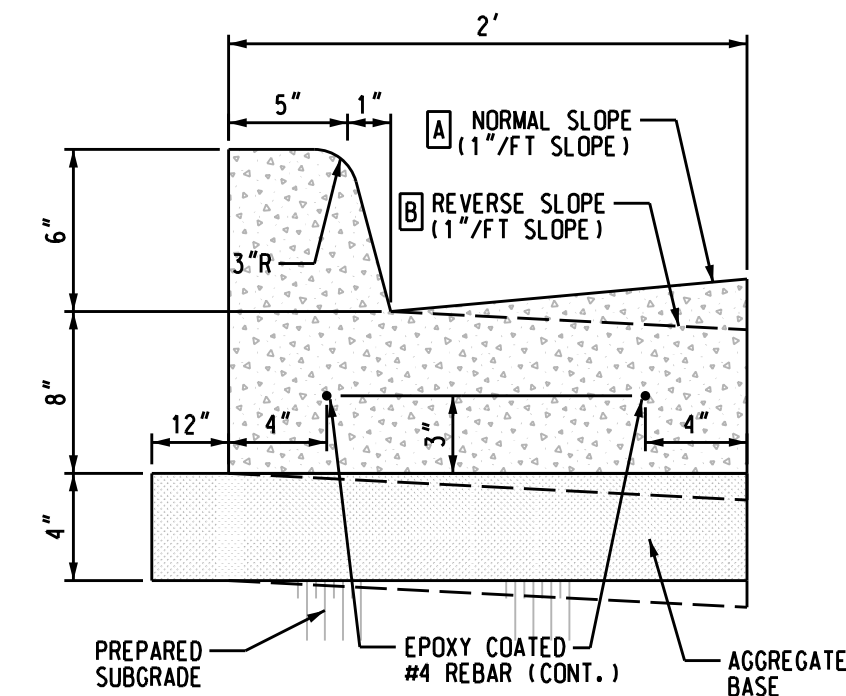
19" OF DEEP STRENGTH ASPHALT SECTION
WEARING COURSE - 2" MDOT 4C
LEVEL COURSE - 3" MDOT 3C
LEVEL COURSE - 4" MDOT 2C (FIRST LIFT)

