



PLANNING COMMISSION MEETING
City Hall—Council Chambers, 590 40th Ave NE
Tuesday, May 04, 2021
6:00 PM

AGENDA

NOTICE THAT THIS MEETING MAY BE CONDUCTED BY A COMBINATION OF IN PERSON AND ELECTRONIC MEANS *Following a determination by City Manager Kelli Bourgeois, and emergencies declared by the United States, The State of Minnesota, and the Columbia Heights Mayor & City Council, this meeting may, pursuant to Minn. Stat. § 13D.021, occur by a combination of in-person and electronic means. In all meeting formats, members of the public who wish to attend may do so by attending in-person, by calling 1-312-626-6799 and entering **Meeting ID: 894 3258 3713 Passcode: 080180**, or by Zoom at <https://us02web.zoom.us/j/89432583713?pwd=ZXl0QzA5bWRQZmZLWDhXZnhDcnBSQT09> at the scheduled meeting time. For questions regarding this notice, please contact the City Clerk at (763) 706-3611.*

CALL TO ORDER/ROLL CALL

APPROVE MINUTES

- 1. APPROVAL OF APRIL 6, 2021 PLANNING COMMISSION MEETING MINUTES**

PUBLIC HEARINGS

- 2. VARIANCE: RESIDENTIAL ACCESSORY STRUCTURE IN FRONT YARD - 3919 RESERVOIR BLVD N.E.**
- 3. PRELIMINARY PLAT; PLANNED UNIT DEVELOPMENT; EASEMENT VACATIONS TO ALLOW FOR THE CONSTRUCTION OF A 4-STORY, 62-UNIT AFFORDABLE HOUSING BUILDING THAT INCLUDES A REMAINDER PARCEL FOR THE POTENTIAL FUTURE DEVELOPMENT OF SACA FOOD SHELF**

OTHER BUSINESS

- 4. AGENDA PACKETS TO GO DIGITAL BEGINNING JUNE 1ST, 2021**
- 5. REMINDER: PLANNING COMMISSION MEETING TUESDAY, JUNE 1ST, 2021, 6:00 P.M.**

ADJOURNMENT

Auxiliary aids or other accommodations for individuals with disabilities are available upon request when the request is made at least 72 hours in advance. Please contact Administration at 763-706-3610 to make arrangements.

**MINUTES OF
PLANNING COMMISSION MEETING
APRIL 6, 2021**

The meeting was called to order at 6:00 pm by Chair Fiorendino.

CALL TO ORDER/ROLL CALL

Commissioners present: Rob Fiorendino, Stan Hoium, Mike Novitsky, Mark Vargas, Clara Wolfe
Commissioners present via Zoom: Tom Kaiser, Eric Sahnou
Commissioners absent: none

Also present: Alicia Apanah (Community Development Administrative Assistant II), Aaron Chirpich (Community Development Director), Joan Dobbs, Nick Dobbs, Minerva Hark (City Planner), KT Jacobs (Council Liaison), Louie Kader, Jim Mackey, Anthony Mayer, Deborah Shamel (via Zoom)

1. SWEARING-IN OF NEWLY-APPOINTED PLANNING COMMISSIONER

Apanah administered the oath of office of Clara Wolfe, newly-appointed Planning Commissioner.

2. ELECTION OF OFFICERS

Apanah opened the floor for nominations of the Planning Commission Chairperson. Vargas nominated Fiorendino, which was seconded by Novitsky. There being no further nominations, Apanah closed the floor. Fiorendino consented to the nomination.

Motion by Novitsky, seconded by Vargas, to elect Fiorendino as Chairperson of the Planning Commission. A Roll Call vote was taken of the members. All Ayes. MOTION PASSED.

Fiorendino opened the floor for nominations of the Planning Commission Vice Chairperson. Novitsky nominated Hoium, but he declined. Hoium nominated Vargas, which was seconded by Novitsky. There being no further nominations, Fiorendino closed the floor. Vargas consented to the nomination.

Motion by Hoium, seconded by Novitsky, to elect Mark Vargas as Vice Chairperson of the Planning Commission. A Roll Call vote was taken of the members. All Ayes. MOTION PASSED.

Fiorendino opened the floor for nominations of the Planning Commission Secretary/Treasurer. Sahnou nominated Kaiser, which was seconded by Novitsky. There being no further nominations, Fiorendino closed the floor. Kaiser consented to the nomination.

Motion by Sahnou, seconded by Novitsky, to elect Kaiser as Secretary/Treasurer of the Planning Commission. A Roll Call vote was taken of the members. All Ayes. MOTION PASSED.

APPROVAL OF MINUTES

3. APPROVAL OF FEBRUARY 2, 2021 PLANNING COMMISSION MEETING MINUTES

Motion by Hoium, seconded by Vargas, to approve the minutes from the meeting of February 2, 2021. A Roll Call vote was taken of the members. All Ayes. MOTION PASSED.

PUBLIC HEARINGS

4. SITE PLAN REVIEW – AFANDINA CAFÉ – CASE 2021-0401

Introduction: Hark reported that applicant Louie Kader submitted proposed plans for the addition of a paver patio with a roof and an upper deck at Afandina Café, 4001 University Avenue NE. The proposed patio is 833 square feet, and the proposed upper deck is 288 square feet. This project will also include the demolition of an existing non-conforming deck in the north eastern portion of the property. The proposed patio addition meets the City’s Zoning Code requirements for setbacks and height. The Section 9.104 (N) of the Zoning Ordinance requires that all new plans for development other than one and two family residences, be reviewed and approved by the Planning Commission prior to the issuance of a building permit.

Zoning Ordinance: The property located at 4001 University Avenue NE is located in the General Business (GB) Zoning District. The properties to the north and east are located in the Multiple Family (R-3) Residential Zoning District, and the properties to the south are located in the General Business (GB) Zoning District. The properties across University Avenue to the west are located in the Multiple Family (R-3) Residential Zoning District.

Comprehensive Plan: The Comprehensive Plan guides this area for commercial uses. The proposal for an outdoor patio addition to the existing commercial business is consistent with the goals and intent of the Comprehensive Plan.

Design Guidelines: The subject property is located on the intersection of University Avenue and 40th Avenue, which is within the Design Guideline Overlay District, and is governed by the “40th Avenue District” standards within the Design Guidelines. The intent of the Design Guidelines is to make the City more aesthetically appealing by requiring a set of minimum standards for new construction along Central Avenue and 40th Avenue.

Much of the guidelines do not apply to this proposal as the guidelines are intended for the principal structure and use on the property. In this case, the applicant is simply proposing to construct an enclosed patio addition. The proposal will allow for an increase in patrons to the existing restaurant, particularly between late spring and early fall for those who desire an outdoor dining experience.

The building addition is proposed to be a covered roof over an open patio area. The roofing material will include weathered wood-colored fiberglass asphalt shingles, and edge rafters will be faced with stained rough-sawn plywood. Due to the property being located in the Design Guidelines and the visibility off 40th Avenue, staff has added a condition that the wooden materials of the patio be painted to match the existing color of the building.

Findings of Fact: Section 9.104 (N) of the Zoning Ordinance outlines four Findings of Fact that must be met in order for the City to approve a Site Plan. They are as follows:

- a. The Site Plan conforms to all applicable requirements of this article.

This is correct. The Site Plan in question achieves the applicable Zoning Code requirements.

- b. The Site Plan is consistent with the applicable provisions of the City's Comprehensive Plan.

The Comprehensive Plan guides this area for Commercial Uses. Staff believes the proposed Site Plan for the property is consistent with the intent of the Comprehensive Plan.

- c. The Site Plan is consistent with any applicable area plan.

This is correct.

- d. The Site Plan minimizes any adverse impacts on property in the immediate vicinity and the public right-of-way.

The proposed Site Plan meets all the development standards outlined in the Zoning Code and will be required to meet Design Guidelines outlined previously. The applicant is not proposing to use the parcel in a different manner than used previously; therefore, the properties in the immediate vicinity of the proposed patio addition should not be adversely impacted.

The site has adequate on-site parking to sustain the proposed addition. The existing 2,433 square foot building (seats 40 people) along with the proposed 833 square foot patio (to seat 32 people) and 288 square foot deck (to seat 12 people totals 3,554 square feet (84 people). Per code, the minimum parking required is calculated at 30% of the building capacity, which constitutes 26 parking stalls. Thus, the existing 26 parking stalls are sufficient for the proposed addition.

All existing boundary fences will be remodeled to comply with the six-foot height limitation, as to not trigger any additional permits. An unpermitted wooden deck exists onsite currently and shall be demolished as part of this project. Additionally, the project shall be conditioned to prohibit excessive loud noise emanating from the site in an effort to minimize any negative impact onto adjacent residential and commercial properties.

Recommendation: Staff recommends approval of the Site Plan for the proposed patio addition at Afandina Café to be located at 4001 University Avenue NE, subject to certain conditions of approval.

Questions/Comments from Members:

Hoium expressed disapproval of the plan, noting that he did not understand how the upper deck overlooking the other backyards and daycare would be a wise idea.

Novitsky agreed with Hoium and said he did not think the height and deck would fit with the landscape and rest of the area.

Hoium asked how an unpermitted deck, with all the problems of the property, was built in the first place. Hark responded that the property was originally approved for a patio and, as part of the proposed plan, the unpermitted deck that was built would be removed. The proposed patio and deck addition would be attached to the existing building for the façade to match, and the setbacks would be compliant.

Novitsky asked how the noncompliant fence was kept so high for so long, knowing that it has been noted to be out of compliance, and if anyone had communicated with them about it. Hark said she believed it had been communicated to them. Chirpich added that the violations were brought to City staff's attention and the building official conducted a site inspection and issued a stop work order a few months before winter. The owner was notified that some of the work was not approved as part of the original Site Plan and there were no building permits in place that were necessary for the improvements, such as for the deck and some of the patio footings. So, it was staff's decision to review the project since the 2013 improvements for the original Site Plan, reviewing what changed, what deviated, what is not compliant and create a plan towards compliance. The plans before the Commission now are a combination of some the approved improvements in 2013, which was a patio off the north end (and has been enlarged in this proposal) and the deck (which was not part of any of the original proposals). He summarized that the work would be to rein in what had gone awry in the work that cannot be approved because there is no path to compliance, being the surface deck on the northernmost edge of the property, and determine what can be approved according to code and moving forward from there.

Fiorendino inquired about the current state of the area that the new deck would be in. Chirpich said the existing nonconforming deck is wooden and is built in and around some trees, for which there is no way for compliance because of setbacks and would also exceed seating capacity standards as it relates to parking.

Hoiium asked for clarification that it is a main level deck only. Chirpich responded that it is approximately six inches off the ground, adding that a paver patio was approved in 2013 but has since grown in this proposal and the deck would be totally new.

Fiorendino asked about the elevation of the deck, and Chirpich responded that it is nine feet. Hark added that the first footing is nine feet and the deck would be above that grade. Fiorendino asked for clarification that it was not in the original plan, and Chirpich confirmed, adding that the new plan would be a pitched roof that will shed water. Fiorendino asked if all the dining would be on the ground level, and Hark responded that the plan would allow 32 seats on the ground level and 12 seats on the deck.

Vargas inquired about where the building drains, whether there is a gutter system, and where and how the increased flow from the new roof would be handled. He said there is limited information in the plans on the subject, noting that he did not see in the survey any wells in nearby abandoned lots. Without additional information, it would be difficult to approve or deny the owner's application, because it would set him up for a lot of compliance issues that would be impossible to achieve, the way that the drainage and building are structured. Hark said she was unsure if the owner has a representative present to speak on the drainage issue. Chirpich said he believed those questions would be more geared to the applicant at this point, and Fiorendino agreed.

Kaiser asked if there is anything in City code specifically tailored to rooftop patios and if there is anything related to fencing or sound screening for rooftop patios, which is a concern because is it directly above single-family homes. Hark said the current City code does not address anything about rooftop or second-level decks in regard to commercial or residential developments. City staff has asked the applicant to provide screening from residential, perhaps not in a structural way because it is not required in the code.

Kaiser then asked if his understanding was correct that it would only be to a maximum height of six feet according to City guidelines. Hark stated that the six-foot maximum is for property line fencing. The upper deck does have a proposed railing around it, which is not subject to a six-foot height limitation because it is a railing and not a property line fence and is considered a part of the structure. Kaiser then stated that the issue may be a “blind spot” in the City code.

Wolfe said there was an original proposal for the property and guidelines were not followed for that so asked, if approved, whether there is something in place to ensure that guidelines are followed for the new proposal. Hark said there are six conditions listed in the proposed resolution for approval of this project and any applicable conditions that were listed previously on this project would still hold standing as long as they are relevant, which are: compliance with building and fire codes, minimizing noise impacts to adjacent properties, color and design follow City guidelines, fencing, removal of unpermitted structures and final building plans to be signed by a design professional and approved by the Building Department.

As requested by Wolfe, Hark cited the previous conditions included in Resolution No. 2013-PZ03: all application materials, maps, plans, drawings and descriptive information submitted with the application shall become part of the permit and any new signage incorporated into the building or site shall meet the requirement of the 40th Avenue design guidelines district and shall be approved through the sign permit process; the memorandum from the Public Works Director and City Engineer dated November 13, 2013 shall be a component of this approval; the sidewalk and median on the south side of the building shall be changed from a width of six feet to a width of seven feet to better accommodate front vehicle overhang and pedestrian access; the existing payphone and clothing drop box on the south side of the site shall be removed prior to the issuance of a certificate of occupancy; the location of the future gas meter shall be shown on all future plans; the two proposed parking spaces adjacent to the patio area on the north side of the parking shall not be constructed and shall be removed from future Site Plans; future Site Plans must clarify the driveway location off of the Highway 47 frontage road as well as surface runoff from the east side of the site; the building shall be sprinkled; parking areas adjacent to the residential property shall be screened with fencing and/or landscaping that is 80% opaque year round; the visual appearance of the trash enclosure shall be consistent with the visual appearance of the building; the fence along the east side yard property line shall be repaired and made compliant with the City’s property maintenance standards; and hours of operation of the outdoor patio are restricted, to be open to 9:00 pm on Sundays through Thursdays and 10:00 pm on Fridays and Saturdays.

Novitsky asked if the two vehicles parked in the accessway on the service road would put them out of compliance, as there would be no way to get into the building off the service road. Hark said she would have to pull up the original Site Plans.

Sahnaw asked whether City staff has had a conversation with the applicant about the fencing condition cited in Resolution 2021-PZ02 and how the noise restrictions would be enforced. Hark responded that there has been minimal conversation regarding the condition and that the Police Department would enforce complaints. Because it is a Site Plan review, it is not a Conditional Use Permit and operational plans were not discussed in detail because only the structure and how it complies to zoning in height, design, etc.

Fiorendino asked for the clarification that there is no current Conditional Use Permit on the property. Chirpich confirmed this, adding that a condition of City Code is that amplified sounds will not be audible from residential property lines. He said compliance with this is difficult for any city and it is complaint driven, but there is fencing and vegetative screening in the site's vicinity, and he suggested that the applicant to speak to operations and inform the Planning Commission how they intend to mitigate noise and how they will operate.

Hoiium said the location of the second-floor deck is a balcony overlooking the residential backyards.

Fiorendino agreed and said it was a very good point that should be addressed separately, that it would be the only grounds for denial of the application as there is no Conditional Use Permit in place; however, if it does not meet all four Findings of Fact, then the Planning Commission is obligated to deny the application. He said he did not believe that the Site Plan does minimize any adverse effects on the property in the immediate vicinity.

Hoiium disapproves of a balcony next door to children, as the privacy fence around the daycare goes two ways.

Kaiser said, because this is a Site Plan review and not a Conditional Use Permit discussion and (as Chirpich stated) that there are remotely similar examples throughout the City, what he thinks is so important about this case in particular is that it is a bad Site Plan. It is unfortunate that this lot is set up the way that it is, that in a "perfect world" for this business, it would not be laid out this way. The building itself would be directly at the corner of University and 40th and the parking, the quiet part of the use of this lot, would be up against the nearby houses; unfortunately, that cannot be changed. He said it would be frankly impossible to mitigate sound with an outdoor patio and raised rooftop deck and, if approved, would be setting up a really bad situation not only for City staff and the applicant but also the Police Department in terms of enforcement.

Novitsky also referenced, relating to fencing mitigation, previous complaints of neighbors taking pictures of children.

Wolfe, regarding approval, asked if Commissioners would be able to limit approval to part of the proposed plan. Hark said absolutely so, that they would be able to approve the plan as is, deny the project as proposed or make alterations, adding or removing conditions, or table action to the next meeting if there are substantial changes made by the Planning Commission. Fiorendino added that the Commissioners would only be able to add conditions that would address item D of the Findings of Fact, "The Site Plan minimizes any adverse impacts on property in the immediate vicinity and the public right-of-way." Hark agreed and said conditions would have to be relevant to the Site Plan review directly.

Sahnaw reminded City staff that part of the review will be Minnesota State Accessibility Code, which talks about the need to disperse accessibility seating throughout the property and "unique seating areas." He said he would like to see some accessibility component leading up to the elevated deck area.

Fiorendino asked the applicant to address the Commission.

Applicant Kaider said he plans to make something nice and is flexible regarding the deck's position to rectify the Commission's concern.

Hoiium inquired as to whether the balcony could be placed at the front of the building.

Fiorendino said he would find it hard to believe that an upper deck would not disturb neighbors.

Public Hearing Opened.

Jim Mackey, the applicant's architect, said that there is a four-foot fence on the east edge of the floor plan's upper level, not an open rail. He said the primary reason for the upper level is that the applicant wished to provide space for hookah users, so they would not be on the main level. And he said the main reason for the roof is that outdoor seating in the summer months is a big "plus" because Minnesota summers are short and customers like to dine outside. He believes that he and the applicant would be willing to eliminate the upper deck but that the roof over the patio is a "plus" for the business. Fiorendino said he did not believe any of the Commissioners would disagree with him.

Anthony Mayer, owner of the daycare business next door to the applicant, said he likes the applicant but disapproves of his structure's upper level, that it would seem to him to be in violation of the children and exceed the limit of the six-foot privacy fence. He said children cannot make noise after hours, so why would it be all right for music to be an exception. Fiorendino said he believes City staff is aware of the noise mitigation situation in relation to commercial and residential properties.

Nick Dobbs, City resident, said is extremely concerned about the upper deck as it looks directly over his backyard. He said he is aware the applicant is willing to adjust the plan but they said that the last time as well, as he was part of that meeting and they never followed through. Looking at the current building the upkeep of the property and the lot behind it, he said both have been "abysmal" with trash and tarps being evident. He said the trust issue is not there in that he is going to build an upper structure and keep the noise down, citing an issue last year of fires being seen until 11:00 pm, and permits had not been pulled previously for building the lower deck. He said he understands businesses are needed in the City, but they need to be right and business owners that are going to actually make the neighborhood better instead of just coming in to get their "bit," adding that the current owner has not been good neighbor.

Kader responded that he never "put in a nail" outside without City building official Ryan Smith's permission, who told him that since it was not attached to the building and that he "could do whatever he wanted," adding that he would not put \$20,000 worth of wood and then be told to take it out. He said if the application is denied, he could sell the property to an interested party but he would like to resolve the noise issue and be a good neighbor.

Vargas commented that an application denial would put additional pressure on him and an alternate to a restaurant or business that serves food would be an apartment building, such as in Fridley or Northeast Minneapolis.

Fiorendino asked the applicant if he would still move forward with the project if further action was tabled a month so he could amend his plan that would eliminate an upper deck.

Novitsky added that he would like to ensure that the trash would be removed from the applicant's property as well, because it affects neighboring properties.

Deborah Shamel, City resident, said her concern is the hookah, as a hookah bar across the street had a lot of traffic, a lot of garbage on the streets, and there would not be adequate parking if hookah is allowed at this restaurant. She said the parking would overflow onto 4th Street, as it did with the other lounge, and that was very disruptive. The previous bar was open until 1:00 am; but even if this restaurant wants to close at 9:00 pm on weeknights and 10:00 pm on weekends, she still disapproves.

Joan Dobbs, City resident, said she had been present at the last hearing for the "beautiful restaurant" in 2013. Her main concerns are the noise, lights coming into the neighborhood and the privacy factor. She said there is a current noise factor regarding the patio and it was her understanding that the restaurant wished to open the patio to the public as well as customers; and she hoped that the City would be open to rectifying any problems related to this. It was also her understanding that a previous Planning Commission had agreed not to have any additional hookah bars in the City, and she asked why that position has changed. Hark responded that the difference between the establishment in question and the one on 40th is that it would be only outside, that the use of the patio would be used for outdoor dining but be allowed to accommodate outdoor smoking as well. The City ordinance does not speak to outdoor smoking establishments.

Ms. Dobbs also asked how a smoking situation would be addressed being so close to a daycare. Fiorendino said he believes that there seems to be a gap in the City ordinance that perhaps there are areas that need to be addressed and the Planning Commission can certainly start those discussions. Hark reminded the Commission that the current action before the group Site Plan review, so the deep details of the operation. Chirpich added that smoking is regulated by Minnesota through the Clean Indoor Act and is focused primarily on smoking indoors across the State, and they do allow for smoking patios.

Novitsky said he believes daycare is considered a learning institution and there is a footage that cannot be crossed, whether it be a minimum of 50 or 100 feet from the structure. Chirpich said enforcement would be the next issue. Fiorendino suggested City staff address the issue in the next round if further action is tabled, and Chirpich agreed it would be fair. He added that the City does not license the activity of smoking, it licenses the sale of tobacco products.

Ms. Dobbs asked whether the matter of the restaurant's patio being open to the general public late at night be ceased. Fiorendino said he believed it would be a matter for her to take up with that owner, that it would be nothing the City could enforce.

No one else was present to speak on this matter.

Public Hearing Closed.

Fiorendino asked Hark if she preferred denial or tabling the matter. Hark responded that another viable option would be condition the project as proposed to move forward without an upper deck, and Fiorendino said he would not be comfortable with that.

Wolfe said she would be comfortable moving forward without the upper deck and just the patio expansion with the stipulation that the requirements need to be followed. She said she can appreciate people wanting to be outside in Minnesota, appreciates the applicant owning a business in the City and hopes that it thrives, but understands that there are other factors in play.

Novitsky said he would like the matter tabled so the applicant has ample time to find out about the smoking backset before he puts anymore time and effort into the project, whether it is even feasible for his business plan.

Fiorendino asked Hark what changes would be needed to move forward without the upper deck. Hark responded that a deck would be proposed but a condition would be to deny it for any building permits of a deck.

Hoiium inquired about the shielding and noise in the back of the building. Fiorendino said those were included in the 2013 plan but it had not been followed. Further, he said clarity in what the Planning Commission would approve is important, basically due to the history of this property.

Novitsky said his other big concern is the daycare is restricted in outdoor noise, then the restaurant would also need to be restricted. Fiorendino said there would need to be legal justification for doing that, which the Planning Commission does not have, that the business has to abide by City ordinance but the City does not have the authority to add that condition. Novitsky said he preferred to table action until the cited pertinent questions could be answered.

Sahnow said he believes an elevated deck is a concern for all Commissioners. He is concerned about a patio expansion and overhanging roof, as it may be making a bad situation worse, and is opposed to an elevated deck as it relates to adjacent neighbors.

Kaiser agreed and said, citing item D of the Findings of Fact, he believes it would not only magnify an adverse effect but also create additional impacts, not just the rooftop, deck but also the patio as well. He said he would be voting to deny the project with or without the rooftop deck.

Hoiium said he would not have a problem denying the whole project.

Fiorendino said he would be willing to listen to arguments about why the enlarged patio would make things worse.

Sahnow said there are already adverse conditions related to the patio; and it were enlarged, it would only be closer to neighbors and consolidating the noise beneath the roof, which would impact where the noise travels. He said he cannot approve a project that would only make things worse.

Fiorendino asked Hark whether the existing Site Plan still in force if the project were denied. Hark confirmed so, stating that the current Site Plan approval.

Motion by Wolfe, seconded by Vargas, to table CASE 2021-0401, a Site Plan for the proposed patio addition with upper deck to be located at 4001 University Avenue NE. A Roll Call vote was taken. 3 Ayes, 4 Nays. MOTION FAILED. Ayes: Hoiium, Vargas, Wolfe. Nays: Fiorendino, Kaiser, Novitsky, Sahnow.

Motion by Novitsky, seconded by Sahnou, to deny CASE 2021-0401, a Site Plan for the proposed patio addition with upper deck to be located at 4001 University Avenue NE. A Roll Call vote was taken of all the members. 5 Ayes, 2 Nays. MOTION PASSED. Ayes: Fiorendino, Hoium, Kaiser, Novitsky, Sahnou. Nays: Vargas, Wolfe.

5. INTERIM USE PERMIT – RENAISSANCE FIREWORKS TEMPORARY SALES TENT

Introduction: Hark reported that Renaissance Fireworks, Inc. applied for an Interim Use Permit to allow the operation of a seasonal fireworks sales tent at 4001 Central Avenue. The specific development standards for outdoor fireworks sales/display are found in Section 9.107 (C) (22) of City Code and will be added as conditions of approval for this permit. The attached property and tent location map illustrates the configuration and orientation of the fireworks tent to Central Avenue. The Fire Chief and Building Official will conduct a site inspection of the tent.

She reported that one neighboring resident contacted the City in opposition of the proposed interim sales tent. Hark clarified for her that the fireworks were only to be sold and not set off at the location in question. She also informed her that this Interim Use Permit has been applied for and issued on an annual basis for over ten years and no complaints or issues had been reported in the past about their annual operation on Central Avenue.

Zoning Ordinance: The property located at 4001 Central Avenue in the CBD, Central Business District. Properties to the north, south and west are also zoned Central Business, and the properties to the east are zoned in the R-4, Multiple Family Residential District. Seasonal Fireworks Sales is allowed as Interim Use in the Central Business Zoning District.

Comprehensive Plan: The Comprehensive Plan designates the property for commercial use. The proposal for seasonal fireworks sales is consistent with the intent of the City’s Comprehensive Plan.

Findings of Fact: Section 9.104 (I) of the Zoning Ordinance outlines seven Findings of Fact that must be met in order for the City to grant an interim use permit. They are as follows:

1. The use is one of the interim uses listed for the zoning district in which the property is located, or is a substantially similar use, as determined by the Zoning Administrator.

Fireworks tents are specifically listed as an Interim Use in the Central Business District, and are considered retail sales, which are permitted.

2. The use is in harmony with the general purpose and intent of the Comprehensive Plan.

The Comprehensive Plan designates the property for commercial use, including retail sales. The proposal is consistent with the intent of the City’s Comprehensive Plan.

3. The use will not impose hazards or disturbing influences on neighboring properties.

The proposed temporary use should not have hazardous or disturbing influence on neighboring properties because of its proximity to Central Avenue. It is screened from adjacent residential uses by the surrounding commercial buildings.

4. The use will not substantially diminish the use of property in the immediate vicinity.

The fireworks tent should not diminish the use of the adjacent properties.

5. The use will be designed, constructed, operated and maintained in a manner that is compatible with the appearance of the existing or intended character of the surrounding area.

The Fire Chief will conduct an on-site inspection prior to any temporary sales. All State and City requirements regarding fireworks sales will be achieved.

6. Adequate measures have been or will be taken to minimize traffic congestion on the public streets and to provide for appropriate on-site circulation of traffic.

The traffic generated by the fireworks tent will not significantly increase the flow of traffic on the public streets. Additionally, the site is large enough to handle additional on-site traffic.

7. The use will not cause a negative cumulative effect on other uses in the immediate vicinity.

The fireworks tent should not have a negative impact on other uses in the immediate vicinity, which are all zoned commercial.

Recommendation: Staff recommends that the Planning Commission approve the Interim Use Permit to allow the operation of a seasonal fireworks sales tent at 4001 Central Avenue, subject to conditions of approval outlined below.

Questions/Comments from Members:

Novitsky said that the tenants have been good every year and he did not see a problem with approval of an Interim Use Permit.

Hoiium commented that in their justification, the applicant has a materials safety data sheet dated 1986, which is probably not valid any longer. He has no objection to approval.

Public Hearing Opened.

No one was present to speak on this matter.

Public Hearing Closed.

Motion by Kaiser, seconded by Sahnov, to waive the reading of Resolution No. 2021-PZ03, there being ample copies available to the public. A Roll Call vote was taken of all the members. All Ayes. MOTION PASSED.

Motion by Hoiium, seconded by Novitsky, to approve Resolution No. 2021- PZ03, being a resolution approving an Interim Use Permit for a fireworks tent at 4001 Central Avenue NE from June 25, 2021 to July 5, 2021 subject to certain conditions of approval that have been found to be necessary to protect the public interest and ensure compliance with the provisions of the Zoning and Development Ordinance, including:

- 1. The fireworks tent, display area, access aisles, and surrounding area shall be reviewed by the Fire Department prior to operation. The applicant must contact the Fire Department to set up an inspection prior to any sales occurring on the property.*
- 2. The sale of fireworks shall meet all requirements of Chapter 24 of the Fire Code and NFPA Chapter 1124.*
- 3. The fireworks tent shall be accessory to a commercial use.*
- 4. Fireworks tents located within the public right-of-way are prohibited.*
- 5. All goods shall be displayed on a designated impervious surface area.*
- 6. All goods shall be displayed in an orderly fashion, with access aisles provided as needed.*
- 7. Music or amplified sounds shall not be audible from adjacent residential properties.*
- 8. The fireworks tent shall not reduce the amount of off-street parking provided on-site below the level required for the principal use.*
- 9. An appropriate transition area between the use and adjacent property shall be provided by landscaping, screening or other site improvements consistent with the character of the neighborhood.*
- 10. Signage shall be limited to two (2) professionally made signs, with a combined square footage not exceeding thirty-two (32) square feet.*
- 11. Fireworks tents may be allowed for a maximum of 90 days per calendar year.*
- 12. Any electrical use associated with the temporary sales, will require an Electrical Permit and is required to be inspected by the State Electrical Inspector.*

A Roll Call vote was taken of all the members. All Ayes. MOTION PASSED.

OTHER BUSINESS

Fiorendino asked whether there was anyone present who would like the Planning Commission to ask City staff for recommendation on ways that the Code may be improved as far as what discussed during the meeting, as there seems to be lack between commercial and residential properties. Chirpich thanked the Planning Commission for a good meeting, citing a robust conversation around some tough issues, and that the Commissioners handled them very well with good testimony. He said it was a challenging Site Plan and it will continue to be difficult on these integration sites where there are adjoining commercial and residential properties. Such properties are numerous within the City and a restaurant is an intense use, especially with an expansion of an outdoor component. Chirpich said staff should look at outdoor dining CUPs, but the noise issue will have to be continued to be administered by ordinance and enforced with compliance checks.

Kaiser added that he writes about restaurant delivery for a living and, because the City has so many, he believes fast food restaurants will soon be dramatically rebuilding themselves because of the COVID-19 pandemic. And because a lot of these facilities are going to be adding a lot more drive-through lanes when possible, it will be hot topic throughout the nation, allowing customers to grab their meals without having to go inside the restaurant.

Kaiser added that dedicated spaces for delivery drivers is something that a lot of municipalities will have to react to catch up with. So it will be wise for the City to move on those issues proactively because it will be likely that it will be approached on them within the next 18 months. Hark said she agreed, citing her own professional experiences where cities had to enforce ordinances related to permanent outdoor dining, and said the City's ordinances could be stronger addressing such issues.

Chirpich, referring to the meeting's denial, clarified that any motion to deny an application by the Planning Commission must have rationale and it was clear that the condition for this evening's application was not met and the Site Plan did not minimize any adverse impacts on properties in the immediate vicinity. He asked Commissioners to confirm that rationale, and they confirmed so.

Vargas said he had been a devil's advocate for the Site Plan but it had so many holes in it, the survey was bad, the engineering comments were about stucco and it was lap siding; and he said he had preferred to table action on the project to give the owner an opportunity to make improvements, but the plan was really not appropriate for that area. He is concerned that the 2020 tax bill eliminated funding for low cost housing and that is why there has been a slowdown in apartments; and there will soon be massive infrastructure bill and need for housing such as a 50-unit apartment, and he said he wonders how the neighbors will feel about that building as opposed to a restaurant.

6. REMINDER: NEXT PLANNING COMMISSION MEETING

The next scheduled meeting is Tuesday, May 4, 2021 at 6:00 pm.

ADJOURNMENT

Motion by Vargas, seconded by Novitsky, to adjourn the meeting. The meeting was adjourned with no objection by Fiorendino at 7:20 pm.

Respectfully submitted,

Alicia Apanah, Secretary



AGENDA SECTION	PUBLIC HEARING
MEETING DATE	MAY 04, 2021

ITEM:	VARIANCE FOR AN ACCESSORY STRUCTURE/GARAGE IN RESIDENTIAL FRONT YARD	
DEPARTMENT:	COMMUNITY DEVELOPMENT	BY/DATE: Minerva Hark / May 04, 2021

CASE NUMBER: 2021-0501
DATE: May 4, 2021
TO: Columbia Heights Planning Commission
APPLICANT: Jason Norden
DEVELOPMENT: Proposed Residential Garage
LOCATION: 3919 Reservoir Boulevard NE (PID 36-30-24-33-0046)
REQUEST: Variance to allow for an accessory structure (detached garage) in the front yard
PREPARED BY: Minerva Hark, City Planner

INTRODUCTION

Jason Norden is requesting a Variance for a proposed accessory structure to be located at 3919 Reservoir Boulevard NE. The application and narrative are attached for your consideration. The applicant seeks the following:

1. Variance to allow the accessory structure to be constructed and located within the front yard. City Code Section 9.106 (C) (1) (b) stipulates that “No accessory structure shall be constructed or located within any front yard,” while City Code Section 9.106 (C) (1) (c) stipulates that “Accessory structures for one- and two-family dwellings shall be...behind the principal structure building line in the front yard.”

ZONING ORDINANCE

The property is located in the R-2A One- and Two-Family Residential Zoning District, as are the properties to the north and east. Properties to the south and west are located in the R-2B Built as Duplex District, as well as the R-2A One- and Two-Family Residential Zoning District. The use of the property as a residential home complies with the Zoning Code.

COMPREHENSIVE PLAN

The Comprehensive Plan guides this area for residential development. The proposed garage is consistent with the goals and intent of the Comprehensive Plan.

DESIGN GUIDELINES

This property is not located in a Design Guidelines District.

SITE PLAN

The applicant has submitted a Site Plan illustrating the proposed size and location of the new garage and its relation to adjacent properties and structures.

FINDINGS OF FACT

The City Council shall make each of the following findings before granting a variance from the provisions of this article:

- (a) Because of the particular physical surroundings, or the shape, configuration, topography, or other conditions of the specific parcel of land involved, strict adherence to the provisions of this article would cause practical difficulties in conforming to the zoning ordinance. The applicant, however, is proposing to use the property in a reasonable manner not permitted by the zoning ordinance.

This is correct. The existing single-family home on the lot was built 5 feet from the rear property line, and aerial imagery supports that the structure has been there since at least the year 1938. The development of this lot occurred prior to today's zoning regulations, and does not provide reasonable space for the construction of a standard detached garage behind the principal structure's front building line. There is an existing substandard garage constructed in the rear of the property that is currently being used as storage. Even if this existing structure were to be removed, there would not be adequate space to construct a standard garage in its place. This is an existing condition not caused by the current owner. The proposed garage would conform to all current setback requirements, and will be served by the existing driveway accessed from Reservoir Boulevard.

- (b) The conditions upon which the variance is based are unique to the specific parcel of land involved and are generally not applicable to other properties within the same zoning classification.

This is correct. Due to the existing layout of the lot and its 5-foot rear yard setback, the situation is unique to this parcel.

- (c) The practical difficulties are caused by the provisions of this article and have not been created by any person currently having a legal interest in the property.

This is correct.

- (d) The granting of the variance is in harmony with the general purpose and intent of the Comprehensive Plan.

This is correct. The Comprehensive Plan calls for reinvestment, renovation, and modernization of the City's single-family housing stock.

- (e) The granting of the variance will not be materially detrimental to the public welfare or materially injurious to the enjoyment, use, development or value of property or improvements in the vicinity.

This is correct. The granting of this Variance will result in a new, functioning two car garage for the property that will enhance the overall functionality and aesthetic of the site. This will provide more adequate on-site parking that conforms to current setback requirements. It will contribute to the improved value of the neighborhood.

RECOMMENDATION

Staff recommends that the Planning Commission recommend approval to the City Council, of the proposed Variance.

RECOMMENDED MOTION(S):

MOTION: Move to waive the reading of the draft resolution attached.

MOTION: Move to recommend that the Planning Commission recommend to the City Council approval the Variance for the proposed detached garage to be located at 3919 Reservoir Boulevard NE, subject to the following conditions of approval:

1. The applicant shall meet the requirements of the Building Official's Memorandum dated April 8, 2021, and obtain a Building Permit for the project prior to starting construction.
2. The applicant shall meet the requirements of the Public Works Department's Memorandum dated April 26, 2021.
3. A Certificate of Survey and Elevation Plans shall be submitted as part of the Building Permit Application for the construction of the proposed detached garage.
4. The lot shall be limited to two detached accessory structures.
5. The new detached garage shall be set back a minimum of three feet from the side lot line, a minimum of three feet from the rear lot line, and a minimum of five feet from any other building or structure on the same lot.
6. The combination of accessory structures, storage shed, and attached garages on the lot shall not exceed 1,000 square feet in area.
7. The height of the proposed detached garage shall comply with City Code.
8. The exterior color and design of the proposed detached garage shall be similar to the principal structure. Corrugated metal siding and roofs are prohibited.
9. The total building coverage, including the principal structure and all accessory structures, shall not exceed 35%.
10. The distance between the proposed detached garage doors and the front lot line shall be no less than 20 feet.
11. The proposed detached garage shall be provided with a hard-surfaced access driveway, no less than 12 feet in width, to an adjacent public street, and shall be no less than 20 feet by 20 feet in size.
12. The proposed detached garage shall not be located within any utility or drainage easement.

ATTACHMENT(S):

Draft Resolution

Application

Site Plan

Applicant's Narrative

Building Official Memorandum dated April 8, 2021

Public Works Memorandum dated April 26, 2021

A resolution of the City Council for the City of Columbia Heights, Minnesota, approving a Variance for the property located in the City of Columbia Heights, MN

Whereas, a proposal (Case # 2021-0501) has been submitted by Jason Norden to the City Council requesting approval of a Variance at the following location:

ADDRESS: 3919 Reservoir Boulevard NE (PID 36-30-24-33-0046)

LEGAL DESCRIPTION: On file at City Hall.

THE APPLICANT SEEKS THE FOLLOWING:

1. Variance to allow the accessory structure to be constructed and located within the front yard. City Code Section 9.106 (C) (1) (b) stipulates that “No accessory structure shall be constructed or located within any front yard,” while City Code Section 9.106 (C) (1) (c) stipulates that “Accessory structures for one- and two-family dwellings shall be...behind the principal structure building line in the front yard.”

Whereas, the Planning Commission held a public hearing as required by the City Zoning Code on May 4, 2021;

Whereas, the City Council has considered the advice and recommendations of the Planning Commission regarding the effect of the proposed variances upon the health, safety, and welfare of the community and its Comprehensive Plan, as well as any concern related to traffic, property values, light, air, danger of fire, and risk to public safety, in the surrounding area;

Now, therefore, in accordance with the foregoing, and all ordinances and regulations of the City of Columbia Heights, the City Council of the City of Columbia Heights makes the following:

FINDINGS OF FACT

1. Because of the particular physical surroundings, or the shape, configuration, topography, or other conditions of the specific parcel of land involved, strict adherence to the provisions of this article would cause practical difficulties in conforming to the zoning ordinance. The applicant, however, is proposing to use the property in a reasonable manner not permitted by the zoning ordinance.
2. The conditions upon which the variance is based are unique to the specific parcel of land involved and are generally not applicable to other properties within the same zoning classification.
3. The practical difficulties are caused by the provisions of this article and have not been created by any person currently having a legal interest in the property.
4. The granting of the variance is in harmony with the general purpose and intent of the Comprehensive Plan.
5. The granting of the variance will not be materially detrimental to the public welfare or materially injurious to the enjoyment, use, development or value of property or improvements in the vicinity.

CONDITIONS

1. The applicant shall meet the requirements of the Building Official’s Memorandum dated April 8, 2021, and obtain a Building Permit for the project prior to starting construction.
2. The applicant shall meet the requirements of the Public Works Department’s Memorandum dated April 26, 2021.
3. A Certificate of Survey and Elevation Plans shall be submitted as part of the Building Permit Application for the construction of the proposed detached garage.

4. The lot shall be limited to two detached accessory structures.
5. The new detached garage shall be set back a minimum of three feet from the side lot line, a minimum of three feet from the rear lot line, and a minimum of five feet from any other building or structure on the same lot.
6. The combination of accessory structures, storage shed, and attached garages on the lot shall not exceed 1,000 square feet in area.
7. The height of the proposed detached garage shall comply with City Code.
8. The exterior color and design of the proposed detached garage shall be similar to the principal structure. Corrugated metal siding and roofs are prohibited.
9. The total building coverage, including the principal structure and all accessory structures, shall not exceed 35%.
10. The distance between the proposed detached garage doors and the front lot line shall be no less than 20 feet.
11. The proposed detached garage shall be provided with a hard-surfaced access driveway, no less than 12 feet in width, to an adjacent public street, and shall be no less than 20 feet by 20 feet in size.
12. The proposed detached garage shall not be located within any utility or drainage easement.

ORDER OF COUNCIL

Passed this _____ day of _____, 2021

Offered by:

Seconded by:

Roll Call:

Amáda Márquez Simula, Mayor

Attest:

Nicole Tingley, City Clerk/Council Secretary

CITY OF COLUMBIA HEIGHTS VARIANCE APPLICATION

2021.05.01

To be filled out by City:

CASE NO.: 2021-0501	DATE RECEIVED: 3/3/21
APPLICABLE ORDINANCE NO.: 9.104 (G)	DATE OF LETTER OF COMPLETION:
PRESENT ZONING: Residential	APPROVAL DATE PER STATUTE:
PRESENT LAND USE PLAN DESIGNATION: Residential	REVIEW PERIOD EXTENDED:

To be filled out by Applicant:

PROPOSED NAME OF DEVELOPMENT: Norden Variance

PROJECT ADDRESS/LOCATION: 3919 Reservoir Blvd

LEGAL DESCRIPTION OF PROPERTY INVOLVED (attach separate page if necessary):
Lot 25 Block 8 Reservoir Hills

PRESENT USE OF PROPERTY: Residential

PROPOSED USE OF PROPERTY: Residential

REASON FOR REQUEST (Please attach a written narrative describing the variance being requested. The narrative should fully explain the hardship(s) that justifies variation from the strict application of the Code. The terms "hardship" or "undue hardship" typically refer to physical characteristics of the property, such as shape, soil conditions, or topography. Neither mere inconvenience, nor reduction in value alone, is sufficient to justify a variance. The inability to put property to its highest and best use is not considered a hardship or practical difficulty. The problem that justifies the variance must be caused by conditions unique to the property and beyond the control of the applicant. The applicant cannot create the condition that requires the variance.)

APPLICANT <u>Jason Norden</u>	PHONE _____	FAX _____
E-MAIL <u>jason.norden22@gmail.com</u>	PAGER _____	CELL # <u>651-493-2942</u>
ADDRESS <u>3919 Reservoir Blvd</u>		
CITY <u>Columbia Heights</u>	STATE <u>MM</u>	ZIP <u>55421</u>
FEE OWNER OF PROPERTY _____		
ADDRESS _____	PHONE _____	FAX _____
CITY _____	STATE _____	ZIP _____

CITY OF COLUMBIA HEIGHTS VARIANCE APPLICATION

THIS APPLICATION IS SUBJECT TO ACCEPTANCE BY THE CITY PLANNER AND REVIEW OF APPLICATION AND NECESSARY MATERIALS BEING SUBMITTED.

ITEMS TO BE GIVEN TO APPLICANT WITH APPLICATION

- A. Procedures Manual
- B. Application Checklist
- C. Schedule of Planning and Zoning Commission Meetings

ITEMS TO ACCOMPANY VARIANCE APPLICATION

- A. Submittals as required in the attached application checklist, describing the variance(s) proposed.
- B. Two copies of a list of property owners within 350 feet of the subject property.

APPLICATION FEES:

- A. \$200 Residential Variance Fee \$ 250 -
- B. ²⁵⁰ Park Dedication Fee \$ _____
- C. City Sewer Availability Charge (SAC) \$ _____
- D. City Water Availability Charge (WAC) \$ _____
- E. Other \$ _____

TOTAL AMOUNT RECEIVED \$ 250 -

CITY RECEIPT NUMBER 70137

DATE RECEIVED 3.3.21

Acknowledgement: The undersigned hereby represents upon all of the penalties of law, for the purpose of inducing the City of Columbia Heights to take the action herein requested, that all statements herein are true and that all work herein mentioned will be done in accordance with the Ordinances of the City of Columbia Heights and the State of Minnesota:

APPLICANT SIGNATURE

DATE

[Handwritten Signature]

2/18/2021

PROPERTY OWNER SIGNATURE (If different from Applicant)

DATE

Minerva Hark, City Planner

4/5/21

COMMUNITY DEVELOPMENT STAFF MEMBER AND TITLE

DATE

Revised 2005

Approved by the Columbia Heights Planning Commission on _____
Approved by the Columbia Heights City Council on _____

I am requesting a variance to allow me the ability to build a 2 car garage in the front of my property.

As you can see from the property map, the property is set at the edge of the alley and there is no ability to build a proper garage in the rear of the property. These conditions are unique to this property and are beyond my control.

So because of this undue hardship, I am asking for the approval of this variance.

Thank You,

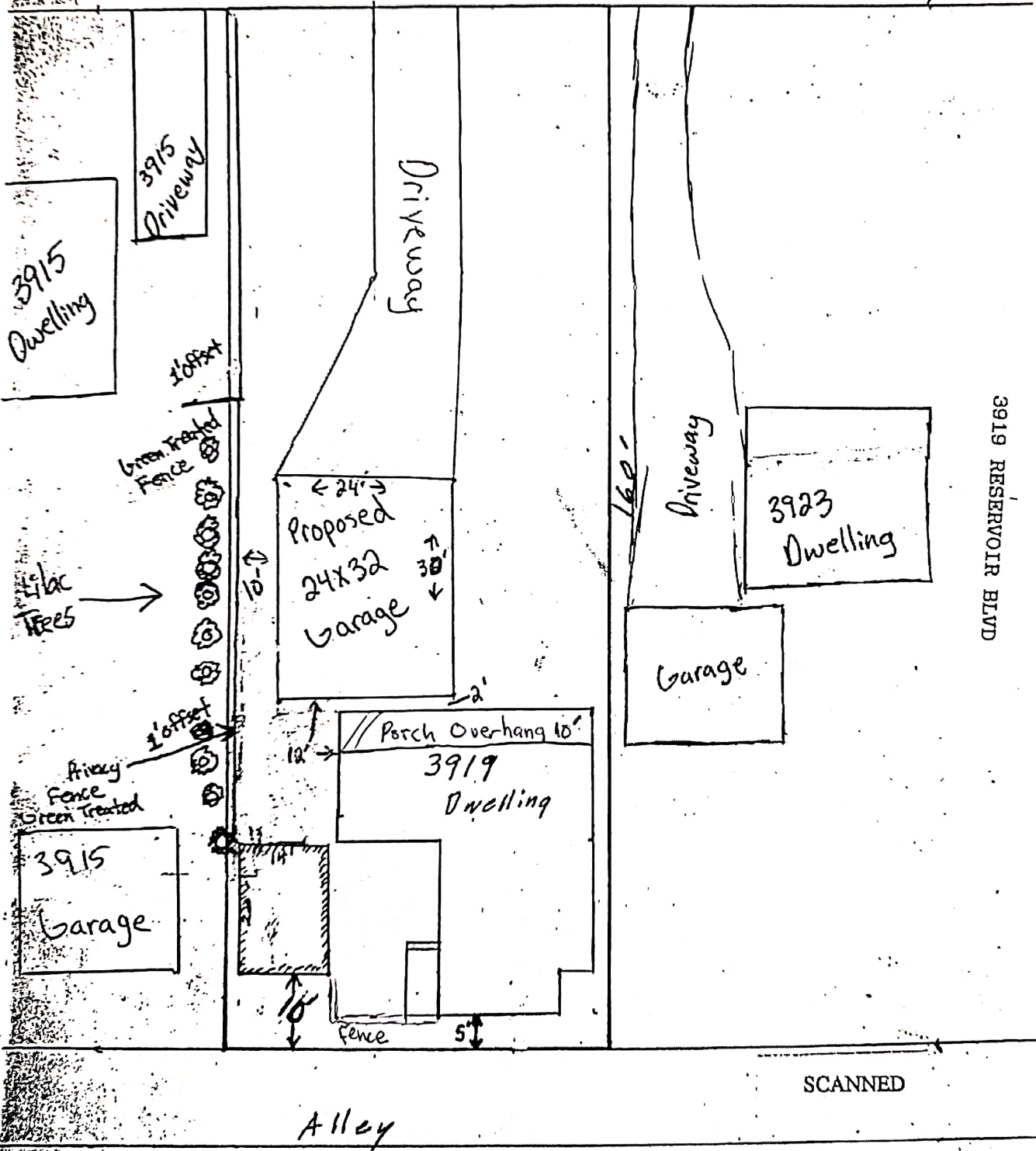
Jason Norden

Homeowner 3919 Reservoir Blvd

Address List within 350 ft of the property

3915 Reservoir Blvd
3923 Reservoir Blvd
3925 Reservoir Blvd
3909 Reservoir Blvd
3918 Reservoir Blvd
3922 Reservoir Blvd
3926 Reservoir Blvd

3919 - Reservoir Blvd
Reservoir Blvd ← 60' → Lot 25 Block 8
Reservoir Hills



SCANNED

To Whom It May Concern,

My wife and I purchased 3919 Reservoir Blvd in 2011. We found out our property was quite unique. For instants, to access the partial basement you need to use an outside door. I found out it was built in 1922 from newspaper I found as insulation in the partial basement. This home may be one of the first in this area. The single car garage was already built at that time. My wife owns a 2014 Prius and we thought nothing of the size of her vehicle, but after hitting the side of the garage entering and exiting it, we found out it was not suitable for even a standard vehicle let alone anything larger so it is now used as storage.

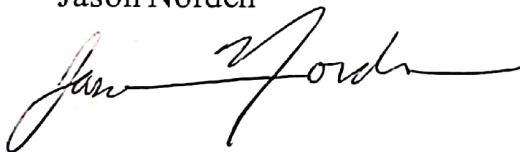
With this being said, that is part of my reason for asking for a variance. I have applied for a variance in the past for a fence because you can't have a fence over 42" in your front yard. But because of my home setback, the fence lines up to the back yard of my neighbor. And so would this garage.

If this garage was torn down to rebuild another in its place it would not comply with the city standards and is too small for your standard garage.

If this garage was torn down to rebuild another in its place it would not comply with the city code standards and is too small for a standard garage. If I tried to put a garage in the back, I would not have access to having any back yard at all and would still not account for the turn radius in and out of the garage.

I thank you for your time and consideration.

Jason Norden

A handwritten signature in black ink, appearing to read "Jason Norden", written in a cursive style.

City of Columbia Heights | *Community Development*

590 40th Avenue NE, Columbia Heights, MN 55421 ▪ Ph: 763-706-3670 ▪ Fax: 763-706-3671 ▪ www.columbiaheightsmn.gov

4/8/21

Re: 3919 Reservoir Blvd NE,
Columbia Heights, MN 55421

Table R302.6 requires garages which are located less than 3 feet from a dwelling unit on the same lot to have not less than ½-inch gypsum board or equivalent applied to the interior side of exterior walls. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit.

Sincerely,



Ryan Smith
Building Official

MEMORANDUM

TO: Minerva Hark, Planner

COPY: Kathy Young, Assistant City Engineer

FROM: Lauren Letsche, Stormwater Specialist

SUBJECT: 3919 Reservoir Blvd

DATE: April 26th, 2021

After looking at the contours of the property, the property drains to the south and south east. A high spot was observed in the yard on the north side of the existing driveway. The existing house sits to the back of the lot; all of the drainage from this high spot would be draining back towards the existing/proposed structure. Per city ordinance, alterations to drainage patterns must not adversely affect adjacent properties.

The applicant shall meet the requirements of the City's Stormwater Specialist report dated April 26th, 2021.



AGENDA SECTION	PUBLIC HEARING
MEETING DATE	5/4/2021

ITEM:	Preliminary Plat; Planned Unit Development; Easement Vacations to allow for the construction of a 4-story, 62-unit affordable housing building that includes a remainder parcel for the potential future development of SACA Food Shelf	
DEPARTMENT:	Community Development	BY/DATE: Minerva Hark, 5/4/2021

BACKGROUND:

- CASE NUMBER:** 2021-0502
 - DATE:** May 4, 2021
 - TO:** Columbia Heights Planning and Zoning Commission
 - APPLICANT:** Reuter Walton Development
 - DEVELOPMENT:** Affordable Housing Building; Planning Unit Development; Preliminary Plat
 - LOCATION:** 825 41st Avenue NE (northern undeveloped portion of Columbia Heights Public Safety Center)
 - REQUEST:** Preliminary Plat; Planned Unit Development; and Easement Vacations
 - PREPARED BY:** Minerva Hark, Community Development Planner
-

INTRODUCTION

Reuter Walton Development has applied for a Preliminary Plat; Planned Unit Development; and Easement Vacations for a portion of the property located at 825 41st Avenue NE.

The property was previously the original home of Columbia Heights High School, constructed in 1926. It later became the Columbia Heights Junior High School in 1961, and then sold to the Northwestern Electronics Institute (NEI) in 1981. It operated as a technical college until 2002. After NEI merged with Dunwoody, the City of Columbia Heights purchased the vacant building and parcel. The building was demolished in 2004, making way for the Public Safety Center, which was constructed in 2009. The portion of the existing lot in which development is proposed served as both the school’s recreational field and parking lot, with approximately 500 parking stalls. Historical aerial imagery even suggests that one or two single-family homes were once present on the site. The current use of the portion of the lot in question is snow storage by the City’s Public Works Department, as well as minimal parking for the neighboring Crest View development.

The site is zoned R-4, Multiple Family Residential District. The site is adjacent to the One- and Two-Family Residential District (R-2A) to the north and west, as well as the Multiple Family Residential District to the east (R-4) and the south (R-3).

The applicant is proposing to subdivide the existing lot into three separate parcels. One parcel will include the existing Public Safety Center. One of the newly created parcels will include a 4-story, 62-unit affordable housing building with amenities and subterranean and at-surface parking. The remainder Lot 3 is intended for the potential future relocation and development of SACA Food Shelf.

ZONING ORDINANCE

The site is currently zoned R-4, Multiple Family Residential District. The applicant is proposing to rezone the site to Planned Unit Development (PUD). The Planned Unit Development District will allow the applicant flexibility with setbacks, building height, building design, parking stall design, and the overall use of the property. The Planned Unit Development rezoning is discussed later in this report.

COMPREHENSIVE PLAN

The Comprehensive Plan guides this area for Transit Oriented Development. Transit Oriented Development seeks to develop properties to have a mix of residential, retail, and office. Transit Oriented Development also seeks to include pedestrian friendly access and design.

In review of the site and building plans for this project, the site contains sidewalks on two sides of the site, a playground, trees and boulevard areas, and planters. The design of the site is consistent with the goals of the 2040 Comprehensive Plan.

SITE PLAN

1. Setbacks

The subject property is currently located in the Multiple Family Residential District. The proposed plan is to rezone the site to Planned Unit Development District. The R-4 district is subject to setback standards, while the PUD district is not. Setbacks of properties in the PUD district are subject to Staff review and Council approval. The following table displays what is currently allowed in the R-4 district versus what is applicant is proposing for their building under the rezoned PUD district:

Building Setbacks	Existing R-4	Proposed PUD – Lot 2
Front Yard	15 feet	12 feet
Side Yard	10 feet	10 feet
Corner Side Yard	15 feet	10 feet
Rear Yard	15 feet	15 feet

In review of Lot 2's proposed building setbacks, Staff finds the site plan acceptable as presented. Setbacks for Lot 3 will be determined at a later date, once the site is ready to be developed. It is likely that the future applicant will have to apply for a PUD Amendment to establish reasonable setbacks for their site.

2. Lot Area

City Zoning Ordinance requires a minimum lot area for Multiple Family Residential District (R-4) zoning of 10,000 square feet for a multi-family dwelling, and a minimum lot width of 70 feet. The proposed lot area for Lot 2 is 1.3 acres (56,628 square feet), and the proposed lot width is 207.3 feet. The proposed lot area and lot width meets the minimum dimensions for the proposed use.

In regards to remainder Lot 3, City Zoning Ordinance requires a minimum lot area of 6,000 square feet for Limited Business (LB) District and for General Business (GB) District, with a minimum lot width of 50 feet for the LB Zone and 40 feet for the GB Zone. The proposed lot area for Lot 3 is 0.4 acres (17,424 square feet), and the proposed lot width is 79.6 feet. The proposed lot area and lot width meets the minimum dimensions for either district.

3. Parking

The proposed site plan includes 62 apartment units. Based on the number of units and unit occupancy, the total number of required parking stalls for the proposed apartment building is 108. The applicant is proposing a total of 108 parking spaces to accommodate the residential uses onsite. The proposed design includes 46 underground stalls (43 standard stalls, 1 compact stall, and 2 ADA spaces), and 62 exterior, surface-level stalls (35 standard stalls, 24 compact stalls, and 3 ADA spaces).

4. Parking Setbacks

The underlying R-4 zoning for Multiple Family requires standard parking setbacks, while a PUD district does not. Parking setbacks in the PUD district are subject to Staff review and Council approval. The applicant is proposing the following reductions to surface-level parking setbacks in order to maintain adequate parking spaces and to potentially support shared parking with the future development of Lot 3:

Parking Setbacks	R-4 (existing)	Proposed PUD – Lot 2
Front Yard	30 feet	85.3 feet
Side Yard	10 feet	0 feet
Corner Side Yard	30 feet	85.7 feet
Rear Yard	10 feet	2 feet

In review of the proposed parking setbacks, Staff finds the site plan is acceptable as presented.

5. Multi-Family Parking Standard

Multi-Family Districts require one parking stall for each bedroom unit, and two parking stalls for each two-bedroom or larger unit. Under this equation, the total required number of resident parking stalls equals 108. The site plan provides 108 resident parking stalls, satisfying the minimum requirement.

