CITY OF Apple Valley

MEMO

Public Works

TO: Tom Lovelace, Planner

FROM: Brandon S. Anderson, City Engineer

DATE: July 12, 2018

SUBJECT: Menard's Preliminary Plan Review
County Road 42 and Johnny Cake Ridge Road

Alex,

The following are comments regarding the Menard's Preliminary Plan Review dated June 19, 2018. Please include these items as conditions to approval.

General

- All work and infrastructure within public easements or right of way shall be to City standards.
- A Public Improvement project will be required for the improvements on:
    a. Johnny Cake Ridge Road
    b. Street A
    c. Storm Water facilities
- Additional review by Dakota County Transportation may be required.
- Relocation of the existing power lines along JCRR will be required by applicant.
- Relocation of existing gas lines and small utilities in ROW along CR 42 and JCRR will be required by applicant.

Plat

- The proposed North Creek Greenway Corridor shall be dedicated as an Outlot in lieu of the 30' wide trail easement as shown on the Preliminary Plat.
- All of Outlot B shall be drainage and utility easement.
- Additional ROW should be provided along with Public street connection to the property to the west of the Site from Street A.
- Drainage and Utility Easement in Outlot C shall be modified to include coverage of proposed storm sewer.
- Additional 40' of ROW to the west of JCRR (90' total) is required. ROW for 148th and 149th at the proposed roundabouts shall be variable in width at these locations. The preliminary plat and site plan do not reflect the correct ROW needs for JCRR, 148th and 149th street.
- Preliminary Plat should include future ROW needs from 148th Street.

- Power poles and relocated easement from Great River Energy will be required to be located outside proposed ROW. Additional easement for relocation will be

Site

- See attached Memo from Bolton & Menk dated 03-23-18 regarding additional preliminary traffic impact review.
- A future driveway access location from Street A to unplatted property to the north should be shown on the plans for access.
- Site plans as submitted do not match civil plans. The areas proposed for future industrial use should be shown with updated ponding areas and outlots. Area calculations need to be updated to match civil plans.
- The future 148th roadway intersection should be included as part of Street A phasing.
- The RIRO driveway access to Johnny Cake Ridge Road (JCRR) shall be additionally modified to exclude the "pork chop island". CR 42 has center median and no island is recommended by Dakota County.
- Provide setback lines on site plan.
- Provide easement lines on grading and utility plans.
- A guardrail or fence should be evaluated along the pond slopes adjacent to Street A.
- 4:1 maximum slopes above the NWL are allowed.
- Provide additional drawing showing Auto turn turning movements to verify site circulation and layout requirements for planned vehicle usage to be used onsite. Show truck movement with Auto turn entering site to ensure emergency and service vehicle can maneuver internally.
- A 30' min. corridor for the North Creek Greenway Trail (NCGT) shall be provided along the west side of the site. The Greenway cannot encroach into the existing gas easement except to cross perpendicular. A pedestrian tunnel is planned CR 42 along the SW corner of the site and site amenities shall be incorporated into the site design to fit tunnel and trail per Dakota County standards. Trail/sidewalk connections to the proposed NCGT are recommended within the site.

Grading, Drainage and Erosion Control

- Proposed Storm water ponds should be labeled as WVR P55.1, 55.2, 55.3 for future reference.
- Final Grading Plans shall be reviewed and approved by City Engineer.
- Final Storm water Management Plan shall be reviewed and approved by City Engineer.
- Provide the overall site composite Curve Number (CN) along with the impervious % on the area tabulation
- The existing pond onsite is an incidental wetland which is not regulated by WCA. An incidental wetland is an area that takes on wetland characteristics (wetland plants, soils, and hydrology) but that was not created to be a wetland.
- The proposed storm water basin and infiltration pond as submitted are sized to accommodate Lot 1 &2 of Block 1, Outlot C and Public Roadways only.