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



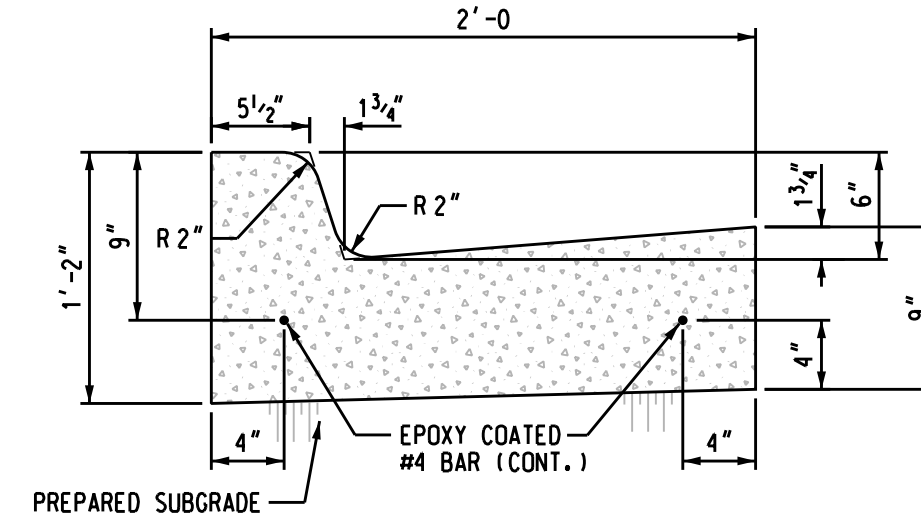
CONCRETE PAVEMENT SECTION
NO SCALE

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



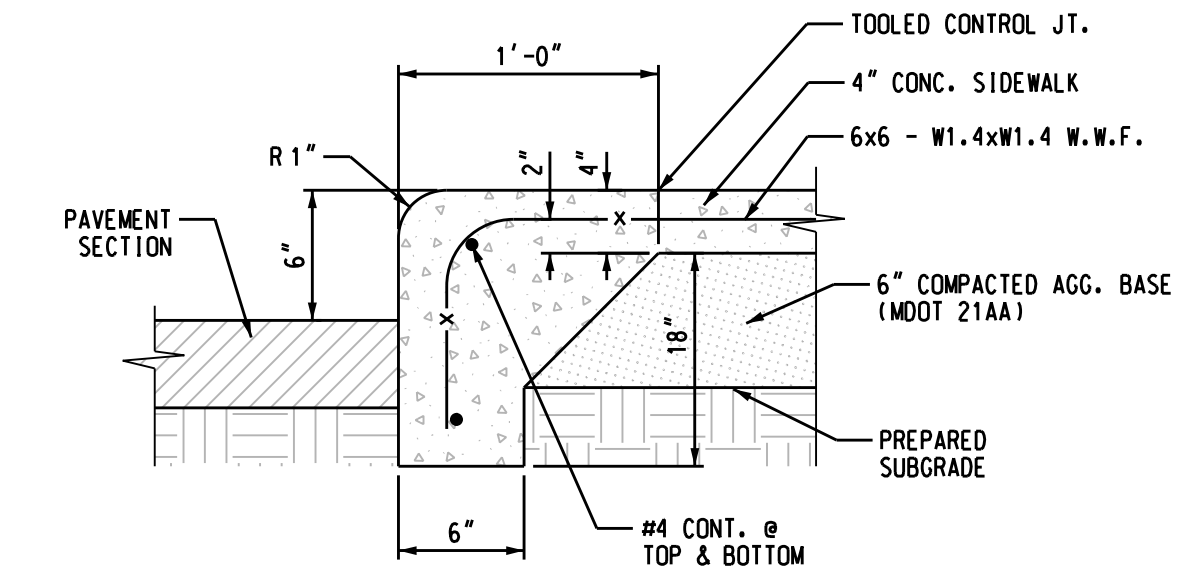
CURB & GUTTER DETAIL
NO SCALE