The site plan shows a total of 25 compact parking stalls for resident parking. This means the project proposes 23% of the total spaces to be designed as compact. Staff is supportive of providing this percentage of compact spaces as PUD flexibility.

6. Vehicle Access

The main entrance will be from Jackson Street NE, accessing the underground parking. The other entrance will be from 42nd Avenue NE, accessing the at-grade parking stalls. The 42nd Avenue NE parking entry may also be accessed from 41st Avenue NE. Vehicles leaving from the at-surface parking lot can either drive south down the alley to access 41st Avenue NE, or north to access 42nd Avenue NE.

7. Loading and Deliveries

In regards to the proposed use of Lot 2, deliveries will be made through the entrance on 42nd Avenue NE and packages will be placed in a secure package room located adjacent to the entry vestibule. Postal service will also access through the 42nd Avenue entrance and proceed through the lobby to the mail area to the south.

Loading and unloading of larger items for move-in will be mainly handled through the garage parking lot, directly through the elevator or through the 42nd Avenue NE entry for delivery vehicles.

The trash room will be located at the inside corner of the basement parking level next to the elevator. Each residential floor above will have trash rooms with chutes for trash and recycling. For routine trash pickup, the appropriate trash trucks will park on Jackson Street NE as trash carts are brought up the garage access ramp and out to the truck for disposal.

8. Landscaping

The proposed landscaping plan shows a total of 15 trees including a mix of deciduous trees and conifer trees. The tree sizes and diameters meet the City's requirements for sizes at the time of planting. The remaining area on the site will be covered with grass and shrubs.

Several existing trees have been identified on the landscaping plans to remain on the project site, including three apple trees and an oak tree in the southwest portion of Lot 2. The project will be conditioned to have these trees protected in place. Additionally, all adjacent boulevard trees on City property shall also be protected in place.

9. Easement Dedication / Vacation

The existing site has four separate easements that will need to be vacated and/or replaced, or amended as part of this project: a platted perimeter drainage and utility easement, a storm water drainage utility easement, a utility easement, and a parking easement.

The first easement proposed to be vacated is a drainage and utility easement around the perimeter of Lot 1, with the exception of the northeast corner, where the easement runs along the north and east boundaries shared with 42nd Avenue NE and the existing alley. The project is proposing to vacate this easement over the portion of land that is to be subdivided. The proposed plat will define a new perimeter drainage and utility easement and reduce the width of the easement from five feet to three feet to provide adequate room for the future development of the remainder lot.

The second easement is octagonal in shape and exists to provide additional live storage capacity for the existing adjacent stormwater pond and to protect the existing water main. The project proposes to construct an apartment building where the easement currently resides. The applicant proposes to relocate this easement by constructing an underground stormwater chamber capable of storing a volume of runoff that will eliminate the need for the surface storage. The proposed project would also establish a new drainage and utility easement around the proposed underground stormwater chamber. Additionally, the project proposes to relocate the existing water main with a minimum horizontal distance of 10 feet from the future building envelope on proposed Lot 3.

The purpose of the third easement (utility easement) was to preserve the rights to construct new sanitary sewer or water mains within the former street right-of-way, if deemed necessary. There is no longer a need to preserve this land for running utilities, as sewer and water mains have already been constructed within the alley. This easement has been proposed to be vacated as part of this project.

The final easement is located on Outlot E, and currently provides the rights to the existing Columbia Court Townhomes complex to park 11 vehicles. This project proposes to relocate the parking rights for 11 stalls from Outlot E to Outlot C. With the creation of Lot 3 and its future development, the future applicant shall work

with the City to ensure that a new easement is prepared providing similar terms to the existing easement that are acceptable to the owners of Columbia Court Townhomes.

As a condition of approval, the applicant shall provide recordable documents of the easement vacations to be recorded at the County Recorder's Office. Said legal descriptions are subject to review by the City Attorney.

10. Park Dedication

The proposed plat will not include a park dedication. Instead, the applicants will make a financial contribution to satisfy this requirement. This will be included in the development contract.

11. Mechanical Screening

The applicant has not indicated any mechanical equipment on the roof top of the building. Most mechanical equipment will be on the lower level of the structure (underground parking area). If mechanical screening is to be placed on the roof, it shall comply with the City's requirements for screening. This will be a condition of approval.

12. Drainage

The applicant is proposing a stormwater management system that would adequately address the storm water design requirements for both rate control and water quality for both Lots 2 and 3. The Public Works Department will review the final plans and submitted Stormwater Management Report prior to approval of construction.

13. Fire Department Connection and Fire Hydrants

The site has existing fire hydrants onsite that are sufficient for Fire Safety purposes. As a condition of approval, the applicants shall indicate where the fire department connection is intended to connect to the building. This is subject to further review by the Fire Department.

14. Building Design and Materials

Exterior materials will include brick on the first floor with a cast stone base. The second, third, and fourth floors will have a combination of brick, fiber cement lap siding, and fiber cement panel. These materials are of high architectural quality and will add to the value of the neighborhood.

15. Floor Area Ratio

The applicants are proposing a Floor Area Ratio (FAR) of 1.24. This is a unit of measurement used to measure the amount of square footage in a building compared to the overall site. The Comprehensive Plan recommends a FAR between 1.00 and 3.00 for transit oriented design areas in the City. A floor area ratio of 1.24 is consistent with the Comprehensive Plan Goals.

16. Lighting

The applicant has submitted a photometric plan that complies with City Code. The exterior lighting proposed at the project site provides ample parking lot lighting for residents and does not emit light onto adjacent properties.

17. Neighborhood Notification

Notifications went out to surrounding property owners within 350 feet of the subject site. The notice was also posted in "Life" Newspaper, and posted on the City's website. The City received several emails of comments, questions, and concerns, including other uses for the parcel, changes in adjacent property values, ownership

of the site, design, density, traffic, noise, and drainage. All comments were acknowledged by Staff, and questions were answered to the best of Staff's abilities.

PLANNED UNIT DEVELOPMENT

In order to accommodate the proposed density at this site and the potential future mixed use element of the plan, the applicant is proposing to rezone the property to a Planned Unit Development (PUD). The PUD will allow flexibility with the City's strict zoning requirements, while also requiring a high standard of building quality and site design. The PUD ordinance requires the Planning Commission to hold an informal public hearing and a formal hearing at the City Council Meeting.

1. Density / Units-Per-Acre

The following table shows the units per acre for this project. It should be noted that units-per-acre is a different measurement than floor area ratio (discussed earlier in this report).

825 41st Avenue NE – Units Per Acre Analysis	
Units	62
Site Acreage	1.3
Units Per Acre	48

48 units per acre fall in line with the target residential density for urban centers adjacent to highways and transit ways. The project site is well within a half-mile radius of Central Avenue NE, which aims for 40-75+ units per acre under transit oriented development guidelines. The following table is an analysis of the mixed-use development that is underway at 3989 Central Avenue NE as a comparison of density:

3989 Central Ave NE – Units Per Acre Analysis	
Units	265
Site Acreage	2.3
Units Per Acre	116

The development on 40th & Central has a much higher density calculation, but is also immediately adjacent to a highway. By this comparison, this proposed project has a lower density calculation.

Staff has also completed a bedroom analysis of the site since the apartment complex will offer three different types of rental units.

825 41st Avenue NE Bedroom Analysis			
Unit		Times number of bedrooms	Total Bedrooms
1 Bedroom	16	1	16
2 Bedroom	30	2	60
3 Bedroom	16	3	48
Total Number of Units:	62	Total Number of Bedrooms:	124

2. Parking Stalls per Bedroom

The site will have a total of 124 bedrooms. As noted earlier in this report, the site will have 108 parking spaces for residents. This equates to 0.87 parking spaces per bedroom. Staff feels that this is an acceptable amount of parking for the residents as some of the larger units will not need one parking space per bedroom. For example, a three bedroom apartment may include two adults, and two children; thus only two parking spaces are needed.

3. Neighborhood Meeting

As part of the PUD approval, a neighborhood meeting is required as part of the process. The City hosted the neighborhood meeting on April 21, 2021 virtually via Zoom. The meeting was well-attended and included members of the immediate neighborhood, as well as members of the Planning Commission and City Council. The applicant presented the project to attendees and answered questions regarding the proposal. Staff heard concerns related to increased traffic and density, parking, privacy, and drainage. Staff noted that traffic is not projected to increase a detrimental amount, and that the proposed density is on the lower end of what is guided for transit-oriented development. Staff also noted that this project will actually help alleviate the drainage issues in the area.

Concerns were also raised about the size, height, quality, and design of the proposed apartment building, and the future commercial/retail use of SACA. The applicant and Staff noted that the height of the proposed building is lower than the existing adjacent development to the east (Crest View), and that the proposed materials are of high quality. Staff also noted that the future potential use of SACA is not part of the proposal at this time. The subdivision of land is under review for this project, and SACA will have to go through a PUD amendment when their proposal is ready.

FINDINGS OF FACT

Preliminary Plat

Section 9.104 (L) of the Zoning Ordinance outlines three conditions that must be met in order for the City to grant a Preliminary Plat. They are as follows:

- (a) The proposed Preliminary Plat conforms to the requirements of City Code Section 9.116 [Subdivision Ordinance].

Staff Comment: In review of the preliminary plat that was submitted, Staff finds that the preliminary plat generally conforms to the City's Subdivision Ordinance for a Planned Unit Development. The applicant is compliant in this regard.

- (b) The proposed subdivision is consistent with the Comprehensive Plan.

Staff Comment: The Comprehensive Plan supports the redevelopment of this site. In addition, the Comprehensive Plan supports transit-oriented development on this site. The proposed Subdivision is consistent with the Comprehensive Plan's goals.

- (c) The proposed subdivision contains parcel and land subdivision layout that is consistent with good planning and site engineering design principles.

Staff Comment: Staff has reviewed the proposed subdivision plan and feels that the parcel and land layout are consistent with these principles. Further, the site plan removes and replaces old easements. The project

proposes to improve the area storm water management conditions by creating increased storm water storage capacity, thereby eliminating the overland flooding condition that currently exists on the development site.

Planned Unit Development District Plan

The zoning ordinance contains the following four findings that must be satisfied before the City Council can approve the PUD District Plan at a City Council Meeting:

- (a) The PUD District plan conforms to all applicable requirements of this article [Section 9.113, PUD District].

Staff Comment: In review of Section 9.113, Staff finds that the application is consistent with the City's requirements.

- (b) The PUD District plan is consistent with the applicable provisions of the comprehensive plan.

Staff Comment: The Comprehensive Plan has this area targeted for redevelopment to a transit-oriented development project. The proposed PUD is consistent with the Comprehensive Plan's goals.

- (c) The PUD District plan is consistent with any applicable area plan.

Staff Comment: The area plan (as noted in the Comprehensive Plan) marks this area and other sites in the area for redevelopment. The PUD is consistent with the area plan.

- (d) The PUD District plan minimizes any adverse impacts on property in the immediate vicinity and the public right-of-way.

Staff Comment: The site will utilize underground and at-grade parking to prevent on-street parking. The PUD District Plan minimizes any adverse impacts on property in the immediate vicinity and the public right-of-way.

Rezoning to PUD, Planned Unit Development District

The zoning ordinance contains the following four findings that must be satisfied before the City Council can approve rezoning to PUD, Planned Unit Development District at a City Council meeting:

- (a) The amendment is consistent with the Comprehensive Plan.

Staff comment: The amendment is consistent with the applicable provisions of the Comprehensive Plan.

- (b) The amendment is in the public interest and is not solely for the benefit of a single property owner.

Staff comment: The amendment is in the public interest and not solely for the benefit of a single property owner.

- (c) Where the amendment is to change the zoning classification of a particular property, the existing use of the property and the zoning classification of the property within the general area of the property in question are compatible with the proposed zoning classification.

Staff comment: The amendment is compatible with existing land uses and zoning classifications in the general area.

(d) Where the amendment is to change the zoning classification of a particular property, there has been a change in the character or trend of development in the general area of the property in question, which has taken place since such property was placed in its current zoning classification.

Staff comment: The amendment reflects changes in development trends in the general area.

SUMMARY AND RECOMMENDATION

The applicant is seeking approval of a preliminary plat; easement vacations; and a rezoning to PUD, Planned Unit Development District to construct a 4-story, 62-unit affordable housing building that includes a remainder parcel for the potential future development of a new facility for the SACA Food Shelf at the northern undeveloped portion of the City's Public Safety Center. The project will include underground and at-grade parking for residents, with the potential for a shared parking agreement with the future tenants of Lot 3. Staff is recommending approval of the project with the conditions outlined below:

Preliminary Plat

Staff recommends that the Planning Commission recommend approval of the Preliminary Plat as presented subject to the conditions outline below:

1. All required state and local codes, permits, licenses and inspections will be met and in full compliance.
2. The applicant shall be responsible for the cost of filing and recording written easements with the Anoka County Recorder's Office.
3. An approved Preliminary Plat shall be valid for a period of one year from the date of the approval. In the event that a Final Plat is not presented for approval within this time period, the Preliminary Plat will become void.
4. The applicant shall enter into a Developer's Agreement with the City. Said documentation shall be reviewed by the City Attorney.

Vacation of Easements

The applicants are proposing to vacate two easements on the property. The easement vacations are necessary in order accommodate the project. The applicants have provided descriptions of the easements to be vacated. Staff recommends that the Planning Commission recommend to the City Council approval of the easement vacations with the following conditions:

1. The applicant shall be responsible for providing legal descriptions of all easements that are subject to be created. Said descriptions are subject to review by the City Attorney.
2. The applicant shall be responsible for recording the easement vacations with the Anoka County Recorder's Office.

PUD, Planned Unit Development District Plan

By Code, the Planning Commission shall hold an informal hearing related to the Planned Unit Development. The Planning Commission shall make a recommendation to the City Council. The City Council will hold the formal hearing for approval of the PUD. Staff recommends approval of the PUD with the following conditions:

1. The building and site shall meet all requirements found in the Fire Code and the Building Code.

2. Any proposed exterior lighting shall be reviewed and approved by City Staff before installation.
3. All other applicable local, state, and federal requirements shall be met at all times.
4. The City shall require a pre-construction conference prior to the start of any land alteration activities.
5. All storm water best management practices (BMP's) shall have designated drainage and utility easements recorded with the Final Plat or as a separate document with Anoka County.
6. The property owner and the City will enter in to a development contract governing the public site improvements and any off-site public improvements that are necessary for the project, and such contract shall be executed by the property owner and the City prior to the issuance of a building permit.
7. Developer shall provide financial guarantee in the form of a cash escrow or irrevocable letter of credit for landscaping and public improvements. The guarantee amount is to be determined by the City Engineer.
8. If mechanical screening is to be placed on the roof, it shall comply with the City's requirements for screening.
9. The applicants shall provide recordable documents of the easement vacations to be recorded at the County Recorder's Office.
10. The City Engineer shall review and approve the final site grading plans, utility plans and storm water management plans.
11. The developer shall enter into a storm water maintenance and management agreement with the City for all on-site BMP's, to be prepared by the City Attorney.
12. Existing catch basins on Jackson Street NE or 42nd Avenue NE, located downstream of the site, shall have inlet protection provided during construction.
13. Applicant shall obtain a Site NPDES Construction Permit prior to any site disturbance activities.
14. Perimeter and entrance erosion control measures shall be installed and inspected by the Engineering Department prior to any site grading activities. Applicant shall coordinate erosion control measures with the Engineering Department if building construction is initiated prior to general site grading.
15. Site access during construction shall be limited to 42nd Avenue NE. Parking and deliveries during construction along Jackson Street NE shall be prohibited.
16. All slopes greater than 4:1 shall be provided erosion control blanket.
17. The site utility plans shall be subject to review and final approval by the City Engineer, and Fire Chief.

18. All utilities and storm water features serving the development shall be privately owned and maintained. All utilities shall meet the City of Columbia Heights' specifications for materials and installation.
19. The City of Columbia Heights does not allow PVC as a material type in the Right-of-Way; please change to DIP.
20. Retaining wall heights in excess of 4 vertical feet shall have protective delineation, such as fencing or landscaping, at the top of the wall.
21. Developer shall pay park dedication fees as outlined in the City Code.
22. Developer will provide record plans or as-built drawings to the City following project completion in both hardcopy and digital format.
23. The existing boulevard trees on Jackson Street, as well as the four existing trees south of the new drive, shall be protected, installed, and approved by the City Urban Forester prior to construction.
24. Location of tree installations per the landscape plan and utility locations should be coordinated to maintain 10 feet separation from all utilities.
25. Developer will complete the necessary amendments to the existing storm water easement(s) recorded against the development site to allow for the proposed underground storm water system.
26. Developer will ensure proper recording of the amended storm water easement(s) with Anoka County.

Rezoning / Ordinance Amendment

Attached to this report is a draft ordinance amendment to allow the site to be rezoned to planned unit development. The applicants are seeking the following flexibilities from the zoning ordinance in order to complete this project:

1. Parking. The City Council approves the parking stall dimensions, quantity of compact stalls, and total number of stalls as shown on the plans.
2. Setbacks. The City Council approves the building setbacks as shown on the plans.
3. Units-per-Acre. The City Council approves the units per acre of up to 55.

RECOMMENDED MOTION(S):

Motion: Move to waive the reading of draft Resolution No 2021-XXXX, Preliminary Plat Approval, there being ample copies available to the public.

Motion: Motion to recommend that the Planning Commission recommend to the City Council approval of the Preliminary Plat as presented, subject to the following conditions:

1. All required state and local codes, permits, licenses and inspections will be met and in full compliance.
2. The applicant shall be responsible for the cost of filing and recording written easements with the Anoka County Recorder’s Office.
3. An approved Preliminary Plat shall be valid for a period of one year from the date of the approval. In the event that a Final Plat is not presented for approval within this time period, the Preliminary Plat will become void.
4. The applicant shall enter into a Developer’s Agreement with the City. Said documentation shall be reviewed by the City Attorney.

Motion: Move to waive the reading of draft Resolutions No 2021-XXXX and No 2021-XXXX, Easement Vacations, there being ample copies available to the public.

Motion: Motion to recommend that the Planning Commission recommend to the City Council approval of the Easement Vacations as presented, subject to the following conditions:

1. The applicant shall be responsible for providing legal descriptions of all easements that are subject to be created. Said descriptions are subject to review by the City Attorney.
2. The applicant shall be responsible for recording the easement vacations with the Anoka County Recorder’s Office.

Motion: Move to waive the reading of draft Resolution No. 2021-XXXX, PUD, Planned Unit Development District Plan, there being ample copies available to the public.

Motion: Motion to recommend that the Planning Commission recommend to the City Council approval of the PUD, Planned Unit Development District Plan as presented, subject to the following conditions:

1. The building and site shall meet all requirements found in the Fire Code and the Building Code.
2. Any proposed exterior lighting shall be reviewed and approved by City Staff before installation.
3. All other applicable local, state, and federal requirements shall be met at all times.
4. The City shall require a pre-construction conference prior to the start of any land alteration activities.
5. All storm water best management practices (BMP’s) shall have designated drainage and utility easements recorded with the Final Plat or as a separate document with Anoka County.
6. The property owner and the City will enter in to a development contract governing the public site improvements and any off-site public improvements that are necessary for the project, and such contract shall be executed by the property owner and the City prior to the issuance of a building permit.
7. Developer shall provide financial guarantee in the form of a cash escrow or irrevocable letter of credit.

for landscaping and public improvements. The guarantee amount is to be determined by the City Engineer.

8. If mechanical screening is to be placed on the roof, it shall comply with the City's requirements for screening.
9. The applicants shall provide recordable documents of the easement vacations to be recorded at the County Recorder's Office.
10. The City Engineer shall review and approve the final site grading plans, utility plans and storm water management plans.
11. The developer shall enter into a storm water maintenance and management agreement with the City for all on-site BMP's, to be prepared by the City Attorney.
12. Existing catch basins on Jackson Street NE or 42nd Avenue NE, located downstream of the site, shall have inlet protection provided during construction.
13. Applicant shall obtain a Site NPDES Construction Permit prior to any site disturbance activities.
14. Perimeter and entrance erosion control measures shall be installed and inspected by the Engineering Department prior to any site grading activities. Applicant shall coordinate erosion control measures with the Engineering Department if building construction is initiated prior to general site grading.
15. Site access during construction shall be limited to 42nd Avenue NE. Parking and deliveries during construction along Jackson Street NE shall be prohibited.
16. All slopes greater than 4:1 shall be provided erosion control blanket.
17. The site utility plans shall be subject to review and final approval by the City Engineer, and Fire Chief.
18. All utilities and storm water features serving the development shall be privately owned and maintained. All utilities shall meet the City of Columbia Heights' specifications for materials and installation.
19. The City of Columbia Heights does not allow PVC as a material type in the Right-of-Way; please change to DIP.
20. Retaining wall heights in excess of 4 vertical feet shall have protective delineation, such as fencing or landscaping, at the top of the wall.
21. Developer shall pay park dedication fees as outlined in the City Code.
22. Developer will provide record plans or as-built drawings to the City following project completion in both hardcopy and digital format.
23. The existing boulevard trees on Jackson Street, as well as the four existing trees south of the new drive, shall be protected, installed, and approved by the City Urban Forester prior to construction.

24. Location of tree installations per the landscape plan and utility locations should be coordinated to maintain 10 feet separation from all utilities.

25. Developer will complete the necessary amendments to the existing storm water easement(s) recorded against the development site to allow for the proposed underground storm water system.

26. Developer will ensure proper recording of the amended storm water easement(s) with Anoka County.

Motion: Move to waive the reading of draft Ordinance No. 1666, PUD District #2021-01, Rezoning of Property, there being ample copies available to the public.

Motion: Motion to recommend that the Planning Commission recommend to the City Council approval of the Ordinance Amendment.

ATTACHMENT(S):

Resolution No. 2021-XXXX, Preliminary Plat

Resolution No. 2021-XXXX, Easement Vacation (1 of 2)

Resolution No. 2021-XXXX, Easement Vacation (2 of 2)

Resolution No. 2021-XXXX, PUD, Planned Unit Development District Plan

Ordinance No. 1666, PUD District #2021-01

Neighbor Correspondence

Application

Applicant Narrative

Project Plans

RESOLUTION NO. 2021-_____

A resolution of the City Council for the City of Columbia Heights, Minnesota, approving a Preliminary Plat for Reuter Walton Development;

Whereas, a proposal (Case # 2021.0502) has been submitted by Reuter Walton Development to the City Council requesting Preliminary Plat Approval from the City of Columbia Heights at the following site:

ADDRESS: 825 41st Avenue NE
Columbia Heights, MN 55421

LEGAL DESCRIPTION: On file at City Hall.

THE APPLICANT SEEKS THE FOLLOWING: Preliminary Plat Approval per Code Section 9.104 (L).

Whereas, the Planning and Zoning Commission held a public hearing as required by the City Zoning Code on May 4, 2021;

Whereas, the City Council has considered the advice and recommendations of the Planning and Zoning Commission regarding the effect of the proposed Preliminary Plat upon the health, safety, and welfare of the community and its Comprehensive Plan, as well as any concerns related to compatibility of uses, traffic, property values, light, air, danger of fire, and risk to public safety in the surrounding areas;

Now, therefore, in accordance with the foregoing, and all ordinances and regulations of the City of Columbia Heights, the City Council of the City of Columbia Heights makes the following:

FINDINGS OF FACT

Section 9.104 (L) of the Zoning Ordinance outlines conditions that must be met in order for the City to grant a Preliminary Plat. They are as follows:

- (a) The proposed Preliminary Plat conforms to the requirements of City Code Section 9.116.
- (b) The proposed Subdivision is consistent with the Comprehensive Plan.
- (c) The proposed Subdivision contains parcel and land subdivision layout that is consistent with good planning and site engineering design principles.

Further, be it resolved, that the attached plans, maps, and other information shall become part of this Preliminary Plat and Final Plat; and in granting approval the City and the applicant agree that the Plat shall become null and void if a Final Plat is not recorded with Anoka County within one (1) calendar year after the approval date, subject to petition for renewal.

CONDITIONS

1. All required state and local codes, permits, licenses and inspections will be met and in full compliance.
2. The applicant shall be responsible for the cost of filing and recording written easements with the

Anoka County Recorder's Office.

3. An approved Preliminary Plat shall be valid for a period of one year from the date of the approval. In the event that a Final Plat is not presented for approval within this time period, the Preliminary Plat will become void.
4. The applicant shall enter into a Developer's Agreement with the City. Said documentation shall be reviewed by the City Attorney.

ORDER OF COUNCIL

Passed this 10th day of May, 2021

Offered by:

Seconded by:

Roll Call:

Attest:

Amáda Márquez Simula, Mayor

Nicole Tingley, City Clerk/Council Secretary

RESOLUTION NO. 2021-

A resolution of the City Council for the City of Columbia Heights, Minnesota, approving an easement vacation for property located in the City of Columbia Heights, Minnesota, described as:

A portion of Lot 1, Block 1, and Outlot E, NORTHWESTERN 2ND ADDITION, Anoka County, Minnesota, as graphically depicted to be Easement 1 in attached Exhibit X-2.

Whereas, a proposal (Case # 2021.0502) has been submitted by Reuter Walton Development to the City Council requesting an easement vacation at the following sites:

ADDRESS: 825 41st Avenue NE
Columbia Heights, MN 55421

THE APPLICANT SEEKS THE FOLLOWING: Easement vacation per Code Section 9.104.-(J), of the above legally described easement.

Whereas, the Planning and Zoning Commission held an informal public hearing as required by the City Zoning Code on May 4, 2021;

Whereas, the City Council held a formal public hearing as required by the City Zoning Code on May 10, 2021;

Whereas, the City Council has considered the advice and recommendations of the Planning and Zoning Commission regarding the effect of the proposed easement vacation upon the health, safety, and welfare of the community and its Comprehensive Plan, as well as any concerns related to compatibility of uses, traffic, property values, light, air, danger of fire, and risk to public safety in the surrounding areas;

Now, therefore, in accordance with the foregoing, and all ordinances and regulations of the City of Columbia Heights, the City Council of the City of Columbia Heights makes the following:

FINDINGS OF FACT

1. No private rights will be injured or endangered as a result of the vacation.
2. The public will not suffer loss or inconvenience as a result of the vacation.

Further, be it resolved, that the attached plans, maps, and other information shall become part of this easement vacation; and in granting approval the City and the applicant agree that the easement vacation shall become null and void if the resolution is not recorded with Anoka County within one (1) calendar year after the approval date, subject to petition for renewal.

CONDITIONS

1. The applicant shall be responsible for providing legal descriptions of all easements that are subject to be created. Said descriptions are subject to review by the City Attorney.
2. The applicant shall be responsible for recording the easement vacations with the Anoka County

Recorder's Office.

ORDER OF COUNCIL

Passed this 10th day of May, 2021

Offered by:

Seconded by:

Roll Call:

Attest:

Amáda Márquez Simula, Mayor

Nicole Tingley, City Clerk/Council Secretary

DRAFT

RESOLUTION NO. 2021-

A resolution of the City Council for the City of Columbia Heights, Minnesota, approving an easement vacation for property located in the City of Columbia Heights, Minnesota, described as:

A portion of Lot 1, Block 1, and Outlot E, NORTHWESTERN 2ND ADDITION, Anoka County, Minnesota, as graphically depicted to be Easement 3 in attached Exhibit X-2 and on file with Anoka County under Document No. 1554482.

Whereas, a proposal (Case # 2021.0502) has been submitted by Reuter Walton Development to the City Council requesting an easement vacation at the following sites:

ADDRESS: 825 41st Avenue NE
Columbia Heights, MN 55421

THE APPLICANT SEEKS THE FOLLOWING: Easement vacation per Code Section 9.104.-(J), of the above legally described easement.

Whereas, the Planning and Zoning Commission held an informal public hearing as required by the City Zoning Code on May 4, 2021;

Whereas, the City Council held a formal public hearing as required by the City Zoning Code on May 10, 2021;

Whereas, the City Council has considered the advice and recommendations of the Planning and Zoning Commission regarding the effect of the proposed easement vacation upon the health, safety, and welfare of the community and its Comprehensive Plan, as well as any concerns related to compatibility of uses, traffic, property values, light, air, danger of fire, and risk to public safety in the surrounding areas;

Now, therefore, in accordance with the foregoing, and all ordinances and regulations of the City of Columbia Heights, the City Council of the City of Columbia Heights makes the following:

FINDINGS OF FACT

1. No private rights will be injured or endangered as a result of the vacation.
2. The public will not suffer loss or inconvenience as a result of the vacation.

Further, be it resolved, that the attached plans, maps, and other information shall become part of this easement vacation; and in granting approval the City and the applicant agree that the easement vacation shall become null and void if the resolution is not recorded with Anoka County within one (1) calendar year after the approval date, subject to petition for renewal.

CONDITIONS

1. The applicant shall be responsible for providing legal descriptions of all easements that are subject to be created. Said descriptions are subject to review by the City Attorney.

2. The applicant shall be responsible for recording the easement vacations with the Anoka County Recorder's Office.

ORDER OF COUNCIL

Passed this 10th day of May, 2021

Offered by:

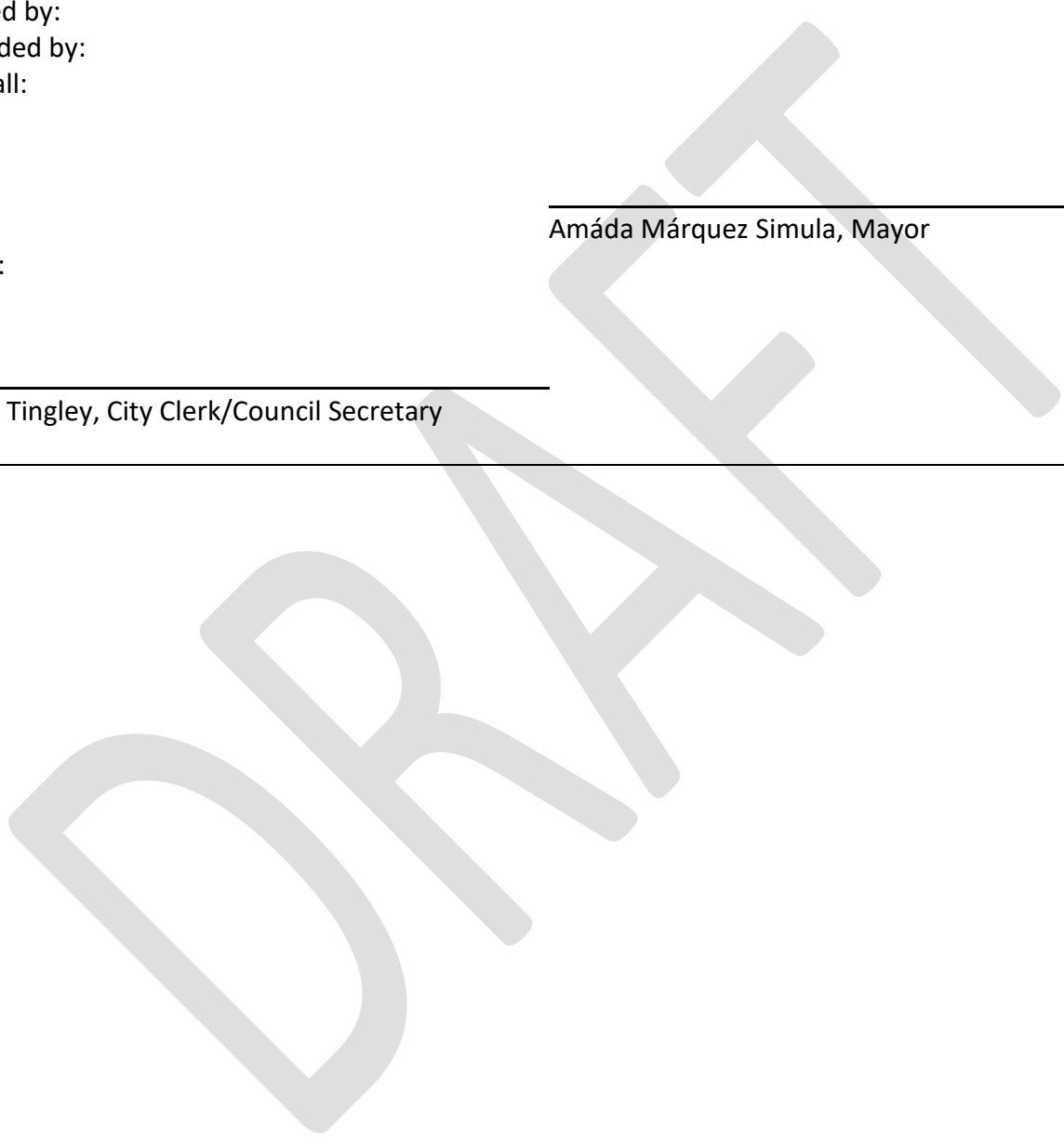
Seconded by:

Roll Call:

Attest:

Amáda Márquez Simula, Mayor

Nicole Tingley, City Clerk/Council Secretary



RESOLUTION NO. 2021-

A resolution of the City Council for the City of Columbia Heights, Minnesota, approving PUD, Planned Unit Development District Plan for property located in the City of Columbia Heights, MN

Whereas, a proposal (Case # 2021.0502) has been submitted by Reuter Walton Development to the City Council requesting approval of a PUD, Planned Unit Development District Plan at the northerly undeveloped portion of the following site:

ADDRESSES: 825 41st Avenue NE
Columbia Heights, MN 55421

LEGAL DESCRIPTION: On file at City Hall.

THE APPLICANT SEEKS THE FOLLOWING: PUD, Planned Unit Development District Plan per Code Section 9.113.

Whereas, the Planning and Zoning Commission held an informal public hearing as required by the City Zoning Code on May 4, 2021;

Whereas, the City Council held a formal public hearing as required by the City Zoning Code on May 24, 2021;

Whereas, the City Council has considered the advice and recommendations of the Planning and Zoning Commission regarding the effect of the proposed PUD, Planned Unit Development District Plan upon the health, safety, and welfare of the community and its Comprehensive Plan, as well as any concerns related to compatibility of uses, traffic, property values, light, air, danger of fire, and risk to public safety in the surrounding areas;

Now, therefore, in accordance with the foregoing, and all ordinances and regulations of the City of Columbia Heights, the City Council of the City of Columbia Heights makes the following:

FINDINGS OF FACT

1. The PUD District Plan conforms to all applicable requirements of the city code;
2. The PUD District Plan is consistent with the applicable provisions of the comprehensive plan;
3. The PUD District Plan is consistent with any applicable area plan;
4. The PUD District Plan minimizes any adverse impacts on property in the immediate vicinity and the public right-of-way.

Further, be it resolved, that the attached plans, maps, and other information shall become part of this PUD, Planned Unit Development District Plan; and in granting approval the City and the applicant agree that the PUD, Planned Unit Development District Plan shall become null and void if the resolution is not recorded with Anoka County within one (1) calendar year after the approval date, subject to petition for renewal.

CONDITIONS

1. The building and site shall meet all requirements found in the Fire Code and the Building Code.
2. Any proposed exterior lighting shall be reviewed and approved by City Staff before installation.
3. All other applicable local, state, and federal requirements shall be met at all times.
4. The City shall require a pre-construction conference prior to the start of any land alteration activities.
5. All storm water best management practices (BMP's) shall have designated drainage and utility easements recorded with the Final Plat or as a separate document with Anoka County.
6. The property owner and the City will enter in to a development contract governing the public site improvements and any off-site public improvements that are necessary for the project, and such contract shall be executed by the property owner and the City prior to the issuance of a building permit.
7. Developer shall provide financial guarantee in the form of a cash escrow or irrevocable letter of credit for landscaping and public improvements. The guarantee amount is to be determined by the City Engineer.
8. If mechanical screening is to be placed on the roof, it shall comply with the City's requirements for screening.
9. The applicants shall provide recordable documents of the easement vacations to be recorded at the County Recorder's Office.
10. The City Engineer shall review and approve the final site grading plans, utility plans and storm water management plans.
11. The developer shall enter into a storm water maintenance and management agreement with the City for all on-site BMP's, to be prepared by the City Attorney.
12. Existing catch basins on Jackson Street NE or 42nd Avenue NE, located downstream of the site, shall have inlet protection provided during construction.
13. Applicant shall obtain a Site NPDES Construction Permit prior to any site disturbance activities.
14. Perimeter and entrance erosion control measures shall be installed and inspected by the Engineering Department prior to any site grading activities. Applicant shall coordinate erosion control measures with the Engineering Department if building construction is initiated prior to general site grading.
15. Site access during construction shall be limited to 42nd Avenue NE. Parking and deliveries during construction along Jackson Street NE shall be prohibited.
16. All slopes greater than 4:1 shall be provided erosion control blanket.

17. The site utility plans shall be subject to review and final approval by the City Engineer, and Fire Chief.
18. All utilities and storm water features serving the development shall be privately owned and maintained. All utilities shall meet the City of Columbia Heights' specifications for materials and installation.
19. The City of Columbia Heights does not allow PVC as a material type in the Right-of-Way; please change to DIP.
20. Retaining wall heights in excess of 4 vertical feet shall have protective delineation, such as fencing or landscaping, at the top of the wall.
21. Developer shall pay park dedication fees as outlined in the City Code.
22. Developer will provide record plans or as-built drawings to the City following project completion in both hardcopy and digital format.
23. The existing boulevard trees on Jackson Street, as well as the four existing trees south of the new drive, shall be protected, installed, and approved by the City Urban Forester prior to construction.
24. Location of tree installations per the landscape plan and utility locations should be coordinated to maintain 10 feet separation from all utilities.
25. Developer will complete the necessary amendments to the existing storm water easement(s) recorded against the development site to allow for the proposed underground storm water system.
26. Developer will ensure proper recording of the amended storm water easement(s) with Anoka County.

ORDER OF COUNCIL

Passed this 24th day of May, 2021

Offered by:

Seconded by:

Roll Call:

Attest:

Amáda Márquez Simula, Mayor

Nicole Tingley, City Clerk/Council Secretary

**ORDINANCE 1666
CITY OF COLUMBIA HEIGHTS, MINNESOTA**

BEING AN ORDINANCE AMENDING THE ZONING MAP OF THE CITY OF COLUMBIA HEIGHTS AND CITY ORDINANCE RELATING TO ZONING AND DEVELOPMENT PERTAINING TO THE REZONING OF A PORTION OF A CERTAIN PROPERTY LOCATED AT 825 41ST AVENUE NE FROM MULTIPLE FAMILY RESIDENTIAL DISTRICT (R-4) TO PLANNED UNIT DEVELOPMENT DISTRICT (PUD) NUMBER 2021-01

SECTION 1: The “Zoning map” of the Columbia Heights Zoning and Development Ordinance is hereby amended by rezoning or changing the zoning district designation of the most northerly undeveloped portion of the following described property having the property address of 825 41st Avenue NE, Columbia Heights MN, 55421, and legally described below from Multiple Family Residential District to PUD, Planned Unit Development District 2021-XXXX:

Legal description: On file at City Hall

Address	Property Tax I.D. No.
825 41 st Avenue NE	35-30-24-14-0151

(the “Property”)

SECTION 2: The property is rezoned to PUD, Planned Unit Development District 2021-01 and the allowed uses shall be multifamily apartments, office, and commercial/retail.

SECTION 3: Pursuant to Chapter 9, Article I of the Columbia Heights Zoning and Land Development Ordinance, the approval of any development or redevelopment within Planned Unit Development District 2021-01 shall be subject to the requirements set forth in Columbia Heights Code Section 9.113 including, but not limited to, the following performance and design standards and site and building approval:

1. The Property shall be developed or redeveloped in accordance with the final PUD District Plan approved by the City (“Final Plans”), which include site plans, grading, drainage and storm water management plans, utility plans, lighting and photometric plans, landscape plans, floor plans, and building elevations. The Final Plans outline all of the performance standards for development of the Property, including, at a minimum the following design standards for the Property as set forth below:

Minimum Combined Lot Area	1.6 acres
Maximum Residential Density Allowed	55 units per acre
Building Height	Not to exceed 4 stories
Minimum Number of Onsite Parking Stalls	108
Maximum Number of Compact Parking Stalls	30
Maximum Non Residential Building Area	15,000 square feet

2. Any applicant for an approval of a development plan or building permit within Planned Unit Development District 2021-01 shall submit development plans for City review and approval. The City reserves the right to adjust any performance standards set forth in this ordinance if deemed necessary to improve the site and building design for the purpose of compatibility, public health, or public safety.

3. Any development or redevelopment plans for the Property including, but not limited to the Final Plans, that fail to meet the design and performance standards set forth herein shall require a PUD amendment approved by the City.
4. All conditions of approval set forth in City Council Resolution No. 2021-XXXX shall be incorporated herein.

SECTION 4: The Planning Commission held a public hearing as required by the City’s Zoning Ordinance on May 4, 2021 and the Commission recommends approval of the proposed rezoning from Multiple Family Residential District (R-4) to PUD, Planned Unit Development District.

SECTION 5:

WHEREAS, the amendment is consistent with the applicable provisions of the comprehensive plan;

WHEREAS, the amendment is in the public interest and not solely for the benefit of a single property owner;

WHEREAS, the amendment is compatible with existing land uses and zoning classifications in the general area;

WHEREAS, the amendment reflects changes in development trends in the general area.

SECTION 6:

This ordinance shall be in full force and effect from and after 30 days after its passage.

First Reading: May 10, 2021

Offered by:

Seconded by:

Roll Call:

Second Reading: May 24, 2021

Offered by:

Seconded by:

Roll Call:

Date of Passage: May 24, 2021

Alicia Apanah

From: Jonathan Tholen <jonathan.tholen@gmail.com>
 Sent: Friday, April 16, 2021 10:16 AM
 To: Minerva Hark
 Subject: Follow up Questions for the City

This message originated from outside the City of Columbia Heights email system. Use caution when clicking hyperlinks, downloading pictures or opening attachments. If necessary, contact sender by phone. WHEN IN DOUBT, THROW IT OUT!

Hi Minerva,

Thanks again for sending the meeting minutes. I've read through the city council meeting discussions and relevant materials. As you can imagine, there are a lot of questions that will be covered in due course.

As you probably know, our immediate neighborhood is on the cusp of a significant wave of upgrades and investment by homeowners, ourselves included.

There are some more strategic considerations I wanted to bring up which seem missing in the council discussions of a pre-pandemic proposal.

1. Is the value of the parcel in question increasing, stable or decreasing? Is there any pressure for something to be done with the property in the near term? What other uses of the property has the city solicited?
2. The CH 2040 plan acknowledged a city strength is proximity to the MSP core, but property value data stops at 2016/2017 while the desirability of columbia heights has since accelerated. Does the city understand why as compared to other inner suburbs? The existing plan doesn't seem to recognize unique opportunities as a first ring suburb that not part of hennepin or ramsey county.
3. The initial building proposal was in 2019, however the world has changed a lot for work and home life. How has the city taken into account these uncertainties into use for this parcel, and more broadly it's long range planning?
4. Does Reuters Walton plan to be the property owner and manager? Has the city evaluated their approach for selecting qualified and suitable residents? Given the high level of accessibility of the area, is there any specific focus to include those with disabilities?
5. Is the city offering any incentives for investment to encourage / support current residents in the affected area?

Thanks,

4204 Residents Sarah and Jonathan Tholen (kids age 3, 1 and Baby3 (Aug21) & Paige Hardy - Sarah's sister adult disabled)

Alicia Apanah

From: Minerva Hark
Sent: Friday, April 23, 2021 10:19 AM
To: 'John Haluska'
Subject: RE: Development at 42nd and Jackson
Attachments: 16337_D-1 DEMO PLAN_22x34.pdf; 02 - Easement Vacation Narrative.pdf; 16337_X-1_Existing_Conditions_11X17.pdf; 16337_s_easement_exhibit-24X36 EXHIBIT 40 SCALE NORTH.PDF; 11x17 Alliant ALTA Survey.pdf; 16337 Northwestern 3rd Addition - SWMP Report.pdf

John,

Please see part 3 attached. If you find any difficulty viewing the documents, please let me know.

Thank you,



Minerva Hark, MPA | City Planner
City of Columbia Heights | Community Development Department
590 40th Avenue NE | Columbia Heights, MN 55421
mhark@columbiaheightsmn.gov

Direct: (763) 706-3673
Main: (763) 706-3670

From: Minerva Hark
Sent: Friday, April 23, 2021 10:18 AM
To: 'John Haluska'
Subject: RE: Development at 42nd and Jackson

John,

Please see part 2 attached.

Thank you,



Minerva Hark, MPA | City Planner
City of Columbia Heights | Community Development Department
590 40th Avenue NE | Columbia Heights, MN 55421
mhark@columbiaheightsmn.gov

Direct: (763) 706-3673
Main: (763) 706-3670

From: Minerva Hark
Sent: Friday, April 23, 2021 10:17 AM
To: 'John Haluska'
Subject: RE: Development at 42nd and Jackson

John,

It was nice speaking to you this morning. As mentioned, I will be sending over the application and plans in three separate emails. Please see part 1 attached.

Thank you,



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590 40th Avenue NE | Columbia Heights, MN 55421
mhark@columbiaheightsmn.gov

Direct: (763) 706-3673
Main: (763) 706-3670

From: John Haluska [<mailto:john.haluska@gmail.com>]
Sent: Friday, April 23, 2021 9:14 AM
To: Minerva Hark
Subject: Development at 42nd and Jackson

This message originated from outside the City of Columbia Heights email system. Use caution when clicking hyperlinks, downloading pictures or opening attachments. If necessary, contact sender by phone. WHEN IN DOUBT, THROW IT OUT!

Ms Hark

I stopped in a city hall yesterday hoping to pick up an information packet re the multi-housing development that is being proposed for the SE corner of 42nd and Jackson Street. It is my understanding that in the public session held as a Zoom meeting this past Wednesday that materials shown included elevations, detailed descriptions, developer information, etc. Since this is a public matter I assume the city has an extensive packet of information, representative of what was presented in that meeting, and that packet is meant to be shared with the public. That is what I am after. I would like to arrange to pick up that information at your earliest convenience.

I would like to stop back in at city hall later today to get this information.

I thank you in advance for your help in this matter.

John Haluska
612 281 0700.

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Alicia Apanah

From: Minerva Hark
Sent: Thursday, April 22, 2021 5:15 PM
To: 'Patrick McVary'
Subject: RE: Follow up on Proposal Documents

Hello Patrick,

I am currently working with our Communications Coordinator to have last night's audio/video recording uploaded to our YouTube account. Hoping this can be completed by tomorrow. I can send you the link when it's ready.

In regards to the Purchase Agreement, That can be found here:
https://cms5.revize.com/revize/columbiaheightsmn/document_center/City%20Council%20Agendas%20&%20Minutes/2020/06-17-20%20CCP.pdf

Please let me know if you have any further questions at this time.

Thank you,



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From: Patrick McVary [<mailto:patrick@mcvarylaw.com>]
Sent: Thursday, April 22, 2021 9:08 AM
To: Minerva Hark
Subject: Follow up on Proposal Documents

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Minerva,

Good job with the meeting last night. I can't say that the topic was enjoyable, but you did a good job of running the meeting.

How can I get a copy of the meeting recording? And, can I get a copy of the Purchase Agreement and any related transactional documents between the City and the Developer, and/or Architect that show what the City's current performance or contingency obligations are for this project?

Thanks,

Patrick McVary

Alicia Apanah

From: Janet/Roger Peterson <rajapeterson@aol.com>
 Sent: Thursday, April 22, 2021 10:22 PM
 To: Minerva Hark
 Subject: Re: Neighborhood Mtg. - 825 41st. Av. NE.

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Minerva,
 Thanks for your speedy reply - the answers I /we asked for. Appreciated !
 Peterson's

-----Original Message-----

From: Minerva Hark
 To: 'Janet/Roger Peterson'
 Sent: Thu, Apr 22, 2021 2:54 pm
 Subject: RE: Neighborhood Mtg. - 825 41st. Av. NE.

Hello Roger & Janet,

Thank you for participating in last night's Neighborhood Meeting. To answer some of your questions:

- The 16 one-bedroom units will be 635 square feet, the 30 two bedroom units will be 935 square feet, and the 16 three bedroom units will be 1,280 square feet.
- No official update on the Hy-Vee site. We hope to have an update in the coming months.
- The City obtains ownership information from Anoka County. It is my understanding that they are currently behind on updating ownership information. I'm not sure if contacting them would help expedite that process in any way, but they would be the ones to contact.

Please let me know if I can answer any other questions.

Best,



Minerva Hark, MPA | City Planner

City of Columbia Heights | Community Development Department
 590 40th Avenue NE | Columbia Heights, MN 55421

mhark@columbiaheightsmn.gov

Direct: (763) 706-3673

Main: (763) 706-3670

From: Janet/Roger Peterson [<mailto:rajapeterson@aol.com>]

Sent: Wednesday, April 21, 2021 8:10 PM

To: Minerva Hark

Subject: Neighborhood Mtg. - 825 41st. Av. NE.

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Minerva,

Just got done participating/viewing the ZOOM presentation on the above - Thank You to you and all that were involved with all the information that was presented beforehand and/or as responses to the questions/concerns.

Us - within 350 feet of the site - 4113 Quincy Street NE - for the last 36 plus years.

Us - major DITTO to all the concerns that came up as it relates to density, ie: people, vehicles, traffic, etc. and how it will mesh with all that is existing in the area already.

If it's built, in the real world, how much can a property management company (even if they're really good, well known and experienced) and/or the CH Departments really control how people(s) conduct themselves when the density is so tight ?

Question - numbers on the unit's size - how many 1 BR's, 2 BR's and 3 BR's ?

I think we all agree - with how long this has been being talked about - why hasn't it come out into the community before now ? for sure !

Site as it relates to local grocery stores in CH and public transportation. Sorry, you guys dropped the ball on that issue - like you're not aware of what is close by. General area is OK if you have a vehicle but that's not everybody. What's the update on the old Rainbow site, is HyVee going to do anything ? Is CH pushing them - giving them incentives to ? Everybody would benefit with HyVee, etc. there.

Next door to me - 4109 Quincy Street NE - new owner has been there a year. Hasn't gotten these written notices. They came to his house but to the previous owner. Who does he contact to get the PID number information updated ? Anoka County ? CH ?

Hearing back from you will be appreciated.

Roger & Janet Peterson

(763) 300 - 5529

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Alicia Apanah

From: Minerva Hark
 Sent: Monday, April 19, 2021 3:20 PM
 To: 'sarah arneson'
 Subject: RE: Public Hearing for 825 41st Ave

Good Afternoon Sarah,

Thank you for your email. Sorry if those back-to-back notices were a bit confusing, but here's what's on the schedule:

Wednesday, April 21st, 2021 – [Neighborhood Meeting](#)

This Zoom-only meeting will be held for the applicant to present their project to the community, take in any feedback/input, and answer any questions that the community might have. No official actions will occur at this meeting. It is informative in nature and open for comments and questions.

Tuesday, May 4th, 2021 – [Planning Commission Hearing](#)

This meeting will be held both in person and via Zoom. City staff will present the applicant's project to the Planning Commission for their recommendation. Their recommendation will then be heard at the May 10th City Council Meeting, where Council will either approve or deny the Planning Commission's recommendation.

Let me know if you have any further questions regarding the procedure in place for this project.

Kind Regards,



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mhark@columbiaheightsmn.gov

Direct: (763) 706-3673
 Main: (763) 706-3670

From: sarah arneson [mailto:sarah_arneson@email.com]
 Sent: Monday, April 19, 2021 12:03 PM
 To: Minerva Hark
 Subject: Public Hearing for 825 41st Ave

This message originated from outside the City of Columbia Heights email system. Use caution when clicking hyperlinks, downloading pictures or opening attachments. If necessary, contact sender by phone. WHEN IN DOUBT, THROW IT OUT!

Hello Minerva!

I received two notices for a meeting. One for this Wednesday and one for May 4th. Are they two separate meetings or did the one this week get rescheduled to May 4?

Also, can you help me understand the overall process? There is currently an application for this building, but this application needs to be approved, etc.? What does approval look like? What are the other steps?

I'll share that I am very concerned about the size of the building and the number of units (62). I think this is way too big for the area and will increase the population of this small area exponentially - it will lead to a disparate cityscape - homes next to strips malls, next to townhomes, next to large apartment buildings next to commercial buildings next to churches next to schools. And I think it will cause a lot of traffic congestion on 41st. I think it will make the neighborhood busier, louder, less habitable and drive down property values.

Thank you for your response, I look forward to staying close to this process and ensuring my voice is heard and considered.

Item 3.

Thanks,
Sarah Arneson
4045 Van Buren St.

Alicia Apanah

From: Minerva Hark
Sent: Thursday, April 22, 2021 11:27 AM
To: 'Amy Waller'
Subject: RE: recording of tonight's community meeting

Good Morning Amy,

Thank you for participating in last night's meeting. The two-hour recording is too large for me to send via email. I will be working with our Communications Coordinator to get it uploaded to YouTube by tomorrow. I can send you a link then. If not, feel free to stop by City Hall with a flash drive and I can get you the recording that way.

Thank you,



Minerva Hark, MPA | City Planner
City of Columbia Heights | Community Development Department
590 40th Avenue NE | Columbia Heights, MN 55421
mhark@columbiaheightsmn.gov

Direct: (763) 706-3673
Main: (763) 706-3670

From: Amy Waller [<mailto:amyrwaller@hotmail.com>]
Sent: Wednesday, April 21, 2021 8:15 PM
To: Minerva Hark
Subject: recording of tonight's community meeting

This message originated from outside the City of Columbia Heights email system. Use caution when clicking hyperlinks, downloading pictures or opening attachments. If necessary, contact sender by phone. WHEN IN DOUBT, THROW IT OUT!

Minerva,
Hello, and thank you for hosting tonight's community meeting about the proposed development project at 825 41st Ave NE. I am wondering if you could get me the recording, as my husband had to miss it and I missed most of the second half putting my kids to bed.

Thanks very much,
Amy Waller

Alicia Apanah

From: Minerva Hark
Sent: Thursday, April 22, 2021 11:10 AM
To: 'stephanie umolac'
Subject: RE: zoom meeting Wed.

Good Morning Stephanie,

Thank you for attending last night's meeting and providing your questions and comments. Please see below as I answer your remaining questions to the best of my abilities:

- The following appointed/elected City Officials that will be making decisions regarding this proposed project live within one mile of the project site:
 - Stan Hoium (Planning Commissioner)
 - Rob Fiorendino (Planning Commissioner)
 - John Murzyn Jr. (City Council Member)
 - Kt Jacobs (City Council Member)
 - Connie Buesgens (City Council Member)
- As discussed last night, the proposed project would help the City resolve some current drainage issues.
- In regards to current vacancy rates of multi-family developments in Columbia Heights, I've extracted the following from our 2040 Comprehensive Plan:

Multi-Family Market

Examining the multi-family market metrics provided by CoStar and highlighted in Table 2-16 reveals that multi-family vacancy rates in Columbia Heights are at a 10-year low. The rising lease rates being observed in Columbia Heights can be partially explained by lower vacancies as well as a national trend of increasing demand for multi-family units and the conveniences they can provide for mobile populations and older populations. An increase in the median gross rent paid by Columbia Heights residents is also reflected in the US census as displayed in the figure below. As illustrated in the "Year Structure Built" figure earlier, there are various aging multi-family buildings in the city. These units, if well maintained, can be a source of naturally occurring affordable housing.

TABLE 2-16. MULTI-FAMILY MARKET

	Columbia Heights			CH/Fridley/NB/St Anthony		
	Total SF	Vacancy % Total	Avg Rent/SF	Total SF	Vacancy % Total	Avg Rent/SF
2007 Q4	1,465	6.1%	\$0.97	9,756	6.3%	\$0.96
2008 Q4	1,465	5.7%	\$0.98	9,756	5.9%	\$0.98
2009 Q4	1,465	6.1%	\$0.96	9,756	6.4%	\$0.95
2010 Q4	1,465	5.6%	\$0.96	9,756	5.7%	\$0.96
2011 Q4	1,465	5.0%	\$0.96	9,756	5.3%	\$0.96
2012 Q4	1,465	4.4%	\$0.98	9,880	4.8%	\$0.99
2013 Q4	1,465	4.6%	\$0.97	9,880	4.2%	\$1.01
2014 Q4	1,465	4.3%	\$1.00	9,880	3.9%	\$1.03
2015 Q4	1,465	4.1%	\$1.02	10,049	3.6%	\$1.08
2016 Q4	1,465	3.2%	\$1.05	10,150	2.9%	\$1.11

Please let me know if you have any further questions I can answer at this time.

Thank you,



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mhark@columbiaheightsmn.gov

Direct: (763) 706-3673
Main: (763) 706-3670

From: stephanie umolac [<mailto:sumolac@hotmail.com>]
Sent: Wednesday, April 21, 2021 7:02 PM
To: Minerva Hark
Subject: Re: zoom meeting Wed.

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Hi Minerva,

How many City members, who made this decision, live within a mile of this project? How is the city solving long term drainage problems? What is the current vacancy rate in the projects that are currently finished in the city?

Thanks,
Stephanie

From: Minerva Hark
Sent: Monday, April 19, 2021 4:31 PM
To: 'stephanie umolac'
Subject: RE: zoom meeting Wed.

Hello Stephanie,

Thank you for your email. Please see Wednesday's Zoom meeting information below:

Join Zoom Meeting
<https://us02web.zoom.us/j/84902902117?pwd=NkxiL1hOR0U5bWpyRUtyTXNvamVmUT09>
Meeting ID: 849 0290 2117
Passcode: 856737

To call in, dial :
+1 312 626 6799 US
Meeting ID: 849 0290 2117
Passcode: 856737

This meeting will be held for the applicant to present their project to community, take in any feedback/input, and answer any questions that the community might have. No official actions will occur at this meeting. It is informative in nature and open for comments and questions. On May 4th, the project will be heard by the Planning Commission, who will make recommendations to the City Council. City Council will deliberate this project on May 10th and May 24th at their City Council Meetings.

If you have any further questions on this project, please let me know.

Kind Regards,



Minerva Hark, MPA | City Planner
City of Columbia Heights | Community Development Department
590 40th Avenue NE | Columbia Heights, MN 55421
mhark@columbiaheightsmn.gov

Direct: (763) 706-3673
Main: (763) 706-3670

From: stephanie umolac [<mailto:sumolac@hotmail.com>]
Sent: Monday, April 19, 2021 2:17 PM
To: Minerva Hark
Subject: zoom meeting Wed.

This message originated from outside the City of Columbia Heights email system. Use caution when clicking hyperlinks, downloading pictures or opening attachments. If necessary, contact sender by phone. WHEN IN DOUBT, THROW IT OUT!

