Planning Commission
March 24, 2025
7:00PM
City Hall, 6090 Woodson Street

AGENDA

I. Call to Order

II. Approval of Minutes from January 27, 2025

III. New Business

1. Public Hearing *Case #25-04 - Combined Revised Preliminary Development Plan and Final Development Plan for Phase II of The Lanes at Mission Bowl - 5300 Martway Street.*
2. *Case #25-06 – Compliance of the Tax Increment Financing Redevelopment Project Plan for Rock Creek Redevelopment District No. 3D with the Tomorrow Together Mission 2040 Comprehensive Land Use Plan – 5101 Johnson Drive*

IV. Old Business

1. *Case #24 – 13 Planning Commission By-Laws*

V. Planning Commission Comments

VI. Staff Updates

1. *Zoning Code Update Phase I*

Questions concerning this meeting may be addressed to the staff contact, Brian Scott Deputy City Administrator, at (913) 676-8353 or bscott@miwssionks.org

CITY OF MISSION PLANNING COMMISSION

January 27, 2025
7:00 PM
Mission City Hall - 6090 Woodson

Members Present:
Stuart Braden
Wayne Snyder
Megan Cullinane
Kevin Schmidt
Amy Richards
Kelsey Brown
Robin Dukelow (Vice Chair)
Mike Lee (Chair)

Staff Present:
Brian Scott - Deputy City Manager

Members Absent:
Cynthia Smith

(City of Mission Planning Commission Meeting Called to Order at 7:00 p.m.)

I. CALL TO ORDER

CHAIRMAN LEE: Okay. Call the roll. Call to order. You want to call the roll, Brian.

MR. SCOTT: That's my job! Stuart.

MR. BRADEN: Present.

MR. SCOTT: Kelsey.

MS. BROWN: Here.

MR. SCOTT: Megan.

MS. CULLINANE: Here.

MR. SCOTT: Robin.

MS. DUKELOW: Present.

MR. SCOTT: Chairman Lee.

MR. LEE: Here.

MR. SCOTT: Amy.

MS. RICHARDS: Here.

MR. SCOTT: Kevin.

MR. SCHMIDT: Present

MR. SCOTT: Cynthia is absent. Wayne.

MR. SNYDER: Here.

MR. SCOTT: Okay..

II. APPROVAL OF MINUTES FROM NOVEMBER 25, 2024

MR. LEE: Okay. Item Number 3 will be the approval of the Minutes from the November 25th, 2024, meeting.

MS. DUKELOW: Approve the Minutes of November 25, 2024.

MR. BRADEN: Second.

MR. LEE: Call the roll, Brian.

MR. SCOTT: Braden.

MR. BRADEN: Aye.

MR. SCOTT: Brown.

MS. BROWN: Aye.

MR. SCOTT: Cullinane.

MS. CULLINANE: Abstain.

MR. SCOTT: Dukelow.

MS. DUKELOW: Aye.

MR. SCOTT: Lee.

MR. LEE: Aye.

MR. SCOTT: Commissioner Richards.

MS. RICHARDS: Aye.]

MR. SCOTT: Commissioner Schmidt.

MR. SCHMIDT: Aye.

MR. SCOTT: Smith is absent. Commissioner Wayne. Or Snyder, excuse me.

MR. SNYDER: Abstain.

Motion 1: **Robin Dukelow - Ward IV/Stuart Braden - Ward I:** Approve the Minutes from the November 25, 2024, Planning Commission meeting as presented. **The motion carried 6-0-2 with Commissioners Cullinane and Snyder abstaining.**

III. NEW BUSINESS

1. *Election of Chair for 2025*

(a) Elect 2025 Planning Commission Chair

MR. LEE: Okay. Item Number 4 will be New Business. Tonight, we'll have the election for Chair and the Vice Chair for 2025. Do we have any nominations for Chair?

MS. DUKELOW: Mr. Chairman, I will nominate Mike Lee for Planning Commission Chairman for 2025.

MR. LEE: Any other nominations? Okay. If that's the case, we need a second.

MR. BRADEN: [Inaudible.]

MR. SNYDER: You need a second on that?

MR. BRADEN: Second.

MR. LEE: Oh, I'm sorry. I didn't hear him. Call the roll, please.

MR. SCOTT: Okay. Commissioner Brown.

MS. BROWN: Aye.

MR. SCOTT: Commissioner Cullinane.

MS. CULLINANE: Aye.

MR. SCOTT: Commissioner Dukelow.

MS. DUKELOW: Aye.

MR. SCOTT: Chairman Lee.

MR. LEE: I'll abstain.

MR. SCOTT: Okay. Commissioner Richards.

MS. RICHARDS: Aye.

MR. SCOTT: Commissioner Schmidt.

MR. SCHMIDT: Aye.

MR. SCOTT: Commissioner Snyder.

MR. SNYDER: Aye.

MR. SCOTT: Commissioner Braden.

MR. BRADEN: Aye

Motion 2: **Robin Dukelow - Ward IV/Stuart Braden - Ward I:** Approve the nomination of Mike Lee as Planning Commission Chair for 2025. **The motion carried 7-0-1 with Mike Lee - Ward IV abstaining.**

(b) Elect 2025 Planning Commission Vice-Chair

MR. LEE: Okay. Looking for a motion for the Vice-Chair for 2025.

MR. BRADEN: Chair, I nominate Robin Dukelow.

MR. LEE: Do we have any other nominations? Do we have a second?

MS. CULLINANE: I second.

MR. LEE: Call the roll, Brian.

MR. SCOTT: Okay. Commissioner Cullinane.

MS. CULLINANE: Aye.

MR. SCOTT: Commissioner Dukelow.

MS. DUKELOW: Abstain.

MR. SCOTT: Abstain. Commissioner Richards.

MS. RICHARDS: Aye.

MR. SCOTT: Commissioner Schmidt.

MR. SCHMIDT: Aye.

MR. SCOTT: Commissioner Smith not here. Commissioner Snyder.

MR. SNYDER: Aye.

MR. SCOTT: Commissioner Braden.

MR. BRADEN: Aye.

MR. SCOTT: And Commissioner Brown.

MS. BROWN: Aye.

MR. SCOTT: The ayes have it.

Motion 3: **Stuart Braden - Ward I/Megan Cullinane - Ward III:** Approve the nomination of Robin Dukelow as Planning Commission Vice-Chair for 2025. **The motion carried 7-0-1 with Robin Dukelow - Ward IV abstaining.**

2. *Appointment of Brian Scott as Planning Commission Secretary*

MR. LEE: Now, the next item will be an appointment of Brian Scott as our Planning Commission Secretary for 2025.

MS. CULLINANE: Mr. Chair, I move to appoint Brian Scott as Planning Commission Secretary.

MR. SNYDER: Second.

MR. LEE: We make Brian call the roll for himself.

MR. SCOTT: Commissioner Dukelow.

MS. DUKELOW: Aye.

MR. SCOTT: Chairman Lee.

MR. LEE: Aye.

MR. SCOTT: Commissioner Richards.

MS. RICHARDS: Aye.

MR. SCOTT: Commissioner Schmidt.

MR. SCHMIDT: Aye.

MR. SCOTT: Commissioner Smith. Oh, she's absent. Commissioner Snyder.

MR. SNYDER: Aye.

MR. SCOTT: Commissioner Braden.

MR. BRADEN: Aye.

MR. SCOTT: Commissioner Brown.

MS. BROWN: Aye.

MR. SCOTT: Commissioner Cullinane.

MS. CULLINANE: Aye.

MR. SCOTT: Thank you. The ayes have it.

MR. LEE: Very good. Thank you.

Motion 4: **Megan Cullinane - Ward III/Wayne Snyder - Ward I:** Approve the appointment of Brian Scott as Planning Commission Secretary for 2025. **The motion carried 8-0-0.**

3. Public Hearing - Case #25-01 Barkley Square Second Plat

MR. LEE: The next item of business will be Public Hearing - Case #25-01. This is the Barkley Square, Second Plat. This will be our first public hearing this evening. It is for Case, as I said, 25-01; Barkley Square, Second Plat. This plat contains property that is facing 6655 Martway Street. And then we'll hear the staff report, and then we'll take testimony from any interested parties. Brian.

MR. SCOTT: Okay. Thank you, Mr. Chair. As stated, this is Case #25-01. This is regarding a replat of the Barkley Square, which is commonly known as the Hy-Vee property at 6655 Martway. When this property was originally platted in, I believe, the 1990s when the store was first built, they platted it as four lots. And the largest lot was 407,000 square feet and that was for the store. They had three kind of smaller lots, which were sort of out-parcel lots. The second lot was 57,000 square feet. That was eventually sold to the Sonic restaurant. And then Lots 3 and 4 just sort of became the convenience store/gas station. So, the Hy-Vee Corporation is wanting to replat this so it's a little bit more orderly. It's an awfully big plat.

So, the Lot 1 would essentially be where the store is located, and Lot 2 would be where the convenience and gas station store is located.

We do have a representative from Olsson here tonight. He's been working with Hy-Vee on this project. He can answer any questions you might have.

MR. LEE: Thank you, Brian. Do you have anything to add?

MR. PARSONS: Not really. [Inaudible; talking off mic]

MR. SCOTT: Terry, you want to go to the mic?

MR. PARSONS: Sorry. Terry Parsons with Olsson Engineering, Shawnee, Kansas. I am here helping out Brad. He's the person who's been working with Hy-Vee on this replat. I am here if you have any questions.

MR. LEE: Great. Thank you. This is a public hearing, so if we have anyone that would like to speak, please raise your hand and we'll have you step forward. Not seeing anyone, I'll close that portion of the meeting. Any questions of the applicant?

MS. CULLINANE: So, why did this come up now? I guess of how, like was there a reason [inaudible].

MR. PARSONS: Just to make it the legal description of the property cleaner.

MS. CULLINANE: Okay.

MR. PARSONS: So, that one [inaudible] opposite [inaudible].

MR. LEE: Any other questions?

MS. DUKELOW: Are the tanks underneath the property associated with the gas station?

MR. PARSONS: I don't know that for sure. [Inaudible]. I'm relatively confident that they are.

MR. SCOTT: Part of Lot 2.

MR. PARSONS: Yeah. I mean [inaudible].

MS. DUKELOW: I think I believe they are part of Lot 2 as well based on where I see them in the parking lot. Trucks can be there [inaudible]

MR. PARSONS: Right.

MS. DUKELOW: But I just wanted to [inaudible].

MR. BRADEN: [Inaudible; talking off mic]

MR. PARSONS: And if you want a confirmation of that, I can [inaudible].

MS. DUKELOW: And I don't, honestly, I don't know for a fact that that, I mean, it seems logical to me. They're owned by the same owner, so if there were any transfer of ownership or anything like that, I'm sure that [inaudible] be sure about the legalities of that just occurred.

MR. SCOTT: Well, in theory, by accepting this plat and filing it with the Recorder of Deeds, Hy-Vee could sell the gas and convenience store at a later date. A separate lot, you know, Lot 1 and no plat. That might be some of the reasonings for their own corporate structuring and how they do taxes and all that. I really don't know.

MS. BROWN: I had one clarification to make.

MR. LEE: Sure. Go ahead.

MS. BROWN: I believe in the writing, a portion of this, they might have had Lot 1 and Lot 2 of the plat flipped.

MR. PARSONS: Yeah.

MS. BROWN: But Lot 2 will be the grocery store portion and Lot 1 will be the convenience.

MR. SCOTT: Yeah. I just realized that now that I mixed the two up in my staff report.

MS. BROWN: Okay. That was all for me.

MR. LEE: Okay. Thank you. Anyone else?
MS. DUKELOW: Mr. Chairman, if there are no further questions or comments, I will move that we approve the Public Hearing Case, excuse me. Approve Case #25-01; Barkley Square, Second Plat.

MR. BRADEN: I'll second that.

MR. LEE: Okay. Call the roll, please.

MR. SCOTT: Commissioner Richards.

MS. RICHARDS: Aye.

MR. SCOTT: Commissioner Schmidt.

MR. SCHMIDT: Aye.

MR. SCOTT: Commissioner Smith, absent. Commissioner Snyder.

MR. SNYDER: Aye.

MR. SCOTT: Commissioner Braden.

MR. BRADEN: Aye.

MR. SCOTT: Commissioner Brown.

MS. BROWN: Aye.

MR. SCOTT: Commissioner Cullinane.

MS. CULLINANE: Aye.

MR. SCOTT: Commissioner Dukelow.

MS. DUKELOW: Aye.

MR. SCOTT: Chairman Lee.

MR. LEE: Aye.

MR. SCOTT: It passes.

MR. LEE: Thank you.

Motion 5: **Robin Dukelow - Ward IV/Stuart Braden - Ward I:** Approve Case #25-01; Barkley Square, Second Plat, as presented. **The motion carried 8-0-0.**

4. Public Hearing - Case #25-02 Lot Split for 6029 Outlook

MR. LEE: Item Number 4 will be a Public Hearing. This is Case #25-02. It's a lot split at 6029 Outlook. This is our second public hearing this evening. And again, this is Case # 25-02. It's a residential parcel of property at 6029 Outlook. First, we'll hear the staff report and then we'll take testimony from anyone. Brian.

MR. SCOTT: Thank you, Mr. Chair. Case #25-02 is a lot split for property at 6029 Outlook. This is Lot 156 of the Mission Hill Acres subdivision that was platted in 1926. The home that's on the property was built in 1935. Two-bedroom, one bath, 740 some odd square feet. The applicant, Mr. Joseph Elder of Red Jacket Properties, has recently purchased the property with the intent of demolishing the home and then splitting the lot into two lots and building new homes on each lot.

Normally, we would apply a rule as outlined in the code where we look at the average lot width of all of the lots within the block. The block being defined as 61st Street on the south, Outlook on the west, Martway Street on the north, and then Reeds on the east. So, when we did that, we came up with an average lot width of 103 linear feet. And if we take 75 percent of that, it comes out to 77 feet, which would not be permitted because each of the new lots would only be 60 feet wide. But then the question kind of becomes, what's the definition of a block? So, that's kind of the traditional planning definition of a block is a group of lots that are surrounded by streets or roadway on all four sides.

There's some language in the code that essentially says Chapter 455 of the Mission Municipal Code for change of subdivision, subdividing land in the City is commonly referenced, is commonly referred to as the City's subdivision code. This chapter defines block as a parcel of land entirely surrounded by streets or highways or alleys, or otherwise as determined by the City engineer. So, one could say in theory that the block is just all those houses that abut Outlook between Martway and 61st Street. So, I live in a block, or the 5000 block of Johnson Drive as opposed to I went around the block for a walk.

So, in taking that application, we look at all of the lots that line either side of Outlook, we come up with an average lot with the 79 linear feet, which we multiply by 75 percent, we come up with 56 linear feet, which would mean that the lot split is permissible as the rule applies. So, what's kind of driving that is all of the lots on the left side of Outlook are all approximately 60 feet wide. So, the proposed lot split would be in keeping with lots that are along Outlook in that particular block between Martway and 61st Street.

So, staff is proposing that we use kind of the latter definition of the block. House properties that abut Outlook between 61st Street and Martway [inaudible] lots would be permissible.

That's my report. I believe Mr. Elder is here if you have any questions of him as well.

MR. LEE: Yes, please.

MR. ELDER: Joe Elder. 2705 West 51st Terrace, Westwood, Kansas. [Inaudible; talking off mic] house is there. I'm not sure [inaudible; talking off mic].

MR. LEE: Any questions? I have one question. And have you already -- do you have building plans for these two new houses yet?

MR. ELDER: We're playing with several ideas. Roger [inaudible] me and myself, we've done several [inaudible]. Leawood, Fairway. [Inaudible; talking off mic].

MR. LEE: Well, I guess where I was going to go with is what kind of square footage do these new homes have in relationship to the existing homes? Are we going to create, you know, what we're seeing a lot of, big monsters with little lots right, you know, as close as they can possibly get to the property line.

MR. ELDER: [Inaudible; talking off mic].

MR. SCOTT: Any new construction is going to have to fit within the parameters of the zoning code. The setbacks, front and side, coverage of the yard.

MR. ELDER: This would be all of that. [Inaudible; talking off mic]

MR. LEE: Any other questions or comments? Thank you.

MS. RICHARDS: I do have a question actually.

MR. LEE: Go ahead.

MS. RICHARDS: It looks like maybe the footprint will be pretty similar to each other.

MR. ELDER: They will [inaudible]. The driveway is over a few feet from the other driveway.

MS. RICHARDS: In front, yeah.

MR. ELDER: [Inaudible; talking off mic] Obviously, it's got a back yard in that direction. There's actually a neighborhood [inaudible; talking off mic].

MS. RICHARDS: And just one. You mentioned the architect. I didn't -- Chris?

MR. ELDER: Castrop.

MS. RICHARDS: We just -- we were -- I didn't catch the last name, so I had asked. Thank you.

MR. ELDER: No. That's very [inaudible].

MR. LEE: Thank you. This, as I said, is also a public hearing. So, if anyone would like to speak, now would be the time to step forward. Not seeing anyone, I will close this portion of the meeting. Comments?

MS. DUKELOW: [Inaudible; talking off mic] the depth of 110, both of which this application [inaudible] or the depth of the lot is [inaudible] and the two lots [inaudible]. Is that accurate?

MR. SCOTT: Correct. So, the code states in considering applications for a lot split to a width of less than 70 feet, the lot width of any newly created lot may not be less than 75 percent of the average front lot width lots within the subject property's block.

MS. DUKELOW: [Inaudible; talking off mic]
MR. SCOTT: Yeah. So, it's basically saying it has to be 70 feet. If you're going to go less than 70 feet you have to kind of meet this magic rule.

MS. DUKELOW: [Inaudible; talking off mic]

MR. SCOTT: Yeah. Seventy-five (75) percent of the average.

MS. RICHARDS: [Inaudible; talking off mic]

MR. SCOTT: If you measure, if you look at the properties that abut Outlook. So, if we follow the first, if we follow the formula like we've always done with a lot split and you look at a block, you look at the property within that block, then this rule would not work because some of the lots on the east side of the block are bigger. They're wider. But if we make an exception and we look at just a block as being Outlook from 61st to Martway, and the properties along that street, then the rule works.

MS. DUKELOW: Okay. So, block to the south there are two --

MR. SCOTT: There are two wider, yeah, but --

MS. DUKELOW: Two that are 60-feet wide.

MR. SCOTT: Yeah. To the south, correct. Yeah. Uh-huh. It's one of the fun things of our zoning code.

MR. LEE: Any other comments?

MS. DUKELOW: Mr. Chair, I move to approve Case #25-02; lot split of a residential parcel of property at 6029 Outlook.

MR. LEE: Do I have a second?

MR. SCHMIDT: Second.

MR. LEE: Call the roll, please.

MR. SCOTT: Commissioner Schmidt.

MR. SCHMIDT: Aye.

MR. SCOTT: Commissioner Snyder.

MR. SNYDER: Aye.

MR. SCOTT: Commissioner Braden.

MR. BRADEN: Aye.

MR. SCOTT: Commissioner Brown.

MS. BROWN: Aye.

MR. SCOTT: Commissioner Cullinane.

MS. CULLINANE: Aye.

MR. SCOTT: Commissioner Dukelow.

MS. DUKELOW: Aye.

MR. SCOTT: Chairman Lee.

MR. LEE: Aye.

MR. SCOTT: Commissioner Richards.

MS. RICHARDS: Aye.

MR. SCOTT: The ayes have it. Approved.

MR. LEE: Very good. Thank you.

Motion 6: **Robin Dukelow/Kevin Schmidt:** Approve Case #25-02; Lot Split of property located at 6029 Outlook Street. **The motion carried 8-0-0.**

IV. Old Business

1. Case #24 - 13 Planning Commission By-Laws

MR. LEE: Okay. Old Business. Case #24-13. This is the Planning Commission By-Laws. Brian, do you want to provide a staff report?

MR. SCOTT: Yeah. So, our City Attorney reviewed the bylaws and made a few editorial changes, mostly taking out any reference to the KORA Act. So, the KORA is the Kansas Open Records Act. And he was a little bit concerned that if we referenced KORA, we're sort of opening up a pandora's box to making anything subject to KORA. So, best just to kind of leave that reference out. So, that was the most notable change that he made. And I think he just added a few things for clarity.

I don't know if any of you have any further discussion on this. If not, I can go ahead and prepare a resolution to present to you all at the February meeting for adoption, or if you'd like to consider it some more too.

MR. SCHMIDT: I did have.

MR. LEE: Uh-huh. Sure.

MR. SCHMIDT: A question or comment on the quorum section is page 37 of the [inaudible]. The table that's in there, I didn't know how useful the majority of quorum column was. I think the most votes are going to be based off majority of members

present. So, I think we generally know what that number would [inaudible]. So, I don't know if there's really use in having that. I think maybe just creates some confusion. Because there's never a vote just -- that would be based off of [inaudible]. Yes. I mean, I guess if there is only five people present there would be. Do we need that column in there [inaudible] the majority of five.

MR. SCOTT: Yeah. For some of the eggheads like myself, it's kind of beneficial. Karie and I had this debate about it, too.

MR. SCHMIDT: So, we don't have it, like if there's eight people present, there's nothing in there telling us what is a majority for eight.

MR. SCOTT: Yeah. Well, a majority for eight would be a quorum five or three, yeah. Yeah. We don't have -- for quorum of eight, no. But we've had some meetings where we barely have met quorum.

MR. LEE: True.

MR. SCOTT: Yeah. We were like kind of scratching our heads if we're going to be able to have a meeting because it's so small.

MR. SCHMIDT: So, I guess what I, my thought was, if someone looked at that table and it says if we have eight members, or we have, let's say we have nine members --

MR. SCOTT: Uh-huh.

MR. SCHMIDT: -- on the Commission. And today we have a quorum of [inaudible].

MR. SCOTT: It would be five, yeah. Yeah.

MR. SCHMIDT: I don't know if it might somehow be construed that you only need a [inaudible]. I'm not sure exactly what my logic was, and I was trying to [inaudible].

MR. SCOTT: Yeah.

MR. SCHMIDT: That was really it.

MR. SCOTT: So, right now we have a full Commission of nine, so we have to have five to have a meeting.

MR. SCHMIDT: Right.

MR. SCOTT: And we have to have three to vote in favor of anything for anything to pass.

MR. SCHMIDT: Right. If there's only five, right?

MR. SCOTT: Yeah.

MR. SCHMIDT: And I know, I understand what that's supposed to be telling us, but [inaudible].

MR. SCOTT: Yeah.

MR. SCHMIDT: I just felt like it wasn't really necessary [inaudible].

MS. RICHARDS: No. I just got lost in all [inaudible].

MR. LEE: But more importantly, how many times has it even come up? I can think of maybe once --

MR. SCOTT: Once or twice, yeah.

MR. LEE: -- in the last four or five years then. And again, it was a case of do we have a quorum or do we not have a quorum. It's not typical. Not what the votes were and the percentage of it.

MR. SCOTT: We can think it out if you want, yeah.

MS. CULLINANE: So, the next, it's just going to be official, then we approve it?

MR. SCOTT: Yeah. I'll draft a resolution and present it to you all for approval. We have an official documentation that it was actually adopted. Trying to get a little bit better about recordkeeping. Sometimes things get [inaudible]. I didn't know we had a set of bylaws. And I mentioned it to the Chair one day and he said, oh, yeah, we actually do have a set of bylaws from way back when. Never saw them. All the records that I have in the office, all the electronic records, never saw a set of bylaws. So, somewhere in the staff turnover and that's just kind of gotten lost and forgotten about. So, I'm trying to get better about keeping track of all that and documenting it.

V. PLANNING COMMISSION COMMENTS

MR. LEE: Any other comments?

MS. RICHARDS: Actually, what I -- you included the history of Gateway in [inaudible].

MR. SCOTT: I thought you'd be interested in it.

MS. RICHARDS: Okay. Okay.

MR. SCOTT: So, yeah.

MS. RICHARDS: [Inaudible; talking off mic]

MR. SCOTT: No. As I said in my --

MS. RICHARDS: [Inaudible; talking off mic]

MR. SCOTT: Well, I think the Council is starting to think about that a little bit, you know, the -- it's been tied up in litigation for two or three years now. And I think they actually had a hearing today. So, I'm starting to think that maybe the ice sheet is starting to break a little bit and so movement will start to happen with the property. And we've talked with every developer in town. You name the company, they've been in here and

wanting to talk to the Mayor or the City Administrator or myself about, hey, I got this idea or I got that idea. What do you think about this or that.
And so, the Mayor wanted to have kind of a visioning session with the City Council as what all do we want to see as a future of that property. So, we kind of started off with the history. We talked about, you know, current mixed-use zoning for that property and kind of mixed-use zoning in general, and what are some of the attributes of that type of zoning. And the mixed-use zoning that we have does have a lot of those attributes, so it needs to be polished up a little bit, but the bones of it are there.

But it was a good discussion. I think they're very interested in open space and having kind of a community gathering space as part of the project, whatever the project may be in the future. But I don't think anybody was really crazy about the Gateway that was proposed if it was built. Just lot and small site.

MS. DUKELOW: But that approved preliminary development plan is shelved, right?

MR. SCOTT: No.

MS. CULLINANE: No. It had to meet certain requirements. Certain deadlines had to be met.

MR. SCOTT: Yeah.

MS. DUKELOW: But it's been approved, and we extended the shelf life.

MR. SCOTT: No.

MR. SNYDER: No, it wasn't?

MR. SCOTT: Yeah. So, I've started drafting ordinances. When we approve a preliminary development plan, I'll turn it into an ordinance and take it to the City Council with a list of conditions. One of the conditions is that it has a shelf life of five years, which our City Attorney kind of said there's nothing in the zoning code that says that. I know, but it's in the ordinance. So, we kind of, all right.

And with the Gateway project, we said the shelf life is tied to the development plan and the incentives that are being offered as part of the development plan. So, when the City Council rescinded the development plan, rescinded all the incentives, the PDP went away too. So, anybody that comes in here is going to have to start over.

MS. CULLINANE: Did they get all those barrels all removed out of there at the gas station?

MR. SCOTT: Yes.

MS. CULLINANE: Because they're going to sell that, right?

MR. SCOTT: Uh-huh. The property is under contract, and that was one of the conditions for purchase was to remove the gas tanks.

MS. CULLINANE: Oh, it's in there.

MR. SCOTT: Yeah.

MS. CULLINANE: Then they'll come to us, right, because there isn't mixed --

MR. SCOTT: Yeah. They have to -- they're a real estate broker here in town. And I don't know if they're going to build something for spec or they're going to sell the property to somebody else or what they're going to do. I'm not sure they know what they're going to do yet. They wanted to get control of that property. They're well aware of the MS-1 zoning. I explained that to them. But they'll have to bring something to the Planning Commission for approval if it's built.

MS. DUKELOW: Are they still in the process of cleaning up the, that stuff they left behind after tearing it up and pushing the tanks against the building and everything else? Or are they finished? I mean, they've got the tanks pushed up against the, or not the tanks but the pump structures pushed up against the wall. I mean, it just looks awful.

MR. SCOTT: Yeah. Yeah. It probably needs to be cleaned up a little bit. I haven't driven by there since the holidays, but I can check again.

MS. DUKELOW: Take a drive in your spare time.

MR. SCOTT: Yeah.

MS. DUKELOW: Oh, I can send you pictures.

MR. SNYDER: So, any inquiries about the Applebee's property?

MR. SCOTT: Uh-huh. Had a couple people kicking tires on it.

MS. CULLINANE: Well, I do like seeing like the local places like Jerusalem Café going in [inaudible] a burrito place. I think it's cool to have one [inaudible]. I don't know about the Jose Peppers either.

MR. SNYDER: Yeah. That's right.

MR. SCOTT: The City Administrator met a real estate broker the other day who is representing that property. So, I think we're going to set up a meeting sometime to talk about that property and a few others in Mission. I don't know anything about the Jose Peppers property.

MS. CULLINANE: Two big restaurants.

MR. SNYDER: Yeah.

MR. SCOTT: Area restaurants are struggling. There was an article a week or two ago about Brio on the Plaza after 20 years or so and they're closing.

MS. RICHARDS: Tortilla Ranch.

MS. CULLINANE: [Inaudible.]

(Commissioner talking amongst themselves)

MR. LEE: Well, that was the same ownership as the other one.

MR. SNYDER: Where's Jerusalem Café going in?

MS. CULLINANE: It's going to go where, you know, where like Chick-fil-A is?

MR. SNYDER: Yeah.

MS. CULLINANE: It's like down, pulling out right in that strip --

MR. SNYDER: Oh, yeah.

MS. CULLINANE: Next to like Toppers.

MR. SNYDER: Oh, yeah.

MS. CULLINANE: Yeah. That's very cool.

MR. SNYDER: Yeah. I like that spot. Yeah. I think people will still [inaudible].

MR. LEE: Other comments?

MR. SCOTT: I don't have anything else, Mr. Chair. We do have a joint work session with the City Council planned for Tuesday, February 11th. 6:00 is the time. It'll be over at the Community Center. So, we'll feed everybody. So, if you have any dietary requests, I know Robin requested vegetarian. Anybody have any dietary requests, let me know. That's about it.

VI. STAFF UPDATES

1. Zoning Code Update Phase I

This item was not discussed.

VII. ADJOURNMENT

MR. LEE: Okay. Nothing else, I'll entertain a motion.

MS. CULLINANE: Mr. Chair, I move to adjourn.

MR. SNYDER: Second.

MR. LEE: Call the roll.

MR. SCOTT: Robin moved and Wayne seconded.

MR. SNYDER: Yes.

MS. CULLINANE: I moved. Cullinane moved.

MR. SCOTT: Cullinane moved. Okay.

MR. SNYDER: And I did second.

MR. SCOTT: Commissioner Braden.

MR. BRADEN: [Inaudible.]

MR. SCOTT: Commissioner Brown.

MS. BROWN: Aye.

MR. SCOTT: Commissioner Cullinane.

MS. CULLINANE: Aye.

MR. SCOTT: Commissioner Dukelow.

MS. DUKELOW: Aye.

MR. SCOTT: Chairman Lee.

MR. LEE: Aye.

MR. SCOTT: Commissioner Richards.

MS. RICHARDS: Aye.

MR. SCOTT: Commissioner Schmidt.

MR. SCHMIDT: [Inaudible.]

MR. SCOTT: Commissioner Smith, absent. Commissioner Snyder.

MR. SNYDER: Aye.

MR. SCOTT: Okay. 7:39. Hopefully next time we'll have somebody else doing this.

MS. DUKELOW: Yeah.

MR. SCOTT: Thank you all.

MS. DUKELOW: Then we'll have to approve again, won't we?

MR. SCOTT: Yeah.

Motion 7: **Megan Cullinane - Ward III/Wayne Snyder - Ward I:** Adjourn. **The motion carried 8-0-0.**

(Mission Planning Commission Meeting adjourned at 7:39 p.m.)

CERTIFICATE

I certify that the foregoing is a transcript to the best of my ability from the electronic sound recording of the proceedings in the above-entitled matter.

/das February 10, 2025

Deborah A. Sweeney

APPROVED BY:

_____

Brian Scott, Planning Commission Secretary

March 24, 2025

Planning Commission

Staff Report

AT A GLANCE

Applicant:

Banks Floodman

Mission Bowl Apartments, LLC

Location:

5300 Block of

Martway Street

Property ID:

KP38000000 007

The East 95 feet of Lot 20, and all of Lots 21, 22, and 23, Except the East 10 feet thereof, MISSION VILLAGE, BLOCK 5, a subdivision in the City of Mission, Johnson County, Kansas, as described by Jerald W. Pruitt, Kansas PS-814.

Current Zoning: MS-2

Proposed Zoning: MS-2

Current Land Use:

Parking Lot

Proposed Land Use:

Residential/Commercial Mixed-Use

Case Number:

Case #25-04

Combined Revised Preliminary and Final Development Plan

Project Name:

Phase II of The Lanes and Mission Bowl

Project Summary:

Applicant is requesting consideration of a revised preliminary development plan and final development plan for Phase II of The Lanes apartment building that now includes 22 on-street parking spaces.

Public Hearing Require Yes

Legal Notice: The Legal Record

March 4, 2025

Public Hearing Date: March 24, 2025

Staff Contact:

Brian Scott, Deputy City Administrator

Property Background and Information

The subject property is located in the 5300 Block of Martway on the south side. It is currently owned by the Brain Development Group, who also owns the office building (formerly the Mission Bank Building) on the north side of Martway, addressed as 5201 Johnson Drive. The subject property serves as an overflow parking lot for the office building.

The Rock Creek channel is located to the south, the municipal park-and-ride lot to the east, the office building and transit center to the north, Mission Mart shopping center to the northwest, and Phase I of The Lanes at Mission Bowl apartment building to the west. The property is approximately 1.7 acres.

Project Proposal

Sunflower Development Group, working as Mission Apartments, LLC (the applicant), recently completed The Lanes at Mission Bowl apartment building to the immediate west of the subject property. The applicant is now interested in building a second apartment building (Phase II of The Lanes) on the subject property.

The proposed second apartment building will be a five (5) story building, four stories of residential space above a ground floor podium structure utilized for parking, storage, and a small lobby area. There will also be a 1,750 sq. ft. tenant space located on the ground floor at the northwest corner of the building. The entire building will be 90,647 sq. ft. with a total of 96 apartment units ranging from studio to two bedrooms.

The applicant submitted a preliminary development plan (PDP) for the proposed second apartment building in the summer of 2023 (Case #23-13). This (PDP) was heard by the Planning Commission at the July 24, 2023 meeting where the commission voted 7-0 to recommend approval to the City Council. The Council approved the PDP (Ordinance 1588) with conditions at their August 16, 2023 meeting. A final development plan (FDP) has never been presented to the Planning Commission for consideration. And no further action has been taken on this proposed development project. The applicant is now presenting a combined revised preliminary development plan and final development plan for consideration. The revised preliminary development plan reflects 15 additional on-street parking spaces along Martway for a total of 22 on-street parking spaces.

Parking requirements have proven to be a challenge for this development project. More to the point, it is the parking requirements of the office building that are hampering the sale of the parking lot to the applicant.

Both properties are zoned Main Street 2 ("MS-2"). "MS-2" zoning stipulates that for apartment buildings parking requirements are one (1) parking space for a studio or one-bedroom unit, and two (2) parking spaces for a two-bedroom or three-bedroom unit. The proposed development project has 32 studio units, 48 one-bedroom units, and 16 two-bedroom units. This equates to 112 parking spaces that are required by zoning. The proposed development project is providing 120 spaces.

"MS-2" zoning stipulates that for a commercial building such as the office building there shall be four (4) parking spaces per 1,000 square feet of gross floor area. The office building is approximately 73,000 square feet, which equates to 292 parking spaces required. Currently, the office building has 159 parking spaces on site. With the sale of the overflow parking lot, the owner of the office building will make improvements to on-site parking that increases the number to 218 parking spaces. However, there remains a delta of 74 parking spaces that need to be accounted for in some fashion.

As part of the sale of the overflow parking lot to the applicant, the two parties have agreed to establish a reciprocal parking easement whereby 25 parking spaces on the proposed apartment building site can be utilized by office building workers during the day and 25 parking spaces on the office building site can be utilized by residents/visitors of the apartment building in the evening.

In addition to the above-mentioned reciprocal parking easement, the owner of the office building has also entered into an agreement with the City whereby office building workers/visitors may utilize up to 15 parking spaces in the City's transit center park-and-ride lot just to the east of the subject property.

To further address the parking deficit, the applicant has agreed to create 22 on-street parking spaces along Martway in front of the proposed apartment building. Because this is considered to be a significant change from the original PDP that was submitted in the summer of 2023, a revised PDP has been submitted for the City's consideration.

Plan Review and Analysis

Section 440.175 of the Mission Municipal Code pertains to the consideration of preliminary development plans. Section 440.175(A)(4) specifically states:

> *Once preliminary development plan approval has been granted, changes in the preliminary development plan may be made only after approval of a revised preliminary development plan.*

Changes in the revised preliminary development plan which are not significant may be approved by the Planning Commission and disapproval of such changes by the Community Development Director or his designee. Significant changes in the revised preliminary development plan may only be approved after rehearing by the Planning Commission and City Council, such rehearing shall be subject to the notice and protest provisions set forth in Section 440.140.

Section 440.175 (A)(5) states:

For purposes of this Chapter, "significant changes" shall mean any of the following:

a. Increases in the density or intensity of residential uses of more than five percent (5%).

b. Increases in the total floor area of all non-residential buildings covered by the plan of more than ten percent (10%).

c. Increases of lot coverage of more than five percent (5%).

d. Increases in the height of any building of more than ten percent (10%).

e. Changes of architectural style which will make the project less compatible with surrounding uses.

f. Changes in ownership patterns or stages of construction that will lead to a different development concept.

g. Changes in ownership patterns or stages of construction that will impose substantially greater loads on streets and other public facilities.

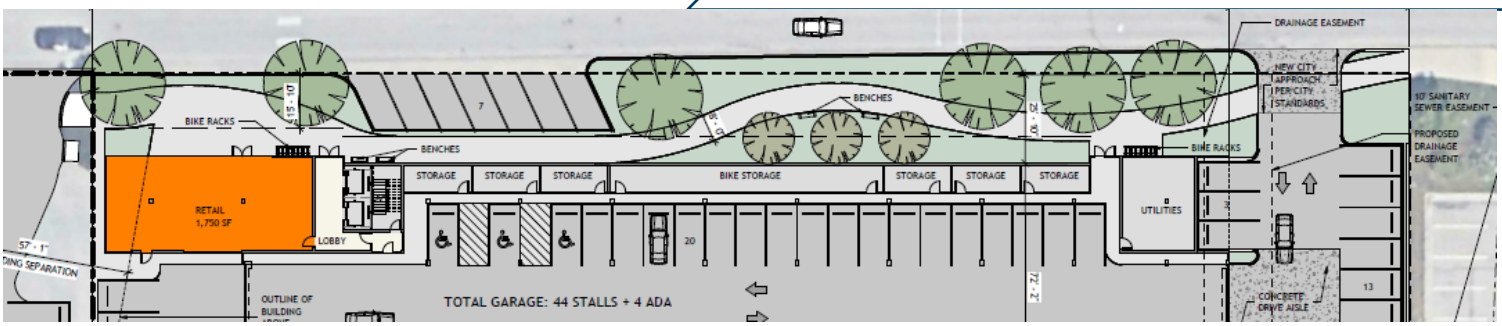
h. Decreases of any peripheral setback of more than five percent (5%).

i. Decreases of areas devoted to open space of more than five percent (5%) or the substantial relocation of such areas.

j. Changes of traffic circulation patterns that will affect traffic outside of the project boundaries.

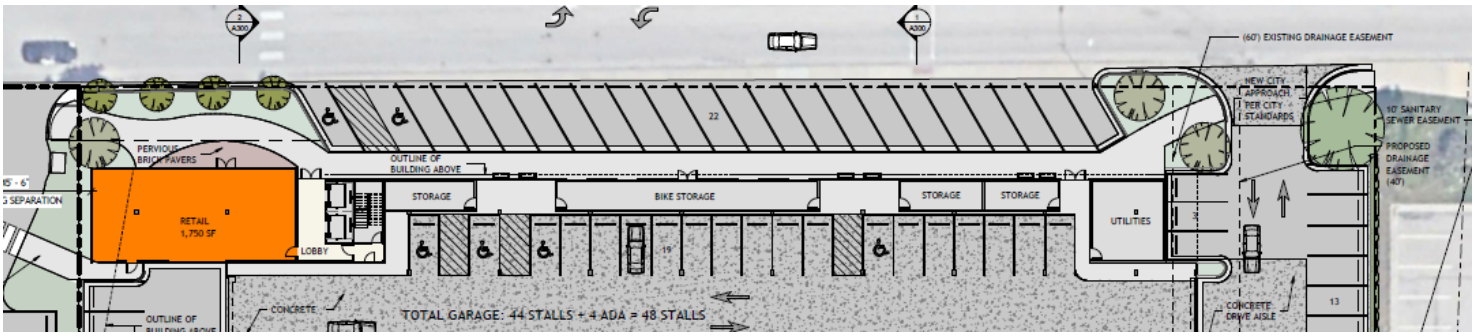
k. Modification or removal of conditions or stipulations to the preliminary development plan approval which are considered significant in the opinion of the Community Development Director or his designee.

The original PDP for this project that was approved in the summer of 2023 had seven (7) on-street parking spaces. The rest of the area in front of the building was dedicated to the continuation of the Rock Creek Trail as designed and built for Phase I of The Lanes. The trail had a curvilinear design with landscaping and a small work-out area.



July 2023 PDP with 7 On-Street Parking Spaces

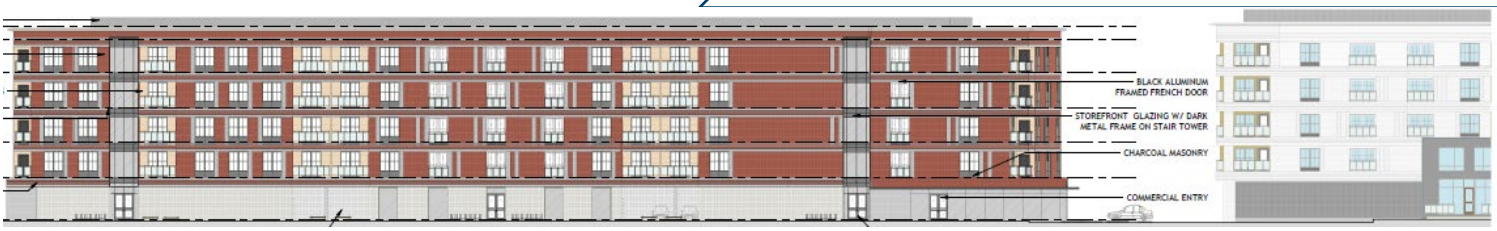
The revised PDP that is now presented to the Planning Commission for consideration has taken out the curvilinear trail to allow for an additional 15 on-street parking spaces, a total of 22 on-street parking spaces. That has reduced the green space along the front of the building from 2,393 sq. ft. to 1,280 sq. ft., or nearly 46.5%. This reduction in green space is a significant change that would trigger a reconsideration of the PDP.



March 2025 PDP with 22 On-Street Parking Spaces

Other than the change in the number of on-street parking spaces, the rest of the proposed development project is exactly as it was when submitted and approved in the summer of 2023. The building will still be five stories with 96 apartment units. The ground floor will consist of secure parking, storage, and 1,750 sq. fit. retail space.

The Phase II building will look similar to the Phase I building in many respects. The one primary differentiation between the two buildings is the color of the brickwork. The Phase II building will have red color brick that allows the building to stand on its own while complimenting the Phase I building. This differentiation helps to establish an overall better urban fabric for the block and downplays the “compound” look of two identical buildings next to each other. The Phase II building will also have two columns of glazing at the entrance points to the building. This will help break the massing of the building and provide natural light into the interior common stairwells and create an interesting visual for the pedestrian on the street.