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

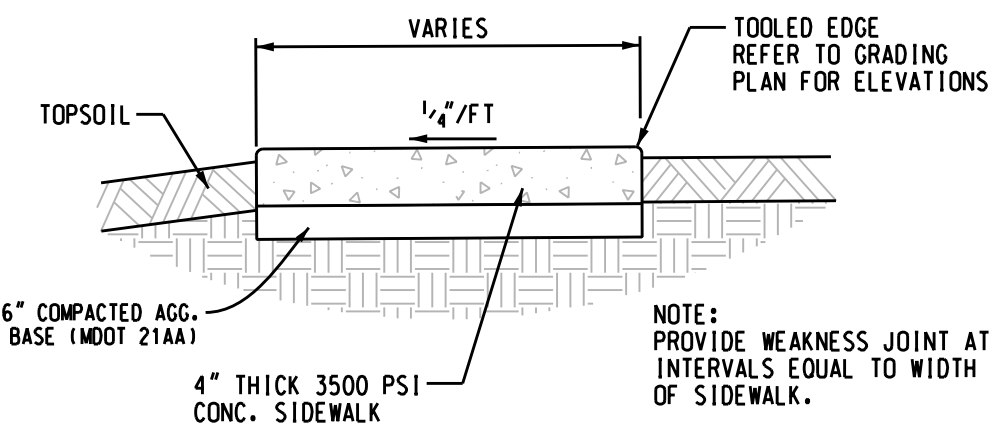


CURB & GUTTER DETAIL
NO SCALE

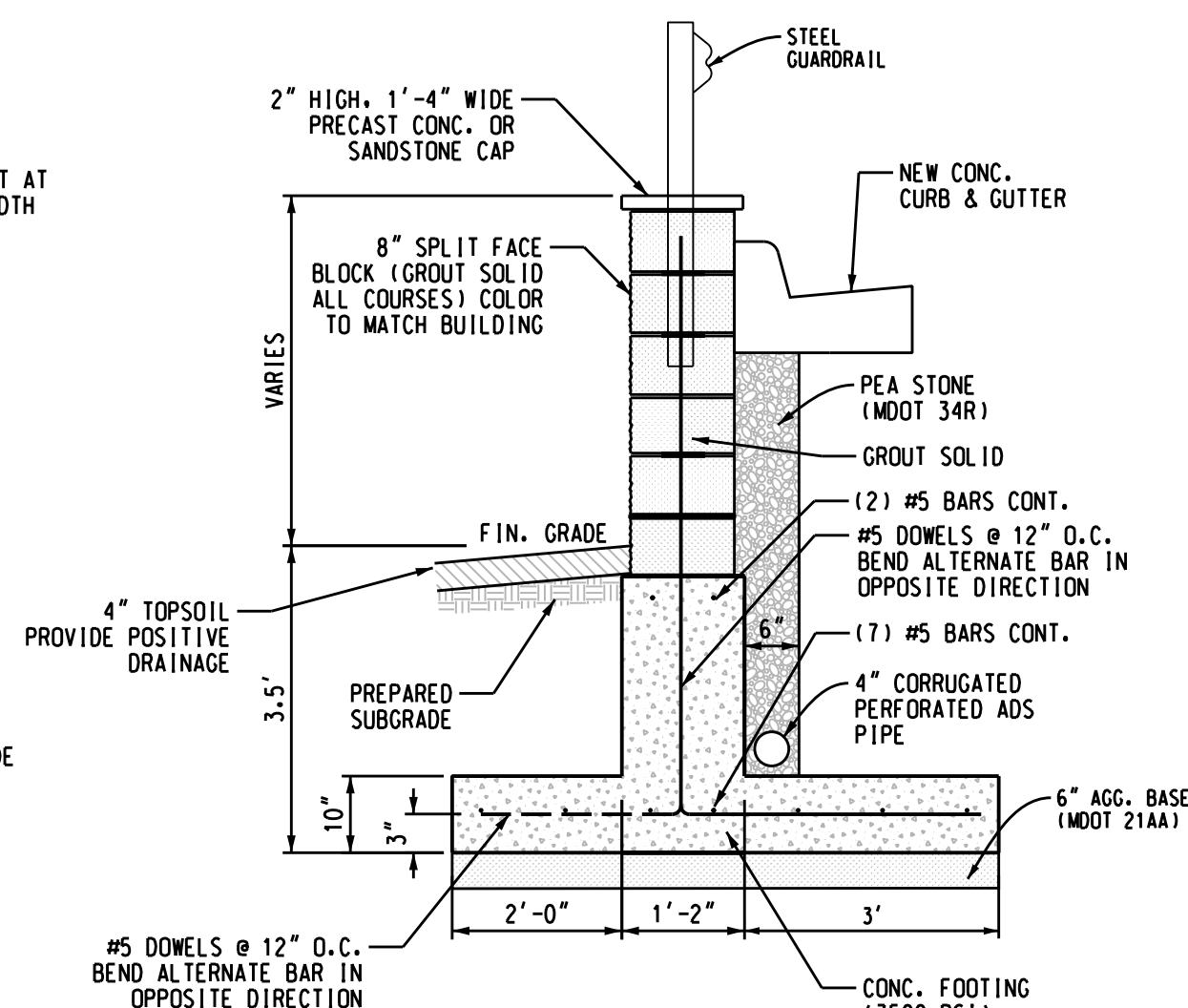
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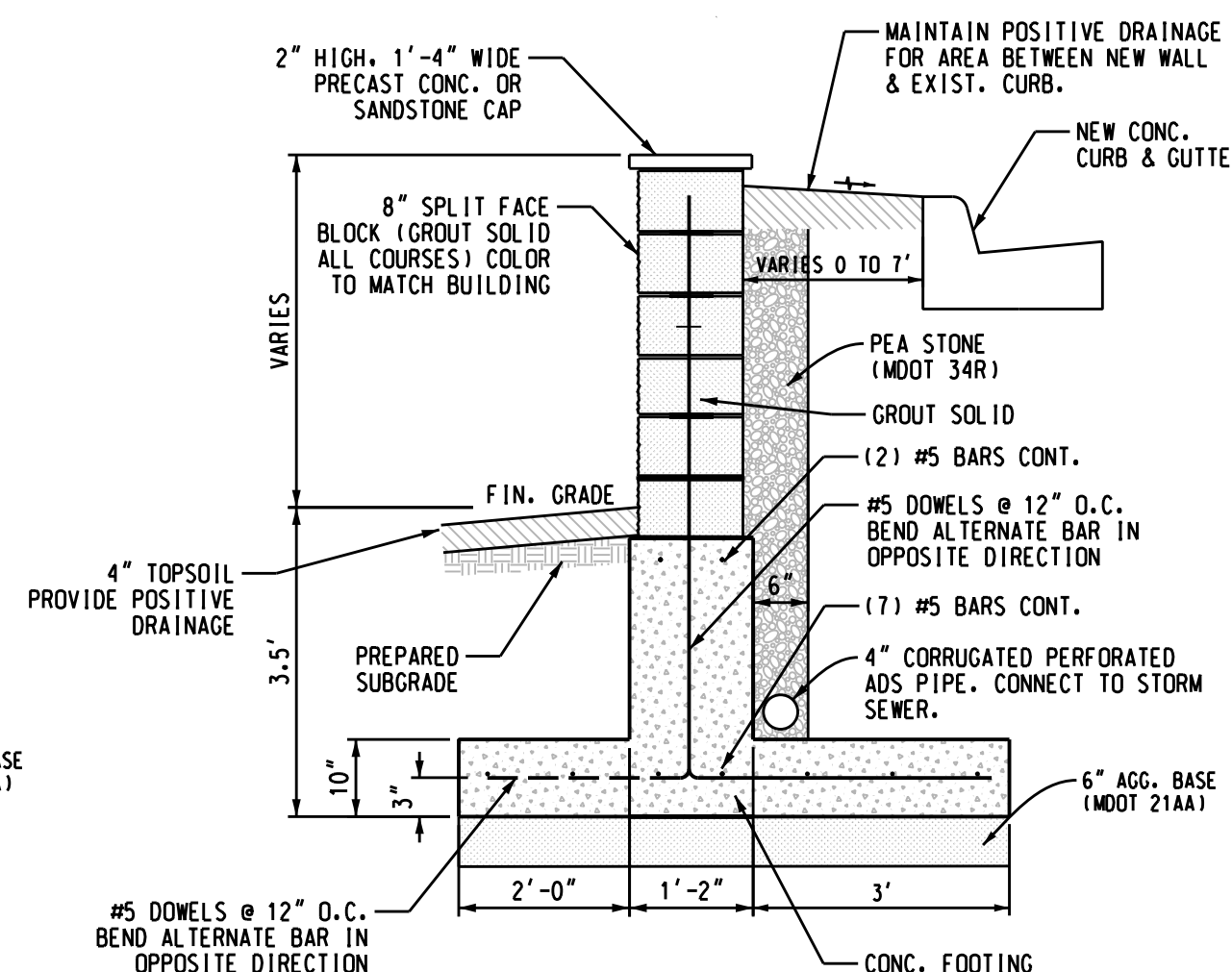
INTEGRAL CURB & SIDEWALK DETAIL
NO SCALE



