CITY OF NORTH Ridgeville EST 1810

Planning Commission

AGENDA OF DECEMBER 13, 2022
CITY HALL COUNCIL CHAMBERS
7:00 PM

CALL TO ORDER

ROLL CALL

APPROVAL OF MINUTES

1. Regular meeting of November 8, 2022

CORRESPONDENCE

OLD BUSINESS

NEW BUSINESS

1. **PPZ2022-0149: Bogner Life Celebration Center, 7295 Greenlawn Dr, PPN 07-00-028-103-193**
   Applicant: Randall Smith, DSC Architects, Inc., 401 Front St, Berea, OH 44017. Proposal consists of constructing a Life Celebration Center for funeral home use only. Property is zoned B-5 Architectural Business District. Note: BZBA approved variances on 11/17/22.

2. **PPZ2022-0152: Sgt. Clean Car Wash, 32499 Lorain Rd, PPN 07-00-003-102-065**
   Applicant: Always Stay Unlimited, LLC, DBA Sgt. Clean Car Wash, 3673 Massillon Rd, Uniontown, OH, 44685. Proposal consists of constructing a new full-service car wash. Property is zoned B-3 Highway Commercial District.

3. **Zoning Code Update Work Session**
   Review and discussion of proposed new Chapter 1285 Parking, Loading and Lighting

ADJOURNMENT

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NORTH RIDGEVILLE PLANNING COMMISSION
MINUTES OF REGULAR MEETING
TUESDAY, NOVEMBER 8, 2022

CALL TO ORDER:

Chairman Smolik called the Planning Commission meeting to order with the Pledge of Allegiance at 7:00 PM.

ROLL CALL:

Present were members Paul Graupmann, Vice-Chairwoman Jennifer Swallow, Council Liaison Bruce Abens and Chairman James Smolik. Also present were Planning and Economic Development Director Kimberly Lieber, Assistant Law Director Toni Morgan and Deputy Clerk of Council Tina Wieber.

Steve Ali was absent.

MINUTES:

Chairman Smolik asked if the members had a chance to review the minutes of the regular meeting on October 11, 2022. He asked if there were any corrections. Hearing no corrections, the minutes were approved.

CORRESPONDENCE:

OLD BUSINESS:

NEW BUSINESS:

Hampton Place Phase 7, North Ridgeville, OH 44039, PPN 07-00-029-000-057
Applicant: Valore Properties, Inc, 23550 Center Ridge Rd, Westlake, OH 44145.
Proposal consists of 18 cluster lots and 24 single family lots (42 lots total) for Phase 7 of Hampton Place Subdivision. Property is zoned R-1.

Application and Administrative comments were read.

Chairman Smolik asked the applicant to state his name and address for the record and explain the proposed project.

Jason Fishbaugh, Valore Properties, 23550 Center Ridge Rd, Westlake, OH 44145.

Mr. Fishbaugh stated that he was the project manager for Hampton Place Phase 7. He added that he oversees what has been happening there. He explained that he was there

in place of Tony Valore, the owner of the company.

Chairman Smolik asked if it was just another phase of the project.

Mr. Fishbaugh stated that was correct and it was the 7th phase out of 8 total.

Chairman Smolik asked if any of the Commission members had any questions or comments.

Council Liaison Abens stated that he had a question regarding the eastern edge of Janey Lane where it dead ends and asked if they were going to continue it with another project down the road.

Mr. Fishbaugh stated that was where phase 8 would come into play.

Chairman Smolik mentioned that he had a question regarding sublots 340 & 341 and that they were shown on the FEMA flood map at the 100 year zone and asked if he knew what elevation that was from the FIR maps and where the proposed elevation of the finished floor was for the proposed lots.

Mr. Fishbaugh remarked that regarding the finished floor, he would not know at that time. He stated that Ryan Homes would have that information.

Chris Howard, Bramhall Engineering & Surveying, 801 Moore Rd, Avon, OH 44011.

Mr. Howard explained that the flood plain was a Zone "A" and that they had submitted to FEMA for a letter of map revision. He stated that they did a study to determine what the base flood elevation wass through there. He added that Zone "A" was undetermined through that whole corridor. He added that they submitted a study to FEMA to justify where the flood plain is and stated that that was provided to engineering. He stated that right now they were showing Zone "A" but the BFE (Base Flood Elevation) would be outside within the ditch line. He mentioned that they were waiting on FEMA's approval for that. He stated that on the grading plain they did have finished grades on all the units. He remarked that they were above the BFE.

Chairman Smolik asked if there were any questions or comments from the administration.

Director Lieber stated that she did have some concerns about the two sublots that the Chairman pointed out. She mentioned that it may be possible to construct a dwelling within a flood plain subject to certain requirements, but from a planning standpoint, preserving sensitive environmental areas, protecting future residents from flooding

and also protecting the City from complaints from future residents about flooding and use of City services, she would recommend that until the flood plain delineation occured and they were to be removed, maybe they could be constructed but she would not recommend approval of those lots as part of that plat.

Chief Building Official Fursdon asked if by filling in that area to remove those two lots from the flood zone, how many properties outside of the subdivision would be put in a flood zone that would then be required to pay flood insurance.

Mr. Howard stated that when they did the flood study to meet FEMA's requirements, they started all the way from French Creek all the way to Stoney Ridge Road. He added that whatever the study was, because it was a Zone "A" undetermined, FEMA would review that and there were other properties that would be because it was an unstudied area.

Chief Building Official Fursdon asked about putting fill in that area.

Mr. Howard remarked that the fill wouldn't impact it. He stated that the base flood elevation was within the ditch line.

Chief Building Official Fursdon asked if they had done a No-Rise Certificate.

Mr. Hampton explained that they had a No-Rise Certificat for those two lots.

Chief Building Official Fursdon asked if they had provided that to the Engineering Department.

Mr. Howard stated that he thought it was provided before but if not, they would make sure they had it.

Assistant City Engineer Eavenson stated that she didn't know that they had a copy.

Mr. Howard stated that he thought he gave it to Dan. He added that the study showed that it was within the ditch line and wasn't even on the property. He remarked that it was the top of the ditch so it was confined within it.

Chairman Smolik explained that the discussion was about the Federal Government came in and they made some modeling and they sort of predict where the 100 year flood elevation was. He stated that what they refer to as a 100 year flood elevation was a certain rain event that had a one percent chance of happening. He stated that the applicant was stating that they did an engineering analysis, which that finished floor elevation of structure would be outside that 100 year. He added that in order to do that,

they had to make a revision to the Federal Government and then that would take them out of the Federal Flood Insurance Program if approved.

Mr. Hampton stated that usually on a plat you wouldn't show the flood plain limits because it was a Zone "A" which is undetermined. He mentioned that he believed the developer would be willing to say that those two lots would not be built on until FEMA agrees with study. He stated that those two sublots would not be built until approval from FEMA.

Chief Building Official Fursdon stated that they didn't have their typical information that had been requested from other subdivision phases as to what the density was at that point of the total subdivision, what the open space was at that point with the whole subdivision, the average front setback to single family lots, the average lot width for single family lots and the Building Department had requested that twice from Valore but they only got partial information on page one. He explained that it was the Commission's call, he was just reminding them that it hadn't been submitted as they had requested in the past.

Chairman Smolik stated that he thought the Planning and Economic Development Director went through and calculated where they were at as far as the overall plan.

Director Lieber explained that on sheet 6 of 35 she just based it on the information that was on the lot summary on sheet 6. She explained that it went by phase and then it added up the number of units and then it talked about the total acreage. She added that her report just had a little summary of what was on that page. She stated that if there was more that was required, like the average setbacks that might not be given there, that she just wasn't as familiar with all of the things the Commission might have looked at in the past. She added that it did have density and open space.

Chief Building Official Fursdon asked if it was for the entire subdivision.

Director Lieber stated that it was the entire subdivision. She mentioned that it was broken up by phase and then added.

Chairman Smolik asked if the developer had any comments regarding setback.

Mr. Howard stated that the setbacks were all the same as in previous phases and were all shown on the plat. He added that nothing was different, that it was matching the previous phases and was shown on the plat and the plans.

Chief Building Official Fursdon asked what the average was for the single family lots. He mentioned that when getting to the end of a subdivision that had to be compliant

with the City ordinance. He added that Planning Commission asks for a breakdown phase by phase.

Mr. Howard stated that they provided that on sheet 6. He explained that it showed a breakdown of every phase and that it showed cluster and residential.

Chief Building Official Fursdon stated that cluster didn't factor into it, just the single family.

Mr. Howard stated that it was shown on there as well. He remarked that it gave a breakdown of every phase and every unit.

Chief Building Official Fursdon asked what the average front setback and the average width of the single family lot was.

Vice-Chairwoman Swallow stated that what she was looking at showed the front yard setback an average of 35 feet for phase 7.

Chief Building Official Fursdon asked if it showed the average of the whole subdivision to date.

Vice-Chairwoman Swallowed stated that it didn't. She remarked that it just had the information for the current phase.

Chief Building Official Fursdon explained that it was something that Planning Commission had requested in the past and that he was just following through with their past requests.

Chairman Smolik stated that he always remembered density being an issue and didn't remember setbacks. He explained that a setback was established by a certain minimum for a buildable lot.

Chief Building Official Fursdon remarked that he asked if the setbacks were for the whole subdivison and the Chair's comments were that he didn't want to get to the last phase and find out that it wasn't compliant.

Chairman Smolik asked if the average was above the minimum.

Chief Building Official Fursdon explained that if the average for the whole subdivision was 39, that was above the minimum.

Chairman Smolik asked if some could be below the minimum. He stated that he was

confused.

Chief Building Official Fursdon mentioned that there was a range of 30 to 40 feet and the average was 35. Commissioner Swallow stated that it was 39 so that would meet the minimum average requirement that they had to have at the final phase as well.

Vice-Chairwoman Swallow stated that it actually said 35. She mentioned that she didn't know that they had ever looked at that outside of each phase. She added that she knew that they had asked the question about density and open space overall so that when they got to the end of a development so that that phase wasn't a field.

Chief Building Official Fursdon stated that they also had average lot width and average seback for single family lots only, not cluster lots as part of the ordinance. He stated that he thought they had asked for that in the past.

Vice-Chairwoman Swallow stated that it was typically shown on the plans and that one didn't have it.

Chairman Swallow asked if there were any comments from the Administration.

Assistant City Engineer Eavenson asked if they would dilineate the exisiting 100 year flood plain on the plat or not.

Mr. Howard stated that typically they wouldn't show a flood plain on a plat. He mentioned that currently it was a Zone "A" and he would have to go back and amend it once FEMA agreed where the flood plain was. He stated that they would have to refile that plat so typically they wouldn't show the flood plain on a plat. He said they shouldn't show it.

Assitant City Engineer Eavenson stated that she was concerned if FEMA didn't approve the request.

Mr. Howard stated that he felt pretty confident but obviously it was FEMA's say. He stated that where the Zone "A" was, he didn't believe that was true.

Chairman Smolik asked if there were any questions or comments from the public.

Joseph Smith, 6020 Avon Belden Rd, North Ridgeville, OH 44039.

Mr. Smith asked where the two lots were that they were concerned about building on.

Chairman Smolik explained that on the slide where it showed Dorow Drive and that it

was sublots 340 and 341.

Mr. Smith asked where Route 83 was.

Council Liaison Abens explained that it wasn't on the map.

Chairman Smolik stated that it was off of Stoney Ridge and hadn't come all the way to the east yet. He explained that it was basically in between Stoney Ridge Road and Route 83. He discussed that all of the developments were off of Stoney Ridge Road and that it hadn't made it to Route 83 yet.

Mr. Smith asked if there would be another development going in between the current one and Route 83.

Mr. Fishbaugh stated that the was the intention to add another phase. He explained that it would go from phase 7 that they were currently talking about almost to Route 83.

Mr. Smith explained that he lived on Route 83 and asked if phase 7 was in the woods.

Mr. Howard stated that was correct and the open field they had just cut down would be phase 8.

Mr. Smith asked if phase 8 would be to the north of phase 7.

Chairman Smolik explained that the meeting was for phase 7 and it could be a couple years as the developer didn't know how many phases it would be.

Mr. Smith asked if it was in his back yard.

Mr. Fishbaugh stated that it wasn't.

Chairman Smolik asked if there were any other questions or comments from the public.

Dennis Boose, 6405 Denise Dr, North Ridgeville, OH 44039.

Mr. Boose stated that the community had a lot of flooding already and they already had to deal with a lot of conerns with all the things that high water and flooding brought. He mentioned that he had heard some comments about the flood plain and the potential flood zone where residents would have to procure flood insurance and there was already enough flooding in the town that they had to deal with already. He added that it would be his recommendation that if they didn't have that nailed down that they come back another day when they did.

Chairman Smolik asked if there were any other questions or comments from the Commission.

Member Graupmann asked about the two lots in the flood zone, if that wasn't resolved they would not build homes on those lots and asked if that was correct.

Mr. Howard stated that was correct.

Member Graupman stated that he understood they were going though FEMA and that he was doing the same thing where he lived but as long as it wasn't resolved to their satisfaction, they would not build homes in the flood plain.

Mr. Howard stated that was correct.

Vice-Chairwoman Swallow asked the Administration if they felt comfortable with an approval with a condition that those lots not be built until there was an approval from FEMA.

Assitant Law Director Morgan stated yes and that it sounded as though the developer was comfortable with that condition as well.

Mr. Fishbaugh said yes, absolutely.

Chief Building Official Fursdon stated that he thought he had asked earlier how many properties would be put into the flood zone and asked if they could tell them that by changing the flood zone.

Mr. Howard stated that they were changing the flood zone based on an unstudied area so whatever drains there they were just telling FEMA based on what the topography and H&H says that is where it would be. He stated that they had a map that showed where the flood plain would be.

Chief Building Official Fursdon asked how many properties would be put into the flood zone.

Mr. Howard stated that he didn't know and then showed the map that was submitted to FEMA to the Building Official.

Chief Building Official Fursdon asked if the fill they would be putting in would effect the elevation.

Mr. Howard stated that it would not impact it.

Chairman Smolik explained that based on what the applicant was presenting it was an actual reduction in the flood plain.

Chief Building Official Fursdon explained that it was a modification of it with a little bit larger here and a little bit smaller there. He stated that the elevations were the elevations and if what they were doing was not causing the flooding to rise with the no-rise certificate (inaudible).

Chairman Smolik mentioned that they must keep in mind that they were computer generated models and it wasn't like there was a historical event where someone drew paint on the ground stating that that was where the flooding happened.

Chief Building Official Fursdon stated that FEMA could come back and dispute what they submitted or they may approve it as is, that it was up to FEMA.

Chairman Smolik stated that based on his experience as long as there was sound engineering and Bramhall was a reputable company, there shouldn't be an issue.

Council Liaison Abens asked what the possibility was that FEMA could actually come back and enlarge the flood area.

Mr. Howard stated that they usually fell in line with the studies. He remarked that he had never seen them increase it more than what they have said. He add that he realized that Meadow Lakes drained into it and that they had a lot of storm water management west of Stoney Ridge Road that picked up a lot of the water that ran through there. He stated that he couldn't say for sure that it wouldn't change as it was a government agency but he felt confident in their study.

Council Liaison Abens asked regarding the Likorish Ditch, who would be responsible for keeping that clear and flowing. He asked if it was going to be the City's responsibility or the HOA's responsibility.

Assistant City Engineer Eavenson explained that if the ditch was within the property limits of the development on that HOA property, then the development would be responsible for maintaining that.

Council Liaison Abens stated that in looking at it, it was right on the edge and that was why he was questioning it. He explained that in his ward he had situations like that and sometimes there was a disagreement as to who was responsible.

Assitant Law Director Morgan stated that keeping ditches clean was one of the things that the City did and was always problematic. She added that she thought they needed

to determine who would be responsible for that because it was right on the edge, so that it became part of the approval.

Chairman Smolik stated that he thought in the past it was handled administratively. He explained that the City of North Ridgeville was probably one of the most aggressive communities in north east Ohio for cleaning ditches.

Mr. Howard stated that the issue was that the ditch was maybe halfway on their property and the other half was to the south and asked how you would maintain a ditch on someone else's property.

Assistant Law Director Morgan asked who the other property owner was.

Mr. Howard remarked the property owner to the south.

Chairman Smolik stated Mr. & Mrs. Stopper.

Mr. Howard added that the ditch wasn't just defined on their property but that it meandered more on their property.

Chairman Smolik asked if there were any questions or comments from the Commission.

Assistant Law Director Morgan asked the Assistant City Engineer if the City had any history with the ditch.

Assistant City Engineer Eavenson explained that it was a named ditch that was on their ditch map. She stated that prior to Valore, the City was responsible for maintaining the water portion.

Assistant Law Director Morgan stated that she was good with that.

Moved by Swallow and seconded by Graupmann to approve with the condition that a map revision from FEMA in order to build on lots 341 & 340, receiving the No-Rise Certificate and that Administratively the setbacks are reviewed to meet code.

A roll call vote was taken and the motion carried.

Yes – 4 No – 0

<u>Chipotle, 34800 Center Ridge Rd, North Ridgeville, OH 44039, PPN 07-00-016-101-047</u>
Applicant: Cardinal Realty, LLC, 1305 Boardman Canfield Rd, Suite 8, Youngstown, OH

44512. Proposal consists of constructing a new restaurant with a pick up window on a .88 acre lot to be split off from North Ridge Plaza on Center Ridge Road. Property is zoned B-2.

Application and Administrative comments were read.

Chairman Smolik asked the applicant to state his name and address for the record and explain the proposed project.

James Sabatine Jr., Cardinal Realty LLC 1305 Boardman Canfield Rd, Suite 8, Youngstown, OH 44512.

Brent Artman, Artman Engineering, 13710 Cleveland Ave, NW, Uniontown, OH 44685.

Mr. Sabatine explained that they were proposing a new Chipotle in the Marc's plaza that would get rid of a sea of asphalt that was out there and currently not being maintained very well. He stated that it would be a new prototype full service, sit down restaurant but wouldn't be a traditional drive-thru. He discussed that they had done a traffic impact study that they had submitted. He stated that it was a pick-up only window that would have to be pre-ordered. He added that there wouldn't be an order board there but they would be able to go inside for pick-up as well. He stated that the window was added due to a lot of mothers not wanting to unload their kids out of the car while getting dinner. He stated it wouldn't have any traffic back-up as they did at a Chik-fil-A or Starbucks. He remarked that there were probably 30 of them within 50 miles. He stated that they just completed one in Norwalk and did the one in Sheffield Village, Cuyahoga Falls and Liberty Township. He discussed that it would be well landscaped.

Chairman Smolik asked if the Commission had any questions or comments.

Council Liaison Abens asked if it would be a full service restaurant.

Mr. Sabatine mentioned that they could sit down and eat. He stated that they were doing some that were digital only where you couldn't eat inside. He explained that communities tended to like the one before them better because they had the option of eating inside or the patio or taking it through the pick-up window.

Council Liaison Abens asked if it would be similar to the one on Lorain Road.

Mr. Sabatine stated that it would be similar. He added that the new design was quite nicer than the other designs they have had. He stated that it was a little bit more modern on the inside.

Chairman Smolik asked if it was a lot split or a land lease and how would it be handled with the parcel.

Mr. Sabatine explained that it was a purchase. He mentioned that it would be replotted and there would be a cross access easement between Cardinal Realty and the seller which was the plaza owner. He added that Marc's approved it as well and they liked it. He stated that grocery stores were seeing these as drivers to help their businesses and bring people into the parcel. He mentioned that there would be no additional curb cuts that they would be proposing on the road. He stated that it was all within the parking lot.

Chairman Smolik asked if the open space would be part of it.

Mr. Sabatine stated that Chipotle didn't like how it looked. He mentioned that they said they either had to pave it or put new grass there and then let the plaza owner do in the future what they want. He explained that they wouldn't own that but as part of their deal with the purchase, they would improve it. He then pointed on the slide what would be new curb and seed mix, landscape with topsoil to make it a green space rather than unmaintained old looking aphalt because Chipotle didn't like how it looked. He added that it was to make it look new and more vibrant and dynamic looking rather than old and stale.

Mr. Artman stated that they could see the future property outline on the slide.

Chairman Smolik asked if they had done a count to make sure that the remaining parking lot for the Marc's plaza was suitable for that.

Mr. Artman stated that they provided the parking calculation after the last meeting with the City which was 439 parking spaces.

Chairman Smolik asked how many were required.

Mr. Artman stated that he believed the code said one space for 200 square feet of store area. He explained that he assumed 20% of the storage. He said the total was 99,422 and he assumed 20% was storage and he calculated based on 80%. He stated they needed 400 spaces and there were at 439.

Vice-Chairwoman Swallow asked regarding the drive lanes on the drawing, would they be curbed off and separate from the rest of the parking lot.

Mr. Artman stated that the only place you could enter was the entrance that he pointed to on the map and explained that everything else would be curbed. He added that there would be a curb between the northerly parking that was shown there and the existing plaza.

Mr. Sabatine added that the dumpster would be fully screened with masonry enclosure and also gates.

Chairman Smolik stated that he didn't recall seeing a sign and asked if a sign submittal would be done at a later date.

Mr. Artman explained that they usually came back with the sign company with the sign package as a separate permit. He stated the the sign company would come in and pull the sign permit.

Mr. Sabatine stated that typically they would comply with the City's sign code. He mentioned that Chipotle tended to stick with a single stick Chipotle with basically a circle on it. He added that also if to comply with code it needed to be ground mounted it would be whatever was required. He stated that the sign company would go through the City's code if Planning Commission approved the application. He discussed that they would submit the building sign package separately.

Vice-Chairwoman Swallow asked if Chipotle would consider a monument sign instead of a pole sign even if it wasn't required.

Mr. Sabatine stated that they preferred the pole sign. He mentioned that they had done studies on it and it was more visiable to people driving and created less people missing the store and then having to turn around. He stated that it wasn't a very big sign. He added that it was LED and all the trim pieces and finish returns were all finished. He stated that it basically just said Chipotle on it.

Mr. Artman stated that he doubted they would approve a monument sign at that location due to the fact that they were so far below the road. He added that the monument sign would not be visible from Center Ridge Road.

Mr. Sabatine stated that they sat back and were tucked in quite a bit. He mentioned that Marc's didn't want it to be anywhere near in front of their store.

Chairman Smolik asked if there were any questions or comments from the

Administration.

Director Lieber explained that a restaurant was a permitted use in the B-2 District and this was an unusual circumstance because the district did not permit drive-thru facilities. She mentioned that in discussion with the applicant, they discussed how it was unique because there was no order point and the traffic flow was quite different. She discussed that they were looking at it as a conditional accessory use rather than a similar use. She explained that the conditional use chapter had been printed out for the Commission and encouraged them to look at the standards of approval for conditional uses as they would even if it was a full conditional use and not just a conditional accessory use and have a discussion around some of those factors. She stated that the applicant had done a good job providing the information that was requested and came back and did make some changes to the site. She added that they had made some improvements to the building materials that she had requested and she appreciated that. She stated that they had discussed a pedestrian path into the site because of the somewhat close proximity to the high school/middle school campus. She added with the high school potentially having open lunch periods they thought it would be a hot destination for students to come on bike or by foot and wanted to have a path in but the grade in the slope from the sidwalk into the property made that a bit of a challenge. She stated that she appreciated them looking at that but wasn't sure it was feasible to do that and still meet ADA for the slope. She stated that she did think they should put in a bike rack somewhere around the door because there would propably be kids going there at lunch.

Mr. Sabatine stated that they would absolutely add a bike rack.

Council Liaison Abens mentioned that knowing high schoolers, they wouldn't let a slope stop them but he still wanted to see some form of pavement there for them.

Mr. Sabatine explained that the problem with that would be that it would require steps and slope and there would be some liability on thier part. He mentioned that he didn't think Chipotle wanted to tie that in especially in the winter time with steps coming down off the street. He added that anybody that could go to Marc's would have access on the pavement. He stated that if they were riding their bikes it would probably be safer for them to come in from the main point of entry from a slope standpoint as well.

Chairman Smolik asked what the grade elevation was.

Mr. Artman stated it was about eight or nine feet. He stated that it was about six feet now but once the building was plateaued out with the level of the parking lot back

there it would drop that building level down even further. He add that once you put the building in and shed away from the building as far as drainage goes, it would end up being about eight feet below the sidewalk elevation up there. He pointed to the slide and explained that it was all taken and sloped down into the development.

Mr. Sabatine stated that they eliminated the access when they widened the road. He mentioned that ODOT took away the access point.

Mr. Artman stated that for him to put in a handicapped accessible ramp down to there, every two and a half foot drop, he needed to have a landing and he didn't believe he had enough room to be able to do that switchback from the sidewalk. He didn't think it would fit and it would be a considerable expense. He added that putting stairs down there would be a possibility but then it would become a liability issue for Chipotle.

Chairman Smolik asked if there were any questions or comments from the public.

Dennis Boose, 6405 Denise Dr, North Ridgeville, OH 44039.

Mr. Boose stated that he thought it would be a nice addition to the community and it appeared that they had checked all the boxes. He mentioned that he didn't have a big concern with the drive-thru portion of it as there were going to be two coffee shops that were drive-thru only that were within feet of that location. He discussed that going down east further there was the Pizza Hut drive-thru and across the street there were other restaurants that had that same feature. He stated that it looked as if they were doing it right and welcomed them to the community.

Mr. Artman stated that one of the things they hadn't talked about was that you couldn't order in the lane and that it had to be all digital. He mentioned that he provided a study from Chipotle that they had done on a couple different restaurants and the maximum they have ever had on stacking in that lane was five to seven cars in very urban areas that would see a lot of traffic. He stated that at the same time, if you pulled up to that window and the order was not available, they provided pull-ahead spaces for you to pull ahead and they would bring your food out to you so that it didn't back up.

Mr. Sabatine mentioned that he wanted to also add that it was Chipotle Corporate that would own and manage the actual restaurant operation. He stated that it would not be a franchisee. He stated that franchisees typically wouldn't maintain the property like a McDonald's would or Chipotle would, they were corporately owned. He added that it was a very good site size-wise for them and there was plenty of parking there. He stated that some of the other sites that they were building they couldn't a site that's .88 acres.

He stated that Brent would tell them that he had done them as small as .66 and they didn't work as well and they didn't have as many parks, they didn't have the pull ahead spaces. He stated that they viewed this site as an ideal size and layout.

Chairman Smolik asked regarding storm water management, if there would be underground retention.

Mr. Artman stated that they were reducing the impervious area on the property and would be creating a large amount of green space with the removal of the pavement. He added that on that particular .88 acres they were reducing the impervious area by 20%. He stated that therefore, they weren't increasing the storm water flow on the property and they shouldn't be required to do a storm water drain.

Chairman Smolik asked if the previous parking lot had storm water management.

Mr. Artman explained that there was a pond in the back of the building that was shown on sheet one on the overall plan behind the plaza. He stated that they would actually be taking less water to that when they were done. He remarked that he understood that they weren't deed restricting the green space like they had talked about in the previous meeting so therefore, they made sure that their particular site was reducing the impervious areas so that they didn't have to deal with the storm water management on the site.

Council Liaison Abens stated that he had a question but that it would be directed toward Mr. Boose. He asked if there were any kind of flooding concerns in that area.

Mr. Boose stated that the storm water management on the property where the car wash was and Scooter's Coffee Shop was had been addressed several years ago. He stated that he had not heard of any flooding issues from that area. He added that he was aware that at some point the pond behind the shopping area was not working as it should. He stated that no, he had not heard of any flooding.

Assistant City Engineer Eavenson remarked that it needed some maintenance and some investment.

Chairman Smolik asked as far as maintenance on the retention pond, if had it just not been maintained.

Mr. Boose stated that it had overgrown over the years and so they had to go in and redo it but that was several years ago.

Chairman Smolik asked if it was functioning now.

Mr. Boose stated that to his knowledge it was.

Assistant City Engineer Eavenson stated that they had not had a recent inspection on the pond but it might be worth looking into.

Moved by Swallow and seconded by Graupmann to approve the Chipotle project with the conditional use for the drive-thru window and noting that there was no order point on the proposal and that it was a pick-up window only.

A roll call vote was taken and the motion carried.

Yes – 4 No – 0

Director Lieber stated that she had a few anouncements. She mentioned that she was working on a master plan steering committee for the upcoming planning inititive so it would be for the 2023 North Ridgeville Master Plan. She stated there was an open application process and there was a link on the City's website to fill out a google form. She explained that the goal was to reach a little deeper to get folks that might not normally participate and also they were collecting some demographics. She stated that they were trying to ensure that the committee was representative of who North Ridgeville was as a population group. She stated that the document would ultimately need to be adopted by the Planning Commission and she thought it would be important for Planning Commission to have some representation. She added that she would encourage those interested to fill out an application with the deadline being the 14th. She discussed that Council approved Ordinance 6016-2022, which was the setback amendments to the B-2 and B-3 districts that was recommended by Planning Commission. She stated that other zoning amendments were in the works namely chapters related to parking, loading, commercial driveways and lighting. She added that she was trying to bring some of the chapters up to more modern standards and was looking at some changes to clarify. She stated that the City has had a lot of drive-thru uses lately but there are no standards for queing and there are no parking space dimensions or drive isle width specifications so those are things that crop up pretty routinely with commercial projects where better guidance would be warrented. She asked that Planning Commission review some drafted materials she would be sending them and maybe adding a work session to their next meeting to start the conversation so that they could start off next year with some of those improvements in the code.

ADJOURNMENT:

The meeting was adjourned at 7:52 PM.

James Smolik
Chairman

Tina Wieber
Deputy Clerk of Council

Tuesday, December 13, 2022
Date Approved

RECEIVED
OCT 19 2022

Planning Commission Application

CITY OF NORTH Ridgeville EST 1810

SUBMITTAL INSTRUCTIONS AND PROCEDURES

Plan reviews will be carried out according to the process described in Chapter 1243 of the City's Zoning Code.

- Pre-Application. Prior to making application, applicants are recommended to contact the city to discuss their development project. City staff will outline the review process and provide a checklist of required submittals.
- Application Submittal. Following the pre-application meeting, the applicant shall submit this completed application, fee and ten (10) sets of all required exhibits. All submissions shall be made in hard copy to the Building Department. Plans shall be collated, folded and easily legible but no larger than 24" x 36".
- Staff Review. The applicant shall attend a staff review meeting and may be required to submit revised plans based on staff input.
- Variances. Where zoning variances are sought by the applicant, review by the Board of Zoning and Building Appeals will be necessary prior to consideration by the Planning Commission, requiring a separate application.
- Decision or Referral. Following staff review, complete submittals for Administrative Review projects may be considered for approval. For Council Review projects, complete submittals shall be referred to the next available Planning Commission meeting, which are held the second Tuesday of each month.

PROJECT INFORMATION

7295 Greenlawn Drive
Location address

0700028103193
Parcel number

B-5
Current zoning

Bogner - Life Celebration Center
Proposed project

APPLICANT/AGENT INFORMATION

Randall S. Smith DSC Architects, Inc.
Name/Company

401 Front Street Berea, Ohio 44017
Applicant address

440-823-7362 cell 440-835-3957 office
Applicant phone

rsmith@dscarchitects.com
Applicant email

PROPERTY OWNER INFORMATION

Greenlawn Professional Building, LLC. Mr. David Bogner
Name/Company

36625 Center Ridge Road North Ridgeville, Ohio 445039
Property owner address

440-327-2955
Property owner phone

bognerdb@gmail.com
Property owner email

AUTHORIZATION AND ACKNOWLEDGEMENT

Randall S. Smith
Applicant signature

David M. Bogner
Property owner signature

I hereby authorize the City of North Ridgeville, including Planning Commission members, to view the premises and consent to their entry onto the property for the purpose of observing site conditions related to review of my application.

Staff Use Only	PPZ No.	Date Received	Amount Paid	Payment Type
	PPZ2022-0148	10.19.22	150.00	AMERICAN EXPRESS

ENGINEERING Receipt 144876 $1,125.00

Planning Review

November 30, 2022

Project:	Bogner Life Celebration Center
Location:	7295 Greenlawn Drive
PPN:	07-00-028-103-193
District:	B-5 Architectural Business District

Project Summary:

The proposal consists of constructing a new event facility on a vacant 0.29-acre lot to be used as gathering space by patrons and guests of the Bogner Funeral Home. The property is zoned B-5 Architectural Business District, as is the property to the west, north and east. The lot to the south is zoned R-1 Residence District. The BZBA considered and approved variances for setbacks, parking count and location of parking at their meeting of November 17.

In the B-5 District, funeral homes and customary accessory uses are permitted uses. The arrangement of buildings is unique in that while the event facility is accessory to the funeral home business, it is on a separate lot located across the street, nonetheless will be linked by use and shared parking with neighboring Bogner-owned properties.

The B-5 Architectural Business District contains some unique requirements for new construction, including architectural theme, post-type street lighting, underground utilities, tree planting in accordance with the city's Master Tree Plan, installation of sidewalks and a prohibition of parking in the front yard. The project meets all of these unique requirements except for 1272.03(h), location of parking, for which the BZBA granted a variance.

The 3,154 square foot building just meets the allowable 25% lot coverage. Variances were also granted for required building setbacks. The west (front) and north elevations of the building are comprised of brick veneer while vinyl siding is proposed for the east and south elevations. A covered vestibule emphasizes the main entrance. The roof is made of asphalt architectural shingles. Decorative building lights flank the entrance and a light is proposed over the rear door for security.

Buffer strips are required wherever commercial property abuts residential districts. In this case the applicant has provided a buffer strip along the south property line at the required depth of 10 feet. A new street tree is provided along the frontage. The facility will share an existing off-site dumpster located at the southeast corner of the office building's parking lot. A sidewalk has been provided between the building and the parking area closest to the dumpster.

The 11 off-street parking spaces are insufficient for the use as a stand-alone facility; however, the applicant believes that the proposed parking will be sufficient due to several factors. First, the event facility will be used in conjunction with the funeral home business, so guests will have access to all parking available at the funeral home. The facilities will not increase the number of concurrent events,

simply provide new options for memorial services. Second, the event facility will have access to the office building's parking lot on weekends and times outside of normal working hours. The BZBA approved the parking variance subject to a shared parking agreement that would ensure permanent access to parking spaces regardless of future ownership. Also, if the event facility were ever severed from the funeral home, it could not continue as an event facility without new city reviews and approvals for the use.

Recommendations:

- Provide color rendering of the building and/or material samples for Planning Commission review.
- Consistent with BZBA's condition of approval, provide a shared parking agreement in the form of an easement, deed restriction or other method acceptable to the Law Department.

CITY OF NORTH RIDGEVILLE PLANNING COMMISSION RECOMMENDATIONS	
Name of Applicant:	Randall S. Smith – DSC Architects Inc.
Name of Owner:	Greenlawn Professional Building LLC – David Bogner
Date Submitted for Consideration:	10-19-2022
Date to Return to Planning Commission:	10-28-2022
Regarding: 7295 Greenlawn Drive – Proposed Bogner – Life Celebration Center	

RECOMMENDATIONS:

1. 1272.06 (b)(1) B-5 zoning requires 75 foot front yard. Applicant proposing 65 foot 6 inch front yard, variance required.
2. 1272.06 (b)(2) B-5 zoning requires 50 foot rear yard. Applicant proposing 20 foot rear yard, variance required.
3. 1272.06 (b)(3) B-5 zoning requires minimum 35 foot total side yards and minimum 15 foot side yard. Applicant proposing 27 foot 6 inch total side yards and 7 foot 6 inch for side yard, variance required.
4. 1272.03 (h) Off-street parking not permitted in front yard. Applicant proposing parking in front yard, variance required.
5. 1284.02 (g)(14) Applicant has chosen to use the parking requirement for Funeral Homes of one space per every 50 square foot of floor space requiring 64 parking spaces (3149 square foot divided by 50 = 62.98). Applicant providing 11 parking spaces (not 10 as shown on the Engineer's drawing) on this site. Applicant proposing utilizing parking on their adjacent properties totaling 120 total parking spaces at off hours, variance required.

(use additional sheets if necessary)

Department Head Signature & Title: Charlie Sumter CBO

Form prepared by the Office of the Clerk of Council 6-30-99. Amended 12-13-2005.

Comments and recommendations by Administrative Officers, if any, shall be forwarded to the Commission Secretary not later than five (5) business days prior to the Commission meeting at which action is scheduled to be taken on the matter. (Planning Commission By-Laws, Article V, Section 3)

Comments received after the deadline will be distributed to the Members the night of the meeting.

Planning Commission Comment Sheet

CITY OF NORTH Ridgeville EST 1810

PROJECT INFORMATION

Bogner – Life Celebration Center
Proposed project

7295 Greenlawn Drive
Location

07-00-028-103-193
Parcel number

(Staff Review 11.9.2022) 12. 13. 2022
Staff Review/Meeting date

12.1. 2022
Comments due

RECOMMENDATIONS

Type comments here. Attach additional sheets as necessary.

1. 1272.04 lists the permitted & conditional uses allowed in the B-5 zoning district. I am assuming this submission is asking to be viewed as an extension of and an accessory to number (36), Funeral Home and not as a stand-alone submission; and not a "similar use" (1210.06) determination? That needs to be made clear.

2. If approved by Planning, this submission will require several variances.
   a. the front yard will go from the required 75 ft to 65.5 ft.-9.5 ft is a 12.7% variance
   b .the rear yard will go from 50 ft to 20 ft-30 ft a 60% variance
   c. the side yard total required is 35 ft and this submission proposes 27.5 ft-7.5 ft is a 21.4% variance
   d. additionally, the minimum side yard required is 15 ft and 7.5 ft is requested-a 50% variance

3. Parking variances are also required.
   e. The B-5 zoning district does not permit parking in the front of the building. This submission has all of its on-site parking in the front of the building. They will need a "variance" which ignores this requirement 100%.
   f. This submission does not have adequate on-site parking to accommodate its apparent function. It will require a variance to allow it to include parking across the street at the funeral home in order to be compliant with the number of spaces needed.

4. The applicant needs to review for Planning the types of activities it envisions for the Life Celebration Center.

5. This submission should indicate and record at the county, a deed restriction on this property restricting its use to the life celebration activities associated with the funeral home. A copy to be submitted to Planning if approved.

Planning Commission Comment Sheet

CITY OF NORTH Ridgeville EST 1810

PROJECT INFORMATION

Bogner – Life Celebration Center
Proposed project

7295 Greenlawn Drive
Location

07-00-028-103-193
Parcel number

(Staff Review 11.9.2022) 12. 13. 2022
Staff Review/Meeting date

12.1. 2022
Comments due

RECOMMENDATIONS

Type comments here. Attach additional sheets as necessary.

Supplement to previous submission:

Re: item. 5

A deed restriction on parcel No. 07-00-028-103-193 can limit that parcel only to uses associated with the life celebration activities of the funeral home-IF that is the intention of the PC

On the other hand,an easement on the funeral home parcel can allow for parking for the -193 parcel for life celebration activities only or it can be for any future allowed use of parcel -193-depending on the language of the easement.

Both/either can and should be recorded with the county and a copy supplied to Planning. If the Planning Commission approves the submission, it may choose to use either of the above restrictions. Using both would not make sense. It should clearly specify its intentions.

SUBMITTED BY

Administrative officer signature

Assistant Law Director
Title

Planning Commission Bylaws Article V Section 2 – Administrative Review. All applications including those plans and maps submitted to the Commission shall be referred to Administrative Officers. Comments and recommendations by Administrative Officers, if any, shall be forwarded to the Secretary not later than ten (10) calendar days after receipt. Administrative Officers who have not acted within the allotted time shall be deemed to have concurred with plans as submitted.

Planning Commission Comment Sheet

CITY OF NORTH Ridgeville EST 1810

PROJECT INFORMATION

Bogner – Life Celebration Center
Proposed project

7295 Greenlawn Drive
Location

07-00-028-103-193
Parcel number

(Staff Review 11.9.2022) 12. 13. 2022
Staff Review/Meeting date

12.1. 2022
Comments due

RECOMMENDATIONS

Please contact Asst. Chief Mike Uhnak of the North Ridgeville Fire Department to discuss the following code requirements of the Ohio Fire Code and Ch. 16 Fire Prevention of the Codified Ordinance of North Ridgeville.
North Ridgeville Fire Department
Fire Prevention
(440)653-6362

1- OFC Rule 5 Fire Service Features- Section 506: Fire Department Lock Box.
2- OFC Rule 33 Fire Safety During Construction
3- NFPA 241 Standards for Safeguarding Construction Operations.
4- Chapter 16 Fire Prevention NR Ordinance.

Respectfully

Asst. Chief Mike Uhank

SUBMITTED BY

Administrative officer signature

Assistant Fire Chief
Title

Planning Commission Bylaws Article V Section 2 – Administrative Review. All applications including those plans and maps submitted to the Commission shall be referred to Administrative Officers. Comments and recommendations by Administrative Officers, if any, shall be forwarded to the Secretary not later than ten (10) calendar days after receipt. Administrative Officers who have not acted within the allotted time shall be deemed to have concurred with plans as submitted.

Staff Meeting Bulletin

Meeting Date:	November 9, 2022
Project:	Bogner – Life Celebration Center, 7295 Greenlawn Drive
Applicant:	Randall S. Smith, DSC Architects, Inc., 401 Front Street, Berea, OH 44017
Zoning:	B-5 District
In Attendance:	Mayor Kevin Corcoran Brian Moriarty, Law Director Mike Freeman, Police Chief Mike Uhnak, Assistant Fire Chief Guy Fursdon, Chief Building Official Kim Lieber, Planning and Economic Development Director Tina Wieber, Deputy Clerk of Council David Bogner, Bogner Family Funeral Home (via zoom) Randall S. Smith, DSC Architects, Inc.

Project Introduction

- Randy explained that the Life Celebration Center was proposed as currently most people were opting for a more informal gathering after a funeral service. He stated that they looked at expanding the existing building to the south but that wasn't a possibility. He added that they owned the Greenlawn property and were asking for variances because if they followed code they would only be able to build a 1,400 square foot building. He discussed that the building would be a one story colonial and would match the existing funeral home with brick on two sides and vinyl on the other two to tie them together and would fill the gap on that side of the road. David stated that the building would match the trim on the funeral home was white and they would match that. Randall stated that capacity would be for 150 people with a kitchen that would act as a caterer's pantry or warming kitchen with a refrigerator and microwave. He added that there would be a utility room and restrooms.
- Randy explained the use wouldn't generate significant traffic as it would be the same traffic from the funeral home. He mentioned that the property abutted a residence owned by David's father and had a buffer strip there and that they would also add a buffer strip along the east property line. He stated they had a shared parking agreement with the office building so there would be parking among three buildings. He explained that they had a lease agreement with the Greenlawn office for shared parking. He discussed that he was off on his parking space numbers of 67 and that Kim explained it would be 45 based on the usable square footage. He commented that they would get an agreement in writing regarding the shared parking and the new building in case the companies in the office building ever changed hands. David stated that even with the setback variance they would still be further away than the existing buildings on either side and would not impede views from the other buildings. He stated that there was a drainage ditch across the back side to a retention pond. He said there would be a drainage swell tying it in to go to the pond.

Staff Comments

- Kim explained that they would go before BZBA first to get their variances approved before going before Planning Commission. Kim asked for them to bring material samples or a sample board to the Planning Commission meeting. Kim asked if there would be a sign on the building. David stated there would be and there was room on the professional building sign on Center Ridge as well. Kim added that they could come back for a sign permit and would only go to BZA if it exceeded the allowable coverage. Randall stated that it would be a wall mounted sign by the entrance and the monument sign out front.

- Chief Freeman asked if there would be any outdoor usage. Randall stated that there would not. Chief Freeman asked if there would be anything other than funerals held at the Center. Kim stated that it was only allowed because of the relationship with the funeral home. David stated that it would be specifically used with the funeral home with no rentals for weddings or anything of that sort. He stated that the luncheon would go along with the funeral held at the funeral home and there would be no double booking. Chief Freeman asked if they would be serving liquor. David stated that at this time they were not looking into that, that it was just strictly for caterers being able to bring food. He added that the average funeral had about 45 people with many being family members that would be riding together in their cars.
- Mayor stated the restrictions in use would prevent them from doing anything other than funerals. Kim added that it protected the City and that BZA may make a condition for continuity of parking.
- Guy asked if there had been a traffic study done. Randall remarked that there had not because they wouldn't be replacing, it was how it functioned currently and with no peak hours there would be no way to correlate that. Guy added that they would not be adding any traffic.

Next Steps

- The applicant will submit any updated plans by prior to be distributed to Planning Commission members for the December 13 meeting.

LANDSCAPE NOTES :

RED OAK	RED OAK	QUERCUS RUBRA	2 1/2" CALIPER	40'-0" O.C.
SPRUCE	DWARF ALBERTA SPRUCE	PICEA GLAUCA	5 GALLON	5'-0" O.C.
PRIVET	REGAL PRIVET	LIGUSTRUM OBTUSIFOLIUM REGANALIUM	5 GALLON	6'-0" O.C.

MULCH BUFFER STRIP PLANTER AREA WITH 3" BARK MULCH. COORDINATE WITH OWNER FOR PLANTER BEDS IN FRONT OF BUILDING. REMAINING SITE AREAS TO BE GRASS SEEDED AND MULCHED.

STAKE & GUY WIRE ALL PLANTS OVER 24" TALL. GUARANTEE ALL PLANT MATERIAL FOR 1 YEAR FOLLOWING PLANTING.

EXISTING BOGNER FUNERAL HOME

EXISTING B-5 ZONING

℄ GREENLAWN DRIVE (60' R.O.W.)

NEW STREET TREE TO MATCH EXISTING

EX. TREE

EXIST. STREET LAMP, TYP

R=1460.0
L=46.45 S 3°07'56" E

N 01°00'00" E 92.07

EXIST. SIDEWALK

10' SIDE YARD SETBACK

15' SIDE YARD SETBACK

18'-0"

24'-0"

5'-1½"

NO PARKING TURNAROUND & DELIVERY ONLY

3½" VARIANCE REQUESTED

NEW 5'-0" CONCRETE SIDEWALK

RED OAK

2- PRIVET

10'-0"

3-SPRUCE

2- PRIVET

RED OAK

75'-0" FRONT SETBACK

2- PRIVET

3-SPRUCE

S 11°49'05" W 113.10

2- PRIVET

RED OAK

PROPOSED 1 STORY RECEPTION HALL

3,149 SQUARE FEET

50' REAR SETBACK

S 11°49'05" W 113.10

2- PRIVET

3-SPRUCE

2- PRIVET

RED OAK

NEW 5'-0" CONCRETE SIDEWALK

EXISTING DUMPSTER

20' STORM SEWER EASEMENT

S 11°49'05" E 75.85

7'-6"

7'-6"

VARIANCE REQUESTED

15'-0"

STORM SEWER EASEMENT

25'-0"

STORM SEWER EASEMENT

EXISTING OFFICE BUILDING

EXISTING B-2 ZONING

℄ CENTER RIDGE ROAD

EXISTING RESIDENTIAL DUPLEX

EXISTING R-1 ZONING

EXISTING B-5 ZONING

EXISTING 10'-0" BUFFER STRIP FROM R-1 ZONING

EXISTING B-5 ZONING

SITE DATA:

SITE AREA = 0.39 ACRES (17,092 SQUARE FEET)
SITE ZONING - B-5 BUSINESS
MAXIMUM LOT COVERAGE = 25% (3,64 SQUARE FEET)
PROPOSED BUILDING - 3,149 SQUARE FEET (25%)
PARKING REQUIRED - 1/50 SF. = 64 SPACES
PARKING PROVIDED - 11 SPACES
SHARED PARKING W/ EXIST. FUNERAL HOME 70 SPACES
90 SPACES AVAILABLE

SHARED PARKING W/ EXISTING OFFICE BUILDING,
OFF HOURS AND WEEKENDS ONLY 91 EXISTING SPACES
MINUS 1 SPACE AT SOUTH PARKING 90 SPACES AVAILABLE

PARKING AVAILABLE OFF HOURS 120 SPACES

VARIANCE REQUIRED FOR SHARED PARKING
VARIANCE REQ'D FOR PARKING IN FRONT YARD

FRONT SETBACK REQUIRED - 75'-0"
PROPOSED MINIMUM FRONT SETBACK - 65'-6" - VARIANCE REQUIRED
SIDE SETBACKS REQUIRED - 35' TOTAL, 15'-0" MINIMUM
PROPOSED SIDE SETBACKS - 20'-0" SOUTH SIDE, 7'-6" NORTH SIDE.
NOTE : NORTH SETBACK IS ADJACENT TO EXISTING 15'-0" DRAINAGE EASEMENT. VARIANCE REQUIRED
REAR SETBACK REQUIRED - 50'-0"
PROPOSED REAR SETBACK - 20'-0". 30'-0" VARIANCE REQUIRED

EXISTING STREET LIGHTING TO REMAIN. NO NEW SITE LIGHTING ANTICIPATED AS A PART OF THIS PROJECT. BUILDING MOUNTED DECORATIVE LIGHTING WILL BE PROVIDED AT THE BUILDING ENTRANCE AND CANOPY. DOWNCAST SECURITY LIGHTING WILL BE PROVIDED AT THE REAR EXIT DOOR ONLY.

PROPOSED SITE PLAN

SCALE: 1" = 20'-0"

NORTH

DSC ARCHITECTS
401 FRONT STREET
BEREA, OHIO 44017
PHONE: 440.835.3957
mail@dscarchitects.com

DATE:
PRELIMINARY
03.07.22
06.03.22
PLANNING/ZONING
08.16.22
10.03.22
10.10.22

Life Celebration Center for:
BOGNER FUNERAL HOME
Greenlawn Avenue
North Ridgeville, Ohio

STATE OF OHIO
RANDALL SCOTT SMITH
7352
REGISTERED ARCHITECT

DSCA PROJECT NO.
22.016

SP-1

STATE OF OHIO
LORAIN COUNTY
CITY OF NORTH RIDGEVILLE

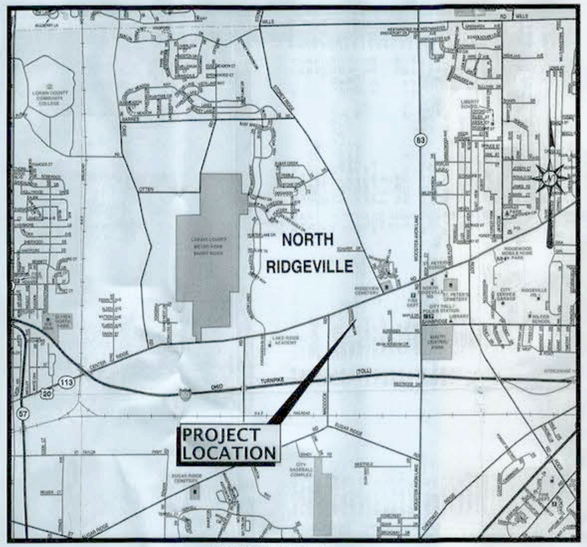
BOGNER - LIFE CELEBRATION CENTER

CIVIL ENGINEERING PLANS

CIVIL PLAN (REVISION 1) - 10/6/2022

REVISION LOG:

- REVISION 1 (10/6/22): ADD CONNECTOR SIDEWALKS AND MODIFY PARKING LOT STRIPING.



VICINITY MAP

COORDINATES
LATITUDE: 41° 23' 13" N LONGITUDE: 82° 1' 38" W

SITE INFORMATION:
PARCEL NUMBER: 0700028103193
SITE OWNER: GREENLAWN PROFESSIONAL BUILDING., LLC.
SITE LOCATION: GREENLAWN DRIVE NORTH
NORTH RIDGEVILLE, OHIO 44039

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF A PROPOSED BUILDING, CONCRETE PARKING LOT, AND WATER QUALITY AGGREGATE TRENCH.

INDEX OF CIVIL SHEETS	
TITLE SHEET AND SITE LOCATION PLAN	1
CIVIL GENERAL NOTES & DETAILS	2-3
SURVEY SITE PLAN	4
EXISTING CONDITIONS & DEMO. SITE PLAN	5
UTILITY SITE PLAN	6
PROPOSED CONDITIONS SITE PLAN	7
PROPOSED GRADING & ELEVATION SITE PLANS	8-9
STORMWATER POLLUTION PREVENTION PLAN	10-13
TOPOGRAPHICAL SURVEY BY F.E. KROCKA & ASSOCIATES, INC.	
NORTH RIDGEVILLE AND ODOT STANDARD CONSTRUCTION DRAWINGS (SCD'S) (SHEETS A-D)	

PROJECT ZONING

CITY OF NORTH RIDGEVILLE - B-5 ARCHITECTURAL BUSINESS DISTRICT

EARTH DISTURBED AREA

ESTIMATED PROJECT EDA = 0.3 ACRES

FEDERAL PROJECT NO.	PID NO.	CONSTRUCTION PROJECT NO.	RAILROAD INVOLVEMENT
N/A	N/A	N/A	NONE

NORTH RIDGEVILLE, OH

1
13

ENGINEERS SEAL

STATE OF OHIO
MATTHEW P. HASE
E-7[illegible]
PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION

DATE: 10/6/2022

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS UNDERGROUND
PROTECTION SERVICE CALL: **1-800-925-0988**

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

PLAN PREPARED BY:

AEG ADAPTIVE ENGINEERING GROUP LLC
ADAPTIVE ENGINEERING GROUP, LLC
5065 OBERLIN AVENUE
LORAIN, OHIO 44053
TEL: 440-444-1022
WWW.ADAPTIVEENG.COM

ENGINEERING AND PLANS BASED UPON TOPOGRAPHICAL SURVEY DATA PROVIDED BY:

F.E. KROCKA & ASSOCIATES, INC.
100 N. GAMBLE ST. SHELBY, OHIO 44875
TEL: 419-342-4556

STANDARD CONSTRUCTION DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
NR PAV-1	NR SWP-15		NONE
	NR SWP-18		
NR MIS-1	NR SWP-25		
	NR SWP-27		
NR SAN-8	NR SWP-29		
NR SAN-9	NR SWP-32		
	NR SWP-33		
NR WAT-13			
ODOT TC-71.40			
ODOT RM-6.1			
ODOT TC-41.20			

D:\OneDrive\AEG\AEG - Shared\AEG - Projects\SD - Site Development\SD-80 Bogner NR\Basemaps\SD-80M.dwg 06-Oct-22 10:53 AM

GENERAL

WHERE SPECIFIED, THE 2019 STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) (ODOT ITEM NUMBERS) INCLUDING SUPPLEMENTAL SPECIFICATIONS (SS) AND STANDARD CONSTRUCTION DRAWINGS (SCD) SHALL APPLY EXCEPT AS MODIFIED OR EXPANDED HEREIN OR IN THE TECHNICAL SPECIFICATIONS. REFERENCED ODOT SCD'S CAN BE FOUND ON ODOT'S WEB SITE AT THE FOLLOWING LINK: HTTP://WWW.DOT.STATE.OH.US/CRRC/PAGES/DEFAULT.ASPX#S

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH LOCAL BUILDING AND ZONING CODES AND REGULATIONS. IN THE EVENT THAT CONSTRUCTION PLANS AND LOCAL CODES AND REGULATIONS ARE INCONSISTENT, THE LOCAL CODES AND REGULATIONS SHALL SUPERSEDE THE CONSTRUCTION PLANS AND GOVERN.

THE USE OF EXPLOSIVE MATERIALS SHALL NOT BE ALLOWED ON THE PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF ALL PERSONS, INCLUDING EMPLOYEES, AND PROPERTY.

IN THE EVENT THAT POTENTIAL ENVIRONMENTAL HAZARDS (E.G.: UNDERGROUND STORAGE TANKS, CONTAMINATED SOILS, WASTE DISPOSAL SITES, ETC), ARCHAEOLOGICAL REMAINS, OR HISTORIC OR PREHISTORIC HUMAN REMAINS ARE ENCOUNTERED, THE CONTRACTOR SHALL CEASE OPERATIONS IMMEDIATELY AND IMMEDIATELY CONTACT THE PROJECT OWNER.

PROJECT RELATED REMOVALS AND/OR DEMOLISHMENTS SHALL NOT BEGIN UNTIL THE OWNER PROVIDES NOTICE TO PROCEED WITH SAID WORK. ANY ITEM REMOVAL THAT IS NOT SPECIFICALLY DESIGNATED IN THE PLANS, BUT IS REQUIRED FOR THE PROPOSED WORK TO BE COMPLETED, SHALL BE REMOVED BY THE CONTRACTOR.

ALL SURFACES INCLUDING DRAINAGE STRUCTURES, LANDSCAPING, PAVEMENTS, DRIVEWAYS, BERMS AND OTHER SURFACES DISTURBED DURING CONSTRUCTION OF THIS PROJECT SHALL BE RESTORED TO THEIR ORIGINAL CONDITION BY THE CONTRACTOR.

THE CONTRACTOR SHALL KEEP ALL STREETS, LANES AND PARKING AREAS ADJACENT TO THE PROJECT CLEAN AND FREE FROM ANY DEBRIS, MUD AND/OR OTHER CONSTRUCTION EQUIPMENT AT ALL TIMES DURING THE PROJECT.

IT IS THE INTENTION OF THE PLANS TO PROVIDE AND REQUIRE A COMPLETED PROJECT READY FOR OPERATION. ANY WORK ITEMS OMITTED FROM THE PLANS WHICH ARE CLEARLY NECESSARY FOR THE COMPLETION OF SUCH WORK AND ITS APPURTENANCES SHALL BE CONSIDERED A PART OF SUCH WORK ALTHOUGH NOT DIRECTLY SPECIFIED OR CALLED FOR IN THE PLANS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED BUILDING PERMITS, PAYING APPLICABLE PERMIT AND APPLICATION FEES, AND VERIFYING SETBACKS, DIMENSIONS, AND EXISTING CONDITIONS, INCLUDING EASEMENTS, PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL BE REGISTERED BY THE LOCAL JURISDICTION IN CHARGE (AS DEEMED NECESSARY).

GENERAL SURVEY NOTES:

THIS PLAN AND PROJECT DESIGN IS BASED UPON A FIELD TOPOGRAPHIC SURVEY AND BASEMAP PERFORMED AND PROVIDED BY F.E. KROCKA & ASSOCIATES, INC. IN JUNE 2022. SAID SURVEY HAS BEEN PROVIDED AT THE END OF THIS PLAN SET.

FLOODPLAIN NOTE:

THE PROJECT IS LOCATED IN FLOOD ZONE DESIGNATION "ZONE X" WHICH IS DEFINED AS "AREAS DETERMINED TO BE OUTSIDE OR WITHIN THE 0.2% ANNUAL CHANCE FLOODPLAIN."

PROTECTION AND RESTORATION OF PROPERTY

IF THE CONTRACTOR CAUSES ANY DIRECT OR INDIRECT DAMAGE OR INJURY TO PUBLIC OR PRIVATE PROPERTY BY ANY ACT, OMISSION, NEGLECT, OR MISCONDUCT IN THE EXECUTION OR THE NON-EXECUTION OF THE WORK, THEN IT MUST RESTORE, THE PROPERTY TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE THE DAMAGE OR INJURY AT NO ADDITIONAL COST TO THE OWNER.

IF MAILBOXES, ROAD, OR STREET NAME SIGNS AND SUPPORTS INTERFERE WITH THE WORK, THEN REMOVE AND ERECT THEM IN A TEMPORARY LOCATION DURING CONSTRUCTION IN A MANNER SATISFACTORY TO, AND AS DIRECTED BY THE OWNER OR REGULATORY AGENCY. AFTER COMPLETION OF THE WORK AND BEFORE FINAL ACCEPTANCE OF THE PROJECT, ERECT THE MAILBOXES, ROAD, OR STREET NAME SIGNS AND SUPPORTS IN THEIR ORIGINAL OR PERMANENT LOCATIONS ACCORDING TO THE PLANS UNLESS OTHERWISE DIRECTED BY THE OWNER OR REGULATORY AGENCY.

RESTORATION FOR INSTALLATIONS AND/OR REMOVALS

WHEREVER EXISTING GROUND IS DISTURBED BY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL RESTORE THE DISTURBED AREA, IN KIND, TO A CONDITION THAT IS EQUIVALENT OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.

PROTECTION OF MONUMENTS, PROPERTY CORNER MARKERS, ETC.

MONUMENTS, PROPERTY CORNER MARKERS, ETC., SHALL NOT BE DISTURBED BY THE CONTRACTOR. IN THE EVENT IT IS NECESSARY TO REMOVE THESE ITEMS, THE CONTRACTOR SHALL, EMPLOY A REGISTERED SURVEYOR TO PROPERLY REFERENCE THE POINTS AND SHALL RESET THEM AFTER CONSTRUCTION HAS BEEN COMPLETED IN THE AREA AT NO ADDITIONAL COST TO THE OWNER.

EXCESS EXCAVATION MATERIAL

ALL EXCESS EXCAVATION SURPLUS MATERIAL, REMOVED PAVEMENT, AND RUBBISH SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR UNLESS OTHERWISE APPROVED BY THE OWNER. PROJECT EXCAVATION SHALL BE PER ODOT ITEM 203.

EMBANKMENT

PROJECT EMBANKMENT AND ASSOCIATED COMPACTION SHALL BE PER ODOT ITEM 203, UNLESS OTHERWISE SPECIFIED IN CONSTRUCTION PLANS.

ROUNDING

SLOPES SHALL BE ROUNDED EVEN THOUGH OTHERWISE SHOWN IN PROJECT GRADING PLANS.

COMPACTION

COMPACTION REQUIREMENTS FOR MATERIALS SHALL BE PER APPLICABLE ODOT ITEM NUMBERS (DESIGNATED WITHIN THESE PLANS).

SAWCUTS

ALL REQUIRED SAWCUTS ON THE PROJECT SHALL BE FULL DEPTH SO THAT THE REMOVAL RESULTS IN A CLEAN, FLUSH JOINT AT THE VERTICAL SURFACE OF THE REMAINING MATERIAL.

ITEM 201 - CLEARING AND GRUBBING

PREPARE THE PROJECT CONSTRUCTION LIMITS PER ODOT ITEM 201. THE CONTRACTOR SHALL ONLY REMOVE TREES THAT ARE NECESSARY FOR THE CONSTRUCTION OF THE PROJECT. TOPSOIL SHALL BE STRIPPED FROM THE PAVEMENT, SIDEWALK, AND BUILDING PAD AREAS.

SITE SPECIFIC CIVIL NOTES

AGGREGATE BASE

AGGREGATE BASE SHALL BE PER ITEM 304 AND SHALL BE LIMESTONE.

SIDEWALKS

SIDEWALKS SHALL BE PER NORTH RIDGEVILLE SCD PAV-1. MAXIMUM CROSS SLOPES SHALL BE 2% WITH A PREFERRED DESIGN MAXIMUM OF 1.5%. THE SIDEWALK DEPTH AT DRIVEWAYS SHALL BE 6".

PAVEMENT

PROPOSED DRIVING SURFACES SHALL BE AS SHOWN ON THE TYPICAL SECTIONS WITHIN THESE PLANS.

CONCRETE

PROJECT CONCRETE USED FOR WORK ITEMS CONTAINED WITHIN THESE PLANS SHALL BE CLASS QC1 OR BETTER PER ODOT ITEM 499.

PAVEMENT MARKINGS

ALL PAVEMENT MARKINGS SHALL BE PER ODOT ITEM 641 AND SHALL BE ITEM 642 PAINT. HANDICAP PARKING SPOT MARKINGS SHALL BE PER ODOT SCD TC-71.10. PARKING STALL DIMENSIONS SHALL BE PER TYPICAL DIMENSIONS SHOWN ON THE SITE PLANS WITHIN THESE PLANS.

PARKING BLOCKS

PARKING BLOCKS (AS SHOWN ON SHEET 7) SHALL BE PER ODOT SCD RM-6.1.

PERMITS

CONSTRUCTION SHALL NOT COMMENCE UNTIL THE APPROPRIATE PERMITS HAVE BEEN SECURED. THE CONTRACTOR SHALL BE RESPONSIBLE TO SECURE ALL REQUIRED PERMITS FROM THE GOVERNING AUTHORITIES.

SEEDING & MULCHING

TOPSOIL, SEEDING, MULCHING, AND FERTILIZER SHALL BE PER THE CITY OF NORTH RIDGEVILLE NOTES.

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A division of ADS

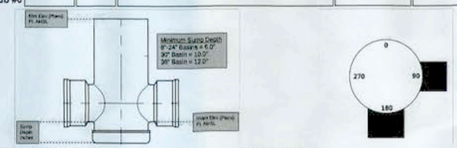
DRAIN BASIN SHOP DRAWING

PO#:
Part Number: 2815AG7
Customer approval:

Project Name: Bogner - Life Celebration Center | Dia.: 15 | Structure No.: 1 | Qty.: 1
Prepared By: Ty Bell, Adaptive Engineering Group, 440-444-1022, tbell@adaptiveeng.com
Grate: 15; Standard;
Accessories:

Rim Elev.: 727.20 ft. | Basin Height: 80.4 in. | Sump Depth: 12.00 in.

	Stub size	Angle	Pipe Type	Invert Elev. ft. AMSL	Production Depth inches
Stub #1	6 in.	180 °	PVC SDR-35	721.50 ft.	68.40 in.
Stub #2	8 in.	180 °	PVC SDR-35	725.95 ft.	15.00 in.
Stub #3	6 in.	90 °	PVC SDR-35	725.95 ft.	15.00 in.
Stub #4					
Stub #5					
Stub #6					



CUSTOMER NOTES | PART CODES

1599CGS;

This product is made to order and non-Refundable
Nyloplast, 3130 Verona Ave. Buford, GA 30518. (866) 888-8479
Nyloplast® is a registered trademark of Advanced Drainage Systems®

Nyloplast® is not responsible for accuracy of shop drawings submitted by customer through Basin Configurator. Submission of shop drawings for purchase and fabrication constitute an approval for production as designed by customer.

Nyloplast
A division of ADS

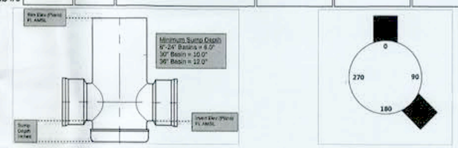
WEIR BASIN SHOP DRAWING

PO#:
Part Number: 2824AG10WE
Customer approval:

Project Name: Bogner - Life Celebration Center | Dia.: 24 | Structure No.: 3 | Qty.: 1
Prepared By: Ty Bell, Adaptive Engineering Group, 440-444-1022, tbell@adaptiveeng.com
Grate: 24; Standard;
Accessories: Weir Plate - 1; Straight Plate;

Rim Elev.: 727.20 ft. | Basin Height: 80.4 in. | Sump Depth: 12.00 in.

	Stub size	Angle	Pipe Type	Invert Elev. ft. AMSL	Production Depth inches	Weir Elevation Stub(s) Covered
Stub #1	6 in.	0 °	PVC SDR-35	721.50 ft.	68.40 in.	725.95 ft.
Stub #2	8 in.	0 °	PVC SDR-35	725.95 ft.	15.00 in.	
Stub #3	8 in.	135 °	PVC SDR-35	721.50 ft.	68.40 in.	
Stub #4						
Stub #5						
Stub #6						



CUSTOMER NOTES | PART CODES

2499CGS;

Stub Covered	Orifice Diameter
1	0.4 in.

Weir Height	Orifice Invert
65.400000000001 in.	68.400000000001 in.

This product is made to order and non-Refundable
Nyloplast, 3130 Verona Ave. Buford, GA 30518. (866) 888-8479
Nyloplast® is a registered trademark of Advanced Drainage Systems®

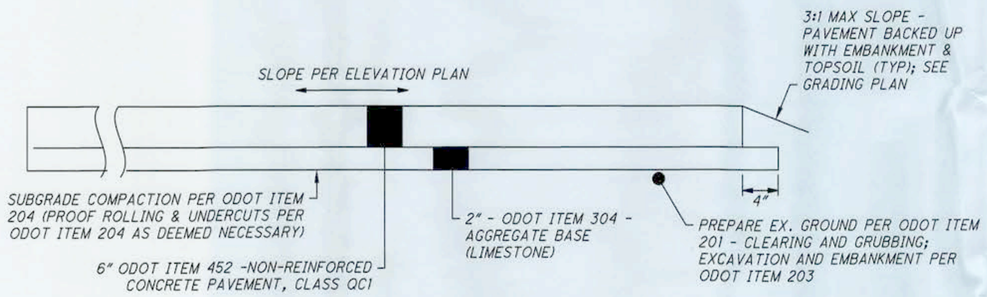
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GENERAL NOTES AND DETAILS

NORTH RIDGEVILLE, OH

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TYPICAL UNCURBED SECTION - CONCRETE PAVEMENT (DRIVEWAY / PARKING LOT)

(NOT TO SCALE)

UTILITIES:
THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C. THEY ARE APPROXIMATE ONLY, THE ENGINEER AND OWNER CANNOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL UTILITIES AS TO LINE AND GRADE BEFORE STARTING ANY WORK.

PROTECTION OF EXISTING UTILITIES AND PIPES
THE CONTRACTOR SHALL BE REQUIRED, TO DO EVERYTHING NECESSARY TO PROTECT, SUPPORT AND SUSTAIN ALL STORM SEWERS, WATER AND GAS PIPES, SERVICE PIPES, ELECTRIC LIGHTS, POWER AND TELEPHONE POLES, CONDUIT AND OTHER FIXTURES LAID ACROSS OR ALONG THE SITE OF THE WORK. THE COMPANY OR CORPORATION OWNING SAID PIPES, POLES OR CONDUITS MUST BE NOTIFIED OF THE SAME BY THE CONTRACTOR, BEFORE ANY SUCH FIXTURES ARE REMOVED OR DISTURBED. IN CASE ANY OF THE SAID SEWER, GAS OR WATER PIPES, SERVICE PIPES, ELECTRICAL LIGHT, POWER AND TELEPHONE POLES, CONDUITS OR OTHER FIXTURES ARE DAMAGED THEY SHALL BE REPAIRED BY THE AUTHORITIES HAVING CONTROL OF THE SAME AT NO ADDITIONAL COST TO THE OWNER.

SHOULD IT BECOME NECESSARY TO CHANGE THE POSITION, OR TEMPORARILY REMOVE ANY STORM SEWER, SANITARY SEWER, ELECTRIC CONDUITS, WATER PIPES, GAS PIPES OR OTHER PIPES OR WIRES IN ORDER TO PERMIT THE CONTRACTOR TO USE A PARTICULAR METHOD OF CONSTRUCTION OR IN ORDER TO CLEAR THE STRUCTURES BEING BUILT, THE CONTRACTOR SHALL NOTIFY THE OWNER OF THE LOCATION AND CIRCUMSTANCES AND SHALL CEASE WORK, IF NECESSARY, UNTIL SATISFACTORY ARRANGEMENTS HAVE BEEN MADE BY THE OWNERS OF SAID PIPES OR WIRES TO PROPERLY CARE FOR THE SAME.

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

OHIO Utilities Protection SERVICE — *Call Before You Dig* 1-800-362-2764

(Non-members must be called directly)

OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE
1-800-925-0988

CROSSING AND CONNECTIONS TO EXISTING PIPES AND UTILITIES
WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING SEWER OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE OWNER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE OWNER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

EXISTING UNDERGROUND UTILITIES NOTE:
THE SIZE & LOCATION, BOTH HORIZONTAL AND VERTICAL, OF THE UNDERGROUND UTILITIES SHOWN HEREON, HAVE BEEN OBTAINED BY A SEARCH OF AVAILABLE RECORDS. VERIFICATION BY FIELD OBSERVATION HAS BEEN CONDUCTED WHERE PRACTICAL. HOWEVER, FE. KROCKA & ASSOCIATES, INC. AND AEG DO NOT GUARANTEE THE COMPLETENESS NOR ACCURACY THEREOF.

SANITARY SEWER SERVICE NOTES:
THE PROPOSED CONNECTION LINE CONSISTS OF A 6" SANITARY LINE CONNECTED TO THE EXISTING 6" SANITARY LINE. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CITY'S UTILITY DEPARTMENT.

VERTICAL AND HORIZONTAL CLEARANCE NOTE:
18" MINIMUM VERTICAL CLEARANCE AND 10' HORIZONTAL CLEARANCE SHALL BE MAINTAINED BETWEEN ALL WATER AND/OR SANITARY SERVICES AND MAINS.

WATER SERVICE NOTES:
THE CONTRACTOR SHALL COORDINATE WITH THE CITY'S UTILITY DEPARTMENT ON THE PERFORMING THE WATER SERVICE TAP, VALVE LOCATION AND CITY REQUIREMENTS. CONTACT THE UTILITY DEPARTMENT AT LEAST 48 HOURS IN ADVANCE. INSTALL WATER SERVICES PER CITY SPECIFICATIONS.

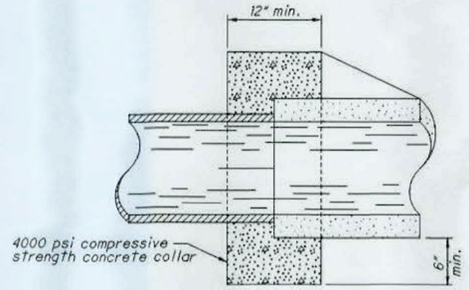
STORM SEWERS AND DRAINAGE STRUCTURES NOTES:
STORM SEWERS AND STRUCTURES SHALL BE CONSTRUCTED PER ODOT ITEM 611. CATCH BASINS SHALL BE PER NYLOPLAST (OR EQUIVALENT).

BEDDING AND BACKFILL SHALL BE PER DETAILS WITHIN THE PLANS (THIS PAGE).

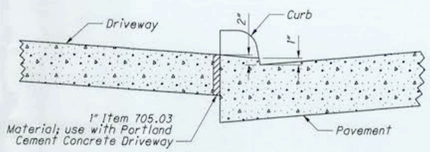
STORM SEWERS SHALL BE PVC (SDR 35).

ALL CONNECTIONS SHALL BE SOIL TIGHT AND CONDUITS SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.

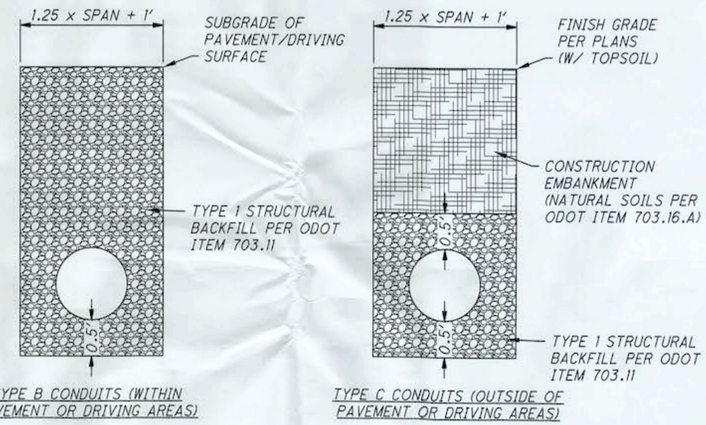
MASONRY COLLARS (STORM)
THE CONTRACTOR SHALL PROVIDE A MASONRY COLLAR WHERE PLANS REQUIRE THAT A PIPE EXTENSION BE JOINED TO THE END OF AN EXISTING PIPE WITH A BUTT JOINT OR ON THE LAST JOINT IF FIELD CUTTING IS NECESSARY TO MEET A STRUCTURE OR HEADWALL. SEE BELOW DETAIL.



MASONRY COLLAR



DROP CURB DETAILS AT DRIVEWAYS



TYPE B CONDUITS (WITHIN PAVEMENT OR DRIVING AREAS)

TYPE C CONDUITS (OUTSIDE OF PAVEMENT OR DRIVING AREAS)

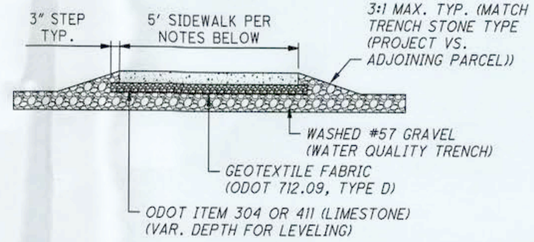
PROPOSED PROJECT STORM AND SANITARY SEWER TRENCH DETAILS (BY TYPE) - NON-PERFORATED



ACCESSIBLE PARKING SIGNAGE

* LOCATIONS AS DESIGNATED ON PROPOSED CONDITIONS SITE PLAN

BOTTOM OF SIGN TO BE MOUNTED 5' ABOVE GRADE. SIGNS AND SIGN POST SHALL BE PER ODOT ITEM 630. POST SHALL BE NO. 2 AND INSTALLED PER ODOT SCD TC-41.20.



CONNECTOR SIDEWALKS (OVER STONE TRENCHES)

INSTALL 6 X 6 #8/8 MESH IN CONNECTOR SIDEWALKS THAT JOIN THE PROJECT AREA TO THE ADJOINING PARCEL'S PARKING LOT TO THE NORTH. LAP WIRE MESH MINIMUM 6" ON SIDE AND 12" ON ENDS. EXTEND TO WITHIN 2" OF EDGES. WHILE POURING, SUPPORT MESH SO THAT MESH IS A MINIMUM 2" FROM BOTTOM OF CONCRETE. CARRY MESH REINFORCEMENT THROUGH CONSTRUCTION JOINTS. SIDEWALKS SHALL BE 4" MIN. DEPTH AND PER ODOT ITEM 608.

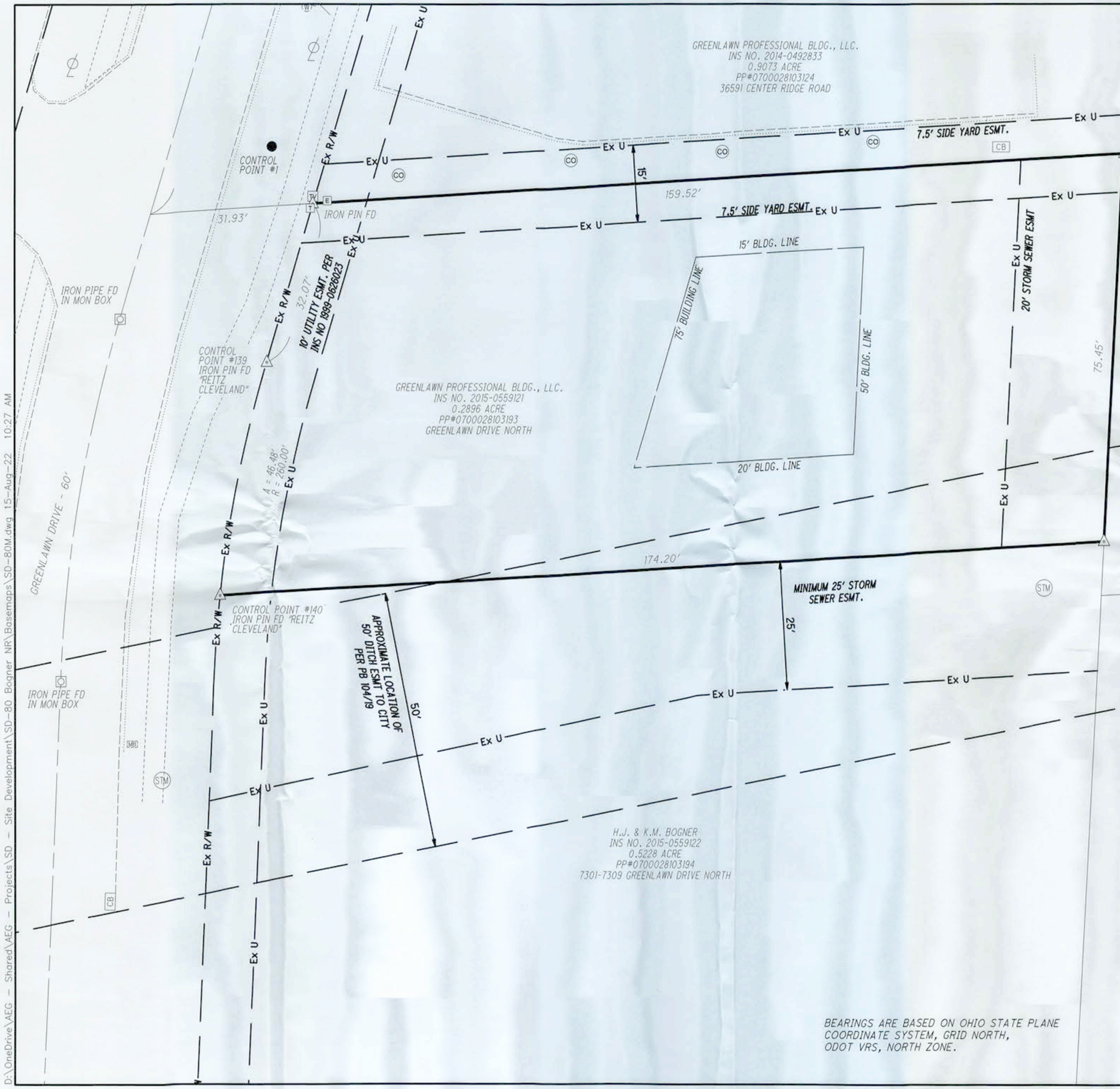
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GENERAL NOTES AND DETAILS

NORTH RIDGEVILLE, OH

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LEGEND

- MB MAILBOX
- TV T.V. PEDESTAL
- T TELEPHONE PEDESTAL
- E ELECTRIC BOX
- LIGHTPOLE
- HYDRANT
- WV WATER VALVE
- 5/8" DIAMETER, 30" LONG IRON PIN SET WITH CAP STAMPED "CONTROL POINT"

HORIZONTAL SCALE IN FEET
0 10 20

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SURVEY NOTES:

UTILITY NOTE:
THE LOCATIONS OF THE UTILITIES SHOWN ON THIS SURVEY ARE BASED UPON OBSERVED EVIDENCE TOGETHER WITH EVIDENCE FROM PLANS OBTAINED FROM UTILITY COMPANIES, CLIENT, MUNICIPALITY, OR THROUGH MARKINGS PLACED BY OHIO811 REQUESTS. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY, AND/OR RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.

OUPS TICKET NUMBERS: A215000224 & A215000225

TITLE NOTE:
A TITLE COMMITMENT OR ABSTRACT OF TITLE HAS NOT BEEN PROVIDED TO, OR PERFORMED BY, THE SURVEYOR. THE PARCEL(S)/AREA SHOWN ON THIS SURVEY MAY BE SUBJECT TO, OR BENEFIT FROM, EASEMENTS, RIGHTS OF WAY, RESTRICTIONS, OR AGREEMENTS, WRITTEN OR OTHERWISE, NOT SHOWN HEREIN.

PROPERTY IS ZONED: B-5 (ARCHITECTURAL BUSINESS DISTRICT)

BUILDING SETBACK LINES:
FRONT: 75' FROM RIGHT-OF-WAY
SIDES: 15' MIN - SUM 35'
REAR: 50'

SUBJECT PROPERTY IS LOCATED IN ZONE X ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 39093C0144D - EFFECTIVE DATE AUGUST 19, 2008

BOUNDARY DRAWN FROM FOUND MONUMENTATION AND INFORMATION OF RECORD (SURVEY BY THE HENRY G. REITZ ENGINEERING COMPANY DATED AUGUST, 2015)

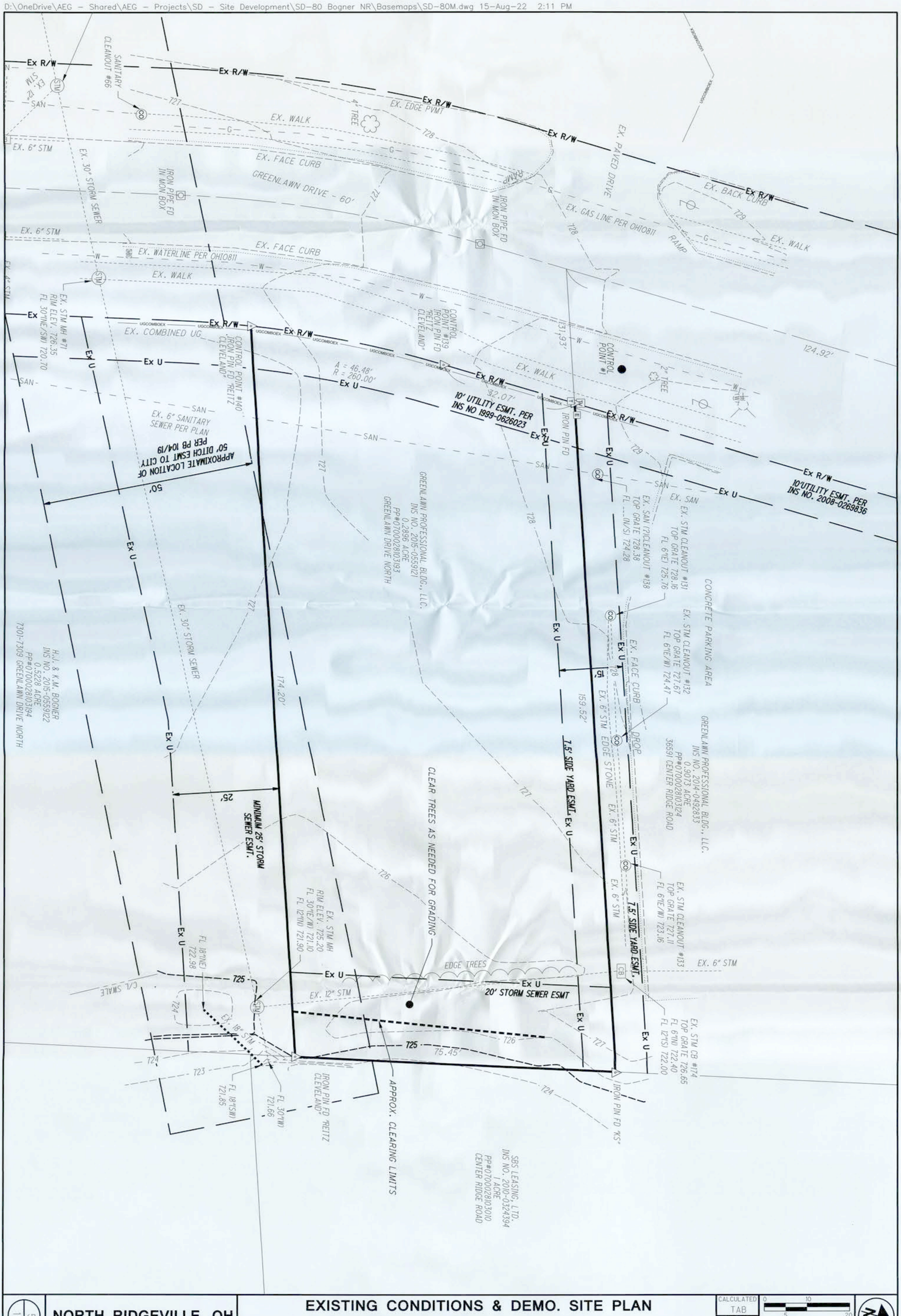
HORIZONTAL/VERTICAL CONTROL: NAVD 88 - STATE PLANE NORTH ZONE

NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	627086.89	2098206.34	728.83	ipset
139	627046.53	2098217.65	727.84	ipfd
140	627000.35	2098222.15	726.77	ipfd

SURVEY SITE PLAN
BOGNER - LIFE CELEBRATION CENTER
NORTH RIDGEVILLE, OH

4/13

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5 of 13	NORTH RIDGEVILLE, OH	EXISTING CONDITIONS & DEMO. SITE PLAN BIGNER - LIFE CELEBRATION CENTER	CALCULATED TAB CHECKED MDH	0 10 20 HORIZONTAL SCALE IN FEET

NOTE:

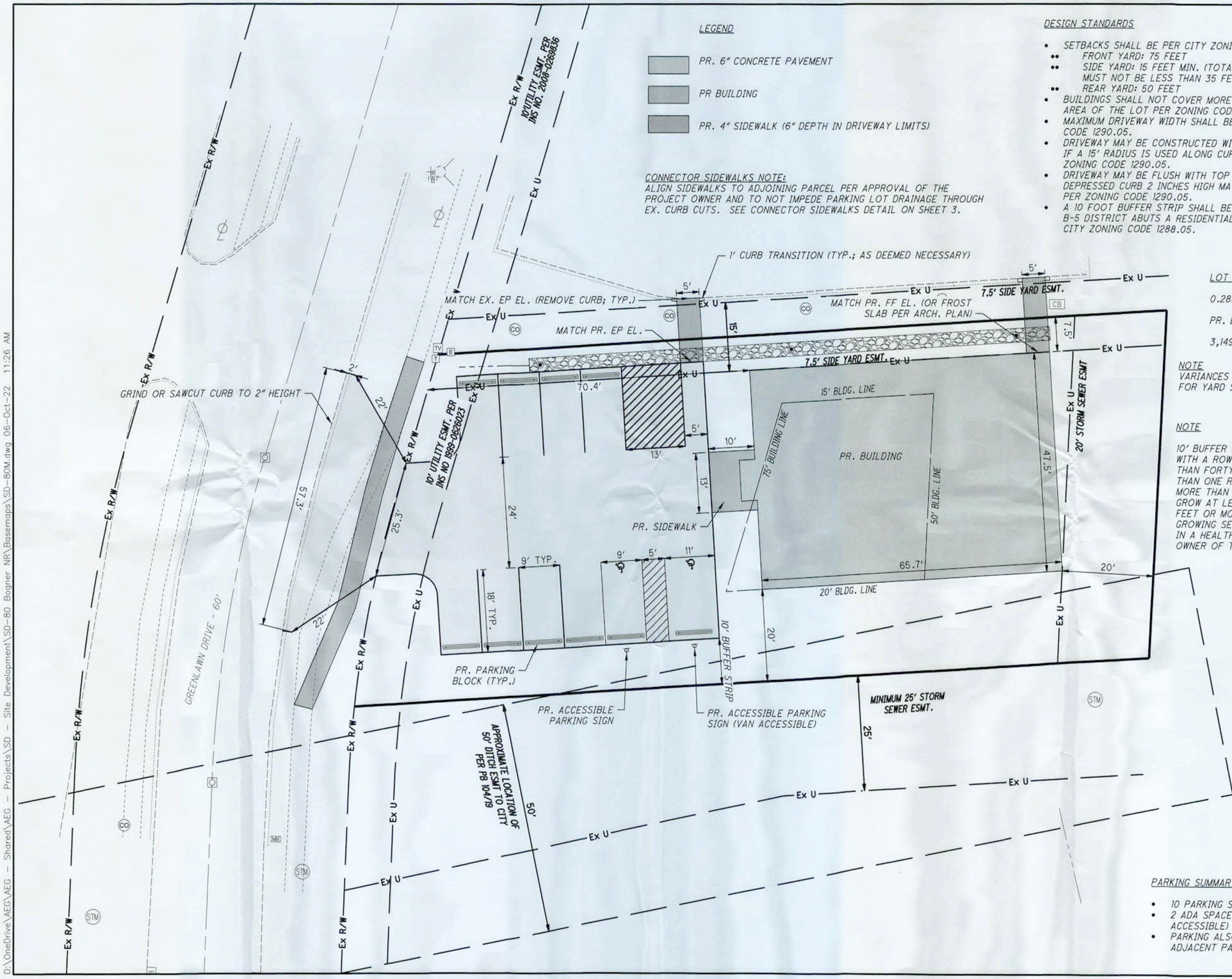
NORTHSIDE DOWNSPOUTS SHALL BE "SPLASH" W/ SPLASH BLOCKS DIVERTING FLOW INTO THE WQV TRENCH. SOUTH SIDE DOWNSPOUTS SHALL CONNECT TO NYLOPLAST STRUCTURE NO. 1 VIA A 6" PVC (SDR 35) PIPE.

Ex R/W
10' UTILITY ESMT. PER INS NO. 2008-0269836
Ex U
EX. SAN
EX. STM CLEANOUT #131 TOP GRATE 728.16 FL 6"(E) 725.76
EX. STM CLEANOUT #132 TOP GRATE 727.67 FL 6"(E/W) 724.47
EX. STM CLEANOUT #133 TOP GRATE 727.11 FL 6"(E/W) 723.16
EX. STM CB #174 TOP GRATE 726.65 FL 6"(N) 722.40 FL 12"(S) 722.00
EX. SAN (?)CLEANOUT #138 TOP GRATE 728.38 FL ___(N/S) 724.28
PR. UNDERDRAINS
7.5' SIDE YARD ESMT.
EX. 6" STM
NYLOPLAST STRUCTURE NO. 3
PR. (114'x3') WQV TRENCH (SEE DETAIL ON SHEET 13)
NYLOPLAST STRUCTURE NO. 1 CONNECT 6" DOWNSPOUT (SE) @ E = 725.95
NYLOPLAST STRUCTURE NO. 2
4" E = 726.75
PR. 4" DOWNSPOUT CONNECTION FOR VESTIBULE DOWNSPOUTS ONLY
SEE ELECTRIC PLANS FOR ELECTRIC ENTRY
20' STORM SEWER ESMT
10' UTILITY ESMT. PER INS NO 1999-0026023
121' - 8" @ 0.66%
PR. 1" WATER LINE; (CONNECT TO BUILDING PER PLUMBING PLANS)
PR. CURB BOX WITH SHUTOFF
PR. 6" DOWNSPOUT CONNECTION
6" E = 726.60
6" E = 726.30
GREENLAWN DRIVE - 60'
PR. SANITARY CLEANOUT
BENDS MADE VIA. 2-45° FITTINGS CONVERT 4" DOWNSPOUT TO 6"
BENDS MADE VIA. 2-45° FITTINGS
EX. STM MH RIM ELEV. 725.20 FL 30"(E/W) 721.10 FL 12"(N) 721.90
ALL BENDS MADE WITH 45° (MAX.) BEND FITTINGS (TYP.)
CONNECT PR. SANITARY TO EX. SANITARY SEWER
PR. 6" SANITARY SERVICE (1% MIN.); CONNECT TO BUILDING PER PLUMBING PLANS
MINIMUM 25' STORM SEWER ESMT.
APPROXIMATE LOCATION OF 50' DITCH ESMT TO CITY PER PB 104/19
EX. 30" STORM SEWER
EX. 6" SANITARY SEWER PER PLAN
EX. COMBINED UG
EX. WATERLINE PER OH1081
EX. GAS LINE PER OH1081
SANITARY CLEANOUT #66
CONNECT PR. 8" (N) @ E = 720.70
EX. STM MH #71 RIM ELEV. 726.35 FL 30"(NE/SW) 720.70
FL 30"(W) 721.66
FL 18"(SW) 721.85
FL 18"(NE) 722.98
EX. 18" STM
EX. 12" STM
EX. 4" STM
C/L SWALE

HORIZONTAL SCALE: IN FEET
0 5 10 20
CALCULATED TAB
CHECKED MDH

UTILITY SITE PLAN
BOGNER - LIFE CELEBRATION CENTER
NORTH RIDGEVILLE, OH
6
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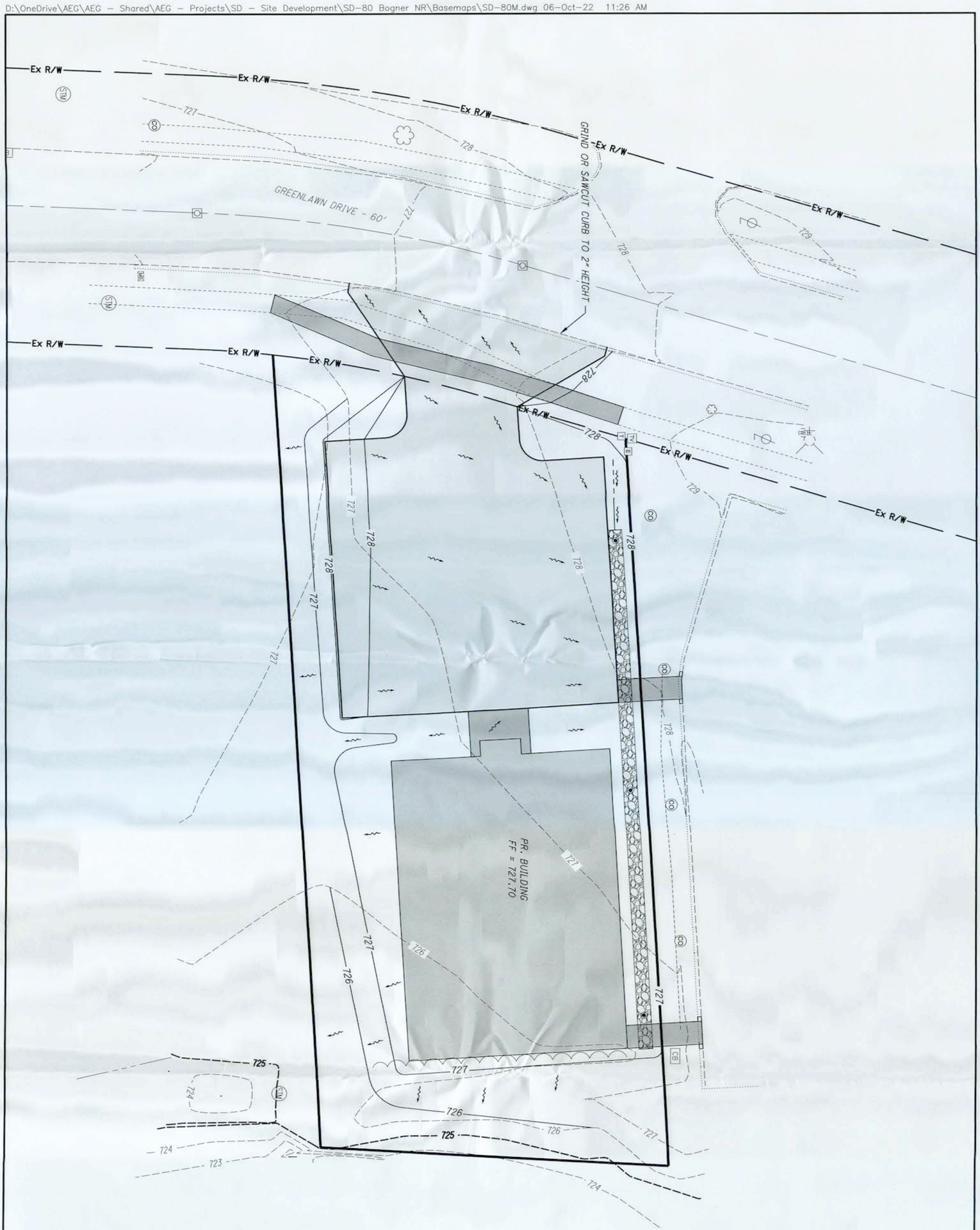
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HORIZONTAL SCALE IN FEET
0 5 10 20
CALCULATED TAB
CHECKED MDH

PROPOSED CONDITIONS SITE PLAN (NO CONTOURS)
BOGNER - LIFE CELEBRATION CENTER
NORTH RIDGEVILLE, OH

7/13

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8/13	NORTH RIDGEVILLE, OH	PROPOSED CONDITIONS SITE PLAN (CONTOURS) BOGNER - LIFE CELEBRATION CENTER	CALCULATED TAB CHECKED MDH	0 10 5 20 HORIZONTAL SCALE IN FEET	N

LEGEND

PR. PAVEMENT ELEVATION (UNLESS OTHERWISE NOTED)
EX. PAVEMENT ELEVATION

EP = EDGE OF PAVEMENT
EX. = EXISTING
FF = FINISH FLOOR
PR. = PROPOSED
SW = SIDEWALK
TC = TOP OF CURB
T/C = TOP OF CASTING
T/G = TOP OF GRATE
NOTE: ADD 0.5 TO PR. PAVEMENT ELEVATION @ CURBED LOCATIONS FOR TC ELEVATION (UNLESS OTHERWISE INDICATED)

728.64 (MATCH EX.)
728.64
728.52 (MATCH EX.)
728.52
TV
E
T
℄ = 727.5
CO
TOP GRAVEL BANK 727.40
T/G = 727.20
727.40 (EP/SW)
727.88
T/G = 727.20
38' @ 0%
16' @ 1.25%
727.60 (EP)
728.31
727.40 (EP)
728.29
EX R/W
GRIND OR SAWCUT CURB TO 2" HEIGHT
727.80 (EP/SW)
727.85 (EP/SW)
727.65 (EP)
727.89
728.00 (EP)
727.95
GREENLAWN DRIVE - 60'
MAINTAIN SIDEWALK CROSS SLOPE
(1.5% MAX.) THRU DRIVEWAY
21.8' @ 0.7%
60' @ 1.17%
19.7' @ 1.0%
727.55 (EP/SW)
727.40
10' @ 1.5%
727.70 (FF/SW)
727.28
PR. BUILDING
FF = 727.70
13' @ 0.38%
727.60 (EP/SW)
727.07
ADA
ACCESSIBLE
AREA
10' @ 1.0%
727.70 (FF/SW)
726.98
27.3' @ 1.83%
728.00 (EP)
727.32
727.85 (EP)
727.22
727.85 (EP/SW)
727.80 (EP/SW)
728.10 (EP)
726.98
728.10 (EP)
726.50
61' @ 0%
726.86 (MATCH EX.)
726.86
726.94 (MATCH EX.)
726.94
EX R/W

NOTE:

ALL SIDEWALKS AND ADA ACCESSIBLE AREAS SHALL BE @ 1.5% PREFERRED MAX (2% ABSOLUTE MAX.) SLOPE IN ALL DIRECTIONS

HORIZONTAL SCALE IN FEET
0 2.5 5 10
CALCULATED TAB
CHECKED MDH

PROPOSED ELEVATIONS SITE PLAN
BOGNER - LIFE CELEBRATION CENTER
NORTH RIDGEVILLE, OH
9
13

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LAND USE:

THE CURRENT LAND USE CONSISTS OF A GRASSED LOT.