- Future development drainage to storm water basins will be required to provide additional volume, TSS and TP reduction onsite or expand proposed ponds. One multiple cell regional pond is preferred to be constructed. The proposed basin in Outlot C can be expanded to the south to meet requirements.
- The total allowable 100-year discharge rate from the site is **6.0 cfs**. The proposed discharge rate is **17 cfs**. Storm water modifications are necessary to meet flow restriction.
- Label EOF for storm water and infiltration basins as well as parking lots and roadway.
- Provide an accessible route (8' min. bench) for future maintenance access to outlet structures . Route should be covered by drainage and utility easement.
- Restoration/Landscape plan should indicate required16.5' buffers and appropriate seed mixtures for infiltration area, aquatic bench and upland areas associated with storm water basin.
- Lowest floor levels shall be 1.0' above the EOF or 3.0' above HWL in accordance with SWMP.
- The SWMP indicated WVR P55 to have a NWL = 962.0 and HWL = 978.9. The proposed plan indicates a NWL = 970.0 and HWL = 974.0/980.7. Clarify elevation difference from SWMP. Existing storm water basin NWL = 966.5.
- It appears from the storm water models that the proposed pipes are being utilized for storage. Additional storm sewer calculations are required.
- The HWL of 980.7 is greater than the Street A low point (980.4) elevation.
- Clarify intent of Outlot B. Grading is shown onto property outside project limits.
- Rip Rap or appropriate vegetation may be required on the bench between the multiple storm cells to prevent erosion.
- Surface drainage from Outlot C should be directed towards proposed Storm water retention pond and not to public ROW.

Sanitary Sewer, Water Main and Storm Sewer

- See attached memo from AE2S regarding water main analysis for proposed site improvements.
- Final locations and sizes of Sanitary & Storm Sewer and Water main shall be reviewed with the final construction plans and approved by City Engineer. Sanitary Sewer, Water main and Storm sewer utilities within ROW and drainage and utility easements shall be publicly owned and maintained.
- Provide additional drawing showing required hydrant coverage for site. (Max. hydrant spacing is 450-feet for Commercial/Industrial areas.)
- Sanitary sewer to serve Outlot C will need to be provided from the existing service off 148th and Johnny Cake. This sanitary sewer service will also need to provide service to the un-platted property to the north. Sanitary sewer alignment and grades should be indicated on the preliminary utility plan for review of future conflicts. As-builts indicate the existing sanitary invert is 969.0 and the storm crossing as shown is at 970.0. Relocation of storm sewer line from JCRR may be required.
- Provide storm sewer calculations (Rational method) for proposed improvements.

Landcape and Natural Resources

1. Proposed Redbuds located along County Road 42 should be relocated to a more protected area near the building.
2. No evergreen trees are included in the proposed landscape schedule. The site may benefit from additional evergreen tree and shrub varieties in the plantings for year round screening and diversity.
3. Additional screening is recommended along the proposed fence and the ROW for Street A.
4. A landscape buffer is required between the proposed development and Great River Energy easement area or within.
5. Ensure all trees are planted a minimum of 10-15' from buildings to allow for full growth with minimal pruning and conflict. Ornamental species near sidewalks and drive aisles will likely become a nuisance as they mature.
6. Tree planting is not allowed in public drainage and utility easements. Drainage and utility easements should be clearly identified on landscape plan. Ensure tree planting locations do not hinder maintenance access to storm water facilities.
7. Restoration/Landscape plan should indicate required buffers and appropriate seed mixtures for infiltration area, aquatic bench and upland areas associated with any storm water basins.
8. No major tree plantings shall be located over any underground utilities. Clusters of trees shall be used near or around these areas instead of planting in a row. The Drainage and Utility Easement will require clearance around the underground utilities, or the expectation that trees may have to be removed for access when needed.
9. A protective buffer zone in accordance with ordinance 152.57 is required (16.5 feet for any storm water pond) and shall be indicated on the plans.
10. Because native vegetation can be so hard to establish, provide a 3 year establishment plan. The plan should have information about when seed will be installed, tasks taken to prevent weed establishment, and information on the timing to the connection to the storm water system.