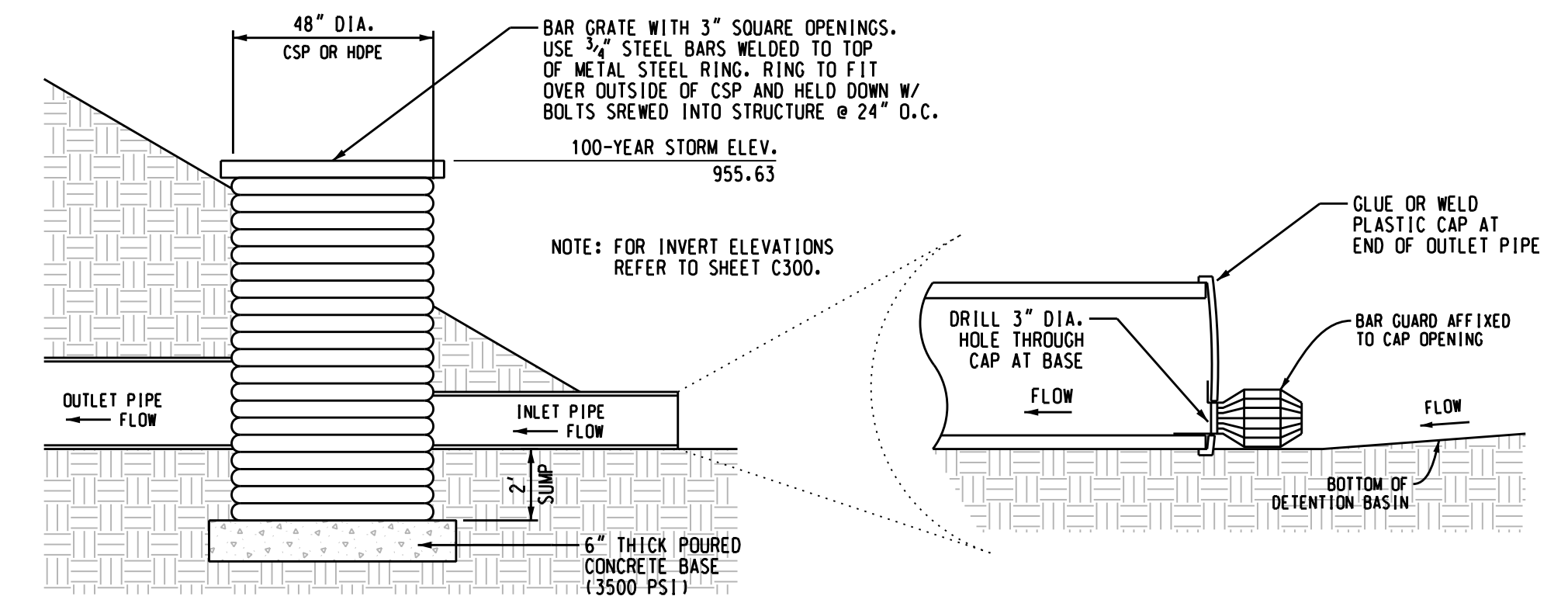
TYP. SIDEWALK DETAIL
NO SCALE



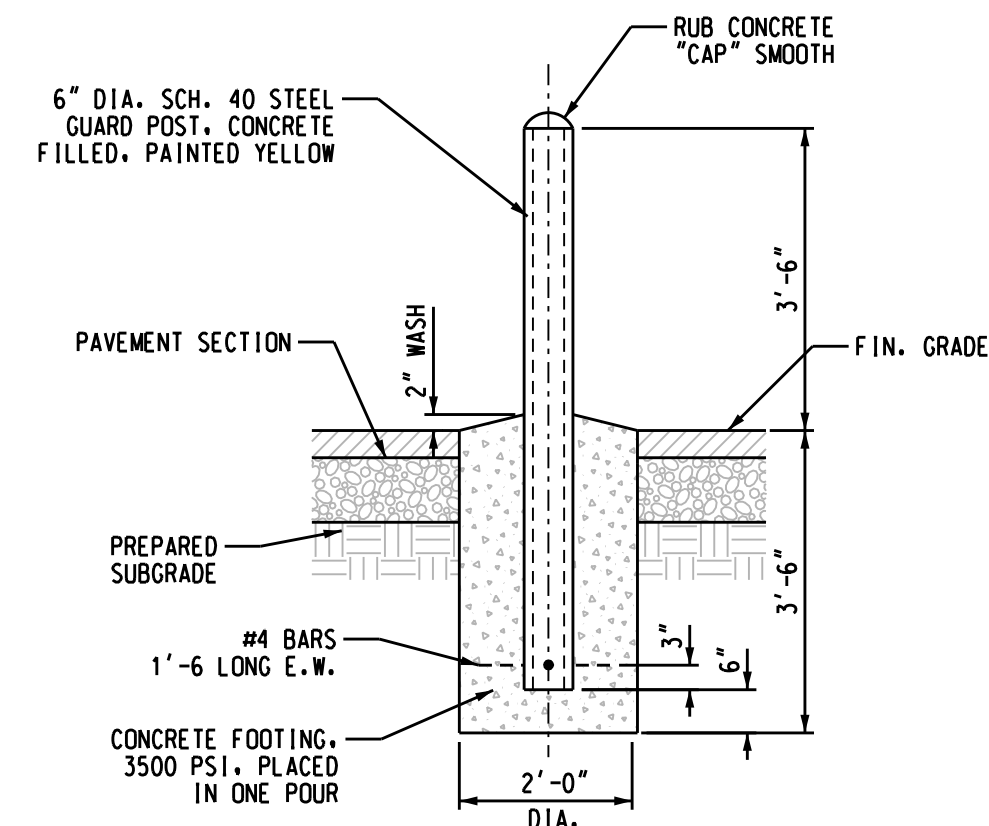
CROSS SECTION MASONRY WALL SW CORNER
NO SCALE



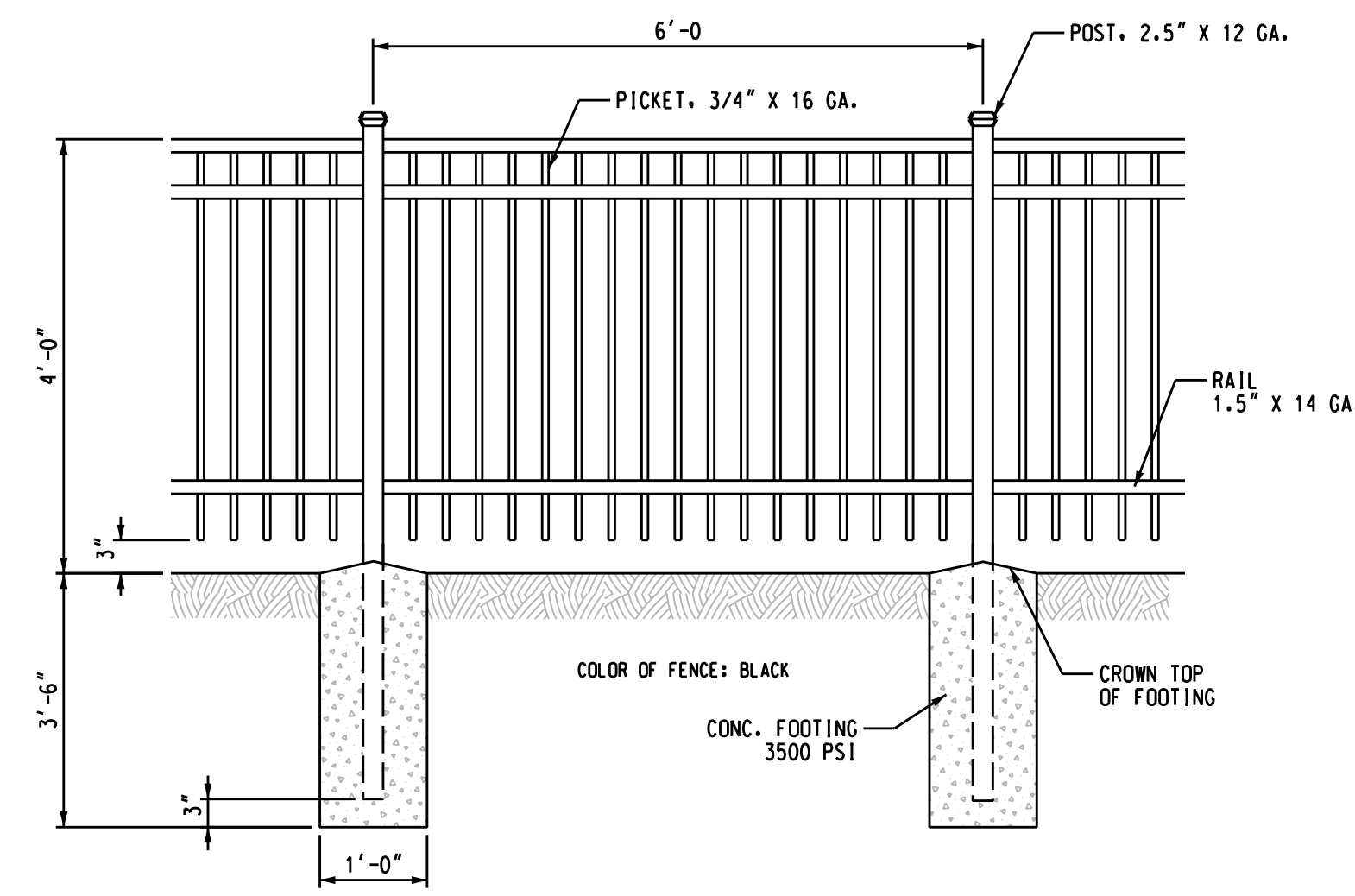
