CITY OF COLUMBIA

TENNESSEE

AGENDA

The Columbia Municipal Planning Commission will meet on Wednesday, September 13, 2023 at 4:00 PM in Council Chambers in the basement of City Hall, 700 N. Garden Street. The Planning Commission will consider the following:

I. Organization

1. Call to Order
2. Roll Call
3. Welcome of Visitors/Rules of Conduct
4. Acknowledgement of Official Communications of the Columbia City Council on Annexation and Zoning.
5. Approval of Minutes
6. Review of Bonds and Letters of Credit

II. Consent

1. Request from T-Square Engineering for final plat approval with surety in the amount of $125,000 for Homestead South consisting of 18 lots off Holiday Lane.
2. Request from T-Square Engineering for final plat approval with surety in the amount of $35,000 of Independence at Carter's Station Section 3.5 at Tax Map 42 Parcel 34 consisting of 9 lots off Ellie Court.
3. Request from T-Square Engineering for final plat approval with surety in the amount of $160,000 for Independence at Carter's Station Section 6.4 consisting of 25 lots off Sadie Street.

III. Discussion Items

1. Request from Wade Kincaid for Rezoning of property located at 6218 Cayce Lane from CD-2 (Rural Character District) to CD-3L (Neighborhood Large Lot Character District).
   THIS ITEM WAS DEFERRED FROM A PREVIOUS AGENDA

2. Request from M2 Group LLC for Site Development Plan and Preliminary Plat approval of Mackenzie Place consisting of 33 units at 220 Theta Pike.
   THIS ITEM WAS DEFERRED FROM A PREVIOUS AGENDA

3. Request from Patrick Carroll for annexation of a portion of right-of-way along Morrow Lane.

4. Request from Randolph Chapdelaine for Rezoning of Tax Map 100M Group C Parcel 18 located off West 18th Street from SD-LI (Light Industrial Special District) to CD-4 (General Urban Character District).

5. Request from Gamble Design Collaborative for partial revocation of a Preliminary PUD Master Plan and rezoning of approximately 11 acres in Honey Farm Crossing from PUD-MU (Planned Unit Development - Mixed Use) to CD-4C (General Urban Corridor Character District) being all of Lot 1 and a portion of Lot 6 off Honey Farm Way.

6. Request from Development Services for review and recommendation of an update to Connect Columbia, the comprehensive plan.

IV. Other Business

1. Adjournment

The Planning Commission of the City of Columbia welcomes your presence and participation at this meeting. If you wish to address the Commission regarding any item on the Agenda, please sign the sign-up sheet and indicate which agenda item you would like to comment on. You will have the opportunity to comment on an item when it comes up on the Agenda and before the Commission votes on the item. Once recognized, you may then come to the podium and state your name and address. Anyone requesting accommodation due to disabilities should contact the ADA Coordinator, Wanda McClain, at 931-560-1570 prior to the meeting. For other questions, please contact the Department of Development Services at 931-560-1560.

Organization

Item I.1. - **Call to Order**

Chairman Charlie Goatz called the August Planning Commission Meeting for the City of Columbia to order at 4:00 p.m.
The meeting was held in Council Chambers at City Hall.

Item I.2. - **Roll Call**

The quorum was present and included the following:
Planning Commission Member Charlie Goatz, Planning Commission Member James Shannon, Planning Commission Member Dr. Christa Martin, Mayor Chaz Molder, Planning Commission Member Thomas Hutto, Council Member Danny Coleman.
Absent was Planning Commission Member Ray Pace.
Other Attendees: Mr. Robert Archibald, Planner II; Mr. Austin Brass, Assistant City Planner; Mr. Glenn Harper, City Engineer; Mr. Paul Keltner, Director of Development Services; Mr. Tony Massey, City Manager; Mr. Kevin McCarthy, City Planner; Mrs. Sandra Richardson, Secretary; Mrs. Melissa Sanders, Planner I; and Mr. Tim Tisher, City Attorney

Item I.3. - **Welcome of Visitors/Rules of Conduct**

Chairman Goatz welcomed guests and applicants to the meeting. The Chairman discussed the meeting order and the process for speakers to be heard.

Item I.4. - **Acknowledgement of Official Communications of the Columbia City Council on Annexation and Zoning.**

Director Paul Keltner shared the updated status of the planning items that were forwarded to City Council.

Item I.5. - **Approval of Minutes**

Chairman Goatz moved to approve the July minutes, with Dr. Martin seconding. The minutes were approved five to zero.

Item I.6. - **Review of Bonds and Letters of Credit**

City Engineer Glenn Harper stated all letters of credit are in order and/or in the process of being updated.

Consent

Mr. Goatz read the consent items and moved to approve subject to technical comments. Dr. Martin seconded the motion. The motion to approve passed five to zero.

Item II.1. - **Request from T-Square Engineering for Final Plat approval with surety for Independence at Carter's Station Section 3.4 consisting of 29 lots off Lively Street.**

Item II.2. - **Request from Chet Rhodes for revision of a Final PUD Master Plan at 730 Mooresville Pike. Revisions are limited to accessory structure design.**

Discussion Items

Item III.1. - **Request from Joseph Ahler for Preliminary Plat and Development Plan approval for Liberty Pointe at Bear Creek located at 1451 Lasea Road consisting of 143 lots.**
THIS ITEM WAS DEFERRED FROM A PREVIOUS AGENDA

THE APPLICANT IS REQUESTING A DEFERRAL

Councilman Coleman arrived late.Mr. McCarthy gave the details of the report. After seeing the staff report, the applicant requested to defer again. Mr. Ahler was present to answer questions. Discussion included deferring, withdrawing, processes, redesigning, going back to the development review board, time line, deadlines, one intersection change on this, removing lots, having streets conform, wastewater is fine now, and changes were made. Mayor Molder asked if the Planning Commission was able to send something back to DRC. Mr. Tisher, City Attorney, stated that he doesn't recall the Commission sending anything back in the past, but he didn't see any reason why they couldn't send it back. Mayor Molder stated that the reason that he asked was the initial deferral that was at the request that stemmed from something that we put on them, and then they came back and asked for another deferral this time. Mr. Keltner stated yes, that is correct. Mr. McCarthy stated that the first time it was deferred due to comments from wastewater, and the second time they requested the deferral. Additional discussion included setting a precedence. Mr. Tisher stated that he doesn't see a problem with sending it back to the DRC Board. He also stated that the Commission had two options, since staff desired it to go back to them. He thinks the two options are either to defer it back to them or it could be withdrawn and start the process over, and it would automatically go to them. The intent is to get it to them, and those are the only two ways to get it to them, because if you continue with it and don't refer it back to them, then they will not see it. Mayor Molder asked if this Commission sent it back to DRC by motion, then it would go to the September DRC, in which case they would be back here in front of the Planning Commission in October. Mr. Tisher stated that the Commission would have to defer it again is his understanding. They will not have all they need by the September meeting. Mr. McCarthy stated correct. Mr. Harper stated that this is a preliminary plat and the applicant would have to request a deferral because of the sixty-day rule for the subsequent meeting. Dr. Martin stated that the DRC meets the day before the Planning Commission meeting. That means staff will update her information

the day before the meeting. Mr. Goatz stated what they are saying is the meeting will be before the board's next meeting in September. It would, by design, have to be deferred again so that way, staff would have time to review it. Mayor Molder stated if they withdrew, then they would start over by presumably being on September DRC, and then the October Planning Commission meeting. If this Commission sends it back to DRC, is there some benefit in sending it to DRC versus them withdrawing? We would save them from paying the application fee. Mr. Tisher stated that is the big difference the application fee. Mr. Goatz inquired about the fees. Mr. McCarthy explained the fees. Mr. Goatz discussed the readiness of this request. Mr. Ahler stated that it was a misunderstanding with staff and the technical report. He stated that they thought it was in one location, and they meant it to be in another, and they didn't find out until recently. Mr. Harper stated that staff asked for a Geo Tech report for the site. Mr. Keltner stated in May the comment was for a Geo Tech report. Mr. Harper stated upon the site visit they discovered a pond that was not on the survey and that is what they did the study on and determined that it was water of the state. Now they have to design around that. The Geo Tech and the survey missed what the staff found, and that is what required the additional study. Mr. Goatz moved to deny it based on 8.5.6N, because it doesn't conform to the standards. Mr. Shannon seconded the motion. Mayor Molder stated for clarification this denial has the affect of forcing them to simply start over, pay a full fee, and be at the DRC in September, assuming that they meet the deadline. The motion to deny passed five to zero with Councilman Coleman abstaining.

Item III.2. - **Request from M2 Group LLC for Site Development Plan approval of Mackenzie Place consisting of 34 units at 220 Theta Pike.**

THIS ITEM WAS DEFERRED FROM A PREVIOUS AGENDA

THE APPLICANT IS REQUESTING A DEFERRAL

Mr. McCarthy gave the details of the staff report. Based on it being a recommendation from staff with the guidance of the City Attorney, Mr. Goatz moved to defer, with Mr. Hutto seconding. The motion to defer passed with a vote of six to zero.

Item III.3. - **Request from WES Engineers & Surveyors for Preliminary Plat and Final PUD approval of the Beechcroft Plaza PUD off Cayer Lane.**

Mr. McCarthy gave the details of the staff report. Mr. Goatz asked for clarification on the code in reference to street-facing buildings and those have more parking in the front. Mr. McCarthy stated that in the Ordinance there is PUD MU, PUD R, and all the master plans that were approved under the previous ordinances. They have the vested right to continue to implement that PUD. If they want to change it, which is what we see more often. That would force them to come under the PUD and zoning ordinance. They are basically implementing what is requested. Mr. Goatz stated which conforms to the requirements. Mr. McCarthy stated without any substantial deviation. Mr. Keltner stated that it is following the original master plan that was approved under 3638.

Mr. Gerald Vick, WES Engineering and Surveyors, was present to answer questions. Mr. Goatz asked if the recommendation that was given by the Architectural Review was corrected. Mr. Vick stated yes, to his understanding. Mayor Molder moved to approve subject to Technical Comments. Mr. Goatz asked if he could add to the motion, if approved, the applicant will provide an as-approved plan. Mr. Keltner stated yes. Mayor Molder stated so moved. Mr. Goatz seconded the motion. The motion to approve subject to Technical Comments, and providing an approved plan was approved six to zero.

Item III.4. - **Request from Wade Kincaid for Rezoning of property located at 6218 Cayce Lane from CD-2 (Rural Character District) to CD-3L (Neighborhood Large Lot Character District).**

Mr. Goatz abstained, and the meeting was turned over to Councilman Coleman, Vice Chairman. Mr. McCarthy gave the details of the staff report. Gravel driveways would not be appropriate. Mr. Tim Tisher, City Attorney, stated that the city has been sued on the previous application on this matter of requesting to rezone to CD-3 in the prayer for relief in the suit, they are requesting that it be rezoned CD-3. Due to that fact, it is a recommendation that the Commission go ahead and defer this matter because we do not want to get into the confusion of rezoning it to CD-3L, and then the court rezoning it to CD-3. That could confuse the public and could cause a cragmire. The safest thing to do is to defer until the courts complete the litigation. Councilman Coleman stated in which case the Commission wouldn't have any discussion. Mr. Tisher stated if the public wants to comment, if they signed up they can comment. The Commission is limited to the motion to defer. Mayor Molder stated that the issue that the City Attorney has pointed out has created a difficult predicament for the Commission to proceed if there is active litigation relative to this development by this developer property owner against the City of Columbia at a time when this new application has been filed and requiring the Commission's consideration when the lawsuit includes a component of what is being sought. This current application is among a number of reasons he feels like it would be difficult legally for this body to proceed. He will adhere to the City's Attorney's advice and make a motion to defer this item, he supposed indefinitely, until the outcome of the litigation. Mr. Tisher stated that the Commission would defer it to the next meeting, and then you may defer it one more time if you choose to. If the litigation is resolved by then, then the Commission could consider if the litigation is not resolved after the second deferral, the Board would have to take action. Mayor Molder asked would that not also subject us to legal difficulty if we take action to deny it. Mr. Tisher stated that there is a state statue as well, because the state does not want actions to sit in front of the Planning Commission forever. Mayor Molder stated that the Commission would almost be bound by law to do something. Mr. Tisher stated yes. Mayor Molder stated to clarify the motion to defer it to the next meeting. Dr. Martin seconded the motion. Councilman Coleman asked what time limit the commission would have, and how many times can this be deferred? Mr. Tisher stated that the Commission could defer one more time. You have

sixty days on the statute. The motion to defer passed four to zero. Mr. Goatz and Mr. Hutto abstained.

Item III.5. - **Request from David McGowan for revision of the Arden Village Preliminary PUD Master Plan for Building "A" off Arden Village Drive.**

Mr. McCarthy gave the details of the staff report. This is a request to revise the plan. Mr. Goatz asked if this is exactly what the Commission saw the last time. Mr. McCarthy stated yes. At DRC, staff asked the applicant to provide an explanation of why they feel the Commission would want to consider this request. The response is in the packet. Mr. Pador Jensen, Regent Homes representative, was present to answer questions. Discussion included narrative description, commercial retail space on the first floor, increase the elevation of the commercial space on the first floor, raising that space, drawings available to share, square footage, it is a very architectural pleasing fashion, it matches what is in downtown Columbia, residential space is above the first floor, and having the three stories completes the Architectural Design. Mr. Jensen stated what they are wanting to do will allow a coffee shop, a sandwich shop, and retail space to be built now. Rather than a one-story retail space that sits vacant. Mr. Goatz stated as a concern what are we taking away from those residents of Arden Village by redesigning this. That will be his number one concern. By keeping it commercial, are we taking away from what could be more commercial or are we doing this to add a few more residential units would be his question. Mr. Cloud stated no they are not taking away. They are still giving the same square footage that you can have commercial space. The second floor commercial space isn't viable in today's market, especially when you take the smaller footprint. By the time you add the stairwells, and the elevator spaces that would be required, ADA access to the second floor shrinks the first floor square footage so much that you are not actually gaining anything. You end up with the same square footage space. He also stated that parking would allow this is a way for them to build this building now and complete Arden Village. This is the last site that they have there in Arden Village. Having the residential allows that first floor to get built. Mayor Molder asked under the current plan what is the square footage of retail, and what will this leave with retail space square footage with this request. Originally, the PUD had about 4,000 feet for retail space two story retail space. They raised the first floor ceiling about two feet. The twelve-foot ceiling will make it feel more commercial. Mayor Molder stated that he appreciated the clarification. Further discussion included research, visiting the site, cost, it fits in the neighborhood, the concept working better, they have no problems with mixed use, and the second and third floor is not touching the commercial space. Mr. Goatz stated his comment earlier was what were we taking away. Mr. Jensen stated that he owns a home in that community, and they have been waiting a long time to be able to walk up to a coffee shop, or sandwich shop in that space. There is not a lot of connectivity right now. Mr. Goatz asked if the design conforms to the standards. Mr. McCarthy stated yes. The Mayor moved to approve subject to technical comments. Councilman Coleman seconded the motion. The motion to approve passed six to zero.

Item III.6. - **Request from Steven Saenz for an Exception to Access Management at 107 South James Campbell Boulevard.**

Mr. Glenn Harper, City Engineer, gave the details of the report. He stated that this request is for an appeal to his decision to not allow an Exception to the Access Management Ordinance along South James Campbell Boulevard. This is at an address of 107 South James Campbell Boulevard which is east of Nicolas Long Drive, which is sometimes referred to as Ashwood Drive. The request does not comply with three sections of the Access Management Ordinance. The first is driveway spacing, it does not comply with corner clearance, and the access should be drive from the lesser classified street. In this case, it was Nicholas Long. A couple of ideas that could apply would be to come off Nicholas Long Drive at least a hundred feet off of South James Campbell. There are some grade issues there, it would take quite a bit of the back of the site for it to get the drive up to the appropriate grade, or share a drive with the property to the east. Which is currently Stan McNabb Dealership, and aligns an access with he existing median. Mr. Goatz asked about the shape of this particular lot, and he also asked if that would make something like this a non-conforming lot? The width on James Campbell does not allow four hundred and forty feet, it is not four hundred and forty feet wide. Mr. Harper stated that it has access, it is just that with this much required on the site, it just doesn't fit. Mr. Josh Hibbits stated as Mr. Harper pointed out it is a challenging site. They basically have two options for access. The challenge for Ashwood as Mr. Harper pointed out that to comply with the Access Management they would have to be one hundred feet away from James Campbell. There is a significant grade difference as you get further away from James Campbell. The other option is access off James Campbell, and they did go to the neighbor to the east of the car dealership, to work out a cross-access to his curb cut. Unfortunately, that particular owner was willing to work with them and give them cross access, but he would not agree to unobstructed access. His intent is to still operate it as a car lot, and he wants to still park his cars there. It doesn't give them what they need. Neither one of the two options would be viable. What they are proposing is to create a right in, right out access point directly onto their site. Mr. Goatz stated looking at it right now, if they were to put the ramp off Ashwood/Nicholas Long, would that basically shift traffic closer to the building. Mr. Hibbits stated that it would have to be a straight out. You have to account for garbage trucks and fire trucks not being parked on a slant. Mr. Goatz stated that part of this design requires you to grant access to the property in the east, which they are not granting you access.That is why your building is not closer to James Campbell. Mr. Hibbits stated yes. Mr. Goatz stated that he is certain that they have looked at it and tried to draw it with an access. Mr. Hibbits stated that they have gone through many iterations. It is not only the access part, but it is also the CD-4C zoning requirement that they are trying to resolve with Mr. Harper and staff. Mr. Goatz asked if the safety concerns with the right in and right out he guessed would be obviously not traveling east. We are creating a lot of risk for u-turns is the concern here. Mr. Harper stated yes, there are two parts. It is the customers that are traveling east, and if they are going to go back west, they would have to exit and then make a u-turn, or take a different route back. Those motorists traveling west would

have to make a u-turn either there at Nicholas Long or at somewhere to come back to the site to turn in. That is the congestion issue that staff have with the site. He also stated that this team was great to work with. They have looked at a lot of options, yet staff can't find a way to make it fit on the site, and for the grade to work. Mr. Goatz said if they lose space to the south there is no way to allow a ramp. If you move the building and all to the north then we are eliminating the requirement to have access to join. Mr. Harper stated that the issue is that by the time you catch up grade on a ramp, it literally goes across the other side to get up to grade. Further discussion included location problems, or drive-through problems, and parking comes into play. Mr. Keltner stated that a smaller drive through might fit, the parking ratio for this particular use is the highest in the parking ratio, this one is set at one space for every one hundred square feet of building, and the drive through eats up a lot of space. If it was retail, something with lower intense use, it might be an easier site to work with. Councilman Coleman asked if there was an option for the Board to require less parking, or is that not reasonable. Mr. Keltner stated that there is a minimum, and he believes that it is over the minimum, but not by much. There is a cap of thirty percent over that. Mr. Hibbits stated that from a parking standpoint, this is really light for what they would desire. Reducing would be difficult for them. Councilman Coleman asked if it is optional, from the way he sees it there are already a ton of safety concerns along this entire boulevard. If reducing some parking space, would the Commission to go with the safest option is traffic wise. Mr. Harper stated that he thinks it would drastically cut the parking and the drive-through ability down to come off of Nicholas Long Drive. Mr. Goatz stated that he remembers when there were median signs saying no u-turn. Mr. Harper stated that he doesn't see that as a solution to prevent the u-turns. There are legal ways to make a u-turn and some of those are at the officer's discretion if the vehicle can turn into the closest lane and do they have to swing out into the other, because James Campbell doesn't have a wide enough median for a true J turn. Mr. Hibbets stated that as you are traveling east on James Campbell you almost have a natural diesel lane that is right in and right out that they are proposing, could potentially be striped to make it a true diesel lane into the site. Mr. Harper stated that TDOT would have to approve the drive location. Mr. Harper also stated that the state is really reluctant to close median openings. Additional discussion included the previous business, losing access point, use, intensity, how long vacant, alignment, criteria laid out, intensity increasing, and no direct median access point. Mr. Hibbits stated that what they are requesting is what they feel is their only option. Mr. Goatz stated that the current ingress, egress that is there on Nicholas Long, he guess, it is just too close to James Campbell. Mr. Harper stated yes. Mr. Goatz asked about the danger of the stacking. Mr. Harper stated that you would have to make a movement really quickly, to the access after turning off James Campbell Boulevard. Councilman Coleman stated that TDOT wouldn't look at this unless the Commission approved it. Mr. Harper stated that TDOT looks for engineering staff to concur. Staff concurs with all the drives coming onto a state route. In this case, if this commission approves the exception, staff would send them that approval so that they would have concurrence from the City. Councilman Coleman stated concurrence from the Planning Commission. Mr. Harper stated that it overrules staff. Mr. Hutto stated, but it wouldn't

overrule TDOT. Mr. Keltner stated that they are looking for staff is aware of the situation, and they are looking at their guidelines. Councilman Coleman stated that TDOT could disapprove it. Mr. Harper stated that they could disapprove it. Further discussion included looking to the west of this. They were built prior to the access management. Mr. Harper stated that this is the main route that sparked our Access Management Ordinance. Mr. Goatz stated that he thinks the uniqueness of this is the granting of this particular, is the only way to make it a usable site for this particular project. Additional discussion included length, if it is achievable, meeting the TDOT requirement, using the shoulder of the road, slowing down in the lane of traffic, emergency lane, non-approvals, motorist, minimal separation based on speed, leaving the drive through lane, cut through, triggering road, seeing another solution, and real estate. Dave Riddenberry stated that they had asked to purchase more land, but the gentleman that owns the property stated no. Councilman Coleman moved to deny it, and Mr. Shannon seconded the motion. The motion to deny passed five to one with Mr. Goatz voting nay.

Item III.7. - **Request from the City of Columbia for Annexation with Plan of Services for a 22 acre portion of Tax Map 88 Parcel 33.07 off Estes Lane. The property will be assigned the default zoning district of CD-3L (Neighborhood Large Lot Character District).**

Mr. McCarthy gave the details of the staff report. This request is from the Wastewater department. Mayor Molder moved to approve, and Councilman Coleman seconded the motion. Mr. John Meyer stated that they were told that someone was applying for lots to build on. Mr. Goatz stated that is not correct. This is an application from the wastewater department to expand their water facility. Mr. Keltner stated that this is a request for annexation of the property. The City had already purchased the twenty-two acres sometime back. This is the first step for annexation into the City. This will proceed forward either with the recommendation of approval or denial to City Council. If it should be inside the City, the City itself can submit plans for the expansion of the plan.The plan has already been drawn up about how it will sit on the site. Mr. Meyer asked if it came down toward Estes Lane already. Mr. McCarthy explained. The motion to approve passed six to zero.

Other Business

Item IV.1. - **Connect Columbia Update**

Mr. McCarthy gave the details of the Connect Columbia update. It was adopted in January 2018. Mr. McCarthy discussed the guiding principles, Connect Columbia's policy framework, goals, objectives, proposed action, priority, meetings, online surveys, the steering Committee, implementation, and future land use. A joint session is scheduled for August 16th.
Councilman Coleman stated that it was good to see Mr. Brass back. Mr. McCarthy stated that the staff is happy to have Mr. Brass back. Mr. Goatz also welcomed Mr. Brass back.

Item IV.2. - **Adjournment**

Mayor Molder moved to adjourn with Councilman Coleman seconding. A verbal vote was taken. The motion to adjourn passed six to zero. The meeting adjourned at 5:38 p.m.

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Planning Commission Chairman, Charlie Goatz

Date

Active Letters of Credit and Sureties

9/12/2023

DEVELOPMENT	DEVELOPER	AMOUNT	EXP. DATE
Colter Place Subidivison, Section 1 (rds/drainage)	Sterling Martin	$44,502.69	09/09/2016
Honey Farm Townhomes- Phase 1A (completion of roads)	Honey Farms Management, LLC	$20,000.00	12/13/2018
Honey Farms Townhomes Phase 2, Section 2 (roads)	Honey Farms Management, LLC	$40,000.00	01/12/2019
Armstrong Meadow, Phase 1, Section 3 (roadsd/drainage)	General Homes of Columbia, LLC	$203,500.00	05/05/2019
Honey Farms Subdivsion, Phase 2, Section 8	Charles Raines Construction, LLC	$14,500.00	05/05/2020
Honey Farms Subdivision, Phase 2, Section 10	Charles Raines Construction, LLC	$103,000.00	05/23/2020
Greystone Subdivision	LPT, LLC	$166,500.00	03/07/2021
Arlington Heights Subdivision, Phase 2, Section 2	Arlington Heights General Partnership	$105,000.00	04/25/2021
Baker Landing Subdivision, Phase 1, Section 1	Howell Home Builders, LLC	$13,900.00	04/27/2021
Arlington Heights Subdivision, Phase 1, Section 2	Arlington Heights General Partnership	$106,000.00	05/09/2021
Polk Place PUD Subdivision, Phase 1 (roads & drainage)	Columbia Properties, LLC	$28,000.00	05/23/2021
Independence @Carter's Station, Section 3, Phase 1	Pulte Homes Tennessee Partnership	$390,000.00	09/15/2021
Savannah Cove Subdivision - roads/drainage	Campbell and Lovell Rentals	$45,000.00	09/28/2021
Summerdale, Phase 1 (roads & drainage)	P & L Development	$135,000.00	11/17/2021
Elan Subdivision, Phase 2 (roads and drainage)	Shaw Enterprises	$142,000.00	01/04/2022
Polk Place PUD Subdivsion, Section 2A (roads & drainage)	Columbia Properties, LLC	$55,000.00	02/03/2022
Fieldstone Farms - Section 4 (roads & drainage)	Estate of Cyril Evers	$21,000.00	03/13/2022
Summerdale Subdivision, Phase 4 (roads & drainage)	P & L Development	$64,000.00	03/19/2022
Hatton Hills Subdivision (roads & drainage)	J & B Estate	$32,000.00	03/22/2022
Honey Farms Townhomes , Phase 2, Section 3	Lennar Homes of Tenn, LLC	$50,000.00	04/05/2022
Homestead at Carter's Station, Section 2, Phase 1B	FP TCI CCS, LLC	$6,500.00	03/17/2024
Homestead at Carter's Station, 5.2 and 6.1	Pulte Homes Tennessee Partnership	$254,000.00	04/16/2022
Homestead at Carter's Station. Section 4, Phase 1A	FP TCI CCS, LLC	$13,400.00	10/17/2023
Homestead at Carter's Station, Section 4, Phase 1 B	FP TCI CCS, LLC	$12,000.00	10/17/2023
Summerdale Subdivision, Phase 2 (roads & drainage)	P & L Development, LLC	$105,000.00	05/30/2024
Homestead at Carter's Station, Section 4, Phase 2	FP TCI CCS, LLC	$12,100.00	10/17/2023
Taylor Bend Road - roads & drainage	Meritage Homes of Tenn., Inc.	$120,000.00	06/30/2024
Taylor Landing Subdivision, Phase 5A (roads & drainage)	Meritage Homes of Tenn., Inc.	$48,000.00	06/30/2022
Taylor Landing Subdivision, Phase 5B (roads & drainage)	Meritage Homes of Tenn., Inc.	$72,000.00	06/30/2022
Taylor Landing Subdivision, Phase 4B, (roads & drainage)	Meritage Homes of Tenn., Inc.	$78,000.00	06/30/2022
Homestead @Carter's Station Subdivision, Section 4 Ph 3	FP,TCI,CCS,LLC	$16,000.00	10/17/2023
Cottages at Bear Creek , Phase 1 (roads & drainage)	Riverstone Homes, LLC	$165,000.00	07/19/2022
Valley View Subdivision, (roads and drainage)	James Davis, Sr.	$258,000.00	08/14/2022
Homestead @ Carter's Station Section 2 Phase 2B	FP TCI CCS, LLC	$11,100.00	04/20/2024
Summerdale Subdivision, Phase 5 (roads & drainage)	P & L Development, LLC	$55,000.00	10/14/2022
Independence at Carter's Station, Section 6, Phase 2	Pulte Homes Tennessee Partnership	$207,000.00	11/08/2022
Polk Place , Phase 2B (roads & drainage)	Columbia Properties, LLC	$56,000.00	11/12/2022
Homestead at Carter's Station Subm Section2 Phase 3	FP TCI CCS, LLC	$19,000.00	03/17/2024

Active Letters of Credit and Sureties

9/12/2023

DEVELOPMENT	DEVELOPER	AMOUNT	EXP. DATE
The Ridge at Carter's Station, Phase 1A	Richmond American Homes of Tenn	$121,000.00	12/03/2022
Independence at Carter's Station, Section 3, Phase 2	Pulte Homes Tennessee Partnership	$372,000.00	12/06/2022
Homestead at Carter's Station Section 2, Phase 1	FP TCI CCS, LLC	$14,100.00	03/17/2024
Homestead at Carter's Station, Section 2, Phase 2A	FP TCI CCS, LLC	$8,700.00	04/20/2024
Armstrong Meadows Subdivision, Section 4	Smith Douglas, LLC	$475,000.00	02/01/2023
Villages at Carter's Station	Villages at Carter's Station Dev., LLC	$200,000.00	02/04/2023
Cottages at Bear Creek , Phase II (roads & drainage)	Riverstone Homes, LLC	$156,000.00	03/18/2023
Summerdale Subdivision, Phase 7 (roads & drainage)	P & L Development, LLC	$66,000.00	03/21/2023
Ridge at Carter's Station, Phase 1B (roads & drainage)	Richmond American Homes of Tenn	$260,000.00	03/31/2023
Vesper Court (completion of the work)	P-R Vesper, LLC	$18,500.00	04/18/2023
Morgan Meadow Phase 2 (roads & drainage)	KCS Property, LLC	$135,000.00	05/12/2024
Armstrong Street Subdivision (roads & drainage)	Tennessee Regional Holdings, LLC	$75,500.00	05/14/2023
Polk Place, Phase 3 , (roads and drainage)	Columbia Properties, LLC	$79,000.00	06/17/2023
Independence at Carters Station Section6, Phase 3	Pulte Homes Tennessee Partnership	$197,000.00	07/14/2023
Bear Creek Overlook Place Phase 1 (roads and drainage)	CHR Land, LLC	$203,000.00	07/12/2024
Bear Creek Glen, Phase 1 (roads and drainage)	CHR Land, LLC	$90,000.00	07/12/2024
Homestead at Carters Station, Section 5, Phase 2	Pulte Homes Tennessee Partnership	$149,000.00	07/29/2023
Independence at Carters Section 3, Phase 3	Pulte Homes Tennessee Partnership	$155,000.00	08/05/2024
Quail Run Development, Phase 2 (roads and drainage)	Quail Run Development Co., LLC	$182,000.00	08/01/2024
Quail Run Development, Phase 1B (roads and drainage)	Quail Run Development Co., LLC	$185,000.00	08/01/2024
Drumwright, Phase 1 Townhomes Section (roads & drainage)	Lennar Homes of Tenn, LLC	$275,000.00	08/11/2023
Drumwright, Phase 1 Family Section (roads & drainage)	Lennar Homes of Tenn, LLC	$890,000.00	08/11/2023
Ridgeview Oaks, Phase 1 (roads and drainage)	A1 Home Builders, Inc.	$450,000.00	08/22/2024
Taylor Landing Subdivision, Phase 1A (roads & drainage)	Meritage Homes of Tenn., Inc.	$9,000.00	09/30/2023
Elan Subdivision, Phase 1 (roads and drainage)	Shaw Enterprises, Inc	$15,700.00	10/11/2023
Morgan Meadows Subdivision (roads & drainage)	KCS Property, LLC	$24,200.00	07/14/2024
Ridge at Carter's Station, Phase 2 (roads & drainage)	Richmond American Homes of Tenn	$645,000.00	10/31/2023
Taylor Landing, Phase 1B (roads & drainage)	Meritage Homes of Tenn., Inc.	$11,850.00	11/30/2023
Taylor Landing, Phase 4A (roads & drainage)	Meritage Homes of Tenn., Inc.	$121,000.00	11/30/2023
Summerdale Subdivision, Phase 3 (roads & drainage)	P & L Development	$97,000.00	12/22/2023
Quail Run Development Phase 1 (roads & drainage)	Quail Run Development Co., LLC	$157,000.00	01/03/2024
Summerdale Subdivision, Phase 3B (roads & drainage)	P & L Development, LLC	$17,000.00	01/27/2024
Summerdale Subdivision, Phase 6 (roads & drainage)	P & L Development, LLC	$103,000.00	02/07/2024
Morgan Meadow Phase 3 (roads & drainage)	KCS Property, LLC	$220,000.00	02/10/2024
Vulcan Quary Site Restoration	Vulcan Construction Materials, LLC	$62,000.00	03/01/2024
Ridgeview Oaks, Phase 2 (roads and drainage)	A-1 Home Builders, Inc.	$335,000.00	03/10/2024
Summit at Carter's Station Phase 1 (roads & drainage)	Tamarack Land - Carter's Station LLC	$465,000.00	03/17/2024
Baker Creek Place (roads & drainage)	SDH Nashville, LLC	$360,000.00	04/28/2024

Active Letters of Credit and Sureties

9/12/2023

DEVELOPMENT	DEVELOPER	AMOUNT	EXP. DATE
Taylor Landing - Phase 2 (roads & drainage)	Meritage Homes of Tenn., Inc.	$188,000.00	04/30/2024
Taylor Landing Subdivision, Phase 3 (roads and drainage)	Meritage Homes of Tenn., Inc.	$11,700.00	07/31/2024
Quail Run Meadows, Phase 3	Quail Run Development Co., LLC	$185,000.00	05/18/2024
Drumwright, Phase 2C	Lennar Homes of Tenn, LLC	$125,000.00	05/23/2024
Drumwright, Phase 2A	Lennar Homes of Tenn, LLC	$200,000.00	05/23/2024
Drumwright, Phase 2B	Lennar Homes of Tenn, LLC	$125,000.00	05/23/2024
Drumwright TH, Phase 2D	Lennar Homes of Tenn, LLC	$265,000.00	05/23/2024
Honey Lakes	Honey Lakes LLC	$295,000.00	06/14/2024
Vesper Court (completion of the work) 2	P-R Vesper, LLC	$10,000.00	06/16/2024
Summit at Carter's Station Phase	Tamarack Land - Carter's Station LLC	$175,000.00	06/14/2024
Independence @ Carter's Station, Section 3, Phase 4	Pulte Homes Tennessee Partnership	$140,000.00	07/13/2024
Independence @ Carter's Station, Section 6, Phase 4	Pulte Homes Tennessee Partnership	$160,000.00	07/13/2024
Homestead South @ Carter's Station	Pulte Homes Tennessee Partnership	$125,000.00	07/13/2024
Independence @ Carter's Station, Section 3, Phase 5	Pulte Homes Tennessee Partnership	$35,000.00	07/19/2024
Williamsport Landing, Phase 1	KCS Property LLC	$310,000.00	08/17/2024

3	06.11.2017
8	03.18.2018
9	02.21.2018
20	10.19.2018
23	06.05.2019
2	08.25.2018

River Villages Townhomes (roads & drainage)	McBroom Family Partnership
Autumn Brook Subdivision - (roads and drainage)	SDHomes of Nashville, LLC
Honey Farms Subdivision, Phase 2, Section 9	Charles Raines Construction, LLC
Honey Farm Subdivision - Phase 2, Sections 3,4,5,6,& 7	J.D.Eatherly & Charles Raines

J.D. Eartherly and Charles Raines	Honey Farms Sub - Phase 1, Section 2 (rds/drain)	$	53,000.00
J.D. Eartherly and Charles Raines	Honey Farm Subdivision- Phase 1, Section 2A	$	12,000.00
Fortuna Capital, LLC	Grove Park Subdivision - Phase 1 - roads/drainage	$	14,700.00
FP,TCI, CCS, LLC	Overlook Place Subdivision - (roads and drainage	$	100,000.00
LPT, LLC	Timberland Estates, Section 6 (roads & drainage)		$7,600.00
Shaw Enterprises - (cashier's check)	The Landings Subdivision, Phase 2, Section 2	$	10,800.00

$7,300.00	03/07/2023	02/24/2021
$10,000.00	06/06/2020	02/26/2021
$9,600.00	05/21/2022	03/10/2021
$25,000.00	12/11/2021	03/24/2021

8/14/2014	Maintenance				
3/31/2006	Maintenance				
1/22/2015	Maintenance				
8/28/2007	$328,300.00				
8/5/2018	Perf. Bond				
10/10/2017	$108,000.00	check	27188		
	$7,300.00				
06/05/2019	$103,000,00	check	6691401128	9/17/2020	
08/07/2019	$96,000.00	Charles Raines & JD Eatherly	Surety		
	$301,000.00	reduced previous	check	11/13/2019	Completed

Checks 132572 and 132569

Homestead South Final Plat

Project #:	23-0290	Location:	Map 052 Parcel 14.00
Applicant:	T-Square Engineering	Case Type(s):	Final Plat
Staff Planner:	Austin Brass, AICP	Proposed Use:	Single Family Homes

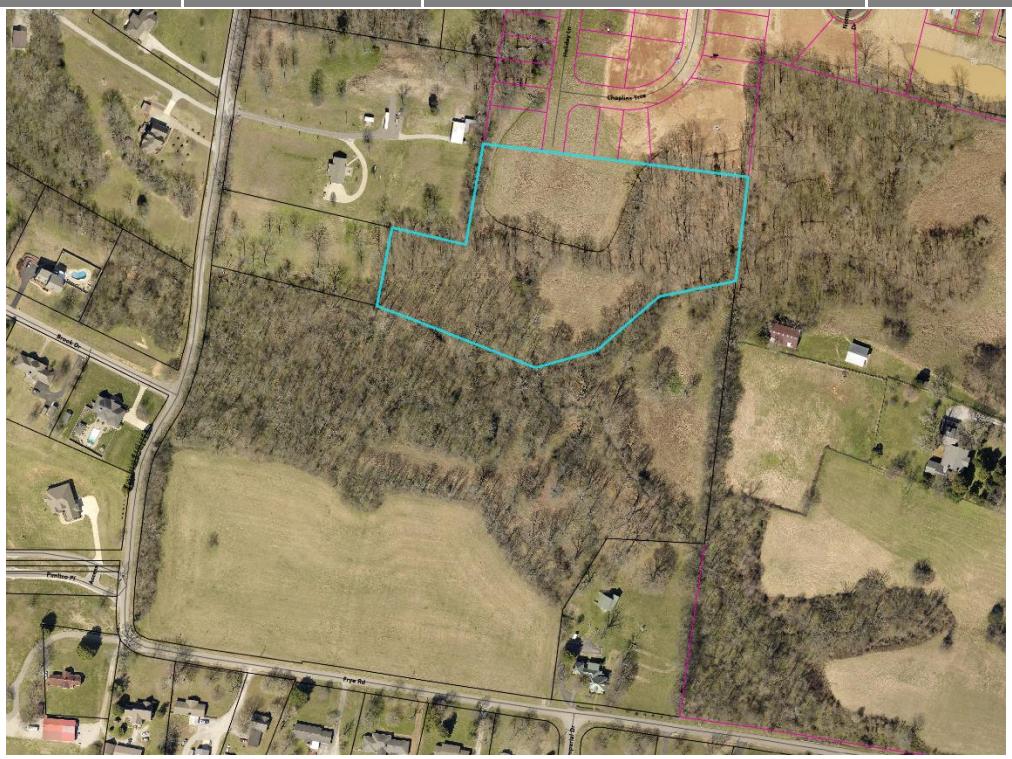
PROJECT SUMMARY

The applicant requests approval of a Final Plat to create 18 single-family home lots with accompanying infrastructure on 6.44 acres. The Planning Commission approved Preliminary Plat case 22-0037 for 18 single-family lots on April 22nd, 2022. The previous approval created a vested right to develop under the RS-6 district standards of the previous Zoning Ordinance. Lot layouts include a 50' width with no building lots under 6,000 SF. This plat includes an open space lot including an open space for storm water detention as maintained by HOA.

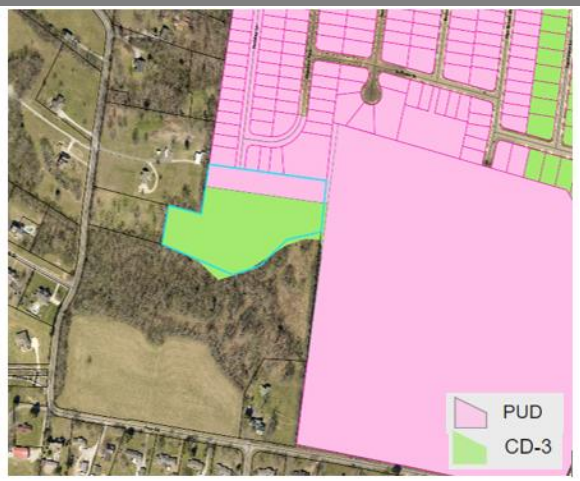
- The development is subject to Ordinance 3638, the pre-July 2022 zoning ordinance.
- The Final Plat conforms to the approved Preliminary Plat with a minor exception of new draining easements.
- The applicant has provided financial surety in the amount of $125,000 to guarantee completion of infrastructure.
- The applicant has executed a development agreement in the format prescribed by Appendix B of the Subdivision Regulations.
- The applicant will record a stormwater maintenance agreement prior to recordation of the Final Plat.
- The DRC reviewed this proposal at its August 2023 meeting. Staff review included standard comments and requests for technical corrections. Full technical comments are provided in the agenda packet.
- The Planning Commission is the **Decision-Making Authority** for the Final Plat.
- Templates are provided at the end of the report to assist the Planning Commission in crafting properly formatted motions.

SITE INFORMATION

CURRENT ZONING	EXISTING USE	EXISTING IMP.	LAND AREA
CD-3	In Development	Infrastructure for Development	+/- 6.44 Acres



FUTURE LAND USE MAP	ZONING MAP



SITE CONTEXT/ADJACENT PROPERTIES			
	Future Land Use	Zoning	Current Use
Subject Property	Suburban Neighborhood	CD-3	Vacant/Developing
North	Suburban Neighborhood	PUD-R	Single-Family Residential
South	Suburban Neighborhood	County Zoning	Vacant Wooded Land
East	Suburban Neighborhood	PUD-R	Vacant Land/ Single-Family Home
West	Suburban Neighborhood	County Zoning	Vacant Land/ Single-Family Home

The subject site was approved under Zoning Ordinance 3638 within an RS-6 zoning district. This property was annexed and zoned RS-6 with recommendation from Planning Commission on September 8th, 2021 and subsequent final approval by City Council on November 11th, 2021. The property is bounded on the north by single-family homes on similar sized residential lots within an existing single-family residential Planned Unit Development. An extension of Holiday Lane is provided that connects this residential subdivision to this Planned Unit Development at the north. In addition, this property is bounded by the east, south, and west by vacant property and single-family homes. A minor change was made by the applicant at the final plat stage indicating a new easement across lots 2,3, and 6. The applicant indicated that this change was due to the pad grading and the need to provide storm drainage along these property lines to accommodate elevations. Staff has acknowledged this change as it does not create greater density, nor substantiality change the approved preliminary plat.

CONFORMITY WITH ZONING ORDINANCE

The Final Plat conforms to the approved preliminary plat from April 21st 2022 Planning Commission approval with the standards of the applicable zoning ordinance (3638), the Subdivision Regulations, and the approved Preliminary Plat.

- The final plat conforms with the previous approved preliminary plat under Zoning Ordinance 3638 with an R-6 zoning district.

REVIEW PROCESS

The Development Review Committee evaluated the proposed Final Plat at its August 8,2023 meeting, as directed by section **8.3.7** of the Zoning Ordinance. Technical comments are provided in the agenda package and summarized above.

Section **8.5.24** of the Zoning Ordinance directs the Planning Commission to review Subdivision Plats for conformity with the standards of the Ordinance and the City Subdivision Regulations. The Ordinance indicates that all Preliminary and Final Plats must be prepared, submitted, reviewed and acted upon in accordance with the Subdivision Regulations.

The Planning Commission is the Decision-Making Authority for Final Plats under **§ 8.3.3.B.1** of the Zoning Ordinance and **§ 2.3** of the Subdivision Regulations.

Section **2.3.6** of the Subdivision Regulations establishes the review criteria for approval of Final Plats.

> *A. Recommendations and final action on a Final Plat shall be based on consideration of the following criteria:*
>
> > *1. Whether the proposed Final Plat complies with the applicable zoning district and overlay districts;*
> >
> > *2. Whether the proposed Final Plat is consistent with all standards of these Subdivision Regulations and other related codes and ordinances enforced by the City; and*
> >
> > *3. Whether the proposed Final Plat meets all the requirements or conditions of any applicable development approvals, such as development plans or associated modification of standards.*
>
> *B. Final Plat approval shall be subject to the completion of required improvements, or in lieu, the CMPC may approve a Performance Agreement.*

Staff recommends approval of FPL 23-0290 with the following conditions:

1. *That building permit be obtained for retaining wall if over 4ft as shown on final plat*
2. *That final plat be recorded at the Register of Deeds within sixty (60) days of Planning Commission approval per 2.3.5, Final Action of the City of Columbia Subdivision Regulations.*
3. *Approval subject to any technical comments as listed.*

In the event of a denial, **§ 2.3.5** of the Subdivision Regulations requires the Planning Commission to identify the specific parts of applicable plans and regulations with which the plat does not comply.

SAMPLE MOTIONS

Approve:

Move to approve the Final Plat as presented and find that the plat conforms to the applicable zoning ordinance, the Subdivision Regulations, and the Preliminary Plat [subject to remaining technical comments from staff & staff conditions of approval as listed].

Approve with Conditions:

Move to approve the Final Plat as presented and find that the plat conforms to the applicable zoning ordinance, the Subdivision Regulations, and the Preliminary Plat, subject to the following conditions: [list any additional conditions of approval crafted by Planning Commission].

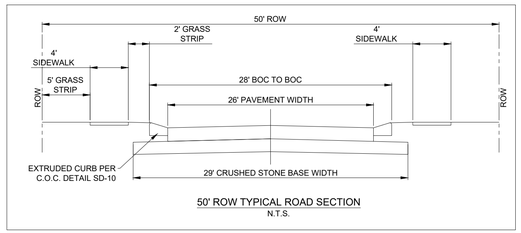
Defer for Continued Review:

Move to find that there is insufficient information to make a decision, defer the application for continued review, and request that the applicant provide: [list additional information] for review at the next regularly scheduled meeting of the Planning Commission.

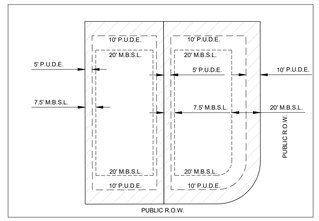
Deny:

Move to find that the Final Plat as presented does not conform to the applicable zoning ordinance, the Subdivision Regulations, or the approved Preliminary Plat, and deny the request due to [list specific deficiencies].

VICINITY MAP - NOT TO SCALE



50' ROW TYPICAL ROAD SECTION
N.T.S.



TYPICAL LOT (NOT TO SCALE)

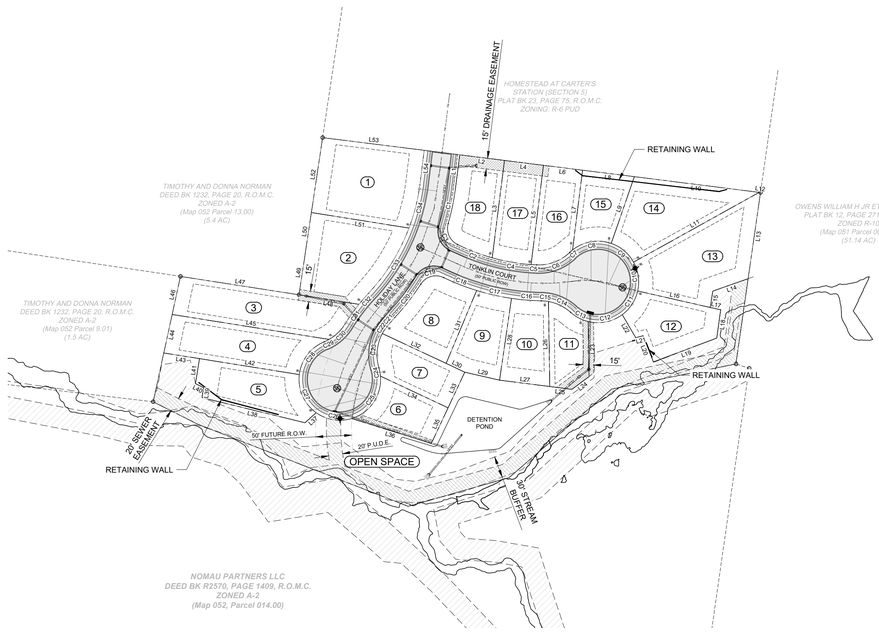
- FIRE HYDRANT
- CATCH BASIN
- HEADWALL
- AREA DRAIN
- STORMWATER MANHOLE
- SEWER MANHOLE
- WATER LINE (TYP.) — 8"W —
- SEWER FORCE MAIN (TYP.) — FM —
- STORMWATER LINE (TYP.) — 18"ST —
- UTILITY EASEMENT
- DRAINAGE EASEMENT

Parcel Area Table	
PARCEL	SQ. FT.
OPEN SPACE	66469.95
1	15475.45
2	13511.00
3	13118.81
4	10980.66
5	8857.02
6	6252.10
7	6599.15
8	8937.78
9	7298.74
10	7134.38
11	5745.30
12	8318.75
13	15119.56
14	12209.82
15	6215.58
16	7244.81
17	7672.68
18	8297.60

Parcel Line Table		
Line #	Length	Direction
L1	48.90	S7° 08' 48.57"W
L2	63.00	N82° 51' 11.43"W
L3	137.28	N7° 08' 48.57"E
L4	55.00	N82° 51' 11.43"W
L5	139.88	N7° 08' 48.57"E
L6	55.00	S82° 51' 11.43"E
L7	112.48	N7° 08' 48.57"E
L8	72.94	S82° 51' 11.43"E
L9	98.73	S19° 05' 13.36"W
L10	175.85	N82° 50' 49.27"W
L11	200.88	N60° 56' 12.16"E
L13	1.80	S83° 27' 17.70"E
L13	121.70	S8° 09' 11.70"W
L14	26.99	S70° 34' 45.20"W
L15	23.05	S9° 10' 03.83"W
L16	103.81	S77° 12' 49.05"E
L17	15.08	S77° 12' 49.05"E
L18	39.88	S7° 54' 27.24"W
L19	94.60	S69° 22' 18.61"W
L20	39.39	N21° 15' 12.49"W
L21	10.64	S74° 34' 06.05"W
L22	37.31	N30° 30' 14.57"W
L23	76.95	S0° 49' 41.81"E
L24	29.87	S53° 17' 37.17"W
L25	31.12	N82° 30' 01.78"W
L26	118.76	N0° 49' 41.81"W
L27	70.69	S82° 51' 28.04"E
L28	115.52	S8° 18' 55.91"W

Parcel Line Table		
Line #	Length	Direction
L29	49.87	N76° 56' 55.02"W
L30	28.82	N64° 54' 20.64"W
L31	110.39	N22° 43' 27.02"E
L32	98.35	S64° 54' 20.64"E
L33	55.00	S25° 05' 39.36"W
L34	104.34	N64° 54' 20.64"W
L35	55.00	S25° 05' 39.36"W
L36	116.75	N72° 39' 31.99"W
L37	21.03	S48° 21' 15.14"W
L38	147.99	N76° 16' 37.46"W
L39	14.17	N8° 37' 06.90"E
L40	12.54	N63° 51' 36.18"W
L41	35.36	N9° 03' 04.28"E
L42	141.27	S80° 56' 55.72"E
L43	50.51	N80° 56' 55.72"W
L44	55.09	N12° 15' 18.40"E
L45	221.99	N80° 56' 55.72"W
L46	54.42	N12° 15' 18.40"E
L47	167.70	S81° 10' 33.31"E
L48	84.81	N80° 56' 55.72"W
L49	61.27	N8° 32' 20.76"E
L50	55.00	N8° 32' 20.73"E
L51	138.17	N80° 56' 55.72"W
L52	105.92	N8° 32' 20.77"E
L53	143.05	S82° 51' 11.43"E
L54	48.71	S7° 08' 48.57"W

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	48.60	325.00	8.57	S11° 50' 38"W	48.55
C2	52.15	275.00	10.87	S68° 57' 58"E	52.08
C3	34.76	25.00	79.66	S23° 42' 10"E	32.03
C4	55.15	275.14	11.49	S80° 08' 46"E	55.06
C5	7.84	275.03	1.63	N86° 42' 22"W	7.84
C6	50.76	63.00	46.16	S69° 23' 49"W	49.40
C7	5.20	57.00	5.23	S48° 55' 56"W	5.20
C8	57.24	57.00	57.54	S80° 19' 03"W	54.87
C9	41.63	57.00	41.85	S49° 59' 17"E	40.71
C10	41.63	57.00	41.85	N8° 08' 18"W	40.71
C11	40.35	57.00	40.56	N33° 03' 51"E	39.51
C12	50.20	57.00	50.46	S78° 34' 18"W	48.59
C13	27.92	57.00	28.06	S62° 10' 02"E	27.64
C14	34.90	63.00	31.74	S64° 00' 21"E	34.45
C15	10.10	63.00	9.19	N84° 28' 06"W	10.09
C16	41.84	324.65	7.38	N85° 22' 16"W	41.81
C17	50.02	325.00	8.82	S77° 16' 30"E	49.97
C18	49.50	325.00	8.73	N68° 30' 09"W	49.45
C19	36.35	25.00	83.30	S74° 12' 41"W	33.23
C20	59.50	325.00	10.49	S37° 48' 23"W	59.41
C21	16.61	225.00	4.23	S40° 56' 08"W	16.61
C22	11.65	63.00	10.60	S33° 31' 14"W	11.64
C23	49.36	63.00	44.89	N5° 46' 40"E	48.10
C24	11.86	57.00	11.93	N10° 42' 11"W	11.84
C25	77.48	57.00	77.88	N34° 12' 06"E	71.65
C26	52.02	57.00	52.29	N80° 42' 46"W	50.23
C27	61.22	57.00	61.53	S23° 48' 09"E	58.32
C28	60.06	57.00	60.38	S37° 09' 06"W	57.32
C29	7.69	63.00	7.00	S63° 50' 24"W	7.69
C30	31.43	63.00	28.59	S46° 02' 50"W	31.11
C31	33.63	275.00	7.01	S35° 15' 24"W	33.61
C32	20.60	275.00	4.29	S40° 54' 19"W	20.59
C33	107.81	275.00	22.46	S31° 49' 10"W	107.12
C34	62.36	275.00	12.99	S14° 05' 32"W	62.22



SITE DATA	
CURRENT ZONING:	R6
MINIMUM BUILDING SETBACKS:	
FRONT:	20'
REAR:	20'
SIDE:	7.5'
TOTAL PHASE AREA:	6.44 ACRES
NEW ROW:	1.03 ACRES
OPEN SPACE:	1.53 ACRES

GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE THIS PROPERTY INTO 18 LOTS AND 1 OPEN SPACE AND DEDICATE RIGHT-OF-WAY AND EASEMENTS.
2. THE PROPERTY SHOWN HEREON IS LOCATED WITHIN THE CITY OF COLUMBIA, MAURY COUNTY, TN. ALL MATTERS PERTAINING TO CONSTRUCTION, USE, LOCATION OF IMPROVEMENTS, SIGNAGE, PARKING, NOISE, VIBRATION, EMISSIONS, FIRE HAZARDS, RADIATION, ILLUMINATION, SETBACK PROVISIONS, ETC. ARE SUBJECT TO THE CITY OF COLUMBIA'S ZONING REGULATIONS AS INTERPRETED AND REGULATED BY THE DEPARTMENT OF DEVELOPMENT SERVICES.
3. SUBJECT PROPERTY IS PARCEL 014.06 AS SHOWN ON MAURY COUNTY TAX MAP 052.
4. DEED REFERENCE: RECORD BOOK R2863, PAGE 364, REGISTER'S OFFICE OF MAURY COUNTY, TN.
5. THE HORIZONTAL LOCATION DATA SHOWN ON THIS SURVEY WAS GATHERED USING STANDARD RADIAL SURVEYING TECHNIQUES WITH AN ELECTRONIC TOTAL STATION AND DATA COLLECTOR AND IS BASED UPON A POSITIONAL SOLUTION DERIVED FROM GLOBAL POSITIONING SYSTEM (GPS) OBSERVATIONS) USING THE TDOT NETWORK. TENNESSEE STATE PLANE COORDINATE SYSTEM ZONE 4100, NAD83. DRONE AERIAL PHOTOMETRY WAS ALSO USED TO SURVEY SOME ELEMENTS.
6. NO TITLE REPORT HAS BEEN FURNISHED, THEREFORE THIS SURVEY IS SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE SEARCH.
7. THE TOTAL AREA OF THE PHASE SURVEYED IS 6.44 +/- ACRES.
8. THE NEW RIGHT-OF-WAY DEDICATION AREA IS 1.03 +/- ACRES.
9. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE "X", AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47119C0180E WITH AN EFFECTIVE DATE OF 4/16/2007, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 119C, PANEL NO. 0180 SUFFIX E, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN.
10. THIS PROPERTY IS CURRENTLY ZONED CD-3. THE PRELIMINARY PLAT WAS APPROVED UNDER THE PREVIOUS ZONING OF RS-6.
11. THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF A GENERAL PROPERTY SURVEY AND CONFORMS TO THE ACCURACY OF A CATEGORY 1 SURVEY AS CURRENTLY DEFINED AND ADOPTED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS, AND THE RATIO OF PRECISION IS AT LEAST 1:10,000.
12. ALL PLOT AND DEED RECORDATION REFERENCES SHOWN HEREON ARE AS RECORDED IN THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
13. THIS SURVEY HAS BEEN SIGNED AND SEALED DIGITALLY.
14. COLUMBIA POWER AND WATER SYSTEMS IS THE POWER PROVIDER.
15. STORM PIPES TO BE 18" RCP, UNLESS OTHERWISE NOTED.
16. STORM WATER MANAGEMENT OPERATION AND MAINTENANCE WILL BE GOVERNED BY THE INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORM WATER MANAGEMENT FACILITIES, DATED _____, RECORDED IN RECORD BOOK _____, PAGE _____, REGISTER'S OFFICE OF MAURY COUNTY, TN.
17. LOTS 1-18 ARE TO BE ON SANITARY GRINDER PUMPS. EACH HOMEOWNER IS REQUIRED TO OWN AND MAINTAIN THE GRINDER PUMPS IN ACCORDANCE WITH CITY OF COLUMBIA CODES AND COLUMBIA WASTEWATER SPECIFICATIONS AND REGULATIONS.

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS AND OTHER ADOPTED ORDINANCES AND POLICIES.

_____, 20____ _____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

_____, 20____ _____
DATE NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE WATER SYSTEM OUTLINED OR INDICATED ON THE FINAL SUBDIVISION PLAT ENTITLED "HOMESTEAD SOUTH SUBDIVISION" HAS BEEN INSTALLED IN ACCORDANCE WITH CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS, OR A SUFFICIENT BOND OR SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

_____, 20____ _____
DATE SUPERINTENDENT OF COLUMBIA

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE AND UTILITIES DESIGNATED IN "HOMESTEAD SOUTH SUBDIVISION" HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR A PERFORMANCE SURETY IN THE AMOUNT OF $_____ FOR STREETS AND DRAINAGE HAS BEEN POSTED WITH THE CITY OF COLUMBIA TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

_____, 20____ _____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL OF SUBDIVISION AND STREET NAMES

SUBDIVISION NAME AND STREET NAMES ARE APPROVED BY THE CITY ENGINEERING DEPARTMENT AND MAURY COUNTY E911.

_____, 20____ _____
DATE MAURY E911

CERTIFICATE OF APPROVAL OF SEWER SYSTEM

I HEREBY CERTIFY THAT THE SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

_____, 20____ _____
DATE DIRECTOR OF COLUMBIA WASTEWATER DEPARTMENT

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AS EVIDENCED IN IN BOOK R2863, PAGE 364, MAURY COUNTY REGISTER'S OFFICE, AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINE, AND THAT OFFERS OF IRREVOCABLE DEDICATION FOR ALL PUBLIC WAYS, UTILITIES AND OTHER FACILITIES HAVE BEEN FILED.

_____, 20____ _____
DATE OWNER

CERTIFICATE OF SURVEY ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON; THAT THIS IS A CATEGORY I LAND SURVEY AS DEFINED IN TITLE 62, CHAPTER 18, TENNESSEE CODE ANNOTATED; AND THAT THE RATIO OF PRECISION IS LESS THAN OR EQUAL TO 1:10,000.

_____, 20____ _____
DATE SURVEYOR

IF YOU DIG TENNESSEE...
CALL US FIRST!
1-800-351-1111
TENNESSEE ONE CALL
IT'S THE LAW

TN SPCS NAD 83

SCALE 1" = 100'

100 0 50 100 200

OWNER OF RECORD
PULTE HOMES OF TENNESSEE LTD PARTNERSHIP
DEED BK. R2863 PG. 364, MAP 052 PARCEL 014.06
APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

J. MARK CANTRELL
XVI
PROFESSIONAL LAND SURVEYOR
AGRICULTURE
COMMERCE
TENNESSEE NO. 1859

PROJECT
18-0720

SHEET
1 OF 1

REVISIONS

NO.	DATE

DATE: 5-19-2023
SCALE: 1" = 100'
DRAWN BY: DSW
REVIEWER:

FINAL PLAT
3RD CIVIL DISTRICT
MAURY COUNTY, TENNESSEE
MAP 052, PARCEL 014.06

HOMESTEAD SOUTH SUBDIVISION

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

P:\Projects\2018\18-0720 |Frye Rd - Nelson Crowe\|Survey\Homestead South Final Plat\18-0720 Homestead South Final Plat.dwg, 8/16/2023 12:10:05 PM

T-SQUARE ENGINEERING
CIVIL-SITE TRAFFIC WASTEWATER

1329 West Main Street
Franklin, TN 37064
615.678.8212

August 21st, 2023
City of Columbia
Comment Response Letter – Final Plat – Homestead at Carters Station
Project Number – 18-0530
Project Name – Homestead at Carters Station

Engineering

1. LOC in the amount of $125,000 provided.
2. Install asphalt binder and curbing by August 21st.
   Complete.
3. Provide 20' PUDE south of Holiday Lane to intersect the depicted PUDE.
   The PUDE is now provided.

Maury County Schools

4. Spring Hill Elementary, Spring Hill Middle School, Spring Hill High School. See Attached Capacity Numbers. The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.
   Acknowledged.

Fire

5. No comments

Planning

6. Stormwater connection from street to detention pond now shown in an easement across lot 6 (and lots 2 and 3) was shown in open space at Preliminary Plat. In response to comments, for the benefit of Planning Commission, please provide a short explanation of why this change was necessary during CD review.
   This change was necessary due to the pad grading of each lot. In determination of this pad grading, it was necessary to provide storm along property lines to accommodate appropriate elevations.
7. Please have the PLS sign the Final Plat per 2.3.3.B of the Subdivision Regulations (p. 17).
   Surveyor has signed the hard copy. Surveyor will sign all copies provided for recording.

Columbia Power

8. Columbia Power System has an existing power line near your proposed development.
   We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
   • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.
   Acknowledged.

Building

9. No comments.

ATT

10. ATT intends to serve.

Wastewater

11. The ends of the force main each have a full manhole and so does the junction point at the intersection of the force mains at the intersection of the two roads.
    Manholes are now shown.

Duck River Electric Membership Corp

12. No comments provided.

Maury County Highway Dept.

13. No comments provided.

Police

14. No comments provided.

Columbia Water

15. Verify that all water infrastructure on the plat conforms to as-built conditions. Conduct pressure test, flushing, complete bacteria testing and deed infrastructure to CPWS. Water system must be active for recording of the final plat.
    Acknowledged.

Public Works

16. No comments.

Atmos Energy

17. No comments provided.

Maury County E911

18. No comments provided.

CPWS Broadband

19. Plan to serve.

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, August 8, 2023

ITEM NO.
23-0290

DESCRIPTION: Final plat for Homestead South

RECOMMENDATION: For final recommendation please see staff report.

COMMENTS:

Engineering

1. LOC in the amount of $125,000 provided
2. Install asphalt binder and curbing by August 21st
3. Provide 20' PUDE south of Holiday Lane to intersect the depicted PUDE.

Maury County Schools

4. Maury County Public Schools
   Spring Hill Elementary, Spring Hill Middle School, Spring Hill High School
   See Attached Capacity Numbers
   The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.

Fire

5. No comments

Planning

6. Stormwater connection from street to detention pond now shown in an easement across lot 6 (and lots 2 and 3) was shown in open space at Preliminary Plat. In response to comments, for the benefit of Planning Commission, please provide a short explanation of why this change was necessary during CD review.
7. Please have the PLS sign the Final Plat per 2.3.3.B of the Subdivision Regulations (p. 17).

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   We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
   • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

Building

9. No comments.

ATT

10. ATT intends to serve.

Wastewater

11. The ends of the force main each have a full manhole and so does the junction point at the intersection of the force mains at the intersection of the two roads.

Duck River Electric Membership Corp

12. No comments provided.

Maury County Highway Dept.

13. No comments provided.

Police

14. No comments provided.

Columbia Water

15. "Verify that all water infrastructure on the plat conforms to as-built conditions. Conduct pressure test, flushing, complete bacteria testing and deed infrastructure to CPWS. Water system must be active for recording of the final plat."

Public Works

16. No comments.

Atmos Energy

17. No comments provided.

Maury County E911

18. No comments provided.

CPWS Broadband

19. Plan to Serve.

ATTACHMENTS: Final Plat

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

CITY OF COLUMBIA
TENNESSEE

ITEM # I 5.

DEVELOPMENT REVIEW COMMITTEE COMMENT FORM

August 8, 2023

NAME OR DEPARTMENT: Maury County Public Schools

Case Number: 23-0290

Request from T-Square Engineering for final plat approval with surety for Homestead South consisting of 18 lots off Holiday Lane.

COMMENTS:

Spring Hill Elementary, Spring Hill Middle Scool, Spring Hill High School

See Attached Capacity Numbers

The development combined with current neighborhoods and additional approved

developments in these zones may require either new construction or realignment

of school zones to accomodate new students

Current Enrollment / Capacity

	Facility Name	Date Constructed	Sq. Ft.	Acreage	Capacity	Current Enrollment	Capacity Used
Elementary	Baker	1960	43,920	12	340	291	85.6%
	Battle Creek	2019	90,000	30	700	642	91.7%
	Brown	1968	56,720	20	405	316	78.0%
	Highland	1986	47,800	4.5	380	259	68.2%
	Howell	1999	81,600	17.5	700	606	86.6%
	Mt. Pleasant	1978	80,021	22	630	505	80.2%
	Riverside	1984	71,150	14	500	377	75.4%
	Spring Hill	1984	69,000	10	540	432	80.0%
	Woodard	1990	76,200	17	600	542	90.3%
	Wright	2005	97,765	18	740	621	83.9%
					5535	***4591***	***82.9%***
Middle	Battle Creek	2019	125,000	45	900	742	82.4%
	Cox	1997	137,200	25	900	669	74.3%
	Mt. Pleasant	2001	113,938	29.2	550	413	75.1%
	Spring Hill	2010	158,106	39.49	950	554	58.3%
	Whitthorne	1979	175,600	17	1050	984	93.7%
					4350	***3362***	***77.3%***
High	Central	2016	296,740	55	1700	1503	88.4%
	Mt. Pleasant	1969	110,759	31	600	410	68.3%
	Spring Hill	1993	181,800	57	1200	1283	106.9%
					3500	***3196***	***91.3%***
Unit	Culleoka	1969	205,800	34	1020	908	89.0%
	Hampshire	1978	83,410	13.12	500	432	86.4%
	Santa Fe	1964	94,225	24	650	546	84.0%
					2170	***1886***	***86.9%***
Other	Central Office	1960	15,400	1.5			
	College Hill	1958	42,211	2.26		126	
	Maintenance	1987	9,400	4.7			
	McDowell		46,165	7			
			2,509,930	**550.27**	**15555**	**13161**	

Elementary Numbers are incomplete as K enrollment will grow over the month of August.

CPWS
Columbia Power & Water Systems

HYDRANT # & LOCATION: 0962 Hyd 2311 Nashville Hwy DATE: 4/1/2022

TEST BY: CPWS Day or Week: Monday TIME OF DAY: 13:34 MIN. OF FLOW 5

WATER SUPPLIED BY: Water Engineering Device: Little Hose Monster

PURPOSE OF TEST: Customer Request

DATA

FLOW HYDRANT(S)	A1	A2	A3
SIZE OPENING:	2.3		
COEFFICIENT:	0.99		
PITOT READING:	37		
GPM:	950	0	0

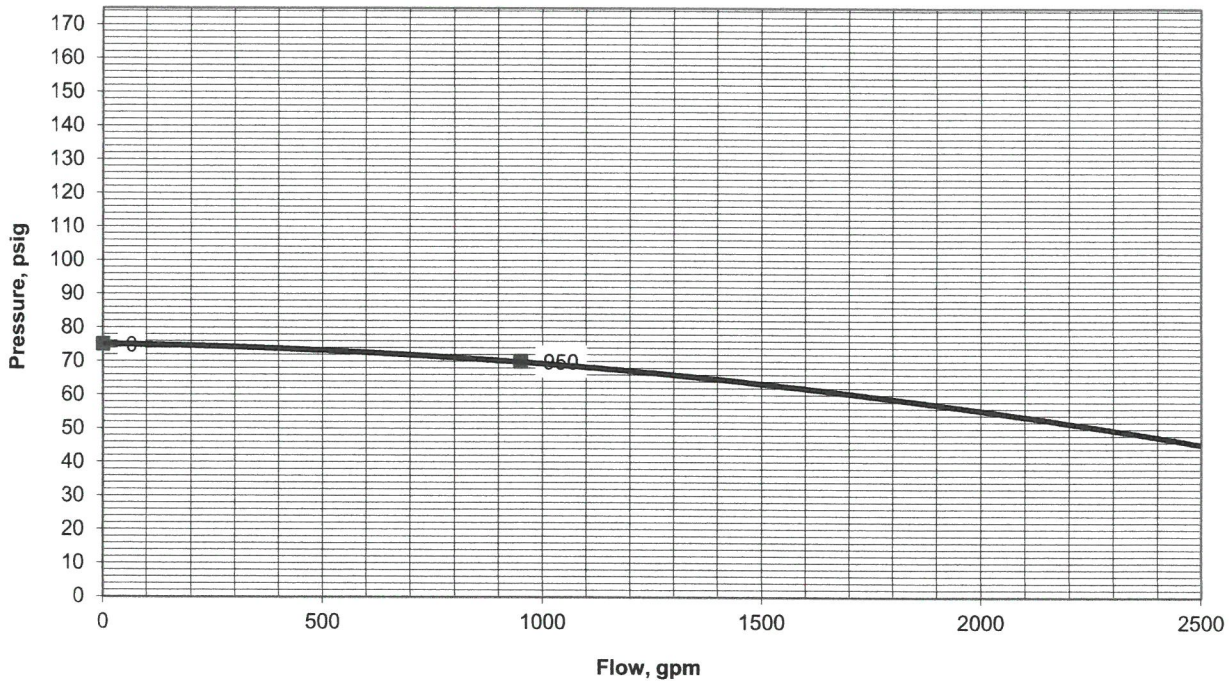
TOTAL FLOW DURING TEST: 950 GPM

STATIC READING: 75 PSI RESIDUAL: 70 PSI

RESULTS: AT 20 PSI RESIDUAL 3469 GPM AT 0 PSI 4101 GPM

ESTIMATED CONSUMPTION: 4751 GAL.

REMARKS:



RECEIVED
JUL 17 2023
By: 23-0290

CC. L. B

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

_____ day of _____, 20_____ ,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Pulte Homes Tennessee Limited Partnership, the DEVELOPER (hereinafter the "DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal Planning Commission (hereinafter the "CMPC") on the

_____ day of _____, 20_____ ,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and common areas to be constructed within and to serve the PROJECT including but not be limited to roads, bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS"); and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost; and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council approval by resolution, and subject to the applicant's compliance with all requirements in this agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

RECEIVED
JUL 17 2023
By: 23-0290

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B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

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B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

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B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELEPOR's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

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B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

A. The Preliminary Plat has been approved by the CMPC;
B. The Construction Plans are approved by the CITY;
C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
D. The CITY shall have received an appropriately executed Development Agreement; and
E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

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The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

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signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

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B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

Homestead South
PROJECT

Completed by the Developer	*Completed by the City*
Pulte Homes Tennessee Limited Partnership DEVELOPER NAME	
Jeremy Brooks AUTHORIZED AGENT NAME	CITY ENGINEER
DocuSigned by: Jeremy Brooks 9E701DFC338D4C0... SIGNATURE	SIGNATURE
7/17/2023 DATE	DATE
100 Westwood Place, Suite 100 STREET	
Brentwood,TN,37027 CITY, STATE, ZIP	
615.992.9508 PHONE	
Jeremy.brooks@pultegroup.com EMAIL	
Attest	*Attest*
Kim Maynord ATTEST NAME	ATTEST NAME
DocuSigned by: Kim Maynord 8822EB5C48E2424... ATTEST SIGNATURE	ATTEST SIGNATURE
7/17/2023 DATE	DATE

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JUL 17 2023
By:

CC,LB

DOCUMENT PREPARED BY:
Name: ~~Breanna Smith~~ Allison Corolla
Company T-Square Engineering

Address: 1329 West Main Street
Franklin, TN

After recording return copy to City of Columbia, Development Services

INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES

Map & Parcel Number: Map 52, Parcel 14.00
Project Name: Frye Road Subdivision

Recorded by deed in the Register of Deeds Office of Maury County in Deed Book R2570, Page(s) 1409.

THIS AGREEMENT, made this _____ day of _____, 20____, by and between Pulte Homes of Tennessee hereinafter referred to as the "OWNER(S)" of the following property and City of Columbia, Tennessee, hereinafter referred to as the "CITY",

WE, the OWNER(S), with full authority to execute deeds, mortgages, other covenants, all rights, titles, and interests in the property described above, do hereby covenant with the CITY and agree as follows:

1. The OWNER(S) covenant and agree with the CITY that the OWNER(S) shall provide for adequate long term maintenance and continuation of stormwater control measures described in the Long Term Maintenance Plan and shown on the location map, deed of easement drawing or plat attached hereto to ensure that the facilities, are and remain in proper working condition in accordance with approved design standards, rules and regulations, and applicable laws. The OWNER(S) shall perform preventative maintenance activities at intervals described in the schedule attached hereto along with necessary landscaping (grass cutting, etc.) and trash removal as part of regular maintenance.

2. The OWNER(S) shall perform routine inspections to ensure that all long term stormwater management facilities are properly functioning. These inspections shall be conducted on an annual basis, at a minimum. These inspections shall be conducted by a person familiar with control measures implemented at the site. The OWNER(S) or operators shall maintain documents of these inspections.

3. The OWNER(S) shall perform comprehensive inspections of all stormwater management facilities and practices. These inspections shall be conducted once every five years, at a minimum. Such inspections must be conducted by either a professional engineer or landscape architect.

4. The OWNER(S) shall grant to the CITY or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the facility within the CITY.

5. The OWNER(S) shall record and grant to the CITY the necessary easements and rights-of-way and maintain perpetual access from public rights-of-way to the facility for the CITY or its agent and contractor.

6. If, upon inspection, the CITY finds that the OWNER(S) has failed to properly maintain the facilities, the CITY may order the work performed within ten (10) days. In the event the work is not performed within the specified time, the ONWER(S) agrees to allow the CITY to enter the property and take whatever steps it deems necessary to maintain the stormwater control facilities. This provision shall not be construed to allow the CITY to erect any structure of a permanent nature on the PROPERTY without first obtaining written approval of the OWNER(S)

7. The CITY is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any obligation on the CITY. The OWNER(S) shall reimburse the CITY upon demand the costs incurred in the maintenance of the facilities.

8. If the OWNER(S) fails to pay the CITY for the above expensive after forty-five (45) days written notice, the OWNER(S) authorizes the CITY to collect said expenses from the OWNER(S) through appropriate legal action and the OWNER(S) shall be liable for the reasonable expenses of collection, court costs, and attorney fees.

9. The OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successor in interest shall indemnify and hold harmless the CITY and its officers, agents and employees for any and all damages, accidents, casualties, occurrences, claims or attorney's fees which might arise or be asserted, in whole or in part,

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JUL 17 2023
By: 23-0830

against the CITY from the construction, presence, existence, or maintenance of the stormwater control facilities subject to this AGREEMENT. In the event a claim is asserted against the CITY, its officers, agents or employees, the CITY shall notify OWNER(S) and the OWNER(S) shall defend at OWNER(S) expense any suit based on such claim. If any judgment or claims against the CITY, its officers, agents or employees, shall be allowed, the OWNER(S) shall pay all costs and expenses in connection therewith. The CITY will not indemnify, defend or hold harmless in any fashion the OWNER(S) from any claims arising from any failure, regardless of any language in any attachment or other document that the OWNER(S) may provide

10. The OWNER(S) shall not be able to transfer, assign or modify its responsibilities with respect to this agreement without the CITY's written prior consent. Nothing herein shall be construed to prohibit a transfer by OWNER(S) to subsequent owners and assigns.

11. No waiver of any provision of this AGREEMENT shall affect the right of any party thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any default.

12. The OWNER(S) shall record a plat showing and accurately defining the easements for stormwater control facilities. The plat must reference the Instrument Number where this AGREEMENT and its attachments are recorded and contain a note that the OWNER(S) is responsible for maintaining the stormwater management facilities.

13. The OWNER(S) shall record this AGREEMENT in the office of the Register of Deeds for the county of Maury, Tennessee, and the AGREEMENT shall constitute a covenant running with the land, and shall be binding upon the OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successors in interest

ATTEST BY OWNER(S):

Print Name Jeremy Brooks

Title Director of Land Planning & Entitlement

Signature DocuSigned by: Jeremy Brooks 9E701DEC338D4C0...

Owner Pulte Homes Tennesse Limited Partnership

Address 100 Westwood Place, Suite 100

City, State ZIP Brentwood, TN 37027

STATE OF _____
COUNTY OF _____

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted and who acknowledged that he/she executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20_____.

_____
Notary Public

My Commission Expires:_____

CITY OF COLUMBIA, TENNESSEE
ENGINEERING DEPARTMENT APPROVED BY :_____

STATE OF TENNESSEE
COUNTY OF MAURY

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted, and who acknowledged themselves to be the City Engineer of the City of Columbia or his designee and as such, being authorized so to do, executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20_____.

_____
Notary Public
My Commission Expires:_____

T-SQUAREENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

701 West Main Street
Franklin, TN 37064
615.678.8212

www.T2-ENG.com

7/17/2023

City of Columbia
Development Services
700 N. Garden Street
Columbia, TN 38401

POST CONSTRUCTION LONG TERM MAINTENANCE PLAN
PROJECT NAME: HOMESTEAD SOUTH

SYSTEM DESCRIPTION:

The site consists of stormwater conveyances through piped channel and detention ponds.

- There is one (1) pond that is sized to detain the 100-year peak event.
- 986 LF of round concrete pipe and 21 storms inlets.

Upon completion of the site construction, 'Record Drawings' in a version not less than AutoCAD 2006 LT (NAD83, NAVD88) of the stormwater controls will be provided to the City of Columbia for verification.

A copy of the INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES that has been completed, notarized and recorded in the Land Records of the County of Maury, Tennessee will be kept on site with this document.

MAINTENANCE PROCEDURES

1. STORMWATER DETENTION PONDS
    a. The outlet structure shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.

    b. Check banks and bottom surface of basin for erosion and correct as necessary.

    c. Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitoes.

    d. This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.

    e. Pond vegetation needs to be trimmed or harvested as appropriate, grassy areas frequently mowed. Grass should be mowed so that it does not get over 12 inches.

f. Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.

g. Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.

h. Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.

2. 986 LF OF RCP AND 21 STORM DRAINS
   - These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.

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JUL 17 2023
By: .....

CONSTRUCTION PLANS
FOR
TAX MAP 52, PARCEL 14.00
HOMESTEAD SOUTH
COLUMBIA, TN 38401
CITY OF COLUMBIA, WARD #5
ZONE RS-6

ENGINEER: T-SQUARE ENGINEERING
701 WEST MAIN STREET
FRANKLIN, TN 37064
615-678-8212

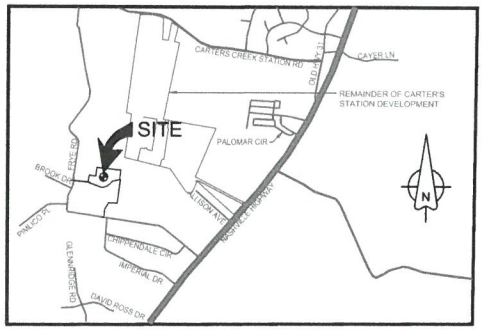
Water: Sloan Delk
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833

Power: Doug Burgess
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833

Surveyor: H & H Land Surveying, Inc.
612A Fitzhugh Blvd
Smyrna, TN 37167
615-831-0756

Topographic Boundary Survey, including property lines, legal description, existing utilities, site topography with spot elevations, outstanding physical features and existing structure locations was provided by the following company:
H & H Land Surveying, Inc.
612A Fitzhugh Blvd
Smyrna, TN 37167
615-831-0756

Tsquare Engineering and its associates will not be held responsible for its accuracy or for design errors or emissions resulting from potential survey inaccuracies.



SITE VICINITY MAP

SHEET SCHEDULE

C-0.0 Cover Sheet
C-1.0 Existing Conditions
C-2.0 Overall Site Plan
C-2.1 Site Plan
C-3.0 Initial Erosion Control Plan
C-3.1 Temporary Erosion Control Plan
C-3.2 Permanent Erosion Control Plan
C-4.0 Pre Development Storm Water Plan
C-4.1 Post Development Storm Water Plan
C-5.0 Grading Plan
C-5.1 Storm Inlet Plan
C-5.2 Drainage Inlet Areas
C-6.0 Roadway Plan and Profile
C-7.0 Utility Plan
C-8.0 Detail Sheet
C-8.1 Detail Sheet
C-8.2 Detail Sheet
C-8.3 Detail Sheet
C-8.4 Detail Sheet

FLOOD NOTE
NO PORTION OF THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL # 47119C0115E. REVISED 16 APRIL 2017.

OWNER OF RECORD
NOMAU PARTNERS LLC
DEED BOOK: R2570 DEED PAGE: 1409

APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

T-SQUARE ENGINEERING

REVISIONS		
NO	DATE	
1	11/23/22	REVISIONS TO GRADING PER OWNER
2	12/9/22	SEWER REVISIONS PER CITY
3	12/15/22	SEWER REVISIONS PER CITY
4	5/17/23	SEWER REVISIONS PER CITY

DATE: 10/17/22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: NBM

COVER
3RD CIVIL DISTRICT
MAURY COUNTY, TENNESSEE
MAP 52, PARCEL 14.00

HOMESTEAD SOUTH SUBDIVISION

NATHAN S. MCKEY
REGISTERED ENGINEER
No. 121154
STATE OF TENNESSEE
5/17/23

PROJECT
18-0720

SHEET
C-0.0

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JUL 17 2023
By:

5/17/2023 (Frye Rd - Nelson Crowe)\Production\North\Plans\18-0720 North | Site Plan.dwg, 7/17/2023 9:23:19 AM

HOMESTEAD SOUTH SUBDIVISION

GRADING PLAN

3RD CIVIL DISTRICT
MAURY COUNTY, TENNESSEE
MAP 52, PARCEL 14.00

NO.	DATE	REVISIONS
1	11/22/22	REVISIONS TO GRADING PER OWNER
2	12/9/22	SEWER REVISIONS PER CITY
3	12/19/22	SEWER REVISIONS PER CITY
4	5/17/23	SEWER REVISIONS PER CITY

DATE: 10/17/22
SCALE:
AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: NSM

NATHANIEL S. MCKEY — 5/19/23 — STATE OF TENNESSEE

PROJECT 18-0720

SHEET C-5.0

T-SQUARE ENGINEERING

GRAPHIC SCALE (IN FEET) — SCALE: 1" = 40'

LEGEND

- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED SPOT ELEVATION
- PROPOSED SLOPE GRADE

NOTE:

1. ALL RETAINING WALLS OVER 6' IN HEIGHT SHALL HAVE PEDESTRIAN GUARDS
2. STRUCTURAL ENGINEER TO DESIGN ALL RETAINING WALLS
3. BUILDER TO INSTALL LOT LINE SWALES ALONG EACH LOT LINE
4. "DK - OKLAHOMA LOT TYPE: 2.5 FT AVERAGE ACROSS PAD

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL # 47119C0145E, REVISED 14 APRIL 2017

OWNER OF RECORD
HOMESTEAD SPRINGFIELD LLC
DEED BOOK 2509, PAGE 1439

APPLICANT
T-SQUARE ENGINEERING
1661 GALLERIA BLVD
FRANKLIN, TN 37064
615.807.8822

STRUCTURE TABLE				
STRUCTURE NAME	DESCRIPTION	DETAILS	PIPES IN	PIPES OUT
ST-A1	TRIPLE INLET	RIM = 655.35 FG = 655.35	INV. IN = 651.46	INV. OUT =651.96
ST-A2	SINGLE INLET	RIM = 664.00 FG = 664.00	INV. IN = 658.97 INV. IN = 658.97	INV. OUT =658.97
ST-A2A	SINGLE INLET	RIM = 663.84 FG = 663.84	INV. IN = 658.22	INV. OUT =658.22
ST-A3	SINGLE INLET	RIM = 673.44 FG = 673.44	INV. IN = 669.00 INV. IN = 668.90	INV. OUT =669.00
ST-A3A	SINGLE INLET	RIM = 673.51 FG = 673.51		INV. OUT =669.25
ST-A4	SINGLE INLET	RIM = 677.09 FG = 677.09	INV. IN = 672.43	INV. OUT =672.43
ST-A4A	SINGLE INLET	RIM = 677.44 FG = 677.44	INV. IN = 672.68	INV. OUT =672.68
ST-A5	SINGLE INLET	RIM = 680.46 FG = 680.46	INV. IN = 673.04 INV. IN = 672.04	INV. OUT =673.04
ST-A5A	SINGLE INLET	RIM = 680.47 FG = 680.47		INV. OUT =675.77
ST-A6	SINGLE INLET	RIM = 675.68 FG = 675.68		INV. OUT =668.92
ST-A7	SINGLE INLET	RIM = 688.01 FG = 688.01	INV. IN = 673.88 INV. IN = 673.88	INV. OUT =673.58
ST-A7A	SINGLE INLET	RIM = 688.02 FG = 688.02		INV. OUT =683.31
ST-AD12	3 x 3' DRAIN INLET	RIM = 683.49 FG = 683.68	INV. IN = 656.83	INV. OUT =656.63
ST-AD13	3'x 3' DRAIN INLET	RIM = 688.00 FG = 688.00		INV. OUT =681.29
ST-HWA1	HEADWALL	RIM = 653.38 FG = 651.09	INV. IN = 651.17	
ST-HWA2	HEADWALL	RIM = 658.58 FG = 658.91	INV. IN = 656.36	
ST-HWA3	HEADWALL	RIM = 648.71 FG = 648.02	INV. IN = 646.50	
ST-HWA5	HEADWALL	RIM = 680.21 FG = 682.00		INV. OUT =681.00
ST-MHA1	MANHOLE	RIM = 662.90 FG = 662.90	INV. IN = 658.19	INV. OUT =658.19
ST-MHA2	MANHOLE	RIM = 667.89 FG = 667.89	INV. IN = 660.75	INV. OUT =660.75
ST-RA1	RISER	RIM = 660.38 FG = 777		INV. OUT =647.00

PIPE TABLE			
NAME	SIZE	LENGTH	SLOPE
ST-A1 TO ST-HWA1	18" RCP	108.47	0.50%
ST-A2 TO ST-A1	18" RCP	125.01	9.97%
ST-A2A TO ST-A2	18" RCP	23.83	1.00%
ST-A3 TO ST-A2	18" RCP	97.62	10.23%
ST-A3A TO ST-A3	18" RCP	24.94	1.00%
ST-A4 TO ST-A3	18" RCP	35.48	9.30%
ST-A4A TO ST-A4	18" RCP	24.07	1.00%
ST-A5 TO ST-A4A	18" RCP	34.63	1.00%
ST-A5A TO ST-A5	18" RCP	24.33	10.82%
ST-A6 TO ST-MHA1	18" RCP	79.87	13.55%
ST-A7 TO ST-A6	18" RCP	42.41	1.00%
ST-A7A TO ST-A7	18" RCP	29.29	37.41%
ST-AD12 TO ST-HWA2	18" RCP	48.91	0.83%
ST-AD13 TO ST-MHA2	18" RCP	52.81	1.00%
ST-HWA5 TO ST-A7	18" RCP	37.48	16.10%
ST-MHA1 TO ST-AD12	18" RCP	15.82	7.99%
ST-MHA2 TO ST-A2A	18" RCP	29.10	5.32%
ST-RA1 TO ST-HWA3	18" RCP	99.81	0.75%

GRAPHIC SCALE
(IN FEET)
SCALE: 1" = 40'

LEGEND
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED STORM INLET
- PROPOSED AREA DRAIN
- PROPOSED STORM HEADWALL
- PROPOSED STORM PIPE

NOTE:
1. BUILDERS TO INSTALL LOT LINE SWALES FOR EACH LOT

FLOOD NOTE
PORTION OF THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL # 47119C0119E, REVISED 16 APRIL 2017.

OWNER OF RECORD
NOWAU PARTNERS LLC
DEED BOOK: R2570 DEED PAGE: 1429

APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

T-SQUARE ENGINEERING

NO.	DATE	REVISIONS
1	11/22/22	REVISIONS TO GRADING PER OWNER
2	12/9/22	SEWER REVISIONS PER CITY
3	12/13/22	SEWER REVISIONS PER CITY
4	5/17/23	SEWER REVISIONS PER CITY

DATE: 5.17.22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: NBM

STORM INLET PLAN
3RD CIVIL DISTRICT
MAURY COUNTY, TENNESSEE
MAP 52, PARCEL 14.00

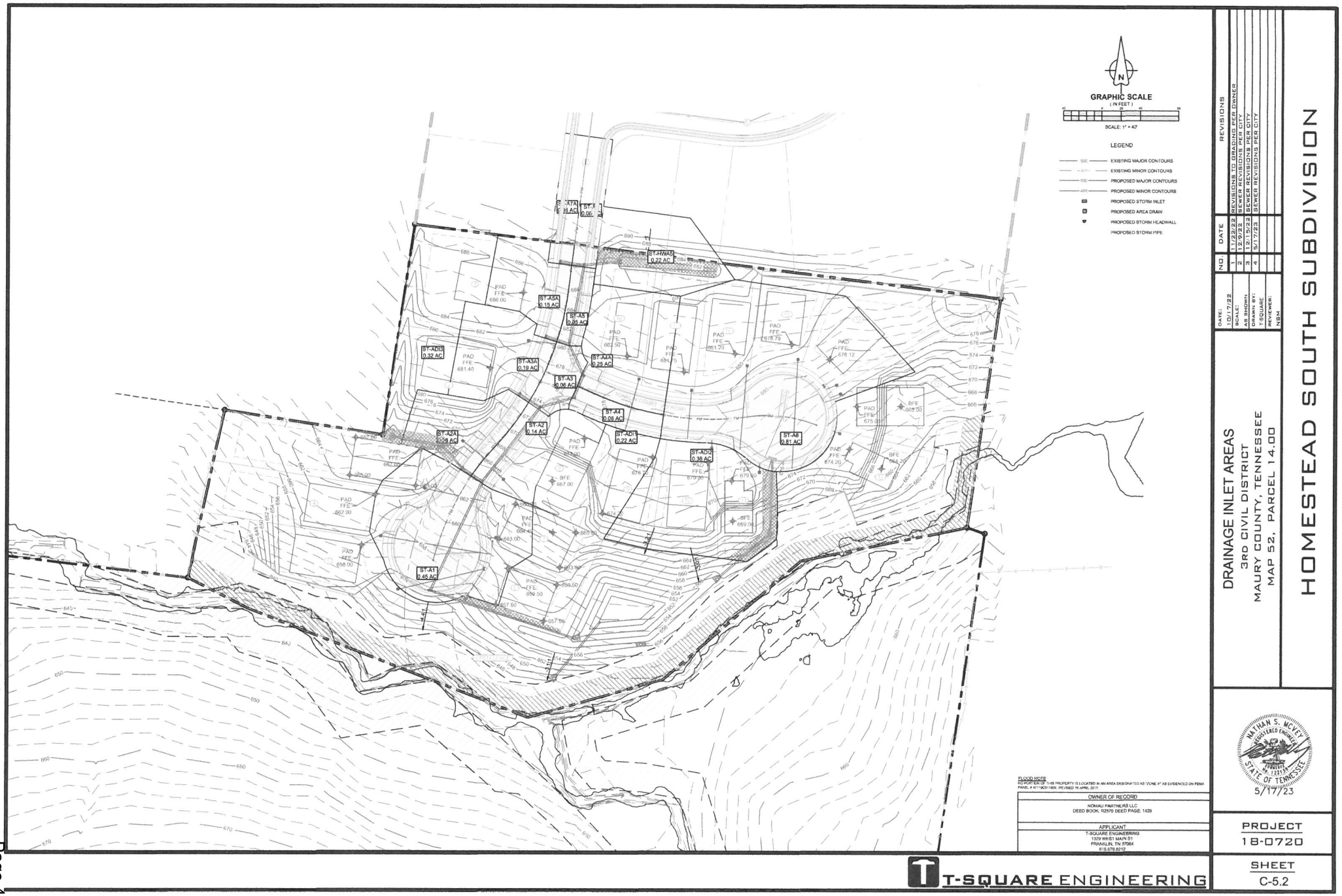
HOMESTEAD SOUTH SUBDIVISION

NATHAN S. MCVEY
REGISTERED ENGINEER
No. 122131
STATE OF TENNESSEE
5/17/23

PROJECT
18-0720

SHEET
C-5.1

J:\2018\18-0720 (Fire Rd - Nelson Crowell)\Production\North Parcel\18-0720 North 5 Grading and Drainage Plan.dwg, 7/17/2023 9:34:07 AM



NO.	DATE	REVISIONS
1	11/22/22	REVISIONS TO GRADING PER OWNER
2	12/9/22	SEWER REVISIONS PER CITY
3	12/15/22	SEWER REVISIONS PER CITY
4	5/17/23	SEWER REVISIONS PER CITY

DATE: 10/17/22
SCALE: AS SHOWN
DRAWN BY: DSQUARE
REVIEWER: NBM

DRAINAGE INLET AREAS

3RD CIVIL DISTRICT
MAURY COUNTY, TENNESSEE
MAP 52, PARCEL 14.00

HOMESTEAD SOUTH SUBDIVISION

NATHAN S. MCVAY
REGISTERED ENGINEER
No. 122134
STATE OF TENNESSEE
5/17/23

PROJECT
18-0720

SHEET
C-5.2

J:\18-0720 (Pine Rd - Nelson Crowe)\Production\North Phase\18-0720 North S Grading and Drainage Plan.dwg, 5/17/2023 9:34:11 AM

Brown Ln
Brown Ln
Brown Ln

T-SQUAREENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

1329 West Main Street
Franklin, TN 37064
615.678.8212
www.T2-eng.com

Letter of Transmittal

City of Columbia
700 North Garden Street
Columbia, TN 38401

Project No.	18-0720	Date:	7/17/23
Attention:	Planning		
Reference:	Homestead South		
Final Plat			

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items

☐ Shop Drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change Order ☐ Applications ☐ _____

Copies	Date	No.	Description
1	7/17/23		Final Plat Application ✓
1	7/17/23		Review Fee ✓
1	7/17/23		Final Plat ✓
1	7/17/23		Digital Copy ✓
1	7/17/23		Hydrant Analysis NO
1	7/17/23		Development Agreement ✓
1	7/17/23		Stormwater Maintenance Agreement ✓
1	7/17/23		Surety Calculator NO
1	7/17/23		Transmittal Letter ✓

THESE ARE TRANSMITTED as checked below:

☒ For Approval ☐ For review and comment
☐ For your use ☐
☐ As requested ☐

RECEIVED
JUL 17 2023
By: 23-0290

REMARKS: Please contact Allison Corolla at T-Square Engineering with comments – 615.678.8212 / Allison.Corolla@T2-Eng.com. Thank you.

COPY TO _____ SIGNED Allison Corolla, EI

☐ *Received by:* _____ _____
Date

DocuSign Envelope ID: 41206BD3-104D-4082-A50C-02ADFADA5778

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	Frye Road		
	TAX MAP: 52	GROUP:	PARCEL: 14.00
SUMMARY OF NATURE OF REQUEST AND WORK	This application is to approve the final plat for Homestead South		

DATE OF PRE-APPLICATION CONFERENCE		*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
❑ Annexation ❑ Rezoning ❑ Preliminary Plat [4] Final Plat ❑ PUD Preliminary Master Plan ❑ PUD Final Site Plan ❑ Multi-Family Site Plan ❑ Other: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ❑ Written Legal Description copy ❑ Requested Zone Listed ❑ Compliance with Comprehensive Plan ❑ Annexation Permission Form ❑ Plans and/or Plats conforming to City standards with check list completed ❑ Columbia Water System Availability Letter **Plats/PUDs:** [4] Project Name (include Sections & Phases) Homestead South [4] Total Number of Lots 18 [4] Total acreage 6.47

RECEIVED
JUL 17 2023
By: 23-0290

DocuSign Envelope ID: 41206BD3-104D-4082-A50C-02ADFADA5778

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	T-Square Engineering	PHONE	615.678.8212
ADDRESS	1329 West Main St., Franklin, TN 37064	EMAIL	Allison.Corolla@T2-Eng.com

PROPERTY OWNER NAME	Pulte Homes of Tennessee Limited Partnership	PHONE	615-992-9508
ADDRESS	100 Westwood Place, Suite #100 Brentwood, TN 37027	EMAIL	jeremy.brooks@pultegroup.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Allison Corolla	Allison B. Corolla Digitally signed by Allison B. Corolla DN: E=Allison.Corolla@T2-Eng.com, O=T Square Engineering, CN=Allison B. Corolla Reason: I have reviewed this document Date: 2023.07.17 09:59:56-05'00'	7/17/2023
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Jeremy Brooks	DocuSigned by: Jeremy Brooks 9E701DEC338D4C0...	7/17/2023
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	

Independence at Carter's Station Phase 5

Project #:	23-0292	Location:	Map 42 Parcel 34
Applicant:	T-Square Engineering	Case Type(s):	Final Plat
Staff Planner:	Robert Archibald, Planner II	Proposed Use:	Single Family Homes

PROJECT SUMMARY

The applicant requests approval of a Final Plat to create 9 single-family home lots with accompanying infrastructure. The subdivision is part of a larger multiphase Planned Unit Development. The Planning Commission approved Preliminary Plat for the development in November, 13 2019 (19-0169). The previous approvals created a vested right to develop under the RS-10 PUD district standards of the previous Zoning Ordinance.

- The development is subject to Ordinance 3638, the pre-July 2022 zoning ordinance.
- The Final Plat conforms to the approved Preliminary Plat with the exception of the lot shown to the immediate west of Lot 938 having been removed from the submittal. This lot, previously identified as Lot 158 [to correspond to Lot 939] was included on Final Plat 3.2, which received approval in January 2022. The omission is a simple revision to the phase lines.
- The applicant has provided financial surety in the amount of $35,000 to guarantee completion of infrastructure.
- The applicant has executed a development agreement in the format prescribed by Appendix B of the Subdivision Regulations.
- The applicant will record a stormwater maintenance agreement prior to recordation of the Final Plat.
- The DRC reviewed this proposal at its August 2023 meeting. Staff review included standard comments and requests for technical corrections. Full technical comments are provided in the agenda packet.
- The Planning Commission is the **Decision-Making Authority** for the Final Plat.
- Templates are provided at the end of the report to assist the Planning Commission in crafting properly formatted motions.

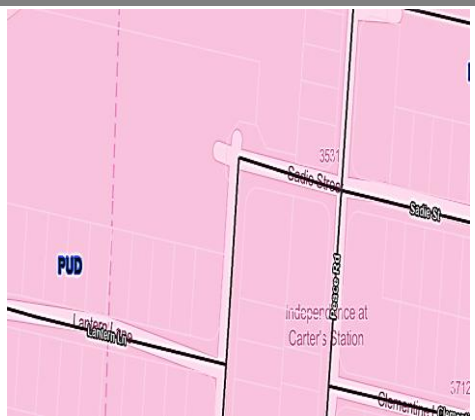
SITE INFORMATION

CURRENT ZONING	EXISTING USE	EXISTING IMP.	LAND AREA
PUD	In Development	Infrastructure for Development	+/- 7.43Acres

FUTURE LAND USE MAP

Suburban Neighborhood

ZONING MAP



PUD

SITE CONTEXT/ADJACENT PROPERTIES			
	Future Land Use	Zoning	Current Use
Subject Property	Suburban Neighborhood	PUD	Vacant/Developing
North	Rural Countryside	PUD	Vacant/Developing
South	Suburban Neighborhood	PUD	Vacant/Developing
East	Suburban Neighborhood	PUD	Vacant/Developing
West	Rural Countryside	Outside Jurisdiction	Unknown

The subject site is part of the larger multiphase development. The property is bounded on the north, east and south by developing properties, vacant land, and single-family residential dwellings. The Planning Commission approved a Preliminary Plat (19-0169) for development of 251 lots on the site in November of 2019.

CONFORMITY WITH ZONING ORDINANCE

The Final Plat conforms to the PUD Master Plan, the modified RS-10 standards of the applicable zoning ordinance (3638), the Subdivision Regulations, and the approved Preliminary Plat.

- The proposed structures conform to the setbacks and other bulk standards of the Master Plan.
- The PUD include architectural standards. Conformity with these and other applicable zoning standards will be confirmed at the time of building permit.
- Lot to the immediate west of 938 has been omitted from the final plat submittal. Previously identified as Lot 158 on the Preliminary Plat, to correspond to Lot 939, it was included on Final Plat 3.2 which received approval in January 2022. The omission is a simple revision to the phase lines.

REVIEW PROCESS

The Development Review Committee evaluated the proposed Final Plat at its August 2023 meeting, as directed by section **8.3.7** of the Zoning Ordinance. Technical comments are provided in the agenda package and summarized above.

Section **8.5.24** of the Zoning Ordinance directs the Planning Commission to review Subdivision Plats for conformity with the standards of the Ordinance and the City Subdivision Regulations. The Ordinance indicates that all Preliminary and Final Plats must be prepared, submitted, reviewed and acted upon in accordance with the Subdivision Regulations.

The Planning Commission is the Decision-Making Authority for Final Plats under **§ 8.3.3.B.1** of the Zoning Ordinance and **§ 2.3** of the Subdivision Regulations.

Section **2.3.6** of the Subdivision Regulations establishes the review criteria for approval of Final Plats.

> *A. Recommendations and final action on a Final Plat shall be based on consideration of the following criteria:*
>
> > *1. Whether the proposed Final Plat complies with the applicable zoning district and overlay districts;*

2. Whether the proposed Final Plat is consistent with all standards of these Subdivision Regulations and other related codes and ordinances enforced by the City; and

3. Whether the proposed Final Plat meets all the requirements or conditions of any applicable development approvals, such as development plans or associated modification of standards.

B. Final Plat approval shall be subject to the completion of required improvements, or in lieu, the CMPC may approve a Performance Agreement.

In the event of a denial, **§ 2.3.5** of the Subdivision Regulations requires the Planning Commission to identify the specific parts of applicable plans and regulations with which the plat does not comply.

SAMPLE MOTIONS

Approve:

Move to approve the Final Plat as presented and find that the plat conforms to the applicable zoning ordinance, the Subdivision Regulations, and the Preliminary Plat [subject to remaining technical comments from staff].

Approve with Conditions:

Move to approve the Final Plat as presented and find that the plat conforms to the applicable zoning ordinance, the Subdivision Regulations, and the Preliminary Plat, subject to the following conditions: [list conditions of approval crafted by Planning Commission].

Defer for Continued Review:

Move to find that there is insufficient information to make a decision, defer the application for continued review, and request that the applicant provide: [list additional information] for review at the next regularly scheduled meeting of the Planning Commission.

Deny:

Move to find that the Final Plat as presented does not conform to the applicable zoning ordinance, the Subdivision Regulations, or the approved Preliminary Plat, and deny the request due to [list specific deficiencies].

VICINITY MAP - NOT TO SCALE

LOT	SQ. FT.
930	9219.9
931	6600.0
932	9404.8
933	19322.9
934	19871.5
935	6600.0
936	6600.0
937	6600.0
938	6600.0
OS:12	103345.0
OS:13	73296.5

LINE	BEARING	DISTANCE
L1	S 16°11'06" W	36.35'
L2	N 16°36'16" E	7.07'
L3	N 20°32'01" E	19.34'
L4	N 20°32'01" E	91.73'
L5	S 82°23'33" E	64.92'
L6	S 07°36'27" W	120.00'
L7	N 82°23'33" W	61.08'
L8	S 82°23'33" E	55.00'
L9	S 07°36'27" W	120.00'
L10	N 82°23'33" W	55.00'
L11	S 82°23'33" E	55.00'
L12	S 22°33'22" E	88.80'
L13	N 82°23'33" W	54.03'
L14	S 02°41'17" W	47.57'
L15	S 07°36'27" W	11.87'
L16	N 07°36'27" E	120.00'
L17	N 82°23'33" W	55.00'
L18	N 07°36'27" E	120.00'
L19	N 82°23'33" W	55.00'
L20	N 82°23'33" W	55.00'
L21	N 07°36'27" E	120.00'
L22	N 82°23'33" W	55.00'
L23	N 82°23'33" W	55.00'
L24	N 07°36'27" E	120.00'
L25	S 82°23'33" E	55.00'
L26	N 82°23'33" W	55.00'
L27	N 07°36'27" E	120.00'
L28	N 82°23'33" W	55.00'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	180.00'	200.01'	189.88'	S 52°21'57" W
C2	60.00'	71.22'	67.11'	S 50°11'29" W
C3	130.03'	159.80'	149.93'	N 48°20'44" E
C4	130.00'	144.45'	137.13'	N 52°21'57" E
C5	25.00'	44.91'	39.11'	N 30°55'46" W
C6	25.00'	30.77'	28.87'	S 62°20'42" W
C7	50.00'	35.22'	34.50'	S 47°15'48" W
C8	50.01'	65.62'	61.01'	N 74°57'31" W
C9	50.00'	66.24'	61.51'	N 00°35'39" E
C10	50.05'	50.22'	48.14'	N 67°18'37" E

GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE THIS PROPERTY INTO 9 LOTS AND 2 OPEN SPACEs AND DEDICATE RIGHT-OF-WAY AND EASEMENTS.
2. THE PROPERTY SHOWN HEREON IS LOCATED WITHIN THE CITY OF COLUMBIA, MAURY COUNTY, TN. ALL MATTERS PERTAINING TO CONSTRUCTION, USE, LOCATION OF IMPROVEMENTS, SIGNAGE, PARKING, NOISE, VIBRATION, EMISSIONS, FIRE HAZARDS, RADIATION, ILLUMINATION, SETBACK PROVISIONS, ETC. ARE SUBJECT TO THE CITY OF COLUMBIA'S ZONING REGULATIONS AS INTERPRETED AND REGULATED BY THE DEPARTMENT OF DEVELOPMENT SERVICES.
3. SUBJECT PROPERTY IS PARCEL 034.00 AS SHOWN ON MAURY COUNTY TAX MAP 042, AND PARCEL 015.04 AS SHOWN ON MAURY COUNTY TAX MAP 041.
4. DEED REFERENCE: RECORD BOOK R2683, PAGE 131 (MAP 041, PARCEL 015.04) AND RECORD BOOK R2878, PAGE 971 (MAP 042, PARCEL 034.00), BOTH REGISTER'S OFFICE OF MAURY COUNTY, TN.
5. THE HORIZONTAL LOCATION DATA SHOWN ON THIS SURVEY WAS GATHERED USING STANDARD RADIAL SURVEYING TECHNIQUES WITH AN ELECTRONIC TOTAL STATION AND DATA COLLECTOR AND IS BASED UPON A POSITIONAL SOLUTION DERIVED FROM GLOBAL POSITIONING SYSTEM (GPS) OBSERVATIONS) USING THE TDOT NETWORK. TENNESSEE STATE PLANE COORDINATE SYSTEM ZONE 4100, NAD83. DRONE AERIAL PHOTOMETRY WAS ALSO USED TO SURVEY SOME ELEMENTS.
6. NO TITLE REPORT HAS BEEN FURNISHED, THEREFORE THIS SURVEY IS SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE SEARCH.
7. THE TOTAL AREA OF THE PHASE SURVEYED IS 7.43 +/- ACRES.
8. THE NEW RIGHT-OF-WAY DEDICATION AREA IS 1.29 +/- ACRES.
9. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE "X", AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47119C0180E WITH AN EFFECTIVE DATE OF 4/16/2007, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 119C, PANEL NO. 0180 SUFFIX E, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN.
10. THIS PROPERTY IS ZONED RS-10 PUD.
11. THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF A GENERAL PROPERTY SURVEY AND CONFORMS TO THE ACCURACY OF A CATEGORY 1 SURVEY AS CURRENTLY DEFINED AND ADOPTED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS, AND THE RATIO OF PRECISION IS AT LEAST 1:10,000.
12. ALL PLOT AND DEED RECORDATION REFERENCES SHOWN HEREON ARE AS RECORDED IN THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
13. COLUMBIA POWER AND WATER SYSTEMS IS THE POWER PROVIDER.
14. STORM PIPES TO BE 18" RCP, UNLESS OTHERWISE NOTED.
15. STORM WATER MANAGEMENT OPERATION AND MAINTENANCE WILL BE GOVERNED BY THE INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORM WATER MANAGEMENT FACILITIES, DATED _____, RECORDED IN RECORD BOOK _____, PAGE ____, REGISTER'S OFFICE OF MAURY COUNTY, TN.

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE AND UTILITIES DESIGNATED IN INDEPENDENCE AT CARTER'S STATION (SECTION 3, PHASE 5) HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR A PERFORMANCE SURETY IN THE AMOUNT OF $_____ FOR STREETS AND DRAINAGE HAS BEEN POSTED WITH THE CITY OF COLUMBIA TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

_____, 20____ _____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

_____, 20____ _____
DATE NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AS EVIDENCED IN RECORD BOOK NUMBER R2683, PAGE 131 & RECORD BOOK NUMBER R2878, PAGE 971, MAURY COUNTY REGISTER'S OFFICE, AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINE, AND THAT OFFERS OF IRREVOCABLE DEDICATION FOR ALL PUBLIC WAYS, UTILITIES AND OTHER FACILITIES HAVE BEEN FILED.

_____, 20____ _____
DATE OWNER

CERTIFICATE OF SURVEY ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON; THAT THIS IS A CATEGORY I LAND SURVEY AS DEFINED IN TITLE 62, CHAPTER 18, TENNESSEE CODE ANNOTATED, AND THAT THE RATIO OF PRECISION IS LESS THAN OR EQUAL TO 1:10,000.

_____, 20____ _____
DATE MARK CANTRELL, R.L.S

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS AND OTHER ADOPTED ORDINANCES AND POLICIES.

_____, 20____ _____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

_____, 20____ _____
DATE NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF APPROVAL OF SUBDIVISION AND STREET NAMES

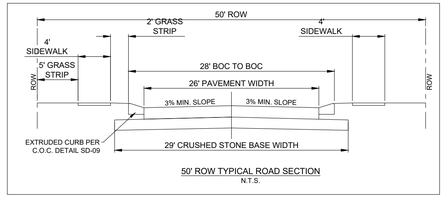
SUBDIVISION NAME AND STREET NAMES ARE APPROVED BY THE CITY ENGINEERING DEPARTMENT AND MAURY COUNTY E911.

_____, 20____ _____
DATE MAURY E911

CERTIFICATE OF APPROVAL OF SEWER SYSTEM

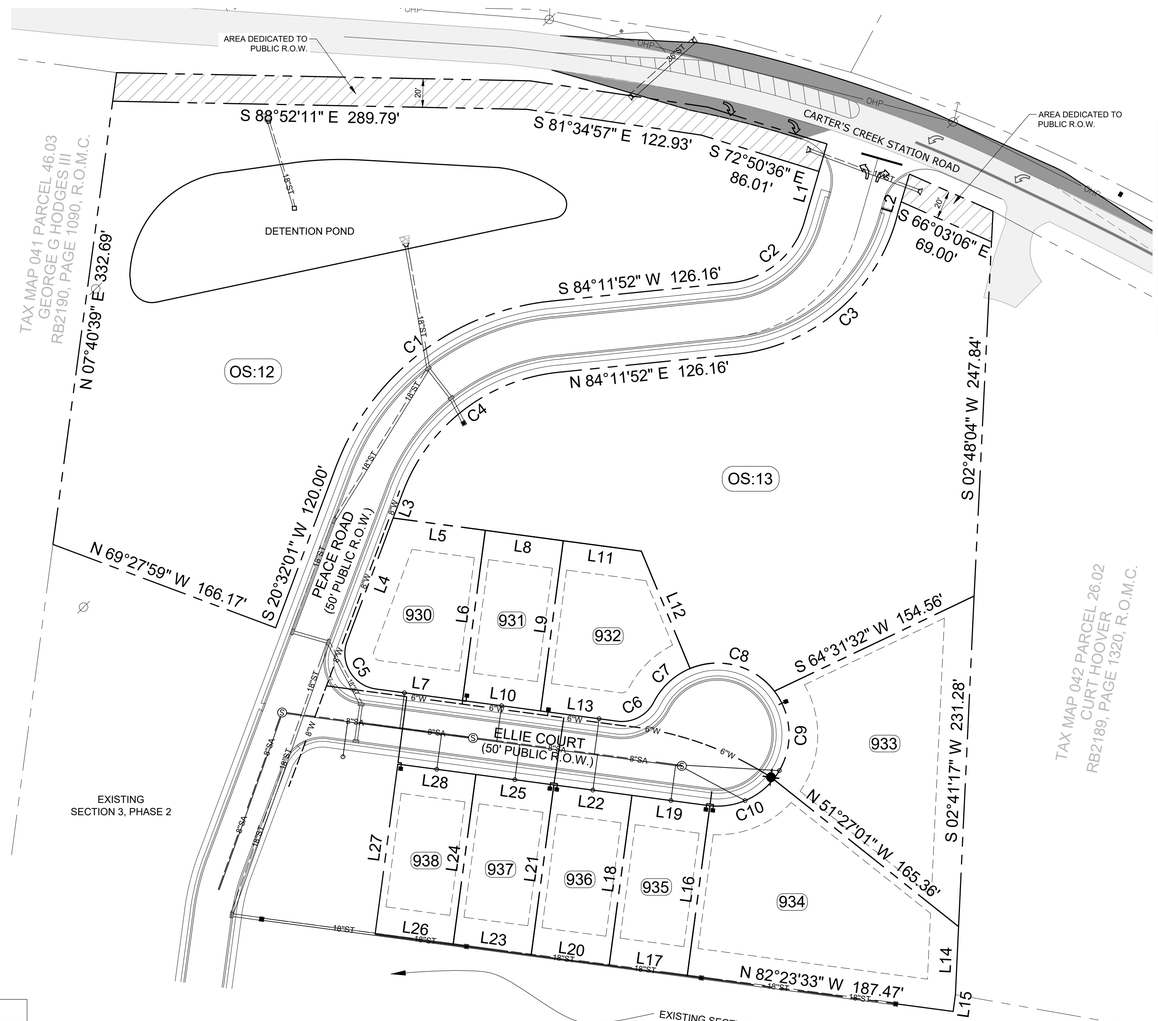
I HEREBY CERTIFY THAT THE SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

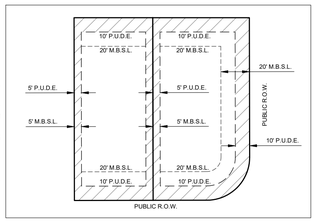
_____, 20____ _____
DATE DIRECTOR OF COLUMBIA WASTEWATER DEPARTMENT



50' ROW TYPICAL ROAD SECTION
N.T.S.

FIRE HYDRANT
SANITARY SEWER MANHOLE
CATCH BASIN
HEADWALL
AREA DRAIN
UTILITY POLE
8"W — WATER LINE (TYP.)
8"SA — SANITARY SEWER LINE (TYP.)
12"ST — STORMWATER LINE (TYP.)
OHP — OVERHEAD POWER LINE





TYPICAL LOT (NOT TO SCALE)

TN SPCS NAD 83

SCALE 1" = 50'

50 0 25 50 100

SITE DATA	
CURRENT ZONING:	R-10 PUD
MINIMUM BUILDING SETBACKS:	
FRONT:	20'
REAR:	20'
SIDE:	5'
TOTAL PHASE AREA:	7.43 ACRES
NEW ROW:	1.29 ACRES
OPEN SPACE:	4.06 ACRES

IF YOU DIG TENNESSEE...
CALL US FIRST!
1-800-351-1111
TENNESSEE ONE CALL
IT'S THE LAW

OWNER OF RECORD
PULTE HOMES OF TENNESSEE LTD PARTNERSHIP DEED BK. R2683 PG. 131, MAP 041 PARCEL 015.04 DEED BK. R2878, PG. 971, MAP 042 PARCEL 034.00
APPLICANT
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

J. MARK CANTRELL XVI PROFESSIONAL LAND SURVEYOR AGRICULTURE COMMERCE TENNESSEE NO. 1859

NO.	DATE	REVISIONS

DATE: 7-17-2023
SCALE: 1" = 50'
DRAWN BY: DSW
REVIEWER:

FINAL PLAT
CARTER'S STATION
SECTION 3, PHASE 5
COLUMBIA, MAURY COUNTY, TENNESSEE

INDEPENDENCE AT CARTER'S STATION

PROJECT
18-0530

SHEET
1 OF 1

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

P:\Projects\2018\18-0530 (Carters Station - Pulte Homes)\Independence Construction Plans\Phase 3.5\Production\18-0530 Independence 3.5 Final Plat.dwg, 8/16/2023 1:30:20 PM

T-SQUARE ENGINEERING
CIVIL-SITE TRAFFIC WASTEWATER

1329 West Main Street
Franklin, TN 37064
615.678.8212

August 21st, 2023
City of Columbia
Comment Response Letter – Final Plat – Independence at Carters Station Section 3.5
Project Number – 18-0530
Project Name – Independence at Carters Station Section 3.5

Engineering

1. LOC in the amount of $35,000 provided.
2. Install asphalt binder and curbing by August 21st.
   Complete.
3. Provide ROW dedication with this plat.
   Dedication provided.

Maury County Schools

4. Spring Hill Elementary, Spring Hill Middle School, Spring Hill High School. See Attached Capacity Numbers. The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.
   Acknowledged.

Fire

5. No comments

Planning

6. Please have the PLS sign the Final Plat per 2.3.3.B of the Subdivision Regulations (p. 17).
   Surveyor has signed the hard copy. Surveyor will sign all copies provided for recording.
7. The phasing plan on the Preliminary Plat shows 10 lots in this phase. Lot 158 on the Preliminary (corresponding to lot number 939 on proposed Final) is omitted. Is this the result of changes in the phasing plan?
   This lot was previously included in the 3.2 final plat, and has already been recorded. This was a simple revision to phase lines.

Building

8. No comments.

Columbia Power

9. Columbia Power System has an existing power line near your proposed development.
   We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
   • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.
   Acknowledged.

ATT

10. ATT intends to serve.

Wastewater

11. Columbia Wastewater has no concerns.

Duck River Electric Membership Corp

12. No comments provided.

Maury County Highway Dept.

13. No comments provided.

Columbia Water

14. Verify that all water infrastructure on the plat conforms to as-built conditions. Conduct pressure test, flushing, complete bacteria testing and deed infrastructure to CPWS. Water system must be active for recording of the final plat.
    Acknowledged.

Police

15. No comments provided.

Public Works

16. No comments.

Atmos Energy

17. No comments provided.

Maury County E911

18. No comment.

CPWS Broadband

19. Plan to serve.

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

_____ day of _____, 20_____ ,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Pulte Homes Tennessee Limited Partnership, the DEVELOPER (hereinafter the "DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal Planning Commission (hereinafter the "CMPC") on the

_____ day of _____, 20_____ ,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and common areas to be constructed within and to serve the PROJECT including but not be limited to roads, bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS"); and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost; and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council approval by resolution, and subject to the applicant's compliance with all requirements in this agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

RECEIVED
AUG 21 2023
By: 23-0292

B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELEPOR's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

A. The Preliminary Plat has been approved by the CMPC;
B. The Construction Plans are approved by the CITY;
C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
D. The CITY shall have received an appropriately executed Development Agreement; and
E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

Independence at Carters Station Section 3.5 PROJECT	
Completed by the Developer	*Completed by the City*
Pulte Homes Tennessee Limited Partnership DEVELOPER NAME	
Jeremy Brooks AUTHORIZED AGENT NAME	CITY ENGINEER
SIGNATURE	SIGNATURE
8/21/2023 DATE	DATE
100 Westwood Place, Suite 100 STREET	
Brentwood,TN,37027 CITY, STATE, ZIP	
615.992.9508 PHONE	
Jeremy.brooks@pultegroup.com EMAIL	
Attest	*Attest*
Kevin R. Chapman ATTEST NAME	ATTEST NAME
ATTEST SIGNATURE	ATTEST SIGNATURE
8/21/2023 DATE	DATE

CITY OF COLUMBIA
TENNESSEE

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, August 8, 2023

ITEM NO.
23-0292

DESCRIPTION: Final plat for section 3.5

RECOMMENDATION: For final recommendation please see staff report.

COMMENTS:

Engineering

1. LOC in the amount of $35,000 provided

2. Install asphalt binder and curbing by August 21st
3. Provide ROW dedication with this plat

Maury County Schools

4. Spring Hill Elementary, Spring Hill Middle School, Spring Hill High School
   See Attached Capacity Numbers
   The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.

Fire

5. No comments

Planning

6. Please have the PLS sign the Final Plat per 2.3.3.B of the Subdivision Regulations (p. 17).
7. The phasing plan on the Preliminary Plat shows 10 lots in this phase. Lot 158 on the Preliminary (corresponding to lot number 939 on proposed Final) is omitted. Is this the result of changes in the phasing plan?

Building

8. No comment.

Columbia Power

9. Columbia Power System has an existing power line near your proposed development. We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
   • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

ATT

10. ATT intends to serve.

Wastewater

11. Columbia Wastewater has no concerns.

Duck River Electric Membership Corp

12. No comments provided.

Maury County Highway Dept.

13. No comments provided.

Columbia Water

14. "Verify that all water infrastructure on the plat conforms to as-built conditions. Conduct pressure test, flushing, complete bacteria testing and deed infrastructure to CPWS. Water system must be active for recording of the final plat."

Police

15. No comments provided.

Public Works

16. No comments.

Atmos Energy

17. No comments provided.

Maury County E911

18. No comments provided.

CPWS Broadband

19. Plan to serve.

ATTACHMENTS: Final Plat

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

CITY OF COLUMBIA
TENNESSEE

ITEM # I 7.

DEVELOPMENT REVIEW COMMITTEE COMMENT FORM

August 8, 2023

NAME OR DEPARTMENT: Maury County Public Schools

Case Number: 23-0292

Request from T-Square Engineering for final plat approval with surety for Independence at Carter's Station Section 3.5 at Tax Map 42 Parcel 34 consisting of 9 lots off Ellie Court.

COMMENTS:

Spring Hill Elementary, Spring Hill Middle Scool, Spring Hill High School

See Attached Capacity Numbers

The development combined with current neighborhoods and additional approved

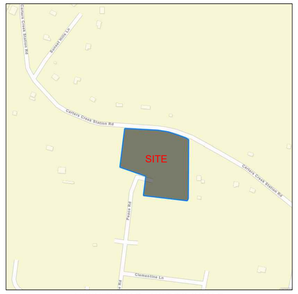
developments in these zones may require either new construction or realignment

of school zones to accomodate new students

Current Enrollment / Capacity

	Facility Name	Date Constructed	Sq. Ft.	Acreage	Capacity	Current Enrollment	Capacity Used
Elementary	Baker	1960	43,920	12	340	291	85.6%
	Battle Creek	2019	90,000	30	700	642	91.7%
	Brown	1968	56,720	20	405	316	78.0%
	Highland	1986	47,800	4.5	380	259	68.2%
	Howell	1999	81,600	17.5	700	606	86.6%
	Mt. Pleasant	1978	80,021	22	630	505	80.2%
	Riverside	1984	71,150	14	500	377	75.4%
	Spring Hill	1984	69,000	10	540	432	80.0%
	Woodard	1990	76,200	17	600	542	90.3%
	Wright	2005	97,765	18	740	621	83.9%
					5535	***4591***	***82.9%***
Middle	Battle Creek	2019	125,000	45	900	742	82.4%
	Cox	1997	137,200	25	900	669	74.3%
	Mt. Pleasant	2001	113,938	29.2	550	413	75.1%
	Spring Hill	2010	158,106	39.49	950	554	58.3%
	Whitthorne	1979	175,600	17	1050	984	93.7%
					4350	***3362***	***77.3%***
High	Central	2016	296,740	55	1700	1503	88.4%
	Mt. Pleasant	1969	110,759	31	600	410	68.3%
	Spring Hill	1993	181,800	57	1200	1283	106.9%
					3500	***3196***	***91.3%***
Unit	Culleoka	1969	205,800	34	1020	908	89.0%
	Hampshire	1978	83,410	13.12	500	432	86.4%
	Santa Fe	1964	94,225	24	650	546	84.0%
					2170	***1886***	***86.9%***
Other	Central Office	1960	15,400	1.5			
	College Hill	1958	42,211	2.26		126	
	Maintenance	1987	9,400	4.7			
	McDowell		46,165	7			
			2,509,930	**550.27**	**15555**	**13161**	

Elementary Numbers are incomplete as K enrollment will grow over the month of August.



VICINITY MAP - NOT TO SCALE

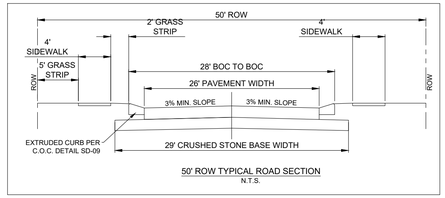
LOT	SQ. FT.
930	9219.9
931	6600.0
932	9404.8
933	19322.9
934	19871.5
935	6600.0
936	6600.0
937	6600.0
938	6600.0
OS:12	103345.0
OS:13	73296.5

LINE	BEARING	DISTANCE
L1	S 16°11'06" W	36.35'
L2	N 16°36'16" E	7.07'
L3	N 20°32'01" E	19.34'
L4	N 20°32'01" E	91.73'
L5	S 82°23'33" E	64.92'
L6	S 07°36'27" W	120.00'
L7	N 82°23'33" W	61.08'
L8	S 82°23'33" E	55.00'
L9	S 07°36'27" W	120.00'
L10	N 82°23'33" W	55.00'
L11	S 82°23'33" E	55.00'
L12	S 22°33'22" E	88.80'
L13	N 82°23'33" W	54.03'
L14	S 02°41'17" W	47.57'
L15	S 07°36'27" W	11.87'
L16	N 07°36'27" E	120.00'
L17	N 82°23'33" W	55.00'
L18	N 07°36'27" E	120.00'
L19	N 82°23'33" W	55.00'
L20	N 82°23'33" W	55.00'
L21	N 07°36'27" E	120.00'
L22	N 82°23'33" W	55.00'
L23	N 82°23'33" W	55.00'
L24	N 07°36'27" E	120.00'
L25	S 82°23'33" E	55.00'
L26	N 82°23'33" W	55.00'
L27	N 07°36'27" E	120.00'
L28	N 82°23'33" W	55.00'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	180.00'	200.01'	189.88'	S 52°21'57" W
C2	60.00'	71.22'	67.11'	S 50°11'29" W
C3	130.03'	159.80'	149.93'	N 48°20'44" E
C4	130.00'	144.45'	137.13'	N 52°21'57" E
C5	25.00'	44.91'	39.11'	N 30°55'46" W
C6	25.00'	30.77'	28.87'	S 62°20'42" W
C7	50.00'	35.22'	34.50'	S 47°15'48" W
C8	50.01'	65.62'	61.01'	N 74°57'31" W
C9	50.00'	66.24'	61.51'	N 00°35'39" E
C10	50.05'	50.22'	48.14'	N 67°18'37" E

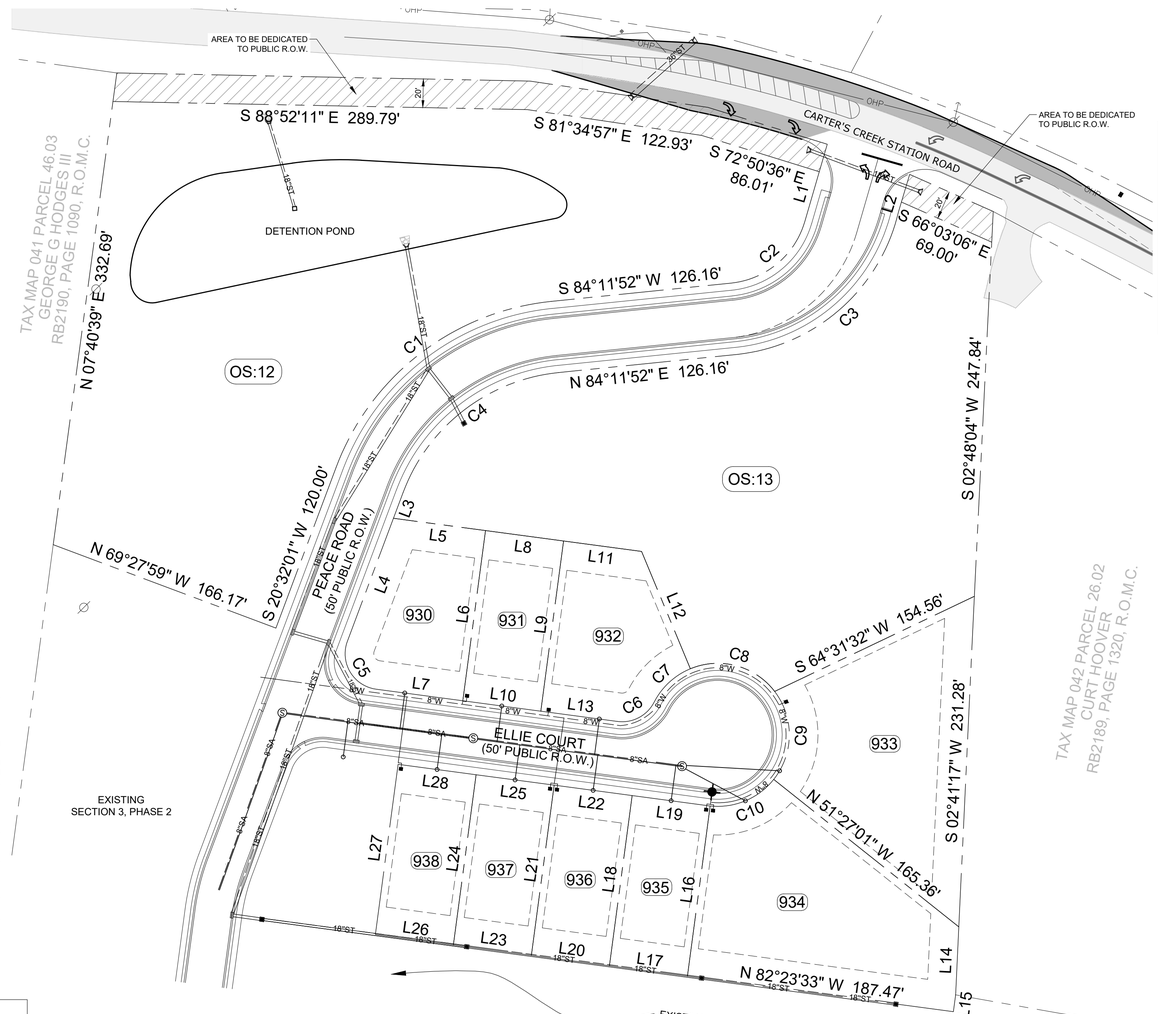
GENERAL NOTES

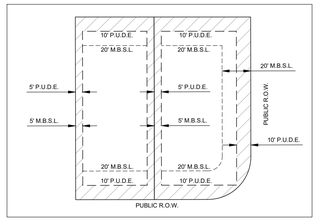
1. THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE THIS PROPERTY INTO 9 LOTS AND 2 OPEN SPACEs AND DEDICATE RIGHT-OF-WAY AND EASEMENTS.
2. THE PROPERTY SHOWN HEREON IS LOCATED WITHIN THE CITY OF COLUMBIA, MAURY COUNTY, TN. ALL MATTERS PERTAINING TO CONSTRUCTION, USE, LOCATION OF IMPROVEMENTS, SIGNAGE, PARKING, NOISE, VIBRATION, EMISSIONS, FIRE HAZARDS, RADIATION, ILLUMINATION, SETBACK PROVISIONS, ETC. ARE SUBJECT TO THE CITY OF COLUMBIA'S ZONING REGULATIONS AS INTERPRETED AND REGULATED BY THE DEPARTMENT OF DEVELOPMENT SERVICES.
3. SUBJECT PROPERTY IS PARCEL 034.00 AS SHOWN ON MAURY COUNTY TAX MAP 042, AND PARCEL 015.04 AS SHOWN ON MAURY COUNTY TAX MAP 041.
4. DEED REFERENCE: RECORD BOOK R2683, PAGE 131 (MAP 041, PARCEL 015.04) AND RECORD BOOK R2878, PAGE 971 (MAP 042, PARCEL 034.00), BOTH REGISTER'S OFFICE OF MAURY COUNTY, TN.
5. THE HORIZONTAL LOCATION DATA SHOWN ON THIS SURVEY WAS GATHERED USING STANDARD RADIAL SURVEYING TECHNIQUES WITH AN ELECTRONIC TOTAL STATION AND DATA COLLECTOR AND IS BASED UPON A POSITIONAL SOLUTION DERIVED FROM GLOBAL POSITIONING SYSTEM (GPS) OBSERVATIONS) USING THE TDOT NETWORK. TENNESSEE STATE PLANE COORDINATE SYSTEM ZONE 4100, NAD83. DRONE AERIAL PHOTOMETRY WAS ALSO USED TO SURVEY SOME ELEMENTS.
6. NO TITLE REPORT HAS BEEN FURNISHED, THEREFORE THIS SURVEY IS SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE SEARCH.
7. THE TOTAL AREA OF THE PHASE SURVEYED IS 7.43 +/- ACRES.
8. THE NEW RIGHT-OF-WAY DEDICATION AREA IS 1.29 +/- ACRES.
9. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE "X", AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47119C0180E WITH AN EFFECTIVE DATE OF 4/16/2007, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 119C, PANEL NO. 0180 SUFFIX E, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN.
10. THIS PROPERTY IS ZONED RS-10 PUD.
11. THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF A GENERAL PROPERTY SURVEY AND CONFORMS TO THE ACCURACY OF A CATEGORY 1 SURVEY AS CURRENTLY DEFINED AND ADOPTED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS, AND THE RATIO OF PRECISION IS AT LEAST 1:10,000.
12. ALL PLOT AND DEED RECORDATION REFERENCES SHOWN HEREON ARE AS RECORDED IN THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
13. COLUMBIA POWER AND WATER SYSTEMS IS THE POWER PROVIDER.
14. STORM PIPES TO BE 18" RCP, UNLESS OTHERWISE NOTED.
15. STORM WATER MANAGEMENT OPERATION AND MAINTENANCE WILL BE GOVERNED BY THE INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORM WATER MANAGEMENT FACILITIES, DATED _____, RECORDED IN RECORD BOOK _____, PAGE ____, REGISTER'S OFFICE OF MAURY COUNTY, TN.



50' ROW TYPICAL ROAD SECTION
N.T.S.

FIRE HYDRANT
SANITARY SEWER MANHOLE
CATCH BASIN
HEADWALL
AREA DRAIN
UTILITY POLE
8"W — WATER LINE (TYP.)
8"SA — SANITARY SEWER LINE (TYP.)
12"ST — STORMWATER LINE (TYP.)
OHP — OVERHEAD POWER LINE





TYPICAL LOT (NOT TO SCALE)

SITE DATA	
CURRENT ZONING:	R-10 PUD
MINIMUM BUILDING SETBACKS:	
FRONT:	20'
REAR:	20'
SIDE:	5'
TOTAL PHASE AREA:	7.43 ACRES
NEW ROW:	1.29 ACRES
OPEN SPACE:	4.06 ACRES

TN SPCS NAD 83

SCALE 1" = 50'

50 0 25 50 100

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE AND UTILITIES DESIGNATED IN INDEPENDENCE AT CARTER'S STATION (SECTION 3, PHASE 5) HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR A PERFORMANCE SURETY IN THE AMOUNT OF $ _____ FOR STREETS AMD DRAINAGE HAS BEEN POSTED WITH THE CITY OF COLUMBIA TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

_____, 20____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

_____, 20____
DATE NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AS EVIDENCED IN RECORD BOOK NUMBER R2683, PAGE 131 & RECORD BOOK NUMBER R2878, PAGE 971, MAURY COUNTY REGISTER'S OFFICE, AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINE, AND THAT OFFERS OF IRREVOCABLE DEDICATION FOR ALL PUBLIC WAYS, UTILITIES AND OTHER FACILITIES HAVE BEEN FILED.

_____, 20____
DATE OWNER

CERTIFICATE OF SURVEY ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON; THAT THIS IS A CATEGORY I LAND SURVEY AS DEFINED IN TITLE 62, CHAPTER 18, TENNESSEE CODE ANNOTATED, AND THAT THE RATIO OF PRECISION IS LESS THAN OR EQUAL TO 1:10,000.

_____, 20____
DATE MARK CANTRELL, R.L.S

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS AND OTHER ADOPTED ORDINANCES AND POLICIES.

_____, 20____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

_____, 20____
DATE NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF APPROVAL OF SUBDIVISION AND STREET NAMES

SUBDIVISION NAME AND STREET NAMES ARE APPROVED BY THE CITY ENGINEERING DEPARTMENT AND MAURY COUNTY E911.

_____, 20____
DATE MAURY E911

CERTIFICATE OF APPROVAL OF SEWER SYSTEM

I HEREBY CERTIFY THAT THE SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

_____, 20____
DATE DIRECTOR OF COLUMBIA WASTEWATER DEPARTMENT

IF YOU DIG TENNESSEE...
CALL US FIRST!
1-800-351-1111
TENNESSEE ONE CALL
IT'S THE LAW

OWNER OF RECORD
PULTE HOMES OF TENNESSEE LTD PARTNERSHIP DEED BK. R2683 PG. 131, MAP 041 PARCEL 015.04 DEED BK. R2878, PG. 971, MAP 042 PARCEL 034.00
APPLICANT
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

J. MARK CANTRELL
PROFESSIONAL LAND SURVEYOR
XVI
AGRICULTURE
COMMERCE
TENNESSEE NO. 1859

REVISIONS

NO.	DATE

DATE: 7-17-2023
SCALE: 1" = 50'
DRAWN BY: DSW
REVIEWER:

FINAL PLAT
CARTER'S STATION
SECTION 3, PHASE 5
COLUMBIA, MAURY COUNTY, TENNESSEE

INDEPENDENCE AT CARTER'S STATION

PROJECT
18-0530

SHEET
1 OF 1

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

HYDRANT FLOW ANALYSIS

HYDRANT # & LOCATION: [SEE MAP] Banner Road

DATE: 7/12/2022

MODEL BY: Inflo Design Group, LLC

SYS. DEMAND Max Day

DURATION: 1 hrs.

WATER SUPPLIED BY: Columbia Power and Water Systems

PURPOSE OF TEST: Independence Section 6.3

MODEL DATA

FLOW HYDRANT(S)	[SEE MAP]	[P-0164]	n/a
GPM:	**854**	0	0

TOTAL FLOW DURING SIMULATION: **854** GPM

GAUGE HYDRANT

HYDRANT # & LOCATION: [SEE MAP] Tucker Trace

CONDITION 1

STATIC 81 PSI RESIDUAL: 47 PSI

CONDITION 2

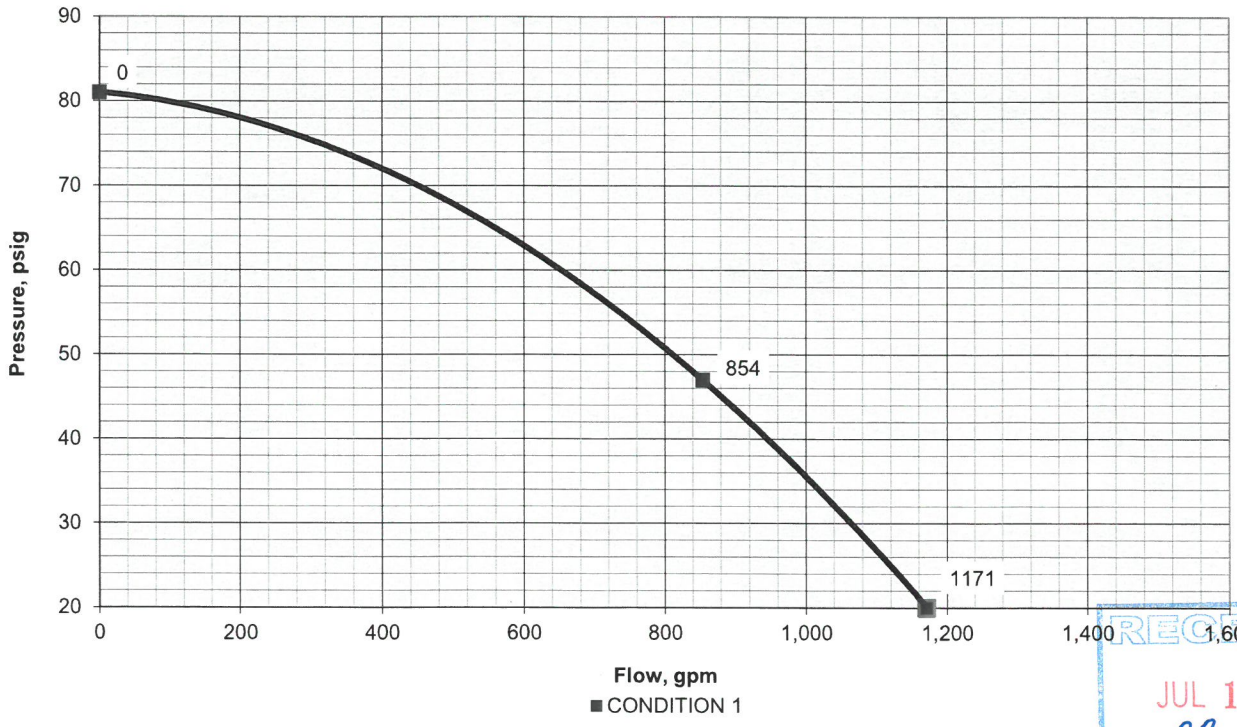
STATIC _____ PSI RESIDUAL: _____ PSI

RESULTS: AT 20 PSI RESIDUAL

CONDITION 1 **1171** GPM

CONDITION 2 **---** GPM

REMARKS: Performance based on service elevation of 683' and current CPWS water infrastructure.



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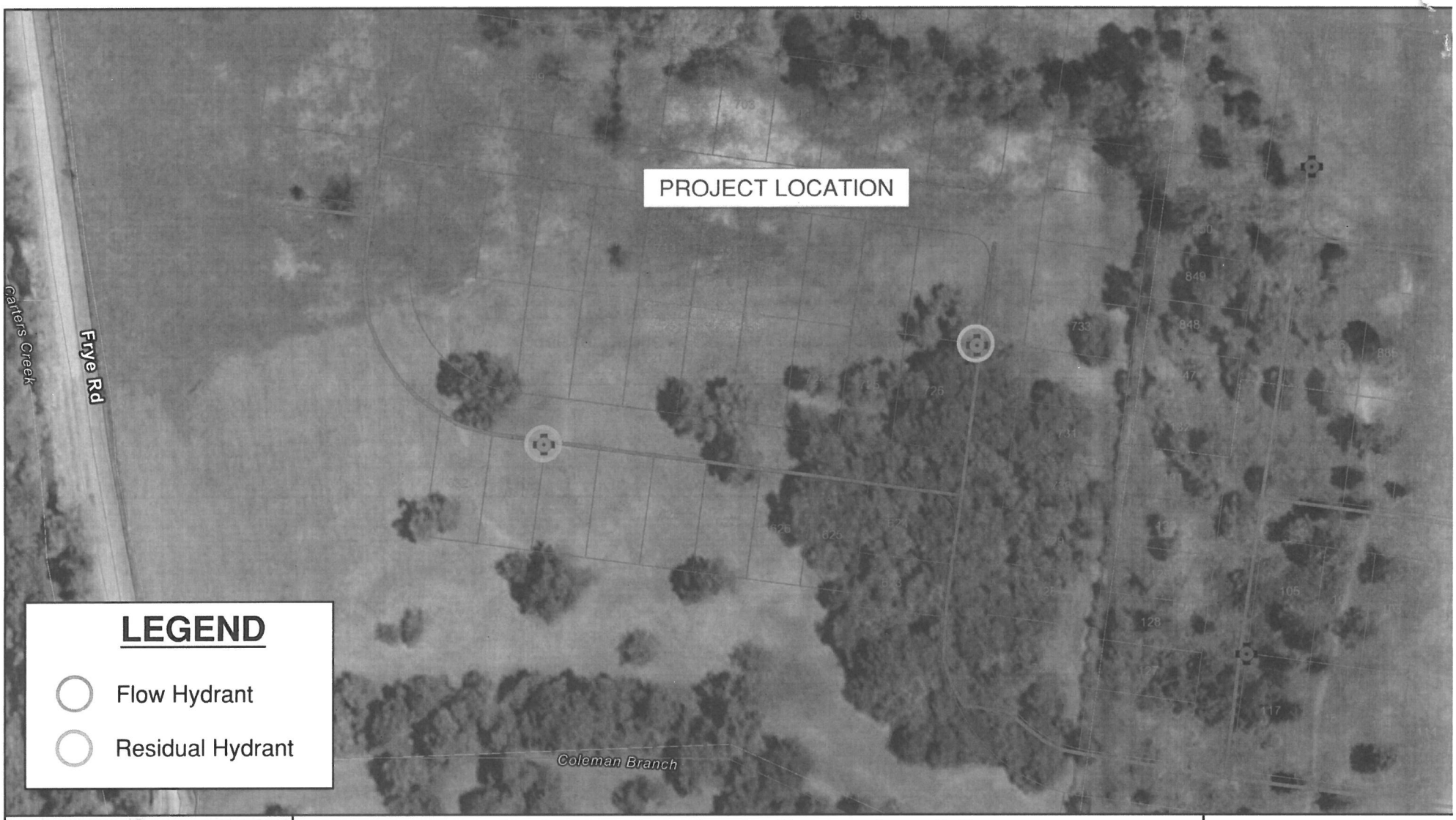
JUL 17 2023
By: 23-0292



Hydrant Analysis Location Map

Independence at Carters Station - Section 6.3
Tax Map 41, Parcel 15.00

Esri Community Maps Contributors, Tennessee STS GIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Maxar, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

2022

Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

N

0 0.02 0.0

0 0.04

DOCUMENT PREPARED BY:
Name: Allison Corolla
Company T-Square Engineering

Address: 1329 West Main Street
Franklin, TN
After recording return copy to City of Columbia, Development Services

INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES

Map & Parcel Number: Map 42, Parcel 34.00
Project Name: Independence at Carter's Station, Section 3.5

Recorded by deed in the Register of Deeds Office of Maury County in Deed Book R2878, Page(s) 971.

THIS AGREEMENT, made this _____ day of _____, 20____, by and between Pulte Homes Tennessee Limited Partnership hereinafter referred to as the "OWNER(S)" of the following property and City of Columbia, Tennessee, hereinafter referred to as the "CITY",

WE, the OWNER(S), with full authority to execute deeds, mortgages, other covenants, all rights, titles, and interests in the property described above, do hereby covenant with the CITY and agree as follows:

1. The OWNER(S) covenant and agree with the CITY that the OWNER(S) shall provide for adequate long term maintenance and continuation of stormwater control measures described in the Long Term Maintenance Plan and shown on the location map, deed of easement drawing or plat attached hereto to ensure that the facilities, are and remain in proper working condition in accordance with approved design standards, rules and regulations, and applicable laws. The OWNER(S) shall perform preventative maintenance activities at intervals described in the schedule attached hereto along with necessary landscaping (grass cutting, etc.) and trash removal as part of regular maintenance.

2. The OWNER(S) shall perform routine inspections to ensure that all long term stormwater management facilities are properly functioning. These inspections shall be conducted on an annual basis, at a minimum. These inspections shall be conducted by a person familiar with control measures implemented at the site. The OWNER(S) or operators shall maintain documents of these inspections.

3. The OWNER(S) shall perform comprehensive inspections of all stormwater management facilities and practices. These inspections shall be conducted once every five years, at a minimum. Such inspections must be conducted by either a professional engineer or landscape architect.

4. The OWNER(S) shall grant to the CITY or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the facility within the CITY.

5. The OWNER(S) shall record and grant to the CITY the necessary easements and rights-of-way and maintain perpetual access from public rights-of-way to the facility for the CITY or its agent and contractor.

6. If, upon inspection, the CITY finds that the OWNER(S) has failed to properly maintain the facilities, the CITY may order the work performed within ten (10) days. In the event the work is not performed within the specified time, the ONWER(S) agrees to allow the CITY to enter the property and take whatever steps it deems necessary to maintain the stormwater control facilities. This provision shall not be construed to allow the CITY to erect any structure of a permanent nature on the PROPERTY without first obtaining written approval of the OWNER(S)

7. The CITY is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any obligation on the CITY. The OWNER(S) shall reimburse the CITY upon demand the costs incurred in the maintenance of the facilities.

8. If the OWNER(S) fails to pay the CITY for the above expensive after forty-five (45) days written notice, the OWNER(S) authorizes the CITY to collect said expenses from the OWNER(S) through appropriate legal action and the OWNER(S) shall be liable for the reasonable expenses of collection, court costs, and attorney fees.

9. The OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successor in interest shall indemnify and hold harmless the CITY and its officers, agents and employees for any and all damages, accidents, casualties, occurrences, claims or attorney's fees which might arise or be asserted, in whole or in part,

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AUG 21 2023
By: 23-0292

against the CITY from the construction, presence, existence, or maintenance of the stormwater control facilities subject to this AGREEMENT. In the event a claim is asserted against the CITY, its officers, agents or employees, the CITY shall notify OWNER(S) and the OWNER(S) shall defend at OWNER(S) expense any suit based on such claim. If any judgment or claims against the CITY, its officers, agents or employees, shall be allowed, the OWNER(S) shall pay all costs and expenses in connection therewith. The CITY will not indemnify, defend or hold harmless in any fashion the OWNER(S) from any claims arising from any failure, regardless of any language in any attachment or other document that the OWNER(S) may provide

10. The OWNER(S) shall not be able to transfer, assign or modify its responsibilities with respect to this agreement without the CITY's written prior consent. Nothing herein shall be construed to prohibit a transfer by OWNER(S) to subsequent owners and assigns.

11. No waiver of any provision of this AGREEMENT shall affect the right of any party thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any default.

12. The OWNER(S) shall record a plat showing and accurately defining the easements for stormwater control facilities. The plat must reference the Instrument Number where this AGREEMENT and its attachments are recorded and contain a note that the OWNER(S) is responsible for maintaining the stormwater management facilities.

13. The OWNER(S) shall record this AGREEMENT in the office of the Register of Deeds for the county of Maury, Tennessee, and the AGREEMENT shall constitute a covenant running with the land, and shall be binding upon the OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successors in interest

ATTEST BY OWNER(S):

Print Name: JEREMY BROOKS

Title: DIR. OF LAND

Signature: _____

Owner: PULTE HOMES TENNESSEE LIMITED PARTNERSHIP

Address: 100 WESTWOOD PLACE, SUITE 100

City, State ZIP: BRENTWOOD, TN 37027

STATE OF Tennessee
COUNTY OF Williamson

Before me, Kimberly Maynard of the state and county mentioned, personally appeared Jeremy Brooks, with whom I am personally acquainted and who acknowledged that he/she executed the foregoing instrument of the purposes therein contained.

Witness my hand this the 21st day of August, 2023.

Kimberly Maynard
Notary Public

My Commission Expires: 9-8-2025

KIMBERLY MAYNARD
STATE OF TENNESSEE NOTARY PUBLIC
DAVIDSON COUNTY
MY COMMISSION EXPIRES 9-8-2025

CITY OF COLUMBIA, TENNESSEE
ENGINEERING DEPARTMENT

APPROVED BY :_____

STATE OF TENNESSEE
COUNTY OF MAURY

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted, and who acknowledged themselves to be the City Engineer of the City of Columbia or his designee and as such, being authorized so to do, executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20_____.

_____
Notary Public
My Commission Expires:_____

PER ITEM 1 OF THIS AGREEMENT:

A post construction long term maintenance plan shall be recorded with this agreement.

The plan shall include a reduced grading and drainage sheet, location map, and deed of easement drawing or plat.

REMOVE THIS SHEET

REPLACE WITH THE REQUIREMENTS LISTED ABOVE.

T-SQUAREENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

1329 West Main Street
Franklin, TN 37064
615.678.8212

www.T2-eng.com

7/17/2023

City of Columbia
Development Services
700 N. Garden Street
Columbia, TN 38401

POST CONSTRUCTION LONG TERM MAINTENANCE PLAN
PROJECT NAME: INDEPENDENCE AT CARTER'S STATION, SECTION 3, PHASE 5

SYSTEM DESCRIPTION:

The site consists of stormwater conveyances through piped channel and detention ponds.

- There is one (1) pond in Section 3, Phase 5 that is sized to detain the 100-year peak event.
- 403 LF of round concrete pipe and 4 storms inlets.

Upon completion of the site construction, 'Record Drawings' in a version not less than AutoCAD 2006 LT (NAD83, NAVD88) of the stormwater controls will be provided to the City of Columbia for verification.

A copy of the INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES that has been completed, notarized and recorded in the Land Records of the County of Maury, Tennessee will be kept on site with this document.

MAINTENANCE PROCEDURES

1. STORMWATER DETENTION PONDS
    a. The outlet structure shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.

    b. Check banks and bottom surface of basin for erosion and correct as necessary.

    c. Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitoes.

    d. This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.

e. Pond vegetation needs to be trimmed or harvested as appropriate, grassy areas frequently mowed. Grass should be mowed so that it does not get over 12 inches.

f. Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.

g. Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.

h. Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.

2. 403 LF OF RCP AND 4 STORM DRAINS
   - These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.

CONSTRUCTION DRAWINGS
FOR
SECTION 3, PHASE 5
INDEPENDENCE AT CARTER'S STATION
3040 CLEBURNE ROAD
COLUMBIA, TN 37174
CITY OF COLUMBIA, WARD #5

DEVELOPER: PULTE GROUP
370 MALLORY STATION ROAD, STE 500
FRANKLIN, TN 37067

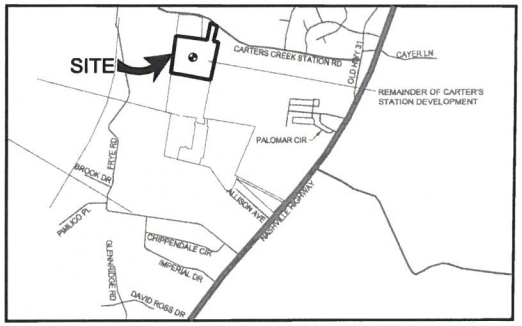
ENGINEER: T-SQUARE ENGINEERING
701 WEST MAIN STREET
FRANKLIN, TN 37064
615-678-8212

SURVEYOR: H&H LAND SURVEYING
612A FITZHUGH BLVD
SMYRNA, TN 37167
615-831-0756

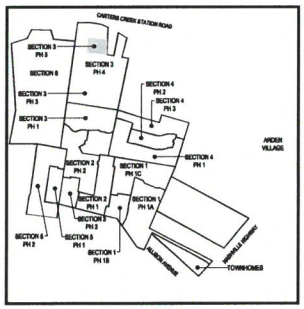
T-SQUARE ENGINEERING AND ITS ASSOCIATES WILL NOT BE HELD RESPONSIBLE FOR ITS ACCURACY OR FOR DESIGN ERRORS OR EMISSIONS RESULTING FROM POTENTIAL SURVEY INACCURACIES.

WATER UTILITY: CPWS Shane Andrews
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833

POWER UTILITY: CPWS Doug Burgess
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833



SITE VICINITY MAP



KEY MAP

Sheet Schedule

C-0.0	Cover Sheet
C-1.0	Overall Existing Conditions
C-1.1	Existing Conditions
C-2.0	Overall Site Plan
C-2.1	Site Plan
C-3.0	Initial Erosion Control Plan
C-3.1	Temporary Erosion Control Plan
C-3.2	Permanent Erosion Control Plan
C-4.0	Pre-Development Conditions
C-4.1	Post Development Conditions
C-5.0	Grading Plan
C-5.1	Drainage Plan
C-5.2	Inlet Areas
C-6.0	Ellie Court Plan and Profile
C-7.0	Utility Plan
C-8.0	Detail Sheet
C-8.1	Detail Sheet
C-8.2	Detail Sheet
C-8.3	Detail Sheet
C-8.4	Detail Sheet

Permits
TDEC: TNR182340 (ACTIVE)

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP, PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0118GE, REVISED 16 APRIL 2017.

OWNER OF RECORD
FP TCI CCS, LLC
DEED BK. R2403 PG. 319, MAP 42 PARCEL 34.00

APPLICANT
T-SQUARE ENGINEERING
701 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

NO.	DATE	REVISIONS
1	1-16-23	WATER REVISIONS PER CPWS
2	1-26-23	GRADING REVISIONS PER OWNER

DATE: 9-14-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

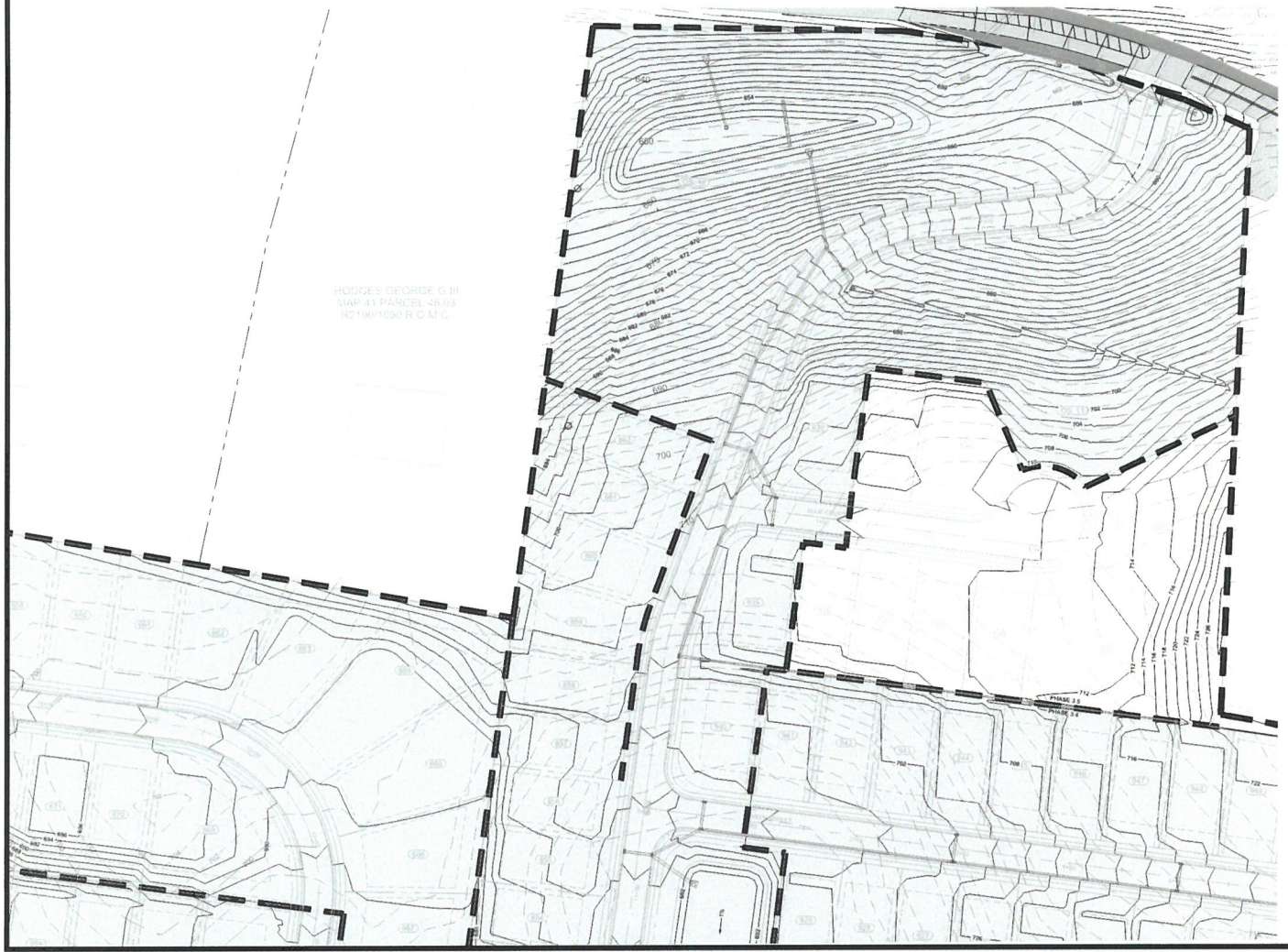
COVER SHEET
CARTER'S STATION
SECTION 3, PHASE 5
MAURY COUNTY, COLUMBIA TENNESSEE

INDEPENDENCE AT CARTER'S STATION

TIMOTHY E. TURNER REGISTERED ENGINEER 101773 STATE OF TENNESSEE
2/8/23

PROJECT
18-0530

SHEET
C-0.0

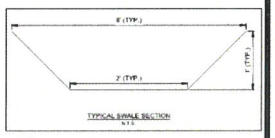


GRAPHIC SCALE
(IN FEET)
Scale: 1" = 50'

KEY MAP
N.T.S.

LEGEND

- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED STORM INLET
- PROPOSED STORM HEADWALL
- PROPOSED SPOT ELEVATION
- PROPOSED SLOPE GRADE



TYPICAL SWALE SECTION
N.T.S.

NOTE:
1. LOT 93'S BUILDING PAD IS LIMITED TO 73'

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP, PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0118DE, REVISED 16 APRIL 2017.

OWNER OF RECORD
FP TCI CCB, LLC DEED BK. R2403 PG. 319, MAP 42 PARCEL 34.00
APPLICANT
T-SQUARE ENGINEERING 701 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

REVISIONS

NO.	DATE	
1	1-16-23	WATER REVISIONS PER CPWS
2	1-26-23	GRADING REVISIONS PER OWNER

DATE: 9-14-22
SCALE: AS SHOWN
DRAWN BY: TSQUARE
REVIEWER: TET

GRADING PLAN

CARTER'S STATION
SECTION 3, PHASE 5
MAURY COUNTY, COLUMBIA TENNESSEE

INDEPENDENCE AT CARTER'S STATION

TIMOTHY E. TURNER
REGISTERED ENGINEER
STATE OF TENNESSEE
2/8/23

PROJECT
18-0530

SHEET
C-5.0

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T-SQUARE ENGINEERING 701 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

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2	1-26-23	GRADING REVISIONS PER OWNER

DATE: 9-14-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

INDEPENDENCE AT CARTER'S STATION

DRAINAGE PLAN

CARTER'S STATION
SECTION 3, PHASE 5
MAURY COUNTY, COLUMBIA TENNESSEE

TIMOTHY E. TURNER
REGISTERED ENGINEER
101711
STATE OF TENNESSEE

2/8/23

PROJECT
18-0530

SHEET
C-5.1

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

INDEPENDENCE AT CARTER'S STATION

INLET AREA PLAN

CARTER'S STATION
SECTION 3, PHASE 5
MAURY COUNTY, COLUMBIA TENNESSEE

NO.	DATE	REVISIONS
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2	1-26-23	GRADING REVISIONS PER OWNER

DATE: 9-14-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

TIMOTHY E. TURNER
REGISTERED ENGINEER
STATE OF TENNESSEE
2/8/23

PROJECT
18-0530

SHEET
C-5.2

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

T-SQUARE ENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

1329 West Main Street
Franklin, TN 37064
615.678.8212

www.T2-eng.com

7/17/2023

City of Columbia
Development Services
700 N. Garden Street
Columbia, TN 38401

POST CONSTRUCTION LONG TERM MAINTENANCE PLAN
PROJECT NAME: INDEPENDENCE AT CARTER'S STATION, SECTION 3, PHASE 5

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CONSTRUCTION DRAWINGS
FOR
SECTION 3, PHASE 5
INDEPENDENCE AT CARTER'S STATION
3040 CLEBURNE ROAD
COLUMBIA, TN 37174
CITY OF COLUMBIA, WARD #5

DEVELOPER: PULTE GROUP
370 MALLORY STATION ROAD, STE 500
FRANKLIN, TN 37067

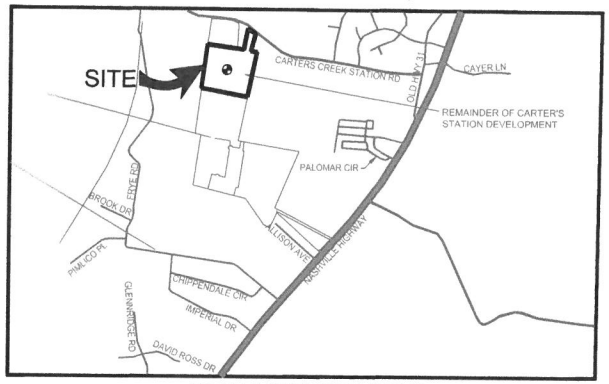
ENGINEER: T-SQUARE ENGINEERING
701 WEST MAIN STREET
FRANKLIN, TN 37064
615-678-8212

SURVEYOR: H&H LAND SURVEYING
612A FITZHUGH BLVD
SMYRNA, TN 37167
615-831-0756

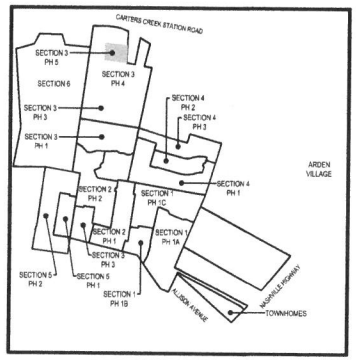
T-SQUARE ENGINEERING AND ITS ASSOCIATES WILL NOT BE HELD RESPONSIBLE FOR ITS ACCURACY OR FOR DESIGN ERRORS OR EMISSIONS RESULTING FROM POTENTIAL SURVEY INACCURACIES.

WATER UTILITY: CPWS
Shane Andrews
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833

POWER UTILITY: CPWS
Doug Burgess
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833



SITE VICINITY MAP



KEY MAP

Sheet Schedule

C-0.0	Cover Sheet
C-1.0	Overall Existing Conditions
C-1.1	Existing Conditions
C-2.0	Overall Site Plan
C-2.1	Site Plan
C-3.0	Initial Erosion Control Plan
C-3.1	Temporary Erosion Control Plan
C-3.2	Permanent Erosion Control Plan
C-4.0	Pre-Development Conditions
C-4.1	Post Development Conditions
C-5.0	Grading Plan
C-5.1	Drainage Plan
C-5.2	Inlet Areas
C-6.0	Ellie Court Plan and Profile
C-7.0	Utility Plan
C-8.0	Detail Sheet
C-8.1	Detail Sheet
C-8.2	Detail Sheet
C-8.3	Detail Sheet
C-8.4	Detail Sheet

Permits
TDEC: TNR182340 (ACTIVE)

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T-SQUAREENGINEER
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www

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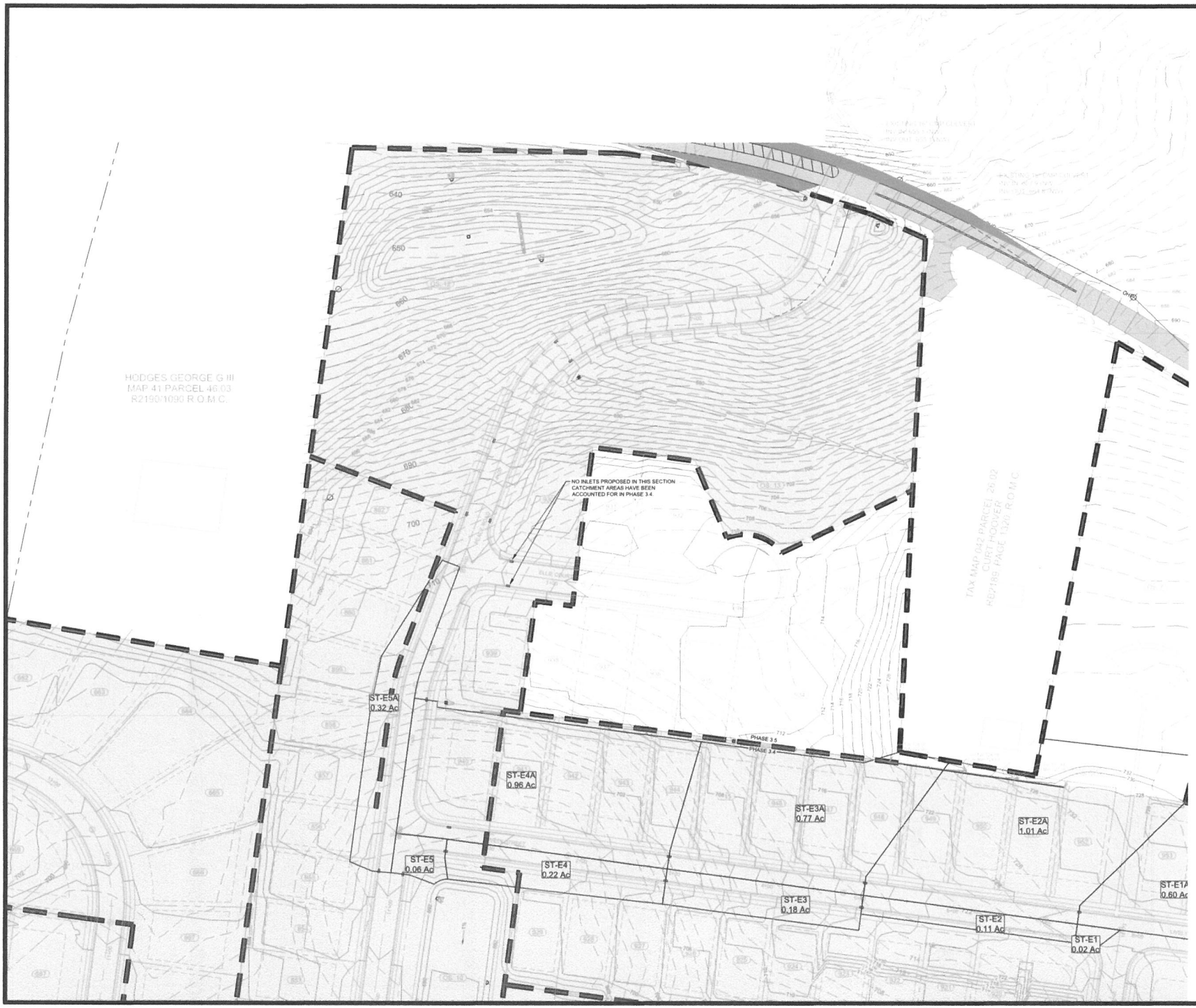

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T-SQUARE ENGINEER
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www

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CC:LB

DOCUMENT PREPARED BY:
Name: Allison Corolla
Company T-Square Engineering
Address: 1329 West Main Street
Franklin, TN
After recording return copy to City of Columbia, Development Services

INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES

Map & Parcel Number: Map 42, Parcel 34.00
Project Name: Independence at Carter's Station, Section 3.5

Recorded by deed in the Register of Deeds Office of Maury County in Deed Book R2878, Page(s) 971.

THIS AGREEMENT, made this _____ day of _____, 20____, by and between Pulte Homes of Tennessee Limited Partnership hereinafter referred to as the "OWNER(S)" of the following property and City of Columbia, Tennessee, hereinafter referred to as the "CITY",

WE, the OWNER(S), with full authority to execute deeds, mortgages, other covenants, all rights, titles, and interests in the property described above, do hereby covenant with the CITY and agree as follows:

1. The OWNER(S) covenant and agree with the CITY that the OWNER(S) shall provide for adequate long term maintenance and continuation of stormwater control measures described in the Long Term Maintenance Plan and shown on the location map, deed of easement drawing or plat attached hereto to ensure that the facilities, are and remain in proper working condition in accordance with approved design standards, rules and regulations, and applicable laws. The OWNER(S) shall perform preventative maintenance activities at intervals described in the schedule attached hereto along with necessary landscaping (grass cutting, etc.) and trash removal as part of regular maintenance.

2. The OWNER(S) shall perform routine inspections to ensure that all long term stormwater management facilities are properly functioning. These inspections shall be conducted on an annual basis, at a minimum. These inspections shall be conducted by a person familiar with control measures implemented at the site. The OWNER(S) or operators shall maintain documents of these inspections.

3. The OWNER(S) shall perform comprehensive inspections of all stormwater management facilities and practices. These inspections shall be conducted once every five years, at a minimum. Such inspections must be conducted by either a professional engineer or landscape architect.

4. The OWNER(S) shall grant to the CITY or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the facility within the CITY.

5. The OWNER(S) shall record and grant to the CITY the necessary easements and rights-of-way and maintain perpetual access from public rights-of-way to the facility for the CITY or its agent and contractor.

6. If, upon inspection, the CITY finds that the OWNER(S) has failed to properly maintain the facilities, the CITY may order the work performed within ten (10) days. In the event the work is not performed within the specified time, the ONWER(S) agrees to allow the CITY to enter the property and take whatever steps it deems necessary to maintain the stormwater control facilities. This provision shall not be construed to allow the CITY to erect any structure of a permanent nature on the PROPERTY without first obtaining written approval of the OWNER(S)

7. The CITY is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any obligation on the CITY. The OWNER(S) shall reimburse the CITY upon demand the costs incurred in the maintenance of the facilities.

8. If the OWNER(S) fails to pay the CITY for the above expensive after forty-five (45) days written notice, the OWNER(S) authorizes the CITY to collect said expenses from the OWNER(S) through appropriate legal action and the OWNER(S) shall be liable for the reasonable expenses of collection, court costs, and attorney fees.

9. The OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successor in interest shall indemnify and hold harmless the CITY and its officers, agents and employees for any and all damages, accidents, casualties, occurrences, claims or attorney's fees which might arise or be asserted, in whole or in part,

Rev. 1/17/2017

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By: .....

against the CITY from the construction, presence, existence, or maintenance of the stormwater control facilities subject to this AGREEMENT. In the event a claim is asserted against the CITY, its officers, agents or employees, the CITY shall notify OWNER(S) and the OWNER(S) shall defend at OWNER(S) expense any suit based on such claim. If any judgment or claims against the CITY, its officers, agents or employees, shall be allowed, the OWNER(S) shall pay all costs and expenses in connection therewith. The CITY will not indemnify, defend or hold harmless in any fashion the OWNER(S) from any claims arising from any failure, regardless of any language in any attachment or other document that the OWNER(S) may provide

10. The OWNER(S) shall not be able to transfer, assign or modify its responsibilities with respect to this agreement without the CITY's written prior consent. Nothing herein shall be construed to prohibit a transfer by OWNER(S) to subsequent owners and assigns.

11. No waiver of any provision of this AGREEMENT shall affect the right of any party thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any default.

12. The OWNER(S) shall record a plat showing and accurately defining the easements for stormwater control facilities. The plat must reference the Instrument Number where this AGREEMENT and its attachments are recorded and contain a note that the OWNER(S) is responsible for maintaining the stormwater management facilities.

13. The OWNER(S) shall record this AGREEMENT in the office of the Register of Deeds for the county of Maury, Tennessee, and the AGREEMENT shall constitute a covenant running with the land, and shall be binding upon the OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successors in interest

ATTEST BY OWNER(S):

Print Name JEREMY BROOKS

Title DIR. LAND

Signature _____

Owner PULTE HOMES of TENNESSEE LIMITED PARTNERSHIP

Address 100 WESTWOOD PL, SUITE 100

City, State ZIP BRENTWOOD, TN 37027

STATE OF Tennessee
COUNTY OF Williamson

Before me, Kimberly Maynord of the state and county mentioned, personally appeared Jeremy Brooks, with whom I am personally acquainted and who acknowledged that he/she executed the foregoing instrument of the purposes therein contained.

Witness my hand this the 14th day of July, 2023.

Kimberly Maynord
Notary Public

My Commission Expires: 9-8-2025

KIMBERLY MAYNORD
STATE OF TENNESSEE
NOTARY PUBLIC
DAVIDSON COUNTY
MY COMMISSION EXPIRES 9-8-2025

CITY OF COLUMBIA, TENNESSEE
ENGINEERING DEPARTMENT

APPROVED BY :_____

STATE OF TENNESSEE
COUNTY OF MAURY

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted, and who acknowledged themselves to be the City Engineer of the City of Columbia or his designee and as such, being authorized so to do, executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20_____.

_____
Notary Public
My Commission Expires:_____

Rev. 1/17/2017

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CC-2B

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

_____ day of _____, 20_____ ,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Pulte Homes of Tennessee Limited Partnership, the DEVELOPER (hereinafter the "DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal Planning Commission (hereinafter the "CMPC") on the

_____ day of _____, 20_____ ,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and common areas to be constructed within and to serve the PROJECT including but not be limited to roads, bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS"); and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost; and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council approval by resolution, and subject to the applicant's compliance with all requirements in this agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

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By: 23-0292

B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELEPOR's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

A. The Preliminary Plat has been approved by the CMPC;
B. The Construction Plans are approved by the CITY;
C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
D. The CITY shall have received an appropriately executed Development Agreement; and
E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

Independence at Carters Station Section 3.5

PROJECT

Completed by the Developer	*Completed by the City*
Pulte Homes of Tennessee Limited Partnership DEVELOPER NAME	
JEREMY BROOKS AUTHORIZED AGENT NAME	 CITY ENGINEER
 SIGNATURE	 SIGNATURE
07/14/2023 DATE	 DATE
100 Westwood Place, Suite 100 STREET	
Brentwood,TN,37027 CITY, STATE, ZIP	
615.992.9508 PHONE	
Jeremy.brooks@pultegroup.com EMAIL	
Attest	*Attest*
Kimberly Maynord ATTEST NAME	 ATTEST NAME
Kimberly Maynord ATTEST SIGNATURE	 ATTEST SIGNATURE
7/14/2023 DATE	 DATE

T-SQUAREENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

1329 West Main Street
Franklin, TN 37064
615.678.8212
www.T2-eng.com

Letter of Transmittal

City of Columbia
700 North Garden Street
Columbia, TN 38401

Project No.	**18-0530**	**Date:**	**7/17/23**
Attention:	**Planning**		
Reference:	Independence at Carters Station Phase 3.5		
Phase 3.5 Final Plat			

WE ARE SENDING YOU ☒ **Attached** ☐ **Under separate cover via** _____ **the following items**

☐ **Shop Drawings** ☐ **Prints** ☐ **Plans** ☐ **Samples** ☐ **Specifications**

☐ **Copy of letter** ☐ **Change Order** ☐ **Applications** ☐ _____

Copies	Date	No.	Description
1	7/17/23		Final Plat Application
1	7/17/23		Review Fee
1	7/17/23		Final Plat
1	7/17/23		Digital Copy
1	7/17/23		Hydrant Analysis
1	7/17/23		Development Agreement
1	7/17/23		Stormwater Maintenance Agreement
1	7/17/23		Surety Calculator
1	7/17/23		Transmittal Letter

THESE ARE TRANSMITTED as checked below:

☒ **For Approval** ☐ **For review and comment**
☐ **For your use** ☐
☐ As requested ☐

REMARKS: Please contact Allison Corolla at T-Square Engineering with comments – 615.678.8212 / Allison.Corolla@T2-Eng.com. Thank you.

COPY TO _____ **SIGNED** Allison Corolla, EI

☐ ***Received by:*** _____ _____
Date

1329 West Main, Franklin TN 37064
615-678-8212

RECEIVED
JUL 17 2023
By: 23-0292

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	Independence at Carter's Station, Columbia, TN		
	TAX MAP: 42	GROUP:	PARCEL: 34.00
SUMMARY OF NATURE OF REQUEST AND WORK	This application is to approve the final plat for section 3.5 Independence at Carter's Station.		

DATE OF PRE-APPLICATION CONFERENCE		*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
❑ Annexation ❑ Rezoning ❑ Preliminary Plat ☑ Final Plat ❑ PUD Preliminary Master Plan ❑ PUD Final Site Plan ❑ Multi-Family Site Plan ❑ Other: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ❑ Written Legal Description copy ❑ Requested Zone Listed ❑ Compliance with Comprehensive Plan ❑ Annexation Permission Form ❑ Plans and/or Plats conforming to City standards with check list completed ❑ Columbia Water System Availability Letter **Plats/PUDs:** ☑ Project Name (include Sections & Phases) Independence at Carter's Station, Section 3.5 ☑ Total Number of Lots 9 ☑ Total acreage 7.42

RECEIVED
JUL 17 2023
B... 23-0212

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	T-Square Engineering	PHONE	615.678.8212
ADDRESS	1329 West Main St., Franklin, TN 37064	EMAIL	Allison.Corolla@T2-Eng.com

PROPERTY OWNER NAME	Pulte Homes of Tennessee Limited Partnership	PHONE	615.992.9508
ADDRESS	100 Westwood Place, Suite #100 Brentwood, TN 37027	EMAIL	Jeremy.Brooks@PulteGroup.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Allison Corolla	Allison B. Corolla Digitally signed by Allison B. Corolla DN: C=US, E=Allison.Corolla@T2-Eng.com, O=T-Square Engineering, CN=Allison B. Corolla Reason: I have reviewed this document Date: 2023.07.07 12:36:56-05'00'	7/7/2023
APPLICANT NAME	APPLICANT SIGNATURE	DATE

PULTE HOMES TENNESSEE LIMITED PARTNERSHIP		07/14/2023
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	

Independence at Carter's Station Phase 6.4

Project #:	23-0293	Location:	Map 41 Parcel 46.11
Applicant:	T-Square Engineering	Case Type(s):	Final Plat
Staff Planner:	Robert Archibald, Planner II	Proposed Use:	Single Family Homes

PROJECT SUMMARY

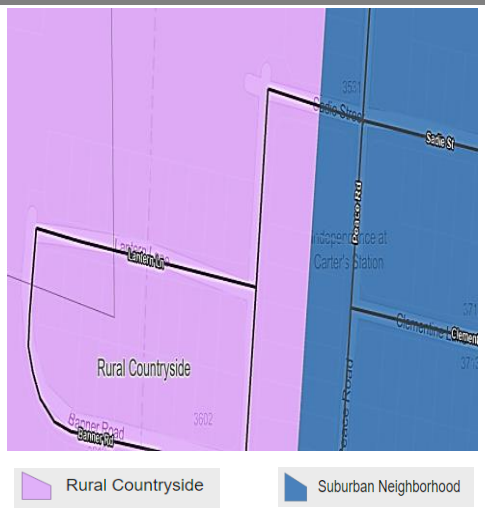
The applicant requests approval of a Final Plat to create 25 single-family home lots with accompanying infrastructure. The subdivision is part of a larger multiphase Planned Unit Development. The Planning Commission approved Preliminary Plat for the development in November, 13 2019 (19-0169). The previous approvals created a vested right to develop under the RS-10 PUD district standards of the previous Zoning Ordinance.

- The development is subject to Ordinance 3638, the pre-July 2022 zoning ordinance.
- The Final Plat conforms to the approved Preliminary Plat.
- The applicant has provided financial surety in the amount of $160,000 to guarantee completion of infrastructure.
- The applicant has executed a development agreement in the format prescribed by Appendix B of the Subdivision Regulations.
- The applicant will record a stormwater maintenance agreement prior to recordation of the Final Plat.
- The DRC reviewed this proposal at its August 2023 meeting. Staff review included standard comments and requests for technical corrections. Full technical comments are provided in the agenda packet.
- The Planning Commission is the **Decision-Making Authority** for the Final Plat.
- Templates are provided at the end of the report to assist the Planning Commission in crafting properly formatted motions.

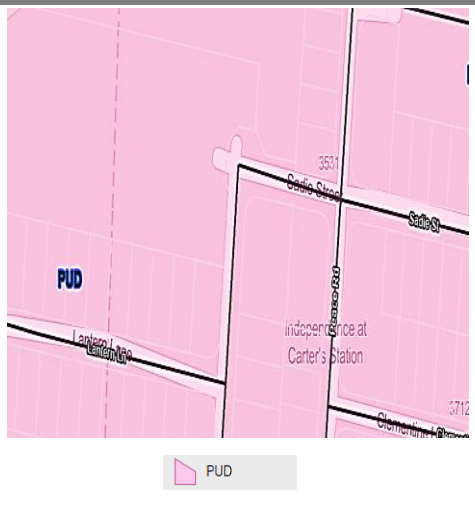
SITE INFORMATION

CURRENT ZONING	EXISTING USE	EXISTING IMP.	LAND AREA
PUD (RS-10)	In Development	Infrastructure for Development	+/- 9.89Acres

FUTURE LAND USE MAP



ZONING MAP



SITE CONTEXT/ADJACENT PROPERTIES			
	Future Land Use	Zoning	Current Use
Subject Property	Rural Countryside	PUD	Vacant/Developing
North	Rural Countryside	PUD	Vacant/Developing
South	Rural Countryside	PUD	Vacant/Developing
East	Suburban Neighborhood	PUD	Vacant/Developing
West	Rural Countryside	Outside Jurisdiction	Vacant

The subject site is part of the larger multiphase development. The property is bounded on the north, east and south by developing properties, vacant land, and single-family residential dwellings. The Planning Commission approved a Preliminary Plat (19-0169) for development of 251 lots on the site in November of 2019.

CONFORMITY WITH ZONING ORDINANCE

The Final Plat conforms to the PUD Master Plan, the modified RS-10 standards of the applicable zoning ordinance (3638), the Subdivision Regulations, and the approved Preliminary Plat.

- The proposed structures conform to the setbacks and other bulk standards of the Master Plan.
- The PUD include architectural standards. Conformity with these and other applicable zoning standards will be confirmed at the time of building permit.

REVIEW PROCESS

The Development Review Committee evaluated the proposed Final Plat at its August 2023 meeting, as directed by section **8.3.7** of the Zoning Ordinance. Technical comments are provided in the agenda package and summarized above.

Section **8.5.24** of the Zoning Ordinance directs the Planning Commission to review Subdivision Plats for conformity with the standards of the Ordinance and the City Subdivision Regulations. The Ordinance indicates that all Preliminary and Final Plats must be prepared, submitted, reviewed and acted upon in accordance with the Subdivision Regulations.

The Planning Commission is the Decision-Making Authority for Final Plats under **§ 8.3.3.B.1** of the Zoning Ordinance and **§ 2.3** of the Subdivision Regulations.

Section **2.3.6** of the Subdivision Regulations establishes the review criteria for approval of Final Plats.

> *A. Recommendations and final action on a Final Plat shall be based on consideration of the following criteria:*
>
> > *1. Whether the proposed Final Plat complies with the applicable zoning district and overlay districts;*
> >
> > *2. Whether the proposed Final Plat is consistent with all standards of these Subdivision Regulations and other related codes and ordinances enforced by the City; and*

3. Whether the proposed Final Plat meets all the requirements or conditions of any applicable development approvals, such as development plans or associated modification of standards.

B. Final Plat approval shall be subject to the completion of required improvements, or in lieu, the CMPC may approve a Performance Agreement.

In the event of a denial, **§ 2.3.5** of the Subdivision Regulations requires the Planning Commission to identify the specific parts of applicable plans and regulations with which the plat does not comply.

SAMPLE MOTIONS

Approve:

Move to approve the Final Plat as presented and find that the plat conforms to the applicable zoning ordinance, the Subdivision Regulations, and the Preliminary Plat [subject to remaining technical comments from staff].

Approve with Conditions:

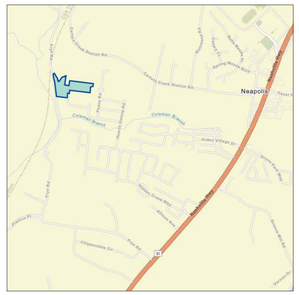
Move to approve the Final Plat as presented and find that the plat conforms to the applicable zoning ordinance, the Subdivision Regulations, and the Preliminary Plat, subject to the following conditions: [list conditions of approval crafted by Planning Commission].

Defer for Continued Review:

Move to find that there is insufficient information to make a decision, defer the application for continued review, and request that the applicant provide: [list additional information] for review at the next regularly scheduled meeting of the Planning Commission.

Deny:

Move to find that the Final Plat as presented does not conform to the applicable zoning ordinance, the Subdivision Regulations, or the approved Preliminary Plat, and deny the request due to [list specific deficiencies].



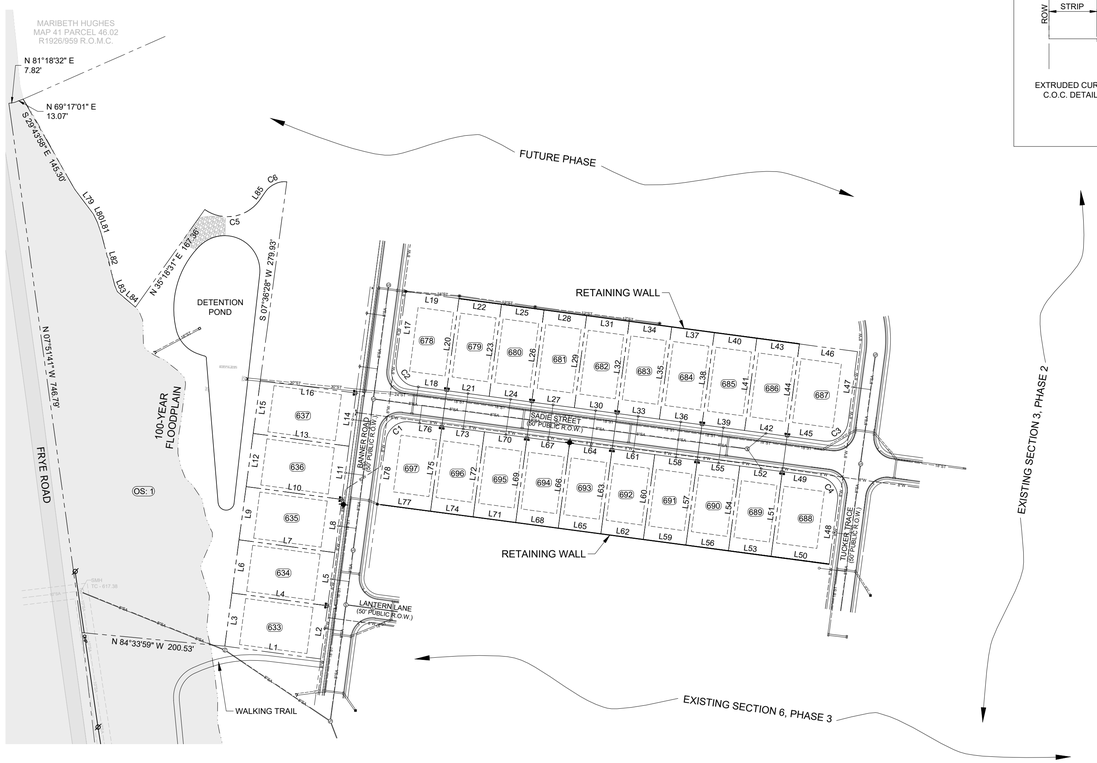
VICINITY MAP (NOT TO SCALE)

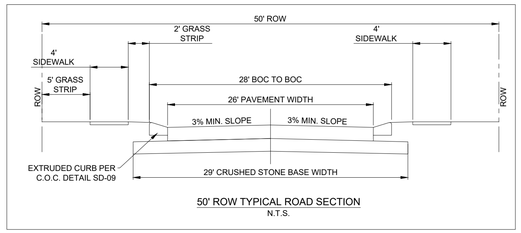
LOT	SQ. FT.
OS:1	166332.6
633	10125.0
634	10125.0
635	10125.0
636	10125.0
637	10125.0
678	9556.9
679	7800.0
680	7800.0
681	7800.0
682	7800.0
683	7800.0
684	7800.0
685	7800.0
686	7800.0
687	10447.9
688	9629.4
689	7200.0
690	7200.0
691	7200.0
692	7200.0
693	7200.0
694	7200.0
695	7200.0
696	7200.0
697	8806.9

LINE	BEARING	DISTANCE
L1	N 82°23'33" W	135.00'
L2	S 07°36'27" W	75.00'
L3	N 07°36'27" E	75.00'
L4	S 82°23'33" E	135.00'
L5	S 07°36'27" W	75.00'
L6	N 07°36'27" E	75.00'
L7	S 82°23'33" E	135.00'
L8	S 07°36'27" W	75.00'
L9	N 07°36'27" E	75.00'
L10	S 82°23'33" E	135.00'
L11	S 07°36'27" W	75.00'
L12	N 07°36'27" E	75.00'
L13	S 82°23'33" E	135.00'
L14	S 07°36'27" W	75.00'
L15	N 07°36'27" E	75.00'
L16	S 82°23'33" E	135.00'
L17	N 07°36'27" E	100.00'
L18	N 82°23'33" W	45.00'
L19	S 82°23'33" E	75.00'
L20	S 07°36'27" W	130.00'
L21	N 82°23'33" W	60.00'
L22	S 82°23'33" E	60.00'
L23	S 07°36'27" W	130.00'
L24	N 82°23'33" W	60.00'
L25	S 82°23'33" E	60.00'
L26	S 07°36'27" W	130.00'
L27	N 82°23'33" W	60.00'
L28	S 82°23'33" E	60.00'
L29	S 07°36'27" W	130.00'
L30	N 82°23'33" W	60.00'
L31	S 82°23'33" E	60.00'
L32	S 07°36'27" W	130.00'
L33	N 82°23'33" W	60.00'
L34	S 82°23'33" E	60.00'
L35	S 07°36'27" W	130.00'
L36	N 82°23'33" W	60.00'
L37	S 82°23'33" E	60.00'
L38	S 07°36'27" W	130.00'
L39	N 82°23'33" W	60.00'
L40	S 82°23'33" E	60.00'
L41	S 07°36'27" W	130.00'
L42	N 82°23'33" W	60.00'
L43	S 82°23'33" E	60.00'

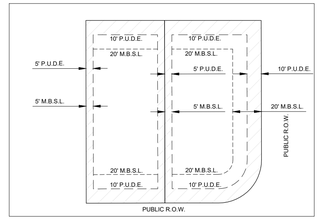
LINE	BEARING	DISTANCE
L44	S 07°36'27" W	130.00'
L45	N 82°23'33" W	51.85'
L46	S 82°23'32" E	81.85'
L47	S 07°36'27" W	100.00'
L48	S 07°36'27" W	90.00'
L49	S 82°23'33" E	51.85'
L50	N 82°23'33" W	81.85'
L51	N 07°36'27" E	120.00'
L52	S 82°23'33" E	60.00'
L53	N 82°23'33" W	60.00'
L54	N 07°36'27" E	120.00'
L55	S 82°23'33" E	60.00'
L56	N 82°23'33" W	60.00'
L57	N 07°36'27" E	120.00'
L58	S 82°23'33" E	60.00'
L59	N 82°23'33" W	60.00'
L60	N 07°36'27" E	120.00'
L61	S 82°23'33" E	60.00'
L62	N 82°23'33" W	60.00'
L63	N 07°36'27" E	120.00'
L64	S 82°23'33" E	60.00'
L65	N 82°23'33" W	60.00'
L66	N 07°36'27" E	120.00'
L67	S 82°23'33" E	60.00'
L68	N 82°23'33" W	60.00'
L69	N 07°36'27" E	120.00'
L70	S 82°23'33" E	60.00'
L71	N 82°23'33" W	60.00'
L72	N 07°36'27" E	120.00'
L73	S 82°23'33" E	60.00'
L74	N 82°23'33" W	60.00'
L75	N 07°36'27" E	120.00'
L76	S 82°23'33" E	45.00'
L77	N 82°23'33" W	75.00'
L78	N 07°36'27" E	90.00'
L79	S 37°15'23" E	43.15'
L80	S 25°39'31" E	12.70'
L81	S 18°56'19" E	16.95'
L82	S 14°34'03" E	74.54'
L83	S 22°47'54" E	9.64'
L84	S 49°21'52" E	33.40'
L85	N 35°08'43" E	15.80'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	30.00'	47.12'	42.43'	N 52°36'27" E
C2	30.00'	47.12'	42.43'	N 37°23'33" W
C3	30.00'	47.12'	42.43'	S 52°36'27" W
C4	30.00'	47.12'	42.43'	S 37°23'33" E
C5	55.03'	85.20'	76.94'	N 80°55'16" E
C6	33.41'	34.19'	32.72'	N 65°10'40" E





50' ROW TYPICAL ROAD SECTION
N.T.S.



TYPICAL LOT (NOT TO SCALE)

SITE DATA	
CURRENT ZONING:	RS-10 PUD
MINIMUM BUILDING SETBACKS:	
FRONT:	20'
REAR:	20'
SIDE:	5'
TOTAL PHASE AREA:	9.89 ACRES
NEW ROW:	1.26 ACRES
OPEN SPACE:	3.82 ACRES

- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- CATCH BASIN
- HEADWALL
- AREA DRAIN
- HDPE AREA DRAIN
- 8"W — WATER LINE (TYP.)
- 8"SA — SANITARY SEWER LINE (TYP.)
- 12"ST — STORMWATER LINE (TYP.)

GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE THIS PROPERTY INTO 25 LOTS AND 1 OPEN SPACE AND DEDICATE RIGHT-OF-WAY AND EASEMENTS.
2. THE PROPERTY SHOWN HEREON IS LOCATED WITHIN THE CITY OF COLUMBIA, MAURY COUNTY, TN. ALL MATTERS PERTAINING TO CONSTRUCTION, USE, LOCATION OF IMPROVEMENTS, SIGNAGE, PARKING, NOISE, VIBRATION, EMISSIONS, FIRE HAZARDS, RADIATION, ILLUMINATION, SETBACK PROVISIONS, ETC. ARE SUBJECT TO THE CITY OF COLUMBIA'S ZONING REGULATIONS AS INTERPRETED AND REGULATED BY THE DEPARTMENT OF DEVELOPMENT SERVICES.
3. SUBJECT PROPERTY IS PARCEL 046.11 AS SHOWN ON MAURY COUNTY TAX MAP 041.
4. DEED REFERENCE: RECORD BOOK R2844, PAGE 984, REGISTER'S OFFICE OF MAURY COUNTY, TN.
5. THE HORIZONTAL LOCATION DATA SHOWN ON THIS SURVEY WAS GATHERED USING STANDARD RADIAL SURVEYING TECHNIQUES WITH AN ELECTRONIC TOTAL STATION AND DATA COLLECTOR AND IS BASED UPON A POSITIONAL SOLUTION DERIVED FROM GLOBAL POSITIONING SYSTEM (GPS) OBSERVATIONS) USING THE TDOT NETWORK. TENNESSEE STATE PLANE COORDINATE SYSTEM ZONE 4100, NAD83. DRONE AERIAL PHOTOMETRY WAS ALSO USED TO SURVEY SOME ELEMENTS.
6. NO TITLE REPORT HAS BEEN FURNISHED, THEREFORE THIS SURVEY IS SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE SEARCH.
7. THE TOTAL AREA OF THE PHASE SURVEYED IS 9.89 +/- ACRES.
8. THE NEW RIGHT-OF-WAY DEDICATION AREA IS 1.26 +/- ACRES.
9. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONES "X" & "AE", AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47119C0180E WITH AN EFFECTIVE DATE OF 4/16/2007, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 119C, PANEL NO. 0180 SUFFIX E, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN, AND ZONE "AE" UNDER "SPECIAL FLOOD HAZARD AREAS" AS AREAS SUBJECT TO INUNDATION BY THE 1% CHANCE ANNUAL FLOOD.
10. THIS PROPERTY IS ZONED RS-10 PUD.
11. THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF A GENERAL PROPERTY SURVEY AND CONFORMS TO THE ACCURACY OF A CATEGORY 1 SURVEY AS CURRENTLY DEFINED AND ADOPTED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS, AND THE RATIO OF PRECISION IS AT LEAST 1:10,000.
12. ALL PLOT AND DEED RECORDATION REFERENCES SHOWN HEREON ARE AS RECORDED IN THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
13. THIS SURVEY HAS BEEN SIGNED AND SEALED DIGITALLY.
14. COLUMBIA POWER AND WATER SYSTEMS IS THE POWER PROVIDER.
15. STORM WATER MANAGEMENT OPERATION AND MAINTENANCE WILL BE GOVERNED BY THE INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORM WATER MANAGEMENT FACILITIES, DATED _____; RECORDED IN RECORD BOOK _____, PAGE _____, REGISTER'S OFFICE OF MAURY COUNTY, TN.
16. NO HVAC UNITS MAY ENCROACH ON THE P.U.D.E. AREAS SHOWN HEREON.

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS AND OTHER ADOPTED ORDINANCES AND POLICIES.

_____, 20____ _____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

_____, 20____ _____
DATE NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE WATER SYSTEM OUTLINED OR INDICATED ON THE FINAL SUBDIVISION PLAT ENTITLED "FINAL PLAT, CARTER'S STATION, SECTION 6, PHASE 4" HAS BEEN INSTALLED IN ACCORDANCE WITH CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS, OR A SUFFICIENT BOND OR SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

_____, 20____ _____
DATE SUPERINTENDENT OF COLUMBIA

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE AND UTILITIES DESIGNATED IN INDEPENDENCE AT CARTER'S STATION (SECTION 6, PHASE 4) HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR A PERFORMANCE SURETY IN THE AMOUNT OF $_____ FOR STREETS AND DRAINAGE HAS BEEN POSTED WITH THE CITY OF COLUMBIA TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

_____, 20____ _____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL OF SUBDIVISION AND STREET NAMES

SUBDIVISION NAME AND STREET NAMES ARE APPROVED BY THE CITY ENGINEERING DEPARTMENT AND MAURY COUNTY E911.

_____, 20____ _____
DATE MAURY E911

CERTIFICATE OF APPROVAL OF SEWER SYSTEM

I HEREBY CERTIFY THAT THE SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

_____, 20____ _____
DATE DIRECTOR OF COLUMBIA WASTEWATER DEPARTMENT

CERTIFICATE OF OWNERSHIP AND DEDICATION

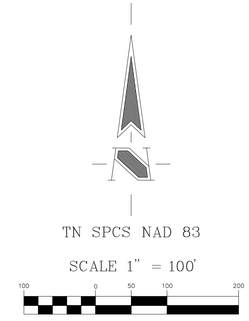
I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AS EVIDENCED IN IN BOOK R2844, PAGE 984, MAURY COUNTY REGISTER'S OFFICE, AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINE, AND THAT OFFERS OF IRREVOCABLE DEDICATION FOR ALL PUBLIC WAYS, UTILITIES AND OTHER FACILITIES HAVE BEEN FILED.

_____, 20____ _____
DATE OWNER

CERTIFICATE OF SURVEY ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON; THAT THIS IS A CATEGORY I LAND SURVEY AS DEFINED IN TITLE 62, CHAPTER 18, TENNESSEE CODE ANNOTATED, AND THAT THE RATIO OF PRECISION IS LESS THAN OR EQUAL TO 1:10,000.

_____, 20____ _____
DATE SURVEYOR



TN SPCS NAD 83

SCALE 1" = 100'

100 0 50 100 200

IF YOU DIG TENNESSEE...
CALL US FIRST!
1-800-351-1111
TENNESSEE ONE CALL
IT'S THE LAW

OWNER OF RECORD
PULTE HOMES TENNESSEE LIMITED PARTNERSHIP
DEED BK. R2844, PG. 984, MAP 041 PARCEL 046.11
APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

J. MARK CANTRELL
PROFESSIONAL LAND SURVEYOR
XVI
AGRICULTURE
COMMERCE
TENNESSEE NO. 1859

NO.	REVISIONS	DATE

DATE: 5-15-2023
SCALE: 1" = 100'
DRAWN BY: DSW
REVIEWER:

FINAL PLAT
CARTER'S STATION
SECTION 6, PHASE 4
COLUMBIA, MAURY COUNTY, TENNESSEE

INDEPENDENCE AT CARTER'S STATION

PROJECT
18-0530

SHEET
1 OF 1

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

P:\Projects\2018\18-0530 (Carters Station - Pulte Homes)\Independence Construction Plans\Phase 6.4\Production\18-0530 Independence 6.4 Final Plat.dwg, 8/18/2023 8:24:34 AM

T-SQUARE ENGINEERING
CIVIL-SITE TRAFFIC WASTEWATER

1329 West Main Street
Franklin, TN 37064
615.678.8212

August 21st, 2023
City of Columbia
Comment Response Letter – Final Plat – Independence at Carters Station Section 6.4
Project Number – 18-0530
Project Name – Independence at Carters Station Section 6.4

Engineering

1. LOC in the amount of $160,000 provided.
2. Install asphalt binder and curbing by August 21st.
   Complete.

Maury County Schools

3. Spring Hill Elementary, Spring Hill Middle School, Spring Hill High School. See Attached Capacity Numbers. The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.
   Acknowledged.

Fire

4. No comments

Planning

5. Please have the PLS sign the Final Plat per 2.3.3.B of the Subdivision Regulations (p. 17).
   Surveyor has signed the hard copy. Surveyor will sign all copies provided for recording.
6. The PUDE and the side setback are both 5'. Please add a note that HVAC condensers and other equipment are not permitted in the PUDE. Encroachments permitted by 6.2.9.D.2.C of the applicable zoning ordinance (3638) will not apply.
   This note is included as note 16.

Building

7. No comments.

Police

8. No comments provided.

Columbia Power

9. Columbia Power System has an existing power line near your proposed development.
   We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
   • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.
   Acknowledged.

ATT

10. ATT intends to serve.

Wastewater

11. The service for lot 686 should not have a bend in it.
    Service has been revised.

Duck River Electric Membership Corp

12. No comments provided.

Maury County Highway Dept.

13. No comments provided.

Columbia Water

14. Verify that all water infrastructure on the plat conforms to as-built conditions. Conduct pressure test, flushing, complete bacteria testing and deed infrastructure to CPWS. Water system must be active for recording of the final plat.
    Acknowledged.

Public Works

15. No comments.

Atmos Energy

16. No comments provided.

Maury County E911

17. No comment.

CPWS Broadband

18. Plan to serve.

CITY OF COLUMBIA
TENNESSEE

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, August 8, 2023

ITEM NO.
23-0293

DESCRIPTION: Final Plat Section 6.4

RECOMMENDATION: For final recommendation please see staff report.

COMMENTS:

Engineering

1. LOC in the amount of $160,000 provided
2. Install asphalt binder and curbing by August 21st

Maury County Schools

3. Spring Hill Elementary, Spring Hill Middle School, Spring Hill High School
   The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students
   See Attached Capacity Numbers

Fire

4. No comments

Planning

5. Please have the PLS sign the Final Plat per 2.3.3.B of the Subdivision Regulations (p. 17).
6. The PUDE and the side setback are both 5'. Please add a note that HVAC condensers and other equipment are not permitted in the PUDE. Encroachments permitted by 6.2.9.D.2.C of the applicable zoning ordinance (3638) will not apply.

Building

7. No comment.

Police

8. No comment.

Columbia Power

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Columbia Power System has an existing power line near your proposed development. We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.

- Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

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10. ATT intends to serve.

Wastewater

11. The service for lot 686 should not have a bend in it.

Duck River Electric Membership Corp

12. No comments provided.

Maury County Highway Dept.

13. No comments provided.

Columbia Water

14. "Verify that all water infrastructure on the plat conforms to as-built conditions. Conduct pressure test, flushing, complete bacteria testing and deed infrastructure to CPWS. Water system must be active for recording of the final plat."

Public Works

15. No comments.

Atmos Energy

16. No comments.

Maury County E911

17. No comments.

CPWS Broadband

18. Plan to Serve

ATTACHMENTS: Final Plat

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

CITY OF COLUMBIA
TENNESSEE

ITEM # I 8.