The ground level of the building will have a 1,750 sq. ft. retail space at the northwest corner with a store front window. Additional glazing is at the center of the ground floor which provides natural light into the bike storage room within. The rest of the ground floor wall along the front of the building will be composed of a brick breezeway that conceals the parking behind while providing some visual texture. Six (6) large planter boxes (2' tall by 5' long) will be located along the front ground wall with arrangements of sky pencil holly, fountain grass, and Petunia Variety. Black, metal park benches will also be placed in between the planters along the wall. These items will help to break up the wall, scale it down, and create visual interest. The trail itself will remain eight (8) feet wide, but will run along the front of the building instead of the curvilinear pattern in the original PDP.

There will be three 20' light standards around the perimeter of the property and a series of downward lighting and scones on the building itself.

Recommendation

Parking has become something of a contentious topic. Some will argue that we have too much, while others will argue that we do not have enough.

As stated previously, the City's zoning code requires four (4) parking spaces per 1,000 square feet of gross floor area. For the office building on the north side of Martway, this would equate to 292 parking spaces. The current office building site only has 159 spaces, so logically one would assume that others park in the overflow parking lot on the south side of Martway. However, anyone who is familiar with this area will know that the overflow parking lot is often vacant with just a handful (less than 10) cars parked there during the day. It has long been assumed by staff that those cars are most likely transit riders that presume the lot is the park-and-ride lot when actually it is not. That lot is to the east.

A typical high-rise office user will require three (3) to four (4) parking spaces per 1,000 square feet of *leasable* area. The City's zoning code requires four (4) parking spaces per 1,000 sq. ft. of *gross* floor area. This could be seen as a bit excessive as parking spaces are not needed for common areas such as the lobby, hallways, and restrooms. The parking requirement is also based on the assumption that every office user is fully staffed with every employee present. More often than not, there will be vacant positions or employees out on leave or working from home or off site, so there will not be the need for a full complement of parking spaces. A requirement of three (3) parking spaces per 1,000 square feet of gross floor area may be a more appropriate number that takes into account some of these factors. This actually aligns with another section of the City's zoning code that requires 2.84 parking spaces per 1,000 sq. ft. for general office use. Requiring three (3) parking spaces per 1,000 sq. ft. would result in 219 parking spaces required for the office building; and as stated previously, 218 will be available when improvements to the existing parking lot are made.

Unfortunately, the real driver behind this need for additional parking is the tenants of the office building, or one in particular who has expanded quite a bit in the past few years. Their lease agreement provides for a certain number of parking spaces that the office building owner is trying to fulfill through the reciprocal parking easement with the Phase II apartment building as well as the additional on-street parking spaces in front.

Another layer to this conundrum is the fact that the Sunflower Development Group has recently become a part owner of the Mission Mart Shopping Center and has been in discussions with the City about the creation of a community improvement district that would generate additional sales tax dedicated to improvements at the center. The improvements will attract a different level of tenants in the future that will generate more sales. But these newer tenants will also generate more traffic, and the shopping center as it is now is grossly under-parked. The additional on-street parking proposed in the revised PDP may become invaluable if these plans come to fruition.

While the loss of green space for additional on-street parking is not desirable, it is better than the current situation of a virtually empty parking lot. The opportunity to better utilize the subject property for a development that will generate more taxes, bring more residents that shop and dine in our community, and create better urban fabric probably out weights the loss green space in this case. For this reason, staff would recommend approval of the combined revised PDP and FDP as submitted.

Planning Commission Action

The Planning Commission will hold a public hearing at their March 24th meeting to take testimony on this case and formulate a recommendation to the City Council.

City Council Action

The City Council will consider PC Case #25-04 at its April 16th meeting.

mission kansas

Community Development Department
6090 Woodson Street
Mission, KS 66202
913-676-8360

Development Application

Permit #_____

Applicant Name: Banks Bloodman Company: Mission Bowl Apartments LLC
Address: 901 New Hampshire Street, Suite # 201
City/State/Zip: Lawrence, KS 66044
Telephone: 816-988-2808
Email: Bbloodman@sunflowerkc.com

Property Owner Name: Brain Dev 7 LLC Company: Brain Dev 7 LLC
Address: 300 E 39TH Street
City/State/Zip: Kansas City, MO 64111
Telephone:
Email: Abrain@braingroup.com

Firm Preparing Application: Conner Treanor Company: CT Design & Development
Address: 800 New Hampshire
City/State/Zip: Lawrence, KS 66044
Telephone:
Email: Ctreanor@ctdesigndev.com

*All correspondence on this application should be sent to (check one) ✓ Applicant_____ Owner____ Firm

Application Type

Rezoning ☐ Plat ☐ Site Plan ☒ SUP ☐ Lot Split ☐ Other (Specify):

Description of Request

Please provide a brief description of the request: Proposal of revised PDP for 5201 Johnson Drive, adding 15 angled parking spaces to improve parking for city users and retail. There are no additional changes to the original garage and surface parking.

Project Details

General Location or Address of Property: 5201 Johnson Drive (part of Security Bank Parcel)

Present zoning of property: MS2 - Multi-Use

Present use of property: Vacant Parking Lot

Agreement to Pay Expenses

Applicant intends to file an application with the Community Development Department of the City of Mission, Kansas (City). As a result of the filing of said application, City may incur certain expenses, such as but not limited to publication costs, consulting fee, attorney fee, and court reporter fees. Applicant hereby agrees to be responsible for and to reimburse City for all cost incurred by City as a result of said application. Said costs shall be paid within ten (10) days of the receipt of any bill submitted by City to Applicant. It is understood that no requests granted by City or any of its commissions will be effective until all costs have been paid. Costs will be owed whether or not Applicant obtains the relief requested in the application.

Affidavit of Ownership and/or Authorization of Agent

I, _____ certify that I am the owner or contract purchaser of the subject property. I give my permission for the undersigned to act as my agent on behalf of the application hereby being submitted.

x _____ Date 2/21/25
Signature (Owner)

x Andrew Brain Date 24/02/2025
Andrew Brain (Feb 24, 2025 16:51 CST)
Signature (Owner's Agent)

FOR OFFICE USE ONLY

File Fee: $

Total:

Receipt #

Notes:

Meeting Date

PC CC

Date Notices Sent

Date Published

Decision

Project Narrative

Sunflower Development Group is submitting a revised Preliminary Development Plan (PDP) for the property at 5201 Johnson Drive, part of the Security Bank parcel. Since receiving approval for our original PDP in May 2023, we have refined our plan to incorporate 15 angled parking spaces along the north side of the parcel, north of Martway Street.

This adjustment enhances parking efficiency, ensuring the adjacent office user has the volume they need while also improving overall spacing and layout for city users and the proposed retail space within the development. While the total number of garage and surface parking spaces remains unchanged, this modification slightly reduces the landscaping requirement.

The project includes 96 residential units with a podium base and four stories of wood-frame construction. Both the current property owner and the city are aligned on the updated parking configuration, and Sunflower Development Group looks forward to advancing this exciting project.

EXISTING MISSION MART SHOPPING CENTER

EXISTING MISSION MART SHOPPING CENTER

EXISTING BUS STATION

EXISTING SECURITY BANK TOWER

EXISTING PARKING FOR MISSION MART SHOPPING CENTER

EXISTING PARKING FOR MISSION MART SHOPPING CENTER

EXISTING PARKING FOR SECURITY BANK TOWER

A406

MARTWAY STREET

THE LANES - PHASE I

A404 2

ROCK CREEK TRAIL

THE LANES - PHASE II

FOUR LEVELS OF RESIDENTIAL OVER ONE LEVEL OF PARKING

FIVE TOTAL LEVELS

TRASH

100 YR. FLOODPLAIN

DRAINAGE EASEMENT

25' BUILDING SETBACK

ROCK CREEK

EXISTING DRAINAGE EASEMENT

PROPOSED DRAINAGE EASEMENT

2 A406

10' SANITARY SEWER EASEMENT

EVERGREEN HEDGE SCREENING

100 YR. FLOOD WAY

1 A404

EXISTING JOHNSON COUNTY WASTEWATER FACILITY TO REMAIN

SINGLE FAMILY HOMES

WEST 60TH TERRACE

Site Data Table

Zoning District:	MS 2
Land Area in Zoning District:	apprx. 74,120 SF
Conditioned Building Area:	90,647 SF
Parking Garage Area:	16,686 SF
Unit Count:	96 Total Units
Parking Required:	112 Spaces
Parking Provided:	120 Spaces

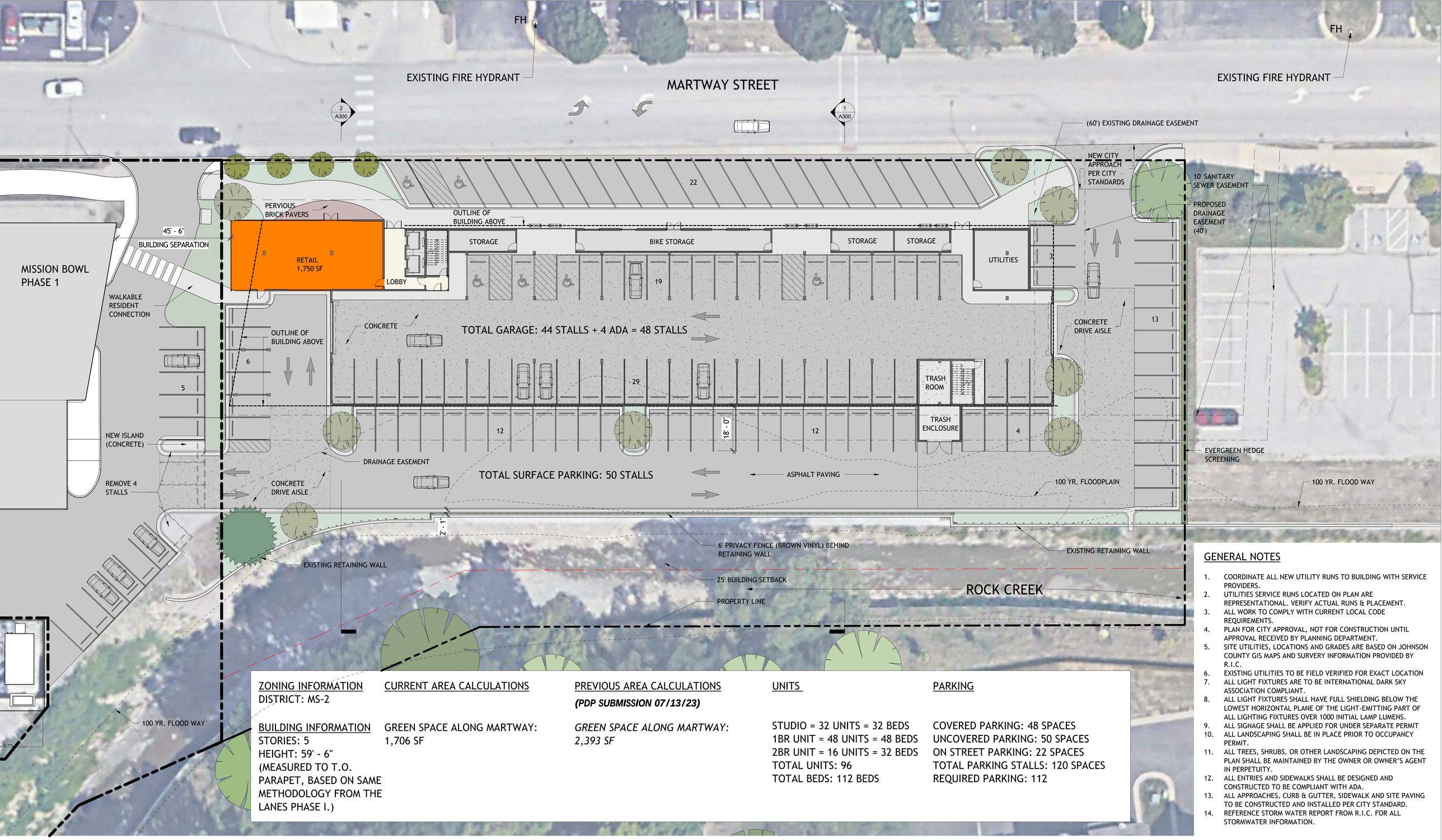
THE LANES - PHASE 2

SHEET AS100 - PDP SITE PLAN

1/32" = 1'-0"

03/03/25

C.T DESIGN + DEVELOPMENT



ZONING INFORMATION
DISTRICT: MS-2

BUILDING INFORMATION
STORIES: 5
HEIGHT: 59' - 6"
(MEASURED TO T.O. PARAPET, BASED ON SAME METHODOLOGY FROM THE LANES PHASE I.)

CURRENT AREA CALCULATIONS

GREEN SPACE ALONG MARTWAY:
1,706 SF

PREVIOUS AREA CALCULATIONS
(PDP SUBMISSION 07/13/23)

GREEN SPACE ALONG MARTWAY:
2,393 SF

UNITS

STUDIO = 32 UNITS = 32 BEDS
1BR UNIT = 48 UNITS = 48 BEDS
2BR UNIT = 16 UNITS = 32 BEDS
TOTAL UNITS: 96
TOTAL BEDS: 112 BEDS

PARKING

COVERED PARKING: 48 SPACES
UNCOVERED PARKING: 50 SPACES
ON STREET PARKING: 22 SPACES
TOTAL PARKING STALLS: 120 SPACES
REQUIRED PARKING: 112

GENERAL NOTES

1. COORDINATE ALL NEW UTILITY RUNS TO BUILDING WITH SERVICE PROVIDERS.
2. UTILITIES SERVICE RUNS LOCATED ON PLAN ARE REPRESENTATIONAL. VERIFY ACTUAL RUNS & PLACEMENT.
3. ALL WORK TO COMPLY WITH CURRENT LOCAL CODE REQUIREMENTS.
4. PLAN FOR CITY APPROVAL, NOT FOR CONSTRUCTION UNTIL APPROVAL RECEIVED BY PLANNING DEPARTMENT.
5. SITE UTILITIES, LOCATIONS AND GRADES ARE BASED ON JOHNSON COUNTY GIS MAPS AND SURVERY INFORMATION PROVIDED BY R.I.C.
6. EXISTING UTILITIES TO BE FIELD VERIFIED FOR EXACT LOCATION
7. ALL LIGHT FIXTURES ARE TO BE INTERNATIONAL DARK SKY ASSOCIATION COMPLIANT.
8. ALL LIGHT FIXTURES SHALL HAVE FULL SHIELDING BELOW THE LOWEST HORIZONTAL PLANE OF THE LIGHT-EMITTING PART OF ALL LIGHTING FIXTURES OVER 1000 INITIAL LAMP LUMENS.
9. ALL SIGNAGE SHALL BE APPLIED FOR UNDER SEPARATE PERMIT
10. ALL LANDSCAPING SHALL BE IN PLACE PRIOR TO OCCUPANCY PERMIT.
11. ALL TREES, SHRUBS, OR OTHER LANDSCAPING DEPICTED ON THE PLAN SHALL BE MAINTAINED BY THE OWNER OR OWNER'S AGENT IN PERPETUITY.
12. ALL ENTRIES AND SIDEWALKS SHALL BE DESIGNED AND CONSTRUCTED TO BE COMPLIANT WITH ADA.
13. ALL APPROACHES, CURB & GUTTER, SIDEWALK AND SITE PAVING TO BE CONSTRUCTED AND INSTALLED PER CITY STANDARD.
14. REFERENCE STORM WATER REPORT FROM R.I.C. FOR ALL STORMWATER INFORMATION.

THE LANES - PHASE 2

SHEET A101 - LEVEL 1 PLAN

1/16" = 1'-0"

03/03/25

C.T DESIGN + DEVELOPMENT

1 SOUTH ELEVATION

2 WEST ELEVATION

THE LANES - PHASE 2

03/03/25

SHEET A403 - PDP BUILDING ELEVATIONS

1/16" = 1'-0"

C.T DESIGN + DEVELOPMENT

1 NORTH ELEVATION

2 EAST ELEVATION

THE LANES - PHASE 2

SHEET A405 - PDP BUILDING ELEVATIONS

1/16" = 1'-0"

03/03/25

C.T DESIGN + DEVELOPMENT

1 **SITE PHOTOMETRIC PLAN**
1/16"=1'-0"

NORTH

LS&A
Latimer Sommers & Associates, P.A.
CONSULTING ENGINEERS
3639 SW Summerfield Drive, Suite A
Topeka, Kansas 66614-3974
6625 College Boulevard, Suite 102
Overland Park, Kansas 66210
Telephone: (785) 233-3232
Email: lsapa@lsapa.com
LSA PROJECT NO. 2307

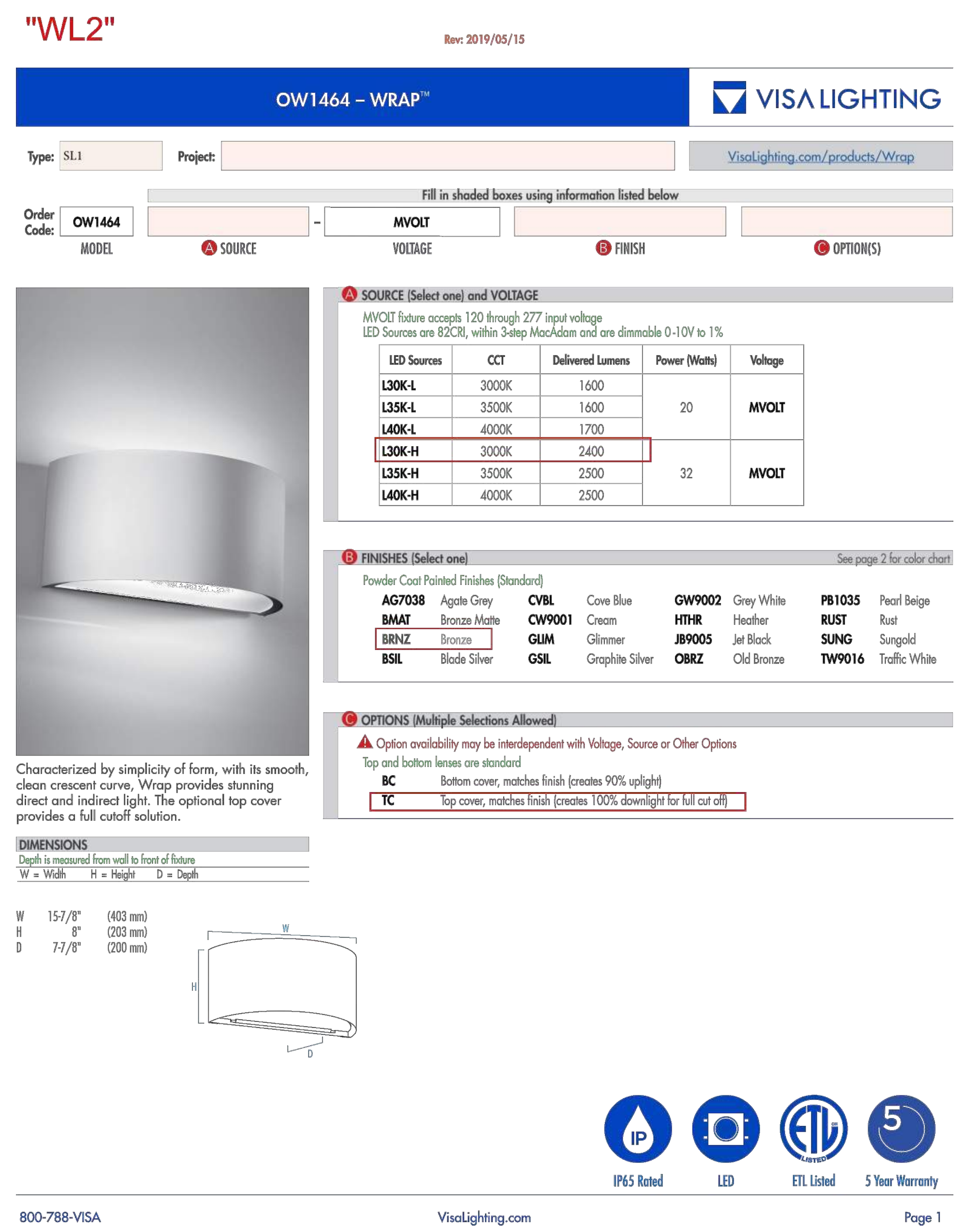
THE LANES - PHASE 2

02/26/25

SITE PLAN - LEVEL 1

1/16" = 1'-0"

C.T DESIGN + DEVELOPMENT



EXTERIOR LIGHTING FIXTURE SCHEDULE

MARK	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING				FINISH						REMARKS
				RECESS.	SURF.	WALL	MOUNTING HEIGHT		LAMP TYPE	CODE	WATTAGE	LUMENS	LIGHT LOSS FACTOR	
SL1	COOPER LIGHTING	GLEON-SA2C-730-U-SL3-HSS	SINGLE HEAD POLE FIXTURE		POLE		20'-0"	BLACK	LED	3000K	113	14,474	0.9	1
SL2	COOPER LIGHTING	GLEON-SA2C-730-U-SL3-HSS	DOUBLE HEAD POLE FIXTURE		POLE		20'-0"	BLACK	LED	3000K	113	14,474	0.9	2
DL1	MAXIM LIGHTING	57712WWT	SURFACE DOWNLIGHT		X		13'-0"	BLACK	LED	3000K	15	900	0.9	
WL1	COOPER LIGHTING	GAW-SA1C-730-U-T4W-BK	WALL PACK			X	15'-0"	BLACK	LED	3000K	59	7,556	0.9	
WL2	VISA LIGHTING	OW1464-L35K-H	WALL SCONCE			X	7'-0"	BLACK	LED	3000K	32	2,500	0.9	

REMARKS
1. PROVIDE WITHSQUARE STRAIGHT STEEL POLE, 20'-0" MAXIMUM HEAD HEIGHT ABOVE FINISHED GRADE.
2. MOUNT HEAD TO EXISTING POLE PROVIDED AS PART OF PHASE 1 PROJECT 180 DEGREES APART FROM EXISTING HEAD.

LS&A
Latimer Sommers & Associates, P.A.
CONSULTING ENGINEERS
3639 SW Summerfield Drive, Suite A
Topeka, Kansas 66614-3974
6625 College Boulevard, Suite 102
Overland Park, Kansas 66210
Telephone: (785) 233-3232
Email: lsapa@lsapa.com
LSA PROJECT NO. 2307

THE LANES - PHASE 2

02/26/25

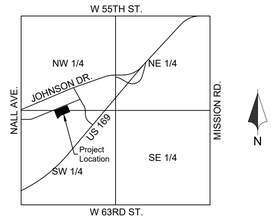
1/16" = 1'-0"

C.T DESIGN + DEVELOPMENT

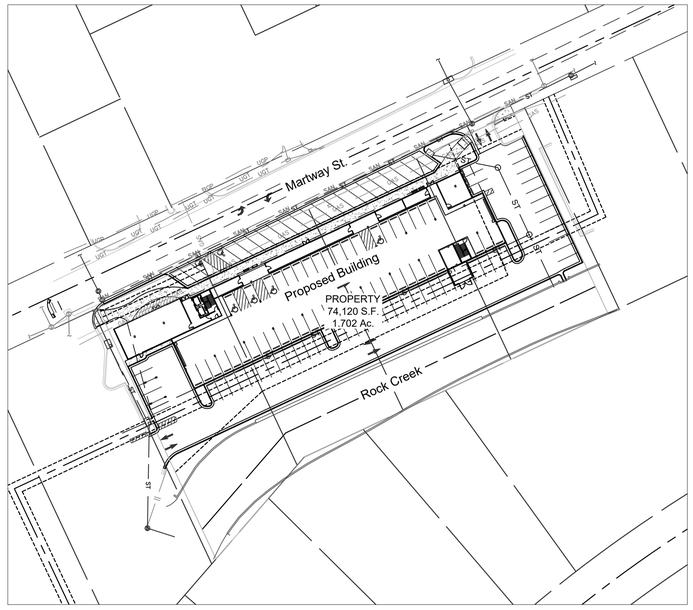
The Lanes At Mission Bowl - Phase II

Mission, Johnson County, KS
Section 9, Township 12 South, Range 25 East

Preliminary/Final Developement Plans



LOCATION MAP
SECTION 9-T12S-R25E
Scale 1" = 2000'



LEGAL DESCRIPTION:

LOTS 21 AND 22, LOT 23, EXCEPT THE EAST 10 FEET THEREOF, AND THE EAST 95 FEET OF LOT 20, MISSION VILLAGE, BLOCK 5, A SUBDIVISION IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS.

ALSO DESCRIBED AS FOLLOWS:

LOTS 21 AND 22, LOT 23, EXCEPT THE EAST 10 FEET THEREOF, AND THE EAST 95 FEET OF LOT 20, BLOCK 5, MISSION VILLAGE, A SUBDIVISION IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS.

NOTE: THE DESCRIPTION ABOVE DESCRIBES THE SAME PROPERTY DESCRIBED IN "EXHIBIT A" OF FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE COMMITMENT NUMBER: NCS-1234275-KCTY, BEARING A COMMITMENT DATE OF SEPTEMBER 13, 2024 AT 8:00 A.M.

TAX PROPERTY ID: KP38000000 0007

FLOOD PLAIN NOTE

1. BY GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES IN FLOODWAY AREAS IN ZONE AE, ZONE AE AND UNSHADED ZONE X OF THE FLOOD INSURANCE RATE MAP, COMMUNITY NO. 200170, LOMR EFFECTIVE SEPTEMBER 14, 2022, MAP NUMBER 20091C0024G, VERSION NO. 2.1.3.0, WHICH BEARS AN EFFECTIVE DATE OF AUGUST 03, 2009 AND IS PARTIALLY IN A SPECIAL FLOOD HAZARD AREA, AS SHOWN ON THE FEMA WEBSITE (http://msc.fema.gov). NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE AND A FLOOD ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

The information concerning locations of underground utilities shown hereon which are not visible from the surface, has been taken from the records and field locations of the various utility companies and has not been field verified by this company. These locations are not to be construed as accurate or exact.

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

LEGEND

	Existing Section Line		Proposed Right-of-Way
	Existing Right-of-Way Line		Proposed Property Line
	Existing Lot Line		Proposed Lot Line
	Existing Easement Line		Proposed Easement
	Existing Curb & Gutter		Proposed Curb & Gutter
	Existing Sidewalk		Proposed Sidewalk
	Existing Storm Sewer		Proposed Storm Sewer
	Existing Storm Structure		Proposed Storm Structure
	Existing Waterline		Proposed Fire Hydrant
	Existing Gas Main		Proposed Waterline
	Existing Sanitary Sewer		Proposed Sanitary Sewer
	Existing Sanitary Manhole		Proposed Sanitary Manhole
	Existing Contour Major		Proposed Contour Major
	Existing Contour Minor		Proposed Contour Minor
			Future Curb and Gutter
U/E	Utility Easement		
SS/E	Sanitary Sewer Easement	A/E	Access Easement
D/E	Drainage Easement	T/E	Temporary Easement

Engineer:
Renaisance Infrastructure Consulting
Andy Gabbert
8653 Penrose Lane, Lenexa, KS 66218
(816) 800-0950

Surveyor:
Renaisance Infrastructure Consulting
5015 NW Canal Street, Suite 100
Riverside, MO 64150
816-800-0950

Architect:
CT Design+Development
Hayden Donaldson
800 New Hampshire St., Suite 151
Lawrence, KS 66044
592-7264 Ext. 7264

Prepared For:
Mission Bowl Apartments, LLC
Banks Floodman
Sunflower Development Group, LLC
1125 Grand Blvd, Suite 202, Kansas City, MO 64106

RENAISSANCE INFRASTRUCTURE CONSULTING:

Andy Gabbert , P.E. Date

APPROVED:

City Engineer Date

APPROVED FOR ONE YEAR FROM THIS DATE

Preliminary/Final Developement Plans
25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

Title Sheet

NO.	DATE	REVISION

DRAWN BY %% CHECKED BY %%

Renaissance Infrastructure Consulting
132 ABBIE AVENUE KANSAS CITY, KANSAS 64108
913.317.9500 WWW.RIC-CONSULT.COM
MO Certificate of Authority: E-2010033630

Sheet
C01

afernandezbeato
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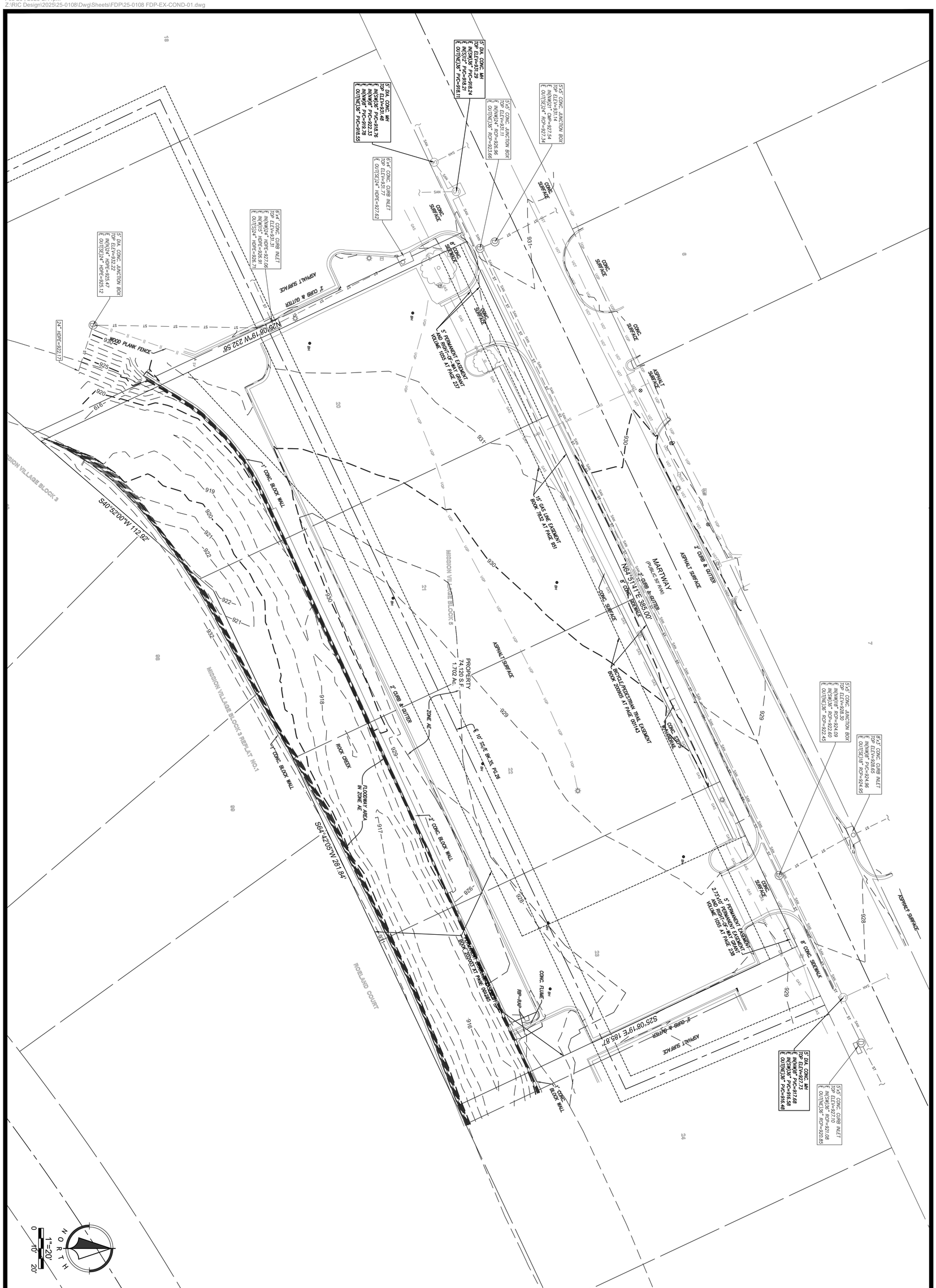

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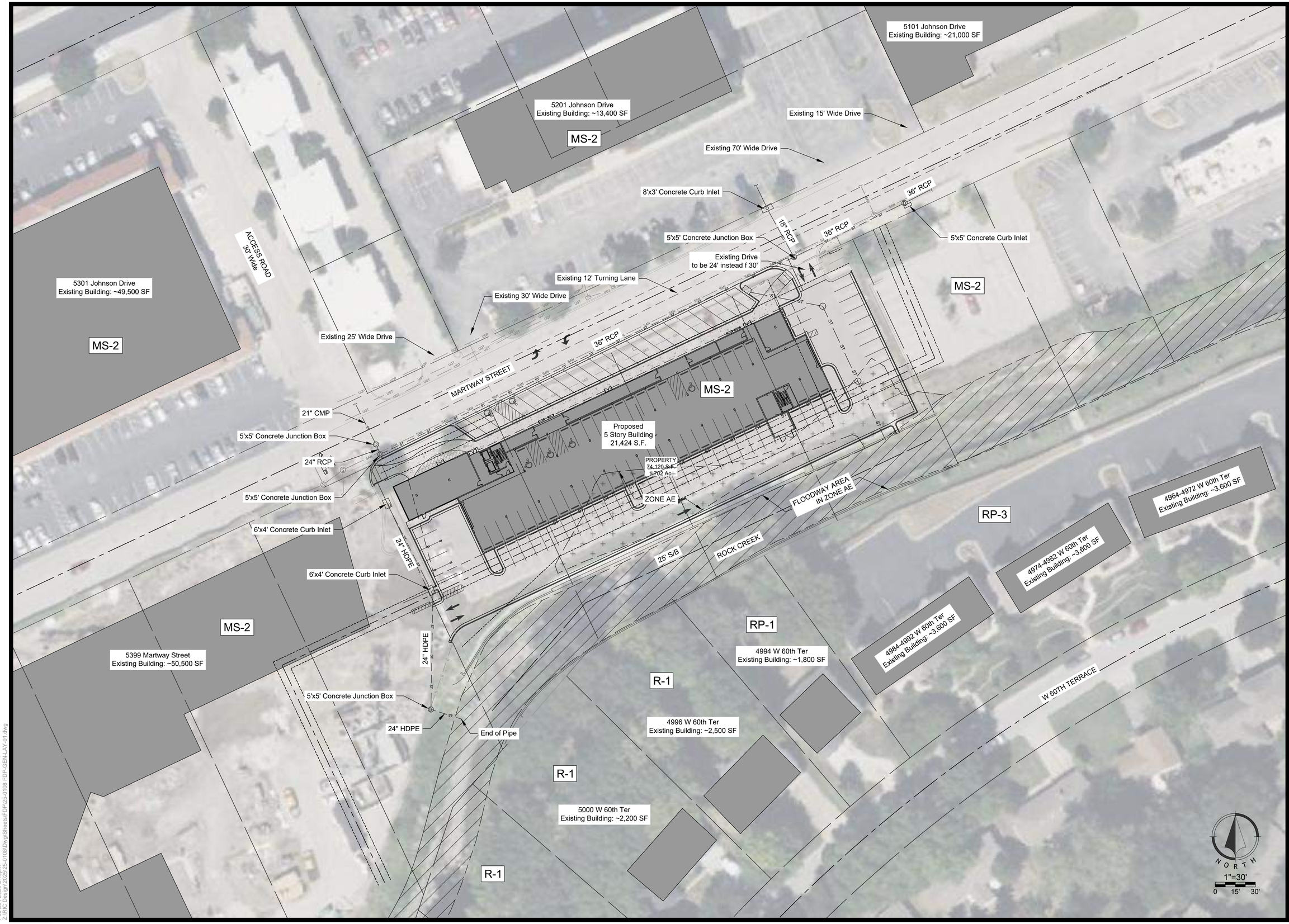
Existing Conditions

Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS



Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

General Layout

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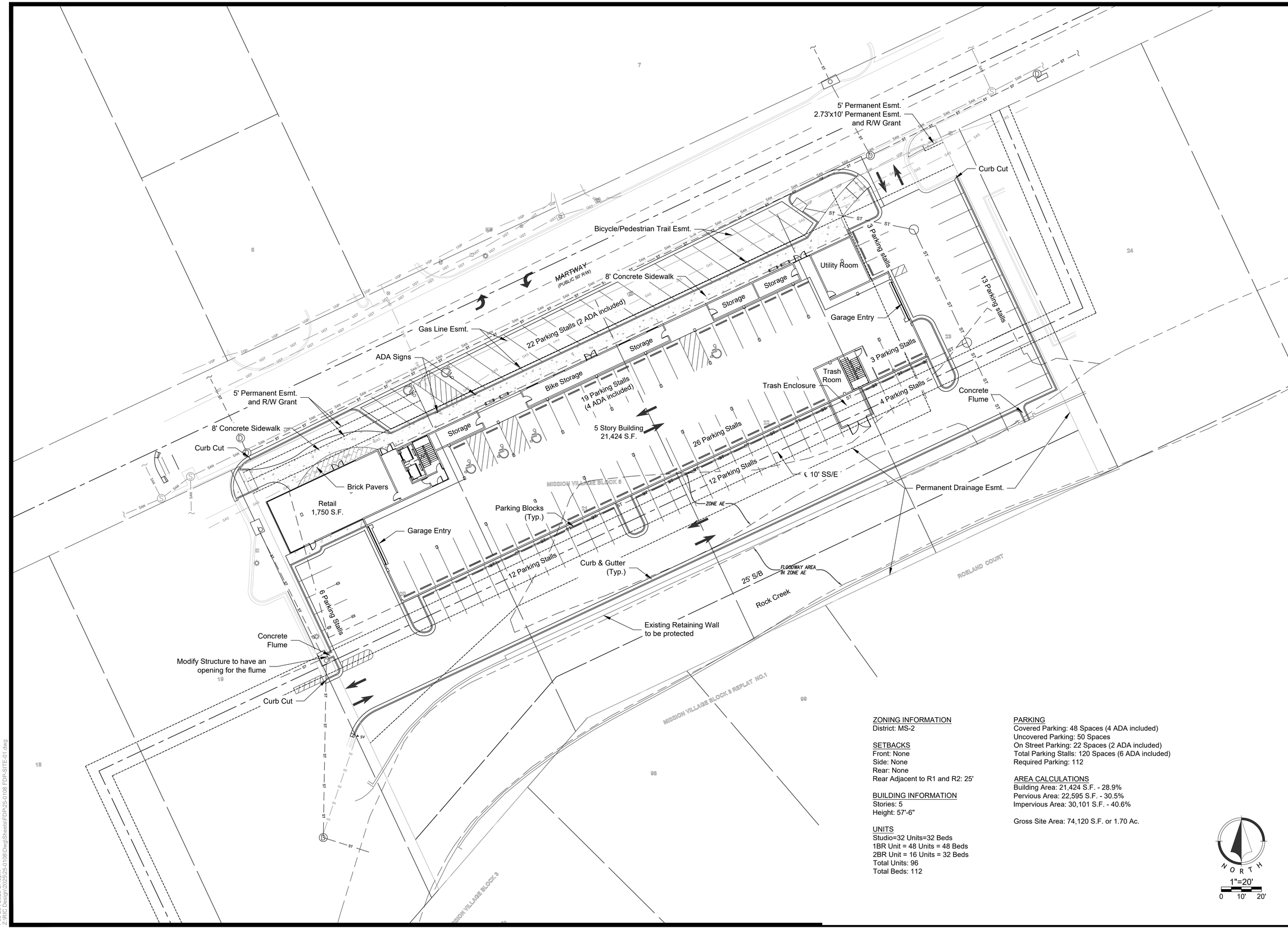

ZONING INFORMATION
District: MS-2

SETBACKS
Front: None
Side: None
Rear: None
Rear Adjacent to R1 and R2: 25'

BUILDING INFORMATION
Stories: 5
Height: 57'-6"

UNITS
Studio=32 Units=32 Beds
1BR Unit = 48 Units = 48 Beds
2BR Unit = 16 Units = 32 Beds
Total Units: 96
Total Beds: 112

PARKING
Covered Parking: 48 Spaces (4 ADA included)
Uncovered Parking: 50 Spaces
On Street Parking: 22 Spaces (2 ADA included)
Total Parking Stalls: 120 Spaces (6 ADA included)
Required Parking: 112

AREA CALCULATIONS
Building Area: 21,424 S.F. - 28.9%
Pervious Area: 22,595 S.F. - 30.5%
Impervious Area: 30,101 S.F. - 40.6%

Gross Site Area: 74,120 S.F. or 1.70 Ac.