CROSS SECTION MASONRY WALL SE CORNER
NO SCALE



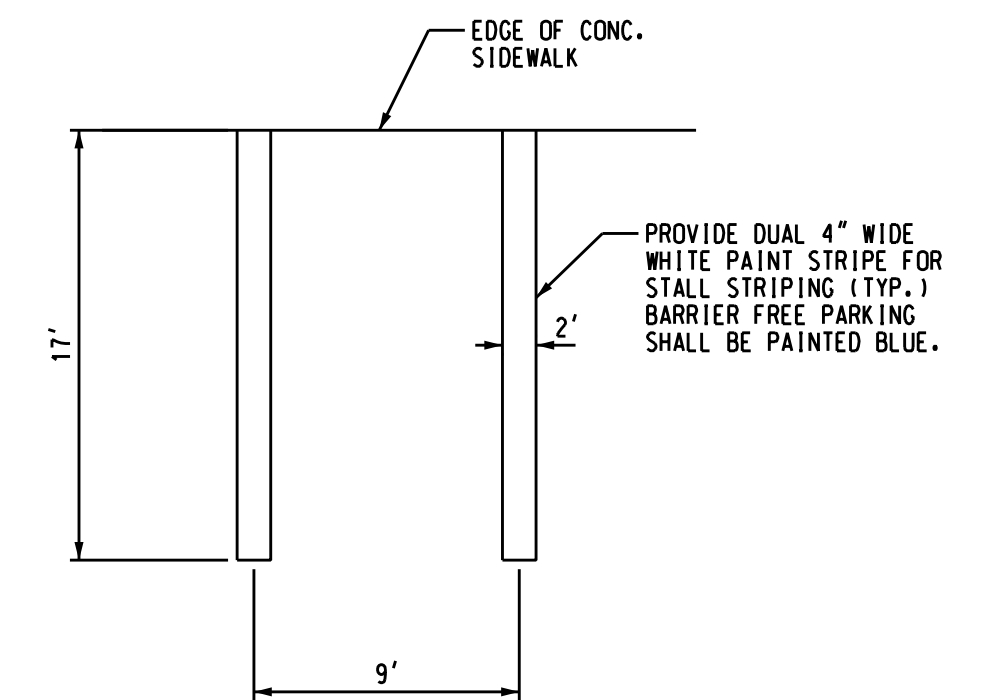
OUTLET CONTROL STRUCTURE
NO SCALE



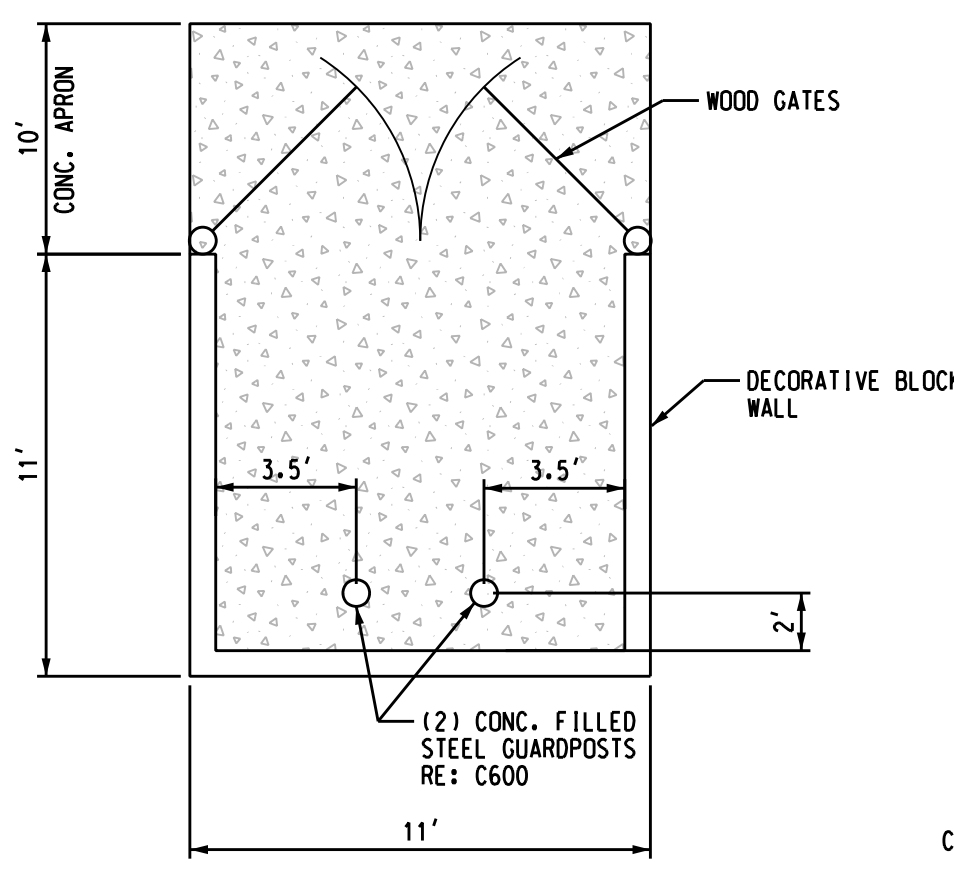
GUARD POST DETAIL