DEVELOPMENT REVIEW COMMITTEE COMMENT FORM

August 8, 2023

NAME OR DEPARTMENT: Maury County Public Schools

Case Number: 23-0293

Request from T-Square Engineering for final plat approval with surety for Independence at Carter's Station Section 6.4 consisting of 25 lots off Sadie Street.

COMMENTS:

Spring Hill Elementary, Spring Hill Middle Scool, Spring Hill High School

The development combined with current neighborhoods and additional approved

developments in these zones may require either new construction or realignment

of school zones to accomodate new students

See Attached Capacity Numbers

Current Enrollment / Capacity

	Facility Name	Date Constructed	Sq. Ft.	Acreage	Capacity	Current Enrollment	Capacity Used
Elementary	Baker	1960	43,920	12	340	291	85.6%
	Battle Creek	2019	90,000	30	700	642	91.7%
	Brown	1968	56,720	20	405	316	78.0%
	Highland	1986	47,800	4.5	380	259	68.2%
	Howell	1999	81,600	17.5	700	606	86.6%
	Mt. Pleasant	1978	80,021	22	630	505	80.2%
	Riverside	1984	71,150	14	500	377	75.4%
	Spring Hill	1984	69,000	10	540	432	80.0%
	Woodard	1990	76,200	17	600	542	90.3%
	Wright	2005	97,765	18	740	621	83.9%
					5535	***4591***	***82.9%***
Middle	Battle Creek	2019	125,000	45	900	742	82.4%
	Cox	1997	137,200	25	900	669	74.3%
	Mt. Pleasant	2001	113,938	29.2	550	413	75.1%
	Spring Hill	2010	158,106	39.49	950	554	58.3%
	Whitthorne	1979	175,600	17	1050	984	93.7%
					4350	***3362***	***77.3%***
High	Central	2016	296,740	55	1700	1503	88.4%
	Mt. Pleasant	1969	110,759	31	600	410	68.3%
	Spring Hill	1993	181,800	57	1200	1283	106.9%
					3500	***3196***	***91.3%***
Unit	Culleoka	1969	205,800	34	1020	908	89.0%
	Hampshire	1978	83,410	13.12	500	432	86.4%
	Santa Fe	1964	94,225	24	650	546	84.0%
					2170	***1886***	***86.9%***
Other	Central Office	1960	15,400	1.5			
	College Hill	1958	42,211	2.26		126	
	Maintenance	1987	9,400	4.7			
	McDowell		46,165	7			
			2,509,930	**550.27**	**15555**	**13161**	

Elementary Numbers are incomplete as K enrollment will grow over the month of August.

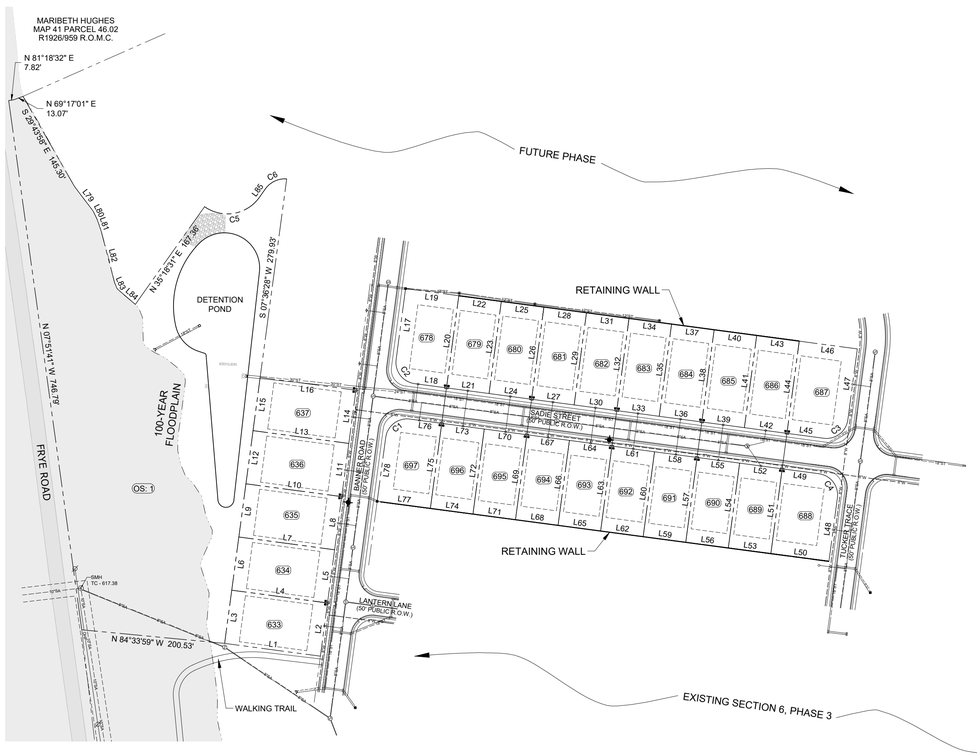
VICINITY MAP (NOT TO SCALE)

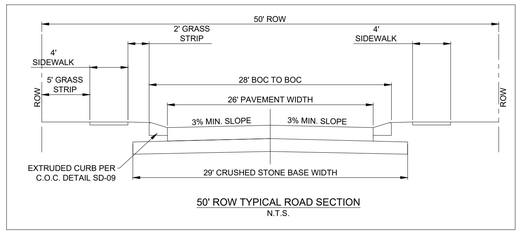
LOT	SQ. FT.
OS-1	166332.6
633	10125.0
634	10125.0
635	10125.0
636	10125.0
637	10125.0
678	9556.9
679	7800.0
680	7800.0
681	7800.0
682	7800.0
683	7800.0
684	7800.0
685	7800.0
686	7800.0
687	10447.9
688	9629.4
689	7200.0
690	7200.0
691	7200.0
692	7200.0
693	7200.0
694	7200.0
695	7200.0
696	7200.0
697	8806.9

LINE	BEARING	DISTANCE
L1	N 82°23'33" W	135.00'
L2	S 07°36'27" W	75.00'
L3	N 07°36'27" E	75.00'
L4	S 82°23'33" E	135.00'
L5	S 07°36'27" W	75.00'
L6	N 07°36'27" E	75.00'
L7	S 82°23'33" E	135.00'
L8	S 07°36'27" W	75.00'
L9	N 07°36'27" E	75.00'
L10	S 82°23'33" E	135.00'
L11	S 07°36'27" W	75.00'
L12	N 07°36'27" E	75.00'
L13	S 82°23'33" E	135.00'
L14	S 07°36'27" W	75.00'
L15	N 07°36'27" E	75.00'
L16	S 82°23'33" E	135.00'
L17	N 07°36'27" E	100.00'
L18	N 82°23'33" W	45.00'
L19	S 82°23'33" E	75.00'
L20	S 07°36'27" W	130.00'
L21	N 82°23'33" W	60.00'
L22	S 82°23'33" E	60.00'
L23	S 07°36'27" W	130.00'
L24	N 82°23'33" W	60.00'
L25	S 82°23'33" E	60.00'
L26	S 07°36'27" W	130.00'
L27	N 82°23'33" W	60.00'
L28	S 82°23'33" E	60.00'
L29	S 07°36'27" W	130.00'
L30	N 82°23'33" W	60.00'
L31	S 82°23'33" E	60.00'
L32	S 07°36'27" W	130.00'
L33	N 82°23'33" W	60.00'
L34	S 82°23'33" E	60.00'
L35	S 07°36'27" W	130.00'
L36	N 82°23'33" W	60.00'
L37	S 82°23'33" E	60.00'
L38	S 07°36'27" W	130.00'
L39	N 82°23'33" W	60.00'
L40	S 82°23'33" E	60.00'
L41	S 07°36'27" W	130.00'
L42	N 82°23'33" W	60.00'
L43	S 82°23'33" E	60.00'

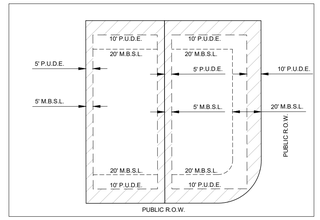
LINE	BEARING	DISTANCE
L44	S 07°36'27" W	130.00'
L45	N 82°23'33" W	51.85'
L46	S 82°23'32" E	81.85'
L47	S 07°36'27" W	100.00'
L48	S 07°36'27" W	90.00'
L49	S 82°23'33" E	51.85'
L50	N 82°23'33" W	81.85'
L51	N 07°36'27" E	120.00'
L52	S 82°23'33" E	60.00'
L53	N 82°23'33" W	60.00'
L54	N 07°36'27" E	120.00'
L55	S 82°23'33" E	60.00'
L56	N 82°23'33" W	60.00'
L57	N 07°36'27" E	120.00'
L58	S 82°23'33" E	60.00'
L59	N 82°23'33" W	60.00'
L60	N 07°36'27" E	120.00'
L61	S 82°23'33" E	60.00'
L62	N 82°23'33" W	60.00'
L63	N 07°36'27" E	120.00'
L64	S 82°23'33" E	60.00'
L65	N 82°23'33" W	60.00'
L66	N 07°36'27" E	120.00'
L67	S 82°23'33" E	60.00'
L68	N 82°23'33" W	60.00'
L69	N 07°36'27" E	120.00'
L70	S 82°23'33" E	60.00'
L71	N 82°23'33" W	60.00'
L72	N 07°36'27" E	120.00'
L73	S 82°23'33" E	60.00'
L74	N 82°23'33" W	60.00'
L75	N 07°36'27" E	120.00'
L76	S 82°23'33" E	45.00'
L77	N 82°23'33" W	75.00'
L78	N 07°36'27" E	90.00'
L79	S 37°15'23" E	43.15'
L80	S 25°39'31" E	12.70'
L81	S 18°56'19" E	16.95'
L82	S 14°34'03" E	74.54'
L83	S 22°47'54" E	9.64'
L84	S 49°21'52" E	33.40'
L85	N 35°08'43" E	15.80'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	30.00'	47.12'	42.43'	N 52°36'27" E
C2	30.00'	47.12'	42.43'	N 37°23'33" W
C3	30.00'	47.12'	42.43'	S 52°36'27" W
C4	30.00'	47.12'	42.43'	S 37°23'33" E
C5	55.03'	85.20'	76.94'	N 80°55'16" E
C6	33.41'	34.19'	32.72'	N 65°10'40" E





50' ROW TYPICAL ROAD SECTION
N.T.S.



TYPICAL LOT (NOT TO SCALE)

SITE DATA	
CURRENT ZONING:	RS-10 PUD
MINIMUM BUILDING SETBACKS:	
FRONT:	20'
REAR:	20'
SIDE:	5'
TOTAL PHASE AREA:	9.89 ACRES
NEW ROW:	1.26 ACRES
OPEN SPACE:	3.82 ACRES

- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- CATCH BASIN
- HEADWALL
- AREA DRAIN
- HDPE AREA DRAIN
- 8"W — WATER LINE (TYP.)
- 8"SA — SANITARY SEWER LINE (TYP.)
- 12"ST — STORMWATER LINE (TYP.)

GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO SUBDIVIDE THIS PROPERTY INTO 25 LOTS AND 1 OPEN SPACE AND DEDICATE RIGHT-OF-WAY AND EASEMENTS.
2. THE PROPERTY SHOWN HEREON IS LOCATED WITHIN THE CITY OF COLUMBIA, MAURY COUNTY, TN. ALL MATTERS PERTAINING TO CONSTRUCTION, USE, LOCATION OF IMPROVEMENTS, SIGNAGE, PARKING, NOISE, VIBRATION, EMISSIONS, FIRE HAZARDS, RADIATION, ILLUMINATION, SETBACK PROVISIONS, ETC. ARE SUBJECT TO THE CITY OF COLUMBIA'S ZONING REGULATIONS AS INTERPRETED AND REGULATED BY THE DEPARTMENT OF DEVELOPMENT SERVICES.
3. SUBJECT PROPERTY IS PARCEL 046.11 AS SHOWN ON MAURY COUNTY TAX MAP 041.
4. DEED REFERENCE: RECORD BOOK R2844, PAGE 984, REGISTER'S OFFICE OF MAURY COUNTY, TN.
5. THE HORIZONTAL LOCATION DATA SHOWN ON THIS SURVEY WAS GATHERED USING STANDARD RADIAL SURVEYING TECHNIQUES WITH AN ELECTRONIC TOTAL STATION AND DATA COLLECTOR AND IS BASED UPON A POSITIONAL SOLUTION DERIVED FROM GLOBAL POSITIONING SYSTEM (GPS) OBSERVATIONS) USING THE TDOT NETWORK. TENNESSEE STATE PLANE COORDINATE SYSTEM ZONE 4100, NAD83. DRONE AERIAL PHOTOMETRY WAS ALSO USED TO SURVEY SOME ELEMENTS.
6. NO TITLE REPORT HAS BEEN FURNISHED, THEREFORE THIS SURVEY IS SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE SEARCH.
7. THE TOTAL AREA OF THE PHASE SURVEYED IS 9.89 +/- ACRES.
8. THE NEW RIGHT-OF-WAY DEDICATION AREA IS 1.26 +/- ACRES.
9. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONES "X" & "AE", AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47119C0180E WITH AN EFFECTIVE DATE OF 4/16/2007, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 119C, PANEL NO. 0180 SUFFIX E, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN, AND ZONE "AE" UNDER "SPECIAL FLOOD HAZARD AREAS" AS AREAS SUBJECT TO INUNDATION BY THE 1% CHANCE ANNUAL FLOOD.
10. THIS PROPERTY IS ZONED RS-10 PUD.
11. THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF A GENERAL PROPERTY SURVEY AND CONFORMS TO THE ACCURACY OF A CATEGORY 1 SURVEY AS CURRENTLY DEFINED AND ADOPTED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS, AND THE RATIO OF PRECISION IS AT LEAST 1:10,000.
12. ALL PLOT AND DEED RECORDATION REFERENCES SHOWN HEREON ARE AS RECORDED IN THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
13. THIS SURVEY HAS BEEN SIGNED AND SEALED DIGITALLY.
14. COLUMBIA POWER AND WATER SYSTEMS IS THE POWER PROVIDER.
15. STORM WATER MANAGEMENT OPERATION AND MAINTENANCE WILL BE GOVERNED BY THE INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORM WATER MANAGEMENT FACILITIES, DATED _____, RECORDED IN RECORD BOOK _____, PAGE _____, REGISTER'S OFFICE OF MAURY COUNTY, TN.

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS AND OTHER ADOPTED ORDINANCES AND POLICIES.

_____, 20____ _____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE COLUMBIA SUBDIVISION REGULATIONS WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

_____, 20____ _____
DATE NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE WATER SYSTEM OUTLINED OR INDICATED ON THE FINAL SUBDIVISION PLAT ENTITLED "FINAL PLAT, CARTER'S STATION, SECTION 6, PHASE 4" HAS BEEN INSTALLED IN ACCORDANCE WITH CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS, OR A SUFFICIENT BOND OR SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

_____, 20____ _____
DATE SUPERINTENDENT OF COLUMBIA

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE AND UTILITIES DESIGNATED IN INDEPENDENCE AT CARTER'S STATION (SECTION 6, PHASE 4) HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR A PERFORMANCE SURETY IN THE AMOUNT OF $_____ FOR STREETS AND DRAINAGE HAS BEEN POSTED WITH THE CITY OF COLUMBIA TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

_____, 20____ _____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL OF SUBDIVISION AND STREET NAMES

SUBDIVISION NAME AND STREET NAMES ARE APPROVED BY THE CITY ENGINEERING DEPARTMENT AND MAURY COUNTY E911.

_____, 20____ _____
DATE MAURY E911

CERTIFICATE OF APPROVAL OF SEWER SYSTEM

I HEREBY CERTIFY THAT THE SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

_____, 20____ _____
DATE DIRECTOR OF COLUMBIA WASTEWATER DEPARTMENT

CERTIFICATE OF OWNERSHIP AND DEDICATION

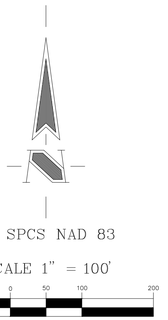
I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AS EVIDENCED IN IN BOOK R2844, PAGE 984, MAURY COUNTY REGISTER'S OFFICE, AND THAT I (WE) HEREBY ADOPT THIS PLAN OF SUBDIVISION WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING RESTRICTION LINE, AND THAT OFFERS OF IRREVOCABLE DEDICATION FOR ALL PUBLIC WAYS, UTILITIES AND OTHER FACILITIES HAVE BEEN FILED.

_____, 20____ _____
DATE OWNER

CERTIFICATE OF SURVEY ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON; THAT THIS IS A CATEGORY I LAND SURVEY AS DEFINED IN TITLE 62, CHAPTER 18, TENNESSEE CODE ANNOTATED, AND THAT THE RATIO OF PRECISION IS LESS THAN OR EQUAL TO 1:10,000.

_____, 20____ _____
DATE SURVEYOR



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J. MARK CANTRELL
PROFESSIONAL LAND SURVEYOR
XVI
AGRICULTURE
COMMERCE
TENNESSEE NO. 1859

NO.	REVISIONS	DATE

DATE: 5-15-2023
SCALE: 1" = 100'
DRAWN BY: DSW
REVIEWER:

FINAL PLAT
CARTER'S STATION
SECTION 6, PHASE 4
COLUMBIA, MAURY COUNTY, TENNESSEE

INDEPENDENCE AT CARTER'S STATION

PROJECT
18-0530

SHEET
1 OF 1

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

CPWS

HYDRANT FLOW ANALYSIS

idg INFLO DESIGN GROUP

HYDRANT # & LOCATION: [SEE MAP] Banner Road

DATE: 7/12/2022

MODEL BY: Inflo Design Group, LLC

SYS. DEMAND Max Day

DURATION: 1 hrs.

WATER SUPPLIED BY: Columbia Power and Water Systems

PURPOSE OF TEST: Independence Section 6.3

MODEL DATA

FLOW HYDRANT(S)

	[SEE MAP]	[P-0164]	n/a
GPM:	**854**	0	0

TOTAL FLOW DURING SIMULATION: **854** GPM

GAUGE HYDRANT

HYDRANT # & LOCATION: [SEE MAP] Tucker Trace

CONDITION 1

STATIC 81 PSI RESIDUAL: 47 PSI

CONDITION 2

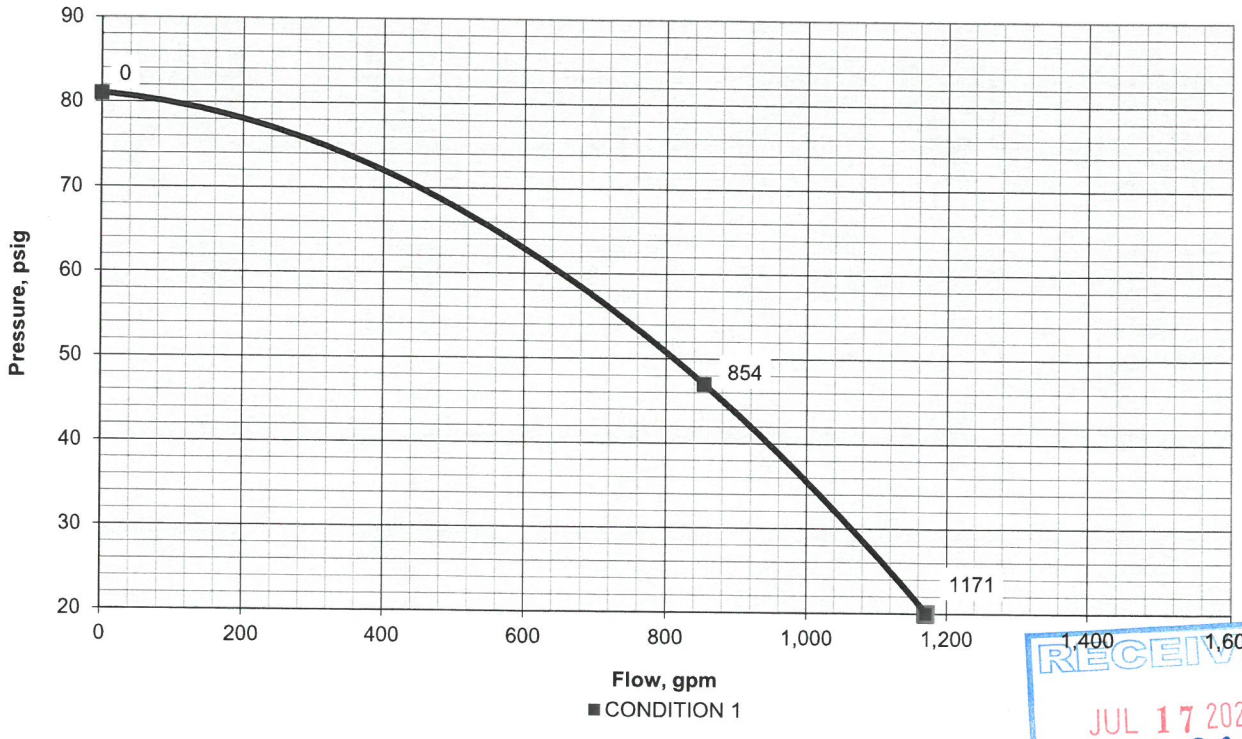
STATIC _____ PSI RESIDUAL: _____ PSI

RESULTS: AT 20 PSI RESIDUAL

CONDITION 1 **1171** GPM

CONDITION 2 **---** GPM

REMARKS: Performance based on service elevation of 683' and current CPWS water infrastructure.



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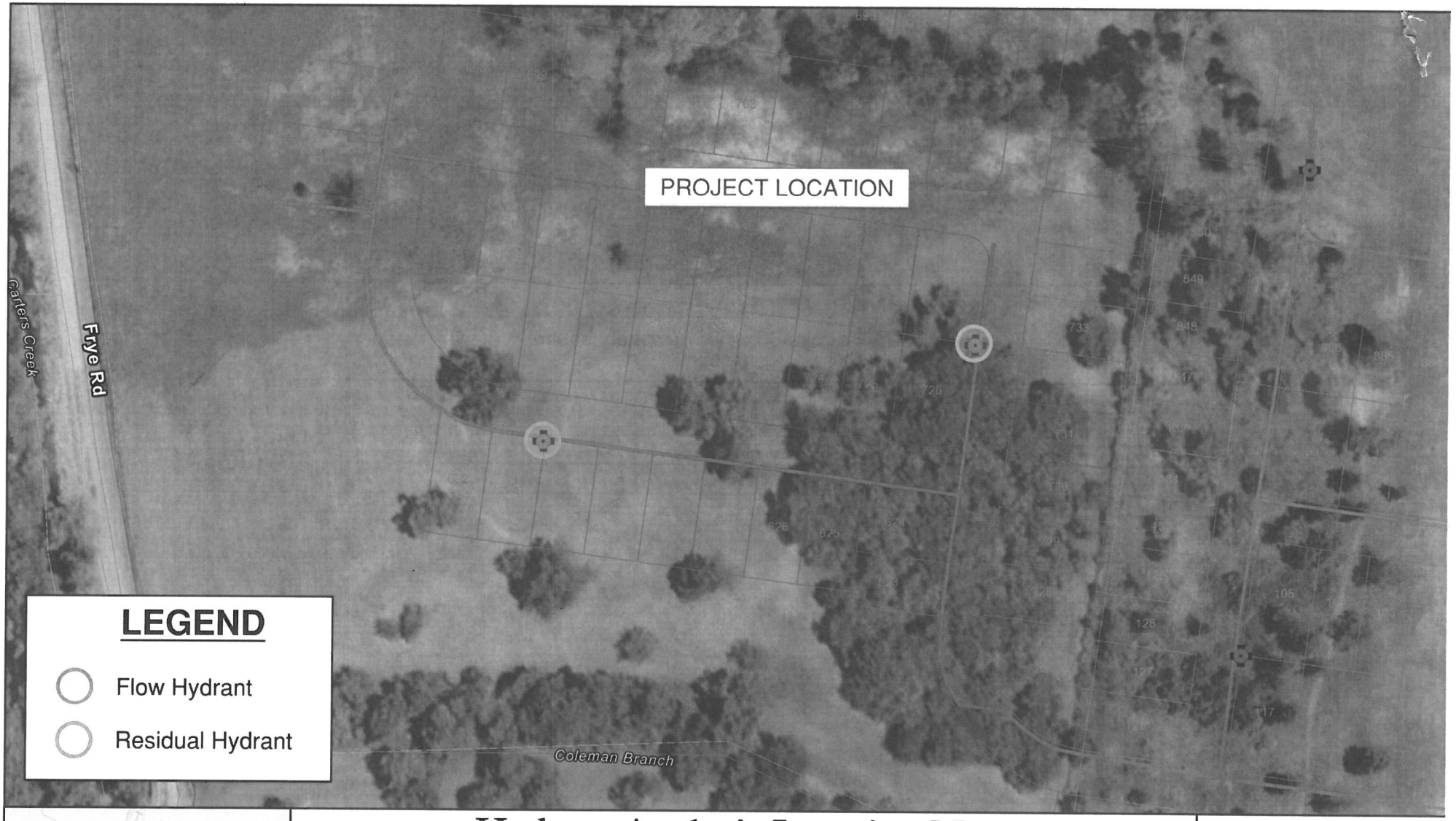
By: 23-0293



Hydrant Analysis Location Map

Independence at Carters Station - Section 6.3
Tax Map 41, Parcel 15.00

Esri Community Maps Contributors, Tennessee STS GIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Maxar, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

2022

Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

N

0 0.02 0.0

0 0.04

DOCUMENT PREPARED BY:
Name: Breanna Smith
Company T-Square Engineering

Address: 1329 West Main Street
Franklin, TN

After recording return copy to City of Columbia, Development Services

INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES

Map & Parcel Number: Map 41, Parcel 15.00
Project Name: Independence at Carter's Station, Section 6.4

Recorded by deed in the Register of Deeds Office of Maury County in Deed Book R2403, Page(s) 319.

THIS AGREEMENT, made this _____ day of _____, 20____, by and between _____ hereinafter referred to as the "OWNER(S)" of the following property and City of Columbia, Tennessee, hereinafter referred to as the "CITY",

WE, the OWNER(S), with full authority to execute deeds, mortgages, other covenants, all rights, titles, and interests in the property described above, do hereby covenant with the CITY and agree as follows:

1. The OWNER(S) covenant and agree with the CITY that the OWNER(S) shall provide for adequate long term maintenance and continuation of stormwater control measures described in the Long Term Maintenance Plan and shown on the location map, deed of easement drawing or plat attached hereto to ensure that the facilities, are and remain in proper working condition in accordance with approved design standards, rules and regulations, and applicable laws. The OWNER(S) shall perform preventative maintenance activities at intervals described in the schedule attached hereto along with necessary landscaping (grass cutting, etc.) and trash removal as part of regular maintenance.

2. The OWNER(S) shall perform routine inspections to ensure that all long term stormwater management facilities are properly functioning. These inspections shall be conducted on an annual basis, at a minimum. These inspections shall be conducted by a person familiar with control measures implemented at the site. The OWNER(S) or operators shall maintain documents of these inspections.

3. The OWNER(S) shall perform comprehensive inspections of all stormwater management facilities and practices. These inspections shall be conducted once every five years, at a minimum. Such inspections must be conducted by either a professional engineer or landscape architect.

4. The OWNER(S) shall grant to the CITY or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the facility within the CITY.

5. The OWNER(S) shall record and grant to the CITY the necessary easements and rights-of-way and maintain perpetual access from public rights-of-way to the facility for the CITY or its agent and contractor.

6. If, upon inspection, the CITY finds that the OWNER(S) has failed to properly maintain the facilities, the CITY may order the work performed within ten (10) days. In the event the work is not performed within the specified time, the ONWER(S) agrees to allow the CITY to enter the property and take whatever steps it deems necessary to maintain the stormwater control facilities. This provision shall not be construed to allow the CITY to erect any structure of a permanent nature on the PROPERTY without first obtaining written approval of the OWNER(S)

7. The CITY is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any obligation on the CITY. The OWNER(S) shall reimburse the CITY upon demand the costs incurred in the maintenance of the facilities.

8. If the OWNER(S) fails to pay the CITY for the above expensive after forty-five (45) days written notice, the OWNER(S) authorizes the CITY to collect said expenses from the OWNER(S) through appropriate legal action and the OWNER(S) shall be liable for the reasonable expenses of collection, court costs, and attorney fees.

9. The OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successor in interest shall indemnify and hold harmless the CITY and its officers, agents and employees for any and all damages, accidents, casualties, occurrences, claims or attorney's fees which might arise or be asserted, in whole or in part,

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AUG 21 2023
By: 23-0203

against the CITY from the construction, presence, existence, or maintenance of the stormwater control facilities subject to this AGREEMENT. In the event a claim is asserted against the CITY, its officers, agents or employees, the CITY shall notify OWNER(S) and the OWNER(S) shall defend at OWNER(S) expense any suit based on such claim. If any judgment or claims against the CITY, its officers, agents or employees, shall be allowed, the OWNER(S) shall pay all costs and expenses in connection therewith. The CITY will not indemnify, defend or hold harmless in any fashion the OWNER(S) from any claims arising from any failure, regardless of any language in any attachment or other document that the OWNER(S) may provide

10. The OWNER(S) shall not be able to transfer, assign or modify its responsibilities with respect to this agreement without the CITY's written prior consent. Nothing herein shall be construed to prohibit a transfer by OWNER(S) to subsequent owners and assigns.

11. No waiver of any provision of this AGREEMENT shall affect the right of any party thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any default.

12. The OWNER(S) shall record a plat showing and accurately defining the easements for stormwater control facilities. The plat must reference the Instrument Number where this AGREEMENT and its attachments are recorded and contain a note that the OWNER(S) is responsible for maintaining the stormwater management facilities.

13. The OWNER(S) shall record this AGREEMENT in the office of the Register of Deeds for the county of Maury, Tennessee, and the AGREEMENT shall constitute a covenant running with the land, and shall be binding upon the OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successors in interest

ATTEST BY OWNER(S):

Print Name Jeremy Brooks

Title Director of Land Planning and Entitlement

Signature _____

Owner Pulte Homes Tennessee Limited Partnership

Address 100 Westwood Place, Suite 100

City, State ZIP Brentwood, TN 37027

STATE OF Tennessee
COUNTY OF Williamson

Before me, Kimberly Maynord of the state and county mentioned, personally appeared Jeremy Brooks, with whom I am personally acquainted and who acknowledged that he/she executed the foregoing instrument of the purposes therein contained.

Witness my hand this the 17th day of July, 20 23.

Kimberly Maynord
Notary Public

My Commission Expires: 9-8-2025

KIMBERLY MAYNORD
STATE OF TENNESSEE NOTARY PUBLIC
DAVIDSON COUNTY
MY COMMISSION EXPIRES 9-8-2025

CITY OF COLUMBIA, TENNESSEE
ENGINEERING DEPARTMENT

APPROVED BY :_____

STATE OF TENNESSEE
COUNTY OF MAURY

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted, and who acknowledged themselves to be the City Engineer of the City of Columbia or his designee and as such, being authorized so to do, executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20_____.

_____
Notary Public
My Commission Expires:_____

T-SQUAREENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

701 West Main Street
Franklin, TN 37064
615.678.8212
www.T2-eng.com

5/08/2023

City of Columbia
Development Services
700 N. Garden Street
Columbia, TN 38401

POST CONSTRUCTION LONG TERM MAINTENANCE PLAN
PROJECT NAME: INDEPENDENCE AT CARTER'S STATION, SECTION 6, PHASE 4

SYSTEM DESCRIPTION:

The site consists of stormwater conveyances through piped channel and detention ponds.

- There is one (1) pond in Phase 4, section 6 that is sized to detain the 100-year peak event.
- 1,525 LF of round concrete pipe and 19 storms inlets.

Upon completion of the site construction, 'Record Drawings' in a version not less than AutoCAD 2006 LT (NAD83, NAVD88) of the stormwater controls will be provided to the City of Columbia for verification.

A copy of the INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES that has been completed, notarized and recorded in the Land Records of the County of Maury, Tennessee will be kept on site with this document.

MAINTENANCE PROCEDURES

1. STORMWATER DETENTION PONDS
    a. The outlet structure shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.

    b. Check banks and bottom surface of basin for erosion and correct as necessary.

    c. Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitoes.

    d. This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.

e. Pond vegetation needs to be trimmed or harvested as appropriate, grassy areas frequently mowed. Grass should be mowed so that it does not get over 12 inches.

f. Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.

g. Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.

h. Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.

2. 1,525 LF OF RCP AND 19 STORM DRAINS
   - These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.

CONSTRUCTION DRAWINGS
FOR
SECTION 6, PHASE 4
INDEPENDENCE AT CARTER'S STATION
3040 CLEBURNE ROAD
COLUMBIA, TN 37174
CITY OF COLUMBIA, WARD #5

DEVELOPER: PULTE GROUP
370 MALLORY STATION ROAD, STE 500
FRANKLIN, TN 37067

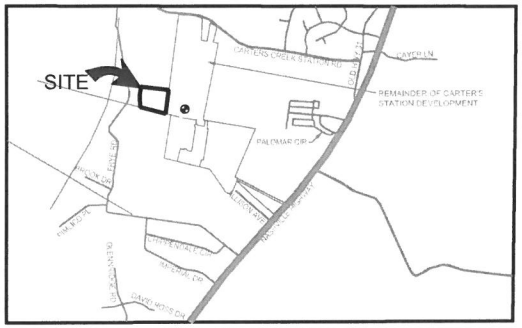
ENGINEER: T-SQUARE ENGINEERING
1329 WEST MAIN STREET
FRANKLIN, TN 37064
615-678-8212

SURVEYOR: H&H LAND SURVEYING
612A FITZHUGH BLVD
SMYRNA, TN 37167
615-831-0756

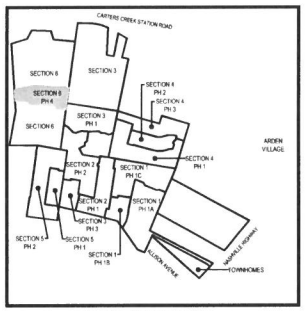
T-SQUARE ENGINEERING AND ITS ASSOCIATES WILL NOT BE HELD RESPONSIBLE FOR ITS ACCURACY OR FOR DESIGN ERRORS OR EMISSIONS RESULTING FROM POTENTIAL SURVEY INACCURACIES.

WATER UTILITY: CPWS Shane Andrews
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833

POWER UTILITY: CPWS Doug Burgess
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833



SITE VICINITY MAP



KEY MAP

Sheet Schedule

C-0.0	Cover Sheet
C-1.0	Existing Conditions
C-2.0	Overall Site Plan
C-2.1	Site Plan
C-3.0	Initial Erosion Control Plan
C-3.1	Temporary Erosion Control Plan
C-3.2	Permanent Erosion Control Plan
C-4.0	Pre Development Plan
C-4.1	Post Development Plan
C-5.0	Grading Plan
C-5.1	Drainage Plan
C-5.2	Inlet Areas
C-6.0	Tucker Trace Plan and Profile
C-6.1	Banner Road Plan and Profile
C-7.0	Utility Plan
C-7.1	Utility Plan Overview
C-8.0	Detail Sheet
C-8.1	Detail Sheet
C-8.2	Detail Sheet
C-8.3	Detail Sheet
C-8.4	Detail Sheet
C-8.5	Detail Sheet

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0118E, REVISED 16 APRIL 2017.

OWNER OF RECORD
FP TCI CCS, LLC DEED BK. R2403 PG. 319, MAP 41 PARCEL 15.00
APPLICANT
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

NO.	DATE	REVISIONS
1	5/17/22	CHANGES PER CITY OF COLUMBIA WASTEWATER
2	10/31/22	CHANGES PER CPWS

DATE: 5-11-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

COVER SHEET
CARTER'S STATION
SECTION 6, PHASE 4
MAURY COUNTY, COLUMBIA TENNESSEE

INDEPENDENCE AT CARTER'S STATION

TIMOTHY E. TURNER
REGISTERED 19715
STATE OF TENNESSEE
2/2/23

PROJECT
18-0530

SHEET
C-0.0

INDEPENDENCE AT CARTER'S STATION

GRADING PLAN

CARTER'S STATION
SECTION 6, PHASE 4
MAURY COUNTY, COLUMBIA TENNESSEE

REVISIONS		
CHANGES PER CITY OF COLUMBIA WASTEWATER	5/17/22	1
CHANGES PER CPWS	10/31/22	2

DATE: 5-11-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER:
TET

2/2/23

PROJECT 18-0530

SHEET C-5.0

GRAPHIC SCALE (IN FEET)
Scale: 1" = 50'

KEY MAP
N.T.S.

LEGEND
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED STORM INLET
- PROPOSED STORM HEADWALL
- PROPOSED SPOT ELEVATION
- PROPOSED SLOPE GRADE

TYPICAL SWALE SECTION
N.T.S.

NOTE:
1. BUILDERS SWALES TO BE INSTALLED BETWEEN LOTS.
2. SPOT NOTES THE ELEVATION OF THE HIGH SIDE OF THE DIRT PAD ON EACH LOT.
3. SPOT NOTES THE DIRT PAD ELEVATION FOR THE CURB SIDE OF THE LOT.

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP, PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) COMMUNITY PANEL NUMBER 47119C0215E, REVISED MARCH 16, 2017.

OWNER OF RECORD
FP TC, CCE, LLC
DEED BK. 924/3 PG. 319 MAP 41 PARCEL 15.00

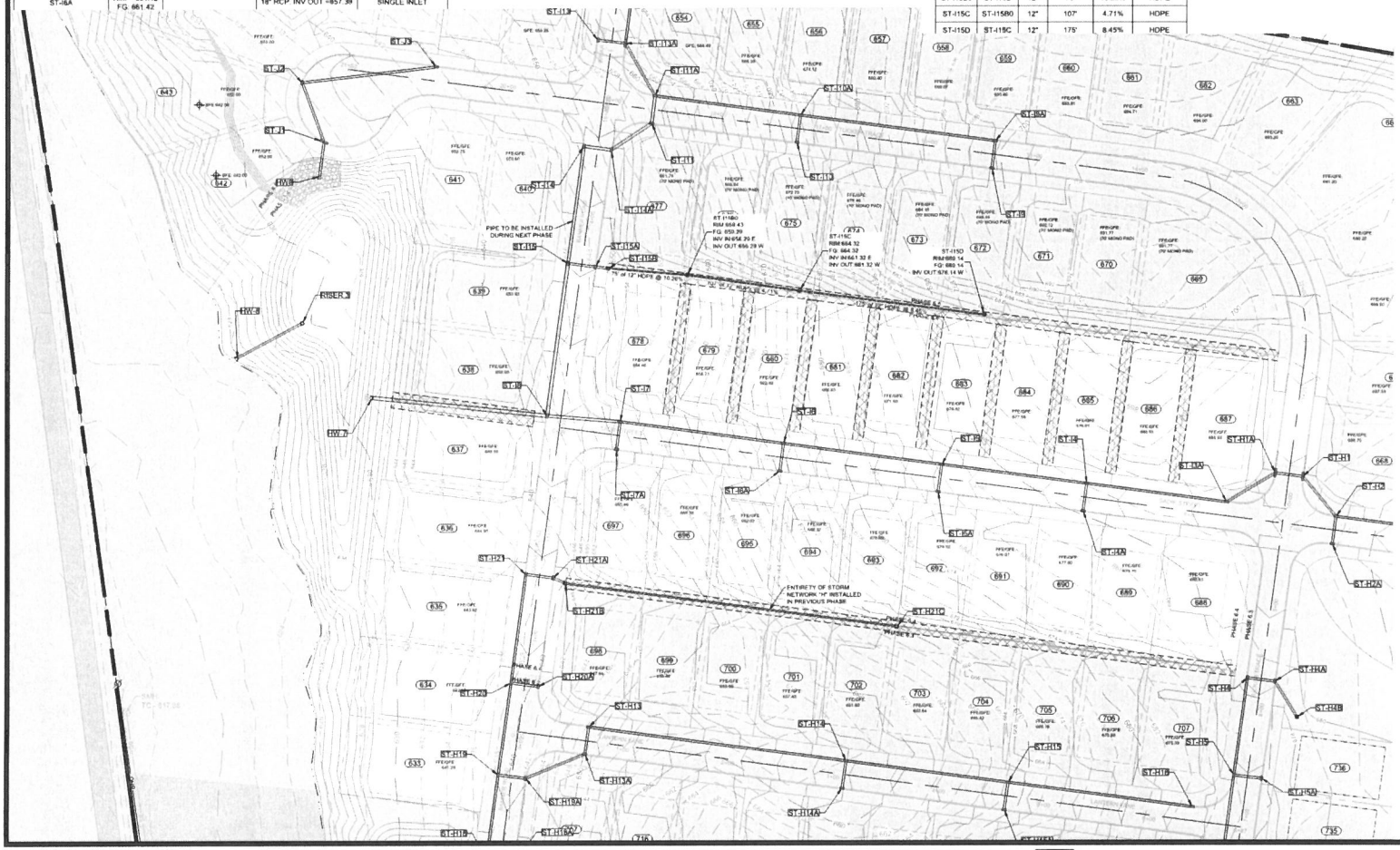
APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • WWW.T2-ENG.COM

STRUCTURE TABLE				
STRUCTURE NAME:	DETAILS:	PIPES IN:	PIPES OUT	STRUCTURE TYPE
HW-7	RIM = 640.29 FG: 636.00	30" RCP; INV IN =636.00		HEADWALL
HW-8	RIM = 626.65 FG: 626.65	18" RCP; INV IN =624.30		HEADWALL
RISER 3	RIM = 634.00 FG: 626.00		18" RCP; INV OUT =625.00	RISER
ST-I3A	RIM = 680.65 FG: 680.65	18" RCP; INV IN =676.22	18" RCP; INV OUT =676.22	SINGLE INLET
ST-I4	RIM = 676.88 FG: 676.88	18" RCP; INV IN =672.64 18" RCP; INV IN =672.64	18" RCP; INV OUT =672.64	SINGLE INLET
ST-I4A	RIM = 676.88 FG: 676.88		18" RCP; INV OUT =672.90	SINGLE INLET
ST-I5	RIM = 672.21 FG: 672.21	18" RCP; INV IN =668.03 18" RCP; INV IN =668.03	18" RCP; INV OUT =668.03	SINGLE INLET
ST-I5A	RIM = 672.21 FG: 672.21		18" RCP; INV OUT =668.29	SINGLE INLET
ST-I8	RIM = 661.42 FG: 661.42	18" RCP; INV IN =657.13 18" RCP; INV IN =657.13	18" RCP; INV OUT =657.13	SINGLE INLET
ST-I8A	RIM = 661.42 FG: 661.42		18" RCP; INV OUT =657.39	SINGLE INLET

STRUCTURE TABLE				
STRUCTURE NAME:	DETAILS:	PIPES IN:	PIPES OUT	STRUCTURE TYPE
ST-I7	RIM = 650.26 FG: 650.26	18" RCP; INV IN =645.05 18" RCP; INV IN =645.05	24" RCP; INV OUT =645.05	SINGLE INLET
ST-I7A	RIM = 650.26 FG: 650.26		18" RCP; INV OUT =645.50	SINGLE INLET
ST-I8	RIM = 647.91 FG: 647.91	24" RCP; INV IN =642.72 30" RCP; INV IN =642.72	30" RCP; INV OUT =642.72	SINGLE INLET
ST-I15	RIM = 652.08 FG: 652.08	24" RCP; INV IN =647.82 18" RCP; INV IN =647.08	30" RCP; INV OUT =647.08	SINGLE INLET
ST-I15A	RIM = 652.08 FG: 652.08	18" RCP; INV IN =648.08	18" RCP; INV OUT =648.08	SINGLE INLET
ST-I15B	RIM = 652.57 FG: 652.57	12" HDPE; INV IN =648.57	18" RCP; INV OUT =648.57	AREA DRAIN
ST-I15B0	RIM = 659.43 FG: 659.29	12" HDPE; INV IN =656.29	12" HDPE; INV OUT =656.29	10" HPDE AREA DRAIN
ST-I15C	RIM = 664.32 FG: 664.32	12" HDPE; INV IN =661.32	12" HDPE; INV OUT =661.32	10" HDPE AREA DRAIN
ST-I15D	RIM = 680.14 FG: 680.14		12" HDPE; INV OUT =676.14	10" HDPE AREA DRAIN

Pipe Table					
FROM	TO	SIZE	LENGTH	SLOPE	MATERIAL
RISER 3	HW-8	18"	70'	1.00%	RCP
ST-I3A	ST-I4	18"	133'	2.70%	RCP
ST-I4	ST-I5	18"	138'	3.35%	RCP
ST-I4A	ST-I4	18"	26'	1.00%	RCP
ST-I5	ST-I6	18"	150'	7.25%	RCP
ST-I5A	ST-I5	18"	26'	1.00%	RCP
ST-I6	ST-I7	18"	158'	7.78%	RCP
ST-I6A	ST-I6	18"	26'	1.00%	RCP
ST-I7	ST-I8	24"	89'	3.37%	RCP
ST-I7A	ST-I7	18"	26'	1.72%	RCP
ST-I8	HW-7	30"	166'	4.05%	RCP
ST-I15	ST-I8	30"	145'	3.00%	RCP
ST-I15A	ST-I15	18"	26'	3.85%	RCP
ST-I15B	ST-I15A	18"	12'	4.08%	RCP
ST-I15B0	ST-I15B	12"	75'	10.28%	HDPE
ST-I15C	ST-I15B0	12"	107'	4.71%	HDPE
ST-I15D	ST-I15C	12"	175'	8.45%	HDPE



GRAPHIC SCALE
(IN FEET)
Scale: 1" = 50'

KEY MAP
NTS

LEGEND
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED STORM INLET
- PROPOSED AREA DRAIN
- PROPOSED STORM HEADWALL
- PROPOSED STORM PIPE

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP, PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0118D, REVISED 16 APRIL 2017.

OWNER OF RECORD
FP TCI CCS, LLC DEED BK. R2401 PG. 319, MAP 41 PARCEL 15.00
APPLICANT
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

NO.	DATE	REVISIONS
1.	5.17.22	CHANGES PER CITY OF COLUMBIA WASTEWATER
2.	10.31.22	CHANGES PER CPNS

DATE: 5-11-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

DRAINAGE PLAN

CARTER'S STATION
SECTION 6, PHASE 4
MAURY COUNTY, COLUMBIA TENNESSEE

INDEPENDENCE AT CARTER'S STATION

TIMOTHY E. TURNER — REGISTERED ENGINEER — STATE OF TENNESSEE

2/2/23

PROJECT
18-0530

SHEET
C-5.1

GRAPHIC SCALE
(IN FEET)
Scale: 1" = 50'

KEY MAP
NTS

LEGEND

- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED STORM INLET
- PROPOSED STORM HEADWALL
- AREA NAME AND ACREAGE
- AREA BOUNDARY

NOTES

1) ALL ROAD CROWNS TO BE 2%.

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP, PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0116DE, REVISED 16 APRIL 2017

OWNER OF RECORD
FP TCI CCB, LLC DEED BK. R2401 PG. 319, MAP 41 PARCEL 15.00
APPLICANT
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

NO.	DATE	REVISIONS
1.	5/17/22	CHANGES PER CITY OF COLUMBIA WASTEWATER
2.	10/31/22	CHANGES PER CPWS

DATE: 5-11-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

INDEPENDENCE AT CARTER'S STATION

INLET AREAS

CARTER'S STATION
SECTION 6, PHASE 4
MAURY COUNTY, COLUMBIA TENNESSEE

TIMOTHY E. TURNER
REGISTERED ENGINEER
STATE OF TENNESSEE
2/2/23

PROJECT
18-0530

SHEET
C-5.2

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Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

_____ day of _____, 20_____ ,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Pulte Homes Tennessee Limited Partnership _____, the DEVELOPER (hereinafter the "DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal Planning Commission (hereinafter the "CMPC") on the

_____ day of _____, 20_____ ,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such development; and,

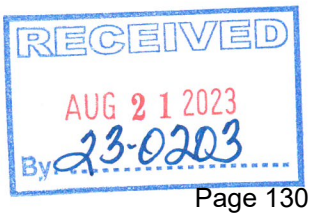
WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and common areas to be constructed within and to serve the PROJECT including but not be limited to roads, bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS"); and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost; and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council approval by resolution, and subject to the applicant's compliance with all requirements in this agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:



B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELEPOR's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

A. The Preliminary Plat has been approved by the CMPC;
B. The Construction Plans are approved by the CITY;
C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
D. The CITY shall have received an appropriately executed Development Agreement; and
E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

Independence at Carters Station Section 6.4 PROJECT	
Completed by the Developer	*Completed by the City*
Pulte Homes Tennessee Limited Partnership DEVELOPER NAME	
JEREMY BROOKS AUTHORIZED AGENT NAME	CITY ENGINEER
SIGNATURE	SIGNATURE
07/17/2023 DATE	DATE
100 Westwood Place, Suite 100 STREET	
Brentwood,TN,37027 CITY, STATE, ZIP	
615.992.9508 PHONE	
Jeremy.brooks@pultegroup.com EMAIL	
Attest	*Attest*
Kimberly Maynard ATTEST NAME	ATTEST NAME
Kimberly Maynard ATTEST SIGNATURE	ATTEST SIGNATURE
7-17-2023 DATE	DATE

CC: LB

DOCUMENT PREPARED BY:
Name: ~~Breanna Smith~~ Allison Corolla
Company T-Square Engineering
Address: 1329 West Main Street
Franklin, TN
After recording return copy to City of Columbia, Development Services

INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES

Map & Parcel Number: Map 41, Parcel 15.00
Project Name: Independence at Carter's Station, Section 6.4

Recorded by deed in the Register of Deeds Office of Maury County in Deed Book R2403, Page(s) 319.

THIS AGREEMENT, made this _____ day of _____, 20____, by and between Pulte Homes of Tennessee hereinafter referred to as the "OWNER(S)" of the following property and City of Columbia, Tennessee, hereinafter referred to as the "CITY",

WE, the OWNER(S), with full authority to execute deeds, mortgages, other covenants, all rights, titles, and interests in the property described above, do hereby covenant with the CITY and agree as follows:

1. The OWNER(S) covenant and agree with the CITY that the OWNER(S) shall provide for adequate long term maintenance and continuation of stormwater control measures described in the Long Term Maintenance Plan and shown on the location map, deed of easement drawing or plat attached hereto to ensure that the facilities, are and remain in proper working condition in accordance with approved design standards, rules and regulations, and applicable laws. The OWNER(S) shall perform preventative maintenance activities at intervals described in the schedule attached hereto along with necessary landscaping (grass cutting, etc.) and trash removal as part of regular maintenance.

2. The OWNER(S) shall perform routine inspections to ensure that all long term stormwater management facilities are properly functioning. These inspections shall be conducted on an annual basis, at a minimum. These inspections shall be conducted by a person familiar with control measures implemented at the site. The OWNER(S) or operators shall maintain documents of these inspections.

3. The OWNER(S) shall perform comprehensive inspections of all stormwater management facilities and practices. These inspections shall be conducted once every five years, at a minimum. Such inspections must be conducted by either a professional engineer or landscape architect.

4. The OWNER(S) shall grant to the CITY or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the facility within the CITY.

5. The OWNER(S) shall record and grant to the CITY the necessary easements and rights-of-way and maintain perpetual access from public rights-of-way to the facility for the CITY or its agent and contractor.

6. If, upon inspection, the CITY finds that the OWNER(S) has failed to properly maintain the facilities, the CITY may order the work performed within ten (10) days. In the event the work is not performed within the specified time, the ONWER(S) agrees to allow the CITY to enter the property and take whatever steps it deems necessary to maintain the stormwater control facilities. This provision shall not be construed to allow the CITY to erect any structure of a permanent nature on the PROPERTY without first obtaining written approval of the OWNER(S)

7. The CITY is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any obligation on the CITY. The OWNER(S) shall reimburse the CITY upon demand the costs incurred in the maintenance of the facilities.

8. If the OWNER(S) fails to pay the CITY for the above expensive after forty-five (45) days written notice, the OWNER(S) authorizes the CITY to collect said expenses from the OWNER(S) through appropriate legal action and the OWNER(S) shall be liable for the reasonable expenses of collection, court costs, and attorney fees.

9. The OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successor in interest shall indemnify and hold harmless the CITY and its officers, agents and employees for any and all damages, accidents, casualties, occurrences, claims or attorney's fees which might arise or be asserted, in whole or in part,

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By: 23-0293

against the CITY from the construction, presence, existence, or maintenance of the stormwater control facilities subject to this AGREEMENT. In the event a claim is asserted against the CITY, its officers, agents or employees, the CITY shall notify OWNER(S) and the OWNER(S) shall defend at OWNER(S) expense any suit based on such claim. If any judgment or claims against the CITY, its officers, agents or employees, shall be allowed, the OWNER(S) shall pay all costs and expenses in connection therewith. The CITY will not indemnify, defend or hold harmless in any fashion the OWNER(S) from any claims arising from any failure, regardless of any language in any attachment or other document that the OWNER(S) may provide

10. The OWNER(S) shall not be able to transfer, assign or modify its responsibilities with respect to this agreement without the CITY's written prior consent. Nothing herein shall be construed to prohibit a transfer by OWNER(S) to subsequent owners and assigns.

11. No waiver of any provision of this AGREEMENT shall affect the right of any party thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any default.

12. The OWNER(S) shall record a plat showing and accurately defining the easements for stormwater control facilities. The plat must reference the Instrument Number where this AGREEMENT and its attachments are recorded and contain a note that the OWNER(S) is responsible for maintaining the stormwater management facilities.

13. The OWNER(S) shall record this AGREEMENT in the office of the Register of Deeds for the county of Maury, Tennessee, and the AGREEMENT shall constitute a covenant running with the land, and shall be binding upon the OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successors in interest

ATTEST BY OWNER(S):

Print Name Jeremy Brooks

Title Director of Land Planning and Entitlement

Signature DocuSigned by: Jeremy Brooks 9E701DFC338D4C0...

Owner Pulte Homes Tennessee Limited Partnership

Address 100 Westwood Place, Suite 100

City, State ZIP Brentwood, TN 37027

STATE OF _____
COUNTY OF _____

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted and who acknowledged that he/she executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20_____.

_____
Notary Public

My Commission Expires:_____

CITY OF COLUMBIA, TENNESSEE
ENGINEERING DEPARTMENT

APPROVED BY :_____

STATE OF TENNESSEE
COUNTY OF MAURY

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted, and who acknowledged themselves to be the City Engineer of the City of Columbia or his designee and as such, being authorized so to do, executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20_____.

_____
Notary Public
My Commission Expires:_____

T-SQUARE ENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

701 West Main Street
Franklin, TN 37064
615.678.8212
www.T2-eng.com

5/08/2023

City of Columbia
Development Services
700 N. Garden Street
Columbia, TN 38401

POST CONSTRUCTION LONG TERM MAINTENANCE PLAN
PROJECT NAME: INDEPENDENCE AT CARTER'S STATION, SECTION 6, PHASE 4

SYSTEM DESCRIPTION:

The site consists of stormwater conveyances through piped channel and detention ponds.

- There is one (1) pond in Phase 4, section 6 that is sized to detain the 100-year peak event.
- 1,525 LF of round concrete pipe and 19 storms inlets.

Upon completion of the site construction, 'Record Drawings' in a version not less than AutoCAD 2006 LT (NAD83, NAVD88) of the stormwater controls will be provided to the City of Columbia for verification.

A copy of the INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES that has been completed, notarized and recorded in the Land Records of the County of Maury, Tennessee will be kept on site with this document.

MAINTENANCE PROCEDURES

1. STORMWATER DETENTION PONDS
   a. The outlet structure shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.

   b. Check banks and bottom surface of basin for erosion and correct as necessary.

   c. Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitoes.

   d. This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.

e. Pond vegetation needs to be trimmed or harvested as appropriate, grassy areas frequently mowed. Grass should be mowed so that it does not get over 12 inches.

f. Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.

g. Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.

h. Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.

2. 1,525 LF OF RCP AND 19 STORM DRAINS
   - These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.

CONSTRUCTION DRAWINGS
FOR
SECTION 6, PHASE 4
INDEPENDENCE AT CARTER'S STATION
3040 CLEBURNE ROAD
COLUMBIA, TN 37174
CITY OF COLUMBIA, WARD #5

DEVELOPER: PULTE GROUP
370 MALLORY STATION ROAD, STE 500
FRANKLIN, TN 37067

ENGINEER: T-SQUARE ENGINEERING
1329 WEST MAIN STREET
FRANKLIN, TN 37064
615-678-8212

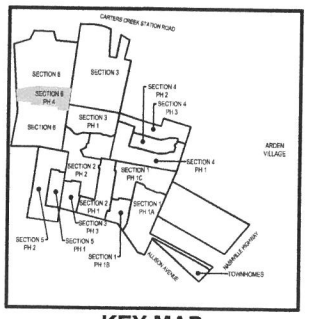
SURVEYOR: H&H LAND SURVEYING
612A FITZHUGH BLVD
SMYRNA, TN 37167
615-831-0756

T-SQUARE ENGINEERING AND ITS ASSOCIATES WILL NOT BE HELD RESPONSIBLE FOR ITS ACCURACY OR FOR DESIGN ERRORS OR EMISSIONS RESULTING FROM POTENTIAL SURVEY INACCURACIES.

WATER UTILITY: CPWS Shane Andrews
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833

POWER UTILITY: CPWS Doug Burgess
CPWS
201 Pickens Lane
PO Box 379
Columbia, TN 38402
931-388-4833

SITE VICINITY MAP



KEY MAP

Sheet Schedule

C-0.0	Cover Sheet
C-1.0	Existing Conditions
C-2.0	Overall Site Plan
C-2.1	Site Plan
C-3.0	Initial Erosion Control Plan
C-3.1	Temporary Erosion Control Plan
C-3.2	Permanent Erosion Control Plan
C-4.0	Pre Development Plan
C-4.1	Post Development Plan
C-5.0	Grading Plan
C-5.1	Drainage Plan
C-5.2	Inlet Areas
C-6.0	Tucker Trace Plan and Profile
C-6.1	Banner Road Plan and Profile
C-7.0	Utility Plan
C-7.1	Utility Plan Overview
C-8.0	Detail Sheet
C-8.1	Detail Sheet
C-8.2	Detail Sheet
C-8.3	Detail Sheet
C-8.4	Detail Sheet
C-8.5	Detail Sheet

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP, PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0118DE, REVISED 16 APRIL 2017.

OWNER OF RECORD
FP TCI CCS, LLC DEED BK. R2403 PG. 319, MAP 41 PARCEL 15.00
APPLICANT
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

NO.	DATE	REVISIONS
1	5.17.22	CHANGES PER CITY OF COLUMBIA WASTEWATER
2	10.31.22	CHANGES PER CPWS

DATE: 5-11-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

COVER SHEET
CARTER'S STATION
SECTION 6, PHASE 4
MAURY COUNTY, COLUMBIA TENNESSEE

INDEPENDENCE AT CARTER'S STATION

TIMOTHY E. TURNER — STATE OF TENNESSEE

2/2/23

PROJECT
18-0530

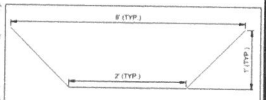
SHEET
C-0.0

GRAPHIC SCALE
(IN FEET)
Scale: 1" = 50'

KEY MAP
NTS

LEGEND

- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- 500 PROPOSED MAJOR CONTOURS
- 498 PROPOSED MINOR CONTOURS
- PROPOSED STORM INLET
- PROPOSED STORM HEADWALL
- PROPOSED SPOT ELEVATION
- PROPOSED SLOPE GRADE



TYPICAL SWALE SECTION
N.T.S

NOTE:
1. BUILDERS SWALES TO BE INSTALLED BETWEEN LOTS.
2. FFE DENOTES THE ELEVATION OF THE HIGH SIDE OF THE DIRT PAD ON EACH LOT.
3. GFE NOTES THE DIRT PAD ELEVATION FOR THE CURB SIDE OF THE LOT.

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP. PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0118E, REVISED 15 APRIL 2017.

OWNER OF RECORD
FP TCI OCS, LLC DEED BK. R2403 PG. 319, MAP 41 PARCEL 15.00
APPLICANT
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212

REVISIONS		
NO	DATE	
1	5.17.22	CHANGES PER CITY OF COLUMBIA WASTEWATER
2	10.31.22	CHANGES PER CPWS

DATE: 5-11-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

GRADING PLAN

CARTER'S STATION
SECTION 6, PHASE 4
MAURY COUNTY, COLUMBIA TENNESSEE

INDEPENDENCE AT CARTER'S STATION

TIMOTHY E. TURNER
REGISTERED ENGINEER
STATE OF TENNESSEE
2/2/23

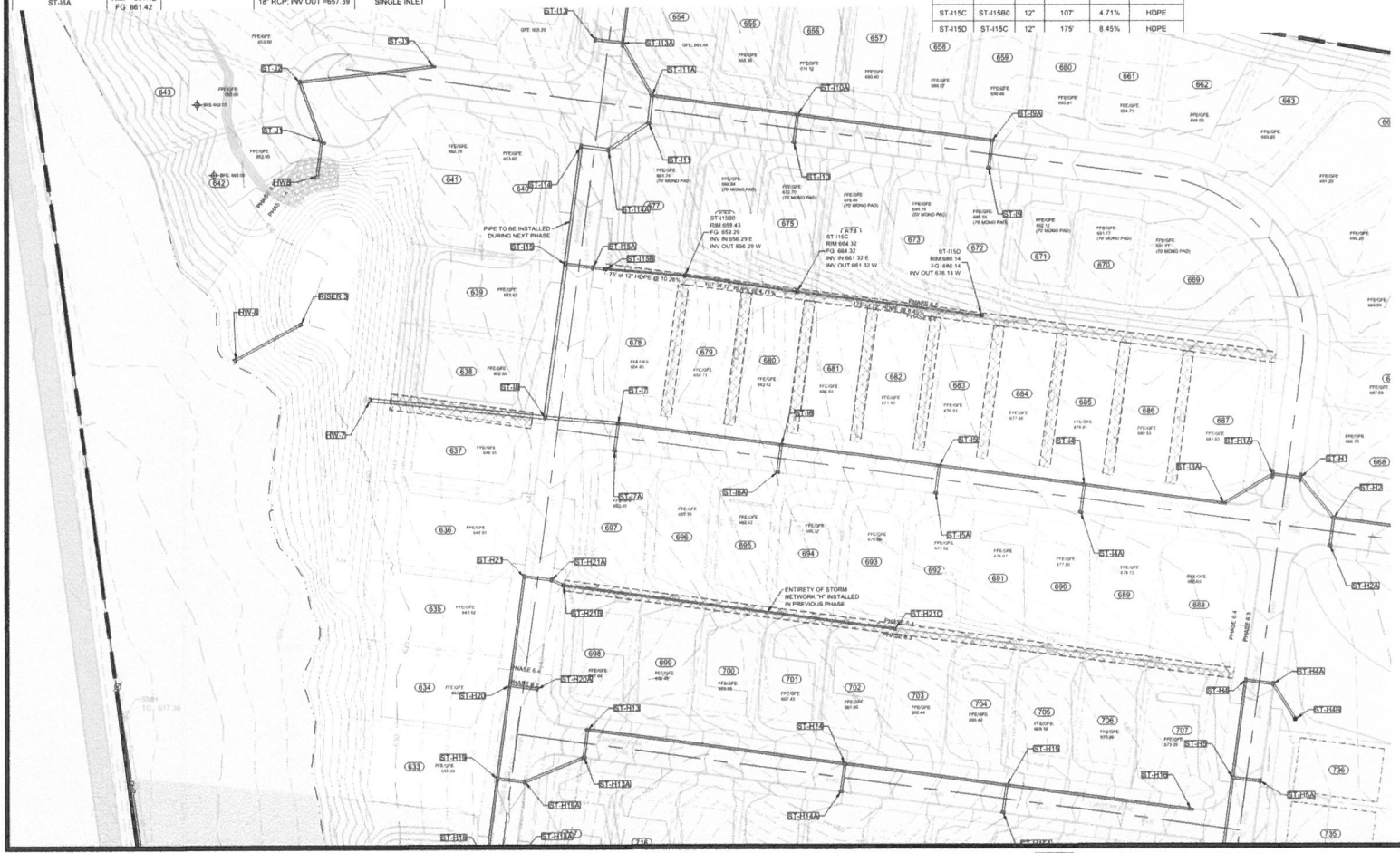
PROJECT
18-0530

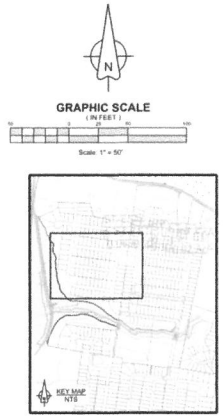
SHEET
C-5.0

STRUCTURE TABLE				
STRUCTURE NAME:	DETAILS:	PIPES IN:	PIPES OUT	STRUCTURE TYPE
HW-7	RIM = 640.29 FG: 636.00	30" RCP; INV IN =636.00		HEADWALL
HW-8	RIM = 626.65 FG: 626.65	18" RCP; INV IN =624.30		HEADWALL
RISER 3	RIM = 634.00 FG: 626.00		18" RCP; INV OUT =625.00	RISER
ST-I3A	RIM = 680.65 FG: 680.65	18" RCP; INV IN =676.22	18" RCP; INV OUT =676.22	SINGLE INLET
ST-I4	RIM = 676.88 FG: 676.88	18" RCP; INV IN =672.64 18" RCP; INV IN =672.64	18" RCP; INV OUT =672.64	SINGLE INLET
ST-I4A	RIM = 676.88 FG: 676.88		18" RCP; INV OUT =672.90	SINGLE INLET
ST-I5	RIM = 672.21 FG: 672.21	18" RCP; INV IN =668.03 18" RCP; INV IN =668.03	18" RCP; INV OUT =668.03	SINGLE INLET
ST-I5A	RIM = 672.21 FG: 672.21		18" RCP; INV OUT =668.29	SINGLE INLET
ST-I6	RIM = 661.42 FG: 661.42	18" RCP; INV IN =657.13 18" RCP; INV IN =657.13	18" RCP; INV OUT =657.13	SINGLE INLET
ST-I6A	RIM = 661.42 FG: 661.42		18" RCP; INV OUT =657.39	SINGLE INLET

STRUCTURE TABLE				
STRUCTURE NAME:	DETAILS:	PIPES IN:	PIPES OUT	STRUCTURE TYPE
ST-I7	RIM = 650.26 FG: 650.26	18" RCP; INV IN =645.05 18" RCP; INV IN =645.05	24" RCP; INV OUT =645.05	SINGLE INLET
ST-I7A	RIM = 650.26 FG: 650.26		18" RCP; INV OUT =645.50	SINGLE INLET
ST-I8	RIM = 647.91 FG: 647.91	24" RCP; INV IN =642.72 30" RCP; INV IN =642.72	30" RCP; INV OUT =642.72	SINGLE INLET
ST-I15	RIM = 652.08 FG: 652.08	24" RCP; INV IN =647.82 18" RCP; INV IN =647.08	30" RCP; INV OUT =647.08	SINGLE INLET
ST-I15A	RIM = 652.08 FG: 652.08	18" RCP; INV IN =648.08	18" RCP; INV OUT =648.08	SINGLE INLET
ST-I15B	RIM = 652.57 FG: 652.57	12" HDPE; INV IN =648.57	18" RCP; INV OUT =648.57	AREA DRAIN
ST-I15B0	RIM = 659.43 FG: 659.29	12" HDPE; INV IN =656.29	12" HDPE; INV OUT =656.29	10" HPDE AREA DRAIN
ST-I15C	RIM = 664.32 FG: 664.32	12" HDPE; INV IN =661.32	12" HDPE; INV OUT =661.32	10" HDPE AREA DRAIN
ST-I15D	RIM = 680.14 FG: 680.14		12" HDPE; INV OUT =676.14	10" HDPE AREA DRAIN

Pipe Table					
FROM	TO	SIZE	LENGTH	SLOPE	MATERIAL
RISER 3	HW-8	18"	70'	1.00%	RCP
ST-I3A	ST-I4	18"	133'	2.70%	RCP
ST-I4	ST-I5	18"	136'	3.35%	RCP
ST-I4A	ST-I4	18"	26'	1.00%	RCP
ST-I5	ST-I6	18"	150'	7.25%	RCP
ST-I5A	ST-I5	18"	26'	1.00%	RCP
ST-I6	ST-I7	18"	155'	7.78%	RCP
ST-I6A	ST-I6	18"	26'	1.00%	RCP
ST-I7	ST-I8	24"	69'	3.37%	RCP
ST-I7A	ST-I7	18"	26'	1.72%	RCP
ST-I8	HW-7	30"	166'	4.05%	RCP
ST-I15	ST-I8	30"	145'	3.00%	RCP
ST-I15A	ST-I15	18"	26'	3.85%	RCP
ST-I15B	ST-I15A	18"	12'	4.08%	RCP
ST-I15B0	ST-I15B	12"	75'	10.26%	HDPE
ST-I15C	ST-I15B0	12"	107'	4.71%	HDPE
ST-I15D	ST-I15C	12"	175'	8.45%	HDPE





LEGEND

- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED STORM INLET
- PROPOSED AREA DRAIN
- PROPOSED STORM HEADWALL
- PROPOSED STORM PIPE

THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP, PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0118DE, REVISED 16 APRIL 2017.

OWNER OF RECORD
FP TCI CCS, LLC
DEED BK. R2403 PG. 319, MAP 41 PARCEL 15.00

APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

REVISIONS

NO.	DATE	
1	5.17.22	CHANGES PER CITY OF COLUMBIA WASTEWATER
2	10.31.22	CHANGES PER CPWS

DATE: 5-11-22
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: TET

DRAINAGE PLAN

CARTER'S STATION
SECTION 6, PHASE 4
MAURY COUNTY, COLUMBIA TENNESSEE

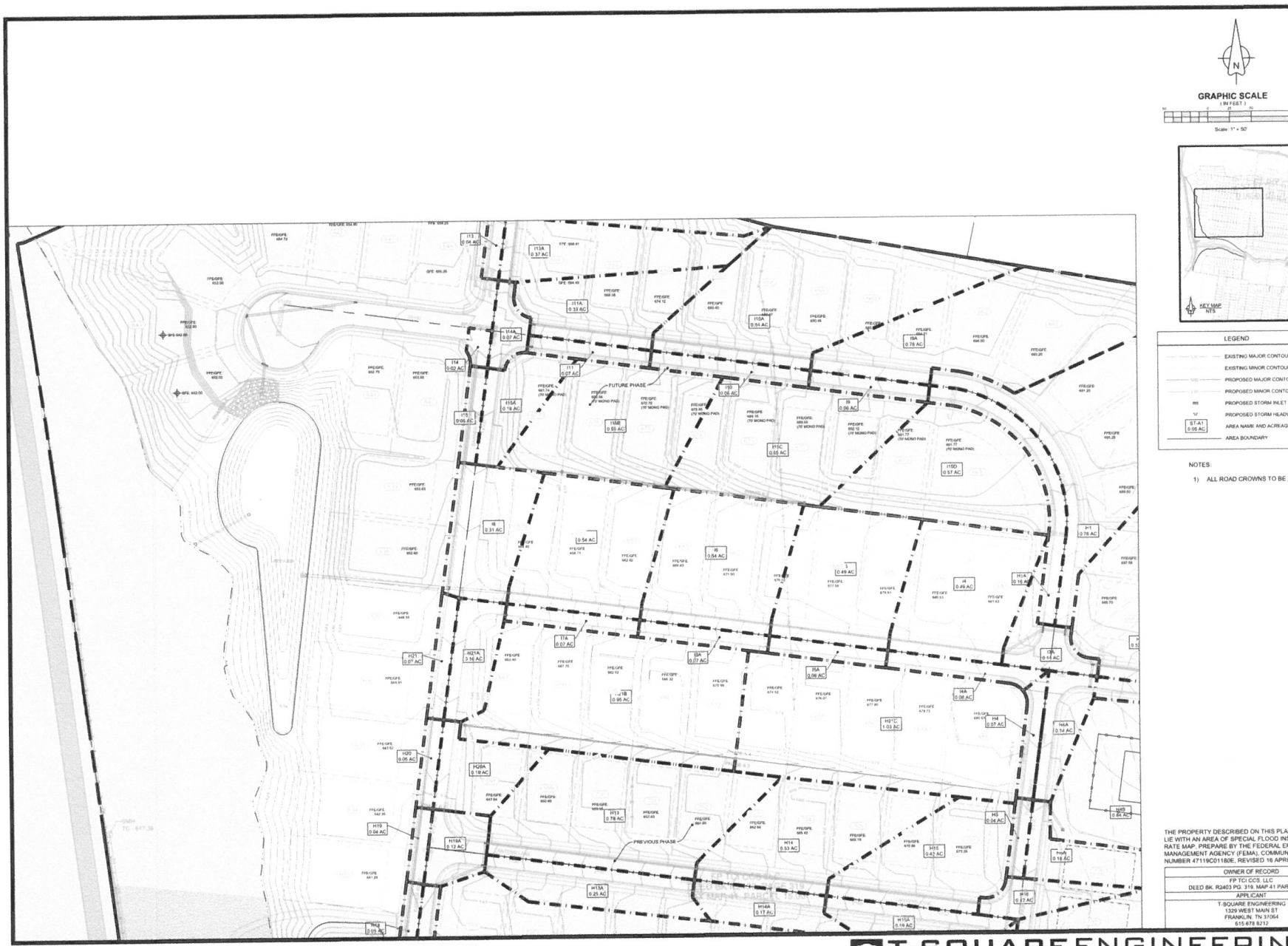
INDEPENDENCE AT CARTER'S STATION

TIMOTHY E. TURNER
REGISTERED ENGINEER
STATE OF TENNESSEE
2/2/23

PROJECT
18-0530

SHEET
C-5.1

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM



THE PROPERTY DESCRIBED ON THIS PLAN DOES NOT LIE WITH AN AREA OF SPECIAL FLOOD INSURANCE RATE MAP, PREPARE BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), COMMUNITY PANEL NUMBER 47119C0118E, REVISED 16 APRIL 2017.

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FP TCI CCS, LLC
DEED BK. R2403 PG. 319, MAP 41 PARCEL 15.00
APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615 678 8212

NO	DATE	REVISIONS
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DATE: 5-11-22
SCALE: AS SHOWN
DRAWN BY: T.SQUARE
REVIEWER: TET

INDEPENDENCE AT CARTER'S STATION

INLET AREAS

CARTER'S STATION
SECTION 6, PHASE 4
MAURY COUNTY, COLUMBIA TENNESSEE

TIMOTHY E. TURNER
REGISTERED ENGINEER
10111
STATE OF TENNESSEE
2/2/23

PROJECT
18-0530

SHEET
C-5.2

T-SQUARE ENGINEERING
1329 WEST MAIN STREET • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

CC: DS

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

_____ day of _____, 20_____ ,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Pulte Homes Tennessee Limited Partnership, the DEVELOPER (hereinafter the "DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal Planning Commission (hereinafter the "CMPC") on the

_____ day of _____, 20_____ ,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and common areas to be constructed within and to serve the PROJECT including but not be limited to roads, bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS"); and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost; and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council approval by resolution, and subject to the applicant's compliance with all requirements in this agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

RECEIVED
JUL 17 2023
By: 23-0292

DocuSign Envelope ID: 41206BD3-104D-4082-A50C-02ADFADA5778

B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

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B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

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B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELEPOR's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

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B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

A. The Preliminary Plat has been approved by the CMPC;
B. The Construction Plans are approved by the CITY;
C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
D. The CITY shall have received an appropriately executed Development Agreement; and
E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

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The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

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signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

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B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

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IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

Independence at Carters Station Section 6.4

PROJECT

Completed by the Developer	*Completed by the City*
Pulte Homes Tennessee Limited Partnership	
DEVELOPER NAME	
Jeremy Brooks	
AUTHORIZED AGENT NAME	CITY ENGINEER
DocuSigned by: Jeremy Brooks 2E70...D4C0...	
SIGNATURE	SIGNATURE
7/17/2023	
DATE	DATE
100 Westwood Place, Suite 100	
STREET	
Brentwood,TN,37027	
CITY, STATE, ZIP	
615.992.9508	
PHONE	
Jeremy.brooks@pultegroup.com	
EMAIL	
Attest	*Attest*
Kim Maynord	
ATTEST NAME	ATTEST NAME
DocuSigned by: Kim Maynord 8822EB5C48F2424...	
ATTEST SIGNATURE	ATTEST SIGNATURE
7/17/2023	
DATE	DATE

T-SQUARE ENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

1329 West Main Street
Franklin, TN 37064
615.678.8212
www.T2-eng.com

Letter of Transmittal

City of Columbia
700 North Garden Street
Columbia, TN 38401

Project No.	**18-0530**	**Date:**	**7/17/23**
Attention:	**Planning**		
Reference:	Independence at Carters Station Phase 6.4		
Phase 6.4 Final Plat			

WE ARE SENDING YOU ☒ **Attached** ☐ **Under separate cover via** _____ **the following items**

☐ **Shop Drawings** ☐ **Prints** ☐ **Plans** ☐ **Samples** ☐ **Specifications**

☐ **Copy of letter** ☐ **Change Order** ☐ **Applications** ☐ _____

Copies	Date	No.	Description
1	7/17/23		Final Plat Application
1	7/17/23		Review Fee
1	7/17/23		Final Plat
1	7/17/23		Digital Copy
1	7/17/23		Hydrant Analysis
1	7/17/23		Development Agreement
1	7/17/23		Stormwater Maintenance Agreement
1	7/17/23		Surety Calculator
1	7/17/23		Transmittal Letter

THESE ARE TRANSMITTED as checked below:

☒ **For Approval** ☐ **For review and comment**
☐ **For your use** ☐
☐ As requested ☐

REMARKS: Please contact Allison Corolla at T-Square Engineering with comments – 615.678.8212 / Allison.Corolla@T2-Eng.com. Thank you.

COPY TO _____ **SIGNED** **Allison Corolla, EI**

☐ ***Received by:*** _____ **Date** _____

1329 West Main, Franklin TN 37064
615-678-8212

RECEIVED
JUL 17 2023
By: 23-0293

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CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	Independence at Carter's Station, Columbia, TN		
	TAX MAP: 41	GROUP:	PARCEL: 15.00
SUMMARY OF NATURE OF REQUEST AND WORK	This application is to approve the final plat for section 6.4 Independence at Carter's Station.		

DATE OF PRE-APPLICATION CONFERENCE		*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
❑ Annexation ❑ Rezoning ❑ Preliminary Plat [4] Final Plat ❑ PUD Preliminary Master Plan ❑ PUD Final Site Plan ❑ Multi-Family Site Plan ❑ Other: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ❑ Written Legal Description copy ❑ Requested Zone Listed ❑ Compliance with Comprehensive Plan ❑ Annexation Permission Form ❑ Plans and/or Plats conforming to City standards with check list completed ❑ Columbia Water System Availability Letter **Plats/PUDs:** [4] Project Name (include Sections & Phases) Independence at Carter's Station [4] Total Number of Lots 25 [4] Total acreage 9.9

RECEIVED
JUL 17 2023
By: 23-0293

DocuSign Envelope ID: 41206BD3-104D-4082-A50C-02ADFADA5778

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	T-Square Engineering	PHONE	615.678.8212
ADDRESS	1329 West Main St., Franklin, TN 37064	EMAIL	Allison.Corolla@T2-Eng.com

PROPERTY OWNER NAME	Pulte Homes Tennessee Limited Partnership	PHONE	629-867-8449
ADDRESS	100 Westwood Place, Suite 100 Brentwood,TN	EMAIL	jeremy.brooks@pultegroup.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Allison Corolla	Allison B. Corolla Digitally signed by Allison B. Corolla DN: C=US, E=Allison.Corolla@T2-Eng.com, O=T-Square Engineering, CN=Allison B. Corolla Reason: I have reviewed this document Date: 2023.07.17 09:54:17 -05'00'	7/17/2023
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Jeremy Brooks	DocuSigned by: Jeremy Brooks 9E701DEC338D4C0...	7/17/2023
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	

Cayce Lane Rezoning

Project #:	23-0238	Location:	Map 101 Parcel 39.00
Applicant:	Wade Kincaid	Case Type(s):	Rezoning
Staff Planner:	Kevin C. McCarthy, AICP	Proposed Use:	Single Family Homes

PROJECT SUMMARY

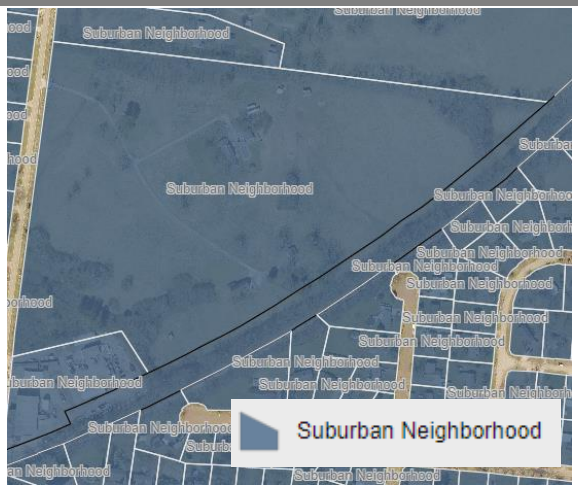
The applicant requests to rezone a 30.76-acre parcel located on the east side of Cayce Lane from CD-2 (Rural Character District) to CD-3L (Neighborhood Large Lot Character District). Both the current and requested zoning designations are primarily residential in character. The Zoning Ordinance permits one dwelling unit per acre in CD-2 and two dwelling units per acre in CD-3L. The applicant previously requested to rezone the subject site to CD-3 (Neighborhood Character District) which permits four dwelling units per acre. The Planning Commission recommended approval; City Council ultimately denied the request.

- The DRC reviewed this proposal at its July 2023 meeting.
- The request is consistent with Connect Columbia, the City's comprehensive plan.
- The concept plan generally indicates that it is possible to develop the site in conformity with the requested standards. However, greater detail will be required at the time of any subsequent Site Development Plan and Preliminary Plat.
- At the request of staff, the applicant provided specific responses to some of the rezoning criteria.
- The Planning Commission is a **recommending body** for rezoning requests.
- Templates are provided at the end of the report to assist the Planning Commission in crafting properly formatted motions.

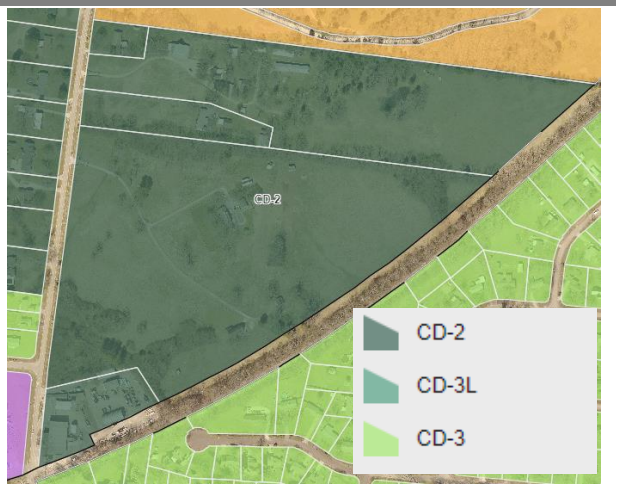
SITE INFORMATION

CURRENT ZONING	EXISTING USE	EXISTING IMP.	LAND AREA
CD-2	Residential	Single-Family Home	+/-30.76 Acres

FUTURE LAND USE MAP



ZONING MAP



SITE CONTEXT/ADJACENT PROPERTIES			
	Future Land Use	Zoning	Current Use
Subject Property	Suburban Neighborhood	CD-2	Single-Family
North	Suburban Neighborhood	CD-2	Single-Family
South	Suburban Neighborhood	CD-2	Vehicle Service/Civic
East	Suburban Neighborhood	CD-3	Single-Family
West	Suburban Neighborhood	CD-2/CD-3	Single-Family

Existing improvements on the property consist of a single-family home and various accessory structures. The home was constructed in 1960. Most of the subject site is bounded by Cayce Lane and railroad tracks. Large lot single family homes abut the site to the north. A Tennessee Department of Transportation facility borders the property on the south. The area is mostly a mix of CD-2 and CD-3 zoned residential property with the exception of the TDOT property and a self-storage facility. The future land use of the subject property and all adjacent properties is Suburban Neighborhood.

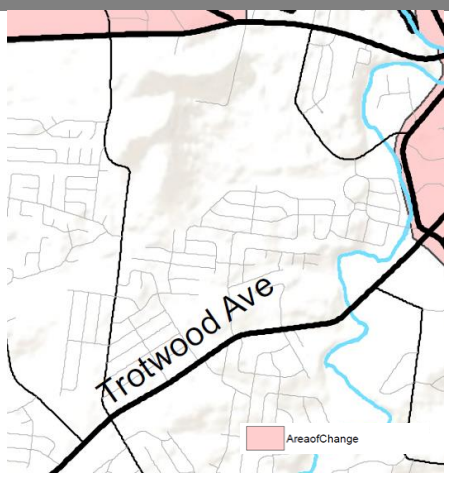
CONSISTENCY WITH CONNECT COLUMBIA

Suburban Neighborhood: The future land use of the subject site is Suburban Neighborhood. The Character Area is conducive to residential development and neighborhoods with limited intermixed and compatible civic uses (Connect Columbia, p. 22). The Future Land Use Plan indicates that "the general development pattern is defined by a single use activity on individual lots" (Connect Columbia, p. 22). Green space is largely incorporated on individual lots; neighborhood and community parks should be located within neighborhoods to enhance the quality of life. Development should emphasize connectivity and housing diversity (Connect Columbia, p. 23). The Character Area Matrix from page twenty-two of the Future Land Use Plan (excerpted below) is a guide to approving requests for zoning map amendments and Planned Unit Developments. The future land use classification is implemented by the CD-3L and CD-3 character districts, as well as PUDs.

CHARACTER AREA MATRIX				
	Development Pattern	**Zoning Category and Uses**	**Infrastructure**	**Design Standard**
SUBURBAN NEIGHBORHOOD	**Is the property in an Area of Change?** **No:** The development pattern is established. Changes to overall character of the area should rarely occur. **Yes:** The development pattern is evolving. Changes to the area are likely as development occurs. New development should respect both the natural environment and blend with existing, surrounding neighborhood assets.	**Residential Uses Zoning Category:** Low Density Residential District and Medium Residential. **Public and Civic Uses Zoning Category:** Religious Facilities, Government Facilities (low impact), and Educational Facilities.	**Not in an Area of Change:** Limited new services, with mostly in-fill enhancements to existing infrastructure. **Within an Area of Change:** Extensions to transportation, water, sewer, and other services should be expected. New service or extensive redevelopment of existing services should be vetted and reviewed by Planning Commission and City Council as a primary element of approval.	Scale: New dwellings and structures should be compatible with the established character of the area. Architecture: New developments should include a mix of architectural styles. Residential garages, if front-facing, should be recessed from the front façade of the structure. Civic use should respect the residential character, while providing architectural interest.

AREA OF CHANGE

The subject site **is not located** in an Area of Change (Connect Columbia Map 3). In 2017 the Planning Commission determined that the development pattern was established. Changes to overall character of the area should rarely occur. The designation does not necessarily mean that any particular development proposal is inconsistent with Connect Columbia. It does mean that the Planning Commission may pause to ensure the context of the area surrounding the subject property is considered fully in the review process. (Connect Columbia p. 14).

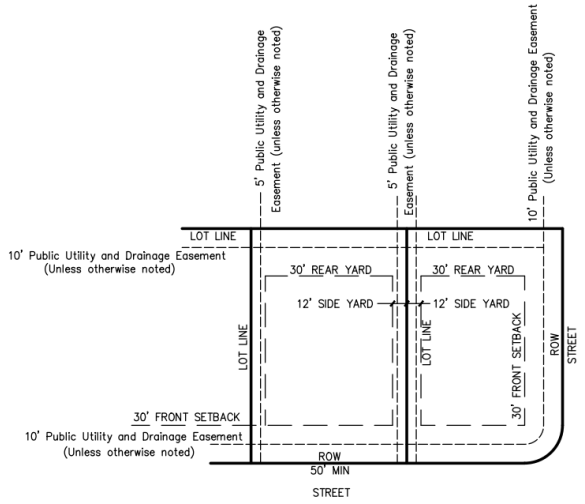


CONFORMITY WITH ZONING ORDINANCE

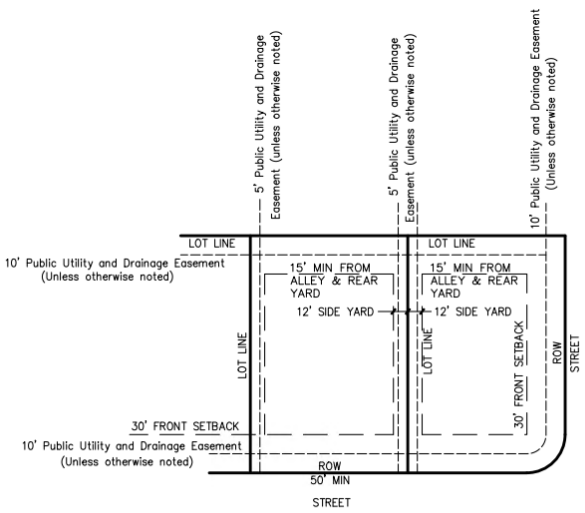
As required by **§ 8.5.19.F.3** of the Zoning Ordinance, the applicant provided a concept plan (i.e. "Sketch Development Plan") demonstrating that it is possible to develop the property in conformity with the standards applicable to the requested zoning designation. Any development plan/preliminary plat would be required to comply with Zoning Ordinance 4400, adopted on July 14th, 2022. This request for rezoning simply establishes entitlements under the zoning ordinance, not a vested right to develop the site as depicted in the concept plan.

Lots, Building Sites & Bulk Standards

- **The concept plan depicts single family lots which generally conform to the CD-3L bulk standards listed in Table 4.3.1-B of the Zoning Ordinance.**
    - The Ordinance requires a minimum lot width of 100'.
    - The Ordinance requires minimum setbacks of:
        - 30' front setback principal and secondary frontages;
        - 12' side setback; and
        - 30' rear setback, measured from the rear property line; or 15' from the centerline of rear alley as applicable.
    - The applicant's concept proposes two lot layouts, including a handful of lots served by rear alleys. Both conform to the CD-3L setbacks.



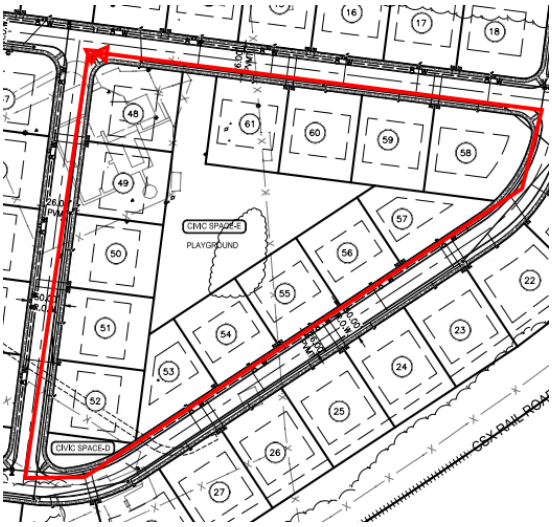
SUBDIVISION
TYPICAL LOT LAYOUT



SUBDIVISION
TYPICAL LOT LAYOUT
ALLEY LOADED

Blocks, Thoroughfares & Connectivity

- **The concept plan demonstrates that development of the site could conform to the applicable standard for block formation and size**.
    - The Zoning Ordinance requires that Thoroughfares on development sites by arranged to form blocks (**§ 5.2.2.D**, p.308).
    - Block formation allows the creation of lots with front-to-back discipline. This arrangement of public and private space (i.e. "Layers") is the animating principle of the Ordinance.
    - A block perimeter may not exceed 3,600 feet (Table **4.3.1-B**, p. 57; Table **5.2.2.D**, p. 308).
    - The largest block depicted in the concept plan has a perimeter of less than 2,200 feet. Lots along the northern edge of the property establish a block pattern which could be continued by subsequent development on adjacent parcels.
    - Lots on the edge of the property along the railroad track deviate from the block patter as permitted by **§ 5.2.2**.



Civic Spaces

- **The concept plan indicated that it is possible to develop the site with required Civic Space in the form of Playgrounds, Greens, and Pocket Parks dispersed throughout the development. Additional details will be required for any subsequent Site Development Plan or Preliminary Plat.**

- Section **5.3.1** of Zoning Ordinance requires any development parcel[1] to utilize at least 5% but no more than 20% of its gross acreage as Civic Space conforming to the standards of Table 5.3.3-A.
- The applicant proposes to dedicate 7.95 acres (25.8%) of the 30.76-acre site to Civic Space.
- Section **5.3.3** offers eight Civic Space types that include green space, natural areas, pocket parks, etc.
- Each Civic Space type has its own standards for intent, size, frontage, character, and typical facilities.
- Section **5.3.3.B** further requires civic space designed and equipped as a playground within 1,300 feet of each lot within a CD-3L development.
- The concept plan depicts eight Civic Spaces, primarily green space, throughout the development. Some of the spaces may not meet the Planning Commission's standards for the applicable Civic Space type. Conformity with the standards will be evaluated at Site Development Plan and Preliminary Plat.

Type	Number	Area
Playground	2	1.38 acres
Green	2	5.90 acres
Pocket Park	4	0.67 acres

Tree Preservation

- **Section 4.3.16 of the Zoning Ordinance requires a percentage of existing tree cover to be preserved based upon the existing canopy on the development site.**
  - The applicant has not provided a tree preservation plan, and is not required to do so as part of a concept plan.
  - Any subsequent Site Development Plan or Preliminary Plat will require a tree preservation plan.
  - The preservation of existing tree canopy may alter the site design.

[1] Development Parcel: a parcel of land: (1) which, either alone or together with one or more other parcels under a common Development scheme, program or plan, is ten (10) or more gross acres; (2) with respect to the Development of which any new Thoroughfare, Internal Drive, or extension or change of the design of any existing Thoroughfare or Internal Drive is required or will be made or proposed; or (3) with respect to which any District assignment or any Thoroughfare or Internal Drive or alignment thereof is proposed to be made or changed by a Zoning Map or Zoning Map amendment. (§ 9.3, p. 490).

REVIEW PROCESS

The Development Review Committee evaluated the proposed Annexation at its July 2023 meeting, as directed by section **8.3.7** of the Zoning Ordinance. Technical comments are provided in the agenda package.

Section **8.5.19** of the Zoning Ordinance directs the Planning Commission to review and make a recommendation on all proposed changes to the Official Zoning Map. The Planning Commission is the recommending body for rezonings under **§ 8.3.3.B.3** of the Zoning Ordinance.

Section **8.5.19.H.4** of the Zoning Ordinance establishes the review criteria for approval of all changes to the Official Zoning Map:

a. The Rezoning is consistent and not in conflict with the Comprehensive Plan or other applicable approved local plans for the area;
b. It has been determined that the legal purposes for which zoning exists, as set forth in Section 1.5 [, are not contravened]; [2]
c. It has been determined that there will be no adverse effect upon Adjoining property owners unless such effect can be justified by the overwhelming public good or welfare;
d. It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public;
e. It has been determined that conditions affecting the area have changed to a sufficient to warrant the Zoning Map Amendment or that the existing zoning of the property was the result of a mistake;
f. It has been determined that adequate school, road, parks, wastewater treatment, water supply, and stormwater drainage facilities are available

SUMMARY OF DEVELOPMENT REVIEW COMMITTEE COMMENTS

The DRC reviewed this proposal at its July 2023 meeting. A full list of comments, and the applicant's responses, is provided in the agenda packet. Some key comments are noted below.

- **Planning** asked the applicant to provide a narrative response to criterion **8.5.19.H.4(e)** explaining why the applicant believes conditions affecting the area have changed sufficiently to warrant the Zoning Map Amendment. This request is due to the failure of the applicant's recent request to rezone the subject site.

[2] Ordinance 4400 contains this incomplete sentence. The previous ordinance contained a nearly identical list of criteria at § 3.18.7.B. The corresponding criterion in Ordinance 3638 read "the legal purposes for which zoning exists are not contravened."

- Planning also made a number of advisory comments. Specifically, planning staff noted that although the Zoning Ordinance permits gravel driveways in CD-3L (**Table 4.3.1-B, p. 62**), they are not appropriate in a 61-lot subdivision within the urbanized area of Columbia. If this project progresses to Site Development Plan, staff will recommend that Planning Commission request that the developer provide restrictive covenant prohibiting installation of gravel driveways.
- Columbia Water System's (**CPWS**) consultant (Inflow) noted that a water availability letter was issued on May 8, 2023. The letter will remain valid for 120 days.
- **Maury County Schools** noted that the site is currently in the attendance zones of Woodard Elementary, Whitthorne Middle, and Central High School. New construction or realignment of school attendance zones may be necessary to accommodate new students. This is a standard comment from the school system.

COMMENTARY FROM PROFESSIONAL PLANNING STAFF

The requested CD-3L zoning is consistent with Connect Columbia. The subject site's future land use classification is Suburban Neighborhood. The future land use classification is implemented by the CD-3L and CD-3 character districts, as well as PUDs.

Planning Commission may study the possibility of adverse impacts on surrounding property owners. The previous rezoning request for this property garnered significant public comment. At the request of the Planning Commission, the applicant provided a traffic study (not usually required for a rezoning), safety study, and storm water analysis. Although no material adverse impacts to other properties are known to staff at this time, there is clearly concern in the community about compatibility of development. The reduced density of CD-3L may, or may not, be more appropriate than the CD-3 previously requested. The applicant makes this argument in the response to comments: "[l]ower density gives more green space for water issues, will have less traffic, and will fit more with the existing character of the small portion of Cayce Lane directly across from [the subject] property."

Conditions affecting the area may have changed to a sufficient degree to warrant the Zoning Map Amendment. In response to comments, the applicant makes two claims: 1) that increased demand for housing warrants the rezoning; and 2) that, upon adoption of Ordinance 4400, it was a mistake to assign the CD-2 designation to property previously zoned RS-40. Demand for housing has increased in Columbia, which may warrant rezoning of the subject property. However, critique of City Council's decision not to initiate a mass-rezoning of properties throughout the city without owners' consent does not address the criterion at 8.5.19.H.4(e).

SAMPLE MOTIONS

Approve:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.H** of the City of Columbia Zoning Ordinance have been satisfied and recommend approval of the proposed rezoning *[, subject to technical comments and other conditions presented by planning staff*].

Approve Subject to Conditions:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.H** of the City of Columbia Zoning Ordinance have been satisfied and recommend approval of the proposed rezoning, subject to the following conditions: [*list conditions of approval crafted by Planning Commission*].

Deny:

Move to recommend denial of the requested rezoning having found, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.H** of the City of Columbia Zoning Ordinance are not satisfied [*list specific reasons for denial*].

Defer:

Move to find that there is insufficient information to decide, defer the matter to the next regularly scheduled meeting of the Planning Commission, and request that the [*applicant/staff*] provide: [*list additional information*] for review at a future meeting.

Paul Keltner
Director of Development Services
700 North Garden St.
Columbia, Tn 38401

Mr. Keltner,

This letter serves as a response to the staff comments regarding the rezoning of 6218 Cayce Lane to CD-3L, specifically, Planning Comment 1. 8.5.19.h.4.(e). This criterion requires a determination that conditions affecting the area have sufficiently changed, warranting a Zoning Map Amendment or that the existing zoning was the result of a mistake.

Since 2010, Columbia has seen significant growth in population making our city and Maury County one of the fastest growing areas in Tennessee. Our available housing has not kept up with that growth and the cost of housing for both owners and tenants has dramatically outpaced both the population growth and the availability of homes within the city limits. This growth has primarily occurred on the north side of Columbia, but is now rolling through the center of the city and to the south, southeast and southwest parts of Columbia. The Comprehensive Plan identifies this area as Suburban Neighborhood, and indeed, this is a classification that has been applied, not just by the Comprehensive Plan, and not just to this parcel, but, to the entirety of Cayce Lane from Trotwood Avenue north to Hampshire Pike since the enactment of the Maury County Comprehensive Plan in 2011 and as it has been revised.

While the need for additional housing shows that conditions are sufficiently changed, the general policy of simply translating the prior zoning under the prior code to the existing zoning under the new code was a mistake for this parcel, and many others within the city limits of Columbia. CD-2 is a rural lot designation that is simply unsuitable for property within the city limits and especially for property with a future land use of Suburban Neighborhood. It has created an inconsistency with the majority of the neighborhoods surrounding and along Cayce Lane that should be remedied to place this parcel in compliance with the Comprehensive Plan and in accordance with 1.5.1.H and 1.5.1.K of the code.

This project is in its second iteration of a plan for development. The initial request for CD-3 was given a recommendation for approval by the planning staff, the Planning Commission recommended approval to City Council after determining that 8.5.19.H.4(e) was satisfied. Despite this, the City Council voted to deny the prior request. As requested by the Planning Commission for the prior request, we ordered a traffic and safety study, as well as a water study. We listened to the commentary of the neighbors, and the concerns of all affected parties. After much discussion, analysis of the data and feedback from City Council, we feel that CD-3L fits the needs of the community growth, as would CD-3, and that either zoning would bring this property into compliance with the Comprehensive Plan. Lower density gives more green space for water issues, will have less traffic, and will fit more with the existing character of the small portion of Cayce Lane directly across from our property. At this time, we request the rezoning of 6218 Cayce Lane to CD-3L. Should you have any questions, please feel free to contact us at any time.

Thank you,

Wade Kincaid
KCS Property, LLC

CITY OF COLUMBIA
TENNESSEE

ITEM # I 2.

DEVELOPMENT REVIEW COMMITTEE COMMENT FORM

July 11, 2023

NAME OR DEPARTMENT: Maury County Public Schools

Case Number: 23-0238

Request from Wade Kincaid for Rezoning of property located at 6218 Cayce Lane from CD-2 (Rural Character District) to CD-3L (Neighborhood Large Lot Character District).

COMMENTS:

Woodard Elementary, Whitthorne Middle, Central High School

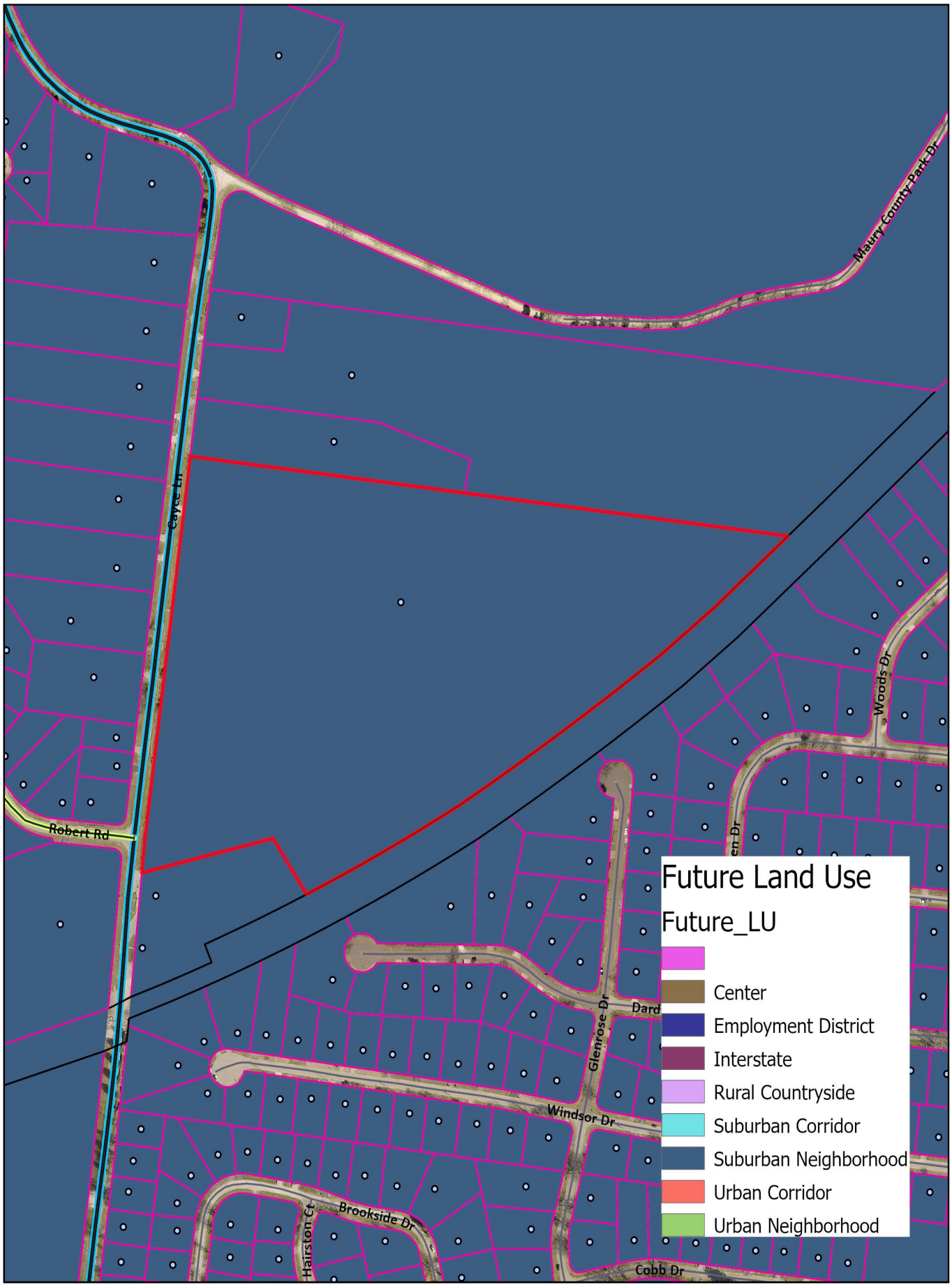
See Attached Capacity Numbers

The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accomodate new students.

Current Enrollment / Capacity

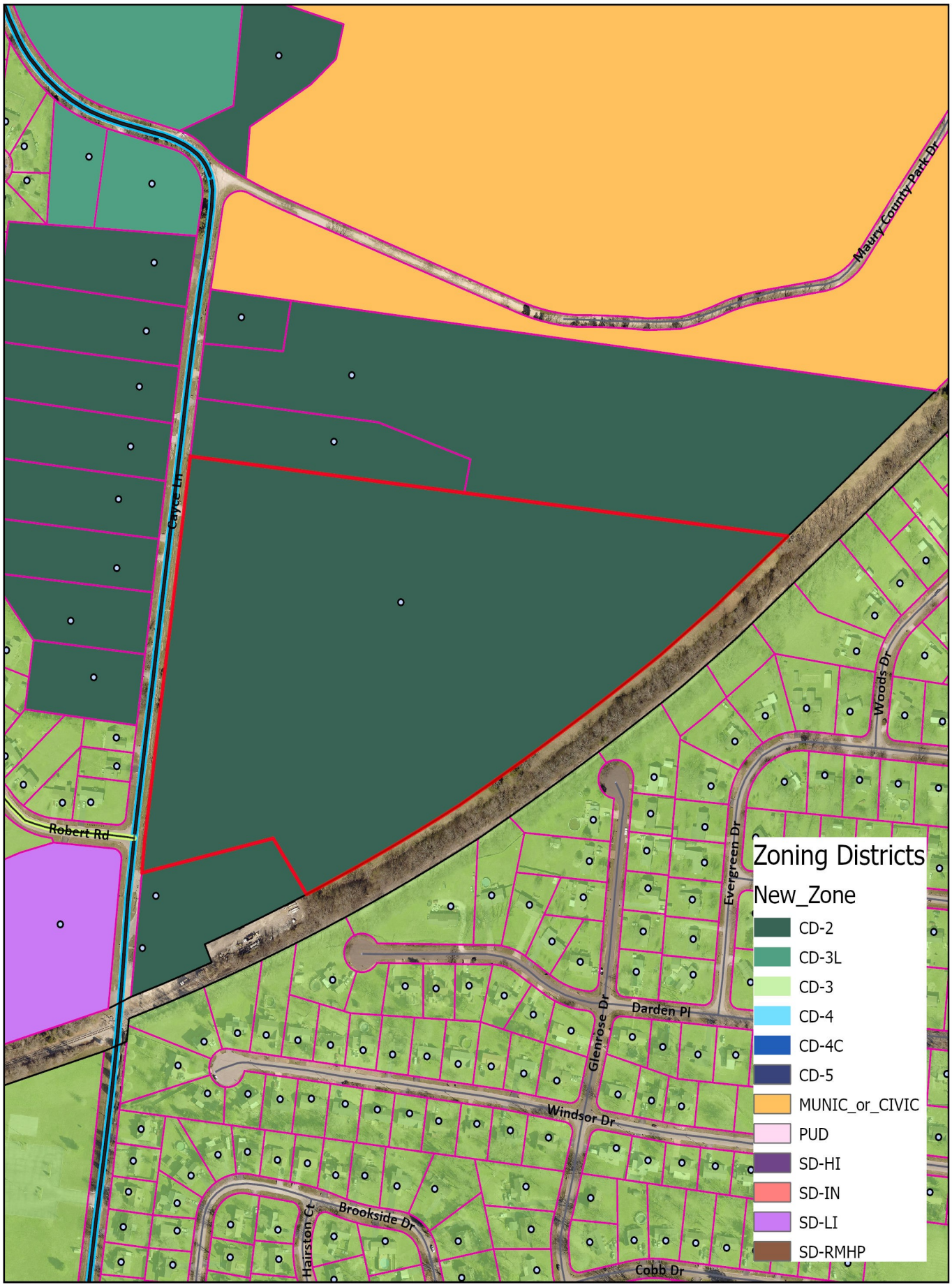
	Facility Name	Date Constructed	Sq. Ft.	Acreage	Capacity	Current Enrollment	Capacity Used
Elementary	Baker	1960	43,920	12	340	325	95.6%
	Battle Creek	2019	90,000	30	700	609	87.0%
	Brown	1968	56,720	20	405	348	85.9%
	Highland	1986	47,800	4.5	380	304	80.0%
	Howell	1999	81,600	17.5	700	644	92.0%
	Mt. Pleasant	1978	80,021	22	630	566	89.8%
	Riverside	1984	71,150	14	500	413	82.6%
	Spring Hill	1984	69,000	10	540	439	81.3%
	Woodard	1990	76,200	17	600	567	94.5%
	Wright	2005	97,765	18	740	631	85.3%
					5535	***4846***	***87.6%***
Middle	Battle Creek	2019	125,000	45	900	693	77.0%
	Cox	1997	137,200	25	900	646	71.8%
	Mt. Pleasant	2001	113,938	29.2	550	414	75.3%
	Spring Hill	2010	158,106	39.49	950	524	55.2%
	Whitthorne	1979	175,600	17	1050	912	86.9%
					4350	***3189***	***73.3%***
High	Central	2016	296,740	55	1700	1402	82.5%
	Mt. Pleasant	1969	110,759	31	600	391	65.2%
	Spring Hill	1993	181,800	57	1200	1165	97.1%
					3500	***2958***	***84.5%***
Unit	Culleoka	1969	205,800	34	1020	903	88.5%
	Hampshire	1978	83,410	13.12	500	407	81.4%
	Santa Fe	1964	94,225	24	650	532	81.8%
					2170	***1842***	***84.9%***
Other	Central Office	1960	15,400	1.5			
	College Hill	1958	42,211	2.26		209	
	Maintenance	1987	9,400	4.7			
	McDowell		46,165	7			
			2,509,930	**550.27**	**15555**	**13044**	

June numbers due to summer system rollover. Updated numbers will be available in August.



Case#23-0238
6218 Cayce Lane

CITY OF COLUMBIA TENNESSEE
DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

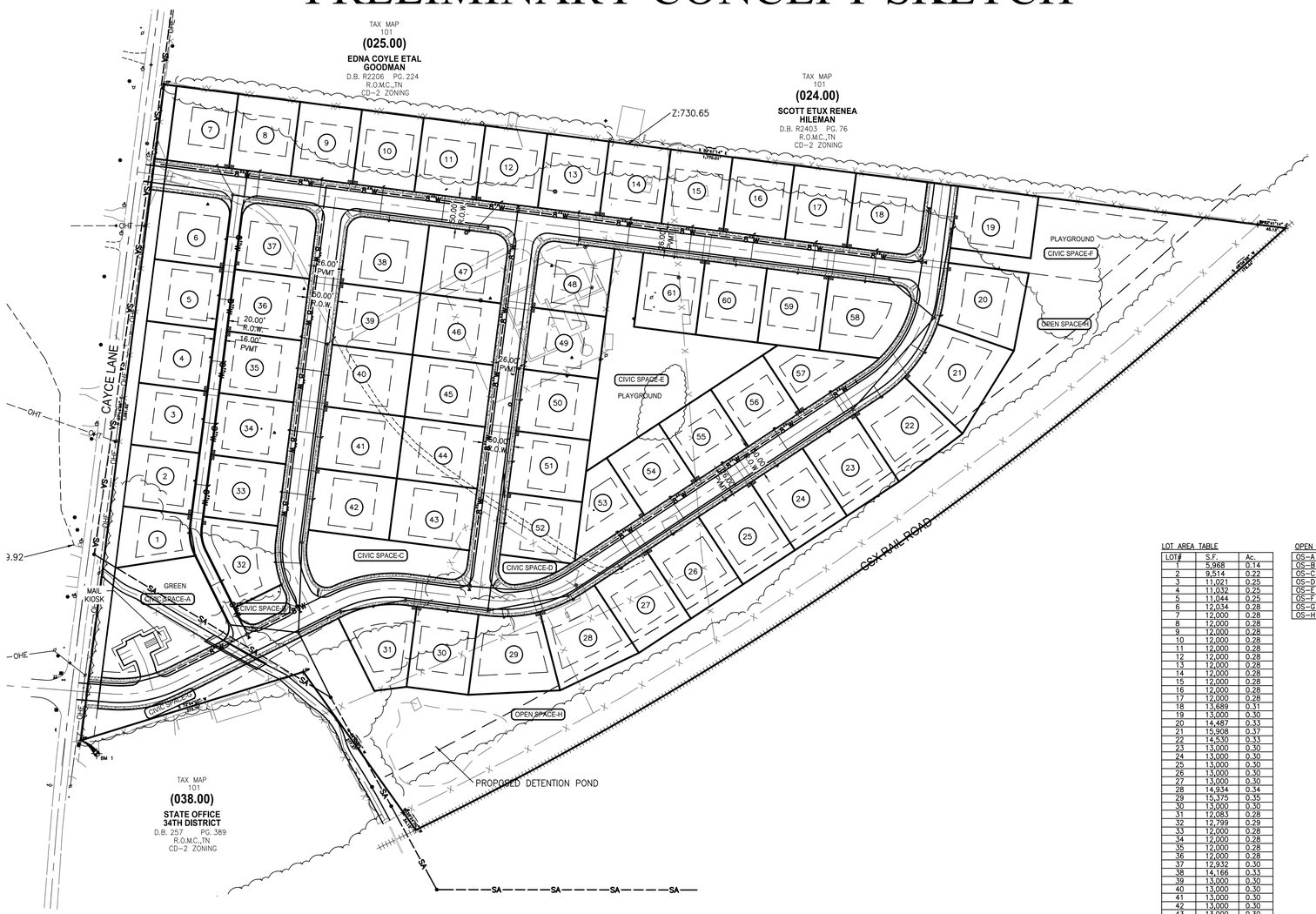


Case#23-0238
6218 Cayce Lane

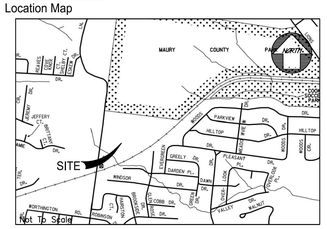
CITY OF COLUMBIA
TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PRELIMINARY CONCEPT SKETCH



Location Map



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SITE DATA:

OWNER: KCS PROPERTY, LLC
1985 RIDGECREST DRIVE
COLUMBIA, TN 38401

PARCEL NUMBER: TAX MAP 101 PARCEL 039.00
DEED BOOK: R2877, PG 600

SUBJECT PARCEL ZONING: CURRENT ZONING CD-2
PROPOSED ZONING CD-3L

ACREAGE OF SITE: 30.76 ACRES
(PROPOSED 222,599.31 S.F. - 5.11 Ac. RIGHT OF WAY DEDICATION)

MINIMUM REQUIRED BUILDING SETBACKS:

30' FRONT
30' REAR OR 15' REAR IF ALLEY LOADED
12' SIDE
30' SIDE SETBACK FOR CORNER LOTS

UTILITY SERVICES:

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COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833

ELECTRIC SERVICE
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PURPOSE NOTE: CONSTRUCT 5,117.22 L.F. OF ROADWAY AND PROVIDE 61 RESIDENTIAL LOTS.

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Tennessee811
Know what's below
Call before you dig

LEGEND

	EXISTING	PROPOSED
WATER MAIN		W
SANITARY SEWER	8"SA	8"SA
STORM SEWER	18"ST	18"ST
OVERHEAD	OHT	OHT
FENCE		
GAS		
DRAINAGE DITCH		
TREE PROTECTION FENCE		
SIGN		
UTILITY POLE		
IRON PIN SET		
EXISTING IRON PIN	EIP	
CONCRETE MONUMENT		
DECIDUOUS TREE		
GATE VALVE IN BOX		
LIGHT POLE		
BENCHMARK	BM 1	

TREE LINE
STORM STRUCTURE LABEL (S-1)
ASPHALT
CONCRETE
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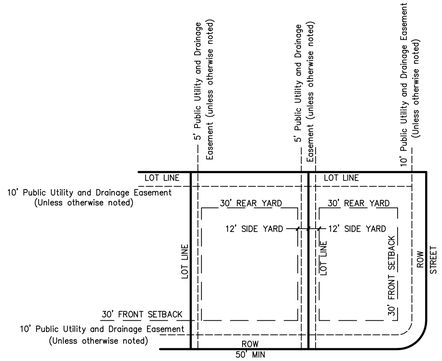
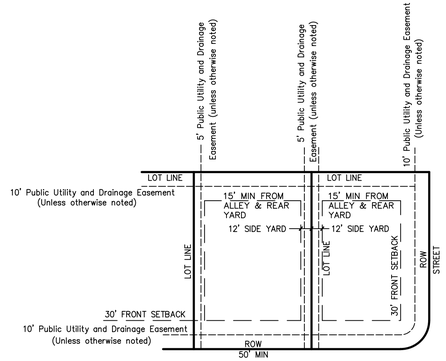


SUBDIVISION TYPICAL LOT LAYOUT



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WES ENGINEERS & SURVEYORS
W.E.S. ENGINEERS AND SURVEYORS
2486 NASHVILLE HWY
COLUMBIA, TENNESSEE 38401
(931) 388-2329

FLOOD STUDY NOTE:

THIS PROPERTY IS NOT LOCATED WITHIN A FLOOD HAZARD AREA AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS (FIRMs) MAP NUMBER 47117C0280E DATED APRIL 16, 2007.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

GERALD W. DAVIS
REGISTERED ENGINEER
AGRICULTURAL & BIOSYSTEMS
No. 107415
STATE OF TENNESSEE
7-19-23

geraldd@wesengineers.com

SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

WES ENGINEERS & SURVEYORS
CIVIL ENGINEERS & LAND SURVEYORS
2486 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com

ENGINEERS & SURVEYORS

Client
KCS PROPERTY, LLC
1985 Ridgecrest Drive
Columbia, TN 38401

DATE
REVISIONS

CAYCE LANE
6218 CAYCE LANE
COLUMBIA, MAURY COUNTY, TENNESSEE
PRELIMINARY CONCEPT SKETCH

Drawn: RP
Checked: GV
Approved: GV
Date: Nov. 21, 2022

Job. no. 22569
Scale:
Vertical: 1"=100'
Horizontal:

MP-1

FILE:J:\WES_Engineers_Surveyors 2022\22569 - 6218 Cayce Lane - KCS\Dwg\Engineering\22569 KCS Cayce LaneAlley Loaded_5_3L.dwg

CPWS

May 8, 2023

Mr. Gerald W. Vick P.E.
WES Engineers & Surveyors
2486 Nashville Hwy
Columbia, TN 38401
Sent via email: gerald@wesengineers.com

RE: Water Availability Letter
6218 Cayce Lane – 107 Units
Tax Map 101, Parcel 39
Columbia, Maury County, TN

Dear Mr. Vick:

Columbia Power and Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, subject to availability of all CPWS furnished equipment and materials appropriate for the development and provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of 107 units. CPWS has evaluated the projected water demands for the proposed residential development in the water system hydraulic model and is able to meet a fire-flow capacity of 1,000 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connection will be made to the existing 12-inch water main located on Cayce Lane.
- Minimum size 8-inch, looped water mains will be required throughout the development.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Present the attached hydrant analysis report for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide site base CAD files in DWG format, including roads, lot lines, existing and proposed contours, and other existing and proposed utilities, for use in development of water construction drawings.
- Remit to CPWS new water service fees:

New Water Service Fee: $1,500 + $370 per SFU (107 SFUs)	$41,090.00

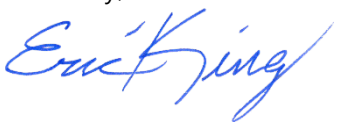
- CPWS will then develop water construction drawings and submit to TDEC for approval. Upon approval by TDEC and payment of meter and impact fees by the applicant, applicant may then schedule a pre-construction meeting with CPWS. Pre-construction meeting will not be scheduled until fees are paid in full or surety is provided in lieu of full payment. Final meter and impact fees are subject to change based on final design and meter size determination. Meter fees are subject to change based on market costs at time of purchase. Meters will not be set until meter and impact fees are paid.

Meter Fee: $540 per 3/4" meter (107 meters)	$57,780.00
Impact Fee: $4,500 per 3/4" meter (107 meters)	$481,500.00
Total Meter and Impact Fees Due =	**$539,280.00**

- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.

If you have any questions, please feel free to contact me at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,



Eric King, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-096

CITY OF COLUMBIA
TENNESSEE

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, July 11, 2023

ITEM NO.
23-0238

DESCRIPTION: Proposed rezoning from CD-2 to CD-3L

RECOMMENDATION: For final recommendation please see staff report.

COMMENTS:

Planning

1. Please provide a narrative response to criterion 8.5.19.H.4(e) explaining why the applicant believes conditions affecting the area have changed sufficiently to warrant the Zoning Map Amendment.
2. The water availability letter is for a different nearby property (7,200 square-foot retail strip center). Also, it will expire before the August Planning Commission meeting date. Please provide the correct letter.
3. Advisory: Gravel driveways are not appropriate in a 61-lot subdivision within the urbanized area of Columbia. If this project progresses to Site Development Plan, staff will recommend that Planning Commission request that the developer provide restrictive covenant prohibiting installation of gravel driveways (Table 4.3.1-B, p. 62).
4. Advisory: Playgrounds and other Civic Space types may need to be modified at the time of Site Development Plan to better conform to the standards at 5.3.3 of the Ordinance.
5. Advisory: Total of Civic Spaces ("Open Spaces) is 25.8 percent of the total site, which exceeds the 20% maximum in 5.3.1.A (p. 328). Excluding Open Space H, the total is 8.4 percent of the total site area. Please distinguish between Civic Spaces and other open spaces at the time of Site Development Plan.
6. Advisory: Open Space H as depicted in the concept plan will not meet the minimum standards for a Green in Table 5.3.3-B (p. 331).
7. Concept plan demonstrates feasibility of developing to the requested (CD-3L standard) actual development of the site will be controlled by any subsequent Site Development Plan and Preliminary Plat approval.

Engineering

8. No comments on rezoning

Columbia Power

9. Columbia Power System has an existing power line near your proposed development.

We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
• Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

Building

10. No comment.

Police

11. No comments provided.

Public Works

12. No comments.

Fire

13. No comments

Wastewater

14. Depth of all gravity mains should be minimized. Sewer should be located in the middle of the road.

Maury County Schools

15. Woodard Elementary, Whitthorne Middle, Central High School
    See Attached Capacity Numbers
    The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.

Maury County E911

16. Contact Maury County 911 for application on street names and subdivision name request.

ATT

17. ATT intends to serve.

Columbia Water

18. "A water availability letter was issued on 5-8-23 and is valid for 120 days. The availability of capacity to serve is based on a determination by the Fire Marshal of fire flow requirements and the information submitted on the Water Service Availability Request application. Any off-site improvements detailed in the availability letter are the responsibility of the developer/owner. All public water system improvements are subject to the preparation and approval of detailed construction plans prepared in accordance with CPWS and Tennessee Department of Environment and Conservation requirements."

Atmos Energy

19. No comment provided.

Duck River Electric Membership Corp

20. No comments provided.

Maury County Highway Dept.

21. No comment provided.

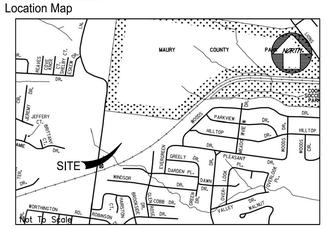
ATTACHMENTS: Concept Plan

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

PRELIMINARY CONCEPT SKETCH

TN GRID NORTH

Location Map



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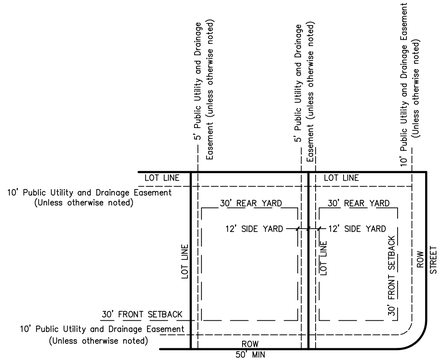

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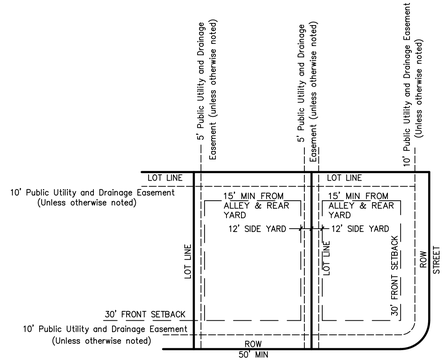

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100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

GERALD W. VICK III
REGISTERED ENGINEER
AGRICULTURE & BIOSYSTEMS
OWNER
No. 107415
STATE OF TENNESSEE

gerald@wesengineers.com

SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

WES ENGINEERS & SURVEYORS
CIVIL ENGINEERS & LAND SURVEYORS
2486 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com

ENGINEERS & SURVEYORS

Client
KCS PROPERTY, LLC
1985 Ridgecrest Drive
Columbia, TN 38401

REVISIONS	DATE

CAYCE LANE
6218 CAYCE LANE
COLUMBIA, MAURY COUNTY, TENNESSEE
PRELIMINARY CONCEPT SKETCH

Drawn:	RP
Checked:	GV
Approved:	GV
Date:	Nov. 21, 2022
Job. no.	22569
Scale:	
Vertical:	1"=100'
Horizontal:	

MP-1

FILE:\J:\WES_Engineers_Surveyors 2022\22569 - 6218 Cayce Lane - KCS\Dwg\Engineering\22569 KCS Cayce LaneAlley Loaded_5_3L.dwg

VOLKERT
750 Old Hickory Boulevard,
Suite 1-230
Brentwood, Tennessee 37027
615.257.1761
www.volkert.com

May 10, 2023

Glenn Harper, PE
City Engineer
City of Columbia
700 N Garden Street
Columbia, TN 38401

Re: Cayce Residential
Traffic Impact Study
Review Comments

Dear Glenn:

This memorandum provides the findings of the independent review of the Cayce Residential Traffic Impact Study (TIS). Our review includes the traffic projections and the operational analyses; evaluation of the proposed roadway network; review and evaluation of the recommended infrastructure improvements; and identification of any recommended modifications or additions to the recommended infrastructure improvements identified in the TIS.

General Project Information

The Cayce Residential TIS, dated May 2023, was completed by Fischbach Transportation Group, LLC for WES Engineers & Surveyors. The Cayce Residential development in Columbia, TN is proposed to be located on the east side of Cayce Lane, north of the existing railroad tracks. The development will consist of 104 single-family homes with two access points along Cayce Lane. The development is expected to be complete in three years, which is a 2026 horizon. Traffic counts were conducted by Fischbach Transportation Group, LLC on a typical weekday in in March 2023 for the intersections of Hampshire Pike and Cayce Lane and Cauce Lane and Eskew Drive. Counts from the 2020 Highlands development were used for the intersection of Williamsport Pike and Cayce Lane. Counts from the 2022 Highland Convenience Market development were used for the intersection of Trotwood Avenue and Cayce Lane/Sunnyside Lane. To account for background traffic, the existing traffic was grown by 2% per year for three years. Additionally, the traffic from previously approved developments, Trotwood & Foster, Crichton Property, Highland Convenience Market, and The Highlands, was included in the background growth.

Road Audit of Cayce Lane

In the vicinity of the project site, Cayce Lane includes negligible horizontal curvature and minimal vertical curvature. However, between Eskew Drive and the project site, there are two significant horizontal curves. The western of the two curves, immediately south of Eskew Drive, has a radius of approximately 600 feet, and the eastern curve has a radius of approximately 100 feet. Existing signage includes warning signs to mark intersections, sharp curves, reduced speed limits in advance of the curves, and retro-reflective chevron signs are provided through each of the curves. Fischbach Transportation Group, LLC

conducted a traffic count and speed study along Cayce Lane, south of Wellington Drive. The results indicate that this roadway segment accommodates approximately 4,300 vehicles per day with the AM and PM peak hours each representing approximately 9% of the total daily volume. The data indicates that approximately 71% of the vehicles along this segment are conventional passenger vehicles with an 85th percentile speed of 40mph. Crash data was obtained from the City of Columbia Police Department for the segment of Cayce Lane from Hampshire Pike to the exiting railroad tracks from January 1, 2018 through April 25, 2023. There were a total of 96 incidents along this roadway segment with 16 (16.7%) involving possible or suspected injuries. 12 of these 16 crashes occurred in the curves between Wellington Drive and the project access.

Trip Generation and Trip Distribution

Future trips generated by the Cayce Residential development were calculated using ITE's *Trip Generation*, 11th Edition based on the future land use. The land use used to determine the project-generated trips was 104 single-family detached homes. The total development is expected to produce 1,046 trips per day with 77 new trips in the AM peak hour and 103 new trips in the PM peak hour.

	Total Entering Trips	Total Exiting Trips
AM	19	58
PM	65	38

These trips were distributed throughout the study area based on a review of land uses and population densities in the area and the existing peak hour turning movement counts. The directional distribution assumes approximately 25% of the project-generated traffic will be oriented to the east along Hampshire Pike, 20% to the west along Williamsport Pike, 20% to the east along Trotwood Avenue, 15% to the south along Cayce Lane, 15% to the west along Hampshire Pike, and 5% to the west along Trotwood Avenue.

Capacity/Level of Service Analyses

The operational analyses for the intersections within the study area was completed utilizing *HCS 2023* software, which uses the methods from *Highway Capacity Manual 7th Edition*. The intersections were evaluated for the weekday AM and PM existing, background, and projected traffic conditions. Additionally, turn lane and sight distance analysis was completed.

Intersection Capacity Analysis

In the projected 2026 conditions, the analyses indicate that all of the critical turning movements are expected to operate at LOS D or better during both peak hours. Additionally, the signalized study intersections are expected to operate at LOS D or better during both peak hours.

Turn Lane Warrant Analysis

The intersections along Cayce Lane at both of the project access locations were evaluated for the need for a southbound left turn land and a northbound right turn lane based on methodology presented in *NCHRP report 457 – Evaluating Intersection Improvements: An Engineering Study Guide*. Based on the total projected peak hour traffic volumes presented in the TIS, neither a southbound left turn lane nor a

northbound right turn lane is warranted along Cayce Lane at the project access locations. *TDOT Design Guidelines should be utilized for determining if a turn lane is warranted as well as length required. NCHRP does not provide length.*

Intersection Sight Distance Analysis

The available intersection sight distance was evaluated for the intersection of Cayce Lane and Eskew Drive. The criteria for intersection sight distance is provided in the AASHTO *Policy on Geometric Design of Highways and Streets*, commonly known as the *Green Book*. The sight distance available to and from the north at the intersection of Cayce Lane and Eskew Drive is adequate. However, insufficient intersection sight distance is available to and from the south at the intersection of Cayce Lane and Eskew Drive due an existing curve.

Recommendations Identified in the TIS

The following conclusion and recommendations are included in the study and our response.

Williamsport Pike and Cayce Lane

- The analyses conducted for the purposes of this study indicate that all of the critical turning movements at this unsignalized intersection will operate at LOS C or better during both peak hours with existing, background, and total projected conditions. Therefore, no laneage or traffic control modification are recommended at this intersection in conjunction with the proposed project.
  Staff Response: *We agree that no additional improvements are needed at this intersection due to the Cayce Lane Residential development.*

Hampshire Pike and Cayce Lane

- The analyses conducted for the purposes of this study indicate that this signalized intersection operates at LOS D or better during both peak hours with existing, background, and total projected conditions. Therefore, no laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.
  Staff Response: *We agree that no additional improvements are needed at this intersection due to the Cayce Lane Residential development.*

Cayce Lane and Eskew Drive

- The analyses conducted for the purpose of this study indicate that all of the critical turning movements at this unsignalized intersection will operate at LOS B or better during both peak hours with existing, background, and total projected conditions. Therefore, no laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.
  Staff Response: *We agree that no additional improvements are needed at this intersection due to the Cayce Lane Residential development.*

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Brentwood, Tennessee 37027
615.257.1761
www.volkert.com

Trotwood Avenue and Cayce Lane/Sunnyside Lane

- The analyses conducted for the purpose of this study indicate that this signalized intersection operates at LOS D or better during both peak hours with existing, background, and total projected conditions. Therefore, no laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.
  Staff Response: *We agree that no additional improvements are needed at this intersection due to the Cayce Lane Residential development.*

Cayce Lane and Northern Project Access

- The analyses conducted for the purposed of this study indicate that all of the critical turning movements at this unsignalized intersection will operate at LOS B or better during both peak hours with total projected conditions, and the average vehicle queues are expected to be low. Therefore, the project access should be constructed to include one eastbound entering lane and one westbound exiting lane.
- The analyses conducted for the purposes of this study indicate that the intersection of Cayce Lane and the northern project access will operate acceptably even without dedicated turn lanes on Cayce Lane. Also, the total projected traffic volumes at this intersection are below the thresholds that have been established to identify when dedicated turn lanes are warranted at unsignalized intersections. Therefore, the intersection of Cayce Lane and the northern project access should be constructed as shown in the figure included with these conclusions and recommendations.
  Staff Response: *We agree that this access should be constructed with one entering and one existing lane and that dedicated turn lanes along Cayce Lane are not warranted. Since Cayce Lane is an existing road, sight distance should have been measured in the field at the approximate access location. This access should be constructed according to MUTCD, AASHTO, TDOT, and City of Columbia standards, including providing sufficient sight distance.*

Cayce Lane and Southern Project Access

- The analyses conducted for the purposed of this study indicate that all of the critical turning movements at this unsignalized intersection will operate at LOS B or better during both peak hours with total projected conditions, and the average vehicle queues are expected to be low. Therefore, the project access should be constructed to include one eastbound entering lane and one westbound exiting lane.
- The analyses conducted for the purposes of this study indicate that the intersection of Cayce Lane and the northern project access will operate acceptably even without dedicated turn lanes on Cayce Lane. Also, the total projected traffic volumes at this intersection are below the thresholds that have been established to identify when dedicated turn lanes are warranted at unsignalized intersections. Therefore, the intersection of Cayce Lane and the northern project access should be constructed as shown in the figure included with these conclusions and recommendations.
  Staff Response: *We agree that this access should be constructed with one entering and one existing lane and that dedicated turn lanes along Cayce Lane are not warranted. Since Cayce Lane is an existing road, sight distance should have been measured in the field at the approximate*

access location. This access should be constructed according to MUTCD, AASHTO, TDOT, and City of Columbia standards, including providing sufficient sight distance.

Future Improvements to Cayce Lane

- Currently, Cayce Lane includes two significant horizontal curves between Eskew Drive and the project site. The western of these curves, immediately south of Eskew Drive, has a radius of approximately 600 feet, and the eastern curve has a radius of approximately 100 feet. Also, limited intersection sight distance is available for motorists on Eskew Drive, and these limitations are compounded by the existing grade on Eskew drive, which requires additional start-up time for motorists turning onto Cayce Lane. However, the vehicle speeds measured on Cayce Lane are reasonable, and ample warning signage is provided to notify motorists of upcoming intersections, sharp curves and reduced speed limits in advance of these curves. Also, retro-reflective chevron signs are provided through each of the two curves.
- In order to maximize safe and efficient operations on this segment of Cayce Lane, the following short-term and long-term modifications should be considered even if the proposed project is not constructed in order to address existing conditions on Cayce Lane.
  1. **Thermoplastic Rumble Strips**
     - Surface-mounted rumble strips are relatively low-cost treatments that provide auditory and palpable warning of upcoming conditions. Specifically, these treatments can encourage motorists to reduce speeds and remain alert. However, because these treatments rely on noise and vibration, they can disturb nearby residents and noise-sensitive habitats. Also, they require maintenance.
     - Currently, the *Manual on Uniform Traffic Control Devices (MUTCD)*, which was published in 2009 by the Federal Highway Administration, does not provide any guidance about the design and installation of transverse rumble strips. Therefore, if rumble strips are installed on Cayce Lane in advance of each of the two curves, the design and installation of these arrays should be consistent with industry standards and should be reviewed and approved by the City of Columbia Engineering Department.
     - Thermoplastic rumble strips are not specifically warranted by the proposed residential project and should be considered even if the proposed project is not constructed.
  2. **Clearing of Vegetation**
     - Currently, numerous utility poles are located on the north side of Cayce Lane, through and between the two existing curves. Also, stands of mature trees are located on both sides of the western curve and the inside of the eastern curve, limiting the sight distances available for motorists traveling through this roadway segment. Although some or all of these trees may be located outside the public right-of-way, consideration should be given to removing all of the trees within 10 feet of the edge of pavement between Eskew Drive and the gravel driveway located within the eastern curve.

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- The clearing of vegetation is not specifically warranted by the proposed residential project and should be considered even if the proposed project is not constructed.

3. **Realignment of Cayce Lane**
    - Should thermoplastic rumble strips and the clearing of vegetation not reduce the frequency of vehicle incidents on Cayce Lane within the two existing curves, the most effective way to reduce vehicle conflicts on this roadway segment would be to realign Cayce Lane to reduce the horizontal and vertical curvature between Eskew Drive and the proposed project site. This would not be a low-cost modification. However, it would provide optimum safe and efficient operations on this corridor.
    - The potential realignment of Cayce Lane is not specifically warranted by the proposed residential project and should be considered even if the proposed project is not constructed.

Staff Response: *We agree that these suggested improvements to Cayce Lane would improve safety along Cayce Lane near the intersection with Eskew Drive. While the potential improvements to Cayce Lane are not needed due to the Cayce Lane Residential development, it is the City's discretion to ask the developer to cover a portion or all of the lower-cost alternatives (#1 and #2 above) as part of the development's construction. As traffic increases along Cayce Lane, the City should continue to monitor the crash rate and severity of crashes. Should the City decide to implement any of the improvements, they should be constructed according to MUTCD, AASHTO, TDOT, and City of Columbia standards.*

Additional Staff Response:

- *Sight distance should have been measured during the site visit at the approximate access locations. From our review it appears that there is sufficient distance at the proposed access locations.*

Conclusion

The Cayce Lane Residential Traffic Impact Study submitted May 2023 covers the typical required traffic impact study components and identifies several feasible and beneficial infrastructure improvements. It is recommended that Fischbach Transportation Group, LLC make a note of the comments identified above; however, we require no additional evaluation or analysis.

Should you have any questions or need additional information, please contact me.

Sincerely,

Dyan C. Damron, PE, PTP
Director of Traffic, Planning & ROW
Volkert, Inc.

March 21, 2023

Mr. Gerald W. Vick P.E.
WES Engineers & Surveyors
2486 Nashville Hwy
Columbia, TN 38401
Sent via email: gerald@wesengineers.com

RE: Water Availability Letter
Cayce at Trotwood
5000 Trotwood Ave.
Tax Map 112, Parcel 4.05
Columbia, Maury County, TN

Dear Mr. Vick:

Columbia Power and Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of a 7,200 square-foot retail strip center with 2-hour fire walls. CPWS has evaluated the projected water demands for the proposed commercial development in the water system hydraulic model and is able to meet a fire-flow capacity of 1,500 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connection will be made to the existing 12-inch water main located on the East boundary of the subject property.

- Rental/lease units will be served by a master meter. Any sub-metering for individual units is the responsibility of the applicant.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Present the attached hydrant analysis report for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide site base CAD files in DWG format, including roads, lot lines, existing and proposed contours, and other existing and proposed utilities, for use in development of water construction drawings.
- Remit to CPWS new water service fees:

New Water Service Fee: $1,500 + $370 per SFU (16.3 SFUs)	$7,531.00

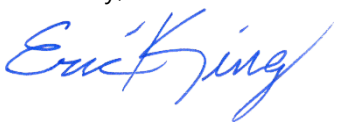
- CPWS will then develop water construction drawings and submit to TDEC for approval. Upon approval by TDEC and payment of meter and impact fees by the applicant, applicant may then schedule a pre-construction meeting with CPWS. Pre-construction meeting will not be scheduled until fees are paid in full or surety is provided in lieu of full payment. Final meter and impact fees are subject to change based on final design and meter size determination. Meter fees are subject to change based on market costs at time of purchase. Meters will not be set until meter and impact fees are paid.

Meter Fee: $7,000 per 6" meter (1 meter)	$7,000.00
Impact Fee: $25,000 per 2" meter (1 meter equivalent)	$25,000.00
Total Meter and Impact Fees Due =	**$32,000.00**

- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.

If you have any questions, please feel free to contact Mr. Jonathan Hardin or myself at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for sixty (60) days from the date of this letter.

Sincerely,



Eric King, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-095

HYDRANT FLOW ANALYSIS

HYDRANT # & LOCATION: 892 6201 Cayce Ln DATE:

MODEL BY: Inflo Design Group, LLC SYS. DEMAND Max Day DURATION: 1 hrs.

WATER SUPPLIED BY: Columbia Power and Water Systems

PURPOSE OF TEST: 6218 Cayce Ln

MODEL DATA

FLOW HYDRANT(S)	892	n/a	n/a
GPM:	**850**	0	0

TOTAL FLOW DURING SIMULATION: **850** GPM

GAUGE HYDRANT

HYDRANT # & LOCATION: 601 6221 Cayce Ln

CONDITION 1
STATIC 54 PSI RESIDUAL: 47 PSI

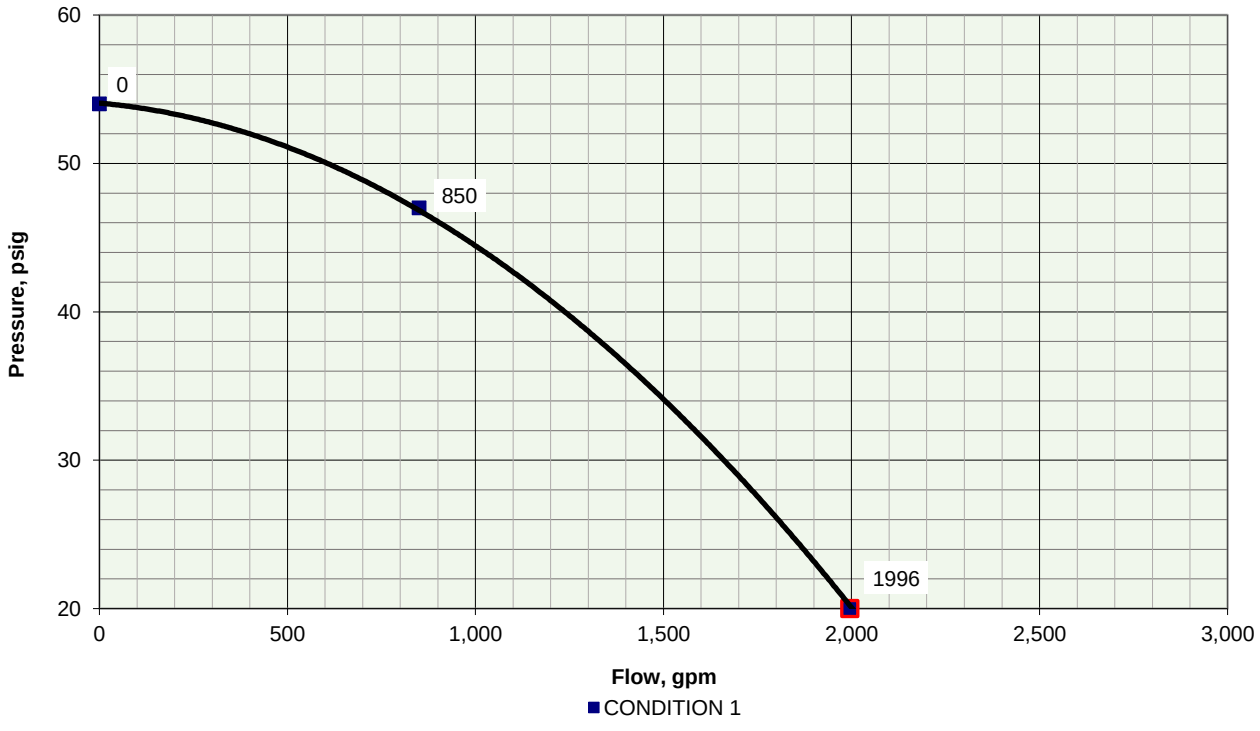
CONDITION 2
STATIC _____ PSI RESIDUAL: _____ PSI

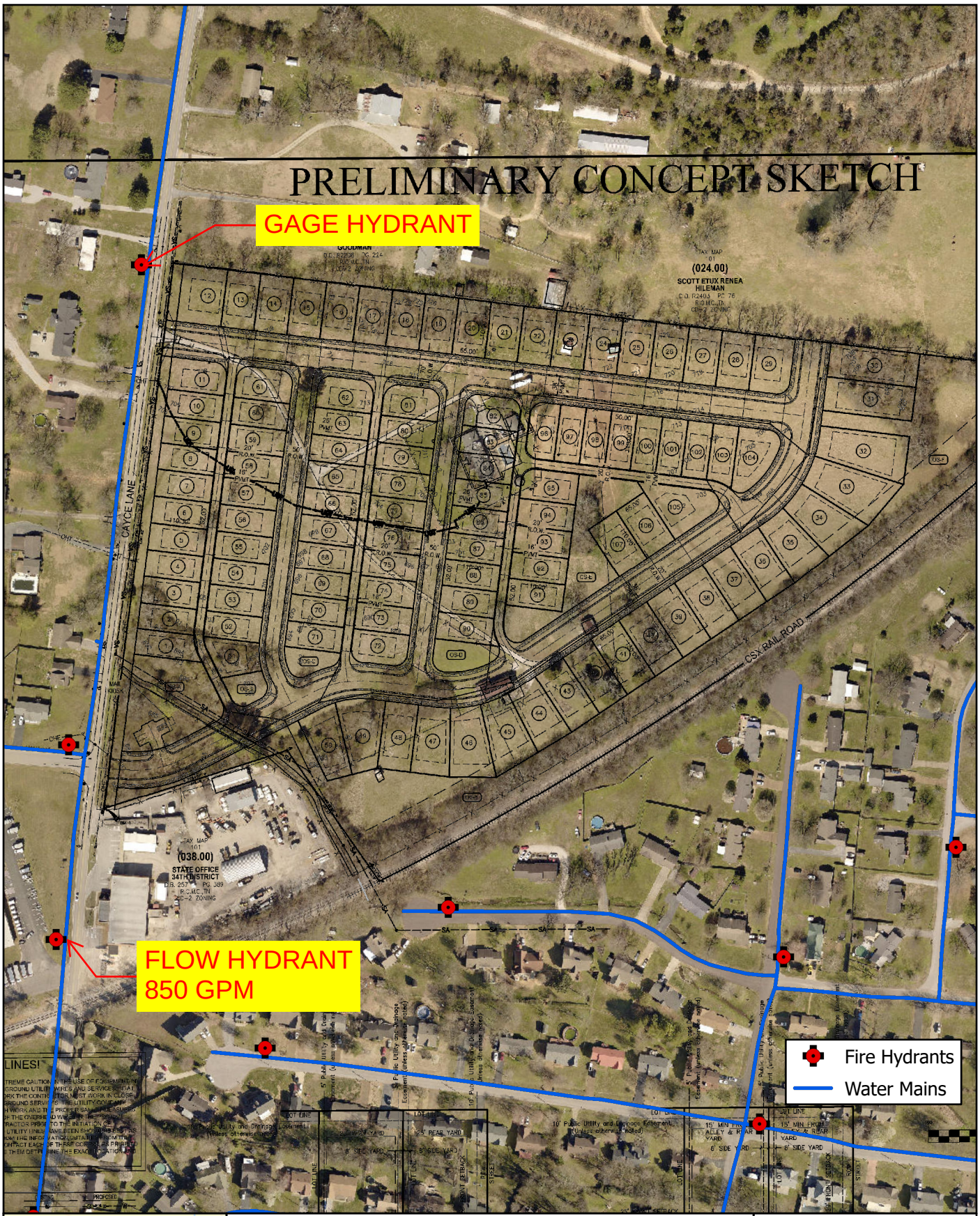
RESULTS: AT 20 PSI RESIDUAL

CONDITION 1 **1996** GPM

CONDITION 2 **---** GPM

REMARKS: Performance based on service elevation of 710' and current CPWS water infrastructure and do not account for additional losses associated with development piping.





Hydrant Analysis Location Map

6218 Cayce Lane

Tax Map 101, Parcel 039.00

Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA

2022

Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

N

0 0.03 0.05 Mi

0 0.05 0.1 Km

Columbia Fire & Rescue

Fire Flow Requirements

Water Purveyor: Columbia Power & Water System

Date: 11/15/22
Name: Gerald W. Vick, PE
Phone: 931-388-2329
Email: gerald@wesengineers.com
Address/Parcel ID: 6218 Cayce Lane - Tax Map 101 Parcel 39.00
Property Type: (•) Residential ( ) Commercial ( ) Industrial
Construction Type: Wood Frame V-B
Enclosed Area (ft^2): Single Family <3,600

FILLED OUT BY COLUMBIA FIRE AND RESCUE

NFPA Sprinkler Type: NFPA 13D

Water System Demand without Sprinkler Credit

Fire flow Requirements (International Fire Code Appendix B)

Fire Flow: 1,000 gpm Duration: 1 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

Water System Demand with Sprinkler Credit

Fire flow requirements (International Fire Code Appendix B)

Fire Flow: 500 gpm Duration: 1/2 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

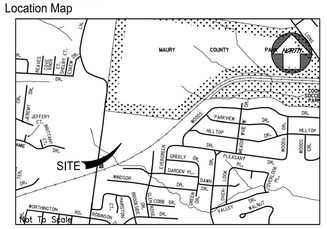
Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

Fire Plan Reviewer: Brad Massey Date: 11-18-2022

PRELIMINARY CONCEPT SKETCH

Location Map



SITE DATA:

OWNER: KCS PROPERTY, LLC
1985 RIDGECREST DRIVE
COLUMBIA, TN 38401

PARCEL NUMBER: TAX MAP 101 PARCEL 039.00
DEED BOOK: R2877, PG 600

SUBJECT PARCEL ZONING: CURRENT ZONING CD-2
PROPOSED ZONING CD-3

ACREAGE OF SITE: 30.76 ACRES
(PROPOSED 310,468.30 S.F. - 7.12 Ac.
RIGHT OF WAY DEDICATION)

MINIMUM REQUIRED BUILDING SETBACKS:

25' FRONT
25' REAR OR 15' REAR IF ALLEY LOADED
8' SIDE
20' SIDE SETBACK FOR CORNER LOTS

UTILITY SERVICES:

WATER SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833

ELECTRIC SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833

PURPOSE NOTE: CONSTRUCT 4,359.12 L.F. OF ROADWAY AND PROVIDE 107 RESIDENTIAL LOTS.

NOTES:

1. INSTALLATION OF HVAC EQUIPMENT IN P.U.D.E.'s WITH BURIED PIPES IS PROHIBITED.
2. ALL DRAINAGE SWALES AND BERMS TO BE MAINTAINED BY INDIVIDUAL HOMEOWNERS.

BENCHMARK

BENCHMARK #1
EXIST IRON PIN
ELEV = 691.10'
N = 464,418.94
E = 1,643,263.05
TN STATE PLANE
COORDINATE SYSTEM,
NAD 83 DATUM

WARNING! UTILITY LINES!

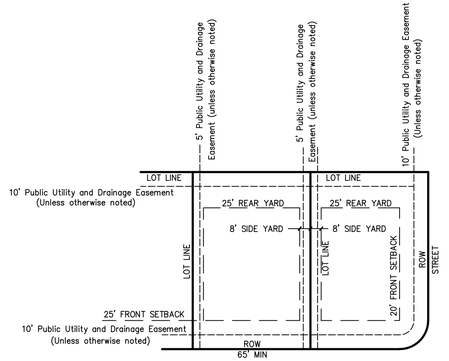
THE CONTRACTOR WILL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD AND UNDERGROUND UTILITY WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK THE CONTRACTOR MUST WORK IN CLOSE PROXIMITY OF OVERHEAD OR UNDERGROUND SERVICES, THE UTILITY COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN. A THOROUGH EXAMINATION OF THE OVERHEAD WIRES IN THE PROJECT AREA SHOULD BE MADE BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION. THE UNDERGROUND UTILITY LINES HAVE BEEN SHOWN AS BEST AS CAN BE DETERMINED AT THIS TIME FROM THE INFORMATION OBTAINED FROM THE SURVEY. THE CONTRACTOR SHALL CONTACT EACH OF THESE COMPANIES PRIOR TO BEGINNING CONSTRUCTION AND HAVE THEM DETERMINE THE EXACT LOCATION AND TYPE OF THEIR SERVICES.

Tennessee811 Know what's below Call before you dig.

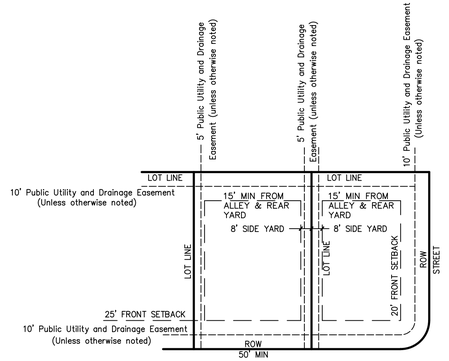
LEGEND

	EXISTING	PROPOSED
WATER MAIN		W
SANITARY SEWER	8"SA	8"SA
STORM SEWER	18"ST	
OVERHEAD		
FENCE		
GAS		
DRAINAGE DITCH		
TREE PROTECTION FENCE		
SIGN		
UTILITY POLE		
IRON PIN SET		IPS
EXISTING IRON PIN		EIP
CONCRETE MONUMENT		
DECIDUOUS TREE		
GATE VALVE IN BOX		
LIGHT POLE		
BENCHMARK	BM 1	

TREE LINE
STORM STRUCTURE LABEL (ST)
ASPHALT
CONCRETE
PARKING SPACES (14)



SUBDIVISION TYPICAL LOT LAYOUT



SUBDIVISION TYPICAL LOT LAYOUT ALLEY LOADED

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

GEOTECHNICAL NOTE:

CONTRACTOR TO COMPLETE A GEOTECHNICAL STUDY CONDUCTED ON THIS SITE PRIOR TO COMINCEMENT OF CONSTRUCTION. THE DESIGN FOR THE SITE IMPROVEMENTS SHOWN ON THIS PLAN HAVE RELIED ON GENERAL INFORMATION FROM FIELD REVIEW OF EXISTING TERRAIN. IF, IN THE PURSUIT OF THIS WORK BY THE CONTRACTOR, CONDITIONS OR CIRCUMSTANCES ARE ENCOUNTERED THAT ARE DIFFERENT THAN REFLECTED IN THESE PLANS OR THAT APPEAR TO IMPACT THE SCOPE OF THE WORK, THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE CIVIL ENGINEER, THE GEOTECHNICAL ENGINEER AND THE OWNER/DEVELOPER. BEFORE ANY REMEDIAL COURSE OF ACTION OR DESIGN CHANGE IS INITIATED, ALL PARTIES TO THE PROCESS (OWNER, CIVIL ENGINEER, GEOTECHNICAL ENGINEER, AND CONTRACTOR) MUST BE IN AGREEMENT AND THE MAGNITUDE OF THE COST/TIME REQUIRED FOR THE MEASURES ESTABLISHED.

SITE BENCHMARK NOTE:

CONTRACTOR SHALL ESTABLISH A BENCHMARK PRIOR TO CONSTRUCTION. EXISTING BENCHMARK MUST BE RE-VERIFIED AND APPROVED BY THE ENGINEER/SURVEYOR PRIOR TO USE.

BOUNDARY & TOPOGRAPHIC SURVEY PROVIDED BY:

WES ENGINEERS & SURVEYORS

W.E.S. ENGINEERS AND SURVEYORS
2486 NASHVILLE HWY
COLUMBIA, TENNESSEE 38401
(931) 388-2329

FLOOD STUDY NOTE:

A PORTION OF THE PROPERTY IS LOCATED WITHIN A FLOOD HAZARD AREA AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS (FIRM's) MAP NUMBER 47117C0280E DATED APRIL 18, 2007.

GERALD W. DVICK
REGISTERED ENGINEER
AGRICULTURE
ENGINEER
No. 107415
STATE OF TENNESSEE
17 22
NOT FOR CONSTRUCTION
gerald@wesengineers.com

SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

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WES ENGINEERS & SURVEYORS
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COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com

ENGINEERS & SURVEYORS

Client
KCS PROPERTY, LLC
1985 Ridgecrest Drive
Columbia, TN 38401

REVISIONS	DATE

CAYCE LANE

6218 CAYCE LANE
COLUMBIA, MAURY COUNTY, TENNESSEE
PRELIMINARY CONCEPT SKETCH

Drawn:	RP	Checked:	GV	Approved:	GV	Date:	Nov. 21, 2022

Job. no. 22569
Scale: Vertical: 1"=100' Horizontal:

MP-1

FILE: J:\ WES_Engineers_Surveyors 2022\22569 - 6218 Coyce Lane - KCS\Dwg\Engineering\22569 KCS Coyce LaneAlley Loaded_2.dwg

BK/PG:R2877/600-603
22018670

4 PGS : WARRANTY DEED	
NANCY MCMEEN 289567 - 22018670	
09/30/2022 - 10:42 AM	
VALUE	1480000.00
MORTGAGE TAX	0.00
TRANSFER TAX	5476.00
RECORDING FEE	20.00
DP FEE	2.00
REGISTER'S FEE	1.00
TOTAL AMOUNT	5499.00

STATE of TENNESSEE, MAURY COUNTY
JOHN FLEMING
REGISTER OF DEEDS

This Instrument Prepared By:
Thomas M. Hutto Esq.
Dale, Hutto & Lyle, PLLC
805 South Garden Street
P.O. Box 1017
Columbia, TN 38402-1017

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, this indenture entered into between **STORMY A. WALKER,** FIRST PARTY, which expression shall include heirs, assigns and personal representatives, and, **KCS PROPERTY LLC, A TENNESSEE LIMITED LIABILITY COMPANY,** SECOND PARTY, which expression shall include heirs, assigns and personal representatives.

WITNESSETH:

For the consideration of TEN DOLLARS ($10.00), and other good and valuable considerations, the receipt of all of which is hereby acknowledged, FIRST PARTY conveys to SECOND PARTY the following described property:

Being in the Ninth (9th) Civil District of Maury County Tennessee in the city limits of Columbia Tennessee.

Beginning at a point in the center of the CSX Railroad, said point is located S 40°41'33" W a distance of 115.2" from an old concrete mile marker post (235).

Thence with the center of the railroad S 48°04'58" W a distance of 176.44; Thence with a curve with an arc length of 1528.36 with a radius of 5674.41 with a chord bearing of S 56°08'55" W with a chord length of 1523.75 to a point in the center of the railroad; Thence leaving the railroad and running with the land of the TDOT 34th District N 35° 24'00" W a distance of 34.15 to a iron pin set in an old fence running parallel to the railroad; Thence N 35°24'00" W a distance of 277.37 to a 1 1/2" pipe; Thence S 72°54'07" W a distance of 373.75 to a iron pin set in the East line of Cayce Lane; Thence running with the east line of Cayce Lane N 07°14'55" E a distance of 1061.62 to a iron pin set. Thence leaving Cayce Lane and running with the line of Goodman S 82°42'14" E a distance of 1770.04 to a iron pin set at an old Wood Fence Post; Thence S 82°42'14"E a distance of 45.13 to the point of beginning having an area of 30.76.

Being the same property conveyed to Stormy A. Walker by deed recorded on September 23, 2016 in Book R2392, Page 1408, in the Maury County Register of Deeds

101-039.00

Legal description obtained from prior deed.

TO HAVE AND TO HOLD said real estate unto SECOND PARTY, together with all rights, titles, easements and appurtenances thereunto belonging, forever.

FIRST PARTY COVENANTS that it is lawfully seized and possessed of said real estate and that FIRST PARTY has a good and lawful right to convey the same, and that it is unencumbered, except for current year's property taxes; easement for private sewer line described in Deed Book 379, Page 427, Register's Office of Maury County, Tennessee; easements described in Deed Book 359, Page 205, Register's Office of Maury County, Tennessee; subject to charter right of way for CSX railroad; and any other matters of record.

FIRST PARTY FURTHER COVENANTS to forever warrant and defend the title to the above described property unto SECOND PARTY against the lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, this conveyance has been executed on this 30th day of September, 2022.

Stormy A. Walker

STATE OF TENNESSEE
COUNTY OF MAURY

On this 30 day of September, 2022, before me personally appeared **STORMY A. WALKER**, to me known to be the person (or persons) described in and who executed the foregoing instrument, and acknowledged that such person (or persons) executed the same as such person's (or persons') free act and deed.

Witness my hand, at office, this 30 day of September, 2022.

Notary Signature
My commission expires: June 20, 2023

BEVIN W. LYLE
STATE OF TENNESSEE NOTARY PUBLIC
MAURY COUNTY

STATE OF TENNESSEE - MAURY COUNTY

I hereby affirm that the actual consideration for this transfer or value of the property transferred, whichever is greater is **$1,480,000.00.**

Affiant

Sworn and subscribed to before me,

30th day of September, 2022.

Notary Public

My commission expires: 6/25/25

THOMAS M. HUTTO STATE OF TENNESSEE NOTARY PUBLIC MAURY COUNTY

PERSON OR AGENCY RESPONSIBLE FOR TAXES:

KCS PROPERTY LLC

1985 Ridgecrest Drive

Columbia, TN 38401

NAME AND ADDRESS OF PROPERTY OWNERS:

KCS PROPERTY LLC

1985 Ridgecrest Drive

Columbia, TN 38401

THIS DOCUMENT WAS E-RECORDED

COUNTY Maury

BOOK R2877

PAGE 0600

MAURY COUNTY
TITLE COMPANY, INC.
Real Estate. Real Attorneys. Real Simple.

805 South Garden Street
P.O. Box 2012
Columbia, TN 38402-2012
Phone (931) 388-4487
Fax (931) 381-3748
www.maurycountytitle.com

Tennessee Certification of Electronic Document

I, Brittany Brewer, do hereby make oath that I am a licensed attorney and/or the custodian of the original version of the electronic document tendered for registration herewith and that this electronic document is a true and exact copy of the original document executed and authenticated according to law on 09-30-2022 (date of document).

Affiant Signature

09-30-2022
Date

State of Tennessee
County of Maury

Sworn to and subscribed before me this 30th day of September, 2022.

THOMAS M. HUTTO
STATE OF TENNESSEE
NOTARY PUBLIC
MAURY COUNTY

Notary's Signature

My commission expires: 6/25/25

NOTARY'S SEAL

CD-3L TABLE 4.3.1-B DISTRICT STANDARDS: NEIGHBORHOOD LARGE LOT CHARACTER DISTRICT

General Description

The CD-3L Neighborhood Large Lot Character District consists of primarily a low density single-family detached Residential area in which House is the predominant Building Type. It has large Lot or Building Sites, medium to deep front Setbacks and medium to wide side Setbacks. Its Thoroughfares and Internal Drives have curbs and may include Sidewalks and/or street trees, and form medium to large blocks. CD-3L is an appropriate District for the Suburban Neighborhood Character Area described in the Comprehensive Plan.

©2022 Town Planning & Urban Design Collaborative LLC

July 17, 2023

City of Columbia
Development Services
700 North Garden Street
Columbia, TN 38401

RE: Project Name: 6218 Cayce Lane (Wade Kincaid) 22-0324
City of Columbia Planning Commission Submittal

On behalf of KCS Property, LLC, the owner for the proposed development, **WES Engineers & Surveyors** would like to request for rezoning and Concept Plan to the City of Columbia for Planning Commission approval. Comments are addressed in green.

Planning

1. Please provide a narrative response to criterion 8.5.19.H.4(e) explaining why the applicant believes conditions affecting the area have changed sufficiently to warrant the Zoning Map Amendment.
   See attached developer response letter.

2. The water availability letter is for a different nearby property (7,200 square-foot retail strip center). Also, it will expire before the August Planning Commission meeting date. Please provide the correct letter.
   We have attached the correct water availability letter for 6218 Cayce Lane. We apologize for the confusion.

3. Advisory: Gravel driveways are not appropriate in a 61-lot subdivision within the urbanized area of Columbia. If this project progresses to Site Development Plan, staff will recommend that Planning Commission request that the developer provide restrictive covenant prohibiting installation of gravel driveways (Table 4.3.1-B, p. 62).
   We have made the developer aware of this comment. We will discuss at preliminary plat.

4. Advisory: Playgrounds and other Civic Space types may need to be modified at the time of Site Development Plan to better conform to the standards at 5.3.3 of the Ordinance.
   We understand and will make sure that civic spaces conform at submittal of preliminary plat.

5. Advisory: Total of Civic Spaces ("Open Spaces) is 25.8 percent of the total site, which exceeds the 20% maximum in 5.3.1.A (p. 328). Excluding Open Space H, the total is 8.4 percent of the total site area. Please distinguish between Civic Spaces and other open spaces at the time of Site Development Plan.
   We understand and will make sure that civic spaces conform at submittal of preliminary plat.

6. Advisory: Open Space H as depicted in the concept plan will not meet the minimum standards for a Green in Table 5.3.3-B (p. 331).
   We understand and will make sure that civic spaces conform at submittal of preliminary plat.

7. Concept plan demonstrates feasibility of developing to the requested (CD-3L standard) actual development of the site will be controlled by any subsequent Site Development Plan and Preliminary Plat approval.
   We understand and will make sure that civic spaces conform at submittal of preliminary plat.

Engineering

8. No comments on rezoning

Columbia Power

9. Columbia Power System has an existing power line near your proposed development.
   We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
   • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

Building

10. No comment.

Police

11. No comments provided.

Public Works

12. No comments.

Fire

13. No comments

Wastewater

14. Depth of all gravity mains should be minimized. Sewer should be located in the middle of the road.
    We understand, and will minimize depths of sewer mains at time of construction plans.

Maury County Schools

15. Woodard Elementary, Whitthorne Middle, Central High School
    See Attached Capacity Numbers
    The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.

Maury County E911

16. Contact Maury County 911 for application on street names and subdivision name request.

ATT

17. ATT intends to serve.

Columbia Water

18. "A water availability letter was issued on 5-8-23 and is valid for 120 days. The availability of capacity to serve is based on a determination by the Fire Marshal of fire flow requirements and the information submitted on the Water Service Availability Request application. Any off-site improvements detailed in the availability letter are the responsibility of the developer/owner. All public water system improvements are subject to the preparation and approval of detailed construction plans prepared in accordance with CPWS and Tennessee Department of Environment and Conservation requirements."

Atmos Energy

19. No comment provided.

Duck River Electric Membership Corp

20. No comments provided.

Maury County Highway Dept.

21. No comment provided.

ATTACHMENTS: Concept Plan

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

If you have any questions or comments with this submittal, please do not hesitate to contact me directly.

Sincerely,
WES Engineers & Surveyors

Gerald W. Vick, PE
Principal

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

Preliminary Plat, Site Development Plan, and PUD Checklist

Development: _____

This checklist shall be completed, and included with the submittal documents. If the submittal does not contain a completed checklist, it shall be deemed incomplete. All below listed items shall be included in the submittal documents and plans, as well as any further information required by the City of Columbia to evaluate compliance and to perform a full and complete review. See Zoning Ordinance Article 8 and Subdivision Regulations.

General

- ❑ Name of development
- ☒ Contact info for the owner and licensed design professional(s) preparing plan: name, address, email, phone
- ❑ Plan sealed by a Design Professional licensed in the State of Tennessee.
- ☒ North Arrow, legend, and site vicinity map
- ☒ Graphic Scale: between 1 in. = 10 ft. and 1 in. =100 ft.
- ❑ Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.
- ☒ Note referencing Tennessee State Plane Coordinate System, NAD 83 Datum
- ☒ All property boundaries, existing easements, and encumbrances
- ☒ Parcel identification, owner, and deed and plat references of adjoining properties
- ❑ Proposed phasing and timetable for all phases of development
- ❑ Traffic Impact Study, as required.
- ❑ The substance of all existing and proposed covenants, easements, or other restrictions.

Lots and Land-Use

- ☒ The size of total property to be developed in square feet and acres
- ❑ Lot numbers of all proposed lots, with dimensions, locations, and square footage
- ❑ A tabulation of the land area to be devoted to various uses and activities and overall densities.
- ☒ Typical lot layout depicting proposed setbacks, yards, and easements, where applicable

Structures

- ❑ Location and approximate dimensions of all existing and proposed structures.
- ❑ Location of all earth retaining structures, with approximate top and bottom of wall elevations.
- ❑ Existing and intended use of all buildings and structures on site, including the number of dwelling units and density, where applicable
- ❑ Location, type, and size of proposed signs
- ❑ Approximate height, bulk, and the utilization of structures including activities and the number of living units.

CITY OF
COLUMBIA
TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

Grading, Drainage, and Storm

- ❑ Existing conditions and contours at vertical intervals of not more than two (2) feet
- ❑ General proposed contours at vertical intervals of not more than two (2) feet
- ❑ FEMA Special Flood Hazard Area (SFHA), 100-year Floodplain (F-P), and Floodway (F-W) boundaries with elevations and the exact location of the nearest benchmark. Indicate the Flood Insurance Rate Map (FIRM) panel number, its effective date, and flood insurance zones
- ❑ Location and dimension of aquatic buffer zones
- ❑ General layout of the proposed storm drainage system including surface and subsurface drainage systems, areas for detention, and water quality devices.
- ❑ Identification of all critical lots

Streets, Parking, and Pedestrian Elements

- ❑ Proposed street and alley rights-of-way, typical sections, widths, classification, names, and proposed ownership and maintenance responsibility
- ❑ Proposed connections to existing and proposed streets (including classification) located outside the development
- ❑ Proposed improvements as identified in the Traffic Impact Study, as required
- ❑ Existing and proposed sidewalks, trails, and other pedestrian elements
- ❑ Existing and proposed on-street and off-street parking and loading areas
- ❑ Summary of all provided and required parking

Landscaping, Open Space, and Amenities

- ❑ Natural features on site including, but not limited to, wetlands, streams, ponds, springs, sinkholes, wells, rock outcroppings, excessive slopes, and forested areas
- ❑ Landscaped areas and buffers with details on proposed plantings, existing vegetation, and other features.
- ❑ The location and size of all common open space, parkland dedications, and dedications and reservations of land for public uses.
- ❑ Any amenity features and structures for private or public benefit.
- ❑ Location, dimension, and materials of fences and walls
- ❑ Tree Canopy retention

Utilities

- ❑ General layout and location of existing and proposed utilities and utility features including, but not limited to potable water, fire hydrants, sanitary sewer, storm sewer, and power and communication facilities.
- ❑ Acknowledgement from water, sewer, and power utility providers that the proposed development may be adequately served with existing infrastructure, or if improvements are required to adequately serve the development, a general statement of the improvements.

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PUD Specific Items

- ❑ Legal Description of Property
- ❑ Owner's Affidavit
- ❑ List of all variances requested
- ❑ The nature of the landholder's interest in the land proposed to be developed and a written statement of concurrence from all parties having a beneficial interest in the affected property.
- ❑ Location and approximate dimensions of all existing and proposed structures including approximate height, bulk, and the utilization of structures including activities and the number of living units. Include architectural renderings of all proposed structures with materials listed.
- ❑ The substance of covenants, grants of easements or other restrictions to be imposed upon the use of the land, buildings and structures including proposed easements for public utilities on the property or documentation of off-site easements.
- ❑ Exterior lighting

If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented for Planning Commission action until such plan is found complete, compliant with City standards, and ready for review.

Checklist Completed By:

Print Name	Signature	Date

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	6218 Cayce Lane		
	TAX MAP: 101	GROUP:	PARCEL: 39.00
SUMMARY OF NATURE OF REQUEST AND WORK	Request re-zoning from CD-2 to CD-3L. Project will construct +/-4,359 ft of public roadway and provide 61 residential lots on 30.76 acres		

DATE OF PRE-APPLICATION CONFERENCE	10/19/2022	*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☑ Rezoning ☐ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ☑ Written Legal Description copy ☑ Requested Zone Listed ☑ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☑ Plans and/or Plats conforming to City standards with check list completed ☑ Columbia Water System Availability Letter **Plats/PUDs:** ☐ Project Name (include Sections & Phases) _____ ☒ Total Number of Lots 61 ☒ Total acreage 30.76

Rev. 4/14/2022

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Wade Kincaid	PHONE	615-642-3478
ADDRESS	1985 Ridgecrest Drive Columbia, TN 38401	EMAIL	wade@kcsllc.com

PROPERTY OWNER NAME	KCS Property, LLC	PHONE	615-642-3478
ADDRESS	1985 Ridgecrest Drive Columbia, TN 38401	EMAIL	wade@kcsllc.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Wade Kincaid
APPLICANT NAME

APPLICANT SIGNATURE

6/19/2023
DATE

KCS Property, LLC
PROPERTY OWNER NAME

PROPERTY OWNER SIGNATURE

6/19/2023
DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	

Mackenzie Place

Project #:	23-0193	Location:	Map 90N Grp B Parcel 47.0
Applicant:	M2 Group, LLC	Case Type(s):	Site Development Plan
Staff Planner:	Kevin C. McCarthy, AICP	Proposed Use:	Townhouses

PROJECT SUMMARY

The Planning Commission deferred action on this item at its July 2023 meeting. The applicant requests approval of a Site Development Plan to develop thirty-four townhomes with accompanying Civic Space and infrastructure.

- The Site Development Plan has been revised to depict townhomes on fee simple lots with widths that conform to the Zoning Ordinance.
- The layout of individual lots and public right of way will require Preliminary Plat.
- The Site Development Plan has been revised to provide the minimum required parking. Professional planning staff is still concerned that that the parking provided is inadequate for the number of homes and that the design is not tailored to the unique characteristics of the site.
- The applicant has requested a waiver to allow a cul-de-sac based on the topography of the subject site and adjacent sites.
- The Planning Commission is the **decision-making authority** for the Site Development Plan.
- Approval should be conditioned on timely submittal of "as-approved" plans which, in the determination of the Zoning Administrator and the City Engineer, reflect the substance of the plans approved by the Planning Commission.
- Templates are provided at the end of the July staff report to assist the Planning Commission in crafting properly formatted motions.

Mackenzie Place

Project #:	23-0193	Location:	Map 90N Grp B Parcel 47.0
Applicant:	M2 Group, LLC	Case Type(s):	Site Development Plan
Staff Planner:	Kevin C. McCarthy, AICP	Proposed Use:	Townhouses

PROJECT SUMMARY

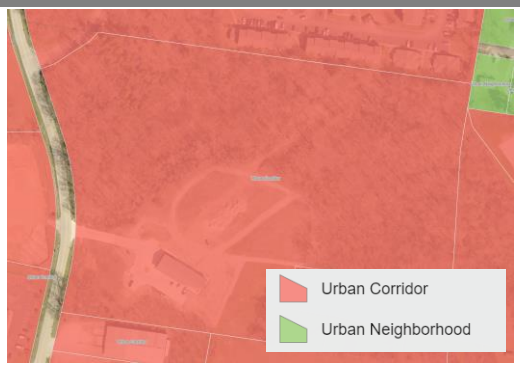
The applicant requests approval of a Site Development Plan to develop thirty-four townhomes with accompanying Civic Space and infrastructure.

- Depending on the intended form of ownership (single owner, HPR or Fee Simple lots), the widths of the Townhomes may not conform. The nonconformity can be corrected by either 1) revising the site design; or 2) subdividing the property into individual lots.
- The applicant has requested a waiver to allow a cul-de-sac based on the topography of the subject site and adjacent sites.
- The Site Development Plan does not provide adequate parking.
- The Planning Commission is the **decision-making authority** for the Site Development Plan.
- Commentary from professional planning staff identifies recommended conditions of approval.
- Approval should be conditioned on timely submittal of "as-approved" plans which, in the determination of the Zoning Administrator and the City Engineer, reflect the substance of the plans approved by the Planning Commission.
- Templates are provided at the end of the report to assist the Planning Commission in crafting properly formatted motions.

SITE INFORMATION

CURRENT ZONING	EXISTING USE	EXISTING IMP.	LAND AREA
CD-4	Vacant	Vacant/Powerlines	+ /- 3.59 acres

FUTURE LAND USE MAP



ZONING MAP

SITE CONTEXT/ADJACENT PROPERTIES			
	Future Land Use	Zoning	Current Use
Subject Property	Urban Corridor	CD-4	Vacant
North	Urban Corridor	CD-4	Multifamily
South	Urban Corridor	CD-4	Indoor Recreation
East	Urban Neighborhood	CD-3	Single-Family
West	Urban Corridor	CD-4C/PUD	Single-Family

CONSISTENCY WITH CONNECT COLUMBIA

Urban Neighborhood: The future land use of the subject site is Urban Corridor. The Character Area is characterized by wide-ranging mix of uses with intermixed and compatible civic uses. The Future Land Use Plan indicates that the general development pattern is urban with "single- and multi-use activity on small to medium lot sizes (Connect Columbia, p. 28). The specific character of the Corridor relies on the Area of Change determination. Future development should create a pedestrian-friendly environment and should focus on context-responsive development that emphasizes connectivity and access control. (Connect Columbia, p. 29). The future land use classification is implemented by the CD-4 and CD-5 character districts.

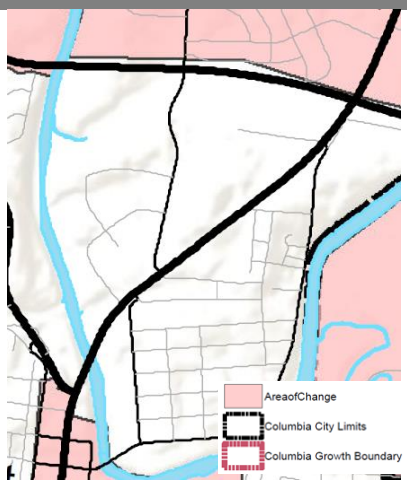
Urban Corridor

CHARACTER AREA MATRIX

	Development Pattern	Zoning Category and Uses	Infrastructure	Design Standard
URBAN CORRIDOR	**Is the property in an Area of Change?** **No:** The development pattern is established. Changes to overall character of the area should rarely occur. **Yes:** The development pattern is evolving. Changes to area are likely as development occurs. New development should blend with existing, surrounding neighborhood assets.	**Residential Uses:** Low Density Residential, Medium High Residential, and High Residential Districts **Public and Civic Uses:** Religious, Day Care, Government, Medical, and Educational **Commercial Uses:** Hotels, Recreational, Restaurants, Retail, Personal Services, Vehicle Sales and Service, and Wholesale Trade **Office Uses:** All office uses	**Not in an Area of Change:** Limited new services, with mostly in-fill enhancements to existing infrastructure. **Within an Area of Change:** Extensions to transportation, water, sewer, and other services should be expected. New service or extensive redevelopment of existing services should be vetted and reviewed by Planning Commission and City Council as a primary element of approval.	Scale: Buildings should be compatible with the established character of the area. Architecture: New developments should include a mix of architectural styles. Buildings should include quality materials with architectural details and features. Parking: Parking should be contingent on the location of the site along the transect, becoming more subordinate to buildings as urbanity increases.

AREA OF CHANGE

The subject site is located in an Area of Change (Connect Columbia Map 3). In 2017 the Planning Commission determined that the development pattern in the area was evolving. Changes to the area are likely, but new development should blend with existing neighborhood assets. The designation does not necessarily mean that any particular development proposal is consistent with Connect Columbia. It does mean that the Planning Commission has previously determined that in this area, the development character is not fixed and change is expected over time (Connect Columbia p. 14).



CONFORMITY WITH ZONING ORDINANCE

The CD-4 General Urban Character District consists primarily of a medium density area that has a mix of building types and uses; there are medium, narrow or no front setbacks and narrow to medium side setbacks. Its Thoroughfares form medium blocks (Table 3.7.1 p. 36; Table 4.3.1-D, p. 76).

Land Uses

- **The Zoning Ordinance permits all proposed uses.**
  - The applicant proposes to develop the site entirely under the use of Household Living in Attached Dwelling–Townhouses.
  - Tables 4.3.9.1-A (p. 223) and 4.3.1-D (p. 82) permit these uses and structure types in a CD-4 development.

Lots, Building Sites & Bulk Standards

- **The proposed Site Development Plan depicts structures and building sites which generally conform to the standards of the CD-4 standards listed in Table 4.3.1-D of the Zoning Ordinance. However, depending on the intended form of ownership (HPR v Fee Simple), the widths of the Townhomes may not conform. The nonconformity can be corrected by either 1) revising the site design; or 2) subdividing the property into individual lots.**
  - The Ordinance permits a townhome width of 18 - 20 feet for multiple homes on a single Lot or Building Site; widths of 18-36 feet are permitted for townhomes with

each unit on its own lot or Building Site (Table 4.3.1-D, p.79). The Ordinance permits a maximum of eight attached Townhouse units.

- The applicant's Site Development Plan depicts 120-foot-wide building sites with between four and five attached dwellings. Each dwelling is 23 feet wide. This width exceeds the maximum width for multiple units on a single lot.
- The developer intends to create a Horizontal Property Regime (HPR) on the site whereby individual owners will own the interior of their units with all owners sharing the common elements of the development. This alternative to subdivision of the property into individual fee simple lots is a common practice. However, the Zoning Ordinance only allows townhomes of this width on individual lots with zero setbacks. The applicant will need to either 1) redesign the homes to conform to the Ordinance; or 2) submit an application for Preliminary Plat.
- Front setbacks may range between a minimum of 6 feet and maximum 20 feet. A three-foot rear yard setback is required. The Ordinance allows a zero side yard setback between townhome units; structures must be setback a minimum of six feet from side building site lines.
- The applicant's Site Development Plan depicts multiunit buildings with twelve feet of separation between structures.

Parking

- **The Site Development Plan depicts parking in garages and driveways to provide only the bare minimum required by the Ordinance for the residences. No parking is provided for Civic Space. The design of the garages may limit their usability for parking. Planning Staff has serious concerns about the adequacy of parking on the site.**
  - Article 4.3.12 of the Zoning Ordinance requires two parking spaces for each attached dwelling unit; 68 spaces are required for the proposed development.
  - Table 4.3.1-D of the Ordinance allows parking in garages, driveways, on-street, and in the Third Layer of the property.
  - The applicant proposed to meet the minimum parking requirement by double-parking vehicles in garages and driveways.
  - The applicant's plan provides exactly 68 spaces. Half of these spaces are located in garages, the others are driveway spots.
  - The ordinance requires additional spaces for the Civic Space. Staff failed to make this comment during technical review. Nonetheless, Table 4.3.12.B-1 requires at least two parking spaces to serve the 0.32 acres of Civic Space.

Architecture

- **Staff will determine Conformity with the prescriptive design standards of the Ordinance at the time of building permit. However, the design of the garages which are counted toward the minimum parking standard, needs revision.**
    - The applicant has acknowledged that all structures must conform to the prescriptive design standards in Table 4.3.1-D of the Ordinance.
    - The Ordinance requires garages to maintain minimum interior dimensions of 10 feet by 20 feet. The Ordinance also requires a minimum garage door width of nine feet.
    - The applicant has provided floorplans for the townhome units which indicate a second-floor stairwell may limit the vertical clear space in the garage making difficult to effectively park a full-size vehicle.
    - The floorplans show an 8-foot-wide door.

Civic Spaces

- **The proposed Preliminary Site Development Plan provides the required Civic Space in the form of a large Greens and a Community Garden dispersed throughout the development.**
    - Section 5.3.1 of Zoning Ordinance requires any development parcel[1] to utilize at least 5% but no more than 20% of its gross acreage as Civic Space conforming to the standards of Table 5.3.3-A.
    - The applicant proposes to dedicate 0.32 acres (9.0%) of the 3.59-acre site to Civic Space.
    - Each Civic Space type has its own standards for intent, size, frontage, character, and typical facilities.
    - The applicant's landscape plan depicts civic space details which include path and trails for passive recreation as well as a community garden with individual garden plots.

Type	Number	Area
Green with Community Garden	1	0.32 acres

[1] Development Parcel: a parcel of land: (1) which, either alone or together with one or more other parcels under a common Development scheme, program or plan, is ten (10) or more gross acres; (2) with respect to the Development of which any new Thoroughfare, Internal Drive, or extension or change of the design of any existing Thoroughfare or Internal Drive is required or will be made or proposed; or (3) with respect to which any District assignment or any Thoroughfare or Internal Drive or alignment thereof is proposed to be made or changed by a Zoning Map or Zoning Map amendment. (§ 9.3, p. 490).

Network Connectivity

- Section 5.2.2.E prohibits cul-de-sacs except where approved by Waiver of the Zoning Administrator to accommodate specific site conditions.
    - The applicant has requested a waiver to allow a cul-de-sac based on the topography of the subject site and adjacent sites.
    - The Zoning Administrator agrees that a future connection to an adjacent parcel is impractical due to topography, however, the Site Development Plan as presented does not provide a reasonable design to accommodate the site conditions.
    - The narrow site does not accommodate the number of homes proposed by the applicant. The roadway with a cul-de-sac turnaround meeting the Engineering Standards and Specification (ESS) barely leaves room for stormwater facilities and Civic Space. The utilization of every remaining square foot of the site for homesites does not afford space for the parking required by the Ordinance or practical necessity.

REVIEW PROCESS

The Development Review Committee reviewed the proposed Final Plat at its June 2023 meeting, as directed by section **8.3.7** of the Zoning Ordinance. Technical comments are provided in the agenda package and summarized above.

The Planning Commission is the Decision-Making Authority for all Site Development Plans that include one or more Development Parcels under **§ 8.5.6.D.3**.[2]

Sections **8.5.6.N** and **O** establish the criteria for review of a Site Development Plan.

N. Review Criteria.

1. The criteria to be applied by the Zoning Administrator in reviewing a Development Plan and application shall be whether such Plan and application comply with the applicable conditions, standards, and requirements of this Ordinance, all applicable previously approved Plans, such as earlier Development Plans, the Comprehensive Plan and all other applicable Land Use Plans.

2. With respect to a Development Plan the Planning Commission shall rely on all conditions, standards, and requirements of Articles 1-5 and Article 7 of this

[2] [2] Development Parcel: a parcel of land: (1) which, either alone or together with one or more other parcels under a common Development scheme, program or plan, is ten (10) or more gross acres; (2) with respect to the Development of which any new Thoroughfare, Internal Drive, or extension or change of the design of any existing Thoroughfare or Internal Drive is required or will be made or proposed; or (3) with respect to which any District assignment or any Thoroughfare or Internal Drive or alignment thereof is proposed to be made or changed by a Zoning Map or Zoning Map amendment. (§ 9.3, p. 490).

Ordinance and the Planning Commission shall review the Plan and application for compliance with all other conditions, standards, and requirements of this Ordinance, including without limitation those of Article 6 (Supplemental Standards) , and compliance with all applicable previously approved Plans, such as earlier Development Plans, the Comprehensive Plan and all other applicable Land Use Plans. Additionally, in the case of Development in a Special District, the Planning Commission shall determine:

a. Whether the Development design and Development intensity are appropriate for and tailored to the unique characteristics of the site, such as significant wooded areas, specimen trees, wetlands, steep slopes, floodplains, and zoning of or existing Development on Adjacent property;

b. Whether the proposed access and circulation are adequate with respect to traffic patterns, traffic control measures, and street pavement areas, with provisions for maintaining traffic flows and reducing any negative effects of traffic on nearby properties;

c. Compliance with site construction requirements;

d. Adequacy of stormwater facilities, water supply, sanitary sewer service, fire protection, street signs, and street lighting as evidenced by conformance with City standards, specifications and guidelines; and

e. Compliance with requirements for Easements or dedications.

O. Development Plan Procedures Decision-Making Authority's Action.

1. Within 62 days for a Development Plan and application for which the Zoning Administrator is the Decision-Making Authority, or within 62 days after the hearing on a Development Plan and application for which the Planning Commission is the Decision-Making Authority, the Development Plan and application shall be approved or disapproved by the Decision-Making Authority in accordance with the review criteria of Section 8.5.6.N and Sections 8.5.6.O.2-.5 below:

2. A Development Plan and application shall be approved by the Decision-Making Authority, upon a finding that the Development Plan and application are in compliance with the review criteria set forth in Section 8.5.6.N.

3. If a Development Plan and Application are approved, the Development Plan as approved shall become part of the record of approval, and subsequent actions relating to the authorized Development must be consistent with approved items.

4. A Development Plan and application shall be disapproved if the Decision-Making Authority determines that the Plan and application do not comply with any one or more of the review criteria set forth in Section 8.5.6.N.

SUMMARY OF DEVELOPMENT REVIEW COMMITTEE COMMENTS

The DRC reviewed this proposal at its meetings in May and June of 2023. A full list of comments, and the applicant's responses, is provided in the agenda packet. Some key comments are noted below.

- **Engineering** requested a Geotech Report which was provide by the applicant.
- Engineering also recommended instillation of yard drain system. This will allow the option for future residents to add a back patio. The applicant acknowledged the comment and agreed to evaluate the possibility of a yard drain system during review of site construction plans.
- Engineering expressed concern that the sight distance triangle was obscured. Staff recommended additional off-site grading to allow safer egress from the site. The applicant acknowledged this comment and will work with staff during subsequent administrative reviews.
- **Planning** noted that the minimum parking requirement is met by double-parking vehicles in garages and driveways. Additional on-street parking is impractical due to the dense number of driveways. The plan meets the minimum parking ratio but the design is likely to invite use of the cul-de-sac as a parking area, limiting its functionality as a turnaround. In response to comments the applicant the applicant offered to provide "no parking" signage in the cul-de-sac, but did not offer a realistic solution for guest parking/additional vehicles.
- Planning expressed concern that because required parking is provided in garages designed to meet the minimum dimensional requirements of 10 x 20', the spaces may not accommodate typical passenger vehicles. The floor plans provided at resubmittal depict partial obstruction of part of the garage, meaning the design does not conform to the minimum standard. In addition, the garage door widths do not conform to the standards of the Ordinance. Although the precise design on the garages will be reviewed at the time of building permit, Planning prefers to establish a realistic plan for parking at the time of Site Development Plan approval.
- Columbia Power (**CPWS**) noted that supply chain concerns could affect the timing of any development. This is a standard comment from the utility.
- **Maury County Schools** noted that the site is currently in the attendance zones of Howell Elementary, Cox Middle School, Central High School. New construction or

realignment of school attendance zones may be necessary to accommodate new students. This is a standard comment from the school system.

- **Wastewater** indicated that all sewer main easements must be located within the public right of way and designed to city standards. The applicant only partially acknowledged these comments. The design of the wastewater system will be confirmed during subsequent administrative reviews. The design of a wastewater system deemed adequate by the Wastewater Engineer should be a condition of approval.

COMMENTS FROM PROFESSIONAL PLANNING STAFF

Planning staff does not believe the design and intensity of development are appropriate for and tailored to the unique characteristics of the site.

The design invites parking in the cul-de-sac. The Zoning Administrator does not support the creation of a cul-de-sac which results in a dead-end public right-of-way that will function as an ill-designed parking lot. The number of units on the site does not allow for adequate parking. The parking which is provided is impractical. The design will lead to inevitable neighbor conflicts and could obstruct emergency services' access to the site. It will also make the City responsible for the maintenance of a non-functional roadway. The plan meets the minimum parking ratio for the residences but does not provide parking for the Civic Space. A community Parking Area is necessary to accommodate Civic Space and overflow parking. This will likely result in a reduction of units.

The applicant may need to either 1) revise the site design; or 2) subdivide the property into individual lots.

As discussed in the zoning conformity section above, the proposed building site widths do not conform to the Ordinance if the property is to remain a single parcel with one owner, or under a HPR. The solutions to this issue are straightforward.

Approval should be conditioned on timely submittal of "as-approved" documents which, in the determination of the Zoning Administrator and the City Engineer, reflect the substance of the plans approved by the Planning Commission.

SAMPE MOTIONS

Approve:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in sections 8.5.6.N and O of the City of Columbia Zoning Ordinance have been satisfied, and approve the Site Development Plan as presented *[,subject to technical comments and other conditions presented by planning staff*].

Approve Subject to Conditions:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in sections 8.5.6.N and O of the City of Columbia Zoning Ordinance have been satisfied, and approve Site Development Plan, subject to the following conditions: [*list conditions of approval crafted by Planning Commission*].

Deny:

Move to deny the Site Development Plan having found, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in sections 8.5.6.N and O of the City of Columbia Zoning Ordinance are not satisfied [*list specific reasons for denial*].

Defer:

Move to find that there is insufficient information to make a decision, defer the matter to the next regularly scheduled meeting of the Planning Commission, and request that the [*applicant/staff*] provide: [*list additional information*] for review at that future meeting.

PRELIMINARY PLAT FOR:

MACKENZIE PLACE

TAX MAP 90B, GROUP B, PARCEL 47.00

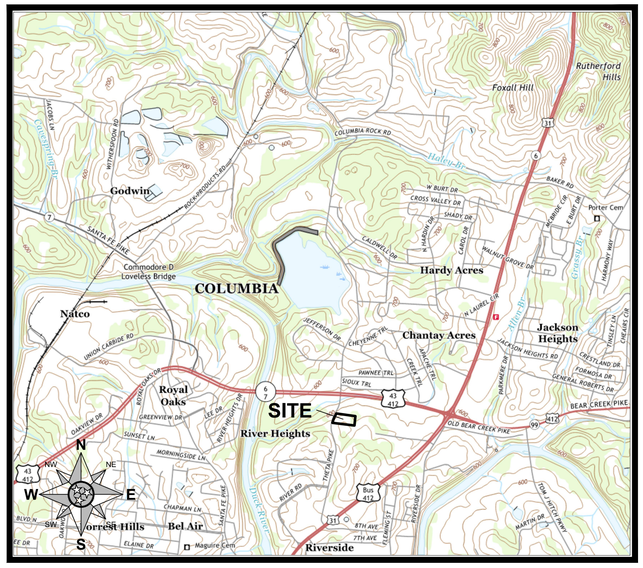
220 THETA PIKE

CITY OF COLUMBIA

MAURY COUNTY, TENNESSEE

AUGUST 21, 2023

Sheet List Table	
SHEET NUMBER	SHEET TITLE
PP-01	COVER SHEET
PP-02	EXISTING CONDITIONS
PP-03	PRELIMINARY PLAT
PP-04	PRELIMINARY PLAT



VICINITY MAP

SCALE: 1" = 2,000'

SOURCE: USGS

PROJECT NOTES:

1. BEARINGS ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83, 2011).
2. ALL DEED BOOK AND PLAT REFERENCES PERTAIN TO THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
3. WATER FOR THIS DEVELOPMENT IS TO BE PROVIDED BY COLUMBIA POWER & WATER SYSTEMS.
4. SANITARY SEWER PROVIDER FOR THIS DEVELOPMENT IS TO BE COLUMBIA POWER & WATER SYSTEMS.
5. TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY M2 GROUP, LLC DATED MAY, 2022.
6. ELECTRIC SERVICE TO BE PROVIDED BY COLUMBIA POWER & WATER SYSTEMS.
7. GAS SERVICE TO BE PROVIDED BY ATMOS ENERGY.

FLOODPLAIN NOTE:

THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

CONTACT LIST

OWNER/DEVELOPER

WAITS DEVELOPMENT GROUP, LLC
ADDRESS: PO BOX 111285
NASHVILLE, TENNESSEE 37222
PHONE NO.:615-498-4190
CONTACT NAME: JOHN WAITS

CIVIL ENGINEER

M2 GROUP, LLC
P.O. BOX 848
FRANKLIN, TN 37065
PHONE: (615) 406-3415
CONTACT: MATT W. BRYANT, P.E.
E-MAIL: matt@m2groupllc.com

UTILITY CONTACTS:

WATER SUPPLY:
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931) 388-4833

SANITARY SEWER
COLUMBIA WASTEWATER DEPARTMENT
1244 Treatment Plant Road
COLUMBIA, TN 38401
(931) 560-1001

ELECTRIC SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931) 388-4833

GAS SERVICE
ATMOS ENERGY CORPORATION
810 NASHVILLE HWY
COLUMBIA, TN 38401
(931) 388-9136

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DESCRIPTION | DATE | REVISION #

MATTHEW W. BRYANT — LICENSED PROFESSIONAL ENGINEER — COMMERCE & CONFIDENCE — STATE OF TENNESSEE
08/21/23

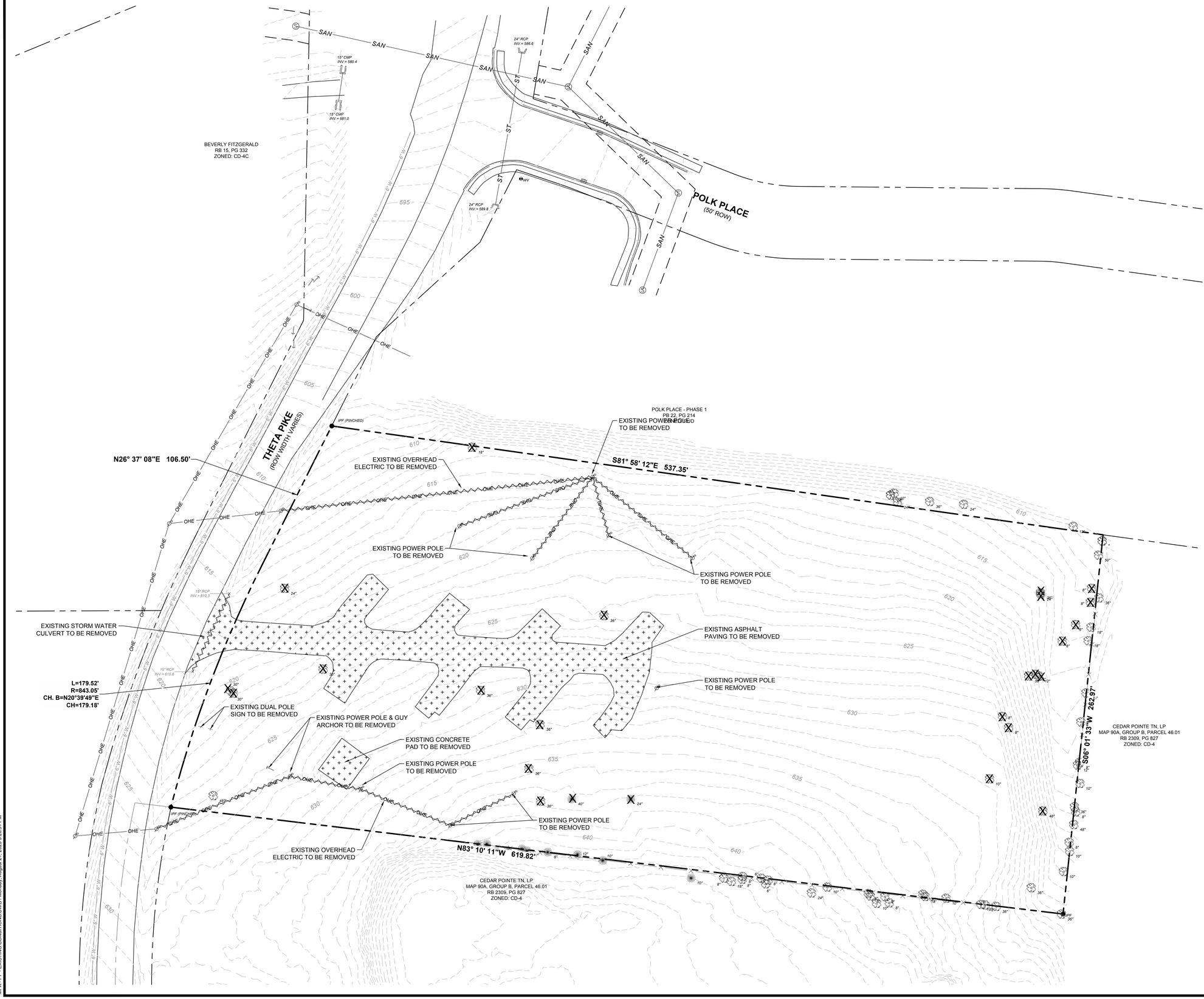
PRELIMINARY PLAT FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

COVER SHEET

DRAWN BY: M2G
CHECKED BY: MWB
DATE: AUGUST 21, 2023
PROJECT NO.: 22-085

SHEET NUMBER:
PP-01



N

NW NE

W E

SW SE

S

30' 0 30' 60'

GRAPHIC SCALE

LEGEND

- ASPHALT REMOVAL
- UTILITY REMOVAL
- TREE REMOVAL
- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPEF
- EXISTING INDEX CONTOUR
- EXISTING OVERHEAD ELECTI
- EXISTING SANITARY SEWER I
- EXISTING TREELINE
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER LIN
- FIRE HYDRANT
- WATER METER
- TREE, DECIDUOUS
- TREE, CONIFER
- IRON PIPE FOUND (IPF)
- SANITARY MANHOLE
- WATER BOX (WATER VALVE)
- POWER POLE
- CURB INLET

SURVEYOR'S NOTES

1. BEARINGS ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83, 2011).
2. THE FIELD SURVEY WAS COMPLETED ON MAY, 2022.
3. THIS SURVEY WAS PREPARED USING THE CURRENT DEEDS AND PLATS OF RECORD.
4. ALL DEED BOOK AND PLAT REFERENCES PERTAIN TO THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
5. ADJOINING PROPERTY LINES SHOWN WERE PLOTTED FROM INFORMATION TAKEN FROM EITHER DEED DESCRIPTION, RECORD PLATS, OR TAX MAPS.
6. PROPERTY CORNERS SET THIS SURVEY ARE 18" #4 REBAR WITH ORANGE PLASTIC CAP STAMPED "M2 GROUP", 18" #5 REBAR WITH YELLOW PLASTIC CAP STAMPED "M2 GROUP, LLC", OR PK NAIL WITH STAINLESS STEEL WASHER STAMPED "M2 GROUP, LLC", UNLESS NOTED OTHERWISE.
7. UTILITIES SHOWN HEREON WERE COMPILED FROM VISIBLE STRUCTURES AT THE SITE, INFORMATION FROM PLANS, AND PHYSICAL MARKINGS AND COMBINED TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. IN ADDITION, IN SOME JURISDICTIONS, 811 OR OTHER SIMILAR UTILITY LOCATE REQUESTS FROM SURVEYORS MAY BE IGNORED OR RESULT IN AN INCOMPLETE RESPONSE. THIS SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THIS SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. VERIFICATION OF EXISTENCE, LOCATIONS, AND DEPTH SHOULD BE MADE BEFORE CONDUCTING ANY EXCAVATION IN THE VICINITY OF THE UTILITY.
8. THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.
9. NO TITLE REPORT WAS PROVIDED TO THIS SURVEYOR REGARDING THE SUBJECT PROPERTIES, THEREFORE, THIS SURVEY IS SUBJECT TO THE FINDINGS OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH AND REPORT MAY DISCLOSE.