THE PROPOSED LAND USE CONSISTS OF A PROPOSED BUILDING, CONCRETE PAVEMENT PARKING LOT, AND A WQV STONE TRENCH.

SOIL DATA:

SEE SOILS MAP ON SHEET 11.

RECEIVING WATERS:

IMMEDIATE: STORM SEWER

SUBSEQUENT RECEIVING WATERS: RETENTION POND LOCATED TO SOUTHWEST OF PROJECT PARCEL.

POST CONSTRUCTION STORMWATER PRACTICES:
POST CONSTRUCTION BMP'S CONSIST OF A WATER QUALITY STONE TRENCH.

CONSTRUCTION BMP'S SHALL REMAIN ON-SITE UNTIL THE ESTABLISHMENT OF PROJECT VEGETATION HAS OCCURRED.

FINAL STABILIZATION IS DEFINED AS ESTABLISHING A VEGETATIVE GROUND COVER OF AT LEAST 70% GROWTH DENSITY, OR OTHER MEANS OF PERMANENT STABILIZATION, OVER THE ENTIRE AREA DISTURBED BY CONSTRUCTION ACTIVITIES. FINAL STABILIZATION ALSO REQUIRES THAT ALL TEMPORARY SEDIMENT AND EROSION CONTROLS BE REMOVED FROM THE PROPERTY AND ALL SEDIMENT THAT WAS TRAPPED BY THOSE CONTROLS TO BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION.

QUALITY OF STORMWATER DISCHARGE:

THE QUALITY OF ALL WATER DISCHARGED FROM THIS SITE SHALL BE DESCRIBED AS TREATED PER THE OHIO RAINWATER AND LAND DEVELOPMENT MANUAL FOR BOTH PRE AND POST DEVELOPMENT CONDITIONS.

PROJECT SPECIFIED CONSTRUCTION BMP'S (SEE NEXT PAGE)

- CONSTRUCTION SEEDING AND MULCHING
- PERMANENT SEEDING & MULCHING
- PERIMETER FILTER FABRIC FENCE/SOCK
- INLET PROTECTIONS
- CONCRETE WASHOUTS
- CONSTRUCTION ENTRANCE
- WQV TRENCH

PROJECT POTENTIAL CONSTRUCTION BMP'S

- DEWATERING

PROJECT SPECIFIC BMP NOTES

CONCRETE WASHOUTS

CONCRETE WASHOUT LOCATIONS SHALL REMAIN ON-SITE AND AT LEAST 100 FT AWAY FROM BODIES OF WATER. WASHOUT WATER SHALL NOT ENTER ANY STORM SEWER OR WATER BODY.

FOR ADDITIONAL CONCRETE WASHOUT INFORMATION, SEE CITY SWPP NOTES AND NR SCD SWP-33.

WQV TRENCH CALCS

TOTAL DRAINAGE AREA TO WQV TRENCH = 8,663 SF = 0.20 ACRES
IMPERVIOUS AREA = 7,017 SF = 0.16 ACRES
WQV REQUIRED = 506 CF + 20% SEDIMENT STORAGE = 607 CF
WQV PROVIDED = 114' x 3' x 4.45' x 40% VOIDS = 609 CF

PEAK DISCHARGE CONTROL

DETENTION BASIN BUILT WITH PREVIOUS PHASE WAS SIZED FOR BUILT-OUT CONDITIONS FOR THE PROJECT AREA. WQV TREATMENT PROVIDED BY THIS PROJECT.

PROJECT SPECIFIC BMP NOTES

PERIMETER FILTER FABRIC FENCE AND 12" SOCK

INSTALL FENCE PER NORTH RIDGEVILLE SCD SWP-18 OR 12" FILTER SOCK PER SCD SWP-25. SMALL GAPS IN THE INSTALLED FENCE MAY BE LEFT FOR ACCESS POINTS TO THE PROPOSED WORK, EVEN THOUGH OTHERWISE SHOWN IN THE PLAN.

INLET PROTECTIONS

INSTALL INLET PROTECTIONS PER DETAIL LOCATED ON THIS SHEET.

WQV TRENCH
INSTALL PER DETAILS SHOWN IN THE PLANS. TRENCH SHOULD BE INSTALLED ONCE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED (70% GRASS GROWTH DENSITY).

CONSTRUCTION ENTRANCES

CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED PER NORTH RIDGEVILLE SCD SWP-27.

PROJECT FUELING

PROJECT EQUIPMENT FUELING LOCATIONS SHALL REMAIN ON-SITE AND AT LEAST 100 FT AWAY FROM BODIES OF WATER. PROJECT FUELING SHALL NOT OCCUR IN THE VICINITY OF STORM SEWER STRUCTURES.

SEE "ADDITIONAL CONSTRUCTION SITE POLLUTION CONTROLS" NOTE #5.

STAGING AND STORAGE AREAS

PROJECT STAGING AND STORAGE LOCATIONS SHALL REMAIN ON-SITE AND AT LEAST 100 FT AWAY FROM BODIES OF WATER.

CONSTRUCTION SEEDING & MULCHING

INSTALL PER CITY SWPPP NOTES AND DETAILS.

PERMANENT SEEDING & MULCHING

INSTALL PER CITY SWPPP NOTES AND DETAILS.

DEWATERING

DEWATERING AREAS SHALL REMAIN ONSITE AND AT LEAST 100 FT AWAY FROM WETLANDS AND BODIES OF WATER. UNTREATED TURBID WATER SHALL NOT ENTER ANY STORM SEWER.

THERE SHALL BE NO TURBID DISCHARGES FROM THE PROJECT RESULTING FROM DEWATERING ACTIVITIES. IF TRENCH OR GROUND WATER CONTAINS SEDIMENT, IT SHALL PASS THROUGH A SEDIMENT SETTLING POND OR OTHER EQUALLY EFFECTIVE SEDIMENT CONTROL DEVICE, PRIOR TO BEING DISCHARGED FROM THE CONSTRUCTION SITE. ALTERNATIVELY, SEDIMENT MAY BE REMOVED BY SETTLING IN PLACE OR BY DEWATERING INTO A SUMP PIT, FILTER BAG OR COMPARABLE PRACTICE. GROUND WATER WHICH DOES NOT CONTAIN SEDIMENT OR OTHER POLLUTANTS IS NOT REQUIRED TO BE TREATED PRIOR TO DISCHARGE. HOWEVER, CARE MUST BE TAKEN WHEN DISCHARGING GROUND WATER TO ENSURE THAT IT DOES NOT BECOME POLLUTANT LADEN BY TRAVERSING OVER DISTURBED SOILS OR OTHER POLLUTANT SOURCES.

FOR ADDITIONAL INFORMATION, SEE NR SCD SWP-15.

IMPLEMENTATION SCHEDULE

WORK ITEM	BMP CONTROL REQUIREMENTS
SITE PREPARATION FOR CONSTRUCTION	CONSTRUCTION ENTRANCE; FILTER FABRIC FENCE/SOCK
SITE CONSTRUCTION	MAINTAIN INSTALLED BMPS'; CONCRETE WASHOUTS SHALL BE IN PLACE PRIOR TO CONCRETE ARRIVING ON SITE; TEMPORARILY STABILIZE AREAS THAT ARE NOT AT FINAL GRADE OR PERMANENTLY STABILIZE AREAS THAT ARE AT FINAL GRADE; INLET PROTECTIONS ON NEW CATCH BASINS
FINAL GRADING	STABILIZE PROJECT EARTH DISTURBED AREAS; MAINTAIN ALL INSTALLED PROJECT BMP'S
WQV TRENCH	RE-STABILIZE ANY DISTURBED AREAS; REMOVE INLET PROTECTIONS AND PERIMETER CONTROLS; INSTALL WQV TRENCH ONCE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED

ADS INLET FILTERS LITE FOR NYLOPLAST BASIN

ADS INLET FILTER LITE FOR PEDESTRIAN NYLOPLAST ROUND GRATES

GRATE SIZE	LITE P/N	BAG DEPTH	BAG CAPACITY (FT^3)	FLOW RATE (CFS)
8" DIA	62LITENY08	22"	0.2	0.9
10" DIA	62LITENY10	22"	0.3	1.2
12" DIA	62LITENY12	22"	0.4	1.4
15" DIA	62LITENY15	22"	0.6	1.7
18" DIA	62LITENY18	22"	0.9	2.1
24" DIA	62LITENY24	22"	1.6	2.8
30" DIA	62LITENY30	22"	2.8	3.6

Note: All dome grates will need dome hanger kits supplied by Nyloplast.

ADS INLET FILTER LITE FOR PEDESTRIAN NYLOPLAST SQUARE/RECTANGULAR GRATES

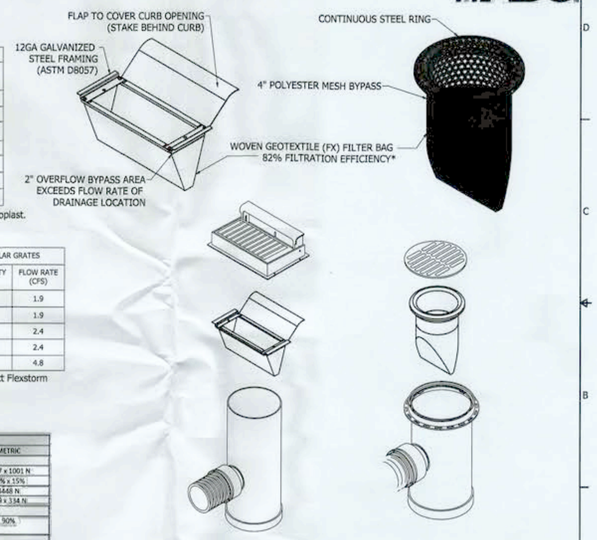
GRATE SIZE	LITE P/N	BAG DEPTH	BAG CAPACITY (FT^3)	FLOW RATE (CFS)
2' X 2' ROAD & HWY BASIN	62LITENY22	22"	3.1	1.9
2' X 2' CURB INLET BASIN	62LITENYCB22	22"	3.1	1.9
2' X 3' ROAD & HWY BASIN	62LITENY2436	22"	4.7	2.4
2' X 3' CURB INLET BASIN	62LITENYCB2436	22"	4.7	2.4
2' X 3' DUAL CURB INLET	62LITEDUAL2436	22"	9.4	4.8

Note: Road & Highway inlets require special consideration. Contact Flexstorm with basin information to order.

FX FABRIC SPECIFICATIONS: 82%* FILTRATION EFFICIENCY

PROPERTY	TEST METHOD	ENGLISH	METRIC
MECHANICAL			
TENSILE STRENGTH	ASTM D4632	350 x 225 Lbs	1557 x 1001 N
ELONGATION	ASTM D4632	20% x 15%	20% x 15%
CBR PUNCTURE	ASTM D6241	1000 Lbs	4448 N
TRAPEZOIDAL TEAR	ASTM D4533	110 x 75 Lbs	489 x 334 N
ENDURANCE			
UV RESISTANCE % RETAINED AT 500 HRS	ASTM D4355	90%	90%
HYDRAULIC			
APPARENT OPENING SIZE (AOS)	ASTM D4751	70 US STD SIEVE	0.850 mm
PERCENT OPEN AREA (POA)	CW-02215 Mod[1]	17 %	17 %
PERMITTIVITY	ASTM D4491	1.5 sec[-1]	1.5 sec[-1]
WATER FLOW RATE	ASTM D4491	200 gal/min/ft[2]	8145 l/min/m[2]

*Filtration Efficiency Per TRI Environmental ASTM D 7351
**Meets ASTM D8057 Standard Specifications for Inlet Filters with a Rigid Frame



INSTALLATION INSTRUCTIONS
1. Remove grate from the drainage structure.
2. Clean stone and dirt from ledge/lip of the drainage structure.
3. Place Flexstorm filter frame in the clear opening such that the hangers rest firmly on the ledge/lip of the structure.
4. Replace the grate and confirm it is not elevated more than 1/8", the thickness of the steel hangers.

DRAWN	1/25/2021	ADS INLET FILTERS
CHECKED		NYLOPLAST LITE SUBMITTAL
QA		
QUAL ENGR	1/26/2021	SIZE C; DWG NO; REV; SCALE 1/8; SHEET 1 OF 1

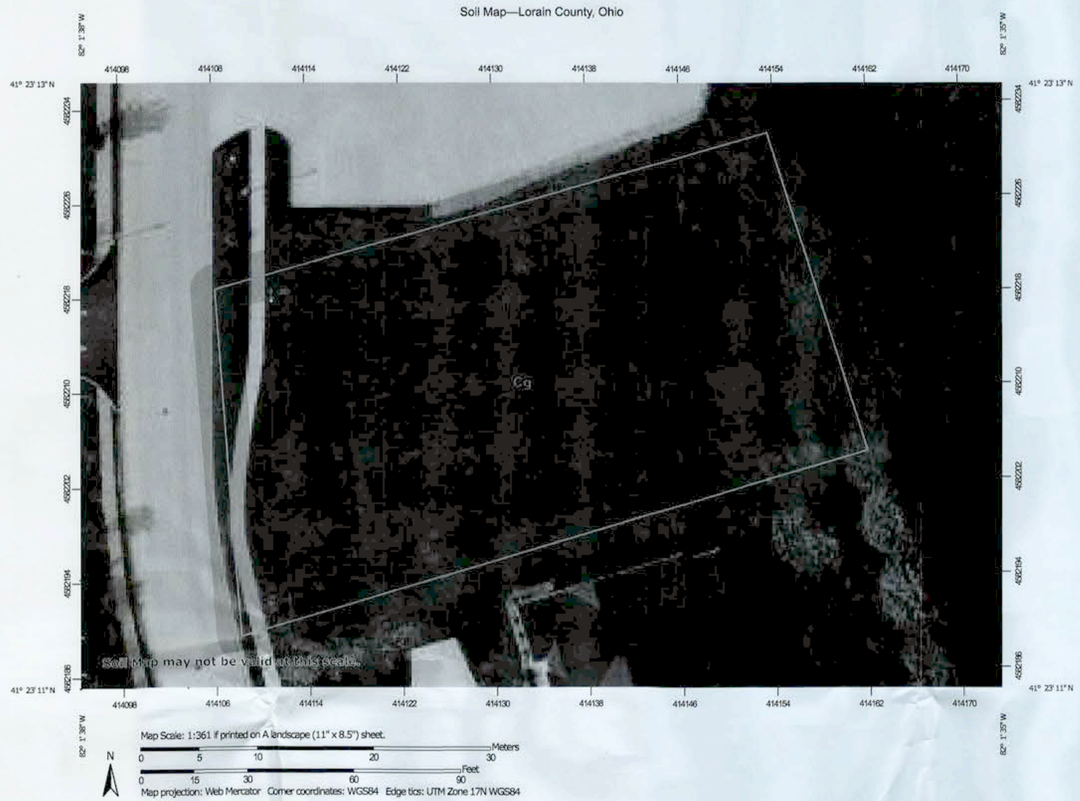
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STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

NORTH RIDGEVILLE, OH

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Lorain County, Ohio

Cg—Carlisle mucky silt loam

Map Unit Setting
National map unit symbol: 9nf0
Elevation: 700 to 1,200 feet
Mean annual precipitation: 34 to 43 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Carlisle and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Carlisle

Setting
Landform: Depressions
Parent material: Herbaceous organic material and/or woody organic material

Typical profile
H1 - 0 to 16 inches: mucky silt loam
O - 16 to 60 inches: muck

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 13.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F139XY013OH - Mucky Depression
Forage suitability group: Unnamed (G139XYD-1OH)
Other vegetative classification: Unnamed (G139XYD-1OH)
Hydric soil rating: Yes

Minor Components

Areas with less than 42 inches of organic material
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Lorain County, Ohio
Survey Area Data: Version 20, Sep 8, 2021

CONTRACTOR SIGNATURE LIST *

SIGNATURE	PRINTED NAME	TITLE	COMPANY	DATE

* ALL CONTRACTORS AND SUBCONTRACTORS THAT ARE RESPONSIBLE FOR ANY PROJECT RELATED EARTH DISTURBING ACTIVITY SHALL SIGN THE ABOVE TABLE PRIOR TO COMMENCEMENT OF WORK.

CALCULATED TAB
CHECKED MDH

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

NORTH RIDGEVILLE, OH

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SWPPP AMENDMENT LOG

AMENDMENT #	DATE	DESCRIPTION	SWPPP INSPECTOR SIGNATURE	SWPPP ENGINEER SIGNATURE

GRADING / STABILIZATION LOG

DATE OF EARTH DISTURBING ACTIVITY (EDA) BEGIN	EDA DESCRIPTION	DATE OF EARTH DISTURBING ACTIVITY (EDA) END	DATE STABILIZED	STABILIZATION DESCRIPTION WITH LOCATION ON PROJECT

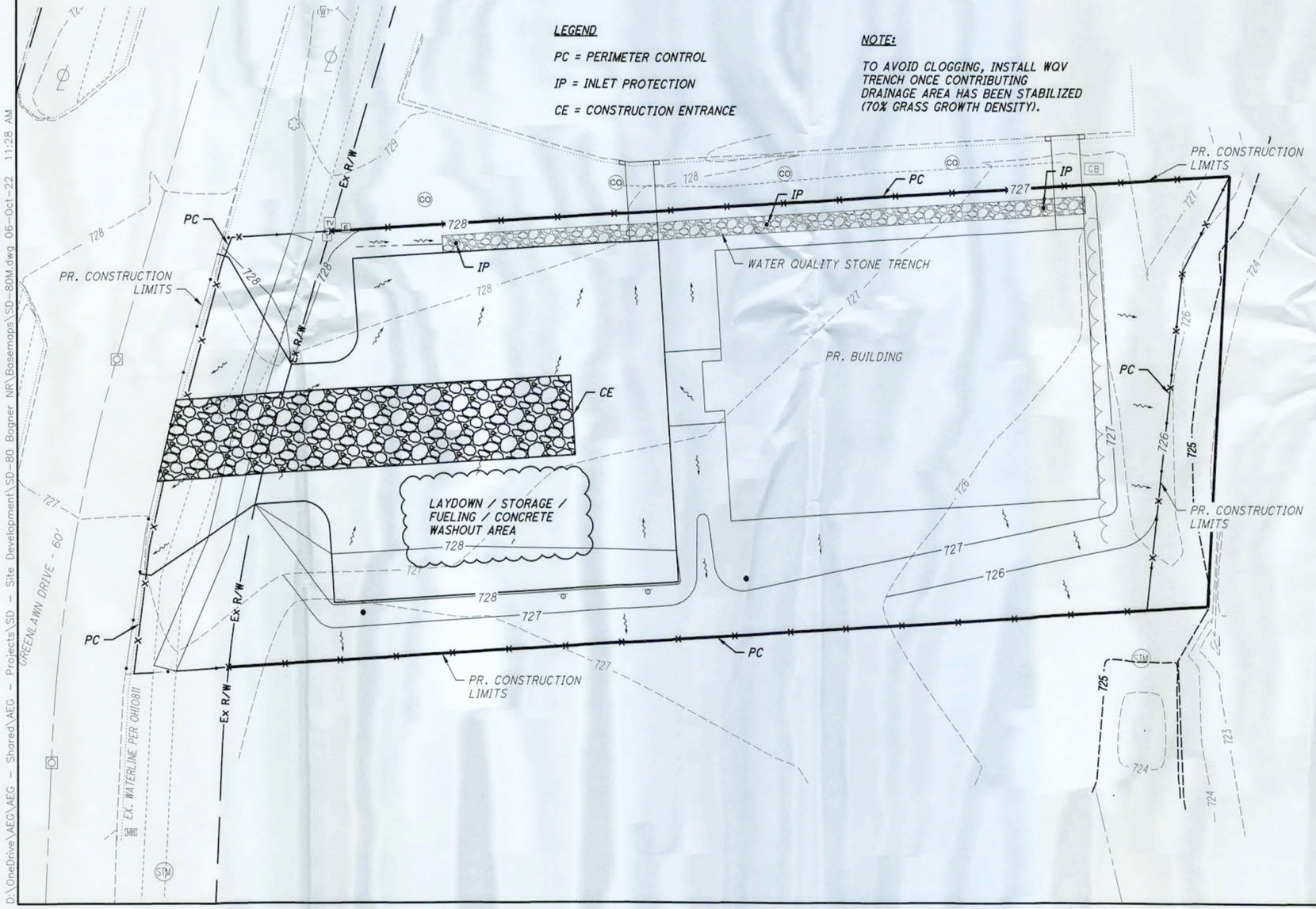
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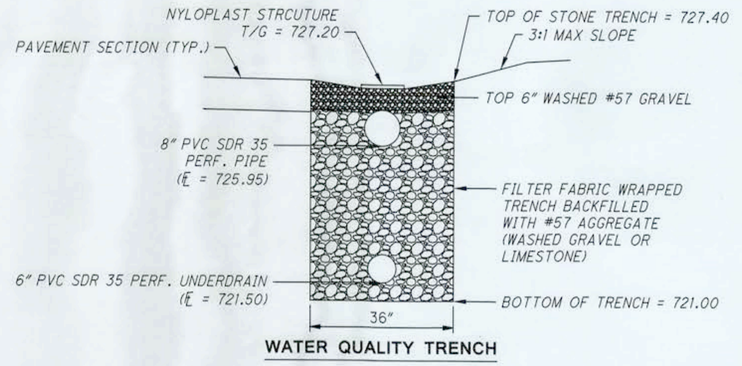
STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

NORTH RIDGEVILLE, OH

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WATER QUALITY TRENCH

POST CONSTRUCTION MAINTENANCE PROCEDURES

STONE WQV TRENCH

SCHEDULE ACTIVITY - TWICE PER YEAR
- CHECK DRAINAGE STRUCTURES FOLLOWING 3 DAYS OF DRY WEATHER. FAILURE TO PERCOLATE WITHIN THIS TIME INDICATES CLOGGING.

SCHEDULE ACTIVITY - STANDARD MAINTENANCE
- REMOVE SEDIMENT AND DEBRIS FROM DRAINAGE STRUCTURES.
- CHECK ORIFICE TO ENSURE NOT CLOGGED (NYLOPLAST STRUCTURE 3).

SCHEDULE ACTIVITY - UPON FAILURE
- TOTAL REHABILITATION OF THE TRENCH SHOULD BE CONDUCTED TO MAINTAIN STORAGE CAPACITY WITHIN 67% OF THE DESIGN TREATMENT VOLUME.
- TRENCH WALLS SHOULD BE EXCAVATED TO EXPOSE CLEAN SOIL.

HORIZONTAL SCALE IN FEET
0 5 10 20
CALCULATED TAB
CHECKED MDH

STORMWATER POLLUTION PREVENTION PLAN
BOGNER - LIFE CELEBRATION CENTER
NORTH RIDGEVILLE, OH

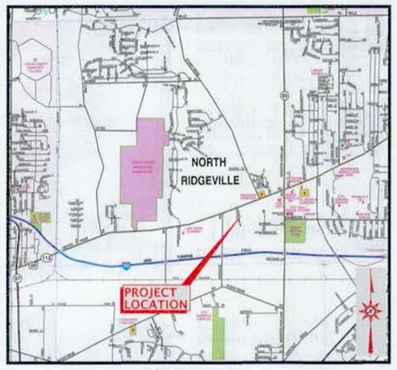
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TOPOGRAPHIC SURVEY

ADAPTIVE ENGINEERING GROUP, LLC.

PART OF ORIGINAL RIDGEVILLE TOWNSHIP LOT 28
CITY OF NORTH RIDGEVILLE, LORAIN COUNTY, OHIO
ADDRESS: GREENLAWN DRIVE NORTH



VICINITY MAP

NOTES:

Utility Note:
The locations of the utilities shown on this survey are based upon observed evidence together with evidence from plans obtained from utility companies, client, municipality, or through markings placed by OHIO811 requests. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and/or reliably depicted. Where additional or more detailed information is required, the client is advised that excavation may be necessary.

OUPS TICKET NUMBERS: A215000224 & A215000225

Title note:
A title commitment or abstract of title has not been provided to, or performed by, the surveyor. The parcel(s)/area shown on this survey may be subject to, or benefit from, easements, rights of way, restrictions, or agreements, written or otherwise, not shown herein.

PROPERTY IS ZONED: B-5 (ARCHITECTURAL BUSINESS DISTRICT)

BUILDING SETBACK LINES:
FRONT: 75' FROM RIGHT-OF-WAY
SIDES: 15' MIN - SUM 35'
REAR: 50'

SUBJECT PROPERTY IS LOCATED IN ZONE X ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP NO. 39093C0144D - EFFECTIVE DATE AUGUST 19, 2008

BOUNDARY DRAWN FROM FOUND MONUMENTATION AND INFORMATION OF RECORD (SURVEY BY THE HENRY G. REITZ ENGINEERING COMPANY DATED AUGUST, 2015)

HORIZONTAL/VERTICAL CONTROL: NAVD 88 - STATE PLANE NORTH ZONE

NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	627086.89	2098206.34	728.83	ipset
139	627046.53	2098217.65	727.84	ipfd
140	627000.35	2098222.15	726.77	ipfd

BEARINGS ARE BASED ON OHIO STATE PLANE COORDINATE SYSTEM, GRID NORTH, ODOT VRS, NORTH ZONE.

20 0 20
Scale: 1" = 20'

PREPARED BY
F.E. KROCKA & ASSOCIATES, INC.
100 NORTH GAMBLESTREET
SHELBY, OHIO 44875
(419) 342-4556

STATE OF OHIO
NATHAN W. SAUTTER
S-8252
REGISTERED PROFESSIONAL SURVEYOR

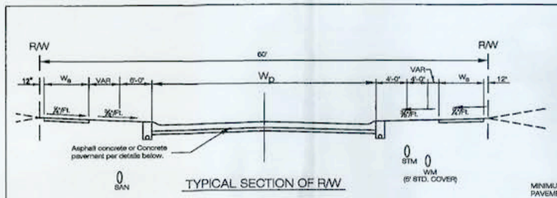
NATHAN W. SAUTTER
OHIO REGISTERED SURVEYOR NO. 8252
DATE: JUNE 7, 2022
REVISED:

811
Know what's below.
Call before you dig.

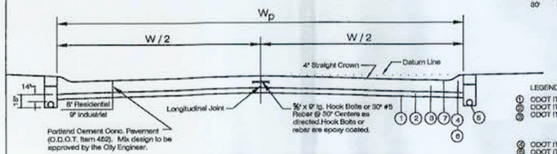


PROJECT STANDARD CONSTRUCTION DRAWINGS (SCDs)

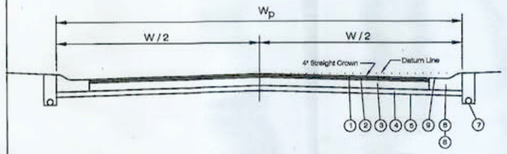
NORTH RIDGEVILLE, OH



TYPICAL SECTION OF R/W



TYPICAL SECTION OF CONCRETE PAVEMENT



TYPICAL SECTION OF ASPHALT CONCRETE PAVEMENT

MINIMUM PAVEMENT WIDTHS (W_p)

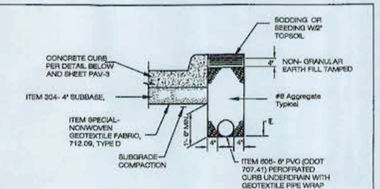
24'	PRIVATE RESIDENTIAL
24'	PUBLIC, LIGHT TRAFFIC (UP TO 25 SUBLOTS)
26'	PUBLIC, MEDIUM TRAFFIC (> 25 SUBLOTS)
28'	PRIVATE, COMMERCIAL AND INDUSTRIAL
28'	PUBLIC, COLLECTORS AND ARTERIALS
30'	PUBLIC, COMMERCIAL AND INDUSTRIAL

LEGEND

1. ODOT ITEM 204 - SUBGRADE COMPACTION
2. ODOT ITEM 304 - AGGREGATE BASE, 4" TH MIN.
3. ODOT ITEM 452 - NON-REINFORCED CONCRETE PAVEMENT THICKNESS 8" MIN. RESIDENTIAL THICKNESS 9" MIN COMMERCIAL INDUSTRIAL
4. ODOT ITEM 609 - TYPE 2 CONCRETE CURB
5. ODOT ITEM 605 - 6" UNDERDRAIN
6. ODOT ITEM 609 - TYPE 2 CONCRETE CURB FOR ARTERIALS, COLLECTORS, COMMERCIAL AND INDUSTRIAL
7. SPECIAL - "SILENCURE" CURING AND SEALING COMPOUND PRODUCED BY CHEMMASTERS 303 EDWARDS STREET, MADISON, OHIO WWW.CHEMMASTERS.NET

LEGEND

1. ODOT ITEM 448 - ASPHALT SURFACE COURSE, 1.5" TH MIN.
2. ODOT ITEM 448 - ASPHALT INTERMEDIATE COURSE, 2" TH MIN.
3. ODOT ITEM 301 - BITUMINOUS AGGREGATE BASE, 6" TH MIN.
4. ODOT ITEM 304 - AGGREGATE BASE, 4" TH MIN.
5. ODOT ITEM 204 - SUBGRADE COMPACTION
6. ODOT ITEM 609 - TYPE 3 CONCRETE CURB AND GUTTER
7. ODOT ITEM 605 - 6" UNDERDRAIN
8. ODOT ITEM 609 - TYPE 2 CONCRETE CURB FOR ARTERIALS, COLLECTORS, COMMERCIAL AND INDUSTRIAL
9. SPECIAL - "SILENCURE A" CURING AND SEALING COMPOUND PRODUCED BY CHEMMASTERS 303 EDWARDS STREET, MADISON, OHIO WWW.CHEMMASTERS.NET



SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP

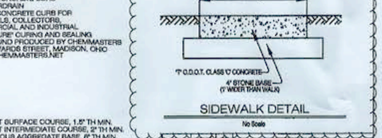
SIDEWALK MINIMUM THICKNESS (T)

4"	NORMAL SIDEWALK
6"	RESIDENTIAL DRIVES
9"	COMMERCIAL AND INDUSTRIAL DRIVES

SIDEWALK MINIMUM WIDTH (W_s)

3.5'	R/W LESS THAN 60' WIDE
4.0'	R/W WIDTH 60' TO 65' WIDE
5.0'	R/W EXCEEDS 65'

STONE BASE SHALL CONSIST OF CDOT #57, 67, 8, 304, 310 OR OTHER ENGINEERED FILL AS APPROVED BY THE CITY ENGINEER



SIDEWALK DETAIL

No Scale

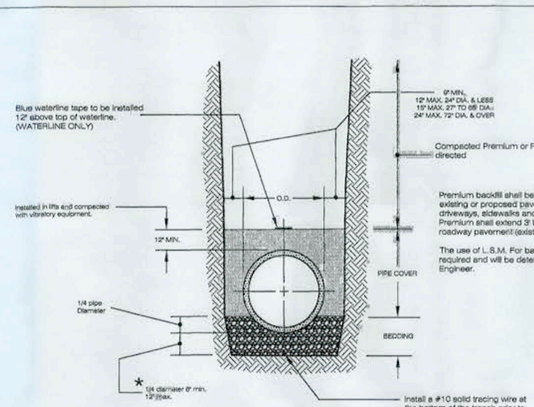
REV No.	DATE	BY	DESCRIPTION
1	5/1/08	CB	CURING COMPOUND

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

PAVEMENT & RIGHT-OF-WAY STANDARDS

CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | PAV-1



TYPICAL TRENCH DETAIL
MAINLINE AND LATERALS

Premium backfill shall be used under all existing or proposed pavements including, driveways, sidewalks and service walks. Premium shall extend 3' beyond edge of all roadway pavement(existing or proposed).

The use of L.S.M. For backfill may be required and will be determined by the City Engineer.

Low Strength Mortar Backfill
When the use of flowable fill is directed by the Engineer within the limits of the pavement, the material used shall be Low Strength Mortar Backfill TYPE 2 per current O.D.O.T. Construction and Material Specifications, except as modified herein.

The use of Foundry Sand or Slag is strictly prohibited.

Notes:

★ Lateral connections to have a minimum bedding depth of 6" coarse aggregate.

A clay dam shall be installed as directed by the City of North Ridgeville Inspector for all sanitary and storm connections.

Premium backfill shall consist of course interlocking aggregate O.D.O.T #304 or Low Strength Mortar backfill, Type 2.

Pipe cover shall consist of course interlocking aggregate no. 57, #5 and #8 (lateral connections only).

Bedding shall consist of course interlocking aggregate No. 57, or 8 for 60" or smaller diameter pipe, for 66" or larger diameter pipe No. 4, #57 and #8 aggregate may also be used.

Bedding for pipe shall conform to ASTM D-2321.

All Material substitutions must be approved by the City Engineer.

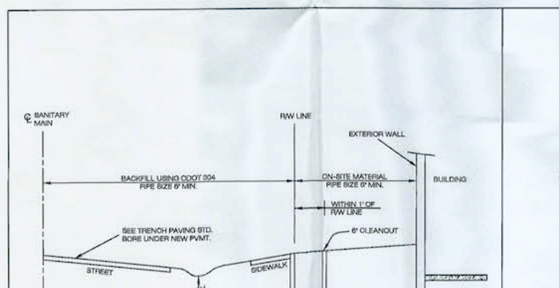
REV No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING

TRENCH DETAIL

CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | MIS-1

Rev. 8/20/2014



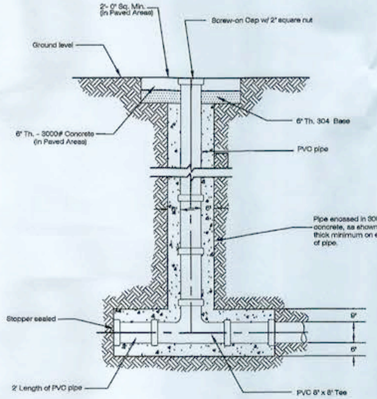
NOTES:
ALL PIPE SHALL BE PVC ASTM D 3034, SDR 35 WITH "O"-RING JOINTS PER ASTM 3212.
BELL ENDS SHALL BE FACED UPSTREAM.
PIPE EMBEDMENT: CDOT #57.4" BELOW PIPE TO 1 FOOT ABOVE TOP OF PIPE, FULL WIDTH OF TRENCH.
BACKFILL: CDOT NO. 304 (ABOVE PIPE EMBEDMENT)
PROVIDE GASKETED PLUG IN SANITARY SEWER CONNECTION AT R/W LINE IF CONNECTION IS NOT TO BE USED IMMEDIATELY.
EMPLOY PROPER TRENCH SAFETY PER LATEST OSHA STANDARDS.

REV No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING

SANITARY SERVICE CONNECTION

CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SAN-8



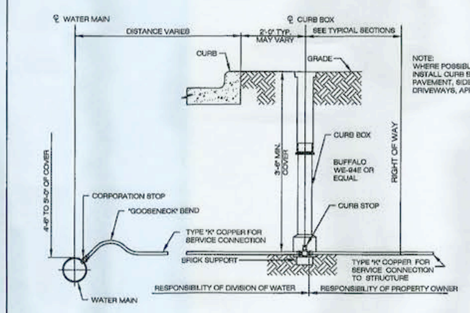
8" Cleanout shall be used for 8" sewers and larger. Smaller size sewers and lamp holes shall have same size pipe.

REV No.	DATE	BY	DESCRIPTION
1	5/5/08		Screw-on Cap
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING

CLEANOUT DETAIL

CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SAN-9



REV No.	DATE	BY	DESCRIPTION
1	3/09		Cover
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING

1" SERVICE CONNECTION

CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | WAT-13

Specifications
for
De-Watering

1. A de-watering plan shall be developed prior to the commencement of any pumping activities.
2. The de-watering plan shall include all pumps and related equipment necessary for the dewatering activities and designate areas for placement of practices. Outlets for practices shall be protected from scour either by riprap protection, fabric filter, or other acceptable method of outlet protection.
3. Water that is not discharged into a settling/treatment basin but directly into waters of the state shall be monitored hourly. Discharged water shall be within +/- 5° F of the receiving waters.
4. Settling basins shall not be greater than four (4) feet in depth. The basin shall be constructed for sediment storage as outlined in Chapter 6, SEDIMENT BASIN OR SEDIMENT TRAP. The inlet and outlet for the basin shall be located at the furthest points of the storage. A floating outlet shall be used to ensure that settled solids do not re-suspend during the discharge process. The settling basin shall be dewater out when the storage has been reduced by 50% of its original capacity.
5. All necessary National, State and Local permits shall be secured prior to discharging into waters of the state

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING

DE-WATERING

CITY OF NORTH RIDGEVILLE, ENGINEER

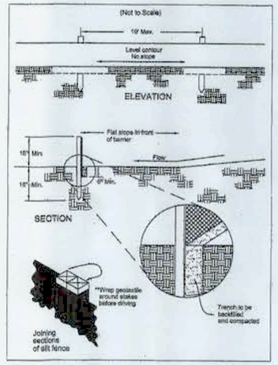
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Specifications for

Silt Fence



Specifications for

Silt Fence

1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are disrupted along its length.
3. Ends of the silt fences shall be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet or as much as possible upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
9. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into the ground. (see detail).
10. Maintenance—Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 3) other practices shall be installed.

   Sediment deposits shall be routinely removed when the deposit reaches approximately one-half of the height of the silt fence.

   Silt fences shall be inspected after each rainfall and at least daily during prolonged rainfall. The function of existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

   Criteria for silt fence materials

1. Fence post – The length shall be a minimum of 32 inches. Wood posts will be 2-by-2-in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
2. Silt fence fabric – See chart below.

Table 6.2:2 Minimum criteria for Silt Fence Fabric (ODOT, 2002)

FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs./inch (525 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D 4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D 4533
Apparent Opening Size	≤ 0.84 mm	ASTM D 4751
Minimum Permittivity	1X10-2 sec.-1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM D 4355

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

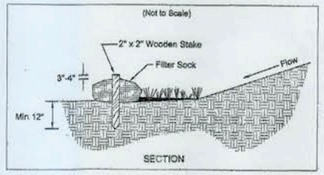
SILT FENCE

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-18

CITY OF NORTH RIDGEVILLE, ENGINEER

Specifications for

Filter Sock



1. Materials – Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well-decomposed source of organic matter and consist of a particles ranging from 3/8" to 2".
2. Filter Socks shall be 9 or 5 mil continuous, tubular, HDPE 3/8" knitted mesh netting material, filled with compost passing the above specifications for compost products.

INSTALLATION:

3. Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed mid-slope.
4. Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
5. Filter Socks are not to be used in concentrated flow situations or in runout channels.

MAINTENANCE:

6. Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
7. Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
8. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
9. Removal – Filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

FILTER SOCK

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-25

CITY OF NORTH RIDGEVILLE, ENGINEER

Specifications for

Dust Control

1. Vegetative Cover and/mulch – Apply temporary or permanent seeding and mulch to areas that will remain idle for over 21 days. Saving existing trees and large shrubs will also reduce soil and air movement across disturbed areas. See Temporary Seeding; Permanent Seeding; Mulching Practices; and Tree and Natural Area Protection practices.
2. Watering – Spray site with water until the surface is wet before and during grading and repeat as needed, especially on haul roads and other heavy traffic routes. Watering shall be done at a rate that prevents dust but does not cause soil erosion. Wetting agents shall be utilized according to manufacturers instructions.
3. Spray-On Adhesives – Apply adhesive according to the following table or manufacturers' instructions.

Table 7.5.1: Adhesives for Dust Control

Adhesive	Water Dilution (Volume) Water	Water Type	Application Rate Gal./Sq.
Latex Emulsion	12.5:1	Fine	230
Resin in Water Acrylic Emulsion (No-Traffic)	4:1	Fine	933
Acrylic Emulsion (No-Traffic)	7:1	Coarse	460
Acrylic Emulsion (Traffic)	3.5:1	Coarse	350

4. Stone – Graded roadways and other suitable areas will be stabilized using crushed stone or coarse gravel as soon as practicable after reaching an interim or final grade. Crushed stone or coarse gravel can be used as a permanent cover to provide control of soil emissions.
5. Barriers – Existing windbreak vegetation shall be marked and preserved. Snow fencing or other suitable barrier may be placed perpendicular to prevailing air currents at intervals of about 15 times the barrier height to control air currents and blowing soil.
6. Calcium Chloride – This chemical may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage. Application rates should be strictly in accordance with suppliers' specified rates.
7. Operation and Maintenance – When Temporary Dust Control measures are used, repetitive treatment should be applied as needed to accomplish control.

   Street Cleaning – Paved areas that have accumulated sediment from construction should be cleaned daily, or as needed, utilizing a street sweeper or bucket -type endloader or scraper.

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

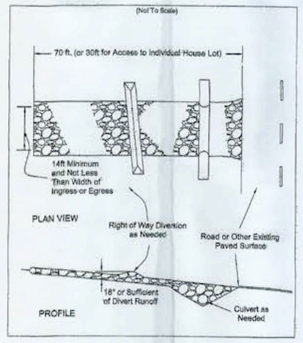
DUST CONTROL

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-29

CITY OF NORTH RIDGEVILLE, ENGINEER

Specifications for

Construction Entrance



Specifications for

Construction Entrance

1. Stone Size—ODOT # 2 (1.5-2.5 inch) stone shall be used, or recycled concrete equivalent.
2. Length—The Construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft (exception: apply 30 ft. minimum to single residence lots).
3. Thickness - The stone layer shall be at least 6 inches thick for light-duty entrances or at least 10 inches for heavy duty use.
4. Width -The entrance shall be at least 14 feet wide, but not less than the full width at points where ingress or egress occurs.
5. Geotextile -A geotextile shall be laid over the entire area prior to placing stone. It shall be composed of strong rot-proof polymeric fibers and meet the following specifications:

Figure 2.4.1

Geotextile Specification for Construction Entrance	
Minimum Tensile Strength	200 lbs.
Minimum Puncture Strength	80 psi.
Minimum Tear Strength	90 lbs.
Minimum Burst Strength	320 psi.
Minimum Elongation	20%
Equivalent Opening Size	#35 < 0.6 mm.
Permittivity	1 x10-3 cm/sec.

6. Timing—The construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert -A pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. Water Bar -A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
9. Maintenance -Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off-site tracking. Vehicles that enter and leave the construction site shall be restricted from muddy areas.
11. Removal—the entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

CONSTRUCTION ENTRANCE

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-27

CITY OF NORTH RIDGEVILLE, ENGINEER

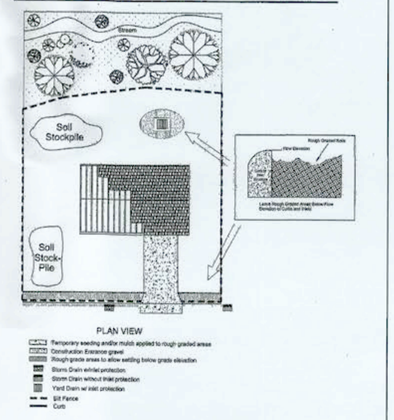
Specifications for

Small Construction Site Controls

1. Preexisting vegetation shall be retained on idle portions of the building lot for as long as construction operations allow. Clearing shall be done on only active working areas are bare.
2. Temporary seed and/or mulch shall be applied to areas, such as stockpiles and rough graded areas, that are bare and not actively being worked. This shall apply to areas that will not be reworked for 21 days or more.
3. Stockpiles created from basement excavation and grading shall be situated away from streets, swales, or other waterways and shall be seeded and/or mulched immediately.
4. Silt fence or other sediment barriers shall control sheet flow runoff from the building lot. These shall not be constructed in channels or areas of concentrated flow. Other sediment controls such as sediment traps and inlet protection shall also be used as needed to control sediment runoff. Sediment control practices shall be inspected weekly after storm events, and maintained in good working condition.
5. Construction vehicle access shall be limited to one route, to the greatest extent practical. This access shall be paved or crushed rock underlain with geotextile.
6. Mud tracked onto streets or sediment settled around curb inlet protection shall be removed daily or as needed to prevent it from accumulating. It shall be removed by shoveling and scraping and shall NOT be washed off paved surfaces or into storm drains. Sediment removed shall be placed where it will not be subject to erosion or concentrated runoff.

Specifications for

Small Construction Site Controls



INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

SMALL CONSTRUCTION SITE CONTROLS

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-32

CITY OF NORTH RIDGEVILLE, ENGINEER

CALCULATED TAB | CHECKED MDH

PROJECT STANDARD CONSTRUCTION DRAWINGS (SCDs)

NORTH RIDGEVILLE, OH

B

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Concrete Washout Areas

Installation:

1. Concrete wash water shall not be allowed to flow to streams, ditches, storm drains, or any other water conveyance and washout pits shall be situated a minimum of fifty (50) feet from them.
2. Field tile or other subsurface drainage structures within 10 ft. of the sump shall be cut and plugged.
3. Ensure a stable path is provided for concrete trucks to reach the washout area.
4. A highly visible sign that reads "Concrete Washout Area" shall be erected adjacent to the washout pit.
5. Surface runoff generated from upslope areas shall be diverted away from below-grade washout pits so as not to flow into them.
6. A single centralized washout area may be utilized for multiple sublots.

Maintenance:

7. The washout pit must be inspected frequently to ensure the liner is intact.
8. Once 75% of the original volume of the washout pit is filled or if the liner is torn, the material must be removed and properly disposed of once it is completely hardened. Once the hardened concrete is removed, the liner must be replaced (if torn). A new pit must be constructed if the original structure is no longer suitable.

Removal:

9. Once the washout pit is no longer needed, ensure all washout material has completely hardened, then remove and properly dispose of all materials. If straw bales were used, they can be spread as mulch.
10. Prefabricated containers specifically designed for concrete washout collection may be used subject to prior approval by the Community Engineer. Follow the manufacturer's suggestions for installation, maintenance and removal procedures.

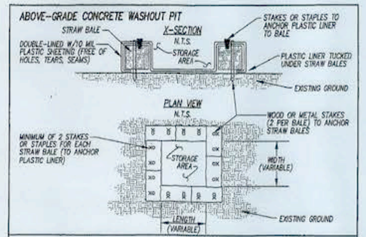
Sizing of Concrete Washout Pits

Below-grade (3-ft depth)		
# of concrete trucks expected to be washed out on site*	Width (ft)	Length (ft)
2-3	3	3
4-5	4	4
5-7	5	5
8-10	6	6
11-14	7	7

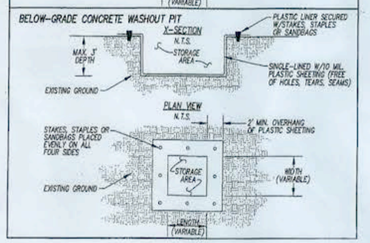
Above-grade (2-ft depth)		
# of concrete trucks expected to be washed out on site*	Width (ft)	Length (ft)
2	3	3
3-4	4	4
5-6	5	5
7-8	6	6
9-11	7	7
12-15	8	8

*For small projects using a maximum of only one truckload of concrete or utilizing on-site mixing, rinsing of equipment may take place on the lot without a pit, provided it can be done a minimum of fifty (50) feet away from any water conveyances.

ABOVE-GRADE CONCRETE WASHOUT PIT



BELOW-GRADE CONCRETE WASHOUT PIT



REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

CONCRETE WASHOUT

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRAWN BY: JAB/TEB

SWP-33

CITY OF NORTH RIDGEVILLE, ENGINEER

CITY OF NORTH RIDGEVILLE
SWP3 STANDARD GENERAL NOTES

EROSION, SEDIMENT AND RUNOFF CONTROL NOTES

THE CONTRACTOR SHALL CONSTRUCT TEMPORARY AND PERMANENT EROSION CONTROL MEASURES AS DETAILED ON THE PLANS OR APPROVED BY THE SWP3 COMPLIANCE INSPECTOR. THE CONTRACTOR SHALL MAINTAIN EROSION AND SEDIMENTATION THROUGH USE OF EROSION CONTROL BEST MANAGEMENT PRACTICES (BMP'S).

TEMPORARY EROSION AND SEDIMENT CONTROL ITEMS, THE LOCATION AND SIZE OF WHICH ARE DETAILED ON THE PLANS, SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF ANY CLEARING OR EARTHWORK OPERATIONS. THE CONTRACTOR SHALL INSTALL ADDITIONAL BMP'S AS NOT PREVENTED DURING DESIGN STAGES, THAT REQUIRE ADDITIONAL OR MODIFIED TEMPORARY OR PERMANENT BMP'S SHALL BE APPROVED BY THE CITY ENGINEER AND REFLECTED ON THE REVISED SWP3.

SEDIMENT PONDS, SEDIMENT TRAPS, AND APPROVED SEDIMENT CONTROLS SHALL BE IMPLEMENTED AS THE FIRST STEP OF GRADING AND SHALL BE FUNCTIONAL BEFORE ANY OTHER LAND DISTURBING ACTIVITIES TAKE PLACE. DISTURBED AREAS ARE TO BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES AS SOON AS PRACTICABLE AFTER FINAL GRADE IS REACHED.

SEDIMENT POND(S), SEDIMENT TRAPS, AND APPROVED SEDIMENT CONTROLS SHALL BE IMPLEMENTED AS THE FIRST STEP OF GRADING AND SHALL BE FUNCTIONAL BEFORE ANY OTHER LAND DISTURBING ACTIVITIES TAKE PLACE. DISTURBED AREAS ARE TO BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES AS SOON AS PRACTICABLE AFTER FINAL GRADE IS REACHED. ALL SEDIMENT CONTROLS SHALL BE RE-ESTABLISHED AT THE FIRST LOCATION OF DISTURBANCE AND RE-ESTABLISHED WITH STORM-BY-STORM REVISIONS. NO SEDIMENT CONTROLS SHALL BE PLACED IN A STREAM.

TRENCH, EXCAVATION, OR DRAINAGE WATER, WHICH CONTAINS SEDIMENT SHALL PASS THROUGH A SEDIMENT SETTLING POND OR EQUALLY EFFECTIVE SEDIMENT CONTROL DEVICE. ALTERNATIVES MAY INCLUDE DEWATERING INTO DIKED FLAT, FILTER BAG OR EXISTING VEGETATED UPLAND AREA. SEDIMENT LADEN WATER SHALL NOT BE DISCHARGED TO A STREAM OR THE STORM SEWER SYSTEM.

THE SWP3, NOTES AND DETAILED DRAWINGS ARE INTENDED TO SERVE AS BASIC GUIDELINES. ALL EROSION CONTROL PRACTICES SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE OHIO RAINWATER AND LAND DEVELOPMENT MANUAL.

ADDITIONAL EROSION CONTROL BMP'S MAY BE MANDATED BY THE GOVERNING AGENCY AT ANY TIME DURING THE PROJECT AS UNFORESEEN SITUATIONS MAY ARISE THAT WARRANT FURTHER EROSION AND SEDIMENT CONTROL PRACTICES.

CLEARING AND GRUBBING

LIMITS OF CLEARING AND GRADING SHALL BE CLEARLY MARKED ON THE SITE WITH SIGNAGE, FLAGGING AND/OR ORANGE CONSTRUCTION FENCING.

THE CONTRACTOR SHALL LIMIT THE SURFACE AREA OF ERODIBLE EARTH MATERIAL EXPOSED BY EXCAVATION, FILL AND GRADING AT ANY ONE TIME. PROVIDE TEMPORARY OR PERMANENT COVER, SEDIMENT BARRIERS, OR OTHER METHODS TO PREVENT CONTAMINATION OF ADJACENT STREAMS OR OTHER WATER COURSES, LAKES, PONDS, WETLANDS OR OTHER AREAS OF WATER IMPOUNDMENT.

CONSTRUCTION ENTRANCE

A STONE CONSTRUCTION ENTRANCE SHALL BE INSTALLED FOR ALL INGRESS & EGRESS TO THE SITE. THE PROJECT AS UNFORESEEN SITUATIONS MAY ARISE THAT WARRANT FURTHER EROSION AND SEDIMENT CONTROL PRACTICES.

STABILIZATION

PERMANENT AND TEMPORARY STABILIZATION ARE DEFINED IN PART VII OF THE OEPA ANNOTATED CONSTRUCTION GENERAL PERMIT. DISTURBED AREAS MUST BE STABILIZED IN ACCORDANCE WITH THE FOLLOWING TABLE AND SPECIFICATIONS.

EFFECTIVE DATE 4/01/08 – EXPIRATION DATE 4/30/13 DISTURBED AREAS MUST BE STABILIZED AS SPECIFIED IN THE FOLLOWING TABLES BELOW.

TABLE 1: PERMANENT STABILIZATION

AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROL
ANY AREA THAT WILL LIE DORMANT FOR ONE YEAR OR MORE	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE
ANY AREA WITHIN 50 FT. OF A STREAM AND AT FINAL GRADE	WITHIN TWO DAYS OF REACHING FINAL GRADE
ANY OTHER AREAS AT FINAL GRADE	WITHIN SEVEN DAYS OF REACHING FINAL GRADE WITHIN THAT AREA

TEMPORARY SEEDING

DISTURBED AREAS SHALL BE INSPECTED AND WHERE THE SEED HAS NOT PRODUCED 80% COVER SHALL BE RE-SEEDED AND MULCHED BY THE CONTRACTOR. ALL SEEDED AREAS SHALL BE MULCHED WITHIN SEVEN DAYS OF COMPLETED CONSTRUCTION PRIOR TO SEEDING.

STRAW MULCHING SHALL BE APPLIED AT A RATE 2-3 STANDARD 45 LB. BALES PER 1000 SQ.FT. OF DISTURBED AREA OR 2 TONS PER ACRE. ALL HYDROSEEDING MUST BE STRAW MULCHED ACCORDING TO THE ABOVE SPECIFICATIONS UNLESS IT IS WINTER MULCH.

ALL DETENTION PONDS, RETENTION PONDS, WATER QUALITY STRUCTURES, SEDIMENT PONDS, SEDIMENT TRAPS, EXPENSE DIVERSIONS OR EMBANKMENTS SHALL BE SEEDED AND STRAW MULCHED WITHIN 7 DAYS OF COMPLETED CONSTRUCTION.

TABLE 2: TEMPORARY STABILIZATION

AREA REQUIRING TEMPORARY STABILIZATION	TIME FRAME TO APPLY EROSION CONTROL
ANY DISTURBED AREAS WITHIN 50 FT. OF A STREAM AND NOT AT FINAL GRADE	WITHIN TWO DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS
FOR ALL CONSTRUCTION ACTIVITIES, ANY DISTURBED AREAS THAT WILL BE DORMANT FOR MORE THAN 21 DAYS BUT LESS THAN ONE YEAR, AND NOT WITHIN 50 FT. OF A STREAM	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA
ALL DISTURBED AREAS THAT WILL BE IDLE OVER WINTER	FOR RESIDENTIAL SUBDIVISIONS, DISTURBED AREAS MUST BE STABILIZED AT LEAST SEVEN DAYS PRIOR TO TRANSFER OF PERMIT COVERAGE FOR THE INDIVIDUAL LOT(S)
	PRIOR TO ONSET OF WINTER WEATHER (NOV 1) STRAW MULCH 2 TO 3 BALES PER 1000 SQ.FT. AND ON 2 TONS PER ACRE.

PERMANENT STABILIZATION OF CONCENTRATED DRAINAGES

DISTURBED AREAS SHALL PRACTICES SPECIAL MEASURES TO STABILIZE CHANNELS AND OUTFALLS AND PREVENT ERODIBLE FLOWS. MEASURES MAY INCLUDE MULCHING, DORMANT SEEDING (AS DEFINED IN THE LATEST EDITION OF OHIO RAINWATER AND LAND DEVELOPMENT MANUAL), EROSION CONTROL MATTING, BOULDERS, REPAIR NATURAL CHANNEL DESIGN WITH BIO ENGINEERING TECHNIQUES OR ROCK CHECK DAMS.

SOIL TRANSPORT ONTO PUBLIC ROADS

WHERE SITE IS TRANSPORTED ONTO PUBLIC ROAD SURFACES, THE ROADS SHALL BE CLEANED THOROUGHLY BY EITHER SHOVELING OR SCRAPING AT THE END OF EACH WORK DAY OR MORE FREQUENTLY IF NEEDED TO ENSURE PUBLIC SAFETY. STREET WASHING SHALL NOT BE PERMITTED.

ERODIBLE MATERIAL RAMPS IN STREETS TO ENABLE EQUIPMENT TO CROSS CURBS SHALL BE PROPERLY REMOVED IMMEDIATELY AFTER USE.

DEVELOPER & SUBCONTRACTOR

SHEET FLOW RUNOFF FROM DENUDED AREAS SHALL BE INTERCEPTED BY SILT FENCE OR DIVERSIONS TO PROTECT ADJACENT PROPERTIES AND WATER RESOURCES FROM SEDIMENT TRANSPORTED VIA SHEET FLOW. WHERE CONCENTRATED FLOWS OCCUR, DIVERSIONS SHALL BE USED TO INTERCEPT SURFACE WATER AND CONVEY THE RUNOFF TO A PROTECTED OUTLET AT A NON-EROSIVE VELOCITY. THE OEPA PERMIT NO. OHC000003 REQUIRES THAT ALL DISTURBED AREAS MUST BE PROTECTED TO NOT RESULT IN RILLING, GULLYING, OR THE DEPOSITION OF SEDIMENT OFFSITE. ALL SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED IN GOOD WORKING ORDER UP TO THE COMPLETION OF FINAL STABILIZATION. THIS PERMIT MAY REQUIRE ADDITIONAL CONTROLS FROM THOSE SHOWN ON THIS PLAN. SEDIMENT CONTROLS MUST REMAIN IN PLACE AND BE MAINTAINED UNTIL UPGRADIENT AREAS ARE PERMANENTLY STABILIZED.

INSPECTIONS & MAINTENANCE

EQUIPMENT FUELING & MAINTENANCE SHALL BE IN DESIGNATED AREAS ONLY.

A SPILL PREVENTION CONTROL AND COUNTERMEASURES

A SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN MUST BE DEVELOPED FOR SITES WITH ONE ABOVE-GROUND STORAGE TANK OF 660 GALLONS OR MORE, TOTAL ABOVE-GROUND STORAGE OF 1,320 GALLONS, OR BELOW-GROUND STORAGE OF 42,000 GALLONS OF FUEL.

CONCRETE WASH WATER

CONCRETE TRUCKS AND EQUIPMENT OR STORAGE OF COMPOUNDS SUCH AS FERTILIZERS, LIME ASPHALT OR CONCRETE. THESE DESIGNATED AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS, OR OTHER STORMWATER DRAINAGE AREAS.

CONTAMINATED SOILS

ALL CONTAMINATED SOIL MUST BE TREATED AND/OR DISPOSED IN OHIO EPA APPROVED SOLID WASTE MANAGEMENT FACILITIES OR HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITIES (TSDFs).

WELL RECORDING REQUIREMENTS

THE CONTRACTOR SHALL CONTACT THE OHIO EPA AT 800-282-9378 AND THE LOCAL FIRE DEPARTMENT IN THE EVENT OF A PETROLEUM SPILL OVER GALLONS) OR THE PRESENCE OF SHEEN.

OPEN BURNING

OPEN BURNING IS NOT PERMITTED.

DUST CONTROL/SUPPRESSANTS

USED OIL MUST NOT BE USED AS A DUST SUPPRESSANT. NO DUST SUPPRESSANT SHALL BE APPLIED NEAR CATCH BASINS, STORM SEWERS OR OTHER DRAINAGE WAYS.

STREAM CROSSINGS

ANY STREAM CROSSINGS SHALL BE CONSTRUCTED ENTIRELY OF STONE, ROCK, OR CLEAN RECYCLED CONCRETE. SOIL MATERIALS OR EARTH MATERIAL MAY NOT BE USED. A 50 FT. STREAM BUFFER ON EITHER SIDE OF ANY STREAM SHALL BE MAINTAINED. ANY STREAM CROSSINGS SHALL BE CONSTRUCTED TO PREVENT LOCALIZED SEDIMENT DISTURBANCE. ALL DISTURBED AREAS SHALL BE RESTORED, AND ALL DISTURBED AREAS OF THE BANK WITHIN 50 FT. OF THE STREAM SHALL BE STABILIZED WITH SEED AND STRAW MULCH WITHIN 2 DAYS OF THE DISTURBANCE.

NOTICE

THIS SITE IS COVERED UNDER OHIO EPA CONSTRUCTION GENERAL PERMIT #_____

THIS SITE IS COVERED UNDER OEPA / ARMY 401 /404 PERMIT #_____

STRUCTURAL BMP'S

PERMANENT BMP'S FOR POST CONSTRUCTION TREATMENT OF STORMWATER (CONVERSION OF SEDIMENT LAND TO STORMWATER POND) SHALL NOT BE INSTALLED UNTIL 80% OF THE DISTURBED AREA IS STABILIZED.

RESTORE TO CONDITION

ALL DISTURBED AREAS SHALL BE ACCOMPLISHED BY SEEDING AND MULCHING IMMEDIATELY UPON COMPLETION OF EXCAVATION OR FILL AND PROVIDED GRADING AND SEEDING PLANS. ALL SEEDING, MULCHING AND SOIL AMENDMENTS SHALL BE IN ACCORDANCE WITH CITY OF NORTH RIDGEVILLE TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER. THE FOLLOWING PRO-MIXTURE SHALL BE USED FOR SEEDING: 5-21 CERTIFIED KENTUCKY BLUE GRASS – 30# PERENNIAL RYEGOLF – 20# MANHATTAN II RYEGRASS – NON FERTILIZER – 100#/1000 S.F. (10-10-10) MULCH – STRAW – 2 TONS/ACRE RESTORATION OF ALL DISTURBED AREAS SHALL IMMEDIATELY FOLLOW EXCAVATION AND GRADING OPERATIONS. DELAY IN RESTORATION SHALL NECESSITATE TEMPORARY EROSION CONTROL MEASURES APPROVED BY THE ENGINEER AND AT THE CONTRACTOR'S COST.

RIPARIAN BUFFERS

THE RIPARIAN BUFFER (SETBACK) FOR ALL MAJOR AND MINOR DITCHES SHALL BE MARKED IN THE FIELD WITH ORANGE CONSTRUCTION FENCING BY THE CONSTRUCTION SITE OPERATOR PRIOR TO ANY EARTH DISTURBING ACTIVITIES.

ENFORCEMENT

ALL DEVELOPMENT SITES ARE SUBJECT TO INSPECTIONS BY THE CITY OF NORTH RIDGEVILLE AUTHORIZED AGENTS UNDER THE DIRECTION OF THE A LICENSED PROFESSIONAL ENGINEER TO ENSURE COMPLIANCE WITH THE APPROVED SITE DEVELOPMENT PLAN OR SWP3 PLAN.

IF IT IS FOUND THAT THE OPERATIONS ARE BEING CONDUCTED IN VIOLATION OF THE APPROVED SITE DEVELOPMENT PLAN AND SWP3 PLAN, A STOP-WORK ORDER MAY BE ISSUED BY THE CITY OF NORTH RIDGEVILLE UNTIL THE IDENTIFIED VIOLATIONS CEASE.

AFTER ISSUANCE OF A STOP-WORK ORDER PROVIDED IN THE PARAGRAPH ABOVE, BUT BEFORE THE IMPOSITION OF ANY FINES, THE APPLICANT SHALL HAVE TWO (2) BUSINESS DAYS TO REQUEST A MEETING WITH THE CITY LAW DIRECTOR AND THE CITY ENGINEER TO SHOW CAUSE WHY THE WORK SHOULD NOT BE STOPPED.

FOLLOWING THE ISSUANCE OF A STOP-WORK ORDER, THE CITY OF NORTH RIDGEVILLE SHALL DETERMINE IF AND WHEN THE DEVELOPMENT MAY PROCEED. ANY DETERMINATION BY THE CITY OF NORTH RIDGEVILLE PURSUANT TO THIS SECTION IS A FINAL ORDER FOR THE PURPOSE OF JUDICIAL REVIEW.

VIOLATIONS

THE CITY OF NORTH RIDGEVILLE SHALL NOTIFY THE STORM WATER PERMITTEE OF ANY VIOLATIONS OBSERVED IN WRITING. SAID NOTICE SHALL INDICATE THE EXACT NATURE OF THE VIOLATIONS AND OTHER SPECIFIC CORRECTIONS WHICH ARE REQUIRED.

THE PERMITTEE SHALL COMPLY WITH THE TIMELINE FOR CORRECTIONS SPECIFIED BELOW. TIMELINE EXTENSIONS FOR ADVERSE WEATHER CONDITIONS MAY BE GRANTED UPON APPROVAL OF THE CITY ENGINEER.

NATURE OF VIOLATION:	NUMBER OF DAYS FROM INSPECTION TO CORRECT FUNCTIONING OF CONTROL PRACTICE:
SILT FENCE	WITHIN 3 (3) DAYS
OUTLET CONTROL STRUCTURE	WITHIN THREE (3) DAYS
TEMPORARY OR PERMANENT STABILIZATION WITHIN 50' OF DRAINAGE CHANNELS	WITHIN THREE (3) DAYS
TEMPORARY OR PERMANENT STABILIZATION FOR ALL OTHER DISTURBED AREAS	WITHIN THREE (3) DAYS
STABILIZED CONSTRUCTION ENTRANCE	WITHIN THREE (3) DAYS
PUMPING SEDIMENT-LADEN DISCHARGE INTO DRAINAGE CHANNEL	IMMEDIATELY UPON NOTICE
SEDIMENT SETTLING POND	WITHIN TEN (10) DAYS
ANY OTHER CONTROL PRACTICE NOT ADDRESSED IN THIS TABLE	WITHIN THREE (3) DAYS

PENALTIES SUBSEQUENT TO ISSUANCE OF STOP-WORK ORDER

SUBSEQUENT TO ISSUANCE OF A STOP-WORK ORDER, PENALTIES MAY BE IMPOSED ACCORDING TO THE CITY OF NORTH RIDGEVILLE CODIFIED ORDINANCE 1056.08(B)(01)(A), 1056.08(D)(1)(B) OR 1056.08(E)(1)(D).

REV. 11/22/16 OCTOBER 1, 2008

CITY OF NORTH RIDGEVILLE
STANDARD GENERAL NOTES

SANITARY SEWERS

1. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER SOURCES SHALL NOT BE CONNECTED TO THE SANITARY SEWER.
2. THE SANITARY SEWER SHALL PASS A LOW PRESSURE AIR TEST AND A 5% DEFLECTION TEST. THESE TESTS SHALL BE CONDUCTED BY A COMPETENT TESTER, PREFERABLY AN INDEPENDENT TESTING COMPANY.
   A. DEFLECTION TEST:

      IF PVC PIPE IS USED, THE DEFLECTION TEST WILL BE RUN NOT LESS THAN 30 DAYS AFTER THE SEWER LINE HAS BEEN BACKFILLED AND FULL BACKFILL HAS BEEN PLACED. THE TEST IS REQUIRED ON ALL PVC PIPE INSTALLED. THE CONTRACTOR SHALL FURNISH THE NECESSARY EQUIPMENT FOR THE DEFLECTION TESTING. ALL EQUIPMENT SHALL BE SUBJECT TO THE APPROVAL OF THE CITY OF NORTH RIDGEVILLE PRIOR TO THE START OF TESTING. WHERE POSSIBLE, ELECTRONIC EQUIPMENT SHALL BE USED FOR THE DEFLECTION TESTING. MECHANICAL DEFLECTION DEVICES SHALL BE PULLED THROUGH THE PIPE BY HAND WHERE ELECTRONIC EQUIPMENT IS NOT AVAILABLE. THE DEFLECTION TEST CAN BE RUN BY THE USE OF MANDRELS, HAVING A DIAMETER EQUAL TO NINETY-FIVE (95) PERCENT OF THE INSIDE DIAMETER OF THE PIPE. PULLED THROUGH THE SEWER WITHOUT MECHANICAL PULLING DEVICES. MANDRELS SHALL BE CONSTRUCTED WITH AT LEAST NINE EVENLY SPACED ARMS OR PRONGS. A METAL PROVING RING SHALL BE PROVIDED TO VERIFY THE ACCURACY OF THE MANDREL TO THE CITY ENGINEER. THE LENGTH OF THE MANDREL SHALL BE EQUAL TO THE INSIDE DIAMETER OF THE PIPE. ANY SECTION OF INSTALLED PVC INCH PIPE IN WHICH THE MANDREL WILL NOT PASS DUE TO DEFLECTION OF FIVE PERCENT, THE NECESSARY CORRECTIONS SHALL BE MADE. CONCRETE WHICH HAS DEFLECTED MORE THAN FIVE PERCENT MUST BE CORRECTED TO THE SATISFACTION OF THE CITY ENGINEER BY THE CONTRACTOR. THE PIPE SHALL BE MEASURED IN COMPLIANCE WITH ASTM D2122.
   B. THE LEAKAGE, EXFILTRATION, OR INFILTRATION SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY.
3. THE SANITARY SEWER MAIN AND ITS LATERALS SHALL BE PVC ASTM D3034, WITH GASKETED JOINTS MEETING ASTM D3212 SDR-35, UNLESS DEPTH OF COVER IS 15 FEET OR GREATER THEN USE ASTM D3034 SDR-26.
4. SANITARY MANHOLES SHALL BE PRECAST CONCRETE MEETING THE FOLLOWING: THE CITY OF NORTH RIDGEVILLE. THE MANHOLE SHALL BE FULLY MONOLITHIC WITH NO CONSTRUCTION JOINTS BELOW ANY SUSPECTED WATER TABLE. THE EXTERIOR SURFACE OF ANY MANHOLE IN THE FUTURE SHALL BE PATCHED, SEALED, ETC. WITH NON-SHRINKING MATERIALS. PARTICULAR ATTENTION SHALL BE PAID TO THE BARREL JOINTS, STEP LOCATIONS, AND PIPE TO MANHOLE JOINT BETWEEN THE BRAKE RINGS AND THE CASTING. ALL MANHOLES SHALL BE VACUUM TESTED PER ASTM-C1244.
5. GRADE RINGS SHALL BE USED TO BRING ALL CASTING TO GRADE, MAXIMUM 11 INCHES.
6. IF THE CASTING IS DISTURBED AFTER IT IS INSTALLED IT SHALL BE COMPLETELY REMOVED, CLEANED, AND THEN REINSTALLED.
7. THE CONTRACTOR SHALL MARK ALL LATERAL LOCATIONS IN THE FIELD WITH A CONSPICUOUS 2" X 4" STAKE PAINTED BLUE EXTENDING 2'-6" ABOVE GRADE, PAINTED ORANGE OR RED.
8. "LOW-PRESSURE" AIR TESTING FOR PLASTIC PIPE SHALL BE PER ASTM-F1417.
9. ALL MAINLINE SANITARY SEWER SHALL BE VIDEO TAPED PER CITY ORDINANCE.
10. HORIZONTAL AND VERTICAL SEPARATION BETWEEN WATERLINE, STORM SEWERS, AND SANITARY SEWERS SHALL BE MAINTAINED AS FOLLOWS:
    A. A MINIMUM 10-FOOT HORIZONTAL SEPARATION (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATERLINE AND THE SANITARY SEWER WILL BE MAINTAINED.
    B. A MINIMUM 10-FOOT HORIZONTAL SEPARATION (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATERLINE AND THE STORM SEWER WILL BE MAINTAINED.
    C. A MINIMUM 18-INCH VERTICAL CLEARANCE (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATERLINE AND THE SANITARY SEWER WILL BE MAINTAINED.
    D. A MINIMUM 18-INCH VERTICAL CLEARANCE (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATERLINE AND THE STORM SEWER WILL BE MAINTAINED.
11. THE CONTRACTOR WILL COLOR FILM BOTH SANITARY AND STORM SEWERS TO VERIFY THAT THEY ARE FREE OF DEFECTS AND FOREIGN MATTER AND THAT THEY ARE TO THE PROPER ALIGNMENT PRIOR TO FINAL ACCEPTANCE BY THE CITY OF NORTH RIDGEVILLE. THE COLOR FILM TESTING SHALL BE DONE AT A TIME AGREED AND COORDINATED WITH THE CITY. ALL COSTS ARE EXPENSES AND COORDINATION EFFORTS FOR ALL INSPECTION AND TESTING SHALL BE SUBMITTED TO THE OWNER AND CITY FOR APPROVAL. ALL SEWERS SHALL BE FLUSHED AND HAVE A VCR TELEVISED INSPECTION IN ACCORDANCE WITH THE CITY OF NORTH RIDGEVILLE SPECIFICATIONS AFTER THE COMPLETION OF THE PAVEMENT CONSTRUCTION AND SEEDING OF THE DISTURBED AREAS, BUT PRIOR TO THE ISSUANCE OF BUILDING PERMITS. ALL SEWERS SHALL BE FREE OF DEBRIS AND SILT BEFORE TELEVISING AND INSPECTION. THE CONTRACTOR SHALL REPAIR OR REPLACE ALL DEFECTIVE SEWERS AS DIRECTED BY THE CITY ENGINEER. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY EQUIPMENT AND 24 HOURS BEFORE THE STORM AND SANITARY SEWERS ARE TELEVISED.

WATER SYSTEM

1. THE WATER SYSTEM SHALL BE CONSTRUCTED PER THE CITY OF NORTH RIDGEVILLE STANDARDS & REGULATIONS.
2. THE WATERLINE SHALL BE PVC MEETING THE REQUIREMENTS OF AWWA C900, OR C905, CLASS 150 PVC CONFORMING TO DIPS OR DUCTILE IRON IPS", CLASS 52, CEMENT LINED MEETING THE REQUIREMENTS OF ANSI A21.51 AND AWWA C-150.
3. A MINIMUM OF 36 PSI SHALL BE MAINTAINED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS. RECORD PLUGS ARE NOT PERMITTED ON SERVICE CONNECTIONS.
4. ALL FITTINGS FOR THE WATER MAIN SHALL BE RESTRAINED JOINT TYPE (MEGA-LUG) AND SHALL BE DUCTILE IRON MEETING AWWA C-153.
5. ALL BENDS OR TEES ON THE MAIN SHALL BE RESTRAINED JOINT TYPE (MEGA-LUG) AND BLOCKED WITH WOOD.
6. ALL DUCTILE IRON PIPE, CAST IRON FITTINGS AND HYDRANTS SHALL BE POLYWRAPPED ACCORDING TO AWWA C-105. RESTRAIN TWO PIPE JOINTS EITHER SIDE OF TEE OR ELBOW IN ADDITION TO THRUST RESTRAINT.
7. ALL FITTINGS SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO ANSI A21.4, AWWA C-104 AND ALL SUBSEQUENT AMENDMENTS.
8. ALL FITTINGS SHALL BE DESIGNED FOR A WORKING PRESSURE OF NOT LESS THAN 150 PSI.
9. ALL VALVES AND HYDRANT FITTINGS MUST HAVE STAINLESS STEEL NUTS AND BOLTS. T-BOLTS AND NUTS FOR ALL MECHANICAL JOINTS MUST HAVE A DETHADING COATING.
10. ALL PIPE SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE MORTAR LINING SHALL NOT BE LESS THAN 1/16 INCH IN THICKNESS AND CONFORM TO ANSI A21.4 AWWA C-104 AND ALL SUBSEQUENT AMENDMENTS.
11. ALL JOINTS SHALL BE MECHANICAL OR PUSH-ON TYPE. MECHANICAL JOINTS SHALL MEET THE REQUIREMENTS OF ANSI A21.11, AWWA C-111 AND ALL SUBSEQUENT AMENDMENTS. PUSH-ON JOINTS SHALL BE MADE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPE MANUFACTURER.
12. ALL HYDRANTS SHALL HAVE MECHANICAL TYPE JOINTS.
13. WHENEVER CHANGES IN LINE AND GRADE OF THE MAIN, AS SHOWN ON THE DRAWINGS ARE NOT STANDARD FITTING DEFLECTIONS, THE CONTRACTOR WILL BE PERMITTED TO USE AN APPROVED COMBINATION OF STANDARD FITTINGS AND SHALL DEFLECTION OF THREE DEGREES PER JOINT IN THE ADJOINING LENGTHS OF PIPE (NOT TO EXCEED THE MANUFACTURER'S SPECIFICATIONS).
14. CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT, IN THE FIELD, AND INSTALLED USING SOLID TYPE LONG PATTERN SLEEVES AS SHOWN OR AS REQUIRED.

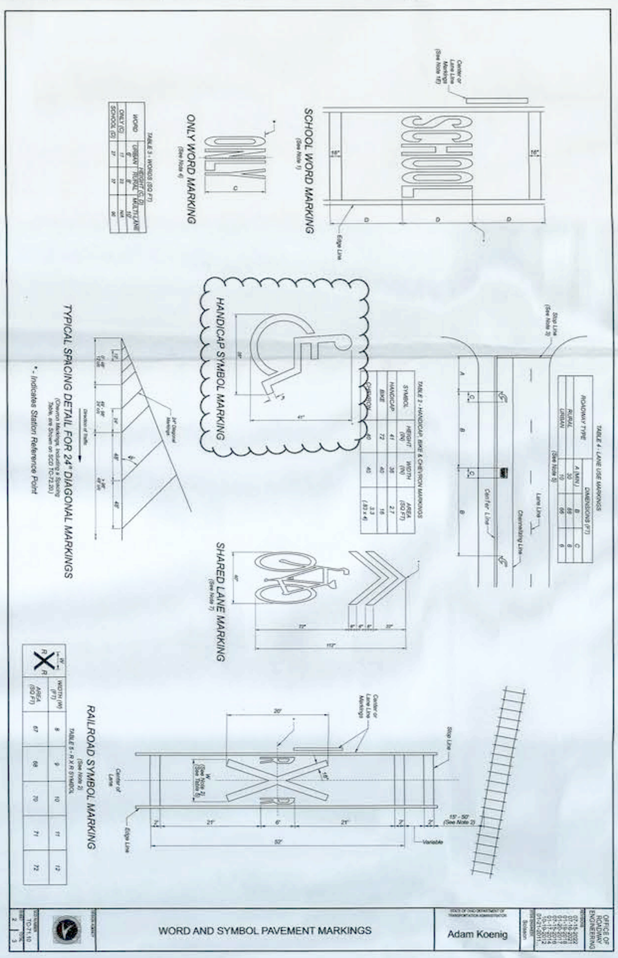
GATE VALVES

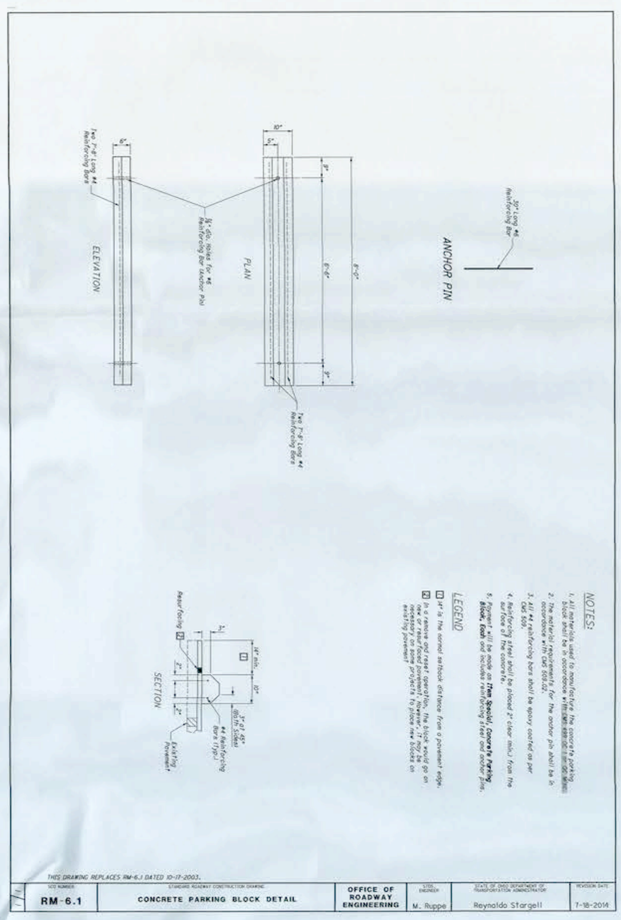
1. VALVES SHALL CONFORM IN ALL RESPECTS WITH AWWA C-500 OR C-509 AND WITH THE CITY OF NORTH RIDGEVILLE ENGINEERING DEPARTMENT SPECIFICATIONS.
2. ALL GATE VALVES THREE INCH AND LARGER SHALL HAVE A NON-RISING STEM. SHALL OPEN BY TURNING TO THE LEFT (COUNTER CLOCKWISE) AND BE OPERATED BY A 1"90-INCH SQUARE OPERATING NUT, NUTS SHALL HAVE AN ARROW AND THE WORD "OPEN" CAST THEREON TO INDICATE THE DIRECTION OF TURNING TO OPEN THE VALVE.
3. ALL GATE VALVES THREE-INCH TO 16 INCH IN SIZE SHALL BE OF RESILIENT WEDGE TYPE. THE GATE VALVE SHALL HAVE RUBBER "O" RING PACKING SEALS AND MECHANICAL JOINT ENDS UNLESS OTHERWISE SPECIFIED OR DIRECTED BY THE ENGINEER. THE TOP OF THE OPERATING NUT IS TO BE DONE THREE FEET BELOW FINISHED GRADE. AN EXTENSION STEM SHALL BE PROVIDED TO PLACE THE OPERATING NUT WITHIN SIX FEET BUT NOT BETWEEN 24 AND 30 INCHES BELOW THE SURFACE.
4. ALL 20 AND 24 INCH GATE VALVES SHALL BE PROVIDED WITH A FOUR INCH BYPASS VALVE AND ALL 30 INCH TO 48 INCH VALVES INCLUSIVE SHALL BE PROVIDED WITH A SIX INCH BYPASS VALVE LOCATED BELOW THE CENTER OF THE VALVES.
5. ALL GATE VALVES 16 INCH AND UNDER SHALL BE CONSTRUCTED TO WORK VERTICALLY. GATE VALVES 20 INCH AND LARGER IN SIZE SHALL BE CONSTRUCTED TO WORK HORIZONTALLY.
6. ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.

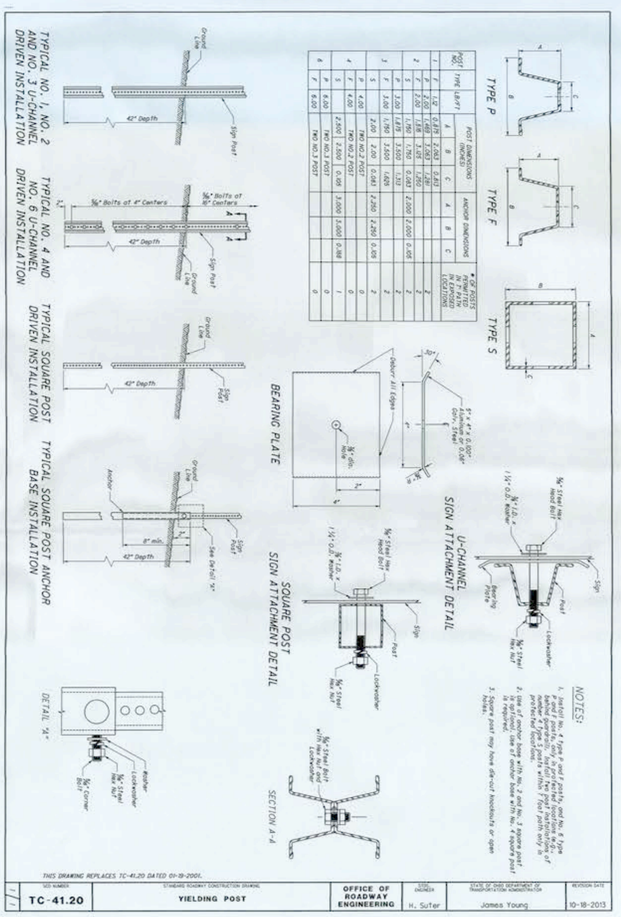
BUTTERFLY VALVES

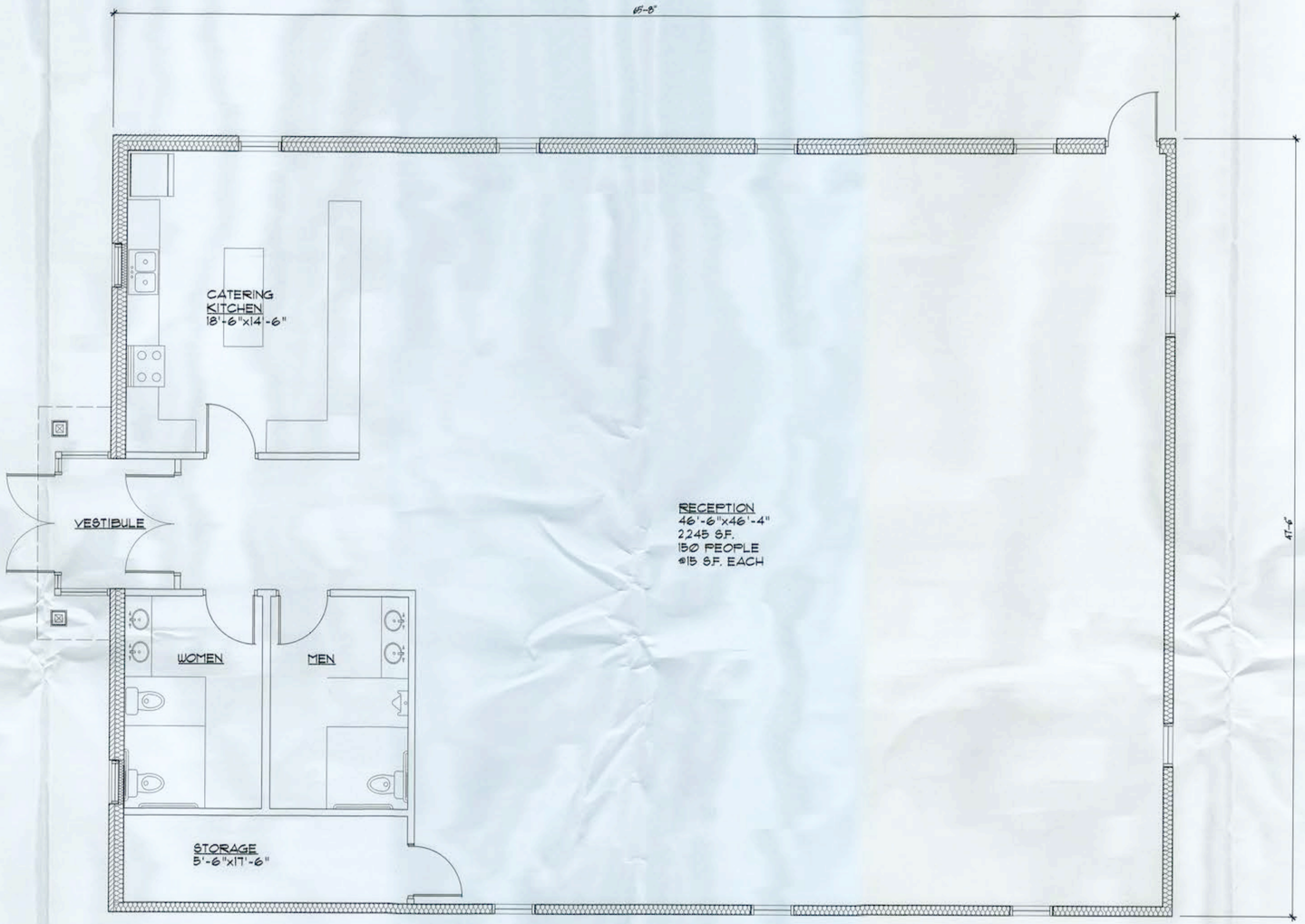
1. IN LIEU OF GATE VALVES, BUTTERFLY VALVES MAY BE USED ON 12 INCH AND LARGER MAINS.
2. ALL BUTTERFLY VALVES SHALL BE OF RUBBER-SEATED TIGHT-CLOSING TYPE. THEY SHALL MEET OR EXCEED PERFORMANCE REQUIREMENTS FOR AWWA C504. ALL RATINGS OF APPLICABLE RECOGNIZED STANDARDS SUCH AS AWWA C504. ALL VALVES SHALL BE MUELLER BUTTERFLY VALVES OR AN APPROVED EQUAL.
3. BO

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PROPOSED FLOOR PLAN

SCALE: 1/4"= 1'-0"

NORTH

DSC
ARCHITECTS
401 FRONT STREET
BEREA, OHIO 44017
PHONE: 440.835.3957
mail@dscarchitects.com

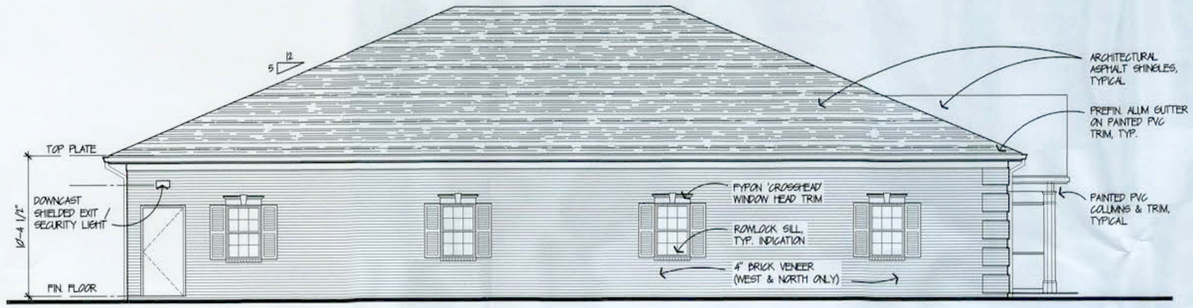
DATE:
PRELIMINARY
03.07.22
03.16.22
PLANNING/ZONING
08.16.22
10.10.22

Life Celebration Center for:
BOGNER FUNERAL HOME
Greenlawn Avenue
North Ridgeville, Ohio

STATE OF OHIO
RANDALL
SCOTT
SMITH
7352
REGISTERED ARCHITECT

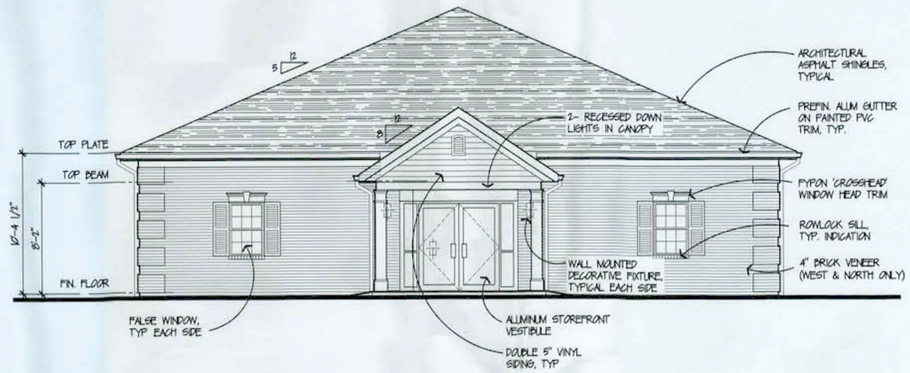
DSCA PROJECT NO.
22.016

SK-1



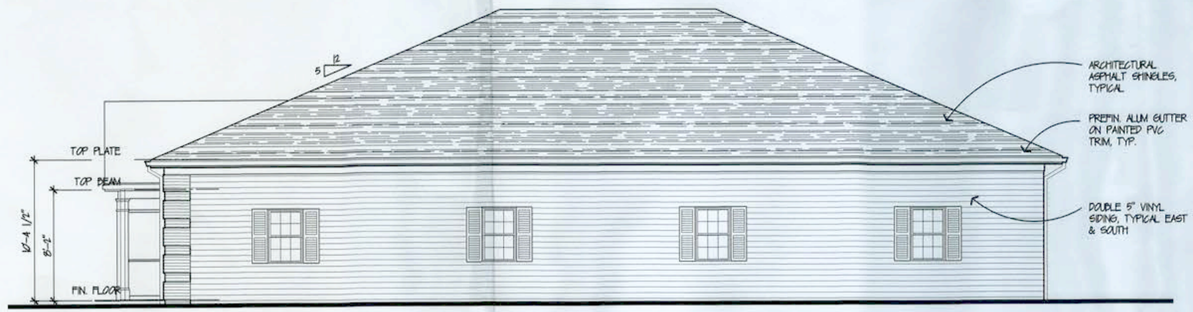
NORTH ELEVATION

SCALE: 3/16" = 1'-0"



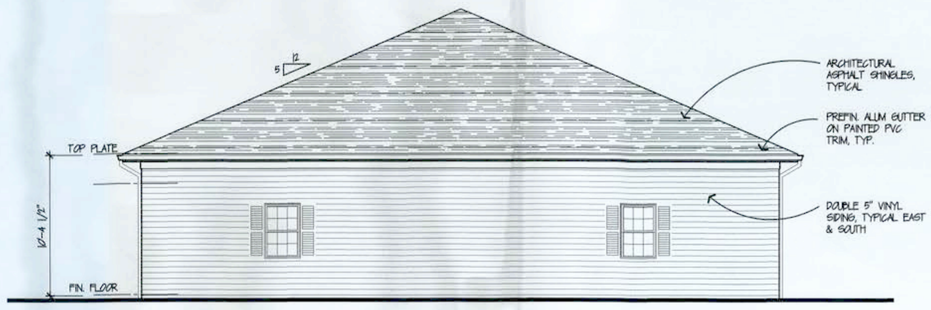
WEST ELEVATION

SCALE: 3/16" = 1'-0"



SOUTH ELEVATION

SCALE: 3/16" = 1'-0"



EAST ELEVATION

SCALE: 3/16" = 1'-0"

DSC
ARCHITECTS
401 FRONT STREET
BEREA, OHIO 44017
PHONE: 440.835.3957
mail@dscarchitects.com

DATE:
PRELIMINARY
03.16.22
PLANNING/ZONING
08.16.22
10.03.22
10.10.22

Life Celebration Center for:
BOGNER FUNERAL HOME
Greenlawn Avenue
North Ridgeville, Ohio

STATE OF OHIO
RANDALL SCOTT SMITH
7352
REGISTERED ARCHITECT

DSCA PROJECT NO.
22.0116

SK-2

Planning Commission Application

CITY OF NORTH Ridgeville EST 1810

SUBMITTAL INSTRUCTIONS AND PROCEDURES

Plan reviews will be carried out according to the process described in Chapter 1243 of the City's Zoning Code.

- Pre-Application. Prior to making application, applicants are recommended to contact the city to discuss their development project. City staff will outline the review process and provide a checklist of required submittals.
- Application Submittal. Following the pre-application meeting, the applicant shall submit this completed application, fee and ten (10) sets of all required exhibits. All submissions shall be made in hard copy to the Building Department. Plans shall be collated, folded and easily legible but no larger than 24" x 36".
- Staff Review. The applicant shall attend a staff review meeting and may be required to submit revised plans based on staff input.
- Variances. Where zoning variances are sought by the applicant, review by the Board of Zoning and Building Appeals will be necessary prior to consideration by the Planning Commission, requiring a separate application.
- Decision or Referral. Following staff review, complete submittals for Administrative Review projects may be considered for approval. For Council Review projects, complete submittals shall be referred to the next available Planning Commission meeting, which are held the second Tuesday of each month.