Technical Memorandum

To: Brandon Anderson, PE
City Engineer

From: Brian Weiss, PE
AE2S

Re: **Hydraulic Analysis – Water Main Analysis – Menards Site**
Apple Valley Water Distribution System

Date: July 6, 2018

Purpose of Hydraulic Analysis

Menards is developing a site within Apple Valley north of Co Rd 42 and west of Johnny Cake Ridge Rd. This memorandum provides a summary of the analysis performed to determine the following within the proposed development:

1. Average Pressures
2. Available Fireflow

Basis of Analysis

- Analysis based on a Maximum Day Demand = 15.5 MGD
- Extended Period Simulation (EPS) over 24 hour period repeated five days
- Operation of various water treatment plants online/offline status
- Provide available fire flow of 1,500 gpm for residential and 3,500 gpm for commercial/ multi-family

Evaluation Results

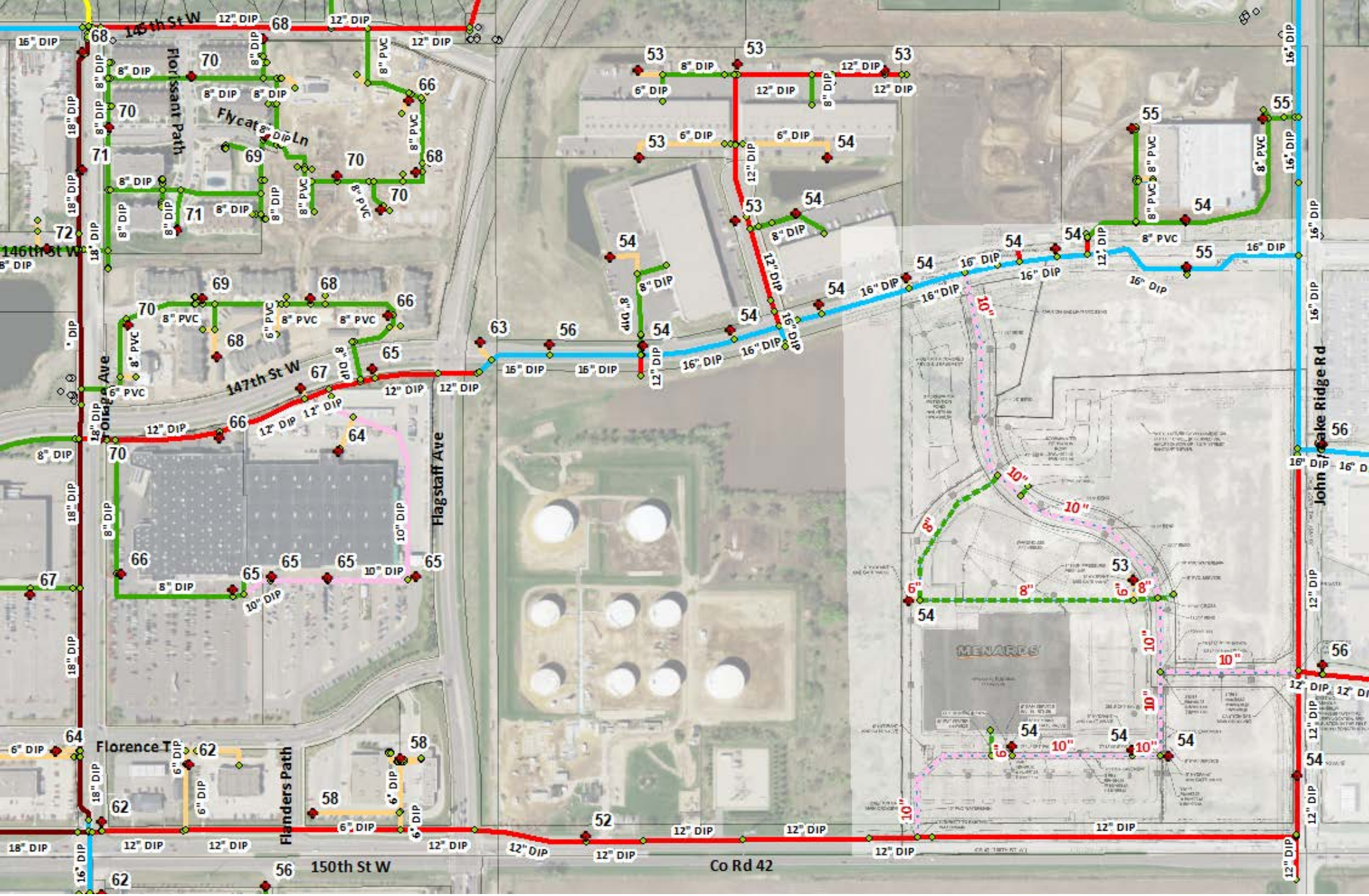
- Pressure Analysis – Average pressures shown in Figure 1A
- Fire Flow Analysis – Available fire flow at 20 psi residual shown in Figure 1B.