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REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYANT — REGISTERED LAND SURVEYOR — STATE OF TENNESSEE — 08/21/23

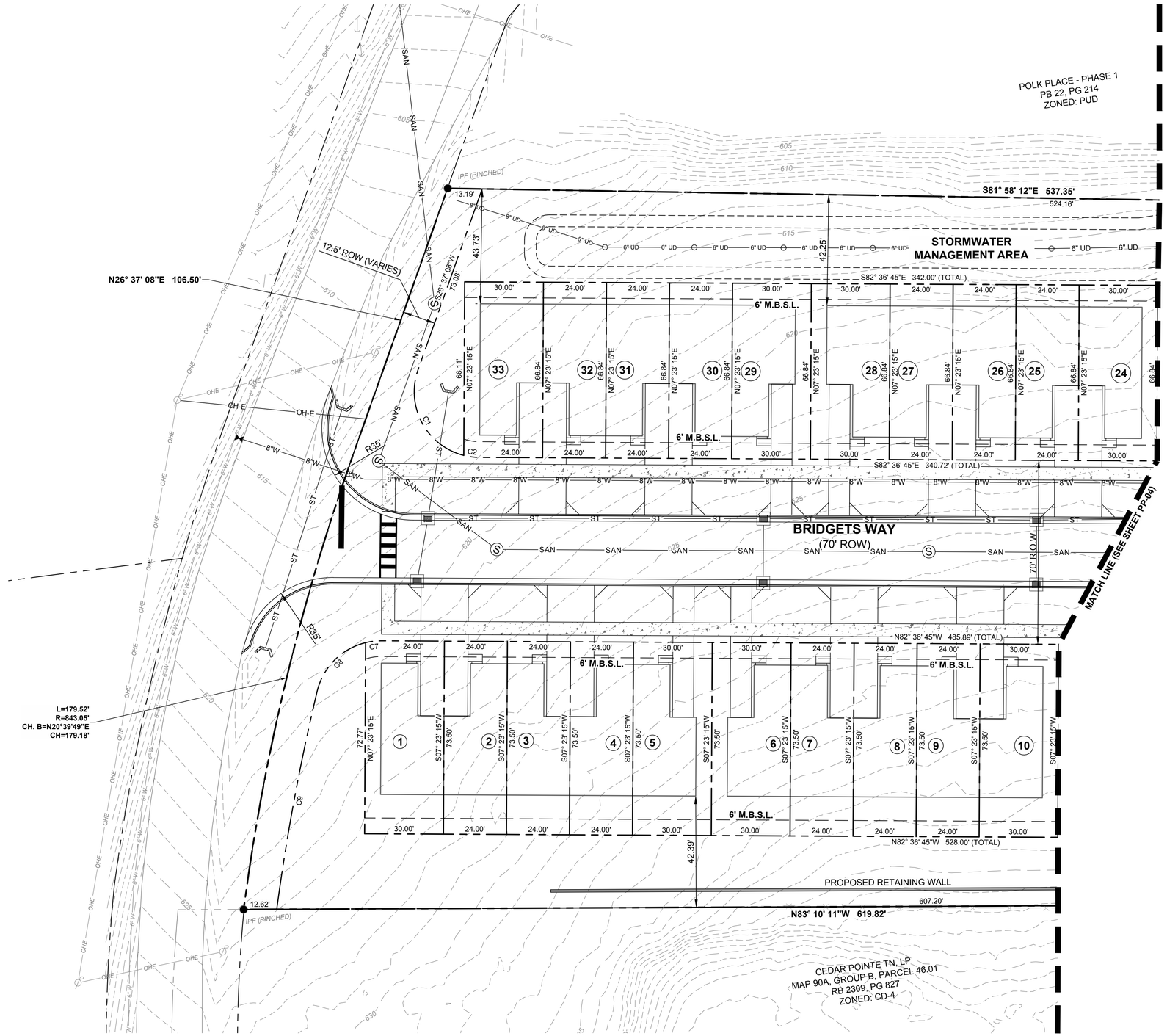
PRELIMINARY PLAT FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

EXISTING CONDITIONS

DATE :	AUGUST 21, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
PP-02



N NE E SE S SW W NW

20' 0 20' 40'
GRAPHIC SCALE

PROJECT NOTES:

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LOT AREA TABLE		
LOT #	AREA (S.F.)	AREA (AC.)
1	2,204	0.05
2	1,764	0.04
3	1,764	0.04
4	1,764	0.04
5	2,205	0.05
6	2,205	0.05
7	1,764	0.04
8	1,764	0.04
9	1,764	0.04
10	2,205	0.05
11	2,205	0.05
12	1,764	0.04
13	1,764	0.04
14	1,764	0.04
15	2,205	0.05
16	2,205	0.05
17	1,764	0.04

LOT AREA TABLE		
LOT #	AREA (S.F.)	AREA (AC.)
18	1,764	0.04
19	1,765	0.04
20	2,323	0.05
21	1,604	0.04
22	1,604	0.04
23	2,005	0.05
24	2,005	0.05
25	1,604	0.04
26	1,604	0.04
27	1,604	0.04
28	2,005	0.05
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30	1,604	0.04
31	1,604	0.04
32	1,604	0.04
33	2,004	0.05

CURVE TABLE				
CURVE #	LENGTH	RADIUS	CHORD BRNG	CHORD LENGTH
C1	41.60	25.00	S21° 03' 13"E	36.97
C2	6.06	25.00	S75° 40' 09"E	6.04
C3	57.25	51.00	N65° 13' 38"E	54.29
C4	256.22	69.00	S40° 33' 12"E	132.40
C5	31.89	69.00	S79° 03' 54"W	31.60
C6	6.12	69.00	N85° 09' 17"W	6.12
C7	6.06	25.00	N89° 33' 21"W	6.04
C8	27.49	25.00	S52° 00' 19"W	26.12
C9	84.49	830.55	S17° 35' 42"W	84.46

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REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYANT — LICENSED PROFESSIONAL ENGINEER — AGRICULTURE — COMMERCE & INDUSTRY — HORTICULTURE — STATE OF TENNESSEE
08/21/23

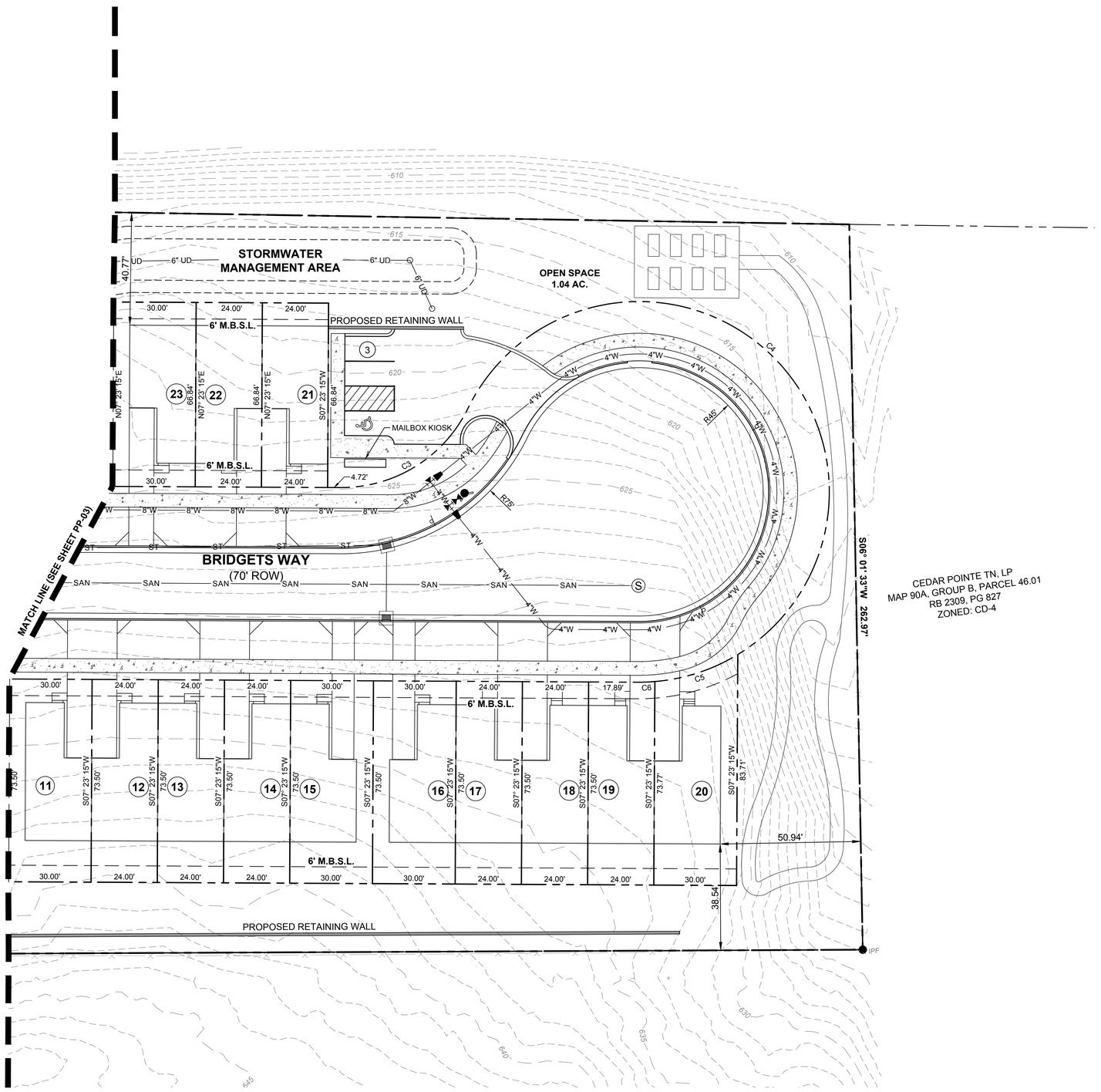
PRELIMINARY PLAT FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

PRELIMINARY PLAT

DATE: AUGUST 21, 2023 | DRAWN BY : M2G
PROJECT NO. : 22-085 | CHECKED BY : MWB

SHEET NUMBER:
PP-03



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29	2,005	0.05
30	1,604	0.04
31	1,604	0.04
32	1,604	0.04
33	2,004	0.05

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

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYANT — LICENSED PROFESSIONAL ENGINEER — AGRICULTURE, COMMERCE & INDUSTRY, RETIREMENT NO. 124XXX — STATE OF TENNESSEE — 08/21/23

PRELIMINARY PLAT FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

PRELIMINARY PLAT

DRAWN BY : M2G
CHECKED BY : MWB
DATE : AUGUST 21, 2023
PROJECT NO. : 22-085

SHEET NUMBER:
PP-04

August 21, 2023

City of Columbia, Tennessee
700 North Garden Street
Columbia, Tennessee 38401

Re: **Mackenzie Place Townhomes**
220 Theta Pike
Description of Proposed Project

To Whom it May Concern:

The Mackenzie Place Townhome project consists of 33 townhome units that will be constructed along a 560+/- LF roadway terminating with a cul-de-sac. Each unit will have two parking spaces: one within the garage itself and the other space located in the driveway.

Due to topography, a 436+/- LF retaining wall with varying heights (7.5' at its maximum) will be required along the south property line.

Storm water will be managed via an (level 2) infiltration trench which will satisfy the 80% target runoff reduction requirement. The infiltration trench has been oversized in order to reduce the post-development Curve Number (CN) to meet the stormwater requirements and ensure that post developed flows do not exceed the pre-developed flows.

Sanitary Sewer will be provided with a proposed extension of the existing network connecting at a manhole adjacent to the intersection of Theta Pike and Polk Place.

Water will be provided with the construction of a new 8" main that will connect to an existing main along Theta Pike.

Thank you for your consideration of this site plan submittal and please do not hesitate to reach out to us if have any questions or need any further information.

Sincerely,

Brian Holcombe

DocuSign Envelope ID: 7204CC1F-478D-43EC-9D06-30CF03CF5E02

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy of submittal on USB thumb drive or CD*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	220 Theta Pike		
	TAX MAP: 90B	GROUP: B	PARCEL: 47.00
SUMMARY OF NATURE OF REQUEST AND WORK	Preliminary Plat for 33 lots.		

REQUEST DATE FOR PRE-APPLICATION CONFERENCE	04/05/23	*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
❑ Annexation ❑ Rezoning ❑ Sketch Plat – *Must be submitted at least two weeks prior to Preliminary Plat submittal* ☑ Preliminary Plat ❑ Final Plat ❑ PUD Preliminary Master Plan + Checklist ❑ PUD Final Site Plan + Checklist ❑ Multi-Family Site Plan ❑ Other: _____ **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat* *Freedom Point Elevations*	<u>Annexations/Rezoning:</u> ❑ Written Legal Description copy ❑ Requested Zone Listed ❑ Compliance with Comprehensive Plan ❑ Annexation Permission Form ❑ Plans and/or Plats conforming to City standards <u>Plats/PUDs:</u> • Project Name (include Sections & Phases) MacKenzie Place • Total Number of Lots 33 • Total acreage 3.59

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

DocuSign Envelope ID: 7204CC1F-478D-43EC-9D06-30CF03CF5E02

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	M2 Group, LLC	PHONE	(615) 925-0851
ADDRESS	P.O. Box 2543 - Brentwood, TN 37024	EMAIL	brian@m2groupllc.com

PROPERTY OWNER NAME	Blair Property Management, LLC	PHONE	(615) 498-4190
ADDRESS	8217 VICTORY TRAIL BRENTWOOD, TN 37027-7374	EMAIL	phillipsjohn1@mac.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Brian Holcombe	DocuSigned by: Brian Holcombe 094D4D33BAE24E9...	08-21-2023 | 15:15:22 CDT
M2 Group, LLC		
APPLICANT NAME	APPLICANT SIGNATURE	DATE

John Phillips	DocuSigned by: 5E3D27D00E42400...	08-21-2023 | 15:24:45 CDT
Blair Property Management, LLC		
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	

PRELIMINARY PLAT FOR:

MACKENZIE PLACE

TAX MAP 90B, GROUP B, PARCEL 47.00

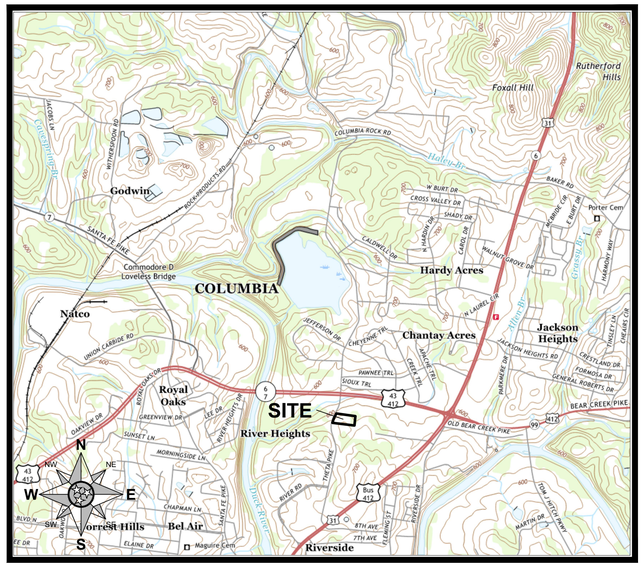
220 THETA PIKE

CITY OF COLUMBIA

MAURY COUNTY, TENNESSEE

JULY 17, 2023

Sheet List Table	
SHEET NUMBER	SHEET TITLE
PP-01	COVER SHEET
PP-02	EXISTING CONDITIONS
PP-03	PRELIMINARY PLAT
PP-04	PRELIMINARY PLAT



VICINITY MAP

SCALE: 1" = 2,000'

SOURCE: USGS

PROJECT NOTES:

1. BEARINGS ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83, 2011).
2. ALL DEED BOOK AND PLAT REFERENCES PERTAIN TO THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
3. WATER FOR THIS DEVELOPMENT IS TO BE PROVIDED BY COLUMBIA POWER & WATER SYSTEMS.
4. SANITARY SEWER PROVIDER FOR THIS DEVELOPMENT IS TO BE COLUMBIA POWER & WATER SYSTEMS.
5. TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY M2 GROUP, LLC DATED MAY, 2022.
6. ELECTRIC SERVICE TO BE PROVIDED BY COLUMBIA POWER & WATER SYSTEMS.
7. GAS SERVICE TO BE PROVIDED BY ATMOS ENERGY.

FLOODPLAIN NOTE:

THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

CONTACT LIST

OWNER/DEVELOPER

WAITS DEVELOPMENT GROUP, LLC
ADDRESS: PO BOX 111285
NASHVILLE, TENNESSEE 37222
PHONE NO.:615-498-4190
CONTACT NAME: JOHN WAITS

CIVIL ENGINEER

M2 GROUP, LLC
P.O. BOX 848
FRANKLIN, TN 37065
PHONE: (615) 406-3415
CONTACT: MATT W. BRYANT, P.E.
E-MAIL: matt@m2groupllc.com

UTILITY CONTACTS:

WATER SUPPLY:
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931) 388-4833

SANITARY SEWER
COLUMBIA WASTEWATER DEPARTMENT
1244 Treatment Plant Road
COLUMBIA, TN 38401
(931) 560-1001

ELECTRIC SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931) 388-4833

GAS SERVICE
ATMOS ENERGY CORPORATION
810 NASHVILLE HWY
COLUMBIA, TN 38401
(931) 388-9136

Know what's below. Call before you dig.

DESCRIPTION | DATE | REVISION #

MATTHEW W. BRYANT — REGISTERED ENGINEER — AGRICULTURE — COMMERCE & INDUSTRY — ARCHITECTURE & ENGINEERING — STATE OF TENNESSEE

07/17/23

PRELIMINARY PLAT FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

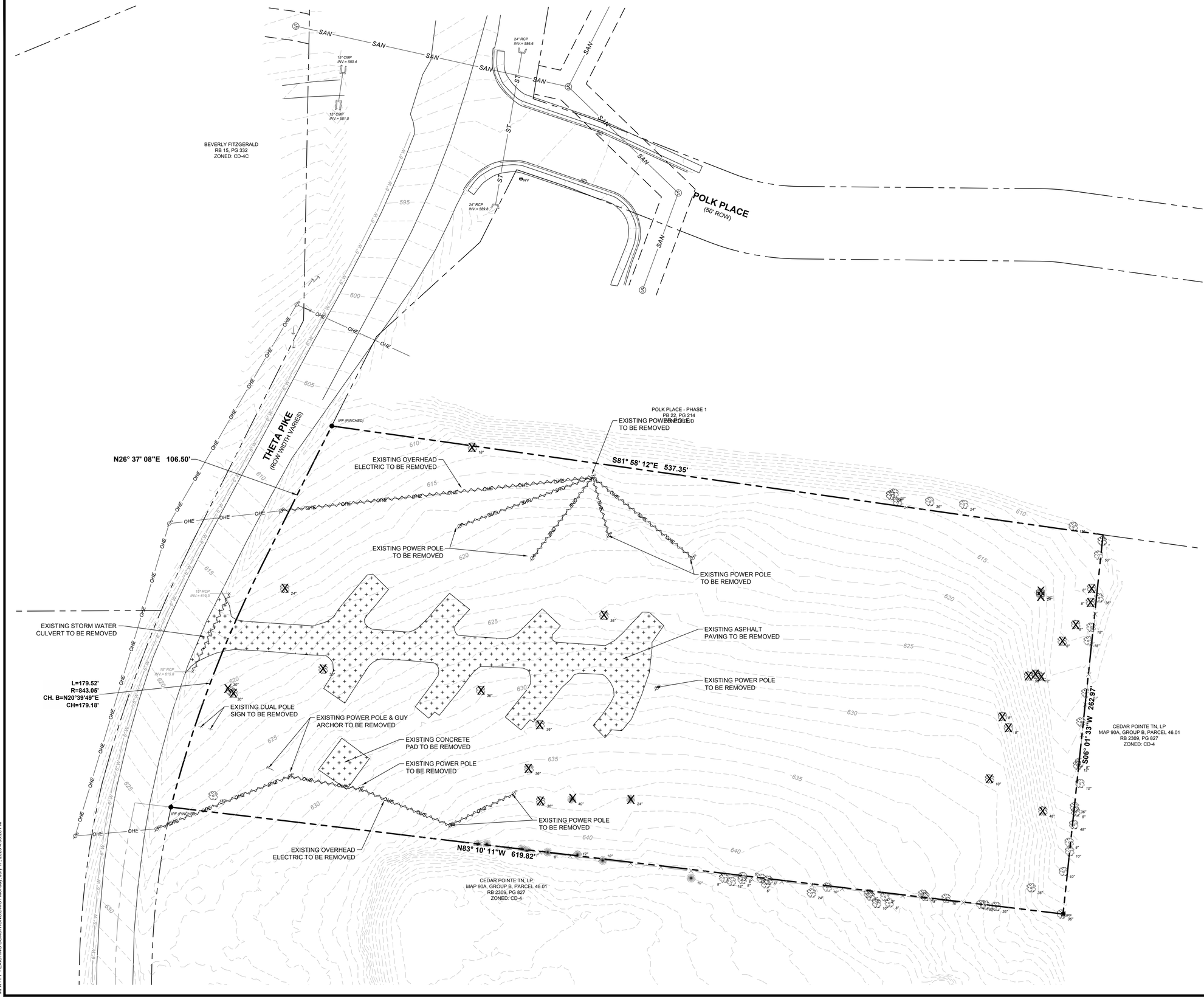
COVER SHEET

DATE: JULY 17, 2023 | DRAWN BY: M2G
PROJECT NO.: 22-085 | CHECKED BY: MWB

SHEET NUMBER:

PP-01

MPA - PP - COVER SHEET.DWG / Monday, July 17, 2023 4:35:22 PM



N

NW NE

W E

SW SE

S

30' 0 30' 60'

GRAPHIC SCALE

LEGEND

- ASPHALT REMOVAL
- UTILITY REMOVAL
- TREE REMOVAL
- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPEF
- EXISTING INDEX CONTOUR
- EXISTING OVERHEAD ELECTI
- EXISTING SANITARY SEWER I
- EXISTING TREELINE
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER LIN
- FIRE HYDRANT
- WATER METER
- TREE, DECIDUOUS
- TREE, CONIFER
- IRON PIPE FOUND (IPF)
- SANITARY MANHOLE
- WATER BOX (WATER VALVE)
- POWER POLE
- CURB INLET

SURVEYOR'S NOTES

1. BEARINGS ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83, 2011).
2. THE FIELD SURVEY WAS COMPLETED ON MAY, 2022.
3. THIS SURVEY WAS PREPARED USING THE CURRENT DEEDS AND PLATS OF RECORD.
4. ALL DEED BOOK AND PLAT REFERENCES PERTAIN TO THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
5. ADJOINING PROPERTY LINES SHOWN WERE PLOTTED FROM INFORMATION TAKEN FROM EITHER DEED DESCRIPTION, RECORD PLATS, OR TAX MAPS.
6. PROPERTY CORNERS SET THIS SURVEY ARE 18" #4 REBAR WITH ORANGE PLASTIC CAP STAMPED "M2 GROUP", 18" #5 REBAR WITH YELLOW PLASTIC CAP STAMPED "M2 GROUP, LLC", OR PK NAIL WITH STAINLESS STEEL WASHER STAMPED "M2 GROUP, LLC", UNLESS NOTED OTHERWISE.
7. UTILITIES SHOWN HEREON WERE COMPILED FROM VISIBLE STRUCTURES AT THE SITE, INFORMATION FROM PLANS, AND PHYSICAL MARKINGS AND COMBINED TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. IN ADDITION, IN SOME JURISDICTIONS, 811 OR OTHER SIMILAR UTILITY LOCATE REQUESTS FROM SURVEYORS MAY BE IGNORED OR RESULT IN AN INCOMPLETE RESPONSE. THIS SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THIS SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. VERIFICATION OF EXISTENCE, LOCATIONS, AND DEPTH SHOULD BE MADE BEFORE CONDUCTING ANY EXCAVATION IN THE VICINITY OF THE UTILITY.
8. THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.
9. NO TITLE REPORT WAS PROVIDED TO THIS SURVEYOR REGARDING THE SUBJECT PROPERTIES, THEREFORE, THIS SURVEY IS SUBJECT TO THE FINDINGS OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH AND REPORT MAY DISCLOSE.

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.

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

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYANT
REGISTERED LAND SURVEYOR
STATE OF TENNESSEE
07/17/23

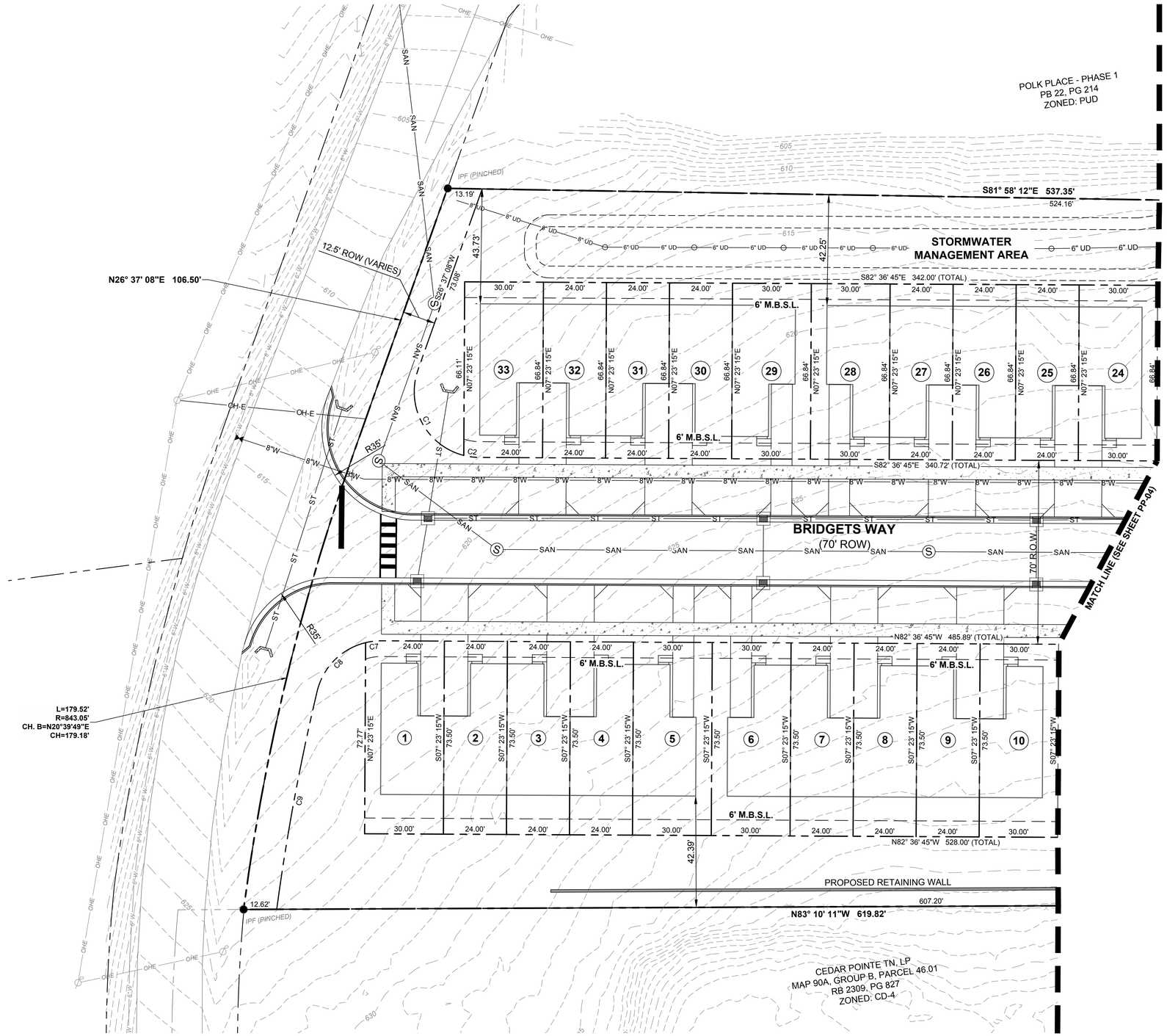
PRELIMINARY PLAT FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

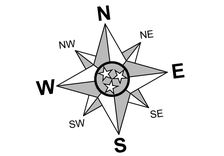
M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

EXISTING CONDITIONS

DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	JULY 17, 2023
PROJECT NO. :	22-085

SHEET NUMBER:
PP-02





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LOT AREA TABLE		
LOT #	AREA (S.F.)	AREA (AC.)
1	2,204	0.05
2	1,764	0.04
3	1,764	0.04
4	1,764	0.04
5	2,205	0.05
6	2,205	0.05
7	1,764	0.04
8	1,764	0.04
9	1,764	0.04
10	2,205	0.05
11	2,205	0.05
12	1,764	0.04
13	1,764	0.04
14	1,764	0.04
15	2,205	0.05
16	2,205	0.05
17	1,764	0.04

LOT AREA TABLE		
LOT #	AREA (S.F.)	AREA (AC.)
18	1,764	0.04
19	1,765	0.04
20	2,323	0.05
21	1,604	0.04
22	1,604	0.04
23	2,005	0.05
24	2,005	0.05
25	1,604	0.04
26	1,604	0.04
27	1,604	0.04
28	2,005	0.05
29	2,005	0.05
30	1,604	0.04
31	1,604	0.04
32	1,604	0.04
33	2,004	0.05

CURVE TABLE				
CURVE #	LENGTH	RADIUS	CHORD BRNG	CHORD LENGTH
C1	41.60	25.00	S21° 03' 13"E	36.97
C2	6.06	25.00	S75° 40' 09"E	6.04
C3	57.25	51.00	N65° 13' 38"E	54.29
C4	256.22	69.00	S40° 33' 12"E	132.40
C5	31.89	69.00	S79° 03' 54"W	31.60
C6	6.12	69.00	N85° 09' 17"W	6.12
C7	6.06	25.00	N89° 33' 21"W	6.04
C8	27.49	25.00	S52° 00' 19"W	26.12
C9	84.49	830.55	S17° 35' 42"W	84.46

Know what's below.
Call before you dig.

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYANT
LICENSED PROFESSIONAL ENGINEER
AGRICULTURE & LAND DEVELOPMENT
COMMERCIAL & CONSTRUCTION
CERTIFICATE NO. 120,144
STATE OF TENNESSEE
07/17/23

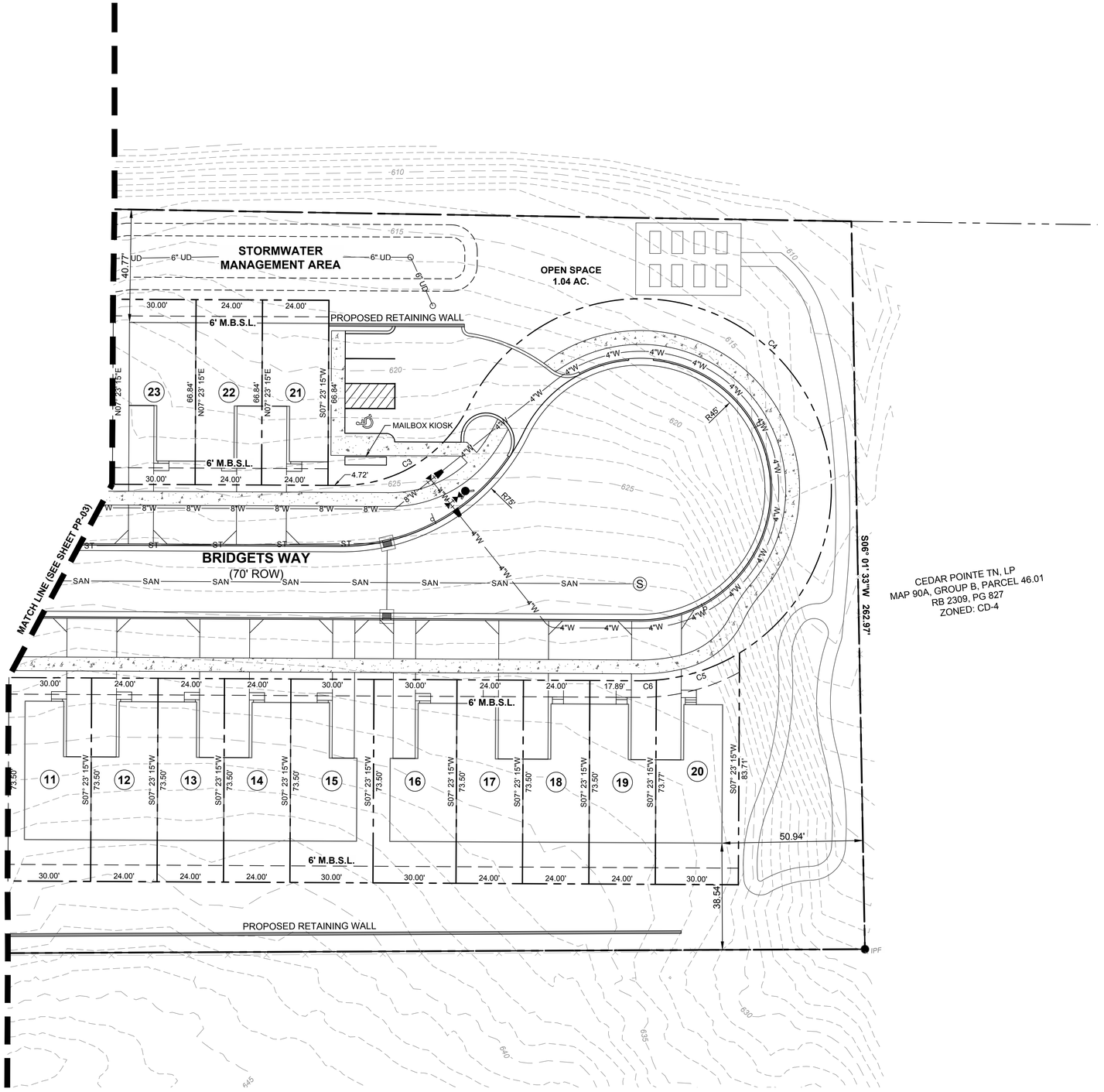
PRELIMINARY PLAT FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

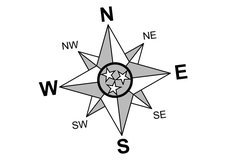
M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

PRELIMINARY PLAT

DATE: JULY 17, 2023
PROJECT NO. : 22-085
DRAWN BY : M2G
CHECKED BY : MWB

SHEET NUMBER:
PP-03





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

DESCRIPTION | DATE | REVISION #

MATTHEW W. BRYANT — LICENSED PROFESSIONAL ENGINEER — AGRICULTURE — COMMERCE & COMMUNITY — ENVIRONMENT & CONSERVATION — STATE OF TENNESSEE — 07/17/23

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TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

PRELIMINARY PLAT

M2G | MWB

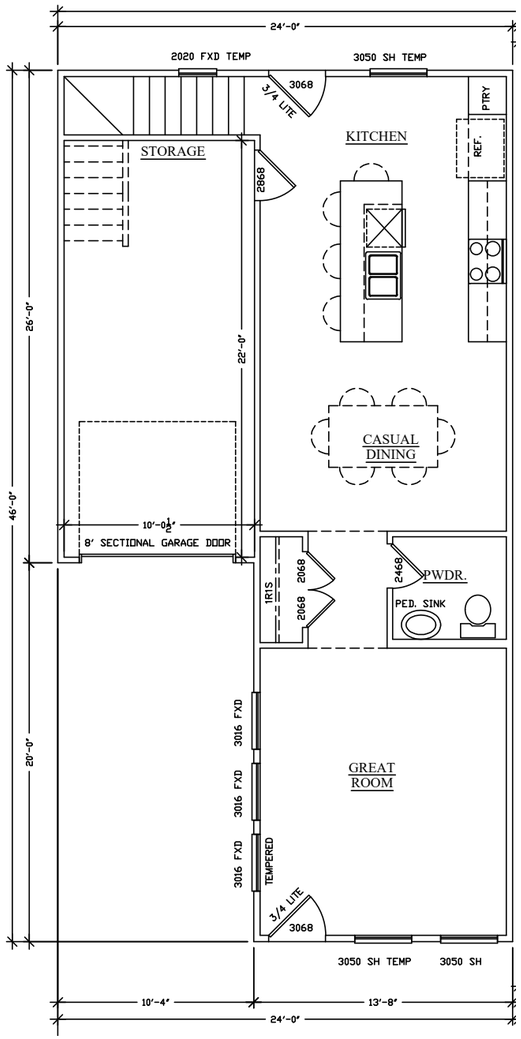
DRAWN BY : | CHECKED BY :

DATE : JULY 17, 2023

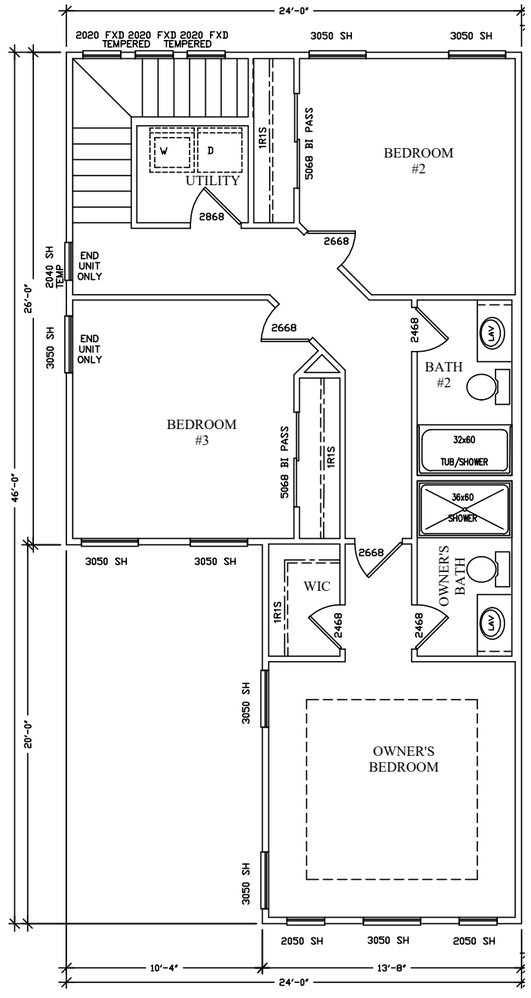
PROJECT NO. : 22-085

SHEET NUMBER:

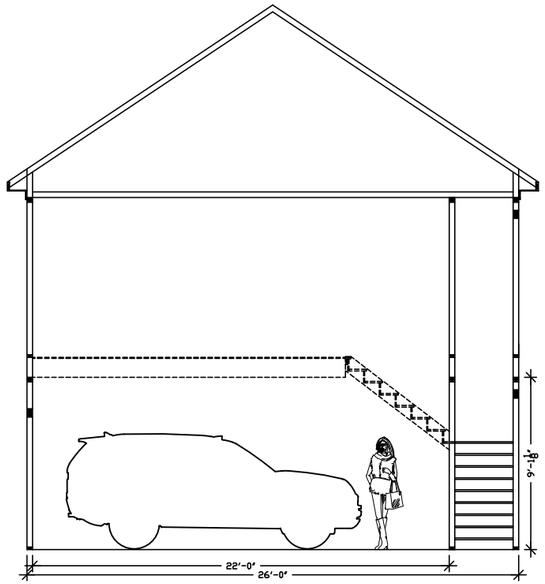
PP-04



FIRST FLOORPLAN 1/8"=1'-0"



SECOND FLOORPLAN 1/8"=1'-0"



SECTION THRU GARAGE @ STAIRS 1/8"=1'-0"

Project	
TOWNHOME	
Spec. Revision Date:	
Lot #	Market Home or Home Owner
#	Name:
Plan Name:	
PROPOSED	
Sheet Name:	
STANDARD FLOORPLANS	

THE JONES COMPANY of Tennessee, LLC
LIVE LARGER >> LIVEJONES.COM

Drawn By: BSR

Scale: 1/16"=1'-0"

Date: XX/XX/XX

Revision Dates:

A1.1

June 19, 2023

City of Columbia, Tennessee
700 North Garden Street
Columbia, Tennessee 38401

RE: Agency Comment Responses
Site Plan Submittal
Item Number 23-0193
MacKenzie Place Townhomes - 220 Theta Pike

M2 Group, LLC (M2) has received the comments regarding the MacKenzie Place Townhomes Project per the Development Review Committee meeting on June 13, 2023. Please allow this letter to serve as a response to the review comments. A digital copy of the revised Site Plan has been included in this resubmittal.

Review Comments

Engineering

1. *Subject to construction plans.*
   So noted and acknowledged.
2. *Preliminary plat and final plat required for the infrastructure.*
   So noted and acknowledged.
3. *Geotechnical report will be required for evaluation of suitability of existing soils, slopes, and surcharge loading.*
   A geotechnical report has been provided for your review as requested.
4. *Engineering recommends instillation of yard drain system to allow for potential patios on the rear of the units.*
   A yard drain system will be evaluated during the construction plan phase and can be accommodated based on the final design parameters.
5. *Engineering is not approving stormwater calculations with this submittal. Though the inclusion, in this case, is appreciated.*
   So noted and acknowledged.
6. *Engineering would recommend some off-site grading work to allow for a minimum of 2.5 feet of clear visibility through the site distance triangle.*
   The site distance meets minimum requirements, and the developer has agreed to further evaluate this during the construction plan phase, as well as after clearing operations have been completed, to determine whether additional grading is warranted.
7. *Emergency spillway shall be directed and designed to discharge to roadside ditch of Theta Pike.*
   Emergency spillway is designed to flow directly to the roadside ditch of Theta Pike as requested, with additional details and label being provided on sheet C301.

Planning

12. *Please adjust lot/building site lines to show stormwater management area in common space rather than crossing multiple building sites. We understand that this community will utilize a horizontal property rights regime. However, bulk standards are applied to "building sites." The stormwater management area should be outside of the MBLS for any structure.*

    Lot lines have been adjusted as requested.

13. *All parking is provided by double parking vehicles in garage and driveway. Additional on-street parking is impractical due to the driveways. This meets the minimum parking ratio but is likely to invite use of the cul-de-sac as a parking area, limiting its functionality as a turnaround. In response to comments, please describe the plan for guest parking/additional vehicles.*

    The plan submitted meets the minimum parking requirements in the City Code. No Parking signage will be added in the cul-de-sac. There is room for additional guest parking in the driveway of each unit if it becomes necessary, but this is not shown on the plan.

14. *Please verify that all garage parking spaces conform to the minimum interior garage dimensions (10 ft. x 20 ft. per vehicle). Again, the staff is concerned that parking provided on the site meets only the minimum code requirement for number and dimensions. Please be ready to explain to the Planning Commission how the development will accommodate the real anticipated demand for parking and dimensions of typical passenger vehicles.*

    Sheet C200 of the plans indicates that each garage dimension is 10' x 20' per minimum requirements. Final architectural plans will confirm that this garage dimension meets City standards.

15. *Please provide a survey stamped by a State of Tennessee Licensed Professional Land Surveyor (see application checklist).*

    Stamped survey provided as requested.

16. *Retaining wall is noted as 7.5'. If the wall ends up supporting greater than 8', it must be setback at least 10' from the property line.*

    So noted and acknowledged.

17. *Note: As noted on elevations submitted, conformity with design standards of the Ordinance will be confirmed at the time of building permit.*

    So noted and acknowledged.

Maury County Schools

18. *Howell Elementary, Cox Middle School, Central High School. See attached capacity numbers. The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.*

    So noted and acknowledged.

Columbia Power

20. *Columbia Power System has an existing power line near your proposed development to be located near 194 Theta Pike. We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.*

    So noted and acknowledged.

21. *Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.*

    So noted and acknowledged.

Wastewater

24. *The last proposed manhole and 8" main (plus a 10-ft offset) encroaches upon the neighboring property. There may have to be a proposed doghouse manhole set on the existing main. In this case, Columbia Wastewater requires all sewer main easements to abide within the public right of way. Easement width depends on depth of sanitary sewer. We need to make certain that the nearby property (231 Theta Pike) will not be affected, and no easements will be required.*

    So noted and acknowledged. A doghouse manhole has been shown on the revised plans.

Columbia Water

25. *"A water availability letter was issued on 5-19-23 and is valid for 120 days. The availability of capacity to serve is based on a determination by the Fire Marshal of fire flow requirements and the information submitted on the Water Service Availability Request application. Any off-site improvements stated in the water availability letter are the responsibility of the developer/owner. All water system improvements are subject to the preparation and approval of detailed construction plans prepared in accordance with CPWS and Tennessee Department of Environment and Conservation requirements."*

    So noted and acknowledged.

If you have any questions, please feel free to contact me at 615.406.3415 or matt@m2groupllc.com.

Sincerely,

M2 Group, LLC
Matthew W. Bryant, P.E.

Enclosures
cc: John Waits, John Phillips

May 22, 2023

City of Columbia, Tennessee
700 North Garden Street
Columbia, Tennessee 38401

RE: Agency Comment Responses
Site Plan Submittal
MacKenzie Place Townhomes
220 Theta Pike

M2 Group, LLC (M2) has received the previous review comments of the MacKenzie Place Townhomes project. Please allow this letter to serve as a response to the review comments. A digital copy of the revised Site Plan has been included in this resubmittal.

Per comments received via a virtual meeting with City Staff, on April 5, 2023, we offer the following comment responses;

Review Comments

1. *Sidewalks need to be provided around the entire cul-de-sac.*
   Sidewalk has been added as requested to provide a loop for pedestrian circulation.

2. *Architecturals*
   a. *Needs to vary*
   b. *Comply with Building standards*
   c. *Difference in FFE – step from garage to first floor with require Foundation Cladding*
   d. **ADD NOTE* Element requirements of CD-4 Article 4 must be met*

   Updated architectural information has been provided with a specific note requiring the adherence to City standards. Detailed conversations with the Owner/Developer have been had and they fully understand this requirement.

3. *Tree Preservation*
   a. *Replacement requirement is 80 trees per acre*
   b. *31 new trees required (street trees don't count)*
   c. *Fix legend to clarify what is happening*
   d. *Street Trees required 50' o/c*
   e. *Street section requires standard spacing*
   f. *Planting interval does not meet code*
   g. *Separate tree count for street trees vs. canopy retention*

   Updated landscape plans have been provided that show compliance with the review comments received.

4. *Intersection Sight Distance *may be a problem**
   a. *390' vs. 290' distance*
   b. *Need vertical profile*
   c. *Review vertical curve*
   d. *Plan & profile*
   e. *14.5' off edge of pavement for stop bar*
   f. *3.5' height of object / 3.5' may need additional topo*
   g. *Intersection sight distance/currently showing stopping sight distance*

   The intersection sight distance plan has been revised to provide requested items. Additional topographic information was obtained and analyzed for obstructions. The existing grade along the line of sight does not impair the decision point. However, clearing of vegetation will be required within the sight triangle which has been shown. A letter of permission has been included from the adjacent neighbor granting permission to clear vegetation for the required site triangles.

5. *Concerns with infiltration trench*
   a. *Need EoF*
   b. *City does not like*
   c. *Wants something more traditional*
   d. *Peak runoff control*

   A drainage report has been provided to demonstrate the design intent and effectiveness of infiltration trench that was proposed. The infiltration trench methodology is proposed because it can provide compliance with both the water quality requirements as well as attenuate the post development peak runoffs from the proposed site. The report demonstrates compliance with both of these items. Infiltration testing was also performed to demonstrate there will be some infiltration from this trench, however, there is also an underdrain and emergency overflow spillway that direct any excess runoff to the roadside ditch along Theta Pike.

6. *Preliminary plat for road only since it's a multifamily site*

   Acknowledged.

7. *Sanitary Easement*
   a. *Show R/W on C500*
   b. *Theta Pike was just repaved*

   Right of way for Theta Pike is now shown.

8. *Guest Parking?*
   c. *PC will have concerns about parking on street*

   Acknowledged. The development meets parking requirements.

9. *Architectural – compatibility with neighborhood?*
   Note has been added to architectural plans as requested.

10. *Trash collection?*
    No dumpster is proposed. Trash will be collected by private trash hauling service which will utilize roller cans at each residence.

If you have any questions, please feel free to contact me at 615.406.3415 or matt@m2groupllc.com.

Sincerely,
M2 Group, LLC
Matthew W. Bryant, P.E.

Enclosures

cc: John Waits, John Phillips

CITY OF COLUMBIA
TENNESSEE

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, June 13, 2023

ITEM NO.
23-0193

DESCRIPTION: Proposed multi-family townhome development consisting of 34 units, roadway with cul-de-sac, retaining wall, sanitary sewer extension, utilities, and storm water management area.

RECOMMENDATION: For final recommendation please see staff report.

COMMENTS:

Engineering

1. Subject to construction plans.
2. Preliminary plat and final plat required for the instrastructure.
3. Geotechnical report will be required for evaluation of suitability of existing soils, slopes, and surcharge loading.
4. Engineering recommends instillation of yard drain system to allow for potential patios on the rear of the units.
5. Engineering is not approving stormwater calculations with this submittal. Though the inclusion, in this case, is appreciated.
6. Engineering would recommend some off-site grading work to allow for a minimum of 2.5 feet of clear visibility through the site distance triangle.
7. Emergency spillway shall be directed and designed to discharge to roadside ditch of Theta Pike.

Fire

8. No comments

Public Works

9. No comment Mackenzie Place will utilize private trashcan service.

Building

10. No comment.

Police

11. No comments provided.

Planning

12. Please adjust lot/building site lines to show stormwater management area in common space rather than crossing multiple building sites. We understand that this community will utilize a horizontal property rights regime. However, bulk standards are applied to "building sites." The stormwater management area should be outside of the MBLS for any structure.
13. All parking in provided by double parking vehicles in garage and driveway. Additional on street parking is impractical due to the driveways. This meets the minimum parking ratio but is likely to invite use of the cul-de-sac as a parking area, limiting its functionality as a turnaround. In response to comments, please describe the plan for guest parking/additional vehicles.
14. Please verify that all garage parking spaces conform to the minimum interior garage dimensions (10 ft. x 20 ft. per vehicle). Again, staff is concerned that parking provided on the site meets only the minimum code requirement for number and dimensions. Please be ready to explain to Planning Commission how the development will accommodate the real anticipated demand for parking and dimensions of typical passenger vehicles.
15. Please provide a survey stamped by a State of Tennessee Licensed Professional Land Surveyor (see application checklist).
16. Retaining wall is noted as 7.5'. If the wall ends up supporting greater than 8', it must be setback at least 10' from the property line.
17. Note: As noted on elevations submitted, conformity with design standards of the Ordinance will be confirmed at the time of building permit.

Maury County Schools

18. Howell Elementary, Cox Middle School, Central High School. See attached capacity numbers. The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.

Maury County E911

19. Bridgets Way has been reserved. Any changes contact: cgideon@maury911.org

Columbia Power

20. Columbia Power System has an existing power line near your proposed development to be located near 194 Theta Pike. We are willing to serve this new development subject to all

Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
• Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

Maury County Highway Dept.

21. No comment. '

Atmos Energy

22. No comments provided.

Duck River Electric Membership Corp

23. No comments.

Wastewater

24. The last proposed manhole and 8" main (plus a 10-ft offset) encroaches upon the neighboring property. There may have to be a proposed doghouse manhole set on the existing main. In this case, Columbia Wastewater requires all sewer main easements to abide within the public right of way. Easement width depends on depth of sanitary sewer. We need to make certain that the nearby property (231 Theta Pike) will not be affected and no easements will be required.

Columbia Water

25. "A water availability letter was issued on 5-19-23 and is valid for 120 days. The availability of capacity to serve is based on a determination by the Fire Marshal of fire flow requirements and the information submitted on the Water Service Availability Request application. Any off-site improvements stated in the water availability letter are the responsibility of the developer/owner. All water system improvements are subject to the preparation and approval of detailed construction plans prepared in accordance with CPWS and Tennessee Department of Environment and Conservation requirements."

ATT

26. No comments provided.

ATTACHMENTS: Site Development Plan

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

Current Enrollment / Capacity

	Facility Name	Date Constructed	Sq. Ft.	Acreage	Capacity	Current Enrollment	Capacity Used
Elementary	Baker	1960	43,920	12	340	325	95.6%
	Battle Creek	2019	90,000	30	700	609	87.0%
	Brown	1968	56,720	20	405	348	85.9%
	Highland	1986	47,800	4.5	380	304	80.0%
	Howell	1999	81,600	17.5	700	644	92.0%
	Mt. Pleasant	1978	80,021	22	630	566	89.8%
	Riverside	1984	71,150	14	500	413	82.6%
	Spring Hill	1984	69,000	10	540	439	81.3%
	Woodard	1990	76,200	17	600	567	94.5%
	Wright	2005	97,765	18	740	631	85.3%
					5535	***4846***	***87.6%***
Middle	Battle Creek	2019	125,000	45	900	693	77.0%
	Cox	1997	137,200	25	900	646	71.8%
	Mt. Pleasant	2001	113,938	29.2	550	414	75.3%
	Spring Hill	2010	158,106	39.49	950	524	55.2%
	Whitthorne	1979	175,600	17	1050	912	86.9%
					4350	***3189***	***73.3%***
High	Central	2016	296,740	55	1700	1402	82.5%
	Mt. Pleasant	1969	110,759	31	600	391	65.2%
	Spring Hill	1993	181,800	57	1200	1165	97.1%
					3500	***2958***	***84.5%***
Unit	Culleoka	1969	205,800	34	1020	903	88.5%
	Hampshire	1978	83,410	13.12	500	407	81.4%
	Santa Fe	1964	94,225	24	650	532	81.8%
					2170	***1842***	***84.9%***
Other	Central Office	1960	15,400	1.5			
	College Hill	1958	42,211	2.26			
	Maintenance	1987	9,400	4.7		209	
	McDowell		46,165	7			
			2,509,930	**550.27**	**15555**	**13044**	

SITE PLAN FOR:

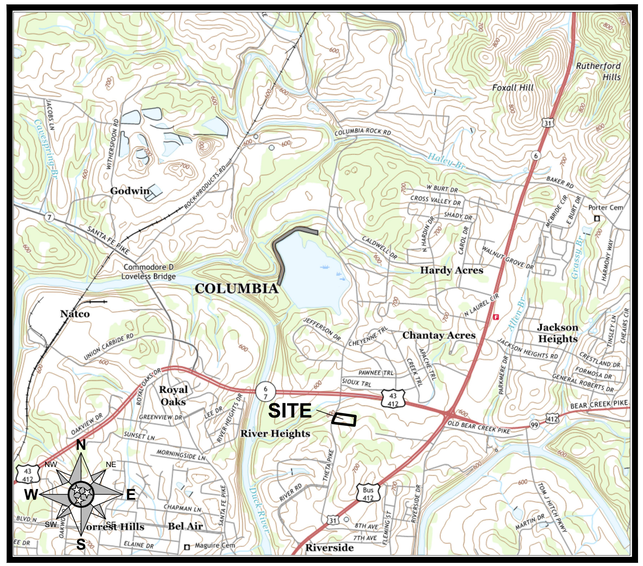
MACKENZIE PLACE

TAX MAP 90B, GROUP B, PARCEL 47.00

220 THETA PIKE

MAURY COUNTY, TENNESSEE

MAY 22, 2023



VICINITY MAP

SCALE: 1" = 2,000'

SOURCE: USGS

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
C000	COVER SHEET
C001	GENERAL NOTES
C100	EXISTING CONDITIONS & DEMOLITION PLAN
C200	SITE LAYOUT PLAN
C201	INTERSECTION SIGHT DISTANCE PLAN
C300	OVERALL GRADING & DRAINAGE PLAN
C301	ENLARGED GRADING & DRAINAGE PLAN
C302	ENLARGED GRADING & DRAINAGE PLAN
C303	ENLARGED GRADING & DRAINAGE PLAN
C304	GRADING DETAILS
C305	STORM SEWER DETAILS
C401	INITIAL EPSC PLAN
C402	INTERMEDIATE EPSC PLAN
C403	FINAL EPSC PLAN
C404	EPSC DETAILS
C500	UTILITY PLAN
C501	OFFSITE SANITARY SEWER PLAN & PROFILE
C502	SANITARY SEWER PLAN & PROFILE
C600	SITE DETAILS
C601	UTILITY DETAILS
C602	UTILITY DETAILS
LP1.0	TREE PRESERVATION PLAN
LP2.0	LANDSCAPE PLAN
A0.0	ARCHITECTURAL ELEVATIONS
A0.1	ARCHITECTURAL ELEVATIONS
A1.0	ARCHITECTURAL FIRST FLOOR PLAN
A2.0	ARCHITECTURAL SECOND FLOOR PLAN
A3.0	ARCHITECTURAL RENDERING
A3.1	ARCHITECTURAL RENDERING
A3.2	ARCHITECTURAL RENDERING
A3.3	ARCHITECTURAL RENDERING
A3.4	ARCHITECTURAL RENDERING

PROJECT NOTES:

1. WATER FOR THIS DEVELOPMENT IS TO BE PROVIDED BY COLUMBIA POWER & WATER SYSTEMS.
2. SANITARY SEWER PROVIDER FOR THIS DEVELOPMENT IS TO BE COLUMBIA POWER & WATER SYSTEMS.
3. TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY M2 GROUP, LLC DATED MAY, 2022.
4. ELECTRIC SERVICE TO BE PROVIDED BY COLUMBIA POWER & WATER SYSTEMS.
5. GAS SERVICE TO BE PROVIDED BY ATMOS ENERGY.

FLOODPLAIN NOTE:

THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

CONTACT LIST

OWNER/DEVELOPER

WAITS DEVELOPMENT GROUP, LLC
ADDRESS: PO BOX 111285
NASHVILLE, TENNESSEE 37222
PHONE NO.:615-498-4190
CONTACT NAME: JOHN WAITS

CIVIL ENGINEER

M2 GROUP, LLC
P.O. BOX 848
FRANKLIN, TN 37065
PHONE: (615) 406-3415
CONTACT: MATT W. BRYANT, P.E.
E-MAIL: matt@m2groupllc.com

UTILITY CONTACTS:

WATER SUPPLY:
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931) 388-4833

SANITARY SEWER
COLUMBIA WASTEWATER DEPARTMENT
1244 Treatment Plant Road
COLUMBIA, TN 38401
(931) 560-1001

ELECTRIC SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931) 388-4833

GAS SERVICE
ATMOS ENERGY CORPORATION
810 NASHVILLE HWY
COLUMBIA, TN 38401
(931) 388-9136

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

REVISION #	DATE	DESCRIPTION
1	08-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYANT — REGISTERED ENGINEER — AGRICULTURE — COMMERCE & TECHNOLOGY — CERTIFICATE NO. 120681 — STATE OF TENNESSEE — 08/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

COVER SHEET

DRAWN BY: M2G
CHECKED BY: MWB
DATE: MAY 22, 2023
PROJECT NO. : 22-085

SHEET NUMBER:
C000

MPA - COVER SHEET.DWG / Monday, June 19, 2023 3:50:42 PM

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTH MOVING OPERATIONS. INFORM ENGINEER OF ANY CONFLICTS DETRIMENTAL TO THE DESIGN INTENT.
2. 72 HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES: TENNESSEE 811 AND ALL OTHER AGENCIES THAT MAY HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NON-MEMBERS OF TENNESSEE 811.
3. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTORS TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
4. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND OWNER'S REPRESENTATIVE FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
5. CONTRACTOR SHALL OBTAIN A PERMIT FOR ALL CONSTRUCTION ACTIVITIES AND PERFORM SAID ACTIVITIES IN ACCORDANCE WITH ALL LOCAL, STATE, FEDERAL & OSHA REGULATIONS.
6. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL APPLICABLE PERMITS, PAY ALL REQUIRED FEES AND ATTEND REQUIRED PRE-CONSTRUCTION MEETINGS WITH CITY AND UTILITY COMPANIES PRIOR TO BEGINNING WORK.
7. ANY WORK PERFORMED IN THE LOCAL RIGHT OF WAYS SHALL BE IN ACCORDANCE WITH THE APPLICABLE LOCAL REQUIREMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS FOR THE WORK, SCHEDULE NECESSARY INSPECTIONS, AND PROVIDE THE NECESSARY TRAFFIC CONTROL MEASURES AND DEVICES, ETC., FOR WORK PERFORMED IN THE RIGHT OF WAYS.
8. THE CONTRACTOR IS TO PERFORM ALL INSPECTIONS AS REQUIRED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC) FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND FURNISH OWNERS REPRESENTATIVE WITH WRITTEN REPORTS. OWNER WILL SUBMIT THE NOTICE OF INTENT (NOI) AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ORDER TO OBTAIN A NOTICE OF COVERAGE (NOC) UNDER THE STATE OF TENNESSEE NPDES PERMIT. THE CONTRACTOR WILL BE REQUIRED TO SIGN THE NOI AND SUBMIT UPDATED NOI TO THE STATE OF TENNESSEE UPON SELECTION TO COMPLETE THE CONSTRUCTION AND BE A PERMITTEE LISTED ON THE NOC.
9. CONTRACTOR SHALL IMPLEMENT ALL SOIL AND EROSION CONTROL, PRACTICES REQUIRED BY CITY OF COLUMBIA AND TDEC.
10. ALL GROUND SURFACE AREAS THAT HAVE BEEN EXPOSED OR LEFT BARE AS A RESULT OF CONSTRUCTION AND ARE TO FINAL GRADE AND ARE TO REMAIN SO, SHALL BE SEEDED AND MULCHED AS SOON AS PRACTICAL IN ACCORDANCE WITH SPECIFICATIONS.
11. ALL WORK SHALL COMPLY WITH THE TENNESSEE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND ALL CONSTRUCTION WORK SHALL BE DONE ACCORDING TO SAID SPECIFICATIONS AND IN ACCORDANCE WITH APPLICABLE STANDARDS OF CITY OF COLUMBIA SUBDIVISION REGULATIONS.
12. ALL WORK PERFORMED BY THE CONTRACTOR SHALL CONFORM TO THE LATEST REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT.
13. CONTRACTOR SHALL REFER TO OTHER PLAN SHEETS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
14. BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT THEY ARE NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.
15. WHERE CURB IS PRESENT, DIMENSIONS ARE SHOWN TO THE FACE OF CURB, OTHERWISE DIMENSIONS ARE SHOWN TO THE EDGE OF PAVEMENT OR AS NOTED.
16. SITE SIGNAGE AND STRIPING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
17. CONCRETE WALKS SHALL BE 4" THICK OVER 4" COMPACTED GRAVEL WITH CONTROL JOINTS EQUALLY SPACED AT IN ACCORDANCE WITH ACI 330R-01 AND ACI 325R 9-91, ISOLATION JOINTS AT ALL FIXED STRUCTURES (MANHOLES, INLETS, WALLS, BUILDING, ETC.). ALL SIDEWALKS ARE TO BE BROOM FINISHED.
18. CONSTRUCTION OF ALL ROADWAYS AND SIDEWALKS SHALL MEET THE REQUIREMENTS OF CITY OF COLUMBIA ROADWAY CONSTRUCTION CRITERIA AND STANDARD DETAILS.
19. CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND AS REQUIRED BY LOCAL AGENCIES WHEN WORKING IN AND/OR ALONG STREETS, ROADS, HIGHWAYS, ETC. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL AND COORDINATE WITH LOCAL AND/OR STATE AGENCIES REGARDING THE NEED, EXTENT AND LIMITATIONS ASSOCIATED WITH INSTALLING AND MAINTAINING TRAFFIC CONTROL MEASURES.
20. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL BE IN ACCORDANCE WITH ALL FEDERAL OSHA REGULATIONS. CONTRACTOR TO PAY PARTICULAR ATTENTION TO 29 CFR PART 1926, SUBPARTS M AND P.

DEMOLITION NOTES

1. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD BY THE CONTRACTOR.
2. NO TREES SHALL BE REMOVED, NOR VEGETATION DISTURBED BEYOND THE LIMITS OF CONSTRUCTION WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
3. TREE PROTECTION FENCING SHALL BE IN ACCORDANCE WITH CITY OF COLUMBIA STANDARDS AND DETAILED DRAWINGS. DO NOT OPERATE OR STORE EQUIPMENT, NOR HANDLE OR STORE MATERIALS WITHIN THE DRIP LINES OF THE TREES SHOWN TO REMAIN.
4. PROTECTION OF EXISTING TREES AND VEGETATION: PROTECT EXISTING TREES AND OTHER VEGETATION INDICATED TO REMAIN IN PLACE AGAINST UNNECESSARY CUTTING, BREAKING OR SKINNING OF ROOTS, SKINNING OR BRUISING OF BARK, SMOTHERING OF TREES BY STOCKPILING CONSTRUCTION MATERIALS OR EXCAVATED MATERIALS WITHIN DRIP LINE, EXCESS FOOT OR VEHICULAR TRAFFIC, OR PARKING OF VEHICLES WITHIN DRIP LINE. PROVIDE TEMPORARY GUARDS TO PROTECT TREES AND VEGETATION TO BE LEFT STANDING.
5. ALL DEMOLITION WASTE AND CONSTRUCTION DEBRIS, OTHER THAN TOPSOIL, SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE IN A STATE APPROVED WASTE SITE AND IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR DAMAGE ACCORDING TO THE APPROPRIATE UTILITY COMPANY STANDARDS AND AT THE CONTRACTOR'S EXPENSE.
6. ALL UTILITY DISCONNECTION, REMOVAL, RELOCATION, CUTTING, CAPPING AND/OR ABANDONMENT SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY / AGENCY. UTILITY CONTACTS ARE LISTED ON THE COVER SHEET.
7. THE BURNING OF CLEARED MATERIAL AND DEBRIS SHALL NOT BE ALLOWED UNLESS CONTRACTOR OBTAINS PRIOR WRITTEN AUTHORIZATION FROM THE LOCAL AUTHORITIES.
8. EROSION & SEDIMENT CONTROL MEASURES AROUND AREAS OF DEMOLITION SHALL BE PROPERLY INSTALLED AND FUNCTION PROPERLY PRIOR TO INITIALIZATION OF DEMOLITION ACTIVITIES.
9. HAZARDOUS MATERIALS ARE NOT EXPECTED, IF FOUND ON SITE, SUCH MATERIALS SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIALS CONTRACTOR. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY IF HAZARDOUS MATERIALS ARE ENCOUNTERED.
10. CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE, FEDERAL AND OSHA REGULATIONS DURING ALL DEMOLITION ACTIVITIES.
11. CONTRACTOR SHALL PROTECT ALL CORNER PINS, MONUMENTS, PROPERTY CORNERS AND BENCHMARKS DURING DEMOLITION ACTIVITIES. IF DISTURBED, CONTRACTOR SHALL HAVE DISTURBED ITEMS RESET BY A LICENSED SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.
12. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, STRUCTURES, AND FEATURES TO REMAIN. ANY ITEMS TO REMAIN THAT HAVE BEEN DISTURBED OR DAMAGED AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
13. THE CONTRACTOR SHALL USE SUITABLE METHODS TO CONTROL DUST AND DIRT CAUSED BY THE DEMOLITION ACTIVITIES.
14. ANY UTILITY AND STRUCTURE REMOVAL, RELOCATION, CUTTING, CAPPING AND/OR ABANDONMENT SHALL BE COORDINATED AND PROPERLY DOCUMENTED BY A CERTIFIED PROFESSIONAL, WHEN APPLICABLE, WITH THE APPROPRIATE UTILITY COMPANY, MUNICIPALITY AND/OR AGENCY. DEMOLITION OF REGULATED ITEMS MAY INCLUDE, BUT ARE NOT LIMITED TO WELLS, ASBESTOS, UNDER GROUND STORAGE TANKS, SEPTIC TANKS AND ELECTRIC TRANSFORMERS. DEMOLITION CONTRACTOR SHALL REFER TO ANY ENVIRONMENTAL STUDIES FOR DEMOLITION RECOMMENDATIONS AND GUIDANCE AVAILABLE ENVIRONMENTAL STUDIES MAY INCLUDE, BUT ARE NOT LIMITED TO PHASE I ESA, PHASE II ESA, WETLAND AND STREAM DELINEATION AND ASBESTOS SURVEY. ALL APPLICABLE ENVIRONMENTAL STUDIES SHALL BE MADE AVAILABLE UPON REQUEST.

LAYOUT NOTES

1. THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. RELOCATE EXISTING UTILITIES AS INDICATED, OR AS NECESSARY FOR CONSTRUCTION.
3. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ALL UTILITIES; INCLUDING, BUT NOT LIMITED TO, ALL UTILITIES AND CROSSINGS PRIOR TO PAVEMENT INSTALLATION.
4. ALL DAMAGE TO EXISTING PAVEMENT TO REMAIN, WHICH RESULTS FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED WITH LIKE MATERIALS AT THE CONTRACTOR'S EXPENSE.
5. SITE DIMENSIONS SHOWN ARE TO THE FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. CONTRACTOR SHALL MAINTAIN ONE SET OF AS-BUILT/RECORD DRAWINGS ON-SITE DURING CONSTRUCTION FOR DISTRIBUTION TO THE OWNER AND/OR OWNER'S REPRESENTATIVE UPON COMPLETION.
7. THIS SITE LAYOUT IS SPECIFIC TO THE APPROVALS NECESSARY FOR THE CONSTRUCTION IN ACCORDANCE WITH CITY OF COLUMBIA REQUIREMENTS. NO CHANGES TO THE SITE LAYOUT ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. CHANGES MADE TO THE SITE LAYOUT WITHOUT APPROVAL IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. CHANGES INCLUDE BUT ARE NOT LIMITED TO, INCREASED IMPERVIOUS PAVEMENT, ADDITION / DELETION OF PARKING SPACES, MOVEMENT OF CURB LINES, CHANGES TO DRAINAGE STRUCTURES AND PATTERNS, LANDSCAPING, ETC.
8. CONTRACTOR SHALL PERFORM A PROOF ROLL PER CITY OF COLUMBIA REQUIREMENTS PRIOR TO STONE AND PAVEMENT INSTALLATION.
9. ALL PAVEMENT MARKINGS SHALL BE INSTALLED USING WHITE OR YELLOW, REFLECTIVE TRAFFIC MATERIALS (SEE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
10. THE CITY WILL MEASURE THE CROSS SLOPE OF FINAL CONSTRUCTED ROADWAYS WITHIN THE SUBDIVISION. THE CROSS SLOPE OF THE FINAL CONSTRUCTED ROADWAYS SHALL BE PER THE ROADWAY SECTION SHOWN ON THE CONSTRUCTION PLANS OR IT SHALL BE REPAIRED AT NO COST TO THE CITY OR OWNER.
11. OWNER SHALL PROVIDE STAKING OF THE FRONT PROPERTY LINES OF EACH LOT AND WILL SET FINAL PROPERTY CORNERS. ALL OTHER STAKING/SURVEYING THAT IS REQUIRED TO CONSTRUCT THE IMPROVEMENTS SHOWN IN THESE CONSTRUCTION PLANS IS THE RESPONSIBILITY OF THE CONTRACTOR.
12. THE ENGINEER SHALL PROVIDE FILES IN COMPUTER-AIDED-DRAFTING (CAD) FORMAT TO THE CONTRACTOR. THE CONTRACTOR WILL BE BOUND BY THE TERMS IN THE ENGINEER'S "CAD FILES DISCLAIMER, WAIVER AND LIMITATION OF LIABILITY" AGREEMENT.

GRADING NOTES

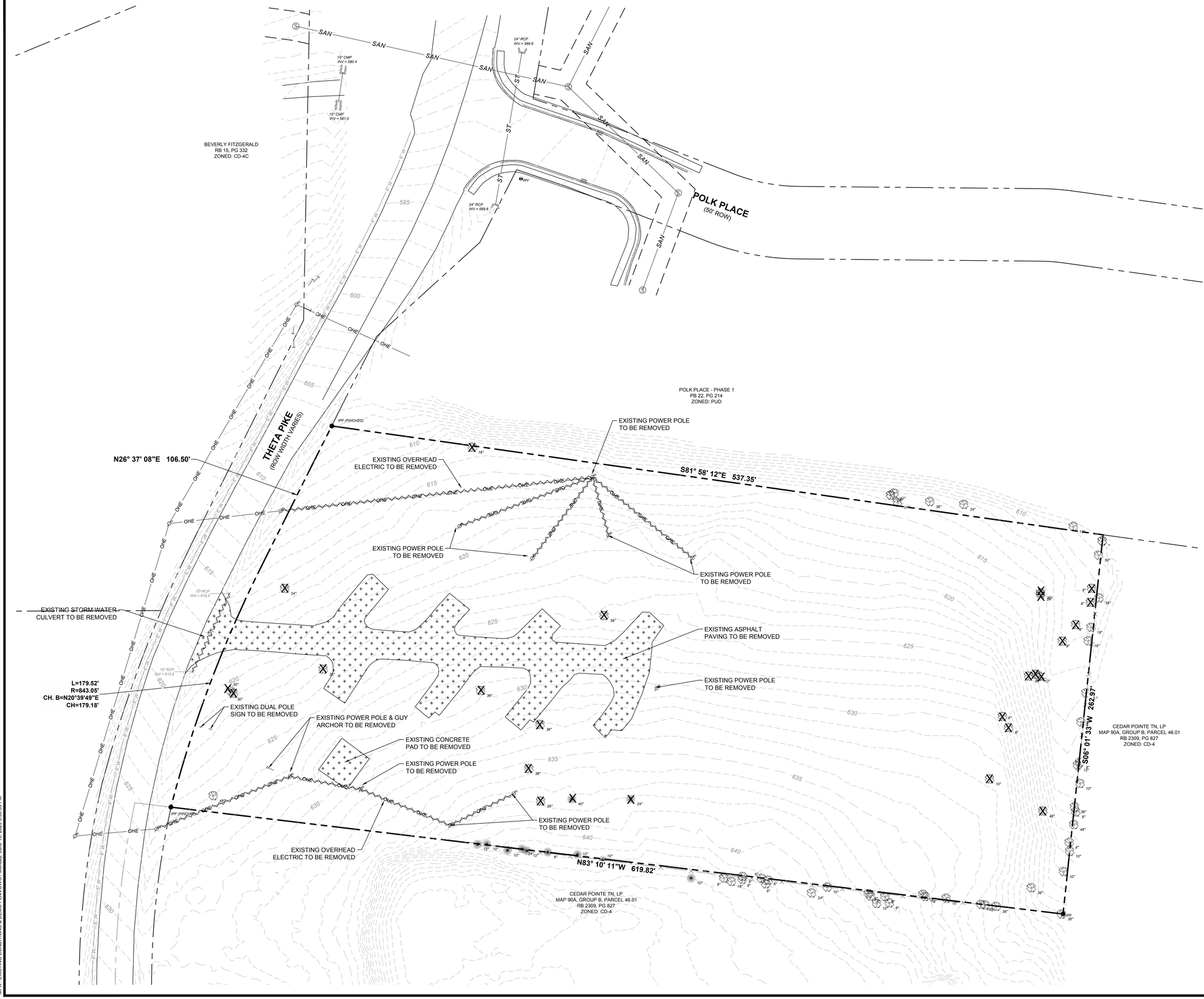
1. THE CONTRACTOR SHALL CHECK ALL EXISTING AND FINISHED GRADES, DIMENSIONS, ETC. PRIOR TO BEGINNING NOTIFY THE OWNERS REPRESENTATIVE OF ANY DISCREPANCIES AND/OR ERRORS IN THE PLANS PRIOR TO COMMENCING WORK.
2. ALL PROPOSED GRADES SHOWN ARE FINAL GRADES, TOP OF GROUND LEVEL, OR TOP OF PAVEMENT, OR GRATE ELEVATION AT THE DRAWDOWN POINT, UNLESS INDICATED OTHERWISE.
3. ALL ELEVATIONS SHOWN ARE FINISHED GRADE ELEVATIONS.
4. CONTRACTOR SHALL ADHERE TO THE EROSION & SEDIMENT CONTROL PLAN PREPARED FOR THIS PROJECT.
5. EARTHWORK SHALL INCLUDE CLEARING AND GRUBBING, STRIPPING AND STOCKPILING TOPSOIL, MASS GRADING, EXCAVATION, FILLING, UNDER CUT AND REPLACEMENT, IF REQUIRED, AND COMPACTION.
6. CONTRACTOR TO REFILL UNDERCUT AREAS (IF REQUIRED) WITH SUITABLE MATERIAL AND COMPACT AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
7. EXCAVATED SUBGRADES AND EACH LAYER OF FILL SHALL BE OF A QUALITY ACCEPTABLE TO THE OWNERS REPRESENTATIVE AND SHALL NOT INCLUDE ORGANIC MATERIAL, BOULDERS, DEBRIS, WET MATERIAL, ETC. CUT OR STRIPPED AREAS SHALL BE PROOF ROLLED PRIOR TO ANY FILLING. ALL GRADING ACTIVITY AND PLACEMENT OF MATERIAL SHALL BE MONITORED BY A QUALIFIED GEOTECHNICAL ENGINEER (OR THEIR REPRESENTATIVE), OR AS DIRECTED BY THE OWNERS REPRESENTATIVE. MATERIAL SHALL MEET OR EXCEED COMPACTION REQUIREMENTS SPECIFIED IN THE SPECIFICATIONS PUBLISHED BY CITY OF COLUMBIA.
8. PLACE TOPSOIL OVER THE SUBGRADE OF UNPAVED, DISTURBED AREAS TO A MINIMUM DEPTH OF 6". TOPSOIL SHALL BE FREE OF ROCK AND DEBRIS.
9. ALL SLOPES IN NON-PAVED AREAS SHALL BE 3:1 (HORIZONTAL:VERTICAL) MAXIMUM UNLESS NOTED OTHERWISE.
10. ALL AREAS NOT PAVED SHALL BE STABILIZED IN ACCORDANCE WITH THE EROSION & SEDIMENT CONTROL PLAN, UNLESS NOTED OTHERWISE.
11. ALL FILLS SHALL BE CONTROLLED, COMPACTED, AND INSPECTED BY AN APPROVED TESTING LABORATORY OR AN INSPECTOR FROM THE APPROPRIATE GOVERNMENTAL AGENCY.
12. ALL EXCESS SOIL MATERIALS, OTHER THAN TOPSOIL, SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE (INCLUDING ALL CHARTER COMMERCIAL, LLC PROPERTY OR FUTURE PHASES OF HIGH PARK HILL SUBDIVISION) AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE SITE EARTHWORK BY IMPORTING OR EXPORTING AS NECESSARY TO ACHIEVE DESIGN GRADES AND SPECIFICATIONS.
14. THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO ADJACENT PROPERTIES OCCURRING DURING CONSTRUCTION OF THIS PROJECT. NO WORK SHALL BE PERFORMED OUTSIDE THE PROJECT BOUNDARY WITHOUT PROPER AGREEMENTS WITH THE AFFECTED PROPERTY OWNERS.
15. THE LOCATION AND/OR ELEVATION OF THE EXISTING UTILITIES SHOWN HEREON ARE BASED ON UTILITY COMPANY RECORDS, AND WHERE POSSIBLE, FIELD MEASUREMENTS. THE CONTRACTOR SHALL NOT RELY UPON THIS INFORMATION AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 3 DAYS BUT NOT MORE THAN 10 DAYS PRIOR TO ANY EXCAVATION AND REQUEST FIELD VERIFICATION OF UTILITY LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES TO REMAIN. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED UTILITIES ACCORDING TO LOCAL CODES AT THE CONTRACTORS EXPENSE.
16. THE GENERAL CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR JOB SITE CONDITIONS, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY DURING CONSTRUCTION. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS.
17. MATERIALS NOT SUITABLE FOR FILL OR REUSE SHALL BE DISPOSED OF OFFSITE IN ACCORDANCE WITH THE REQUIREMENTS OF CITY OF COLUMBIA AND AS DIRECTED BY THE OWNER OR THEIR REPRESENTATIVE.
18. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT T.O.S.H.A. PROVISIONS AND THE MANUAL OF ACCIDENT PREVENTION AND CONSTRUCTION, ISSUED BY THE AGC OF AMERICA, INCORPORATED, AND THE SAFETY AND HEALTH REGULATIONS OF CONSTRUCTION ISSUED BY THE U.S. DEPARTMENT OF LABOR.
19. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE THROUGH THE SITE DURING ALL PHASES OF CONSTRUCTION.
20. CONTRACTOR SHALL REMOVE FROM THE LIMITS OF DISTURBANCE ALL UNSUITABLE MATERIAL, DEBRIS, LARGER BOULDERS, DELETERIOUS MATERIAL, ETC. STOCKPILING OF ANY MATERIAL IN FUTURE PHASES OF THIS SUBDIVISION IS PROHIBITED WITHOUT THE EXPRESS WRITTEN CONSENT OF THE DEVELOPER AND THE ENGINEER OF RECORD. CONSENT TO PLACE ANY MATERIAL IN FUTURE PHASES OF THIS SUBDIVISION SHALL ONLY BE GRANTED UNDER THE FOLLOWING PROVISIONS:
    - IF THE AREA IS CLEARED, MAINTAINED AND PROPER EROSION CONTROL MEASURES INSTALLED TO PREVENT EROSION OR SEDIMENT DEPOSITION.
    - MATERIAL IS PLACED AND GRADED IN A PERMANENT LOCATION THAT WILL NOT BE REQUIRED TO BE MOVED IN A FUTURE PHASE OF THIS SUBDIVISION DEVELOPMENT AND PERMANENTLY STABILIZED IN ACCORDANCE WITH TDEC AND CITY REGULATIONS.
21. ALL SOILS, REGARDLESS OF THE CHARACTER OF SURFACE AND SUBSURFACE CONDITIONS ENCOUNTERED, ARE CONSIDERED TO BE UNCLASSIFIED. THE CONTRACTOR RECOGNIZES THAT THIS PROJECT IS LOCATED IN AN AREA WHERE ROCK ENCOUNTER IS LIKELY. THE CONTRACTOR IS RESPONSIBLE TO VISIT THE SITE, MAKE ANY TESTS, BORES, TEST PITS, SURVEYS, ETC. NECESSARY TO FAMILIARIZE HIMSELF WITH ALL SPECIFIC SITE CONDITIONS RELATED TO THIS PROJECT. NO CHANGES IN THE CONTRACT SUM OR THE CONTRACT TIME WILL BE AUTHORIZED FOR ANY ROCK ENCOUNTER, THE EXCAVATION/REMOVAL THEREOF, OR DISPOSAL OF ROCK/SOIL MIX AND/OR UNSUITABLE SOIL

STORM DRAINAGE NOTES

1. DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE INSTALLATION, INSPECTION, TESTING AND FINAL ACCEPTANCE OF ALL NEW STORMWATER MANAGEMENT FACILITIES CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH ALL APPLICABLE REGULATING AGENCIES CONCERNING INSTALLATION, INSPECTION AND APPROVAL OF THE STORM DRAINAGE SYSTEM CONSTRUCTION.
3. ALL STORMWATER MANAGEMENT FACILITIES, INCLUDING COLLECTION AND CONVEYANCE STRUCTURES, SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS.
4. THE CONTRACTOR IS TO CONSTRUCT CURBS, CATCH BASINS, PIPING, ETC. AS REQUIRED TO CONVEY THE LANDSCAPED & PAVED SURFACE DRAINAGE THROUGH THE SITE.
5. STORM SEWER PIPE LABELED "RCP" SHALL BE REINFORCED CONCRETE PIPE. ALL STORM IS TO BE INSTALLED PER CITY OF COLUMBIA REQUIREMENTS AND SPECIFICATIONS.
6. STORM SEWER IS TO BE BEDDED WITH CLEAN GRANULAR MATERIAL (AGGREGATE) CONSISTING OF AASHTO #57 OR #67 STONE. BEDDING TO BE MINIMUM OF 6" BELOW & 12" ABOVE AND ON THE SIDES OF THE PIPE OR AS REQUIRED BY CITY OF COLUMBIA INSPECTOR.
7. ALL TRENCH SPOILS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
8. CONTRACTOR SHALL INCLUDE A LINE ITEM IN THEIR CONTRACT TO THE OWNER FOR REMOVAL OF ALL EROSION AND SEDIMENT CONTROL MEASURES AT THE END OF THE BOND PERIOD WITH CITY OF COLUMBIA.

EROSION AND SEDIMENT CONTROL NOTES

1. THE ISSUED NOTICE OF COVERAGE (NOC) OF THE PERMIT TO DISCHARGE CONSTRUCTION ACTIVITY STORMWATER SHALL BE POSTED NEAR THE SITE CONSTRUCTION ENTRANCE. THE CONTRACTOR SHALL HAVE THE SWPPP AND A SET OF APPROVED EPSC PLANS ON SITE AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR WILL BE REQUIRED TO SIGN THE NOTICE OF INTENT (NOI) AND SUBMIT UPDATED NOI TO THE STATE OF TENNESSEE UPON SELECTION TO COMPLETE THE CONSTRUCTION AND BE A PERMITTEE LISTED ON THE NOC.
2. PRIOR TO INSTALLATION OF EROSION CONTROL MEASURES OR INITIATION OF EARTH DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CLEARLY DELINEATE THE PROPOSED LIMITS OF DISTURBANCE IN THE FIELD UTILIZING FLAGGING, STAKES, AND/OR CONSTRUCTION FENCE. NO DISTURBANCE BEYOND THESE LIMITS SHALL BE PERMITTED WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE ENGINEER, THE AFFECTED PROPERTY OWNER AND ANY APPLICABLE REGULATORY AGENCIES.
3. THE CONSTRUCTION ACTIVITIES ANTICIPATED FOR THIS PROJECT INCLUDES GRADING, PAVING, AND UTILITY INSTALLATION.
4. ANY INCREASE IN THE APPROXIMATE TOTAL DISTURBED AREA SHALL BE APPROVED BY TDEC PRIOR TO ADDITIONAL DISTURBANCE.
5. CONSTRUCTION SHALL BE SEQUENCED BY THE CONTRACTOR AS TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREAS. PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO EARTH MOVING OPERATIONS.
6. THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE PERSON(S) RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AT THE SITE. THIS INFORMATION SHALL BE POSTED AT THE JOB SITE TRAILER, OR AT THE SITE CONSTRUCTION SIGN.
7. PRE-CONSTRUCTION VEGETATIVE GROUNDCOVER SHALL NOT BE REMOVED MORE THAN 14 DAYS PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED FOR MORE THAN 14 DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH, OR FABRIC MATTING. STEEP SLOPES (GREATER THAN 35%) SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 15 DAYS OF THE ESTABLISHMENT OF FINAL GRADES.
8. THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION AND SEDIMENT CONTROL FOR A PERIOD OF THREE YEARS AFTER COMPLETION OF CONSTRUCTION OR AS REQUIRED BY GOVERNING AUTHORITIES.
9. TEMPORARY SEEDING FOR THIS PROJECT SHALL UTILIZE TDOT, TDEC OR LOCAL STANDARDS UNLESS OTHERWISE INDICATED HEREON.
10. MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT A RATE OF 2 TONS PER ACRE. MULCH MUST BE CRIMPED INTO THE SOIL BY MECHANICAL MEANS. BROADCAST SPREADING OF MULCH IS NOT ACCEPTABLE.
11. SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED FROM EROSION. ALL STOCKPILES SHALL BE COVERED WITH TEMPORARY SEEDING AND PROTECTED WITH SILT FENCING.
12. FOR PERMANENT STABILIZATION OF ALL SLOPES 3:1 OR STEEPER, INSTALL TEMPORARY EROSION CONTROL BLANKET (TENSAR NORTH AMERICAN GREEN TCP-10 OR APPROVED EQUAL) INSTALLED PER MANUFACTURERS' RECOMMENDATIONS SHALL BE USED IN PLACE OF STRAW MULCH.
13. FOR PERMANENT STABILIZATION OF DRAINAGE SWALES, INSTALL TURF REINFORCEMENT MATTING (TENSAR NORTH AMERICAN GREEN SC250 OR APPROVED EQUAL) PER MANUFACTURERS' RECOMMENDATIONS.
14. FOR PERMANENT STABILIZATION OF PERMANENT DETENTION POND, INSTALL SOD PER MANUFACTURERS' RECOMMENDATIONS. SOD SHALL BE AS FOLLOWS: SOD SHALL BE HIGH-QUALITY TURF TYPE TALL FESCUE OF KNOWN GENETIC ORIGIN. FREE OF NOXIOUS WEEDS, DISEASE, AND INSECT PROBLEMS. SOD SHALL APPEAR HEALTHY AND VIGOROUS, AND CONFORM TO ALL SPECIFICATIONS IN THE TDEC SEDIMENT AND EROSION CONTROL HANDBOOK, LATEST EDITION.
15. THE LOCATION OF SOME OF THE EROSION CONTROL MEASURES MAY NEED TO BE ALTERED DUE TO CHANGING SITE CONDITIONS COMMENSURATE WITH PROGRESS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION AND SEDIMENT CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES OF CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
16. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER IS ESTABLISHED. SEEDED AREAS MUST HAVE A MINIMUM 70% COVERAGE (ENGINEER WILL DETERMINE APPROXIMATE PERCENTAGE OF COVER) PRIOR TO REMOVAL OF THE TEMPORARY EROSION CONTROL DEVICES. FINAL SEEDING AND ESTABLISHMENT OF GROUNDCOVER SHALL BE APPLIED TO ANY AREA DISTURBED AS A RESULT OF THE REMOVAL OF THE EROSION CONTROL MEASURES.
17. CONTRACTOR SHALL PREPARE, IMPLEMENT, AND MAINTAIN A SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PLAN, AS A SEPARATE DOCUMENT OR AS A COMPONENT OF THE SWPPP, FOR ALL TANKS/CONTAINERS STORING ONSITE FUEL, CHEMICALS, OR OTHER POLLUTANTS CONSISTENT WITH THE REQUIREMENTS OF STATE NPDES RULES. EFFECTIVE MEASURES NECESSARY TO PREVENT SPILLS AND TO CLEAN UP SPILLS OF ANY TOXIC POLLUTANT, AS DOCUMENTED IN THE FACILITY'S SPCC PLAN, SHALL BE FULLY IMPLEMENTED. SOIL CONTAMINATED BY HAZARDOUS SUBSTANCES, PAINTS, FUEL, OR CHEMICAL SPILLS, SHALL BE IMMEDIATELY CLEANED UP, MANAGED, AND DISPOSED OF IN AN APPROVED MANNER. WHERE POTENTIAL SPILLS CAN OCCUR, MATERIALS HANDLING PROCEDURES SHALL BE SPECIFIED AND PROCEDURES FOR IMMEDIATE CLEANUP/REMEDIATION OF SPILLS SHALL BE DESCRIBED IN THE SPCC PLAN OR EMPLOYEE TRAINING PLANS. THE EQUIPMENT NECESSARY TO IMPLEMENT A CLEANUP SHALL BE MADE AVAILABLE TO FACILITY PERSONNEL. THE OPERATOR SHALL IMMEDIATELY NOTIFY THE DESIGNATED STATE AND LOCAL GOVERNMENT AGEN



LEGEND

- ASPHALT REMOVAL
- UTILITY REMOVAL
- TREE REMOVAL
- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPEF
- EXISTING INDEX CONTOUR
- EXISTING OVERHEAD ELECTI
- EXISTING SANITARY SEWER I
- EXISTING TREELINE
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER LIN
- FIRE HYDRANT
- WATER METER
- TREE, DECIDUOUS
- TREE, CONIFER
- IRON PIPE FOUND (IPF)
- SANITARY MANHOLE
- WATER BOX (WATER VALVE)
- POWER POLE
- CURB INLET

SURVEYOR'S NOTES

1. BEARINGS ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83, 2011).
2. THE FIELD SURVEY WAS COMPLETED ON MAY, 2022.
3. THIS SURVEY WAS PREPARED USING THE CURRENT DEEDS AND PLATS OF RECORD.
4. ALL DEED BOOK AND PLAT REFERENCES PERTAIN TO THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
5. ADJOINING PROPERTY LINES SHOWN WERE PLOTTED FROM INFORMATION TAKEN FROM EITHER DEED DESCRIPTION, RECORD PLATS, OR TAX MAPS.
6. PROPERTY CORNERS SET THIS SURVEY ARE 18" #4 REBAR WITH ORANGE PLASTIC CAP STAMPED "M2 GROUP". 18" #5 REBAR WITH YELLOW PLASTIC CAP STAMPED "M2 GROUP, LLC", OR PK NAIL WITH STAINLESS STEEL WASHER STAMPED "M2 GROUP, LLC", UNLESS NOTED OTHERWISE.
7. UTILITIES SHOWN HEREON WERE COMPILED FROM VISIBLE STRUCTURES AT THE SITE, INFORMATION FROM PLANS, AND PHYSICAL MARKINGS AND COMBINED TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. IN ADDITION, IN SOME JURISDICTIONS, 811 OR OTHER SIMILAR UTILITY LOCATE REQUESTS FROM SURVEYORS MAY BE IGNORED OR RESULT IN AN INCOMPLETE RESPONSE. THIS SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THIS SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. VERIFICATION OF EXISTENCE, LOCATIONS, AND DEPTH SHOULD BE MADE BEFORE CONDUCTING ANY EXCAVATION IN THE VICINITY OF THE UTILITY.
8. THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.
9. NO TITLE REPORT WAS PROVIDED TO THIS SURVEYOR REGARDING THE SUBJECT PROPERTIES, THEREFORE, THIS SURVEY IS SUBJECT TO THE FINDINGS OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH AND REPORT MAY DISCLOSE.

REFERENCE

SEE SEE C001 FOR GENERAL AND DEMOLITION NOTES.

FLOODPLAIN NOTE:

THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

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Know what's below.
Call before you dig.

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
REGISTERED LAND SURVEYOR
COMMERCIAL
STATE OF TENNESSEE
06/19/23

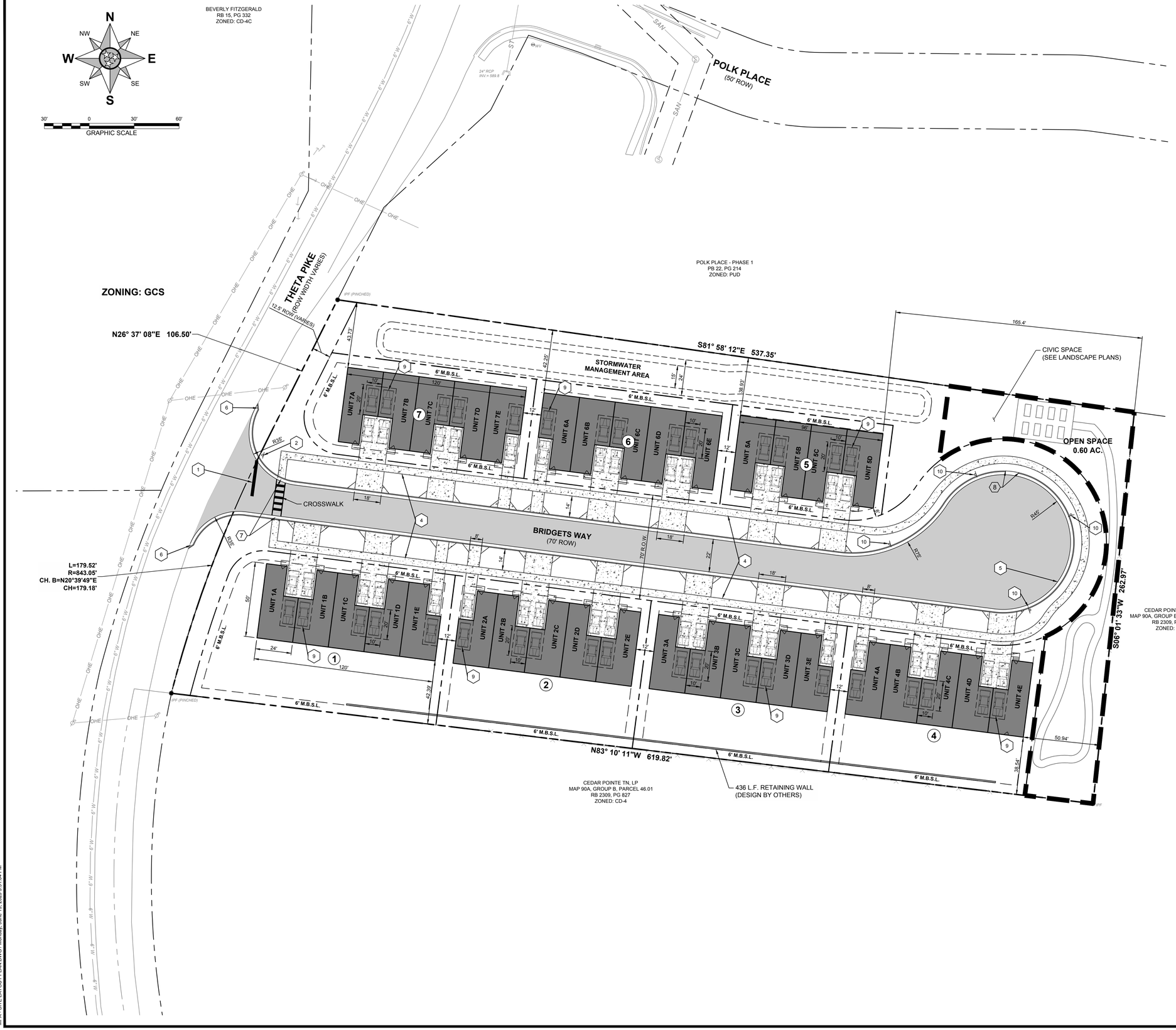
SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

EXISTING CONDITIONS & DEMOLITION PLAN

DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	MAY 22, 2023
PROJECT NO. :	22-085

SHEET NUMBER:
C100



SITE PLAN KEY NOTES

1. 2' WIDE x 18' LONG THERMOPLASTIC STOP BAR
2. STOP / STREET SIGN (REF. SHEET C600)
3. PROPOSED LIGHT POLE/FIXTURE, SEE SITE PHOTOMETRICS PLAN
4. 5' CONCRETE SIDEWALK (REF SHEET C600)
5. CURB AND GUTTER (TYP.) (REF. SHEET C600)
6. CURB TAPER (REF. SHEET C6.0)
7. ADA RAMP (REF. SHEET C6.0)
8. 2' WIDE CURB CUT
9. UNIT PARKING (2 SPACES PER UNIT)
10. NO PARKING SIGN

LOCAL NOTE:

1. PROJECT IS INTENDED TO BE PLATTED AND RECORDED UNDER THE HORIZONTAL PROPERTY REGIME STANDARDS OF THE STATE OF TENNESSEE. THEREFORE A PRELIMINARY PLAT AND FINAL PLAT ARE NOT REQUIRED.
2. DURING FINAL ARCHITECTURAL / BUILDING PERMIT PHASE, PLAN WILL DEMONSTRATE MINIMUM INTERIOR DIMENSION TO MEET CITY STANDARDS.

SITE DATA TABLE		
ZONING	CD-4	
TOTAL LOT AREA	3.59	AC.
TOTAL NUMBER OF UNITS	34	EA.
DENSITY	9.47	UNITS / AC.
PARKING SPACES REQUIRED	68	EA.
PARKING SPACES PROVIDED	68*	EA.
FRONT YARD SETBACK	6' - 20'	L.F.
SIDE YARD SETBACK	6	L.F.
REAR YARD SETBACK	6	L.F.

* THE PROVIDED 68 PARKING SPACES MEET CITY REQUIREMENTS. HOWEVER, EACH UNIT CAN ACCOMMODATE 1 ADDITIONAL SPACE FOR GUEST PARKING BETWEEN SIDEWALK AND FACE OF BUILDNG.

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
REGISTERED
LICENSED
ARCHITECT
AGRICULTURE
COMMERCIAL
RESIDENTIAL
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2G GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

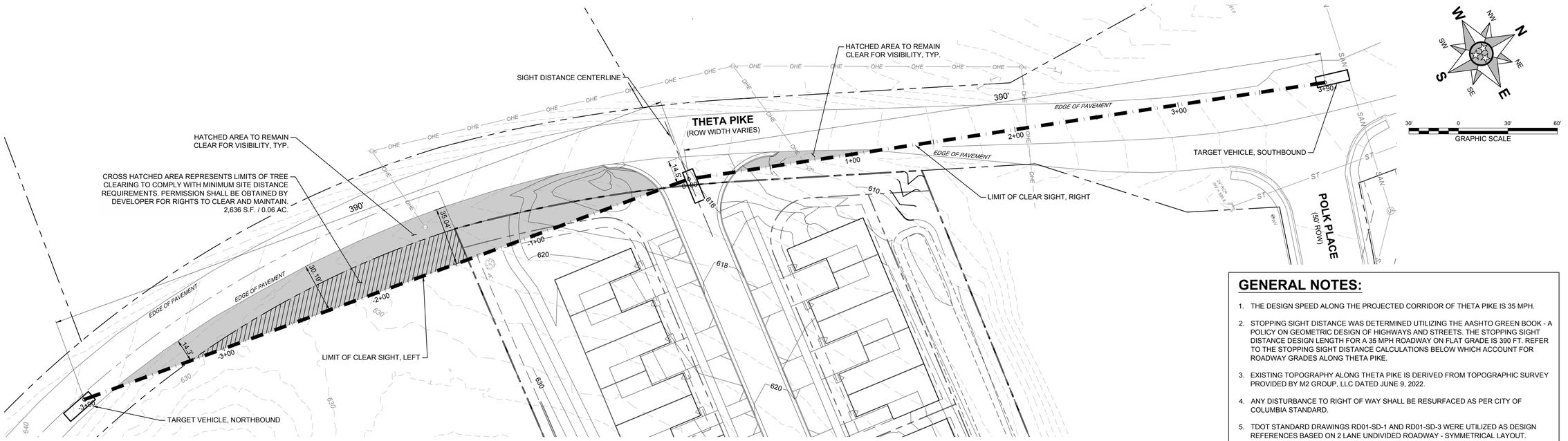
SITE LAYOUT PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C200

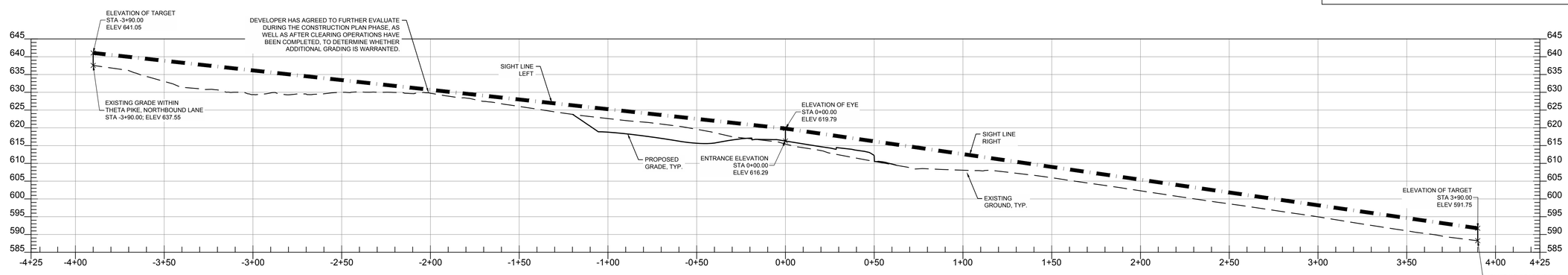
Know what's below. Call before you dig.

MPA - SITE LAYOUT PLAN.DWG / Monday, June 19, 2023 3:51:04 PM



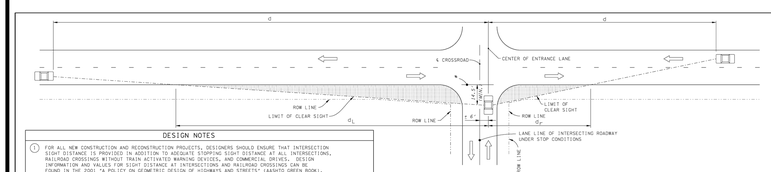
GENERAL NOTES:

1. THE DESIGN SPEED ALONG THE PROJECTED CORRIDOR OF THETA PIKE IS 35 MPH.
2. STOPPING SIGHT DISTANCE WAS DETERMINED UTILIZING THE AASHTO GREEN BOOK - A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS. THE STOPPING SIGHT DISTANCE DESIGN LENGTH FOR A 35 MPH ROADWAY ON FLAT GRADE IS 390 FT. REFER TO THE STOPPING SIGHT DISTANCE CALCULATIONS BELOW WHICH ACCOUNT FOR ROADWAY GRADES ALONG THETA PIKE.
3. EXISTING TOPOGRAPHY ALONG THETA PIKE IS DERIVED FROM TOPOGRAPHIC SURVEY PROVIDED BY M2 GROUP, LLC DATED JUNE 9, 2022.
4. ANY DISTURBANCE TO RIGHT OF WAY SHALL BE RESURFACED AS PER CITY OF COLUMBIA STANDARD.
5. TDOT STANDARD DRAWINGS RD01-SD-1 AND RD01-SD-3 WERE UTILIZED AS DESIGN REFERENCES BASED ON 2 LANE UNDIVIDED ROADWAY - SYMMETRICAL LAYOUT.



SIGHT DISTANCE PROFILE

SCALE H:1"=30'; V:1"=15'



ORIGIN OF CLEAR SIGHT LINE ON MINOR ROAD, STOP CONDITIONS

DEFINITIONS

- d =CLEAR LINE SIGHT DISTANCE
- d_R= CLEAR LINE OF SIGHT DISTANCE TO THE RIGHT
- d_L= CLEAR LINE OF SIGHT DISTANCE TO THE LEFT
- d_M= DISTANCE MEASURED FROM THE CENTERLINE OF THE ENTRANCE LANE OF THE MINOR ROADWAY TO A POINT ON THE MEDIAN CLEAR ZONE LIMIT OR HORIZONTAL CLEARANCE LIMIT FOR THE FAR SIDE ROADWAY OF THE MAJOR ROADWAY (SEE SHEET RD01-SD-1)

\# EDGE OF MAJOR ROAD TRAVELED WAY; THE TRAVELED WAY IS THE PORTION OF THE ROADWAY FOR THE MOVEMENT OF VEHICLES, EXCLUSIVE OF SHOULDERS, PARKING SPACES AND MARKED BICYCLE LANES.

DESIGN NOTES

1. FOR ALL NEW CONSTRUCTION AND RECONSTRUCTION PROJECTS, DESIGNERS SHOULD ENSURE THAT INTERSECTION SIGHT DISTANCE IS PROVIDED IN ADDITION TO STOPPING SIGHT DISTANCE AT ALL INTERSECTIONS, RAILROAD CROSSINGS WITHOUT TRAIN ACTUATED WARNING DEVICES, AND COMMERCIAL DRIVES. DESIGN INFORMATION AND VALUES FOR SIGHT DISTANCE AT INTERSECTIONS AND RAILROAD CROSSINGS CAN BE FOUND IN THE 2001 "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS " (AASHTO GREEN BOOK), CHAPTER 9, INTERSECTIONS.
2. INTERSECTION SIGHT DISTANCE SHOULD ALSO BE PROVIDED AT ALL PRIVATE DRIVES AND FIELD ENTRANCES WHEN FEASIBLE. IN THE EVENT THAT INTERSECTION SIGHT DISTANCE CANNOT BE ACHIEVED, THE DESIGNER SHALL VERIFY THAT STOPPING SIGHT DISTANCE IS PROVIDED. INTERSECTION SIGHT DISTANCE SHOULD ALWAYS BE PROVIDED FOR A LEFT TURN MOVEMENT FROM THE MAJOR ROAD INTO A PRIVATE DRIVE OR FIELD ENTRANCE.
3. DESIGNERS SHOULD CONSIDER ALL FEATURES THAT COULD LIMIT ADEQUATE SIGHT DISTANCE INCLUDING BUILDINGS, PARKED VEHICLES, HIGHWAY STRUCTURES, ROADSIDE HARDWARE, HEDGES, TREES, BUSHES, UNMOWED GRASS, TALL CROPS, WALLS, FENCES, SLOPES, AND THE TERRAIN ITSELF. THE DETERMINATION OF WHETHER AN OBJECT CONSTITUTES A SIGHT OBSTRUCTION SHOULD CONSIDER THE HORIZONTAL AND VERTICAL ALIGNMENT OF BOTH INTERSECTING ROADWAYS, AS WELL AS THE HEIGHT AND POSITION OF THE OBJECT. IN MAKING THIS DETERMINATION, THE ASSUMED DRIVER'S EYE SHOULD BE 3.5 FT. ABOVE THE SURFACE OF THE INTERSECTING ROAD FOR PASSENGER CARS. FOR LANDSCAPING, THE MATURE SIZE OF THE ITEM SHALL BE USED.
4. IN AREAS OF LIMITED RIGHT-OF-WAY ACQUISITION SUCH AS A CURB AND GUTTER SECTION, ADDITIONAL RIGHT-OF-WAY MAY NEED TO BE ACQUIRED TO ENSURE THAT INTERSECTION SIGHT DISTANCE CAN BE ACHIEVED OR MAINTAINED. IN THE EVENT THAT IT IS NOT FEASIBLE TO OBTAIN MINIMUM INTERSECTION SIGHT DISTANCE, THE DESIGNER SHALL VERIFY THAT STOPPING SIGHT DISTANCE IS PROVIDED. IN THIS EVENT, THE PROJECT DESIGN MANAGER WILL DOCUMENT IN THE PROJECT FILE THE REASON AND STEPS TAKEN TO MITIGATE. INTERSECTION SIGHT DISTANCE IS NOT ONE OF THE THIRTEEN CONTROLLING ELEMENTS OF DESIGN AS DETAILED IN SECTION 3-110.00 OF THE ROADWAY DESIGN GUIDELINES. THEREFORE, DESIGN EXCEPTIONS NEED NOT BE SUBMITTED.
5. DESIGNERS SHALL SHOW SIGHT LINES FOR ALL INTERSECTIONS IN THE DESIGN CADD FILE. SIGHT LINES SHALL ONLY BE SHOWN ON THE PRESENT AND PROPOSED LAYOUT SHEETS WHEN RIGHT-OF-WAY IS REQUIRED FOR THE PURPOSE OF ESTABLISHING OR MAINTAINING INTERSECTION SIGHT DISTANCE. SIGHT LINES SHOULD ALSO BE SHOWN FOR ALL INTERSECTIONS AND DRIVES ON ALL LANDSCAPING PLANS.
6. THE MINIMUM DRIVER EYE SETBACK OF 14.5' FROM THE EDGE OF THE TRAVELED WAY MAY BE ADJUSTED ON ANY INTERSECTION LEG ONLY WHEN JUSTIFIED BY A SITE SPECIFIC FIELD STUDY OF VEHICLE STOPPING POSITION AND DRIVER EYE POSITION.
7. FOR SIGNALIZED INTERSECTIONS SIGHT DISTANCES SHOULD BE DEVELOPED BASED ON AASHTO "CASE D- INTERSECTIONS WITH TRAFFIC SIGNAL CONTROL", AT SIGNALIZED INTERSECTIONS, THE FIRST VEHICLE STOPPED ON ONE APPROACH SHOULD BE VISIBLE TO THE DRIVER OF THE FIRST VEHICLE STOPPED ON EACH OF THE OTHER APPROACHES. THIS ALLOWS A DRIVER TO SEE ANY GAPS IN TRAFFIC THAT EXIST AND ANY GAPS IN ONCOMING TRAFFIC AND COMPLETE LEFT TURNS. APART FROM THESE SIGHT CONDITIONS, THERE ARE GENERALLY NO OTHER APPROACH OR DEPARTURE SIGHT TRIANGLES NEEDED FOR SIGNALIZED INTERSECTIONS. HOWEVER, IF THE TRAFFIC SIGNAL IS TO BE PLACED ON TWO-WAY FLASHING OPERATION (I.E. FLASHING YELLOW ON THE MAJOR ROAD APPROACHES AND FLASHING RED ON THE MINOR-ROAD APPROACHES) UNDER OFF-PEAK OR NIGHTTIME CONDITIONS, THE SIGHT DISTANCE FOR THE MINOR-ROAD APPROACHES SHOULD BE AS SHOWN IN CASE B OR CASE C, AND SHOULD BE PROVIDED FOR THE MINOR-ROAD APPROACHES. IN ADDITION, IF RIGHT TURNS ON A RED SIGNAL ARE TO BE PERMITTED FROM ANY APPROACH, THEN THE APPROPRIATE DEPARTURE SIGHT TRIANGLE TO THE LEFT FOR CASE B/2 SHOULD BE PROVIDED TO ACCOMMODATE RIGHT TURNS FROM THAT APPROACH.
8. WHERE CURVATURE, SUPERELEVATION, ADVERSE SPLIT PROFILES OR OTHER CONDITIONS PRECLUDE THE USE OF STANDARD TREE SIZES AND SPACING, PROOF OF VIEW AND SIGHT DISTANCE RESTRAINTS SHOULD BE DETAILED IN THE PLANS.
9. INTERSECTION SIGHT DISTANCE VALUES ARE PROVIDED FOR PASSENGER VEHICLES, SINGLE UNIT (SU) VEHICLES AND COMBINATION VEHICLES. INTERSECTION SIGHT DISTANCE BASED ON THE PASSENGER VEHICLE IS SUITABLE FOR MOST INTERSECTIONS. WHERE SUBSTANTIAL VOLUMES OF HEAVY VEHICLES ENTER THE MAJOR-ROAD, SUCH AS FROM RAMP TERMINALS WITH STOP CONTROL OR ROADWAYS SERVING TRUCK TERMINALS, THE USE OF TABULATED VALUES FOR I SU1 VEHICLES OR COMBINATION VEHICLES SHOULD BE CONSIDERED.
10. THE INFORMATION SHOWN IS INTENDED SOLELY FOR THE PURPOSE OF CLEAR SIGHT DEVELOPMENT AND MAINTENANCE AT INTERSECTING HIGHWAYS, ROADS AND STREETS, AND IS NOT INTENDED TO BE USED TO ESTABLISH ROADWAY AND ROADSIDE SAFETY EXCEPT AS RELATED TO INTERSECTION SIGHT CORRIDORS.
11. THE INTERSECTION SIGHT DISTANCE TABLES DO NOT SUPERCEDE AASHTO STOPPING SIGHT DISTANCE REQUIREMENTS. THE DESIGNER MUST ENSURE THAT STOPPING SIGHT DISTANCES ARE MET.
12. DETAILS ARE BASED ON THE AASHTO "A POLICY ON GEMETRIC DESIGN OF HIGHWAYS AND STREETS, 2001", CHAPTER 9, INTERSECTION SIGHT DISTANCE, CASES B AND F, AND THE DEPARTMENT PRACTICES FOR CHANNELIZED MEDIAN OPENINGS I LEFT TURNS ON MAJOR ROADWAYS I

GENERAL NOTES

A. DETAILS APPLY TO BOTH RURAL AND URBAN INTERSECTIONS UNDER STOP SIGN CONTROL OR FLASHING BEACON CONTROL. FOR FULL SIGNAL CONTROLLED INTERSECTIONS SEE DESIGN NOTE NO 7.

B. INTERSECTION SIGHT DISTANCE (id) APPLIES TO NORMAL AND SKEWED INTERSECTIONS INTERSECTING ANGLES (θ) BETWEEN 60° AND 120°. FOR ANGLES OUTSIDE THIS RANGE, SEE CASE F. AS SHOWN IN THE DIAGRAM, SIGHT DISTANCE (id) IS MEASURED ALONG THE MAJOR ROADWAY FROM THE CENTER OF THE ENTRANCE LANE OF THE MINOR ROADWAY TO THE CENTER OF THE NEAR APPROACH LANE (RIGHT OR LEFT) OF THE MAJOR ROADWAY. DISTANCES d_L AND d_R ARE MEASURED FROM THE CENTERLINE OF THE ENTRANCE LANE (CROSS ROAD) OF THE MINOR ROADWAY TO A POINT ON THE EDGE OF THE NEAR SIDE OUTER TRAFFIC LANE ON THE MAJOR ROADWAY. DISTANCE d_M IS MEASURED FROM THE CENTERLINE OF THE ENTRANCE LANE OF THE MINOR ROADWAY TO A POINT ON THE MEDIAN CLEAR ZONE LIMIT OR HORIZONTAL CLEARANCE LIMIT FOR THE FAR SIDE ROADWAY OF THE MAJOR ROADWAY.

C. 1. THE LIMITS OF CLEAR SIGHT DEFINE A CORRIDOR THROUGHOUT WHICH A CLEAR LINE OF SIGHT MUST BE PRESERVED. SEE VERTICAL LIMITS OF CLEAR SIGHT DETAIL ON SHEET RD01-SD-2.
2. PROVIDING CLEAR SIGHT FOR APPROACHING VEHICLES AT INTERSECTION STOP LOCATIONS AND VEHICLES ON THE MAJOR ROADWAY WITHIN DIMENSION "J".
3. SINCE OBSERVATIONS ARE MADE IN BOTH DIRECTIONS ALONG THE LINE OF SIGHT, THE REFERENCE DATUM BETWEEN ROADWAYS IS 3'-6" ABOVE RESPECTIVE PAVEMENTS.

D. BARRIER SYSTEMS WITHIN INTERSECTION SIGHT CORRIDORS, WHERE PENETRATION INTO THE CLEAR LINE OF SIGHT MIGHT OCCUR, SHALL BE LOCATED TO PROVIDE THE LEAST ADVERSE AFFECT PRACTICAL.

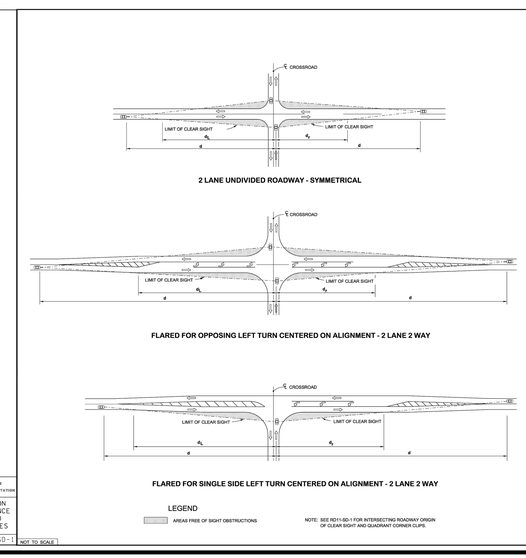
E. ALL PROPERTY NEEDED TO ACHIEVE SIGHT DISTANCE AT INTERSECTIONS SHOULD BE ACQUIRED AS RIGHT-OF-WAY.

F. SIGHT DISTANCE VALUES IN THESE STANDARD DRAWINGS ARE APPROXIMATE FOR GENERALLY FLAT AREAS WHERE THE ROADWAY GRADES ARE IN THE APPROXIMATE RANGE OF 0% TO 6%. FOR LOCATIONS WHERE ROADWAYS ARE CURVED OR WITH GRADES OUTSIDE THIS RANGE, THE VALUES SHOULD BE ADJUSTED TO ENSURE THAT DESIGNS COMPLY WITH AASHTO "A POLICY FOR GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AS CURRENTLY ADOPTED BY TDOT.

LEGEND

AREAS FREE OF SIGHT OBSTRUCTIONS

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
INTERSECTION SIGHT DISTANCE DESIGN AND GENERAL NOTES
10-1-08 | RD01-SD-1 | NOT TO SCALE



THETA PIKE PROPOSED ENTRANCE DESIGN CRITERIA

2 LANE UNDIVIDED ROADWAY	d	d_L (d_R)	d_M
	(FT)	(FT)	(FT)
15	170	105	75
20	225	140	100
25	280	175	125
30	335	210	150
35	390	245	175
40	445	280	200
45	500	315	225
50	555	350	250
55	610	385	275
60	665	420	300
65	720	455	325
70	775	490	350

2 LANE UNDIVIDED ROADWAY	d	d_L (d_R)	d_M
	(FT)	(FT)	(FT)
15	225	135	95
20	290	180	125
25	360	225	155
30	430	270	190
35	500	315	220
40	570	360	250
45	640	405	285
50	710	450	315
55	780	495	345
60	850	540	375
65	920	585	405
70	990	630	440

2 LANE UNDIVIDED ROADWAY	d	d_L (d_R)	d_M
	(FT)	(FT)	(FT)
15	280	180	115
20	360	230	145
25	450	285	180
30	540	345	215
35	630	400	250
40	720	460	285
45	810	515	320
50	900	575	355
55	990	630	390
60	1080	690	425
65	1170	745	460
70	1260	800	495

PASSENGER VEHICLE | SU VEHICLE | COMBINATION VEHICLE

2 LANE UNDIVIDED
SIGHT DISTANCE (d) AND RELATED DISTANCES (d_R, d_L) (FEET)

2 LANE 2 WAY	d	d_L	d_R
	(FT)	(FT)	(FT)
15	190	190	30
20	235	130	80
25	280	165	115
30	350	195	135
35	410	225	155
40	475	260	180
45	530	290	205
50	590	325	225
55	650	355	245
60	710	390	265
65	765	420	290
70	825	455	315

2 LANE 2 WAY	d	d_L	d_R
	(FT)	(FT)	(FT)
15	225	135	85
20	300	165	115
25	375	205	145
30	450	250	170
35	525	290	200
40	600	330	225
45	675	370	255
50	750	410	285
55	825	450	310
60	900	490	340
65	975	530	370
70	1050	570	400

2 LANE 2 WAY	d	d_L	d_R
	(FT)	(FT)	(FT)
15	270	150	105
20	360	200	140
25	450	250	175
30	540	295	205
35	630	345	240
40	720	395	270
45	810	445	305
50	900	495	340
55	990	540	375
60	1080	590	405
65	1170	640	440
70	1260	690	475

PASSENGER VEHICLE | SU VEHICLE | COMBINATION VEHICLE

2 LANE 2 WAY - FLARED FOR LEFT TURNS
SIGHT DISTANCE (d) AND RELATED DISTANCES (d_R, d_L) (FEET)

SPECIAL NOTES

1. INTERSECTION SIGHT DISTANCE VALUES ARE PROVIDED FOR PASSENGER VEHICLES, SINGLE UNIT (SU) VEHICLES AND COMBINATION VEHICLES. INTERSECTION SIGHT DISTANCE BASED ON THE PASSENGER VEHICLE IS SUITABLE FOR MOST INTERSECTIONS. WHERE SUBSTANTIAL VOLUMES OF HEAVY VEHICLES ENTER THE MAJOR-ROAD, SUCH AS FROM RAMP TERMINALS WITH STOP CONTROL OR ROADWAYS SERVING TRUCK TERMINALS, THE USE OF TABULATED VALUES FOR I SU1 VEHICLES OR COMBINATION VEHICLES SHOULD BE CONSIDERED.
2. ALL PROPERTY NEEDED TO ACHIEVE SIGHT DISTANCE AT INTERSECTIONS SHOULD BE ACQUIRED AS RIGHT-OF-WAY. SEE STD DWG RD11-SD-1 FOR RIGHT-OF-WAY LINE PLACEMENT.

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION
INTERSECTION SIGHT DISTANCE 2-LANE ROADWAYS
01-01-2019 | RD11-SD-3

NORTHBOUND STOPPING SIGHT DISTANCE ANALYSIS:

DESIGN SPEED, V: 35 MPH
GRADE, G: -6% (AVERAGE)

STOPPING SIGHT DISTANCE, S:
$S = 1.47 * V * 2.5 + [V^2 / (30 * (0.347826 \pm (G / 100)))]$
$S = 1.47 * 40 * 2.5 + [35^2 / (30 * (0.347826 + (-6 / 100)))]$
$S = 270.49$ FT. = 271 FT.

SOUTHBOUND STOPPING SIGHT DISTANCE ANALYSIS:

DESIGN SPEED, V: 35 MPH
GRADE, G: +7% (AVERAGE)

STOPPING SIGHT DISTANCE, S:
$S = 1.47 * V * 2.5 + [V^2 / (30 * (0.347826 \pm (G / 100)))]$
$S = 1.47 * 35 * 2.5 + [35^2 / (30 * (0.347826 + (7 / 100)))]$
$S = 226.35$ FT. = 227.00 FT.

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
COMMERCIAL
CERTIFICATE NO. 124611
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

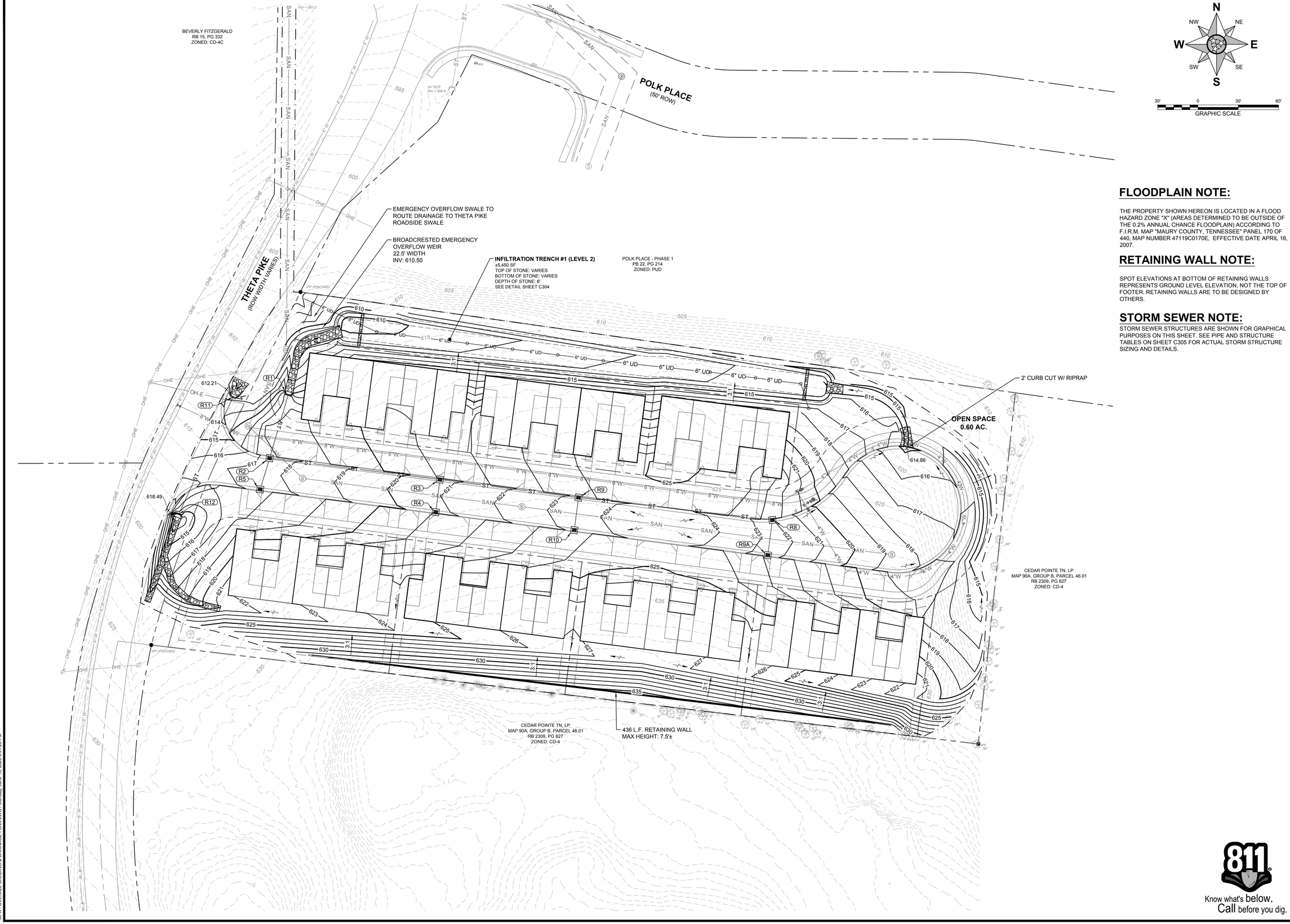
INTERSECTION SIGHT DISTANCE PLAN

DATE: MAY 22, 2023 | DRAWN BY : M2G
PROJECT NO. : 22-085 | CHECKED BY : MWB

SHEET NUMBER: C201

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

MPA - INTERSECTION SIGHT DISTANCE.DWG / Monday, June 19, 2023 3:51:15 PM



FLOODPLAIN NOTE:

THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

RETAINING WALL NOTE:

SPOT ELEVATIONS AT BOTTOM OF RETAINING WALLS REPRESENTS GROUND LEVEL ELEVATION, NOT THE TOP OF FOOTER. RETAINING WALLS ARE TO BE DESIGNED BY OTHERS.

STORM SEWER NOTE:

STORM SEWER STRUCTURES ARE SHOWN FOR GRAPHICAL PURPOSES ON THIS SHEET. SEE PIPE AND STRUCTURE TABLES ON SHEET C305 FOR ACTUAL STORM STRUCTURE SIZING AND DETAILS.

Know what's below.
Call before you dig.

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
LICENSED LANDSCAPE ARCHITECT
COMMERCIAL
CERTIFICATE NO. 328
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

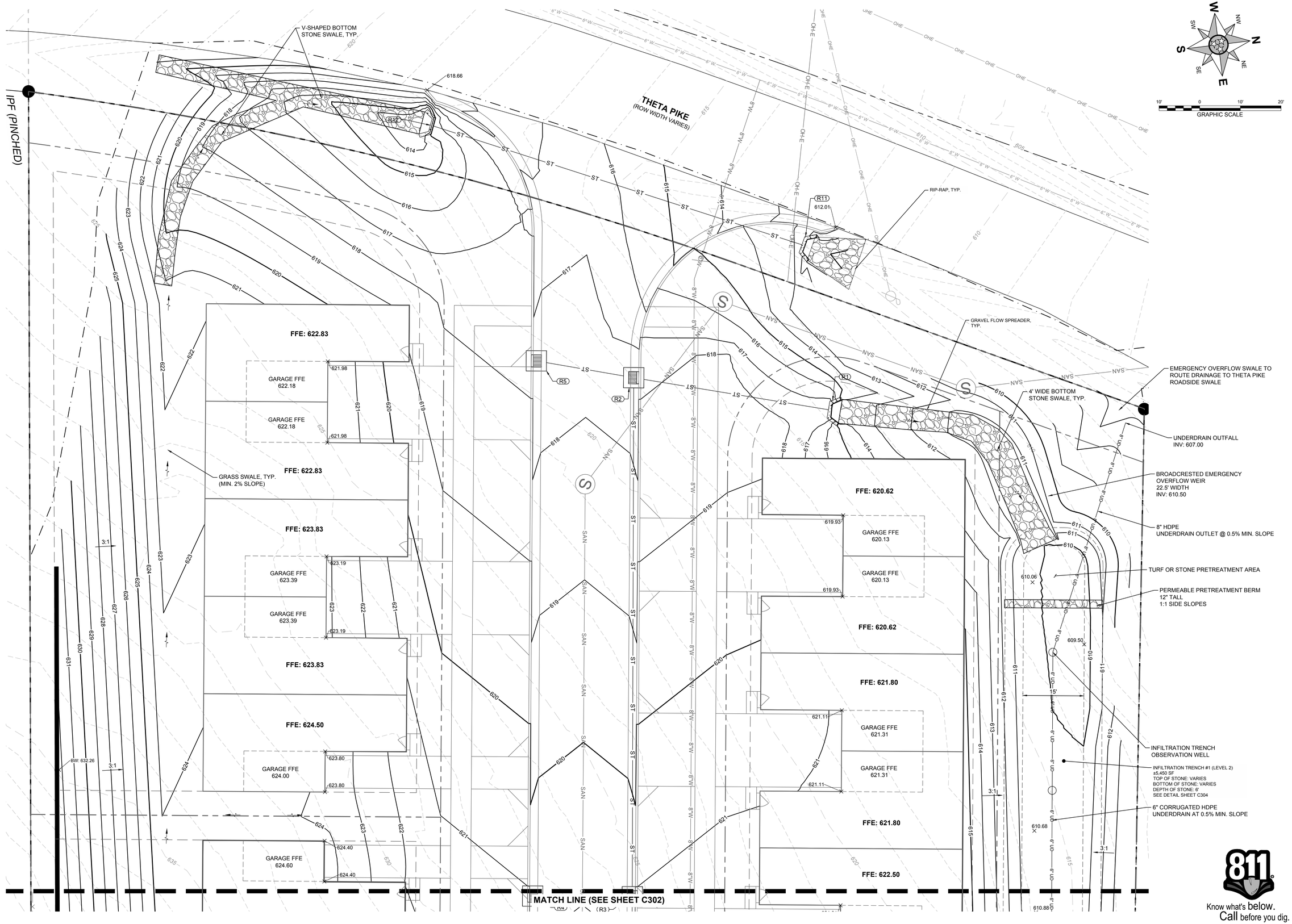
M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

OVERALL GRADING & DRAINAGE PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C300

MPA - OVERALL GRADING & DRAINAGE PLAN.DWG | Monday, June 19, 2023 3:51:26 PM



REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRIAN
LICENSED LANDSCAPE ARCHITECT
COMMERCIAL
CORPORATE SEAL
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

ENLARGED GRADING & DRAINAGE PLAN

DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	MAY 22, 2023
PROJECT NO. :	22-086

SHEET NUMBER:
C301

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

MPA - ENLARGED GRADING & DRAINAGE PLAN.DWG | Monday, June 19, 2023 3:51:43 PM

MATCH LINE (SEE SHEET C301)

MATCH LINE (SEE SHEET C303)

FFE: 625.10
FFE: 626.00
GARAGE FFE 625.30
GARAGE FFE 625.30
625.10
625.10
GRASS SWALE, TYP. (MIN. 2% SLOPE)
FFE: 626.00
FFE: 627.00
GARAGE FFE 626.50
GARAGE FFE 626.50
626.30
626.30
FFE: 627.00
FFE: 628.50
GARAGE FFE 628.02
GARAGE FFE 628.02
627.82
627.82
FFE: 628.50
FFE: 628.50
GARAGE FFE 628.02
GARAGE FFE 628.02
627.82
627.82
FFE: 628.50
FFE: 622.50
GARAGE FFE 622.01
621.81
621.81
GARAGE FFE 622.81
622.61
622.61
FFE: 623.30
FFE: 624.50
GARAGE FFE 624.03
GARAGE FFE 624.03
623.83
623.83
FFE: 624.50
FFE: 625.68
GARAGE FFE 625.20
GARAGE FFE 625.20
625.00
625.00
FFE: 625.68
FFE: 626.00
GARAGE FFE 625.57
GARAGE FFE 625.57
625.37
625.37
FFE: 626.00
FFE: 625.40
BW: 633.09
BW: 633.93
BW: 634.77
BW: 635.56
HP: 627.72
GRADE BREAK
HP: 624.52
GRADE BREAK
3:1
3:1
3:1
3:1
R3
R4
R9
R10
S
SAN
ST
W-8
624.40
610.88
611.19
611.59
611.56
612.31
612.50
612.88
OBSERVATION WELL, TYP.
INFILTRATION TRENCH #1 (LEVEL 2)
±5,450 SF
TOP OF STONE: VARIES
BOTTOM OF STONE: VARIES
DEPTH OF STONE: 6'
SEE DETAIL SHEET C304
6" CORRUGATED HDPE UNDERDRAIN AT 0.5% MIN. SLOPE
15'
10' UD
N
NW
NE
SW
SE
S
E
10' 0 10' 20'
GRAPHIC SCALE

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
COMMERCIAL
CERTIFICATE NO. 120,000
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MZG GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.MZGROUPLLC.COM

ENLARGED GRADING & DRAINAGE PLAN

DATE:	MAY 22, 2023	DRAWN BY:	MZG
PROJECT NO.:	22-085	CHECKED BY:	MWB

SHEET NUMBER:
C302

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

MPA - ENLARGED GRADING & DRAINAGE PLAN.DWG | Monday, June 19, 2023 3:51:45 PM

MATCH LINE (SEE SHEET C302)

FFE: 628.50

FFE: 627.00

GARAGE FFE
626.52

626.32

626.32

FFE: 626.50

GARAGE FFE
625.85

625.65

625.65

FFE: 625.50

GARAGE FFE
623.81

623.61

GARAGE FFE
622.81

623.61

GRASS SWALE, TYP.
(MIN. 2% SLOPE)

FFE: 625.50

FFE: 623.75

GARAGE FFE
622.33

622.13

GARAGE FFE
622.33

622.13

FFE: 623.75

FFE: 625.40

624.70

GARAGE FFE
624.90

624.70

GARAGE FFE
624.90

FFE: 625.40

OPEN SPACE
0.60 AC.

2' CURB CUT W/ RIPRAP

614.86

INFILTRATION TRENCH
UNDERDRAIN CLEANOUT

6" CORRUGATED HDPE
UNDERDRAIN AT 0.5% MIN. SLOPE

INFILTRATION TRENCH
OBSERVATION WELL

PERMEABLE PRETREATMENT BERM
12" TALL
1:1 SIDE SLOPES

TURF OR STONE PRETREATMENT AREA

TRAPEZOIDAL SWALE
2' BOTTOM WIDTH
3:1 SIDE SLOPES

R9A

R8

BW: 634.51

BW: 633.51

BW: 632.51

3:1

15'

10' 0 10' 20'
GRAPHIC SCALE

IPF

Know what's below.
Call before you dig.

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

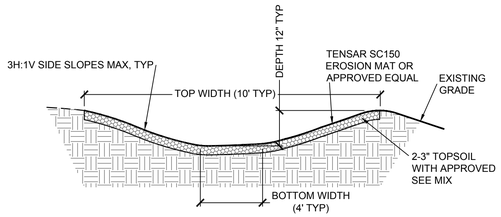
M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

ENLARGED GRADING & DRAINAGE PLAN

DATE :	MAY 22, 2023
PROJECT NO. :	22-085
DRAWN BY :	M2G
CHECKED BY :	MWB

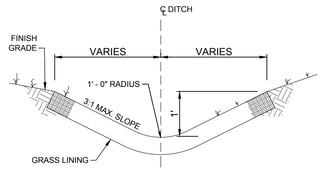
SHEET NUMBER:
C303

MPA - ENLARGED GRADING & DRAINAGE PLAN.DWG / Monday, June 19, 2023 3:51:46 PM



NORTH GRASS SWALE SECTION

N.T.S.

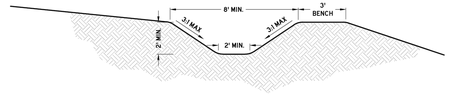


SOUTH GRASS SWALE SECTION

N.T.S.

TYPE	TDOT STANDARD DRAWING OR CASTING MODEL
CURB INLET CATCH BASINS	TDOT CB SERIES NOS. 10, 11, 12, 13, 14, 16, 17
CURB AND GUTTER INLET CASTINGS	JB&S 3080
EXTRUDED CURB INLET CASTINGS	JB&S 3103
AREA DRAIN CATCH BASINS	TDOT CB SERIES NOS. 38, 39, 40, 42, 43
AREA DRAIN CASTINGS	TDOT CBB-42
JUNCTION BOXES	TDOT JBS SERIES NOS. 1, 2, 3, 4, AND 5
MANHOLES	TDOT MH SERIES NOS. 2, 3, 4, 5, 6, 7 AND TDOT RF-1
TRENCH DRAINS	TDOT TD-1
CONCRETE PIPE INSTALLATION	TDOT PB-1
FLEXIBLE PIPE INSTALLATION	TDOT PB-2
OVAL AND ARCH PIPES	TDOT PO-1
SAFETY CROSS DRAIN ENDWALLS	TDOT PE SERIES
SAFETY SIDE DRAIN ENDWALLS	TDOT SEW SERIES AND TDOT MSE-1
PROTECTED ENDWALLS	TDOT PE, PEW SERIES
FLUMES	TDOT FLU-1

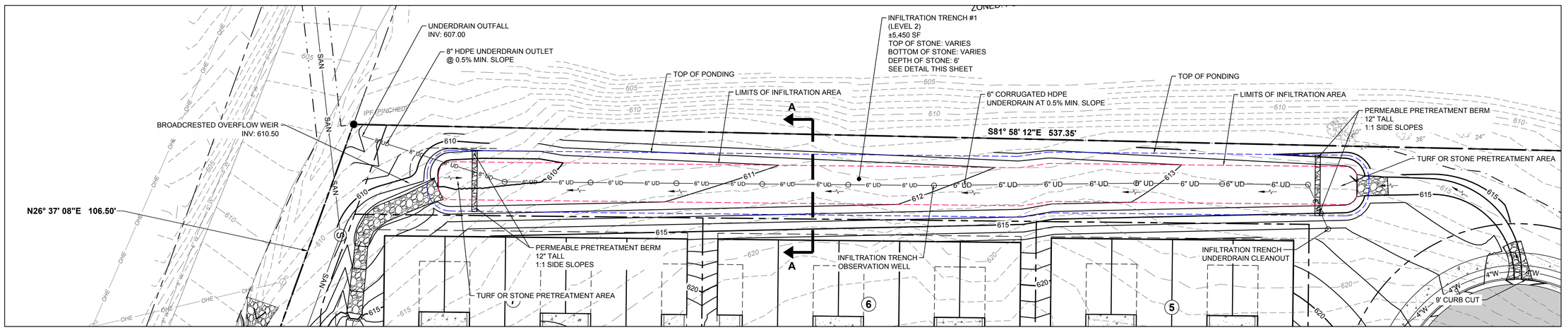
CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION	INLETS, CASTINGS, STRUCTURES, AND PIPES	DATE 6/9/2022
STANDARD DETAILS	(NTS)	DD-01



NOTES:

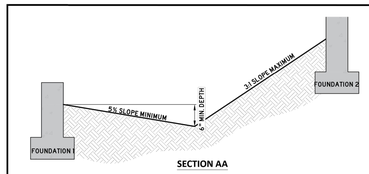
1. DITCHES SHALL BE STABILIZED WITH APPROPRIATELY DESIGNED SOFT ARMORING.
2. RIP-RAP OR OTHER HARD ARMORING TECHNIQUES ARE DISCOURAGED AND SHALL ONLY BE APPROVED WHEN ALL OTHER MEANS OF STABILIZATION ARE EXHAUSTED.
3. FLOW LINE GRADE SHALL NOT BE LESS THAN 1.0%
4. FLOW LINE GRADE SHALL NOT BE MORE THAN 7.5%
5. WHERE PLACED ON A SLOPE, A BENCH OF MINIMUM WIDTH OF 3 FEET SHALL BE PROVIDED.
6. A MINIMUM OF 6 INCHES OF FREEBOARD ABOVE THE DESIGN FLOW DEPTH SHALL BE PROVIDED.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER.

CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION	TRAPEZOIDAL DITCH	DATE 6/9/2022
STANDARD DETAILS	(NTS)	DD-03

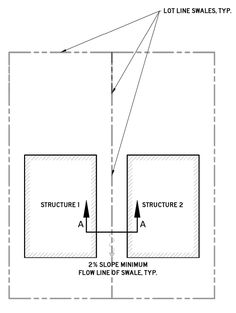


INFILTRATION TRENCH #1

SCALE: 1"=20'



SECTION AA

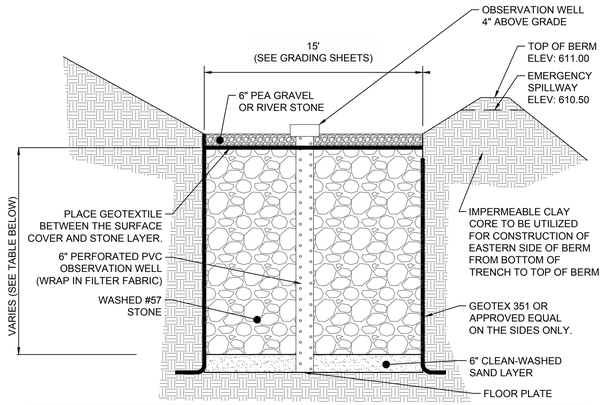


PLAN

NOTES:

1. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE. ALL AREAS WITHIN A LOT SHALL BE GRADED TO DRAIN TO AN APPROVED STORMWATER CONVEYANCE.
2. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATIONS.
   2.1. LOTS SHALL BE GRADED TO PROVIDE A MINIMUM OF 6 INCHES OF FALL WITHIN THE FIRST 10 FEET OF THE STRUCTURE ALONG THE DIRECTION OF FLOW.
   2.2. LOTS SHALL BE GRADED TO PROVIDE A MINIMUM OF 1V:20H OF FALL PERPENDICULAR TO THE FACE OF THE FOUNDATION WALL WITHIN THE FIRST 5 FEET.
   2.3. IMPERVIOUS SURFACES SHALL BE SLOPED AT A MINIMUM OF 2% AWAY FROM THE STRUCTURE.
3. SWALES SHALL BE LOCATED ALONG LOT LINES TO REDUCE LOT TO LOT DRAINAGE, AND DIRECT STORMWATER RUNOFF TOWARDS APPROVED STORMWATER CONVEYANCES.
4. SWALES SHALL HAVE A MINIMUM SLOPE OF 2%.
5. FOUNDATIONS SHALL BE AT MINIMUM 12 INCHES ABOVE ANY THE RIM ELEVATION OR HIGHEST FLOW LINE OF ANY PUBLIC STORMWATER INFRASTRUCTURE THAT SURFACE DRAINAGE FROM THE LOT IS DIRECTED TO.
6. NON-PUBLIC STORMWATER INFRASTRUCTURE SHALL NOT SUCH AS YARD DRAINS SHALL NOT ALLEVIATE THE REQUIREMENTS OF NOTES 2 AND 3.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER

CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION	RESIDENTIAL LOT GRADING AND DRAINAGE	DATE 6/9/2022
STANDARD DETAILS	(NTS)	DD-04



INFILTRATION TRENCH SUMMARY				
INFILTRATION TRENCH	INFILTRATION AREA (SF)	TOP OF STONE	STONE DEPTH (FT)	BOTTOM OF STONE
IT#1	5,450	609.5 (VARIES)	6	603.5 (VARIES)

INFILTRATION TRENCH
SECTION A - A

N.T.S.

REVISION #	DATE	DESCRIPTION
1	08-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRIAN
REGISTERED ENGINEER
COMMERCIAL
CERTIFICATE No. 129999
STATE OF TENNESSEE
08/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

GRADING DETAILS

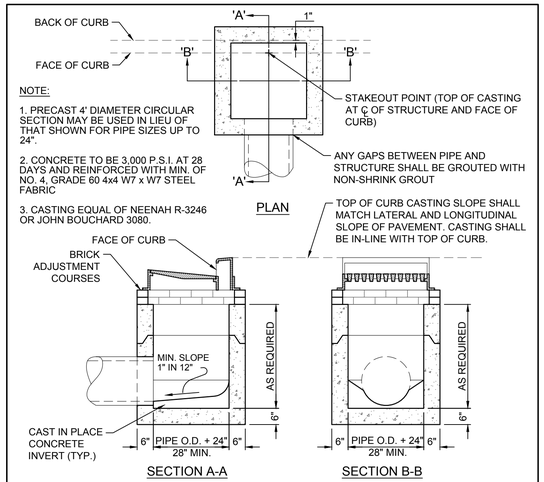
DATE:	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C304

MPA - SITE DETAILS.DWG / Monday, June 19, 2023 3:52:01 PM

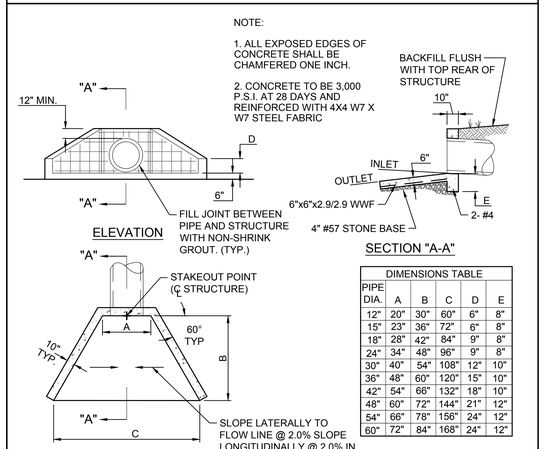
STRUCTURE TABLE		
NAME	INLET TYPE	DETAILS
R1	Headwall	INV IN = 613.965
R2	Single Curb Inlet	RIM = 617.470 INV IN = 614.210 INV IN = 614.208 INV OUT = 614.210
R3	Single Curb Inlet	RIM = 620.621 INV IN = 617.000 INV IN = 617.000 INV OUT = 617.000
R4	Single Curb Inlet	RIM = 620.622 INV OUT = 617.000
R5	Single Curb Inlet	RIM = 617.330 INV OUT = 614.330
R8	Single Curb Inlet	RIM = 622.006 INV IN = 619.235 INV OUT = 619.280
R9	Single Curb Inlet	RIM = 623.221 INV IN = 618.500 INV IN = 618.000 INV OUT = 618.000
R9A	Single Curb Inlet	RIM = 622.413 INV OUT = 619.557
R10	Single Curb Inlet	RIM = 623.220 INV OUT = 620.200
R11	Headwall	INV IN = 610.500
R12	Headwall	INV OUT = 613.050

PIPE TABLE				
NAME	MATERIAL	DIA.	APPROX. LENGTH	SLOPE
R1-R2	RCP	24"	49'	0.50%
R2-R3	RCP	18"	128'	2.18%
R2-R5	RCP	18"	24'	0.50%
R3-R4	RCP	18"	24'	0.00%
R3-R9	RCP	18"	104'	0.96%
R8-R9A	RCP	15"	26'	1.22%
R9-R8	RCP	18"	145'	0.88%
R9-R10	RCP	18"	25'	6.93%
R12-R11	RCP	18"	96'	2.66%



SINGLE PRECAST CURB INLET

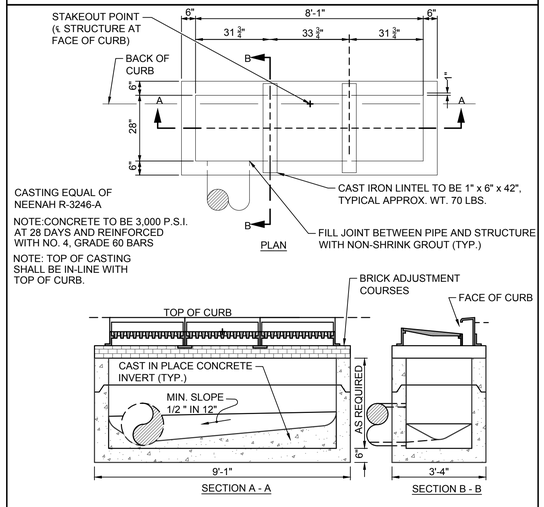
N.T.S.



DIMENSIONS TABLE					
PIPE DIA.	A	B	C	D	E
12"	20"	30"	60"	6"	8"
15"	23"	36"	72"	6"	8"
18"	28"	42"	84"	9"	8"
24"	34"	48"	96"	9"	8"
30"	40"	54"	108"	12"	10"
36"	48"	60"	120"	15"	10"
42"	54"	66"	132"	18"	10"
48"	60"	72"	144"	21"	12"
54"	66"	78"	156"	24"	12"
60"	72"	84"	168"	24"	12"

CONCRETE WINGED HEADWALL/ENDWALL

N.T.S.



TRIPLE PRECAST CURB INLET

N.T.S.

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN — REGISTERED ENGINEER — AGRICULTURE & COMMERCE — CERTIFICATE NO. — STATE OF TENNESSEE — 06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

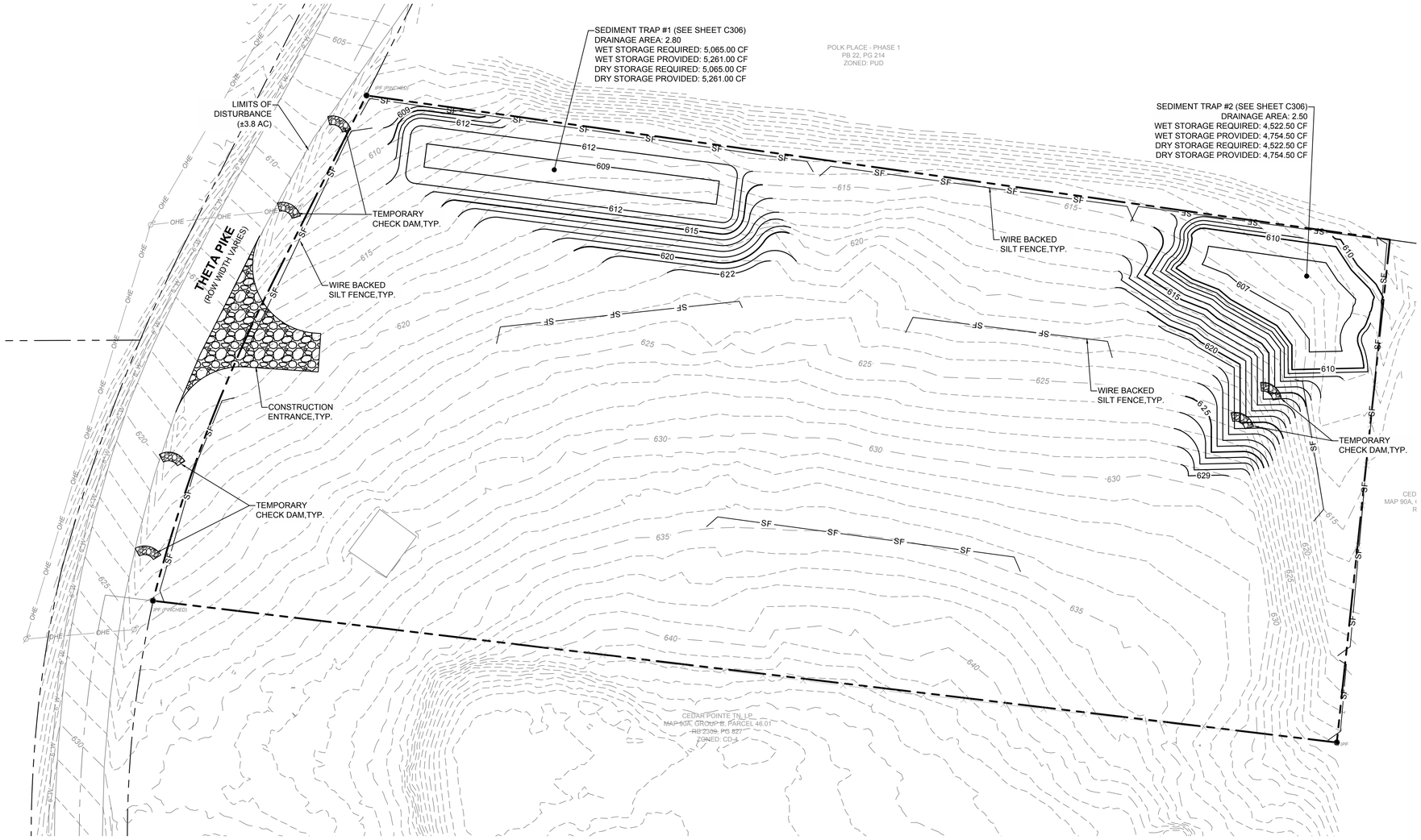
STORM SEWER DETAILS

DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	MAY 22, 2023
PROJECT NO. :	22-085

SHEET NUMBER:
C305

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

MPA - SITE DETAILS.DWG | Monday, June 19, 2023 3:52:05 PM



SEDIMENT TRAP DESIGN		
	ST-1	ST-2
DRAINAGE AREA (AC.)	2.80	2.50
TOTAL VOL. REQUIRED (CF)	10,130.00	9,045.00
WET VOL. REQUIRED (CF)	5,065.00	4,522.50
DRY VOL. REQUIRED (CF)	5,065.00	4,522.50
WET STORAGE VOL. PROVIDED (CF)	**5,261.00**	**4,754.50**
TRAP BOTTOM ELEV. (FT)	607.00	607.00
TOP WET STORAGE ELEV. (FT)	608.50	608.50
SPILLWAY CREST ELEV. (FT)**	610.00	610.00
TOP EMBANKMENT ELEV. (FT)	610.00	610.00
SPILLWAY CREST LENGTH (FT)	15.00	15.00
SPILLWAY CREST WIDTH (FT)	5.00	5.00
EMBANKMENT TOP WIDTH (FT)	5.00	5.00
DRY STORAGE VOL. PROVIDED (CF)	**5,261.00**	**4,754.50**
TOTAL VOL. PROVIDED (CF)	**10,522.00**	**9,509.00**

* RUNOFF COEFFICIENT ASSUMED TO BE BARE SOIL CONDITION

** SPILLWAY CREST ELEVATION IS ALSO TOP OF DRY STORAGE ELEVATION

TDEC - NPDES NOC NOTE:

THE PROJECT ASSOCIATED WITH THESE PLANS IS REQUIRED TO BE COVERED UNDER TENNESSEE GENERAL STORM WATER PERMIT TNR100000 BECAUSE THE LIMITS OF DISTURBANCE IS OVER 1 ACRE. THE LIMITS OF DISTURBANCE IS APPROXIMATELY 3.8 ACs.

EPSC GENERAL NOTES

1. SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE; SEDIMENT SHALL BE REMOVED FROM ALL OTHER EPSC MEASURES AND CONTROL AS RECOMMENDED IN THE TNEPSC HANDBOOK, AND MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
2. EPSC SHALL BE IMPLEMENTED BEFORE EARTH- MOVING BEGINS.
3. AREAS WHERE CONSTRUCTION HAS TEMPORARILY/PERMANENTLY CEASED SHALL BE STABILIZED NO LATER THAN 14 DAYS (7 DAYS FOR ≥35% SLOPES).
4. INSPECTIONS OF OUTFALLS/EPSC MEASURES SHALL BE CONDUCTED AT LEAST TWICE WEEKLY AND AT LEAST 72 HOURS APART.
5. VEGETATION, EPSCS & OTHER PROTECTIVE MEASURES SHALL BE REPAIRED, REPLACED, OR MODIFIED AFTER BEING NOTIFIED OF AN ISSUE WITHIN 7 DAYS OR BY THE NEXT SIGNIFICANT RAIN CHANCE OF 50% OR GREATER. ISSUES WITH IMMEDIATE THREATS TO WATER QUALITY SHALL BE REPAIRED IMMEDIATELY AS PER FMC 23-106(2)(g).
6. CONSTRUCTION SHALL BE PHASED FOR ACTIVITIES THAT WILL DISTURB >50 ACRES.
7. EPSCS SHALL BE DESIGNED TO CONTROL THE RAINFALL AND RUNOFF FROM A 5-YEAR, 24-HOUR RETURN INTERVAL STORM.
8. TEMPORARY SEDIMENT BASIN(S) SHALL BE PROVIDED FOR ON-SITE OUTFALLS THAT RECEIVE DRAINAGE FROM ≥10 ACRES; ≥5 ACRES FOR SITES THAT DISCHARGE TO IMPAIRED OR EXCEPTIONAL TN WATERS.
9. GREEN INFRASTRUCTURE BMPS SHALL BE PROTECTED DURING SITE WORK, WITH SILT FENCE, TO PREVENT SEDIMENTATION AND COMPACTION.
10. IF DEEMED APPROPRIATE, THE CITY MAY REQUIRE THE ADDITION, REMOVAL OR MODIFICATION OF EPSC MEASURES AND/OR EPSC LOCATIONS AT ANY TIME DURING THE CONSTRUCTION PROCESS TO ENSURE PROPER EPSC PERFORMANCE.

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. PRIOR TO INSTALLATION OF EROSION CONTROL MEASURES OR INITIATION OF EARTH DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CLEARLY DELINEATE THE PROPOSED LIMITS OF DISTURBANCE IN THE FIELD UTILIZING FLAGGING, STAKES, AND/OR CONSTRUCTION FENCE. NO DISTURBANCE BEYOND THESE LIMITS SHALL BE PERMITTED WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE ENGINEER, THE AFFECTED PROPERTY OWNER AND ANY APPLICABLE REGULATORY AGENCIES.
2. THE CONSTRUCTION ACTIVITIES ANTICIPATED FOR THIS PROJECT INCLUDES GRADING, PAVING, AND UTILITY INSTALLATION.
3. THE APPROXIMATE TOTAL DISTURBED AREA OF THIS SITE IS 6.60 ACRES. ANY INCREASE IN THE APPROXIMATE TOTAL DISTURBED AREA SHALL BE APPROVED BY THE CITY OF COLUMBIA PRIOR TO ADDITIONAL DISTURBANCE.
4. CONSTRUCTION SHALL BE SEQUENCED BY THE CONTRACTOR AS TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREAS. PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO EARTH MOVING OPERATIONS.
5. THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE PERSON(S) RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AT THE SITE. THIS INFORMATION SHALL BE POSTED AT THE JOB SITE TRAILER, OR AT THE SITE CONSTRUCTION SIGN.
6. PRE-CONSTRUCTION VEGETATIVE GROUNDCOVER SHALL NOT BE REMOVED MORE THAN 14 DAYS PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED FOR MORE THAN 14 DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH, OR FABRIC MATTING. STEEP SLOPES (GREATER THAN 35%) SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 15 DAYS OF THE ESTABLISHMENT OF FINAL GRADES.
7. THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION AND SEDIMENT CONTROL FOR A PERIOD OF THREE YEARS AFTER COMPLETION OF CONSTRUCTION OR AS REQUIRED BY GOVERNING AUTHORITIES.
8. TEMPORARY SEEDING FOR THIS PROJECT SHALL UTILIZE TDOT, TDEC OR LOCAL STANDARDS UNLESS OTHERWISE INDICATED HEREON.
9. MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT A RATE OF 2 TONS PER ACRE. MULCH MUST BE CRIMPED INTO THE SOIL BY MECHANICAL MEANS. BROADCAST SPREADING OF MULCH IS NOT ACCEPTABLE.
10. SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED FROM EROSION. ALL STOCKPILES SHALL BE COVERED WITH TEMPORARY SEEDING AND PROTECTED WITH SILT FENCING.
11. FOR PERMANENT STABILIZATION OF ALL SLOPES 3:1 OR STEEPER, INSTALL TEMPORARY EROSION CONTROL BLANKET (TENSAR NORTH AMERICAN GREEN S150 OR APPROVED EQUAL) INSTALLED PER MANUFACTURERS' RECOMMENDATIONS SHALL BE USED IN PLACE OF STRAW MULCH.
12. THE LOCATION OF SOME OF THE EROSION CONTROL MEASURES MAY NEED TO BE ALTERED DUE TO CHANGING SITE CONDITIONS COMMENSURATE WITH PROGRESS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION AND SEDIMENT CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES OF CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
13. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER IS ESTABLISHED. SEEDED AREAS MUST HAVE A MINIMUM 70% COVERAGE (ENGINEER WILL DETERMINE APPROXIMATE PERCENTAGE OF COVER) PRIOR TO REMOVAL OF THE TEMPORARY EROSION CONTROL DEVICES. FINAL SEEDING AND ESTABLISHMENT OF GROUNDCOVER SHALL BE APPLIED TO ANY AREA DISTURBED AS A RESULT OF THE REMOVAL OF THE EROSION CONTROL MEASURES.
14. CONTRACTOR SHALL PREPARE, IMPLEMENT, AND MAINTAIN A SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PLAN, AS A SEPARATE DOCUMENT OR AS A COMPONENT OF THE SWPPP. FOR ALL TANKS/CONTAINERS STORING ONSITE FUEL, CHEMICALS, OR OTHER POLLUTANTS CONSISTENT WITH THE REQUIREMENTS OF STATE NPDES RULES. EFFECTIVE MEASURES NECESSARY TO PREVENT SPILLS AND TO CLEAN UP SPILLS OF ANY TOXIC POLLUTANT, AS DOCUMENTED IN THE FACILITY'S SPCC PLAN, SHALL BE FULLY IMPLEMENTED. SOIL CONTAMINATED BY HAZARDOUS SUBSTANCES, PAINTS, FUEL, OR CHEMICAL SPILLS, SHALL BE IMMEDIATELY CLEANED UP, MANAGED, AND DISPOSED OF IN AN APPROVED MANNER. WHERE POTENTIAL SPILLS CAN OCCUR, MATERIALS HANDLING PROCEDURES SHALL BE SPECIFIED AND PROCEDURES FOR IMMEDIATE CLEANUP/REMEDIATION OF SPILLS SHALL BE DESCRIBED IN THE SPCC PLAN OR EMPLOYEE TRAINING EXACT LOCATION OF THE SPILL, COMPANY NAME AND LOCATION, THE MATERIAL SPILLED, THE ESTIMATED QUANTITY, THE SOURCE OF THE SPILL, THE CAUSE OF THE SPILL, THE NEAREST DOWNSTREAM WATER WITH THE POTENTIAL TO RECEIVE THE SPILL, AND THE ACTIONS BEING TAKEN FOR CONTAINMENT AND CLEANUP.
15. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE SELECTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH TDEC SEDIMENT AND EROSION CONTROL HANDBOOK, LATEST EDITION.
16. WATER QUALITY BMPs SHALL NOT BE INSTALLED UNTIL BUILD IS NEAR COMPLETION TO PREVENT CONSTRUCTION SEDIMENT FROM ENTERING WATER QUALITY BMPs. WATER QUALITY AREAS SHALL NOT BE USED AS SEDIMENT BASINS DURING CONSTRUCTION. INSTALLER'S OF WATER QUALITY BMPs SHOULD FOLLOW ALL INSTALLATION GUIDELINES SET FORTH IN THE CITY OF COLUMBIA BMP MANUAL LOCATED ON THE CITY'S WEBSITE.
17. WATER QUALITY SIGNS SHALL BE PLACED WITHIN THE WATER QUALITY AREAS. THE SIGNS, MATERIALS, AND LABOR TO INSTALL WILL BE PROVIDED BY THE CITY STAFF.

CONSTRUCTION SEQUENCE

1. INSTALL CONSTRUCTION ENTRANCE
2. INSTALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES
3. INSTALL SEDIMENT BASIN, IF REQUIRED
4. INSTALL WATER QUALITY BUFFER SIGNS, IF REQUIRED
5. INSTALL TREE PROTECTION FENCING
6. CONTACT CITY OF COLUMBIA FOR INSPECTION OF EROSION PREVENTION AND SEDIMENT CONTROL DEVICES AND TO OBTAIN A FULL GRADING PERMIT.
7. CLEAR, GRUB, AND GRADE THE SITE
8. CONSTRUCT REMAINDER OF SITE PER APPROVED PLANS INCLUDING INSTALLATION OF ALL ADDITIONAL EPSC MEASURES SHOWN ON THE PLANS OR AS DIRECTED BY THE EPSC INSPECTOR
9. UPON PERMANENT STABILIZATION OF THE SITE, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES (SEE FINAL EPSC PLAN FOR POST CONSTRUCTION CLOSEOUT PROCESS.

EPSC DATA CHART:

BMP DESIGN RAIN EVENT: 5 YEAR, 24 HR STORM

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

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRIAN — LICENSED LANDSCAPE ARCHITECT — COMMERCIAL — CERTIFICATE No. — STATE OF TENNESSEE — 06/19/23

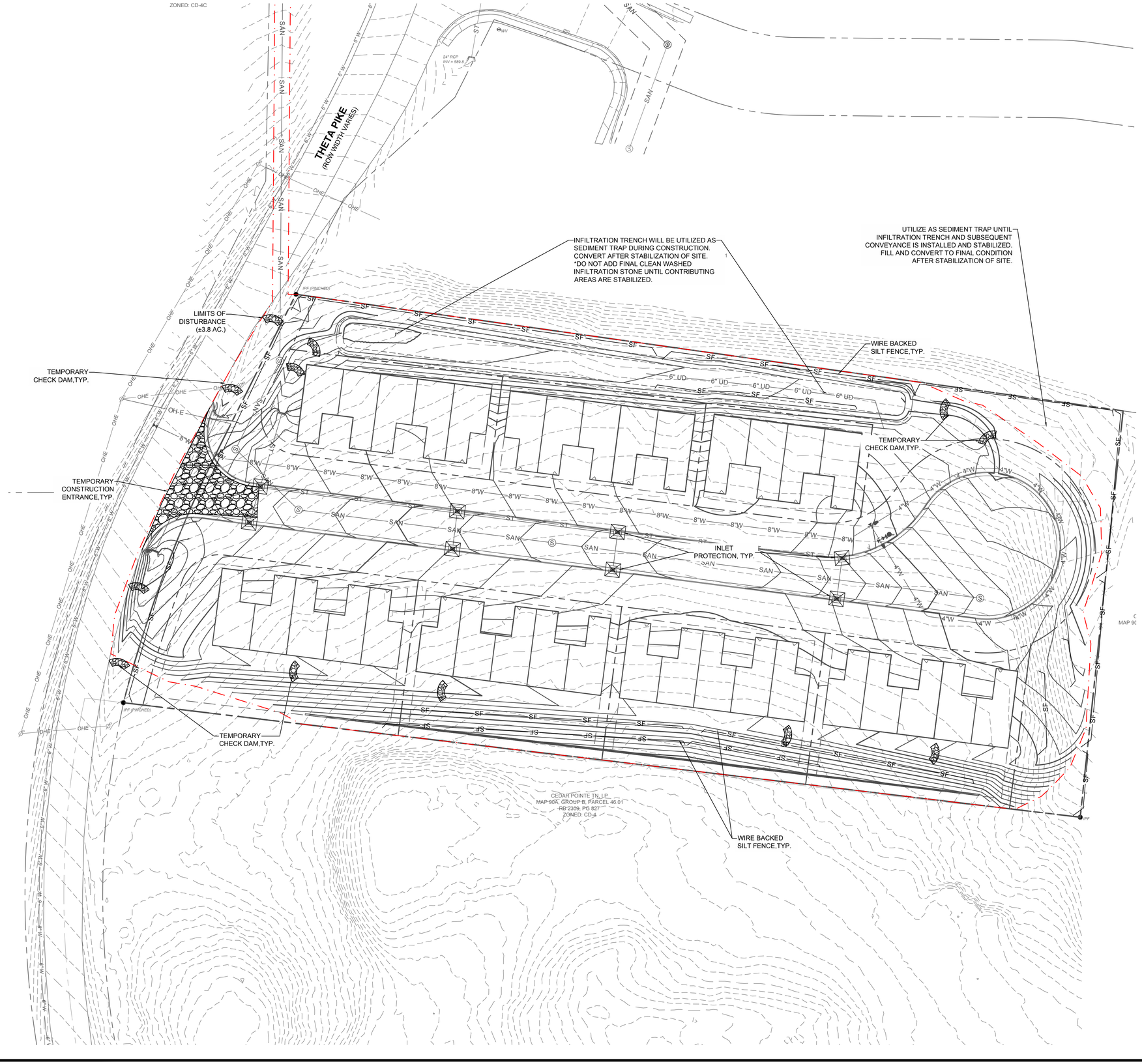
SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

INITIAL EPSC PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C401



TDEC - NPDES NOC NOTE:

THE PROJECT ASSOCIATED WITH THESE PLANS IS REQUIRED TO BE COVERED UNDER TENNESSEE GENERAL STORM WATER PERMIT TNR100000 BECAUSE THE LIMITS OF DISTURBANCE IS OVER 1 ACRE. THE LIMITS OF DISTURBANCE IS APPROXIMATELY 3.8 ACs.

EPSC GENERAL NOTES

1. SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE; SEDIMENT SHALL BE REMOVED FROM ALL OTHER EPSC MEASURES AND CONTROL AS RECOMMENDED IN THE TNEPSC HANDBOOK, AND MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
2. EPSC SHALL BE IMPLEMENTED BEFORE EARTH- MOVING BEGINS.
3. AREAS WHERE CONSTRUCTION HAS TEMPORARILY/PERMANENTLY CEASED SHALL BE STABILIZED NO LATER THAN 14 DAYS (7 DAYS FOR ≥35% SLOPES).
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5. VEGETATION, EPSCS & OTHER PROTECTIVE MEASURES SHALL BE REPAIRED, REPLACED, OR MODIFIED AFTER BEING NOTIFIED OF AN ISSUE WITHIN 7 DAYS OR BY THE NEXT SIGNIFICANT RAIN CHANCE OF 50% OR GREATER. ISSUES WITH IMMEDIATE THREATS TO WATER QUALITY SHALL BE REPAIRED IMMEDIATELY AS PER FMC 23-106(2)(g).
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9. GREEN INFRASTRUCTURE BMPS SHALL BE PROTECTED DURING SITE WORK, WITH SILT FENCE, TO PREVENT SEDIMENTATION AND COMPACTION.
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1. PRIOR TO INSTALLATION OF EROSION CONTROL MEASURES OR INITIATION OF EARTH DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CLEARLY DELINEATE THE PROPOSED LIMITS OF DISTURBANCE IN THE FIELD UTILIZING FLAGGING, STAKES, AND/OR CONSTRUCTION FENCE. NO DISTURBANCE BEYOND THESE LIMITS SHALL BE PERMITTED WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE ENGINEER, THE AFFECTED PROPERTY OWNER AND ANY APPLICABLE REGULATORY AGENCIES.
2. THE CONSTRUCTION ACTIVITIES ANTICIPATED FOR THIS PROJECT INCLUDES GRADING, PAVING, AND UTILITY INSTALLATION.
3. THE APPROXIMATE TOTAL DISTURBED AREA OF THIS SITE IS 6.60 ACRES. ANY INCREASE IN THE APPROXIMATE TOTAL DISTURBED AREA SHALL BE APPROVED BY THE CITY OF COLUMBIA PRIOR TO ADDITIONAL DISTURBANCE.
4. CONSTRUCTION SHALL BE SEQUENCED BY THE CONTRACTOR AS TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREAS. PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO EARTH MOVING OPERATIONS.
5. THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE PERSON(S) RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AT THE SITE. THIS INFORMATION SHALL BE POSTED AT THE JOB SITE TRAILER, OR AT THE SITE CONSTRUCTION SIGN.
6. PRE-CONSTRUCTION VEGETATIVE GROUNDCOVER SHALL NOT BE REMOVED MORE THAN 14 DAYS PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED FOR MORE THAN 14 DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH, OR FABRIC MATTING. STEEP SLOPES (GREATER THAN 35%) SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 15 DAYS OF THE ESTABLISHMENT OF FINAL GRADES.
7. THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION AND SEDIMENT CONTROL FOR A PERIOD OF THREE YEARS AFTER COMPLETION OF CONSTRUCTION OR AS REQUIRED BY GOVERNING AUTHORITIES.
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12. THE LOCATION OF SOME OF THE EROSION CONTROL MEASURES MAY NEED TO BE ALTERED DUE TO CHANGING SITE CONDITIONS COMMENSURATE WITH PROGRESS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION AND SEDIMENT CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES OF CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
13. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER IS ESTABLISHED. SEEDED AREAS MUST HAVE A MINIMUM 70% COVERAGE (ENGINEER WILL DETERMINE APPROXIMATE PERCENTAGE OF COVER) PRIOR TO REMOVAL OF THE TEMPORARY EROSION CONTROL DEVICES. FINAL SEEDING AND ESTABLISHMENT OF GROUNDCOVER SHALL BE APPLIED TO ANY AREA DISTURBED AS A RESULT OF THE REMOVAL OF THE EROSION CONTROL MEASURES.
14. CONTRACTOR SHALL PREPARE, IMPLEMENT, AND MAINTAIN A SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PLAN, AS A SEPARATE DOCUMENT OR AS A COMPONENT OF THE SWPPP, FOR ALL TANKS/CONTAINERS STORING ONSITE FUEL, CHEMICALS, OR OTHER POLLUTANTS CONSISTENT WITH THE REQUIREMENTS OF STATE NPDES RULES. EFFECTIVE MEASURES NECESSARY TO PREVENT SPILLS AND TO CLEAN UP SPILLS OF ANY TOXIC POLLUTANT, AS DOCUMENTED IN THE FACILITY'S SPCC PLAN, SHALL BE FULLY IMPLEMENTED. SOIL CONTAMINATED BY HAZARDOUS SUBSTANCES, PAINTS, FUEL, OR CHEMICAL SPILLS, SHALL BE IMMEDIATELY CLEANED UP, MANAGED, AND DISPOSED OF IN AN APPROVED MANNER. WHERE POTENTIAL SPILLS CAN OCCUR, MATERIALS HANDLING PROCEDURES SHALL BE SPECIFIED AND PROCEDURES FOR IMMEDIATE CLEANUP/REMEDIATION OF SPILLS SHALL BE DESCRIBED IN THE SPCC PLAN OR EMPLOYEE TRAINING EXACT LOCATION OF THE SPILL, COMPANY NAME AND LOCATION, THE MATERIAL SPILLED, THE ESTIMATED QUANTITY, THE SOURCE OF THE SPILL, THE CAUSE OF THE SPILL, THE NEAREST DOWNSTREAM WATER WITH THE POTENTIAL TO RECEIVE THE SPILL, AND THE ACTIONS BEING TAKEN FOR CONTAINMENT AND CLEANUP.
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EPSC DATA CHART:

BMP DESIGN RAIN EVENT: 5 YEAR, 24 HR STORM

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

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN — REGISTERED ENGINEER — AGRICULTURAL & BIOSYSTEMS — COMMERCIAL — RESIDENTIAL — CORPORATE SEAL — STATE OF TENNESSEE — 06/19/23

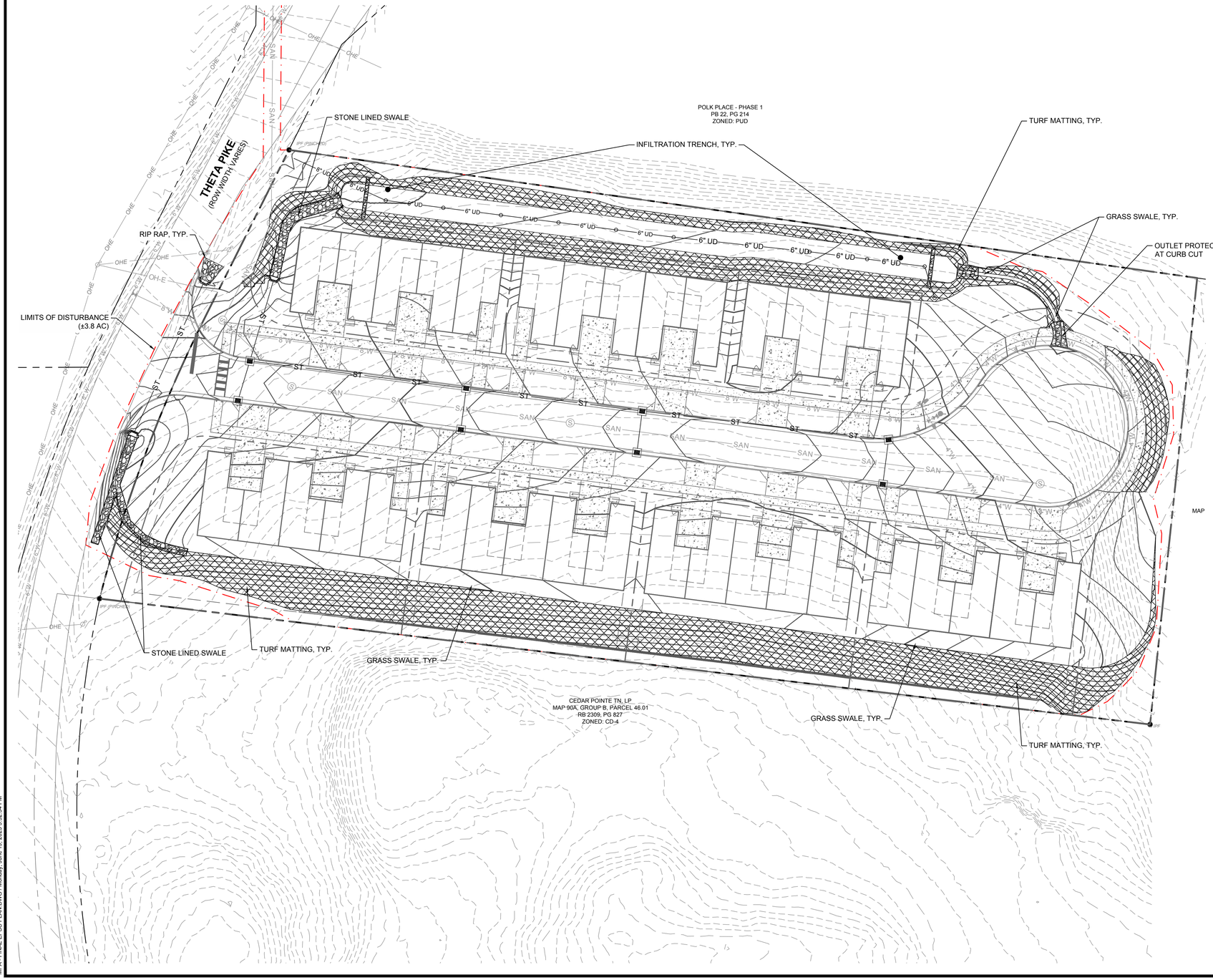
SITE PLANS FOR:
MACKENZIE PLACE
220 THETA PIKE
TAX MAP 90B, GROUP B, PARCEL 47.00
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

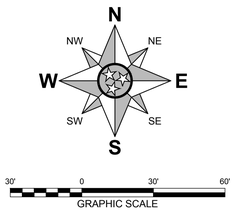
M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

INTERMEDIATE EPSC PLAN

DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	MAY 22, 2023
PROJECT NO. :	22-085

SHEET NUMBER:
C402





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EPSC DATA CHART:

BMP DESIGN RAIN EVENT: 5 YEAR, 24 HR STORM

Know what's below.
Call before you dig.

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
LICENSED LANDSCAPE ARCHITECT
COMMERCIAL
CERTIFICATE NO. 328
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
220 THETA PIKE
TAX MAP 90B, GROUP B, PARCEL 47.00
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

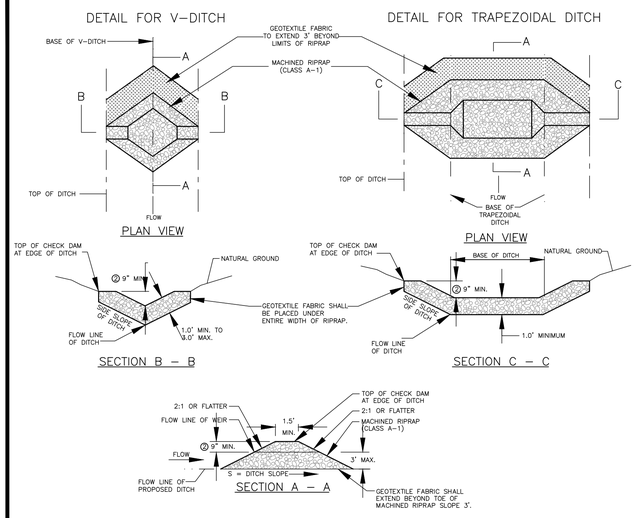
M2G GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

FINAL EPSC PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C403

MPA - FINAL EPSC PLAN.DWG | Monday, June 19, 2023 3:52:34 PM



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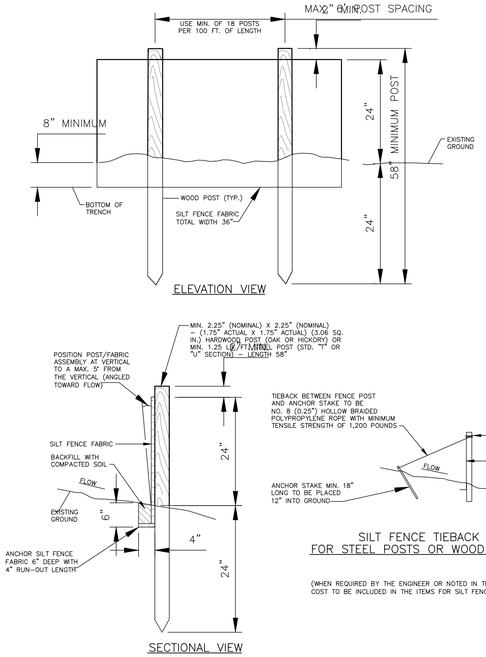
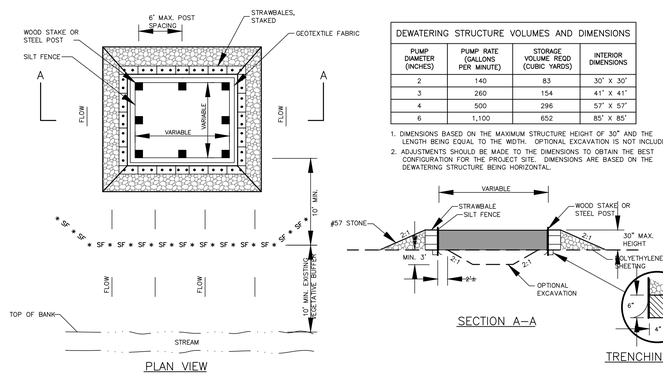
SCALE: N.T.S.



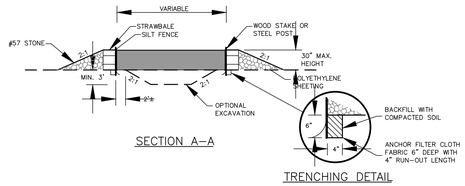
SILT FENCE

SCALE: N.T.S.



DEWATERING STRUCTURE VOLUMES AND DIMENSIONS			
PUMP DIAMETER (INCHES)	PUMP RATE (GALLONS PER MINUTE)	STORAGE VOLUME REQD (CUBIC YARDS)	INTERIOR DIMENSIONS
2	140	83	30' X 30'
3	260	154	41' X 41'
4	500	296	57' X 57'
6	1,100	652	85' X 85'

1. DIMENSIONS BASED ON THE MAXIMUM STRUCTURE HEIGHT OF 30" AND THE LENGTH BEING EQUAL TO THE WIDTH. OPTIONAL EXCAVATION IS NOT INCLUDED.
2. ADJUSTMENTS SHOULD BE MADE TO THE DIMENSIONS TO OBTAIN THE BEST CONFIGURATION FOR THE PROJECT SITE. DIMENSIONS ARE BASED ON THE DEWATERING STRUCTURE BEING HORIZONTAL.



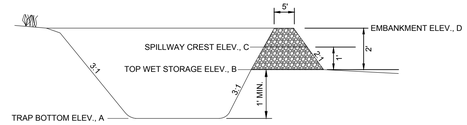
SILT FENCE & STRAW DEWATERING PIT

SCALE: N.T.S.

SEDIMENT TRAP ELEVATIONS, SEE DETAIL FOR REFERENCE → A, B, C, D

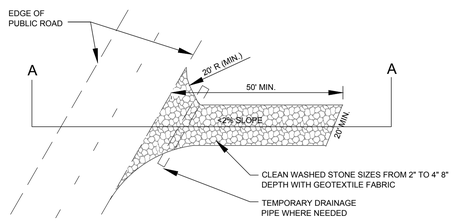
SEDIMENT TRAP DESIGN		
	ST-1	ST-2
DRAINAGE AREA (AC.)	2.80	2.50
TOTAL VOL. REQUIRED (CF)	10,130.00	9,045.00
WET VOL. REQUIRED (CF)	5,065.00	4,522.50
DRY VOL. REQUIRED (CF)	5,065.00	4,522.50
WET STORAGE VOL. PROVIDED (CF)	**5,261.00**	**4,754.50**
TRAP BOTTOM ELEV. (FT)	607.00	607.00
TOP WET STORAGE ELEV. (FT)	608.50	608.50
SPILLWAY CREST ELEV. (FT)**	610.00	610.00
TOP EMBANKMENT ELEV. (FT)	610.00	610.00
SPILLWAY CREST LENGTH (FT)	15.00	15.00
SPILLWAY CREST WIDTH (FT)	5.00	5.00
EMBANKMENT TOP WIDTH (FT)	5.00	5.00
DRY STORAGE VOL. PROVIDED (CF)	**5,261.00**	**4,754.50**
TOTAL VOL. PROVIDED (CF)	**10,522.00**	**9,509.00**

* RUNOFF COEFFICIENT ASSUMED TO BE BARE SOIL CONDITION
** SPILLWAY CREST ELEVATION IS ALSO TOP OF DRY STORAGE ELEVATION

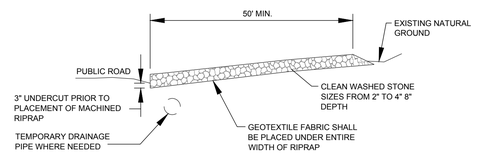


TEMPORARY SEDIMENT TRAP

N.T.S.



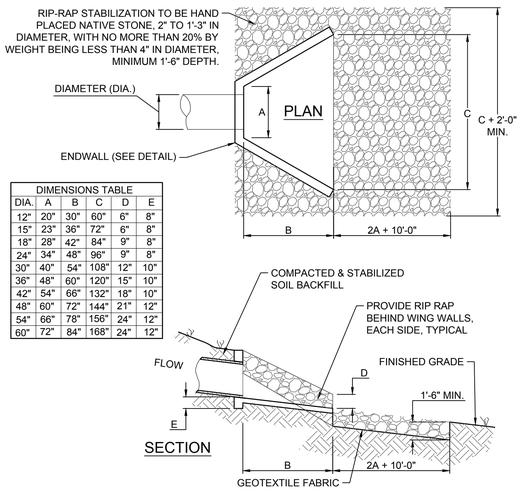
PLAN VIEW OF TEMPORARY CONSTRUCTION ROAD



SECTION A-A

CONSTRUCTION EXIT

SCALE: N.T.S.



DIMENSIONS TABLE					
DIA.	A	B	C	D	E
12"	20"	30"	60"	6"	8"
15"	23"	36"	72"	6"	8"
18"	28"	42"	84"	9"	8"
24"	34"	48"	96"	9"	8"
30"	40"	54"	108"	12"	10"
36"	48"	60"	120"	15"	10"
42"	54"	66"	132"	18"	10"
48"	60"	72"	144"	21"	12"
54"	66"	78"	156"	24"	12"
60"	72"	84"	168"	24"	12"

RIP RAP AT ENDWALL

N.T.S.

ACTIVITY: Geotextiles | PESC – 02

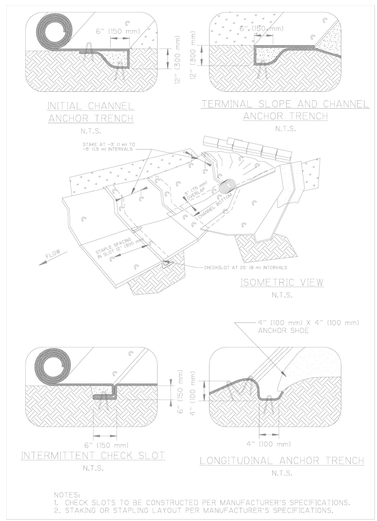


Figure PESC-02-1
Anchoring Geotextiles in Channels

Stormwater Best Management Practices – Permanent EP&SC | PESC-02-3 | January 2014

ACTIVITY: Geotextiles | PESC – 02

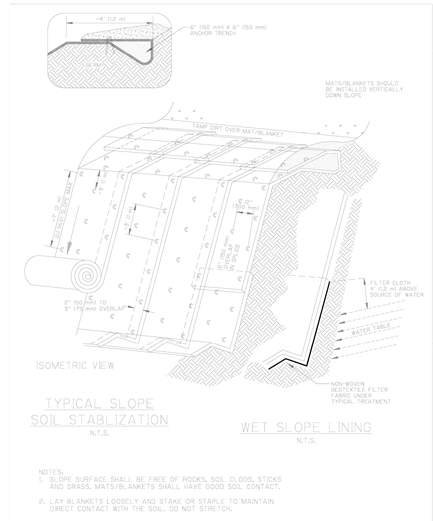


Figure PESC-02-2
Anchoring Geotextiles on Embankments

Stormwater Best Management Practices – Permanent EP&SC | PESC-02-4 | January 2014

TURF REINFORCEMENT MATTING DETAILS

SCALE: N.T.S.

REVISION #	DATE	DESCRIPTION
1	08-18-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
REGISTERED ENGINEER
No. 120,143
COMMERCIAL
CERTIFICATE No.
STATE OF TENNESSEE
08/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

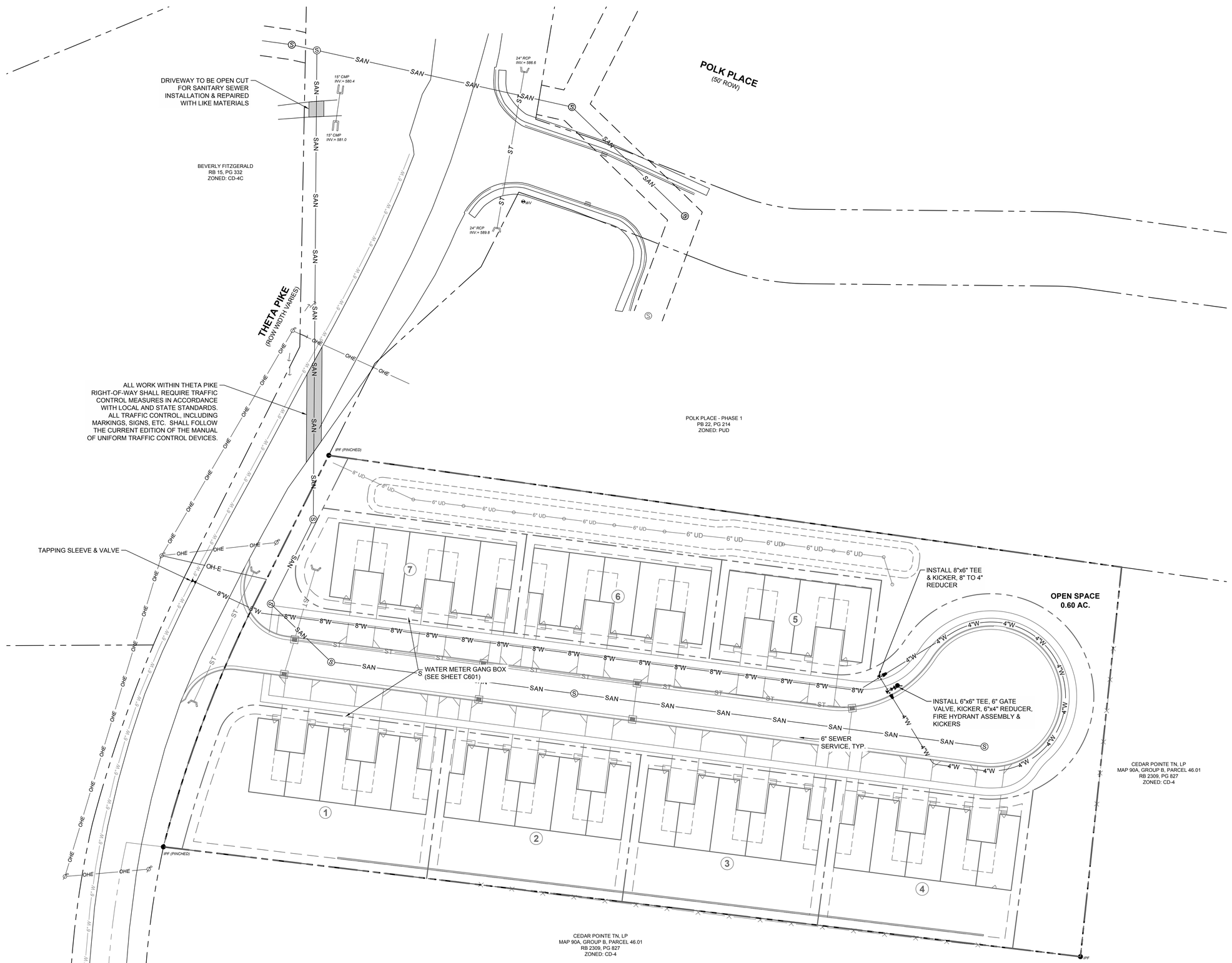
EPSC DETAILS

DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	MAY 22, 2023
PROJECT NO. :	22-085

SHEET NUMBER:
C404

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

MPA - SITE DETAILS.DWG / Monday, June 19, 2023 3:52:47 PM



LEGEND

SAN	SANITARY SEWER
OHE	OVERHEAD ELECTRIC
UG-E	UNDERGROUND ELECTRIC
8"W	8" WATERLINE
G	NATURAL GAS
ST	STORMWATER DRAINAGE PIPE
W	WATER SERVICE

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
AGRICULTURE
COMMERCE
CERTIFICATE No.
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

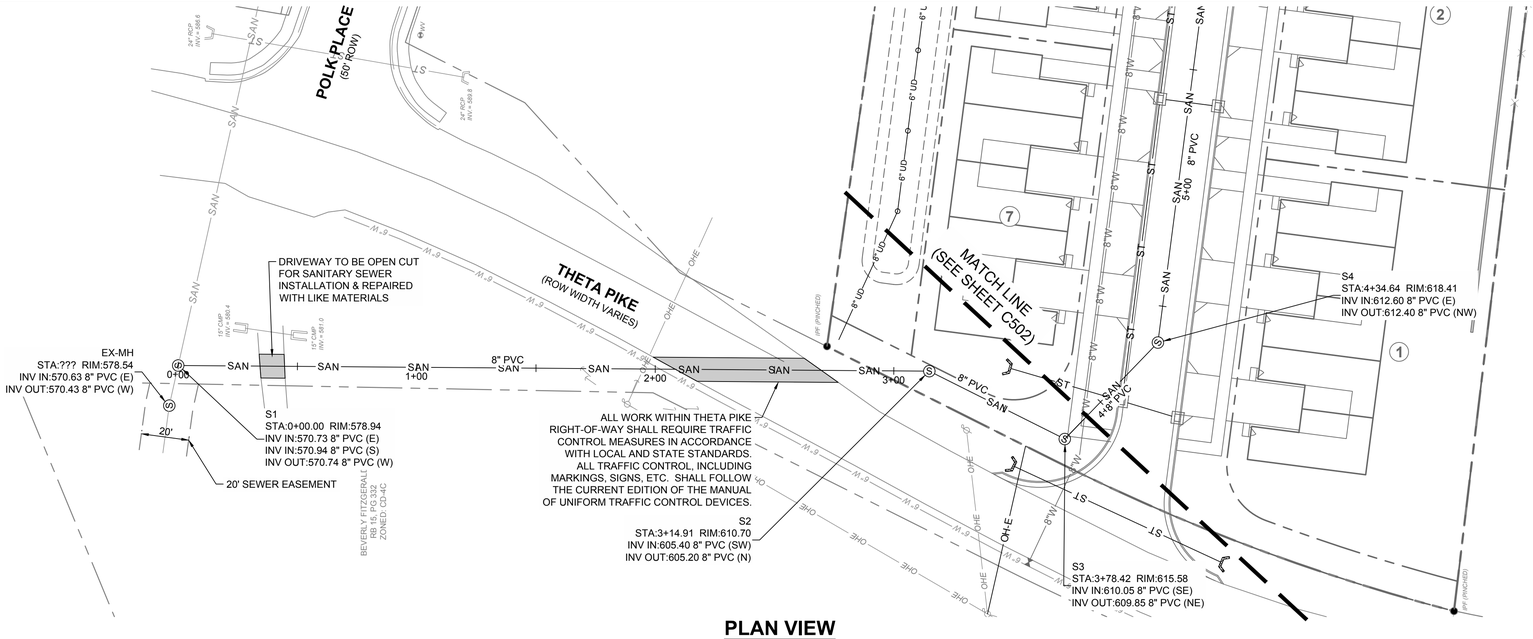
UTILITY PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C500

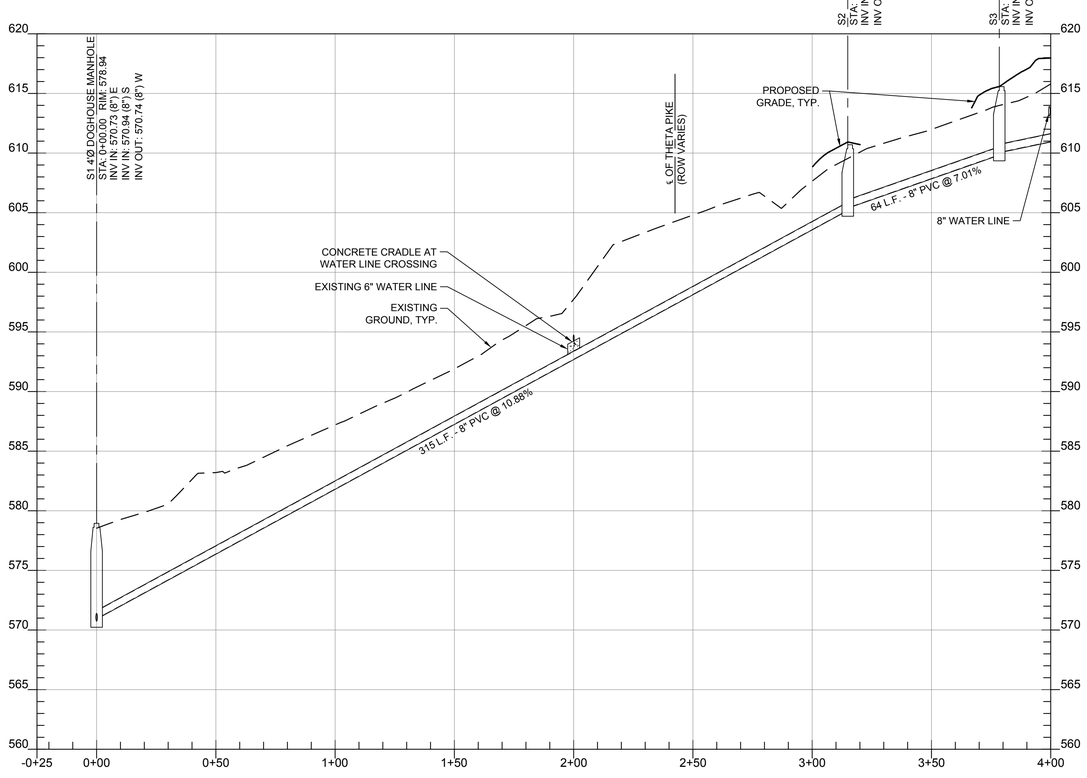
811 Know what's below. Call before you dig.

MPA - UTILITY PLAN.DWG | Monday, June 19, 2023 3:52:59 PM



PLAN VIEW

SCALE: 1" = 30'



PROPOSED OFFSITE SANITARY SEWER PROFILE

SCALE H:1"=30'; V:1"=6'

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

GRAPHIC SCALE 30' 0 30' 60'

MATTHEW W. BRYAN — LICENSED PROFESSIONAL ENGINEER — CERTIFICATE NO. 130777 — STATE OF TENNESSEE — 06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MZG GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

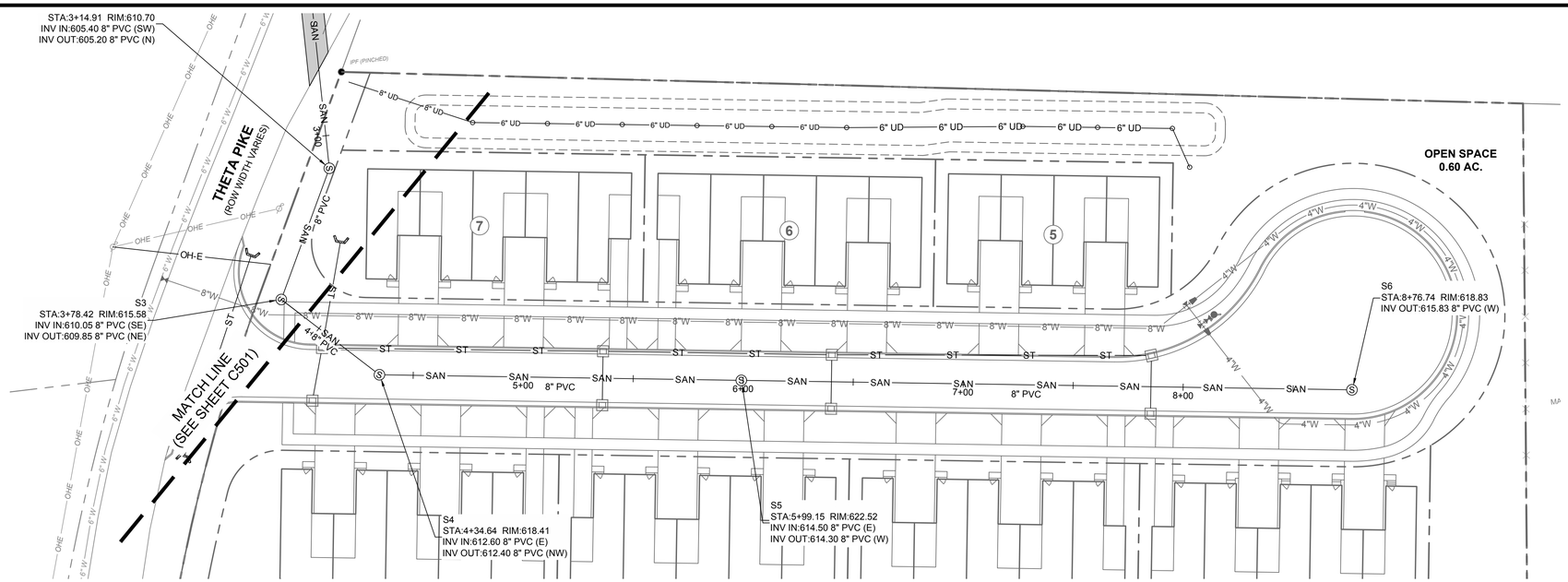
OFFSITE SANITARY SEWER PLAN & PROFILE

DATE : MAY 22, 2023
PROJECT NO. : 22-085
DRAWN BY : M2G
CHECKED BY : MWB

SHEET NUMBER:
C501

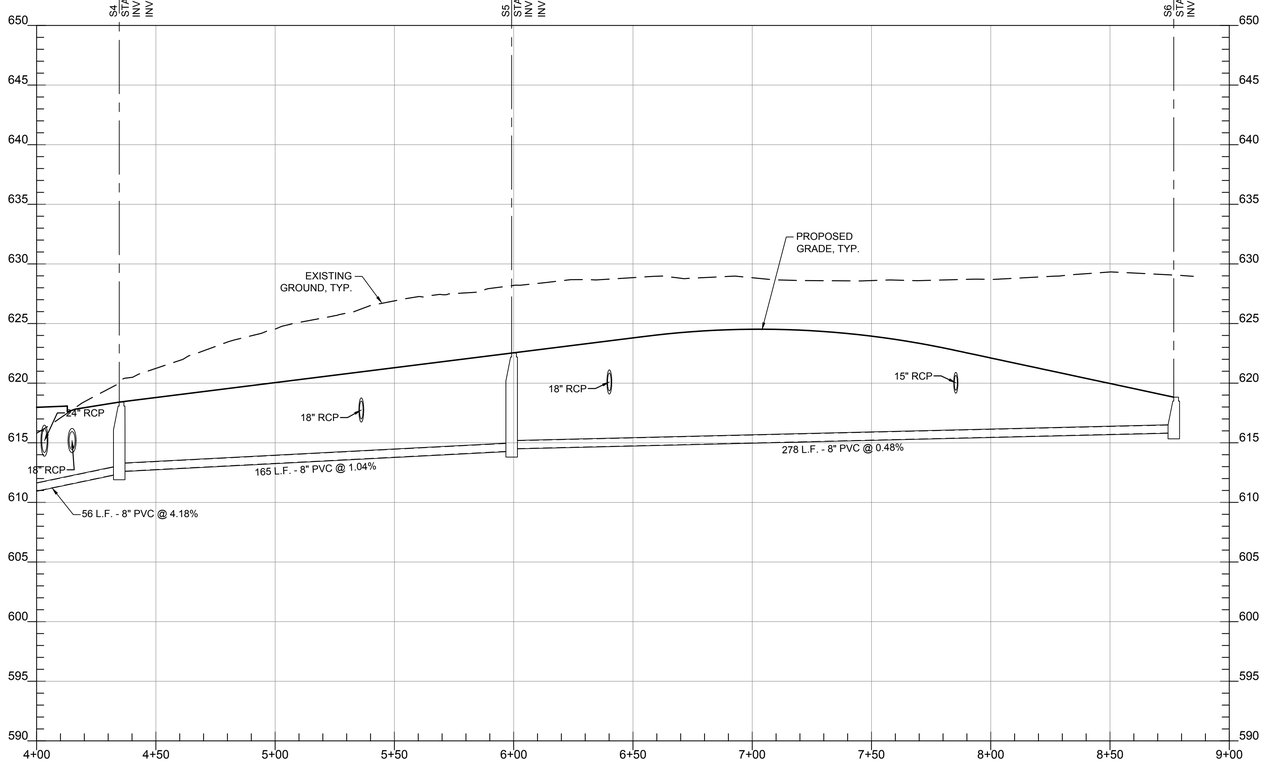
Know what's below. Call before you dig.

MPA - SANITARY SEWER PLAN & PROFILE.DWG | Monday, June 19, 2023 3:53:09 PM



PLAN VIEW

SCALE: 1" = 30'



PROPOSED SANITARY SEWER PROFILE

SCALE H:1"=30'; V:1"=6'

REVISION #	DATE	DESCRIPTION
1	06-19-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
NUMBER 120144
COMMERCIAL
CERTIFICATE NO.
STATE OF TENNESSEE
06/19/23

SITE PLANS FOR:
MACKENZIE PLACE
220 THETA PIKE
TAX MAP 90B, GROUP B, PARCEL 47.00
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

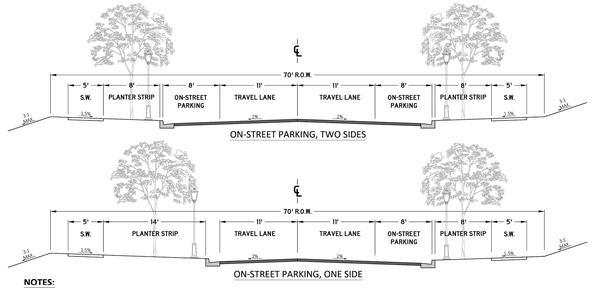
SANITARY SEWER PLAN & PROFILE

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C502

Know what's below. Call before you dig.

MPA - SANITARY SEWER PLAN & PROFILE.DWG / Monday, June 19, 2023 3:53:11 PM



NOTES:

1. ONLY PERMITTED WITHIN THE APPLICABLE ZONING DISTRICTS.
2. ONLY PERMITTED ON MINOR LOCAL AND MAJOR LOCAL ROADWAY CLASSIFICATIONS.
3. PAVEMENT SECTION SHALL FOLLOW APPLICABLE ROADWAY CLASSIFICATION.
4. CURB AND GUTTER, SEE SD-01
5. TREES SHALL BE CENTERED WITHIN THE PLANTING STRIP, OFFSET A MINIMUM OF 20 FEET ALONG THE CENTERLINE OF THE ROAD FROM ANY STREET LIGHTING.
6. DECORATIVE LIGHT BASES SHALL BE BETWEEN 18" AND 24" BEHIND THE BACK OF CURB.
7. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED.
8. DIMENSIONS REFLECT A MINIMUM STANDARD.
9. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER.

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

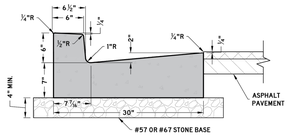
STANDARD DETAILS

CHARACTER DISTRICT STREET URBAN NEIGHBORHOOD

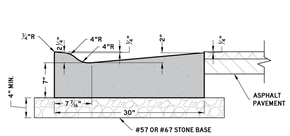
(NTS)

DATE 6/9/2022

DS-03



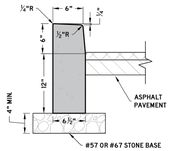
6-30 CONCRETE CURB AND GUTTER



LOWERED CONCRETE CURB AND GUTTER

NOTES:

1. BASED ON TDOT STANDARD DRAWING RP-VC-11
2. ONLY PERMITTED IN APPLICABLE ROADWAY SECTIONS
3. 4" MIN. THICK #57 OR # 67 STONE BASE
4. CLASS A 3000 PSI CONCRETE
5. EXPANSION JOINTS SHALL BE AS FOLLOWS:
   - 5.1. 1/2 INCH THICK
   - 5.2. A MAXIMUM SPACING OF 100 FEET
   - 5.3. AT TANGENTS OF ALL RADII OF CURVES
   - 5.4. BETWEEN CURBS AND ANY RIGID OBJECTS
   - 5.5. ALIGNED WITH ADJACENT EXPANSION JOINTS
   - 5.6. RUBBERIZED EXPANSION JOINT FILLER (AASHTO M153, TYPE 1)
   - 5.7. POLYPROPYLENE FOAM JOINT FILLER (ASTM D8139)
6. CONTRACTION JOINTS SHALL BE AS FOLLOWS:
   - 6.1. A MAXIMUM SPACING OF 10 FEET
   - 6.2. A MINIMUM SPACING OF 6 FEET
   - 6.3. 1/4 INCH DEPTH, EITHER SAWCUT OR HAND GROOVED.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER



VERTICAL POST CURB

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

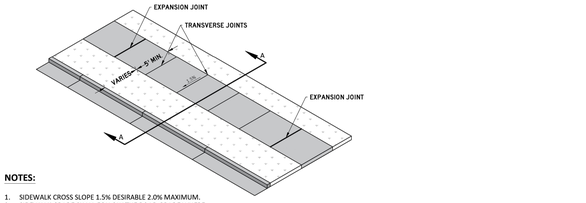
STANDARD DETAILS

CURB AND GUTTER AND POST CURB

(NTS)

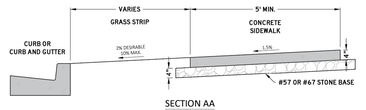
DATE 6/9/2022

SD-01



NOTES:

1. SIDEWALK CROSS SLOPE 1.5% DESIRABLE 2.0% MAXIMUM.
2. SIDEWALK GRADE SHALL FOLLOW THE ROAD GRADE WHERE POSSIBLE.
3. 4" MIN. THICK #57 OR # 67 STONE BASE
4. 4" MIN. THICKNESS CLASS A 3000 PSI CONCRETE WITH FIBER REINFORCEMENT, BROOM FINISHED.
5. EXPANSION JOINTS SHALL BE AS FOLLOWS:
   - 5.1. 1/2 INCH THICK
   - 5.2. A MAXIMUM SPACING OF 25 FEET
   - 5.3. AT TANGENTS OF ALL RADII OF CURVES
   - 5.4. BETWEEN CURBS AND ANY RIGID OBJECTS
   - 5.5. ALIGNED WITH ADJACENT EXPANSION JOINTS
   - 5.6. RUBBERIZED EXPANSION JOINT FILLER (AASHTO M153, TYPE 1)
   - 5.7. POLYPROPYLENE FOAM JOINT FILLER (ASTM D8139)
6. PROVIDE TRANSVERSE JOINTS AS NEARLY AS SQUARE AS PRACTICABLE. ON SIDEWALKS GREATER THAN 8 FEET IN WIDTH, PROVIDE A LONGITUDINAL JOINT ALONG THE CENTERLINE OF THE SIDEWALK.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER



SECTION AA

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

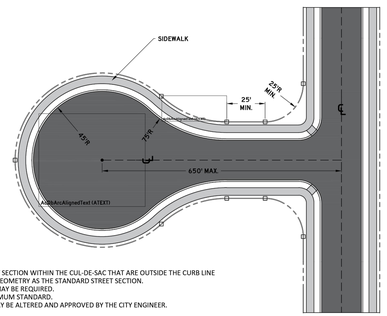
STANDARD DETAILS

CONCRETE SIDEWALK

(NTS)

DATE 6/9/2022

SD-10



NOTES:

1. ALL ELEMENTS OF THE STREET SECTION WITHIN THE CUL-DE-SAC THAT ARE OUTSIDE THE CURB LINE SHALL MAINTAIN THE SAME GEOMETRY AS THE STANDARD STREET SECTION.
2. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED.
3. DIMENSIONS REFLECT A MINIMUM STANDARD.
4. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER.