Hi Minerva,

I am looking for the access code for the Zoom meeting in regards to the development behind the police station. Is there any way to stop or alter the plans at this point? I called and left a voice mail also. You can either call the home phone 763/706-0751 or email the information.

Thanks,
Stephanie

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COLUMBIA HEIGHTS

Community Development Department
590 40th Ave. NE, Columbia Heights, MN 55421

PLANNED UNIT DEVELOPMENT APPLICATION

This application is subject to review and acceptance by the City. Applications will be processed only if all required items are submitted.

PROPERTY INFORMATION

Proposed name of development: 42nd Avenue Affordable Apartments

Project Address/Location: TBD 42nd Avenue NE

Legal Description of property involved: Northwestern 3rd Addition, Block 2

Present use of property Municipal parking lot.

Proposed use of property The development will include 62 affordable housing rental units with 44 underground and 62 surface parking stalls. The courtyard between the building and adjacent property will have a playground structure for residents.

PROPERTY OWNER (As it appears on property title):

Name: City of Columbia Heights

Mailing Address: 590 40th Ave NE

City: Columbia Heights State: MN Zip: 55421

Daytime Phone: 763-706-3673 Cell Phone: _____

E-mail Address: mhartk@columbiaheightsmn.gov

Signature/Date: M Hartk

APPLICANT:

Company Name (please print): DJR Architecture Inc

Contact Person (please print): Louis Martin

Mailing Address: 333 Washington Ave N, Suite 210

City: Minneapolis State: MN Zip: 55401

Daytime Phone: 612 676 2700 Cell Phone: _____

Email Address: LMARTIN@DJR-INC.COM

Signature/Date: _____

Disclaimer: Information submitted, including contact information shall be made available to the public, unless otherwise noted.

COLUMBIA HEIGHTS

Community Development Department
590 40th Ave. NE, Columbia Heights, MN 55421

PLANNED UNIT DEVELOPMENT APPLICATION

This application is subject to review and acceptance by the City. Applications will be processed only if all required items are submitted.

PROPERTY INFORMATION	
Proposed name of development:	42nd Avenue Affordable Apartments
Project Address/Location:	TBD 42nd Avenue NE
Legal Description of property involved:	Northwestern 3rd Addition, Block 2
Present use of property	Municipal parking lot.
Proposed use of property	The development will include 62 affordable housing rental units with 44 underground and 62 surface parking stalls. The courtyard between the building and adjacent property will have a playground structure for residents.
PROPERTY OWNER (As it appears on property title):	
Name:	City of Columbia Heights
Mailing Address:	590 40th Ave NE
City:	Columbia Heights
State:	MN
Zip:	55421
Daytime Phone:	763-706-3673
Cell Phone:	
E-mail Address:	mhartk@columbiaheightsmn.gov
Signature/Date:	<i>M Hartk</i>
APPLICANT:	
Company Name (please print):	DJR Architecture Inc
Contact Person (please print):	Louis Martin
Mailing Address:	333 Washington Ave N, Suite 210
City:	Minneapolis
State:	MN
Zip:	55401
Daytime Phone:	612 676 2700
Cell Phone:	
Email Address:	LMARTIN@DJR-INC.COM
Signature/Date:	
Disclaimer: Information submitted, including contact information shall be made available to the public, unless otherwise noted.	

PROJECT OVERVIEW

The Applicant, Reuter-Walton, is considering acquiring land from the City of Columbia Heights on which to construct a new affordable apartment building. The City owns Lot 1 and Outlot E of the Northwestern 2nd Addition, which is located north of the intersection of Jackson Street NE and 41st Avenue NE. The combined property measures 5.0 Acres and spans across the land between 41st Avenue NE and 42nd Avenue NE and is generally located between Jackson Street NE and the alley between Jackson Street NE and Central Avenue NE. The City of Columbia Heights Public Safety Center is located on the south half of the property. The north half the property is currently paved with an asphalt parking lot, but does not have any permanent structures.

The Public Safety Center occupies 3.3 acres, leaving the northern 1.7 acres of land that currently functions as a parking lot as relatively under-utilized. The Reuter-Walton apartment proposes to develop the western 1.3 acres, leaving 0.4 acres of remaining land available for future development. The operators of the existing SACA have expressed interest in constructing a food shelf building on the remaining 0.4 acres.

SUBMITTAL APPLICATION

The objective of this application is to gain preliminary approvals from the City of Columbia Heights for a new Planned Unit Development over the 5.0-acre parcel. To accomplish this objective, existing easements on the northern 1.7 acres would need to be vacated, and the land would need to be subdivided into three proposed lots: one for the City Public Safety Center, one for the proposed apartment building, and one for future development. Three accompanying applications are included with this submittal.

The first application for this submittal is the Planned Unit Development (PUD) Application. The Applicant is Reuter-Walton, the proposed developer of the proposed apartment building. The application form has been completed and signed by the applicant, and a check for the required fee of \$2,500 is included. Attached to this application are the required documents listed at the top of page 2 of the PUD Application, including:

1. This narrative;
2. A vicinity map;
3. An accurately scaled site plan;
4. Existing and proposed topography;
5. Vehicular access and parking areas;
6. Landscaping and other site features;
7. A stormwater management plan;
8. Elevation views of the proposed apartment building.

There are two sets of plans included with this application. The first is titled, "42nd Avenue Apartments", are the preliminary architectural plans for the proposed apartment building. The second set is titled, "Northwestern 3rd Addition", which include land survey, civil engineering, and landscape architecture plans, and stormwater management plan for the proposed overall development. Each of these documents has been prepared in accordance with the City of Columbia Heights Site Plan Application Submission Checklist.

The second application form for this submittal is the Vacation Application. The Applicant is requesting the following four existing easements that encumber the northern 1.7-acre parcel be vacated:

1. Platted perimeter drainage and utility easement per Northwestern 2nd Addition;
2. Storm water drainage utility easement per Document Number 1554478;
3. Utility easement per Document Number 594146;
4. Parking easement over Outlot E, per document number 1554482.

We have shown all four of the easements on the plan sheet titled, "Easement Exhibit", sheet number X-2 in the Northwestern 3rd Addition plan set. In accordance with the Vacation checklist, we have also included a detailed narrative titled, "Easement Vacation Narrative" the describes the need or desire for the vacation of these proposed easements.

The third application for this submittal is the Minor Subdivision Application. The Applicant is requesting the 5.0-acre property currently recorded as Lot 1 and Outlot E of Northwestern 2nd Addition be re-platted as Lot 1, Lot 2, and Lot 3 of Northwestern 3rd Addition. The resulting plat and proposed easements are depicted on the plan sheet titled, "Preliminary Plat", sheet number C-1 in the Northwestern 3rd Addition plan set. The Applicant that the City determine the Parkland Dedication Fees for the proposed project during their review of this application.

The Applicant is requesting Preliminary Approval of the Architectural, Land Survey, Civil, and Landscape Plans for the proposed apartment building on Lot 2 of the proposed Northwestern 3rd Addition plat. This application does not include a formal request for the development of the SACA Food Shelf on Lot 3 of the proposed plat. However, the Applicant has been working with SACA to obtain conditions of approval with this application that would support the future development of the SACA Food Shelf on Lot 3.

Based on the City finding this application to be complete, the Applicant is requesting the project be reviewed by the Planning Commission at their meeting on Tuesday, May 4, 2021. If the Planning Commission approves the preliminary application for the proposed project, the Applicant is requesting the project be reviewed by City Council at their meeting on Monday, May 10, 2021.

ZONING

The existing property proposed for development is currently zoned as Planned Unit Development. The underlying zoning for Lot 1, is R-4 - Multiple Family Residential District, which is consistent with the proposed apartment building land use. The Public Safety Center is listed as an acceptable conditional use in the City's Zoning Ordinance.

The underlying zoning for Outlot E appears to be Public and Open Space. This application currently does not request rezoning of the underlying property. However, the northeasterly 7.0 ft of proposed Lot 2 extends into the westerly portion of existing Outlot E. Neither the proposed apartment building nor a future food shelf facility are permitted or conditional uses within Public and Open Space.

If the City feels that re-zoning of the underlying land is appropriate, the Applicant could work with City staff to modify this application to accomplish that objective.

DEVELOPMENT STANDARDS

LOT AREA

Lot 2: City Zoning Ordinance requires a minimum lot area for Multi-Family Residential District (R-4) zoning of 10,000 sq. ft. for a multi-family dwelling, and a minimum lot width of 70 ft. The proposed lot area for Lot 2 is 1.3 acres (56,628 sq. ft.) and the proposed lot width is 207.3 ft. Therefore, the proposed lot area and lot widths meet the minimum dimensions for the proposed use.

Lot 3: City Zoning Ordinance requires a minimum lot area of 6,000 sq. ft. for Limited Building District (LB) and for General Business District (GB), and a minimum lot width of 50 ft. for LB and 40 ft. for GB. The proposed lot area for Lot 3 is 0.4 acres (17,424 sq. ft.) and the proposed lot width is 79.6 ft. Therefore, the proposed lot area and lot widths meet the minimum dimensions for each district, if this application is amended to include proposed rezoning.



BUILDING SETBACKS

Lot 2: The underlying R-4 zoning requires building setbacks as follows: front yard 15 ft., side yard 10 ft., corner side yard 15 ft., and rear yard 15 ft. This application is requesting the PUD conditions to allow for reduced setbacks as follows: front yard 12 ft. and corner side yard 10 ft. The application meets the R-4 zoning standard for building setbacks of 10 ft. for side yard and 15 ft for rear yard.

Lot 3: The standard building setbacks for Limited Building District (LB) are: front yard N/A, side yard 15 ft., corner side yard 10 ft., and rear yard 20 ft. Standard building setbacks for General Business District (GB) are front yard 15 ft., side yard N/A, corner side yard 15 ft., and rear yard 20 ft. To accommodate the building dimensions that the food shelf desires, they have asked the Applicant to propose the following setbacks: front yard 12 ft., side yard 8 ft., corner side yard 5 ft., and rear yard 5 ft.

PARKING SETBACKS

Lot 2: The underlying R-4 zoning for Multiple-Family requires parking setbacks as follows: front yard 30 ft., side yard 10 ft., corner side yard 30 ft., and rear yard 10 ft. This application is requesting the PUD conditions to allow for reduced setbacks as follows: front yard 10 ft., corner side yard 10 ft., side yard of zero, and rear yard of 2 ft. These proposed reductions are being proposed to maintain the required parking count to support shared parking with Lot 3.

PARKING COUNTS

Lot 2: Based on the number of units and unit occupancy, the total number of required parking stalls for the proposed apartment building is 102. The proposed design includes 44 underground stalls (42 standard stalls and 2 ADA), and 62 exterior stalls (35 standard, 24 compact, and 3 ADA). Therefore, the total count of 106 stalls provided exceeds the total required count of 102. Also, the total count of ADA stalls of 5 meets the ADA requirement of 5 stalls for 102.

The existing parking easement on Outlot E that is proposed to be vacated with this project currently provides the rights to the existing Crest View Senior Living to 11 parking stalls on Outlot E. The City of Columbia Heights is the current landowner of Outlot C. Pursuant to discussions with City of Columbia Heights City staff, this project proposes to relocate the parking rights for 11 stalls from Outlot E to Outlot C. There is currently adequate space for 22 parking stalls on Outlot C. Also pursuant to discussions with City staff, this application proposes to provide an easement over Outlot C to grant parking rights for the remaining 11 stalls to Lot 3.

Since the proposed residential land use on Lot 2 and the potential future land use on Lot 3 have time-of-day parking demands that would compliment each other, the Applicant is proposing to execute a private agreement with the future owners of the food shelf that would allow them to use the proposed parking stalls on Lot 2 during the day. The hours of operation for the food shelf are anticipated to be 8:00a.m. to 5:00p.m., which is generally the time of day with the lowest demand for parking for the proposed apartment building on Lot 2.

STORMWATER

The applicant is proposing a stormwater management system that would adequately address the storm water design requirements for both rate control and water quality for both Lots 2 and 3. The details of the proposed stormwater system are provided in the Stormwater Management Report included with this application.

PROPOSED AFFORDABLE APARTMENT BUILDING

The project is located just west of Central Ave NE and 42nd Ave NE intersection on the current municipal parking lot north of the Columbia Heights Police and Fire Department.

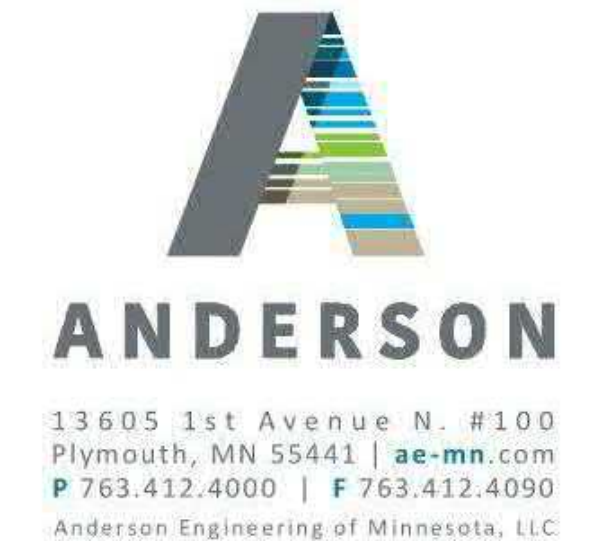
The proposed project is a 4-story, 62-unit affordable housing building with one level of below grade parking garage. 44 enclosed parking stalls will be provided for residents in the garage with 62 stalls in a surface parking lot. The below grade parking garage will be accessed off of the south west corner of the site on Jackson St NE. Surface parking will be accessed from the south east corner off of the ally in line with Van Buren St NE.

The main entry of the building will be located on the north side facing 42nd Ave NE with a secondary entrance directly south across the lobby on the parking lot side. The lobby and common area on the first floor of the east wing will host the management offices, package room, mail area, conference room, and a common room for different functions for the residents. The courtyard adjacent to the common areas will have a playground structure and other outdoor furniture for resident use.

The project will provide a range of unit types and sizes from 635 square foot one-bedroom units, 935 square foot two-bedroom units, and 1280 square foot three-bedroom units. All units will have individual washer and dryer machines provided. Exterior materials will include brick on the first floor with a cast stone base. Floors 2-4 will have a combination of brick, fiber cement lap siding, and fiber cement panel.

SHEET INDEX - PUD	
GO.1	PROJECT NARRATIVE
X-1	EXISTING CONDITIONS
D-1	PRELIMINARY DEMOLITION PLAN
C-1	PRELIMINARY PLAT PLAN
C-2	PRELIMINARY SITE PLAN
C-3	PRELIMINARY GRADING PLAN
C-4	PRELIMINARY EROSION CONTROL PLAN
C-5	PRELIMINARY UTILITY PLAN
C-6	PRELIMINARY CIVIL DETAILS - 1
C-7	PRELIMINARY CIVIL DETAILS - 2
L-1	PRELIMINARY PLANTING PLAN
L-2	PRELIMINARY PLANTING NOTES & DETAILS

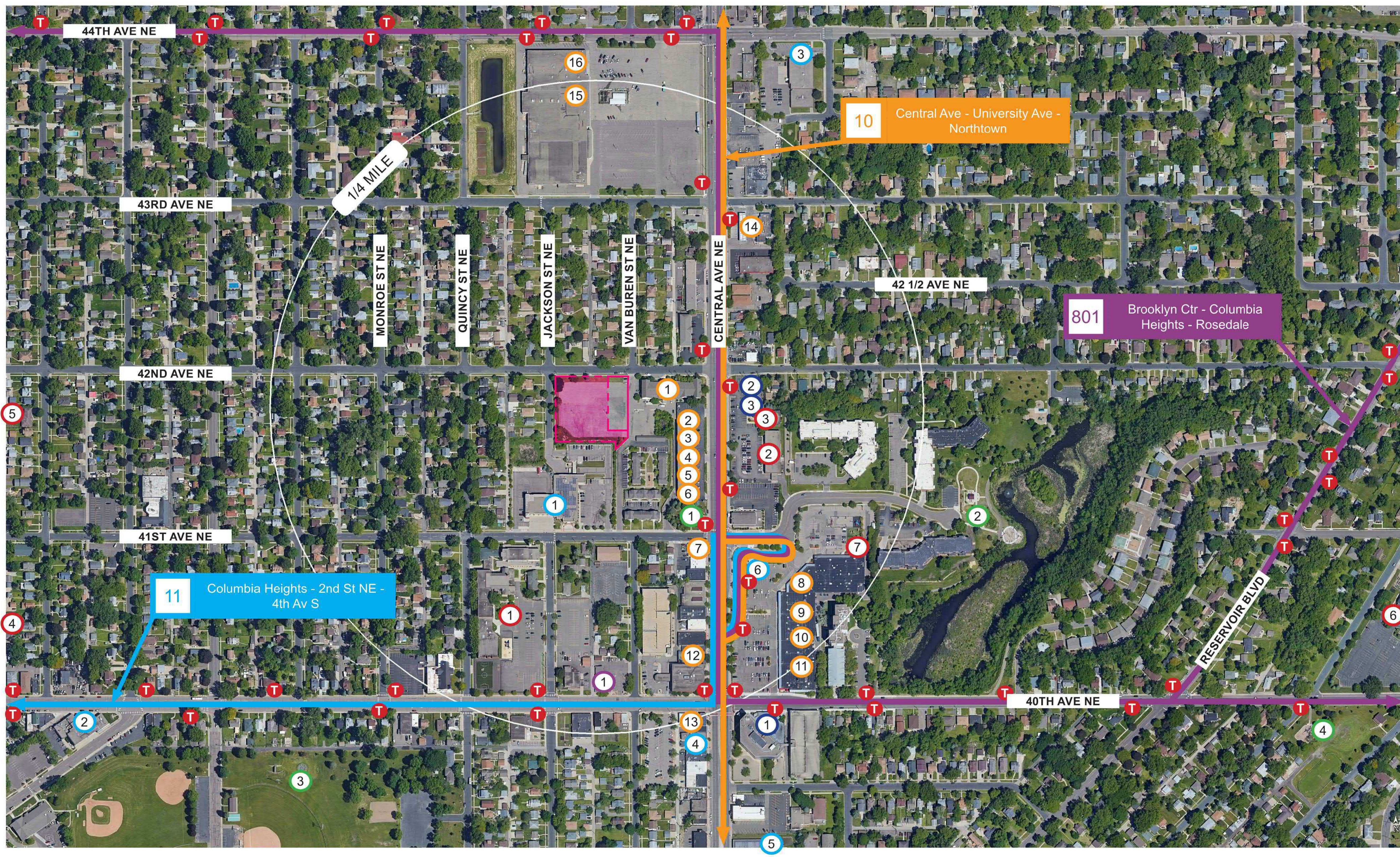
SHEET INDEX - PUD	
A0.1	VICINITY MAP
A0.2	SITE CONTEXT
A1.1	BUILDING ELEVATIONS
A1.2	BUILDING ELEVATIONS
A1.3	EXTERIOR DESIGN & MATERIALS
A1.4	EXTERIOR DESIGN
LS952-3764-1	SITE LIGHTING PLAN



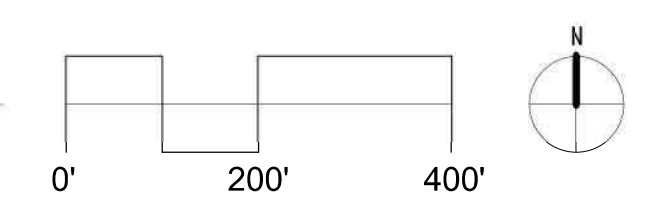
PLANNED UNIT DEVELOPMENT
04/05/21

42ND AVENUE AFFORDABLE APARTMENTS
COLUMBIA HEIGHTS, MN
19-094

PROJECT NARRATIVE
GO.1



VICINITY MAP
1" = 200'-0"



T BUS STOP

○ PUBLIC PARKS
1. Wargo Court Park
2. Labelle Park
3. Huset Park
4. Ostrander Park

○ HEALTH
1. UMN Physician
2. Autism Center of MN
3. Carepoint Dental

○ SCHOOLS
1. Immaculate Conception Catholic School
2. Adult Education Center
3. Caring Hands Home
4. Madina Academy
5. Prodeo Academy
6. Tesfa International School
7. New Horizon Academy

○ CIVIC
1. CH Police & Fire Dept.
2. City hall
3. USPS
4. Columbia Heights License Center
5. Columbia Heights Public Library
6. Columbia Heights Transit Center

○ BANK
1. Financial One Credit Union

○ RETAIL / SERVICES / OTHER
1. Crestview on 42nd Assisted Living
2. Scherwin Williams Paint
3. Farmers Insurance
4. Cuernavaca Market
5. Columbia Heights Hair Cuts
6. Northland Staffing
7. Seek Career & Staffing
8. NAPA Auto Parts
9. Family Dollar

10. Discount 70
11. Furniture Annex
12. Sewing On Central
13. Sportmen's Barbers
14. Holiday Gas Station
15. Ace Hardware
16. Dollar Tree



DJR
ARCHITECTURE

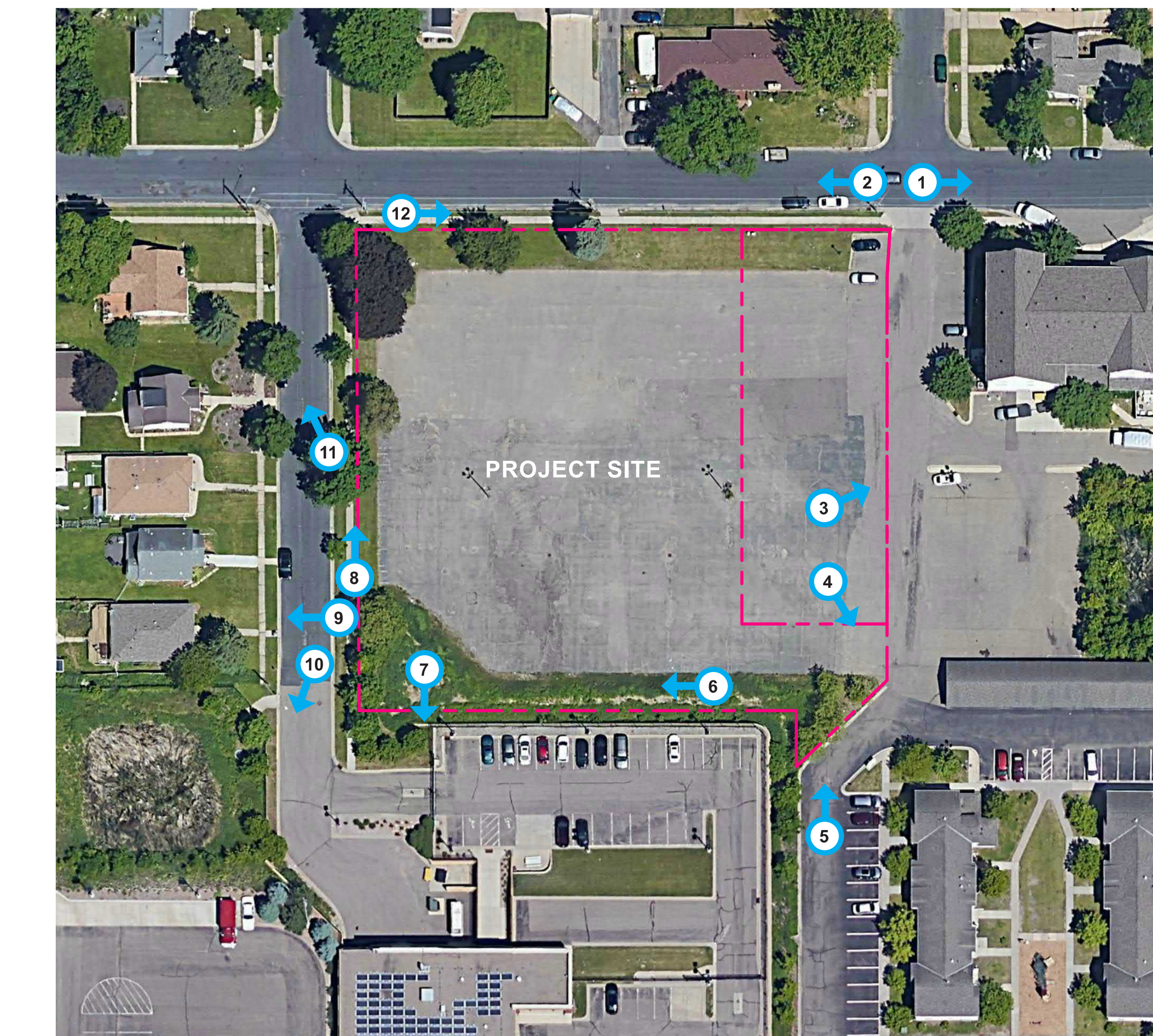
REUTERWALTON
DEVELOPMENT

PLANNED UNIT
DEVELOPMENT
04/05/21

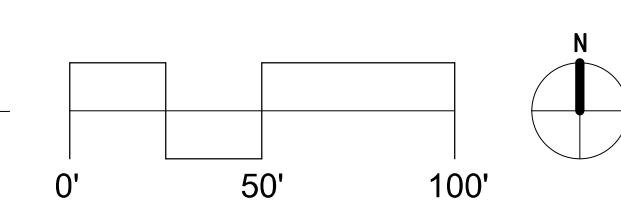
42ND AVENUE
AFFORDABLE
APARTMENTS
COLUMBIA HEIGHTS, MN
19-094

SITE CONTEXT

A0.2



PUD - SITE - PHOTOS
1" = 50'-0"





DJR
ARCHITECTURE

REUTERWALTON
DEVELOPMENT

PLANNED UNIT
DEVELOPMENT
04/05/21

**42ND AVENUE
AFFORDABLE
APARTMENTS**
COLUMBIA HEIGHTS, MN
19-094

BUILDING ELEVATIONS

A1.1



3 ELEVATION - NORTH
1/8" = 1'-0"



2 ELEVATION - EAST END
1/8" = 1'-0"

1 ELEVATION - EAST END
1/8" = 1'-0"



DJR
ARCHITECTURE

REUTERWALTON
DEVELOPMENT

PLANNED UNIT
DEVELOPMENT
04/05/21

**42ND AVENUE
AFFORDABLE
APARTMENTS**
COLUMBIA HEIGHTS, MN
19-094

BUILDING ELEVATIONS

A1.2



3 ELEVATION WEST
1/8" = 1'-0" 0' 8' 16'



2 ELEVATION - SOUTH
1/8" = 1'-0" 0' 8' 16'

1 ELEVATION - SOUTH END
1/8" = 1'-0" 0' 8' 16'



DJR
ARCHITECTURE

REUTERWALTON
DEVELOPMENT

PLANNED UNIT
DEVELOPMENT
04/05/21

**42ND AVENUE
AFFORDABLE
APARTMENTS**

COLUMBIA HEIGHTS, MN
19-094



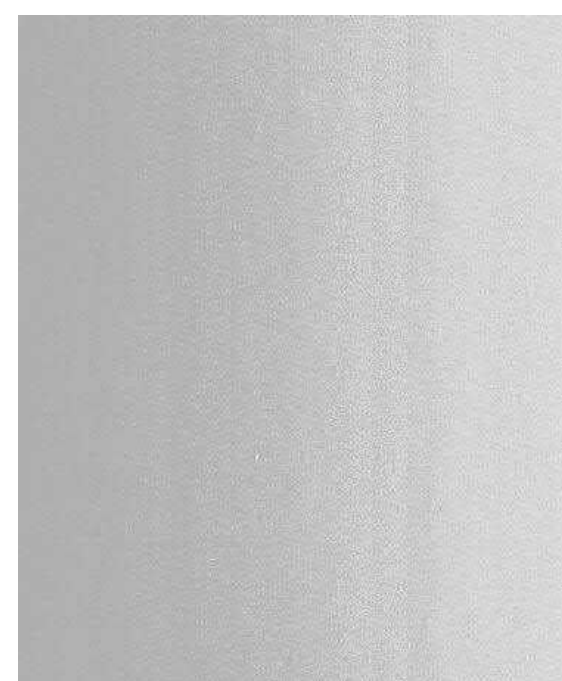
EXTERIOR MATERIALS

1. FIBER CEMENT LAP SIDING
NAVAJO BEIGE

2. FIBER CEMENT PANEL
ARCTIC WHITE

3. FIBER CEMENT LAP SIDING
WOOD LOOK

4. UTILITY BRICK
BROWN WIRECUT FLASHED



EXTERIOR DESIGN &
MATERIALS

A1.3



VIEW NORTH ON JACKSON ST NE



INTERSECTION OF 42ND AVE NE & JACKSON ST NE



ENTRANCE AT 42ND AVE NE



PLANNED UNIT
DEVELOPMENT
04/05/21

**42ND AVENUE
AFFORDABLE
APARTMENTS**
COLUMBIA HEIGHTS, MN
19-094

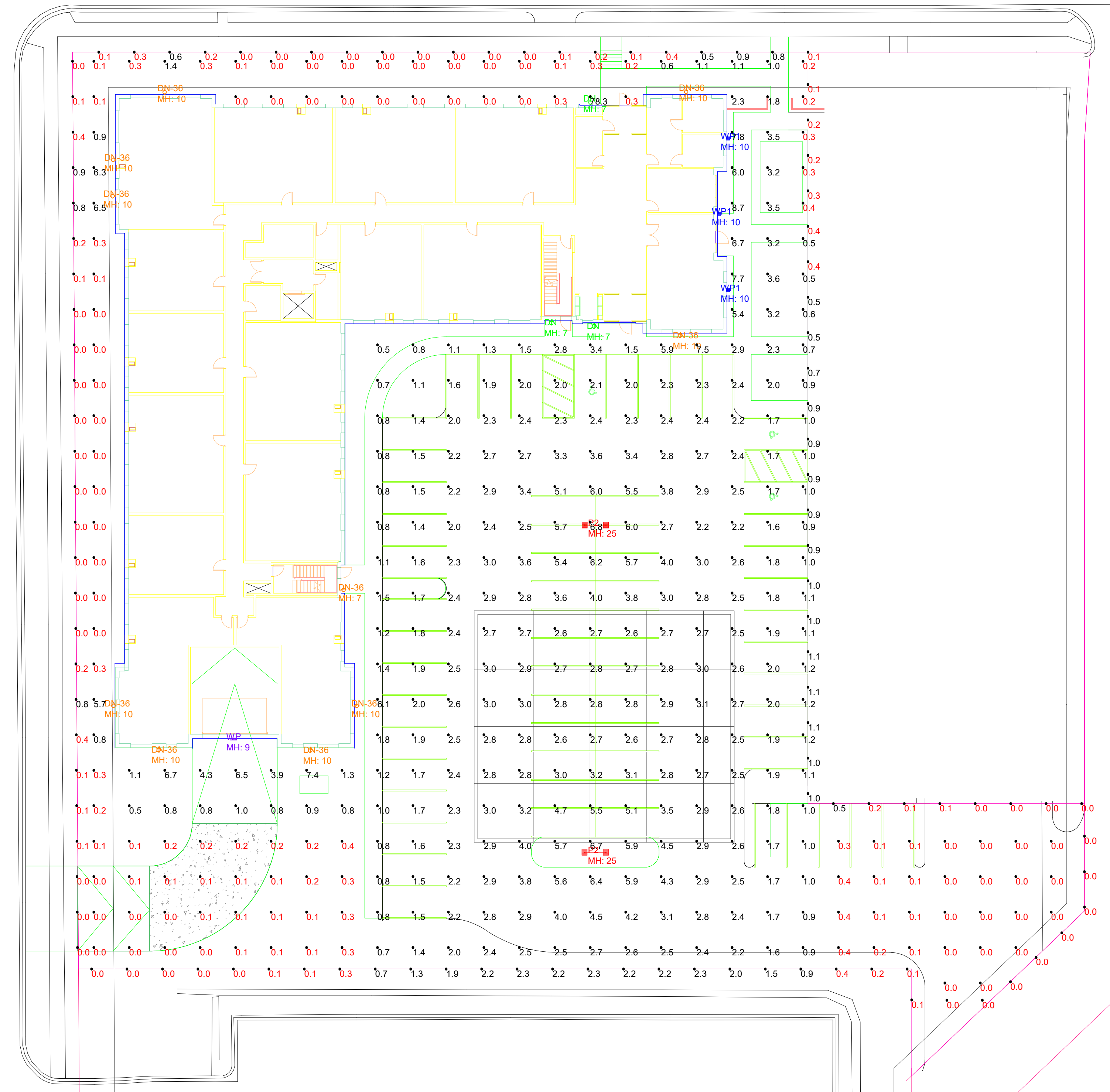
EXTERIOR DESIGN

A1.4



JACKSON ST NE

42ND AVE. NE



Symbol	Qty	Label	Arrangement	Lum. Lumens	ILF	Description	Lum. Watts	Total Watts
■	2	P2	BACK-BACK	18843	0.900	SLM-LED-18L-SIL-FT-40-70CRI	148.5	594
○	10	DN-36	SINGLE	3105	0.900	C06-S-36W-DN	34.8	348
○	3	DN	SINGLE	1781	0.900	C06-S-18W	20.7	62.1
■	3	WP1	SINGLE	3174	0.900	SSW-LED-03L-3-UNV-DIM-40	23	69
■	1	WP	SINGLE	5930	0.900	SMW-LED-06L-3-UNV-DIM-40	47	47

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts 1	Illuminance	Fc	2.15	78.3	0.0	N.A.	N.A.
Prop Line	Illuminance	Fc	0.46	2.3	0.0	N.A.	N.A.

Scale: 1 inch= 20 Ft.

#	Date	Comments

Revisions

Drawn By: Joe Frey
Date: 4/5/2021
Sales Agent: Steve Hahn
Scale: 1" = 20'

RWD - Columbia Heights

LS952-3764-1

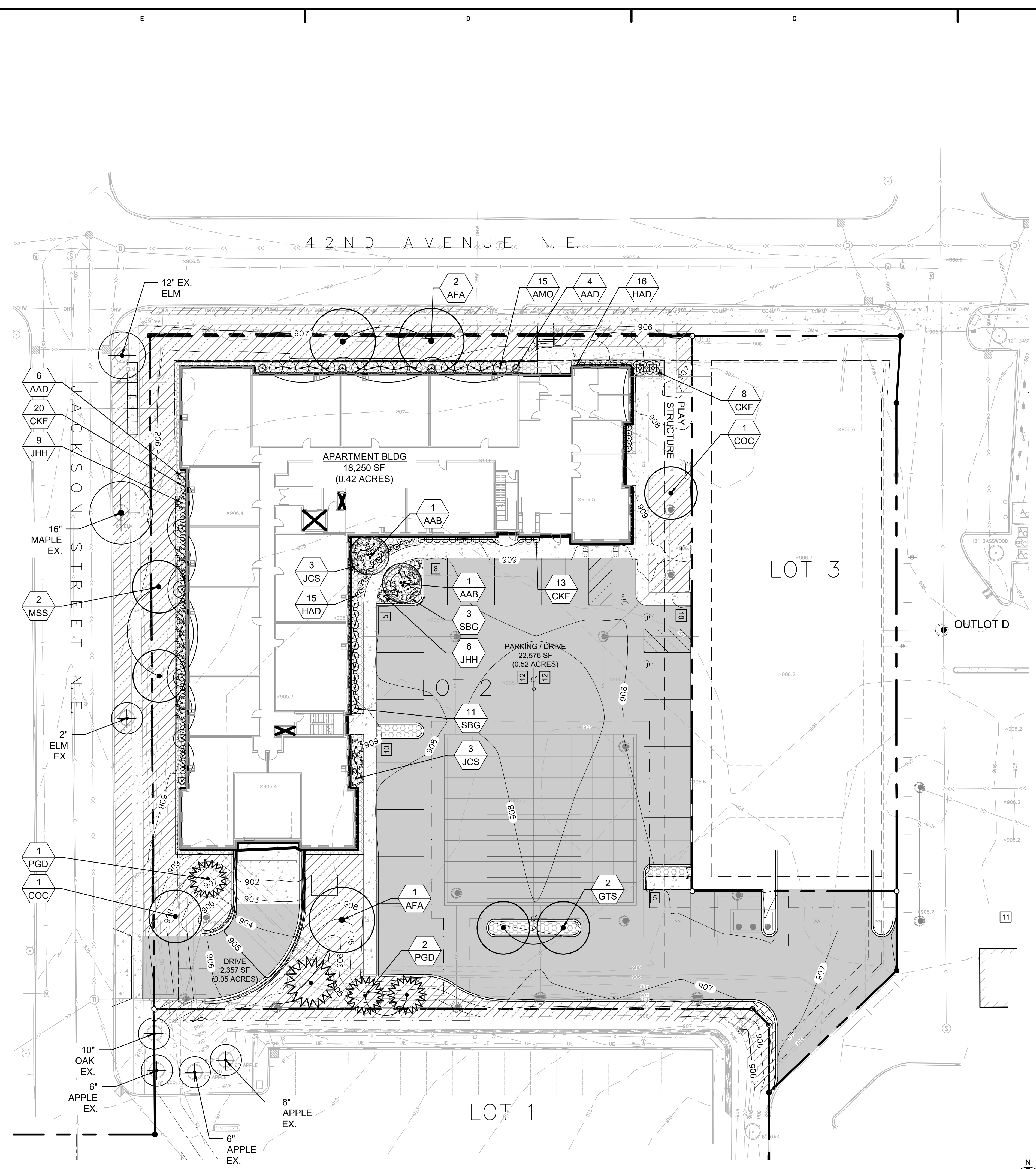
These drawings are for conceptual use only and are not intended for construction. Fixture runs and quantities should be verified prior to order. Values represented are an approximation generated from manufacturers photometric inhouse or independent lab tests with data supplied by lamp manufacturers.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Landscape Architect under the laws of the State of Minnesota.

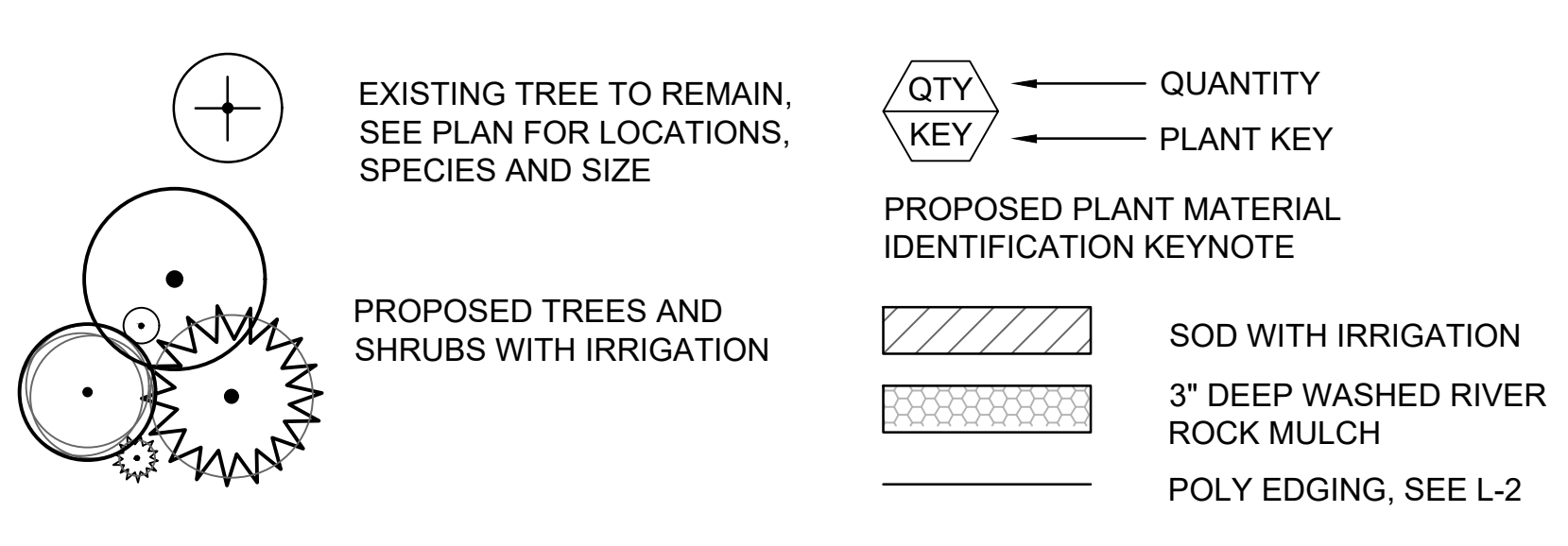
JOSEPH D. LUCHT, PLA
PRINT NAME
SIGNATURE
52858 REGISTRATION NUMBER 04/05/2021 DATE

Project #: (Anderson 16337)
Date: 04/05/2021
Drawn by: JAF
Checked by: JDL

Issue: P.U.D. SUBMITTAL Date: 04/05/2021



PLANTING PLAN LEGEND



CITY CODE: REQUIRED LANDSCAPING

ZONE: PUD R-1

§ 9.106 GENERAL DEVELOPMENT STANDARDS.
REQUIRED OVERSTORY TREES PER CITY: 15 TREES REQUIRED

- A MIN. OF (4) TREES SHALL BE PLANTED FOR EVERY (1) ACRE OF LOT AREA COVERED BY BUILDINGS, PARKING AREA, LOADING AREAS, EXTERIOR STORAGE AREA AND OTHER IMPERVIOUS SURFACES:
0.42 AC BLDG + 0.52 AC PARKING + 0.05 AC DRIVE + .06 AC SIDEWALKS = 1.05 = 1 AC
- A MIN. OF (1) TREE SHALL BE PLANTED FOR EVERY 50' OF STREET FRONTAGE OR FRACTION THERE OF: 561 LF / 50 = 11.22
- NO MORE THAN 50% OF THE REQUIRED NUMBER OF TREES OR SHRUBS MAY BE COMPRISED OF ANY ONE SPECIES. NO LESS THAN 25% OF THE REQUIRED NUMBER OF TREES SHALL BE OVER-STORY DECIDUOUS AND NO LESS THAN 25% SHALL BE CONIFEROUS.

§ 9.113 PLANNED UNIT DEVELOPMENT DISTRICT.
AREAS OF FLEXIBILITY. DEVELOPMENT FLEXIBILITY PROVIDED THROUGH THE ESTABLISHMENT OF A PUD DISTRICT WILL NOT BE APPROVED IN AVOIDANCE OF THE REGULATIONS SET FORTH BY THE PRIMARY ZONING DISTRICT. HOWEVER, IF A DEVELOPMENT IS ABLE TO ACHIEVE A HIGHER QUALITY OF DESIGN, EFFICIENCY, AND TECHNOLOGY THAN WHAT CURRENT MARKET CONDITIONS ALLOW, THE ESTABLISHMENT OF A PUD DISTRICT WILL PROVIDE FLEXIBILITY TO THE FOLLOWING AREAS:
(4) LANDSCAPING REQUIREMENTS:

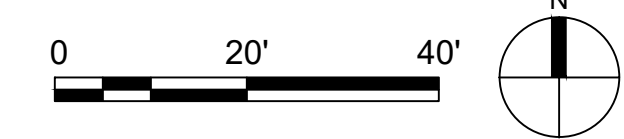
GENERAL NOTES

- ALL LANDSCAPING DISTURBED BEYOND THE NEW PLANTINGS SHALL BE REPLACED IN KIND.
- ALL NEWLY INSTALLED PLANT MATERIAL AND SOD SHALL RECEIVE IRRIGATION. IRRIGATION TO BE DESIGNED AND INSTALLED BY THE CONTRACTOR, SEE IRRIGATION NOTES.

PLANT SCHEDULE

DECIDUOUS TREES						
KEY	QTY.	COMMON	BOTANICAL	SIZE	CONT.	REMARKS
AAB	2	Autumn Brilliance Apple Serviceberry	<i>Amelanchier x grandiflora</i> 'Autumn Brilliance' (multi-trunk)	1-1/2" CAL. (average)	B&B	Leaders shall be 1" CAL. minimum.
AFA	3	Autumn Blaze Maple	<i>Acer x fremanii</i> 'Jeffersred'	2-1/2" CAL.	B&B	Single, straight leader. No 'V' crotches.
COC	2	Common Hackberry	<i>Celtis occidentalis</i>	2-1/2" CAL.	B&B	Single, straight leader. No 'V' crotches.
GTS	2	Shademaster Honeylocust	<i>Gleditsia triacanthos var. inermis</i> 'Shademaster'	2-1/2" CAL.	B&B	Single, straight leader. No 'V' crotches.
MSS	2	Spring Snow Crabapple	<i>Malus x 'Spring Snow'</i>	2" CAL.	B&B	Single, straight leader. No 'V' crotches.
CONIFEROUS TREES						
KEY	QTY.	COMMON	BOTANICAL	SIZE	CONT.	REMARKS
PGD	3	Black Hills Spruce	<i>Picea glauca var. densata</i>	6' HT.	B&B	Full form to grade - 12" max. leader length. Sheared and clipped trees will not be accepted.
PPO	1	Ponderosa Pine	<i>Pinus ponderosa</i>	6' HT.	B&B	Full form to grade - 12" max. leader length. Sheared and clipped trees will not be accepted.
DECIDUOUS SHRUBS						
KEY	QTY.	COMMON	BOTANICAL	SIZE	CONT.	REMARKS
AMO	15	Helvetica Serviceberry	<i>Amelanchier ovalis</i> 'Helvetica'	5 GAL.	POT	60" O.C. spacing
CKF	41	Karl Foerster Feather Reed Grass	<i>Calamagrostis x acutiflora</i> 'Karl Foerster'	2 GAL.	POT	30" O.C. spacing
HAD	31	Dolce 'Appletini' Coral Bells	<i>Heuchera 'Appletini'</i> PP29396 CPBRAAF	1 GAL.	POT	24" O.C. spacing
SBG	14	Goldflame Spirea	<i>Spiraea x bumalda</i> 'Goldflame'	5 GAL.	POT	48" min. spacing
CONIFEROUS SHRUBS						
KEY	QTY.	COMMON	BOTANICAL	SIZE	CONT.	REMARKS
AAD	10	Archer's Dwarf White Fir	<i>Abies concolor</i> 'Archer's Dwarf'	5 GAL.	POT	36" min. spacing
JCS	6	Sea Green Juniper	<i>Juniperus chinensis</i> 'Sea Green'	5 GAL.	POT	60" min. spacing
JHH	15	Hughes Juniper	<i>Juniperus horizontalis</i> 'Hughes'	2 GAL.	POT	48" min. spacing

1 PLANTING PLAN
SCALE: 1" = 20' (24" x 36" PAPER)



NORTHWESTERN 3RD ADDITION
COLUMBIA HEIGHTS, MN
PRELIMINARY PLANTING PLAN

L-1



333 Washington Ave N, Suite 210
Minneapolis, Minnesota 55401
612.676.2700 www.djr-inc.com



13605 1st Avenue N. #100
Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Landscape Architect under the laws of the State of Minnesota.

JOSEPH D. LUCHT, PLA
PRINT NAME

52858
REGISTRATION NUMBER

04/05/2021
DATE

Project #: (Anderson 16337)

Date: 04/05/2021

Drawn by: JAF

Checked by: JDL

Issue: P.U.D. SUBMITTAL
Date: 04/05/2021

GENERAL LANDSCAPE NOTES:

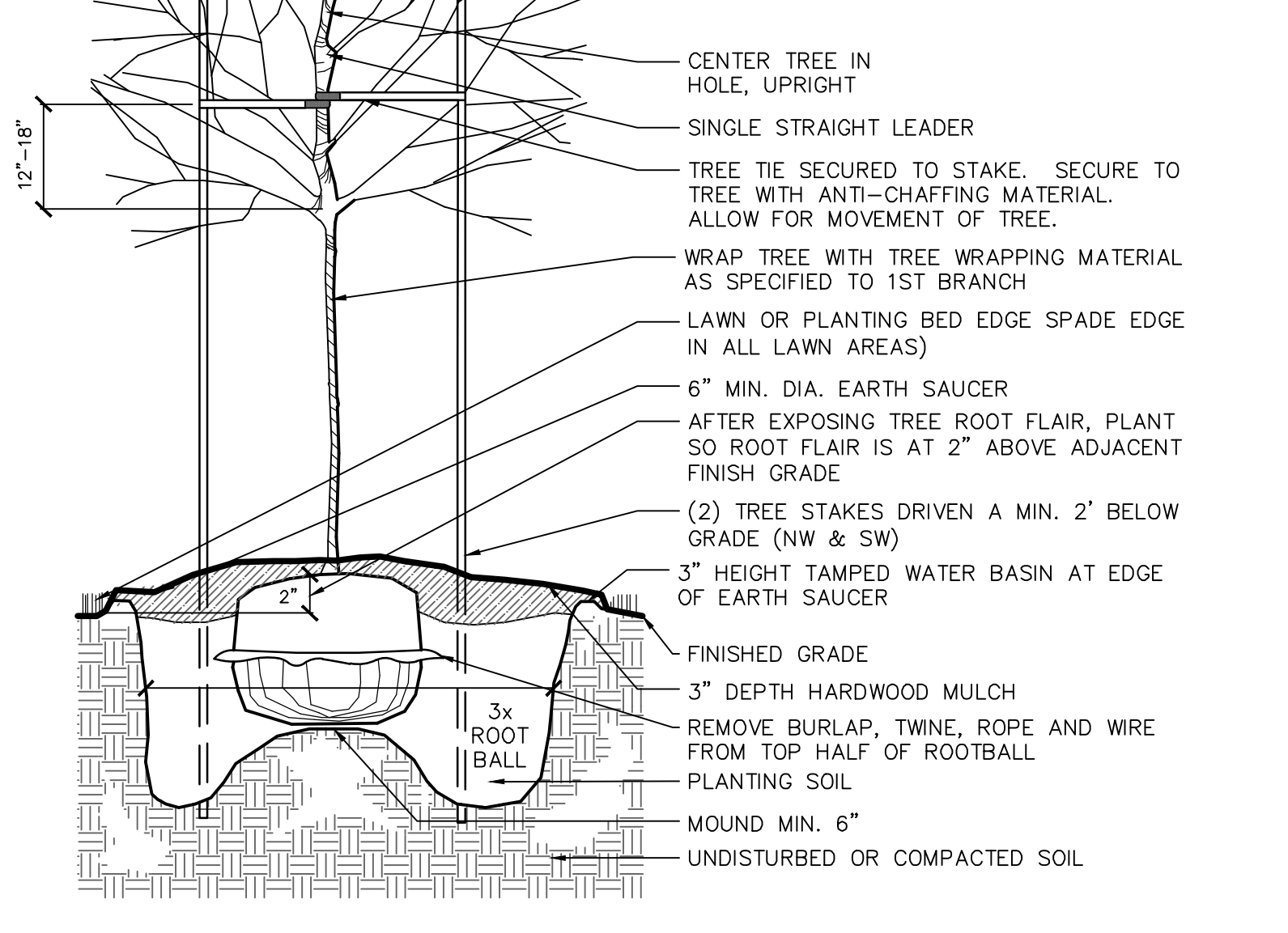
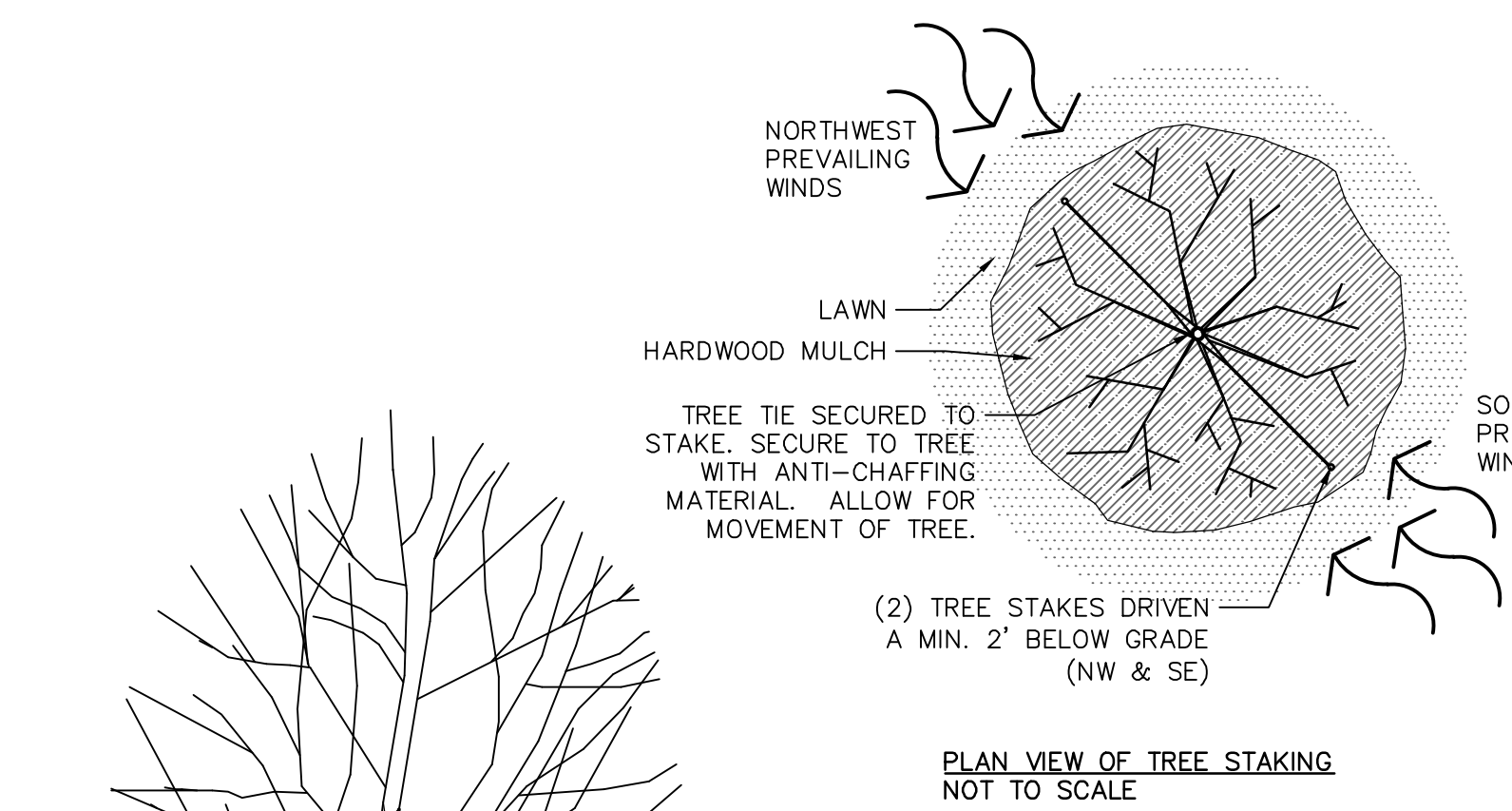
- LANDSCAPE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO BECOME COMPLETELY FAMILIAR WITH SITE CONDITIONS.
- NO PLANTING SHALL BE INSTALLED UNTIL ALL GRADING, BUILDING, CONSTRUCTION, UTILITY WORK & IRRIGATION (IF APPLICABLE) HAS BEEN COMPLETED IN THE AREAS TO BE PLANTED.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY ALL UNDERGROUND CABLES, CONDUITS, WIRES, ETC., ON THE PROPERTY.
- IF THERE IS A DISCREPANCY BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND THE NUMBER OF PLANTS SHOWN IN THE PLANT LIST, THE NUMBER OF PLANTS SHOWN ON THE PLAN WILL TAKE PRECEDENCE.
- ALL PROPOSED PLANT MATERIAL SHALL BE LOCATED CAREFULLY AS SHOWN ON THE PLAN. IF THE CONTRACTOR BELIEVES AN ERROR HAS BEEN MADE REGARDING SPACING OR LOCATION OF THE PLANT MATERIAL INDICATED ON THE PLAN, NOTIFY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- THE CONTRACTOR IS RESPONSIBLE FOR COMPLETE MAINTENANCE OF THE PLANT MATERIAL (WATERING, SPRAYING, FERTILIZING, MOWING, ETC.) UNTIL THE WORK HAS BEEN ACCEPTED, BY THE OWNER.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS TO PROPERTY DAMAGE FROM PLANTING OPERATIONS AT NO COST TO THE OWNER.
- ALL NEWLY PLANTED PLANT MATERIAL SHALL BE GUARANTEED THROUGH ONE CALENDAR YEAR STARTING FROM THE DATE OF ACCEPTANCE ESTABLISHED BY THE OWNER.
- THE CONTRACTOR SHALL MEET WITH THE OWNER OR OWNERS REPRESENTATIVE ON SITE WHEN THEY FEEL THE PROJECT IS COMPLETE ACCORDING TO THE CONTRACT DOCUMENTS. IF ALL WORK IS SATISFACTORY AND COMPLETE ACCORDING TO THE CONDITIONS OF THE CONTRACT DOCUMENTS, THEN THE OWNER MUST DECLARE THE PROJECT COMPLETE. THIS DECLARATION WILL CONSTITUTE AS THE BEGINNING OF THE ONE (1) YEAR WARRANTY PERIOD FOR ALL PLANT MATERIAL. THE OWNER SHALL PROVIDE A LETTER WITH SIGNATURE STATING THE DATE OF ACCEPTANCE.
- WIND BURN OR OTHERWISE DAMAGED PLANT MATERIAL WILL NOT BE ACCEPTED.
- CONTRACTOR CAN SUBSTITUTE MACHINE MOVED MATERIAL USING APPROPRIATE SIZE TREE SPADE FOR B & B WITH OWNER APPROVAL.
- THE PRACTICE OF STAKING SHOULD NOT ALLOW NAILS, SCREWS, WIRES, ETC. TO PENETRATE THE OUTER SURFACE OF THE TREES.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ALL TREE STAKES, GUYS, STRAPS AND TRUNK PROTECTION MEASURES FOLLOWING THE COMPLETION OF THE WARRANTY PERIOD OR AS DIRECTED BY THE OWNER.
- LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE THE OWNER WITH MAINTENANCE INFORMATION DURING THE GUARANTEE PERIOD RELATING TO WATERING, FERTILIZING, PRUNING, PEST CONTROL, AND RELATED ITEMS. THIS WILL BE PREPARED AND DELIVERED TO THE OWNER AFTER PROVISIONAL INSPECTION APPROVAL HAS BEEN GIVEN BY THE OWNER AND/OR LANDSCAPE ARCHITECT.
- INSTALL CORRUGATED PLASTIC TREE GUARDS, WHITE IN COLOR, WITH THE SIZE OF TUBE 1" DIA. (MIN.) LARGER THAN THE CALIPER OF THE TREE TO BE PROTECTED.
- CONTRACTOR TO FURNISH & STALL PLASTIC EDGING AS SHOWN ON THE PLANS & DETAILS. PLASTIC EDGING SHALL BE MEDIUM DENSITY POLYETHYLENE WITH U.V. INHIBITOR, BLACK IN COLOR, WITH A TOTAL DEPTH OF 5" (1" DIA. TOP AND 4" SHAFT WITH 1.5" V EVERY 3-1/2 FEET OF EDGING.
- 3" DEPTH SHREDDED HARDWOOD MULCH SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS THAT ARE ISOLATED FROM GROUND COVER AREAS AND GENERAL SHRUB MASSES.
- CALIPER OF TREES UP TO AND INCLUDING 4" SHALL BE MEASURED AT 6" ABOVE GROUND LEVEL, AND 12" ABOVE GROUND LEVEL FOR LARGER SIZES.
- FOR BALLED & BURLAP PLANT MATERIAL, REMOVE THE TOP HALF OF THE BURLAP FROM THE ROOT BALL. WIRE CAGES, STRAPS, ETC. SHALL BE REMOVED FROM THE TOP HALF OF THE ROOTBALL BEFORE INSTALLATION.
- ALL CONTAINER MATERIAL SHALL HAVE BEEN GROWN IN CONTAINER FOR A MINIMUM OF 6 MONTHS PRIOR TO INSTALLATION.
- SHRUBS AND GROUND COVER SHALL BE PLANTED A MINIMUM OF ONE HALF THEIR ON-CENTER SPACING FROM PAVING EDGE UNLESS OTHERWISE

GENERAL IRRIGATION NOTES:

- PRIOR TO CONSTRUCTION, VERIFY WITH THE GENERAL CONTRACTOR AND ALL LOCAL UTILITY COMPANIES TO LOCATE EXACT LOCATIONS OF UNDERGROUND UTILITIES.
- THE IRRIGATION SHALL BE DESIGN/BUILD SYSTEM BY THE CONTRACTOR. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN IRRIGATION LAYOUT PLAN AND SPECIFICATIONS AS PART OF THE SCOPE OF WORK WHEN BIDDING. THESE SHALL BE APPROVED BY THE OWNER PRIOR TO ORDER AND/OR INSTALLATION.
- VALVE AND CIRCUITS SHALL BE SEPARATED BASED ON WATER USE, SO THAT TURF AREAS ARE WATERED SEPARATELY FROM SHRUB AND GROUND COVER AREAS. IRRIGATION HEADS IN TURF AREAS SHALL BE VALVED SEPARATELY FROM SHRUB AND GROUND COVER AREAS. IT IS RECOMMENDED THAT FULL SUN AND SHADY AREAS TO BE VALVED SEPARATELY AS WELL AS HIGH RUN-OFF AND LOW RUN-OFF AREAS TO BE VALVED SEPARATELY.
- CONFIRM LIMITS OF IRRIGATION, EXISTING AND FUTURE HARDSCAPE AND BUILDING LOCATIONS PRIOR TO THE DESIGN OF THE IRRIGATION SYSTEM.
- CONTRACTOR SHALL VERIFY WATER SOURCE LOCATION AND PRESSURE AND SUPPLY A SYSTEM THAT PROVIDES FULL AND COMPLETE COVERAGE TO ALL AREAS TO BE IRRIGATED.
- SYSTEM SHOULD BE DESIGNED TO OPERATE AT UP TO 300 GPM @ 90 PSI TO COMPLETE WATER SCHEDULES WITHIN 12-HOURS MAXIMUM.
- RAIN SENSORS AND OTHER WATER SAVING TECHNOLOGIES SHALL BE INCLUDED WITHIN THE IRRIGATION DESIGN.
- PROVIDE THE OWNER WITH AN OPERATING SCHEDULE THAT WORKS WITH THE APPROVED LAYOUT PLAN AND IDENTIFY ANY FIELD ADJUSTMENTS PRIOR TO PROJECT COMPLETION.
- AVOID OVER-SPRAY ONTO ROADS, SIDEWALKS, SIGNS AND PARKING AREAS. SPRINKLER ARCS SHALL BE DETERMINED ON SITE BY THE IRRIGATION INSTALLER TO PROVIDE THE MAXIMUM COVERAGE POSSIBLE. CAREFULLY ADJUST THE ARCS AND RADIUS OF EACH SPRINKLER TO PROVIDE HEAD-TO-HEAD COVERAGE.
- WITHIN EXTREME SLOPED AREAS:
 - INSTALL STATIONS SEPARATELY FOR TOP AND BOTTOM OF SLOPED AREAS
 - INSTALL LATERAL PIPES PARALLEL TO SLOPE
 - IF SLOPE IS TOO EXTREME FOR MACHINERY, INSTALL LATERAL PIPES SAFELY AND TEE-FEED INDIVIDUAL SPRINKLERS VIA DOWNHILL PIPING PERPENDICULAR TO FEED LINE
- LOCATE VALVE BOXES AWAY FROM ROAD/CURB SO THEY ARE LESS VISUAL WHERE APPLICABLE.
- DO NOT TRENCH THROUGH THE ROOT BALLS OF NEW PLANTINGS.
- MAINLINE PIPING BENEATH TRAFFIC AREAS SHALL BE INSTALLED WITH A MINIMUM EARTH COVER OF 30-INCHES FROM BOTTOM OF ROAD SUB-GRADE AND CONTAIN SLEEVES NOT LESS THAN TWO NOMINAL DIMENSIONS GREATER THAN THE PIPE PASSING THROUGH.
- IRRIGATION INSTALLER SHALL FURNISH AND INSTALL SLEEVE MATERIAL UNDER ALL ROADWAYS, WALKS AND DRIVEWAYS WHERE NECESSARY.
- TOP OF MAINLINES SHALL BE AT LEAST 30-INCHES BELOW GRADE IN TURF AREAS.
- TOP OF LATERAL LINES SHALL BE AT LEAST 18-INCHES BELOW GRADE.
- MAINLINE PRESSURE PIPE FITTINGS 3-INCHES AND LARGER SHALL BE PUSH ON GASKET JOINED AND SHALL HAVE MECHANICAL JOINT RESTRAINTS. MAINLINE PRESSURE PIPE FITTINGS 2.5-INCHES AND SMALLER SHALL BE GLUED AND SHALL HAVE CONCRETE THRUST BLOCKS AT FITTINGS THAT COMPRISE CHANGE IN DIRECTION.
- OTHERS SHALL FURNISH, INSTALL AND BRING 24-INCHES ABOVE GRADE A MUNICIPAL POTABLE STUB FOR IRRIGATION, COORDINATE WITH GENERAL CONTRACTOR.
- INSTALLER IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE BACKFLOW PREVENTOR, WATER METER AND BOOSTER PUMP, IF APPLICABLE.
- IRRIGATION CONTROL WIRE SHALL BE DIGITAL TWO-WIRE, UL LISTED FOR DIRECT BURIAL.
- CONNECT ALL ELECTRICAL WIRING IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL ELECTRIC UTILITY CODES INCLUDING:
 - ALL LOW VOLTAGE IRRIGATION CONTROL WIRE SHALL BE INSTALLED WITH THE MAINLINE PIPE WHERE POSSIBLE
 - DO NOT LOOP THE LOW VOLTAGE IRRIGATION CONTROL WIRE PATH.
 - SNAKE WIRE AT BOTTOM OF TRENCH BENEATH MAINLINE.
 - PROVIDE 18-INCH OF SLACK CONTROL WIRE AT ALL CHANGES IN DIRECTION.
 - PROVIDE 24-INCH OF SLACK CONTROL WIRE AT EACH REMOTE CONTROL VALVE COILED INSIDE VALVE BOX.
 - ALL WIRE SPLICES SHALL BE WATERTIGHT CONNECTORS AND CONTAINED IN VALVE BOX.
 - ALL WIRING BENEATH HARDSCAPES SHALL BE CONTAINED IN SLEEVING, SEPARATE FROM PIPING. ELECTRICAL SLEEVES ARE TO BE SIZED APPROPRIATELY FOR EASE OF WIRE INSTALLATION AND REPAIR.
 - ALL WIRING SHALL BE IDENTIFIED AT EACH END TO PROVIDE INDICATION AS TO WHICH LOCATION THE WIRE IS CONNECTED.
 - GROUNDING PER MANUFACTURER'S RECOMMENDATION OR LOCAL ELECTRICAL CODE.
- SCHEDULE AND PROGRAM CONTROLLER AND VALVES FOR APPROPRIATE LANDSCAPE WATER REQUIREMENTS.