Pressure Analysis:

- Pressures ranged from 53 to 54 psi. These pressures are adequate for this type of development.

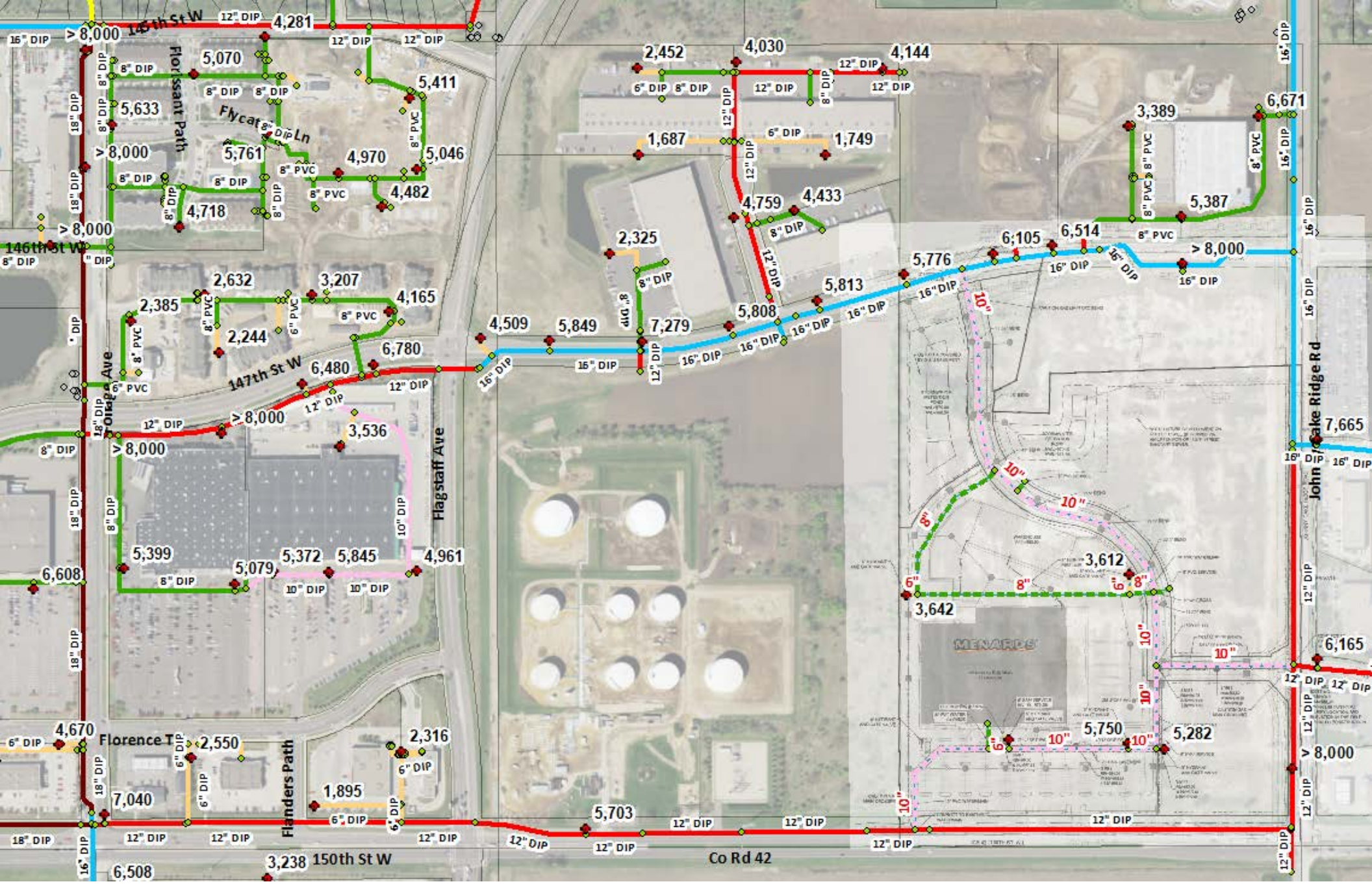
Fireflow Analysis:

- Fireflows ranged from 3,600 gpm to 5,700 gpm depending on the location within the development.
  - Specific fire flow requirements for the Menards facility were not available.
  - Desired available fireflow for commercial facilities is typically 3,500 gpm.
  - Based on the current water main planned for the facility, available fireflows would be greater than 3,500 gpm.



Average Pressures (psi)
Scenario 1: 8-inch Watermain
Maximum Day Demand = 15.5 MGD

Figure 1A



Available Fireflow (gpm) at Residual Pressure of 20 psi
Scenario 1: 10-inch Watermain
Maximum Day Demand = 15.5 MGD

Figure 1B

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MEMORANDUM

Date: March 23, 2018

To: City of Apple Valley, MN

From: Bryan T. Nemeth, P.E., PTOE
Michael Boex, P.E.

Subject: Traffic Impact Study Review – Supplemental Traffic Forecast
Menards Development

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Bryan T. Nemeth, P.E., PTOE — 43354 Reg. No. — March 23, 2018 Date

Introduction

The Supplemental Traffic Forecast Information for the Menards Development in Apple Valley, MN, dated March 16, 2018 was reviewed to determine if and how the development and site layout revisions impacts the traveling public. Overall, the TIS appears to be accurate and the site size changes are not anticipated to be of concern as compared to the previous Traffic Impact Study submitted on November 17, 2017. However, the site design has been modified and there are some design and access considerations that will need to be rectified.

Forecasts

The proposed changes in the size of both the Menards building and the surrounding developments requires the recalculation of trip generation due for the site. The TIS forecasts are lower than the previous forecasts provided in the November 17, 2017 Traffic Impact Study for the site.

Public Roadway System Impacts and Operations

It is anticipated that the development traffic would be effectively dispersed throughout the public roadway system as defined in the November 17, 2017 Traffic Impact Study and evaluated in the December 22, 2017 Review. The traffic decrease is anticipated to provide more effective operations and a rerun of analysis is not anticipated to be needed.

147th Street Access

The new street access to 147th Street is indicated in the site plan as full access. This proposed access is moved further east than the previous submittal but is properly spaced from the other existing accesses along 147th Street (minimum 330' access to access). The new alignment does allow for the parcel to the east to have a full access onto 147th Street. Based on the previous traffic analysis, the east parcel full access would need to be aligned with the western Abdallah access to ensure that left turn conflicts do not

occur and the adequate spacing from Johnny Cake Ridge Road and the eastern Abdallah access is provided.