NO SCALE



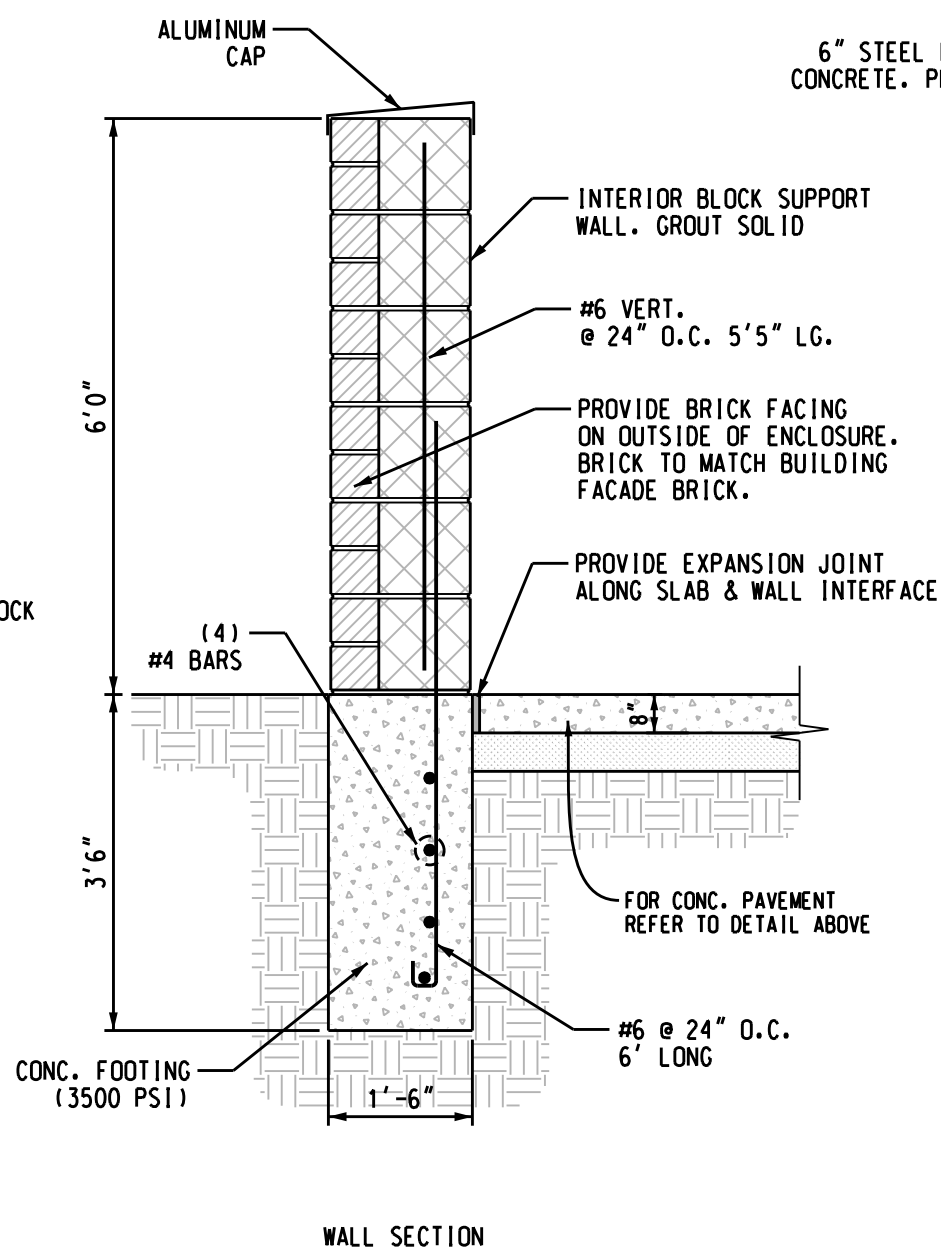
DECORATIVE ALUMINUM FENCE DETAIL
NO SCALE



PARKING STALL PAINT STRIPING DETAIL
NO SCALE

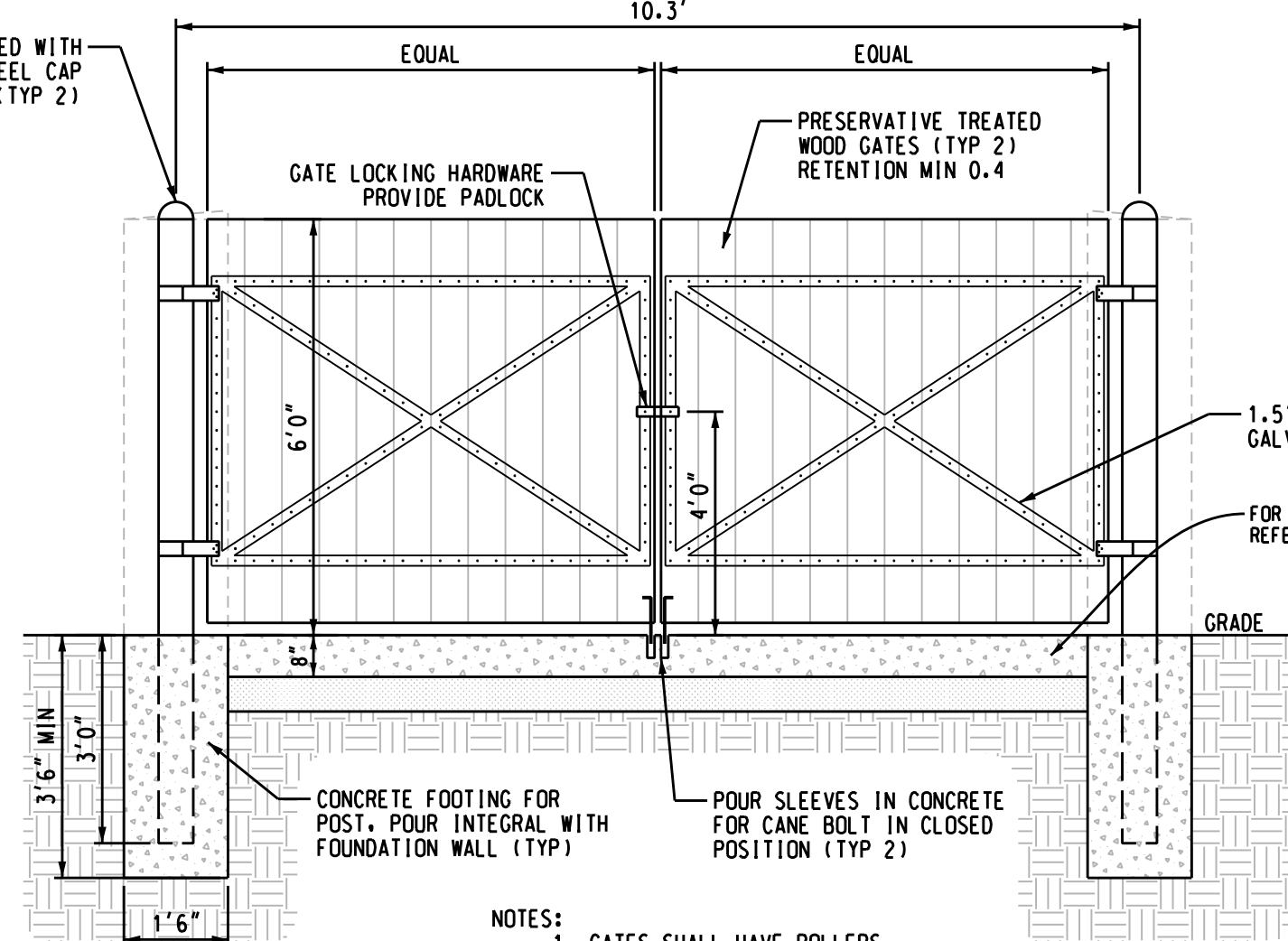


PLAN VIEW