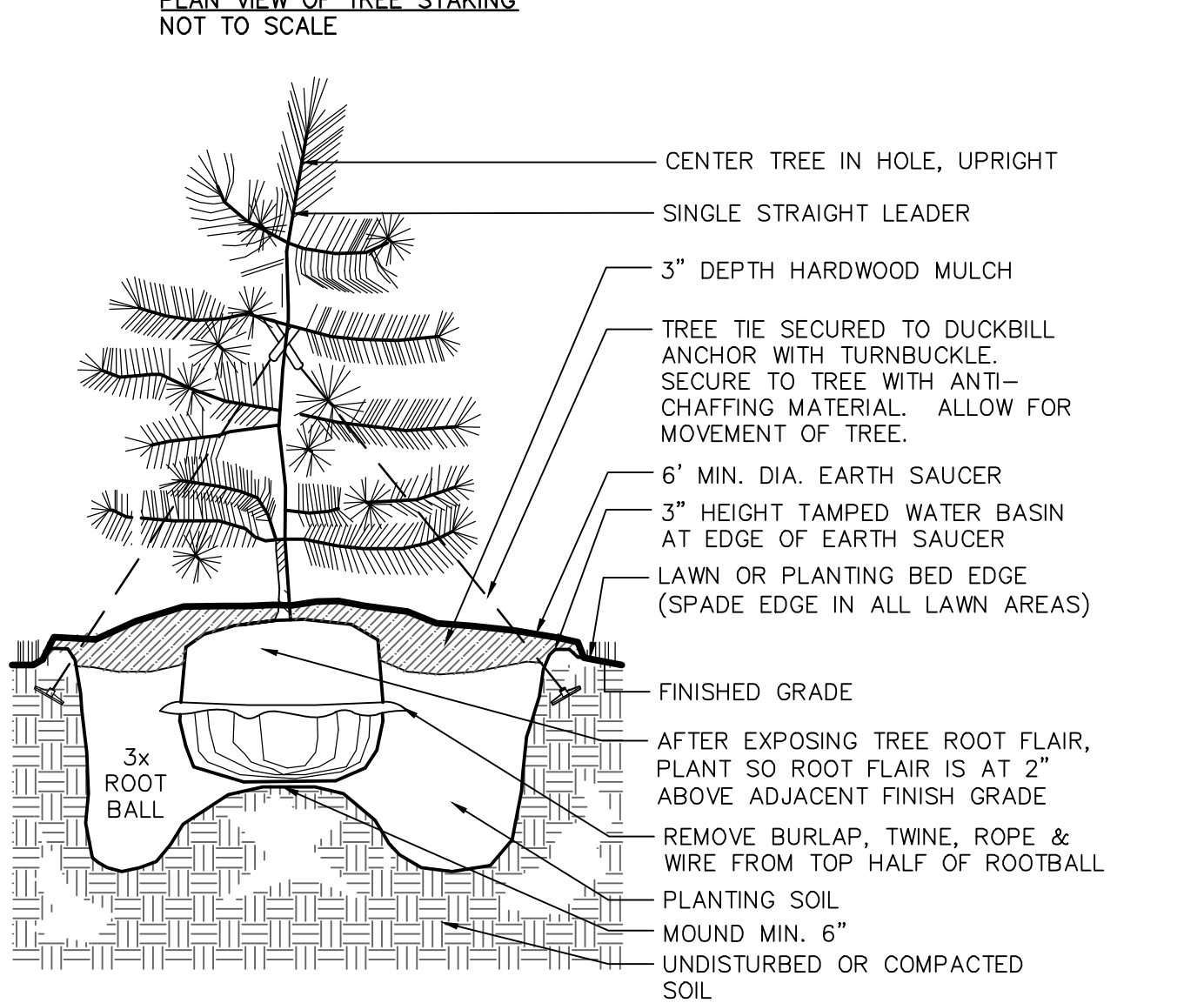
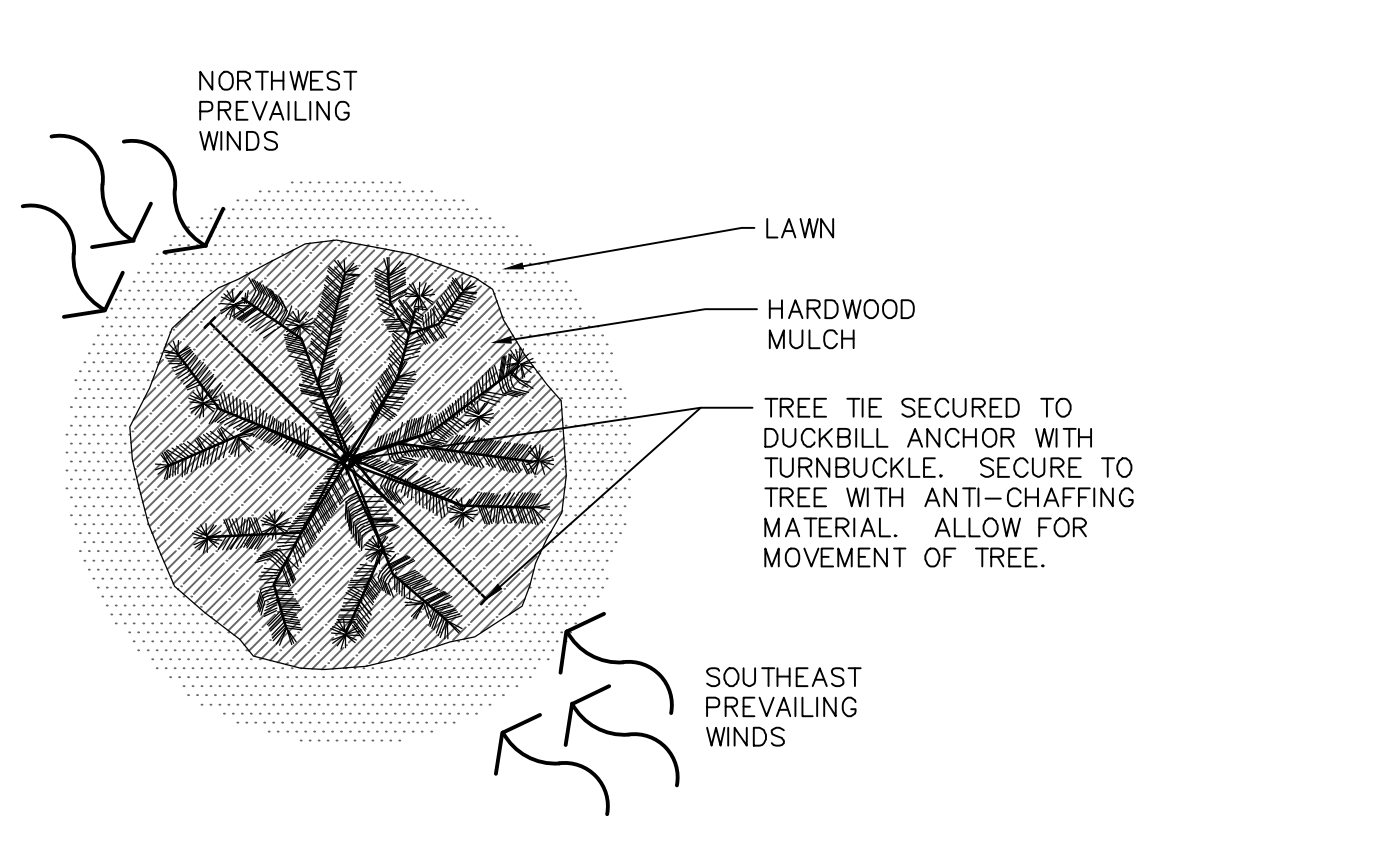
GENERAL SODDING, SEEDING & TOPSOIL NOTES:

- AREAS TO RECEIVE SOD OR SEED SHALL HAVE A 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL SHALL PROVIDE FERTILE, FRIABLE, NATURAL LOAM, SURFACE SOIL, REASONABLY FREE OF SUBSOIL, CLAY CLUMPS, BRUSH WEEDS AND OTHER LITTER, AND FREE OF ROOTS, STUMPS, STONE LARGER THAN 1" IN ANY DIMENSION, AND OTHER EXTRANEIOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH.
- SOD SHALL BE HIGHLAND SOD, 30" X 100' ROLLS PREFERRED WHERE APPLICABLE. TO BE LAID PARALLEL WITH THE CONTOURS AND HAVE STAGGERED JOINTS. ON SLOPES STEEPER THAN 3:1 OR DRAINAGE SWALES, THE SOD SHALL BE STAKED INTO THE GROUND. SCARIFY THE EXISTING GRADES WITH FIELD CULTIVATOR PRIOR TO PLACING OF TOPSOIL AND FINISH GRADING FOR SOD. IMMEDIATELY PRIOR TO PLACING SOD, CONTRACTOR SHALL APPLY 10-6-4 FERTILIZER AT THE RATE OF 10 POUNDS PER 1000 SQ. FT.



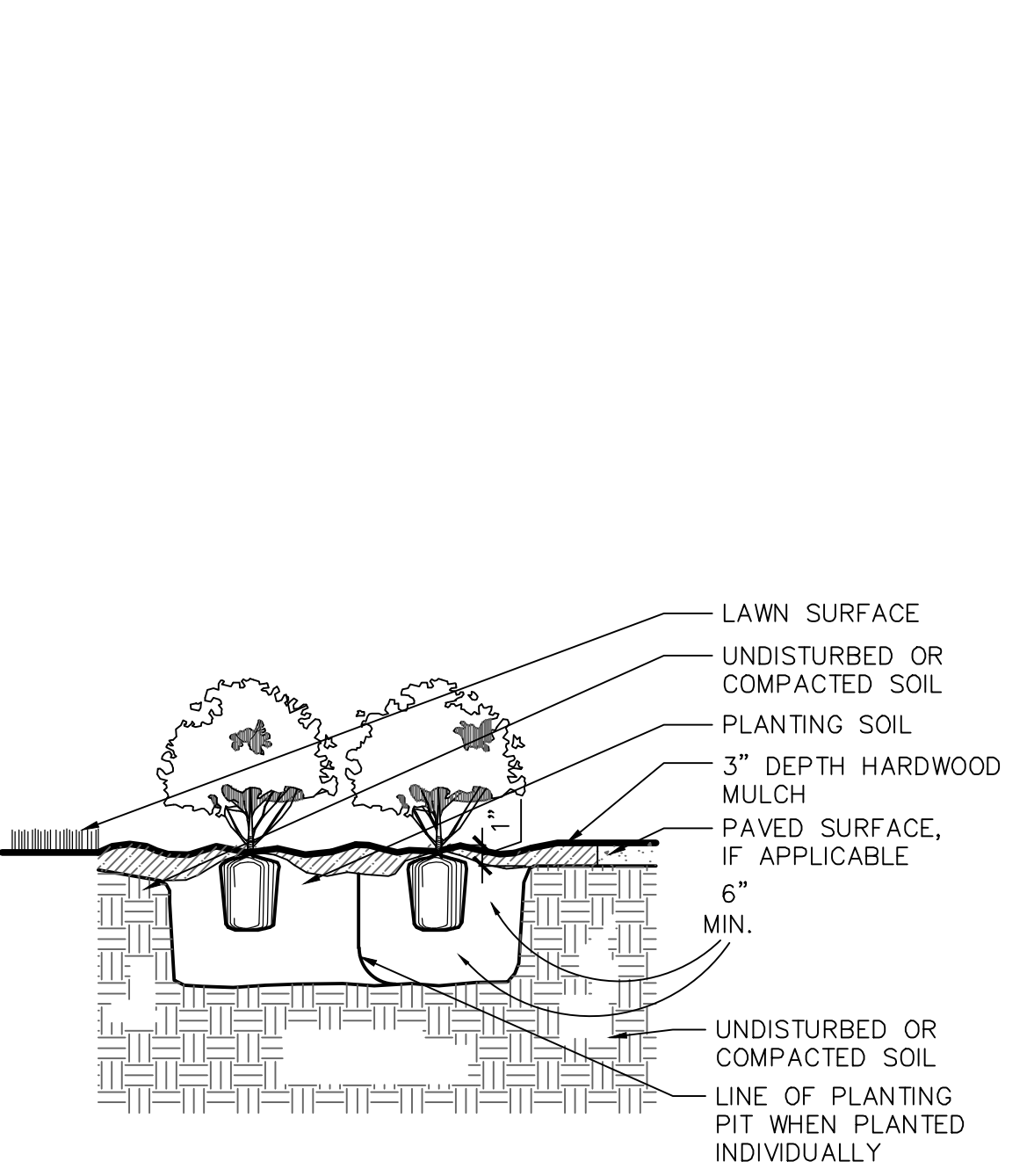
NOTE:
-3" DP. SHREDDED HARDWOOD MULCH SHALL BE USED IN ALL LANDSCAPE PLANTINGS AREAS AND UNDER TREES ISOLATED FROM PLANTING AREAS UNLESS IDENTIFIED OTHERWISE.
-MULTI-STEM TREES SHALL NOT RECEIVE STAKING. THEY SHALL CONFORM TO ALL OTHER DECIDUOUS TREE PLANTING REQUIREMENTS.

1 DECIDUOUS TREE PLANTING DETAIL
NTS

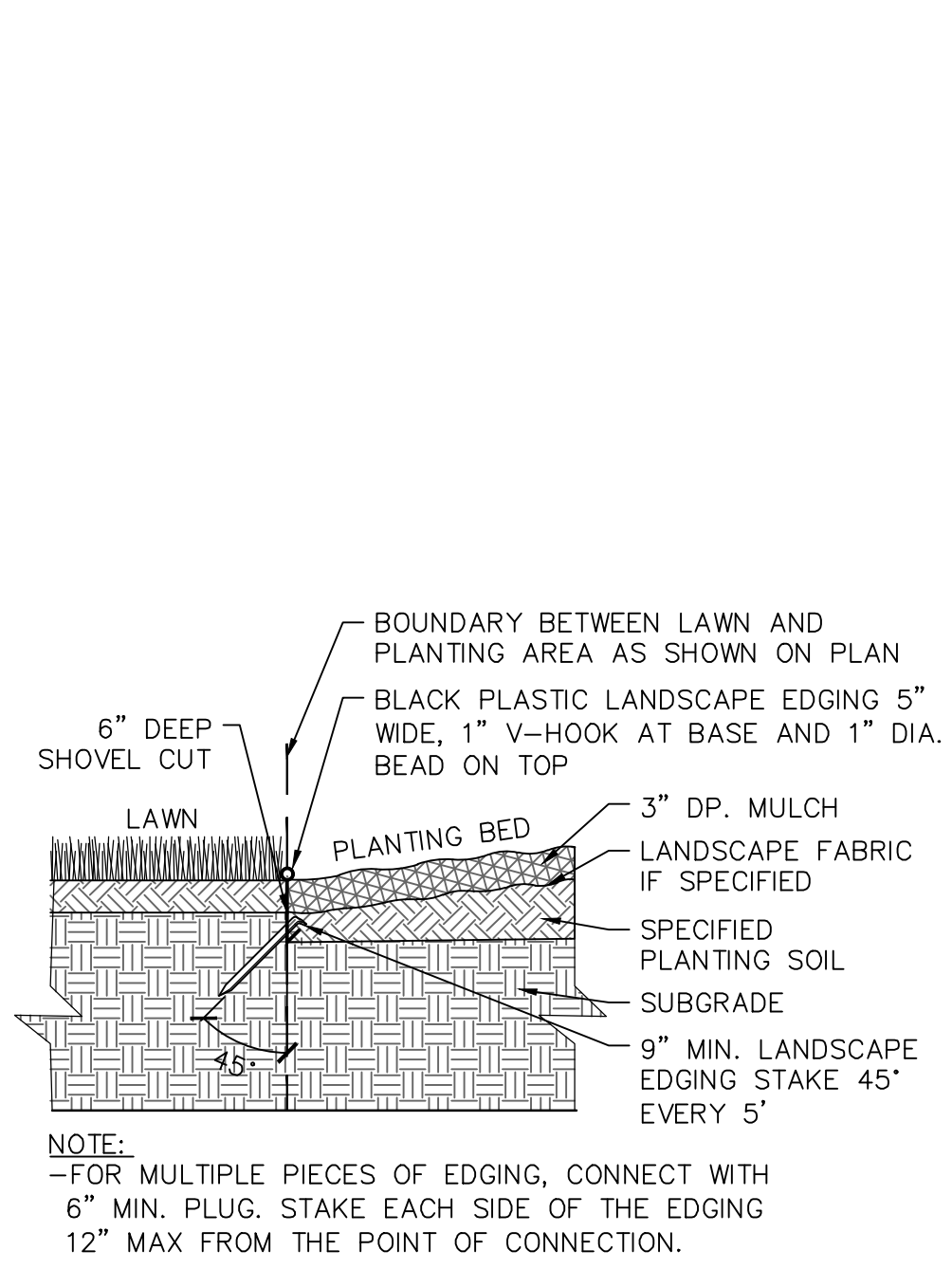


NOTE:
-3" DP. SHREDDED HARDWOOD MULCH SHALL BE USED IN ALL LANDSCAPE PLANTINGS AREAS AND UNDER TREES ISOLATED FROM PLANTING AREAS UNLESS IDENTIFIED OTHERWISE.

2 EVERGREEN TREE PLANTING DETAIL
NTS



3 DECIDUOUS SHRUB PLANTING DETAIL
NTS

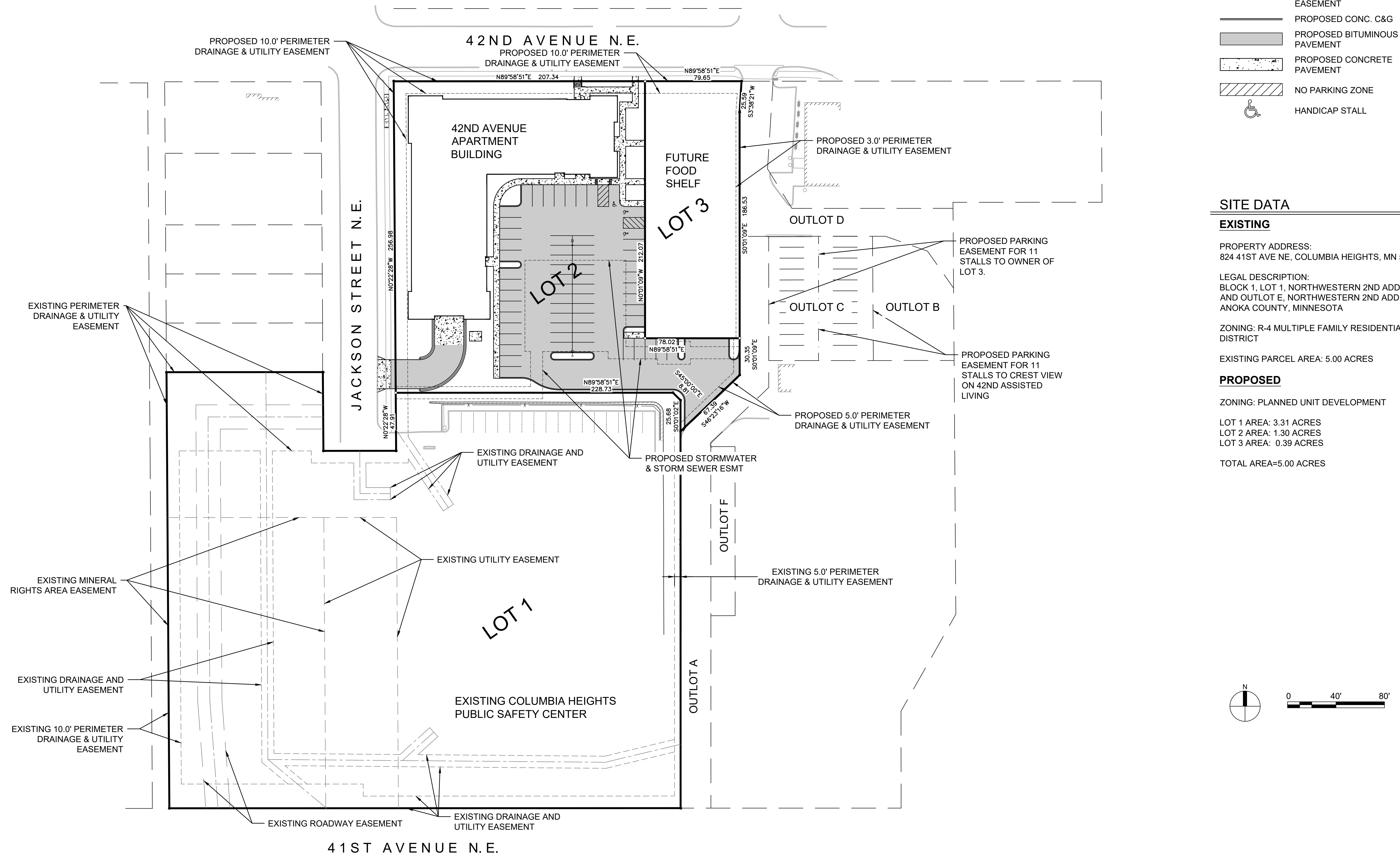


4 BLACK POLY LANDSCAPE EDGING DETAIL
NTS

NORTHWESTERN 3RD ADDITION

COLUMBIA HEIGHTS, MN
PRELIMINARY PLANTING NOTES & DETAILS

PRELIMINARY PLAT OF: NORTHWESTERN 3RD ADDITION



LEGEND

- PROPERTY LIMITS
- ADJACENT PROPERTY
- PARKING EASEMENT
- DRAINAGE AND UTILITY EASEMENT
- PROPOSED CONC. C&G
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- NO PARKING ZONE
- HANDICAP STALL

SITE DATA

EXISTING

PROPERTY ADDRESS:
824 41ST AVE NE, COLUMBIA HEIGHTS, MN 55421

LEGAL DESCRIPTION:
BLOCK 1, LOT 1, NORTHWESTERN 2ND ADDITION,
AND OUTLOT E, NORTHWESTERN 2ND ADDITION,
ANOKA COUNTY, MINNESOTA

ZONING: R-4 MULTIPLE FAMILY RESIDENTIAL
DISTRICT

EXISTING PARCEL AREA: 5.00 ACRES

PROPOSED

ZONING: PLANNED UNIT DEVELOPMENT

LOT 1 AREA: 3.31 ACRES
LOT 2 AREA: 1.30 ACRES
LOT 3 AREA: 0.39 ACRES

TOTAL AREA=5.00 ACRES



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LEE R. KOPPY, PE

PRINT NAME

SIGNATURE

41267

REGISTRATION NUMBER

04/05/2021

DATE

Project #:

(Anderson 16337)

Date:

04/05/2021

Drawn by:

KWH

Checked by:

LRK

Issue:

Date:

P.U.D. SUBMITTAL

04/05/2021

NORTHWESTERN 3RD ADDITION

COLUMBIA HEIGHTS, MN

PRELIMINARY PLAT

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PARKING SUMMARY

	REQUIRED			EXTERIOR			UNDERGROUND			PROVIDED OUTLOT C			TOTAL SITE			GRAND TOTAL
	STANDARD	ADA	TOTAL	STD	COMPACT	ADA	STD	COMPACT	ADA	STD	COMPACT	ADA	STD	COMPACT	ADA	
LOT 2	97	5	102	35	24	3	42	0	2	0	0	0	77	24	5	106
LOT 3	TBD	TBD	SHARED	SHARED	SHARED	SHARED	0	0	0	11	0	0	11+SHARED	SHARED	SHARED	11+SHARED
TOTAL	97+LOT 3	5+LOT 3	102+LOT 3	35	24	3	42	0	2	11	0	0	88	24	5	117

LEGEND

- PROPERTY LIMITS
- CONSTRUCTION LIMITS
- ADJACENT PROPERTY
- BUILDING SETBACKS
- PARKING SETBACK
- DRAINAGE AND UTILITY EASEMENT
- PROPOSED CONCRETE C&G
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- NO PARKING ZONE
- HANDICAP STALL DESIGNATION
- NUMBER OF PARKING STALL IN SECTION

KEY NOTES

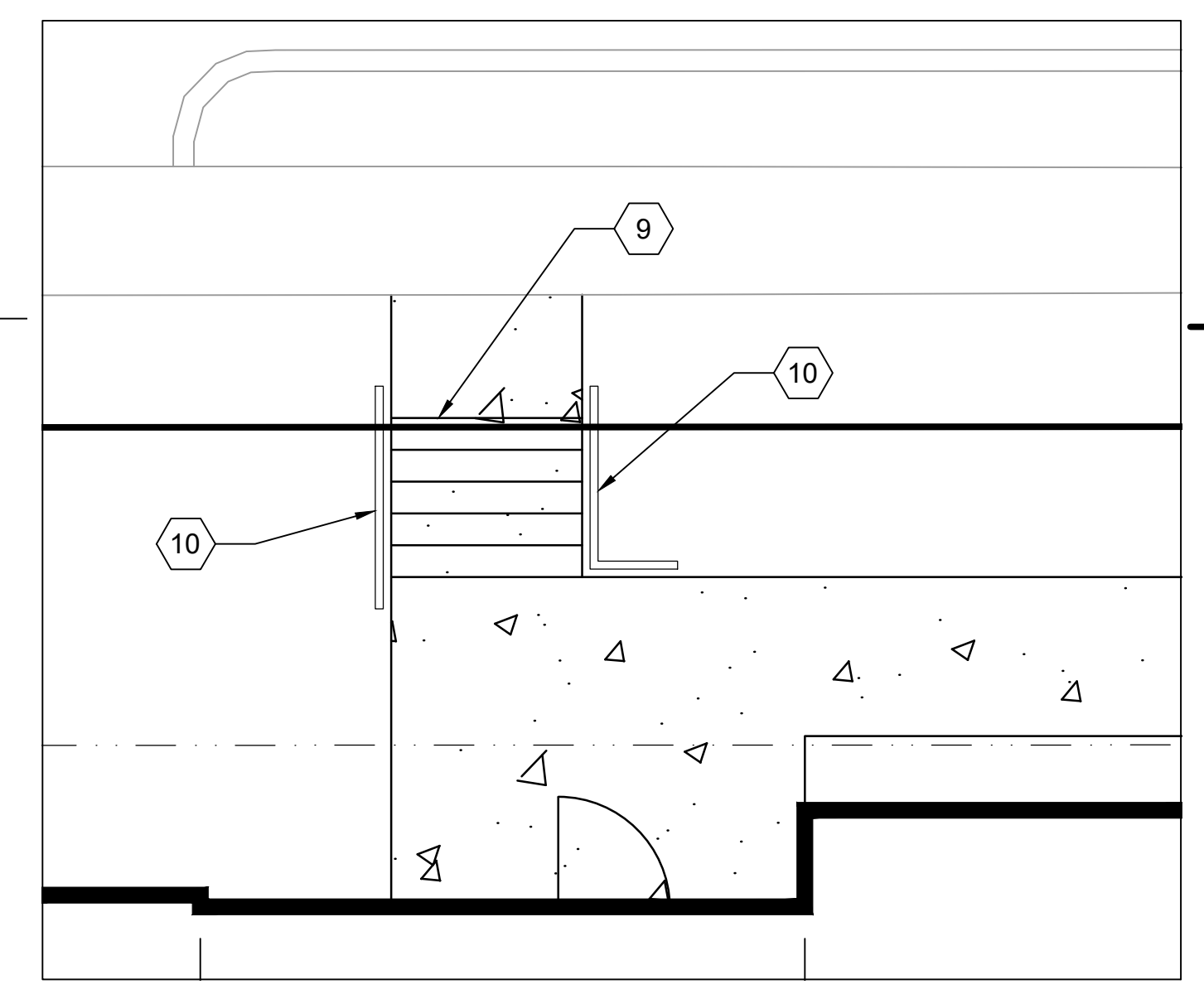
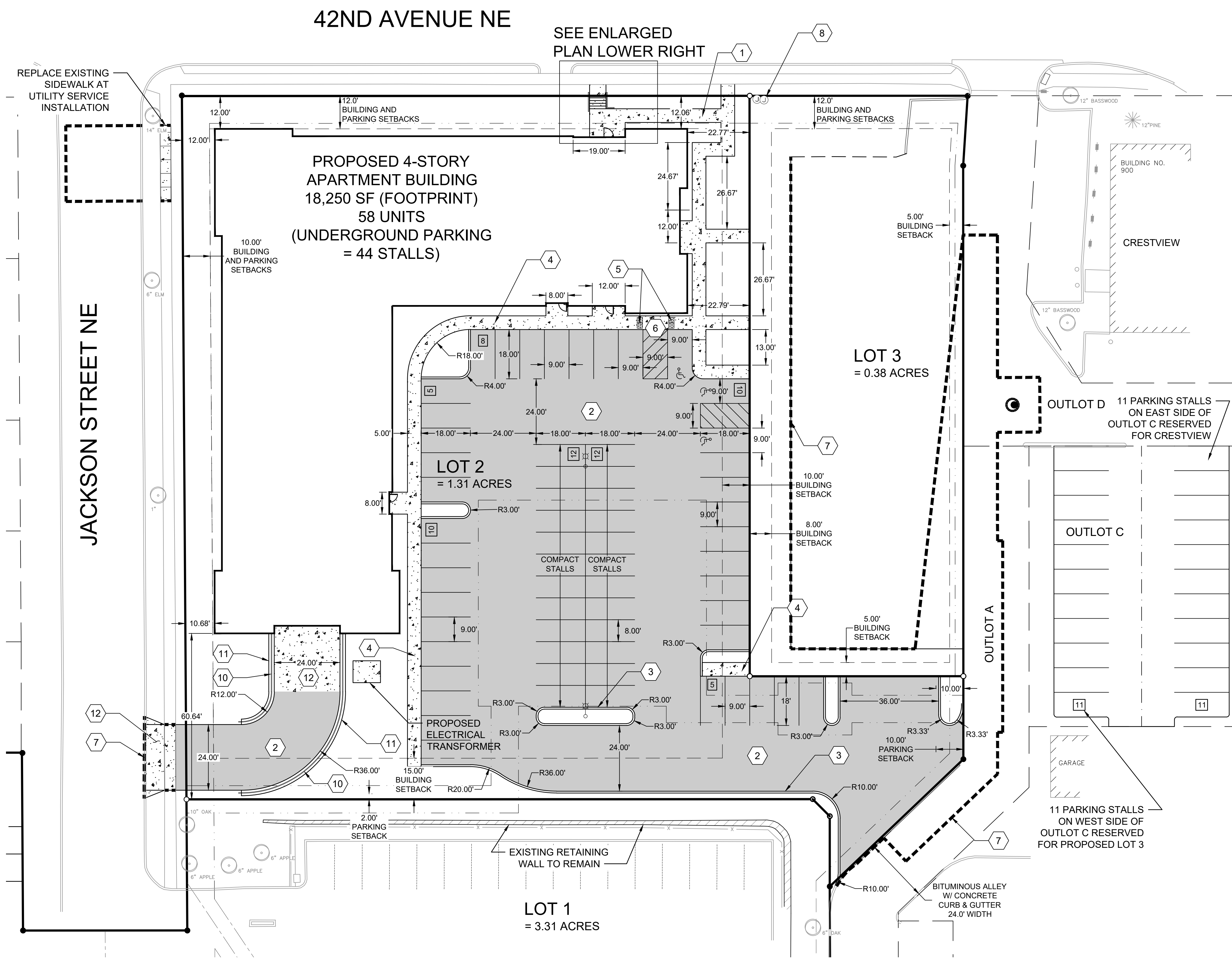
- 1 PROPOSED CONCRETE SIDEWALK (SEE DETAIL)
- 2 PROPOSED BITUMINOUS PAVEMENT (SEE DETAIL)
- 3 CONCRETE CURB (SEE DETAIL)
- 4 CONCRETE SIDEWALK (SEE DETAIL)
- 5 ADA DETECTABLE WARNING PLATES
- 6 ADA PEDESTRIAN RAMP (SEE DETAIL)
- 7 FULL DEPTH SAWCUT / PAVEMENT MATCH IN LINE.
- 8 EXISTING ELECTRICAL JUNCTION BOX
- 9 CONCRETE STEPS (SEE DETAIL)
- 10 METAL RAILING. EXTEND 12" BEYOND ENDS OF THE STEPS/WALL. (SEE DETAIL)
- 11 RETAINING WALL. (STRUCTURAL DESIGN BY OTHERS)
- 12 CONCRETE PAVEMENT (SEE DETAIL)

BUILDING SETBACKS

	LOT 2	LOT 3
FRONT	12.0'	12.0'
SIDE	10.0'	8.0'
SIDE CORNER	10.0'	5.0'
REAR	15.0'	5.0'

PARKING SETBACKS

	LOT 2
FRONT	10.0'
SIDE	0.0'
SIDE CORNER	10.0'
REAR	2.0'



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LEE R. KOPPY, PE
 PRINT NAME

SIGNATURE *Lee R. Koppy*

41267 04/05/2021
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Date: 04/05/2021

Drawn by: KWH

Checked by: LRK

Issue: P.U.D. SUBMITTAL Date: 04/05/2021

NORTHWESTERN 3RD ADDITION

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 PRELIMINARY SITE PLAN



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NORTHWESTERN 3RD ADDITION

COLUMBIA HEIGHTS, MN

PRELIMINARY GRADING PLAN

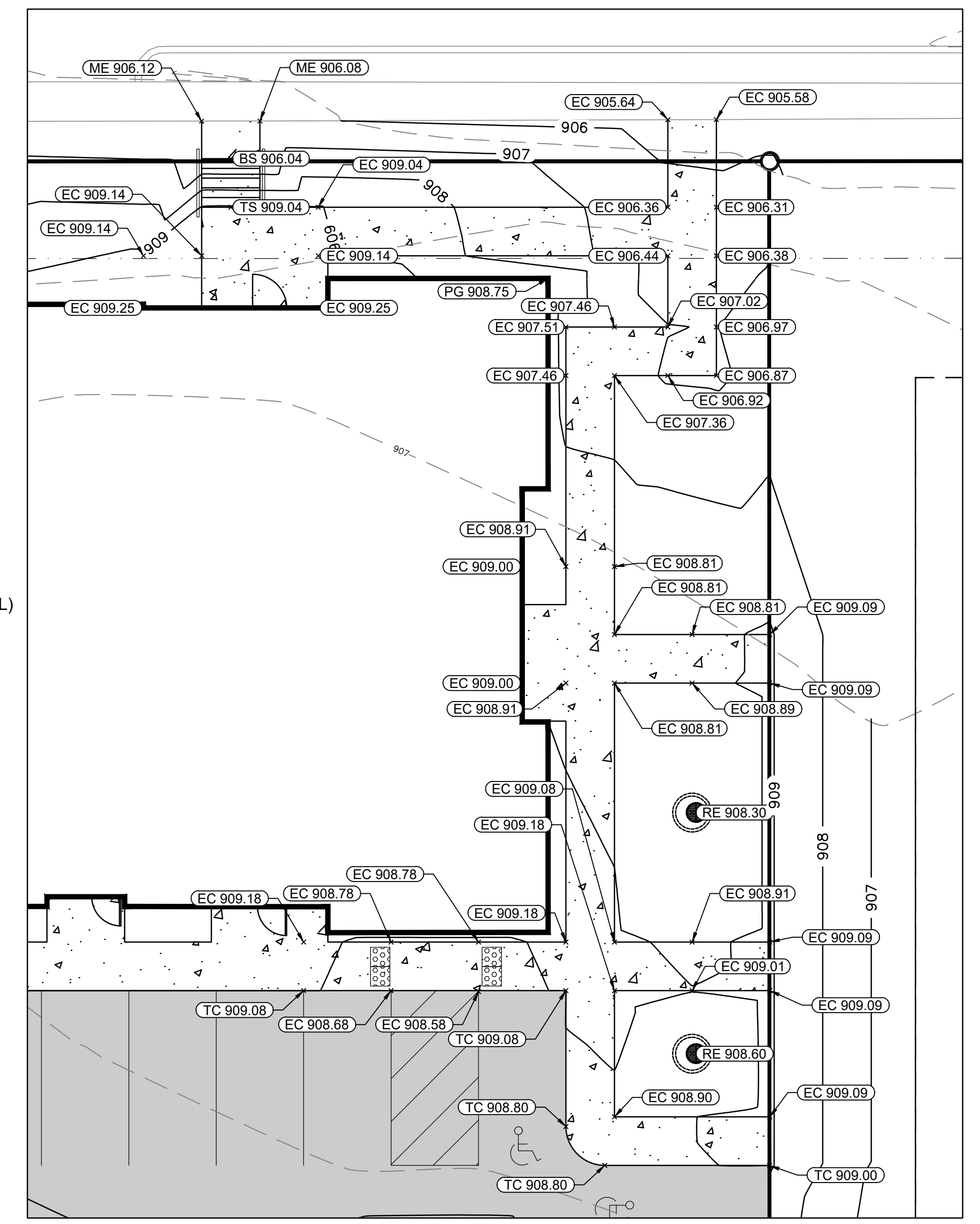
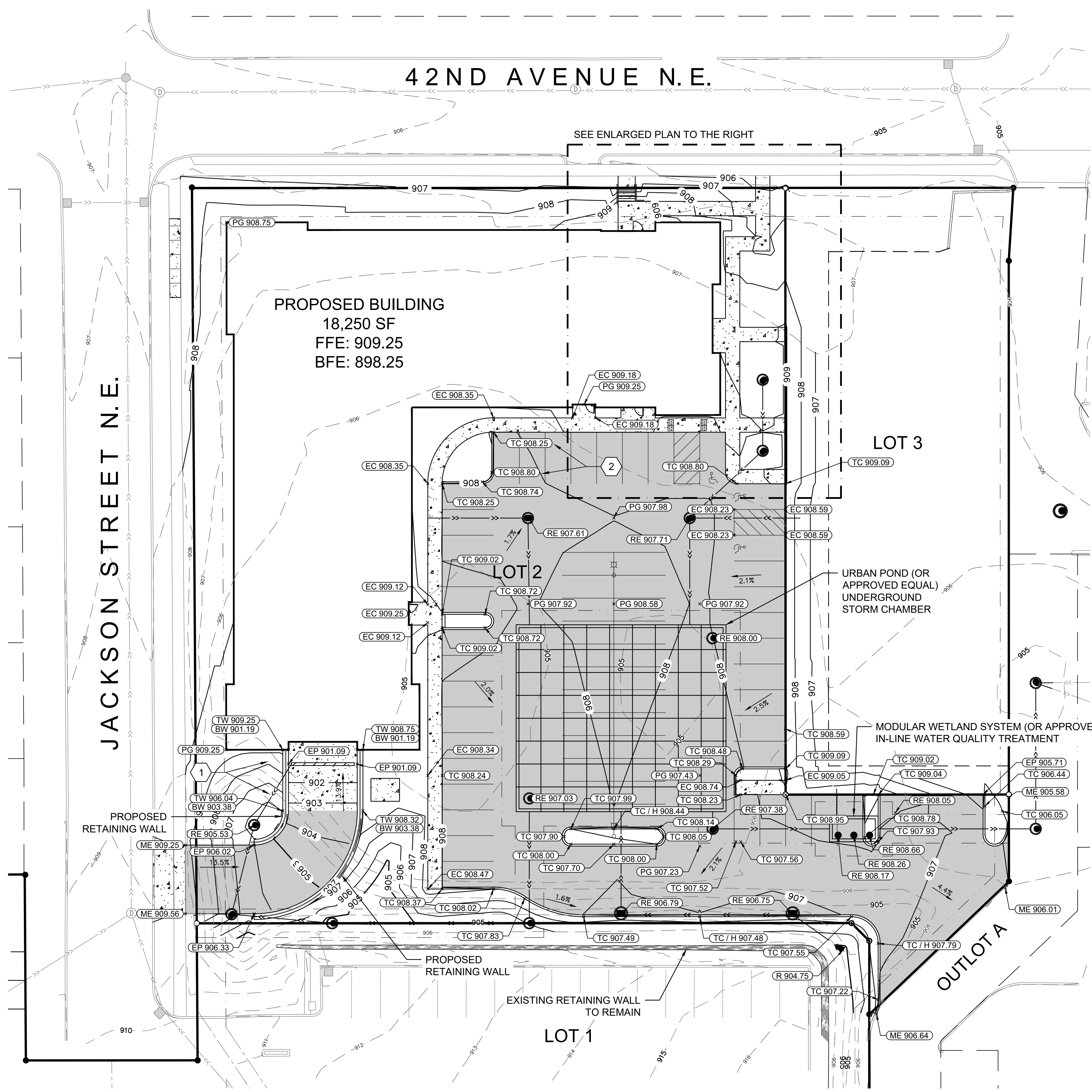
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KEY NOTES

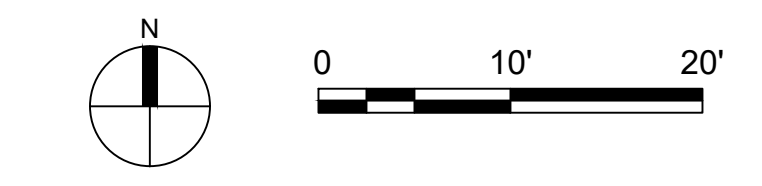
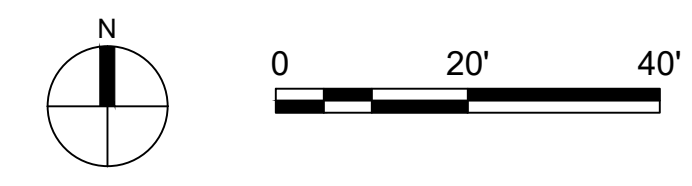
- 1 GRADE SWALE TO PREVENT WATER FROM DRAINING OVER RETAINING WALL.
- 2 SPOT GRADES MARKED "TC" REFER TO TOP OF CURB OR TOP OF RAISED SIDEWALK GRADE. ADJACENT PAVEMENT ELEVATION IS 6" (0.5') BELOW THIS ELEVATION UNLESS OTHERWISE NOTED.

LEGEND

---	PROPERTY LIMITS
- - -	EXISTING MINOR CONTOUR
- - -	EXISTING MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	PROPOSED MAJOR CONTOUR
====	PROPOSED RETAINING WALL
====	PROPOSED CONCRETE C&G
←←	PROPOSED STORM SEWER
○	TOP OF CURB / HIGH POINT
○	RIM ELEVATION
○	TOP OF WALL
○	BOTTOM OF WALL
○	TOP OF STEP
○	BOTTOM OF STEP
○	EDGE OF CONCRETE
○	EDGE OF PAVEMENT
○	PROPOSED GRADE
○	MATCH EXISTING GRADE



ENLARGED GRADING PLAN





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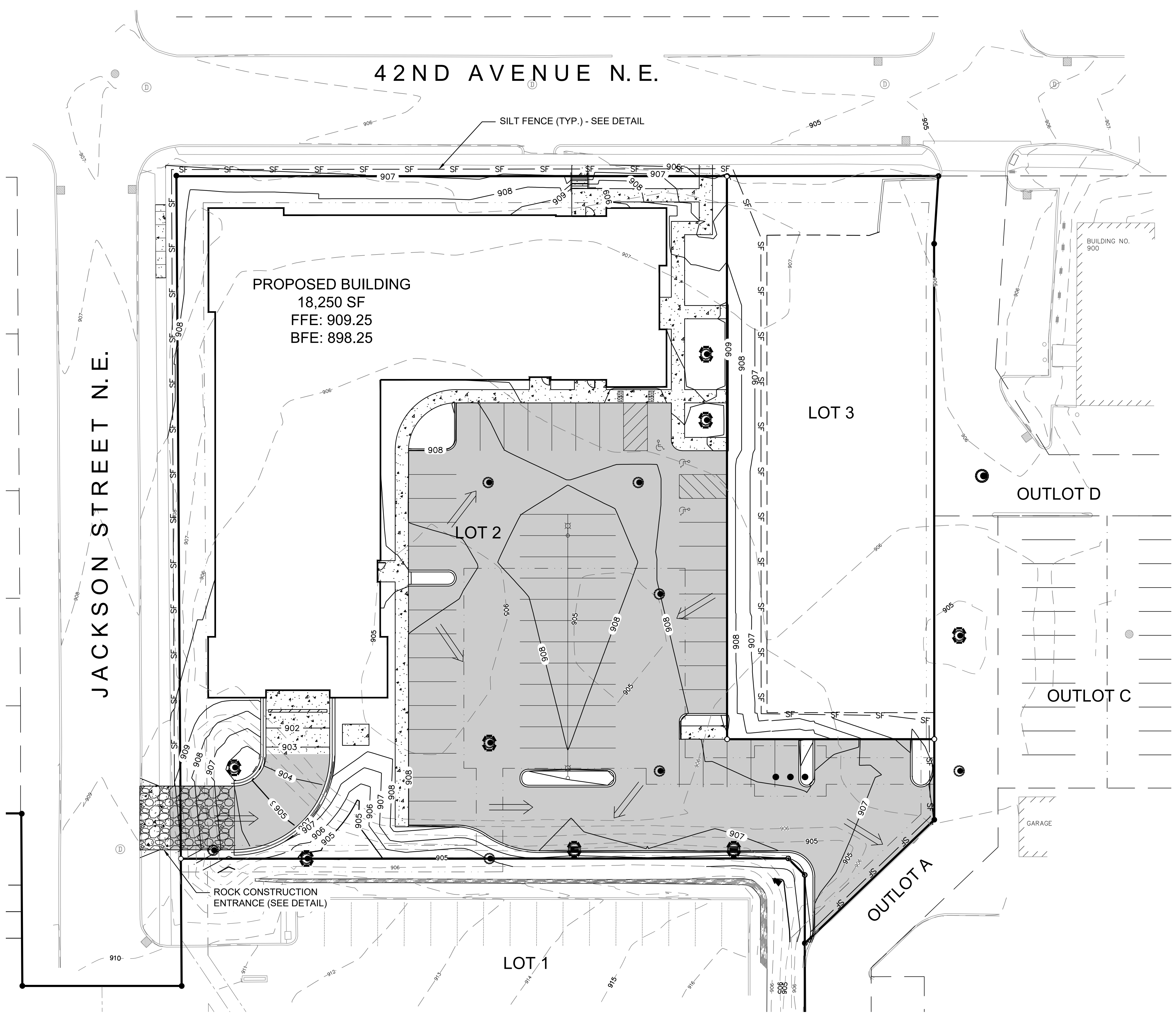
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PRELIMINARY EROSION CONTROL PLAN

C-4

LEGEND

- PROPERTY LIMITS
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED RETAINING WALL
- PROPOSED CONCRETE C&G
- DIRECTION OF FLOW
- SILT FENCE
- ROCK CONSTRUCTION ENTRANCE
- INLET PROTECTION AT CATCH BASIN OPENING





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NORTHWESTERN 3RD ADDITION

COLUMBIA HEIGHTS, MN

PRELIMINARY UTILITY PLAN

C-5

LEGEND

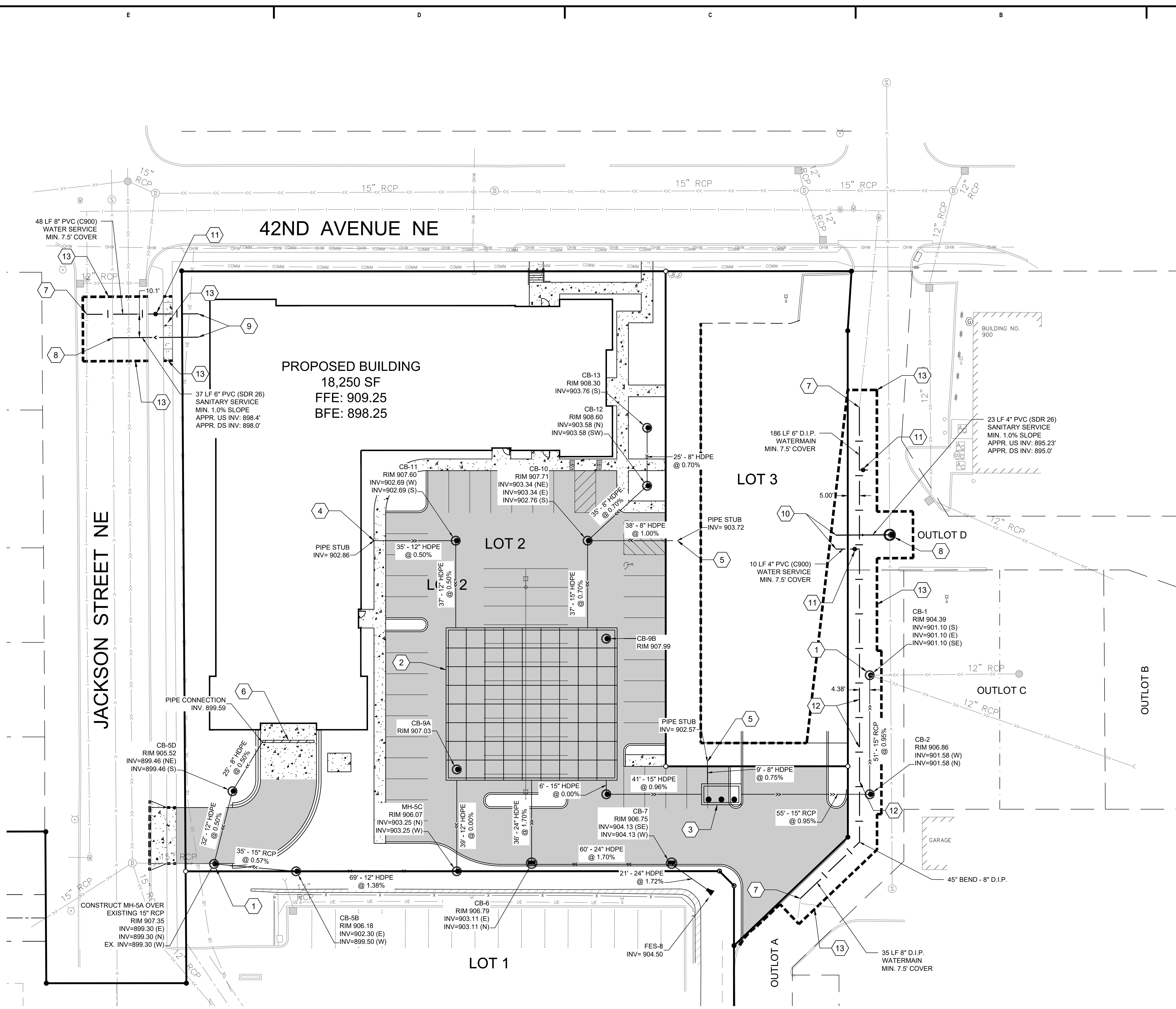
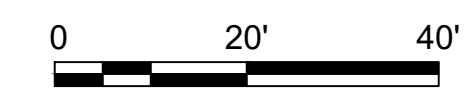
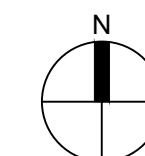
- PROPERTY LIMITS
- CONSTRUCTION LIMITS
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED WATERMAIN FITTING
- PROPOSED SANITARY MANHOLE AND CLEANOUT
- PROPOSED STORM INLETS

GENERAL NOTES

1. FOR ALL UTILITY DEMOLITION AND CONSTRUCTION WITHIN PUBLIC R.O.W., CONTRACTOR TO DETERMINE PAVEMENT SAWCUT AND REPLACEMENT LIMITS AS NECESSARY.