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

STANDARD DETAILS

CUL-DE-SAC

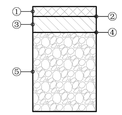
(NTS)

DATE 6/9/2022

SD-15

PAVEMENT SCHEDULE

①	**SURFACE @ 1.5" THICK** 411-E (ASPHALT CONCRETE MIX (PG64-22) (ACS) GRADING D (SURFACE)), OR 411-E (ASPHALT CONCRETE MIX (PG64-22) (ACS) GRADING C ⓦ (SURFACE))
②	**TACK COAT (GENERAL USE)** 403-01 BITUMINOUS MATERIAL FOR TACK COAT (CQS-1H)
③	**BIT. BINDER @ 2" THICK** 307-01.08 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING B-M2
④	**PRIME COAT** 402-10 BITUMINOUS MATERIAL FOR PRIME COAT (PC)
⑤	**MINERAL AGGREGATE BASE @ 6" THICK** 303-01 MINERAL AGGREGATE, TYPE A BASE, GRADING D



CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

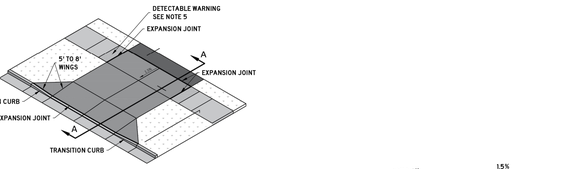
STANDARD DETAILS

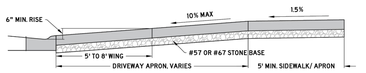
PARKING LOT PAVEMENT SECTION

(NTS)

DATE 6/9/2022

MD-02





SECTION AA

NOTES:

1. SIDEWALK CROSS SLOPE 1.5% DESIRABLE 2.0% MAXIMUM.
2. APRON SLOPE 2.0% MIN. 10% MAX. MINIMUM OF 6" RISE ABOVE GUTTER LINE.
3. 4" MIN. THICK #57 OR # 67 STONE BASE
4. CLASS A 3000 PSI CONCRETE WITH FIBER REINFORCEMENT
   - 4.1. 6" MIN. THICKNESS RESIDENTIAL.
   - 4.2. 8" MIN. THICKNESS COMMERCIAL, MULTI-FAMILY, AND MIXED-USE.
5. EXPANSION JOINTS SHALL BE AS FOLLOWS:
   - 5.1. 1/2 INCH THICK.
   - 5.2. RUBBERIZED EXPANSION JOINT FILLER (AASHTO M153, TYPE 1).
   - 5.3. POLYPROPYLENE FOAM JOINT FILLER (ASTM D8139).
6. DETECTABLE WARNINGS WHERE DRIVEWAY IS STOP CONTROLLED.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

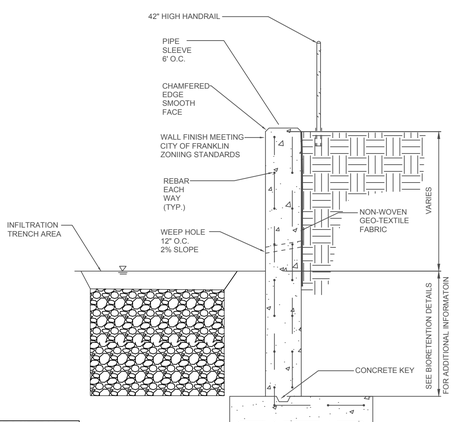
STANDARD DETAILS

DRIVEWAY APRON

(NTS)

DATE 6/9/2022

SD-12



NOTE: A FORMAL WALL SUBMITTAL PREPARED BY A LICENSED PROFESSIONAL WILL BE SUBMITTED WITH GUARDRAIL DETAILS PRIOR TO OBTAINING A BUILDING PERMIT.

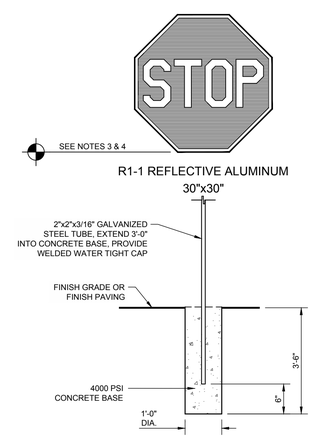
NOTE: RETAINING WALLS ADJACENT TO INFILTRATION TRENCH AREAS SHALL NOT RELY ON STONE DRAINAGE MEDIA FOR STABILITY OR LATERAL RESISTANCE. BOTTOM OF WALL/TOP OF FOOTING ELEVATION SHALL BE LOCATED AT OR BELOW BOTTOM OF LOWERMOST STONE DRAINAGE MEDIA.

RETAINING WALL ILLUSTRATIVE CROSS-SECTION

ADJACENT TO INFILTRATION TRENCH

FOR ILLUSTRATIVE PURPOSES ONLY, NOT TO BE USED FOR CONSTRUCTION

NO SCALE



R1-1 REFLECTIVE ALUMINUM 30"x30"

STOP SIGN/SPEED LIMIT SIGN

N.T.S.

NOTES:

1. SET POSTS IN CONCRETE TO A MINIMUM DEPTH OF 36". SIGN PANELS SHALL BE 0.100 ALUMINUM WITH RAISED OR SILKSCREEN COPY.
2. FOR POST MOUNTING, USE NON-CORROSIVE 3/8" MACHINE BOLTS W/ WASHERS, 2 PER SIGN; OR IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3. ALL SIGNAGE IS TO BE INSTALLED WITH THE BOTTOM EDGE OF THE LOWEST SIGN AT LEAST 60" ABOVE FINISHED GRADE, WHERE NO PEDESTRIAN TRAFFIC IS POSSIBLE.
4. ALL SIGNAGE IS TO BE INSTALLED WITH THE BOTTOM EDGE OF THE LOWEST SIGN AT LEAST 84", WHERE PEDESTRIAN TRAFFIC IS POSSIBLE.
5. STOP SIGN TO BE HIGH INTENSITY GRADE.

REVISION #	DATE	DESCRIPTION
1	08-18-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRIAN — REGISTERED ENGINEER — CERTIFICATE No. 120144 — STATE OF TENNESSEE — 08/19/23

SITE PLANS FOR:
MACKENZIE PLACE
220 THETA PIKE
TAX MAP 90B, GROUP B, PARCEL 47.00
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

SITE DETAILS

DATE : MAY 22, 2023
PROJECT NO. : 22-085
DRAWN BY : M2G
CHECKED BY : MWB

SHEET NUMBER:
C600

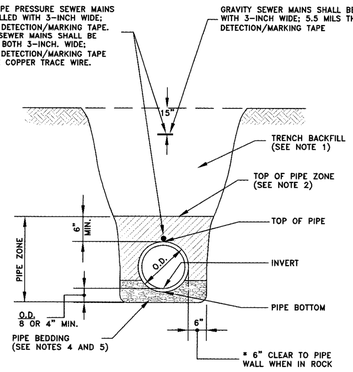
MPA - SITE DETAILS.DWG | Monday, June 19, 2023 3:53:24 PM

NOTES:

1. SEE PROJECT SPECIFICATIONS FOR BACKFILL REQUIREMENTS.
2. "PIPE ZONE" EXTENDS TO 6" ABOVE TOP OF PIPE AND BACKFILL IN TO BE CRUSHED STONE, GRAVEL OR OTHER GRANULAR MATERIAL AS APPROVED BY THE ENGINEER.
3. LIMIT TRENCH WIDTH AT TOP OF PIPE ZONE TO O.D. + 16", UNLESS PERMITTED OTHERWISE BY ENGINEER.
4. PIPE BEDDING IS TO BE CRUSHED GRAVEL OR OTHER GRANULAR MATERIAL AS APPROVED BY ENGINEER. DEPTH UNDER BOTTOM OF PIPE IS TO BE 1/8 OUTER DIAMETER (O.D.) OF PIPE OR 4", WHICHEVER IS GREATER.*
5. PIPE TO BE CONTINUOUSLY SUPPORTED ALONG LENGTH OF PIPE BARREL EXCEPT AT BELLS. BELL HOLES ARE REQUIRED SUCH THAT NO BEARING LOAD IS TAKEN BY THE BELL.

DUCTILE IRON PIPE PRESSURE SEWER MAINS SHALL BE INSTALLED WITH 3-INCH WIDE; 5.5 MILS THICK DETECTION/MARKING TAPE. PVC PRESSURE SEWER MAINS SHALL BE INSTALLED WITH BOTH 3-INCH WIDE; 5.5 MILS THICK DETECTION/MARKING TAPE AND #14 GAUGE COPPER TRACE WIRE.

GRAVITY SEWER MAINS SHALL BE INSTALLED WITH 3-INCH WIDE; 5.5 MILS THICK DETECTION/MARKING TAPE



TYPICAL SEWER INSTALLATION

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S1

8 Φ 5/8" DIA. T. & S. IN SLAB ON SHALLOW MANHOLES WHERE CONE IS OMITTED (SEE CONST. NOTES)

RESILIENT CONNECTOR

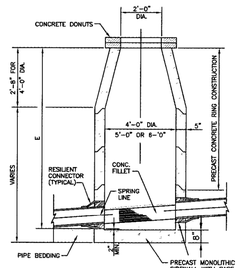
PLAN

NOTE: ALL MANHOLES SHALL BE MANUFACTURED WITH XYPEX ADMIX C-1000/C-2000 IN CONCRETE FOR WATERPROOFING AND PROTECTION AGAINST HYDROGEN SULFIDE DETERIORATION. XYPEX ADMIX SHALL BE AS SUPPLIED BY TOM WILLIAMS; 1231 ANTIOCH PIKE, NASHVILLE. PRECAST MANHOLES SHALL BE AS SUPPLIED BY CLOUD CONCRETE PRODUCTS OR ENGINEER APPROVED EQUAL.

CONSTRUCTION NOTES

CYLINDRICAL AND CONICAL SECTIONS OF ALL MANHOLES SHALL BE CONSTRUCTED OF EITHER MONOLITHIC CONCRETE OR PRECAST CONCRETE RINGS AS DESIGNED IN THE PROJECT SPECIFICATIONS OF THE CONTRACT DOCUMENT.
CONCENTRIC CONES SHALL BE USED ON PRECAST CONCRETE AND MONOLITHIC CONCRETE UNITS.
DIMENSION "E" VARIES. WHEN LESS THAN 5-FEET OMIT CONE AND EXTEND CYLINDRICAL MANHOLE SIDEWALL SECTION TO AN ELEVATION 8-INCHES BELOW BOTTOM OF ADJUSTING BRICK. CONSTRUCT 8-INCH THICK CONCRETE SLAB ON TOP OF CYLINDRICAL SECTION REINFORCED WITH 5/8-INCH DIA. BARS AS SHOWN. PROVIDE 24-INCH DIAMETER OPENING IN SLAB FOR MANHOLE'S FRAME AND BRICK ADJUSTMENT RINGS AS ON CONED MANHOLE.
BENCH WALLS IN MANHOLE AND SEWERS 18-INCHES IN DIAMETER AND SMALLER TO BE BUILT UP TO THE TOP OF THE LARGEST PIPE. FOR SEWERS 21-INCHES TO 30-INCHES IN DIAMETER, A 7-INCH WIDE, LEVEL BENCH SHALL BE PROVIDED. NO BENCH WALLS REQUIRED IN DEAD END MANHOLES, ALTHOUGH BOTTOM TO BE PROPERLY BENCHED.

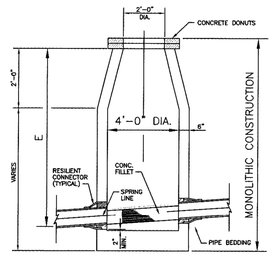
NOTE: GRANULAR BACKFILL MATERIAL SHALL BE PLACED ADJACENT TO MANHOLE IN AREAS WHERE SWELLING CLAY EXIST.



SECTION

INSTALL FLEXIBLE ANNULAR SPACE FILLER AROUND PIPES WITH "CAVITY-O-RING" AS MANUFACTURED BY N.P.C. SYSTEMS, INC. OF MILFORD, NEW HAMPSHIRE, OR APPROVED EQUAL.

FOR SEWERS 36" DIAMETER & SMALLER
NOT TO SCALE

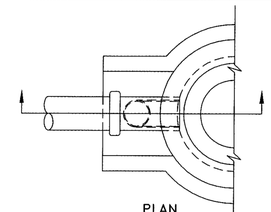


POURED IN PLACE MANHOLE
NOT TO SCALE

STANDARD MANHOLES

WMS# 15157

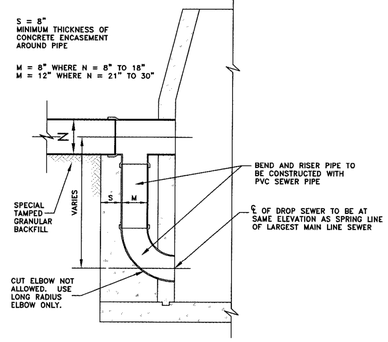
COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S2



PLAN

S = 8" MINIMUM THICKNESS OF CONCRETE ENCASEMENT AROUND PIPE

M = 8" WHERE N = 8" TO 18"
M = 12" WHERE N = 21" TO 30"



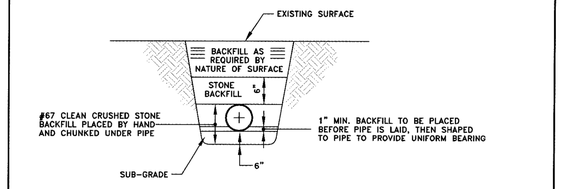
SECTION

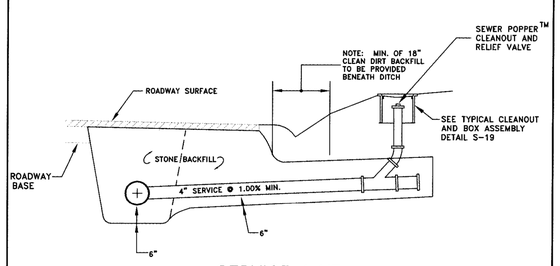
DROP PIPE FOR STANDARD MANHOLES

NOT TO SCALE

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S3



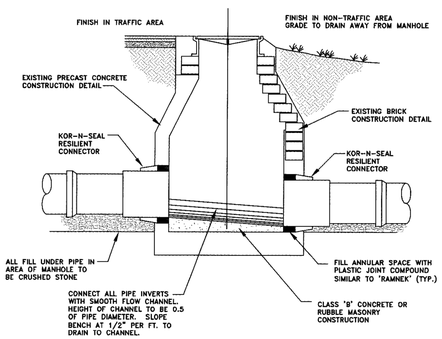


SERVICE LINE

NOT TO SCALE

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S4



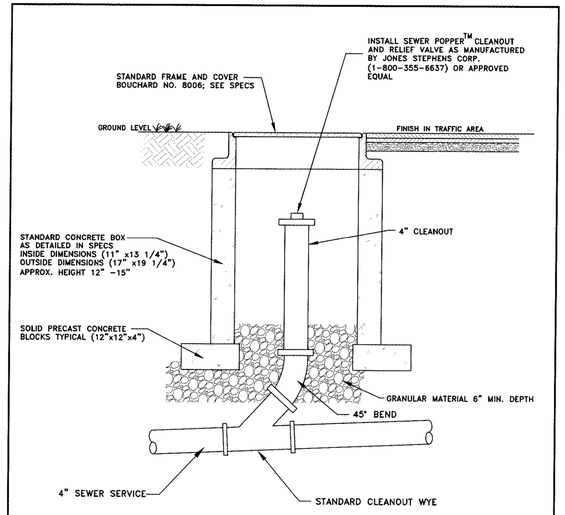
CONNECTION TO EXISTING MANHOLE

NOT TO SCALE

NOTE: THE CONTRACTOR SHALL NOT CONNECT TO EXISTING MANHOLE UNTIL ALL NEW SEWAGE FACILITIES HAVE BEEN INSTALLED, TESTED AND RELEASED FOR SERVICE.

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S5



TYPICAL CLEANOUT ASSEMBLY

NOT TO SCALE

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S19

REVISION #	DATE	DESCRIPTION
1	08-18-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

MATTHEW W. BRYAN — REGISTERED ENGINEER — AGRICULTURE — COMMERCE & CONSTRUCTION — CERTIFICATE No. — STATE OF TENNESSEE — 08/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

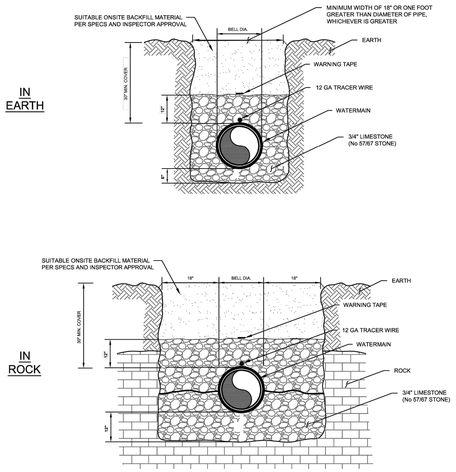
MZG GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.MZGROUPLLC.COM

UTILITY DETAILS

DRAWN BY: MZG
CHECKED BY: MWB
DATE: MAY 22, 2023
PROJECT NO.: 22-085

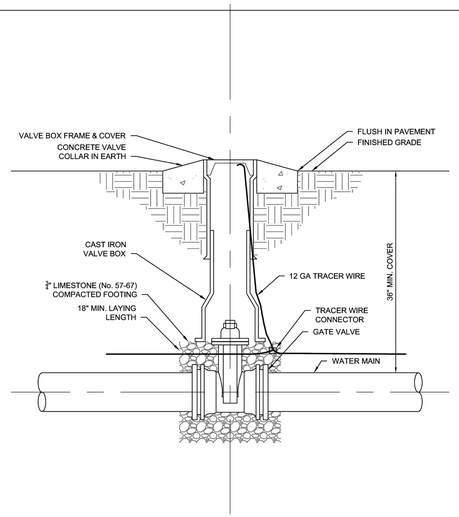
SHEET NUMBER:
C602

MPA - SITE DETAILS.DWG / Monday, June 19, 2023 3:53:28 PM



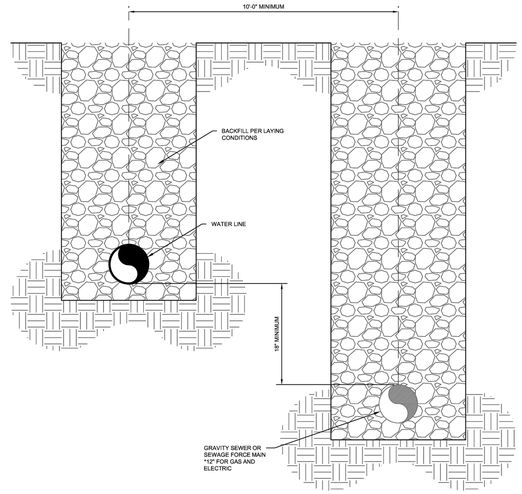
NOTES:
1. **30" MINIMUM COVER IN TRAFFIC AREAS.**
2. **UNSUITABLE EARTH MATERIALS MAY REQUIRE OVER-EXCAVATION AND GRAVEL BEDDING AND HAUNCHING.**

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: WATER LINE LAYING CONDITIONS IN ROCK OR EARTH | FIGURE NO.: CWS-1



NOTES:
1. ALL VALVE BOXES SHALL BE SET TO BE FLUSH WITH FINAL GRADES AND SHALL NOT BE COVERED WITH ANY PAVING, DIRT, SOD, GRASSING, AND/OR LANDSCAPING.
2. THIS DETAIL IS VALID FOR 16" AND SMALLER VALVE SIZES. FOR LARGER SIZES, SEE CONTRACT SPECS. OR CONFIRM WITH CPWS.

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: LINE VALVE SETTING | FIGURE NO.: CWS-2



CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: UTILITY SEPARATION | FIGURE NO.: CWS-3

LENGTH TO BE RESTRAINED (L)							
PIPE SIZE	HORIZONTAL BENDS				VERTICAL OFFSETS 45° BENDS		VALVES OR DEAD ENDS
	11.25°	22.5°	45°	90°	UPPER	LOWER	
6"	3 FT	6 FT	13 FT	30 FT	23 FT	4 FT	66 FT
8"	4 FT	8 FT	16 FT	38 FT	30 FT	6 FT	86 FT
10"	5 FT	9 FT	19 FT	45 FT	36 FT	7 FT	103 FT
12"	6 FT	11 FT	22 FT	53 FT	43 FT	8 FT	121 FT
16"	7 FT	14 FT	28 FT	66 FT	55 FT	10 FT	154 FT
20"	8 FT	16 FT	33 FT	79 FT	66 FT	12 FT	185 FT
24"	8 FT	16 FT	33 FT	79 FT	77 FT	15 FT	204 FT

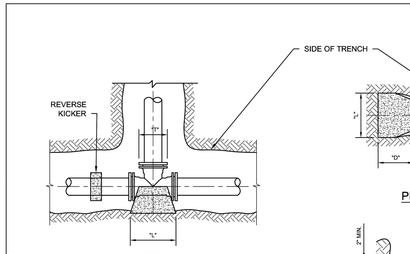
NOTES:
1. PIPE TO BE INSTALLED IN TRENCH AS PER LINE LAYING CONDITION DETAIL.
2. ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED AND SHALL BE PROVIDED WITH MECHANICAL JOINT THRUST RESTRAINTS AT ALL DIRECTION CHANGES, SIZE CHANGES, AND DEAD ENDS. ALL CONNECTIONS TO EXISTING PIPE SHALL BE MADE WITH RETAINER GLANDS.
3. MECHANICAL JOINT RESTRAINTS SHALL BE DUCTILE IRON IN ACCORDANCE WITH ASTM A536 - STANDARD SPECIFICATION FOR DUCTILE IRON CASTINGS.
4. CONTRACTOR SHALL FURNISH AND INSTALL MECHANICAL JOINT RESTRAINTS WITH ALL HARDWARE AND ACCESSORIES AS REQUIRED BY THE MANUFACTURER FOR PROPER INSTALLATION.
5. CONTRACTOR SHALL PROVIDE THE SERIES/MODEL OF JOINT RESTRAINT AS REQUIRED FOR THE PIPE SIZE, MATERIAL, AND FLANGED FITTING SHOWN ON THE PLANS.
6. RESTRAINT LENGTH CALCULATIONS WERE PERFORMED UNDER THE FOLLOWING CONDITIONS: PVC PIPE MATERIAL, GM SOIL TYPE, 1.5 SAFETY FACTOR, TYPE 3 TRENCH, 2.5 FT BURY DEPTH, 150 PSI TEST PRESSURE.

REDUCERS	
SIZE	L
6x4	34'
8x6	36'
8x4	62'
10x8	35'
10x6	63'
12x10	36'
12x8	64'
16x12	66'
16x10	92'
20x18	35'
20x16	66'
20x12	117'
24x20	56'
24x18	80'
24x16	101'

TEES		
RUN	BRANCH	L
4"	4"	F.O.
4"	6"	10'
	<6"	F.O.
8"	8"	29'
	<8"	F.O.
10"	10"	45'
	8"	13'
	<8"	F.O.
12"	12"	62'
	10"	32'
	<8"	F.O.
16"	16"	94'
	12"	39'
	10"	5'
	<10"	F.O.
20"	20"	125'
	16"	76'
	12"	14'
	<12"	F.O.
24"	24"	124'
	20"	84'
	16"	36'
	<16"	F.O.

F.O. = FITTING ONLY

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: PIPE JOINT RESTRAINT SCHEDULE | FIGURE NO.: CWS-4

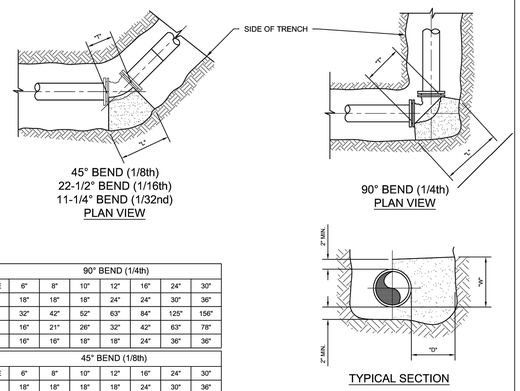


TEE							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	18"	18"	18"	24"	24"	30"	36"
"L"	19"	25"	31"	38"	50"	75"	93"
"W"	19"	25"	31"	38"	50"	75"	93"
"T"	16"	16"	18"	18"	24"	36"	36"

PLUG							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	18"	18"	18"	24"	24"	30"	36"
"L"	19"	25"	31"	38"	50"	75"	93"
"W"	19"	25"	31"	38"	50"	75"	93"
"T"	12"	12"	12"	12"	18"	30"	36"

NOTES:
1. DEPTH "D" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE AGAINST UNDISTURBED EARTH.
2. ALL BOLTS AND FITTINGS MUST BE WRAPPED IN MINIMUM THREE (3) MIL. PLASTIC.
3. LEAVE APPROXIMATELY 12" SEPARATION BETWEEN CONCRETE AND FITTING BELLS
4. THRUST BLOCK DIMENSIONS BASED ON 150 PSI OPERATING PRESSURE AND 50% ADDITIONAL SURGE PRESSURE
5. SOIL BEARING PRESSURE USED FOR THRUST BLOCK DIMENSIONS SHOWN IS 4,000 PSF. IF SOIL SURROUNDING THRUST BLOCK DOES NOT HAVE THIS CAPACITY, ADDITIONAL THRUST BLOCK VOLUME MAY BE REQUIRED.
6. CONCRETE TO BE USED FOR THRUST BLOCKS TO BE 3,500PSI CONCRETE.
7. LENGTH (L) AND WIDTH (W) DIMENSIONS CAN BE MODIFIED SLIGHTLY AS LONG AS TOTAL AREA DOES NOT CHANGE, BY WRITTEN DIRECTION OF CPWS ONLY TO MEET SITE SPECIFIC CONCERNS.
8. ELEVATION OF GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF THRUST BLOCK.

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: CONCRETE BLOCKING DETAILS (TEES AND PLUGS) | FIGURE NO.: CWS-5



90° BEND (1/4th)							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	18"	18"	18"	24"	24"	30"	36"
"L"	32"	42"	52"	63"	84"	125"	156"
"W"	16"	21"	26"	32"	42"	63"	78"
"T"	16"	16"	18"	18"	24"	36"	36"

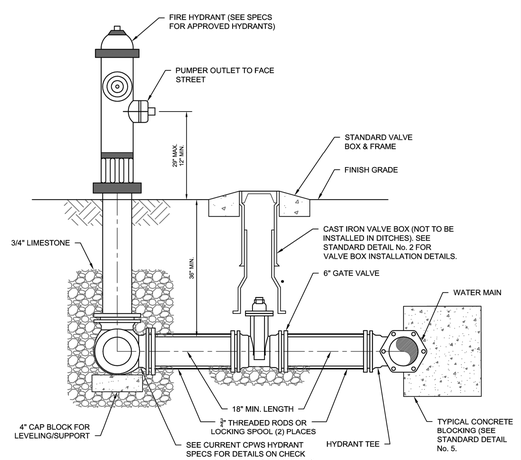
45° BEND (1/8th)							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	18"	18"	18"	18"	24"	30"	36"
"L"	24"	31"	39"	46"	62"	92"	115"
"W"	12"	16"	20"	23"	31"	46"	58"
"T"	16"	16"	18"	18"	18"	24"	24"

22.5° BEND (1/16th)							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	12"	12"	18"	18"	24"	24"	24"
"L"	17"	23"	28"	33"	44"	66"	82"
"W"	9"	12"	14"	17"	22"	33"	41"
"T"	16"	16"	18"	18"	18"	24"	24"

11.25° BEND (1/32nd)							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	12"	12"	18"	18"	24"	24"	24"
"L"	12"	16"	20"	24"	32"	47"	59"
"W"	6"	8"	10"	12"	16"	24"	30"
"T"	16"	16"	18"	18"	18"	24"	24"

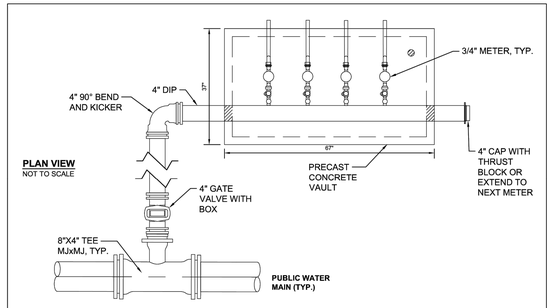
NOTES:
1. DEPTH "D" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE AGAINST UNDISTURBED EARTH.
2. ALL BOLTS AND FITTINGS MUST BE WRAPPED IN MINIMUM THREE (3) MIL. PLASTIC.
3. LEAVE APPROXIMATELY 12" CLEARANCE BETWEEN CONCRETE AND FITTING BELLS
4. THRUST BLOCK DIMENSIONS BASED ON 150 PSI OPERATING PRESSURE AND 50% ADDITIONAL SURGE PRESSURE.
5. SOIL BEARING PRESSURE USED FOR THRUST BLOCK DIMENSIONS SHOWN IS 4,000 PSF. IF SOIL SURROUNDING THRUST BLOCK DOES NOT HAVE THIS CAPACITY, ADDITIONAL THRUST BLOCK VOLUME MAY BE REQUIRED.
6. CONCRETE TO BE USED FOR THRUST BLOCKS TO BE 3,500PSI CONCRETE.
7. LENGTH (L) AND WIDTH (W) DIMENSIONS CAN BE MODIFIED SLIGHTLY AS LONG AS TOTAL AREA DOES NOT CHANGE, BY WRITTEN DIRECTION OF CPWS ONLY TO MEET SITE SPECIFIC CONCERNS.
8. ELEVATION OF GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF THRUST BLOCK.

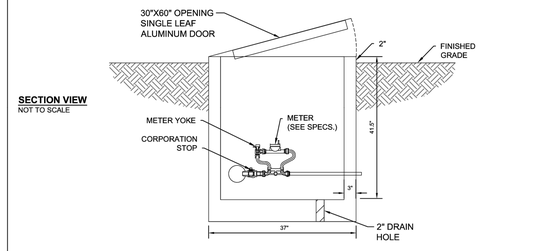
CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: CONCRETE BLOCKING (BENDS) | FIGURE NO.: CWS-6



NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED SO THE PUMPER NOZZLE IS POINTED TOWARD THE STREET.
2. ALL M.J. FITTINGS TO INCLUDE WEDGE STYLE THRUST RESTRAINT.
3. FIRE HYDRANTS TO BE SAFETY YELLOW.
4. TRACER WIRE TO EXTEND TO VALVE AND HYDRANT.

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: FIRE HYDRANT ASSEMBLY | FIGURE NO.: CWS-11





NOTES:
1. THE GANG VAULT MAY VARY FROM 3 TO 6 METERS DEPENDING ON CONDITIONS. VAULT SIZE WILL VARY ACCORDINGLY.
2. PRECAST VAULT TO COMPLY WITH ASTM C-857 & C-858.
3. TRACER WIRE TO EXTEND TO METER VAULT.

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: GANG METER VAULT | FIGURE NO.: CWS-22

REVISION #	DATE	DESCRIPTION
1	08-18-23	REVISED BASED ON TECHNICAL REVIEW COMMENTS

TAMATHEW W. BRIAN — REGISTERED ENGINEER — 120911 — COMMERCE — CERTIFICATE No. — STATE OF TENNESSEE — 08/19/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA Group
P.O. BOX 848
FRANKLIN, TN 37065
WWW.MPAGROUPLLC.COM

UTILITY DETAILS

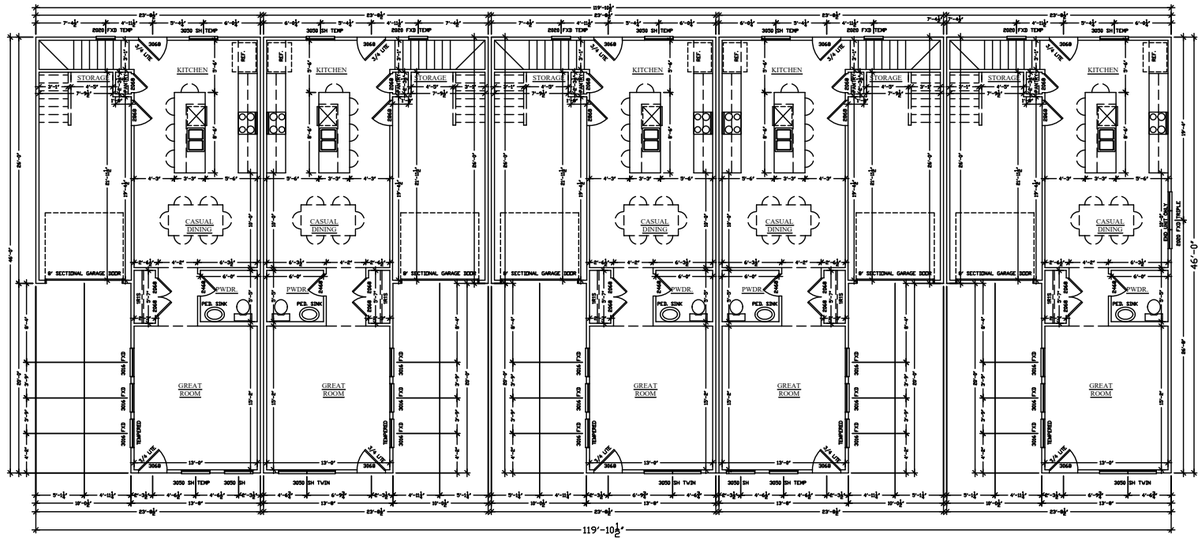
DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	MAY 22, 2023
PROJECT NO. :	22-085

SHEET NUMBER:
C601

MPA - SITE DETAILS.DWG / Monday, June 19, 2023 3:53:36 PM

NOTE: ALL BUILDING ELEMENTS MUST MEET THE REQUIREMENTS OF ARTICLE 4 BUILDING, LOT & BUILDING SITE STANDARDS, TABLE 4.3.1-D OF THE CD-4 ZONING DISTRICT.

DURING FINAL ARCHITECTURAL / BUILDING PERMIT PHASE, PLAN WILL DEMONSTRATE MINIMUM INTERIOR DIMENSION TO MEET CITY STANDARDS.



STANDARD FIRST FLOORPLAN 1/16"=1'-0"

Project

TOWNHOME

Spec. Revision Date:

Lot #	Market Home or Home Owner
#	Name:

Plan Name:

PROPOSED

Sheet Name:

STANDARD FLOORPLANS

THE JONES COMPANY of Tennessee, LLC
LIVE LARGER >> LIVEJONES.COM

Drawn By: BSR

Scale: 1/16"=1'-0"

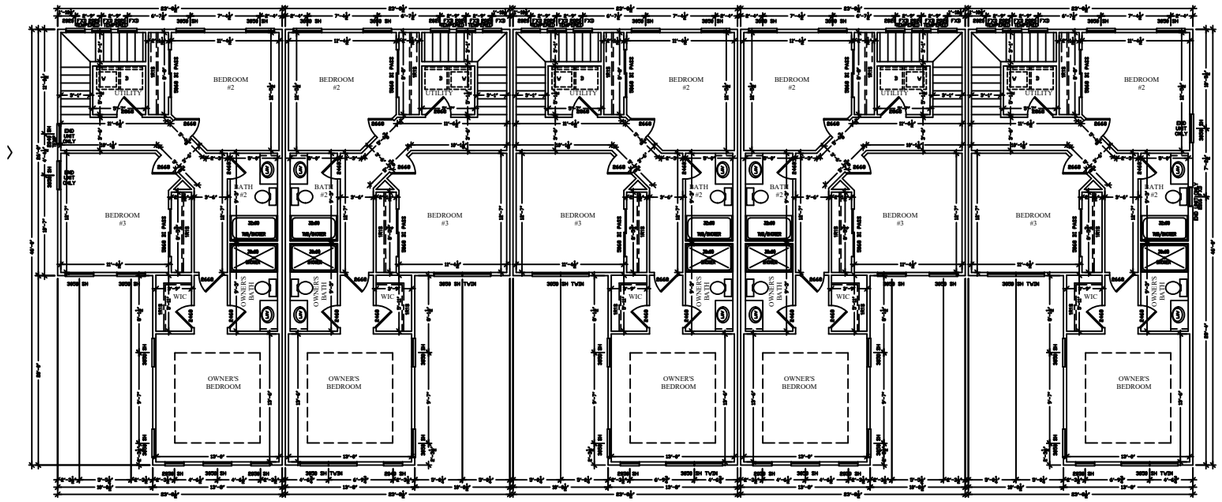
Date: XX/XX/XX

Revision Dates:

A1.0

NOTE: ALL BUILDING ELEMENTS MUST MEET THE REQUIREMENTS OF ARTICLE 4 BUILDING, LOT & BUILDING SITE STANDARDS, TABLE 4.3.1-D OF THE CD-4 ZONING DISTRICT.

DURING FINAL ARCHITECTURAL / BUILDING PERMIT PHASE, PLAN WILL DEMONSTRATE MINIMUM INTERIOR DIMENSION TO MEET CITY STANDARDS.



STANDARD SECOND FLOORPLAN 1/16"=1'-0"

Project

TOWNHOME

Spec. Revision Date:

Lot #	Market Home or Home Owner
#	Name:

Plan Name:

PROPOSED

Sheet Name:

STANDARD FLOORPLANS

THE JONES COMPANY of Tennessee, LLC
LIVE LARGER >> LIVEJONES.COM

Drawn By: BSR

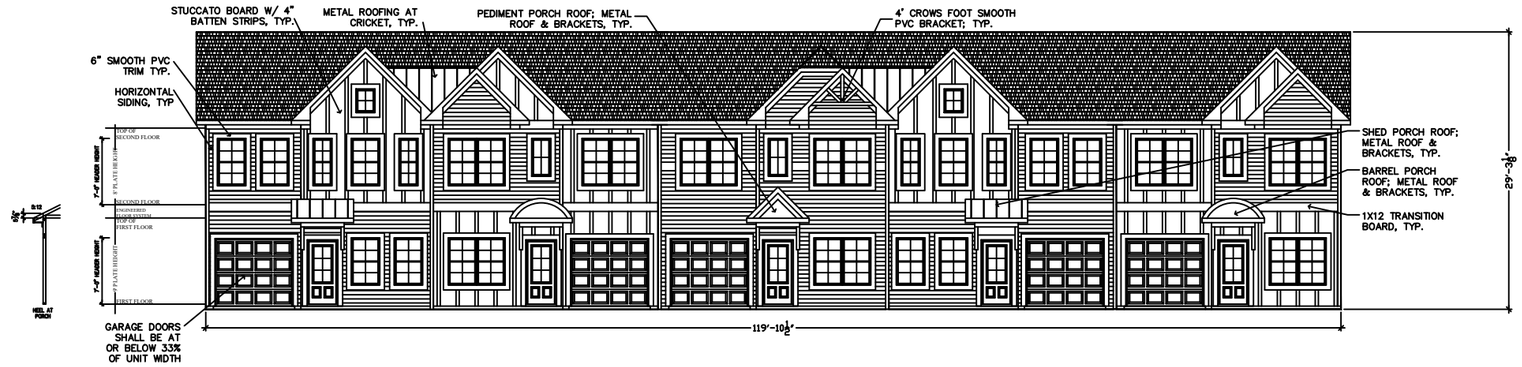
Scale: 1/16"=1'-0"

Date: XX/XX/XX

Revision Dates:

A2.0

NOTE: ALL BUILDING ELEMENTS MUST MEET THE REQUIREMENTS OF ARTICLE 4 BUILDING, LOT & BUILDING SITE STANDARDS, TABLE 4.3.1-D OF THE CD-4 ZONING DISTRICT.



FRONT ELEVATION: OPTION A

FRONT ELEVATION: OPTION B

ELEMENTS CHANGED PER INDIVIDUAL UNITS: PORCH ROOF STYLE, COLUMNS/ BRACKETS, EXTERIOR FINISHES: HORIZONTAL & VERTICAL SIDING, STUCATTO BOARD & BATTENS, VENTS, BRACKETS, ETC.

FRONT ELEVATIONS 1/16"=1'-0"

Project

TOWNHOME

Spec. Revision Date:

Lot #	Market Home or Home Owner
#	Name:

Plan Name:

PROPOSED

Sheet Name:

STANDARD FLOORPLANS

THE JONES COMPANY of Tennessee, LLC
LIVE LARGER >> LIVEJONES.COM

Drawn By: BSR

Scale: 1/16"=1'-0"

Date: XX/XX/XX

Revision Dates:

A0.0

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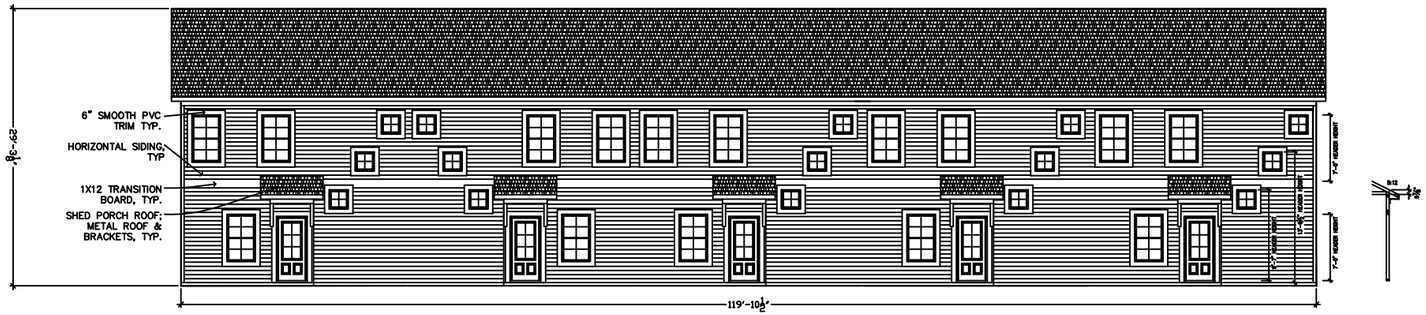
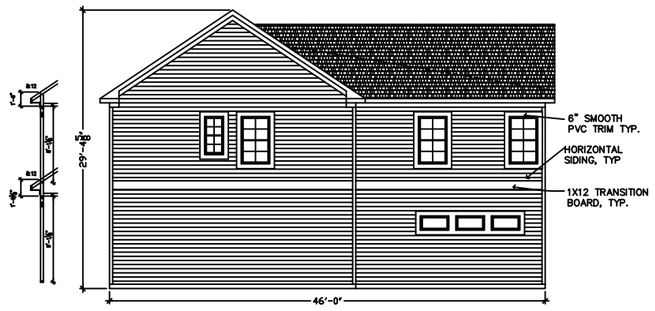
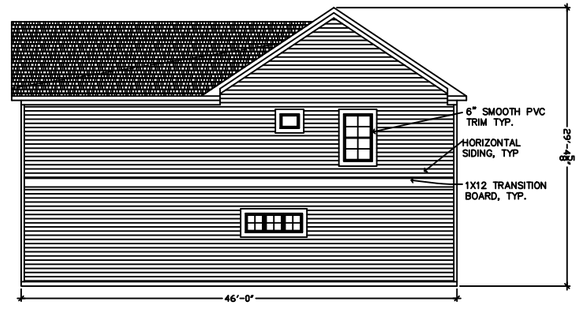


REAR ELEVATION 1/16"=1'-0"



LEFT ELEVATION 1/16"=1'-0"



RIGHT ELEVATION 1/16"=1'-0"

Project

TOWNHOME

Spec. Revision Date:

Lot #	Market Home or Home Owner
#	Name:

Plan Name:

PROPOSED

Sheet Name:

STANDARD FLOORPLANS

THE JONES COMPANY of Tennessee, LLC
LIVE LARGER >> LIVEJONES.COM

Drawn By: BSR

Scale: 1/16"=1'-0"

Date: XX/XX/XX

Revision Dates:

A0.1

NOTE: ALL BUILDING ELEMENTS MUST MEET THE REQUIREMENTS OF ARTICLE 4 BUILDING, LOT & BUILDING SITE STANDARDS, TABLE 4.3.1-D OF THE CD-4 ZONING DISTRICT.

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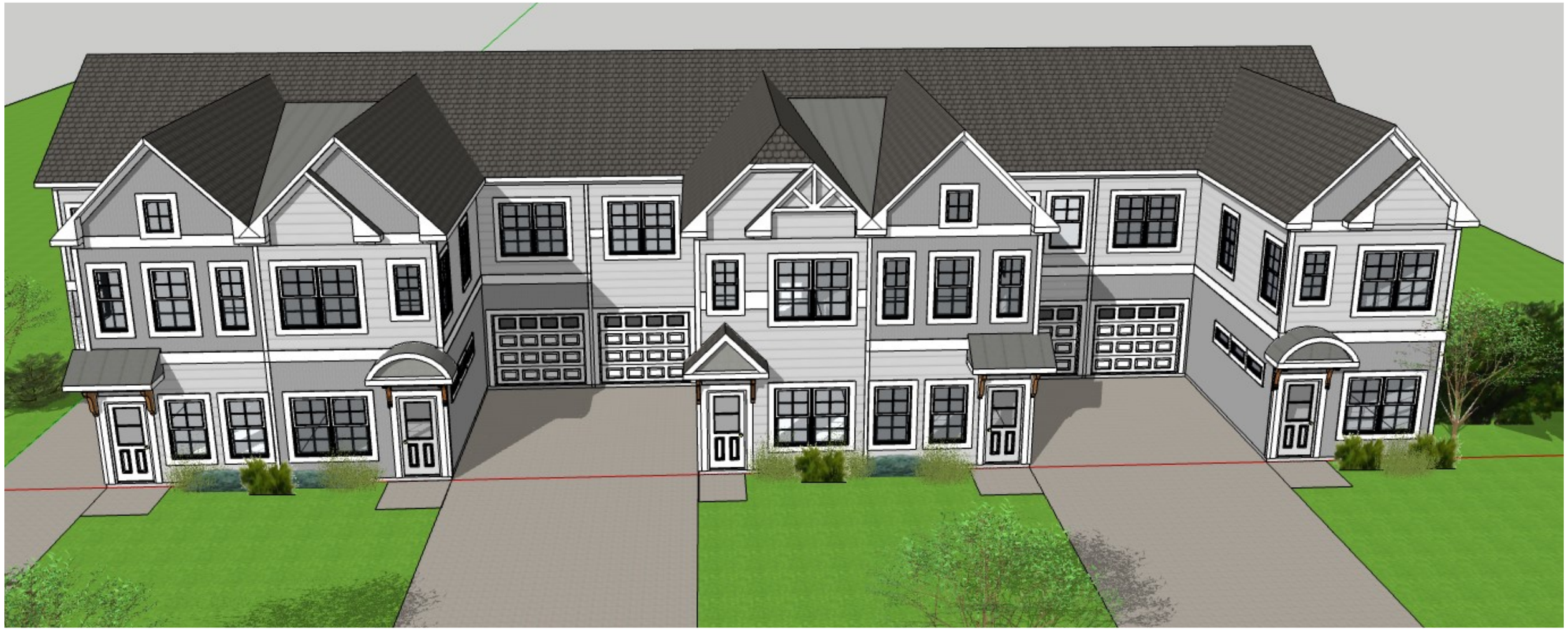

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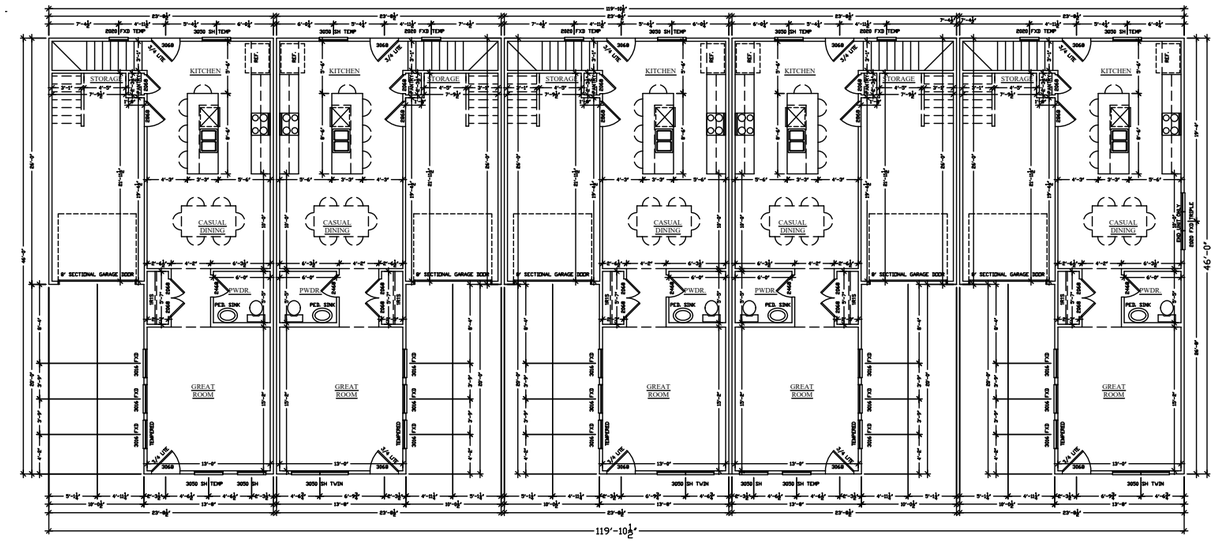

STANDARD FIRST FLOORPLAN 1/16"=1'-0"

Project

TOWNHOME

Spec. Revision Date:

Lot #	Market Home or Home Owner
#	Name:

Plan Name:

PROPOSED

Sheet Name:

STANDARD FLOORPLANS

THE JONES COMPANY of Tennessee, LLC
LIVE LARGER >> LIVEJONES.COM

Drawn By: BSR

Scale: 1/16"=1'-0"

Date: XX/XX/XX

Revision Dates:

A1.0

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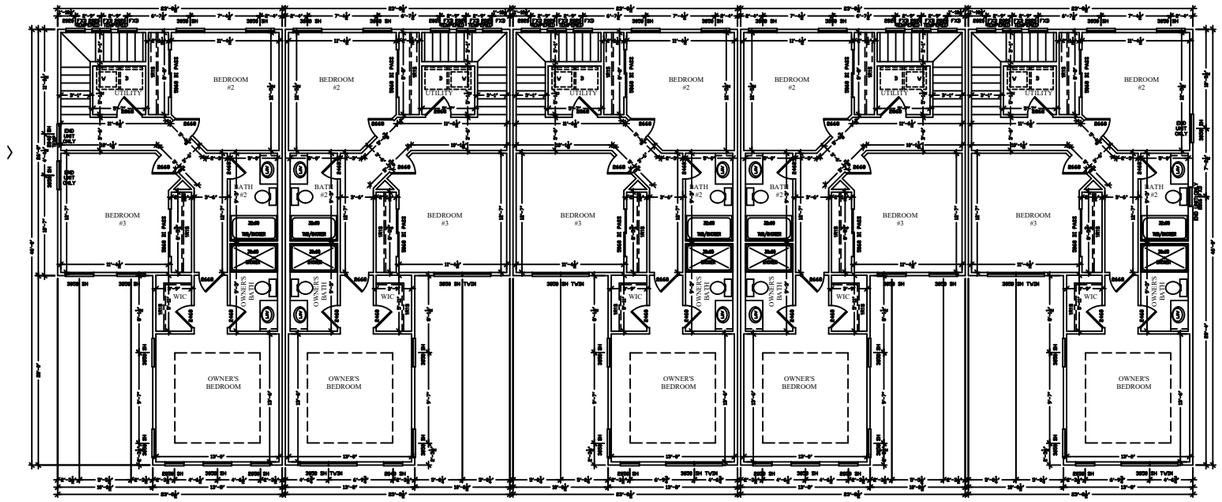


STANDARD SECOND FLOORPLAN 1/16"=1'-0"

Project
TOWNHOME
Spec. Revision Date:
Lot # / Market Home or Home Owner
/ Name:
Plan Name:
PROPOSED
Sheet Name:
STANDARD FLOORPLANS

THE JONES COMPANY of Tennessee, LLC
LIVE LARGER >> LIVEJONES.COM

Drawn By: BSR
Scale: 1/16"=1'-0"
Date: XX/XX/XX
Revision Dates:

A2.0

SITE PLAN FOR:

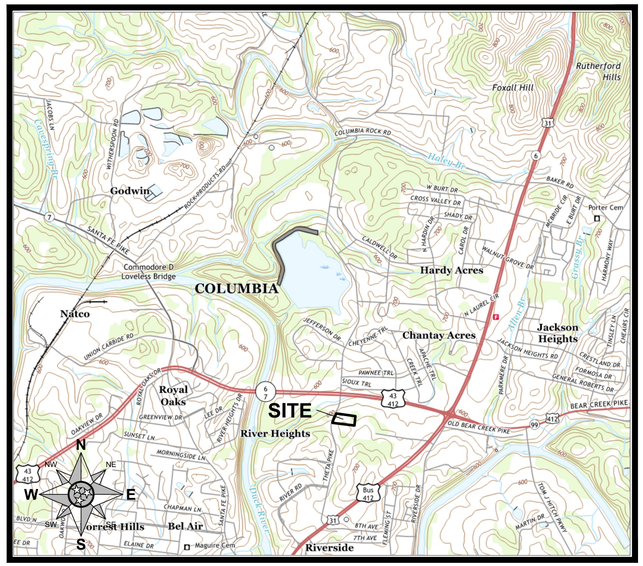
MACKENZIE PLACE

TAX MAP 90B, GROUP B, PARCEL 47.00

220 THETA PIKE

MAURY COUNTY, TENNESSEE

MAY 22, 2023



VICINITY MAP

SCALE: 1" = 2,000'

SOURCE: USGS

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
C000	COVER SHEET
C001	GENERAL NOTES
C100	EXISTING CONDITIONS & DEMOLITION PLAN
C200	SITE LAYOUT PLAN
C201	INTERSECTION SIGHT DISTANCE PLAN
C300	OVERALL GRADING & DRAINAGE PLAN
C301	ENLARGED GRADING & DRAINAGE PLAN
C302	ENLARGED GRADING & DRAINAGE PLAN
C303	ENLARGED GRADING & DRAINAGE PLAN
C304	GRADING DETAILS
C305	STORM SEWER DETAILS
C401	INITIAL EPSC PLAN
C402	INTERMEDIATE EPSC PLAN
C403	FINAL EPSC PLAN
C404	EPSC DETAILS
C500	UTILITY PLAN
C501	OFFSITE SANITARY SEWER PLAN & PROFILE
C502	SANITARY SEWER PLAN & PROFILE
C600	SITE DETAILS
C601	UTILITY DETAILS
C602	UTILITY DETAILS
LP1.0	TREE PRESERVATION PLAN
LP2.0	LANDSCAPE PLAN
A0.0	ARCHITECTURAL ELEVATIONS
A0.1	ARCHITECTURAL ELEVATIONS
A1.0	ARCHITECTURAL FIRST FLOOR PLAN
A2.0	ARCHITECTURAL SECOND FLOOR PLAN
A3.0	ARCHITECTURAL RENDERING
A3.1	ARCHITECTURAL RENDERING
A3.2	ARCHITECTURAL RENDERING
A3.3	ARCHITECTURAL RENDERING
A3.4	ARCHITECTURAL RENDERING

PROJECT NOTES:

1. WATER FOR THIS DEVELOPMENT IS TO BE PROVIDED BY COLUMBIA POWER & WATER SYSTEMS.
2. SANITARY SEWER PROVIDER FOR THIS DEVELOPMENT IS TO BE COLUMBIA POWER & WATER SYSTEMS.
3. TOPOGRAPHIC AND BOUNDARY SURVEY PREPARED BY M2 GROUP, LLC DATED MAY, 2022.
4. ELECTRIC SERVICE TO BE PROVIDED BY COLUMBIA POWER & WATER SYSTEMS.
5. GAS SERVICE TO BE PROVIDED BY ATMOS ENERGY.

FLOODPLAIN NOTE:

THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

CONTACT LIST

OWNER/DEVELOPER

WAITS DEVELOPMENT GROUP, LLC
ADDRESS: PO BOX 111285
NASHVILLE, TENNESSEE 37222
PHONE NO.:615-498-4190
CONTACT NAME: JOHN WAITS

CIVIL ENGINEER

M2 GROUP, LLC
P.O. BOX 848
FRANKLIN, TN 37065
PHONE: (615) 406-3415
CONTACT: MATT W. BRYANT, P.E.
E-MAIL: matt@m2groupllc.com

UTILITY CONTACTS:

WATER SUPPLY:
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931) 388-4833

SANITARY SEWER
COLUMBIA WASTEWATER DEPARTMENT
1244 Treatment Plant Road
COLUMBIA, TN 38401
(931) 560-1001

ELECTRIC SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TN 38401
(931) 388-4833

GAS SERVICE
ATMOS ENERGY CORPORATION
810 NASHVILLE HWY
COLUMBIA, TN 38401
(931) 388-9136

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

DESCRIPTION | DATE | REVISION #

MATTHEW W. BRYANT — REGISTERED ENGINEER — COMMERCIAL — CERTIFICATE No. — STATE OF TENNESSEE — 05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

COVER SHEET

DRAWN BY: M2G
CHECKED BY: MWB
DATE: MAY 22, 2023
PROJECT NO. : 22-085

SHEET NUMBER:
C000

M:\PA - COVER SHEET.DWG / Monday, May 22, 2023 2:10:37 PM

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTH MOVING OPERATIONS. INFORM ENGINEER OF ANY CONFLICTS DETRIMENTAL TO THE DESIGN INTENT.
2. 72 HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES: TENNESSEE 811 AND ALL OTHER AGENCIES THAT MAY HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NON-MEMBERS OF TENNESSEE 811.
3. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTORS TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
4. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND OWNER'S REPRESENTATIVE FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
5. CONTRACTOR SHALL OBTAIN A PERMIT FOR ALL CONSTRUCTION ACTIVITIES AND PERFORM SAID ACTIVITIES IN ACCORDANCE WITH ALL LOCAL, STATE, FEDERAL & OSHA REGULATIONS.
6. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL APPLICABLE PERMITS, PAY ALL REQUIRED FEES AND ATTEND REQUIRED PRE-CONSTRUCTION MEETINGS WITH CITY AND UTILITY COMPANIES PRIOR TO BEGINNING WORK.
7. ANY WORK PERFORMED IN THE LOCAL RIGHT OF WAYS SHALL BE IN ACCORDANCE WITH THE APPLICABLE LOCAL REQUIREMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS FOR THE WORK, SCHEDULE NECESSARY INSPECTIONS, AND PROVIDE THE NECESSARY TRAFFIC CONTROL MEASURES AND DEVICES, ETC., FOR WORK PERFORMED IN THE RIGHT OF WAYS.
8. THE CONTRACTOR IS TO PERFORM ALL INSPECTIONS AS REQUIRED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC) FOR THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND FURNISH OWNERS REPRESENTATIVE WITH WRITTEN REPORTS. OWNER WILL SUBMIT THE NOTICE OF INTENT (NOI) AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ORDER TO OBTAIN A NOTICE OF COVERAGE (NOC) UNDER THE STATE OF TENNESSEE NPDES PERMIT. THE CONTRACTOR WILL BE REQUIRED TO SIGN THE NOI AND SUBMIT UPDATED NOI TO THE STATE OF TENNESSEE UPON SELECTION TO COMPLETE THE CONSTRUCTION AND BE A PERMITTEE LISTED ON THE NOC.
9. CONTRACTOR SHALL IMPLEMENT ALL SOIL AND EROSION CONTROL, PRACTICES REQUIRED BY CITY OF COLUMBIA AND TDEC.
10. ALL GROUND SURFACE AREAS THAT HAVE BEEN EXPOSED OR LEFT BARE AS A RESULT OF CONSTRUCTION AND ARE TO FINAL GRADE AND ARE TO REMAIN SO, SHALL BE SEEDED AND MULCHED AS SOON AS PRACTICAL IN ACCORDANCE WITH SPECIFICATIONS.
11. ALL WORK SHALL COMPLY WITH THE TENNESSEE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND ALL CONSTRUCTION WORK SHALL BE DONE ACCORDING TO SAID SPECIFICATIONS AND IN ACCORDANCE WITH APPLICABLE STANDARDS OF CITY OF COLUMBIA SUBDIVISION REGULATIONS.
12. ALL WORK PERFORMED BY THE CONTRACTOR SHALL CONFORM TO THE LATEST REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT.
13. CONTRACTOR SHALL REFER TO OTHER PLAN SHEETS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
14. BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT THEY ARE NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.
15. WHERE CURB IS PRESENT, DIMENSIONS ARE SHOWN TO THE FACE OF CURB, OTHERWISE DIMENSIONS ARE SHOWN TO THE EDGE OF PAVEMENT OR AS NOTED.
16. SITE SIGNAGE AND STRIPING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
17. CONCRETE WALKS SHALL BE 4" THICK OVER 4" COMPACTED GRAVEL WITH CONTROL JOINTS EQUALLY SPACED AT IN ACCORDANCE WITH ACI 330R-01 AND ACI 325R 9-91, ISOLATION JOINTS AT ALL FIXED STRUCTURES (MANHOLES, INLETS, WALLS, BUILDING, ETC.). ALL SIDEWALKS ARE TO BE BROOM FINISHED.
18. CONSTRUCTION OF ALL ROADWAYS AND SIDEWALKS SHALL MEET THE REQUIREMENTS OF CITY OF COLUMBIA ROADWAY CONSTRUCTION CRITERIA AND STANDARD DETAILS.
19. CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND AS REQUIRED BY LOCAL AGENCIES WHEN WORKING IN AND/OR ALONG STREETS, ROADS, HIGHWAYS, ETC. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL AND COORDINATE WITH LOCAL AND/OR STATE AGENCIES REGARDING THE NEED, EXTENT AND LIMITATIONS ASSOCIATED WITH INSTALLING AND MAINTAINING TRAFFIC CONTROL MEASURES.
20. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL BE IN ACCORDANCE WITH ALL FEDERAL OSHA REGULATIONS. CONTRACTOR TO PAY PARTICULAR ATTENTION TO 29 CFR PART 1926, SUBPARTS M AND P.

DEMOLITION NOTES

1. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD BY THE CONTRACTOR.
2. NO TREES SHALL BE REMOVED, NOR VEGETATION DISTURBED BEYOND THE LIMITS OF CONSTRUCTION WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
3. TREE PROTECTION FENCING SHALL BE IN ACCORDANCE WITH CITY OF COLUMBIA STANDARDS AND DETAILED DRAWINGS. DO NOT OPERATE OR STORE EQUIPMENT, NOR HANDLE OR STORE MATERIALS WITHIN THE DRIP LINES OF THE TREES SHOWN TO REMAIN.
4. PROTECTION OF EXISTING TREES AND VEGETATION: PROTECT EXISTING TREES AND OTHER VEGETATION INDICATED TO REMAIN IN PLACE AGAINST UNNECESSARY CUTTING, BREAKING OR SKINNING OF ROOTS, SKINNING OR BRUISING OF BARK, SMOTHERING OF TREES BY STOCKPILING CONSTRUCTION MATERIALS OR EXCAVATED MATERIALS WITHIN DRIP LINE, EXCESS FOOT OR VEHICULAR TRAFFIC, OR PARKING OF VEHICLES WITHIN DRIP LINE. PROVIDE TEMPORARY GUARDS TO PROTECT TREES AND VEGETATION TO BE LEFT STANDING.
5. ALL DEMOLITION WASTE AND CONSTRUCTION DEBRIS, OTHER THAN TOPSOIL, SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE IN A STATE APPROVED WASTE SITE AND IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR DAMAGE ACCORDING TO THE APPROPRIATE UTILITY COMPANY STANDARDS AND AT THE CONTRACTOR'S EXPENSE.
6. ALL UTILITY DISCONNECTION, REMOVAL, RELOCATION, CUTTING, CAPPING AND/OR ABANDONMENT SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY / AGENCY. UTILITY CONTACTS ARE LISTED ON THE COVER SHEET.
7. THE BURNING OF CLEARED MATERIAL AND DEBRIS SHALL NOT BE ALLOWED UNLESS CONTRACTOR OBTAINS PRIOR WRITTEN AUTHORIZATION FROM THE LOCAL AUTHORITIES.
8. EROSION & SEDIMENT CONTROL MEASURES AROUND AREAS OF DEMOLITION SHALL BE PROPERLY INSTALLED AND FUNCTION PROPERLY PRIOR TO INITIALIZATION OF DEMOLITION ACTIVITIES.
9. HAZARDOUS MATERIALS ARE NOT EXPECTED, IF FOUND ON SITE, SUCH MATERIALS SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIALS CONTRACTOR. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY IF HAZARDOUS MATERIALS ARE ENCOUNTERED.
10. CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE, FEDERAL AND OSHA REGULATIONS DURING ALL DEMOLITION ACTIVITIES.
11. CONTRACTOR SHALL PROTECT ALL CORNER PINS, MONUMENTS, PROPERTY CORNERS AND BENCHMARKS DURING DEMOLITION ACTIVITIES. IF DISTURBED, CONTRACTOR SHALL HAVE DISTURBED ITEMS RESET BY A LICENSED SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.
12. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, STRUCTURES, AND FEATURES TO REMAIN. ANY ITEMS TO REMAIN THAT HAVE BEEN DISTURBED OR DAMAGED AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
13. THE CONTRACTOR SHALL USE SUITABLE METHODS TO CONTROL DUST AND DIRT CAUSED BY THE DEMOLITION ACTIVITIES.
14. ANY UTILITY AND STRUCTURE REMOVAL, RELOCATION, CUTTING, CAPPING AND/OR ABANDONMENT SHALL BE COORDINATED AND PROPERLY DOCUMENTED BY A CERTIFIED PROFESSIONAL, WHEN APPLICABLE, WITH THE APPROPRIATE UTILITY COMPANY, MUNICIPALITY AND/OR AGENCY. DEMOLITION OF REGULATED ITEMS MAY INCLUDE, BUT ARE NOT LIMITED TO WELLS, ASBESTOS, UNDER GROUND STORAGE TANKS, SEPTIC TANKS AND ELECTRIC TRANSFORMERS. DEMOLITION CONTRACTOR SHALL REFER TO ANY ENVIRONMENTAL STUDIES FOR DEMOLITION RECOMMENDATIONS AND GUIDANCE AVAILABLE ENVIRONMENTAL STUDIES MAY INCLUDE, BUT ARE NOT LIMITED TO PHASE I ESA, PHASE II ESA, WETLAND AND STREAM DELINEATION AND ASBESTOS SURVEY. ALL APPLICABLE ENVIRONMENTAL STUDIES SHALL BE MADE AVAILABLE UPON REQUEST.

LAYOUT NOTES

1. THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. RELOCATE EXISTING UTILITIES AS INDICATED, OR AS NECESSARY FOR CONSTRUCTION.
3. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ALL UTILITIES; INCLUDING, BUT NOT LIMITED TO, ALL UTILITIES AND CROSSINGS PRIOR TO PAVEMENT INSTALLATION.
4. ALL DAMAGE TO EXISTING PAVEMENT TO REMAIN, WHICH RESULTS FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED WITH LIKE MATERIALS AT THE CONTRACTOR'S EXPENSE.
5. SITE DIMENSIONS SHOWN ARE TO THE FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. CONTRACTOR SHALL MAINTAIN ONE SET OF AS-BUILT/RECORD DRAWINGS ON-SITE DURING CONSTRUCTION FOR DISTRIBUTION TO THE OWNER AND/OR OWNER'S REPRESENTATIVE UPON COMPLETION.
7. THIS SITE LAYOUT IS SPECIFIC TO THE APPROVALS NECESSARY FOR THE CONSTRUCTION IN ACCORDANCE WITH CITY OF COLUMBIA REQUIREMENTS. NO CHANGES TO THE SITE LAYOUT ARE ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. CHANGES MADE TO THE SITE LAYOUT WITHOUT APPROVAL IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. CHANGES INCLUDE BUT ARE NOT LIMITED TO, INCREASED IMPERVIOUS PAVEMENT, ADDITION / DELETION OF PARKING SPACES, MOVEMENT OF CURB LINES, CHANGES TO DRAINAGE STRUCTURES AND PATTERNS, LANDSCAPING, ETC.
8. CONTRACTOR SHALL PERFORM A PROOF ROLL PER CITY OF COLUMBIA REQUIREMENTS PRIOR TO STONE AND PAVEMENT INSTALLATION.
9. ALL PAVEMENT MARKINGS SHALL BE INSTALLED USING WHITE OR YELLOW, REFLECTIVE TRAFFIC MATERIALS (SEE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
10. THE CITY WILL MEASURE THE CROSS SLOPE OF FINAL CONSTRUCTED ROADWAYS WITHIN THE SUBDIVISION. THE CROSS SLOPE OF THE FINAL CONSTRUCTED ROADWAYS SHALL BE PER THE ROADWAY SECTION SHOWN ON THE CONSTRUCTION PLANS OR IT SHALL BE REPAIRED AT NO COST TO THE CITY OR OWNER.
11. OWNER SHALL PROVIDE STAKING OF THE FRONT PROPERTY LINES OF EACH LOT AND WILL SET FINAL PROPERTY CORNERS. ALL OTHER STAKING/SURVEYING THAT IS REQUIRED TO CONSTRUCT THE IMPROVEMENTS SHOWN IN THESE CONSTRUCTION PLANS IS THE RESPONSIBILITY OF THE CONTRACTOR.
12. THE ENGINEER SHALL PROVIDE FILES IN COMPUTER-AIDED-DRAFTING (CAD) FORMAT TO THE CONTRACTOR. THE CONTRACTOR WILL BE BOUND BY THE TERMS IN THE ENGINEER'S "CAD FILES DISCLAIMER, WAIVER AND LIMITATION OF LIABILITY" AGREEMENT.

GRADING NOTES

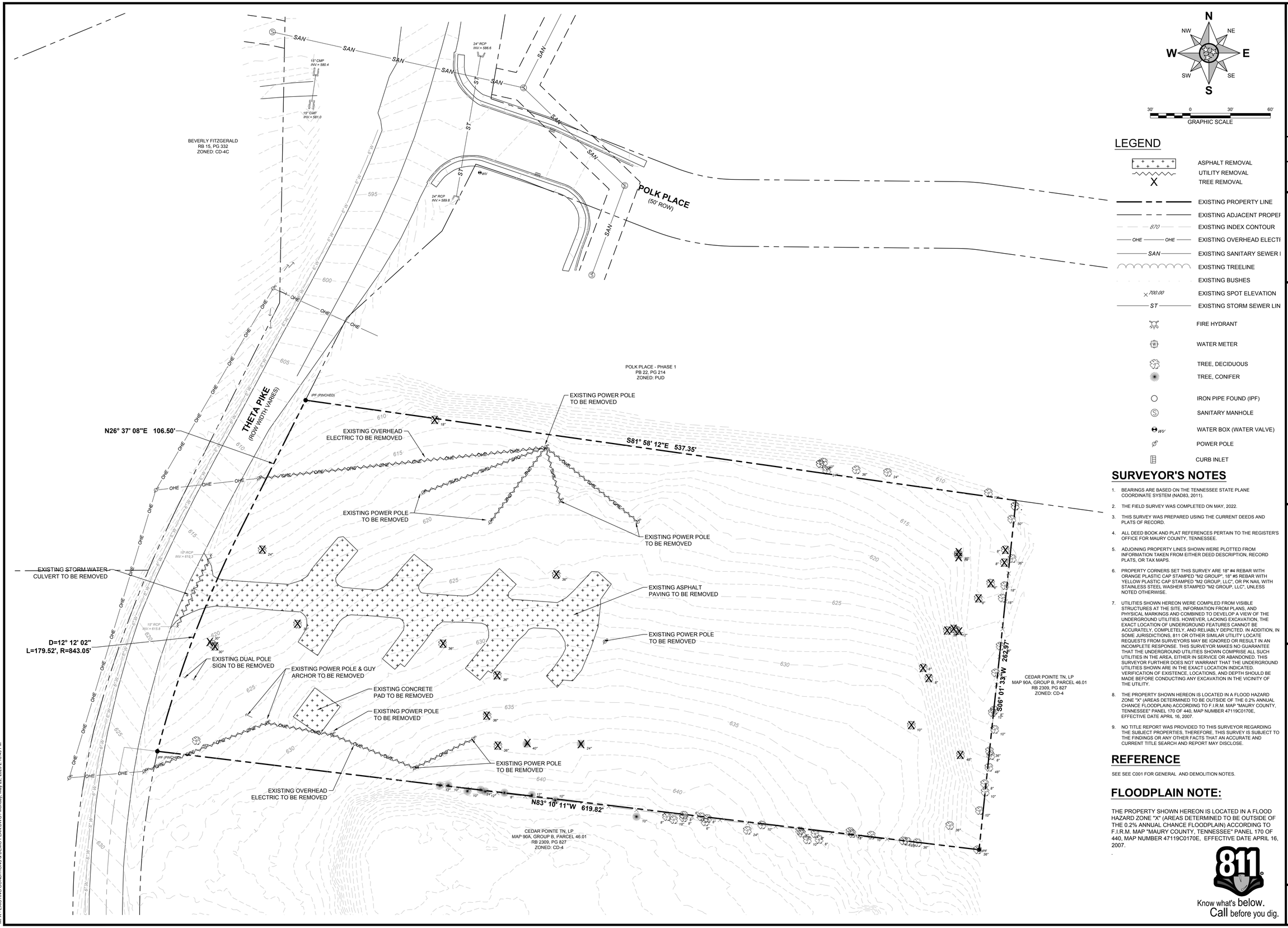
1. THE CONTRACTOR SHALL CHECK ALL EXISTING AND FINISHED GRADES, DIMENSIONS, ETC. PRIOR TO BEGINNING NOTIFY THE OWNERS REPRESENTATIVE OF ANY DISCREPANCIES AND/OR ERRORS IN THE PLANS PRIOR TO COMMENCING WORK.
2. ALL PROPOSED GRADES SHOWN ARE FINAL GRADES, TOP OF GROUND LEVEL, OR TOP OF PAVEMENT, OR GRATE ELEVATION AT THE DRAWDOWN POINT, UNLESS INDICATED OTHERWISE.
3. ALL ELEVATIONS SHOWN ARE FINISHED GRADE ELEVATIONS.
4. CONTRACTOR SHALL ADHERE TO THE EROSION & SEDIMENT CONTROL PLAN PREPARED FOR THIS PROJECT.
5. EARTHWORK SHALL INCLUDE CLEARING AND GRUBBING, STRIPPING AND STOCKPILING TOPSOIL, MASS GRADING, EXCAVATION, FILLING, UNDER CUT AND REPLACEMENT, IF REQUIRED, AND COMPACTION.
6. CONTRACTOR TO REFILL UNDERCUT AREAS (IF REQUIRED) WITH SUITABLE MATERIAL AND COMPACT AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
7. EXCAVATED SUBGRADES AND EACH LAYER OF FILL SHALL BE OF A QUALITY ACCEPTABLE TO THE OWNERS REPRESENTATIVE AND SHALL NOT INCLUDE ORGANIC MATERIAL, BOULDERS, DEBRIS, WET MATERIAL, ETC. CUT OR STRIPPED AREAS SHALL BE PROOF ROLLED PRIOR TO ANY FILLING. ALL GRADING ACTIVITY AND PLACEMENT OF MATERIAL SHALL BE MONITORED BY A QUALIFIED GEOTECHNICAL ENGINEER (OR THEIR REPRESENTATIVE), OR AS DIRECTED BY THE OWNERS REPRESENTATIVE. MATERIAL SHALL MEET OR EXCEED COMPACTION REQUIREMENTS SPECIFIED IN THE SPECIFICATIONS PUBLISHED BY CITY OF COLUMBIA.
8. PLACE TOPSOIL OVER THE SUBGRADE OF UNPAVED, DISTURBED AREAS TO A MINIMUM DEPTH OF 6". TOPSOIL SHALL BE FREE OF ROCK AND DEBRIS.
9. ALL SLOPES IN NON-PAVED AREAS SHALL BE 3:1 (HORIZONTAL:VERTICAL) MAXIMUM UNLESS NOTED OTHERWISE.
10. ALL AREAS NOT PAVED SHALL BE STABILIZED IN ACCORDANCE WITH THE EROSION & SEDIMENT CONTROL PLAN, UNLESS NOTED OTHERWISE.
11. ALL FILLS SHALL BE CONTROLLED, COMPACTED, AND INSPECTED BY AN APPROVED TESTING LABORATORY OR AN INSPECTOR FROM THE APPROPRIATE GOVERNMENTAL AGENCY.
12. ALL EXCESS SOIL MATERIALS, OTHER THAN TOPSOIL, SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE (INCLUDING ALL CHARTER COMMERCIAL, LLC PROPERTY OR FUTURE PHASES OF HIGH PARK HILL SUBDIVISION) AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE SITE EARTHWORK BY IMPORTING OR EXPORTING AS NECESSARY TO ACHIEVE DESIGN GRADES AND SPECIFICATIONS.
14. THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO ADJACENT PROPERTIES OCCURRING DURING CONSTRUCTION OF THIS PROJECT. NO WORK SHALL BE PERFORMED OUTSIDE THE PROJECT BOUNDARY WITHOUT PROPER AGREEMENTS WITH THE AFFECTED PROPERTY OWNERS.
15. THE LOCATION AND/OR ELEVATION OF THE EXISTING UTILITIES SHOWN HEREON ARE BASED ON UTILITY COMPANY RECORDS, AND WHERE POSSIBLE, FIELD MEASUREMENTS. THE CONTRACTOR SHALL NOT RELY UPON THIS INFORMATION AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 3 DAYS BUT NOT MORE THAN 10 DAYS PRIOR TO ANY EXCAVATION AND REQUEST FIELD VERIFICATION OF UTILITY LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES TO REMAIN. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED UTILITIES ACCORDING TO LOCAL CODES AT THE CONTRACTORS EXPENSE.
16. THE GENERAL CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR JOB SITE CONDITIONS, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY DURING CONSTRUCTION. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS.
17. MATERIALS NOT SUITABLE FOR FILL OR REUSE SHALL BE DISPOSED OF OFFSITE IN ACCORDANCE WITH THE REQUIREMENTS OF CITY OF COLUMBIA AND AS DIRECTED BY THE OWNER OR THEIR REPRESENTATIVE.
18. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT T.O.S.H.A. PROVISIONS AND THE MANUAL OF ACCIDENT PREVENTION AND CONSTRUCTION, ISSUED BY THE AGC OF AMERICA, INCORPORATED, AND THE SAFETY AND HEALTH REGULATIONS OF CONSTRUCTION ISSUED BY THE U.S. DEPARTMENT OF LABOR.
19. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE THROUGH THE SITE DURING ALL PHASES OF CONSTRUCTION.
20. CONTRACTOR SHALL REMOVE FROM THE LIMITS OF DISTURBANCE ALL UNSUITABLE MATERIAL, DEBRIS, LARGER BOULDERS, DELETERIOUS MATERIAL, ETC. STOCKPILING OF ANY MATERIAL IN FUTURE PHASES OF THIS SUBDIVISION IS PROHIBITED WITHOUT THE EXPRESS WRITTEN CONSENT OF THE DEVELOPER AND THE ENGINEER OF RECORD. CONSENT TO PLACE ANY MATERIAL IN FUTURE PHASES OF THIS SUBDIVISION SHALL ONLY BE GRANTED UNDER THE FOLLOWING PROVISIONS:
    - IF THE AREA IS CLEARED, MAINTAINED AND PROPER EROSION CONTROL MEASURES INSTALLED TO PREVENT EROSION OR SEDIMENT DEPOSITION.
    - MATERIAL IS PLACED AND GRADED IN A PERMANENT LOCATION THAT WILL NOT BE REQUIRED TO BE MOVED IN A FUTURE PHASE OF THIS SUBDIVISION DEVELOPMENT AND PERMANENTLY STABILIZED IN ACCORDANCE WITH TDEC AND CITY REGULATIONS.
21. ALL SOILS, REGARDLESS OF THE CHARACTER OF SURFACE AND SUBSURFACE CONDITIONS ENCOUNTERED, ARE CONSIDERED TO BE UNCLASSIFIED. THE CONTRACTOR RECOGNIZES THAT THIS PROJECT IS LOCATED IN AN AREA WHERE ROCK ENCOUNTER IS LIKELY. THE CONTRACTOR IS RESPONSIBLE TO VISIT THE SITE, MAKE ANY TESTS, BORES, TEST PITS, SURVEYS, ETC. NECESSARY TO FAMILIARIZE HIMSELF WITH ALL SPECIFIC SITE CONDITIONS RELATED TO THIS PROJECT. NO CHANGES IN THE CONTRACT SUM OR THE CONTRACT TIME WILL BE AUTHORIZED FOR ANY ROCK ENCOUNTER, THE EXCAVATION/REMOVAL THEREOF, OR DISPOSAL OF ROCK/SOIL MIX AND/OR UNSUITABLE SOIL

STORM DRAINAGE NOTES

1. DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE INSTALLATION, INSPECTION, TESTING AND FINAL ACCEPTANCE OF ALL NEW STORMWATER MANAGEMENT FACILITIES CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH ALL APPLICABLE REGULATING AGENCIES CONCERNING INSTALLATION, INSPECTION AND APPROVAL OF THE STORM DRAINAGE SYSTEM CONSTRUCTION.
3. ALL STORMWATER MANAGEMENT FACILITIES, INCLUDING COLLECTION AND CONVEYANCE STRUCTURES, SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS.
4. THE CONTRACTOR IS TO CONSTRUCT CURBS, CATCH BASINS, PIPING, ETC. AS REQUIRED TO CONVEY THE LANDSCAPED & PAVED SURFACE DRAINAGE THROUGH THE SITE.
5. STORM SEWER PIPE LABELED "RCP" SHALL BE REINFORCED CONCRETE PIPE. ALL STORM IS TO BE INSTALLED PER CITY OF COLUMBIA REQUIREMENTS AND SPECIFICATIONS.
6. STORM SEWER IS TO BE BEDDED WITH CLEAN GRANULAR MATERIAL (AGGREGATE) CONSISTING OF AASHTO #57 OR #67 STONE. BEDDING TO BE MINIMUM OF 6" BELOW & 12" ABOVE AND ON THE SIDES OF THE PIPE OR AS REQUIRED BY CITY OF COLUMBIA INSPECTOR.
7. ALL TRENCH SPOILS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
8. CONTRACTOR SHALL INCLUDE A LINE ITEM IN THEIR CONTRACT TO THE OWNER FOR REMOVAL OF ALL EROSION AND SEDIMENT CONTROL MEASURES AT THE END OF THE BOND PERIOD WITH CITY OF COLUMBIA.

EROSION AND SEDIMENT CONTROL NOTES

1. THE ISSUED NOTICE OF COVERAGE (NOC) OF THE PERMIT TO DISCHARGE CONSTRUCTION ACTIVITY STORMWATER SHALL BE POSTED NEAR THE SITE CONSTRUCTION ENTRANCE. THE CONTRACTOR SHALL HAVE THE SWPPP AND A SET OF APPROVED EPSC PLANS ON SITE AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR WILL BE REQUIRED TO SIGN THE NOTICE OF INTENT (NOI) AND SUBMIT UPDATED NOI TO THE STATE OF TENNESSEE UPON SELECTION TO COMPLETE THE CONSTRUCTION AND BE A PERMITTEE LISTED ON THE NOC.
2. PRIOR TO INSTALLATION OF EROSION CONTROL MEASURES OR INITIATION OF EARTH DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CLEARLY DELINEATE THE PROPOSED LIMITS OF DISTURBANCE IN THE FIELD UTILIZING FLAGGING, STAKES, AND/OR CONSTRUCTION FENCE. NO DISTURBANCE BEYOND THESE LIMITS SHALL BE PERMITTED WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE ENGINEER, THE AFFECTED PROPERTY OWNER AND ANY APPLICABLE REGULATORY AGENCIES.
3. THE CONSTRUCTION ACTIVITIES ANTICIPATED FOR THIS PROJECT INCLUDES GRADING, PAVING, AND UTILITY INSTALLATION.
4. ANY INCREASE IN THE APPROXIMATE TOTAL DISTURBED AREA SHALL BE APPROVED BY TDEC PRIOR TO ADDITIONAL DISTURBANCE.
5. CONSTRUCTION SHALL BE SEQUENCED BY THE CONTRACTOR AS TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREAS. PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO EARTH MOVING OPERATIONS.
6. THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE PERSON(S) RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AT THE SITE. THIS INFORMATION SHALL BE POSTED AT THE JOB SITE TRAILER, OR AT THE SITE CONSTRUCTION SIGN.
7. PRE-CONSTRUCTION VEGETATIVE GROUNDCOVER SHALL NOT BE REMOVED MORE THAN 14 DAYS PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED FOR MORE THAN 14 DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH, OR FABRIC MATTING. STEEP SLOPES (GREATER THAN 35%) SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 15 DAYS OF THE ESTABLISHMENT OF FINAL GRADES.
8. THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION AND SEDIMENT CONTROL FOR A PERIOD OF THREE YEARS AFTER COMPLETION OF CONSTRUCTION OR AS REQUIRED BY GOVERNING AUTHORITIES.
9. TEMPORARY SEEDING FOR THIS PROJECT SHALL UTILIZE TDOT, TDEC OR LOCAL STANDARDS UNLESS OTHERWISE INDICATED HEREON.
10. MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT A RATE OF 2 TONS PER ACRE. MULCH MUST BE CRIMPED INTO THE SOIL BY MECHANICAL MEANS. BROADCAST SPREADING OF MULCH IS NOT ACCEPTABLE.
11. SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED FROM EROSION. ALL STOCKPILES SHALL BE COVERED WITH TEMPORARY SEEDING AND PROTECTED WITH SILT FENCING.
12. FOR PERMANENT STABILIZATION OF ALL SLOPES 3:1 OR STEEPER, INSTALL TEMPORARY EROSION CONTROL BLANKET (TENSAR NORTH AMERICAN GREEN TCP-10 OR APPROVED EQUAL) INSTALLED PER MANUFACTURERS' RECOMMENDATIONS SHALL BE USED IN PLACE OF STRAW MULCH.
13. FOR PERMANENT STABILIZATION OF DRAINAGE SWALES, INSTALL TURF REINFORCEMENT MATTING (TENSAR NORTH AMERICAN GREEN SC250 OR APPROVED EQUAL) PER MANUFACTURERS' RECOMMENDATIONS.
14. FOR PERMANENT STABILIZATION OF PERMANENT DETENTION POND, INSTALL SOD PER MANUFACTURERS' RECOMMENDATIONS. SOD SHALL BE AS FOLLOWS: SOD SHALL BE HIGH-QUALITY TURF TYPE TALL FESCUE OF KNOWN GENETIC ORIGIN. FREE OF NOXIOUS WEEDS, DISEASE, AND INSECT PROBLEMS. SOD SHALL APPEAR HEALTHY AND VIGOROUS, AND CONFORM TO ALL SPECIFICATIONS IN THE TDEC SEDIMENT AND EROSION CONTROL HANDBOOK, LATEST EDITION.
15. THE LOCATION OF SOME OF THE EROSION CONTROL MEASURES MAY NEED TO BE ALTERED DUE TO CHANGING SITE CONDITIONS COMMENSURATE WITH PROGRESS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION AND SEDIMENT CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES OF CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
16. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER IS ESTABLISHED. SEEDED AREAS MUST HAVE A MINIMUM 70% COVERAGE (ENGINEER WILL DETERMINE APPROXIMATE PERCENTAGE OF COVER) PRIOR TO REMOVAL OF THE TEMPORARY EROSION CONTROL DEVICES. FINAL SEEDING AND ESTABLISHMENT OF GROUNDCOVER SHALL BE APPLIED TO ANY AREA DISTURBED AS A RESULT OF THE REMOVAL OF THE EROSION CONTROL MEASURES.
17. CONTRACTOR SHALL PREPARE, IMPLEMENT, AND MAINTAIN A SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PLAN, AS A SEPARATE DOCUMENT OR AS A COMPONENT OF THE SWPPP, FOR ALL TANKS/CONTAINERS STORING ONSITE FUEL, CHEMICALS, OR OTHER POLLUTANTS CONSISTENT WITH THE REQUIREMENTS OF STATE NPDES RULES. EFFECTIVE MEASURES NECESSARY TO PREVENT SPILLS AND TO CLEAN UP SPILLS OF ANY TOXIC POLLUTANT, AS DOCUMENTED IN THE FACILITY'S SPCC PLAN, SHALL BE FULLY IMPLEMENTED. SOIL CONTAMINATED BY HAZARDOUS SUBSTANCES, PAINTS, FUEL, OR CHEMICAL SPILLS, SHALL BE IMMEDIATELY CLEANED UP, MANAGED, AND DISPOSED OF IN AN APPROVED MANNER. WHERE POTENTIAL SPILLS CAN OCCUR, MATERIALS HANDLING PROCEDURES SHALL BE SPECIFIED AND PROCEDURES FOR IMMEDIATE CLEANUP/REMEDIATION OF SPILLS SHALL BE DESCRIBED IN THE SPCC PLAN OR EMPLOYEE TRAINING PLANS. THE EQUIPMENT NECESSARY TO IMPLEMENT A CLEANUP SHALL BE MADE AVAILABLE TO FACILITY PERSONNEL. THE OPERATOR SHALL IMMEDIATELY NOTIFY THE DESIGNATED STATE AND LOCAL GOVERNMENT AGEN



N
NW NE
W E
SW SE
S

30' 0 30' 60'
GRAPHIC SCALE

LEGEND

- ASPHALT REMOVAL
- UTILITY REMOVAL
- TREE REMOVAL
- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPEF
- EXISTING INDEX CONTOUR
- EXISTING OVERHEAD ELECTI
- EXISTING SANITARY SEWER I
- EXISTING TREELINE
- EXISTING BUSHES
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER LIN
- FIRE HYDRANT
- WATER METER
- TREE, DECIDUOUS
- TREE, CONIFER
- IRON PIPE FOUND (IPF)
- SANITARY MANHOLE
- WATER BOX (WATER VALVE)
- POWER POLE
- CURB INLET

SURVEYOR'S NOTES

1. BEARINGS ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83, 2011).
2. THE FIELD SURVEY WAS COMPLETED ON MAY, 2022.
3. THIS SURVEY WAS PREPARED USING THE CURRENT DEEDS AND PLATS OF RECORD.
4. ALL DEED BOOK AND PLAT REFERENCES PERTAIN TO THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
5. ADJOINING PROPERTY LINES SHOWN WERE PLOTTED FROM INFORMATION TAKEN FROM EITHER DEED DESCRIPTION, RECORD PLATS, OR TAX MAPS.
6. PROPERTY CORNERS SET THIS SURVEY ARE 18" #4 REBAR WITH ORANGE PLASTIC CAP STAMPED "M2 GROUP", 18" #5 REBAR WITH YELLOW PLASTIC CAP STAMPED "M2 GROUP, LLC", OR PK NAIL WITH STAINLESS STEEL WASHER STAMPED "M2 GROUP, LLC", UNLESS NOTED OTHERWISE.
7. UTILITIES SHOWN HEREON WERE COMPILED FROM VISIBLE STRUCTURES AT THE SITE, INFORMATION FROM PLANS, AND PHYSICAL MARKINGS AND COMBINED TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. IN ADDITION, IN SOME JURISDICTIONS, 811 OR OTHER SIMILAR UTILITY LOCATE REQUESTS FROM SURVEYORS MAY BE IGNORED OR RESULT IN AN INCOMPLETE RESPONSE. THIS SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THIS SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. VERIFICATION OF EXISTENCE, LOCATIONS, AND DEPTH SHOULD BE MADE BEFORE CONDUCTING ANY EXCAVATION IN THE VICINITY OF THE UTILITY.
8. THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.
9. NO TITLE REPORT WAS PROVIDED TO THIS SURVEYOR REGARDING THE SUBJECT PROPERTIES, THEREFORE, THIS SURVEY IS SUBJECT TO THE FINDINGS OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH AND REPORT MAY DISCLOSE.

REFERENCE

SEE SEE C001 FOR GENERAL AND DEMOLITION NOTES.

FLOODPLAIN NOTE:

THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

Know what's below.
Call before you dig.

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN
REGISTERED LAND SURVEYOR
NUMBER 2611
COMMERCIAL
CERTIFICATE NO.
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

EXISTING CONDITIONS & DEMOLITION PLAN

DATE :	DRAWN BY :	CHECKED BY :
MAY 22, 2023	M2G	MWB

PROJECT NO. : 22-085

SHEET NUMBER:
C100

MPA - EXISTING CONDITIONS & DEMO PLAN.DWG / Monday, May 22, 2023 2:10:49 PM

N
NW NE
W E
SW SE
S

30' 0 30' 60'
GRAPHIC SCALE

SITE PLAN KEY NOTES

1. 2' WIDE x 18' LONG THERMOPLASTIC STOP BAR
2. STOP / STREET SIGN (REF. SHEET C600)
3. PROPOSED LIGHT POLE/FIXTURE, SEE SITE PHOTOMETRICS PLAN
4. 5' CONCRETE SIDEWALK (REF SHEET C600)
5. CURB AND GUTTER (TYP.) (REF. SHEET C600)
6. CURB TAPER (REF. SHEET C6.0)
7. ADA RAMP (REF. SHEET C6.0)
8. 2' WIDE CURB CUT
9. UNIT PARKING (2 SPACES PER UNIT)

LOCAL NOTE:

PROJECT IS INTENDED TO BE PLATTED AND RECORDED UNDER THE HORIZONTAL PROPERTY REGIME STANDARDS OF THE STATE OF TENNESSEE. THEREFORE A PRELIMINARY PLAT AND FINAL PLAT ARE NOT REQUIRED.

SITE DATA TABLE		
ZONING	CD-4	
TOTAL LOT AREA	3.59	AC.
TOTAL NUMBER OF UNITS	34	EA.
DENSITY	9.47	UNITS / AC.
PARKING SPACES REQUIRED	68	EA.
PARKING SPACES PROVIDED	68	EA.
FRONT YARD SETBACK	6' - 20'	L.F.
SIDE YARD SETBACK	6	L.F.
REAR YARD SETBACK	6	L.F.

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

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
AGRICULTURE
COMMERCIAL
CERTIFICATE NO. 120,143
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

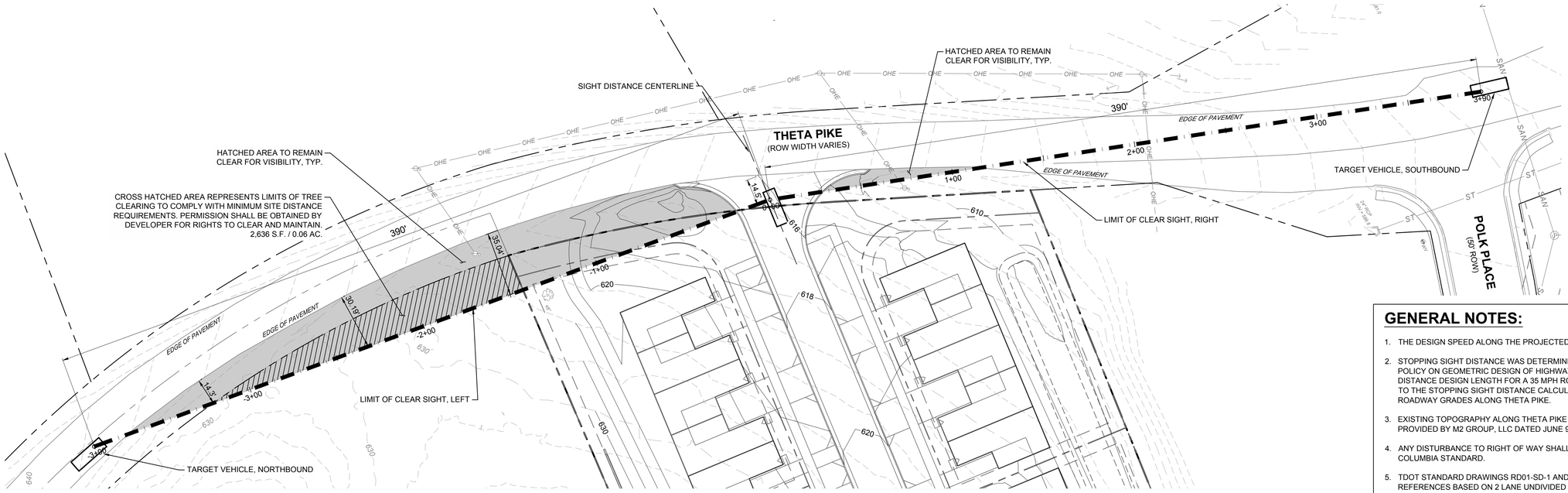
M2G GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

SITE LAYOUT PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

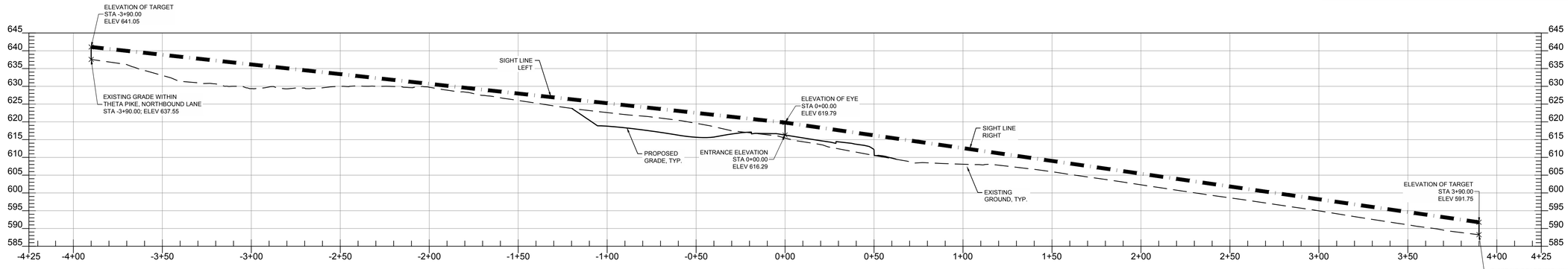
SHEET NUMBER:
C200

MPA - SITE LAYOUT PLAN.DWG | Monday, May 22, 2023 2:10:57 PM



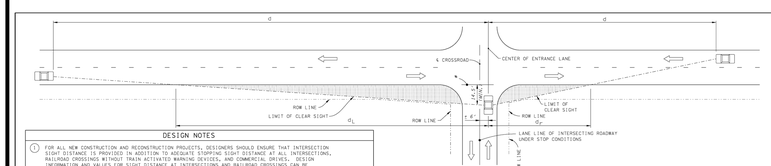
GENERAL NOTES:

1. THE DESIGN SPEED ALONG THE PROJECTED CORRIDOR OF THETA PIKE IS 35 MPH.
2. STOPPING SIGHT DISTANCE WAS DETERMINED UTILIZING THE AASHTO GREEN BOOK - A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS. THE STOPPING SIGHT DISTANCE DESIGN LENGTH FOR A 35 MPH ROADWAY ON FLAT GRADE IS 390 FT. REFER TO THE STOPPING SIGHT DISTANCE CALCULATIONS BELOW WHICH ACCOUNT FOR ROADWAY GRADES ALONG THETA PIKE.
3. EXISTING TOPOGRAPHY ALONG THETA PIKE IS DERIVED FROM TOPOGRAPHIC SURVEY PROVIDED BY M2 GROUP, LLC DATED JUNE 9, 2022.
4. ANY DISTURBANCE TO RIGHT OF WAY SHALL BE RESURFACED AS PER CITY OF COLUMBIA STANDARD.
5. TDOT STANDARD DRAWINGS RD01-SD-1 AND RD01-SD-3 WERE UTILIZED AS DESIGN REFERENCES BASED ON 2 LANE UNDIVIDED ROADWAY - SYMMETRICAL LAYOUT.



SIGHT DISTANCE PROFILE

SCALE H:1"=30'; V:1"=15'



ORIGIN OF CLEAR SIGHT LINE ON MINOR ROAD, STOP CONDITIONS

DEFINITIONS

- d =CLEAR LINE SIGHT DISTANCE
- d_R= CLEAR LINE OF SIGHT DISTANCE TO THE RIGHT
- d_L= CLEAR LINE OF SIGHT DISTANCE TO THE LEFT
- d_M= DISTANCE MEASURED FROM THE CENTERLINE OF THE ENTRANCE LANE OF THE MINOR ROADWAY TO A POINT ON THE MEDIAN CLEAR ZONE LIMIT OR HORIZONTAL CLEARANCE LIMIT FOR THE FAR SIDE ROADWAY OF THE MAJOR ROADWAY (SEE SHEET RD01-SD-3)

\# EDGE OF MAJOR ROAD TRAVELED WAY; THE TRAVELED WAY IS THE PORTION OF THE ROADWAY FOR THE MOVEMENT OF VEHICLES, EXCLUSIVE OF SHOULDERS, PARKING SPACES AND MARKED BICYCLE LANES.

DESIGN NOTES

1. FOR ALL NEW CONSTRUCTION AND RECONSTRUCTION PROJECTS, DESIGNERS SHOULD ENSURE THAT INTERSECTION SIGHT DISTANCE IS PROVIDED IN ADDITION TO STOPPING SIGHT DISTANCE AT ALL INTERSECTIONS, RAILROAD CROSSINGS WITHOUT TRAIN ACTUATED WARNING DEVICES, AND COMMERCIAL DRIVES. DESIGN INFORMATION AND VALUES FOR SIGHT DISTANCE AT INTERSECTIONS AND RAILROAD CROSSINGS CAN BE FOUND IN THE 2001 "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" (AASHTO GREEN BOOK), CHAPTER 9, INTERSECTIONS.
2. INTERSECTION SIGHT DISTANCE SHOULD ALSO BE PROVIDED AT ALL PRIVATE DRIVES AND FIELD ENTRANCES WHEN FEASIBLE. IN THE EVENT THAT INTERSECTION SIGHT DISTANCE CANNOT BE ACHIEVED, THE DESIGNER SHALL VERIFY THAT STOPPING SIGHT DISTANCE IS PROVIDED. INTERSECTION SIGHT DISTANCE SHOULD ALWAYS BE PROVIDED FOR A LEFT TURN MOVEMENT FROM THE MAJOR ROAD INTO A PRIVATE DRIVE OR FIELD ENTRANCE.
3. DESIGNERS SHOULD CONSIDER ALL FEATURES THAT COULD LIMIT ADEQUATE SIGHT DISTANCE INCLUDING BUILDINGS, PARKED VEHICLES, HIGHWAY STRUCTURES, ROADSIDE HARDWARE, HEDGES, TREES, BUSHES, UNMOWED GRASS, TALL CROPS, WALLS, FENCES, SLOPES, AND THE TERRAIN ITSELF. THE DETERMINATION OF WHETHER AN OBJECT CONSTITUTES A SIGHT OBSTRUCTION SHOULD CONSIDER THE HORIZONTAL AND VERTICAL ALIGNMENT OF BOTH INTERSECTING ROADWAYS, AS WELL AS THE WEIGHT AND POSITION OF THE OBJECT. IN MAKING THIS DETERMINATION, THE ASSUMED DRIVER'S EYE SHOULD BE 3.5 FT. ABOVE THE SURFACE OF THE INTERSECTING ROAD FOR PASSENGER CARS. FOR LANDSCAPING, THE MATURE SIZE OF THE ITEM SHALL BE USED.
4. IN AREAS OF LIMITED RIGHT-OF-WAY ACQUISITION SUCH AS A CURB AND GUTTER SECTION, ADDITIONAL RIGHT-OF-WAY MAY NEED TO BE ACQUIRED TO ENSURE THAT INTERSECTION SIGHT DISTANCE CAN BE ACHIEVED OR MAINTAINED. IN THE EVENT THAT IT IS NOT FEASIBLE TO OBTAIN MINIMUM INTERSECTION SIGHT DISTANCE, THE DESIGNER SHALL VERIFY THAT STOPPING SIGHT DISTANCE IS PROVIDED. IN THIS EVENT, THE PROJECT DESIGN MANAGER WILL DOCUMENT IN THE PROJECT FILE THE REASON AND STEPS TAKEN TO MITIGATE. INTERSECTION SIGHT DISTANCE IS NOT ONE OF THE THIRTEEN CONTROLLING ELEMENTS OF DESIGN AS DETAILED IN SECTION 3-110.00 OF THE ROADWAY DESIGN GUIDELINES. THEREFORE, DESIGN EXCEPTIONS NEED NOT BE SUBMITTED.
5. DESIGNERS SHALL SHOW SIGHT LINES FOR ALL INTERSECTIONS IN THE DESIGN CADD FILE. SIGHT LINES SHALL ONLY BE SHOWN ON THE PRESENT AND PROPOSED LAYOUT SHEETS WHEN RIGHT-OF-WAY IS REQUIRED FOR THE PURPOSE OF ESTABLISHING OR MAINTAINING INTERSECTION SIGHT DISTANCE. SIGHT LINES SHOULD ALSO BE SHOWN FOR ALL INTERSECTIONS AND DRIVES ON ALL LANDSCAPING PLANS.
6. THE MINIMUM DRIVER EYE SETBACK OF 14.5' FROM THE EDGE OF THE TRAVELED WAY MAY BE ADJUSTED ON ANY INTERSECTION LEG ONLY WHEN JUSTIFIED BY A SITE SPECIFIC FIELD STUDY OF VEHICLE STOPPING POSITION AND DRIVER EYE POSITION.
7. FOR SIGNALIZED INTERSECTIONS SIGHT DISTANCES SHOULD BE DEVELOPED BASED ON AASHTO "CASE D: INTERSECTIONS WITH TRAFFIC SIGNAL CONTROL". AT SIGNALIZED INTERSECTIONS, THE FIRST VEHICLE STOPPED ON ONE APPROACH SHOULD BE VISIBLE TO THE DRIVER OF THE FIRST VEHICLE STOPPED ON EACH OF THE OPPOSING APPROACHES. THIS ALLOWS DRIVERS TO SEE GAPS IN OPPOSING TRAFFIC AND GAPS IN ONCOMING TRAFFIC AND COMPLETE LEFT TURNS. APART FROM THESE SIGHT CONDITIONS, THERE ARE GENERALLY NO OTHER APPROACH OR DEPARTURE SIGHT TRIANGLES NEEDED FOR SIGNALIZED INTERSECTIONS. HOWEVER, IF THE TRAFFIC SIGNAL IS TO BE PLACED ON TWO-WAY FLASHING OPERATION (I.E. FLASHING YELLOW IN THE MAJOR-ROAD APPROACHES AND FLASHING RED ON THE MINOR-ROAD APPROACHES) UNDER OFF-PEAK OR NIGHTTIME CONDITIONS, THE SIGHT TRIANGLES FOR STOP-CONTROLLED APPROACHES (SEE NOTE 8 AND FIGURE 9-13) FOR THE MINOR ROAD SHOULD BE PROVIDED FOR THE MINOR-ROAD APPROACHES. IN ADDITION, IF RIGHT TURNS ON A RED SIGNAL ARE TO BE PERMITTED FROM ANY APPROACH, THEN THE APPROPRIATE DEPARTURE SIGHT TRIANGLE TO THE LEFT FOR CASE B2 SHOULD BE PROVIDED TO ACCOMMODATE RIGHT TURNS FROM THAT APPROACH.
8. WHERE CURVATURE, SUPERELEVATION, ADVERSE SPLIT PROFILES OR OTHER CONDITIONS PRECLUDE THE USE OF STANDARD TREE SIZES AND SPACING, PROOF OF VIEW AND SIGHT DISTANCE RESTRAINTS SHOULD BE DETAILED IN THE PLANS.
9. INTERSECTION SIGHT DISTANCE VALUES ARE PROVIDED FOR PASSENGER VEHICLES, SINGLE UNIT (SU) VEHICLES AND COMBINATION VEHICLES. INTERSECTION SIGHT DISTANCE BASED ON THE PASSENGER VEHICLE IS SUITABLE FOR MOST INTERSECTIONS. WHERE SUBSTANTIAL VOLUMES OF HEAVY VEHICLES ENTER THE MAJOR-ROAD, SUCH AS FROM RAMP TERMINALS WITH STOP CONTROL OR ROADWAYS SERVING TRUCK TERMINALS, THE USE OF TABULATED VALUES FOR I SU1 VEHICLES OR COMBINATION VEHICLES SHOULD BE CONSIDERED.
10. THE INFORMATION SHOWN IS INTENDED SOLELY FOR THE PURPOSE OF CLEAR SIGHT DEVELOPMENT AND MAINTENANCE AT INTERSECTING HIGHWAYS, ROADS AND STREETS, AND IS NOT INTENDED TO BE USED TO ESTABLISH ROADWAY AND ROADSIDE SAFETY EXCEPT AS RELATED TO INTERSECTION SIGHT CORRIDORS.
11. THE INTERSECTION SIGHT DISTANCE TABLES DO NOT SUPERCEDE AASHTO STOPPING SIGHT DISTANCE REQUIREMENTS. THE DESIGNER MUST ENSURE THAT STOPPING SIGHT DISTANCES ARE MET.
12. DETAILS ARE BASED ON THE AASHTO "A POLICY ON GEMETRIC DESIGN OF HIGHWAYS AND STREETS, 2001", CHAPTER 9, INTERSECTION SIGHT DISTANCE, CASES B AND F, AND THE DEPARTMENT PRACTICES FOR CHANNELIZED MEDIAN OPENINGS (LEFT TURNS ON MAJOR ROADWAYS).

GENERAL NOTES

A. DETAILS APPLY TO BOTH RURAL AND URBAN INTERSECTIONS UNDER STOP SIGN CONTROL OR FLASHING BEACON CONTROL. FOR FULL SIGNAL CONTROLLED INTERSECTIONS SEE DESIGN NOTE NO 7.

B. INTERSECTION SIGHT DISTANCE (id) APPLIES TO NORMAL AND SKEWED INTERSECTIONS (INTERSECTING ANGLES FROM 60° TO 120°) WITH TWO-LANE HIGHWAYS. FOR SKEWED INTERSECTIONS WITH ANGLES LESS THAN PRESENT, SIGHT DISTANCE (id) IS MEASURED ALONG THE MAJOR ROADWAY FROM THE CENTER OF THE ENTRANCE LANE OF THE MINOR ROADWAY TO THE CENTER OF THE NEAR APPROACH LANE (RIGHT OR LEFT) OF THE MAJOR ROADWAY. DISTANCES d_L AND d_R ARE MEASURED FROM THE CENTERLINE OF THE ENTRANCE LANE (CROSS ROAD) OF THE MINOR ROADWAY TO A POINT ON THE EDGE OF THE NEAR SIDE OUTER TRAFFIC LANE ON THE MAJOR ROADWAY. DISTANCE d_M IS MEASURED FROM THE CENTERLINE OF THE ENTRANCE LANE OF THE MINOR ROADWAY TO A POINT ON THE MEDIAN CLEAR ZONE LIMIT OR HORIZONTAL CLEARANCE LIMIT FOR THE FAR SIDE ROADWAY OF THE MAJOR ROADWAY.

C. 1. THE LIMITS OF CLEAR SIGHT DEFINE A CORRIDOR THROUGHOUT WHICH A CLEAR LINE OF SIGHT MUST BE PRESERVED. SEE VERTICAL LIMITS OF CLEAR SIGHT DETAIL ON SHEET RD01-SD-2.
2. PERMANENT FIXED OBJECTS, INCLUDING PARKED VEHICLES AT INTERSECTION STOP LOCATIONS AND VEHICLES ON THE MAJOR ROADWAY WITHIN DIMENSION "c".
3. SINCE OBSERVATIONS ARE MADE IN BOTH DIRECTIONS ALONG THE LINE OF SIGHT, THE REFERENCE DATUM BETWEEN ROADWAYS IS 3'-6" ABOVE RESPECTIVE PAVEMENTS.

D. BARRIER SYSTEMS WITHIN INTERSECTION SIGHT CORRIDORS, WHERE PENETRATION INTO THE CLEAR LINE OF SIGHT MIGHT OCCUR, SHALL BE LOCATED TO PROVIDE THE LEAST ADVERSE AFFECT PRACTICAL.

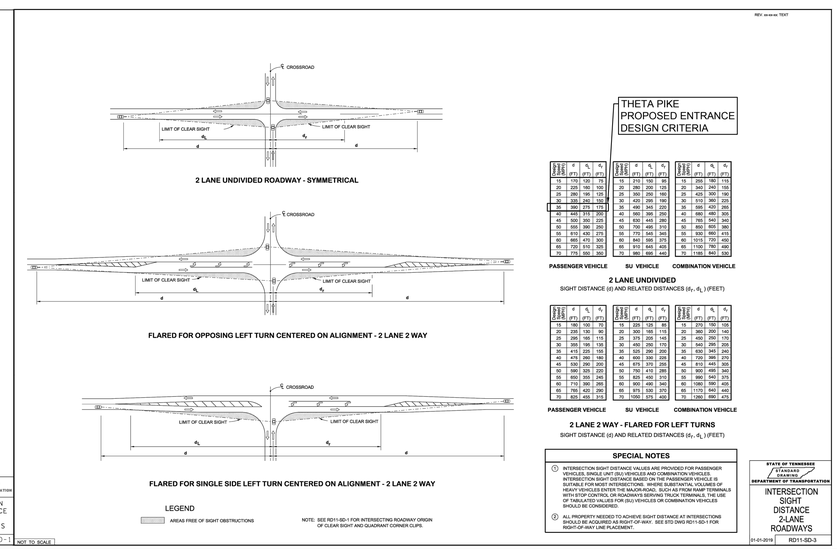
E. ALL PROPERTY NEEDED TO ACHIEVE SIGHT DISTANCE AT INTERSECTIONS SHOULD BE ACQUIRED AS RIGHT-OF-WAY.

F. SIGHT DISTANCE VALUES IN THESE STANDARD DRAWINGS ARE APPROXIMATE FOR GENERALLY FLAT AREAS WHERE THE ROADWAY GRADES ARE IN THE APPROXIMATE RANGE OF 0% TO 6%. FOR LOCATIONS WHERE ROADWAYS ARE CURVED OR WITH GRADES OUTSIDE THE 0% TO 6% RANGE, SIGHT DISTANCE SHOULD BE CALCULATED TO ENSURE THAT IT WILL COMPLY WITH AASHTO "A POLICY FOR GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AS CURRENTLY ADOPTED BY TDOT.

LEGEND

AREAS FREE OF SIGHT OBSTRUCTIONS

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
INTERSECTION SIGHT DISTANCE DESIGN AND GENERAL NOTES
10-1-08 RD01-SD-1 NOT TO SCALE



THETA PIKE
PROPOSED ENTRANCE
DESIGN CRITERIA

2 LANE UNDIVIDED ROADWAY				2 LANE 2 WAY - FLARED FOR LEFT TURNS				2 LANE 2 WAY - FLARED FOR LEFT TURNS			
DESIGN SPEED (MPH)	d (FT)	d_L (FT)	d_R (FT)	DESIGN SPEED (MPH)	d (FT)	d_L (FT)	d_R (FT)	DESIGN SPEED (MPH)	d (FT)	d_L (FT)	d_R (FT)
15	170	105	75	15	170	155	95	15	205	190	115
20	225	160	105	20	280	250	125	20	340	240	155
25	280	195	135	25	350	295	165	25	425	360	195
30	335	245	170	30	420	390	190	30	510	360	225
35	390	310	205	35	490	445	220	35	595	505	260
40	445	410	240	40	560	505	255	40	680	650	295
45	500	500	275	45	630	645	290	45	765	840	340
50	555	590	310	50	700	695	310	50	850	805	380
55	610	690	375	55	770	845	345	55	930	980	415
60	665	810	405	60	840	990	375	60	1015	720	450
65	720	510	325	65	910	645	405	65	1100	780	490
70	775	580	350	70	980	695	445	70	1185	840	530
PASSENGER VEHICLE		SU VEHICLE		COMBINATION VEHICLE							

2 LANE UNDIVIDED
SIGHT DISTANCE (d) AND RELATED DISTANCES (d_R, d_L) (FEET)

2 LANE 2 WAY - FLARED FOR LEFT TURNS				2 LANE 2 WAY - FLARED FOR LEFT TURNS				2 LANE 2 WAY - FLARED FOR LEFT TURNS			
DESIGN SPEED (MPH)	d (FT)	d_L (FT)	d_R (FT)	DESIGN SPEED (MPH)	d (FT)	d_L (FT)	d_R (FT)	DESIGN SPEED (MPH)	d (FT)	d_L (FT)	d_R (FT)
15	190	105	75	15	225	120	85	15	270	155	105
20	235	130	80	20	305	165	115	20	360	200	140
25	280	165	115	25	375	205	145	25	450	250	170
30	350	195	135	30	450	250	170	30	540	295	205
35	410	235	155	35	525	290	200	35	630	340	245
40	475	260	180	40	600	330	225	40	720	385	270
45	530	290	205	45	675	370	255	45	810	445	305
50	590	325	225	50	750	410	285	50	900	495	340
55	650	355	245	55	825	450	310	55	990	540	375
60	710	390	265	60	900	490	340	60	1080	590	405
65	765	420	290	65	975	535	370	65	1170	640	440
70	825	455	315	70	1050	575	400	70	1260	690	475
PASSENGER VEHICLE		SU VEHICLE		COMBINATION VEHICLE							

2 LANE 2 WAY - FLARED FOR LEFT TURNS
SIGHT DISTANCE (d) AND RELATED DISTANCES (d_R, d_L) (FEET)

SPECIAL NOTES

1. INTERSECTION SIGHT DISTANCE VALUES ARE PROVIDED FOR PASSENGER VEHICLES, SINGLE UNIT (SU) VEHICLES AND COMBINATION VEHICLES. INTERSECTION SIGHT DISTANCE BASED ON THE PASSENGER VEHICLE IS SUITABLE FOR MOST INTERSECTIONS. WHERE SUBSTANTIAL VOLUMES OF HEAVY VEHICLES ENTER THE MAJOR-ROAD, SUCH AS FROM RAMP TERMINALS WITH STOP CONTROL OR ROADWAYS SERVING TRUCK TERMINALS, THE USE OF TABULATED VALUES FOR I SU1 VEHICLES OR COMBINATION VEHICLES SHOULD BE CONSIDERED.
2. ALL PROPERTY NEEDED TO ACHIEVE SIGHT DISTANCE AT INTERSECTIONS SHOULD BE ACQUIRED AS RIGHT-OF-WAY. SEE STD DWG RD11-SD-1 FOR RIGHT-OF-WAY LINE PLACEMENT.

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION
INTERSECTION SIGHT DISTANCE 2-LANE ROADWAYS
01-01-2019 RD11-SD-3

NORTHBOUND STOPPING SIGHT DISTANCE ANALYSIS:

DESIGN SPEED, V: 35 MPH
GRADE, G: -6% (AVERAGE)

STOPPING SIGHT DISTANCE, S: $S = 1.47 * V * 2.5 + [V^2 / (30 * (0.347826 \pm (G / 100)))]$
$S = 1.47 * 40 * 2.5 + [35^2 / (30 * (0.347826 + (-6 / 100)))]$
$S = 270.49$ FT. = 271 FT.

SOUTHBOUND STOPPING SIGHT DISTANCE ANALYSIS:

DESIGN SPEED, V: 35 MPH
GRADE, G: +7% (AVERAGE)

STOPPING SIGHT DISTANCE, S: $S = 1.47 * V * 2.5 + [V^2 / (30 * (0.347826 \pm (G / 100)))]$
$S = 1.47 * 35 * 2.5 + [35^2 / (30 * (0.347826 + (7 / 100)))]$
$S = 226.35$ FT. = 227.00 FT.

DESCRIPTION | DATE | REVISION #

MATTHEW W. BRYAN
REGISTERED ENGINEER
CERTIFICATE NO. 120168
COMMERCIAL
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

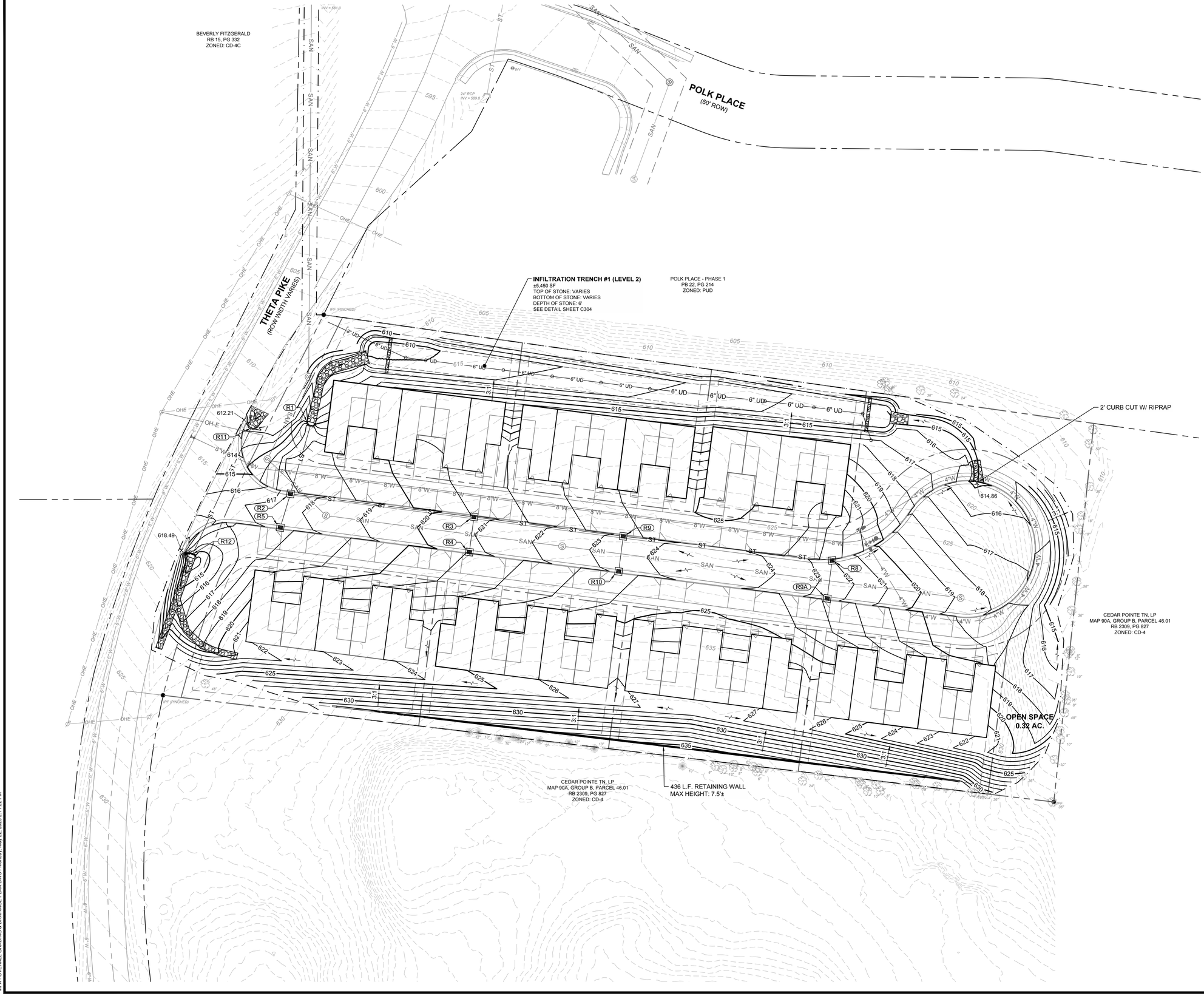
INTERSECTION SIGHT DISTANCE PLAN

DATE: MAY 22, 2023 | DRAWN BY : M2G
PROJECT NO. : 22-085 | CHECKED BY : MWB

SHEET NUMBER:
C201

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

MPA - INTERSECTION SIGHT DISTANCE.DWG / Monday, May 22, 2023 2:11:09 PM



FLOODPLAIN NOTE:

THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.

RETAINING WALL NOTE:

SPOT ELEVATIONS AT BOTTOM OF RETAINING WALLS REPRESENTS GROUND LEVEL ELEVATION, NOT THE TOP OF FOOTER. RETAINING WALLS ARE TO BE DESIGNED BY OTHERS.

STORM SEWER NOTE:

STORM SEWER STRUCTURES ARE SHOWN FOR GRAPHICAL PURPOSES ON THIS SHEET. SEE PIPE AND STRUCTURE TABLES ON SHEET C305 FOR ACTUAL STORM STRUCTURE SIZING AND DETAILS.

Know what's below.
Call before you dig.

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN
LICENSED ENGINEER
COMMERCIAL
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

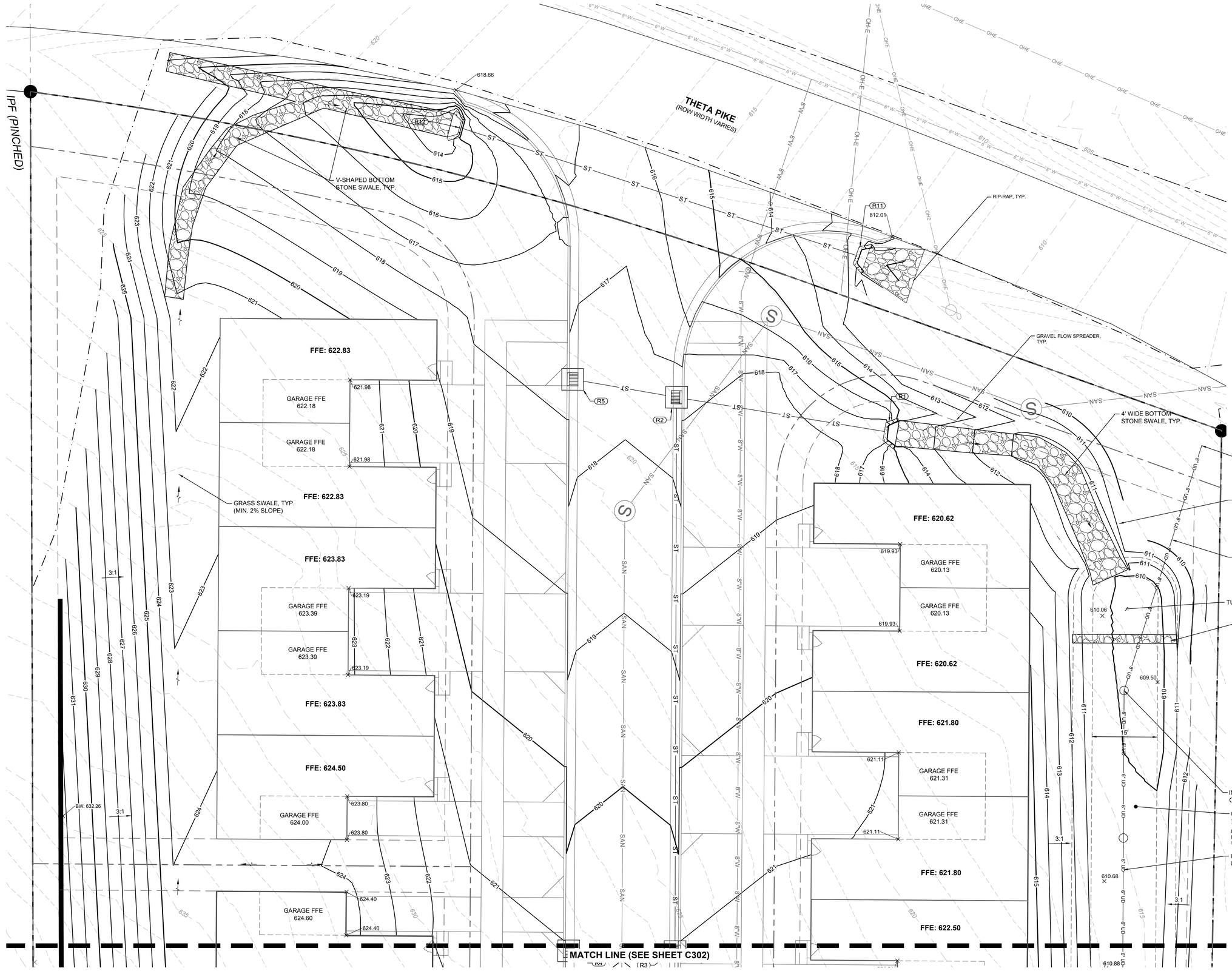
M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

OVERALL GRADING & DRAINAGE PLAN

DATE:	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C300

MPA - OVERALL GRADING & DRAINAGE PLAN.DWG / Monday, May 22, 2023 2:11:22 PM



REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
AGRICULTURAL & COMMERCIAL
CERTIFICATE NO. 120,000
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
220 THETA PIKE
TAX MAP 90B, GROUP B, PARCEL 47.00
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

ENLARGED GRADING & DRAINAGE PLAN

DATE :	PROJECT NO. :	CHECKED BY :	DRAWN BY :
MAY 22, 2023	22-085	MWB	M2G

SHEET NUMBER:
C301

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

MPA - ENLARGED GRADING & DRAINAGE PLAN.DWG | Monday, May 22, 2023 2:11:39 PM

MATCH LINE (SEE SHEET C301)

MATCH LINE (SEE SHEET C303)

FFE: 625.10
FFE: 626.00
GARAGE FFE 625.30
GARAGE FFE 625.30
625.10
625.10
GRASS SWALE, TYP. (MIN. 2% SLOPE)
FFE: 626.00
FFE: 627.00
GARAGE FFE 626.50
GARAGE FFE 626.50
626.30
626.30
FFE: 627.00
FFE: 628.50
GARAGE FFE 628.02
GARAGE FFE 628.02
627.82
627.82
FFE: 628.50
FFE: 628.50
GARAGE FFE 628.02
GARAGE FFE 628.02
627.82
627.82
FFE: 628.50
FFE: 622.50
GARAGE FFE 622.01
621.81
621.81
GARAGE FFE 622.81
622.61
622.61
FFE: 623.30
FFE: 624.50
GARAGE FFE 624.03
GARAGE FFE 624.03
623.83
623.83
FFE: 624.50
FFE: 625.68
GARAGE FFE 625.20
GARAGE FFE 625.20
625.00
625.00
FFE: 625.68
FFE: 626.00
GARAGE FFE 625.57
GARAGE FFE 625.57
625.37
625.37
FFE: 626.00
FFE: 625.40
BW: 633.09
BW: 633.93
BW: 634.77
BW: 635.56
HP: 627.72
GRADE BREAK
HP: 624.52
GRADE BREAK
3:1
3:1
3:1
3:1
R3
R4
R9
R10
S
SAN
ST
W-8
610.88
611.19
611.59
611.56
612.31
612.50
612.82
OBSERVATION WELL, TYP.
INFILTRATION TRENCH #1 (LEVEL 2)
±5,450 SF
TOP OF STONE: VARIES
BOTTOM OF STONE: VARIES
DEPTH OF STONE: 6'
SEE DETAIL SHEET C304
6" CORRUGATED HDPE UNDERDRAIN AT 0.5% MIN. SLOPE
15'
GRAPHIC SCALE
10' 0 10' 20'
N NE E SE S SW W NW

Know what's below. Call before you dig.

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
COMMERCIAL
CERTIFICATE NO. 120,XXX
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

ENLARGED GRADING & DRAINAGE PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C302

MPA - ENLARGED GRADING & DRAINAGE PLAN.DWG | Monday, May 22, 2023 2:11:40 PM

MATCH LINE (SEE SHEET C302)

FFE: 628.50

FFE: 627.00

GARAGE FFE
626.52

626.32

626.32

FFE: 626.50

GARAGE FFE
625.85

625.65

625.65

FFE: 625.50

GARAGE FFE
623.81

623.61

GARAGE FFE
622.81

623.61

GRASS SWALE, TYP.
(MIN. 2% SLOPE)

FFE: 625.50

FFE: 623.75

GARAGE FFE
622.33

622.13

GARAGE FFE
622.33

622.13

FFE: 623.75

OPEN SPACE
0.32 AC.

FFE: 625.40

624.70

GARAGE FFE
624.90

GARAGE FFE
624.90

624.70

FFE: 625.40

BW: 634.51

BW: 633.51

BW: 632.51

3:1

3:1

3:1

R9A

R8

INFILTRATION TRENCH
UNDERDRAIN CLEANOUT

2' CURB CUT W/ RIPRAP

614.86

6" CORRUGATED HDPE
UNDERDRAIN AT 0.5% MIN. SLOPE

15'

INFILTRATION TRENCH
OBSERVATION WELL

PERMEABLE PRETREATMENT BERM
12" TALL
1:1 SIDE SLOPES

TURF OR STONE PRETREATMENT AREA

TRAPEZOIDAL SWALE
2' BOTTOM WIDTH
3:1 SIDE SLOPES

IPF

GRAPHIC SCALE
10' 0 10' 20'

Know what's below.
Call before you dig.

DESCRIPTION | DATE | REVISION #

MATTHEW W. BRYAN
REGISTERED ENGINEER
AGRICULTURAL & ENVIRONMENTAL
COMMERCIAL
CERTIFICATE NO.
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

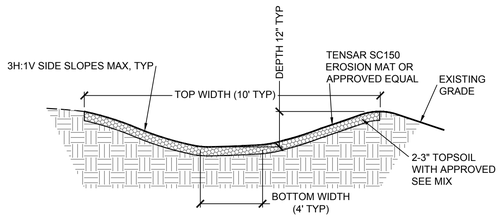
M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

ENLARGED GRADING & DRAINAGE PLAN

DATE : MAY 22, 2023
PROJECT NO. : 22-085
DRAWN BY : M2G
CHECKED BY : MWB

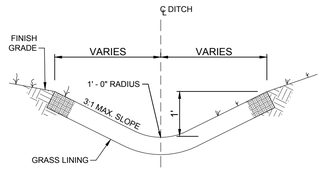
SHEET NUMBER:
C303

MPA - ENLARGED GRADING & DRAINAGE PLAN.DWG / Monday, May 22, 2023 2:11:42 PM



NORTH GRASS SWALE SECTION

N.T.S.

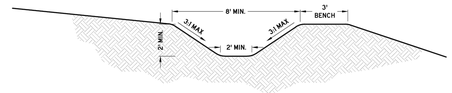


SOUTH GRASS SWALE SECTION

N.T.S.

TYPE	TDOT STANDARD DRAWING OR CASTING MODEL
CURB INLET CATCH BASINS	TDOT CB SERIES NOS. 10, 11, 12, 13, 14, 16, 17
CURB AND GUTTER INLET CASTINGS	JB&S 3080
EXTRUDED CURB INLET CASTINGS	JB&S 3103
AREA DRAIN CATCH BASINS	TDOT CB SERIES NOS. 38, 39, 40, 42, 43
AREA DRAIN CASTINGS	TDOT CBB-42
JUNCTION BOXES	TDOT JBS SERIES NOS. 1, 2, 3, 4, AND 5
MANHOLES	TDOT MH SERIES NOS. 2, 3, 4, 5, 6, 7 AND TDOT RF-1
TRENCH DRAINS	TDOT TD-1
CONCRETE PIPE INSTALLATION	TDOT PB-1
FLEXIBLE PIPE INSTALLATION	TDOT PB-2
OVAL AND ARCH PIPES	TDOT PO-1
SAFETY CROSS DRAIN ENDWALLS	TDOT PE SERIES
SAFETY SIDE DRAIN ENDWALLS	TDOT SEW SERIES AND TDOT MSE-1
PROTECTED ENDWALLS	TDOT PE, PEW SERIES
FLUMES	TDOT FLU-1

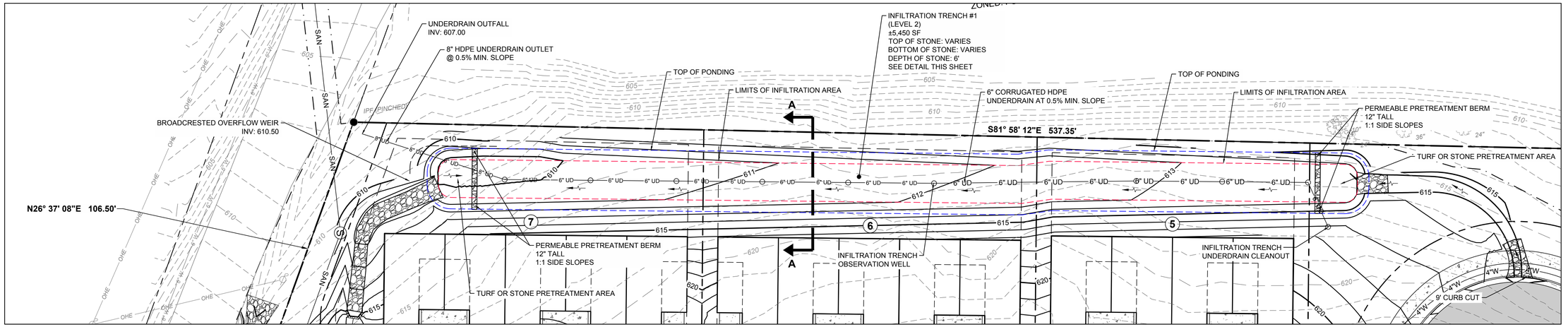
CITY OF COLUMBIA TENNESSEE	CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION STANDARD DETAILS	INLETS, CASTINGS, STRUCTURES, AND PIPES (NTS)	DATE 6/9/2022 DD-01



NOTES:

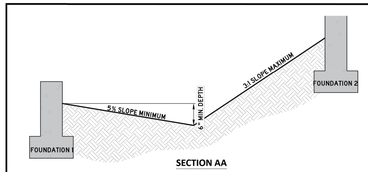
1. DITCHES SHALL BE STABILIZED WITH APPROPRIATELY DESIGNED SOFT ARMORING.
2. RIP-RAP OR OTHER HARD ARMORING TECHNIQUES ARE DISCOURAGED AND SHALL ONLY BE APPROVED WHEN ALL OTHER MEANS OF STABILIZATION ARE EXHAUSTED.
3. FLOW LINE GRADE SHALL NOT BE LESS THAN 1.0%
4. FLOW LINE GRADE SHALL NOT BE MORE THAN 7.5%
5. WHERE PLACED ON A SLOPE, A BENCH OF MINIMUM WIDTH OF 3 FEET SHALL BE PROVIDED.
6. A MINIMUM OF 6 INCHES OF FREEBOARD ABOVE THE DESIGN FLOW DEPTH SHALL BE PROVIDED.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER.

CITY OF COLUMBIA TENNESSEE	CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION STANDARD DETAILS	TRAPEZOIDAL DITCH (NTS)	DATE 6/9/2022 DD-03

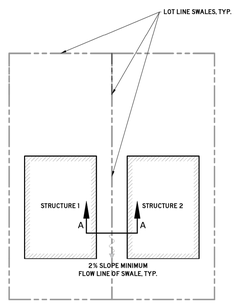


INFILTRATION TRENCH #1

SCALE: 1"=20'



SECTION AA

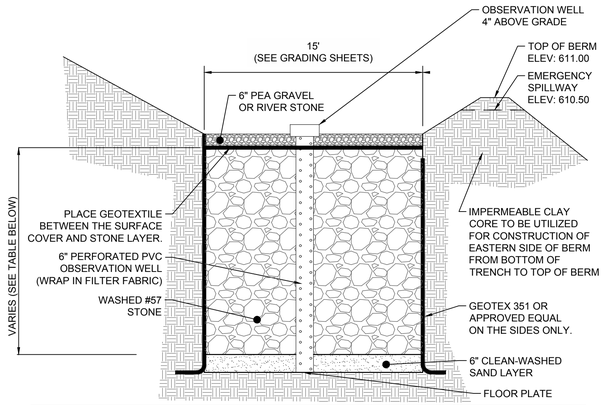


PLAN

NOTES:

1. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE, ALL AREAS WITHIN A LOT SHALL BE GRADED TO DRAIN TO AN APPROVED STORMWATER CONVEYANCE.
2. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATIONS.
   2.1. LOTS SHALL BE GRADED TO PROVIDE A MINIMUM OF 6 INCHES OF FALL WITHIN THE FIRST 10 FEET OF THE STRUCTURE ALONG THE DIRECTION OF FLOW.
   2.2. LOTS SHALL BE GRADED TO PROVIDE A MINIMUM OF 1V:20H OF FALL PERPENDICULAR TO THE FACE OF THE FOUNDATION WALL WITHIN THE FIRST 5 FEET.
   2.3. IMPERVIOUS SURFACES SHALL BE SLOPED AT A MINIMUM OF 2% AWAY FROM THE STRUCTURE.
3. SWALES SHALL BE LOCATED ALONG LOT LINES TO REDUCE LOT TO LOT DRAINAGE, AND DIRECT STORMWATER RUNOFF TOWARDS APPROVED STORMWATER CONVEYANCES.
4. SWALES SHALL HAVE A MINIMUM SLOPE OF 2%.
5. FOUNDATIONS SHALL BE AT MINIMUM 12 INCHES ABOVE ANY THE RIM ELEVATION OR HIGHEST FLOW LINE OF ANY PUBLIC STORMWATER INFRASTRUCTURE THAT SURFACE DRAINAGE FROM THE LOT IS DIRECTED TO.
6. NON-PUBLIC STORMWATER INFRASTRUCTURE SHALL NOT SUCH AS YARD DRAINS SHALL NOT ALLEVIATE THE REQUIREMENTS OF NOTES 2 AND 3.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER

CITY OF COLUMBIA TENNESSEE	CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION STANDARD DETAILS	RESIDENTIAL LOT GRADING AND DRAINAGE (NTS)	DATE 6/9/2022 DD-04



INFILTRATION TRENCH SUMMARY				
INFILTRATION TRENCH	INFILTRATION AREA (SF)	TOP OF STONE	STONE DEPTH (FT)	BOTTOM OF STONE
IT#1	5,450	609.5 (VARIES)	6	603.5 (VARIES)

INFILTRATION TRENCH
SECTION A - A

N.T.S.

DESCRIPTION | DATE | REVISION #

MATTHEW W. BRIAN
REGISTERED
ENGINEER
CERTIFICATE No. 120144
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
220 THETA PIKE
TAX MAP 90B, GROUP B, PARCEL 47.00
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

GRADING DETAILS

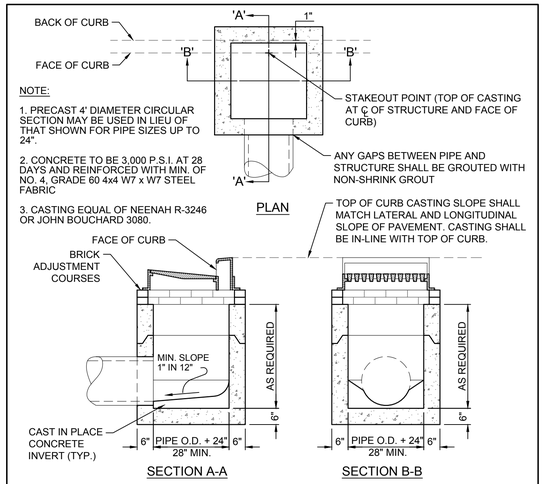
DATE: MAY 22, 2023 | DRAWN BY: M2G
PROJECT NO.: 22-085 | CHECKED BY: MWB

SHEET NUMBER:
C304

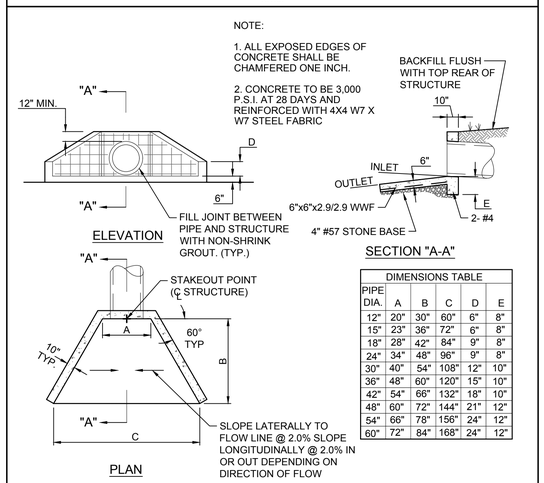
MPA - SITE DETAILS.DWG / Monday, May 22, 2023 2:11:59 PM

STRUCTURE TABLE		
NAME	INLET TYPE	DETAILS
R1	Headwall	INV IN = 613.965
R2	Single Curb Inlet	RIM = 617.470 INV IN = 614.210 INV IN = 614.208 INV OUT = 614.210
R3	Single Curb Inlet	RIM = 620.621 INV IN = 617.000 INV IN = 617.000 INV OUT = 617.000
R4	Single Curb Inlet	RIM = 620.622 INV OUT = 617.000
R5	Single Curb Inlet	RIM = 617.330 INV OUT = 614.330
R8	Single Curb Inlet	RIM = 622.006 INV IN = 619.235 INV OUT = 619.280
R9	Single Curb Inlet	RIM = 623.221 INV IN = 618.500 INV IN = 618.000 INV OUT = 618.000
R9A	Single Curb Inlet	RIM = 622.413 INV OUT = 619.557
R10	Single Curb Inlet	RIM = 623.220 INV OUT = 620.200
R11	Headwall	INV IN = 610.500
R12	Headwall	INV OUT = 613.050

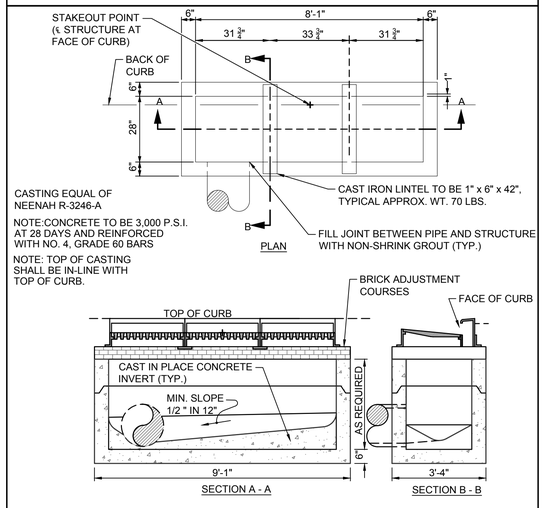
PIPE TABLE				
NAME	MATERIAL	DIA.	APPROX. LENGTH	SLOPE
R1-R2	RCP	24"	49'	0.50%
R2-R3	RCP	18"	128'	2.18%
R2-R5	RCP	18"	24'	0.50%
R3-R4	RCP	18"	24'	0.00%
R3-R9	RCP	18"	104'	0.96%
R8-R9A	RCP	15"	26'	1.22%
R9-R8	RCP	18"	145'	0.88%
R9-R10	RCP	18"	25'	6.93%
R12-R11	RCP	18"	96'	2.66%



SINGLE PRECAST CURB INLET
N.T.S.



CONCRETE WINGED HEADWALL/ENDWALL
N.T.S.



TRIPLE PRECAST CURB INLET
N.T.S.

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN
REGISTERED ENGINEER
AGRICULTURE
COMMERCIAL
CERTIFICATE NO. 120,142
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

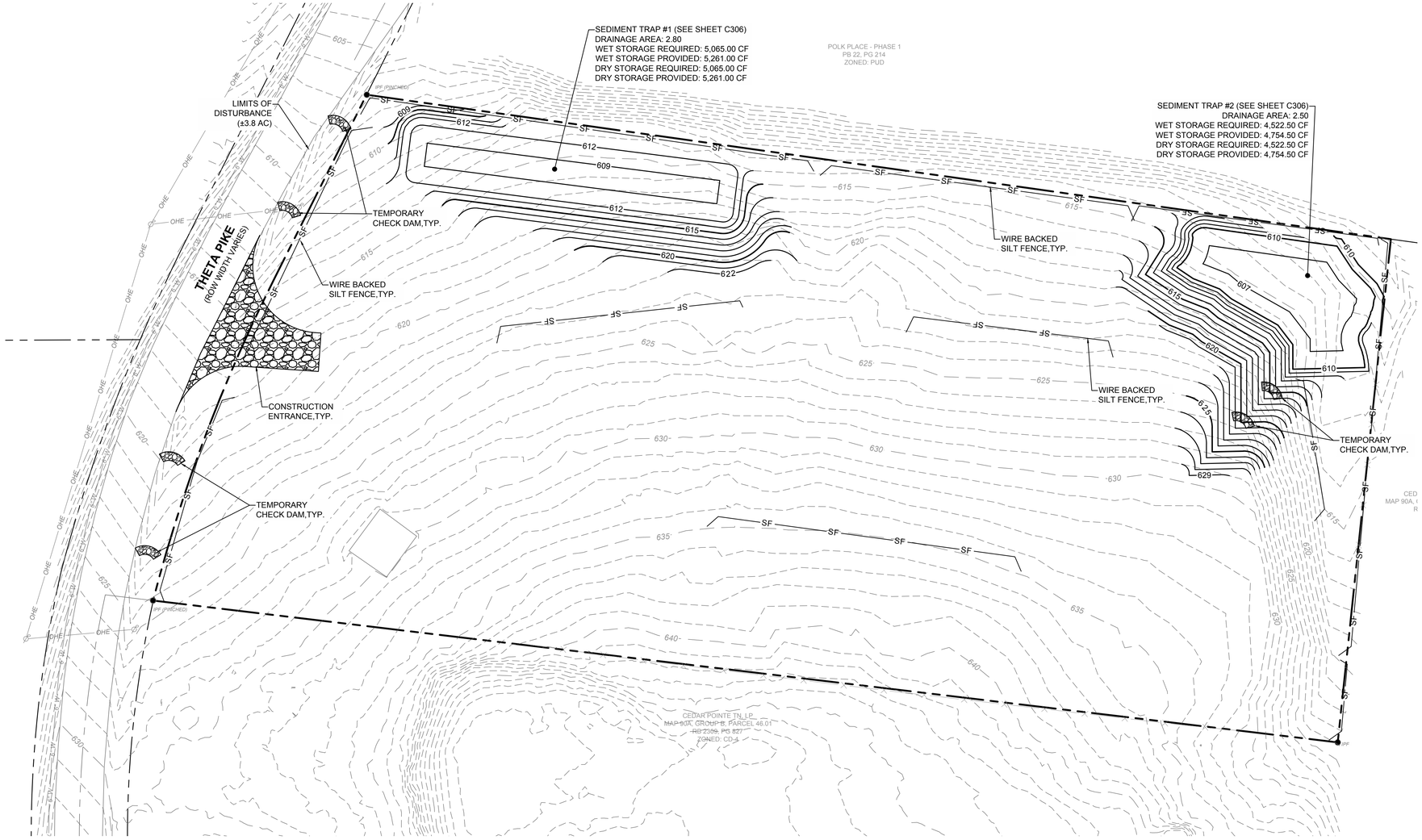
STORM SEWER DETAILS

DRAWN BY : M2G
CHECKED BY : MWB
DATE : MAY 22, 2023
PROJECT NO. : 22-085

SHEET NUMBER:
C305

MPA - SITE DETAILS.DWG | Monday, May 22, 2023 2:12:02 PM

SEDIMENT TRAP DESIGN		
	ST-1	ST-2
DRAINAGE AREA (AC.)	2.80	2.50
TOTAL VOL. REQUIRED (CF)	10,130.00	9,045.00
WET VOL. REQUIRED (CF)	5,065.00	4,522.50
DRY VOL. REQUIRED (CF)	5,065.00	4,522.50
WET STORAGE VOL. PROVIDED (CF)	**5,261.00**	**4,754.50**
TRAP BOTTOM ELEV. (FT)	607.00	607.00
TOP WET STORAGE ELEV. (FT)	608.50	608.50
SPILLWAY CREST ELEV. (FT)**	610.00	610.00
TOP EMBANKMENT ELEV. (FT)	610.00	610.00
SPILLWAY CREST LENGTH (FT)	15.00	15.00
SPILLWAY CREST WIDTH (FT)	5.00	5.00
EMBANKMENT TOP WIDTH (FT)	5.00	5.00
DRY STORAGE VOL. PROVIDED (CF)	**5,261.00**	**4,754.50**
TOTAL VOL. PROVIDED (CF)	**10,522.00**	**9,509.00**
* RUNOFF COEFFICIENT ASSUMED TO BE BARE SOIL CONDITION		
** SPILLWAY CREST ELEVATION IS ALSO TOP OF DRY STORAGE ELEVATION		



TDEC - NPDES NOC NOTE:

THE PROJECT ASSOCIATED WITH THESE PLANS IS REQUIRED TO BE COVERED UNDER TENNESSEE GENERAL STORM WATER PERMIT TNR100000 BECAUSE THE LIMITS OF DISTURBANCE IS OVER 1 ACRE. THE LIMITS OF DISTURBANCE IS APPROXIMATELY 3.8 ACs.

EPSC GENERAL NOTES

1. SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE; SEDIMENT SHALL BE REMOVED FROM ALL OTHER EPSC MEASURES AND CONTROL AS RECOMMENDED IN THE TNEPSC HANDBOOK, AND MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
2. EPSC SHALL BE IMPLEMENTED BEFORE EARTH- MOVING BEGINS.
3. AREAS WHERE CONSTRUCTION HAS TEMPORARILY/PERMANENTLY CEASED SHALL BE STABILIZED NO LATER THAN 14 DAYS (7 DAYS FOR ≥35% SLOPES).
4. INSPECTIONS OF OUTFALLS/EPSC MEASURES SHALL BE CONDUCTED AT LEAST TWICE WEEKLY AND AT LEAST 72 HOURS APART.
5. VEGETATION, EPSCS & OTHER PROTECTIVE MEASURES SHALL BE REPAIRED, REPLACED, OR MODIFIED AFTER BEING NOTIFIED OF AN ISSUE WITHIN 7 DAYS OR BY THE NEXT SIGNIFICANT RAIN CHANCE OF 50% OR GREATER. ISSUES WITH IMMEDIATE THREATS TO WATER QUALITY SHALL BE REPAIRED IMMEDIATELY AS PER FMC 23-106(2)(g).
6. CONSTRUCTION SHALL BE PHASED FOR ACTIVITIES THAT WILL DISTURB >50 ACRES.
7. EPSCS SHALL BE DESIGNED TO CONTROL THE RAINFALL AND RUNOFF FROM A 5-YEAR, 24-HOUR RETURN INTERVAL STORM.
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9. GREEN INFRASTRUCTURE BMPS SHALL BE PROTECTED DURING SITE WORK, WITH SILT FENCE, TO PREVENT SEDIMENTATION AND COMPACTION.
10. IF DEEMED APPROPRIATE, THE CITY MAY REQUIRE THE ADDITION, REMOVAL OR MODIFICATION OF EPSC MEASURES AND/OR EPSC LOCATIONS AT ANY TIME DURING THE CONSTRUCTION PROCESS TO ENSURE PROPER EPSC PERFORMANCE.

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. PRIOR TO INSTALLATION OF EROSION CONTROL MEASURES OR INITIATION OF EARTH DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CLEARLY DELINEATE THE PROPOSED LIMITS OF DISTURBANCE IN THE FIELD UTILIZING FLAGGING, STAKES, AND/OR CONSTRUCTION FENCE. NO DISTURBANCE BEYOND THESE LIMITS SHALL BE PERMITTED WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE ENGINEER, THE AFFECTED PROPERTY OWNER AND ANY APPLICABLE REGULATORY AGENCIES.
2. THE CONSTRUCTION ACTIVITIES ANTICIPATED FOR THIS PROJECT INCLUDES GRADING, PAVING, AND UTILITY INSTALLATION.
3. THE APPROXIMATE TOTAL DISTURBED AREA OF THIS SITE IS 6.60 ACRES. ANY INCREASE IN THE APPROXIMATE TOTAL DISTURBED AREA SHALL BE APPROVED BY THE CITY OF COLUMBIA PRIOR TO ADDITIONAL DISTURBANCE.
4. CONSTRUCTION SHALL BE SEQUENCED BY THE CONTRACTOR AS TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREAS. PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO EARTH MOVING OPERATIONS.
5. THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE PERSON(S) RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AT THE SITE. THIS INFORMATION SHALL BE POSTED AT THE JOB SITE TRAILER, OR AT THE SITE CONSTRUCTION SIGN.
6. PRE-CONSTRUCTION VEGETATIVE GROUNDCOVER SHALL NOT BE REMOVED MORE THAN 14 DAYS PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED FOR MORE THAN 14 DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH, OR FABRIC MATTING. STEEP SLOPES (GREATER THAN 35%) SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 15 DAYS OF THE ESTABLISHMENT OF FINAL GRADES.
7. THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION AND SEDIMENT CONTROL FOR A PERIOD OF THREE YEARS AFTER COMPLETION OF CONSTRUCTION OR AS REQUIRED BY GOVERNING AUTHORITIES.
8. TEMPORARY SEEDING FOR THIS PROJECT SHALL UTILIZE TDOT, TDEC OR LOCAL STANDARDS UNLESS OTHERWISE INDICATED HEREON.
9. MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT A RATE OF 2 TONS PER ACRE. MULCH MUST BE CRIMPED INTO THE SOIL BY MECHANICAL MEANS. BROADCAST SPREADING OF MULCH IS NOT ACCEPTABLE.
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13. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER IS ESTABLISHED. SEEDED AREAS MUST HAVE A MINIMUM 70% COVERAGE (ENGINEER WILL DETERMINE APPROXIMATE PERCENTAGE OF COVER) PRIOR TO REMOVAL OF THE TEMPORARY EROSION CONTROL DEVICES. FINAL SEEDING AND ESTABLISHMENT OF GROUNDCOVER SHALL BE APPLIED TO ANY AREA DISTURBED AS A RESULT OF THE REMOVAL OF THE EROSION CONTROL MEASURES.
14. CONTRACTOR SHALL PREPARE, IMPLEMENT, AND MAINTAIN A SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PLAN, AS A SEPARATE DOCUMENT OR AS A COMPONENT OF THE SWPPP, FOR ALL TANKS/CONTAINERS STORING ONSITE FUEL, CHEMICALS, OR OTHER POLLUTANTS CONSISTENT WITH THE REQUIREMENTS OF STATE NPDES RULES. EFFECTIVE MEASURES NECESSARY TO PREVENT SPILLS AND TO CLEAN UP SPILLS OF ANY TOXIC POLLUTANT, AS DOCUMENTED IN THE FACILITY'S SPCC PLAN, SHALL BE FULLY IMPLEMENTED. SOIL CONTAMINATED BY HAZARDOUS SUBSTANCES, PAINTS, FUEL, OR CHEMICAL SPILLS, SHALL BE IMMEDIATELY CLEANED UP, MANAGED, AND DISPOSED OF IN AN APPROVED MANNER. WHERE POTENTIAL SPILLS CAN OCCUR, MATERIALS HANDLING PROCEDURES SHALL BE SPECIFIED AND PROCEDURES FOR IMMEDIATE CLEANUP/REMEDIATION OF SPILLS SHALL BE DESCRIBED IN THE SPCC PLAN OR EMPLOYEE TRAINING EXACT LOCATION OF THE SPILL, COMPANY NAME AND LOCATION, THE MATERIAL SPILLED, THE ESTIMATED QUANTITY, THE SOURCE OF THE SPILL, THE CAUSE OF THE SPILL, THE NEAREST DOWNSTREAM WATER WITH THE POTENTIAL TO RECEIVE THE SPILL, AND THE ACTIONS BEING TAKEN FOR CONTAINMENT AND CLEANUP.
15. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE SELECTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH TDEC SEDIMENT AND EROSION CONTROL HANDBOOK, LATEST EDITION.
16. WATER QUALITY BMPs SHALL NOT BE INSTALLED UNTIL BUILD IS NEAR COMPLETION TO PREVENT CONSTRUCTION SEDIMENT FROM ENTERING WATER QUALITY BMPs. WATER QUALITY AREAS SHALL NOT BE USED AS SEDIMENT BASINS DURING CONSTRUCTION. INSTALLER'S OF WATER QUALITY BMPs SHOULD FOLLOW ALL INSTALLATION GUIDELINES SET FORTH IN THE CITY OF COLUMBIA BMP MANUAL LOCATED ON THE CITY'S WEBSITE.
17. WATER QUALITY SIGNS SHALL BE PLACED WITHIN THE WATER QUALITY AREAS. THE SIGNS, MATERIALS, AND LABOR TO INSTALL WILL BE PROVIDED BY THE CITY STAFF.

CONSTRUCTION SEQUENCE

1. INSTALL CONSTRUCTION ENTRANCE
2. INSTALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES
3. INSTALL SEDIMENT BASIN, IF REQUIRED
4. INSTALL WATER QUALITY BUFFER SIGNS, IF REQUIRED
5. INSTALL TREE PROTECTION FENCING
6. CONTACT CITY OF COLUMBIA FOR INSPECTION OF EROSION PREVENTION AND SEDIMENT CONTROL DEVICES AND TO OBTAIN A FULL GRADING PERMIT.
7. CLEAR, GRUB, AND GRADE THE SITE
8. CONSTRUCT REMAINDER OF SITE PER APPROVED PLANS INCLUDING INSTALLATION OF ALL ADDITIONAL EPSC MEASURES SHOWN ON THE PLANS OR AS DIRECTED BY THE EPSC INSPECTOR
9. UPON PERMANENT STABILIZATION OF THE SITE, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES (SEE FINAL EPSC PLAN FOR POST CONSTRUCTION CLOSEOUT PROCESS.

EPSC DATA CHART:

BMP DESIGN RAIN EVENT: 5 YEAR, 24 HR STORM

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

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRIAN — REGISTERED ENGINEER — AGRICULTURAL — COMMERCIAL — RESIDENTIAL — CERTIFICATE NO. — STATE OF TENNESSEE — 05/22/23

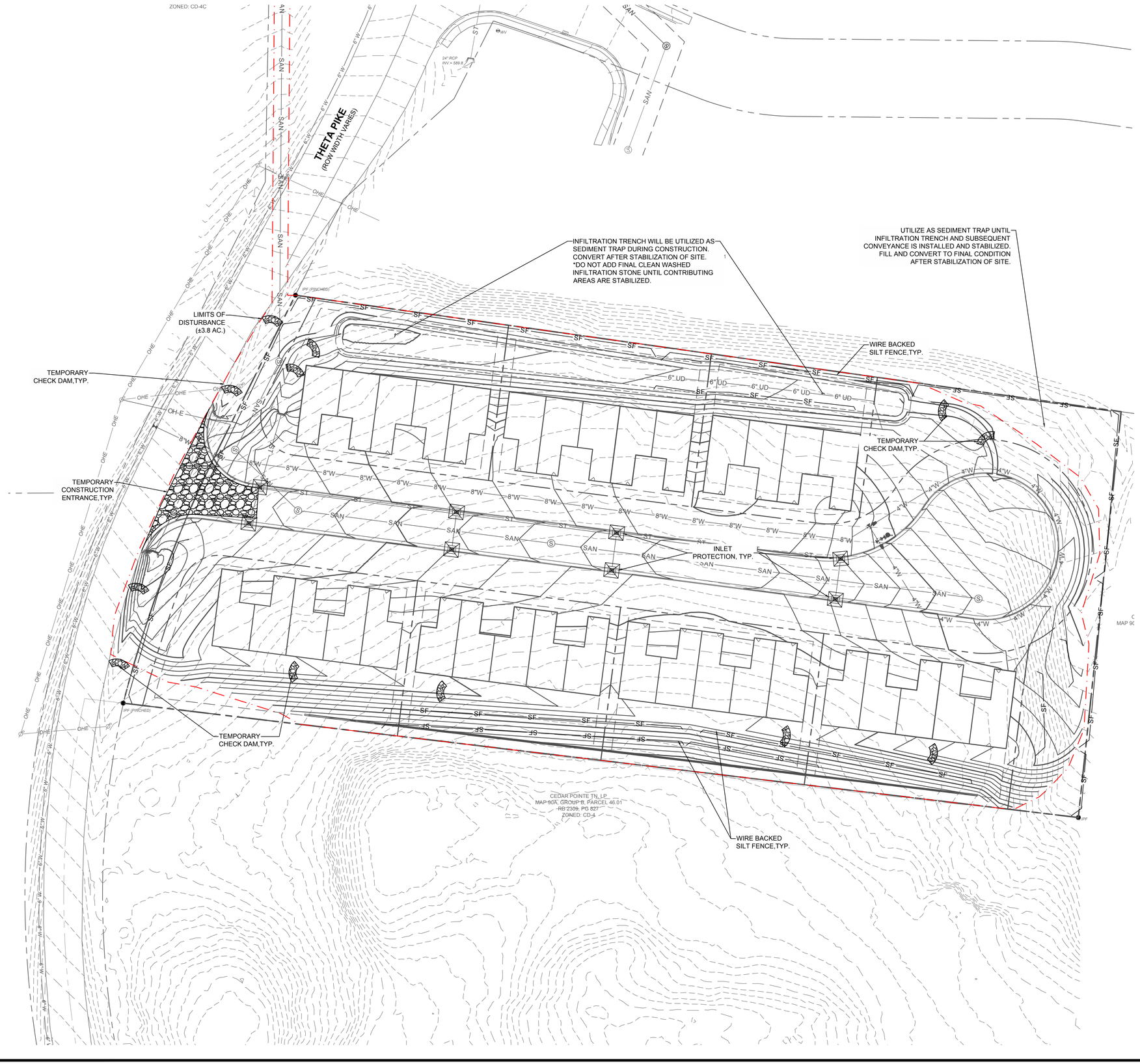
SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

INITIAL EPSC PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C401



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12. THE LOCATION OF SOME OF THE EROSION CONTROL MEASURES MAY NEED TO BE ALTERED DUE TO CHANGING SITE CONDITIONS COMMENSURATE WITH PROGRESS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION AND SEDIMENT CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES OF CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
13. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER IS ESTABLISHED. SEEDED AREAS MUST HAVE A MINIMUM 70% COVERAGE (ENGINEER WILL DETERMINE APPROXIMATE PERCENTAGE OF COVER) PRIOR TO REMOVAL OF THE TEMPORARY EROSION CONTROL DEVICES. FINAL SEEDING AND ESTABLISHMENT OF GROUNDCOVER SHALL BE APPLIED TO ANY AREA DISTURBED AS A RESULT OF THE REMOVAL OF THE EROSION CONTROL MEASURES.
14. CONTRACTOR SHALL PREPARE, IMPLEMENT, AND MAINTAIN A SPILL PREVENTION, CONTROL AND COUNTERMEASURES (SPCC) PLAN, AS A SEPARATE DOCUMENT OR AS A COMPONENT OF THE SWPPP, FOR ALL TANKS/CONTAINERS STORING ONSITE FUEL, CHEMICALS, OR OTHER POLLUTANTS CONSISTENT WITH THE REQUIREMENTS OF STATE NPDES RULES. EFFECTIVE MEASURES NECESSARY TO PREVENT SPILLS AND TO CLEAN UP SPILLS OF ANY TOXIC POLLUTANT, AS DOCUMENTED IN THE FACILITY'S SPCC PLAN, SHALL BE FULLY IMPLEMENTED. SOIL CONTAMINATED BY HAZARDOUS SUBSTANCES, PAINTS, FUEL, OR CHEMICAL SPILLS, SHALL BE IMMEDIATELY CLEANED UP, MANAGED, AND DISPOSED OF IN AN APPROVED MANNER. WHERE POTENTIAL SPILLS CAN OCCUR, MATERIALS HANDLING PROCEDURES SHALL BE SPECIFIED AND PROCEDURES FOR IMMEDIATE CLEANUP/REMEDIATION OF SPILLS SHALL BE DESCRIBED IN THE SPCC PLAN OR EMPLOYEE TRAINING EXACT LOCATION OF THE SPILL, COMPANY NAME AND LOCATION, THE MATERIAL SPILLED, THE ESTIMATED QUANTITY, THE SOURCE OF THE SPILL, THE CAUSE OF THE SPILL, THE NEAREST DOWNSTREAM WATER WITH THE POTENTIAL TO RECEIVE THE SPILL, AND THE ACTIONS BEING TAKEN FOR CONTAINMENT AND CLEANUP.
15. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE SELECTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH TDEC SEDIMENT AND EROSION CONTROL HANDBOOK, LATEST EDITION.
16. WATER QUALITY BMPs SHALL NOT BE INSTALLED UNTIL BUILD IS NEAR COMPLETION TO PREVENT CONSTRUCTION SEDIMENT FROM ENTERING WATER QUALITY BMPs. WATER QUALITY AREAS SHALL NOT BE USED AS SEDIMENT BASINS DURING CONSTRUCTION. INSTALLERS OF WATER QUALITY BMPs SHOULD FOLLOW ALL INSTALLATION GUIDELINES SET FORTH IN THE CITY OF COLUMBIA BMP MANUAL LOCATED ON THE CITY'S WEBSITE.
17. WATER QUALITY SIGNS SHALL BE PLACED WITHIN THE WATER QUALITY AREAS. THE SIGNS, MATERIALS, AND LABOR TO INSTALL WILL BE PROVIDED BY THE CITY STAFF.

CONSTRUCTION SEQUENCE

1. INSTALL CONSTRUCTION ENTRANCE
2. INSTALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES
3. INSTALL SEDIMENT TRAPS, IF REQUIRED
4. INSTALL TREE PROTECTION FENCING
5. CONTACT CITY OF COLUMBIA FOR INSPECTION OF EROSION PREVENTION AND SEDIMENT CONTROL DEVICES AND TO OBTAIN A FULL GRADING PERMIT.
6. CLEAR, GRUB, AND GRADE THE SITE
7. CONSTRUCT REMAINDER OF SITE PER APPROVED PLANS INCLUDING INSTALLATION OF ALL ADDITIONAL EPSC MEASURES SHOWN ON THE PLANS OR AS DIRECTED BY THE EPSC INSPECTOR
8. UPON PERMANENT STABILIZATION OF THE SITE, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES (SEE FINAL EPSC PLAN FOR POST CONSTRUCTION CLOSEOUT PROCESS.

EPSC DATA CHART:

BMP DESIGN RAIN EVENT: 5 YEAR, 24 HR STORM

Know what's below. Call before you dig.

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRIAN — REGISTERED ENGINEER — AGRICULTURAL — COMMERCIAL — RESIDENTIAL — CORPORATE SEAL — STATE OF TENNESSEE

05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
220 THETA PIKE
TAX MAP 90B, GROUP B, PARCEL 47.00
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

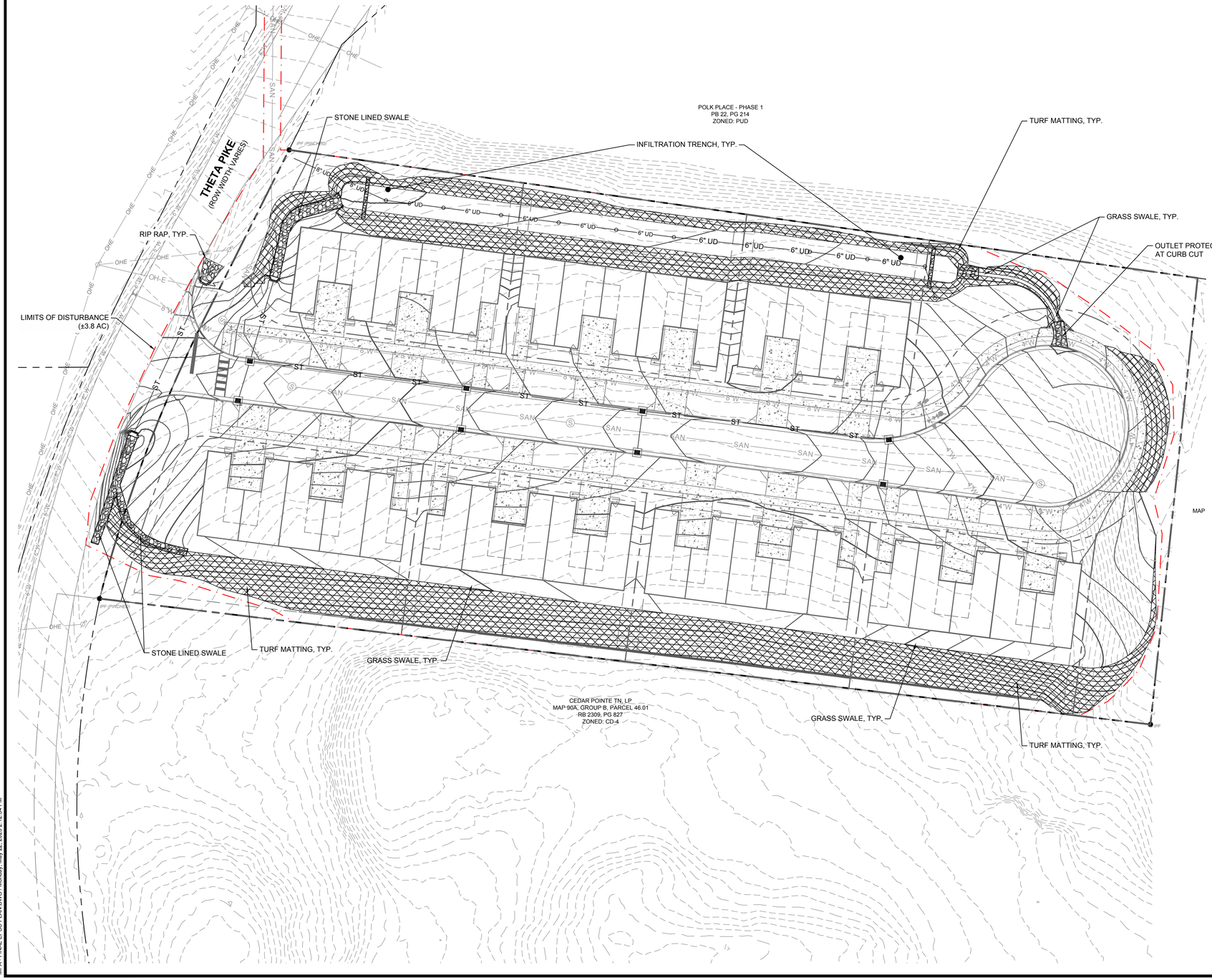
MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

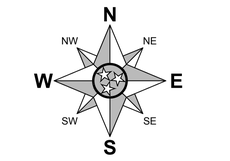
INTERMEDIATE EPSC PLAN

DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	MAY 22, 2023
PROJECT NO. :	22-085

SHEET NUMBER:

C402





30' 0 30' 60'

GRAPHIC SCALE

TDEC - NPDES NOC NOTE:

THE PROJECT ASSOCIATED WITH THESE PLANS IS REQUIRED TO BE COVERED UNDER TENNESSEE GENERAL STORM WATER PERMIT TNR100000 BECAUSE THE LIMITS OF DISTURBANCE IS OVER 1 ACRE. THE LIMITS OF DISTURBANCE IS APPROXIMATELY 3.8 ACs.

EPSC GENERAL NOTES

1. SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE; SEDIMENT SHALL BE REMOVED FROM ALL OTHER EPSC MEASURES AND CONTROL AS RECOMMENDED IN THE TNEPSC HANDBOOK, AND MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
2. EPSC SHALL BE IMPLEMENTED BEFORE EARTH- MOVING BEGINS.
3. AREAS WHERE CONSTRUCTION HAS TEMPORARILY/PERMANENTLY CEASED SHALL BE STABILIZED NO LATER THAN 14 DAYS (7 DAYS FOR ≥35% SLOPES).
4. INSPECTIONS OF OUTFALLS/EPSC MEASURES SHALL BE CONDUCTED AT LEAST TWICE WEEKLY AND AT LEAST 72 HOURS APART.
5. VEGETATION, EPSCS & OTHER PROTECTIVE MEASURES SHALL BE REPAIRED, REPLACED, OR MODIFIED AFTER BEING NOTIFIED OF AN ISSUE WITHIN 7 DAYS OR BY THE NEXT SIGNIFICANT RAIN CHANCE OF 50% OR GREATER. ISSUES WITH IMMEDIATE THREATS TO WATER QUALITY SHALL BE REPAIRED IMMEDIATELY AS PER FMC 23-106(2)(g).
6. CONSTRUCTION SHALL BE PHASED FOR ACTIVITIES THAT WILL DISTURB >50 ACRES.
7. EPSCS SHALL BE DESIGNED TO CONTROL THE RAINFALL AND RUNOFF FROM A 5-YEAR, 24-HOUR RETURN INTERVAL STORM.
8. TEMPORARY SEDIMENT BASIN(S) SHALL BE PROVIDED FOR ON-SITE OUTFALLS THAT RECEIVE DRAINAGE FROM ≥10 ACRES; ≥5 ACRES FOR SITES THAT DISCHARGE TO IMPAIRED OR EXCEPTIONAL TN WATERS.
9. GREEN INFRASTRUCTURE BMPS SHALL BE PROTECTED DURING SITE WORK, WITH SILT FENCE, TO PREVENT SEDIMENTATION AND COMPACTION.
10. IF DEEMED APPROPRIATE, THE CITY MAY REQUIRE THE ADDITION, REMOVAL OR MODIFICATION OF EPSC MEASURES AND/OR EPSC LOCATIONS AT ANY TIME DURING THE CONSTRUCTION PROCESS TO ENSURE PROPER EPSC PERFORMANCE.

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. PRIOR TO INSTALLATION OF EROSION CONTROL MEASURES OR INITIATION OF EARTH DISTURBING ACTIVITIES, THE CONTRACTOR SHALL CLEARLY DELINEATE THE PROPOSED LIMITS OF DISTURBANCE IN THE FIELD UTILIZING FLAGGING, STAKES, AND/OR CONSTRUCTION FENCE. NO DISTURBANCE BEYOND THESE LIMITS SHALL BE PERMITTED WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE ENGINEER, THE AFFECTED PROPERTY OWNER AND ANY APPLICABLE REGULATORY AGENCIES.
2. THE CONSTRUCTION ACTIVITIES ANTICIPATED FOR THIS PROJECT INCLUDES GRADING, PAVING, AND UTILITY INSTALLATION.
3. THE APPROXIMATE TOTAL DISTURBED AREA OF THIS SITE IS 6.60 ACRES. ANY INCREASE IN THE APPROXIMATE TOTAL DISTURBED AREA SHALL BE APPROVED BY THE CITY OF COLUMBIA PRIOR TO ADDITIONAL DISTURBANCE.
4. CONSTRUCTION SHALL BE SEQUENCED BY THE CONTRACTOR AS TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREAS. PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO EARTH MOVING OPERATIONS.
5. THE CONTRACTOR SHALL DESIGNATE IN WRITING THE NAME AND PHONE NUMBER OF THE PERSON(S) RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS AT THE SITE. THIS INFORMATION SHALL BE POSTED AT THE JOB SITE TRAILER, OR AT THE SITE CONSTRUCTION SIGN.
6. PRE-CONSTRUCTION VEGETATIVE GROUNDCOVER SHALL NOT BE REMOVED MORE THAN 14 DAYS PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES. ALL GRADED AREAS EXPECTED TO REMAIN UNFINISHED FOR MORE THAN 14 DAYS SHALL BE COVERED WITH TEMPORARY GRASS, SOD, STRAW, MULCH, OR FABRIC MATTING. STEEP SLOPES (GREATER THAN 35%) SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED. PERMANENT SOIL STABILIZATION SHALL BE INSTALLED WITHIN 15 DAYS OF THE ESTABLISHMENT OF FINAL GRADES.
7. THE CONTRACTOR SHALL MAINTAIN RECORDS OF EROSION AND SEDIMENT CONTROL FOR A PERIOD OF THREE YEARS AFTER COMPLETION OF CONSTRUCTION OR AS REQUIRED BY GOVERNING AUTHORITIES.
8. TEMPORARY SEEDING FOR THIS PROJECT SHALL UTILIZE TDOT, TDEC OR LOCAL STANDARDS UNLESS OTHERWISE INDICATED HEREON.
9. MULCHING SHALL CONSIST OF LOOSE HAY OR STRAW APPLIED AT A RATE OF 2 TONS PER ACRE. MULCH MUST BE CRIMPED INTO THE SOIL BY MECHANICAL MEANS. BROADCAST SPREADING OF MULCH IS NOT ACCEPTABLE.
10. SOIL STOCKPILES SHALL BE STABILIZED AND PROTECTED FROM EROSION. ALL STOCKPILES SHALL BE COVERED WITH TEMPORARY SEEDING AND PROTECTED WITH SILT FENCING.
11. FOR PERMANENT STABILIZATION OF ALL SLOPES 3:1 OR STEEPER, INSTALL TEMPORARY EROSION CONTROL BLANKET (TENSAR NORTH AMERICAN GREEN S150 OR APPROVED EQUAL) INSTALLED PER MANUFACTURERS' RECOMMENDATIONS SHALL BE USED IN PLACE OF STRAW MULCH.
12. THE LOCATION OF SOME OF THE EROSION CONTROL MEASURES MAY NEED TO BE ALTERED DUE TO CHANGING SITE CONDITIONS COMMENSURATE WITH PROGRESS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION AND SEDIMENT CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES OF CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
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EPSC DATA CHART:

BMP DESIGN RAIN EVENT: 5 YEAR, 24 HR STORM

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

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN — REGISTERED ENGINEER — AGRICULTURAL — COMMERCIAL — RESIDENTIAL — STATE OF TENNESSEE — 05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

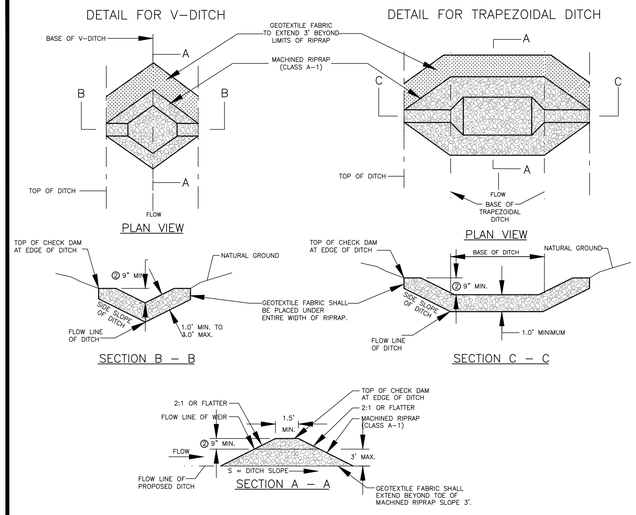
MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

FINAL EPSC PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C403

MPA - FINAL EPSC PLAN.DWG | Monday, May 22, 2023 2:12:34 PM



CHECK DAM

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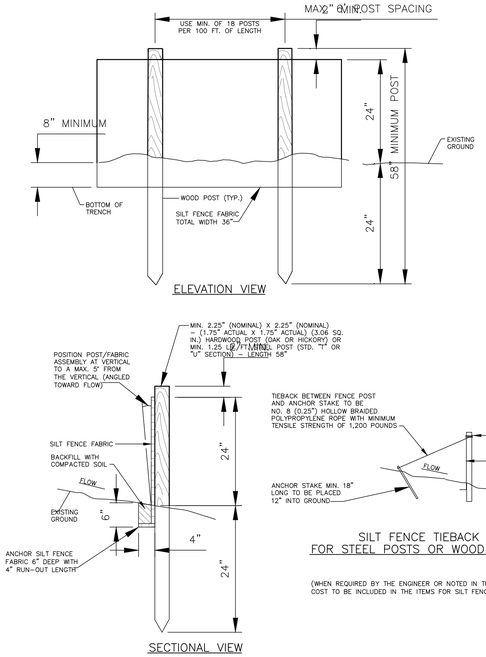

SILT FENCE

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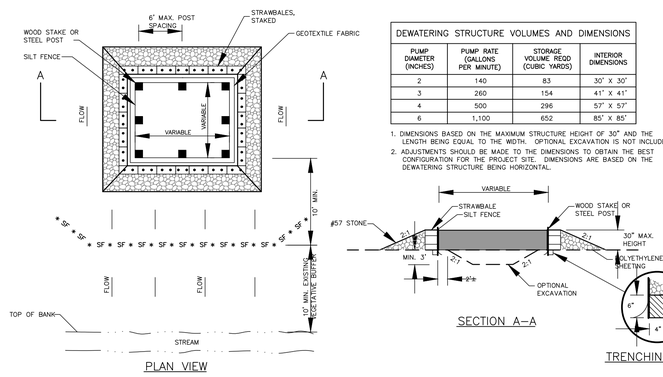
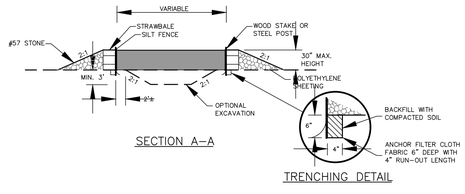


DEWATERING STRUCTURE VOLUMES AND DIMENSIONS			
PUMP DIAMETER (INCHES)	PUMP RATE (GALLONS PER MINUTE)	STORAGE VOLUME REQD (CUBIC YARDS)	INTERIOR DIMENSIONS
2	140	83	30' X 30'
3	260	154	41' X 41'
4	500	296	57' X 57'
6	1,100	652	85' X 85'

1. DIMENSIONS BASED ON THE MAXIMUM STRUCTURE HEIGHT OF 30" AND THE LENGTH BEING EQUAL TO THE WIDTH. OPTIONAL EXCAVATION IS NOT INCLUDED.
2. ADJUSTMENTS SHOULD BE MADE TO THE DIMENSIONS TO OBTAIN THE BEST CONFIGURATION FOR THE PROJECT SITE. DIMENSIONS ARE BASED ON THE DEWATERING STRUCTURE BEING HORIZONTAL.



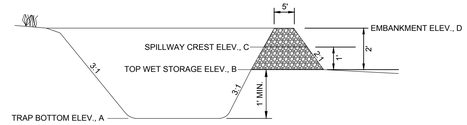
SILT FENCE & STRAW DEWATERING PIT

SCALE: N.T.S.

SEDIMENT TRAP ELEVATIONS, SEE DETAIL FOR REFERENCE → A, B, C, D

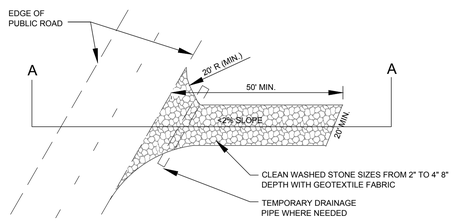
SEDIMENT TRAP DESIGN		
	ST-1	ST-2
DRAINAGE AREA (AC.)	2.80	2.50
TOTAL VOL. REQUIRED (CF)	10,130.00	9,045.00
WET VOL. REQUIRED (CF)	5,065.00	4,522.50
DRY VOL. REQUIRED (CF)	5,065.00	4,522.50
WET STORAGE VOL. PROVIDED (CF)	**5,261.00**	**4,754.50**
TRAP BOTTOM ELEV. (FT)	607.00	607.00
TOP WET STORAGE ELEV. (FT)	608.50	608.50
SPILLWAY CREST ELEV. (FT)**	610.00	610.00
TOP EMBANKMENT ELEV. (FT)	610.00	610.00
SPILLWAY CREST LENGTH (FT)	15.00	15.00
SPILLWAY CREST WIDTH (FT)	5.00	5.00
EMBANKMENT TOP WIDTH (FT)	5.00	5.00
DRY STORAGE VOL. PROVIDED (CF)	**5,261.00**	**4,754.50**
TOTAL VOL. PROVIDED (CF)	**10,522.00**	**9,509.00**

* RUNOFF COEFFICIENT ASSUMED TO BE BARE SOIL CONDITION
** SPILLWAY CREST ELEVATION IS ALSO TOP OF DRY STORAGE ELEVATION

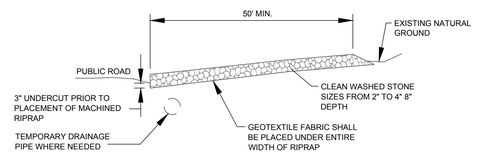


TEMPORARY SEDIMENT TRAP

N.T.S.



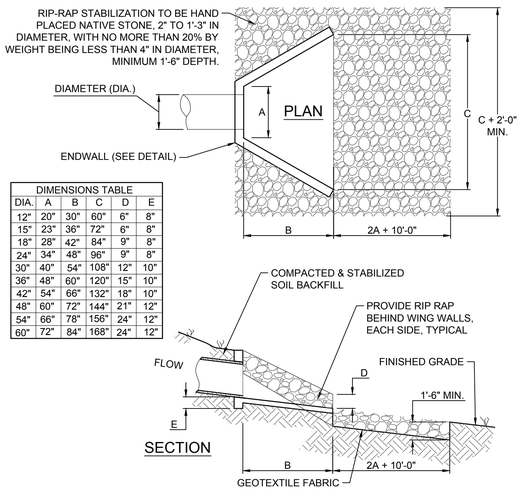
PLAN VIEW OF TEMPORARY CONSTRUCTION ROAD



SECTION A-A

CONSTRUCTION EXIT

SCALE: N.T.S.



DIMENSIONS TABLE					
DIA.	A	B	C	D	E
12"	20"	30"	60"	6"	8"
15"	23"	36"	72"	6"	8"
18"	28"	42"	84"	9"	8"
24"	34"	48"	96"	9"	8"
30"	40"	54"	108"	12"	10"
36"	48"	60"	120"	15"	10"
42"	54"	66"	132"	18"	10"
48"	60"	72"	144"	21"	12"
54"	66"	78"	156"	24"	12"
60"	72"	84"	168"	24"	12"

RIP RAP AT ENDWALL

N.T.S.

ACTIVITY: Geotextiles | PESC – 02

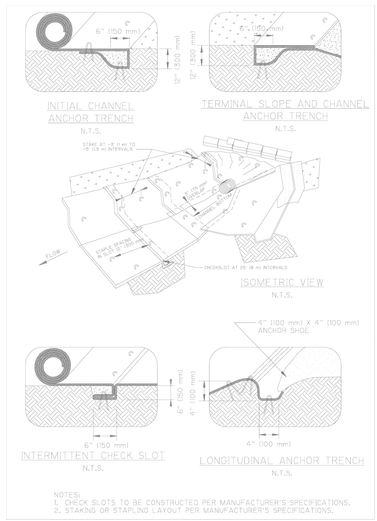


Figure PESC-02-1
Anchoring Geotextiles in Channels

Stormwater Best Management Practices – Permanent EP&SC | PESC-02-3 | January 2014

ACTIVITY: Geotextiles | PESC – 02

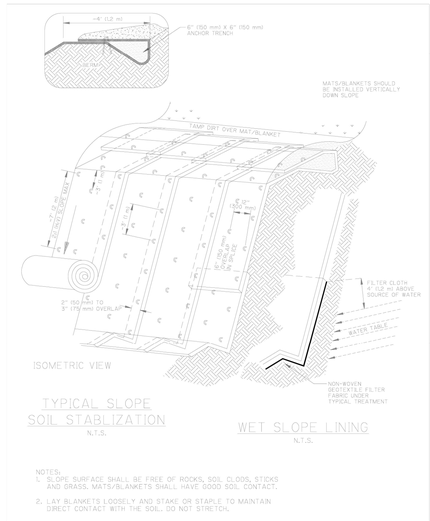


Figure PESC-02-2
Anchoring Geotextiles on Embankments

Stormwater Best Management Practices – Permanent EP&SC | PESC-02-4 | January 2014

TURF REINFORCEMENT MATTING DETAILS

SCALE: N.T.S.

DESCRIPTION	DATE	REVISION #

MATTHEW W. BRYAN — REGISTERED ENGINEER — No. 120183 — STATE OF TENNESSEE — 05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

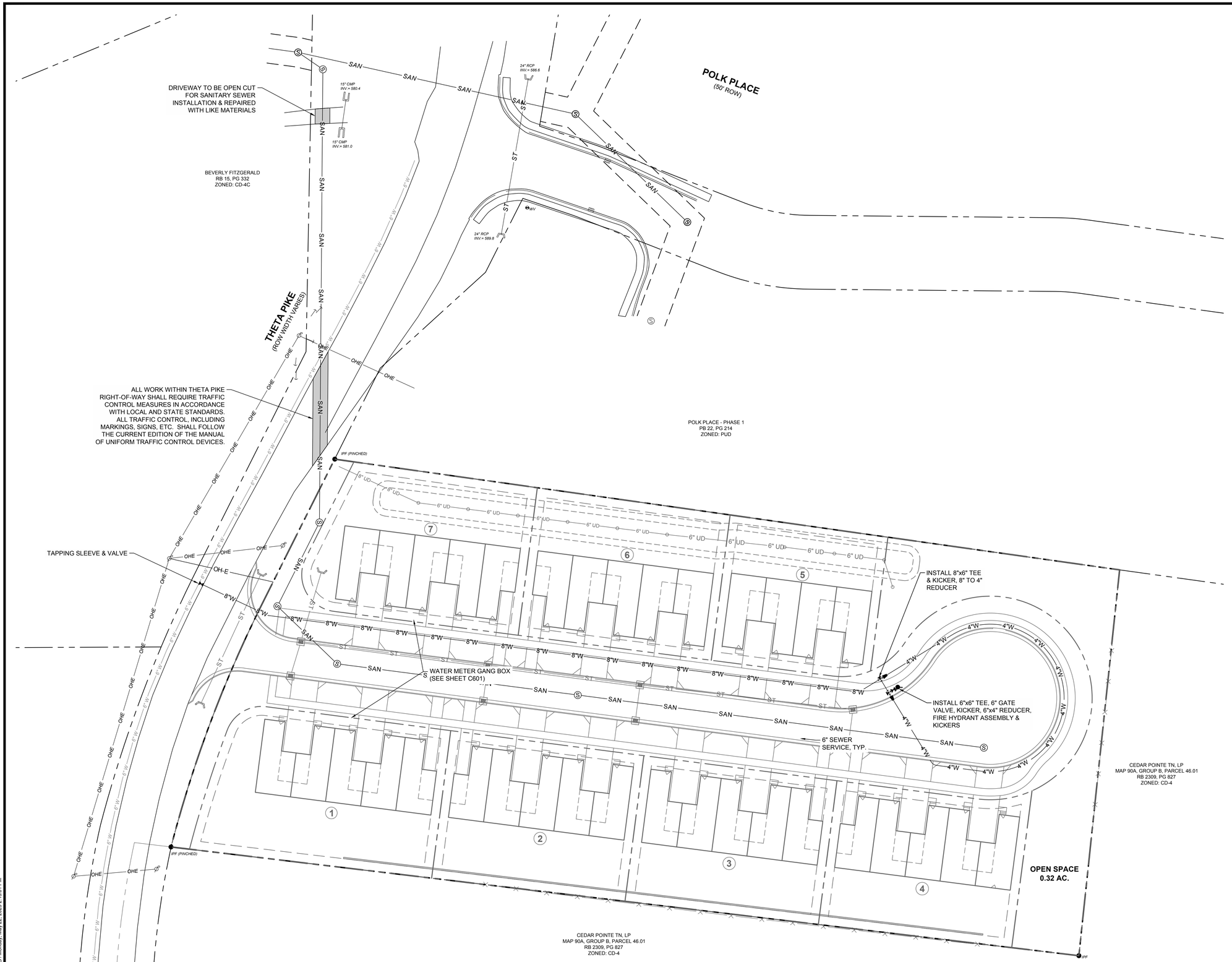
EPSC DETAILS

DRAWN BY :	M2G
CHECKED BY :	MWB
DATE :	MAY 22, 2023
PROJECT NO. :	22-085

SHEET NUMBER:
C404

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

MPA - SITE DETAILS.DWG / Monday, May 22, 2023 2:12:49 PM



LEGEND

SAN	SANITARY SEWER
OHE	OVERHEAD ELECTRIC
UG-E	UNDERGROUND ELECTRIC
8"W	8" WATERLINE
G	NATURAL GAS
ST	STORMWATER DRAINAGE PIPE
W	WATER SERVICE

DESCRIPTION	DATE	REVISION #

MATTHEW W. BRYAN
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
CERTIFICATE No.
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

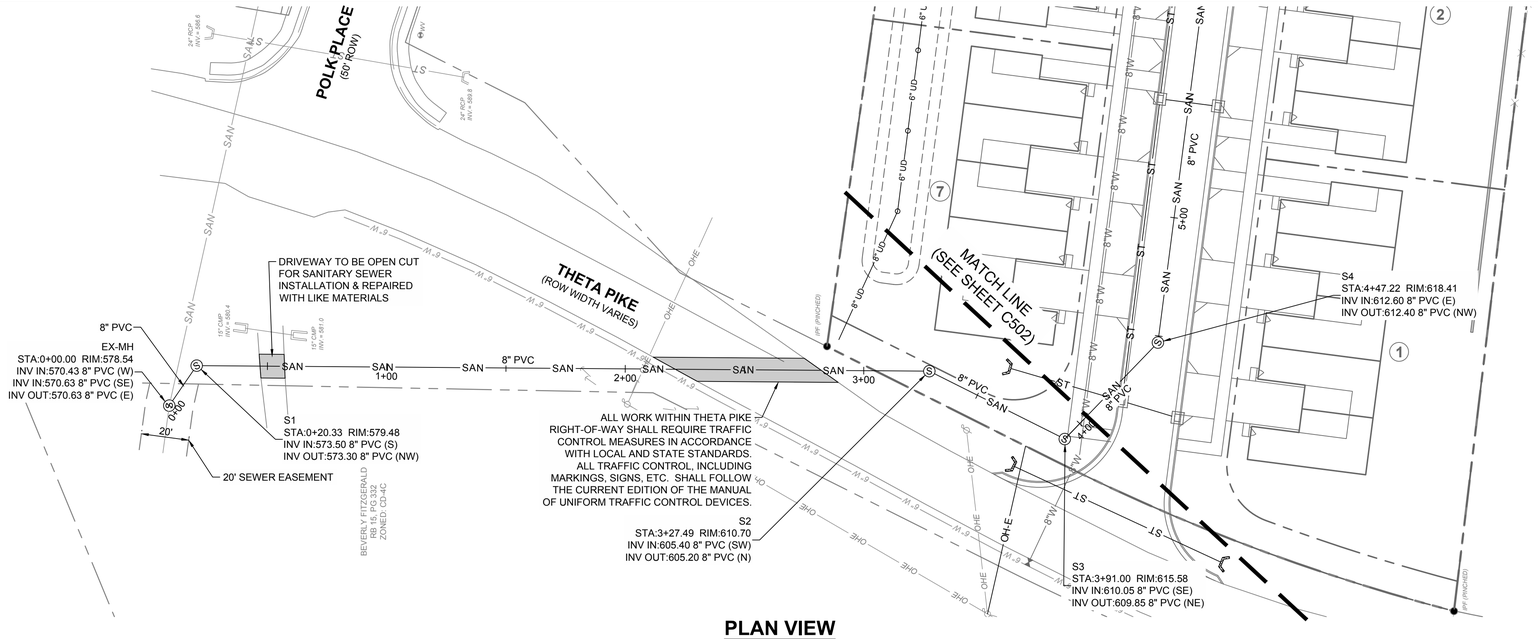
UTILITY PLAN

DATE :	MAY 22, 2023	DRAWN BY :	M2G
PROJECT NO. :	22-085	CHECKED BY :	MWB

SHEET NUMBER:
C500

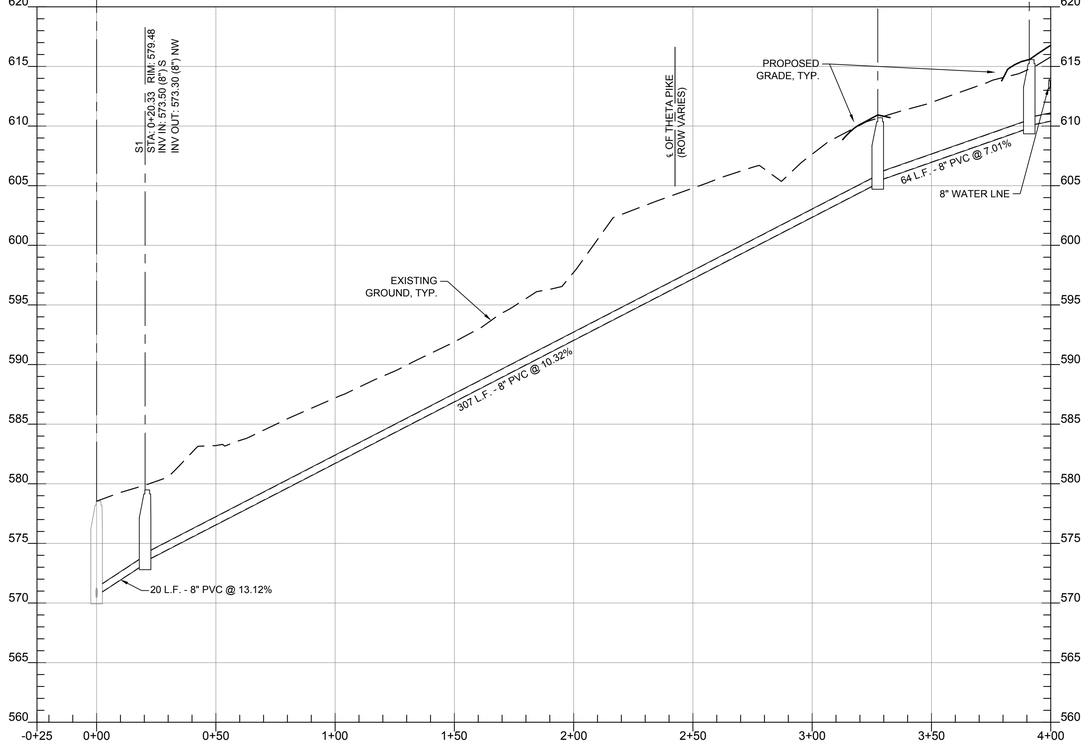
811 Know what's below. Call before you dig.

MPA - UTILITY PLAN.DWG | Monday, May 22, 2023 2:13:01 PM



PLAN VIEW

SCALE: 1" = 30'



PROPOSED OFFSITE SANITARY SEWER PROFILE

SCALE H:1"=30'; V:1"=6'

Know what's below.
Call before you dig.

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN
LICENSED PROFESSIONAL ENGINEER
NUMBER 120144
COMMERCIAL
CERTIFICATE NO.
STATE OF TENNESSEE
05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

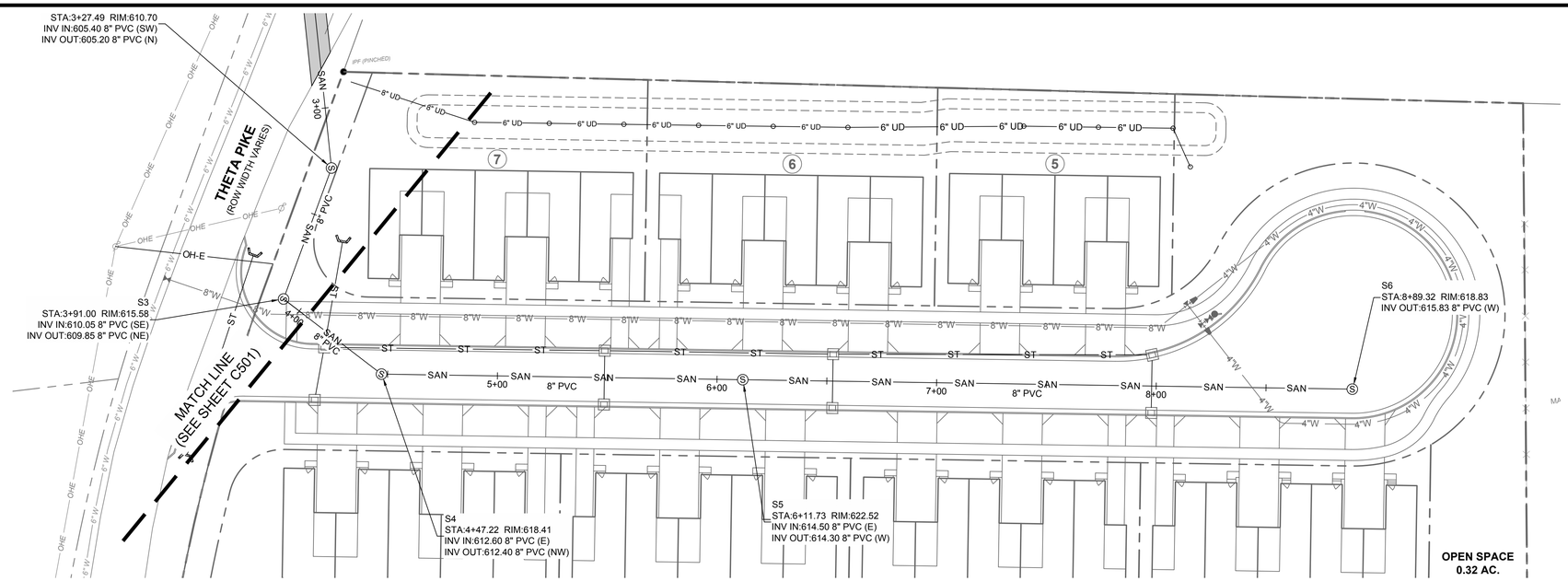
M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

OFFSITE SANITARY SEWER PLAN & PROFILE

DATE :	MAY 22, 2023
PROJECT NO. :	22-085
DRAWN BY :	M2G
CHECKED BY :	MWB

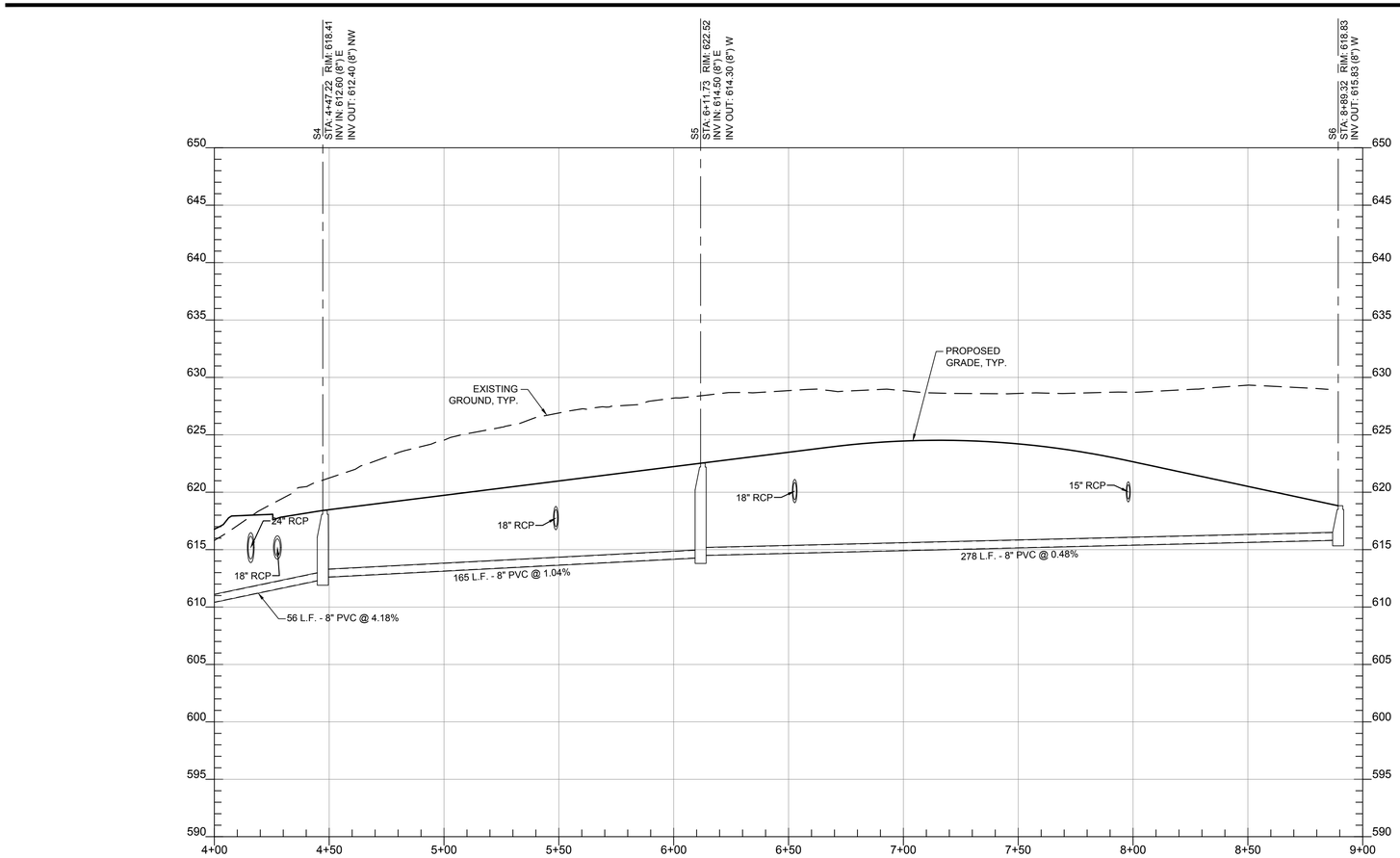
SHEET NUMBER:
C501

MPA - SANITARY SEWER PLAN & PROFILE.DWG | Monday, May 22, 2023 2:13:13 PM



PLAN VIEW

SCALE: 1" = 30'



PROPOSED SANITARY SEWER PROFILE

SCALE H:1"=30'; V:1"=6'

Know what's below. Call before you dig.