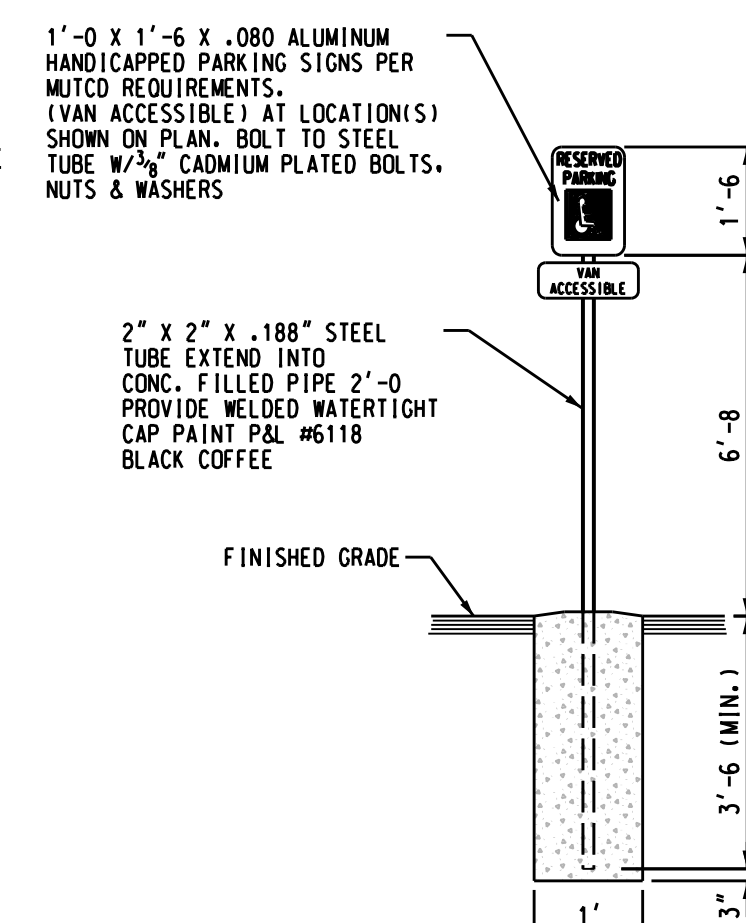
WALL SECTION

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
	04-12-22	REISSUED TO WHITE LAKE TWP.
	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