KEY NOTES

- 1 CONNECT EXISTING PIPE TO NEW STORM MANHOLE.
- 2 UNDERGROUND STORMWATER DETENTION CHAMBERS. URBAN POND (OR APPROVED EQUAL)
- 3 MODULAR WETLAND SYSTEM (OR APPROVED EQUAL) IN-LINE WATER QUALITY TREATMENT
- 4 STUB FOR BUILDING ROOF DRAINAGE CONNECTION TO 5.0' FROM PROPOSED FACE-OF-BUILDING
- 5 STUB PIPE FOR FUTURE BUILDING CONNECTION
- 6 TRENCH DRAIN, 22 LF 12" WIDTH
- 7 CONNECT TO EXISTING WATERMAIN
- 8 CONSTRUCT NEW MANHOLE & CONNECT TO SEWER
- 9 STUB SANITARY AND WATER SERVICE PIPES TO 5.0' FROM PROPOSED FACE-OF-BUILDING
- 10 STUB AND CAP NEW SANITARY AND WATER SERVICE PIPES FOR FUTURE BUILDING.
- 11 PROPOSED WATER SERVICE VALVE
- 12 INSULATE WATERMAIN HORIZONTALLY ALONG FULL LENGTH OF PIPE WHERE 10' HORIZONTAL SPACING CANNOT BE MAINTAINED BETWEEN WATERMAIN AND SANITARY OR STORM SEWER PIPES. INSULATE VERTICALLY WHERE WATERMAIN CROSSES STORM OR SANITARY SEWER WITH LESS THAN 4' VERTICAL CLEARANCE. USE 4' X 8' X 2" FOAM BOARD.
- 13 SAWCUT EXISTING





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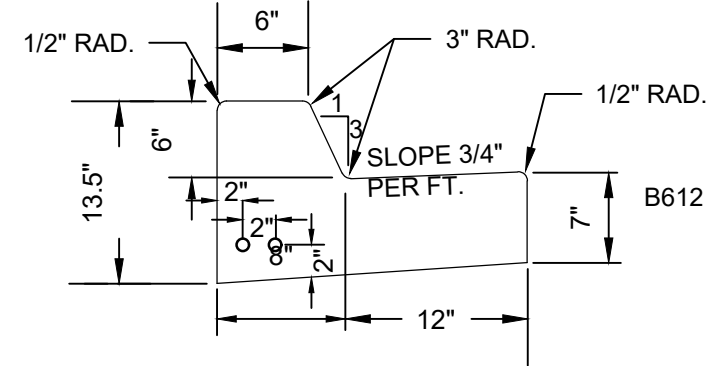
NORTHWESTERN 3RD ADDITION

COLUMBIA HEIGHTS, MN

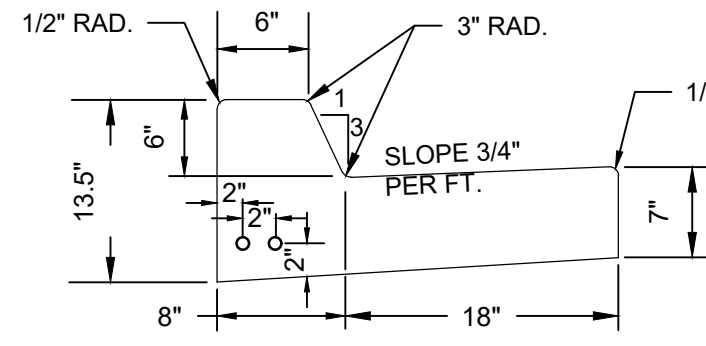
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PRELIMINARY CIVIL DETAILS 1

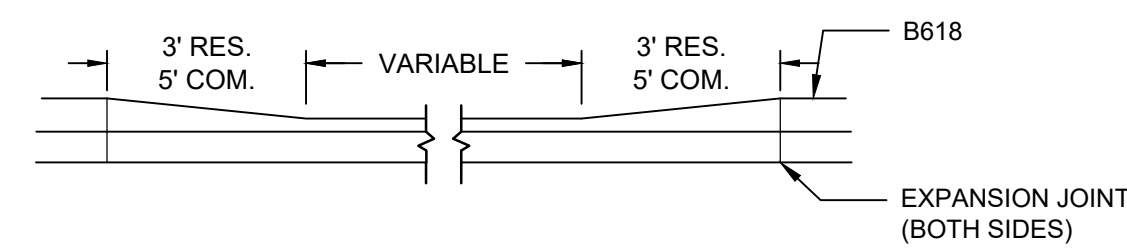
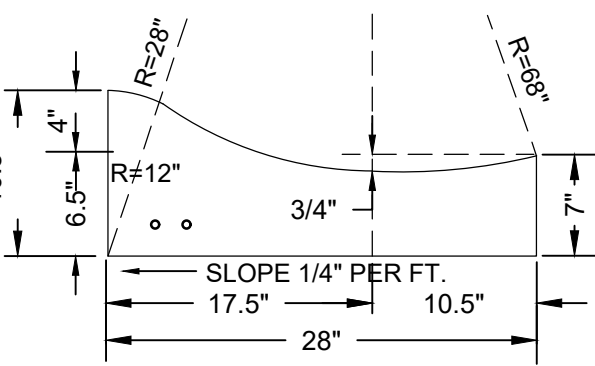
C-6



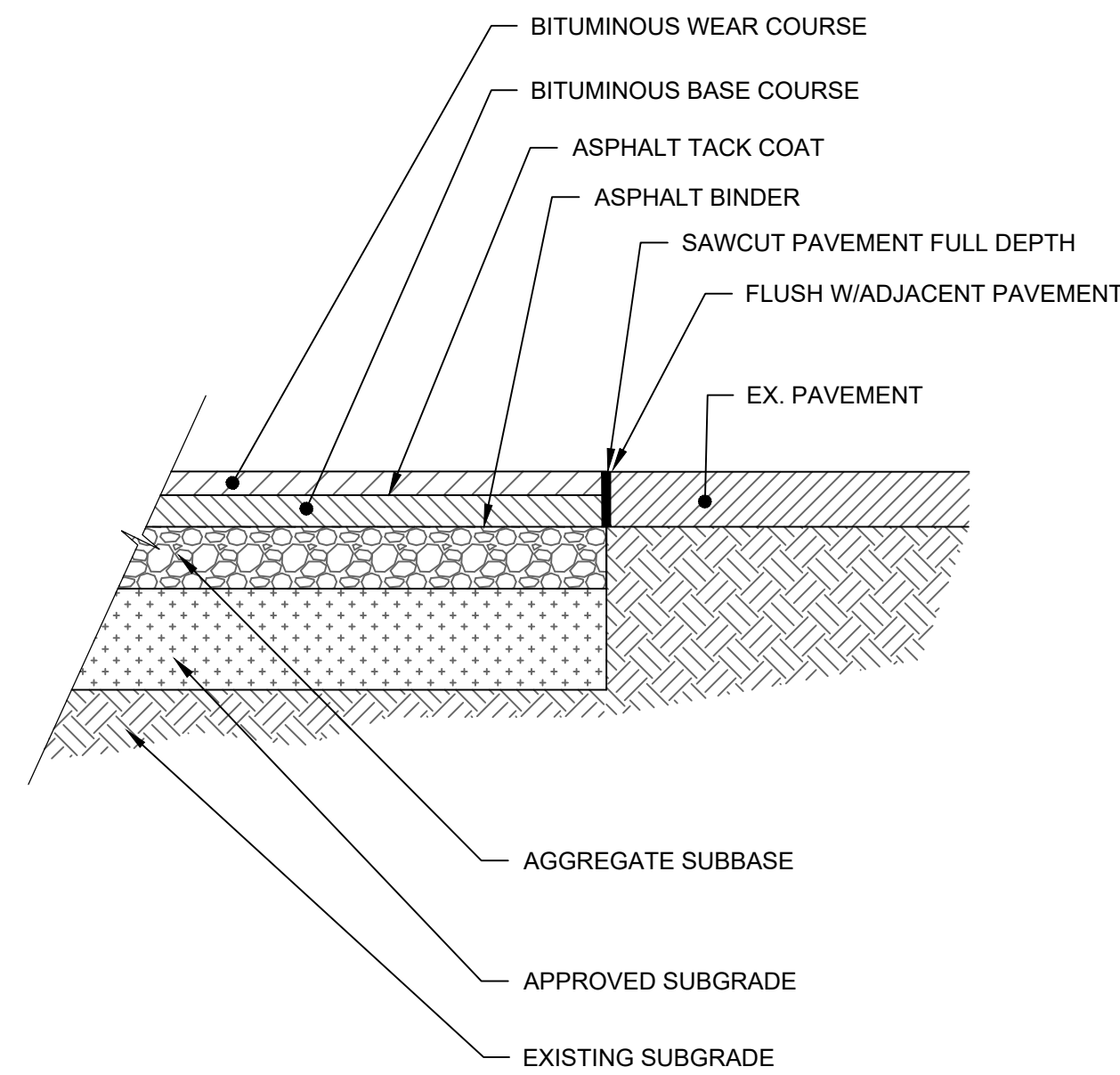
AT ALL TRENCHES #4 REINFORCING RODS SHALL BE PLACED IN THE LOWER PORTION OF THE CURB 20 FEET IN LENGTH.
#4 REINFORCING RODS AT CATCH BASINS NO LESS THEN 10 FEET IN LENGTH.
NOTE:
CONTROL JOINTS SHALL CONFORM WITH MNDOT SPEC. 2531.3C.



SURMOUNTABLE
NOTE:
B618 CURB TO BE USED AT RADIUS. SEE CITY PLATE NO. STRT-5

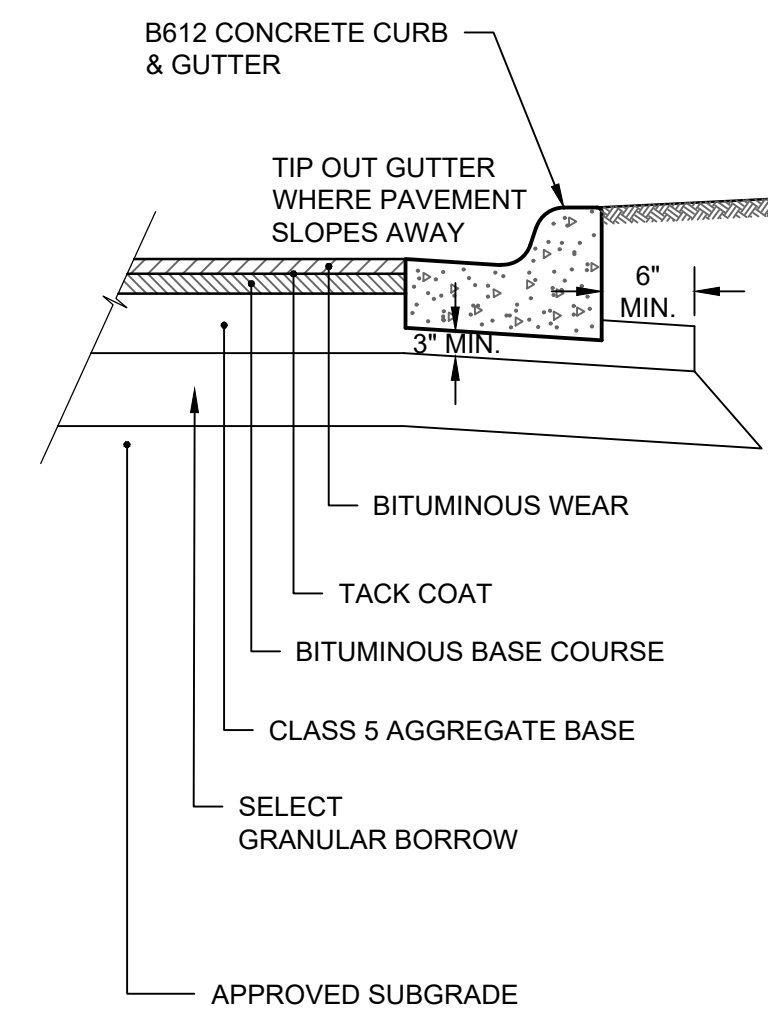


1 CONCRETE CURB
SCALE: N.T.S.

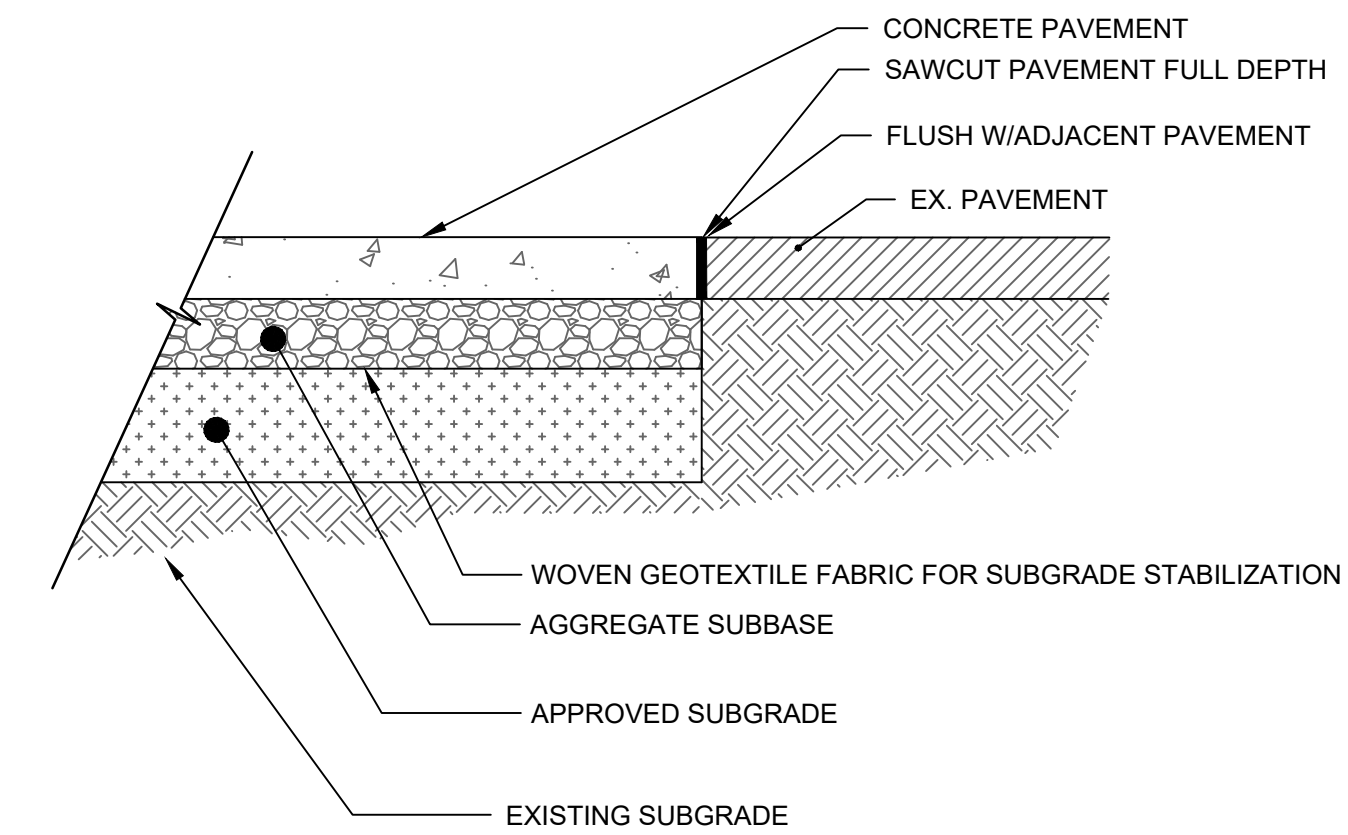


NOTES:
1. VERIFY ASPHALT AND BASE COURSE WITH GEOTECHNICAL REPORT AND RECOMMENDATIONS.

2 ASPHALT PAVEMENT
SCALE: N.T.S.

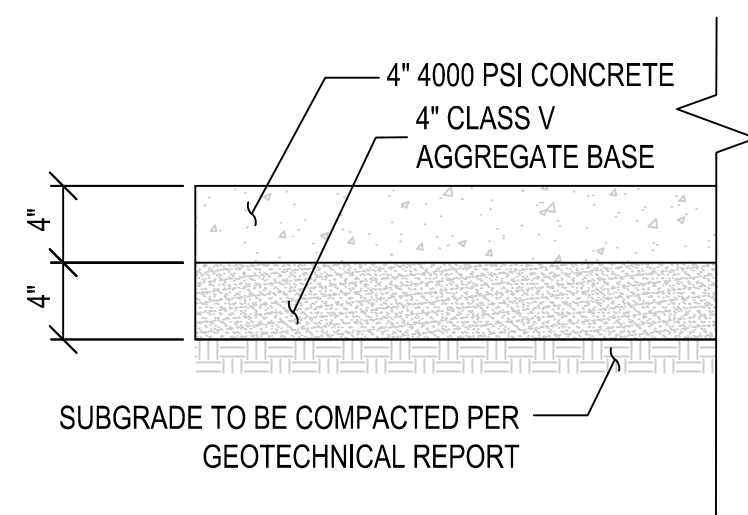


PAVEMENT SECTION
NOT TO SCALE
NOTE: VERIFY PAVEMENT SECTION DESIGN AND SUBGRADE REQUIREMENTS WITH GEOTECHNICAL REPORT AND RECOMMENDATIONS PRIOR TO CONSTRUCTION.

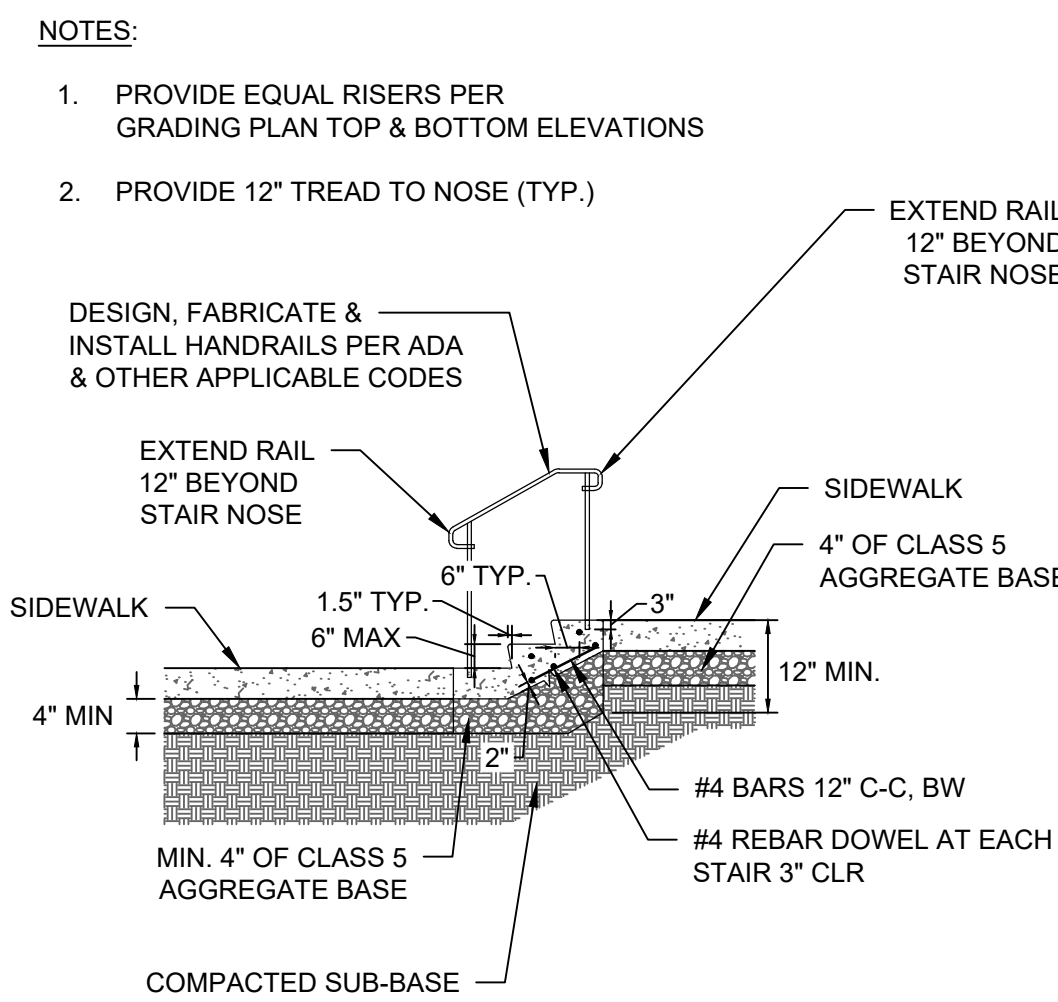


NOTES:
1. EXTEND 6\"/>

3 CONCRETE PAVEMENT
SCALE: N.T.S.

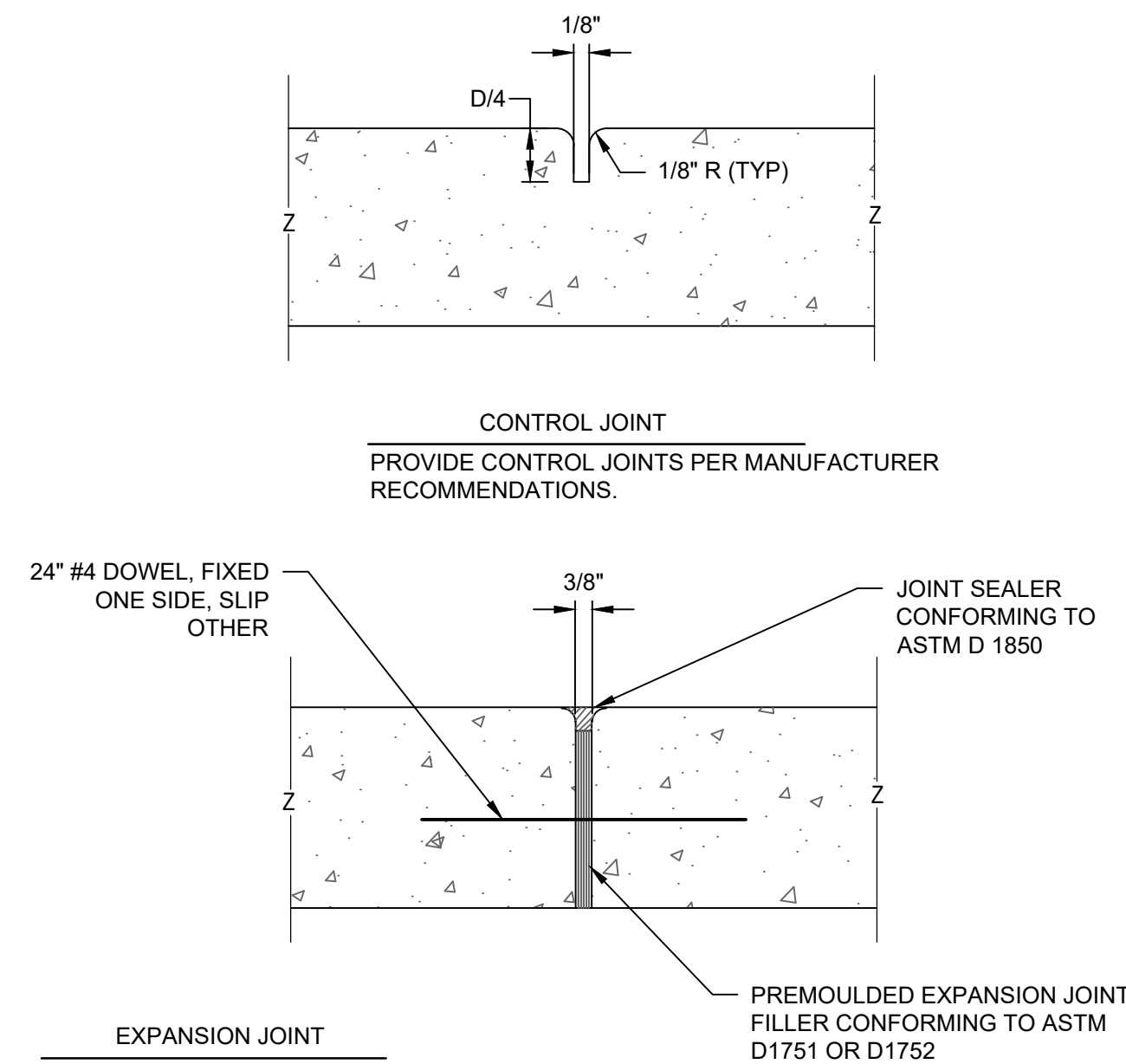


4 CONCRETE SIDEWALK
SCALE: N.T.S.



* DELEGATED DESIGN: CONTRACTOR TO DESIGN ALL STAIRCASES, RAMPS AND HANDRAILS TO MN ADA STANDARDS.

5 CONCRETE STEPS W/ RAILING
SCALE: N.T.S.



EXPANSION JOINT
PROVIDE EXPANSION JOINTS AT BUILDING AND CONCRETE STOOP INTERFACE, AS WELL AS EVERY 24 FEET OF CONTINUOUS SIDEWALK AND AT SIDEWALK INTERSECTIONS.

NOTE: JOINTS CAN BE SAW CUT.

6 CONCRETE JOINTS
SCALE: N.T.S.



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Anderson Engineering of Minnesota, LLC

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

LEE R. KOPPY, PE
PRINT NAME

Lee R. Koppy
SIGNATURE

41267 04/05/2021
REGISTRATION NUMBER DATE

Project #: (Anderson 16337)

Date: 04/05/2021

Drawn by: KWH

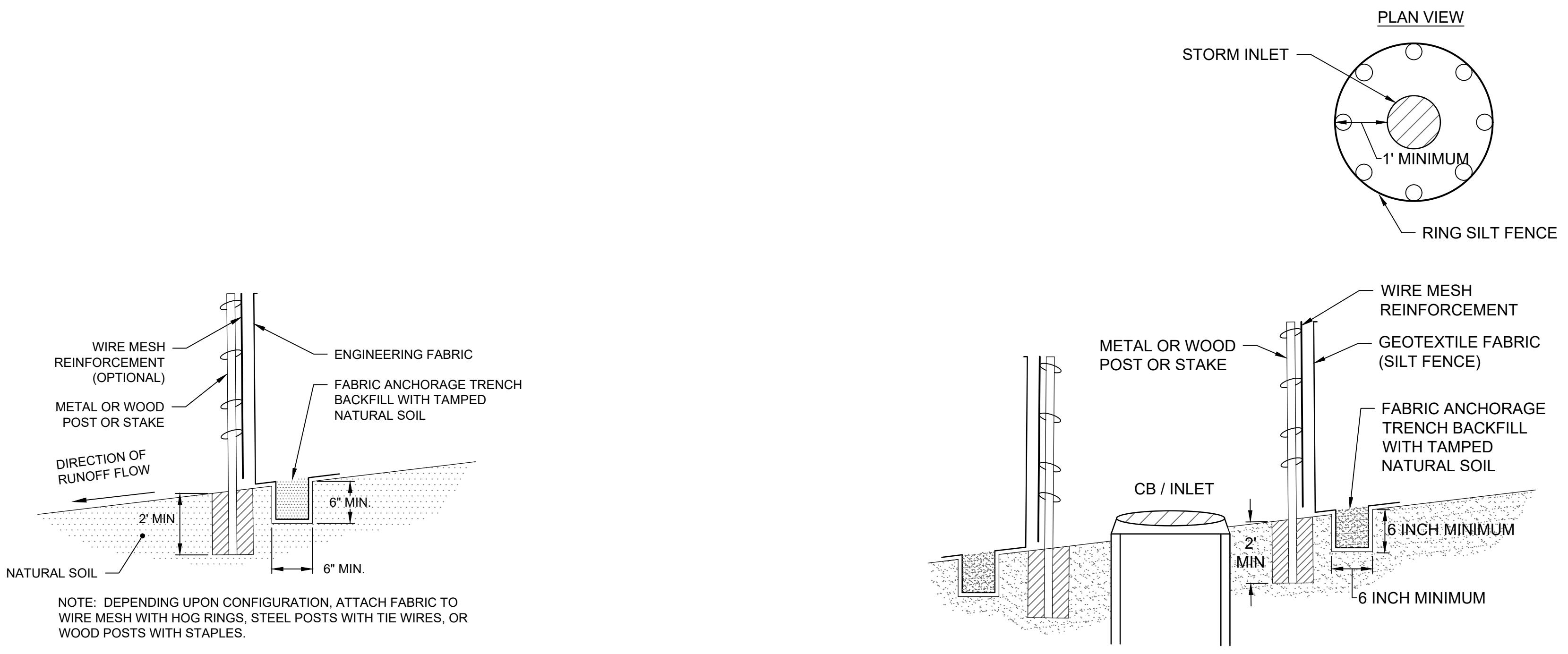
Checked by: LRK

Issue: P.U.D. SUBMITTAL Date: 04/05/2021

NORTHWESTERN 3RD ADDITION

COLUMBIA HEIGHTS, MN
PRELIMINARY CIVIL DETAILS 2

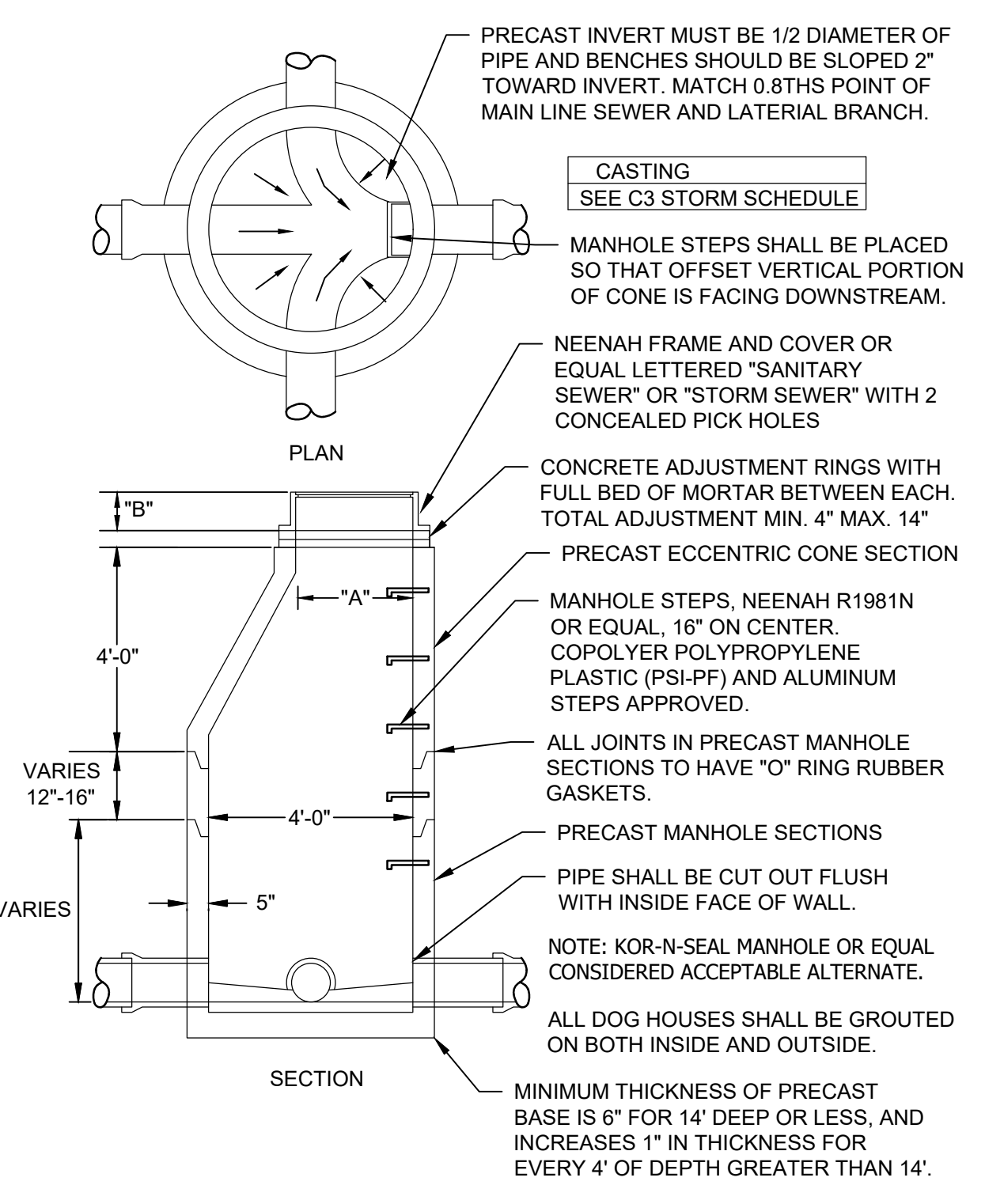
C-7



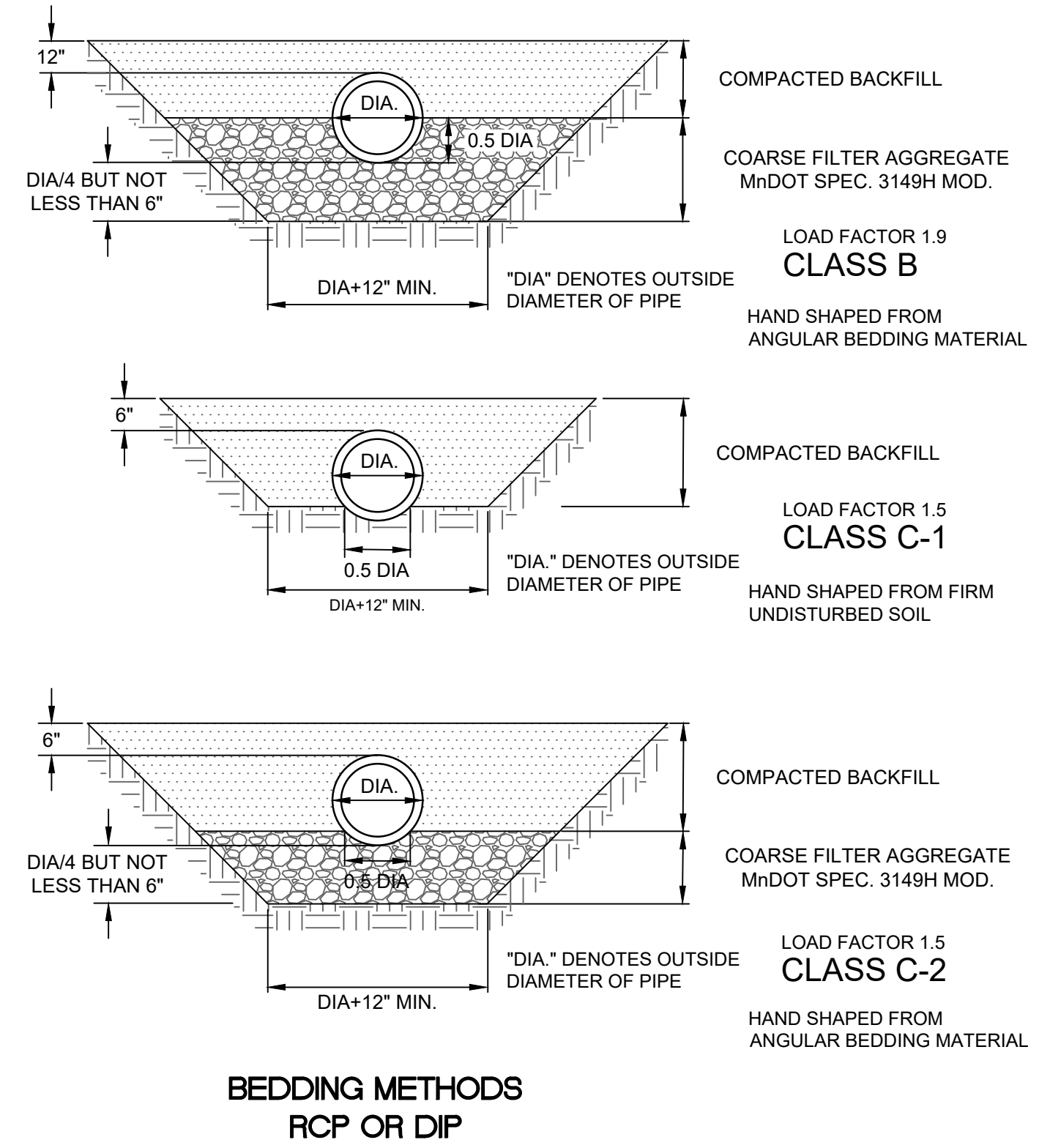
1 SILT FENCE
SCALE: N.T.S.

2 STORM DRAIN INLET PROTECTION
SCALE: N.T.S.

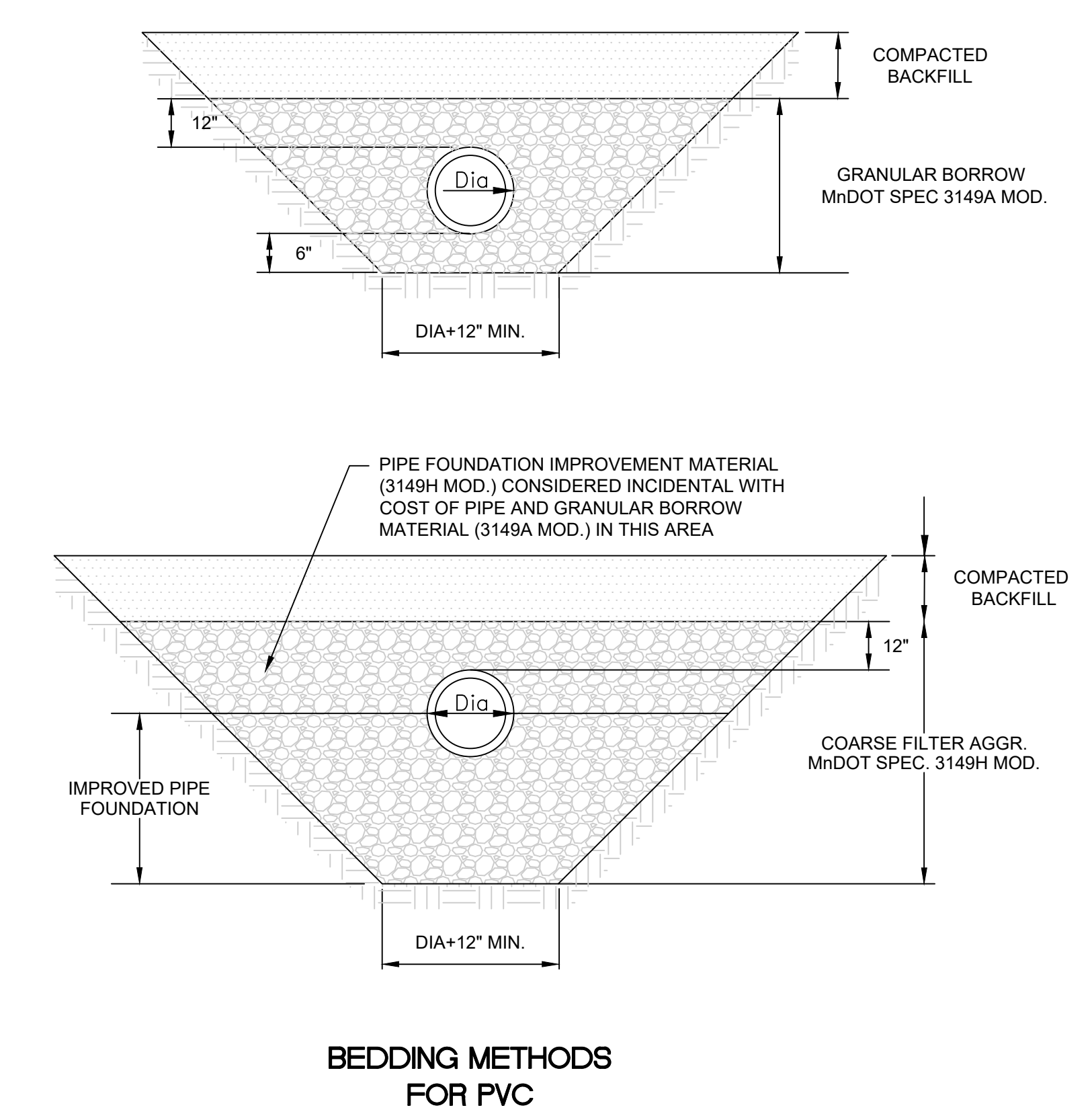
3 ROCK CONSTRUCTION ENTRANCE
SCALE: N.T.S.



4 STANDARD MANHOLE
SCALE: N.T.S.



5 RCP/DIP BEDDING
SCALE: N.T.S.



6 PVC BEDDING
SCALE: N.T.S.



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Anderson Engineering of Minnesota, LLC

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

LEE R. KOPPY, PE
PRINT NAME

41267 04/05/2021
REGISTRATION NUMBER DATE

Project #: (Anderson 16337)

Date: 04/05/2021

Drawn by: KWH

Checked by: LRK

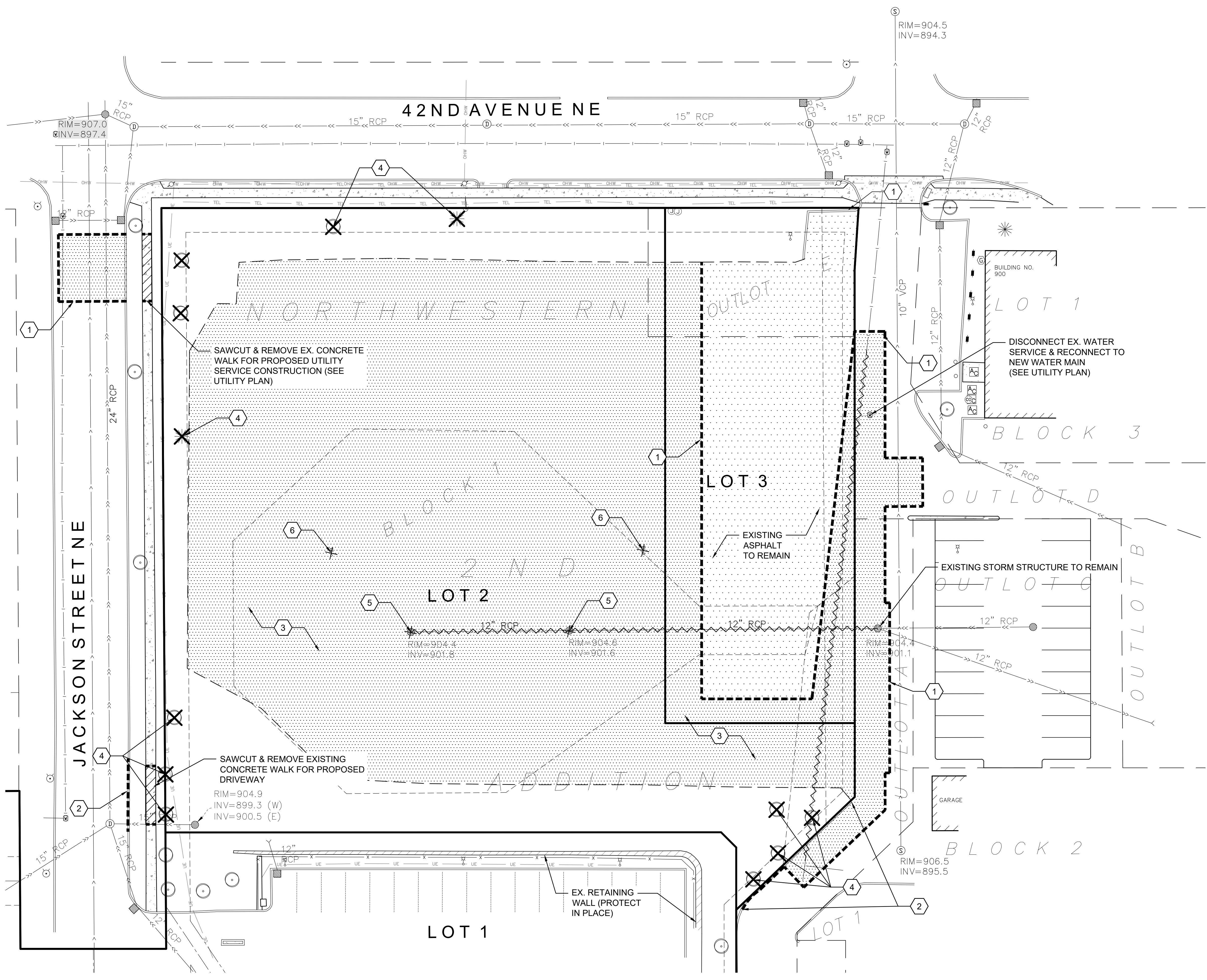
Issue: P.U.D. SUBMITTAL Date: 04/05/2021

NORTHWESTERN 3RD ADDITION

COLUMBIA HEIGHTS, MN

PRELIMINARY DEMOLITION PLAN

D-1



LEGEND

	PROPERTY LIMITS
	EXISTING WATERMAIN
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING GAS MAIN
	EXISTING OVERHEAD WIRES
	EXISTING TELEPHONE
	EXISTING UNDERGROUND ELECTRIC
	EXISTING HYDRANT AND GV
	EXISTING SANITARY MANHOLE
	EXISTING STORM SEWER INLET
	REMOVE EXISTING UTILITY LINE
	REMOVE EXISTING ASPHALT PAVEMENT
	EXISTING ASPHALT PAVEMENT
	REMOVE EXISTING CONCRETE WALK
	REMOVE TREE
	EXISTING LIGHT STANDARD
	EXISTING POWER POLE

- KEY NOTES**
- FULL DEPTH SAWCUT/PAVEMENT MATCH IN LINE. CONTRACTOR TO FIELD VERIFY EXTENTS AS NECESSARY.
 - REMOVE EXISTING CONCRETE CURB & GUTTER
 - REMOVE EXISTING ASPHALT PAVEMENT
 - REMOVE EXISTING TREE
 - REMOVE EXISTING STORM STRUCTURE
 - REMOVE EXISTING LIGHT STANDARD



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Easement Vacation Narrative

Background

The Planned Unit Development Application that is associated with this Vacation Application proposes to re-plate Lot 1 and Outlot E of Northwestern 2nd Addition. The property measures 5.0 Acres. The proposed plat, Northwestern 3rd Addition, would to subdivide the 5.0 acres into three lots: the City of Columbia Heights Public Safety Center is proposed to occupy Lot 1 (3.3 acres), the Applicant proposes to construct a new apartment building on Lot 2 (1.3 acres), and the remaining 0.4 acres will be platted as Lot 3 for future development.

The existing easements proposed to be vacated are all within Lot 2 and Lot 3 of the proposed plat. The Vacation Application does not intend to vacate any existing easements lying within Lot 1 of the proposed plat.

Easement Summary

There are four easements this Vacation Application is proposing to vacate. The Applicant has enclosed checks for the total of \$600, or \$150 for each easement that is proposed to be vacated. The following easements are graphically shown on the attached "Easement Exhibit", sheet X-2, and the details of each vacation request are summarized below:

1. Platted perimeter drainage and utility easement per Northwestern 2nd Addition

The existing easement provides a drainage and utility easement around the perimeter of Lot 1, with the exception of the NE corner, where the easement runs along the north and east boundaries of Outlot E (along shared boundary with 42nd Avenue NE and the Alley that runs within Outlot D).

The project is proposing to vacate this easement over the portion of land proposed to be platted as Lot 2 and Lot 3 of Northwestern 3rd Addition. The proposed plat will define a new perimeter drainage and utility easement. The Applicant is proposing to reduce the width of the perimeter drainage and utility easement along the east property line of proposed Lot 3 from 5.0' width to 3.0' width to provide adequate room for a future building on Lot 3.

2. Storm water drainage utility easement per Document No. 1554478

The existing easement serves two purposes:

- First, the westerly portion of the easement (octagonal shaped portion) in the northern portion of existing Lot 1, Northwestern 2nd Addition provides additional live storage capacity for the existing stormwater pond on Outlot B. During events when the existing public stormwater system downstream from Outlot B is not able to convey water quickly enough from the pond on Outlot B, stormwater backs up through the underground pipe system, overtops the two existing catch basins near the center of the parking lot in this portion of the project area, and temporarily retains water on the surface of the parking lot approximately to the perimeter of the easement.
- Second, the eastern portion of the easement adjacent to the north end of Outlot A, Northwestern 2nd Addition, protects the existing water main that runs through this portion of existing Lot 1, Northwestern 2nd Addition.

The project proposes to construct an apartment building within the octagonal shaped portion of the easement and proposes conditions that would support construction of a future building on Lot

3 that would be constructed within both the westly and eastern portions of the easement. The project is proposing to eliminate the need for both purposes of the easement as follows:

- First, the project would construct an underground stormwater chamber capable of storing a volume of runoff that will eliminate the need for the above ground storage within the easement area. The proposed project would also establish a new drainage and utility easement around the proposed underground stormwater chamber.
- Second, the project proposes to relocate the existing water main within Outlot A with a minimum horizontal distance of 10-ft. from the future building area on proposed Lot 3.

3. Utility easement per Document No. 594146

The existing easement runs along the eastern edge of Lot 1 and Outlot E, Northwestern 2nd Addition. The easement varies in width from 11.9' to 15.1' wide. The easement was established when former Van Buren Street was vacated along the same alignment. The purpose of the exhibit was to preserve the rights to construct new sanitary sewer or water mains within the former street right-of-way, in the event that they were needed.

The existing easement encumbers the portion of the proposed Lot 3 that is within the area proposed as buildable area. Pursuant to discussions with City staff, sewer and water mains have already been constructed within the alley within Outlot D. Therefore, there is no longer a need to preserve this land for running future utilities.

4. Parking easement over Outlot E per Document No. 1554482

The existing parking easement on Outlot E currently provides the rights to the existing Crest View Senior Living to 11 parking stalls on Outlot E. Outlot E is located approximately 100 feet west of the Crest View Senior Living Center.

The City of Columbia Heights is the current landowner of Outlot C, which is approximately 100 feet south of the Crest View Senior Living Center. Pursuant to discussions with City of Columbia Heights City staff, this project proposes to relocate the parking rights for 11 stalls from Outlot E to Outlot C. The Applicant will work with the City to ensure that a new easement is prepared providing similar terms to the existing easement that are acceptable to the owners of Crest View Senior Living Center.



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Anderson Engineering of Minnesota, LLC

I hereby certify that this survey was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

DAVID ANDERSON, LS
PRINT NAME

SIGNATURE
43501 04/05/2021
REGISTRATION NUMBER DATE

Project #: (Anderson 16337)
Date: 04/05/2021

Drawn by: JML
Checked by: DA

Issue: Date:
P.U.D. SUBMITTAL 04/05/2021

NORTHWESTERN 3RD ADDITION
COLUMBIA HEIGHTS, MN

EXISTING CONDITIONS

X-1

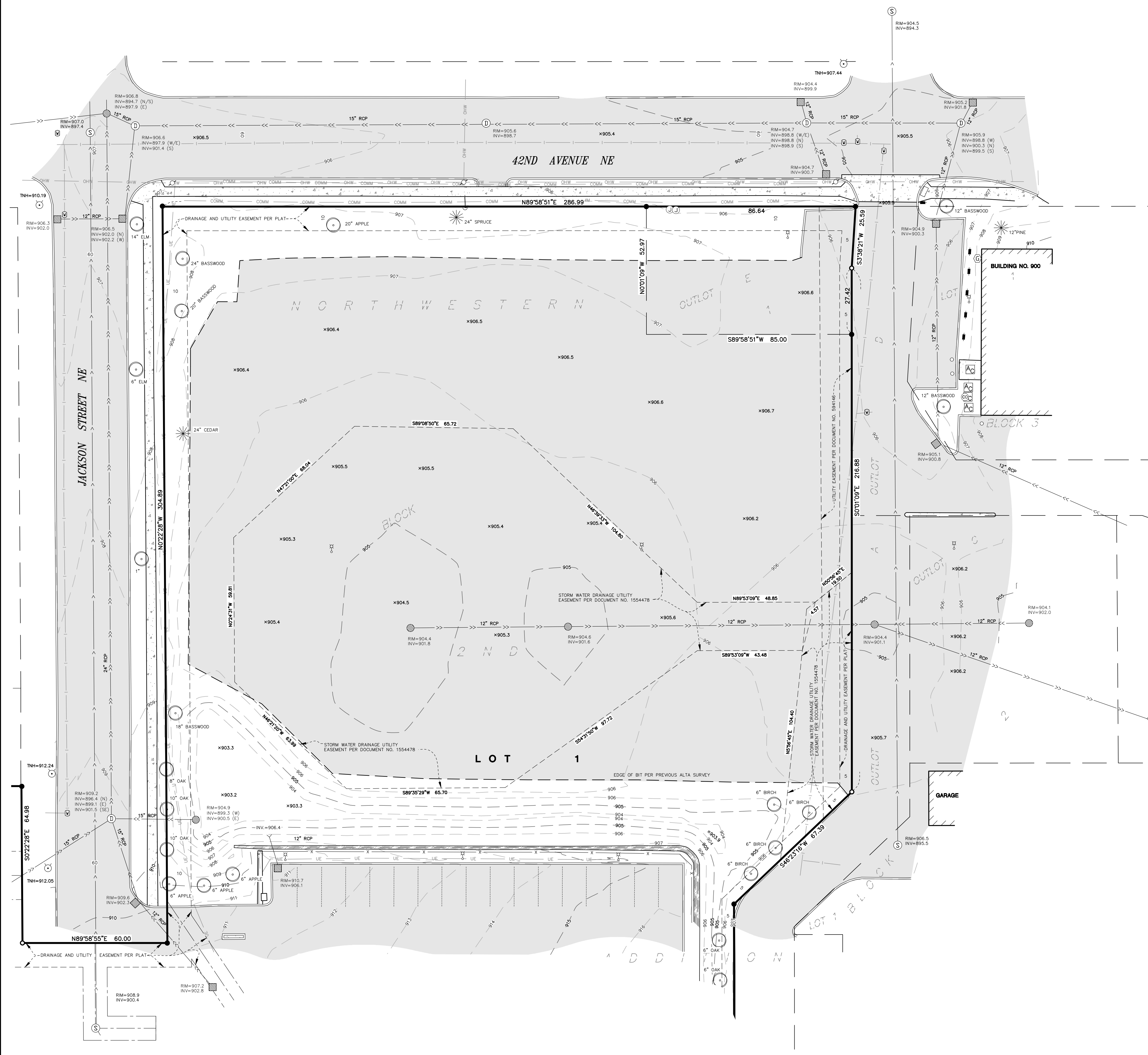
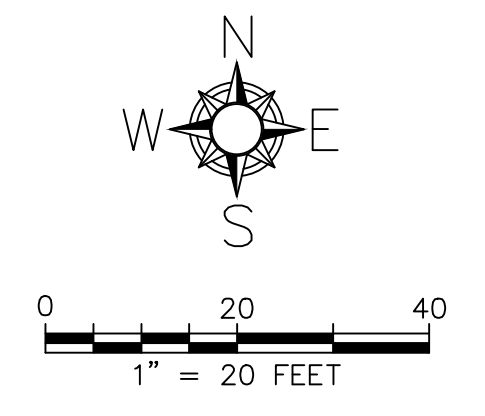
EXISTING CONDITIONS SURVEY

LEGAL DESCRIPTION:
Part of Lot 1, Block 1, and Outlot E, NORTHWESTERN 2ND ADDITION, Anoka County, Minnesota.

- NOTES:
- The horizontal datum and bearings are based on the Anoka County Coordinate System NAD83 (2011).
 - The vertical datum is NAVD 88. The site bench mark is the top nut of hydrant located 60 feet north of northeast property corner (depicted hereon). Elevation = 907.44 feet.
 - The area of the properties described hereon is:
Lot 1, Block 1, 217,874 square feet or 5.0017 acres
Outlot E, 4,523 square feet or 0.1038 acres
 - The location and extent of underground utilities, if shown, are based upon above ground evidence and Gopher State One Call markings per ticket number 210610321. Exclusive of excavation, there is no guarantee as to the accuracy or the completeness of this information. The size and location should be considered approximate. Additional underground utilities may be present. Verification of the existence and location of all utilities should be obtained from the utility owners prior to any planning or design. In accordance with State Statute, the location of utilities shall be confirmed prior to any demolition or construction.
 - The tree information shown hereon was collected during the field survey by non-forestry trained Anderson Engineering of Minnesota survey personnel. Tree sizes are estimates and locations are accurate to plus or minus three feet.
 - No title work was provided for the preparation of this survey to verify the legal description or the existence of any easements or encumbrances.

LEGEND

- AIR CONDITIONER
- CATCH BASIN
- COMMUNICATION JUNCTION BOX
- CULVERT
- GAS METER
- GUARD POST
- HYDRANT
- LIGHT POLE
- POWER POLE
- POWER POLE ANCHOR
- SANITARY MANHOLE
- SIGN
- STORM MANHOLE
- WATER VALVE
- FOUND IRON MONUMENT
- SET MONUMENT WITH L.S. NO. 43501
- CONIFEROUS TREE
- DECIDUOUS TREE
- COMMUNICATION
- FENCE
- OVERHEAD WIRES
- SANITARY SEWER
- STORM SEWER
- UNDERGROUND ELECTRIC
- WATER MAIN
- BITUMINOUS SURFACE
- CONCRETE SURFACE
- TRUNCATED DOMES
- RETAINING WALL



EXISTING EASEMENT EXHIBIT

LEGAL DESCRIPTION:

Lot 1, Block 1, and Outlot E, NORTHWESTERN 2ND ADDITION,
Anoka County, Minnesota.