As consistent with previous comments, the traffic volumes will require an eastbound right turn lane. This will have to be shorter than previously identified due to the revised access location and would be deemed acceptable based on the lower traffic volumes for the site. The existing three lane section of 147th Street allows for westbound left turning vehicles. The following recommendations for the 147th Street access is:

- Construct a 240' eastbound right turn lane. This includes 180' full width turn lane with a 60' taper (taper at 5:1)

The future access to the east was determined through a previous study and has the following recommendation on the turn lane need.

- Construct a 235' eastbound right turn lane. This includes 175' full width turn lane with a 60' taper (taper at 5:1)

Johnny Cake Ridge Road

The previous work and review of the site provides for adequate access and operations at the accesses and no changes are anticipated to be needed. Additionally, review of the 147th Street and CSAH 42/150th Street intersections was also previously completed.

150th Street/County Road 42 Access

Two access points are proposed along 150th Street west of Johnny Cake Ridge Road. This is different than the previous plan submitted in November 2017 which showed only one access point onto 150th St. The roadway is currently under the jurisdictional authority of Dakota County and is functionally classified as a Principal Arterial. A review of Dakota County Access Guidelines indicates that partial movement intersections would be allowed at ¼ mile spacing. Partial movement intersections include ¾ access configurations. Additionally, a right-in/right-out access may be permitted at ⅛ mile spacing if the County determines the access improves the overall safety and/or efficiency of the transportation system.

The proposed ¾ access is just under ¼ mile (1,320 ft.) at 1,260 feet. This would likely meet the County's access spacing requirement.

The proposed right-in/right-out access is under ⅛ mile (660 ft.) at 440 feet. While the distance for stopping sight distance is met, the County's access spacing requirement is not met. The right-in/right-out access should be moved approximately 150 to 200 feet west of its currently proposed location.

The roadway system for the site should also match into all proposed accesses on CSAH 42 to help justify the need. As shown, the ¾ access is primarily for access to one business. It is highly likely that Dakota County would not approve of an access on CSAH 42 to primarily serve one business. Additionally, it is likely that Dakota County would approve of only one access to CSAH 42, as has been proposed previously.

The following recommendations for the 150th Street turn lanes at the ¾ access are:

- Construct a 480' westbound right turn lane. This includes 300' full width turn lane with a 180' taper (taper at 15:1). This matches the design of the ¾ access to the west but could potentially be reduced to a total of 390' based on Design of Turn Lane Guidelines.
- Construct a 480' eastbound left turn lane. This includes 300' full width turn lane with a 180' taper (taper at 15:1). This matches the design of the ¾ access to the west.

The following recommendations for the 150th Street turn lanes at the right-in/right-out access are:

- Construct a 390' westbound right turn lane. This includes 210' full width turn lane with a 180' taper (taper at 15:1).

Internal Site Circulation

Review of the internal site circulation was conducted to determine if the circulation patterns would have any effect on the public roadway system or have any design concerns.

The internal north-south roadway has a number of horizontal curves. As indicated on the attached figure, the radii of the curves are 210' indicating a design speed of 25 mph assuming normal 2% crown on the roadway. This is a concern as the roadway needs to be designed for 30 mph. The 200' radius on 148th Street is also a concern but is at the start of the stopping sight distance from the new N-S street and may be acceptable. A 30 mph roadway will require a minimum radius of 333 feet.

The minimum driveway setback shall be in accordance with City Code. The setback from Johnny Cake Ridge Road is appropriate as shown. The setback from CSAH 42 is not appropriate with its designation as a Principal Arterial. The minimum setback should be 300 feet.

With a 30 mph speed on the roadways, the minimum spacing between driveways (centerline to centerline) is 200 feet to accommodate stopping sight distance. The driveway shown on the north end should be moved at least 200 feet from the proposed driveway for the adjacent parcel. All other proposed driveways do meet this distance.