PROJECT INFORMATION

32499 LORAIN ROAD, NORTH RIDGEVILLE, OHIO
Location address

07-00-003-102-065
Parcel number

B-3 HIGHWAY COMMERCIAL
Current zoning

NEW CAR WASH FACILITY
Proposed project

APPLICANT/AGENT INFORMATION

ALWAYS STAY UNLIMITED, LLC DBA SGT CLEAN CAR WASH
Name/Company

3673 MASSILLON RD. UNIONTOWN, OHIO 44685
Applicant address

440-281-7999
Applicant phone

gregseifert@SGTCLEAN.com
Applicant email

440-225-1093
brienkrusz@SGTCLEAN.com

PROPERTY OWNER INFORMATION

32499 NORTH RIDGE, LLC
Name/Company

7670 TYLER BLVD. MENTOR, OHIO 44060
Property owner address

(440) 951-2977
Property owner phone

lance@osbornecapital.com
Property owner email

AUTHORIZATION AND ACKNOWLEDGEMENT

Applicant signature

Property owner signature

I hereby authorize the City of North Ridgeville, including Planning Commission members, to view the premises and consent to their entry onto the property for the purpose of observing site conditions related to review of my application.

Staff Use Only	PPZ No.	Date Received	Amount Paid	Payment Type

Development Plan Checklist

CITY OF NORTH Ridgeville EST 1810

PROJECT INFORMATION

Sgt. Clean Car Wash	32499 Lorain Road
Project name	Location address
B-3 Highway Commercial District	07-00-003-102-065
Zoning District	Parcel number

Any development plan application shall include all required exhibits as set forth in Section 1243.05 and be submitted to the Building Department, along with the required fees and deposits.

1243.05 DEVELOPMENT PLAN REQUIREMENTS

Any development plan, prepared by a licensed design professional, shall contain the information set forth below, as applicable.

✓	(a) A topographical survey of the property, showing land owned and proposed for development, surrounding streets, adjoining streets, adjoining lots and their use and ownership
✓	(b) A grading plan
✓	(c) A site plan drawn to scale and designed in accordance with the planning standards, regulations and criteria established in this Zoning Code, to include:
✓	(1) Adjacent streets and adjoining properties within 100 feet of the site including zoning classifications, lot lines, buildings, parking and drives
✓	(2) The location, size and use of all existing and proposed buildings and structures, including accessory buildings and uses, other site improvements and open space, along with notations of setbacks and lot coverage
✓	(3) The location and configuration of off-street parking and loading areas, the arrangement of access roads and drives, location of pedestrian walks, proposed traffic regulatory signs and pavement markings and type of pavement
✓	(4) Calculations for required parking
✓	(5) The proposed location and design of streets, including the location of existing utilities to be maintained or added and the location, details for all utility installations and connections to present or proposed facilities
	(6) A summary table showing total acres of the proposed development, the number of acres devoted to each type of land use including streets and open space
✓	(d) A detailed landscape plan, to include:
✓	(1) An existing conditions plan showing natural features and tree cover, with identification of trees to be removed and trees to be preserved C101
✓	(2) A planting plan including number, location, type and size of all proposed shrubs, trees and other plant material with planting details, and noting any required open space areas, setbacks, buffer strips or required screening
N/A	(3) The location, setbacks, height and specifications of any proposed fencing or screen walls
	(e) Building details, to include:
✓	(1) Location, setbacks, height and exterior dimensions of all existing and proposed buildings or structures
✓	(2) Preliminary architectural plans for all proposed buildings and structures, exterior elevations, building floor plans with dimensions, building materials and colors
✓	(3) Location, setbacks, height, dimensions and screening of any outdoor storage areas and facilities, dumpsters and service areas
✓	(f) A site lighting plan, including a photometric plan, lighting locations and fixture details
N/A	(g) Dimensions and locations of all permanent signs along with detail of any sign base for signs requiring a permit TO BE SUBMITTED FOR APPROVAL SEPARATELY
N/A	(h) Existing or proposed covenants running with the land, deed restrictions, shared facilities agreements, restrictions or easements, etc., if an
N/A	(i) Phasing schedule, if applicable

Planning Review

December 1, 2022

Project:	Sgt. Clean Car Wash
Location:	32499 Lorain Road
PPN:	07-00-003-102-065
District:	B-3 Highway Commercial District

Project Summary:

The proposal consists of redeveloping the 1-acre site of a former Marathon gas station for a new full-service car wash. The property is zoned B-3 Highway Commercial District, as is the property to the east and west. Property across Lorain Road is zoned B-4 Commercial Parkway District and the point of the pie shaped lot abuts land zoned I-2 Light Industrial District. A car wash is a permitted use in the B-3 District.

The 5,825 square foot building, exclusive of the canopy over the payment kiosk, meets all required setbacks. However, the canopy must also meet building setbacks (minimum single side setback of 15 feet, minimum sum of side setbacks 35 feet), which it does not. The west setback is 7.5 feet and the sum of side setbacks is 26.71 feet; therefore, BZBA approval for building setback will be required.

The building is primarily comprised of brick with metal panels on the tower element with clear glass windows in storefront framing. Both a brick vacuum building and dumpster enclosure are attached to the east side of the building. It does not appear a detailed landscaping plan has been submitted at the time of this report.

The single tunnel car wash will be served by two traffic lanes approaching the payment kiosk. In total, the applicant shows 27 cars can be accommodated in the queue. An escape lane is provided immediately before the entrance to the wash around the east side of the building. The site will be served by two curb cuts. The western curb cut will be full access and the easter curb cut will be right in, right out only. Cross access will be provided between Starbucks and the car wash, providing additional access onto Cook Road. The applicant provided a traffic impact study which indicated that the new car wash would have insignificant impact on the adjacent roadway and that no off-site traffic improvements are warranted. The study recommended the driveway configuration shown in the plans submitted.

Both parking lot lighting and building lighting are proposed. Lighting appears code compliant. Sufficient parking is proposed for employees. Two additional banks of parking are provided for patrons to access vacuums. The spaces along the eastern property line come very close to the Lorain Road curb cut. Vehicles entering the site have the potential to conflict with those backing out of the vacuum stalls. Likewise, vehicles in the vacuum stalls closest to the road may be trapped by the line of vehicles waiting to exit the site.

Recommendations:

- Provide a detailed landscaping plan.
- Provide evidence of the cross-access easement between the car wash and Starbucks properties.
- Remove parking spaces closest to eastern curb cut to improve vehicular safety and circulation.
- Ensure driveways and aisles can accommodate the turning radii of emergency vehicles traversing the site.

Planning Commission Comment Sheet

CITY OF NORTH Ridgeville EST 1810

PROJECT INFORMATION

Sgt. Clean Car Wash

Proposed project

32499 Lorain Rd, North Ridgeville, OH 44039	07-00-003-102-065
Location	Parcel number
12.13.2022	12.1.2022
Meeting date	Comments due

RECOMMENDATIONS

Type comments here. Attach additional sheets as necessary.

1. 1268.04 (b)(3) B-3 zoning requires the sum of side yards shall not be less than 35 feet and each side yard shall not be less than 15 feet. Applicant proposing sum of side yards to be 26.71 feet requiring a 8.29 feet variance. Applicant proposing west side yard to be 7.5 feet requiring a 7.5 feet variance.
2. Sign package information was not provided.
3. All else appears code compliant.

SUBMITTED BY

Guy M. Fursdon	Chief Building Official
Administrative officer signature	Title

Planning Commission Bylaws Article V Section 2 – Administrative Review. All applications including those plans and maps submitted to the Commission shall be referred to Administrative Officers. Comments and recommendations by Administrative Officers, if any, shall be forwarded to the Secretary not later than ten (10) calendar days after receipt. Administrative Officers who have not acted within the allotted time shall be deemed to have concurred with plans as submitted.

Planning Commission Comment Sheet

CITY OF NORTH Ridgeville EST 1810

PROJECT INFORMATION

Sgt. Clean Car Wash
Proposed project

32499 Lorain Rd, North Ridgeville, OH 44039
Location

07-00-003-102-065
Parcel number

12.13.2022
Meeting date

12.1.2022
Comments due

RECOMMENDATIONS

Please contact Asst. Chief Mike Uhnak of the North Ridgeville Fire Department to discuss the following code requirements of the Ohio Fire Code and Ch. 16 Fire Prevention of the Codified Ordinance of North Ridgeville.
North Ridgeville Fire Department
Fire Prevention
(440)653-6362

1- OFC Rule 5 Fire Service Features- Section 506: Fire Department Lock Box. Section 503: Fire Access Roads.
2- OFC Rule 33 Fire Safety During Construction
3- NFPA 241 Standards for Safeguarding Construction Operations.
4- Chapter 16 Fire Prevention NR Ordinance.

Respectfully

Asst. Chief Mike Uhank

SUBMITTED BY

Administrative officer signature

Assistant Fire Chief
Title

Planning Commission Bylaws Article V Section 2 – Administrative Review. All applications including those plans and maps submitted to the Commission shall be referred to Administrative Officers. Comments and recommendations by Administrative Officers, if any, shall be forwarded to the Secretary not later than ten (10) calendar days after receipt. Administrative Officers who have not acted within the allotted time shall be deemed to have concurred with plans as submitted.

Staff Meeting Bulletin

Meeting Date:	November 29, 2022
Project:	Sgt. Clean Car Wash, 32499 Lorain Rd
Applicant:	Always Stay Unlimited LLC, dba Sgt. Clean Car Wash, 3673 Massillon Rd, Uniontown, OH 44685
Zoning:	B-3 Highway Commercial District
In Attendance:	Mayor Kevin Corcoran Jeff Armbruster, Safety Service Director Guy Fursdon, Chief Building Official Kim Lieber, Planning and Economic Development Director Tina Wieber, Deputy Clerk of Council Greg Seifert, Architect Brian Cruz, Sgt. Clean Car Wash

Project Introduction

- Greg explained that the proposed car wash would go into the lot on the corner of Lorain Road and Cook Rd next to Starbucks. He stated that the lot was very narrow and triangular in shape. He discussed that the car wash would be a 5,000 square foot tunnel with double lane queueing on the west side where they would go through a pay station under a canopy to help keep people out of the weather. He stated that the canopy would also be a signal showing people where to go and would help to slow down the flow of traffic. Guy asked how many cars could they stack in the queue line. Greg said at least 20. Brian added that they had never had traffic issues and that there would be an express lane for fast pass members that would pass right through. He stated that they wanted short lines and that there were only four choices for the car washes. He mentioned that upon exiting the tunnel there was a 10-15 second pause prior to exiting before the next car. He stated that the east side had a drive that connected with Starbucks. He explained that on the west side free vacuums would be located. He discussed that the building would be brick with metal detailing and would be a Class A new car wash facility. He stated that there would be a manager station at the pay point to solve any issues that occurred. He mentioned that the average time in and out for customers was 3.15 to 3.30 minutes. He added that they had provided the storm water calculations.

Staff Comments

- Guy asked about their setbacks and Greg stated that they would have to ask for a variance for the canopy. Guy asked if they were purchasing the lot and if so, did they have an easement agreement with the owner. Brian stated that they would be purchasing the parcel and would have shared access. He stated that customers could enter via Lorain Road or Cook Road. He reviewed the traffic study and stated that if for some reason someone needed to leave without getting a car wash there was an escape lane to go around the east side of the building to exit. Guy said there needed to be a fire hydrant 300 feet from all points of the building but that sometimes the fire department could extend it to 350 feet. He asked if they were submitting a sign package. Greg mentioned that they excluded the sign package would come in for it separately but that they would have a monument sign out of the right-of-way. Guy asked if they had down type lighting. Greg stated that they did. Guy asked what their busiest time of year was. Greg stated it was from December to April. Kim asked what percentage of their clients were members versus single pay. Greg stated around 60 to 70%.
- Kim asked regarding the curb cut, if an emergency vehicle would be able to get in and out of the site. Greg stated that they believed they could. She stated that she had concerns with their parking spaces. She discussed that Lorain Road was very busy with local and highway traffic. She stated that not all of the traffic on Lorain Road was familiar with the area and someone backing out of a space

closest to the curb cut could come in conflict with those turning in or those stacking to exit. Greg stated they would take that concern to their Civil and Traffic Engineers and have them review it. He mentioned that they could eliminate the last two spaces into open paved area. Kim mentioned four being a good number. Brian stated that the problem would then be limiting the number of vacuums available and people driving around to find an available vacuum. Kim mentioned that they could improve the green space and make more room for the monument sign, which is currently shown parallel to the road which doesn't create good visibility. Brian stated that they could possibly angle the sign in the area of the lost spots.

- Mayor asked why the traffic study called for a stop sign for the right turn only lane and no stop sign for the lane that turned both ways. Greg stated that they would look into that. Mayor stated the he agreed with Kim in removing some spots because he could see accidents happening there. Brian said they would look into the capacity of the vacuum, which was centralized and everything from the size of the building to the number of vacuums and number of spots went into the calculations for the horsepower load on the unit.
- Jeff stated that they needed to increase the radius of the exit drive out to allow more room for trucks to maneuver or people would drive over the treelawn. Jeff asked where the employees would park. Brian explained they would park in the rear and exit through the escape lane.

Next Steps

- The applicant will submit any updated plans by December 6, prior to be distributed to Planning Commission members for the December 13 meeting.

City of Strongsville

16099 Foltz Parkway
Strongsville, Ohio 44149-5598
Phone: 440-580-3150
Mayor's Office Fax: 440-572-3241
www.strongsville.org

Thomas P. Perciak
Mayor

May 20, 2022

Re: ***Sgt Clean Car Wash Support Letter***

To Whom It May Concern:

I am pleased to detail the City of Strongsville's positive relationship with Sgt. Clean Car Wash, under the leadership of Mr. Brian Krusz.

Sgt. Clean Car Wash has operated within the City of Strongsville for over 9 years, investing millions of dollars in the construction and redevelopment of car wash facilities at 18534 Pearl Road and 12653 Pearl Road.

Through a close working relationship with my administration, Brian Krusz has created and maintains efficient, professional operations that comply with City code and further enhance the value of formerly underutilized parcels. Through Mr. Krusz's open dialogue and cooperation with the City, there has been no ongoing issues with traffic or noise at either of his locations.

Importantly, through Mr. Krusz's active participation with local civic groups and continuous financial support of community events, Sgt. Clean Car Wash has established itself as a model member of our community.

With over 83% of the City's general fund revenue derived from municipal income taxes, the strength of Strongsville's business base is critical to the financial stability of our community. The continued growth of Sgt. Clean Car Wash through the leadership of Brian Krusz is a true benefit to our community.

Please do not hesitate to contact me if I can be of assistance in connection with this project.

Sincerely,

Thomas P. Perciak
Mayor
City of Strongsville
440-580-3151

Strongsville Police Department

18688 Royalton Road
Strongsville, Ohio 44136
Phone: 440-580-3230
Fax: 440-238-1642
www.strongsville.org

Thomas P. Perciak
Mayor

Charles W. Goss
Director of Public Safety

Mark Fender
Chief of Police

5-18-2022

To whom it may concern,

Sgt. Clean Car Wash has two locations (18534 Pearl Road, 12653 Pearl Road) in the City of Strongsville. They have been in operation here since 2013, and neither site has generated a traffic concern or incident over the past nine years. They have been a professional community partner.

Sincerely,

Mark Fender
Chief of Police

TIM DeGEETER
MAYOR
www.cityofparma-oh.gov
mayorsoffice@cityofparma-oh.gov

6611 Ridge Road
Parma, Ohio 44129
440-885-8001
Fax: 440-885-8012

To Whom it May Concern,

Sgt. Clean Car Wash on Day Drive has been a thriving part of the community since 2017, both in business and philanthropy. In the past five years, there have been no complaints or issues with traffic, congestion or noise. They are a model business and professional organization that provides excellent customer service.

Additionally, the owners and staff are engaged in the community and participate in community events. Owner Brian Krusz, a Marine veteran, has also worked with our safety forces.

Please contact me if you have questions or need additional information.

Regards,

Parma Mayor Tim DeGeeter

City of Parma, Ohio

Parma Police Department
Department of Public Safety

440.887.7300 Telephone | 5555 Powers Blvd. • Parma, Ohio 44129 | 440.887.7380 Fax

JOSEPH M. BOBAK
CHIEF OF POLICE

TIM DEGEETER
MAYOR

THOMAS WM. WEINREICH
SAFETY DIRECTOR

May 25, 2022

Sgt. Clean Car Wash
7875 Day Drive
Parma, OH 44129

To Whom It May Concern:

Sgt. Clean has been in operation in the City of Parma since 2017. During that time, they have not been the cause of any police activity. They are a respected, professionally run business within our community and our department has done business with them.

Sincerely,

Joseph M. Bobak
Chief of Police

The City Of Medina Ohio

EDWARD R. KINNEY
CHIEF OF POLICE

Medina Police Department
150 West Friendship St.
Medina, Ohio 44256-1896
Office: 330-723-3181
Department: 330-725-7777
Fax: 330-722-4451
www.medinaoh.org

May 13, 2022

To Whom it May Concern,

I'd like to take this opportunity to acknowledge support for Sgt. Clean Car Wash located at 969 N. Court St. in Medina. In the four years of their existence here in Medina there have been zero concerns related to traffic around the business or in the integrity of their operation. Sgt. Cleans holds a respectable presence in our community and with the Medina Police Department.

As a customer, I can substantiate that the service is high caliber and that they seem to operate a respectable and reputable organization. Feel free to reach out to me with any questions or concerns.

Respectfully,

Edward R. Kinney
Chief of Police
Medina Police Department

The City Of Medina Ohio
Preserving the Past. Forging the Future.

CITY OF MEDINA
Community Development Department
132 N. Elmwood Ave. Medina, OH 44256
Phone: 330-722-9056 Fax: 330-764-4385

May 16, 2022

Bran Krusz
Sgt. Clean Car Wash
969 North Court Street
Medina, OH 44256

Dear Mr. Krusz,

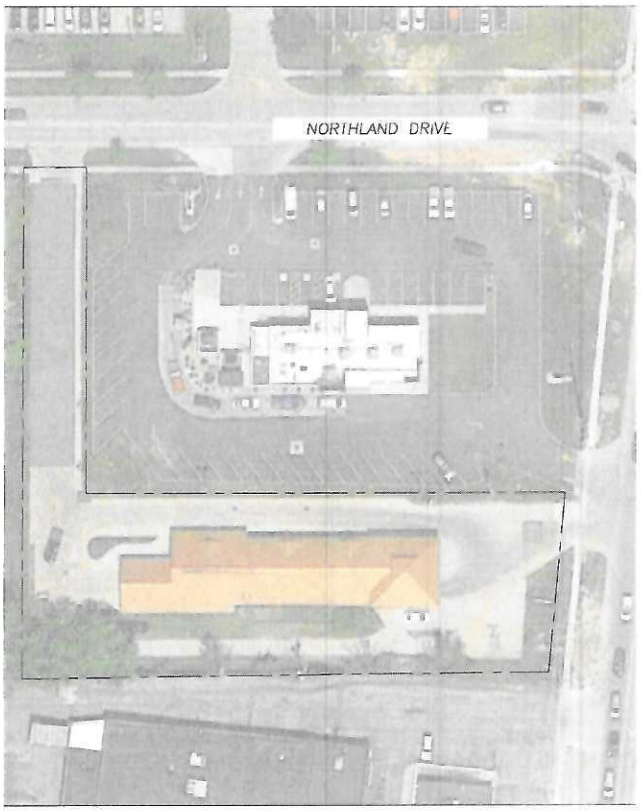
Per your request regarding Sgt. Clean Car Wash, 969 North Court Street, Medina, OH, the City of Medina has not received any complaints regarding the business in the approximately four years since it has been located on the site. As shown on the attached plan, the business is located on a challenging "L" shaped lot with right-in/right-out access to North Court Street, the main road in the area, and full access off of Northland Drive, a secondary road.

In addition, the business owner has made improvements to the building and site, which have provided value to the area.

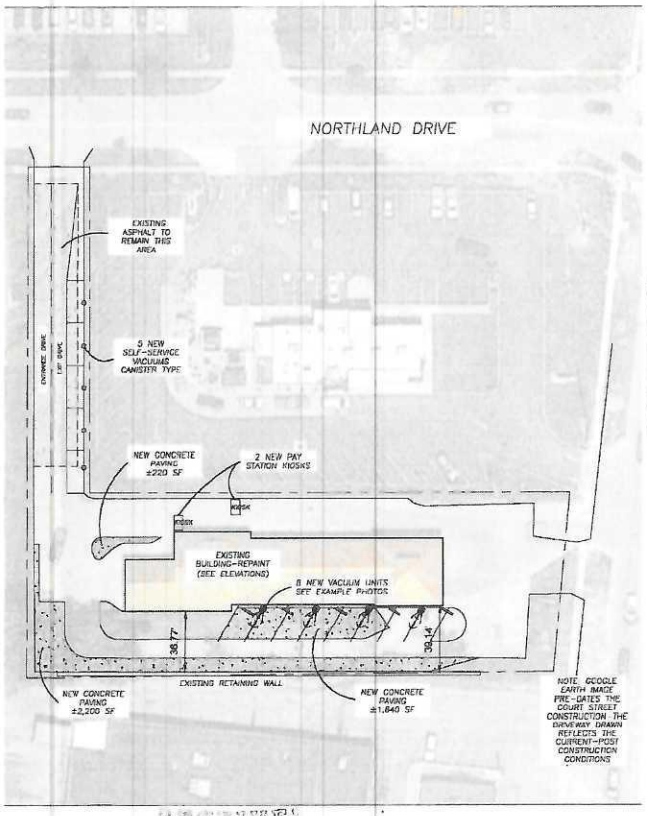
Please feel free to contact me at (330) 722-9023 or adutton@medinaoh.gov if you have any questions or need any further information.

Sincerely,

Andrew Dutton
Community Development Director



EXISTING SITE PLAN
NOT TO SCALE



PROPOSED SITE PLAN
NOT TO SCALE

RECEIVED
SEP 20 2018
BY

Greg Bellfort
Architect
3292 Valley Road
Kent, Ohio 44240
PH: (330) 677-2669

DATES AND REVISIONS
20 September 2018
PC submission

Wheely Clean Car Wash Remodel
969 NORTH COURT STREET
MEDINA, OHIO

Drawn By
Checked By
Project Number

REFERENCE NORTH

DRAWING NO.
A-1.1

The City of Westlake Ohio
DENNIS M. CLOUGH, MAYOR

www.cityofwestlake.org

PLANNING DEPARTMENT
27700 Hilliard Blvd.
Westlake, OH 44145
Phone 440.871.3300
Fax 440.617.4324

May 16, 2022

Re: Sgt. Clean Car Wash, 25247 Detroit Road

To whom it may concern,

Since purchasing this car wash in 2016, Sgt. Clean Car Wash has installed special light shields for their vacuum equipment, provided screening of outdoor equipment, removed excessive signage, and are fully compliant with the Westlake Zoning Code. They have been cooperative and timely with all of our requests.

According to Westlake Police Department records going back to January 1, 2020, there have been no noise complaints or other problems/disruptions etc. created by the business or its employees. Sgt. Clean Car Wash has been very supportive of the Westlake Police Department.

Sincerely,

Jim Bedell, AICP
Director of Planning and Economic Development
(440) 617-4307

Project Narrative
Sgt. Clean Car Wash
32499 Lorain Road
North Ridgeville, Ohio

This narrative explains our reasoning why a new Sgt Clean car wash can meet and even exceed the City's Zoning Ordinances requirements at the above site location and will be a positive long-term business citizen in North Ridgeville.

The project consists of a new full-service car wash to be built on the existing site of the now-closed Marathon gas station west of the intersection of Lorain Road and Lear-Nagle Road. All of the previous building and infrastructure on the site will be removed with the exception of the two existing driveway aprons. The new car wash building will align with Lorain Road, set back fifty feet per the required front yard building setback. Vehicle access to and from the site will be from the two curb-cuts on Lorain Road. The existing east drive entrance will be a right-in, right out only per the recommendations of the Traffic Study. In addition, there is a cross-easement and shared driveway to the Starbucks building to the east. There will be two rows of vacuum stations located to the east of the building, for use by persons visiting the site.

We would like to state some of features of this proposed project that make Sgt Clean a destination location for the citizens of North Ridgeville.

Hours of Operation: The washes anticipated hours of operation are from 7am to 8pm, 7 days a week. Sgt Clean personnel are always on-site during business hours. After-hours access to the site is not permitted.

Site Lighting/loudspeakers: Sgt. Clean car wash site have lighting designed to meet the requirements of the City Zoning Ordinances. No light will trespass over the property boundaries and there will be no glaring light sources visible from the adjacent sites.

Overall site layout and design. The property is 1.0 acre in size and Sgt. Clean will landscape the non-pervious areas of the site. One of the goals of Sgt. Clean is to create a pleasing experience for our customers, and extensive green spaces and landscaping where the closed gas station currently exists will greatly enhance the development and the perception of this area of the City.

One of the main concerns that municipalities have of a car wash is traffic. Traffic back-ups onto streets during peak usage times is commonly perceived as a negative to a car wash. Sgt. Clean has designed the site to allow for no on-street back up even during peak times. The two queuing lanes can handle 28 vehicles at a time, and they are located toward the west of the property with significant additional driveway area for car circulation. One of the main features of a Sgt Clean car wash is that the tunnel moves at a faster rate, which means less time in the wash and less time waiting to enter the wash. This faster elapsed time is a benefit to both the customer and the wash operation. We are confident that our state-of-the art wash systems will not result in traffic issues at this location. Enclosed with this narrative are letter of support by City Officials where we have current locations, testifying to our successful operations.

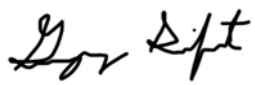
Many car washes rely on bright colors and many site gimmicks (flags, banners etc…) to attract people. Sgt. Clean does not. The proposed building will be built of brick, with muted colors as accents. There will be a narrow red band as a part of the design, in order to catch the eye. The remainder of the site elements, specifically the vacuum masts, will not have bright colors. Signage will be submitted as separate approval package. The only other site element will be a flagpole, flying the American flag proudly.

For additional consideration the following items are standard features of a Sgt Clean car wash that would not be considered standard for other car washes:

1. Rapid speed open/close doors at the tunnel exit to greatly reduce sound transmission.
2. Mufflers installed on the dryer equipment to reduce sound transmission.
3. An escape lane to allow for non-conforming vehicles to exit safely as needed.
4. Advanced tunnel movement technology which keeps vehicles flowing smoothly with an automatic stop activation if necessary
5. The vacuum system utilizes a central vacuum unit which is enclosed in a structure to contain sound from the unit.
6. Extensive employee training in the multiple-step procedures to prevents car movement slowdown or stoppages.

We look forward to your review and a successful beginning of a new relationship.

Sincerely,



Greg Seifert, Architect Sgt. Clean Car Wash

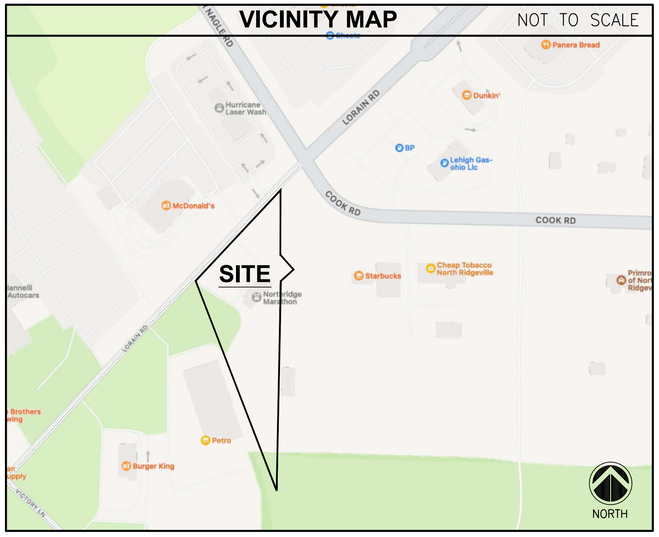
NEW BUILDING FOR:
FOR

SGT. CLEAN CAR WASH

SITUATED IN THE CITY OF NORTH RIDGEVILLE, LORAIN COUNTY
AND STATE OF OHIO
32499 LORAIN ROAD

VICINITY MAP

NOT TO SCALE



APPLICANT:
ALWAYS STAY UNLIMITED, LLC. dba SGT CLEAN CAR WASH 3673 MASSILLON ROAD UNIONTOWN, OHIO 44685 GREG SEIFERT 440-281-7999

DRAWING LIST

TS	TITLE SHEET
A-1	SITE VICINITY MAP
---	SITE ALTA SURVEY
C-100	CIVIL DRAWINGS TITLE SHEET
C-101	SITE DEMOLITION PLAN
C-102	SITE PLAN
C-102A	SITE CIRCULATION PLAN
C-102B	CANOPY AND SIDE YARD SETBACK PLAN
C-103	SITE UTILITY PLAN
C-104	SITE GRADING PLAN
C-105	SITE DETAILS
C-105A	SITE DETAILS
C-106	SWP3 PLAN
C-107	SWP3 DETAILS
C-108	SWP3 DETAILS
C-109	SWP3 DETAILS
LS-1	LANDSCAPE PLAN
L-1	SITE PHOTOMETRIC SHEET 1
L-2	SITE PHOTOMETRIC SHEET 2
L-3	SITE PHOTOMETRIC SHEET 3
L-4	SITE PHOTOMETRIC SHEET 4
	COLORED BUILDING ELEVATIONS
A-2	BUILDING DRAWINGS
A-3	BUILDING DRAWINGS
A-4	BUILDING DRAWINGS
A-5	BUILDING DRAWINGS
A-6	BUILDING DRAWINGS
A-1 E	SITE ELEMENTS DETAILS

ADDITIONAL INCLUDED MATERIALS:
-MATERIAL SAMPLE BOARD
-TRAFFIC STUDY
-STORM WATER CALCULATIONS

NOTE: SIGNAGE WILL BE SUBMITTED LATER AS A SEPARATE SUBMITTAL PACKAGE. ANY SIGNAGE SHOWN ON THESE DRAWINGS IS JUST FOR REFERENCE.

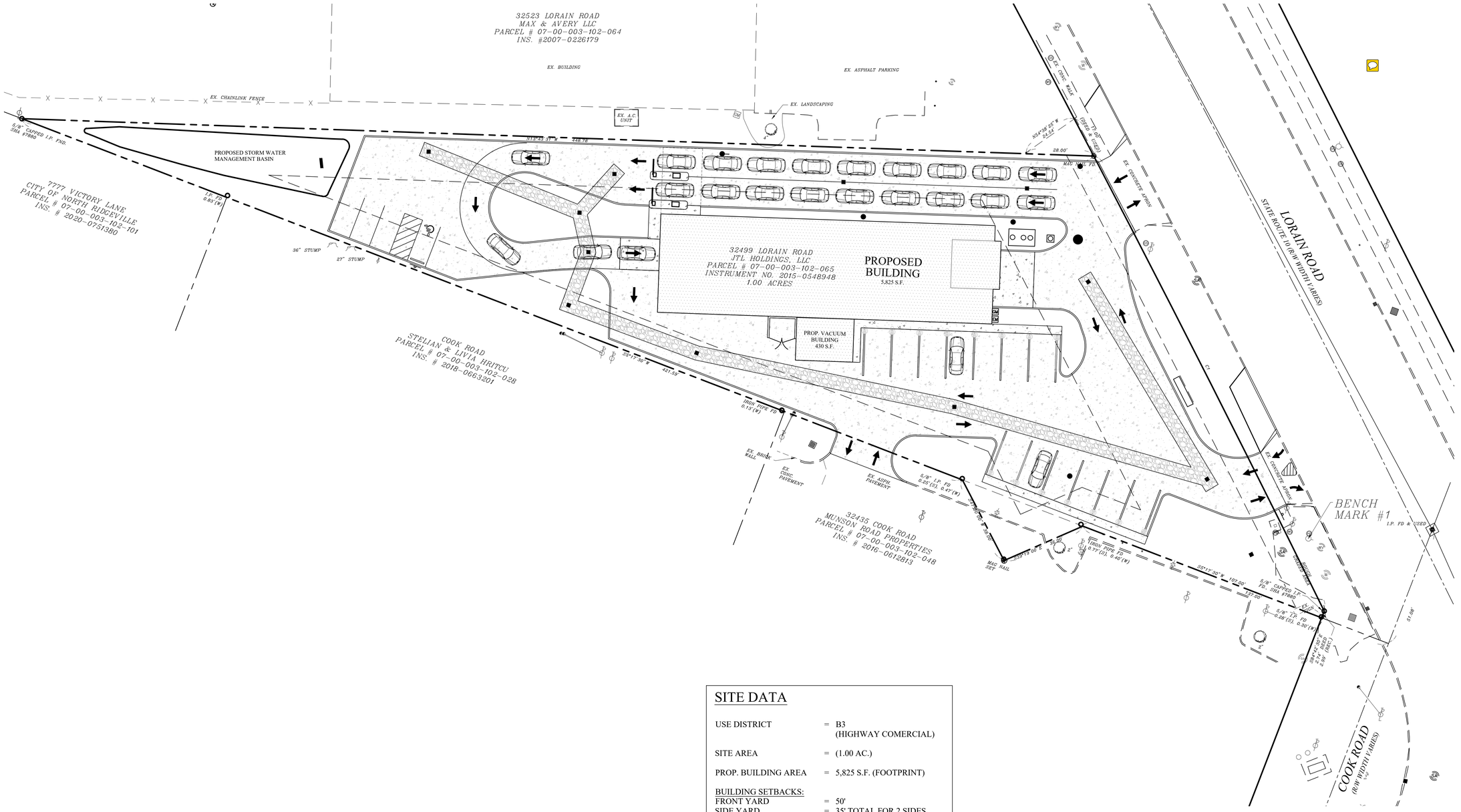
ZONING CODE DATA

USE DISTRICT:	B-3 HIGHWAY COMMERCIAL	
SITE AREA:	1.000 ACRES	
BUILDING AREAS		
NEW:	5,825 SF.	
BUILDING SETBACKS:	REQUIRED	PROVIDED
FRONT:	50' (LORAIN)	50.0'
SIDE:	35' FOR BOTH, BUT NOT LESS THAN 15'	19.71'(EAST) 30.5' (WEST)
REAR:	40'	270.3'
BUFFER YARDS:	REQUIRED	PROVIDED
FRONT:	10' (LORAIN)	14.0'
SIDE:	NONE	N/A
REAR:	NONE	N/A
PARKING:	CAR WASHES NOT LISTED	4 (NOT INCLUDING VACUUM STATION SPACES)

STATE OF OHIO
GREGORY R. SEIFERT
9210136
REGISTERED ARCHITECT

DRAWING NO:
TS
TITLE SHEET

UPDATED



CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'54" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

SITE DATA

USE DISTRICT	=	B3 (HIGHWAY COMERCIAL)
SITE AREA	=	(1.00 AC.)
PROP. BUILDING AREA	=	5,825 S.F. (FOOTPRINT)
BUILDING SETBACKS:		
FRONT YARD	=	50'
SIDE YARD	=	35' TOTAL FOR 2 SIDES, NOT LESS THAN 15' ONE SIDE
REAR YARD	=	40'
NUMBER OF PARKING SPACES:		
REGULAR PARKING SPACES	=	3
HANDICAP PARKING SPACES	=	1
TOTAL PARKING SPACES	=	4

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39093C 0163 D
COMMUNITY PANEL NUMBER 39093 0163 D
EFFECTIVE DATE AUGUST 19, 2008

LEGEND

CONCRETE PAVING

ITALICS TEXT REPRESENTS EXISTING CONDITION

NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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www.WeberEngineeringServices.com
330-329-2037
matt@webercivil.com

STATE OF OHIO
MATTHEW L WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

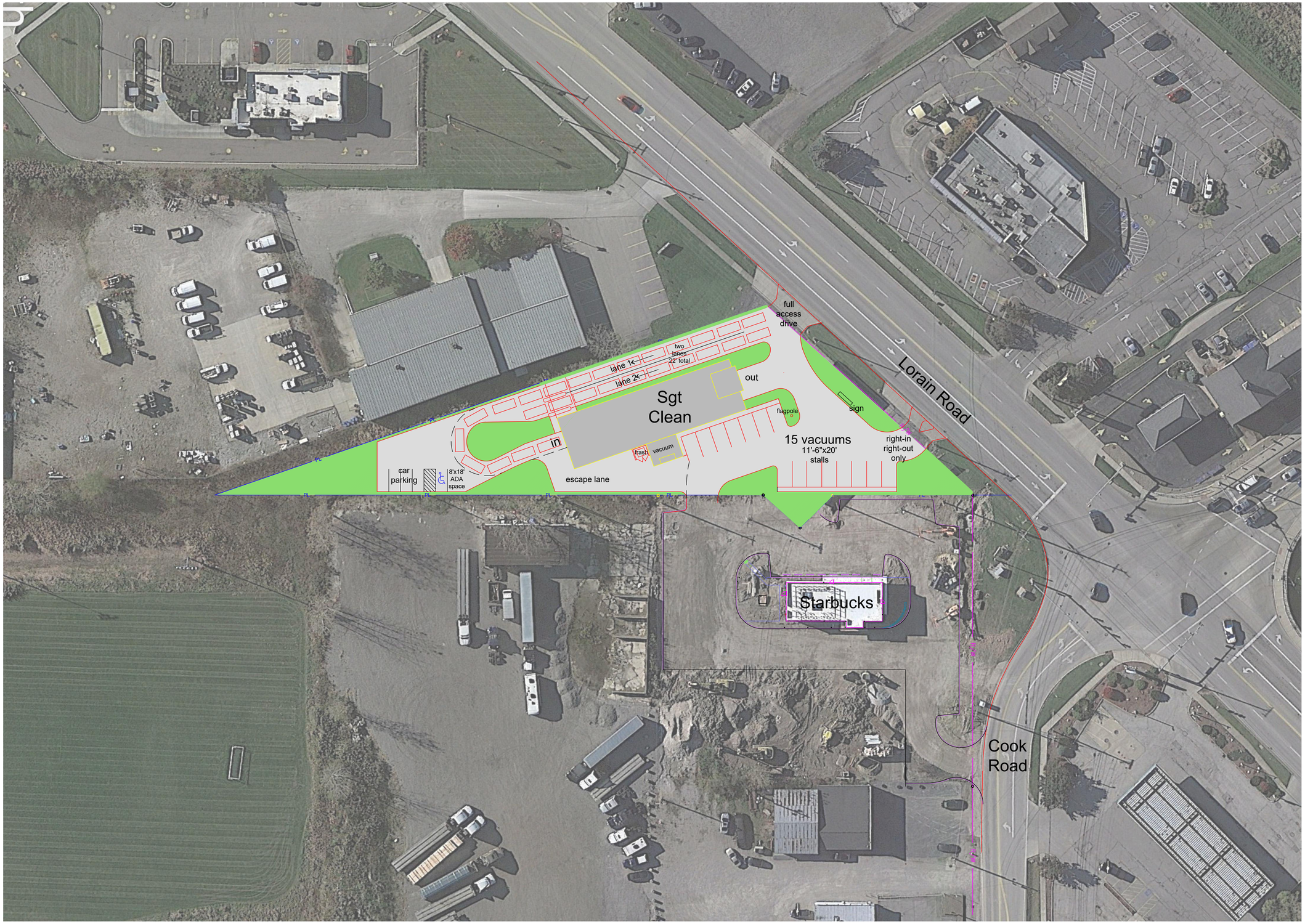
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022
12-07-2022

VEHILCE CIRCULATION PLAN

C102A
Project No. 2022-298

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VICINITY MAP

NOT TO SCALE

Sgt. Clean
Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

DRAWING DATES

18 November 2022
PC Submission

PROJECT NUMBER:

1020-005-22

Sgt. Clean Car Wash

Vicinity Map-North Ridgeville Site

City of North Ridgeville, Ohio
Lorain County Ohio

REFERENCE
NORTH

TITLE SHEET

A.1

ALTA/NSPS LAND TITLE SURVEY
32499 LORAIN ROAD
NORTH RIDGEVILLE, OHIO
P.P.# 07-00-003-102-065

<u>LEGAL DESCRIPTIONS:</u>

Situated in the City of North Ridgeville, County of Lorain, and State of Ohio and known as being part of Original Ridgeville Township Lot No. 3, bounded and described as follows:

Beginning at the intersection of the Southeasterly line of Lorain Road (A.K.A. Butternut Ridge Road) with the Westerly prolongation of the Southerly line of Cook Road;

Thence South 84° 42' 30" East along said Westerly prolongation of the Southerly line of Cook Road a distance of 2.74 feet to the Westerly line of a parcel of land conveyed to Dean Ollar by deed as recorded in Volume 1220, Page 643 of Lorain County Deed Records;

Thence South 5° 17' 30" West along said Westerly line a distance of 107.00 feet to a point;

Thence South 39° 19' 00" East a distance of 36.00 feet to a point;

Thence South 47° West a distance of 38.00 feet to a point;

Thence South 5° 17' 30" West along said Westerly line and the Southerly prolongation thereof, a distance of 421.59 feet to a point;

Thence North 13° 43' 31" West a distance of 448.44 feet to the Southerly line of Lorain Road;

Thence 213.82 feet along the Southerly line of Lorain Road being the arc of a curve deflecting to the right, having a radius of 8,544.00 feet and a chord distance of 213.82 feet that bears North 47° 24' 21" East to the place of beginning and containing 1.00 acres of land, be the same more or less, but subject to all legal highways.

Basis of bearing is Instrument Number 2021-0819356.

Permanent Parcel No.: 07-00-003-102-065

<u>Notes (Table A Items):</u>

1. Monuments are found as set as indicted. Set monuments are capped 5/8" iron pins with ID cap "SH&A 7880"

2. Address shown on this document are based off of data obtained from the Lorain County GIS system

3. Subject property located in Flood Zone "X" of FEMA Flood Insurance Rate Map Community No. 39093C0163D, effective date of August 19, 2008.

4. Gross land area for the subject property: 1.00 acres

7(a). Exterior dimensions of building at ground level has been shown.

7(b)(1). Square footage of exterior footprint of building at ground level shown.

8. Substantial features observed during the survey have been depicted on the survey, with a legend provided representing the symbols.

13. Names of adjoining property owners shown hereon, according to Lorain County GIS records are shown.

14. The intersections of Lorain Road and Cook Road is shown hereon, as part of the survey.

15. All above grade features shown hereon were obtained by the survey fieldwork.

16. No evidence of recent earth moving, building construction or building additions were observed during the fieldwork.

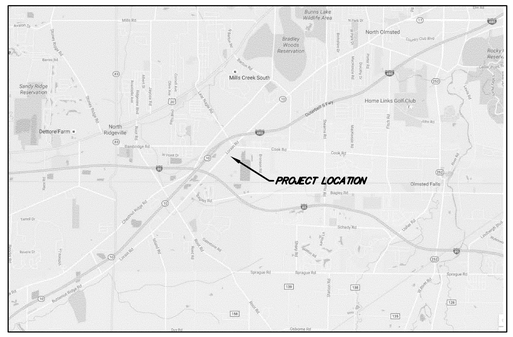
17. An email was sent on September 20, 2022 to the City of North Ridgeville Engineering office. The Cities Engineering office advised that there were no plans to change any of the subject property right of way area on both Lorain Road and Cook Road.

18. All easements shown hereon are shown based on documents provided in Title Commitment No. 220014PT. No additional plottable easements or servitudes were obtained by the surveyor.

<u>SURVEY REFERENCE DOCUMENT:</u>

DEEDS AS SHOWN ON THIS PLAT.

LORAIN COUNTY TAX MAPS.



VICINITY MAP

LEGEND

LA	EX. LIMITED ACCESS
R/W	EX. R/W
PL	EX. PROPERTY
CL	EX. CENTERLINE
EA	EX. EASEMENT
CA	EX-CABLE TV
E	EX. ELEC.
OH	EX. OVERHEAD ELEC.
G	EX. GAS
T	EX. TELE.
W	EX. WATER
X	EX. FENCE
S	EX. STM. SEWER
SA	EX. SAN. SEWER
ST	EX. STM. COMM.
W	EX. WATER COMM.
880	EX. CONTOURS

LEGEND

EX. RECTANGULAR CB	EX. MISC. CONTROL
EX. ROUND CB	EX. MONUMENT BOX R/P
EX. CURB INLET	EX. MONUMENT TOP
EX. DOUBLE CB	EX. MONUMENT BOX W/DRILLHOLE
EX. SQUARE IB	EX. IRON PIN/PIPE
EX. YARD DRAIN	EX. RR SPIKE
EX. STORM MH	EX. HUB & TACK
EX. STORM CLEANOUT	EX. PK NAIL
EX. SANITARY MH	EX. DRILLHOLE
EX. SANITARY CLEANOUT	EX. BURN
EX. SANITARY SYSTEM	EX. BOULDER
EX. COMBINATION M.H.	EX. TREE STAMP
EX. UNKNOWN MH	EX. PINE TREE
EX. UNKNOWN CLEANOUT	EX. TREE
EX. GAS TEST	EX. MAILBOX
EX. GAS VALVE	EX. PAYPOBOX
EX. GAS SHUTOFF	EX. MAIL/PAYPOBOX
EX. GAS DRIP	EX. FLAG POLE
EX. GAS METER	EX. TEST BORE
EX. GAS WELL	EX. TEST WELL
EX. HYDRANT	EX. SIGN (DOUBLE POST)
EX. HYDRANT SHUTOFF	EX. SIGN (SINGLE POST)
EX. WATER VALVE	EX. SUPPORT POLE
EX. WATER SHUTOFF	EX. GUY ROD
EX. WATER MANHOLE	EX. STREET LIGHT
EX. WATER METER	EX. LIGHT POLE
EX. WATER FIXTURE	EX. STEEL POLE
EX. SPRINKLER SYSTEM	EX. TELE POLE
EX. SPRINKLER VALVE	EX. ELEC POLE
EX. WATER WELL	EX. TEL/ELEC/STREET LIGHT POLE
EX. STANDPIPE	EX. TEL/ELEC POLE
EX. PEDASTAL	EX. TEL/STREET LIGHT POLE
EX. PANEL BOX	EX. ELEC/STREET LIGHT POLE
EX. YARD LIGHT	EX. TRAFFIC LIGHT POLE
EX. ELECTRIC MANHOLE	EX. TRAFFIC CONTROL BOX
EX. TELEPHONE BOX	EX. PEDESTRIAN LIGHT POLE
EX. TELEPHONE M.H.	EX. FLOW
EX. CABLE BOX	
EX. FENCE GATE POST	
EX. BOLLARD	
EX. TRAFFIC PULLBOX	
EX. TRAFFIC MANHOLE	

<u>TITLE COMMITMENT NOTES:</u>

The Title Commitment referenced on this survey is Commitment Number 220014PT, issued by Polaris Title Services, LLC, dated August 30, 2022. The only easements shown hereon are referenced from this report.

Section B, Part II notes:

Item 9: The property described in Exhibit "A" of the Open-End Mortgage recorded in File No. 2021-0819357 of Lorain County Records is the subject property.

Item 10: Reservation of ingress and egress in Warranty Deed from Harry F. Strauss and Mildred E. Strauss to Sun Oil Company recorded August 21, 1970 in Deed Volume 1009, Page 406 of Lorain County Record. Noted and shown hereon in cross hatching.
Note: Recital in Special Warranty Deed from Sun Oil Company of Pennsylvania, successor by merger to Sun Oil Company to David C. Weiss recorded July 12, 1977 in Deed Volume 1180, Page 190 of Lorain County Records. Parcels No. 1 and No. 2 described therein encompass the entire subject property.

Item 11: Easement Agreement by and between PROCLEVE Investments, Ltd. and Jay R. Linn recorded April 20, 1994 in OR Volume 897, Page 334 of Lorain County Records. Noted and shown hereon in dot hatching near the Northwesterly corner of the subject property.

Item 12: Easement Agreement by and between 32499 North Ridge, LLC, NKLB Ridgeville, LLC and Cook Road Properties, LLC recorded June 28, 2021 as File No. 2021-0825657 of Lorain County Records. Noted and shown hereon in dot hatching near the Northeasterly corner of the subject property.

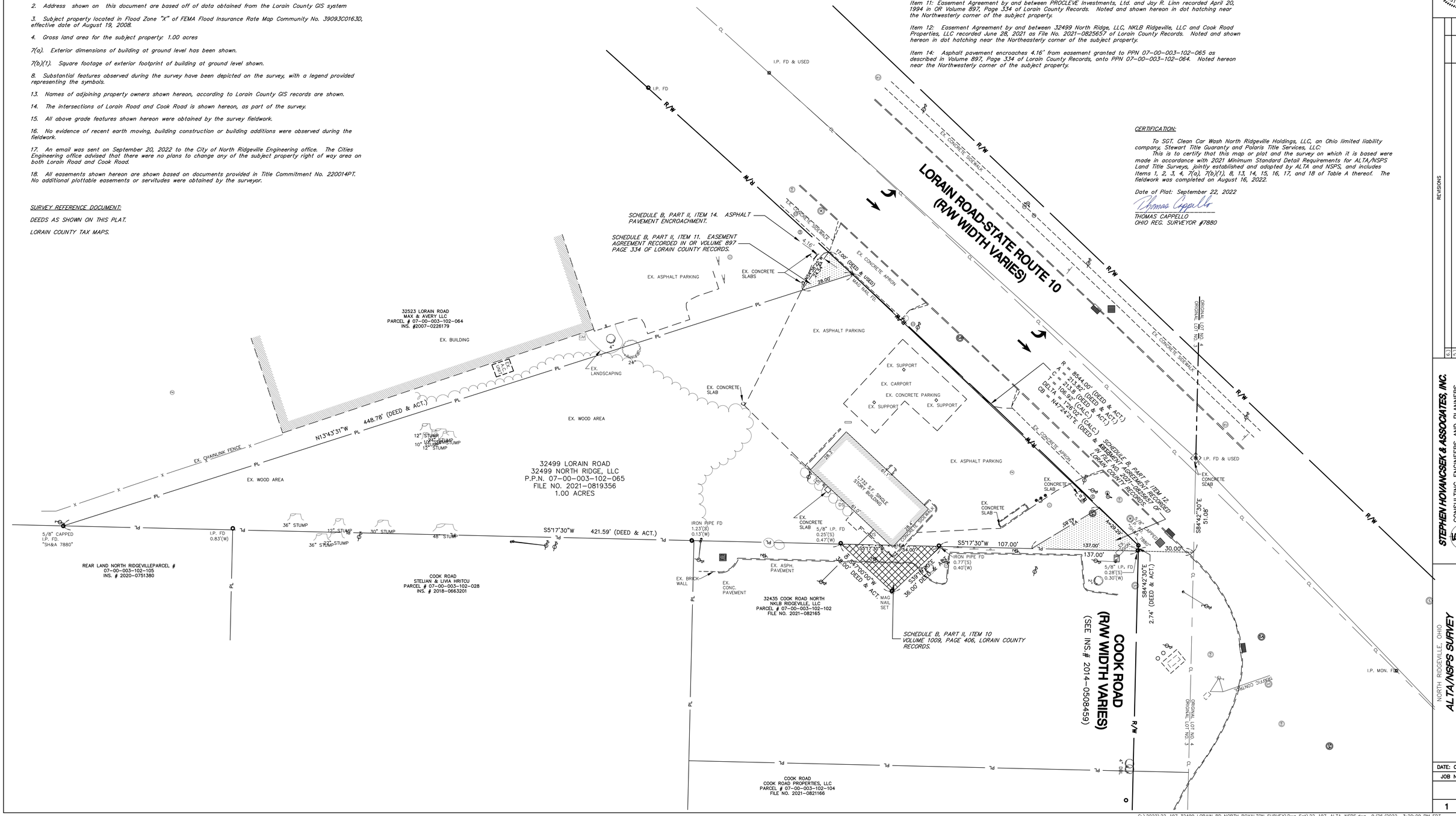
Item 14: Asphalt pavement encroaches 4.16' from easement granted to PPN 07-00-003-102-065 as described in Volume 897, Page 334 of Lorain County Records, onto PPN 07-00-003-102-064. Noted hereon near the Northwesterly corner of the subject property.

<u>CERTIFICATION:</u>

To SGT, Clean Car Wash North Ridgeville Holdings, LLC, an Ohio limited liability company, Stewart Title Guaranty and Polaris Title Services, LLC:
This is to certify that this map or plat and the survey on which it is based were made in accordance with 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 7(a), 7(b)(1), 8, 13, 14, 15, 16, 17, and 18 of Table A thereof. The fieldwork was completed on August 16, 2022.

Date of Plat: September 22, 2022

Thomas Cappello
THOMAS CAPPELLO
OHIO REG. SURVEYOR #7880



STEPHEN HOVANCSEK & ASSOCIATES, INC.
CONSULTING ENGINEERS AND PLANNERS
TWO MERIT DRIVE 44143
RICHMOND HEIGHTS, OHIO
PH: (216) 731-6255 FAX: (216) 731-4483

NORTH

SCALE IN FEET (HORIZONTAL): 40, 20, 0, 20

STATE OF OHIO — THOMAS CAPPELLO NO. 7880 — REGISTERED PROFESSIONAL SURVEYOR

NO.	DESCRIPTION	DATE
6		
5		
4		
3		
2		
1		

REVISIONS

NORTH RIDGEVILLE, OHIO
ALTA/NSPS SURVEY FOR 32499 NORTH RIDGE, LLC P.P.# 07-00-013-102-065

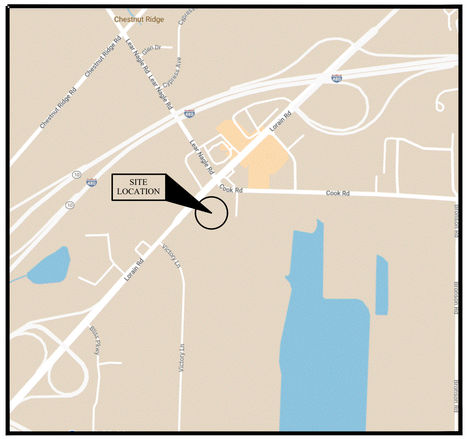
DATE: 09-22-2022
JOB No. 22-197

1 OF 1

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SGT. CLEAN CAR WASH

CITY OF NORTH RIDGEVILLE
COUNTY OF LORAIN
STATE OF OHIO



VICINITY MAP
NO SCALE

N

INDEX

DESCRIPTION	SHEET NO.
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GENERAL NOTES	C100A
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UTILITY PLAN	C103
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SITE DETAILS	C105-C105B
ABBREVIATED SWP3	C106
ABBREVIATED SWP3 DETAILS	C107-C111

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matt@webercivil.com

STATE OF OHIO
MATTHEW L WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

TITLE SHEET

C100
Project No. 2022-298

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CITY OF NORTH RIDGEVILLE
STANDARD GENERAL NOTES

GENERAL

1. ALL WORK AND MATERIALS SHALL MEET THE RULES, LAWS & CODES OF THE CITY OF NORTH RIDGEVILLE.
2. THE FOLLOWING UTILITIES MAY BE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

PAVEMENTS	CITY OF NORTH RIDGEVILLE	(440) 353-0842
STORM SEWERS	CITY OF NORTH RIDGEVILLE	(440) 353-0842
SANITARY SEWERS	CITY OF NORTH RIDGEVILLE	(440) 353-0842
WATERLINES	CITY OF NORTH RIDGEVILLE	(440) 353-0842
GAS-COLUMBIA GAS	DAN SUREN	(440) 891-2438
TELEPHONE-NINDUSTREAM	GEOFF HAMM	(440) 329-4247
ELECTRIC-OHIO EDISON	MIKE ZANDI	(440) 326-3271
CABLE-SPECTRUM	RON HRIBAL	(440) 366-0416 (EXT. 826)
WATER TRANSMISSION	AVON LAKE MUNICIPAL UTILITIES	(440) 933-6226

THE CONTRACTOR SHALL VERIFY THE ABOVE INFORMATION WITH CUPS WHEN HE CONTACTS THEM BEFORE CONSTRUCTION BEGINS.

3. THE CONTRACTOR SHALL LOCATE ALL UTILITIES OR UNDERGROUND STRUCTURES PRIOR TO CONSTRUCTION AND NOTIFY EACH RESPECTIVE UTILITY OWNER FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. WHERE IN ANY CASE THE PLANS AND SPECIFICATIONS DO NOT ENTIRELY COVER MATERIALS AND/OR WORKMANSHIP, THE "STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS", CURRENT EDITION WILL APPLY. OODT REFERENCES MAY BE INDICATED THROUGHOUT THE PLANS. MATERIAL AND WORKMANSHIP SHALL ALSO CONFORM TO THE SPECIFICATIONS, RULES AND ORDINANCES OF THE CITY OF NORTH RIDGEVILLE. WHERE CONFLICTS OCCUR IN THE ABOVE, THE CITY ENGINEER SHALL DETERMINE THE GOVERNING AUTHORITY. ANY DEFECTS IN THE CONSTRUCTION INCLUDING MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE CITY ENGINEER. REFERENCES THROUGHOUT THESE PLANS TO "THE ENGINEER" SHALL BE THE CITY ENGINEER.
5. ALL WORK SHALL BE DONE IN A SAFE MANNER AND AS A MINIMUM SHALL COMPLY WITH THE SPECIFIC SAFETY REQUIREMENTS OF THE OSHA AS DEFINED IN 29 CRF 1926.
6. AT LEAST FIVE DAYS PRIOR TO THE START OF ACTUAL CONSTRUCTION WORK, A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD AT THE DIRECTION OF THE CITY OF NORTH RIDGEVILLE ENGINEER AND APPROPRIATE CITY OFFICIALS, AND THE OWNER'S ENGINEER. THE CONTRACTOR OR HIS AUTHORIZED SUPERINTENDENT SHALL BE PRESENT, ALONG WITH HIS AND ALL PRIVATE UTILITY COMPANY REPRESENTATIVES. THIS MEETING WILL BE FOR COORDINATION AND PROCEDURE REVIEW PRIOR TO COMMENCING ANY PHYSICAL WORK.
7. THE CONTRACTOR SHALL NOT COMMENCE WITH ANY FORM OF CONSTRUCTION WITHOUT GIVING 24 HOURS NOTICE TO THE OFFICE OF THE CITY ENGINEER TO ARRANGE FOR INSPECTION. IF ANY CHANGE IN THE WORK SCHEDULE BECOMES NECESSARY, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE INSPECTOR TO AVOID UNNECESSARY INSPECTION COSTS. IF NO NOTIFICATION IS MADE IN REGARDS TO CANCELLATION OF WORK, THE CONTRACTOR WILL BE CHARGED A MINIMUM FOUR (4) HOURS.
8. THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY, SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE, AS DIRECTED BY THE ENGINEER, TO MAINTAIN ALL ROADWAYS BEING USED FOR ACCESS TO THE CONSTRUCTION SITE.
9. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, SATISFACTORY BARRIERS, LIGHTING, FLAGMEN, TEMPORARY GUARDRAIL, AND SUCH OTHER TRAFFIC CONTROL DEVICES AS PROVIDED IN ITEM 614 – MAINTAINING TRAFFIC" SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAY DURING CONSTRUCTION. ALL AREAS OF PAVEMENT REMOVED WHICH HAVE NOT BEEN FULLY RESTORED SHALL BE PROTECTED WITH CONES OR DRUMS DURING DAYLIGHT HOURS. THESE AREAS SHALL BE PROTECTED WITH FLASHING BARRICADES OR DRUMS WITH STEADY BURNING LIGHTS AT NIGHT. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS AS TO THE PROPOSED WORK WITH MINIMUM HAZARD, DELAY, AND INCONVENIENCE TO THE MOTORISTS USING THE STREETS AFFECTED BY THE WORK DONE UNDER THE CONTRACT AND HE SHALL COORDINATE ALL CLOSING OF STREETS WITH THE CITY ENGINEER AND THE POLICE CHIEF OF THE CITY OF NORTH RIDGEVILLE.
10. ACCESS ROADS SHALL BE KEPT FREE OF MUD, DEBRIS, DIRT, ETC. AND SHALL BE CLEANED EVERY DAY AT THE END OF WORK OR MORE FREQUENTLY IF SO ORDERED BY THE CITY OF NORTH RIDGEVILLE.
11. THE CONTRACTOR AND ANY SUBCONTRACTOR SHALL HAVE A COMPETENT SUPERVISOR ON THE PROJECT AT ALL TIMES WHEN WORK IS BEING DONE.
12. NO SLAG OR OTHER SULFUROUS MATERIAL WILL BE USED ON THE PROJECT.
12. FOR RESIDENTIAL SUBDIVISIONS, THE TRAFFIC CONTROL SIGNS WILL BE ERECTED BY THE CITY OF NORTH RIDGEVILLE AND THE COST OF THIS WORK SHALL BE PAID BY THE DEVELOPER. THE INSTALLATION AND COST OF THE STREET NAME SIGNS AND STREET LIGHTS WILL BE DONE BY THE DEVELOPER AT HIS EXPENSE.
13. THE CITY ENGINEER SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING THE ACTUAL CONSTRUCTION.

EARTHWORK

1. ALL EXCAVATION AND FILL WORK SHALL BE DONE IN ACCORDANCE WITH OOOT CONSTRUCTION AND MATERIALS SPECIFICATIONS.
2. THE SUBGRADE IN THE STREET SHALL BE LEFT TWO INCHES (50M) FOR THE PAVEMENT CONTRACTOR TO TRIM DOWN TO FINAL GRADE. THE CONTRACTOR SHALL PROOF ROLL THE GRADE WITH A FULLY LOADED (MINIMUM LEGAL WEIGHT) TRIAXLE DUMP TRUCK. ANY "SOFT" SPOTS SHALL BE REMOVED AND REPLACED WITH COMPACTED EARTH.
3. EARTHWORK SHALL BE DONE IN SUCH A FASHION AS TO NOT TRAP WATER DURING CONSTRUCTION.
4. TREE AND BRUSH CLEARING/DISPOSAL SHALL BE DONE IN A MANNER ACCEPTABLE TO THE CITY OF NORTH RIDGEVILLE.
5. ALL PAVEMENT AREAS SHALL HAVE ALL ORGANICS AND TOPSOIL REMOVED FROM THE AREA.
6. AT ALL TIMES DURING THE PROGRESS OF THE WORK AND UNTIL RELEASE OF THE BOND, OR WHERE ANY GUARANTEE OF THIS CHAPTER, THE CONTRACTOR SHALL MAINTAIN THE EXCAVATIONS IN A SAFE CONDITION. IN PARTICULAR, THOSE TRENCHES OR EXCAVATIONS WHICH ARE WITHIN TWENTY (20) FEET OF THE EDGE OF PAVEMENT OR THE EDGE OF TRAVELED ROADWAY SHALL NOT BE KEPT FILLED UP THE SAME LEVEL AS THE ADJACENT UNDISTURBED GROUND, ANY SETTLEMENT WHICH OCCURS DURING THIS PERIOD SHALL BE IMMEDIATELY FILLED IN TO PREVENT THE POSSIBILITY OF ACCIDENTS.
7. WHERE EXISTING SEWERS ARE ENCOUNTERED AND ARE INTERFERED WITH, FLOWS SHALL BE KEPT UNINTERRUPTED. SUCH FLOWS SHALL NOT BE HANDLED BY THE CONTRACTOR EITHER BY CONNECTING TO OTHER SEWERS (WITH THE APPROVAL OF THE CITY ENGINEER) OR BY TEMPORARY PUMPING TO A SATISFACTORY OUTLET. SEWAGE OR OTHER LIQUID SHALL NOT BE PUMPED, BAILED OR FLUMED OVER THE STREET.
9. BACKFILL SHALL INCLUDE THE MATERIAL PLACED ABOVE THE BEDDING AND SHALL CONSIST OF FINELY DIVIDED SOIL FREE FROM STONES, RUBBISH, LARGE CLUMPS OR OTHER HARMFUL DEBRIS. THE BACKFILL SHALL BE TAMPED IN SIX (6) INCH LAYERS.
10. BACKFILL WITHIN EXISTING OR PROPOSED PAVED OR STONE STREETS, ALLEYS, DRIVEWAYS, PARKING AREA AND PROPOSED SIDEWALKS, OR WITHIN FIVE (5) FEET OF THESE AREAS SHALL CONSIST OF A DURABLE GRANULAR MATERIAL MEETING THE REQUIREMENTS OF ITEM 304 OF THE CURRENT OOOT CONSTRUCTION AND MATERIALS SPECIFICATIONS. THE USE OF A 304 RECYCLED CONCRETE AGGREGATE IS ACCEPTABLE. THE USE OF SLAG IS PROHIBITED. THE GRANULAR BACKFILL SHALL BE MECHANICALLY TAMPED IN SIX (6) INCH LAYERS SO THAT THE BACKFILL WILL HAVE A DENSITY EQUAL TO A MINIMUM OF 95% OF THAT POSSIBLE UNDER OPTIMUM MOISTURE CONTENT AS DETERMINED BY STANDARD PROCTOR TEST.

ROADWAY

1. ALL TREES AND BRUSH, AND ANY OTHER VEGETATION WITHIN THE LIMITS OF THIS PROJECT THAT INTERFERE WITH THE CONSTRUCTION SHALL BE REMOVED FROM THE SITE. STUMPS MAY BE GROUND OUT OR REMOVED FROM THE SITE.
2. ALL EARTHWORK SHALL HAVE INSPECTION AND TESTING AS DEEMED NECESSARY BY THE CITY OF NORTH RIDGEVILLE. SUCH INSPECTION WILL BE COORDINATED BY THE "CONTRACTOR", WHO SHALL USE A SOILS TESTING LABORATORY TO MAKE THE TESTS INDICATED. TO THE QUALITY CONTROL OF THE EARTHWORK OPERATION. SOIL TESTING AND CLASSIFICATION SHALL BE PERFORMED BY THE SOILS TESTING LABORATORY TO DETERMINE THE PROPER MOISTURE CONTENT AND SOIL DENSITY BEFORE BEGINNING EARTHWORK CONSTRUCTION. THE COST OF THIS INSPECTION AND TESTING WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR SHALL PRESENT HIS PLAN AND SCHEDULE FOR EARTHWORK OPERATIONS AT THE PRE-CONSTRUCTION CONFERENCE.
3. WHERE SOFT SUBGRADE IS ENCOUNTERED, DUE TO NO FAULT OR NEGLECT OF THE CONTRACTOR, IN WHICH SATISFACTORY STABILITY CANNOT BE OBTAINED BY MOISTURE CONTROL AND COMPACTION, THE UNSUITABLE MATERIAL SHALL BE EXCAVATED TO THE DEPTH REQUIRED BY THE ENGINEER. BACKFILLING OF THESE EXCAVATED AREAS SHALL BE WITH EMBANKMENT MATERIAL OR AGGREGATE BASE (OOOT ITEM 304) OR "AS DIRECTED BY THE ENGINEER."
4. CONCRETE WILL BE TESTED BY AN OOOT QUALIFIED LABORATORY DURING CONSTRUCTION FOR AIR ENTRAINMENT AND SLUMP. CONCRETE TEST CYLINDERS WILL BE PREPARED FOR EACH 50 YARDS OR FRACTION THEREOF. CONCRETE BEAMS MAY BE PREPARED AT THE CONTRACTOR'S OPTION. THE CONCRETE MIX DESIGN SHALL BE APPROVED BY THE SAME TESTING LABORATORY DESIGNATED TO PERFORM THE ON-SITE INSPECTION PRIOR TO CONSTRUCTION.
5. CONCRETE PAVEMENT CURING COMPOUND SHALL BE SILENCURE A FROM CHEMMASTERS, 300 EDWARDS ST., MADISON, OHIO, 44057.
6. IN AREAS OF HIGH GROUNDWATER OR WHERE SURFACE SEEPAGE HAS BEEN OBSERVED IT MAY BE NECESSARY TO CONSTRUCT DRAINS PERPENDICULAR TO THE PROPOSED PAVEMENT. THESE UNCLASSIFIED PIPE UNDERDRAINS, CONSTRUCTED IN ACCORDANCE WITH OOOT ITEM 605, SHALL BE 3 FEET BELOW PAVEMENT GRADE AND CONNECTED INTO THE APPROPRIATE STORM CONDUIT OR OUTLET. CONDUIT SHALL BE 6" DIAMETER PERFORATED PVC TYPE PS-46 PIPE CONFORMING TO ASTM F-758 OR 6" DIAMETER PERFORATED PSM POLYVINYL CHLORIDE (PVC) PIPE CONFORMING TO ASTM D-3034 SDR 35, WITH GEOTEXTILE DRAIN SLEEVE MEETING THE REQUIREMENTS OF OOOT 712.09, TYPE A, AND WITH NO. 8 STONE OR GRAVEL AGGREGATE.

UNDERGROUND INSTALLATIONS – GENERAL

1. THE VARIOUS UNDERGROUND INSTALLATION ITEMS SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL EXCAVATION, MATERIAL, LABOR, BEDDING, BACKFILL, COMPACTION, EQUIPMENT, UTILITY PROTECTION, MAINTENANCE OF ROADWAYS AND DRIVES UNTIL FINAL REPLACEMENT, PUMPING AND/OR DEWATERING, CONSTRUCTION AND REMOVAL OF ALL NECESSARY TRENCH PROTECTION AND ALL OTHER INCIDENTAL ITEMS NECESSARY TO INSTALL SUCH UTILITY. THE CONTRACTOR IS TO "FIELD FIT" HIS OPERATIONS WITH THE GROUND CONDITIONS THAT HOW TO OR MAY BE ENCOUNTERED. THIS CONSTRUCTION SO AS NOT TO ADVERSELY AFFECT THE INTEGRITY OF ANY UTILITY INSTALLATION OR STRUCTURE ON THE CONSTRUCTION SITE OR ADJACENT PROPERTIES.
2. ALL SANITARY SEWER AND STORM SEWER CONSTRUCTION SHALL CONFORM WITH OOOT ITEM 611.
3. ANY UNSUITABLE MATERIAL; MATERIAL NOT APPROVED BY THE ENGINEER FOR BACKFILL AND MATERIAL IN EXCESS OF THAT REQUIRED FOR BACKFILLING SHALL BE DISPOSED OF BY THE CONTRACTOR ON THE SITE.
4. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO PREVENT ANY CAVING OR SETTLING OF EXCAVATION OR TRENCH WALLS WHICH COULD ENDANGER THE SAFETY OF ANY PERSON ENGAGED IN THE WORK, OR IN ANY WAY DAMAGE THE UNDERGROUND INSTALLATIONS OR ADJACENT PUBLIC OR PRIVATE PROPERTY. OR DIMINISH THE TRENCH WIDTH NECESSARY FOR THE PROPER CONSTRUCTION OF THE UNDERGROUND INSTALLATION OR OTHERWISE INTERFERE WITH THE WORK. THE TYPE AND AMOUNT OF SUCH PROTECTION, SUCH AS TRENCH BOXES, SHEETING, SHORING, OR BRACING SHALL BE CONSISTENT WITH THE DEPTH AND WIDTH OF EXCAVATION, THE COMPOSITION AND WATER CONTENT OF THE SOIL IN THE PROXIMITY OF STRUCTURES OR OTHER UTILITIES, THE VIBRATION FROM EQUIPMENT AND THE SPOIL PLACEMENT, AND SHALL BE IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
5. IN ORDER TO REDUCE GROUND WATER SEEPAGE AND PROVIDE A STABLE TRENCH IT MAY BE NECESSARY TO DEWATER PRIOR TO EXCAVATION OF THE SEWER TRENCH AND/OR PROVIDE TEMPORARY SUMPS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ADJACENT STRUCTURES, PAVEMENTS, OR UTILITIES, OR LOSS OF PRIVATE WELL WATER RESULTING FROM DEWATERING. LOSS OF GROUNDWATER DURING CONSTRUCTION, AND ANY OTHER CONSTRUCTION RELATED TROUBLE. CONTRACTOR SHALL PROTECT ALL EXISTING SEWERS AND UTILITIES FROM DAMAGE DURING INSTALLATION CROSSES BY COMPACTION. THE BACKFILL UNDER USED INSTALLATION FACILITIES OR SHALL PROTECT THE EXISTING FACILITY IN A MANNER AS APPROVED BY THE ENGINEER. IF SHEETING IS USED, IT MAY BE NECESSARY TO DRIVE THE SHEETING SEVERAL FEET BELOW THE BOTTOM OF THE PIPE. WHEN USING MOVABLE TRENCH SUPPORTS OR SHEETING, CARE MUST BE EXERCISED SO AS NOT TO DISTURB THE PIPE LOCATION, JOINTING OR BEDDING MATERIAL. IF STEEL SHEETING IS USED IT SHALL BE HELD IN PLACE BY LONGITUDINAL BEAMS AND CROSS BRACES OR STRUTS AS REQUIRED TO RESTRAIN THE TOP OF THE SHEETING. IF TIMBER SHEETING AND BRACING IS USED, IT MUST BE OF GOOD QUALITY AND OF HARDWOOD CONSTRUCTION. AFTER THE PIPE HAS BEEN INSTALLED AND THE BALANCE OF THE BEDDING MATERIAL HAS BEEN PLACED OVER THE PIPE, THE REMOVAL OF ANY COMPLETE PROTECTION SHALL BE CAREFULLY CONTROLLED. THE CONTRACTOR SHALL ENSURE THAT THE REMOVAL OF THE TRENCH PROTECTION WILL NOT ADVERSELY AFFECT THE PIPE LOCATION AND BEDDING. IF SHEETING CANNOT BE REMOVED WITHOUT ADVERSELY AFFECTING THE PIPE AND BEDDING LOCATION, THE ENGINEER MAY ORDER THE SHEETING CUT OFF AT SOME POINT, AT LEAST ONE FOOT ABOVE THE TOP OF THE PIPE AND LEFT IN PLACE.
6. PRIOR TO ANY CONNECTION INTO AN EXISTING SEWER MANHOLE OR CONDUIT THE CONTRACTOR SHALL TAKE SUCH MEASURES AS NECESSARY, "AS APPROVED BY THE ENGINEER", (I.E. TEMPORARY PLUGS, SAND BAGS, ETC.) DURING THE COURSE OF THE CONSTRUCTION OF THE PROPOSED SEWERS, TO GUARD AGAINST ANY DRAINAGE FROM ENTERING THE EXISTING SYSTEM AND POSSIBLY CONTAMINATING SUCH SYSTEM WITH SILT.
7. WHERE THE PROPOSED IMPROVEMENTS CROSS EXISTING OR PROPOSED PAVEMENTS, INCLUDING A POINT FIVE (5) FEET BEYOND SUCH CROSSINGS, OR WHERE THE CONSTRUCTION METHODS USED BY THE CONTRACTOR RESULT IN THE TRENCH HAVE BEING LESS THAN 3 FEET FROM THE EDGE OF THE PAVEMENT, THE TRENCHES IN SUCH BACKFILL SHALL BE COMPACTED IN LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS WITH MECHANICAL TAMPERS MEETING NINETY-EIGHT (98) PERCENT OF MAXIMUM LABORATORY DRY WEIGHT.
8. THE LINE AND GRADE OF SEWER MAINS SHALL BE CONTROLLED DURING THE SEWER CONSTRUCTION BY USE OF AN APPROVED LASER DEVICE.
9. AT ALL STORM SEWER MAIN AND SANITARY SEWER MAIN INTERSECTIONS (CROSSINGS) WHEN PIPE CLEARANCE IS LESS THAN 18", THE LOWER PIPE SHALL BE ENCASED AND THE UPPER PIPE-SHALL BE MONOLITHICALLY CRADLED IN 2000 PSI CONCRETE FOR THE WIDTH OF THE TRENCH. AT PIPE CROSSINGS GREATER THEN 18" THE BACKFILL BELOW THE UPPER PIPE SHALL BE COMPACTED IN PLACE TO THE SATISFACTION OF THE ENGINEER.

STORM SEWERS

1. STORM SEWER CONDUIT SHALL CONFORM TO THE FOLLOWING REQUIREMENTS: STORM CONDUIT BETWEEN STREET BASINS AND CONNECTING TO MANHOLE SHALL BE (A.) ONLY IF COVER IS LESS THAN OR EQUAL TO ONE FOOT MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE SUBGRADE, OR MAY BE (B.) IF COVER IS GREATER THAN ONE FOOT MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE SUBGRADE. ALL FOOTING DRAIN CONNECTIONS SHALL BE (B.) ONLY.
   A. REINFORCED CONCRETE PIPE ASTM C-76, "D" OR "C" WALL, B FOOT LENGTHS, AND WITH GASKET MATERIAL CONFORMING TO ASTM F-477 AND JOINTS PER ASTM C-443: (A) 12" & LARGER DIA. CLASS IV.
   B. POLYVINYL CHLORIDE (PVC) ASTM D-3034 (SDR 35) (OOOT 707.45) WITH GASKET MATERIAL CONFORMING TO ASTM F-477 AND JOINTS PER ASTM D-3212 OR SOLVENT CEMENT JOINTS PER ASTM D-2564.
   C. PERMA-LOC (PVC) AASHTO SPECIFICATION M M-304# (OOOT 707.43) WITH INTEGRAL BELL GASKET JOINTS IN ACCORDANCE WITH ASTM D-3212 AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
   D. ULTRA-RIB (PVC) ASTM F 794 (OOOT 707.43) WITH INTEGRAL BELL AND SPIGOT JOINT IN ACCORDANCE WITH ASTM D-3212 AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
   E. SMOOTH INTERIOR, CORRUGATED, HIGH DENSITY POLYETHYLENE PIPE (HDPE) CONFORMING TO AASHTO SPECIFICATIONS M252 TYPE S AND M294 TYPE S, (OOOT 707.33) AND M-12, MANDREL OR APPROVED EQUAL. THE JOINTS SHALL BE SILT-TIGHT AND THE GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F 477 (JOINT PRESSURE RATED), INSTALLED IN ACCORDANCE WITH ASTM D-3212 AND MANUFACTURER'S RECOMMENDATIONS.
2. OTHER OPTIONAL MATERIALS MAY BE USED WHEN APPROVED BY THE CITY ENGINEER.
3. UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OOOT ITEM 605. CONDUIT SHALL BE 6" DIAMETER PVC TYPE PS-46 PIPE CONFORMING TO ASTM F-758, OR 6" DIAMETER PSM POLYVINYLCHLORIDE (PVC) PIPE CONFORMING TO ASTM D-3034 SDR 35, WITH A GEOTEXTILE SLEEVE MEETING THE REQUIREMENTS OF OOOT ITEM 712.09, TYPE A, AND WITH THE GRANULAR MATERIAL BEING NO. 57 AGGREGATE (NO SLAG)
4. ROOF DRAINS ARE TO BE DISCHARGED ONTO SPLASH BLOCKS. NO CONNECTION TO STORM SEWER.
5. AT LEAST 60 DAYS PRIOR TO THE END OF THE PERIOD FOR WHICH IMPROVEMENTS ARE COVERED BY MAINTENANCE BONDS, THE DEVELOPER SHALL CLEAN AND VIDEO TAPE THE STORM SEWER, SANITARY SEWER AND MANHOLES, OR CAUSE THIS TO BE DONE BY A SUBCONTRACTOR OR BUILDER(S) WHO THE DEVELOPER HOLDS RESPONSIBLE PRIOR TO RELEASE OF THE MAINTENANCE BONDS COVERING THE IMPROVEMENTS. TWO (2) COPIES OF THE VIDEO TAPE(S) AND A WRITTEN REPORT OF THE RESULTS SHALL BE FURNISHED TO THE DEVELOPER AND THE CITY ENGINEER. BOTH THE TAPING AND THE WRITTEN REPORT SHALL BE DONE TO THE SATISFACTION OF THE DEVELOPER AND THE CITY ENGINEER OR THEIR DESIGNEES. ANY AND ALL PROBLEMS DISCOVERED SHALL BE REMEDIATED WITHIN TEN (10) WORKING DAYS BY THE DEVELOPER OR BY THE PARTY THE DEVELOPER SHALL CAUSE TO REMEDIATE THE PROBLEMS, IF ANY
6. ALL MAIN LINE STORM SEWERS SHALL BE CLEANED AND VIDEOTAPED IMMEDIATELY AFTER CONSTRUCTION AND THE VIDEOTAPE SUBMITTED TO THE CITY ENGINEER FOR REVIEW AND APPROVAL. ALL DEFECTS SHALL BE PROMPTLY REPAIRED BY THE CONTRACTOR.

OCTOBER 1, 2008 – REV. 5/11/09, 9/29/09, 12/7/09, 8/18/16
5/9/17, 6/28/17, 6/5/20

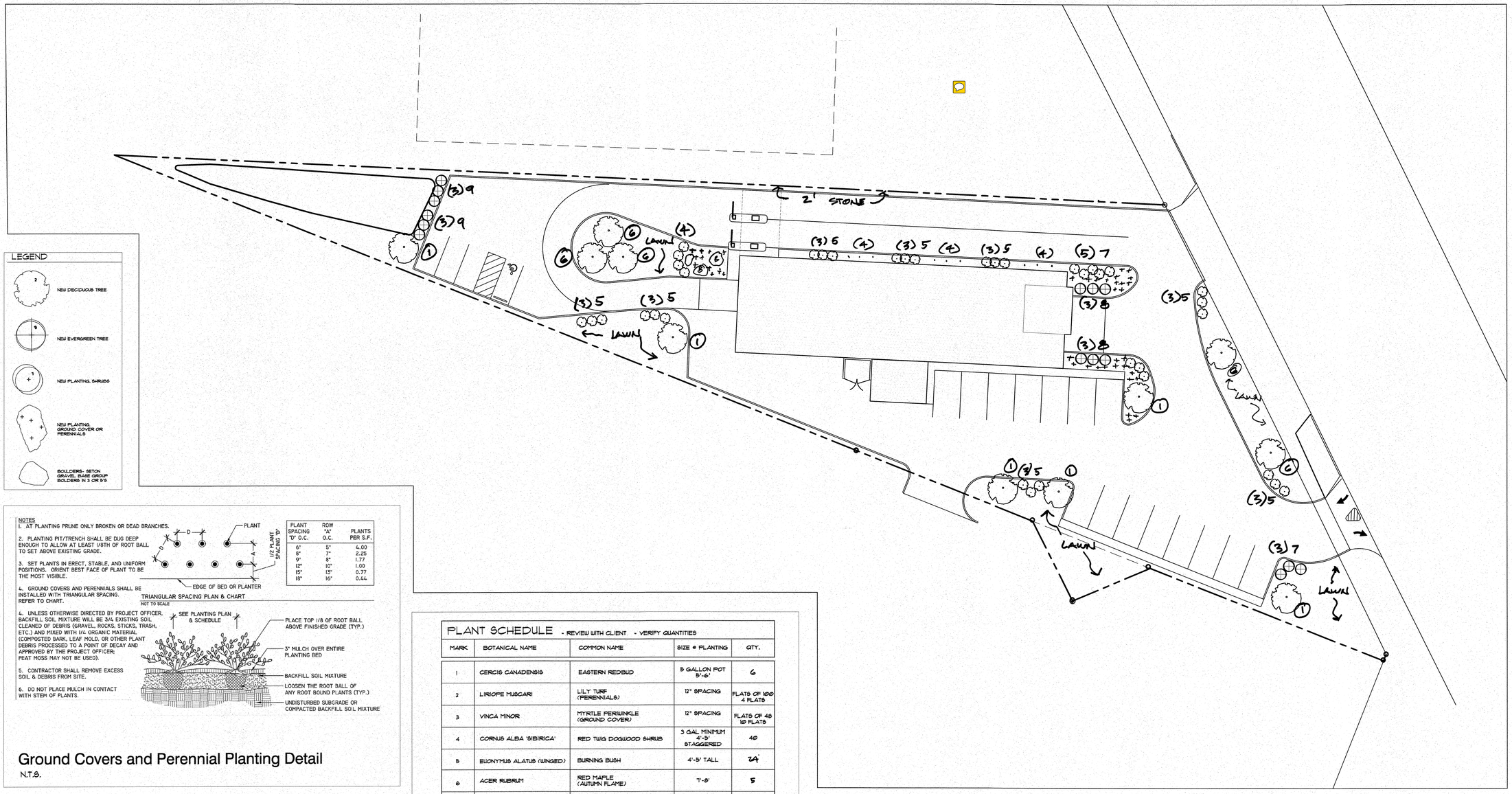
CITY OF NORTH RIDGEVILLE
STANDARD GENERAL NOTES

SANITARY SEWERS

1. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
2. THE SANITARY SEWER SHALL PASS A LOW PRESSURE AIR TEST AND A 5% DEFLECTION TEST. THESE TESTS SHALL BE CONDUCTED BY A COMPETENT TESTER, PREFERABLY AN INDEPENDENT TESTING COMPANY.
   A. DEFLECTION TEST:
      IF PVC PIPE IS USED, THE DEFLECTION TEST WILL BE RUN NOT LESS THAN 30 DAYS NOR MORE THAN 45 DAYS AFTER THE FINAL AND FULL BACKFILL HAS BEEN PLACED. THE TEST IS REQUIRED ON ALL PVC SEWERS. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY EQUIPMENT FOR THE DEFLECTION TESTING. ALL EQUIPMENT SHALL BE APPROVED BY THE ENGINEER PRIOR TO ANY PROOFING PRIOR TO THE START OF TESTING. WHERE POSSIBLE, ELECTRONIC EQUIPMENT SHALL BE USED TO MEASURE AND RECORD THE DEFLECTION IN THE FLEXIBLE PIPE. NO PIPE SHALL EXCEED A DEFLECTION OF FIVE PERCENT. IF SUCH EQUIPMENT IS NOT AVAILABLE, THE DEFLECTION TEST CAN BE RUN BY THE USE OF MANDRELS, HAVING A DIAMETER EQUAL TO NINETY-FIVE (95) PERCENT OF THE MINIMUM DIAMETER OF THE PIPE, PULLED THROUGH THE SEWER WITHOUT MECHANICAL PULLING DEVICES. MANDRELS SHALL BE CONSTRUCTED WITH AT LEAST NINE EVENLY SPACED ARMS OR PRONGS. A METAL PROVING RING SHALL BE FURNISHED TO VERIFY THE ACCURACY OF THE MANDREL TO THE CITY ENGINEER. THE LENGTH OF THE MANDREL SHALL BE EIGHT INCHES FOR EIGHT INCH PIPE, TEN INCHES FOR TEN AND TWELVE INCH PIPE. IF ANY SECTION OF CONDUIT EXCEEDS THE DEFLECTION OF FIVE PERCENT, THE NECESSARY CORRECTIONS SHALL BE MADE. CONDUIT WHICH HAS DEFLECTED MORE THAN FIVE PERCENT MUST BE CORRECTED TO THE SATISFACTION OF THE CITY ENGINEER BY THE CONTRACTOR. THE PIPE SHALL BE MEASURED IN COMPLIANCE WITH ASTM D2122.
   B. THE LEAKAGE, EXFILTRATION, OR INFILTRATION SHALL NOT EXCEED 100 GALLONS PER INCH OF PIPE DIAMETER PER MILE PER DAY.
3. THE SANITARY SEWER MAIN AND ITS LATERALS SHALL BE PVC ASTM D3034, WITH GASKETED JOINTS MEETING ASTM D3212 SDR-35, UNLESS DEPTH OF COVER IS 15 FEET OR GREATER THEN USE ASTM D3034 SDR-26.
4. SANITARY MANHOLES SHALL BE PRECAST CONCRETE MEETING THE STANDARDS OF THE CITY OF NORTH RIDGEVILLE. THE MANHOLE SHALL BE FULLY INSPECTED AROUND ITS EXTERIOR BEFORE BACKFILLING. ANY SUSPECTED LEAK SPOTS, CRACKS, ETC. THAT MAY CAUSE A LEAK IN THE FUTURE SHALL BE PATCHED, SEALED, ETC. WITH WATERPROOFING MATERIALS. PARTICULAR ATTENTION SHALL BE PAID TO THE BARREL JOINTS, STEP LOCATIONS, LIFTING HOLES, AND THE JOINT BETWEEN THE GRADE RINGS AND THE CASTING. ALL MANHOLES SHALL BE VACUUM TESTED PER ASTM-C1244.
5. GRADE RINGS SHALL BE USED TO BRING ALL CASTING TO GRADE, MAXIMUM 11 INCHES.
6. IF THE CASTING IS DISTURBED AFTER IT IS INSTALLED IT SHALL BE COMPLETELY REMOVED, CLEANED, AND THEN REINSTALLED.
7. THE CONTRACTOR SHALL MARK ALL LATERAL LOCATIONS IN THE FIELD WITH A 4" X 4" WOODEN STAKE FROM INVERT TO 2'-6" ABOVE GRADE, PAINTED ORANGE OR RED.
8. "LOW-PRESSURE" AIR TESTING FOR PLASTIC PIPE SHALL BE PER ASTM-F1417.
9. ALL MAINLINE SANITARY SEWER SHALL BE VIDEO TAPED PER CITY ORDINANCE.
10. HORIZONTAL AND VERTICAL SEPARATION BETWEEN WATERLINE, STORM SEWERS, AND SANITARY SEWERS SHALL BE MAINTAINED AS FOLLOWS:
    A. A MINIMUM 10-FOOT HORIZONTAL SEPARATION (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATERLINE AND THE STORM SEWER WILL BE MAINTAINED.
    B. A MINIMUM 10-FOOT HORIZONTAL SEPARATION (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATERLINE AND THE SANITARY SEWER WILL BE MAINTAINED.
    C. A MINIMUM 18-INCH VERTICAL CLEARANCE (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATERLINE AND THE SANITARY SEWER WILL BE MAINTAINED.
    D. A MINIMUM 18-INCH VERTICAL CLEARANCE (MEASURED OUT-TO-OUT CLEAR) BETWEEN THE PROPOSED WATERLINE AND THE STORM SEWER WILL BE MAINTAINED.
11. THE CONTRACTOR WILL COLOR FILM BOTH SANITARY AND STORM SEWERS TO VERIFY THAT THEY ARE FREE OF DEFECTS AND FOREIGN MATTER AND THAT THEY ARE TO THE PROPER ALIGNMENT PRIOR TO FORMAL ACCEPTANCE BY THE CITY OF NORTH RIDGEVILLE. THE INSPECTION AND TESTING SHALL BE DONE BY AN EXPERIENCED AND CERTIFIED FIRM ENGAGED IN THIS TYPE OF WORK, AS APPROVED BY THE CITY. WRITTEN REPORTS FOR ALL INSPECTION AND TESTING SHALL BE SUBMITTED TO THE OWNER AND THE CITY FOR APPROVAL. ALL SEWERS WILL BE FLUSHED AND HAVE A VCR TELEVISED INSPECTION IN ACCORDANCE WITH THE CITY OF NORTH RIDGEVILLE SPECIFICATIONS AFTER THE COMPLETION OF THE PAVEMENT CONSTRUCTION AND SEEDING OF THE DISTURBED AREAS, BUT PRIOR TO THE ISSUANCE OF BUILDING PERMITS. IF THE INSTALLATION FAILS TO MEET THE REQUIREMENTS OF THE TESTS AND INSPECTION, THE CONTRACTOR SHALL REPAIR OR REPLACE ALL DEFECTS AND RETEST AND RE-TELM THE INSTALLATION. THE CONTRACTOR SHALL NOTIFY THE CITY 48 HOURS BEFORE THE STORM AND SANITARY SEWERS ARE TELEVISED.

WATER SYSTEM

1. THE WATER SYSTEM SHALL BE CONSTRUCTED PER THE CITY OF NORTH RIDGEVILLE STANDARDS & REGULATIONS.
2. THE WATERLINE SHALL BE PVC MEETING THE REQUIREMENTS OF AWWA C900, OR C909, CLASS 150 PSI, CONFORMING TO DR18 OR DUCTILE IRON PIPE, CLASS 52, CEMENT LINED MEETING THE REQUIREMENTS OF ANSI A21.51 AND AWWA C-151.
3. A MINIMUM OF 36 PSI SHALL BE MAINTAINED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.
4. ALL FITTINGS FOR THE WATER MAIN SHALL BE RESTRAINED JOINT TYPE (MEGA-LUG) AND SHALL BE DUCTILE IRON MEETING AWWA C-153.
5. ALL BENDS OR TEES ON THE MAIN SHALL BE RESTRAINED JOINT TYPE (MEGA-LUG) AND BLOCKED WITH WOOD.
6. ALL DUCTILE IRON PIPE, CAST IRON FITTINGS AND HYDRANTS SHALL BE POLYWRAPPED ACCORDING TO AWWA C-105. RESTRAIN TWO PIPE JOINTS EITHER SIDE OF TEE OR ELBOW IN ADDITION TO THRUST RESTRAINT.
7. ALL FITTINGS SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO ANSI A21.4, AWWA C-104 AND ALL SUBSEQUENT AMENDMENTS.
8. ALL FITTINGS SHALL BE DESIGNED FOR A WORKING PRESSURE OF NOT LESS THAN 150 PSI.
9. ALL VALVES AND HYDRANT FITTINGS MUST HAVE STAINLESS STEEL NUTS AND BOLTS. T-BOLTS AND NUTS FOR ALL MECHANICAL JOINTS MUST HAVE A BITUMASTIC COATING.
10. ALL PIPE SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE MORTAR LINING SHALL NOT BE LESS THAN 1/16 INCH IN THICKNESS AND CONFORM TO ANSI A21.4, AWWA C-104 AND ALL SUBSEQUENT AMENDMENTS.
11. ALL JOINTS SHALL BE MECHANICAL OR PUSH-ON TYPE. MECHANICAL JOINTS SHALL MEET THE REQUIREMENTS OF ANSI A21.11, AWWA C-111 AND ALL SUBSEQUENT AMENDMENTS. PUSH-ON JOINTS SHALL BE MADE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPE MANUFACTURER.
12. ALL HYDRANTS SHALL HAVE M



LEGEND

- NEW DECIDUOUS TREE
- NEW EVERGREEN TREE
- NEW PLANTING, SHRUBS
- NEW PLANTING, GROUND COVER OR PERENNIALS
- BOULDERS- SETON GRAVEL BASE GROUP BOLDERS N 3 OR 9'9

NOTES
1. AT PLANTING PRUNE ONLY BROKEN OR DEAD BRANCHES.
2. PLANTING PIT/TRENCH SHALL BE DUG DEEP ENOUGH TO ALLOW AT LEAST 1/8TH OF ROOT BALL TO SET ABOVE EXISTING GRADE.
3. SET PLANTS IN ERECT, STABLE, AND UNIFORM POSITIONS. ORIENT BEST FACE OF PLANT TO BE THE MOST VISIBLE.
4. GROUND COVERS AND PERENNIALS SHALL BE INSTALLED WITH TRIANGULAR SPACING. REFER TO CHART.

PLANT SPACING "D" O.C.	ROW "A" O.C.	PLANTS PER S.F.
6"	5"	4.00
8"	7"	2.25
9"	8"	1.77
12"	10"	1.00
15"	13"	0.77
18"	16"	0.44

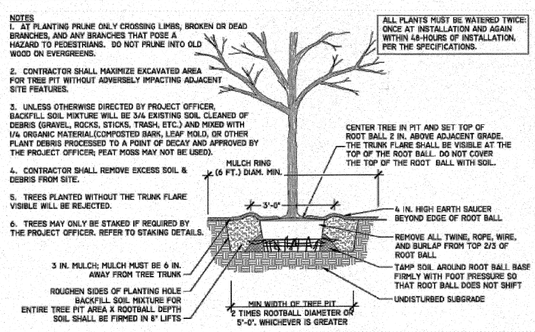
TRIANGULAR SPACING PLAN & CHART
NOT TO SCALE

4. UNLESS OTHERWISE DIRECTED BY PROJECT OFFICER, BACKFILL SOIL MIXTURE WILL BE 3/4 EXISTING SOIL CLEANED OF DEBRIS (GRAVEL, ROCKS, STICKS, TRASH, ETC.) AND MIXED WITH 1/4 ORGANIC MATERIAL (COMPOSTED BARK, LEAF MOLD, OR OTHER PLANT DEBRIS PROCESSED TO A POINT OF DECAY AND APPROVED BY THE PROJECT OFFICER; PEAT MOSS MAY NOT BE USED).
5. CONTRACTOR SHALL REMOVE EXCESS SOIL & DEBRIS FROM SITE.
6. DO NOT PLACE MULCH IN CONTACT WITH STEM OF PLANTS.

Ground Covers and Perennial Planting Detail
N.T.S.

NOTES
1. AT PLANTING PRUNE ONLY CROSSING LIMBS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS. DO NOT PRUNE INTO OLD WOOD ON EVERGREENS.
2. CONTRACTOR SHALL MAXIMIZE EXCAVATED AREA FOR TREE PIT WITHOUT ADVERSELY IMPACTING ADJACENT SITE FEATURES.
3. UNLESS OTHERWISE DIRECTED BY PROJECT OFFICER, BACKFILL SOIL MIXTURE WILL BE 3/4 EXISTING SOIL CLEANED OF DEBRIS (GRAVEL, ROCKS, STICKS, TRASH, ETC.) AND MIXED WITH 1/4 ORGANIC MATERIAL (COMPOSTED BARK, LEAF MOLD, OR OTHER PLANT DEBRIS PROCESSED TO A POINT OF DECAY AND APPROVED BY THE PROJECT OFFICER; PEAT MOSS MAY NOT BE USED).
4. CONTRACTOR SHALL REMOVE EXCESS SOIL & DEBRIS FROM SITE.
5. TREES PLANTED WITHOUT THE TRUNK FLARE VISIBLE WILL BE REJECTED.
6. TREES MAY ONLY BE STAKED IF REQUIRED BY THE PROJECT OFFICER. REFER TO STAKING DETAILS.

ALL PLANTS MUST BE WATERED TWICE: ONCE AT INSTALLATION AND AGAIN WITHIN 48-HOURS OF INSTALLATION, PER THE SPECIFICATIONS.



Typical Tree Planting Detail
N.T.S.