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Minneapolis, Minnesota 55401
612.676.2700 www.djr-inc.com



ANDERSON

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Plymouth, MN 55441 | ae-mn.com
P 763.412.4000 | F 763.412.4090
Anderson Engineering of Minnesota, LLC

I hereby certify that this survey was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

DAVID ANDERSON, LS

PRINT NAME

SIGNATURE

43501

REGISTRATION NUMBER

04/05/2021

DATE

Project #: (Anderson 16337)

Date: 04/05/2021

Drawn by: JML

Checked by: DA

Issue: P.U.D. SUBMITTAL

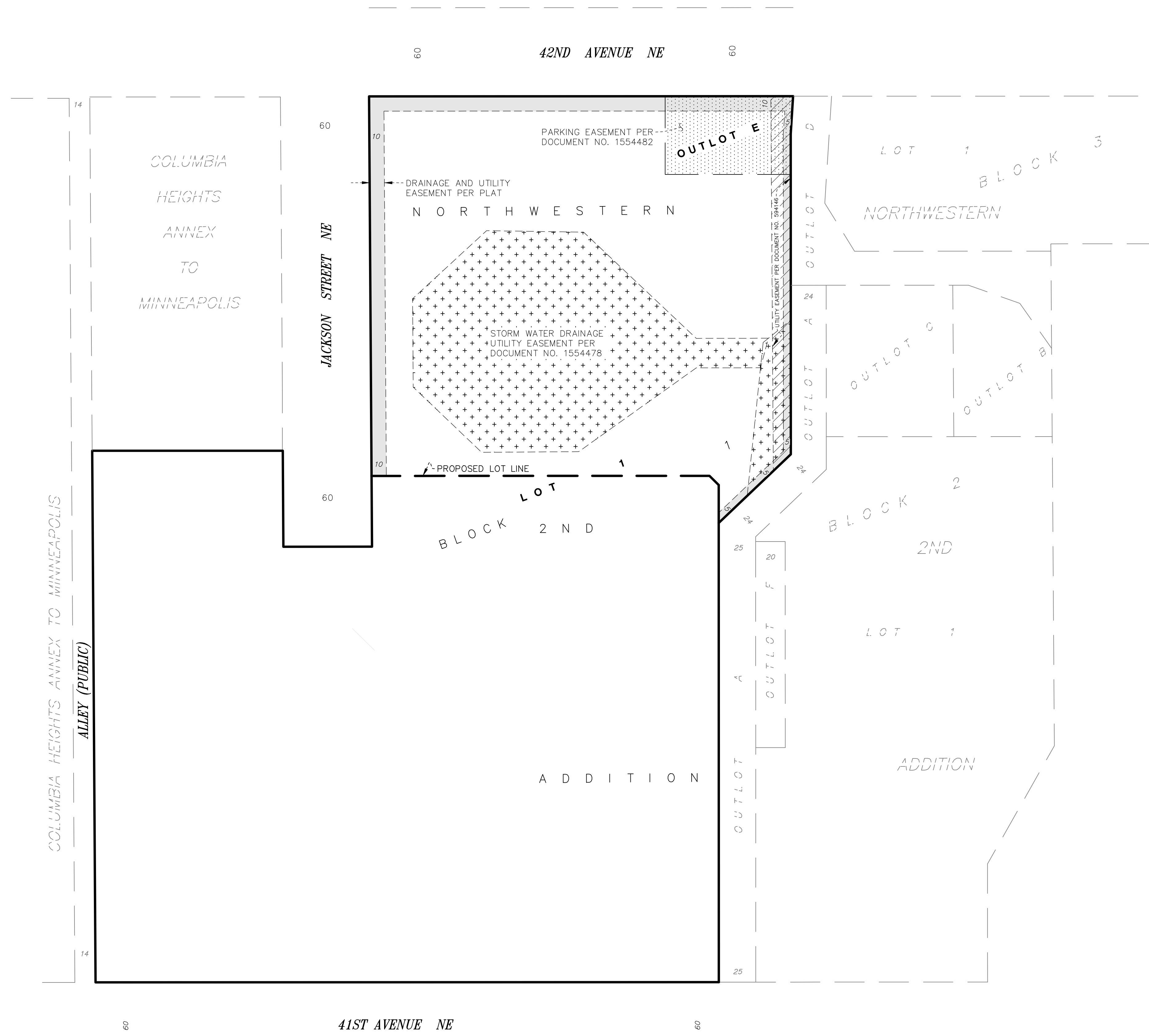
Date: 04/05/2021

NORTHWESTERN 3RD ADDITION

COLUMBIA HEIGHTS, MN

EASEMENT EXHIBIT

X-2

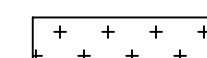


EASEMENTS:

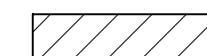
1. Platted drainage and utility easements per NORTHWESTERN 2ND ADDITION



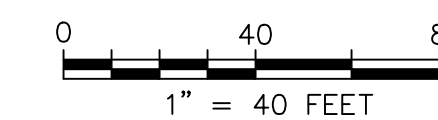
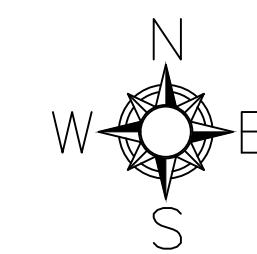
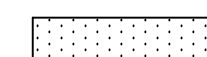
2. Storm water drainage utility easement per document number 1554478.

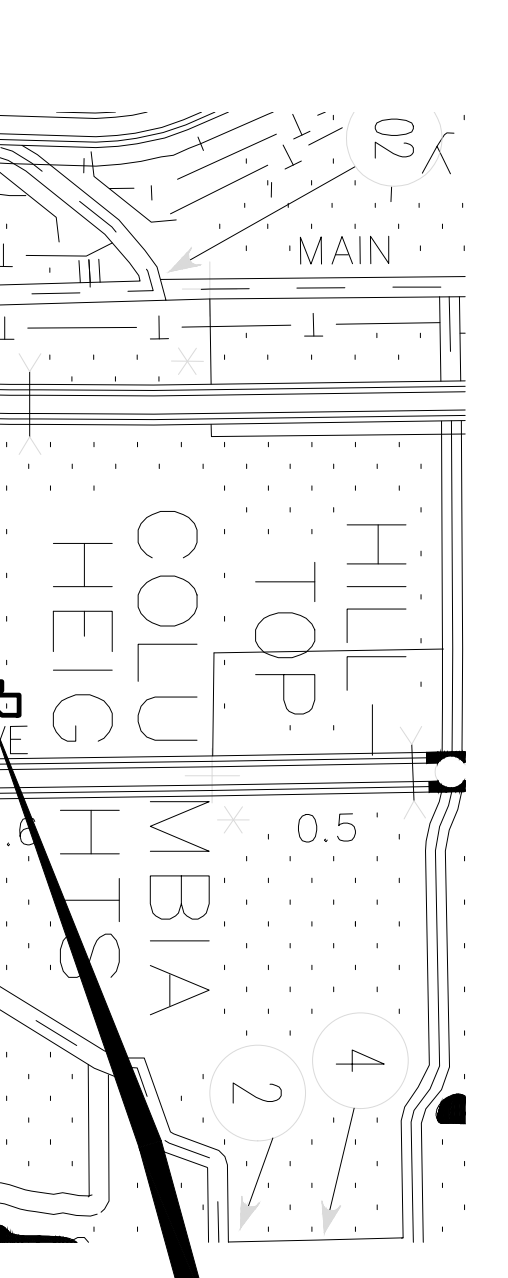
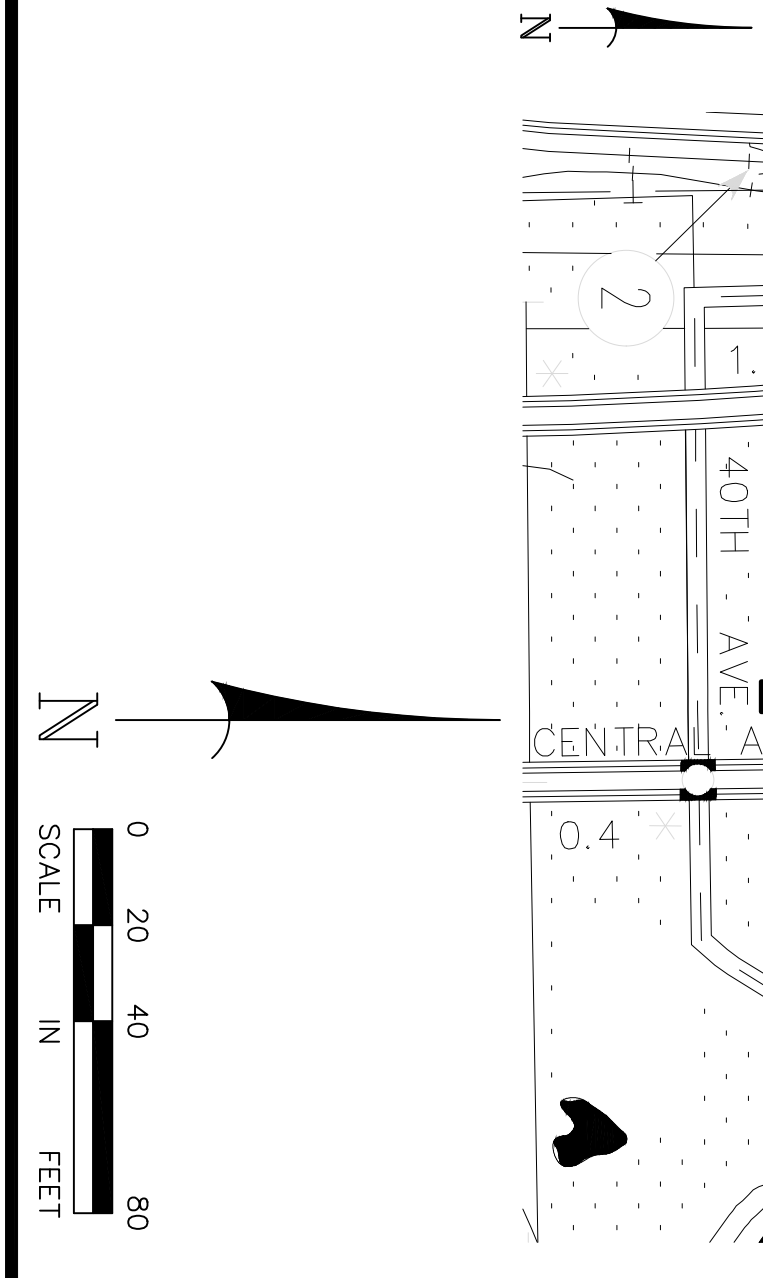
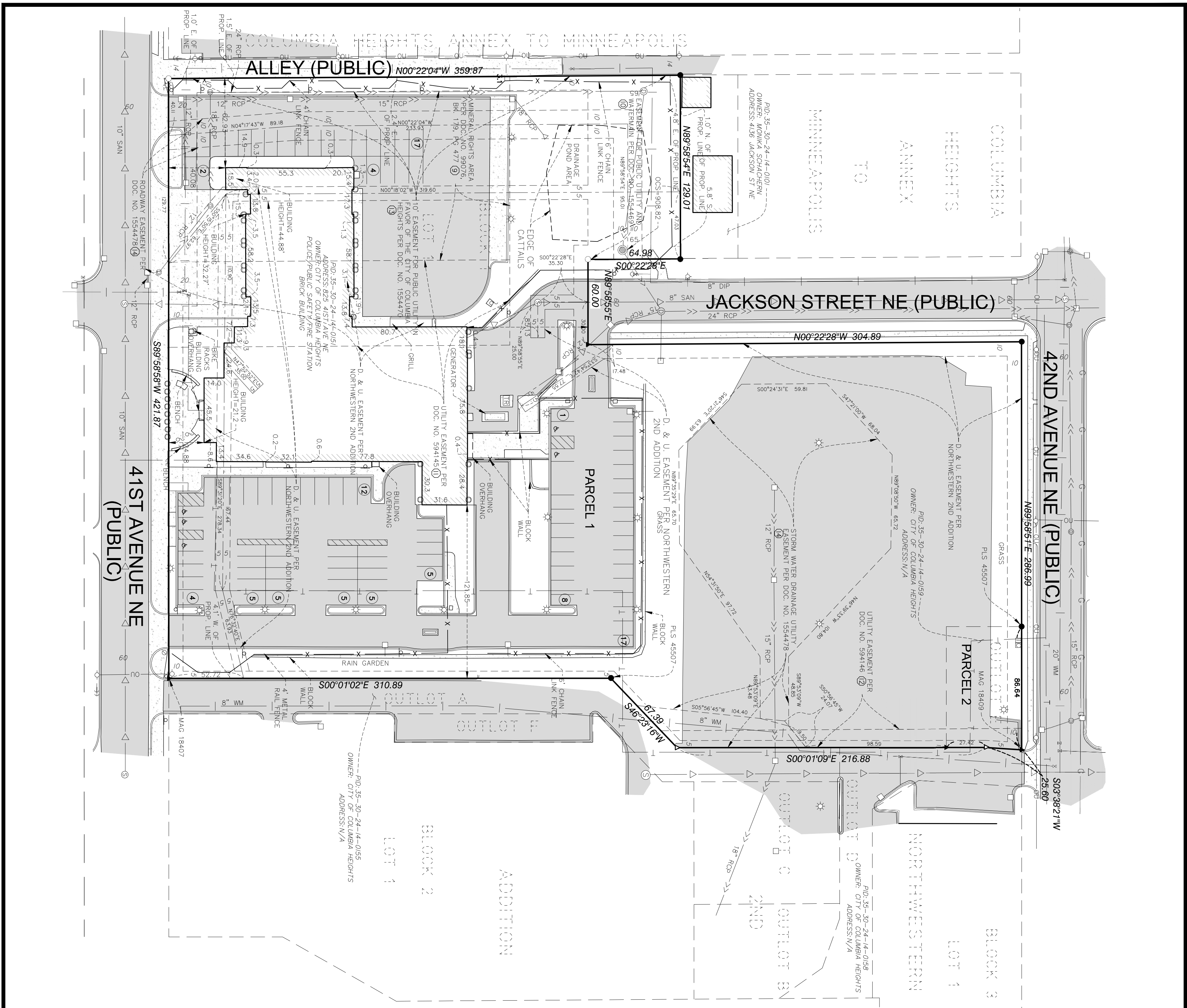


3. Utility easement per document number 594146.



4. Parking easement over Outlot E per document number 1554482





NOTES

1. The survey and the property description shown here on are based upon information found in the commitment for the Parcel 1, Block 1, Northwestern 2nd Addition, Anoka County, Minnesota, recorded March 9, 2001 as Document No. 1554478, and the plat of the same recorded August 27, 2020.

2. The basis of bearings is Anoka County coordinate system NAD83 - 1996 Adjustment.

3. All distances are in feet.

VICINITY MAP

NOT TO SCALE

REVIEW COPY

Peter Giers, Professional Land Surveyor
 Minnesota License No. 44110
 Email: pgiere@alliant-inc.com

NOTES

PROPERTY DESCRIPTION

PARCEL 1:
 Lot 1, Block 1, Northwestern 2nd Addition, Anoka County, Minnesota
 Abstract Property
 Parcel 1, Northwestern 2nd Addition, Anoka County, Minnesota
 Abstract Property

PARCEL 2:
 Outlot E, Northwestern 2nd Addition, Anoka County, Minnesota
 Abstract Property

CERTIFICATION

To Reiter, Walton Development, LLC, a limited liability company and City of Columbia Heights, a Minnesota municipal corporation, and First American National Title Insurance Company.

This is to Certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minnesota Rules, Chapter 8530, and the Minnesota Surveying Act, Chapter 853, of the Minnesota Statutes, as amended by Laws 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, and includes the following:
 1. A plat of the survey, recorded August 27, 2020.

Date of Plat or Map: September 18, 2020

TABLE A ITEMS

- Monuments placed for a reference monument or witness to the corner at all major corners of the boundary of the property, unless already marked or referenced by existing monuments or witnesses to the corner are shown hereon.
- Address(es) of the property is 825 41st Avenue NE and indicated on map.
- The property lies within Zone X (unshaded) - areas determined to be outside the 0.2% annual flood (Floodplain) 2700SC411E, effective December 15, 2015.
- The area of the above described property is 217,674 Sq. Ft. of 5.002 Acres.
- Zoning information was not provided by client at time of survey.
- Exterior dimensions of all buildings are measured at the locations shown hereon.
- The heights of all buildings above ground are measured at the locations shown hereon.
- There are 90 regular at-grade parking stalls and 5 handicap parking stalls shown hereon.
- The locations of existing utilities on or serving the property are depicted based on a copy of State One Call Ticket Nos. 202257186 & 202258532, dated 08/12/2020, available city maps, records and observed evidence locations. Lacking excavation, underground utility locations may not be exact. Verify critical utilities prior to construction or names of adjoining owners are depicted based on Anoka County GIS tax information.
- There was no observed evidence of earth moving work or building construction at the time of our field work. Potable off-site easements disclosed in Schedule B, Part II Exceptions of the title commitment are depicted hereon.

SCHEDULE B, PART III EXCEPTIONS

The following are survey related exceptions set forth in Schedule B, Part III of the herein referenced Title Commitment:

- Mendota and general rights reserved by the State of Minnesota in the Conveyance of Forfeited Lands, (Part of Parcel 1), **Affects the surveyed property and shown hereon.**
- Easements for public utility and watermain purposes in favor of the City of Columbia Heights, a Minnesota municipal corporation, as set forth in the following:
 (a) Book 845 of Deeds, Page 281 (2019), recorded October 14, 1989 as Document No. 328271 in (b) Amendment to Easement dated March 6, 2001, recorded March 9, 2001 as Document No. 1554488. (Part of Parcel 1) **Affects the surveyed property and shown hereon.**
- Easement for utility purposes reserved by the City of Columbia Heights & Mendota municipal corporation, as set forth in the following:
 (a) Document No. 558492, recorded March 9, 2001 as Document No. 594140. (Part of Parcel 1) **Affects the surveyed property and shown hereon.**
- Easements for utility purposes reserved by the City of Columbia Heights, a Minnesota municipal corporation in Ordinance No. 26, recorded July 22, 1982 as Document No. 594146. (Part of Parcel 1 and Parcel 2) **Affects the surveyed property and shown hereon.**
- Easements for public utility purposes in favor of the City of Columbia Heights, a Minnesota municipal corporation, as set forth in the following:
 (a) Instrument dated September 3, 1982, recorded September 7, 1982 as Document No. 598930, and (b) Instrument dated September 20, 1982, recorded September 20, 1982 as Document No. 598931. (Part of Parcel 1) **Affects the surveyed property and depicted hereon.**
- Terms, conditions, covenants, easements, obligations and provisions in favor of the City of Columbia Heights, a Minnesota municipal corporation, set forth in the following:
 (a) Instrument dated September 6, 1984, recorded September 6, 1984, recorded September 17, 1982 as Document No. 598725; and
 (b) Amendment to Agreement and Declaration of Covenants dated March 6, 2001, recorded March 9, 2001 as Document No. 1554478. (Parcels 1 and 2). **Affects the property and depicted hereon.**
- Planned Land Development Agreement, and the terms, conditions, covenants, easements and obligations set forth therein, dated March 8, 2001, recorded March 9, 2001 as Document No. 1554480. (Parcels 1 and 2). **Affects the surveyed property and is blanked in nature.**
- Declaration of Easements, and the terms, conditions, covenants, easements, restrictions and obligations set forth therein, dated March 9, 2001, recorded March 9, 2001 as Document No. 1554481. (Parcels 1 and 2). **Affects the surveyed property and is blanked in nature.**
- Parking Easement Agreement, and the terms, conditions, covenants, easements, restrictions and obligations set forth therein, dated March 6, 2001, recorded March 9, 2001 as Document No. 1554482. (Parcels 1 and 2). **Affects the surveyed property and blanked in nature over Outlot E.**
- Parking restrictions set forth in Ordinance 1426 recorded March 9, 2001 as Document No. 1554484. (Parcels 1 and 2). **Affects the surveyed property and blanked in nature.**

ALLIANT ENGINEERING

733 Marquette Ave, Ste 700
 Minneapolis, MN 55402
 612.758.3090 MAIN FAX
 612.758.3099

ALTA/NSPS LAND TITLE SURVEY

DRAWN BY: PF
 CHECKED BY: PG
 DATE ISSUED: 09/18/20
 SCALE: 1"=40'
 JOB NO.: 220-0135
 BOOK:

LEGEND

▲ FOUND MAG NAIL	— WATERMAIN
● SET IRON MONUMENT 4410	— OVERHEAD UTILITY
○ FOUND IRON MONUMENT	— SANITARY
○ HYDRANT	— STORM SEWER
○ WATER VALVE	— UNDERGROUND TELEPHONE
○ GAS VALVE	— UNDERGROUND GAS
— TRANSFORMATION BOX	— X FENCE
— TELEPHONE BOX	— CONCRETE
○ SANITARY MANHOLE	— BITUMINOUS
○ CATCH BASIN	— BITUMINOUS
○ GUY WIRE	— BITUMINOUS
○ LIGHT POLE	— BITUMINOUS
○ FLAG POLE	— BITUMINOUS
○ IRON MANHOLE	— BITUMINOUS
○ BOLLARD	— BITUMINOUS
○ BOLLARD	— BITUMINOUS
○ SCHEDULE B, PART II REFERENCES	— BITUMINOUS



Preliminary Storm Water Management Plan
Calculations & Summaries

Northwestern 3rd Addition
Columbia Heights, MN

Project No. 16337

April 5, 2021

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

Lee Koppy, P.E.

Reg. No. 41267

Prepared By:
Anderson Engineering of MN, LLC
13605 1st Avenue North, Suite 100
Plymouth, MN 55441
Ph: 763.412.4000
Fax: 763.412.4090

Prepared For:
DJR Architecture Inc.
333 Washington Ave N.
Suite 210
Minneapolis, MN 55401

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- Existing Site Conditions
- Soils
- Proposed Site Conditions
- Methodology
- City of Columbia Heights and Mississippi Watershed Management Organization (MWMO) District Rules & Regulations
- Summary

Appendix – Exhibits and Calculations

- A – Existing Drainage Map
- B – Proposed Drainage Map
- C – HydroCAD Reports – Existing & Proposed
- D – Draft Geotechnical Evaluation – Northern Technologies, LLC

Project Overview

The proposed project includes re-platting of 5.0 acres of land currently platted as Lot 1 and Outlot E of the Northwestern 2nd Addition. The new plat titled Northwestern 3rd Addition is proposed to subdivide the 5.0-acre property into 3 lots. The City of Columbia Heights Public Safety Center currently occupies the southern portion of the property and is proposed to occupy Lot 1 of the new plat, with no proposed improvements. Construction of a new apartment building is proposed on 1.7 acres of land proposed in the northwest portion of the new plat as Lot 2. Lot 3, in the northeast portion of the plat is a 0.4-acre parcel reserved for future development, currently being considered by SACA Food Shelf. The site is within the *Mississippi Watershed Management Organization (MWMO) District*.

Proposed construction on Lots 2 and 3 of the proposed plat includes site clearing and demolishing the existing pavement and utilities. The proposed apartment building is 18,250 SF with an underground parking garage, sidewalk, access drives, and a proposed parking lot, underground detention chamber, and an underground in-line water quality treatment device.

Existing Site Conditions

The overall property is 79 percent impervious, and is bounded by Jackson St NE to the west, the alley between Jackson St and Central Ave to the east, 41st Ave NE to the south and 42nd Ave NE to the north. The Public Safety Center is the high point of the property, at elevation of approximately 922. The site generally drains from south to north.

Runoff from the Public Safety Center is routed to an existing pond in the northwest corner of proposed Lot 1, and to an existing rain garden that generally runs east-west along the north end of the proposed Lot 1 before being conveyed into the 24-inch public storm sewer in Jackson Street NE.

Runoff from the north portion of the site is captured by two catch basins near the center of the existing parking lot, and is conveyed by existing storm sewer to the existing stormwater pond on Outlot B, Northwestern 2nd Addition, which is located approximately 100-feet east of the existing alley. An existing drainage and utility easement surrounds the two catch basins and provides additional live storage capacity for the pond on Outlot B. When the existing reaches capacity, up to 0.45 ac-ft of stormwater is stored on the surface of the parking lot in the northern portion of existing Lot 1. If the 0.45 ac-ft capacity is exceeded, stormwater will overflow to the raingarden to the south. The perimeter of the parking lot in general is higher than the surrounding area, resulting in little offsite runoff and little offsite runoff entering the site. See **Appendix A: Existing Drainage Map**.

Soils

The existing soil conditions on the site were determined by soil borings and geotechnical exploration conducted by Northern Technologies, LLC, dated March 29, 2021. Soil types discovered were primarily clayey sand (CL), sandy lean clay (CL) and silt (ML), which corresponds to the hydrologic soil group 'D'. At the location of the underground detention chambers, which will be used to meet the City of Columbia Heights and Mississippi Watershed Management Organization (MWMO) infiltration requirements to the maximum extent practical, the soil at the design elevation of the bottom of the chambers was clayey sand (CL), with a design infiltration rate of 0.06 inches/hour per the Minnesota Stormwater Manual. See **Appendix D: Draft Geotechnical Evaluation – Northern Technologies, LLC** for the draft geotechnical report.

Proposed Site Conditions

The project proposes construction of an apartment building, asphalt parking lot, and miscellaneous site improvements on proposed Lot 2 with a total impervious coverage of 80%. The proposed stormwater system has been designed to support construction of a maximum building and pavement coverage of 90% on proposed Lot 3.

The apartment building is proposed with a finished main floor elevation of 909.25, and a basement parking garage elevation of 898.25. The proposed site grading is designed to direct stormwater from a majority of Lots 2 and 3, including roof drainage to the underground stormwater detention chamber on Lot 2.

The primary discharge from the chamber is proposed to pass through an underground in-line water quality treatment device to meet the City of Columbia Heights requirements for Phosphorus and TSS removal. The primary discharge system has capacity to treat sufficient runoff on an annual basis to meet the referenced treatment requirements. In cases where the rainfall intensity exceeds a depth of 1.1 inches, a portion of the discharge will be routed to the west and into the existing 24" storm sewer line in Jackson St. NE.

The project also proposes to fill a majority of the existing rain garden on Lot 1. Stormwater capacity of 0.18 ac-ft that had formerly been provided by the rain garden is proposed to be provided in the underground stormwater chamber. Since the primary discharge from the underground chamber is routed to the existing pond on Outlot B, the former discharge from the rain garden is no longer routed to the 24-inch public storm sewer in Jackson Street NE. For more information on the proposed routing. See **Appendix B: Proposed Drainage Map**.

This project also proposes to vacate the existing drainage and utility easement that surrounds the two catch basins in the existing parking lot on Lots 2 and 3. The easement language specifies 1 ac-ft of storage within the easement. However, the existing capacity that is physically able to be stored within the easement is 0.45 ac-ft. This volume is proposed to be provided in the underground stormwater chamber.

The total capacity of the underground stormwater chamber is 0.35 ac-ft. The relocated storage is intended to satisfy the vacation of the existing drainage and utility easement. The project also proposes a new drainage and utility easement over the proposed underground stormwater chamber as well as the downstream piping and in-line water quality treatment device.

The proposed stormwater system has been modeled to evaluate the existing and proposed discharge rates to both the existing 24" storm sewer system in Jackson Street and into the existing Pond on Outlot B, as well as the final discharge into a manhole at the intersection of Jackson St NE and 42nd Ave NE. In all cases evaluated, the proposed peak runoff rate has been reduced below the existing peak runoff rate. See **Methodology** in the section below.

Methodology

HydroCAD

The Hydrologic characteristics of the site were modeled using HydroCAD software. TR55/TR20 methods were utilized. Existing and proposed drainage areas were determined via review of as-built data, lidar, current land survey data, and aerial photos.

The MSE-3 24-hr distribution was used in analysis. Per City of Columbia Heights Stormwater Ordinances, the NOAA Atlas 14 rainfall depths for the 2, 10, & 100-year storms used were 2.8", 4.3", and 7.4"

respectively. The 2, 10, & 100-year frequency events were analyzed for peak runoff rates in the existing proposed conditions.

Due to the high rate of imperviousness (in existing and proposed conditions), time of concentrations were all assumed to be 5-minutes for each sub-catchment. The point of comparison for existing to proposed runoff rate analysis is an existing manhole at the intersection of Jackson St NE and 42nd Ave NE. Results of this runoff analysis are summarized below, and a report can be seen in **Appendix C: HydroCAD Reports**.

Storm Event	Discharge Location	Existing Conditions	Proposed Conditions
2-Year	Jackson St NE	5.88	3.35
	Outlot B Pond	5.35	4.75
10-Year	Jackson & 42 nd Ave	11.61	8.59
	Jackson St NE	8.21	7.25
	Outlot B Pond	6.89	5.89
100-Year	Jackson & 42 nd Ave	15.96	14.12
	Jackson St NE	10.89	10.78
	Outlot B Pond	8.45	7.83
	Jackson & 42 nd Ave	21.05	20.74

Stormwater Conveyance

The storm sewer network was designed based upon the 10-year storm event. The rational method was employed to determine the flowrate into the storm sewer; pipe diameter, inlet elevations, and slopes were designed to accommodate the ten-year flow through the devices and to maintain an ultimate discharge below 5 fps (Feet per Second) from outlet pipes.

A Manning’s Coefficient of 0.011 was assumed for HDPE pipes and 0.013 for RCP pipes, and overflow routes to drain low points in the parking lot provide clearance from the edge of water from the parking stalls.

City of Columbia Heights and Mississippi Watershed Management Organization District Rules and Regulations

The project is required to meet the stormwater requirements outlined in the City of Columbia Heights Surface Water Management Plan, approved December 2018. Per Rule 3.1.3 (1), this project meets the requirements to require meeting the stormwater standards of the Mississippi Watershed Management Organization (MWMO) District.

Stormwater Management – City of Columbia Heights

5.3.1.2.3 – Water Quantity

Runoff rates were compared for the 2, 10, and 100-year storm events in existing and proposed conditions. As shown in the table above and in the attached HydroCAD modeling results, the underground chambers maintain or reduce the existing flow rates for the 2-year, 10-year and 100-year 24-hour rainfall events.

5.3.2.2.5 – Water Quality

City of Columbia Heights ordinances require a volume of 1.1" over the net increase in impervious surface area to be captured and retained on site. Due to the low permeability soils of the site, being rated as hydrologic soil group 'D' with maximum infiltration rates of 0.06 in/hour, this measure is intended to be met to the maximum extent practical via the bottom of the underground detention chambers. A series of 12" holes will be open in the concrete slab at the bottom of the chambers to allow stormwater to filter into the gravel base and infiltrate into the existing ground. Calculations for this will be included in the next submittal.

5.3.11.2.5 – Conformance to MPCA Requirements

Per the City of Columbia Heights rules, the redevelopment site shall incorporate effective non-point source pollution reduction BMP's to achieve total phosphorus load reduction of 60% and total suspended solids reduction of 90% on an annual basis. This requirement is proposed to be achieved through an in-line water quality treatment device on the east side of the property, before discharging offsite to the existing pond. Calculations for this will be included in the next submittal.

Stormwater Management – Mississippi Watershed Management Organization

3.1.3.2 Rate Control

Per the Mississippi Watershed Management Organization (MWMO), runoff rates for the proposed development shall meet the member cities runoff rate control requirements, using the member cities required critical storm events. As stated in the City of Columbia Heights section above (5.3.1.2.3), this is achieved through the underground chambers.

3.1.3.3 Water Quality / Volume Control

Per the MWMO, for linear projects, without limitations, the larger of the following shall be captured and retained on site: 0.55 inches of runoff from new and fully reconstructed impervious surfaces; or 1.1 inches of runoff from the net increase in impervious area. For projects with limitations, follow the MWMO Design Sequence Flow Chart to find an alternative method of compliance. Due to the low infiltrating soils of the site, as discussed in the Soils section above, this site is considered to have limitations as defined by the MWMO (very low infiltrating soils, <0.2 inches per hour).

Using the Design Sequence Flow Chart, we are required to meet either of the following: infiltrate at least 0.55 inches of runoff from new and fully reconstructed surfaces; or, if that is not feasible, achieve volume reduction to the maximum extent practicable. Either way, this will be achieved through the bottom of the underground detention chambers (see section above, 5.3.2.2.5 Water Quality). Calculations will be included in the next submittal.

For water quality, per the Design Sequence Flow Chart, we will be required to either remove 75% of the annual phosphorus load or, if the 0.55 inch infiltration requirement cannot be met, remove 60% of the annual phosphorus load. As stated in the City of Columbia Heights section above (5.3.11.2.5), this requirement is proposed to be achieved through an in-line water quality treatment device. Calculations will be provided in the next submittal.

Erosion and Sediment Control

Disturbance on this site will exceed 1.0 acres in area, and therefore an erosion control plan is required. Per City requirements, an erosion and sediment control plan for the project is being submitted for approval before site disturbance begins.

Summary

The site layout and final grading is designed to take advantage of the existing terrain for drainage and is intended to limit site disturbance as much as possible. Within the project boundary, some changes to the existing drainage patterns are proposed due to the proposed building and other site improvements. The project design does not propose major changes to drainage divides.



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Anderson Engineering of Minnesota, LLC

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

DREW ANDERSON, L.S.

PRINT NAME

SIGNATURE

43887

REGISTRATION NUMBER

04/05/2021

DATE

Project #: (Anderson 16337)

Date: 04/05/2021

Drawn by: JML

Checked by: DA

Issue: P.U.D. SUBMITTAL

Date: 04/05/2021

DATE

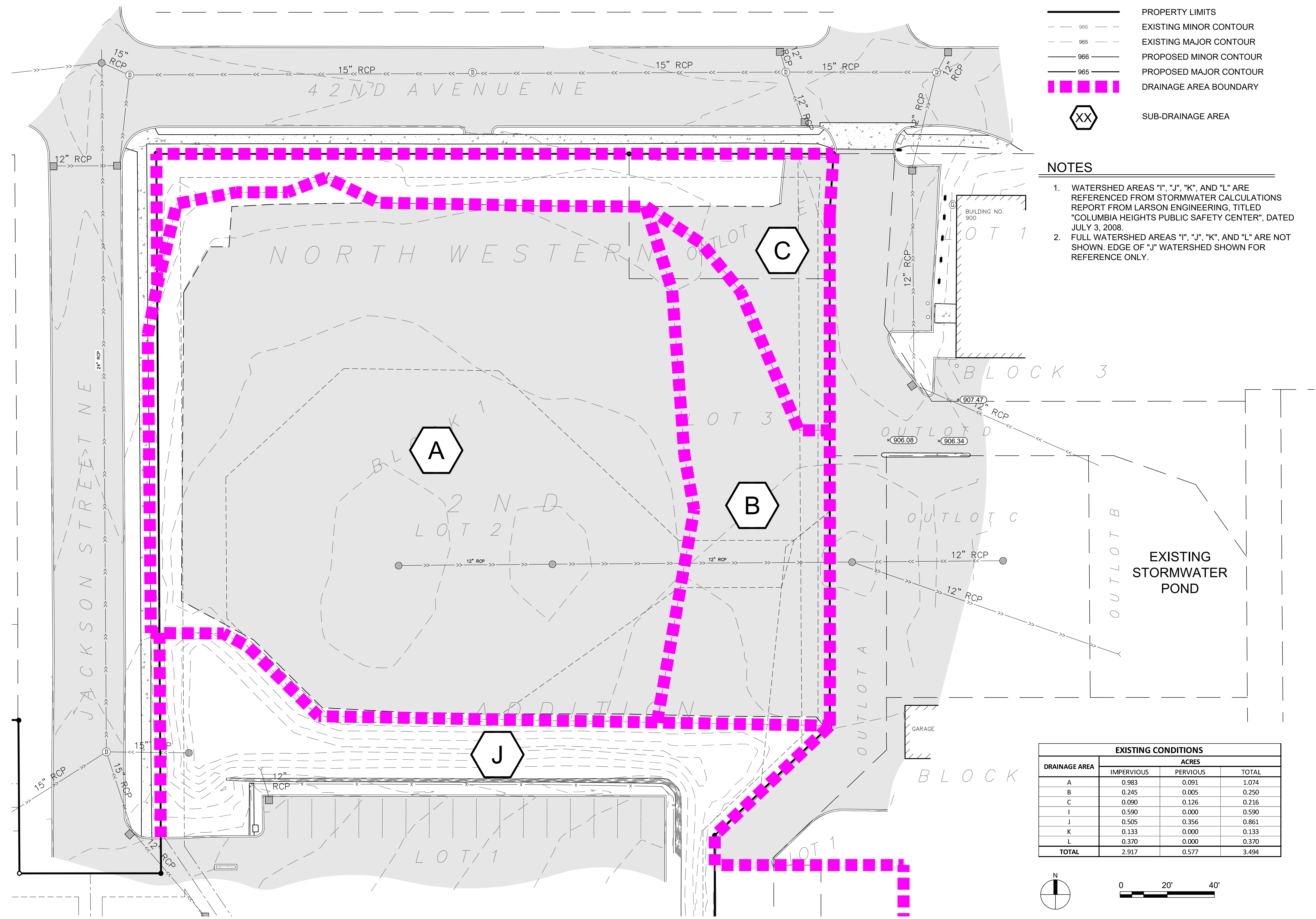
LEGEND

- PROPERTY LIMITS
- - - 966 EXISTING MINOR CONTOUR
- - - 965 EXISTING MAJOR CONTOUR
- - - 966 PROPOSED MINOR CONTOUR
- - - 965 PROPOSED MAJOR CONTOUR
- █ DRAINAGE AREA BOUNDARY
- ⬡ SUB-DRAINAGE AREA

NOTES

1. WATERSHED AREAS "I", "J", "K", AND "L" ARE REFERENCED FROM STORMWATER CALCULATIONS REPORT FROM LARSON ENGINEERING, TITLED "COLUMBIA HEIGHTS PUBLIC SAFETY CENTER", DATED JULY 3, 2008.
2. FULL WATERSHED AREAS "I", "J", "K", AND "L" ARE NOT SHOWN. EDGE OF "J" WATERSHED SHOWN FOR REFERENCE ONLY.

DRAINAGE AREA	EXISTING CONDITIONS		
	ACRES		
	IMPERVIOUS	PERVIOUS	TOTAL
A	0.983	0.091	1.074
B	0.245	0.005	0.250
C	0.090	0.126	0.216
I	0.590	0.000	0.590
J	0.505	0.356	0.861
K	0.133	0.000	0.133
L	0.370	0.000	0.370
TOTAL	2.917	0.577	3.494



NORTHWESTERN 3RD ADDITION
COLUMBIA HEIGHTS, MN

EXISTING DRAINAGE MAP

APP A



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Anderson Engineering of Minnesota, LLC

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

DREW ANDERSON, L.S.

PRINT NAME: _____
SIGNATURE: _____
43887 04/05/2021
REGISTRATION NUMBER DATE

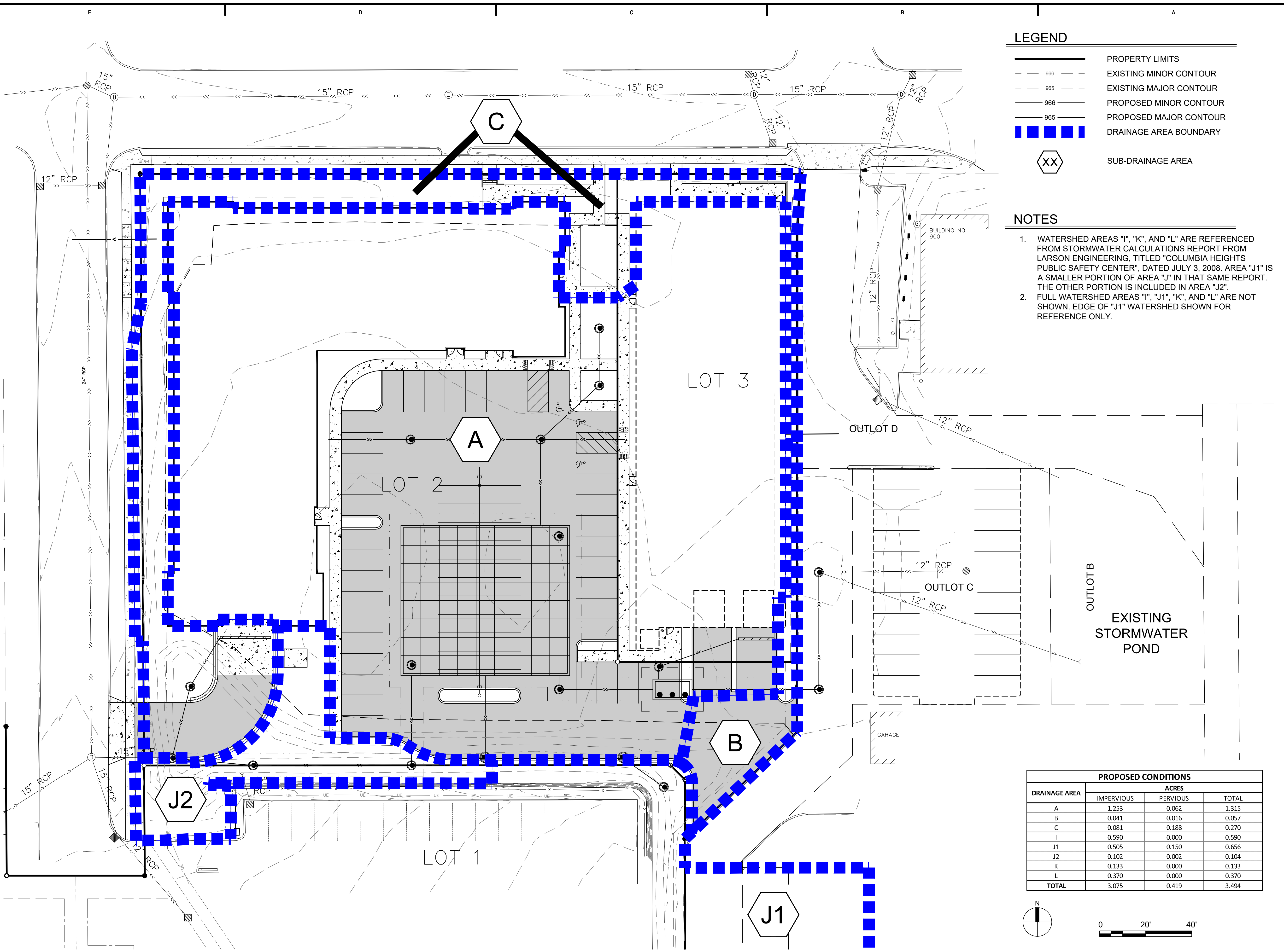
Project #: (Anderson 16337)
Date: 04/05/2021
Drawn by: JML
Checked by: DA

Issue: _____ Date: _____
P.U.D. SUBMITTAL 04/05/2021

NORTHWESTERN 3RD ADDITION
COLUMBIA HEIGHTS, MN

PROPOSED DRAINAGE MAP

APP B



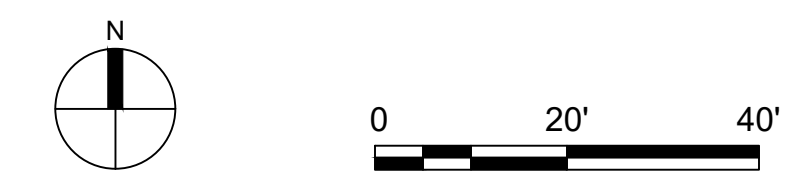
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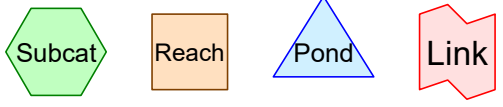
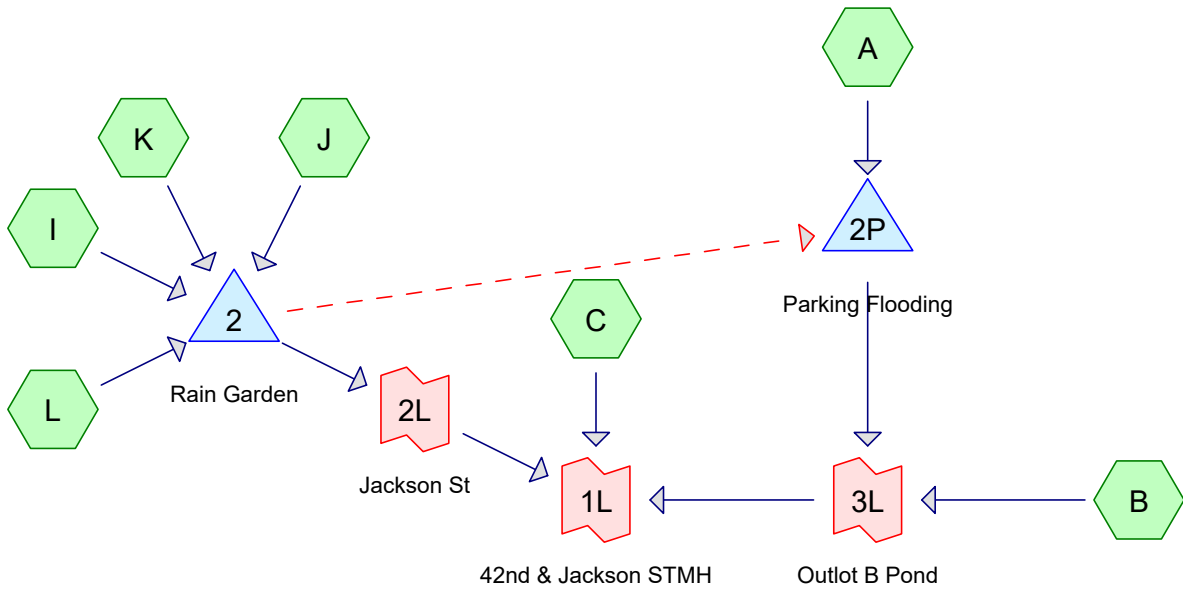
- PROPERTY LIMITS
- - - 966 EXISTING MINOR CONTOUR
- - - 965 EXISTING MAJOR CONTOUR
- - - 966 PROPOSED MINOR CONTOUR
- - - 965 PROPOSED MAJOR CONTOUR
- ■ ■ ■ ■ DRAINAGE AREA BOUNDARY
- XX SUB-DRAINAGE AREA

NOTES

1. WATERSHED AREAS "I", "K", AND "L" ARE REFERENCED FROM STORMWATER CALCULATIONS REPORT FROM LARSON ENGINEERING, TITLED "COLUMBIA HEIGHTS PUBLIC SAFETY CENTER", DATED JULY 3, 2008. AREA "J1" IS A SMALLER PORTION OF AREA "J" IN THAT SAME REPORT. THE OTHER PORTION IS INCLUDED IN AREA "J2".
2. FULL WATERSHED AREAS "I", "J1", "K", AND "L" ARE NOT SHOWN. EDGE OF "J1" WATERSHED SHOWN FOR REFERENCE ONLY.

DRAINAGE AREA	PROPOSED CONDITIONS		
	ACRES		
	IMPERVIOUS	PERVIOUS	TOTAL
A	1.253	0.062	1.315
B	0.041	0.016	0.057
C	0.081	0.188	0.270
I	0.590	0.000	0.590
J1	0.505	0.150	0.656
J2	0.102	0.002	0.104
K	0.133	0.000	0.133
L	0.370	0.000	0.370
TOTAL	3.075	0.419	3.494





Routing Diagram for Existing
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Existing

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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 5301 MN Anoka

Existing

MSE 24-hr 3 2-Year Rainfall=2.80"

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Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentA:	Runoff Area=46,787 sf 91.57% Impervious Runoff Depth>2.44" Tc=5.0 min CN=WQ Runoff=4.42 cfs 0.219 af
SubcatchmentB:	Runoff Area=10,911 sf 97.94% Impervious Runoff Depth>2.54" Tc=5.0 min CN=WQ Runoff=1.07 cfs 0.053 af
SubcatchmentC:	Runoff Area=9,403 sf 41.81% Impervious Runoff Depth>1.71" Tc=5.0 min CN=WQ Runoff=0.66 cfs 0.031 af
SubcatchmentI:	Runoff Area=25,700 sf 100.00% Impervious Runoff Depth>2.57" Tc=5.0 min CN=98 Runoff=2.53 cfs 0.126 af
SubcatchmentJ:	Runoff Area=37,500 sf 58.67% Impervious Runoff Depth>1.96" Tc=5.0 min CN=WQ Runoff=2.94 cfs 0.141 af
SubcatchmentK:	Runoff Area=5,800 sf 100.00% Impervious Runoff Depth>2.57" Tc=5.0 min CN=98 Runoff=0.57 cfs 0.029 af
SubcatchmentL:	Runoff Area=16,100 sf 100.00% Impervious Runoff Depth>2.57" Tc=5.0 min CN=98 Runoff=1.59 cfs 0.079 af
Pond 2: Rain Garden	Peak Elev=905.41' Storage=4,813 cf Inflow=7.63 cfs 0.375 af Discarded=0.01 cfs 0.008 af Primary=5.88 cfs 0.308 af Secondary=0.00 cfs 0.000 af Outflow=5.88 cfs 0.316 af
Pond 2P: Parking Flooding	Peak Elev=904.71' Storage=211 cf Inflow=4.42 cfs 0.219 af Outflow=4.31 cfs 0.219 af
Link 1L: 42nd & Jackson STMH	Inflow=11.61 cfs 0.610 af Primary=11.61 cfs 0.610 af
Link 2L: Jackson St	Inflow=5.88 cfs 0.308 af Primary=5.88 cfs 0.308 af
Link 3L: Outlot B Pond	Inflow=5.35 cfs 0.272 af Primary=5.35 cfs 0.272 af
Total Runoff Area = 3.494 ac Runoff Volume = 0.677 af Average Runoff Depth = 2.33"	
16.52% Pervious = 0.577 ac 83.48% Impervious = 2.917 ac	

Existing

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MSE 24-hr 3 2-Year Rainfall=2.80"

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Summary for Subcatchment A:

Runoff = 4.42 cfs @ 12.12 hrs, Volume= 0.219 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
 MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
42,841	98	Paved parking, HSG D
3,946	80	>75% Grass cover, Good, HSG D
46,787		Weighted Average
3,946		8.43% Pervious Area
42,841		91.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment B:

Runoff = 1.07 cfs @ 12.12 hrs, Volume= 0.053 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
 MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
10,686	98	Paved parking, HSG D
225	80	>75% Grass cover, Good, HSG D
10,911		Weighted Average
225		2.06% Pervious Area
10,686		97.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment C:

Runoff = 0.66 cfs @ 12.13 hrs, Volume= 0.031 af, Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
 MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
3,931	98	Paved parking, HSG D
5,472	80	>75% Grass cover, Good, HSG D
9,403		Weighted Average
5,472		58.19% Pervious Area
3,931		41.81% Impervious Area

Existing

MSE 24-hr 3 2-Year Rainfall=2.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment I:

Runoff = 2.53 cfs @ 12.12 hrs, Volume= 0.126 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 25,700	98	Paved parking & roofs
25,700		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J:

Runoff = 2.94 cfs @ 12.12 hrs, Volume= 0.141 af, Depth> 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 22,000	98	Paved parking & roofs
15,500	80	>75% Grass cover, Good, HSG D
37,500		Weighted Average
15,500		41.33% Pervious Area
22,000		58.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment K:

Runoff = 0.57 cfs @ 12.12 hrs, Volume= 0.029 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 5,800	98	Paved parking & roofs
5,800		100.00% Impervious Area

Existing

MSE 24-hr 3 2-Year Rainfall=2.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment L:

Runoff = 1.59 cfs @ 12.12 hrs, Volume= 0.079 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 16,100	98	Paved parking & roofs
16,100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 2: Rain Garden

Inflow Area = 1.954 ac, 81.79% Impervious, Inflow Depth > 2.30" for 2-Year event
 Inflow = 7.63 cfs @ 12.12 hrs, Volume= 0.375 af
 Outflow = 5.88 cfs @ 12.16 hrs, Volume= 0.316 af, Atten= 23%, Lag= 2.4 min
 Discarded = 0.01 cfs @ 12.16 hrs, Volume= 0.008 af
 Primary = 5.88 cfs @ 12.16 hrs, Volume= 0.308 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 3
 Peak Elev= 905.41' @ 12.16 hrs Surf.Area= 5,208 sf Storage= 4,813 cf

Plug-Flow detention time= 97.2 min calculated for 0.316 af (84% of inflow)
 Center-of-Mass det. time= 43.4 min (802.1 - 758.7)

Volume	Invert	Avail.Storage	Storage Description
#1	904.00'	8,406 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	906.00'	7,257 cf	Flood Storage (Prismatic) Listed below (Recalc)
		15,663 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.00	1,829	0	0
905.00	4,033	2,931	2,931
906.00	6,917	5,475	8,406

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
906.00	6,917	0	0
906.10	7,275	710	710
907.00	7,275	6,547	7,257

Existing

MSE 24-hr 3 2-Year Rainfall=2.80"

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Device	Routing	Invert	Outlet Devices
#1	Primary	899.30'	15.0" Round Culvert L= 34.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 899.30' / 899.10' S= 0.0059' /' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	904.90'	19.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Discarded	904.00'	0.060 in/hr Exfiltration over Surface area
#4	Secondary	906.00'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.01 cfs @ 12.16 hrs HW=905.41' (Free Discharge)

↳ **3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=5.88 cfs @ 12.16 hrs HW=905.41' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 5.88 cfs of 16.10 cfs potential flow)

↳ **2=Rim** (Weir Controls 5.88 cfs @ 2.33 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=904.00' TW=904.40' (Dynamic Tailwater)

↳ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Parking Flooding

Inflow Area = 1.074 ac, 91.57% Impervious, Inflow Depth > 2.44" for 2-Year event
 Inflow = 4.42 cfs @ 12.12 hrs, Volume= 0.219 af
 Outflow = 4.31 cfs @ 12.14 hrs, Volume= 0.219 af, Atten= 3%, Lag= 0.8 min
 Primary = 4.31 cfs @ 12.14 hrs, Volume= 0.219 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 3

Peak Elev= 904.71' @ 12.14 hrs Surf.Area= 1,786 sf Storage= 211 cf

Plug-Flow detention time= 0.6 min calculated for 0.219 af (100% of inflow)

Center-of-Mass det. time= 0.6 min (756.1 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	904.40'	47,944 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.40	47	0	0
904.60	695	74	74
905.00	4,645	1,068	1,142
905.50	17,317	5,491	6,633
906.00	27,947	11,316	17,949
906.10	30,103	2,903	20,851
907.00	30,103	27,093	47,944

Existing

MSE 24-hr 3 2-Year Rainfall=2.80"

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Device	Routing	Invert	Outlet Devices
#1	Primary	901.80'	12.0" Round Culvert L= 65.2' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 901.80' / 901.60' S= 0.0031 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	904.60'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	901.60'	12.0" Round Culvert L= 127.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 901.60' / 901.10' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Device 3	904.40'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.31 cfs @ 12.14 hrs HW=904.71' TW=0.00' (Dynamic Tailwater)

- ← 1=Culvert (Passes 4.31 cfs of 5.08 cfs potential flow)
- ← 2=Orifice/Grate (Weir Controls 0.75 cfs @ 1.09 fps)
- ← 3=Culvert (Passes 3.55 cfs of 4.47 cfs potential flow)
- ← 4=Orifice/Grate (Weir Controls 3.55 cfs @ 1.82 fps)

Summary for Link 1L: 42nd & Jackson STMH

Inflow Area = 3.494 ac, 83.48% Impervious, Inflow Depth > 2.10" for 2-Year event
 Inflow = 11.61 cfs @ 12.14 hrs, Volume= 0.610 af
 Primary = 11.61 cfs @ 12.14 hrs, Volume= 0.610 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Summary for Link 2L: Jackson St

Inflow Area = 1.954 ac, 81.79% Impervious, Inflow Depth > 1.89" for 2-Year event
 Inflow = 5.88 cfs @ 12.16 hrs, Volume= 0.308 af
 Primary = 5.88 cfs @ 12.16 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Summary for Link 3L: Outlot B Pond

Inflow Area = 1.325 ac, 92.77% Impervious, Inflow Depth > 2.46" for 2-Year event
 Inflow = 5.35 cfs @ 12.13 hrs, Volume= 0.272 af
 Primary = 5.35 cfs @ 12.13 hrs, Volume= 0.272 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Existing

MSE 24-hr 3 10-Year Rainfall=4.30"

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Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentA:	Runoff Area=46,787 sf 91.57% Impervious Runoff Depth>3.91" Tc=5.0 min CN=WQ Runoff=6.95 cfs 0.350 af
SubcatchmentB:	Runoff Area=10,911 sf 97.94% Impervious Runoff Depth>4.03" Tc=5.0 min CN=WQ Runoff=1.65 cfs 0.084 af
SubcatchmentC:	Runoff Area=9,403 sf 41.81% Impervious Runoff Depth>3.03" Tc=5.0 min CN=WQ Runoff=1.16 cfs 0.055 af
SubcatchmentI:	Runoff Area=25,700 sf 100.00% Impervious Runoff Depth>4.06" Tc=5.0 min CN=98 Runoff=3.92 cfs 0.200 af
SubcatchmentJ:	Runoff Area=37,500 sf 58.67% Impervious Runoff Depth>3.33" Tc=5.0 min CN=WQ Runoff=4.95 cfs 0.239 af
SubcatchmentK:	Runoff Area=5,800 sf 100.00% Impervious Runoff Depth>4.06" Tc=5.0 min CN=98 Runoff=0.89 cfs 0.045 af
SubcatchmentL:	Runoff Area=16,100 sf 100.00% Impervious Runoff Depth>4.06" Tc=5.0 min CN=98 Runoff=2.46 cfs 0.125 af
Pond 2: Rain Garden	Peak Elev=905.65' Storage=6,159 cf Inflow=12.21 cfs 0.609 af Discarded=0.01 cfs 0.009 af Primary=8.21 cfs 0.541 af Secondary=0.00 cfs 0.000 af Outflow=8.22 cfs 0.550 af
Pond 2P: Parking Flooding	Peak Elev=904.88' Storage=657 cf Inflow=6.95 cfs 0.350 af Outflow=5.28 cfs 0.350 af
Link 1L: 42nd & Jackson STMH	Inflow=15.96 cfs 1.030 af Primary=15.96 cfs 1.030 af
Link 2L: Jackson St	Inflow=8.21 cfs 0.541 af Primary=8.21 cfs 0.541 af
Link 3L: Outlot B Pond	Inflow=6.89 cfs 0.434 af Primary=6.89 cfs 0.434 af
Total Runoff Area = 3.494 ac Runoff Volume = 1.098 af Average Runoff Depth = 3.77"	
16.52% Pervious = 0.577 ac 83.48% Impervious = 2.917 ac	