Conclusions and Recommendations

The primary review conclusions and recommendations are provided below.

Right-in/Right-out Access on CSAH 42

- Inadequate spacing from the intersection of Johnny Cake Ridge Road/CSAH 42 (150th Street) based on Dakota County Access Guidelines.
    - Move the right-in/right-out access approximately 200' west.
- Provide a right turn lane into the right-in/right-out access.

¾ Access on CSAH 42

- Adequate spacing is provided from the intersection of Johnny Cake Ridge Road/CSAH 42 (150th Street) based on Dakota County Access Management Guidelines.
- Provide a right turn lane and left turn lane into the ¾ access.
- Connect the public roadway system onsite to both accesses proposed on CSAH 42.

CSAH 42 Accesses

- Based on Dakota County Access Guidelines, a restricted access would be allowed at ¼ mile spacing. While it is believed that an additional access to CSAH 42 would improve the efficiency of the transportation system it is not an approved conclusion that Dakota County would grant the right-in/right-out access in addition to the ¾ access. It is advised that the ¾ access be set up as the primary access from CSAH 42 for the site. The right-in/right-out access should be designed at an appropriate location as mentioned above and be designed for the possibility of the access not being approved by Dakota County if they do not agree that it would improve the efficiency of the transportation system.

147th Street Access

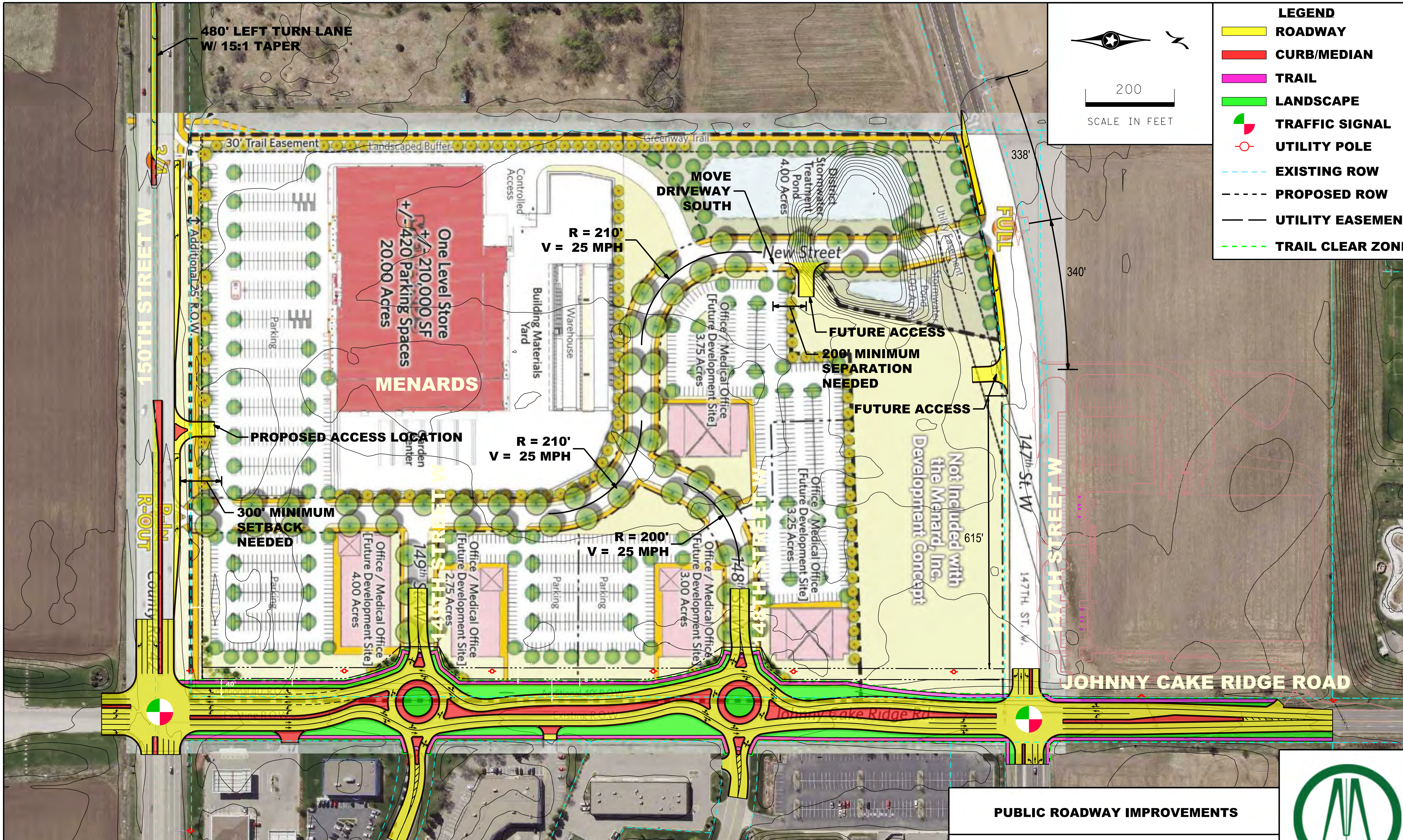
- Adequately located and spaced based on city guidance.
- Provides for adequate spacing to a future full access for the parcel to the east.
- Provide an eastbound right turn lane into the access.