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

SANITARY SEWER PLAN & PROFILE

DATE:	MAY 22, 2023	DRAWN BY:	M2G
PROJECT NO.:	22-085	CHECKED BY:	MWB

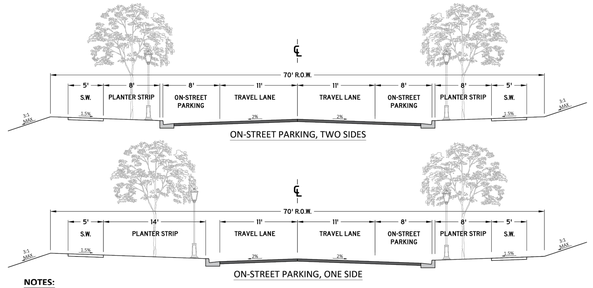
SHEET NUMBER:
C502

MZA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

MATTHEW W. BRYAN — LICENSED PROFESSIONAL ENGINEER — 05/22/23

REVISION #	DATE	DESCRIPTION

MPA - SANITARY SEWER PLAN & PROFILE.DWG / Monday, May 22, 2023 2:13:15 PM



NOTES:

1. ONLY PERMITTED WITHIN THE APPLICABLE ZONING DISTRICTS.
2. ONLY PERMITTED ON MINOR LOCAL AND MAJOR LOCAL ROADWAY CLASSIFICATIONS.
3. PAVEMENT SECTION SHALL FOLLOW APPLICABLE ROADWAY CLASSIFICATION.
4. CURB AND GUTTER, SEE SD-01
5. TREES SHALL BE CENTERED WITHIN THE PLANTING STRIP, OFFSET A MINIMUM OF 20 FEET ALONG THE CENTERLINE OF THE ROAD FROM ANY STREET LIGHTING.
6. DECORATIVE LIGHT BASES SHALL BE BETWEEN 18" AND 24" BEHIND THE BACK OF CURB.
7. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED.
8. DIMENSIONS REFLECT A MINIMUM STANDARD.
9. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER.

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

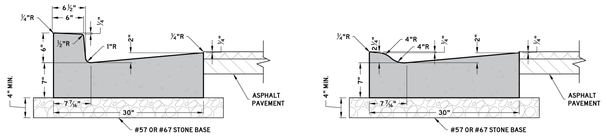
STANDARD DETAILS

CHARACTER DISTRICT STREET URBAN NEIGHBORHOOD

(NTS)

DATE 6/9/2022

DS-03

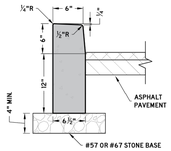


6-30 CONCRETE CURB AND GUTTER

LOWERED CONCRETE CURB AND GUTTER

NOTES:

1. BASED ON TDOT STANDARD DRAWING RP-VC-11
2. ONLY PERMITTED IN APPLICABLE ROADWAY SECTIONS
3. 4" MIN. THICK #57 OR # 67 STONE BASE
4. CLASS A 3000 PSI CONCRETE
5. EXPANSION JOINTS SHALL BE AS FOLLOWS:
   - 5.1. 1/2 INCH THICK
   - 5.2. A MAXIMUM SPACING OF 100 FEET
   - 5.3. AT TANGENTS OF ALL RADII OF CURVES
   - 5.4. BETWEEN CURBS AND ANY RIGID OBJECTS
   - 5.5. ALIGNED WITH ADJACENT EXPANSION JOINTS
   - 5.6. RUBBERIZED EXPANSION JOINT FILLER (AASHTO M153, TYPE 1)
   - 5.7. POLYPROPYLENE FOAM JOINT FILLER (ASTM D8139)
6. CONTRACTION JOINTS SHALL BE AS FOLLOWS:
   - 6.1. A MAXIMUM SPACING OF 10 FEET
   - 6.2. A MINIMUM SPACING OF 6 FEET
   - 6.3. 1/4 INCH DEPTH, EITHER SAWCUT OR HAND GROOVED.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER



VERTICAL POST CURB

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

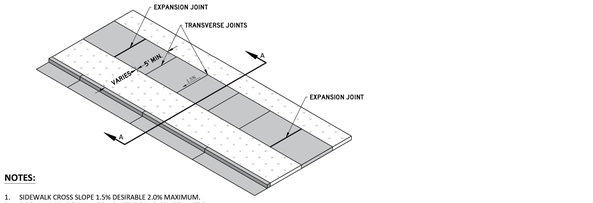
STANDARD DETAILS

CURB AND GUTTER AND POST CURB

(NTS)

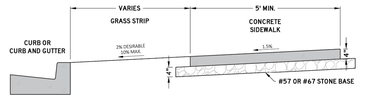
DATE 6/9/2022

SD-01



NOTES:

1. SIDEWALK CROSS SLOPE 1.5% DESIRABLE 2.0% MAXIMUM.
2. SIDEWALK GRADE SHALL FOLLOW THE ROAD GRADE WHERE POSSIBLE.
3. 4" MIN. THICK #57 OR # 67 STONE BASE
4. 4" MIN. THICKNESS CLASS A 3000 PSI CONCRETE WITH FIBER REINFORCEMENT, BROOM FINISHED.
5. EXPANSION JOINTS SHALL BE AS FOLLOWS:
   - 5.1. 1/2 INCH THICK
   - 5.2. A MAXIMUM SPACING OF 25 FEET
   - 5.3. AT TANGENTS OF ALL RADII OF CURVES
   - 5.4. BETWEEN CURBS AND ANY RIGID OBJECTS
   - 5.5. ALIGNED WITH ADJACENT EXPANSION JOINTS
   - 5.6. RUBBERIZED EXPANSION JOINT FILLER (AASHTO M153, TYPE 1)
   - 5.7. POLYPROPYLENE FOAM JOINT FILLER (ASTM D8139)
6. PROVIDE TRANSVERSE JOINTS AS NEARLY AS SQUARE AS PRACTICABLE. ON SIDEWALKS GREATER THAN 8 FEET IN WIDTH, PROVIDE A LONGITUDINAL JOINT ALONG THE CENTERLINE OF THE SIDEWALK.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER



SECTION AA

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

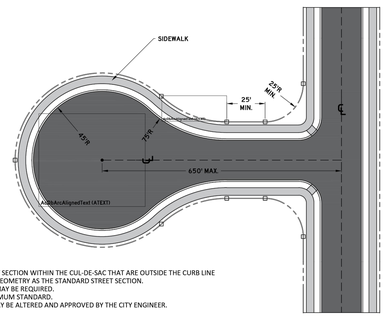
STANDARD DETAILS

CONCRETE SIDEWALK

(NTS)

DATE 6/9/2022

SD-10



NOTES:

1. ALL ELEMENTS OF THE STREET SECTION WITHIN THE CUL-DE-SAC THAT ARE OUTSIDE THE CURB LINE SHALL MAINTAIN THE SAME GEOMETRY AS THE STANDARD STREET SECTION.
2. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED.
3. DIMENSIONS REFLECT A MINIMUM STANDARD.
4. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER.

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

STANDARD DETAILS

CUL-DE-SAC

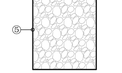
(NTS)

DATE 6/9/2022

SD-15

PAVEMENT SCHEDULE

①	**SURFACE @ 1.5" THICK** 411-E HOT ASPHALT CONCRETE MIX, (PG64-22) (ACS) GRADING D (SURFACE), OR 411-E/A ASPHALT CONCRETE MIX, (PG64-22) (ACS) GRADING C ⓦ (SURFACE)
②	**TACK COAT (GENERAL USE)** 403-03 BITUMINOUS MATERIAL FOR TACK COAT (CC) (0.05 - 0.10 GAL/SY)
③	**BIT. BINDER @ 2" THICK** 307-01/08 ASPHALT CONCRETE MIX, (PG64-22) (BPMB-HM) GRADING B-M2
④	**PRIME COAT** 402-10 BITUMINOUS MATERIAL FOR PRIME COAT (PC) -(0.30-0.35 GAL/SY) 402-02 AGGREGATE FOR COVER MATERIAL (PC) - (8-12 LB/SY)
⑤	**MINERAL AGGREGATE BASE @ 6" THICK** 303-01 MINERAL AGGREGATE, TYPE A BASE, GRADING D



CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

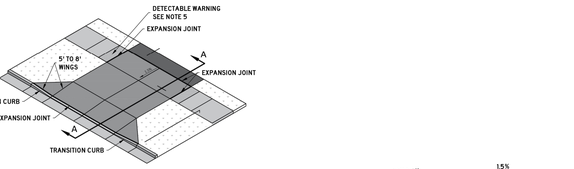
STANDARD DETAILS

PARKING LOT PAVEMENT SECTION

(NTS)

DATE 6/9/2022

MD-02



SECTION AA

NOTES:

1. SIDEWALK CROSS SLOPE 1.5% DESIRABLE 2.0% MAXIMUM.
2. APRON SLOPE 2.0% MIN. 10% MAX. MINIMUM OF 6" RISE ABOVE GUTTER LINE.
3. 4" MIN. THICK #57 OR # 67 STONE BASE
4. CLASS A 3000 PSI CONCRETE WITH FIBER REINFORCEMENT
   - 4.1. 6" MIN. THICKNESS RESIDENTIAL.
   - 4.2. 8" MIN. THICKNESS COMMERCIAL, MULTI-FAMILY, AND MIXED-USE.
5. EXPANSION JOINTS SHALL BE AS FOLLOWS:
   - 5.1. 1/2 INCH THICK.
   - 5.2. RUBBERIZED EXPANSION JOINT FILLER (AASHTO M153, TYPE 1).
   - 5.3. POLYPROPYLENE FOAM JOINT FILLER (ASTM D8139).
6. DETECTABLE WARNINGS WHERE DRIVEWAY IS STOP CONTROLLED.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER

CITY OF COLUMBIA TENNESSEE

CITY OF COLUMBIA
DEVELOPMENT SERVICES DEPARTMENT
ENGINEERING DIVISION

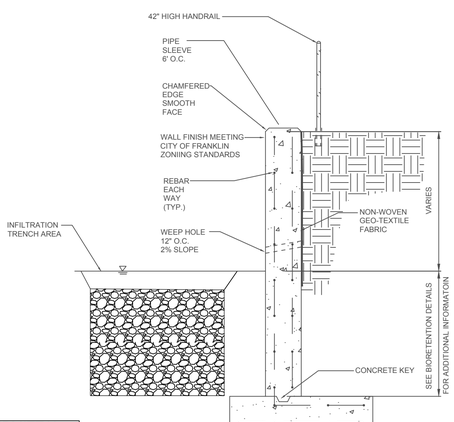
STANDARD DETAILS

DRIVEWAY APRON

(NTS)

DATE 6/9/2022

SD-12



NOTE: A FORMAL WALL SUBMITTAL PREPARED BY A LICENSED PROFESSIONAL WILL BE SUBMITTED WITH GUARDRAIL DETAILS PRIOR TO OBTAINING A BUILDING PERMIT.

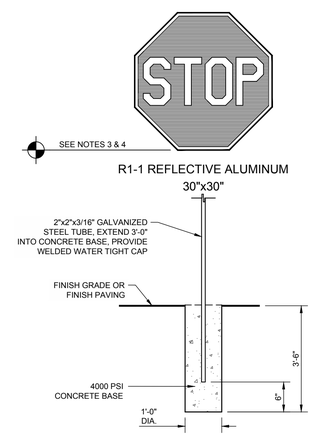
NOTE: RETAINING WALLS ADJACENT TO INFILTRATION TRENCH AREAS SHALL NOT RELY ON STONE DRAINAGE MEDIA FOR STABILITY OR LATERAL RESISTANCE. BOTTOM OF WALL/TOP OF FOOTING ELEVATION SHALL BE LOCATED AT OR BELOW BOTTOM OF LOWERMOST STONE DRAINAGE MEDIA.

RETAINING WALL ILLUSTRATIVE CROSS-SECTION

ADJACENT TO INFILTRATION TRENCH

FOR ILLUSTRATIVE PURPOSES ONLY, NOT TO BE USED FOR CONSTRUCTION

NO SCALE



R1-1 REFLECTIVE ALUMINUM
30"x30"

NOTES:

1. SET POSTS IN CONCRETE TO A MINIMUM DEPTH OF 36". SIGN PANELS SHALL BE 0.100 ALUMINUM WITH RAISED OR SILKSCREEN COPY.
2. FOR POST MOUNTING, USE NON-CORROSIVE 3/8" MACHINE BOLTS W/ WASHERS, 2 PER SIGN; OR IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3. ALL SIGNAGE IS TO BE INSTALLED WITH THE BOTTOM EDGE OF THE LOWEST SIGN AT LEAST 60" ABOVE FINISHED GRADE, WHERE NO PEDESTRIAN TRAFFIC IS POSSIBLE.
4. ALL SIGNAGE IS TO BE INSTALLED WITH THE BOTTOM EDGE OF THE LOWEST SIGN AT LEAST 84", WHERE PEDESTRIAN TRAFFIC IS POSSIBLE.
5. STOP SIGN TO BE HIGH INTENSITY GRADE.

STOP SIGN/SPEED LIMIT SIGN

N.T.S.

REVISION #	DATE	DESCRIPTION

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MATTHEW W. BRIAN
REGISTERED ENGINEER
CERTIFICATE No. 120144
STATE OF TENNESSEE
05/22/23

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

SITE DETAILS

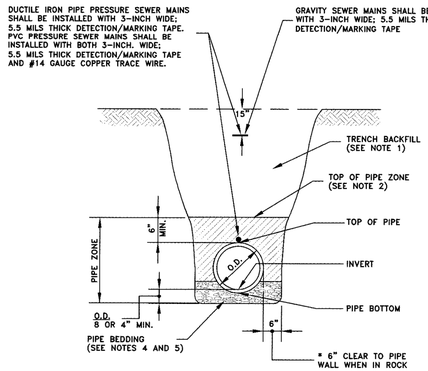
DATE : MAY 22, 2023
PROJECT NO. : 22-085
DRAWN BY : M2G
CHECKED BY : MWB

SHEET NUMBER:
C600

MPA - SITE DETAILS.DWG | Monday, May 22, 2023 2:13:31 PM

NOTES:

1. SEE PROJECT SPECIFICATIONS FOR BACKFILL REQUIREMENTS.
2. "PIPE ZONE" EXTENDS TO 6" ABOVE TOP OF PIPE AND BACKFILL IN TO BE CRUSHED STONE, GRAVEL OR OTHER GRANULAR MATERIAL AS APPROVED BY THE ENGINEER.
3. LIMIT TRENCH WIDTH AT TOP OF PIPE ZONE TO O.D. + 16", UNLESS PERMITTED OTHERWISE BY ENGINEER.
4. PIPE BEDDING IS TO BE CRUSHED GRAVEL OR OTHER GRANULAR MATERIAL AS APPROVED BY ENGINEER. DEPTH UNDER BOTTOM OF PIPE IS TO BE 1/8 OUTER DIAMETER (O.D.) OF PIPE OR 4", WHICHEVER IS GREATER.*
5. PIPE TO BE CONTINUOUSLY SUPPORTED ALONG LENGTH OF PIPE BARREL EXCEPT AT BELLS. BELL HOLES ARE REQUIRED SUCH THAT NO BEARING LOAD IS TAKEN BY THE BELL.

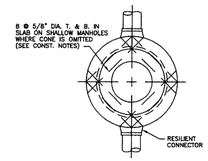


TYPICAL SEWER INSTALLATION

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S1

NOTE: ALL MANHOLES SHALL BE MANUFACTURED WITH XYPEX ADMIX C-1000/C-2000 IN CONCRETE FOR WATERPROOFING AND PROTECTION AGAINST HYDROGEN SULFIDE DETERIORATION. XYPEX ADMIX SHALL BE AS SUPPLIED BY TOM WILLIAMS; 1231 ANTIOCH PIKE, NASHVILLE. PRECAST MANHOLES SHALL BE AS SUPPLIED BY CLOUD CONCRETE PRODUCTS OR ENGINEER APPROVED EQUAL.

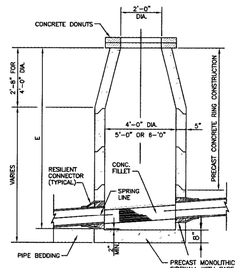


PLAN

CONSTRUCTION NOTES

CYLINDRICAL AND CONICAL SECTIONS OF ALL MANHOLES SHALL BE CONSTRUCTED OF EITHER MONOLITHIC CONCRETE OR PRECAST CONCRETE RINGS AS DESIGNED IN THE PROJECT SPECIFICATIONS OF THE CONTRACT DOCUMENT.
CONCENTRIC CONES SHALL BE USED ON PRECAST CONCRETE AND MONOLITHIC CONCRETE UNITS.
DIMENSION "E" VARIES. WHEN LESS THAN 5-FEET OMIT CONE AND EXTEND CYLINDRICAL MANHOLE SIDEWALL SECTION TO AN ELEVATION 8-INCHES BELOW BOTTOM OF ADJUSTING BRICK. CONSTRUCT 8-INCH THICK CONCRETE SLAB ON TOP OF CYLINDRICAL SECTION REINFORCED WITH 5/8-INCH DIA. BARS AS SHOWN. PROVIDE 24-INCH DIAMETER OPENING IN SLAB FOR MANHOLE'S FRAME AND BRICK ADJUSTMENT RINGS AS ON CONED MANHOLE.
BENCH WALLS IN MANHOLE AND SEWERS 18-INCHES IN DIAMETER AND SMALLER TO BE BUILT UP TO THE TOP OF THE LARGEST PIPE. FOR SEWERS 21-INCHES TO 30-INCHES IN DIAMETER, 3'-0" WIDE BENCH. LARGER SEWERS TO SPRING LINE. BENCH WALLS REQUIRED IN DEAD END MANHOLES, ALTHOUGH BOTTOM TO BE PROPERLY DISHED.

NOTE: GRANULAR BACKFILL MATERIAL SHALL BE PLACED ADJACENT TO MANHOLE IN AREAS WHERE SWELLING CLAY EXIST.



SECTION

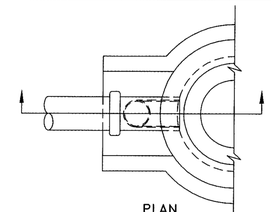
FOR SEWERS 36" DIAMETER & SMALLER
NOT TO SCALE

POURED IN PLACE MANHOLE
NOT TO SCALE

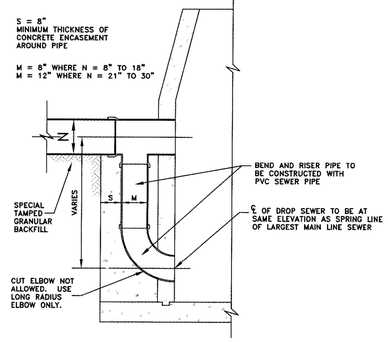
STANDARD MANHOLES

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S2



PLAN



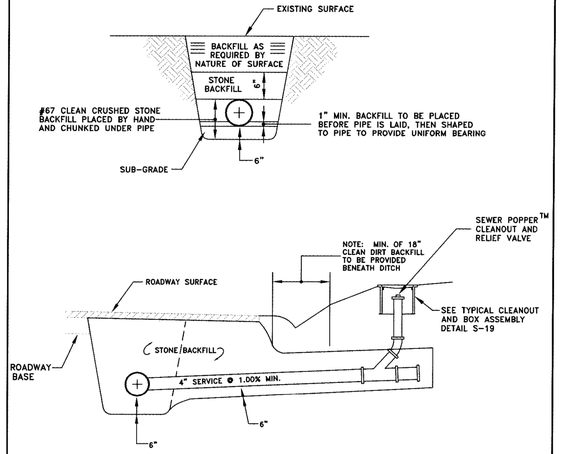
SECTION

DROP PIPE FOR STANDARD MANHOLES

NOT TO SCALE

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S3

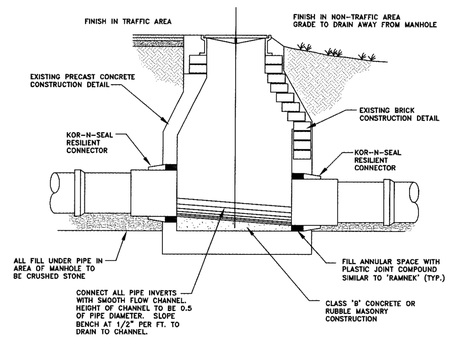


SERVICE LINE

NOT TO SCALE

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S4



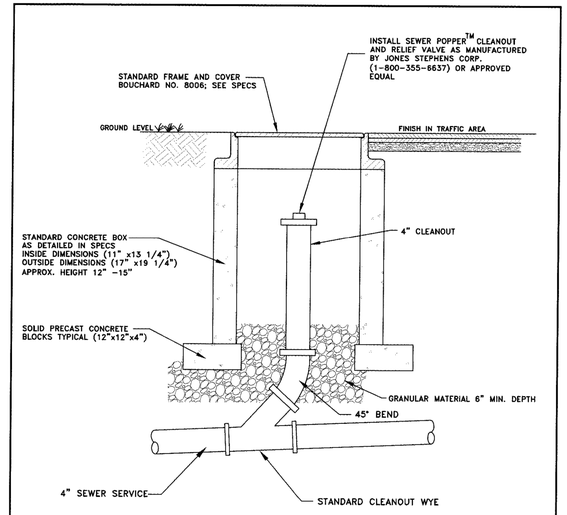
CONNECTION TO EXISTING MANHOLE

NOT TO SCALE

NOTE: THE CONTRACTOR SHALL NOT CONNECT TO EXISTING MANHOLE UNTIL ALL NEW SEWAGE FACILITIES HAVE BEEN INSTALLED, TESTED AND RELEASED FOR SERVICE.

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S5



TYPICAL CLEANOUT ASSEMBLY

NOT TO SCALE

WMS# 15157

COLUMBIA WASTEWATER TREATMENT SYSTEM	STANDARD DETAIL	S19

REVISION #	DATE	DESCRIPTION

MATTHEW W. BRYAN — REGISTERED ENGINEER — STATE OF TENNESSEE — 05/22/23

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

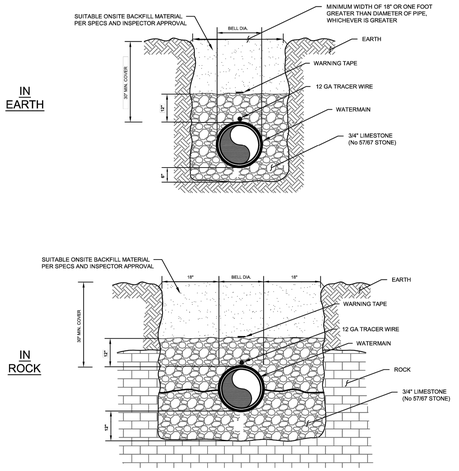
MZG GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.MZGROUPLLC.COM

UTILITY DETAILS

DATE:	MAY 22, 2023	DRAWN BY:	MZG
PROJECT NO.:	22-085	CHECKED BY:	MWB

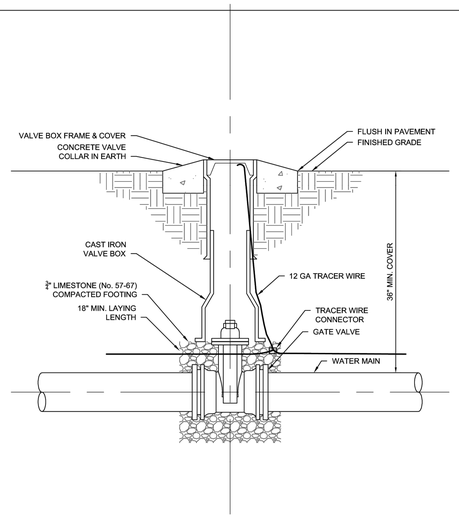
SHEET NUMBER:
C602

MPA - SITE DETAILS.DWG / Monday, May 22, 2023 2:13:35 PM



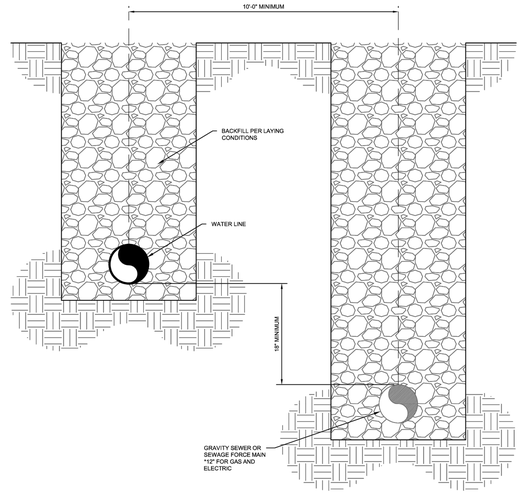
NOTES:
1. **30" MINIMUM COVER IN TRAFFIC AREAS.**
2. **UNSUITABLE EARTH MATERIALS MAY REQUIRE OVER-EXCAVATION AND GRAVEL BEDDING AND HAUNCHING.**

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: WATER LINE LAYING CONDITIONS IN ROCK OR EARTH | FIGURE NO.: CWS-1



NOTES:
1. ALL VALVE BOXES SHALL BE SET TO BE FLUSH WITH FINAL GRADES AND SHALL NOT BE COVERED WITH ANY PAVING, DIRT, SOD, GRASSING, AND/OR LANDSCAPING.
2. THIS DETAIL IS VALID FOR 16" AND SMALLER VALVE SIZES. FOR LARGER SIZES, SEE CONTRACT SPECS. OR CONFIRM WITH CPWS.

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: LINE VALVE SETTING | FIGURE NO.: CWS-2



CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: UTILITY SEPARATION | FIGURE NO.: CWS-3

LENGTH TO BE RESTRAINED (L)							
PIPE SIZE	HORIZONTAL BENDS				VERTICAL OFFSETS 45° BENDS		VALVES OR DEAD ENDS
	11.25°	22.5°	45°	90°	UPPER	LOWER	
6"	3 FT	6 FT	13 FT	30 FT	23 FT	4 FT	66 FT
8"	4 FT	8 FT	16 FT	38 FT	30 FT	6 FT	86 FT
10"	5 FT	9 FT	19 FT	45 FT	36 FT	7 FT	103 FT
12"	6 FT	11 FT	22 FT	53 FT	43 FT	8 FT	121 FT
16"	7 FT	14 FT	28 FT	66 FT	55 FT	10 FT	154 FT
20"	8 FT	16 FT	33 FT	79 FT	66 FT	12 FT	185 FT
24"	8 FT	16 FT	33 FT	79 FT	77 FT	15 FT	204 FT

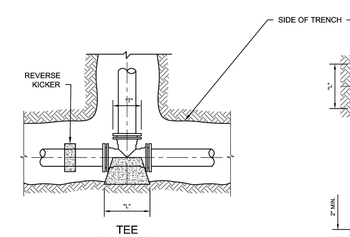
NOTES:
1. PIPE TO BE INSTALLED IN TRENCH AS PER LINE LAYING CONDITION DETAIL.
2. ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED AND SHALL BE PROVIDED WITH MECHANICAL JOINT THRUST RESTRAINTS AT ALL DIRECTION CHANGES, SIZE CHANGES, AND DEAD ENDS. ALL CONNECTIONS TO EXISTING PIPE SHALL BE MADE WITH RETAINER GLANDS.
3. MECHANICAL JOINT RESTRAINTS SHALL BE DUCTILE IRON IN ACCORDANCE WITH ASTM A536 - STANDARD SPECIFICATION FOR DUCTILE IRON CASTINGS.
4. CONTRACTOR SHALL FURNISH AND INSTALL MECHANICAL JOINT RESTRAINTS WITH ALL HARDWARE AND ACCESSORIES AS REQUIRED BY THE MANUFACTURER FOR PROPER INSTALLATION.
5. CONTRACTOR SHALL PROVIDE THE SERIES/MODEL OF JOINT RESTRAINT AS REQUIRED FOR THE PIPE SIZE, MATERIAL, AND FLANGED FITTING SHOWN ON THE PLANS.
6. RESTRAINT LENGTH CALCULATIONS WERE PERFORMED UNDER THE FOLLOWING CONDITIONS: PVC PIPE MATERIAL, GM SOIL TYPE, 1.5 SAFETY FACTOR, TYPE 3 TRENCH, 2.5 FT BURY DEPTH, 150 PSI TEST PRESSURE.

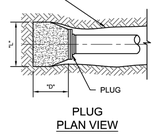
REDUCERS	
SIZE	L
6x4	34'
8x6	36'
8x4	62'
10x8	35'
10x6	63'
12x10	36'
12x8	64'
16x12	66'
16x10	92'
20x18	35'
20x16	66'
20x12	117'
24x20	56'
24x18	80'
24x16	101'

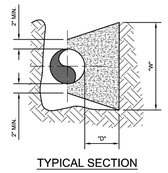
TEES		
RUN	BRANCH	L
4"	4"	F.O.
4"	6"	10'
	<6"	F.O.
8"	8"	29'
	<8"	F.O.
10"	10"	45'
	8"	13'
	<8"	F.O.
12"	12"	62'
	10"	32'
	<8"	F.O.
16"	16"	94'
	12"	39'
	10"	5'
	<10"	F.O.
20"	20"	125'
	16"	76'
	12"	14'
	<12"	F.O.
24"	24"	124'
	20"	84'
	16"	36'
	<16"	F.O.

F.O. = FITTING ONLY

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: PIPE JOINT RESTRAINT SCHEDULE | FIGURE NO.: CWS-4





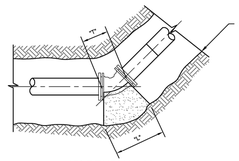


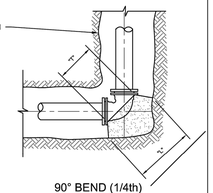
TEE							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	18"	18"	18"	24"	24"	30"	36"
"L"	19"	25"	31"	38"	50"	75"	93"
"W"	19"	25"	31"	38"	50"	75"	93"
"T"	16"	16"	18"	18"	24"	36"	36"

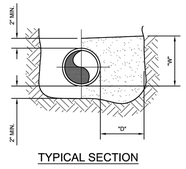
PLUG							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	18"	18"	18"	24"	24"	30"	36"
"L"	19"	25"	31"	38"	50"	75"	93"
"W"	19"	25"	31"	38"	50"	75"	93"
"T"	12"	12"	12"	12"	18"	30"	36"

NOTES:
1. DEPTH "D" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE AGAINST UNDISTURBED EARTH.
2. ALL BOLTS AND FITTINGS MUST BE WRAPPED IN MINIMUM THREE (3) MIL. PLASTIC.
3. LEAVE APPROXIMATELY 12" SEPARATION BETWEEN CONCRETE AND FITTING BELLS
4. THRUST BLOCK DIMENSIONS BASED ON 150 PSI OPERATING PRESSURE AND 50% ADDITIONAL SURGE PRESSURE
5. SOIL BEARING PRESSURE USED FOR THRUST BLOCK DIMENSIONS SHOWN IS 4,000 PSF. IF SOIL SURROUNDING THRUST BLOCK DOES NOT HAVE THIS CAPACITY, ADDITIONAL THRUST BLOCK VOLUME MAY BE REQUIRED.
6. CONCRETE TO BE USED FOR THRUST BLOCKS TO BE 3,500PSI CONCRETE.
7. LENGTH (L) AND WIDTH (W) DIMENSIONS CAN BE MODIFIED SLIGHTLY AS LONG AS TOTAL AREA DOES NOT CHANGE, BY WRITTEN DIRECTION OF CPWS ONLY TO MEET SITE SPECIFIC CONCERNS.
8. ELEVATION OF GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF THRUST BLOCK.

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: CONCRETE BLOCKING DETAILS (TEES AND PLUGS) | FIGURE NO.: CWS-5







90° BEND (1/4th)							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	18"	18"	18"	24"	24"	30"	36"
"L"	32"	42"	52"	63"	84"	125"	156"
"W"	16"	21"	26"	32"	42"	63"	78"
"T"	16"	16"	18"	18"	24"	36"	36"

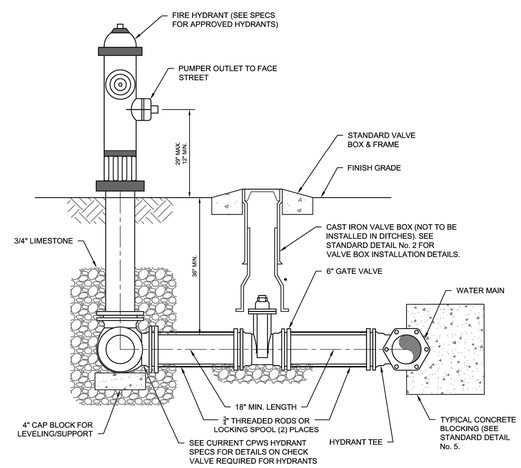
45° BEND (1/8th)							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	18"	18"	18"	18"	24"	30"	36"
"L"	24"	31"	39"	46"	62"	92"	115"
"W"	12"	16"	20"	23"	31"	46"	58"
"T"	16"	16"	18"	18"	18"	24"	24"

22.5° BEND (1/16th)							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	12"	12"	18"	18"	24"	24"	24"
"L"	17"	23"	28"	33"	44"	66"	82"
"W"	9"	12"	14"	17"	22"	33"	41"
"T"	16"	16"	18"	18"	18"	24"	24"

11.25° BEND (1/32nd)							
SIZE	6"	8"	10"	12"	16"	24"	30"
"D"	12"	12"	18"	18"	24"	24"	24"
"L"	12"	16"	20"	24"	32"	47"	59"
"W"	6"	8"	10"	12"	16"	24"	30"
"T"	16"	16"	18"	18"	18"	24"	24"

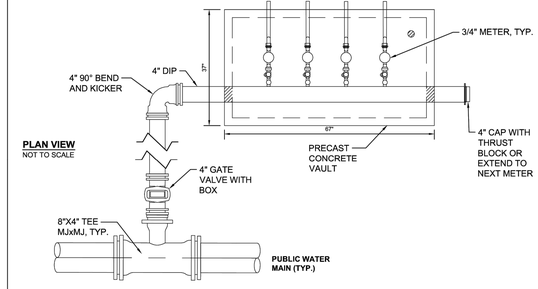
NOTES:
1. DEPTH "D" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE AGAINST UNDISTURBED EARTH.
2. ALL BOLTS AND FITTINGS MUST BE WRAPPED IN MINIMUM THREE (3) MIL. PLASTIC.
3. LEAVE APPROXIMATELY 12" CLEARANCE BETWEEN CONCRETE AND FITTING BELLS
4. THRUST BLOCK DIMENSIONS BASED ON 150 PSI OPERATING PRESSURE AND 50% ADDITIONAL SURGE PRESSURE.
5. SOIL BEARING PRESSURE USED FOR THRUST BLOCK DIMENSIONS SHOWN IS 4,000 PSF. IF SOIL SURROUNDING THRUST BLOCK DOES NOT HAVE THIS CAPACITY, ADDITIONAL THRUST BLOCK VOLUME MAY BE REQUIRED.
6. CONCRETE TO BE USED FOR THRUST BLOCKS TO BE 3,500PSI CONCRETE.
7. LENGTH (L) AND WIDTH (W) DIMENSIONS CAN BE MODIFIED SLIGHTLY AS LONG AS TOTAL AREA DOES NOT CHANGE, BY WRITTEN DIRECTION OF CPWS ONLY TO MEET SITE SPECIFIC CONCERNS.
8. ELEVATION OF GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF THRUST BLOCK.

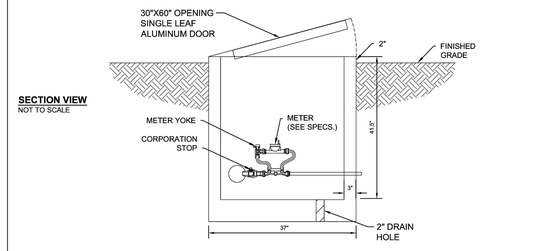
CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: CONCRETE BLOCKING (BENDS) | FIGURE NO.: CWS-6



NOTES:
1. FIRE HYDRANT SHALL BE INSTALLED SO THE PUMPER NOZZLE IS POINTED TOWARD THE STREET.
2. ALL M.J. FITTINGS TO INCLUDE WEDGE STYLE THRUST RESTRAINT.
3. FIRE HYDRANTS TO BE SAFETY YELLOW.
4. TRACER WIRE TO EXTEND TO VALVE AND HYDRANT.

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: FIRE HYDRANT ASSEMBLY | FIGURE NO.: CWS-11





NOTES:
1. THE GANG VAULT MAY VARY FROM 3 TO 6 METERS DEPENDING ON CONDITIONS. VAULT SIZE WILL VARY ACCORDINGLY.
2. PRECAST VAULT TO COMPLY WITH ASTM C-857 & C-858.
3. TRACER WIRE TO EXTEND TO METER VAULT.

CPWS Columbia Power & Water Systems | STANDARD WATER DETAIL: GANG METER VAULT | FIGURE NO.: CWS-22

DESCRIPTION	DATE	REVISION #

SITE PLANS FOR:
MACKENZIE PLACE
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MATTHEW W. BRYAN
REGISTERED ENGINEER
No. 120,143
COMMERCE
CERTIFICATE No.
STATE OF TENNESSEE
05/22/23

MPA GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.MPAGROUPLLC.COM

UTILITY DETAILS

DRAWN BY : M2G
CHECKED BY : MWB
DATE : MAY 22, 2023
PROJECT NO. : 22-085

SHEET NUMBER:
C601

MPA - SITE DETAILS.DWG / Monday, May 22, 2023 2:13:42 PM

DATE	INVOICE NO.	COMMENT	AMOUNT	NET AMOUNT
05/19/2023	052223	Site Plan Submittal Fee Mackenzie Place		370.00
DATE 05/19/23		**VENDOR** City of Columbia	**TOTAL**	370.00

M2 Group, LLC
PO Box 848
Franklin TN 37065

FirstBank
Franklin, TN
87-703/843
00272

2241

Three Hundred Seventy and no/100

DATE		AMOUNT
05/19/23	2241	$370.00

PAY TO THE ORDER OF **CITY OF COLUMBIA**

Kevin Bohman MP

⑈002241⑈ ⑆084307033⑆ 202 079 0⑈

GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

February 23, 2023

Waits Development
PO Box 111285
Nashville, TN 37222

Attention: Mr. John Waits
john.waits1@icloud.com

Subject: **REPORT FOR GEOTECHNICAL EXPLORATION**
Proposed Mackenzie Place Townhomes
220 Theta Pike
Columbia, Tennessee
GEOServices Project No. 31-231084

Dear Mr. Waits:

We are submitting the results of the geotechnical exploration performed for the proposed Mackenzie Place townhomes development in Columbia, Tennessee. The geotechnical exploration was performed in accordance with GEOServices Proposal No. 13-231101 dated February 2, 2023 and authorized by you.

The following report presents our findings and recommendations for the proposed development. Should you have any questions regarding this report, or if we can be of any further assistance, please contact us at your convenience.

Sincerely,

GEOServices, LLC

JERRY WAYNE GAMMON
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 111633
STATE OF TENNESSEE

2/23/2023
31-231084

S. Scott Williams, E.I.
Staff Professional

Jerry W. Gammon, P.E.
V.P., Nashville Area Branch Manager
TN 111633

REPORT OF

GEOTECHNICAL EXPLORATION

Proposed Mackenzie Place Townhomes
Columbia, Tennessee

GEOServices Project No. 31-231084

Submitted to:

Waits Development
PO Box 111285
Nashville, Tennessee 37222

Submitted by:

GEOServices, LLC
91 South Eastgate Court
Lebanon, Tennessee 37090

Phone (615) 547-9314
Fax (615) 547-9451

GEOServices, LLC, Geotechnical and Materials Engineers

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APPENDIX B – Laboratory Testing Results
APPENDIX C – Representative Site Photographs

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this geotechnical exploration was to characterize the subsurface conditions for the design and construction of the proposed Mackenzie Place townhomes development in Columbia, Tennessee. This report provides recommendations for general site preparation, excavation and fill requirements, foundation design recommendations, and pavement design recommendations.

1.2 PROJECT INFORMATION AND SITE DESCRIPTION

Initial project information was provided in a February 2, 2023, email from Mr. Brian Holcombe (M2 Group) to Mr. Jerry Gammon with GEOServices, LLC (GEOS). A link was attached to a set of plans titled "Mackenzie Place" developed by M2 Group and dated 1/16/23. Based on the plans provided in the email, we understand that townhomes with associated roadway infrastructure are planned to be developed at 220 Theta Pike in Columbia, Tennessee. We understand the buildings will be multi-story wood framed with a concrete slab-on-grade supported by shallow foundations. At this time, structural loading information has not been provided. From experience with similar projects, we assume maximum column and wall loadings will be about 100 kips, and 3 to 5 kip per linear foot (klf), respectively.

At the time of site reconnaissance, the site was observed to be occupied by construction debris scattered through the site at the ground surface and an existing mobile residential home in the eastern portion. Based on site observations and publicly available historical aerial imagery, we note the majority of the site was previously occupied by several mobile-residential homes, which

have since been demolished, and the construction debris remains onsite. An existing asphalt drive was observed leading into the site from Theta Pike. The existing ground surface was observed to be generally grass covered, with sparse areas of trees and grassy overgrowth. Existing utilities from the previous development were also observed onsite. Areas of rock outcroppings were observed onsite, as shown in Site Photo 10 of Appendix C. The existing site conditions at the time of site reconnaissance are depicted in Appendix C of the Appendices. The site was observed to be generally rolling with the majority of the site sloping from the south/southeastern areas down toward the northern areas of the site.

Based on the proposed grading plan provided by M2 Group as produced by M2 Group, the subject site has a maximum elevation of approximately 643 feet at the southern-central portion of the site and a minimum elevation of approximately 606 feet at the most northwest portion of the site. Additionally, the proposed structure footprints have a maximum elevation of approximately 639 feet at the southern-central portion of the area and a minimum elevation of approximately 612 feet at the northwestern portion of the area. Finish floor elevations (FFE) ranging from 621.75 to 629.40 feet were also provided for the proposed structures. Based on the provided existing site grades and provided planned finish floor elevations, the structure footprints will require cut depths on the order of about 12 feet or less and fill thicknesses on the order of about 10 feet or less to establish subgrade elevations within the building footprints. The remainder of the site will require similar cut depths and fill thicknesses to establish subgrade elevations based on the provided proposed grading plan.

1.3 SCOPE OF STUDY

This geotechnical exploration involved a site reconnaissance, field exploration, and engineering analysis. The following sections of this report present discussions of the field exploration, site

conditions, and general recommendations. Following the text of this report, figures, observation trench logs, and laboratory results are provided in the appendices. Appendix A provides figures and observation trench logs. Appendix B provides the results of laboratory testing. Appendix C provides representative photographs of the site.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface water, subsurface water, or air, on, or below, or around this site. Any statements in this report or on the observation trench summary regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

2.0 EXPLORATION

2.1 FIELD EXPLORATION

The site subsurface conditions were explored on February 13, 2022 with a total of fifteen (15) observation trenches at the approximate locations shown by Figure 3 in Appendix A. The observation trench locations were located by GEOServices personnel in the field by measuring off known site reference points and utilizing GPS coordinates extrapolated from Google Earth. The depths reference the ground surface elevations at the site that existed at the time of the exploration. Testing of overburden soils was accomplished using a dynamic cone penetrometer (DCP) at select observation trenches. In dynamic cone penetrometer (DCP) testing, a 1.5-inch diameter cone (45^{o} vertex angle) is driven into the subgrade soil with a 15-pound steel mass falling 20 inches. The blows required to drive the embedded cone a depth of 1-3/4 inch have been correlated to N-values derived from the Standard Penetration Test (SPT). These DCP-values

are indicated on the summary of observation trench logs at the testing depth, and provide an indication of the relative density of granular materials and strength of cohesive materials.

Upon completion, the excavations were observed for the presence of groundwater and then backfilled with the excavated material. Minor settlement of the backfill should be expected over time. Detailed observation trench records are presented in Appendix A.

2.2 LABORATORY TEST PROGRAM

Soil samples collected during excavation were transported to our laboratory for visual classification and laboratory testing. The following laboratory testing will be performed on select samples to determine various properties of the soil:

- Natural Moisture Content (ASTM D 2216): Moisture content determinations were performed. The natural moisture content is defined as the ratio of the weight of water present in the soil to the dry weight of soil.

- Atterberg Limits (ASTM D 4318): Atterberg Limits tests were performed. These tests help us to confirm our visual classifications according to the AASHTO Classification System and the Unified Soil Classification System (USCS). The plastic limit and liquid limit represent the moisture content at which a cohesive soil changes from a semi-solid to a plastic state and from a plastic state to liquid state, respectively.

The test results are presented in the Soil Data Summary enclosed in Appendix B.

3.0 SUBSURFACE CONDITIONS

3.1 GEOLOGIC CONDITIONS

The subject site is located within the Central Basin Physiographic Province of Middle Tennessee. The Central Basin is an elliptical basin surrounded by the Highland Rim. The Basin is subdivided into inner and outer sections. The inner section is generally smooth and gently rolling in contrast to the higher and more deeply dissected outer Basin. Bedrock is primarily Ordovician limestone, shale and dolomite in the outer Basin. The inner basin is generally covered with limestone with patches of bare platy rock and thin topsoil with glade areas supporting red cedar trees. The region is moderate in karst development with many sinkholes and some large caves present, notably in the glade areas.

The Geologic Map of the Godwin Quadrangle, Tennessee (Tennessee Division of Geology, 1964) shows the site is underlain by the Carters Limestone formation. The Carters Limestone formation is typically a hard, light gray to brown, cryptocrystalline (i.e., microscopically crystalline), medium- to thick-bedded, brittle limestone with occasional thin chert lenses. The limestone weathers to produce a 5- to 10-foot thick layer of native soil (residuum) which is typically an orange to brown silty clay. The soil/rock interface may be irregular due to a layer of rounded boulders at the base of the soil zone.

The limestone bedrock of the Carters Limestone formation is susceptible to solution weathering and the creation of karst features, such as sinkholes. In general, because of the shallow overburden soils, karst features are relatively small in horizontal extent, but can extend into the bedrock several feet. Review of the USGS Godwin Quadrangle, Tennessee, Topographic Quadrangle Map (1964) did not indicate the presence of any closed depressions on-site.

However, the topographic mapping did indicate the presence of multiple closed depressions within a 1-mile radius of the site within each direction of the site. We note the scale of the map often precludes mapping of smaller depressions.

Since the bedrock underlying the site mainly consists of carbonate rock, the site is susceptible to the typical carbonate hazards of irregular weathering, cave and cavern conditions, and overburden sinkholes. Carbonate rock, while appearing very hard and resistant, is soluble in slightly acidic water. This characteristic, plus differential weathering of the bedrock mass, is responsible for the hazards. Of these hazards, the occurrence of sinkholes is potentially the most damaging to overlying soil-supported structures. In Middle Tennessee, sinkholes occur primarily due to differential weathering of the bedrock and "flushing" or "raveling" of overburden soils into the cavities in the bedrock. The loss of solids creates a cavity or "dome" in the overburden. Growth of the dome over time or excavation over the dome can create a condition in which rapid, local subsidence or collapse of the roof of the dome occurs.

3.2 SUBSURFACE CONDITIONS

A surficial layer of topsoil was encountered in 14 of the 15 observation trenches to depths ranging from about 2 to 18 inches below the existing ground surface elevation. No surficial layer was encountered at observation trench OT-12 due to fill soils at the surface. Beneath the surficial layers or at the surface of each of the observation trenches, fill and/or residual soils were encountered to excavator refusal or termination depths ranging from about 1 to 8 feet below the existing ground surface elevation.

3.2.1 Fill Soils

Existing fill was encountered within 11 of the 15 observation trenches (OT-1, OT-3, OT-5, OT-7, OT-8, and OT-10 through OT-15) to depths ranging from about 1 to 5 feet below the existing

ground surface elevation. The fill material retrieved from the observation trenches generally consisted of brown, reddish brown, dark brown, and dark gray clays with varying amounts of gravel, limestone fragments and boulders, chert fragments, abandoned underground utilities, trace construction debris, and trace asphalt debris. A dynamic cone penetrometer (DCP) is used to evaluate the consistency or density of the subsurface soils encountered in the observation trenches. The DCP N-values of the fill soil tested ranged from 1 blows per increment (bpi) to 9 bpi, indicating a consistency of very soft to stiff. The consistency of the fill soil was most generally soft to firm. The natural moisture content of the fill soil samples retrieved from the observation trenches ranged from 16.5 to 26.8 percent. Atterberg limits testing on one selected fill sample retrieved from observation trench OT-1 yielded a liquid limit (LL) of 29 percent and a plasticity index (PI) of 10 percent. This sample is classified as lean clay (CL) in accordance with the Unified Soil Classification System (USCS).

3.2.2 Residual Soils

Beneath the surficial layers and/or existing fill soils in 14 of the 15 observation trenches (OT-2 through OT-15), residual soil was encountered to excavator refusal or termination depths. Residual soils are generally defined as soils which have weathered in place from the underlying bedrock. The residual soil generally consisted of brown, light brown, and reddish brown clay with varying amounts of sand, chert fragments, limestone fragments and boulders, and black oxide nodules. The DCP N-values of the residual soil ranged from 2 bpi to 8 bpi, indicating a consistency of very soft to firm. The consistency of the residual soil was most generally firm. The natural moisture content of the residual soil samples retrieved from the observation trenches ranged from 16.7 to 33.3 percent. Atterberg limits testing on three selected residual samples retrieved from observation trenches OT-10, OT-11, and OT-13 yielded liquid limits (LL) ranging from 33 to 58 percent and plasticity indices (PI) ranging from 14 to 29 percent. These samples are classified as lean clay (CL) and fat clay (CH) in accordance with the Unified Soil Classification System (USCS).

3.2.3 Subsurface Water

Subsurface water was not observed in any of the observation trenches during or at the completion of excavation activities. However, discontinuous zones of perched water may exist within the overburden and/or at the contact with bedrock. Subsurface water levels may fluctuate due to seasonal change in precipitation amounts or due to construction activities in the area. The groundwater presented in this report is the information that was collected at the time of our field activities. We recommend that the contractor determine the actual groundwater level at the site at the time of the construction activities.

3.2.4 Observation Trench Refusal Conditions

Observation trench refusal materials were encountered in five of the 15 observation trenches at depths ranging from about 1 to 7 feet below existing ground surface elevation. Refusal is a designation applied to any material that cannot be penetrated by the bucket of the excavator. Observation trench refusal may indicate dense gravel or cobble layers, boulders, rock ledges or pinnacles, or the top of continuous bedrock. The following table presents the observation trench refusal depths at each observation trench location:

OBSERVATION TRENCH REFUSAL DEPTHS					
Location	**Refusal Depth (feet)**	**Location**	**Refusal Depth (feet)**	**Location**	**Refusal Depth (feet)**
OT-1	3 to 4	OT-6	>7.5	OT-11	>8
OT-2	4 to 7	OT-7	>8	OT-12	1 to 6
OT-3	3	OT-8	>8	OT-13	>8
OT-4	1 to 4	OT-9	>8	OT-14	>8
OT-5	>8	OT-10	>8	OT-15	>8

Note: Refusal depths are taken from the ground surface elevation at the time of exploration and rounded to the nearest ½ foot interval.

3.2.5 General

The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The observation trench record included in Appendix A should be reviewed for specific information at individual test locations. The depth and thickness of the subsurface strata indicated on the observation trench records were generalized from and interpolated between test locations. The transition between materials will be more or less gradual than indicated and may be abrupt. Information on actual subsurface conditions exists only at the specific observation trench locations and is relevant to the time the exploration was performed. Variations may occur and should be expected between observation trench locations. The stratification lines were used for our analytical purposes and, unless specifically stated otherwise, should not be used as the basis for design or construction cost estimates.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 SITE ASSESSMENT

Based on the results of our subsurface exploration, this site is adaptable for the proposed development. However, as with most sites, some inherent geotechnical issues should be considered during the construction phases. These issues include the existing fill materials, soft soil conditions, moisture sensitive soils, shallow refusal conditions, differential bearing concerns, and the underlying karst geology.

4.1.1 Existing Fill Materials

Existing fill was encountered within 11 of the 15 observation trenches (OT-1, OT-3, OT-5, OT-7, OT-8, and OT-10 through OT-15) to depths ranging from about 1 to 5 feet below the existing ground surface elevation. We are not aware nor have we been provided testing records of the fill. Accordingly, there are certain risks associated with construction on these types of fill. The risk primarily consists of excessive and/or non-uniform settlement caused by extensive zones or pockets or soft, loose, or uncompacted material.

Based on the fill depths and the planned development, we anticipate that a portion, if not majority, of the fill may be removed during mass grading activities within the building footprints. However, the possibility exists that deeper fill depths may be encountered between our observation trench locations. Recommendations for dealing with the in-place fill material is included in later sections of the report.

4.1.2 Soft Soil Conditions

Soft soil conditions were encountered in six of the 15 observation trenches (OT-5, OT-7, OT-10, and OT-13 through OT-15) to depths ranging from approximately 1 to 5.5 feet below the existing ground surface elevation. These soft zones encountered within the observation trenches can potentially impact the performance of the proposed structures and/or pavements depending on final grades. The possibility exists that some of the soft soils will be removed during mass grading activities. However, if these soft soils are not removed during mass grading activities, these soft soils will perform unsatisfactorily during initial proofroll activities. Therefore, we recommend that the owner carry a contingency budget to remediate these soils during mass grading activities.

4.1.3 Moisture Sensitive Soils

The subgrade soils at this site, as with most sites in middle Tennessee, consist of clayey soils. These materials will be sensitive to changes in moisture contents. As such, it will be advantageous to perform grading activities during periods of warm and/or dry weather. Areas that are wet or become unstable can possibly be repaired by scarification and re-compaction if grading occurs during warm, dry weather. If grading occurs during wet, cool weather, we expect that additional soft soil at or near the surface soils across the site will have to be undercut and replaced. A contingency budget should be established for subgrade stabilization consistent with the time of year that grading will take place.

4.1.4 Shallow Refusal Conditions

Observation trench refusal materials were encountered in five of the 15 observation trenches at depths ranging from about 1 to 7 feet below existing ground surface elevation. The refusal materials encountered were generally hard and could not be penetrated by the excavator bucket. We anticipated these refusal materials will be encountered in utility areas and portions of the building foundations. As such, we anticipate excavation of the refusal materials will require blasting and/or hoe-ramming for removal.

4.1.5 Differential Bearing Concerns

Based on the results of our subsurface exploration and the anticipated cut and fill requirements to develop the site, the possibility exists that a portion of the building foundations may bear in residual soil material or structural fill, while a portion could be bearing on boulders or other refusal materials. This condition will result in a differential bearing condition which could result in excessive differential settlement across the buildings. As a result, recommendations are provided in later sections that will help alleviate the risk of adverse differential settlement.

4.1.6 Karst Geology

A certain degree of risk with respect to sinkhole formation and subsidence should be considered with any site located within geologic areas underlain by potentially soluble rock units. While a detailed effort to assess the potential for sinkhole formation on this site was beyond the scope of this evaluation, our observation trenches did not encounter obvious indications of sinkhole development. Additionally, review of the USGS topographic map did not indicate the presence of any closed depressions on-site. However, the topographic mapping did indicate the presence of multiple closed depressions within a 1-mile radius of the site within each direction of the site. Based on these findings and our experience with this formation at other sites, we consider that this site has no greater risk for sinkhole activity than other sites in the immediate vicinity of this site.

4.2 SITE PREPARATION

4.2.1 Subgrade

Vegetation, topsoil, organic soils, existing utilities, existing foundations, loose rock fragments greater than 6 inches and other debris should be removed from the proposed construction area. A portion of the site has tree foliage. Therefore, thicker topsoil depths or deep root zones may be encountered which will also require removal. Information pertaining to the age, placement and compaction of the fill materials encountered within our observation trenches were not available. Based on the observed existing fill materials encountered and the inconsistencies of these fill soil materials, any existing fill encountered after mass grading activities within the building footprint plus 5 feet beyond the most outer foundation limit should be undercut to stiff residual soil materials or bedrock and replaced with suitable fill materials. In the roadway areas, if the owner is willing to accept the risk of potential poor pavement performance with leaving the existing fill soils in place, we would recommend these fill materials be thoroughly evaluated during mass grading activities to determine if any fill materials should be remediated. If unsuitable soil conditions are

encountered, these unsuitable materials should be remediated at the geotechnical engineer's recommendations. It is recommended that a contingency budget be reserved for undercutting and replacement for the development of this project. The actual depth of removal should be determined by a representative of the geotechnical engineer at the time of construction.

After completion of stripping operations and any required excavations to reach planned subgrade elevation, we recommend that the subgrade be proofrolled with a fully loaded, tandem-axle dump truck or other pneumatic-tired construction equipment of similar weight. The geotechnical engineer or his representative should observe proofrolling. Weak or unstable areas should be remediated at the geotechnical engineer's recommendation. Areas to receive structural soil fill should also be proofrolled prior to the placement of any fill. Due to the consistency of the soils encountered during this geotechnical exploration, most generally in the area of observation trench locations OT-5, OT-7, OT-10, and OT-13 through OT-15, it should be anticipated that remediation of soft soils will be required in order to complete the development of this project.

4.2.2 Structural Soil Fill

Material considered suitable for use as structural fill should be clean soil free of organics, trash, and other deleterious material, containing no rock fragments greater than 6 inches in any one dimension. Preferably, structural soil fill material should have a standard Proctor (ASTM D698) maximum dry density of 90 pcf or greater and a plasticity index (PI) of 35 percent or less. Materials with a PI greater that 35 percent are susceptible to volume changes with changes in moisture content. Volume changes in the foundation subgrade can cause structural distress in buildings, floor slabs, and pavements. Material to be used as structural fill should be tested by the geotechnical engineer to confirm that it meets the project requirements before being placed. The standard proctor testing typically requires at least 3 to 4 days to complete. To avoid delays

during grading, samples of proposed fill materials (both on-site and off-site) should be collected during site preparation activities.

Structural fill should be placed in loose, horizontal lifts not exceeding 8 inches in thickness. Each lift should be compacted to at least 95 percent of the soil's maximum dry density per the standard Proctor method (ASTM D698) and within the range of minus (-) 2 percent to plus (+) 2 percent of the optimum moisture content. Each lift should be tested by geotechnical personnel to confirm that the contractors' method is capable of achieving the project requirements before placing any subsequent lifts. Any areas, which have become soft or frozen, should be removed before additional structural fill is placed. Structural soil fill placement should be accomplished under the full-time or near full-time observation of a representative of the geotechnical engineer.

4.2.3 Shotrock Fill Materials

Shotrock fill, with acceptable gradation, can be used as structural fill. Shotrock utilized as structural fill should be well graded with a maximum rock size of 12 inches and be placed in lifts not to exceed 18 inches thick. Shotrock of this size should be placed at depths deeper than 4 feet below planned subgrade levels in the building area. The rock or stone should have a maximum particle size of 8-inches in the largest dimension up to proposed subgrade (from minus 4 feet below subgrade up to subgrade) when mixed with satisfactory material.

Shotrock fill should have adequate fines to effectively "choke" the larger rock pieces, adequately filling voids or open spaces. The larger rock pieces should lie flat and not overlap each other. The percentage of soil in the fill should be limited to a maximum of 10 percent. Shotrock fill should be compacted using complete passes of a D-8 class crawler tractor, or equivalent. A pass is defined as a complete coverage of the surface with the D-8 track overlapping 50 percent. Half of the passes

should be in each perpendicular direction. Shotrock fill placement should be accomplished under the full-time observation of a representative of the geotechnical engineer.

4.2.4 Compacted Crushed Stone Fill

Compacted crushed stone fill should be Type A, Class A, and Grading D in accordance with Section 903.05 of the Tennessee Department of Transportation specifications. The crushed stone fill should be placed in loose, horizontal lifts not exceeding 10 inches in loose thickness. Each lift should be compacted to at least 95 percent of maximum dry density per the standard Proctor method (ASTM D698). Each lift should be compacted and tested by geotechnical personnel to confirm that the contractor's method is capable of achieving the project requirements before placing any subsequent lifts.

4.3 FOUNDATIONS

4.3.1 Option #1: Soil Bearing Foundations

Foundations for the proposed townhome construction can be supported on stiff or better residual soil or properly compacted structural fill materials. The recommended allowable bearing capacity for design of soil bearing foundations is 2,000 pounds per square foot (psf). We recommend that continuous foundations be a minimum of 18 inches wide and isolated spread footings be a minimum of 24 inches wide to reduce the possibility of a localized punching shear failure. Exterior footings should be designed to bear at least 18 inches below finished exterior grade to protect against frost.

As mentioned previously, observation trench refusal was encountered at depths ranging from about 1 to 7 feet below the existing ground surface elevation. Due to the anticipated cut and fill depths, it should be anticipated that competent bedrock may be encountered during foundation and/or utility excavations. If rock is encountered at the foundation bearing elevation over small portions of the

building footprint, we recommend the rock be removed to a minimum depth of 18 inches below planned bearing elevation. The area can then be backfilled with properly compacted crushed stone or open-graded #57-sized stone. The crushed stone will help act as a "cushion" to prevent point loading of the foundation. If desired, the foundation designer may also elect to include additional reinforcing steel into the foundations at these transition points to help resist negative moment forces.

Foundation excavations should be opened, the subgrade evaluated, remedial work performed, and concrete placed in an expeditious manner. Exposure to weather often reduces foundation support capabilities, thus necessitating remedial measures prior to concrete placement. It is also important that proper surface drainage be maintained both during construction (especially in terms of maintaining dry footing trenches) and after construction.

4.3.2 Option #2: Rock Bearing Foundations

If bedrock is encountered over the majority of the townhome building foundation, the remaining isolated foundation areas underlain by soil can be over-excavated to bedrock, cleaned of remaining soil particles, and backfilled with lean concrete and/or flowable fill back to bottom of foundation elevation. The recommended allowable bearing capacity for design of the foundations bearing on bedrock, concrete fill, or rock fill is 4,000 pounds per square foot (psf). The above minimum foundation sizes will still apply.

Foundation excavations should be opened, the subgrade evaluated, remedial work performed, and concrete placed in an expeditious manner. Exposure to weather often reduces foundation support capabilities, thus necessitating remedial measures prior to concrete placement. It is also important that proper surface drainage be maintained both during construction (especially in terms of maintaining dry footing trenches) and after construction.

4.3.3 Slab-on-Grade

For slab-on-grade construction, the site should be prepared as previously described. We recommend that the subgrade be topped with a minimum 4-inch layer of crushed stone to act as a capillary moisture block. The subgrade should be proofrolled and approved prior to the placement of the crushed stone. Based on the conditions encountered on this site, we recommend that the floor slabs be designed using a subgrade modulus of 100 pounds per cubic inch (pci). This modulus is appropriate for small diameter loads (i.e. a 1ft x 1ft plate) and should be adjusted for wider loads.

4.4 LATERAL EARTH PRESSURES

Based on the proposed design, we anticipate the development will have retaining walls to help development the site. Therefore, we are providing equivalent fluid pressures for three backfill conditions for cantilever-type walls. These are 1) active earth pressure for granular backfill (clean sand or gravel), 2) at-rest earth pressure for granular backfill, and 3) at-rest earth pressure for fine-grained (silt or clay) backfill.

Condition 1 - The active earth pressure for granular backfill will result in an equivalent fluid pressure of 40 pounds per cubic foot (pcf). If the granular backfill is to develop active earth pressure conditions, walls must be flexible and/or free to rotate or translate at the top approximately one inch laterally for every 20 feet of wall height.

Condition 2 - The at-rest earth pressure for granular backfill will result in an equivalent fluid pressure of 50 pcf. For retaining walls that will not rotate or translate, such as building walls or other walls rigidly connected to structures, at-rest conditions will develop.

Condition 3 - Walls backfilled with fine-grained material (silt or clay) should be designed using the at-rest earth pressure whether restrained at the top, or not. Fine-grained soils typically creep over

time which produces additional lateral stresses to the wall. The equivalent fluid pressure for this case is 70 pcf.

For rigid, cast-in-place concrete walls, a friction factor of 0.35 between foundation concrete and clayey soil may be used when evaluating friction. If a stone leveling course is utilized beneath the foundation, a friction factor of 0.50 between foundation concrete and the dense grade aggregate base may be used when evaluating friction. Also, an ultimate passive earth pressure resistance of well-compacted soil fill can be approximated by a uniformly acting resistance of 750 psf. However, to limit deformation when relying on passive strength, we recommend using a minimum safety factor of 3.0 applied to the ultimate passive resistance value.

4.5 PAVEMENT RECOMMENDATIONS

4.5.1 Flexible Pavement Design

AASHTO flexible pavement design methods have been utilized for pavement recommendations. Our recommendations are based on the assumptions that the subgrade consists of residual soil or properly compacted soil fill that has been properly prepared as described previously. Traffic intensities were not available at the time this report was prepared. Based on our experience with similar projects and estimated traffic intensities, we recommend the following light duty and heavy duty flexible pavement section:

	Recommended Thickness (Inches)	
Pavement Materials	Light Duty	Heavy Duty
Bituminous Asphalt Surface Mix	1.5	1.5
Bituminous Asphalt Base Mix	2.0	2.5
Compacted Crushed Aggregate Base	6.0	8.0

Note: Section thicknesses are based on estimated traffic intensities. Once known, we should be provided with anticipated intensities to determine if the provided pavement section thicknesses are appropriate.

We recommend a base stone equivalent to a Type A, Class A and Grading D in accordance with Section 903.05 of the Tennessee Department of Transportation specifications. The bituminous asphalt pavement should be Grading "E" as per Section 411 for the surface mix and Grading “B” as per section 307 for the binder mix. Compaction requirements for the crushed aggregate base and the bituminous asphalt pavement should generally follow Tennessee Department of Transportation specifications.

4.5.2 Rigid Pavement Design

Areas of the project site with anticipated heavy vehicle loads should utilize the use of rigid pavement. We recommend the following rigid pavement section:

Pavement Materials	Recommended Thickness (Inches)
4,000 psi Type I Concrete	6.0
Compacted Crushed Aggregate Base	6.0

Concrete should be reinforced with welded wire fabric or reinforcing bars to assist in controlling cracking from drying shrinkage and thermal changes. Sawed or formed control joints should be

included for each 225 sq. ft of area or less (15 ft by 15 ft). Saw cuts should not cut through the welded wire fabric or reinforcing steel and dowels should be utilized at formed and/or cold joints.

If rigid pavement is used for dumpster pads, the rigid pavement should, at a minimum, be extended so that at least the front wheels of the dumpster truck are sitting on the rigid pavement during lifting and dumping of the trash container into the dumpster truck.

4.5.3 General

Our recommendations are based upon the assumption that the subgrade has been properly prepared (as per previous sections) and that any off-site soil borrow to be used to backfill to the final subgrade meets the requirements of structural soil fill section for off-site borrow. Site grading is generally accomplished early in the construction phase. As construction proceeds, the subgrade may be disturbed or degraded due to utility construction, construction traffic, or wetting or drying. As a result, the pavement subgrade may not be suitable for pavement construction and remedial repair may be required prior to pavement construction. The subgrade should be evaluated immediately prior to pavement construction by proof-rolling, as discussed earlier in this report. Particular attention should be given to check for weak materials in anticipated high traffic areas, areas that were degraded by construction traffic, or where backfilled trenches are located. Weak materials identified should be repaired by undercutting the weak materials and backfilling the undercut with compacted fill. We also recommend the moisture content of the subgrade materials be checked immediately prior to pavement construction. If the soil moisture content is not within the ranges recommended in this report, the upper 8 inches should be scarified, moisture conditioned to the recommended moisture content range and recompacted. Stability should then be evaluated by proof-rolling.

Paved areas should be constructed with positive drainage to direct water off-site and to minimize surface water seeping into the pavement subgrade. The subgrade should have a minimum slope of 1 percent. In down grade areas, the basestone should extend through the slope to allow any water entering the basestone a path to exit.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 EXCAVATIONS

Excavator refusal conditions were encountered in five of the 15 observation trenches at depths ranging from about 1 to 7 feet below existing ground surface elevation. Typically, soils excavated by the excavator can be removed with conventional earthmoving equipment. It is our experience that in this geology the weathering process is erratic and variations in the rock profile can occur in small lateral distances. Therefore, it is likely that some large boulders, partially weathered rock, and/or rock pinnacles/ledges requiring difficult excavation techniques may be encountered in site areas between our observation trench locations, or in deeper utility excavations.

Overblasting Concerns

If required, we caution against extensive overblasting in building areas during the site grading operations. Overblasting typically damages below grade bedrock by fracturing or heaving the rock from its original position. This often creates difficulties for foundations and floor slabs supported on these materials by creating voids in the rock unit and greatly reducing the support capacity. Any areas damaged by overblasting should be evaluated by the geotechnical engineer to determine appropriate corrective measures.

Excavation Safety

Excavations should be sloped or shored in accordance with local, state, and federal regulations, including OSHA (29 CFR Part 1926) excavation trench safety standards. The contractor is usually solely responsible for site safety. This information is provided only as a service and under no circumstances should GEOServices be assumed to be responsible for construction site safety.

5.2 FOUNDATION CONSTRUCTION

Foundation excavations should be opened, the subgrade evaluated, remedial work performed, and concrete placed in an expeditious manner. Exposure to weather often reduces foundation support capabilities, thus necessitating remedial measures prior to concrete placement. It is also important that proper surface drainage be maintained both during construction (especially in terms of maintaining dry footing trenches) and after construction. Soil backfill for footings should be placed in accordance with the recommendations for structural fill presented herein.

Foundation subgrade observations should be performed by a GEOServices geotechnical engineer, or his qualified representative, so that the recommendations provided in this report are consistent with the site conditions encountered. A dynamic cone penetrometer (DCP) is commonly utilized to provide information that is compared to the data obtained in the geotechnical report. Where unacceptable materials are encountered, the material should be excavated to stiff, suitable soils or remediated at the geotechnical engineer's direction. Typical remedial measures consist of undercutting, over excavation, or combinations thereof.

5.3 MOISTURE SENSITIVE SOILS

The fine-grained soils encountered at this site will be sensitive to disturbances caused by construction traffic and changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support

capabilities. Construction traffic patterns should be varied to prevent the degradation of previously stable subgrade. In addition, plastic soils which become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. We caution if site grading is performed during the wet weather season, methods such as discing and allowing the material to dry will be required to meet the required compaction recommendations. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

5.4 DRAINAGE AND SURFACE WATER CONCERNS

To reduce the potential for undercut and construction induced dropouts, water should not be allowed to collect in the foundation excavations, on floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped to facilitate removal of any collected rainwater, subsurface water, or surface runoff. Positive site surface drainage should be provided to reduce infiltration of surface water around the perimeter of the building structures. The grades should be sloped away from the building structures and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill.

5.5 SINKHOLE CORRECTIVE ACTIONS AND CONSIDERATIONS

While no evidence of karst activity or sinkhole development was observed onsite or in our test locations, we have included the below section to help prevent future development of features at the site. Based on our experience, corrective actions can be performed to reduce the potential for sinkhole development at this site. These corrective actions, such as proper grade selection and positive site drainage, would decrease but not eliminate the potential for sinkhole development.

In general, the portions of a site that are excavated to achieve the desired grades will have a higher risk of sinkhole development than the areas that are filled, because of the exposure of relic fractures in the soil to rainfall and runoff. On the other hand, those portions of a site that receive a modest amount of fill (or that have been filled in the past) will have a decreased risk of sinkhole development caused by rainfall because that placement of a cohesive soil fill over these areas effectively caps the area with a relatively impervious "blanket" of remolded soil. Therefore, the recommendations that follow incorporate a modest remedial treatment program designed to make the surface of the soil in excavated areas less permeable.

Although it is our opinion that the risk of ground subsidence associated with sinkhole formation cannot be eliminated, we have found that several measures are useful in site design and development to reduce this potential risk. These measures include:

- Maintaining positive site drainage to route surface waters well away from structural areas both during construction and for the life of the structure.
- The scarification and re-compaction of the upper 6 to 10 inches of soil in earthwork cut areas.
- Verifying that subsurface piping beneath structures is carefully constructed and pressure tested prior to its placement in service.
- The use of pavement or lined ditches, particularly in cut areas, to collect and transport surface water to areas away from structures.

Considerations when building within a sinkhole prone area are to provide positive surface drainage away from any proposed building or parking area both during and after construction. Backfill in utility trenches of other excavations should consist of compacted, well-graded material such as dense graded aggregate or compacted on site soils. The use of an open graded stone such as No. 57 stone is not recommended unless the stone backfill is provided an exit path and not allowed to pond. If sinkhole conditions are observed, the type of corrective action is most appropriately determined by GEOServices on a case-by-case basis.

5.6 SLOPES

Analysis of proposed slopes for stability was not included in the authorized scope of services. If the client would like this service completed for proposed slopes, GEOS can perform these services for an additional fee, upon request. When requested, GEOS will issue an additional services proposal for review and authorization.

6.0 LIMITATIONS

This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. This report is for our geotechnical work only. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, express or implied, is made.

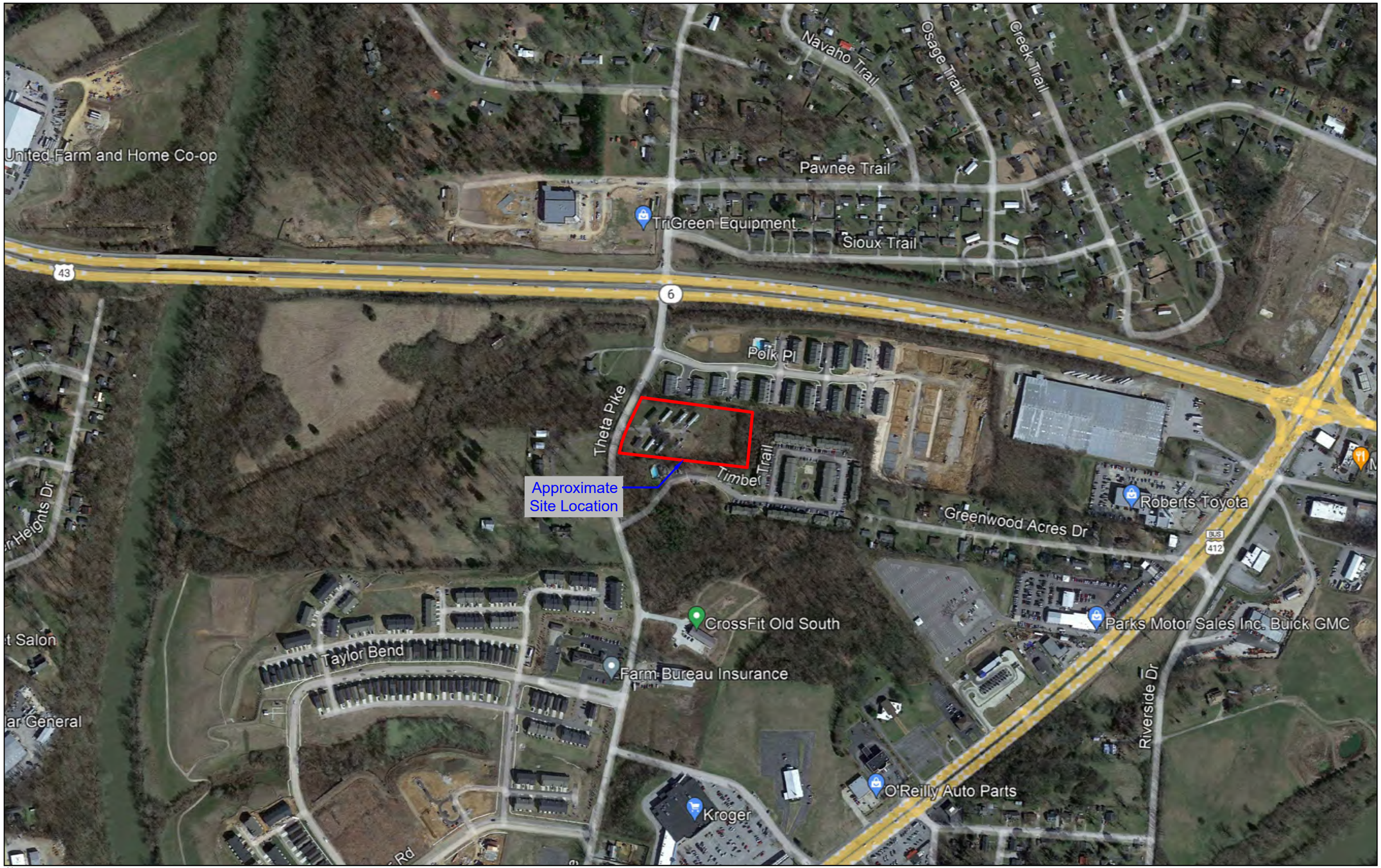
The analyses and recommendations submitted herein are based, in part, upon the data obtained from the exploration. The nature and extent of variations between the observation trenches will not become evident until construction. We recommend that GEOServices be retained to observe the project construction in the field. GEOServices cannot accept responsibility for conditions which deviate from those described in this report if not retained to perform construction observation and testing. If variations appear evident, then we will re-evaluate the recommendations of this report. In the event that any changes in the nature, design, or location of the structures are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed, and conclusions modified or verified in writing. Also, if the scope of the project should change significantly from that described herein, these recommendations may have to be re-evaluated.

GEOServices, LLC, Geotechnical and Materials Engineers

APPENDICES

GEOServices, LLC, Geotechnical and Materials Engineers

APPENDIX A



Notes:

1) Aerial Provided by: Google Earth Pro, (2021)

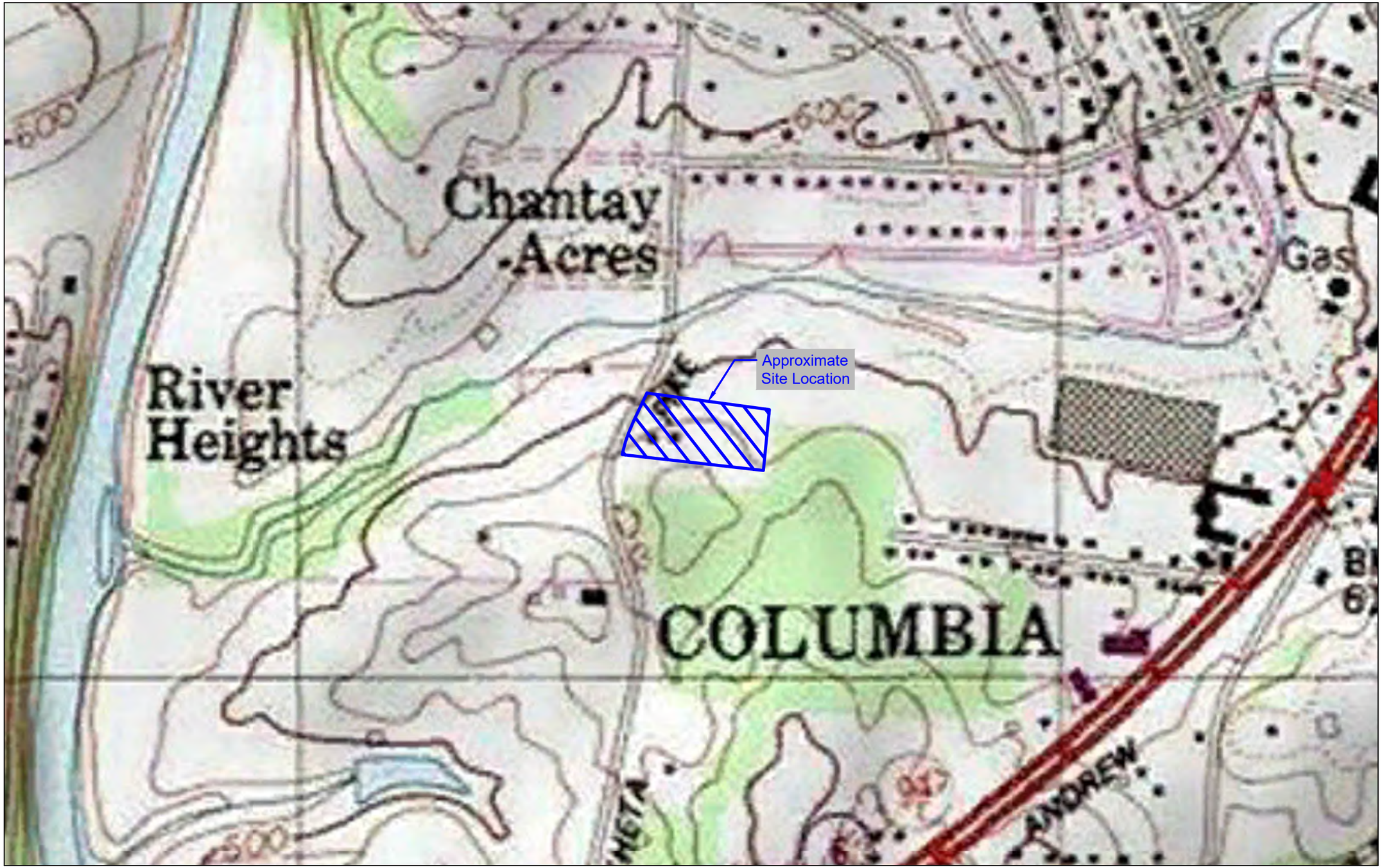
GEOS
GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

Site Vicinity Plan
Proposed Mackenzie Place Townhomes
Columbia, Tennessee

DATE: 02/20/2023

GEOS Project No. 31-231084

FIGURE: 1



Source Provided by: MYTOPO

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

USGS Topographic Map
Proposed Mackenzie Place Townhomes
Columbia, Tennessee

DATE: 02/20/2023

GEOS Project No. 31-231084

FIGURE: 2

Notes:

1) Site Source Provided by: Client
2) Aerial Provided by: Google Earth Pro, (2022)
3) Observation Trench Locations are shown in general arrangement only
4) Do Not use Observation Trench Locations for determinations of Distance or Quantities

Observation Trench Location & Identifier

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

Observation Trench Location Plan
Proposed Mackenzie Place Townhomes
Columbia, Tennessee

DATE: 02/20/2023
GEOS Project No. 31-231084
FIGURE: 3

GENERAL NOTES

FINE AND COARSE GRAINED SOIL PROPERTIES

PARTICLE SIZE

BOULDERS:	GREATER THAN 300 mm
COBBLES:	75 mm to 300 mm
GRAVEL:	4.74 mm to 75 mm
COARSE SAND:	2 mm to 4.74 mm
MEDIUM SAND:	0.425 mm to 2 mm
FINE SAND:	0.075 mm to 0.425 mm
SILTS & CLAYS:	LESS THAN 0.075 mm

COARSE GRAINED SOILS (SANDS & GRAVELS)

N-VALUE	RELATIVE DENSITY
0 - 4	VERY LOOSE
5 - 10	LOOSE
11 - 30	MEDIUM DENSE
31 - 50	DENSE
OVER 50	VERY DENSE

FINE GRAINED SOILS (SILTS & CLAYS)

N-VALUE	CONSISTENCY	Qu, PSF
0 - 2	VERY SOFT	0 - 500
3 - 4	SOFT	500 - 1000
5 - 8	FIRM	1000 - 2000
9 - 15	STIFF	2000 - 4000
16 - 30	VERY STIFF	4000 - 8000
OVER 31	HARD	8000 +

STANDARD PENETRATION TEST (ASTM D1586)

THE STANDARD PENETRATION TEST AS DEFINED BY ASTM D1586 IS A METHOD TO OBTAIN A DISTURBED SOIL SAMPLE FOR EXAMINATION AND TESTING AND TO OBTAIN RELATIVE DENSITY AND CONSISTENCY INFORMATON. THE 1.4 INCH I.D./2.0 INCH O.D. SAMPLER IS DRIVEN 3-SIX INCH INCREMENTS WITH A 140 LB. HAMMER FALLING 30 INCHES. THE BLOW COUNTS REQUIRED TO DRIVE THE SAMPLER THE FINAL 2 INCREMENTS ARE ADDED TOGETHER AND DESIGNATED THE N-VALUE. AT TIMES, THE SAMPLER CAN NOT BE DRIVEN THE FULL 18 INCHES. THE FOLLOWING REPRESENTS OUR INTERPRETATION OF THE STANDARD PENETRATION TEST WITH VARIATIONS.

BLOWS/FOOT (N-VALUE)	DESCRIPTION
25	25 BLOWS DROVE SAMPLER 12" AFTER INITIAL 6" SEATING
75/10"	75 BLOWS DROVE SAMPLER 10" AFTER INITIAL 6" SEATING
50/PR	PENETRATION REFUSAL OF SAMPLER AFTER INITIAL 6" SEATING

SAMPLING SYMBOLS

ST:	UNDISTURBED SAMPLE
SS:	SPLIT SPOON SAMPLE
CORE:	ROCK CORE SAMPLE
AU:	AUGER OR BAG SAMPLE

SOIL PROPERTY SYMBOLS

N:	STANDARD PENETRATION, BPF
M:	MOISTURE CONTENT %
LL:	LIQUID LIMIT %
PI:	PLASTICITY INDEX %
Qp:	POCKET PENETROMETER VALUE, TSF
Qu:	UNCONFINED COMPRESSIVE STRENGTH, TSF
DUW:	DRY UNIT WEIGHT, PCF

ROCK PROPERTIES

ROCK QUALITY DESIGNATION (RQD)

PERCENT	QUALITY
90 TO 100	EXCELLENT
75 TO 90	GOOD
50 TO 75	FAIR
25 TO 50	POOR
0 TO 25	VERY POOR

ROCK HARDNESS

VERY SOFT:	ROCK DISINTEGRATES OR EASILY COMPRESSES TO TOUCH: CAN BE HARD TO VERY HARD SOIL.
SOFT:	ROCK IS COHERANT BUT BREAKS EASILY TO THUMB PRESSURE AT SHARP EDGES AND CRUMBLES WITH FIRM HAND PRESSURE.
MODERATELY HARD:	SMALL PIECES CAN BE BROKEN OFF ALONG SHARP EDGES BY CONSIDERABLE HARD THUMB PRESSURE: CAN BE BROKEN BY LIGHT HAMMER BLOWS.
HARD:	ROCK CAN NOT BE BROKEN BY THUMB PRESSURE, BUT CAN BE BROKEN BY MODERATE HAMMER BLOWS.
VERY HARD:	ROCK CAN BE BROKEN BY HEAVY HAMMER BLOWS.

GEOServices, LLC-Geotechnical and Meterials Engineers

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-1	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (2 inches)					
1.0	Lean CLAY (CL) with gravel and abandoned underground utilities - brown; moist; (FILL)	TNP @ 1'	29	19	10	26.8
2.0						
3.0		TNP @ 3'				
4.0	Observation Trench Refusal ranging from 3 to 4 Feet					
5.0						
6.0						
7.0						
8.0						
9.0						

Excavated test pit

Excavated material

Comments: _____

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-2	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By: Jacob Barber**	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (4 inches)					
1.0	Lean CLAY (CL) - brown; firm; moist; (RESIDUUM)	3-5-5 @ 1'				20.4
2.0						
3.0		TNP @ 3'				20.7
4.0						
5.0	Fat CLAY (CH) with trace weathered limestone - brown and light brown; moist; (RESIDUUM)	TNP @ 5'				
6.0						
7.0	Observation Trench Refusal ranging from 4 to 7 Feet					
8.0						
9.0						

Excavated test pit

Excavated material

Comments:

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-3	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (3 inches)					
1.0	Lean CLAY (CL) with gravel - brown; moist; (FILL)					
		TNP @ 1'				19.1
2.0	Lean CLAY (CL) with trace sand and weathered limestone slabs at depth - brown; moist; (RESIDUUM)					
3.0	Observation Trench Refusal at 3 Feet					
4.0						
5.0						
6.0						
7.0						
8.0						
9.0						

Excavated test pit

Excavated material

Comments:

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-4	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (3 inches)					
1.0	Fat CLAY (CH) with sand - brown; firm; moist; (RESIDUUM)	3-5-5 @ 1'				16.7
2.0						
3.0		TNP @ 3'				
4.0	Observation Trench Refusal ranging from 1 to 4 Feet					
5.0						
6.0						
7.0						
8.0						
9.0						

Excavated test pit

Excavated material

Comments: _____

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-5	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By: Jacob Barber**	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (3 inches)					
1.0	Fat CLAY (CH) with trace gravel, trace asphalt debris, and trace construction debris - brown; soft; moist; (FILL)	3-3-3 @ 1'				18.6
2.0						
3.0		TNP @ 3'				17.7
4.0	Lean CLAY (CL) with trace sand and trace black oxide nodules - brown and light brown; firm; moist; (RESIDUUM)					
5.0		7-6-7 @ 5'				20.6
6.0						
7.0	Fat CLAY (CH) with trace sand and trace black oxide nodules - brown and light brown; moist; (RESIDUUM)					
8.0	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments:

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-6	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (12 inches)					
1.0	Lean CLAY (CL) with sand - brown; firm; moist; (RESIDUUM)	5-5-6 @ 1'				21.9
2.0						
3.0		TNP @ 3'				21.5
4.0	Fat CLAY (CH) with sand - brown; moist; (RESIDUUM)					
5.0		TNP @ 5'				33.3
6.0						
7.0						
8.0	Observation Trench Terminated at 7.5 Feet					
9.0						

Excavated test pit

Excavated material

Comments: A rock ledge was encountered approximately 3 feet below the existing ground surface elevation.

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-7	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By: Jacob Barber**	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (3 inches)					
1.0	Lean CLAY (CL) with abundance of chert fragments - reddish brown; soft; moist; (FILL)					
		5-5-4 @ 1'				23.2
2.0	Lean CLAY (CL) with trace sand and trace black oxide nodules - brown and light brown; firm; moist; (RESIDUUM)					
3.0						
		5-7-7 @ 3'				21.2
4.0						
5.0						
		7-8-7 @ 5'				
6.0						
	Fat CLAY (CH) with trace sand and trace black oxide nodules - brown and light brown; firm; moist; (RESIDUUM)					
7.0						
8.0						
	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments: A rock ledge was encountered approximately 6.5 feet below the existing ground surface elevation.

Proposed Mackenzie Place Townhomes Columbia, Tennessee GEOServices Project No. 31-231084	TEST PIT OBSERVATION RECORD Test Pit No.: OT-8	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (6 inches)					
1.0	Lean CLAY (CL) with abundance of chert and limestone fragments and abandoned undergound utilities - reddish brown; moist; (FILL)	TNP @ 1'				21.6
2.0						
3.0		TNP @ 3'				20.6
4.0	Lean CLAY (CL) with sand - brown; moist; (RESIDUUM)					
5.0		TNP @ 5'				21.5
6.0						
7.0						
8.0	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments: A rock ledge was encountered approximately 2 feet below the existing ground surface elevation.

Proposed Mackenzie Place Townhomes Columbia, Tennessee GEOServices Project No. 31-231084	TEST PIT OBSERVATION RECORD Test Pit No.: OT-9	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
1.0	Topsoil with gravel (18 inches)	TNP @ 1'				25.2
2.0	Lean CLAY (CL) with sand and chert fragments - brown and light brown; moist; (RESIDUUM)					
3.0		TNP @ 3'				24.9
4.0						
5.0		TNP @ 5'				
6.0						
7.0						
8.0	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments: A rock ledge was encountered approximately 1 foot below the existing ground surface elevation.

Proposed Mackenzie Place Townhomes Columbia, Tennessee GEOServices Project No. 31-231084	TEST PIT OBSERVATION RECORD Test Pit No.: OT-10	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (2 inches)					
1.0	Fat CLAY (CH) with trace limestone fragments - brown and dark brown; very soft; very moist; (FILL)	1-1-1 @ 1'				22.4
2.0						
3.0		1-2-2 @ 3'	58	29	29	30.8
4.0						
5.0	Fat CLAY (CH) with black oxide nodules and trace chert fragments and boulders - light brown and brown; very soft to firm; moist; (RESIDUUM)	4-5-6 @ 5'				23.5
6.0						
7.0						
8.0	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments: A rock ledge was encountered approximately 4 feet below the existing ground surface elevation.

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-11	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (4 inches)					
1.0	Lean CLAY (CL) - brown and dark brown; firm; moist; (FILL)					
		5-5-5 @ 1'				17.6
2.0						
3.0						
		6-6-7 @ 3'	33	19	14	20.2
4.0						
	Lean CLAY (CL) with trace black oxide nodules and sand at depth - brown and reddish brown; firm; moist; (RESIDUUM)					
5.0		8-8-9 @ 5'				19.6
6.0						
7.0						
8.0	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments:

Proposed Mackenzie Place Townhomes Columbia, Tennessee GEOServices Project No. 31-231084	TEST PIT OBSERVATION RECORD Test Pit No.: OT-12	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
1.0	Lean CLAY (CL) with limestone fragments and boulders and abandoned underground utilities - brown; moist; (FILL)	TNP @ 1'				22.2
2.0						
3.0		TNP @ 3'				20.3
4.0						
5.0		TNP @ 5'				
6.0	Fat CLAY (CH) - brown; moist; (RESIDUUM)					
7.0	Observation Trench Refusal ranging from 1 to 6 Feet					
8.0						
9.0						

Excavated test pit

Excavated material

Comments:

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-13	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (10 inches)					
1.0						
	Lean CLAY (CL) with limestone fragments - brown and dark brown; moist; (FILL)	TNP @ 1'				18.3
2.0						
3.0						
		3-4-4 @ 3'	55	29	26	32.9
4.0						
5.0	Fat CLAY (CH) with limestone fragments, black oxide nodules, and trace sand - brown; soft to firm; moist; (RESIDUUM)					
		6-8-8 @ 5'				26.9
6.0						
7.0						
8.0						
	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments: A rock ledge was encountered approximately 3.5 feet below the existing ground surface elevation.

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-14	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (2 inches)					
1.0	Lean CLAY (CL) with gravel - reddish brown and dark brown; firm; moist; (FILL)	4-5-5 @ 1'				22.8
2.0						
3.0	Lean CLAY (CL) with sand - brown and light brown; soft to firm; moist; (RESIDUUM)	4-4-4 @ 3'				18.2
4.0						
5.0		5-6-6 @ 5'				19.6
6.0						
7.0						
8.0						
	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments: A rock ledge was encountered approximately 2 feet below the existing ground surface elevation.

Proposed Mackenzie Place Townhomes Columbia, Tennessee	TEST PIT OBSERVATION RECORD Test Pit No.: OT-15	GEOServices, LLC-Geotechnical and Materials Engineers A Universal Engineering Sciences Company
GEOServices Project No. 31-231084		
Date Excavated: February 13, 2023	**Observed By:** Jacob Barber	

Depth (feet)	Material Description	DCP Values	LL	PL	PI	%M
	Topsoil (2 inches)					
1.0	Lean CLAY (CL) with chert fragments and gravel - reddish brown and dark brown; stiff; moist; (FILL)	9-9-10 @ 1'				26.4
2.0						
3.0	Lean CLAY (CL) - dark brown and dark gray; firm; moist; (FILL)	5-5-5 @ 3'				16.5
4.0						
5.0		4-4-5 @ 5'				20.6
6.0	Lean CLAY (CL) with sand and black oxide nodules and trace chert fragments at depth - brown; soft; moist; (RESIDUUM)					
7.0						
8.0	Observation Trench Terminated at 8 Feet					
9.0						

Excavated test pit

Excavated material

Comments: _____

GEOServices, LLC, Geotechnical and Materials Engineers

APPENDIX B

SOIL DATA SUMMARY
Proposed Mackenzie Place Townhomes - Columbia, Tennessee
GEOServices Project No. 31-231084
February 20, 2023

OT Number	Sample Number	Depth (feet)	Natural Moisture Content	Atterberg Limits			Soil Type
				LL	PL	PI	
OT-1	1	1	26.8%	29	19	10	CL
OT-2	1	1	20.4%				
	2	3	20.7%				
OT-3	1	1	19.1%				
OT-4	1	1	16.7%				
OT-5	1	1	18.6%				
	2	3	17.7%				
	3	5	20.6%				
OT-6	1	1	21.9%				
	2	3	21.5%				
	3	5	33.3%				
OT-7	1	1	23.2%				
	2	3	21.2%				
OT-8	1	1	21.6%				
	2	3	20.6%				
	3	5	21.5%				
OT-9	1	1	25.2%				
	2	3	24.9%				
OT-10	1	1	22.4%				
	2	3	30.8%	58	29	29	CH
	3	5	23.5%				
OT-11	1	1	17.6%				
	2	3	20.2%	33	19	14	CL
	3	5	19.6%				
OT-12	1	1	22.2%				
	2	3	20.3%				
OT-13	1	1	18.3%				
	2	3	32.9%	55	29	26	CH
	3	5	26.9%				
OT-14	1	1	22.8%				
	2	3	18.2%				
	3	5	19.6%				

SOIL DATA SUMMARY
Proposed Mackenzie Place Townhomes - Columbia, Tennessee
GEOServices Project No. 31-231084
February 20, 2023

OT Number	Sample Number	Depth (feet)	Natural Moisture Content	Atterberg Limits			Soil Type
				LL	PL	PI	
OT-15	1	1	26.4%				
	2	3	16.5%				
	3	5	20.6%				

GEOServices, LLC, Geotechnical and Materials Engineers

APPENDIX C

N

Photo: 6

Photo: 5

Photo: 1

Photo: 2

Photo: 3

Photo: 4

Notes:

1) Site Source Provided by: Client
2) Aerial Provided by: Google Earth Pro, (2022)

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

Representative Photos
Proposed Mackenzie Place Townhomes
Columbia, Tennessee

DATE: 02/20/2023

GEOS Project No. 31-231084

FIGURE: 4

N

Photo: 12

Photo: 11

Photo: 7

Photo: 8

Photo: 9

Photo: 10

Notes:

1) Site Source Provided by: Client
2) Aerial Provided by: Google Earth Pro, (2022)

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

Representative Photos
Proposed Mackenzie Place Townhomes
Columbia, Tennessee

DATE: 02/20/2023
GEOS Project No. 31-231084
FIGURE: 5

N

Photo: 18

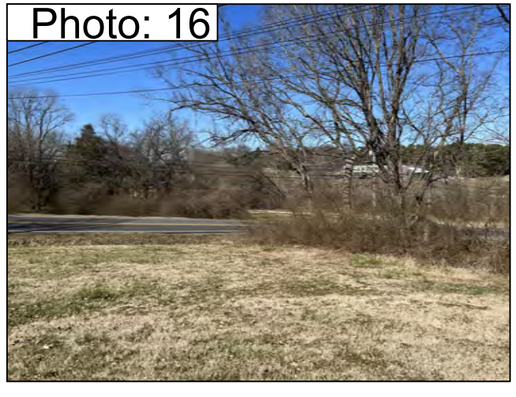
Photo: 17

Photo: 13

Photo: 14

Photo: 15

Photo: 16



Notes:

1) Site Source Provided by: Client
2) Aerial Provided by: Google Earth Pro, (2022)

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

Representative Photos
Proposed Mackenzie Place Townhomes
Columbia, Tennessee

DATE: 02/20/2023

GEOS Project No. 31-231084

FIGURE: 6

N

Photo: 24

Photo: 23

Photo: 19

Photo: 20

Photo: 21

Photo: 22

Notes:

1) Site Source Provided by: Client
2) Aerial Provided by: Google Earth Pro, (2022)

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

Representative Photos
Proposed Mackenzie Place Townhomes
Columbia, Tennessee

DATE: 02/20/2023

GEOS Project No. 31-231084

FIGURE: 7

Mackenzie Place
Stormwater Management/Quantity/Quality Calculations
May 2023

Enclosures:

- Post-Development Drainage Map (MAP 2)
- LID Calculations (Post-Development)
- Hydraflow Hydrographs
- USDA Web Soil Survey

Project Description

The project consists of the construction of (thirty-four) 34 multi-family units with associated roads, sidewalks, and utilities. An Infiltration Trench (Level 2) is proposed to meet the City of Columbia's water quality and quantity requirements.

Water Quality/Low Impact Design Analysis

An Infiltration Trench (Level 2) is proposed to satisfy the **80%** target runoff reduction requirement. Water quality requirements were calculated using Metro Nashville's BMP Manual and the Water Quality Calculation Tool.

The **proposed Rv** and required infiltration trench sizes were calculated using Metro's Water Quality Calculation Tool. These calculations are included as part of this report. The infiltration trench has been oversized in order to reduce the post-development Curve Number (CN). The CN for the existing condition, based on the Metro Water Quality Calculation Tool, is **80.5**. The post development CN has been calculated to be **77.9**.

Below are the ***sizing calculations*** *for the infiltration trench*:

Infiltration Trench #1 (Level 2)

Top of Infiltration Trench Gravel = 609.50

Top of Berm Elevation = 611.50

Gravel Depth = 6 feet De = 6' * (0.4) + 0.5' (ponding depth) = 2.9'

Tv Required from LID Spreadsheet = **6,921 CF**

Surface Area Required = (Tv /De): (6,921/2.9) = **2,387 SF**

Trench Surface Area Provided = **5,450 SF/2,387 SF = 228% of the required volume**

Water Quantity Analysis

The infiltration trench (Level 2) is proposed to attenuate post-developed flow rates at or below the pre-developed flow rates. Web soil survey was utilized to determine existing soil characteristics and establish a pre-development curve number (CN=77.9) in the calculations. The post-development peak flows were

calculated by pond hydrograph routing and resulting bypass. The time of concentration for the pre and post-developed conditions was calculated using TR-55.

Hydraflow Hydrographs Version 12 was utilized to analyze the peak flows of the effective area, in the pre and post development conditions, its contributing drainage area and the resulting bypass. The total hydrologic area of analysis is 3.61 acres. The post-development peak flows for the 2, 5, 10, 25, 50, and 100-year storm events are equal to or less than the pre-development peak flows.

Below is a summary of the Hydraflow Hydrograph results for the development:

STORMWATER PEAK RUNOFF ANALYSIS		
STORM EVENT	**PRE-DEVELOPED**	**POST-DEVELOPED (COMBINED)**
2-YR, 24-HR	9.38	4.062
5-YR, 24-HR	14.83	6.142
10-YR, 24-HR	18.55	10.21
25-YR, 24-HR	23.36	16.07
50-YR, 24-HR	26.95	17.80
100-YR, 24-HR	30.49	19.44

Post-Development Map (MAP 2)

MWS LID Site Design Tool

Project Name	Mackenzie Place
Parcel Identification #	
Engineer	M2 Group, LLC

Combined Sewer Overlay?	**NO**
Pre or Post Development Worksheet?	**Post**
Target Runoff Reduction Requirement =	**80%**

See Section 7.2.1 in Metro SWMM Volume 1

Capture Depth=	**1**	**inch**
Cistern Capture=		**% Total Vol captured**

From Cistern Design Tool

MWS LID SITE DESIGN TOOL VERSION 11 - October 20, 2021

Instructions

1. Input cells are in Green.
2. Break Site Into Sub areas by single soils and land use type combinations.
3. Assign a code to each subarea and input the code into column C. Descriptions can be entered in column B.
4. Input the subarea drainage area in column D.
5. Input treatment credit code (Column F) for the first tier of treatments
6. Input additional treatment code as desired (Column I) for any subarea
7. Adjust until you reach 80% reduction or better (Cell N turns green if 80% reached).
8. If 80% reduction is not reached and it has been decided that GIPs in series is an option use Step 3a to place GIPs in series . Their respective treatment volumes are calculated in column W. This volume is separate from GIPs upstream.

Percent Volume Reduction-Based Calculations

Step 1: Lay out the site and divide it into sub-areas each of a specific land use type and Rv.					Step 1a: Change any basic land use types through reforesting, permeable pavement or green roofs - or through use of open space for a GIP.			Step 2: Treat impervious areas through the use of sheet flow			Step 3: Treat primarily impervious areas with structural GIPs either in series with Step 3 intrinsic GIPs or alone downstream from Steps 1 and 2 land use.			Size controls for Step 3 by assigning structure ID to each sub-area, combining sub-areas into one structure if appropriate.			Step 3a Treatment in Series Calculation - Place Structural GIPs in same row as upstream GIP			Size controls for Step 3a in series by assigning a sequential structure ID to each area treated in series.				
Step1 Basic Land Use					**Step 1a Modified LU**			**Step 2 Intrinsic GIPs**			**Step 3 Structural GIPs**			**Structure ID**	**IA Capture**		**Step 3a Structural GIPs in Series**			**Structure ID**	**IA Capture**		**Nominal Curve Number**	
Subarea	Description	Code	Acres	Base Rv	Code	Acres	Eff Rv1	Code	Trtmt VR1	Eff Rv2	Code	Trtmt VR2	Eff Rv3	Site GIP ID Number	Tv Multiplier	Tv (cf)	Code	Trtmt VR2	Eff Rv4	Site GIP ID Number	Tv Multiplier	Structure in Series Tv (cf)	Step 1	Step 1A
1	Imp to IT#1	IA	1.4256198	0.95	IA	1.4256198	0.95		0	0.95	I2	0.9	0.10		1.25	6,145		0	0.10		0.00	-	98	98
2	Turf to IT #1	TC	0.8543802	0.20	TC	0.8543802	0.20		0	0.20	I2	0.9	0.02		1.25	775		0	0.02		0.00	-	79	79
3				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
4				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
5				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
6				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
7				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
8				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
9	East Bypass	TC	0.3951148	0.20	TC	0.3951148	0.20		0	0.20		0	0.20		0.00	-		0	0.20		0.00	-	79	79
10	East Imp Bypass	IA	0.1748852	0.95	IA	0.1748852	0.95		0	0.95		0	0.95		0.00	-		0	0.95		0.00	-	98	98
11	West Bypass - Imp	IA	0.1592975	0.95	IA	0.1592975	0.95		0	0.95		0	0.95		0.00	-		0	0.95		0.00	-	98	98
12	West Bypass-Turf	TC	0.6007025	0.20	TC	0.6007025	0.20		0	0.20		0	0.20		0.00	-		0	0.20		0.00	-	79	79
13				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
14				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
15				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
16				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
17				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
18				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
47				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
76				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
105				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
134				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
162				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
191				0.00		0	0.00		0	0.00		0	0.00		0.00	-		0	0.00		0.00	-	0	0
		Weighted Rv		0.566		Weighted Rv	0.566		Weighted Rv	0.566		Weighted Rv	0.187		Step 3 Tv Total	**6,921**			0.187		Final Tv Total	**6,921**	88.3	88.3
		Total Area=	3.61	2.04		Total Area=	3.61	2.04			2.04		0.68						0.68					
		% Removal		43.4%		% Removal		43.4%		% Removal	43.4%		**81.3%**					% Removal	**81.3%**					

↑ THIS CELL WILL TURN GREEN WHEN TARGET RUNOFF REDUCTION MET ↑

MWS LID Site Design Tool

Project Name	Mackenzie Place
Parcel Identification #	0

MWS LID SITE DESIGN TOOL VERSION 11 - October 20, 2021

PreDev CN	80.5

METRO RAINFALL	
Return Period	**Rainfall (in)**
2-yr	3.39
5-yr	4.50
10-yr	5.23
25-yr	6.16
50-yr	6.85
100-yr	7.53

Curve Number Instructions

1. Enter the composite pre-development curve number (CN), to the left, for the watershed.
2. The tool automatically assigns curve numbers for each subarea based on MWS policy matching the land uses of Steps 1 and 1a to curve numbers (see column **G COVER SHEET**).
3. Curve numbers are shown for both Step 1 and Step 1a in columns **X** and **Y** as well as the composite curve number for the site in line 59 of those columns.
4. The ratio of the **Tv provided/Tv required** for each GIP (as a %) is entered in column **AG** (e.g. if only required Tv is provided then this should be 100%).
5. Select the rainfall in **Cell AC19** based on return periods shown in table to left.
6. Adjusted curve numbers for each subarea are shown in the table below in column **AK**, as well as the composite adjusted curve number in **Cell AK59**, for the rainfall selected. If this value is greater than the composite Pre-Development CN then **Cell AK60** will state "Detention Required"
7. These are the curve numbers to be used in flood control design calculations. Each watershed must be calculated independently. If there are multiple watersheds for the project, then the composite pre-development curve number and composite adjusted curve number should be compared for each watershed to determine if detention is required.
8. If there are GIPs in series, use the 2nd table to calculate the additional reduction in CN.

Adjusted Curve Number Calculations (Step 3 only)

No Controls				With Structural Controls &Treatment Vol Removed						
Original CN	Rainfall (in)	S (in)	Q (in)	Tv required (cu ft)	Tv provided (%)	RO Vol Red (cu ft)	Q reduction (in)	Q adj (in)	Adjusted CN	Difference
98.0	7.53	0.204	7.29	6145	228.0%	14011	2.7075	4.583	**74.7**	-23.3
79.0	7.53	2.658	5.07	775	228.0%	1768	0.57	4.502	**73.9**	-5.1
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
79.0	7.53	2.658	5.07	-			0	5.072	**79.0**	0.0
98.0	7.53	0.204	7.29	-			0	7.291	**98.0**	0.0
98.0	7.53	0.204	7.29	-			0	7.291	**98.0**	0.0
79.0	7.53	2.658	5.07	-			0	5.072	**79.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
88.3	7.53	1.330	6.14	6920.6625			0.528121494	5.612	**77.9**	-10.4

Note that this assumes the same Pre- and Post-developpment Time of Concentrations and Drainage Areas — **OK**

Adjusted Curve Number Calculations (Step 3a added)

No Controls				With Structural Controls &Treatment Vol Removed						
Adjusted CN (St 3)	Rainfall (in)	S (in)	Q (in)	Tv required (cu ft)	Tv provided (%)	RO Vol Red (cu ft)	Q reduction (in)	Q adj (in)	Adjusted CN	Difference
74.7	7.53	3.392	4.58	-			0	4.583	**74.7**	0.0
73.9	7.53	3.523	4.50	-			0	4.502	**73.9**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
79.0	7.53	2.658	5.07	-			0	5.072	**79.0**	0.0
98.0	7.53	0.204	7.29	-			0	7.291	**98.0**	0.0
98.0	7.53	0.204	7.29	-			0	7.291	**98.0**	0.0
79.0	7.53	2.658	5.07	-			0	5.072	**79.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
0.0	7.53	-	-	-			0	-	**0.0**	0.0
88.3	7.53	1.330	6.14	0			0	6.140	**77.9**	-10.4

Note that this assumes the same Pre- and Post-developpment Time of Concentrations and Drainage Areas — **OK**

LID Calculations (Post-Development)

IMPERVIOUS LEGEND

- IMPERVIOUS AREA TO IT#1
- IMPERVIOUS BYPASS WEST
- IMPERVIOUS AREA TO IT #2
- IMPERVIOUS BYPASS EAST
- CATCHMENT AREA

INFILTRATION TRENCH #1

TO IT#1
Area: 2.28 AC
Perimeter: 1469.75'

BYPASS WEST
Area: 0.76 AC
Perimeter: 1297.41'

BYPASS EAST
Area: 0.57 AC
Perimeter: 1220.39'

N NW NE W E SW SE S

50' 0 50' 100'
GRAPHIC SCALE

POST DEVELOPMENT DRAINAGE MAP FOR:

MAP 2

MACKENZIE PLACE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

Hydraflow Hydrographs

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	5.214	-------	8.194	10.21	12.82	14.76	16.67	Pre - West
2	SCS Runoff	------	-------	4.166	-------	6.636	8.339	10.54	12.19	13.82	Pre - East
4	Combine	1, 2,	-------	9.380	-------	14.83	18.55	23.36	26.95	30.49	Pre - Site Outfall
6	SCS Runoff	------	-------	8.999	-------	12.64	15.02	18.03	20.25	22.44	Post to Pond
7	Reservoir	6	-------	0.108	-------	1.884	5.421	7.424	7.785	11.20	Post thru Pond
8	SCS Runoff	------	-------	1.803	-------	2.692	3.282	4.034	4.591	5.138	Post - East Bypass
9	SCS Runoff	------	-------	2.260	-------	3.451	4.247	5.268	6.025	6.771	Post - West Bypass
11	Combine	7, 9,	-------	2.260	-------	3.451	7.697	12.16	13.36	14.81	Post - West
13	Combine	8, 11,	-------	4.062	-------	6.142	10.21	16.07	17.80	19.44	Post - Site Outfall

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

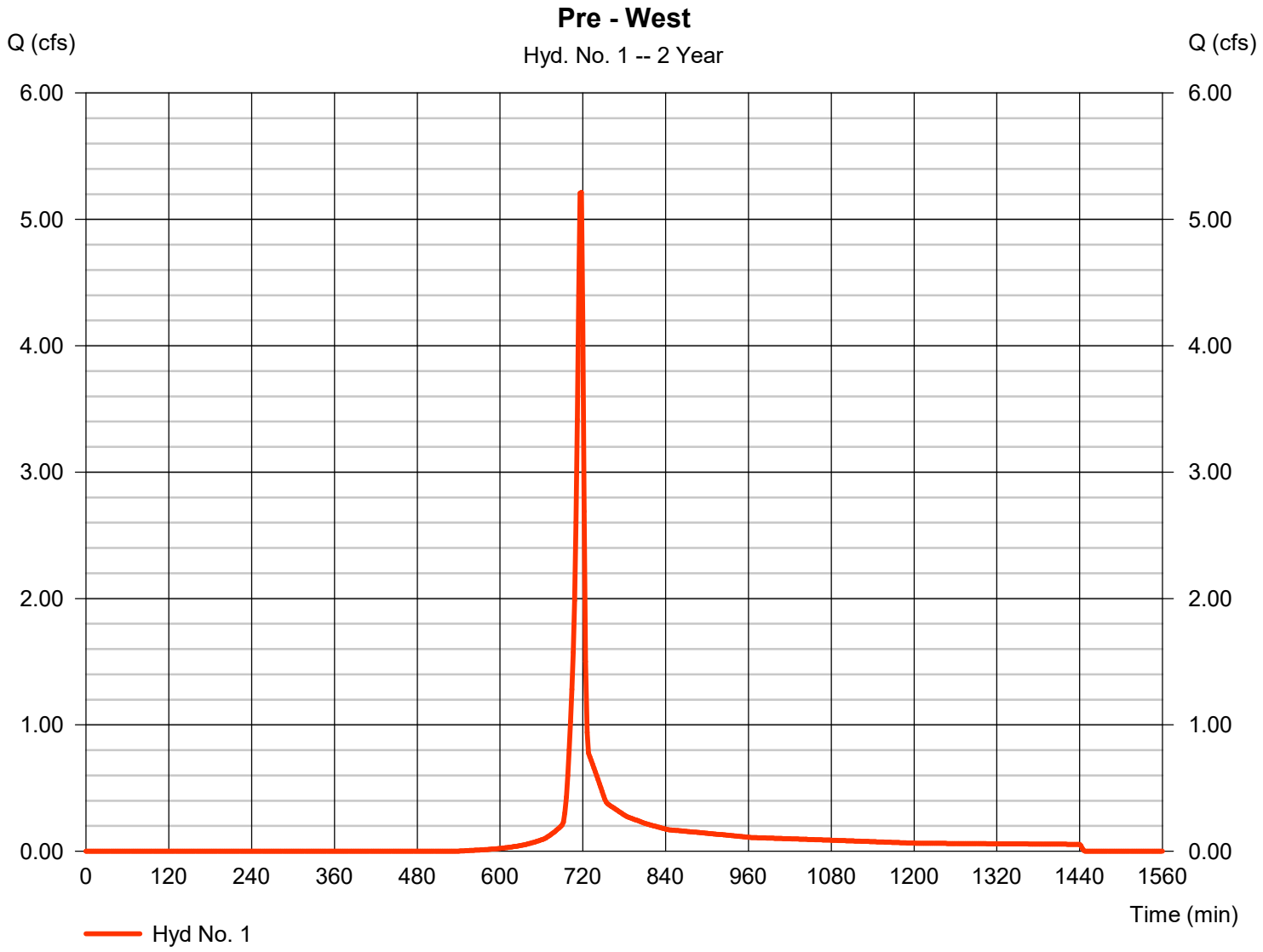
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	5.214	2	718	10,515	------	------	------	Pre - West
2	SCS Runoff	4.166	2	718	8,367	------	------	------	Pre - East
4	Combine	9.380	2	718	18,882	1, 2,	------	------	Pre - Site Outfall
6	SCS Runoff	8.999	2	716	18,910	------	------	------	Post to Pond
7	Reservoir	0.108	2	862	843	6	610.02	13,909	Post thru Pond
8	SCS Runoff	1.803	2	716	3,661	------	------	------	Post - East Bypass
9	SCS Runoff	2.260	2	716	4,569	------	------	------	Post - West Bypass
11	Combine	2.260	2	716	5,412	7, 9,	------	------	Post - West
13	Combine	4.062	2	716	9,072	8, 11,	------	------	Post - Site Outfall

Hydrograph Report

Hyd. No. 1

Pre - West

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.214 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	10,515 cuft
Drainage area	=	1.950 ac	Curve number	=	80.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.60 min
Total precip.	=	3.39 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 1

Pre - West

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.39		0.00		0.00		
Land slope (%)	= 12.33		0.00		0.00		
Travel Time (min)	**= 4.60**	**+**	**0.00**	**+**	**0.00**	**=**	**4.60**
Shallow Concentrated Flow							
Flow length (ft)	= 310.00		0.00		0.00		
Watercourse slope (%)	= 9.83		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=5.06		0.00		0.00		
Travel Time (min)	**= 1.02**	**+**	**0.00**	**+**	**0.00**	**=**	**1.02**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.150		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

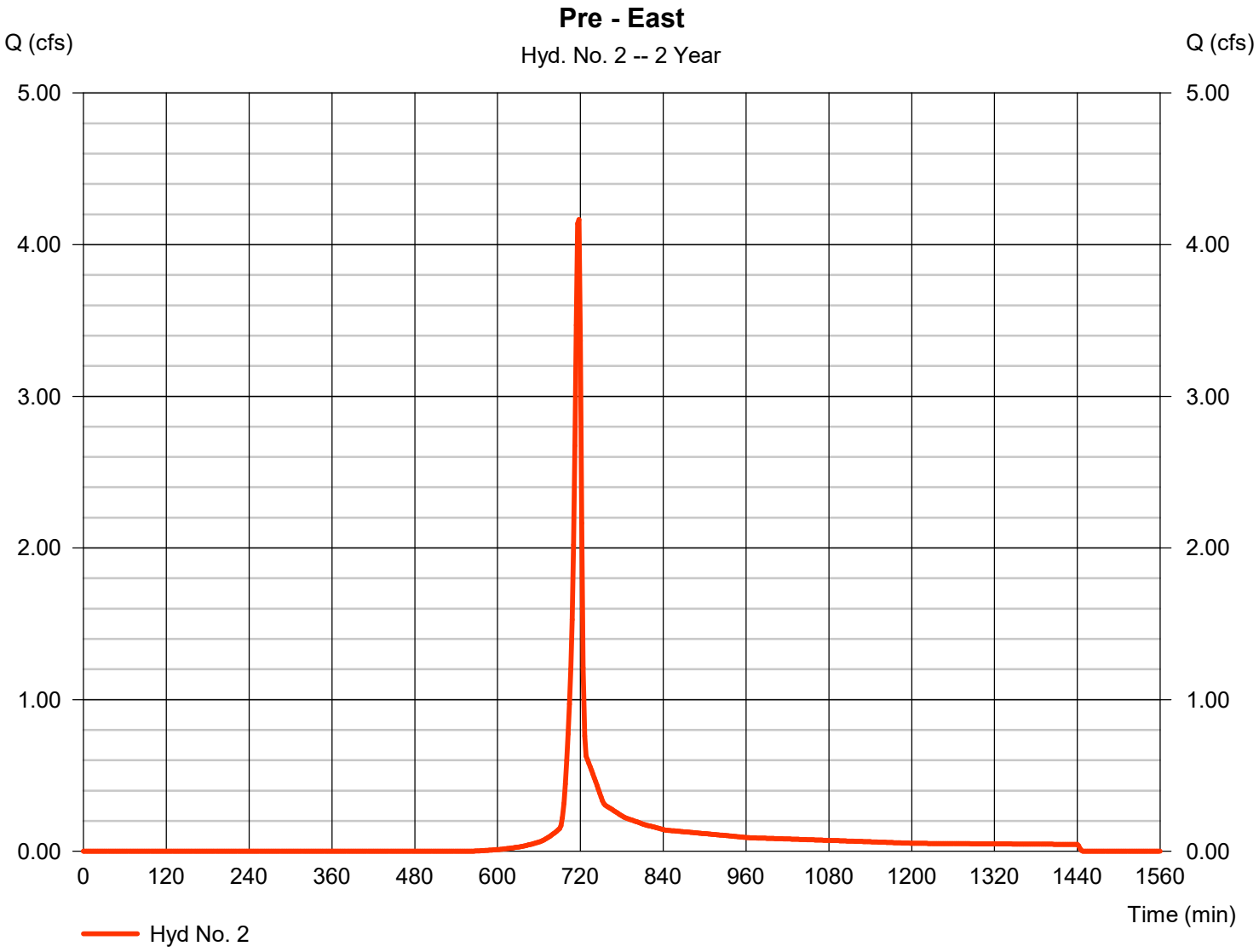
Total Travel Time, Tc ..... 5.60 min

Hydrograph Report

Hyd. No. 2

Pre - East

Hydrograph type	= SCS Runoff	Peak discharge	= 4.166 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 8,367 cuft
Drainage area	= 1.660 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.39 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No. 2

Pre - East

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.39		0.00		0.00		
Land slope (%)	= 12.00		0.00		0.00		
Travel Time (min)	**= 4.65**	**+**	**0.00**	**+**	**0.00**	**=**	**4.65**
Shallow Concentrated Flow							
Flow length (ft)	= 403.00		0.00		0.00		
Watercourse slope (%)	= 10.50		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=5.23		0.00		0.00		
Travel Time (min)	**= 1.28**	**+**	**0.00**	**+**	**0.00**	**=**	**1.28**
Channel Flow							
X sectional flow area (sqft)	= 86.90		0.00		0.00		
Wetted perimeter (ft)	= 47.50		0.00		0.00		
Channel slope (%)	= 3.81		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=29.06						
			0.00				
					0.00		
Flow length (ft)	({0})100.0		0.0		0.0		
Travel Time (min)	**= 0.06**	**+**	**0.00**	**+**	**0.00**	**=**	**0.06**

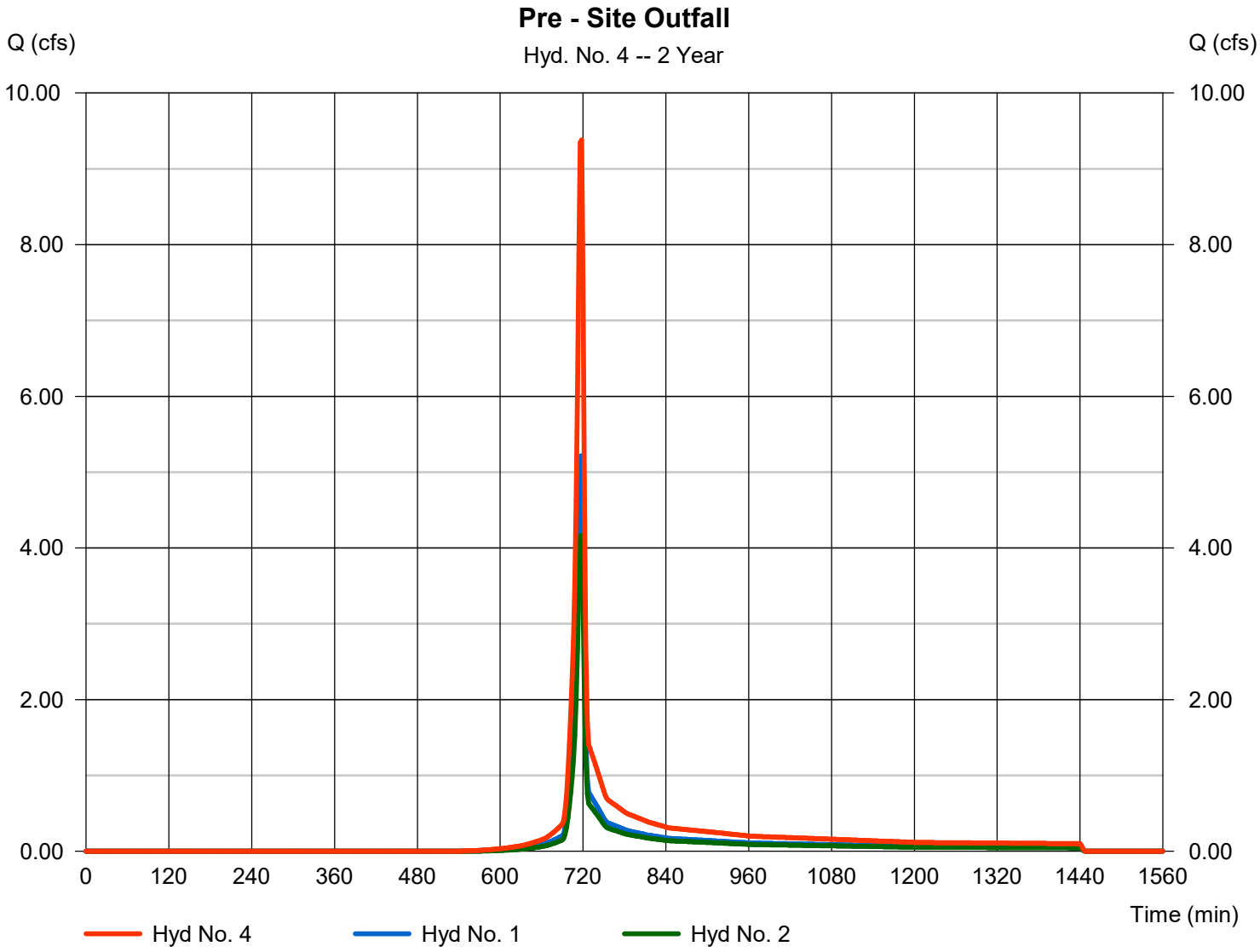
Total Travel Time, Tc ..... 6.00 min

Hydrograph Report

Hyd. No. 4

Pre - Site Outfall

Hydrograph type	= Combine	Peak discharge	= 9.380 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 18,882 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 3.610 ac



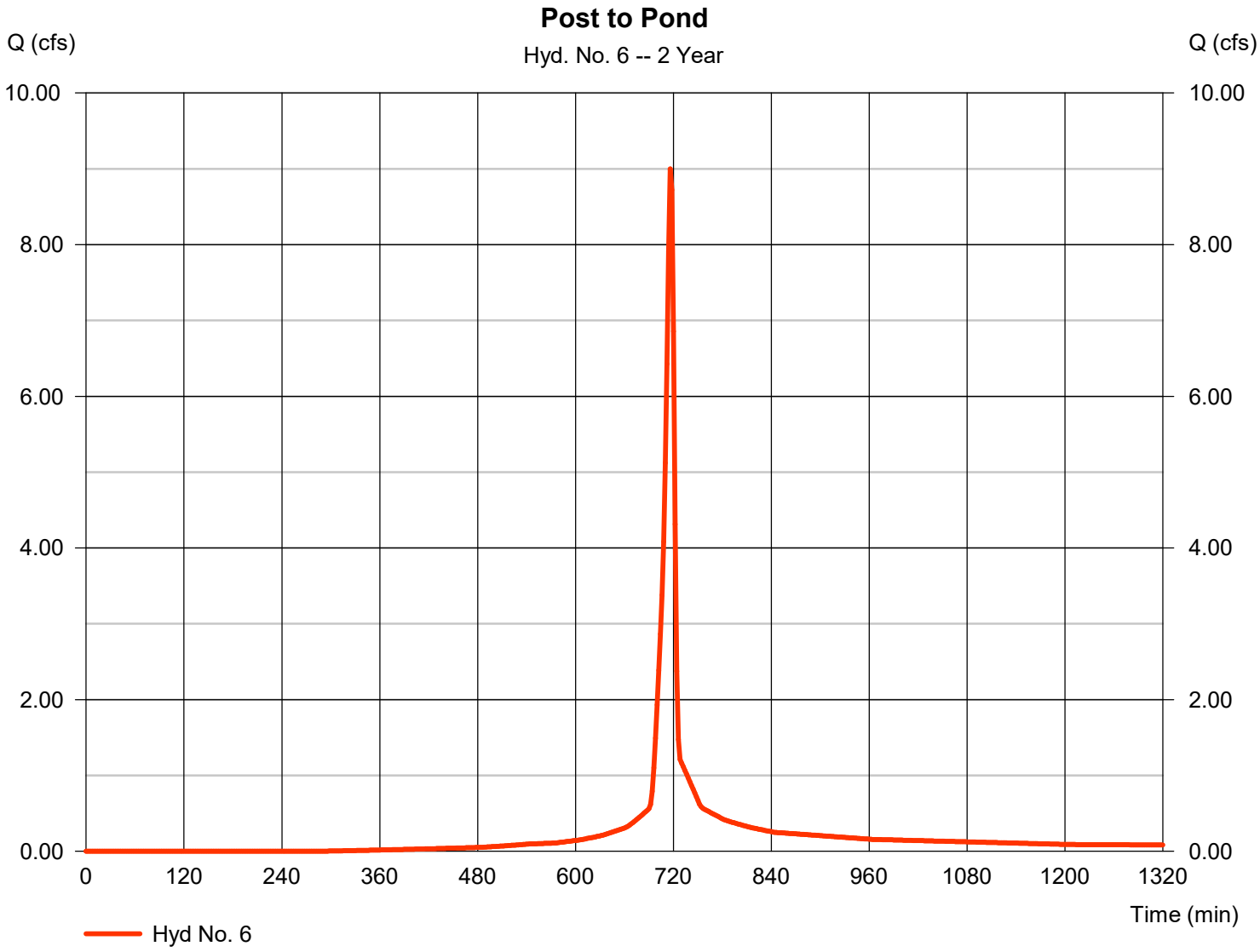
Hydrograph Report

Hyd. No. 6

Post to Pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.999 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	18,910 cuft
Drainage area	=	2.280 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.39 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.430 x 98) + (0.850 x 79)] / 2.280



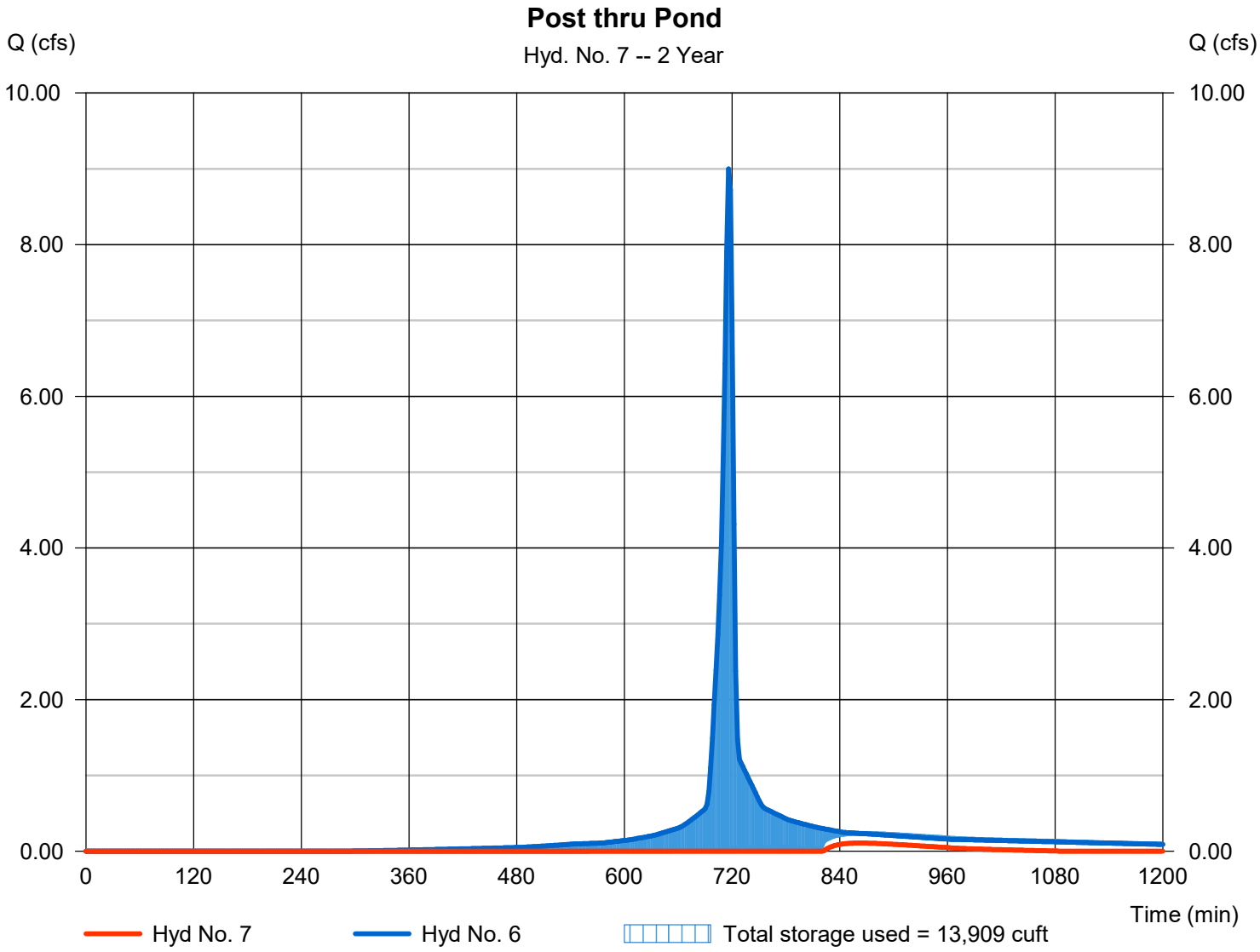
Hydrograph Report

Hyd. No. 7

Post thru Pond

Hydrograph type	=	Reservoir	Peak discharge	=	0.108 cfs
Storm frequency	=	2 yrs	Time to peak	=	862 min
Time interval	=	2 min	Hyd. volume	=	843 cuft
Inflow hyd. No.	=	6 - Post to Pond	Max. Elevation	=	610.02 ft
Reservoir name	=	INFILTRATION 1	Max. Storage	=	13,909 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond No. 3 - INFILTRATION 1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 603.50 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	603.50	2,180	0	0
6.00	609.50	2,180	13,079	13,079
6.01	609.51	1,365	18	13,096
6.49	609.99	1,365	655	13,751
6.50	610.00	5,450	32	13,783
8.00	611.50	8,900	10,656	24,439

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	0.00	0.00	0.00
Span (in)	= 12.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 606.00	0.00	0.00	0.00
Length (ft)	= 42.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.71	22.50	0.00	0.00
Crest El. (ft)	= 610.00	611.25	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 1.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	603.50	0.00	---	---	---	0.00	0.00	---	---	0.000	---	0.000
0.60	1,308	604.10	0.00	---	---	---	0.00	0.00	---	---	0.005	---	0.005
1.20	2,616	604.70	0.00	---	---	---	0.00	0.00	---	---	0.010	---	0.010
1.80	3,924	605.30	0.00	---	---	---	0.00	0.00	---	---	0.015	---	0.015
2.40	5,231	605.90	0.00	---	---	---	0.00	0.00	---	---	0.020	---	0.020
3.00	6,539	606.50	0.00	---	---	---	0.00	0.00	---	---	0.025	---	0.025
3.60	7,847	607.10	0.00	---	---	---	0.00	0.00	---	---	0.030	---	0.030
4.20	9,155	607.70	0.00	---	---	---	0.00	0.00	---	---	0.035	---	0.035
4.80	10,463	608.30	0.00	---	---	---	0.00	0.00	---	---	0.040	---	0.040
5.40	11,771	608.90	0.00	---	---	---	0.00	0.00	---	---	0.045	---	0.045
6.00	13,079	609.50	0.00	---	---	---	0.00	0.00	---	---	0.050	---	0.050
6.00	13,080	609.50	0.00	---	---	---	0.00	0.00	---	---	0.049	---	0.049
6.00	13,082	609.50	0.00	---	---	---	0.00	0.00	---	---	0.047	---	0.047
6.00	13,084	609.50	0.00	---	---	---	0.00	0.00	---	---	0.045	---	0.045
6.00	13,086	609.50	0.00	---	---	---	0.00	0.00	---	---	0.043	---	0.043
6.00	13,087	609.50	0.00	---	---	---	0.00	0.00	---	---	0.041	---	0.041
6.01	13,089	609.51	0.00	---	---	---	0.00	0.00	---	---	0.039	---	0.039
6.01	13,091	609.51	0.00	---	---	---	0.00	0.00	---	---	0.037	---	0.037
6.01	13,093	609.51	0.00	---	---	---	0.00	0.00	---	---	0.035	---	0.035
6.01	13,095	609.51	0.00	---	---	---	0.00	0.00	---	---	0.033	---	0.033
6.01	13,096	609.51	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.06	13,162	609.56	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.11	13,227	609.61	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.15	13,293	609.65	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.20	13,358	609.70	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.25	13,424	609.75	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.30	13,489	609.80	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.35	13,555	609.85	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.39	13,620	609.89	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.44	13,686	609.94	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.49	13,751	609.99	0.00	---	---	---	0.00	0.00	---	---	0.032	---	0.032
6.49	13,755	609.99	0.00	---	---	---	0.00	0.00	---	---	0.041	---	0.041
6.49	13,758	609.99	0.00	---	---	---	0.00	0.00	---	---	0.051	---	0.051
6.49	13,761	609.99	0.00	---	---	---	0.00	0.00	---	---	0.060	---	0.060
6.49	13,764	609.99	0.00	---	---	---	0.00	0.00	---	---	0.069	---	0.069
6.49	13,767	609.99	0.00	---	---	---	0.00	0.00	---	---	0.079	---	0.079
6.50	13,770	610.00	0.00	---	---	---	0.00	0.00	---	---	0.088	---	0.088

Continues on next page...

INFILTRATION 1

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
6.50	13,774	610.00	0.00	---	---	---	0.00	0.00	---	---	0.098	---	0.098
6.50	13,777	610.00	0.00	---	---	---	0.00	0.00	---	---	0.107	---	0.107
6.50	13,780	610.00	0.00	---	---	---	0.00	0.00	---	---	0.117	---	0.117
6.50	13,783	610.00	0.00	---	---	---	0.00	0.00	---	---	0.126	---	0.126
6.65	14,849	610.15	0.92 oc	---	---	---	0.91	0.00	---	---	0.134	---	1.046
6.80	15,914	610.30	2.58 oc	---	---	---	2.58	0.00	---	---	0.142	---	2.720
6.95	16,980	610.45	4.74 oc	---	---	---	4.74	0.00	---	---	0.150	---	4.886
7.10	18,046	610.60	6.91 oc	---	---	---	6.91 s	0.00	---	---	0.158	---	7.065
7.25	19,111	610.75	7.28 oc	---	---	---	7.27 s	0.00	---	---	0.166	---	7.441
7.40	20,177	610.90	7.50 oc	---	---	---	7.50 s	0.00	---	---	0.174	---	7.676
7.55	21,243	611.05	7.69 oc	---	---	---	7.68 s	0.00	---	---	0.182	---	7.866
7.70	22,308	611.20	7.85 oc	---	---	---	7.84 s	0.00	---	---	0.190	---	8.034
7.85	23,374	611.35	8.00 oc	---	---	---	8.00 s	1.86	---	---	0.198	---	10.05
8.00	24,439	611.50	8.14 oc	---	---	---	8.13 s	7.31	---	---	0.206	---	15.65

...End

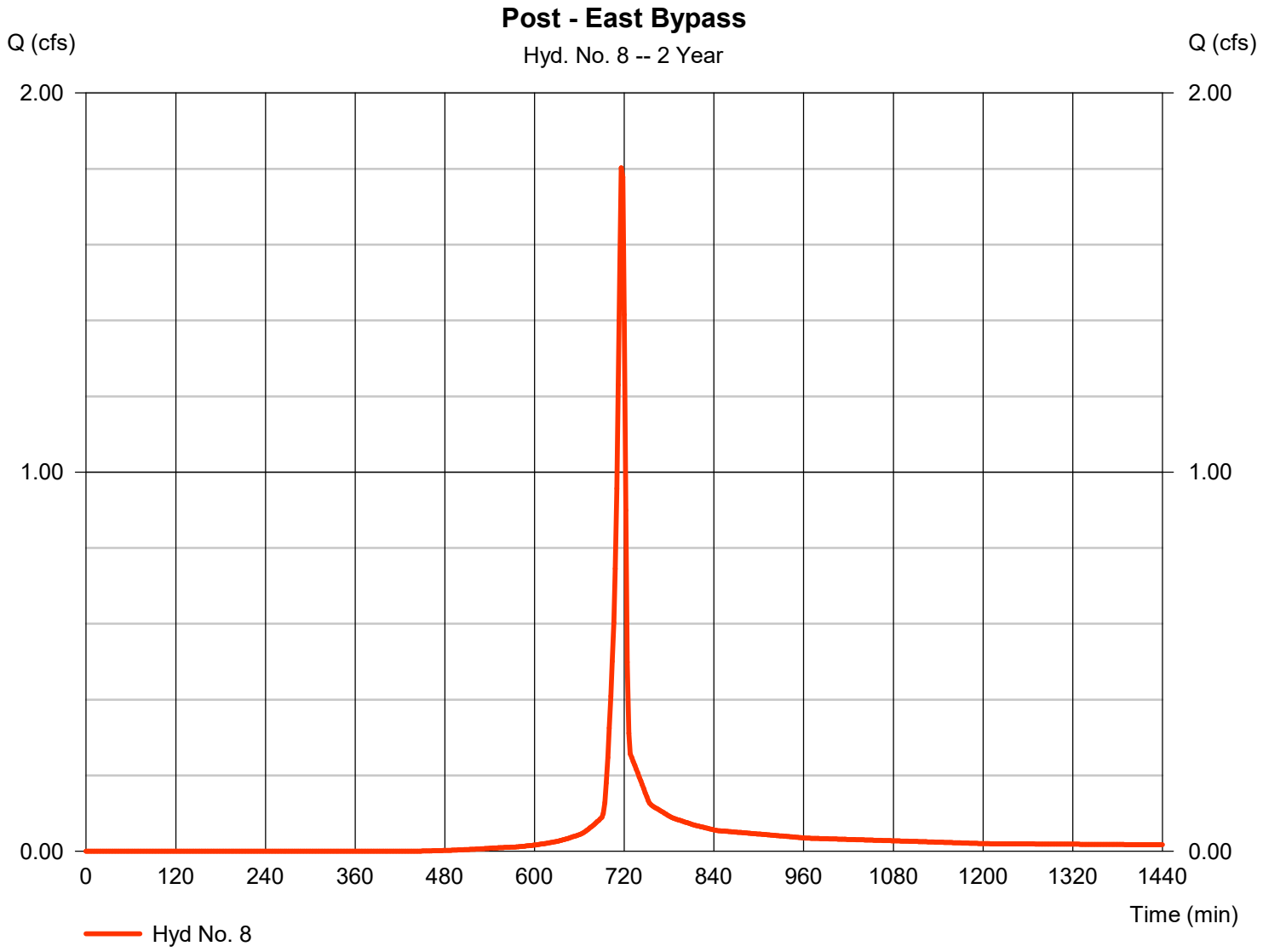
Hydrograph Report

Hyd. No. 8

Post - East Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.803 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	3,661 cuft
Drainage area	=	0.560 ac	Curve number	=	85*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.39 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.390 x 79) + (0.170 x 98)] / 0.560



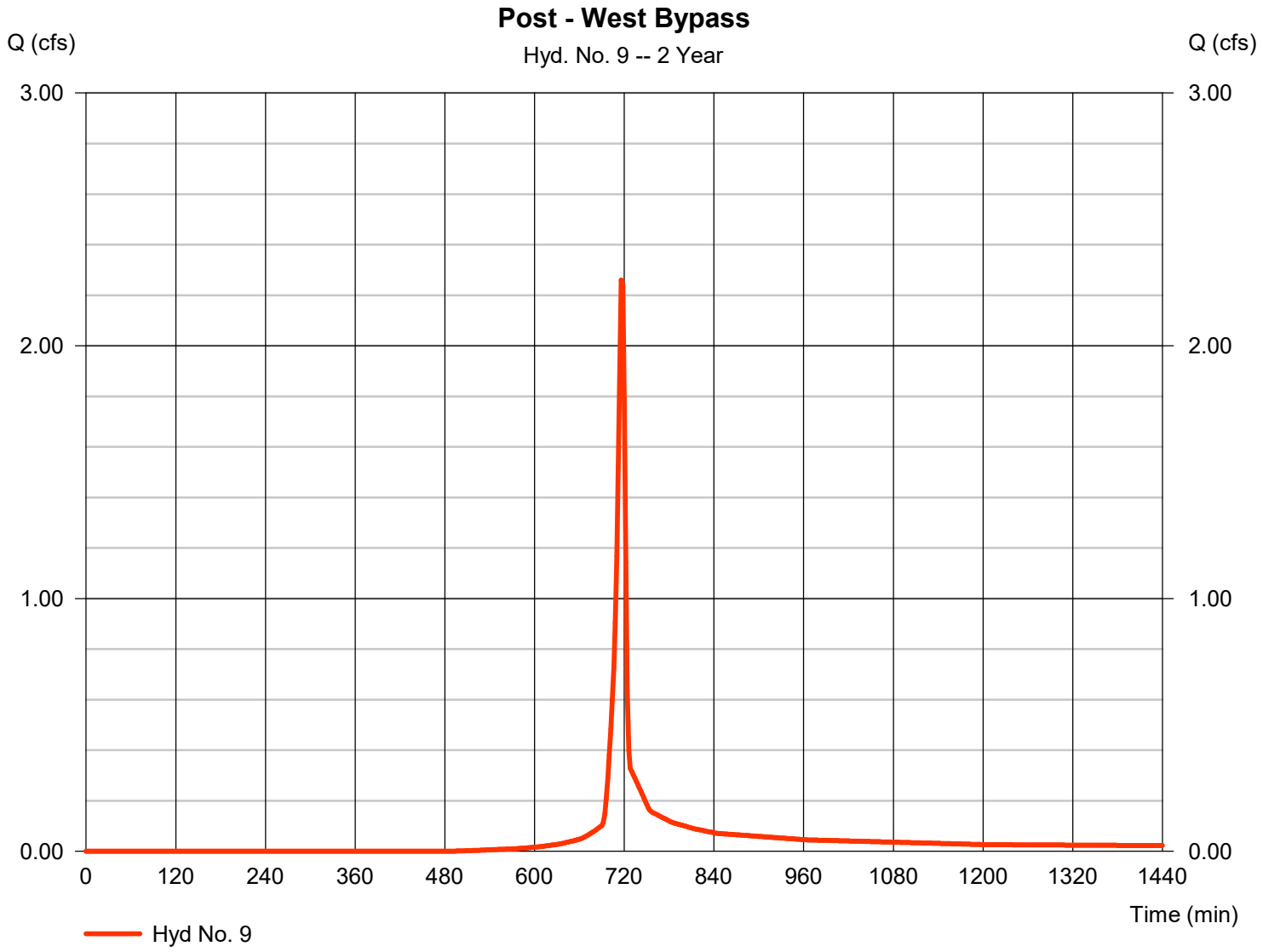
Hydrograph Report

Hyd. No. 9

Post - West Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.260 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	4,569 cuft
Drainage area	=	0.760 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.39 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.600 x 79)] / 0.760

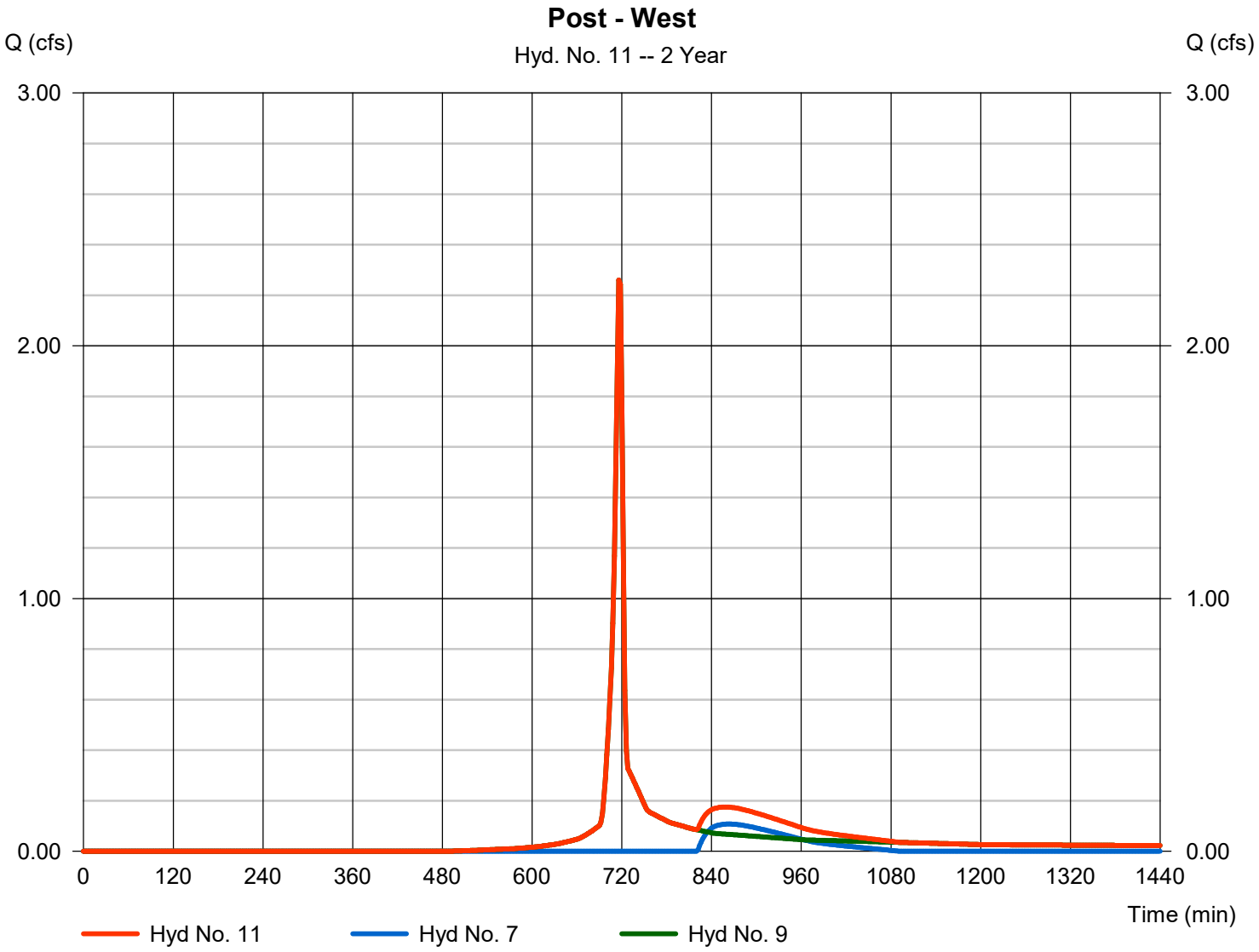


Hydrograph Report

Hyd. No. 11

Post - West

Hydrograph type	= Combine	Peak discharge	= 2.260 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 5,412 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.760 ac

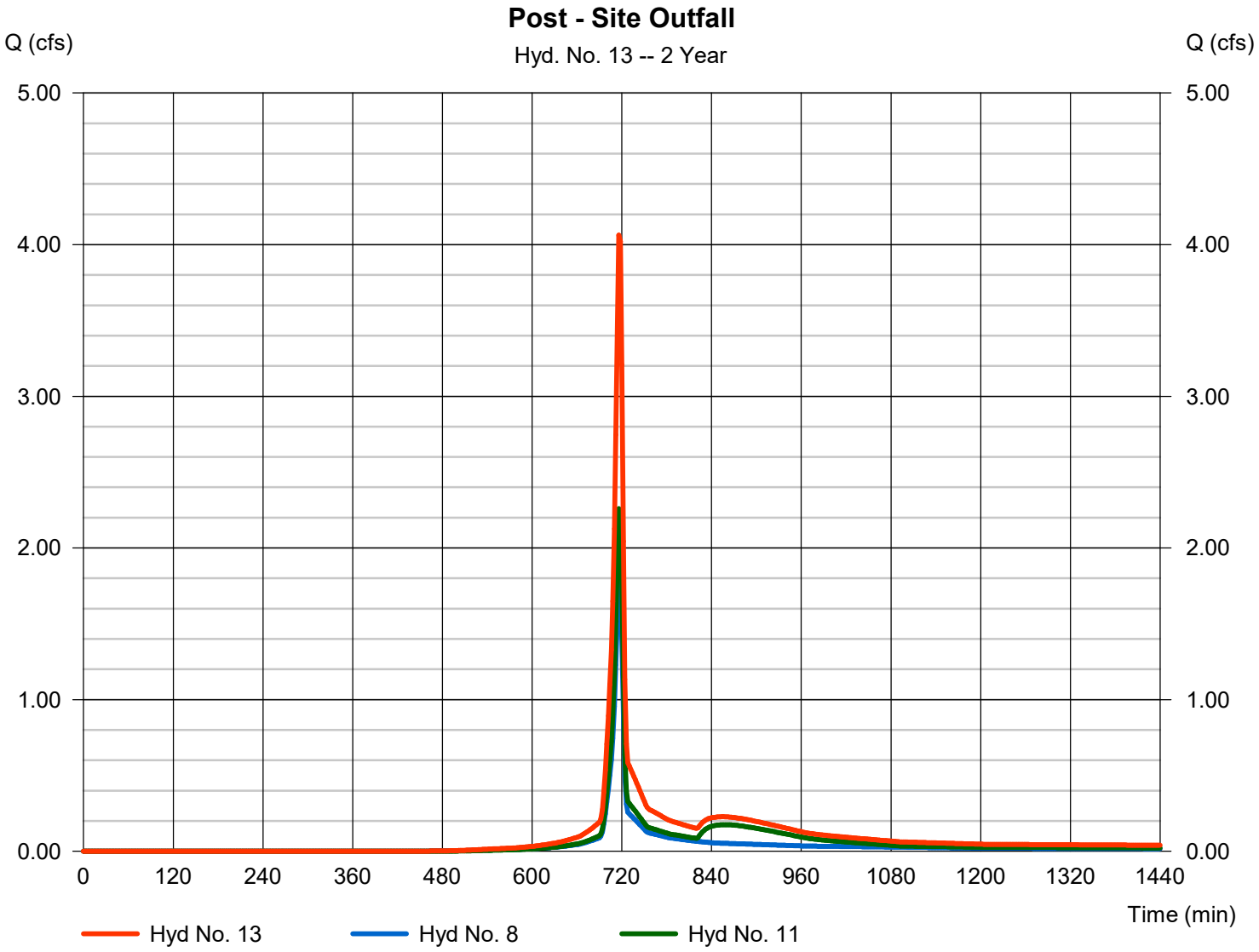


Hydrograph Report

Hyd. No. 13

Post - Site Outfall

Hydrograph type	= Combine	Peak discharge	= 4.062 cfs
Storm frequency	= 2 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 9,072 cuft
Inflow hyds.	= 8, 11	Contrib. drain. area	= 0.560 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

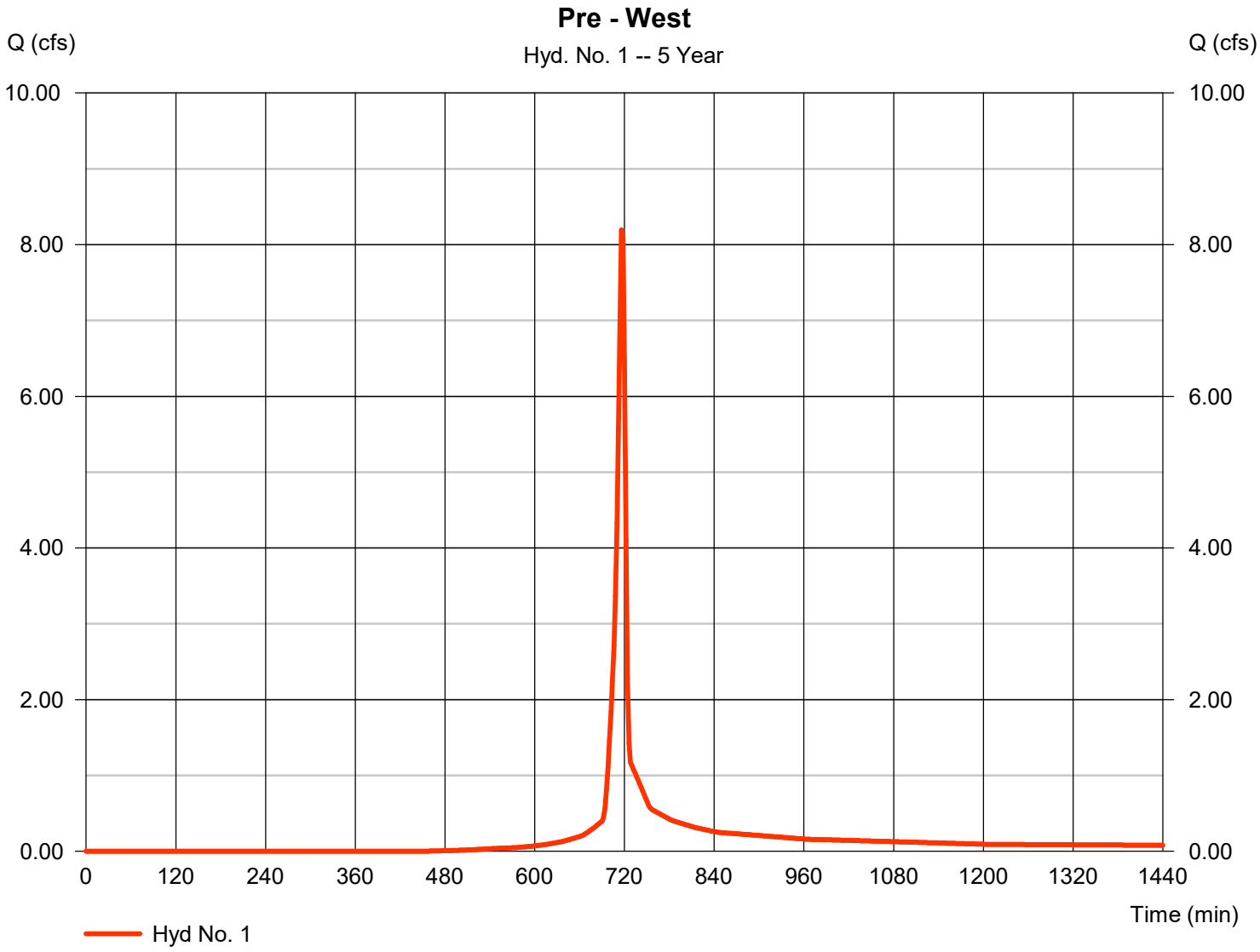
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	8.194	2	716	16,621	------	------	------	Pre - West
2	SCS Runoff	6.636	2	716	13,425	------	------	------	Pre - East
4	Combine	14.83	2	716	30,046	1, 2,	------	------	Pre - Site Outfall
6	SCS Runoff	12.64	2	716	27,142	------	------	------	Post to Pond
7	Reservoir	1.884	2	726	7,866	6	610.24	15,471	Post thru Pond
8	SCS Runoff	2.692	2	716	5,544	------	------	------	Post - East Bypass
9	SCS Runoff	3.451	2	716	7,049	------	------	------	Post - West Bypass
11	Combine	3.451	2	716	14,915	7, 9,	------	------	Post - West
13	Combine	6.142	2	716	20,459	8, 11,	------	------	Post - Site Outfall

Hydrograph Report

Hyd. No. 1

Pre - West

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.194 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	16,621 cuft
Drainage area	=	1.950 ac	Curve number	=	80.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.60 min
Total precip.	=	4.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

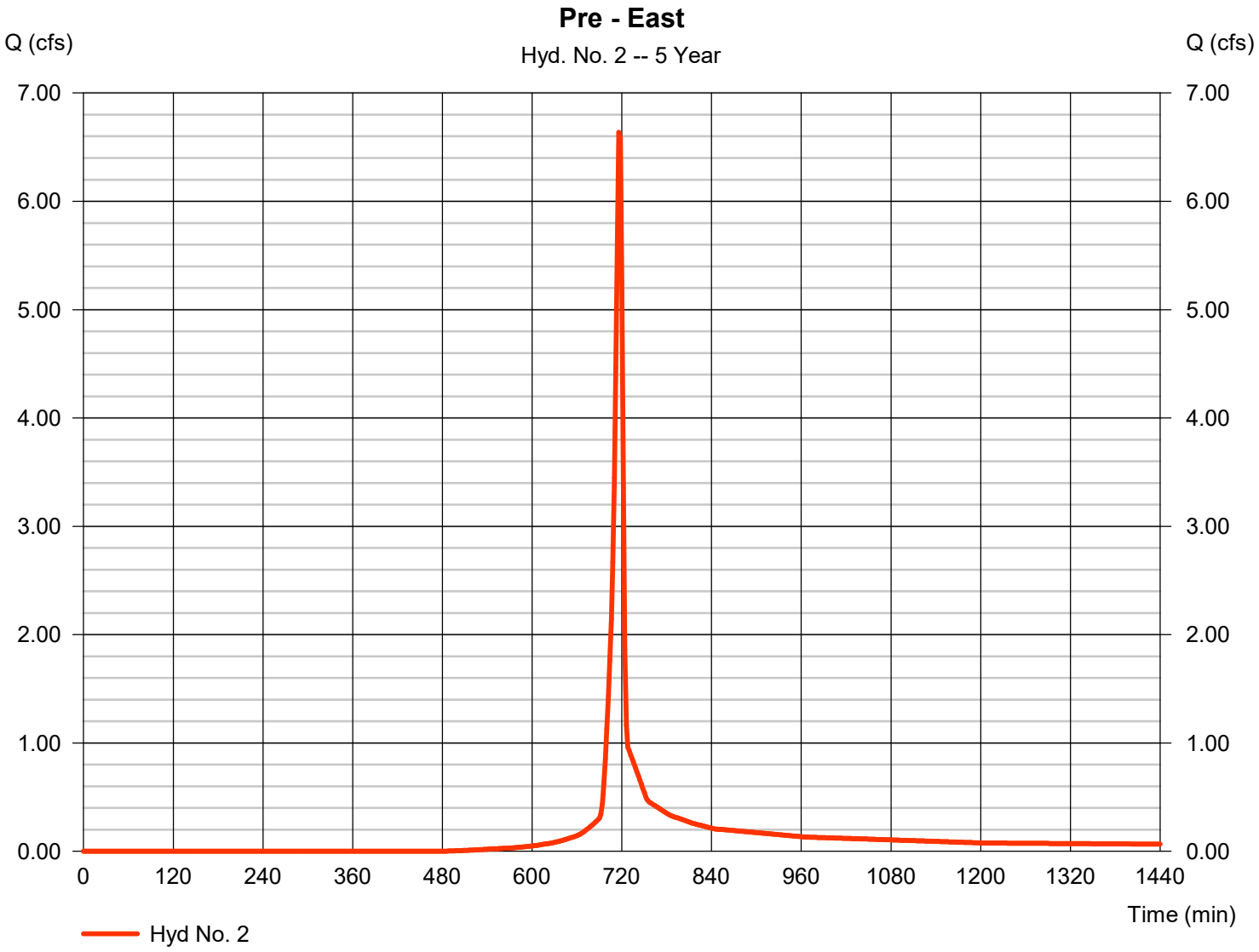


Hydrograph Report

Hyd. No. 2

Pre - East

Hydrograph type	= SCS Runoff	Peak discharge	= 6.636 cfs
Storm frequency	= 5 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 13,425 cuft
Drainage area	= 1.660 ac	Curve number	= 79
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.50 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

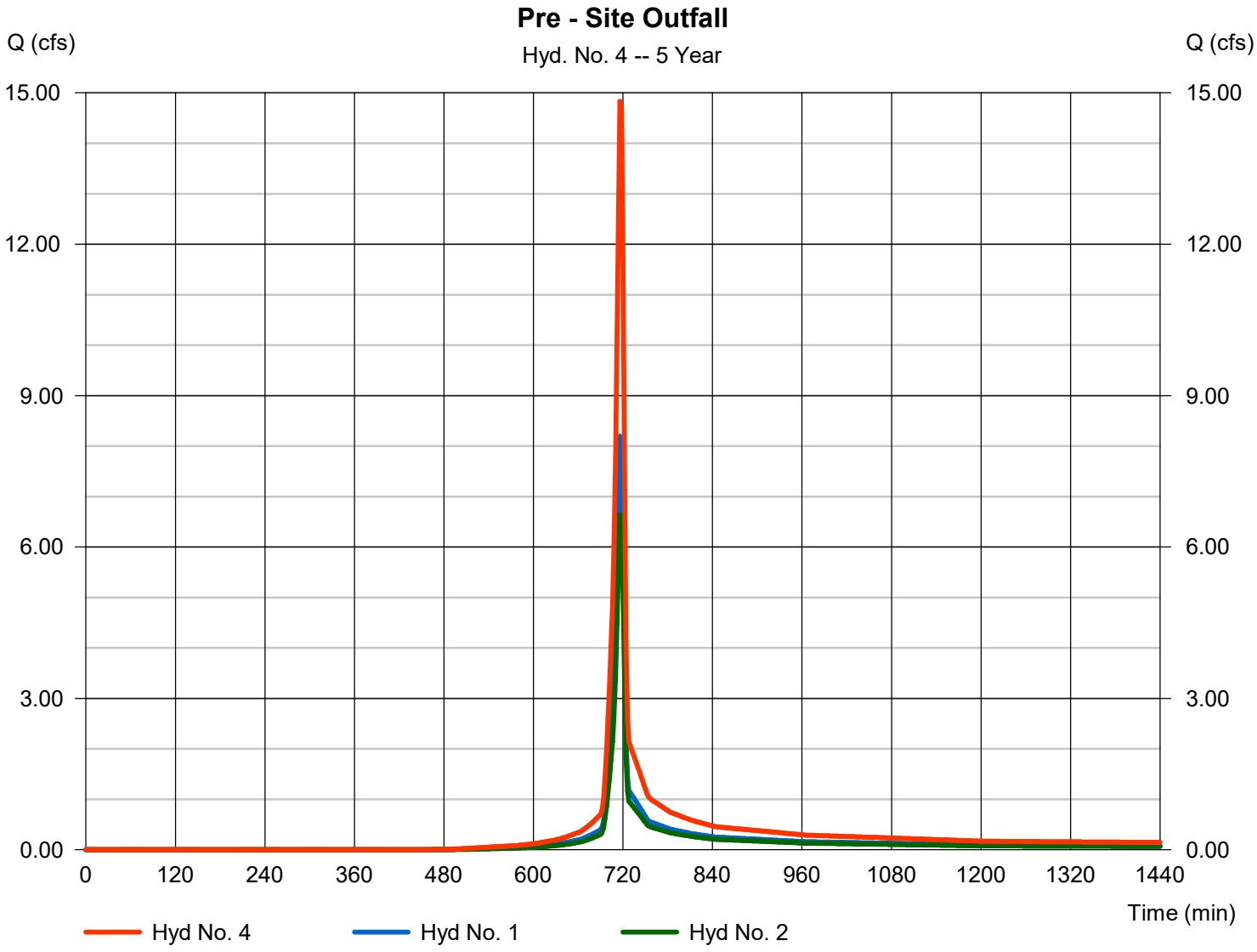


Hydrograph Report

Hyd. No. 4

Pre - Site Outfall

Hydrograph type	=	Combine	Peak discharge	=	14.83 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	30,046 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	3.610 ac



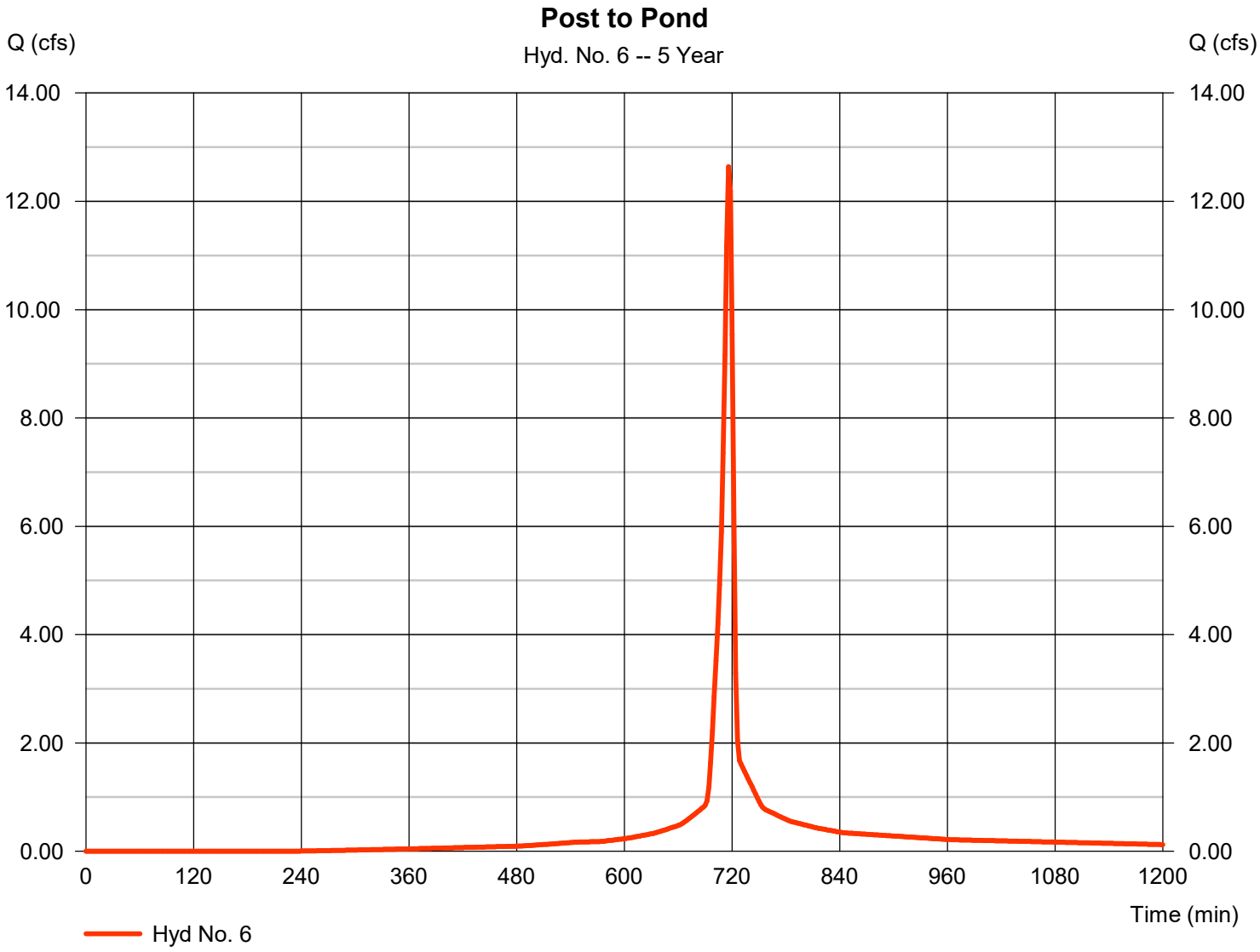
Hydrograph Report

Hyd. No. 6

Post to Pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.64 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	27,142 cuft
Drainage area	=	2.280 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.430 x 98) + (0.850 x 79)] / 2.280



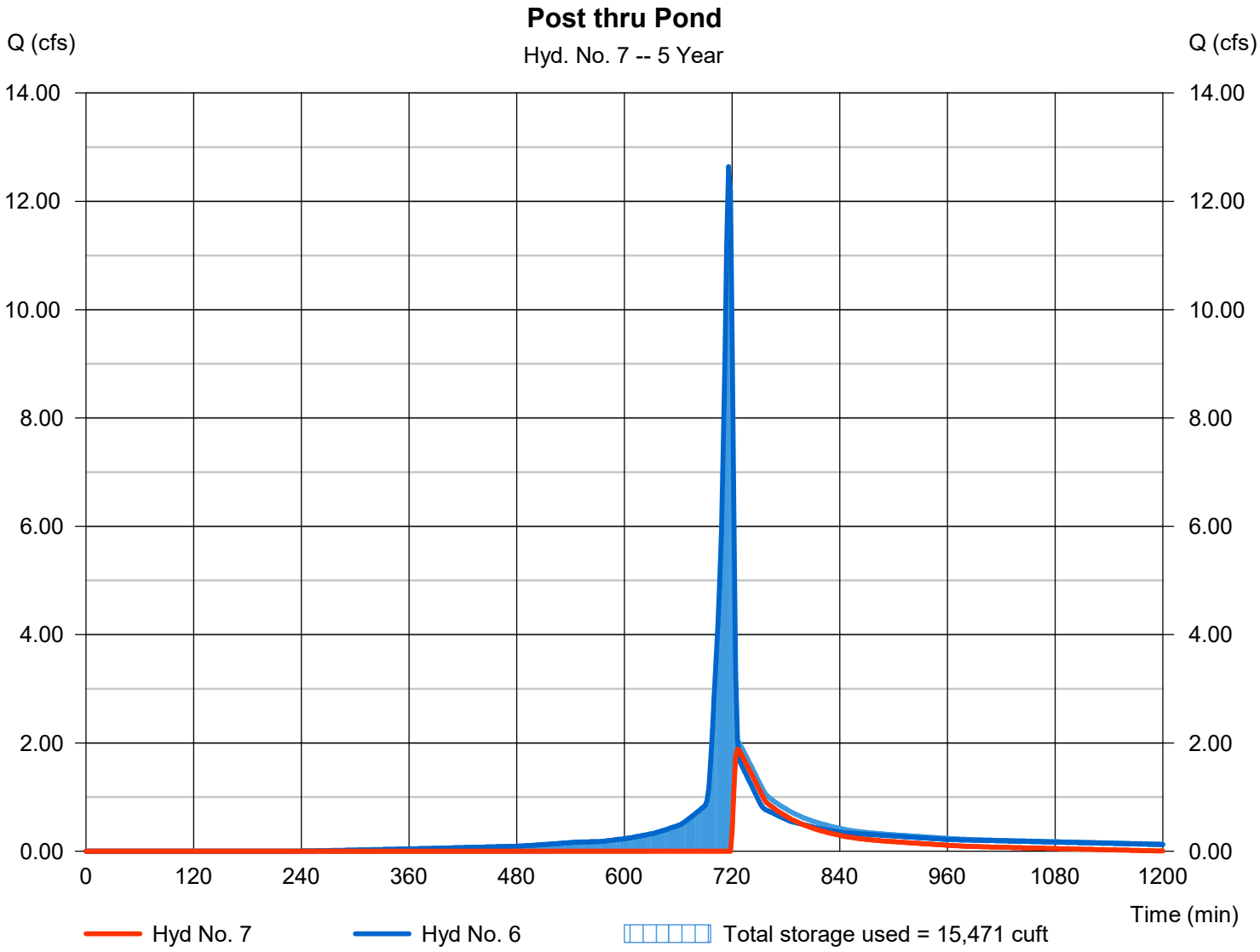
Hydrograph Report

Hyd. No. 7

Post thru Pond

Hydrograph type	=	Reservoir	Peak discharge	=	1.884 cfs
Storm frequency	=	5 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	7,866 cuft
Inflow hyd. No.	=	6 - Post to Pond	Max. Elevation	=	610.24 ft
Reservoir name	=	INFILTRATION 1	Max. Storage	=	15,471 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



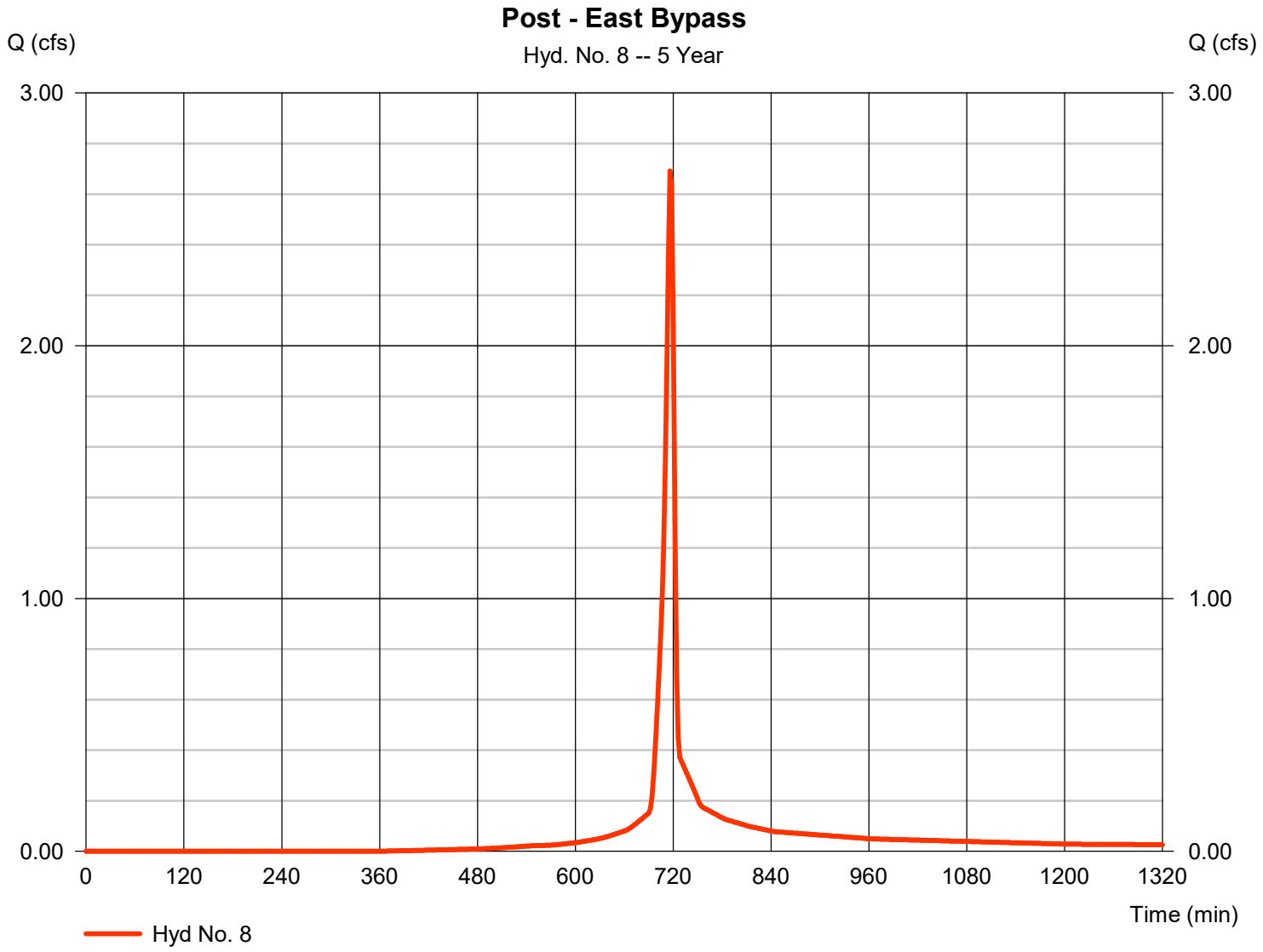
Hydrograph Report

Hyd. No. 8

Post - East Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.692 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	5,544 cuft
Drainage area	=	0.560 ac	Curve number	=	85*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.390 x 79) + (0.170 x 98)] / 0.560



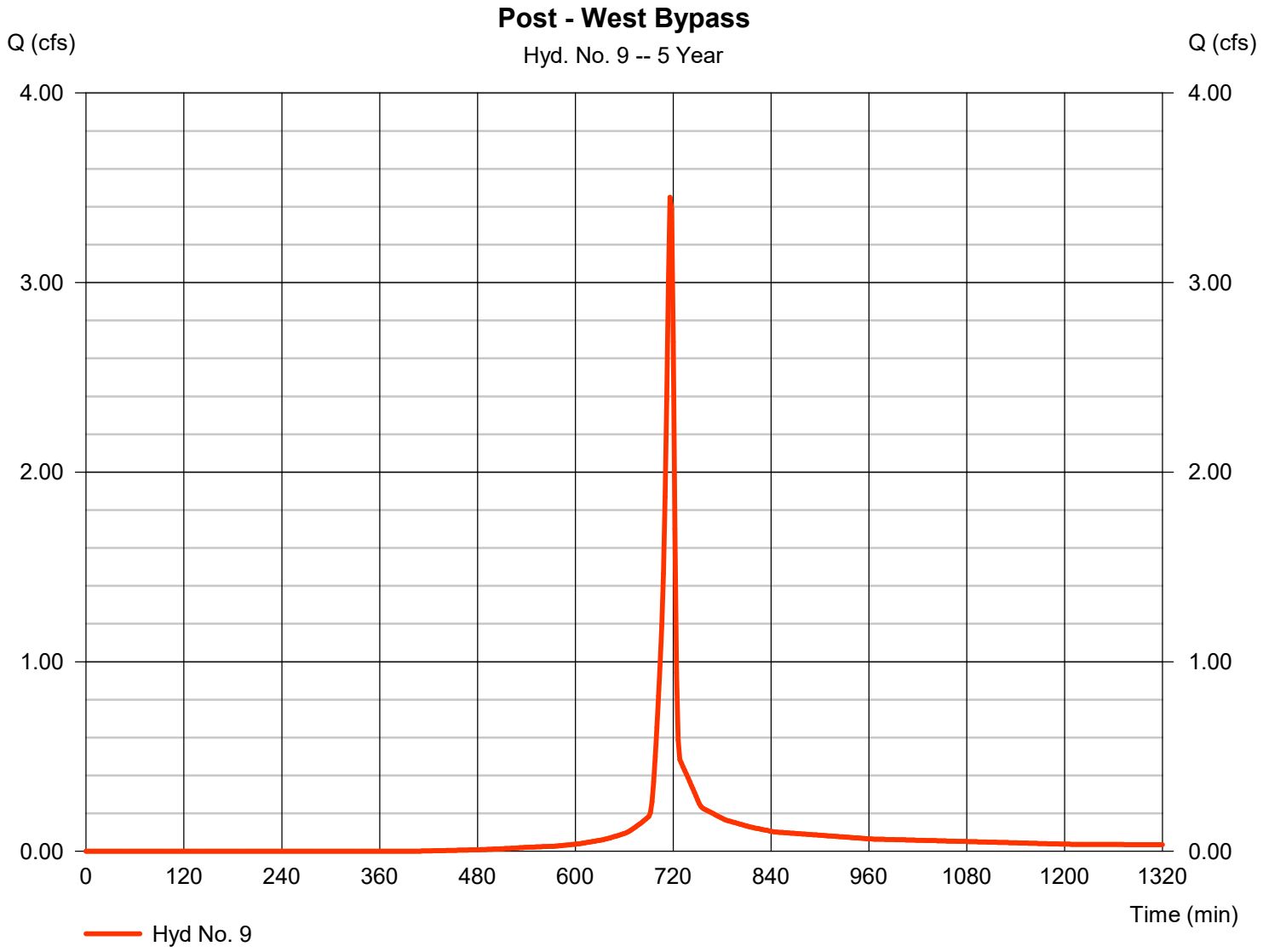
Hydrograph Report

Hyd. No. 9

Post - West Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.451 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	7,049 cuft
Drainage area	=	0.760 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.600 x 79)] / 0.760

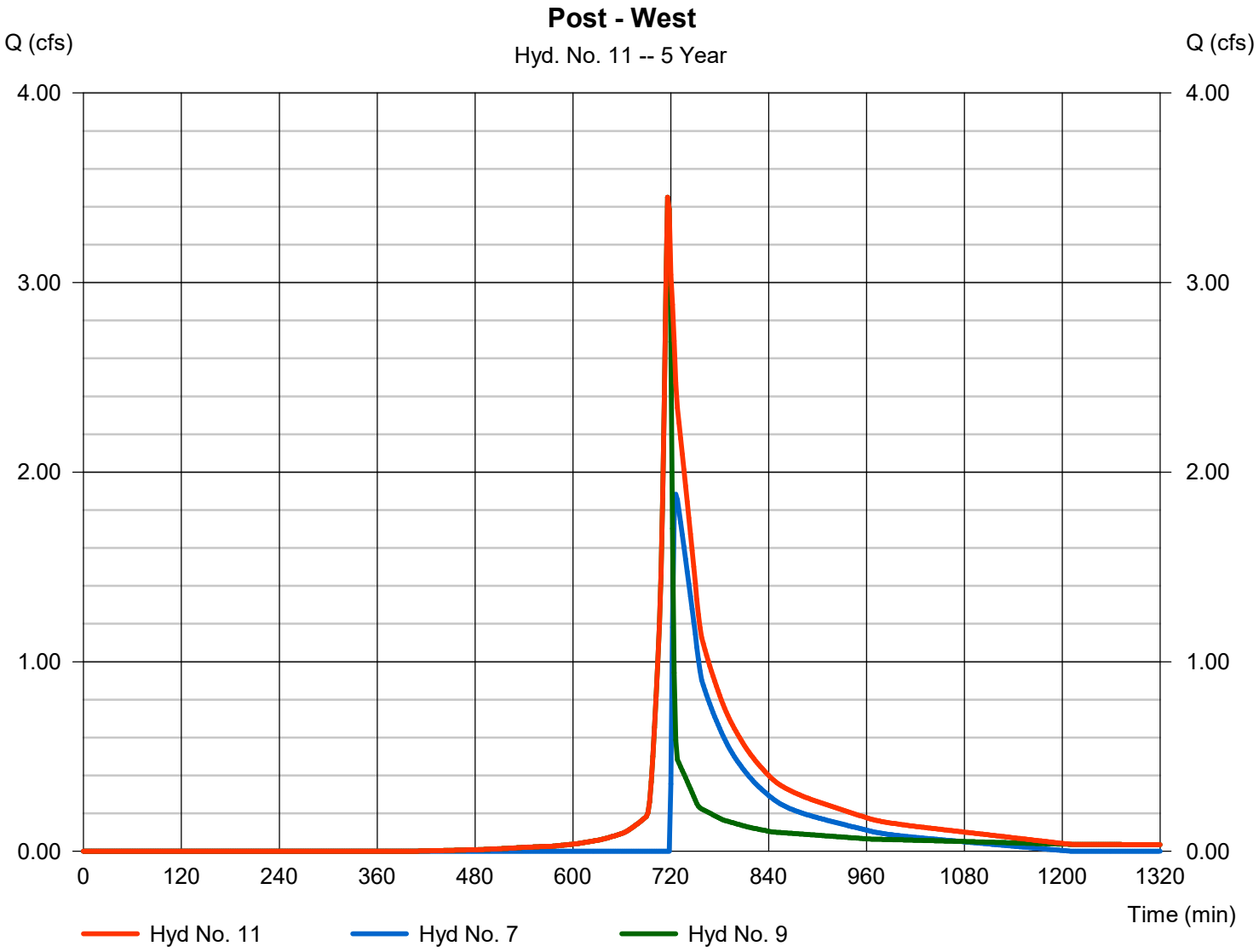


Hydrograph Report

Hyd. No. 11

Post - West

Hydrograph type	= Combine	Peak discharge	= 3.451 cfs
Storm frequency	= 5 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 14,915 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.760 ac

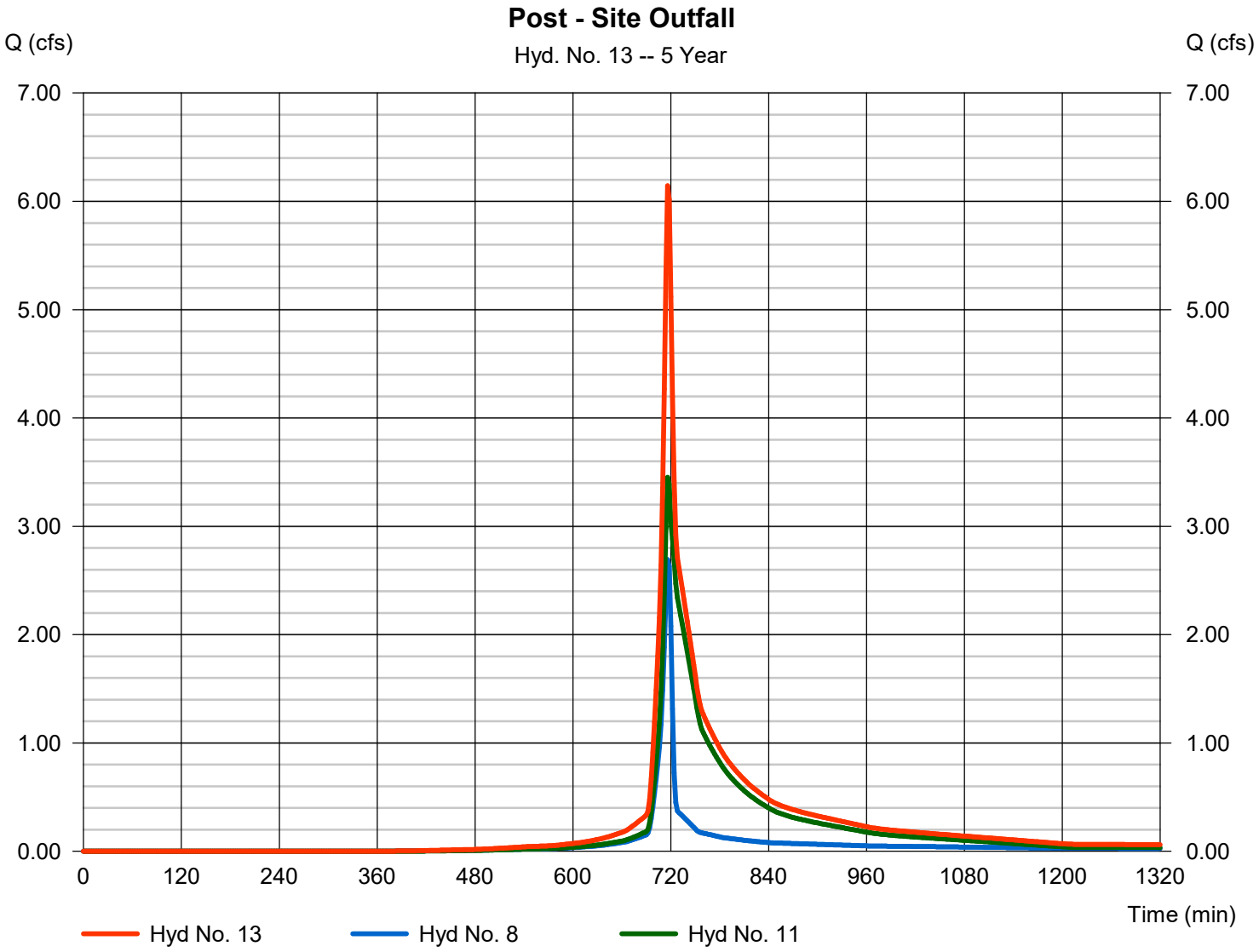


Hydrograph Report

Hyd. No. 13

Post - Site Outfall

Hydrograph type	=	Combine	Peak discharge	=	6.142 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	20,459 cuft
Inflow hyds.	=	8, 11	Contrib. drain. area	=	0.560 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

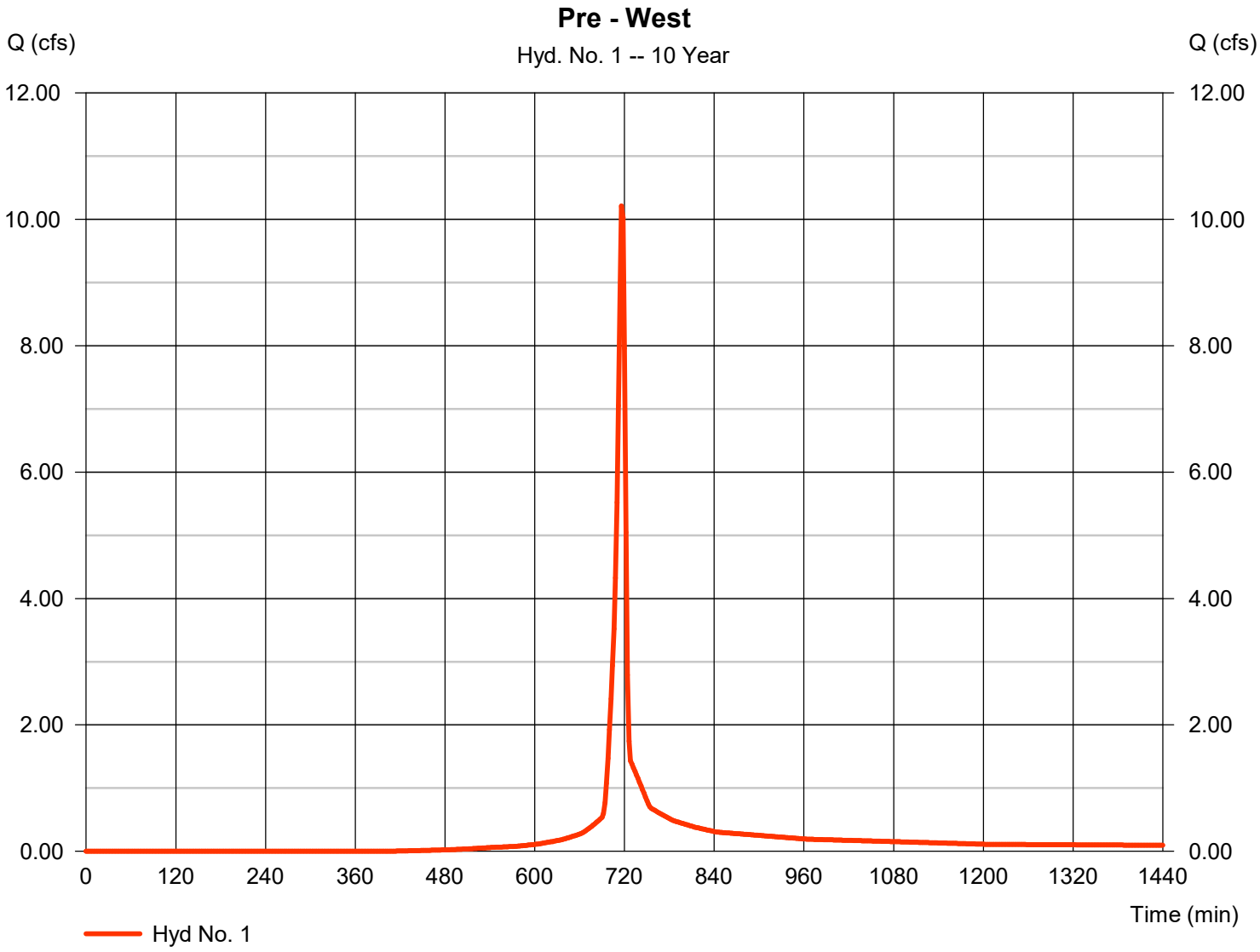
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	10.21	2	716	20,849	------	------	------	Pre - West
2	SCS Runoff	8.339	2	716	16,951	------	------	------	Pre - East
4	Combine	18.55	2	716	37,800	1, 2,	------	------	Pre - Site Outfall
6	SCS Runoff	15.02	2	716	32,632	------	------	------	Post to Pond
7	Reservoir	5.421	2	722	13,070	6	610.50	17,316	Post thru Pond
8	SCS Runoff	3.282	2	716	6,825	------	------	------	Post - East Bypass
9	SCS Runoff	4.247	2	716	8,750	------	------	------	Post - West Bypass
11	Combine	7.697	2	720	21,819	7, 9,	------	------	Post - West
13	Combine	10.21	2	720	28,644	8, 11,	------	------	Post - Site Outfall

Hydrograph Report

Hyd. No. 1

Pre - West

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.21 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	20,849 cuft
Drainage area	=	1.950 ac	Curve number	=	80.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.60 min
Total precip.	=	5.23 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

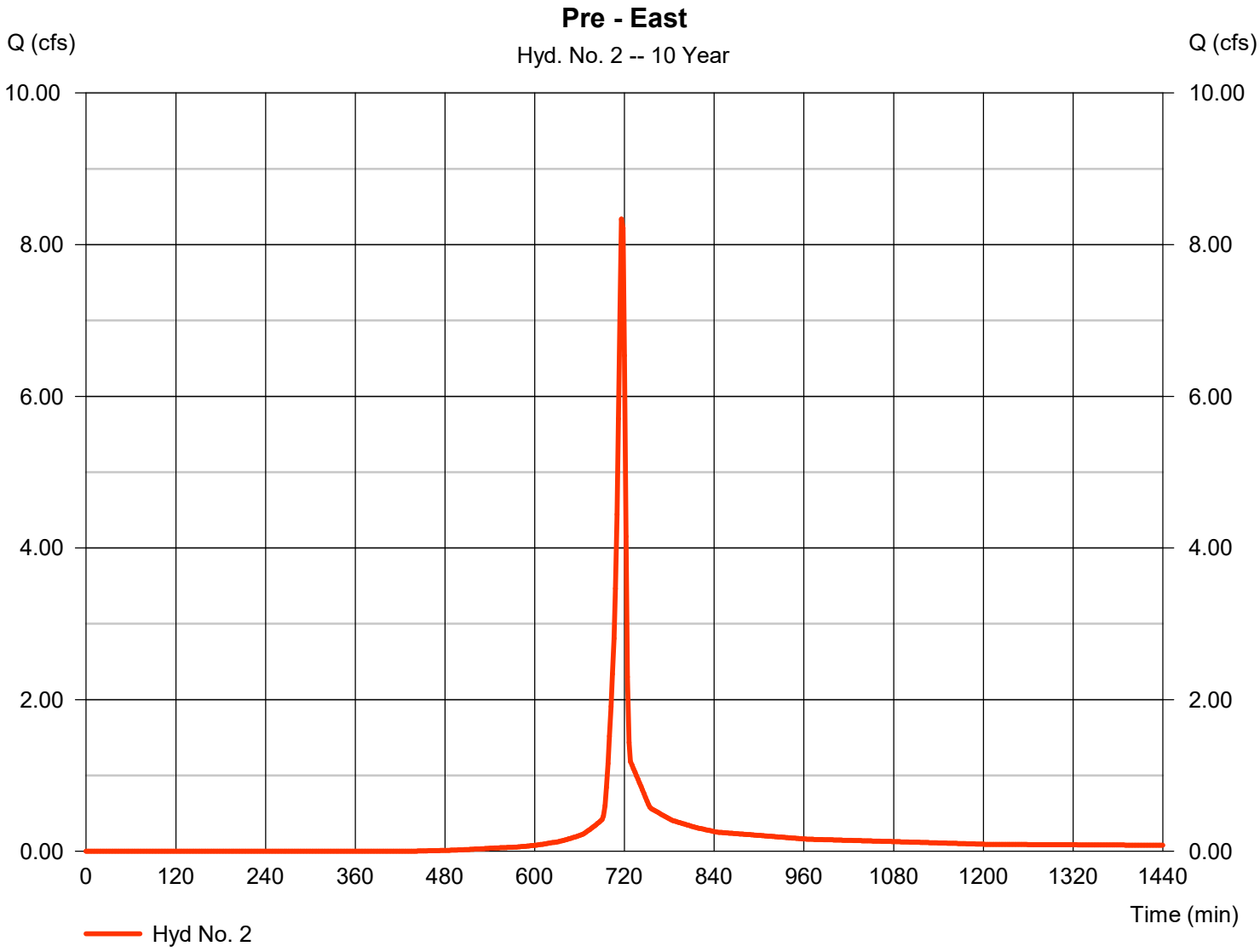


Hydrograph Report

Hyd. No. 2

Pre - East

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.339 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	16,951 cuft
Drainage area	=	1.660 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.00 min
Total precip.	=	5.23 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

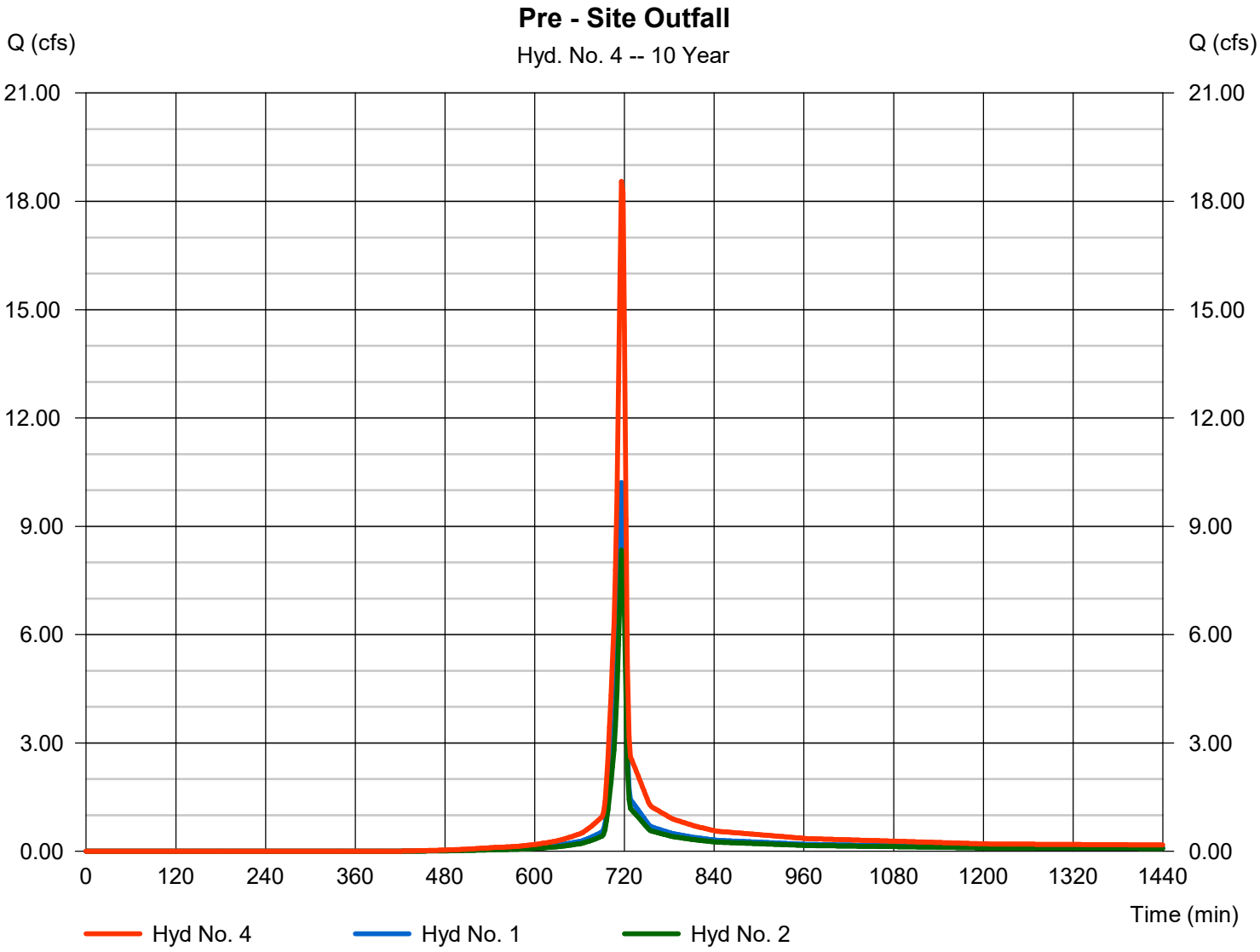


Hydrograph Report

Hyd. No. 4

Pre - Site Outfall

Hydrograph type	= Combine	Peak discharge	= 18.55 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 37,800 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 3.610 ac



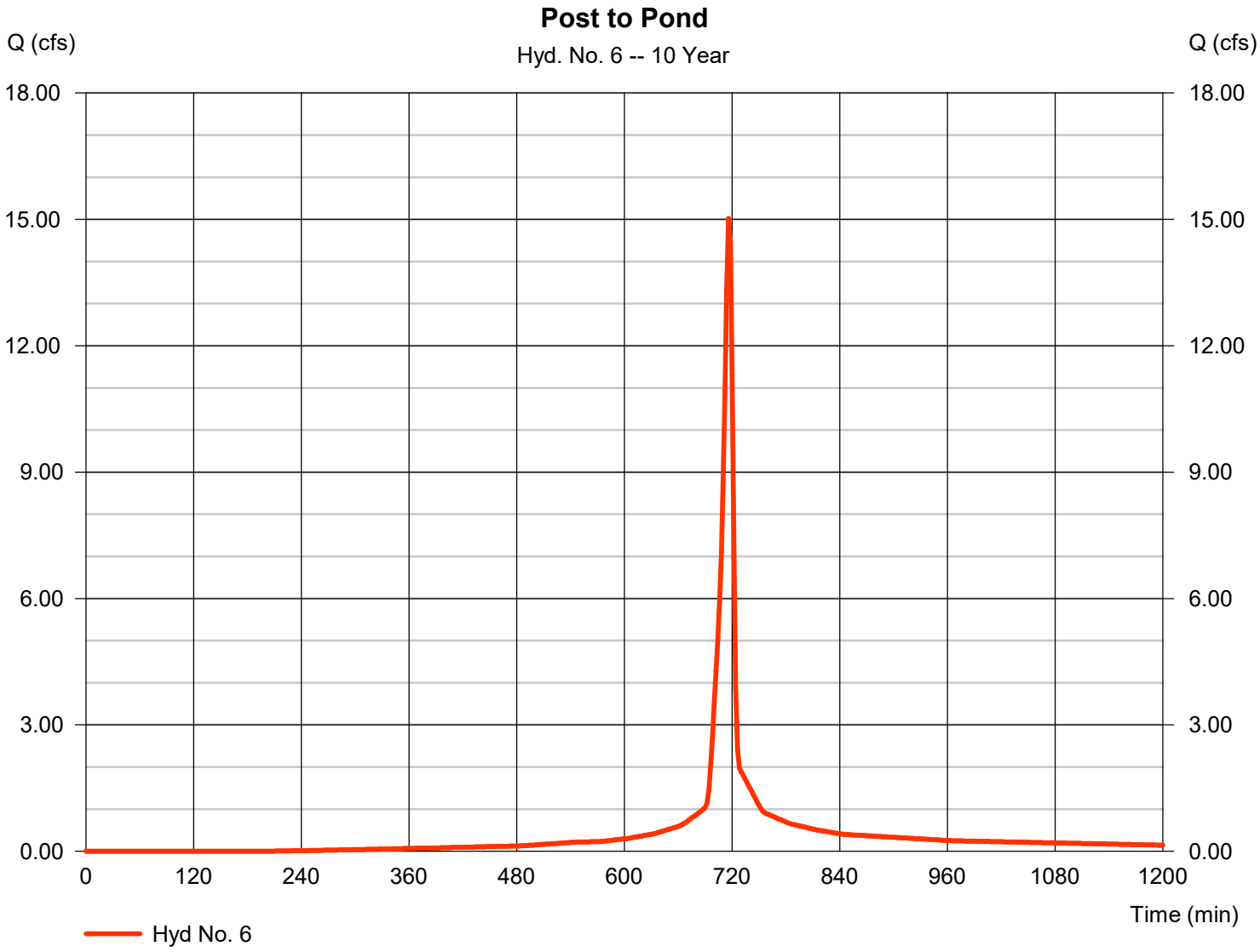
Hydrograph Report

Hyd. No. 6

Post to Pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.02 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	32,632 cuft
Drainage area	=	2.280 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.23 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.430 x 98) + (0.850 x 79)] / 2.280