NORTH
1"=20'
0 10' 20'

Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

Site Plan

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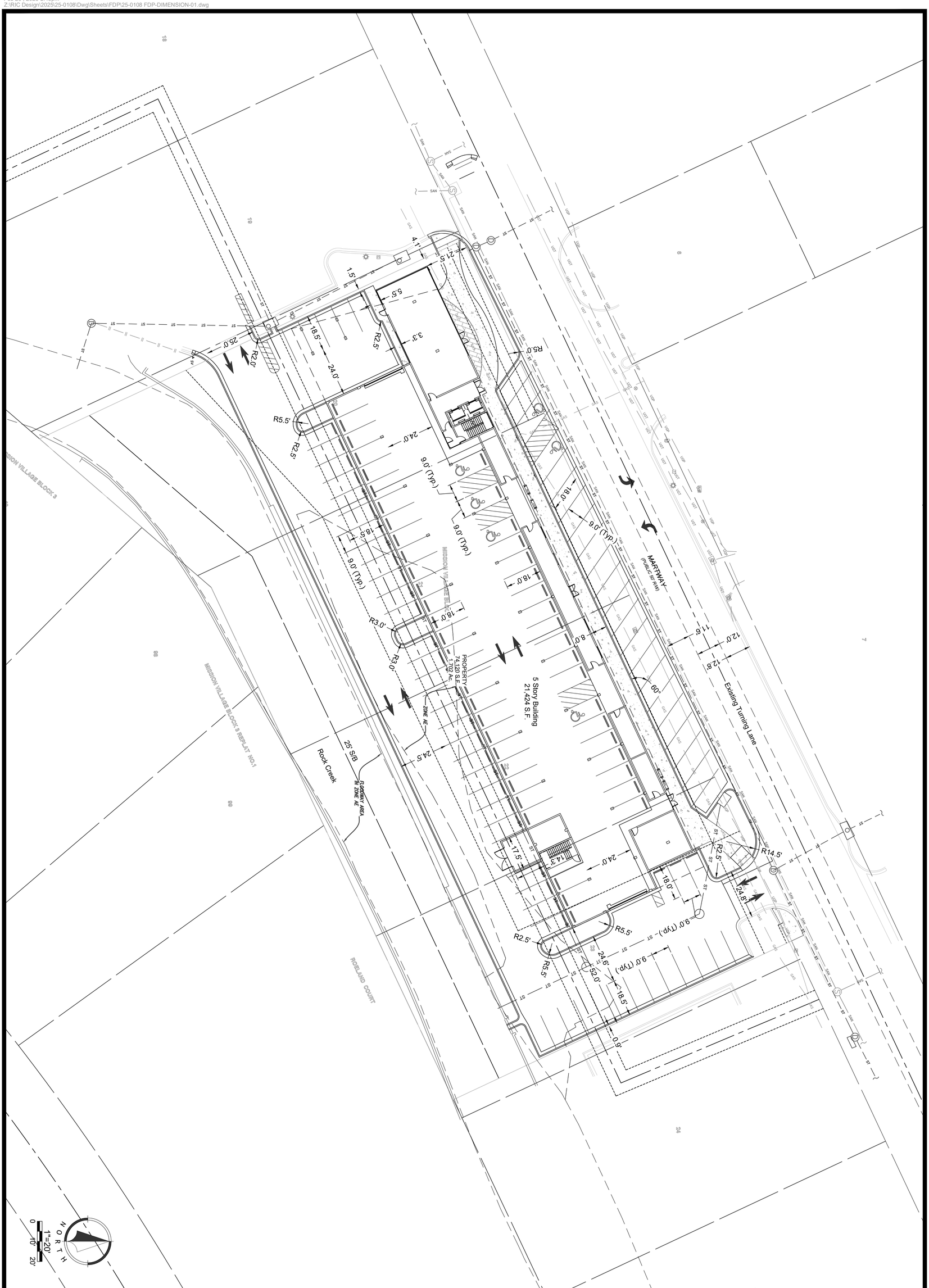

Sheet C05

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Site Dimension Plan

Preliminary/Final Developement Plans

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The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

afernandezbeato
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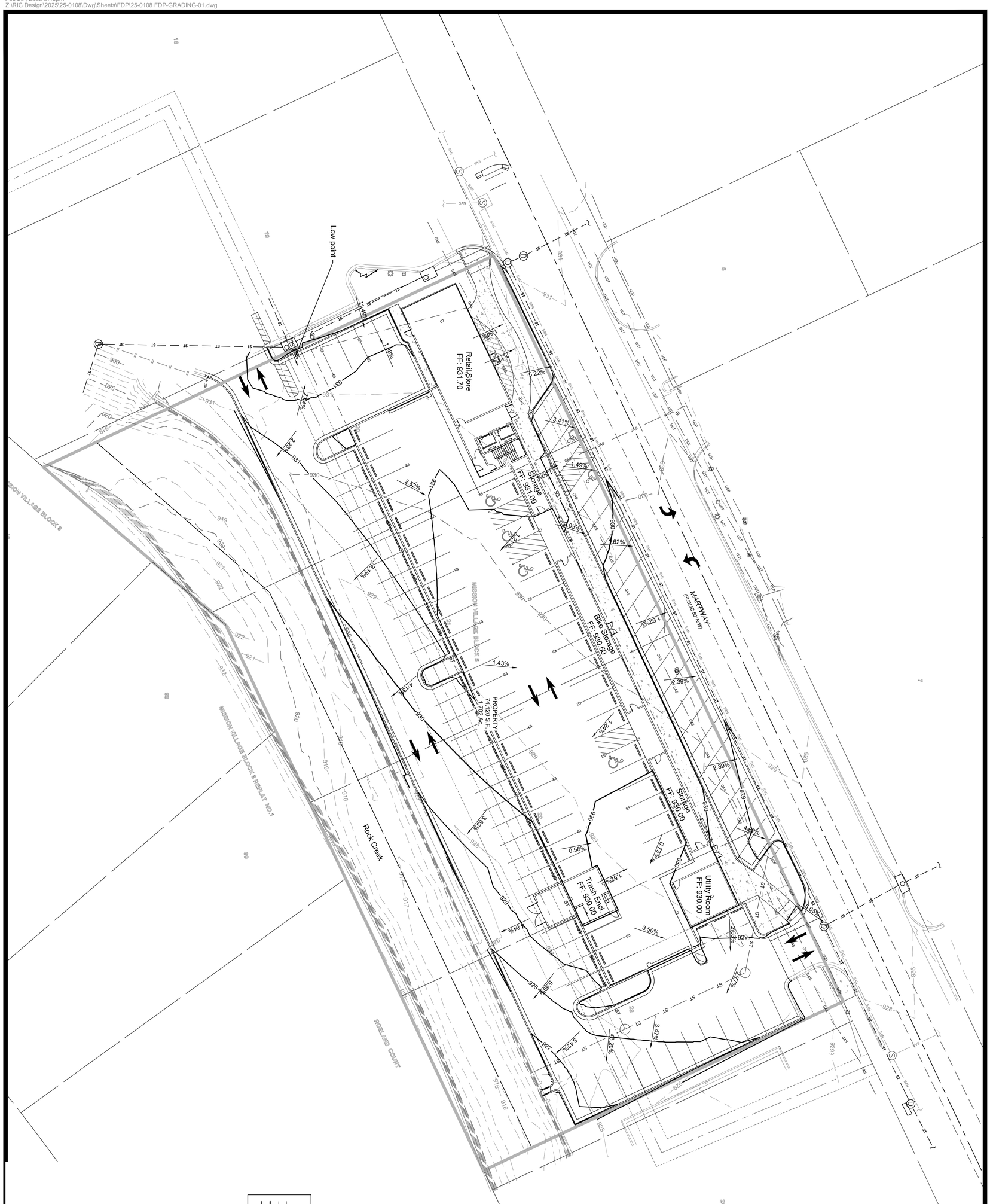

Sheet C06

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Grading Plan

Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

Basin OS1
Area: 0.29 Ac
CN Value: 98
T_C: 6.89

Basin OS2
Area: 0.51 Ac
CN Value: 94
T_C: 5.00

Basin PR1
Area: 0.17 Ac
CN Value: 96
T_C: 5.00

Basin PR2
Area: 0.50 Ac
CN Value: 98
T_C: 5.00

Basin PR3
Area: 0.44 Ac
CN Value: 97
T_C: 5.00

Basin PR4
Area: 0.08 Ac
CN Value: 98
T_C: 5.00

Basin PR5
Area: 0.47 Ac
CN Value: 74
T_C: 5.00

Basin PR6
Area: 0.04 Ac
CN Value: 87
T_C: 5.00

Low point

MARTWAY
(PUBLIC 50' R/W)

MISSION VILLAGE BLOCK 5

MISSION VILLAGE BLOCK 3 REPLAT NO.1

MISSION VILLAGE BLOCK 3

ROELAND COURT

Rock Creek

ZONE AE

FLOODWAY AREA
IN ZONE AE

Contour Legend

- Existing Major Contour
- Existing Minor Contour
- Proposed Major Contour
- Proposed Minor Contour

NORTH

1"=20'
0 10' 20'

Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

Drainage Map

NO.	DATE	REVISION

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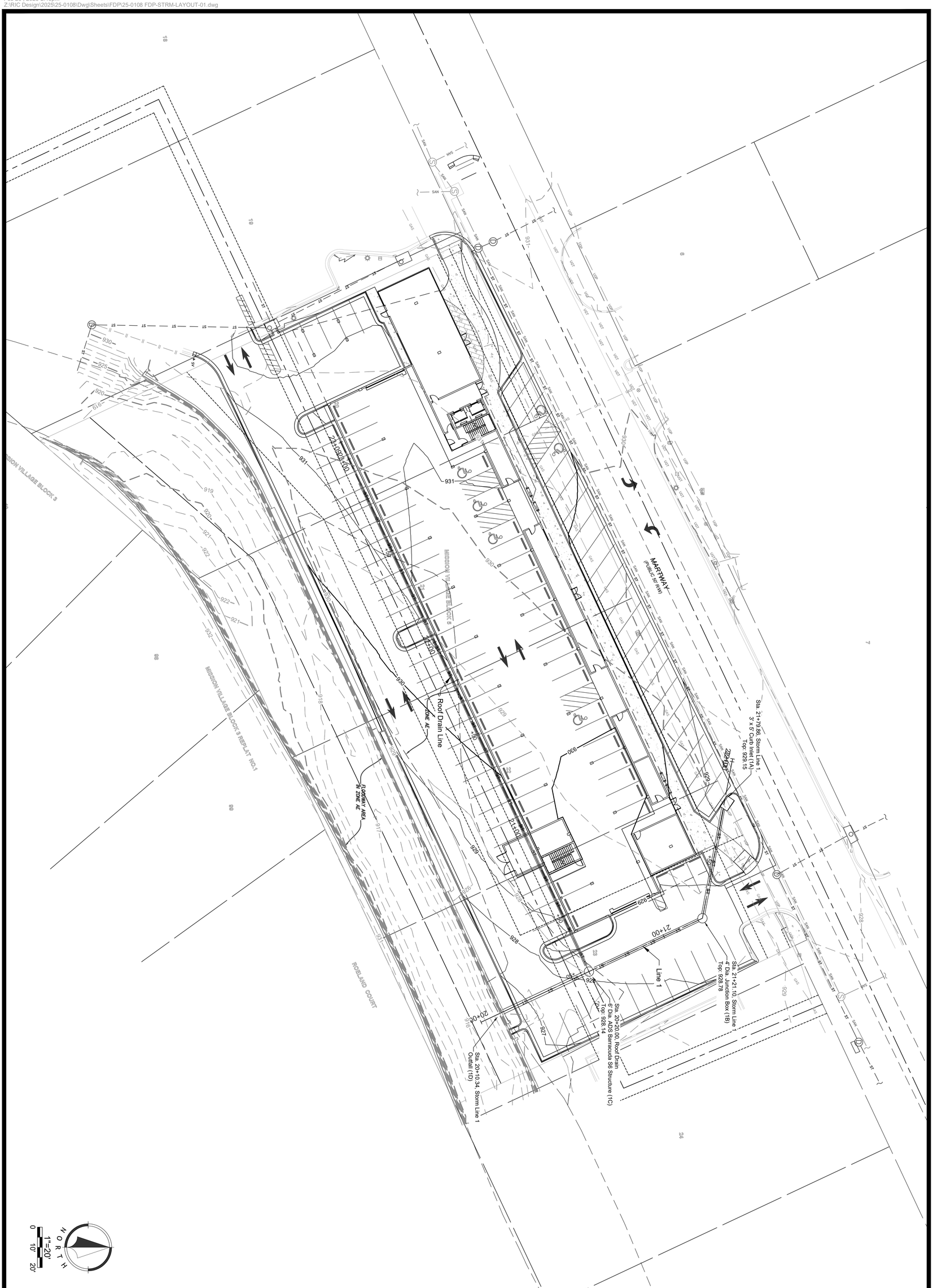

Sheet C08

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NO.	DATE	REVISION

Storm Plan

Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

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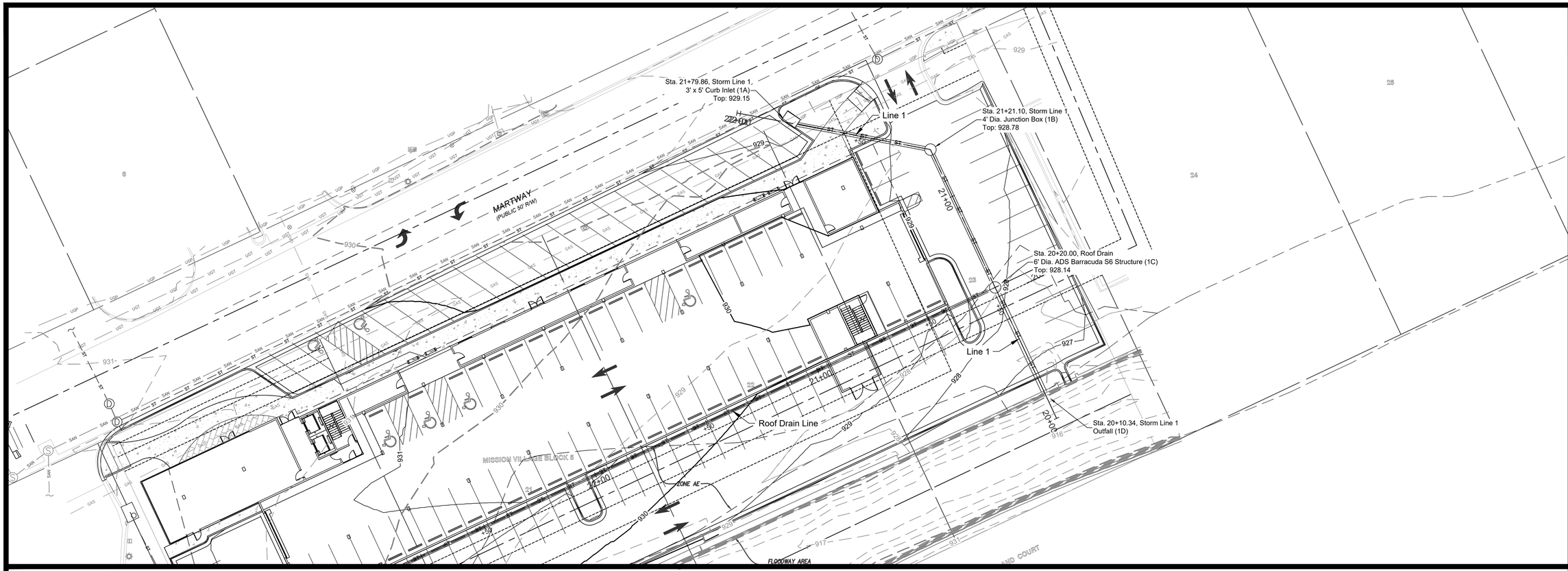

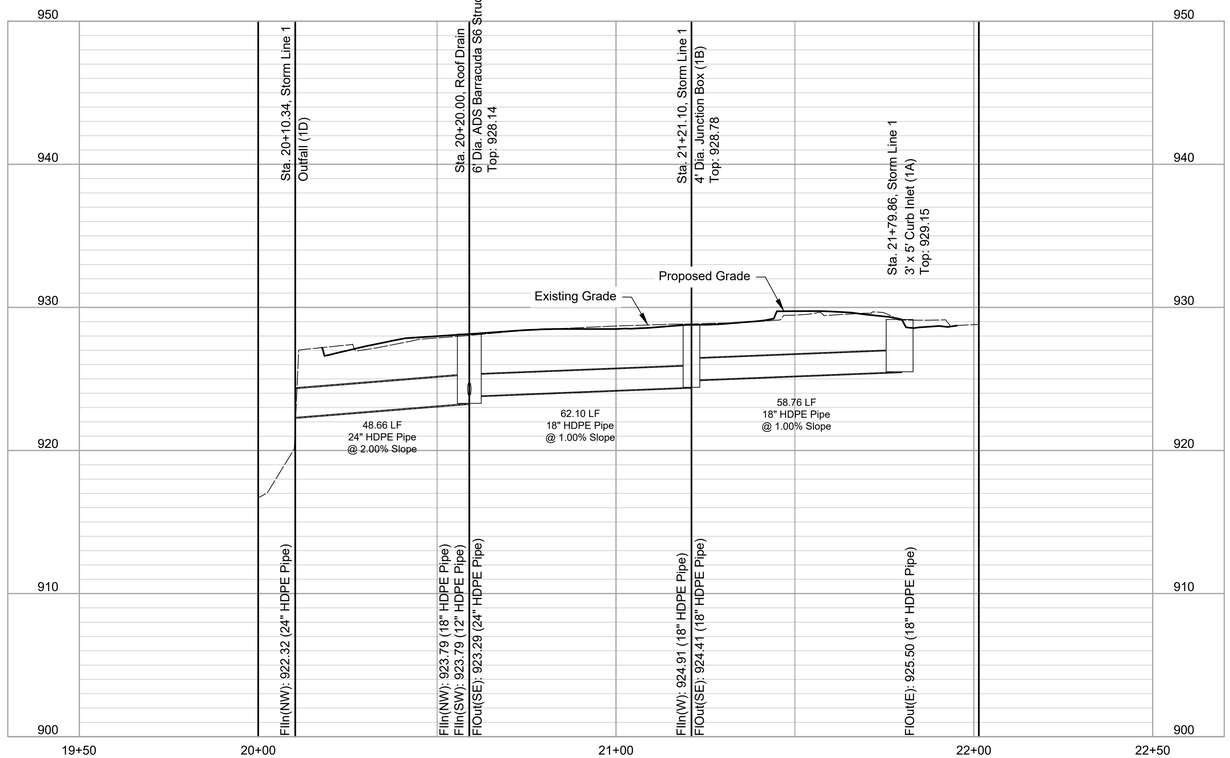

1"=20'

1"=5'

Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

Storm Profile 1

NO.	DATE	REVISION

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Sheet
C09

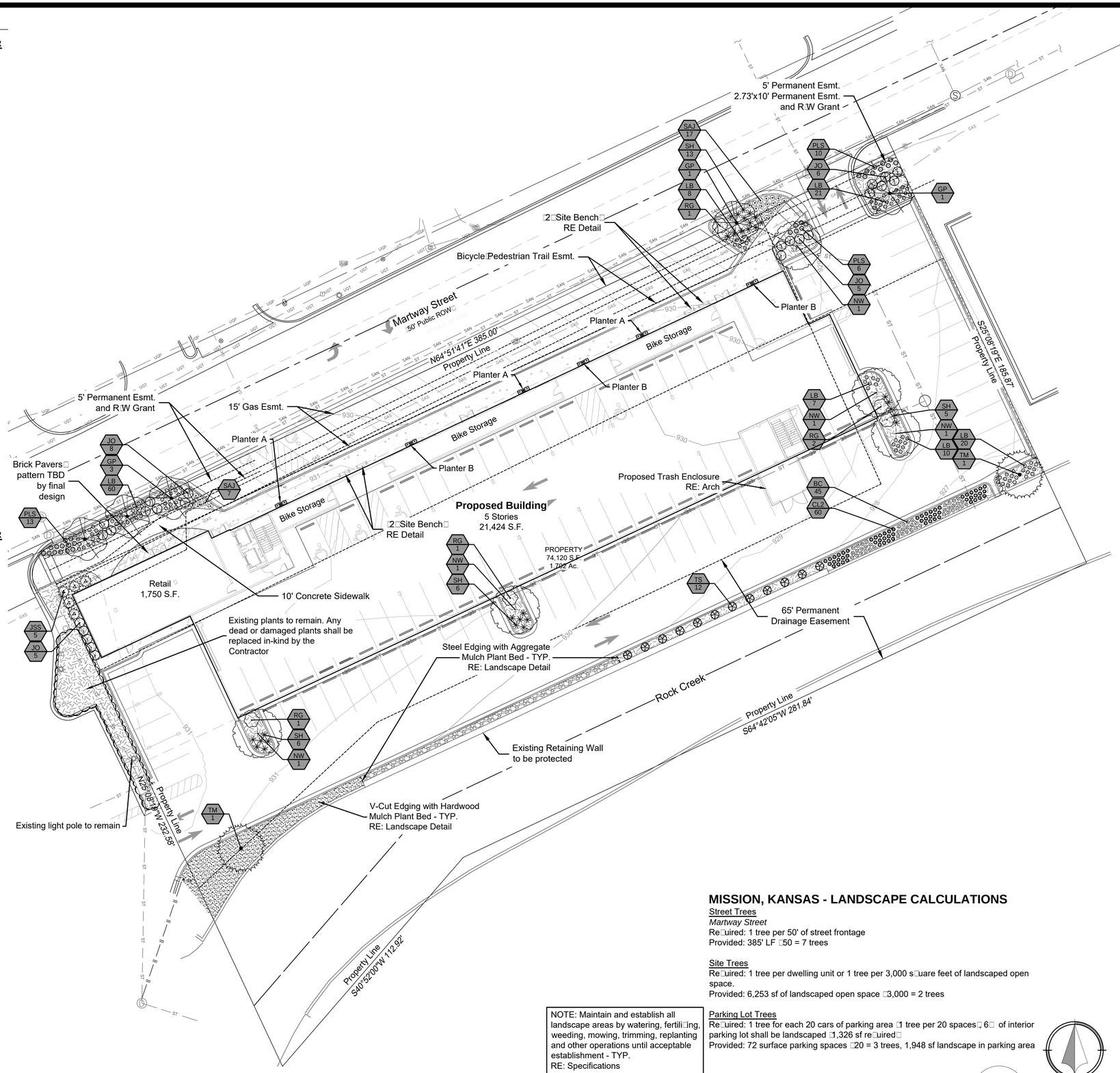
PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER
TREES				
	GP	Ginkgo biloba 'Princeton Sentry' / Princeton Sentry Maidenhair Tree	2" Cal.	B&B
	NW	Nyssa sylvatica 'Wildfire' / Wildfire Tupelo	2" Cal.	B&B
	TM	Taxodium distichum 'Mickelson' TM / Shawnee Brave Bald Cypress	2" Cal.	B&B
	TS	Thuja occidentalis 'Smaragd' / Emerald Green Arborvitae	1" Cal.	B&B
SHRUBS				
	IS	Ilex crenata 'Sky Pencil' / Sky Pencil Japanese Holly	3 gal.	
	JSS	Juniperus scopulorum 'Skyrocket' / Skyrocket Juniper	5' - 6' ht min.	
	JO	Juniperus virginiana 'Grey Owl' / Grey Owl Eastern Redcedar	5 gal.	
	RG	Rhus aromatica 'Gro-Low' / Gro-Low Fragrant Sumac	5 gal.	
GRASSES				
	BC	Bouteloua curtipendula / Side Oats Grama	3 gal.	
	CL2	Chasmanthium latifolium / Northern Sea Oats	3 gal.	
	SH	Sporobolus heterolepis / Prairie Dropseed	3 gal.	
PERENNIALS				
	LB	Liriope muscari 'Big Blue' / Big Blue Lilyturf	1 gal.	
PERENNIALS & ANNUALS				
	PR	Pennisetum setaceum 'Red Riding Hood' / Red Riding Hood Fountain Grass	4" Pot	
	PLS	Perovskia x `Little Spire` / Russian Sage	1 gal.	
	PH	Petunia x hybrida / Petunia	4" Pot	
	SAJ	Sedum x `Autumn Joy` / Autumn Joy Sedum	1 gal.	
	SR	Solenostemon scutellarioides 'UF0646' / Redhead Coleus	4" Pot	

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER
GROUND COVERS				
	AM2	Aggregate Mulch; RE: Notes	MULCH	
	HM	Hardwood Mulch; RE: Notes	MULCH	
	TF	Turfgrass Sod Fescue Mix; RE: Notes / Fescue Sod	SOD	

LANDSCAPE NOTES

1. LOCATE UTILITIES PRIOR TO COMMENCING LANDSCAPE OPERATIONS. ALL TREES SHALL BE FIELD POSITIONED AS TO AVOID CONFLICTS WITH EXISTING AND PROPOSED UTILITIES. NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICTS OR OBSTRUCTIONS.
2. CONTRACTOR SHALL STAKE ALL PLANTING AREAS IN THE FIELD PRIOR TO PLANTING FOR APPROVAL OF THE OWNER OR THEIR REPRESENTATIVE.
3. QUANTITIES SHOWN ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL PLANT QUANTITIES PRIOR TO BIDDING AND SHALL BE RESPONSIBLE FOR ALL QUANTITIES FOR THEIR BID. ANY DISCREPANCIES WITH THE PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. THE PLAN QUANTITIES SHALL SUPERCEDE SCHEDULED QUANTITIES.
4. PLANT SYMBOLS ON LANDSCAPE PLAN ARE SHOWN AT FULL MATURE SIZE. ACTUAL PLANT SIZES AT INSTALLATION MAY BE SMALLER AND SHALL BE THE MINIMUM PLANTING SIZE SPECIFIED IN PLANT SCHEDULE.
5. ALL PLANT MATERIAL SHALL BE SPECIMEN QUALITY AND SHALL COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 THE 'AMERICAN STANDARD FOR NURSERY STOCK'.
6. ALL PLANTING BEDS & NATIVE GRASS STANDS SHALL BE EDGED AS SHOWN IN PLAN.
7. PREPARE PLANTING BEDS AND INCORPORATE AMENDMENTS ACCORDING TO PLANS.
8. SHREDDED HARDWOOD MULCH, PER SPECIFICATIONS SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL PLANTING BEDS AND AROUND ALL TREES. SINGLE TREES AND SHRUBS SHALL BE MULCHED TO THE OUTSIDE EDGE OF THE SAUCER OR LANDSCAPE ISLAND.
9. ALL TREES SHALL BE STAKED PER DETAIL.
10. ALL PLANT MATERIAL SHALL BE INSTALLED TO ALLOW A ONE FOOT (1') CLEARANCE BETWEEN PLANT AND ADJACENT PAVEMENT.
11. THE LANDSCAPE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE SITE IS FREE OF DEBRIS CAUSED BY ON-GOING CONSTRUCTION OPERATIONS. REMOVAL OF DEBRIS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. LANDSCAPE WORK SHALL NOT BEGIN UNTIL THE LANDSCAPE ARCHITECT AND OWNER HAVE GIVEN WRITTEN APPROVAL FOR SUCH. THERE SHALL BE NO DELAYS DUE TO LACK OF COORDINATION FOR THIS ACTIVITY.
12. THE LANDSCAPE ARCHITECT AND OWNER SHALL APPROVE GRADES AND CONDITION OF SITE PRIOR TO SODDING/SEEDING OPERATIONS.
13. ALL AREAS DISTURBED DURING CONSTRUCTION AND NOT DESIGNATED FOR OTHER PLANTINGS OR HARDSCAPE SHALL BE SODDED WITH TURF TYPE FESCUE.
14. ALL LANDSCAPE AREAS SHALL BE IRRIGATED. TURF AREAS SHALL BE IRRIGATED BY SPRAY OR ROTOR. PLANT BEDS SHALL BE IRRIGATED BY DRIP IRRIGATION. IRRIGATION SYSTEM SHALL INCLUDE AUTOMATIC RAIN-SENSOR DEVICE. IRRIGATION SHOP DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR FOR APPROVAL PRIOR TO CONSTRUCTION.
15. ALL DECORATIVE GRAVEL SHALL BE INSTALLED OVER GEOTEXTILE FABRIC (MIRAFI 140N OR APPROVED EQUAL).



NOTE: Maintain and establish all landscape areas by watering, fertilizing, weeding, mowing, trimming, replanting and other operations until acceptable establishment - TYP.
RE: Specifications

MISSION, KANSAS - LANDSCAPE CALCULATIONS

Street Trees
Martway Street
Required: 1 tree per 50' of street frontage
Provided: 385' LF ÷50 = 7 trees

Site Trees
Required: 1 tree per dwelling unit or 1 tree per 3,000 square feet of landscaped open space.
Provided: 6,253 sf of landscaped open space ÷3,000 = 2 trees

Parking Lot Trees
Required: 1 tree for each 20 cars of parking area (1 tree per 20 spaces, 6% of interior parking lot shall be landscaped (1,326 sf required)
Provided: 72 surface parking spaces ÷20 = 3 trees, 1,948 sf landscape in parking area

LANDSCAPE PLAN
Scale: 1" = 20'-0"

A

NORTH
1"=20'
0 10' 20'

Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

Landscape Plan

NO.	DATE	REVISION

DRAWN BY: NF
CHECKED BY: AL

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816.800.0950
www.ric-consult.com
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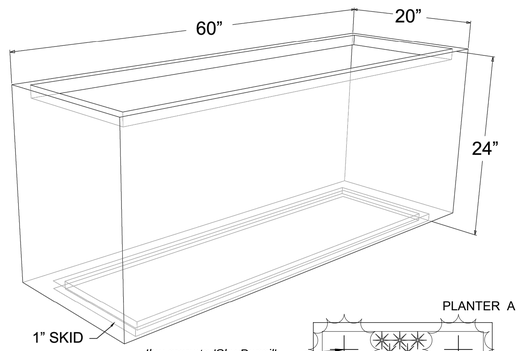
Sheet
L01

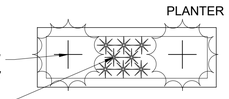
Tall Rectangular Planter - Large

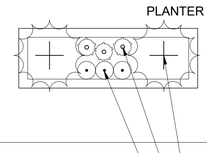
60"L X 20"W X 24"H

Weight - Steel : 128 lbs. Aluminum : 56 lbs.

Capacity : 15.5 cubic feet







995 Governor Dr. #103
El Dorado Hills, CA 95762
866 382-8600
YARDART info@yardart.com

SITE FURNISHINGS

1. PLANTER □Quantity: 6□
   - Model: Tall Rectangular Planter - Large □Or Approved E□ual
   - Finish:Black Powdercoat
   - Si□e: 60" L x 20" W x 24" H
   - Manufacturer: Yard Art
   - Installation: Reference manufacturer specifications
   - Contact:
     - 866-382-8600
     - help□ uni□uegardendecor.com

landscapeforms

TOWNE SQUARE™

Product Data Sheet

The welcoming gesture of a roll back sofa, the comfort of a gently curved seat, and reflections on a traditional park bench meet in Towne Square Designer Brian Kane found the familiar in classic metal strap benches and married that traditional motif with state-of-the-art plasma cutting to create what he calls "craft through technology." Towne Square applies Kane's signature vocabulary of forms, from interior furniture to benches and chairs for the exterior urban environment. It renders robust tubular and sheet steel into graceful furniture with a fluid profile and transparency to the surrounding landscape. Optional perforated steel seats lend Towne Square a contemporary character.

Bench

- Strap and perforated seat styles offered in 32", 49" or 70" lengths.
- One divider is available for the 49" bench; the 70" bench, may be specified with two intermediate dividers.
- A single panel is formed to make a comfortable seat.
- Seating panels are vertical steel straps (1-1/2" x 1/8"), or perforated steel.
- The Towne Square bench comes standard with freestanding glides.
- Bench may be surface mounted with glides in place.

Metal Finishes

- Metal is finished with Landscape Forms' proprietary Pangard II® polyester powdercoat, a hard yet flexible finish that resists rusting, chipping, peeling and fading.
- See standard color chart.

To Specify

- Specify bench length, vertical strap or perforated seat style, with or without center/intermediate dividers, and powdercoat color.

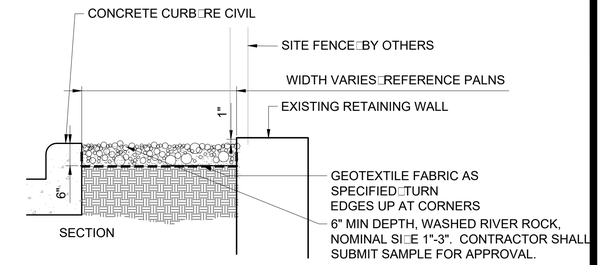
Designed by Brian Kane, IDSA

	STYLE	DEPTH	LENGTH	HEIGHT	PRODUCT WEIGHT
	32"	27"	32"	32"	62 lb
	49"	27"	49"	32"	91 lb
	70"	27"	70"	32"	127 lb
SEAT PANEL		INTERMEDIATE DIVIDER OPTIONS			
Perforated		One		Two	

Landscape Forms, Inc. I 800.521.2546 I F 269.381.3455 I 7800 E. Michigan Ave., Kalamazoo, MI 49048

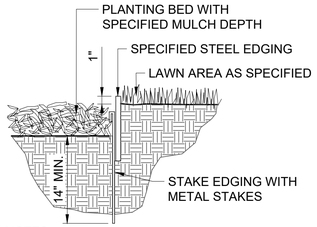
SITE FURNISHINGS

1. Bench □Quantity: 4□
   - Model: "Towne S□uare" w□Strap Seat
   - Finish:Black Powdercoat
   - Si□e: 70" L x 32" H x 27" Depth
   - Manufacturer: Landscape Forms
   - Installation: Reference manufacturer specifications
   - Contact: Stacy Ernst
     - 816.444.4376
     - stacye□ landscapeforms.com



NOTES:
1. SET ALL EDGING 1" ABOVE FINISH GRADE AS SHOWN.
2. EDGING SHALL ABUT ALL CONCRETE CURBS AND WALKS PERPENDICULAR AND FLUSH WITH TOP OF CONCRETE
3. ALL JOINTS SHALL BE SECURELY STAKED
4. CONTRACTOR SHALL CUT TOP EDGES AS NEEDED TO BE PARALLEL WITH GRADE.
5. ALL GRAVEL SHALL BE INSTALLED OVER A GEOTEXTILE FABRIC □MIRAFI 140N OR APPROVED EQUAL□
6. GRAVEL SHALL BE APPROVED BY OWNER PRIOR TO INSTALLATION. FILTER FABRIC SHALL NOT BE VISIBLE AFTER GRAVEL INSTALLATION.

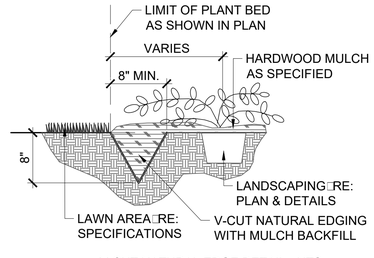
AGGREGATE MULCH DETAIL - NTS



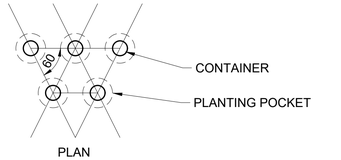
NOTES:
1. EDGING PER SPECIFICATIONS. SET ALL EDGING 1" ABOVE FINISH GRADE □TURF□SURFACE AS SHOWN.
2. EDGING SHALL ABUT ALL CONCRETE CURBS AND WALKS PERPENDICULAR AND FLUSH WITH TOP OF CONCRETE.
3. ALL JOINTS SHALL BE SECURELY STAKED.
4. FINISH SHALL BE POWDER COAT□COLOR: GREEN. CONTRACTOR SHALL SUBMIT COLOR SAMPLE TO OWNERS REPRESENTATIVE PRIOR TO PURCHASE.
5. CONTRACTOR SHALL LOCATE AND MARK ALL PLANT BED LOCATIONS PRIOR TO INSTALLATION OF STEEL FOR FINAL APPROVAL BY OWNER OR LANDSCAPE ARCHITECT.

STEEL EDGING DETAIL - NTS

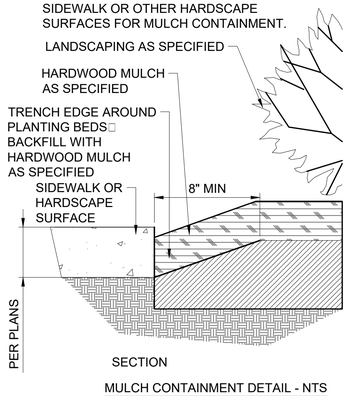
NOTES:
1. CONTRACTOR SHALL LOCATE AND MARK ALL PLANTBED LOCATIONS PRIOR TO EXCAVATING FOR FINAL APPROVAL BY OWNER OR LANDSCAPE ARCHITECT.
2. TRANSITION TO MULCH CONTAINMENT DETAIL AT ALL LOCATIONS ADJACENT TO CURBS & SIDEWALKS. RE: DETAIL, THIS SHEET.
3. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS PRIOR TO TRENCHING OR LANDSCAPE INSTALLATION.



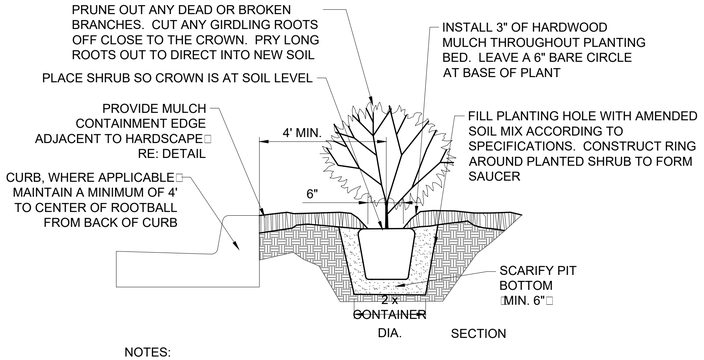
V-CUT NATURAL EDGE DETAIL - NTS



CONTAINER PLANTING DETAIL - NTS



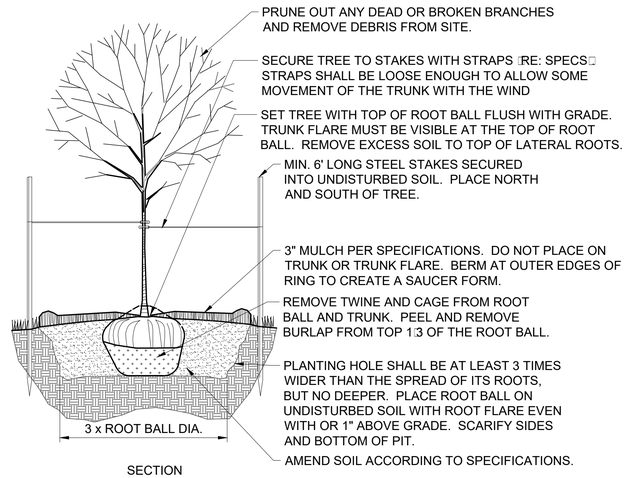
MULCH CONTAINMENT DETAIL - NTS



NOTES:
1. REFER TO SPECIFICATIONS FOR TOPSOIL BACKFILL MIX.
2. CONTRACTOR TO WATER THOROUGHLY AFTER PLANTING
3. INSTALLATION TO BE IN ACCORDANCE WITH PLANTING SPECIFICATIONS
4. WHERE ADJACENT TO CURB, MAINTAIN THE MINIMUM OFFSET SHOWN. FOR SHRUBS LARGER THAN 4' MATURE DIAMETER, PROVIDE A GREATER OFFSET EQUAL TO 1□2 OF THE MATURE DIAMETER MINIMUM.

SHRUB PLANTING DETAIL - NTS

NOTES:
1. TREES THAT DO NOT MEET THE SI□E REQUIREMENT WILL BE REJECTED
2. TREES SHALL BE INSPECTED BY OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.



DECIDUOUS TREE PLANTING DETAIL - NTS

Preliminary/Final Developement Plans

25-0108
The Lanes At Mission Bowl - Phase II
Mission, Johnson County, KS

Landscape Details

NO.	DATE	REVISION

DRAWN BY NF | CHECKED BY AL

Renaissance Infrastructure Consulting
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KANSAS CITY, MISSOURI 64108
816.800.0950
WWW.RIC-CONSULT.COM
MO Certificate of Authority: E-2010033630

Sheet
L02

The Lanes at Mission Bowl - Phase II
Drainage Study
PDP/FDP

Section 09, Township 12 South, Range 25 East

Mission, Johnson Couty, Kansas

1st Submittal: February 2025

Prepared For:

Sunflower Development Group, LLC

1125 Grand Blvd, Suite 202

Kansas City, MO 64106

Contact: Banks Floodman

Prepared By:

Renaissance Infrastructure Consulting

5015 NW Canal St Suite 100

Riverside, MO 64150

Contact: Ashley Cronin, PE

acronin@ric-consult.com

720-702-0090

Table of Contents

I. Project Information

A. Purpose

The purpose of this Drainage Study for The Lanes at Mission Bowl – Phase II is to describe the onsite and offsite drainage patterns, existing and proposed storm infrastructure, and safe routing of developed stormwater to adequate outfalls. This report includes hydrologic and hydraulic calculations, tables, graphs, and exhibits showing drainage basins, routing, and proposed storm improvements.

B. Location

1. *City, County and Local Streets within and Adjacent to the Site*

The Lanes at Mission Bowl – Phase II improvements consist of a mixed-use retail and residential apartment building. The project is located in the City of Mission, Johnson County, Kansas. It is bounded to the north by Martway Street, to the west by The Lanes at Mission Bowl – Phase I, to the east by a Mission Transit Center Park & Ride parking lot, and to the south by Rock Creek.

2. *Township, Range and Section*

The Lanes at Mission Bowl – Phase II is within Section 09, Township 12 South, Range 25 East.

3. *Site location map*

A location map is presented in Appendix A.

C. Description of Property

1. *Proposed Development*

The Lanes at Mission Bowl – Phase II property is approximately 1.7 total acres. The proposed development consists of a mixed-use retail and residential apartment building, along with associated parking and walks.

2. *Existing topography, vegetation and drainage*

The site currently consists of an existing parking lot with minimal existing landscape. The site generally drains from west to east, and then south through an existing concrete flume and uncontrolled into Rock Creek. On site elevations range from 931'-927' with an approximate slope of 1 percent.

There are no wetlands located on the site.

On the south side of the site, Rock Creek flows from west to east.

3. *Floodplain Information*

The property is located within the 100-year flood plain. The FIRM map included in Appendix B was revised to reflect a Letter of Map Revision (LOMR), effective September 14, 2022. The map shows the base flood elevations through the site ranging from 930.0 on the west side of the site, to 927.8 on the east side of the site.

A new LOMR process is in progress with the site improvements to limit the floodplain and floodway to the southern proposed parking area on the south end of the site. The model has been received from FEMA and coordination is ongoing. Updated information will be included as design progresses.

4. *Soils*

The USDA Natural Resources Conservation Service Web Soil survey was consulted to approximate site soil conditions. Soil types found on site are shown in Table 1 below. See Appendix B for the Soil Map.

Table 1: Site Soil Conditions			
Map Unit Symbol	Map Unit Name	HSG	Percent of Site Area
7545	Sharpsburg-Urban land complex, 4 to 8 percent slopes	C	100.0%

II. Drainage Design Criteria

A. Development Criteria Reference

This Final Drainage Report is based on the criteria set forth in the following reference manuals:

- APWA Section 5600 – Storm Drainage Systems and Facilities, adopted August 2005, by the Kansas City Metropolitan Chapter of the American Public Works Association (APWA)
- Section 5100 – Erosion and Sediment Control, adopted August 2003, by the Kansas City Metropolitan Chapter of the APWA
- Manual of Best Management Practices for Stormwater Quality (August 2009), MARC
- SCS (now NRCS) Technical Release No. 55 "Urban Hydrology for Small Watersheds" (2nd Edition, June 1986)
- The Lanes at Mission Bowl – Phase I – Mission Bowl Apartments Final Development Plan Stormwater Report, 2021, UHL Engineering, Inc.

B. Hydrologic Criteria

1. *Design Rainfall*

Runoff calculations were performed using the Type II 24-hour storm distribution for 1% (100 year), 10% (10 year) and 100% (1 year) annual probability storm events. Rainfall values used in this study are included in Table 2 below. The NOAA Rainfall data is included in Appendix C.

Table 2: Rainfall Values		
Return Period (Year)	Design Storm (%)	Rainfall Depth (in)
1	100%	3.08
10	10%	5.50
100	1%	8.85

2. *Runoff Calculation Method*

Pre and post development runoff was determined using the curve number method described in SCS (now NRCS) Technical Release No. 55 "Urban Hydrology for Small Watersheds" (2nd Edition, June 1986) as specified in APWA Section 5602.2B. Curve numbers (CN) used in the TR55 analysis were taken from Table 4.1 of the APWA MARC BMP Manual (August 2009).

III. Existing Conditions Analysis

The existing site is composed of two sub-basins and consists mostly of an existing parking lot. A map of the existing sub-basins is presented in Appendix H.

The existing curve numbers, time of concentration values, and basin flow descriptions used for this analysis are provided in Table 3 below.

Table 3: Existing Condition Analysis

Sub-Basin	Area (ac)	CN	Time of Concentration (min)	Basin Description
OS1	0.29	98	6.89	Basin is comprised of the southeast portion of Martway Street. Flows are captured at an existing inlet and routed to Rock Creek.
OS2	0.51	94	5.00	Basin is comprised of a portion of the Mission Bowl Apartments Phase I site. Flows are captured at an existing inlet and routed to Rock Creek.
EX1	1.11	96	5.39	Basin is comprised of an existing parking lot with minimal landscaping. Flows drain to the east and into a concrete flume that conveys flows uncontrolled into Rock Creek.
EX2	1.12	89	7.42	Basin is comprised of the entrance drives to the parking lot, some streetscape, and curb and gutter on the south side of Martway Street. Flows are captured by the curb and gutter in Martway Street and conveyed to the east and offsite.