PLANT SCHEDULE - REVIEW WITH CLIENT - VERIFY QUANTITIES

MARK	BOTANICAL NAME	COMMON NAME	SIZE @ PLANTING	QTY.
1	CERCIS CANADENSIS	EASTERN REDBUD	5 GALLON POT 5'-6'	6
2	LIRIOPE MUSCARI	LILY TURF (PERENNIALS)	12" SPACING	FLATS OF 100 4 FLATS
3	VINCA MINOR	MYRTLE PERIWINKLE (GROUND COVER)	12" SPACING	FLATS OF 48 10 FLATS
4	CORNUS ALBA 'SIBIRICA'	RED TWIG DOGWOOD SHRUB	3 GAL MINIMUM 4'-5' STAGGERED	40
5	EUONYMUS ALATUS (WINGED)	BURNING BUSH	4'-5' TALL	24
6	ACER RUBRUM	RED MAPLE (AUTUMN FLAME)	7'-8'	5
7	AMELANCHIER LAMARCKII	MULTI-STEM SERVICE BERRY	7'-8'	8
8	OPHIOPOGON JAPONICUS 'NANUS'	DWARF MONDO GRASS	1 GAL MINIMUM 18" SPACING	FLATS OF 18 3.5" POTS 50 FLATS
9	PICEA GLUACA VER. DENSATA	BLACK HILLS SPRUCE	5'-6'	6
10	RHODODENDRON X "CUNNINGHAM WHITE"	RHODODENDRON- CUNNINGHAM WHITE	MIX 3½ GALLON- 6½ GALLON POTS	6
LAWN	GRASS- EXISTING LAWN OR NEW SOD			
GR	GRAVEL - #34 WASHED RIVER STONE, 2" DEPTH			
M	MULCH - HARDWOOD SHREDDED MULCH, COLOR- NATURAL			
BOLDER	BOLDER - STANDSTONE AND GRANITE- 24"-36"-48"- NATURAL SHAPES-REVIEW			

IRRIGATION SYSTEM TO BE PROVIDED
DATA ON SELECTED SYSTEM TO BE PROVIDED

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

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

DRAWING DATES
18 NOVEMBER 2022
PC SUBMISSION

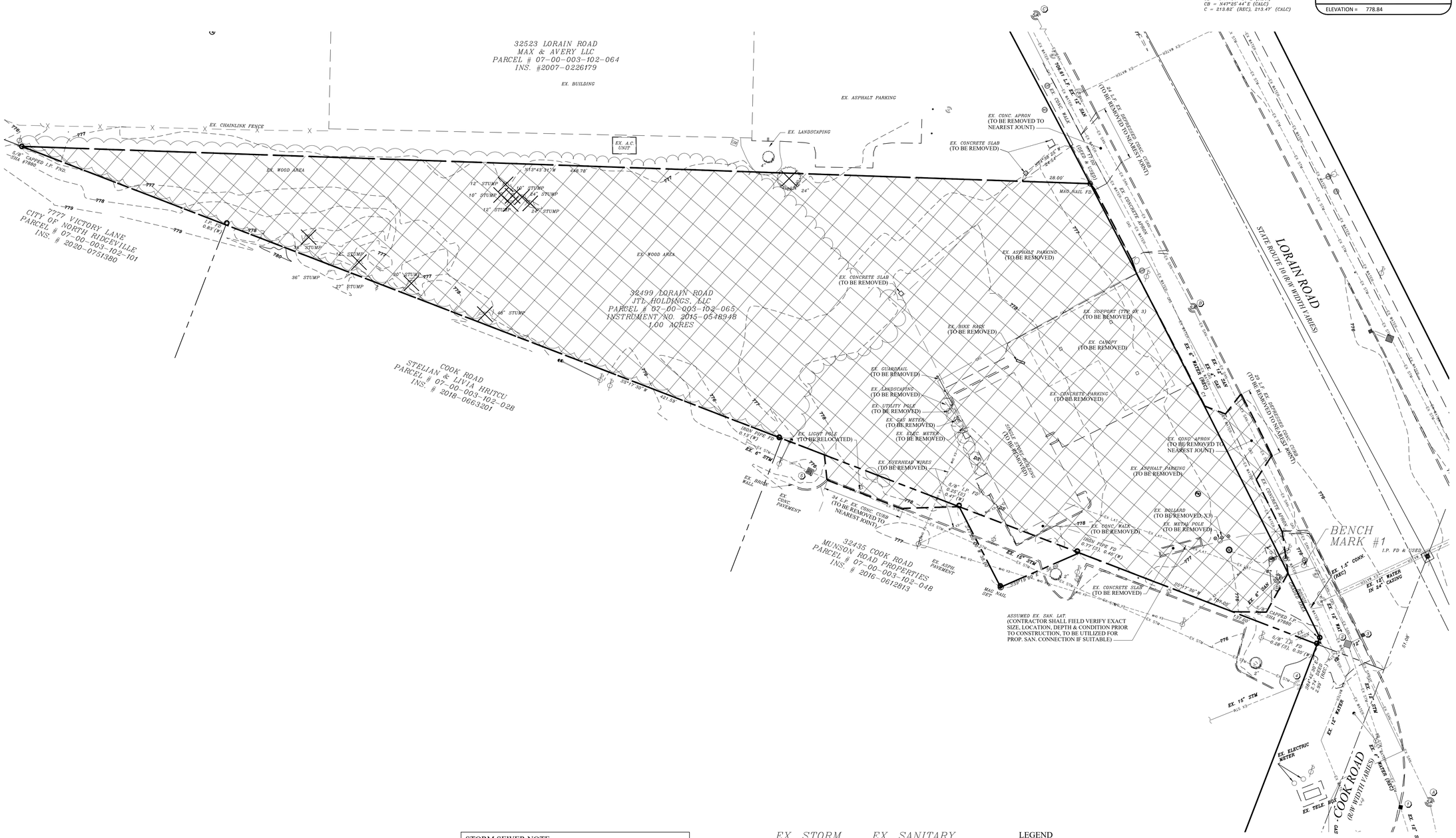
PROJECT NUMBER:
1020-005-22

Sgt. Clean Car Wash
Landscape Plan-North Ridgeville Site
City of North Ridgeville, Ohio
Lorain County Ohio

REFERENCE NORTH

TITLE SHEET

LS-1



CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'54" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

STORM SEWER NOTE:
CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION, DEPTH, SIZE, CONDITION AND CONNECTIVITY OF ALL STORM SEWER SYSTEMS ON THE SITE. SITE CIVIL ENGINEER SHALL BE INFORMED OF THE RESULTS OF THE INVESTIGATION PRIOR TO CONSTRUCTION.

EX. STORM STRUCTURE SCHEDULE

1. EX. CB
T/C=775.01
12"(NW) FL=771.4
12"(NE) FL=770.7
2. EX. CB (TO BE MODIFIED)
T/C=775.06
12"(NW) FL=771.4
18"(NE) FL=771.0
12"(NE) FL=770.8
3. EX. CB
T/C=775.36
12"(SE) FL=771.5
4. EX. STM MH
T/C=774.74
15"(SE) FL=770.6
15"(SW) FL=770.6
18"(NW) FL=770.6
5. EX. CB
T/C=776.02
6"(SW) FL=774.1
15"(NE) FL=774.0

EX. SANITARY STRUCTURE SCHEDULE

A. EX. SAN. MH
T/C=776.07
12"(SW&NE) FL=750.7
B. EX. SAN. MH
T/C=776.51
12"(SW) FL=751.2±
12"(NE) FL=751.1±
C. EX. SAN. MH
T/C=776.53
12"(SW) FL=751.2±
12"(NE) FL=751.1±
D. EX. SAN. MH
T/C=776.03
6"(SE) FL=760.6
6"(S) FL=760.6
6"(NW) FL=760.5

LEGEND

0.99 AC. — AREA OF DEMOLITION & CLEARING

TREE TO BE REMOVED

ITALICS TEXT REPRESENTS EXISTING CONDITION

NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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STATE OF OHIO
MATTHEW L WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

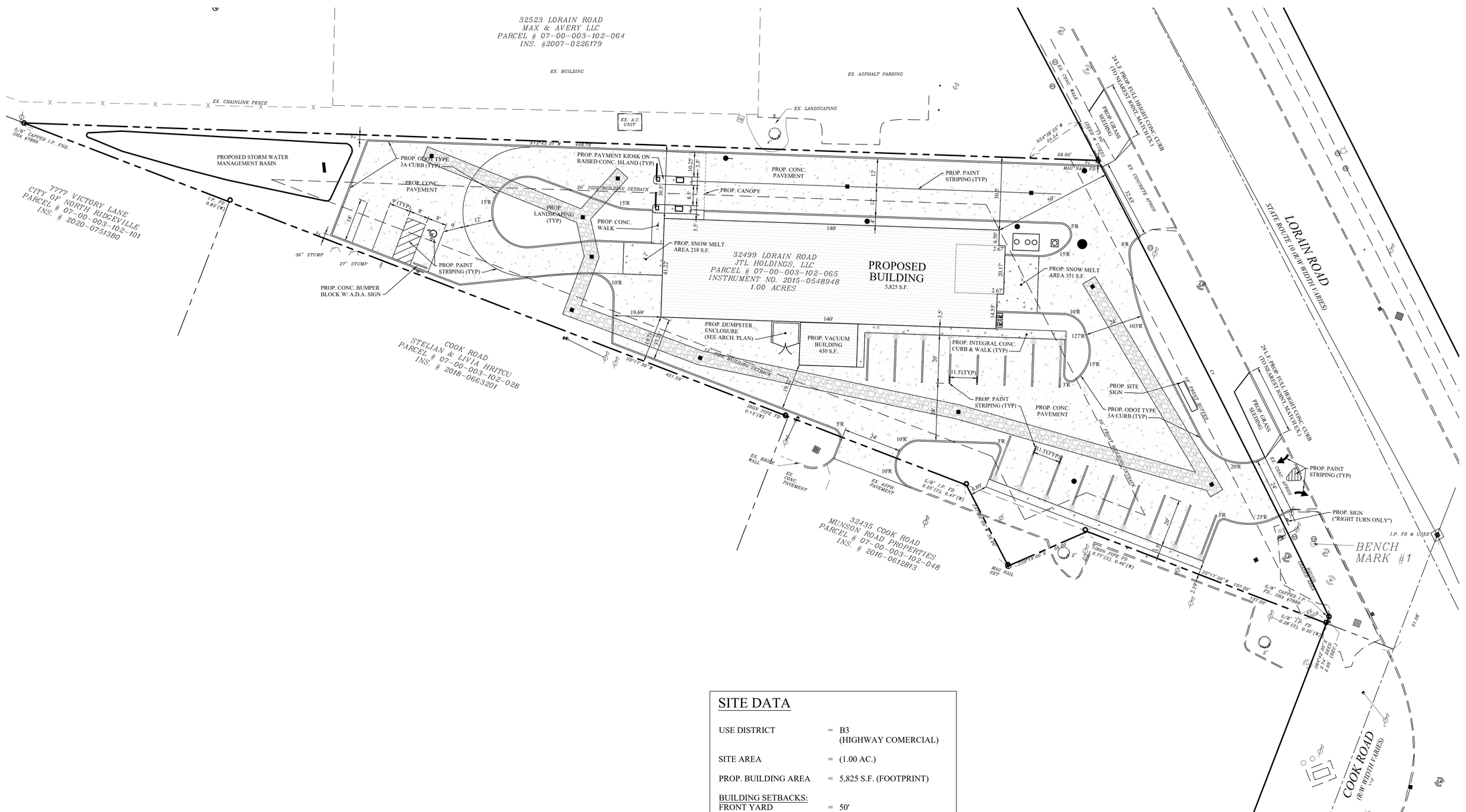
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

DEMOLITION PLAN

C101
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022\2022-298\Sgt. Clean North Ridgeville\2022-298 Dwg\2022-298 SiteIIB - 11-14-2022 2022-298 SiteIIB.DWG 11/15/2022 10:13:09 AM



CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'54" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

SITE DATA

USE DISTRICT	=	B3 (HIGHWAY COMERCIAL)
SITE AREA	=	(1.00 AC.)
PROP. BUILDING AREA	=	5,825 S.F. (FOOTPRINT)

BUILDING SETBACKS:

FRONT YARD	=	50'
SIDE YARD	=	35' TOTAL FOR 2 SIDES, NOT LESS THAN 15' ONE SIDE
REAR YARD	=	40'

NUMBER OF PARKING SPACES:

REGULAR PARKING SPACES	=	3
HANDICAP PARKING SPACES	=	1
TOTAL PARKING SPACES	=	4

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39093C 0163 D
COMMUNITY PANEL NUMBER 39093 0163 D
EFFECTIVE DATE AUGUST 19, 2008

LEGEND

CONCRETE PAVING

ITALICS TEXT REPRESENTS EXISTING CONDITION
NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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MATTHEW L. WEBER
61709
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PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

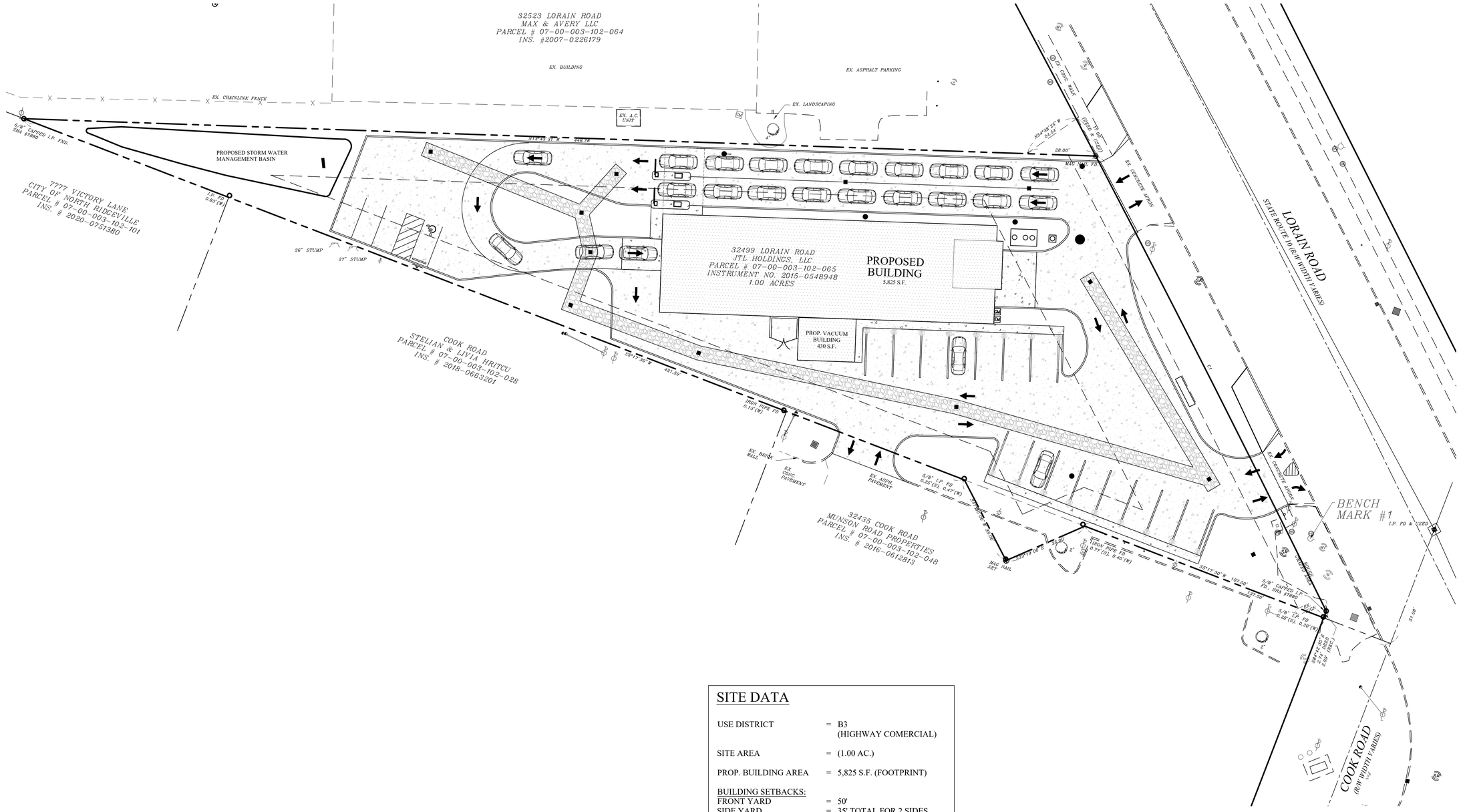
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

SITE PLAN

C102
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022-2022-298 Sgt. Clean North Ridgeville\2022-298.Dwg\2022-298 Site01B - 11-14-2022\2022-298 Site01B.DWG 11/15/2022 10:13:18 AM



CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'54" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

SITE DATA

USE DISTRICT	=	B3 (HIGHWAY COMERCIAL)
SITE AREA	=	(1.00 AC.)
PROP. BUILDING AREA	=	5,825 S.F. (FOOTPRINT)
BUILDING SETBACKS:		
FRONT YARD	=	50'
SIDE YARD	=	35' TOTAL FOR 2 SIDES, NOT LESS THAN 15' ONE SIDE
REAR YARD	=	40'
NUMBER OF PARKING SPACES:		
REGULAR PARKING SPACES	=	3
HANDICAP PARKING SPACES	=	1
TOTAL PARKING SPACES	=	4

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39093C 0163 D
COMMUNITY PANEL NUMBER 39093 0163 D
EFFECTIVE DATE AUGUST 19, 2008

LEGEND

CONCRETE PAVING

ITALICS TEXT REPRESENTS EXISTING CONDITION

NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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Reg. No.: 61709

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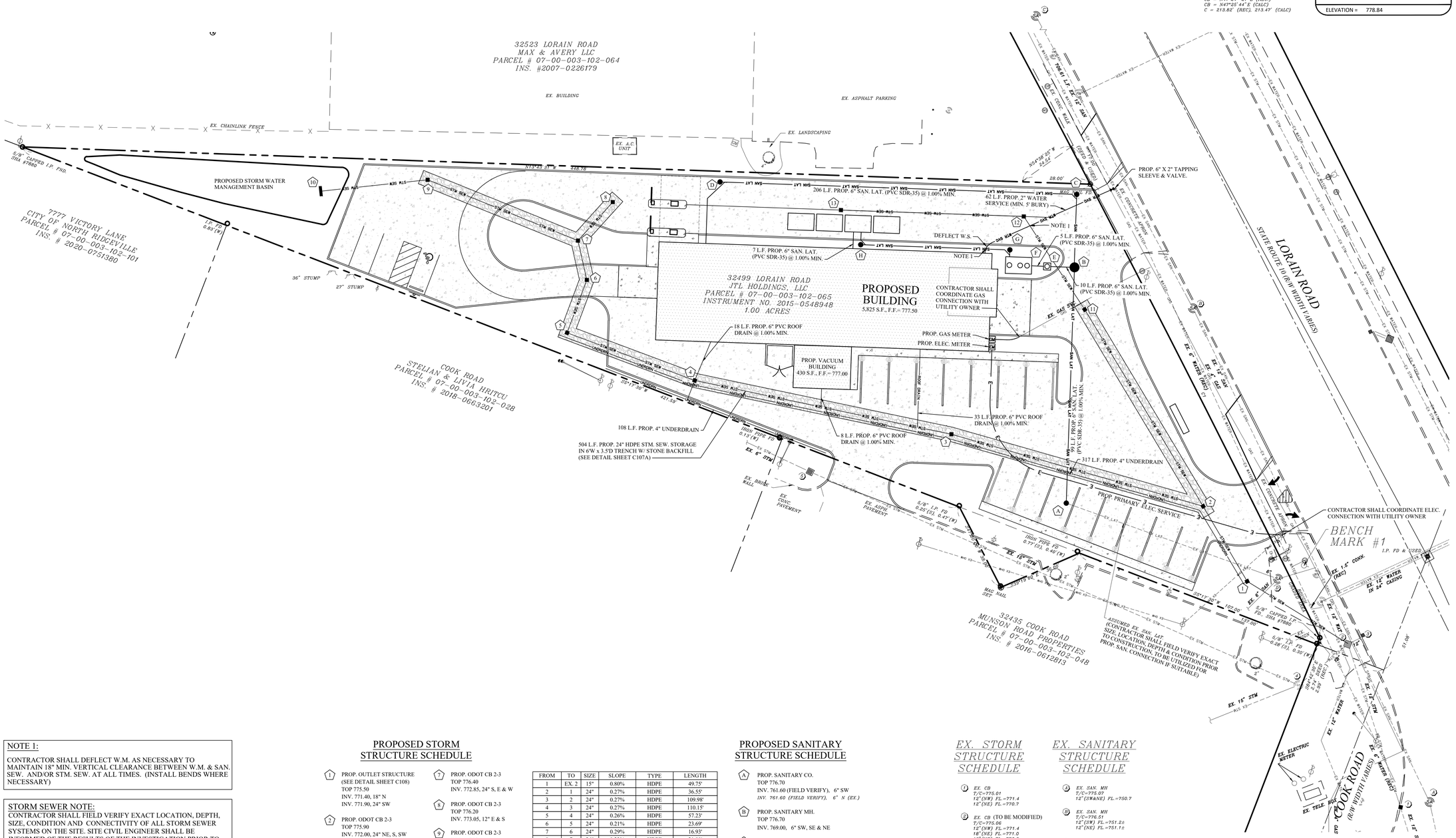
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

VEHILCE CIRCULATION PLAN

C102A
Project No. 2022-298

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CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'54" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

NOTE 1:

CONTRACTOR SHALL DEFLECT W.M. AS NECESSARY TO MAINTAIN 18" MIN. VERTICAL CLEARANCE BETWEEN W.M. & SAN. SEW. AND/OR STM. SEW. AT ALL TIMES. (INSTALL BENDS WHERE NECESSARY)

STORM SEWER NOTE:

CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION, DEPTH, SIZE, CONDITION AND CONNECTIVITY OF ALL STORM SEWER SYSTEMS ON THE SITE. SITE CIVIL ENGINEER SHALL BE INFORMED OF THE RESULTS OF THE INVESTIGATION PRIOR TO CONSTRUCTION.

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PROPOSED STORM STRUCTURE SCHEDULE

1. PROP. OUTLET STRUCTURE (SEE DETAIL SHEET C108) TOP 775.50 INV. 771.40, 18" N INV. 771.90, 24" SW
2. PROP. ODOT CB 2-3 TOP 775.90 INV. 772.00, 24" NE, S, SW
3. PROP. ODOT CB 2-3 TOP 776.55 INV. 772.30, 24" N & S
4. PROP. ODOT CB 2-3 TOP 776.00 INV. 772.60, 24" N & S INV. 772.60, 6" W INV. 772.60, 4" E
5. PROP. ODOT CB 2-3 TOP 776.50 INV. 772.75, 24" N & W
6. PROP. ODOT CB 2-3 TOP 776.40 INV. 772.80, 24" E & W
7. PROP. ODOT CB 2-3 TOP 776.40 INV. 772.85, 24" S, E & W
8. PROP. ODOT CB 2-3 TOP 776.20 INV. 773.05, 12" E & S
9. PROP. ODOT CB 2-3 TOP 776.20 INV. 773.00, 24" N & S
10. PROP. ODOT HW. 2.1 INV. 773.10, 24" N
11. PROP. ODOT CB 2-3 TOP 776.45 INV. 772.30, 24" NE & SW
12. PROP. ODOT CB 2-3 TOP 776.10 INV. 772.40, 24" NE INV. 772.40, 12" S
13. PROP. ODOT CB 2-2C TOP 775.75 INV. 772.75, 12" N

FROM	TO	SIZE	SLOPE	TYPE	LENGTH
1	EX. 2	15"	0.80%	HDPE	49.75'
2	1	24"	0.27%	HDPE	36.55'
3	2	24"	0.27%	HDPE	109.98'
4	3	24"	0.27%	HDPE	110.15'
5	4	24"	0.26%	HDPE	57.23'
6	5	24"	0.21%	HDPE	23.69'
7	6	24"	0.29%	HDPE	16.93'
8	7	24"	0.23%	HDPE	21.80'
9	7	24"	0.27%	HDPE	68.10'
10	9	24"	0.22%	HDPE	45.64'
11	2	24"	0.31%	HDPE	96.45'
12	11	12"	0.21%	HDPE	46.71'
13	12	12"	0.46%	HDPE	76.85'

PROPOSED SANITARY STRUCTURE SCHEDULE

A. PROP. SANITARY CO. TOP 776.70 INV. 761.60 (FIELD VERIFY), 6" SW *INV. 761.60 (FIELD VERIFY), 6" N (EX.)*

B. PROP. SANITARY MH. TOP 776.70 INV. 769.00, 6" SW, SE & NE

C. PROP. SANITARY CO. TOP 776.65 INV. 769.40, 6" SE & NE

D. PROP. SANITARY CO. TOP 776.75 INV. 771.00, 6" SE & NE

E. PROP. INSPECTION WELL TOP 777.50 INV. 769.15, 6" SE & NW

F. PROP. 1,500 GAL. GREASE TRAP TOP 777.50 INV. 769.25, 6" SW & NW

G. PROP. SANITARY CO. TOP 777.00 INV. 769.40, 6" SE & NE

H. PROP. SANITARY CO. TOP 776.50 INV. 770.15, 6" SW & NW

EX. STORM STRUCTURE SCHEDULE

1. *EX. CB* T/C=775.01 12"(NW) FL=771.4 12"(NE) FL=770.7
2. *EX. CB* (TO BE MODIFIED) T/C=775.06 12"(NW) FL=771.4 18"(NE) FL=771.0 12"(SE) FL=770.8 15" (S) FL.= 771.00 (PROP.)
3. *EX. CB* T/C=775.36 12"(SE) FL=771.5
4. *EX. STM MH* T/C=774.74 15"(SE) FL=770.6 15"(SW) FL=770.6 18"(NW) FL=770.6
5. *EX. CB* T/C=776.02 6"(SW) FL=774.1 15"(NE) FL=774.0

EX. SANITARY STRUCTURE SCHEDULE

1. *EX. SAN. MH* T/C=776.07 12"(SW&NE) FL=750.7
2. *EX. SAN. MH* T/C=776.51 12"(SW) FL=751.2± 12"(NE) FL=751.1±
3. *EX. SAN. MH* T/C=776.51 12"(SW) FL=751.2± 12"(NE) FL=751.1±
4. *EX. SAN. MH* T/C=776.03 6"(SE) FL=760.6 6"(S) FL.=760.6 6"(NW) FL.=760.5

LEGEND

ITALICS TEXT REPRESENTS EXISTING CONDITION

NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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STATE OF OHIO · MATTHEW L. WEBER · 61709 · REGISTERED PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

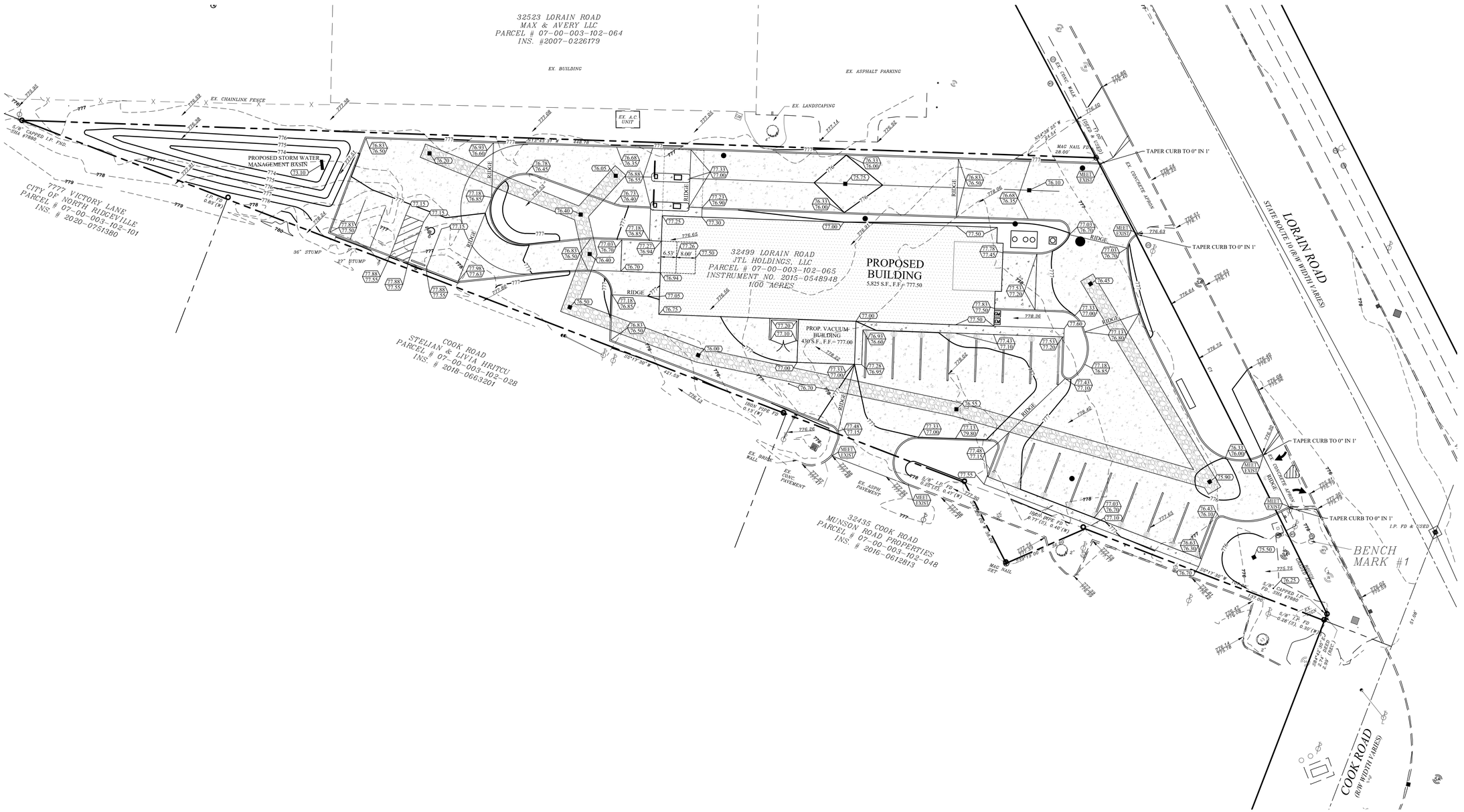
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

UTILITY PLAN

C103
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022-298 Sgt. Clean North Ridgeville\2022-298 Dwg\2022-298 SiteUtlB - 11-14-2022.2022-298 SiteUtlB.DWG 11/15/2022 10:13:38 AM



CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
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CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

LEGEND

ITALICS TEXT REPRESENTS EXISTING CONDITION

NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

00.00 PROPOSED SPOT GRADE

00.00 00.00 PROPOSED GRADE AT CURB

EXISTING SPOT GRADE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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10-26-2022
11-14-2022

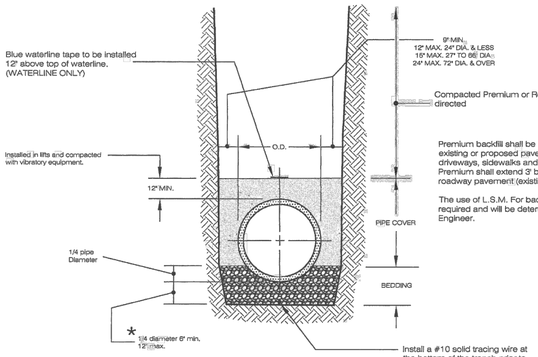
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

GRADING PLAN

C104

Project No. 2022-298

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TYPICAL TRENCH DETAIL

MAINLINE AND LATERALS

Premium backfill shall consist of course interlocking aggregate O.D.O.T #304 or Low Strength Mortar backfill, Type 2.

Pipe cover shall consist of course interlocking aggregate no. 57, #5 and #8 (lateral connections only).

Bedding shall consist of course interlocking aggregate No. 57, or 8 for 60° or smaller diameter pipe, for 66° or larger diameter pipe No. 4, #57 and #8 aggregate may also be used.

Bedding for pipe shall conform to ASTM D-2321.

Premium backfill shall be used under all existing or proposed pavements including, driveways, sidewalks and service walks. Premium shall extend 3' beyond edge of all roadway pavement (existing or proposed).

The use of L.S.M. For backfill may be required and will be determined by the City Engineer.

Low Strength Mortar Backfill
When the use of flowable fill is directed by the Engineer within the limits of the pavement, the material used shall be Low Strength Mortar Backfill TYPE 2 per current O.D.O.T. Construction and Material Specifications, except as modified herein.

The use of Foundry Sand or Slag is strictly prohibited.

Notes:

* Lateral connections to have a minimum bedding depth of 6" coarse aggregate.

A clay dam shall be installed as directed by the City of North Ridgeville inspector for all sanitary and storm connections.

All Material substitutions must be approved by the City Engineer.

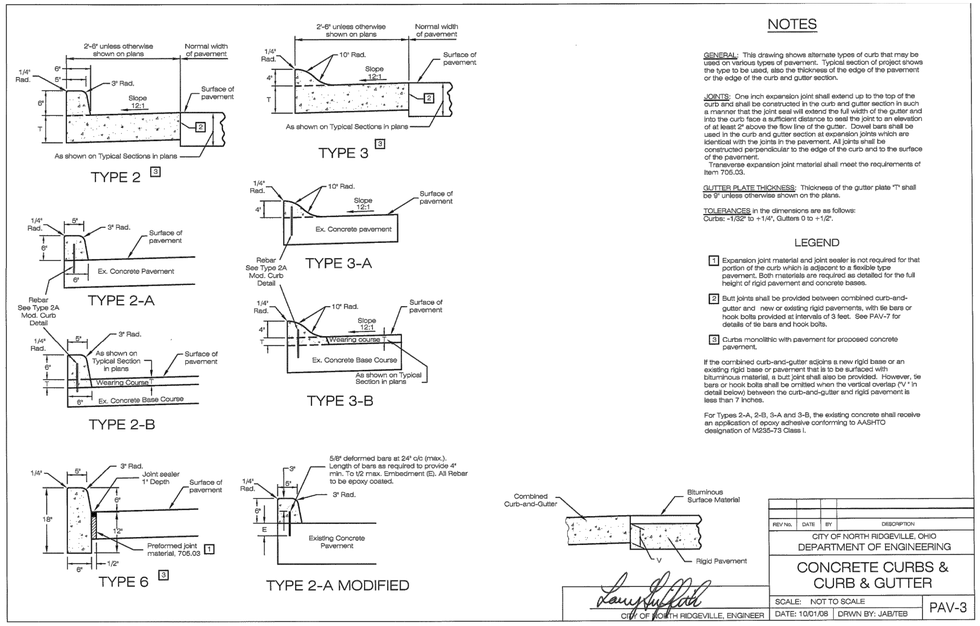
REV'S No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING

TRENCH DETAIL

CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | MIS-1

Rev. 8/20/2014



NOTES

GENERAL: This drawing shows alternate types of curb that may be used on various types of pavement. Typical section of project shows the type to be used, also the thickness of the edge of the pavement or the edge of the curb and gutter section.

JOINTS: One inch expansion joint shall extend up to the top of the curb and shall be constructed in the curb and gutter section in such a manner that the joint seal will extend the full width of the gutter and into the curb face a sufficient distance to seal the joint to an elevation of at least 2" above the flow line of the gutter. Dowel bars shall be used in the curb and gutter section at expansion joints which are identical with the joints in the pavement. All joints shall be constructed perpendicular to the edge of the curb and to the surface of the pavement.
Transverse expansion joint material shall meet the requirements of Item 705.03.

GUTTER PLATE THICKNESS: Thickness of the gutter plate "T" shall be 9" unless otherwise shown on the plans.

TOLERANCES in the dimensions are as follows:
Curbs: -1/32" to +1/4", Gutters 0 to +1/2".

LEGEND

1. Expansion joint material and joint sealer is not required for that portion of the curb which is adjacent to a flexible type pavement. Both materials are required as detailed for the full height of rigid pavement and concrete bases.
2. Butt joints shall be provided between combined curb-and-gutter and new or existing rigid pavements, with tie bars or hook bolts provided at intervals of 3 feet. See PAV-7 for details of tie bars and hook bolts.
3. Curbs monolithic with pavement for proposed concrete pavement.

If the combined curb-and-gutter adjoins a new rigid base or an existing rigid base or pavement that is to be surfaced with bituminous material, a butt joint shall also be provided. However, tie bars or hook bolts shall be omitted when the vertical overlap ("x" in detail below) between the curb-and-gutter and rigid pavement is less than 7 inches.

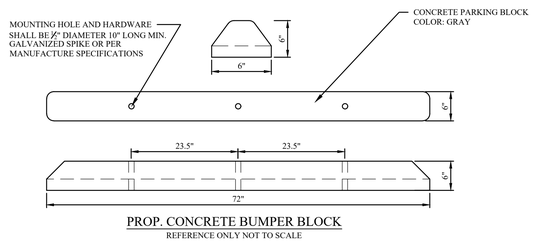
For Types 2-A, 2-B, 3-A and 3-B, the existing concrete shall receive an application of epoxy adhesive conforming to AASHTO designation of M235-73 Class I.

REV No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING

CONCRETE CURBS & CURB & GUTTER

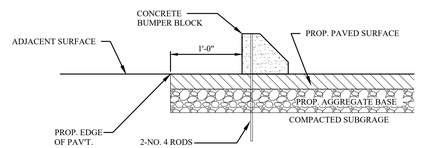
CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | PAV-3



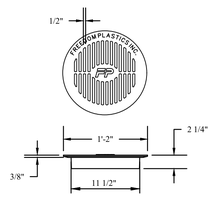
PROP. CONCRETE BUMPER BLOCK

REFERENCE ONLY NOT TO SCALE

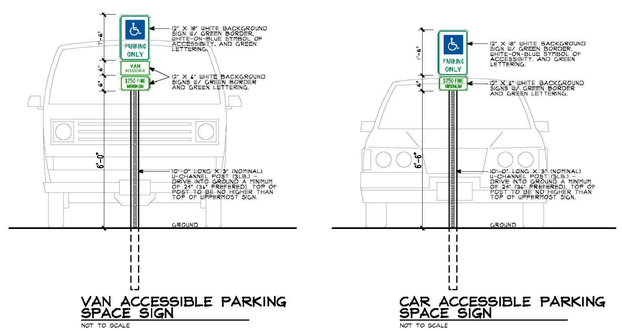


BUMPER BLOCK DETAIL

REFERENCE ONLY NOT TO SCALE



INLET CASTING PEDESTRIAN



VAN ACCESSIBLE PARKING SPACE SIGN

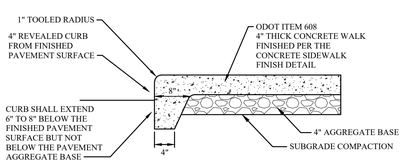
NOT TO SCALE

CAR ACCESSIBLE PARKING SPACE SIGN

NOT TO SCALE

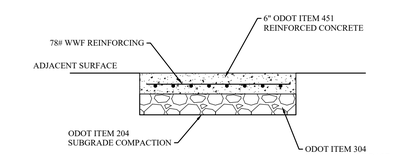
HANDICAPPED PARKING DETAIL

REFERENCE ONLY NOT TO SCALE



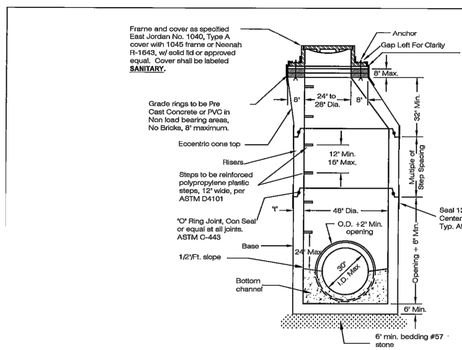
INTEGRAL CONCRETE CURB & WALK DETAIL (ON-SITE)

REFERENCE ONLY NOT TO SCALE

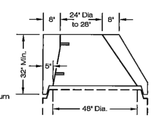


CONCRETE PAVEMENT DETAIL

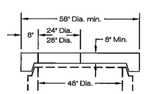
REFERENCE ONLY NOT TO SCALE



48" BASE FOR PRECAST 30" AND SMALLER PIPE



ECCENTRIC CONE TOP



FLAT SLAB TOP

Sanitary Manholes

Castings in pavement shall have a solid lid and gasket.

Manhole Testing All sanitary manholes shall be vacuum tested per ASTM C 1244.

Precast collars and/or bricks for height adjustments to manholes must meet ASTM C-32.

NOTES

Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

TOP AND TRANSITION (or reducer) Sections may be either eccentric cone or flat slab.

BASES for manholes are shown with monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Openings for inlet and outlet pipe shall be provided, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete precast in the base or by field construction. Bases may also be poured in place. All inlets and outlets are to be identified.

OPENINGS IN RISER SECTIONS for 18" and smaller inlet pipes shall be prefabricated. Flexible connections shall be provided for sanitary and combined sewers.

JOINT SEAL between precast manhole sections on sewers shall be resilient and flexible gasket joints per ASTM C-443 or latest edition.

The manhole seal at the top of the manhole (casting, adjustment rings, etc.) shall be a "WRAPIDSEAL" heat shrinkable seal manufactured by Canusa-CPS or approved equal.

All other joints shall be sealed with CONSEAL CS102 butyl sealant manufactured by Concrete Sealants, Inc. or an approved equal.

A watertight flexible sleeve "KOR-N-SEAL", "PRESS WEDGE" or equal to be provided at all connections between manholes and pipes and shall meet the requirements of ASTM C-923.

MATERIALS for bases and other precast sections, including reinforcement not specified hereon, shall comply with the specifications.

LANDING PLATFORMS as shown on the Landing Details shall be installed in manholes that are over 28 feet deep to the invert with maximum vertical spacing of 20 feet.

PRECAST MANHOLE shall conform to the requirements of ASTM C-478. Concrete shall be 4000# P.S.I.

SEAL lift holes with approved concrete plugs and bit.

ANCHORS ⅝" dia. Allthread with washers and hex nut (Min 4). Lead anchor secured into the eccentric cone top.

CASTINGS for manholes shall be cleaned and painted in field with one coat of asphalt varnish or coal tar pitch paint.

REV No.	DATE	BY	DESCRIPTION
1	12/09	CB	STEP SPECIFICATION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING

PRECAST CONCRETE MANHOLE

CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SAN-1

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www.WeberEngineeringServices.com
330-329-2037
matt@webercivil.com

STATE OF OHIO — MATTHEW L. WEBER — 61709 — REGISTERED PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

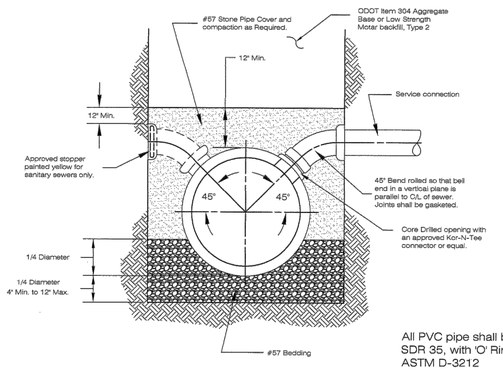
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

SITE DETAILS

C105
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022-298 Sgt. Clean North Ridgeville\2022-298.Dwg 2022-298 Site01B - 11-14-2022 2022-298 Site01B.DWG 11/15/2022 10:13:58 AM



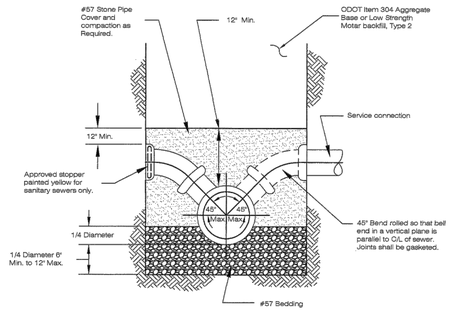
TYPICAL CORE AND TEE DETAIL
(USE ON EXISTING MAINS)

NOTES: Provide gasketed plug in sanitary sewer connection at R/W line if connection is not to be used immediately.

Employ proper trench saftey per latest OSHA Standards.

Bell ends are to be placed upstream.

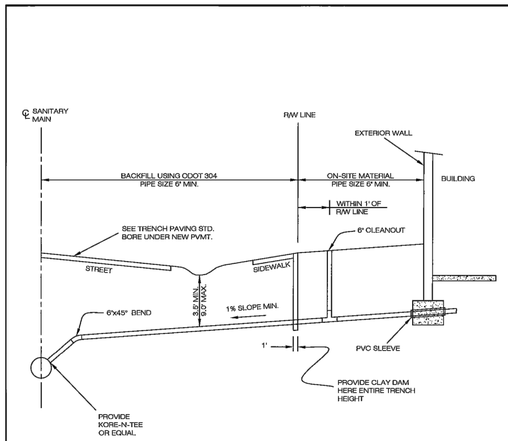
All PVC pipe shall be ASTM 3034 SDR 35, with 'O' Ring joints per ASTM D-3212



TYPICAL Y-BRANCH DETAIL

REV No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING
			SANITARY SERVICE CONNECTION DETAILS

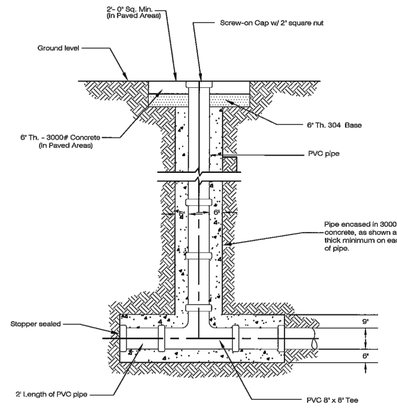
CITY OF NORTH RIDGEVILLE, ENGINEER | SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SAN-5



NOTES:
ALL PIPE SHALL BE PVC ASTM D 3034, SDR 35 WITH 'O'-RING JOINTS PER ASTM 3212.
BELL ENDS SHALL BE FACED UPSTREAM.
PIPE EMBEDMENT: ODOT #57 4" BELOW PIPE TO 1 FOOT ABOVE TOP OF PIPE, FULL WIDTH OF TRENCH.
BACKFILL: ODOT NO. 304 (ABOVE PIPE EMBEDMENT)
PROVIDE GASKETED PLUG IN SANITARY SEWER CONNECTION AT R/W LINE IF CONNECTION IS NOT TO BE USED IMMEDIATELY.
EMPLOY PROPER TRENCH SAFETY PER LATEST OSHA STANDARDS.

REV No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING
			SANITARY SERVICE CONNECTION

CITY OF NORTH RIDGEVILLE, ENGINEER | SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SAN-8



6" Cleanout shall be used for 6" sewers and larger. Smaller size sewers and lamp holes shall have same size pipe.

REV No.	DATE	BY	DESCRIPTION
1	10/01/08	Screw-on Cap	
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING
			CLEANOUT DETAIL

CITY OF NORTH RIDGEVILLE, ENGINEER | SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | SAN-9

Notes:

Location: and elevation when given on the plans is top center of the grate. When side openings are provided, elevation shall be the flow line of the side inlet.

Casting and Frame: Casting to be East Jordan Iron Works No. 5110 w/Type M2 Flat Grate or as approved equal. A type M3 or M4 may be required in a bicycle traffic environment.

Brick: concrete block or cast-in-place walls have a nominal thickness of 8 inches. Precast walls shall have a min. thickness of 8 inches and be reinforced sufficiently to permit shipping and handling without damage.

2-2-B Grate: elevation to be placed 4 to 6 inches below normal ditch returning to normal 10 feet each side of the basin.

The following text shall be cast into the top of the grate: "DUMP NO WASTE" and "DRAINS TO WATERWAY"

Text shall be printed in bold, capital letters with a minimum height of 0.5". "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

Side Inlets: shall be provided on both sides of the No. 2-2-B catch basins in sags and on upstream side only where the ditch has a continuous down grade past the catch basin.

Concrete: cast in place, to be Class C. All precast concrete shall meet the requirements of 706.13.

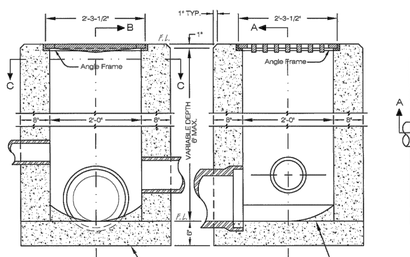
Openings: for pipes shall be O.D. +2" when fabricated or field cut.

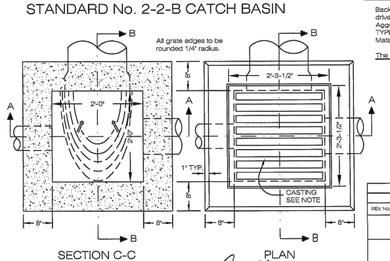
Maximum Depth: is 4'-0".

Backfill for structures within 3' of all pavement, driveways and sidewalks shall be ODOT Item 304 Aggregate Base or Low Strength Mortar Backfill, TYPE 2 per current C.O.D.O.T. Construction and Material Specifications, except as modified herein.

The use of Foundry Sand or Slag is strictly prohibited.

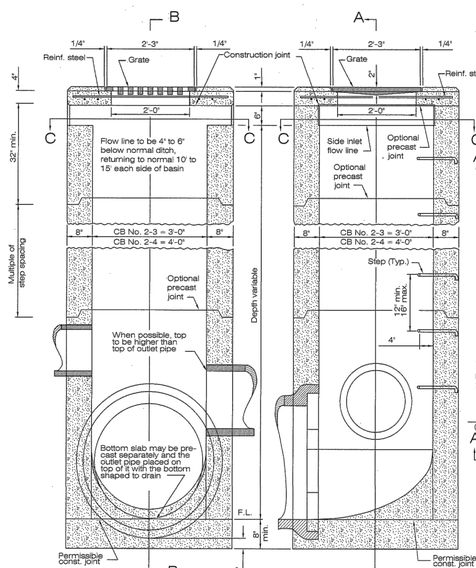
STANDARD No. 2-2-B CATCH BASIN

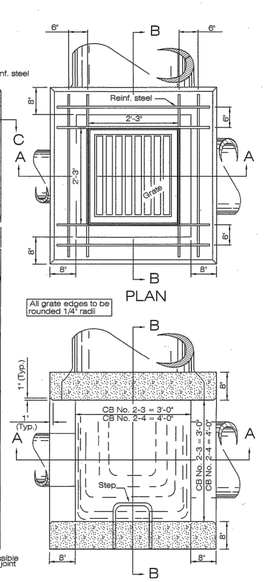




REV No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING
			CATCH BASINS 2-2-B

CITY OF NORTH RIDGEVILLE, ENGINEER | SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | STM-6





GRATE: See details on STM-4.
If necessary, bicycle safe grates shall be specified in the plans. Bicycle safe grates shall be Neenah No. R-4659-D or East Jordan No. 5110 Type M3 or approved equals.

As of January 1, 2003, the following text shall be cast into the top of the grate:
"DUMP NO WASTE" and "DRAINS TO WATERWAY"

Text shall be printed in bold, capital letters with a minimum height of 7". "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Brick or cast-in-place walls shall have a nominal thickness of 8". Precast walls shall have a minimum thickness of 8" and be reinforced sufficiently to permit shipping and handling without damage. Precast tops shall be 8" thick.

STEPS: Steps shall be provided where the depth exceeds 6' and shall meet the requirements of SCD MH-1.1.

CONCRETE: Cast-in-place concrete is to be Class C. All precast concrete shall meet the requirements of CMS 706.13 and be marked with the catch basin number.

REINFORCEMENT: Reinforcing in the top is to be #4 bars spaced at 6" center to center. For Catch Basin No. 2-3 use eight bars and for Catch Basin No. 2-4 use twelve bars.

INLETS OVER 12 FEET IN DEPTH: Shall be precast or cast-in-place concrete; reinforced with #4 bars on 12" centers both vertically and horizontally with 2" clearance from inside wall face.

PRECAST BASE: If a precast base is used, it shall be set deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Layers of brick shall not be used to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, the location and the elevation are at the top center of the grate. Whenside openings are provided, the elevation shall be at the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth of CB No. 2-3 and CB 2-4 shall be the outside diameter (O.D.) of the outlet pipe plus 7".

OPENINGS: Pipe Openings shall be the O.D. of the pipe being supplied plus 2" when prefabricated or field cut. Fill any voids per CMS 601.

SIDE INLETS: Inlets shall be provided on both sides of the No. 2-3 and 2-4 catch basin in sags and on upstream side only where the ditch has a continuous down grade past the catch basin. Catch basins with side inlets shall not be used within the Clear Zone.

CATCH BASIN	OUTLET PIPE SIZE
2-3	12" to 30"
2-4	36" to 42"

REV No.	DATE	BY	DESCRIPTION
			CITY OF NORTH RIDGEVILLE, OHIO
			DEPARTMENT OF ENGINEERING
			CATCH BASINS 2-3 AND 2-4

CITY OF NORTH RIDGEVILLE, ENGINEER | SCALE: NOT TO SCALE | DATE: 10/01/08 | DRWN BY: JAB/TEB | STM-7

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matt@webercivil.com

STATE OF OHIO · MATTHEW L. WEBER · 61709 · REGISTERED · PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

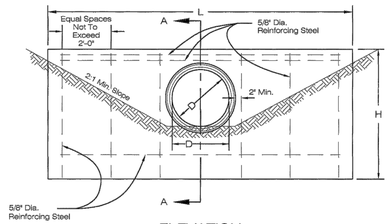
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

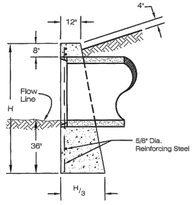
SITE DETAILS

C105A
Project No. 2022-298

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ELEVATION



SECTION A-A

DIMENSIONS			QUANTITIES ONE HEADWALL	
DIAMETER	H	L	CONCRETE CU. YDS.	REINFORCING STEEL LBS.
15"	5'-2"	7'-0"	1.7	41
18"	5'-5"	8'-4"	2.2	57
21"	5'-8"	9'-8"	2.8	62
24"	5'-11"	11'-0"	3.3	69
30"	6'-5"	13'-8"	4.7	92
36"	7'-0"	16'-4"	6.5	105

L CIRCULAR SECTIONS = 5D + 4t
L ELLIPTICAL OR PIPE ARCH = 4R + 4t + S
H CIRCULAR SECTIONS = D + t = 44'
H ELLIPTICAL OR PIPE ARCH = R + t = 44'

D = DIAMETER OF PIPE
R = RISE OF PIPE
S = SPAN OF PIPE
t = THICKNESS OF BARREL
L = LENGTH OF HEADWALL
H = HEIGHT OF HEADWALL

NOTES

No. 1 headwall, where required, will be provided for nonskewed culverts having a diameter or rise of 36" or less.

Concrete shall be class "C".

Reinforcing steel bars shall be 5/8" round.

Dimension and quantities are shown for circular sections only. It will be necessary to determine dimensions for the No. 1 headwall required for other pipe shapes in accordance with the equations listed on this drawing.

Full height headwalls are required for all pipes.

Chamfer all exposed corners 3/4 of an inch.

Foundation. Where the soil borings indicate a bearing capacity of less than 2600 pounds per square foot, it will be necessary to increase the width of the base.

For headwall outlet protection, see STM-13.

All cast in place headwalls shall have a cement wash.

Larry Griffith
CITY OF NORTH RIDGEVILLE, ENGINEER

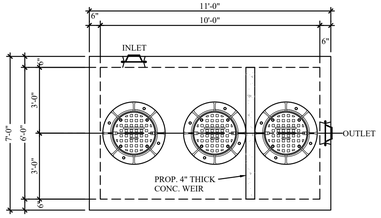
REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

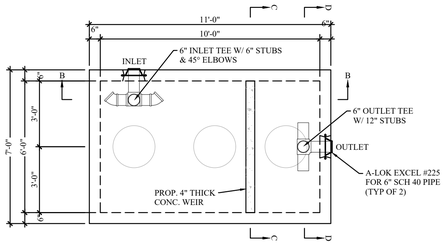
STANDARD
No. 1 HEADWALL

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRWN BY: JAB/TEB

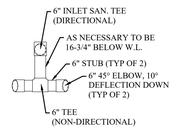
STM-10



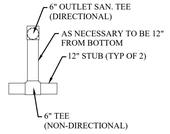
PLAN VIEW



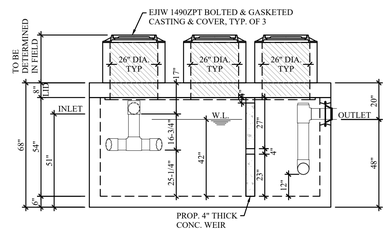
INTERNAL PIPE DETAIL PLAN VIEW



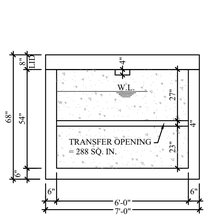
INLET PIPE DETAIL



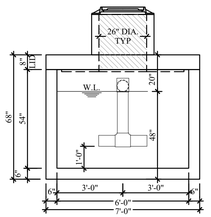
OUTLET PIPE DETAIL



INTERNAL PIPE DETAIL ELEVATION VIEW (SECTION B-B)



SECTION C-C

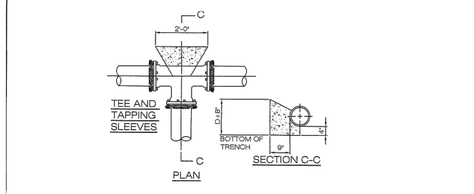


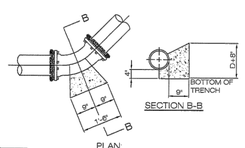
SECTION D-D

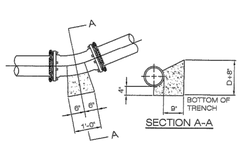
1,500 GALLON GREASE TRAP

REFERENCE ONLY NOT TO SCALE

NOTES:
1.) CONCRETE MIN. 5,000 PSI @ 28 DAYS.
2.) REINFORCING GRADE 60 ASTM A615-A617 60,000 PSI YIELD STRENGTH.
3.) HS-20 LOADING.
4.) EXCAVATION: 1'00" LARGER ALL AROUND TANK.
5.) CONSTRUCTION JOINT SEALED WITH CONSEAL MASTIC SEALANT.
6.) LIQUID CAPACITY = 210 C.F. / 1,570 GAL.
7.) EFFECTIVE CAPACITY = 150 C.F. / 1,122 GAL.
8.) STEEL REINFORCEMENT
TOP - #4 @ 5" C/C B.W
UPPER WALLS - #4 @ 12" C/C B.W
LOWER WALLS - #4 @ 12" C/C B.W
BASE - #4 @ 6" C/C B.W







1. ALL DIMENSIONS SHOWN HEREON ARE MINIMUM; THRUST BLOCK SHALL BE POURED TO UNDISTURBED EARTH.
2. ALL CONCRETE FOR THRUST BLOCKS SHALL BE CLASS "C" HAVING 4,000 PSI 28 DAY COMPRESSIVE STRENGTH.
3. DO NOT COVER BOLTS WITH CONCRETE ON MECHANICAL JOINTS.
4. USE FORMS WHEN POURING CONCRETE TO MAINTAIN SHAPE AND DIMENSIONS OF THRUST BLOCKS.
5. MEGA-LUGS ARE AN ACCEPTABLE OPTION.

REV No.	DATE	BY	DESCRIPTION

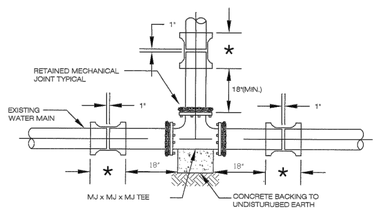
CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

THRUST BLOCK DETAIL

Larry Griffith
CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRWN BY: JAB/TEB

WAT-7



1. * CONNECTION SHALL BE MADE WITH RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT OR LONG PATTERN) DUCTILE IRON CLASS 350 OR CAST IRON CLASS 250 OR COMPRESSION COUPLINGS.
2. COMPRESSION COUPLINGS SHALL BE OF A GASKETED, SLEEVE TYPE WITH DIAMETERS TO PROPERLY FIT PLAIN END IRON PIPE, EACH COUPLING SHALL CONSIST OF ONE (1) MIDDLE RING, WITHOUT STOPS; TWO (2) FOLLOWER GLANDS; WO (2) RUBBER-COMPOUND BUNA-N BLEND, WEDGE SECTION GASKETS; AND SUFFICIENT TRACK-HEAD STAINLESS STEEL BOLTS AND NUTS (ASTM A276/A193/194, TYPE 304, EXTRA HEAVY HEX) TO PROPERLY COMPRESS THE GASKETS.
3. MIDDLE RING AND FOLLOWER GLANDS SHALL BE OF EITHER STEEL OR DUCTILE IRON (ASTM-A536).
4. THE COMPRESSION COUPLING SHALL BE WITHOUT STOPS AND BE RATED FOR A MINIMUM WORKING PRESSURE OF 250 PSI AND SHALL BE EQUAL TO THE DRESSER STYLE Nos 38, 138 OR 162 (TRANSITION TYPE), OR SMITH-BLAIR 441 STRAIGHT AND TRANSITION COUPLINGS.
5. ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS, INCLUDING THOSE ON THE "RETAINED" TYPE, SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC PAINTING FOLLOWED BY AN ENCASEMENT OF POLYETHYLENE WRAPPING IN ACCORDANCE WITH ANSI/AWWA C-105/A21.5-88, CLASS "C", METHOD "B".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

CUT-IN TEE DETAIL

Larry Griffith
CITY OF NORTH RIDGEVILLE, ENGINEER

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRWN BY: JAB/TEB

WAT-8

SPECIFICATIONS

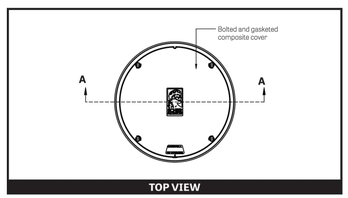
NOTES

1. 4" plain end inlet/outlet
2. Unit weight - 65 lbs.
3. Unit supplied with built-in adapter for up to 3° of continuous adjustability. Additional riser(s) are also available for deeper burial depth.
4. Maximum operating temperature: 140° F continuous

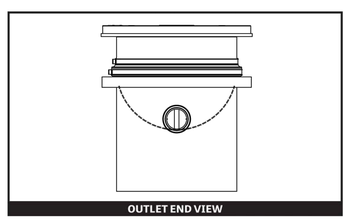
ENGINEER SPECIFICATION GUIDE

Schier Sewer Viewer™ sampling port model #SV24 shall be manufactured by Schier Products, Edwardsville, KS. Port shall be lifetime guaranteed and Made in USA of seamless, rotationally molded polyethylene.

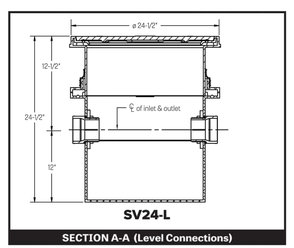




TOP VIEW



OUTLET END VIEW



SECTION A-A (Level Connections)

SCHIER WASTE WATER SAMPLING PORT DETAIL
MODEL SV24-L

REFERENCE ONLY NOT TO SCALE

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330-329-2037
matt@webercivil.com

STATE OF OHIO
MATTHEW L. WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

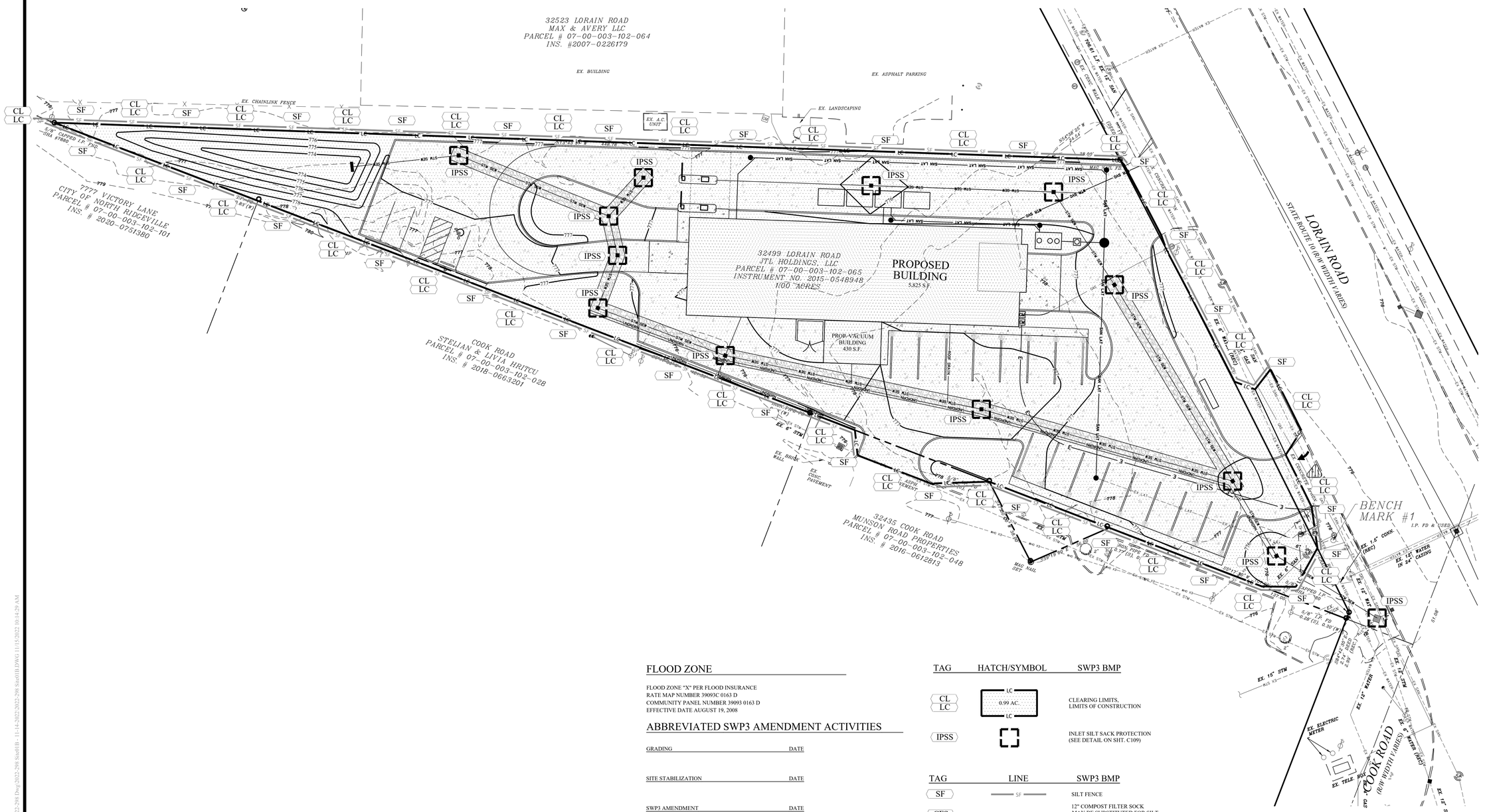
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

SITE DETAILS

C105B
Project No. 2022-298

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CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'64" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39093C 0163 D
COMMUNITY PANEL NUMBER 39093 0163 D
EFFECTIVE DATE AUGUST 19, 2008

ABBREVIATED SWP3 AMENDMENT ACTIVITIES

GRADING _____ DATE

SITE STABILIZATION _____ DATE

SWP3 AMENDMENT _____ DATE

ABBREVIATED SWP3 RESPONSIBLE PARTY

SGT. CLEAN
MARK ELLIS
616-437-1829

ESTIMATED CONSTRUCTION DATES

START DATE 02-01-2023
END DATE 10-01-2023

ABBREVIATED SWP3 PREPARED

11-14-2022

TAG	HATCH/SYMBOL	SWP3 BMP
CL / LC	LC 0.99 AC. LC	CLEARING LIMITS, LIMITS OF CONSTRUCTION
IPSS		INLET SILT SACK PROTECTION (SEE DETAIL ON SHT. C109)

TAG	LINE	SWP3 BMP
SF	SF	SILT FENCE
CFS	CFS	12" COMPOST FILTER SOCK MAY BE SUBSTITUTED FOR SILT FENCE AT CONTRACTORS DISCRETION

ALL OFF-SITE BORROW OR SPOIL AREAS SHALL BE REQUIRED TO BE PERMITTED BY A SEPARATE NOI AND RELATED SWP3.

ALL CEMENT TRUCKS SHALL RETURN TO THE PLANT FOR WASHOUT.

ALL VEHICLE FUELING SHALL OCCUR OFF SITE OR BY TRANSFER VEHICLE.

THERE WILL BE NO CONSTRUCTION ENTRANCE AS ALL ACCESS WILL BE THROUGH EXISTING HARD SURFACES.

GRAPHIC SCALE

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

INSPECTION CHECKLIST

INSPECTIONS SHALL BE MADE ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN ONE-HALF INCH OF RAIN PER 24 HOUR PERIOD

DATE	INSPECTOR	WEATHER CONDITIONS	RAINFALL AMOUNT	SEDIMENT DISCHARGE	DISCHARGE LOCATION	BMPS FAILED	ADDITIONAL BMPS NEEDED	CORRECTION MADE

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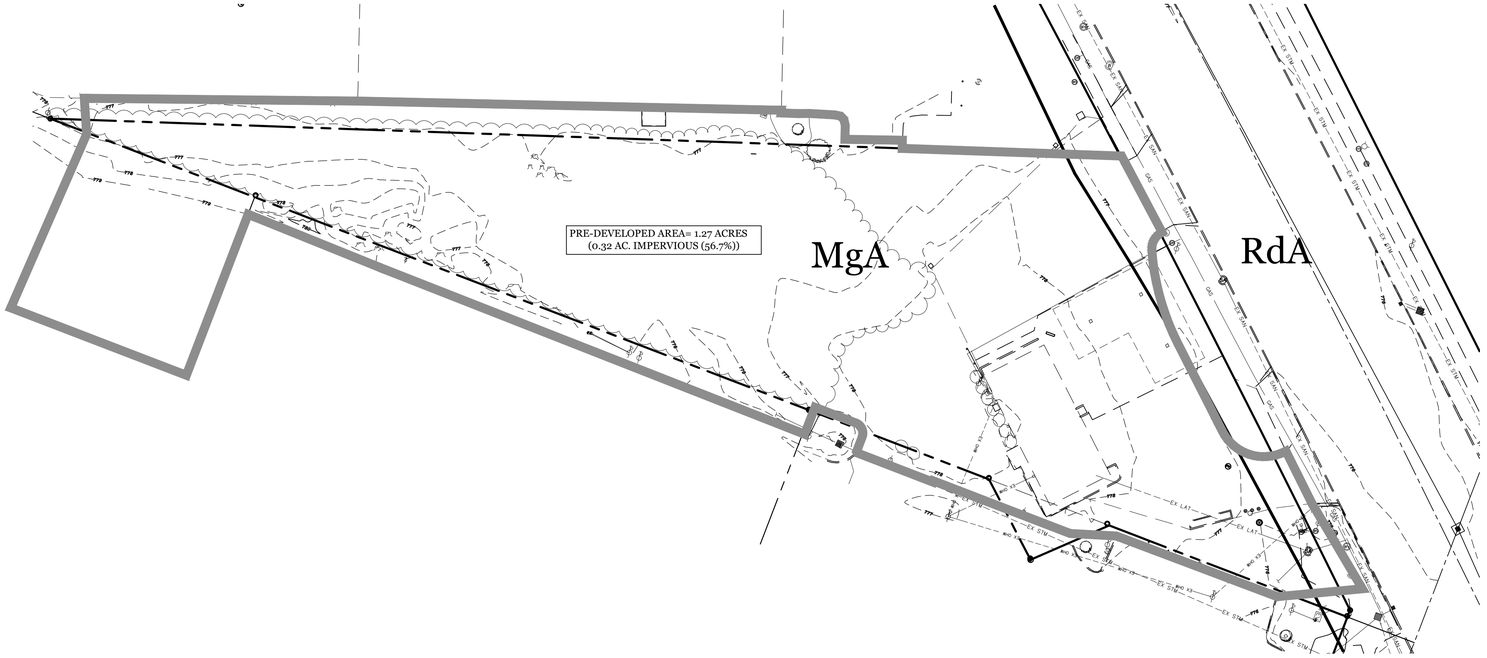
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

ABBREVIATED SWP3

C106
Project No. 2022-298

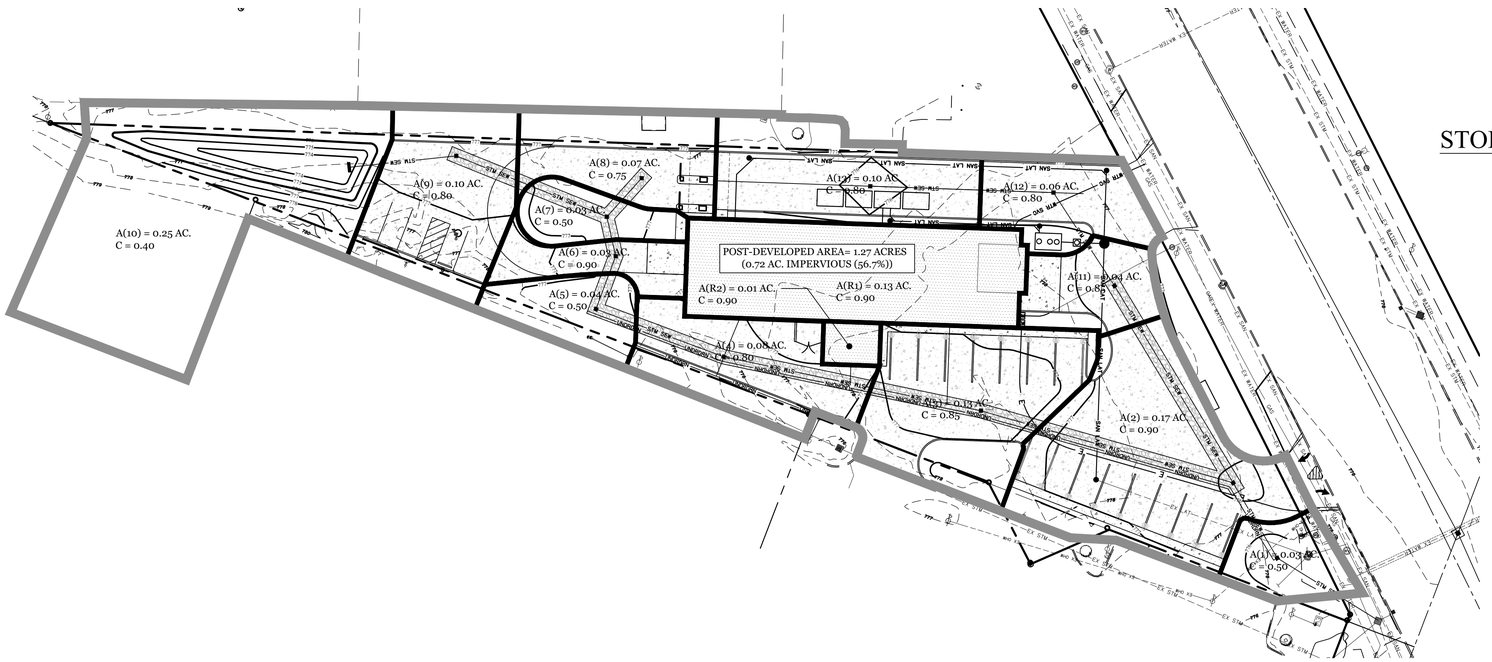
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PRE-DEVELOPED DRAINAGE MAP & SOILS MAP

PRE-DEVELOPED: AREA = 1.27 AC., CN = 82, TC = 15 MIN.

MgA - Mahoning silt loam, 0 to 2 percent slopes
RdA - Rawson loam, 0 to 2 percent slopes



STORM DRAINAGE MAP & POST DEVELOPED DRAINAGE

POST-DEVELOPED: AREA = 1.27 AC., CN = 90, TC = 10 MIN.

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

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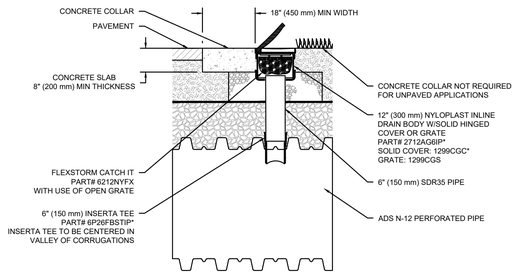
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

ABBREVIATED SWP3 DETAILS

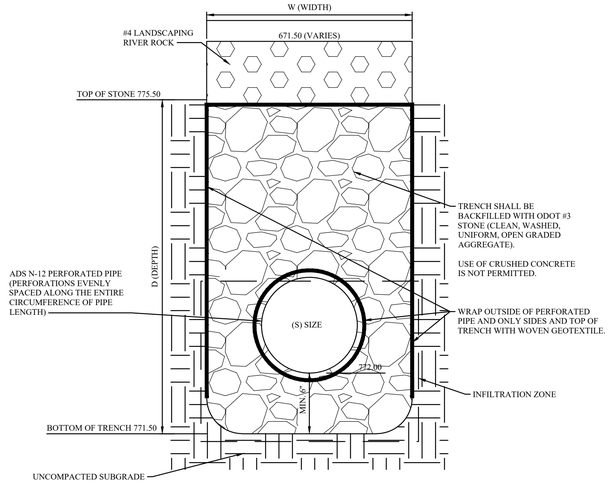
C107
Project No. 2022-298

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6" INSPECTION PORT DETAIL

REFERENCE ONLY NOT TO SCALE



STONE TRENCH DETAIL

REFERENCE ONLY NOT TO SCALE

(SEE TABLE BELOW)

UNDERGROUND STORAGE	WIDTH	DEPTH	SIZE
	6.00'	4.00'	24"

WATER-TIGHT CONNECTIONS SHALL BE PROVIDED WHERE INLET AND OUTLET PIPES PENETRATE THE OUTLET STRUCTURES OF PROPOSED TRENCHES. ALL WALL JOINTS AND WALL-TO-STRUCTURE JOINTS SHALL BE WATERTIGHT.

STORM SEWER CALCULATIONS (100-YR)

Storm Sewer Tabulation

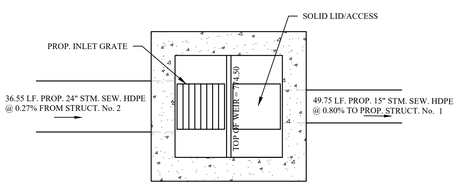
Page 1

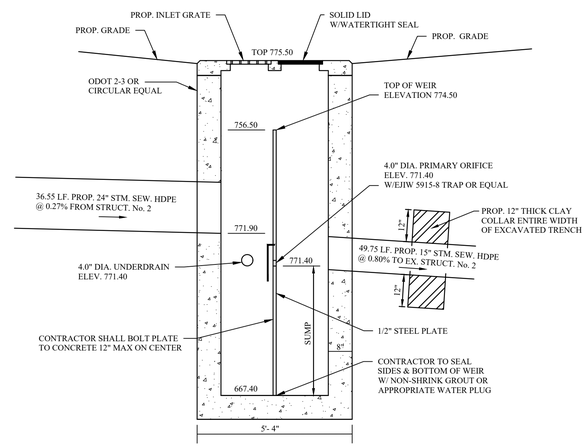
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
1	End	49.750	0.03	1.27	0.50	0.02	0.92	10.0	21.6	5.1	4.69	10.20	2.96	18	0.80	771.00	771.40	772.50	772.53	775.06	775.50	1 To EX. 2
2	1	36.550	0.17	1.24	0.90	0.15	0.91	10.0	21.3	5.1	4.66	12.81	3.76	24	0.27	771.90	772.00	772.73	772.83	775.50	775.90	2 To 1
3	2	109.980	0.13	0.87	0.85	0.11	0.59	10.0	20.0	5.3	3.16	12.80	2.49	24	0.27	772.00	772.30	772.98	773.05	775.90	776.55	3 To 2
4	3	110.150	0.22	0.74	0.86	0.19	0.48	10.0	18.3	5.6	2.71	12.79	2.81	24	0.27	772.30	772.60	773.08	773.22	776.55	776.00	4 To 3
5	4	57.228	0.04	0.52	0.50	0.02	0.29	10.0	16.9	5.8	1.72	12.55	2.23	24	0.26	772.60	772.75	773.25	773.29	776.00	776.50	5 To 4
6	5	23.690	0.03	0.48	0.90	0.03	0.27	10.0	16.3	6.0	1.64	11.26	1.97	24	0.21	772.75	772.80	773.39	773.41	776.50	776.40	6 To 5
7	6	16.930	0.03	0.45	0.50	0.02	0.25	10.0	15.8	6.1	1.50	13.29	1.87	24	0.29	772.80	772.85	773.43	773.43	776.40	776.40	7 To 6
8	7	68.098	0.10	0.35	0.80	0.08	0.18	10.0	13.2	6.7	1.20	11.50	1.62	24	0.22	772.85	773.00	773.49	773.52	776.40	776.20	9 To 7
9	8	45.640	0.25	0.25	0.40	0.10	0.10	10.0	10.0	7.6	0.76	11.47	1.24	24	0.22	773.00	773.10	773.55	773.56	776.20	776.10	10 To 9
10	2	96.450	0.04	0.20	0.85	0.03	0.16	10.0	12.3	6.9	1.12	13.67	0.94	24	0.31	772.00	772.30	772.98	772.99	775.90	776.45	11 To 2
11	10	46.710	0.06	0.16	0.80	0.05	0.13	10.0	11.7	7.1	0.90	1.79	1.65	12	0.21	772.30	772.40	772.99	773.03	776.45	776.10	12 To 11
12	11	76.850	0.10	0.10	0.80	0.08	0.08	10.0	10.0	7.6	0.61	2.60	1.64	12	0.46	772.40	772.75	773.07	773.13	776.10	775.75	13 To 12
13	7	21.795	0.07	0.07	0.75	0.05	0.05	10.0	10.0	7.6	0.40	11.74	0.22	24	0.23	772.35	772.40	773.49	773.49	776.40	776.20	8 To 7

Project File: 2022-298 Storm 01A.stm | Number of lines: 13 | Run Date: 11/12/2022

NOTES:Intensity = 105.39 / (Inlet time + 10.20) ^ 0.88; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewers v2020.00





OUTLET STRUCTURE No. 1 DETAIL

REFERENCE ONLY NOT TO SCALE

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STATE OF OHIO
MATTHEW L. WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

ABBREVIATED SWP3 DETAILS

C108
Project No. 2022-298

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1. Construction personnel, including subcontractors who may use or handle hazardous or toxic materials. shall be made aware of the following general guidelines regarding disposal and handling of hazardous and construction wastes:

- •Prevent spills
- •Use products up
- •Follow label directions for disposal
- •Remove lids from empty bottles and cans when disposing in trash
- •Recycle wastes whenever possible
- •Don't pour into waterways, storm drains or onto the ground
- •Don't pour down the sink, floor drain or septic tanks
- •Don't bury chemicals or containers
- •Don't burn chemicals or containers
- •Don't mix chemicals together

2. **Containers shall be provided for the proper collection of all waste material including construction debris, trash, petroleum products and any hazardous materials used on-site.** Containers shall be covered and not leaking. All waste material shall be disposed of at facilities approved for that material. Construction Demolition and Debris (CD&D) waste must be disposed of at an Ohio EPA approved CD&D landfill.

3. **No construction related waste materials are to be buried on-site.** By exception, clean fill (bricks, hardened concrete, soil) may be utilized in a way which does not encroach upon natural wetlands, streams or floodplains or result in the contamination of waters of the state.

4. **Handling Construction Chemicals.** Mixing. pumping. transferring or other handling of construction chemicals such as fertilizer. lime. asphalt. concrete drying compounds. and all other potentially hazardous materials shall be performed in an area away from any watercourse. ditch or storm drain.

5. **Equipment Fueling and Maintenance**, oil changing. ete .. shall be performed away from watercourses. ditches or storm drains. in an area designated for that purpose. The designated area shall be equipped for recycling oil and catching spills. Secondary containment shall be provided for all fuel oil storage tanks. These areas must be inspected every seven days and within 24 hrs. of a 0.5 inch or greater rain event to ensure there are no exposed materials which would contaminate storm water. Site operators must be aware that Spill Prevention Control and Countermeasures (SPCC) requirements may apply. An SPCC plan is required for sites with one single above ground tank of 660 gallons or more, accumulative above ground storage of 1330 gallons or more, or 42,000 gallons of underground storage. Contaminated soils must be disposed of in accordance with Item 8.

6. **Concrete Wash Water** shall not be allowed to flow to streams, ditches, storm drains, or any other water conveyance. A sump or pit with no potential for discharge shall be constructed if needed to contain concrete wash water. Field tile or other subsurface drainage structures within 10 ft. of the sump shall be cut and plugged.

7. **Spill Reporting Requirements:** Spills on pavement shall be absorbed with sawdust or kitty litter and disposed of with the trash at a licensed sanitary landfill. Hazardous or industrial wastes such as most solvents, gasoline, oil-based paints, and cement curing compounds require special handling. Spills shall be reported to Ohio EPA (1-800-282-9378). Spills of 25 gallons or more of petroleum products shall be reported to Ohio EPA, the local fire department, and the Local Emergency Planning Committee within 30 min. of the discovery of the release. All spills which contact waters of the state must be reported to Ohio EPA.

8. **Contaminated Soils.** If substances such as oil, diesel fuel, hydraulic fluid, antifreeze, etc. are spilled, leaked, or released onto the soil, the soil should be dug up and disposed of at licensed sanitary landfill or other approved petroleum contaminated soil remediation facility. (not a construction/demolition debris landfill). Note that storm water runoff associated with contaminated soils are not be authorized under Ohio EPA's General Storm Water Permit associated with Construction Activities.

9. **Open Burning.** No materials containing rubber, grease, asphalt, or petroleum products, such as tires, autoparts, plastics or plastic coated wire may be burned (OAC 3745-19). Open burning is not allowed in restricted areas, which are defined as: 1) within corporation limits; 2) within 1000 feet outside a municipal corporation having a population of 1000 to 10,000; and 3) a one mile zone outside of a corporation of 10, 000 or more. Outside of restricted areas, no open burning is allowed within a 1000 feet of an inhabited building on another property. Open burning is permissible in a restricted area for: heating tar, welding, smudge pots and similar occupational needs, and heating for warmth or outdoor barbeques. Outside of restricted areas, open burning is permissible for landscape or land-clearing wastes (plant material, with prior written permission from Ohio EPA) , and agricultural wastes, excluding buildings.

10. **Dust Control or dust suppressants** shall be used to prevent nuisance conditions, in accordance with the manufacturer's specifications and in a manner, which prevent a discharge to waters of the state. Sufficient distance must be provided between applications and nearby bridges, catch basins, and other waterways. Application (excluding water) may not occur when rain is imminent as noted in the short term forecast. Used oil may not be applied for dust control.

11. **Other Air Permitting Requirements:** Certain activities associated with construction will require air permits including but not limited to: mobile concrete batch plants, mobile asphalt plants, concrete crushers, large generators, etc. These activities will require specific Ohio EPA Air Permits for installation and operation. Operators must seek authorization from the corresponding district of Ohio EPA. For demolition of all commercial sites, a Notification for Restoration and Demolition must be submitted to Ohio EPA to determine if asbestos corrective actions are required.

12. **Process Waste Water/Leachate Management.** Ohio EPA's Construction General Permit only allows the discharge of storm water and does not include other waste streams/discharges such as vehicle and/or equipment washing, on-site septic leachate concrete wash outs, which are considered process wastewaters. All process wastewaters must be collected and properly disposed at an approved disposal facility. In the event, leachate or septage is discharged; it must be isolated for collection and proper disposal and corrective actions taken to eliminate the source of waste water.

13. **A Permit To Install (PTn** is required prior to the construction of all centralized sanitary systems, including sewer extensions, and sewerage systems (except those serving one, two, and three family dwellings) and potable water lines. Plans must be submitted and approved by Ohio EPA. Issuance of an Ohio EPA Construction General Storm Water Permit does not authorize the installation of any sewerage system where Ohio EPA has not approved a PTI.

CONSTRUCTION SEQUENCE

(ALL ITEMS ARE TO BE THE RESPONSIBILITY OF THE GENERAL SITE CONTRACTOR)

SITE PREPARATION

NOTE:

PROVIDE SAFE AND SECURE PEDESTRIAN AND VEHICULAR TRAFFIC CIRCULATION THROUGHOUT THE ENTIRETY OF THE CONSTRUCTION SEQUENCE WITH WELL DEFINED CONSTRUCTION BOUNDARIES TO BE ACCESSED BY CONSTRUCTION PERSONNEL ONLY. ALL EROSION CONTROLS ARE TO BE THOROUGHLY INSPECTED BY THE CONTRACTOR UPON THE COMPLETION OF EACH WORK DAY AND MAINTAINED THROUGHOUT THE REQUIRED LIFE OF THE CONTROL, AS SPECIFIED BY THE APPROVED EROSION AND SEDIMENTATION CONTROL PLANS AND NARRATIVE. THE CONTRACTOR MUST REVIEW THE APPROVED EROSION AND SEDIMENTATION CONTROL PLANS AND NARRATIVE. THE CONTRACTOR MUST REVIEW THE APPROVED NPDES PERMIT AND SIGN THE PERMIT TO ACCEPT RESPONSIBILITIES AS THE CO-PERMITEE.

INITIAL PHASE (WITHIN 7 DAYS OF START OF GRUBBING)

1. INSTALL A TEMPORARY CONSTRUCTION ENTRANCE FOR ACCESS TO CONSTRUCTION AREAS OF SITE.
2. SETUP CONSTRUCTION TRAILER ON SITE AND ESTABLISH TEMPORARY POWER AND TELEPHONE SERVICE AS NECESSARY.
3. ALL TEMPORARY UTILITY SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. STAKEOUT LIMITS OF DISTURBANCE.
5. INSTALL TEMPORARY INLET PROTECTION ON ALL EXISTING CATCH BASINS WITHIN LIMITS OF CONSTRUCTION. REMOVE SILT PROTECTION FROM DESIGNATED INLETS ONLY WHEN INLET STRUCTURE IS TO BE REMOVED AS REQUIRED BY PROGRESSION OF CONSTRUCTION. REFER TO PLANS FOR IDENTIFICATION OF INLET STRUCTURES TO BE REMOVED.
6. INSTALL ALL FILTER FABRIC FENCE WHERE SHOWN ON PLANS.
7. BEGIN SITE CLEARING.
8. REMOVE TOPSOIL FROM AREAS OF BUILDING AND PAVEMENT.
9. BEGIN EARTHWORK OPERATIONS.
10. CONSTRUCT STORM WATER BASIN.
11. IN THE EVENT OF RAIN, ALLOW STANDING WATER TO SETTLE PRIOR TO PUMPING. UTILIZE THE PUMPING SYSTEMS TO PUMP POLLUTED WATER PER E.P.A. REQUIREMENTS. ALLOW ONLY CLEAN WATER TO BE DISCHARGED TO THE EXISTING DRAINAGE SYSTEM. REMOVE SILT FROM BASINS AS NECESSARY PRIOR TO CONTINUING EARTHWORK. MATERIAL SHOULD BE MECHANICALLY SPREAD AND DRIED PRIOR TO INCORPORATION INTO THE EARTHWORK PROCEDURES. ADEQUACY OF THE DRIED MATERIAL IS TO BE DETERMINED BY A GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE AND ENSURE THAT PROPER MECHANISMS ARE IN PLACE TO CONTROL WASTE MATERIALS. CONSTRUCTION WASTES INCLUDES, BUT ARE NOT LIMITED TO, EXCESS SOIL MATERIALS, BUILDING MATERIALS, CONCRETE WASH WATER, SANITARY WASTES, ETC., THAT COULD ADVERSELY IMPACT WATER QUALITY. MEASURES SHALL BE PLANNED AND IMPLEMENTED FOR HOUSEKEEPING, MATERIALS MANAGEMENT, AND LITTER CONTROL. WHEREVER POSSIBLE, RECYCLING OF EXCESS MATERIALS IS PREFERRED, RATHER THAN DISPOSAL.

INTERIM PHASE GENERAL CONSTRUCTION

1. MAINTAIN TEMPORARY CONTROLS UNTIL REMOVAL IS WARRANTED DUE TO PROGRESSION OF WORK.
2. BEGIN EARTHMOVING OPERATIONS. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE COUNTY CONSERVATION DISTRICT OF LOCATION AND EROSION AND SEDIMENTATION CONTROL MEASURES IMPLEMENTED AT BORROW OR SPOIL SITE OF IMPORT/EXPORT MATERIAL. THE CONTRACTOR IS TO COORDINATE WITH OWNER THE PLACEMENT OF SUCH MEASURES.
3. STORM SEWER, SANITARY SEWER, WATER LINE AND UTILITY LINE CONSTRUCTION MAY BEGIN IMMEDIATELY FOLLOWING ESTABLISHMENT OF GRADE AND WITH THE PERMISSION OF THE OWNER.
4. STABILIZE ALL UTILITY TRENCHES AT THE END OF EACH WORKDAY BY MEANS OF GRAVEL BACKFILL TO SURFACE, REPAVING OR MULCHING.
5. REPLACE TOPSOIL, FINE GRADE AND SEED AS REQUIRED.
6. STABILIZE ALL DISTURBED AREAS WITH PERMANENT SEED AND MULCHING OR CROWNVETCH SEEDING IMMEDIATELY UPON REACHING FINAL GRADE.
7. INSTALL PAVEMENT SUBBASE.
8. BEGIN BITUMINOUS PAVING, REMOVING TEMPORARY CONSTRUCTION ENTRANCE ONLY WHEN NECESSARY.
9. RESEED AND REDRESS ANY AREAS THAT MAY REQUIRE ATTENTION IMMEDIATELY. NOTE THAT LAWN AREAS WILL NOT BE DEEMED STABLE UNTIL A UNIFORM 80% COVERAGE IS ACHIEVED.
10. ALL EROSION MEASURES SHALL REMAIN IN PLACE UNTIL THE SITE IS STABILIZED. ALL AREAS OF VEGETATIVE SURFACE STABILIZATION, WHETHER TEMPORARY OR PERMANENT, SHALL BE CONSIDERED TO BE IN PLACE AND FUNCTIONAL WHEN THE REQUIRED UNIFORM RATE OF COVERAGE (80%) IS OBTAINED.

FINAL PHASE POST-PAVING BASIN CONVERSION

1. IF, FOR ANY REASON, THE PROJECT IS SUSPENDED, THE CONTRACTOR SHALL INSURE THAT ALL INSTALLED EROSION MEASURES ARE FUNCTIONING AND PROPERLY MAINTAINED DURING THIS PERIOD, AND THAT ALL BARED SOILS ARE SEEDED AND MULCHED WITH TEMPORARY SEED MIXTURE.
2. THE FOLLOWING ITEMS MUST BE COMPLETED BY THE CONTRACTOR, IN ORDER, ONCE THE SITE HAS BEEN DEEMED STABLE:
   - A. REMOVE SEDIMENT CONTROL DEVICES AND ESTABLISH WATER QUALITY CONTROL ORIFICE.
   - B. REMOVE TEMPORARY CONSTRUCTION ENTRANCE PRIOR TO COMPLETION OF PAVING.
   - C. SITE CLEAN UP.
   - D. RESEED ANY AREAS THAT REQUIRE ADDITIONAL SEED
   - E. FILTER FENCES ARE TO BE CLEANED, REMOVED, BACKFILLED AND SEEDED WITH PERMANENT SEEDING.
   - F. VERIFY POSITIVE CONVEYANCE FLOW IN ALL DRAINAGE STRUCTURES.

SPECIFICATIONS FOR TEMPORARY SEEDING

TEMPORARY SEEDING SPECIES SELECTION			
SEEDING DATES	SPECIES	LB/100 FT^2	LB/ACRE
MARCH 1 TO AUGUST 15	OATS	3	128 (4 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	PERENNIAL RYEGRASS	1	40
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	ANNUAL RYEGRASS	1.25	55
	PERENNIAL RYEGRASS	3.25	142
	CREEPING RED FESCUE	0.4	17
	KENTUCKY BLUEGRASS	0.4	17
	OATS	3	128 (3 BUSHELS)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
AUGUST 16TH TO NOVEMBER	RYE	3	112 (2 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	WHEAT	3	120 (BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	PERENNIAL RYE	1	40
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	ANNUAL RYEGRASS	1.25	40
	PERENNIAL RYEGRASS CREEPING RED FESCUE	3.25	40
	KENTUCKY BLUEGRASS	0.4	40
NOVEMBER 1 TO FEB. 29	USE MULCH ONLY FOR DORMANT SEEDING		

NOTE: OTHER APPROVED SPECIES MAY BE SUBSTITUTED

1. STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND STABILIZED WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION-SITE.
2. TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR 14 DAYS OR MORE. THESE IDLE AREAS SHOULD BE SEEDED AS SOON AS POSSIBLE AFTER GRADING OR SHALL BE SEEDED WITHIN 7 DAYS. SEVERAL APPLICATIONS OF TEMPORARY SEEDING ARE NECESSARY ON TYPICAL CONSTRUCTION PROJECTS.
3. THE SEEDBED SHALL BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. HOWEVER, TEMPORARY SEEDING SHALL NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
4. SOIL AMENDMENTS--APPLICATIONS OF TEMPORARY VEGETATION SHALL ESTABLISHED ADEQUATE STANDS OF VEGETATION WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. SOIL TESTS SHOULD BE TAKEN ON THE SITE TO PREDICT THE NEED FOR LIME AND FERTILIZER.
5. SEEDING METHOD--SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

MULCHING TEMPORARY SEEDING

1. APPLICATIONS OF TEMPORARY SEEDING SHALL INCLUDE MULCH WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES AND WITH FAVORABLE SOIL CONDITIONS AND ON VERY FLAT SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION.
2. MATERIALS: STRAW--IF STRAW IS USED, IT SHALL BE UNROTTED SMALL-GRAIN APPLIED AT 2 TONS/AC. OR 90 LB. / 1,000 SQ. FT. (TWO TO THREE BALES). THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQ. FT. SECTIONS AND SPREAD TWO 45 LB. BALES OF STRAW IN EACH SECTION. HYDROSEEDERS--IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2,000 LB. / AC. OR 46 LB. /1,000 SQ. FT. OTHER--OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS / AC.
3. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER. ANCHORING METHODS: MECHANICAL--A DISK, CRIMPER OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT, GENERALLY BE LEFT LONGER THAN 6 IN. MULCH NETTINGS--NETTINGS SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES. SYNTHETIC BINDERS--SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA-TACK OR EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER. WOOD-CELLULOSE FIBER--WOOD-CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LB. /AC. THE WOOD-CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB. / 100 GAL.