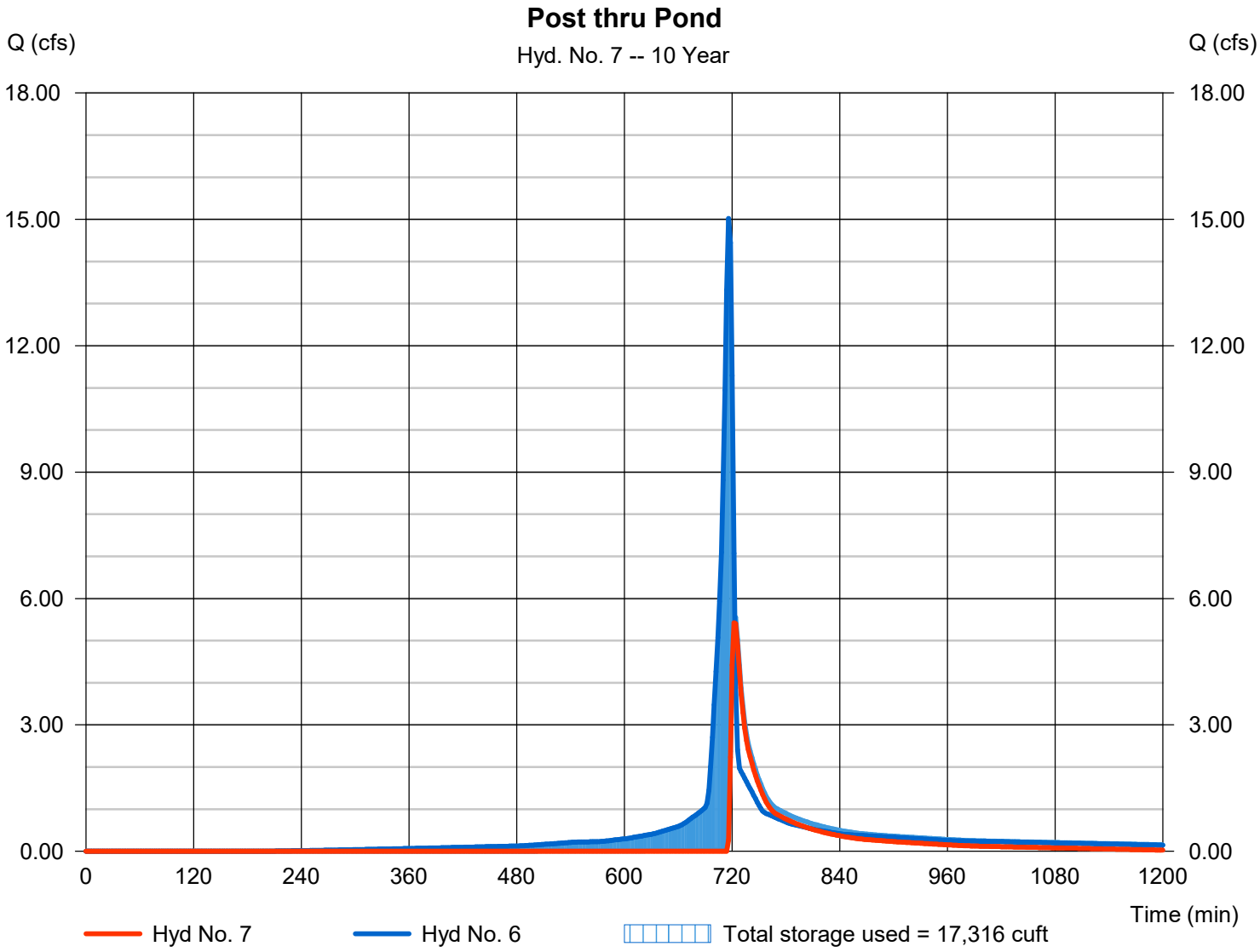
Hydrograph Report

Hyd. No. 7

Post thru Pond

Hydrograph type	=	Reservoir	Peak discharge	=	5.421 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	13,070 cuft
Inflow hyd. No.	=	6 - Post to Pond	Max. Elevation	=	610.50 ft
Reservoir name	=	INFILTRATION 1	Max. Storage	=	17,316 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



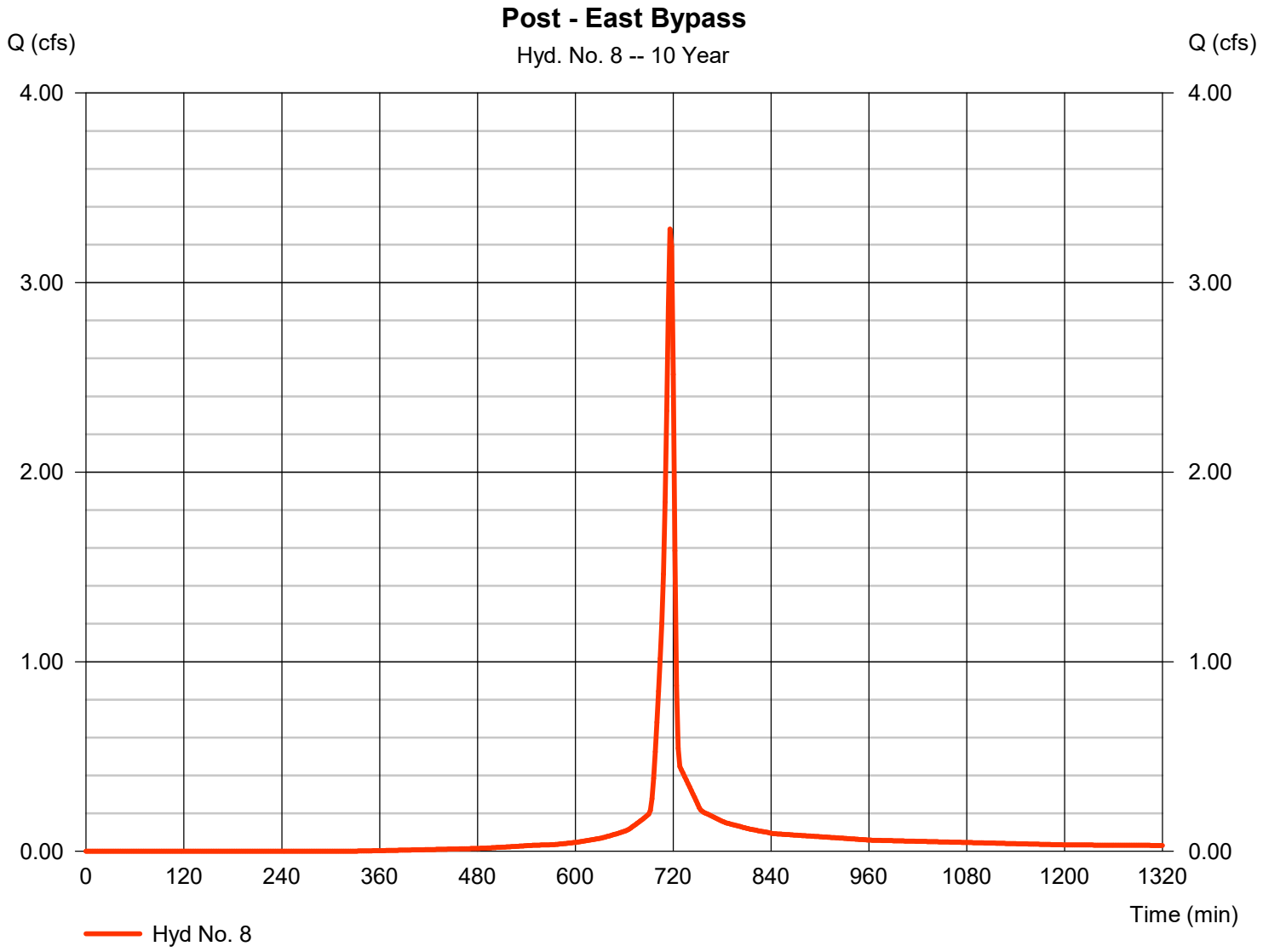
Hydrograph Report

Hyd. No. 8

Post - East Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.282 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	6,825 cuft
Drainage area	=	0.560 ac	Curve number	=	85*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.23 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.390 x 79) + (0.170 x 98)] / 0.560



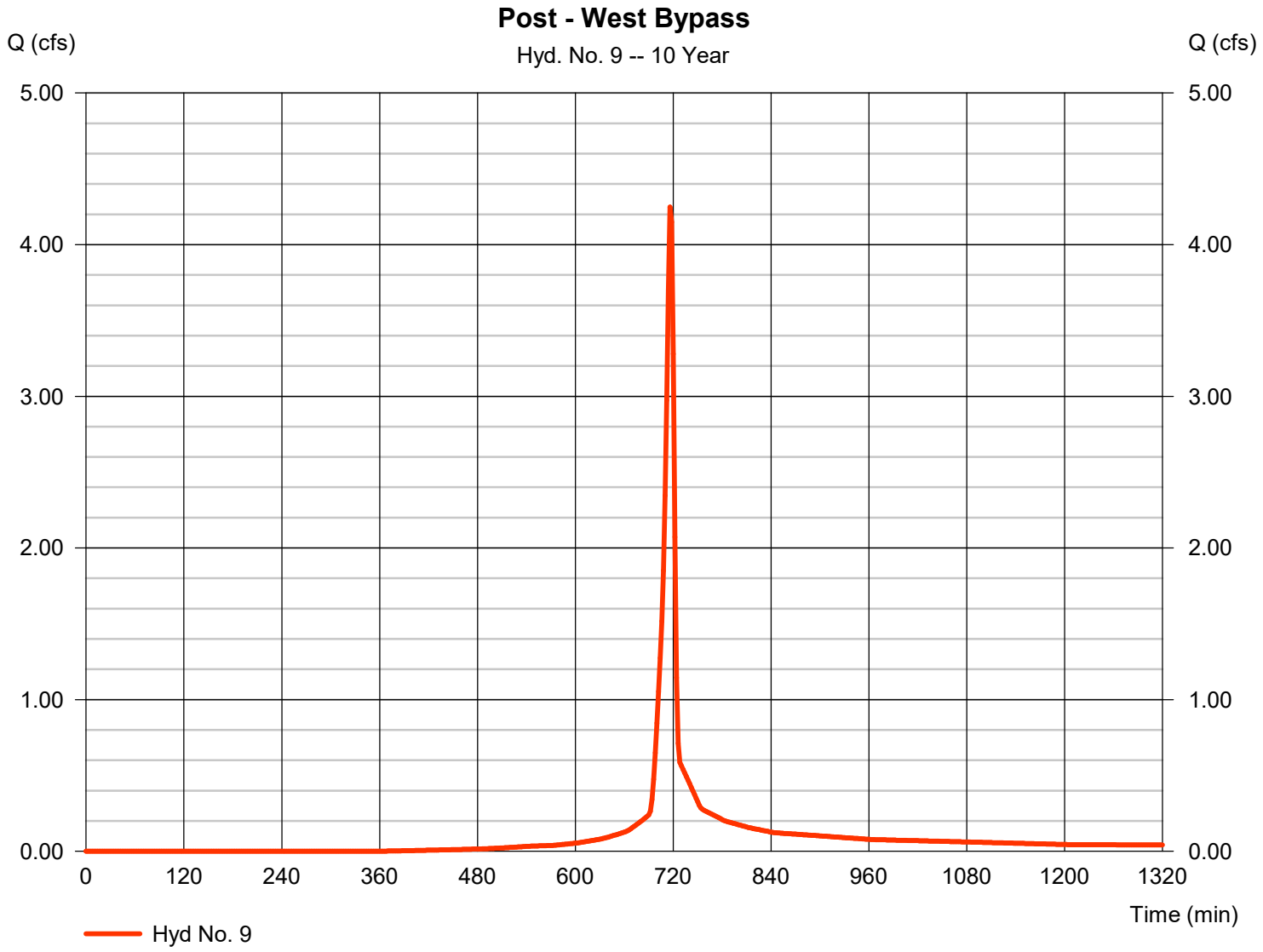
Hydrograph Report

Hyd. No. 9

Post - West Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.247 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	8,750 cuft
Drainage area	=	0.760 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.23 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.600 x 79)] / 0.760

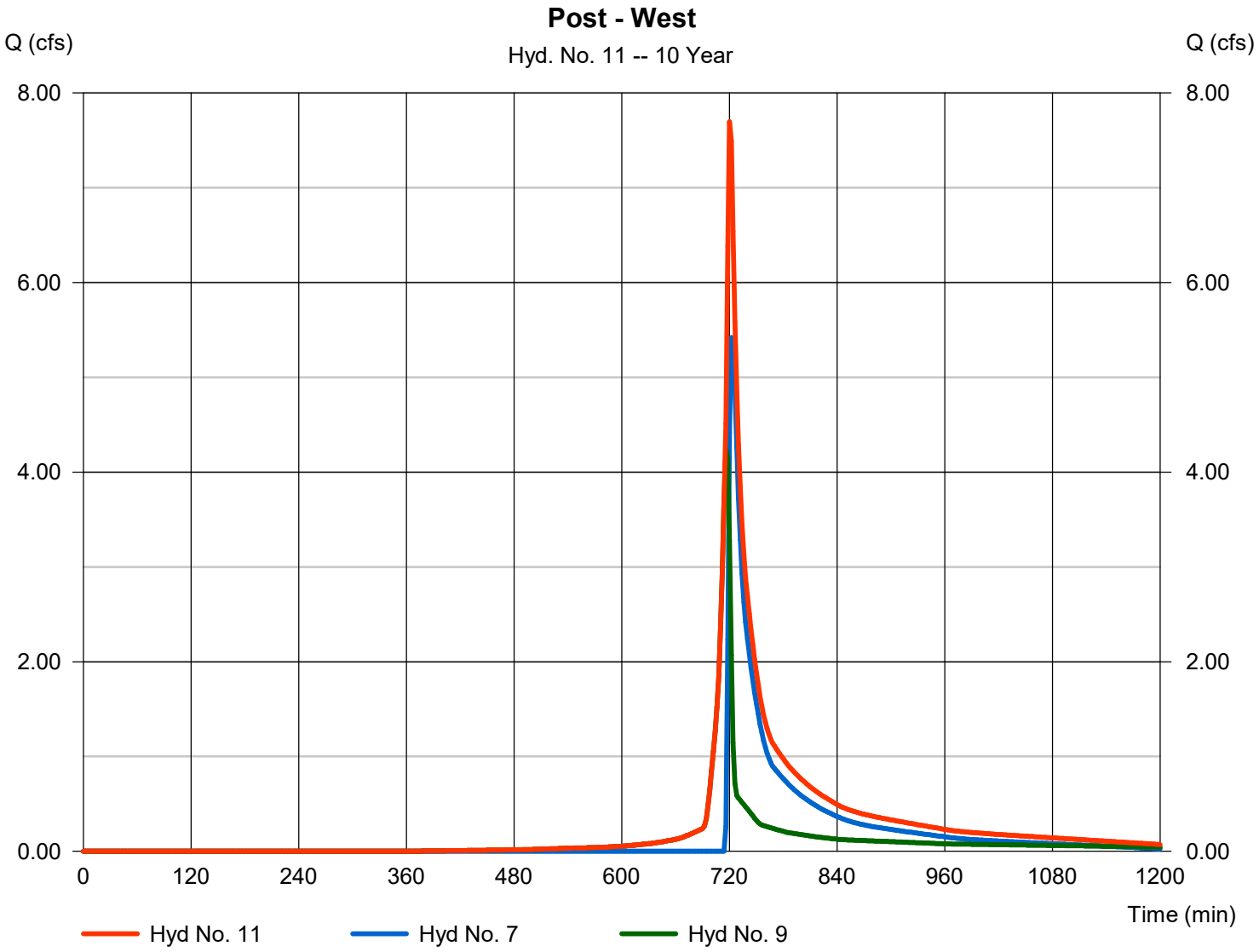


Hydrograph Report

Hyd. No. 11

Post - West

Hydrograph type	= Combine	Peak discharge	= 7.697 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 21,819 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.760 ac

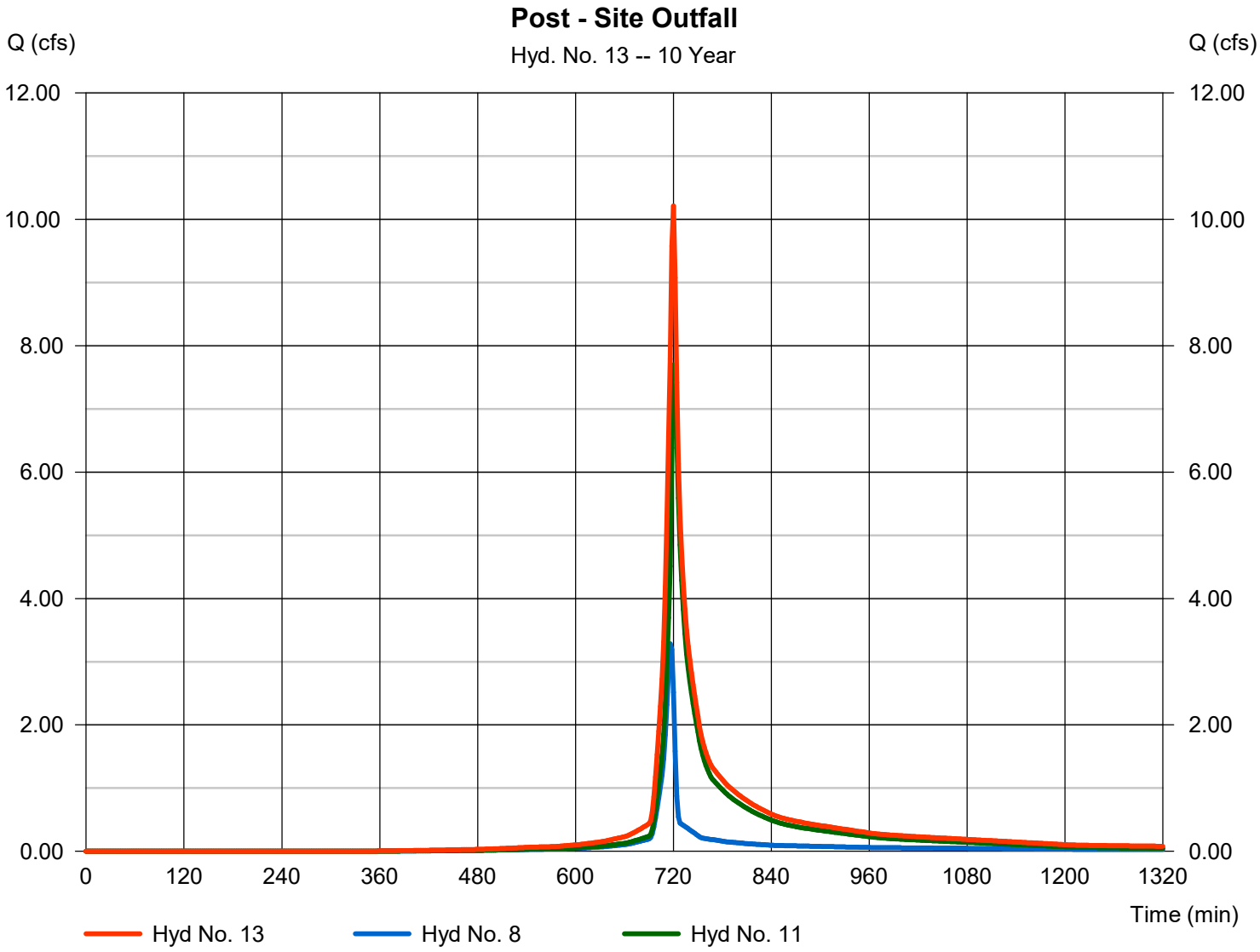


Hydrograph Report

Hyd. No. 13

Post - Site Outfall

Hydrograph type	=	Combine	Peak discharge	=	10.21 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	28,644 cuft
Inflow hyds.	=	8, 11	Contrib. drain. area	=	0.560 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

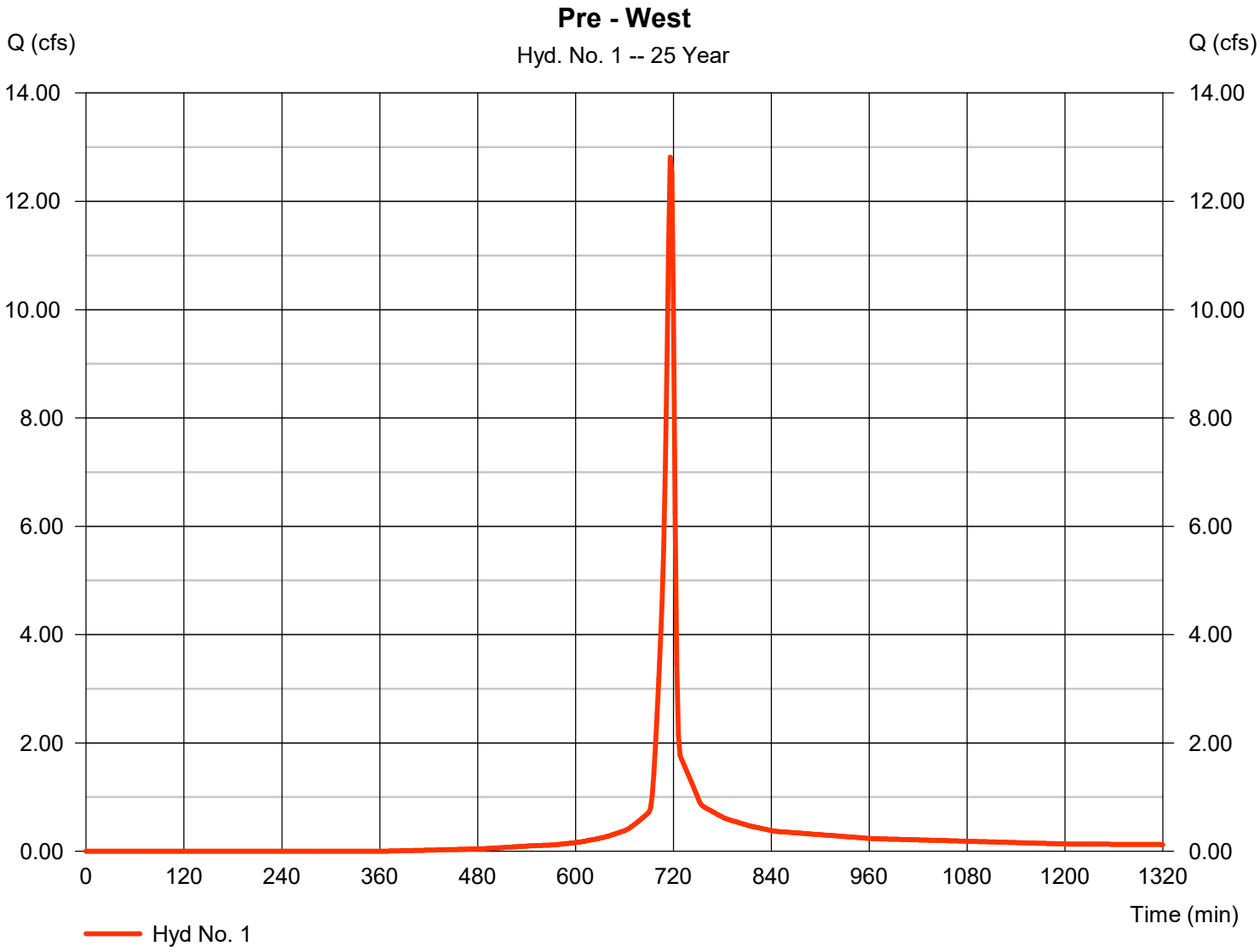
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	12.82	2	716	26,397	------	------	------	Pre - West
2	SCS Runoff	10.54	2	716	21,596	------	------	------	Pre - East
4	Combine	23.36	2	716	47,993	1, 2,	------	------	Pre - Site Outfall
6	SCS Runoff	18.03	2	716	39,679	------	------	------	Post to Pond
7	Reservoir	7.424	2	722	19,961	6	610.85	19,814	Post thru Pond
8	SCS Runoff	4.034	2	716	8,488	------	------	------	Post - East Bypass
9	SCS Runoff	5.268	2	716	10,966	------	------	------	Post - West Bypass
11	Combine	12.16	2	718	30,927	7, 9,	------	------	Post - West
13	Combine	16.07	2	718	39,415	8, 11,	------	------	Post - Site Outfall

Hydrograph Report

Hyd. No. 1

Pre - West

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.82 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	26,397 cuft
Drainage area	=	1.950 ac	Curve number	=	80.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.60 min
Total precip.	=	6.16 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

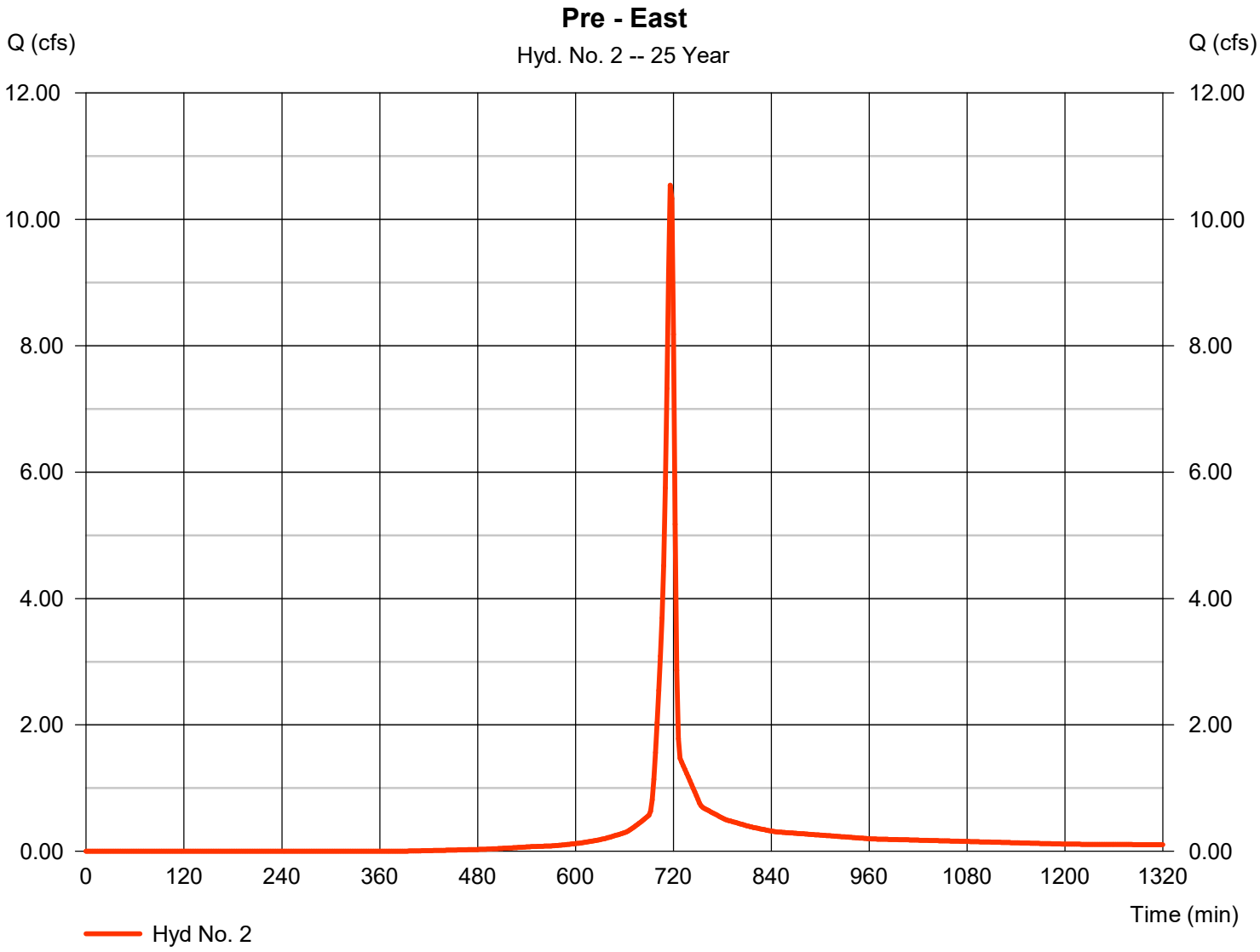


Hydrograph Report

Hyd. No. 2

Pre - East

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.54 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	21,596 cuft
Drainage area	=	1.660 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.16 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

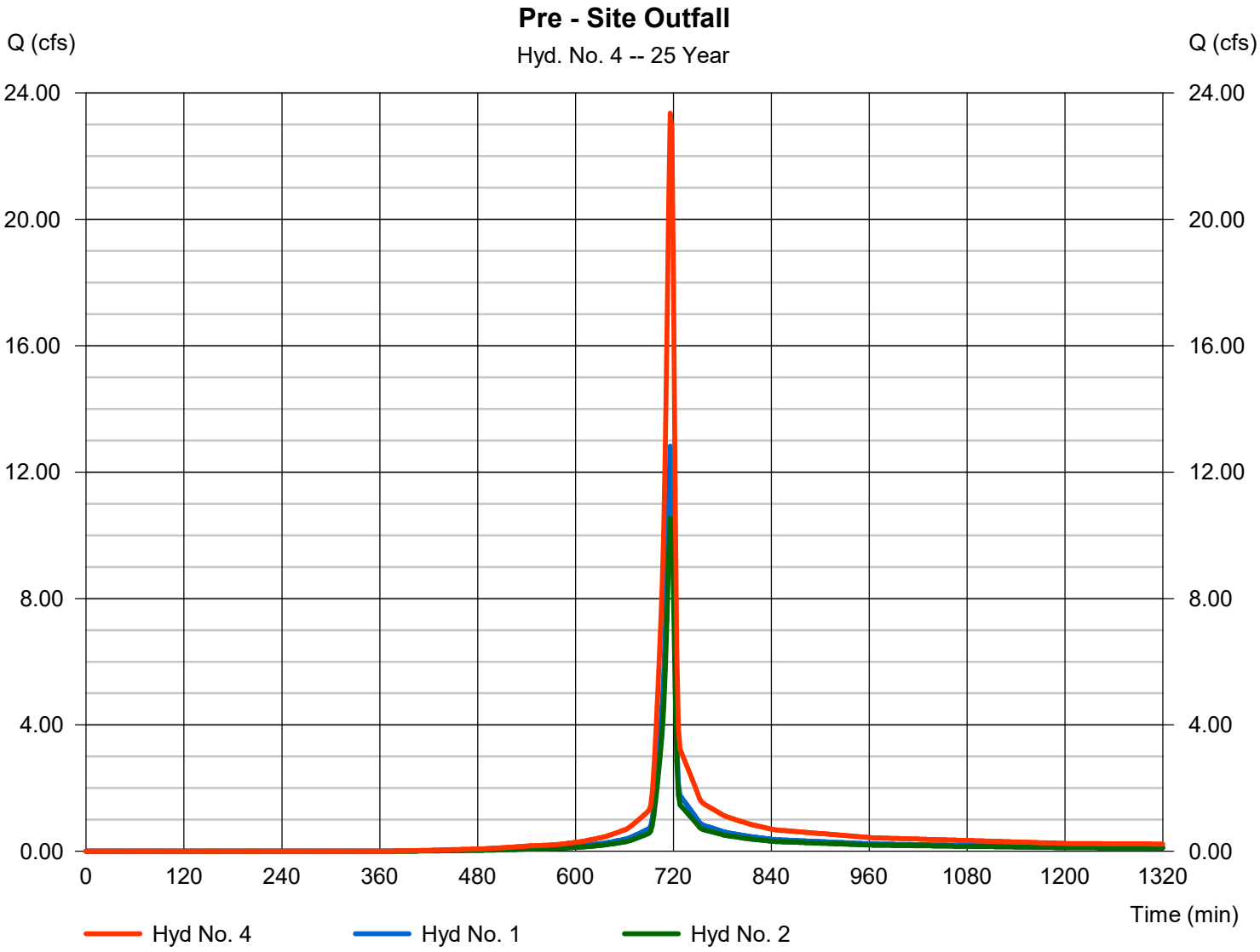


Hydrograph Report

Hyd. No. 4

Pre - Site Outfall

Hydrograph type	= Combine	Peak discharge	= 23.36 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 47,993 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 3.610 ac



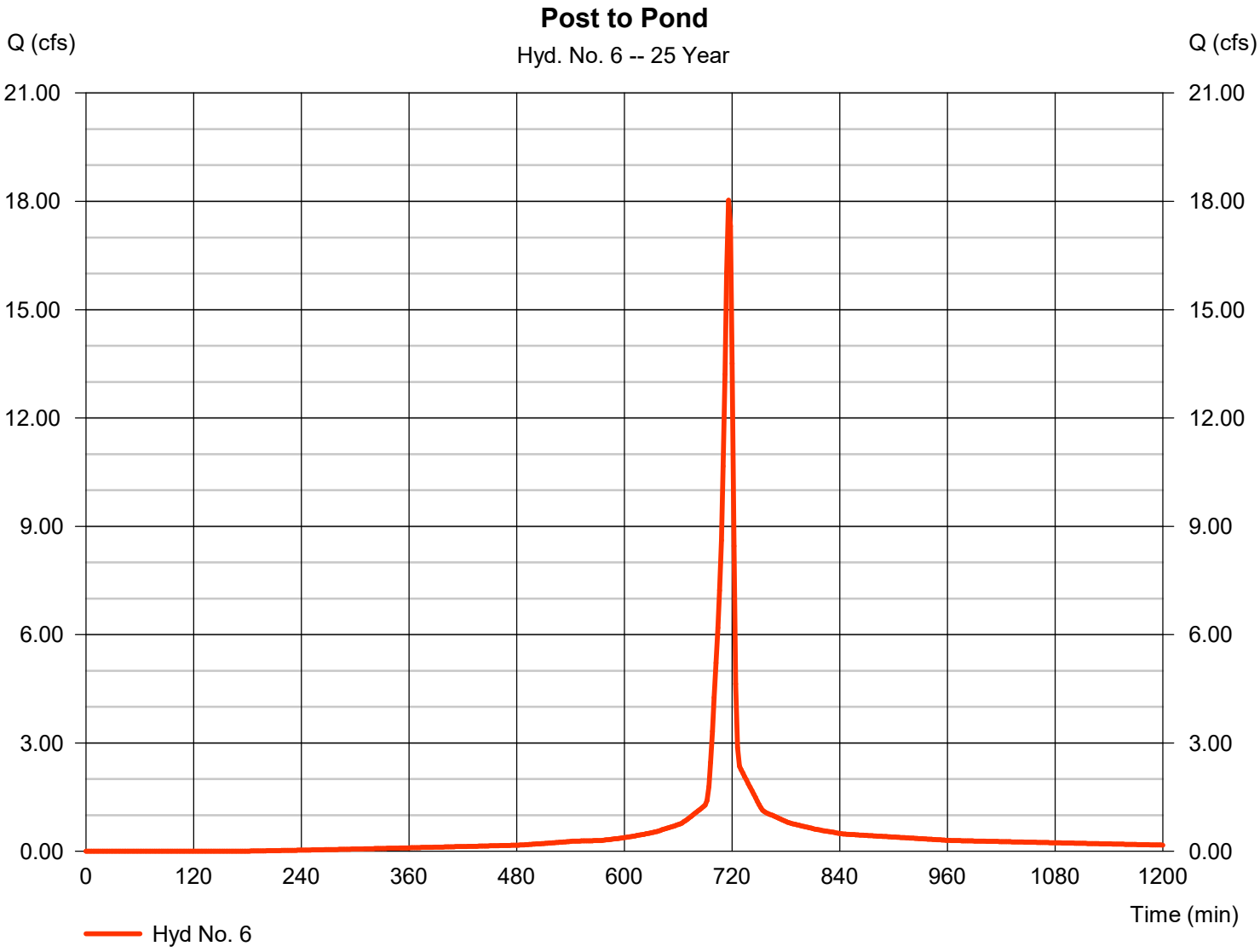
Hydrograph Report

Hyd. No. 6

Post to Pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	18.03 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	39,679 cuft
Drainage area	=	2.280 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.16 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.430 x 98) + (0.850 x 79)] / 2.280



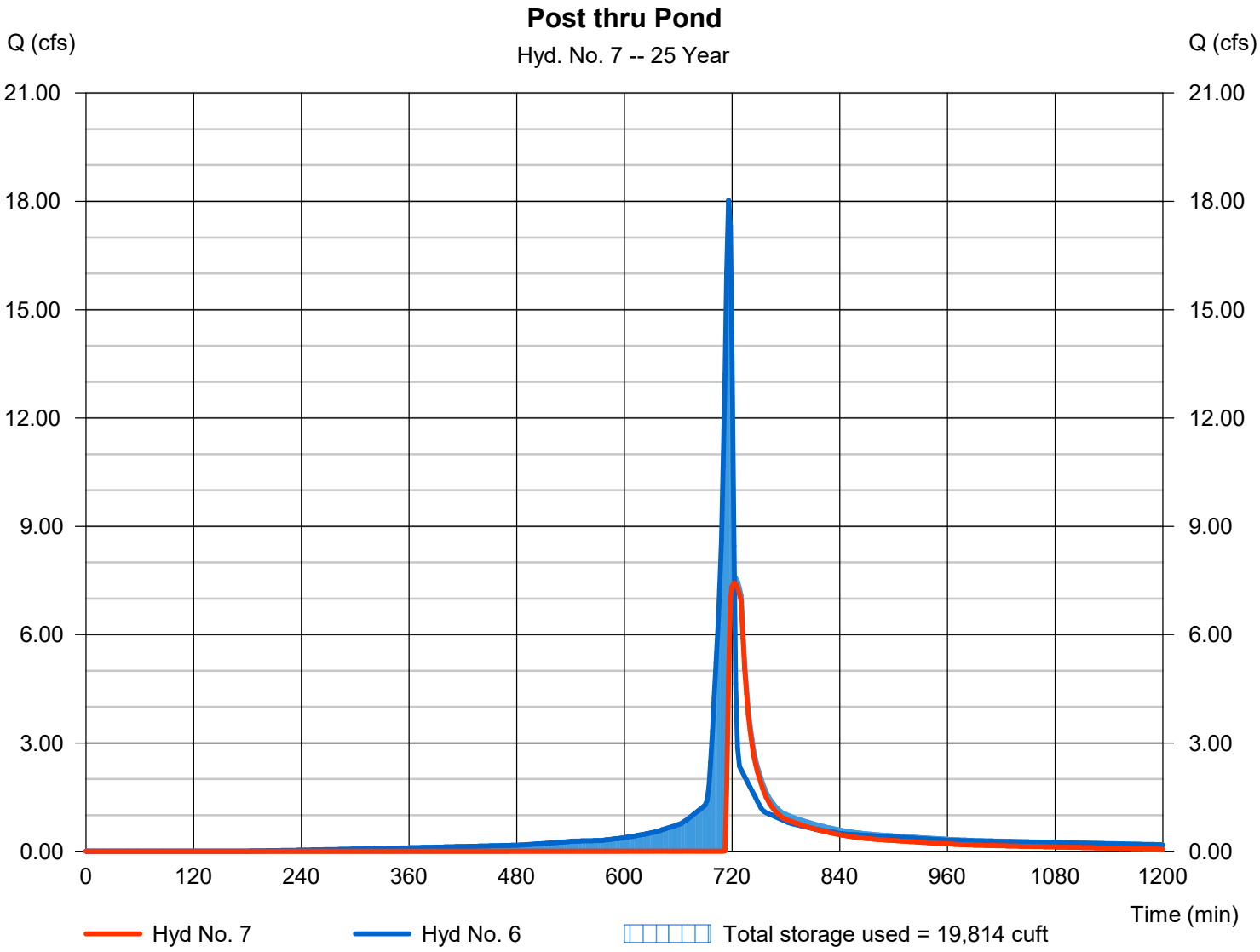
Hydrograph Report

Hyd. No. 7

Post thru Pond

Hydrograph type	=	Reservoir	Peak discharge	=	7.424 cfs
Storm frequency	=	25 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	19,961 cuft
Inflow hyd. No.	=	6 - Post to Pond	Max. Elevation	=	610.85 ft
Reservoir name	=	INFILTRATION 1	Max. Storage	=	19,814 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



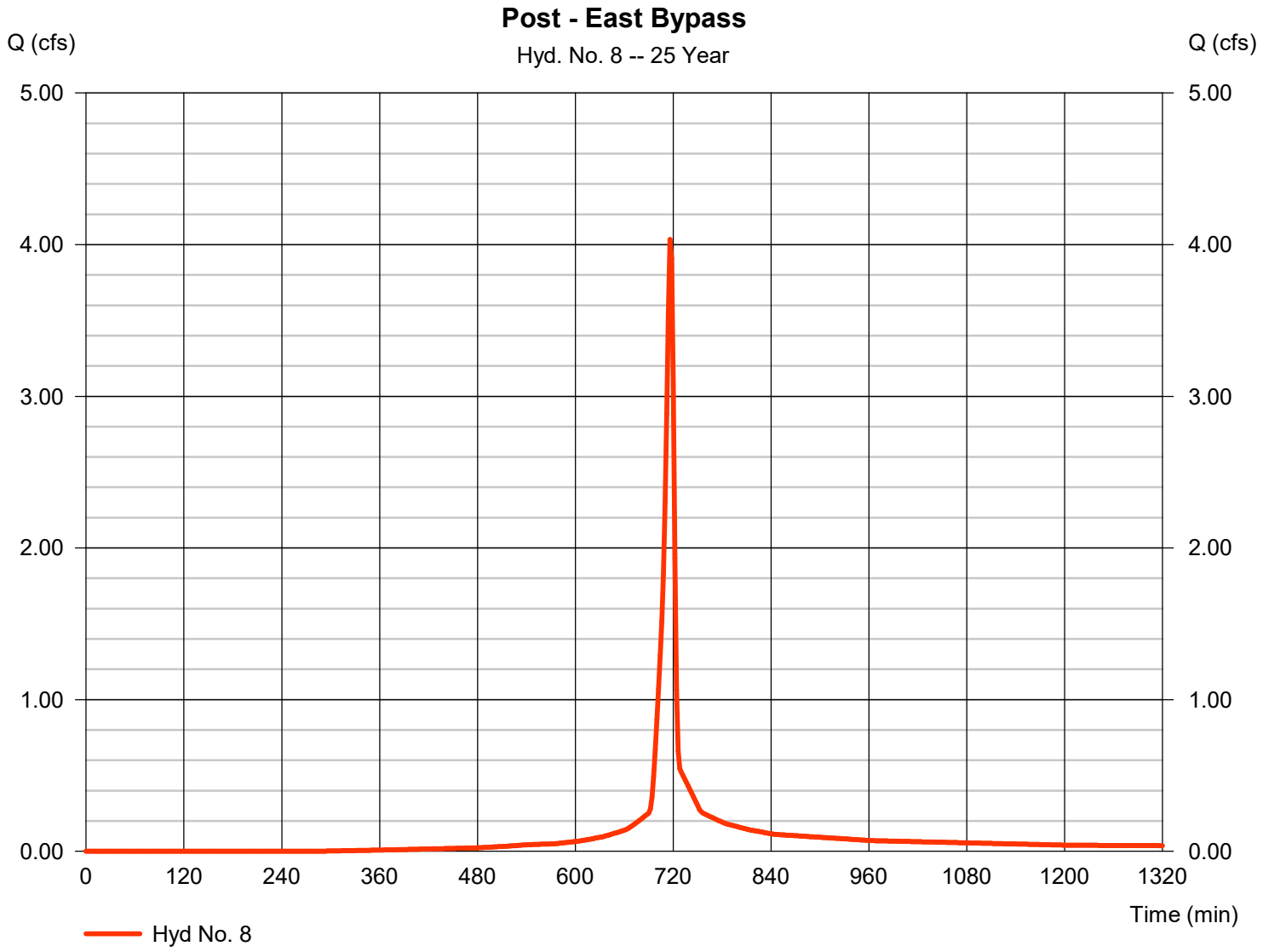
Hydrograph Report

Hyd. No. 8

Post - East Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.034 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	8,488 cuft
Drainage area	=	0.560 ac	Curve number	=	85*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.16 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.390 x 79) + (0.170 x 98)] / 0.560



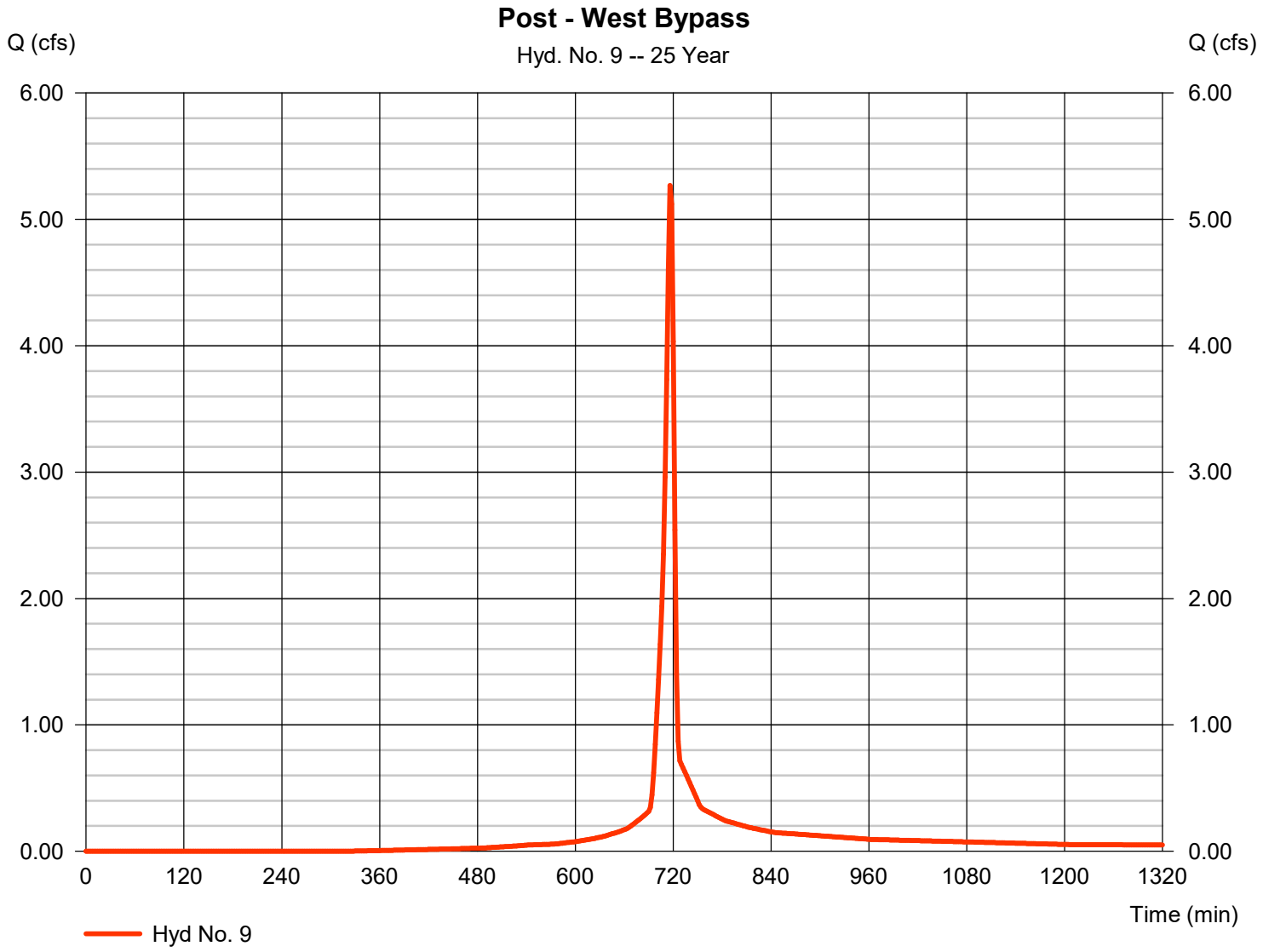
Hydrograph Report

Hyd. No. 9

Post - West Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.268 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	10,966 cuft
Drainage area	=	0.760 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.16 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.600 x 79)] / 0.760

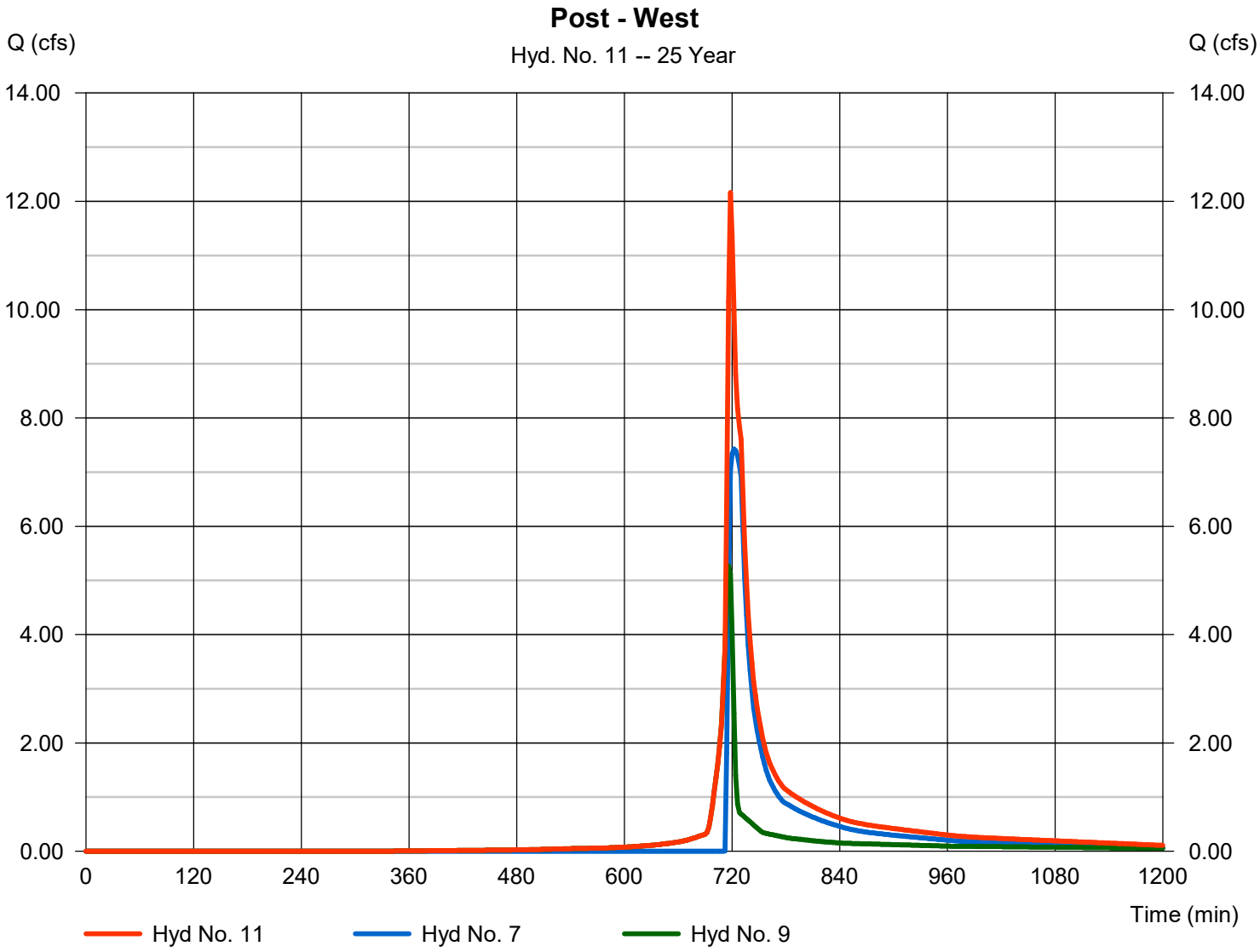


Hydrograph Report

Hyd. No. 11

Post - West

Hydrograph type	=	Combine	Peak discharge	=	12.16 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	30,927 cuft
Inflow hyds.	=	7, 9	Contrib. drain. area	=	0.760 ac

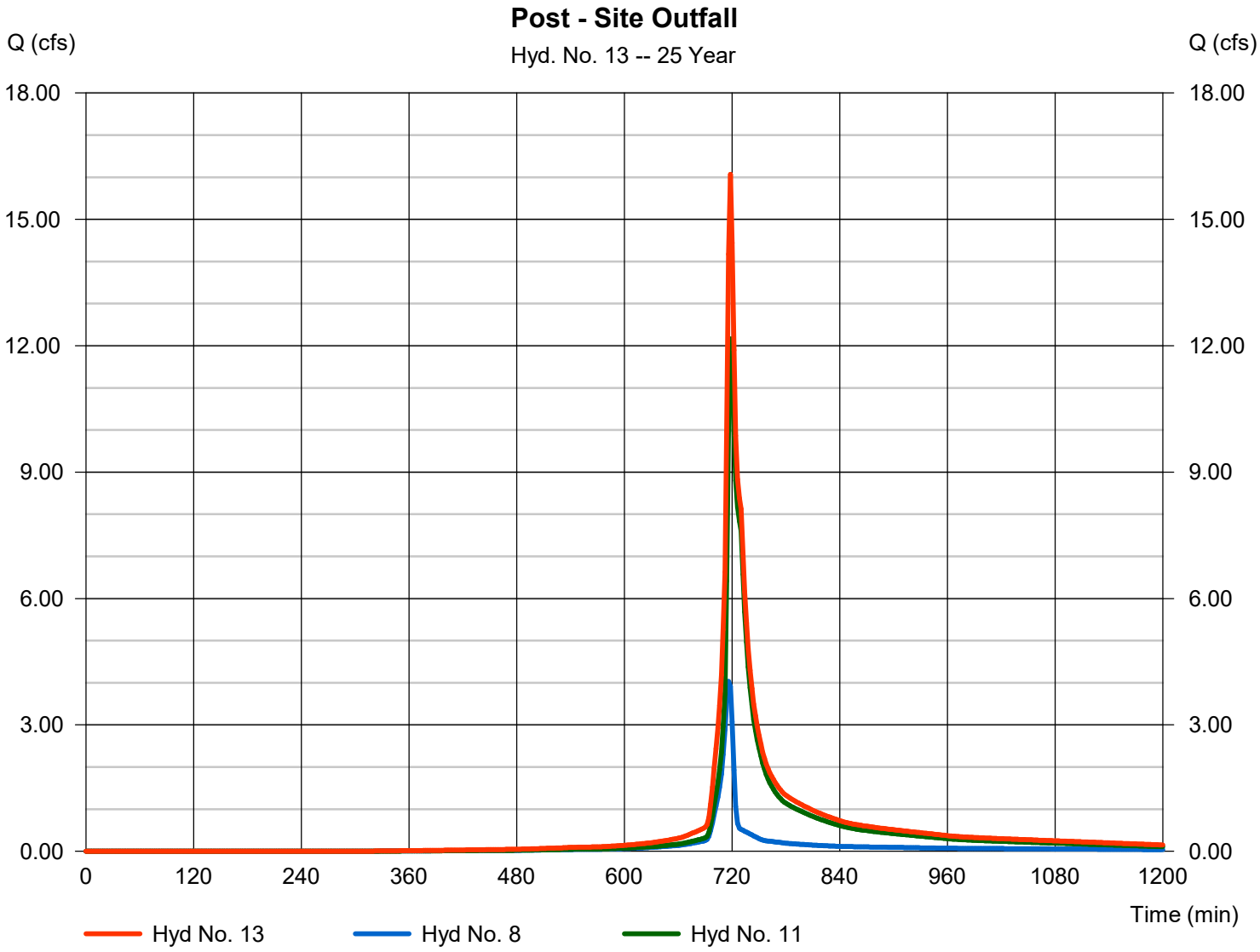


Hydrograph Report

Hyd. No. 13

Post - Site Outfall

Hydrograph type	=	Combine	Peak discharge	=	16.07 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	39,415 cuft
Inflow hyds.	=	8, 11	Contrib. drain. area	=	0.560 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

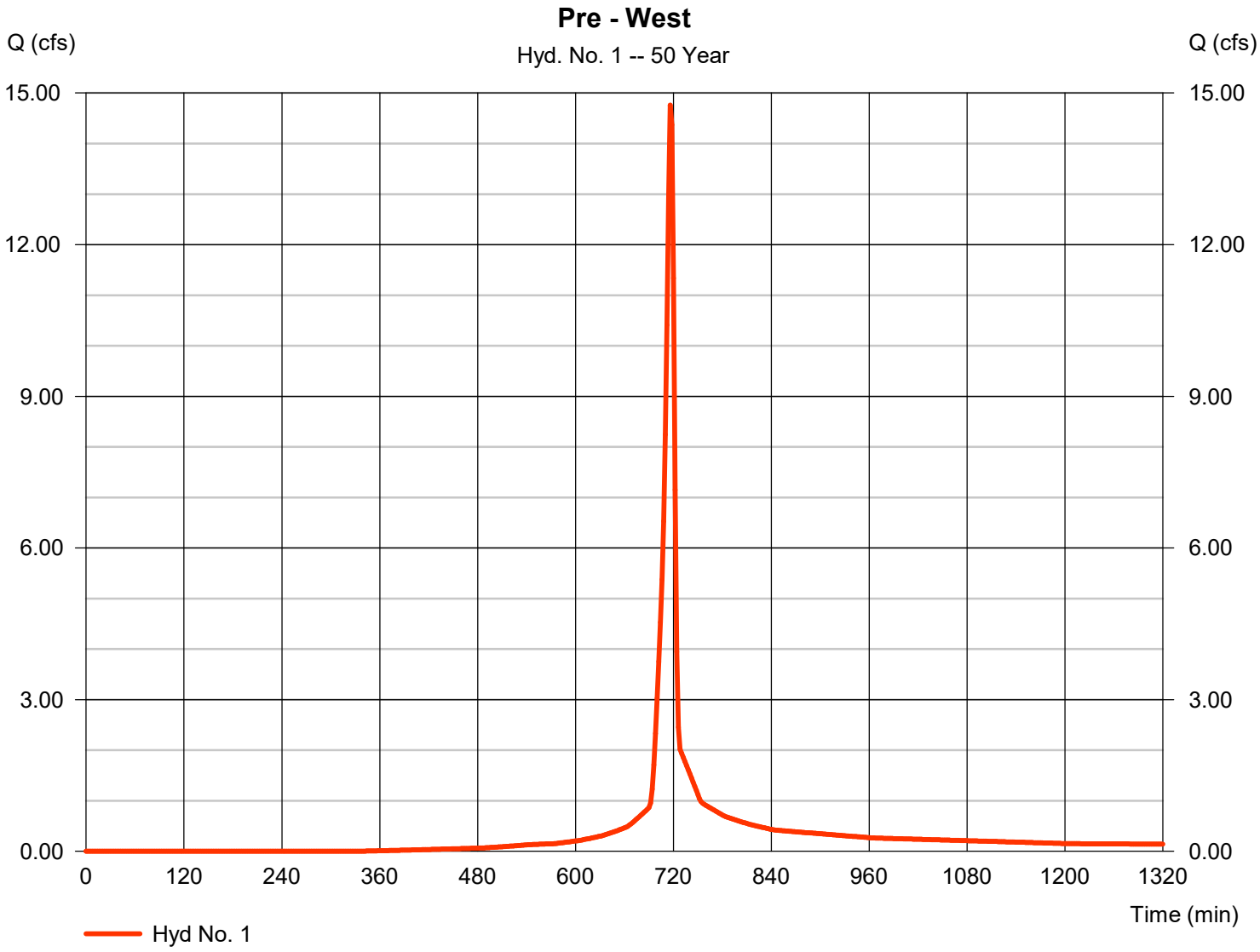
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	14.76	2	716	30,598	------	------	------	Pre - West
2	SCS Runoff	12.19	2	716	25,124	------	------	------	Pre - East
4	Combine	26.95	2	716	55,722	1, 2,	------	------	Pre - Site Outfall
6	SCS Runoff	20.25	2	716	44,935	------	------	------	Post to Pond
7	Reservoir	7.785	2	722	25,098	6	611.14	21,914	Post thru Pond
8	SCS Runoff	4.591	2	716	9,737	------	------	------	Post - East Bypass
9	SCS Runoff	6.025	2	716	12,638	------	------	------	Post - West Bypass
11	Combine	13.36	2	718	37,736	7, 9,	------	------	Post - West
13	Combine	17.80	2	718	47,473	8, 11,	------	------	Post - Site Outfall

Hydrograph Report

Hyd. No. 1

Pre - West

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.76 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	30,598 cuft
Drainage area	=	1.950 ac	Curve number	=	80.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.60 min
Total precip.	=	6.85 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

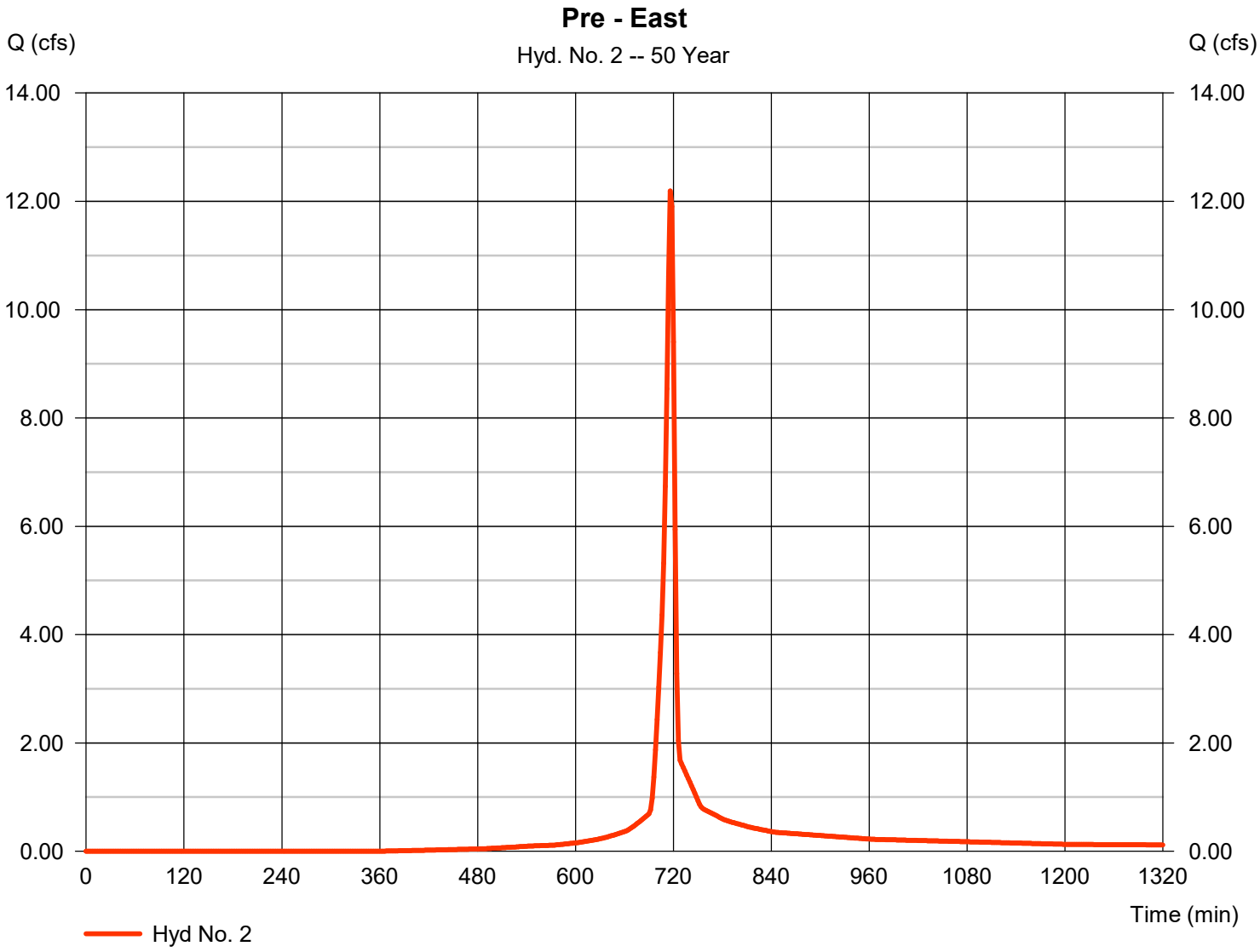


Hydrograph Report

Hyd. No. 2

Pre - East

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.19 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	25,124 cuft
Drainage area	=	1.660 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.85 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

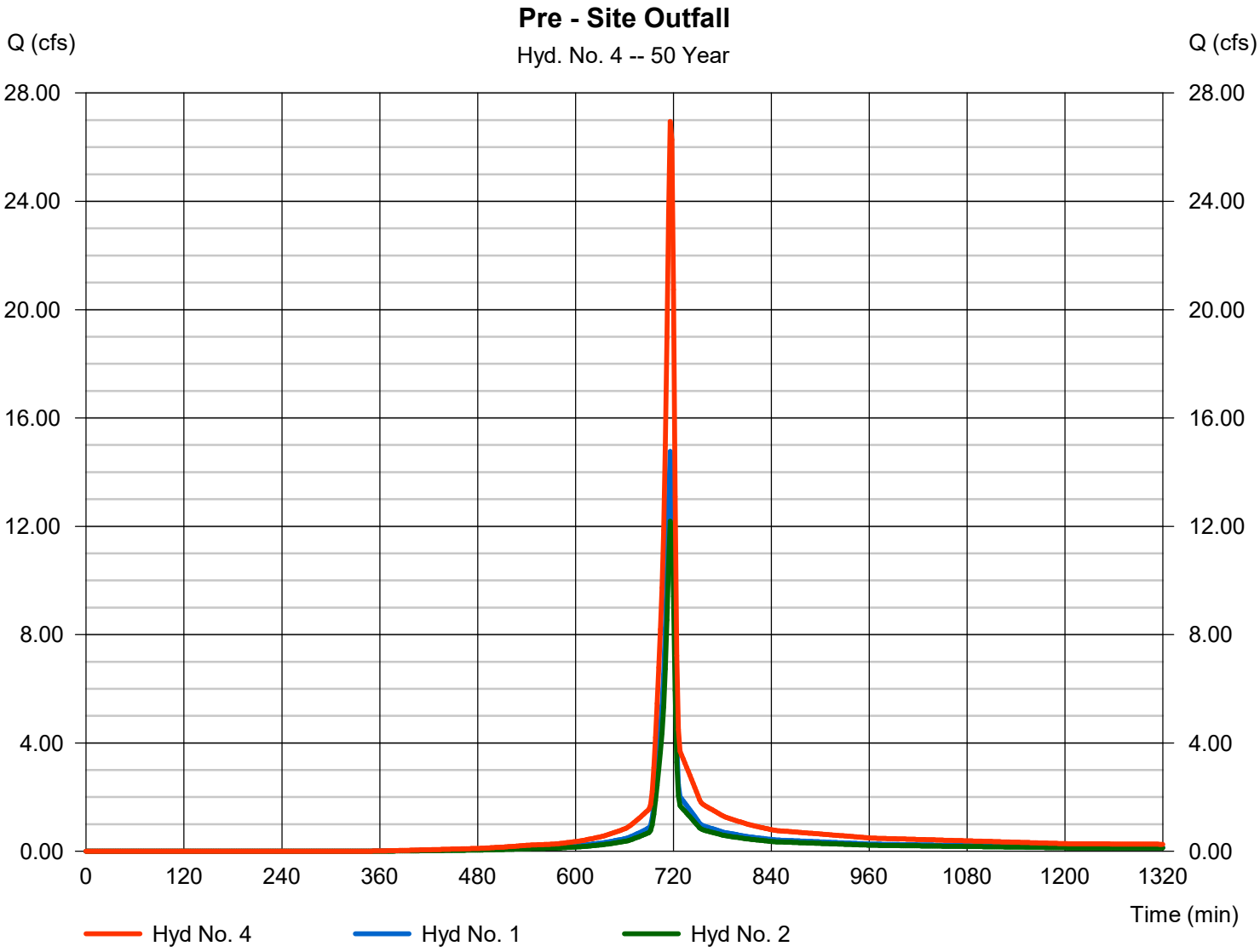


Hydrograph Report

Hyd. No. 4

Pre - Site Outfall

Hydrograph type	=	Combine	Peak discharge	=	26.95 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	55,722 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	3.610 ac



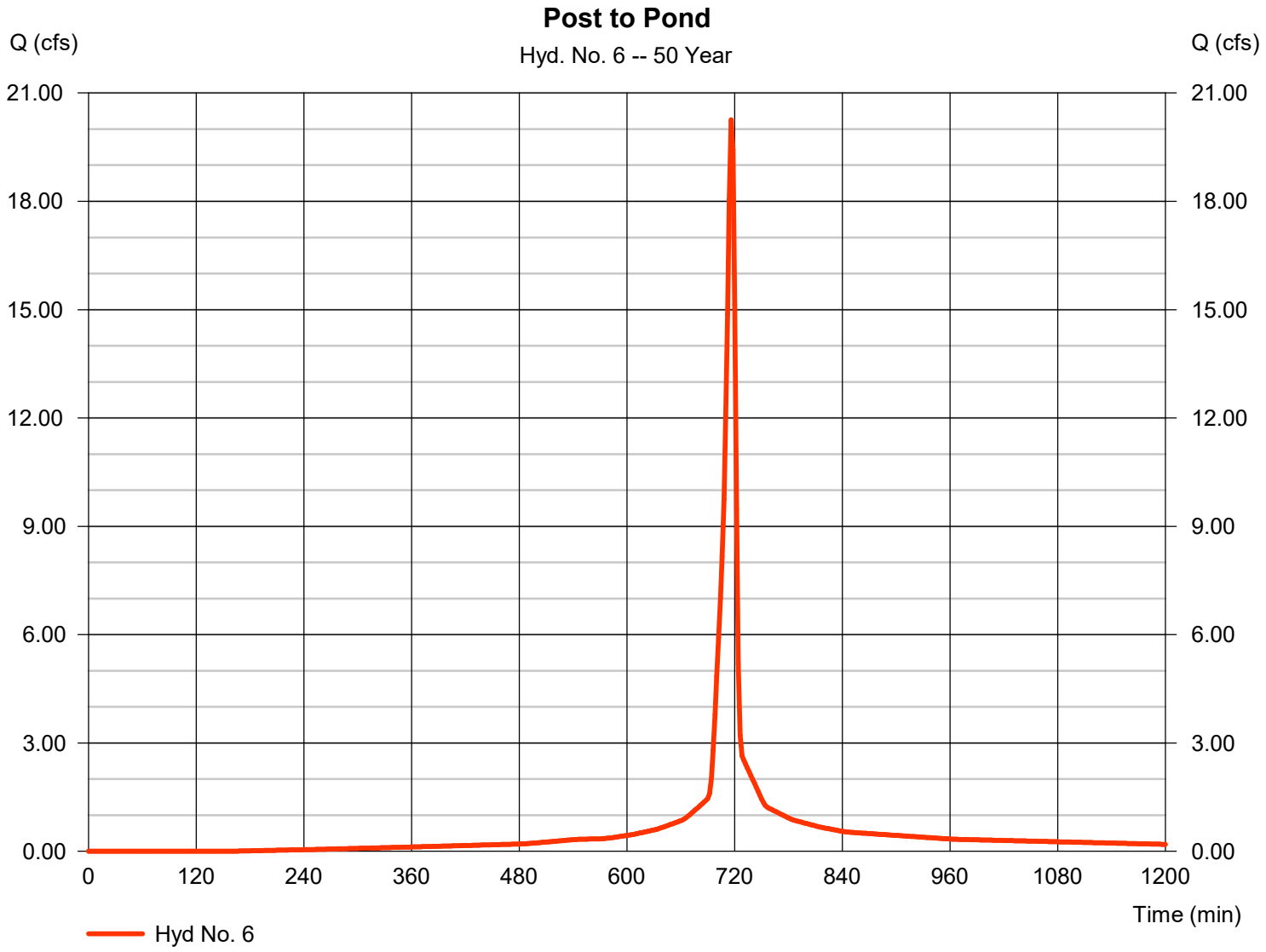
Hydrograph Report

Hyd. No. 6

Post to Pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	20.25 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	44,935 cuft
Drainage area	=	2.280 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.85 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.430 x 98) + (0.850 x 79)] / 2.280



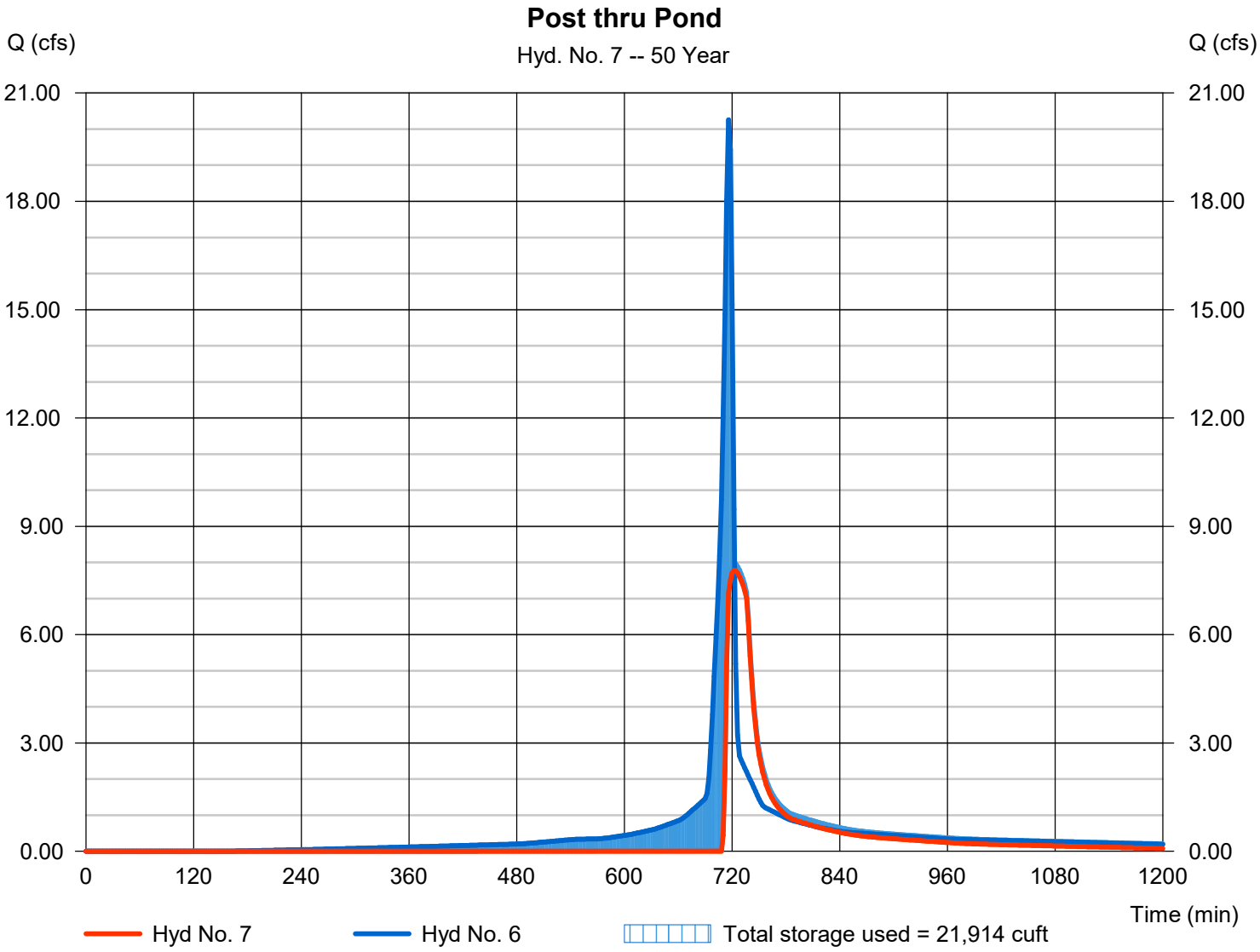
Hydrograph Report

Hyd. No. 7

Post thru Pond

Hydrograph type	=	Reservoir	Peak discharge	=	7.785 cfs
Storm frequency	=	50 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	25,098 cuft
Inflow hyd. No.	=	6 - Post to Pond	Max. Elevation	=	611.14 ft
Reservoir name	=	INFILTRATION 1	Max. Storage	=	21,914 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



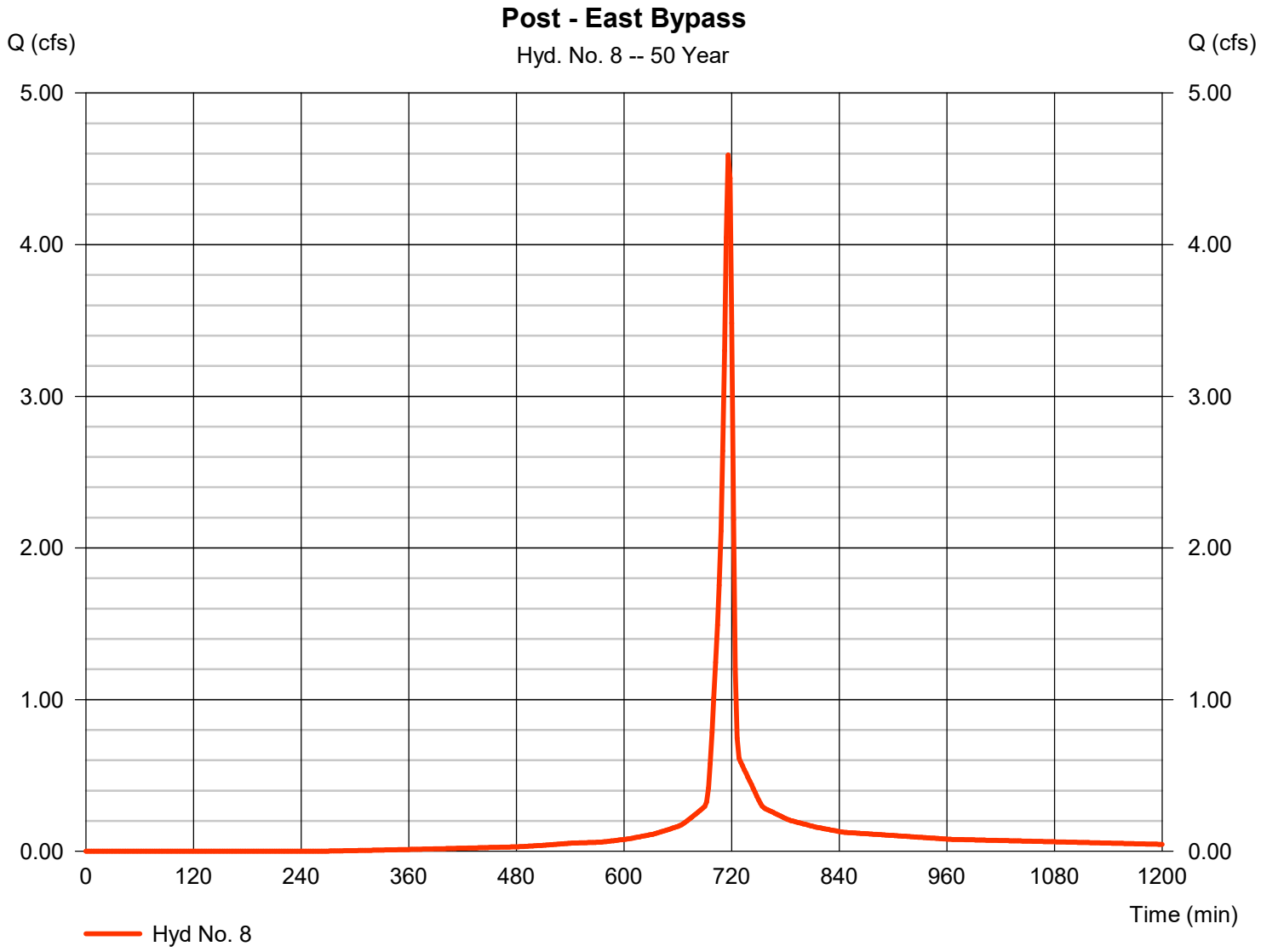
Hydrograph Report

Hyd. No. 8

Post - East Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.591 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	9,737 cuft
Drainage area	=	0.560 ac	Curve number	=	85*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.85 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.390 x 79) + (0.170 x 98)] / 0.560



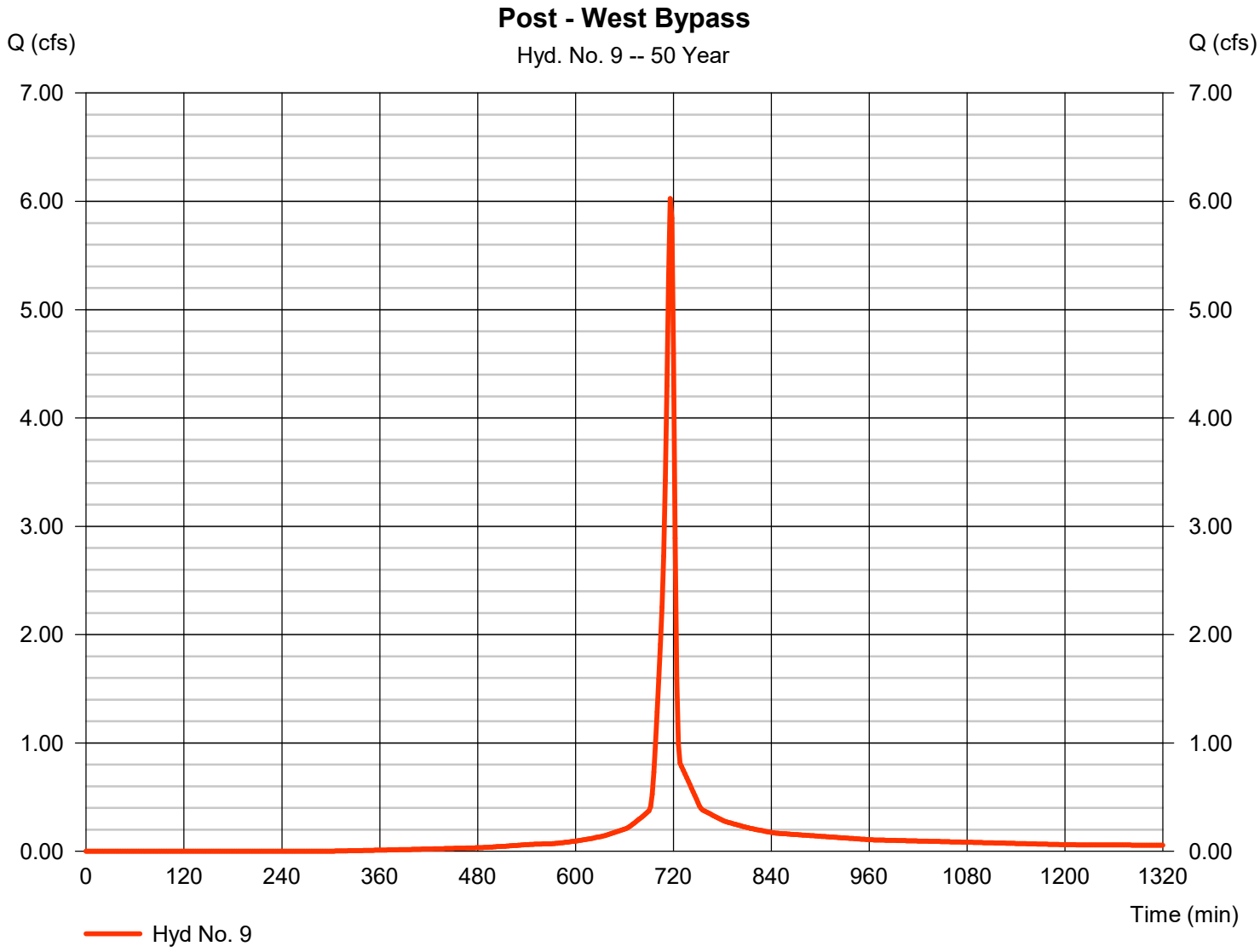
Hydrograph Report

Hyd. No. 9

Post - West Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.025 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	12,638 cuft
Drainage area	=	0.760 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.85 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.600 x 79)] / 0.760

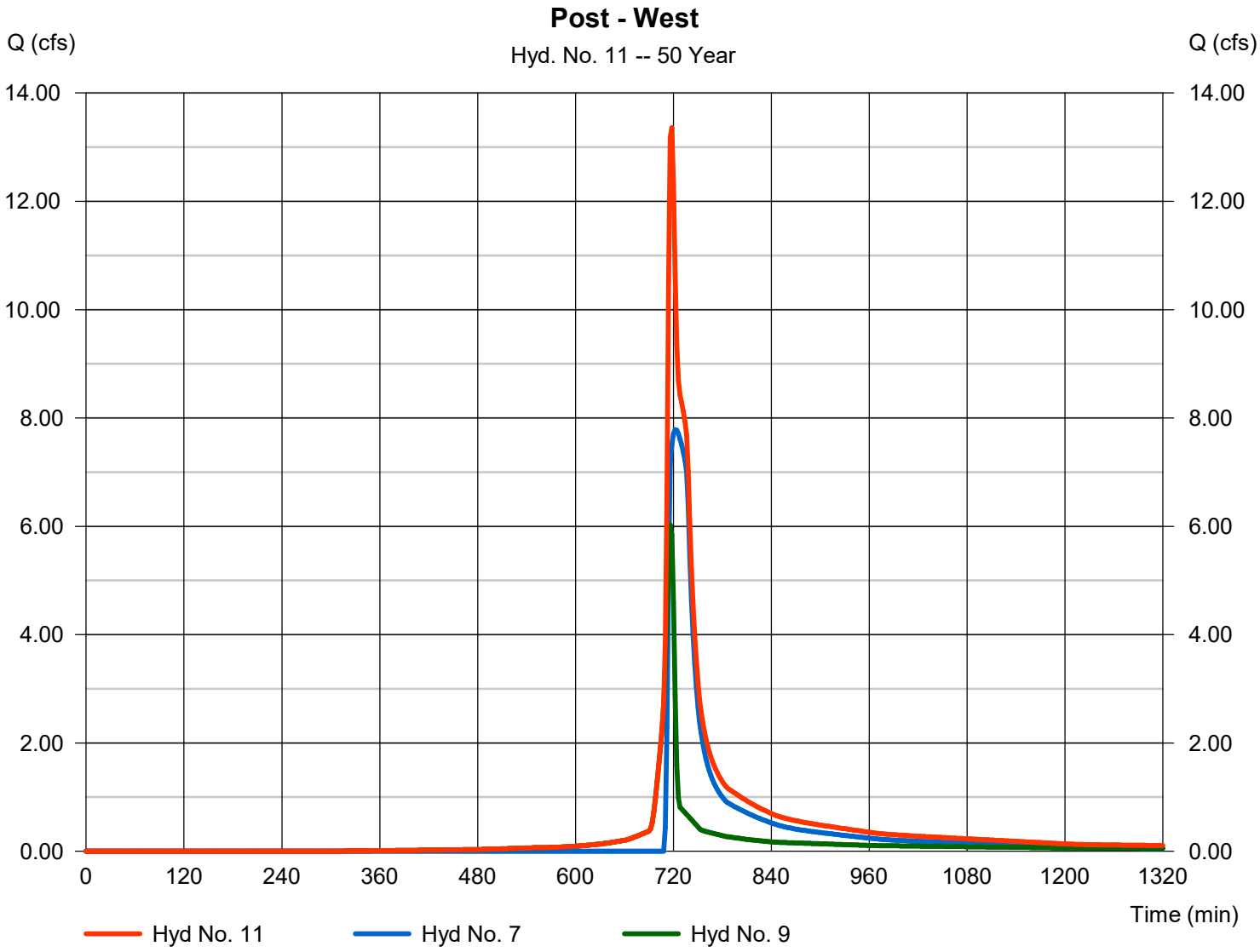


Hydrograph Report

Hyd. No. 11

Post - West

Hydrograph type	= Combine	Peak discharge	= 13.36 cfs
Storm frequency	= 50 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 37,736 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.760 ac

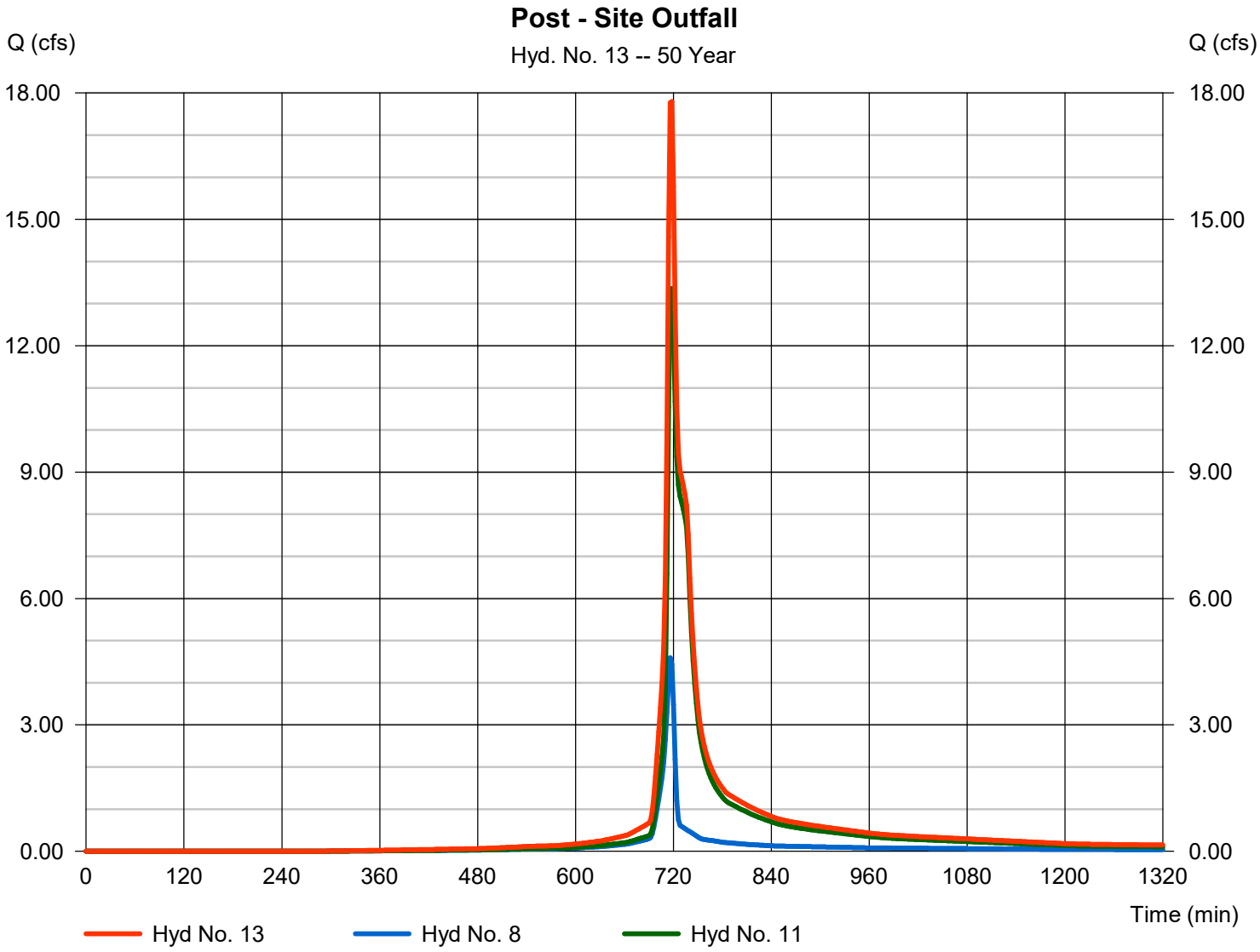


Hydrograph Report

Hyd. No. 13

Post - Site Outfall

Hydrograph type	=	Combine	Peak discharge	=	17.80 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	47,473 cuft
Inflow hyds.	=	8, 11	Contrib. drain. area	=	0.560 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

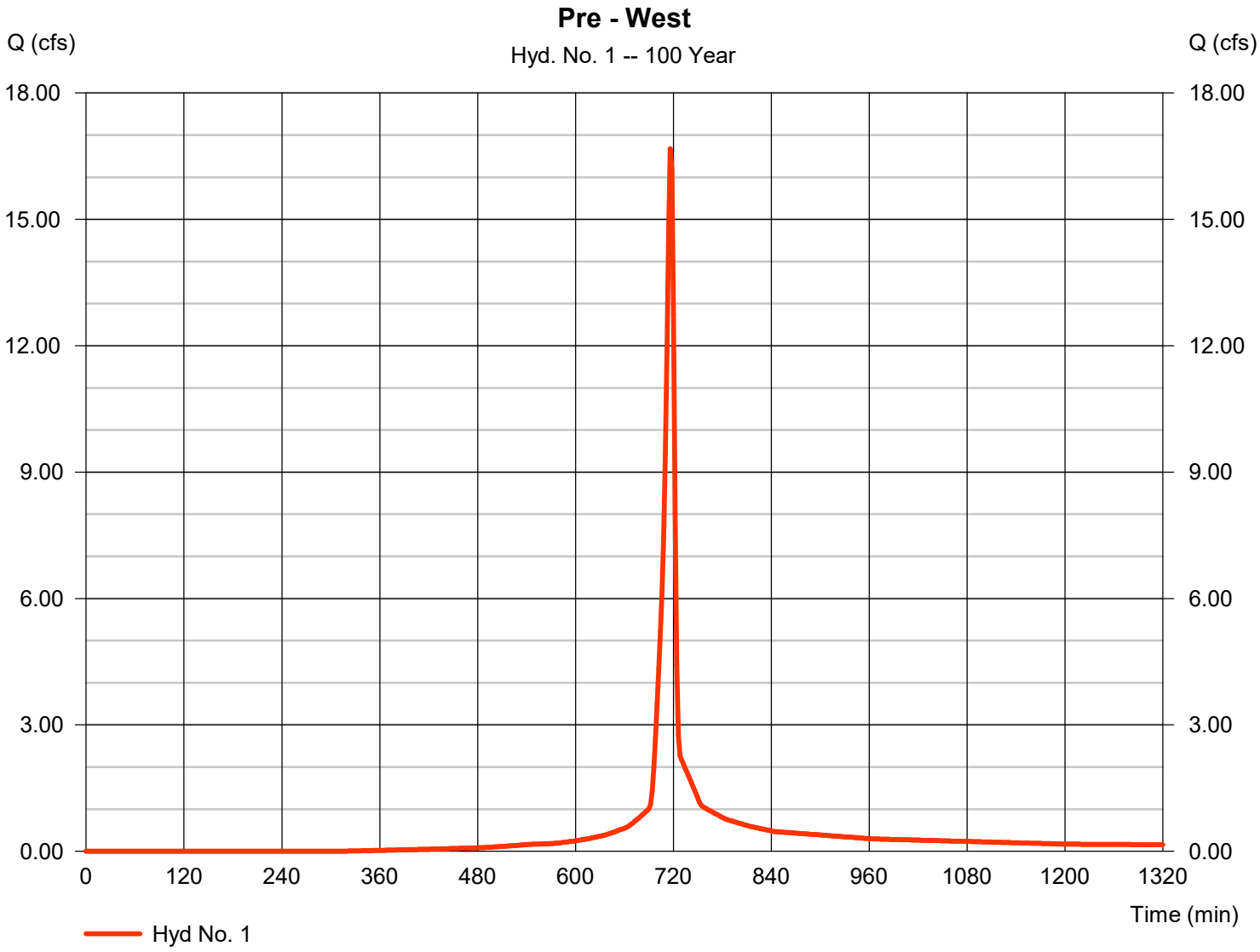
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	16.67	2	716	34,793	------	------	------	Pre - West
2	SCS Runoff	13.82	2	716	28,652	------	------	------	Pre - East
4	Combine	30.49	2	716	63,445	1, 2,	------	------	Pre - Site Outfall
6	SCS Runoff	22.44	2	716	50,130	------	------	------	Post to Pond
7	Reservoir	11.20	2	722	30,183	6	611.39	23,631	Post thru Pond
8	SCS Runoff	5.138	2	716	10,978	------	------	------	Post - East Bypass
9	SCS Runoff	6.771	2	716	14,302	------	------	------	Post - West Bypass
11	Combine	14.81	2	720	44,485	7, 9,	------	------	Post - West
13	Combine	19.44	2	716	55,463	8, 11,	------	------	Post - Site Outfall

Hydrograph Report

Hyd. No. 1

Pre - West

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.67 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	34,793 cuft
Drainage area	=	1.950 ac	Curve number	=	80.5
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	5.60 min
Total precip.	=	7.53 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

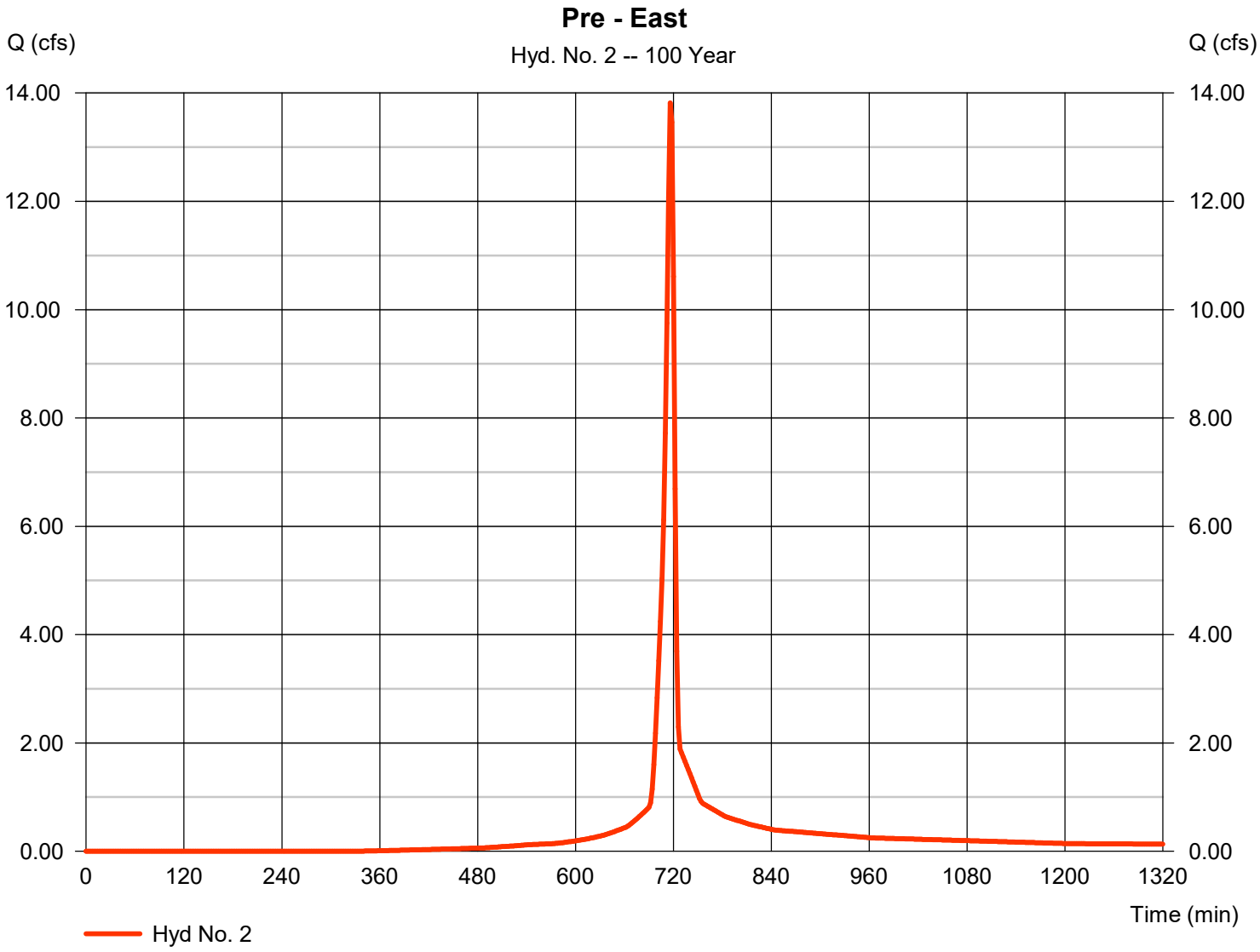


Hydrograph Report

Hyd. No. 2

Pre - East

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.82 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	28,652 cuft
Drainage area	=	1.660 ac	Curve number	=	79
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.53 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

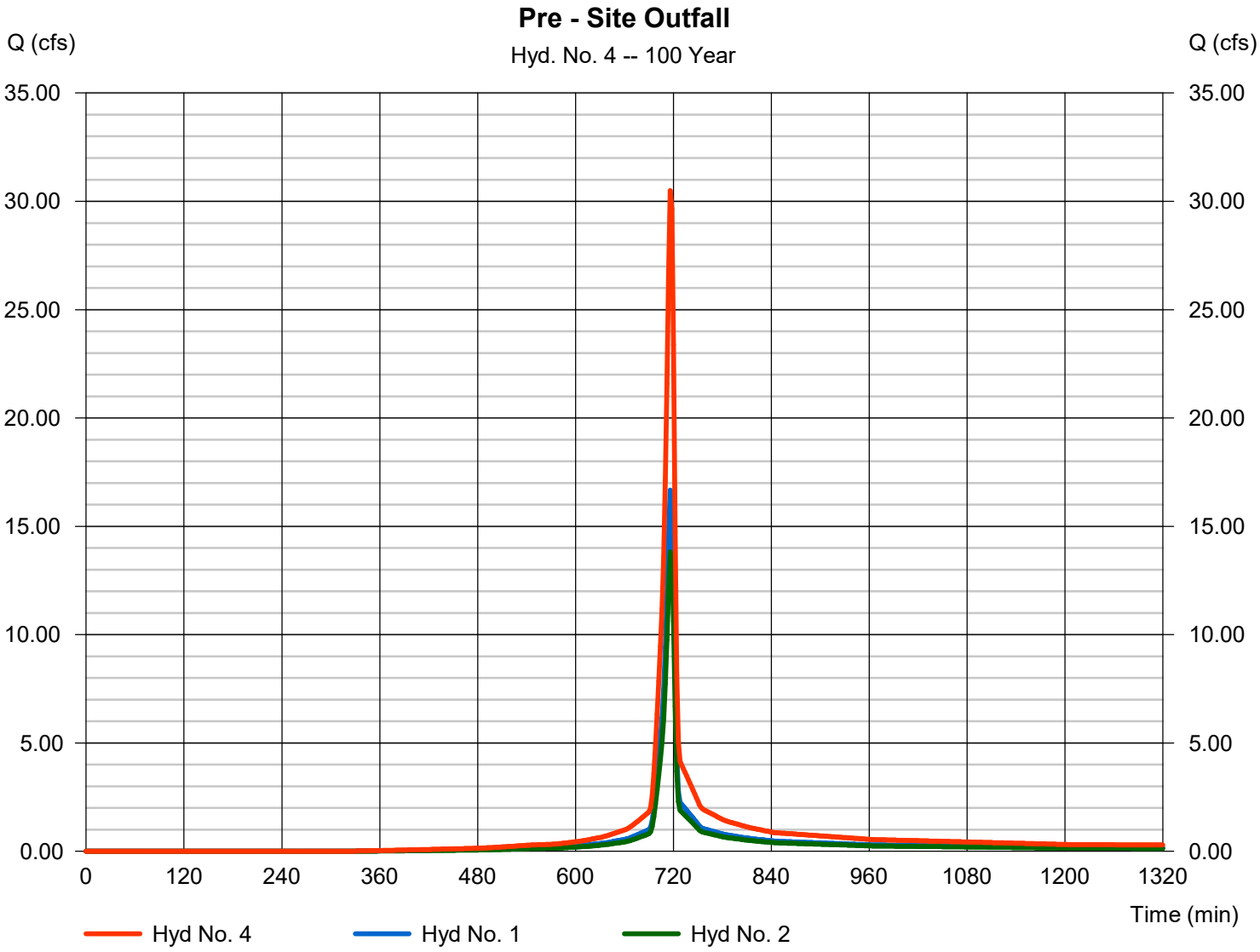


Hydrograph Report

Hyd. No. 4

Pre - Site Outfall

Hydrograph type	= Combine	Peak discharge	= 30.49 cfs
Storm frequency	= 100 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 63,445 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 3.610 ac



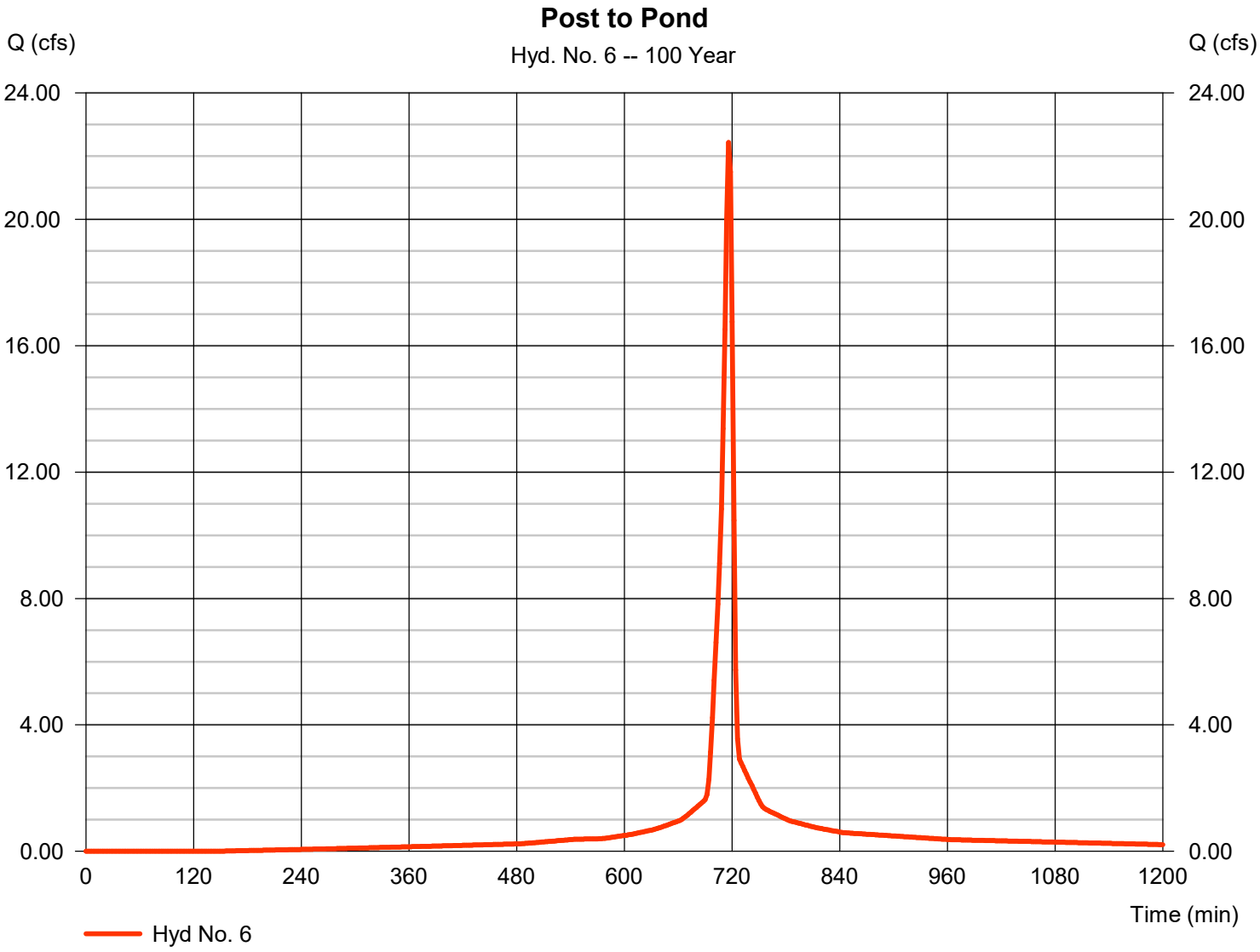
Hydrograph Report

Hyd. No. 6

Post to Pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.44 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	50,130 cuft
Drainage area	=	2.280 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.53 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.430 x 98) + (0.850 x 79)] / 2.280



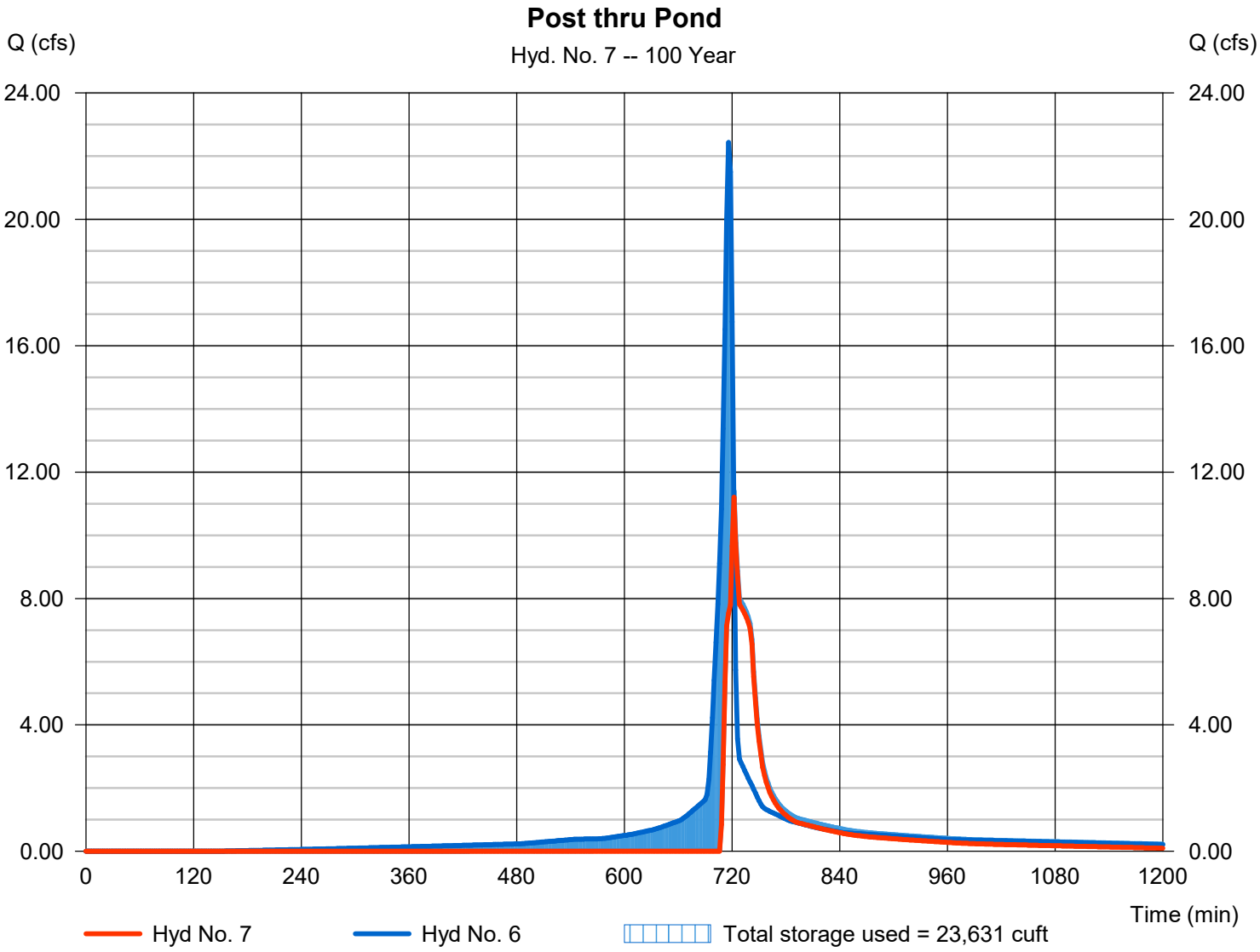
Hydrograph Report

Hyd. No. 7

Post thru Pond

Hydrograph type	=	Reservoir	Peak discharge	=	11.20 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	30,183 cuft
Inflow hyd. No.	=	6 - Post to Pond	Max. Elevation	=	611.39 ft
Reservoir name	=	INFILTRATION 1	Max. Storage	=	23,631 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



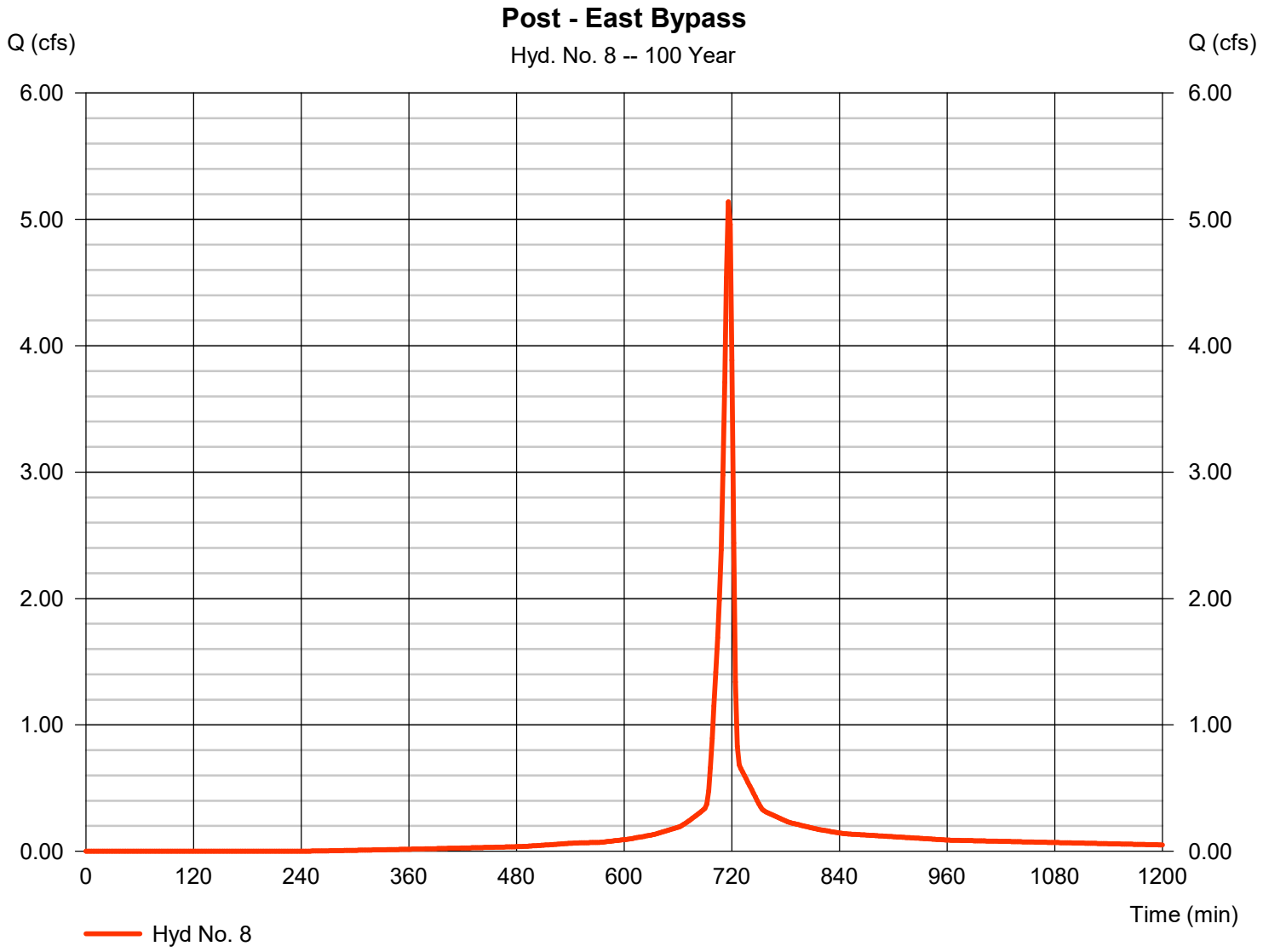
Hydrograph Report

Hyd. No. 8

Post - East Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.138 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	10,978 cuft
Drainage area	=	0.560 ac	Curve number	=	85*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.53 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.390 x 79) + (0.170 x 98)] / 0.560



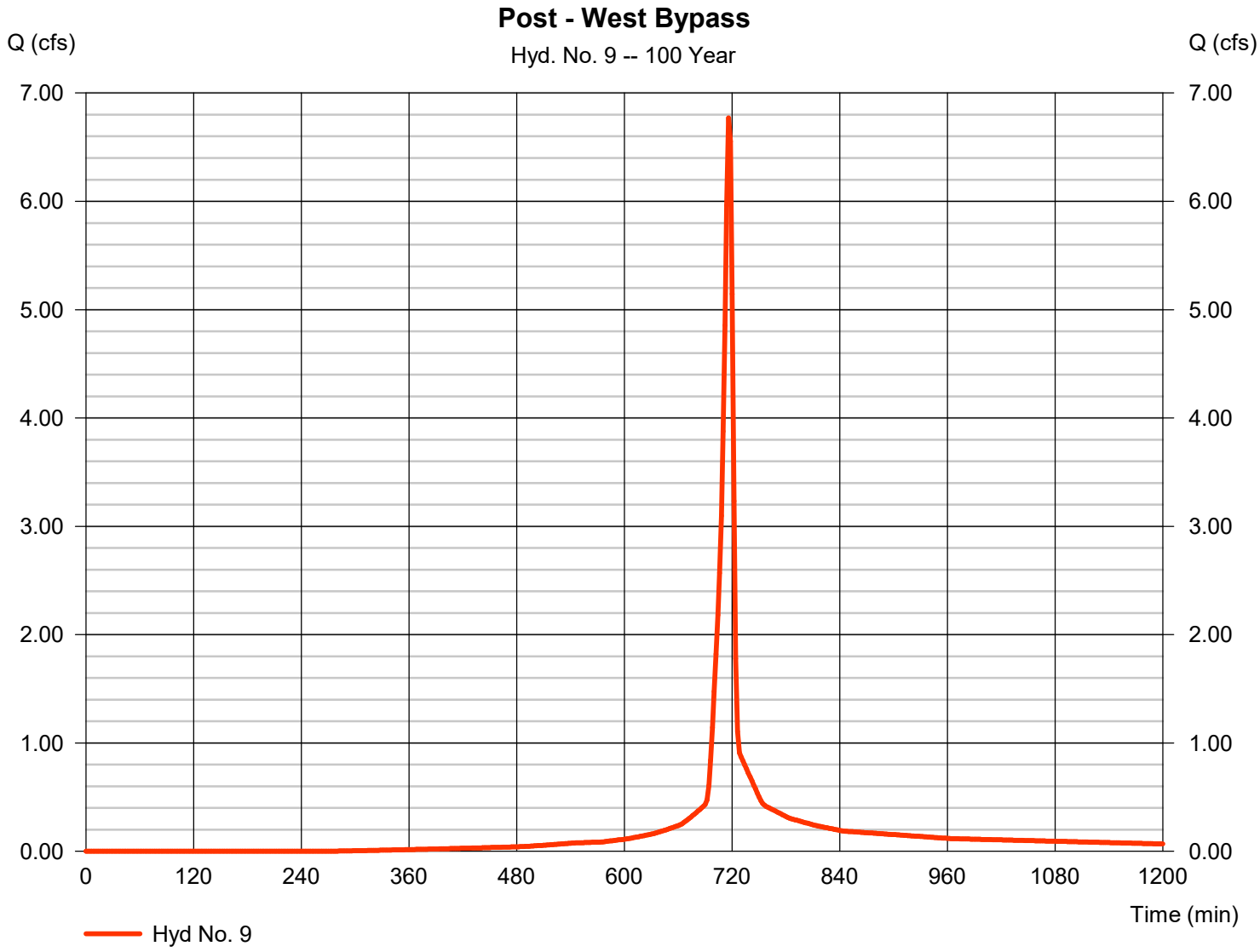
Hydrograph Report

Hyd. No. 9

Post - West Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.771 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	14,302 cuft
Drainage area	=	0.760 ac	Curve number	=	83*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.53 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.160 x 98) + (0.600 x 79)] / 0.760

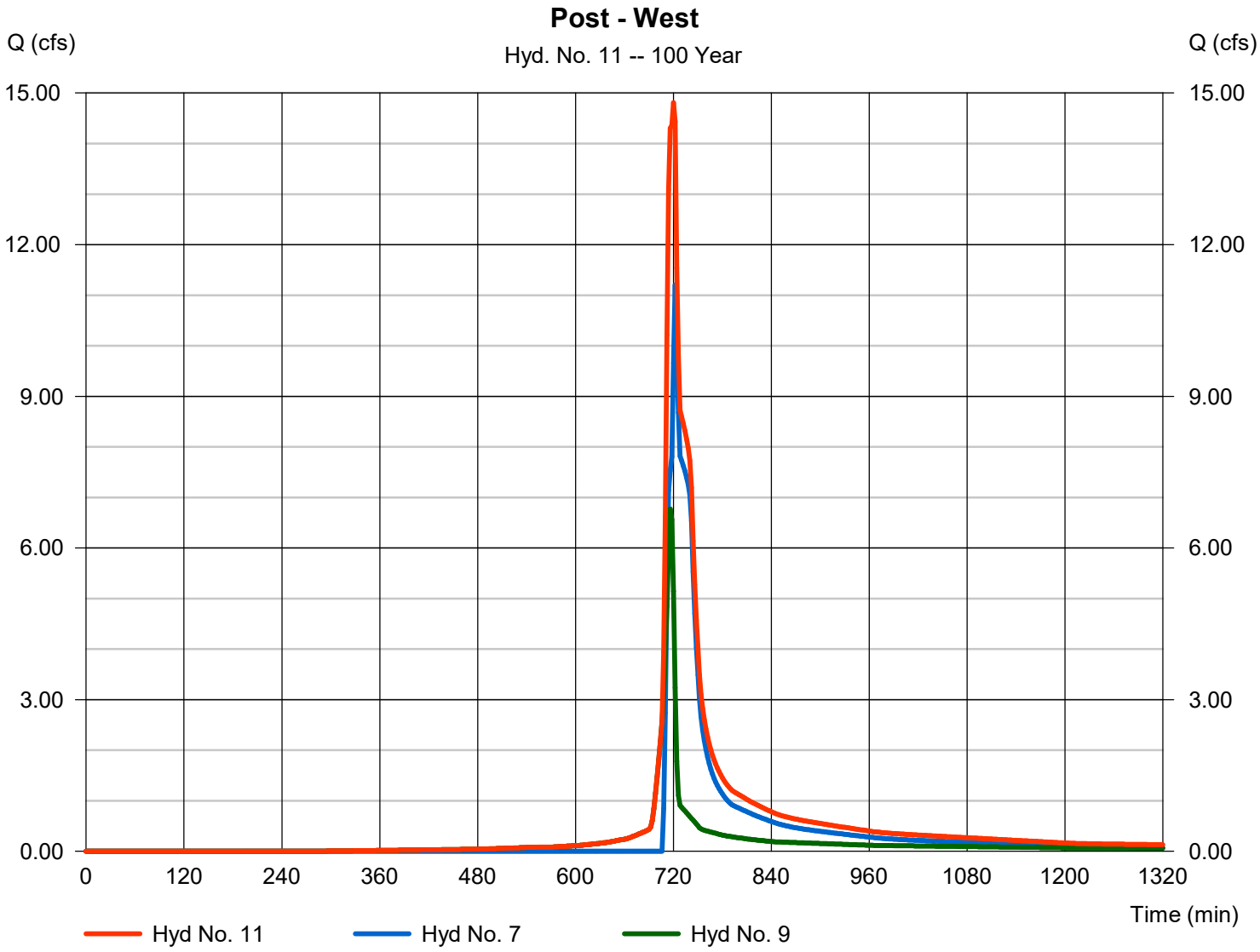


Hydrograph Report

Hyd. No. 11

Post - West

Hydrograph type	= Combine	Peak discharge	= 14.81 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 44,485 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.760 ac

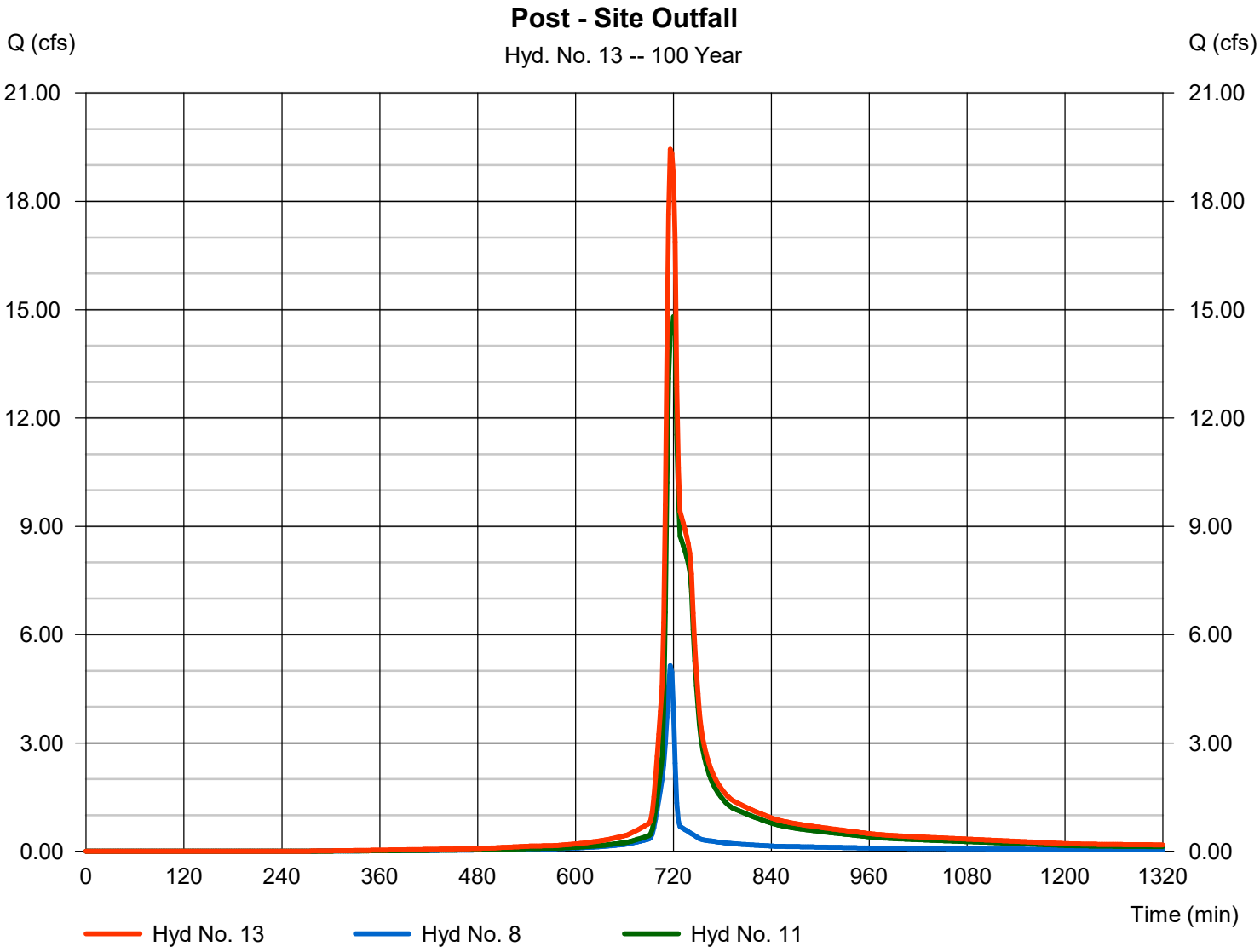


Hydrograph Report

Hyd. No. 13

Post - Site Outfall

Hydrograph type	=	Combine	Peak discharge	=	19.44 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	55,463 cuft
Inflow hyds.	=	8, 11	Contrib. drain. area	=	0.560 ac



USDA Web Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Maury County, Tennessee

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Map Scale: 1:1,120 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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 1:20,000.

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: Maury County, Tennessee
Survey Area Data: Version 16, Sep 10, 2021

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

Date(s) aerial images were photographed: Mar 20, 2021—Apr 20, 2021

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Eh	Etowah silt loam, eroded sloping phosphatic phase	0.2	4.2%
Gd	Gullied land, phosphatic	0.0	0.4%
Hr	Huntington silt loam, local alluvium phosphatic phase	0.0	1.2%
Rd	Rockland, mimosa and inman materials, sloping	3.9	94.2%
Totals for Area of Interest		**4.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Maury County, Tennessee

Eh—Etowah silt loam, eroded sloping phosphatic phase

Map Unit Setting

National map unit symbol: kq5x
Elevation: 620 to 1,200 feet
Mean annual precipitation: 45 to 55 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 180 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Etowah and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Etowah

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Parent material: Loamy alluvium and/or colluvium derived from limestone, sandstone, and shale

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 30 inches: silty clay loam
H3 - 30 to 60 inches: silty clay loam

Properties and qualities

Slope: 5 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Gd—Gullied land, phosphatic

Map Unit Composition

Gullied land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gullied Land

Typical profile

H1 - 0 to 30 inches: variable
R - 30 to 34 inches: bedrock

Properties and qualities

Slope: 12 to 25 percent
Depth to restrictive feature: 9 to 79 inches to lithic bedrock

Hr—Huntington silt loam, local alluvium phosphatic phase

Map Unit Setting

National map unit symbol: kq6s
Elevation: 510 to 1,000 feet
Mean annual precipitation: 48 to 55 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 205 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Huntington and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Huntington

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Parent material: Loamy alluvium derived from limestone, sandstone, and shale

Typical profile

H1 - 0 to 24 inches: silt loam
H2 - 24 to 64 inches: silt loam

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneRare
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Rd—Rockland, mimosa and inman materials, sloping

Map Unit Setting

National map unit symbol: kq7v
Elevation: 500 to 1,100 feet
Mean annual precipitation: 48 to 54 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Rock outcrop: 40 percent
Inman and similar soils: 30 percent
Mimosa and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop

Typical profile

R - 0 to 10 inches: bedrock

Description of Inman

Setting

Landform: Hillslopes
Landform position (three-dimensional): Crest
Parent material: Clayey residuum weathered from limestone and shale

Typical profile

H1 - 0 to 6 inches: flaggy silty clay loam
H2 - 6 to 32 inches: flaggy clay
Cr - 32 to 42 inches: bedrock

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: 20 to 39 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Mimosa

Setting

Landform: Hillslopes
Landform position (three-dimensional): Crest
Parent material: Clayey residuum weathered from limestone

Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 20 inches: clay
H3 - 20 to 55 inches: clay
R - 55 to 65 inches: bedrock

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Erosion Factors

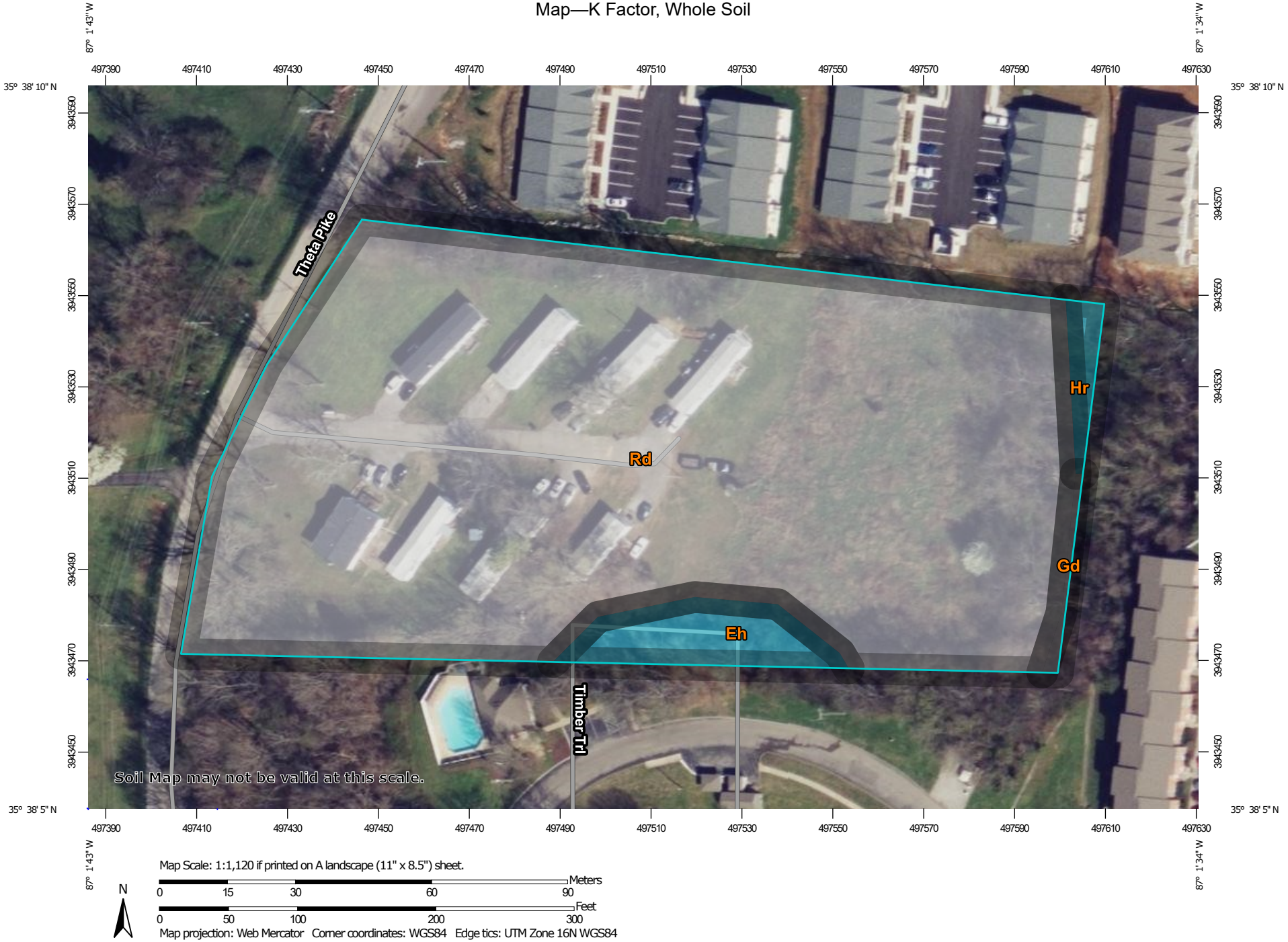
Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.


87° 1'43" W
87° 1'34" W
35° 38' 10" N
35° 38' 5" N
497390
497410
497430
497450
497470
497490
497510
497530
497550
497570
497590
497610
497630
3943590
3943570
3943550
3943530
3943510
3943490
3943470
3943450
Theta Pike
Rd
Hr
Gd
Eh
Timber Trl
Soil Map may not be valid at this scale.
Map Scale: 1:1,120 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 15 30 60 90
Feet
0 50 100 200 300
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

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

Soils

Soil Rating Polygons
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Lines
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Points
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- 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 1:20,000.

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: Maury County, Tennessee
Survey Area Data: Version 16, Sep 10, 2021

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

Date(s) aerial images were photographed: Mar 20, 2021—Apr 20, 2021

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.

Table—K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Eh	Etowah silt loam, eroded sloping phosphatic phase	.37	0.2	4.2%
Gd	Gullied land, phosphatic		0.0	0.4%
Hr	Huntington silt loam, local alluvium phosphatic phase	.37	0.0	1.2%
Rd	Rockland, mimosa and inman materials, sloping		3.9	94.2%
Totals for Area of Interest			**4.1**	**100.0%**

Rating Options—K Factor, Whole Soil

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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:

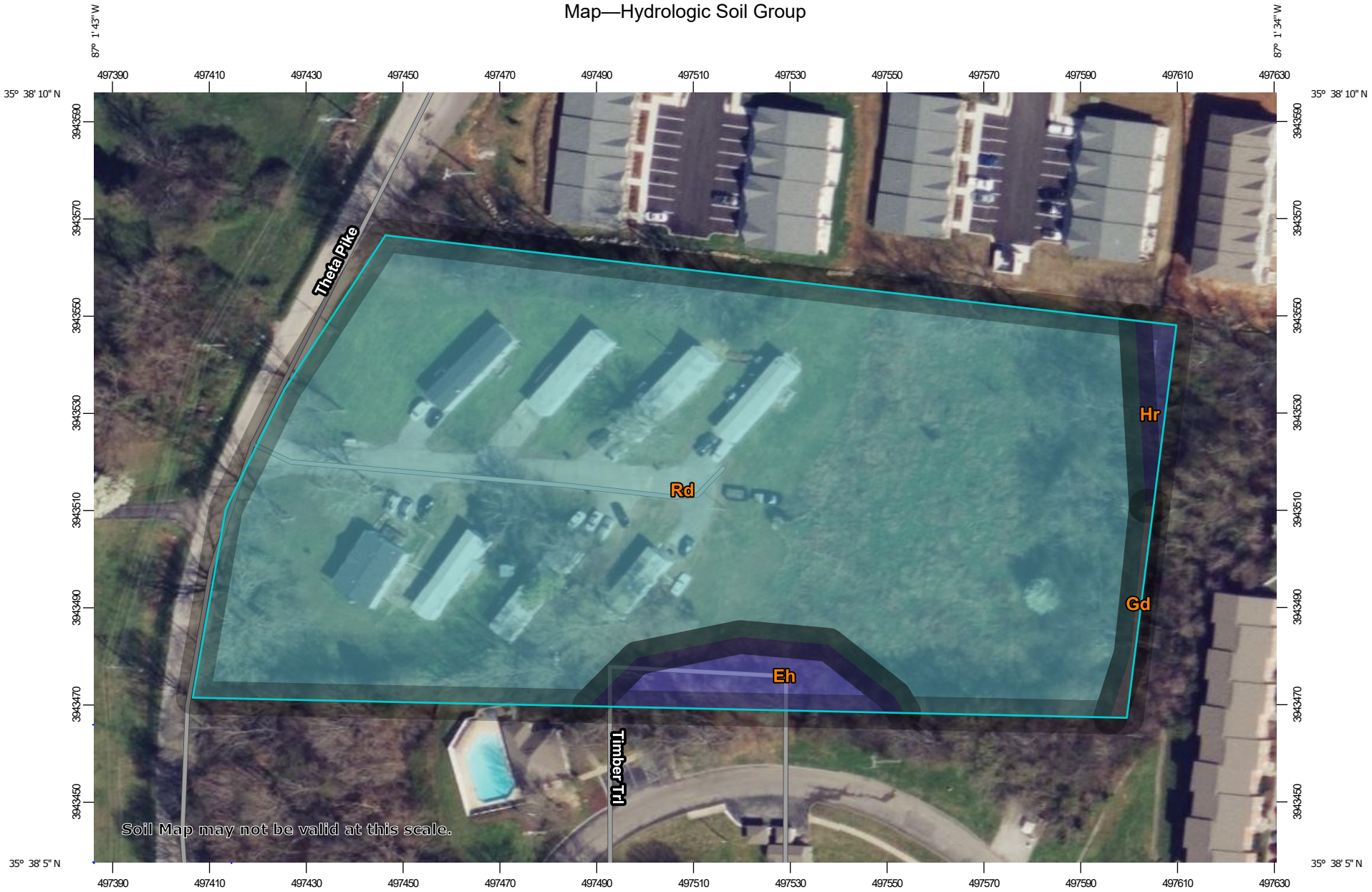
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

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.



Map Scale: 1:1,120 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N 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
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- Local Roads

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- Aerial Photography

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

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

Soil Survey Area: Maury County, Tennessee
Survey Area Data: Version 16, Sep 10, 2021

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

Date(s) aerial images were photographed: Mar 20, 2021—Apr 20, 2021

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Eh	Etowah silt loam, eroded sloping phosphatic phase	B	0.2	4.2%
Gd	Gullied land, phosphatic		0.0	0.4%
Hr	Huntington silt loam, local alluvium phosphatic phase	B	0.0	1.2%
Rd	Rockland, mimosa and inman materials, sloping	C	3.9	94.2%
Totals for Area of Interest			**4.1**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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March 20, 2023

City of Columbia, Tennessee
700 North Garden Street
Columbia, Tennessee 38401

Re: Mackenzie Place Townhomes – 220 Theta Pike
Cul-de-sac Justification Letter

To whom it may concern,

The following items are listed below to provide justification for a cul-de-sac on the aforementioned project:

1. Storm water management area directly to the east of the project site.

2. Lack of viable roadway connection to the east due to topography.

Sincerely,

Brian Holcombe

FREEMAN WEBB

5/11/2023

To the City of Columbia,

Freeman Webb agrees to allow the development of Mackenzie Place to remove vegetation along Theta Pike to the appropriate extent necessary in order to comply with minimum sight distance" However, in no event shall this be greater than the site distance shown and in no event shall any plantings or brush be disturbed around the entrance area of the Freeman Webb Property.

Best,

Bob Freeman

President

Mail – P.O. Box 23857 ● Nashville, TN 37202-3857
3810 Bedford Avenue, Suite 300 ● Nashville, TN 37215
Phone (615) 271-2700 ● Fax (615) 726-1967

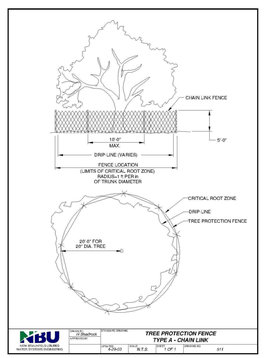
TREE PRESERVATION PLAN

TREE CANOPY CALCULATIONS:	
LOT SIZE:	141,429 SF
EX TREE CANOPY:	33,202 SF (23.4% OF LOT)
EX TREE CANOPY TO BE PRESERVED:	4,401 SF (13.25%)
REQUIRED TREE CANOPY RETENTION:	48%
TREES PROVIDED TO COMPENSATE (SEE L2.0)	52

TABLE 4.3.16.L TREE CANOPY COVER RETENTION

Existing Tree Canopy Cover (as % of Total Development, Lot or Building Site Size)	Minimum Tree Canopy Retention by Zoning District (as % of Total Tree Canopy Cover) [1,2]		
	CD-2, CD-3L, CD-3, CD-4 [3], CD-4C [3], CD-5C [3], SD-MHP, SD-INT [3], PUD-R, PUD-MU [3]	CD-4 [4], CD-4C [4], CD-5C [4], SD-INT [4], PUD-MU [4]	SD-LI [4], SD-HI
80% - 100%	30%	15%	10%
60% - 79%	36%	18%	11%
40% - 59%	45%	22%	12%
20% - 39%	48%	24%	13%
19% - less	54%	26%	14%

UNHEALTHY HERITAGE TREE TO BE REMOVED



KEY

TREE CANOPY OUTLINE

TREE CANOPY TO BE PRESERVED

ON SITE TREE CANOPY TO BE REMOVED

SCALE: 1" = 20'

0 10 20 60

The Addison Group, LLC 2023

theaddisongroup
LANDSCAPE ARCHITECT
http://addison-group.com/
7123 Crossroads Blvd Ste. E | Brentwood, TN 37027

MACKENZIE PLACE TOWNHOMES

220 THETA PIKE
COLUMBIA, TENNESSEE

TREE PRESERVATION PLAN

Prepared For:
Mackenzie Place Townhomes

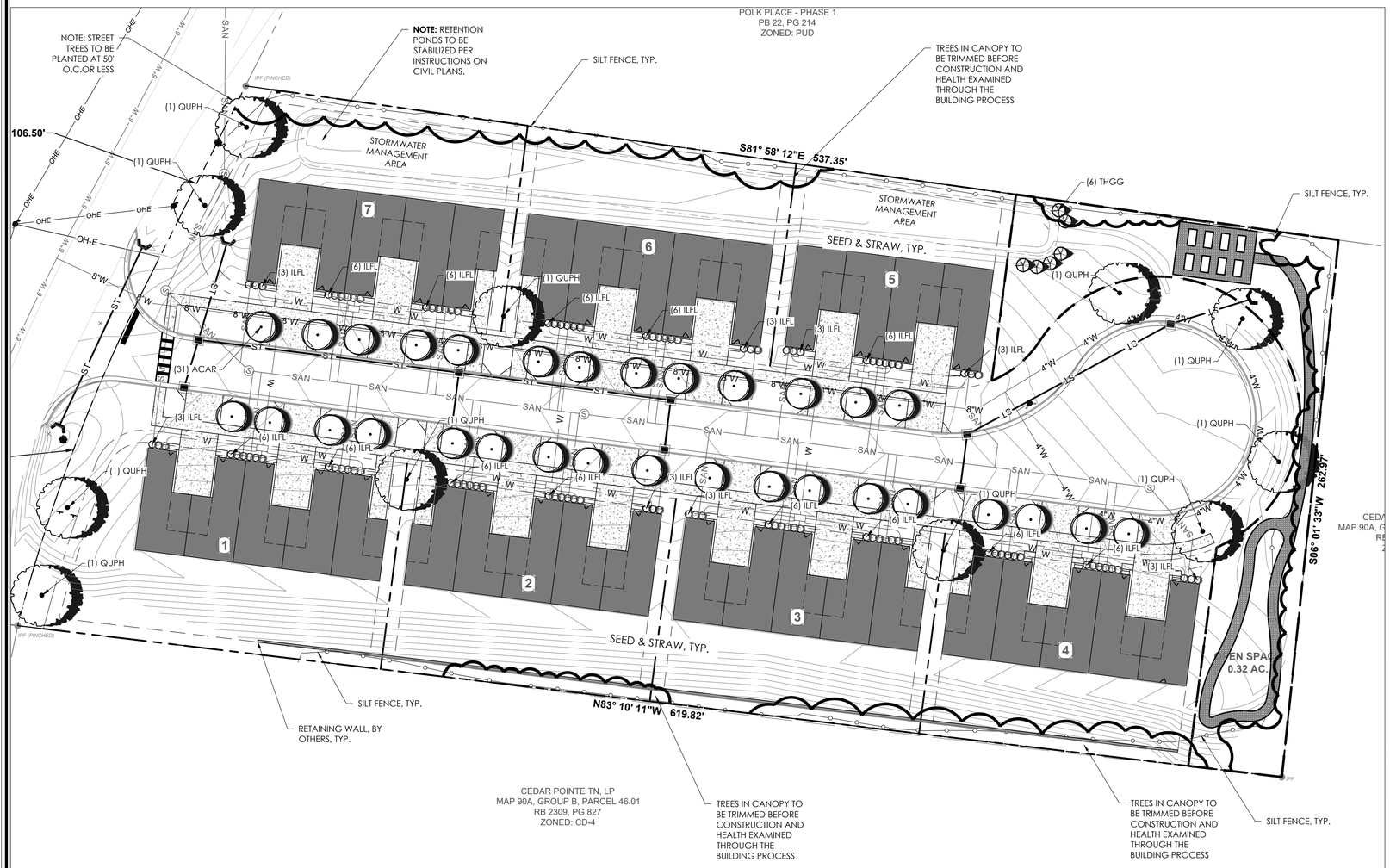
DANIEL WOODS
REGISTERED
AGRICULTURE
TENNESSEE
License No. AA-
05-19-23
LANDSCAPE ARCHITECT

2023 The Addison Group LLC Drawings, written material, and design concepts shall not be used or reproduced in whole or part in any form or format without prior written consent of The Addison Group, LLC

DATE: 01.17.23

REVISIONS:
03.20.23
04.13.23
05.19.23

SHEET NO.
LP1.0



LANDSCAPE PLAN

PLANT SCHEDULE

TREES	QTY	BOTANICAL / COMMON NAME	SIZE		REMARKS
ACAR	31	Acer rubrum 'Armstrong' / Armstrong Red Maple	3" Cal.		
QUPH	11	Quercus phellos / Willow Oak	2.5" Cal.		
THGG	6	Thuja x 'Green Giant' / Green Giant Arborvitae	12-14` Ht. Min.		
SHRUBS	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**	**SPACING**	**REMARKS**
ILFL	102	Illicium floridanum / Florida Anise	3` Ht.	42" o.c.	

LANDSCAPE REQUIREMENTS

ZONING: **CD-4**

TABLE 4.3.1 D
REQUIRED - CONTINUOUS SHRUBS AROUND FOUNDATION AT FACADE IF 1ST LAYER IS ≥ 3 FT. DEEP, PLUS IF 1ST LAYER IS ≥ 15 FT. DEEP, 1 TREE PLANTED IN 1ST LAYER EVERY 50' FT OF FRONTAGE. DRIVE AISLE WITHIN THE 1ST LAYER, CONTINUOUS SHRUBS LANDSCAPING MUST COMPLY WITH SECTION 4.3.16.

TABLE 4.3.16.D-2 (TREES-# PER GENERA)
WHEN MORE THAN 20 TREES ARE PLANTED OR USED ON A SITE TO MEET THESE REGULATIONS, A MIX OF TREES (GENERA) SHALL BE PROVIDED.

52 TREES PROVIDED
31 TREES REQUIRED
2 GENERA REQUIRED
3 GENERA PROVIDED

TABLE 5.7.8 PROJECT BUFFERS
PER TABLE 5.7.8 (PROJECT BUFFERS), THERE ARE **NO BUFFERS REQUIRED** FOR PARCELS ZONED **CD-4.**

MULCH NOTE: ALL PLANTS SHALL BE MULCHED A MINIMUM OF THREE INCHES DEEP WITH A HARDWOOD MULCH.

Plant Materials
Plant material shall be delivered to the site after the beds are prepared and are ready for planting. Shipments of plant materials shall be thoroughly protected from the sun and from drying winds during transit. All plants which cannot be planted at once, after delivery to the site, shall be well protected. Plant materials remain the property of the Contractor until initial acceptance.

Shrubs And Groundcovers
Plants shall be nursery grown, healthy, vigorous, compact, bushy to the ground, well branched, of normal habit of growth for the species, and shall be free from defects, decay, girding roots, sun-scald injuries, abrasions of the bark or limbs, disease, insect eggs, and larvae. They shall have ball sizes that meet the standard set forth by the American Association of Nurserymen, Inc. The specified sizes shall be before pruning, and the plants shall be measured from their nominal top branches in normal position to the top of the ball or soil level. Plants shall not be pruned prior to delivery, except upon special approval.

All plants shall be of specimen quality. Specimen means an exceptionally heavy, symmetrical, tightly knit plant, so trained or favored in its development that its appearance is unquestionable and outstandingly superior in form, number of branches, compactness and symmetry.

All plants shall be hardy under climatic conditions similar to those in the locality of the project.

Shade Trees
Shade trees shall be healthy, vigorous, full-branched on all sides, well-shaped, specimen quality, symmetrical, and shall meet the trunk diameter, height and spread requirements as specified. Single trunk trees shall have a straight trunk. Trees which have a damaged or crooked leader or trunk or are one-sided or do not have a full, symmetrical branch structure and crown, will be rejected. Ball shall be firm, neat, slightly tapered, and well burlapped. Any tree loose in the ball or with broken ball at the time of planting will be rejected. Trees with abrasions on the bark, disfiguring knots, or wounds over two (2) inches which have not calloused will be rejected. All trees shall have trunk flare exposed, excess soil shall be removed from root ball necessary
. Tree ball sizes shall be as outlined in ANSI Z6.0.1 - 1980.

Multi-trunk Trees: No division of the trunk which branches more then six (6) inches from the ground level, as determined by the root crown of the plant, shall be considered a stem.

Ornamental Trees
Ornamental trees shall be healthy, vigorous; full branched, well shaped, and shall meet the height and spread, caliper and branching character as specified. Trees not having a full, symmetrical branch structure and crown will be rejected.

Single trunk ornamental trees shall have straight trunks with branching beginning a minimum of forty-two (42) inches above the top of the bail or container.

Multi-trunk ornamental trees shall be pruned so all "sucker" type branching is removed from around trunk canes as well as extraneous branching on trunk canes below crown of trees. Pruning shall be such that as least one-half of the plant is trunk branching and approximately one-half is crown foliage. All multi-trunk trees will conform to the number of trunk canes and/or caliper specified.

Materials
Compost: 100% organic, aerobically composted humus, fully composted under proper C/H ratios with sustained temperatures to 170 degrees F., possessing excellent air porosity, water holding capacity and drainage, optimum cation exchange capacity, free of weeds, weed seeds, insect pests and with a pH averaging 6.5 to 7.0. As supplied by Living Earth Technology, Dallas, Texas, or approved equal.

Fertilizer: Complete slow release fertilizer with an organic base, uniform in composition, dry and free flowing. Deliver fertilizer to site in original unopened containes, each bearing manufacturer's guaranteed statement of analysis. Fertilizer shall contain 20% nitrogen, 10% phosphoric acid, 10% potash, unless otherwise specified or approved. "Agriform" by Sierra Chemical Company, or approved equal.

Peat Moss: Clean hypnum peat, free of noxious weeds and rubble, dark brown in color.
Pine Fines: Fine texture, ¼ to ½ inch size, free of noxious weeds and rubble.

Topsoil: Fertile natural surface soil, uniform in composition, similar to site topsoil if approved, free of stones, lumps, weeds, and roots. Minimum 20 percent organic matter, 50 to 70 percent sand, 15 to 20 percent clay. If topsoil of the site does not meet specifications, Contractor is responsible for importing topsoil to the site for the purpose of backfilling plant pits.

Bed Alignment And Plant Placement
Shrubs and groundcover shall be planted in string line straight rows using alternative spaces between rows. The specified quantity of shrubs or groundcover shall be placed in the bed prior to planting to assure even coverage. The specified quantity of seasonal color shall be placed in the bed prior to planting to assure even coverage. After the planting is completed, all cultivated areas shall be leveled, loosened, and raked, and the edges carefully trimmed so that the tree pits and beds shall present a neat appearance. Care shall be used that these bed edges conform as closely as possible with the lines shown on the Planting Plan. Steel edging stakes shall be on the inside of the beds.

Top Dressing
After the work of planting has been completed and approved by the Landscape Architect, mulch all beds and tree rings with two (3) inches of shredded hardwood bark mulch, lightly cultivated into area. Do not disturb watering saucer and do not cover root flair.

Tree Pits And Planting

If planting occurs without approval of plant locations by the Landscape Architect, the Landscape Architect reserves the right to relocate plant material as deemed necessary.

Ornamental Trees: Plant ornamental trees in pits twelve (12) inches larger than the tree ball. After setting the tree, the pit shall be backfilled with parts of topsoil to one (1) part of compost and carefully settled by watering to prevent air pockets. Form a three (3) inch high watering ring for each ornamental tree. All cord or wire to secure burlap on tree ball shall be cut from top of ball and around trunk. Place a (2) inch layer of compost inside the watering ring.

Shade Trees: Plant shade trees in a tree pit two (2) feet greater in diameter that the tree ball. The crown of the tree ball should be approximately one (1) inch higher than the existing grade. After setting the tree, the pit shall be backfilled with four (4) parts of acceptable existing soil or topsoil to one (1) part compost and carefully settled by watering to prevent air pockets. Form a four (4) inch high watering ring around the tree. All cord or wire used to secure burlap on tree ball shall be cut from top one-third of ball and from around trunk after setting. Place two (2) inch layer of compost or bark mulch inside the watering ring.

Percolation Test Pits: The Contractor shall excavate at least four (4) test pits on the site and fill with water to test for percolation. Size of pits shall be comparable to largest tree pit to be excavated. Location can be in conjunction with proposed shade tree location. Monitor pit for forty-eight (48) hours. If, at the end of that time, water has not significantly percolated, a Stand Pipe underdrain system should be installed for trees in that area.

Stand Pipe Installation: Should it be determined that tree pits will not percolate, or do so very slowly, shade trees shall have sump pipes installed in specially excavated tree pits.

Bed Preparation

Groundcover Beds: Loosen all groundcover beds to a depth of six (6) inches. Two (2) inches of peat moss or compost shall be applied and worked into the upper six (6) inches of bed. Beds shall be thoroughly tilled and pulverized to a depth of six (6) inches and raked smooth. Work fertilizer into soil at the rate of twelve (12) pounds per 1000 square feet. Delivery receipts of soil amendments may be requested.

Rototill all seasonal color beds to a depth of six (6) inches. Four (4) inches of peat moss or compost shall be applied and worked into the upper six (6) inches of the bed. Beds shall be thoroughly tilled and pulverized to a depth of six (6) inches and raked smooth. Beds shall be left two (2) to three (3) inches higher than surrounding grade for proper drainage.

Shrub Bed Planting: Rototill all shrub beds to a depth of six (6) inches. Four (4) inches of peat moss or compost shall be applied and worked into the upper six (6) inches of the bed. Beds shall be thoroughly tilled and pulverized to a depth of six (6) inches and raked smooth. Beds shall be left two (2) to three (3) inches higher than surrounding grade for proper drainage. Broadcast fertilizer and work lightly into the soil around the shrubs at the rate of (12) twelve pounds per 1000 square feet. Bed shall be left high to prevent poor drainage or ponding of water within the bed.

Care shall be taken to prevent planting beds from blocking drainage against building or impeding site drainage in any way.

Tree Guying And Staking

Submit unit cost in bid for staking all trees four (4) inch caliper and under, with three (3) steel stakes and three (3) Adj-A-Tye straps, Model 5100. Stakes should be located equal distant around the tree, and outside of tree pit. Stakes to be embedded a minimum of two (2) feet into stable soil.

Staked and guys shall be removed following the one (1) year warranty period.

Grass And Weed Removal

Existing grass and weeds in areas of proposed beds shall be removed either chemically or by excavation, including root systems. Existing weeds shall be removed either chemically or by excavation, including root system, from all proposed lawn areas prior to installation of grass. Contractor shall re-fill excavated areas with topsoil to finish grade before bed preparation or grass installation.

Soil Erosion Protection

Install jute mesh or approved equal in planting bed with slopes greater than three to one prior to planting. Mesh shall have a minimum overlap of twelve (12) inches where sections join. Materials shall be installed in lengthwise sections running parallel with the slope, providing the length of slope is in excess of ten (10) linear feet from top to bottom. Jute mesh on slopes with lengths less than ten (10) linear feet shall be installed across the lope and double pinned at the twelve (12) inch overlap. Pins shall be installed so that no gaps or sags are visible in mesh.

Lawns

Loosen and rake smooth all areas to be grassed. Remove all weeds, debris and any clumps, stones, clods, etc. larger than three quarter (3/4) inch diameter. Ensure lawn areas and swales are graded for proper drainage. Areas next to sidewalks and curbs shall be graded down to one (1) inch below finished grade to allow for thickness of grass build-up.

Sod: Areas will be planted with sod as indicated on the plan. All sod shall be dark, rich green, free of weeds and nut grass and placed so joints are flush between pieces. Sod is to have root development that will support its own weight without tearing, when suspended vertically by holding the upper two corners. Sodded areas shall be rolled with a 200 pound roller immediately after laying, watered thoroughly and rerolled. All sodded grass areas shall be fertilized at the rate of twenty-five (25) pounds per 1000 square feet, prior to laying sod. Dead patches of sod shall be removed and replaced immediately.

Lawn Establishment

It is the responsibility of the Contractor to establish a dense lawn of permanent grasses, free from weeds, lumps and depressions. Any part of the area that fails to show a uniform germination shall be reseeded or resodded, and such reseeding or resodding shall continue until a dense lawn is established, regardless of amount of rain.

Water, mow and edge the lawn until initial acceptance. Mow each time after the law has reached a height of three and a half (3 ½) inches. Mow to a height of two and a half (2 ½) inches, returning the clippings to the lawn. Damage to seeded areas resulting from erosion shall be repaired by the Contractor. Scattered bare spots will not be allowed over one (1) foot square in the lawn area. Never mow off more than one-third of the grass leaves.

Clean-Up

During the work, the premises are to be kept neat and orderly at all times. Storage areas for plant and other materials shall be so organized that they, too, are neat and orderly. All trash, including debris resulting from removing weeds or rocks from planting area, preparing beds, or planting plants, shall be removed from the site daily as the work progresses. All walks and drives shall be kept clean by sweeping and hosing. Excavated soil may be distributed on the site or hauled off site as directed by Owner.

Maintenance

The Contractor shall maintain all trees, shrubs, and groundcover under this Contract until initial acceptance, by adequate watering, cultivating the top two (2) inches, weeding every two (2) weeks, spraying, and replacing as necessary to keep plants in a healthy, vigorous condition. Bed areas shall be raked as may be required to keep them neat.

The Contractor shall maintain all grass areas under this Contract until initial acceptance by watering, mowing, spraying, fertilizing, etc.

One Year Maintenance

The Contractor shall submit a separate price for maintenance of the landscape and irrigation installation for a period of one (1) year after initial acceptance. Maintenance shall be based on the Maintenance Specifications listed above.

The Addison Group, LLC 2023

theaddisongroup
LANDSCAPE ARCHITECT
http://addison-group.com/
7123 Crossroads Blvd Ste. E | Brentwood, TN 37027

MACKENZIE PLACE TOWNHOMES

220 THETA PIKE
COLUMBIA, TENNESSEE

LANDSCAPE PLAN

Prepared For:
Mackenzie Place Townhomes

DANIEL WOODS
REGISTERED
AGRICULTURE
STATE
License No.
5.19.23
LANDSCAPE ARCHITECT

2023 The Addison Group LLC Drawings, written material, and design concepts shall not be used or reproduced in whole or part in any form or format without prior written consent of The Addison Group, LLC

DATE: 01.13.23

REVISIONS:
3.20.23
4.13.23
5.19.23

SHEET NO.
LP2.0

CPWS
Columbia Power & Water Systems

201 Pickens Lane
P.O. Box 379
Columbia, TN 38402

P 931.388.4833
F 931.388.5287
www.cpws.com

January 10, 2023

M2 Group, LLC
Matt Bryant, PE
matt@m2groupllc.com

Re: 220 Theta Pike
Mackenzie Place Apartments, 34 Townhome Units

Dear Sir:

Columbia Power System has an existing power line near your proposed development.

We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.

Yours truly,

COLUMBIA POWER & WATER SYSTEMS

Ryan Massey, P. E.
Vice President of Power Operations

kw

CITY OF COLUMBIA
TENNESSEE

WASTEWATER DEPARTMENT

28 December 2022

Brian Holcombe
M2 Group, LLC
brian@m2groupllc.com

RE: 220 Theta Pike, Columbia, TN 38401

Brian,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the above-referenced development. Any extension to the existing sewer infrastructure will be initiated by the owner/developer, reviewed by our department and approved by the State of Tennessee. The project must be advanced in accordance with local, state and federal rules, regulations and policies. Funding and construction of those improvements will remain the responsibility of the owner/developer. New customers will be required to pay all fees applicable at the time of connection. No detailed design plan for an extension of the sewer has been proposed at this time.

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department

May 19, 2023

Mr. Brian Holcombe
M2 Group, LLC
P.O. Box 848
Franklin, TN 37065
Sent via email: brian@m2groupllc.com

RE: Water Availability Letter
Mackenzie Place Townhomes – 34 Units
220 Theta Pike
Tax Map 90B, Parcel 47.00
Columbia, Maury County, TN

Dear Mr. Holcombe:

Columbia Power and Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of 34 townhome units in 7 buildings. CPWS has evaluated the projected water demands for the proposed residential development in the water system hydraulic model and is able to meet a fire-flow capacity of 1,000 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connection will be made to the existing 6-inch water main located on Theta Pike.
- Minimum size 8-inch water mains will be required throughout the development.

- Townhomes will be served via gang-meter vaults.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Present the attached hydrant analysis report for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide site base CAD files in DWG format, including roads, lot lines, existing and proposed contours, and other existing and proposed utilities, for use in development of water construction drawings.
- Remit to CPWS new water service fees:

New Water Service Fee: $1,500 + $370 per SFU (34 SFUs)	$14,080.00

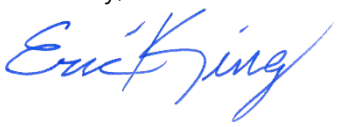
- CPWS will then develop water construction drawings and submit to TDEC for approval. Upon approval by TDEC and payment of meter and impact fees by the applicant, applicant may then schedule a pre-construction meeting with CPWS. Pre-construction meeting will not be scheduled until fees are paid in full or surety is provided in lieu of full payment. Final meter and impact fees are subject to change based on final design and meter size determination. Meter fees are subject to change based on market costs at time of purchase. Meters will not be set until meter and impact fees are paid.

Meter Fee: $540 per 3/4" meter (34 meters)	$18,360.00
Impact Fee: $875 per 3/4" meter (34 meters)	$29,750.00
Total Meter and Impact Fees Due =	**$48,110.00**

- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.

If you have any questions, please feel free to contact Mr. Jonathan Hardin or myself at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,



Eric King, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-005

GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

March 2, 2023

Waits Development
PO Box 111285
Nashville, Tennessee 37222

Attention: Mr. John Waits
John.waits1@icloud.com

Subject: **INFILTRATION TEST RESULTS**
Proposed Mackenzie Place Townhomes
220 Theta Pike
Columbia, Tennessee
GEOServices Project No. 31-231084

Dear Mr. Waits:

GEOServices has completed infiltration measurements, as requested by Waits Development personnel at the 220 Theta Pike development in Columbia, Tennessee. A total of eight (8) infiltration locations were requested by Waits Development personnel. One of the eight infiltrations were installed at the planned depth of 11 feet (IT-1) below the existing ground surface elevation. The remaining infiltration locations encountered shallow refusal conditions, but was able to be offset and completed approximately 1 to 2 feet above the refusal depth. During installation, lean and/or fat clays were encountered to the test depths. After installation, two feet of water was filled into each casing and allowed to presoak for an initial period of 24 hours prior to recording infiltration test results. After presoaking for 24 hours, the two-foot water level was re-established, readings taken after one hour, and the process repeated for a total of four hours. The infiltration locations were prefilled on February 23 (IT-1 through IT-4) and March 1 (IT-5 through IT-8), 2023 and the infiltration readings were completed on February 24 (IT-1 through IT-4) and March 2 (IT-5 through IT-8), 2023. The following table presents the findings recorded during the infiltration testing. According to test procedure guidelines, the infiltration rate can be taken as the 4th reading, or average of the four 1-hour readings.

Location #	Planned Depth (feet)	Refusal Depth (Feet)	Test Depth (feet)	Infiltration Rate (inches per hour)			
				1 hr	2 hr	3 hr	4 hr
IT-1	11	-	11	1.5	1.25	0.75	0.5
IT-2	13	5.25	4	0.5	0.5	0.5	0.5
IT-3	14	6.25	4	0	0	0	0
IT-4	15	5	4	3.5	2.25	1.5	1.25
IT-5	14	7.5	6.5	1	0.75	0.5	0.25
IT-6	13	9	8	1.5	1	0.75	0.5
IT-7	12	7	6	1	0.5	0.5	0.5
IT-8	11	11	10	3	2.25	2	1.75

Notes: Test depths rounded to the nearest 1/4 foot and test measurements rounded to the nearest 1/4 inch and should be considered approximate.

GEOServices looks forward to continuing to work with you on this project. If you have any questions or require additional information, please feel free to call us.

Sincerely,
GEOServices, LLC

Scott Williams

S. Scott Williams
Staff Professional

Jerry W. Gammon, P.E.
V.P., Nashville Area Branch Manager
TN 111633

Attachments: Infiltration Test Location Plan

N

IT-1
IT-2
IT-3
IT-4
IT-5
IT-6
IT-7
IT-8

Notes:

1) Site Source Provided by: Client
2) Aerial Provided by: Google Earth Pro, (2022)
3) Infiltration Test Locations are shown in general arrangement only
4) Do Not use Infiltration Test Locations for determinations of Distance or Quantities

Infiltration Test Location & Identifier

GEOS
GEOServices, LLC-Geotechnical and Materials Engineers
A Universal Engineering Sciences Company

Infiltration Test Location Plan
Proposed Mackenzie Place Townhomes
Columbia, Tennessee

DATE: 02/20/2023
GEOS Project No. 31-231084
FIGURE: 1

Columbia Fire & Rescue

Fire Flow Requirements

Water Purveyor: Columbia Power & Water System

Date: 11/14/22
Name: Brian Holcombe
Phone: 615-925-0851
Email: brian@m2groupllc.com
Address/Parcel ID: 220 Theta pike / 90B, 47.00
Property Type: (•) Residential ( ) Commercial ( ) Industrial
Construction Type: V-B
Enclosed Area (ft^2): 1,000

FILLED OUT BY COLUMBIA FIRE AND RESCUE

NFPA Sprinkler Type: NFPA 13D

Water System Demand without Sprinkler Credit

Fire flow Requirements (International Fire Code Appendix B)

Fire Flow: 1,000 gpm Duration: 1 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

Water System Demand with Sprinkler Credit

Fire flow requirements (International Fire Code Appendix B)

Fire Flow: 500 gpm Duration: 1/2 hours

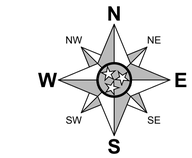
Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

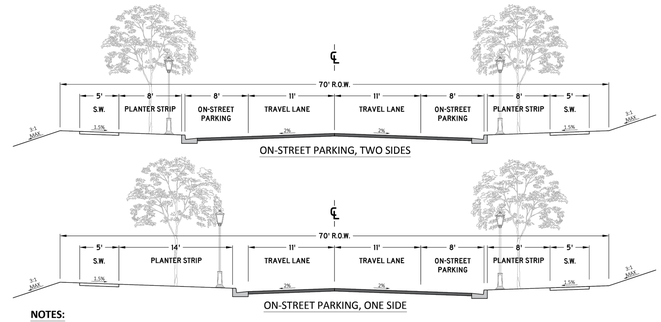
Fire Plan Reviewer: Brad Massey Date: 11/15/22



30' 0 30' 60'

GRAPHIC SCALE

SITE DATA TABLE		
ZONING	CD-4	
TOTAL LOT AREA	3.59	AC.
TOTAL NUMBER OF UNITS	34	EA.
DENSITY	9.47	UNITS / AC.
PARKING SPACES REQUIRED	68	EA.
PARKING SPACES PROVIDED	68	EA.
FRONT YARD SETBACK	6' - 20'	L.F.
SIDE YARD SETBACK	6	L.F.
REAR YARD SETBACK	6	L.F.



NOTES:

1. ONLY PERMITTED WITHIN THE APPLICABLE ZONING DISTRICTS.
2. ONLY PERMITTED ON MINOR LOCAL AND MAJOR LOCAL ROADWAY CLASSIFICATIONS.
3. PAVEMENT SECTION SHALL FOLLOW APPLICABLE ROADWAY CLASSIFICATION.
4. CURB AND GUTTER, SEE SD-01
5. TREES SHALL BE CENTERED WITHIN THE PLANTING STRIP, OFFSET A MINIMUM OF 20 FEET ALONG THE CENTERLINE OF THE ROAD FROM ANY STREET LIGHTING.
6. DECORATIVE LIGHT BASES SHALL BE BETWEEN 18" AND 24" BEHIND THE BACK OF CURB.
7. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED.
8. DIMENSIONS REFLECT A MINIMUM STANDARD.
9. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER.

CITY OF COLUMBIA TENNESSEE	CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION STANDARD DETAILS	CHARACTER DISTRICT STREET URBAN NEIGHBORHOOD (NTS)	DATE 6/9/2022 DS-03

ZONING: RM-1 PUD
POLK PLACE - PHASE 1
PB 22, PG 214

ZONING: GCS

ZONING: RM-1
CEDAR POINTE TN, LP
MAP 90A, GROUP B, PARCEL 46.01
RB 2309, PG 827

ZONING: RM-1
CEDAR POINTE TN, LP
MAP 90A, GROUP B, PARCEL 46.01
RB 2309, PG 827

DESCRIPTION | DATE | REVISION #

DRAFT

SITE PLANS FOR:
MACKENZIE PLACE TOWNHOMES
TAX MAP 90B, GROUP B, PARCEL 47.00
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

SITE LAYOUT PLAN
TOWNHOUSES WITH GARAGES

DATE : --
DRAWN BY : M2G
PROJECT NO. : --
CHECKED BY : MWB

SHEET NUMBER:
1

MPA - CONCEPT PLAN - TOWNHOMES - OPTION 7.DWG / Thursday, October 13, 2022 9:26:55 AM

May 19, 2023

Mr. Brian Holcombe
M2 Group, LLC
P.O. Box 848
Franklin, TN 37065
Sent via email: brian@m2groupllc.com

RE: Water Availability Letter
Mackenzie Place Townhomes – 34 Units
220 Theta Pike
Tax Map 90B, Parcel 47.00
Columbia, Maury County, TN

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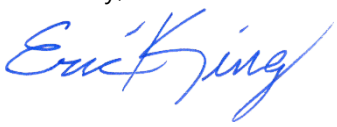
- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.

If you have any questions, please feel free to contact Mr. Jonathan Hardin or myself at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,



Eric King, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-005

HYDRANT FLOW ANALYSIS

HYDRANT # & LOCATION: Proposed DATE:

MODEL BY: Inflo Design Group, LLC SYS. DEMAND Max Day DURATION: 2 hrs.

WATER SUPPLIED BY: Columbia Power and Water Systems

PURPOSE OF TEST: Mackenzie Place

MODEL DATA

FLOW HYDRANT(S)	0	n/a	n/a
GPM:	**850**	0	0

TOTAL FLOW DURING SIMULATION: **850** GPM

GAUGE HYDRANT

HYDRANT # & LOCATION: J-25996

CONDITION 1

STATIC 107 PSI RESIDUAL: 85 PSI

CONDITION 2

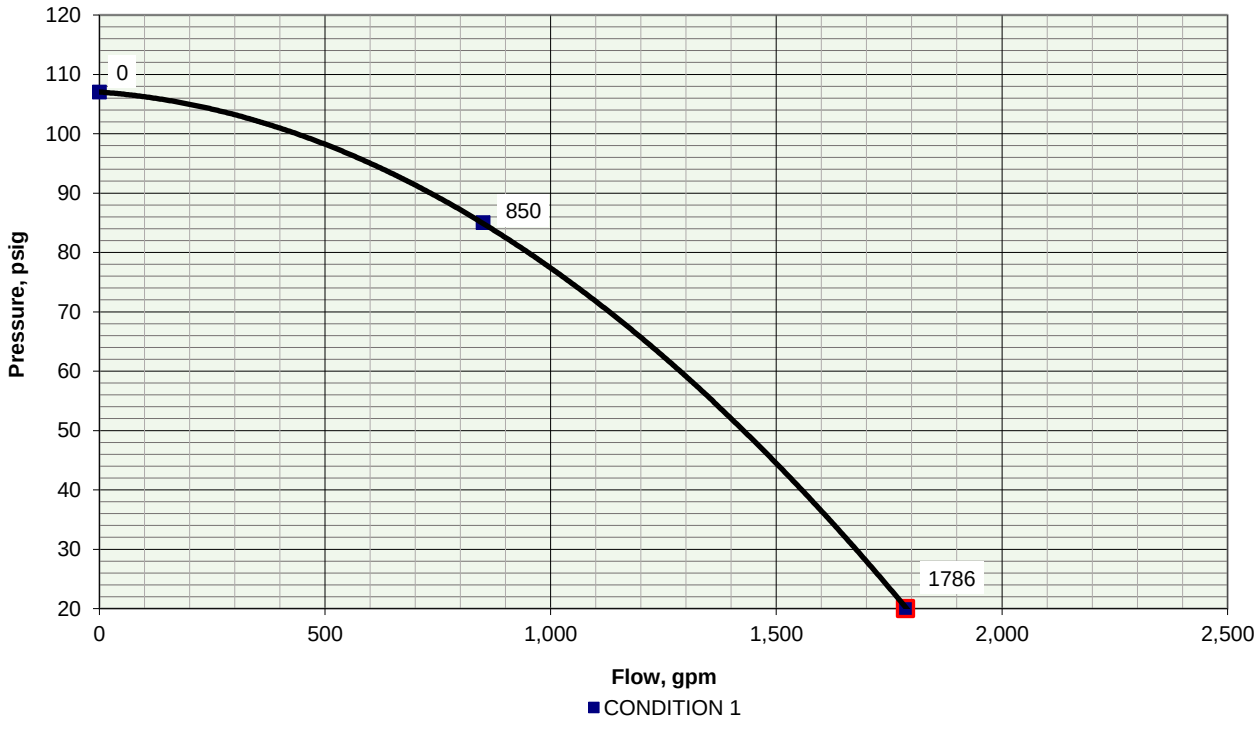
STATIC _____ PSI RESIDUAL: _____ PSI

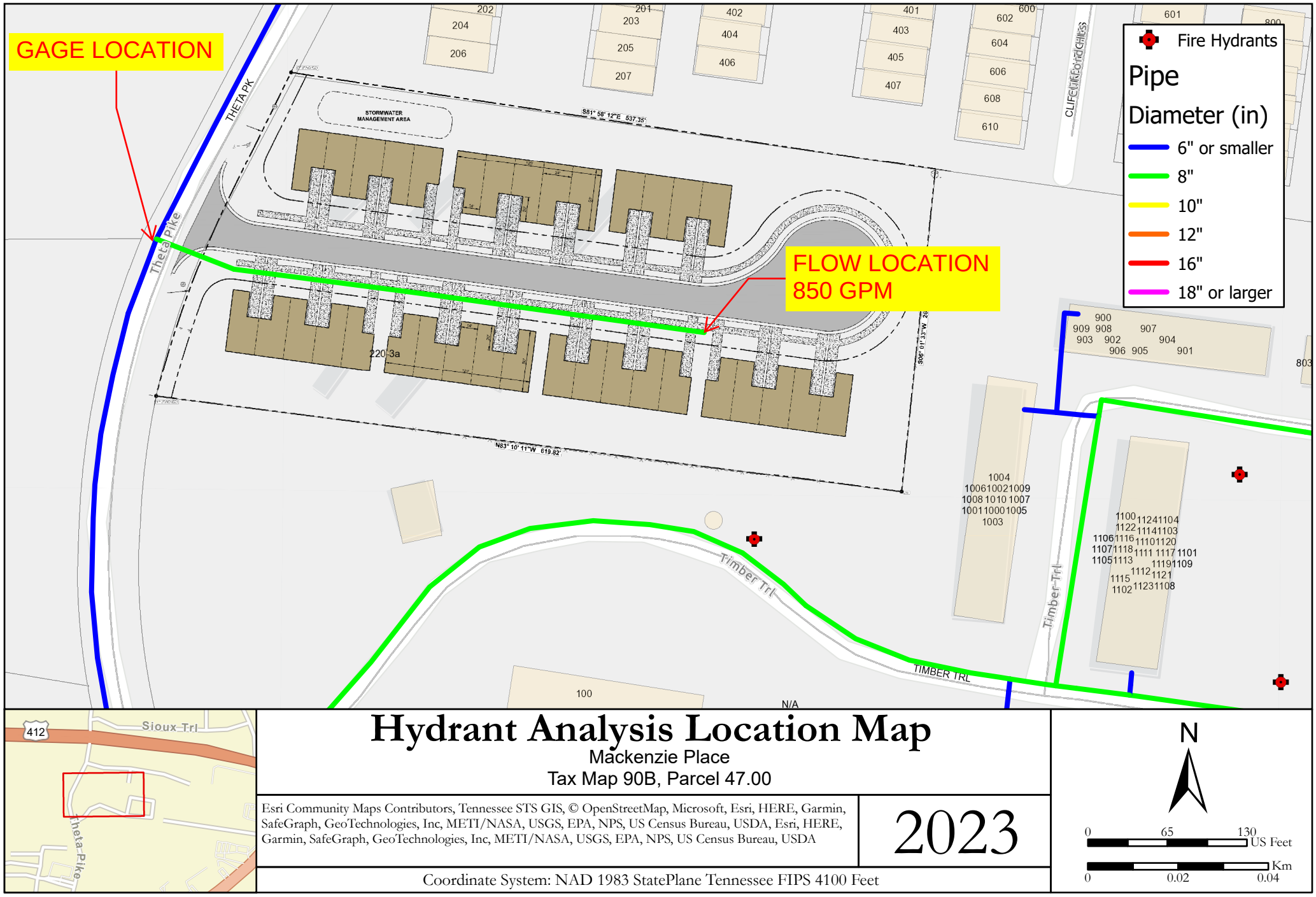
RESULTS: AT 20 PSI RESIDUAL

CONDITION 1 **1786** GPM

CONDITION 2 **---** GPM

REMARKS: Performance based on service elevation of 617' and current CPWS water infrastructure and does not account for additional losses associated with development piping.





Hydrant Analysis Location Map

Mackenzie Place

Tax Map 90B, Parcel 47.00

Esri Community Maps Contributors, Tennessee STS GIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

2023

Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

VOLKERT
750 Old Hickory Boulevard,
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Brentwood, Tennessee 37027
615.257.1761
www.volkert.com

June 10, 2022

Glenn Harper, PE
City Engineer
City of Columbia
700 N Garden Street
Columbia, TN 38401

Re: Mackenzie Place Apartments
Traffic Impact Study
Review Comments

Dear Glenn:

This memorandum provides the findings of the independent review of the Mackenzie Place Apartments Traffic Impact Study (TIS) Update. Our review includes the traffic projections and the operational analyses; evaluation of the proposed roadway network; review and evaluation of the recommended infrastructure improvements; and identification of any recommended modifications or additions to the recommended infrastructure improvements identified in the TIS.

General Project Information

The Mackenzie Place Apartments TIS, dated May 2022, was completed by the Corradino Group, Inc. for Waits Development Group, LLC. Mackenzie Place Apartments development in Columbia, TN is proposed to be located east of Theta Pike and south of Highway 412/13, bound to the south and north by a multi-family residential development, to the west by a single-family residential, and to the east by multi-family housing and light industrial facilities. The Mackenzie Place Apartments development will consist of 80 multifamily units with one access point along Theta Pike. The site access is located approximately 650 feet south of the intersection of Theta Pike and Highway 412/13 and 475 feet north of Timber Trail. The development is expected to be complete in two years, which is a year 2024 horizon. Traffic counts were conducted by the Corradino Group, Inc. on a typical weekday in February 2022 while schools were in session for the intersections of Theta Pike and Highway 412/13, Theta Pike and Timber Trail, and Theta Pike/8th Avenue and Nashville Highway. In addition, 24-hour bi-directional volume and speed tube counts were conducted along Theta Pike in the vicinity of the proposed development access. To develop the growth rate to be applied to the existing traffic volumes, historical daily traffic volumes were obtained from the TDOT count stations located on Highway 412/43, Theta Pike, and Nashville Highway in the vicinity of the project site. The growth rate found from the count stations was 4% but a growth rate of 3.5% was selected through coordination with the City's traffic consultant. These counts were grown by an annual 3.5% to obtain the background 2024 traffic volumes. Additionally, there are two proposed developments, Theta Pike Cove & Taylor Landing, near the study area that are expected to

affect the traffic volumes at the study intersections. Traffic for both developments were added to the background 2024 traffic volumes.

Trip Generation and Trip Distribution

Future trips generated by Mackenzie Place Apartments were calculated using ITE's *Trip Generation*, 11th Edition based on the future land use. The land use used to determine the project-generated trips was 80 dwelling units of low-rise multifamily homes. The total development is expected to produce 588 trips per day with 48 new trips in the AM peak hour and 55 new trips in the PM peak hour. The new trips are detailed below.

	Total Entering Trips	Total Exiting Trips
AM	12	36
PM	35	20

These trips were distributed throughout the study area based on commuter patterns in the area and the proximity and routes to major transportation facilities. The directional distribution assumes approximately 40% of the project-generated traffic will be oriented from the southwest along Nashville Highway, 20% to the northwest along, Highway 412, 15% to the north along Theta Pike, 15% to the northeast along Highway 412, and 10% to the southeast along Nashville Highway.

Capacity/Level of Service Analyses

The operational analyses for the intersections within the study area was completed utilizing Synchro 11 software, which uses the methods from *Highway Capacity Manual 2010*. The intersections were evaluated for the weekday AM and PM existing, background, and projected traffic conditions. Additionally, turn lane and sight distance analysis was completed.

Intersection Capacity Analysis

In the projected 2024 conditions, the analyses indicate that all of the critical turning movements are expected to operate at LOS D or better during both peak hours.

Turn Lane Warrant Analysis

The intersection of Theta Pike at the Site Access was evaluated for the need for left turn lanes on Theta Pike based on methodology outlined in *M.D. Harmelink's Volume Warrants for Left-Turn Storage Lanes at Unsignalized Intersections.* Based on the total projected peak hour traffic volumes presented in the TIS, a left turn deceleration lane on Theta Pike at the Site Access is not warranted. The intersection of Theta Pike at the Site Access was also evaluated for the need for right turn lanes on Theta Pike based on methodology in *Intersection Channelization Design Guide (NCHRP 279)*. Similarly, a right turn deceleration lane is not warranted by the total projected peak hour volumes. Therefore, separate turn lanes on Theta Pike are not needed.

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Brentwood, Tennessee 37027
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Intersection Sight Distance Evaluation

The available intersection sight distance along Theta Pike was evaluated where traffic will enter and exit the site. The criteria for intersection sight distance are provided in the AASHTO *Policy on Geometric Design of Highways and Streets*, commonly known as the Green Book. The sight distance at the proposed access location does not exceed the required sight distances per AASHTO. The available sight distance to the south is blocked but a "Theta Pike Residential" sign and vegetation. Construction of the site access should be completed with the minimum 390 feet of intersection sight distance provided to the north for a left turn from the site access to Theta Pike. In addition, a minimum of 335 feet of intersection sight distance provided to the south for a right turn from the site access onto Theta Pike.

Recommendations Identified in the TIS

The following conclusion and recommendations are included in the study and our response.

- The traffic operations in the study area for the Future Traffic Analysis are expected to continue to operate at the level currently being experienced or at the level of operation expected with the background traffic. To conclude, proposed development will have minimal impact on the nearby intersections thus requiring no improvements in terms of traffic signal and intersection geometry.
  Staff Response: *We agree that the proposed development will have minimal impact on the nearby intersections and that no improvements are required.*
- The proposed site access should be designed such that the departure sight triangles, as specified by AASHTO and detailed in this study, will be clear of all sight obstructions, including landscaping, existing vegetation, monument signs/walls, fences, etc.
  Staff Responses: *We agree that the site access should be constructed such that sufficient sight distance is provided.*
- The proposed site access on Theta Pike should be designed to include sufficient width for one entering lane and two exiting lanes as shown in the proposed site plan. This access should be stop controlled on the westbound approach for traffic exiting the site. STOP sign installation should be done based on TDOT sign guidelines.
  Staff Responses: *We agree that the proposed access should include one entering lane and two exiting lanes. This access should be constructed according to MUTCD, AASHTO, TDOT, and City of Columbia Standards, including providing sufficient sight distance.*
- All intersection and roadway signing and pavement markings should be completed according to the Manual on Uniform Traffic Control Devices (MUTCD).
  Staff Responses: *We agree that all signing and pavement marking should be completed according the MUTCD, AASHTO, TDOT, and City of Columbia Standards.*

Additional Staff Response:

- *Based on the site plan included in the TIS, the mail kiosk is proposed to be located very close to the access on Theta Pike. All design aspects should ensure a mail delivery vehicle and/or residents' vehicles will not impede incoming traffic that could block traffic onto Theta Pike.*

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Conclusion

The Mackenzie Place Apartments Traffic Impact Study submitted May 2022 covers the typical required traffic impact study components and identifies several feasible and beneficial infrastructure improvements. It is recommended The Corradino Group, Inc. make a note of the comments identified above; however, we require no additional evaluation or analysis.

Should you have any questions or need additional information, please contact me.

Sincerely,

Dyan C. Damron, PE, PTP
Director of Traffic, Planning & ROW
Volkert, Inc.

TRAFFIC IMPACT STUDY

MACKENZIE PLACE APARTMENTS
COLUMBIA, TN

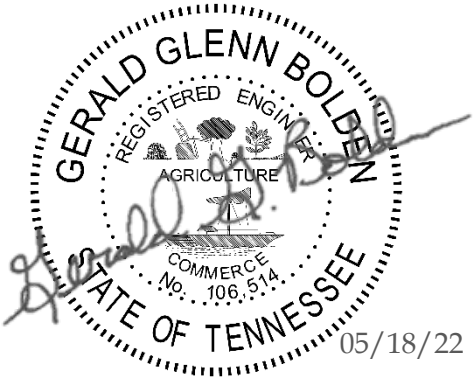
Prepared For: Waits Development Group, LLC

Prepared By: The Corradino Group, Inc.

May 2022

Traffic Impact Study
MacKenzie Place Apartment
Columbia, Tennessee

Prepared For:
Waits Development Group, LLC.



Prepared By:
The Corradino Group, Inc.
Franklin, TN

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Executive Summary

Project Description

This study will evaluate the traffic impacts of the proposed Mackenzie Place Apartment, a multifamily residential development located at 220 Theta Pike in Columbia, Tennessee. The site plan proposes 80 dwelling units accommodated in four two-story buildings. Access to the development is planned to be provided by a single access drive on Theta Pike. Surface parking is planned to accommodate the residential development. The purpose of this study is to analyze the access plan and the traffic impacts associated with this proposed development. For this study, it is assumed the development will be completed by 2024.

Existing Traffic Volumes

In order to analyze the roadway operations in the vicinity of the proposed development, typical weekday intersection turning movement counts were conducted at the following locations:

- Theta Pike and Highway 412/43
- Theta Pike and Timber Trail
- Theta Pike/8th Avenue and Nashville Highway

In addition, 24-hour bi-directional volume and speed tube counts were conducted along Theta Pike in the vicinity of the proposed development access.

Projection of Future Traffic Volumes

It is assumed that the traffic will continue to grow before the project is completed. Therefore, a historic growth rate was calculated and applied to the existing traffic counts. Additionally, traffic from two other approved developments were included in the background traffic volumes. Trips expected from the proposed multifamily residential development were added to background traffic in order to obtain the total projected traffic volumes for the study area. Finally, these trips were analyzed to determine the recommendations required for adequate roadway operations in the study.

Conclusions and Recommendations

The proposed Mackenzie Place development is located to the south of Hwy 412/43 and on the east side of Theta Pike in Columbia, Tennessee. According to the site engineer, the proposed development consists of approximately 80 multi-family dwelling units. The analyses presented in this study indicate that the impacts of the proposed project on the existing street network will be manageable by providing the recommendations below. These specific recommendations will provide safe and efficient traffic operations within the study area following the completion of the proposed project.

- The traffic operations in the study area for the Future Traffic Analysis are expected to continue to operate at the level currently being experienced or at the level of operation expected with the background traffic. To conclude, proposed development will have minimal impact on the nearby intersections thus requiring no improvement in terms of traffic signal and intersection geometry.

- The proposed site access should be designed such that the departure sight triangles, as specified by AASHTO and detailed in this study, will be clear of all sight obstructions, including landscaping, existing vegetation, monument signs/walls, fences, etc.

- The proposed site access on Theta Pike should be designed to include sufficient width for one entering lane and two exiting lanes as shown in the proposed site plan. This access should be stop controlled on the westbound approach for traffic exiting the site. STOP sign installation should be done based on TDOT sign guidelines.

- All intersection and roadway signing and pavement markings should be completed according to the Manual on Uniform Traffic Control Devices (MUTCD).

Introduction

This study aims to evaluate the traffic impacts of a proposed residential development located east of Theta Pike and south of Highway 412/43 in Columbia, Tennessee. The proposed development is within an area that is characterized by a mix of low to high density land uses, with multi-family residential developments immediately adjacent to the south, east and north of the project site. The site plan proposes 80 multi-family dwelling units. Access to the proposed development will create an intersection with Theta Pike. Access is located approximately 650 feet south of the intersection of Theta Pike and Highway 412/43 and 475 feet north of the Timber Trail.

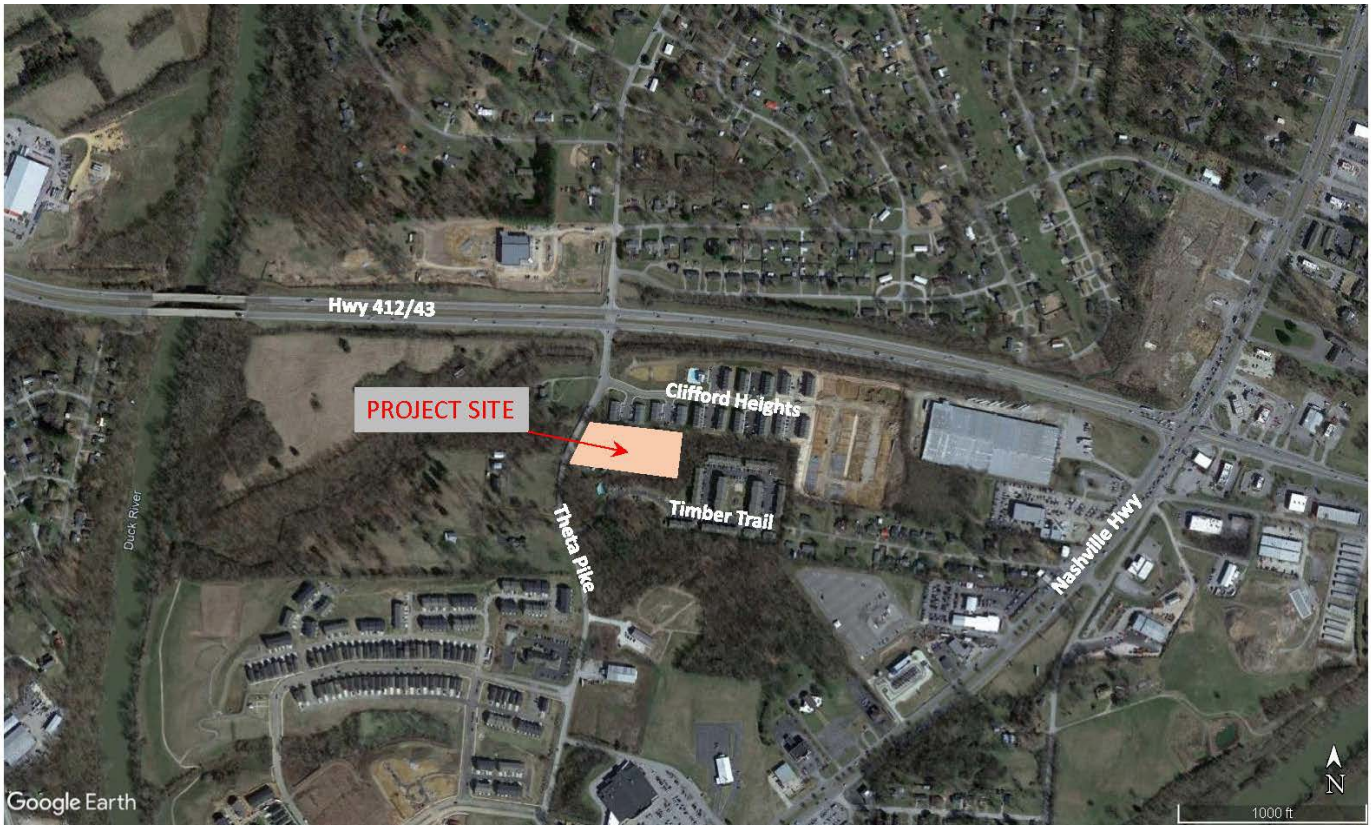
In this study existing operating conditions of the roadway network near the proposed development will be evaluated using traffic counts conducted along the study area roadways and intersections. The expected annual traffic growth will be determined based on historical traffic data. Using the estimated growth rate and trips generated by two other approved yet unbuild residential developments in the area, the background traffic volumes will be calculated. Trips generated by the proposed development will be determined and distributed to the roadway network to get the total projected traffic that will be present when the proposed development is completed.

Using the anticipated build-out final traffic, adjacent roadways and intersections will then be reevaluated to determine the anticipated traffic impacts of the proposed project. The project team will also conduct turn lane warrant analysis for the proposed access location. Industry standards will be used to analyze the traffic volumes and identify any necessary mitigation strategies to offset the decline (if any) in roadway operations resulting from the proposed development.

Project Description

The proposed residential development is located at 220 Theta Pike in Columbia, Tennessee. As shown on **Figure 1**, the development is located just east of Theta Pike, north of Timber Trail and south of south of Highway 412/43. The property is generally bounded on the south and north by multi-family housing, to the west by large lot single-family residential and on the east by multi-family housing and light industrial facilities. According to the site plan the property is intended to be zoned to RM-1 (High Density Residential).

As shown on the site plan provided in **Appendix A**, the development consists of 80 dwelling units accommodated in four two-story buildings. The proposed vehicular access point for the planned surface parking will be provided by an access drive on Theta Pike on the west side of the site. Access is located approximately in the mid-point between Timber Trail and Bancroft MI (Clifford Heights). The project is anticipated to be completed in 2024.



[Source: Google Earth]

Figure 1 Study Area

Existing Conditions

Existing Roadway Network

The existing roadway network, in the vicinity of the project site, includes Theta Pike, Highway 412/43 and Timber Trail. A description of this roadways and study intersections within the project vicinity is as follows:

Roadways

Theta Pike near the project site is a two-lane two-way undivided roadway with a posted speed limit of 35 mph. In the study area, this roadway runs in a north-south direction and provides a connection between Nashville Highway to the south and more rural areas of the county to the north. Based on Columbia's Transportation Master Plan, this roadway is classified as collector road. This road has 12-feet lane width in both directions along with open ditches and no shoulder. No on-street parking, sidewalk, transit, or bicycle facilities are provided on Theta Pike.

Northbound Theta Pike – Near Proposed Access

Southbound Theta Pike - Near Proposed Access

Timber Trail is a two-lane local road mainly serving as an access to the Cedar Pointe residential establishment (located southeast of the proposed development). The roadway is approximately 24 feet wide with mountable curb along each side. There is no sidewalk facilities on this section of road. There is no posted speed limit.

Westbound Timber Trail

Highway 412/43, near the project site, is a four-lane median divided roadway with paved shoulders and a posted speed limit of 45 mph. This segment of roadway runs in an east-west direction and provides a bypass around the north side of Columbia. As a

whole, Highway 412/43 provides a connection to I-65. To the east of Nashville Highway, this roadway has partial access control. There is no on-street parking, sidewalk, transit, or bicycle facilities are provided on Highway 412/43.

Intersections

Theta Pike and Highway 412/43 form a four-legged, signalized intersection. On both southbound and northbound approaches of Theta Pike, there is a shared through/right-turn lane and exclusive left-turn lane. The northbound left-turn lane has approximately 90 feet of available storage while the southbound left has approximately 150 feet. These approaches include protected-permissive left turn signal phasing. Highway 412/43 has one through lane, one shared through/right-turn lane and one exclusive left-turn lane on both the eastbound and westbound approaches. The westbound left-turn lane has approximately 185 feet of available storage while the eastbound left has approximately 140 feet. The eastbound and westbound approaches on Highway 412/43 have protected only left turn signal phasing. No pedestrian facilities are provided at the intersection.

Eastbound Highway 412/43 @ Theta Pike

Westbound Highway 412/43 @ Theta Pike

Northbound Theta Pike @ Highway 412/43

Southbound Theta Pike @ Highway 412/43

Theta Pike and Timber Trail form a three-leg stop controlled intersection with Timber Trail having the stop condition. Timber Trail has one shared left-turn/right-turn lane. Northbound Theta Pike has one shared through/right-turn lane while southbound Theta Pike has one shared through/left-turn lane.

Westbound Timber Trail @ Theta Pike

Theta Pike/8th Avenue and Nashville Highway forms a four-legged signalized intersection. Southbound Theta Pike has an exclusive left-turn lane with approximately 75 feet of storage and a shared through/right-turn lane. Northbound 8th Avenue has one shared through/left-turn lane and one exclusive right turn lane with approximately 90 feet of storage. Both eastbound and westbound approaches of Nashville Highway have one through lane, one shared through/right-turn lane and one exclusive left-turn lane. The westbound left-turn lane has approximately 85 feet of storage and the eastbound left-turn lane has approximately 300 feet of storage. The northbound and southbound approaches of Theta Pike and 8th Avenue operate as permissive phasing. Protected-permissive left turn signal phasing is utilized for the eastbound and westbound approaches of Nashville Highway.

Southbound Theta Pike/8th Avenue @ Nashville Highway

Northbound Theta Pike/8th Avenue @ Nashville Highway

Eastbound Nashville Highway @ Theta Pike/8th Avenue

Westbound Nashville Highway @ Theta Pike/8th Avenue

Existing Traffic Volumes

In order to analyze the roadway operations in the vicinity of the proposed development, typical weekday intersection turning movement counts were conducted at the following locations:

- Theta Pike and Highway 412/43
- Theta Pike and Timber Trail
- Theta Pike/8th Avenue and Nashville Highway

The turning movement counts were collected on Tuesday, February 22, 2022, during the AM and PM peak periods while school was in full session. The AM count period was from 6:00 – 9:00 AM and the PM count period was from 3:00 – 6:00 PM, to be inclusive of the school arrival and dismissal periods. In addition, 24-hour bi-directional volume and speed tube counts were conducted along Theta Pike in the vicinity of the proposed development access. The raw turning movement counts and 24-hour bi-directional counts are included in **Appendix B**.

Existing Traffic Analysis

To determine the effects of the proposed development on the existing roadway network, analysis of the roadway network in the study area was conducted. The existing traffic volumes used are shown in **Figure 2**. The operational analysis results in a Level of Service (LOS) for each intersection during the AM and PM peak hours. The LOS is based on the industry standard outlined in the *Highway Capacity Manual* 2010. The LOS results range from an A to a F with A being the best and F the worst. For intersections, the LOS is based on the volume-to-capacity ratio and amount of delay experienced by each movement. For unsignalized intersections, the LOS is reported for critical turning movements based on delay and volume-to-capacity (v/c) ratio and for signalized intersections the LOS is reported for each approach and for the overall intersection based on delay, as shown in **Table 1**. The LOS for the existing traffic volumes at the study intersections is shown in **Table 2** and **Appendix C** contains the LOS reports.

TABLE 1
LEVEL OF SERVICE THRESHOLDS

LOS	CONTROL DELAY/VEHICLE (s/veh)	
	UNSIGNALIZED	SIGNALIZED
A	0 – 10	≤ 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

TABLE 2
EXISTING LEVEL OF SERVICE

Intersection	Movement	AM Peak		PM Peak	
		LOS	Delay	LOS	Delay
Theta Pike and Highway 412/43	Eastbound Approach	B	19.2	C	21.6
	Westbound Approach	B	18.3	C	26.1
	Northbound Approach	D	46.1	D	39.5
	Southbound Approach	D	53.0	D	54.1
	Overall Intersection	**C**	***22.5***	**C**	***28.0***
Theta Pike and Nashville Highway	Eastbound Approach	A	7.3	A	8.2
	Westbound Approach	A	9.8	B	10.3
	Northbound Approach	C	33.1	C	32.8
	Southbound Approach	D	38.6	D	40.2
	Overall Intersection	**B**	***10.4***	***B***	***11.4***
Theta Pike and Timber Trail	Westbound Approach	A	9.8	B	11.6
	Southbound Left	A	7.4	A	7.9

The results show that overall, all intersections operate at acceptable levels of service (LOS D or better) during AM and PM peak hour. The LOS analysis reports are included in **Appendix C**.

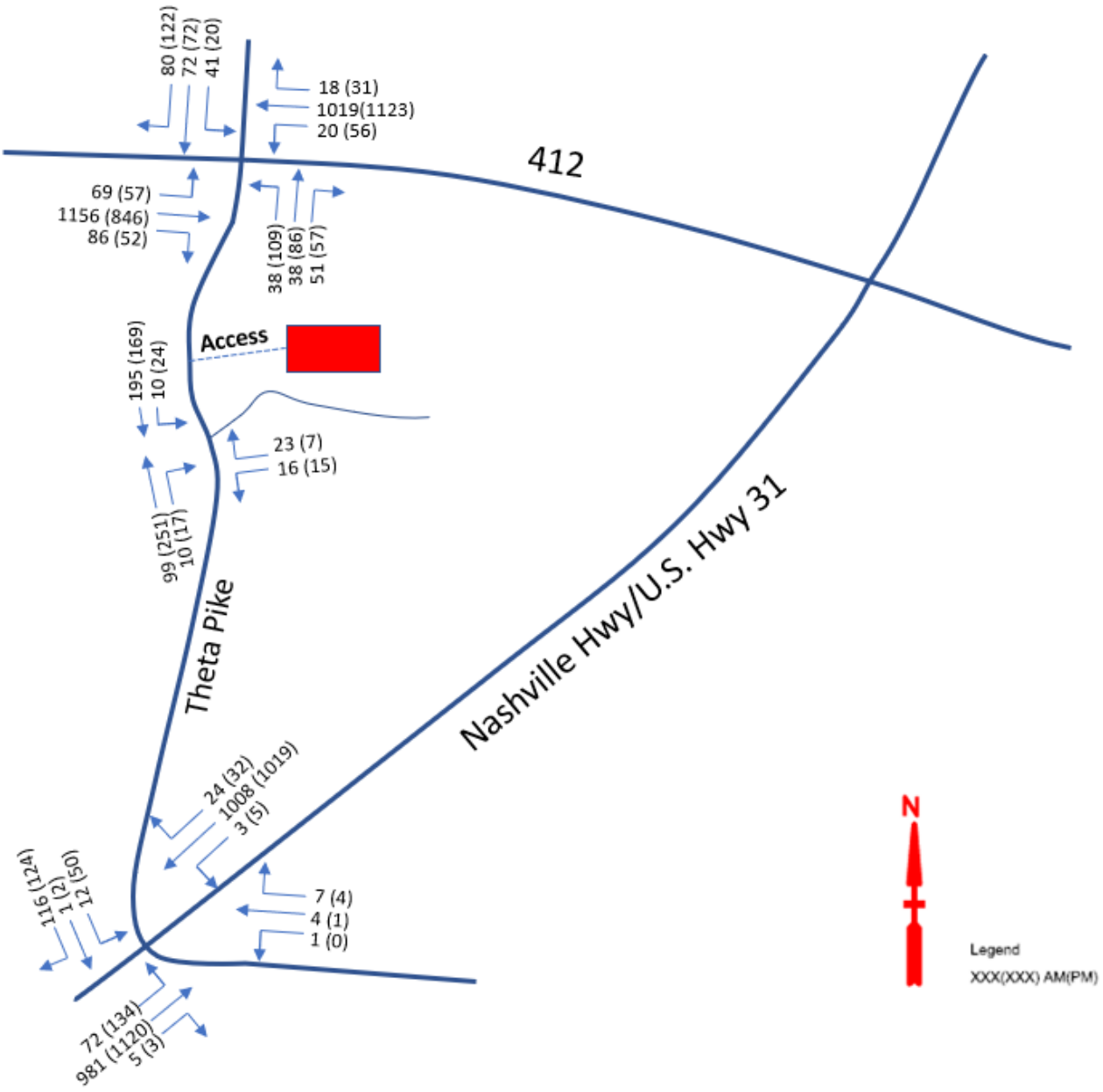


Figure 2 Existing Traffic Volumes

Background Traffic Volumes

Developing Historic Growth Rates

In order to account for the traffic growth prior to the completion of the proposed project, background traffic volumes were established. To develop the growth rate to be applied to the existing traffic volumes, historical daily traffic volumes were obtained from the TDOT count stations located on Highway 412/43, Theta Pike, and Nashville Highway in the vicinity of the project site. **Table 3** below shows the AADT for TDOT count Station. For these three-count station average linear growth rate from 2016 to 2021 is 4%. Through coordination with the City's traffic consultant and based on the historical count data, a 3.5% annual growth rate was used. Anticipated project build-out is 2024, so, percentage growth is calculated for 2-year period to represent the 2024 background traffic growth.