Table 4 below summarizes the peak outflow from each design storm in the existing condition at the outfall point.

Table 4: Existing Peak Outflow

Outfall Description	Q_1 (cfs)	Q_{10} (cfs)	Q_{100} (cfs)
Ex_MBA_PH1_Rock_Creek_Outfall	0.00	0.00	0.00
Ex_MBA_PH2_Rock_Creek_Outfall	4.32	7.78	12.67
Ex_Martway St_Rock_Creek_Outfall	3.26	6.17	10.20

Detailed results of this analysis can be found in Appendix D.

IV. Proposed Conditions Analysis

The developed site has seven sub-basins. A map of the proposed sub-basin is presented in Appendix H.

Table 5 provides a summary of the results of the proposed conditions analysis. Detailed results of this analysis can be found in Exhibit G.

Table 5: Proposed Condition Analysis

Sub-Basin	Area (ac)	CN	T_C (min)	Basin Description
OS1	0.29	98	6.89	Basin is comprised of the southeast portion of Martway Street. Flows will be captured by Inlet 1A and routed through a hydrodynamic separator and into Rock Creek.
OS2	0.51	94	5.00	Basin is comprised of a portion of the Mission Bowl Apartments Phase I site. Flows will be captured by Inlet 1A and routed through a hydrodynamic separator and into Rock Creek.
PR1	0.17	96	5.00	Basin is comprised of street parking and sidewalk between Martway Street and the new building. Flows will be captured by Inlet 1A and routed through a hydrodynamic separator and into Rock Creek.
PR2	0.50	97	5.00	Basin is comprised of the Mission Bowl Apartments Phase II Building. Flows from the building drain to the south and into the roof drain connection. Flows will be routed through the hydrodynamic separator and into Rock Creek.
PR3	0.44	98	5.00	Basin is comprised of the parking area in the south and east side of the building. Flows will drain directly to Rock Creek.
PR4	0.08	98	5.00	Basin is comprised of parking area on the west side of the building. Flows will be captured by an inlet and routed through the hydrodynamic separator that was installed with The Lanes at Mission Bowl – Phase I improvements and into Rock Creek.
PR5	0.04	87	5.00	Basin is comprised of the eastern entry drive to the site. Flows will drain into Martway Street, where it will be captured by and existing inlet and released into Rock Creek.

Basin PR4 will drain west and into the The Lanes at Mission Bowl – Phase I improvements. The existing inlet Structure A-2 will be extended to the Mission Bowl Apartments Phase II side. Flows will drain through the inlet and into the existing 24" HDPE, through Structure A-3, the 5' Barracuda S6 Structure, and into Rock Creek. Excerpts from the Phase I Stormwater Report are included in Appendix B, showing the existing system has the capacity to handle the additional flow from this basin. A summary is included in Table 6 below:

Table 6: Basin PR4 Summary				
100-Yr Storm Design	Existing Flow (cfs)	Proposed Flow (cfs)	Total Combined Flow (cfs)	Pipe Capacity (cfs)
Mission Bowl Apartments Phase I 24" HDPE	21.72	0.97	22.69	27.62

Table 7 below summarizes the peak outflow from each design storm in the proposed condition at the outfall point.

Table 7: Proposed Peak Outflow			
Outfall Description	Q_1 (cfs)	Q_{10} (cfs)	Q_{100} (cfs)
MBA_PH1_Rock_Creek_Outfall	0.33	0.60	0.97
MBA_PH2_Rock_Creek_Outfall	7.22	13.23	21.49
Martway_St_Rock_Creek_Outfall	0.05	0.16	0.33

Detailed results of this analysis can be found in Appendix E.

V. Floodplain Analysis

A new LOMR process is in progress with the site improvements to limit the floodplain and floodway to the southern proposed parking area on the south end of the site. The model has been received from FEMA and coordination is ongoing. Updated information will be included as design progresses.

Floodplain Analysis calculations and results will be included with this report in Appendix F when available.

VI. Water Quality, Level of Service, and Value Rating

The level of service calculations are provided in Appendix G. The existing site had a curve number of 95, while the proposed site has a curve number of 96.

Due to site constraints and to keep the building outside of the 100-year floodplain, basins OS1 and OS2 (previously drained to an existing inlet on Martway Street and into Rock Creek), will now be captured and released with the onsite flows. This totals 0.80 acres of flow that will be routed through a hydrodynamic separator to help with water quality, providing a level of service of 5.

With this offsite area, a total of 1.47 acres will be treated by the hydrodynamic separator. An ADS Barracuda S6 has been selected to be used for stormwater treatment. The device is sized to treat the "first flush" treatment value. Additional runoff will bypass the treatment area and continue to Rock Creek. The system should be inspected for maintenance every 2-3 years. ADS Barracuda S6 information is included in Appendix G.

Additionally, an additional 0.08 acres from Basin PR4 will be routed through the existing ADS Barracuda that was installed with The Lanes at Mission Bowl – Phase I project.

Compared to the existing conditions, where 1.23 acres drained uncontrolled into Rock Creek, the proposed improvements for The Lanes at Mission Bowl – Phase II will be treating 1.55 acres and reducing the uncontrolled runoff to 0.48 acres.

VII. Site Outfall Summary

As discussed in the previous section, the proposed improvements are taking on additional flows from Martway Street and The Lanes at Mission Bowl – Phase I, and therefore reducing flows going to the existing inlet on Martway Street that eventually drains to Rock Creek. The flows being rerouted are also going to be treated in a hydrodynamic separator to help with water quality.

The flows in the existing condition that will now be routed through The Lanes at Mission Bowl – Phase II are summarized below:

Table 8: Martway Street Flow Comparison

Basin	Storm Event Outfall Rate (cfs)	Flow
OS1	Q_1	0.35
	Q_{10}	1.12
	Q_{100}	3.19
OS2	Q_1	0.65
	Q_{10}	2.11
	Q_{100}	5.87

Table 9 provides a summary of the pre vs. post development release rates from the overall site. Detailed results of this analysis can be found in Appendix D and E.

Table 9: Peak Outflow Comparison

Outfall Description	Storm Event	Existing Conditions Flow Rate (cfs)	Proposed Conditions Flow Rate (cfs)	Δ (cfs)
MBA_PH1_Rock_Creek_Outfall	Q_1	0.00	0.33	+ 0.33
	Q_{10}	0.00	0.60	+ 0.60
	Q_{100}	0.00	0.97	+ 0.97
MBA_PH2_Rock_Creek_Outfall	Q_1	4.32	7.22	+ 2.90
	Q_{10}	7.78	13.23	+ 5.45
	Q_{100}	12.67	21.49	+ 8.82
Martway_St_Rock_Creek_Outfall	Q_1	3.26	0.05	- 3.21
	Q_{10}	6.17	0.16	- 6.01
	Q_{100}	10.20	0.33	- 9.87

VIII. Summary and Conclusions

The storm drainage design of The Lanes at Mission Bowl – Phase II has a slight increase in imperviousness. Following 5601.3 from APWA Section 5600, the site is excluded from the general requirements based on the site being improved, less than 2 acres of area, and an increase in imperviousness of less than 10 percent. Impervious calculations are provided in Appendix C.

Water quality is proposed with site improvements to minimize any downstream impacts. The level of service for this pre-developed site is 0, but a hydrodynamic separator is proposed, providing a level of service of 5.

No negative impacts on downstream properties, channel depths, velocities, and erosion rates, or regional detention facilities are expected.

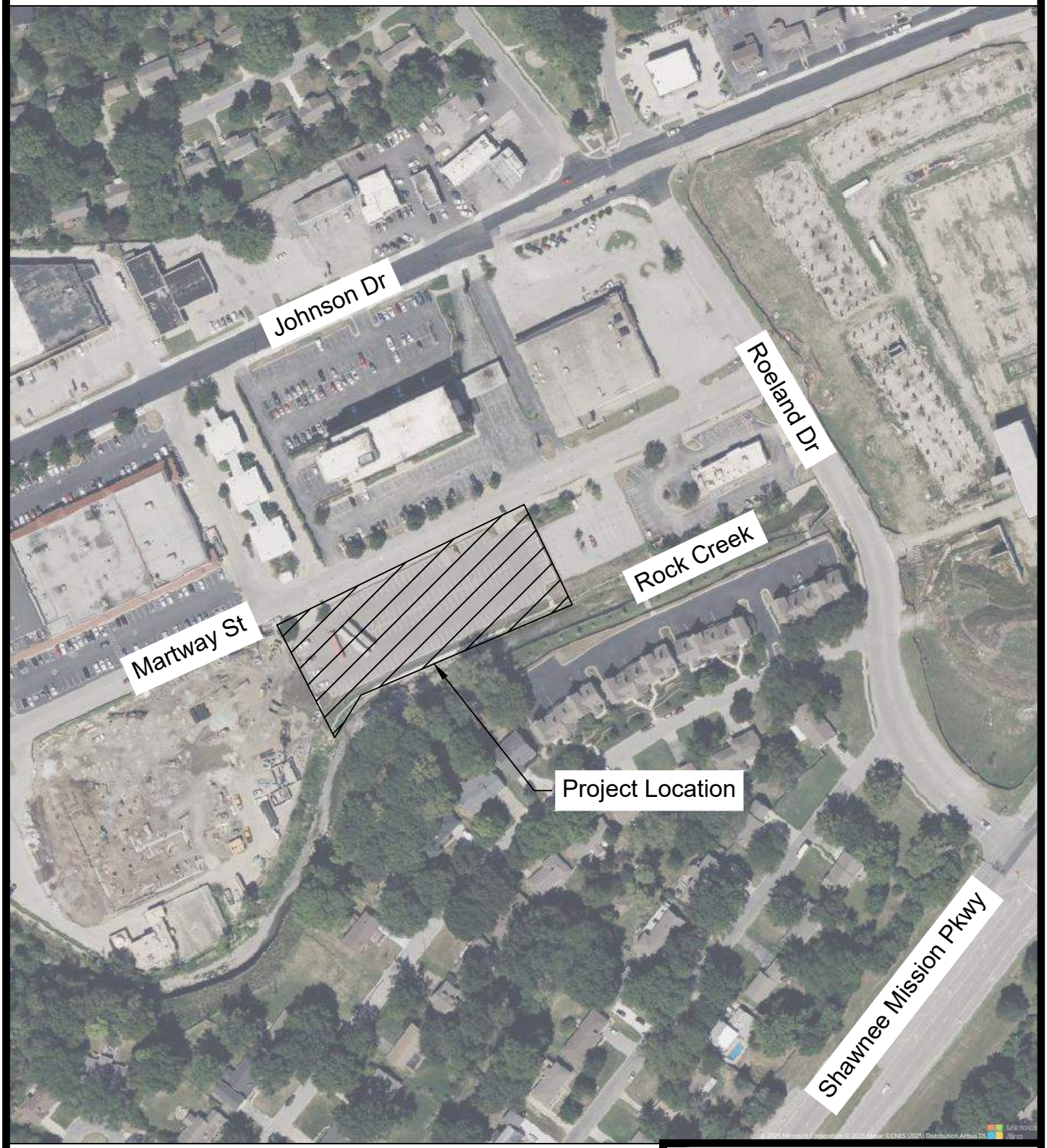
IX. Appendices

A. Site Location Map
B. References
C. Hydrology and Hydraulics
D. Existing Conditions Analysis
E. Proposed Conditions Analysis
F. Floodplain Analysis
G. Water Quality, Level of Service, and Value Rating
H. Existing and Proposed Drainage Maps

Appendix A
Site Location Map

Project Location Map

Exhibit A



Scale: 1" = 200'

Sheet 1 of 1
25-0108
Prepared: 02 17 2025

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Riverside, Missouri 64150
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Appendix B
References

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Mission Johnson County Kansas	CHANNELIZATION	1D HYDRAULIC ANALYSIS FLOODWAY UPDATED TOPOGRAPHIC DATA
	COMMUNITY NO.: 200170		
IDENTIFIER	Rock Creek in Mission, Kansas	APPROXIMATE LATITUDE & LONGITUDE: 39.022, -94.646 SOURCE: Other DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 20091C0024G DATE: August 3, 2009	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: August 03, 2009 PROFILE: 344P FLOODWAY DATA TABLE: 6

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map

FLOODING SOURCE(S) & REVISED REACH(ES)

Rock Creek – from approximately 1,450 feet downstream of confluence with Rock Creek Tributary F to the confluence with Rock Creek Tributary F

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Rock Creek	BFEs*	BFEs	YES	YES
	Floodway	Floodway	YES	YES
	Zone AE	Zone AE	YES	YES

* BFEs – Base (1-percent-annual-chance) Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at https://www.fema.gov/flood-insurance.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

21-07-1200P 102-I-A-C

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at https://www.fema.gov/flood-insurance.

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Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Catherine Sanders
Director, Mitigation Division
Federal Emergency Management Agency, Region VII
9221 Ward Parkway, Suite 300
Kansas City, MO 64114-3323
(816) 283-7003

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at https://www.fema.gov/flood-insurance.

Patrick “Rick” F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below, and through FEMA's Flood Hazard Mapping website at https://www.floodmaps.fema.gov/fhm/bfe_status/bfe_main.asp

LOCAL NEWSPAPER

Name: *The Legal Record*

Dates: May 10, 2022 and May 17, 2022

Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426. Additional Information about the NFIP is available on our website at https://www.fema.gov/flood-insurance.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION				
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	EXISTING CONDITIONS (FEET NAVD)	FUTURE CONDITIONS (FEET NAVD)	EXISTING CONDITIONS WITHOUT FLOODWAY (FEET NAVD)	EXISTING CONDITIONS WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
ROCK CREEK (CONTINUED)									
H	10,977[1]	60	432	10.4	927.8	*	927.8	927.8	0.0
I	12,294[1]	52	378	8.3	935.7	*	935.7	935.7	0.0
J	13,674[1]	137	426	6.1	948.0	*	948.0	928.0	0.0
K	15,110[1]	39	167	12.5	956.9	*	956.9	957.0	0.1
ROCK CREEK TRIBUTARY A									
A	605[2]	90	738	2.0	893.0	*	893.0	893.4	0.4
B	1,672[2]	54	102	7.7	902.4	*	902.4	902.5	0.1
C	2,716[2]	83	138	3.6	924.5	*	924.5	924.7	0.2
ROCK CREEK TRIBUTARY B									
A	1,008[2]	25	30	5.6	913.9	*	913.9	914.0	0.1
B	1,667[2]	17	25	6.7	932.2	*	932.2	932.6	0.4
ROCK CREEK TRIBUTARY D									
A	322[3]	36	100	6.9	932.8	*	932.8	932.8	0.0
B	916[3]	60	212	3.3	944.5	*	944.5	945.1	0.6
C	2,208[3]	98	312	2.2	961.1	*	961.1	961.5	0.4

REVISED DATA

[1]Feet above confluence with Brush Creek
[2]Feet above confluence with Rock Creek
[3]Feet above West 55th Street
*Data not available

REVISED TO REFLECT LOMR EFFECTIVE: September 14, 2022

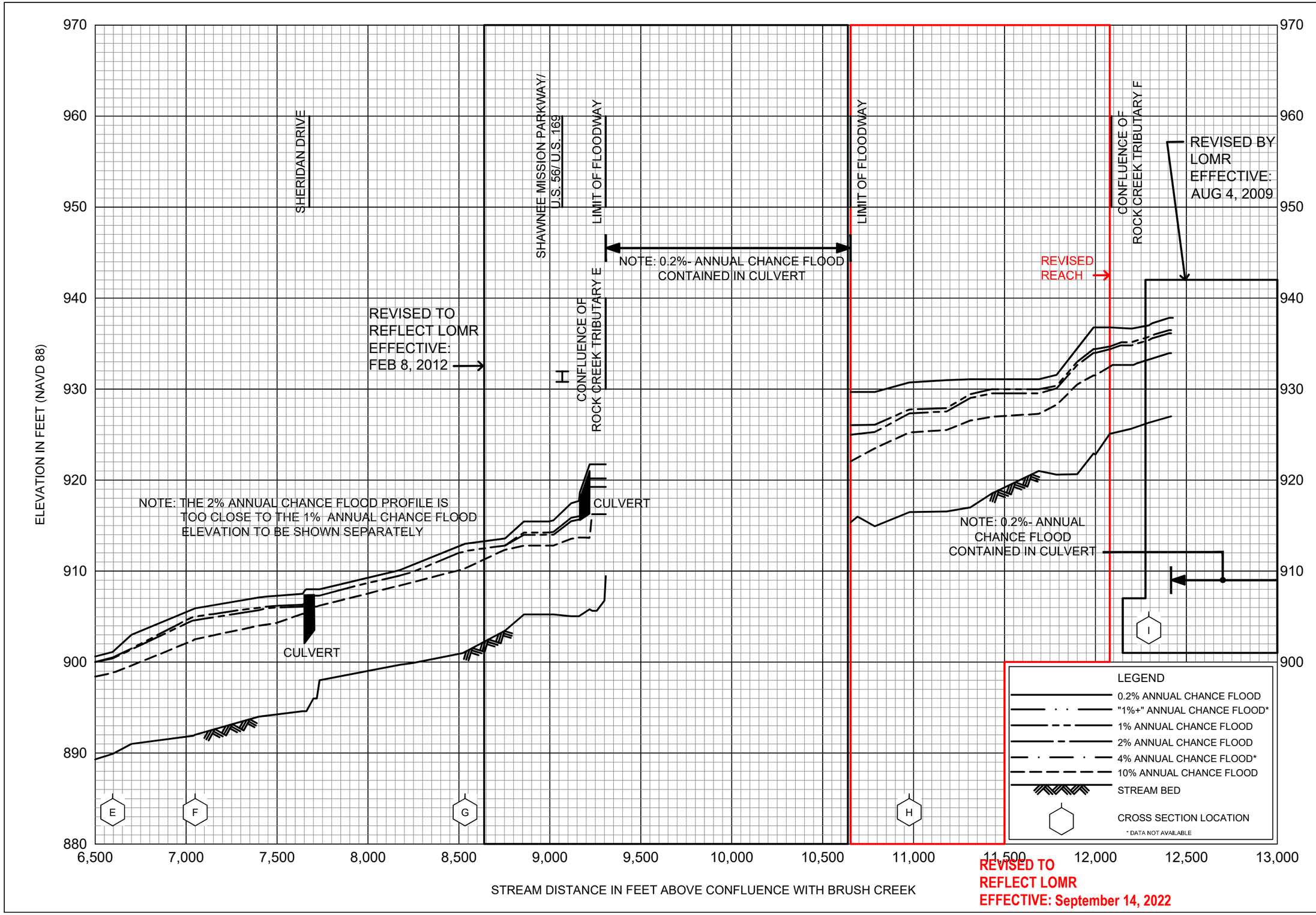
TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, KS
AND INCORPORATED AREAS

FLOODWAY DATA

ROCK CREEK – ROCK CREEK TRIBUTARY A – ROCK CREEK TRIBUTARY B – ROCK CREEK TRIBUTARY D



REVISED TO
REFLECT LOMR
EFFECTIVE: September 14, 2022

FLOOD PROFILES

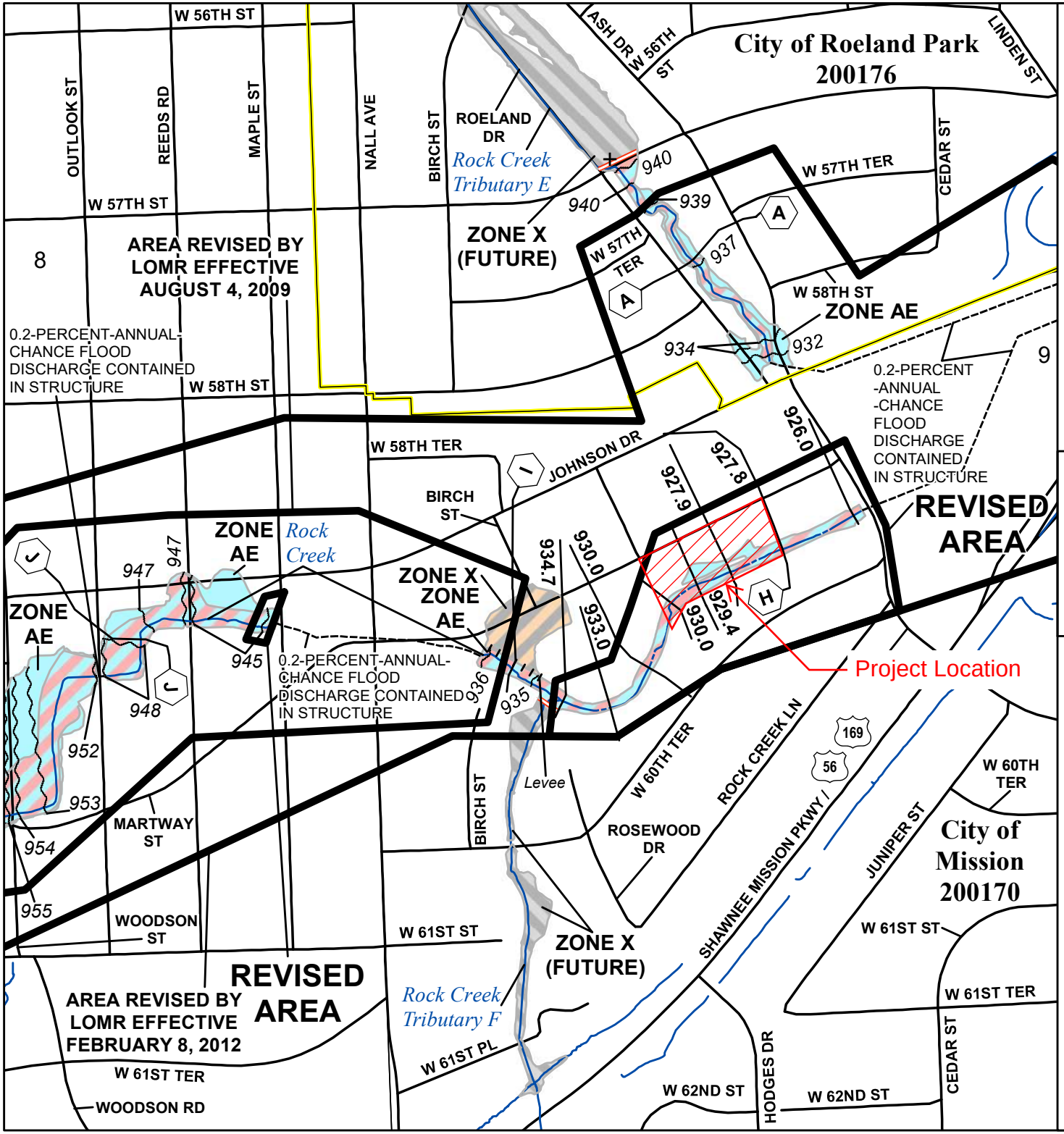
ROCK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

JOHNSON COUNTY, KS

AND INCORPORATED AREAS

344P



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 25 EAST.

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) *Zone A,V, A99*
		With BFE or Depth *Zone AE, AO, AH, VE, AR*
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
		Future Conditions 1% Annual Chance Flood Hazard *Zone X*
		Area with Reduced Flood Risk due to Levee See Notes. *Zone X*

SCALE

Map Projection:
NAD 1983 StatePlane Kansas North FIPS 1501 Feet;
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 75 150 300 Meters

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

JOHNSON COUNTY, KANSAS
and Incorporated Areas

PANEL 24 OF 161

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
FAIRWAY, CITY OF	205185	0024	G
MISSION, CITY OF	200170	0024	G
MISSION HILLS, CITY OF	200171	0024	G
OVERLAND PARK, CITY OF	200174	0024	G
PRAIRIE VILLAGE, CITY OF	200175	0024	G
ROELAND PARK, CITY OF	200176	0024	G

REVISED TO REFLECT LOMR EFFECTIVE: September 14, 2022

VERSION NUMBER
2.1.3.0

MAP NUMBER
20091C0024G

MAP REVISED
AUGUST 3, 2009

Hydrologic Soil Group—Johnson County, Kansas
(Mission Bowl Apartments)

Map Scale: 1:770 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Johnson County, Kansas
Survey Area Data: Version 23, Sep 5, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 30, 2022—Sep 16, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7545	Sharpsburg-Urban land complex, 4 to 8 percent slopes	C	1.4	100.0%
Totals for Area of Interest			**1.4**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher


N
Johnson Dr
Martway St
60th Ter
Rock Creek Ln
Roeland Dr
Shawnee Mission Pkwy
Shawnee Mission Pkwy
56
169
60th St
0
100
200ft
©2025 Johnson Co. AIMS - aims.jocogov.org

STORMWATER REPORT

FINAL DEVELOPMENT PLAN

Site Improvements
Mission Bowl Apartments
5399 Martway Street
Mission, Johnson County, Kansas

Prepared By:

Uhl Engineering, Inc.
4121 West 83rd Street, Suite 156
Prairie Village, Kansas 66208

Prepared For:

Mission Bowl Apartments, LLC.
1125 Grand Blvd #202
Kansas City, Mo 64106
Attn: Jason Swords

UHL ENGINEERING, INC.
4121 West 83rd Street, Suite 156 • Shawnee Mission, Kansas 66208
(913) 385-2670 • Fax (913) 385-2671

May 14, 2021
Revised: June 10th 2021

The proposed site improvements would decrease the amount of impervious area on the site. Landscaping and added recreational features will aid in lower the site impervious area.

The one of the existing catch basins along the north curb line will be modified and utilized to capture flow from the northern portion of the property and maintain the flow to the Martway storm sewer.

The east existing catch basin will be removed, the line will be terminated at the junction structure in the right of way.

A private stormwater system is part of the proposed site improvements. Downspouts from the proposed apartment building and inlets in the parking area will be routed to the private stormwater system, discharging to Rock Creek at the southeast part of the site.

H. PROPOSED STORMWATER TREATMENT

Stormwater Treatment was calculated by using Worksheet 1A (MARC BMP Manual 2012). The proposed site improvements would decrease the amount of impervious surface area on site (ATTACHMENT F). A level of service on 3.14 is proposed for the site. This would meet the required calculated level of service for this development.

The City of Mission has requested that an element of stormwater treatment be included with the site improvements. Stormwater treatment improvements will capture pollutants & contaminates and improve stormwater quality.

An inline hydrodynamic separator devise will be incorporated within the private stormwater drainage system. The system was sized to treat the parking area on the south of the property that will flow through a private storm system and discharge into Rock Creek.

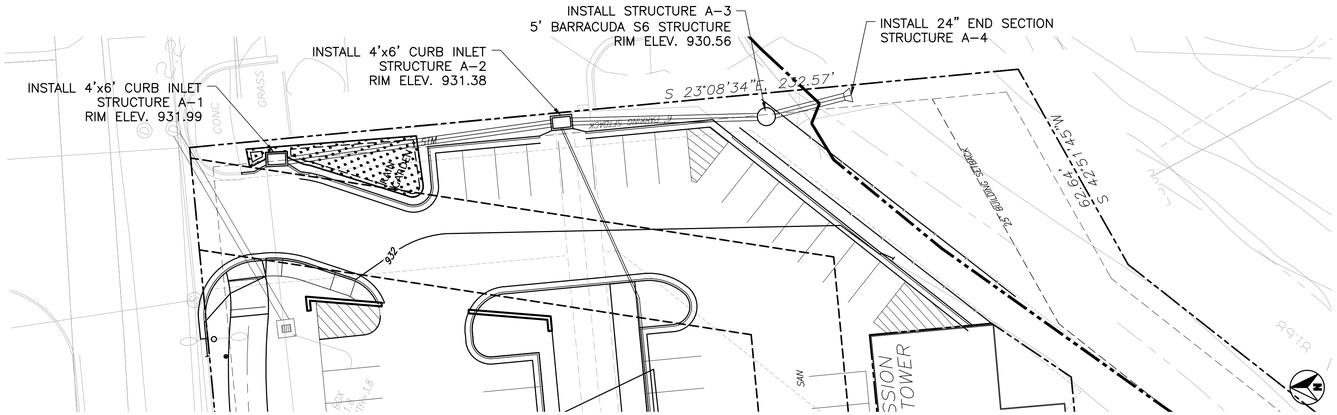
An ADS Barracuda S6 has been selected to be used for stormwater treatment on this site. This devise was sized to treat the "first flush" treatment value. Additional runoff will bypass the treatment area and continue down the system (ATTACHMENT G). The system should be inspected for maintenance every 2-3 years, see ATTACHMENT G for details.

A non-structural BMP will also be added to the north east corner of the site, near the eastern Martway entrance. A Rain garden will be added as part of a stormwater treatment trail. The raingarden sizing calculations can be found at Attachment G.

I. FLOOD CONTROL DETENTION

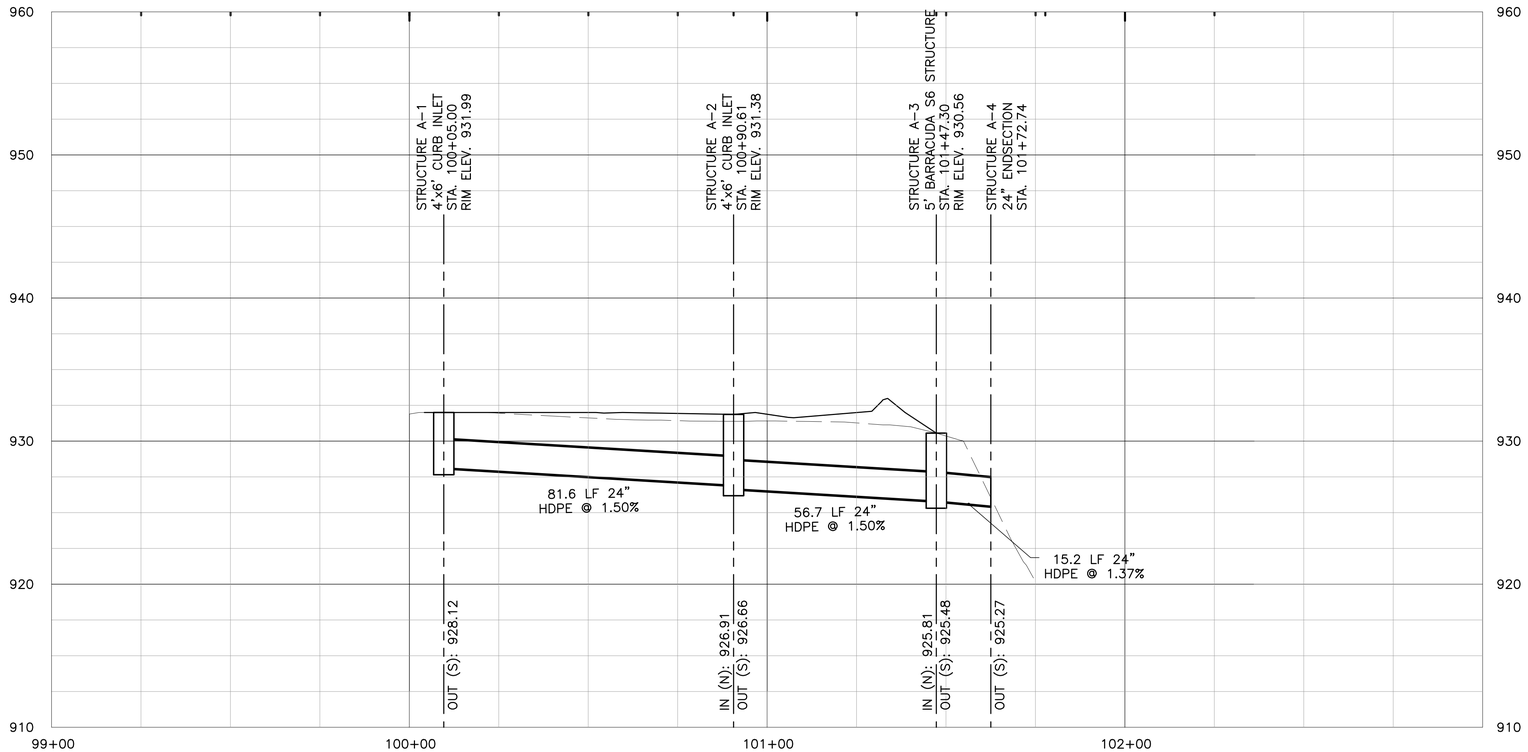
- Under the existing conditions, the composite curve number (CN) value is 95.4*, and the entire site flows uncontrolled.
- The overall site impervious area will decrease. Proposed pervious surface areas include the addition of a dog park, pocket park and site landscaping.
- Under the proposed conditions, the composite curve number (CN) value decreases to 93.0* due to the added recreational site improvements and decreased pavement on site.

** weighted 'CN' calculations found in ATTACHMENT H*



STORM SEWER PLAN

SCALE: 1" = 20'-0"



STORM SEWER PROFILE LINE A

SCALE: 1" = 20'-0"

Max flow from Phase I in 100-yr

STORM SEWER DESIGN

STRUCTURE	I. RUNOFF									II. PIPE DESIGN														REMARKS
	INCREMENTAL			CUMULATIVE		TIME OF CONCENTRATION "T_c" (MIN)	RAINFALL INTENSITY "I_{10} / I_{100}" (IN/HR)	ANTECEDENT PRECIPITATION FACTOR "K_{10} / K_{100}"	RUNOFF "Q_{10} / Q_{100}" (CFS)	STRUCTURE				DIAMETER "D" (IN)	LENGTH "L" (FT)	UPSTREAM INVERT ELEVATION	DOWNSTREAM INVERT ELEVATION	SLOPE "S" (%)	TRAVEL TIME IN PIPE T_T (MIN)	UPSTREAM STRUCTURE HGL ELEVATION	UPSTREAM STRUCTURE EGL ELEVATION	VELOCITY AT DESIGN FLOW V_{10} (FPS)	VELOCITY FULL V_F (FPS)	DESIGN RUNOFF Q_{10} (CFS)	FULL FLOW Q_F (CFS)	
	RUNOFF COEFFICIENT "C"	AREA "A" (ACRES)	C x A	AREA "A" (ACRES)	C x A					UPSTREAM STRUCTURE NUMBER	DOWNSTREAM STRUCTURE NUMBER	UPSTREAM STRUCTURE RIM ELEVATION	HEIGHT OF STRUCTURE (FT)											
A-1	0.75	0.06	0.05	0.65	0.49	5.00	7.35 10.32	1.00 1.25	3.58 6.29	A-1	A-2	930.00	1.88	24	81.00	928.12	926.91	0.0149	0.26	930.14	930.57	5.23	8.84	3.58	27.64	Max Pipe Capacity
A-2	0.88	1.59	1.40	2.24	1.97	5.26	6.70 8.82	1.00 1.25	12.95 21.72	A-2	A-3	931.41	4.75	24	57.00	926.66	925.81	0.0149	0.13	928.98	929.80	7.30	8.83	12.95	27.62	
A-3	0.88	0.00	0.00	2.24	1.97	5.39	6.67 8.79	1.00 1.25	12.95 21.72	A-3	A-4	930.61	4.80	24	19.50	925.81	925.45	0.0185	0.04	928.13	929.09	7.87	9.83	12.95	30.73	

NOTES:

1. CONTOUR INTERVAL IS 1 FOOT. ALL ELEVATIONS SHOWN ARE IN FEET.

2. ANY EXCESS EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.

20' 0' 20' 40'

SCALE: 1" = 20'

PROFESSIONAL SEAL:

COMPANY:

UHL ENGINEERING, INC.
7211 W. 98th Terrace, Suite 110
Overland Park, Kansas 66212
(913) 385-2670
www.uhlengineering.com

PROJECT:

MISSION BOWL APARTMENTS
5399 Martway Street
MISSION, KANSAS

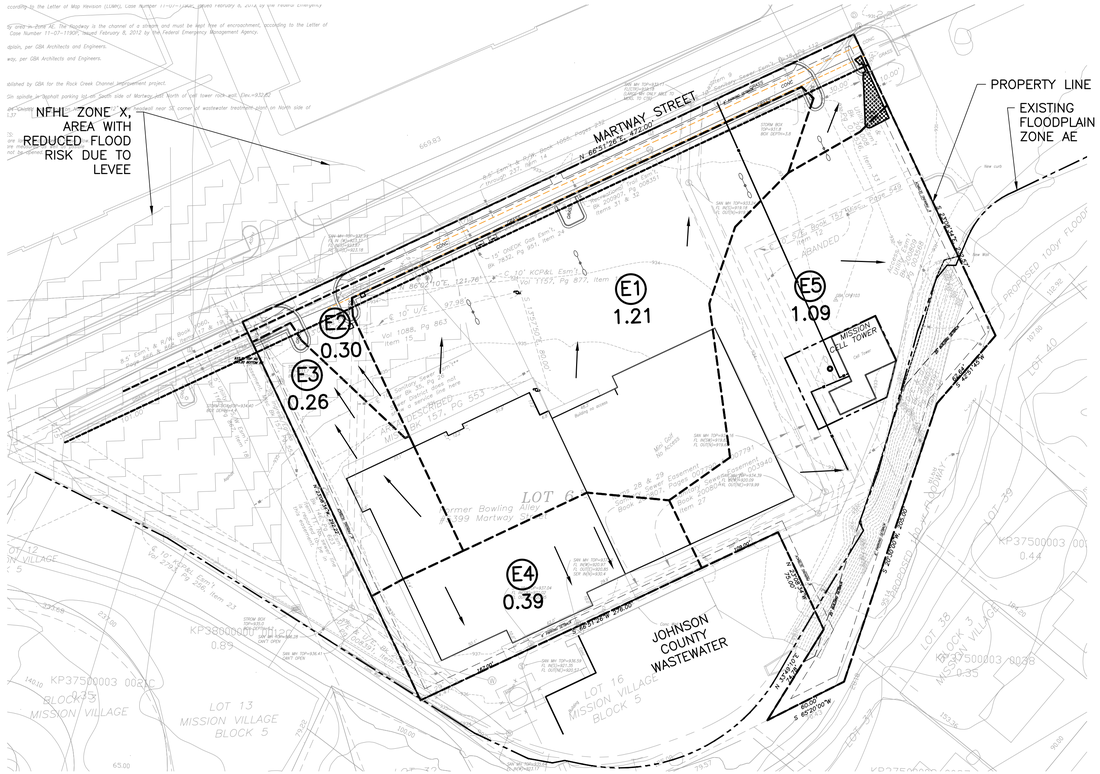
OWNER:

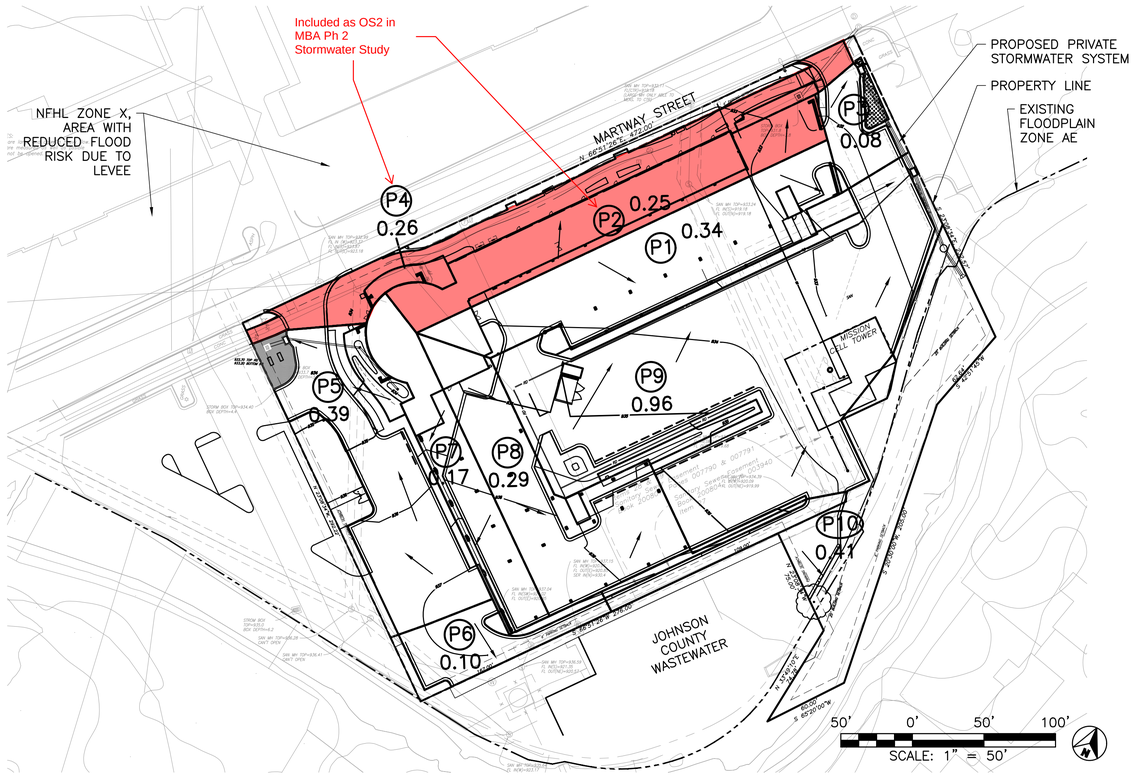
Sunflower Development Group, LLC
ATTN: Banks Floodman
1125 Grand BLVD. #202
Kansas City, Missouri 64106
(816) 581-3991

DATE	REVISION/DESCRIPTION
10 JUNE 2021	FINAL DEVELOPMENT PLAN RE-SUBMITTAL

FINAL DEVELOPMENT PLAN - NOT FOR CONSTRUCTION

ISSUE DATE: 13 MAY 2021
DESIGNED BY: LJR
DRAWN BY: LJR
CHECKED BY: TSU
SHEET NAME: **STORM SEWER PLAN & PROFILE**
SHEET NUMBER: **C301**





Hydrograph No.	Hydrograph Description	Hydrograph type (origin)	Q2 Peak flow (cfs)	Q10 Peak flow (cfs)	Q100 Peak flow (cfs)	Time interval (min)	Time of conc. Tc (min)	Time to peak (min)	Inflow hyd(s)
Existing Conditions									
1	E1	SCS Runoff	3.55	6.975	13.11	2	5	716	
2	E2	SCS Runoff	0.83	1.696	3.231	2	5	716	
3	E3	SCS Runoff	0.74	1.486	2.81	2	5	716	
4	E4	SCS Runoff	1.14	2.248	4.227	2	5	716	
5	E5	SCS Runoff	2.43	5.652	11.37	2	5	716	
6	Existing	Combine	8.70	18.06	34.75	2		716	1, 2, 3, 4, 5
Proposed Conditions									
7	P1	SCS Runoff	1.00	1.96	3.685	2	5	716	
8	P2	SCS Runoff	0.73	1.441	2.71	2	5	716	
9	P3	SCS Runoff	0.11	0.335	0.761	2	5	716	
10	P4	SCS Runoff	0.55	1.318	2.688	2	5	716	
11	P5	SCS Runoff	0.87	2.022	4.068	2	5	716	
12	P6	SCS Runoff	0.28	0.565	1.077	2	5	716	
13	P7	SCS Runoff	0.50	0.98	1.843	2	5	716	
14	P8	SCS Runoff	0.85	1.672	3.143	2	5	716	
15	P9	SCS Runoff	2.75	5.488	10.38	2	5	716	
16	P10	SCS Runoff	0.35	1.339	3.466	2	5	716	
17	Proposed North	Combine	3.54	7.642	14.99	2		716	7, 8, 9, 10, 11, 12
18	Proposed South	Combine	4.42	9.474	18.83	2		716	13, 14, 15, 16
19	Proposed Site	Combine	7.96	17.12	33.82	2		716	17, 18