BMP INSPECTION CHECKLIST

BMP	FREQUENCY	NOTES
GENERAL INSPECTION	EVERY 6 MO.	
STORM WATER BASIN	MONTHLY	
VEGETATION	MONTHLY	FIRST 2 GROWING
		SEASONS THEN TWICE A YEAR
SILT FENCE	MONTHLY	FIRST GROWING SEASON

REGULAR INSPECTION AND MAINTENANCE WILL BE PROVIDED FOR ALL EROSION AND SEDIMENT CONTROL PRACTICES. PERMANENT RECORDS OF MAINTENANCE AND INSPECTIONS MUST BE KEPT THROUGHOUT THE CONSTRUCTION PERIOD. INSPECTIONS MUST BE MADE A MINIMUM OF ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER STORM EVENTS GREATER THAN 0.5 INCHES OF RAIN IN A 24 HOUR PERIOD. PROVIDED WILL BE NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATED OF INSPECTION AND CORRECTIVE MEASURES TAKEN. RECORDS SHALL L BE SUBMITTED TO THE CITY OF NORTH RIDGEVILLE ENGINEERING DEPARTMENT FOR REVIEW BY MAY 1st OF EACH YEAR.

ALL CONTROL PRACTICES THAT REQUIRE REPAIR SHALL BE REPAIRED WITHIN THREE (3) DAYS OF THE INSPECTION.

ADDITIONAL SWP3 CONSIDERATIONS

NO OPEN BURNING

DUST CONTROL SHALL BE ACHIEVED BY USE OF WATERING TRUCKS. USE OF OIL IS STRICTLY PROHIBITED. INLET PROTECTION MUST BE IMPLEMENTED PRIOR TO DUST CONTROL MEASURES.

IN THE EVENT OF A PETROLEUM SPILL (>25 GALLONS) OR THE PRESENCE OF OIL SHEEN, THE CONTRACTOR SHALL CONTACT THE OHIO E.P.A. AT 800-282-9378, THE LOCAL FIRE DEPARTMENT.

SMALL SPILLS (<25 GALLONS) SHALL BE CLEANED UP USING AN ABSORBING AGENT, THE ABSORBING AGENT REMOVED AND DISPOSED OF ACCORDING TO FEDERAL REGULATIONS.

ALL TRENCH DEWATERING MEASURES SHALL BE DISCHARGED INTO SETTLING BASINS PRIOR TO DISCHARGE FROM SITE. BMP'S THAT REQUIRE REPAIR SHALL BE REPAIRED WITHIN 3 DAYS OF INSPECTION. SETTLING PONDS MUST BE REPAIRED WITHIN 10 DAYS OF INSPECTION.

STREETS ADJACENT TO SITE SHALL BE CLEANED AT THE END OF EACH WORK DAY.

POST-CONSTRUCTION BMP RATIONALE

STORM WATER MANAGEMENT AND POST CONSTRUCTION WATER QUALITY BMP'S HAVE BEEN ADDRESSED BY MEANS OF AN ON-SITE STORM WATER MANAGEMENT/WATER QUALITY BASIN.

MAINTENANCE FOR PERMANENT SEEDINGS FERTILIZATION AND MOWING

MIXTURE	FORMULA	LBS./ACRE	LBS./1,000 SQ. FT	TIME	MOWING
CREEPING RE FESCUE RYEGRASS KEENTCKY BLUEGRASS	10-10-10	500	12	FALL, YEARLY AS NEEDED	NOT CLOSER THAN 3"
TALL FESCUE	10-10-10	500	12		NOT CLOSER THAN 4"
TURF-TYPE FESCUE	10-10-10	500	12		
CROWN VETCH FESCUE	0-20-20	400	10	SPRING, YEARLY FOLLOWING ESTABLISHMENT AND EVERY 4-7 YEARS THEREAFTER	DO NOT MOW
FLAT PEA FESCUE	0-20-20	400	10		DO NOT MOW

NOTE: FOLLOWING SOIL TEST RECOMMENDATIONS IS PREFERRED TO FERTILIZER RATES SHOWN ABOVE.

SPECIFICATIONS FOR PERMANENT SEEDING

SITE PREPARATION

1. A SUBSOILER, PLOW OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. (MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY.) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING SHALL NOT BE DONE ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.
2. THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.
3. TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION. SEEDBED PREPARATION
   - a. LIME--AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 100 LB./1,000 SQ. FT. OR 2 TONS/ACRE.
   - b. FERTILIZER--FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AT A RATE OF 25 LB./1,000 SQ. FT. OR 1,000 LB./ACRE OF 10-10-10 OR 12-12-12 ANALYSES.
   - c. THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES. ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.

EROSION PREVENTION PRACTICES

SEEDING DATES AND SOIL CONDITIONS

SEEDING SHOULD BE DONE MARCH 1 TO MAY 31 OR AUG 1 TO SEPTEMBER 30. IF SEEDING OCCURS OUTSIDE OF THE ABOVE SPECIFIED DATES, ADDITIONAL MULCH AND IRRIGATION MAY BE REQUIRED TO ENSURE A MINIMUM OF 80% GERMINATION. TILLAGE FOR SEEDBED PREPARATION SHOULD BE DONE WHEN SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING, SEE THE FOLLOWING SECTION ON DORMANT SEEDING.

DORMANT SEEDING

1. SEEDINGS SHOULD NOT BE MADE FROM OCTOBER 1 THROUGH NOVEMBER 20. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT PROBABLY WILL NOT BE ABLE TO SURVIVE THE WINTER.
2. THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":

- FROM OCTOBER 1 THROUGH NOVEMBER 20, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. AFTER NOVEMBER 20, BROADCAST THE SELECTED SEED MIXTURE AT A 50% INCREASE IN THE SEEDING RATE.
- FROM NOVEMBER 20 THROUGH MARCH 15, WHEN SOIL CONDITIONS PERMIT, PREPARE THE SEEDBED, LIME AND FERTILIZE, APPLY THE SELECTED SEED MIXTURE, MULCH AND ANCHOR. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.
- APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER OR HYDRO-SEEDER (SLURRY MAY INCLUDE SEED AND FERTILIZER) ON A FIRM, MOIST SEEDBED.
- WHERE FEASIBLE, EXCEPT WHEN A CULTIPACKER TYPE SEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A CULTIPACKER, ROLLER OR LIGHT DRAG. ON SLOPING LAND, SEEDING OPERATIONS SHOULD FOLLOW THE CONTOUR WHERE FEASIBLE.

MULCHING

1. MULCH MATERIAL SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. DORMANT SEEDING SHALL BE MULCHED. 100% OF THE GROUND SURFACE SHALL BE COVERED WITH AN APPROVED MATERIAL.
2. MATERIALS

   STRAW--IF STRAW IS USED IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF 2 TONS/ACRE OR 90 LB./1,000 SQ. FT. (TWO TO THREE BALES). THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF DIVIDE AREA INTO APPROXIMATELY 1,000-SQ.-FT. HAND-SPREAD MULCH, SECTIONS AND SPREAD TWO 45-LB. BALES OF STRAW IN EACH SECTION.

   HYDROSEEDERS--IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2,000 LB./ACRE. OR 46 LB./1,000 SQ. FT.

   OTHER--OTHER ACCEPTABLE MULCHES INCLUDE ROLLED EROSION CONTROL MATTINGS OR BLANKETS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS/ACRE.
3. STRAW AND MULCH ANCHORING METHODS

   STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER.

   MECHANICAL--A DISK, CRIMPER OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT GENERALLY LEFT LONGER THAN 6 IN.

   MULCH NETTINGS-NETTINGS SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.

   SYNTHETIC BINDERS-SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUIVALENT MAY BE USED AT RATES SPECIFIED BY THE MANUFACTURER.

EROSION PREVENTION PRACTICES

WOOD CELLULOSE FIBER--WOOD CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS./ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER WITH THE MIXTURE CONTAINING A MAXIMUM OF 50 LBS. CELLULOSE/100 GALLONS OF WATER.

IRRIGATION

1. PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH.
2. IRRIGATION RATES SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDED AREAS FROM EXCESSIVE RUNOFF.

PERMANENT SEEDING

SEED MIX	SEEDING RATE LBS./ACRE	SEEDING RATE LBS./1,000 SQ. FEET	NOTES
GENERAL USE			
CREEPING RED FESCUE DOMESTIC RYEGRASS KENTUCKY BLUEGRASS	20-40 10-20 20-40	1/2-1 1/4-1/2 1/2-1	FOR CLOSE MOWING & FOR WATERWAYS WITH<2.0 FT/SEC VELOCITY
TALL FESCUE	40-50	1-1 ½	
TURF- TYPE (DWARF) FESCUE	90	2 ½	
STEEP BANKS OR CUT SLOPES			
TALL FESCUE	40-50	1-1/4	
CROWN VETCH TALL FESCUE	10-20 20-30	1/4-1/2 1/2-3/4	DO NOT SEED LATER THAN AUGUST
FLAT PEA TALL FESCUE	20-25 20-30	1/2-3/4 1/2-3/4	DO NOT SEED LATER THAN AUGUST
ROAD DITCHES AND SWALES			
TALL FESCUE	40-50	1-1 1/4	
TURF-TYPE (DWARF) FESCUE KENTUCKY BLUEGRASS	90 5	2 1/4 0.1	
LAWNS			
KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	100-120	2 2	
KENTUCKY BLUEGRASS CREEPING RED FESCUE	100-120	2 1-1/2	FOR SHADED AREAS

NOTE: OTHER APPROVAL SEED SPECIES MAY BE SUBSTITUTED.

TABLE 1: PERMANENT STABILIZATION

AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY AREAS THAT WILL LIE DORMANT FOR ONE YEAR OR MORE	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE
ANY AREAS WITHIN 50 FEET OF A SURFACE WATER OF THE STATE AND AT FINAL GRADE	WITHIN TWO DAYS OF REACHING FINAL GRADE
ANY OTHER AREAS AT FINAL GRADE	WITHIN SEVEN DAYS OF REACHING FINAL GRADE WITHIN THAT AREAS

TABLE 2: TEMPORARY STABILIZATION

AREA REQUIRING TEMPORARY STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY DISTURBED AREAS WITHIN 50 FEET OF A SURFACE WATER OF THE STATE AND NOT AT FINAL GRADE	WITHIN TWO DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS
FOR ALL CONSTRUCTION ACTIVITIES, AND DISTURBED AREAS THAT WILL BE DORMANT FOR MORE THAN 14 DAYS BUT LESS THAN ONE YEAR, AND NOT WITHIN 50 FEET OF A SURFACE WATER OF THE STATE	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA FOR RESIDENTIAL SUBDIVISIONS, DISTURBED AREAS MUST BE STABILIZED AT LEAST SEVEN DAYS PRIOR TO TRANSFER OF PERMIT COVERAGE FOR THE INDIVIDUAL LOT(S).
DISTURBED AREAS THAT WILL BE IDLE OVER WINTER	PRIOR TO THE ONSET OF WINTER WEATHER

WHERE VEGETATIVE STABILIZATION TECHNIQUES MAY CAUSE STRUCTURAL INSTABILITY OR ARE OTHERWISE UNOBTAINABLE, ALTERNATIVE STABILIZATION TECHNIQUES MUST BE EMPLOYED. PERMANENT AND TEMPORARY STABILIZATION ARE DEFINED IN PART VII.

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330-329-2037
matt@webercivil.com

STATE OF OHIO — MATTHEW L. WEBER — 61709 — REGISTERED PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

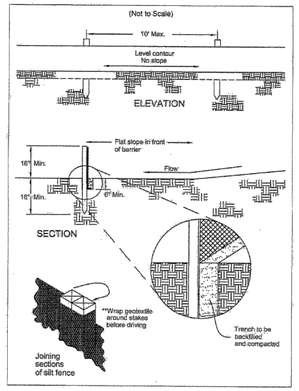
Issue Date
10-26-2022
11-14-2022

ABBREVIATED SWP3 DETAILS

C109
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022\2022-298 Sgt. Clean North Ridgeville\2022-298 Dwg\2022-298 Site01B - 11-14-2022\2022-298 Site01B.DWG | 11/15/2022 10:14:59 AM

Specifications
for
Silt Fence



Specifications
for
Silt Fence

1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions that may carry small concentrated flows to the silt fence are dissipated along its length.
3. Ends of the silt fences shall be brought upslope slightly so that water ponded by the silt fence will be prevented from flowing around the ends.
4. Silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 feet (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 inches above the original ground surface.
7. The silt fence shall be placed in an excavated or sliced trench cut a minimum of 6 inches deep. The trench shall be made with a trencher, cable laying machine, slicing machine, or other suitable device that will ensure an adequately uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile. A minimum of 8 inches of geotextile must be below the ground surface. Excess material shall lay on the bottom of the 6-inch deep trench. The trench shall be backfilled and compacted on both sides of the fabric.
9. Seams between sections of silt fence shall be spliced together only at a support post with a minimum 6-in. overlap prior to driving into the ground. (see details).
10. Maintenance—Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under the fabric or around the fence ends, or in any other way allows a concentrated flow discharge, one of the following shall be performed, as appropriate: 1) the layout of the silt fence shall be changed, 2) accumulated sediment shall be removed, or 5) other practices shall be installed.

   Sediment deposits shall be routinely removed when the deposit reaches approximately one-half of the height of the silt fence.

   Silt fences shall be inspected after each rainfall and at least daily during prolonged rainfall. The location of existing silt fence shall be reviewed daily to ensure its proper location and effectiveness. If damaged, the silt fence shall be repaired immediately.

Criteria for silt fence materials

1. Fence post – The length shall be a minimum of 32 inches. Wood posts will be 2-by-2-in. nominal dimensioned hardwood of sound quality. They shall be free of knots, splits and other visible imperfections, that will weaken the posts. The maximum spacing between posts shall be 10 ft. Posts shall be driven a minimum 16 inches into the ground, where possible. If not possible, the posts shall be adequately secured to prevent overturning of the fence due to sediment/water loading.
2. Silt fence fabric – See chart below.

Table 6.3.2 Minimum criteria for Silt Fence Fabric (ODOT, 2002)

FABRIC PROPERTIES	VALUES	TEST METHOD
Minimum Tensile Strength	120 lbs. (535 N)	ASTM D 4632
Maximum Elongation at 60 lbs	50%	ASTM D 4632
Minimum Puncture Strength	50 lbs (220 N)	ASTM D 4833
Minimum Tear Strength	40 lbs (180 N)	ASTM D 4533
Apparent Opening Size	≤ 0.84 mm	ASTM D 4751
Minimum Permittivity	1X10-2 sec.-1	ASTM D 4491
UV Exposure Strength Retention	70%	ASTM D 4355

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

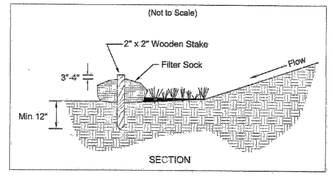
CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

SILT FENCE

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-18

CITY OF NORTH RIDGEVILLE, ENGINEER

Specifications
for
Filter Sock



1. Materials – Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well-decomposed source of organic matter and consist of a particles ranging from 3/8" to 2".
2. Filter Socks shall be 9 or 5 mil continuous, tubular, HDPE 3/8" knitted mesh netting material, filled with compost passing the above specifications for compost products.

INSTALLATION:

3. Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed mid-slope.
4. Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.
5. Filter Socks are not to be used in concentrated flow situations or in runoff channels.

MAINTENANCE:

6. Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
7. Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
8. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
9. Removal – Filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

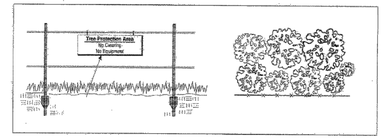
CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

FILTER SOCK

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-25

CITY OF NORTH RIDGEVILLE, ENGINEER

Specifications
for
Tree and Natural Area Preservation



1. Tree and natural area preservation shall be fenced prior to beginning clearing operations.
2. Fence materials shall be metal fence posts with two strands of high tensile wire, plastic fence or snow fence.
3. Signage shall clearly identify the tree and natural preservation area and state that no clearing or equipment is allowed within it.
4. Fence shall be placed as shown on plans and beyond the drip line or canopy of trees to be protected.
5. If any clearing is done around specimen trees it shall be done by cutting at ground level with hand held tools and shall not be grubbed or pulled out. No clearing shall be done in buffer strips or other preserved forested areas.
6. If any clearing is done around specimen trees it shall be done by cutting at ground level with hand held tools and shall not be grubbed or pulled out. No clearing shall be done in buffer strips or other preserved forested areas.
7. No filling or stockpiling of materials shall occur within the tree protection area, including deposition of sediment

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

TREE AND NATURAL AREA PRESERVATION

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-26

CITY OF NORTH RIDGEVILLE, ENGINEER

Specifications
for
Dust Control

1. Vegetative Cover and/mulch – Apply temporary or permanent seeding and mulch to areas that will remain idle for over 21 days. Saving existing trees and large shrubs will also reduce soil and air movement across disturbed areas. See Temporary Seeding; Permanent Seeding; Mulching Practices; and Tree and Natural Area Protection practices.
2. Watering. – Spray site with water until the surface is wet before land tilling, grading and repeat as needed, especially on haul roads and other heavy traffic routes. Watering shall be done at a rate that prevents dust but does not cause soil erosion. Wetting agents shall be utilized according to manufacturers instructions.
3. Spray-On Adhesives – Apply adhesive according to the following table or manufacturers' instructions.
4. Stone – Graded roadways and other suitable areas will be stabilized using crushed stone or coarse gravel as soon as practicable after reaching an interim or final grade. Crushed stone or coarse-gravel can be used as a permanent cover to provide control of soil emissions.
5. Barriers – Existing windbreak vegetation shall be marked and preserved. Snow fencing or other suitable barrier may be placed perpendicular to prevailing air currents at intervals of about 15 times the barrier height to control air currents and blowing soil.
6. Calcium Chloride – This chemical may be applied by mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage. Application rates should be strictly in accordance with suppliers' specified rates.
7. Operation and Maintenance - When Temporary Dust Control measures are used, repetitive treatment should be applied as needed to accomplish control.

   Street Cleaning - Paved areas that have accumulated sediment from construction should be cleaned daily, or as needed, utilizing a street sweeper or bucket -type enclosed or scraper.

Table 7.5.1 Adhesives for Dust Control

Adhesive	Water Dilution (Adhesive: Water)	Nozzle Type	Application Rate Gal./Ac.
Latex Emulsion	12.5:1	Fine	235
Resin in Water Acrylic Emulsion (No-traffic)	4:1	Fine	300
Acrylic Emulsion (No-traffic)	7:1	Coarse	450
Acrylic Emulsion (Traffic)	3.5:1	Coarse	350

INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

DUST CONTROL

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-29

CITY OF NORTH RIDGEVILLE, ENGINEER

Concrete Washout Areas

Installation:

1. Concrete wash water shall not be allowed to flow to streams, ditches, storm drains, or any other water conveyance and washout pits shall be situated a minimum of fifty (50) feet from them.
2. Field tile or other subsurface drainage structures within 10 ft. of the sump shall be cut and plugged.
3. Ensure a stable path is provided for concrete trucks to reach the washout area.
4. A highly visible sign that reads "Concrete Washout Area" shall be erected adjacent to the washout pit.
5. Surface runoff generated from upslope areas shall be diverted away from below-grade washout pits so as not to flow into them.
6. A single centralized washout area may be utilized for multiple sublots.

Maintenance:

7. The washout pit must be inspected frequently to ensure the liner is intact.
8. Once 75% of the original volume of the washout pit is filled or if the liner is torn, the material must be removed and properly disposed of once it is completely hardened. Once the hardened concrete is removed, the liner must be replaced (if torn). A new pit must be constructed if the original structure is no longer suitable.

Removal:

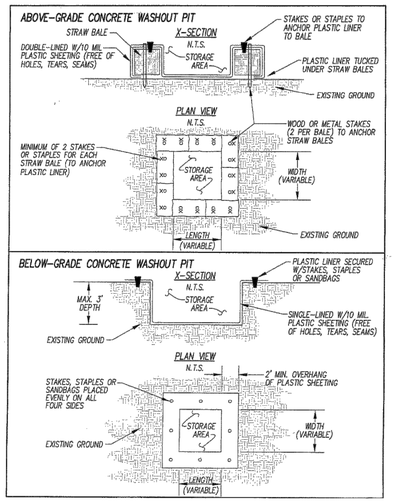
9. Once the washout pit is no longer needed, ensure all washout material has completely hardened, then remove and properly dispose of all materials. If straw bales were used, they can be spread as mulch.
10. Prefabricated containers specifically designed for concrete washout collection may be used subject to prior approval by the Community Engineer. Follow the manufacturer's suggestions for installation, maintenance and removal procedures.

Sizing of Concrete Washout Pits

Below-grade (3-ft depth)		
# of concrete trucks expected to be washed out on site*	Width (ft)	Length (ft)
2-3	3	3
4-5	4	4
6-7	5	5
8-10	6	6
11-14	7	7

Above-grade (2-ft depth)		
# of concrete trucks expected to be washed out on site*	Width (ft)	Length (ft)
2	3	3
3-4	4	4
5-6	5	5
7-8	6	6
9-11	7	7
12-15	8	8

*For small projects using a maximum of only one truckload of concrete or utilizing on-site mixing, rinsing of equipment may take place on the lot without a pit, provided it can be done a minimum of fifty (50) feet away from any water conveyances.



INFORMATION OBTAINED FROM THE 2006 EDITION OF THE STATE OF OHIO'S "RAINWATER AND LAND DEVELOPMENT MANUAL".

REV No.	DATE	BY	DESCRIPTION

CITY OF NORTH RIDGEVILLE, OHIO
DEPARTMENT OF ENGINEERING

CONCRETE WASHOUT

SCALE: NOT TO SCALE
DATE: 10/01/08 | DRWN BY: JAB/TEB | SWP-33

CITY OF NORTH RIDGEVILLE, ENGINEER

WEBER ENGINEERING SERVICES
Where Strong Relationships & Superior Service Guide Your Project

2555 Hartville Rd., Suite B
Rootstown, OH 44272
www.WeberEngineeringServices.com
330-329-2037
matt@webercivil.com

STATE OF OHIO
MATTHEW L. WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

ABBREVIATED SWP3 DETAILS

C110
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022-2022-298 Sgt. Clean North Ridgeville\2022-298.Dwg\2022-298 SiteIIB - 11-14-2022-2022-298 SiteIIB.DWG 11/15/2022 10:15:08 AM

CITY OF NORTH RIDGEVILLE
SWP3 STANDARD GENERAL NOTES

GENERAL EROSION AND SEDIMENT CONTROL NOTES
EROSION CONTROL SHALL CONSIST OF TEMPORARY CONTROL MEASURES AS DETAILED ON THE PLANS OR ORDERED BY THE GOVERNING AGENCY DURING THE LIFE OF THE CONTRACT TO CONTROL SOIL EROSION AND SEDIMENTATION THROUGH USE OF EROSION CONTROL BEST MANAGEMENT PRACTICES (BMP'S).

TEMPORARY EROSION AND SEDIMENT CONTROL ITEMS, THE LOCATION AND SIZE OF WHICH ARE DETAILED ON THE PLANS, SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF ANY CLEARING OR EARTHWORK OPERATIONS. CONDITIONS THAT DEVELOP DURING CONSTRUCTION THAT WERE NOT FORESEEN DURING DESIGN STAGE, THAT REQUIRE ADDITIONAL OR MODIFIED TEMPORARY OR PERMANENT BMP'S SHALL BE APPROVED BY THE CITY ENGINEER AND REFLECTED ON THE REVISED SWP3.

SEDIMENT PONDS, SEDIMENT TRAPS, AND PERIMETER SEDIMENT CONTROLS, SHALL BE IMPLEMENTED AS THE FIRST STEP OF GRADING AND WITHIN 7 DAYS FROM THE START OF GRUBBING. THEY SHALL CONTINUE TO FUNCTION UNTIL DISTURBED AREAS ARE RE-ESTABLISHED WITH TEMPORARY VEGETATION. NO SEDIMENT CONTROLS SHALL BE PLACED IN A STREAM.

TRENCH DEWATERING OR GROUND WATER, WHICH CONTAINS SEDIMENT SHALL PASS THROUGH A SEDIMENT SETTLING POND OR EQUALLY EFFECTIVE SEDIMENT CONTROL DEVICE. ALTERNATIVES MAY INCLUDE DEWATERING BAG, SUMP PIT, OR DISCHARGE ONTO ADJACENT UNDISTURBED LOW SLOPE AREA. SEDIMENT LADEN WATER SHALL NOT BE DISCHARGED TO STREAMS OR THE STORM SEWER SYSTEM.

THE SWP3, NOTES AND DETAILED DRAWINGS ARE INTENDED TO SERVE AS BASIC GUIDELINES. ALL EROSION CONTROL PRACTICES SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE ODNR RAINWATER AND LAND DEVELOPMENT MANUAL.

ADDITIONAL EROSION CONTROL BMP'S MAY BE MANDATED BY THE GOVERNING AGENCY AT ANY TIME DURING THIS PROJECT AS UNFORSEEN SITUATIONS MAY ARISE THAT WARRANT FURTHER EROSION AND SEDIMENT CONTROL PRACTICES.

CLEARING AND GRUBBING
LIMITS OF CLEARING AND GRADING SHALL BE CLEARLY MARKED ON THE SITE WITH SIGNAGE, FLAGGING AND/OR ORANGE CONSTRUCTION FENCING.

THE CONTRACTOR SHALL LIMIT THE SURFACE AREA OF ERODIBLE EARTH MATERIAL EXPOSED BY EXCAVATION, BORROW, AND FILL OPERATIONS AND PROVIDE IMMEDIATE PERMANENT OR TEMPORARY CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT STREAMS OR OTHER WATER COURSES, LAKES, PONDS, WETLANDS OR OTHER AREAS OF WATER IMPOUNDMENT.

CONSTRUCTION ENTRANCE
A STONED CONSTRUCTION ENTRANCE SHALL BE INSTALLED FOR ALL INGRESS & EGRESS TO THE SITE. THE MINIMUM DIMENSIONS OF THE DRIVE SHALL BE 50 FT. WIDE AND 50 FT. LONG. THE STONE SHALL BE 6" INCHES DEEP WITH AN UNDERLAIN GEOTEXTILE FABRIC. THE DRIVE SHALL BE INSTALLED PRIOR TO ANY CLEARING AND GRUBBING. SEDIMENTS SHALL BE REMOVED FROM THE ROADWAYS DAILY.

STABILIZATION
PERMANENT AND TEMPORARY STABILIZATION ARE DEFINED IN PART VI OF THE OEPA AUTHORIZATION FOR FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM.
OHIO EPA PERMIT NO. OHD000003 EFFECTIVE DATE 4/21/08 – EXPIRATION DATE 4/20/13 DISTURBED AREAS MUST BE STABILIZED AS SPECIFIED IN THE FOLLOWING TABLES BELOW:

TABLE 1: PERMANENT STABILIZATION

AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROL
ANY AREA THAT WILL LIE DORMANT FOR ONE YEAR OR MORE	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE
ANY AREA WITHIN 50 FT. OF A STREAM AND AT FINAL GRADE	WITHIN TWO DAYS OF REACHING FINAL GRADE
ANY OTHER AREAS AT FINAL GRADE	WITHIN SEVEN DAYS OF REACHING FINAL GRADE WITHIN THAT AREA

TEMPORARY SEEDING
SEEDING AREAS SHALL BE INSPECTED AND WHERE THE SEED HAS NOT PRODUCED 80% COVER SHALL BE RESEEDED AS NECESSARY BY THE CONTRACTOR. AREAS SHALL BE STABILIZED WITH STRAW MULCH WHEN CONDITIONS PROHIBIT SEEDING.

STRAW MULCHING SHALL BE APPLIED AT A RATE 2–3 STANDARD 45 LB. BALES PER 1000 SQ.FT. OF DISTURBED AREA OR 2 TONS PER ACRE. ALL HYDROSEEDING MUST BE STRAW MULCHED ACCORDING TO THE ABOVE SPECIFICATIONS UNLESS IT IS WATERED WEEKLY.

ALL DETENTION PONDS, RETENTION PONDS, WATER QUALITY STRUCTURES, SEDIMENT PONDS, SEDIMENT TRAPS, EARTHEN DIVERSIONS OR EMBANKMENTS SHALL BE SEEDED AND STRAW MULCHED WITHIN 7 DAYS OF COMPLETED CONSTRUCTION.

TABLE 2: TEMPORARY STABILIZATION

AREA REQUIRING TEMPORARY STABILIZATION	TIME FRAME TO APPLY EROSION CONTROL
ANY DISTURBED AREAS WITHIN 50 FT. OF A STREAM AND NOT AT FINAL GRADE	WITHIN TWO DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS
FOR ALL CONSTRUCTION ACTIVITIES, ANY DISTURBED AREAS THAT WILL BE DORMANT FOR MORE THAN 21 DAYS BUT LESS THAN ONE YEAR, AND NOT WITHIN 50 FT. OF STREAM	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA FOR RESIDENTIAL SUBDIVISIONS, DISTURBED AREAS MUST BE STABILIZED AT LEAST SEVEN DAYS PRIOR TO TRANSFER OF POINT COVERAGE FOR THE INDIVIDUAL LOT(S)
DISTURBED AREAS THAT WILL BE IDLE OVER WINTER	PRIOR TO ONSET OF WINTER WEATHER (NOV.1) STRAW MULCH 2 TO 3 BALES PER 1000 SQ.FT. AND OR 2 TONS PER ACRE.

PERMANENT STABILIZATION OF CONVEYANCE CHANNELS
OPERATORS SHALL UNDERTAKE SPECIAL MEASURES TO STABILIZE CHANNELS AND OUTFALLS AND PREVENT ERODIVE FLOWS. MEASURES MAY INCLUDE SEEDING, DORMANT SEEDING (AS DEFINED IN THE LATEST EDITION OF "ODNR RAINWATER AND LAND DEVELOPMENT MANUAL"), MULCHING, EROSION CONTROL MATTING, SODDING, RIPRAP NATURAL CHANNEL DESIGN WITH BIO ENGINEERING TECHNIQUES OR ROCK CHECK DAMS.

SOIL TRANSPORT ONTO PUBLIC ROADS
WHERE SOIL IS TRANSPORTED ONTO PUBLIC ROAD SURFACES, THE ROADS SHALL BE CLEANED THOROUGHLY BY OTHER SWEEPING OR SCRAPING AT THE END OF EACH WORK DAY OR MORE FREQUENTLY, IN ORDER TO ENSURE PUBLIC SAFETY; STREET WASHING SHALL NOT BE PERMITTED.

ERODIBLE MATERIAL HARPS IN STREETS TO ENABLE EQUIPMENT TO CROSS CURBS SHALL BE PROPERLY REMOVED IMMEDIATELY AFTER USE.

SILT FENCE & DIVERSIONS
SILT FENCE SHALL PROTECT DENUDED AREAS SHALL BE INTERCEPTED BY SILT FENCE OR DIVERSIONS TO PROTECT ADJACENT PROPERTIES AND WATER RESOURCES FROM SEDIMENT TRANSPORTED VIA SHEET FLOW. SILT FENCE IS INTENDED TO PROVIDE SEDIMENT CONTROL. SILT FENCES SHALL BE PLACED ON A LEVEL CONTOUR. THE EPA PERMIT No. OHD000003 DOES NOT PRECLUDE THE USE OF OTHER SEDIMENT BARRIERS DESIGNED TO CONTROL SHEET FLOW RUNOFF. SILT FENCE IS NOT PERMITTED TO BE USED FOR CONTROLLING CONCENTRATED SURFACEWATER FLOW (ONLY SHEET FLOW). STORMWATER DIVERSION PRACTICES SHALL BE USED TO KEEP RUNOFF AWAY FROM DISTURBED AREAS AND STEEP SLOPES WHERE PRACTICAL. SUCH DEVICES, WHICH INCLUDE SWALES, DIKES OR BERMS, MAY RECEIVE FLOWS FROM AREAS UP TO 10 ACRES.

INLET PROTECTION
INLET PROTECTION IS MANDATORY.

NON–SEDIMENT POLLUTANTS CONTROLS
NO SOLID (OTHER THAN SEDIMENT) OR LIQUID WASTE, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED IN STORMWATER RUNOFF. ALL NECESSARY BMP'S MUST BE IMPLEMENTED TO PREVENT THE DISCHARGE OF NON–SEDIMENT POLLUTANTS TO THE DRAINAGE SYSTEM OF THE SITE OR SURFACE WATERS OF THE STATE. UNDER NO CIRCUMSTANCES SHALL CONCRETE TRUCKS WASH OUT DIRECTLY INTO A DRAINAGE CHANNEL, STORM SEWER OR SURFACE WATERS OF THE STATE. NO EXPOSURE OF STORMWATER TO WASTE MATERIALS IS RECOMMENDED.

TRENCH AND GROUND WATER CONTROL
THERE SHALL BE NO TURBID DISCHARGES TO SURFACE WATERS OF THE STATE RESULTING FROM DEWATERING ACTIVITIES. IF TRENCH OR GROUND WATERS CONTAIN SEDIMENT, IT MUST PASS THROUGH A SEDIMENT SETTLING POND OR OTHER EQUALLY EFFECTIVE SEDIMENT CONTROL DEVICE, PRIOR TO BEING DISCHARGED FROM THE CONSTRUCTION SITE. ALTERNATIVELY, SEDIMENT MAY BE REMOVED BY SETTLING IN PLACE OR DEWATERING INTO A SUMP PIT, FILTER BAG OR COMPARABLE PRACTICE. GROUND WATER DEWATERING WHICH DOES NOT CONTAIN SEDIMENT OR OTHER POLLUTANTS ARE NOT REQUIRED TO BE TREATED PRIOR TO DISCHARGE, HOWEVER, CARE MUST BE TAKEN WHEN DISCHARGING GROUND WATER TO ENSURE THAT IT DOES NOT BECOME POLLUTANT–LADEN BY TRAVERSING OVER DISTURBED SOILS OR OTHER POLLUTANT SOURCES.

MAINTENANCE
ALL TEMPORARY AND PERMANENT CONTROL PRACTICES SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED IN A FUNCTIONAL CONDITION UNTIL ALL UP SLOPE AREAS THEY CONTROL ARE PERMANENTLY STABILIZED. THE CONTRACTOR SHALL COMPLY WITH THE MAINTENANCE SCHEDULE INCLUDED IN THE APPROVED PLANS FOR THE PROPOSED EROSION CONTROLS. A WRITTEN DOCUMENT CONTAINING THE SIGNATURES OF ALL CONTRACTORS AND SUB–CONTRACTORS INVOLVED IN THE IMPLEMENTATION OF THE BMP'S MUST BE MAINTAINED AS PROOF ACKNOWLEDGING THAT THEY REVIEWED AND UNDERSTAND THE CONDITIONS AND RESPONSIBILITIES OF THE SWP3.

INSPECTION
ALL STORMWATER CONTROLS ON THE SITE ARE INSPECTED AT LEAST ONCE EVERY SEVEN CALANDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN ONE–HALF INCH OF RAIN PER 24 HOUR PERIOD. A WRITTEN RECORD DOCUMENTING THE RESULTS OF THESE INSPECTIONS MUST BE CREATED AND MAINTAINED WITH THE SWP3. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF OR THE POTENTIAL FOR POLLUTANTS ENTERING THE EROSION AND SEDIMENT CONTROL MEASURES CONTAINED IN THE SWP3 SHALL BE REVISED AS NECESSARY THAT THOSE ARE OPERATING CORRECTLY. DISCHARGE LOCATIONS SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION AND SEDIMENT CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO THE RECEIVING WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF–SITE VEHICLE TRACKING.

WASTE DISPOSAL
CONTAINERS (e.g., DUMPSTERS, DRUMS) SHALL BE AVAILABLE FOR DISPOSAL OF DEBRIS, TRASH, HAZARDOUS OR PETROLEUM WASTES. ALL CONTAINERS MUST BE COVERED AND LEAK–PROOF. ALL WASTE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THE PERTINENT MATERIAL.

CLEAN HARD FILL
CLEAN HARD FILL, INCLUDING CONCRETE, AND SOIL WASTE SHALL BE FREE FROM CONTAMINATION WHICH MAY LEACH CONSTITUENTS TO WATERS OF THE STATE. CLEAN CONSTRUCTION WASTES THAT WILL BE DISPOSED INTO THE PROPERTY, SHALL BE SUBJECT TO ANY LOCAL PROHIBITIONS FROM THIS TYPE OF DISPOSAL.

CONSTRUCTION & DEMOLITION DEBRIS
ALL CONSTRUCTION & DEMOLITION DEBRIS (C&DD) WASTE SHALL BE DISPOSED OF IN AN OHIO EPA APPROVED C&DD LANDFILL AS REQUIRED BY OHIO REVISED CODE (ORC) 3714. CONSTRUCTION DEBRIS MAY BE DISPOSED OF ON–SITE, BUT DEMOLITION DEBRIS MUST BE DISPOSED IN A OHIO EPA APPROVED LANDFILL. ALSO, MATERIALS WHICH CONTAIN ASBESTOS MUST COMPLY WITH AIR POLLUTION REGULATIONS (SEE OHIO ADMINISTRATIVE CODE (OAC) 3745–20).

CONSTRUCTION CHEMICAL COMPOUNDS
AREA SHALL BE DESIGNATED FOR MIXING OR STORAGE OF COMPOUNDS SUCH AS FERTILIZERS, LIME ASPHALT, OR CONCRETE. THESE DESIGNATED AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS, OR OTHER STORMWATER DRAINAGE AREA.

EQUIPMENT FUELING & MAINTENANCE
EQUIPMENT FUELING & MAINTENANCE SHALL BE IN DESIGNATED AREAS ONLY.

A SPILL PREVENTION CONTROL AND COUNTERMEASURES
A SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN MUST BE DEVELOPED FOR SITES WITH ONE ABOVE–GROUND STORAGE TANK OF 660 GALLONS OR MORE, TOTAL ABOVE–GROUND STORAGE OF 1,320 GALLONS, OR BELOW–GROUND STORAGE OF 4,200 GALLONS OF FUEL.

CONCRETE WASH WATER
ALL DESIGNATED CONCRETE WASHOUT AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS, OR OTHER STORMWATER DRAINAGE AREAS.

CONTAMINATED SOILS
ALL CONTAMINATED SOIL MUST BE TREATED AND/OR DISPOSED IN OHIO EPA APPROVED SOLID WASTE MANAGEMENT FACILITIES OR HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITIES (TSDFs).

SPILL REPORTING REQUIREMENTS
THE CONTRACTOR SHALL CONTACT THE OHIO EPA: AT 800–282–9378 AND THE LOCAL FIRE DEPARTMENT IN THE EVENT OF A PETROLEUM SPILL (>25 GALLONS) OR THE PRESENCE OF SHEEN.

OPEN BURNING
OPEN BURNING IS NOT PERMITTED.

DUST CONTROL/SUPPRESSANTS
USED OIL MAY NOT BE USED AS A DUST SUPPRESSANT. NO DUST SUPPRESSANT SHALL BE APPLIED NEAR CATCH BASINS, STORM SEWERS OR OTHER DRAINAGE WAYS.

STREAM CROSSINGS
STREAM CROSSINGS SHALL BE CONSTRUCTED ENTIRELY OF STONE, ROCK OR CLEAN RECYCLED CONCRETE. SOIL OR EARTHEN MATERIAL MAY NOT BE USED. A 20 FT. STONE APRON ON EITHER SIDE OF THE STREAM SHALL BE CONSTRUCTED TO PREVENT LOCALIZED SCOUR/EROSION. THE CHANNELIZED AND BANKS SHALL BE RESTORED, AND ALL DISTURBED AREAS OF THE BANK WITHIN 50 FT. OF THE STREAM SHALL BE STABILIZED WITH SEED AND STRAW MULCH WITHIN 2 DAYS OF THE DISTUBBANCE.

PERMITS
THIS SITE IS COVERED UNDER OHIO EPA CONSTRUCTION GENERAL PERMIT #_____
THIS SITE IS COVERED UNDER OPEA / ARMY 401 /404 PERMIT #_____

STRUCTURAL BMP'S
PERMANENT BMP'S FOR POST CONSTRUCTION TREATMENT OF STORMWATER (CONVERSION OF SEDIMENT LAND TO STORMWATER POND) SHALL NOT BE INSTALLED UNTIL 80% OF THE DISTURBED AREA IS STABILIZED.

SEEDING AND MULCHING
SEDIMENT CONTROL SHALL BE ACCOMPLISHED BY SEEDING AND MULCHING IMMEDIATELY UPON COMPLETION OF EXCAVATION OR FILL AND FINISHED GRADING IN ACCORDANCE WITH ITEM 659: OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER. THE FOLLOWING PROPORTIONS SHALL BE USED FOR SEEDING: 5–21 CERTIFIED KENTUCKY BLUE GRASS – 30% PENNLAWN FESCUE – 25% MANHATTEN II RYEGRASS – 40% FERTILIZER – 10#/1000 S.F. (12–12–12) MULCH – STRAW – 2 TONS/ACRE RESTORATION OF ALL DISTURBED AREAS SHALL IMMEDIATELY FOLLOW EXCAVATION AND GRADING OPERATIONS. DELAY IN RESTORATION SHALL NECESSITATE TEMPORARY EROSION CONTROL MEASURES APPROVED BY THE ENGINEER AND AT THE CONTRACTOR'S COST.

RIPARIAN BUFFERS

THE RIPARIAN BUFFER (SETBACK) FOR ALL MAJOR AND MINOR DITCHES SHALL BE MARKED IN THE FIELD WITH ORANGE CONSTRUCTION FENCING BY THE CONSTRUCTION SITE OPERATOR PRIOR TO ANY EARTH DISTURBING ACTIVITIES.

ENFORCEMENT

ALL DEVELOPMENT SITES ARE SUBJECT TO INSPECTIONS BY THE CITY OF NORTH RIDGEVILLE AUTHORIZED AGENT(S) UNDER THE DIRECTION OF THE A LICENSED PROFESSIONAL ENGINEER TO ENSURE COMPLIANCE WITH THE APPROVED SITE DEVELOPMENT PLAN OR SWM PLAN.

IF IT IS FOUND THAT THE OPERATIONS ARE BEING CONDUCTED IN VIOLATION OF THE APPROVED SITE DEVELOPMENT PLAN AND SWM PLAN, A STOP–WORK ORDER MY BE ISSUED BY THE CITY OF NORTH RIDGEVILLE UNTIL THE IDENTIFIED VIOLATIONS CEASE.

AFTER ISSUANCE OF A STOP–WORK ORDER PROVIDED IN THE PARAGRAPH ABOVE, BUT BEFORE THE IMPOSITION OF ANY FINES, THE APPLICANT SHALL HAVE, TWO (2) BUSINESS DAYS TO REQUEST A MEETING WITH THE CITY LAW DIRECTOR AND THE CITY ENGINEER TO SHOW CAUSE WHY THE WORK SHOULD NOT BE STOPPED.

FOLLOWING THE ISSUANCE OF A STOP–WORK ORDER, THE CITY OF NORTH RIDGEVILLE SHALL DETERMINE IF AND WHEN THE DEVELOPMENT MAY PROCEED. ANY DETERMINATION BY THE CITY OF NORTH RIDGEVILLE PURSUANT TO THIS SECTION IS A FINAL ORDER FOR THE PURPOSE OF JUDICIAL REVIEW.

VIOLATIONS

THE CITY OF NORTH RIDGEVILLE SHALL NOTIFY THE STORM WATER PERMITTEE OF ANY VIOLATIONS OBSERVED IN WRITING. SAID NOTICE SHALL INDICATE THE EXACT NATURE OF THE VIOLATIONS AND OTHER SPECIFIC CORRECTIONS WHICH ARE REQUIRED.

THE PERMITTEE SHALL COMPLY WITH THE TIMELINE FOR CORRECTIONS SPECIFIED BELOW. TIMELINE EXTENSIONS FOR ADVERSE WEATHER CONDITIONS MAY BE GRANTED UPON APPROVAL OF THE CITY ENGINEER.

NATURE OF VIOLATION:	*NUMBER OF DAYS FROM INSPECTION TO CORRECT FUNCTIONING OF CONTROL PRACTICE:*
SILT FENCE	WITHIN THREE (3) DAYS
OUTLET CONTROL STRUCTURE	WITHIN THREE (3) DAYS
TEMPORARY OR PERMANENT STABILIZATION WITHIN 50' OF DRAINAGE CHANNELS	WITHIN THREE (3) DAYS
TEMPORARY OR PERMANENT STABILIZATION FOR ALL OTHER DISTURBED AREAS	WITHIN THREE (3) DAYS
STABILIZED CONSTRUCTION ENTRANCE	WITHIN THREE (3) DAYS
PLUMPING SEDIMENT–LADEN DISCHARGE INTO DRAINAGE CHANNEL	IMMEDIATELY UPON NOTICE
SEDIMENT SETTLING POND	WITHIN TEN (10) DAYS
ANY OTHER CONTROL PRACTICE NOT ADDRESSED IN THIS TABLE	WITHIN THREE (3) DAYS

PENALTIES SUBSEQUENT TO ISSUANCE OF STOP–WORK ORDER

SUBSEQUENT TO ISSUANCE OF A STOP–WORK ORDER, PENALTIES MAY BE IMPOSED ACCORDING TO THE CITY OF NORTH RIDGEVILLE CODIFIED ORDINANCE 1058.08(D)(1)(A). 1058.08(D)(1)(B) OR 1058.08(D)(1)(C).

REV. 11/22/16 OCTOBER 1, 2008

SPECIFICATIONS FOR MULCHING

1. MULCH AND OTHER APPROPRIATE VEGETATIVE PRACTICES SHALL BE APPLIED TO DISTURBED AREAS WITHIN 7 DAYS OF GRADING IF THE AREA IS TO REMAIN DORMANT (UNDISTURBED) FOR MORE THAN 21 DAYS OR ON AREAS AND PORTIONS OF THE SITE WHICH CAN BE BROUGHT TO FINAL GRADE.
2. MULCH SHALL CONSIST OF ONE OF THE FOLLOWING:
   - STRAW - SHALL BE UNROTTED SMALL GRAIN STRAW APPLIED AT THE RATE OF 2 TONS/AC. OR 90 LB./1,000 SQ. FT. (TWO TO THREE BALES). THE STRAW MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000-SQ.-FT. SECTIONS AND PLACE TWO 45-LB. BALES OF STRAW IN EACH SECTION.
   - HYDROSEEDERS - WOOD CELLULOSE FIBER SHOULD BE USED AT 2,000 LB./AC. OR 46 LB./1,000 SQ. FT.
   - OTHER - ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS AND ROLLED EROSION CONTROL PRODUCTS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD MULCH/CHIPS APPLIED AT 10-20 TONS/AC.
3. MULCH ANCHORING - MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR RUNOFF. THE FOLLOWING ARE ACCEPTABLE METHODS FOR ANCHORING MULCH:
   - MECHANICAL - USE A DISK, CRIMPER, OR SIMILAR TYPE TOOL SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT BE LEFT GENERALLY LONGER THAN 6 INCHES.
   - MULCH NETTINGS - USE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, FOLLOWING ALL PLACEMENT AND ANCHORING REQUIREMENTS. USE IN AREAS OF WATER CONCENTRATION AND STEEP SLOPES TO HOLD MULCH IN PLACE.
   - SYNTHETIC BINDERS - FOR STRAW MULCH, SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK, OR EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER. ALL APPLICATIONS OF SYNTHETIC BINDERS MUST BE CONDUCTED IN SUCH A MANNER WHERE THERE IS NO CONTACT WITH WATER OF THE STATE.
   - WOOD CELLULOSE FIBER - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS./AC. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB./100 GAL. OF WOOD CELLULOSE FIBER.

SPECIFICATIONS FOR SODDING

MATERIALS
1. SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 48 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE INSPECTED AND APPROVED PRIOR TO INSTALLATION.
2. THE SOD SHALL BE KEPT MOIST AN COVERED DURING HAULING AND PREPARATION FOR PLACEMENT.
3. SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 0.75 INCHES, PLUS OR MINUS 0.25 INCHES, AT THE TIME OF CUTTING. MEASUREMENTS FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH.

SITE PREPARATION
1. A SUBSOILER, PLOW OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY. SUBSOILING SHALL NOT BE CONDUCTED ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED ONLY TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.
2. THE AREA SHALL BE GRADED AND TOPSOIL SPREAD WHERE NEEDED.
3. SOIL AMENDMENTS

   LIME- AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACIDIC SOILS AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 100 LB./1,000 SQ. FT OR 2 TONS/AC.

   FERTILIZER- FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A 2 SOIL TEST FERTILIZER SHALL BE APPLIED AT A RATE OF 12 LB./1,000 SQ. FT OR 500 LB./AC. OF 10-10-10 OR 12-12-12 ANALYSIS

   THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES.
4. BEFORE LAYING SOD, THE SURFACE SHALL BE UNIFORMLY GRADED AND CLEARED OF ALL DEBRIS, STONES AND CLODS LARGER THAN 3-IN. DIAMETER.

SOD INSTALLATION
1. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURES, THE SOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY BEFORE LAYING THE SOD.
2. SOD SHALL NOT BE PLACED ON FROZEN SOIL.
3. THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED IN A BRICK-LIKE PATTERN. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS THAT WOULD DRY THE ROOTS.
4. ON SLOPING AREAS WHERE EROSION MAY BE A PROBLEM, SOD SHALL BE LAID WITH THE LONG EDGE PARALLEL TO THE CONTOUR AND STAGGERED JOINTS. THE SOD SHALL BE SECURED WITH PEGS OR STAPLES.
5. AS SODDING IS COMPLETED IN ANY ONE SECTION, THE ENTIRE AREA SHALL BE ROLLED OR TAMPED TO ENSURE SOLID CONTACT OF ROOTS WITH THE SOIL SURFACE. SOD SHALL BE WATERED IMMEDIATELY AFTER ROLLING OR TAMPING UNTIL THE SOD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN 8 HOURS.

MAINTENANCE
1. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK WITH SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4-6 INCHES.
2. AFTER THE FIRST WEEK, SOD SHALL BE WATERED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE AND ENSURE ESTABLISHMENT.
3. THE FIRST MOWING SHALL NOT BE ATTEMPTED UNTIL SOD IS FIRMLY ROOTED.

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Rootstown, OH 44272
www.WeberEngineeringServices.com
330-329-2037
matt@webercivil.com

STATE OF OHIO – MATTHEW L. WEBER – 61709 – REGISTERED PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

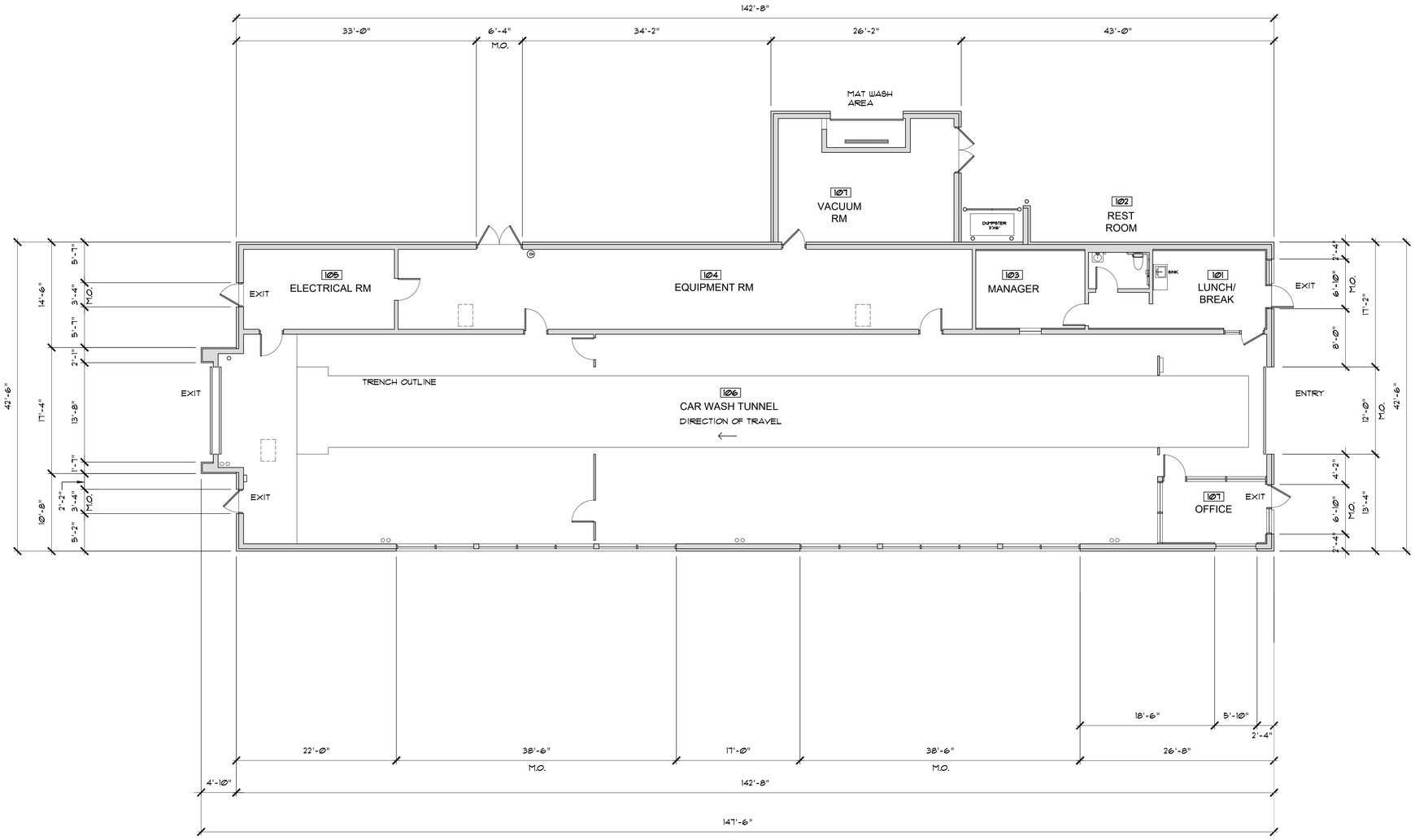
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

ABBREVIATED SWP3 DETAILS

C111
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022\2022-298 Sgt. Clean North Ridgeville\2022-298.Dwg\2022-298 Site01B - 11-14-2022\2022-298 Site01B.DWG 11/15/2022 10:15:18 AM



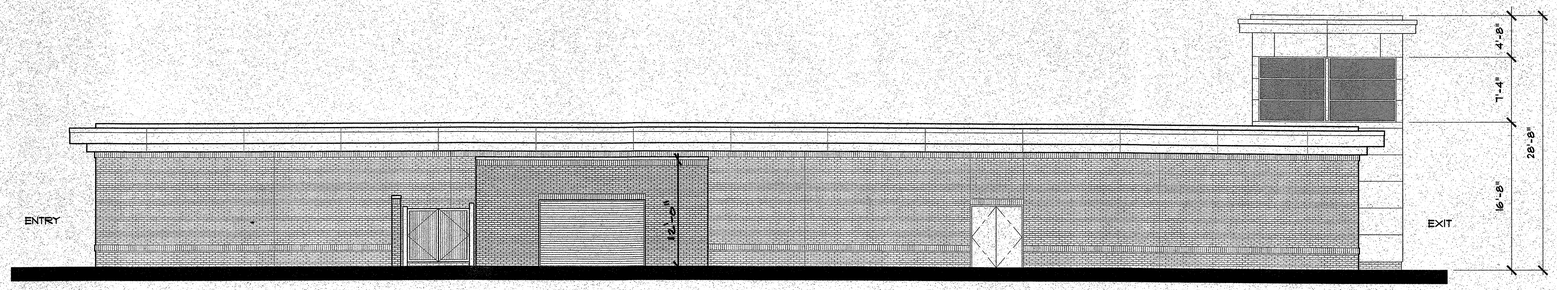
Proposed Floor Plan
1/8" = 1'-0"

A2

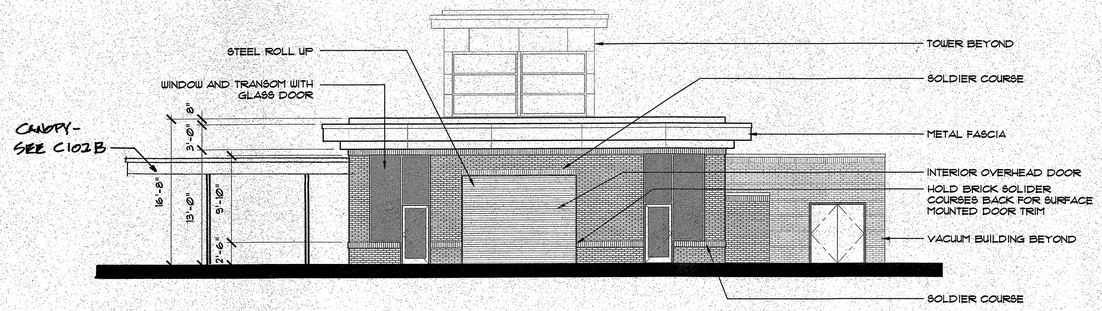
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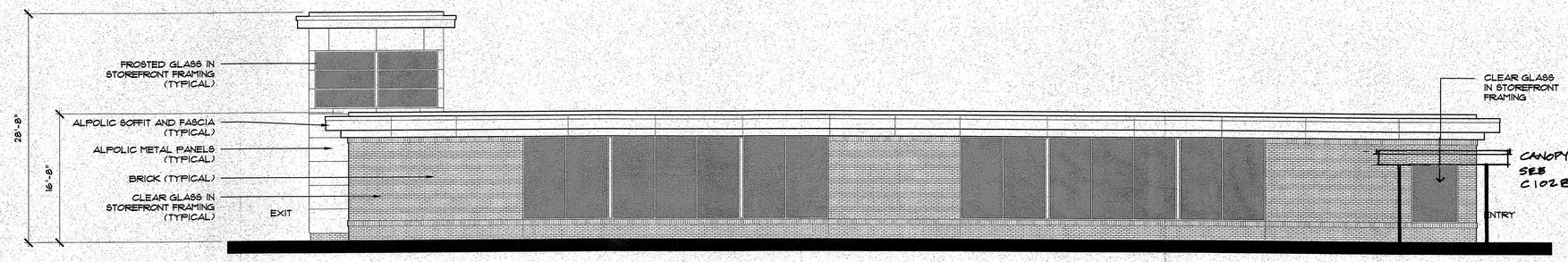
East Side Elevation
1/8"= 1'-0"



Entry (South) Elevation
1/8"= 1'-0"



Exit (North) Elevation
1/8"= 1'-0"



West Side Elevation
1/8"= 1'-0"

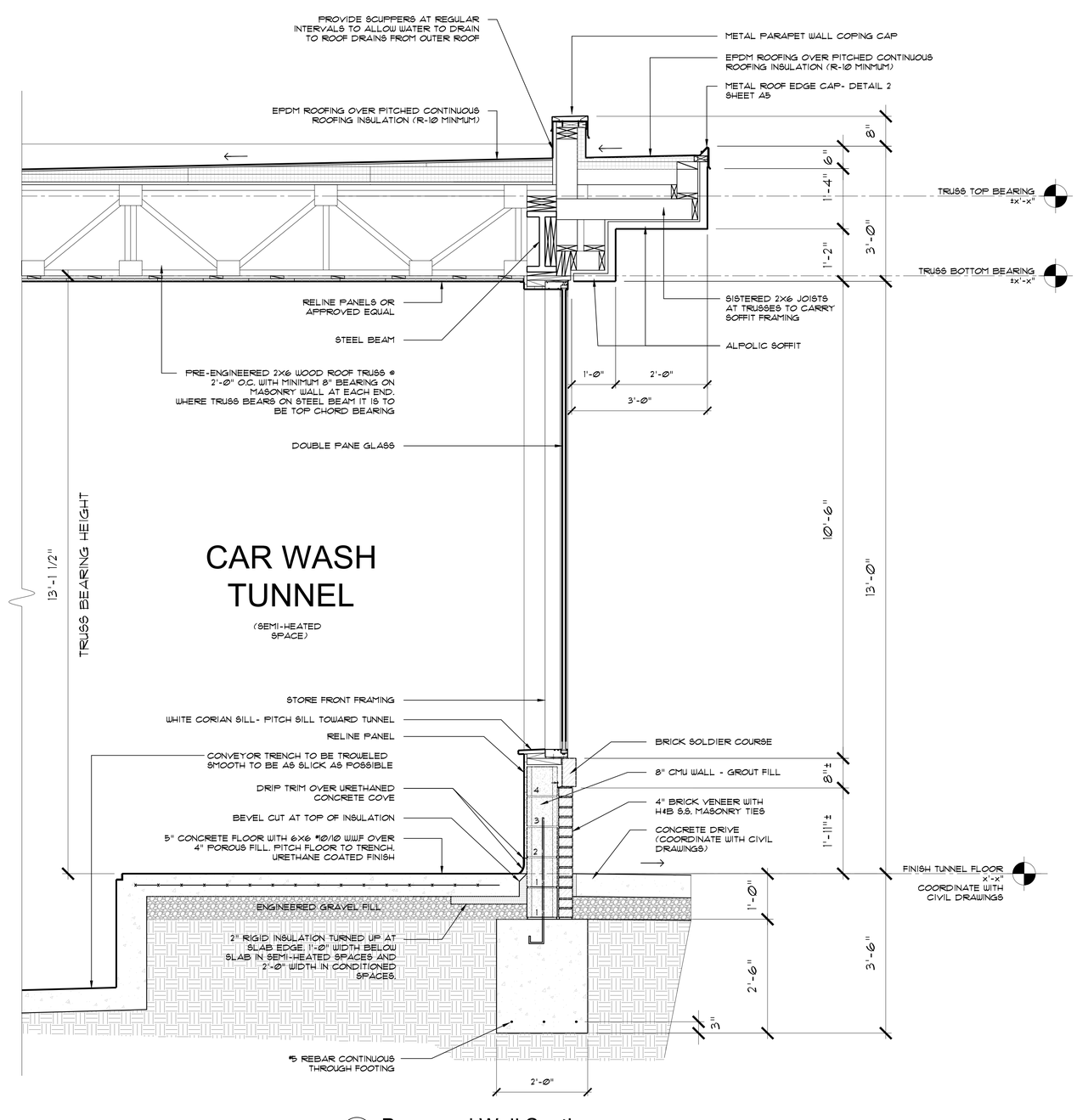
EXTERIOR COLOR SCHEDULE -VERIFY WITH CLIENT	
TOWER METAL PANEL	ALPOLIC METAL COMPOSITE ALUMINUM PANEL COLOR- TBX SILVER
FASCIA AND SOFFIT METAL PANEL	ALPOLIC METAL COMPOSITE ALUMINUM PANEL COLOR- PBX PEWTER
METAL COPING	VINTAGE COLOR BY SHEFFIELD METALS INTERNATIONAL
BRICK	BELDEN MODULAR BRICK- COLOR- BRANDYWINE VELOUR A MORTAR- DARK CHOCOLATE 38-E BY MIAMI MASONRY CEMENT
STOREFRONT SYSTEM WITH DOORS	KAWNEER CLEAR ANODIZED STOREFRONT SYSTEM ALUMINUM MILL FINISH #14

A3

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A / A1 Proposed Wall Section

3/4"= 1'-0"

NOTE: COORDINATE WITH STRUCTURAL PLANS

Wall Section Notes

FLAT ROOF CONSTRUCTION

1. ROOF VENT SHALL BE 10"-12" ø PREFABRICATED TURBINE VENTILATOR AS MANUFACTURED BY PENNBARRY MODEL# PT WITH B5F BASE. ROOF VENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.
2. ROOFING TO BE RUBBERGARD EPDM 5A BY FIRESTONE BUILDING PRODUCT IN BLACK.
3. TAPERED INSULATION TO BE TAPERED ISO 95+ POLYISO INSULATION FIRESTONE BUILDING PRODUCTS INSTALLED TO PROVIDE DRAINAGE TO ROOF DRAINS.
4. COVER BOARD TO BE ISOGARD HD COVER BOARD FIRESTONE BUILDING PRODUCTS INSTALLED TO PROVIDE 2" CONTINUOUS THICKNESS. PROVIDING R-10 INSULATION
5. ROOF SHEATHING SHALL BE 3/4" EXTERIOR GRADE PLYWOOD. (GLUE AND SCREW TO STRUCTURE)
6. FLASHING AND COUNTER FLASHING AS REQUIRED SHALL BE (PRE-FINISHED 20 GA. METAL WITH KYNAR FINISH)
7. TRUSSES SHALL BE 2X6 PRE-ENGINEERED TRUSSES @ 2'-0" O.C AND DESIGNED TO ACCOMMODATE NORMAL ATTIC ACCESS. (PROVIDE CALCULATIONS AND DRAWINGS TO BUILDING DEPARTMENT)
8. ROOF DRAIN TO BE CAST IRON DRAIN AND PLUS PACK WITH ALUMINUM DOME TO FIT FROM PORTALS PLUS, INC. MODEL #6261.
9. INTERNAL DOUN SPOUT TO BE WHITE 6" DIA. PVC PIPE. INSULATE STUD CAVITY TO PROVIDE SOUND DAMPENING AT EACH PIPE LOCATION.
10. DOUNSPOUTS SHALL BE CONNECTED TO EXISTING STORM SEWER SYSTEM.
11. INSULATION SHALL BE R-11 SPRAY FOAM AT UNDERSIDE OF ROOF DECK ABOVE CONDITIONED SPACES.
12. ROOF INSULATION IN TUNNEL SHALL BE PROVIDED BY COVER BOARD AS CONTINUOUS INSULATION.
13. BRIDGING, BRACING, AND BLOCKING SHALL BE PROVIDED AS REQUIRED BY CODES.
14. FIRE STOPS SHALL BE PROVIDED AS REQUIRED BY CODES.
15. 1/2" GYPSUM BOARD CEILING. MATERIAL SHALL BE ATTACHED TO STRUCTURE WITH SCREWS AND GLUE. (SCREWS MAXIMUM 12" O.C.) ALL CEILINGS, SOFFITS AND WALLS WILL HAVE A SMOOTH DRYWALL FINISH, NOT TEXTURED.
16. 1/2" OSB CEILING. MATERIAL SHALL BE ATTACHED TO STRUCTURE WITH SCREWS AND GLUE. (SCREWS MAXIMUM 12" O.C.) PAINT
17. PRIMER, AND TWO (2) COATS OF BASE PAINT SHALL BE PROVIDED.
18. TUNNEL CEILING TO BE FINISHED WITH P1600 1/2" FLAT INTERLOCKING PANELS BY EXTRUTECH PLASTICS, INC. INSTALL PER MANUFACTURE'S INSTRUCTIONS.

EXTERIOR WALL CONSTRUCTION

SEE WOOD AND STEEL LINTEL SCHEDULE ON SHEET T1 FOR ALL WINDOW AND DOOR OPENINGS NOT SHOWN. COORDINATE WITH STRUCTURAL DRAWINGS.

1. HEADERS WITH 12' - Ø" SPAN AND OVER REQUIRE STEEL FLITCH PLATE.
2. EXTERIOR TOWER SKIN TO BE ALPOLIC PANEL SYSTEM. SEE SHOP DRAWINGS.
3. FURRING TO BE WOOD 1X2 AS REQUIRED BY ALUCOBOND SHOP DRAWINGS.
4. STUDS SHALL BE 2 X 6 @ 16" O.C. 2 X 6 BOTTOM PLATE SHALL BE WOLMANIZED TREATED WOOD. PLATFORM FRAMING AT ALL PARTITIONS 10' AND OVER.
5. 8" CMU WALL WITH LADDER TYPE, CORROSION-RESISTANT METAL WALL TIES, BOTTOM TWO COURSES AND EVERY OTHER HORIZONTAL JOINT THEREAFTER (10" WIDE) GROUT SOLID, SEAL AND WATERPROOF.
6. 4" FACE BRICK VENEER APPLIED ABOVE GRADE OVER CMU WALL.
7. STAINLESS STEEL VENEER ANCHORS TO BE 345-BT BY HOHMANN AND BARNARD, INC.
8. STAINLESS STEEL TRUSS MESH JOINT REINFORCING IN STONE VENEER TO BE 120 TRUSS-MESH BY HOHMANN AND BARNARD, INC.
9. BRIDGING, BRACING, AND BLOCKING SHALL BE PROVIDED AS REQUIRED BY CODES.
10. FIRE STOPS SHALL BE PROVIDED AS REQUIRED BY CODES.
11. FLASHING AROUND ALL DOORS, WINDOWS, OUTSIDE CORNERS, SILL PLATES, BOTTOMS OF COLUMNS AND ALL OTHER AREAS WITH PRESSURE TREATED WOOD SHALL BE GRACE VYCOR PLUS WITH RIPCORD.
12. BUILDING WRAP WHERE REQUIRED SHALL BE DUPONT™ TYVEK® COMMERCIALWRAP® INSTALLED PER MANUFACTURER'S SPEC TAPE MATERIAL AT ALL OPENINGS.
13. WALL SHEATHING SHALL BE 1/2" TYPE CDX, EXPOSURE 1 APA RATED SHEATHING. CONNECT WALL SHEATHING WITH 10D COMMON NAILS @ 6" O.C. AT SUPPORTED PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS
14. COPPER TERMITE SHIELD IF REQUIRED BY CODE.
15. MASONRY WALL INSULATION SHALL BE PERLITE LOOSE FILL INSULATION IN BLOCK (R-7.). SEE PLAN FOR REQUIRED INSULATION VALUES.
16. GYPSUM BOARD SHALL BE 1/2, PREPARED FOR FINISHING AND PAINTING. (COLOR TO BE SELECTED) SCREWS MAXIMUM 12" O.C.
17. TUNNEL WALL COVERED BY P2400 1/2" FLAT INTERLOCKING PANELS BY EXTRUTECH PLASTICS, INC. INSTALL PER MANFACTURE'S INSTRUCTIONS
18. HEADERS SHALL BE DOUBLE 2 X 12 AT ALL OPENINGS UNLESS NOTED OTHERWISE.
19. 2 X 12 BLOCKING FOR ALL WALL RAILINGS, HAND GRIPS, SHOWER SEATS, TOILETS, CABINETRY ETC. IF BLOCKING NOT FEASIBLE, UNITS SHALL BE INSTALLED USING WINGIT PERMANENT FASTENING SYSTEM. MANUFACTURED BY WINGIT INNOVATIONS, LLC.
20. ANCHOR BOLTS SHALL BE 1/2" D. X 16" LONG AT 4' - Ø" O.C. MAXIMUM WITH 2 PER PLATE MINIMUM. ONE ANCHOR SHALL BE A MINIMUM WITHIN 12" OF ALL CORNERS. GROUT SOLID AROUND BOLTS.
21. CMU WALL- THE FIRST CELL AT CORNERS AND END WALLS SHALL BE GROUTED SOLID AND REINFORCED WITH (1)-#6 BAR.
22. CMU WALL- THE FIRST CELL NEXT TO AN OPENING SHALL BE GROUTED SOLID AND REINFORCED WITH (2)-#6 BAR EXTENDING 2'-Ø" ABOVE THE TOP OF THE OPENING.
23. VERTICAL REINFORCEMENT FOR WALLS 6"-8" THICK, # 4 DOWELS (A615 GRADE 60) AT 48" O.C. ABOVE GRADE AND 24" O.C. BELOW GRADE. GROUT FILL CELLS WITH COARSE GROUT.½
24. HORIZONTAL REINFORCEMENT FOR WALLS 6"-8" THICK, LOX◆ALL® TRUSS JOINT REINFORCEMENT 120 TRUSS-MESH (9 GA. HOT-DIP GLAV) BY H4B INC. AT MAXIMUM 16" O.C. HORIZONTALLY. R APPROVED EQUAL. GROUT FILL CELLS WITH COARSE GROUT.
25. 3/4" X 6" STEEL DOWEL SHALL BE PROVIDED AT 4'-Ø" O.C. AT JOINT BETWEEN MASONRY AND CONCRETE FOOTER.
26. BACKFILL AND FILL MATERIALS SHALL CONSIST OF SOIL MATERIALS AND BE FREE OF DEBRIS, WATER, FROZEN MATERIALS, ORGANIC AND OTHER DELETERIOUS MATTER.
27. WELL GRADED GRANULAR MATERIAL (#8) SHALL CONFORM TO ASTM C33.
28. DRAINAGE FILL TO BE WASHED, UNIFORMLY GRADED MIXTURE OF CRUSHED STONE, OR GRAVEL OR UNCRUSHED GRAVEL WITH THE FOLLOWING GRADATION.
29. GRADE TO SLOPE AWAY FROM FOUNDATION WALL AT 5% (MINIMUM 6 INCHES PER 10 FEET.)

WINDOWS

1. SHALL BE INSULATED GLASS STOREFRONT FRAMING:
   MANUFACTURER KAWNEER STOREFRONT SYSTEM
   STYLE TBD
   COLOR TBD
2. GLASS SHALL BE THERMAL-PANE LOW-E INSULATED WITH ARGON FILLED SPACE.
3. SAFETY GLASS SHALL BE USED IN ALL WINDOWS AND DOOR GLASS WITHIN 18" OF THE FLOOR AND/OR WHERE REQUIRED BY CODE.

GLASS

1. SAFETY GLASS SHALL BE USED WHERE REQUIRED BY CODE.
2. ALL SAFETY GLASS SHALL CONFORM TO OBC SECTION 2406.
3. ALL SAFETY GLASS SHALL CONFORM TO RCO SECTION 308.

INTERIOR WALL CONSTRUCTION

1. WOOD STUDS SHALL BE 2x6 @ 16" O.C. UNLESS NOTED OTHERWISE.
2. 2 X 12 BLOCKING FOR ALL WALL RAILINGS, HAND RAILS, SHOWER SEATS ETC. IF BLOCKING NOT FEASIBLE, UNITS SHALL BE INSTALLED USING WINGIT PERMANENT FASTENING SYSTEM. MANUFACTURED BY WINGIT INNOVATIONS, LLC.
3. GYPSUM BOARD SHALL BE 1/2" PREPARED FOR FINISH AND PAINTED. (COLOR TO BE SELECTED.) APPLY WITH GLUE AND SCREWS.
4. VAPOR BARRIER, SEALER, AND TWO (2) COATS OF BASE PAINT SHALL BE PROVIDED.
5. SOUND INSULATE ALL BATHROOM, OFFICE ETC., INTERIOR PARTITIONS WITH 3" THERMAFIBER SOUND ATTENUATION BLANKETS BETWEEN STUDS
6. GYPSUM BOARD LOCATED IN DAMP AREAS TO BE 1/2" PROROC® MOISTURE RESISTANT GREEN BOARD OR APPROVED EQUAL.
7. PAINT ON ALL INTERIOR WALLS AND CEILINGS (UNLESS STATED ELSEWHERE) SHALL BE ONE (1) COAT ZINSSER PRIMER SHIELDZ PLUS AND A MINIMUM OF TWO (2) COATS OF ZINSSER PERM-WHITE MILDEW PROOF BATHROOM PAINT (OR AS MANY COATS AS REQUIRED FOR COMPLETE COVERAGE.)

CONCRETE FLOOR SLAB

CONTRACTOR TO COORDINATE FINAL LAYOUT OF PLUMBING AND HVAC PRIOR TO POURING FLOOR.

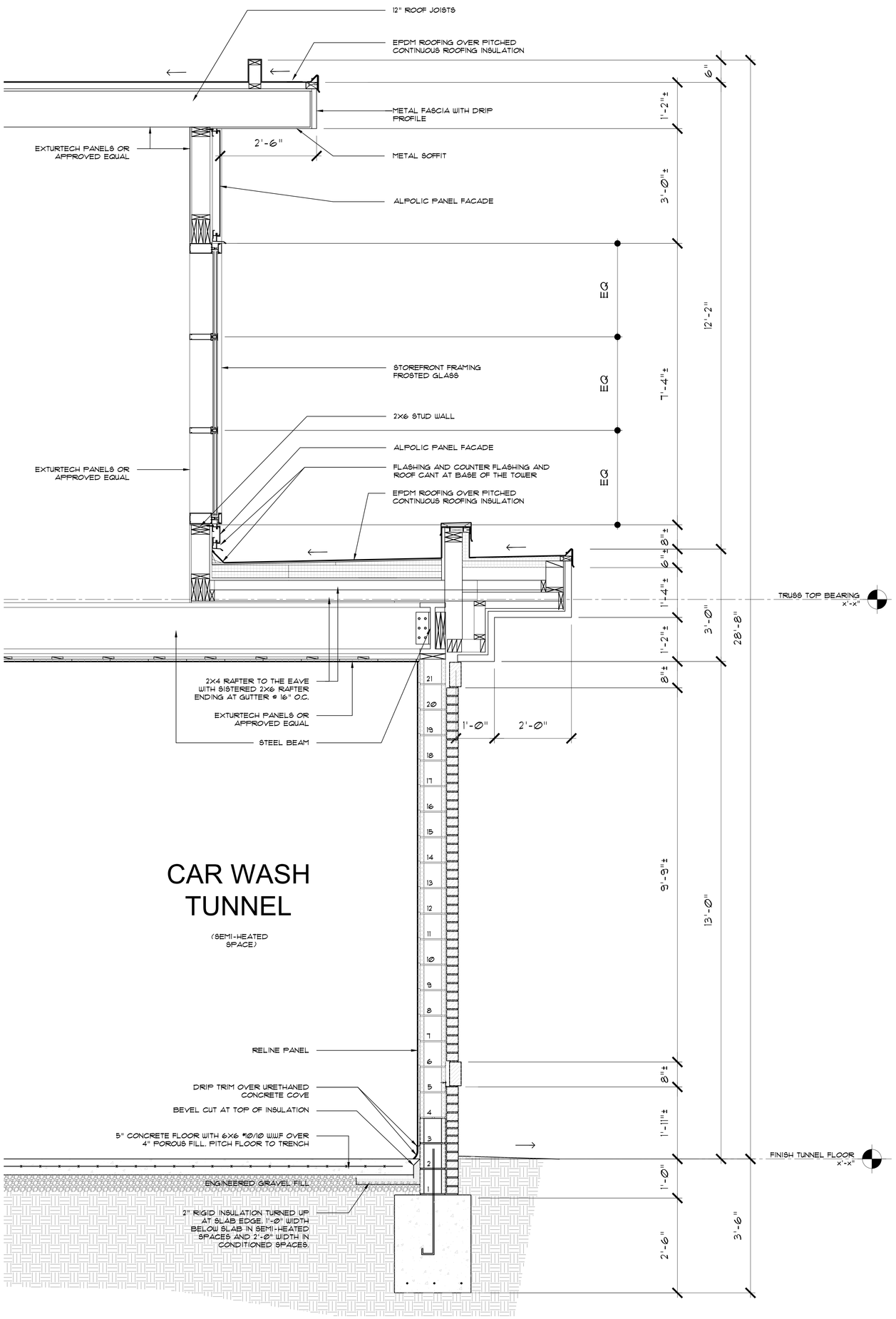
1. PROVIDE A BOND BREAKER (30 POUND FELT PAPER) AT MASONRY BEARING OF ALL CAST-IN-PLACE CONCRETE SLABS, JOISTS, AND BEAMS.
2. 5" CONCRETE SLAB (3000-PSI MINIMUM) WITH 6X6, NO W 1.4 X 1.4 WELDED WIRE MESH. WELDED WIRE FABRIC IN SLABS ON GRADE AT 1/3 THE SLAB THICKNESS DOWN FROM TOP OF SLAB
3. PREMADE 4" HIGH RADIUS CONCRETE COVE BASE IN TUNNEL (PER PRIME POLYMERS QUOTE)
4. COMPRESSIBLE FILLER AT EXPANSION JOINT AND EDGES.
5. 6 MIL PLASTIC FILM VAPOR BARRIER WITH 6" OVERLAP AT ALL SEAMS (PFVB.) (TURN UP WALL AND TRIM AFTER FLOOR IS POURED)
9. CONTINUOUS 2" STYROFOAM INSULATION AT FLOOR SLAB, (2'-Ø" MINIMUM AT SLAB EDGE FOR CONDITIONED SPACE AND 1'-Ø" AT SEMI-HEATED SPACES.)
10. NO. 57 WASHED GRAVEL FILL, MINIMUM 4" FULLY COMPACTED. (WHERE FILL IS OVER 12" DEEP, CONTRACTOR TO USE ENGINEERED FILL COMPACTED IN 3" LAYERS, COMPACTED WITH A POWER VIBRATING COMPACTOR OR EQUAL TO ASSURE MATERIAL COMPACTION.
11. COMPACTION SHALL BE NOT LESS THAN 98% OF MAXIMUM DENSITY ACCORDING TO ASTM D698 FOR COHESIVE MATERIAL. COHESIONLESS FILL FOR DRAINAGE SHALL BE COMPACTED TO 80% OF RELATIVE DENSITY ACCORDING TO ASTM D-4253 AND D-4254.

TRENCH FOOTER

1. FOOTER SHALL BE MINIMUM 12" WIDE, 42" BELOW FINISH GRADE AT ALL POINTS AND REINFORCED WITH THREE (3) #4 REINFORCING BARS, 3" FROM BOTTOM AND 4" FROM SIDES OF FOOTER. WHERE NECESSARY, STEP FOOTER AS REQUIRED AT A RATIO OF 1'-0" VERTICAL FOR EVERY 4'-0" HORIZONTAL.
2. DOWELS IN FOOTINGS TO MATCH VERTICAL COLUMN OR WALL REINFORCING.
3. PROVIDE LEAN CONCRETE (f'c = 1500 PSI) UNDER FOUNDATIONS FOR ACCIDENTAL OVER-EXCAVATION, SOFT SPOTS AND TRENCHES.
4. SOIL BEARING: FOOTER SHALL BEAR ON UNDISTURBED SOIL. EXCAVATION TO FINAL GRADE SHALL NOT BE MADE UNTIL JUST PRIOR TO PLACING CONCRETE. IF ANY DOUBT IN REGARD TO THE QUALITY OF THE SUB-SOIL, CONTACT ARCHITECT'S OFFICE IMMEDIATELY.
5. ALL WALL FOOTING REINFORCING SHALL EXTEND TO CENTERLINE OF COLUMN FOOTINGS.

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C / A9 Tower Wall Section
3/4"= 1'-0"

A5

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Project Data

1. JURISDICTION OF PROJECT: CITY OF NORTH RIDGEVILLE

2. PROJECT: SGT CLEAN CAR WASH

3. BUILDING OWNER'S NAME: SGT. CLEAN, LLC
CONTACT PERSON: BRIAN KRUSZ
MAILING ADDRESS: 12653 PEARL RD
CITY, STATE, ZIP: STRONGSVILLE, OH. 44136
PHONE: 440.225.1093
FAX: -
E-MAIL: BRIANKRUSZ@SGTCLEAN.COM

4. PROJECT ADDRESS: 32499 LORAIN RD
NORTH RIDGEVILLE, OH. 44039
PROPERTY ID NUMBER: -

5. GENERAL CONTRACTOR: FORNEY & WEYGANT INC.
CONTACT PERSON: DON MCCLEAR
MAILING ADDRESS: 31263 BRADLEY RD
CITY, STATE, ZIP: N. OLMSTED, OH, 44070
PHONE: 440.716.6735
FAX: -
E-MAIL: -
* -

6. MEP ENGINEER: DENK ASSOCIATES, INC.
CONTACT PERSON: MICHAEL T. DENK
MAILING ADDRESS: 903 EAST 207TH
CITY, STATE, ZIP: CLEVELAND OH, 44119
PHONE 216.531.8880
FAX: 216.531.5144
E-MAIL: MDENK@DENKASSOC.COM

7. CIVIL ENGINEER: WEBER ENGINEERING SERVICES
CONTACT PERSON: MATTHEW WEBER
MAILING ADDRESS: 2955 HARTVILLE RD., SUITE B
CITY,STATE,ZIP ROOTSTOWN, OH 44272
PHONE: 330-329-2031
FAX: -
EMAIL: MATT@WEBERCIVIL.COM

8. STRUCTURAL ENGINEER: ORAVEC DESIGN BUILD, LLC.
CONTACT PERSON: MATTHEW ORAVEC
MAILING ADDRESS: 9329 RAVENNA RD., SUITE E
CITY,STATE,ZIP TWINSBURG, OH 44087
PHONE: 330-552-8211
FAX: -
EMAIL: MATT@ORAVECDESIGNBUILD.COM

9. AUTHOR OF PLANS: BLATCHFORD ARCHITECTS LLC.
CONTACT PERSON: RICHARD BOZIC
MAILING ADDRESS: 12429 CEDAR ROAD, STUDIO-10
CITY, STATE, ZIP: CLEVELAND HTS, OHIO 44106
PHONE: 1. 216. 421. 2050 EXT. 2*
FAX: 1. 216. 421. 5915
E-MAIL: RBOZIC.STUDIO10@GMAIL.COM
OHIO STATE REG. NO.: 8328293

10. ZONING INFORMATION
ZONING DISTRICT: GENERAL COMMERCIAL
LOT SIZE: 1.42 ACRES
STORIES: 1 STORY

BUILDING:
PROPOSED AREA: 3,360 SQ. FT.

11. USE GROUP:
PROPOSED USE: B-CAR WASH

12. TYPE OF CONSTRUCTION: VB

FLOOR CONSTRUCTION: CONCRETE FLOOR
ROOF CONSTRUCTION: WOODEN TRUSS
WALLS: MASONRY TUNNEL/ ALPOLIC PANEL TOWER

13. FIRE SUPPRESSION SYSTEM: NO SPRINKLER SYSTEM REQUIRED PER OBC 903

14. DESCRIPTION OF PROJECT:
NEW CAR WASH BUILDING
NEW VACUUM TRELLIS AND EQUIPMENT BUILDING
NEW PAY STATION CANOPY

15. SCOPE OF WORK:
-CONSTRUCT NEW CAR WASH BUILDING, PAY STATIONS AND CANOPY, AND VACUUM TRELLIS AND EQUIPMENT BUILDING

16. SUBMITTED PLANS DRAWN IN COMPLIANCE WITH 2017 OHIO BUILDING CODE AND WITH THE REQUIREMENTS OF SECTIONS 3781 AND 3791 OF THE OHIO REVISED CODE.

17. SUBMITTED PLANS DRAWN IN COMPLIANCE WITH ICC A117.1-2009

Design Loads

PER OBC TABLE 1607.1

OCCUPANCY OR USE	UNIFORM/CONCENTRATED (PSF) / (LBS)
STORES, RETAIL, FIRST FLOOR	100/1,000
ROOF SNOW LOAD:	25 PSF ON FLAT ROOF UP TO 4/12 PITCH 20 PSF ON ROOF OVER 4/12 PITCH
GROUND SNOW LOAD:	25 PSF
WIND UPLIFT LOAD:	15 PSF UPLIFT
WINDLOADS:	20 PSF INWARD ON WINDWARD SIDE 15 PSF OUTWARD ON LEEWARD SIDE (AS WELL AS ENDS)
BASIC WIND SPEED: EXPOSURE CATEGORY:	115MPH (3 SECOND GUST - OBC FIG.1609) B (OBC 1609.4.2)
SEISMIC LOAD: (NOTE: SEISMIC PROVISIONS OF THE CODE SHALL APPLY TO BLDGS. CONSTRUCTED IN SEISMIC DESIGN CATEGORIES C, D1, D2 - ORC R301.2.2) COORDINATE WITH STRUCTURAL NOTES.	CATEGORY B, .01g<SDS<.033g

Code Data

1. OBC 105.1 & 106.1: ENFORCEMENT: NO CONSTRUCTION WORK SHALL START ON THIS PROJECT WITHOUT THE APPROVAL AND INSPECTION OF THE RESPECTIVE CITY DEPARTMENTS PER THIS CODE SECTION. OWNER IS LIABLE FOR VIOLATION OF THIS CODE SECTION.

2. OBC 106.4 & 114.1: PLAN CONFORMITY: ALL WORK SHALL CONFORM WITHOUT CHANGE TO PROJECT PLAN DOCUMENTS AS FINALLY APPROVED BY BUILDING DEPARTMENT.

3. OBC 109: INSPECTION: ALL WORK SHALL BE PREFORMED STRICTLY PER THE PLANS AS APPROVED BY THE CITY BUILDING DEPARTMENT.

4. OBC1201.1: ALL HEATING, VENTILATION AND AIR-CONDITIONING MATERIALS, INSTALLATION METHODS, AND MODIFICATION SHALL COMPLY WITH CHAPTER 28 OBC , OHIO MECHANICAL CODE, INTERNATIONAL FUEL GAS CODE, ASHRAE STANDARDS, SMACNA STANDARDS, EQUIPMENT'S UNDERWRITERS APPROVAL, THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS AND GOOD ENGINEERS' PRACTICES.

5. ALL ELECTRICAL WORK PERFORMED SHALL COMPLY WITH THE REQUIREMENTS OF CHAPTER 27, OBC, AND THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), NFPA 70, OBC APPROVED EDITION, AND IS SUBJECT TO APPROVAL OF THE LOCAL ELECTRICAL INSPECTOR OR AD ASSIGNED BY THE DIVISION OF FACTORY AND BUILDING INSPECTION.

6. OBC 1201.4.2: ALL PLUMBING SHALL CONFORM TO STATE OF OHIO PLUMBING CODE, AND OBC CHAPTER 29.

7. OBC 106.3.1: ONE SET OF PLANS, WHICH HAS BEEN APPROVED SHALL BE KEPT AT THE SITE OF THE WORK AND SHALL BE AVAILABLE FOR REFERENCE BY THE BUILDING OFFICIAL AT ALL TIMES DURING WORKING HOURS WHILE SUCH WORK IS IN PROGRESS.

8. ALL INTERIOR FINISHES SHALL CONFORM TO THE REQUIREMENTS OF TABLE 803.5 INTERIOR FINISH REQUIREMENTS OF THE OBC.

9. EVERY CONTRACTOR AND SUB-CONTRACTOR IS REQUIRED TO COMPLY WITH ALL OSHA SAFETY AND HAZARD PREVENTION STANDARDS; AND SHALL BE RESPONSIBLE TO DEVELOP, IMPLEMENT AND MAINTAIN SAFETY CONDITIONS AND EDUCATIONAL PROGRAMS TAILORED TO FIT EACH CONTRACTOR'S PARTICULAR TRADE (NOT ONLY FOR ITS' OWN EMPLOYEES, BUT FOR VISITORS AS WELL.)

10. INSTALL FIRE EXTINGUISHERS PER LOCAL FIRE DEPARTMENT REQUIREMENTS.

11. FIRE DEPARTMENT ACCESS SHALL BE MAINTAINED AT ALL TIMES TO THE SITE AND FACILITY DURING ALL PHASES OF CONSTRUCTION AS PER ALL OF OFC RULE 5 SECTION 503.

12. FIREFIGHTING WATER SUPPLY SHALL BE MAINTAINED THROUGHOUT THE PROJECT FOR THE FACILITY AND SURROUNDING STRUCTURES AS PER OFC 508.1

Occupant Load Calculations

PER 2017 OBC TABLE 1004.1.2

USE	ALLOWABLE AREA PER OCCUPANT	AREA	OCCUPANTS
BUSINESS B	100 S.F.	3,360 S.F.	60
			TOTAL OCCUPANTS
			60

Actual Occupant Load

PEAK OCCUPANT LOAD
4 STAFF AND 1 MANAGER= 5 OCCUPANTS

Egress Calculations

PER 2017 OBC CHAPTER 10

	CODE	REQUIRED	PROVIDED
NUMBER OF EXITS	2	2	2
MAXIMUM TRAVEL DISTANCE TO EXIT	200'	72'	72'
MINIMUM EGRESS WIDTH STAIRWAYS OTHER COMPONENTS	N/A 60 X .2"= 12"	N/A 36"	N/A 36"

Plumbing Fixture Calculations

PER 2017 OBC TABLE 2902.1

FIXTURE	CODE	REQUIRED	PROVIDED
WATER CLOSET MALE FEMALE UNISEX	1 PER 500 1 PER 500 0	1 1 0	0 0 1
LAVATORY MALE FEMALE UNISEX	1 PER 750 1 PER 750 0	1 1 0	0 0 1
SERVICE SINK	1	1	1
DRINKING FOUNTAIN	1 PER 1,000	0	0

* 2017 OHIO PLUMBING CODE 410.2 STATES THAT DRINKING FOUNTAINS SHALL NOT BE REQUIRED FOR AN OCCUPANT LOAD OF 15 OR FEWER.

General Notes

GN1. THE LATEST EDITION OF AIA DOCUMENT A201 **GENERAL CONDITIONS OF THE CONTRACT** FOR CONSTRUCTION IS CONSIDERED TO BE PART OF THIS SET OF DRAWINGS.

GN2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE **PROJECT AND THE CONTRACT DOCUMENTS**. IF THE CONTRACTOR FEELS THERE IS ANY AMBIGUITY IN THE CONTRACT DOCUMENTS, IT IS HIS RESPONSIBILITY TO HAVE SUCH ISSUES CLARIFIED PRIOR TO SUBMITTING HIS PROPOSAL.

GN3. COMMENCEMENT OF WORK BY THE CONTRACTOR SHALL INDICATE THAT THE **EXISTING CONDITIONS** IN THE FIELD ARE SUCH THAT THE TOTAL INTENT OF THE DRAWINGS CAN BE MET.

GN4. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND THE REQUIREMENTS OF **GOVERNING AUTHORITIES**.

GN5. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED **TESTS, INSPECTIONS AND PERMITS** AS REQUIRED FOR THIS PROJECT.

GN6. ALL **WORK SHALL BE GUARANTEED** TO BE INSTALLED FREE OF DEFECT IN MATERIAL, WORKMANSHIP AND OPERATION FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE, UNLESS A LONGER PERIOD IS STIPULATED. CONTRACTOR SHALL REPAIR OR REPLACE AT NO EXTRA COST ANY MATERIAL, CONSTRUCTION, OR EQUIPMENT THAT IS DEFECTIVE.

GN7. CONTRACTOR SHALL FURNISH ALL MATERIAL, EQUIPMENT AND LABOR NECESSARY TO **COMPLETE THIS PROJECT AS DESCRIBED** IN THE CONTRACT DOCUMENTS.

GN8. MATERIALS PROVIDED AND COMPLETED WORK WHICH, IN THE JUDGMENT OF THE ARCHITECT, IS NOT IN ACCORDANCE WITH CONTRACT DOCUMENTS DESIGN INTENT SHALL BE **REPAIRED OR REPLACED** AS DIRECTED, WITH NO ADDITIONAL COMPENSATION.

GN9. UNLESS OTHERWISE SPECIFIED, WHENEVER AN **ALLOWANCE ITEM** IS INCLUDED, THE ALLOWANCE AMOUNT IS FOR THE MATERIAL ONLY. ALL OTHER CHARGES, INCLUDING INCIDENTAL HARDWARE, FASTENERS, ACCESSORIES, AND ETC., AS WELL AS LABOR, DELIVERY AND TAXES ARE TO BE INCLUDED IN THE BASE BID.

GN10. PRIOR TO FINAL PAYMENT, CONTRACTOR SHALL TURN OVER TO THE ARCHITECT ALL **GUARANTEES, WARRANTIES, PRODUCT INFORMATION, CLEANING REQUIREMENTS, PRODUCT RESTRICTIONS, ETC.** FOR ALL MATERIALS, APPLIANCES, FIXTURES, AND EACH USED ON THIS PROJECT. TO BE INCLUDED ARE ITEM SUCH AS FAUCETS, FURNACES, COMPRESSORS, BUILDING MATERIALS, HARDWARE, DOORS, WOOD, PAINT, ETC.

GN11. PRIOR TO COMMENCEMENT OF WORK, CONTRACTOR SHALL SUBMIT A **WORK PLAN AND SCHEDULE**.

GN12. CONTRACTOR IS TO PROVIDE **DUST BARRIERS** AND TAKE OTHER PROTECTIVE MEASURES AS REQUIRED TO CONTAIN AND ELIMINATE **DAMAGES, DUST, AND DEBRIS** TO AREAS WHERE LITTLE OR NO WORK IS TAKING PLACE. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND REPAIRING TO ORIGINAL CONDITION ANY SUCH DAMAGE OR REMOVAL OF DEBRIS.

GN13. ANY **DISCREPANCY OR CONFLICTS IN DIMENSIONS OR EXISTING FIELD CONDITIONS** SHALL BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK. **CONTRACTOR NOT TO SCALE DRAWINGS.**

GN14. REFER TO ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL PLANS FOR **COORDINATION OF WORK**. IN CASE OF DISCREPANCIES, THE LOCATIONS SHOWN ON THE ARCHITECTURAL PLANS SHALL PREVAIL UNLESS PERMITTED OTHERWISE BY ARCHITECT.

GN15. ALL **DIMENSIONS** ARE TO THE FINISHED FACE WALL, UNLESS OTHERWISE NOTED.

GN16. UNLESS OTHERWISE NOTED, ALL EXPOSED **EXISTING SURFACES SHALL BE PATCHED** TO MATCH ADJACENT FINISHES WHEREVER EXISTING PARTITIONS, DOORS, OR OTHER BUILDING ELEMENTS HAVE BEEN REMOVED.

GN17. UNLESS OTHERWISE NOTED, ALL **EXISTING SURFACES**, WHICH WILL REMAIN EXPOSED AND WHICH HAVE TO BE DISTURBED TO INSTALL NEW EQUIPMENT, CONDUIT, PIPES, ETC., **SHALL BE REPAIRED** TO MATCH THE EXISTING FINISHES BY THE CONTRACTOR HAVING CAUSED THE CUTTING. THE WORK, HOWEVER, SHALL BE SUBLET TO AND COORDINATED BY THE GENERAL CONTRACTOR.

GN18. WHERE EXISTING PARTITIONS, CEILING TILE, OR OTHER ITEMS HAVE TO BE REMOVED USE CONSIDERABLE CARE NOT TO DAMAGE **ADJACENT WALL AND CEILING SURFACES** WHICH ARE TO REMAIN IN PLACE.

GN19. PROTECT ALL **EXISTING MECHANICAL, PLUMBING, AND ELECTRICAL EQUIPMENT** WHICH IS TO REMAIN IN PLACE.

GN20. IF THE CONTRACTOR SUSPECTS THE PRESENCE OF **ASBESTOS**, HE SHALL STOP WORK IMMEDIATELY AND NOTIFY THE OWNER. THE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL ASBESTOS ABATEMENT HAS BEEN IMPLEMENTED, IF FOUND.