Johnny Cake Ridge Road Access

- Acceptable. No change from previous plans.

Internal Roadways

- Inadequate horizontal curves rated at 25 mph. A 30 mph design is required.
- Revise with a minimum radius of 333 feet.
- Connect the public roadway system onsite to both accesses proposed on CSAH 42.
- Provide 300’ setback to the first driveway from all accesses connecting to CSAH 42.
- Driveways need to be separated by at least 200’ to account for stopping sight distance.


480' LEFT TURN LANE
W/ 15:1 TAPER
LEGEND
ROADWAY
CURB/MEDIAN
TRAIL
LANDSCAPE
TRAFFIC SIGNAL
UTILITY POLE
EXISTING ROW
PROPOSED ROW
UTILITY EASEMENT
TRAIL CLEAR ZONE
200
SCALE IN FEET
30' Trail Easement
Landscaped Buffer
Greenway Trail
MOVE
DRIVEWAY
SOUTH
District
Stormwater
Treatment
Pond
4.00 Acres
Controlled
Access
338'
340'
FULL
3/4
150TH STREET W
Additional 25' R.O.W.
One Level Store
+/- 210,000 SF
+/-420 Parking Spaces
20.00 Acres
MENARDS
Parking
Building Materials
Yard
Warehouse
R = 210'
V = 25 MPH
New Street
Office / Medical Office
[Future Development Site]
3.75 Acres
FUTURE ACCESS
200' MINIMUM
SEPARATION
NEEDED
FUTURE ACCESS
PROPOSED ACCESS LOCATION
Garden
Center
R = 210'
V = 25 MPH
Not Included with
the Menard, Inc.
Development Concept
147th St. W
615'
300' MINIMUM
SETBACK
NEEDED
R-OUT
R-IN
R = 200'
V = 25 MPH
Office / Medical Office
[Future Development Site]
4.00 Acres
149TH STREET W
Office / Medical Office
[Future Development Site]
2.75 Acres
Office / Medical Office
[Future Development Site]
3.00 Acres
148TH STREET W
Office / Medical Office
[Future Development Site]
3.25 Acres
147TH STREET W
147TH. ST. W.
JOHNNY CAKE RIDGE ROAD
Johnny Cake Ridge Rd

NOTE: HORIZONTAL CURVE DESIGN SPEEDS CALCULATED ASSUMING NORMAL 2% CROWN CROSS SECTION

PUBLIC ROADWAY IMPROVEMENTS

MENARDS TRAFFIC IMPACT STUDY