NOTES:

1. CONTOUR INTERVAL IS 1 FOOT. ALL ELEVATIONS SHOWN ARE IN FEET.

2. ANY EXCESS EXCAVATION SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.

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(816) 581-3991

DATE	REVISION/DESCRIPTION
10 JUNE 2021	FINAL DEVELOPMENT PLAN RE-SUBMITTAL

FINAL DEVELOPMENT PLAN – NOT FOR CONSTRUCTION

ISSUE DATE: 13 MAY 2021
DESIGNED BY: LJR
DRAWN BY: LJR
CHECKED BY: TSU
SHEET NAME: **DRAINAGE AREA PLAN**
SHEET NUMBER: **C302**

HYDRODYNAMIC SEPARATOR TREATMENT VOLUME WORKSHEET

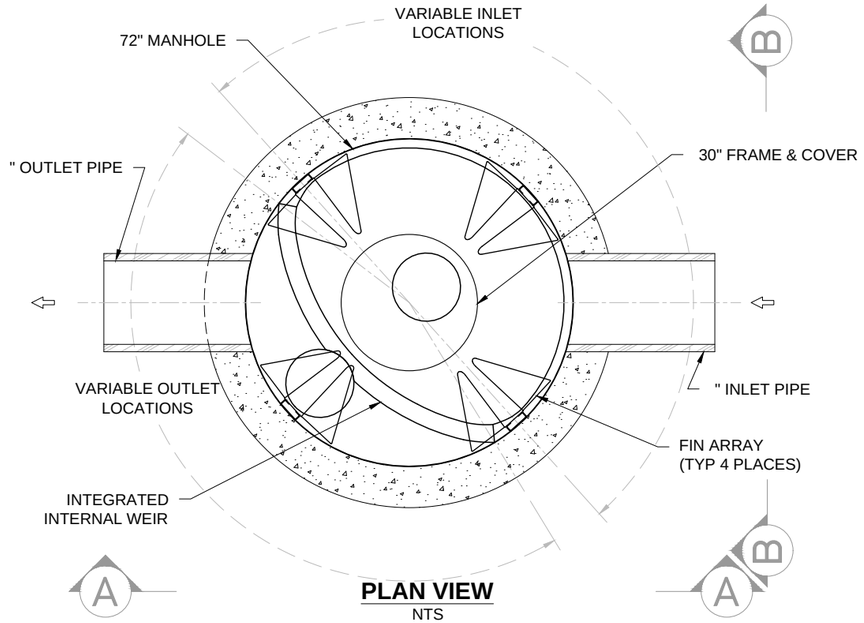
Project: Mission Bowl Treatment Cals By: LJR
Location: Mission KS Checked:

I. Water Quality Volume

WQv=P*Rv
WQv= Water Quality Volume (in.)
P = Rainfall event in inches (1.37 in.)
Rv = Volumetric runoff coefficient
Rv=0.005+0.009(% Impervious)

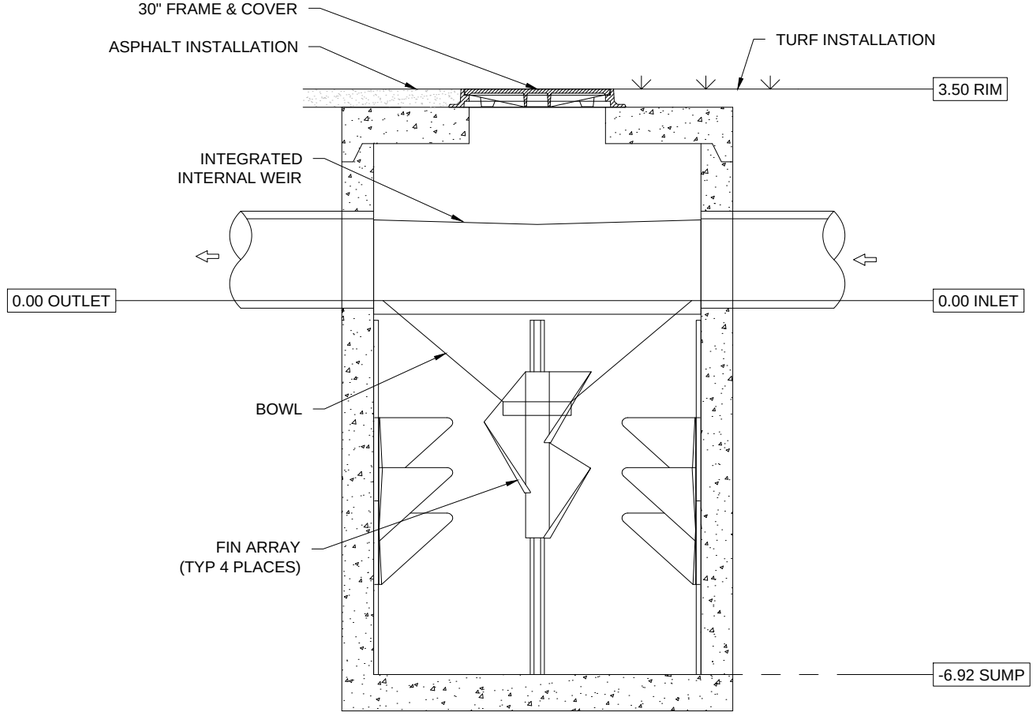
Total Tributary Area	1.67	Ac
Impervious Area	1.57	
% Impervious	94.01	

WQv=	1.166018	in
Treatment Vol.	7068.52	cu ft

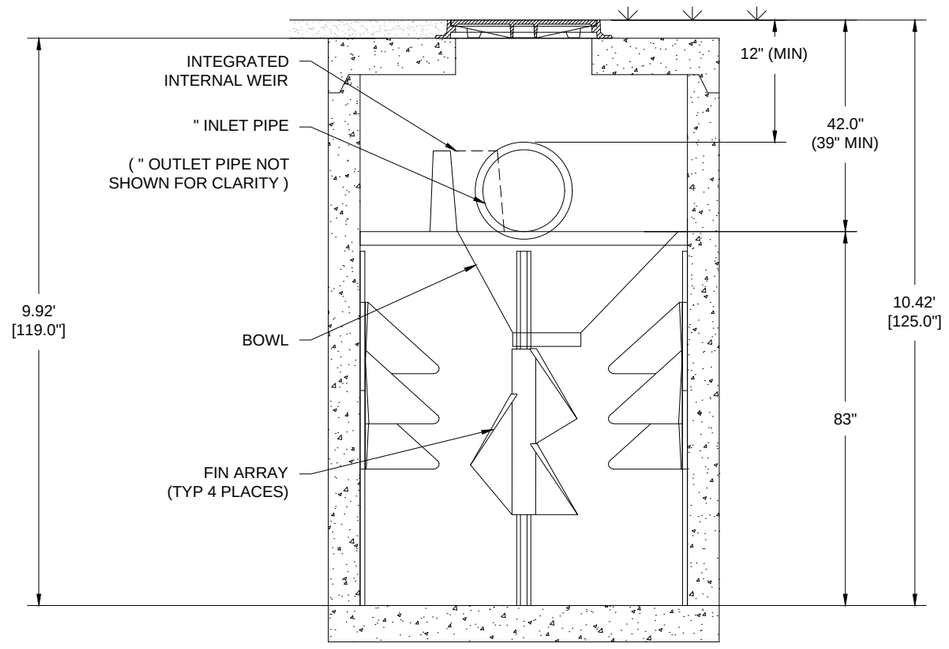


PLAN VIEW
NTS

BARRACUDA S6	
UNIT ID	
PEAK FLOW RATE (CFS)	
TREATMENT FLOW RATE (CFS)	



SECTION VIEW A-A
NTS



SECTION VIEW B-B
NTS

BARRACUDA S6
STANDARD DETAIL

DATE: 12/18/17 | DRAWN: EKH | CHECKED: ---- | PROJECT #:

REV	DWN	CKD	DESCRIPTION

1030 Deer Hollow Drive
Mount Airy, MD 21771
1-800-BAYSAVER
1-800-229-7283
barracuda

4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADS®
ADVANCED DRAINAGE SYSTEMS, INC.

NOT TO SCALE

Hydrodynamic Separator Performance According to the MARC Manual

Introduction:

In October 2012 the Kansas City Mid America Regional Council (MARC) released the Manual of Best Management Practices for Storm Water Quality. This manual goes on to describe a variety of construction BMP's Advantages, disadvantages, design considerations, and maintenance practices. One BMP discussed is a Hydrodynamic Separator (Section 8.12 Hydro Dynamic Separation).

As per the MARC Manual:

Hydrodynamic separators, also known as swirl concentrators or vortex separators, describe a wide variety of proprietary devices that have been developed in recent years. They are modifications of traditional oil/particle separators that typically target coarse solids and large oil droplets. While most of these systems utilize vortex enhanced sedimentation, others use circular screening systems or engineered cylindrical sedimentation. Vortex separation was originally developed for use in combined sewer overflows.

ADS promotes three hydrodynamic separators in the MARC manual regulated area. The selection of which hydrodynamic separator to use on a project varies based on the factors of treatment flow rate, maximum flow rate, configuration of the units (inline vs offline) and cost. The Baysaver Barracuda, Hydro International (HIL) Downstream Defender and HIL First Defense High Capacity would be included under the MARC manual's classification of a hydrodynamic separator.

Value Rating system:

In order to assess the effectiveness of a particular BMP relative to another, the MARC manual outlines a 10 point value rating system. This 10 point rating system is based on 4 criteria: Water Quality Value, Volume Reduction, Temperature Reduction, Oils/Floatables Reduction. Water Quality Value is assessed on a scale of 1-5 by the expected median concentration (mg/L) of Total Suspended Solids (TSS). Volume reduction is assessed on a scale of 0-2 with significant infiltration or evaporation scoring full marks. Temperature Reduction is assessed on a scale of -1 through 1. A device that increases runoff temperature scores a -1, a device that does not change the runoff temp scores a 0, and a device that reduces runoff temperature scores a 1. Finally the device is awarded a score of 0-2 with respect to its ability to significantly reduce oils and floatable debris. Adding these scores up for the specific BMP will lead to a value between 0-10 points.

ADS Hydrodynamic Separator Value Rating Calculation as determined by the MARC manual.

TABLE 4.5
Value Rating Calculations

A	Water Quality Value Rating System	0	1	2	3	4+
	Median Concentration of TSS in Effluent (milligrams per liter)	> 100 mg/L	50 - 100 mg/L	20 - 50 mg/L	10 - 20 mg/L	<10 mg/L
B	Volume Reduction Rating System	0	1		2	
		Little or no volume reduction	Moderate infiltration or evaporation		Significant infiltration and evaporation	
C	Temperature Reduction Rating System	-1	0		1	
		Runoff temperature increases	Runoff temperature is unchanged		Runoff temperature decreases	
D	Oils/Floatables Reduction Rating System	0	1		2	
		Little or no oils/floatables reduction	Moderate capture or reduction of oils/floatables		Significant capture or reduction of oils/floatables	

Note:
Value Rating Calculation: VR = A + B + C + D

Table 1: Value Rating Calculations as taken from the MARC Manual.

Water Quality Value: Water quality rating is assessed by analyzing the median concentration of TSS as sampled from the devices effluent discharge [Table 4.5. Manual of Best Management Practices for Storm Water Quality, 4-11]. Each hydrodynamic separator has their own respective test reports for hydraulic loading and particle size iterations. A nationally recognized and accepted organization that has standardized the testing procedure, particle size and loading for hydrodynamic separators is New Jersey Department of Environmental Protection (NJDEP). NJDEP works in conjunction with New Jersey Corporation of Advanced Technology (NJCAT) to provide a listing of NJCAT Laboratory verified and NJDEP certified devices. When viewing NJCAT and NJDEP's respective website, the verified/certificate devices list could be observed as well as the specific test reports that are linked in the table. Please note that New Jersey utilizes a standardized particle size that is typically smaller (lower number of microns) particle size than what is shown on MARC Manual Reports. The Water Quality Value Rating will generally show a VR of 3 or 4 points for hydrodynamic separators from these test reports. The MARC Manual caps the hydrodynamic separator unit currently at 3 points of VR for Water Quality however, so these test results would correspond to a **Water Quality Value Rating of 3 points**.

Volume Reduction Rating: Not applicable for separators. **Volume Reduction Rating of 0 point**.

Temperature Reduction Rating: Not applicable for separators. Allow this BMP device is an underground unit, due to the short amount of time that the stormwater is in the separator unit, no temperature reduction is generally awarded to this device. **Temperature Reduction Rating of 0 point**.

Oils/Floatables Reduction Rating: The Oils/Floatables reduction is determined on a sliding scale of 0-2. Hydrodynamic separators are widely known to be one of the premier devices for the removal of oil and floatables. The separators were commonly referred to as oil / sand separators prior to the renaming of the device as a hydrodynamic separator. In the technical test reports, oil capacity (i.e. the storage potential for oils) could be determined. The storage potential for floatables could be determined as well. The basis for removing oils and floatables would be reliant on a practical maintenance interval and then the requirement for this category would be met for the service life of the device. Third party technical reports, such as NJCAT/NJDEP, could show these results based on which device is being specified. This corresponds to a **Oils/Floatables Reduction Rating of 2 points.**

MARC VALUE Rating: Per Table 1, MARC values are determined by the following formula

$$VR = A + B + C + D$$

Where

A = Water quality value
B = Volume reduction
C = Temperature reduction
D = Oil and floatables reduction

In the case of the ADS hydrodynamic separators:

$$VR = 3 + 0 + 0 + 2 = 5$$

Per the MARC manual, the three stated ADS hydrodynamic separators should be assessed a **5 point** value rating**.**

Maintenance Guide

BaySaver Barracuda™

July 2017

One of the advantages of the BaySaver Barracuda is the ease of maintenance. Like any system that collects pollutants, the BaySaver Barracuda must be maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The systems were designed to minimize the volume of water removed during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes from 2 to 4 hours, depending on the size of the system, the captured material, and the capacity of the vacuum truck.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is needed to determine the need for and frequency of maintenance. You should begin inspecting as soon as construction is complete and thereafter on an annual basis. Typically, the system needs to be cleaned every 1-3 years.

Excessive oils, fuels or sediments may reduce the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it contacts the top of the captured sediment and mark that spot on the rod. Then push the probe through to the bottom of the sump and mark that spot to determine sediment depth.

Maintenance should occur when the sediment has reached the levels indicated in the Storage Capacity Chart.

BaySaver Barracuda Storage Capacities

Model	Manhole Diameter	Treatment Chamber Capacity	Standard Sediment Capacity (20" depth)	NJDEP Sediment Capacity (50% of standard depth)
S3	36"	212 gallons	0.44 cubic yards	0.22 cubic yards
S4	48"	564 gallons	0.78 cubic yards	0.39 cubic yards
S5	60"	881 gallons	1.21 cubic yards	0.61 cubic yards
S6	72"	1269 gallons	1.75 cubic yards	0.88 cubic yards
S8	96"	3835 gallons	3.10 cubic yards	1.55 cubic yards
S10	120"	7496 gallons	4.85 cubic yards	2.43 cubic yards

Maintenance Instructions

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the bowl assembly visible from the surface. You'll access this area through the 10" diameter access cylinder.

2. Use a vacuum truck or other similar equipment to remove all water, debris, oils and sediment. See figure 1.
3. Use a high pressure hose to clean the manhole of all the remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the cleaned manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oils, sediment and trash at an approved facility.
    - Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authority to discharge the liquid.
    - Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
    - Additional local regulations may apply to the maintenance procedure.

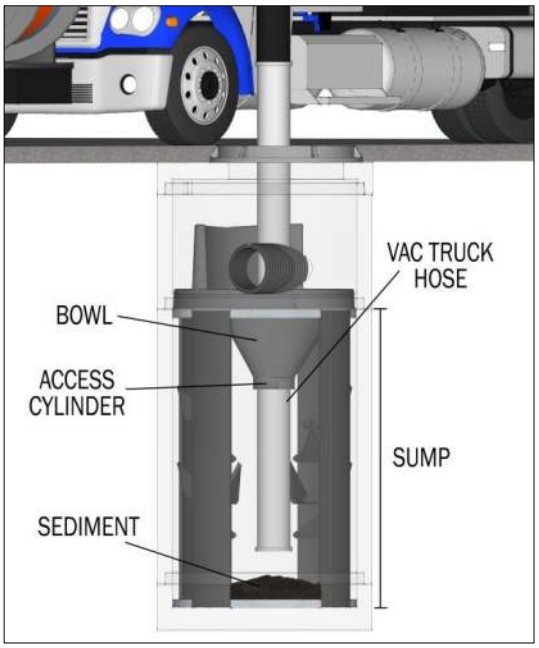


Figure 1

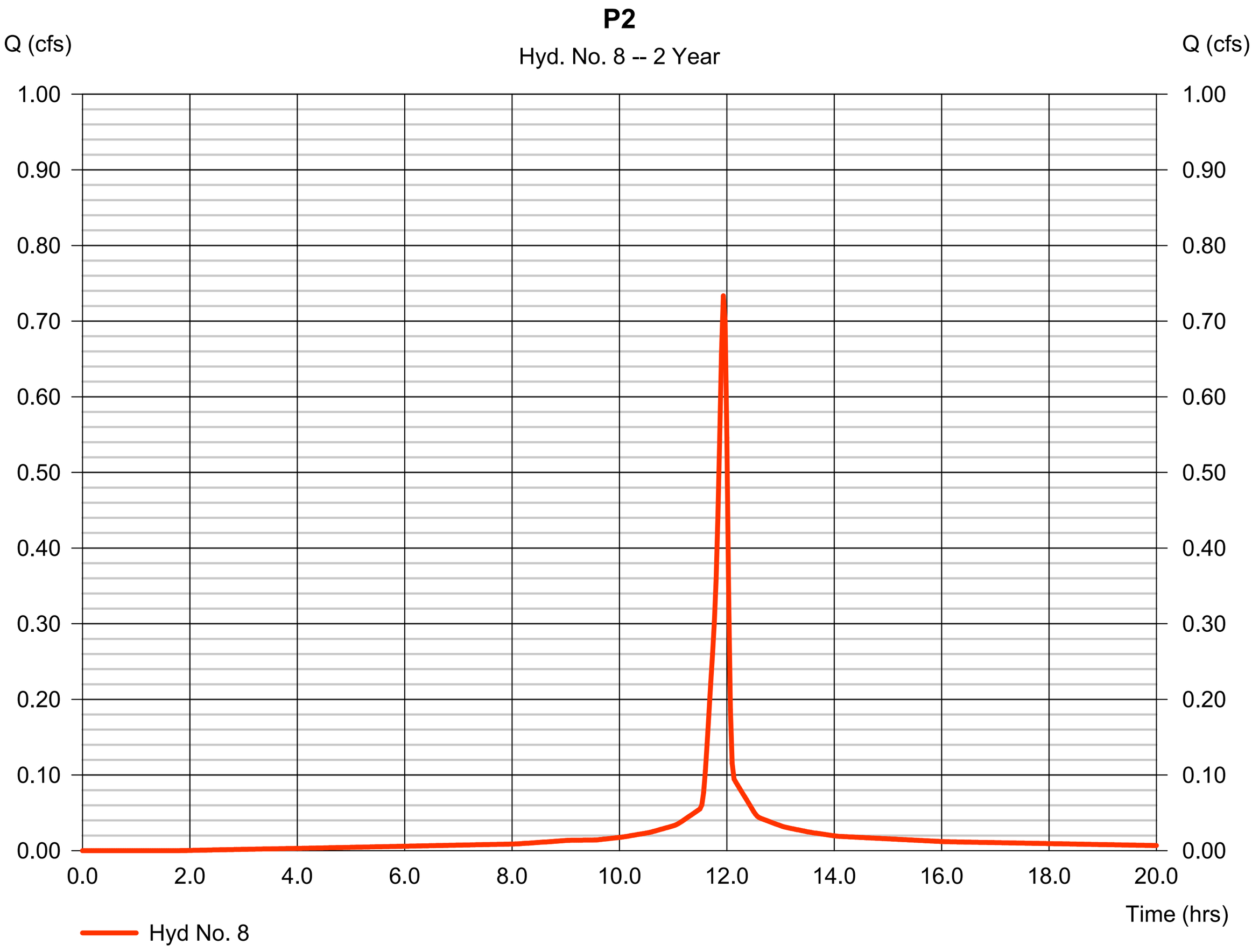
Hydrograph Report

Hyd. No. 8

P2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.733 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,678 cuft
Drainage area	=	0.250 ac	Curve number	=	98*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.250 x 98)] / 0.250



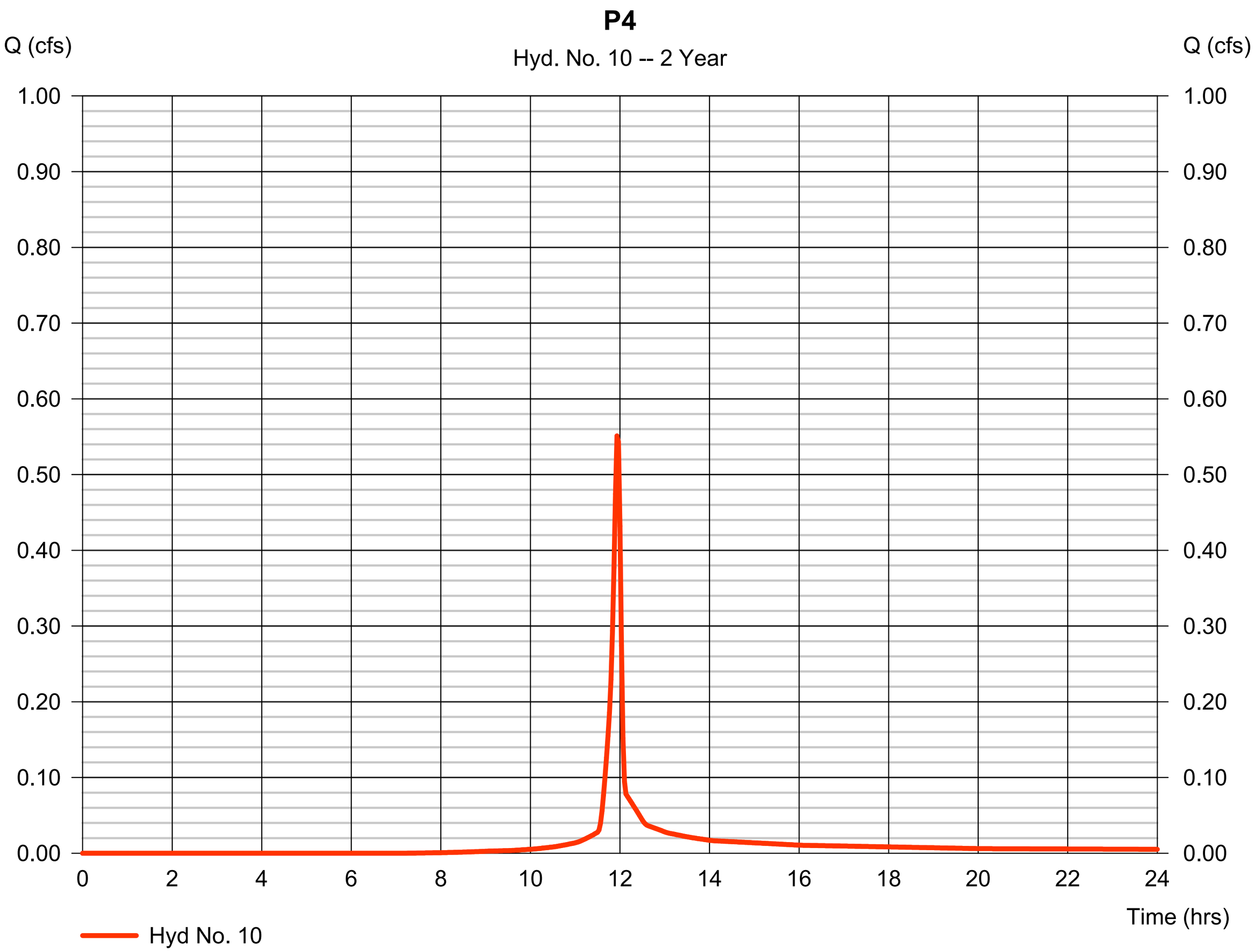
Hydrograph Report

Hyd. No. 10

P4

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.551 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,120 cuft
Drainage area	=	0.260 ac	Curve number	=	90*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.20 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.090 x 74) + (0.170 x 98)] / 0.260



Appendix C
Hydrology and Hydraulics

NOAA Atlas 14, Volume 8, Version 2
Location name: Mission, Kansas, USA*
Latitude: 39.0223°, Longitude: -94.6448°
Elevation: 930 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.401** (0.321-0.509)	**0.471** (0.376-0.597)	**0.588** (0.469-0.747)	**0.689** (0.546-0.877)	**0.832** (0.639-1.08)	**0.946** (0.710-1.24)	**1.06** (0.772-1.41)	**1.19** (0.827-1.60)	**1.35** (0.908-1.86)	**1.48** (0.970-2.05)
10-min	**0.587** (0.470-0.745)	**0.689** (0.551-0.875)	**0.861** (0.686-1.09)	**1.01** (0.799-1.28)	**1.22** (0.936-1.59)	**1.38** (1.04-1.82)	**1.56** (1.13-2.07)	**1.74** (1.21-2.34)	**1.98** (1.33-2.72)	**2.17** (1.42-3.00)
15-min	**0.716** (0.573-0.908)	**0.841** (0.672-1.07)	**1.05** (0.837-1.34)	**1.23** (0.974-1.57)	**1.48** (1.14-1.94)	**1.69** (1.27-2.22)	**1.90** (1.38-2.52)	**2.12** (1.48-2.86)	**2.42** (1.62-3.31)	**2.65** (1.73-3.66)
30-min	**1.01** (0.807-1.28)	**1.18** (0.948-1.50)	**1.48** (1.18-1.89)	**1.74** (1.38-2.22)	**2.11** (1.62-2.75)	**2.40** (1.80-3.15)	**2.70** (1.96-3.59)	**3.01** (2.10-4.07)	**3.44** (2.31-4.72)	**3.78** (2.47-5.22)
60-min	**1.32** (1.06-1.68)	**1.56** (1.25-1.98)	**1.97** (1.57-2.50)	**2.32** (1.84-2.95)	**2.82** (2.18-3.69)	**3.23** (2.43-4.25)	**3.66** (2.66-4.88)	**4.11** (2.87-5.55)	**4.72** (3.18-6.49)	**5.21** (3.41-7.19)
2-hr	**1.64** (1.32-2.06)	**1.94** (1.56-2.44)	**2.45** (1.96-3.09)	**2.90** (2.31-3.66)	**3.54** (2.75-4.60)	**4.07** (3.08-5.31)	**4.62** (3.38-6.11)	**5.20** (3.66-6.98)	**6.01** (4.07-8.19)	**6.64** (4.38-9.10)
3-hr	**1.85** (1.50-2.32)	**2.19** (1.77-2.75)	**2.78** (2.24-3.49)	**3.30** (2.64-4.15)	**4.06** (3.17-5.25)	**4.68** (3.56-6.08)	**5.33** (3.92-7.02)	**6.02** (4.26-8.05)	**6.98** (4.75-9.48)	**7.74** (5.12-10.6)
6-hr	**2.23** (1.82-2.77)	**2.66** (2.16-3.30)	**3.39** (2.75-4.22)	**4.04** (3.26-5.04)	**5.00** (3.92-6.41)	**5.77** (4.42-7.45)	**6.59** (4.88-8.62)	**7.46** (5.31-9.90)	**8.67** (5.94-11.7)	**9.63** (6.42-13.0)
12-hr	**2.63** (2.16-3.24)	**3.15** (2.58-3.88)	**4.03** (3.29-4.97)	**4.81** (3.90-5.95)	**5.94** (4.69-7.55)	**6.86** (5.29-8.77)	**7.82** (5.84-10.1)	**8.84** (6.34-11.6)	**10.3** (7.08-13.7)	**11.4** (7.64-15.3)
24-hr	**3.08** (2.54-3.76)	**3.66** (3.01-4.46)	**4.64** (3.81-5.68)	**5.50** (4.50-6.75)	**6.76** (5.38-8.52)	**7.78** (6.04-9.86)	**8.85** (6.65-11.4)	**9.98** (7.21-13.0)	**11.5** (8.04-15.3)	**12.8** (8.66-17.0)
2-day	**3.61** (3.00-4.37)	**4.19** (3.48-5.07)	**5.19** (4.30-6.30)	**6.08** (5.00-7.39)	**7.38** (5.92-9.24)	**8.45** (6.62-10.6)	**9.57** (7.26-12.2)	**10.8** (7.85-14.0)	**12.4** (8.73-16.4)	**13.8** (9.40-18.2)
3-day	**3.97** (3.31-4.78)	**4.54** (3.79-5.47)	**5.54** (4.61-6.69)	**6.43** (5.32-7.78)	**7.74** (6.24-9.64)	**8.82** (6.94-11.0)	**9.95** (7.58-12.6)	**11.2** (8.17-14.4)	**12.9** (9.07-16.8)	**14.2** (9.75-18.7)
4-day	**4.26** (3.57-5.12)	**4.84** (4.05-5.82)	**5.85** (4.87-7.03)	**6.74** (5.59-8.13)	**8.05** (6.50-9.97)	**9.12** (7.20-11.4)	**10.3** (7.83-13.0)	**11.5** (8.42-14.7)	**13.1** (9.30-17.2)	**14.5** (9.97-19.0)
7-day	**5.02** (4.23-5.98)	**5.64** (4.74-6.73)	**6.70** (5.62-8.00)	**7.62** (6.35-9.12)	**8.94** (7.26-11.0)	**10.0** (7.94-12.4)	**11.1** (8.54-13.9)	**12.3** (9.08-15.7)	**13.9** (9.90-18.0)	**15.2** (10.5-19.8)
10-day	**5.69** (4.80-6.75)	**6.38** (5.38-7.57)	**7.54** (6.34-8.96)	**8.52** (7.13-10.2)	**9.92** (8.06-12.1)	**11.0** (8.77-13.5)	**12.2** (9.36-15.1)	**13.3** (9.88-16.9)	**14.9** (10.7-19.2)	**16.2** (11.3-21.0)
20-day	**7.59** (6.46-8.93)	**8.54** (7.26-10.1)	**10.1** (8.56-11.9)	**11.4** (9.59-13.4)	**13.1** (10.7-15.8)	**14.5** (11.6-17.5)	**15.8** (12.2-19.4)	**17.1** (12.7-21.4)	**18.9** (13.5-24.0)	**20.2** (14.2-26.0)
30-day	**9.19** (7.85-10.8)	**10.4** (8.84-12.1)	**12.2** (10.4-14.3)	**13.7** (11.6-16.1)	**15.7** (12.9-18.8)	**17.3** (13.8-20.8)	**18.7** (14.5-22.9)	**20.2** (15.1-25.1)	**22.0** (15.9-27.9)	**23.4** (16.5-30.0)
45-day	**11.2** (9.65-13.1)	**12.6** (10.8-14.7)	**14.8** (12.7-17.3)	**16.6** (14.1-19.4)	**18.9** (15.5-22.3)	**20.5** (16.5-24.5)	**22.1** (17.2-26.9)	**23.7** (17.7-29.2)	**25.6** (18.5-32.1)	**26.9** (19.1-34.3)
60-day	**13.0** (11.2-15.1)	**14.6** (12.5-16.9)	**17.0** (14.6-19.8)	**18.9** (16.1-22.0)	**21.4** (17.5-25.1)	**23.1** (18.6-27.5)	**24.7** (19.3-29.9)	**26.3** (19.8-32.3)	**28.2** (20.4-35.2)	**29.4** (20.9-37.4)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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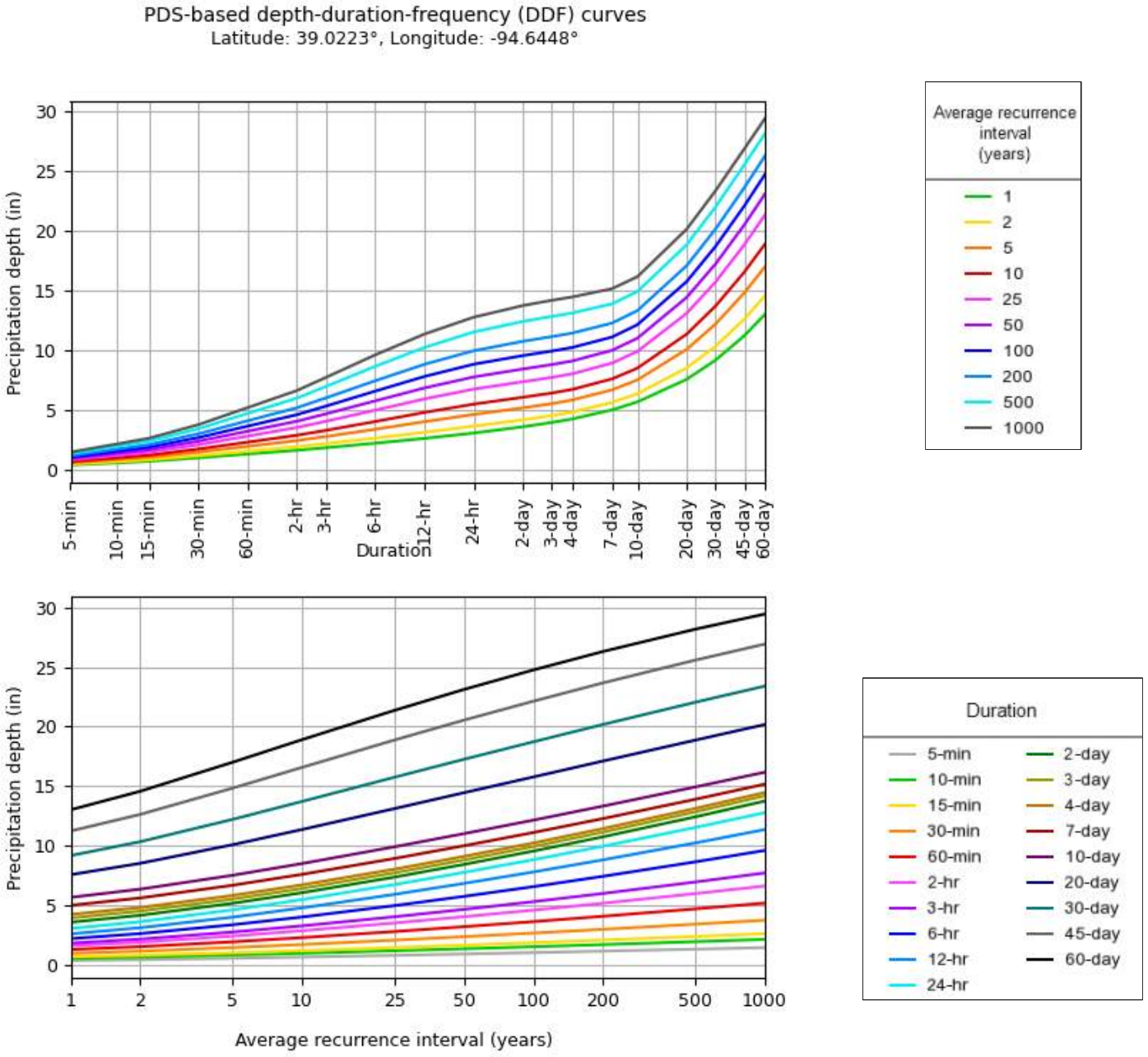
PF graphical



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Created (GMT): Wed Feb 19 00:48:04 2025

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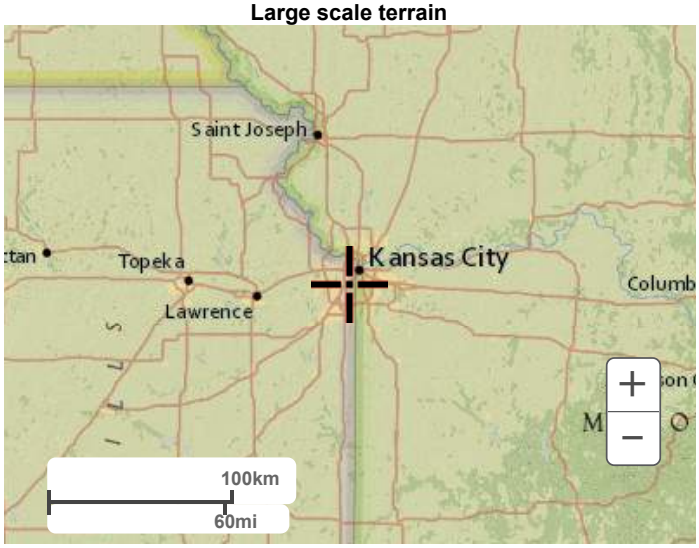
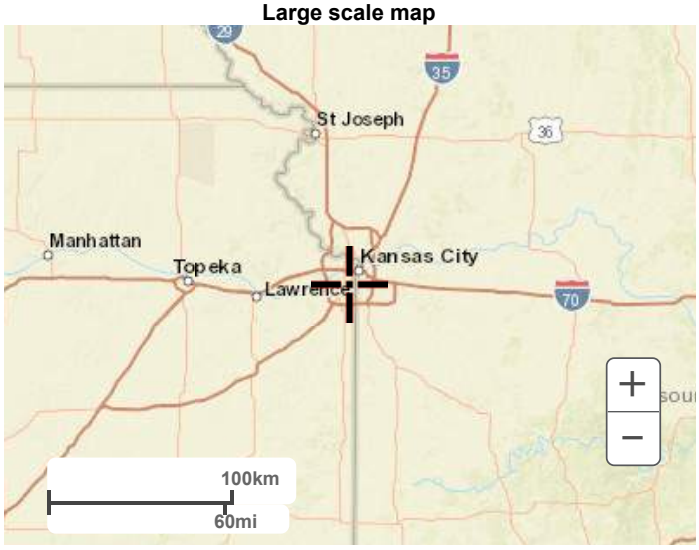
Maps & aerials

Small scale terrain

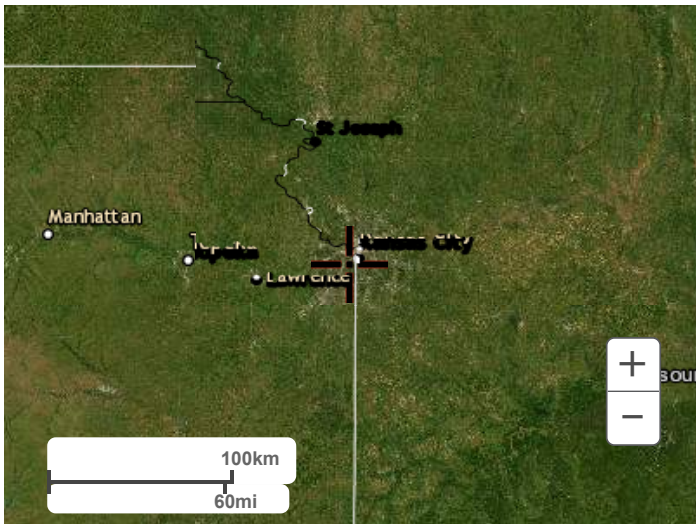
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

STORM DRAINAGE SYSTEM DESIGN

Renaissance Infrastructure Consulting

By:	A. Cronin
Checked:	A. Gabbert
Date:	2/26/2025
Project #:	25-0108
Project:	The Lanes at Mission Bowl - Phase II
Project Location:	Mission, Kansas
Project Soil Type:	C

Curve Number Values	Curve Number
Roof/Pavement	98
Landscape	74
Mixed*	90

* From Mission Bowl Apts Stormwater Report FDP Rev 1 Report

EXISTING CURVE NUMBERS

BASIN DESIGNATION	AREAS (SQ FT)					COMPOSITE CURVE NUMBER
	ROOF/ PAVEMENT	LANDSCAPE	Mixed*	TOTAL (SQ FT)	TOTAL (ACRES)	
OS1	12,711.7	0.0		12,711.7	**0.29**	**98**
OS2*	10,890.0	0.0	11,325.6	22,215.6	**0.51**	**94**
EX1	43,980.2	4,426.8		48,407.1	**1.11**	**96**
EX2	3,230.5	1,866.2		5,096.7	**0.12**	**89**
Total (Onsite)	47,210.7	6,293.1	0.0	53,503.8	**1.2**	**95**
Total (Onsite and Offsite)	70,812.4	6,293.1	11,325.6	88,431.1	**2.03**	**95**

STORM DRAINAGE SYSTEM DESIGN

Renaissance Infrastructure Consulting

By: A. Cronin
Checked: A. Gabbert
Project #: 25-0108
Project: The Lanes at Mission Bowl - Phase II
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Location: Mission, Kansas
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Curve Number Values	Curve Number
Roof/Pavement	98
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* From Mission Bowl Apts Stormwater Report FDP Rev 1 Report

EXISTING CURVE NUMBERS							STORM AND SANITARY ANALYSIS RESULTS				Notes	PIPE CALCULATIONS	
BASIN	AREAS					COMPOSITE CURVE NUMBER	Tc (Min)	Flow (cfs)					
DESIGNATION	ROOF/ PAVEMENT (SQ FT)	LANDSCAPE (SQ FT)	Mixed*	TOTAL (SQ FT)	TOTAL (ACRES)			1-YR	10-YR	100-YR		Full Flow Capacity (cfs)	Full Flow Velocity (ft/sec)
OS1	12711.7	0.0		12,711.7	**0.29**	**98**	**6.89**	1.1	1.98	3.19	Overland Flow to Inlet 1A		
OS2*	10,890.0	0.0	11,325.6	22,215.6	**0.51**	**94**	**5.00**	1.88	3.57	5.87	Overland Flow to Inlet 1A		
PR1	6958.6	647.7		7,606.4	**0.17**	**96**	**5.00**	0.67	1.23	2	Overland Flow to Inlet 1A		
Inlet 1A (PR1, OS1, OS2)								3.59	6.66	10.87	Route to Manhole 1C (18" HDPE)	11.38	6.44
PR2	21,688.2	0.0		21,688.2	**0.50**	**98**	**5.00**	2.00	3.6	5.81	Route to Manhole 1C (12" HDPE)	5.95	7.58
Manhole 1C (PR1, OS1, OS2, PR2)								5.52	10.16	16.5	Route to Rock Creek (24" HDPE)	17.33	5.52
PR3	18,638.1	555.5		19,193.6	**0.44**	**97**	**5.00**	1.74	3.17	5.13	Route to Rock Creek		
PR4 (MBA_PH1_Rock_Creek_ Outfall)	3,351.7	60.4		3,412.1	**0.08**	**98**	**5.00**	0.33	0.60	0.97	Route to Ex. Inlet (Structure A-2) in Ph1		
PR5 (Martway_St_Rock_Creek _Outfall)	820.8	727.2		1,547.9	**0.04**	**87**	**5.00**	0.05	0.16	0.33	Route to Ex. Inlet in Martway Street		
Total Onsite	51,457.3	1,990.8		53,448.1	**1.23**	**97**	**5.00**						
Total Onsite and Offsite	75,059.0	1,990.8	11,325.6	88,375.4	**2.03**	**96**							
MBA_PH2_Rock _Creek_Outfall (PR1, OS1, OS2, PR2, PR3)								7.22	13.23	21.49			