Existing

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MSE 24-hr 3 10-Year Rainfall=4.30"

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Summary for Subcatchment A:

Runoff = 6.95 cfs @ 12.12 hrs, Volume= 0.350 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
42,841	98	Paved parking, HSG D
3,946	80	>75% Grass cover, Good, HSG D
46,787		Weighted Average
3,946		8.43% Pervious Area
42,841		91.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment B:

Runoff = 1.65 cfs @ 12.12 hrs, Volume= 0.084 af, Depth> 4.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
10,686	98	Paved parking, HSG D
225	80	>75% Grass cover, Good, HSG D
10,911		Weighted Average
225		2.06% Pervious Area
10,686		97.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment C:

Runoff = 1.16 cfs @ 12.12 hrs, Volume= 0.055 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
3,931	98	Paved parking, HSG D
5,472	80	>75% Grass cover, Good, HSG D
9,403		Weighted Average
5,472		58.19% Pervious Area
3,931		41.81% Impervious Area

Existing

MSE 24-hr 3 10-Year Rainfall=4.30"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment I:

Runoff = 3.92 cfs @ 12.12 hrs, Volume= 0.200 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 25,700	98	Paved parking & roofs
25,700		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J:

Runoff = 4.95 cfs @ 12.12 hrs, Volume= 0.239 af, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 22,000	98	Paved parking & roofs
15,500	80	>75% Grass cover, Good, HSG D
37,500		Weighted Average
15,500		41.33% Pervious Area
22,000		58.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment K:

Runoff = 0.89 cfs @ 12.12 hrs, Volume= 0.045 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 5,800	98	Paved parking & roofs
5,800		100.00% Impervious Area

Existing

MSE 24-hr 3 10-Year Rainfall=4.30"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment L:

Runoff = 2.46 cfs @ 12.12 hrs, Volume= 0.125 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 16,100	98	Paved parking & roofs
16,100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 2: Rain Garden

Inflow Area = 1.954 ac, 81.79% Impervious, Inflow Depth > 3.74" for 10-Year event
 Inflow = 12.21 cfs @ 12.12 hrs, Volume= 0.609 af
 Outflow = 8.22 cfs @ 12.17 hrs, Volume= 0.550 af, Atten= 33%, Lag= 3.0 min
 Discarded = 0.01 cfs @ 12.17 hrs, Volume= 0.009 af
 Primary = 8.21 cfs @ 12.17 hrs, Volume= 0.541 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 3
 Peak Elev= 905.65' @ 12.17 hrs Surf.Area= 5,906 sf Storage= 6,159 cf

Plug-Flow detention time= 78.6 min calculated for 0.550 af (90% of inflow)
 Center-of-Mass det. time= 37.3 min (789.9 - 752.5)

Volume	Invert	Avail.Storage	Storage Description
#1	904.00'	8,406 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	906.00'	7,257 cf	Flood Storage (Prismatic) Listed below (Recalc)
		15,663 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.00	1,829	0	0
905.00	4,033	2,931	2,931
906.00	6,917	5,475	8,406

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
906.00	6,917	0	0
906.10	7,275	710	710
907.00	7,275	6,547	7,257

Existing

MSE 24-hr 3 10-Year Rainfall=4.30"

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Device	Routing	Invert	Outlet Devices
#1	Primary	899.30'	15.0" Round Culvert L= 34.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 899.30' / 899.10' S= 0.0059 '/ Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	904.90'	19.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Discarded	904.00'	0.060 in/hr Exfiltration over Surface area
#4	Secondary	906.00'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.01 cfs @ 12.17 hrs HW=905.65' (Free Discharge)

↳ **3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=8.21 cfs @ 12.17 hrs HW=905.65' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 8.21 cfs of 16.48 cfs potential flow)

↳ **2=Rim** (Orifice Controls 8.21 cfs @ 4.17 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=904.00' TW=904.40' (Dynamic Tailwater)

↳ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Parking Flooding

Inflow Area = 1.074 ac, 91.57% Impervious, Inflow Depth > 3.91" for 10-Year event
 Inflow = 6.95 cfs @ 12.12 hrs, Volume= 0.350 af
 Outflow = 5.28 cfs @ 12.16 hrs, Volume= 0.350 af, Atten= 24%, Lag= 2.4 min
 Primary = 5.28 cfs @ 12.16 hrs, Volume= 0.350 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 3

Peak Elev= 904.88' @ 12.16 hrs Surf.Area= 3,465 sf Storage= 657 cf

Plug-Flow detention time= 0.8 min calculated for 0.350 af (100% of inflow)

Center-of-Mass det. time= 0.7 min (749.7 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	904.40'	47,944 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.40	47	0	0
904.60	695	74	74
905.00	4,645	1,068	1,142
905.50	17,317	5,491	6,633
906.00	27,947	11,316	17,949
906.10	30,103	2,903	20,851
907.00	30,103	27,093	47,944

Existing

MSE 24-hr 3 10-Year Rainfall=4.30"

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Device	Routing	Invert	Outlet Devices
#1	Primary	901.80'	12.0" Round Culvert L= 65.2' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 901.80' / 901.60' S= 0.0031 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	904.60'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	901.60'	12.0" Round Culvert L= 127.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 901.60' / 901.10' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Device 3	904.40'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.28 cfs @ 12.16 hrs HW=904.88' TW=0.00' (Dynamic Tailwater)

- ↑ 1=Culvert (Barrel Controls 5.28 cfs @ 6.73 fps)
- ↑ 2=Orifice/Grate (Passes < 3.05 cfs potential flow)
- ↑ 3=Culvert (Passes < 4.61 cfs potential flow)
- ↑ 4=Orifice/Grate (Passes < 6.84 cfs potential flow)

Summary for Link 1L: 42nd & Jackson STMH

Inflow Area = 3.494 ac, 83.48% Impervious, Inflow Depth > 3.54" for 10-Year event
 Inflow = 15.96 cfs @ 12.14 hrs, Volume= 1.030 af
 Primary = 15.96 cfs @ 12.14 hrs, Volume= 1.030 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Summary for Link 2L: Jackson St

Inflow Area = 1.954 ac, 81.79% Impervious, Inflow Depth > 3.32" for 10-Year event
 Inflow = 8.21 cfs @ 12.17 hrs, Volume= 0.541 af
 Primary = 8.21 cfs @ 12.17 hrs, Volume= 0.541 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Summary for Link 3L: Outlot B Pond

Inflow Area = 1.325 ac, 92.77% Impervious, Inflow Depth > 3.94" for 10-Year event
 Inflow = 6.89 cfs @ 12.13 hrs, Volume= 0.434 af
 Primary = 6.89 cfs @ 12.13 hrs, Volume= 0.434 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Existing

MSE 24-hr 3 100-Year Rainfall=7.40"

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Time span=0.00-24.00 hrs, dt=0.001 hrs, 24001 points x 3
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentA: Runoff Area=46,787 sf 91.57% Impervious Runoff Depth>6.98"
 Tc=5.0 min CN=WQ Runoff=12.17 cfs 0.625 af

SubcatchmentB: Runoff Area=10,911 sf 97.94% Impervious Runoff Depth>7.12"
 Tc=5.0 min CN=WQ Runoff=2.87 cfs 0.149 af

SubcatchmentC: Runoff Area=9,403 sf 41.81% Impervious Runoff Depth>5.94"
 Tc=5.0 min CN=WQ Runoff=2.23 cfs 0.107 af

SubcatchmentI: Runoff Area=25,700 sf 100.00% Impervious Runoff Depth>7.16"
 Tc=5.0 min CN=98 Runoff=6.78 cfs 0.352 af

SubcatchmentJ: Runoff Area=37,500 sf 58.67% Impervious Runoff Depth>6.29"
 Tc=5.0 min CN=WQ Runoff=9.19 cfs 0.451 af

SubcatchmentK: Runoff Area=5,800 sf 100.00% Impervious Runoff Depth>7.16"
 Tc=5.0 min CN=98 Runoff=1.53 cfs 0.079 af

SubcatchmentL: Runoff Area=16,100 sf 100.00% Impervious Runoff Depth>7.16"
 Tc=5.0 min CN=98 Runoff=4.25 cfs 0.221 af

Pond 2: Rain Garden Peak Elev=906.22' Storage=9,994 cf Inflow=21.76 cfs 1.103 af
 Discarded=0.02 cfs 0.010 af Primary=10.89 cfs 1.014 af Secondary=2.44 cfs 0.019 af Outflow=13.36 cfs 1.043 af

Pond 2P: Parking Flooding Peak Elev=905.30' Storage=3,657 cf Inflow=12.81 cfs 0.644 af
 Outflow=5.75 cfs 0.644 af

Link 1L: 42nd & Jackson STMH Inflow=21.05 cfs 1.914 af
 Primary=21.05 cfs 1.914 af

Link 2L: Jackson St Inflow=10.89 cfs 1.014 af
 Primary=10.89 cfs 1.014 af

Link 3L: Outlot B Pond Inflow=8.45 cfs 0.793 af
 Primary=8.45 cfs 0.793 af

Total Runoff Area = 3.494 ac Runoff Volume = 1.984 af Average Runoff Depth = 6.81"
16.52% Pervious = 0.577 ac 83.48% Impervious = 2.917 ac

Existing

MSE 24-hr 3 100-Year Rainfall=7.40"

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Summary for Subcatchment A:

Runoff = 12.17 cfs @ 12.12 hrs, Volume= 0.625 af, Depth> 6.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
42,841	98	Paved parking, HSG D
3,946	80	>75% Grass cover, Good, HSG D
46,787		Weighted Average
3,946		8.43% Pervious Area
42,841		91.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment B:

Runoff = 2.87 cfs @ 12.12 hrs, Volume= 0.149 af, Depth> 7.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
10,686	98	Paved parking, HSG D
225	80	>75% Grass cover, Good, HSG D
10,911		Weighted Average
225		2.06% Pervious Area
10,686		97.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment C:

Runoff = 2.23 cfs @ 12.12 hrs, Volume= 0.107 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
3,931	98	Paved parking, HSG D
5,472	80	>75% Grass cover, Good, HSG D
9,403		Weighted Average
5,472		58.19% Pervious Area
3,931		41.81% Impervious Area

Existing

MSE 24-hr 3 100-Year Rainfall=7.40"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment I:

Runoff = 6.78 cfs @ 12.12 hrs, Volume= 0.352 af, Depth> 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 25,700	98	Paved parking & roofs
25,700		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J:

Runoff = 9.19 cfs @ 12.12 hrs, Volume= 0.451 af, Depth> 6.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 22,000	98	Paved parking & roofs
15,500	80	>75% Grass cover, Good, HSG D
37,500		Weighted Average
15,500		41.33% Pervious Area
22,000		58.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment K:

Runoff = 1.53 cfs @ 12.12 hrs, Volume= 0.079 af, Depth> 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 5,800	98	Paved parking & roofs
5,800		100.00% Impervious Area

Existing

MSE 24-hr 3 100-Year Rainfall=7.40"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment L:

Runoff = 4.25 cfs @ 12.12 hrs, Volume= 0.221 af, Depth> 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 16,100	98	Paved parking & roofs
16,100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 2: Rain Garden

Inflow Area = 1.954 ac, 81.79% Impervious, Inflow Depth > 6.78" for 100-Year event
 Inflow = 21.76 cfs @ 12.12 hrs, Volume= 1.103 af
 Outflow = 13.36 cfs @ 12.18 hrs, Volume= 1.043 af, Atten= 39%, Lag= 3.4 min
 Discarded = 0.02 cfs @ 12.13 hrs, Volume= 0.010 af
 Primary = 10.89 cfs @ 12.18 hrs, Volume= 1.014 af
 Secondary = 2.44 cfs @ 12.18 hrs, Volume= 0.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 3
 Peak Elev= 906.22' @ 12.18 hrs Surf.Area= 14,192 sf Storage= 9,994 cf

Plug-Flow detention time= 57.9 min calculated for 1.043 af (95% of inflow)
 Center-of-Mass det. time= 30.5 min (776.4 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1	904.00'	8,406 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	906.00'	7,257 cf	Flood Storage (Prismatic) Listed below (Recalc)
		15,663 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.00	1,829	0	0
905.00	4,033	2,931	2,931
906.00	6,917	5,475	8,406

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
906.00	6,917	0	0
906.10	7,275	710	710
907.00	7,275	6,547	7,257

Existing

MSE 24-hr 3 100-Year Rainfall=7.40"

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Device	Routing	Invert	Outlet Devices
#1	Primary	899.30'	15.0" Round Culvert L= 34.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 899.30' / 899.10' S= 0.0059' / Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	904.90'	19.0" Horiz. Rim C= 0.600 Limited to weir flow at low heads
#3	Discarded	904.00'	0.060 in/hr Exfiltration over Surface area
#4	Secondary	906.00'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.13 hrs HW=906.10' (Free Discharge)

↳ **3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=10.89 cfs @ 12.18 hrs HW=906.22' TW=0.00' (Dynamic Tailwater)

↳ **1=Culvert** (Passes 10.89 cfs of 17.34 cfs potential flow)

↳ **2=Rim** (Orifice Controls 10.89 cfs @ 5.53 fps)

Secondary OutFlow Max=2.44 cfs @ 12.18 hrs HW=906.22' TW=905.27' (Dynamic Tailwater)

↳ **4=Broad-Crested Rectangular Weir** (Weir Controls 2.44 cfs @ 1.11 fps)

Summary for Pond 2P: Parking Flooding

Inflow Area = 1.074 ac, 91.57% Impervious, Inflow Depth > 7.20" for 100-Year event
 Inflow = 12.81 cfs @ 12.14 hrs, Volume= 0.644 af
 Outflow = 5.75 cfs @ 12.23 hrs, Volume= 0.644 af, Atten= 55%, Lag= 5.7 min
 Primary = 5.75 cfs @ 12.23 hrs, Volume= 0.644 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs / 3
 Peak Elev= 905.30' @ 12.23 hrs Surf.Area= 12,208 sf Storage= 3,657 cf

Plug-Flow detention time= 2.8 min calculated for 0.644 af (100% of inflow)
 Center-of-Mass det. time= 2.8 min (744.7 - 742.0)

Volume	Invert	Avail.Storage	Storage Description
#1	904.40'	47,944 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.40	47	0	0
904.60	695	74	74
905.00	4,645	1,068	1,142
905.50	17,317	5,491	6,633
906.00	27,947	11,316	17,949
906.10	30,103	2,903	20,851
907.00	30,103	27,093	47,944

Existing

MSE 24-hr 3 100-Year Rainfall=7.40"

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Device	Routing	Invert	Outlet Devices
#1	Primary	901.80'	12.0" Round Culvert L= 65.2' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 901.80' / 901.60' S= 0.0031 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	904.60'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	901.60'	12.0" Round Culvert L= 127.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 901.60' / 901.10' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Device 3	904.40'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.75 cfs @ 12.23 hrs HW=905.30' TW=0.00' (Dynamic Tailwater)

- ↑ **1=Culvert** (Barrel Controls 5.75 cfs @ 7.32 fps)
- ↑ **2=Orifice/Grate** (Passes < 11.99 cfs potential flow)
- ↑ **3=Culvert** (Passes < 4.95 cfs potential flow)
- ↑ **4=Orifice/Grate** (Passes < 14.34 cfs potential flow)

Summary for Link 1L: 42nd & Jackson STMH

Inflow Area = 3.494 ac, 83.48% Impervious, Inflow Depth > 6.57" for 100-Year event
 Inflow = 21.05 cfs @ 12.14 hrs, Volume= 1.914 af
 Primary = 21.05 cfs @ 12.14 hrs, Volume= 1.914 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Summary for Link 2L: Jackson St

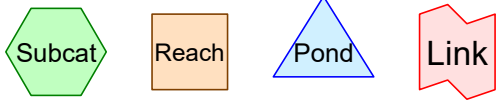
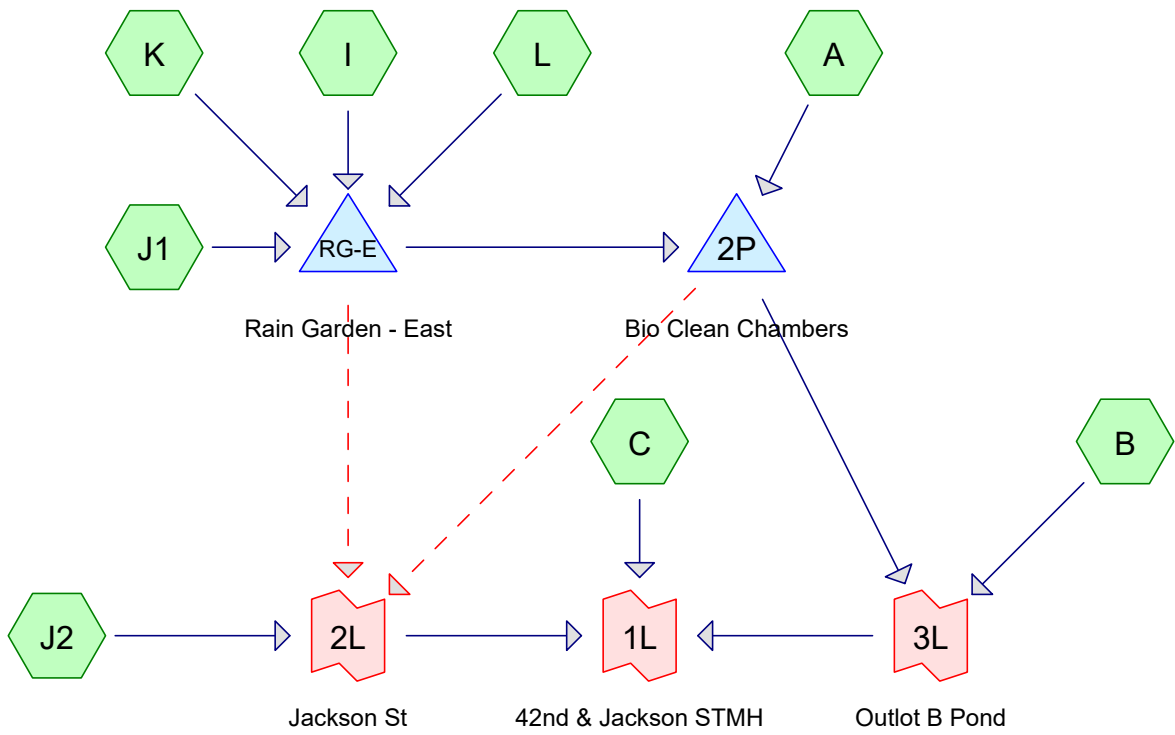
Inflow Area = 1.954 ac, 81.79% Impervious, Inflow Depth > 6.23" for 100-Year event
 Inflow = 10.89 cfs @ 12.18 hrs, Volume= 1.014 af
 Primary = 10.89 cfs @ 12.18 hrs, Volume= 1.014 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs

Summary for Link 3L: Outlot B Pond

Inflow Area = 1.325 ac, 92.77% Impervious, Inflow Depth > 7.18" for 100-Year event
 Inflow = 8.45 cfs @ 12.13 hrs, Volume= 0.793 af
 Primary = 8.45 cfs @ 12.13 hrs, Volume= 0.793 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.001 hrs



Routing Diagram for Proposed
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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 5301 MN Anoka

Proposed

MSE 24-hr 3 2-Year Rainfall=2.80"

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Time span=0.00-48.00 hrs, dt=0.0050 hrs, 9601 points x 3
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentA:	Runoff Area=57,299 sf 95.26% Impervious Runoff Depth=2.50" Tc=5.0 min CN=WQ Runoff=5.52 cfs 0.274 af
SubcatchmentB:	Runoff Area=2,474 sf 71.75% Impervious Runoff Depth=2.15" Tc=5.0 min CN=WQ Runoff=0.21 cfs 0.010 af
SubcatchmentC:	Runoff Area=11,741 sf 30.18% Impervious Runoff Depth=1.54" Tc=5.0 min CN=WQ Runoff=0.76 cfs 0.035 af
SubcatchmentI:	Runoff Area=25,700 sf 100.00% Impervious Runoff Depth=2.57" Tc=5.0 min CN=98 Runoff=2.53 cfs 0.126 af
SubcatchmentJ1:	Runoff Area=28,554 sf 77.05% Impervious Runoff Depth=2.23" Tc=5.0 min CN=WQ Runoff=2.49 cfs 0.122 af
SubcatchmentJ2:	Runoff Area=4,532 sf 1.77% Impervious Runoff Depth=1.13" Tc=5.0 min CN=WQ Runoff=0.23 cfs 0.010 af
SubcatchmentK:	Runoff Area=5,800 sf 100.00% Impervious Runoff Depth=2.57" Tc=5.0 min CN=98 Runoff=0.57 cfs 0.029 af
SubcatchmentL:	Runoff Area=16,100 sf 100.00% Impervious Runoff Depth=2.57" Tc=5.0 min CN=98 Runoff=1.59 cfs 0.079 af
Pond 2P: Bio Clean Chambers	Peak Elev=904.04' Storage=6,625 cf Inflow=12.52 cfs 0.630 af Primary=4.62 cfs 0.566 af Secondary=3.21 cfs 0.063 af Outflow=7.83 cfs 0.629 af
Pond RG-E: Rain Garden - East	Peak Elev=905.53' Storage=223 cf Inflow=7.19 cfs 0.356 af Primary=7.05 cfs 0.356 af Secondary=0.00 cfs 0.000 af Outflow=7.05 cfs 0.356 af
Link 1L: 42nd & Jackson STMH	Inflow=8.59 cfs 0.684 af Primary=8.59 cfs 0.684 af
Link 2L: Jackson St	Inflow=3.35 cfs 0.072 af Primary=3.35 cfs 0.072 af
Link 3L: Outlot B Pond	Inflow=4.75 cfs 0.576 af Primary=4.75 cfs 0.576 af

Total Runoff Area = 3.494 ac Runoff Volume = 0.685 af Average Runoff Depth = 2.35"
14.86% Pervious = 0.519 ac 85.14% Impervious = 2.975 ac

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MSE 24-hr 3 2-Year Rainfall=2.80"

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Summary for Subcatchment A:

Runoff = 5.52 cfs @ 12.12 hrs, Volume= 0.274 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 54,581	98	Paved parking and Roofs
2,718	80	>75% Grass cover, Good, HSG D
57,299		Weighted Average
2,718		4.74% Pervious Area
54,581		95.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment B:

Runoff = 0.21 cfs @ 12.12 hrs, Volume= 0.010 af, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
1,775	98	Paved parking, HSG D
699	80	>75% Grass cover, Good, HSG D
2,474		Weighted Average
699		28.25% Pervious Area
1,775		71.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment C:

Runoff = 0.76 cfs @ 12.13 hrs, Volume= 0.035 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
3,543	98	Paved parking, HSG D
8,198	80	>75% Grass cover, Good, HSG D
11,741		Weighted Average
8,198		69.82% Pervious Area
3,543		30.18% Impervious Area

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MSE 24-hr 3 2-Year Rainfall=2.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment I:

Runoff = 2.53 cfs @ 12.12 hrs, Volume= 0.126 af, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 25,700	98	Paved parking & roofs
25,700		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J1:

Runoff = 2.49 cfs @ 12.12 hrs, Volume= 0.122 af, Depth= 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 22,000	98	Paved parking & roofs
6,554	80	>75% Grass cover, Good, HSG D
28,554		Weighted Average
6,554		22.95% Pervious Area
22,000		77.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J2:

Runoff = 0.23 cfs @ 12.13 hrs, Volume= 0.010 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
4,452	80	>75% Grass cover, Good, HSG D
80	98	Paved parking, HSG D
4,532		Weighted Average
4,452		98.23% Pervious Area
80		1.77% Impervious Area

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MSE 24-hr 3 2-Year Rainfall=2.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment K:

Runoff = 0.57 cfs @ 12.12 hrs, Volume= 0.029 af, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 5,800	98	Paved parking & roofs
5,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment L:

Runoff = 1.59 cfs @ 12.12 hrs, Volume= 0.079 af, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 2-Year Rainfall=2.80"

Area (sf)	CN	Description
* 16,100	98	Paved parking & roofs
16,100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 2P: Bio Clean Chambers

Inflow Area = 3.064 ac, 93.05% Impervious, Inflow Depth = 2.47" for 2-Year event
 Inflow = 12.52 cfs @ 12.13 hrs, Volume= 0.630 af
 Outflow = 7.83 cfs @ 12.18 hrs, Volume= 0.629 af, Atten= 37%, Lag= 3.4 min
 Primary = 4.62 cfs @ 12.18 hrs, Volume= 0.566 af
 Secondary = 3.21 cfs @ 12.18 hrs, Volume= 0.063 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs / 3
 Peak Elev= 904.04' @ 12.18 hrs Surf.Area= 4,315 sf Storage= 6,625 cf

Plug-Flow detention time= 42.2 min calculated for 0.629 af (100% of inflow)
 Center-of-Mass det. time= 41.2 min (796.6 - 755.4)

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MSE 24-hr 3 2-Year Rainfall=2.80"

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Volume	Invert	Avail.Storage	Storage Description
#1	902.50'	15,103 cf	Chambers (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.50	4,315	0	0
906.00	4,315	15,103	15,103

Device	Routing	Invert	Outlet Devices
#1	Primary	902.50'	15.0" Round Culvert L= 40.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 902.50' / 902.11' S= 0.0096 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	902.50'	10.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	902.50'	8.0" Vert. Orifice/Grate C= 0.600
#4	Secondary	903.25'	15.0" Round Culvert L= 69.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 903.25' / 902.30' S= 0.0138 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf

Primary OutFlow Max=4.62 cfs @ 12.18 hrs HW=904.04' TW=0.00' (Dynamic Tailwater)

- ↑1=Culvert (Passes 4.62 cfs of 6.50 cfs potential flow)
- ↑2=Orifice/Grate (Orifice Controls 2.78 cfs @ 5.09 fps)
- ↑3=Orifice/Grate (Orifice Controls 1.84 cfs @ 5.28 fps)

Secondary OutFlow Max=3.21 cfs @ 12.18 hrs HW=904.04' TW=0.00' (Dynamic Tailwater)

- ↑4=Culvert (Barrel Controls 3.21 cfs @ 5.65 fps)

Summary for Pond RG-E: Rain Garden - East

Inflow Area = 1.748 ac, 91.39% Impervious, Inflow Depth = 2.44" for 2-Year event
 Inflow = 7.19 cfs @ 12.12 hrs, Volume= 0.356 af
 Outflow = 7.05 cfs @ 12.13 hrs, Volume= 0.356 af, Atten= 2%, Lag= 0.7 min
 Primary = 7.05 cfs @ 12.13 hrs, Volume= 0.356 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs / 3
 Peak Elev= 905.53' @ 12.13 hrs Surf.Area= 664 sf Storage= 223 cf

Plug-Flow detention time= 0.3 min calculated for 0.356 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (756.0 - 755.7)

Volume	Invert	Avail.Storage	Storage Description
#1	904.50'	2,738 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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MSE 24-hr 3 2-Year Rainfall=2.80"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.50	1	0	0
905.00	91	23	23
906.00	1,171	631	654
906.50	2,388	890	1,544
907.00	2,388	1,194	2,738

Device	Routing	Invert	Outlet Devices
#1	Primary	904.50'	24.0" Round Culvert L= 117.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 904.50' / 902.50' S= 0.0170 '/ Cc= 0.900 n= 0.011, Flow Area= 3.14 sf
#2	Secondary	906.00'	20.0 deg Sharp-Crested Vee/Trap Weir Cv= 2.69 (C= 3.36)

Primary OutFlow Max=7.05 cfs @ 12.13 hrs HW=905.53' TW=903.90' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 7.05 cfs @ 4.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=904.50' TW=0.00' (Dynamic Tailwater)
 ↑2=Sharp-Crested Vee/Trap Weir(Controls 0.00 cfs)

Summary for Link 1L: 42nd & Jackson STMH

Inflow Area = 3.494 ac, 85.14% Impervious, Inflow Depth = 2.35" for 2-Year event
 Inflow = 8.59 cfs @ 12.17 hrs, Volume= 0.684 af
 Primary = 8.59 cfs @ 12.17 hrs, Volume= 0.684 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Summary for Link 2L: Jackson St

Inflow Area = 0.104 ac, 1.77% Impervious, Inflow Depth = 8.35" for 2-Year event
 Inflow = 3.35 cfs @ 12.18 hrs, Volume= 0.072 af
 Primary = 3.35 cfs @ 12.18 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Summary for Link 3L: Outlot B Pond

Inflow Area = 3.120 ac, 92.66% Impervious, Inflow Depth = 2.22" for 2-Year event
 Inflow = 4.75 cfs @ 12.17 hrs, Volume= 0.576 af
 Primary = 4.75 cfs @ 12.17 hrs, Volume= 0.576 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

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MSE 24-hr 3 10-Year Rainfall=4.30"

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Time span=0.00-48.00 hrs, dt=0.0050 hrs, 9601 points x 3
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentA:	Runoff Area=57,299 sf 95.26% Impervious Runoff Depth=3.98" Tc=5.0 min CN=WQ Runoff=8.61 cfs 0.436 af
SubcatchmentB:	Runoff Area=2,474 sf 71.75% Impervious Runoff Depth=3.56" Tc=5.0 min CN=WQ Runoff=0.34 cfs 0.017 af
SubcatchmentC:	Runoff Area=11,741 sf 30.18% Impervious Runoff Depth=2.83" Tc=5.0 min CN=WQ Runoff=1.38 cfs 0.063 af
SubcatchmentI:	Runoff Area=25,700 sf 100.00% Impervious Runoff Depth=4.06" Tc=5.0 min CN=98 Runoff=3.92 cfs 0.200 af
SubcatchmentJ1:	Runoff Area=28,554 sf 77.05% Impervious Runoff Depth=3.66" Tc=5.0 min CN=WQ Runoff=4.03 cfs 0.200 af
SubcatchmentJ2:	Runoff Area=4,532 sf 1.77% Impervious Runoff Depth=2.32" Tc=5.0 min CN=WQ Runoff=0.47 cfs 0.020 af
SubcatchmentK:	Runoff Area=5,800 sf 100.00% Impervious Runoff Depth=4.06" Tc=5.0 min CN=98 Runoff=0.89 cfs 0.045 af
SubcatchmentL:	Runoff Area=16,100 sf 100.00% Impervious Runoff Depth=4.06" Tc=5.0 min CN=98 Runoff=2.46 cfs 0.125 af
Pond 2P: Bio Clean Chambers	Peak Elev=904.62' Storage=9,160 cf Inflow=19.10 cfs 1.006 af Primary=5.68 cfs 0.826 af Secondary=6.97 cfs 0.179 af Outflow=12.65 cfs 1.005 af
Pond RG-E: Rain Garden - East	Peak Elev=905.89' Storage=530 cf Inflow=11.30 cfs 0.570 af Primary=10.57 cfs 0.570 af Secondary=0.00 cfs 0.000 af Outflow=10.57 cfs 0.570 af
Link 1L: 42nd & Jackson STMH	Inflow=14.12 cfs 1.106 af Primary=14.12 cfs 1.106 af
Link 2L: Jackson St	Inflow=7.25 cfs 0.199 af Primary=7.25 cfs 0.199 af
Link 3L: Outlot B Pond	Inflow=5.89 cfs 0.843 af Primary=5.89 cfs 0.843 af

Total Runoff Area = 3.494 ac Runoff Volume = 1.107 af Average Runoff Depth = 3.80"
14.86% Pervious = 0.519 ac 85.14% Impervious = 2.975 ac

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MSE 24-hr 3 10-Year Rainfall=4.30"

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Summary for Subcatchment A:

Runoff = 8.61 cfs @ 12.12 hrs, Volume= 0.436 af, Depth= 3.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 54,581	98	Paved parking and Roofs
2,718	80	>75% Grass cover, Good, HSG D
57,299		Weighted Average
2,718		4.74% Pervious Area
54,581		95.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment B:

Runoff = 0.34 cfs @ 12.12 hrs, Volume= 0.017 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
1,775	98	Paved parking, HSG D
699	80	>75% Grass cover, Good, HSG D
2,474		Weighted Average
699		28.25% Pervious Area
1,775		71.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment C:

Runoff = 1.38 cfs @ 12.12 hrs, Volume= 0.063 af, Depth= 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
3,543	98	Paved parking, HSG D
8,198	80	>75% Grass cover, Good, HSG D
11,741		Weighted Average
8,198		69.82% Pervious Area
3,543		30.18% Impervious Area

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MSE 24-hr 3 10-Year Rainfall=4.30"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment I:

Runoff = 3.92 cfs @ 12.12 hrs, Volume= 0.200 af, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 25,700	98	Paved parking & roofs
25,700		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J1:

Runoff = 4.03 cfs @ 12.12 hrs, Volume= 0.200 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 22,000	98	Paved parking & roofs
6,554	80	>75% Grass cover, Good, HSG D
28,554		Weighted Average
6,554		22.95% Pervious Area
22,000		77.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J2:

Runoff = 0.47 cfs @ 12.13 hrs, Volume= 0.020 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
4,452	80	>75% Grass cover, Good, HSG D
80	98	Paved parking, HSG D
4,532		Weighted Average
4,452		98.23% Pervious Area
80		1.77% Impervious Area

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MSE 24-hr 3 10-Year Rainfall=4.30"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment K:

Runoff = 0.89 cfs @ 12.12 hrs, Volume= 0.045 af, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 5,800	98	Paved parking & roofs
5,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment L:

Runoff = 2.46 cfs @ 12.12 hrs, Volume= 0.125 af, Depth= 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 10-Year Rainfall=4.30"

Area (sf)	CN	Description
* 16,100	98	Paved parking & roofs
16,100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 2P: Bio Clean Chambers

Inflow Area = 3.064 ac, 93.05% Impervious, Inflow Depth = 3.94" for 10-Year event
 Inflow = 19.10 cfs @ 12.13 hrs, Volume= 1.006 af
 Outflow = 12.65 cfs @ 12.18 hrs, Volume= 1.005 af, Atten= 34%, Lag= 3.5 min
 Primary = 5.68 cfs @ 12.18 hrs, Volume= 0.826 af
 Secondary = 6.97 cfs @ 12.18 hrs, Volume= 0.179 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs / 3
 Peak Elev= 904.62' @ 12.18 hrs Surf.Area= 4,315 sf Storage= 9,160 cf

Plug-Flow detention time= 34.5 min calculated for 1.005 af (100% of inflow)
 Center-of-Mass det. time= 33.8 min (782.6 - 748.9)

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MSE 24-hr 3 10-Year Rainfall=4.30"

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Volume	Invert	Avail.Storage	Storage Description
#1	902.50'	15,103 cf	Chambers (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.50	4,315	0	0
906.00	4,315	15,103	15,103
Device	Routing	Invert	Outlet Devices
#1	Primary	902.50'	15.0" Round Culvert L= 40.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 902.50' / 902.11' S= 0.0096 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	902.50'	10.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	902.50'	8.0" Vert. Orifice/Grate C= 0.600
#4	Secondary	903.25'	15.0" Round Culvert L= 69.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 903.25' / 902.30' S= 0.0138 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf

Primary OutFlow Max=5.68 cfs @ 12.18 hrs HW=904.62' TW=0.00' (Dynamic Tailwater)

- ↑1=Culvert (Passes 5.68 cfs of 8.29 cfs potential flow)
- ↑2=Orifice/Grate (Orifice Controls 3.43 cfs @ 6.29 fps)
- ↑3=Orifice/Grate (Orifice Controls 2.25 cfs @ 6.44 fps)

Secondary OutFlow Max=6.97 cfs @ 12.18 hrs HW=904.62' TW=0.00' (Dynamic Tailwater)

- ↑4=Culvert (Inlet Controls 6.97 cfs @ 5.68 fps)

Summary for Pond RG-E: Rain Garden - East

Inflow Area = 1.748 ac, 91.39% Impervious, Inflow Depth = 3.91" for 10-Year event
 Inflow = 11.30 cfs @ 12.12 hrs, Volume= 0.570 af
 Outflow = 10.57 cfs @ 12.13 hrs, Volume= 0.570 af, Atten= 6%, Lag= 0.8 min
 Primary = 10.57 cfs @ 12.13 hrs, Volume= 0.570 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs / 3
 Peak Elev= 905.89' @ 12.14 hrs Surf.Area= 1,050 sf Storage= 530 cf

Plug-Flow detention time= 0.4 min calculated for 0.570 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (749.6 - 749.2)

Volume	Invert	Avail.Storage	Storage Description
#1	904.50'	2,738 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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MSE 24-hr 3 10-Year Rainfall=4.30"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.50	1	0	0
905.00	91	23	23
906.00	1,171	631	654
906.50	2,388	890	1,544
907.00	2,388	1,194	2,738

Device	Routing	Invert	Outlet Devices
#1	Primary	904.50'	24.0" Round Culvert L= 117.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 904.50' / 902.50' S= 0.0170 '/ Cc= 0.900 n= 0.011, Flow Area= 3.14 sf
#2	Secondary	906.00'	20.0 deg Sharp-Crested Vee/Trap Weir Cv= 2.69 (C= 3.36)

Primary OutFlow Max=10.57 cfs @ 12.13 hrs HW=905.88' TW=904.45' (Dynamic Tailwater)
 ↑**1=Culvert** (Outlet Controls 10.57 cfs @ 6.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=904.50' TW=0.00' (Dynamic Tailwater)
 ↑**2=Sharp-Crested Vee/Trap Weir**(Controls 0.00 cfs)

Summary for Link 1L: 42nd & Jackson STMH

Inflow Area = 3.494 ac, 85.14% Impervious, Inflow Depth = 3.80" for 10-Year event
 Inflow = 14.12 cfs @ 12.16 hrs, Volume= 1.106 af
 Primary = 14.12 cfs @ 12.16 hrs, Volume= 1.106 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Summary for Link 2L: Jackson St

Inflow Area = 0.104 ac, 1.77% Impervious, Inflow Depth = 22.94" for 10-Year event
 Inflow = 7.25 cfs @ 12.18 hrs, Volume= 0.199 af
 Primary = 7.25 cfs @ 12.18 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Summary for Link 3L: Outlet B Pond

Inflow Area = 3.120 ac, 92.66% Impervious, Inflow Depth = 3.24" for 10-Year event
 Inflow = 5.89 cfs @ 12.17 hrs, Volume= 0.843 af
 Primary = 5.89 cfs @ 12.17 hrs, Volume= 0.843 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

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MSE 24-hr 3 100-Year Rainfall=7.40"

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Time span=0.00-48.00 hrs, dt=0.0050 hrs, 9601 points x 3
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentA:	Runoff Area=57,299 sf 95.26% Impervious Runoff Depth=7.06" Tc=5.0 min CN=WQ Runoff=15.00 cfs 0.774 af
SubcatchmentB:	Runoff Area=2,474 sf 71.75% Impervious Runoff Depth=6.57" Tc=5.0 min CN=WQ Runoff=0.62 cfs 0.031 af
SubcatchmentC:	Runoff Area=11,741 sf 30.18% Impervious Runoff Depth=5.70" Tc=5.0 min CN=WQ Runoff=2.73 cfs 0.128 af
SubcatchmentI:	Runoff Area=25,700 sf 100.00% Impervious Runoff Depth=7.16" Tc=5.0 min CN=98 Runoff=6.78 cfs 0.352 af
SubcatchmentJ1:	Runoff Area=28,554 sf 77.05% Impervious Runoff Depth=6.68" Tc=5.0 min CN=WQ Runoff=7.24 cfs 0.365 af
SubcatchmentJ2:	Runoff Area=4,532 sf 1.77% Impervious Runoff Depth=5.10" Tc=5.0 min CN=WQ Runoff=0.99 cfs 0.044 af
SubcatchmentK:	Runoff Area=5,800 sf 100.00% Impervious Runoff Depth=7.16" Tc=5.0 min CN=98 Runoff=1.53 cfs 0.079 af
SubcatchmentL:	Runoff Area=16,100 sf 100.00% Impervious Runoff Depth=7.16" Tc=5.0 min CN=98 Runoff=4.25 cfs 0.221 af
Pond 2P: Bio Clean Chambers	Peak Elev=905.93' Storage=14,818 cf Inflow=30.41 cfs 1.790 af Primary=7.52 cfs 1.334 af Secondary=10.13 cfs 0.454 af Outflow=17.65 cfs 1.788 af
Pond RG-E: Rain Garden - East	Peak Elev=906.67' Storage=1,952 cf Inflow=19.80 cfs 1.017 af Primary=15.48 cfs 1.015 af Secondary=0.17 cfs 0.001 af Outflow=15.61 cfs 1.017 af
Link 1L: 42nd & Jackson STMH	Inflow=20.74 cfs 1.993 af Primary=20.74 cfs 1.993 af
Link 2L: Jackson St	Inflow=10.78 cfs 0.500 af Primary=10.78 cfs 0.500 af
Link 3L: Outlot B Pond	Inflow=7.83 cfs 1.365 af Primary=7.83 cfs 1.365 af

Total Runoff Area = 3.494 ac Runoff Volume = 1.994 af Average Runoff Depth = 6.85"
14.86% Pervious = 0.519 ac 85.14% Impervious = 2.975 ac

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MSE 24-hr 3 100-Year Rainfall=7.40"

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Summary for Subcatchment A:

Runoff = 15.00 cfs @ 12.12 hrs, Volume= 0.774 af, Depth= 7.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 54,581	98	Paved parking and Roofs
2,718	80	>75% Grass cover, Good, HSG D
57,299		Weighted Average
2,718		4.74% Pervious Area
54,581		95.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment B:

Runoff = 0.62 cfs @ 12.12 hrs, Volume= 0.031 af, Depth= 6.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
1,775	98	Paved parking, HSG D
699	80	>75% Grass cover, Good, HSG D
2,474		Weighted Average
699		28.25% Pervious Area
1,775		71.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment C:

Runoff = 2.73 cfs @ 12.12 hrs, Volume= 0.128 af, Depth= 5.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
3,543	98	Paved parking, HSG D
8,198	80	>75% Grass cover, Good, HSG D
11,741		Weighted Average
8,198		69.82% Pervious Area
3,543		30.18% Impervious Area

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MSE 24-hr 3 100-Year Rainfall=7.40"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment I:

Runoff = 6.78 cfs @ 12.12 hrs, Volume= 0.352 af, Depth= 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 25,700	98	Paved parking & roofs
25,700		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J1:

Runoff = 7.24 cfs @ 12.12 hrs, Volume= 0.365 af, Depth= 6.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 22,000	98	Paved parking & roofs
6,554	80	>75% Grass cover, Good, HSG D
28,554		Weighted Average
6,554		22.95% Pervious Area
22,000		77.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J2:

Runoff = 0.99 cfs @ 12.12 hrs, Volume= 0.044 af, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
4,452	80	>75% Grass cover, Good, HSG D
80	98	Paved parking, HSG D
4,532		Weighted Average
4,452		98.23% Pervious Area
80		1.77% Impervious Area

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MSE 24-hr 3 100-Year Rainfall=7.40"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment K:

Runoff = 1.53 cfs @ 12.12 hrs, Volume= 0.079 af, Depth= 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 5,800	98	Paved parking & roofs
5,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment L:

Runoff = 4.25 cfs @ 12.12 hrs, Volume= 0.221 af, Depth= 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 100-Year Rainfall=7.40"

Area (sf)	CN	Description
* 16,100	98	Paved parking & roofs
16,100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 2P: Bio Clean Chambers

Inflow Area = 3.064 ac, 93.05% Impervious, Inflow Depth = 7.01" for 100-Year event
 Inflow = 30.41 cfs @ 12.12 hrs, Volume= 1.790 af
 Outflow = 17.65 cfs @ 12.21 hrs, Volume= 1.788 af, Atten= 42%, Lag= 5.1 min
 Primary = 7.52 cfs @ 12.21 hrs, Volume= 1.334 af
 Secondary = 10.13 cfs @ 12.21 hrs, Volume= 0.454 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs / 3
 Peak Elev= 905.93' @ 12.21 hrs Surf.Area= 4,315 sf Storage= 14,818 cf

Plug-Flow detention time= 27.5 min calculated for 1.788 af (100% of inflow)
 Center-of-Mass det. time= 27.3 min (769.6 - 742.3)

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MSE 24-hr 3 100-Year Rainfall=7.40"

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Volume	Invert	Avail.Storage	Storage Description
#1	902.50'	15,103 cf	Chambers (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.50	4,315	0	0
906.00	4,315	15,103	15,103

Device	Routing	Invert	Outlet Devices
#1	Primary	902.50'	15.0" Round Culvert L= 40.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 902.50' / 902.11' S= 0.0096 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	902.50'	10.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	902.50'	8.0" Vert. Orifice/Grate C= 0.600
#4	Secondary	903.25'	15.0" Round Culvert L= 69.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 903.25' / 902.30' S= 0.0138 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf

Primary OutFlow Max=7.52 cfs @ 12.21 hrs HW=905.93' TW=0.00' (Dynamic Tailwater)

- ↑1=Culvert (Passes 7.52 cfs of 11.84 cfs potential flow)
- ↑2=Orifice/Grate (Orifice Controls 4.56 cfs @ 8.36 fps)
- ↑3=Orifice/Grate (Orifice Controls 2.96 cfs @ 8.48 fps)

Secondary OutFlow Max=10.13 cfs @ 12.21 hrs HW=905.93' TW=0.00' (Dynamic Tailwater)

- ↑4=Culvert (Barrel Controls 10.13 cfs @ 8.26 fps)

Summary for Pond RG-E: Rain Garden - East

Inflow Area = 1.748 ac, 91.39% Impervious, Inflow Depth = 6.98" for 100-Year event
 Inflow = 19.80 cfs @ 12.12 hrs, Volume= 1.017 af
 Outflow = 15.61 cfs @ 12.14 hrs, Volume= 1.017 af, Atten= 21%, Lag= 0.9 min
 Primary = 15.48 cfs @ 12.13 hrs, Volume= 1.015 af
 Secondary = 0.17 cfs @ 12.16 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs / 3
 Peak Elev= 906.67' @ 12.16 hrs Surf.Area= 2,388 sf Storage= 1,952 cf

Plug-Flow detention time= 0.7 min calculated for 1.017 af (100% of inflow)
 Center-of-Mass det. time= 0.7 min (743.2 - 742.5)

Volume	Invert	Avail.Storage	Storage Description
#1	904.50'	2,738 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Proposed

MSE 24-hr 3 100-Year Rainfall=7.40"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.50	1	0	0
905.00	91	23	23
906.00	1,171	631	654
906.50	2,388	890	1,544
907.00	2,388	1,194	2,738

Device	Routing	Invert	Outlet Devices
#1	Primary	904.50'	24.0" Round Culvert L= 117.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 904.50' / 902.50' S= 0.0170 '/' Cc= 0.900 n= 0.011, Flow Area= 3.14 sf
#2	Secondary	906.00'	20.0 deg Sharp-Crested Vee/Trap Weir Cv= 2.69 (C= 3.36)

Primary OutFlow Max=15.48 cfs @ 12.13 hrs HW=906.58' TW=905.50' (Dynamic Tailwater)
 ↑1=Culvert (Outlet Controls 15.48 cfs @ 5.89 fps)

Secondary OutFlow Max=0.17 cfs @ 12.16 hrs HW=906.67' TW=0.00' (Dynamic Tailwater)
 ↑2=Sharp-Crested Vee/Trap Weir (Weir Controls 0.17 cfs @ 2.20 fps)

Summary for Link 1L: 42nd & Jackson STMH

Inflow Area = 3.494 ac, 85.14% Impervious, Inflow Depth = 6.85" for 100-Year event
 Inflow = 20.74 cfs @ 12.15 hrs, Volume= 1.993 af
 Primary = 20.74 cfs @ 12.15 hrs, Volume= 1.993 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Summary for Link 2L: Jackson St

Inflow Area = 0.104 ac, 1.77% Impervious, Inflow Depth = 57.68" for 100-Year event
 Inflow = 10.78 cfs @ 12.18 hrs, Volume= 0.500 af
 Primary = 10.78 cfs @ 12.18 hrs, Volume= 0.500 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Summary for Link 3L: Outlet B Pond

Inflow Area = 3.120 ac, 92.66% Impervious, Inflow Depth = 5.25" for 100-Year event
 Inflow = 7.83 cfs @ 12.18 hrs, Volume= 1.365 af
 Primary = 7.83 cfs @ 12.18 hrs, Volume= 1.365 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Proposed

MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

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Time span=0.00-48.00 hrs, dt=0.0050 hrs, 9601 points x 3
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentA:	Runoff Area=57,299 sf 95.26% Impervious Runoff Depth=0.85" Tc=5.0 min CN=WQ Runoff=2.00 cfs 0.093 af
SubcatchmentB:	Runoff Area=2,474 sf 71.75% Impervious Runoff Depth=0.67" Tc=5.0 min CN=WQ Runoff=0.07 cfs 0.003 af
SubcatchmentC:	Runoff Area=11,741 sf 30.18% Impervious Runoff Depth=0.35" Tc=5.0 min CN=WQ Runoff=0.15 cfs 0.008 af
SubcatchmentI:	Runoff Area=25,700 sf 100.00% Impervious Runoff Depth=0.89" Tc=5.0 min CN=98 Runoff=0.94 cfs 0.044 af
SubcatchmentJ1:	Runoff Area=28,554 sf 77.05% Impervious Runoff Depth=0.71" Tc=5.0 min CN=WQ Runoff=0.82 cfs 0.039 af
SubcatchmentJ2:	Runoff Area=4,532 sf 1.77% Impervious Runoff Depth=0.13" Tc=5.0 min CN=WQ Runoff=0.02 cfs 0.001 af
SubcatchmentK:	Runoff Area=5,800 sf 100.00% Impervious Runoff Depth=0.89" Tc=5.0 min CN=98 Runoff=0.21 cfs 0.010 af
SubcatchmentL:	Runoff Area=16,100 sf 100.00% Impervious Runoff Depth=0.89" Tc=5.0 min CN=98 Runoff=0.59 cfs 0.027 af
Pond 2P: Bio Clean Chambers	Peak Elev=903.21' Storage=3,060 cf Inflow=4.54 cfs 0.213 af Primary=2.19 cfs 0.212 af Secondary=0.00 cfs 0.000 af Outflow=2.19 cfs 0.212 af
Pond RG-E: Rain Garden - East	Peak Elev=905.09' Storage=36 cf Inflow=2.56 cfs 0.120 af Primary=2.55 cfs 0.120 af Secondary=0.00 cfs 0.000 af Outflow=2.55 cfs 0.120 af
Link 1L: 42nd & Jackson STMH	Inflow=2.32 cfs 0.224 af Primary=2.32 cfs 0.224 af
Link 2L: Jackson St	Inflow=0.02 cfs 0.001 af Primary=0.02 cfs 0.001 af
Link 3L: Outlot B Pond	Inflow=2.22 cfs 0.215 af Primary=2.22 cfs 0.215 af

Total Runoff Area = 3.494 ac Runoff Volume = 0.225 af Average Runoff Depth = 0.77"
14.86% Pervious = 0.519 ac 85.14% Impervious = 2.975 ac

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MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

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Summary for Subcatchment A:

Runoff = 2.00 cfs @ 12.12 hrs, Volume= 0.093 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

Area (sf)	CN	Description
* 54,581	98	Paved parking and Roofs
2,718	80	>75% Grass cover, Good, HSG D
57,299		Weighted Average
2,718		4.74% Pervious Area
54,581		95.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment B:

Runoff = 0.07 cfs @ 12.12 hrs, Volume= 0.003 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

Area (sf)	CN	Description
1,775	98	Paved parking, HSG D
699	80	>75% Grass cover, Good, HSG D
2,474		Weighted Average
699		28.25% Pervious Area
1,775		71.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment C:

Runoff = 0.15 cfs @ 12.13 hrs, Volume= 0.008 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

Area (sf)	CN	Description
3,543	98	Paved parking, HSG D
8,198	80	>75% Grass cover, Good, HSG D
11,741		Weighted Average
8,198		69.82% Pervious Area
3,543		30.18% Impervious Area

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MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment I:

Runoff = 0.94 cfs @ 12.12 hrs, Volume= 0.044 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

Area (sf)	CN	Description
* 25,700	98	Paved parking & roofs
25,700		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J1:

Runoff = 0.82 cfs @ 12.12 hrs, Volume= 0.039 af, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

Area (sf)	CN	Description
* 22,000	98	Paved parking & roofs
6,554	80	>75% Grass cover, Good, HSG D
28,554		Weighted Average
6,554		22.95% Pervious Area
22,000		77.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment J2:

Runoff = 0.02 cfs @ 12.14 hrs, Volume= 0.001 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

Area (sf)	CN	Description
4,452	80	>75% Grass cover, Good, HSG D
80	98	Paved parking, HSG D
4,532		Weighted Average
4,452		98.23% Pervious Area
80		1.77% Impervious Area

Proposed

MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment K:

Runoff = 0.21 cfs @ 12.12 hrs, Volume= 0.010 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

Area (sf)	CN	Description
* 5,800	98	Paved parking & roofs
5,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment L:

Runoff = 0.59 cfs @ 12.12 hrs, Volume= 0.027 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs
MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

Area (sf)	CN	Description
* 16,100	98	Paved parking & roofs
16,100		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 2P: Bio Clean Chambers

Inflow Area = 3.064 ac, 93.05% Impervious, Inflow Depth = 0.83" for MIDS - 1.1 in event
 Inflow = 4.54 cfs @ 12.13 hrs, Volume= 0.213 af
 Outflow = 2.19 cfs @ 12.20 hrs, Volume= 0.212 af, Atten= 52%, Lag= 4.5 min
 Primary = 2.19 cfs @ 12.20 hrs, Volume= 0.212 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs / 3
 Peak Elev= 903.21' @ 12.20 hrs Surf.Area= 4,315 sf Storage= 3,060 cf

Plug-Flow detention time= 68.6 min calculated for 0.212 af (100% of inflow)
 Center-of-Mass det. time= 65.8 min (839.3 - 773.5)

Proposed

MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

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Volume	Invert	Avail.Storage	Storage Description
#1	902.50'	15,103 cf	Chambers (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
902.50	4,315	0	0
906.00	4,315	15,103	15,103

Device	Routing	Invert	Outlet Devices
#1	Primary	902.50'	15.0" Round Culvert L= 40.8' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 902.50' / 902.11' S= 0.0096 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf
#2	Device 1	902.50'	10.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	902.50'	8.0" Vert. Orifice/Grate C= 0.600
#4	Secondary	903.25'	15.0" Round Culvert L= 69.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 903.25' / 902.30' S= 0.0138 '/' Cc= 0.900 n= 0.011, Flow Area= 1.23 sf

Primary OutFlow Max=2.19 cfs @ 12.20 hrs HW=903.21' TW=0.00' (Dynamic Tailwater)

- ↑1=Culvert (Barrel Controls 2.19 cfs @ 4.40 fps)
- ↑2=Orifice/Grate (Passes < 1.42 cfs potential flow)
- ↑3=Orifice/Grate (Passes < 1.03 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=902.50' TW=0.00' (Dynamic Tailwater)

- ↑4=Culvert (Controls 0.00 cfs)

Summary for Pond RG-E: Rain Garden - East

Inflow Area = 1.748 ac, 91.39% Impervious, Inflow Depth = 0.82" for MIDS - 1.1 in event
 Inflow = 2.56 cfs @ 12.12 hrs, Volume= 0.120 af
 Outflow = 2.55 cfs @ 12.13 hrs, Volume= 0.120 af, Atten= 0%, Lag= 0.3 min
 Primary = 2.55 cfs @ 12.13 hrs, Volume= 0.120 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs / 3
 Peak Elev= 905.09' @ 12.13 hrs Surf.Area= 190 sf Storage= 36 cf

Plug-Flow detention time= 0.2 min calculated for 0.120 af (100% of inflow)
 Center-of-Mass det. time= 0.2 min (773.9 - 773.6)

Volume	Invert	Avail.Storage	Storage Description
#1	904.50'	2,738 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Proposed

MSE 24-hr 3 MIDS - 1.1 in Rainfall=1.10"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
904.50	1	0	0
905.00	91	23	23
906.00	1,171	631	654
906.50	2,388	890	1,544
907.00	2,388	1,194	2,738

Device	Routing	Invert	Outlet Devices
#1	Primary	904.50'	24.0" Round Culvert L= 117.5' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 904.50' / 902.50' S= 0.0170 '/' Cc= 0.900 n= 0.011, Flow Area= 3.14 sf
#2	Secondary	906.00'	20.0 deg Sharp-Crested Vee/Trap Weir Cv= 2.69 (C= 3.36)

Primary OutFlow Max=2.54 cfs @ 12.13 hrs HW=905.09' TW=903.12' (Dynamic Tailwater)
 ↑**1=Culvert** (Inlet Controls 2.54 cfs @ 3.27 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=904.50' TW=0.00' (Dynamic Tailwater)
 ↑**2=Sharp-Crested Vee/Trap Weir**(Controls 0.00 cfs)

Summary for Link 1L: 42nd & Jackson STMH

Inflow Area = 3.494 ac, 85.14% Impervious, Inflow Depth > 0.77" for MIDS - 1.1 in event
 Inflow = 2.32 cfs @ 12.19 hrs, Volume= 0.224 af
 Primary = 2.32 cfs @ 12.19 hrs, Volume= 0.224 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Summary for Link 2L: Jackson St

Inflow Area = 0.104 ac, 1.77% Impervious, Inflow Depth = 0.13" for MIDS - 1.1 in event
 Inflow = 0.02 cfs @ 12.14 hrs, Volume= 0.001 af
 Primary = 0.02 cfs @ 12.14 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

Summary for Link 3L: Outlet B Pond

Inflow Area = 3.120 ac, 92.66% Impervious, Inflow Depth > 0.83" for MIDS - 1.1 in event
 Inflow = 2.22 cfs @ 12.20 hrs, Volume= 0.215 af
 Primary = 2.22 cfs @ 12.20 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.0050 hrs

GEOTECHNICAL EXPLORATION AND ENGINEERING REVIEW

42nd Avenue Apartments

Columbia Heights

Minnesota

NTI Project No. 21.MSP.11877

DRAFT

Prepared For:

Reuter Walton
4450 Excelsior Boulevard, Suite 400
Saint Louis Park, MN 55416



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Unearthing confidence[™]

March 29, 2021

Reuter Walton
 Attention: Mr. Kyle Brassler
 4450 Excelsior Boulevard, Suite 400
 Saint Louis Park, MN 55416

Subject: DRAFT Geotechnical Exploration and Engineering Review
42nd Avenue Apartments
 Columbia Heights, Minnesota
 NTI Project No. 21.MSP.11877

In accordance with your request and subsequent authorization, Northern Technologies, LLC (NTI) conducted a Geotechnical Exploration for the above referenced project. Our services included advancement of exploration borings and preparation of an engineering report with recommendations developed from our geotechnical services. Our work was performed in general accordance with our proposal dated February 24, 2021.