GN21. THE GENERAL CONTRACTOR MUST **COORDINATE ALL TRADES** TO PROVIDE ALL THAT MUST BE COVERED WITHIN PROJECT, (I.E., ELECTRICAL WIRING, ELEVATOR, ETC.) THIS COORDINATION IS CRITICAL.

GN22. CONTRACTOR SHALL COORDINATE WITH OWNER **NEW MASTER KEY SYSTEM** FOR ALL NEW AND EXISTING DOORS.

GN23. ALL **DIMENSIONS SHALL BE FIELD CHECKED**, SPECIFICALLY FOR THE SELECTION AND MANUFACTURE OF CASEWORK, WINDOWS, FLOOR FINISHES, ETC.

GN24. CONTRACTOR SHALL INSTALL ALL PRODUCTS AND FINISH MATERIALS PER **MANUFACTURER'S INSTRUCTIONS.** IF THE ARCHITECT'S DRAWINGS AND SPECIFICATIONS ARE DIFFERENT THAN THE MANUFACTURERS THEN THE CONTRACTOR SHALL CONTACT THE ARCHITECT BEFORE PROCEEDING TO REVIEW THE METHOD OF INSTALLATION.

GN25. WHERE WALL FINISHES ARE ATTACHED TO **FURRING STRIPS** ON WALLS REQUIRED TO HAVE A FIRE RESISTANCE RATING OR TO BE OF NONCOMBUSTIBLE CONSTRUCTION, THE SPACES BETWEEN THE FURRING STRIPS SHALL BE FILLED WITH INORGANIC CLASS A MATERIAL OR SHALL BE FIREBLOCKED AT A MAXIMUM OF 8' IN ANY DIRECTION IN ACCORDANCE WITH OBC SECTION 717.

GN26. ALL GAPS OR PENETRATIONS IN **RATED WALLS** SHALL BE FIRE CAULKED AND COMPLY WITH ALL REQUIREMENTS OF OBC SECTIONS 713.

GN27. CONTRACTOR TO PHOTOGRAPH MECHANICAL, ELECTRICAL, AND PLUMBING ROUGH-INS AND SEND COPIES TO ARCHITECT PRIOR TO INSTALLING FINISH MATERIALS.

GN28. ONE WEEK BEFORE COMPLETION OF JOB, CONTRACTOR SHALL ORGANIZE A **WALK-THROUGH EXAMINATION OF THE PROJECT** WITH THE ARCHITECT, OWNER AND CONTRACTOR. AT THIS MEETING, CONTRACTOR SHALL DEMONSTRATE USE OF ALL ITEMS (LOCKS, TOILETS, HVAC SYSTEM, LIGHTS, ETC.) INSTALLED, AND A COMPLETE PUNCH LIST WILL BE DEVELOPED BY THE ABOVE PARTIES.

GN29. FINAL PAYMENT WILL NOT BE APPROVED WITHOUT:
- ALL WARRANTIES/ MANUALS/ INSTALLATION INSTRUCTIONS FOR ALL INSTALLED FIXTURES AND EQUIPMENT/ APPLIANCES SUPPLIED TO OWNER.
- OWNER RECEIVED LIEN WAIVER FROM CONTRACTOR.

GN30. **HANDRAILS AND GUARDS** (PER OBC SEC. 1607.7.1)
HANDRAIL ASSEMBLIES AND GUARDS SHALL BE DESIGNED TO RESIST A LOAD OF 50 PLF APPLIED IN ANY DIRECTION AT THE TOP AND TO TRANSFER THIS LOAD THROUGH THE SUPPORTS THE STRUCTURE. HANDRAIL ASSEMBLIES AND GUARDS SHALL BE ABLE TO RESIST A SINGLE CONCENTRATED LOAD OF 200 POUNDS, APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP, AND HAVE ATTACHMENT DEVICES AND SUPPORTING STRUCTURE TO TRANSFER THIS LOADING TO APPROPRIATE STRUCTURAL ELEMENTS OF THE BUILDING.

GN31. **GRAB BARS**, (PER OBC SEC 1607.7.1) GRAB BARS SHALL BE DESIGNED TO RESIST A SINGLE CONCENTRATED LOAD OF 250 POUNDS APPLIED IN ANY DIRECTIONS AT ANY POINT.

GN32. **ICC A117.1 COMPLIANT SIGNAGE NOTES.**
LETTERS AND NUMERALS SHALL BE RAISED 1/32", UPPER CASE, SANS SERIF OR SIMPLE SERIF TYPE AND SHALL BE ACCOMPANIED WITH GRADE 2 BRAILLE. RAISED CHARACTERS SHALL BE AT LEAST 5/8" HIGH, BUT NO HIGHER THAN 2" PICTOGRAMS SHALL BE ACCOMPANIED BY THE EQUIVALENT VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTORGRAM. THE BORDER DIMENSIONS OF THE PICTOGRAM SHALL BE 6" MINIMUM IN HEIGHT.

THE CHARACTERS AND BACKGROUND OF SIGNS SHALL BE EGG-SHELL, MATTE OR OTHER NON-GLARE FINISH. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACGROUND - EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTERS ON A LIGHT BACKGROUND.

WHERE PERMANENT IDENTIFICATION IS PROVIDED FOR ROOMS AND SPACES, SIGNS SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. WHERE THERE IS NO WALL SPACE TO THE LATCH SIDE OF THE DOOR, INCLUDING DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL. MOUNTING HEIGHT SHALL BE 60" ABOVE FINISH FLOOR TO THE BASELINE OF THE BRAILLE AND THE BASELINE OF THE HIGHEST TACTILE CHARACTER. THE LATCH SIDE LOCATION FOR SUCH SIGNAGE SHALL BE SO THAT A PERSON MAY APPROACH WITHIN 3" OF SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR BY PROVIDING AN 18"X18" CLEAR FLOOR SPACE CENTERED ON THE SIGN, BEYOND THE SWING OF THE DOOR.

FACILITIES OR ELEMENTS REQUIRED TO BE IDENTIFIED AS ACCESSIBLE SHALL USE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.

TACTILE SINGS STATING "EXIT" SHALL BE PROVIDED ADJACENT TO EACH DOOR TO AN EGRESS STAIRWAY, AN EXIT PASSAGEWAY AND THE EXIT DISCHARGE.

GN33. WOOD

- STRUCTURAL WOOD TO BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AWC DESIGN SPECIFICATIONS AND THE GOVERNING BUILDING CODE.
- KILN DRIED 19% MAX. MOISTURE CONTENT SELECT STRUCTURAL OR BETTER.
- ALL STRUCTURAL FRAMING MEMBERS SHALL BE SPRUCE-PINE-FIR (SPF) NO.1/ NO.2 OR BETTER.
- SILL PLATES, LINTELS, GROUNDS AND OTHER MEMBERS EXPOSED TO WEATHER, MOISTURE, CONCRETE, MASONRY OR THE GROUND SHALL BE PRESSURE TREATED WITH A NON-STAINING PRESERVATIVE.
- CONNECTIONS SHALL BE NAILED, BOLTED, OR JOINED WITH METAL FRAMING DEVICES.
- HANGERS AS REQUIRED.
- BRACE CORNERS WITH SIMPSON STRONG-TIE WALL BRACE PRODUCT AND FULL SHEET PLYWOOD SHEATHING.
- PROVIDE FIRE STOPS AND BRIDGING AS REQUIRED.
- ALL WOOD BLOCKING, NAILERS, ETC. SHALL BE FIRE RETARDANT TREATED.

GN34. FRAMING NOTES

1. DBL. 2X12 HEADERS @ ALL OPENINGS UNLESS NOTED OTHERWISE.
2. SOLID BLOCKING AND / OR MASONRY @ ALL BEAM BEARING LOCATIONS.
3. DBL. ALL FL. JOISTS BELOW PARTITIONS.
4. DBL. EVERY OTHER FL. JOIST @KITCHEN LOCATIONS.
5. DBL. EVERY OTHER FL. JOIST @ WHIRLPOOL / BATH LOCATIONS.
6. STL. JOIST HANGERS REQUIRED @ ALL FLUSH JOIST/ BEAM APPLICATIONS.
7. STL. FLITCH PL. REQUIRED @ ALL HEADERS W/ 12' -0" SPAN AND OVER.
8. ALL LUMBER SHALL HAVE A MIN. 1500 PSI RATING FOR REPETITIVE MEMBERS. (NO2 DOUG FIR OR SOUTHERN PINE).
9. ALL PASSAGE WAYS BETWEEN ROOMS SHALL BE CASED OPENINGS UNLESS NOTED OTHERWISE.
10. 2X6 16" O.C. STUDS @ 16" O.C. BALLOON FRAME @ ALL PARTITIONS 10' -0" AND OVER.

GN35. WOOD LINTEL SCHEDULE

- FOR OPENINGS UP TO 3'-0" USE TWO (2) 2X4S WITH 1/2" PLYWOOD FLITCH PLATE
- FOR OPENINGS 3'-0" TO 5'-0" USE TWO (2) 2X6S WITH 1/2" PLYWOOD FLITCH PLATE
- FOR OPENINGS 5'-0" TO 7'-0" USE TWO (2) 2X8S WITH 1/2" PLYWOOD FLITCH PLATE.
- FOR OPENINGS 7'-0" TO 8'-0" USE TWO (2) 2X10S WITH 1/2" PLYWOOD FLITCH PLATE.
- FOR OPENINGS 8'-0" TO 9'-0" USE TWO (2) 2X12S WITH 1/2" PLYWOOD FLITCH PLATE.
- FOR OPENINGS OVER 9'-0" SEE ARCHITECT.
- PROVIDE 5/8" BOLTS @ 16" O.C. IN "W" PATTERN FOR FLITCH BEAMS.
- ALL LINTEL BEARINGS TO BE 3" MINIMUM.

GN36. COLD FORMED METAL FRAMING

- DESIGN OF METAL STUD FRAMING SHOWN IS BASED ON CSJ TYPE (1 5/8") FLANGE STUDS WITH DIETRICH INDUSTRIES SECTION PROPERTIES AND ALLOWABLE RESISTANCE MOMENT CAPACITY. ALTERNATE MANUFACTURERS' FRAMING SIDE SHALL MEET THE MINIMUM SECTION PROPERTIES AND ALLOWABLE RESISTING MOMENT CAPACITY OF THE MEMBERS INDICATED ON THE DESIGN DRAWINGS. ADDITIONAL COSTS FOR AN INCREASE IN STUD SIZE OR GAUGE IS PROHIBITED.
- ALL COLD-FORMED FRAMING SHALL BE DESIGNED IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE COLD FORMED STEEL DESIGN MANUAL AS REFERENCED BY THE 2011 OBC.
- ALL FRAMING MEMBERS 16 GAUGE AND HEAVIER SHALL BE FORMED FROM STEEL WITH A MINIMUM YIELD STRENGTH OF 33 KSI.
- ALL FRAMING SHALL BE GALVANIZED.
- ALL CONNECTIONS SHALL BE SCREWED OR WELDED. POWER FASTENERS ARE NOT ACCEPTABLE FOR ANY STRUCTURAL APPLICATIONS.
- ALL WELDS SHALL BE TOUCHED UP WITH ZINC-RICH PAINT.

GN37. LOOSE STEEL LINTEL SCHEDULE

- THIS SCHEDULE IS TO BE USED FOR MASONRY OPENING LINTELS UNLESS OTHERWISE NOTED OR DETAILED ON THE DRAWINGS.
- FOR OPENINGS UP TO 4'-0" USE 3" X 3" X 5/16" ANGLE
- FOR OPENINGS FROM 5'-0" TO 6'-0" USE 5"X3" X5/16" LLV.
- FOR OPENINGS FROM 6'-0" TO 7'-0" USE 6"X3"X5/16" LLV.
- USE ONE (1) ANGLE FOR EACH 4" WIDTH OF MASONRY.
- ALL LINTELS SHALL HAVE A BEARING AT EACH END OF ONE (1) INCH PER FOOT OF OPENING WITH A MINIMUM OF 6".
- ALL LINTELS SHALL BEAR ON 16" SOLID MASONRY EXTENDING 16" BEYOND END OF LINTEL.

GN38. STRUCTURAL STEEL

- STRUCTURAL STEEL TO BE ASTM-A36.
- EXPOSED STRUCTURAL STEEL TO BE HOT DIPPED GALVANIZED OR COATED WITH EPOXY BASED PRIMER AND FINISH COATING AS WELL AS ANY MEMBER CALLED OUT IN DRAWINGS.
- ALL BOLTING TO BE ¾" DIAMETER A325 UNLESS NOTED OTHERWISE. MINIMUM CONN-4 BOLTS.
- ALL WELDING TO BE E70XX (SHOP AND FIELD) AND CONFORM TO AWS D1.1.
- ALL WELDERS TO HAVE CURRENT QUALIFICATION.
- PROVIDE A MINIMUM OF 8" OF SOLID MASONRY UNDER MASONRY BEARING BEAMS.
- ALL WORK TO BE PER CURRENT A.I.S.C. MANUAL OF STEEL CONSTRUCTION, 14TH EDITION (PLUS LATEST REVISIONS).

GN39. GENERAL ROOFING NOTES

- MINIMUM SLOPES SHALL BE 1/4" PER FOOT.

- ROOF EDGE AT CHIMNEYS AND INTERSECTING WALLS SHALL BE AT A CONSTANT HIGH POINT.
- PROVIDE POSITIVE DRAINAGE AWAY FROM ALL SKYLIGHTS.
- ROOF ELEVATION BREAKS, PARAPETS, WALLS, AND ANY ROOF PENETRATIONS. PROVIDE FLASHING AT THESE LOCATIONS.
- REVIEW ALL ROOF DRAINAGE SIZES AND LOCATIONS WITH ARCHITECT PRIOR TO COMMENCEMENT OF THE WORK.

GN40. SOIL

- THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SURVEY AND SUB-SURFACE INVESTIGATION REPORT (IF PROVIDED) BEFORE BEGINNING CONSTRUCTION.
- ALLOWABLE SOIL BEARING = 2,500 P.S.F ON CONTROLLED FILL AND/OR VIRGIN SOIL FOR BOTH ISOLATED AND CONTINUOUS FOOTERS.
- REF. - PEA INTERNATIONAL REPORTS AND 6/22/84 CONFERENCE. GEOTECHNICAL ENGINEERING SUPERVISION TO CONFIRM BEARING CAPACITY AND TYPE OF FOUNDATIONS.
- SETTLEMENT OR WASHING OUT THAT OCCURS IN GRADED OR BACKFILLED AREAS PRIOR TO ACCEPTANCE OF THE WORK SHALL BE REPAIRED AND GRADES RE-ESTABLISHED TO THE REQUIRED ELEVATIONS AND SLOPES.
- ALL EXCESS MATERIAL SHALL BE REMOVED FROM THE SITE.

GN41. EROSION CONTROL

- CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SETTLEMENT CONTROL DEVICES AS IS REQUIRED BOTH BEFORE AND DURING THE ENTIRE CONSTRUCTION PROCEDURE.
- SUBMIT TO ARCHITECT STORM WATER POLLUTION PREVENTION PLAN PRIOR TO CONSTRUCTION.

GN42. CAST-IN-PLACE CONCRETE

- CONCRETE SHALL DEVELOP A COMPRESSIVE STRENGTH OF 4000 P.S.I. IN 28 DAYS WITH A MAXIMUM WATER/CEMENT RATIO= 0.45.
- FOUNDATIONS SHALL DEVELOP A COMPRESSIVE STRENGTH OF 3000 P.S.I. IN 28 DAYS WITH A MAXIMUM WATER/CEMENT RATIO= 0.50.
- CONCRETE EXPOSED TO THE WEATHER AND/OR DE-ICERS SHALL CONTAIN 6% (+/- 1%) ENTRAINED AIR BY VOLUME.
- CONSTRUCTION JOINTS IN CONTINUOUS FOUNDATIONS ARE NOT TO EXCEED 100 FEET.
- REINFORCING BARS TO BE ASTM-A615, GRADE 60 KSI.
- ALL WELDED WIRE FABRIC TO BE ASTM-A185. DELIVERED IN FLAT SHEETS.
- CALCIUM CHLORIDE SHALL NOT BE PERMITTED NOR SHALL ANY ADMIXTURE CONTAINING CALCIUM CHLORIDE BE PERMITTED.
- CONCRETE SHALL BE DISCHARGED AT THE SITE WITHIN 1-1/2 HOURS AFTER WATER HAS BEEN ADDED TO THE CEMENT AND AGGREGATES. WATER IS NOT TO BE ADDED AT THE SITE.
- EXPOSED EDGES OF CONCRETE TO BE CHAMFERED 3/4"
- ALL CONSTRUCTION JOINTS BELOW GRADE SHALL HAVE WATERSTOPS
- FORM CONTRACTION JOINTS WITH POWER SAWS EQUIPPED WITH SHATTERPROOF ABRASIVE OR DIAMOND-RIMMED BLADES. CUT 1/8 INCH (3 MM) WIDE JOINTS INTO CONCRETE WHEN CUTTING ACTION WILL NOT TEAR, ABRADE, OR OTHERWISE DAMAGE SURFACE AND BEFORE CONCRETE DEVELOPS RANDOM CONTRACTION CRACKS.
- ALL WELDED WIRE FABRIC SHALL BE CHAIRED TO ITS PROPER HEIGHT AND MAINTAINED AT THE PROPER LEVEL THROUGHOUT THE CONCRETE PLACING OPERATION. LIFTING OF WELDED WIRE FABRIC WITH A HOOK DURING CONCRETE PLACEMENT SHALL NOT BE PERMITTED.

GN43. MASONRY

- CONCRETE MASONRY UNITS ASTM C90, TYPE I WITH A MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI, EACH UNIT, NET CROSS-SECTIONAL AREA.
- MORTAR ASTM C270, TYPE S WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI IN 28 DAYS.
- GROUT FILL F'C=2500PSI @ 28 DAYS, PEA GRAVEL.
- TEMPORARILY BRACE ALL MASONRY WALLS TO PROVIDE STABILITY DURING CONSTRUCTION UNTIL THE DESIGNED STRUCTURE IS COMPLETE AND CAN STABILIZE THE WALLS.

GN44. GENERAL FINISH NOTES

1. ALL CARPET SHALL CONFORM TO OBC MINIMUM CRITICAL RADIENT FLUX = TYPE 2.

2. CEILING AND WALL FINISHES SHALL CONFORM TO OBC FLAMESPREAD AND SMOKE DEVELOPMENT INDEX = CLASS C.

3. PROVIDE SAMPLES OF ALL FINISH MATERIALS TO ARCHITECT FOR REVIEW PRIOR TO PURCHASE.

GN45. GLASS

ALL GLASS SHALL BE THERMAL-PANE LOW-E ARGON FILLED AND SAFETY GLASS WHERE REQUIRED BY CODE.

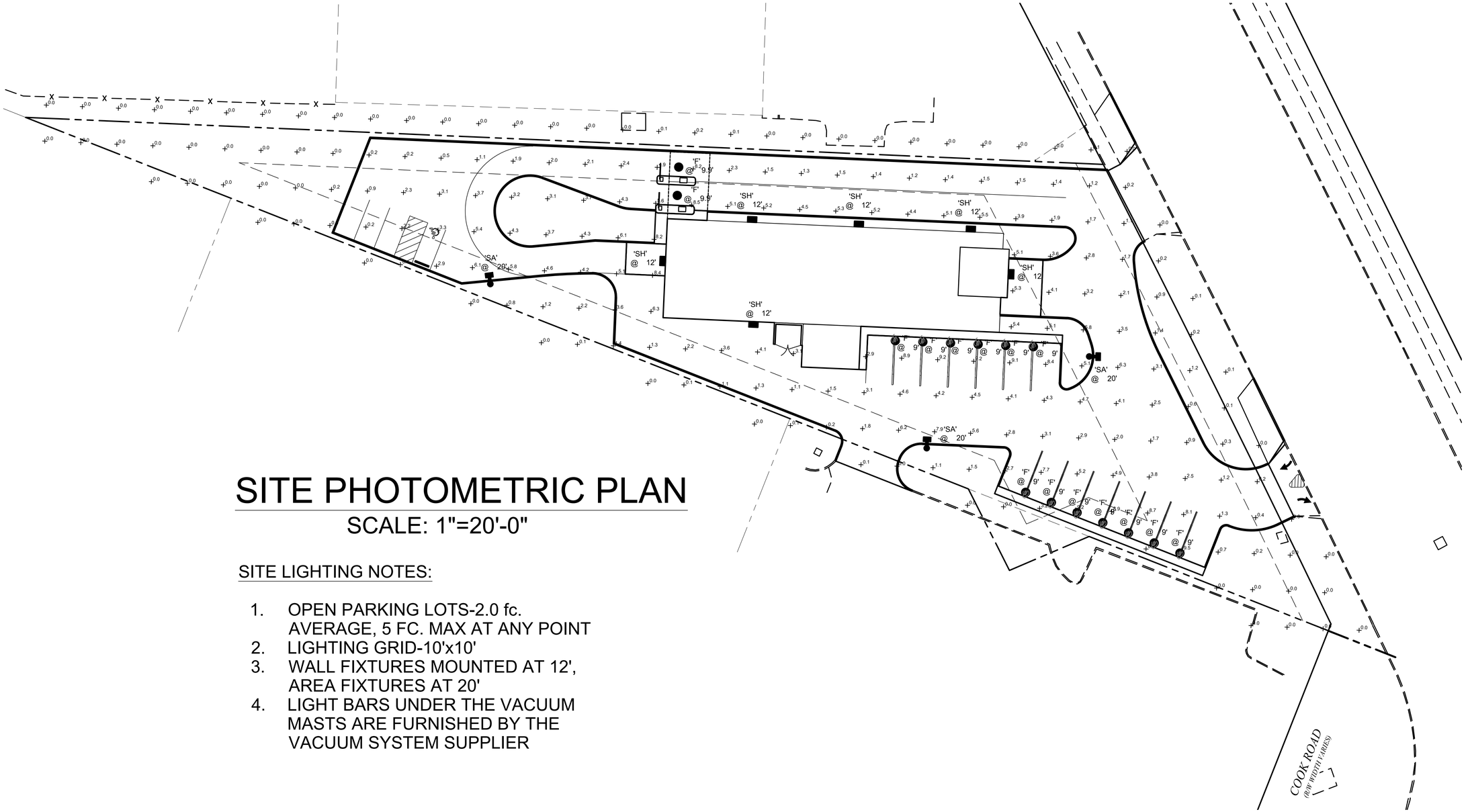
GN46. DEMOLITION

IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS, OR TIE DOWNS MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.

THE CONTRACTOR SHALL SUPPORT, BRACE AND SECURE EXISTING STRUCTURE AS REQUIRED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY OF THE EXISTING BUILDING DURING CONSTRUCTION. FIELD VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS AND CONDITIONS WHICH AFFECT THE NEW CONSTRUCTION.

GN47. ENGINEERED WOOD

- ALL EN



SITE PHOTOMETRIC PLAN

SCALE: 1"=20'-0"

SITE LIGHTING NOTES:

1. OPEN PARKING LOTS-2.0 fc. AVERAGE, 5 FC. MAX AT ANY POINT
2. LIGHTING GRID-10'x10'
3. WALL FIXTURES MOUNTED AT 12', AREA FIXTURES AT 20'
4. LIGHT BARS UNDER THE VACUUM MASTS ARE FURNISHED BY THE VACUUM SYSTEM SUPPLIER

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

DRAWING DATES
18 November 2022
PC Submission

PROJECT NUMBER:
1020-005-22

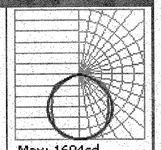
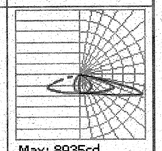
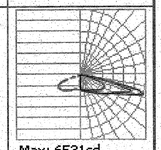
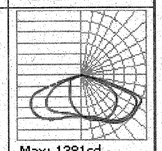
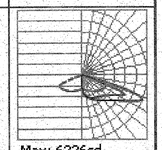
Sgt. Clean Car Wash
Photometric Plan-North Ridgeville Site
City of North Ridgeville, Ohio
Lorain County Ohio

REFERENCE NORTH

TITLE SHEET

L.1

Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power	Polar Plot
	A		14	G&G Industrial Lighting	GPX8-SO	Driverless AC LED Luminaire	1	4800	0.9	36	 Max: 1694cd
	SA		3	SIGNIFY GARDCO	P26-48L-500-NW-G2-2-HIS	PureForm Gen2 - Area Medium (P26), 48 LED's, 4000K CCT, TYPE 2-HIS OPTIC, House-side Internal Shielding	1	8437	0.9	74.35753	 Max: 8935cd
	SB		3	SIGNIFY GARDCO	P26-48L-500-NW-G2-4-HIS	PureForm Gen2 - Area Medium (P26), 48 LED's, 4000K CCT, TYPE 4-HIS OPTIC, House-side Internal Shielding	1	8801	0.9	74.35753	 Max: 6531cd
	WP		2	BARRON LIGHTING GROUP	E110X-27-VS-4K	LED	1	3700	0.9	26.8314	 Max: 1381cd
	SC		1	SIGNIFY GARDCO	P26-48L-500-NW-G2-BLC	PureForm Gen2 - Area Medium (P26), 48 LED's, 4000K CCT, TYPE BLC OPTIC, .	1	8233	0.9	74.35753	 Max: 6226cd

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
ENTRY LANES, DRIVE LANES, EMPLOYEE PARKING	+	2.0 fc	6.8 fc	0.1 fc	68.0:1	20.0:1
PAY STATION	+	1.1 fc	1.7 fc	0.6 fc	2.8:1	1.8:1
WASH ENTRY LANE	+	1.0 fc	1.6 fc	0.4 fc	4.0:1	2.5:1
SIDEWALK - EAST	+	3.5 fc	6.0 fc	1.3 fc	4.6:1	2.7:1
SIDEWALK - WEST	+	4.3 fc	7.1 fc	1.7 fc	4.2:1	2.5:1
VACUUM BAY-EAST	+	12.5 fc	16.8 fc	3.8 fc	4.4:1	3.3:1
VACUUM BAY-WEST	+	13.3 fc	16.9 fc	7.2 fc	2.3:1	1.8:1
5' PAST PROPERTY LINE - NO RESIDENTIAL	+	0.2 fc	0.8 fc	0.0 fc	N/A	N/A

APPLICANT:
ALWAYS STAY VLUMITED LLC
DBA SGT CLEAN CAR WASH
3073 MASSILLON ROAD
UNIONTOWN, OHIO 44685
GREG SEIFERT 440.281.7999

STATE OF OHIO
GREGORY R. SEIFERT
No. 10138
REGISTERED ARCHITECT

BRIGHT FOCUS SALES

SGT CLEAN CAR WASH–32499 LORAIN ROAD, NORTH RIDGEVILLE, OHIO

Designer
JOSIAH SCHLEICHER
Date
09/14/2022
Scale
1" = 10'
Drawing No.
REV 0
Summary

L-2

APPLICANT:
ALWAYS STAY UNLIMITED LLC
DBA SGT CLEAN CAR WASH
3673 MARSHALL RD
UNIONTOWN, OHIO 44685
GREG SEIFERT 440-281-7499

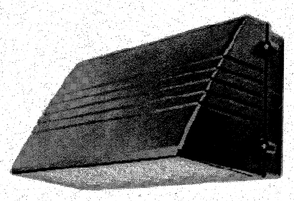
BRIGHT FOCUS SALES

SGT CLEAN CAR WASH–32499 LORAIN ROAD, NORTH RIDGEVILLE, OHIO

TRACE•LITE
BARRON
commercial & industrial lighting

E110X Series
Architectural LED Trapezoid Wallpack

Model: _____ Date: _____
Accessories: _____
Job Name: _____ Type: _____



DESCRIPTION
The E110X Series is a traditional full cutoff geometric sconce designed for optimal light control and distribution. Its die-cast aluminum construction provides ideal thermal management. Lumen packages from 3550 to 12,200 are available in 3000K, 4000K and 5000K CCT with a Type III distribution. This product offers project flexibility with photocontrol, integral motion sensor and battery backup options. This architectural family is offered in two housing sizes to complement new construction or retrofit applications, accommodating mounting heights up to 30'.

SPECIFICATIONS
Construction:
- Die-cast aluminum housing in a powder coated bronze finish with stainless steel hardware
- UV-stabilized polycarbonate lens
- Integral heat sink maximizes heat dissipation for longer LED life
- Hinged back box isolates drivers from LEDs and offers easy access to drivers
- Back box includes three conduit entry points (one on top and two on the sides) as well as a knockout on the bottom for optional sensor

Optics/LEDs:
- No uplight design to minimize light pollution
- 27W to 90W LED models replace 100W to 400W HID for up to 70% energy savings
- Efficacies up to 139 LPW maximize utility rebates
- Type III distribution
- Available in 3000K, 4000K and 5000K CCT
- CRI ≥70
- 70,000 hours L70

Electrical:
- 120-277VAC, 50/60Hz
- 1-10V Dimming driver

Testing & Compliance:
- cULus Listed for Wet Locations
- Operating temperatures: -40°C to 45°C (-40°F to 113°F)

Installation:
- Housing hinges to back box for easy installation
- Back box accommodates conduit entry as well as optional sensor
- Mounts to a standard 3-1/2" or 4" square electrical J-box

Options:
- Integral battery backup (BB) operates for 90 minutes, providing over 800 lumens for path of egress; Rated for ambient temperatures of 0°C to 40°C (32°F to 104°F)
- Factory installed 120/277VAC button type photocontrol (PC)
- Factory installed integral dimming occupancy sensor (SC)

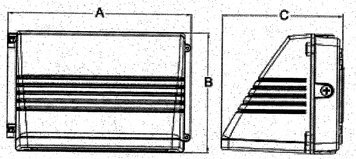
Accessories:
- Dimming sensor for field installation (TL-MSSW)
- Remote control for TL-MSSW sensor (TL-MSSW-REMOTE)
- Button type universal photocontrol sensor 120/277VAC (PCU)

Warranty:
- Five Year Warranty (Terms and Conditions Apply)

Specs at a Glance			
Model	E110X-27	E110X-45	E110X-90
Wattage (W)*	27W	45W	90W
Lumens (lm)	3750	6100	12,200
Efficacy (LPW)	139	136	136
Equivalency (HID)	100-150 Watt	175-250 Watt	250-400 Watt
Distribution	Type III		
CCT (K)	3000K, 4000K, 5000K		
CRI	≥70		
Input Voltage	120-277VAC, 50/60Hz		
Operating Temp	-40°C to 45°C (-40°F to 113°F)		
Certifications	cULus Listed for Wet Locations		
Warranty	5 Years		
Weight	6.6 lbs	6.9 lbs	10.7 lbs

*Nominal Wattage. Tested at 5000K CCT. See performance table for more detailed lumen information.

Note: Environment and application will affect actual performance. Typical values and 25°C used for testing.



Model	A	B	C	Weight
E110X-27	14.2"	9.3"	8.8"	6.6 lbs
E110X-45	14.2"	9.3"	8.8"	6.9 lbs
E110X-90	18.1"	9.8"	9.5"	10.7 lbs

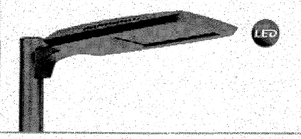
Specifications are subject to change without notice.
Installation must be performed in accordance with Barron Lighting Group installation instructions.

10810386 Rev 6

BARRON lighting group
800.533.3948 • barronltg.com

GARDCO by Signify

Site & Area
PureForm
P26 medium area light



Gardco PureForm LED area medium P26 features a sleek, low profile design and optimal performance. PureForm area medium is designed to achieve maximum pole spacing, with lumen output up to 28,900 lumens. Multiple distribution and shielding options are available to achieve maximum control. A full range of control options provides additional energy savings.

Project: _____
Location: _____
Cat.No: _____
Type: _____
Lumens: _____ Qty: _____
Notes: _____

Ordering guide example: P26-64L-800-NW-G2-AR-3-120-HIS-MGY

Model	Number of LEDs	Drive Current	LED Color Generation	Mounting	Distribution	Voltage
P26						
P26 PureForm area medium, 26"	46L 48 LEDs (3 modules)	400 400mA 500 500mA 600 600mA 700 700mA	WW-G2 Warm White 3000K, 70CRI Generation 2 NW-G2 Neutral White 4000K, 70CRI Generation 2 CW-G2 Cool White 5000K, 70CRI Generation 2 WY-G2 Warm Yellow 2700K, 80 CRI Generation 2 [1] BW-G2 Balanced White 3500K 80CRI Generation 2 [1] AM-G2 Direct Amber (590nm) Generation 2 [1,14]	AR Arm Mount (standard) [2] The following mounting kits must be ordered separately (See accessories) SF Slip Fitter Mount [3] (fits to 2⅜" O.D. tenon) WS Wall mount with surface conduit rear entry permitted RAM Retrofit arm mount kit [4]	Type 2 2 Type 2 2-90 Rotated at 90° 2-270 Rotated at 270° Type 3 3 Type 3 3-90 Rotated at 90° 3-270 Rotated at 270° Type 4 4 Type 4 4-90 Rotated at 90° 4-270 Rotated at 270° Type 5 5 Type 5 5W Type 5W AFR Auto Front Row AFR-90 Auto Front Row, rotated at 90° AFR-270 Auto Front Row, rotated at 270° BLC Back Light Control BLC-90 Back Light Control rotated at 90° BLC-270 Back Light Control rotated at 270°	120 120V 208 208V 240 240V 277 277V 347 347V 480 480V UNV 120-277V (50/60Hz) HVU 347-480V (50/60Hz)
	64L 64 LEDs (4 modules)	600 600mA 700 700mA 800 800mA				
	80L 80 LEDs (5 modules)	700 700mA 800 800mA 900 900mA				

Options					
Dimming controls	Motion sensing (MS)	Photocontrol (PC)	Electrical	Luminaire	Finish
DD 0-10V External dimming (by others) [4] DCC Dual Circuit Control [4,5,6] FAWS Field Adjustable Wattage Selector [4,5] LLC Integral wireless module [4,4.1,17] BL Bi-level functionality [4,17] **DynaDimmer:** Automatic Profile Dimming CS50 Security 50% Dimming, 7 hours [4,7] CM50 Median 50% Dimming, 8 hours [4,7] CS30 Security 30% Dimming, 7 hours [4,7] CM30 Median 30% Dimming, 8 hours [4,7]	IMRI3 Integral with #3 lens [16] IMRI7 Integral with #7 lens [16]	PCB Photocontrol Button [7,9] TLRD5 Twist Lock Receptacle 5 Pin [9] TLRD7 Twist Lock Receptacle 7 Pin [9] TLRPC Twist Lock Receptacle w/Photocell [8,9]	**Fusing** F1 Single (120, 277, 347VAC) [8] F2 Double (208, 240, 480VAC) [8] F3 Canadian Double Pull (208, 240, 480VAC) [8,10] **Pole Mount Fusing** FP1 Single (120, 277, 347VAC) [8] FP2 Double (208, 240, 480VAC) [8] FP3 Canadian Double Pull (208, 240, 480VAC) [8] **Surge Protection** (10kA standard) SP2 Increased 20kA	Square Pole Adapter included as standard TB Terminal Block [9] RPA Round Pole Adapter (fits to 3"- 3.9" O.D. pole) [12] HIS Internal Housing Side Shield [13]	**Textured** BK Black WH White BZ Bronze DGY Dark Gray MGY Medium Gray **Customer specified** RAL Specify optional color or RAL (ex: RAL7024) CC Custom color (Must supply color chip for required factory quote)

1. Extended lead times apply. Contact factory for details.
2. Mounts to a 4-5" round pole with adapter included for square poles.
3. Limited to a maximum of 45 degrees aiming above horizontal.
4. Not available with other dimming control options.
5. Not available with motion sensor.
6. Not available with photocontrol.
7. Not available in 347 or 480V.
8. Must specify input voltage.
9. Dimming will not be connected to NEMA receptacle if ordering with other control options.
10. Not available in 480V. Order photocell separately with TLRD5/7.
11. Not available with DCC.
12. Not available with SF and WS. RPAs provided with black finish standard.
13. HIS not available with Type 5, 5W, and BLC optics.
14. Limited to max. 600mA configurations.
15. Not available with DD, DCC, and FAWS dimming control options.
16. Not available with DD, DCC, FAWS and LLC dimming control options.
17. Must specify a motion sensor lens.

P26_PureForm_area_medium 04/22 page 1 of 9

3000K only

STATE OF OHIO
GREGORY R. SEIFERT
No. 10136
REGISTERED ARCHITECT

L-3

Designer JOSIAH SCHLEICHER
Date 09/14/2022
Scale 1" = 10'
Drawing No. REV 0
Summary

APPLICANT
ALWAYS STAY UNLIMITED LLC
DBA EAT CLEAN CAR WASH
3673 MASSILLON ROAD
UNIONTOWN, OHIO 44685
GREG SEIFERT 440-281-7999

NO.	POLE SHAFT SPECIFICATIONS
1.	SHAFTS ARE ONE SECTION DESIGN FABRICATED FROM A WELDABLE GRADE CARBON STEEL STRUCTURAL TUBING WITH A UNIFORM WALL THICKNESS. MATERIAL SHALL CONFORM TO ASTM A-500 GRADE B WITH A MINIMUM YIELD STRENGTH OF 46,000 P.S.I.
2.	BASE PLATES ARE CONSTRUCTED OF A STRUCTURAL QUALITY HOT ROLLED CARBON STEEL PLATE (ASTM A-36 HRS) WITH A GUARANTEED MINIMUM YIELD STRENGTH OF 36,000 P.S.I.
3.	ANCHOR BOLTS (F1554 GRADE 55) ARE "L" BENT BARS HAVING A MINIMUM YIELD STRENGTH OF 55,000 P.S.I. THE BOLTS ARE FULLY GALVANIZED PER ASTM A153 SPECIFICATIONS AND FURNISHED COMPLETE WITH 2 HEX NUTS AND 2 FLAT WASHERS.
4.	POLES SHALL HAVE A POLYESTER POWDER COAT FINISH IN A STANDARD COLOR.

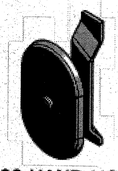
POLE DIMENSIONS				
POLE HGT (FT.)	TOP SQ. SIZE (IN.)	BOT. SQ. SIZE (IN.)	GAGE	MTG. HGT. (FT.)
18'	4.00	4.00	11 GAGE	18'

BASE PLATE DIMENSIONS			
BOLT CIRCLE (IN.)	BASE PLATE DIM. (IN.)	BOLT HOLE (IN.)	PLATE THK. (IN.)
8.00-9.00	8.00 SQ.	1.00	.75

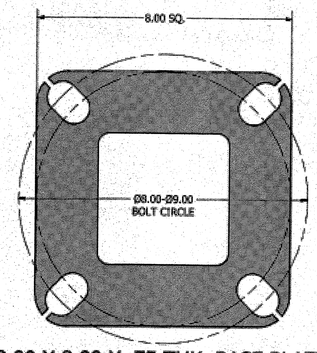
ANCHOR BOLT DIMENSIONS	
ANCHOR BOLT DIA. (IN.)	ANCHOR BOLT LENGTH (IN.)
.75	20.00

ALLOWABLE WIND LOADING (SQ. FT.)				
WIND*	80 MPH	90 MPH	100 MPH	120 MPH
EPA	11.1	9.0	7.2	5.1

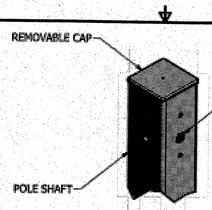
*WITH 1.3 GUST FACTOR



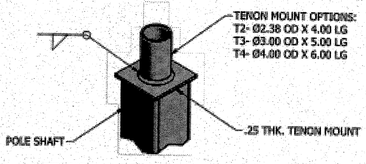
3.00 X 5.00 HAND HOLE COVER



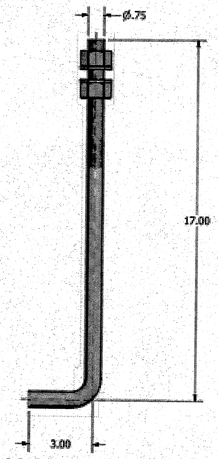
8.00 X 8.00 X .75 THK. BASE PLATE



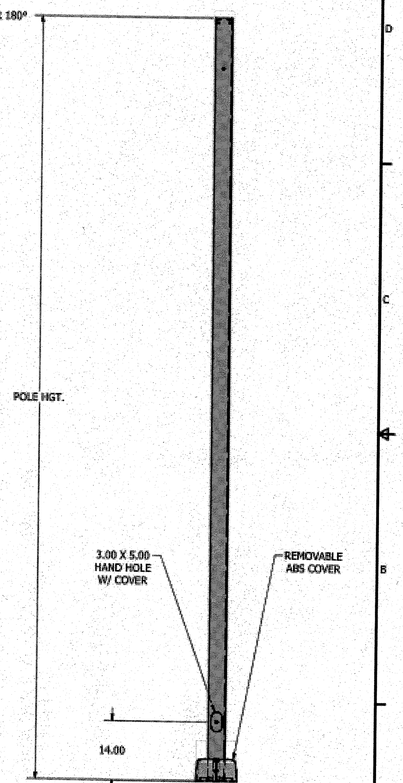
DRILL MOUNT OPTIONS



TENON MOUNT OPTIONS



Ø.75 X 20.00 ANCHOR BOLT



POLE DETAIL

FIXTURES @ 20'

POLE TO BE CUT TO ACCOMMODATE MINIMUM 30" CONCRETE BASE

lyte poles
a DWH company
P.O. Box 340
Eastpointe, MI 48021
P: (586) 771-4610 | F: (586) 771-5527
www.lytepoles.com

DRAWN: M. HARVALA	2/13/2015	
CHECKED		
REVISION:	DATE:	
APPROVED:		
QUOTE:		
S.O.#		
REF:	SCALE: NONE	

SOME GEOGRAPHICAL AREAS HAVE SPECIAL WIND CONDITIONS THAT CAN CREATE WIND INDUCED VIBRATIONS CAUSING A FATIGUE PROBLEM. NO METHOD HAS YET BEEN FOUND FOR PREDICTING DESTRUCTIVE LIGHTING POLE VIBRATION. THESE CONDITIONS ARE UNIQUE AND CANNOT BE GUARANTEED AGAINST, AND ARE THE RESPONSIBILITY OF A LOCAL SITE ENGINEER.

TITLE:

CATALOG:

DWG NO: 101-4011-18 | SIZE C | SHEET 1 OF 1

180° 270° 90° 0°
HANDHOLE

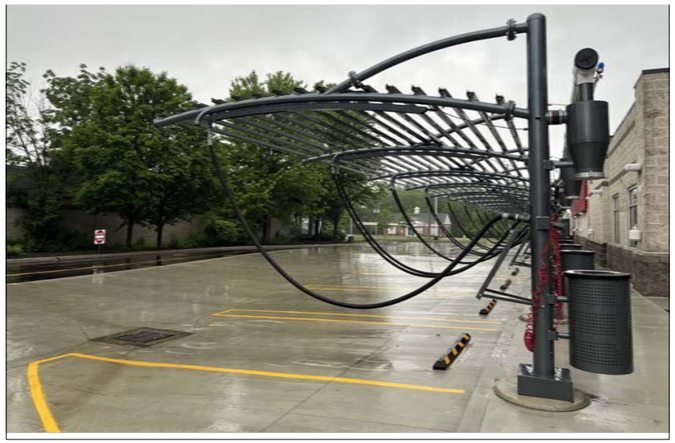
BRIGHT FOCUS SALES

SGT CLEAN CAR WASH–32499 LORAIN ROAD, NORTH RIDGEVILLE, OHIO

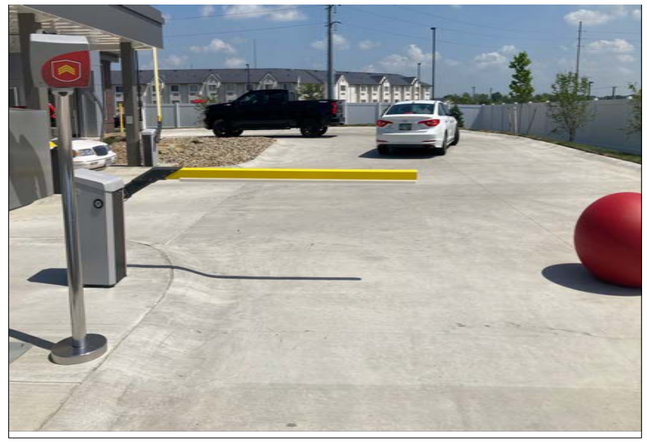
STATE OF OHIO
GREGORY R. SEIFERT
No. 10136
REGISTERED ARCHITECT

Designer
JOSIAH SCHLEICHER
Date
09/14/2022
Scale
1" = 10'
Drawing No.
REV 0
Summary

L-4



1 CUSTOMER VACUUMS
EXAMPLE PHOTO



2 TRAFFIC CONTROL GATE
EXAMPLE PHOTO



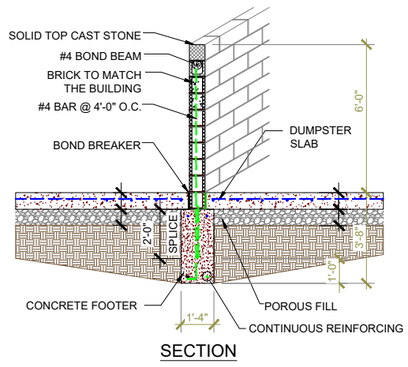
3 VACUUM ENCLOSURE
EXAMPLE PHOTO

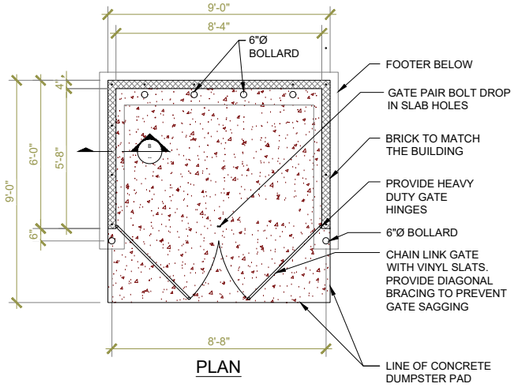


4 XPT CUSTOMER INTERFACE
EXAMPLE PHOTO

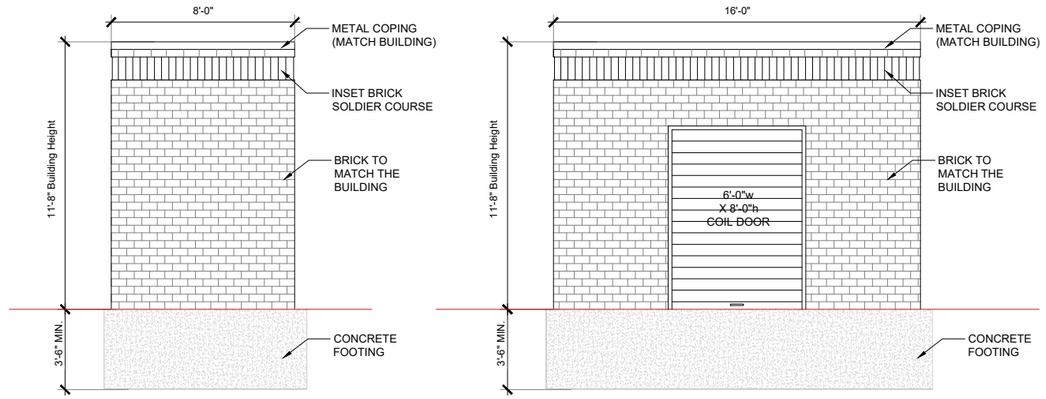


5 OVERHEAD CANOPY
EXAMPLE PHOTO





6 TRASH ENCLOSURE
DETAILS



7 VACUUM ENCLOSURE
CONSTRUCTION DETAILS

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

DRAWING DATES
18 November 2022
PC submission

PROJECT NUMBER:
1020-011-22

Sgt. Clean Car Wash
Site Elements-32499 Lorain Road Site
City of North Ridgeville, Ohio
Lorain County Ohio

SITE ELEMENT DETAILS

A.1 E

FROSTED GLASS FOR TOWER

BUILDING MATERIALS

Blatchford Architects 12429 Cedar Rd. Cleveland Heights Ohio 44106 216/421-2050 fax 216/421-5915 email bsastudio-10.com

Sgt Clean Car Wash

TMS Engineers, Inc



Traffic Impact Study

Sgt Clean Car Wash
North Ridgeville, Ohio

September 13, 2022

Prepared for:

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

TRAFFIC IMPACT STUDY

Sgt Clean Car Wash

North Ridgeville, Ohio

September 13, 2022

Prepared For:

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

Prepared By:

TMS Engineers, Inc.
2112 Case Parkway South
Unit #7
Twinsburg, Ohio 44087



REGISTERED ENGINEER NO. E56982
CERTIFICATION NO. 2234

"This document was prepared consistent with local agency requirements and/or applicable guidelines contained in this report."



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Appendix F - Trip Generation Data

Appendix G - Background Growth Rate Calculations

Appendix H - Peak Hour to Design Hour Factors

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Executive Summary

This Traffic Impact Study (TIS) has been prepared at the request of Sgt. Clean Car Wash for a proposed Car Wash. The car wash will be located on the east side of Lorain Road (SR 10) and south of Cook Road in the City of North Ridgeville, Lorain County, Ohio. **Figure 1.1, Page 2** shows the proposed location of the development.

The development is expected to consist of the following land use:

- **Single Tunnel Automated Car Wash**

The development is proposed to have two full access driveways. The primary site driveway will be located on Lorain Road at the southern edge of the proposed development. The secondary site driveway will be located on Lorain Road approximately 100 feet north of the main site driveway. **Figure 1.2, Page 3** shows the proposed site plan for the development including the location of the proposed site access driveways. There is a cross access driveway proposed with the adjoining Starbucks but this driveway was not included in this study. It is assumed there will be an insignificant internal circulation between the two sites.

Based on the collected traffic data, the weekday AM peak hour of traffic was determined to be 7:30 AM to 8:30 AM. The weekday PM peak hour of traffic was found to be 4:45 PM to 5:45 PM. These periods will be used to forecast expected and future traffic volumes since they reflect the period of the highest volume of vehicular traffic flow for the study area roadways. The proposed development is expected to generate the following average hourly traffic during the AM and PM peak periods:

ITE TRIP GENERATION			TRIP ENDS			
ITE CODE	DESCRIPTION	Tunnels	Weekday AM Peak Hour (Enter/Exit)		Weekday PM Peak Hour (Enter/Exit)	
948	Automated Car Wash	1	39	39	39	39
TOTAL NEW TRIPS			**78**		**78**	

The ODOT **State Highway Access Management Manual** requires that ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is below 500 in the peak hour. The proposed development is expected to generate a total of 78 driveway trips in the AM and PM peak hour. The year 2033 was therefore analyzed for the ten year design hour conditions.

Recommended Improvements to Serve Future Conditions without and with the Development

The Lorain Road / Lear Nagle Road / Cook Road intersection is anticipated to operate at LOS F on several approaches and various movements in the PM peak hour under the Year 2023 and Year 2033 No-Build conditions. Several mitigation alternatives were analyzed and it would require several improvements such as a third eastbound left-turn lane and an exclusive right-turn lane on Lear Nagle Road and dual northbound left-turn lanes on Lorain Road. The City should consider these options in a future construction project.

The Year 2023 and Year 2033AM and PM peak hour comparison for the intersection of Lorain Road / Lear Nagle Road / Cook Road indicate that the approach delays are not adversely impacted with the addition of the development generated traffic under the forecasted 2023 AM and PM peak hour conditions. The additional car wash traffic is anticipated to increase delay at the intersection by less then a second in the AM Peak hour and by approximately 2.8 seconds in the AM or PM Peak hours. The general public should not notice such a small increase in overall delay at the intersection. No geometric or traffic control improvements are recommended for the Lorain Road / Lear Nagle Road / Cook Road intersection under the 2023 and 2033 Build conditions.

The following lane use and traffic control is recommended at the driveway intersections on Lorain Road where access to the development site is proposed under the 2023 and 2033 peak hour Build conditions.

Lorain Road & Site Driveway #1

- A stop sign should be installed on the westbound approach (site driveway)
- The proposed driveway should be constructed with one egress lane and one ingress lane.

Lorain Road & Site Driveway #2

- The proposed Access Driveway #2 will be restricted to right-in / right-out access only for the safety of motorists turning at this driveway. The necessary signage and raised pavement should be installed at the driveway to prevent left-turn movements.
- The proposed driveway should be constructed with one egress lane and one ingress lane.

Conclusions

Based upon the results of the analysis in this study and the corresponding recommendations, it can be seen that the development traffic can be accommodated without adversely impacting the area roadway network.

Chapter 1
Introduction

1.1 Purpose of Report

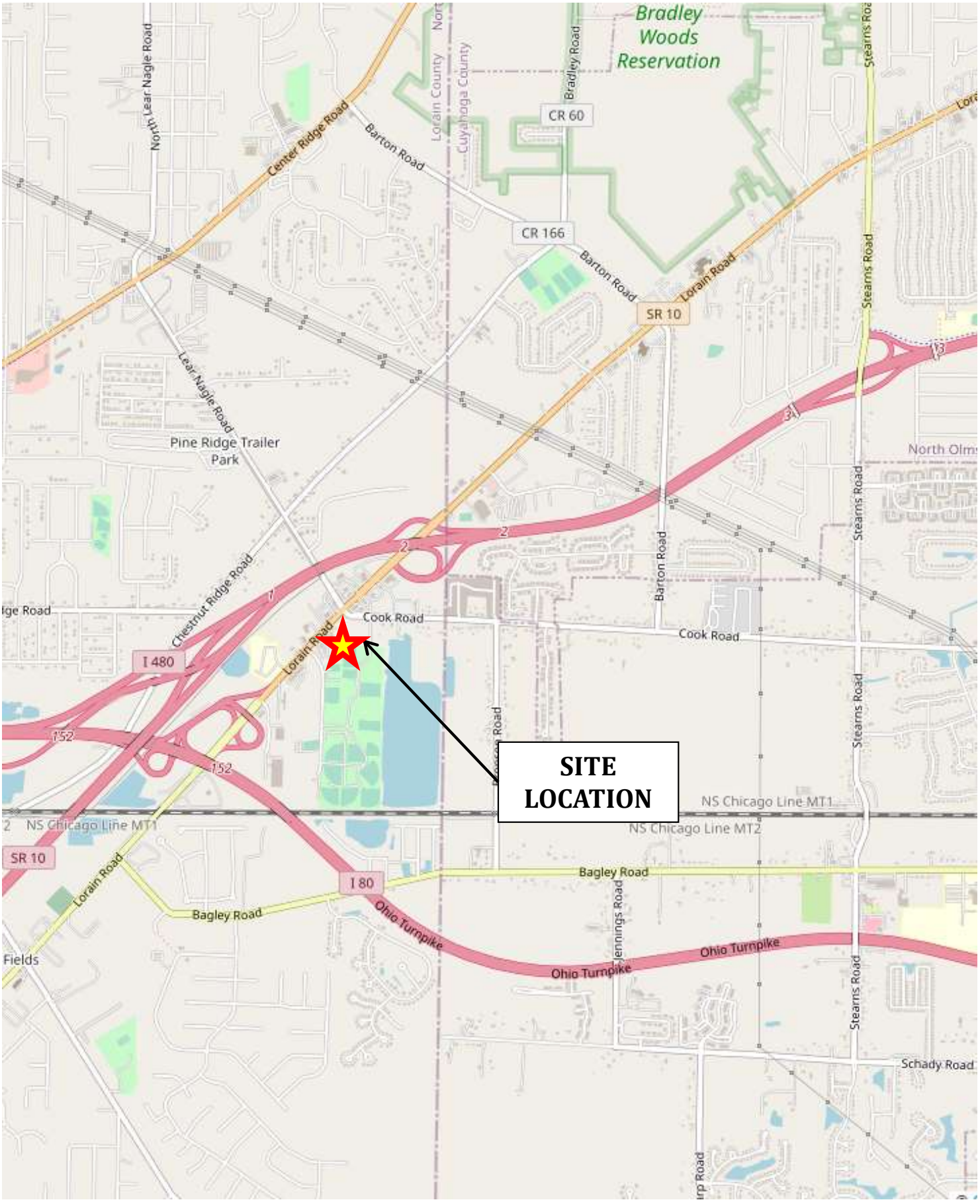
This Traffic Impact Study (TIS) has been prepared at the request of Sgt. Clean Car Wash for a proposed Car Wash. The car wash will be located on the east side of Lorain Road (SR 10) and south of Cook Road in the City of North Ridgeville, Lorain County, Ohio. **Figure 1.1, Page 2** shows the proposed location of the development.

The development is expected to consist of the following land use:

- **Single Tunnel Automated Car Wash**

The development is proposed to have two full access driveways. The primary site driveway will be located on Lorain Road at the southern edge of the proposed development. The secondary site driveway will be located on Lorain Road approximately 100 feet north of the main site driveway. **Figure 1.2, Page 3** shows the proposed site plan for the development including the location of the proposed site access driveways. There is a cross access driveway proposed with the adjoining Starbucks but this driveway was not included in this study. Internal capture of trips between the two sites will not be assumed in order to provide a more conservative analyses.

The future design year for the project will be based on the expected volume of site generated traffic under the full build conditions. The full development is anticipated to have an opening day in 2023.



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1.2 Study Objectives

This study is structured for the following purposes;

- to identify the level of service of off-site access and traffic;
- to adequately assess the operation of the development access and;
- to adequately assess the need for auxiliary turn lanes associated with the proposed car wash.

This study documents the methodologies, findings and conclusions of the analysis, including the basis for all assumptions, traffic parameters utilized and conclusions reached.

The development access operation will be evaluated based upon the expected traffic after the development is completed. Levels-of-service for the access roadway intersections will be calculated using the computerized version of the Transportation Research Board's **Highway Capacity Manual 7TH Edition(1), (HCS 2022, Release 8.1)**.

Intersection design guidelines will be based upon the information and procedures found in the Ohio Department of Transportation's **Location & Design Manual, Volume 1(3)**. Warrants discussed in Section 401-6 will be used, in addition to the capacity analyses, to determine the need for deceleration and exclusive turn lanes at unsignalized site access locations.

1.3 Intersection Capacity & Levels-of-Service

Intersection capacity analyses will be performed at the existing study intersection and the development access intersections using the procedures outlined in the computerized version of the Transportation Research Board's **Highway Capacity Manual 7TH Edition**[(1)].

The **HCM**[(1)] is the most widely used document in the transportation industry. It contains a set of methodologies and application procedures for evaluating the capacity and quality of service of various transportation facilities. The **HCM**[(1)] is built from more than 60 years or research work and represents a body of expert transportation consensus.

The capacity analysis procedures provide a calculated "average vehicle delay", which is based on traffic volumes, number of lanes, type of traffic control, channelization, grade, and percentage of large vehicles in the traffic stream at each intersection. The average delay calculated at an intersection is then assigned a "grade" or level of service (LOS) ranging from LOS A, the best, to LOS F, the worst based upon driver expectation. The intersection LOS "grades" as defined by the Transportation Research Board are as follows:

Table 1.1 Intersection Levels-of-Service

LOS	UNSIGNALIZED * AVERAGE DELAY PER VEHICLE (sec)	SIGNALIZED AVERAGE DELAY PER VEHICLE (sec)
A	≤ 10.0	≤ 10.0
B	10.1 to 15.0	10.1 to 20.0
C	15.1 to 25.0	20.1 to 35.0
D	25.1 to 35.0	35.1 to 55.0
E	35.1 to 50.0	55.1 to 80.0
F	> 50	> 80

* - Unsignalized intersections include 2-way stop, all-way stop and roundabouts

Intersection capacity analyses will be performed in order to estimate the maximum amount of traffic that can be accommodated by the intersection while maintaining recommended operational qualities. No-Build and Build peak hour traffic volumes will be analyzed to determine the level-of-service (LOS) at the study area intersections.

The selection of the design level-of-service is most frequently chosen from Section 5.9 of the Ohio Department of Transportation's **OATS Manual** [6]. In most cases, a level-of-service E is considered the maximum delay threshold after which improvements should be investigated to determine if the delay can be reduced to a level of E or better. The following table from Section 5.9 details the operation goals for intersection analyses (All-Way Stop Control, Two-Way Stop Control, Signalized, & Roundabout).

Table 1.2 Intersection Operational Goals

RESULT	INSIDE AN MPO	OUTSIDE AN MPO
Intersection LOS	D or BETTER	C or BETTER
Approach LOS	E or BETTER	
v/c	All movements < 1.0 (<= 0.93 preferred)	
QSR	All movements <1.0 from HCS analysis, TransModeler may be needed to determine if queuing impacts upstream intersetions.	

MPO = Metropolitan Planning Organization
v/c = Volume to Capacity Ratio
QSR = Queue Storage Ratio

An evaluation of capacity analyses will determine if there are any locations, approaches or movements in which the delay, V/C and QSR exceeds the operational goals shown in **Table 1.2.**

It should be noted that any values for queue length, shown in the HCS analysis summary sheets that are displayed in red, indicate that the movement is expected to experience a "spillback" condition where the queue may exceed the existing length of the turn lane and extend into the adjacent through lane. These instances, if they occur, will be investigated for mitigation.

1.4 Intersection Turn Lanes

Turn Lane Warrants

The ODOT **Location and Design Manual, Volume 1**[3] and the **State Highway Access Management Manual**[7] describes the need for auxiliary turn lanes at unsignalized intersections. The Auxiliary Lane Graphs found in Section 401-6 of the **Location and Design Manual, Volume 1**[3] are used in the determination. This applies to the free-flow approaches at unsignalized intersections. Section 401.6.3 of the ODOT **Location and Design Manual**[3] states that:

"To determine the number and use of left (right) turn lanes, intersection capacity analysis procedures of the current edition of the Highway Capacity Manual should be used. For unsignalized intersections, left (right) turn lanes may also be needed if they meet warrants provided in Figures 401-5(6)a, b, c and d. The warrants apply only to the free-flow approach of the unsignalized intersection."

It is the intent of this report to evaluate the need for exclusive deceleration and turn lanes at the proposed site access driveways on Lorain Road using the auxiliary lane graphs.

Turn Lane Length

Proposed turn lanes and existing turn lanes determined deficient in length will be analyzed to determine the necessary turn lane storage length in accordance with the procedure found in the Ohio Department of Transportation's **Location and Design Manual, Volume 1**[3], Section 401. The ODOT criteria and procedures are furnished in **Appendix B**.

It should be noted that the recommended maximum length is 800 feet for a right turn lane and 600 feet for a left turn lane, however if the calculated turn lane length is lower than these values, the maximum length will not be applicable.

Design Speed

The procedure for determining the necessary turn lane storage length with the procedures found in the Ohio Department of Transportation's **Location and Design Manual, Volume 1** [3], *Section 401* is in part based on the design speed of the roadway. The AASHTO publication, **A Policy on Geometric Design of Highway Streets (Green Book)**[10]**,** defines design speed as a selected speed used to determine the various geometric design features of the roadway. The assumed design speed should be a logical one with respect to the topography, anticipated operating speed, the adjacent land use and the functional classification of highway.

The ODOT **Location and Design Manual, Volume 1** [3] provides guidance for determining the design speed of a roadway. *Section 104.2* of the ODOT **Location and Design Manual** [3] states that:

"The design speed should match the legal speed for facilities with a legal speed of 35 mph or less. For facilities with a legal speed of 40 or 45 mph the design speed should either match the legal speed, or be 5 mph greater than the legal speed, depending on the context of the area. For facilities with a legal speed 50 mph or greater, the design speed should be 5 mph greater than the legal speed."

1.5 References

The following list of references will be utilized for this report and the analysis contained within it:

1. *Highway Capacity Manual,* 7th Edition. Transportation Research Board of the National Academies, Washington, D.C.

2. *Ohio Manual of Uniform Traffic Control Devices for Streets and Highways,* 2012 Edition. Ohio Department of Transportation, Office of Traffic Engineering, Columbus, Ohio.

3. *Location and Design Manual,* Volume 1, Roadway Design. Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.

4. *Ohio Traffic Forecasting Manual,* Volume 1, Traffic Forecasting Background. Ohio Department of Transportation, Office of Statewide Planning & Research, Columbus, Ohio.

5. *Ohio Traffic Forecasting Manual,* Volume 2, Traffic Forecasting Methodologies. Ohio Department of Transportation, Office of Statewide Planning & Research, Columbus, Ohio.

6. *ODOT Analysis and Traffic Simulation Manual (OATS),* Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.

7. *State Highway Access Management Manual,* Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.

8. *Trip Generation Manual,* 11th Edition, September 2021, Institute of Transportation Engineers, (ITE), Washington, D.C.

9. *Trip Generation Handbook,* 3rd Edition, September 2017, Institute of Transportation Engineers, (ITE), Washington, D.C.

10. A policy on Geometric Design of High way Streets (Green Book), American Associates of State Highway and Transportation Officials, 7th Edition, 2018.

Chapter 2
Area Conditions

2.1 Transportation Network Study Area

The study area for the proposed development includes the previously discussed development access driveways on Lorain Road as shown in **Figure 1.2** and the Lorain Road / Lear Nagle Road / Cook Road intersection.

Functional Classification

The Ohio Department of Transportation functionally classifies roadways to help define a roadway's characteristics as well as identify roadways that are eligible for federal funds. Functional classification is the grouping of roads, streets, and highways in a hierarchy based on the type of highway service they provide. Generally, streets and highways perform two types of service. They provide either traffic mobility or land access and can be ranked in terms of the proportion of service they provide.

The functional classification as determined by ODOT will be used in this report to apply growth and design hour factors to the study area roadways for use in forecasting the future traffic volumes in the study area. These factors are determined using data, guidelines, and methodology supplied by ODOT. These methods and the corresponding data are based on the roadways assigned functional classification. The ODOT methods for forecasting future traffic volumes are a recognized traffic engineering standard in the State of Ohio.

Roadways that are not listed as having a functional classification can be assigned into one of two categories. The first category is a local roadway and the second category is that of an access drive.

The ODOT functional classification of the roadways in the study area can currently be found using the ODOT Transportation Information Mapping System (TIMS). TIMS is ODOT's web-mapping portal where information about Ohio's transportation system can be found. TIMS can currently be found at the following web address:

https://gis.dot.state.oh.us/tims/

The following table lists the study area roadways that have an assigned functional classification as determined by ODOT and local government entities.

Table 2.1 Functional Classification

ROADWAY	AREA	FC #	CLASSIFICATION
Lorain Road	Urban	4	Minor Arterial
Lear Nagle Road	Urban	5	Major Collector
Cook Road	Urban	5	Major Collector

Figure 2.1, Page 11 illustrates the section of the functional classification map for the study area.

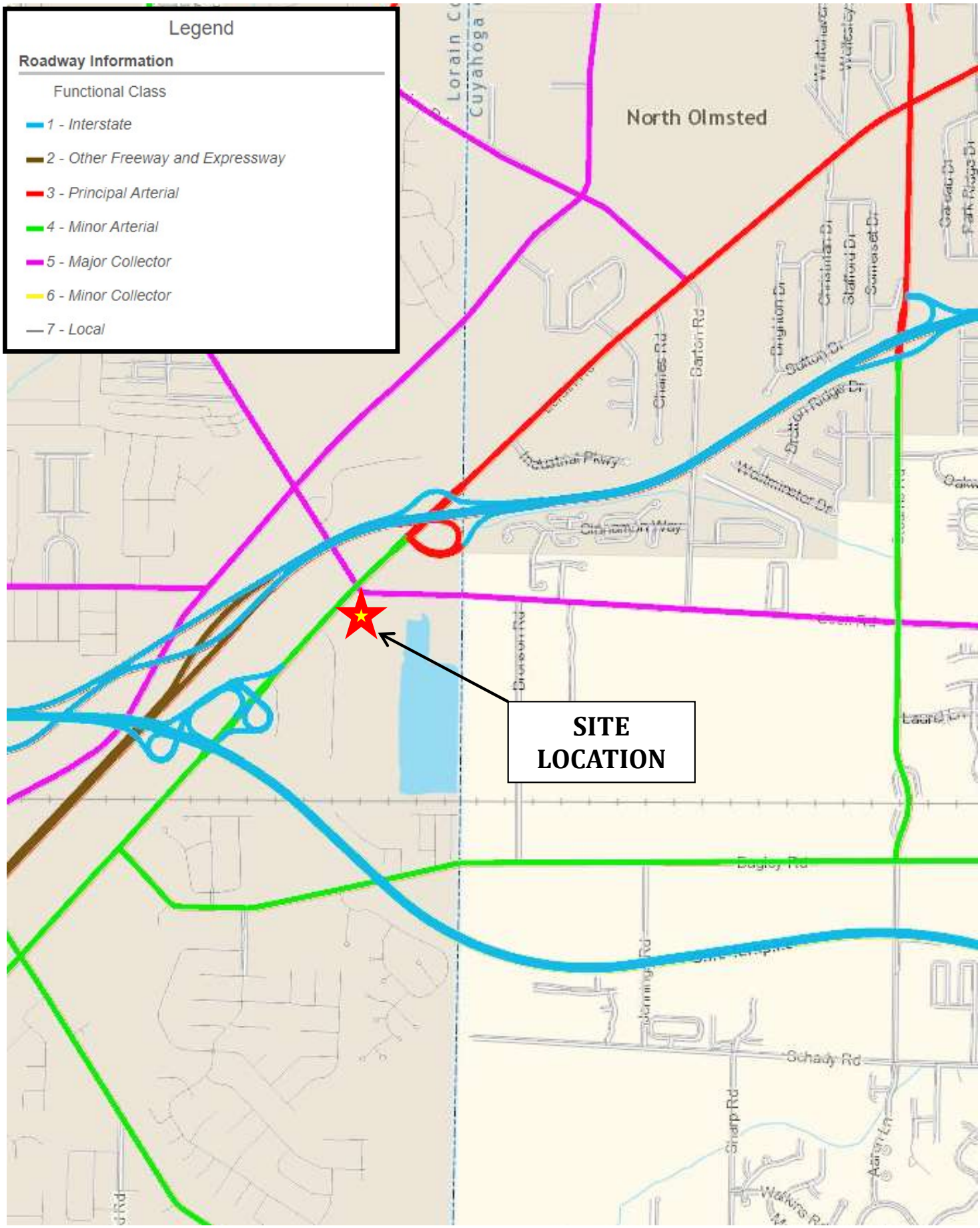
Roadway & Intersection Characteristics

The following table details the primary characteristics of the study area roadways:

Table 2.2 Roadway Characteristics

ROADWAY	# OF LANES	ADT	ORIENTATION	SPEED LIMIT (MPH)
Lorain Road	5	18,300	North - South*	35
Lear Nagle Road	2	21,300	East - West	35
Cook Road	2	7,000	East - West	35

* - Lorain Road is considered in this study to have a north - south orientation to avoid confusion since Cook Road is an east - west roadway.



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The following section details the lane use and traffic control for the existing intersection under study for this report.

Lorain Road / Lear Nagle Road / Cook Road

Lear Nagle Road West Approach
- 2 Exclusive Left Turn Lane
- 1 Shared Through & Right Lane

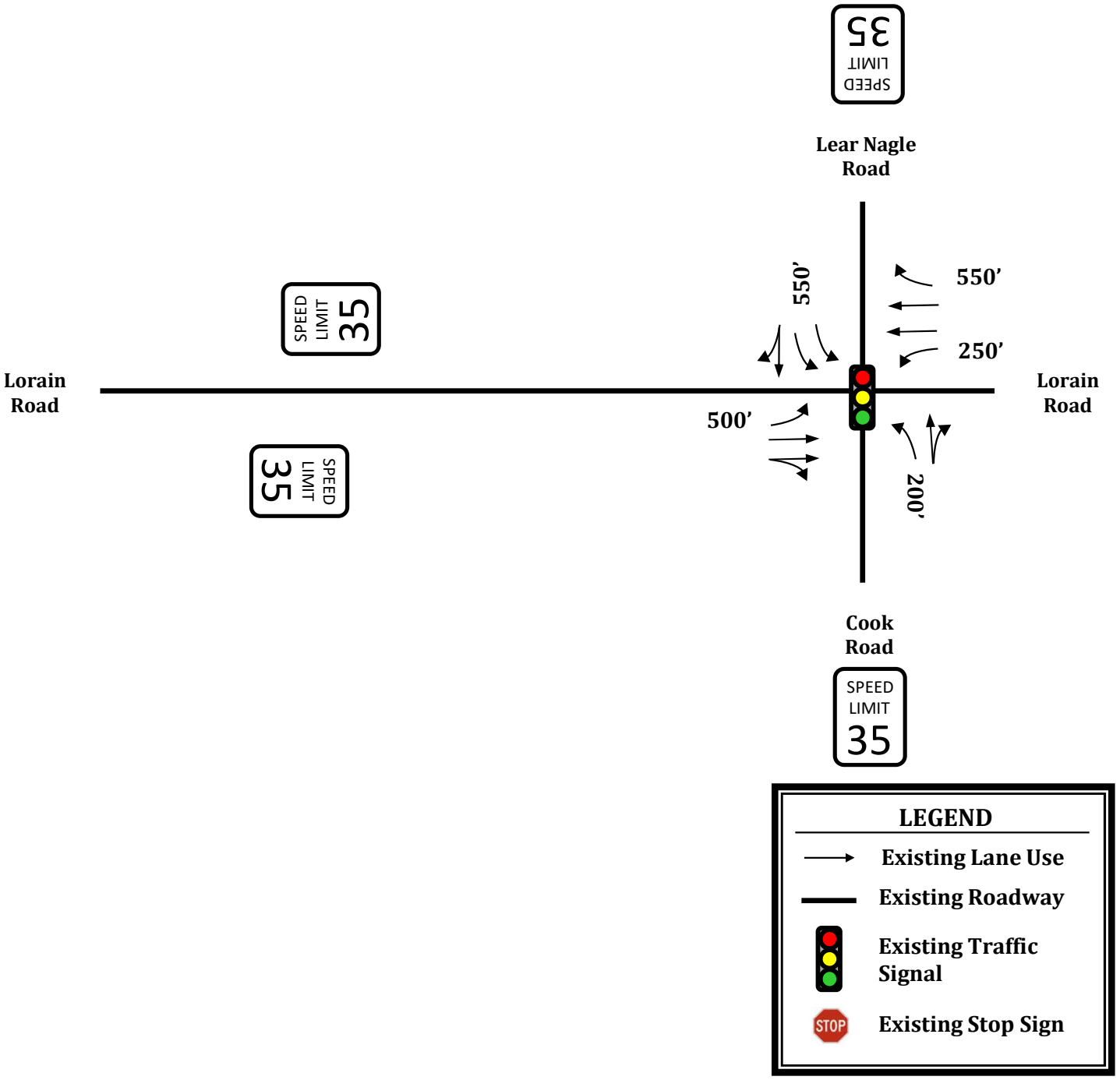
Cook Road East Approach
- 1 Exclusive Left Lane
- 1 Shared Through & Right Turn Lane

Lorain Road North Approach
- 1 Exclusive Left Turn Lane
- 2 Exclusive Through Lane
- 1 Exclusive Right Turn Lane

Lorain Road South Approach
- 1 Exclusive Left Turn Lane
- 1 Exclusive Through Lanes
- 1 Shared Through / Right Lane

The intersection is controlled by a traffic signal. The signal is operating as a standard eight phase signal. The first two phases is all northbound and southbound movements with the left turn movement made during the green arrow indication (protected movement). The second two phases are all northound and southbound movements where the left turn movements are made during a green ball indication when there is a gap in the opposing through traffic movements (permissive movement). The next two phases is all eastbound and westbound movements with the left turn movement made during the green arrow indication (protected movement). The last two phases are all eastbound and westbound movements where the westbound left turn movements are made during a green ball indication when there is a gap in the opposing through traffic movements (permissive movement). The eastbound left-turn phase will be a protected only left-turn phase since this movement has two left-turn lanes.

Figure 2.2, Page 13 shows the existing lane use and traffic control conditions in the study area. These will be considered the existing base conditions for this report.



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2.2 Traffic

Weekday turning movement counts were performed at the following location:

1. Lorain Road & Lear Nagle Road / Cook Road

The traffic counts were performed on Tuesday, August 9, 2022.

The weekday traffic count was conducted in fifteen (15) minute intervals between the hours of 7 AM - 10 AM, 11 AM - 2 PM, and 3 PM - 6 PM, then hourly totals were calculated. A copy of the intersection turn movement counts are included in **Appendix C**. Average daily traffic was calculated for the roadways using expansion factors to account for daily and seasonal variations according to the recommendations and latest data from the Ohio Department of Transportation.

Based on the collected traffic data, the weekday AM peak hour of traffic was determined to be 7:30 AM to 8:30 AM. The weekday PM peak hour of traffic was found to be 4:45 PM to 5:45 PM. These periods will be used to forecast expected and future traffic volumes since they reflect the period of the highest volume of vehicular traffic flow for the study area roadways.

The existing AM and PM peak hour traffic volumes are shown in **Figure A-1, Appendix A.** It should be noted that it may be necessary to adjust these volumes due to the effects of the COVID-19 pandemic per ODOT guidance and procedures.

Chapter 3
Projected Traffic Conditions

3.1 Adjusted Traffic

The collected peak hour traffic volumes should be reviewed to determine if they have been impacted due to the COVID-19 pandemic. The traffic volumes as they were collected may not be representative of a typical weekday under normal travel patterns and show less volume. The ODOT Modeling and Forecasting Section of the Office of Statewide Planning and Research has developed a process to calibrate counts that are artificially low due to the COVID-19 situation. An overview of the ODOT guidance and process can be seen in **Appendix D**. The development of calibration factors for the study area roadways is described in the following paragraphs.

The ODOT Traffic Monitoring Management System (TMMS) was first consulted to determine available Peak Hour and Average Daily Traffic along the study roadways. Data from the following location on SR 10 were used to forecast the traffic volumes prior to COVID for the study area intersection on a typical weekday.

1. SR 10 SW of I-480 (Location ID 7247)

A manual count of SR 10 south of the I-480 interchange was performed by ODOT in 2017. This count is a good representation of the traffic volumes on SR 10 prior to the COVID pandemic. A copy of the 2017 traffic counts are shown in **Appendix E**. The 2017 traffic count indicates there were 24,639 vehicles per day on SR 10 near the count location prior to COVID A traffic count taken in this study shows that there is 23,513 vehicles per day on SR 10 south of the I-480 interchange during the pandemic. There has been a 4.7% decrease in traffic volumes on Lorain Road after the pandemic. The ODOT procedure only requires COVID factpring when the difference is greater then 15%. No factoring will be applied to the 2022 manual traffic counts due to the COVID situation.

3.2 Site Traffic

Trip Generation

Calculating future total driveway trips requires an estimate of the traffic generated by the proposed development. The most widely accepted method of determining the amount of traffic that the proposed development will generate is to compare the proposed land use with existing facilities of the same use. The Institute of Transportation Engineers (ITE) has prepared a manual titled "**Trip Generation Manual**"[8], which is a compilation of similar traffic generation studies to aide in making such a comparison. The most recent update of this manual is the 11TH edition and was utilized for this study.

The development is expected to consist of the following land use:

- **One Tunnel Automated Car Wash**

The following table details the development land use from the site plan (**Figure 1.2**) and the corresponding ITE land use that will be used to forecast the site generated traffic volumes for the Build conditions:

Table 3.1 ITE Land Use Code

SITE PLAN DESCRIPTION	Units	ITE CODE	ITE DESCRIPTION
Sgt Clean Car Wash	1 Tunnel	948	Automated Car Wash

The following table summarizes generated traffic volumes for the proposed development based on the methods outlined in the (ITE) **Trip Generation Handbook**[9]. Copies of the trip generation worksheets can be seen in **Appendix F**.

Table 3.2 Trip Generation

ITE TRIP GENERATION			TRIP ENDS			
ITE CODE	DESCRIPTION	Tunnels	Weekday AM Peak Hour (Enter/Exit)		Weekday PM Peak Hour (Enter/Exit)	
948	Automated Car Wash	1	39	39	39	39
TOTAL NEW TRIPS			78		78	

The ITE Manual does not provide trip generation data for the AM Peak hour of an automated car wash. The same number of trips were assumed to be generated by the site in the AM Peak hour as the PM Peak hour in order to perform a conservative analyses.

The ODOT **State Highway Access Management Manual**[2] requires that ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is below 500 in the peak hour and twenty year design hour traffic volumes when the number of generated trips is greater than 500 in the peak hour. The proposed development, under the forecasted build conditions, is expected to generate a total of 78 driveway trips in the AM and PM peak hour. The year 2033 will therefore be analyzed for the ten year design hour conditions.

Distribution of Generated Traffic

The directional distribution for the new generated traffic is a function of the prevailing operating conditions on the existing roadways. The distribution pattern that was assumed is shown in the table below. These are based upon the existing traffic volumes traveling at the Lorain Road / Lear Nagle Road / Cook Road intersection during the AM and PM peak hours shown in **Figure A-1, Appendix A.**

The following tables detail the distribution of the new generated trips for the proposed development.

Table 3.3 AM New Trip Origins and Destinations

ORIGIN/ DESTINATION	ROUTE	FROM (ENTER)	% TOTAL	TO (EXIT)	% TOTAL
NORTH	LORAIN ROAD	613	21%	1481	50%
SOUTH	LORAIN ROAD	725	25%	610	21%
EAST	COOK ROAD	317	11%	245	8%
WEST	LEAR NAGLE ROAD	1282	43%	601	21%
	TOTALS	**2937**	**100%**	**2937**	**100%**

Table 3.3 PM New Trip Origins and Destinations

ORIGIN/ DESTINATION	ROUTE	FROM (ENTER)	% TOTAL	TO (EXIT)	% TOTAL
NORTH	LORAIN ROAD	1291	32%	1562	39%
SOUTH	LORAIN ROAD	987	25%	843	21%
EAST	COOK ROAD	367	9%	380	9%
WEST	LEAR NAGLE ROAD	1377	34%	1237	31%
	TOTALS	**4022**	**100%**	**4022**	**100%**

Directional Distribution of Site Generated Traffic

The directional distribution for the new AM and PM peak hour generated traffic is shown graphically in **Figure A-2, Appendix A**.

Assignment of Site Generated Traffic

Based upon the distribution patterns shown in **Figure A-2** , the new AM and PM peak site generated traffic was assigned to the study intersection.

The assignment of the estimated new site generated traffic for the proposed development under the design year conditions is shown graphically in **Figure A-3, Appendix A**.

3.3 Non-Site Traffic

Background Traffic Growth

Design of new roadways or improvements to existing roadways should not usually be based on current traffic volumes alone, but should consider future traffic volumes expected to make use of the facilities. Roadways should be designed to accommodate the traffic volume that is likely to occur within the design life of the facility. In a practical sense, this design volume should be a value that can be estimated with reasonable accuracy. It is believed that the maximum design period is in the range of 15 to 24 years. Therefore, a period of twenty years is widely used as a basis for design for large projects. A period of ten years is currently specified by the Ohio Department of Transportation for smaller projects. Traffic cannot usually be forecasted accurately beyond this period on a specific facility because of probable changes in the general regional economy, population, and land development along the roadway.

The ODOT **State Highway Access Management Manual** [7] requires that opening year and ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is less than 500 in the peak hour.

The year 2023 (Opening Year) and year 2033 (Design Year) will be analyzed for the proposed development as the peak hour site generated traffic volumes are less than 500 trips. Therefore, it is necessary to estimate historical growth rates in order to establish the future traffic on the study area roadways due to non-site related conditions.

Roadways, like Lorain Road and Lear Nagle Road carry a significant amount of through traffic due to their functional characteristics. This through traffic component generally increases as regional growth occurs. Therefore, it is anticipated that existing traffic on these roadways will increase in future years.

The TMMS provided data at the following location that was used to determine the study area growth rate:

1. **SR 10 (SW of I-480) - Location ID 7247**

A linear regression equation was developed for the location based on the available historical data. The growth rate was then developed based on the procedure detailed in Section 4.2 of the **Ohio Traffic Forecasting Manual, Volume 2** [5].

SR 10 was determined to have a negative historical growth rate of 0.3011%. This study will assume a positive growth in background traffic of 0.25% per year in order to provide a conservative analyses. A copy of the ODOT historical traffic data analysis and the growth rate calculations can be seen in **Appendix G**.

The growth rate and factors for the study area roadways of SR 10 can be seen in the following table:

Table 3.5 - Growth Rates & Factors

ROADWAY	GROWTH RATE (Annual Growth)	2023 GROWTH FACTOR	2033 GROWTH FACTOR
SR 10	0.25%	1.0025	1.0275

Design Hour Traffic

The traffic patterns on any roadway typically show considerable variation in the traffic volumes experienced during the various hours of the day and in the hourly volumes experienced throughout the year. A key decision in the design process involves determining which of these hourly traffic volumes should be used as the basis for the design.

It would be wasteful to predicate a design on the maximum peak hour traffic that occurs during the year and the use of the average hourly traffic would result in an inadequate design. The hourly traffic volumes used in a design should not be exceeded very often or by very much. However, the hourly traffic volumes should not be so high that traffic would rarely be sufficient to make full use of the designed facility.

Normal design policy in the State of Ohio is based upon a review of curves that depict the variation in hourly traffic volumes during the year. The Ohio Department of Transportation recommends using the 30^{TH} highest hour as a design control for urban streets. There is typically very little difference between the volumes in this range. The Ohio Department of Transportation provides factors or a methodology to determine factors that are applied to counted daily traffic volumes to determine appropriate design hour traffic volumes.

Following guidelines set forth in the **ODOT State Highway Access Management Manual**[(2)], all analyses are required to examine the design hour volume for the adjacent roadway and peak hour traffic volume of the proposed development. The **Ohio Traffic Forecasting Manual**[(4 & 5)] will be used to determined peak hour factors for the study area roadways.

The design hour volumes are determined by multiplying the AM and PM peak hour volumes by the appropriate factors from the ODOT Peak Hour to Design Hour Factor Report based on the functional classification of the roadway, the day of the week and the month that the traffic data was collected. A copy of the ODOT's Peak Hour to Design Hour Factor Report can be seen in **Appendix H**. The following table details the peak hour to design hour factors for the study area roadways.

Table 3.6 - Peak Hour to Design Hour Factors

ROADWAY	AREA	FUNCTIONAL CLASSIFICATION	MONTH	DAY	DHV FACTOR
SR 10	Urban	Minor Arterial	August	Tuesday	1.14
All Other Roadways	Urban	Major Collector	August	Tuesday	1.14

Peak Hour Factors

The intersection peak hour factor (PHF) is used to convert the hourly traffic volume into the flow rate that represents the busiest 15 minutes of the peak hour. The PHF is the sum of the traffic entering the intersection during the peak hour divided by four times the highest 15 minute volume during the peak hour. A PHF of 1 indicates that the traffic volume in each 15 minute volume is the same and therefore traffic flow is consistent throughout the hour. A lower PHF indicates a more variable traffic flow and that traffic volume has a spike during the peak 15 minute interval. PHF's under 0.80 occur in locations with highly peaked demand, such as at schools and factories during shift changes.

The ODOT **Analysis and Traffic Simulation Manual, (OATS)**[6] provides guidance to use the existing year PHF for all intersections from traffic counts collected for the project. The PHF is calculated for the intersection as a whole and not individual approaches or movements. A minimum of 0.80 for the PHF is required to be utilized unless justified by highly peaked demands such as for schools and factories noted above. If project specific counts are not available, a default value of 0.92 is to be utilized.

It is assumed for the report that the PHF for the opening and design years are the same as the calculated PHF from the collected existing year traffic counts. The intersection PHFs are included in **Appendix C**.

The following table shows the PHF's calculated for the study area intersections during the AM and PM peak hours:

Table 3.7 - Intersection Peak Hour Factors

ROADWAY/INTERSECTION	AM PEAK HOUR FACTOR	PM PEAK HOUR FACTOR
SR 10 & Lear Nagle Road & Cook Road	0.928	0.928

The peak hour factors detailed in Table 3.7 will be used in the forthcoming intersection capacity calculations in Chapter 4 of this report.

3.4 Future Traffic

No-Build Condition

The previously discussed calculation of the design hour factors and a growth rate for each movement were applied to the 2022 traffic volumes shown in **Figure A-1** in order to estimate the future traffic considering non-project traffic conditions.

The estimated 2023 No-Build traffic volumes for the study area are shown graphically in **Figure A-4, Appendix A**. The estimated 2033 No-Build traffic volumes for the study area are shown graphically in **Figure A-5, Appendix A**. This traffic is the expected traffic if the proposed development **is not** constructed, the **"No-Build"** condition.

The No-Build traffic volumes have been rounded to the nearest 10 in order to adhere to preferred ODOT practices.

Build Condition

The sum of the 2023 and 2033 No-Build volumes, shown in **Figures A-4 and A-5**, were added to the new generated traffic (**Figure A-2**) to equal the future Build peak hour volumes in order to estimate the future traffic considering project traffic conditions.

The estimated 2023 Build traffic volumes for the study area are shown graphically in **Figure A-6, Appendix A** for the proposed development. The estimated 2033 Build traffic volumes for the study area are shown graphically in **Figure A-7, Appendix A** for the proposed development. These traffic volumes are the expected volumes if the proposed development **is** constructed, or the **"Build"** condition.

Chapter 4
Traffic Analysis

4.1 Capacity & LOS at Study Area Intersection

2023 Traffic Analysis - No-Build & Build Conditions

Traffic analyses were performed for the projected 2023 conditions under the No-Build and Build scenarios so:

1. any existing roadway/intersection deficiencies can be identified in the No-Build scenario which would not be attributable to the development, and;

2. a comparison can be made to determine the changes in the traffic operations which may be attributed to the development.

The traffic volumes used in the No-Build analyses can be seen in **Figure A-4, Appendix A**. Copies of the capacity worksheets for the No-Build analyses are included in **Appendix I.**

The traffic volumes used in the Build analyses can be seen in **Figure A-6, Appendix A**. Copies of the capacity worksheets for the Build analyses are included in **Appendix J.**

Lorain Road & Lear Nagle Road & Cook Road

Comparison of the 2023 No-Build versus Build traffic analyses for the signalized intersection of SR 10 & Lear Nagle Road & Cook Road are shown in the following tables:

Table 4.1 - 2023 Levels-of-Service - AM Peak
(No-Build vs Build Comparison)

	2023 AM No-Build						2023 AM Build				
	LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)		LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)
EBL	E	60.1	0.983	0.00	0	EBL	E	60.1	0.983	0.00	0
EBT	C	25.0	0.549	0.00	0	EBT	C	25.6	0.575	0.00	0
EB Approach	D	51.0	-	-	-	EB Approach	D	50.9	-	-	-
WBL	D	36.4	0.412	0.00	0	WBL	D	36.5	0.427	0.00	0
WBT	E	64.1	0.834	0.00	0	WBT	E	64.1	0.834	0.00	0
WB Approach	D	53.6	-	-	-	WB Approach	D	53.5	-	-	-
NBL	E	59.7	0.854	0.00	0	NBL	E	66.5	0.891	0.00	0
NBT	D	42.4	0.679	0.00	0	NBT	D	43.6	0.706	0.00	0
NBR	D	42.7	0.682	0.00	0	NBR	D	43.9	0.709	0.00	0
NB Approach	D	47.7	-	-	-	NB Approach	D	50.6	-	-	-
SBL	C	30.4	0.237	0.00	0	SBL	C	30.5	0.245	0.00	0
SBT	D	36.3	0.417	0.00	0	SBT	D	36.4	0.427	0.00	0
SBR	B	12.2	0.366	0.00		SBR	B	12.2	0.366	0.00	0
SB Approach	C	25.2	-	-	-	SB Approach	C	25.4	-	-	-
Intersection	**D**	**45.1**	-	-	-	**Intersection**	**D**	**45.8**	-	-	-

Table 4.2 - 2023 Levels-of-Service - PM Peak
(No-Build vs Build Comparison)

	2023 PM No-Build						2023 PM Build				
	LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)		LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)
EBL	F	144.9	1.204	0.00	0	EBL	F	144.9	1.204	0.00	0
EBT	D	38.3	0.767	0.00	0	EBT	D	39.8	0.790	0.00	0
EB Approach	F	113.9	-	-	-	EB Approach	F	113.7	-	-	-
WBL	D	39.2	0.487	0.00	0	WBL	D	39.7	0.522	0.00	0
WBT	F	114.5	1.042	0.00	0	WBT	F	114.5	1.042	0.00	0
WB Approach	F	91.2	-	-	-	WB Approach	F	90.8	-	-	-
NBL	F	144.0	1.189	0.00	0	NBL	F	163.8	1.240	0.00	0
NBT	E	66.4	0.909	0.00	0	NBT	E	71.2	0.933	0.00	0
NBR	E	67.6	0.911	0.00	0	NBR	E	72.4	0.934	0.00	0
NB Approach	F	93.6	-	-	-	NB Approach	F	103.6	-	-	-
SBL	C	29.2	0.458	0.00	0	SBL	C	29.2	0.465	0.00	0
SBT	D	45.1	0.729	0.00	0	SBT	D	45.7	0.744	0.00	0
SBR	F	65.5	1.021	0.00		SBR	F	65.5	1.021	0.00	0
SB Approach	D	54.4	-	-	-	SB Approach	D	54.5	-	-	-
Intersection	**F**	**87.8**	-	-	-	**Intersection**	**F**	**90.3**	-	-	-

Conditions at the signalized Lorain Road and Lear Nagle Road / Cook Road intersection during the AM peak hour were determined to operate with level-of-service E or better under the forecasted 2023 No-Build conditions. The intersection is anticipated to operate at LOS F on several approaches and various movements in the PM peak hour under the Year 2023 No-Build conditions. Several improvement alternatives were analyzed to determine mitigation to improve LOS. It would require several improvements such as a third eastbound left-turn lane and an exclusive right-turn lane on Lear Nagle Road and dual northbound left-turn lanes on Lorain Road. The City should consider these in a future construction project.

The 2023 AM and PM peak hour comparison tables for the intersection of Lorain Road / Lear Nagle Road / Cook Road indicate that the approach delays are not adversely impacted with the addition of the development generated traffic under the forecasted 2023 AM and PM peak hour conditions. The additional car wash traffic is anticipated to increase delay at the intersection by less then a second in the AM Peak hour and by 2.5 seconds in the PM Peak hour. The general public should not notice such a small increase in overall delay at the intersection. No geometric or traffic control improvements are recommended for the study intersection under the 2023 Build conditions.

2033 Traffic Analysis - No-Build & Build Conditions

Traffic analyses were performed for the projected 2033 conditions under the No-Build and Build scenarios.

The traffic volumes used in the No-Build analyses can be seen in **Figure A-5, Appendix A**. Copies of the capacity worksheets for the No-Build analyses are included in **Appendix K.**

The traffic volumes used in the Build analyses can be seen in **Figure A-7, Appendix A**. Copies of the capacity worksheets for the Build analyses are included in **Appendix L.**

Lorain Road & Lear Nagle Road & Cook Road

Comparison of the 2033 No-Build versus Build traffic analyses for the signalized intersection of Lorain Road & Lear Nagle Road & Cook Road are shown in the following tables:

Table 4.3 - 2033 Levels-of-Service - AM Peak
(No-Build vs Build Comparison)

	2033 AM No-Build						2033 AM Build				
	LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)		LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)
EBL	E	60.1	0.983	0.00	0	EBL	E	63.4	0.999	0.00	0
EBT	C	25.0	0.549	0.00	0	EBT	C	25.4	0.581	0.00	0
EB Approach	D	51.0	-	-	-	EB Approach	D	53.4	-	-	-
WBL	D	36.4	0.412	0.00	0	WBL	D	35.9	0.425	0.00	0
WBT	E	64.1	0.834	0.00	0	WBT	E	65.8	0.849	0.00	0
WB Approach	D	53.6	-	-	-	WB Approach	D	54.3	-	-	-
NBL	E	59.7	0.854	0.00	0	NBL	E	71.2	0.922	0.00	0
NBT	D	42.4	0.679	0.00	0	NBT	D	46.2	0.752	0.00	0
NBR	D	42.7	0.682	0.00	0	NBR	D	46.7	0.755	0.00	0
NB Approach	D	47.7	-	-	-	NB Approach	D	54.0	-	-	-
SBL	C	30.4	0.237	0.00	0	SBL	C	30.4	0.288	0.00	0
SBT	D	36.3	0.417	0.00	0	SBT	D	36.9	0.460	0.00	0
SBR	B	12.2	0.366	0.00		SBR	B	12.6	0.373	0.00	0
SB Approach	C	25.2	-	-	-	SB Approach	C	26.0	-	-	-
Intersection	**D**	**45.1**	-	-	-	**Intersection**	**D**	**47.9**	-	-	-

Table 4.4 - 2033 Levels-of-Service - PM Peak
(No-Build vs Build Comparison)

	2033 PM No-Build						2033 PM Build				
	LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)		LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)
EBL	F	153.9	1.225	0.00	0	EBL	F	153.9	1.225	0.00	0
EBT	D	39.4	0.785	0.00	0	EBT	D	41.1	0.808	0.00	0
EB Approach	F	120.5	-	-	-	EB Approach	F	120.4	-	-	-
WBL	D	39.3	0.501	0.00	0	WBL	D	40.2	0.538	0.00	0
WBT	F	114.5	1.042	0.00	0	WBT	F	114.5	1.042	0.00	0
WB Approach	F	91.2	-	-	-	WB Approach	F	91.0	-	-	-
NBL	F	165.0	1.243	0.00	0	NBL	F	186.0	1.294	0.00	0
NBT	E	68.8	0.921	0.00	0	NBT	E	73.8	0.945	0.00	0
NBR	E	69.9	0.922	0.00	0	NBR	E	75.1	0.946	0.00	0
NB Approach	F	102.6	-	-	-	NB Approach	F	113.3	-	-	-
SBL	C	29.2	0.462	0.00	0	SBL	C	29.2	0.469	0.00	0
SBT	D	46.1	0.754	0.00	0	SBT	D	46.8	0.770	0.00	0
SBR	F	73.2	1.047	0.00		SBR	F	73.2	1.047	0.00	0
SB Approach	E	58.8	-	-	-	SB Approach	E	59.0	-	-	-
Intersection	**F**	**93.6**	-	-	-	**Intersection**	**F**	**96.3**	-	-	-

Conditions at the signalized Lorain Road and Lear Nagle Road / Cook Road intersection during the AM peak hour were determined to operate with level-of-service E or better under the forecasted 2033 No-Build conditions. The intersection is anticipated to operate at LOS F on several approaches and various movements in the PM peak hour under the Year 2033 No-Build conditions. Several improvement alternatives were analyzed to determine mitigation to improve LOS. It would require several improvements such as a third eastbound left-turn lane and an exclusive right-turn lane on Lear Nagle Road and dual northbound left-turn lanes on Lorain Road. The City should consider these in a future construction project.