* From Mission Bowl Apts Stormwater Report FDP Rev 1 Report

EXISTING IMPERVIOUSNESS

BASIN DESIGNATION	AREAS (SQ FT)					% Impervioous
	ROOF/ PAVEMENT (SQ FT)	LANDSCAPE (SQ FT)	Mixed*	TOTAL (SQ FT)	TOTAL (ACRES)	
OS1	12711.7	0.0		12,711.7	**0.29**	**95**
OS2*	10,890.0	0.0	11,325.6	22,215.6	**0.51**	**87**
EX1	43,980.2	4,426.8		48,407.1	**1.11**	**88**
EX2	3,230.5	1,866.2		5,096.7	**0.12**	**68**
Total (Onsite)	47,210.7	6,293.1	0.0	53,503.8	1.2	**86**
Total (Onsite and Offsite)	70,812.4	6,293.1	11,325.6	88,431.1	**2.03**	**88**

Imperviousness	%
Roof/Pavement	95
Landscape	20
Mixed	80

PROPOSED IMPERVIOUSNESS

BASIN DESIGNATION	AREAS					% Impervioous
	ROOF/ PAVEMENT (SQ FT)	LANDSCAPE (SQ FT)	Mixed*	TOTAL (SQ FT)	TOTAL (ACRES)	
OS1	12711.7	0.0		12,711.7	**0.29**	**95**
OS2*	10,890.0	0.0	11,325.6	22,215.6	**0.51**	**87**
PR1	6958.6	647.7		7,606.4	**0.17**	**89**
PR2	21,688.2	0.0		21,688.2	**0.50**	**95**
PR3	18638.1	555.5		19,193.6	**0.44**	**93**
PR4 (MBA_PH1_Rock_Creek_Outfall)	3,351.7	60.4		3,412.1	**0.08**	**94**
PR5 (Martway_St_Rock_Creek_Outfall)	820.8	727.2		1,547.9	**0.04**	**60**
Total (Onsite)	51,457.3	1,990.8		53,448.1	**1.23**	**92**
Total (Onsite and Offsite)	75,059.0	1,990.8	11,325.6	88,375.4	**2.03**	**91**

* From Mission Bowl Apts Storm Report FDP Rev 1 Report

Renaissance Infrastructure Consulting

Building Roof Drain Full Flow Pipe Calculations		
Inputs		
Roof Drain Flows (cfs)	5.81	cfs (From SSA-100-yr model)
Pipe Diameter	12	in
Pipe Material	Polyvinyl Chloride (PVC) with smooth inner walls	
Slope of Pipe (ft/ft)	0.02	ft/ft
Results		
Pipe Radius	**6**	in
	0.50	ft
A = Cross-sectional Area of Flow (sq ft)	**0.79**	sq ft
P = Wetted Perimeter (ft)	**3.14**	ft
Hydraulic Radius		
R = A/P		
R = Hydraulic Radius (ft)	**0.25**	ft
n = Coefficient of Roughness	**0.011**	
Manning's Formula		
Q = A*1.486/n*R^(2/3)*S^(1/2)		
Q = Discharge (cfs)	**5.95**	cfs
Velocity	7.58	ft/sec

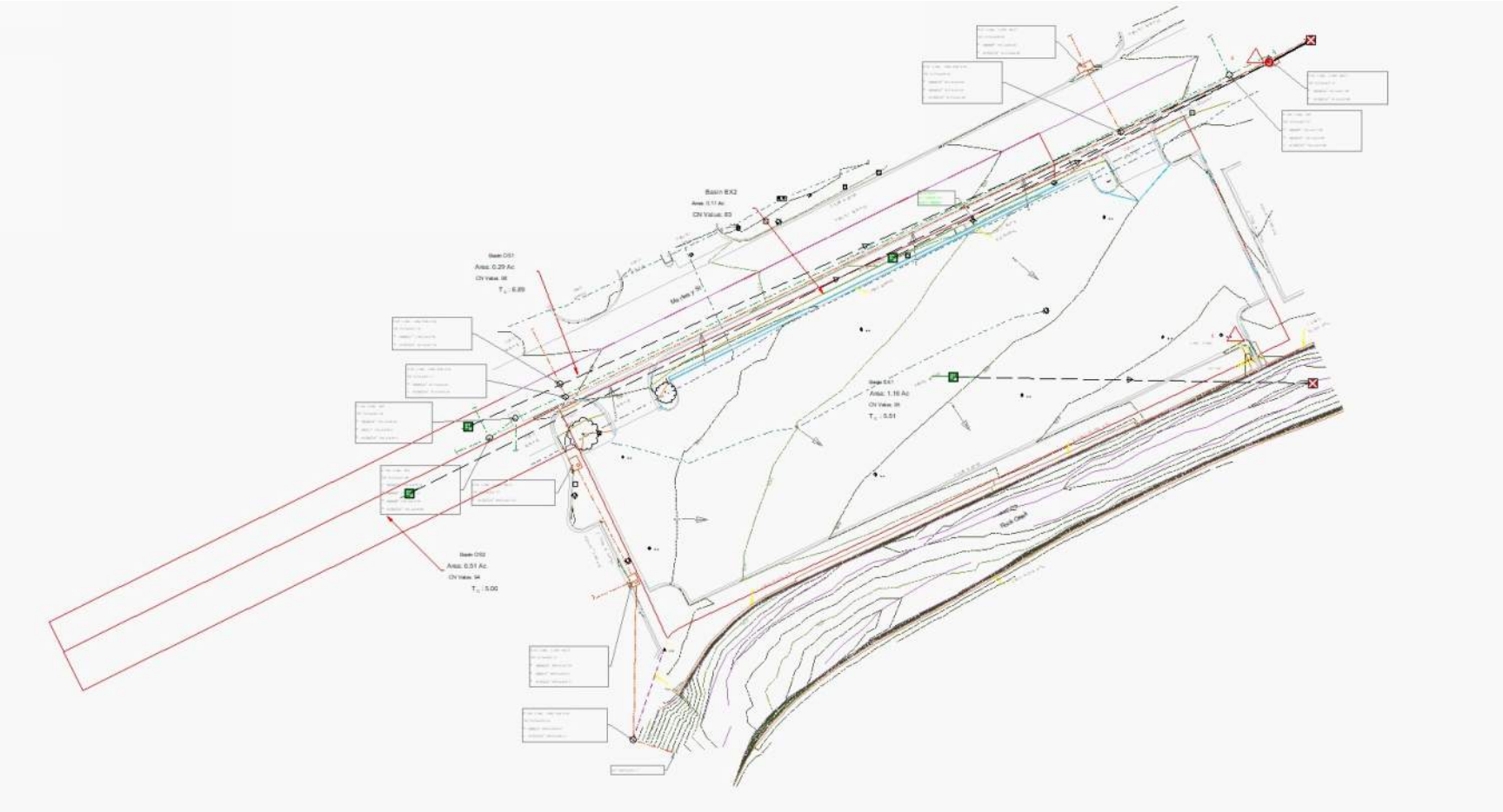
Renaissance Infrastructure Consulting

Inlet 1A Full Flow Pipe Calculations		
Inputs		
Roof Drain Flows (cfs)	10.87	cfs (From SSA-100-yr model)
Pipe Diameter	18	in
Pipe Material	Corrugated Polyethylene (PE) with smooth inner walls	
Slope of Pipe (ft/ft)	0.01	ft/ft
Results		
Pipe Radius	9	in
	0.75	ft
A = Cross-sectional Area of Flow (sq ft)	1.77	sq ft
P = Wetted Perimeter (ft)	4.71	ft
Hydraulic Radius		
R = A/P		
R = Hydraulic Radius (ft)	0.38	ft
n = Coefficient of Roughness	0.012	
Manning's Formula		
Q = A*1.486/n*R^(2/3)*S^(1/2)		
Q = Discharge	11.38	cfs
Velocity	6.44	ft/sec

Renaissance Infrastructure Consulting

1C Full Flow Pipe Calculations			
Inputs			
Roof Drain Flows (cfs)	16.5	cfs	(From SSA-100-yr model)
Pipe Diameter	24	in	
Pipe Material	Corrugated Polyethylene (PE) with smooth inner walls		
Slope of Pipe (ft/ft)	0.005	ft/ft	
Results			
Pipe Radius	**12**	in	
	1.00	ft	
A = Cross-sectional Area of Flow			
(sq ft)	**3.14**	sq ft	
P = Wetted Perimeter (ft)	**6.28**	ft	
Hydraulic Radius			
R = A/P			
R = Hydraulic Radius (ft)	**0.50**	ft	
n = Coefficient of Roughness	**0.012**		
Manning's Formula			
Q = A*1.486/n*R^(2/3)*S^(1/2)			
Q = Discharge (cfs)	**17.33**	cfs	
Velocity	5.52	ft/sec	

Appendix D
Existing Conditions Analysis



Autodesk Storm and Sanitary Analysis

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.323 (Build 0)

****
Project Description
****
File Name ..... 25-0108 Existing Drainage.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date FEB-19-2025 00:00:00
Ending Date FEB-20-2025 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 4
Number of nodes 3
Number of links 1

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	1-YR	CUMULATIVE	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Peak Rate Factor
EX1	1.11	484.00

EX2		0.12	484.00
OS1		0.29	484.00
OS2		0.51	484.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Ex_Martway_Inlet	JUNCTION	920.85	927.10	0.00	
Ex_Martway_St_Rock_Creek_Outfall	OUTFALL	918.00	921.00	0.00	
Ex_MBA_PH2_Rock_Creek_Outfall	OUTFALL	919.00	919.00	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Ex_Martway_Pipe	Ex_Martway_Inlet	Ex_Martway_St_Rock_Creek_Outfall	CONDUIT	5.0	57.0000	0.0150

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Ex_Martway_Pipe	CIRCULAR	3.00	3.00	1	7.07	0.75	436.42

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.527	3.118
Surface Runoff	0.043	0.256
Continuity Error (%)	-0.000	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.433	0.141

Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.000	

****
Composite Curve Number Computations Report
****

Subbasin EX1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.11	-	96.00
Composite Area & Weighted CN	1.11		96.00

Subbasin EX2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.12	-	89.00
Composite Area & Weighted CN	0.12		89.00

Subbasin OS1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.29	-	98.00
Composite Area & Weighted CN	0.29		98.00

Subbasin OS2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.51	-	94.00
Composite Area & Weighted CN	0.51		94.00

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin EX1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00

Total TOC (minutes): 5.39

Subbasin EX2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	607.00	0.00	0.00
Slope (%):	0.80	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.36	0.00	0.00
Computed Flow Time (minutes):	7.42	0.00	0.00

Total TOC (minutes): 7.42

Subbasin OS1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	618.62	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	0.00	0.00
Velocity (ft/sec):	1.50	0.00	0.00
Computed Flow Time (minutes):	6.89	0.00	0.00

Total TOC (minutes):	6.89			

Subbasin OS2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	0.00	0.00
Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00
Total TOC (minutes):	5.39		

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
EX1	3.08	2.63	4.23	96.000	0	00:05:23
EX2	3.08	1.97	0.35	89.000	0	00:07:25
OS1	3.08	2.85	1.10	98.000	0	00:06:53
OS2	3.08	2.43	1.86	94.000	0	00:05:23

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
Ex_Martway_Inlet	0.03	0.18	921.03	0	12:00	0	0	0:00:00

Ex_Martway_St_Rock_Creek_Outfall	0.03	0.18	918.18	0	12:00	0	0	0	0:00:00	
Ex_MBA_PH2_Rock_Creek_Outfall	0.00	0.00	919.00	0	00:00	0	0	0	0:00:00	

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
Ex_Martway_Inlet	JUNCTION	3.26	3.26	0	12:00	0.00		
Ex_Martway_St_Rock_Creek_Outfall	OUTFALL	0.00	3.26	0	12:00	0.00		
Ex_MBA_PH2_Rock_Creek_Outfall	OUTFALL	4.22	4.22	0	12:00	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Ex_Martway_St_Rock_Creek_Outfall	92.61	0.10	3.26
Ex_MBA_PH2_Rock_Creek_Outfall	88.58	0.14	4.22
System	90.59	0.24	7.48

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Ex_Martway_Pipe	CONDUIT	0	12:00	18.14	1.00	3.26	436.42	0.01	0.06	0	Calculated

****
Highest Flow Instability Indexes
****

All links are stable.

Analysis began on: Wed Feb 26 11:25:32 2025
Analysis ended on: Wed Feb 26 11:25:33 2025
Total elapsed time: 00:00:01

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.323 (Build 0)

****
Project Description
****
File Name ..... 25-0108 Existing Drainage.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date FEB-19-2025 00:00:00
Ending Date FEB-20-2025 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 4
Number of nodes 3
Number of links 1

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	10-YR	CUMULATIVE	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Peak Rate Factor
EX1	1.11	484.00
EX2	0.12	484.00
OS1	0.29	484.00
OS2	0.51	484.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Ex_Martway_Inlet	JUNCTION	920.85	927.10	0.00	
Ex_Martway_St_Rock_Creek_Outfall	OUTFALL	918.00	921.00	0.00	
Ex_MBA_PH2_Rock_Creek_Outfall	OUTFALL	919.00	919.00	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Ex_Martway_Pipe	Ex_Martway_Inlet	Ex_Martway_St_Rock_Creek_Outfall	CONDUIT	5.0	57.0000	0.0150

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Ex_Martway_Pipe	CIRCULAR	3.00	3.00	1	7.07	0.75	436.42

Runoff Quantity Continuity **********	Volume acre-ft ----------	Depth inches -------
Total Precipitation	0.942	5.568
Surface Runoff	0.083	0.493
Continuity Error (%)	-0.000	

Flow Routing Continuity **********	Volume acre-ft ----------	Volume Mgallons ----------
External Inflow	0.000	0.000
External Outflow	0.834	0.272
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.000	

****

Composite Curve Number Computations Report
****

Subbasin EX1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.11	-	96.00
Composite Area & Weighted CN	1.11		96.00

Subbasin EX2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.12	-	89.00
Composite Area & Weighted CN	0.12		89.00

Subbasin OS1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.29	-	98.00
Composite Area & Weighted CN	0.29		98.00

Subbasin OS2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.51	-	94.00
Composite Area & Weighted CN	0.51		94.00

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness

Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin EX1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50

Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00
Total TOC (minutes):	5.39		

Subbasin EX2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	607.00	0.00	0.00
Slope (%):	0.80	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.36	0.00	0.00
Computed Flow Time (minutes):	7.42	0.00	0.00
Total TOC (minutes):	7.42		

Subbasin OS1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	618.62	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	0.00	0.00
Velocity (ft/sec):	1.50	0.00	0.00
Computed Flow Time (minutes):	6.89	0.00	0.00
Total TOC (minutes):	6.89		

Subbasin OS2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00

2 yr, 24 hr Rainfall (in):	3.66	0.00	0.00
Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00
Total TOC (minutes):	5.39		

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
EX1	5.50	5.03	7.80	96.000	0	00:05:23
EX2	5.50	4.25	0.73	89.000	0	00:07:25
OS1	5.50	5.26	1.98	98.000	0	00:06:53
OS2	5.50	4.80	3.53	94.000	0	00:05:23

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
Ex_Martway_Inlet	0.04	0.25	921.10	0	12:00	0	0	0:00:00
Ex_Martway_St_Rock_Creek_Outfall	0.04	0.25	918.25	0	12:00	0	0	0:00:00
Ex_MBA_PH2_Rock_Creek_Outfall	0.00	0.00	919.00	0	00:00	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
Ex_Martway_Inlet	JUNCTION	6.18	6.18	0	12:00	0.00		
Ex_Martway_St_Rock_Creek_Outfall	OUTFALL	0.00	6.17	0	12:00	0.00		
Ex_MBA_PH2_Rock_Creek_Outfall	OUTFALL	7.78	7.78	0	12:00	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Ex_Martway_St_Rock_Creek_Outfall	95.90	0.20	6.17
Ex_MBA_PH2_Rock_Creek_Outfall	93.27	0.25	7.78
System	94.59	0.45	13.96

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Ex_Martway_Pipe	CONDUIT	0 12:00	22.00	1.00	6.17	436.42	0.01	0.08	0	Calculated

****
Highest Flow Instability Indexes
****
All links are stable.

Analysis began on: Wed Feb 26 11:26:23 2025
Analysis ended on: Wed Feb 26 11:26:23 2025
Total elapsed time: < 1 sec

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.323 (Build 0)

****
Project Description
****
File Name ..... 25-0108 Existing Drainage.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date FEB-19-2025 00:00:00
Ending Date FEB-20-2025 00:00:00
Report Time Step 00:05:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 4
Number of nodes 3
Number of links 1

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	100-YR	CUMULATIVE	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Peak Rate Factor
EX1	1.11	484.00

EX2		0.12	484.00
OS1		0.29	484.00
OS2		0.51	484.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
Ex_Martway_Inlet	JUNCTION	920.85	927.10	0.00	
Ex_Martway_St_Rock_Creek_Outfall	OUTFALL	918.00	921.00	0.00	
Ex_MBA_PH2_Rock_Creek_Outfall	OUTFALL	919.00	919.00	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Ex_Martway_Pipe	Ex_Martway_Inlet	Ex_Martway_St_Rock_Creek_Outfall	CONDUIT	5.0	57.0000	0.0150

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Ex_Martway_Pipe	CIRCULAR	3.00	3.00	1	7.07	0.75	436.42

********** Runoff Quantity Continuity **********	Volume acre-ft ---------	Depth inches -------
Total Precipitation	1.516	8.959
Surface Runoff	0.140	0.825
Continuity Error (%)	-0.000	

********** Flow Routing Continuity **********	Volume acre-ft ---------	Volume Mgallons ---------
External Inflow	0.000	0.000
External Outflow	1.395	0.455

Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Composite Curve Number Computations Report
****

Subbasin EX1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.11	-	96.00
Composite Area & Weighted CN	1.11		96.00

Subbasin EX2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.12	-	89.00
Composite Area & Weighted CN	0.12		89.00

Subbasin OS1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.29	-	98.00
Composite Area & Weighted CN	0.29		98.00

Subbasin OS2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.51	-	94.00
Composite Area & Weighted CN	0.51		94.00

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin EX1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00

Total TOC (minutes): 5.39

Subbasin EX2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	607.00	0.00	0.00
Slope (%):	0.80	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.36	0.00	0.00
Computed Flow Time (minutes):	7.42	0.00	0.00

Total TOC (minutes): 7.42

Subbasin OS1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	618.62	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	0.00	0.00
Velocity (ft/sec):	1.50	0.00	0.00
Computed Flow Time (minutes):	6.89	0.00	0.00

Total TOC (minutes):	6.89			

Subbasin OS2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	0.00	0.00
Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00
Total TOC (minutes):	5.39		

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
EX1	8.85	8.37	12.69	96.000	0	00:05:23
EX2	8.85	7.52	1.26	89.000	0	00:07:25
OS1	8.85	8.61	3.19	98.000	0	00:06:53
OS2	8.85	8.13	5.82	94.000	0	00:05:23

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
Ex_Martway_Inlet	0.05	0.33	921.18	0	12:00	0	0	0:00:00

Ex_Martway_St_Rock_Creek_Outfall	0.05	0.32	918.32	0	12:00	0	0	0:00:00			
Ex_MBA_PH2_Rock_Creek_Outfall	0.00	0.00	919.00	0	00:00	0	0	0:00:00			

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
Ex_Martway_Inlet	JUNCTION	10.15	10.15	0	12:00	0.00		
Ex_Martway_St_Rock_Creek_Outfall	OUTFALL	0.00	10.20	0	12:00	0.00		
Ex_MBA_PH2_Rock_Creek_Outfall	OUTFALL	12.67	12.67	0	12:00	0.00		

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Ex_Martway_St_Rock_Creek_Outfall	97.29	0.32	10.20
Ex_MBA_PH2_Rock_Creek_Outfall	95.70	0.41	12.67
System	96.49	0.73	22.87

****
Link Flow Summary
****

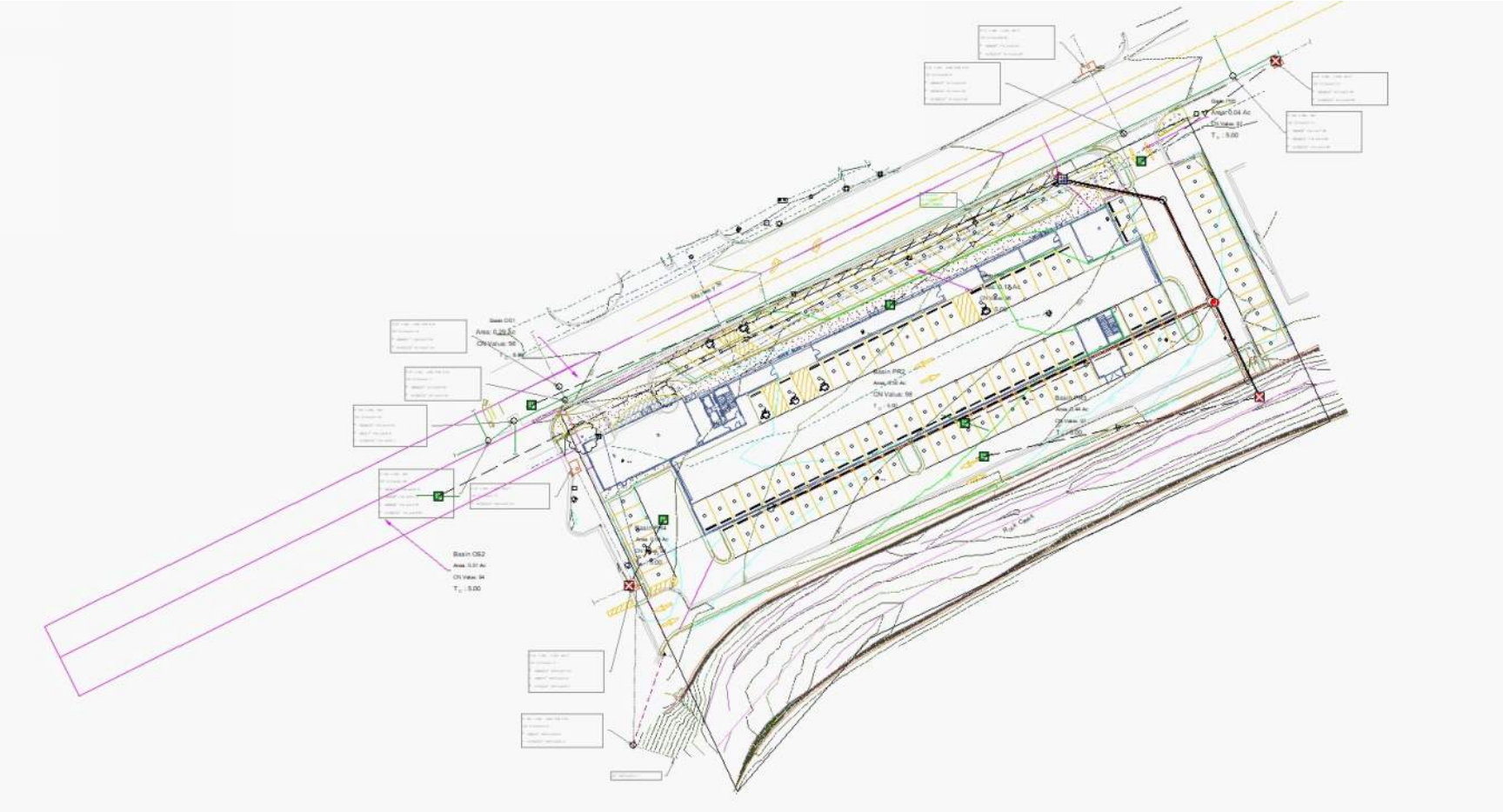
Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Ex_Martway_Pipe	CONDUIT	0 12:00	24.86	1.00	10.20	436.42	0.02	0.11	0	Calculated

****
Highest Flow Instability Indexes
****

All links are stable.

Analysis began on: Wed Feb 26 11:26:40 2025
Analysis ended on: Wed Feb 26 11:26:41 2025
Total elapsed time: 00:00:01

Appendix E
Proposed Conditions Analysis



Autodesk Storm and Sanitary Analysis

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.323 (Build 0)

****
Project Description
****
File Name ..... 25-0108 Proposed Drainage.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date FEB-19-2025 00:00:00
Ending Date FEB-20-2025 00:00:00
Report Time Step 00:02:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 7
Number of nodes 5
Number of links 2

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	1-YR	CUMULATIVE	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Peak Rate Factor
OS1	0.29	484.00
OS2	0.51	484.00
PR1	0.17	484.00
PR2	0.50	484.00

PR3	0.44	484.00
PR4	0.08	484.00
PR5	0.04	484.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
1C	JUNCTION	923.29	928.14	0.00	
Martway_St_Rock_Creek_OutfallOUTFALL		928.00	928.00	0.00	
MBA_PH1_Rock_Creek_OutfallOUTFALL		926.71	926.71	0.00	
MBA_PH2_Rock_Creek_OutfallOUTFALL		922.32	924.32	0.00	

****
Inlet Summary
****

Inlet ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation ft	Inlet Rim Elevation ft	Ponded Area ft²	Initial Water Elevation ft	Grate Clogging Factor %
Inlet_1A	FHWA HEC-22 GENERIC	N/A	On Sag	1	924.80	929.16	10.00	924.80	0.00

****
Roadway and Gutter Summary
****

Inlet ID	Roadway Longitudinal Slope ft/ft	Roadway Cross Slope ft/ft	Roadway Manning's Roughness	Gutter Cross Slope ft/ft	Gutter Width ft	Gutter Depression in
Inlet_1A	-	0.0200	0.0160	0.0521	1.50	10.00

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-03	1C	MBA_PH2_Rock_Creek_OutfallCONDUIT		48.7	1.9930	0.0120
Link-04	Inlet_1A	1C	CONDUIT	120.9	1.3300	0.0120

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter	Width	No. of Barrels	Cross Sectional Area	Full Flow Hydraulic Radius	Design Flow Capacity
		ft	ft		ft²	ft	cfs
Link-03	CIRCULAR	2.00	2.00	1	3.14	0.50	34.60
Link-04	CIRCULAR	1.50	1.50	1	1.77	0.38	13.12

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.521	3.078
Surface Runoff	0.056	0.333
Continuity Error (%)	-0.001	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.450	0.147
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.001	

```
****************************************
Composite Curve Number Computations Report
****************************************
```

Subbasin OS1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.29	-	98.00
Composite Area & Weighted CN	0.29		98.00

Subbasin OS2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.51	-	94.00
Composite Area & Weighted CN	0.51		94.00

Subbasin PR1

	Area	Soil

Soil/Surface Description	(acres)	Group	CN
-	0.17	-	96.00
Composite Area & Weighted CN	0.17		96.00

Subbasin PR2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.50	-	98.00
Composite Area & Weighted CN	0.50		98.00

Subbasin PR3

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.44	-	97.00
Composite Area & Weighted CN	0.44		97.00

Subbasin PR4

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.08	-	98.00
Composite Area & Weighted CN	0.08		98.00

Subbasin PR5

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.04	-	72.00
Composite Area & Weighted CN	0.04		72.00

****
SCS TR-55 Time of Concentration Computations Report
****

Sheet Flow Equation

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where:

Tc = Time of Concentration (hrs)
n = Manning's Roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hrs)
Lf = Flow Length (ft)
R = Hydraulic Radius (ft)
Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin OS1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	618.62	0.00	0.00

Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.50	0.00	0.00
Computed Flow Time (minutes):	6.89	0.00	0.00
Total TOC (minutes):	6.89		

Subbasin OS2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00
Total TOC (minutes):	5.39		

Subbasin PR1

User-Defined TOC override (minutes):	5.00

Subbasin PR2

User-Defined TOC override (minutes):	5.00

Subbasin PR3

User-Defined TOC override (minutes):	5.00

Subbasin PR4

User-Defined TOC override (minutes):	5.00

Subbasin PR5

User-Defined TOC override (minutes): 5.00

****
Subbasin Runoff Summary
****

Subbasin ID	Total Precip in	Total Runoff in	Peak Runoff cfs	Weighted Curve Number	Time of Concentration days	Time of Concentration hh:mm:ss
OS1	3.08	2.85	1.10	98.000	0	00:06:53
OS2	3.08	2.43	1.86	94.000	0	00:05:23
PR1	3.08	2.63	0.67	96.000	0	00:05:00
PR2	3.08	2.85	2.00	98.000	0	00:05:00
PR3	3.08	2.74	1.74	97.000	0	00:05:00
PR4	3.08	2.84	0.33	98.000	0	00:05:00
PR5	3.08	0.75	0.05	72.000	0	00:05:00

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
1C	0.27	0.74	924.03	0	11:58	0	0	0:00:00
Martway_St_Rock_Creek_Outfall	0.00	0.00	928.00	0	00:00	0	0	0:00:00
MBA_PH1_Rock_Creek_Outfall	0.00	0.00	926.71	0	00:00	0	0	0:00:00
MBA_PH2_Rock_Creek_Outfall	0.08	0.54	922.86	0	11:58	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
1C	JUNCTION	1.97	5.52	0	11:58	0.00		
Martway_St_Rock_Creek_Outfall	OUTFALL	0.05	0.05	0	11:58	0.00		
MBA_PH1_Rock_Creek_Outfall	OUTFALL	0.33	0.33	0	11:56	0.00		
MBA_PH2_Rock_Creek_Outfall	OUTFALL	1.70	7.22	0	11:58	0.00		

****
Inlet Depth Summary
****

Inlet ID	Max Gutter Spread during Peak Flow ft	Max Gutter Water Elev during Peak Flow ft	Max Gutter Water Depth during Peak Flow ft	Time of Maximum Depth Occurrence days hh:mm
Inlet_1A	17.48	930.39	1.23	0 11:58

****
Inlet Flow Summary
****

Inlet ID	Peak Flow cfs	Peak Lateral Flow cfs	Peak Intercepted by Inlet cfs	Peak Bypassing Inlet cfs	Inlet Efficiency during Peak Flow %	Total Flooding acre-in	Total Time Flooded minutes
Inlet_1A	3.59	3.59	-	-	-	0.000	0

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Martway_St_Rock_Creek_Outfall	33.07	0.00	0.05
MBA_PH1_Rock_Creek_Outfall	89.46	0.01	0.33
MBA_PH2_Rock_Creek_Outfall	93.30	0.23	7.22
System	71.94	0.25	7.59

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow	Maximum Velocity	Length Factor	Peak Flow during	Design Flow	Ratio of Maximum	Ratio of Maximum	Total Time	Reported Condition

		Occurrence days	hh:mm	Attained ft/sec		Analysis cfs	Capacity cfs	/Design Flow	Flow Depth	Surcharged minutes	
Link-03	CONDUIT	0	11:58	8.06	1.00	5.52	34.60	0.16	0.27	0	Calculated
Link-04	CONDUIT	0	11:58	6.34	1.00	3.58	13.12	0.27	0.36	0	Calculated

****
Highest Flow Instability Indexes
****
All links are stable.

Analysis began on: Wed Feb 26 11:31:43 2025
Analysis ended on: Wed Feb 26 11:31:45 2025
Total elapsed time: 00:00:02

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.323 (Build 0)

****
Project Description
****
File Name ..... 25-0108 Proposed Drainage.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date FEB-19-2025 00:00:00
Ending Date FEB-20-2025 00:00:00
Report Time Step 00:02:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 7
Number of nodes 5
Number of links 2

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	10-YR	CUMULATIVE	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Peak Rate Factor
OS1	0.29	484.00

OS2	0.51	484.00
PR1	0.17	484.00
PR2	0.50	484.00
PR3	0.44	484.00
PR4	0.08	484.00
PR5	0.04	484.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
1C	JUNCTION	923.29	928.14	0.00	
Martway_St_Rock_Creek_OutfallOUTFALL		928.00	928.00	0.00	
MBA_PH1_Rock_Creek_OutfallOUTFALL		926.71	926.71	0.00	
MBA_PH2_Rock_Creek_OutfallOUTFALL		922.32	924.32	0.00	

****
Inlet Summary
****

Inlet ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation ft	Rim Elevation ft	Inlet Ponded Area ft²	Initial Water Elevation ft	Grate Clogging Factor %
Inlet_1A	FHWA HEC-22 GENERIC	N/A	On Sag	1	924.80	929.16	10.00	924.80	0.00

****
Roadway and Gutter Summary
****

Inlet ID	Roadway Longitudinal Slope ft/ft	Roadway Cross Slope ft/ft	Roadway Manning's Roughness	Gutter Cross Slope ft/ft	Gutter Width ft	Gutter Depression in
Inlet_1A	- 0.0200	0.0160	0.0521	1.50	10.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-03	1C	MBA_PH2_Rock_Creek_OutfallCONDUIT		48.7	1.9930	0.0120

Link-04	Inlet_1A	1C	CONDUIT	120.9	1.3300	0.0120	

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter	Width	No. of Barrels	Cross Sectional Area	Full Flow Hydraulic Radius	Design Flow Capacity
		ft	ft		ft²	ft	cfs
Link-03	CIRCULAR	2.00	2.00	1	3.14	0.50	34.60
Link-04	CIRCULAR	1.50	1.50	1	1.77	0.38	13.12

**********	Volume	Depth
Runoff Quantity Continuity	acre-ft	inches
**********	---------	-------
Total Precipitation	0.930	5.496
Surface Runoff	0.107	0.632
Continuity Error (%)	-0.001	

**********	Volume	Volume
Flow Routing Continuity	acre-ft	Mgallons
**********	---------	---------
External Inflow	0.000	0.000
External Outflow	0.855	0.279
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.001	

****
Composite Curve Number Computations Report
****

Subbasin OS1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.29	-	98.00
Composite Area & Weighted CN	0.29		98.00

Subbasin OS2

	Area	Soil

Soil/Surface Description	(acres)	Group	CN
-	0.51	-	94.00
Composite Area & Weighted CN	0.51		94.00

Subbasin PR1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.17	-	96.00
Composite Area & Weighted CN	0.17		96.00

Subbasin PR2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.50	-	98.00
Composite Area & Weighted CN	0.50		98.00

Subbasin PR3

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.44	-	97.00
Composite Area & Weighted CN	0.44		97.00

Subbasin PR4

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.08	-	98.00
Composite Area & Weighted CN	0.08		98.00

Subbasin PR5

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.04	-	72.00
Composite Area & Weighted CN	0.04		72.00

```
************************************************
SCS TR-55 Time of Concentration Computations Report
************************************************

Sheet Flow Equation
-------------------

        Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

        Where:

        Tc = Time of Concentration (hrs)
        n  = Manning's Roughness
        Lf = Flow Length (ft)
        P  = 2 yr, 24 hr Rainfall (inches)
        Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation
----------------------------------

        V  = 16.1345 * (Sf^0.5) (unpaved surface)
        V  = 20.3282 * (Sf^0.5) (paved surface)
        V  = 15.0 * (Sf^0.5) (grassed waterway surface)
        V  = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
        V  = 9.0 * (Sf^0.5) (cultivated straight rows surface)
        V  = 7.0 * (Sf^0.5) (short grass pasture surface)
        V  = 5.0 * (Sf^0.5) (woodland surface)
        V  = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        V  = Velocity (ft/sec)
        Sf = Slope (ft/ft)

Channel Flow Equation
---------------------

        V  = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
        R  = Aq / Wp
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        R  = Hydraulic Radius (ft)
```

Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin OS1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	618.62	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.50	0.00	0.00
Computed Flow Time (minutes):	6.89	0.00	0.00
Total TOC (minutes):	6.89		

Subbasin OS2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00
Total TOC (minutes):	5.39		

Subbasin PR1

User-Defined TOC override (minutes): 5.00

Subbasin PR2

```
---------------

        User-Defined TOC override (minutes):      5.00

---------------
Subbasin PR3
---------------

        User-Defined TOC override (minutes):      5.00

---------------
Subbasin PR4
---------------

        User-Defined TOC override (minutes):      5.00

---------------
Subbasin PR5
---------------

        User-Defined TOC override (minutes):      5.00

**********************
Subbasin Runoff Summary
**********************

-------------------------------------------------------------------------
Subbasin             Total     Total      Peak  Weighted           Time of
ID                  Precip    Runoff    Runoff     Curve      Concentration
                       in        in       cfs    Number    days  hh:mm:ss
-------------------------------------------------------------------------
OS1                  5.50      5.26      1.98    98.000       0  00:06:53
OS2                  5.50      4.80      3.53    94.000       0  00:05:23
PR1                  5.50      5.03      1.23    96.000       0  00:05:00
PR2                  5.50      5.26      3.60    98.000       0  00:05:00
PR3                  5.50      5.14      3.17    97.000       0  00:05:00
PR4                  5.50      5.26      0.60    98.000       0  00:05:00
PR5                  5.50      2.58      0.16    72.000       0  00:05:00
-------------------------------------------------------------------------


******************
Node Depth Summary
******************

-----------------------------------------------------------------------------------------
Node            Average   Maximum   Maximum   Time of Max     Total     Total   Retention
ID                Depth     Depth       HGL    Occurrence   Flooded      Time        Time
                Attained  Attained  Attained                Volume   Flooded
                      ft        ft        ft   days  hh:mm   acre-in   minutes    hh:mm:ss
```

1C	0.30	0.96	924.25	0	11:58	0	0	0:00:00	
Martway_St_Rock_Creek_Outfall	0.00	0.00	928.00	0	00:00	0	0	0:00:00	
MBA_PH1_Rock_Creek_Outfall	0.00	0.00	926.71	0	00:00	0	0	0:00:00	
MBA_PH2_Rock_Creek_Outfall	0.10	0.74	923.06	0	11:58	0	0	0:00:00	

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
1C	JUNCTION	3.54	10.18	0	11:57	0.00		
Martway_St_Rock_Creek_Outfall	OUTFALL	0.16	0.16	0	11:58	0.00		
MBA_PH1_Rock_Creek_Outfall	OUTFALL	0.59	0.59	0	11:56	0.00		
MBA_PH2_Rock_Creek_Outfall	OUTFALL	3.12	13.23	0	11:58	0.00		

****
Inlet Depth Summary
****

Inlet ID	Max Gutter Spread during Peak Flow ft	Max Gutter Water Elev during Peak Flow ft	Max Gutter Water Depth during Peak Flow ft	Time of Maximum Depth Occurrence days	hh:mm
Inlet_1A	2.36	930.09	0.93	0	11:58

****
Inlet Flow Summary
****

Inlet ID	Peak Flow cfs	Peak Lateral Flow cfs	Peak Flow Intercepted by Inlet cfs	Peak Flow Bypassing Inlet cfs	Inlet Efficiency during Peak Flow %	Total Flooding acre-in	Total Time Flooded minutes
Inlet_1A	6.67	6.67	-	-	-	0.000	0

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Martway_St_Rock_Creek_Outfall	57.52	0.01	0.16
MBA_PH1_Rock_Creek_Outfall	94.88	0.02	0.59
MBA_PH2_Rock_Creek_Outfall	96.18	0.42	13.23
System	82.86	0.45	13.97

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-03	CONDUIT	0 11:58	9.58	1.00	10.15	34.60	0.29	0.37	0	Calculated
Link-04	CONDUIT	0 11:58	7.54	1.00	6.68	13.12	0.51	0.51	0	Calculated

****
Highest Flow Instability Indexes
****
All links are stable.

Analysis began on: Wed Feb 26 11:32:17 2025
Analysis ended on: Wed Feb 26 11:32:18 2025
Total elapsed time: 00:00:01

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.323 (Build 0)

****
Project Description
****
File Name ..... 25-0108 Proposed Drainage.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. SCS TR-55
Time of Concentration..... SCS TR-55
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Constant rate, wetted area
Starting Date FEB-19-2025 00:00:00
Ending Date FEB-20-2025 00:00:00
Report Time Step 00:02:00

****
Element Count
****
Number of rain gages 1
Number of subbasins 7
Number of nodes 5
Number of links 2

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-01	100-YR	CUMULATIVE	6.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Peak Rate Factor
OS1	0.29	484.00

OS2	0.51	484.00
PR1	0.17	484.00
PR2	0.50	484.00
PR3	0.44	484.00
PR4	0.08	484.00
PR5	0.04	484.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
1C	JUNCTION	923.29	928.14	0.00	
Martway_St_Rock_Creek_OutfallOUTFALL		928.00	928.00	0.00	
MBA_PH1_Rock_Creek_OutfallOUTFALL		926.71	926.71	0.00	
MBA_PH2_Rock_Creek_OutfallOUTFALL		922.32	924.32	0.00	

****
Inlet Summary
****

Inlet ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation ft	Rim Elevation ft	Inlet Ponded Area ft²	Initial Water Elevation ft	Grate Clogging Factor %
Inlet_1A	FHWA HEC-22 GENERIC	N/A	On Sag	1	924.80	929.16	10.00	924.80	0.00

****
Roadway and Gutter Summary
****

Inlet ID	Roadway Longitudinal Slope ft/ft	Roadway Cross Slope ft/ft	Roadway Manning's Roughness	Gutter Cross Slope ft/ft	Gutter Width ft	Gutter Depression in
Inlet_1A	- 0.0200	0.0160	0.0521	1.50	10.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-03	1C	MBA_PH2_Rock_Creek_OutfallCONDUIT		48.7	1.9930	0.0120

Link-04	Inlet_1A	1C	CONDUIT	120.9	1.3300	0.0120	

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter	Width	No. of Barrels	Cross Sectional Area	Full Flow Hydraulic Radius	Design Flow Capacity
		ft	ft		ft²	ft	cfs
Link-03	CIRCULAR	2.00	2.00	1	3.14	0.50	34.60
Link-04	CIRCULAR	1.50	1.50	1	1.77	0.38	13.12

**********	Volume	Depth
Runoff Quantity Continuity	acre-ft	inches
**********	---------	-------
Total Precipitation	1.496	8.844
Surface Runoff	0.178	1.049
Continuity Error (%)	-0.001	

**********	Volume	Volume
Flow Routing Continuity	acre-ft	Mgallons
**********	---------	---------
External Inflow	0.000	0.000
External Outflow	1.419	0.462
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Composite Curve Number Computations Report
****

Subbasin OS1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.29	-	98.00
Composite Area & Weighted CN	0.29		98.00

Subbasin OS2

	Area	Soil

Soil/Surface Description	(acres)	Group	CN
-	0.51	-	94.00
Composite Area & Weighted CN	0.51		94.00

Subbasin PR1

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.17	-	96.00
Composite Area & Weighted CN	0.17		96.00

Subbasin PR2

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.50	-	98.00
Composite Area & Weighted CN	0.50		98.00

Subbasin PR3

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.44	-	97.00
Composite Area & Weighted CN	0.44		97.00

Subbasin PR4

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.08	-	98.00
Composite Area & Weighted CN	0.08		98.00