Soil samples obtained at the site will be held for 60 days at which time they will be discarded. Please advise us in writing if you wish to have us retain them for a longer period. You will be assessed an additional fee if soil samples are retained beyond 60 days.

We appreciate the opportunity to have been of service on this project. If there are any questions regarding the soils explored or our review and recommendations, please contact us at your convenience at (651) 389-4191.

Northern Technologies, LLC

Debra A. Schroeder, P.E.
 Senior Engineer

Steven D. Gerber, P.E.
 Senior Engineer

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a Duly Licensed Professional Engineer under the Laws of the State of Minnesota.

DRAFT

Steven D. Gerber

Date: 03/29/2021 Reg. No. 45298



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DRAFT

GEOTECHNICAL EXPLORATION AND ENGINEERING REVIEW

42nd Avenue Apartments

NTI Project No. 21.MSP.11877

1.0 EXECUTIVE SUMMARY

We briefly summarize below our geotechnical recommendations for the proposed project. The summary must be read in complete context with our report.

- Our borings encountered existing, undocumented fill that was up to 10 feet deep overlying native soils that were generally clayey sand and sandy lean clay with occasional sand seams.
 - Apartment Building – The excavation for the below grade level appears to generally be sufficiently deep to remove the undocumented fill. Local soil corrections may be required to remove deeper deposits of the undocumented fill or other unsuitable material.
 - Food Bank – The undocumented fill was observed to be about 10 feet deep at Boring SB-11 and appears to be somewhat deeper there than the rest of the site. We suggest beginning the excavation to remove the fill in the northwest corner and to work toward the east and south to help delineate the extent of these deeper deposits.
- Portions of the existing fill contain organic matter and may contain debris, and these portions would not be considered suitable for reuse in the building area.
- The on-site soils are suitable for standard spread footing construction. We have provided two recommendations for net allowable bearing pressure:
 - Option 1- Foundations bearing on competent native soils or properly compacted backfill from on-site sources that extends to suitable native soils may be design using a maximum allowable net bearing pressure of up to 2,500 psf.
 - Option 2- Foundations bearing on a layer of properly compacted imported sand that extends to competent native soils may be design using a maximum allowable net bearing pressure of up to 5,000 psf. **The sand should extend to a depth equal to at least one-half the width of square foundations or the full width of strip foundations.**
- The drill crew observed the borings for groundwater (if any) during and at the completion of drilling activities. Groundwater was observed at the time of our fieldwork at a depth of approximately 25 ½ feet in Boring SB-6, but groundwater was not observed in our remaining borings.
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We therefore recommend that NTI be retained to monitor this portion of the work.



2.0 INTRODUCTION

2.1 Site / Project Description

The proposed project is to be constructed as defined within Table 1.

Table 1: Project & Site Description

Item	Description
Building Type	Four- story above grade apartment building with below grade parking;
	Slab on-grade for Food Bank
Floor Elevations	Within approximately 2 feet of existing grades.
Proposed Maximum Change in Site Elevation	Finish site grades within 2 feet of existing site grades in the building areas and 4 feet elsewhere.
Site Description	
Location of Project	South side of 42 nd Ave NE, between Jackson St NE and Van Buren St NE in Columbia Heights, Minnesota.
Existing Land Use / Improvements to Parcel	Surface level parking
Topography at Site	There is about 2 feet of grade change across the site

2.2 Scope of Services

The purpose of this report is to present a summary of our geotechnical exploration and provide generalized opinions and recommendations regarding the soil conditions and design parameters for founding of the project. Our “scope of services” was limited to the following:

1. Explore the project subsurface by means of 12 standard penetration test borings extending to depths of approximately 10 to 25 grade, and conduct laboratory test(s) on representative samples for characterizing the index and engineering properties of the soils at the project site. One ten-foot boring was in accessible due to utility conflicts at the time of our mobilization and was not drilled.
2. Prepare a report presenting our findings from our field exploration, laboratory testing, and engineering recommendations for foundation types, footing depths, allowable bearing capacity, estimated settlements, floor slab support, excavation, engineered fill, backfill, compaction and potential construction difficulties related to excavation, backfilling and drainage, lateral earth pressures, pavement design, and estimated stormwater infiltration design rates.



3.0 EXPLORATION PROGRAM RESULTS

3.1 Exploration Scope

Site geotechnical drilling occurred on March 12, 2021. Individual borings were advanced at approximate locations as presented on the Boring Location Diagram within the appendices. NTI located the borings relative to existing site features. Elevations were approximated using Minnesota DNR MnTOPO website. Please refer to the Boring Location Diagram and the Boring Logs in Appendix C.

The boreholes were backfilled with auger cuttings, or were abandoned using high solids bentonite or neat cement grout as per appropriate local and state statutes. Minor settlement of the boreholes will occur. Owner is responsible for final closure of the boreholes.

3.2 Subsurface Conditions

Please refer to the boring logs within the appendices for a detailed description and depths of stratum at each boring. Based on results of the current geotechnical exploration, Table 2 provides a general depiction of subsurface conditions at the project site. Additional comment on the evaluation of recovered soil samples is presented within the report appendices.

Table 2: Observed Subsurface Stratigraphy at Project Site ¹

Stratum	Depth to Base of Stratum below existing grade	Material Description	Notes
Surface	1 to 4 inches	Bituminous Pavement over	Apparent aggregate base by visual classification and may not meet MnDOT or other specifications;
	4 to 10 inches	Apparent Aggregate Base; or	
	4 ½ to 6 inches	Apparent Topsoil	
Undocumented Fill	1 ½ to 10 feet	Clayey sand (SC), sandy lean clay (CL), silty sand (SM), sand with silt and sand with silt and gravel (SP-SM)	The fill is highly variable in composition and apparent compaction. Portions of the fill may contain organic matter or debris.
Native Soils	Termination depths of the borings.	Clayey sand (SC), sandy lean clay (CL), silty sand (SM), sand with silt and sand with silt and gravel (SP-SM), sandy silt (ML)	Generally loose to medium dense sand soils; medium to rather stiff clay; grades to dense sand or stiff clay near the termination depths of the borings.

1. Table summary is a generalization of subsurface conditions and may not reflect variation in subsurface strata occurring on site. The general geologic origin of retained soil samples is listed on the boring logs.

3.3 Groundwater Conditions

The drill crew observed the borings for groundwater (if any) during and at the completion of drilling activities. Groundwater was observed at the time of our fieldwork at a depth of approximately 25 ½ feet in Boring SB-6, but groundwater was not observed in our remaining borings.



Overall, the site soils are conducive to movement of groundwater both laterally and vertically. The moisture content of such soils can vary annually and per recent precipitation. Such soils and other regional dependent conditions may produce groundwater entry of project excavations. Seasonal variation or local infiltration may raise the groundwater elevation.

We direct your attention to other report sections and appendices attachments concerning groundwater issues and subsurface drainage.

3.4 Laboratory Test Program

Our analysis and recommendations of this report are based upon our interpretation of the standard penetration test resistance determined while sampling soils, laboratory test results and experience with similar soils from other sites near the project. The results of such tests are summarized on the boring logs or attached laboratory test reports.

4.0 ENGINEERING REVIEW AND RECOMMENDATIONS

The following recommendations are based on our present knowledge of the project. We ask that you or your design team notify us immediately if significant changes are made to project size, location or design as we would need to review our current recommendations and provide modified or different recommendations with respect to such change(s).

4.1 Project Scope

We understand that the proposed slab-on-grade structure will include concrete foundation walls and footings for support of above grade construction. NTI's assumed foundation loads and change in grade is summarized within Table 3. Our assessment of project soils, opinions, and report recommendations are based directly on application of estimated structural loads to site soils.

Table 3: Foundation Loads / Change in Grade / Footing Elevation

Building Element	Load / Condition
Apartment Building Strip Footings	10 kips per lineal foot or less (assumed)
Food Bank Strip Footings	5 kips per lineal foot or less (assumed)
Apartment Building Isolated Column Footings	500 kips or less (assumed)
Food Bank Isolated Column Footings	100 kips or less (assumed)
Change in Overall Site Grade (from original ground surface)	2 feet or less in building pad areas (assumed) 4 feet or less in other areas (assumed)
Free Standing Retaining Walls	None Anticipated
Basement Excavation	1 level below grade for the apartments.



4.2 Site Preparation

Discussion

The native soils observed in our soil borings appear to be suitable for support of the proposed construction. The undocumented fill, in contrast, is not considered suitable and should be removed from the building areas.

Apartment Building – The excavation for the below grade level appears to generally be sufficiently deep to remove the undocumented fill. Local soil corrections may be required to remove deeper deposits of the undocumented fill or other unsuitable material.

Food Bank – The undocumented fill was observed to be about 10 feet deep in the food bank area at Boring SB-11 and appears to be somewhat deeper there than the rest of the site. We suggest beginning the excavation to remove the fill in the northwest corner and to work toward the east and south to help delineate the extent of these deeper deposits. The excavation should also remove any soft to medium clay or very loose to loose sand that are within 3 feet of the bottom of foundations.

Consideration should be given to additional soil borings and/or test pits after demolition in order to refine the understanding of the quantities of fill needed for removal, the suitability for reuse of on-site soils, and the suitability of the subsurface for aggregate piers.

We are providing two allowable bearing capacities, one for bearing on native soils or compacted backfill consisting of on-site soils. The second bearing capacity would be for bearing the foundation on a subcut that is backfilled with imported sand or gravel.

Excavation

NTI recommends that all existing topsoil, pavement section, buried organic materials, and any manmade structures that are encountered be removed from within the building pads. In addition, NTI recommends that all previously placed undocumented fill be removed from below the foundation elements. It appears that the excavations to remove the majority of the unsuitable soils will be achieved incidentally with the excavation for the below grade level.

We recommend that all earthwork improvements and excavations be oversized where fill materials are placed below foundations. The Geotechnical Engineer of Record or their designated representative should observe the project excavations to determine that unsuitable materials have been properly removed and adequate bearing support is provided by the exposed soils. Sidewalls should be benched or sloped to provide safe working conditions and stability for engineered fill placement. Any oversizing that is required should be performed in accordance with the diagram and table included in Appendix A.



Backfill

We recommend that native soils at the exposed grade (i.e. base of excavations) be compacted until such materials achieve no less than 98% of the standard proctor maximum dry density (ASTM: D 698-96). The clay soils on this site are susceptible to disturbance with exposure to the elements and construction activities, and may locally be found to be wet.

If stabilization of the excavation subgrade is required in order to provide a platform for construction to properly compact the backfill, we recommend that it be stabilized with a 6 inch, or thicker, layer of crushed rock that is compacted with vibratory energy until no further deflection is observed in the rock. Depending on the amount of displacement of the rock into the subgrade, some additional aggregate may need to be added.

All engineered fill for site corrective earthwork and for support of project footings should be tempered for moisture content, placed, and be compacted to the criteria presented within Appendix B.

Material Requirements

We anticipate that while portions of the existing fill zone may be suitable for reuse as structural fill, **any organic or debris laden soils will need to be sorted and are not considered to be suitable for reuse as structural fill within the building pad.**

Structural fill should consist of material with a maximum particle size of 1 ½ inches and consist of on-site soils with a liquid limit less than 40.

We recommend that fill placed below the bottom of the foundation as backfill for the subcut for the higher bearing capacity consist of sand or gravel with less than 20 percent material passing the No. 200 sieve.

In certain locations, sand may be imported and placed to help facilitate drainage, such as behind retaining walls and beneath pavements or slabs or to improve the strength of the subgrade beneath foundations. In these areas, the subgrade should be sloped to drain toward drain-tile to discharge water away from the site, to help prevent the buildup of hydrostatic pressures. Drain-tile should be placed at or below the bottom of foundations in building areas and at the bottom of the granular material beneath exterior slabs and pavements.

All engineered fill for site corrective earthwork and for support of project footings should be tempered for moisture content, placed, and be compacted to the criteria presented within Appendix B.



4.3 Shallow Foundations

The following bearing recommendations are based on our understanding of the project. You should notify us of any changes made to the project size, location, design, or site grades so we can assess how such changes impact our recommendations. We assume foundation elements will impose maximum vertical loads as previously noted within this report. We are providing recommendations for two maximum net allowable bearing capacities, depending on the amount of soil correction that is used.

- Option 1- Foundations cast on suitable native soils or properly compacted backfill from on-site sources that extends to suitable native soils.
- Option 2 – Foundations cast on imported, properly compacted sand with less than 20% material passing the No. 200 sieve. The sand should extend to a depth at least equal to one-half the width of square foundations or the full width of strip foundations. This would likely require removing all of the existing fill soils in the building area and replace with imported sand.

Prior to placement of concrete, we recommend that all foundation subgrades be surface compacted to a minimum of 98 percent of its standard proctor maximum dry density.

Continuous strip footings under bearing walls should be at least 1 foot wider than the walls they support. Interior footings should be based at least 2 feet wide.

Table 4: Recommended Maximum Net Allowable Soil Bearing Pressure¹ - Conventional Shallow Foundation Construction

Location	Criteria
Perimeter Strip Footings, Perimeter Columns: Perimeter strip footings and perimeter column footing supported on soil below depth of frost penetration.	Maximum 2,500 psf (Option 1 - All foundations on compacted backfill from on-site soils)
Interior Strip Footings: Interior strip footings supported on documented fill, or competent native soils at a depth that provides no less than 6 inches of clearance between the top of footing and underside of floor slab (for sand cushion).	Maximum 5,000 psf (Option-2 - All Foundations on compacted imported sand backfill)
Interior Column Footings: Supported on documented fill, or competent native soils at a depth that provides no less than 6 inches of clearance between the top of footing and underside of floor slab (for sand cushion).	

1. Maximum net allowable soil bearing pressure recommendations predicated on foundation design and construction complying with recommendations presented within this report. To minimize local failure of supporting soils, it is our opinion foundation construction should comply with the International Building Code (IBC) requirements.

Foundations in unheated appurtenant areas, such as stoops and canopies, should be based at least 5 feet below the proposed finished grade for frost protection. Footings below structures anticipated to be heated (greater than 60 degrees F) in winter should be constructed at least 3.5 feet below proposed finished grade.



4.4 Bearing Factor of Safety and Estimate of Settlement

We estimate native soils or properly placed engineered fill soils will provide a nominal 3 factor of safety against localized bearing failure when construction complies with report criteria and recommendations, and you design structure footings using the Table 4 maximum net allowable soil bearing recommendation(s).

We estimate that footings loaded per report recommendations may experience long term, total settlement of approximately 1 inch. Differential settlement will be on the order of 50 percent of total settlement. Generally, the greatest differential settlement occurs between lightly loaded and heavily loaded footings, particularly if heavily loaded footings are located adjacent to lightly loaded strip footings. Most of the settlement will occur on first loading, as the structure is erected.

We recommend that that a coefficient of sliding of up to 0.35, assuming a horizontal bearing surface on on-site soils or 0.50 assuming bearing on at least 2 feet of sand. The design and construction of the foundations should consider the impact of removing soils in the passive zone in front of the foundations, if applicable.

4.5 Subsurface Drainage

NTI considers the installation of a subsurface drain system at the base of foundation walls to be a preferred practice of construction. The subsurface drain system will help to limit moisture accumulation within granular soils placed below interior floors. This system, in conjunction with the clean granular slab subbase would act as an underdrain for the slab. You should also consider placement of a separate subsurface drainage system along the exterior of the perimeter foundation walls.

As a general guideline, subsurface drainage consists of a geotextile and coarse drainage aggregate encased slotted or perforated pipe extending to sump basin(s).

We recommend that exterior drainage be separated from interior drainage to reduce risk of cross flow and moisture infiltration below structure interior. The Owner with consultation of the design team should weigh the risks associated without installing a subsurface drainage system and determine actual need for subsurface drainage.

4.6 Utilities

Open cut utility trenches should be backfilled in 6-inch maximum depth loose lifts. It is especially important that you compact trench backfill of underground utilities to minimize future settlement of green space and pavement areas. Please refer to Appendix B for compaction specifications.

The stability of embankments along utility excavations is dependent on soil strength, site geometry, moisture content, and any surcharge load for excavated soils and equipment. Cautionary comment on excavation stability is provided within other report sections.



Sand backfill in utility trenches within clayey soils can create a source for water intrusion at the wall penetrations. We recommend that, for at least the 5 feet closest to the building, trenches be backfilled with cohesive soils to reduce the potential for water intrusion. These soils should have at least 40 percent passing the No.200 sieve and have a liquid limit less than 40.

We herein note that the Contractor is solely responsible for assessing the stability of and executing underground utility and project excavations using safe methods. Contractor is also responsible for naming the “competent individual” as per Subpart P of 29 CFR 1926.6 (Federal Register - OSHA).

4.7 Slab-on-Grade Floors

For floor slabs constructed directly over competent native soils or documented engineered fill as part of a complete soil correction to remove the till zone soils of the entire building pad, the design of the floor slab may be based on an estimated modulus of subgrade reaction (k) of 150 pounds per cubic inch (pci).

The final 6 inches of fill below the concrete floor slabs should consist of pit run or processed sand (sand cushion) with 100 percent material passing the 1 inch, no more than 40 percent passing the No. 40 sieve and no more than 5 percent material passing the No. 200 U.S. Sieve. The moisture content of the sand cushion should be within plus or minus 2 percent of the optimum moisture content determined by the standard Proctor test (ASTM D698).

If the interior floor slab is covered with impervious or near impervious surfacing such as, but not limited to, paint, hardening agent, vinyl tile, ceramic tile, or wood flooring, a vapor retarder should be installed. The retarder should consist of a synthetic membrane placed either below the sand cushion or at the underside of the concrete floor. The location of the membrane is contentious and has both positive and negative aspects on the long term performance of the floor system. NTI recommends the design team consult with the selected floor covering supplier for any specific vapor transmission mitigation requirements their product may have.

The floor slab should be isolated from the walls and columns. Such isolation should include installation of a ½ inch thick expansion joint between the floor and walls, and/or columns to minimize binding between the construction materials. Such construction should also include application of a sealant within the expansion joint after curing of the floor slab to reduce moisture penetration through the joint. We recommend that a bond breaker be incorporated between the floor slab and foundation walls to reduce binding between components.

4.8 Exterior Foundation Wall Backfill

Exterior backfill of at-grade foundations walls should consist of non-organic, debris free granular soils for at-grade construction. Placement of exterior backfill against at-grade foundation walls should be performed concurrent with interior backfill to minimize differential loading, rotation and/or movement of the wall system.



The final one foot of exterior backfill for green areas may consist of clay or silt based topsoil. The final exterior backfill for areas supporting sidewalks and/or pavements should consist of a free draining aggregate base as recommended for the respective construction. You should temper all backfill for correct moisture content and then place and compact individual lifts of exterior backfill per criteria presented within the appendix attachment.

4.9 Surface Drainage

You should maintain positive drainage during and after construction of the project and eliminate ponding of water on site soils. We recommend that you include provisions within the construction documents for positive drainage of site. You should install sumps at critical areas around project excavations to assist in removal of seepage and runoff from site.

We recommend that sidewalks, curbing, pavements, and green space direct drainage away from the structure. We recommend that you provide a 5 percent gradient within 10 feet of the building for drainage from the lawn, and 2 percent minimum gradient from the building for drainage of the sidewalks / pavements. All pavements should drain to on-site storm collection, municipal collection system, or roadside ditching.

Roof runoff should be directed away from the building by a system of interior roof and scupper drains, or rain gutters, down spouts and splash pads. It is our opinion interior roof drains plumbed directly to the storm water piping system provide the most favorable method of conveying drainage from the roof as interior drains do not freeze or discharge runoff onto exterior sidewalks and pavements.

4.10 Pavement Construction

We assume project traffic will be separated into two distinct classes; heavy duty traffic comprised of refuse trucks and delivery trucks and light duty traffic comprised of passenger vehicles. Our pavement recommendations are predicated on separation of this traffic.

Following the removal of topsoil, existing pavement section, and unsuitable organic soils, and following the completion of site grading activities, the resulting subgrade should first be scarified and re-compacted to a depth of 12 inches. A proof roll test should then be performed to determine soft or unstable subgrade areas. The proof roll should be performed with a tandem axle dump truck loaded to gross capacity (at least 20 tons). Acceptance criteria of the proof roll shall be limited to rut formation no more than one inch (1") depth (front or rear axles) and no pumping (rolling) observed during the visual inspection. Proof roll tests should be observed by an experienced technician or geotechnical engineer prior to placement of the aggregate base course to verify the subgrade will provide adequate pavement support.

If rutting or localized unstable subgrade areas are observed, those areas should be subcut, moisture-conditioned, and re-compacted or removed to a stable depth. Excavations for soil corrections (if any) in paved areas should allow for a 2 foot oversize beyond the edges of the pavement.



If fill is required in paved areas, we recommend that it consist of soils similar in composition to the existing subgrade soils. Individual lifts of engineered fill in proposed paved areas should be tempered for moisture content, placed and compacted as listed in the Compaction Guidelines table in Appendix B.

For the predominant clayey sand subgrade soils encountered at the surface of site, we estimate that a properly prepared subgrade would have an average stabilometer R-value of 20.

For a 20-year design pavement life and assumed traffic volumes, Table 5 presents our thickness recommendations for flexible (bituminous) pavement.

Table 5: Recommended Flexible Pavement Thickness Design Alternative

Pavement Section	Light Duty (Parking Stalls)	Heavy Duty (Drive Lanes / Truck Areas)
Bituminous Wear Course (inches)	1.5	2.0
Bituminous Base Course (inches)	2.0	2.5
Class 5 or 6 Aggregate Base (inches)	8.0	8.0

We recommend rigid Portland cement concrete pavements be constructed at driveway aprons, trash enclosures, loading and unloading areas, and other areas where point loads and turning stresses are more likely to damage the pavement. Based on the performance of concrete pavements at similar sites, we recommend the concrete pavement design alternative listed in Table 6.

Table 6: Recommended Rigid Pavement Thickness Design Alternative

Pavement Section	Heavy Duty (Drive Lanes / Truck / Bus Areas)	Static Loading Areas (Loading Docks, Dumpsters)
Unreinforced Concrete (inches)	6.0	7.0
Class 5 or 6 Aggregate Base (inches)	4.0	4.0

Pavement recommendations assume that the subgrade soils and aggregate section below paved surfaces will drain to subsurface piping for eventual discharge into storm sewer, or above grade to ditching, or similar acceptable systems. Lack of surface and subsurface drainage will significantly reduce the capacity and longevity of the pavement systems indicated above.

Properly constructed pavements, even those constructed entirely over inorganic soil, will crack due to creep movements, changes in temperatures, frost action and other factors. Features that would help reduce this movement and cracking include:

- Installing finger drains about catch basins, low lying areas, and periodically in large pavement areas,
- Placing a reinforcement geotextile or geogrid under the aggregate base or within the aggregate base, respectively,
- Adding a 1 foot or thicker section of clean sand to act as a drainage layer.



We recommend pavements receive annual maintenance, as a minimum, to correct damages to the pavement structure, clean and infill cracks which develop, and repair or resurface areas which exhibit reduced subgrade performance. The lack of maintenance can lead to moisture infiltration of the pavement structure and softening of the subgrade soils. This, in turn, can degrade the performance of the pavement system and result in poorly performing pavements with shortened life expectancy.

4.11 Stormwater Infiltration

The encountered on-site clayey sand (SC), sandy lean clay (CL), and silt (ML) soils are generally considered to be marginal to poor for the infiltration of stormwater. Table 7 provides estimated infiltration rates for the various soil types encountered on-site.

Table 7: Estimated Infiltration Rates¹

Unified Soil Classification System - Soil Type	Estimated Cumulative Infiltration Rate (inches/hour)
Clayey Sand (SC)/Sandy Lean Clay (CL)	0.06
Silt (ML)	0.20
Silty Sand (SM)	0.45
Sand with Silt (SP-SM)	0.7
Sand (SP)	0.8

1. All findings are approximate based on correlation of on-site soils to the Minnesota Stormwater Manual, or other published literature.

We recommend that Double-Ring Infiltrometer tests be performed to verify or potentially obtain less conservative rates as compared to the values shown above. NTI would be pleased to perform these services.

4.12 Frost Considerations

The clayey sand, silty sand, silt, and sandy lean clay on this site are moderately to highly frost susceptible. Small amounts of groundwater, or infiltrated surface water, can be detrimental to the performance of the slabs and pavements. Exterior slabs and pavements should be expected to heave. If frost action needs to be eliminated in critical areas, then we recommend the use of structurally supported exterior slabs (e.g., as structural stoops in front of building doors), as is common practice in the state of Minnesota.

A transition area between structurally supported slabs or non-frost susceptible materials should be constructed at a 3H: 1V back slope to reduce the potential differential frost movements in the slabs or pavements. Drain-tile should be installed around the foundation perimeter and finger drains should be installed about catch basins and across low points in the pavement grades.

Non-frost susceptible fill should consist of sand or gravel with less than 5 percent material passing the No. 200 sieve, and at least 50 percent retained on the No. 40 sieve.



5.0 CONSTRUCTION CONSIDERATIONS

5.1 Excavation Stability

Excavation depth and sidewall inclination should not exceed those specified in local, state or federal regulations. Excavations may need to be widened and sloped, or temporarily braced, to maintain or develop a safe work environment. Also, contractors should comply with local, state, and federal safety regulations including current OSHA excavation and trench safety standards. Temporary shoring must be designed in accordance with applicable regulatory requirements.

5.2 Engineered Fill & Winter Construction

The Geotechnical Engineer of Record or their designated representative should observe and evaluate excavations to verify removal of uncontrolled fills, topsoil and/or unsuitable material(s), and adequacy of bearing support of exposed soils. Such observation should occur prior to construction of foundations or placement of engineered fill supporting excavations.

Engineered fill should be approved by the Geotechnical Engineer of Record prior to placement. In addition, the engineered fill should be tempered for correct moisture content and then place and compact individual lifts of engineered fill to criteria established within the appendices.

Frozen soil should never be used as engineered fill or backfill nor should you support foundations on frozen soils. Moisture freezing within the soil matrix of fine grained and/or cohesive soils produces ice lenses.

Such soils gain moisture from capillary action and, with continued growth, heave with formation of ice lenses within the soil matrix. Foundations constructed on frozen soils have the potential to settle once ice lenses thaw.

You should protect excavations and foundations from freezing conditions or accumulation of snow, and remove frozen soils, snow, and ice from within excavations, fill section or from below proposed foundations. Replacement soils should consist of similar materials as those removed from the excavation with moisture content, placement, and compaction conforming to report criteria.

6.0 CLOSURE

As the widely spaced, small diameter borings provide only a limited amount of data regarding the existing fill, the existing fill may contain soft zones, debris or significantly greater amounts of unsuitable materials than could be reasonably inferred from the boring information. Unsuitable materials may not be discovered during construction and may remain buried within the fill below the slabs and pavements, resulting in greater than anticipated settlements of the slabs and pavements. These risks cannot be eliminated without completely removing the fill, but can be reduced by thorough exploration and testing during site preparation and construction.



Our conclusions and recommendations are predicated on observation and testing of the earthwork directed by Geotechnical Engineer of Record. Our opinions are based on data assumed representative of the site. However, the area coverage of borings in relation to the entire project is very small. For this and other reasons, we do not warrant conditions below the depth of our borings, or that the strata logged from our borings are necessarily typical of the site. Deviations from our recommendations by plans, written specifications, or field applications shall relieve us of responsibility unless our written concurrence with such deviations has been established.

The scope of services for this project does not include either specifically or by implication any environmental or biological assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of Reuter Walton, for specific application to the proposed 42nd Avenue Apartments project in Columbia Heights, Minnesota. Northern Technologies, LLC has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Northern Technologies, LLC makes no other warranty, expressed or implied.

Northern Technologies, LLC



APPENDIX A

GEOTECHNICAL EVALUATION OF RECOVERED SOIL SAMPLES

FIELD EXPLORATION PROCEDURES

GENERAL NOTES

WATER LEVEL SYMBOL

DESCRIPTIVE TERMINOLOGY

RELATIVE PROPORTIONS

PARTICLE SIZES

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

EXCAVATION OVERSIZE



GEOTECHNICAL EVALUATION OF RECOVERED SOIL SAMPLES

We visually examined recovered soil samples to estimate distribution of grain sizes, plasticity, consistency, moisture condition, color, presence of lenses and seams, and apparent geologic origin. We then classified the soils according using the Unified Soil Classification System (ASTM D2488). A chart describing this classification system and general notes explaining soil sampling procedures are presented within appendices attachments.

The stratification depth lines between soil types on the logs are estimated based on the available data. In-situ, the transition between type(s) may be distinct or gradual in either the horizontal or vertical directions. The soil conditions have been established at our specific boring locations only. Variations in the soil stratigraphy may occur between and around the borings, with the nature and extent of such change not readily evident until exposed by excavation. These variations must be properly assessed when utilizing information presented on the boring logs.

We request that you, your design team or contractors contact NTI immediately if local conditions differ from those assumed by this report, as we would need to review how such changes impact our recommendations. Such contact would also allow us to revise our recommendations as necessary to account for the changed site conditions.

FIELD EXPLORATION PROCEDURES

Soil Sampling – Standard Penetration Boring:

Soil sampling was performed according to the procedures described by ASTM D-1586. Using this procedure, a 2 inch O.D. split barrel sampler is driven into the soil by a 140 pound weight falling 30 inches. After an initial set of six inches, the number of blows required to drive the sampler an additional 12 inches is recorded (known as the penetration resistance (i.e. “N-value”) of the soil at the point of sampling. The N-value is an index of the relative density of cohesionless soils and an approximation of the consistency of cohesive soils.

Soil Sampling – Power Auger Boring:

The boring(s) was/were advanced with a 6 inch nominal diameter continuous flight auger. As a result, samples recovered from the boring are disturbed, and our determination of the depth, extend of various stratum and layers, and relative density or consistency of the soils is approximate.

Soil Classification:

Soil samples were visually and manually classified in general conformance with ASTM D-2488 as they were removed from the sampler(s). Representative fractions of soil samples were then sealed within respective containers and returned to the laboratory for further examination and verification of the field classification. In addition, select samples were submitted for laboratory tests. Individual sample information, identification of sampling methods, method of advancement of the samples and other pertinent information concerning the soil samples are presented on boring logs and related report attachments.



GENERAL NOTES

<i>DRILLING and SAMPLING SYMBOLS</i>		<i>LABORATORY TEST SYMBOLS</i>	
SYMBOL	DEFINITION	SYMBOL	DEFINITION
C.S.	Continuous Sampling	W	Moisture content-percent of dry weight
P.D.	2-3/8" Pipe Drill	D	Dry Density-pounds per cubic foot
C.O.	Cleanout Tube	LL, PL	Liquid and plastic limits determined in accordance with ASTM D 423 and D 424
3 HSA	3 1/4" I.D. Hollow Stem Auger	Q _U	Unconfined compressive strength-pounds per square foot in accordance with ASTM D 2166-66
4 FA	4" Diameter Flight Auger		
6 FA	6" Diameter Flight Auger		
2 1/2 C	2 1/2" Casing		
4 C	4" Casing		
D.M.	Drilling Mud	Pq	Penetrometer reading-tons/square foot
J.W.	Jet Water	S	Torvane reading-tons/square foot
H.A.	Hand Auger	G	Specific Gravity – ASTM D 854-58
NXC	Size NX Casing	SL	Shrinkage limit – ASTM 427-61
BXC	Size BX Casing	Ph	Hydrogen ion content-meter method
AXC	Size AX casing	O	Organic content-combustion method
SS	2" O.D. Split Spoon Sample	M.A.	Grain size analysis
2T	2" Thin Wall Tube Sample	C*	One dimensional consolidation
3T	3" Thin Wall Tube Sample	Q _C	Triaxial Compression

* See attached data Sheet and/or graph

WATER LEVEL SYMBOL

Water levels shown on the boring logs were determined at the time and under the conditions indicated. In sand, the indicated levels can be considered relatively reliable for most site conditions. In clay soils, it is not possible to determine the ground water level within the normal scope of a test boring investigation, except where lenses or layers of more pervious water bearing soil are present; and then a long period of time may be necessary to reach equilibrium. Therefore, the position of the water level symbol for cohesive or mixed soils may not indicate the true level of the ground water table. The available water level information is given at the bottom of the log sheet.

DESCRIPTIVE TERMINOLOGY

<i>RELATIVE DENSITY</i>		<i>CONSISTENCY</i>	
TERM	N ₆₀ Value (corrected)	TERM	N ₆₀ Value (corrected)
Very Loose	0 – 4	Soft	0-4
Loose	5 – 8	Medium	5-8
Medium Dense	9 – 16	Rather Stiff	9 – 15
Dense	16 – 30	Stiff	16 – 30
Very Dense	Over 30	Very Stiff	Over 30

RELATIVE PROPORTIONS

TERMS	RANGE
Trace	0 – 5%
A little	5 – 15%
Some	15 – 30%

PARTICLE SIZES

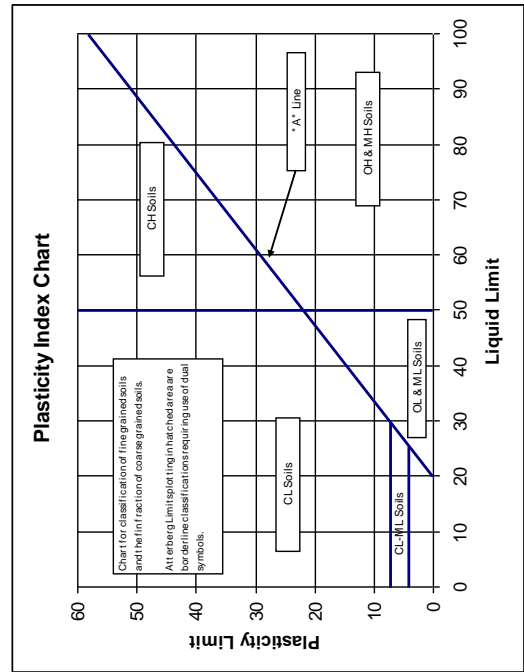
MATERIAL	DESCRIPTION	U.S. SIEVE SIZE
Boulders		Over 3"
Gravel	Coarse	3" to 3/4"
	Medium	3/4" to #4
Sand	Coarse	#4 to #10
	Medium	#10 to #40
	Fine	#40 to #200
Silt and Clay	Determined by Hydrometer Test	



CLASSIFICATION of SOILS for ENGINEERING PURPOSES

ASTM Designation D-2487 and D2488 (Unified Soil Classification System)

Major Divisions	Group Symbol	Typical Name	Classification Criteria			
Course Grained Soils More than 50% retained on No. 200 sieve *	Gravels 50% or more of coarse fraction retained on No. 4 sieve.	Clean Gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines.	Classification on basis of percentage of fines. Less than 5% passing No. 200 Sieve: GW, GP, SW, SP More than 5% passing No. 200 Sieve: GM, GC, SM, SC From 5% to 12% passing No. 200 Sieve: Borderline Classification requiring use of dual symbols.	
		Gravels with Fines	GP	Poorly graded gravels and gravel-sand mixtures, little or no fines.		
		Gravels with Fines	GM	Silty gravels, gravel-sand-silt mixtures.		
		Gravels with Fines	GC	Clayey gravels, gravel-sand-clay mixtures.		
	Sands More than 50% of coarse fraction passes No. 4 sieve.	Clean Sands	Clean Sands	SW		Well-graded sands and gravelly sands, little or no fines.
			Sands with Fines	SP		Poorly-graded sands and gravelly sands, little or no fines.
		Sands with Fines	Sands with Fines	SM		Silty sands, sand-silt mixtures.
			Sands with Fines	SC		Clayey sands, sand-clay mixtures.
			Sands with Fines	ML		Inorganic silts, very fine sands, rock flour, silty or clayey fine sands.
			Sands with Fines	CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
Fine Grained Soils More than 50% passes No. 200 sieve *	Silts and Clays Liquid Limit of 50% or less	Silty silts	OL	Organic silts and organic silty clays of low plasticity.		
		Silty clays	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts.		
		Clays	CH	Inorganic clays of high plasticity, fat clays.		
	Silts and Clays Liquid Limit greater than 50%.	Silty clays	OH	Organic clays of medium to high plasticity.		
		Clays	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
	Highly Organic Soils	Pt	Peat, muck and other highly organic soils.			

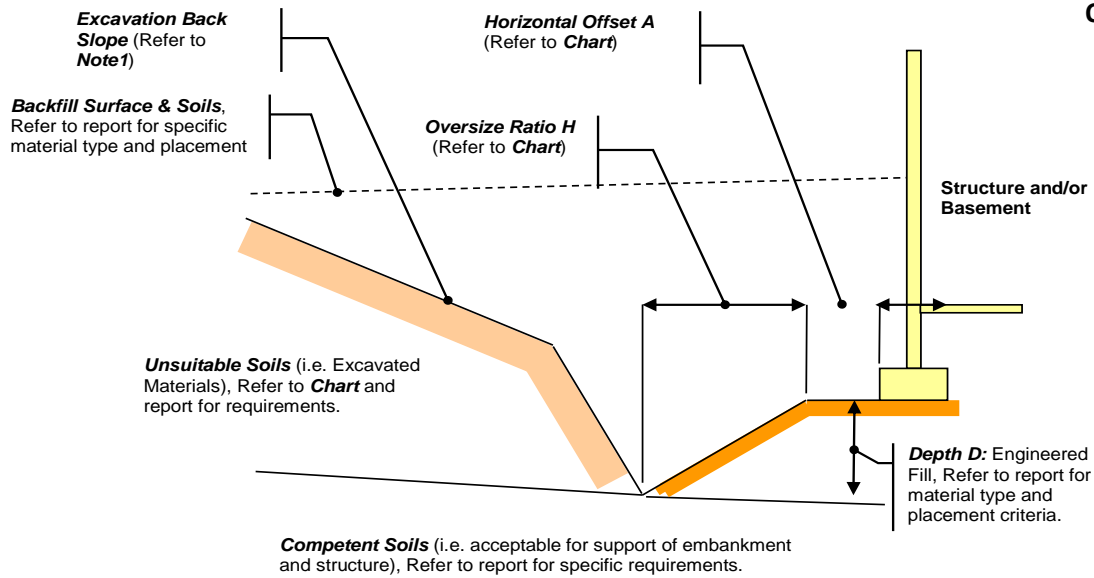




EXCAVATION OVERSIZE

Excavation oversize facilitates distribution of load induced stress within supporting soils. Unless otherwise superseded by report specific requirements, all construction should conform to the minimum oversize and horizontal offset requirements as presented within the diagram and associated chart.

Figure 1: Excavation Oversize



Definitions

Oversize Ratio H: The ratio of the horizontal distance divided by the engineered fill depth (i.e. # Horizontal / Depth D). Refer to Chart for specific requirements.

Horizontal Offset A: The horizontal distance between the outside edge of footing or critical position and the crest of the engineered fill section. Refer to Chart for specific requirements.

Note 1: Excavation depth and sidewall inclination should not exceed those specified in local, state or federal regulations including those defined by Subpart P of Chapter 27, 29 CFR Part 1926 (of Federal Register). Excavations may need to be widened and sloped, or temporarily braced, to maintain or develop a safe work environment. Contractor is solely responsible for assessing stability under “means and methods”.

Condition	Unsuitable Soil Type	Horizontal Offset A	Oversize Ratio H
Foundation Unit Load equal to or less than 3,500 psf.	SP, SM soils, CL & CH soils with cohesion greater than 1,000 psf	NA	Equal to or greater than one (1) times Depth D
Foundation Unit Load greater than 3,500 psf	SP, SM soils, CL & CH soils with cohesion less than 1,000 psf	NA	Equal to or greater than one (1) times Depth D
Foundation Unit Load equal to or less than 3,500 psf.	Topsoil or Peat	2 feet or width of footing, whichever is greater	Equal to or greater than two (2) times Depth D
Foundation Unit Load greater than 3,500 psf	Topsoil or Peat	5 feet or width of footing, whichever is greater	Equal to or greater than two (3) times Depth D



APPENDIX B

GROUNDWATER ISSUES

PLACEMENT and COMPACTION OF ENGINEERED FILL



GROUNDWATER ISSUES

The following presents additional comment and soil specific issues related to measurement of groundwater conditions at your project site.

Note that our groundwater measurements, or lack thereof, will vary depending on the time allowed for equilibrium to occur in the borings. Extended observation time was not available during the scope of the field exploration program and, therefore, groundwater measurements as noted on the boring logs may or may not accurately reflect actual conditions at your site.

Seasonal and yearly fluctuations of the ground water level, if any, occur. Perched groundwater may be present within sand and silt lenses bedded within cohesive soil formations. Groundwater typically exists at depth within cohesive and cohesionless soils.

Documentation of the local groundwater surface and any perched groundwater conditions at the project site would require installation of temporary piezometers and extended monitoring due to the relatively low permeability exhibited by the site soils. We have not performed such groundwater evaluation due to the scope of services authorized for this project.

We anticipate that a system of sump pits and pumps located outside of the foundation areas would be suitable for control if perched groundwater were to be encountered. NTI cautions that such seepage may be heavy and will vary based on seasonal and annual precipitation, and ground related impacts in the vicinity of the project.

We anticipate that a well point system would be suitable for control of groundwater if excavations were to be advanced into the ground water table at depth in free draining granular soils. However, we caution such seepage from such formations and any water entry from excavations below the groundwater table may be heavy and will vary based on seasonal and annual precipitation, and ground related impacts in the vicinity of the project.



PLACEMENT and COMPACTION OF ENGINEERED FILL

Unless otherwise superseded within the body of the Geotechnical Exploration Report, the following criteria shall be utilized for placement of engineered fill on project. This includes, but is not limited to earthen fill placement to improve site grades, fill placed below structural footings, fill placed interior of structure, and fill placed as backfill of foundations.

Engineered fill placed for construction, if necessary, should consist of natural, non-organic, competent soils native to the project area. Such soils may include, but are not limited to gravel, sand, or clays with Unified Soil Classification System (ASTM D2488) classifications of GW, SP, or SM. Use of silt or clayey silt as project fill will require additional review and approval of project Geotechnical Engineer of Record. Such soils have USCS classifications of ML, MH, ML-CL, MH-CH. Use of topsoil, marl, peat, other organic soils construction debris and/or other unsuitable materials as fill is not allowed. Such soils have USCS classifications of OL, OH, Pt.

Engineered fill, classified as clay, should be tempered such that the moisture content at the time of placement is equal to and no more than 3 percent above the optimum content for as defined by the appropriate proctor test. Likewise, engineered fill classified as gravel or sand should be tempered such that the moisture content at the time of placement is within 3 percent of the optimum content.

All engineered fill for construction should be placed in individual 8 inch maximum depth lifts. Each lift of fill should be compacted by large vibratory equipment until the in-place soil density is equal to or greater than the criteria established within the following tabulation.

Type of Construction	Compaction Criteria (% respective Proctor) ¹	
	Clay	Sand or Gravel
General Embankment Fill	Min. 95	Min. 95
Engineered Fill below Foundations ²	Min. 98	Min. 98
Engineered Fill below Floor Slabs	Min. 95	Min. 95
Engineered Fill placed as Pavement Aggregate Base	NA	Min. 100
Engineered Fill placed to within 3 feet of pavement aggregate base	Min. 95	Min. 95
Engineered Fill placed within 3 feet of pavement aggregate base	Min. 100	Min. 100
Engineered Fill placed below the root zone in landscaping areas	Min. 95	Min. 95

Note 1 Unless otherwise required, compaction shall be based on the Standard Proctor Test (ASTM D698).

Density tests should be taken during engineered fill placement to document earthwork has achieved necessary compaction of the material(s). Recommendations for interior fill placement and backfill of foundation walls are presented within other sections of this report.



APPENDIX C

BORING LOCATION DIAGRAM

SOIL BORING LOGS

#11877.001 & #11877.002

42nd Ave Apartments & Food Shelf
42nd Avenue and Jackson St NE

Item 3.



42nd Ave NE

42nd Ave NE & Van Buren St NE

Jackson St NE

SB-1

SB-5

SB-11

SB-12

SB-2

SB-6

SB-3

SB-7

SB-10

SB-9

SB-4

SB-8

Google Earth

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173

200 ft



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 906.5 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

NTI LOG - GENERAL (USE THIS ONE) - NTI-2017-09-14.GDT - 3/29/21 14:35 - R:\RANSEY\PROJECTS\2021 PROJECTS\42ND AVENUE APARTMENTS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.4		5 Inches Apparent Topsoil	906.4									
		CLAYEY SAND, dark brown, fine to medium, moist, trace gravel UNDOCUMENTED FILL	SS 1									
			SS 2	33	2-2-2 (4)							
4.0			902.5									
		SANDY LEAN CLAY, dark brown, moist, trace gravel UNDOCUMENTED FILL	SS 3	50	3-4-4 (8)							
6.5			900.0									
		SANDY LEAN CLAY, (CL) brown, moist, rather stiff, trace gravel	SS 4	100	3-4-7 (11)							
11.5			895.0									
		SILTY SAND, (SM) brown, fine to medium, moist, loose, trace gravel	SS 6	100	4-4-4 (8)							
13.0			893.5									
		SANDY LEAN CLAY, (CL) brown, moist, rather stiff to stiff, trace gravel	SS 7	100	4-4-5 (9)							
24.0			882.5									
		SILTY SAND, (SM) brown, fine to coarse, moist, dense, trace gravel	SS 9	100	7-10-10 (20)							
25.5			881.0									

Bottom of borehole at 25.5 feet.
Borehole grouted.



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 906 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.2		2 Inches Bituminous Pavement										
0.8		7 Inches Agregate Base										
1.5		POORLY GRADED SAND WITH SILT, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	SS 1	83	4-5-6 (11)							
4.0		SILTY SAND, dark brown, fine to medium, moist, trace gravel UNDOCUMENTED FILL	SS 2									
5		SILTY SAND, (SM) gray, fine to medium, moist, loose, trace gravel	SS 3	100	3-3-3 (6)							
6.5		SANDY LEAN CLAY, (CL) gray, moist, medium, trace gravel	SS 4	39	2-3-3 (6)							
9.0		SANDY LEAN CLAY, (CL) brown, moist, medium to rather stiff, trace gravel	SS 5	100	3-3-3 (6)							
			SS 6	100	3-5-8 (13)							
			SS 7	100	3-7-8 (15)							
20			SS 8	100	3-5-9 (14)							
24.0												
25		SILTY SAND, (SM) brown, fine to medium, moist, dense, trace gravel	SS 9	100	9-9-11 (20)							

Bottom of borehole at 25.5 feet.
Borehole grouted.



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 905.5 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.1		1 Inch Bituminous Pavement										
0.4		4 Inches Aggregate Base										
1.5		POORLY GRADED SAND WITH SILT AND GRAVEL, dark brown, fine to coarse, moist UNDOCUMENTED FILL	SS 1	100								
		CLAYEY SAND, (SC) brown, fine to coarse, moist, medium dense, trace gravel	SS 2	72	2-4-6 (10)							
5			SS 3	44	3-4-5 (9)							
			SS 4	100	4-5-6 (11)							
10			SS 5	100	3-6-7 (13)							
13.0		SANDY LEAN CLAY, (CL) brown, moist, rather stiff, trace gravel	SS 6	100	4-6-10 (16)							
			SS 7	100	3-5-7 (12)							
15												
20			SS 8	100	4-5-7 (12)							
24.0		SILTY SAND, (SM) brown, fine to coarse, moist, medium dense, trace gravel	SS 9	100	4-5-7 (12)							
25												
25.5												

Bottom of borehole at 25.5 feet.
Borehole grouted.



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 904.5 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.3		3 1/2 Inches Bituminous Pavement										
0.8		6 inches Aggregate Base										
		CLAYEY SAND, dark brown, fine to medium, moist, trace gravel UNDOCUMENTED FILL	SS 1									
			SS 2	83	3-5-5 (10)							
4.0												
		CLAYEY SAND, (SC) brown, fine to medium, moist, medium dense, trace gravel	SS 3	78	3-4-4 (8)							
6.5												
		SANDY LEAN CLAY, (CL) brown, moist, rather stiff to stiff, trace gravel	SS 4	100	3-4-5 (9)							
			SS 5	100	3-5-7 (12)							
			SS 6	100	6-6-9 (15)							
			SS 7	56	3-6-9 (15)							
19.0												
		SILTY SAND, (SM) brown, fine to coarse, moist, medium dense, trace gravel	SS 8	67	3-6-7 (13)							
24.0												
		CLAYEY SAND, (SC) brown, fine to medium, moist, dense, trace gravel	SS 9	78	6-10-12 (22)							
25.5												

Bottom of borehole at 25.5 feet.
Borehole grouted.



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 906.5 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.4		4 1/2 Inches Apparent Topsoil										
		CLAYEY SAND, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	SS 1									
			SS 2	83	3-2-2 (4)							
5			SS 3	78	2-2-2 (4)							
6.5		SANDY LEAN CLAY, (CL) brown, moist, rather stiff, trace gravel	SS 4	72	3-5-5 (10)							
			SS 5	89	3-5-6 (11)							
			SS 6	94	3-5-7 (12)							
			SS 7	78	3-4-5 (9)							
19.0		SANDY SILT, (ML) brown, moist, medium	SS 8	100	3-3-3 (6)							
24.0		SANDY LEAN CLAY, (CL) brown, moist, stiff, trace gravel	SS 9	100	5-8-9 (17)							
25.5		Bottom of borehole at 25.5 feet. Borehole grouted.										



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 906 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **▽ AT TIME OF DRILLING** 25.50 ft / Elev 880.50 ft
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

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DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.3		3 Inches Bituminous	905.8									
0.8		7 inches Bituminous	905.2									
1.5		POORLY GRADED SAND WITH SILT, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	904.5	SS 1	94	6-6-3 (9)						
4.0		SILTY SAND, black, fine to medium, moist, trace gravel UNDOCUMENTED FILL	902.0	SS 2								
5		SANDY LEAN CLAY, (CL) brown, moist, medium to stiff, trace gravel		SS 3	83	3-3-3 (6)						
				SS 4	83	2-3-4 (7)						
10				SS 5	33	4-5-7 (12)						
				SS 6	100	4-7-9 (16)						
				SS 7	100	4-5-7 (12)						
15												
19.0		SANDY LEAN CLAY, (CL) gray, moist, stiff, trace gravel	887.0	SS 8	100	5-7-10 (17)						
24.0		SANDY SILT, (ML) brown, wet, stiff, trace gravel	882.0	SS 9	89	6-7-9 (16)						
25.5	▽	Bottom of borehole at 25.5 feet. Borehole grouted.	880.5									



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 905 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.3		3 Inches Bituminous	904.8									
0.8		6 Inches Aggregate Base	904.3									
1.5		POORLY GRADED SAND WITH SILT, dark brown, moist, trace gravel UNDOCUMENTED FILL	903.5		78							
		SILTY SAND, gray, moist, trace gravel UNDOCUMENTED FILL										
4.0		CLAYEY SAND, (SC) gray, fine to coarse, moist, loose, trace gravel	901.0									
5			SS 3	67	2-3-3 (6)							
			SS 4	89	3-4-4 (8)							
10			SS 5	100	3-3-3 (6)							
10.5			894.5									

Bottom of borehole at 10.5 feet.
Borehole backfilled with auger cuttings.

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CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 905 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.3		4 Inches Bituminous Pavement	904.7									
1.2		10 Inches Aggregate Base	903.8	SS 1								
2.0		POORLY GRADED SAND WITH SILT, dark brown, fine to coarse, moist UNDOCUMENTED FILL	903.0	SS 2	83	8-12-14 (26)						
4.0		SILTY SAND, (SM) brown, fine to coarse, moist, dense, trace gravel	901.0									
5		SANDY LEAN CLAY, (CL) brown, moist, stiff, trace gravel		SS 3	100	6-8-10 (18)						
				SS 4	100	6-12-12 (24)						
9.0			896.0									
10		SILTY SAND, (SM) brown, fine to medium, moist, dense, trace gravel	894.5	SS 5	100	6-8-10 (18)						
10.5												

Bottom of borehole at 10.5 feet.
Borehole backfilled with auger cuttings.

NTI LOG - GENERAL (USE THIS ONE) - NTI-2017-09-14.GDT - 3/29/21 14:35 - R:\RANSEY\1-PROJECTS\2021 PROJECTS\42ND AVENUE APARTMENTS_GEO_21.MSP\11877\42ND AVENUE APARTMENTS.GPJ



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 906 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

NTI LOG - GENERAL (USE THIS ONE) - NTI-2017-09-14.GDT - 3/29/21 14:38 - R:\RANSEY\PROJECTS\2021\PROJECTS\42ND AVENUE APARTMENTS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.3		3 1/2 Inches Bituminous Pavement										
0.8		6 inches Aggregate Base										
1.5		POORLY GRADED SAND WITH SILT, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	SS 1									
		SANDY LEAN CLAY, (CL) brown, moist, medium to rather stiff, trace gravel	SS 2	78	4-5-6 (11)							
5			SS 3	94	3-3-4 (7)							
6.5		CLAYEY SAND, (SC) brown, fine to coarse, moist, dense, trace gravel	SS 4	100	3-10-10 (20)							
10			SS 5	33	6-9-10 (19)							
11.5		CLAYEY SAND, (SC) light brown, fine to coarse, moist, medium dense to dense, trace gravel	SS 6	100	6-7-10 (17)							
			SS 7	78	4-7-8 (15)							
15												
19.5		SILTY SAND, (SM) brown, fine to coarse, moist, dense, trace gravel	SS 8	72	4-8-9 (17)							
20												
24.0		SANDY LEAN CLAY, (CL) brown, moist, stiff, trace gravel	SS 9	100	4-8-8 (16)							
25												
25.5												

Bottom of borehole at 25.5 feet.
Borehole grouted.



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 905 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

NTI LOG - GENERAL (USE THIS ONE) - NTI-2017-09-14.GDT - 3/29/21 14:38 - R:\RANSEY\1-PROJECTS\2021 PROJECTS\42ND AVENUE APARTMENTS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.3		3 Inches Bituminous	904.8									
0.8		10 Inches Aggregate Base	904.2									
1.5		CLAYEY SAND, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	903.5									
		SILTY SAND, (SM) light brown, fine to coarse, moist, medium dense, trace gravel		89	4-7-8 (15)							
5			SS 3	61	5-7-10 (17)							
6.5		SANDY LEAN CLAY, (CL) brown, moist, rather stiff, trace gravel	898.5									
			SS 4	83	4-6-7 (13)							
10			SS 5	100	4-6-7 (13)							
13.0		CLAYEY SAND, (SC) brown, fine to coarse, moist, dense, trace gravel	892.0									
			SS 6	100	4-5-7 (12)							
			SS 7	100	6-10-11 (21)							
15												
19.0		SILTY SAND, (SM) brown, fine to coarse, moist, medium dense, trace gravel	886.0									
			SS 8	100	4-7-8 (15)							
20												
24.5		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) brown, finne to coarse, moist, dense	880.5									
25.5			879.5	56	26-21-12 (33)							

Bottom of borehole at 25.5 feet.
Borehole grouted.



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 906.5 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

NTI LOG - GENERAL (USE THIS ONE) - NTI-2017-09-14.GDT - 3/29/21 14:38 - R:\RANSEY\PROJECTS\2021\PROJECTS\42ND AVENUE APARTMENTS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.5		6 Inches Apparent Topsoil										
1.5		CLAYEY SAND, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	SS 1									
		SILTY SAND, dark brown, fine to medium, moist, trace gravel UNDOCUMENTED FILL	SS 2	78	3-3-3 (6)							
5			SS 3	83	2-2-2 (4)							
			SS 4	89	2-2-2 (4)							
10		POORLY GRADED SAND WITH SILT, (SP-SM) brown, fine to coarse, moist, very loose, trace gravel	SS 5	83	4-4-5 (9)							
			SS 6	44	3-2-2 (4)							
		SANDY SILT, (ML) gray, moist, rather stiff	SS 7	89	3-4-5 (9)							
15												
19.0		SANDY LEAN CLAY, (CL) brown, moist, stiff, trace gravel	SS 8	100	3-3-4 (7)							
20												
25			SS 9	100	4-6-7 (13)							
25.5												

Bottom of borehole at 25.5 feet.
Borehole grouted.



CLIENT Reuter Walton Companies **PROJECT NAME** 42nd Ave Apartments
PROJECT NUMBER 21.MSP.11877 **PROJECT LOCATION** Columbia Heights, Minnesota
DATE STARTED 3/12/21 **COMPLETED** 3/12/21 **GROUND ELEVATION** 906.5 feet **HOLE SIZE** 6 1/2 in.
DRILLING CONTRACTOR NTI **GROUND WATER LEVELS:**
DRILLING METHOD 3 1/4 in H.S.A **AT TIME OF DRILLING** --- No Groundwater Observed
LOGGED BY _____ **CHECKED BY** SDG **AT END OF DRILLING** ---
CAVE IN (ft) _____ **FROST DEPTH (ft)** _____ **AFTER DRILLING** ---

NOTES

NTI LOG - GENERAL (USE THIS ONE) - NTI-2017-09-14.GDT - 3/29/21 14:38 - R:\RANSEY\PROJECTS\2021 PROJECTS\42ND AVENUE APARTMENTS.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES
									LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0												
0.2		2 Inches Bituminous Pavement										
0.8		7 Inches Agregate Base										
1.5		CLAYEY SAND, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	SS 1									
		POORLY GRADED SAND WITH SILT, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	SS 2	28	4-4-4 (8)							
4.0		SILTY SAND, dark brown, fine to coarse, moist, trace gravel UNDOCUMENTED FILL	SS 3	78	2-2-2 (4)							
6.5		SANDY LEAN CLAY, (CL) brown, moist, medium, trace gravel	SS 4	78	3-3-3 (6)							
9.0		SANDY SILT, (ML) brown, fine, moist, medium to rather stiff	SS 5	100	3-3-4 (7)							
13.0		CLAYEY SAND, (SC) brown, fine to coarse, moist, medium dense, trace gravel	SS 6	89	4-4-4 (8)							
			SS 7	100	3-4-5 (9)							
20			SS 8	100	3-5-7 (12)							
25			SS 9	78	3-5-7 (12)							

Bottom of borehole at 25.5 feet.
Borehole grouted.