The 2033 AM and PM peak hour comparison tables for the intersection of Lorain Road / Lear Nagle Road / Cook Road indicate that the approach delays are not adversely impacted with the addition of the development generated traffic under the forecasted 2033 AM and PM peak hour conditions. The additional car wash traffic is anticipated to increase delay at the intersection by less then a second in the AM Peak hour and by 2.8 seconds in the PM Peak hour. The general public should not notice such a small increase in overall delay at the intersection. No geometric or traffic control improvements are recommended for the study intersection under the 2033 Build conditions.

4.2 Capacity & LOS at Development Access Intersection

Capacity analyses were performed for the proposed site access driveways on Lorain Road using the procedures outlined in the computerized version of the Transportation Research Board's **Highway Capacity Manual 7TH Edition, 2022 (HCS version 8.1)**.

Build Condition - 2023 Capacity Analysis

Analyses were performed for the projected 2023 opening year conditions under the Build scenario to determine the future levels-of-service and delay at the proposed site access driveways. The traffic volumes used in this analysis can be seen in **Figures A-4 & A-6, Appendix A**. The results of the 2023 Build analyses are shown in the following tables. Copies of the capacity worksheets are included in **Appendix M**.

Table 4.5 - 2023 Access Levels-of-Service
(SR 10 & Proposed Access Drive #1)

	2023 Build AM	One-Way Stop				2023 Build PM	One-Way Stop		
	LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)		LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)
WB Approach	C	18.5	0.08	0.20	WB Approach	D	30.9	0.14	0.50
SB L	B	10.0	0.04	0.10	SB L	B	11.8	0.05	0.20
SB Approach	A	0.8	--	--	SB Approach	A	1.0	--	--

Table 4.6 - 2023 Levels-of-Service
(SR 10 & Proposed Access Drive #2)

	2023 Build AM	One-Way Stop				2023 Build PM	One-Way Stop		
	LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)		LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)
WB Approach	B	11.8	0.03	0.10	WB Approach	B	13.8	0.04	0.10

The capacity of the approaches and critical movements at the proposed access intersections on Lorain Road are expected to be at a level-of-service D or better during the AM and PM peak hours. The traffic generated by the proposed car wash is anticipated to be able to find an acceptable amount of gap in traffic to turn from the proposed driveway.

Build Condition - 2033 Capacity Analysis

Analyses were performed for the projected 2033 design year conditions under the Build scenario to determine the future levels-of-service and delay at the proposed site access driveways. The traffic volumes used in this analysis can be seen in **Figures A-5 & A-7, Appendix A**. The results of the 2033 Build analyses are shown in the following tables. Copies of the capacity worksheets are included in **Appendix M**.

Table 4.7 - 2033 Access Levels-of-Service
(SR 10 & Proposed Access Drive #1)

	2033 Build AM		One-Way Stop			2033 Build PM		One-Way Stop	
	LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)		LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)
WB Approach	C	19.0	0.08	0.30	WB Approach	D	32.9	0.14	0.50
SB L	B	10.1	0.04	0.10	SB L	B	12.0	0.05	0.20
SB Approach	A	0.8	--	--	SB Approach	A	1.1	--	--

Table 4.8 - 2033 Access Levels-of-Service
(SR 10 & Proposed Access Drive #2)

	2033 Build AM		One-Way Stop			2033 Build PM		One-Way Stop	
	LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)		LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)
WB Approach	B	11.9	0.03	0.10	WB Approach	B	14.0	0.04	0.10

The capacity of the approaches and critical movements at the proposed access intersections on Lorain Road are expected to continue to be at a level-of-service D or better during the AM and PM peak hours. The traffic generated by the proposed car wash is anticipated to be able to find an acceptable amount of gap in traffic to quickly turn from the proposed driveway.

4.3 Auxiliary Turning Lane Warrant Analysis

It is the intent of this section of the report is to evaluate the need for exclusive deceleration and turning lanes at the proposed site access driveways on Lorain Road. The turn lane warrants will be evaluated based on the following conditions:

Proposed Site Access Driveways (Lorain Road)

- Four-lane roadway
- Posted speed limit of 35 miles per hour

The following tables show the results of the analysis of the need for exclusive deceleration and turn lanes on Lorain Road at the proposed site access driveways. Copies of the ODOT turn lane warrant graphs can be seen in **Appendix O**.

Table 4.9 Turning Lane Warrants

TURN LANE & LOCATION	2023		2033	
	AM PEAK	PM PEAK	AM PEAK	PM PEAK
SB Left Turn Lane @ SR 10 Site Driveway #1	**YES**	**YES**	**YES**	**YES**
NB Right Turn Lane @ SR 10 Site Driveway #1	NO	NO	NO	NO

The results of the turn lane warrant analyses indicate that an exclusive southbound left-turn lane is warranted on SR 10 at the proposed site access driveway #1 under the expected 2023 and 2033 Build conditions. It is not recommended that the exclusive turn lane be constructed at the proposed driveway. There is not sufficient distance to install the turning lane due to the Lear Nagle intersection and the several site driveways along Lorain Road which generate significantly more vehicles then the proposed car wash and these driveways do not have an exclusive left turn lane on Lorain Road. An exclusive left-turn lane can be considered at this location if the roadway widening project is developed for this corridor. It was determined from the turn lane warrant analyses that a northbound right-turn lane is not warranted on Lorain Road at the site driveway #1.

Turn lane warrants were not performed for the site access drive #2 since there was no northbound right-turning vehicles estimated to turn at this driveway.

4.4 Improvements to Accommodate Study Area Traffic

The following lane use and traffic control is recommended at the driveway intersections on Lorain Road and where access to the development site is proposed under the 2023 and 2033 peak hour Build conditions.

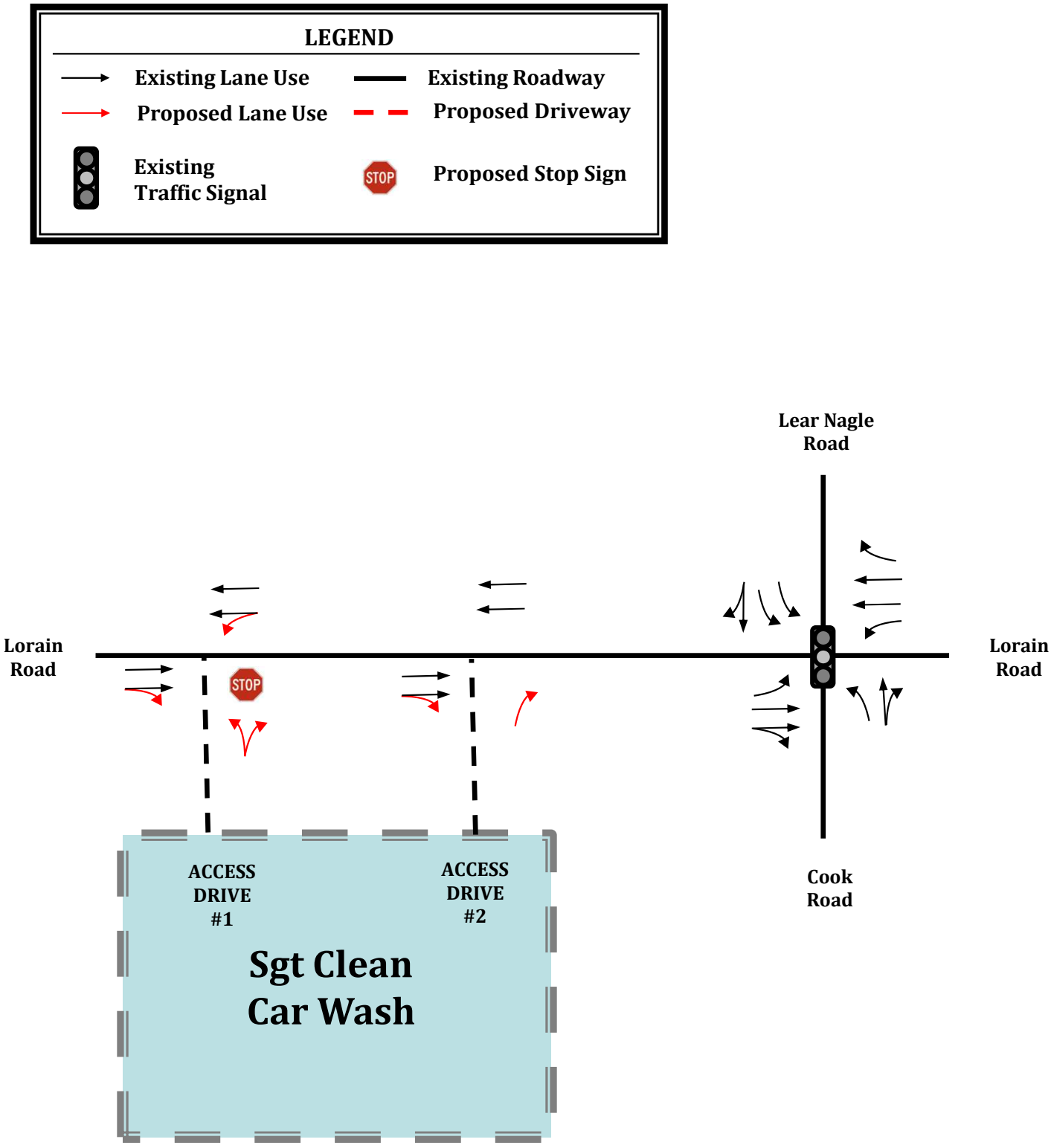
Lorain Road & Site Driveway #1

- A stop sign should be installed on the westbound approach (site driveway)
- The proposed driveway should be constructed with one egress lane and one ingress lane.

Lorain Road & Site Driveway #2

- The proposed Access Driveway #2 will be restricted to right-in / right-out access only for the safety of motorists turning at this driveway. The necessary signage and raised pavement should be installed at the driveway to prevent the left-turn movements.
- The proposed driveway should be constructed with one egress lane and one ingress lane.

The recommended lane use and traffic control for the study area to accommodate expected traffic volumes can be seen in **Figure 4.1, Page 35**.



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	Recommended Lane Use and Traffic Control	NORTH NOT TO SCALE	Figure 4.1 Page 35

Chapter 5
Conclusions

Based on the results of the analyses, we offer the following conclusions and recommendations:

5.1 This Traffic Impact Study (TIS) has been prepared at the request of Sgt. Clean Car Wash for a proposed Car Wash. The car wash will be located on the east side of Lorain Road (SR 10) and south of Cook Road in the City of North Ridgeville, Lorain County, Ohio. **Figure 1.1, Page 2** shows the proposed location of the development.

5.2 The development is expected to consist of the following land use:

- **Single Tunnel Automated Car Wash**

5.3 The development is proposed to have two full access driveways. The primary site driveway will be located on Lorain Road at the southern edge of the proposed development. The secondary site driveway will be located on Lorain Road approximately 100 feet north of the main site driveway. **Figure 1.2, Page 3** shows the proposed site plan for the development including the location of the proposed site access driveways. There is a cross access driveway proposed with the adjoining Starbucks but this driveway was not included in this study. Internal capture trips between the two sites were not assumed to provide a more conservative analysis.

5.4 Based on the collected traffic data, the weekday AM peak hour of traffic was determined to be 7:30 AM to 8:30 AM. The weekday PM peak hour of traffic was found to be 4:45 PM to 5:45 PM. These periods will be used to forecast expected and future traffic volumes since they reflect the period of the highest volume of vehicular traffic flow for the study area roadways

5.5 The proposed development is expected to generate the following average hourly traffic during the PM peak period:

ITE TRIP GENERATION			TRIP ENDS			
ITE CODE	DESCRIPTION	Tunnels	Weekday AM Peak Hour (Enter/Exit)		Weekday PM Peak Hour (Enter/Exit)	
948	Automated Car Wash	1	39	39	39	39
TOTAL NEW TRIPS			78		78	

5.6 The ODOT **State Highway Access Management Manual** requires that ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is below 500 in the peak hour. The proposed development is expected to generate a total of 78 driveway trips in the AM and PM peak hour. The year 2033 was therefore analyzed for the ten year design hour conditions.

5.7 The Lorain Road and Lear Nagle Road / Cook Road intersection is anticipated to operate at LOS F on several approaches and various movements in the PM peak hour under the Year 2023 and Year 2033 No-Build conditions. Several mitigation alternatives were analyzed and it would require several improvements such as a third eastbound left-turn lane and an exclusive right-turn lane on Lear Nagle Road and dual northbound left-turn lanes on Lorain Road. The City should consider these options in future construction project.

The Year 2023 and Year 2033AM and PM peak hour comparison for the intersection of Lorain Road and Lear Nagle Road / Cook Road indicate that the approach delays are not adversely impacted with the addition of the development generated traffic under the forecasted 2023 and 2033 AM and PM peak hour conditions. The additional car wash traffic is anticipated to increase delay at the intersection by less then a second in the AM Peak hour and by approximately 2.8 seconds in the AM or PM Peak hours. The general public should not notice such a small increase in overall delay at the intersection. No geometric or traffic control improvements are recommended for the Lorain Road and Lear Nagle Road / Cook Road intersection as part of this study under the 2023 and 2033 Build conditions.

5.8 The following lane use and traffic control is recommended at the driveway intersections on Lorain Road where access to the development site is proposed under the 2023 and 2033 peak hour Build conditions.

Lorain Road & Site Driveway #1

- A stop sign should be installed on the westbound approach (site driveway)
- The proposed driveway should be constructed with one egress lane and one ingress lane.

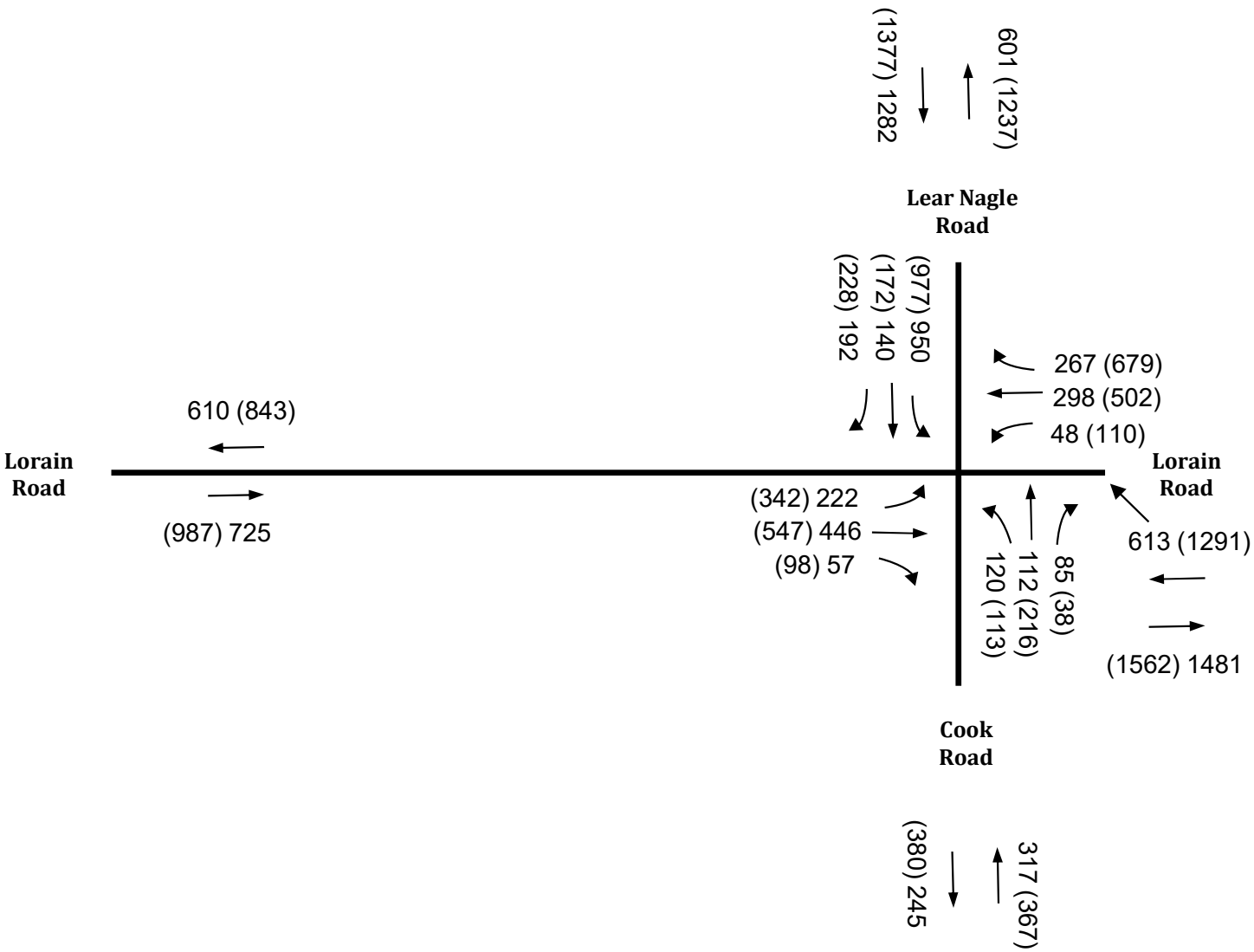
Lorain Road & Site Driveway #2

- The proposed Access Driveway #2 will be restricted to right-in / right-out access only for the safety of motorists turning at this driveway. The necessary signage and raised pavement should be installed at the driveway to prevent the left-turn movements.
- The proposed driveway should be constructed with one egress lane and one ingress lane.

5.9 Based upon the results of the analysis in this study and the corresponding recommendations, it can be seen that the development traffic can be accommodated without adversely impacting the area roadway network.

Appendix A
Figures

Counts collected during the COVID19 Pandemic.

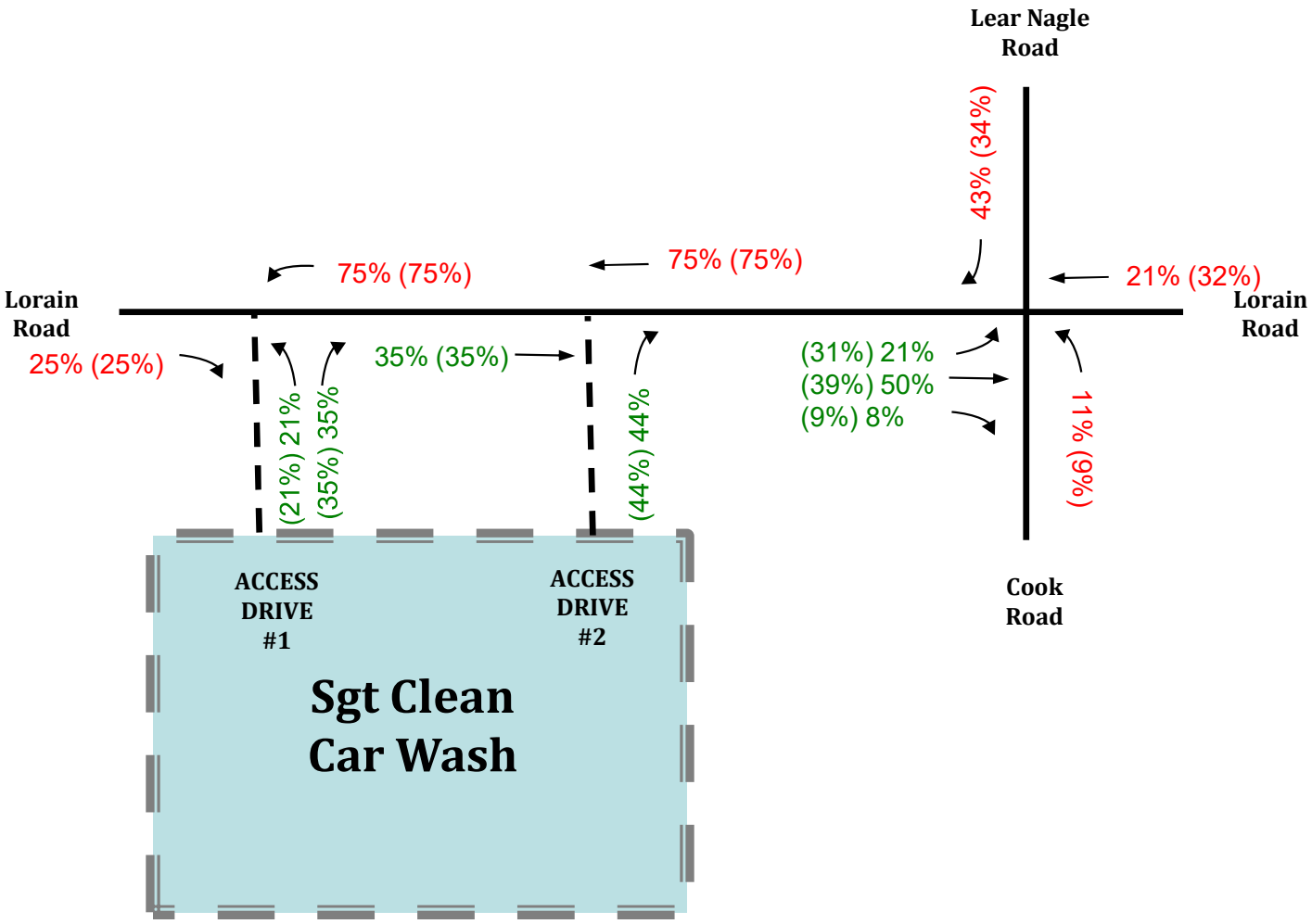


LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic

TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	Collected Existing 2022 Weekday Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-1 Appendix A

LEGEND	
XX	AM Peak Hour Distribution
(XX)	PM Peak Hour Distribution

RED = Entering Volumes
GREEN = Exiting Volumes

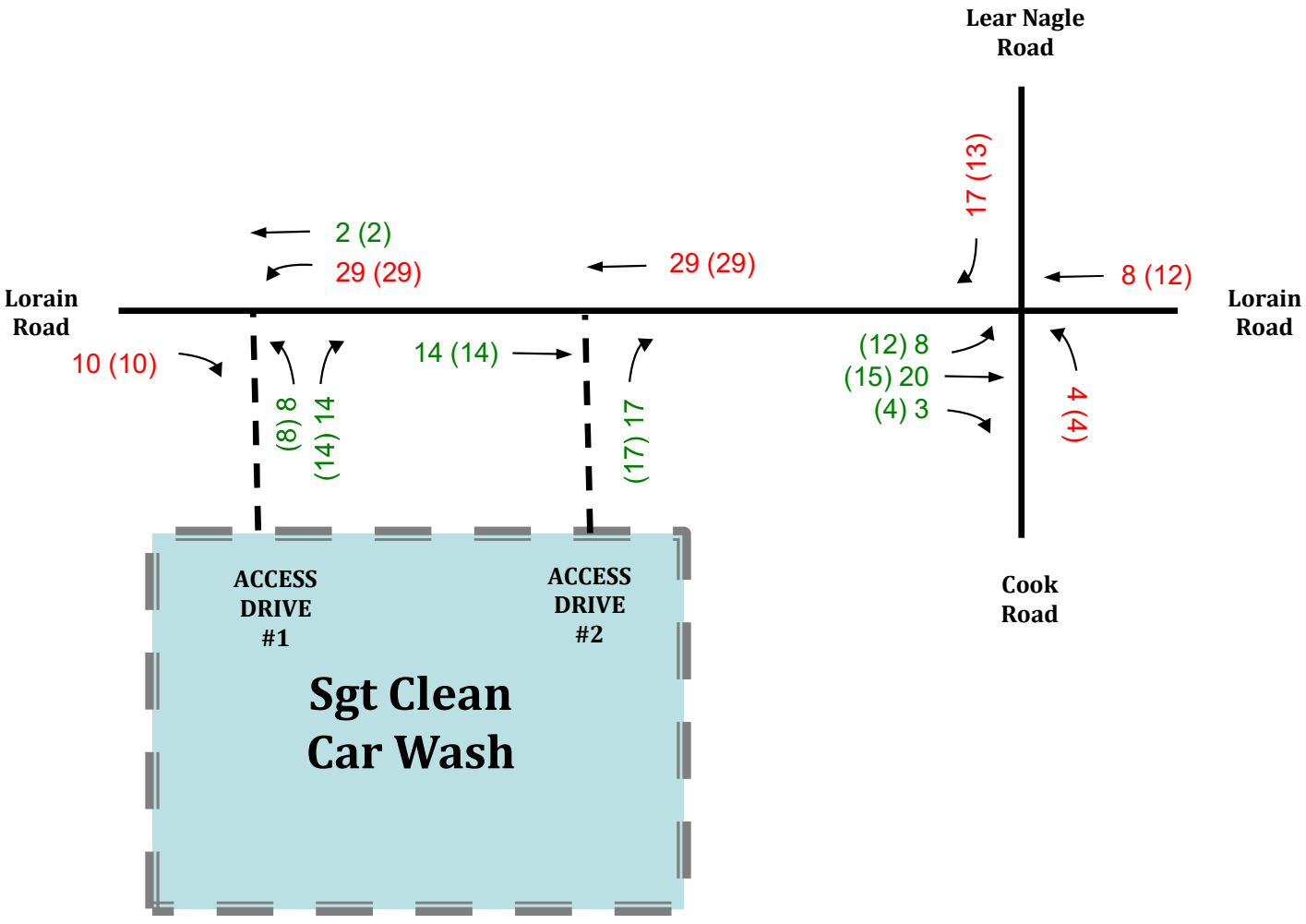


TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	New Generated Traffic Distribution	NORTH NOT TO SCALE	Figure A-2 Appendix A

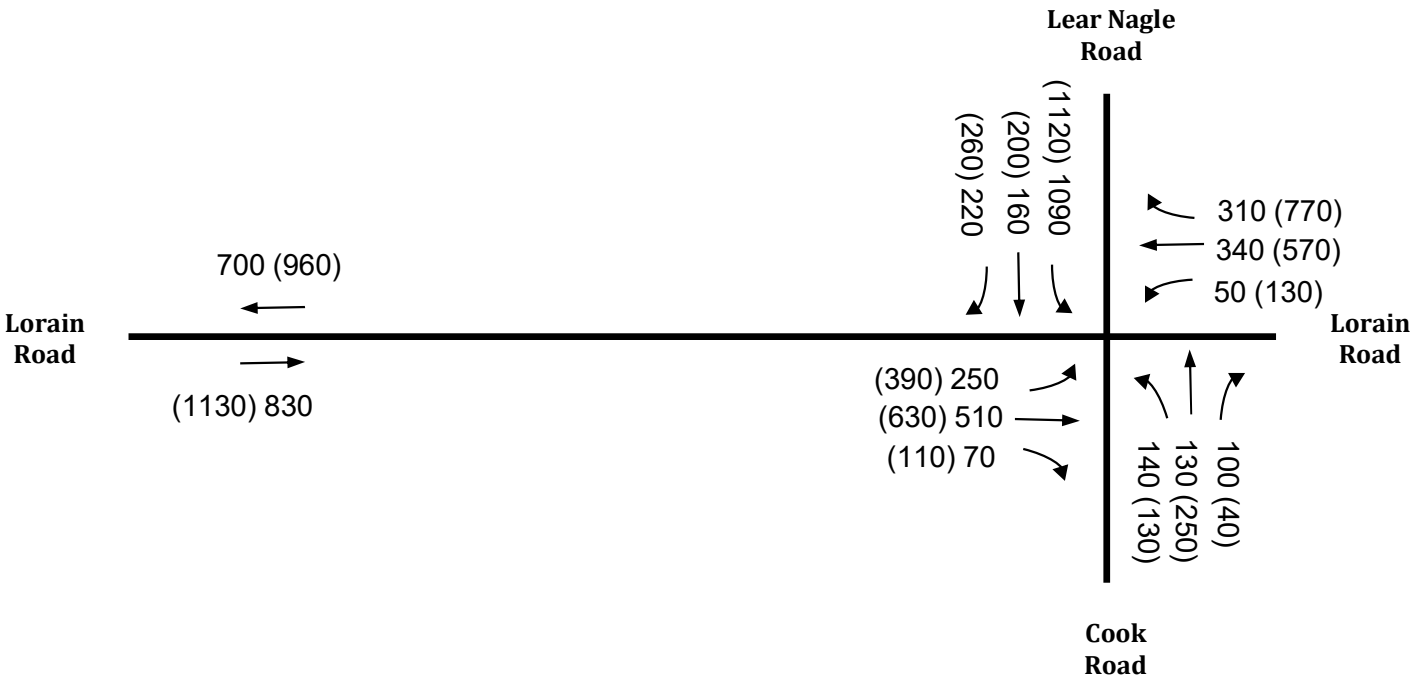
LEGEND	
XX	AM Peak Hour Trips
(XX)	PM Peak Hour Trips

RED = Entering Volumes
GREEN = Exiting Volumes

NEW GENERATED TRAFFIC	AM	PM
TOTAL TRIPS	78	78
ENTER	39	39
EXIT	39	39



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	New Generated Traffic	NORTH NOT TO SCALE	Figure A-3 Appendix A



LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic

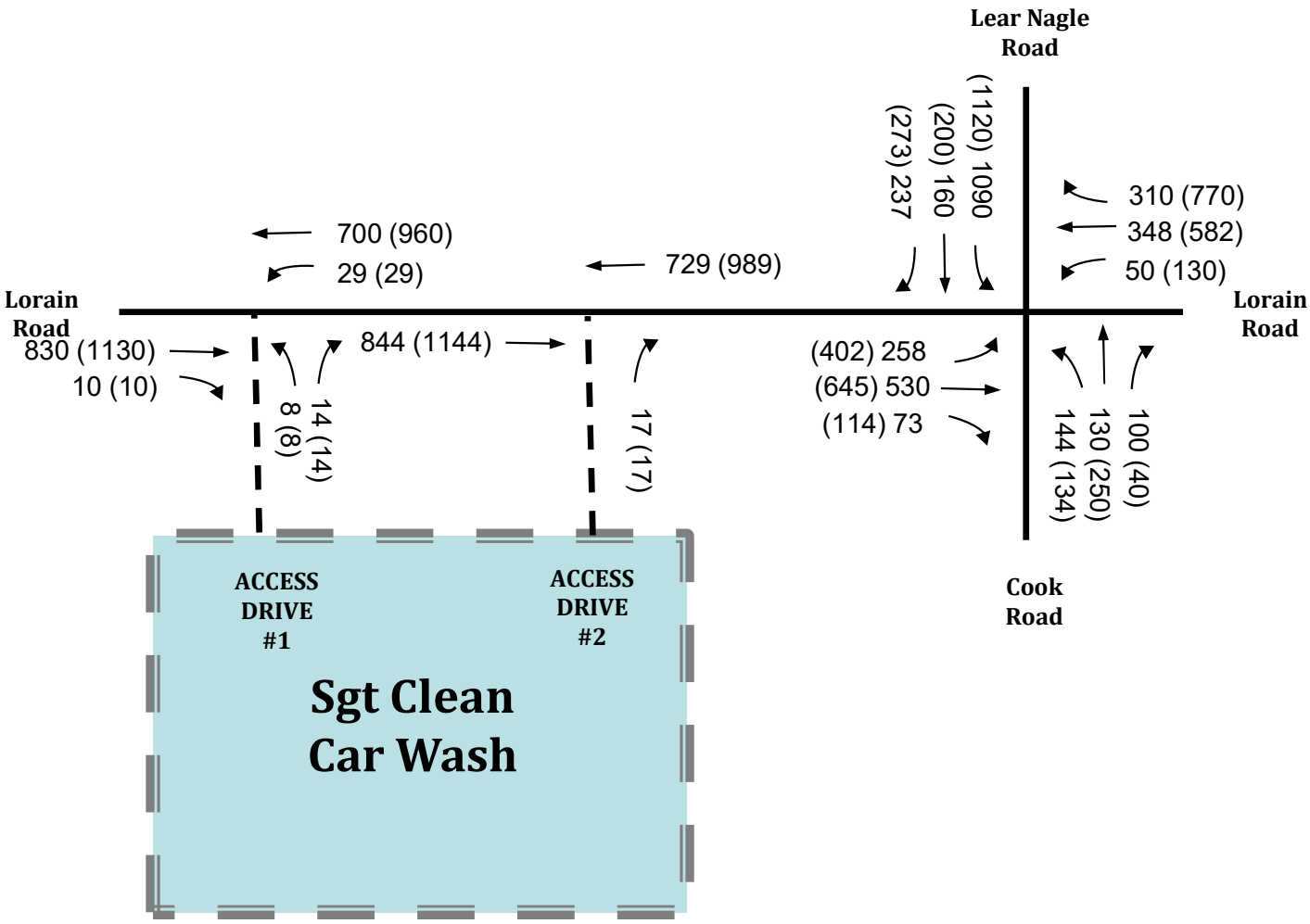
TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	2023 No-Build Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-4 Appendix A



LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic

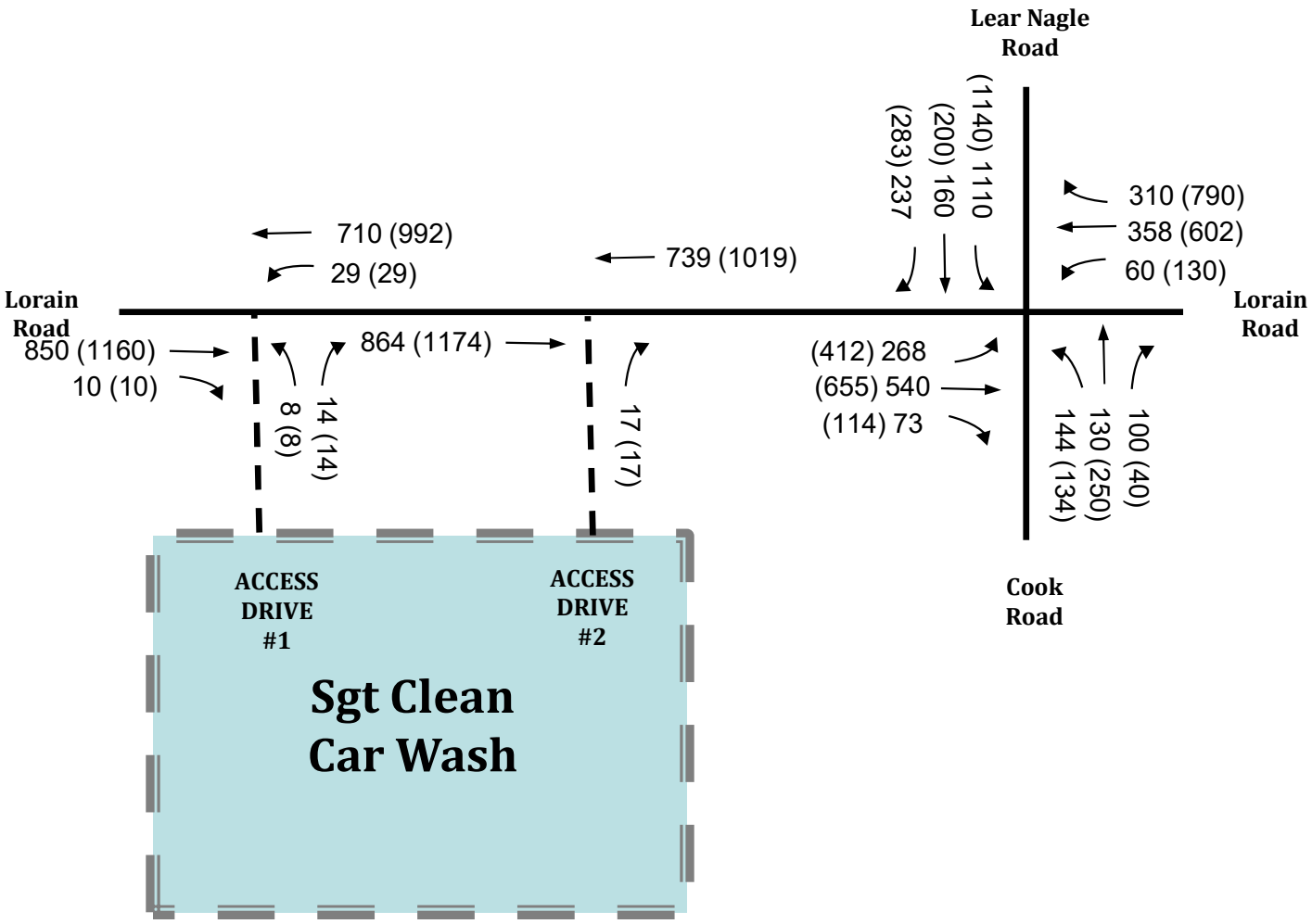
TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	2033 No-Build Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-5 Appendix A

LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	2023 Build Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-6 Appendix A

LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	2033 Build Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-7 Appendix A

Appendix B
ODOT Turn Lane Design Criteria

BASIS FOR COMPUTING LENGTH OF TURN LANES

401-9E

REFERENCE SECTIONS 401.6.1, 401.6.3

Type of Traffic Control	Design Speed		
	30-35	40-65	
	Turn Demand Volume		
	All	Low*	High
Signalized	A	** B or C	** B or C
Unsignalized Stopped Crossroad	A	A	A
Unsignalized Through Road	A	B	** B or C

*Low is considered 10% or less of approach traffic volume
**Whichever is greater

CONDITION A	STORAGE ONLY
Length = 50' (diverging taper) + Storage Length (Figure 401-10)	

CONDITION B	HIGH SPEED DECELERATION ONLY
Design Speed	Length (including 50' Diverging Taper)
40	125
45	175
50	225
55	285
60	345
65	405

CONDITION C	MODERATE SPEED DECELERATION AND STORAGE
Design Speed	Length (including 50' Diverging Taper)
40	115 + Storage Length (Figure 401-10)
45	125 "
50	145 "
55	165 "
60	185 "
65	205 "

For explanation, see Turn Lane Design Example

STORAGE LENGTH AT INTERSECTIONS

401-10E

REFERENCE SECTIONS 401.6.1, 401.6.3

* AVERAGE NO. OF VEHICLES/CYCLE	REQUIRED LENGTH (FT.)	* AVERAGE NO. OF VEHICLES/CYCLE	REQUIRED LENGTH (FT.)
1	50	17	600
2	100	18	625
3	150	19	650
4	175	20	675
5	200	21	725
6	250	22	750
7	275	23	775
8	325	24	800
9	350	25	825
10	375	30	975
11	400	35	1125
12	450	40	1250
13	475	45	1400
14	500	50	1550
15	525	55	1700
16	550	60	1850

$$\text{* AVERAGE VEHICLES PER CYCLE} = \frac{\text{DHV (TURNING LANE)}}{\text{CYCLES/HOUR}}$$

IF CYCLES ARE UNKNOWN ASSUME:

UNSIGNALIZED OR 2 PHASE = 60 CYCLES/HOUR

3 PHASE = 40 CYCLES/HOUR

4 PHASE = 30 CYCLES/HOUR

Appendix C
Traffic Count Data

VEHICULAR TRAFFIC COUNT SUMMARY

Municipality: North Ridgeville **At Intersection of:** Lorain Road **and** Lear Nagle Road / Cook Road

Date: 8/9/2022 **Day:** Tue. **Comments:** **Project:** 22-107

Weather: Clear **Recorder(s):** SLC & JMC **Data entry by:** JJO **Date entered:** Aug. 10, 2022 orain Rd & Lear Nagle + Cook Rd 08092

TIME BEGINS	Lorain Rd. FROM NORTH						Lorain Rd. FROM SOUTH						TOTAL NORTH SOUTH	Cook Rd. FROM EAST						Lear Nagle Rd. FROM WEST						TOTAL EAST WEST	TOTAL ALL DIREC.	PEAK HOUR FACTOR			
	Left	Thru	Right	Total	Trk	Bus	Left	Thru	Right	Total	Trk	Bus		Left	Thru	Right	Total	Trk	Bus	Left	Thru	Right	Total	Trk	Bus			North	South	East	West
06:00																														
07:00	54	302	214	570	30	0	179	452	48	679	25	0	1249	112	106	73	291	7	0	923	125	165	1213	5	0	1504	2753	0.824	0.828	0.909	0.887
08:00	56	259	274	589	35	2	190	378	61	629	42	0	1218	111	119	78	308	9	0	762	120	183	1065	19	0	1373	2591	0.887	0.794	0.928	0.853
09:00	59	245	265	569	26	0	169	368	55	592	29	0	1161	60	125	57	242	10	0	581	115	125	821	16	0	1063	2224	0.895	0.897	0.890	0.828
10:00																														
11:00	48	308	270	626	30	1	186	247	40	473	29	0	1099	86	121	33	240	5	0	499	130	116	745	19	1	985	2084	0.921	0.833	0.706	0.931
12:00	88	304	292	684	35	1	172	364	53	589	38	0	1273	106	164	47	317	3	0	538	94	146	778	14	1	1095	2368	0.961	0.837	0.881	0.842
1:00	78	316	307	701	30	0	202	305	44	551	25	0	1252	92	149	62	303	6	0	533	121	110	764	10	0	1067	2319	0.918	0.894	0.913	0.927
2:00																														
3:00	79	391	473	943	31	0	234	302	55	591	21	0	1534	94	165	36	295	2	0	593	134	188	915	18	1	1210	2744	0.928	0.929	0.970	0.883
4:00	99	532	591	1222	19	0	350	439	70	859	15	0	2081	93	188	43	324	3	0	539	203	204	946	6	0	1270	3351	0.946	0.862	0.880	0.848
5:00	92	516	670	1278	16	1	374	511	90	975	11	0	2253	108	214	36	358	2	0	949	181	210	1340	12	0	1698	3951	0.878	0.880	0.886	0.829
6:00																														
7:00																														
8:00																														
9:00																														
TOTALS	653	3173	3356	7182	252	5	2056	3366	516	5938	235	0	13120	862	1351	465	2678	47	0	5917	1223	1447	8587	119	3	11265	24385				
ADT	909	4417	4672	9998	3.6%		2862	4686	718	8266	4.0%		18265	1193	1869	643	3705	1.8%		8186	1692	2002	11879	1.4%		15584	33849				

N Leg Hourly Factor:	1.57	E Leg Hourly Factor:	1.56
S Leg Hourly Factor:	1.57	W leg Hourly Factor:	1.56
N Leg Monthly Factor:	0.88	E Leg Monthly Factor:	0.88
S Leg Monthly Factor:	0.88	W Leg Monthly Factor:	0.88

N Leg Combined Factor:	1.39	E Leg Combined Factor:	1.38
S Leg Combined Factor:	1.39	W Leg Combined Factor:	1.38

TMS ENGINEERS, INC.

2112 Case Parkway South #7

Twinsburg, Ohio 44087

(330) 686-6402 FAX: (330) 686-6417

Figure #:

Page #:

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087
Transportation Management Services

City: North Ridgeville
Intersection: Lorain Rd & Lear Nagle + Cook Rd
Counter: SLC & JMC
Day of the Week: Tuesday

File Name : Lorain Rd & Lear Nagle + Cook Rd 080922
Site Code : 00000000
Start Date : 8/9/2022

Groups Printed- Cars - Trucks - Buses

	LORAIN ROAD From North					COOK ROAD From East					LORAIN ROAD From South					LEAR NAGLE ROAD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	30	65	17	0	112	19	23	20	0	62	7	94	22	0	123	35	21	165	0	221	518
07:15 AM	53	64	8	0	125	15	33	23	0	71	10	128	29	0	167	44	31	254	0	329	692
07:30 AM	69	73	18	0	160	22	22	36	0	80	19	124	62	0	205	48	32	262	6	348	793
07:45 AM	62	100	11	0	173	17	28	33	0	78	12	106	66	0	184	38	41	242	0	321	756
Total	214	302	54	0	570	73	106	112	0	291	48	452	179	0	679	165	125	923	6	1219	2759
08:00 AM	69	66	13	0	148	23	38	20	0	81	10	85	43	0	138	53	25	229	0	307	674
08:15 AM	67	59	6	0	132	23	24	31	0	78	16	131	51	0	198	53	42	217	1	313	721
08:30 AM	58	70	15	0	143	21	31	31	0	83	17	85	51	0	153	37	34	164	0	235	614
08:45 AM	80	64	22	0	166	11	26	29	1	67	18	77	45	0	140	40	19	152	0	211	584
Total	274	259	56	0	589	78	119	111	1	309	61	378	190	0	629	183	120	762	1	1066	2593
09:00 AM	62	70	16	0	148	13	25	17	0	55	11	103	37	0	151	43	12	193	0	248	602
09:15 AM	55	54	12	0	121	10	32	12	0	54	16	76	55	0	147	26	25	110	0	161	483
09:30 AM	66	60	15	0	141	20	32	16	0	68	18	102	45	0	165	21	36	124	0	181	555
09:45 AM	82	61	16	0	159	14	36	15	0	65	10	87	32	0	129	35	42	154	0	231	584
Total	265	245	59	0	569	57	125	60	0	242	55	368	169	0	592	125	115	581	0	821	2224
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087
Transportation Management Services

File Name : Lorain Rd & Lear Nagle + Cook Rd 080922
Site Code : 00000000
Start Date : 8/9/2022
Page No : 2

Groups Printed- Cars - Trucks - Buses

	LORAIN ROAD From North					COOK ROAD From East					LORAIN ROAD From South					LEAR NAGLE ROAD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
10:45 AM	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
11:00 AM	65	81	12	0	158	1	26	19	0	46	7	78	57	0	142	39	25	128	0	192	538
11:15 AM	72	61	10	0	143	16	39	30	0	85	6	72	28	0	106	25	36	139	0	200	534
11:30 AM	63	79	13	0	155	6	22	11	0	39	12	42	45	0	99	21	34	133	0	188	481
11:45 AM	70	87	13	0	170	10	34	26	0	70	15	55	56	0	126	31	35	99	0	165	531
Total	270	308	48	0	626	33	121	86	0	240	40	247	186	0	473	116	130	499	0	745	2084
12:00 PM	63	85	17	0	165	7	34	32	1	74	18	75	43	0	136	30	24	109	0	163	538
12:15 PM	71	63	30	0	164	16	38	25	0	79	12	120	44	0	176	33	29	121	0	183	602
12:30 PM	80	82	16	0	178	14	50	26	0	90	16	82	37	0	135	28	17	156	0	201	604
12:45 PM	78	74	25	0	177	10	42	23	0	75	7	87	48	0	142	55	24	152	0	231	625
Total	292	304	88	0	684	47	164	106	1	318	53	364	172	0	589	146	94	538	0	778	2369
01:00 PM	73	77	13	0	163	17	31	17	0	65	10	88	55	0	153	21	19	130	0	170	551
01:15 PM	82	88	21	0	191	15	36	27	1	79	7	103	27	0	137	26	48	132	0	206	613
01:30 PM	60	78	23	0	161	17	35	31	0	83	14	52	88	0	154	25	29	147	0	201	599
01:45 PM	92	73	21	0	186	13	47	17	0	77	13	62	32	0	107	38	25	124	0	187	557
Total	307	316	78	0	701	62	149	92	1	304	44	305	202	0	551	110	121	533	0	764	2320
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087
Transportation Management Services

File Name : Lorain Rd & Lear Nagle + Cook Rd 080922
Site Code : 00000000
Start Date : 8/9/2022
Page No : 3

Groups Printed- Cars - Trucks - Buses

	LORAIN ROAD From North					COOK ROAD From East					LORAIN ROAD From South					LEAR NAGLE ROAD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
02:45 PM	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
03:00 PM	113	95	14	0	222	17	33	25	0	75	9	80	64	0	153	28	34	121	0	183	633
03:15 PM	113	114	15	0	242	2	47	24	0	73	14	88	38	0	140	55	34	170	0	259	714
03:30 PM	116	98	11	0	225	11	39	26	0	76	15	59	65	0	139	56	34	165	0	255	695
03:45 PM	131	84	39	0	254	6	46	19	1	72	17	75	67	0	159	49	32	137	0	218	703
Total	473	391	79	0	943	36	165	94	1	296	55	302	234	0	591	188	134	593	0	915	2745
04:00 PM	149	124	30	0	303	11	48	22	0	81	18	97	94	0	209	47	32	104	0	183	776
04:15 PM	143	139	18	0	300	12	40	22	1	75	13	61	80	0	154	52	56	150	0	258	787
04:30 PM	147	158	18	0	323	12	47	18	1	78	15	128	104	0	247	43	73	110	0	226	874
04:45 PM	152	111	33	0	296	8	53	31	0	92	24	153	72	0	249	62	42	175	0	279	916
Total	591	532	99	0	1222	43	188	93	2	326	70	439	350	0	859	204	203	539	0	946	3353
05:00 PM	172	121	31	0	324	9	46	20	1	76	28	112	63	0	203	54	28	289	0	371	974
05:15 PM	191	147	26	2	366	9	53	39	0	101	22	152	84	0	258	54	46	223	9	332	1057
05:30 PM	164	123	20	0	307	12	64	23	0	99	24	130	123	0	277	58	56	290	0	404	1087
05:45 PM	143	125	15	0	283	6	51	26	0	83	16	117	104	0	237	44	51	147	0	242	845
Total	670	516	92	2	1280	36	214	108	1	359	90	511	374	0	975	210	181	949	9	1349	3963
Grand Total	3356	3173	653	2	7184	465	1351	862	7	2685	516	3366	2056	0	5938	1447	1223	5917	16	8603	24410
Apprch %	46.7	44.2	9.1	0		17.3	50.3	32.1	0.3		8.7	56.7	34.6	0		16.8	14.2	68.8	0.2		
Total %	13.7	13	2.7	0	29.4	1.9	5.5	3.5	0	11	2.1	13.8	8.4	0	24.3	5.9	5	24.2	0.1	35.2	
Cars	3285	3008	632	2	6927	454	1327	850	5	2636	508	3208	1987	0	5703	1404	1216	5845	16	8481	23747
% Cars	97.9	94.8	96.8	100	96.4	97.6	98.2	98.6	71.4	98.2	98.4	95.3	96.6	0	96	97	99.4	98.8	100	98.6	97.3
Trucks	67	164	21	0	252	11	24	12	2	49	8	158	69	0	235	43	7	69	0	119	655
% Trucks	2	5.2	3.2	0	3.5	2.4	1.8	1.4	28.6	1.8	1.6	4.7	3.4	0	4	3	0.6	1.2	0	1.4	2.7
Buses	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	8

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087
Transportation Management Services

% Buses	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0

	LORAIN ROAD From North					COOK ROAD From East					LORAIN ROAD From South					LEAR NAGLE ROAD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**69**	73	**18**	0	160	22	22	**36**	0	80	**19**	124	62	0	**205**	48	32	**262**	**6**	**348**	**793**
07:45 AM	62	**100**	11	0	**173**	17	28	33	0	78	12	106	**66**	0	184	38	41	242	0	321	756
08:00 AM	69	66	13	0	148	**23**	**38**	20	0	**81**	10	85	43	0	138	**53**	25	229	0	307	674
08:15 AM	67	59	6	0	132	23	24	31	0	78	16	**131**	51	0	198	53	**42**	217	1	313	721
Total Volume	267	298	48	0	613	85	112	120	0	317	57	446	222	0	725	192	140	950	7	1289	2944
% App. Total	43.6	48.6	7.8	0		26.8	35.3	37.9	0		7.9	61.5	30.6	0		14.9	10.9	73.7	0.5		
PHF	.967	.745	.667	.000	.886	.924	.737	.833	.000	.978	.750	.851	.841	.000	.884	.906	.833	.906	.292	.926	.928
Cars	254	272	48	0	574	82	110	120	0	312	57	427	205	0	689	186	140	946	7	1279	2854
% Cars	95.1	91.3	100	0	93.6	96.5	98.2	100	0	98.4	100	95.7	92.3	0	95.0	96.9	100	99.6	100	99.2	96.9
Trucks	11	26	0	0	37	3	2	0	0	5	0	19	17	0	36	6	0	4	0	10	88
% Trucks	4.1	8.7	0	0	6.0	3.5	1.8	0	0	1.6	0	4.3	7.7	0	5.0	3.1	0	0.4	0	0.8	3.0
Buses	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0.7	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	152	111	**33**	0	296	8	53	31	0	92	24	**153**	72	0	249	**62**	42	175	0	279	916
05:00 PM	172	121	31	0	324	9	46	20	**1**	76	**28**	112	63	0	203	54	28	289	0	371	974
05:15 PM	**191**	**147**	26	**2**	**366**	9	53	**39**	0	**101**	22	152	84	0	258	54	46	223	**9**	332	1057
05:30 PM	164	123	20	0	307	**12**	**64**	23	0	99	24	130	**123**	0	**277**	58	**56**	**290**	0	**404**	**1087**
Total Volume	679	502	110	2	1293	38	216	113	1	368	98	547	342	0	987	228	172	977	9	1386	4034
% App. Total	52.5	38.8	8.5	0.2		10.3	58.7	30.7	0.3		9.9	55.4	34.7	0		16.5	12.4	70.5	0.6		
PHF	.889	.854	.833	.250	.883	.792	.844	.724	.250	.911	.875	.894	.695	.000	.891	.919	.768	.842	.250	.858	.928
Cars	675	485	108	2	1270	37	216	113	1	367	98	539	341	0	978	226	171	971	9	1377	3992
% Cars	99.4	96.6	98.2	100	98.2	97.4	100	100	100	99.7	100	98.5	99.7	0	99.1	99.1	99.4	99.4	100	99.4	99.0
Trucks	4	16	2	0	22	1	0	0	0	1	0	8	1	0	9	2	1	6	0	9	41
% Trucks	0.6	3.2	1.8	0	1.7	2.6	0	0	0	0.3	0	1.5	0.3	0	0.9	0.9	0.6	0.6	0	0.6	1.0
Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Buses	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0

Appendix D
COVID Factoring Document

Decreased traffic as a result of the COVID19 pandemic requires additional consideration in the collection and processing of traffic counts for design traffic forecasts. The Office of Technical Services is continuously reporting the statewide decrease in traffic as registered by our permanent traffic recorders at:

https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/technical-services/resources/regional-traffic-analysis

Currently about a 15% decrease in traffic is occurring. While this is similar to the decrease experienced from May to August, September and early October decreases were closer to 10%. It's too early to tell whether this represents a new trend due to increasing COVID19 trends or additional suppression related to pre-holiday travel, however regardless, the values reported here are averages based solely on the location of the permanent traffic recorders which are heavily biased towards freeways and therefore may not represent local conditions.

For establishing base line traffic conditions for forecasting projects, the following procedure is therefore provided. **Note, this method is an expedient to keep projects moving, if possible the project sponsor might want to defer collecting new traffic counts for projects until traffic conditions return to normal (at a minimum normal is defined as within 15% of pre-pandemic values, even better would be to wait until post-pandemic volumes can be measured). Additionally, any projects whose forecasts are based upon counts collected during the pandemic will require new traffic counts if they are subsequently resubmitted for certification once ODOT determines traffic levels have returned to normal, note this does not necessarily mean the forecasts must be redone as long as the new counts are in reasonable agreement (usually within 15%) with the counts used for the forecasts.** Since some locations may currently be close to normal, the factoring procedure is optional. However, any forecast submitted for certification must follow Steps 1 and 2 and:

A. Contain count plates showing the prior existing counts and original raw project counts and if the factoring procedure is used the factored values with factor stations and the new counts to which they applied clearly indicated.
B. Forecast plates must contain the following additional uncertainty note (the italicized part only included if factoring is conducted): "Counts collected during COVID19 Pandemic *and factored per ODOT Modeling and Forecasting guidance*".

Step 1 Get Existing Counts

Utilize the ODOT Traffic Monitoring Management System at:

https://odot.ms2soft.com/tcds/tsearch.asp?loc=odot

to obtain as many prior existing counts as possible. ODOT coverage counts are conducted every 3 years, the latest count that is no more than 3 years old should be used, however, only counts conducted prior to March 15, 2020 should be included. Efforts should be made to include counts on the primary project routes even if those counts are outside of the project study area.

Step 2 Conduct New Counts

Conduct new counts as normal, both machine and turning movement. New machine counts must also be conducted at the locations obtained in step 1 to establish "factor stations". Counts should be conducted following all previously published guidance:

https://www.transportation.ohio.gov/static/Programs/StatewidePlanning/Modeling-Forecasting/GuidelinesTCTFRoadwayDesign.pdf

Step 3 Create Project Specific Factors

In lieu of the normal seasonal adjustment factor process to develop AADT, the counts collected at the factor stations will be compared to the counts from step 1 to develop factors. Both daily (AADT) and peak hour factors will be calculated separately as it is anticipated that time of day patterns have been changed drastically (and thus the peak hour selected for analysis should be determined by the existing counts from step 1). Note, at the daily level the raw new count is compared to the seasonally adjusted prior count, thus the factor developed is a replacement for the seasonal adjustment factoring process. If other project counts are conducted on different days from the factor stations, additional seasonal factors could be applied to reconcile to the factor day, however, so long as all project counts are conducted on Monday-Thursday within a month of one another this should be unnecessary. This does not replace or change other processes such as the application of design hour volume factors.

Step 4 Apply Factors

The factors from Step 3 will be applied to the other counts collected in Step 2. The analyst needs to determine which factors to apply to each count. Generally, factors should be selected from the same road as close to the subject count as possible. If this isn't possible, a factor station with similar characteristics (functional class, development density, lanes, speed limit, access type etc.) and geographic proximity should be chosen. Average factors from multiple locations might also be used.

Step 5 Additional Turn Movement Count Considerations

As ODOT's Traffic Monitoring Management System does not contain extensive turning movement counts and turning movement counts aren't conducted for an entire day there are additional considerations. If a count does exist in TMC (the turning movement portion of TMMS) and it is within 3 years old it can be used in lieu of a new count. A new count could also be conducted for the purpose of creating factors from this count in Step 2, however, since TM counts are not done for the full day, this would only result in peak hour factors which would thus require alternate factor station locations for developing the AADT factors. Therefore, in general, factor station locations are recommended for machine count locations only.

In addition, it is possible that the turning movement proportions have been skewed as a result of the traffic decrease. Therefore, for important intersections, it is recommended that StreetLight Data be queried at the intersection using average week day for one full month of weekdays. Both a pre and post COVID19 month should be queried. The pre-C month should either be February 2020 or the month in 2019 matching the post-C month selected below. The former should be used if the analyst believes changing development patterns are most important while the latter is used if the analyst believes seasonal effects are most important. The post-C month will be the latest month available in StreetLight. The comparisons should be made in terms of the turning movement percentages, not absolute volume. If the StreetLight comparisons indicate the turn movement percentages have changed by more than 10 percentage points, the turn movement count percentages can be adjusted to reflect this. Any such adjustment must be clearly indicated with the submitted count information.

Note: Check back to the web site for any updates.

Simple Corridor Project Factor Example *(Blue Dots are TMMS- MS2 Count Locations)*



Step 1: Get the most recent hourly, 24-hour count.

Use TMMS (https://odot.ms2soft.com/tcds/tsearch.asp?loc=Odot&mod=) to obtain "Old" pre-COVID date count.

Use the most recent 24 hour-hourly count for AADT, AM.PM

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2019	5,106[3]		8	53	3,842 (75%)	1,264 (25%)	Grown from 2018
2018	5,050	407	8	53	3,800 (75%)	1,250 (25%)	
2017	6,234[3]		9	52	4,706 (75%)	1,530 (25%)	Grown from 2016
2016	6,029[3]		9	52	4,551 (75%)	1,477 (24%)	Grown from 2015

Note:
We cannot use 2019 AADT because it is estimated from 2018. There is no hourly data.

Most Recent Hourly Count Summary from MS2-TMMS

21:00-22:00	24	26	29	21	100
22:00-23:00	19	20	20	19	78
23:00-24:00	15	14	20	9	58
Total					5,216
AADT					5,050
AM Peak					07:00-08:00 407
PM Peak					15:15-16:15 416

Note:
This example assumed the entire corridor peaks at 3:15-4:15 PM. This may not be the case. Look at all the counts in the corridor to establish the peak that will be used.

Step 2: Get the new count

Note: The new count is taken at the same location as Location ID: 472 as a 24-hour count. (probably tube count)

NEW Raw Count 4/15/2020 (COVID Best)			
	EB	WB	Tot
7-8 AM	101	91	192
3:15-4 :15 PM	106	144	250
24 Hrs			2190

Step 3: Calculate factors: (Pre-COVID count) / (new count)

5050 / 2190 =	2.306	AADT COVID FACTOR
407 / 192 =	2.120	AM COVID FACTOR
416 / 250 =	1.664	PM COVID FACTOR

Repeat this calculation for as many MS2 counts are in the project area within the same year and average them. In this example, the two on US 6 shown may be enough.

Appendix E
2017 ODOT Traffic Count

OHIO DEPARTMENT OF TRANSPORTATION

MS2

Transportation Data Management System

Volume Count Report

LOCATION INFO	
Location ID	7247
Type	SPOT
Fnct'l Class	4
Located On	LORAIN RD
Direction	2-WAY
County	LORAIN
Community	N RIDGEVILLE
MPO ID	
HPMS ID	
Agency	ODOT

COUNT DATA INFO	
Count Status	Accepted
Holiday	No
Start Date	Tue 11/14/2017
End Date	Wed 11/15/2017
Start Time	12:00:00 PM
End Time	12:00:00 PM
Direction	
Notes	odot
Station	000072473272
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	TCDS_COUNT_IMPORT_COMBINE
Latitude,Longitude	

INTERVAL:15-MIN

Time	15-min Interval 1st	2nd	3rd	4th	Hourly Count
0:00-1:00	65	46	46	41	198
1:00-2:00	39	26	23	37	125
2:00-3:00	21	31	30	13	95
3:00-4:00	21	28	37	33	119
4:00-5:00	49	61	72	84	266
5:00-6:00	123	185	219	238	765
6:00-7:00	334	428	448	485	1,695
7:00-8:00	561	577	663	642	2,443
8:00-9:00	501	421	418	409	1,749
9:00-10:00	315	350	329	344	1,338
10:00-11:00	296	296	327	317	1,236
11:00-12:00	295	326	347	328	1,296
12:00-13:00	327	318	343	324	1,312
13:00-14:00	327	317	282	315	1,241
14:00-15:00	333	346	334	381	1,394
15:00-16:00	397	475	484	511	1,867
16:00-17:00	484	560	539	560	2,143
17:00-18:00	594	647	580	551	2,372
18:00-19:00	506	477	336	390	1,709
19:00-20:00	300	268	260	205	1,033
20:00-21:00	252	282	260	230	1,024
21:00-22:00	228	193	168	154	743
22:00-23:00	129	94	122	113	458
23:00-24:00	82	91	70	69	312
Total					26,933
AADT					24,639
AM Peak					07:00-08:00 2,443
PM Peak					16:45-17:45 2,381

Appendix F
Trip Generation Data

AUTOMATED CAR WASH

ITE CODE = 948

Date: **9/7/2022**

Trip Generation based on: Size of Analysis Area: **1.00** **Tunnels**

Car Wash Tunnels	Average Rate	Standard Deviation	Adjustment factor	Driveway Volume
WEEKDAY				
Average Weekday 2-way Volume	--	--	--	--
Weekday Peak Hour of Adjacent Street Traffic				
7-9 AM Peak Hour Enter	--	--	--	--
7-9 AM Peak Hour Exit	--	--	--	--
7-9 AM Peak Hour Total	--	--	--	--
4-6 PM Peak Hour Enter	38.75	0.00	1.00	39
4-6 PM Peak Hour Exit	38.75	0.00	1.00	39
4-6 PM Peak Hour Total	77.50	**	1.00	78

***The above rates were based upon those found in the ITE Trip Generation Manual, 11TH Edition.**

		% ENTER	**% EXIT**
WEEKDAY			
Average Weekday 2-way Volume	*No Data Available*		
Weekday Peak Hour of Adjacent Street Traffic			
7-9 AM Peak Hour Total	*No Data Available*		
4-6 PM Peak Hour Total	*Not Given – Use ITE Rates*	50%	50%

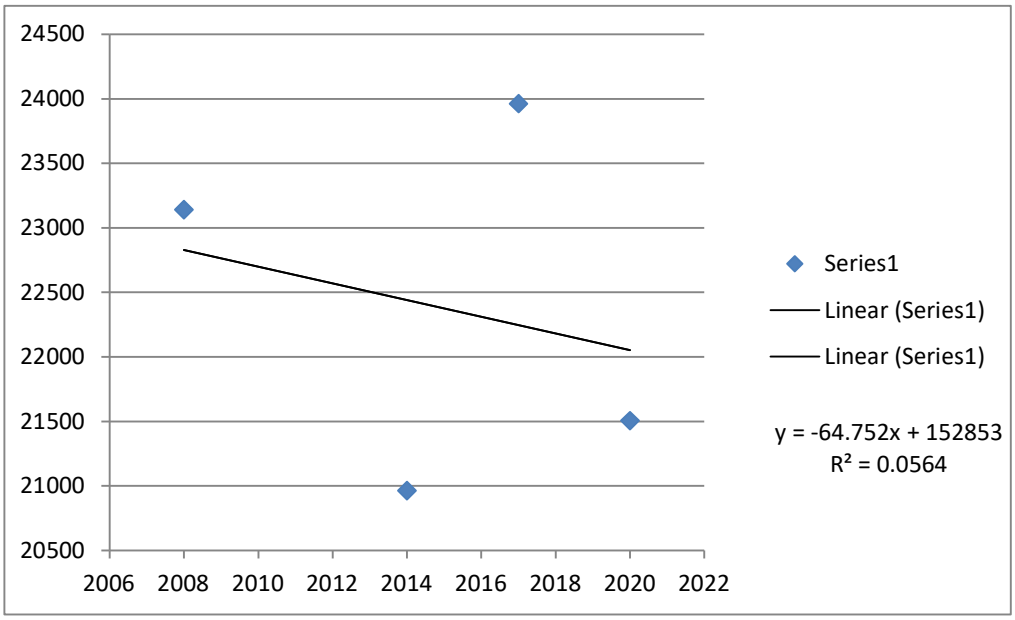
Source: **Institute of Transportation Engineers**
Trip Generation Manual, 11TH Edition, September 2021

Appendix G
Background Growth Rate Calculations

SR 10 SW of I-480 (ID 7247) - COUNT DATA FROM ODOT WEBSITE

Year	*Volume*
2020	21505
2017	23963
2014	20963
2008	23140

Fitted Curve Growth: ***-0.28%***



Coefficient (b) of Regression Equation:				**-64.752**
Growth Rate =	b / Most Recent Count x 100%			
Growth Rate =	-64.752	/	21505	X 100%
Growth Rate =	**-0.3011%**			

Appendix H
Peak Hour to Design Hour Calculations

PEAK HOUR to DESIGN HOUR FACTORS

FUNCTIONAL CLASSIFICATION = 03, 04, 05u

(Urban Principal Arterial, Urban Minor Arterial, & Urban Minor Collector)

Day / Month	Monthly Average by Day-of-Week							
	WEEKDAY MON-THUR	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January	1.20	1.72	1.22	1.21	1.20	1.17	1.15	1.56
February	1.17	1.63	1.19	1.16	1.17	1.16	1.11	1.48
March	1.15	1.57	1.16	1.16	1.16	1.13	1.11	1.45
April	1.11	1.52	1.13	1.12	1.09	1.09	1.06	1.41
May	1.08	1.44	1.10	1.09	1.08	1.06	1.04	1.35
June	1.14	1.51	1.16	1.15	1.14	1.11	1.09	1.39
July	1.16	1.54	1.19	1.17	1.15	1.15	1.13	1.44
August	1.13	1.51	1.15	1.14	1.13	1.11	1.08	1.40
September	1.12	1.53	1.15	1.11	1.12	1.09	1.04	1.40
October	1.10	1.53	1.13	1.10	1.10	1.08	1.05	1.40
November	1.13	1.56	1.16	1.12	1.13	1.11	1.06	1.48
December	1.13	1.58	1.14	1.13	1.12	1.12	1.09	1.44

peak hour volume * factor = design hour volume

source: year 2016, 2017, & 2018 Automatic Traffic Recorders (ATR) Data

ATR Stations:
2018: 21, 28, 123, 131, 134, 166, 169, 517, 523, 543, 544, 550, 565, 605, 765
2017: 21, 123, 523, 538, 543, 544, 550, 565, 605, 725, 765, 28, 134, 169, 517, 131, 166

Ohio Department of Transportation
Modeling & Forecasting Section
June 2019

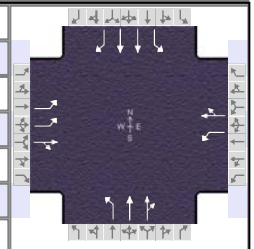
NOTE: These are NOT seasonal adjustment factors!!!

Note: Insufficient data exists to produce factors for functional classes 06 and 07 Urban.

Appendix I
Capacity Analysis Worksheets - No-Build - 2023

HCS Signalized Intersection Results Summary

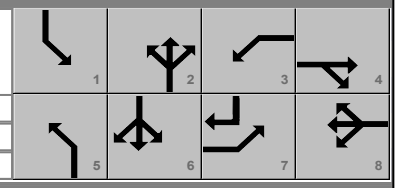
General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	AM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2023	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2023 No-Build AM Peak.xus		
Project Description	Year 2023 - No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1090	160	220	140	130	100	250	510	70	50	340	310

Signal Information			
Cycle, s	117.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	30.0	9.0	26.0	20.0	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	1.0	1.0	1.0	1.0	1.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	45.0	56.0	14.0	25.0	12.0	35.0	12.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	41.0	22.8	10.1	18.1	9.0	20.5	4.6	15.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.4	0.0	2.4	0.0	2.7
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.19	1.00	0.05

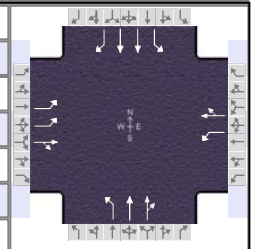
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1172	409		151	247		269	318	306	54	366	333
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1707		1781	1735		1739	1826	1748	1711	1710	1522
Queue Service Time (g_s), s	39.0	20.8		8.1	16.1		7.0	18.3	18.5	2.6	10.4	13.2
Cycle Queue Clearance Time (g_c), s	39.0	20.8		8.1	16.1		7.0	18.3	18.5	2.6	10.4	13.2
Green Ratio (*g/C*)	0.56	0.44		0.25	0.17		0.32	0.26	0.26	0.32	0.26	0.60
Capacity (*c*), veh/h	1192	744		365	297		315	468	448	227	877	911
Volume-to-Capacity Ratio (*X*)	0.983	0.549		0.412	0.834		0.854	0.679	0.682	0.237	0.417	0.366
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	27.1	13.0		6.4	13.0		10.1	13.3	12.9	1.9	7.7	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.2	24.5		36.1	46.9		40.7	39.2	39.2	30.2	36.2	12.1
Incremental Delay (d_2), s/veh	22.0	0.5		0.3	17.2		19.0	3.2	3.5	0.2	0.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	60.1	25.0		36.4	64.1		59.7	42.4	42.7	30.4	36.3	12.2
Level of Service (LOS)	E	C		D	E		E	D	D	C	D	B
Approach Delay, s/veh / LOS	51.0	D		53.6	D		47.7	D		25.2	C	
Intersection Delay, s/veh / LOS	45.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Signalized Intersection Results Summary

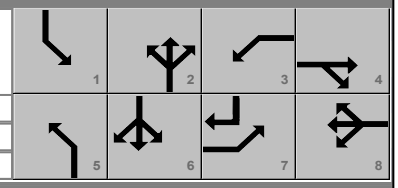
General Information				Intersection Information	
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Intersection	Lorain & Lear Nagle & C…	File Name	2023 No-Build PM Peak.xus		
Project Description	Year 2023 - No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1120	200	260	130	250	40	390	630	110	130	570	770

Signal Information			
Cycle, s	122.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	17.0	30.0	9.0	21.0	20.0	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	1.0	1.0	1.0	1.0	1.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	40.0	51.0	14.0	25.0	22.0	35.0	22.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	37.0	32.9	9.9	22.0	19.0	28.5	8.7	32.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1204	495		140	312		419	408	388	140	613	828
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1711		1781	1825		1739	1826	1731	1711	1710	1522
Queue Service Time (g_s), s	35.0	30.9		7.9	20.0		17.0	26.5	26.5	6.7	20.1	30.0
Cycle Queue Clearance Time (g_c), s	35.0	30.9		7.9	20.0		17.0	26.5	26.5	6.7	20.1	30.0
Green Ratio (*g/C*)	0.49	0.38		0.24	0.16		0.39	0.25	0.25	0.39	0.25	0.53
Capacity (*c*), veh/h	1000	645		287	299		353	449	426	305	841	811
Volume-to-Capacity Ratio (*X*)	1.204	0.767		0.487	1.042		1.189	0.909	0.911	0.458	0.729	1.021
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	42.0	19.4		6.3	20.9		27.8	20.8	20.0	4.9	13.5	40.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.5	33.3		38.7	51.0		34.0	44.7	44.7	28.8	42.3	28.5
Incremental Delay (d_2), s/veh	101.4	5.0		0.5	63.5		110.1	21.8	22.9	0.4	2.8	37.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	144.9	38.3		39.2	114.5		144.0	66.4	67.6	29.2	45.1	65.5
Level of Service (LOS)	F	D		D	F		F	E	E	C	D	F
Approach Delay, s/veh / LOS	113.9	F		91.2	F		93.6	F		54.4	D	
Intersection Delay, s/veh / LOS	87.8						F					

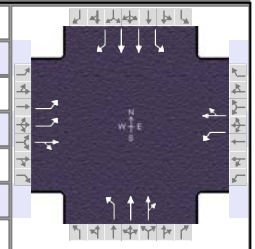
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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Appendix J
Capacity Analysis Worksheets - No-Build - 2033

HCS Signalized Intersection Results Summary

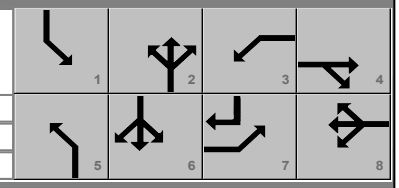
General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	AM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2033	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2033 No-Build AM Peak.xus		
Project Description	Year 2033 - No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1110	160	220	140	130	100	260	520	70	60	350	310

Signal Information			
Cycle, s	117.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	30.0	9.0	26.0	20.0	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	1.0	1.0	1.0	1.0	1.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	45.0	56.0	14.0	25.0	12.0	35.0	12.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	42.0	22.8	10.1	18.1	9.0	20.8	5.1	15.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.4	0.0	2.4	0.0	2.8
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.21	1.00	0.05

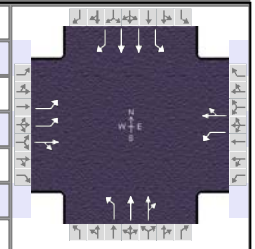
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1194	409		151	247		280	323	311	65	376	333
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1707		1781	1735		1739	1826	1750	1711	1710	1522
Queue Service Time (g_s), s	40.0	20.8		8.1	16.1		7.0	18.7	18.8	3.1	10.8	13.2
Cycle Queue Clearance Time (g_c), s	40.0	20.8		8.1	16.1		7.0	18.7	18.8	3.1	10.8	13.2
Green Ratio (*g/C*)	0.34	0.44		0.25	0.17		0.32	0.26	0.26	0.32	0.26	0.60
Capacity (*c*), veh/h	1192	744		365	297		310	468	449	224	877	911
Volume-to-Capacity Ratio (*X*)	1.001	0.549		0.412	0.834		0.901	0.690	0.694	0.289	0.429	0.366
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	28.4	13.0		6.4	13.0		11.5	13.6	13.2	2.3	7.9	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.5	24.5		36.1	46.9		41.6	39.3	39.3	30.4	36.3	12.1
Incremental Delay (d_2), s/veh	26.4	0.5		0.3	17.2		26.9	3.6	3.9	0.3	0.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	64.9	25.0		36.4	64.1		68.4	42.9	43.2	30.7	36.5	12.2
Level of Service (LOS)	F	C		D	E		E	D	D	C	D	B
Approach Delay, s/veh / LOS	54.7	D		53.6	D		50.8	D		25.5	C	
Intersection Delay, s/veh / LOS	47.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Signalized Intersection Results Summary

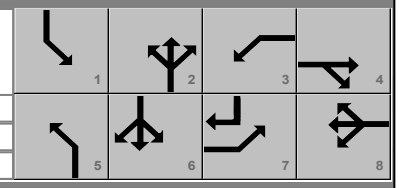
General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	PM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2033	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2033 No-Build PM Peak.xus		
Project Description	Year 2033 - No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1140	200	270	130	250	40	400	640	110	130	590	790

Signal Information			
Cycle, s	122.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	17.0	30.0	9.0	21.0	20.0	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	1.0	1.0	1.0	1.0	1.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	40.0	51.0	14.0	25.0	22.0	35.0	22.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	37.0	33.9	9.9	22.0	19.0	29.0	8.7	32.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1226	505		140	312		430	414	393	140	634	849
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1709		1781	1825		1739	1826	1732	1711	1710	1522
Queue Service Time (g_s), s	35.0	31.9		7.9	20.0		17.0	26.9	27.0	6.7	21.0	30.0
Cycle Queue Clearance Time (g_c), s	35.0	31.9		7.9	20.0		17.0	26.9	27.0	6.7	21.0	30.0
Green Ratio (*g/C*)	0.29	0.38		0.24	0.16		0.39	0.25	0.25	0.39	0.25	0.53
Capacity (*c*), veh/h	1000	644		279	299		346	449	426	303	841	811
Volume-to-Capacity Ratio (*X*)	1.225	0.785		0.501	1.042		1.243	0.921	0.922	0.462	0.754	1.047
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	44.0	20.1		6.3	20.9		30.4	21.3	20.6	4.9	14.1	42.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.5	33.6		38.8	51.0		33.6	44.8	44.9	28.8	42.6	28.5
Incremental Delay (d_2), s/veh	110.4	5.8		0.5	63.5		131.4	23.9	25.1	0.4	3.5	44.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	153.9	39.4		39.3	114.5		165.0	68.8	69.9	29.2	46.1	73.2
Level of Service (LOS)	F	D		D	F		F	E	E	C	D	F
Approach Delay, s/veh / LOS	120.5	F		91.2	F		102.6	F		58.8	E	
Intersection Delay, s/veh / LOS	93.6						F					

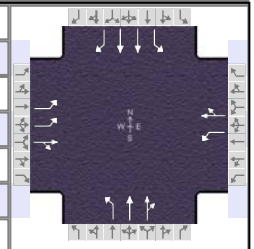
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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Appendix K
Capacity Analysis Worksheets - Build - 2023

HCS Signalized Intersection Results Summary

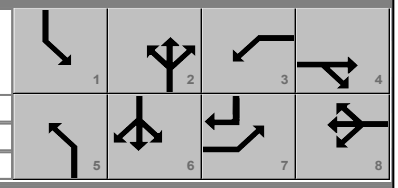
General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	AM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2023	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2023 Build AM Peak.xus		
Project Description	Year 2023 - Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1090	160	237	144	130	100	258	530	73	50	348	310

Signal Information			
Cycle, s	117.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	30.0	9.0	26.0	20.0	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	1.0	1.0	1.0	1.0	1.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	45.0	56.0	14.0	25.0	12.0	35.0	12.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	41.0	24.1	10.4	18.1	9.0	21.3	4.6	15.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.4	0.0	2.3	0.0	2.8
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.25	1.00	0.05

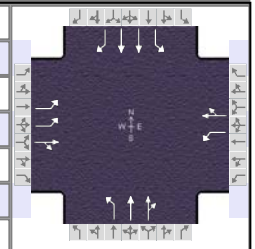
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1172	427		155	247		277	330	318	54	374	333
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1702		1781	1735		1739	1826	1748	1711	1710	1522
Queue Service Time (g_s), s	39.0	22.1		8.4	16.1		7.0	19.2	19.3	2.6	10.7	13.2
Cycle Queue Clearance Time (g_c), s	39.0	22.1		8.4	16.1		7.0	19.2	19.3	2.6	10.7	13.2
Green Ratio (*g/C*)	0.34	0.44		0.25	0.17		0.32	0.26	0.26	0.32	0.26	0.60
Capacity (*c*), veh/h	1192	742		363	297		311	468	448	220	877	911
Volume-to-Capacity Ratio (*X*)	0.983	0.575		0.427	0.834		0.891	0.706	0.709	0.245	0.427	0.366
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	27.1	13.7		6.6	13.0		11.3	14.0	13.6	1.9	7.9	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.2	24.8		36.2	46.9		41.4	39.5	39.5	30.3	36.3	12.1
Incremental Delay (d_2), s/veh	22.0	0.7		0.3	17.2		25.1	4.1	4.4	0.2	0.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	60.1	25.6		36.5	64.1		66.5	43.6	43.9	30.5	36.4	12.2
Level of Service (LOS)	E	C		D	E		E	D	D	C	D	B
Approach Delay, s/veh / LOS	50.9	D		53.5	D		50.6	D		25.4	C	
Intersection Delay, s/veh / LOS	45.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Signalized Intersection Results Summary

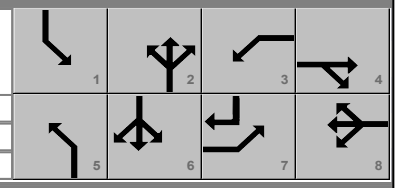
General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	PM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2023	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2023 Build PM Peak.xus		
Project Description	Year 2023 - Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1120	200	273	134	250	40	402	645	114	130	582	770

Signal Information			
Cycle, s	122.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	17.0	30.0	9.0	21.0	20.0	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	1.0	1.0	1.0	1.0	1.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	40.0	51.0	14.0	25.0	22.0	35.0	22.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	37.0	34.2	10.2	22.0	19.0	29.4	8.7	32.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1204	509		144	312		432	419	397	140	626	828
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1708		1781	1825		1739	1826	1730	1711	1710	1522
Queue Service Time (g_s), s	35.0	32.2		8.2	20.0		17.0	27.4	27.4	6.7	20.6	30.0
Cycle Queue Clearance Time (g_c), s	35.0	32.2		8.2	20.0		17.0	27.4	27.4	6.7	20.6	30.0
Green Ratio (*g/C*)	0.29	0.38		0.24	0.16		0.39	0.25	0.25	0.39	0.25	0.53
Capacity (*c*), veh/h	1000	644		276	299		349	449	425	300	841	811
Volume-to-Capacity Ratio (*X*)	1.204	0.790		0.522	1.042		1.240	0.933	0.934	0.465	0.744	1.021
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	42.0	20.3		6.5	20.9		30.5	21.9	21.1	4.9	13.9	40.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.5	33.7		38.9	51.0		33.7	45.0	45.0	28.8	42.5	28.5
Incremental Delay (d_2), s/veh	101.4	6.1		0.8	63.5		130.1	26.1	27.4	0.4	3.2	37.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	144.9	39.8		39.7	114.5		163.8	71.2	72.4	29.2	45.7	65.5
Level of Service (LOS)	F	D		D	F		F	E	E	C	D	F
Approach Delay, s/veh / LOS	113.7	F		90.8	F		103.6	F		54.5	D	
Intersection Delay, s/veh / LOS	90.3						F					

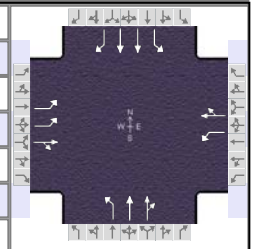
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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Appendix L
Capacity Analysis Worksheets - Build - 2033

HCS Signalized Intersection Results Summary

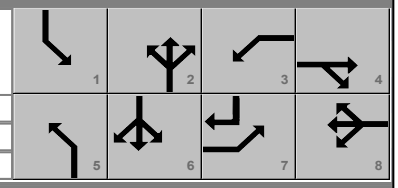
General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	AM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2033	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2033 Build AM Peak.xus		
Project Description	Year 2033 - Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1110	160	237	144	130	100	268	540	73	60	358	310

Signal Information			
Cycle, s	114.4	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.0	28.0	9.0	25.2	19.2	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	1.0	1.0	1.0	1.0	1.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	44.2	54.4	14.0	24.2	13.0	33.0	13.0	33.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	41.1	23.8	10.2	17.8	10.0	21.6	5.1	15.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.3	0.0	2.0	0.0	2.7
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.44	1.00	0.09

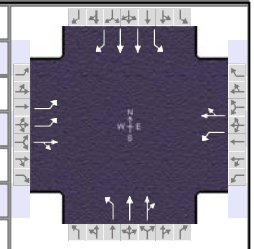
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1194	427		155	247		288	336	323	65	385	333
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1702		1781	1735		1739	1826	1749	1711	1710	1522
Queue Service Time (g_s), s	39.1	21.8		8.2	15.8		8.0	19.5	19.6	3.1	11.0	13.2
Cycle Queue Clearance Time (g_c), s	39.1	21.8		8.2	15.8		8.0	19.5	19.6	3.1	11.0	13.2
Green Ratio (*g/C*)	0.34	0.43		0.25	0.17		0.31	0.24	0.24	0.31	0.24	0.59
Capacity (*c*), veh/h	1195	735		364	291		313	447	428	224	837	894
Volume-to-Capacity Ratio (*X*)	0.999	0.581		0.425	0.849		0.922	0.752	0.755	0.288	0.460	0.373
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	27.8	13.5		6.4	13.0		11.4	14.4	14.0	2.3	8.0	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.6	24.6		35.6	46.2		40.4	40.0	40.0	30.1	36.8	12.5
Incremental Delay (d_2), s/veh	25.8	0.8		0.3	19.6		30.9	6.3	6.7	0.3	0.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	63.4	25.4		35.9	65.8		71.2	46.2	46.7	30.4	36.9	12.6
Level of Service (LOS)	E	C		D	E		E	D	D	C	D	B
Approach Delay, s/veh / LOS	53.4	D		54.3	D		54.0	D		26.0	C	
Intersection Delay, s/veh / LOS	47.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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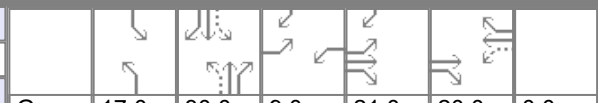
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	PM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2033	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2033 Build PM Peak.xus		
Project Description	Year 2033 - Build				

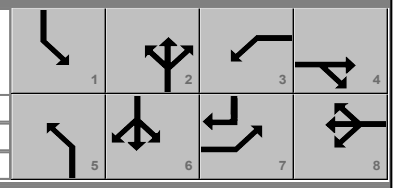


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1140	200	283	134	250	40	412	655	114	130	602	790

Signal Information			
Cycle, s	122.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	17.0	30.0	9.0	21.0	20.0	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	1.0	1.0	1.0	1.0	1.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	40.0	51.0	14.0	25.0	22.0	35.0	22.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	37.0	35.3	10.2	22.0	19.0	29.9	8.7	32.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1226	519		144	312		443	424	403	140	647	849
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1705		1781	1825		1739	1826	1731	1711	1710	1522
Queue Service Time (g_s), s	35.0	33.3		8.2	20.0		17.0	27.8	27.9	6.7	21.5	30.0
Cycle Queue Clearance Time (g_c), s	35.0	33.3		8.2	20.0		17.0	27.8	27.9	6.7	21.5	30.0
Green Ratio (*g/C*)	0.29	0.38		0.24	0.16		0.39	0.25	0.25	0.39	0.25	0.53
Capacity (*c*), veh/h	1000	643		268	299		342	449	426	298	841	811
Volume-to-Capacity Ratio (*X*)	1.225	0.808		0.538	1.042		1.294	0.945	0.946	0.469	0.770	1.047
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	44.0	21.0		6.6	20.9		33.2	22.5	21.7	4.9	14.5	42.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.5	34.0		39.0	51.0		33.4	45.2	45.2	28.8	42.8	28.5
Incremental Delay (d_2), s/veh	110.4	7.0		1.2	63.5		152.6	28.6	29.9	0.4	4.0	44.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	153.9	41.1		40.2	114.5		186.0	73.8	75.1	29.2	46.8	73.2
Level of Service (LOS)	F	D		D	F		F	E	E	C	D	F
Approach Delay, s/veh / LOS	120.4	F		91.0	F		113.3	F		59.0	E	
Intersection Delay, s/veh / LOS	96.3						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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Appendix M
Access Capacity Analysis Worksheets - Build - 2023

HCS Two-Way Stop-Control Report

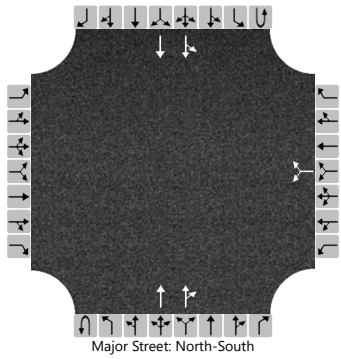
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2023
Time Analyzed	AM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #1
Jurisdiction	North Ridgeville
East/West Street	Drive #1
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						6		14			830	10		25	702	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						6.84		6.94						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							22							27		
Capacity, c (veh/h)							288							742		
v/c Ratio							0.08							0.04		
95% Queue Length, Q_{95} (veh)							0.2							0.1		
Control Delay (s/veh)							18.5							10.0	0.4	
Level of Service (LOS)							C							B	A	
Approach Delay (s/veh)					18.5								0.8			
Approach LOS					C								A			

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HCS Two-Way Stop-Control Report

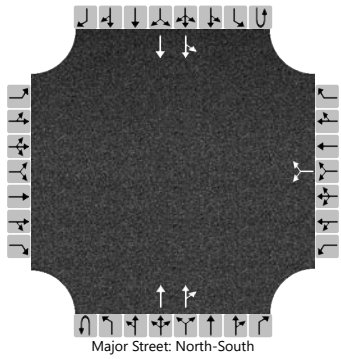
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2023
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #1
Jurisdiction	North Ridgeville
East/West Street	Drive #1
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						6		14			1130	10		25	962	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						6.84		6.94						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							22							27		
Capacity, c (veh/h)							161							558		
v/c Ratio							0.14							0.05		
95% Queue Length, Q_{95} (veh)							0.5							0.2		
Control Delay (s/veh)							30.9							11.8	0.8	
Level of Service (LOS)							D							B	A	
Approach Delay (s/veh)						30.9								1.0		
Approach LOS						D								A		

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HCS Two-Way Stop-Control Report

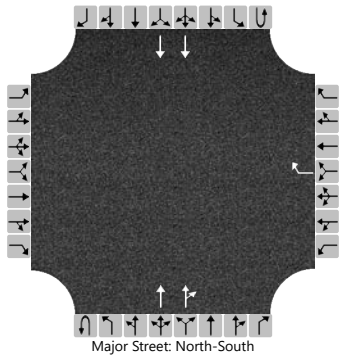
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2023
Time Analyzed	AM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #2
Jurisdiction	North Ridgeville
East/West Street	Drive #2
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0
Configuration								R			T	TR			T	
Volume (veh/h)								17			844	0			729	
Percent Heavy Vehicles (%)								2								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.94								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.32								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18								
Capacity, c (veh/h)								549								
v/c Ratio								0.03								
95% Queue Length, Q_{95} (veh)								0.1								
Control Delay (s/veh)								11.8								
Level of Service (LOS)								B								
Approach Delay (s/veh)						11.8										
Approach LOS						B										

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HCS Two-Way Stop-Control Report

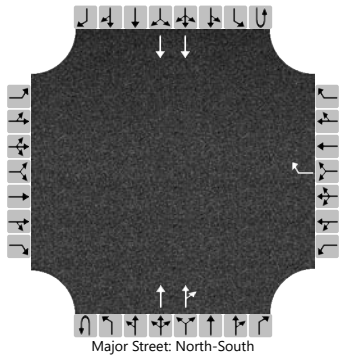
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2023
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #2
Jurisdiction	North Ridgeville
East/West Street	Drive #2
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0
Configuration								R			T	TR			T	
Volume (veh/h)								17			1144	0			989	
Percent Heavy Vehicles (%)								2								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.94								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.32								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18								
Capacity, c (veh/h)								430								
v/c Ratio								0.04								
95% Queue Length, Q_{95} (veh)								0.1								
Control Delay (s/veh)								13.8								
Level of Service (LOS)								B								
Approach Delay (s/veh)						13.8										
Approach LOS						B										

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Appendix N
Access Capacity Analysis Worksheets - Build - 2033

HCS Two-Way Stop-Control Report

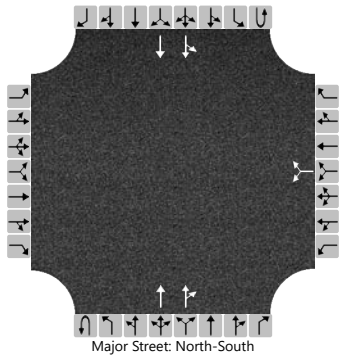
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2033
Time Analyzed	AM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #1
Jurisdiction	North Ridgeville
East/West Street	Drive #1
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						6		14			850	10		25	712	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						6.84		6.94						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							22							27		
Capacity, c (veh/h)							279							728		
v/c Ratio							0.08							0.04		
95% Queue Length, Q_{95} (veh)							0.3							0.1		
Control Delay (s/veh)							19.0							10.1	0.5	
Level of Service (LOS)							C							B	A	
Approach Delay (s/veh)						19.0								0.8		
Approach LOS						C								A		

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HCS Two-Way Stop-Control Report

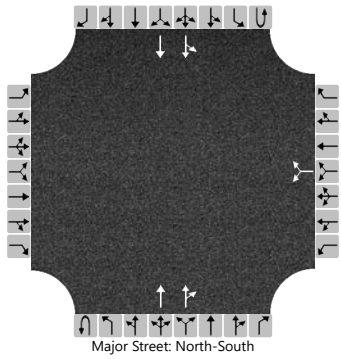
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2033
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #1
Jurisdiction	North Ridgeville
East/West Street	Drive #1
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						6		14			1160	10		25	992	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						6.84		6.94						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							22							27		
Capacity, c (veh/h)							150							542		
v/c Ratio							0.14							0.05		
95% Queue Length, Q_{95} (veh)							0.5							0.2		
Control Delay (s/veh)							32.9							12.0	0.8	
Level of Service (LOS)							D							B	A	
Approach Delay (s/veh)						32.9								1.1		
Approach LOS						D								A		

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HCS Two-Way Stop-Control Report

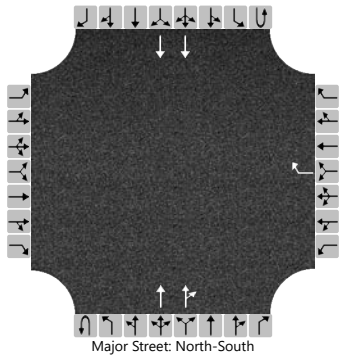
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2033
Time Analyzed	AM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #2
Jurisdiction	North Ridgeville
East/West Street	Drive #2
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0
Configuration								R			T	TR			T	
Volume (veh/h)								17			864	0			739	
Percent Heavy Vehicles (%)								2								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.94								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.32								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18								
Capacity, c (veh/h)								540								
v/c Ratio								0.03								
95% Queue Length, Q_{95} (veh)								0.1								
Control Delay (s/veh)								11.9								
Level of Service (LOS)								B								
Approach Delay (s/veh)						11.9										
Approach LOS						B										

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HCS Two-Way Stop-Control Report

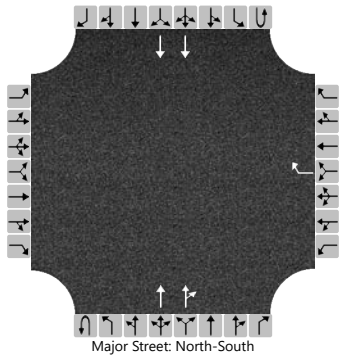
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2033
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #2
Jurisdiction	North Ridgeville
East/West Street	Drive #2
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0
Configuration								R			T	TR			T	
Volume (veh/h)								17			1174	0			1019	
Percent Heavy Vehicles (%)								2								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.94								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.32								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18								
Capacity, c (veh/h)								419								
v/c Ratio								0.04								
95% Queue Length, Q_{95} (veh)								0.1								
Control Delay (s/veh)								14.0								
Level of Service (LOS)								B								
Approach Delay (s/veh)						14.0										
Approach LOS						B										

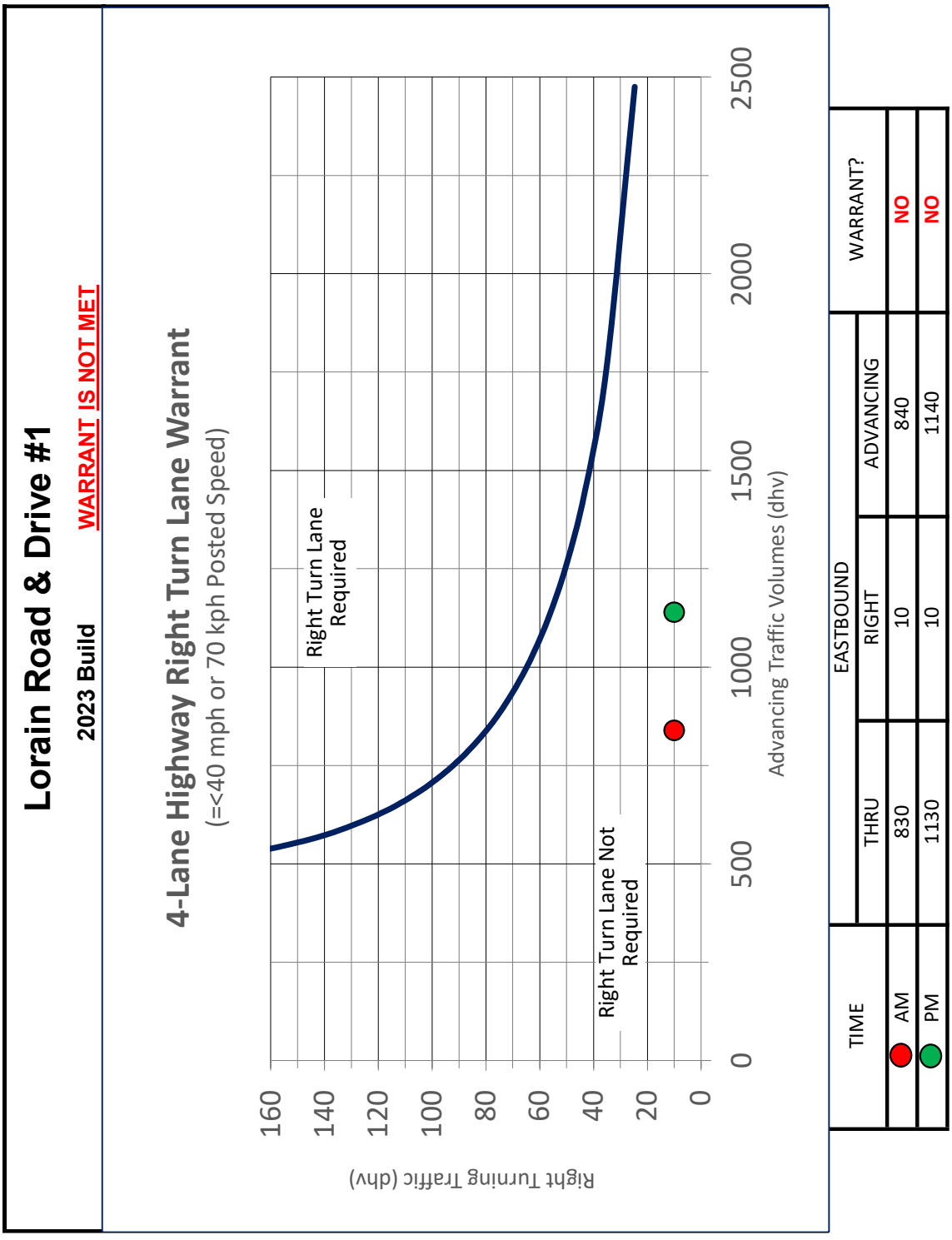
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Appendix O
ODOT Turn Lane Warrant Graphs

4-LANE RIGHT TURN LANE WARRANT (LOW SPEED)

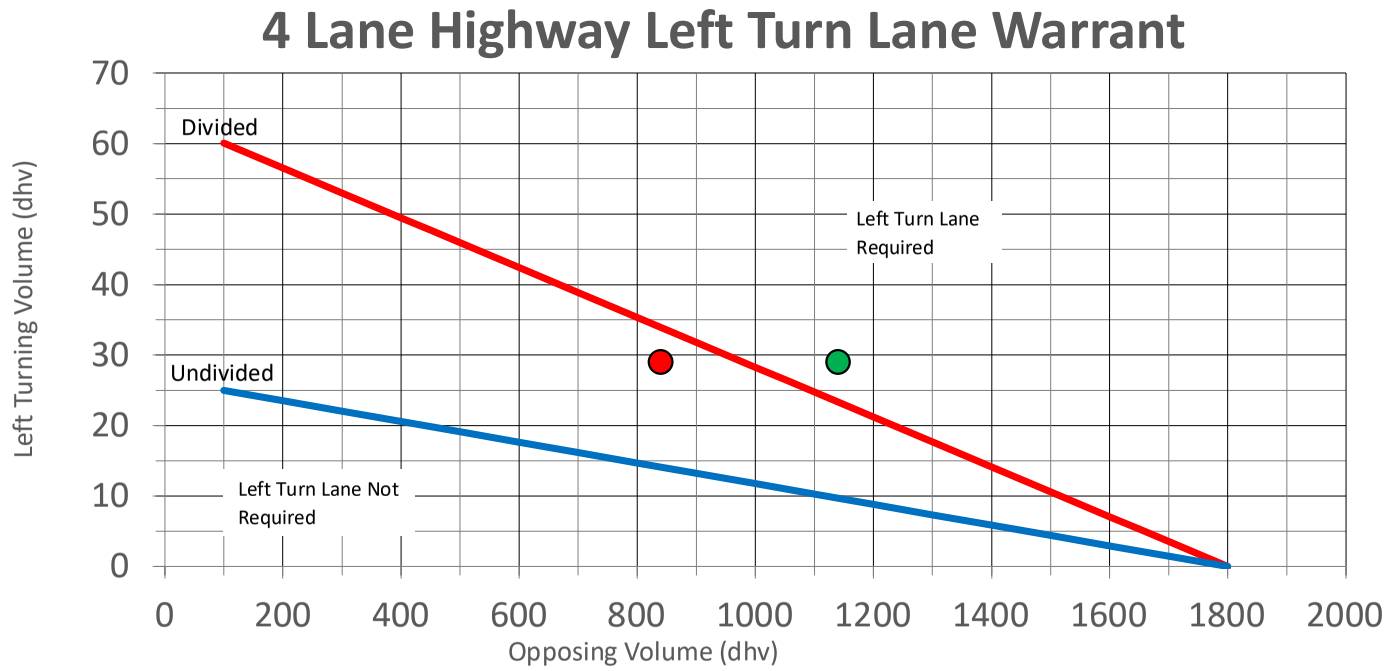
401-6cM

REFERENCE SECTION 401.6.3



Lorain Road & Drive #1

2023 Build **WARRANT IS MET**



TIME	WESTBOUND	EASTBOUND		OPPOSING	WARRANT?
	LEFT	THRU	RIGHT		
AM	29	830	10	840	YES
PM	29	1130	10	1140	YES

4-LANE LEFT TURN LANE WARRANT

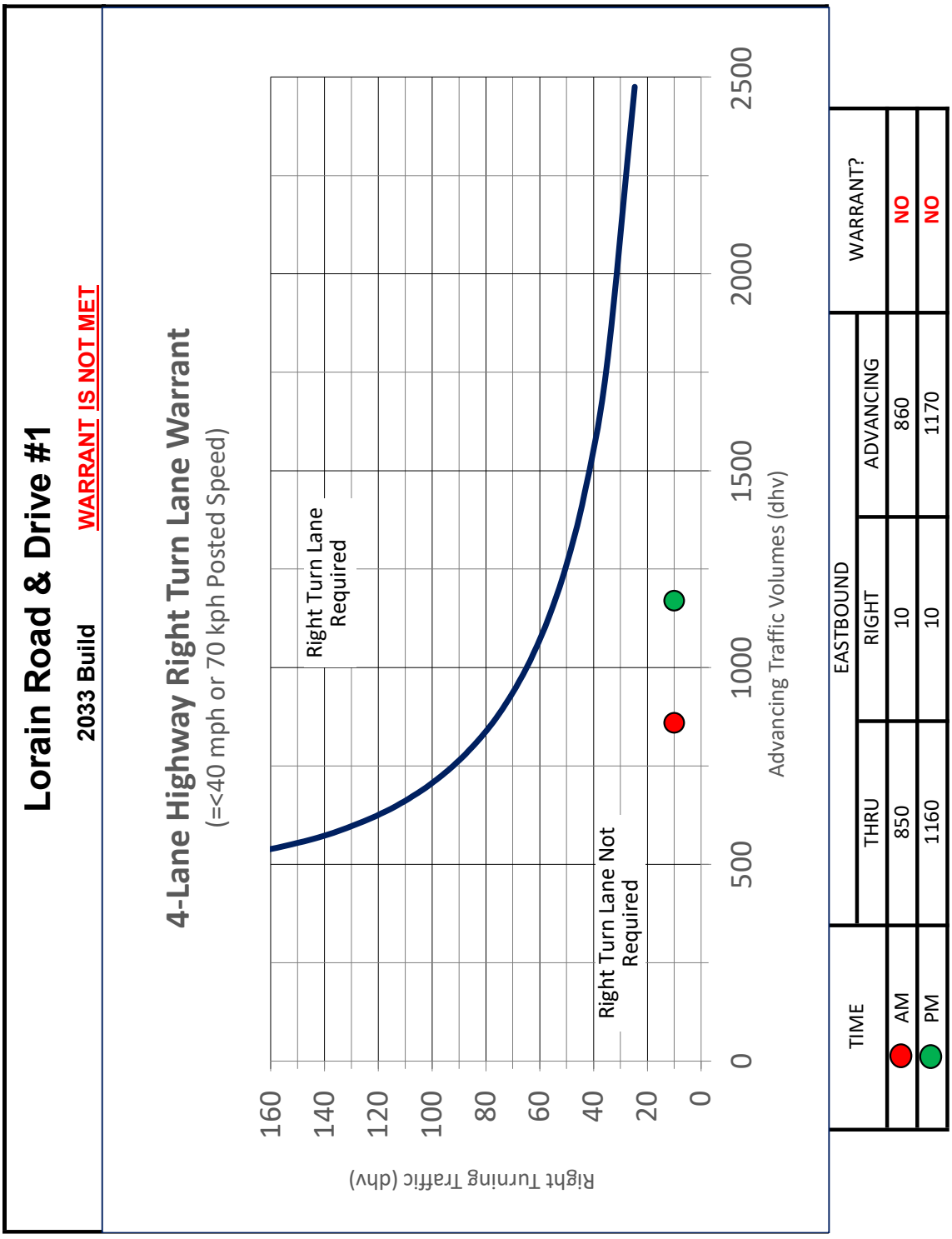
401-5cM

REFERENCE SECTION 401.6.1

4-LANE RIGHT TURN LANE WARRANT (LOW SPEED)

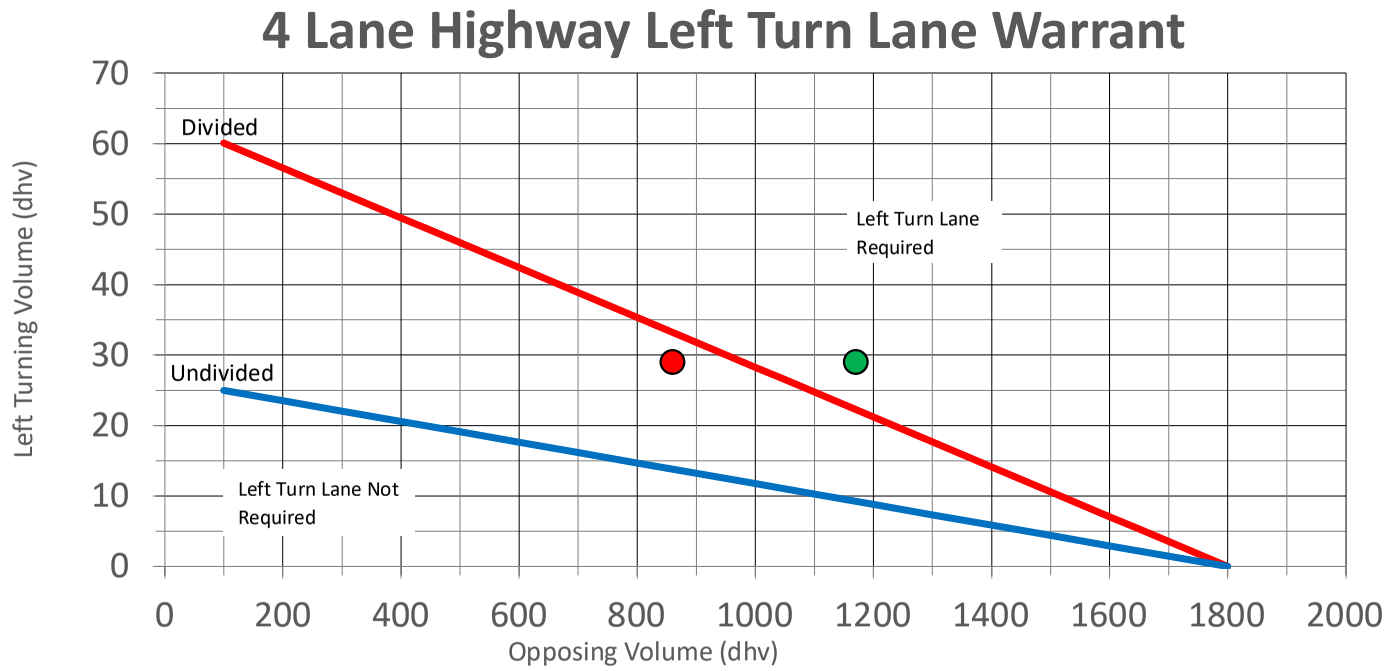
401-6cM

REFERENCE SECTION 401.6.3



Lorain Road & Drive #1

2033 Build **WARRANT IS MET**



TIME	WESTBOUND	EASTBOUND		OPPOSING	WARRANT?
	LEFT	THRU	RIGHT		
AM	29	850	10	860	YES
PM	29	1160	10	1170	YES

4-LANE LEFT TURN LANE WARRANT

401-5cM

REFERENCE SECTION 401.6.1

Storm Water Management Report

For

SGT. CLEAN CAR WASH

32441 Lorain Road
North Ridgeville, Ohio 44039

Prepared For

Always Stay Unlimited LLC.
3673 Massillon Road
Uniontown, OH 44685

Design Engineer

WEBER ENGINEERING SERVICES

2555 Hartville Road, Suite B
Rootstown, OH 44272
Phone: 330-329-2037
www.weberengineeringservices.com



WES Job No.: 2022-298 **Date: 11-14-2022**

DESCRIPTION AND DESIGN CRITERIA

This project has been designed per the critical storm method whereas the runoff from the post developed critical storm and all more frequent storm events shall be constrained to the 1-year pre-developed rate. All less frequent post developed rates shall be restricted to the respective pre-developed rates.