Subbasin PR5

Soil/Surface Description	Area (acres)	Soil Group	CN
-	0.04	-	72.00
Composite Area & Weighted CN	0.04		72.00

```
************************************************
SCS TR-55 Time of Concentration Computations Report
************************************************

Sheet Flow Equation
-------------------

        Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

        Where:

        Tc = Time of Concentration (hrs)
        n  = Manning's Roughness
        Lf = Flow Length (ft)
        P  = 2 yr, 24 hr Rainfall (inches)
        Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation
----------------------------------

        V  = 16.1345 * (Sf^0.5) (unpaved surface)
        V  = 20.3282 * (Sf^0.5) (paved surface)
        V  = 15.0 * (Sf^0.5) (grassed waterway surface)
        V  = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
        V  = 9.0 * (Sf^0.5) (cultivated straight rows surface)
        V  = 7.0 * (Sf^0.5) (short grass pasture surface)
        V  = 5.0 * (Sf^0.5) (woodland surface)
        V  = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        V  = Velocity (ft/sec)
        Sf = Slope (ft/ft)

Channel Flow Equation
---------------------

        V  = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
        R  = Aq / Wp
        Tc = (Lf / V) / (3600 sec/hr)

        Where:

        Tc = Time of Concentration (hrs)
        Lf = Flow Length (ft)
        R  = Hydraulic Radius (ft)
```

Aq = Flow Area (ft²)
Wp = Wetted Perimeter (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)
n = Manning's Roughness

Subbasin OS1

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	618.62	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.50	0.00	0.00
Computed Flow Time (minutes):	6.89	0.00	0.00
Total TOC (minutes):	6.89		

Subbasin OS2

Sheet Flow Computations

	Subarea A	Subarea B	Subarea C
Manning's Roughness:	0.01	0.00	0.00
Flow Length (ft):	390.00	0.00	0.00
Slope (%):	1.00	0.00	0.00
2 yr, 24 hr Rainfall (in):	3.66	3.50	3.50
Velocity (ft/sec):	1.21	0.00	0.00
Computed Flow Time (minutes):	5.39	0.00	0.00
Total TOC (minutes):	5.39		

Subbasin PR1

User-Defined TOC override (minutes): 5.00

Subbasin PR2

```
---------------

        User-Defined TOC override (minutes):      5.00

---------------
Subbasin PR3
---------------

        User-Defined TOC override (minutes):      5.00

---------------
Subbasin PR4
---------------

        User-Defined TOC override (minutes):      5.00

---------------
Subbasin PR5
---------------

        User-Defined TOC override (minutes):      5.00

**********************
Subbasin Runoff Summary
**********************

-------------------------------------------------------------------------
Subbasin             Total     Total      Peak  Weighted           Time of
ID                  Precip    Runoff    Runoff     Curve      Concentration
                       in        in       cfs    Number    days  hh:mm:ss
-------------------------------------------------------------------------
OS1                    8.85      8.61      3.19    98.000       0  00:06:53
OS2                    8.85      8.13      5.82    94.000       0  00:05:23
PR1                    8.85      8.37      2.00    96.000       0  00:05:00
PR2                    8.85      8.61      5.81    98.000       0  00:05:00
PR3                    8.85      8.49      5.13    97.000       0  00:05:00
PR4                    8.85      8.61      0.97    98.000       0  00:05:00
PR5                    8.85      5.43      0.33    72.000       0  00:05:00
-------------------------------------------------------------------------


******************
Node Depth Summary
******************

-----------------------------------------------------------------------------------------
Node            Average    Maximum    Maximum   Time of Max      Total      Total   Retention
ID                Depth      Depth        HGL    Occurrence    Flooded       Time        Time
                Attained   Attained   Attained                  Volume    Flooded
                      ft         ft         ft   days  hh:mm    acre-in    minutes     hh:mm:ss
```

1C	0.33	1.24	924.53	0	11:58	0	0	0:00:00	
Martway_St_Rock_Creek_Outfall	0.00	0.00	928.00	0	00:00	0	0	0:00:00	
MBA_PH1_Rock_Creek_Outfall	0.00	0.00	926.71	0	00:00	0	0	0:00:00	
MBA_PH2_Rock_Creek_Outfall	0.14	0.97	923.29	0	11:58	0	0	0:00:00	

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
1C	JUNCTION	5.72	16.50	0	11:58	0.00		
Martway_St_Rock_Creek_Outfall	OUTFALL	0.33	0.33	0	11:58	0.00		
MBA_PH1_Rock_Creek_Outfall	OUTFALL	0.95	0.95	0	11:56	0.00		
MBA_PH2_Rock_Creek_Outfall	OUTFALL	5.04	21.49	0	11:58	0.00		

****
Inlet Depth Summary
****

Inlet ID	Max Gutter Spread during Peak Flow ft	Max Gutter Water Elev during Peak Flow ft	Max Gutter Water Depth during Peak Flow ft	Time of Maximum Depth Occurrence days	hh:mm
Inlet_1A	48.55	931.01	1.85	0	11:58

****
Inlet Flow Summary
****

Inlet ID	Peak Flow cfs	Peak Lateral Flow cfs	Peak Flow Intercepted by Inlet cfs	Peak Flow Bypassing Inlet cfs	Inlet Efficiency during Peak Flow %	Total Flooding acre-in	Total Time Flooded minutes
Inlet_1A	10.89	10.89	-	-	-	0.000	0

****
Outfall Loading Summary
****

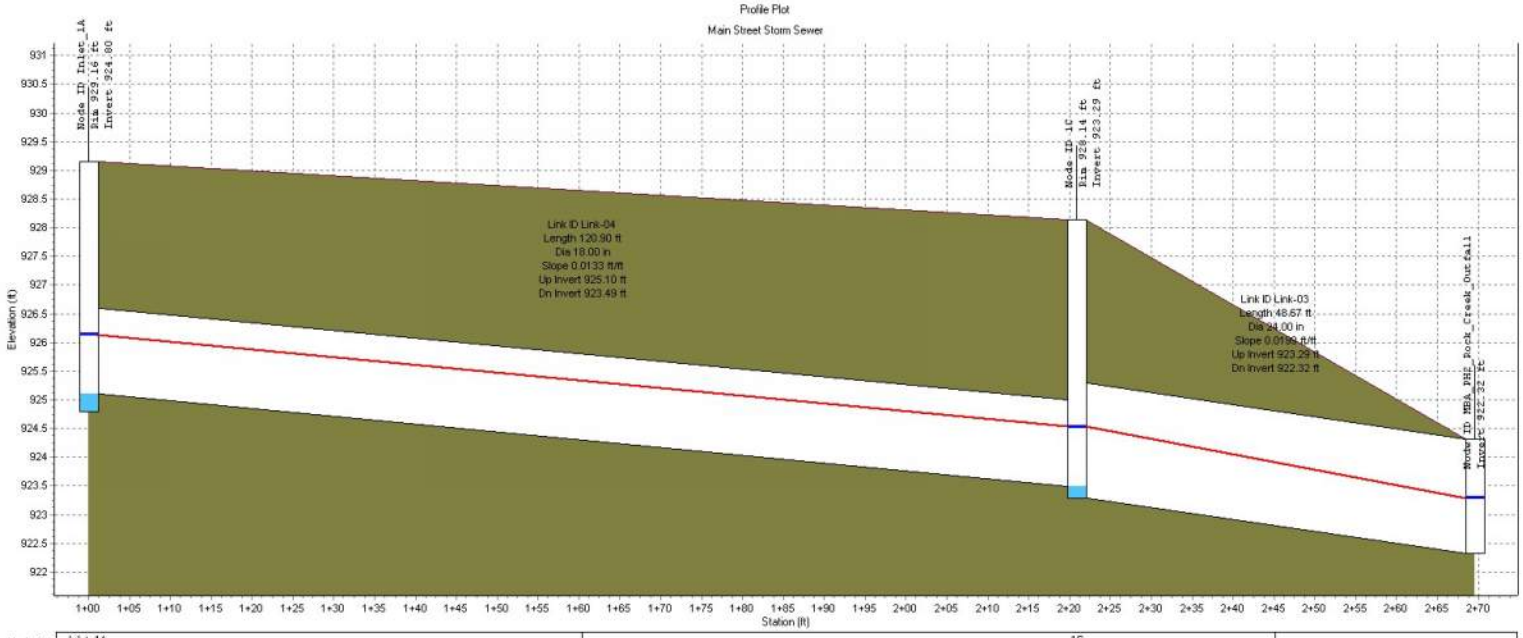
Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Martway_St_Rock_Creek_Outfall	66.27	0.01	0.33
MBA_PH1_Rock_Creek_Outfall	96.96	0.03	0.95
MBA_PH2_Rock_Creek_Outfall	97.52	0.69	21.49
System	86.92	0.74	22.76

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-03	CONDUIT	0 11:58	10.88	1.00	16.50	34.60	0.48	0.49	0	Calculated
Link-04	CONDUIT	0 11:58	8.32	1.00	10.86	13.12	0.83	0.69	0	Calculated

****
Highest Flow Instability Indexes
****
Link Link-04 (2)

Analysis began on: Wed Feb 26 11:32:36 2025
Analysis ended on: Wed Feb 26 11:32:37 2025
Total elapsed time: 00:00:01



Node ID:	Inlet_1A	1C		
Rim (ft):	929.16	928.14		
Invert (ft):	924.80	923.29		922.32
Min Pipe Cover (ft):		2.85		
Max HGL (ft):	926.14	924.53		923.29

Link ID:	Link-04	Link-03
Length (ft):	120.90	48.67
Dia (in):	18.00	24.00
Slope (ft/ft):	0.0133	0.0199
Up Invert (ft):	925.10	923.29
Dn Invert (ft):	923.49	922.32
Max Q (cfs):	10.86	16.50
Max Vel (ft/s):	8.32	10.88
Max Depth (ft):	1.04	0.97

Appendix F
Floodplain Analysis
(Analysis to be included when complete)

Appendix G
Water Quality, Level of Service, and Value Rating Analysis

Renaissance Infrastructure Consulting

BMP Required Level of Service - Previously Developed Site

Project:	25-0108 The Lanes at Mission Bowl - Phase II
Location:	Mission, Kansas
Option:	LS for previously developed Site
Date:	February 26, 2025
By:	ANC

Worksheet 1: Required Level of Service - Developed Site

1 Required Treatment Area

A **Total Disturbed Area by Redevelopment Activity (ac)**

Disturbed Area Description	Acres
Building, Parking, Associated Walks, Landscape Islands	1.23
"1A" Total:	1.23

B **Existing Impervious Area Inside Disturbed Area (ac)**

Existing Impervious Area Description	Acres
Parking Lot	1.23
"1B" Total:	1.23

C **Required Treatment Area (ac)**

"1A" Total Less "1B" Total "1C": 0.00

2 Percent Impervious in Postdevelopment Condition and Level of Service (LS)

A **Total Postdevelopment Impervious Area Inside Disturbed Area (ac)**

Postdevelopment Impervious Area Description	Acres
Building, Parking, Associated Walks, Landscape Islands	1.23
"2A" Total:	1.23

B **Existing Impervious Area Inside Disturbed Area (ac)**

Existing Impervious Area Description	Acres
Parking Lot	1.23
"1B" Total:	1.23

C **Net increase in Impervious Area (ac)**

"2A Total Less "1B" Total "2C": 0.00

D **Percent Impervious**

Net Increase in Impervious Area / Required Treatment Area

"2C"/"1C": 0.00

E **Level of Service**

Use Percent Impervious to Enter Table XX **LS = 0.00**

3 Minimum Required Total Value Rating of BMP Package

Total Value Rating = LS x Required Treatment Area **VR = 0.00**

BARRACUDA MAX S6	
UNIT ID	1C
PEAK FLOW RATE CFS	16.5
TREATMENT FLOW RATE CFS	2.99

PRODUCT SPECIFICATIONS

THE STORMWATER TREATMENT UNIT SHALL BE AN INLINE UNIT CAPABLE OF CONVEYING 100 OF THE DESIGN PEAK FLOW. IF PEAK
FLOW RATES EXCEED MAXIMUM HYDRAULIC RATE, THE UNIT SHALL BE INSTALLED OFFLINE.

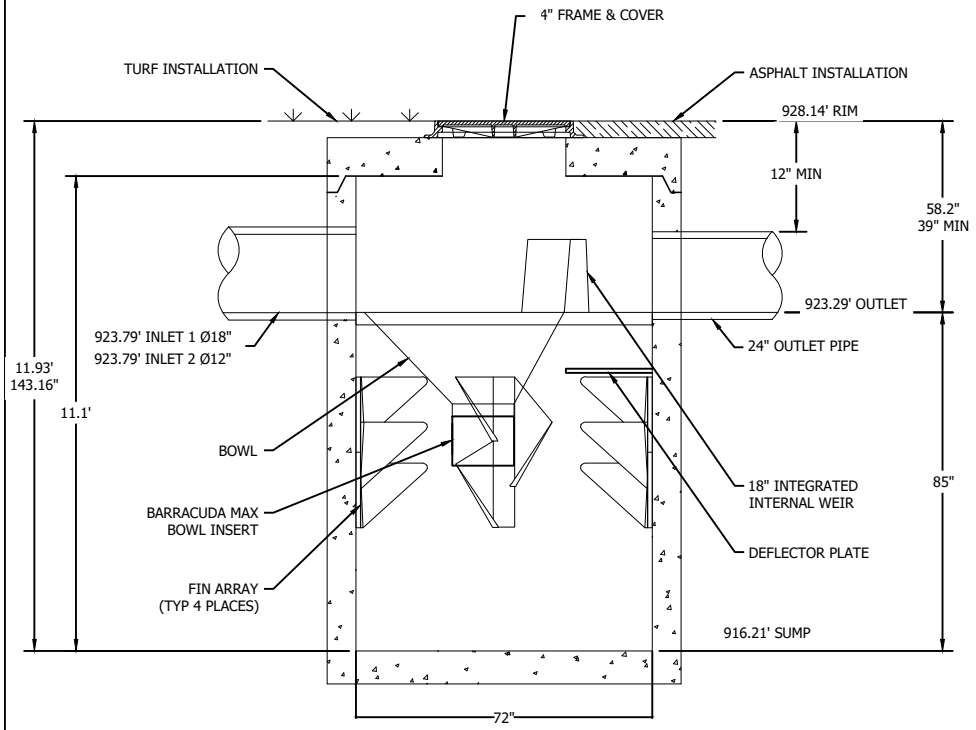
THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 80 OF THE SUSPENDED SOLIDS ON AN ANNUAL AGGREGATE REMOVAL BASIS. SAID REMOVAL SHALL BE BASED ON FULL-SCALE THIRD PARTY TESTING USING OK-110 MEDIA GRADATION OR EQUIVALENT AND 300 mg L INFLUENT CONCENTRATION. SAID FULL SCALE TESTING SHALL HAVE INCLUDED SEDIMENT CAPTURE BASED ON ACTUAL TOTAL MASS COLLECTED BY THE STORMWATER TREATMENT UNIT.

-OR -

THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50 OF TSS USING A MEDIA MIX WITH d 50=75 MICRON AND 200 MG L INFLUENT CONCENTRATION.

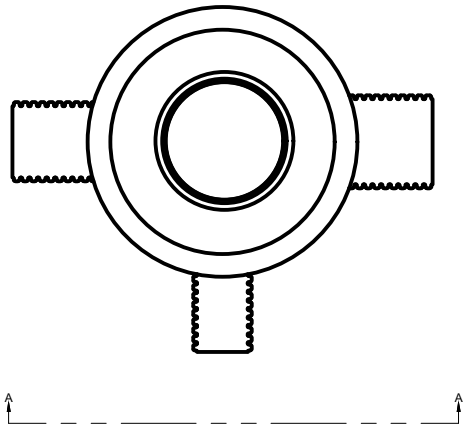
-OR -

THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50 OF TSS PER CURRENT NJDEP NJCAT HDS PROTOCOL.



SECTION VIEW A-A
N.T.S.

Pipe 1 18" INLET PIPE AT 0 DEG
Pipe 2 12" INLET PIPE AT 90 DEG
Pipe 3 24" OUTLET PIPE AT 180 DEG



PLAN VIEW
N.T.S.

MISSION BOWL APARTMENTS PHASE II
MISSION-KS

DATE: 2 26 25 DRAWN: XX
PROJECT #: CHECKED:

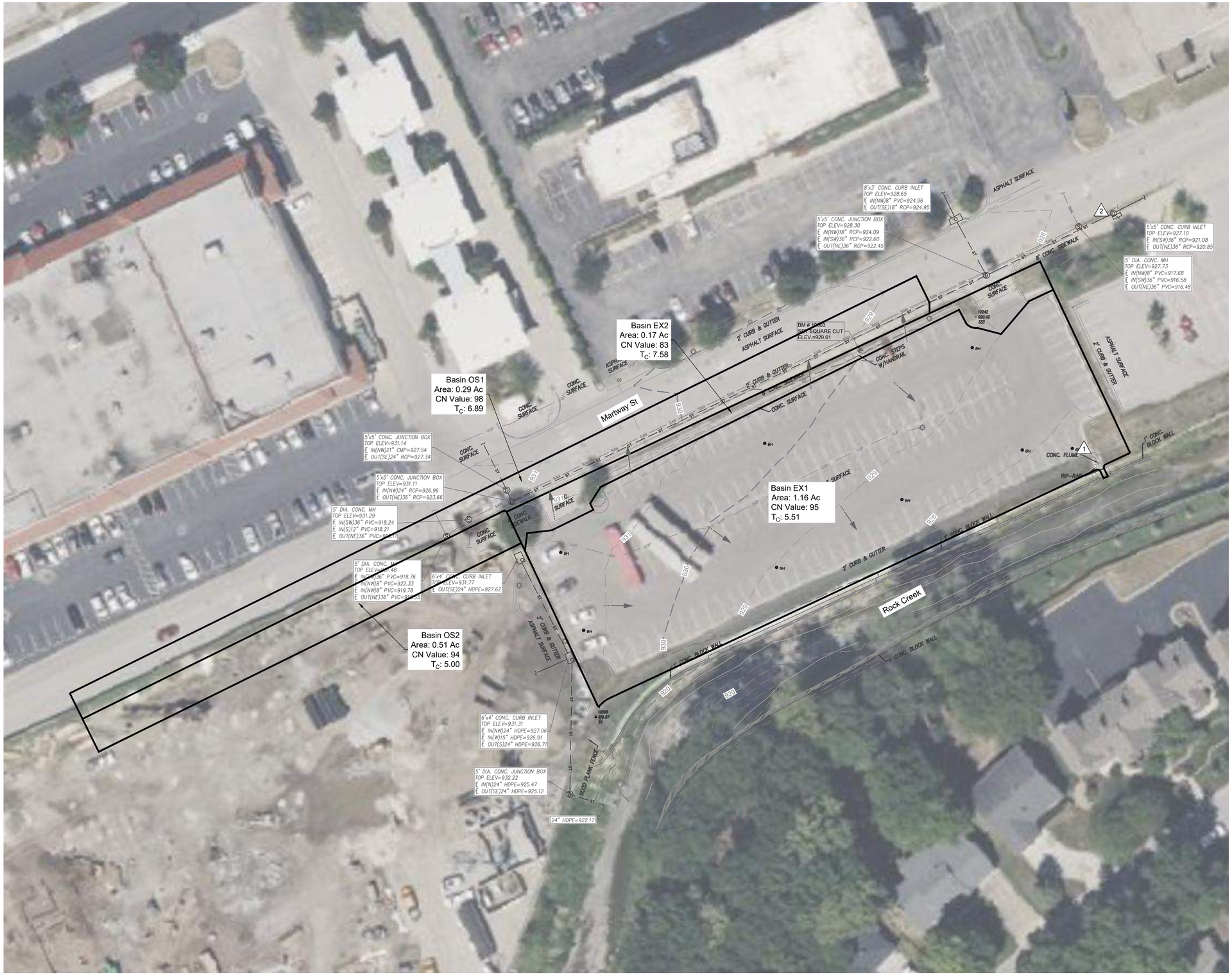
DATE	DRWN	CHKD	DESCRIPTION

Barracuda Max
Stormwater Separator

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026

NOT TO SCALE

Appendix H
Existing and Proposed Drainage Maps



LEGEND

- Existing Contour Major
- Existing Contour Minor
- Existing Flow Arrow
- Basin Design Point

NORTH

1"=30'

0 15' 30'

Drainage Exhibit

25-0108
The Lanes at Mission Bowl - Phase II
Mission, Johnson County, Kansas

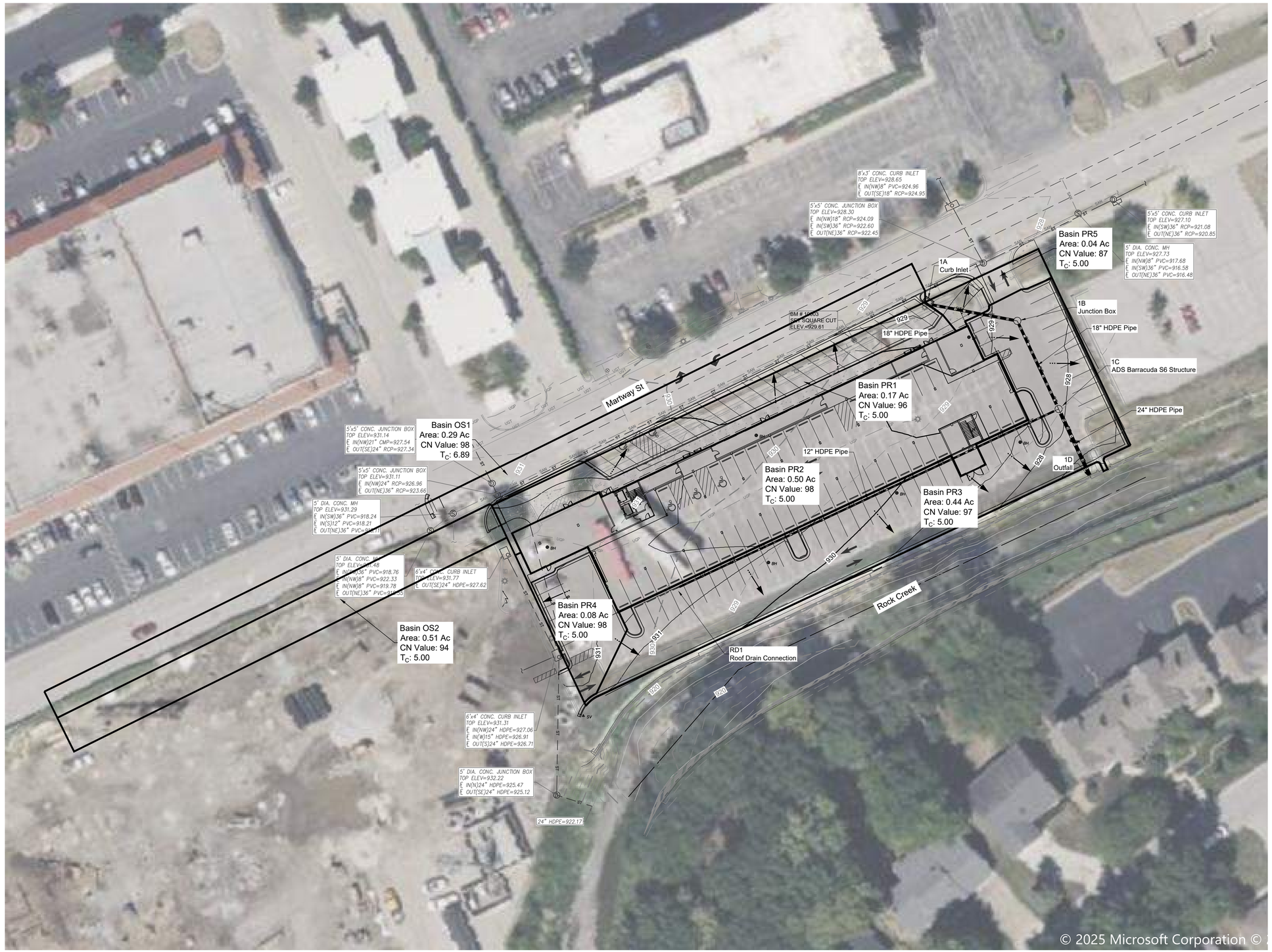
Existing Drainage Exhibit

NO.	DATE	REVISION

DRAWN BY: AC
CHECKED BY: AG

Renaissance Infrastructure Consulting
1800 Wazee, Suite 374
Denver, Colorado 80202
720.702.0090
www.ric-consult.com
CO Statement of Foreign Entity Authority: 20191570579

Sheet
1



LEGEND

- Existing Property Line
- Existing Easement Line
- Existing Curb & Gutter
- Existing Sidewalk
- Existing Pavement Concrete
- Existing Concrete Wall
- Existing Storm Sewer
- Existing Storm Structure
- Existing Sanitary Manhole
- Existing Contour Major
- Existing Contour Minor
- Existing Fire Hydrant
- Proposed Major Contour
- Proposed Minor Contour
- Proposed Flow Arrow

NORTH

1"=30'

0 15' 30'

Drainage Exhibit

25-0108
The Lanes at Mission Bowl - Phase II
Mission, Johnson County, Kansas

Proposed Drainage Exhibit

NO.	DATE	REVISION

DRAWN BY: AC
CHECKED BY: AG

Renaissance Infrastructure Consulting
1800 Wazee, Suite 374
Denver, Colorado 80202
720.702.0090
www.ric-consult.com
CO Statement of Foreign Entity Authority: 20191570379

Sheet
2

MEMORANDUM

To: Chaiman Lee and Members of the Planning Commission

From: Brian Scott, Deputy City Administrator – Planning and Development Services

Date: March 17, 2025

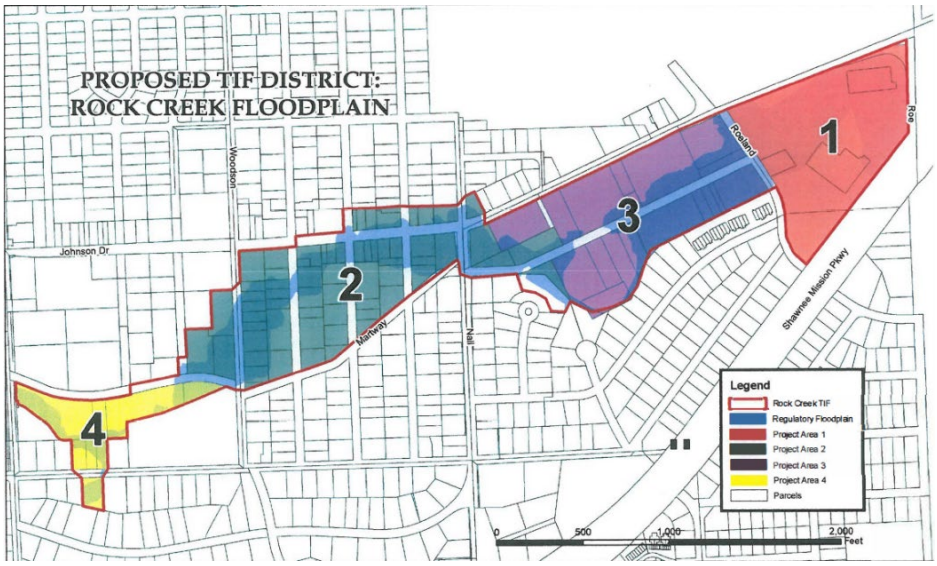
Regarding: Conformance of the Rock Creek Redevelopment District No. 3D TIF Project Plan with the Comprehensive Plan of the City of Mission - Planning Commission Case #25-06

Background

Tax increment financing (TIF) has become a popular economic development tool for communities across the country. TIF allows a city or county to freeze the assessed value of a property at a given point in time. Then as the assessed value increases, the difference (or increment) between the taxes collected on the current assessed value and the frozen assessed value (or base value) are utilized to pay for costs associated with the redevelopment of the property.

The utilization of TIF by cities and counties in Kansas is authorized by state statute K.S.A 12-1770. The state statute provides certain criteria for a property to qualify for TIF including if the property is blighted, or has environmental contamination, or is in a flood plain.

In 2006 the City established the Rock Creek Tax Increment Financing District. The district essentially runs the course of the Rock Creek storm water channel from Roe Avenue to Lamar Avenue and includes properties along Martway Street and Johnson Drive. Many of these properties are located within the flood plain of Rock Creek which qualifies for the establishment of the district.



At the time that the district was created, it was contemplated that there would be four general redevelopment project areas within the district. Rock Creek Project Area 1 is the best example of this as it is the site of the Gateway redevelopment which included an apartment building, a hotel and retail. Other project areas are comprised of several individual parcels. When a parcel is redeveloped, it is “carved” out of the larger project area to become a stand-alone TIF district. This was done with the Capitol Federal Savings bank building in 2013, which became Rock Creek TIF District 2A and the Mission Bowl Apartments (now The Lanes at Mission Bowl) in 2020, which became Rock Creek TIF District 3A.

The former Wild Oats store at 5101 Johnson Drive is located in Project Area 3. The store has been vacant for nearly two decades since its closure in October of 2007. The property was recently purchased by a local real estate development group (Mission 101, LLC) headed by Mr. Dan Carr who has been actively marketing the property. Given the length of time that the property has sat unused, the development group is anticipating significant costs to redevelop the property to a usable state and in compliance with the City’s design standards. The development group has submitted an application to the City for consideration of a TIF redevelopment project plan for this property.

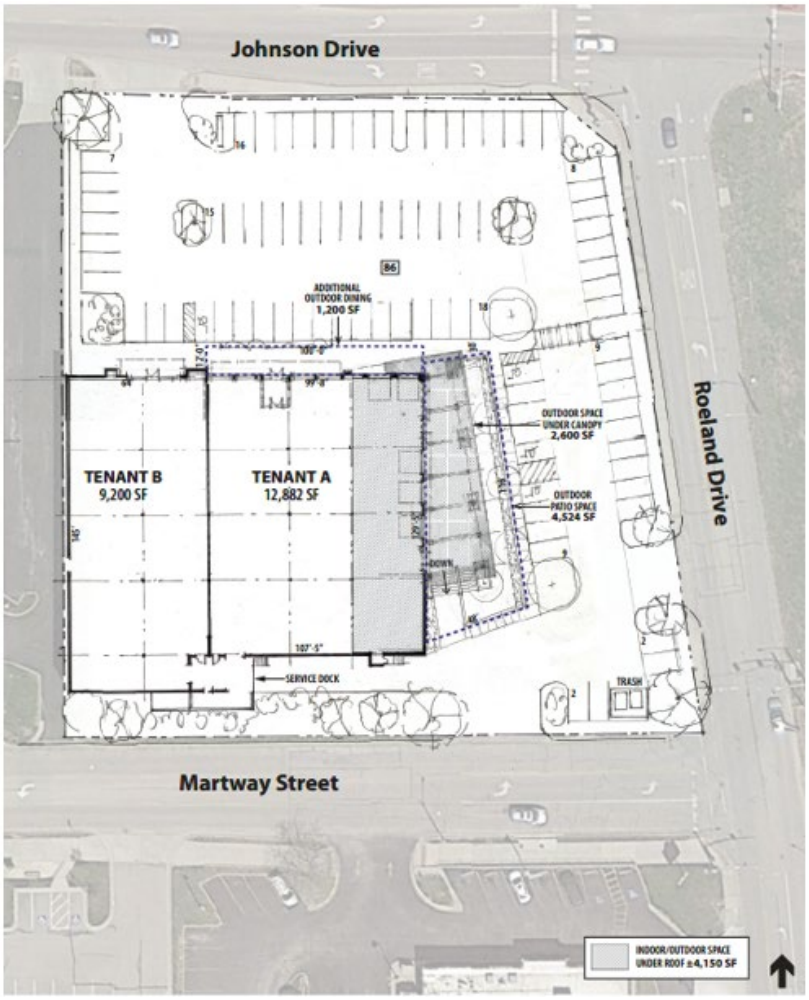
TIF Redevelopment Process

As with other projects described above, it is contemplated that the City will carve out a separate TIF district from Project Area 3 to be called the Rock Creek TIF District 3D. This district will comprise just the site for the development, allowing the increment generated from that parcel to be used to help with the redevelopment costs.

The developer submitted the Rock Creek Redevelopment District No. 3D TIF Project Plan on Monday, February 17, 2025. This triggers a series of events that will occur including notices to other taxing jurisdictions, a public hearing, adoption of an ordinance establishing the district, and adoption of a redevelopment agreement specifying the details of how the TIF funds will be utilized. The first step in this series of events is a review by the Planning Commission for conformance of the redevelopment project plan with the City's comprehensive plan.

TIF Redevelopment Project Plan

The redevelopment project plan that was submitted, and included with this memo, outlines the acquisition and rehabilitation of the one-story, 22,000 square foot building. Significant improvements will be made to the parking lot including the closure of an existing access point at Roeland Drive (northeast corner of the property) and enhancing the east side of the parking lot with an outdoor dining and activity area. Additional improvements will need to be made to infrastructure and utilities.



Conformance with Comprehensive Land Use Plan

The Tomorrow Together 2040 Comprehensive Plan was adopted in December of 2023. This plan provides a number of recommendations for the future development of the community in the areas of natural environment, parks and recreation, transportation and mobility, housing, and economic development. In addition, the plan provides a future land use map that identifies the appropriate land use for certain areas of the city.

This particular parcel being considered for redevelopment is identified in the future land use map as "Mixed-Use Medium Density" which is defined as a pedestrian-friendly mix of housing, office, and retail uses at medium densities in either a multistory building (vertical mixed-use) or in a cohesive development of separate or attached buildings (horizontal mixed-use). Though it is a reuse of an existing building the building is located within an area of the city that has a variety of uses including office, residential, and retail. Instead of each property being mixed-use, the area is a mix of uses. The proposed redesign of the parking area will also provide for a better sidewalks around the property along Johnson Drive and Roeland Drive, enhancing the overall sidewalk network and connectivity in the area. The outdoor dining / activity area will add to the sense of an active area with a broader connection to pedestrians and the surrounding area.

Goal 1-C of the Natural Features and Environment chapter of the plan states, "Balance the needs of the environment and economic development along the Rock Creek Corridor." The redevelopment site is currently a long vacant building with no activity of any kind. This is an underutilized and underperforming property. The proposed TIF project plan will provide an opportunity to revitalize this property adding to the economic vitality of the Rock Creek Corridor. Increment captured from the project can possibly be used by the City to pay for improvements to the Rock Creek storm water channel or enhancements to the trail corridor.

Goal 1-C of the Economic Development Chapter of the plan states, "Create a new community-led vision for the East Gateway District." This includes, "*support enhancement of the properties on Martway Street near the East Gateway District as part of any improvement effort for the district*." The proposed redevelopment project is located at Johnson Drive, Roeland Drive, and Martway - a prominent corner in the East Gateway District. The redevelopment plan will help in revitalization of this area of the city.

Goal 3-B of the Economic Development Chapter of the plan states, "Actively seek new business opportunities in key commercial corridors." This includes strategies such as, *"ensure Mission's commercial corridors remain attractive for potential new business development"* and "*encourage new developments to provide a variety of tenant space sizes for retail storefronts, providing space for startup businesses as well as larger, more established operations."* The TIF project plan provides a plan for revitalizing a long vacant store front into a viable retail space along Johnson Drive.

Goal 4 – A of the Economic Development Chapter of the plan states, "Encourage development and enhancement in and around major gateways in Mission." Again, this particular property is at a prominent corner of Johnson Drive and Roeland Drive within the East West Gteway. It is one of the first properties that one sees when entering the community from the east. Revitalization of this property will serve as a significant place maker for the East Gateway and will help to spur further development in the area.

There are other goals of the comprehensive plan that can be cited but suffice to say that the proposed Rock Creek Redevelopment District No. 3D TIF Project Plan is in conformance with

the Tomorrow Together 2040 Comprehensive Plan.

Recommendation

Staff recommends that the Planning Commission approve the Resolution finding that the Rock Creek Redevelopment District No. 3D TIF Project Plan is consistent with the comprehensive plan for the development of the City of Mission.

Motion:

I move that the Planning Commission approve Resolution PC-25-02 finding that the Rock Creek Redevelopment District No. 3D TIF Project Plan submitted February 17, 2025, is consistent with the comprehensive plan for the development of the City of Mission.

CITY OF MISSION, KANSAS
PLANNING COMMISSION

RESOLUTION NO. 25-02

A RESOLUTION FINDING THAT THE ROCK CREEK REDEVELOPMENT DISTRICT 3-D TAX INCREMENT FINANCING PROJECT PLAN SUBMITTED FEBRUARY, 17 2025 IS CONSISTENT WITH THE COMPREHENSIVE PLAN FOR THE DEVELOPMENT OF THE CITY OF MISSION, KANSAS.

BE IT RESOLVED by the City of Mission, Kansas Planning Commission that The Rock Creek Redevelopment District 3-C Tax Increment Financing Project Plan, submitted to the City and reviewed by the Planning Commission at its regularly scheduled meeting on February 17, 2025, is consistent with the Comprehensive Plan for the development of the City of Mission, Kansas all in accordance with K.S.A. 12-1772(b).

BE IT FURTHER RESOLVED that the Planning Commission hereby directs staff for the Planning Commission to prepare and forward to the City Council a copy of this Resolution.

ADOPTED by the Planning Commission March 24, 2025.

_____
Mike Lee, Chair

ATTEST:

_____
Brian Scott,
Planning Commission Secretary

TAX INCREMENT FINANCING
REDEVELOPMENT PROJECT PLAN FOR
ROCK CREEK REDEVELOPMENT DISTRICT NO. 3D
(5101 JOHNSON DRIVE)

The Tax Increment Financing Act, K.S.A. 12-1770, *et seq*., as amended (the "**TIF Act**"), requires that any Redevelopment Project Plan within the City of Mission, Kansas (the "**City**") be created in consultation with the City. As part of that consultation, the Planning Commission is required by the TIF Act to determine whether the development components of the Redevelopment Project Plan ("**Project Plan**") are consistent with the intent of the City's Comprehensive Plan.

SUBMITTED PURSUANT TO

KS.A. 12-1770 *et seq*., as amended.

SUBMITTED BY

MISSION 101 LLC

Submitted: February 2025

TABLE OF CONTENTS

EXHIBITS

I. INTRODUCTION

A. Redevelopment District

Pursuant to the Kansas Tax Increment Financing Act, K.S.A. 12-1770 *et seq.*, as amended (the "**TIF Act**"), Kansas municipalities are authorized to establish redevelopment districts and redevelopment project plans for property within their jurisdiction. Redevelopment districts may be created based upon certain findings by the municipality, including, that property within a proposed district meets the requirements of a "blighted area" as defined by the TIF Act.

In 2006, the City of Mission, Kansas (the "**City**"), after conducting a duly noticed public hearing, found and determined that certain real property consisting of approximately seventy-one (71) acres that generally follows the Rock Creek Floodplain from Roe Avenue to Lamar Avenue, all in the City of Mission, Johnson County, Kansas (the "**Property**"), is located within a "blighted area" and, in turn constitutes an "eligible area" (as defined in the TIF Act). Based, in part, upon such finding, the City established the Rock Creek TIF District (the "**Original District**") encompassing the Property through the adoption of Ordinance No. 1190 and Ordinance No. 1195 on January 11, 2006, and February 8, 2006, respectively. The Original District included four (4) redevelopment project areas.

Through the adoption of Ordinance No. 1299 on May 20, 2009, the Original District was amended to include five (5) redevelopment project areas. Redevelopment project areas 1, 3 and 4 remained as previously established, and—within redevelopment project area 2—a separate redevelopment project area (2A) was created.

In 2019, through the adoption of Ordinance No. 1508 on November 18, 2019, the City amended the Original District to split its five (5) redevelopment project areas into five (5) separate TIF districts, including the Rock Creek Redevelopment District No. 3) (the "**Original District No. 3**"). The Original District No. 3 is generally described as an area bounded by Johnson Drive to the north, Roeland Drive to the east, and Rock Creek to the south and west.

Subsequently, in 2020, through the adoption of Ordinance No. 1527 on December 16, 2020, the City amended the Original District No. 3 to split it into two (2) separate redevelopment districts — (i) the Rock Creek Redevelopment District #3A ("**District No. 3A**") and the Rock Creek Redevelopment District #3B (hereinafter referred to as the "**Original District No. 3B**"). The Original District No. 3B is generally described as an area bounded by Johnson Drive to the north, Roeland Drive to the east, and Rock Creek and District No. 3A (The Lanes at Mission Bowl) to the south and west.

Most recently, in 2024, through the adoption of Ordinance No. 1613 on September 18, 2024, the City again split Original District No. 3B into two (2) separate redevelopment districts – (i) the Rock Creek Redevelopment District #3C ("**District No. 3C**") and the Rock Creek Redevelopment District #3B (the "**Amended District No. 3B**").

Contemporaneously with the consideration of this Project Plan (as defined herein), the City expects to further divide Amended District No. 3B into two (2) separate redevelopment districts, including the Rock Creek Redevelopment District No. 3D (the "**District**"), in which the Redevelopment Project (as defined herein) is proposed to be developed.

The approved district plan for the District (the "**District Plan**") describes the District as follows:

> A redevelopment district containing one project area consisting of some or all of the following uses: one or more commercial or residential facilities and all related

infrastructure improvements, including storm water improvements within and around the Rock Creek channel, streets, sanitary and storm sewers, water lines and all related expenses to redevelop and finance the project and all other associated public and private infrastructure.

This Redevelopment Project (as defined herein) is consistent with the District Plan for the redevelopment of the District.

B. Redevelopment Project Area

The District contains a single redevelopment project area coterminous with the boundaries of the District, as legally described on Exhibit A and generally depicted on Exhibit B attached hereto (the "**Project Area**"). In its current condition, the Project Area contains one vacant facility of approximately 22,000 square feet and a surface lot.

C. Redevelopment Project

Mission 101 LLC, or its assigns (collectively, the "**Developer**"), presents this Tax Increment Financing Redevelopment Project Plan for the Project Area within the District (this "**Project Plan**") to the City for its consideration and approval in accordance with the TIF Act. In order to promote, stimulate, and develop the general and economic welfare of the City, this Project Plan provides for the acquisition of the Project Area, which consists of approximately 1.9 +/- acres located generally at the southwest corner of the intersection of Johnson Drive and Roeland Drive, in the City, as legally described on Exhibit A and generally depicted on Exhibit B attached hereto (the "**Project Site**"), and the renovation of the existing approximately twenty-two thousand (22,000) square foot building located on the Project Site, and all associated site work, infrastructure, utilities, street improvements, landscaping, lighting, parking facilities, and other items allowable under the TIF Act (the "**Redevelopment Project**").

The Redevelopment Project contemplates the purchase of the Project Site and the renovation redevelopment of the existing improvements into a revitalized retail center. Additionally, this Project Plan fulfills many of the longstanding components of *Smart Growth* including:

Prioritizing infill development to revitalize core areas and reduce adverse impacts on natural resources and infrastructure;

Implementing a range of environmentally friendly practices and features in sustainable building design and construction;

Prioritizing Transit-Oriented Development ("**TOD**") by supporting development projects near transit hubs or on transit corridors; TODs encourage greater use of transit options, and results in less reliability on vehicles, thereby reducing carbon emissions and greenhouse gasses. The Project Site is located less than five hundred (500) feet away from an existing bus transit center; and

Promoting walkability by promoting higher density development within core urbanized or suburbanized areas, such as downtown corridors.