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

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

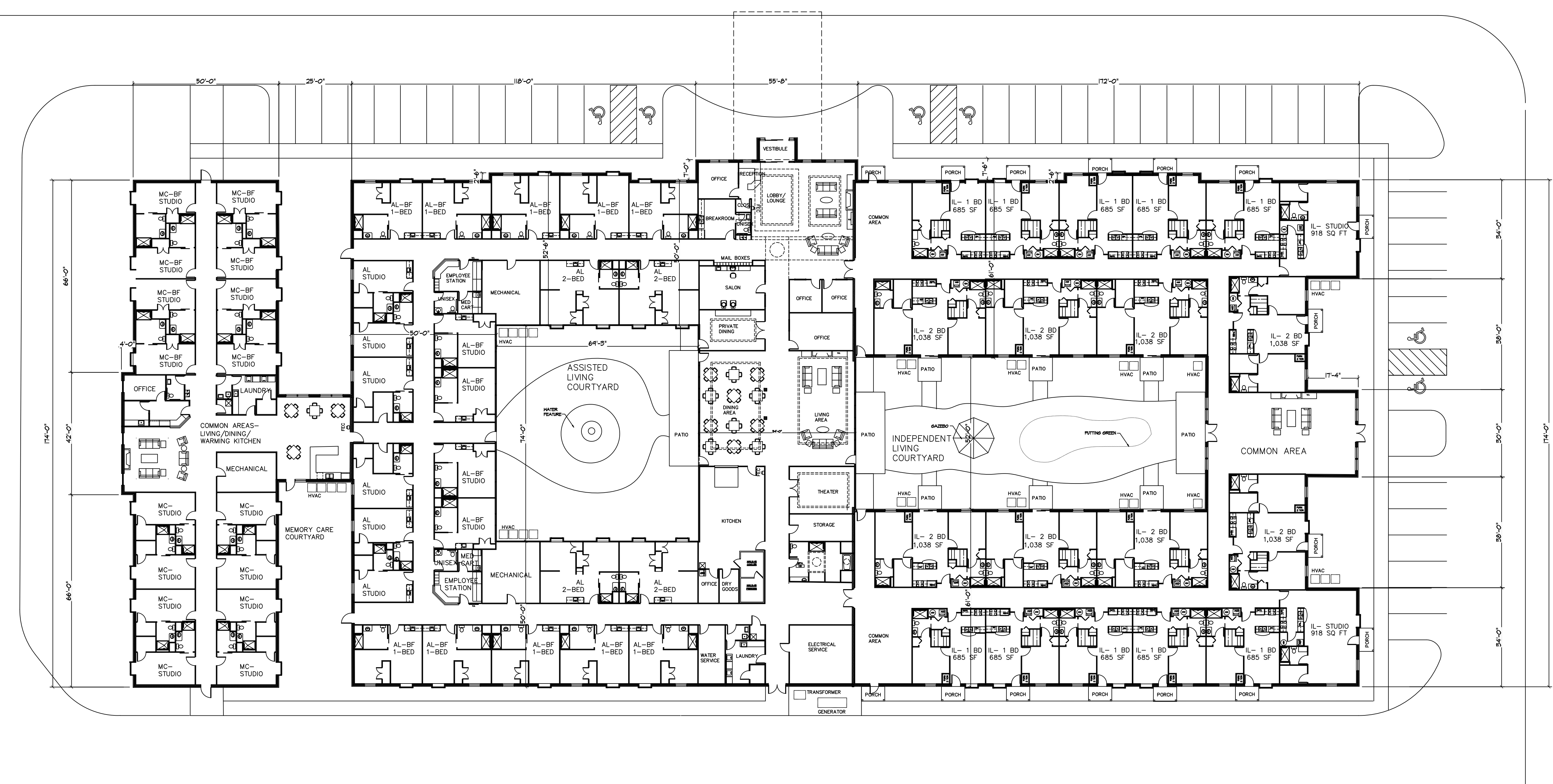
PROJECT NUMBER 210303
PROJECT PHASE SPA
SHEET C600

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

CONCEPTUAL FLOOR PLAN

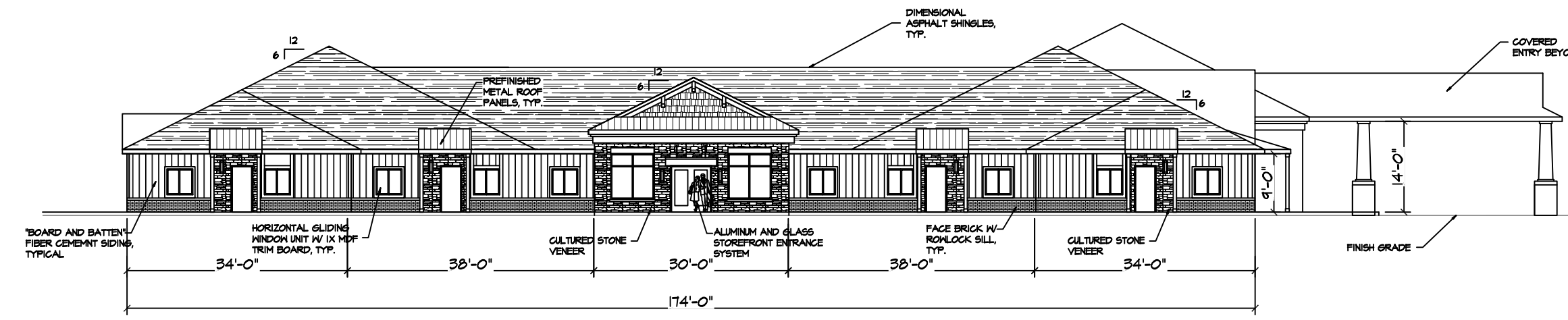
REVISIONS	
1	12-8-2021
2	1-7-2022
3	2-14-2022
4	

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

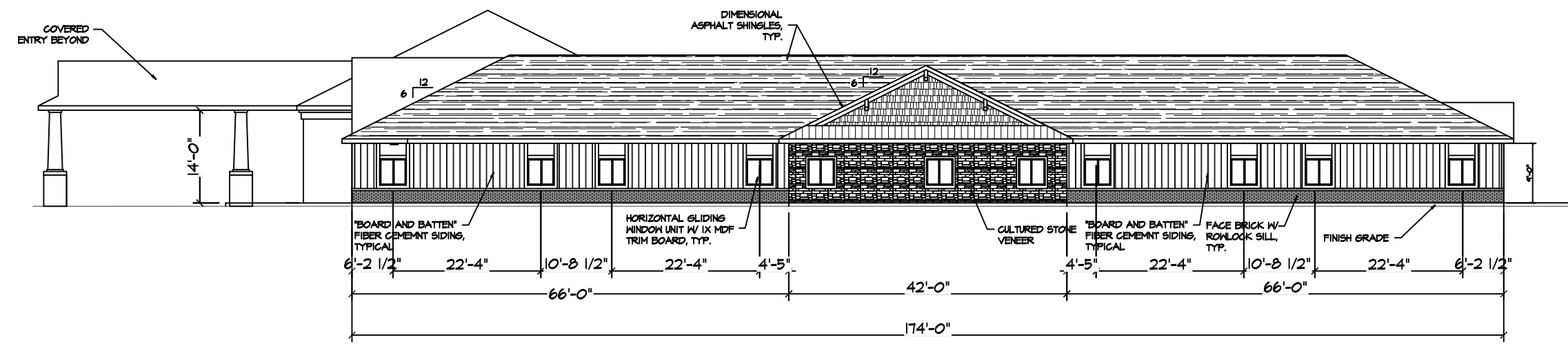


CONCEPTUAL OVERALL FLOOR PLAN
 1" = 20'-0"

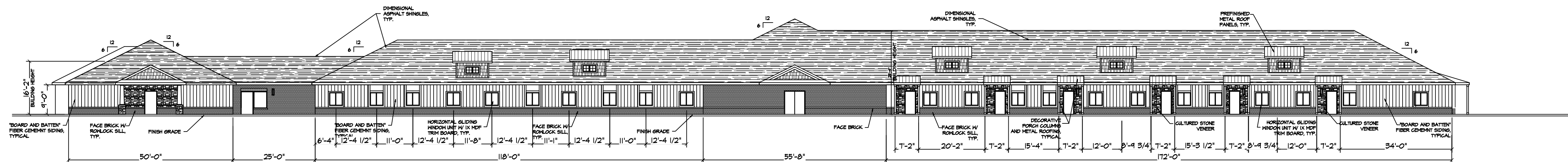
UNIT SUMMARY	ASSISTED LIVING	INDEPENDENT LIVING
10-AL STUDIO UNITS	2-IL STUDIO UNITS	
10-AL ONE BED UNITS	10-IL ONE BED UNITS	
4-AL TWO BED UNITS	8-IL TWO BED UNITS	
16-MC STUDIO UNITS		
TOTAL AL UNITS = 40	TOTAL IL UNITS = 20	
34,970 SQ FT	22,473 SQ FT	



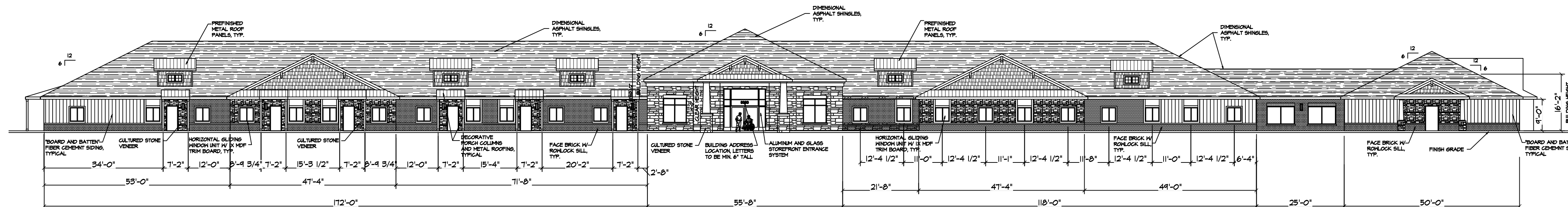
CONCEPTUAL
 EAST ELEVATION
 1" = 20'-0"



CONCEPTUAL
 WEST ELEVATION
 1" = 20'-0"



CONCEPTUAL
 SOUTH ELEVATION
 1" = 20'-0"



CONCEPTUAL
 NORTH ELEVATION
 1" = 20'-0"

REVISIONS

1	2-8-2021
2	1-7-2022
3	2-14-2022

JOB NO: 021-024

DATE: 6-1-2021

DRAWN BY: JKC

SCALE: AS NOTED

SHEET NO:

A2

OF