TABLE 3
TDOT COUNT STATION

TDOT Count Sta.60000043 Theta Pike		TDOT Count Sta. 60000202 New Lawrenceburg		TDOT Count Sta. 60000046 Nashville Hwy	
Year	**AADT**	**Year**	**AADT**	**Year**	**AADT**
2021	4,164	2021	32,654	2021	30,239
2020	3,809	2020	24,408	2020	27,741
2019	3,510	2019	24,166	2019	27,466
2018	3,060	2018	19,450	2018	26,893
2017	3,374	2017	28,345	2017	25,904
2016	3,440	2016	23,564	2016	26,101

There are two proposed developments, Theta Pike Cove & Taylor Landing, near the study area that is expected to affect the traffic volumes at the study intersections. Theta Pike Cove is a residential development of 162 townhome units. Taylor Landing, on the other hand, is a development consisting of 140 single family homes and 148 townhome units. For Taylor Landing, the traffic information provided by the city did not have trip distribution and assignment. The project team utilized the old distribution and assignment pattern to develop traffic for the updated trip generation. Traffic for both of these developments were included in the background growth. **Figure 3** shows the total background traffic volume for the study area which includes the 7% total ambient growth to account for the 2 years to buildout. The trip distribution and assignment figure for the approved developments are included in **Appendix D** for reference.

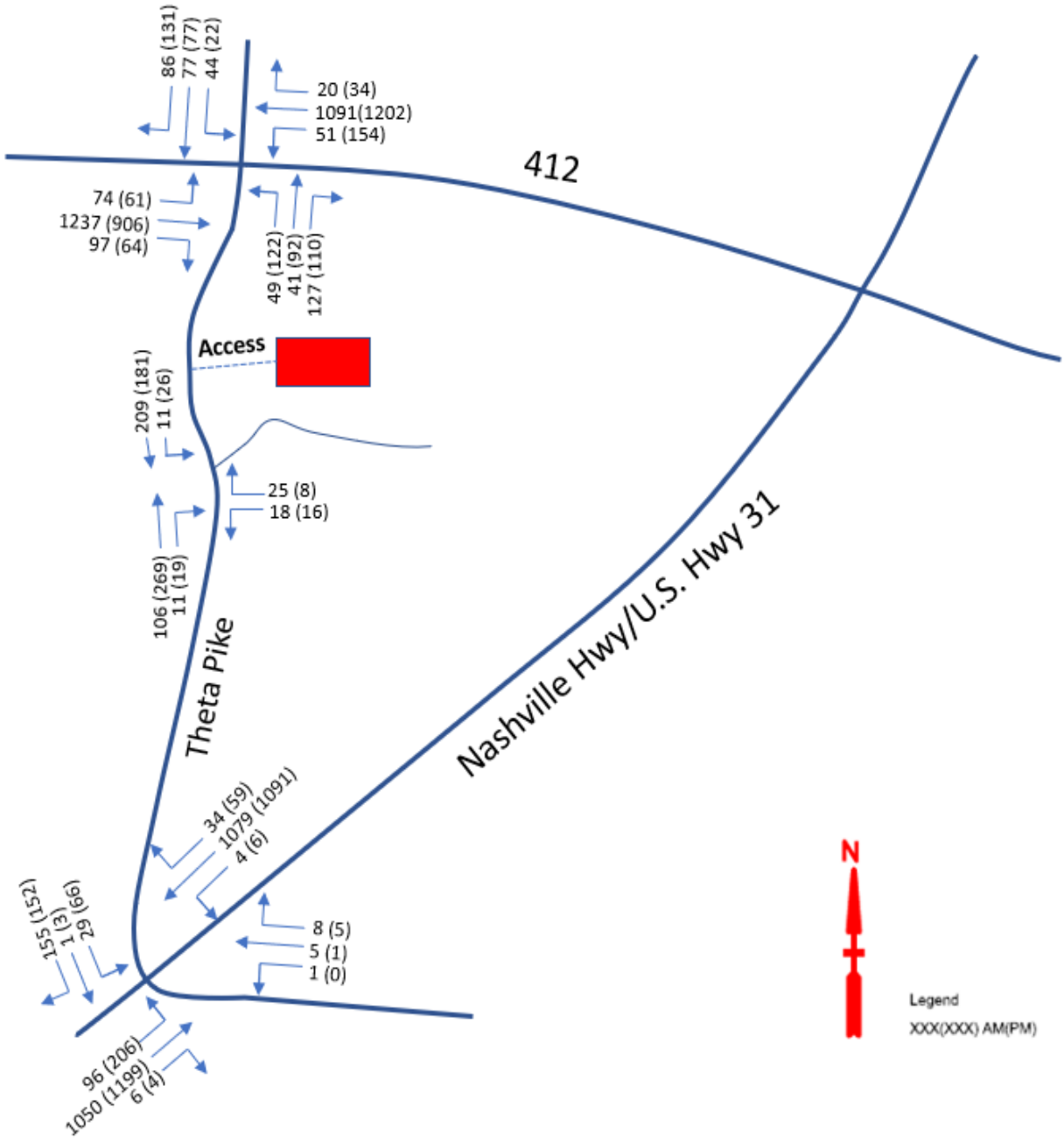


Figure 3 Background Traffic Volumes

Background Traffic Analysis

Using the background traffic volumes and the methodology outlined in the existing conditions, **Table 4** shows the results of the background traffic analysis. As shown, overall, all intersections in the study area are expected to operate at acceptable levels of service under background conditions similar to the existing condition. The LOS analysis reports are included in **Appendix C**.

TABLE 4
BACKGROUND LEVEL OF SERVICE

Intersection	Movement	AM Peak		PM Peak	
		LOS	Delay	LOS	Delay
Theta Pike and Highway 412/43	Eastbound Approach	C	22.6	C	27.4
	Westbound Approach	C	21.0	D	45.0
	Northbound Approach	D	54.1	D	41.1
	Southbound Approach	D	51.7	D	54.2
	Overall Intersection	**C**	***26.2***	**D**	***39.2***
Theta Pike and Nashville Highway	Eastbound Approach	A	9.8	B	10.8
	Westbound Approach	B	13.3	B	13.8
	Northbound Approach	C	30.1	C	31.2
	Southbound Approach	D	40.9	D	44.5
	Overall Intersection	**B**	***13.9***	***B***	***14.8***
Theta Pike and Timber Trail	Westbound Approach	A	9.9	B	11.9
	Southbound Left	A	7.5	A	7.9

Proposed Development Impacts

Development Trip Generation

The proposed new development is expected to generate vehicular trips that will use the roadway network in the study area. To determine the expected amount of traffic to be generated from the residential development, *ITE Trip Generation Manual*, 11th Edition was used to calculate the daily trips, AM Peak hour trips, and PM peak hour trips. **Table 5** lists the calculated trips for the proposed development. **Appendix E** includes the trip generation calculations.

TABLE 5
TRIP GENERATION FOR PROPOSED DEVELOPMENT

Trip Generation Table							
Land Use	**LUC**	**Size**	**Daily Trips**	**AM Peak Hour Trips**		**PM Peak Hour Trips**	
				Enter	**Exit**	**Enter**	**Exit**
Multifamily Housing (Low-Rise)	220	80 units	588	12	36	35	20

Trip Distribution and Traffic Assignment

The trips generated by the proposed development will be distributed and assigned to the roadway network within the study area. The trip distribution is based on the existing traffic flow and attractors in the area and regionally. It is assumed the new traffic created by the Mackenzie Place development will travel in the same pattern through the study area roadway network to and from the proposed development as the existing traffic, given it is the same general land use. **Figures 4 and 5** show the trip distribution and traffic assignment for the proposed residential uses.

To determine the total amount of traffic traveling through the study area in 2024 when the development is complete, the trip assignment was added to the total background traffic volumes. The resulting total proposed traffic volumes are shown in **Figure 6**.

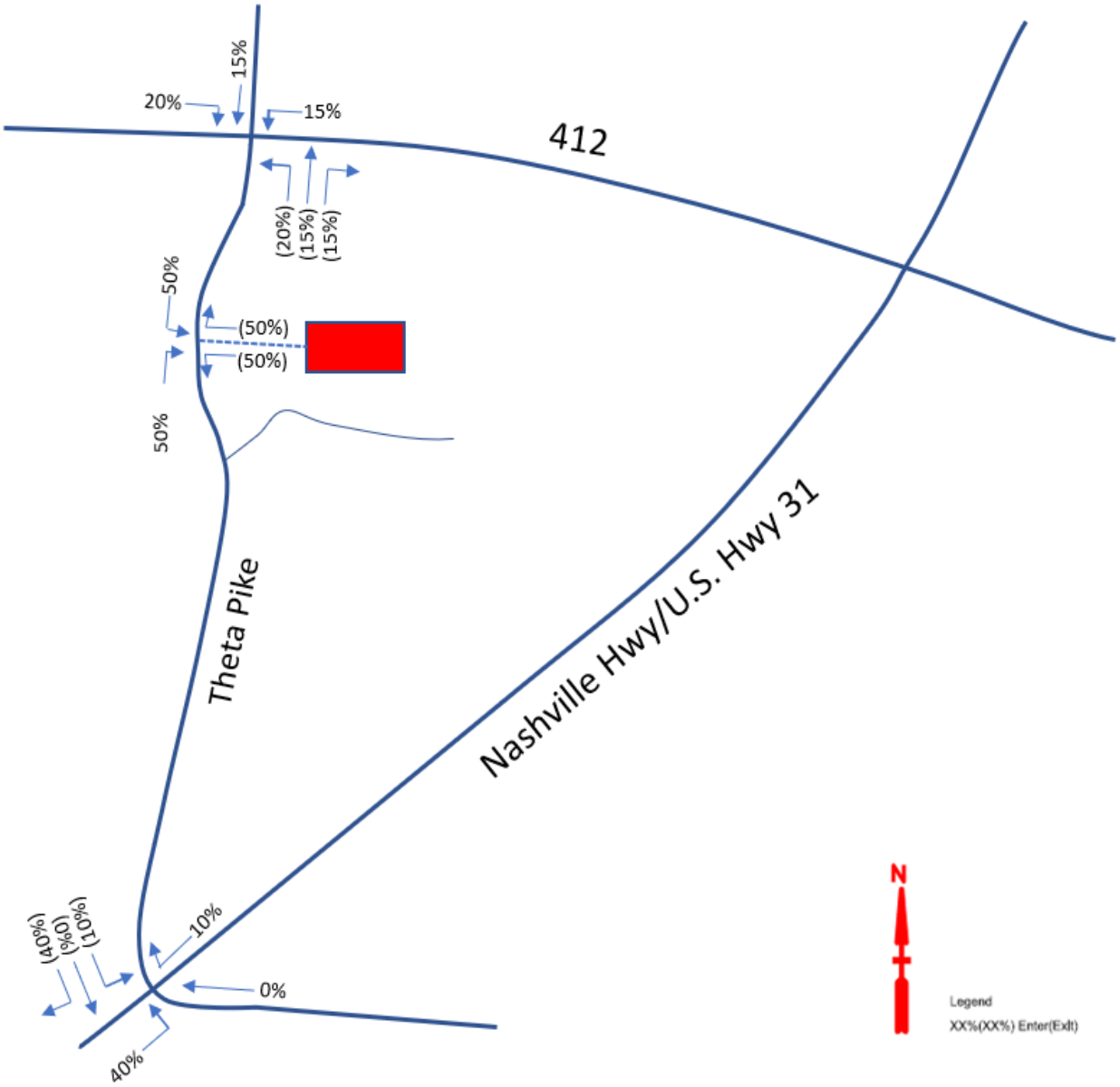


Figure 4 Peak Hour Traffic Distribution

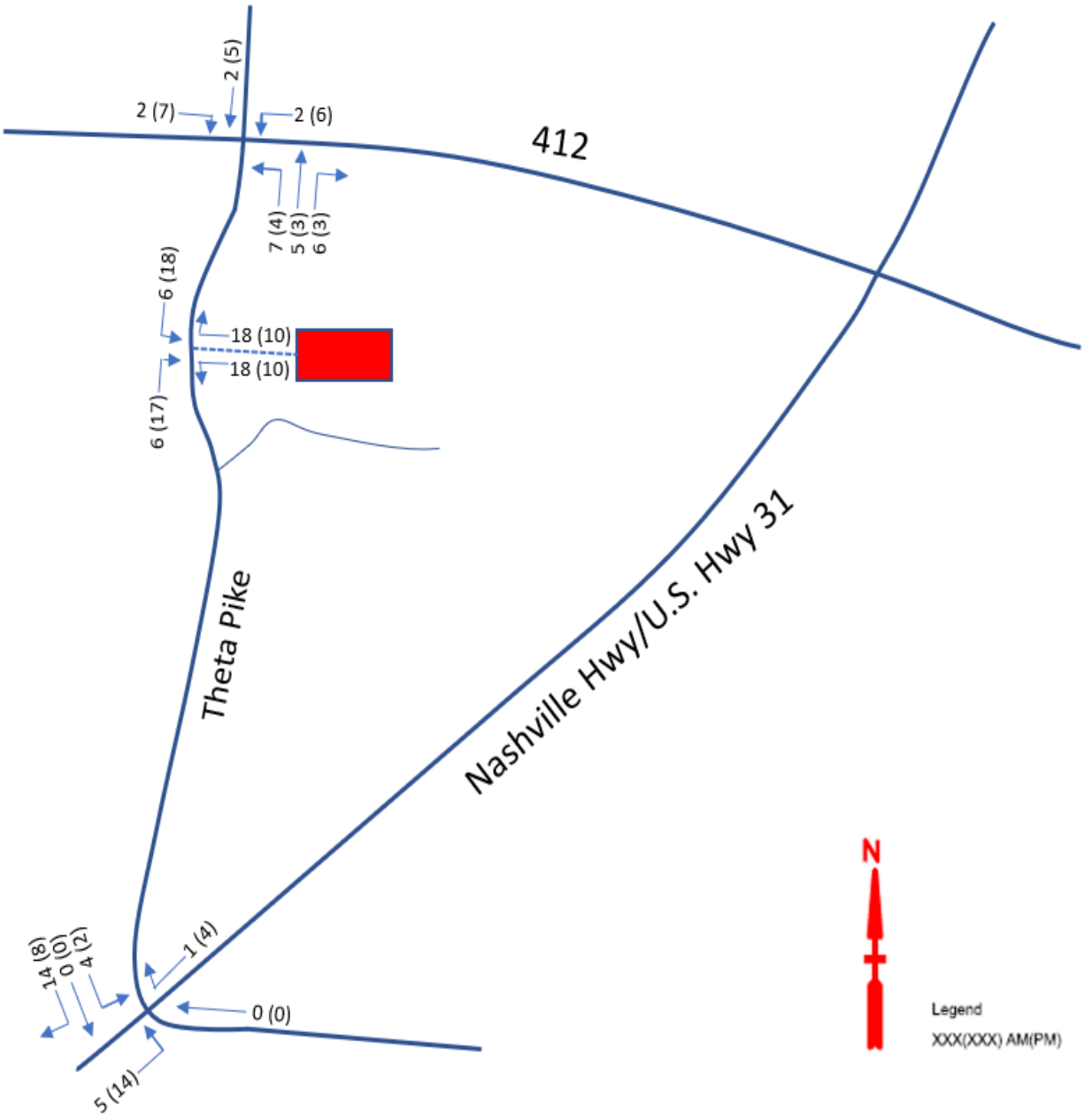


Figure 5 Peak Hour Traffic Assignment

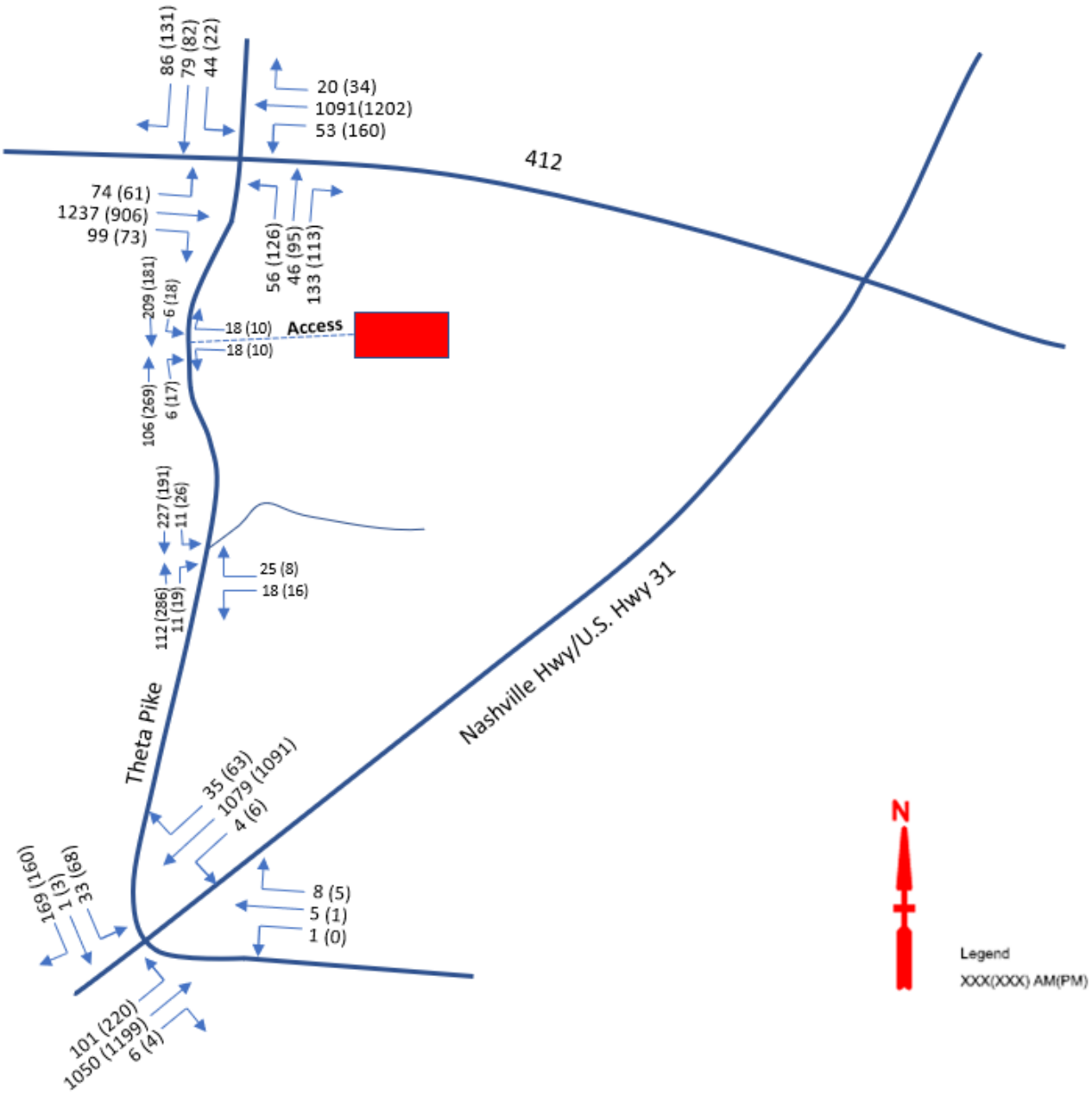


Figure 6 Total Projected Traffic Volumes Expected in Buildout Year

Future Traffic Analysis

Future traffic volumes were developed from the background traffic and proposed residential development. Capacity analyses were performed in order to determine the impact of the project on the study intersections. These capacity analyses were also used to evaluate the need for roadway and traffic control improvements at the intersections studied. For the analyses, the intersection configurations and signal timings were the same as the existing and background conditions. It was assumed the site access on Theta Pike will include one lane for entering traffic and two lanes for exiting traffic as shown in the site plan included in **Appendix A**.

Table 6 shows the resulting LOS for the intersections in the study area. According to the analysis under the projected conditions the capacity analyses indicate that the study intersections are expected to continue to operate at the same levels of service as under the background conditions with only slight increases in vehicular delay. All intersections are expected to continue to operate at acceptable levels of service. The LOS analysis reports are included in **Appendix C**.

TABLE 6
TOTAL PROJECTED LEVEL OF SERVICE

Intersection	Movement	AM Peak		PM Peak	
		LOS	Delay	LOS	Delay
Theta Pike and Highway 412/43	Eastbound Approach	C	23.5	C	27.9
	Westbound Approach	C	21.7	D	47.9
	Northbound Approach	D	54.8	D	41.3
	Southbound Approach	D	51.2	D	54.6
	Overall Intersection	**C**	***27.2***	**D**	***40.8***
Theta Pike and Nashville Highway	Eastbound Approach	B	10.6	B	11.6
	Westbound Approach	B	14.3	B	14.6
	Northbound Approach	C	29.1	C	30.8
	Southbound Approach	D	41.6	D	45.7
	Overall Intersection	**B**	***14.9***	***B***	***15.6***
Theta Pike and Timber Trail	Westbound Approach	B	10.1	B	12.2
	Southbound Left	A	7.5	A	8.0
Theta Pike and Project Access	Westbound Left	B	11.1	B	12.8
	Westbound Right	A	9.1	B	10.0
	Southbound Left	A	7.5	A	7.9

Analysis of Site Plan

Turn Lane Analysis

The site access point on Theta Pike was evaluated for the need to provide a left turn lane based on the projected traffic volumes. This analysis was based on the procedures outlined in M.D. Harmelink's *Volume Warrants for Left-Turn Storage Lanes at Unsignalized Intersections*. The result of this analysis indicates that a left turn lane is not warranted by the projected traffic volumes at the study intersection. Details of the Harmelink analyses are included in **Appendix F**.

The site access point on Theta Pike was also evaluated for the need to provide a right turn lane based on the projected traffic volumes. According to the Intersection Channelization Design Guide (NCHRP 279), a full width right turn lane is not warranted at the site access point based on the projected peak hour traffic volumes. The right turn lane analysis is included in **Appendix F**.

Access Sight Distance

As previously mentioned, access to the proposed development will be provided by a single driveway on Theta Pike. Field investigations and sight distance measurements were conducted to determine if adequate sight distance would be available for motorists exiting the project site onto Theta Pike from the site access based on the current site plan. For a 35-mph speed, as posted on Theta Pike, the guidelines from *A Policy on Geometric Design of Highways and Streets*, by the American Association of State Highway and Transportation Officials (AASHTO), call for a minimum stopping sight distance of 250 feet as a design value. This is the distance required for a motorist to detect an object in the roadway necessitating a stop and be able to stop before reaching the object.

Subsequently, AASHTO also provides minimum design values for intersection sight distance. The intersection sight distance allows enough time gap for a motorist to turn from the site access onto Theta Pike without requiring a motorist on Theta Pike to significantly reduce speed. For a speed of 35 mph, the design value for intersection sight distance for a motorist turning left from a stop (Case B1) onto a two-lane roadway such as Theta Pike is 390 feet and for a motorist turning right from a stop (Case B2) is 335 feet.

The field investigations indicate that the sight distance available at the proposed intersection of the site access and Theta Pike will be more than adequate to the north of the access. However, intersection sight distance to the south of the access, for right turning vehicle, was measured at approximately 275 feet which falls below the required intersection sight distance. Currently, a "Theta Pike Residential" sign and trees are a hindrance for right-turning movement and limiting the available sight distance.

Construction of the site access should be completed such that a minimum of 390 feet of intersection sight distance is provided to the north for a left turn from the site access onto Theta Pike. In addition, a minimum of 335 feet of intersection sight distance should be provided to the south for a right turn from the site access onto Theta Pike.

Intersection Sight Distance for Right-Turning Vehicle: Existing Condition

Conclusions and Recommendations

The proposed Mackenzie Place development is located to the south of Hwy 412/43 and on the east side of Theta Pike in Columbia, Tennessee. According to the site engineer, the proposed development consists of approximately 80 multi-family dwelling units. The analyses presented in this study indicate that the impacts of the proposed project on the existing street network will be manageable by providing the recommendations below. These specific recommendations will provide safe and efficient traffic operations within the study area following the completion of the proposed project.

- The traffic operations in the study area for the Future Traffic Analysis are expected to continue to operate at the level currently being experienced or at the level of operation expected with the background traffic. To conclude, proposed development will have minimal impact on the nearby intersections thus requiring no improvement in terms of traffic signal and intersection geometry.

- The proposed site access should be designed such that the departure sight triangles, as specified by AASHTO and detailed in this study, will be clear of all sight obstructions, including landscaping, existing vegetation, monument signs/walls, fences, etc.

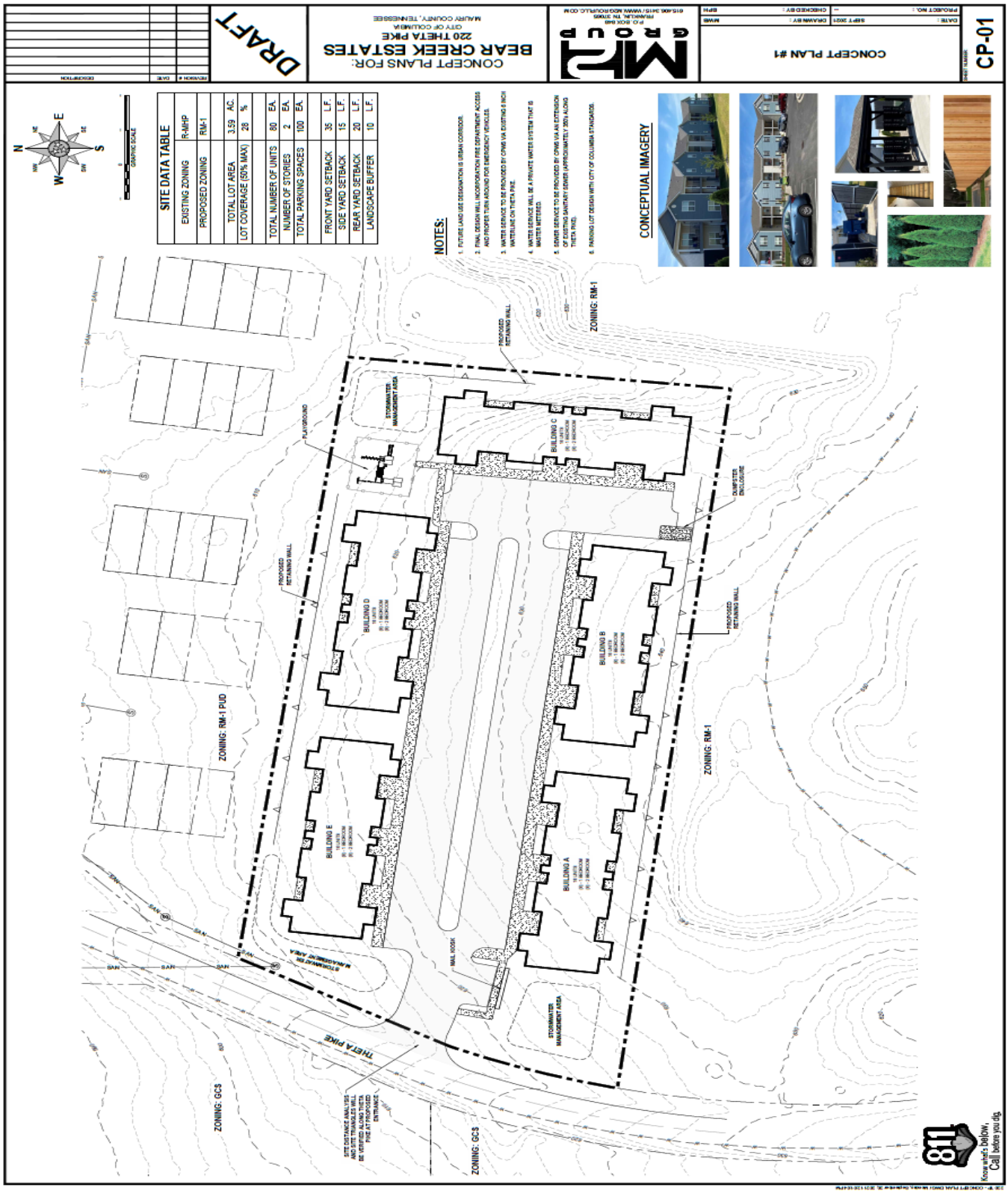
- The proposed site access on Theta Pike should be designed to include sufficient width for one entering lane and two exiting lanes as shown in the proposed site plan. This access should be stop controlled on the westbound approach for traffic exiting the site. STOP sign installation should be done based on TDOT sign guidelines.

- All intersection and roadway signing and pavement markings should be completed according to the Manual on Uniform Traffic Control Devices (MUTCD).

Appendix

A. Site Plan
B. Traffic Counts
C. Level of Service (LOS) Reports –
    Existing
    Background
    Projected
D. Background Traffic Data
E. Trip Generation
F. Turn Lane Analysis

A. Site Plan


DRAFT
CONCEPT PLANS FOR:
BEAR CREEK ESTATES
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE
M2 GROUP
CONCEPT PLAN #1
CP-01
SITE DATA TABLE
EXISTING ZONING R-MHP
PROPOSED ZONING RM-1
TOTAL LOT AREA 3.59 AC.
LOT COVERAGE (50% MAX) 28 %
TOTAL NUMBER OF UNITS 80 EA.
NUMBER OF STORIES 2 EA.
TOTAL PARKING SPACES 100 EA.
FRONT YARD SETBACK 35 L.F.
SIDE YARD SETBACK 15 L.F.
REAR YARD SETBACK 20 L.F.
LANDSCAPE BUFFER 10 L.F.
NOTES:
CONCEPTUAL IMAGERY
ZONING: RM-1
ZONING: RM-1 PUD
ZONING: GCS
THETA PIKE
BUILDING A
BUILDING B
BUILDING C
BUILDING D
BUILDING E
PROPOSED RETAINING WALL
STORMWATER MANAGEMENT AREA
PLAYGROUND
DUMPSTER ENCLOSURE
811
Know what's below. Call before you dig.

B. Traffic Counts

Peak Hour Turning Movement Count

Bear Creek Estates

Click here for Map

Marr Traffic DATA COLLECTION

www.marrtraffic.com

Tuesday, February 22, 2022	
Period	0600 - 0900
Peak Hour	0715 - 0815

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0715 - 0730	10	8	5	0	23	12	13	24	0	49	17	321	17	0	355	6	235	1	0	242	669
0730 - 0745	16	8	15	0	39	10	22	17	0	49	25	301	20	0	346	10	295	5	0	310	744
0745 - 0800	6	13	14	0	33	13	27	29	0	69	19	304	35	0	358	11	232	7	0	250	710
0800 - 0815	6	9	17	0	32	6	10	10	0	26	8	230	14	1	253	20	257	5	0	282	593
Total	38	38	51	0	127	41	72	80	0	193	69	1156	86	1	1312	47	1019	18	0	1084	2716
Approach %	29.92	29.92	40.16	0.00	-	21.24	37.31	41.45	0.00	-	5.26	88.11	6.55	0.08	-	4.34	94.00	1.66	0.00	-	
PHF	0.59	0.73	0.75	0.00	**0.81**	0.79	0.67	0.69	0.00	**0.70**	0.69	0.90	0.61	0.25	**0.92**	0.59	0.86	0.64	0.00	**0.87**	**0.91**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0715 - 0730	10	7	4	0	21	12	13	23	0	48	17	306	16	0	339	6	215	1	0	222	630
0730 - 0745	16	8	15	0	39	8	22	17	0	47	25	280	20	0	325	10	265	5	0	280	691
0745 - 0800	6	13	14	0	33	12	27	28	0	67	19	287	34	0	340	11	209	7	0	227	667
0800 - 0815	5	9	17	0	31	6	10	10	0	26	7	213	13	1	234	20	222	4	0	246	537
Total	37	37	50	0	124	38	72	78	0	188	68	1086	83	1	1238	47	911	17	0	975	2525
Approach %	29.84	29.84	40.32	0.00	-	20.21	38.30	41.49	0.00	-	5.49	87.72	6.70	0.08	-	4.82	93.44	1.74	0.00	-	
PHF	0.58	0.71	0.74	0.00	**0.79**	0.79	0.67	0.70	0.00	**0.70**	0.68	0.89	0.61	0.25	**0.91**	0.59	0.86	0.61	0.00	**0.87**	**0.91**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0715 - 0730	0	1	1	0	2	0	0	1	0	1	0	4	0	0	4	0	10	0	0	10	17
0730 - 0745	0	0	0	0	0	2	0	0	0	2	0	14	0	0	14	0	16	0	0	16	32
0745 - 0800	0	0	0	0	0	1	0	1	0	2	0	8	1	0	9	0	14	0	0	14	25
0800 - 0815	1	0	0	0	1	0	0	0	0	0	1	11	1	0	13	0	24	1	0	25	39
Total	1	1	1	0	3	3	0	2	0	5	1	37	2	0	40	0	64	1	0	65	113
Approach %	33.33	33.33	33.33	0.00	-	60.00	0.00	40.00	0.00	-	2.50	92.50	5.00	0.00	-	0.00	98.46	1.54	0.00	-	
PHF	0.25	0.25	0.25	0.00	**0.38**	0.38	0.00	0.50	0.00	**0.63**	0.25	0.66	0.50	0.00	**0.71**	0.00	0.67	0.25	0.00	**0.65**	**0.72**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0715 - 0730	0	0	0	0	0	0	0	0	0	0	0	11	1	0	12	0	10	0	0	10	22
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	14	0	0	14	21
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	9	0	0	9	18
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0	11	0	0	11	17
Total	0	0	0	0	0	0	0	0	0	0	0	33	1	0	34	0	44	0	0	44	78
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	97.06	2.94	0.00	-	0.00	100.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.75	0.25	0.00	**0.71**	0.00	0.79	0.00	0.00	**0.79**	**0.89**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0715 - 0730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Pedestrians

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	EB	WB			App	EB	WB			App	NB	SB			App	NB	SB			App	Int
Time	1a	1b			Total	1c	1d			Total	1e	1f			Total	1g	1h			Total	Total
0715 - 0730	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0730 - 0745	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0745 - 0800	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0800 - 0815	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Peak Hour Turning Movement Count

Bear Creek Estates

Click here for Map

Marr Traffic DATA COLLECTION

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Tuesday, February 22, 2022	
Period	1500 - 1800
Peak Hour	1615 - 1715

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1615 - 1630	34	23	22	0	79	5	25	44	0	74	14	203	10	0	227	11	267	5	0	283	663
1630 - 1645	33	16	12	0	61	2	15	27	0	44	10	242	16	0	268	15	320	6	0	341	714
1645 - 1700	20	17	10	0	47	6	19	32	0	57	15	205	13	1	234	15	268	8	0	291	629
1700 - 1715	22	30	13	0	65	7	13	19	0	39	18	196	13	0	227	15	268	12	0	295	626
Total	109	86	57	0	252	20	72	122	0	214	57	846	52	1	956	56	1123	31	0	1210	2632
Approach %	43.25	34.13	22.62	0.00	-	9.35	33.64	57.01	0.00	-	5.96	88.49	5.44	0.10	-	4.63	92.81	2.56	0.00	-	
PHF	0.80	0.72	0.65	0.00	**0.80**	0.71	0.72	0.69	0.00	**0.72**	0.79	0.87	0.81	0.25	**0.89**	0.93	0.88	0.65	0.00	**0.89**	**0.92**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1615 - 1630	33	23	22	0	78	5	25	44	0	74	14	195	10	0	219	10	255	5	0	270	641
1630 - 1645	33	16	12	0	61	2	14	27	0	43	10	233	16	0	259	14	309	6	0	329	692
1645 - 1700	20	17	10	0	47	6	19	32	0	57	15	187	13	1	216	15	265	8	0	288	608
1700 - 1715	22	30	13	0	65	7	12	19	0	38	18	185	13	0	216	15	260	12	0	287	606
Total	108	86	57	0	251	20	70	122	0	212	57	800	52	1	910	54	1089	31	0	1174	2547
Approach %	43.03	34.26	22.71	0.00	-	9.43	33.02	57.55	0.00	-	6.26	87.91	5.71	0.11	-	4.60	92.76	2.64	0.00	-	
PHF	0.82	0.72	0.65	0.00	**0.80**	0.71	0.70	0.69	0.00	**0.72**	0.79	0.86	0.81	0.25	**0.88**	0.90	0.88	0.65	0.00	**0.89**	**0.92**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1615 - 1630	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	1	7	0	0	8	11
1630 - 1645	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	1	6	0	0	7	11
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	3	0	0	3	7
1700 - 1715	0	0	0	0	0	0	1	0	0	1	0	5	0	0	5	0	4	0	0	4	10
Total	1	0	0	0	1	0	2	0	0	2	0	14	0	0	14	2	20	0	0	22	39
Approach %	100.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	9.09	90.91	0.00	0.00	-	
PHF	0.25	0.00	0.00	0.00	**0.25**	0.00	0.50	0.00	0.00	**0.50**	0.00	0.70	0.00	0.00	**0.70**	0.50	0.71	0.00	0.00	**0.69**	**0.89**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1615 - 1630	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0	5	0	0	5	11
1630 - 1645	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0	5	0	0	5	11
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	14
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0	4	0	0	4	10
Total	0	0	0	0	0	0	0	0	0	0	0	32	0	0	32	0	14	0	0	14	46
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.57	0.00	0.00	**0.57**	0.00	0.70	0.00	0.00	**0.70**	**0.82**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1615 - 1630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1630 - 1645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Pedestrians

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	EB	WB			App	EB	WB			App	NB	SB			App	NB	SB			App	Int
Time	1a	1b			Total	1c	1d			Total	1e	1f			Total	1g	1h			Total	Total
1615 - 1630	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1630 - 1645	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1645 - 1700	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1700 - 1715	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION

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Bear Creek Estates

Site 1 of 3
Theta Pike (South)
Theta Pike (North)
TN-6 (West)
TN-6 (East)

Date
Tuesday, February 22, 2022

Lat/Long
35.637331°, -87.027785°

Weather
Cloudy
65°F

0600 - 0900 (Weekday 3h Session) (02-22-2022)

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0600 - 0615	3	3	5	0	11	3	4	3	0	10	7	248	3	0	258	3	98	2	0	103	382
0615 - 0630	3	2	9	0	14	3	5	6	0	14	7	322	3	0	332	1	162	2	0	165	525
0630 - 0645	5	4	12	0	21	4	7	9	0	20	10	291	7	0	308	0	171	3	1	175	524
0645 - 0700	9	3	11	0	23	2	12	14	0	28	9	281	8	0	298	3	179	4	0	186	535
Hourly Total	20	12	37	0	**69**	12	28	32	0	**72**	33	1142	21	0	**1196**	7	610	11	1	**629**	**1966**
0700 - 0715	11	6	7	0	24	9	11	14	0	34	12	258	10	0	280	5	220	7	0	232	570
0715 - 0730	10	8	5	0	23	12	13	24	0	49	17	321	17	0	355	6	235	1	0	242	669
0730 - 0745	16	8	15	0	39	10	22	17	0	49	25	301	20	0	346	10	295	5	0	310	744
0745 - 0800	6	13	14	0	33	13	27	29	0	69	19	304	35	0	358	11	232	7	0	250	710
Hourly Total	43	35	41	0	**119**	44	73	84	0	**201**	73	1184	82	0	**1339**	32	982	20	0	**1034**	**2693**
0800 - 0815	6	9	17	0	32	6	10	10	0	26	8	230	14	1	253	20	257	5	0	282	593
0815 - 0830	6	9	13	0	28	3	12	15	0	30	8	253	17	0	278	13	178	4	0	195	531
0830 - 0845	11	10	17	0	38	3	11	7	0	21	9	196	15	0	220	11	178	0	0	189	468
0845 - 0900	7	5	8	0	20	5	19	10	0	34	7	202	21	0	230	10	174	7	1	192	476
Hourly Total	30	33	55	0	**118**	17	52	42	0	**111**	32	881	67	1	**981**	54	787	16	1	**858**	**2068**
Grand Total	93	80	133	0	**306**	73	153	158	0	**384**	138	3207	170	1	**3516**	93	2379	47	2	**2521**	**6727**
Approach %	30.39	26.14	43.46	0.00	-	19.01	39.84	41.15	0.00	-	3.92	91.21	4.84	0.03	-	3.69	94.37	1.86	0.08	-	
Intersection %	1.38	1.19	1.98	0.00	4.55	1.09	2.27	2.35	0.00	5.71	2.05	47.67	2.53	0.01	52.27	1.38	35.36	0.70	0.03	37.48	
PHF	0.59	0.73	0.75	0.00	**0.81**	0.79	0.67	0.69	0.00	**0.70**	0.69	0.90	0.61	0.25	**0.92**	0.59	0.86	0.64	0.00	**0.87**	**0.91**

1500 - 1800 (Weekday 3h Session) (02-22-2022)

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					TN-6 (West)					TN-6 (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1500 - 1515	21	23	11	0	55	12	15	23	0	50	31	275	21	0	327	17	224	9	0	250	682
1515 - 1530	26	29	13	0	68	13	23	22	0	58	42	258	22	1	323	13	223	16	0	252	701
1530 - 1545	20	32	19	0	71	4	11	15	0	30	33	243	20	0	296	19	244	7	0	270	667
1545 - 1600	29	26	13	0	68	3	12	21	0	36	10	177	15	1	203	6	236	3	2	247	554
Hourly Total	96	110	56	0	**262**	32	61	81	0	**174**	116	953	78	2	**1149**	55	927	35	2	**1019**	**2604**
1600 - 1615	26	21	12	0	59	8	25	31	0	64	14	167	9	0	190	13	286	7	1	307	620
1615 - 1630	34	23	22	0	79	5	25	44	0	74	14	203	10	0	227	11	267	5	0	283	663
1630 - 1645	33	16	12	0	61	2	15	27	0	44	10	242	16	0	268	15	320	6	0	341	714
1645 - 1700	20	17	10	0	47	6	19	32	0	57	15	205	13	1	234	15	268	8	0	291	629
Hourly Total	113	77	56	0	**246**	21	84	134	0	**239**	53	817	48	1	**919**	54	1141	26	1	**1222**	**2626**
1700 - 1715	22	30	13	0	65	7	13	19	0	39	18	196	13	0	227	15	268	12	0	295	626
1715 - 1730	22	20	10	0	52	5	24	25	0	54	9	195	14	0	218	7	256	5	0	268	592
1730 - 1745	13	27	7	0	47	9	13	18	0	40	17	148	11	0	176	12	238	8	0	258	521
1745 - 1800	16	22	5	0	43	5	10	14	0	29	9	140	14	0	163	11	179	13	0	203	438
Hourly Total	73	99	35	0	**207**	26	60	76	0	**162**	53	679	52	0	**784**	45	941	38	0	**1024**	**2177**
Grand Total	282	286	147	0	**715**	79	205	291	0	**575**	222	2449	178	3	**2852**	154	3009	99	3	**3265**	**7407**
Approach %	39.44	40.00	20.56	0.00	-	13.74	35.65	50.61	0.00	-	7.78	85.87	6.24	0.11	-	4.72	92.16	3.03	0.09	-	
Intersection %	3.81	3.86	1.98	0.00	9.65	1.07	2.77	3.93	0.00	7.76	3.00	33.06	2.40	0.04	38.50	2.08	40.62	1.34	0.04	44.08	
PHF	0.80	0.72	0.65	0.00	**0.80**	0.71	0.72	0.69	0.00	**0.72**	0.79	0.87	0.81	0.25	**0.89**	0.93	0.88	0.65	0.00	**0.89**	**0.92**

Peak Hour Turning Movement Count

Bear Creek Estates

Click here for Map

Marr Traffic DATA COLLECTION

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Tuesday, February 22, 2022	
Period	0600 - 0900
Peak Hour	0715 - 0815

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
	Left	Thru	Right		App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	2.1	2.2	2.3		Total	2.4	2.5	2.6	2.7	Total	2.8	2.9	2.10	2.11	Total	2.12	2.13	2.14	2.15	Total	Total
0715 - 0730	0	1	2	-	3	3	0	28	0	31	9	242	3	0	254	1	213	6	0	220	508
0730 - 0745	0	2	3	-	5	0	0	31	0	31	16	239	1	0	256	1	268	6	0	275	567
0745 - 0800	1	0	0	-	1	5	1	36	0	42	27	293	1	0	321	0	285	11	0	296	660
0800 - 0815	0	1	2	-	3	4	0	21	0	25	20	207	0	0	227	1	242	1	0	244	499
Total	1	4	7	0	12	12	1	116	0	129	72	981	5	0	1058	3	1008	24	0	1035	2234
Approach %	8.33	33.33	58.33	0.00	-	9.30	0.78	89.92	0.00	-	6.81	92.72	0.47	0.00	-	0.29	97.39	2.32	0.00	-	
PHF	0.25	0.50	0.58	0.00	**0.60**	0.60	0.25	0.81	0.00	**0.77**	0.67	0.84	0.42	0.00	**0.82**	0.75	0.88	0.55	0.00	**0.87**	**0.85**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
	Left	Thru	Right		App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	2.1	2.2	2.3		Total	2.4	2.5	2.6	2.7	Total	2.8	2.9	2.10	2.11	Total	2.12	2.13	2.14	2.15	Total	Total
0715 - 0730	0	1	2	-	3	2	0	28	0	30	8	232	3	0	243	1	207	5	0	213	489
0730 - 0745	0	2	3	-	5	0	0	30	0	30	16	231	1	0	248	1	262	6	0	269	552
0745 - 0800	1	0	0	-	1	5	1	36	0	42	27	281	1	0	309	0	278	11	0	289	641
0800 - 0815	0	1	2	-	3	4	0	21	0	25	19	198	0	0	217	1	229	1	0	231	476
Total	1	4	7	0	12	11	1	115	0	127	70	942	5	0	1017	3	976	23	0	1002	2158
Approach %	8.33	33.33	58.33	0.00	-	8.66	0.79	90.55	0.00	-	6.88	92.63	0.49	0.00	-	0.30	97.41	2.30	0.00	-	
PHF	0.25	0.50	0.58	0.00	**0.60**	0.55	0.25	0.80	0.00	**0.76**	0.65	0.84	0.42	0.00	**0.82**	0.75	0.88	0.52	0.00	**0.87**	**0.84**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
	Left	Thru	Right		App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	2.1	2.2	2.3		Total	2.4	2.5	2.6	2.7	Total	2.8	2.9	2.10	2.11	Total	2.12	2.13	2.14	2.15	Total	Total
0715 - 0730	0	0	0	-	0	0	0	0	0	0	1	8	0	0	9	0	5	1	0	6	15
0730 - 0745	0	0	0	-	0	0	0	1	0	1	0	5	0	0	5	0	5	0	0	5	11
0745 - 0800	0	0	0	-	0	0	0	0	0	0	0	11	0	0	11	0	5	0	0	5	16
0800 - 0815	0	0	0	-	0	0	0	0	0	0	1	8	0	0	9	0	8	0	0	8	17
Total	0	0	0	0	0	0	0	1	0	1	2	32	0	0	34	0	23	1	0	24	59
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	100.00	0.00	-	5.88	94.12	0.00	0.00	-	0.00	95.83	4.17	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.25	0.00	**0.25**	0.50	0.73	0.00	0.00	**0.77**	0.00	0.72	0.25	0.00	**0.75**	**0.87**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
	Left	Thru	Right		App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	2.1	2.2	2.3		Total	2.4	2.5	2.6	2.7	Total	2.8	2.9	2.10	2.11	Total	2.12	2.13	2.14	2.15	Total	Total
0715 - 0730	0	0	0	-	0	1	0	0	0	1	0	2	0	0	2	0	1	0	0	1	4
0730 - 0745	0	0	0	-	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4
0745 - 0800	0	0	0	-	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3
0800 - 0815	0	0	0	-	0	0	0	0	0	0	0	1	0	0	1	0	5	0	0	5	6
Total	0	0	0	0	0	1	0	0	0	1	0	7	0	0	7	0	9	0	0	9	17
Approach %	0.00	0.00	0.00	0.00	-	100.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.25	0.00	0.00	0.00	**0.25**	0.00	0.58	0.00	0.00	**0.58**	0.00	0.45	0.00	0.00	**0.45**	**0.71**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
	Left	Thru	Right		App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	2.1	2.2	2.3		Total	2.4	2.5	2.6	2.7	Total	2.8	2.9	2.10	2.11	Total	2.12	2.13	2.14	2.15	Total	Total
0715 - 0730	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0730 - 0745	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0815	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Pedestrians

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
	EB	WB			App	EB	WB			App	NB	SB			App	NB	SB			App	Int
Time	2a	2b			Total	2c	2d			Total	2e	2f			Total	2g	2h			Total	Total
0715 - 0730	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0730 - 0745	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0745 - 0800	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0800 - 0815	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Peak Hour Turning Movement Count

Bear Creek Estates

Click here for Map

Marr Traffic DATA COLLECTION

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Tuesday, February 22, 2022	
Period	1500 - 1800
Peak Hour	1500 - 1600

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
Time	Left 2.1	Thru 2.2	Right 2.3		App Total	Left 2.4	Thru 2.5	Right 2.6	U-Turn 2.7	App Total	Left 2.8	Thru 2.9	Right 2.10	U-Turn 2.11	App Total	Left 2.12	Thru 2.13	Right 2.14	U-Turn 2.15	App Total	Int Total
1500 - 1515	0	1	1	-	2	9	0	40	0	49	33	307	1	1	342	0	282	10	2	294	687
1515 - 1530	0	0	3	-	3	13	0	34	0	47	38	305	2	1	346	3	264	7	1	275	671
1530 - 1545	0	0	0	-	0	12	1	23	0	36	31	262	0	0	293	1	248	8	2	259	588
1545 - 1600	0	0	0	-	0	16	1	27	0	44	32	246	0	1	279	1	225	7	1	234	557
Total	0	1	4	0	5	50	2	124	0	176	134	1120	3	3	1260	5	1019	32	6	1062	2503
Approach %	0.00	20.00	80.00	0.00	-	28.41	1.14	70.45	0.00	-	10.63	88.89	0.24	0.24	-	0.47	95.95	3.01	0.56	-	
PHF	0.00	0.25	0.33	0.00	**0.42**	0.78	0.50	0.78	0.00	**0.90**	0.88	0.91	0.38	0.75	**0.91**	0.42	0.90	0.80	0.75	**0.90**	**0.91**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
Time	Left 2.1	Thru 2.2	Right 2.3		App Total	Left 2.4	Thru 2.5	Right 2.6	U-Turn 2.7	App Total	Left 2.8	Thru 2.9	Right 2.10	U-Turn 2.11	App Total	Left 2.12	Thru 2.13	Right 2.14	U-Turn 2.15	App Total	Int Total
1500 - 1515	0	1	1	-	2	9	0	39	0	48	33	301	1	1	336	0	277	10	2	289	675
1515 - 1530	0	0	3	-	3	13	0	34	0	47	38	297	2	1	338	3	257	7	1	268	656
1530 - 1545	0	0	0	-	0	12	1	23	0	36	31	260	0	0	291	1	239	8	2	250	577
1545 - 1600	0	0	0	-	0	16	1	27	0	44	32	244	0	1	277	1	224	7	1	233	554
Total	0	1	4	0	5	50	2	123	0	175	134	1102	3	3	1242	5	997	32	6	1040	2462
Approach %	0.00	20.00	80.00	0.00	-	28.57	1.14	70.29	0.00	-	10.79	88.73	0.24	0.24	-	0.48	95.87	3.08	0.58	-	
PHF	0.00	0.25	0.33	0.00	**0.42**	0.78	0.50	0.79	0.00	**0.91**	0.88	0.92	0.38	0.75	**0.92**	0.42	0.90	0.80	0.75	**0.90**	**0.91**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
Time	Left 2.1	Thru 2.2	Right 2.3		App Total	Left 2.4	Thru 2.5	Right 2.6	U-Turn 2.7	App Total	Left 2.8	Thru 2.9	Right 2.10	U-Turn 2.11	App Total	Left 2.12	Thru 2.13	Right 2.14	U-Turn 2.15	App Total	Int Total
1500 - 1515	0	0	0	-	0	0	0	1	0	1	0	3	0	0	3	0	4	0	0	4	8
1515 - 1530	0	0	0	-	0	0	0	0	0	0	0	7	0	0	7	0	6	0	0	6	13
1530 - 1545	0	0	0	-	0	0	0	0	0	0	0	2	0	0	2	0	9	0	0	9	11
1545 - 1600	0	0	0	-	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	3
Total	0	0	0	0	0	0	0	1	0	1	0	14	0	0	14	0	20	0	0	20	35
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	100.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.25	0.00	**0.25**	0.00	0.50	0.00	0.00	**0.50**	0.00	0.56	0.00	0.00	**0.56**	**0.67**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
Time	Left 2.1	Thru 2.2	Right 2.3		App Total	Left 2.4	Thru 2.5	Right 2.6	U-Turn 2.7	App Total	Left 2.8	Thru 2.9	Right 2.10	U-Turn 2.11	App Total	Left 2.12	Thru 2.13	Right 2.14	U-Turn 2.15	App Total	Int Total
1500 - 1515	0	0	0	-	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4
1515 - 1530	0	0	0	-	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
1530 - 1545	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1545 - 1600	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	2	0	0	2	6
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.33	0.00	0.00	**0.33**	0.00	0.50	0.00	0.00	**0.50**	**0.38**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
Time	Left 2.1	Thru 2.2	Right 2.3		App Total	Left 2.4	Thru 2.5	Right 2.6	U-Turn 2.7	App Total	Left 2.8	Thru 2.9	Right 2.10	U-Turn 2.11	App Total	Left 2.12	Thru 2.13	Right 2.14	U-Turn 2.15	App Total	Int Total
1500 - 1515	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1515 - 1530	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1530 - 1545	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1545 - 1600	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Pedestrians

	Northbound					Southbound					Eastbound					Westbound					
	8th Ave					Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
Time	EB 2a	WB 2b			App Total	EB 2c	WB 2d			App Total	NB 2e	SB 2f			App Total	NB 2g	SB 2h			App Total	Int Total
1500 - 1515	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1515 - 1530	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1530 - 1545	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1545 - 1600	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION

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Bear Creek Estates

Site 2 of 3
8th Ave
Theta Pike
TN-99 Nashville Hwy (West)
TN-99 Nashville Hwy (East)

Date
Tuesday, February 22, 2022

Lat/Long
35.627192°, -87.029283°

Weather
Cloudy
65°F

0600 - 0900 (Weekday 3h Session) (02-22-2022)

All vehicles

	Northbound				Southbound					Eastbound					Westbound					
	8th Ave				Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
	Left	Thru	Right	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	Total	2.4	2.5	2.6	2.7	Total	2.8	2.9	2.10	2.11	Total	2.12	2.13	2.14	2.15	Total	Total
0600 - 0615	0	1	3	4	0	0	5	1	6	2	141	0	0	143	0	69	0	0	69	222
0615 - 0630	0	0	0	0	0	0	6	0	6	2	156	0	0	158	1	105	0	0	106	270
0630 - 0645	0	0	4	4	0	0	9	0	9	10	193	1	0	204	0	114	2	0	116	333
0645 - 0700	3	0	1	4	3	0	13	0	16	3	195	0	0	198	1	134	0	0	135	353
Hourly Total	3	1	8	**12**	3	0	33	1	**37**	17	685	1	0	**703**	2	422	2	0	**426**	**1178**
0700 - 0715	0	0	4	4	2	0	14	0	16	14	195	1	0	210	1	154	0	0	155	385
0715 - 0730	0	1	2	3	3	0	28	0	31	9	242	3	0	254	1	213	6	0	220	508
0730 - 0745	0	2	3	5	0	0	31	0	31	16	239	1	0	256	1	268	6	0	275	567
0745 - 0800	1	0	0	1	5	1	36	0	42	27	293	1	0	321	0	285	11	0	296	660
Hourly Total	1	3	9	**13**	10	1	109	0	**120**	66	969	6	0	**1041**	3	920	23	0	**946**	**2120**
0800 - 0815	0	1	2	3	4	0	21	0	25	20	207	0	0	227	1	242	1	0	244	499
0815 - 0830	2	0	0	2	4	0	20	0	24	22	182	0	0	204	1	188	19	1	209	439
0830 - 0845	0	0	2	2	14	0	31	0	45	13	210	1	0	224	0	231	10	0	241	512
0845 - 0900	0	0	1	1	8	0	30	0	38	13	200	1	0	214	0	224	6	2	232	485
Hourly Total	2	1	5	**8**	30	0	102	0	**132**	68	799	2	0	**869**	2	885	36	3	**926**	**1935**
Grand Total	6	5	22	**33**	43	1	244	1	**289**	151	2453	9	0	**2613**	7	2227	61	3	**2298**	**5233**
Approach %	18.18	15.15	66.67	-	14.88	0.35	84.43	0.35	-	5.78	93.88	0.34	0.00	-	0.30	96.91	2.65	0.13	-	
Intersection %	0.11	0.10	0.42	0.63	0.82	0.02	4.66	0.02	5.52	2.89	46.88	0.17	0.00	49.93	0.13	42.56	1.17	0.06	43.91	
PHF	0.25	0.50	0.58	**0.60**	0.60	0.25	0.81	0.00	**0.77**	0.67	0.84	0.42	0.00	**0.82**	0.75	0.88	0.55	0.00	**0.87**	**0.85**

1500 - 1800 (Weekday 3h Session) (02-22-2022)

All vehicles

	Northbound				Southbound					Eastbound					Westbound					
	8th Ave				Theta Pike					TN-99 Nashville Hwy (West)					TN-99 Nashville Hwy (East)					
	Left	Thru	Right	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	Total	2.4	2.5	2.6	2.7	Total	2.8	2.9	2.10	2.11	Total	2.12	2.13	2.14	2.15	Total	Total
1500 - 1515	0	1	1	2	9	0	40	0	49	33	307	1	1	342	0	282	10	2	294	687
1515 - 1530	0	0	3	3	13	0	34	0	47	38	305	2	1	346	3	264	7	1	275	671
1530 - 1545	0	0	0	0	12	1	23	0	36	31	262	0	0	293	1	248	8	2	259	588
1545 - 1600	0	0	0	0	16	1	27	0	44	32	246	0	1	279	1	225	7	1	234	557
Hourly Total	0	1	4	**5**	50	2	124	0	**176**	134	1120	3	3	**1260**	5	1019	32	6	**1062**	**2503**
1600 - 1615	0	0	0	0	11	1	20	0	32	23	255	1	2	281	4	322	10	2	338	651
1615 - 1630	0	1	0	1	5	0	31	0	36	25	217	2	0	244	4	264	17	2	287	568
1630 - 1645	0	0	0	0	6	1	40	0	47	19	252	0	0	271	4	219	0	2	225	543
1645 - 1700	1	0	2	3	4	1	27	0	32	28	243	0	1	272	5	365	5	0	375	682
Hourly Total	1	1	2	**4**	26	3	118	0	**147**	95	967	3	3	**1068**	17	1170	32	6	**1225**	**2444**
1700 - 1715	2	1	1	4	3	2	20	0	25	33	300	1	2	336	2	273	4	0	279	644
1715 - 1730	0	0	1	1	3	1	20	0	24	30	227	4	3	264	4	250	8	1	263	552
1730 - 1745	0	0	1	1	5	0	28	0	33	25	209	1	2	237	0	276	6	3	285	556
1745 - 1800	2	1	2	5	4	1	21	0	26	14	169	2	0	185	1	232	6	0	239	455
Hourly Total	4	2	5	**11**	15	4	89	0	**108**	102	905	8	7	**1022**	7	1031	24	4	**1066**	**2207**
Grand Total	5	4	11	**20**	91	9	331	0	**431**	331	2992	14	13	**3350**	29	3220	88	16	**3353**	**7154**
Approach %	25.00	20.00	55.00	-	21.11	2.09	76.80	0.00	-	9.88	89.31	0.42	0.39	-	0.86	96.03	2.62	0.48	-	
Intersection %	0.07	0.06	0.15	0.28	1.27	0.13	4.63	0.00	6.02	4.63	41.82	0.20	0.18	46.83	0.41	45.01	1.23	0.22	46.87	
PHF	0.00	0.25	0.33	**0.42**	0.78	0.50	0.78	0.00	**0.90**	0.88	0.91	0.38	0.75	**0.91**	0.42	0.90	0.80	0.75	**0.90**	**0.91**

Peak Hour Turning Movement Count

Bear Creek Estates

Click here for Map

Marr Traffic DATA COLLECTION

www.marrtraffic.com

Tuesday, February 22, 2022	
Period	0600 - 0900
Peak Hour	0715 - 0815

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
0715 - 0730	0	19	1	0	20	0	38	0	0	38	0	0	0	0	0	3	0	7	0	10	68
0730 - 0745	0	27	2	0	29	0	51	0	0	51	0	0	0	0	0	2	0	10	0	12	92
0745 - 0800	0	29	2	0	31	5	67	1	0	73	0	0	0	0	0	4	0	1	0	5	109
0800 - 0815	0	24	5	0	29	5	39	0	0	44	1	0	0	0	1	7	0	5	0	12	86
Total	0	99	10	0	109	10	195	1	0	206	1	0	0	0	1	16	0	23	0	39	355
Approach %	0.00	90.83	9.17	0.00	-	4.85	94.66	0.49	0.00	-	100.00	0.00	0.00	0.00	-	41.03	0.00	58.97	0.00	-	
PHF	0.00	0.85	0.50	0.00	**0.88**	0.50	0.73	0.25	0.00	**0.71**	0.25	0.00	0.00	0.00	**0.25**	0.57	0.00	0.58	0.00	**0.81**	**0.81**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
0715 - 0730	0	17	1	0	18	0	37	0	0	37	0	0	0	0	0	3	0	7	0	10	65
0730 - 0745	0	27	2	0	29	0	51	0	0	51	0	0	0	0	0	2	0	10	0	12	92
0745 - 0800	0	29	2	0	31	5	66	1	0	72	0	0	0	0	0	4	0	1	0	5	108
0800 - 0815	0	23	5	0	28	5	39	0	0	44	1	0	0	0	1	7	0	5	0	12	85
Total	0	96	10	0	106	10	193	1	0	204	1	0	0	0	1	16	0	23	0	39	350
Approach %	0.00	90.57	9.43	0.00	-	4.90	94.61	0.49	0.00	-	100.00	0.00	0.00	0.00	-	41.03	0.00	58.97	0.00	-	
PHF	0.00	0.83	0.50	0.00	**0.85**	0.50	0.73	0.25	0.00	**0.71**	0.25	0.00	0.00	0.00	**0.25**	0.57	0.00	0.58	0.00	**0.81**	**0.81**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
0715 - 0730	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
0800 - 0815	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
Approach %	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.38	0.00	0.00	**0.38**	0.00	0.25	0.00	0.00	**0.25**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.50**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
0715 - 0730	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Approach %	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.25	0.00	0.00	**0.25**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.25**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
0715 - 0730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Pedestrians

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	EB	WB			App	EB	WB			App	NB	SB			App	NB	SB			App	Int
Time	3a	3b			Total	3c	3d			Total	3e	3f			Total	3g	3h			Total	Total
0715 - 0730	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0730 - 0745	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0745 - 0800	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
0800 - 0815	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Click here for Map

Peak Hour Turning Movement Count

Bear Creek Estates

Marr Traffic DATA COLLECTION

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All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
1500 - 1515	0	52	4	0	56	8	46	0	0	54	0	0	0	0	0	3	0	3	0	6	116
1515 - 1530	0	65	3	0	68	8	46	0	0	54	0	0	0	0	0	7	0	2	0	9	131
1530 - 1545	0	68	5	0	73	4	42	0	0	46	0	0	0	0	0	3	0	1	1	5	124
1545 - 1600	0	66	5	0	71	4	35	0	0	39	0	0	0	0	0	2	0	1	0	3	113
Total	0	251	17	0	268	24	169	0	0	193	0	0	0	0	0	15	0	7	1	23	484
Approach %	0.00	93.66	6.34	0.00	-	12.44	87.56	0.00	0.00	-	0.00	0.00	0.00	0.00	-	65.22	0.00	30.43	4.35	-	
PHF	0.00	0.92	0.85	0.00	**0.92**	0.75	0.92	0.00	0.00	**0.89**	0.00	0.00	0.00	0.00	**0.00**	0.54	0.00	0.58	0.25	**0.64**	**0.92**

Passenger Vehicles (1-3)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
1500 - 1515	0	50	4	0	54	6	46	0	0	52	0	0	0	0	0	2	0	2	0	4	110
1515 - 1530	0	65	3	0	68	7	46	0	0	53	0	0	0	0	0	7	0	2	0	9	130
1530 - 1545	0	68	5	0	73	4	42	0	0	46	0	0	0	0	0	3	0	1	1	5	124
1545 - 1600	0	66	5	0	71	4	35	0	0	39	0	0	0	0	0	2	0	1	0	3	113
Total	0	249	17	0	266	21	169	0	0	190	0	0	0	0	0	14	0	6	1	21	477
Approach %	0.00	93.61	6.39	0.00	-	11.05	88.95	0.00	0.00	-	0.00	0.00	0.00	0.00	-	66.67	0.00	28.57	4.76	-	
PHF	0.00	0.92	0.85	0.00	**0.91**	0.75	0.92	0.00	0.00	**0.90**	0.00	0.00	0.00	0.00	**0.00**	0.50	0.00	0.75	0.25	**0.58**	**0.92**

Single Unit Trucks (4-7)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
1500 - 1515	0	2	0	0	2	2	0	0	0	2	0	0	0	0	0	1	0	1	0	2	6
1515 - 1530	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1530 - 1545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1545 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	3	0	0	0	3	0	0	0	0	0	1	0	1	0	2	7
Approach %	0.00	100.00	0.00	0.00	-	100.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	50.00	0.00	50.00	0.00	-	
PHF	0.00	0.25	0.00	0.00	**0.25**	0.38	0.00	0.00	0.00	**0.38**	0.00	0.00	0.00	0.00	**0.00**	0.25	0.00	0.25	0.00	**0.25**	**0.29**

Combination Trucks (8-13)

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
1500 - 1515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1530 - 1545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1545 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Bikes

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
Time	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
1500 - 1515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1530 - 1545	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1545 - 1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Pedestrians

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	EB	WB			App	EB	WB			App	NB	SB			App	NB	SB			App	Int
Time	3a	3b			Total	3c	3d			Total	3e	3f			Total	3g	3h			Total	Total
1500 - 1515	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1515 - 1530	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1530 - 1545	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
1545 - 1600	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	**0.00**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION

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Bear Creek Estates

Site 3 of 3
Theta Pike (South)
Theta Pike (North)
Driveway
Timber Trail

Date
Tuesday, February 22, 2022

Lat/Long
35.624217°, -87.028542°

Weather
Cloudy
65°F

0600 - 0900 (Weekday 3h Session) (02-22-2022)

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
0600 - 0615	0	13	0	0	13	0	8	0	0	8	0	0	0	0	0	1	0	0	0	1	22
0615 - 0630	0	8	1	0	9	1	8	0	0	9	0	0	0	0	0	3	0	3	0	6	24
0630 - 0645	0	15	2	0	17	2	12	0	0	14	0	0	0	0	0	1	0	2	0	3	34
0645 - 0700	0	14	0	0	14	1	20	0	0	21	0	0	0	0	0	2	0	5	0	7	42
Hourly Total	0	50	3	0	**53**	4	48	0	0	**52**	0	0	0	0	**0**	7	0	10	0	**17**	**122**
0700 - 0715	0	14	2	0	16	3	21	0	0	24	0	0	0	0	0	0	0	6	0	6	46
0715 - 0730	0	19	1	0	20	0	38	0	0	38	0	0	0	0	0	3	0	7	0	10	68
0730 - 0745	0	27	2	0	29	0	51	0	0	51	0	0	0	0	0	2	0	10	0	12	92
0745 - 0800	0	29	2	0	31	5	67	1	0	73	0	0	0	0	0	4	0	1	0	5	109
Hourly Total	0	89	7	0	**96**	8	177	1	0	**186**	0	0	0	0	**0**	9	0	24	0	**33**	**315**
0800 - 0815	0	24	5	0	29	5	39	0	0	44	1	0	0	0	1	7	0	5	0	12	86
0815 - 0830	0	21	2	0	23	3	36	0	0	39	0	0	0	0	0	0	0	1	0	1	63
0830 - 0845	0	29	2	0	31	1	38	0	0	39	0	0	0	0	0	4	0	7	0	11	81
0845 - 0900	0	18	4	0	22	1	46	0	0	47	0	0	0	0	0	2	0	2	0	4	73
Hourly Total	0	92	13	0	**105**	10	159	0	0	**169**	1	0	0	0	**1**	13	0	15	0	**28**	**303**
Grand Total	0	231	23	0	**254**	22	384	1	0	**407**	1	0	0	0	**1**	29	0	49	0	**78**	**740**
Approach %	0.00	90.94	9.06	0.00	-	5.41	94.35	0.25	0.00	-	100.00	0.00	0.00	0.00	-	37.18	0.00	62.82	0.00	-	
Intersection %	0.00	31.22	3.11	0.00	34.32	2.97	51.89	0.14	0.00	55.00	0.14	0.00	0.00	0.00	0.14	3.92	0.00	6.62	0.00	10.54	
PHF	0.00	0.85	0.50	0.00	**0.88**	0.50	0.73	0.25	0.00	**0.71**	0.25	0.00	0.00	0.00	**0.25**	0.57	0.00	0.58	0.00	**0.81**	**0.81**

1500 - 1800 (Weekday 3h Session) (02-22-2022)

All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Theta Pike (South)					Theta Pike (North)					Driveway					Timber Trail					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
1500 - 1515	0	52	4	0	56	8	46	0	0	54	0	0	0	0	0	3	0	3	0	6	116
1515 - 1530	0	65	3	0	68	8	46	0	0	54	0	0	0	0	0	7	0	2	0	9	131
1530 - 1545	0	68	5	0	73	4	42	0	0	46	0	0	0	0	0	3	0	1	1	5	124
1545 - 1600	0	66	5	0	71	4	35	0	0	39	0	0	0	0	0	2	0	1	0	3	113
Hourly Total	0	251	17	0	**268**	24	169	0	0	**193**	0	0	0	0	**0**	15	0	7	1	**23**	**484**
1600 - 1615	0	53	1	0	54	3	37	0	0	40	0	0	0	0	0	2	0	4	0	6	100
1615 - 1630	0	71	7	0	78	2	44	0	0	46	0	0	0	0	0	3	0	4	0	7	131
1630 - 1645	0	59	1	0	60	2	44	0	0	46	0	0	0	0	0	2	0	1	0	3	109
1645 - 1700	0	44	7	0	51	2	38	0	0	40	0	0	0	0	0	1	0	2	0	3	94
Hourly Total	0	227	16	0	**243**	9	163	0	0	**172**	0	0	0	0	**0**	8	0	11	0	**19**	**434**
1700 - 1715	0	61	6	0	67	1	35	0	0	36	0	0	0	0	0	1	0	4	0	5	108
1715 - 1730	0	46	2	0	48	0	48	0	0	48	0	0	0	0	0	3	0	4	0	7	103
1730 - 1745	0	54	2	0	56	1	35	0	0	36	0	0	0	0	0	3	0	0	0	3	95
1745 - 1800	0	38	0	0	38	4	26	0	0	30	0	0	0	0	0	2	0	0	0	2	70
Hourly Total	0	199	10	0	**209**	6	144	0	0	**150**	0	0	0	0	**0**	9	0	8	0	**17**	**376**
Grand Total	0	677	43	0	**720**	39	476	0	0	**515**	0	0	0	0	**0**	32	0	26	1	**59**	**1294**
Approach %	0.00	94.03	5.97	0.00	-	7.57	92.43	0.00	0.00	-	0.00	0.00	0.00	0.00	-	54.24	0.00	44.07	1.69	-	
Intersection %	0.00	52.32	3.32	0.00	55.64	3.01	36.79	0.00	0.00	39.80	0.00	0.00	0.00	0.00	0.00	2.47	0.00	2.01	0.08	4.56	
PHF	0.00	0.92	0.85	0.00	**0.92**	0.75	0.92	0.00	0.00	**0.89**	0.00	0.00	0.00	0.00	**0.00**	0.54	0.00	0.58	0.25	**0.64**	**0.92**

Bi-Directional Speed & Class Count || Graphical Analysis NB EB

Bear Creek Estates

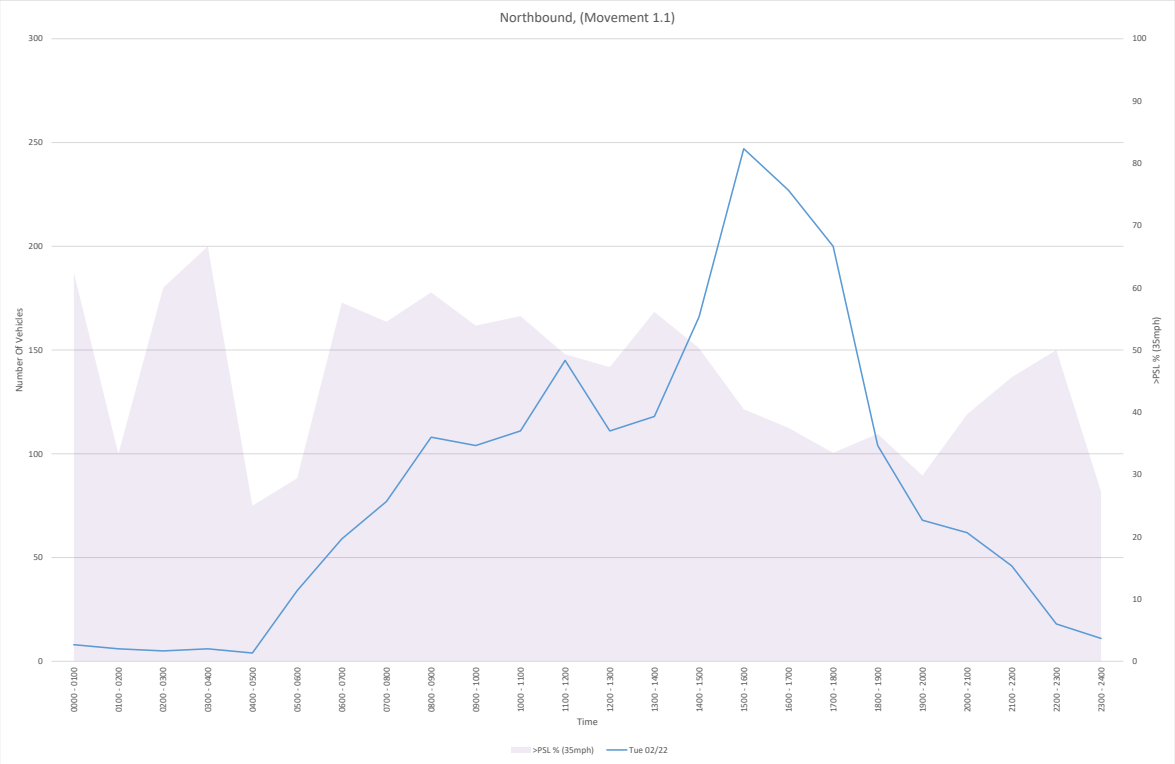
Marr Traffic DATA COLLECTION
www.marrtraffic.com

Site 1
Theta Pike,
south of Bancroft Ml

Lat/Long
35.635555°, -87.028507°

Click here for Map

0000 - 2400 (Weekday 24h Session)
Graphical Analysis NB EB



Bi-Directional Speed & Class Count || Graphical Analysis SB WB

Bear Creek Estates

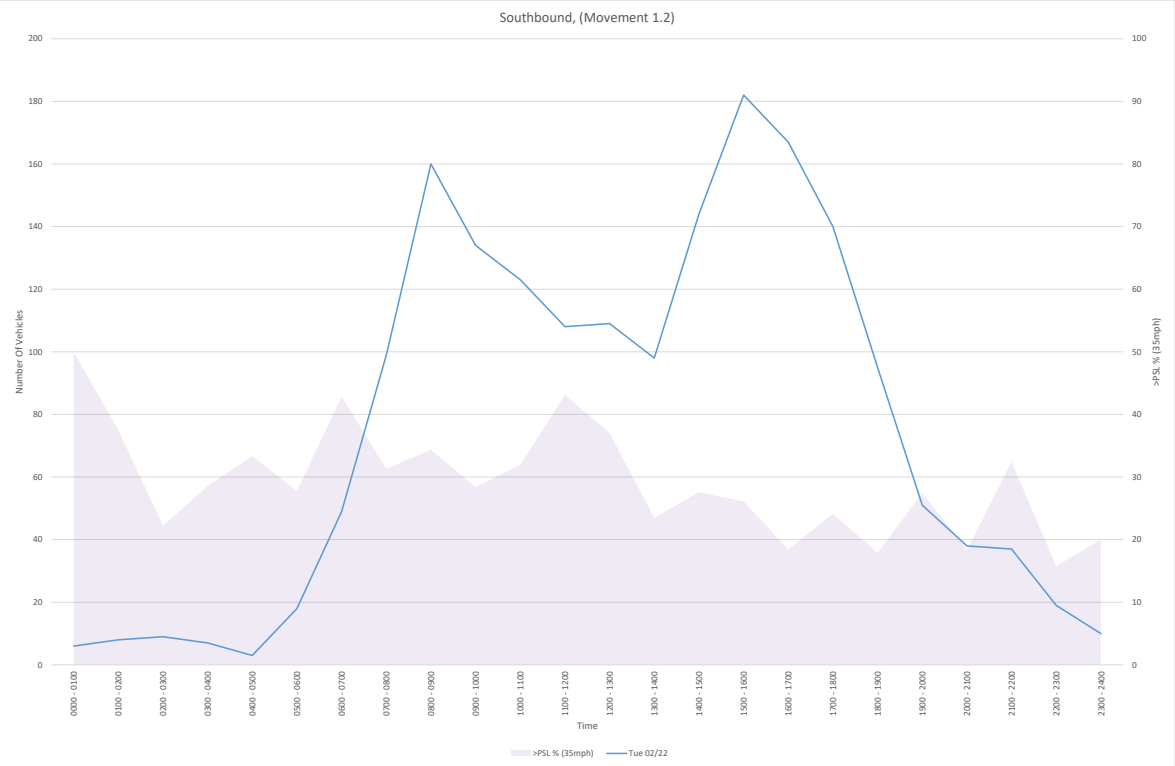
Marr Traffic DATA COLLECTION
www.marrtraffic.com

Site 1
Theta Pike,
south of Bancroft Ml

Lat/Long
35.635555°, -87.028507°

Click here for Map

0000 - 2400 (Weekday 24h Session)
Graphical Analysis SB WB



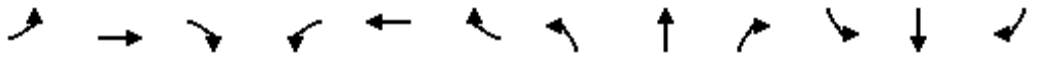
C. Level of Service

Existing

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1156	86	47	1019	18	38	38	51	41	72	80
Future Volume (veh/h)	69	1156	86	47	1019	18	38	38	51	41	72	80
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1795	1900	1900	1729	1900	1863	1863	1900	1776	1870	1900
Adj Flow Rate, veh/h	76	1270	95	52	1120	20	42	42	56	45	79	88
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	4	0	10	5	2	2	2	7	0	3
Cap, veh/h	97	1960	146	67	1955	35	151	85	113	199	96	107
Arrive On Green	0.05	0.61	0.61	0.04	0.59	0.59	0.03	0.12	0.12	0.03	0.12	0.12
Sat Flow, veh/h	1792	3217	240	1810	3302	59	1774	725	967	1691	810	902
Grp Volume(v), veh/h	76	672	693	52	557	583	42	0	98	45	0	167
Grp Sat Flow(s),veh/h/ln	1792	1705	1752	1810	1642	1718	1774	0	1692	1691	0	1711
Q Serve(g_s), s	4.7	28.2	28.4	3.2	23.2	23.3	2.3	0.0	6.0	2.6	0.0	10.6
Cycle Q Clear(g_c), s	4.7	28.2	28.4	3.2	23.2	23.3	2.3	0.0	6.0	2.6	0.0	10.6
Prop In Lane	1.00		0.14	1.00		0.03	1.00		0.57	1.00		0.53
Lane Grp Cap(c), veh/h	97	1039	1067	67	972	1017	151	0	198	199	0	202
V/C Ratio(X)	0.78	0.65	0.65	0.77	0.57	0.57	0.28	0.00	0.49	0.23	0.00	0.83
Avail Cap(c_a), veh/h	210	1039	1067	212	972	1017	229	0	305	302	0	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.8	14.0	14.0	53.0	14.0	14.0	41.5	0.0	45.9	41.3	0.0	47.8
Incr Delay (d2), s/veh	5.0	3.1	3.1	6.8	2.5	2.3	0.7	0.0	1.9	0.4	0.0	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	14.0	14.6	1.7	11.2	11.7	1.1	0.0	2.9	1.2	0.0	5.5
LnGrp Delay(d),s/veh	56.9	17.1	17.1	59.7	16.4	16.3	42.2	0.0	47.8	41.7	0.0	56.0
LnGrp LOS	E	B	B	E	B	B	D		D	D		E
Approach Vol, veh/h		1441			1192			140			212	
Approach Delay, s/veh		19.2			18.3			46.1			53.0	
Approach LOS		B			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	74.6	8.1	19.1	11.0	72.7	8.3	19.0
Change Period (Y+Rc), s	5.0	7.0	4.5	6.0	5.0	7.0	4.5	6.0
Max Green Setting (Gmax), s	13.0	45.0	8.5	22.0	13.0	45.0	10.5	20.0
Max Q Clear Time (g_c+I1), s	5.2	30.4	4.3	12.6	6.7	25.3	4.6	8.0
Green Ext Time (p_c), s	0.0	11.1	0.0	0.5	0.0	12.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	846	52	56	1123	31	109	86	57	20	72	122
Future Volume (veh/h)	57	846	52	56	1123	31	109	86	57	20	72	122
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1794	1900	1900	1729	1900	1863	1863	1900	1776	1865	1900
Adj Flow Rate, veh/h	63	930	57	62	1234	34	120	95	63	22	79	134
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	4	0	10	5	2	2	2	7	0	3
Cap, veh/h	81	1734	106	80	1732	48	223	209	138	242	93	157
Arrive On Green	0.05	0.53	0.53	0.04	0.53	0.53	0.07	0.20	0.20	0.02	0.15	0.15
Sat Flow, veh/h	1792	3264	200	1810	3266	90	1774	1046	694	1691	623	1056
Grp Volume(v), veh/h	63	486	501	62	620	648	120	0	158	22	0	213
Grp Sat Flow(s),veh/h/ln	1792	1705	1759	1810	1643	1714	1774	0	1740	1691	0	1678
Q Serve(g_s), s	3.9	20.7	20.7	3.8	31.6	31.7	6.3	0.0	8.9	1.1	0.0	13.7
Cycle Q Clear(g_c), s	3.9	20.7	20.7	3.8	31.6	31.7	6.3	0.0	8.9	1.1	0.0	13.7
Prop In Lane	1.00		0.11	1.00		0.05	1.00		0.40	1.00		0.63
Lane Grp Cap(c), veh/h	81	906	935	80	871	909	223	0	347	242	0	250
V/C Ratio(X)	0.78	0.54	0.54	0.77	0.71	0.71	0.54	0.00	0.46	0.09	0.00	0.85
Avail Cap(c_a), veh/h	129	906	935	147	871	909	230	0	408	334	0	393
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.4	17.0	17.0	52.5	19.7	19.7	37.0	0.0	39.1	34.4	0.0	46.0
Incr Delay (d2), s/veh	5.8	2.3	2.2	5.8	4.9	4.7	1.8	0.0	0.9	0.1	0.0	10.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	10.3	10.6	2.0	15.5	16.1	3.2	0.0	4.3	0.5	0.0	7.1
LnGrp Delay(d),s/veh	58.3	19.3	19.3	58.3	24.6	24.4	38.8	0.0	40.1	34.5	0.0	56.2
LnGrp LOS	E	B	B	E	C	C	D		D	C		E
Approach Vol, veh/h		1050			1330			278			235	
Approach Delay, s/veh		21.6			26.1			39.5			54.1	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	66.0	12.6	22.5	10.0	65.9	7.0	28.1
Change Period (Y+Rc), s	5.0	7.0	4.5	6.0	5.0	7.0	4.5	6.0
Max Green Setting (Gmax), s	9.0	45.0	8.5	26.0	8.0	46.0	8.5	26.0
Max Q Clear Time (g_c+I1), s	5.8	22.7	8.3	15.7	5.9	33.7	3.1	10.9
Green Ext Time (p_c), s	0.0	11.1	0.0	0.8	0.0	9.2	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	28.0
HCM 2010 LOS	C

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	12	1	116	1	4	7	72	981	5	3	1008	24
Future Volume (veh/h)	12	1	116	1	4	7	72	981	5	3	1008	24
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1900	1900	1900	1900	1863	1827	1900	1900	1844	1900
Adj Flow Rate, veh/h	14	1	136	1	5	8	85	1154	6	4	1186	28
Adj No. of Lanes	1	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	1	0	0	0	2	4	0	0	3	4
Cap, veh/h	129	1	185	59	182	197	387	2444	13	360	2255	53
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.05	0.69	0.69	0.01	0.64	0.64
Sat Flow, veh/h	1318	12	1589	85	1566	1615	1774	3542	18	1810	3499	83
Grp Volume(v), veh/h	14	0	137	6	0	8	85	566	594	4	594	620
Grp Sat Flow(s),veh/h/ln	1318	0	1601	1651	0	1615	1774	1736	1824	1810	1752	1830
Q Serve(g_s), s	0.9	0.0	7.0	0.0	0.0	0.4	1.2	12.7	12.7	0.1	15.5	15.5
Cycle Q Clear(g_c), s	7.9	0.0	7.0	7.0	0.0	0.4	1.2	12.7	12.7	0.1	15.5	15.5
Prop In Lane	1.00		0.99	0.17		1.00	1.00		0.01	1.00		0.05
Lane Grp Cap(c), veh/h	129	0	186	242	0	197	387	1198	1259	360	1129	1179
V/C Ratio(X)	0.11	0.00	0.73	0.02	0.00	0.04	0.22	0.47	0.47	0.01	0.53	0.53
Avail Cap(c_a), veh/h	201	0	273	337	0	284	515	1198	1259	574	1129	1179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	36.3	33.3	0.0	32.9	5.8	6.1	6.1	5.7	8.1	8.1
Incr Delay (d2), s/veh	0.1	0.0	2.2	0.0	0.0	0.0	0.3	1.3	1.3	0.0	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	3.2	0.1	0.0	0.2	0.6	6.4	6.7	0.0	8.0	8.3
LnGrp Delay(d),s/veh	40.2	0.0	38.5	33.3	0.0	33.0	6.1	7.4	7.3	5.7	9.9	9.8
LnGrp LOS	D		D	C		C	A	A	A	A	A	A
Approach Vol, veh/h		151			14			1245			1218	
Approach Delay, s/veh		38.6			33.1			7.3			9.8	
Approach LOS		D			C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	64.7		15.4	8.8	60.8		15.4
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5
Max Green Setting (Gmax), s	10.5	44.0		14.5	10.5	44.0		14.5
Max Q Clear Time (g_c+I1), s	2.1	14.7		9.0	3.2	17.5		9.9
Green Ext Time (p_c), s	0.0	15.6		0.0	0.1	15.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	10.4
HCM 2010 LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	50	2	124	0	1	4	134	1120	3	5	1019	32
Future Volume (veh/h)	50	2	124	0	1	4	134	1120	3	5	1019	32
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1900	1900	1900	1900	1863	1827	1900	1900	1844	1900
Adj Flow Rate, veh/h	59	2	146	0	1	5	158	1318	4	6	1199	38
Adj No. of Lanes	1	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	1	0	0	0	2	4	0	0	3	4
Cap, veh/h	238	3	183	0	220	200	387	2443	7	311	2214	70
Arrive On Green	0.12	0.12	0.12	0.00	0.12	0.12	0.06	0.69	0.69	0.01	0.64	0.64
Sat Flow, veh/h	1326	22	1581	0	1900	1615	1774	3550	11	1810	3467	110
Grp Volume(v), veh/h	59	0	148	0	1	5	158	644	678	6	606	631
Grp Sat Flow(s),veh/h/ln	1326	0	1602	0	1900	1615	1774	1736	1825	1810	1752	1825
Q Serve(g_s), s	3.5	0.0	7.6	0.0	0.0	0.2	2.4	15.6	15.7	0.1	16.2	16.3
Cycle Q Clear(g_c), s	3.5	0.0	7.6	0.0	0.0	0.2	2.4	15.6	15.7	0.1	16.2	16.3
Prop In Lane	1.00		0.99	0.00		1.00	1.00		0.01	1.00		0.06
Lane Grp Cap(c), veh/h	238	0	186	0	220	200	387	1195	1256	311	1119	1165
V/C Ratio(X)	0.25	0.00	0.80	0.00	0.00	0.03	0.41	0.54	0.54	0.02	0.54	0.54
Avail Cap(c_a), veh/h	310	0	273	0	324	288	504	1195	1256	521	1119	1165
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	0.0	36.6	0.0	33.2	32.7	6.7	6.6	6.6	6.1	8.5	8.5
Incr Delay (d2), s/veh	0.2	0.0	5.6	0.0	0.0	0.0	0.7	1.8	1.7	0.0	1.9	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.7	0.0	0.0	0.1	1.3	7.9	8.3	0.1	8.3	8.7
LnGrp Delay(d),s/veh	35.0	0.0	42.2	0.0	33.2	32.8	7.4	8.3	8.2	6.1	10.4	10.3
LnGrp LOS	D		D		C	C	A	A	A	A	B	B
Approach Vol, veh/h		207			6			1480			1243	
Approach Delay, s/veh		40.2			32.8			8.2			10.3	
Approach LOS		D			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	64.5		15.3	9.4	60.3		15.3
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5
Max Green Setting (Gmax), s	10.5	44.0		14.5	10.5	44.0		14.5
Max Q Clear Time (g_c+I1), s	2.1	17.7		2.2	4.4	18.3		9.6
Green Ext Time (p_c), s	0.0	16.9		0.0	0.2	15.5		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	23	99	10	10	195
Future Vol, veh/h	16	23	99	10	10	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	17	25	108	11	11	212

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	348	114	0	0	119	0
Stage 1	114	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	653	944	-	-	1482	-
Stage 1	916	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	648	944	-	-	1482	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	804	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	795	1482	-
HCM Lane V/C Ratio	-	-	0.053	0.007	-
HCM Control Delay (s)	-	-	9.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	7	251	17	24	169
Future Vol, veh/h	15	7	251	17	24	169
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	16	8	273	18	26	184

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	518	282	0	0	291	0
Stage 1	282	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	521	762	-	-	1282	-
Stage 1	770	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	509	762	-	-	1282	-
Mov Cap-2 Maneuver	509	-	-	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	789	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	569	1282	-
HCM Lane V/C Ratio	-	-	0.042	0.02	-
HCM Control Delay (s)	-	-	11.6	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Background

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1237	97	51	1091	20	49	41	127	44	77	86
Future Volume (veh/h)	74	1237	97	51	1091	20	49	41	127	44	77	86
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1795	1900	1900	1729	1900	1863	1863	1900	1776	1870	1900
Adj Flow Rate, veh/h	81	1359	107	56	1199	22	54	45	140	48	85	95
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	4	0	10	5	2	2	2	7	0	3
Cap, veh/h	103	1887	148	73	1885	35	165	53	166	150	106	119
Arrive On Green	0.06	0.59	0.59	0.04	0.57	0.57	0.04	0.13	0.13	0.03	0.13	0.13
Sat Flow, veh/h	1792	3204	251	1810	3300	61	1774	400	1244	1691	808	903
Grp Volume(v), veh/h	81	721	745	56	597	624	54	0	185	48	0	180
Grp Sat Flow(s),veh/h/ln	1792	1705	1751	1810	1642	1718	1774	0	1643	1691	0	1711
Q Serve(g_s), s	5.0	33.4	33.8	3.4	27.1	27.2	2.9	0.0	12.2	2.7	0.0	11.3
Cycle Q Clear(g_c), s	5.0	33.4	33.8	3.4	27.1	27.2	2.9	0.0	12.2	2.7	0.0	11.3
Prop In Lane	1.00		0.14	1.00		0.04	1.00		0.76	1.00		0.53
Lane Grp Cap(c), veh/h	103	1004	1031	73	938	982	165	0	219	150	0	225
V/C Ratio(X)	0.78	0.72	0.72	0.77	0.64	0.64	0.33	0.00	0.84	0.32	0.00	0.80
Avail Cap(c_a), veh/h	210	1004	1031	212	938	982	236	0	341	206	0	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.6	16.2	16.3	52.8	16.0	16.0	40.2	0.0	47.0	40.2	0.0	46.8
Incr Delay (d2), s/veh	4.8	4.4	4.4	6.3	3.3	3.1	0.8	0.0	10.9	0.9	0.0	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	16.9	17.4	1.8	13.1	13.7	1.4	0.0	6.2	1.3	0.0	5.8
LnGrp Delay(d),s/veh	56.4	20.7	20.7	59.1	19.3	19.2	41.1	0.0	57.8	41.1	0.0	54.5
LnGrp LOS	E	C	C	E	B	B	D		E	D		D
Approach Vol, veh/h		1547			1277			239			228	
Approach Delay, s/veh		22.6			21.0			54.1			51.7	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	72.4	8.6	20.6	11.4	70.4	8.4	20.8
Change Period (Y+Rc), s	5.0	7.0	4.5	6.0	5.0	7.0	4.5	6.0
Max Green Setting (Gmax), s	13.0	45.0	8.5	22.0	13.0	45.0	7.5	23.0
Max Q Clear Time (g_c+I1), s	5.4	35.8	4.9	13.3	7.0	29.2	4.7	14.2
Green Ext Time (p_c), s	0.0	7.8	0.0	0.6	0.0	10.9	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	26.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	906	64	154	1202	34	122	92	110	22	77	131
Future Volume (veh/h)	61	906	64	154	1202	34	122	92	110	22	77	131
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1795	1900	1900	1729	1900	1863	1863	1900	1776	1865	1900
Adj Flow Rate, veh/h	67	996	70	169	1321	37	134	101	121	24	85	144
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	4	0	10	5	2	2	2	7	0	3
Cap, veh/h	86	1554	109	147	1677	47	231	164	196	208	99	168
Arrive On Green	0.05	0.48	0.48	0.08	0.51	0.51	0.08	0.21	0.21	0.02	0.16	0.16
Sat Flow, veh/h	1792	3232	227	1810	3265	91	1774	773	926	1691	623	1056
Grp Volume(v), veh/h	67	525	541	169	664	694	134	0	222	24	0	229
Grp Sat Flow(s),veh/h/ln	1792	1705	1755	1810	1643	1713	1774	0	1699	1691	0	1679
Q Serve(g_s), s	4.1	25.7	25.7	9.0	36.6	36.7	6.9	0.0	13.1	1.2	0.0	14.8
Cycle Q Clear(g_c), s	4.1	25.7	25.7	9.0	36.6	36.7	6.9	0.0	13.1	1.2	0.0	14.8
Prop In Lane	1.00		0.13	1.00		0.05	1.00		0.55	1.00		0.63
Lane Grp Cap(c), veh/h	86	820	844	147	844	880	231	0	360	208	0	267
V/C Ratio(X)	0.78	0.64	0.64	1.15	0.79	0.79	0.58	0.00	0.62	0.12	0.00	0.86
Avail Cap(c_a), veh/h	129	820	844	147	844	880	231	0	398	312	0	408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.2	21.6	21.6	51.0	22.0	22.0	36.2	0.0	39.7	33.7	0.0	45.5
Incr Delay (d2), s/veh	7.8	3.8	3.7	120.9	7.3	7.1	3.2	0.0	2.4	0.2	0.0	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	12.8	13.2	9.4	18.1	19.1	3.6	0.0	6.4	0.6	0.0	7.6
LnGrp Delay(d),s/veh	60.0	25.5	25.4	171.9	29.3	29.1	39.4	0.0	42.1	33.9	0.0	56.4
LnGrp LOS	E	C	C	F	C	C	D		D	C		E
Approach Vol, veh/h		1133			1527			356			253	
Approach Delay, s/veh		27.4			45.0			41.1			54.2	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	60.4	13.0	23.6	10.3	64.0	7.1	29.5
Change Period (Y+Rc), s	5.0	7.0	4.5	6.0	5.0	7.0	4.5	6.0
Max Green Setting (Gmax), s	9.0	44.0	8.5	27.0	8.0	45.0	9.5	26.0
Max Q Clear Time (g_c+I1), s	11.0	27.7	8.9	16.8	6.1	38.7	3.2	15.1
Green Ext Time (p_c), s	0.0	9.8	0.0	0.9	0.0	5.3	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	39.2
HCM 2010 LOS	D

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	29	1	155	1	5	8	96	1050	6	4	1079	34
Future Volume (veh/h)	29	1	155	1	5	8	96	1050	6	4	1079	34
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1900	1900	1900	1900	1863	1827	1900	1900	1844	1900
Adj Flow Rate, veh/h	34	1	182	1	6	9	113	1235	7	5	1269	40
Adj No. of Lanes	1	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	1	0	0	0	2	4	0	0	3	4
Cap, veh/h	149	1	251	61	247	265	336	2292	13	305	2078	65
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.05	0.65	0.65	0.01	0.60	0.60
Sat Flow, veh/h	1315	9	1592	78	1564	1615	1774	3540	20	1810	3468	109
Grp Volume(v), veh/h	34	0	183	7	0	9	113	606	636	5	641	668
Grp Sat Flow(s),veh/h/ln	1315	0	1600	1642	0	1615	1774	1736	1824	1810	1752	1825
Q Serve(g_s), s	2.1	0.0	9.2	0.0	0.0	0.4	1.9	16.0	16.1	0.1	19.6	19.7
Cycle Q Clear(g_c), s	11.4	0.0	9.2	9.2	0.0	0.4	1.9	16.0	16.1	0.1	19.6	19.7
Prop In Lane	1.00		0.99	0.14		1.00	1.00		0.01	1.00		0.06
Lane Grp Cap(c), veh/h	149	0	252	307	0	265	336	1124	1181	305	1050	1094
V/C Ratio(X)	0.23	0.00	0.73	0.02	0.00	0.03	0.34	0.54	0.54	0.02	0.61	0.61
Avail Cap(c_a), veh/h	166	0	273	330	0	286	458	1124	1181	517	1050	1094
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	34.1	30.3	0.0	29.9	8.5	8.1	8.1	7.5	10.8	10.8
Incr Delay (d2), s/veh	0.3	0.0	7.0	0.0	0.0	0.0	0.6	1.9	1.8	0.0	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	4.6	0.1	0.0	0.2	1.0	8.1	8.5	0.0	10.2	10.6
LnGrp Delay(d),s/veh	39.7	0.0	41.1	30.3	0.0	29.9	9.1	10.0	9.9	7.5	13.4	13.3
LnGrp LOS	D		D	C		C	A	A	A	A	B	B
Approach Vol, veh/h		217			16			1355			1314	
Approach Delay, s/veh		40.9			30.1			9.8			13.3	
Approach LOS		D			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	61.0		18.9	9.2	56.9		18.9
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5
Max Green Setting (Gmax), s	10.5	44.0		14.5	10.5	44.0		14.5
Max Q Clear Time (g_c+I1), s	2.1	18.1		11.2	3.9	21.7		13.4
Green Ext Time (p_c), s	0.0	15.7		0.0	0.1	14.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	13.9
HCM 2010 LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	66	3	152	0	1	5	206	1199	4	6	1091	59
Future Volume (veh/h)	66	3	152	0	1	5	206	1199	4	6	1091	59
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1882	1900	1900	1900	1900	1863	1827	1900	1900	1844	1900
Adj Flow Rate, veh/h	78	4	179	0	1	6	242	1411	5	7	1284	69
Adj No. of Lanes	1	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	1	0	0	0	2	4	0	0	3	4
Cap, veh/h	266	5	215	0	261	236	359	2362	8	272	2030	109
Arrive On Green	0.14	0.14	0.14	0.00	0.14	0.14	0.07	0.67	0.67	0.01	0.60	0.60
Sat Flow, veh/h	1325	35	1570	0	1900	1615	1774	3548	13	1810	3382	181
Grp Volume(v), veh/h	78	0	183	0	1	6	242	690	726	7	664	689
Grp Sat Flow(s),veh/h/ln	1325	0	1605	0	1900	1615	1774	1736	1825	1810	1752	1812
Q Serve(g_s), s	4.6	0.0	9.4	0.0	0.0	0.3	4.1	18.8	18.8	0.1	20.7	20.8
Cycle Q Clear(g_c), s	4.6	0.0	9.4	0.0	0.0	0.3	4.1	18.8	18.8	0.1	20.7	20.8
Prop In Lane	1.00		0.98	0.00		1.00	1.00		0.01	1.00		0.10
Lane Grp Cap(c), veh/h	266	0	220	0	261	236	359	1155	1215	272	1052	1088
V/C Ratio(X)	0.29	0.00	0.83	0.00	0.00	0.03	0.67	0.60	0.60	0.03	0.63	0.63
Avail Cap(c_a), veh/h	310	0	274	0	324	290	446	1155	1215	480	1052	1088
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	35.7	0.0	31.7	31.1	12.1	7.9	7.9	7.6	10.9	11.0
Incr Delay (d2), s/veh	0.2	0.0	13.3	0.0	0.0	0.0	2.9	2.3	2.2	0.0	2.9	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	5.0	0.0	0.0	0.1	3.8	9.6	10.0	0.1	10.8	11.2
LnGrp Delay(d),s/veh	33.9	0.0	49.0	0.0	31.7	31.1	15.0	10.2	10.1	7.6	13.8	13.8
LnGrp LOS	C		D		C	C	B	B	B	A	B	B
Approach Vol, veh/h		261			7			1658			1360	
Approach Delay, s/veh		44.5			31.2			10.8			13.8	
Approach LOS		D			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	62.6		17.2	10.8	57.0		17.2
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5
Max Green Setting (Gmax), s	10.5	44.0		14.5	10.5	44.0		14.5
Max Q Clear Time (g_c+I1), s	2.1	20.8		2.3	6.1	22.8		11.4
Green Ext Time (p_c), s	0.0	16.6		0.0	0.3	14.8		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	25	106	11	11	209
Future Vol, veh/h	18	25	106	11	11	209
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	20	27	115	12	12	227

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	372	121	0	0	127	0
Stage 1	121	-	-	-	-	-
Stage 2	251	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	633	936	-	-	1472	-
Stage 1	909	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	627	936	-	-	1472	-
Mov Cap-2 Maneuver	627	-	-	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	788	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	776	1472	-
HCM Lane V/C Ratio	-	-	0.06	0.008	-
HCM Control Delay (s)	-	-	9.9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.9

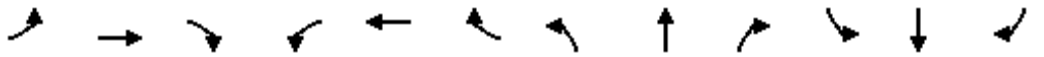
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	8	269	19	26	181
Future Vol, veh/h	16	8	269	19	26	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	17	9	292	21	28	197

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	556	303	0	0	313	0
Stage 1	303	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	496	741	-	-	1259	-
Stage 1	754	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	484	741	-	-	1259	-
Mov Cap-2 Maneuver	484	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.9	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	547	1259	-
HCM Lane V/C Ratio	-	-	0.048	0.022	-
HCM Control Delay (s)	-	-	11.9	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Projected



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1237	99	53	1091	20	56	46	133	44	79	86
Future Volume (veh/h)	74	1237	99	53	1091	20	56	46	133	44	79	86
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1795	1900	1900	1729	1900	1863	1863	1900	1776	1871	1900
Adj Flow Rate, veh/h	81	1359	109	58	1199	22	62	51	146	48	87	95
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	4	0	10	5	2	2	2	7	0	3
Cap, veh/h	103	1857	148	75	1863	34	175	60	171	150	110	120
Arrive On Green	0.06	0.58	0.58	0.04	0.56	0.56	0.04	0.14	0.14	0.03	0.13	0.13
Sat Flow, veh/h	1792	3199	256	1810	3300	61	1774	426	1221	1691	819	894
Grp Volume(v), veh/h	81	722	746	58	597	624	62	0	197	48	0	182
Grp Sat Flow(s),veh/h/ln	1792	1705	1750	1810	1642	1718	1774	0	1647	1691	0	1713
Q Serve(g_s), s	5.0	34.2	34.6	3.5	27.6	27.6	3.3	0.0	13.0	2.7	0.0	11.4
Cycle Q Clear(g_c), s	5.0	34.2	34.6	3.5	27.6	27.6	3.3	0.0	13.0	2.7	0.0	11.4
Prop In Lane	1.00		0.15	1.00		0.04	1.00		0.74	1.00		0.52
Lane Grp Cap(c), veh/h	103	990	1016	75	927	970	175	0	231	150	0	230
V/C Ratio(X)	0.78	0.73	0.73	0.77	0.64	0.64	0.35	0.00	0.85	0.32	0.00	0.79
Avail Cap(c_a), veh/h	210	990	1016	212	927	970	238	0	341	206	0	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.6	16.9	17.0	52.7	16.5	16.5	39.7	0.0	46.6	39.7	0.0	46.5
Incr Delay (d2), s/veh	4.8	4.7	4.7	6.1	3.4	3.3	0.9	0.0	12.7	0.9	0.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	17.3	17.9	1.9	13.3	13.9	1.7	0.0	6.7	1.3	0.0	5.9
LnGrp Delay(d),s/veh	56.4	21.7	21.7	58.8	20.0	19.8	40.6	0.0	59.2	40.5	0.0	54.0
LnGrp LOS	E	C	C	E	B	B	D		E	D		D
Approach Vol, veh/h		1549			1279			259			230	
Approach Delay, s/veh		23.5			21.7			54.8			51.2	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	71.4	9.0	20.9	11.4	69.7	8.4	21.6
Change Period (Y+Rc), s	5.0	7.0	4.5	6.0	5.0	7.0	4.5	6.0
Max Green Setting (Gmax), s	13.0	45.0	8.5	22.0	13.0	45.0	7.5	23.0
Max Q Clear Time (g_c+I1), s	5.5	36.6	5.3	13.4	7.0	29.6	4.7	15.0
Green Ext Time (p_c), s	0.0	7.2	0.0	0.6	0.0	10.6	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	27.2
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	906	73	160	1202	34	126	95	113	22	82	131
Future Volume (veh/h)	61	906	73	160	1202	34	126	95	113	22	82	131
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1795	1900	1900	1729	1900	1863	1863	1900	1776	1866	1900
Adj Flow Rate, veh/h	67	996	80	176	1321	37	138	104	124	24	90	144
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	6	4	0	10	5	2	2	2	7	0	3
Cap, veh/h	86	1529	123	147	1669	47	230	166	198	206	105	167
Arrive On Green	0.05	0.48	0.48	0.08	0.51	0.51	0.08	0.21	0.21	0.02	0.16	0.16
Sat Flow, veh/h	1792	3198	257	1810	3265	91	1774	775	924	1691	647	1036
Grp Volume(v), veh/h	67	531	545	176	664	694	138	0	228	24	0	234
Grp Sat Flow(s),veh/h/ln	1792	1705	1750	1810	1643	1713	1774	0	1700	1691	0	1683
Q Serve(g_s), s	4.1	26.2	26.2	9.0	36.8	36.9	7.1	0.0	13.5	1.2	0.0	15.0
Cycle Q Clear(g_c), s	4.1	26.2	26.2	9.0	36.8	36.9	7.1	0.0	13.5	1.2	0.0	15.0
Prop In Lane	1.00		0.15	1.00		0.05	1.00		0.54	1.00		0.62
Lane Grp Cap(c), veh/h	86	815	837	147	840	876	230	0	365	206	0	272
V/C Ratio(X)	0.78	0.65	0.65	1.20	0.79	0.79	0.60	0.00	0.63	0.12	0.00	0.86
Avail Cap(c_a), veh/h	129	815	837	147	840	876	230	0	398	311	0	409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.2	21.9	22.0	51.0	22.3	22.3	36.1	0.0	39.5	33.5	0.0	45.3
Incr Delay (d2), s/veh	7.8	4.0	3.9	137.9	7.5	7.3	3.7	0.0	2.7	0.2	0.0	11.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	13.2	13.5	10.1	18.4	19.1	3.7	0.0	6.6	0.6	0.0	7.8
LnGrp Delay(d),s/veh	60.0	26.0	25.9	188.9	29.8	29.6	39.8	0.0	42.2	33.7	0.0	56.7
LnGrp LOS	E	C	C	F	C	C	D		D	C		E
Approach Vol, veh/h		1143			1534			366			258	
Approach Delay, s/veh		27.9			47.9			41.3			54.6	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	60.1	13.0	23.9	10.3	63.7	7.1	29.8
Change Period (Y+Rc), s	5.0	7.0	4.5	6.0	5.0	7.0	4.5	6.0
Max Green Setting (Gmax), s	9.0	44.0	8.5	27.0	8.0	45.0	9.5	26.0
Max Q Clear Time (g_c+I1), s	11.0	28.2	9.1	17.0	6.1	38.9	3.2	15.5
Green Ext Time (p_c), s	0.0	9.7	0.0	0.9	0.0	5.1	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	33	1	169	1	5	8	101	1050	6	4	1079	35
Future Volume (veh/h)	33	1	169	1	5	8	101	1050	6	4	1079	35
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1881	1900	1900	1900	1900	1863	1827	1900	1900	1844	1900
Adj Flow Rate, veh/h	39	1	199	1	6	9	119	1235	7	5	1269	41
Adj No. of Lanes	1	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	1	0	0	0	2	4	0	0	3	4
Cap, veh/h	153	1	272	61	259	286	328	2246	13	296	2030	66
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.06	0.63	0.63	0.01	0.59	0.59
Sat Flow, veh/h	1315	8	1592	77	1518	1615	1774	3540	20	1810	3464	112
Grp Volume(v), veh/h	39	0	200	7	0	9	119	606	636	5	641	669
Grp Sat Flow(s),veh/h/ln	1315	0	1600	1594	0	1615	1774	1736	1824	1810	1752	1824
Q Serve(g_s), s	2.5	0.0	10.1	0.0	0.0	0.4	2.1	16.6	16.6	0.1	20.3	20.4
Cycle Q Clear(g_c), s	12.5	0.0	10.1	10.1	0.0	0.4	2.1	16.6	16.6	0.1	20.3	20.4
Prop In Lane	1.00		1.00	0.14		1.00	1.00		0.01	1.00		0.06
Lane Grp Cap(c), veh/h	153	0	273	320	0	286	328	1102	1157	296	1026	1069
V/C Ratio(X)	0.25	0.00	0.73	0.02	0.00	0.03	0.36	0.55	0.55	0.02	0.62	0.63
Avail Cap(c_a), veh/h	153	0	273	320	0	286	449	1102	1157	508	1026	1069
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	0.0	33.4	29.4	0.0	28.9	9.2	8.7	8.7	8.0	11.5	11.5
Incr Delay (d2), s/veh	0.3	0.0	8.6	0.0	0.0	0.0	0.7	2.0	1.9	0.0	2.9	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	5.1	0.1	0.0	0.2	1.1	8.5	8.9	0.0	10.4	10.9
LnGrp Delay(d),s/veh	39.7	0.0	42.0	29.4	0.0	29.0	9.9	10.7	10.6	8.0	14.4	14.3
LnGrp LOS	D		D	C		C	A	B	B	A	B	B
Approach Vol, veh/h		239			16			1361			1315	
Approach Delay, s/veh		41.6			29.1			10.6			14.3	
Approach LOS		D			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	59.9		20.0	9.2	55.8		20.0
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5
Max Green Setting (Gmax), s	10.5	44.0		14.5	10.5	44.0		14.5
Max Q Clear Time (g_c+I1), s	2.1	18.6		12.1	4.1	22.4		14.5
Green Ext Time (p_c), s	0.0	15.4		0.0	0.1	14.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	68	3	160	0	1	5	220	1199	4	6	1091	63
Future Volume (veh/h)	68	3	160	0	1	5	220	1199	4	6	1091	63
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1882	1900	1900	1900	1900	1863	1827	1900	1900	1844	1900
Adj Flow Rate, veh/h	80	4	188	0	1	6	259	1411	5	7	1284	74
Adj No. of Lanes	1	1	0	0	1	1	1	2	0	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	8	0	1	0	0	0	2	4	0	0	3	4
Cap, veh/h	273	5	224	0	271	245	360	2343	8	269	1987	114
Arrive On Green	0.14	0.14	0.14	0.00	0.14	0.14	0.08	0.66	0.66	0.01	0.59	0.59
Sat Flow, veh/h	1325	33	1571	0	1900	1615	1774	3548	13	1810	3367	194
Grp Volume(v), veh/h	80	0	192	0	1	6	259	690	726	7	667	691
Grp Sat Flow(s),veh/h/ln	1325	0	1604	0	1900	1615	1774	1736	1825	1810	1752	1809
Q Serve(g_s), s	4.7	0.0	9.9	0.0	0.0	0.3	4.5	19.1	19.1	0.1	21.4	21.5
Cycle Q Clear(g_c), s	4.7	0.0	9.9	0.0	0.0	0.3	4.5	19.1	19.1	0.1	21.4	21.5
Prop In Lane	1.00		0.98	0.00		1.00	1.00		0.01	1.00		0.11
Lane Grp Cap(c), veh/h	273	0	229	0	271	245	360	1146	1205	269	1034	1068
V/C Ratio(X)	0.29	0.00	0.84	0.00	0.00	0.02	0.72	0.60	0.60	0.03	0.65	0.65
Avail Cap(c_a), veh/h	310	0	274	0	324	290	438	1146	1205	476	1034	1068
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	0.0	35.5	0.0	31.3	30.7	13.3	8.1	8.1	7.9	11.5	11.6
Incr Delay (d2), s/veh	0.2	0.0	15.3	0.0	0.0	0.0	4.5	2.3	2.2	0.0	3.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	5.3	0.0	0.0	0.1	4.2	9.8	10.2	0.1	11.1	11.5
LnGrp Delay(d),s/veh	33.5	0.0	50.8	0.0	31.3	30.7	17.7	10.5	10.4	7.9	14.6	14.6
LnGrp LOS	C		D		C	C	B	B	B	A	B	B
Approach Vol, veh/h		272			7			1675			1365	
Approach Delay, s/veh		45.7			30.8			11.6			14.6	
Approach LOS		D			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	62.1		17.6	11.2	56.2		17.6
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5
Max Green Setting (Gmax), s	10.5	44.0		14.5	10.5	44.0		14.5
Max Q Clear Time (g_c+I1), s	2.1	21.1		2.3	6.5	23.5		11.9
Green Ext Time (p_c), s	0.0	16.4		0.0	0.3	14.5		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	25	112	11	11	227
Future Vol, veh/h	18	25	112	11	11	227
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	20	27	122	12	12	247

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	399	128	0	0	134	0
Stage 1	128	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	611	927	-	-	1463	-
Stage 1	903	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	605	927	-	-	1463	-
Mov Cap-2 Maneuver	605	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	771	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	758	1463	-
HCM Lane V/C Ratio	-	-	0.062	0.008	-
HCM Control Delay (s)	-	-	10.1	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	8	286	19	26	191
Future Vol, veh/h	16	8	286	19	26	191
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	17	9	311	21	28	208

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	586	322	0	0	332	0
Stage 1	322	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	476	724	-	-	1239	-
Stage 1	739	-	-	-	-	-
Stage 2	785	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	464	724	-	-	1239	-
Mov Cap-2 Maneuver	464	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	765	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	527	1239	-
HCM Lane V/C Ratio	-	-	0.05	0.023	-
HCM Control Delay (s)	-	-	12.2	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	18	131	6	6	220
Future Vol, veh/h	18	18	131	6	6	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	20	20	142	7	7	239

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	399	146	0	0	149	0
Stage 1	146	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	611	906	-	-	1445	-
Stage 1	886	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	607	906	-	-	1445	-
Mov Cap-2 Maneuver	607	-	-	-	-	-
Stage 1	886	-	-	-	-	-
Stage 2	789	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	607	906	1445	-
HCM Lane V/C Ratio	-	-	0.032	0.022	0.005	-
HCM Control Delay (s)	-	-	11.1	9.1	7.5	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

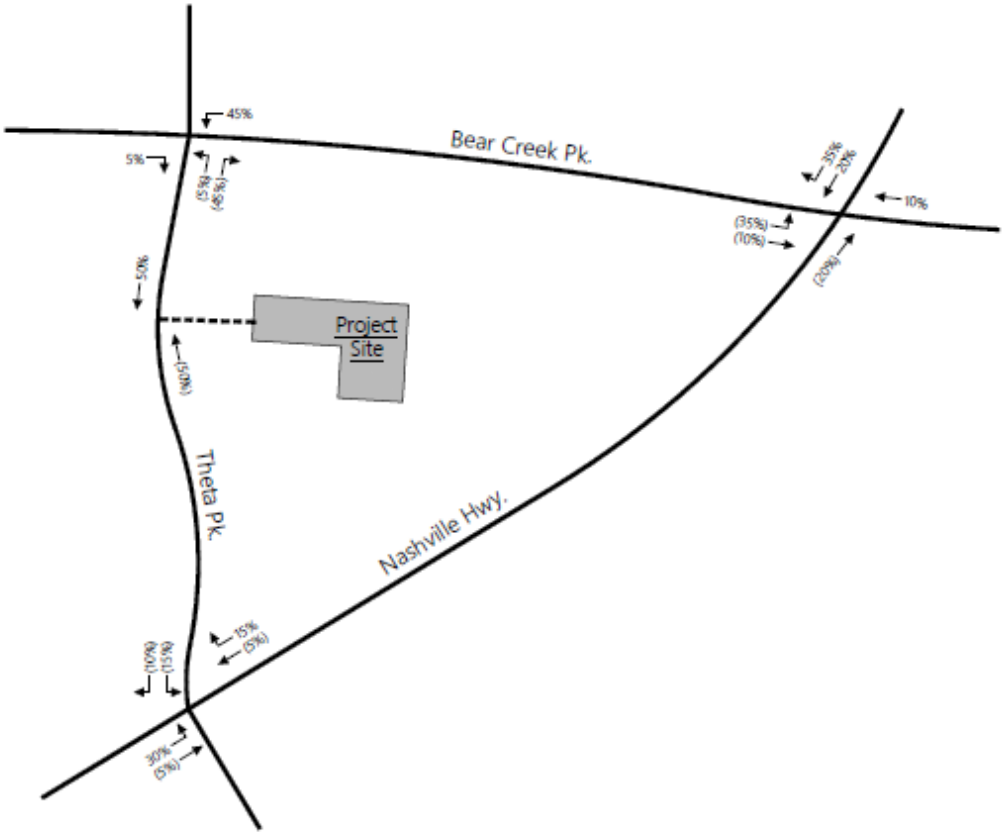
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	10	277	17	18	207
Future Vol, veh/h	10	10	277	17	18	207
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	2
Mvmt Flow	11	11	301	18	20	225

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	575	310	0	0	319	0
Stage 1	310	-	-	-	-	-
Stage 2	265	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	483	735	-	-	1252	-
Stage 1	748	-	-	-	-	-
Stage 2	784	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	474	735	-	-	1252	-
Mov Cap-2 Maneuver	474	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	770	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	474	735	1252	-
HCM Lane V/C Ratio	-	-	0.023	0.015	0.016	-
HCM Control Delay (s)	-	-	12.8	10	7.9	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

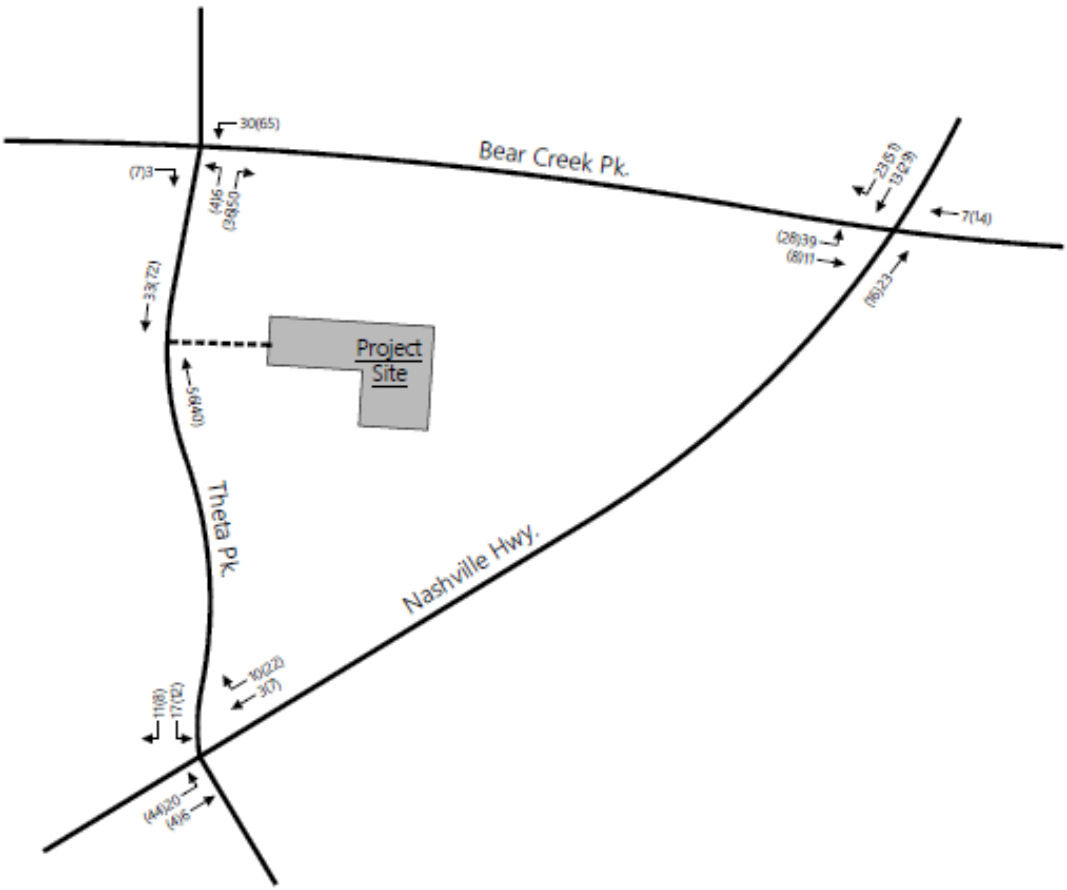
D. Background



XX% - Enter
(XX%) - Exit

N

Distribution of Peak Hour Traffic Volumes
Generated by Theta Pike Residential
(Not to Scale) Figure F1.

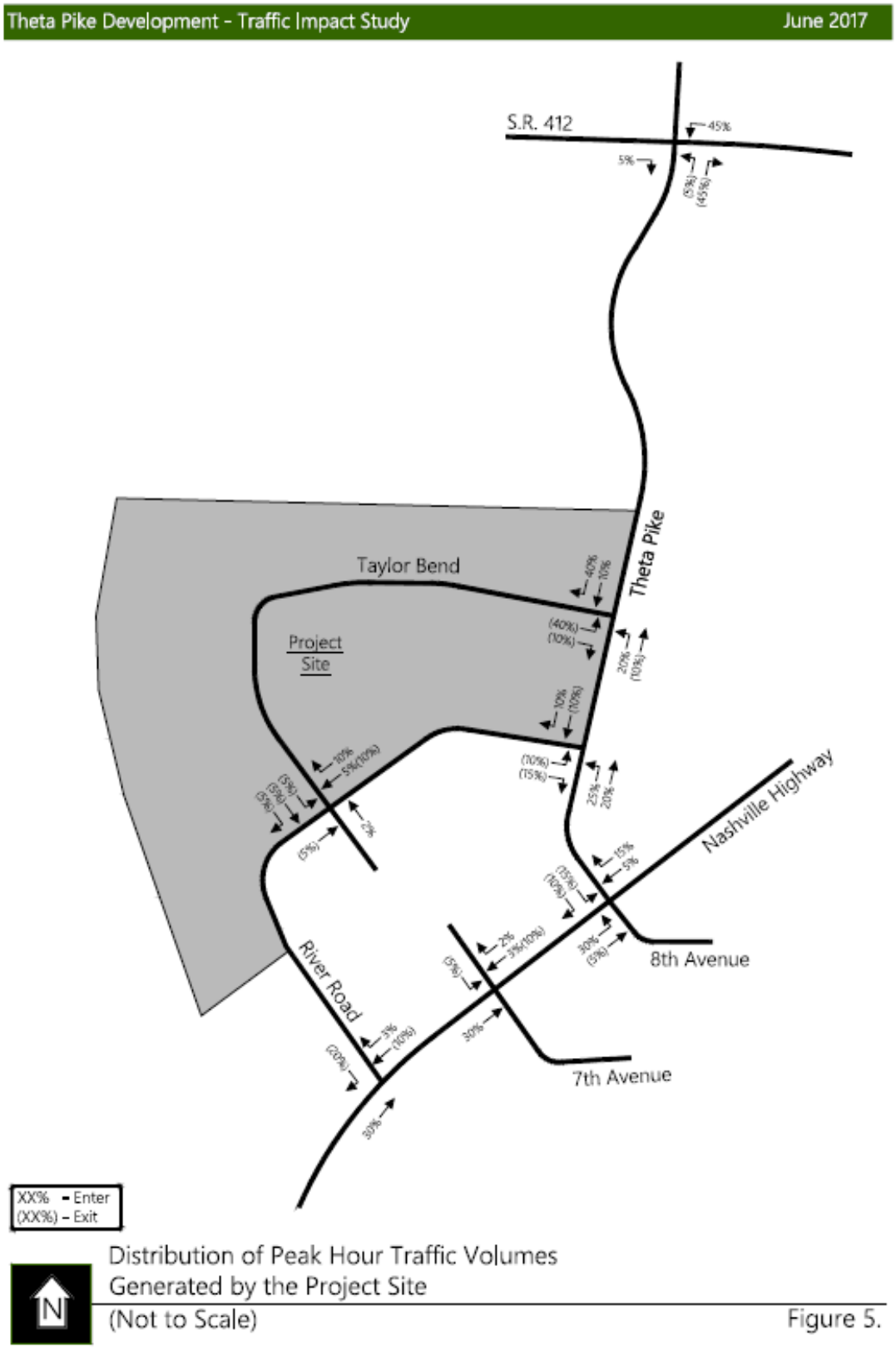


XXX - AM Peak Hour Traffic Volumes
(XXX) - PM Peak Hour Traffic Volumes

N

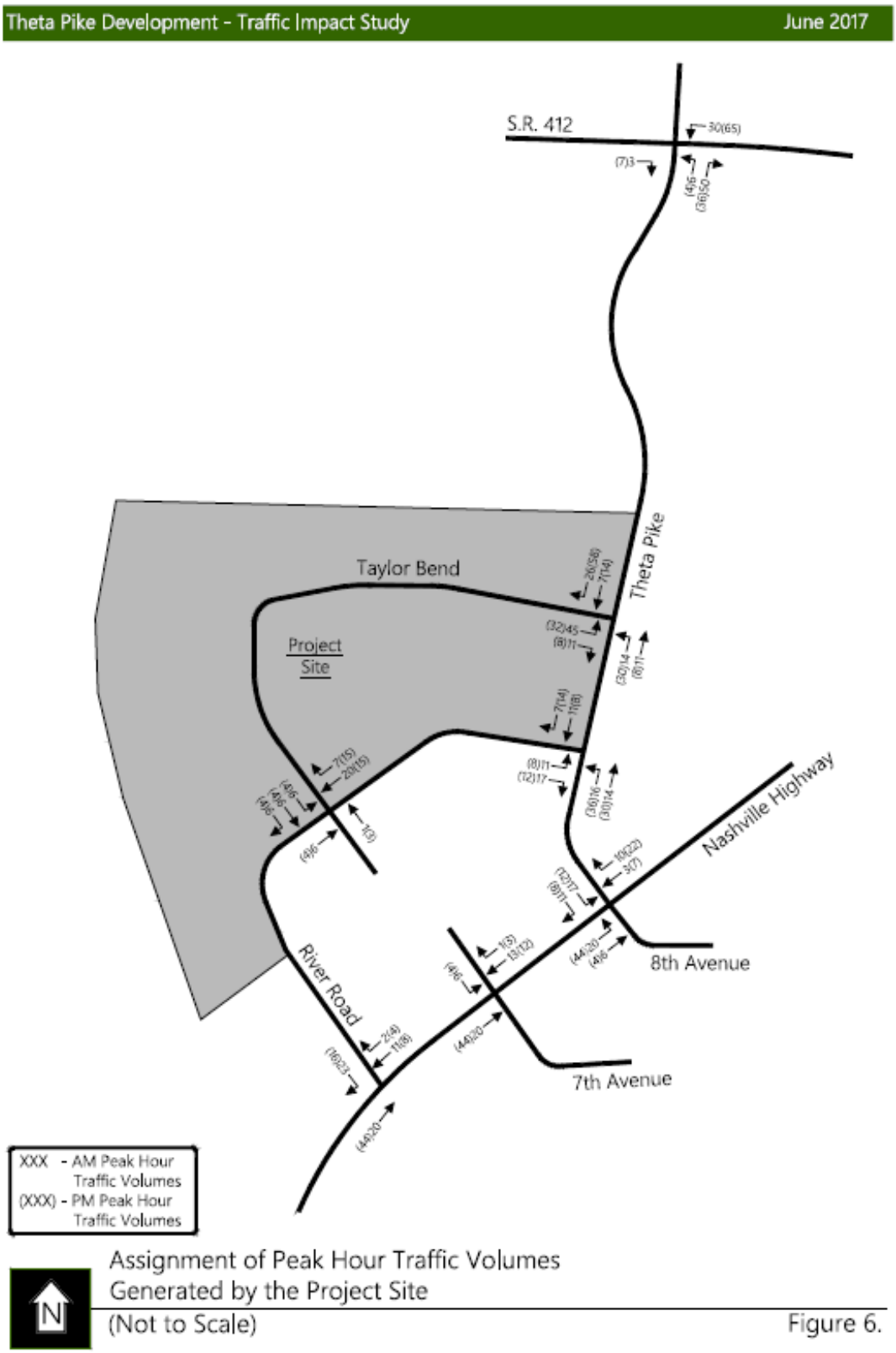
Assignment of Peak Hour Traffic Volumes Generated by Theta Pike Residential
(Not to Scale)

Figure F2.



Distribution of Peak Hour Traffic Volumes
Generated by the Project Site
(Not to Scale)

Figure 5.



Assignment of Peak Hour Traffic Volumes Generated by the Project Site
(Not to Scale)

Figure 6.

E. Trip Generation

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

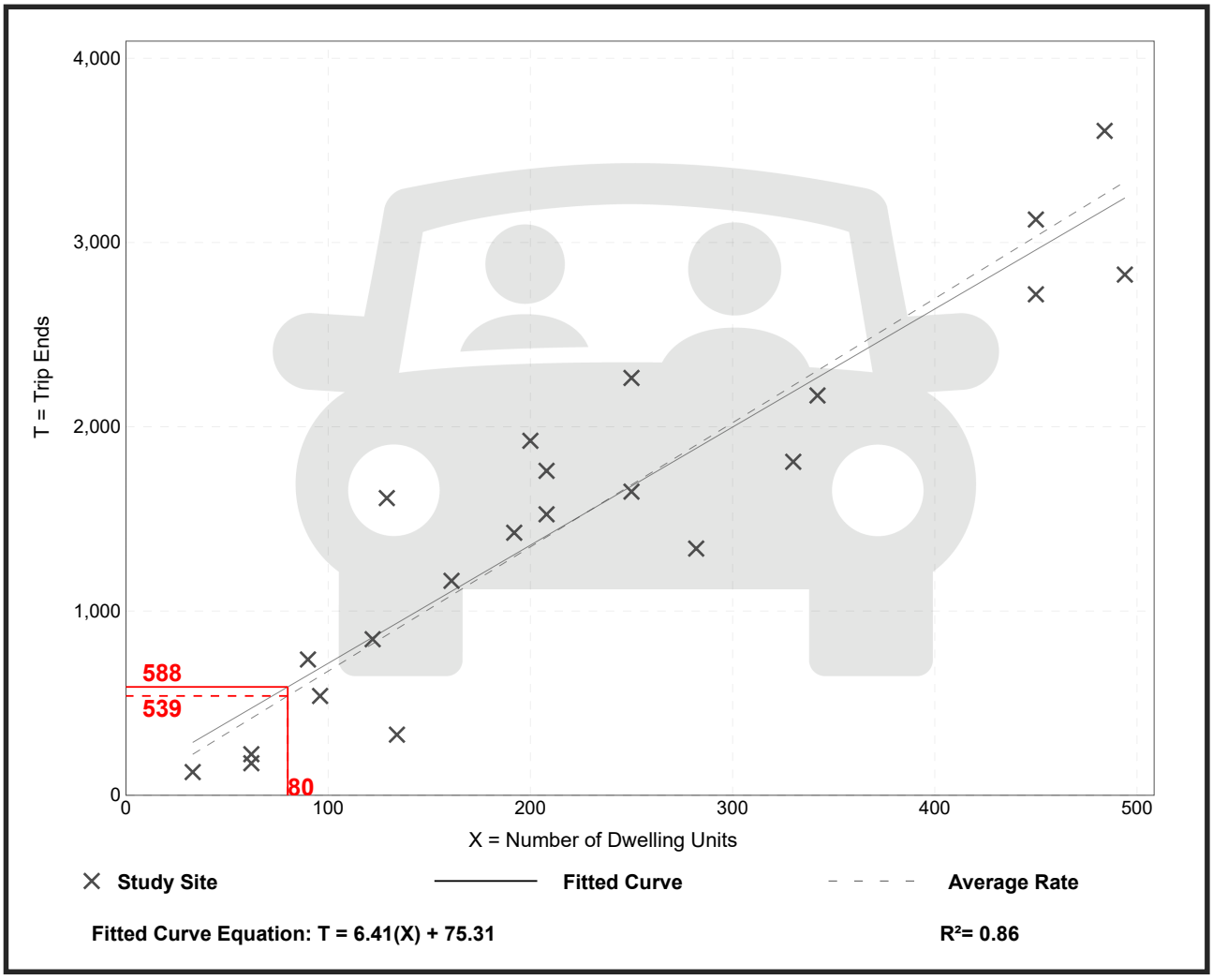
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



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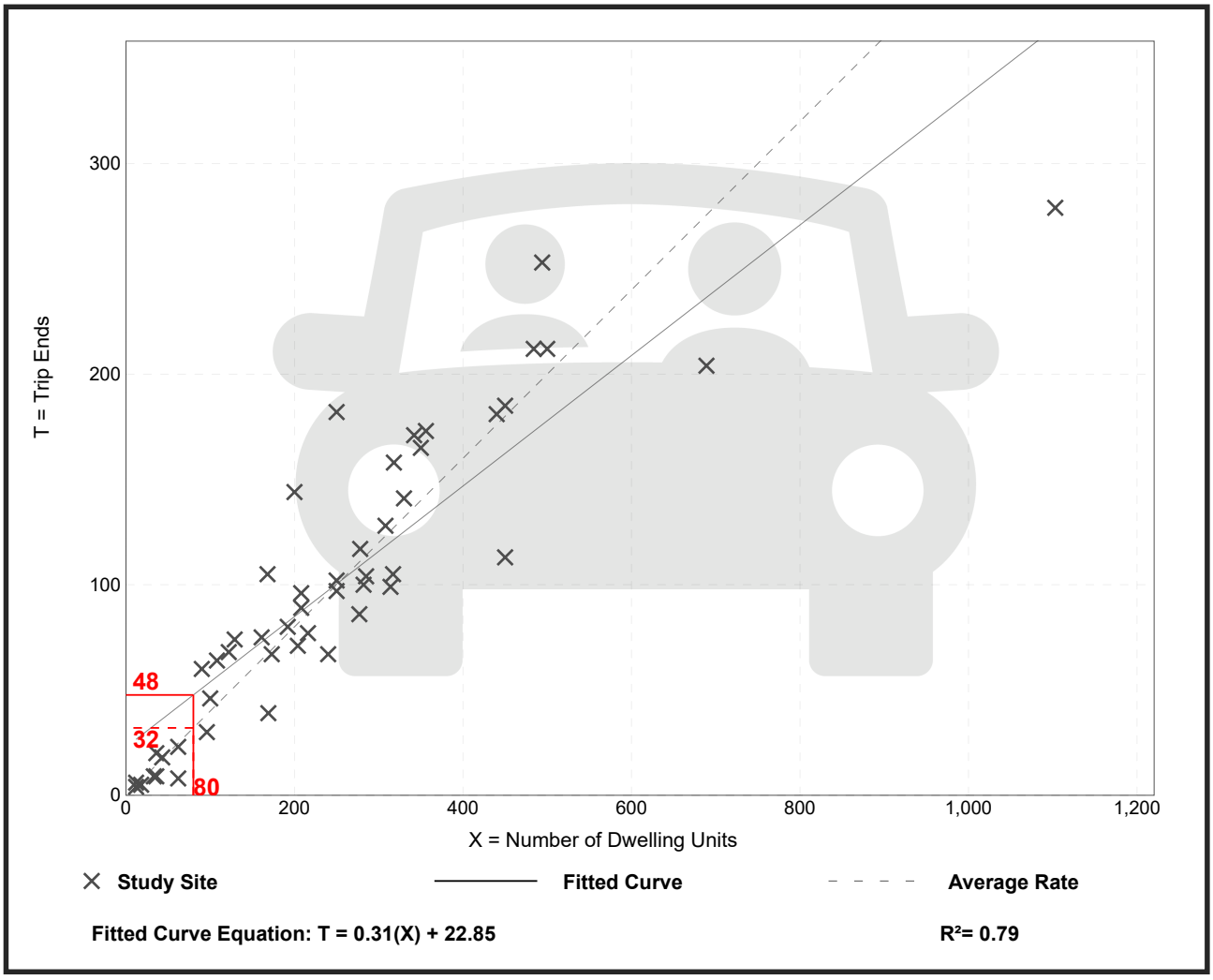
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



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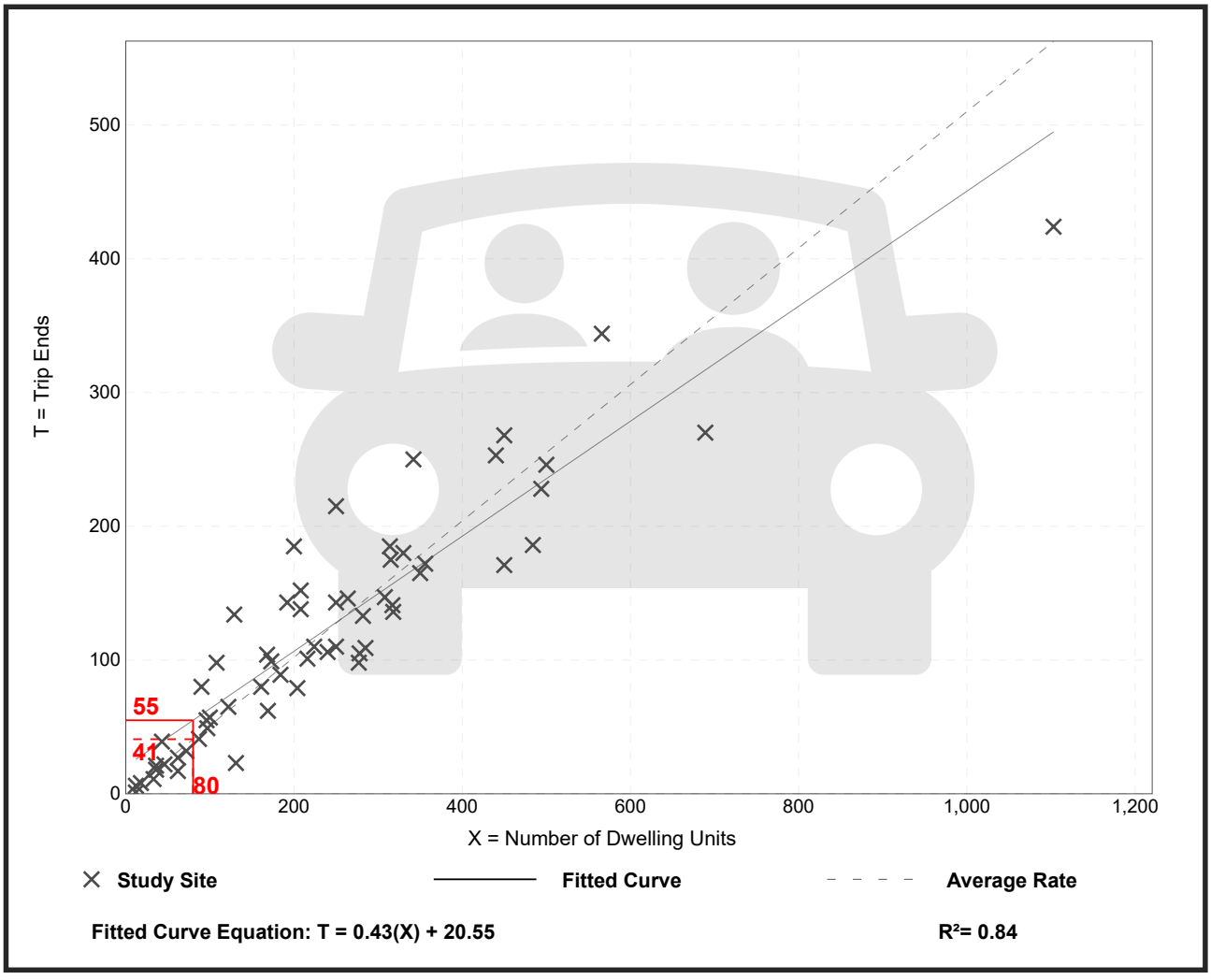
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 59
Avg. Num. of Dwelling Units: 241
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



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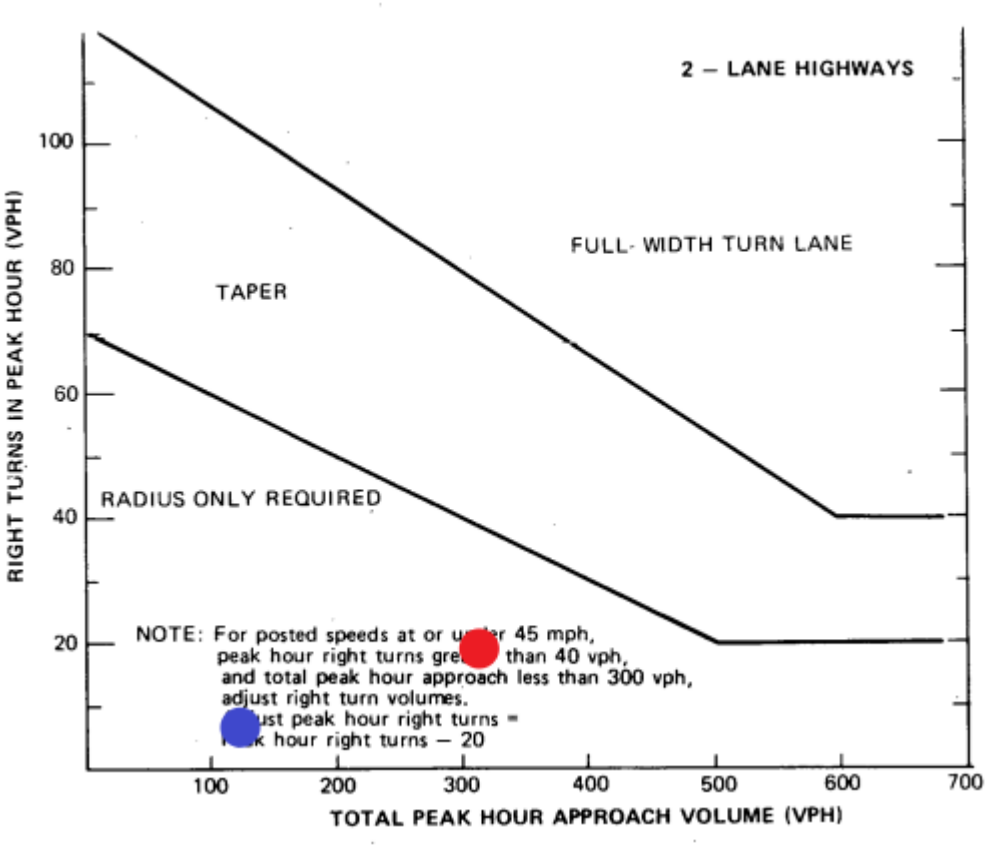
F. Turn Lane Analysis

RIGHT TURN LANE WARRANT ANALYSES
(Based on Intersection Channelization Design Guide)

Intersection Approach	AM Peak			PM Peak		
	V_{R*}	V_{A*}	Warranted?	V_{R*}	V_{A*}	Warranted?
Northbound Theta Pike @ Site Access	6	118	No	17	303	No

*V_R = Right Turn Volumes, V_A = Advancing Volumes ** Adjusted right turn volumes



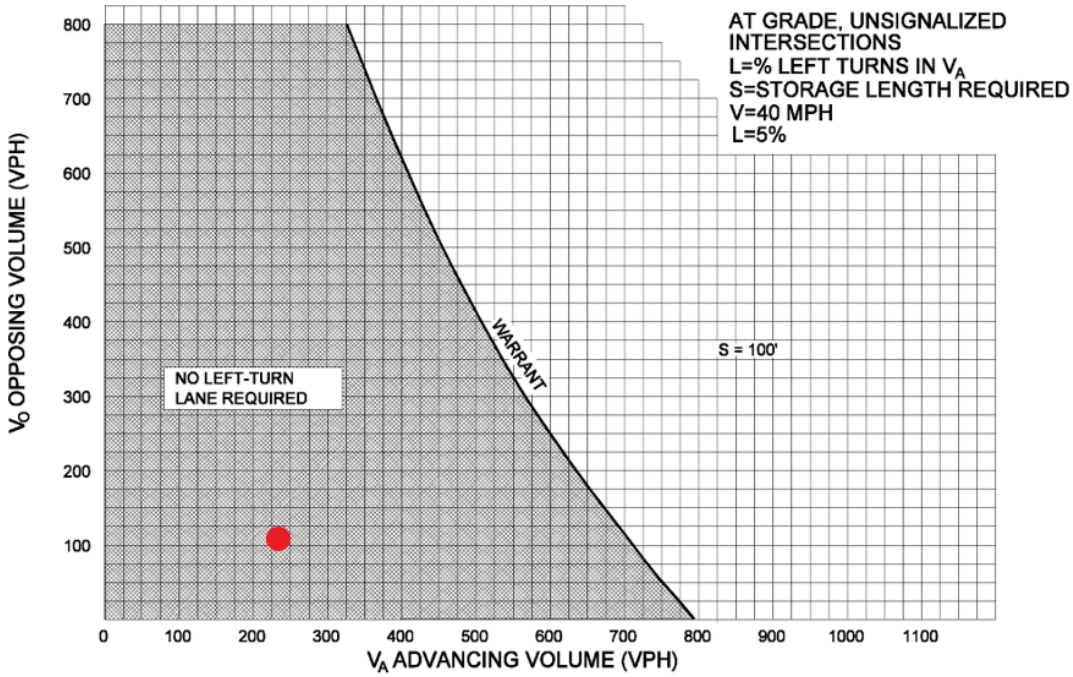
Under projected conditions, an exclusive right turn lane is not warranted on Theta Pike at the Site Access during either peak hour.

LEFT TURN LANE WARRANT ANALYSES
(Based on Harmelink Methodology)
Theta Pike and Site Access (AM Peak Hour)

2-lane roadway

Variable	Value
85th percentile speed, mph:	39
Percent of left turns in advancing volume (VA), %:	2.5%
Advancing volume (VA), veh/h:	233
Opposing volume (VO), veh/h:	118

HARMELINK CHARTS – 40 MPH



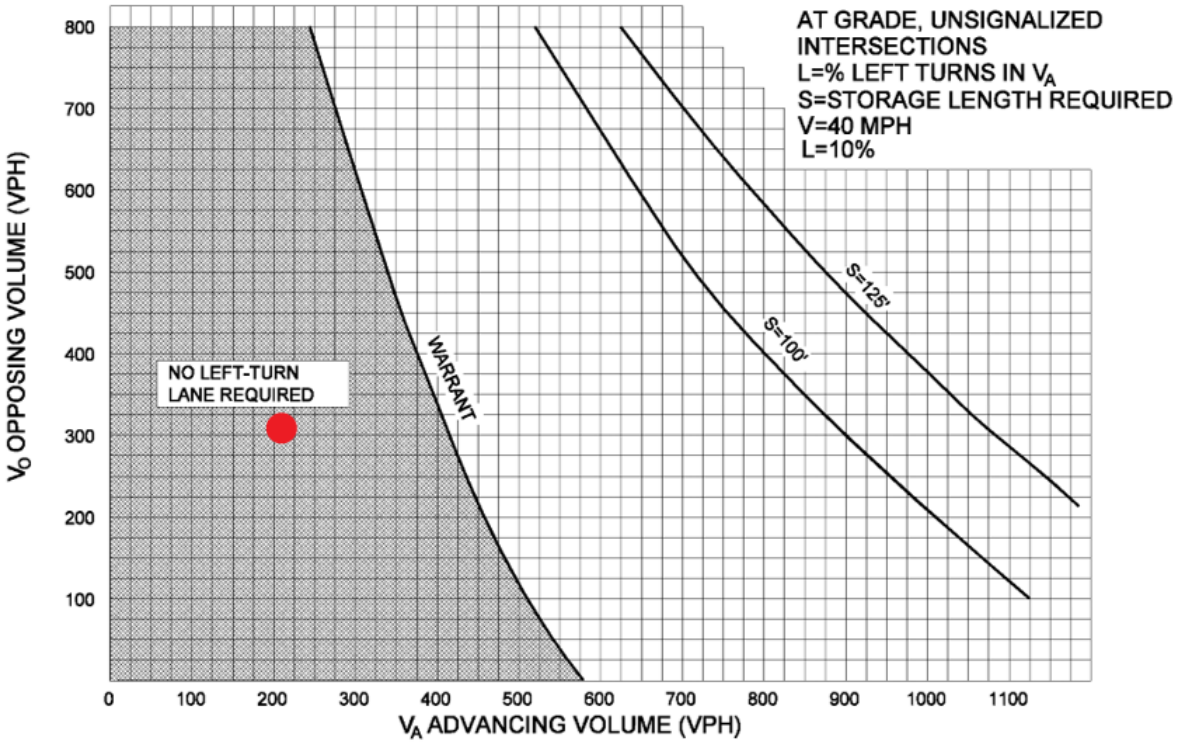
Warrant for 5% Left-Turn Storage Lanes at 40 mph

Under projected conditions, an exclusive **left turn lane is not warranted** on Theta Pike at the Site Access during **AM peak hour.**

LEFT TURN LANE WARRANT ANALYSES
(Based on Harmelink Methodology)
Theta Pike and Site Access (PM Peak Hour)

2-lane roadway

Variable	Value
85th percentile speed, mph:	39
Percent of left turns in advancing volume (VA), %:	8.5%
Advancing volume (VA), veh/h:	209
Opposing volume (VO), veh/h:	303



Warrant for 10% Left-Turn Storage Lanes at 40 mph

Under projected conditions, an exclusive **left turn lane is not warranted** on Theta Pike at the Site Access during **PM peak hour**.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPE
- EXISTING INDEX CONTOUR
- EXISTING OVERHEAD ELECTI
- EXISTING SANITARY SEWER I
- EXISTING TREELINE
- EXISTING SPOT ELEVATION
- EXISTING STORM SEWER LIN
- FIRE HYDRANT
- WATER METER
- TREE, DECIDUOUS
- TREE, CONIFER
- IRON PIPE FOUND (IPF)
- SANITARY MANHOLE
- WATER BOX (WATER VALVE)
- POWER POLE
- CURB INLET

GENERAL NOTES

1. BEARINGS ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83, 2011).
2. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88, GEOID 18). CONTOURS ARE SHOWN AT 1-FOOT INTERVALS.
3. THE FIELD SURVEY WAS COMPLETED ON MAY, 2022.
4. THIS SURVEY WAS PREPARED USING THE CURRENT DEEDS AND PLATS OF RECORD.
5. ALL DEED BOOK AND PLAT REFERENCES PERTAIN TO THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
6. ADJOINING PROPERTY LINES SHOWN WERE PLOTTED FROM INFORMATION TAKEN FROM EITHER DEED DESCRIPTION, RECORD PLATS, OR TAX MAPS.
7. PROPERTY CORNERS SET THIS SURVEY ARE 18" #4 REBAR WITH ORANGE PLASTIC CAP STAMPED "M2 GROUP", 18" #5 REBAR WITH YELLOW PLASTIC CAP STAMPED "M2 GROUP, LLC", OR PK NAIL WITH STAINLESS STEEL WASHER STAMPED "M2 GROUP, LLC", UNLESS NOTED OTHERWISE.
8. UTILITIES SHOWN HEREON WERE COMPILED FROM VISIBLE STRUCTURES AT THE SITE, INFORMATION FROM PLANS, AND PHYSICAL MARKINGS AND COMBINED TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. IN ADDITION, IN SOME JURISDICTIONS, 811 OR OTHER SIMILAR UTILITY LOCATE REQUESTS FROM SURVEYORS MAY BE IGNORED OR RESULT IN AN INCOMPLETE RESPONSE. THIS SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THIS SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. VERIFICATION OF EXISTENCE, LOCATIONS, AND DEPTH SHOULD BE MADE BEFORE CONDUCTING ANY EXCAVATION IN THE VICINITY OF THE UTILITY.
9. THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANEL 170 OF 440, MAP NUMBER 47119C0170E, EFFECTIVE DATE APRIL 16, 2007.
10. NO TITLE REPORT WAS PROVIDED TO THIS SURVEYOR REGARDING THE SUBJECT PROPERTIES, THEREFORE, THIS SURVEY IS SUBJECT TO THE FINDINGS OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH AND REPORT MAY DISCLOSE.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE INFORMATION SHOWN HEREON IS TRUE AND ACCURATE TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF. THE SURVEY SHOWN HEREON REPRESENTS A CATEGORY I SURVEY, HAVING A LINEAR ERROR OF CLOSURE WHICH IS EQUAL TO OR LESS THAN 1 FOOT PER 10,000 FEET OF LAND (1:10,000). THIS SURVEY WAS MADE IN COMPLIANCE WITH THE CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE.

SUBJECT PROPERTY INFORMATION:

- OWNER: BLAIR PROPERTY MANAGEMENT INC
- TAX MAP 90B, GROUP B, PARCEL 47.00
- TOTAL AREA = 3.61 AC.

N NW NE W E SW SE S

40' 0 40' 80'
GRAPHIC SCALE

REVISION #	DATE	DESCRIPTION

BOUNDARY & TOPOGRAPHIC SURVEY
220 THETA PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

DATE :	**MAY, 2022**	**DRAWN BY :**	**BPH**
MADE FOR :	**WAITS DEVELOPMENT GROUP, LLC**	**CHECKED BY :**	**SVH**

M2 GROUP
P.O. BOX 848
FRANKLIN, TN 37065
WWW.M2GROUPLLC.COM

SHEET NUMBER: **SV-01**

MPA - SURVEY.DWG / Monday, June 19, 2023 3:48:02 PM

May 22, 2023

City of Columbia, Tennessee
700 North Garden Street
Columbia, Tennessee 38401

Re: **Mackenzie Place Townhomes**
220 Theta Pike
Description of Proposed Project

To Whom it May Concern:

The Mackenzie Place Townhome project consists of 34 townhome units that will be constructed along a 560+/- LF roadway terminating with a cul-de-sac. Each unit will have two parking spaces: one within the garage itself and the other space located in the driveway.

Due to topography, a 436+/- LF retaining wall with varying heights (7.5' at its maximum) will be required along the south property line.

Storm water will be managed via an (level 2) infiltration trench which will satisfy the 80% target runoff reduction requirement. The infiltration trench has been oversized in order to reduce the post-development Curve Number (CN) to meet the stormwater requirements and ensure that post developed flows do not exceed the pre-developed flows.

Sanitary Sewer will be provided with a proposed extension of the existing network connecting at a manhole adjacent to the intersection of Theta Pike and Polk Place.

Water will be provided with the construction of a new 8" main that will connect to an existing main along Theta Pike.

Thank you for your consideration of this site plan submittal and please do not hesitate to reach out to us if have any questions, or need any further information.

Sincerely,

Brian Holcombe

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

Preliminary Plat, Site Development Plan, and PUD Checklist

Development: MacKenzie Place

This checklist shall be completed, and included with the submittal documents. If the submittal does not contain a completed checklist, it shall be deemed incomplete. All below listed items shall be included in the submittal documents and plans, as well as any further information required by the City of Columbia to evaluate compliance and to perform a full and complete review. See Zoning Ordinance Article 8 and Subdivision Regulations.

General

- ☑ Name of development
- ☑ Contact info for the owner and licensed design professional(s) preparing plan: name, address, email, phone
- ☑ Plan sealed by a Design Professional licensed in the State of Tennessee.
- ☑ North Arrow, legend, and site vicinity map
- ☑ Graphic Scale: between 1 in. = 10 ft. and 1 in. =100 ft.
- ☑ Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.
- ☑ Note referencing Tennessee State Plane Coordinate System, NAD 83 Datum
- ☑ All property boundaries, existing easements, and encumbrances
- ☑ Parcel identification, owner, and deed and plat references of adjoining properties
- ☑ Proposed phasing and timetable for all phases of development
- ☑ Traffic Impact Study, as required.
- ☑ The substance of all existing and proposed covenants, easements, or other restrictions.

Lots and Land-Use

- ☑ The size of total property to be developed in square feet and acres
- ☑ Lot numbers of all proposed lots, with dimensions, locations, and square footage
- ☑ A tabulation of the land area to be devoted to various uses and activities and overall densities.
- ☑ Typical lot layout depicting proposed setbacks, yards, and easements, where applicable

Structures

- ☑ Location and approximate dimensions of all existing and proposed structures.
- ☑ Location of all earth retaining structures, with approximate top and bottom of wall elevations.
- ☑ Existing and intended use of all buildings and structures on site, including the number of dwelling units and density, where applicable
- ☑ Location, type, and size of proposed signs
- ☑ Approximate height, bulk, and the utilization of structures including activities and the number of living units.

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Grading, Drainage, and Storm

- ☑ Existing conditions and contours at vertical intervals of not more than two (2) feet
- ☑ General proposed contours at vertical intervals of not more than two (2) feet
- ☑ FEMA Special Flood Hazard Area (SFHA), 100-year Floodplain (F-P), and Floodway (F-W) boundaries with elevations and the exact location of the nearest benchmark. Indicate the Flood Insurance Rate Map (FIRM) panel number, its effective date, and flood insurance zones
- ☑ Location and dimension of aquatic buffer zones
- ☑ General layout of the proposed storm drainage system including surface and subsurface drainage systems, areas for detention, and water quality devices.
- ☑ Identification of all critical lots

Streets, Parking, and Pedestrian Elements

- ☑ Proposed street and alley rights-of-way, typical sections, widths, classification, names, and proposed ownership and maintenance responsibility
- ☑ Proposed connections to existing and proposed streets (including classification) located outside the development
- ☑ Proposed improvements as identified in the Traffic Impact Study, as required
- ☑ Existing and proposed sidewalks, trails, and other pedestrian elements
- ☑ Existing and proposed on-street and off-street parking and loading areas
- ☑ Summary of all provided and required parking

Landscaping, Open Space, and Amenities

- ☑ Natural features on site including, but not limited to, wetlands, streams, ponds, springs, sinkholes, wells, rock outcroppings, excessive slopes, and forested areas
- ☑ Landscaped areas and buffers with details on proposed plantings, existing vegetation, and other features.
- ☑ The location and size of all common open space, parkland dedications, and dedications and reservations of land for public uses.
- ☑ Any amenity features and structures for private or public benefit.
- ☑ Location, dimension, and materials of fences and walls
- ☑ Tree Canopy retention

Utilities

- ☑ General layout and location of existing and proposed utilities and utility features including, but not limited to potable water, fire hydrants, sanitary sewer, storm sewer, and power and communication facilities.
- ☑ Acknowledgement from water, sewer, and power utility providers that the proposed development may be adequately served with existing infrastructure, or if improvements are required to adequately serve the development, a general statement of the improvements.

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PUD Specific Items

- ❑ Legal Description of Property
- ❑ Owner's Affidavit
- ❑ List of all variances requested
- ❑ The nature of the landholder's interest in the land proposed to be developed and a written statement of concurrence from all parties having a beneficial interest in the affected property.
- ❑ Location and approximate dimensions of all existing and proposed structures including approximate height, bulk, and the utilization of structures including activities and the number of living units. Include architectural renderings of all proposed structures with materials listed.
- ❑ The substance of covenants, grants of easements or other restrictions to be imposed upon the use of the land, buildings and structures including proposed easements for public utilities on the property or documentation of off-site easements.
- ❑ Exterior lighting

If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented for Planning Commission action until such plan is found complete, compliant with City standards, and ready for review.

Checklist Completed By:

Brian Holcombe	Brian Holcombe	05/22/23
Print Name	Signature	Date

DocuSign Envelope ID: A9390243-670C-4902-9842-71113075C10E

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DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
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PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	220 Theta Pike - Columbia, TN		
	TAX MAP: 90B	GROUP: B	PARCEL: 47.00
SUMMARY OF NATURE OF REQUEST AND WORK	34 town home units.		

DATE OF PRE-APPLICATION CONFERENCE	04/05/23	*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
❑ Annexation ❑ Rezoning ❑ Preliminary Plat ❑ Final Plat ❑ PUD Preliminary Master Plan ❑ PUD Final Site Plan ☑ Multi-Family Site Plan ❑ Other: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ❑ Written Legal Description copy ❑ Requested Zone Listed ❑ Compliance with Comprehensive Plan ❑ Annexation Permission Form ❑ Plans and/or Plats conforming to City standards with check list completed ❑ Columbia Water System Availability Letter **Plats/PUDs:** ❑ Project Name (include Sections & Phases) _____ ❑ Total Number of Lots _____ ❑ Total acreage _____

DocuSign Envelope ID: A9390243-670C-4902-9842-71113075C10E

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	M2 Group, LLC	PHONE	(615) 925-0851
ADDRESS	P.O. Box 848 - Franklin, TN 37064	EMAIL	brian@m2groupllc.com

PROPERTY OWNER NAME	Blair Property Management, LLC	PHONE	(615) 498-4190
ADDRESS	8217 VICTORY TRL BRENTWOOD TN 37027-7374	EMAIL	

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

M2 Group, LLC APPLICANT NAME	DocuSigned by: Brian Holcombe 804B4D38BAE24F9... APPLICANT SIGNATURE	01-17-2023 | 12:27:59 CST DATE
Blair Property Management, LLC PROPERTY OWNER NAME	DocuSigned by: 5E3D27D00E42406... PROPERTY OWNER SIGNATURE	01-17-2023 | 12:31:33 CST DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	

Morrow Lane Annexation

Project #:	23-0275	Location:	Map 113 Parcel 80.50
Applicant:	Adam Crunk	Case Type(s):	Annexation
Staff Planner:	Kevin C. McCarthy, AICP	Proposed Use:	Public Right-of-Way

PROJECT SUMMARY

The applicant requests annexation of approximately 500 linear feet of public right of way on Morrow Lane. The subject property is adjacent to the Hillcrest Village (aka Waterford) development. The abutting properties include parcel 80.50 of tax map 113 and parcel 7.03 of tax map 124. Maury County is currently the custodian of the roadway. The applicant requests that the City of Columbia annex a section of the roadway into the city and subsequently take over custody and maintenance. The County Highway Superintendent has expressed support for the annexation.

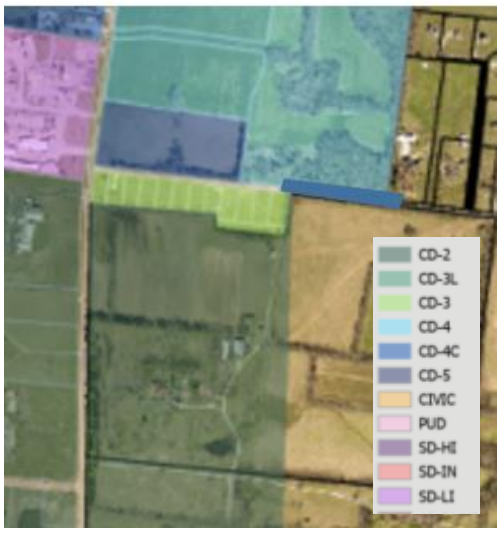
- The DRC reviewed this proposal at its August 2023 meeting.
- The Maury County Highway Superintendent provided a letter of support for the request.
- The request is limited to an inter-local transfer of custody of a roadway. Analysis of consistency with Connect Columbia is omitted.
- Analysis of zoning conformity is omitted.
- The Planning Commission is a **recommending body** for annexation requests.
- Templates are provided at the end of the report to assist the Planning Commission in crafting properly formatted motions.

SITE INFORMATION

CURRENT ZONING	EXISTING USE	EXISTING IMP.	LAND AREA
Unincorporated	Right of Way	Public Roadway	+/- 0.65 Acres

FUTURE LAND USE MAP

ZONING MAP



SITE CONTEXT/ADJACENT PROPERTIES			
	Future Land Use	Zoning	Current Use
Subject Property	N/A	N/A	Right of Way
North	Suburban Corridor	CD-4	In Development
South	Suburban Neighborhood	Unincorporated	Single-Family

The subject site is located inside the Urban Growth Boundary (UGB) and partially outside the corporate limits of Columbia. It is adjacent to the Hillcrest Village development site. The property to the south is partially within the city and partially outside of the city. It is used as a single family residence and for agricultural purposes.

REVIEW PROCESS

The Development Review Committee evaluated the proposed Annexation at its August 2023 meeting, as directed by section **8.3.7** of the Zoning Ordinance. Technical comments are provided in the agenda package.

Whenever new territory is added to the zoning jurisdiction of the City by any means, § **8.5.19** of the Zoning Ordinance directs the Planning Commission to review and make a recommendation on the proposed changes to the Official Zoning Map.

The Planning Commission is a recommending body for annexations and rezoning under **§ 8.3.3.B.3** of the Zoning Ordinance.

Section **8.5.19.H.4** of the Zoning Ordinance establishes the review criteria for approval of all changes to the Official Zoning Map:

a. The Rezoning is consistent and not in conflict with the Comprehensive Plan or other applicable approved local plans for the area;
b. It has been determined that the legal purposes for which zoning exists, as set forth in Section 1.5 [, are not contravened]; [1]
c. It has been determined that there will be no adverse effect upon Adjoining property owners unless such effect can be justified by the overwhelming public good or welfare;
d. It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public;

[1] Ordinance 4400 contains this incomplete sentence. The previous ordinance contained a nearly identical list of criteria at § 3.18.7.B. The corresponding criterion in Ordinance 3638 read "the legal purposes for which zoning exists are not contravened."

e. It has been determined that conditions affecting the area have changed to a sufficient to warrant the Zoning Map Amendment or that the existing zoning of the property was the result of a mistake;

f. It has been determined that adequate school, road, parks, wastewater treatment, water supply, and stormwater drainage facilities are available

SUMMARY OF DEVELOPMENT REVIEW COMMITTEE COMMENTS

The DRC reviewed this proposal at its August 2023 meeting. A full list of comments, and the applicant's responses, is provided in the agenda packet. Some key comments are noted below.

- **Planning** requested clarification of the legal status of the annexation and whether the interests of adjacent property owners were impacted by the request.
- The **City Engineer** identified required improvements that the developer of adjacent property to the north must complete prior to acceptance of the roadway.

COMMENTARY FROM PROFESSIONAL PLANNING STAFF

The request is unusual. Municipalities are generally the custodians of local rights-of-way entirely within their jurisdiction. It is unusual, but not without precedent, to annex a portion of roadway separate from adjacent property. The property on the south side of the right of way remains outside the city in unincorporated Maury County. Initially, planning staff was concerned that the annexation could impact the interests of the underlying fee simple owner of the property to the south. However, the property owner spoke with the City Planner on September 7th and verbally indicated that he did not object to the City taking custody of the subject portion of Morrow Lane.

SAMPLE MOTIONS

Approve:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.M** of the City of Columbia Zoning Ordinance have been satisfied and recommend approval of the proposed annexation and rezoning *[, subject to technical comments and other conditions presented by planning staff*].

Approve Subject to Conditions:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.M** of the City of Columbia Zoning Ordinance have been satisfied and recommend approval of the proposed

annexation and rezoning, subject to the following conditions: [*list conditions of approval crafted by Planning Commission*].

Deny:

Move to recommend denial of the requested annexation and rezoning having found, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.M** of the City of Columbia Zoning Ordinance are not satisfied [*list specific reasons for denial*].

Defer:

Move to find that there is insufficient information to decide, defer the matter to the next regularly scheduled meeting of the Planning Commission, and request that the [*applicant/staff*] provide: [*list additional information*] for review at a future meeting.

August 21, 2023

City of Columbia
Development Review Committee
700 N Garden Street
Columbia, TN 38401

RE: Request for ROW Annexation along a portion of Morrow Lane

Below are our responses to comments received on August 8th, 2023. We believe we have satisfied all comments, but if you have additional concerns or questions, please do not hesitate to contact us. Our responses are as follows:

Planning

1. Please provide a metes and bounds legal description of the area to be annexed.
   Response: An exhibit showing metes and bounds has been attached to this response.

2. Please identify the legal status of the Right-of-Way. Specifically, do the adjacent property owners hold the reversion of the underlying fee if the right-of-way is ever vacated or abandoned?
   Response: From our understanding and investigations, the adjacent property owner does not have any rights or reversion of the underlying fee if the right-of-way is abandoned. We have attached an ALTA and Boundary Survey of the area of the property and no rights are held by the adjacent property owner for the Morrow Lane ROW.

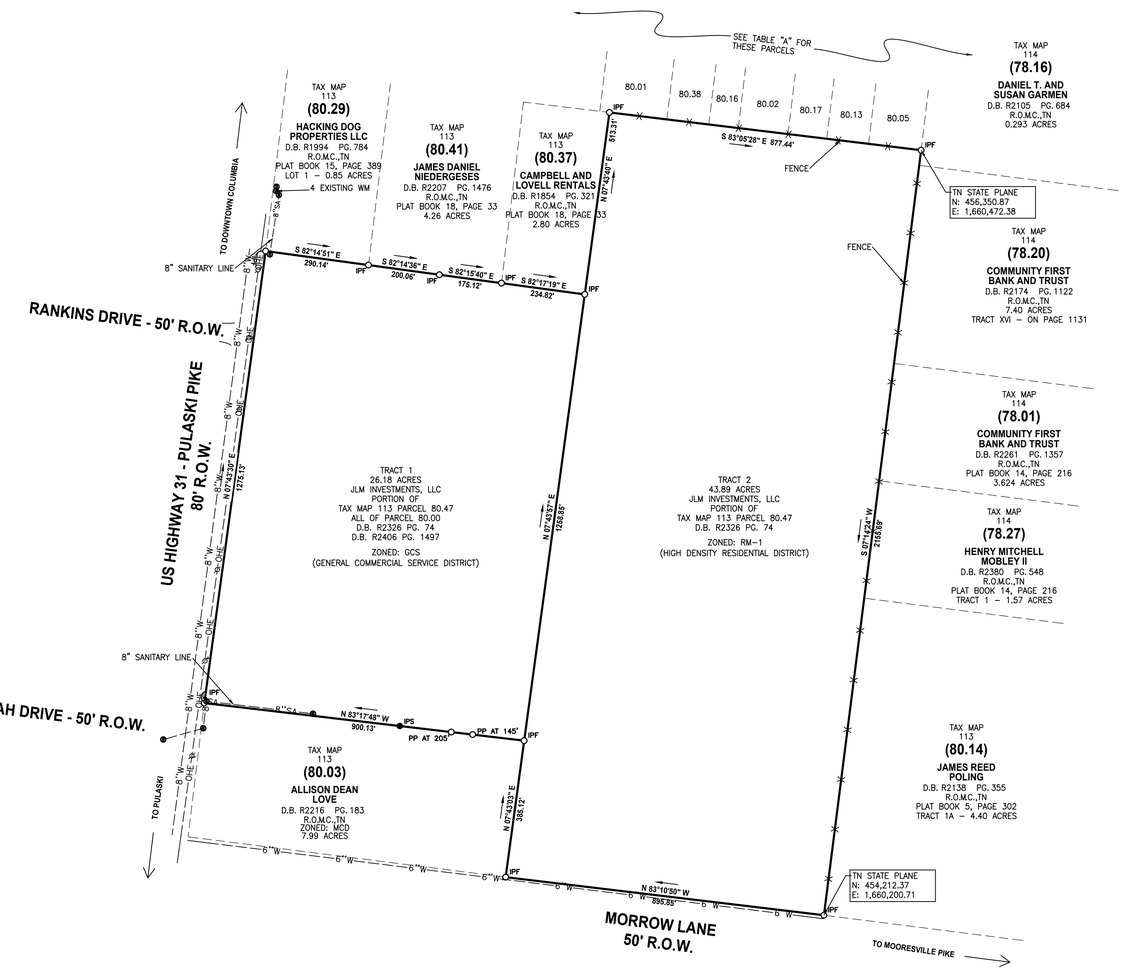
Engineering

3. Provide an agreement to mill, overlay (1.5"), and stripe this segment of roadway with acceptance of the first plat of Heritage Village (PH 1A). Cost to be added to LOC.
   Response: The annexation of Morrow Lane was made at the request of Maury County Highways Department and not the current Project Owner. It is our understanding from the ESS and conversations with the City that the Mill and Overlay is required at the requestors expense if only one side of the ROW is owned by the City.

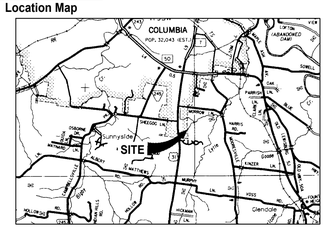
We believe that all comments have been addressed. If you have any questions or need additional information, please do not hesitate to contact me at adam@crunkeng.com or 615-873-1795.

Sincerely,

Adam Crunk, PE
Crunk Engineering LLC



Location Map



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Surveyor's Notes

All distances were measured with Trimble R10 GPS and have been adjusted for temperature and pressure.

The property (Boundary) Line Survey exceeds the minimum requirements of an Urban Land Survey Category 1 as per Standards of Practice adopted by the State Board of Examiners for Land Surveyors for the State of Tennessee the precision of the unadjusted survey is greater than 1 foot in 10,000 feet.

Information concerning site utility services and appurtenances shown hereon is based on visible evidence noted during the survey, information provided by utility representatives or information shown on original construction plans by others. Information and location of service lines on site should be considered approximate and there may be underground utility lines that are not shown on the survey. Owner(s) and contractor(s) should assume responsibility of locating all underground utility service lines prior to any construction, excavation or any disturbance of the existing ground elevation to avoid hazard of unnecessary expense.

Information concerning major utilities or appurtenances shown hereon are based on visible evidence noted during the survey or information provided by utility representatives. Verification of existence, size location, depth, and availability of service should be confirmed by local utility agencies.

The property shown hereon is located within Maury County, TN and in city limits of Columbia, TN

The area of the parcels as shown hereon is 70.07 Acres

This property currently identified as Tax Map No. 113 Parcel No. 80.47. For designation shown thus (XXX) indicates Parcel Numbers for said map.

Deed reference: Book R2326, Page 74
Book R2406, Page 1497

This survey was prepared from current deeds of record and does not represent a title search or a guarantee of title, and is subject to any state of facts a current and accurate search may reveal.

This survey was prepared for the exclusive use of the person, persons, or entity, if any, named on the certification hereon. Said certificate does not extend to any unnamed person without an express recertification by the surveyor naming said person.

The certification as provided on this survey, is purely a statement of professional opinion based on knowledge, information and belief, based on existing field evidence and documentary evidence provided by others.

The certification is not an expressed or implied warranty or guarantee.

This property is not located in a Special Flood Hazard Area as shown on F.E.M.A. Flood Insurance Rate Map, Community Panel No. 47119C0285E, dated April 16, 2007.

TABLE A
TAX MAP 113

PARCEL 80.01 -	PENTECOSTAL CHURCH OF CHRIST DEED BOOK R2196, PAGE 527 PLAT BOOK 16, PAGE 289 LOT 1 - 1.21 ACRES
PARCEL 80.38 -	STUFF IT INN COLUMBIA DEED BOOK R2359, PAGE 1098 PLAT BOOK 16, PAGE 289 0.66 ACRES
PARCEL 80.16 -	STUFF IT INN COLUMBIA DEED BOOK R2359, PAGE 1098 PLAT BOOK 8, PAGE 327 TRACT 3 - 0.487 ACRES
PARCEL 80.02 -	STUFF IT INN COLUMBIA DEED BOOK R2359, PAGE 1098 PLAT BOOK 8, PAGE 327 TRACT 2 - 0.816 ACRES
PARCEL 80.17 -	STUFF IT INN COLUMBIA DEED BOOK R2359, PAGE 1098 PLAT BOOK 11, PAGE 320 TRACT 1B - 0.638 ACRES
PARCEL 80.13 -	MICHAEL SLOAN DEED BOOK R2227, PAGE 1026 PLAT BOOK 11, PAGE 355 TRACT 4 - 0.471 ACRES
PARCEL 80.05 -	MICHAEL SLOAN DEED BOOK R1992, PAGE 1072 PLAT BOOK 11, PAGE 355 TRACT 2 - 0.623 ACRES

GRAPHIC SCALE
200 0 100 200 400 600
(IN FEET)
1 inch = 200 ft.

Legend

- ● I.R.F. Iron Rod Found
- ● I.R.S. Iron Rod Set
- ● I.P.F. Iron Pipe Found
- ⊕ AXLE Axle Found
- ⊕ F.P. Fence Post
- ■ C.M.F. Concrete Monument Found
- ○ P.K.F. PK Nail Found
- ○ P.K.S. PK Nail Set
- ◉ R.R.S.-F. Railroad Spike Found
- ◉ R.R.S.-S. Railroad Spike Set
- Bench Mark
- Stake Found
- Fire Hydrant
- Water Meter
- Water Valve
- Water Reducer
- Clean Out
- Sanitary Sewer Manhole
- Storm Sewer Manhole
- Catch Basin
- Curb Inlet
- Storm Pipe
- Cable Manhole
- Electric Manhole
- Telephone Manhole
- Water Manhole
- Electric Meter
- Cable Riser
- Power Pole
- Guy Pole
- Guy Wire
- Up–light
- Parking Block
- Parking Meter
- Handicap Parking
- Traffic Flow
- Bollard
- Septic Tank
- Water Spigot
- Traffic Signal
- Flag Pole
- Bore Hole
- Observation Well
- Tower
- Sinkhole
- Spring
- Well
- Mailbox
- Satellite Dish
- Line Break
- Centerline
- Water Flow Arrow
- Evergreen Tree
- Deciduous Tree
- Bush
- Sign
- Adjoining Property Line
- Subject Property Line
- Easement Line
- Building Setback Line
- Centerline
- Edge of Pavement
- Edge of Gravel
- Fence Line
- Landscape
- Woods / Tree line
- OHE — Overhead Electric Line
- OHT — Overhead Telephone Line
- UG — Underground Utility Line
- UGC — Underground Cable Line
- UGE — Underground Electric Line
- UGT — Underground Telephone Line
- FM — Forced Main Line

Surveyor's Certification (Tennessee)

I hereby certify that this is a Category "I" survey, meets or exceeds the Minimum Technical Standards for Land Surveyors, and the ratio of precision of the unadjusted survey is greater than 1:10,000 as shown hereon, and was done in compliance with the current Minimum Technical Standards.

James D. Webb, TN RLS #596 — **Date**

JAMES D. WEBB — REGISTERED LAND SURVEYOR — AGRICULTURE DEPT. — TENNESSEE NO. 596

WES E NGINEERS & S URVEYORS
CIVIL ENGINEERS & LAND SURVEYORS
2486 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com
ENGINEERS & SURVEYORS

Client
JLM INVESTMENTS LLC
P.O. BOX 1617
COLUMBIA, TN 38401

JLM INVESTMENTS LLC PROPERTY

PULASKI HIGHWAY
PLAT OF SURVEY
70.07 ACRE TRACT

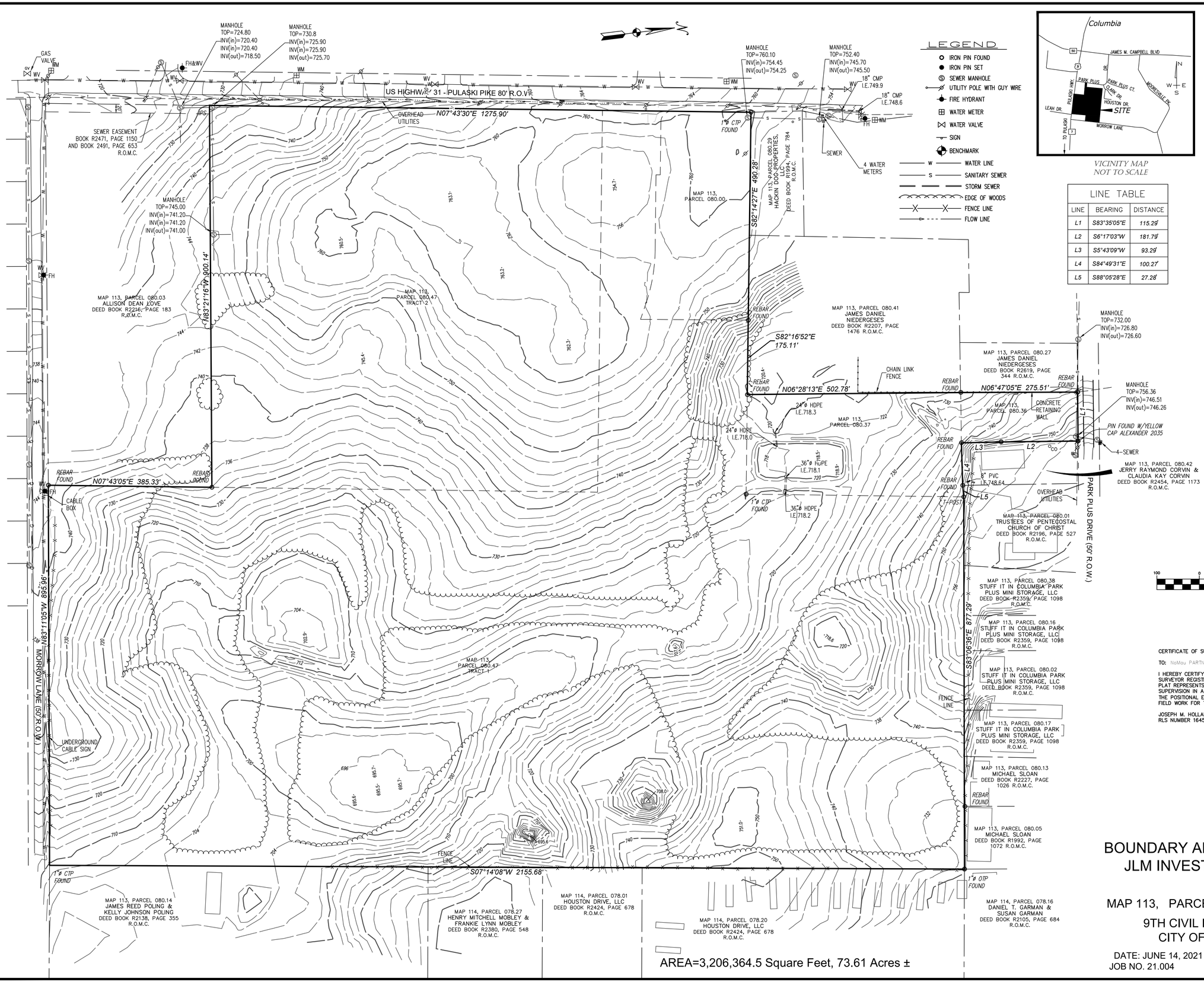
REVISIONS	DATE

Drawn: JMG
Checked: JDW
Approved: JDW
Date: 05-24-2018

Job. no. 16643

Scale:
Vertical: 1"=200'
Horizontal: 1"=200'

FILE\J:\ WES_Engineers_Surveyors 2016\16643 – Jim & Mark Baker – Jim\Dwg\Survey\16543 – Survey.dwg



LEGEND

- IRON PIN FOUND
- IRON PIN SET
- SEWER MANHOLE
- UTILITY POLE WITH GUY WIRE
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- SIGN
- BENCHMARK
- W — WATER LINE
- S — SANITARY SEWER
- STORM SEWER
- EDGE OF WOODS
- FENCE LINE
- FLOW LINE

VICINITY MAP
NOT TO SCALE

LINE TABLE

LINE	BEARING	DISTANCE
L1	S83°35'05"E	115.29'
L2	S6°17'03"W	181.79'
L3	S5°43'09"W	93.29'
L4	S84°49'31"E	100.27'
L5	S88°05'28"E	27.28'

GENERAL NOTES:

1. THE HORIZONTAL AND VERTICAL LOCATION DATA SHOWN ON THIS SURVEY WAS GATHERED USING RTK GPS POSITIONAL DATA UTILIZING A TRIMBLE R12 DUAL FREQUENCY RECEIVER OR STANDARD RADIAL SURVEYING TECHNIQUES WITH AN ELECTRONIC TOTAL STATION AND DATA COLLECTOR AND IS BASED UPON A POSITIONAL SOLUTION DERIVED FROM GLOBAL POSITIONING SYSTEM (GPS) OBSERVATIONS.
2. BEARINGS SHOWN HEREON ARE BASED UPON THE TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD83), ZONE 4100.
3. ELEVATIONS SHOWN HEREON ARE ON THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88).
4. THE ACCURACY OF ANY FLOOD HAZARD DATA SHOWN ON THIS SURVEY IS SUBJECT TO MAP SCALE UNCERTAINTY IN LOCATION OR ELEVATION ON THE REFERENCED FLOOD INSURANCE RATE MAP. THE WITHIN DESCRIBED TRACT OF LAND LIES WITHIN FLOOD HAZARD ZONE X (UNSHADED) AS SAID TRACT PLOTS BY SCALE ON MAP NUMBER 47119C0285 E, COMMUNITY NUMBER 475423, PANEL NUMBER 0285 E ON THE FLOOD INSURANCE RATE MAPS FOR CITY OF COLUMBIA, TENNESSEE (MAP DATED: APRIL 16, 2007).
5. OWNERSHIP INFORMATION INDICATED HEREON IS AS IDENTIFIED IN COUNTY RECORDS.
6. THIS PROPERTY IS SHOWN ON MAURY COUNTY TAX MAP 113 AS PARCELS 080.00, 080.36, 080.37 AND 080.47
7. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED ALL UNDERGROUND UTILITIES. ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES AT THE SITE, PUBLIC RECORDS, AND/OR MAPS PREPARED BY OTHERS. THIS SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION AS INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF ALL UNDERGROUND UTILITIES SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY.
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10. THE PROPERTY SHOWN HEREON IS SUBJECT TO SUCH STATE OF FACT THAT AN ACCURATE TITLE SEARCH, FLOOD STUDY, COMPREHENSIVE SURVEY, GEOLOGIC AND SOILS STUDY MAY REVEAL. FOR THIS PROPERTY OR ADJOINERS. THIS DOCUMENT IS NOT AUTHORIZED FOR USE IN DETERMINING ANY MATTERS RELATED TO ANY FLOOD ASSESSMENTS OF THE SUBJECT PROPERTY.

DEED REFERENCE

MAP 113, PARCEL 080.00
JLM INVESTMENTS, LLC.
DEED BOOK R2406, PAGE 1497

MAP 113, PARCEL 080.36
JLM INVESTMENTS , LLC.
DEED BOOK 2636, PAGE 1024

MAP 113, PARCEL 080.37
JLM INVESTMENTS , LLC.
DEED BOOK 2636, PAGE 1024

MAP 113, PARCEL 080.47
JLM INVESTMENTS , LLC.
DEED BOOK 2326, PAGE 74

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

CERTIFICATE OF SURVEY

TO: NoMau PARTNERS, LLC.

I HEREBY CERTIFY THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE STATE OF TENNESSEE THE WITHIN PLAT REPRESENTS A CATEGORY I SURVEY MADE UNDER MY SUPERVISION IN ACCORDANCE WITH T.C.A SECTION 0820-3 AND THE POSITIONAL ERROR DOES NOT EXCEED 1\10 OF A FOOT. THE FIELD WORK FOR THIS SURVEY WAS COMPLETED ON JUNE 11, 2021.

JOSEPH M. HOLLAND
RLS NUMBER 1645

JOSEPH M. HOLLAND
REGISTERED LAND SURVEYOR
AGRICULTURE
NO. 1645
STATE OF TENNESSEE

BOUNDARY AND TOPOGRAPHIC SURVEY
JLM INVESTMENTS, LLC PROPERTY

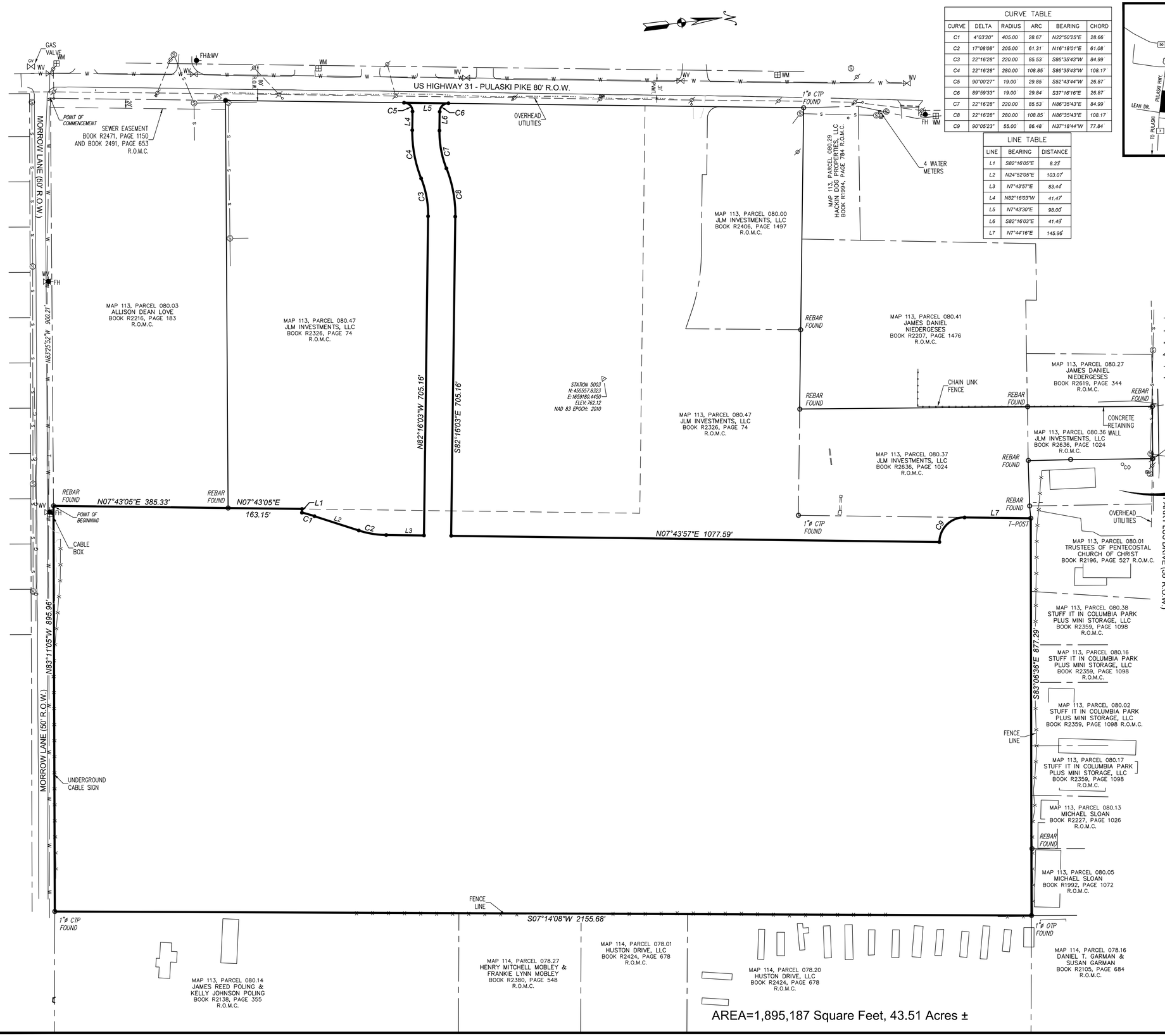
MAP 113, PARCELS 080.00, 080.36, 080.37 & 080.47

9TH CIVIL DISTRICT - MAURY COUNTY
CITY OF COLUMBIA, TENNESSEE

DATE: JUNE 14, 2021
JOB NO. 21.004

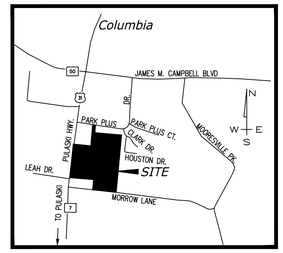
SCALE 1" = 100'
SHEET 1 OF 1

U:\C3D~Projects\21.004.Pulaski Hwy, B&T\TC Survey\DWG\21.004.Pulaski Hwy B&T~ust.dwg 6/14/2021 11:18:35 AM



CURVE TABLE					
CURVE	DELTA	RADIUS	ARC	BEARING	CHORD
C1	4°03'20"	405.00	28.67	N22°50'25"E	28.66
C2	17°08'08"	205.00	61.31	N16°18'01"E	61.08
C3	22°16'28"	220.00	85.53	S86°35'43"W	84.99
C4	22°16'28"	280.00	108.85	S86°35'43"W	108.17
C5	90°00'27"	19.00	29.85	S52°43'44"W	26.87
C6	89°59'33"	19.00	29.84	S37°16'16"E	26.87
C7	22°16'28"	220.00	85.53	N86°35'43"E	84.99
C8	22°16'28"	280.00	108.85	N86°35'43"E	108.17
C9	90°05'23"	55.00	86.48	N37°18'44"W	77.84

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S82°16'05"E	8.23'
L2	N24°52'05"E	103.07'
L3	N7°43'57"E	83.44'
L4	N82°16'03"W	41.47'
L5	N7°43'30"E	98.00'
L6	S82°16'03"E	41.49'
L7	N7°44'16"E	145.96'



VICINITY MAP
NOT TO SCALE

LEGEND

- IRON PIN FOUND
- IRON PIN SET
- SEWER MANHOLE
- UTILITY POLE WITH GUY WIRE
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- SIGN
- BENCHMARK
- W — WATER LINE
- S — SANITARY SEWER
- STORM SEWER
- EDGE OF WOODS
- FENCE LINE
- FLOW LINE

GENERAL NOTES:

1. THE HORIZONTAL AND VERTICAL LOCATION DATA SHOWN ON THIS SURVEY WAS GATHERED USING RTK GPS POSITIONAL DATA OBSERVED BETWEEN THE DATES OF MAY 14, 2021 AND JUNE 11, 2021 UTILIZING A TRIMBLE R12 DUAL FREQUENCY RECEIVER AND STANDARD RADIAL SURVEYING TECHNIQUES WITH AND ELECTRONIC TOTAL STATION AND DATA COLLECTOR. THE GRID COORDINATES OF THE FIXED STATIONS SHOWN WERE DERIVED USING AN ONLINE USER POSITION SERVICE (OPUS) REFERENCED TO NAD 83 (2011) (EOPCH 2010). ELEVATIONS SHOWN ARE REFERENCED TO NAVD88 (COMPUTED USING GEOID 18).
2. OPUS SOLUTION DATA: DURATION 0:29:45, 2128 OF 2401 OBSERVATIONS USED (89%), # FIXED AMBIGUITIES (100%), NORMALIZED RMS 0.345.
3. COMBINED SCALE FACTOR: 0.99957057 CENTERED ON FIXED STATION 5003 AS SHOWN HEREON.
4. BEARINGS SHOWN HEREON ARE BASED UPON THE TENNESSEE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD83), ZONE 4100.
5. ELEVATIONS SHOWN HEREON ARE ON THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88).
6. THE ACCURACY OF ANY FLOOD HAZARD DATA SHOWN ON THIS SURVEY IS SUBJECT TO MAP SCALE UNCERTAINTY IN LOCATION OR ELEVATION ON THE REFERENCED FLOOD INSURANCE RATE MAP. THE WITHIN DESCRIBED TRACT OF LAND LIES WITHIN FLOOD HAZARD ZONE X (UNSHADED) AS SAID TRACT PLOTS BY SCALE ON MAP NUMBER 47119C0285 E, COMMUNITY NUMBER 475423, PANEL NUMBER 0285 E ON THE FLOOD INSURANCE RATE MAPS FOR CITY OF COLUMBIA, TENNESSEE (MAP DATED: APRIL 16, 2007).
7. OWNERSHIP INFORMATION INDICATED HEREON IS AS IDENTIFIED IN COUNTY RECORDS.
8. THIS PROPERTY IS SHOWN ON MAURY COUNTY TAX MAP 113 AS PARCELS 080.00, 080.36, 080.37 AND 080.47
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DEED REFERENCE

MAP 113, PARCEL 080.47
JLM INVESTMENTS , LLC.
BOOK R2326, PAGE 74

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

CERTIFICATE OF SURVEY

TO: NOMAU PARTNERS, LLC

I HEREBY CERTIFY THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE STATE OF TENNESSEE THAT THIS SURVEY WAS DONE IN COMPLIANCE WITH CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE FOR A CATEGORY IV SURVEY AND THE POSITIONAL ERROR AT ANY PROPERTY CORNER DOES NOT EXCEED 0.10'. THE FIELD WORK FOR THIS SURVEY WAS COMPLETED ON JUNE 11, 2021.

JOSEPH M. HOLLAND
RLS NUMBER 1645

BOUNDARY SURVEY
JLM INVESTMENTS, LLC PROPERTY

A PORTION OF MAP 113, PARCEL 080.47

9TH CIVIL DISTRICT - MAURY COUNTY
CITY OF COLUMBIA, TENNESSEE

DATE: JUNE 14, 2021
JOB NO. 21.004

SCALE 1" = 100'
SHEET 1 OF 1

U:\C3D-Projects\21.004-Pulaski Hwy, B&T\TC Survey\DWG\Current\21.004-Pulaski Hwy B&T-usf.dwg 5/23/2022 1:44:02 PM

BEGINNING AT A 1" OLD REBAR ROD IN THE PRESENT RIGHT-OF-WAY OF MORROW LANE, SAID POINT BEING LOCATED 895.96 FEET EAST OF THE SOUTHWEST CORNER OF MAP 113 PARCEL 080.03;

THENCE WITH THE EAST LINE, S83° 11' 05"E, 583.63 FEET TO THE POINT OF BEGINNING; THENCE S06° 23' 23"W A DISTANCE OF 50.00 FEET; THENCE N83° 11' 06"W A DISTANCE OF 584.00 FEET; THENCE N06° 48' 55"E A DISTANCE OF 50.00 FEET; THENCE S83° 11' 05"E A DISTANCE OF 583.63 FEET TO THE POINT OF BEGINNING AND HAVING AN AREA OF 29,190 SQUARE FEET OR 0.67 ACRES.

0 10 20 30 60
GRAPHIC SCALE

N

Van Boshers
Hwy. Superintendent

Benida Oliver
Office Manager

Maury County Highway Dept.
1210 Industrial Park Road
Columbia, Tennessee 38401
Phone 931-375-6201 • Fax 931-375-6219

City of Columbia Planning Commission
700 North Garden Street
Columbia, TN 38401
(931) 560-1560

ATTN: Austin Brass, AICP

RE: Waterford Townhomes Development – Morrow Lane Right-of-Way (ROW) Annexation

Request for Annexation

After review and consideration of the impacts directly related to the development of the subject parcels, Tax Map 113 – Parcels 80.00, 80.37, 80.47, 80.50, and 80.51, the Maury County Highway Department (MCHD) would formally request that portions of Morrow Lane be annexed by the City of Columbia. The extents of the roadway and ROW to be annexed are generally depicted in the attached exhibits. Upon its annexation, the MCHD would relinquish all liability and maintenance responsibilities within the ROW for this portion of roadway.

See attached exhibits for clarification.

Van Boshers — 2-15-2023

Van Boshers — Date

PROJECT SITE
Requested ROW Annexation Vicinity
Morrow Lake
Airdale HVAC/R Supply
Niedergeses Landscape
Pentecostal Church of Christ
Village Roofing
Stuff It Inn Storage
Park Plus Dr
Park Plus Ct
Huston Dr
Clark Dr
Rankins Ridge
Straightway Christian Center
All Gods Children
Hiller Plumbing, Heating, Cooling & Electrical
CFS Printing & Promotional Products
U.S. Hwy 31
Unity Dr
Unity Ln
Iglesia Una Esperanza Viva Mision Columbia
Milltown Mercantile
Antique store
Prestige Marble and Granite
Leah Dr
Morrow Ln
Mackenzie Ln
South Gate
Google
Imagery ©2023 Maxar Technologies, USDA/FPAC/GEO, Map data ©2023
United States
Terms
Privacy
Send feedback
200 ft

City of Columbia GIS Mapping
Measure
Feet
Measurement Result
583.9 Feet
MORROW LANE
REQUESTED ROW ANNEXATION:
~584 LF
0
50
100ft

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, August 8, 2023

ITEM NO.
23-0275

DESCRIPTION: Request for ROW annexation along a portion of Morrow Lane.

RECOMMENDATION: For final recommendation please see staff report.

COMMENTS:

Planning

1. Please provide a metes and bounds legal description of the area to be annexed.
2. Please identify the legal status of the Right-of-Way. Specifically, do the adjacent property owners hold the reversion of the underlying fee if the right-of-way is ever vacated or abandoned?

Building

3. No comment.

Police

4. No comment.

Public Works

5. No comment.

Wastewater

6. Columbia Wastewater has no concerns.

Maury County Schools

7. No comment.

Fire

8. No comments

Engineering

9. Provide an agreement to mill, overlay (1.5"), and stripe this segment of roadway with acceptance of the first plat of Heritage Village (PH 1A). Cost to be added to LOC

Columbia Power

10. Columbia Power System has an existing power line near your proposed development.
    We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
    • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

ATT

11. ATT intends to serve.

Atmos Energy

12. No comments provided.

Maury County E911

13. No comment provided.

Duck River Electric Membership Corp

14. No comments provided.

Maury County Highway Dept.

15. No comments provided.

Columbia Water

16. "No comments at this time. If development of this property moves forward an application for water availability will be required."

CPWS BROADBAND

17. Plan to Serve.

ATTACHMENTS: Concept Plan

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

CITY OF COLUMBIA
TENNESSEE

ITEM # I 2.

DEVELOPMENT REVIEW COMMITTEE COMMENT FORM

August 8, 2023

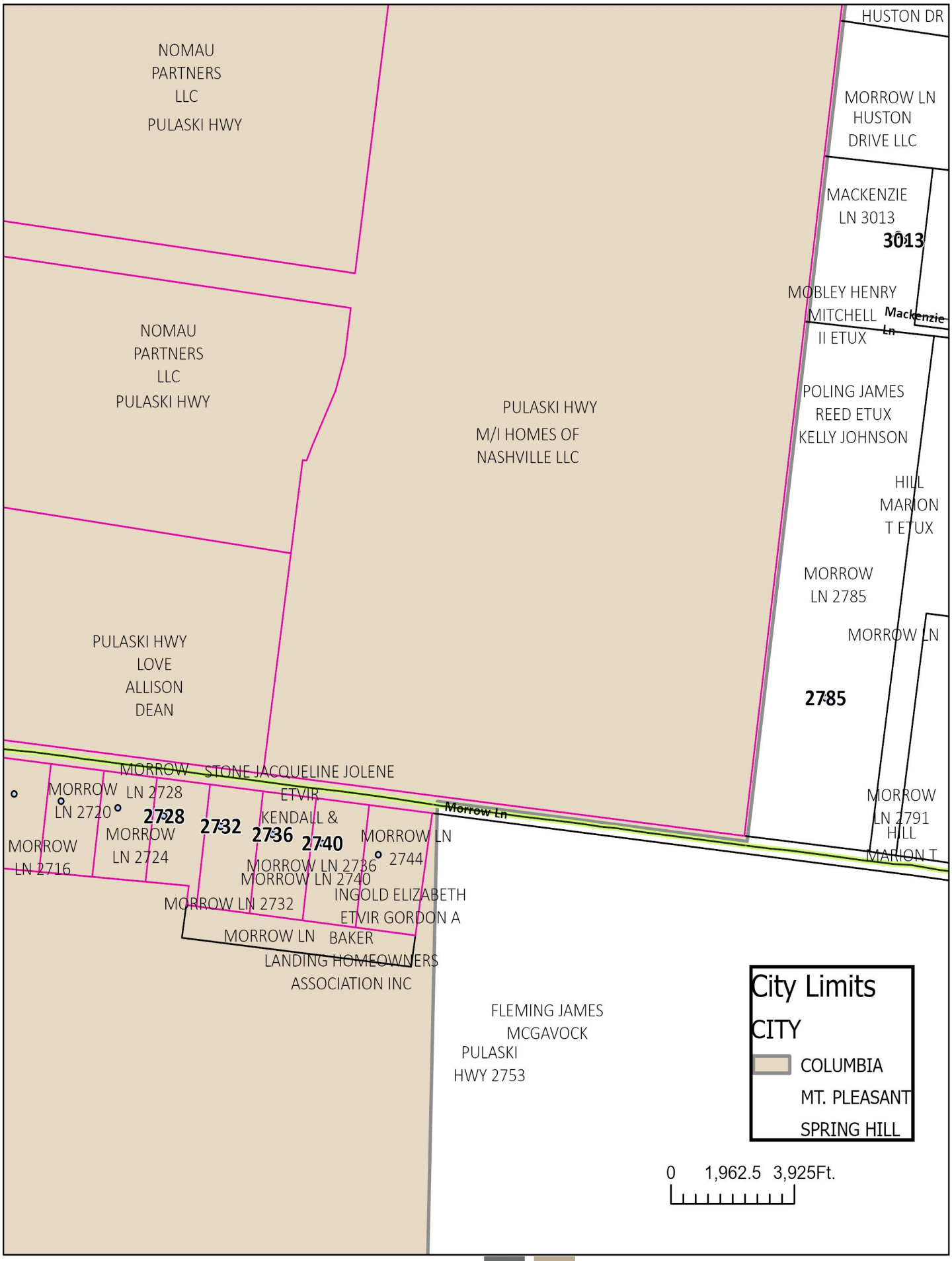
NAME OR DEPARTMENT: Maury County Public Schools

Case Number: 23-0275

Request from Patrick Carroll for Annexation of a portion of Morrow Lane into the City of Columbia.

COMMENTS:

No Comment



23-0275
Morrow Lane

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	North of Morrow Lane and East of US HWY 31		
	TAX MAP: 113	GROUP: 08047	PARCEL: 000
SUMMARY OF NATURE OF REQUEST AND WORK	Request for ROW annexation along a portion of Morrow Lane.		

DATE OF PRE-APPLICATION CONFERENCE		*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☒ Annexation ☐ Rezoning ☐ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ☒ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter **Plats/PUDs:** ☐ Project Name (include Sections & Phases) _____ ☐ Total Number of Lots _____ ☐ Total acreage _____

Rev. 4/14/2022

23-0275

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Patrick Carroll, PE	PHONE	615-261-3114
ADDRESS	7112 Crossroads Blvd. #201, Brentwood, TN 37027	EMAIL	patrick@crunkeng.com

PROPERTY OWNER NAME	M/I Homes of Nashville LLC	PHONE	224-402-5607
ADDRESS	3020 Stansberry Ln, Suite 202, Franklin, TN 37069	EMAIL	dcumming@mihomes.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Adam Crunk	Adam Crunk	07/11/2023
APPLICANT NAME	APPLICANT SIGNATURE	DATE
M/I Homes of Nashville LLC	David M. Cumming	07/11/2023
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

STAFF USE ONLY

DOCKET NO.	23-0215	FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	

West 18th Rezoning

Project #:	23-0241	Location:	Map 100M C Parcel 18.00
Applicant:	Randolph Chapdelaine	Case Type(s):	Rezoning
Staff Planner:	Kevin C. McCarthy, AICP	Proposed Use:	Single Family Home(s)

PROJECT SUMMARY

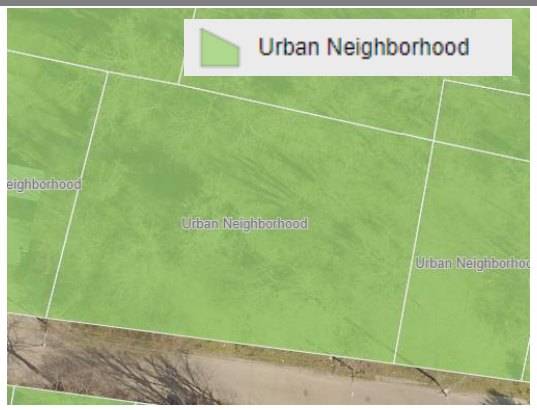
The applicant requests to rezone a 0.39-acre parcel located on the north side of West 18th Street from SD-LI (Special District Light Industrial) to CD-4 (General Urban Character District). The current zoning designation permits a range of uses but is primarily intended to accommodate moderate intensity industrial and related activities conforming to appropriate performance standards. The requested zoning designation accommodates a medium density mix of residential and commercial uses. The Zoning Ordinance does not regulate density in SD-LI and permits twelve dwelling units per acre in CD-4.