This Project Plan is premised on the need for a combination of public and private financing to reach the mutual goals of the City and the Developer in redeveloping the Redevelopment Project.

As shown herein, this Project Plan proposes to finance Reimbursable Project Costs (as defined herein) by capturing through TIF up to one hundred percent (100%) of the allowable ad valorem "tax increment" (as defined in the TIF Act) (the "**Tax Increment**") generated within the Project Area for up to twenty (20) years from the effective date of this Project Plan (collectively, the "**TIF Revenues**").

Based on projected property values within the Project Area over the term of this Project Plan, Developer estimates that the TIF will generate approximately One Million One Hundred Seven Thousand One Hundred Nine and No/100 Dollars ($1,107,109) of TIF Revenues, [1] some or all of which can be used to reimburse Developer for Reimbursable Project Costs and the City for TIF eligible costs. The allocation of the Tax Increment and the term of the TIF will be determined by a Redevelopment Agreement executed by the City and the Developer (the "**Redevelopment Agreement**").

II. REDEVELOPMENT PROJECT PLAN

A. Description and Map of Project Area

The redevelopment project area to be redeveloped pursuant to this Project Plan consists of the Project Area. A legal description and general map and depiction of the Project Area are attached hereto as Exhibit A and Exhibit B, respectively, both of which are incorporated herein by this reference.

B. Reference to District Plan

The Project Area is within the boundaries of a redevelopment district established and amended pursuant to the TIF Act and adoption by the City's Governing Body of: Ordinance No. 1190 on January 11, 2006; Ordinance No. 1195 on February 8, 2006; Ordinance No. 1299 on May 20, 2009; Ordinance No. 1508 on November 18, 2019; and Ordinance No. 1527 on December 16, 2020; Ordinance No. 1613 on September 18, 2024; and further amended by Ordinance No. ____ on _____, 2025 (the "**District Ordinance**"), a copy of which is attached hereto as Exhibit D. This Project Plan is consistent with the approved District Plan as described in the District Ordinance.

C. Description of Building and Facilities

This Project Plan provides for the acquisition of certain real property within the Project Area, the renovation of the existing approximately twenty-two thousand (22,000) square foot building located on the Project Site, and all associated site work, infrastructure, utilities, storm water control, access, street improvements, landscaping, lighting, parking facilities, and any other items allowable under the TIF Act.

The preliminary site plan for the Project is attached hereto as Exhibit C.

The foregoing description is not intended to be inflexible, and this Project Plan contemplates reasonable variations from the descriptions of the Redevelopment Project as described above.

[1] Notwithstanding the foregoing or anything in this Project Plan (including, without limitation, the Exhibits attached hereto) to the contrary, the Developer states: (i) the descriptions of uses and buildings, and all sizing, design, cost (including Reimbursable Project Cost) and revenue figures, and any and all other descriptions and projections set forth herein, are estimates only and subject to change in the Developer's discretion, including as actual costs are incurred and revenues received, and (ii) nothing herein shall be construed as a cap (or caps) on the amount of TIF being requested or the amount of TIF that is available to pay Reimbursable Project Costs of the Redevelopment Project. The Redevelopment Agreement will address the foregoing issues.

D. Feasibility Study

The Developer has undertaken a study to determine whether the Redevelopment Project's estimated benefits, TIF Revenues, and other revenues are expected to exceed the cost, and that the income therefrom will be sufficient to pay the costs of the Redevelopment Project. This effort involved using consultants with experience and expertise in actual design, development, financing, management, leasing, and operations of projects of similar scope and nature. Outside resources were also consulted to compare and verify the cost and revenue projections, including outside industry sources and actual taxing jurisdiction data where available. The results of said evaluation are as follows:

1. Project Costs

The total estimated cost to complete the Redevelopment Project, including land acquisition, and hard and soft costs, is approximately Ten Million Eight Hundred Forty Thousand and No/100 Dollars ($10,840,000.00). A detailed budget is attached hereto as Exhibit E.

2. Eligible Costs

Only "redevelopment project costs" (as defined in the TIF Act) (referred to herein as "**Reimbursable Project Costs**") are eligible for TIF financing and reimbursement. Of the total costs listed above, approximately Six Hundred Eighteen Thousand One Hundred Seventy-Eight and No/100 Dollars ($618,178.00), plus interest and financing costs, are estimated to qualify under the TIF Act as Reimbursable Project Costs, meaning that only those costs may be financed using TIF Revenues. The estimated Reimbursable Project Costs are set forth by type and amount on Exhibit E attached hereto.

Developer is requesting reimbursement with TIF Revenues on a pay-as-you-go basis.

3. Project Revenues

Based on projected property values within the Project Area over the term of this Project Plan, Developer anticipates that the TIF will generate TIF Revenues of approximately One Million One Hundred Seven Thousand One Hundred Nine and No/100 Dollars ($1,107,109). TIF Revenue projections are set forth in Exhibit F attached hereto. Pursuant to the TIF Act, TIF Revenues can be generated from at least two (2) sources:

a. *Ad Valorem Tax Increment Revenues* – The amount of real property taxes collected from real property located within the District that is in excess of the amount of real property taxes which is collected from the base year assessed valuation (excluding any *ad valorem* taxes not allowed to be captured under the TIF Act); and

b. *Local Sales Tax Revenues* - The retail sales dollar amount generated within the Project Area multiplied by the City's portion of the total retail sales tax rate, as described above.

Ad Valorem Tax Increment Captured

According to the Johnson County Appraiser's Office, the Project Area has a base assessed value of Five Hundred Fifty-One Thousand Seven Hundred Fifty and No/100 Dollars ($551,750.00). This serves as the base value against which future Redevelopment Project values can be compared to determine the amount of ad valorem Tax Increment revenues that will be generated by the Project Area. This Project Plan proposes to finance Reimbursable Project Costs by capturing up to one hundred percent (100%) of the

allowable ad valorem Tax Increment generated within the Project Area for up to a maximum twenty (20) year TIF term commencing on the effective date of this Project Plan. Upon completion of the Redevelopment Project, Developer projects that the Project Area will have an assessed value of approximately Nine Hundred Fifty-Two Thousand One Hundred Seventy-Five and No/100 Dollars ($952,175.00). The difference between the base year assessed value and the assessed value at full build-out, when multiplied by the applicable mill levy rate subject to TIF, is estimated to create annual Tax Increment of approximately Thirty-Six Thousand Six Hundred Thirty-Six and No/100 Dollars ($36,636.00) available for capture, which is assumed to grow annually with inflation thereafter.

Local Sales Tax Revenues Uncaptured

This Project Plan does not propose to capture local sales tax revenues.

4. Tax Increment Revenues

Based on the Project Area's projected ad valorem Tax Increment as heretofore described, it is estimated that TIF Revenues of approximately One Million One Hundred Seven Thousand One Hundred Nine and No/100 Dollars ($1,107,109) will be generated and used to pay redevelopment project costs, as set forth in this Project Plan and the Redevelopment Agreement.

5. Significant Contribution to Economic Development of the City

The development contemplated in this Project Plan will provide significant economic development for the City, including by, among other things, providing increased future tax revenues to the City, redeveloping the Project Area into a higher and better use, and remediating blight. The feasibility study shows that the Redevelopment Project's benefits, tax increment revenue, and other available revenues will be sufficient to pay for the Redevelopment Project costs.

6. Sufficiency of Tax Increment Revenues Compared to Project Costs

The total of the Reimbursable Project Costs that can be financed under the TIF Act is limited by the amount of TIF Revenues generated within the Project Area. Thus, by operation, the TIF Revenues will always equal or exceed the amount of the Reimbursable Project Costs. Based on this Project Plan's (1) Reimbursable Project Costs and (2) TIF Revenues, the revenues are expected to pay for any Reimbursable Project Costs as contemplated under the TIF Act *when supplemented by private debt and equity*.

7. Effect on Outstanding Special Obligation Bonds

It is anticipated that any TIF Revenues will be disbursed on a pay-as-you-go basis and no special obligation bonds repayable from TIF Revenues have been issued. Thus, the Redevelopment Project costs are not anticipated to have any effect on any outstanding special obligation bonds payable from the revenues described in K.S.A. 12-1774(a)(1)(D), and amendments thereto.

E. Relocation Plans

It is not anticipated, but in the event the City acquires any real property within the Project Area in carrying out the provisions of the TIF Act, and that, as a result, any persons, families and businesses move from real property located in the Project Area or move personal property from real property located in the Project Area, the Developer shall make a Five Hundred and No/100 Dollars ($500.00) payment to such persons, families and/or businesses. No persons or families residing in the District shall be displaced unless and until there is a suitable housing unit available and ready for occupancy by such displaced person or

family at rents within their ability to pay. Such housing units shall be suitable to the needs of such displaced persons or families and must be decent, safe, sanitary and otherwise standard dwelling. Developer shall provide for payment of any damages sustained by a retailer, as defined in K.S.A. 79-3702, by reason of liquidation of inventories necessitated by relocation from the redevelopment district.

F. Meetings and Minutes

Following approval of this Project Plan, the clerk of the City shall attach, as Exhibit G hereto, a copy of the minutes of all City meetings where the Redevelopment Project and/or this Project Plan was discussed.

III. CONCLUSION

Based on the foregoing, this Project Plan proposes to utilize TIF Revenues from the District to finance Reimbursable Project Costs. Details concerning the amount of TIF Revenues available to the Project, the terms and term of reimbursement, Project costs eligible for reimbursement, City costs eligible for reimbursement, and other matters will be set forth in the Redevelopment Agreement. Developer hereby submits this Project Plan for public hearing and due consideration in accordance with the TIF Act.

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EXHIBIT A

LEGAL DESCRIPTION OF THE PROJECT AREA

COMMENCING AT THE NORTHWEST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 9, TOWNSHIP 12, RANGE 25, IN JOHNSON COUNTY, KANSAS; THENCE NORTH 3.70 FEET TO A POINT ON THE WEST LINE OF THE SOUTHWEST 1/4 OF THE NORTHWEST 1/4 OF SAID SECTION; THENCE DEFLECTING TO THE RIGHT FROM THE LAST DESCRIBED COURSE 66 DEGREES 41 MINUTES 50 SECONDS, A DISTANCE OF 1332.57 FEET, SAID LINE BEING 9.0 FEET SOUTH AND PARALLEL TO THE CENTER TANGENT LINE OF AN 18 FOOT WIDE BRICK SLAB (FORMERLY U.S. HIGHWAY NO. 50) AND NOW KNOWN AS JOHNSON DRIVE; THENCE SOUTHEASTERLY 90 DEGREES TO THE LAST DESCRIBED COURSE A DISTANCE OF 21 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ON THE LAST DESCRIBED COURSE A DISTANCE OF 250 FEET; THENCE IN A NORTHEASTERLY DIRECTION ALONG A COURSE WHICH MAKES AN ANGLE OF 90 DEGREES TO THE LAST DESCRIBED COURSE, A DISTANCE OF 335.74 FEET TO THE WESTERLY LINE OF ROELAND DRIVE; THENCE DEFLECTING TO THE LEFT 98 DEGREES 09 MINUTES 58 SECONDS A DISTANCE OF 251.72 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF SAID JOHNSON DRIVE; THENCE SOUTHWESTERLY ALONG A LINE WHICH IS 30 FEET FROM THE CENTER LINE OF SAID JOHNSON DRIVE 300 FEET TO THE POINT OF BEGINNING AND

ALL THAT PART OF THE SOUTH 1/2 OF THE NORTHWEST 1/4 OF SECTION 9, TOWNSHIP 12, RANGE 25, IN THE CITY OF MISSION, IN SAID COUNTY AND STATE, DESCRIBED AS FOLLOWS: FROM THE NORTHWEST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SAID SECTION 9; RUN THENCE NORTH (THIS AND ALL SUBSEQUENT BEARINGS BEING IN RELATION TO THE WEST LINE OF THE SOUTHWEST 1/4 OF SAID SECTION 9, AS HAVING AN ASSUMED BEARING OF DUE NORTH-SOUTH), 3.70 FEET TO A POINT IN A LINE THAT IS 9.0 FEET SOUTHERLY DISTANCE AT RIGHT ANGLES TO THE CENTER TANGENT LINE OF AN 18 FOOT BRICK SLAB KNOWN AS JOHNSON DRIVE FORMERLY U.S. HIGHWAY NO. 50; RUN THENCE NORTH 66 DEGREES 41 MINUTES 50 SECONDS EAST ALONG SAID LINE, 1386.57 FEET; RUN THENCE SOUTH 23 DEGREES 18 MINUTES 10 SECONDS EAST, 271.0 FEET TO THE TRUE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED; THENCE NORTH 66 DEGREES 41 MINUTES 50 SECONDS EAST 281.75 FEET TO THE WESTERLY RIGHT OF WAY LINE OF ROELAND DRIVE AS NOW ESTABLISHED; THENCE SOUTH 31 DEGREES 28 MINUTES 08 SECONDS EAST ALONG SAID WESTERLY RIGHT OF WAY LINE, 53.21 FEET TO THE NORTHERLY RIGHT OF WAY LINE OF MARTWAY STREET, AS NOW ESTABLISHED; THENCE SOUTH 66 DEGREES 51 MINUTES 57 SECONDS WEST ALONG SAID NORTHERLY RIGHT OF WAY LINE, 289.31 FEET; THENCE NORTH 23 DEGREES 18 MINUTES 10 SECONDS WEST, 51.82 FEET TO THE POINT OF BEGINNING, EXCEPT

ALL THAT PART OF THE SOUTH 1/2 OF THE NORTHWEST 1/4 OF SECTION 9, TOWNSHIP 12, RANGE 25, IN THE CITY OF MISSION, JOHNSON COUNTY, KANSAS, DESCRIBED AS FOLLOWS: FROM THE NORTHWEST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SAID SECTION 9; THENCE RUN NORTH (THIS AND ALL SUBSEQUENT BEARINGS BEING IN RELATION TO THE WEST LINE OF THE SOUTHWEST 1/4 OF SAID SECTION 9 AS HAVING AN ASSUMED BEARING OF DUE NORTH-SOUTH) 3.70 FEET TO A POINT IN A LINE THAT IS 9.0 FEET SOUTHERLY DISTANCE, AT RIGHT ANGLES TO THE CENTER TANGENT LINE OF AN 18 FOOT WIDE BRICK SLAB KNOWN AS JOHNSON DRIVE, FORMERLY U.S. HIGHWAY NO. 50; RUN THENCE NORTH 66 DEGREES 41 MINUTES 50 SECONDS EAST ALONG SAID LINE, 1332.57 FEET; RUN THENCE SOUTH 23 DEGREES 18 MINUTES 10 SECONDS EAST, 21.0 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF SAID JOHNSON DRIVE, AS NOW ESTABLISHED, ALSO BEING THE TRUE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED; THENCE CONTINUING SOUTH 23 DEGREES 18 MINUTES 10 SECONDS EAST, 250.00 FEET; THENCE NORTH 66 DEGREES 41 MINUTES 50 SECONDS EAST, 54.0 FEET; THENCE NORTH 23 DEGREES 18 MINUTES 10 SECONDS WEST 250.00 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF SAID JOHNSON DRIVE; THENCE SOUTH 66 DEGREES 41 MINUTES 50 SECONDS WEST ALONG SAID SOUTHERLY RIGHT OF WAY LINE 54.0 FEET TO THE POINT OF BEGINNING.

EXCEPT FROM THE ABOVE TRACTS ALL THAT PART IN STREETS AND ROADS.

EXHIBIT B

GENERAL DEPICTION OF THE PROJECT AREA

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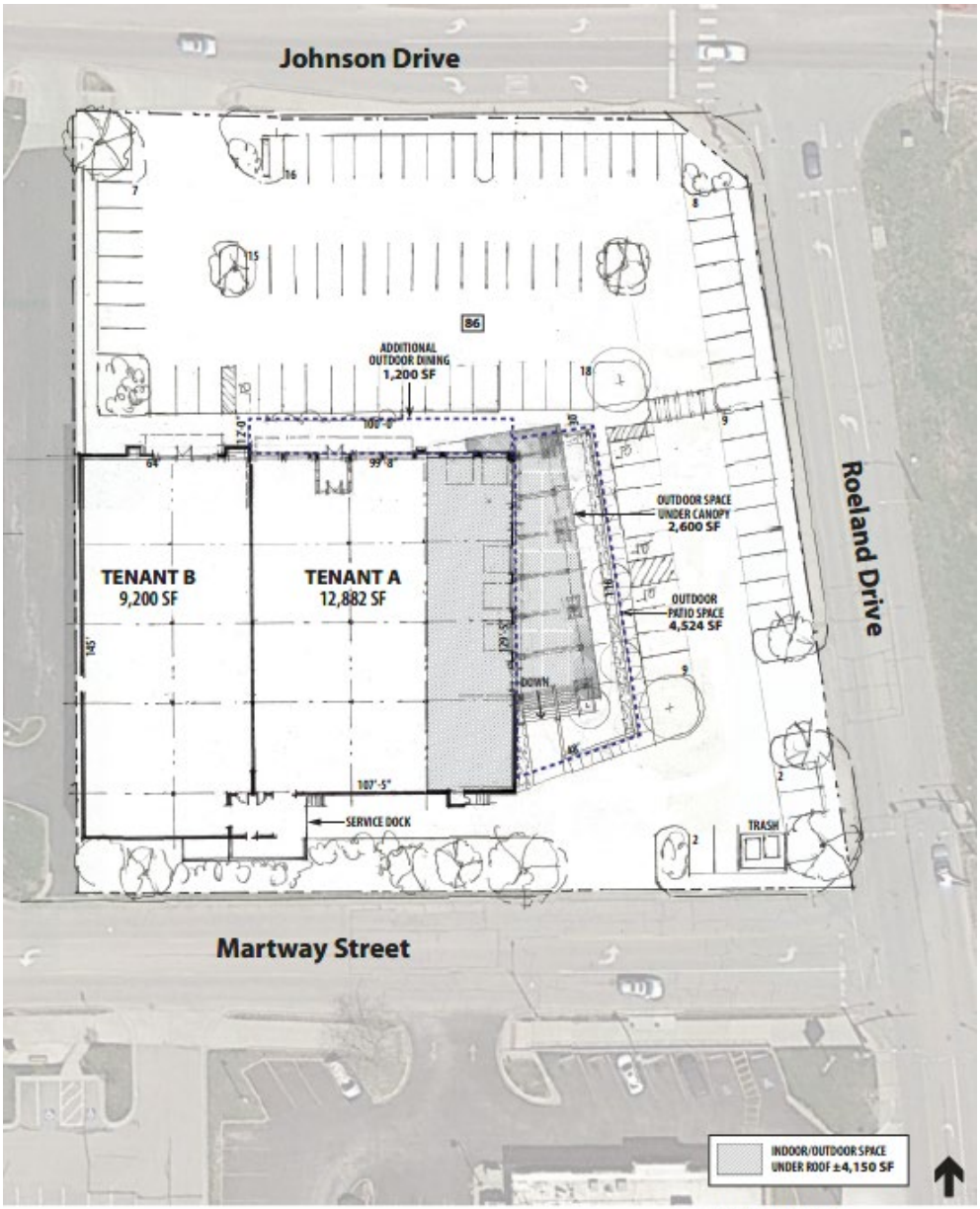
EXHIBIT C

PRELIMINARY SITE PLAN



5101 Johnson Drive

Merriam, Kansas

SAI# 999999 12.04.2024

SLAGGIE ARCHITECTS INC

EXHIBIT D

ORDINANCE NO. [____]

TO BE ATTACHED BY CITY CLERK.

EXHIBIT E

ESTIMATED BUDGET

General Line Item Category	Total Cost	Reimbursable Project Cost
Acquisition Costs	$ 2,500,000	$ 618,178
Hard Construction Costs	$ 6,320,909	$ -
FF&E	$ 2,000,000	$ -
Hard Cost Contingency	$ 632,091	$ -
Soft Construction Costs	$ 632,091	$ -
TOTALS	$ 12,085,091	$ 618,178

EXHIBIT F

TIF REVENUE PROJECTIONS

TIF Year	Calendar Year	Total Base Assessed Value	Total Projected Assessed Value	Projected Real Estate Tax Increment Capturable by TIF
1	2026	$ 551,750	$ 952,175	$ 36,636
2	2027	$ 551,750	$ 971,219	$ 38,379
3	2028	$ 551,750	$ 990,643	$ 40,156
4	2029	$ 551,750	$ 1,010,456	$ 41,969
5	2030	$ 551,750	$ 1,030,665	$ 43,818
6	2031	$ 551,750	$ 1,051,278	$ 45,704
7	2032	$ 551,750	$ 1,072,304	$ 47,628
8	2033	$ 551,750	$ 1,093,750	$ 49,590
9	2034	$ 551,750	$ 1,115,625	$ 51,591
10	2035	$ 551,750	$ 1,137,937	$ 53,633
11	2036	$ 551,750	$ 1,160,696	$ 55,715
12	2037	$ 551,750	$ 1,183,910	$ 57,839
13	2038	$ 551,750	$ 1,207,588	$ 60,005
14	2039	$ 551,750	$ 1,231,740	$ 62,215
15	2040	$ 551,750	$ 1,256,375	$ 64,469
16	2041	$ 551,750	$ 1,281,502	$ 66,768
17	2042	$ 551,750	$ 1,307,132	$ 69,113
18	2043	$ 551,750	$ 1,333,275	$ 71,505
19	2044	$ 551,750	$ 1,359,940	$ 73,945
20	2045	$ 551,750	$ 1,387,139	$ 76,433
TOTAL				$ 1,107,109

EXHIBIT G

MEETING MINUTES

[TO BE ATTACHED BY CITY CLERK.]

CITY OF MISSION, KANSAS
PLANNING COMMISSION

RESOLUTION NO. 25-01

A RESOLUTION ADOPTING BYLAWS FOR THE PLANNING COMMISSION OF THE CITY OF MISSION, KANSAS.

BE IT RESOLVED that the Planning Commission of the City of Mission, Kansas hereby adopts these bylaws to provide for the efficient and orderly transaction of its business and the consideration of cases heard before the Commission, and to ensure such matters are conducted in accordance with state statutes, city ordinances, and commonly accepted practices.

ADOPTED by the Planning Commission March 24, 2025.

_____
Mike Lee, Chair

ATTEST:

_____
Brian Scott,
Planning Commission Secretary

City of Mission, Kansas

Planning Commission Bylaws

Adopted March 24, 2025 PC Resolution 25-01

PURPOSE

The Planning Commission of the City of Mission is a quasi-judicial body made up predominantly of resident members who volunteer their time to review matters that come before the City regarding planning, development, and land use regulation. The Planning Commission advises the Governing Body of the City in matters of planning and community development, and formulates recommendations for the Governing Body in matters regarding application of zoning and land use regulations.

The authority and powers of the Planning Commission are derived from the Kansas state statutes (K.S.A. 12-744 et seq.) and the Mission Municipal Code (Title IV, Chapter 400, Article I).

These bylaws serve as guidelines for the effective transaction of business and hearing procedures for the Planning Commission. In no way are these bylaws intended to supersede or replace the duties and powers derived from the state statutes or the Governing Body of the City of Mission.

COMMISSION MEMBERSHIP, POWERS, AND DUTIES

The requirements for membership on the Planning Commission are set forth in Title IV, Chapter 400, Article I of the Mission Municipal Code. Specific annotations are noted below.

Membership. The Planning Commission shall consist of nine (9) members, one (1) of whom may be a non-resident of the City of Mission. At least one (1) member shall be from each ward. The number of members may not be reduced unless a vacancy exists or unless the reduction takes effect at the end of a term (Section 400.020 and 400.030 of the Mission Municipal Code).

Appointment. The Mayor, with the consent of the City Council, shall appoint the members of the Planning Commission. Members of the Planning Commission shall be appointed at the first (1st) regular meeting of the Governing Body in December (Section 400.030 of Mission Municipal Code).

Terms of Office. Members shall be appointed for terms of two (2) years each, except as otherwise provided by Code. Members shall serve without compensation (Section 400.030 of the Mission Municipal Code).

Attendance. Members who cannot attend a meeting due to business, family, or other reasons shall notify the Planning Commission Chair and Secretary at least four (4) days prior to the meeting for the absence to be recorded as excused. Members must attend at least 75% of all regular meetings in a 12-month period unless they have an excused absence, or they may be subject to removal.

Resignation. Members who wish to relinquish their appointment to the Planning Commission may do so by submitting their resignation in writing to the Mayor with a copy to the Secretary of the Planning Commission.

Vacancies and Removal. The Mayor may accept the resignation of any member. Vacancies shall be filled by appointment for the remainder of the member's term. Members may also be removed at any time by the Mayor with the consent of the City Council.

Bylaws, Officers, and Meetings. The Commission shall adopt bylaws for the transaction of business and hearing procedures. Officers shall be elected as determined in the Planning Commission's bylaws. Meetings shall be scheduled as determined in the Planning Commission's bylaws. Unless otherwise provided, no action by the Planning Commission shall be taken except by a majority vote of the membership thereof. (Section 400.040 through Section 400.060 of the Mission Municipal Code).

Committees and Studies. The Commission from time to time may establish subcommittees, advisory committees, or technical committees to advise or assist in the activities of the Commission.

OFFICERS

Officers. Officers of the commission shall be the Chair, Vice-Chair, and Secretary.

Chair and Vice Chair. The Chair and Vice-Chair shall be elected by the Commission at its regular meeting in January each year, or the first formal meeting of the year, and shall serve for one (1) year; provided they may be re-elected for an additional term(s).

If the Chair resigns or is otherwise not able to fulfill the obligations of the position, the Vice Chair shall immediately assume the responsibilities of the Chair for the duration of the term. If the Vice Chair succeeds to the office of Chair pursuant to the immediately preceding paragraph, resigns, or is otherwise not able to fulfill the obligations of the Vice Chair, the most recent past Chair shall assume the responsibilities of the Vice Chair until a permanent Vice Chair is elected by the Commission for the remaining duration of the chair term. If there is no recent past Chair serving on the Commission, the Director of the Community Development Department (or the Director's designee) shall select a member to assume the responsibilities of the Vice Chair until a permanent Vice Chair is elected by the Commission for the duration of the term.

Secretary. The Director of the Community Development Department (or the Director's designee) shall serve as the Secretary of the Planning Commission. The Secretary will provide support for the Commission but will not be a member of the Commission.

Nominating Committee. At the Commission's last regular meeting in any given year, the Chair shall appoint a 3-person Nominating Committee, subject to the approval of a quorum of the current members. The current Chair and Vice-Chair shall not serve on the nominating committee.

The Nominating Committee shall meet as necessary to nominate a slate of at least one candidate for the Chair and Vice-Chair positions. Working through the Secretary, the Nominating Committee shall present the slate of candidates to the full Commission at its regular meeting in January each year (or the first formal meeting of the year). In addition to the slate of candidates, other

nominations can be made by members of the Commission at the first formal meeting of the year. If only one person is nominated for each position, the recommendations of the nominating committee may be affirmed by a voice vote. Otherwise, each position shall be voted upon individually.

FUNCTION AND DUTIES OF OFFICERS

Chair. The Chair shall preside at all meetings of the Commission and shall sign all Commission resolutions, subdivision plats, and other official papers and documents. The Chair may call special meetings at the Chair's discretion and may relinquish the duties of Chair for a particular meeting to the Vice-Chair or, if the Vice Chair is unavailable, another member of the Commission at the Chair's discretion. The Chair may not make or second motions. The Chair shall not initiate debate on applications. The Chair may offer comments, ask questions about any application, and vote on motions.

Vice Chair. The Vice-Chair shall serve in the absence of the Chair, and while so serving shall have all the authority and restrictions held by the Chair. In the absence of both the Chair and the Vice-Chair, the members shall choose a presiding officer from among the members present, who shall have for the duration of the meeting all the authority and restrictions held by the Chair.

Secretary. The Secretary of the Planning Commission shall be the Director of the Community Development Department. The Secretary and/or their designee shall attend all Commission meetings to perform the following duties:

1. Notify members of all meetings;
2. Publish notices of all meetings and pubic hearings as required by Kansas State statutes;
3. Propose the meeting agendas;
4. Coordinate committee meetings;
5. Secure all Commission and committee meeting locations and setup;
6. Keep a file of all official records, minutes, and reports of the Commission;
7. Attend to the correspondence of the Commission;
8. Present the Commission's recommendations to the Governing Body; and
9. Perform such other duties as requested by the commission which are deemed appropriate.

MEETINGS

The Planning Commission may conduct its business in one of the following types of meetings:

Regular Meetings. A regularly scheduled meeting on the fourth Monday of each month, consisting of members of the Commission, Secretary, and City Staff shall be held unless there are no items on an official agenda as determined by the Secretary. Regular meetings are open to the public and agenda items are to be posted for public notice prior to the meeting. Official actions may be taken.

A Planning Commission Development Annual Schedule outlining each regular meeting for the year and the dates for application submittals and review shall be submitted to the commission by the last meeting of the preceding year for review and approval. If a regular meeting date falls on or near a holiday (or other significant event), the commission, when approving its annual schedule, may elect to reschedule or cancel that regular meeting date.

The Commission may also, through consultation with the Community Development Director or designee, for good cause, elect to cancel or change the date, time, or place of a regular meeting.

Formal Special Meetings. A meeting held in lieu of, or in addition to, a regular meeting may be called by the Chair. Formal special meetings are open to the public and agenda items are posted for public notice prior to the meeting; official actions may be taken.

Informal Special Meetings. A meeting for training purposes, work sessions, and/or as needed to distribute publicly-available materials deemed necessary to the members or staff to perform the regular duties of the commission may be called by the Chair or the Director of Community Development. Informal special meetings are open to the public and agenda items are posted for public notice prior to the meeting; no official action is taken.

Executive Session. An executive session, closed to the public, may be called exclusively to discuss confidential business under the following criteria: consultation with the City's legal counsel concerning legal matters; discussion regarding existing or potential litigation or mediation, arbitration, or administrative proceeding. Any commission member may make a motion to call an executive session at a regular or formal special meeting. No official action may be taken by the Planning Commission in an executive session.

Order of Business. At the appointed time, the Chair shall call to order each regular or formal special meeting and announce whether a quorum is present. No regular meeting shall continue without a quorum present. Upon the confirmation of a quorum, the Commission shall proceed to approve or amend the previous meeting's minutes. The commission, at the direction of the Chair, will then consider the items set forth in the agenda and any member may request reordering of the agenda items, stating the reason(s) therefore. The Chair may elect to proceed with the prescribed agenda or allow the reordering. Staff shall give a report for each agenda item, and the Commission may follow with questions pertaining to the item presented. The Commission shall allow the applicant to answer questions following the staff report. Should the business before the Commission not be completed during the regular or formal special session, the Chair may recess the meeting to a specific time, date, and place until the matters on the original agenda are acted upon; this may be at a regular meeting or a special formal meeting.

Recordings and Minutes. The proceedings of all regular and formal special meetings of the Commission shall be recorded by the Secretary of the Commission. The recordings shall be retained for 60 days after approval of the minutes derived therefrom unless a longer retention period is otherwise requested by any member of the Commission. All motions shall be recorded, and an accurate record shall be made of all reasons for the motions or votes by members of the commission. The proposed minutes of each regular or formal special meeting shall be distributed to the Commission and other appropriate persons as soon as practical prior to each regular session. The original copy of the approved minutes shall be placed in the Commission's

permanent record and shall become official records of the City. Informal special meetings will not be recorded nor shall minutes of the same be prepared.

QUORUM

A majority of the Commission, including the Chair (9), shall constitute a quorum for transacting business and conducting hearings; provided, however, if a member submits their resignation in writing, said member shall not be counted for purposes of determining the quorum (see quorum table below). The affirmative vote of a majority of those members present and voting shall be sufficient for the passage of all motions; except that the adoption of an amendment to the Comprehensive Plan shall require a majority of all members (K.S.A 12-747). In the absence of a quorum at any meeting, the chair may adjourn the meeting to a specific time, date, and place, which shall be publicly announced at the meeting. Voting by secret ballot is prohibited.

AGENDA

The order of business at all regular and formal special meetings shall be as follows, unless the Chair recommends or approves a reordering of the prescribed agenda items:

I. Call to order
   a. Roll call
   b. Approval of previous meeting's minutes
II. New Business
   a. Preliminary and/or Final Plat review
   b. Preliminary and/or Final Development Plan review
   c. Preliminary and/or Final Site Plan review
   d. Special Use Permit applications
   e. Rezoning requests
III. Old Business
   a. Preliminary and/or Final Plat review
   b. Preliminary and/or Final Development Plan review
   c. Preliminary and/or Final Site Plan review
   d. Special Use Permit applications
   e. Rezoning requests
IV. Commission Discussion
V. Staff Updates
VI. Adjournment

New and/or old items that require public hearings shall be considered by the Commission prior to consideration of items that do not require a public hearing. Agenda items may be added as deemed necessary by staff prior to the meeting if the items do not require public notice. These items include, but are not limited to, the following: Comprehensive Plan reviews, area plan reviews, and resolutions and/or bylaw amendments.

PUBLIC HEARINGS

The following items on the agenda require a public hearing and shall be in accordance with K.S.A 12-756: preliminary development plans, preliminary plats, special use permits, rezoning applications, zoning text amendments, and amendments to the comprehensive plan. Notice of public hearing items shall be published ,as required by law, and letters shall be mailed by certified mail notifying property owners within at least 200 feet of the subject property for which an application is being considered by the Commission, a minimum of twenty (20) days in advance of the hearing.

Public and property owner notices shall contain the following information: Case number, subject property address(es), map of the subject property, legal description, summary of the proposal, and meeting time, date, and location.

STANDING RULES

To facilitate the successful and orderly management of its meetings, the Commission has declared the following to be standing rules, which shall govern the procedure for its meetings and the actions of its members.

1. The Chair shall preserve order and decorum of all meetings and shall decide questions of order subject to an appeal from the members present.
2. Prior to speaking, every member of the Commission shall address the Chair and shall not proceed until recognized by the Chair. The member shall confine their remarks to the matter under debate or discussion and shall refrain from a discussion of individual personalities.
3. An agenda item will begin with a staff presentation. At the conclusion of the staff presentation, the Chair will inquire if any members of the commission have any questions. The Chair will then invite the applicant to make its presentation. At the conclusion of the applicant's presentation, the Chair will inquire if any members of the Commission have any questions. If the item requires a public hearing, the Chair will then open the public hearing and direct all persons wishing to be heard at the hearing to raise their hands to be called upon by the Chair. All persons speaking at the hearing must state their first and last name and city of residence. Rebuttal by the applicant after the public hearing shall be at the discretion of the Chair. At the conclusion of the public hearing and any rebuttal, the matter will be back before the Commission for discussion, deliberation, and action.
4. Time limits (guidelines) on the presentations will be enforced as follows:
    a. The staff presentation shall not exceed 20 minutes, exclusive of questions by the Commission.
    b. The applicant's presentation shall not exceed 20 minutes, exclusive of questions by the Commission.
    c. In general, it is advisable that individual speakers should not exceed 3 minutes, exclusive of questions. Speakers who represent a substantial number of persons may, at the discretion of the Chair, exceed the 3-minute limitation. The Chair has the discretion, based on the number of speakers, to shorten or extend the time guidelines for individual speakers.
    d. Persons not able to be present for a public hearing may submit formal comments to staff prior to the hearing, which shall be read aloud by staff if permission is granted by

the person(s) submitting the comments. Comments shall include the first and last name of the individual(s) and city of residence.

5. The Chair has the discretion to extend the specified time limits for matters that involve an unusual degree of complexity, scope or difficulty, or which have attracted an unusual amount of public participation and interest. All such adjustments shall be announced by the chair and shall be on an equitable basis.
6. The Chair may endeavor to educate and inform the parties to the hearing of the importance of honoring these rules so that all agenda items can be heard in a timely and efficient manner, and may encourage speakers to use time saving devices, such as requesting the Commission to take notice of the number of persons present who support the views of the speaker without the necessity of each of those supporters entering their individual comments on the record. If requested by a speaker, the Chair may note for the record that a specified number of individuals present have indicated their agreement with the comments of that speaker.
7. All statements by speakers shall be addressed directly to the Commission. If a speaker has a question for the applicant, staff or other speakers, that question shall be directed to the Chair who shall determine if, and when, the question will be addressed by the Chair to the person whose response is being requested.
8. When, in the judgment of the Chair, the public hearing has been completed, the Chair shall declare the public hearing closed. Once a public hearing, including rebuttal by the applicant, if any, has been completed, all persons in attendance may address the Commission only to respond to a question from the Commission and only with the permission of the Chair.
9. If the applicant is unable to attend the public hearing, or the Chair and/or Commission feel additional testimony or information is needed but the circumstances do not allow that to occur at the meeting, then a motion to extend the public hearing to a date certain may be made, thus holding open the public hearing. At the Chair's discretion, additional testimony may be accepted in writing or by email prior to the public hearing, or during the time a public hearing is held over, or even after the public hearing is closed.
10. Following the closing of the public hearing and/or comments by Planning Commission members, the Chair may entertain a motion made by another Planning Commission member to recommend approval or denial of the application to the City Council. The maker of motions to approve or deny an application should, in support of the motion, state for the record the reasons for making said motion. Any stipulations relating to the application, plans, development procedure, etc. should be listed following the motion to approve. Upon receiving the second, the motion may be discussed and, upon call for the question or at the discretion of the chair, brought to a vote.
11. Prior to the conclusion of each agenda item which involves stipulations or conditions recommended by the staff or members of the Commission, the Chair shall ask the applicant if the applicant agrees with those stipulations. The applicant may reply with a yes or no answer and, if appropriate, a brief statement for the record as to why the applicant objects to a stipulation or condition, but the applicant may not further discuss or re-argue issues pertaining to such stipulations or conditions.
12. Votes shall be by voice and by roll call. Any motion may be tabled or amended in accordance with Robert's Rules of Order Newly Revised. If the Commission feels that delaying an action would be in the best interests of the parties involved, the item may be continued to a certain date. Such a motion for continuance shall include a reason for the action and shall require a majority vote of those present.

13. Upon a motion to approve an agenda item and with a second, any member of the Commission may make a motion to amend the original motion prior to the roll call vote being taken. If a member of the Commission makes a motion to amend the original motion, another member must second the motion, after which the amendment shall be brought forth for discussion and a roll call vote of the Commission members. If another member does not second the amendment, the amendment shall fail to come forth consideration. An affirmative vote of the majority of the Commission shall result in passing the amendment. At the conclusion of the vote for the amendment, the original motion shall come forth for a vote of the Commission. The Chair may request a recitation of the original motion as amended for purpose of clarification. A majority vote in favor shall pass the motion with the amendment.
14. If a member of the Commission knows prior to the discussion of an agenda item that the member will abstain from voting on such matter, the member shall notify the Chair and leave the meeting room until the discussion and voting on such item has been completed. Prior to departing the member shall state for the record the reason for the member's abstention. Any member who decides to abstain after discussion of an agenda item shall state for the record the member's reasons for abstention.
15. Prior to the start of each regular Commission meeting, each member of the Commission who knows in advance that he or she must leave the meeting at a specific time shall notify the Chair of the time of their anticipated departure.
16. These Standing Rules may be amended or repealed for stated reasons by affirmative vote of three-fourths (3/4) of those members present at a regular or special meeting with a quorum present.

APPLICANT NOT IN ATTENDANCE

In the case an applicant or the applicant's agent is not in attendance when an item is called, the Chair may, at the Chair's discretion, set the item to the end of the agenda. At the time the item is called again, if the applicant is still not represented, the Commission may continue to a date certain, or approve or deny the application as it sees fit.

CONFLICT OF INTEREST

When a member of the Commission has a conflict of interest on a particular item, the member shall so state for the record and vacate the member's seat. In such an event, the member shall not participate in the hearing, discussion, or vote on the item. If the vacation of a member due to conflict of interest will eliminate a quorum, the Commission shall continue the item to the next regular meeting. If the item is a public hearing, the Commission shall continue to a date certain.

A member shall not participate or vote on an item before the Commission if:

1. The member has a substantial interest in a particular item as defined by state law.
2. The member has expressed an individual opinion on the determination of a quasi-judicial matter or otherwise expressed him/herself in a way that infers an opinion has been formed prior to the Commission's hearing on the item.
3. The member owns property or is a prospective purchaser of property included in an application or within the statutory notification area.

4. Prior to any motion on an application, members of the Commission should disclose the nature of any *ex parte* contacts and of any information obtained through those contacts that may have a bearing on their decisions.
5. Members shall adhere to the responsibilities of appointed officials insomuch as to protect the rights and interests of all the members of the public which he/she/they represent. This would prohibit actions deemed to be official misconduct, such as discrimination, nepotism, acceptance of improper gifts, private use of public resources, conflicts of interest, and the improper use or disclosure of confidential information.

Examples of misconduct are included below, but members are subject to provisions included in the City of Mission's Personnel Policies and Guidelines. Should anything in the by-laws conflict with these provisions, the City of Mission's Personnel Policies and Guidelines shall prevail.

Discrimination. Members of the Planning Commission shall not discriminate on the basis of sex, race, color, ethnic background, religion, age, national origin, gender, sexual orientation, disability, gender identity, or gender expression of employees in their employment with the City or individuals in their use and enjoyment of the services, privileges, and advantages of the City. This provision does not prohibit officials from making appointments, filling vacancies, or otherwise engaging the public in such way as to include community members with diverse backgrounds based on sex, race, color, ethnic background, religion, age, national origin, gender, sexual orientation, disability, gender identity, or gender expression.

Nepotism. To avoid conflicts of interest or perceptions of a conflict, family members of the Governing Body should not be appointed to serve as a member of the Planning Commission. For purposes of this provision, "family member" is defined as the spouse, child, or parent of the official.

Personal Gifts and Favors. Members of the Planning Commission shall not accept personal gifts where they know or should know a personal gift worth more than a nominal value ($25.00 or more) would not be extended to them except for their official position, or where they know or should know a personal gift is intended to influence their official actions. This provision shall not apply to a) an award publicly presented in recognition of public service, b) gifts conferred on account of kinship or other personal, professional, or business relationships independent of the official status of the receiver, or c) trivial gifts involving no substantial risk of undermining official impartiality.

Private Use of Public Resources. Members of the Planning Commission shall not use public resources that they may use in their official capacity (e.g. City-owned vehicles, City staff time, equipment, supplies, property, etc.) for private gain, personal purposes, or other activities not related to City business unless otherwise authorized by law or City policy. Prohibited activities that are not related to City business include using public resources to post or otherwise interact on social media pages, pursue personal commercial endeavors, or conduct political activity to include the activity prohibited by K.S.A. 25-4169a, and amendments thereto.

Use or Disclosure of Confidential Information. Planning Commission Members shall not, without proper legal authorization, disclose any confidential or privileged information provided to them in their official capacity, nor use such information to advance their personal, financial, or other private interests. For the purposes of this provision, "confidential or privileged information" includes any material information discussed in a closed or executive meeting that is specifically

related to the basis for the closed or executive meeting and has not previously been made available to the public, and any record or information therein that has not previously been made available to the public and the official knows or should know is confidential.