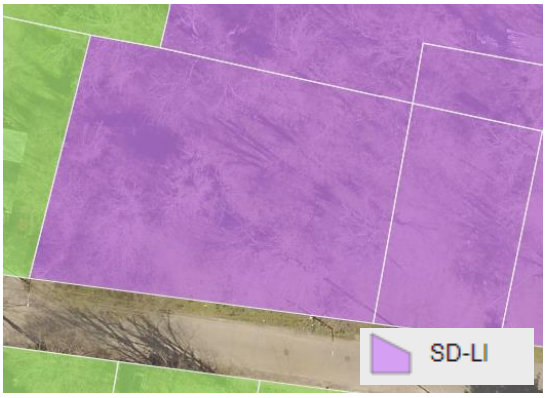
- The DRC reviewed this proposal at its July 2023 meeting.
- The request is consistent with Connect Columbia, the City's comprehensive plan.
- The concept plan generally indicates that it is possible to develop the site in conformity with the requested standards. However, greater detail will be required at the time of any subsequent Site Development Plan and Preliminary Plat.
- The development potential of the infill site is constrained by stormwater and wastewater easements which cross the property, as well as water availability. For this reason, the concept depicts potential development of the site at an intensity typical of lower density character districts (i.e. CD-3).
- The standards of the Ordinance, specifically the parcel buffer requirements, severely limits the use of the property under its current SD-LI zoning.
- At the request of staff, the applicant provided specific responses to some of the rezoning criteria.
- The Planning Commission is a **recommending body** for rezoning requests.
- Templates are provided at the end of the report to assist the Planning Commission in crafting properly formatted motions.

SITE INFORMATION

CURRENT ZONING	EXISTING USE	EXISTING IMP.	LAND AREA
SD-LI	Vacant	Vacant	+/- 0.39 Acres

FUTURE LAND USE MAP	ZONING MAP





SITE CONTEXT/ADJACENT PROPERTIES			
	Future Land Use	Zoning	Current Use
Subject Property	Urban Neighborhood	SD-LI	Vacant
North	Urban Neighborhood	SD-LI	Light Industrial
South	Urban Neighborhood	CD-3	Single-Family
East	Urban Neighborhood	SD-LI	Light Industrial
West	Urban Neighborhood	CD-3	Single-Family

The subject property is currently vacant. The site sites between residential properties to the west and commercial and industrial properties to the east. The area is mostly a mix of CD-3, SD-LI, and CD-4C zoned parcels. The future land use of the subject property and all adjacent properties is Urban Neighborhood. None of the current zoning in the immediate vicinity of the site is consistent with Connect Columbia.

CONSISTENCY WITH CONNECT COLUMBIA

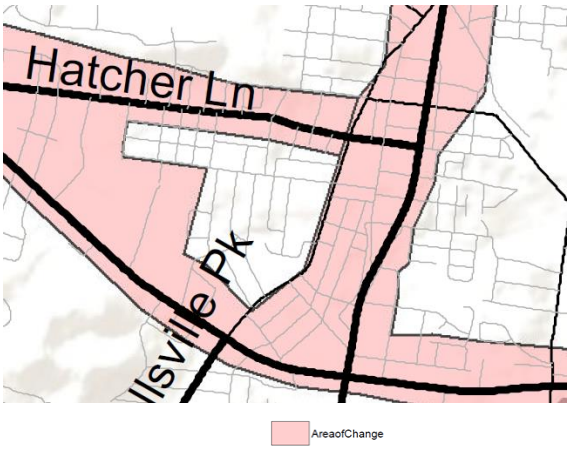
Urban Neighborhood: The future land use of the subject site is Urban Neighborhood. The Character Area is characterized by residential development and neighborhoods, with intermixed and compatible civic uses. The Future Land Use Plan indicates that "the general development pattern is defined by a single use activity on individual lots with a mixture of lot sizes" (Connect Columbia, p. 24). Future development should focus on context-responsive in-fill development that emphasizes connectivity and housing diversity. (Connect Columbia, p. 25). The future land use classification is implemented by the CD-4 and CD-5 character districts.

Urban Neighborhood

CHARACTER AREA MATRIX				
	Development Pattern	**Zoning Category and Uses**	**Infrastructure**	**Design Standard**
URBAN NEIGHBORHOOD	**Is the property in an Area of Change?** **No:** The development pattern is established. Changes to overall character of the area should rarely occur. **Yes:** The development pattern is evolving. Changes to area are likely as development occurs. New development should blend with existing, surrounding neighborhood assets.	**Residential Uses Zoning Category:** Low Density Residential, Medium High Residential, and High Residential Districts **Public and Civic Uses Zoning Category:** Religious Facilities, Government Facilities (low to medium impact), and Educational Facilities	**Not in an Area of Change:** Limited new services, with mostly in-fill enhancements to existing infrastructure. **Within an Area of Change:** Extensions to transportation, water, sewer, and other services should be expected. New service or extensive redevelopment of existing services should be vetted and reviewed by Planning Commission and City Council as a primary element of approval.	Scale: New dwellings and structures should aid in establishing the character of the area. Architecture: New developments or redevelopments should include a mix of architectural styles. Residential garages, if front-facing, should be recessed from the front façade of the structure. Civic use should respect the residential character, while providing architectural interest.

AREA OF CHANGE

The subject site **is located** in an Area of Change (Connect Columbia Map 3). In 2017 the Planning Commission determined that the development pattern in the area was evolving. Changes to the area are likely, but new development should blend with existing neighborhood assets. The designation does not necessarily mean that any particular development proposal is consistent with Connect Columbia. It does mean that the Planning Commission has previously determined that in this area, the development character is not fixed and change is expected over time (Connect Columbia p. 14).

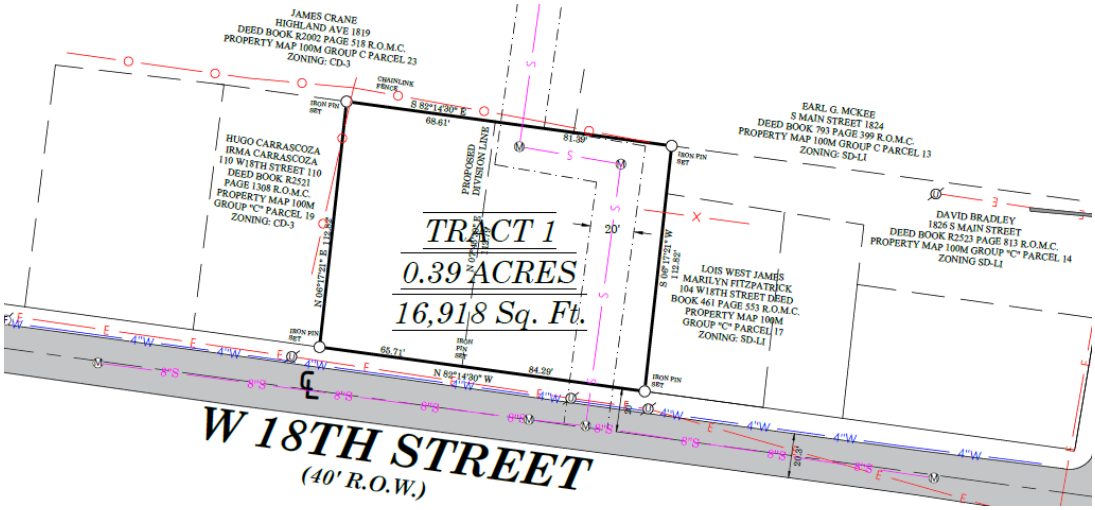


CONFORMITY WITH ZONING ORDINANCE

As required by **§ 8.5.19.F.3** of the Zoning Ordinance, the applicant provided a concept plan (i.e. "Sketch Development Plan") demonstrating that it is possible to develop the property in conformity with the standards applicable to the requested zoning designation. Any development plan/preliminary plat would be required to comply with Zoning Ordinance 4400, adopted on July 14th, 2022. This request for rezoning simply establishes entitlements under the zoning ordinance, not a vested right to develop the site as depicted in the concept plan.

Lots, Building Sites & Bulk Standards

- **The concept plan depicts single family lots which generally conform to the CD-4 bulk standards listed in Table 4.3.1-D of the Zoning Ordinance.**
    - The Ordinance requires a minimum lot width of 50' for a single family home.
    - The Ordinance prescribes setbacks of:
        - 6' minimum and 20' maximum front setback principal and secondary frontages;
        - 6' side setback; and
        - 3' rear setback, measured from the rear property line; or 15' from the centerline of rear alley as applicable.
    - The applicant's concept proposes the creation of two lots which exceed the minimum lot width and could accommodate homes conforming to the setbacks.
    - The lots depicted in the concept plan are more similar to lower-intensity character districts.
    - The applicant intends to develop the site at this lower intensity in order to accommodate an existing sewer easement and stormwater conveyance.



- **Rezoning the property removes the limiting SD-LI parcel buffer applicable under the property's current zoning.**
    - Section **4.3.11.H** of the Ordinance requires a parcel buffer of 100' where an SD-LI parcel abuts a property used as a single family or two family residence.
    - On the subject site, the standard would effectively limit any development of the site, even a residence abutting another residential property.
    - The proposed rezoning would eliminate this requirement for the subject site.

Other Standards Tree Preservation

- **Conformity with other requirements of the Ordinance, including tree preservation and design prescriptions will be reviewed at the time of preliminary plat or building permit as applicable.**

REVIEW PROCESS

The Development Review Committee evaluated the proposed rezoning at its July 2023 meeting, as directed by **§8.3.7** of the Zoning Ordinance. Technical comments are provided in the agenda package.

Section **8.5.19** of the Zoning Ordinance directs the Planning Commission to review and make a recommendation on all proposed changes to the Official Zoning Map. The Planning Commission is the recommending body for rezonings under **§ 8.3.3.B.3** of the Zoning Ordinance.

Section **8.5.19.H.4** of the Zoning Ordinance establishes the review criteria for approval of all changes to the Official Zoning Map:

a. The Rezoning is consistent and not in conflict with the Comprehensive Plan or other applicable approved local plans for the area;
b. It has been determined that the legal purposes for which zoning exists, as set forth in Section 1.5 [, are not contravened]; [1]
c. It has been determined that there will be no adverse effect upon Adjoining property owners unless such effect can be justified by the overwhelming public good or welfare;
d. It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public;

[1] Ordinance 4400 contains this incomplete sentence. The previous ordinance contained a nearly identical list of criteria at § 3.18.7.B. The corresponding criterion in Ordinance 3638 read "the legal purposes for which zoning exists are not contravened."

e. It has been determined that conditions affecting the area have changed to a sufficient to warrant the Zoning Map Amendment or that the existing zoning of the property was the result of a mistake;

f. It has been determined that adequate school, road, parks, wastewater treatment, water supply, and stormwater drainage facilities are available

SUMMARY OF DEVELOPMENT REVIEW COMMITTEE COMMENTS

The DRC reviewed this proposal at its July 2023 meeting. A full list of comments, and the applicant's responses, is provided in the agenda packet. Some key comments are noted below.

- **Planning** asked the applicant to provide a narrative response to criterion **8.5.19.H.4(f)** explaining how the property could be developed at the proposed intensity with existing water availability. This request is due to comments from the Office of the Fire Marshal regarding limits on most structure types and uses permitted in a CD-4.
- Planning also asked the applicant to provide a narrative response to criterion **8.5.19.H.4(e)** explaining why the applicant believes conditions affecting the area have changed sufficiently to warrant the Zoning Map Amendment. This request is intended to aid the Planning Commission in its analysis of the requested change to zoning map.
- Planning requested updated survey information reflecting the location of a sewer easement across the property.
- Planning also made a number of advisory comments. Specifically, planning staff noted that the design of homes for the lots will need to conform to the CD-4 standards at the time of building permit.
- **Wastewater** requested updated survey information reflecting its easement and noted that development of the site must account for the easement.
- The Office of the **Fire Marshal** noted that due to the results of flow testing at nearby fire hydrants, construction on the site will be limited to residential structures no larger than 3,600 square feet with sprinkler systems. No commercial buildings can be built at this location, because of the available fire water.
- Columbia Water System's (**CPWS**) consultant (Inflow) noted that water is available for the site. The utility does not issue water availability letters for proposals of fewer than four residences.
- **Maury County Schools** noted that the site is currently in the attendance zones of Highland Park Elementary, Whitthorne Middle, and Central High School. New construction or realignment of school attendance zones may be necessary to accommodate new students. This is a standard comment from the school system.

COMMENTARY FROM PROFESSIONAL PLANNING STAFF

The requested CD-4 zoning is consistent with Connect Columbia. The subject site's future land use classification is Urban Neighborhood. The future land use classification is implemented by the CD-4 and CD-5 character districts, as well as PUDs.

Conditions affecting the area may have changed to a sufficient degree to warrant the Zoning Map Amendment. The comprehensive plan and the zoning ordinance encourage infill development. The subject property is located inside the central part of Columbia but cannot be developed under its current zoning. The SD-LI parcel buffer severely limits the development potential of the site. The existing availability of water, and fire protection standards, do not allow non-residential use of the property**.** The proposed rezoning allows the development of the property in a manner consistent with the comprehensive plan and compatible with adjacent residential properties.

SAMPLE MOTIONS

Approve:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.H** of the City of Columbia Zoning Ordinance have been satisfied and recommend approval of the proposed rezoning *[, subject to technical comments and other conditions presented by planning staff*].

Approve Subject to Conditions:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.H** of the City of Columbia Zoning Ordinance have been satisfied and recommend approval of the proposed rezoning, subject to the following conditions: [*list conditions of approval crafted by Planning Commission*].

Deny:

Move to recommend denial of the requested rezoning having found, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.H** of the City of Columbia Zoning Ordinance are not satisfied [*list specific reasons for denial*].

Defer:

Move to find that there is insufficient information to decide, defer the matter to the next regularly scheduled meeting of the Planning Commission, and request that the [*applicant/staff*] provide: [*list additional information*] for review at a future meeting.

BK/PG: R2805/715-716
22000200

2 PGS:AL-WARRANTY DEED
BECKY BATCH: 266402 01/04/2022 - 10:20 AM

VALUE	30000.00
MORTGAGE TAX	0.00
TRANSFER TAX	111.00
RECORDING FEE	10.00
ARCHIVE FEE	0.00
DP FEE	2.00
REGISTER'S FEE	1.00
TOTAL AMOUNT	124.00

STATE OF TENNESSEE, MAURY COUNTY
JOHN FLEMING
REGISTER OF DEEDS

This Instrument Prepared By:
K. Brian Hay, Attorney at Law
104 W. 6th Street, Ste. 200
Columbia, TN 38401

Name and Address of New Owner:	Name and Address of Entity Responsible for Payment of Real Property Taxes
Property Solutions Construction, LLC	new owner
405 Cemetery Ave	
Cookeville, TN 38556	

WARRANTY DEED

FOR AND IN CONSIDERATION OF One Dollar ($1.00) and other good and valuable consideration, the receipt and legal sufficiency of all of which are hereby acknowledged, **Earl G. McKee** *(herein called "Grantor")*, has this day bargained and sold, transferred and conveyed and by these presents does bargain, sell, transfer and convey unto **Property Solutions Construction LLC, a Tennessee limited liability company** *(herein called "Grantee")* the following described property situated and located in Maury County, Tennessee, to wit:

SITUATE in the NINTH (9TH) Civil District of Maury County, Tennessee and being more particularly described as follows:

Bounded on the North by Huckaby; South by West 18th Street; on the East by Gant (now Early West) and on the West by Jones, being a lot with the approximate dimensions of 150 feet by 112 feet, and known as 106-108 West 18th Street.

BEING the same property conveyed to Earl G. McKee by instrument of record in Book 1157 at page 557 in the Maury County, Tennessee Register of Deeds office.

Tax Parcel #100M-C-18.00

The property description used herein above is the same as contained in the last deed of reference and no new boundary survey is available.

TO HAVE AND TO HOLD the aforesaid real estate, together with all appurtenances and hereditaments thereunto appertaining unto Grantee, its successors and assigns in fee simple forever.

Grantor covenants that Grantor is lawfully seized and possessed of said real estate, has full power and lawful authority to sell and convey the same; that the title thereto is free, clear and unencumbered except for easements and restrictions, if any, of record in the Maury County, Tennessee Register of Deeds office; and, Grantor will forever warrant and defend the same against the lawful claims of all persons whomsoever.

The words "Grantor" and "Grantee" shall include their respective successors and assigns where the context requires or permits.

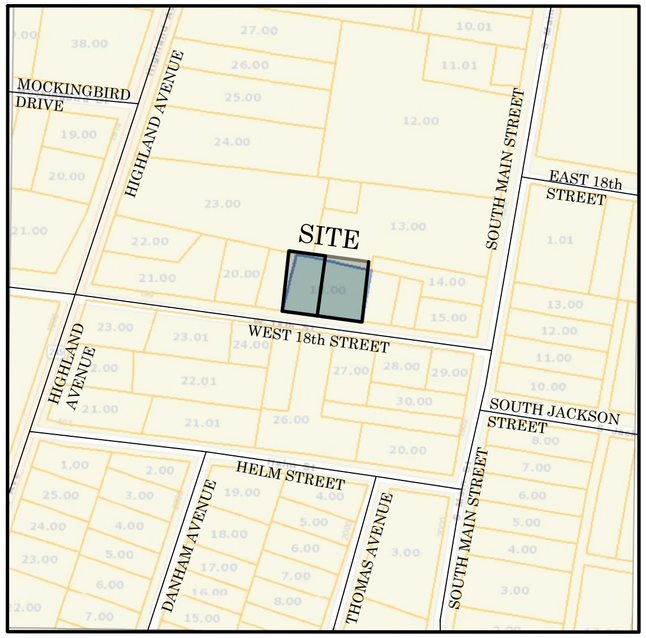
IN WITNESS WHEREOF, the Grantor has caused this instrument to be executed on this 18th day of December, 2021

GRANTOR:

Earl G. McKee

Return to:
Stanly Title and Escrow, LLC
2012 21st Avenue South
Nashville, TN 37212
File # 3MO 21 0

Book R2805 Page 715



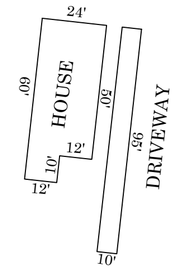
SITE MAP SCALED 1:200'

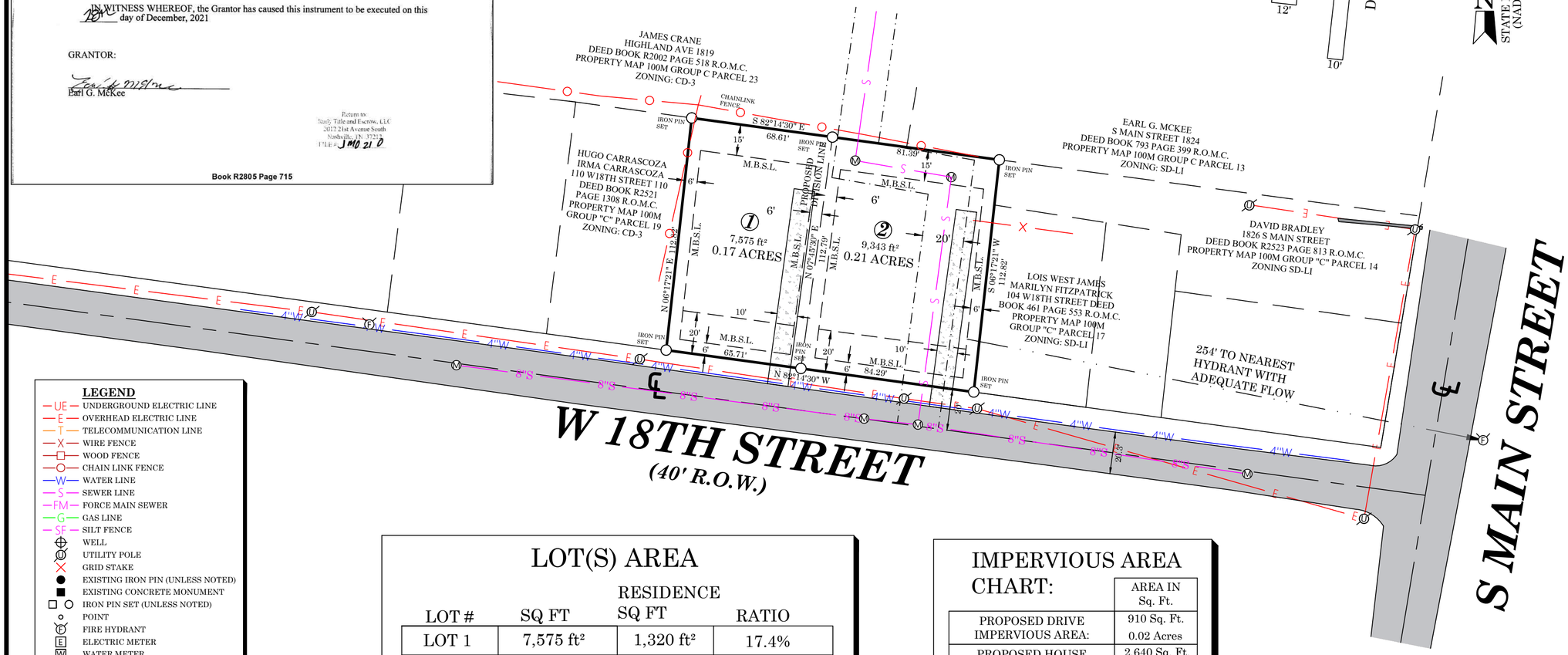
0 200 400

GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO RE-ZONE A PROPERTY FROM SD-LI TO CD-4.
2. POTABLE WATER FOR PROPERTY SERVED BY COLUMBIA POWER AND WATER SYSTEMS.
3. THE SUBJECT PROPERTY LIES IN A ZONE "X" (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON FIRM MAP 47119C0285E DATED 4/16/2007.
4. ALL DISTANCES SHOWN HEREON ARE BASED UPON A FIELD-RUN SURVEY USING GPS EQUIPMENT TIED TO TDOT CORS.
5. UTILITIES, IF SHOWN, WERE TAKEN FROM VISIBLE STRUCTURES AT THE SITE. VERIFICATION OF THEIR EXISTENCE, LOCATION, SIZE, AND DEPTH, SHOULD BE MADE BEFORE MAKING DECISIONS REGARDING THEM. AVAILABILITY OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE LOCAL UTILITY COMPANY. TENNESSEE ONE CALL (811) SHOULD BE CALLED BEFORE ANY CONSTRUCTION OR DIGGING.
6. THIS SURVEY WAS MADE WITHOUT THE BENEFIT OF A TITLE REPORT, IT IS THEREFORE SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE REPORT.
7. THIS PROPERTY IS SUBJECT TO BOTH RECORDED EASEMENTS, AND TO THOSE UNKNOWN TO THIS SURVEYOR.
8. PROBABLE WETLAND AREAS, AS IDENTIFIED EITHER BY THE NATIONAL WETLANDS INVENTORY OR FOUND AT THE TIME OF THE SURVEY, ARE SHOWN ON THIS PLAT. VERIFICATION AND DELINEATION OF THE PERIMETER LOCATION OF THESE, OR ANY OTHER SUCH AREAS WHICH MAY EXIST ON THE PROPERTY SHOULD BE MADE BY THE OWNER OR DEVELOPER THROUGH THE RELEVANT GOVERNMENT AGENCY AND A WETLAND DELINEATION CONSULTANT PRIOR TO IMPROVEMENT, DESIGN, OR DEVELOPMENT OF THE PROPERTY. AT LEAST SIX GOVERNMENT AGENCIES HAVE REGULATION AUTHORITY OVER THE USE OR ALTERATION OF WETLAND AREAS, AND INCLUDE THE FOLLOWING: U.S. ARMY CORPS OF ENGINEERS; U.S. ENVIRONMENTAL PROTECTION AGENCY; U.S. FISH AND WILDLIFE SERVICE; TENNESSEE WILDLIFE RESOURCES AGENCY; TENNESSEE DIVISION OF WATER POLLUTION CONTROL; TENNESSEE NATURAL RESOURCES CONSERVATION SERVICE.
9. TOPOGRAPHY DATUM BASED ON NAVD 1988 TAKEN FROM TENNESSEE LIDAR MAPPING AND FIELD CHECKED.
10. SEWER IS SERVED BY COLUMBIA WASTE WATER DEPARTMENT.
11. ALL FACADES ON STRUCTURES SHALL CONFORM TO STANDARDS IN TABLE 4.3.1-D AND TABLE 4.3.8.B OF THE ZONING ORDINANCE. CONFORMITY WILL BE CONFIRMED AT BUILDING PERMIT.
12. ALL PRIVATE LANDSCAPING WILL CONFORM TO SECTION 4.3.16 OF THE ZONING ORDINANCE.
13. LIGHTING AT FRONTAGE LINES WILL NOT EXCEED 1.0 FOOT CANDLE AND ONSITE OUTDOOR LIGHTING WILL CONFORM TO THE STANDARDS OF SECTION 4.3.17.B OF THE ZONING ORDINANCE.
14. VEHICLE PARKING IS TO BE OFF STREET AND ACCOMMODATE 2 VEHICLES.
15. ALL LOTS ARE TO HAVE 1 SINGLE FAMILY DWELLING UNIT PER LOT.
16. ALL RESIDENTS ARE TO BE WOOD FRAME, SINGLE STORY BUILDINGS, DRIVEWAYS ARE TO BE CONCRETE.
17. HOMEOWNERS ARE TO BE RESPONSIBLE FOR INDIVIDUAL REFUSE SERVICE.

TYPICAL HOUSE/DRIVEWAY LAYOUT





LEGEND

- UE — UNDERGROUND ELECTRIC LINE
- E — OVERHEAD ELECTRIC LINE
- T — TELECOMMUNICATION LINE
- X — WIRE FENCE
- WOOD FENCE
- CHAIN LINK FENCE
- W — WATER LINE
- S — SEWER LINE
- FM — FORCE MAIN SEWER
- G — GAS LINE
- SF — SILT FENCE
- WELL
- UTILITY POLE
- GRID STAKE
- EXISTING IRON PIN (UNLESS NOTED)
- EXISTING CONCRETE MONUMENT
- IRON PIN SET (UNLESS NOTED)
- POINT
- FIRE HYDRANT
- ELECTRIC METER
- WATER METER
- GAS METER
- SEWER MANHOLE
- STORM MANHOLE
- WATER VALVE
- ELECTRIC TRANSFORMER BOX
- ELECTRIC PULL BOX

LOT(S) AREA

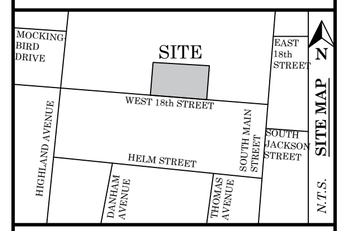
LOT #	SQ FT	RESIDENCE SQ FT	RATIO
LOT 1	7,575 ft²	1,320 ft²	17.4%
LOT 2	9,343 ft²	1,320 ft²	14.1%

IMPERVIOUS AREA CHART:

	AREA IN Sq. Ft.
PROPOSED DRIVE IMPERVIOUS AREA:	910 Sq. Ft. 0.02 Acres
PROPOSED HOUSE IMPERVIOUS AREA:	2,640 Sq. Ft. 0.06 Acres
TOTAL IMPERVIOUS AREA:	3,550 Sq. Ft. 0.08 Acres

CHAPDELAINE & ASSOCIATES
LAND SURVEYING

7376 WALKER ROAD,
FAIRVIEW, TENNESSEE 37062
(615) 799-8104
chapsurveyors@msn.com
Randolph L. Chapdelaine
TN R.L.S. #1444



CERTIFICATE OF ACCURACY

I HEREBY CERTIFY THAT THIS IS A CATEGORY IV SURVEY AND THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION, THIS SURVEY WAS DONE IN COMPLIANCE WITH CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE, AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

a. REAL TIME KINEMATIC & BASE SOKKIA GRX 3
b. POSITIONAL ACCURACY: 0.05 FEET
c. DATE OF SURVEY: 5/02/2022
d. DATUM / EPOCH: NAD83 (2011) EPOCH
e. PUBLISHED / FIXED CONTROL: TDOT CORS NETWORK
f. GEOID MODEL: GEOID 12B
g. COMBINED GRID FACTOR: 0.99992685

RANDOLPH L. CHAPDELAINE, R.L.S. # 1444 DATE

OWNER:PROPERTY SOLUTIONS CONSTRUCTION, LLC.
106 WEST 18th STREET
DEED BOOK R-2805 PAGE 715 R.O.M.C.
9thCIVIL DISTRICT OF MAURY COUNTY, CITY OF COLUMBIA, TENNESSEE
PROPERTY MAP 100-M GROUP "C" PARCEL 18
PROPOSED RE-ZONING: CD-4

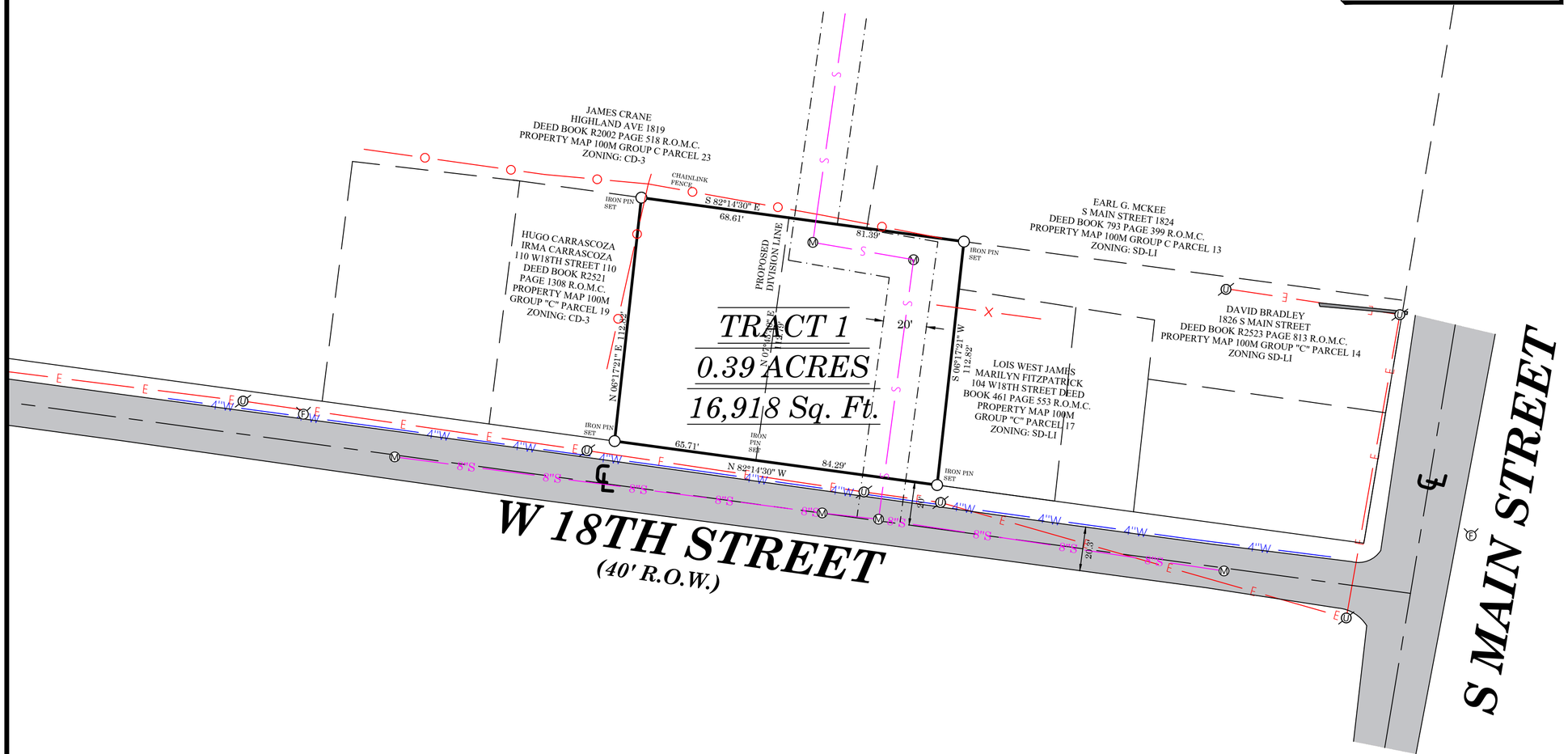
REVISION #	DATE
REVISION # 1	8/2/2023

DATE:	JUNE 19, 2023
DRAWN BY:	NAB
JOB #:	6950
SCALE:	1" = 40'

0 40 80

V-1.1

SKETCH DEVELOPMENT PLAN FOR PROPERTY SOLUTIONS CONSTRUCTION LLC. PROPERTY



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- SEWER MANHOLE
- STORM MANHOLE
- WATER VALVE
- ELECTRIC TRANSFORMER BOX
- ELECTRIC PULL BOX

STATE PLANE NORTH
(NAD83 NAVD88)

GENERAL NOTES

1. THE PURPOSE OF THIS MAP IS TO RE-ZONE A PROPERTY FROM SD-LI TO CD-4.
2. THE SUBJECT PROPERTY LIES IN A ZONE "X" (AREAS OF MINIMAL FLOODING) AS SHOWN ON FIRM MAP 47119C0285E DATED 4/16/2007.
3. ALL DISTANCES SHOWN HEREON ARE BASED UPON A FIELD-RUN SURVEY USING GPS EQUIPMENT TIED TO TDOT CORS.
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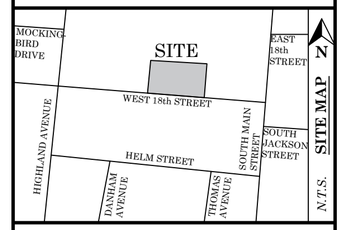

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b. POSITIONAL ACCURACY: 0.05 FEET
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8/2/2023

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DATE:	JUNE 19, 2023
DRAWN BY:	NAB
JOB #:	6950
SCALE:	1" = 40'

0 40 80

V-1.1

CONCEPT PLAN PROPOSED RE-ZONING SD-LI TO CD-4

CITY OF COLUMBIA
TENNESSEE

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, July 11, 2023

ITEM NO.
23-0241

DESCRIPTION: We are rezoning from SD-LI to CD-4 and creating 3 lots.

RECOMMENDATION: For final recommendation please see staff report.

COMMENTS:

Planning

1. Staff has previously communicated that a response from CPWS/Inflo confirming without caveat that the property can be served for fire protection and domestic water would be an acceptable alternative to a formal water availability letter. The applicant has provided a map from CPWS indicating the location of water lines in the street. Given the comments from the Fire Marshal regarding flow at 20 psi, more direct confirmation is needed. According to correspondence between the applicant and the Fire Marshal, the flow is barely sufficient to allow the construction of single-family homes with sprinklers. It is the strong preference of Planning staff that the applicant obtain a formal water availability letter from Inflo, like all other applications for development review which change the potential intensity or density of development. If Info/CPWS will not provide a letter, the Zoning Administrator will accept a clear written statement from CPWS or its consultant that three homes could be served on the site for both fire protection and domestic water.
2. Please provide a narrative response to criterion 8.5.19.H.4(f) explaining that the applicant can develop the property in conformity with the CD-4 standards in spite of the low water flow (Fire Marshal has indicated that each home must have a sprinkler system and that structure accommodating more intense uses are not viable).
3. Please provide a narrative response to criterion 8.5.19.H.4(e) explaining why the applicant believes conditions affecting the area have changed sufficiently to warrant the Zoning Map Amendment.
4. Advisory: The building footprint on the typical layout does not conform to the 60 percent minimum frontage buildout requirement for a CD-4 (4.3.1-D, p. 76).
5. Advisory: The concept plan depicts structures with Facades setback further than the maximum 20' front setback. Plot plans submitted at the time of building permit must conform to the Ordinance.
6. Advisory: Typical house plans provided with the application do not conform to CD-4 standards in Table 4.3.1-D (p. 76-85). Construction plans submitted at the time of building permit must conform to the Ordinance.
7. Advisory: Please confirm the accuracy of note 17 with Public Works.
8. Please confirm the location of any sewer lines or easements crossing the property in the area depicted as lot 4 on the concept.

9. Provided survey is approximate and does not indicate easement locations. The precise 150' measurement between pins is improbable. Please provide Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.

Engineering

10. No comments on rezoning.
11. Existing infrastructure (storm and sanitary) and potential improvements along eastern property line may necessitate changes to concept plan.

Fire

12. With the water available at the fire hydrants in this area, you are limited to building residential homes no larger than 3,600 S.F. and will have to have a NFPA 13D sprinkler system installed with a horn and strobe on the outside of the structure. No commercial buildings can be built at this location, because of the available fire water

Building

13. No comment.

Police

14. No comments provided.

Public Works

15. No comments.

Columbia Power

16. Columbia Power System has an existing power line near your proposed development.
    We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
    • Unfortunately, due to current supply chain challenges, no timeframe can be

guaranteed regarding the availability of meters or transformers appropriate for your development.

Wastewater

17. Wastewater of Columbia has an existing sewer main running through the eastern lot, with an easement 16 ft (and potentially up to 25 ft) from the eastern property line, in the middle of the lot. The main to the north may adversely affect building placement as well. This needs to be included in the survey.

Maury County Schools

18.
Maury County Public Schools
Highland Park Elementary, Whitthorne Middle, Central High School
See Attached Capacity Numbers
The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment.

Maury County E911

19. No Comment

ATT

20. No comment.

Atmos Energy

21. No comments provided.

Duck River Electric Membership Corp

22. No comments provided.

Maury County Highway Dept.

23. No comments provided.

Columbia Water

24. "This minor subdivision is in CPWS's service area and the homes will be served from the existing main. A water service tap will be required for each lot and payment of associated fees."

ATTACHMENTS: Concept Plan

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, July 11, 2023

ITEM NO.
23-0241

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COMMENTS:

Planning

1. Staff has previously communicated that a response from CPWS/Inflo confirming without caveat that the property can be served for fire protection and domestic water would be an acceptable alternative to a formal water availability letter. The applicant has provided a map from CPWS indicating the location of water lines in the street. Given the comments from the Fire Marshal regarding flow at 20 psi, more direct confirmation is needed. According to correspondence between the applicant and the Fire Marshal, the flow is barely sufficient to allow the construction of single-family homes with sprinklers. It is the strong preference of Planning staff that the applicant obtain a formal water availability letter from Inflo, like all other applications for development review which change the potential intensity or density of development. If Info/CPWS will not provide a letter, the Zoning Administrator will accept a clear written statement from CPWS or its consultant that three homes could be served on the site for both fire protection and domestic water.
2. Please provide a narrative response to criterion 8.5.19.H.4(f) explaining that the applicant can develop the property in conformity with the CD-4 standards in spite of the low water flow (Fire Marshal has indicated that each home must have a sprinkler system and that structure accommodating more intense uses are not viable).
3. Please provide a narrative response to criterion 8.5.19.H.4(e) explaining why the applicant believes conditions affecting the area have changed sufficiently to warrant the Zoning Map Amendment.
4. Advisory: The building footprint on the typical layout does not conform to the 60 percent minimum frontage buildout requirement for a CD-4 (4.3.1-D, p. 76).
5. Advisory: The concept plan depicts structures with Facades setback further than the maximum 20’ front setback. Plot plans submitted at the time of building permit must conform to the Ordinance.
6. Advisory: Typical house plans provided with the application do not conform to CD-4 standards in Table 4.3.1-D (p. 76-85). Construction plans submitted at the time of building permit must conform to the Ordinance.
7. Advisory: Please confirm the accuracy of note 17 with Public Works.
8. Please confirm the location of any sewer lines or easements crossing the property in the area depicted as lot 4 on the concept.

9. Provided survey is approximate and does not indicate easement locations. The precise 150' measurement between pins is improbable. Please provide Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.

Engineering

10. No comments on rezoning.
11. Existing infrastructure (storm and sanitary) and potential improvements along eastern property line may necessitate changes to concept plan.

Fire

12. With the water available at the fire hydrants in this area, you are limited to building residential homes no larger than 3,600 S.F. and will have to have a NFPA 13D sprinkler system installed with a horn and strobe on the outside of the structure. No commercial buildings can be built at this location, because of the available fire water

Building

13. No comment.

Police

14. No comments provided.

Public Works

15. No comments.

Columbia Power

16. Columbia Power System has an existing power line near your proposed development.
    We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
    • Unfortunately, due to current supply chain challenges, no timeframe can be

guaranteed regarding the availability of meters or transformers appropriate for your development.

Wastewater

17. Wastewater of Columbia has an existing sewer main running through the eastern lot, with an easement 16 ft (and potentially up to 25 ft) from the eastern property line, in the middle of the lot. The main to the north may adversely affect building placement as well. This needs to be included in the survey.

Maury County Schools

18.
Maury County Public Schools
Highland Park Elementary, Whitthorne Middle, Central High School
See Attached Capacity Numbers
The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accommodate new students.

Maury County E911

19. No Comment

ATT

20. No comment.

Atmos Energy

21. No comments provided.

Duck River Electric Membership Corp

22. No comments provided.

Maury County Highway Dept.

23. No comments provided.

Columbia Water

24. "This minor subdivision is in CPWS's service area and the homes will be served from the existing main. A water service tap will be required for each lot and payment of associated fees."

ATTACHMENTS: Concept Plan

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

CITY OF COLUMBIA
TENNESSEE

ITEM # I 3.

DEVELOPMENT REVIEW COMMITTEE COMMENT FORM

July 11, 2023

NAME OR DEPARTMENT: Maury County Public Schools

Case Number: 23-0241

Request from Randolph Chapdelaine for Rezoning of Tax Map 100M Group C Parcel 18 located off West 18th Street from SD-LI (Light Industrial Special District) to CD-4 (General Urban Character District).

COMMENTS:

Highland Park Elementary, Whitthorne Middle, Central High School

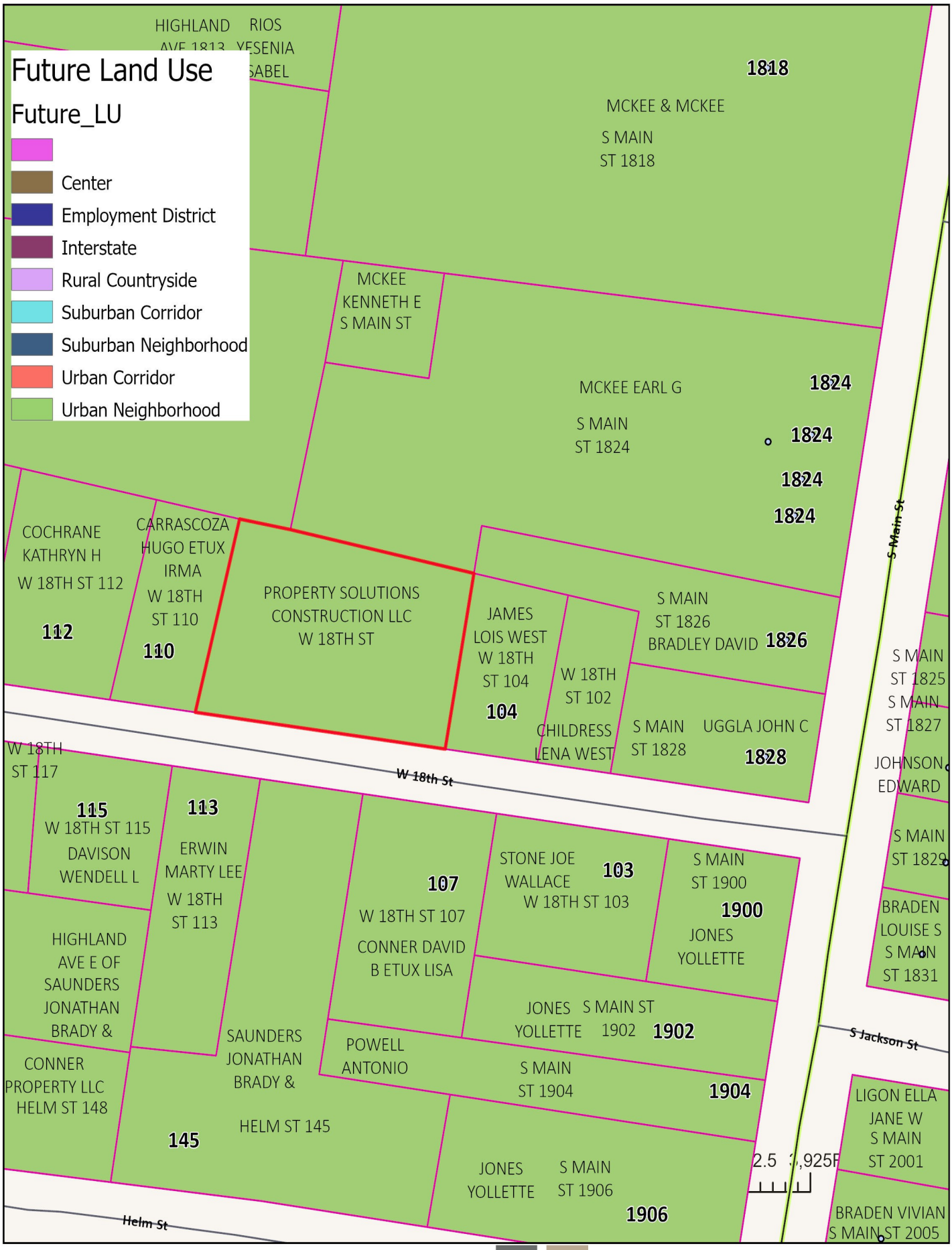
See Attached Capacity Numbers

The development combined with current neighborhoods and additional approved developments in these zones may require either new construction or realignment of school zones to accomodate new students.

Current Enrollment / Capacity

	Facility Name	Date Constructed	Sq. Ft.	Acreage	Capacity	Current Enrollment	Capacity Used
Elementary	Baker	1960	43,920	12	340	325	95.6%
	Battle Creek	2019	90,000	30	700	609	87.0%
	Brown	1968	56,720	20	405	348	85.9%
	Highland	1986	47,800	4.5	380	304	80.0%
	Howell	1999	81,600	17.5	700	644	92.0%
	Mt. Pleasant	1978	80,021	22	630	566	89.8%
	Riverside	1984	71,150	14	500	413	82.6%
	Spring Hill	1984	69,000	10	540	439	81.3%
	Woodard	1990	76,200	17	600	567	94.5%
	Wright	2005	97,765	18	740	631	85.3%
					5535	***4846***	***87.6%***
Middle	Battle Creek	2019	125,000	45	900	693	77.0%
	Cox	1997	137,200	25	900	646	71.8%
	Mt. Pleasant	2001	113,938	29.2	550	414	75.3%
	Spring Hill	2010	158,106	39.49	950	524	55.2%
	Whitthorne	1979	175,600	17	1050	912	86.9%
					4350	***3189***	***73.3%***
High	Central	2016	296,740	55	1700	1402	82.5%
	Mt. Pleasant	1969	110,759	31	600	391	65.2%
	Spring Hill	1993	181,800	57	1200	1165	97.1%
					3500	***2958***	***84.5%***
Unit	Culleoka	1969	205,800	34	1020	903	88.5%
	Hampshire	1978	83,410	13.12	500	407	81.4%
	Santa Fe	1964	94,225	24	650	532	81.8%
					2170	***1842***	***84.9%***
Other	Central Office	1960	15,400	1.5			
	College Hill	1958	42,211	2.26		209	
	Maintenance	1987	9,400	4.7			
	McDowell		46,165	7			
			2,509,930	**550.27**	**15555**	**13044**	

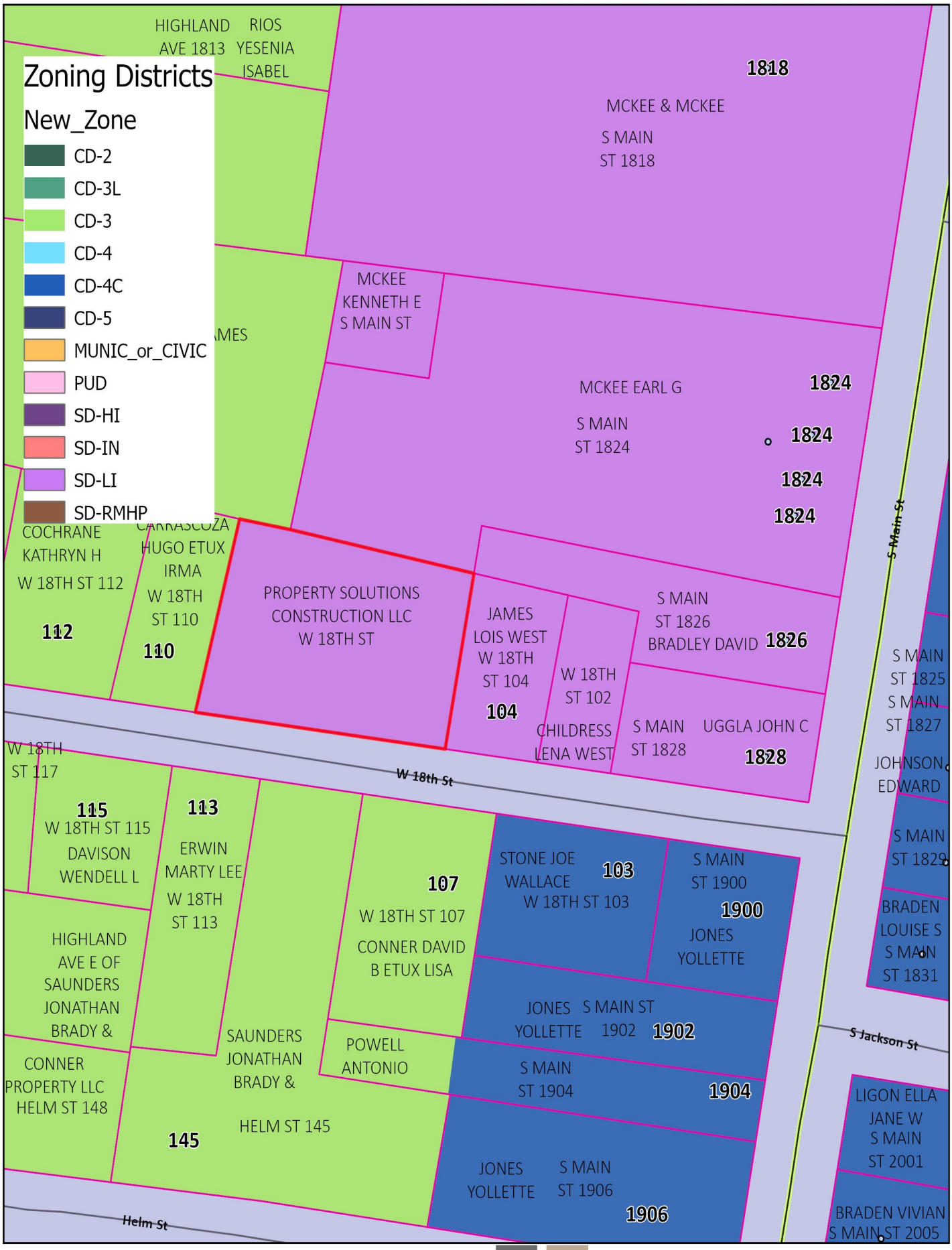
June numbers due to summer system rollover. Updated numbers will be available in August.



Case #23-0241
TM 100M Group C Parcel 18
W. 18th Street

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541



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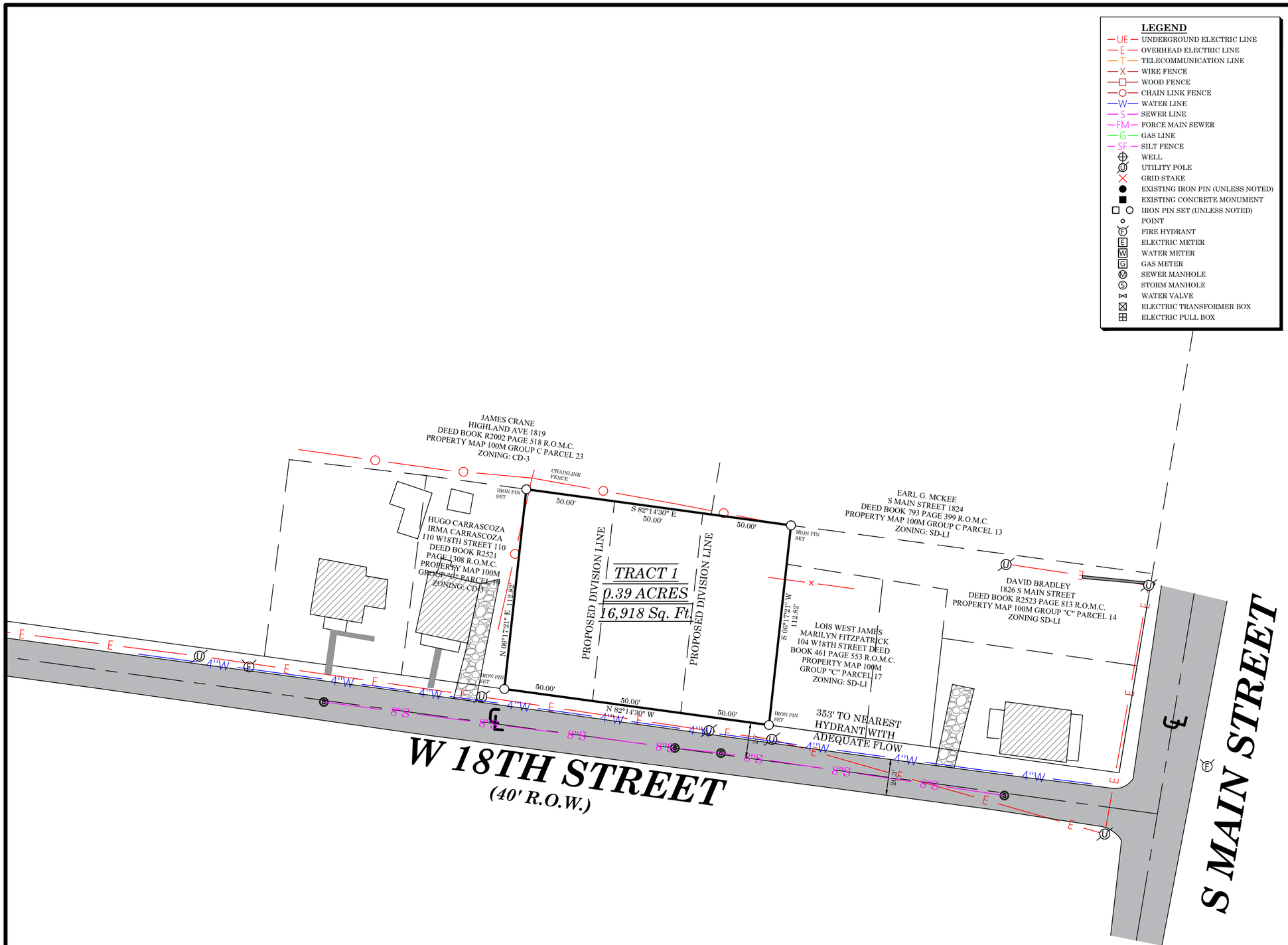


LEGEND

- UE — UNDERGROUND ELECTRIC LINE
- E — OVERHEAD ELECTRIC LINE
- T — TELECOMMUNICATION LINE
- X — WIRE FENCE
- WOOD FENCE
- CHAIN LINK FENCE
- W — WATER LINE
- S — SEWER LINE
- FM — FORCE MAIN SEWER
- G — GAS LINE
- SF — SILT FENCE
- WELL
- UTILITY POLE
- GRID STAKE
- EXISTING IRON PIN (UNLESS NOTED)
- EXISTING CONCRETE MONUMENT
- IRON PIN SET (UNLESS NOTED)
- POINT
- FIRE HYDRANT
- ELECTRIC METER
- WATER METER
- GAS METER
- SEWER MANHOLE
- STORM MANHOLE
- WATER VALVE
- ELECTRIC TRANSFORMER BOX
- ELECTRIC PULL BOX

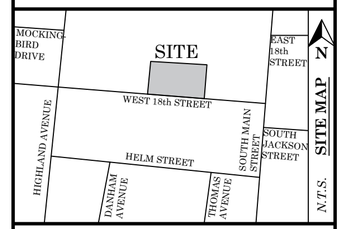
STATE PLANE NORTH (NAD83 NAVD88)

GENERAL NOTES

1. THE PURPOSE OF THIS MAP IS TO RE-ZONE A PROPERTY FROM SD-LI TO CD4.
2. THE SUBJECT PROPERTY LIES IN A ZONE "X" (AREAS OF MINIMAL FLOODING) AS SHOWN ON FIRM MAP 47119C0285E DATED 4/16/2007.
3. ALL DISTANCES SHOWN HEREON ARE BASED UPON A FIELD-RUN SURVEY USING GPS EQUIPMENT TIED TO TDOT CORS.
4. UTILITIES, IF SHOWN, WERE TAKEN FROM VISIBLE STRUCTURES AT THE SITE. VERIFICATION OF THEIR EXISTENCE, LOCATION, SIZE, AND DEPTH, SHOULD BE MADE BEFORE MAKING DECISIONS REGARDING THEM. AVAILABILITY OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE LOCAL UTILITY COMPANY. TENNESSEE ONE CALL (811) SHOULD BE CALLED BEFORE ANY CONSTRUCTION OR DIGGING.
5. THIS SURVEY WAS MADE WITHOUT THE BENEFIT OF A TITLE REPORT, IT IS THEREFORE SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE REPORT.
6. THIS PROPERTY IS SUBJECT TO BOTH RECORDED EASEMENTS, AND TO THOSE UNKNOWN TO THIS SURVEYOR.
7. PROBABLE WETLAND AREAS, AS IDENTIFIED EITHER BY THE NATIONAL WETLANDS INVENTORY OR FOUND AT THE TIME OF THE SURVEY, ARE SHOWN ON THIS PLAT. VERIFICATION AND DELINEATION OF THE PERIMETER LOCATION OF THESE OR ANY OTHER SUCH AREAS WHICH MAY EXIST ON THE PROPERTY SHOULD BE MADE BY THE OWNER OR DEVELOPER THROUGH THE RELEVANT GOVERNMENT AGENCY AND A WETLAND DELINEATION CONSULTANT PRIOR TO IMPROVEMENT, DESIGN, OR DEVELOPMENT OF THE PROPERTY. AT LEAST SIX GOVERNMENT AGENCIES HAVE REGULATION AUTHORITY OVER THE USE OR ALTERATION OF WETLAND AREAS, AND INCLUDE THE FOLLOWING: U.S. ARMY CORPS OF ENGINEERS; U.S. ENVIRONMENTAL PROTECTION AGENCY; U.S. FISH AND WILDLIFE SERVICE; TENNESSEE WILDLIFE RESOURCES AGENCY; TENNESSEE DIVISION OF WATER POLLUTION CONTROL; TENNESSEE NATURAL RESOURCES CONSERVATION SERVICE.
8. TOPOGRAPHY DATUM BASED ON NAVD 1988 TAKEN FROM TENNESSEE LIDAR MAPPING AND FIELD CHECKED.

CHAPDELAINE & ASSOCIATES
LAND SURVEYING

7376 WALKER ROAD,
FAIRVIEW, TENNESSEE 37062
(615) 799-8104
chapsurveyors@msn.com
Randolph L. Chapdelaine
TN R.L.S. #1444



RANDOLPH L. CHAPDELAINE
REGISTERED LAND SURVEYOR
TENNESSEE NO. 1444
6/19/2023

CERTIFICATE OF ACCURACY

I HEREBY CERTIFY THAT THIS IS A CATEGORY IV SURVEY AND THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION, THIS SURVEY WAS DONE IN COMPLIANCE WITH CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE, AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

a. REAL TIME KINEMATIC & BASE SOKKIA GRX 3
b. POSITIONAL ACCURACY: 0.05 FEET
c. DATE OF SURVEY: 5/02/2022
d. DATUM / EPOCH: NAD83 (2011) EPOCH
e. PUBLISHED / FIXED CONTROL: TDOT CORS NETWORK
f. GEOID MODEL: GEOID 12B
g. COMBINED GRID FACTOR: 0.99992685

6/19/2023

RANDOLPH L. CHAPDELAINE, R.L.S. # 1444 — DATE

OWNER:PROPERTY SOLUTIONS CONSTRUCTION, LLC.
106 WEST 18th STREET
DEED BOOK R-2805 PAGE 715 R.O.M.C.
9th CIVIL DISTRICT OF MAURY COUNTY, CITY OF COLUMBIA, TENNESSEE
PROPERTY MAP 100-M GROUP "C" PARCEL 18

REVISION #	DATE

DATE: JUNE 19, 2023
DRAWN BY: NAB
JOB #: 6950
SCALE: 1" = 40'

0 40 80

V-1.1

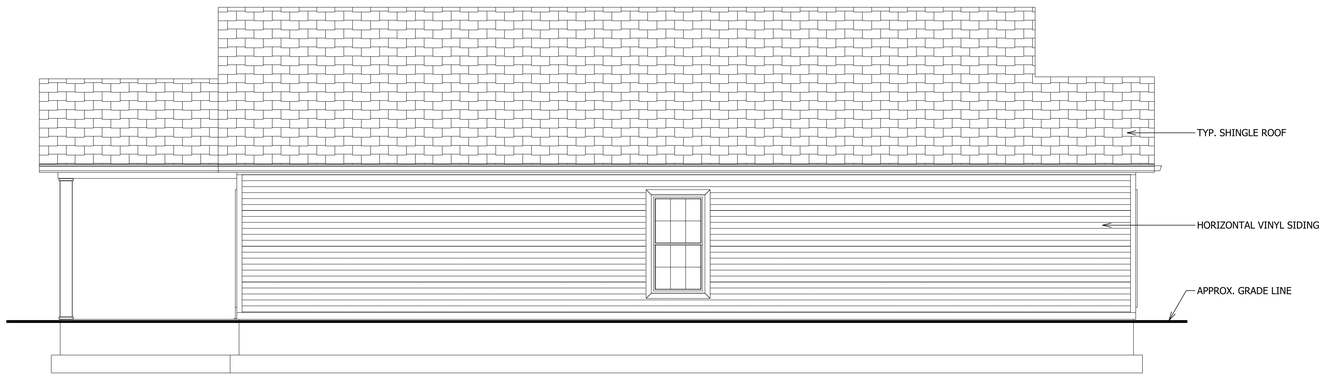
CONCEPT PLAN PROPOSED RE-ZONING SD-LI TO CD4

RIGHT ELEVATION

SCALE: 1/4"= 1'

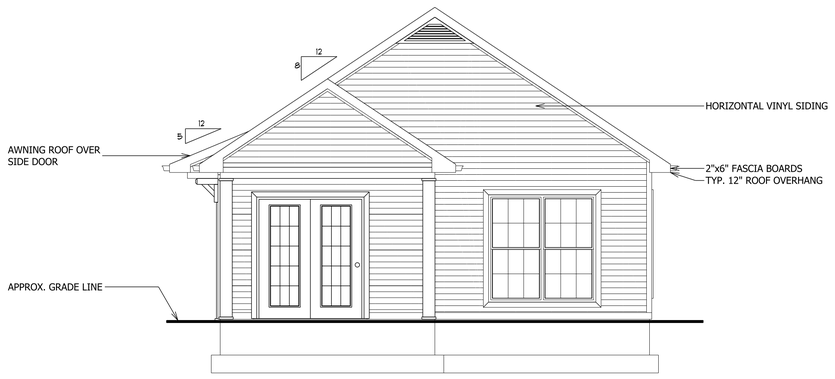
FRONT ELEVATION

SCALE: 1/4"= 1'



LEFT ELEVATION

SCALE: 1/4"= 1'



REAR ELEVATION

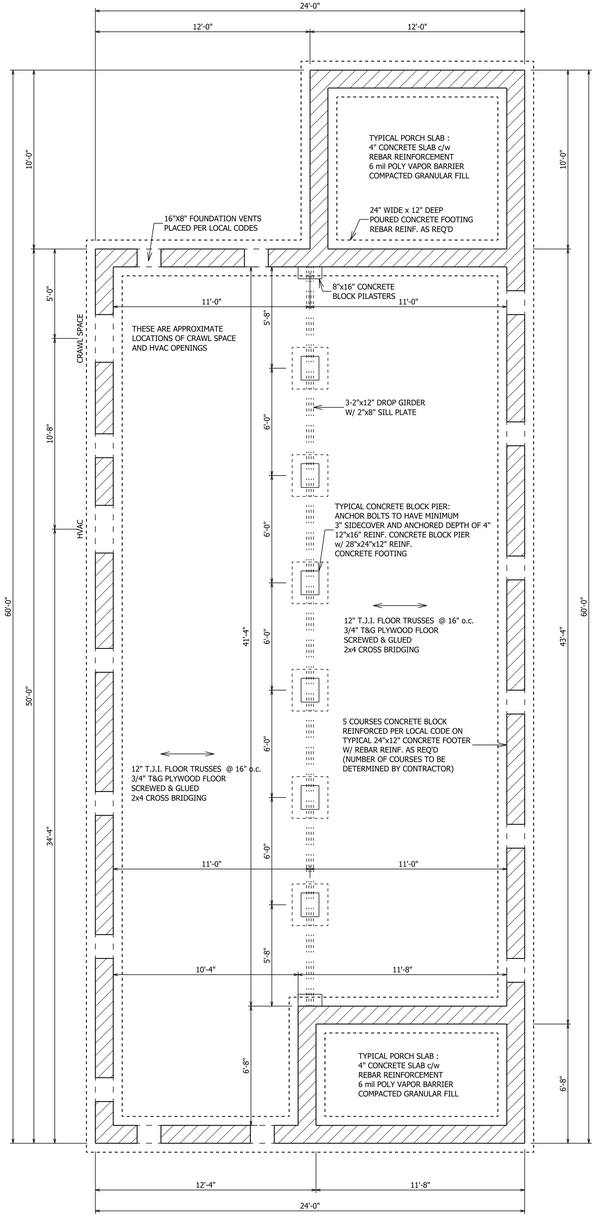
SCALE: 1/4"= 1'

SHD

WHILE EVERY ATTEMPT HAS BEEN MADE IN THE PREPARATION OF THIS PLAN TO AVOID ERRORS, OMISSIONS, AND MISTAKES, THE DRAFTSMAN CAN NOT GUARANTEE AGAINST HUMAN ERROR. THE CONTRACTOR AND OR CLIENT SHALL VERIFY ALL CONDITIONS, DIMENSIONS, DETAILS AND SPECIFICATIONS AND BE RESPONSIBLE FOR SAME. THE DRAFTSMAN WILL NOT BE LIABLE FOR ERROR AFTER CONSTRUCTION BEGINS.
© SOUTHERN HOME DESIGNS EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS

SOUTHERN HOME DESIGNS
106 WALNUT LANE COLUMBIA, TN 38401
PHONE 931-580-9375 EMAIL dwilliamsshd64@yahoo.com
HOME DESIGNS SINCE 1997

SCALE	DATE	DRAWN BY
1/4"= 1'	3/28/18	Daniel Williams
PLAN NO.	PAGE NO.	T. JONES
1S-1141-18	1 of 3	



CRAWL SPACE FOUNDATION PLAN

SCALE: 1/4"= 1'

NOTES:

-CRAWL SPACE FOUNDATION PLAN TO HAVE BRICK LEDGE. BRICK LEDGE NOT SHOWN ON THIS PLAN.

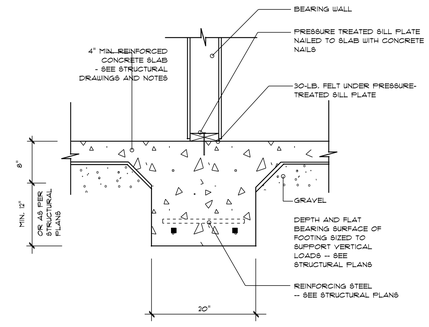
-2"x10" FLOOR JOIST MAY BE SUBSTITUTED FOR 12" T.J.I. SYSTEM.

FOOTING SCHEDULE (3000 psf soil capacity)

MK	PLAN DIMENSIONS	THICKNESS	REINFORCING
F 3'-0"	3'-0" x 3'-0"	12"	4- #4's bottom
F 3'-6"	3'-6" x 3'-6"	12"	5- #4's bottom
F 4'-0"	4'-0" x 4'-0"	12"	7- #4's bottom
F 4'-6"	4'-6" x 4'-6"	12"	6- #5's bottom
F 5'-0"	5'-0" x 5'-0"	12"	6- #6's bottom

GENERAL NOTES - STEEL

1. STRUCTURAL STEEL SHALL BE A-36 GRADE UNLESS OTHERWISE NOTED.
2. STRUCTURAL STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST A.I.S.C. SPECIFICATIONS AND STANDARDS.



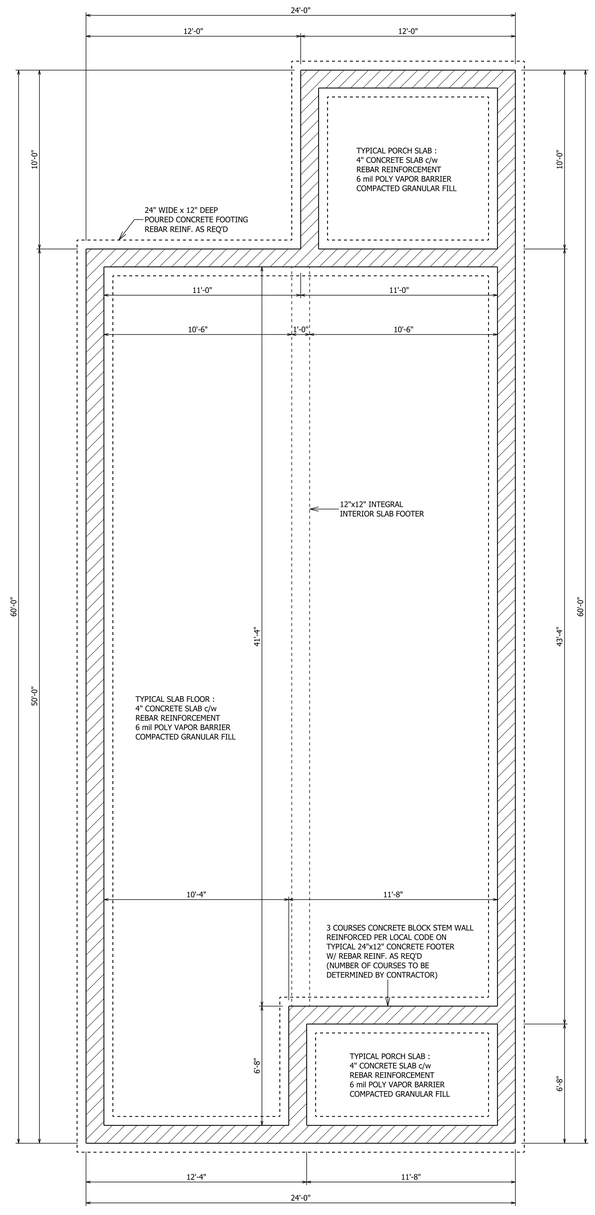
INTEGRAL SLAB FOOTING
DETAIL AT BEARING WALL

GENERAL NOTES:

-SEE DETAILS WHERE NEEDED.
-FINAL STRUCTURE MUST CONFORM TO ALL LOCAL CODES & REGULATIONS.
-PROVIDE SOLID SUPPORT UNDER ALL BEAMS AND HEADERS.
-PROVIDE DOUBLE JOISTS UNDER PARALLEL WALLS ABOVE.
-RAFTERS AND JOIST SPANS ARE BASED ON #2 YELLOW PINE.
-2"x10" EXTERIOR HEADERS, 2"x8" INTERIOR HEADERS.
-STATED BEAM SIZES TO BE VERIFIED BY SUPPLIER.
-INSTALL A SILL SEALER, EQUAL TO "POLY-CEL ONE" UNDER EXTERIOR SILLS OF HEATED AREA.
-INSTALL METAL BACK-UP CLIPS ON EXTERIOR STUDS OF HEATED AREA AS PER WALL CONSTRUCTION DETAILS.
-INSTALL INSULATION IN EXT. STUDS OF HEATED AREA AS REQ'D.
-INSTALL INSULATION IN FLOOR JOISTS OF LOWER LEVEL HEATED AREA AS REQ'D.
-INSTALL INSULATION IN CEILINGS OF HEATED AREA AS REQ'D.
-CAULK AROUND DOORS, WINDOWS, AND ALL OTHER OPENINGS OF EXTERIOR WALLS OF HEATED AREA.
OF EXTERIOR WALLS OF HEATED AREA.
-ALL INTERIOR 2x4 WALLS ARE 3 1/2" WIDE.
-ALL INTERIOR 2x6 WALLS ARE 5 1/2" WIDE.
-ALL EXTERIOR 2x4 BRICK WALLS ARE 8 1/2" WIDE.
-ALL EXTERIOR 2x4 SIDING WALLS ARE 5" WIDE.
-ALL EXTERIOR 2x6 SIDING WALLS ARE 7" WIDE.

NOTES:

-CLOSET SHELF HEIGHT OFF FLOOR- 66" SINGLE
42" & 84" DOUBLE
-ATTIC ACCESS PULL DOWN STEPS- 22 1/2"x48"
-GRADE LINE SHOWN ON PLAN DOES NOT NECESSARILY REFLECT FINAL GRADE LINE
-LOCATE ACCESS OPENING TO CRAWL SPACE AT HIGHEST PART OF FOUNDATION
-LAY 1 COURSE OF CAP BLOCK IN BOTTOM OF OPENING
-ALL INTERIOR PIERS TO BE 16"x16" WHEN OVER 4 BLOCK PLUS CAP
-ALL GIRDER BREAKS MUST BE ON PIERS OR POST (TYP.)



SLAB FOUNDATION PLAN

SCALE: 1/4"= 1'

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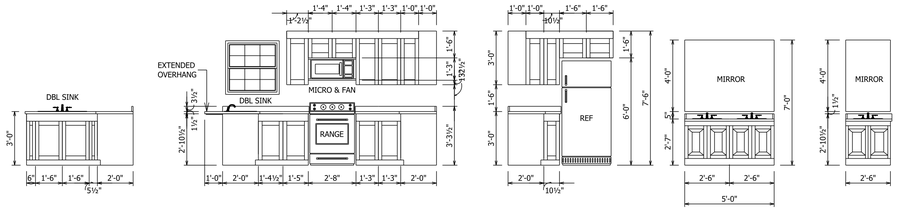
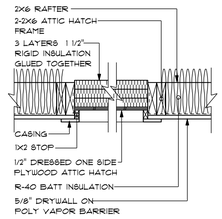


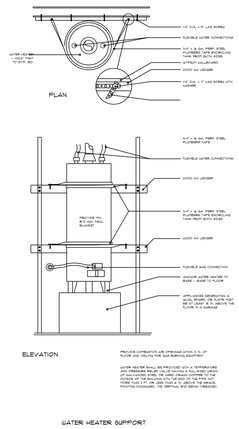
CABINET & VANITY ELEVATIONS

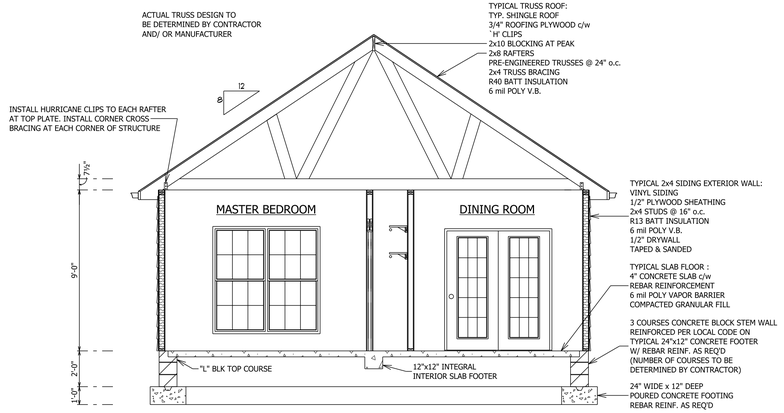
SCALE: 1/4"= 1'



ATTIC HATCH

WINDOW & DOOR SCHEDULE				
PRODUCT CODE	SIZE	HINGE DIRECTION	REVERSED	COUNT
36X80 COLONIAL A 1	3'-0"	L	NO	1
32X80 COUNTRY A 1	2'-8" 9 LITE	R	NO	1
72X80 PATIO UNIT	6'-0" PATIO UNIT	NA	NA	1
16X80 COLONIAL A 1	1'-4"	L	NO	1
16X80 COLONIAL A 1	1'-4"	R	NO	1
28X80 COLONIAL A 1	2'-4"	L	NO	1
28X80 COLONIAL A 1	2'-4"	R	NO	1
32X80 COLONIAL A 1	2'-8"	L	NO	1
32X80 COLONIAL A 1	2'-8"	R	NO	2
48X80 COLONIAL A 2	4'-0"	LR	NO	3
56X80 COLONIAL A 2	4'-8"	LR	NO	2
60X80 COLONIAL A 2	5'-0"	LR	NO	1
36X36 SINGLE HUNG 1	3'-0" x 3'-0"	N	NA	1
36X72 SINGLE HUNG 1	3'-0" x 6'-0"	N	NA	2
36X66 SINGLE HUNG 1	3'-0" x 5'-6"	N	NA	1
72X72 SINGLE HUNG 2	6'-0" x 6'-0"	NN	NA	2





SECTION "A"- SLAB & TRUSS DETAIL

SCALE: 1/4"= 1'

GENERAL NOTES:

-9' CEILINGS ON 1ST FLOOR, EXCEPT WHERE NOTED OTHERWISE.
-SEE DETAILS WHERE NEEDED.
-FINAL STRUCTURE MUST CONFORM TO ALL LOCAL CODES & REGULATIONS.
-PROVIDE SOLID SUPPORT UNDER ALL BEAMS AND HEADERS.
-PROVIDE DOUBLE JOISTS UNDER PARALLEL WALLS ABOVE.
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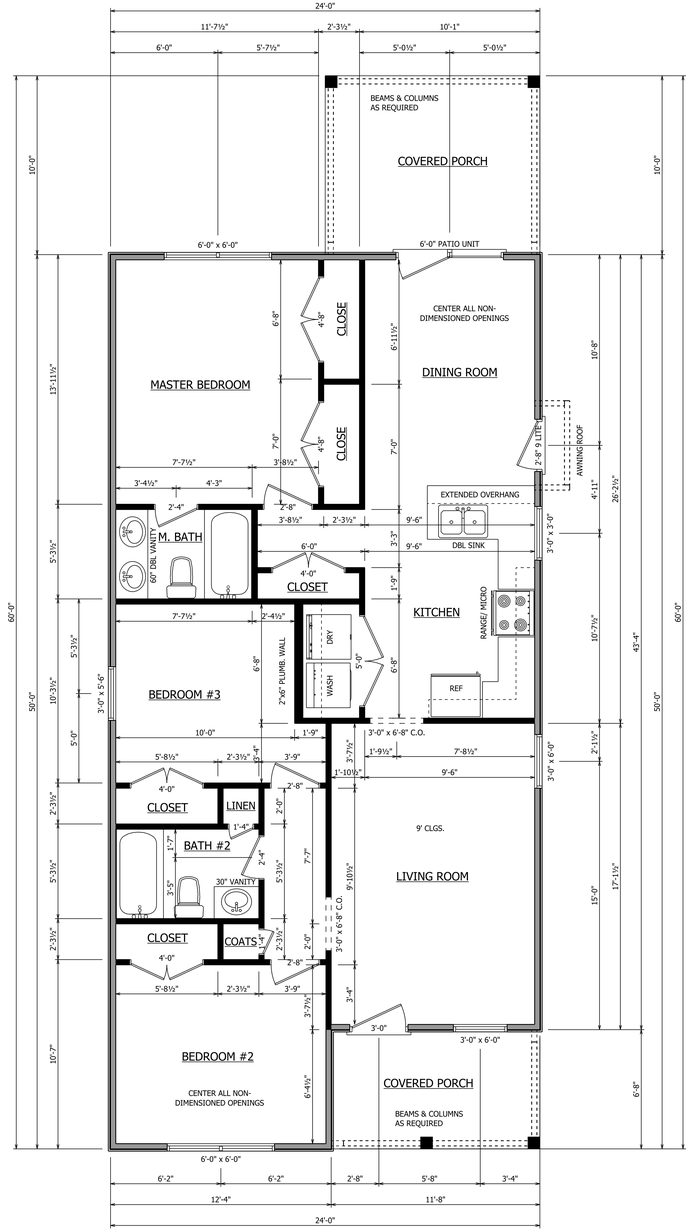
-ALL EXTERIOR 2x4 SIDING WALLS ARE 5" WIDE.
-ALL EXTERIOR 2x6 SIDING WALLS ARE 7" WIDE.



FLOOR PLAN

SCALE: 1/4"= 1'

SQUARE FOOTAGE	
LIVING SPACE	1141
COVERED PORCH	198
TOTAL UNDER ROOF	1339

SHD

WHILE EVERY ATTEMPT HAS BEEN MADE IN THE PREPARATION OF THIS PLAN TO AVOID ERRORS, OMISSIONS, AND MISTAKES, THE DRAFTSMAN CAN NOT GUARANTEE AGAINST HUMAN ERROR. THE CONTRACTOR AND OR CLIENT SHALL VERIFY ALL CONDITIONS, DIMENSIONS, DETAILS AND SPECIFICATIONS AND BE RESPONSIBLE FOR SAME. THE DRAFTSMAN WILL NOT BE LIABLE FOR ERROR AFTER CONSTRUCTION BEGINS.
© SOUTHERN HOME DESIGNS EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS

SOUTHERN HOME DESIGNS
106 WALNUT LANE COLUMBIA, TN 38401
PHONE 931-580-9375 EMAIL dwilliamsshd64@yahoo.com
HOME DESIGNS SINCE 1997

SCALE	DATE	DRAWN BY
1/4"= 1'	3/28/18	Daniel Williams
PLAN NO.	PAGE NO.	T. JONES
1S-1141-18	3 of 3	

BK/PG: R2805/715-716
22000200

2 PGS:AL-WARRANTY DEED
BECKY BATCH: 266402 01/04/2022 - 10:20 AM

VALUE	30000.00
MORTGAGE TAX	0.00
TRANSFER TAX	111.00
RECORDING FEE	10.00
ARCHIVE FEE	0.00
DP FEE	2.00
REGISTER'S FEE	1.00
TOTAL AMOUNT	124.00

STATE OF TENNESSEE, MAURY COUNTY
JOHN FLEMING
REGISTER OF DEEDS

This Instrument Prepared By:
K. Brian Hay, Attorney at Law
104 W. 6th Street, Ste. 200
Columbia, TN 38401

Name and Address of New Owner:	Name and Address of Entity Responsible for Payment of Real Property Taxes
Property Solutions Construction, LLC	new owner
405 Cemetery Ave	
Cookeville, TN 38556	

WARRANTY DEED

FOR AND IN CONSIDERATION OF One Dollar ($1.00) and other good and valuable consideration, the receipt and legal sufficiency of all of which are hereby acknowledged, **Earl G. McKee** *(herein called "Grantor")*, has this day bargained and sold, transferred and conveyed and by these presents does bargain, sell, transfer and convey unto **Property Solutions Construction LLC, a Tennessee limited liability company** *(herein called "Grantee")* the following described property situated and located in Maury County, Tennessee, to wit:

SITUATE in the NINTH (9TH) Civil District of Maury County, Tennessee and being more particularly described as follows:

Bounded on the North by Huckaby; South by West 18th Street; on the East by Gant (now Early West) and on the West by Jones, being a lot with the approximate dimensions of 150 feet by 112 feet, and known as 106-108 West 18th Street.

BEING the same property conveyed to Earl G. McKee by instrument of record in Book 1157 at page 557 in the Maury County, Tennessee Register of Deeds office.

Tax Parcel #100M-C-18.00

The property description used herein above is the same as contained in the last deed of reference and no new boundary survey is available.

TO HAVE AND TO HOLD the aforesaid real estate, together with all appurtenances and hereditaments thereunto appertaining unto Grantee, its successors and assigns in fee simple forever.

Grantor covenants that Grantor is lawfully seized and possessed of said real estate, has full power and lawful authority to sell and convey the same; that the title thereto is free, clear and unencumbered except for easements and restrictions, if any, of record in the Maury County, Tennessee Register of Deeds office; and, Grantor will forever warrant and defend the same against the lawful claims of all persons whomsoever.

The words "Grantor" and "Grantee" shall include their respective successors and assigns where the context requires or permits.

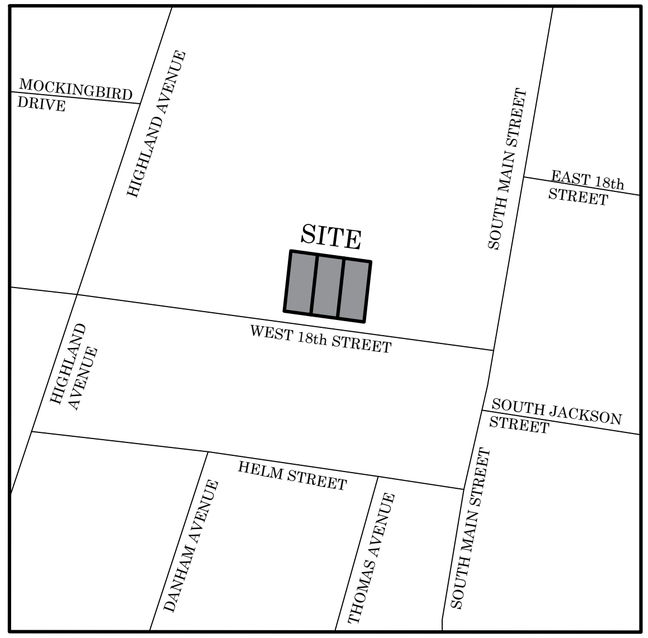
IN WITNESS WHEREOF, the Grantor has caused this instrument to be executed on this 15th day of December, 2021

GRANTOR:

Earl G. McKee

Return to:
Integrity Title and Escrow, LLC
2017 21st Avenue South
Nashville, TN 37212
FILE # JMO 21 0

Book R2805 Page 715



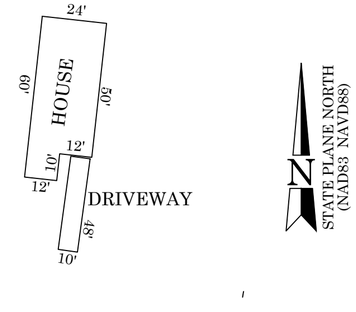
SITE MAP SCALED 1:200'

0 200 400

GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO RE-ZONE A PROPERTY FROM SD-LI TO CD4.
2. POTABLE WATER FOR PROPERTY SERVED BY COLUMBIA POWER AND WATER SYSTEMS.
3. THE SUBJECT PROPERTY LIES IN A ZONE "X" (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON FIRM MAP 47119C0285E DATED 4/16/2007.
4. ALL DISTANCES SHOWN HEREON ARE BASED UPON A FIELD-RUN SURVEY USING GPS EQUIPMENT TIED TO TDOT CORS.
5. UTILITIES, IF SHOWN, WERE TAKEN FROM VISIBLE STRUCTURES AT THE SITE. VERIFICATION OF THEIR EXISTENCE, LOCATION, SIZE, AND DEPTH, SHOULD BE MADE BEFORE MAKING DECISIONS REGARDING THEM. AVAILABILITY OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE LOCAL UTILITY COMPANY. TENNESSEE ONE CALL (811) SHOULD BE CALLED BEFORE ANY CONSTRUCTION OR DIGGING.
6. THIS SURVEY WAS MADE WITHOUT THE BENEFIT OF A TITLE REPORT, IT IS THEREFORE SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE REPORT.
7. THIS PROPERTY IS SUBJECT TO BOTH RECORDED EASEMENTS, AND TO THOSE UNKNOWN TO THIS SURVEYOR.
8. PROBABLE WETLAND AREAS, AS IDENTIFIED EITHER BY THE NATIONAL WETLANDS INVENTORY OR FOUND AT THE TIME OF THE SURVEY, ARE SHOWN ON THIS PLAT. VERIFICATION AND DELINEATION OF THE PERIMETER LOCATION OF THESE, OR ANY OTHER SUCH AREAS WHICH MAY EXIST ON THE PROPERTY SHOULD BE MADE BY THE OWNER OR DEVELOPER THROUGH THE RELEVANT GOVERNMENT AGENCY AND A WETLAND DELINEATION CONSULTANT PRIOR TO IMPROVEMENT, DESIGN, OR DEVELOPMENT OF THE PROPERTY. AT LEAST SIX GOVERNMENT AGENCIES HAVE REGULATION AUTHORITY OVER THE USE OR ALTERATION OF WETLAND AREAS, AND INCLUDE THE FOLLOWING: U.S. ARMY CORPS OF ENGINEERS; U.S. ENVIRONMENTAL PROTECTION AGENCY; U.S. FISH AND WILDLIFE SERVICE; TENNESSEE WILDLIFE RESOURCES AGENCY; TENNESSEE DIVISION OF WATER POLLUTION CONTROL; TENNESSEE NATURAL RESOURCES CONSERVATION SERVICE.
9. TOPOGRAPHY DATUM BASED ON NAVD 1988 TAKEN FROM TENNESSEE LIDAR MAPPING AND FIELD CHECKED.
10. SEWER IS SERVED BY COLUMBIA WASTE WATER DEPARTMENT.
11. ALL FACADES ON STRUCTURES SHALL CONFORM TO STANDARDS IN TABLE 4.3.1-D AND TABLE 4.3.8.B OF THE ZONING ORDINANCE. CONFORMITY WILL BE CONFIRMED AT BUILDING PERMIT.
12. ALL PRIVATE LANDSCAPING WILL CONFORM TO SECTION 4.3.16 OF THE ZONING ORDINANCE.
13. LIGHTING AT FRONTAGE LINES WILL NOT EXCEED 1.0 FOOT CANDLE AND ONSITE OUTDOOR LIGHTING WILL CONFORM TO THE STANDARDS OF SECTION 4.3.17.B OF THE ZONING ORDINANCE.
14. VEHICLE PARKING IS TO BE OFF STREET AND ACCOMMODATE 2 VEHICLES.
15. ALL LOTS ARE TO HAVE 1 SINGLE FAMILY DWELLING UNIT PER LOT.
16. ALL RESIDENTS ARE TO BE WOOD FRAME, SINGLE STORY BUILDINGS, DRIVEWAYS ARE TO BE CONCRETE.
17. HOMEOWNERS ARE TO BE RESPONSIBLE FOR INDIVIDUAL REFUSE SERVICE.

TYPICAL HOUSE/DRIVEWAY LAYOUT



LEGEND

- UE — UNDERGROUND ELECTRIC LINE
- E — OVERHEAD ELECTRIC LINE
- T — TELECOMMUNICATION LINE
- X — WIRE FENCE
- WOOD FENCE
- CHAIN LINK FENCE
- W — WATER LINE
- S — SEWER LINE
- FM — FORCE MAIN SEWER
- G — GAS LINE
- SF — SILT FENCE
- WELL
- UTILITY POLE
- GRID STAKE
- EXISTING IRON PIN (UNLESS NOTED)
- EXISTING CONCRETE MONUMENT
- IRON PIN SET (UNLESS NOTED)
- POINT
- FIRE HYDRANT
- ELECTRIC METER
- WATER METER
- GAS METER
- SEWER MANHOLE
- STORM MANHOLE
- WATER VALVE
- ELECTRIC TRANSFORMER BOX
- ELECTRIC PULL BOX

LOT(S) AREA

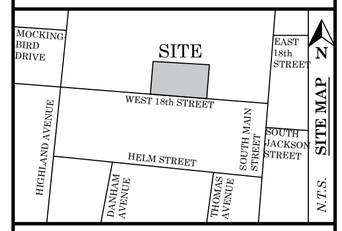
LOT #	SQ FT	RESIDENCE SQ FT	RATIO
LOT 1	5,639 ft²	1,320 ft²	23.4%
LOT 2	5,639 ft²	1,320 ft²	23.4%
LOT 3	5,639 ft²	1,320 ft²	23.4%

IMPERVIOUS AREA CHART:

	AREA IN Sq. Ft.
PROPOSED DRIVE IMPERVIOUS AREA:	1,452 Sq. Ft. 0.03 Acres
PROPOSED HOUSE IMPERVIOUS AREA:	3,960 Sq. Ft. 0.09 Acres
TOTAL IMPERVIOUS AREA:	5,412 Sq. Ft. 0.12 Acres

CHAPDELAINE & ASSOCIATES
LAND SURVEYING

7376 WALKER ROAD,
FAIRVIEW, TENNESSEE 37062
(615) 799-8104
chapsurveyors@msn.com
Randolph L. Chapdelaine
TN R.L.S. #1444



CERTIFICATE OF ACCURACY

I HEREBY CERTIFY THAT THIS IS A CATEGORY IV SURVEY AND THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION, THIS SURVEY WAS DONE IN COMPLIANCE WITH CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE, AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

a. REAL TIME KINEMATIC & BASE SOKKIA GRX 3
b. POSITIONAL ACCURACY: 0.05 FEET
c. DATE OF SURVEY: 5/02/2022
d. DATUM / EPOCH: NAD83 (2011) EPOCH
e. PUBLISHED / FIXED CONTROL: TDOT CORS NETWORK
f. GEOID MODEL: GEOID 12B
g. COMBINED GRID FACTOR: 0.99992685

6/19/2023

RANDOLPH L. CHAPDELAINE, R.L.S. # 1444 DATE

OWNER:PROPERTY SOLUTIONS CONSTRUCTION, LLC.
106 WEST 18th STREET
DEED BOOK R-2805 PAGE 715 R.O.M.C.
9thCIVIL DISTRICT OF MAURY COUNTY, CITY OF COLUMBIA, TENNESSEE
PROPERTY MAP 100-M GROUP "C" PARCEL 18

REVISION #	DATE

DATE: JUNE 19, 2023
DRAWN BY: NAB
JOB #: 6950
SCALE: 1" = 40'

0 40 80

V-1.1

SKETCH DEVELOPMENT PLAN FOR PROPERTY SOLUTIONS CONSTRUCTION LLC. PROPERTY

Hydrant Flush: 0070

Hydrant Flushing

Flush Date
04/24/2023

Hydrant #*
0070

Serviced By*
Shane Luna

Location Details:

Address 1*
S MAIN ST

City Limit*
(●) Inside ( ) Outside

Hydrant Details:

Mfg. Date*
1952

Make*
( ) Columbian ( ) Eclipse ( ) Kennedy
( ) M&H (●) Mueller ( ) Other

Outlets*
( ) 2
(●) 3

Depth of Bury*
(●) 3'
( ) 4'
( ) Unknown

Hydrant Extension*
( ) Yes - Needed (●) No - Not Needed

Barrel Size*
(●) 4.25"
( ) 4.5"
( ) 5.25"

Branch Valve Make*
(●) Non-Gated
( ) Gated - Visible
( ) Gated - Non-Visible

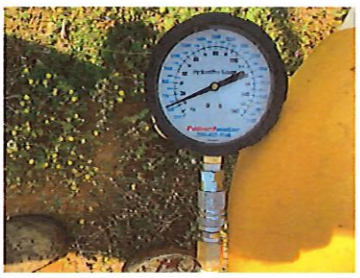
Static Pressure*
55

Residual Pressure*
12

GPM*
590

Static Pressure Image*
IMG_0220.jpeg 3.62MB

Residual Pressure/ GPM Image*
IMG_0221.jpeg 2.03MB



Hydrant Manufacturer Image*
IMG_0219.jpeg 3.9

Hydrant Flush: 0070
Hydrant Flush afee010a-22b1-4254-9dd5-bc1eacca57ca: A...

Summary Action history

Process Completed
4/24/2023 9:40 am

4/24/2023 9:40 am
Sloan Delk completed task **Hydrant Flush: 0070**

Hydrant Flush: 0070

Hydrant Flushing

Flush Date
04/24/2023

Hydrant #*
0070

Serviced By*
Shane Luna

Location Details:

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S MAIN ST

City Limit*
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Mfg. Date*
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Hydrant Manufacturer Image*
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Hydrant Flushing

Flush Date
04/24/2023

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Hydrant Manufacturer Image*
IMG_0219.jpeg 3.9

Hydrant Flush: 0070
Hydrant Flush afee010a-22b1-4254-9dd5-bc1eacca57ca: A...

Summary Action history

Process Completed
4/24/2023 9:40 am

4/24/2023 9:40 am
Sloan Delk completed task **Hydrant Flush: 0070**

Hydrant Flush: 0071

Hydrant Flushing

Flush Date
04/24/2023

Hydrant #*
0071

Serviced By*
Shane Luna

Location Details:

Address 1*
W18TH

City Limit*
(●) Inside ( ) Outside

Hydrant Details:

Mfg. Date*
1986

Make*
( ) Columbian ( ) Eclipse ( ) Kennedy
( ) M&H (●) Mueller ( ) Other

Outlets*
(●) 2 ( ) 3

Depth of Bury*
(●) 3'
( ) 4'
( ) Unknown

Hydrant Extension*
( ) Yes - Needed (●) No - Not Needed

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( ) 5.25"

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( ) Gated - Non-Visible

Static Pressure*
60

Residual Pressure*
10

GPM*
550

Static Pressure Image*
IMG_0202.jpeg 3.35MB

Residual Pressure/ GPM Image*
IMG_0203.jpeg 2.37MB

Hydrant Manufacturer Image*
IMG_0201.jpeg 3.7

Hydrant Flush: 0071
Hydrant Flush afee00fc-23b8-4027-a901-e9cc5e7cca37: An...

Summary Action history

Process Completed
4/24/2023 9:18 am

4/24/2023 9:18 am
Sloan Delk completed task **Hydrant Flush: 0071**

Hydrant Flush: 0071

Hydrant Flushing

Flush Date
04/24/2023

Hydrant #*
0071

Serviced By*
Shane Luna

Location Details:

Address 1*
W18TH

City Limit*
(•) Inside ( ) Outside

Hydrant Details:

Mfg. Date*
1986

Make*
( ) Columbian ( ) Eclipse ( ) Kennedy
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Hydrant Flush afee00fc-23b8-4027-a901-e9cc5e7cca37: An...

Summary Action history

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4/24/2023 9:18 am

4/24/2023 9:18 am
Sloan Delk completed task **Hydrant Flush: 0071**

Columbia Fire & Rescue

Fire Flow Requirements

Water Purveyor: Columbia Power & Water System

Date: 7/12/2023
Name: Zack Harvill
Phone: 615-799-8104
Email: zharvill@chcpsurvesor.com
Address/Parcel ID: Map 100M, Group C, Parcel 018.00 (W. 18TH)
Property Type: (•) Residential ( ) Commercial ( ) Industrial
Construction Type: Wood frame
Enclosed Area (ft²): less than 3,600 S.F.

FILLED OUT BY COLUMBIA FIRE AND RESCUE

NFPA Sprinkler Type: NFPA 13D

Water System Demand without Sprinkler Credit

Fire flow Requirements (International Fire Code Appendix B)

Fire Flow: 1,000 gpm Duration: 1 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

Water System Demand with Sprinkler Credit

Fire flow requirements (International Fire Code Appendix B)

Fire Flow: 500 gpm Duration: 1/2 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

Fire Plan Reviewer: Brad Massey Date: 7/13/2023

CITY OF COLUMBIA
TENNESSEE

WASTEWATER DEPARTMENT

1 June 2023

Zack Harvill
Chapdelaine and Associates Land Surveying

RE: Map 100M, Group C, Parcel 018.00

Zack,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the above-referenced development. Located on this site is a sanitary sewer main and easement which must be avoided during construction and not built upon with any permanent structures. Any extension to the existing sewer infrastructure will be initiated by the owner/developer, reviewed by our department and approved by the State of Tennessee. The project must be advanced in accordance with local, state and federal rules, regulations and policies. Funding and construction of those improvements will remain the responsibility of the owner/developer. New customers will be required to pay all fees applicable at the time of connection. No detailed design plan for an extension of the sewer has been proposed at this time.

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department

BK/PG: R2805/715-716
22000200

2 PGS:AL-WARRANTY DEED
BECKY BATCH: 266402 01/04/2022 - 10:20 AM

VALUE	30000.00
MORTGAGE TAX	0.00
TRANSFER TAX	111.00
RECORDING FEE	10.00
ARCHIVE FEE	0.00
DP FEE	2.00
REGISTER'S FEE	1.00
TOTAL AMOUNT	124.00

STATE OF TENNESSEE, MAURY COUNTY
JOHN FLEMING
REGISTER OF DEEDS

This Instrument Prepared By:
K. Brian Hay, Attorney at Law
104 W. 6th Street, Ste. 200
Columbia, TN 38401

Name and Address of New Owner:	Name and Address of Entity Responsible for Payment of Real Property Taxes
Property Solutions Construction, LLC	new owner
405 Cemetary Ave	
Cookeville, TN 38506	

WARRANTY DEED

FOR AND IN CONSIDERATION OF One Dollar ($1.00) and other good and valuable consideration, the receipt and legal sufficiency of all of which are hereby acknowledged, **Earl G. McKee** *(herein called "Grantor")*, has this day bargained and sold, transferred and conveyed and by these presents does bargain, sell, transfer and convey unto **Property Solutions Construction LLC, a Tennessee limited liability company** *(herein called "Grantee")* the following described property situated and located in Maury County, Tennessee, to wit:

SITUATE in the NINTH (9TH) Civil District of Maury County, Tennessee and being more particularly described as follows:

Bounded on the North by Huckaby; South by West 18th Street; on the East by Gant (now Early West) and on the West by Jones, being a lot with the approximate dimensions of 150 feet by 112 feet, and known as 106-108 West 18th Street.

BEING the same property conveyed to Earl G. McKee by instrument of record in Book 1157 at page 557 in the Maury County, Tennessee Register of Deeds office.

Tax Parcel #100M-C-18.00

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TO HAVE AND TO HOLD the aforesaid real estate, together with all appurtenances and hereditaments thereunto appertaining unto Grantee, its successors and assigns in fee simple forever.

Grantor covenants that Grantor is lawfully seized and possessed of said real estate, has full power and lawful authority to sell and convey the same; that the title thereto is free, clear and unencumbered except for easements and restrictions, if any, of record in the Maury County, Tennessee Register of Deeds office; and, Grantor will forever warrant and defend the same against the lawful claims of all persons whomsoever.

The words "Grantor" and "Grantee" shall include their respective successors and assigns where the context requires or permits.

IN WITNESS WHEREOF, the Grantor has caused this instrument to be executed on this 28th day of December, 2021

GRANTOR:

Earl G. McKee

Return to:
Rudy Title and Escrow, LLC
2012 21st Avenue South
Nashville, TN 37212
FILE #: JM0210

STATE OF TENNESSEE
COUNTY OF MAURY

Before me, the undersigned, a Notary Public in and for the aforesaid state and county, personally appeared **Earl G. McKee**, to me known to be the person(s) described therein (or who proved to me to be the same on a satisfactory basis) and who acknowledged that the foregoing instrument was executed for the purposes therein contained.

Witness my hand and seal at office in the aforesaid state and county this 28th day of December, 2021.

Notary Public
My Commission Expires: 3-29-2022

(SEAL)

CANDICE JOHNSON
STATE OF TENNESSEE NOTARY PUBLIC
COUNTY OF MAURY
My Comm. Expires

I hereby swear or affirm that to the best of affiant's knowledge, information and belief, the actual consideration for the transfer or the value of the property transferred, whichever is greater, is **$30,000.00**, which amount is equal to or greater than the amount which the property transferred would command at a fair and voluntary sale.

Affiant

Subscribed and sworn to before me this 29th day of December, 2021.

Notary Public
My Commission Expires: _____

(SEAL)

LAUREN REYNOLDS
STATE OF TENNESSEE NOTARY PUBLIC
RUTHERFORD COUNTY
MY COMMISSION EXPIRES 9-20-2025

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931)560-1560
FAX: (931)560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	100-M	C	18
	TAX MAP:	GROUP:	PARCEL:
SUMMARY OF NATURE OF REQUEST AND WORK	Rezone the property from SD-LI to CD-4 and divide the property into 3 lots.		

DATE OF PRE-APPLICATION CONFERENCE	5/10/2023	*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
❑ Annexation ✓ Rezoning ❑ Preliminary Plat ❑ Final Plat ❑ PUD Preliminary Master Plan ❑ PUD Final Site Plan ❑ Multi-Family Site Plan ❑ Other: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ❑ Written Legal Description copy ❑ Requested Zone Listed ❑ Compliance with Comprehensive Plan ❑ Annexation Permission Form ❑ Plans and/or Plats conforming to City standards with check list completed ❑ Columbia Water System Availability Letter **Plats/PUDs:** ❑ Project Name (include Sections & Phases) *Property Solutions Rezone* ❑ Total Number of Lots *3* ❑ Total acreage 0.39 acres

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Randolph Chapdelaine	PHONE	615-799-8104
ADDRESS	7376 Walker Rd Fairview, TN 37062	EMAIL	chapsurveyors@msn.com

PROPERTY OWNER NAME	Property Solutions Construction LLC	PHONE	931-626-4294
ADDRESS	405 Cemetery Ave Columbia, TN 38401	EMAIL	pscllc@yahoo.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Randolph Chapdelaine	*Randolph Chapdelaine*	*6/1/2023*
APPLICANT NAME	APPLICANT SIGNATURE	DATE

Property Solutions Construction LLC	Property Solutions Construction LLC	6/1/2023
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	

Gmail Zack Harvill <zharvill@chapsurveyor.com>

RE: Water availability on W. 18th

1 message

Kevin McCarthy <kmccarthy@columbiatn.com> Thu, Jul 13, 2023 at 3:04 PM
To: Brad Massey <bmassey@columbiatn.com>
Cc: Zack Harvill <zharvill@chapsurveyor.com>, Mike Harris <mike.harris@inflodesign.com>, Melissa Sanders <msanders@columbiatn.com>

Thank you, Brad. This will work for the resubmittal to confirm available fire flow for the property. Mike's technical comment for DRC is adequate to confirm domestic.

Zack, please provide this information at resubmittal on Monday.

Kevin C. McCarthy, AICP

City Planner

From: Brad Massey <bmassey@columbiatn.com>
Sent: Thursday, July 13, 2023 1:42 PM
To: Kevin McCarthy <kmccarthy@columbiatn.com>
Subject: Water availability on W. 18th

Included is a required fire flow letter and the flow from the 2 hydrants that are within 600' of the property. The 2018 International Fire Code says we have to figure the GPM of the hydrant at a residual pressure of 20psi. The 2 hydrant flows that I have included, if you use a hydrant calculator, have flows of 487GPM @ 20psi and 528GPM @ 20psi. To build the proposed houses, each house would have to be sprinkled with a NFPA 13D system per fire code.

Thank you

Brad Massey
Fire Marshal
Columbia Fire & Rescue

bmassey@columbiatn.com
931-560-1740
931-626-1236
700 North Garden Street
Columbia, TN 38401
Columbiatn.com

Disclaimer

The information contained in this communication from the sender is confidential. It is intended solely for use by the recipient and others authorized to receive it. If you are not the recipient, you are hereby notified that any disclosure, copying, distribution or taking action in relation of the contents of this information is strictly prohibited and may be unlawful.

This email has been scanned for viruses and malware, and may have been automatically archived by Mimecast, a leader in email security and cyber resilience. Mimecast integrates email defenses with brand protection, security awareness training, web security, compliance and other essential capabilities. Mimecast helps protect large and small organizations from malicious activity, human error and technology failure; and to lead the movement toward building a more resilient world. To find out more, visit our website.

---

3 attachments

Required fire flow (W. 18TH).pdf
75K

Hydrant 0071 W. 18th.pdf
330K

Hydrant 0070 S. Main St..pdf
325K

Hydrant Flush: 0070

Hydrant Flushing

Flush Date
04/24/2023

Hydrant #*
0070

Serviced By*
Shane Luna

Location Details:

Address 1*
S MAIN ST

City Limit*
(●) Inside ( ) Outside

Hydrant Details:

Mfg. Date*
1952

Make*
( ) Columbian ( ) Eclipse ( ) Kennedy
( ) M&H (●) Mueller ( ) Other

Outlets*
( ) 2 (●) 3

Depth of Bury*
(●) 3'
( ) 4'
( ) Unknown

Hydrant Extension*
( ) Yes - Needed (●) No - Not Needed

Barrel Size*
(●) 4.25"
( ) 4.5"
( ) 5.25"

Branch Valve Make*
(●) Non-Gated
( ) Gated - Visible
( ) Gated - Non-Visible

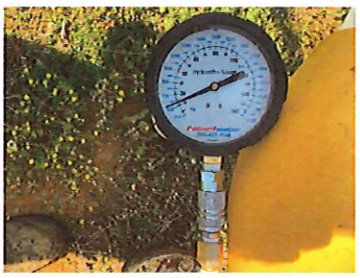
Static Pressure*
55

Residual Pressure*
12

GPM*
590

Static Pressure Image*
IMG_0220.jpeg 3.62MB

Residual Pressure/ GPM Image*
IMG_0221.jpeg 2.03MB



Hydrant Manufacturer Image*
IMG_0219.jpeg 3.9

Hydrant Flush: 0070
Hydrant Flush afee010a-22b1-4254-9dd5-bc1eacca57ca: A...

Summary Action history

Process Completed
4/24/2023 9:40 am

4/24/2023 9:40 am
Sloan Delk completed task **Hydrant Flush: 0070**

Hydrant Flush: 0071

Hydrant Flushing

Flush Date
04/24/2023

Hydrant #*
0071

Serviced By*
Shane Luna

Location Details:

Address 1*
W18TH

City Limit*
(•) Inside ( ) Outside

Hydrant Details:

Mfg. Date*
1986

Make*
( ) Columbian ( ) Eclipse ( ) Kennedy
( ) M&H (•) Mueller ( ) Other

Outlets*
(•) 2 ( ) 3

Depth of Bury*
(•) 3'
( ) 4'
( ) Unknown

Hydrant Extension*
( ) Yes - Needed (•) No - Not Needed

Barrel Size*
( ) 4.25"
(•) 4.5"
( ) 5.25"

Branch Valve Make*
(•) Non-Gated
( ) Gated - Visible
( ) Gated - Non-Visible

Static Pressure*
60

Residual Pressure*
10

GPM*
550

Static Pressure Image*
IMG_0202.jpeg 3.35MB

Residual Pressure/ GPM Image*
IMG_0203.jpeg 2.37MB

Hydrant Manufacturer Image*
IMG_0201.jpeg 3.7

Hydrant Flush: 0071
Hydrant Flush afee00fc-23b8-4027-a901-e9cc5e7cca37: An...

Summary Action history

Process Completed
4/24/2023 9:18 am

4/24/2023 9:18 am
Sloan Delk completed task **Hydrant Flush: 0071**

Honey Farm Commercial Rezoning

Project #:	23-0291	Location:	Tax Map 51 Parcel 58.0
Applicant:	Gamble Design Collaborative	Case Type(s):	Rezoning
Staff Planner:	Kevin C. McCarthy, AICP	Proposed Use:	Restaurant, Retail and Office

PROJECT SUMMARY

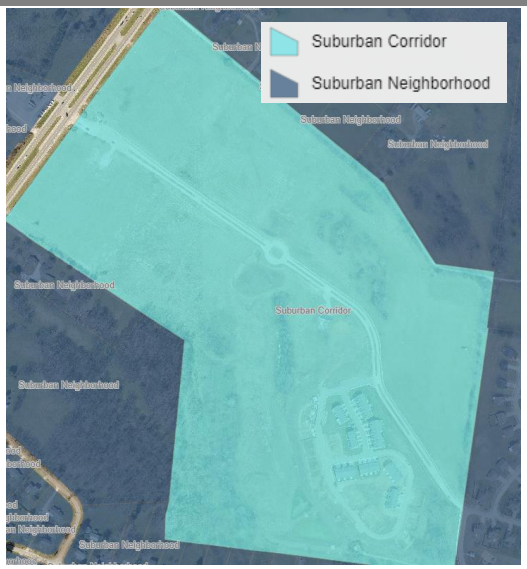
The applicant requests to rezone an 11.58-acre portion of the Honey Farm development located at the intersection Nashville Highway and Honey Farm Way to CD-4C (Urban Corridor Character District). The property is currently zoned as a Commercial Enterprise General Planned Unit Development (CEG-PUD) approved under previous zoning ordinance. City Council first approved the Master Plan in 2003; it has been revised on numerous occasions. Other property included in the Master Plan has developed under different concepts in piecemeal fashion. The Development Review Committee (DRC) reviewed this proposal at its August 2023 meeting.

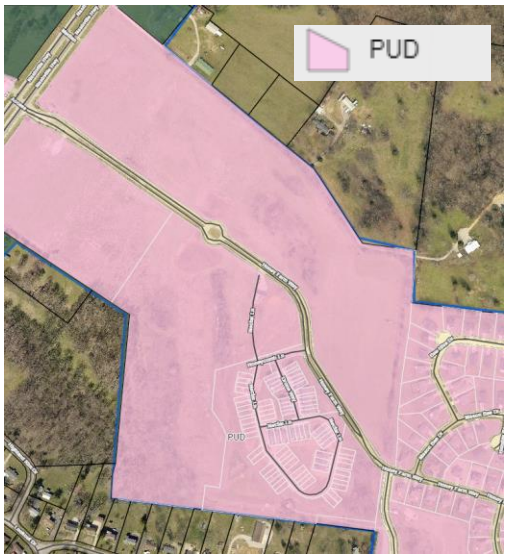
- The request is consistent with Connect Columbia, the City's comprehensive plan.
- The concept plan generally indicates that it is possible to develop the site in conformity with the requested standards. Greater detail will be required at the time of any subsequent Site Development Plan.
- The Zoning Ordinance authorizes the Planning Commission to recommend revocation of a Preliminary PUD Master Plan upon a finding that circumstances have changed to such a degree that the landholder is unlikely to develop the site in conformity with the plan.
- If the Planning Commission recommends approval of the requested rezoning, the action should also recommend revocation of the PUD Master Plan for the subject site.
- Subsequent development and division of the property will require review and approval by the Planning Commission or the Zoning Administrator.
- The Planning Commission is a **recommending body** for rezoning requests.
- Templates are provided at the end of the report to assist the Planning Commission in crafting properly formatted motions.

SITE INFORMATION

CURRENT ZONING	EXISTING USE	EXISTING IMP.	LAND AREA
OTHER PUD (CEG)	Vacant	Vacant	+/-11.58 Acres

FUTURE LAND USE MAP	ZONING MAP





SITE CONTEXT/ADJACENT PROPERTIES			
	Future Land Use	Zoning	Current Use
Subject Property	Suburban Corridor	Other PUD (CEG)	Vacant
North	Suburban Neighborhood	CD-2	Single-Family
South	Suburban Neighborhood	CD-2	Single-Family
East	Suburban Neighborhood	Other PUD (RM-1)	Vacant/Light Industrial
West	Suburban Neighborhood	CD-2	Single-Family

The subject site is part of the larger Honey Farm area which has developed in piecemeal fashion under multiple PUD Master Plans since the mid-2000s. The property enfronts Nashville Highway on the west. There are single-family residences immediately north and south of the property. The property to the east on the north side of Honey Farm Way is an undeveloped residential property which is controlled by the same developer. On the south side of Honey Farm Way, the property to the east is subject to a 2022 PUD Master Plan for a self-storage facility. At the time of approval, the site was controlled by the same developer. The properties to the northeast and southeast are outside of the City of Columbia, but within its Urban Growth Boundary (UGB) and it planning area.

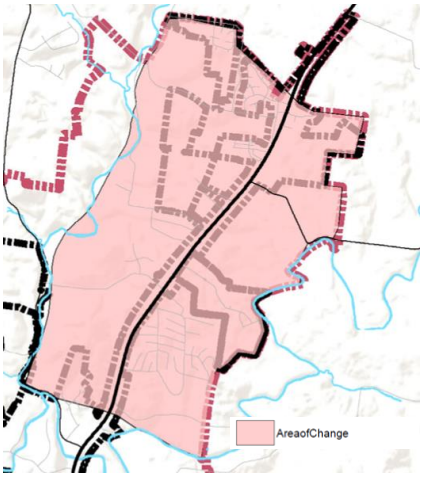
CONSISTENCY WITH CONNECT COLUMBIA

Suburban Corridor: The future land use of the subject site is Suburban Corridor. The Character Area is characterized by a mix of residential and commercial uses with intermixed and compatible civic uses. The Future Land Use Plan indicates that "the general development pattern is largely site specific" (Connect Columbia, p. 26). The specific character of the Corridor relies on the Area of Change determination. Development can take the form of single- and multi-use activity on a variety of lot sizes, depending on the surrounding development pattern (Connect Columbia, p. 26). The Character Area Matrix from page twenty-six of the Future Land Use Plan (excerpted below) is a guide to approving requests for zoning map amendments and Planned Unit Developments. The future land use classification is implemented by the CD-4C character district and PUDs.

CHARACTER AREA MATRIX				
	Development Pattern	**Zoning Category and Uses**	**Infrastructure**	**Design Standard**
SUBURBAN CORRIDOR	**Is the property in an Area of Change?** **No:** The development pattern is established. Changes to overall character of the area should rarely occur. **Yes:** The development pattern is evolving. Changes to area are likely as development occurs. New development should blend with existing, surrounding neighborhood assets.	**Residential Uses:** Low Density Residential, Medium High Residential, and High Residential Districts **Public and Civic Uses:** Religious, Day Care, Government, Medical, and Educational **Commercial Uses:** Hotels, Recreational, Restaurants, Retail, Personal Services, Self-Service Storage, Vehicle Sales and Service, and Wholesale Trade **Office Uses:** All office uses	**Not in an Area of Change:** Limited new services, with mostly in-fill enhancements to existing infrastructure. **Within an Area of Change:** Extensions to transportation, water, sewer, and other services should be expected. New service or extensive redevelopment of existing services should be vetted and reviewed by Planning Commission and City Council as a primary element of approval.	Scale: Buildings should be compatible with the established character of the area. Architecture: New developments should include a mix of architectural styles. Buildings should include quality materials with architectural details and features. Parking: Parking should be contingent on the location of the site along the transect, becoming more subordinate to buildings as urbanity increases.

AREA OF CHANGE

The subject site **is located within an Area of Change** (Connect Columbia Map 3). In 2017 the Planning Commission determined that the development pattern in the area was evolving. Changes to the area are likely, but new development should blend with existing neighborhood assets. The designation does not necessarily mean that any particular development proposal is consistent with Connect Columbia. It does mean that the Planning Commission has previously determined that in this area, the development character is not fixed and change is expected over time (Connect Columbia p. 14).

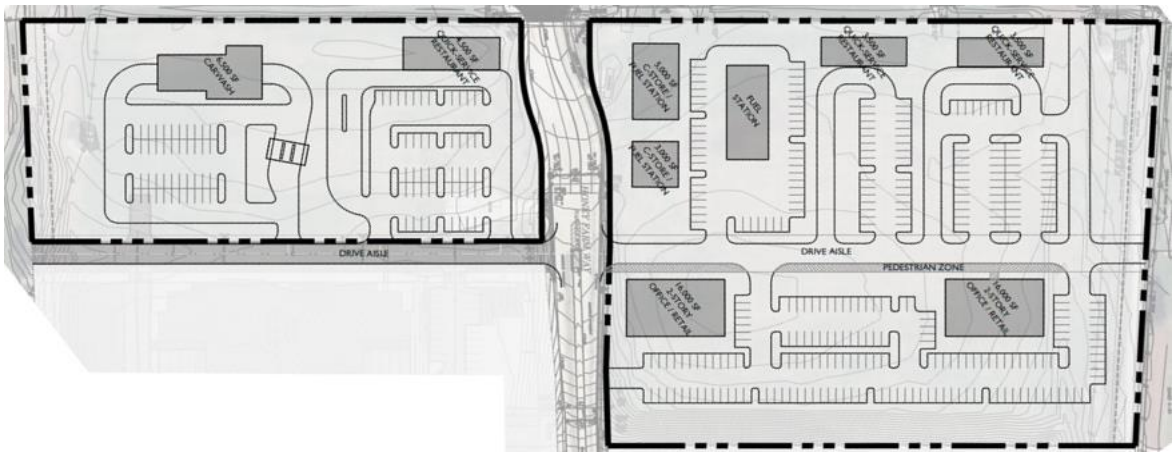


CONFORMITY WITH ZONING ORDINANCE

As required by **§ 8.5.19.F.3** of the Zoning Ordinance, the applicant provided a concept plan (i.e. "Sketch Development Plan") demonstrating that it is possible to develop the property in conformity with the standards applicable to the requested zoning designation. Any development plan/preliminary plat would be required to comply with Zoning Ordinance 4400, adopted on July 14th, 2022. This request for rezoning simply establishes entitlements under the zoning ordinance, not a vested right to develop the site as depicted in the concept plan.

Lots, Building Sites & Bulk Standards

- **The concept plan depitcts building site layouts which generally conform to the CD-4C bulk standards listed in Table 4.3.1-E of the Zoning Ordinance.**
- **The current request establishes the applicable standards for future reviews. The concept plan is not a plan of development and approval of the rezoning request does not establish a vested right.**
- **Planning staff will determine conformity with the limited use standards of §4.3.9.E, the general development standards of Article 4, and the applicable Development Parcel Standards of Article 5 at the time of Site Development Plan approval.**
    - The concept depicts quick service restaurants with drive throughs, office buildings, a car wash, and a convenience store with a gas canopy.
    - The Ordinance establishes site and limited use standards for the uses proposed in the concept.
    - Although many details need refinement, the plan demonstrates that it is possible to develop the site in conformity with the standards of the Ordinance.



- **Rezoning the property establishes clear predictable standards for the site and eliminates the need for the applicant and Planning Commission to repeatedly revisit Master Plan revisions.**

REVIEW PROCESS

The Development Review Committee evaluated the proposed rezoning at its August 2023 meeting, as directed by section **8.3.7** of the Zoning Ordinance. Technical comments are provided in the agenda package.

Section **8.5.19** of the Zoning Ordinance directs the Planning Commission to review and make a recommendation on all proposed changes to the Official Zoning Map. The Planning Commission is the recommending body for rezonings under **§ 8.3.3.B.3** of the Zoning Ordinance.

Section **8.5.19.H.4** of the Zoning Ordinance establishes the review criteria for approval of all changes to the Official Zoning Map:

a. The Rezoning is consistent and not in conflict with the Comprehensive Plan or other applicable approved local plans for the area;
b. It has been determined that the legal purposes for which zoning exists, as set forth in Section 1.5 [, are not contravened]; [1]
c. It has been determined that there will be no adverse effect upon Adjoining property owners unless such effect can be justified by the overwhelming public good or welfare;
d. It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public;
e. It has been determined that conditions affecting the area have changed to a sufficient to warrant the Zoning Map Amendment or that the existing zoning of the property was the result of a mistake;
f. It has been determined that adequate school, road, parks, wastewater treatment, water supply, and stormwater drainage facilities are available

Section **8.5.21.R** of the Zoning Ordinance authorizes the Planning Commission to recommend revocation of a Preliminary PUD Master Plan upon a finding that circumstances have changed to such a degree that the landholder is unlikely to develop the site in conformity with the plan.

[1] Ordinance 4400 contains this incomplete sentence. The previous ordinance contained a nearly identical list of criteria at § 3.18.7.B. The corresponding criterion in Ordinance 3638 read "the legal purposes for which zoning exists are not contravened."

SUMMARY OF DEVELOPMENT REVIEW COMMITTEE COMMENTS

The DRC reviewed this proposal at its August 2023 meeting. A full list of comments, and the applicant's responses, is provided in the agenda packet. Some key comments are noted below.

- **Planning** advised the applicant that aspects of the concept plan would not conform to the standards of the Ordinance, specifically, **§ 4.3.3.D** which prohibits through-lots and building sites. The applicant provided a response acknowledging the comment and revised the concept to better demonstrate that the site can be developed in conformity with the requested zoning.
- The **City Engineer** advised the applicant that the concept plan did not strictly conform to the Access Management Ordinance. The applicant acknowledged the comment and indicated that any subsequent Site Development Plan will conform.
- Utility providers indicated willingness and capacity to serve the site.

COMMENTARY FROM PROFESSIONAL PLANNING STAFF

The requested CD-4C zoning is consistent with Connect Columbia; removing the PUD designation will facilitate predictable and orderly development of the site. The subject site's future land use classification is Suburban Corridor. The future land use classification is implemented by the CD-4C and PUDs. The applicant has demonstrated that the site can develop under the only implementing character district. Over the span of two decades, the existing PUD has not produced commercial development. The CD-4C standards are highly prescriptive. The prescriptions of the Ordinance ensure a high-quality appearance of all structures as well as performance standards for uses established on the site.

SAMPLE MOTIONS

Approve:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in sections **8.5.19.H** and **8.5.21.R** of the City of Columbia Zoning Ordinance have been satisfied and recommend partial revocation of the existing Master Plan and approval of the proposed rezoning *[, subject to technical comments and other conditions presented by planning staff*].

Approve Subject to Conditions:

Move to find, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.H** and **8.5.21.R** of the City of Columbia Zoning Ordinance have been satisfied and recommend partial revocation of the existing Master Plan and approval of the proposed rezoning, subject to the following conditions: [*list conditions of approval crafted by Planning Commission*].

Deny:

Move to recommend denial of the requested rezoning having found, based on the information presented by the applicant and the analysis provided by city staff, that the criteria listed in section **8.5.19.H** and **8.5.21.R** of the City of Columbia Zoning Ordinance are not satisfied [*list specific reasons for denial*].

Defer:

Move to find that there is insufficient information to decide, defer the matter to the next regularly scheduled meeting of the Planning Commission, and request that the [*applicant/staff*] provide: [*list additional information*] for review at a future meeting.

SKETCH PLAN: CD-4C DESIGN CRITERIA

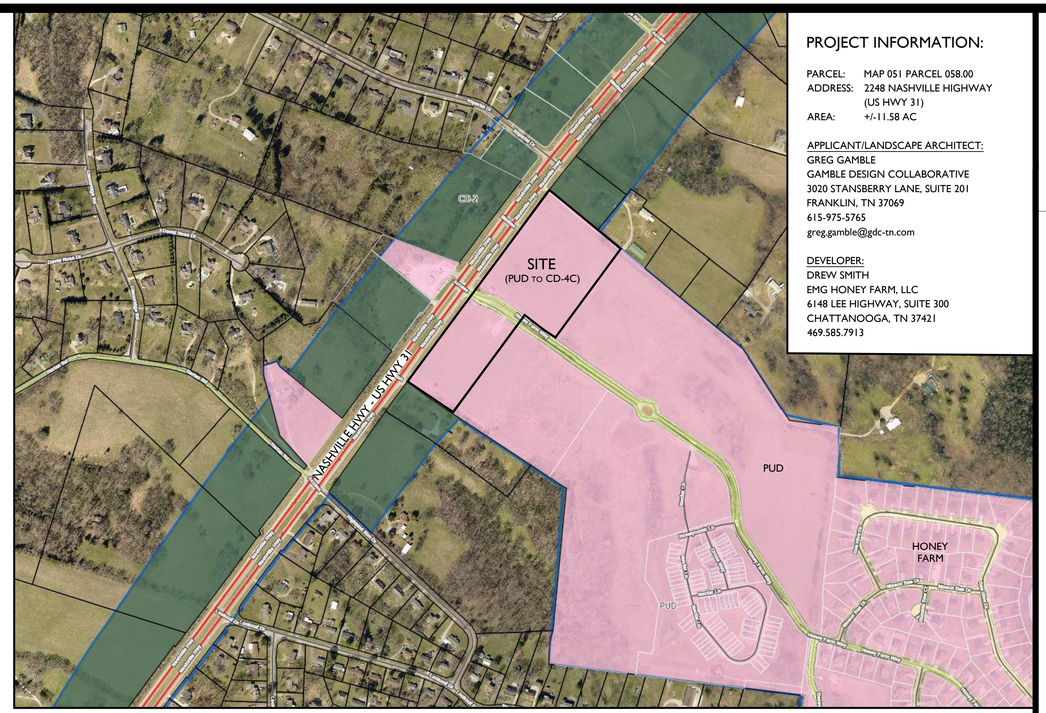
GROSS SITE AREA: +/-11.58 AC
COMMERCIAL AREA: 58,000 SF

CIVIC SPACE REQUIREMENT: 5% TO 20% OF GROSS SITE
IMPERVIOUS SURFACE COVERAGE: 100% MAX.

N

0 100 200 300
GRAPHIC SCALE 1"=100'-0"

BASE INFORMATION - GIS, AERIAL - GOOGLE 2023



LOCATION MAP - ZONING MAP

0 400 800
GRAPHIC SCALE 1"=400'-0"

PROJECT INFORMATION:

PARCEL: MAP 051 PARCEL 058.00
ADDRESS: 2248 NASHVILLE HIGHWAY (US HWY 31)
AREA: +/-11.58 AC

APPLICANT/LANDSCAPE ARCHITECT:
GREG GAMBLE
GAMBLE DESIGN COLLABORATIVE
3020 STANSBERRY LANE, SUITE 201
FRANKLIN, TN 37069
615-975-5765
greg.gamble@gdc-tn.com

DEVELOPER:
DREW SMITH
EMG HONEY FARM, LLC
6148 LEE HIGHWAY, SUITE 300
CHATTANOOGA, TN 37421
469.585.7913

REZONING REQUEST:

EXISTING ZONING: PUD-MU
FUTURE LAND USE: SUBURBAN CORRIDOR
REQUESTED ZONING: CD-4C

THIS SKETCH PLAN CONTEMPLATES COMMERCIAL USES, COMPLIANT WITH CD-4C ZONING. FINAL SITE PLAN LAYOUT TO BE REFINED WITH CITY OF COLUMBIA STAFF.

LOCATION/ROADWAYS: THE FRONTAGE OF THE PROPERTY IS ON NASHVILLE HIGHWAY / US HWY 31 (MAJOR ARTERIAL) AND HONEY FARM WAY (MAJOR LOCAL).

ZONING HISTORY: THIS PARCEL WAS ORIGINALLY PART OF THE HONEY FARM SUBDIVISION PUD, APPROVED UNDER ORDINANCE 3652 IN 2006 (LATER AMENDED UNDER ORDINANCE 4005 IN 2015). THE ENTIRE PUD DEVELOPMENT WAS PLANNED TO INCLUDE SINGLE-FAMILY RESIDENTIAL (BOTH DETACHED AND TOWN HOMES), AS WELL AS SOME AREA FOR LARGER COMMERCIAL USES. WHILE THE OLDER PLAN HAD CONTEMPLATED LARGE COMMERCIAL DEVELOPMENT ALONG NASHVILLE HIGHWAY, THIS AREA OF THE PROPERTY HAS SINCE BEEN DESIGNATED AS SUBURBAN CORRIDOR UNDER THE CITY OF COLUMBIA'S FUTURE LAND USE PLAN (*CONNECT COLUMBIA*, ADOPTED IN 2018), WHICH NO LONGER ACCOMMODATES THE LARGE COMMERCIAL LAYOUT WITHIN THE ORIGINAL PUD.

FUTURE LAND USE (SUBURBAN CORRIDOR): THE SUBURBAN CORRIDOR CHARACTER AREA IS APPROPRIATE FOR LOW, MEDIUM, AND HIGH DENSITY RESIDENTIAL INTERMIXED WITH COMPATIBLE CIVIC USES, ALONG WITH VARIOUS NEIGHBORHOOD-SCALE COMMERCIAL USES AND ALL OFFICE USES. GREEN SPACES LOCATED IN POCKET/COMMUNITY PARKS AND PEDESTRIAN CONNECTIONS ARE ALSO CHARACTERISTICS OF THIS LAND USE CATEGORY.

REQUESTED REZONING: THE INTENT OF THE APPLICANT IS TO CREATE A NEIGHBORHOOD-COMMERCIAL SCALE DEVELOPMENT AT THE HONEY FARM SUBDIVISION'S ENTRANCE ALONG NASHVILLE HIGHWAY. THE APPLICANT SEEKS TO REZONE THE PROPERTY TO A ZONING DISTRICT CONSISTENT WITH THE SUBURBAN CORRIDOR LAND USE CHARACTER AREA: NAMELY, REZONING TO CD-4C. CONFORMITY TO THE PROPOSED CD-4C ZONING DISTRICT STANDARDS WOULD BEST ACCOMMODATE THE TRANSITION FROM A COMMERCIAL CORRIDOR ALONG NASHVILLE HWY TO THE PROPOSED TOWN HOME AND EXISTING SINGLE FAMILY DEVELOPMENTS TO THE SOUTHEAST.

THE ORIGINAL PUD DID NOT DEPICT A MASTER PLAN BUT THE FRONT SECTION ALONG NASHVILLE HWY HAS ALWAYS INTENDED TO BE A COMMERCIAL NODE. THIS IS CONFIRMED IN COLUMBIA'S FUTURE LAND USE PLAN WITH THE DESIGNATION OF SUBURBAN CORRIDOR. WHEN THE NEW ZONING DISTRICTS WERE ASSIGNED, PUD-MU WAS ASSIGNED TO THESE PROPERTIES. PUD-MU ZONING HAS A URBAN FORM AND CONTEXT AND DOES NOT SUPPORT SUBURBAN DEVELOPMENT PATTERN THAT WAS PREVIOUSLY ENVISIONED, ASSUMED, AND APPROVED IN THE ORIGINAL MASTER PLAN. THE CD-4C ZONING DESIGNATION ALLOWS FOR A COMMERCIAL NODE TO BE DEVELOPED IN AN SUBURBAN CONTEXT THAT ALIGNS MORE WITH THE FUTURE LAND USE PLAN.

THIS SKETCH PLAN DEPICTS A CONCEPTUAL PLAN OF A NEIGHBORHOOD-COMMERCIAL SCALE DEVELOPMENT, CONSISTING OF VARIOUS COMMERCIAL-USE BUILDINGS TO THE NORTHWEST OF THE EXISTING & PROPOSED HONEY FARM RESIDENTIAL AREAS. THE CONCEPTUAL SKETCH PLAN INCORPORATES CIVIC SPACE/POCKET PARKS, PROVIDES A MIX OF ON-STREET PARKING AND PARKING AREAS WITHIN THE 3RD LAYER (BEHIND) THE BUILDINGS. SIDEWALKS THROUGHOUT THE NEIGHBORHOOD WOULD CONNECT PEDESTRIANS WITHIN THE SITE AND TO THE LARGER SUBURBAN CORRIDOR AREA ALONG NASHVILLE HIGHWAY. CROSS CONNECTION TO THE NORTH AND SOUTH PROPERTIES ALIGN WITH COLUMBIA'S FUTURE PLANS OF A CROSS CONNECTED SUBURBAN COMMERCIAL CORRIDOR.

LEGAL DESCRIPTION OF PROPERTY:

COMMERCIAL TRACT 1:
All that tract or parcel of land lying and being in the Third Civil District of Maury County, Tennessee, and being more particularly described as follows:

BEGINNING at a point located at the intersection of the southeasterly right-of-way line of Nashville Highway (variable right-of-way) with the northeasterly right-of-way line of Honey Farm Way (variable right-of-way) as shown on plat of Honey Farm Crossing as recorded in Plat Book P23, Page 218; Thence along said southeasterly right-of-way line of Nashville Highway North 36 degrees 41 minutes 00 seconds East for a distance of 455.39 feet to a concrete monument found; Thence along the arc of a curve to the right an arc length of 186.59 feet, said curve having a radius of 11,382.44 feet and being subtended by a chord of 186.59 feet bearing North 36 degrees 54 minutes 16 seconds East to a nail set in the centerline of a gravel and asphalt lane; Thence with said centerline South 50 degrees 26 minutes 06 seconds East for a distance of 517.43 feet to a nail set; Thence departing said lane South 36 degrees 32 minutes 46 seconds West for a distance of 616.84 feet to a 5/8-inch rebar set on the northeasterly right-of-way line of Honey Farm Way; Thence along said right-of-way line North 55 degrees 07 minutes 01 seconds West for a distance of 89.78 feet to a nail set; Thence North 51 degrees 43 minutes 09 seconds West for a distance of 152.63 feet to a 5/8-inch rebar set; Thence North 53 degrees 39 minutes 04 seconds West for a distance of 95.90 feet to a 1/2-inch rebar found; Thence North 53 degrees 19 minutes 00 seconds West a distance of 180.77 feet to a point, said point being the TRUE POINT OF BEGINNING.

Said tract of land contains 7.492 Acres

GAMBLE DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

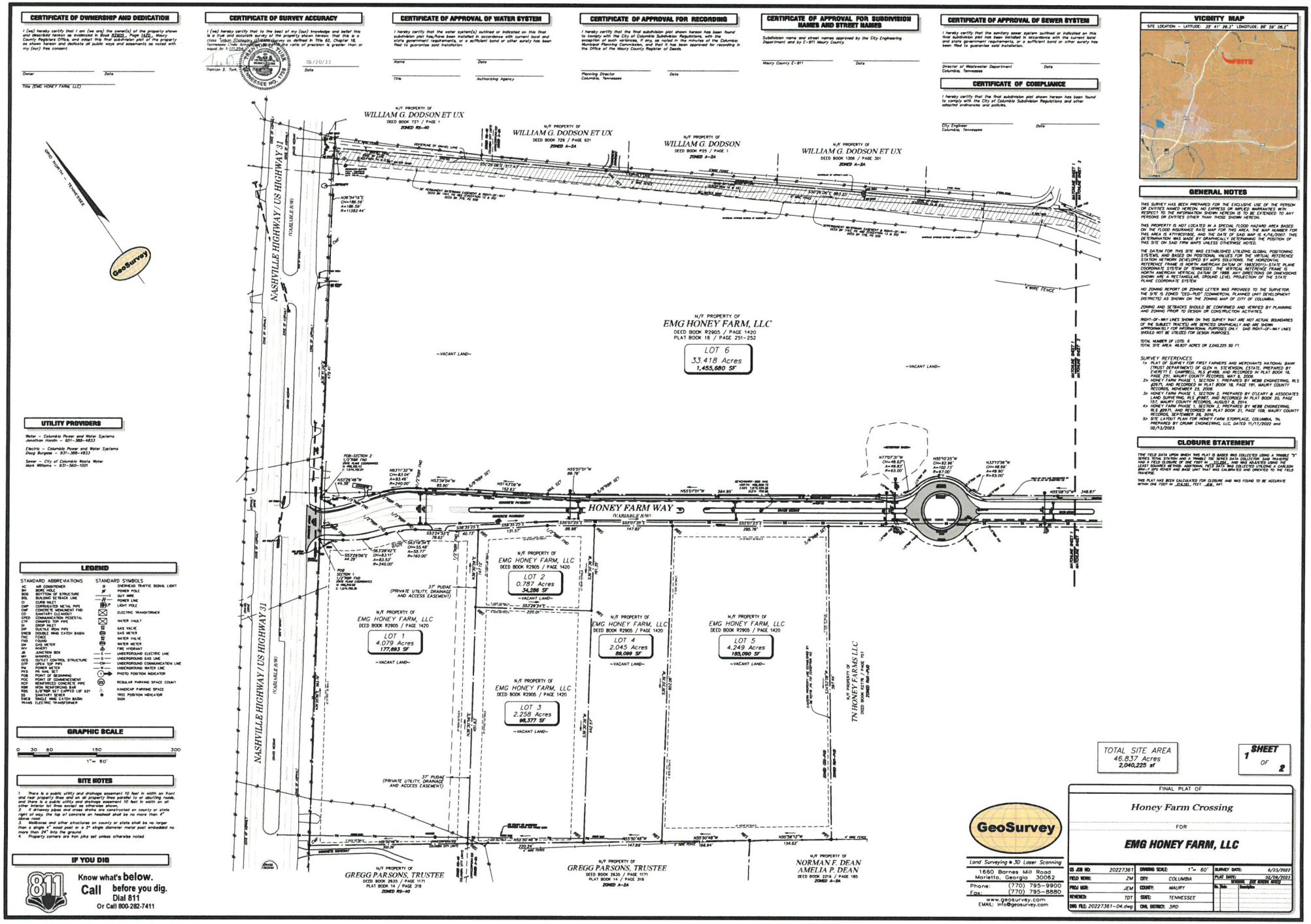
HONEY FARM CROSSING
REZONING REQUEST
Columbia, Maury County, Tennessee

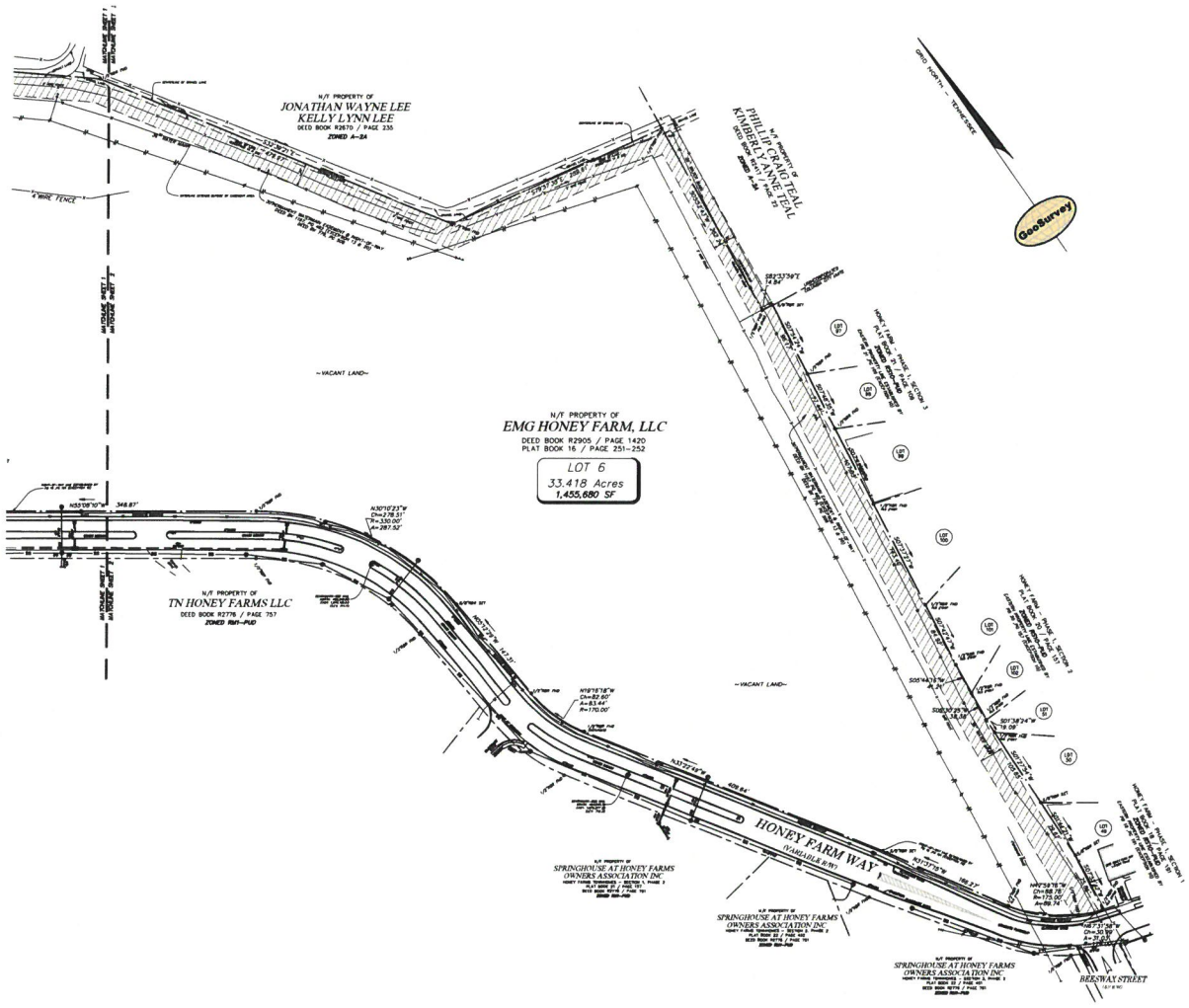
DRAKE A. REEDER
REGISTERED
TENNESSEE No. 1218
LANDSCAPE ARCHITECT
08.27.25

Revision Date
△ _____
△ _____
△ _____
△ _____

SHEET TITLE

SHEET
LI.0


CERTIFICATE OF OWNERSHIP AND DEDICATION
I (we) hereby certify that I am (we are) the owner(s) of the property shown and described hereon as evidenced in Book R2905 , Page 1420 , Maury County Register's Office, and adopt this final subdivision plat of the property as shown hereon and dedicate all public ways and easements as noted with my (our) free consent.
Owner
Date
Title (EMG HONEY FARM, LLC)
CERTIFICATE OF SURVEY ACCURACY
I (we) hereby certify that to the best of my (our) knowledge and belief this is a true and accurate survey of the property shown hereon; that this is a class Urban (Category I) survey as defined in Title 62, Chapter 18, Tennessee Code Annotated; and the ratio of precision is greater than or equal to 1:10,000.
Tranton D. Turk, TENNESSEE NO. 1758
03/20/23
Date
CERTIFICATE OF APPROVAL OF WATER SYSTEM
I hereby certify that the water system(s) outlined or indicated on this final subdivision plat has/have been installed in accordance with current local and state government requirements, or a sufficient bond or other surety has been filed to guarantee said installation.
Name
Date
Title
Authorizing Agency
CERTIFICATE OF APPROVAL FOR RECORDING
I hereby certify that the final subdivision plat shown hereon has been found to comply with the City of Columbia Subdivision Regulations, with the exception of such variances, if any, as noted in the minutes of the Columbia Municipal Planning Commission, and that it has been approved for recording in the Office of the Maury County Register of Deeds.
Planning Director
Columbia, Tennessee
Date
CERTIFICATE OF APPROVAL FOR SUBDIVISION NAMES AND STREET NAMES
Subdivision name and street names approved by the City Engineering Department and by E-911 Maury County.
Maury County E-911
Date
CERTIFICATE OF APPROVAL OF SEWER SYSTEM
I hereby certify that the sanitary sewer system outlined or indicated on this final subdivision plat has been installed in accordance with the current local and state government requirements, or a sufficient bond or other surety has been filed to guarantee said installation.
Director of Wastewater Department
Columbia, Tennessee
Date
CERTIFICATE OF COMPLIANCE
I hereby certify that the final subdivision plat shown hereon has been found to comply with the City of Columbia Subdivision Regulations and other adopted ordinances and policies.
City Engineer
Columbia, Tennessee
Date
VICINITY MAP
SITE LOCATION - LATITUDE: 35° 41' 28.3" LONGITUDE: 86° 59' 08.2"
SITE
GENERAL NOTES
THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF THE PERSON OR ENTITIES NAMED HEREON. NO EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE INFORMATION SHOWN HEREON IS TO BE EXTENDED TO ANY PERSONS OR ENTITIES OTHER THAN THOSE SHOWN HEREON.
THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA BASED ON THE FLOOD INSURANCE RATE MAP FOR THIS AREA, THE MAP NUMBER FOR THIS AREA IS 47119C0190E, AND THE DATE OF SAID MAP IS 4/16/2007. THIS DETERMINATION WAS MADE, BY GRAPHICALLY DETERMINING THE POSITION OF THIS SITE ON SAID FIRM MAPS UNLESS OTHERWISE NOTED.
THE DATUM FOR THIS SITE WAS ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEMS, AND BASED ON POSITIONAL VALUES FOR THE VIRTUAL REFERENCE STATION NETWORK DEVELOPED BY eGPS SOLUTIONS. THE HORIZONTAL REFERENCE FRAME IS NORTH AMERICAN DATUM OF 1983(2011)-STATE PLANE COORDINATE SYSTEM OF TENNESSEE. THE VERTICAL REFERENCE FRAME IS NORTH AMERICAN VERTICAL DATUM OF 1988. ANY DIRECTIONS OR DIMENSIONS SHOWN ARE A RECTANGULAR, GROUND LEVEL PROJECTION OF THE STATE PLANE COORDINATE SYSTEM.
NO ZONING REPORT OR ZONING LETTER WAS PROVIDED TO THE SURVEYOR. THE SITE IS ZONED "CED-PUD" (COMMERCIAL PLANNED UNIT DEVELOPMENT DISTRICTS) AS SHOWN ON THE ZONING MAP OF CITY OF COLUMBIA.
ZONING AND SETBACKS SHOULD BE CONFIRMED AND VERIFIED BY PLANNING AND ZONING PRIOR TO DESIGN OR CONSTRUCTION ACTIVITIES.
RIGHT-OF-WAY LINES SHOWN ON THIS SURVEY THAT ARE NOT ACTUAL BOUNDARIES OF THE SUBJECT TRACT(S) ARE DEPICTED GRAPHICALLY AND ARE SHOWN APPROXIMATELY FOR INFORMATIONAL PURPOSES ONLY. SAID RIGHT-OF-WAY LINES SHOULD NOT BE UTILIZED FOR DESIGN PURPOSES.
TOTAL NUMBER OF LOTS: 6
TOTAL SITE AREA: 46.837 ACRES OR 2,040,225 SQ FT.
SURVEY REFERENCES:
1) PLAT OF SURVEY FOR FIRST FARMERS AND MERCHANTS NATIONAL BANK (TRUST DEPARTMENT) OF GLEN H. STEVENSON, ESTATE, PREPARED BY PAGE ENGINEERING, RLS #1498, AND RECORDED IN PLAT BOOK 16, PAGE 211, MAURY COUNTY RECORDS, MAY 15, 2006.
2) HONEY FARM PHASE 1, SECTION 1, PREPARED BY WEBB ENGINEERING, RLS #2571, AND RECORDED IN PLAT BOOK 18, PAGE 191, MAURY COUNTY RECORDS, NOVEMBER 23, 2008.
3) HONEY FARM PHASE 1, SECTION 2, PREPARED BY CLEARY & ASSOCIATES LAND SURVEYING, RLS #1987, AND RECORDED IN PLAT BOOK 30, PAGE 157, MAURY COUNTY RECORDS, AUGUST 8, 2014.
4) HONEY FARM PHASE 1, SECTION 3, PREPARED BY WEBB ENGINEERING, RLS #2571, AND RECORDED IN PLAT BOOK 31, PAGE 108, MAURY COUNTY RECORDS, SEPTEMBER 28, 2016.
5) SITE LAYOUT PLAN FOR HONEY FARM STORPLACE, COLUMBIA, TN, PREPARED BY CRUMP ENGINEERING, LLC, DATED 11/17/2022 and 02/13/2023.
CLOSURE STATEMENT
THE FIELD DATA UPON WHICH THIS PLAT IS BASED WAS COLLECTED USING A TRIMBLE "S" SERIES TOTAL STATION AND A TRIMBLE TSC SERIES DATA COLLECTOR AND TRAVERSE AND A FIELD CLOSURE OF ONE FOOT IN 31,000+, AND WAS ADJUSTED USING THE LEAST SQUARES METHOD. ADDITIONAL FIELD DATA WAS COLLECTED UTILIZING A CARLSON BRX-7 GPS ROVER AND BASE UNIT THAT WAS CALIBRATED AND ORIENTED TO THE FIELD TRAVERSE.
THIS PLAT HAS BEEN CALCULATED FOR CLOSURE AND WAS FOUND TO BE ACCURATE WITHIN ONE FOOT IN 31,000+ FEET. eor
UTILITY PROVIDERS
Water - Columbia Power and Water Systems
Jonathan Hanlin - 931-388-4833
Electric - Columbia Power and Water Systems
Doug Burgess - 931-388-4833
Sewer - City of Columbia Waste Water
Mark Williams - 931-560-1001
LEGEND
STANDARD ABBREVIATIONS
STANDARD SYMBOLS
GRAPHIC SCALE
0 30 60 150 300
1" = 60'
SITE NOTES
1. There is a public utility and drainage easement 10 feet in width on front and rear property lines and on all property lines parallel to or abutting roads, and rear property lines of corner lots, unless noted 10 feet in width on all other interior lot lines except as otherwise shown.
2. If driveway pipes and cross drains are constructed on county or state right of way, the top of concrete on headwall shall be no more than 4" above road.
3. Walkways and other structures on county or state shall be no larger than a single 4" wood post or a 2" single diameter metal post embedded no more than 24" into the ground.
4. Property corners are iron pins set unless otherwise noted.
IF YOU DIG
811 Know what's below. Call before you dig. Dial 811 Or Call 800-282-7411
N/F PROPERTY OF WILLIAM G. DODSON ET UX DEED BOOK 727 / PAGE 1 ZONED RS-40
N/F PROPERTY OF WILLIAM G. DODSON ET UX DEED BOOK 729 / PAGE 821 ZONED A-2A
N/F PROPERTY OF WILLIAM G. DODSON DEED BOOK P25 / PAGE 1 ZONED A-2A
N/F PROPERTY OF WILLIAM G. DODSON ET UX DEED BOOK 1306 / PAGE 301 ZONED A-2A
N/F PROPERTY OF EMG HONEY FARM, LLC DEED BOOK R2905 / PAGE 1420 PLAT BOOK 18 / PAGE 251-252
LOT 6 33.418 Acres 1,455,680 SF
~VACANT LAND~
NASHVILLE HIGHWAY / US HIGHWAY 31 (VARIABLE R/W)
HONEY FARM WAY (VARIABLE R/W)
LOT 1 4.079 Acres 177,693 SF
LOT 2 0.787 Acres 34,286 SF
LOT 3 2.259 Acres 98,377 SF
LOT 4 2.045 Acres 89,099 SF
LOT 5 4.249 Acres 185,090 SF
37' PUDAE (PRIVATE UTILITY, DRAINAGE AND ACCESS EASEMENT)
N/F PROPERTY OF GREGG PARSONS, TRUSTEE DEED BOOK 2635 / PAGE 1171 PLAT BOOK 14 / PAGE 318 ZONED RS-40
N/F PROPERTY OF GREGG PARSONS, TRUSTEE DEED BOOK 2635 / PAGE 1171 PLAT BOOK 14 / PAGE 318 ZONED A-2A
N/F PROPERTY OF NORMAN F. DEAN AMELIA P. DEAN DEED BOOK 2216 / PAGE 183 ZONED A-2A
N/F PROPERTY OF TN HONEY FARMS LLC DEED BOOK R2905 / PAGE 751 ZONED RM-MPUD
TOTAL SITE AREA 46.837 Acres 2,040,225 sf
SHEET 1 OF 2
FINAL PLAT OF
Honey Farm Crossing
FOR
EMG HONEY FARM, LLC
GeoSurvey
Land Surveying • 3D Laser Scanning
1660 Barnes Mill Road
Marietta, Georgia 30062
Phone: (770) 795-9900
Fax: (770) 795-8880
www.geosurvey.com
EMAIL: info@geosurvey.com
GS JOB NO: 20227361
DRAWING SCALE: 1" = 60'
SURVEY DATE: 6/23/2022
FIELD WORK: ZM
CITY: COLUMBIA
PLAT DATE: 03/28/2023
REVISIONS (OR ADDING ROWS)
No. Date Description
PROJ MGR: JEM
COUNTY: MAURY
REVIEWER: TDT
STATE: TENNESSEE
DWG FILE: 20227361-04.dwg
CIVIL DISTRICT: 3RD



LEGEND

STANDARD ABBREVIATIONS

AC	AIR CONDITIONER
BH	BORE HOLE
BOS	BOTTOM OF STRUCTURE
BSL	BUILDING SETBACK LINE
CI	CURB INLET
CMP	CORRUGATED METAL PIPE
CMF	CONCRETE MONUMENT FND
CO	SANITARY CLEANOUT
CPED	COMMUNICATION PEDESTAL
CTP	CRIMPED TOP PIPE
DI	DROP INLET
DP	DRIP PIPE
DWCB	DOUBLE WING CATCH BASIN
FWC	FENCE
FND	FOUND
GM	GAS METER
HY	INVERT
JB	JUNCTION BOX
MH	MANHOLE
OCS	OUTLET CONTROL STRUCTURE
OTP	OPEN TOP PIPE
PM	POWER METER
PKS	PK NAIL SET
POB	POINT OF BEGINNING
POC	POINT OF COMMENCEMENT
RCP	REINFORCED CONCRETE PIPE
RBR	IRON REINFORCING BAR
RBS	5/8"IRON SET CAPPED LSF 821
SS	SANITARY SEWER
SWCB	SINGLE WING CATCH BASIN
TRANS	ELECTRIC TRANSFORMER

STANDARD SYMBOLS

O	OVERHEAD TRAFFIC SIGNAL LIGHT
	POWER POLE
	GUY WIRE
	POWER LINE
	LIGHT POLE
	ELECTRIC TRANSFORMER
	WATER VAULT
	GAS VALVE
	GAS METER
	WATER VALVE
	WATER METER
	FIRE HYDRANT
E	UNDERGROUND ELECTRIC LINE
G	UNDERGROUND GAS LINE
CM	UNDERGROUND COMMUNICATION LINE
W	UNDERGROUND WATER LINE
1	PHOTO POSITION INDICATOR
20	REGULAR PARKING SPACE COUNT
	HANDICAP PARKING SPACE
	TREE POSITION INDICATOR
	SIGN

GRAPHIC SCALE

0 30 60 150 300

1" = 60'

IF YOU DIG

811 Know what's **below.** **Call** before you dig.
Dial 811
Or Call 800-282-7411

GeoSurvey
Land Surveying • 3D Laser Scanning
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Marietta, Georgia 30062
Phone: (770) 795-9900
Fax: (770) 795-8880
www.geosurvey.com
EMAIL: info@geosurvey.com

FINAL PLAT OF

Honey Farm Crossing

FOR

EMG HONEY FARM, LLC

GS JOB NO:	20227361	DRAWING SCALE:	1"= 50'
FIELD WORK:	ZM	CITY:	COLUMBIA
PROJ MGR:	JCW	COUNTY:	MAURY
REVIEWED:	TDT	STATE:	TENNESSEE
DWG FILE:	20227361-04.dwg	CIVIL DISTRICT:	3RD

SURVEY DATE: 8/21/2023
PLAT DATE: 02/09/2023
REVISIONS (SEE ADDENDA BELOW)
No. Date Description

TIMOTHY D. TUCK
LICENSED PROFESSIONAL ENGINEER
TENNESSEE NO. 129

SHEET 2 OF 2

CITY OF COLUMBIA
TENNESSEE

DEVELOPMENT REVEW COMMITTEE MEETING
Tuesday, August 8, 2023

ITEM NO.
23-0291

DESCRIPTION: Rezoning request from PUD-MU to CD-4C for the commercial parcel of Honey Farm Crossing Subdivision PUD property along Nashville highway (US HWY 31), Lot 1 (4.08 AC) and a portion of Lot 6 (7.5 AC).

RECOMMENDATION: For final recommendation please see staff report.

COMMENTS:

Planning

1. The Zoning Ordinance prohibits the creation of through lots or building sites (see standard at 4.3.3.D, p. 190 and definition at 9.3, p. 526). The concept plan depicts building sites which meet the definition of through lots (a Lot or Building Site that extends through from Thoroughfare or Internal Drive to Thoroughfare or Internal Drive). Please revise the concept plan to demonstrate that development of the site can conform to the standards of the Ordinance.
2. Advisory: future site development plan review will depend on specific proposed uses. For example, the limited use standards for Drive Throughs (4.3.9.E.6.i, p. 246), and Fuel Sales (4.3.9.E.6.L, p. 247), will apply to those proposed uses. All design standards for 4.3.9.1-E will apply to any structures.

Building

3. No comment.

Police

4. No comment.

Maury County Schools

5. No Comment.

Fire

6. No comments

Engineering

7. No comment on rezoning
8. Concept plan does not meet access management ordinance requirements

Columbia Power

9. Columbia Power System has an existing power line near your proposed development.
   We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
   • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

Public Works

10. No comment.

ATT

11. ATT intends to serve.

Wastewater

12. Columbia Wastewater has no concerns.

Atmos Energy

13. No comments provided.

Maury County E911

14. No comment.

Duck River Electric Membership Corp

15. No comments provided.

Maury County Highway Dept.

16. No comment provided.

Columbia Water

17. "A water availability application was in-process at the time of this writing. Once issued it will remain valid for 120 days. The availability of capacity to serve is based on a determination by the Fire Marshal of fire flow requirements and the information submitted on the Water Service Availability Request application. Any off-site improvements detailed in the availability letter are the responsibility of the developer/owner. All public water system improvements are subject to the preparation and approval of detailed construction plans prepared in accordance with CPWS and Tennessee Department of Environment and Conservation requirements."

CPWS Broadband

18. Plan to Serve.

ATTACHMENTS: Concept Plan

NOTE: All submittals shall be compliant with City standards prior to Planning Commission review. Items that are not adhering to the regulations and/or comments for that request will not be forwarded to the next agenda until such items are amended.

CITY OF COLUMBIA
TENNESSEE

ITEM # I 6.

DEVELOPMENT REVIEW COMMITTEE COMMENT FORM

August 8, 2023

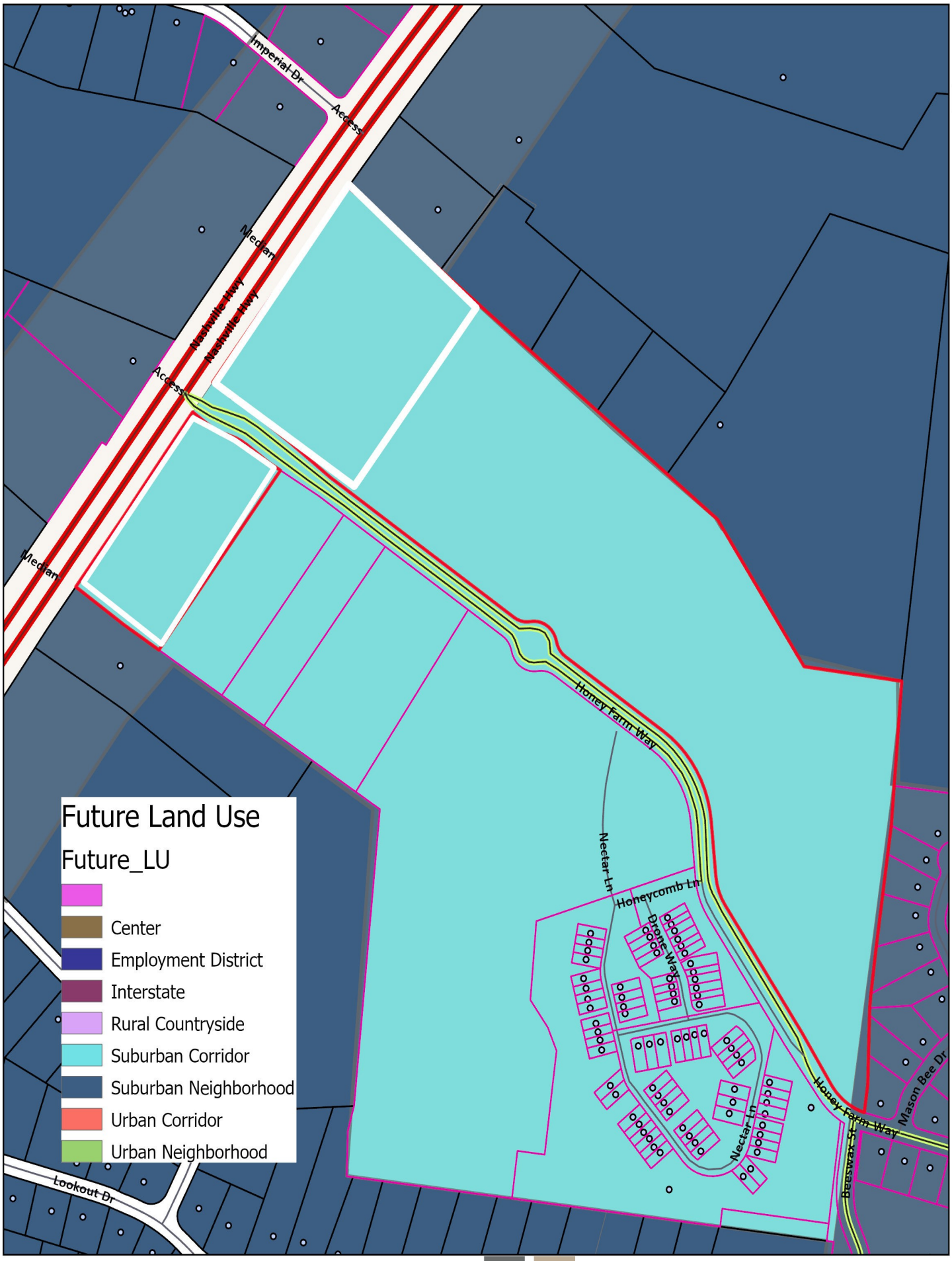
NAME OR DEPARTMENT: Maury County Public Schools

Case Number: 23-0291

Request from Gamble Design Collaborative for rezoning of approximately 11 acres in Honey Farm Crossing from PUD-MU (Planned Unit Development-Mixed Use) to CD-4C (General Urban Corridor Character District) being all of Lot 1 and a portion of Lot 6 off Honey Farm Way.

COMMENTS:

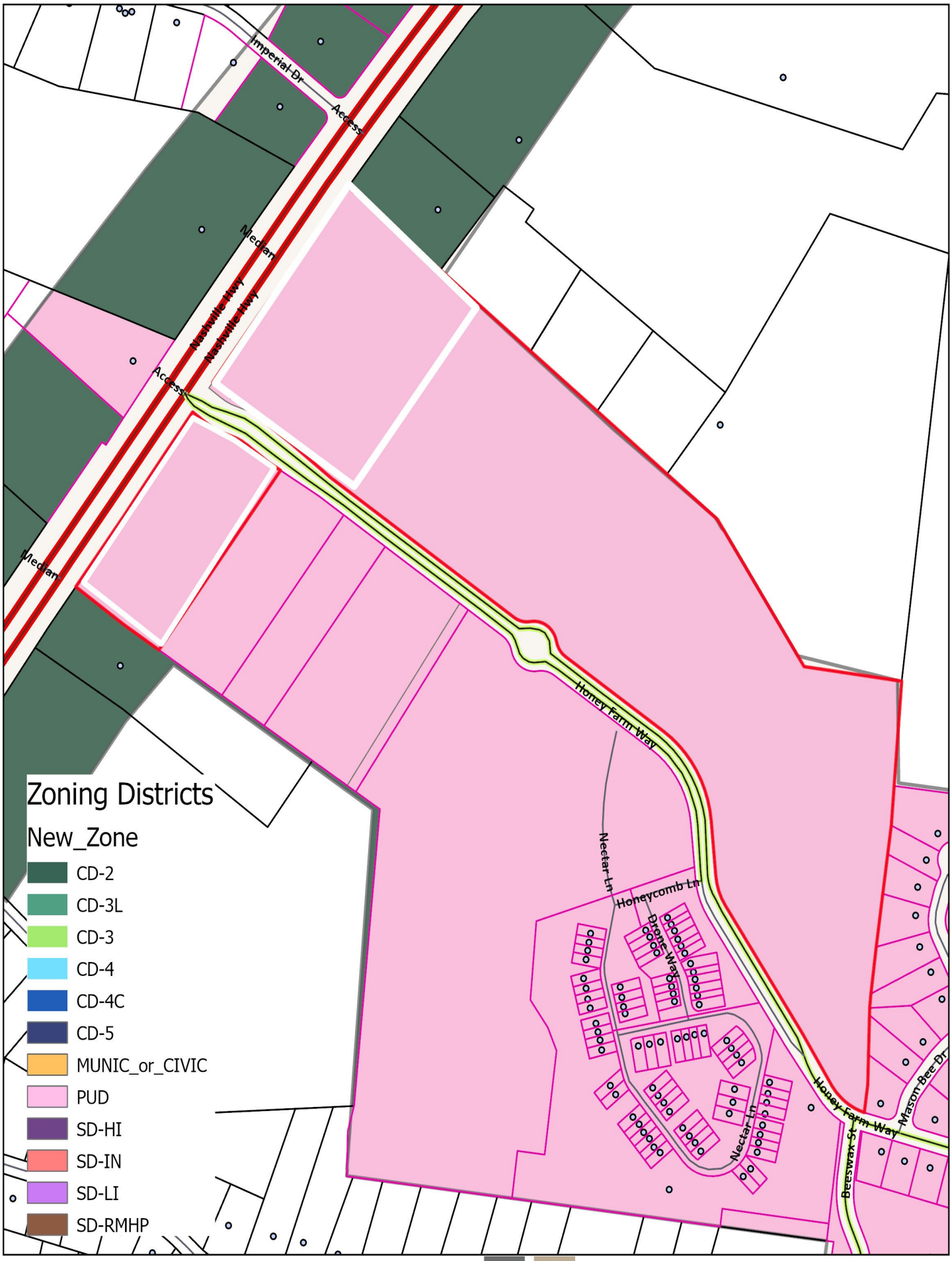
No Comment



23-0291
Honey Farm & Nashville Hwy.

CITY OF
COLUMBIA
TENNESSEE

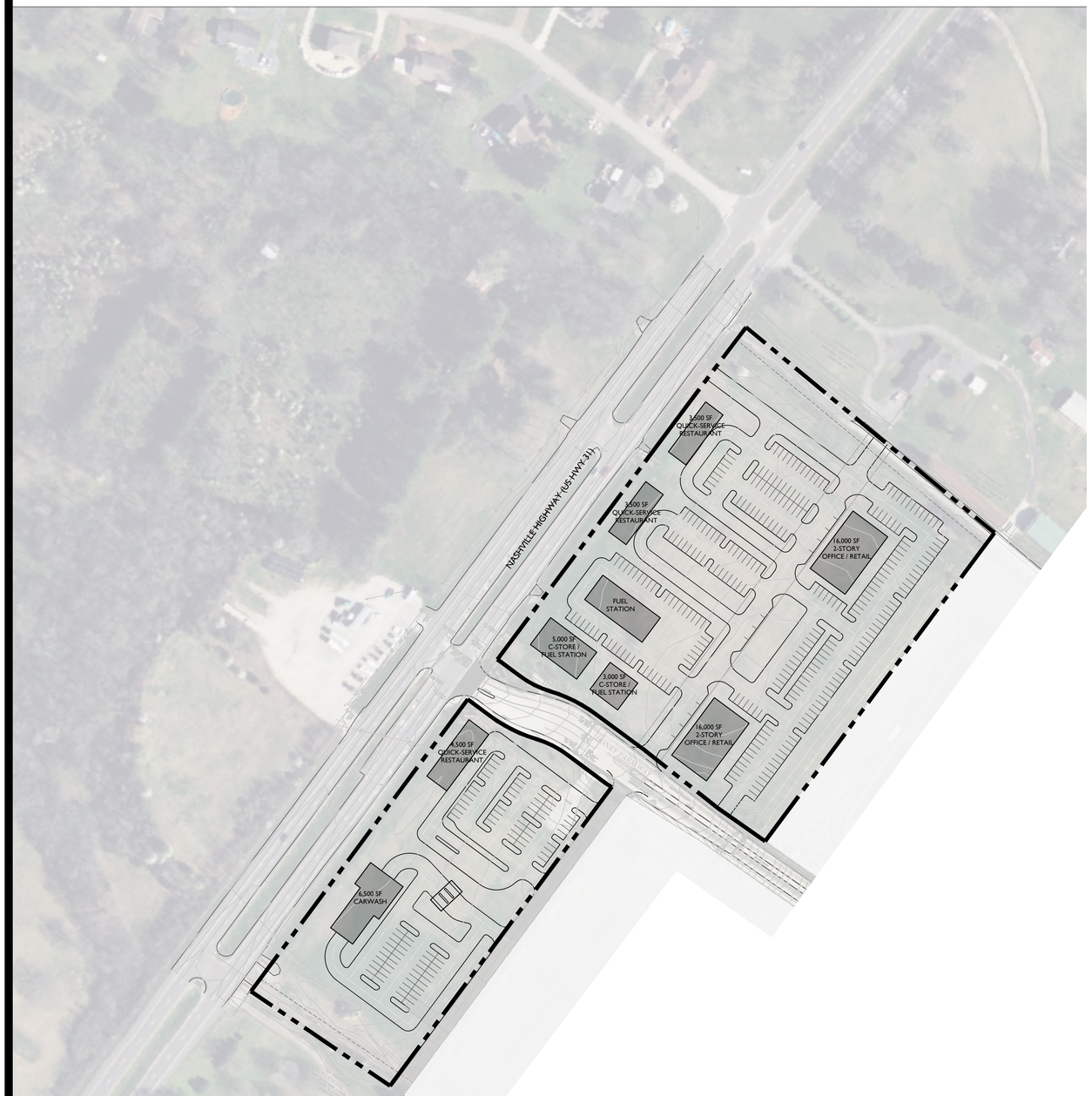
DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541



23-0291
Honey Farm & Nashville Hwy.

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541



SKETCH PLAN: CD-4C DESIGN CRITERIA

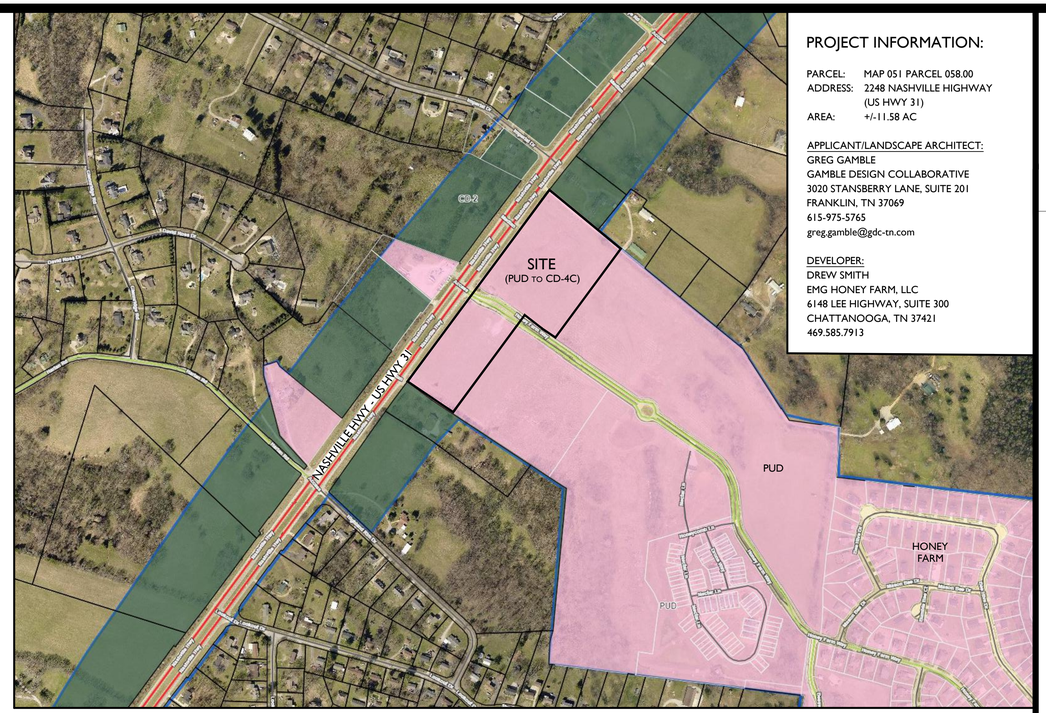
GROSS SITE AREA: +/-11.58 AC
COMMERCIAL AREA: 58,000 SF

CIVIC SPACE REQUIREMENT: 5% TO 20% OF GROSS SITE
IMPERVIOUS SURFACE COVERAGE: 100% MAX.

N

0 100 200 300
GRAPHIC SCALE 1"=100'-0"

BASE INFORMATION - GIS, AERIAL - GOOGLE 2023



LOCATION MAP - ZONING MAP

0 400 800
GRAPHIC SCALE 1"=400'-0"

PROJECT INFORMATION:

PARCEL: MAP 051 PARCEL 058.00
ADDRESS: 2248 NASHVILLE HIGHWAY (US HWY 31)
AREA: +/-11.58 AC

APPLICANT/LANDSCAPE ARCHITECT:
GREG GAMBLE
GAMBLE DESIGN COLLABORATIVE
3020 STANSBERRY LANE, SUITE 201
FRANKLIN, TN 37069
615-975-5765
greg.gamble@gdc-tn.com

DEVELOPER:
DREW SMITH
EMG HONEY FARM, LLC
6148 LEE HIGHWAY, SUITE 300
CHATTANOOGA, TN 37421
469.585.7913

REZONING REQUEST:

EXISTING ZONING: PUD-MU
FUTURE LAND USE: SUBURBAN CORRIDOR
REQUESTED ZONING: CD-4C

THIS SKETCH PLAN CONTEMPLATES COMMERCIAL USES, COMPLIANT WITH CD-4C ZONING. FINAL SITE PLAN LAYOUT TO BE REFINED WITH CITY OF COLUMBIA STAFF.

LOCATION/ROADWAYS: THE FRONTAGE OF THE PROPERTY IS ON NASHVILLE HIGHWAY / US HWY 31 (MAJOR ARTERIAL) AND HONEY FARM WAY (MAJOR LOCAL).

ZONING HISTORY: THIS PARCEL WAS ORIGINALLY PART OF THE HONEY FARM SUBDIVISION PUD, APPROVED UNDER ORDINANCE 3652 IN 2006 (LATER AMENDED UNDER ORDINANCE 4005 IN 2015). THE ENTIRE PUD DEVELOPMENT WAS PLANNED TO INCLUDE SINGLE-FAMILY RESIDENTIAL (BOTH DETACHED AND TOWN HOMES), AS WELL AS SOME AREA FOR LARGER COMMERCIAL USES. WHILE THE OLDER PLAN HAD CONTEMPLATED LARGE COMMERCIAL DEVELOPMENT ALONG NASHVILLE HIGHWAY, THIS AREA OF THE PROPERTY HAS SINCE BEEN DESIGNATED AS SUBURBAN CORRIDOR UNDER THE CITY OF COLUMBIA'S FUTURE LAND USE PLAN (*CONNECT COLUMBIA*, ADOPTED IN 2018), WHICH NO LONGER ACCOMMODATES THE LARGE COMMERCIAL LAYOUT WITHIN THE ORIGINAL PUD.

FUTURE LAND USE (SUBURBAN CORRIDOR): THE SUBURBAN CORRIDOR CHARACTER AREA IS APPROPRIATE FOR LOW, MEDIUM, AND HIGH DENSITY RESIDENTIAL INTERMIXED WITH COMPATIBLE CIVIC USES, ALONG WITH VARIOUS NEIGHBORHOOD-SCALE COMMERCIAL USES AND ALL OFFICE USES. GREEN SPACES LOCATED IN POCKET/COMMUNITY PARKS AND PEDESTRIAN CONNECTIONS ARE ALSO CHARACTERISTICS OF THIS LAND USE CATEGORY.

REQUESTED REZONING: THE INTENT OF THE APPLICANT IS TO CREATE A NEIGHBORHOOD-COMMERCIAL SCALE DEVELOPMENT AT THE HONEY FARM SUBDIVISION'S ENTRANCE ALONG NASHVILLE HIGHWAY. THE APPLICANT SEEKS TO REZONE THE PROPERTY TO A ZONING DISTRICT CONSISTENT WITH THE SUBURBAN CORRIDOR LAND USE CHARACTER AREA; NAMELY, REZONING TO CD-4C. CONFORMITY TO THE PROPOSED CD-4C ZONING DISTRICT STANDARDS WOULD BEST ACCOMMODATE THE TRANSITION FROM A COMMERCIAL CORRIDOR ALONG NASHVILLE HWY TO THE PROPOSED TOWN HOME AND EXISTING SINGLE FAMILY DEVELOPMENTS TO THE SOUTHEAST.

THE ORIGINAL PUD DID NOT DEPICT A MASTER PLAN BUT THE FRONT SECTION ALONG NASHVILLE HWY HAS ALWAYS INTENDED TO BE A COMMERCIAL NODE. THIS IS CONFIRMED IN COLUMBIA'S FUTURE LAND USE PLAN WITH THE DESIGNATION OF SUBURBAN CORRIDOR. WHEN THE NEW ZONING DISTRICTS WERE ASSIGNED, PUD-MU WAS ASSIGNED TO THESE PROPERTIES. PUD-MU ZONING HAS A URBAN FORM AND CONTEXT AND DOES NOT SUPPORT SUBURBAN DEVELOPMENT PATTERN THAT WAS PREVIOUSLY ENVISIONED, ASSUMED, AND APPROVED IN THE ORIGINAL MASTER PLAN. THE CD-4C ZONING DESIGNATION ALLOWS FOR A COMMERCIAL NODE TO BE DEVELOPED IN AN SUBURBAN CONTEXT THAT ALIGNS MORE WITH THE FUTURE LAND USE PLAN.

THIS SKETCH PLAN DEPICTS A CONCEPTUAL PLAN OF A NEIGHBORHOOD-COMMERCIAL SCALE DEVELOPMENT, CONSISTING OF VARIOUS COMMERCIAL-USE BUILDINGS TO THE NORTHWEST OF THE EXISTING & PROPOSED HONEY FARM RESIDENTIAL AREAS. THE CONCEPTUAL SKETCH PLAN INCORPORATES CIVIC SPACE/POCKET PARKS, PROVIDES A MIX OF ON-STREET PARKING AND PARKING AREAS WITHIN THE 3RD LAYER (BEHIND) THE BUILDINGS. SIDEWALKS THROUGHOUT THE NEIGHBORHOOD WOULD CONNECT PEDESTRIANS WITHIN THE SITE AND TO THE LARGER SUBURBAN CORRIDOR AREA ALONG NASHVILLE HIGHWAY. CROSS CONNECTION TO THE NORTH AND SOUTH PROPERTIES ALIGN WITH COLUMBIA'S FUTURE PLANS OF A CROSS CONNECTED SUBURBAN COMMERCIAL CORRIDOR.

LEGAL DESCRIPTION OF PROPERTY:

COMMERCIAL TRACT 1:
All that tract or parcel of land lying and being in the Third Civil District of Maury County, Tennessee, and being more particularly described as follows:

BEGINNING at a point located at the intersection of the southeasterly right-of-way line of Nashville Highway (variable right-of-way) with the northeasterly right-of-way line of Honey Farm Way (variable right-of-way) as shown on plat of Honey Farm Crossing as recorded in Plat Book P23, Page 218; Thence along said southeasterly right-of-way line of Nashville Highway North 36 degrees 41 minutes 00 seconds East for a distance of 455.39 feet to a concrete monument found; Thence along the arc of a curve to the right an arc length of 186.59 feet, said curve having a radius of 11,382.44 feet and being subtended by a chord of 186.59 feet bearing North 36 degrees 54 minutes 16 seconds East to a nail set in the centerline of a gravel and asphalt lane; Thence with said centerline South 50 degrees 26 minutes 06 seconds East for a distance of 517.43 feet to a nail set; Thence departing said lane South 36 degrees 32 minutes 46 seconds West for a distance of 616.84 feet to a 5/8-inch rebar set on the northeasterly right-of-way line of Honey Farm Way; Thence along said right-of-way line North 55 degrees 07 minutes 01 seconds West for a distance of 89.78 feet to a nail set; Thence North 51 degrees 43 minutes 09 seconds West for a distance of 152.63 feet to a 5/8-inch rebar set; Thence North 53 degrees 39 minutes 04 seconds West for a distance of 95.90 feet to a 1/2-inch rebar found; Thence North 53 degrees 19 minutes 00 seconds West a distance of 180.77 feet to a point, said point being the TRUE POINT OF BEGINNING.

Said tract of land contains 7.492 Acres

GAMBLE DESIGN COLLABORATIVE
DEVELOPMENT PLANNING AND LANDSCAPE ARCHITECTURE

HONEY FARM CROSSING
REZONING REQUEST
Columbia, Maury County, Tennessee

DRAKE A. REEDER REGISTERED LANDSCAPE ARCHITECT TENNESSEE NO. 329 07.17.23

Revision Date
- △ _____
- △ _____
- △ _____
- △ _____

SHEET TITLE

SHEET
LI.0

August 17, 2023

Mr. Drew Smith
Equitas Management Group
6148 Lee Highway, Suite 300
Chattanooga, TN 37421
Sent via email: drew.smith@equitasmg.com

RE: Water Availability Letter
Honey Farm Commercial
Honey Farm Way & Nashville HWY
Tax Map 51, Parcel 5800
Columbia, Maury County, TN

Dear Mr. Smith:

Columbia Power and Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, subject to availability of all CPWS furnished equipment and materials appropriate for the development and provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed commercial development includes three quick-service restaurants, a convenience store with fueling stations, a carwash, and two office buildings for a total of 58,000 square feet of commercial space. CPWS has evaluated the projected water demands for the proposed development in the water system hydraulic model and is able to meet a fire-flow capacity of 2,000 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connections will be made to the existing 12-inch water mains located on Honey Farm Way.
- Minimum size 12-inch water mains will be required to be extended to the location of fire flow demand.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

CPWS

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Present the attached hydrant analysis report for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide site base CAD files in DWG format, including roads, lot lines, existing and proposed contours, and other existing and proposed utilities, for use in development of water construction drawings.
- Remit to CPWS new water service fees:

New Water Service Fee: $1,500 + $370 per SFU (275.1 SFUs)	$103,287.00

- CPWS will then develop water construction drawings and submit to TDEC for approval. Upon approval by TDEC and payment of meter and impact fees by the applicant, applicant may then schedule a pre-construction meeting with CPWS. Pre-construction meeting will not be scheduled until fees are paid in full or surety is provided in lieu of full payment. Final meter and impact fees are subject to change based on final design and meter size determination. Meter fees are subject to change based on market costs at time of purchase. Meters will not be set until meter and impact fees are paid.

Meter Fee: $4,500 per 3" meter (1 meter, carwash)	$4,500.00
Impact Fee: $75,000 per 3" meter (1 meter, carwash)	$75,000.00
Meter Fee: $540 per ¾" meter (6 meters)	$3,240.00
Impact Fee: $4,500 per ¾" meter (6 meters)	$27,000.00
Total Meter and Impact Fees Due =	**$109,740.00**

- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure.

If you have any questions, please feel free to contact me at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,

Eric King

Eric King, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 23-038

Columbia Fire & Rescue

Fire Flow Requirements

Water Purveyor: Columbia Power & Water System

Date: 7-13-2023
Name: Drake Reeder
Phone: 334-750-5776
Email: drake@gdc-tn.com
Address/Parcel ID: Honey Farm Way & Nashville Hwy
Property Type: ○ Residential
◉ Commercial
○ Industrial
Construction Type: VB
Enclosed Area (ft²): 5,000 S.F.

FILLED OUT BY COLUMBIA FIRE AND RESCUE

NFPA Sprinkler Type: NFPA 13

Water System Demand without Sprinkler Credit

Fire flow Requirements (International Fire Code Appendix B)

Fire Flow: 2,000 gpm Duration: 2 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 2

Average spacing between hydrants: 450 ft.

Maximum distance from frontage to hydrant: 225 ft.

Water System Demand with Sprinkler Credit

Fire flow requirements (International Fire Code Appendix B)

Fire Flow: 1,000 gpm Duration: 2 hours

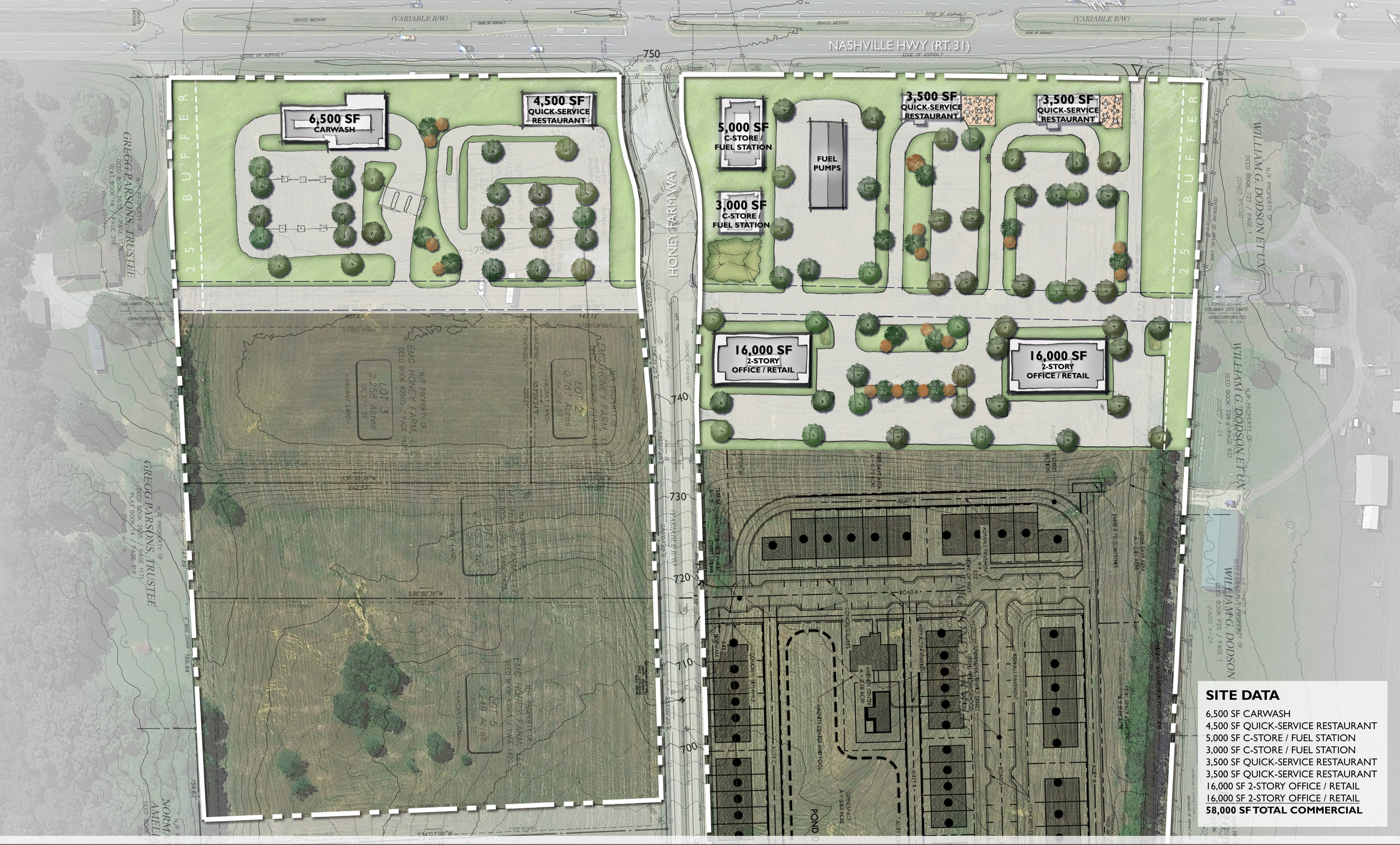
Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

Fire Plan Reviewer: Brad Massey Date: 7/13/2023



SITE DATA

6,500 SF CARWASH
4,500 SF QUICK-SERVICE RESTAURANT
5,000 SF C-STORE / FUEL STATION
3,000 SF C-STORE / FUEL STATION
3,500 SF QUICK-SERVICE RESTAURANT
3,500 SF QUICK-SERVICE RESTAURANT
16,000 SF 2-STORY OFFICE / RETAIL
16,000 SF 2-STORY OFFICE / RETAIL
58,000 SF TOTAL COMMERCIAL

0 50 100
GRAPHIC SCALE

HONEY FARMS
CONCEPT PLAN
JULY 07, 2023

GAMBLE DESIGN COLLABORATIVE

HYDRANT FLOW ANALYSIS

HYDRANT # & LOCATION: 1513 Honey Farm Way DATE: 8/17/2023

MODEL BY: Inflo Design Group, LLC SYS. DEMAND Max Day DURATION: 2 hrs.

WATER SUPPLIED BY: Columbia Power and Water Systems

PURPOSE OF TEST: Honey Farms Commercial

MODEL DATA

FLOW HYDRANT(S)	1513	n/a	n/a
GPM:	**1500**	0	0

TOTAL FLOW DURING SIMULATION: **1500** GPM

GAUGE HYDRANT

HYDRANT # & LOCATION: 1512 Honey Farm Way

CONDITION 1

STATIC 73 PSI RESIDUAL: 66 PSI

CONDITION 2

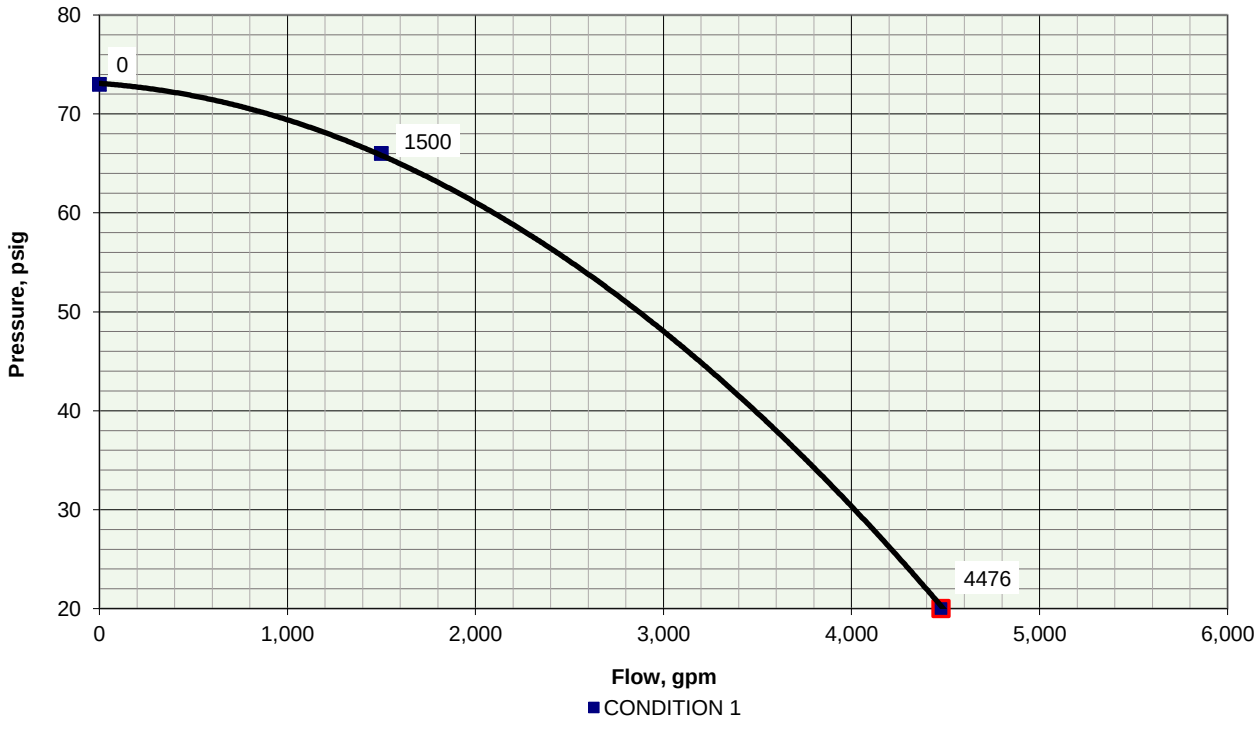
STATIC _____ PSI RESIDUAL: _____ PSI

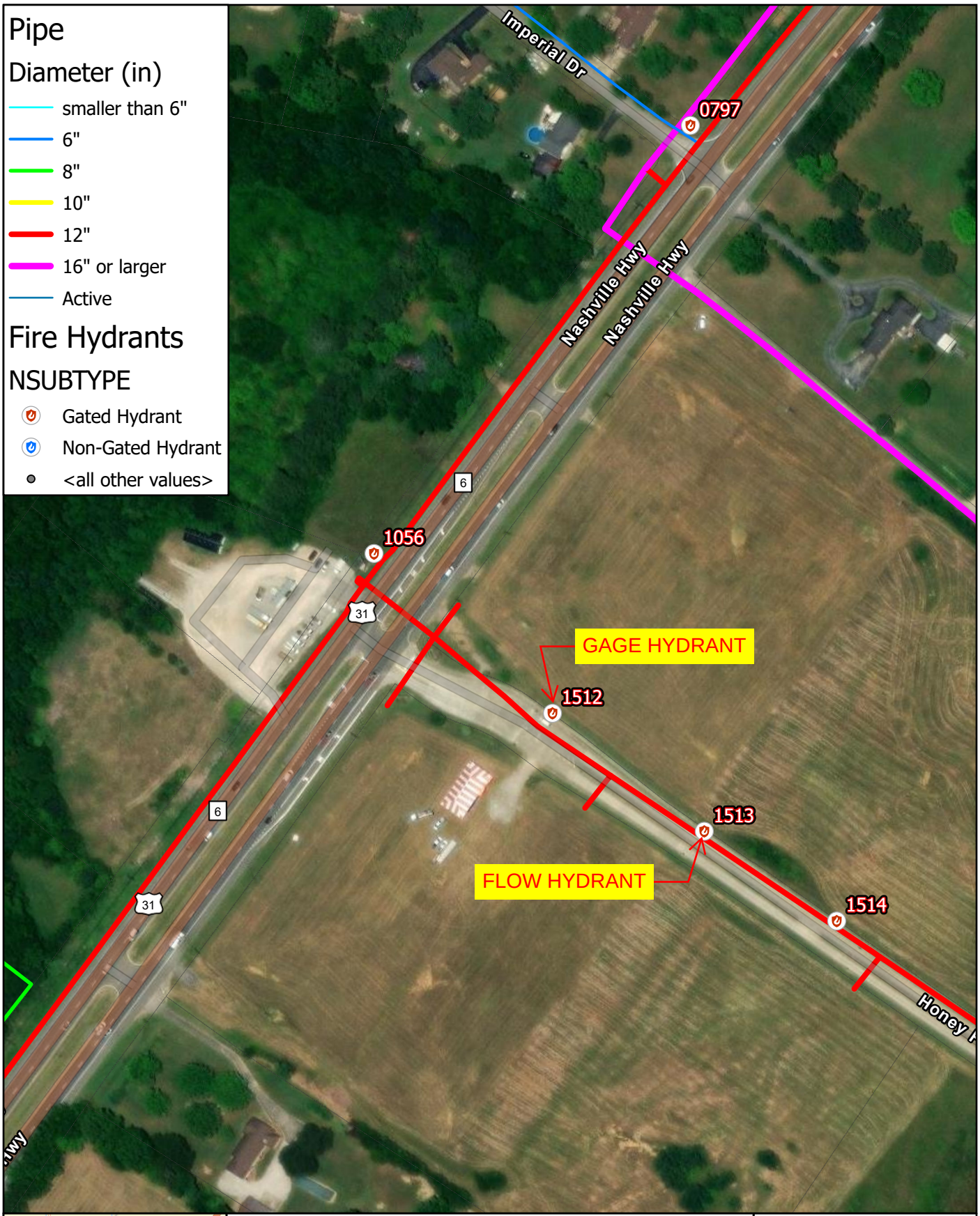
RESULTS: AT 20 PSI RESIDUAL

CONDITION 1 **4476** GPM

CONDITION 2 **---** GPM

REMARKS: Performance based on service elevation of 748' and current CPWS water infrastructure and does not account for additional losses associated with development piping.





Hydrant Analysis Location Map

Honey Farms Commercial

Tax Map 93, Parcels 2.00 & 2.01

Esri Community Maps Contributors, Tennessee STS GIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Maxar, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

2023

Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet

N

0 0.02 0.04 Mi

0 125 250 Feet

COMMERCIAL TRACT 1:
All that tract or parcel of land lying and being in the Third Civil District of Maury County, Tennessee, and being more particularly described as follows:

BEGINNING at a point located at the intersection of the southeasterly right-of-way line of Nashville Highway (variable right-of-way) with the northeasterly right-of-way line of Honey Farm Way (variable right-of-way) as shown on plat of Honey Farm Crossing as recorded in Plat Book P23, Page 218; Thence along said southeasterly right-of-way line of Nashville Highway North 36 degrees 41 minutes 00 seconds East for a distance of 455.39 feet to a concrete monument found; Thence along the arc of a curve to the right an arc length of 186.59 feet, said curve having a radius of 11,382.44 feet and being subtended by a chord of 186.59 feet bearing North 36 degrees 54 minutes 16 seconds East to a nail set in the centerline of a gravel and asphalt lane; Thence with said centerline South 50 degrees 26 minutes 06 seconds East for a distance of 517.43 feet to a nail set; Thence departing said lane South 36 degrees 32 minutes 46 seconds West for a distance of 616.84 feet to a 5/8-inch rebar set on the northeasterly right-of-way line of Honey Farm Way; Thence along said right-of-way line North 55 degrees 07 minutes 01 seconds West for a distance of 89.78 feet to a nail set; Thence North 51 degrees 43 minutes 09 seconds West for a distance of 152.63 feet to a 5/8-inch rebar set; Thence North 53 degrees 39 minutes 04 seconds West for a distance of 95.90 feet to a 1/2-inch rebar found; Thence North 53 degrees 19 minutes 00 seconds West a distance of 180.77 feet to a point, said point being the TRUE POINT OF BEGINNING.

Said tract of land contains 7.492 Acres

July 17, 2023

Paul Keltner, Director
Development Services
City of Columbia, TN

RE: Honey Farm Crossing - Rezoning Request

Dear Mr. Keltner,

We are pleased to submit for your review a Rezoning Request for the parcels of Honey Farm Crossing. This property is located within the existing limits of the Honey Farm Subdivision PUD. We believe the best path forward to comply with the new zoning ordinance is to submit a rezoning request from PUD-MU to CD-4C.

This request is for rezoning from PUD-MU to CD-4C for the commercial parcel of Honey Farm Crossing Subdivision PUD property along Nashville highway (US HWY 31), Lot 1 (4.08 AC) and a portion of Lot 6 (7.5 AC).

The accompanying documents are for the submittal associated with the above referenced project.

Included in this submittal are the following:

1. Rezoning Request Concept Plan
2. Planning Commission Application
3. Submittal Fees
4. Legal Description
5. Description of Requested Zone
6. Statement of Compliance with Comprehensive Plan

If there are any questions or any additional information needed, please feel free to reach out to me, or Drake Reeder (drake@gdc-tn.com) in my office.

Thank you,

Gamble Design Collaborative
Greg Gamble

DEVELOPMENT PLANNING | DESIGN | MANAGEMENT

greg.gamble@gdc-tn.com | 615.975.5765 cell | 3020 Stansberry Lane, Suite 201, Franklin, TN 37069

August 21, 2023

Paul Keltner, Director
Development Services
City of Columbia, TN

RE: Re-Submittal Honey Farms Commercial Rezoning Request – **City of Columbia Project #23-0291**

Dear Mr. Keltner,
The accompanying documents are for the re-submittal associated with the above referenced project. A response to the Technical Review Comments can be found below.

Please note, we have adjusted the concept plan in order to address Staff Comments including adding labels for drive aisle and the creation of a pedestrian zone with connection to public right of way. We look forward to continuing the plan refinement with Staff with a successful rezoning outcome. Please let me know if you need anything additional for this re-submittal.

Included in the submittal are the following:

1. Digital Resubmittal of Concept Plan
2. CPWS Water Availability Letters

Technical Review Comments – Dated August 8, 2023
Reponses shown in BLUE

Planning

1. The Zoning Ordinance prohibits the creation of through lots or building sites (see standard at 4.3.3.D, p. 190 and definition at 9.3, p. 526). The concept plan depicts building sites which meet the definition of through lots (a Lot or Building Site that extends through from Thoroughfare or Internal Drive to Thoroughfare or Internal Drive). Please revise the concept plan to demonstrate that development of the site can conform to the standards of the Ordinance.

   Understood. It is our intention that the PUADE is located within a parking lot drive aisle and is not classified as an internal drive as defined in the zoning ordinance. We have updated the labels to reflect this intention.

DEVELOPMENT PLANNING | DESIGN | MANAGEMENT
greg.gamble@gdc-tn.com | 615.975.5765 cell | 3020 Stansberry Lane, Suite 201, Franklin, TN 37069

greg.gamble@gdc-tn.com
615.975.5765 cell
3020 Stansberry Lane, Suite 201
Franklin, TN 370

2. Advisory: future site development plan review will depend on specific proposed uses. For example, the limited use standards for Drive Throughs (4.3.9.E.6.i, p. 246), and Fuel Sales (4.3.9.E.6.L, p. 247), will apply to those proposed uses. All design standards for 4.3.9.1-E will apply to any structures.

   Understood.

Building

3. No comment.

Police

4. No comment.

Maury County Schools

5. No Comment.

Fire

6. No comments

Engineering

7. No comment on rezoning
8. Concept plan does not meet access management ordinance requirements

   Understood. Applicant will continue to work with city engineer to explore potential for access along HWY 31 for the viability of commercial in this area as we move into submitting site plan drawings.

Columbia Power

9. Columbia Power System has an existing power line near your proposed development.
   We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.
   • Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

greg.gamble@gdc-tn.com
615.975.5765 cell
3020 Stansberry Lane, Suite 201
Franklin, TN 370

Understood.

Public Works

10. No comment.

ATT

11. ATT intends to serve.

Wastewater

12. Columbia Wastewater has no concerns.

Atmos Energy

13. No comments provided.

Maury County E911

14. No comment.

Duck River Electric Membership Corp

15. No comments provided.

Maury County Highway Dept.

16. No comment provided.

Columbia Water

DEVELOPMENT PLANNING
DESIGN
MANAGEMENT

greg.gamble@gdc-tn.com
615.975.5765 cell
3020 Stansberry Lane, Suite 201
Franklin, TN 370

17. "A water availability application was in-process at the time of this writing. Once issued it will remain valid for 120 days. The availability of capacity to serve is based on a determination by the Fire Marshal of fire flow requirements and the information submitted on the Water Service Availability Request application. Any off-site improvements detailed in the availability letter are the responsibility of the developer/owner. All public water system improvements are subject to the preparation and approval of detailed construction plans prepared in accordance with CPWS and Tennessee Department of Environment and Conservation requirements."

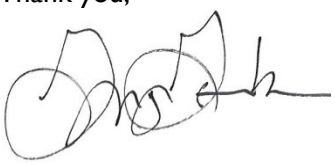
Water availability letters included with resubmittal.

CPWS Broadband

18. Plan to Serve.

If there are any questions or additional information needed, please feel free to reach out to me, or Drake Reeder (drake@gdc-tn.com) in my office.

Thank you,



Gamble Design Collaborative
Greg Gamble

CITY OF COLUMBIA TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)*
Fold hard copy submittals larger than 8½"x11"

ADDRESS/LOCATION	2248 Nashville Highway (Honey Farm) 051 05800 000		
	TAX MAP: 051	GROUP:	PARCEL: 058.00
SUMMARY OF NATURE OF REQUEST AND WORK	Rezoning request from PUD-MU to CD-4C for the commercial parcel of Honey Farm Crossing Subdivision PUD property along Nashville Highway (US HWY 31), Lot 1 (4.08 AC) and a portion of Lot 6 (7.5 AC).		

DATE OF PRE-APPLICATION CONFERENCE	2023-07-05	*Pre-application meetings are scheduled for Wednesdays.*

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
❑ Annexation ☑ Rezoning ❑ Preliminary Plat ❑ Final Plat ❑ PUD Preliminary Master Plan ❑ PUD Final Site Plan ❑ Multi-Family Site Plan ❑ Other: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ☑ Written Legal Description copy ☑ Requested Zone Listed ☑ Compliance with Comprehensive Plan ❑ Annexation Permission Form ☑ Plans and/or Plats conforming to City standards with check list completed ☑ Columbia Water System Availability Letter **Plats/PUDs:** ❑ Project Name (include Sections & Phases) Honey Farm Crossing ❑ Total Number of Lots ❑ Total acreage 11.58 AC

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Gamble Design Collaborative Greg Gamble	PHONE	615.975.5765
ADDRESS	3020 Stansberry Lane, Suite 201 Franklin, TN 37069	EMAIL	info@gdc-tn.com

PROPERTY OWNER NAME	EMG Honey Farm, LLC Drew Smith	PHONE	469.585.7913
ADDRESS	6148 Lee Highway, Suite 300 Chattanooga, TN 37421	EMAIL	drew.smith@equitasmg.com

In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

APPLICANT NAME	APPLICANT SIGNATURE	DATE

PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE
Drew Smith EMG Honey Farm, LLC		07-17-23

STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	

DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS	
DATE OF PUBLIC NOTICES IN DAILY HERALD	

BOARD ACTION	