The existing site is partially developed and runoff currently discharges to an existing storm sewer on site. The pre-developed conditions have been observed as grass, woods and impervious. Since the proposed area of disturbance is under 1 acre (0.99 ac.), storm water quality control is not required.

The proposed storm water management system includes underground storage through oversized storm sewer pipes within stone trenches, which backs up into above ground storage during significant storm events.

The pre-developed areas are shown below:

-The pre-developed site drainage area subcatchment "1S" is 1.27 Acres (CN = 82 & Tc = 15 min.)

The post-developed areas are shown below:

-The post developed site drainage area subcatchment "2S" is 1.27 Acres (CN = 90 & Tc = 10 min.)

WATER QUALITY DESIGN CRITERIA

Storm water quality is not required for the site per the rationale discussed above.

STORM ROUTING THROUGH THE STORM WATER MANAGEMENT SYSTEM

The following table is a summary of the storm routing for the proposed site.

Storm Event	Pre-Developed Runoff from Site c.f.s.	Post Developed Runoff Allowed c.f.s.	Post Developed Runoff Generated c.f.s.	Post Developed Outflow from System c.f.s.	Peak Elevation	Peak Storage, c.f.
1	0.99	**0.99**	2.07	**0.44**	772.67	1,715
2	1.53	**0.99**	2.82	**0.52**	773.10	2,501
5	2.32	**0.99**	3.85	**0.61**	773.70	3,642
10	2.97	**0.99**	4.66	**0.68**	774.21	4,590
25	4.08	**4.08**	6.00	**1.94**	774.75	5,655
50	5.11	**5.11**	7.21	**3.90**	774.97	6,145
100	6.31	**6.31**	8.60	**6.82**	775.23	6,465

The following table summarizes the new storm water management system design information.

Storm Water Management System	
Top of Bank Elevation	776.50
100 Year high water elevation	775.23
Top of Structure Elevation	775.50
Inv. Top of Weir Plate	774.50
Inv. 4.0” Primary Storm WM Orifice Elevation	771.40
Inv. Outlet Storm Sewer (15”)	771.40
Bottom of SWM Basin	773.10

CRITICAL STORM CALCULATIONS

FOR

SGT. CLEAN CAR WASH

Volume of Runoff from 1 Year – 24 hr Storm

Pre-Developed = 2,930 CF

Post-Developed = 4,965 CF

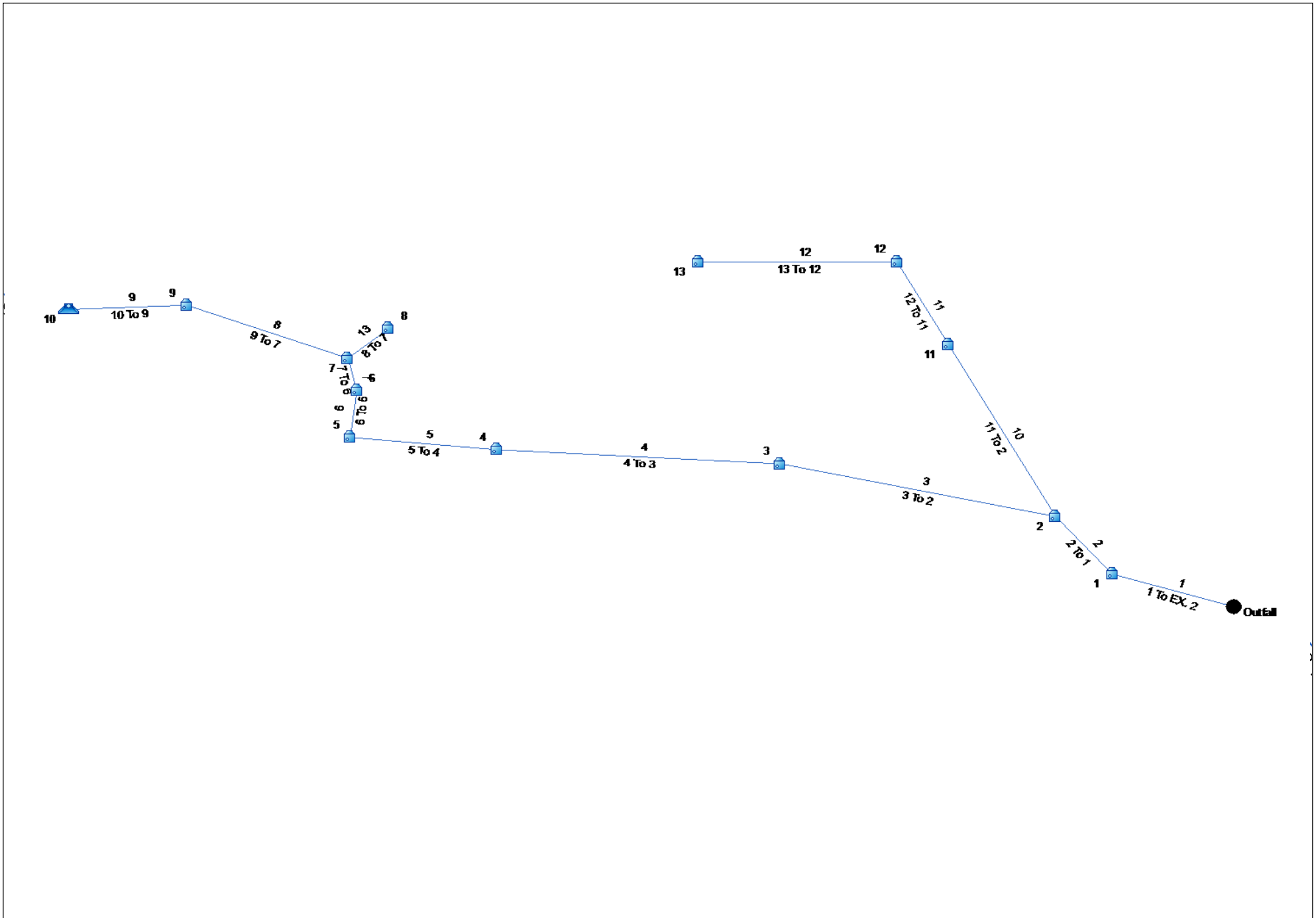
The **Critical** $\frac{\text{Post-Developed Total} - \text{Pre-Developed Total}}{\text{Pre-Developed Total}} \times 100 =$

$$\frac{4{,}965 - 2{,}930}{2{,}930} \times 100\% = 69.5\%$$

Storm Event for Discharge Limitation for increase in volume between 50 and 100 percent is the **10-year** storm event.

STORM SEWER CALCULATIONS (100-YR)

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2022-298 Storm 01A.stm	Number of lines: 13	Date: 11/12/2022

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	49.750	0.03	1.27	0.50	0.02	0.92	10.0	21.6	5.1	4.69	10.20	2.96	18	0.80	771.00	771.40	772.50	772.53	775.06	775.50	1 To EX. 2
2	1	36.550	0.17	1.24	0.90	0.15	0.91	10.0	21.3	5.1	4.66	12.81	3.76	24	0.27	771.90	772.00	772.73	772.83	775.50	775.90	2 To 1
3	2	109.980	0.13	0.87	0.85	0.11	0.59	10.0	20.0	5.3	3.16	12.80	2.49	24	0.27	772.00	772.30	772.98	773.05	775.90	776.55	3 To 2
4	3	110.150	0.22	0.74	0.86	0.19	0.48	10.0	18.3	5.6	2.71	12.79	2.81	24	0.27	772.30	772.60	773.08	773.22	776.55	776.00	4 To 3
5	4	57.228	0.04	0.52	0.50	0.02	0.29	10.0	16.9	5.8	1.72	12.55	2.23	24	0.26	772.60	772.75	773.25	773.29	776.00	776.50	5 To 4
6	5	23.690	0.03	0.48	0.90	0.03	0.27	10.0	16.3	6.0	1.64	11.26	1.97	24	0.21	772.75	772.80	773.39	773.41	776.50	776.40	6 To 5
7	6	16.930	0.03	0.45	0.50	0.02	0.25	10.0	15.8	6.1	1.50	13.29	1.87	24	0.29	772.80	772.85	773.43	773.43	776.40	776.40	7 To 6
8	7	68.098	0.10	0.35	0.80	0.08	0.18	10.0	13.2	6.7	1.20	11.50	1.62	24	0.22	772.85	773.00	773.49	773.52	776.40	776.20	9 To 7
9	8	45.640	0.25	0.25	0.40	0.10	0.10	10.0	10.0	7.6	0.76	11.47	1.24	24	0.22	773.00	773.10	773.55	773.56	776.20	776.10	10 To 9
10	2	96.450	0.04	0.20	0.85	0.03	0.16	10.0	12.3	6.9	1.12	13.67	0.94	24	0.31	772.00	772.30	772.98	772.99	775.90	776.45	11 To 2
11	10	46.710	0.06	0.16	0.80	0.05	0.13	10.0	11.7	7.1	0.90	1.79	1.65	12	0.21	772.30	772.40	772.99	773.03	776.45	776.10	12 To 11
12	11	76.850	0.10	0.10	0.80	0.08	0.08	10.0	10.0	7.6	0.61	2.60	1.64	12	0.46	772.40	772.75	773.07	773.13	776.10	775.75	13 To 12
13	7	21.795	0.07	0.07	0.75	0.05	0.05	10.0	10.0	7.6	0.40	11.74	0.22	24	0.23	772.35	772.40	773.49	773.49	776.40	776.20	8 To 7

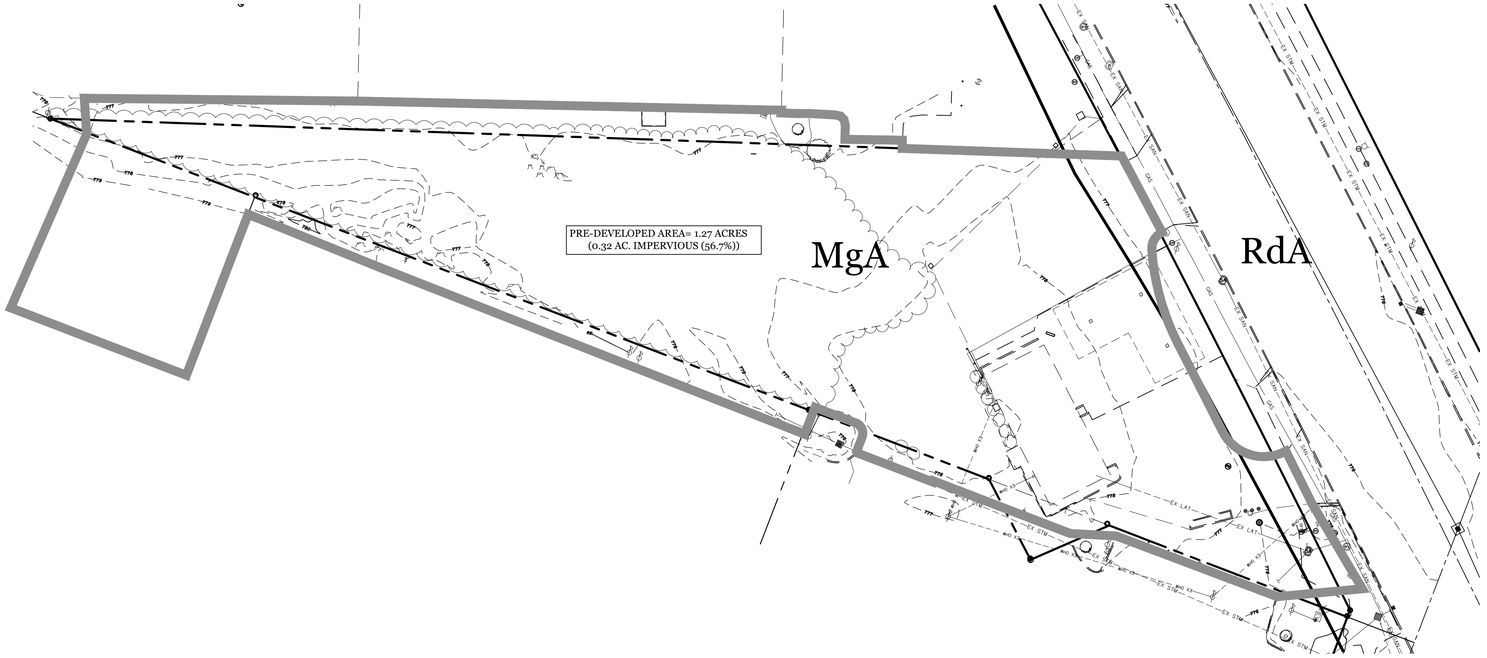
Project File: 2022-298 Storm 01A.stm

Number of lines: 13

Run Date: 11/12/2022

NOTES:Intensity = 105.39 / (Inlet time + 10.20) ^ 0.88; Return period =Yrs. 100 ; c = cir e = ellip b = box

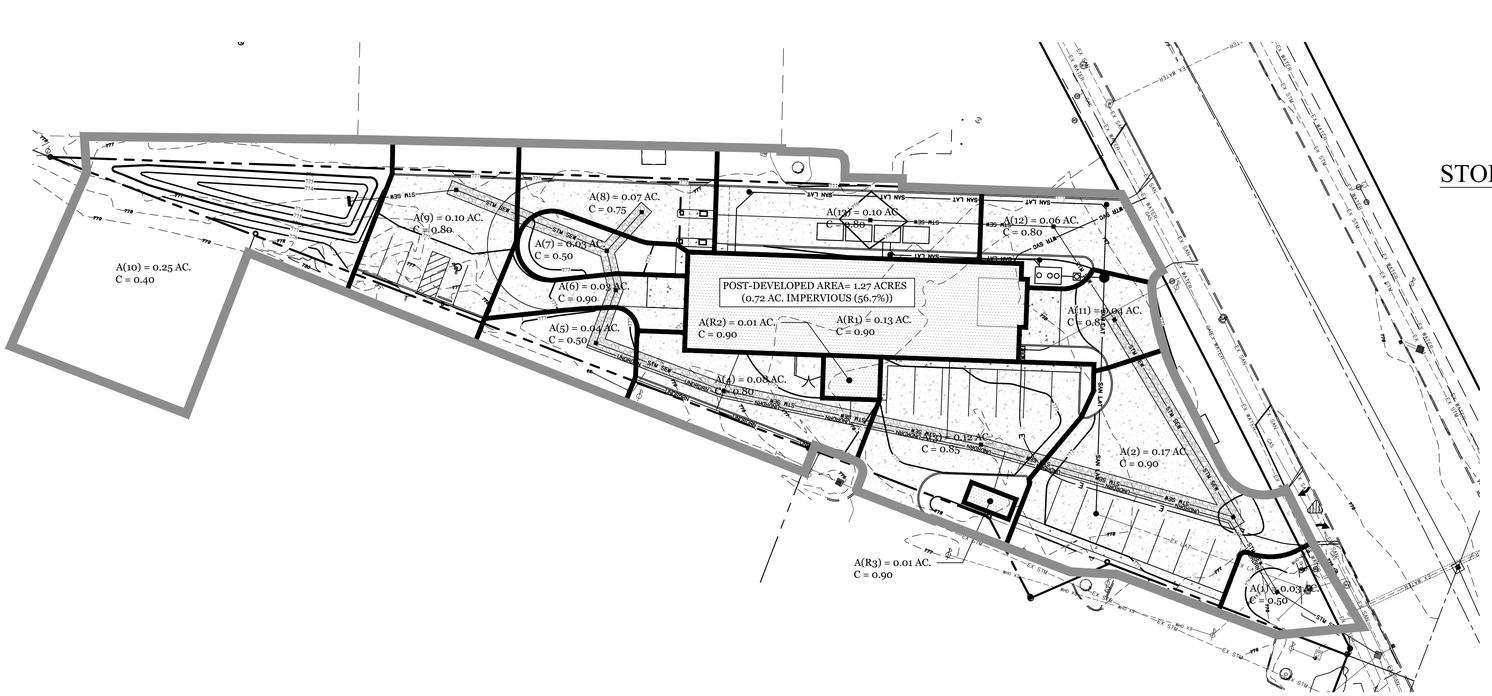
DRAINAGE MAPS



PRE-DEVELOPED DRAINAGE MAP & SOILS MAP

PRE-DEVELOPED: AREA = 1.27 AC., CN = 82, TC = 15 MIN.

MgA - Mahoning silt loam, 0 to 2 percent slopes
RdA - Rawson loam, 0 to 2 percent slopes



STORM DRAINAGE MAP & POST DEVELOPED DRAINAGE

POST-DEVELOPED: AREA = 1.27 AC., CN = 90, TC = 10 MIN.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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matt@webercivil.com

STATE OF OHIO
MATTHEW L WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

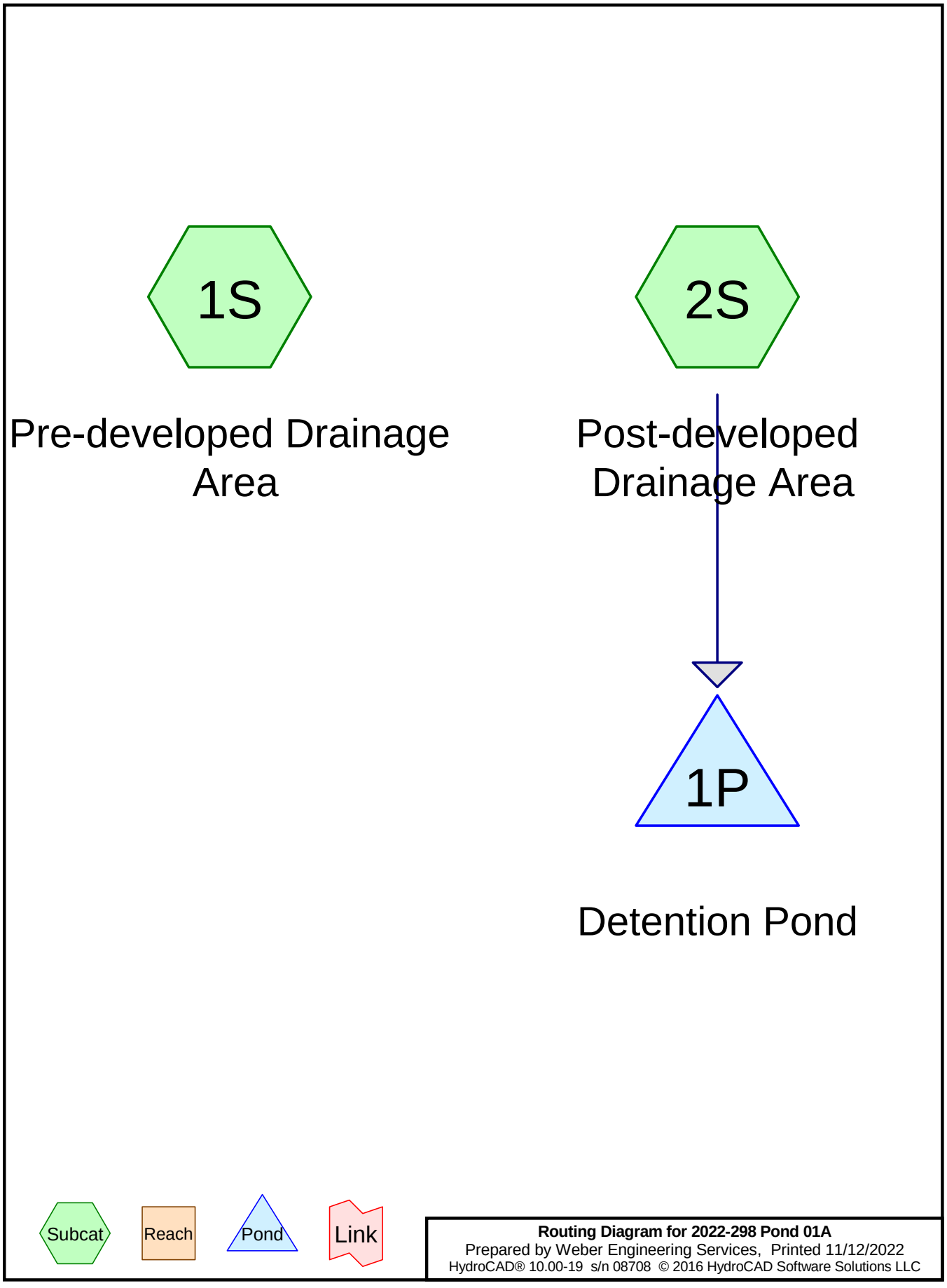
Issue Date
10-26-2022
11-14-2022

ABBREVIATED SWP3 DETAILS

C107
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022\2022-298 Sgt. Clean North Ridgeville\2022-298.Dwg\2022-298 Site01B - 11-14-2022\2022-298 Site01B.DWG 11/12/2022 1:06:20 PM

STORM ROUTING



Routing Diagram for 2022-298 Pond 01A
Prepared by Weber Engineering Services, Printed 11/12/2022
HydroCAD® 10.00-19 s/n 08708 © 2016 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
21,780	80	>75% Grass cover, Good, HSG D (1S, 2S)
45,302	98	Impervious Area, HSG D (1S, 2S)
43,560	77	Woods, Good, HSG D (1S, 2S)

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
110,642	HSG D	1S, 2S
0	Other	

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Su Nu
0	0	0	21,780	0	21,780	>75% Grass cover, Good	
0	0	0	45,302	0	45,302	Impervious Area	
0	0	0	43,560	0	43,560	Woods, Good	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	771.40	771.00	49.7	0.0080	0.015	15.0	0.0	0.0

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-developed Drainage Runoff Area=1.270 ac 25.20% Impervious Runoff Depth=0.64"
Tc=15.0 min CN=82 Runoff=0.99 cfs 2,930 cf

Subcatchment 2S: Post-developed Runoff Area=1.270 ac 56.69% Impervious Runoff Depth=1.08"
Tc=10.0 min CN=90 Runoff=2.07 cfs 4,965 cf

Pond 1P: Detention Pond Peak Elev=772.67' Storage=1,715 cf Inflow=2.07 cfs 4,965 cf
Outflow=0.44 cfs 4,965 cf

Summary for Subcatchment 1S: Pre-developed Drainage Area

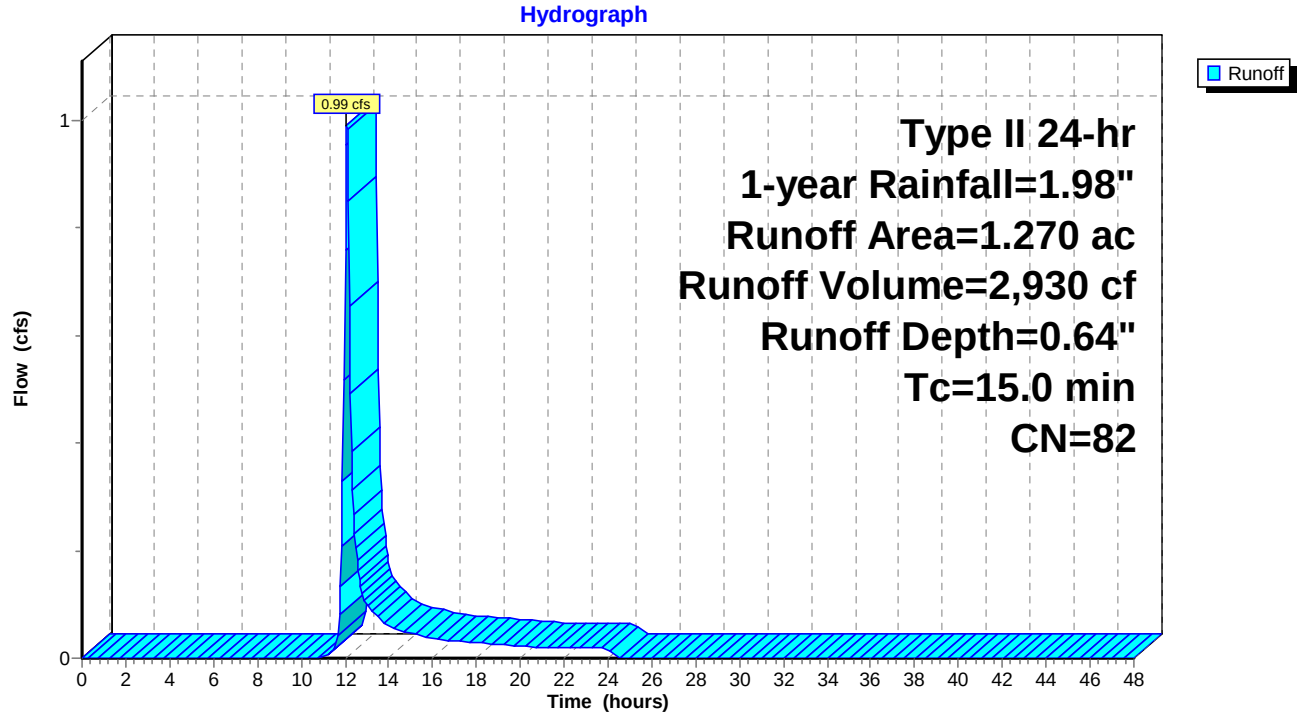
Runoff = 0.99 cfs @ 12.08 hrs, Volume= 2,930 cf, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=1.98"

	Area (ac)	CN	Description
*	0.320	98	Impervious Area, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.870	77	Woods, Good, HSG D
	1.270	82	Weighted Average
	0.950		74.80% Pervious Area
	0.320		25.20% Impervious Area

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

Subcatchment 1S: Pre-developed Drainage Area



Summary for Subcatchment 2S: Post-developed Drainage Area

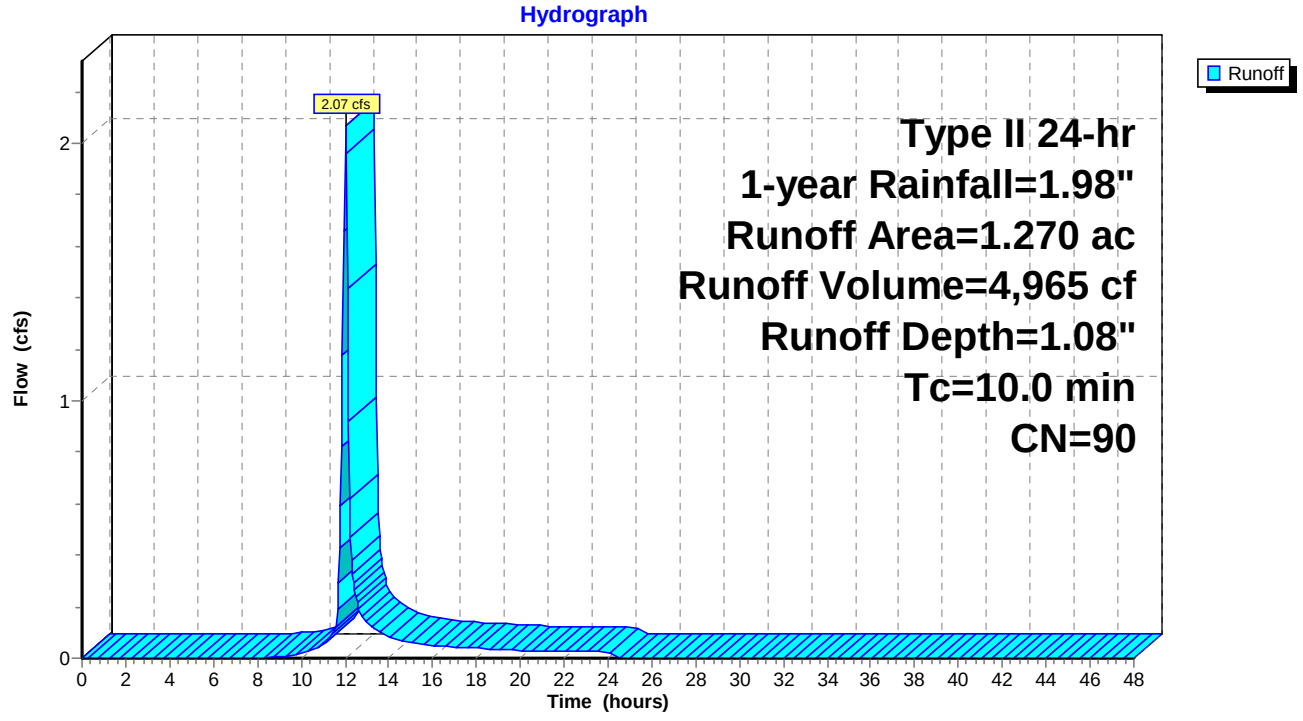
Runoff = 2.07 cfs @ 12.02 hrs, Volume= 4,965 cf, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=1.98"

	Area (ac)	CN	Description
*	0.720	98	Impervious Area, HSG D
	0.420	80	>75% Grass cover, Good, HSG D
	0.130	77	Woods, Good, HSG D
	1.270	90	Weighted Average
	0.550		43.31% Pervious Area
	0.720		56.69% Impervious Area

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

Subcatchment 2S: Post-developed Drainage Area



Summary for Pond 1P: Detention Pond

Inflow Area = 55,321 sf, 56.69% Impervious, Inflow Depth = 1.08" for 1-year event
Inflow = 2.07 cfs @ 12.02 hrs, Volume= 4,965 cf
Outflow = 0.44 cfs @ 12.27 hrs, Volume= 4,965 cf, Atten= 79%, Lag= 15.1 min
Primary = 0.44 cfs @ 12.27 hrs, Volume= 4,965 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 772.67' @ 12.27 hrs Surf.Area= 3,062 sf Storage= 1,715 cf

Plug-Flow detention time= 38.9 min calculated for 4,960 cf (100% of inflow)
Center-of-Mass det. time= 38.9 min (866.4 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1	773.10'	2,359 cf	**Detention Pond (Prismatic)** Listed below (Recalc)
#2	771.50'	3,653 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 10,717 cf Overall - 1,583 cf Embedded = 9,134 cf x 40.0% Voids
#3	772.00'	1,583 cf	**24.0" Round Stone Trench 24" Pipe** Inside #2 L= 504.0'
		7,596 cf	Total Available Storage

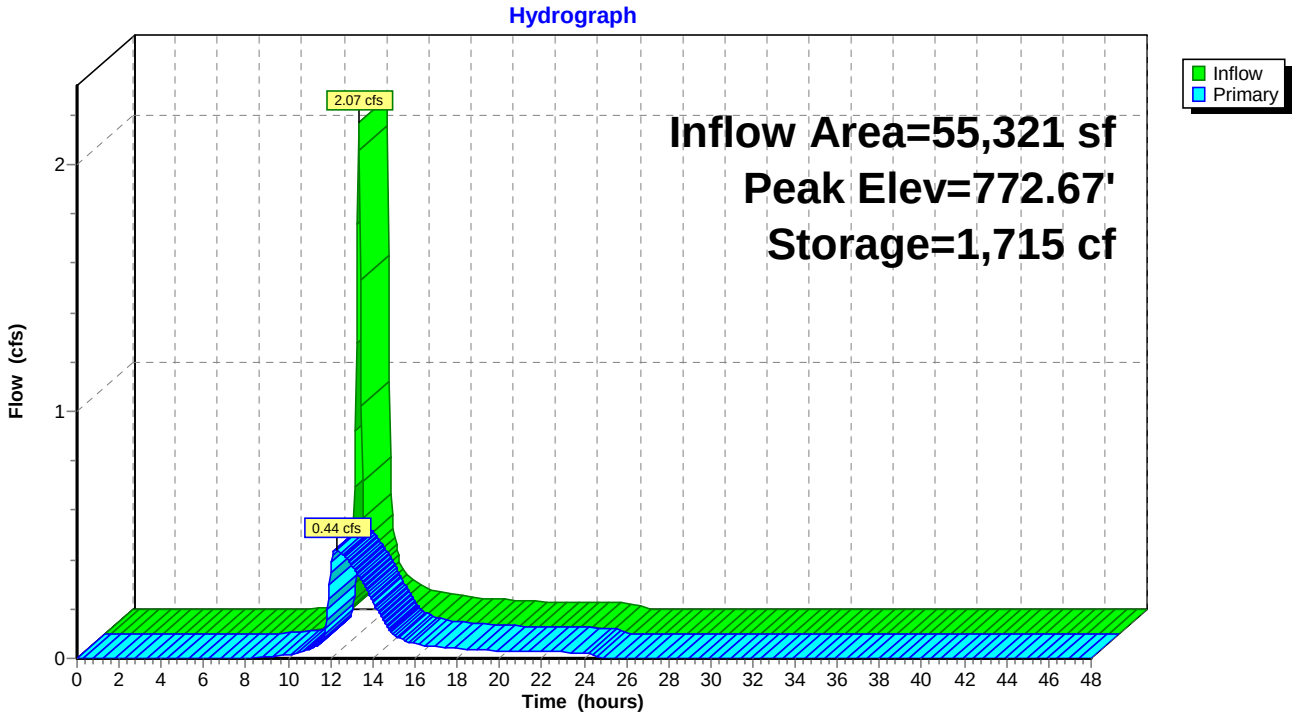
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
773.10	1	0	0
774.00	474	214	214
775.00	1,038	756	970
776.00	1,740	1,389	2,359

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
771.50	3,062	0	0
775.00	3,062	10,717	10,717

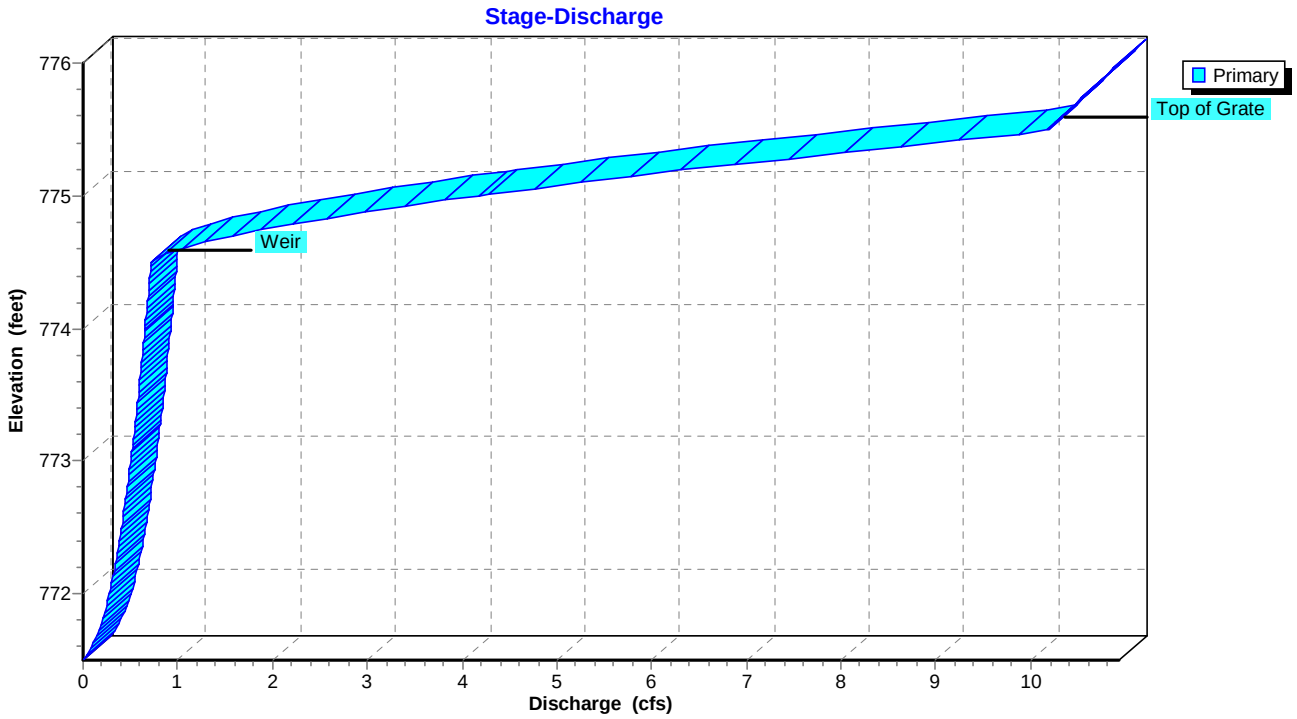
Device	Routing	Invert	Outlet Devices
#1	Primary	771.40'	**15.0" Round Culvert** L= 49.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 771.40' / 771.00' S= 0.0080 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf
#2	Device 1	771.40'	**4.0" Vert. Primary Orifice** C= 0.600
#3	Device 1	774.50'	**36.0" W x 12.0" H Vert. Weir** C= 0.600
#4	Device 1	775.50'	**1.0" x 22.0" Horiz. Top of Grate** X 12 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.44 cfs @ 12.27 hrs HW=772.67' (Free Discharge)
└**1=Culvert** (Passes 0.44 cfs of 4.16 cfs potential flow)
  ├**2=Primary Orifice** (Orifice Controls 0.44 cfs @ 5.06 fps)
  ├**3=Weir** (Controls 0.00 cfs)
  └**4=Top of Grate** (Controls 0.00 cfs)

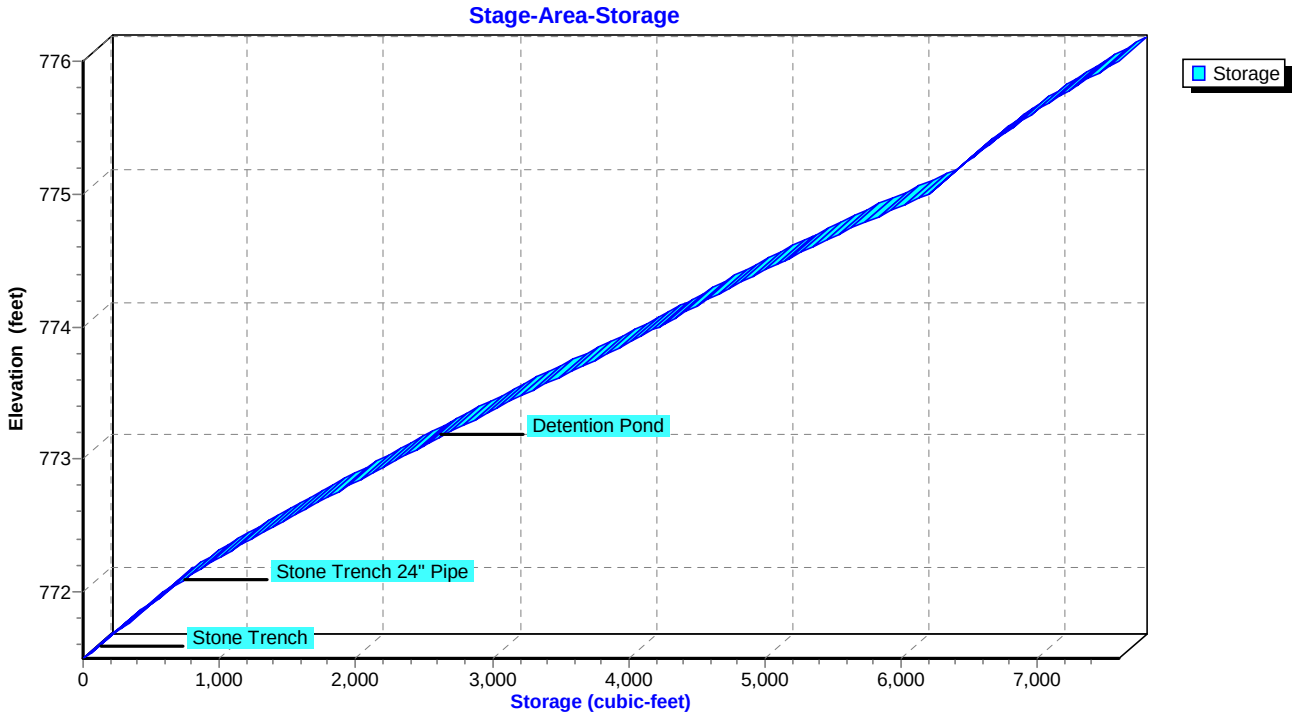
Pond 1P: Detention Pond



Pond 1P: Detention Pond



Pond 1P: Detention Pond



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-developed Drainage Runoff Area=1.270 ac 25.20% Impervious Runoff Depth=0.95"
Tc=15.0 min CN=82 Runoff=1.53 cfs 4,399 cf

Subcatchment 2S: Post-developed Runoff Area=1.270 ac 56.69% Impervious Runoff Depth=1.48"
Tc=10.0 min CN=90 Runoff=2.82 cfs 6,812 cf

Pond 1P: Detention Pond Peak Elev=773.10' Storage=2,501 cf Inflow=2.82 cfs 6,812 cf
Outflow=0.52 cfs 6,812 cf

Summary for Subcatchment 1S: Pre-developed Drainage Area

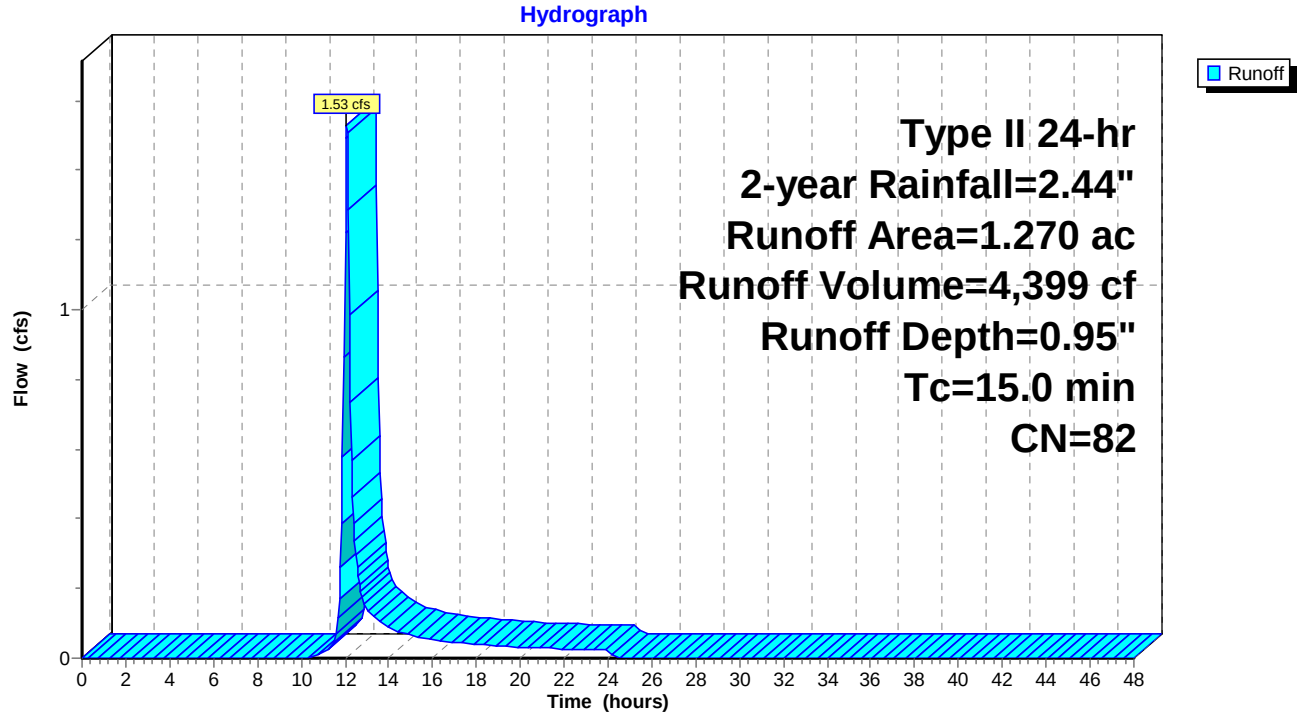
Runoff = 1.53 cfs @ 12.08 hrs, Volume= 4,399 cf, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.44"

	Area (ac)	CN	Description
*	0.320	98	Impervious Area, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.870	77	Woods, Good, HSG D
	1.270	82	Weighted Average
	0.950		74.80% Pervious Area
	0.320		25.20% Impervious Area

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

Subcatchment 1S: Pre-developed Drainage Area



Summary for Subcatchment 2S: Post-developed Drainage Area

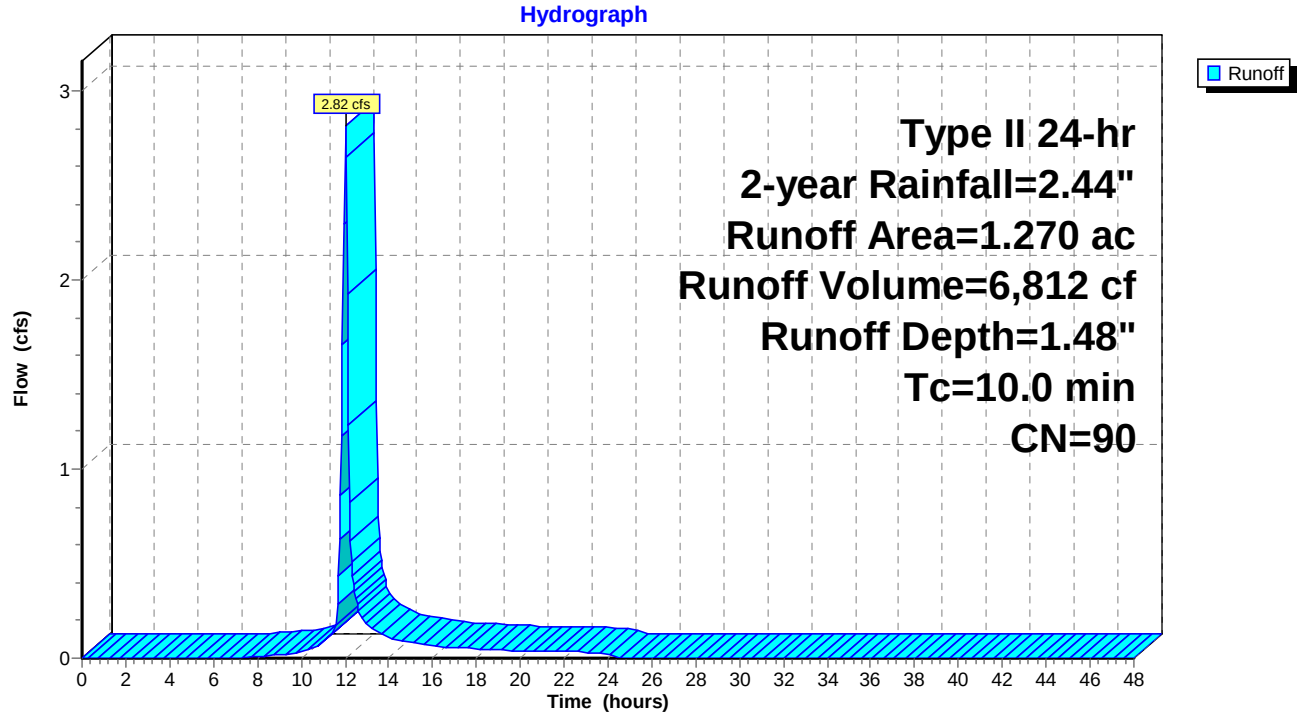
Runoff = 2.82 cfs @ 12.01 hrs, Volume= 6,812 cf, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.44"

	Area (ac)	CN	Description
*	0.720	98	Impervious Area, HSG D
	0.420	80	>75% Grass cover, Good, HSG D
	0.130	77	Woods, Good, HSG D
	1.270	90	Weighted Average
	0.550		43.31% Pervious Area
	0.720		56.69% Impervious Area

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

Subcatchment 2S: Post-developed Drainage Area



Summary for Pond 1P: Detention Pond

Inflow Area = 55,321 sf, 56.69% Impervious, Inflow Depth = 1.48" for 2-year event
Inflow = 2.82 cfs @ 12.01 hrs, Volume= 6,812 cf
Outflow = 0.52 cfs @ 12.30 hrs, Volume= 6,812 cf, Atten= 82%, Lag= 17.1 min
Primary = 0.52 cfs @ 12.30 hrs, Volume= 6,812 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 773.10' @ 12.30 hrs Surf.Area= 3,065 sf Storage= 2,501 cf

Plug-Flow detention time= 47.0 min calculated for 6,804 cf (100% of inflow)
Center-of-Mass det. time= 47.0 min (865.5 - 818.4)

Volume	Invert	Avail.Storage	Storage Description
#1	773.10'	2,359 cf	**Detention Pond (Prismatic)** Listed below (Recalc)
#2	771.50'	3,653 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 10,717 cf Overall - 1,583 cf Embedded = 9,134 cf x 40.0% Voids
#3	772.00'	1,583 cf	**24.0" Round Stone Trench 24" Pipe** Inside #2 L= 504.0'
		7,596 cf	Total Available Storage

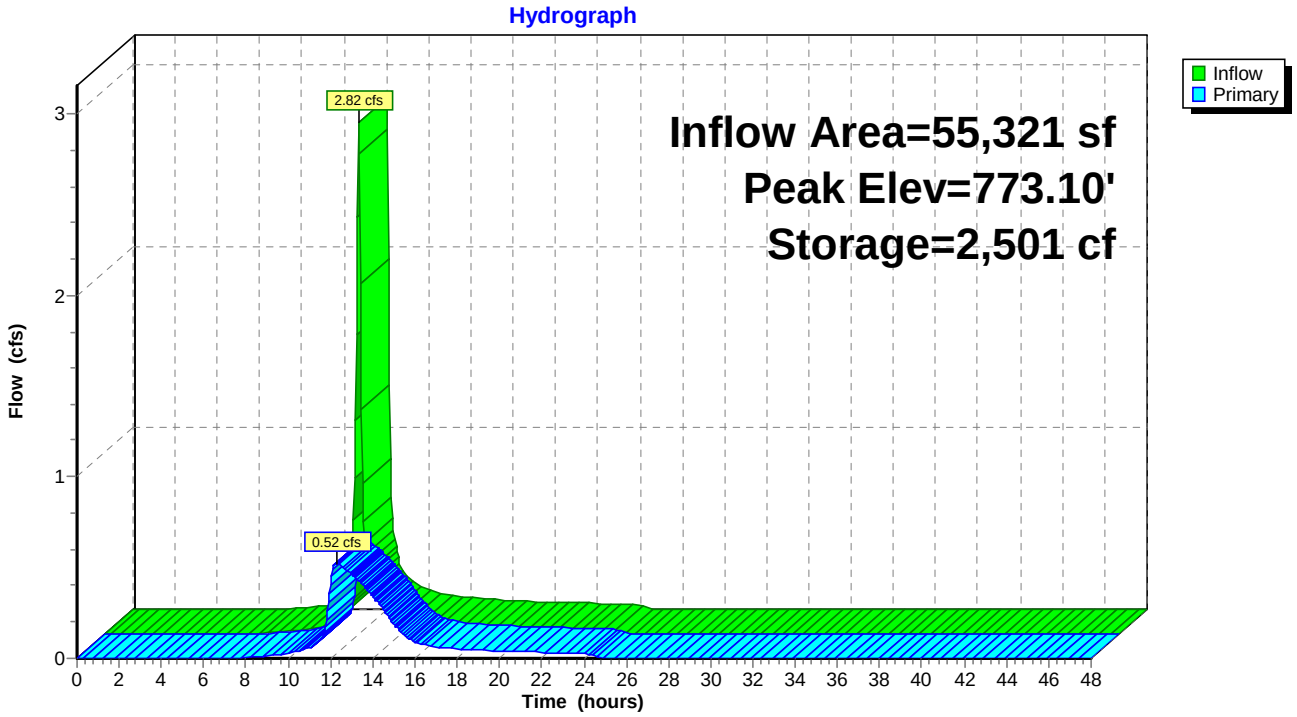
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
773.10	1	0	0
774.00	474	214	214
775.00	1,038	756	970
776.00	1,740	1,389	2,359

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
771.50	3,062	0	0
775.00	3,062	10,717	10,717

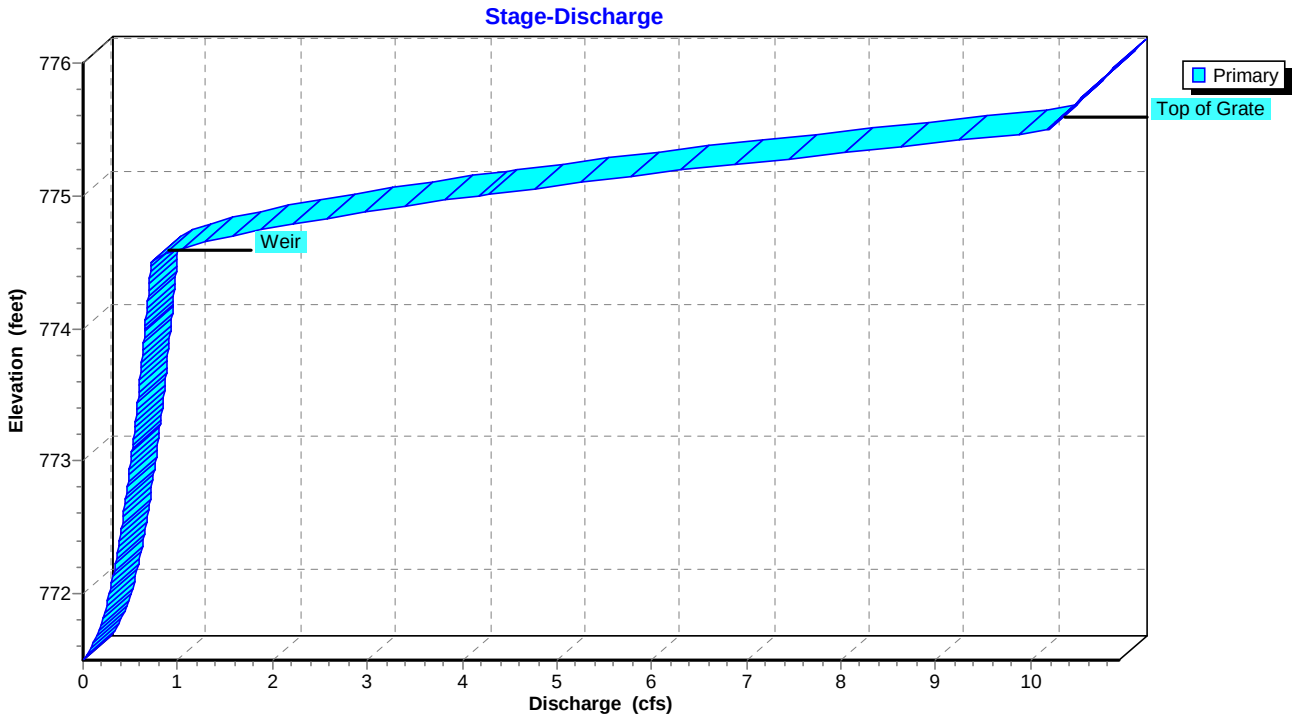
Device	Routing	Invert	Outlet Devices
#1	Primary	771.40'	**15.0" Round Culvert** L= 49.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 771.40' / 771.00' S= 0.0080 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf
#2	Device 1	771.40'	**4.0" Vert. Primary Orifice** C= 0.600
#3	Device 1	774.50'	**36.0" W x 12.0" H Vert. Weir** C= 0.600
#4	Device 1	775.50'	**1.0" x 22.0" Horiz. Top of Grate** X 12 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.52 cfs @ 12.30 hrs HW=773.10' (Free Discharge)
└**1=Culvert** (Passes 0.52 cfs of 5.21 cfs potential flow)
  ├**2=Primary Orifice** (Orifice Controls 0.52 cfs @ 5.97 fps)
  ├**3=Weir** (Controls 0.00 cfs)
  └**4=Top of Grate** (Controls 0.00 cfs)

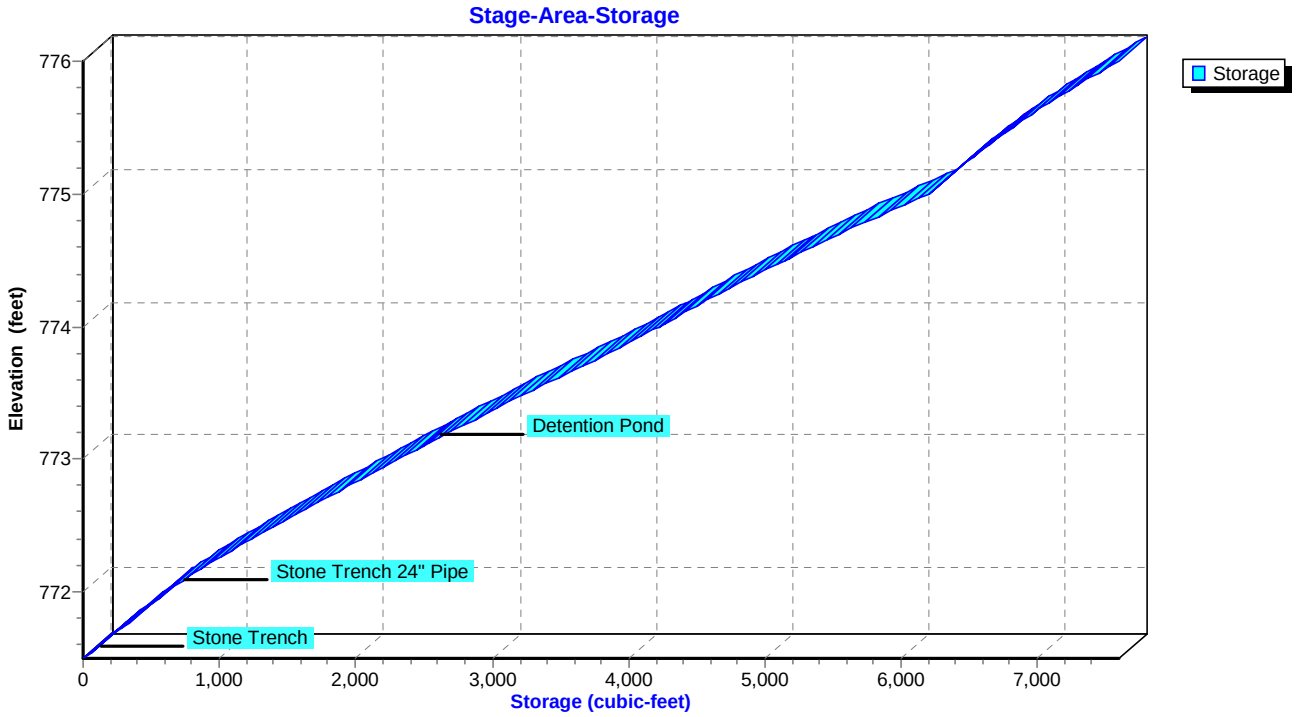
Pond 1P: Detention Pond



Pond 1P: Detention Pond



Pond 1P: Detention Pond



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-developed Drainage Runoff Area=1.270 ac 25.20% Impervious Runoff Depth=1.43"
Tc=15.0 min CN=82 Runoff=2.32 cfs 6,576 cf

Subcatchment 2S: Post-developed Runoff Area=1.270 ac 56.69% Impervious Runoff Depth=2.04"
Tc=10.0 min CN=90 Runoff=3.85 cfs 9,401 cf

Pond 1P: Detention Pond Peak Elev=773.70' Storage=3,642 cf Inflow=3.85 cfs 9,401 cf
Outflow=0.61 cfs 9,401 cf

Summary for Subcatchment 1S: Pre-developed Drainage Area

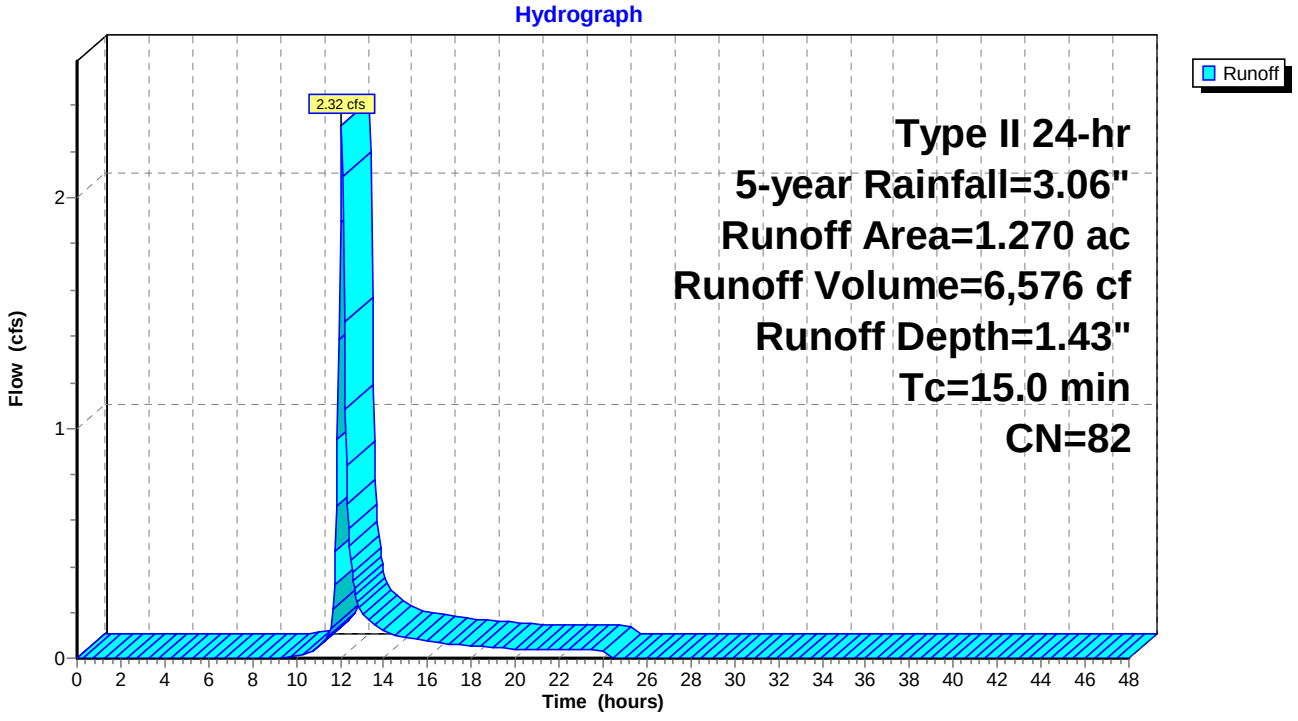
Runoff = 2.32 cfs @ 12.07 hrs, Volume= 6,576 cf, Depth= 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.06"

	Area (ac)	CN	Description
*	0.320	98	Impervious Area, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.870	77	Woods, Good, HSG D
	1.270	82	Weighted Average
	0.950		74.80% Pervious Area
	0.320		25.20% Impervious Area

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

Subcatchment 1S: Pre-developed Drainage Area



Summary for Subcatchment 2S: Post-developed Drainage Area

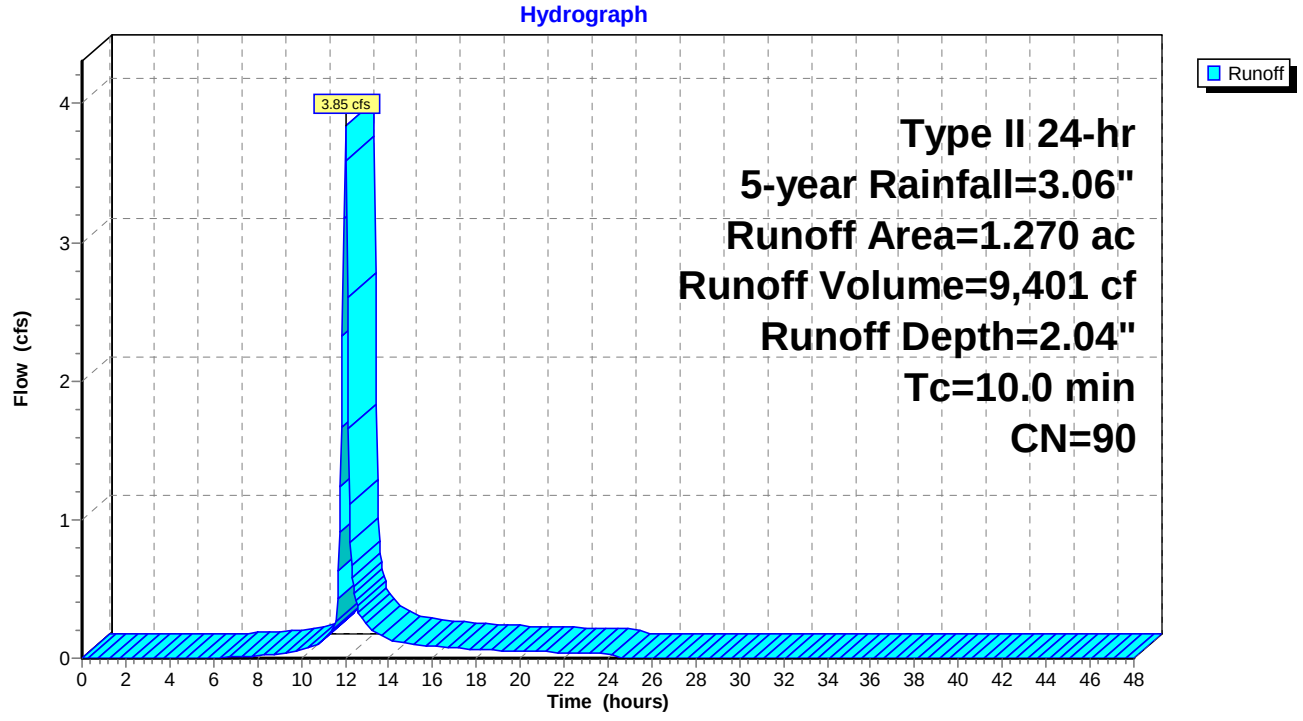
Runoff = 3.85 cfs @ 12.01 hrs, Volume= 9,401 cf, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.06"

	Area (ac)	CN	Description
*	0.720	98	Impervious Area, HSG D
	0.420	80	>75% Grass cover, Good, HSG D
	0.130	77	Woods, Good, HSG D
	1.270	90	Weighted Average
	0.550		43.31% Pervious Area
	0.720		56.69% Impervious Area

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

Subcatchment 2S: Post-developed Drainage Area



Summary for Pond 1P: Detention Pond

Inflow Area = 55,321 sf, 56.69% Impervious, Inflow Depth = 2.04" for 5-year event
Inflow = 3.85 cfs @ 12.01 hrs, Volume= 9,401 cf
Outflow = 0.61 cfs @ 12.33 hrs, Volume= 9,401 cf, Atten= 84%, Lag= 19.4 min
Primary = 0.61 cfs @ 12.33 hrs, Volume= 9,401 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 773.70' @ 12.33 hrs Surf.Area= 3,376 sf Storage= 3,642 cf

Plug-Flow detention time= 57.8 min calculated for 9,401 cf (100% of inflow)
Center-of-Mass det. time= 57.5 min (866.8 - 809.3)

Volume	Invert	Avail.Storage	Storage Description
#1	773.10'	2,359 cf	**Detention Pond (Prismatic)** Listed below (Recalc)
#2	771.50'	3,653 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 10,717 cf Overall - 1,583 cf Embedded = 9,134 cf x 40.0% Voids
#3	772.00'	1,583 cf	**24.0" Round Stone Trench 24" Pipe** Inside #2 L= 504.0'
		7,596 cf	Total Available Storage

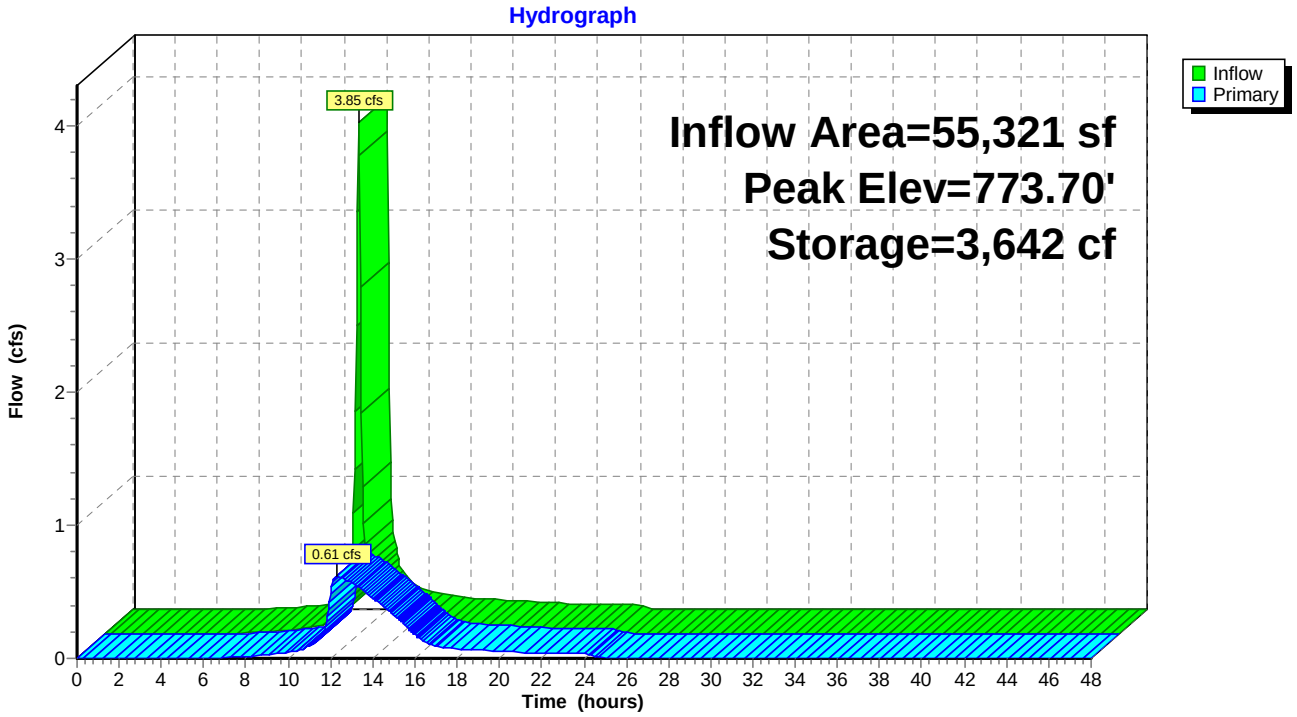
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
773.10	1	0	0
774.00	474	214	214
775.00	1,038	756	970
776.00	1,740	1,389	2,359

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
771.50	3,062	0	0
775.00	3,062	10,717	10,717

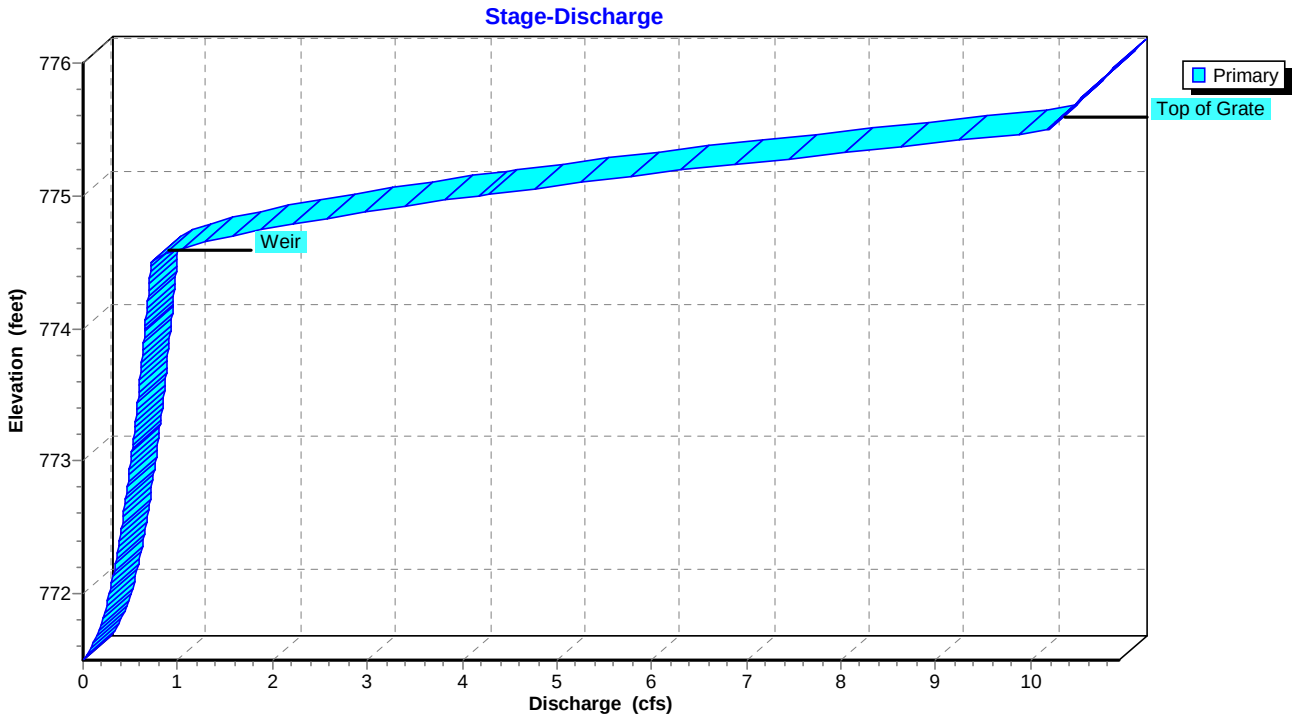
Device	Routing	Invert	Outlet Devices
#1	Primary	771.40'	**15.0" Round Culvert** L= 49.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 771.40' / 771.00' S= 0.0080 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf
#2	Device 1	771.40'	**4.0" Vert. Primary Orifice** C= 0.600
#3	Device 1	774.50'	**36.0" W x 12.0" H Vert. Weir** C= 0.600
#4	Device 1	775.50'	**1.0" x 22.0" Horiz. Top of Grate** X 12 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.61 cfs @ 12.33 hrs HW=773.70' (Free Discharge)
└**1=Culvert** (Passes 0.61 cfs of 6.79 cfs potential flow)
  ├**2=Primary Orifice** (Orifice Controls 0.61 cfs @ 7.02 fps)
  ├**3=Weir** (Controls 0.00 cfs)
  └**4=Top of Grate** (Controls 0.00 cfs)

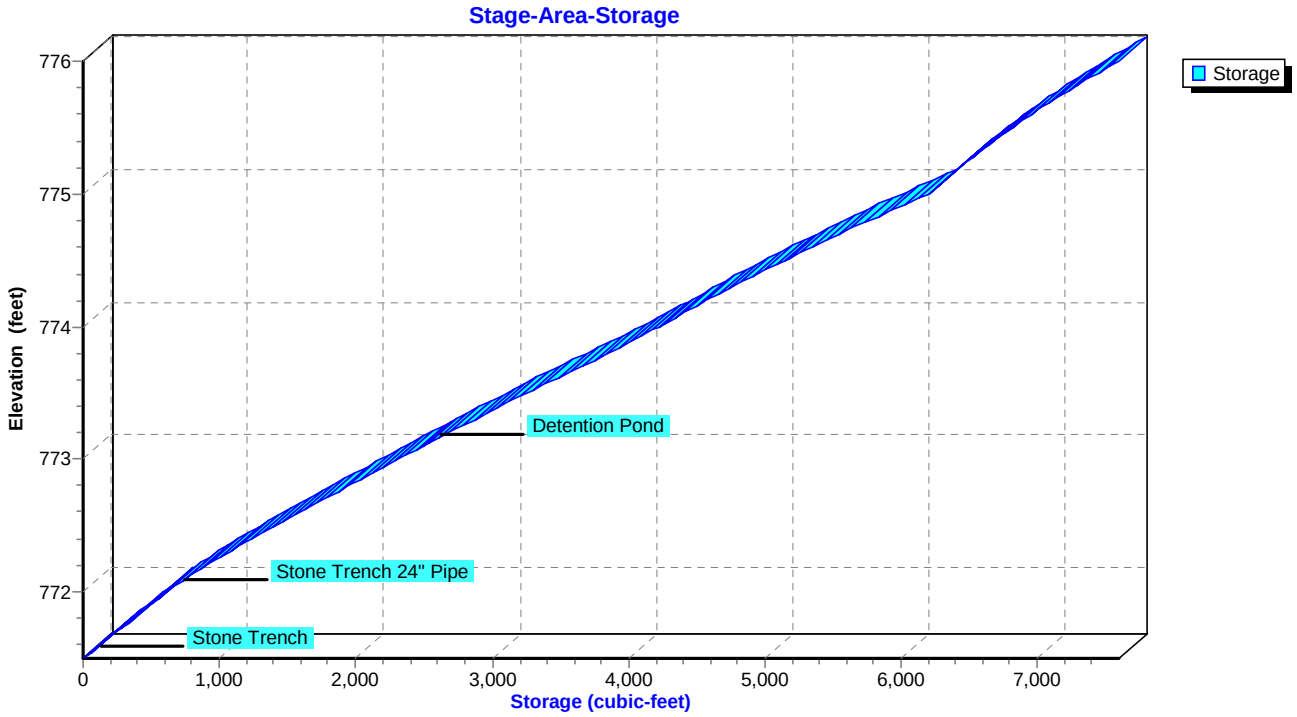
Pond 1P: Detention Pond



Pond 1P: Detention Pond



Pond 1P: Detention Pond



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-developed Drainage Runoff Area=1.270 ac 25.20% Impervious Runoff Depth=1.82"
Tc=15.0 min CN=82 Runoff=2.97 cfs 8,409 cf

Subcatchment 2S: Post-developed Runoff Area=1.270 ac 56.69% Impervious Runoff Depth=2.49"
Tc=10.0 min CN=90 Runoff=4.66 cfs 11,501 cf

Pond 1P: Detention Pond Peak Elev=774.21' Storage=4,590 cf Inflow=4.66 cfs 11,501 cf
Outflow=0.68 cfs 11,501 cf

Summary for Subcatchment 1S: Pre-developed Drainage Area

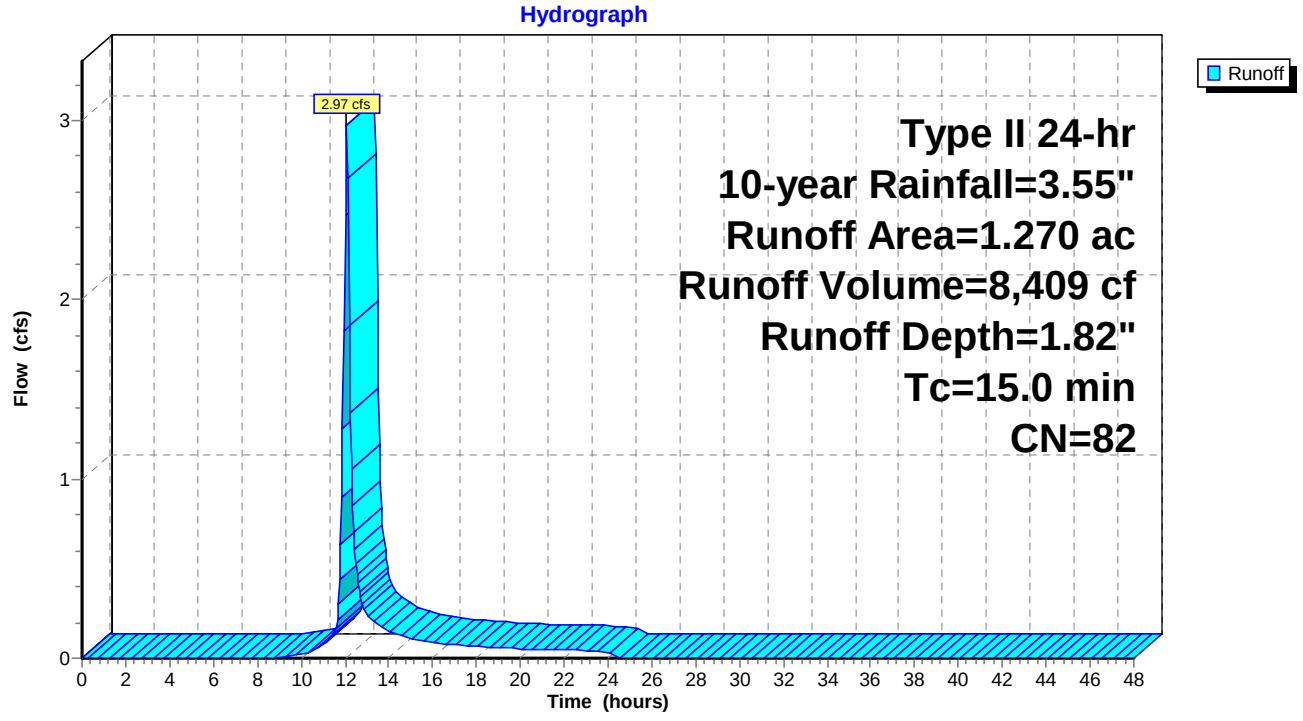
Runoff = 2.97 cfs @ 12.07 hrs, Volume= 8,409 cf, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=3.55"

	Area (ac)	CN	Description
*	0.320	98	Impervious Area, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.870	77	Woods, Good, HSG D
	1.270	82	Weighted Average
	0.950		74.80% Pervious Area
	0.320		25.20% Impervious Area

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

Subcatchment 1S: Pre-developed Drainage Area



Summary for Subcatchment 2S: Post-developed Drainage Area

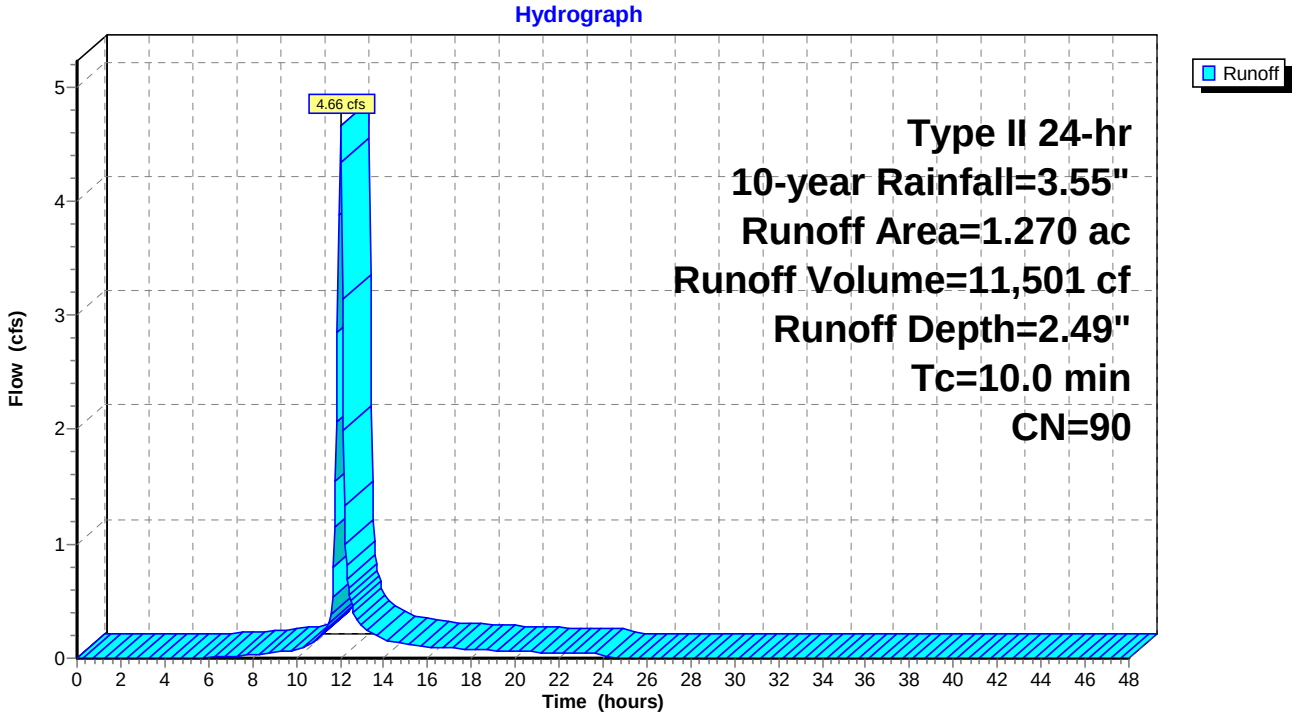
Runoff = 4.66 cfs @ 12.01 hrs, Volume= 11,501 cf, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=3.55"

	Area (ac)	CN	Description
*	0.720	98	Impervious Area, HSG D
	0.420	80	>75% Grass cover, Good, HSG D
	0.130	77	Woods, Good, HSG D
	1.270	90	Weighted Average
	0.550		43.31% Pervious Area
	0.720		56.69% Impervious Area

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

Subcatchment 2S: Post-developed Drainage Area



Summary for Pond 1P: Detention Pond

Inflow Area = 55,321 sf, 56.69% Impervious, Inflow Depth = 2.49" for 10-year event
Inflow = 4.66 cfs @ 12.01 hrs, Volume= 11,501 cf
Outflow = 0.68 cfs @ 12.36 hrs, Volume= 11,501 cf, Atten= 85%, Lag= 21.0 min
Primary = 0.68 cfs @ 12.36 hrs, Volume= 11,501 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 774.21' @ 12.36 hrs Surf.Area= 3,653 sf Storage= 4,590 cf

Plug-Flow detention time= 65.4 min calculated for 11,489 cf (100% of inflow)
Center-of-Mass det. time= 65.4 min (868.9 - 803.5)

Volume	Invert	Avail.Storage	Storage Description
#1	773.10'	2,359 cf	**Detention Pond (Prismatic)** Listed below (Recalc)
#2	771.50'	3,653 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 10,717 cf Overall - 1,583 cf Embedded = 9,134 cf x 40.0% Voids
#3	772.00'	1,583 cf	**24.0" Round Stone Trench 24" Pipe** Inside #2 L= 504.0'
		7,596 cf	Total Available Storage

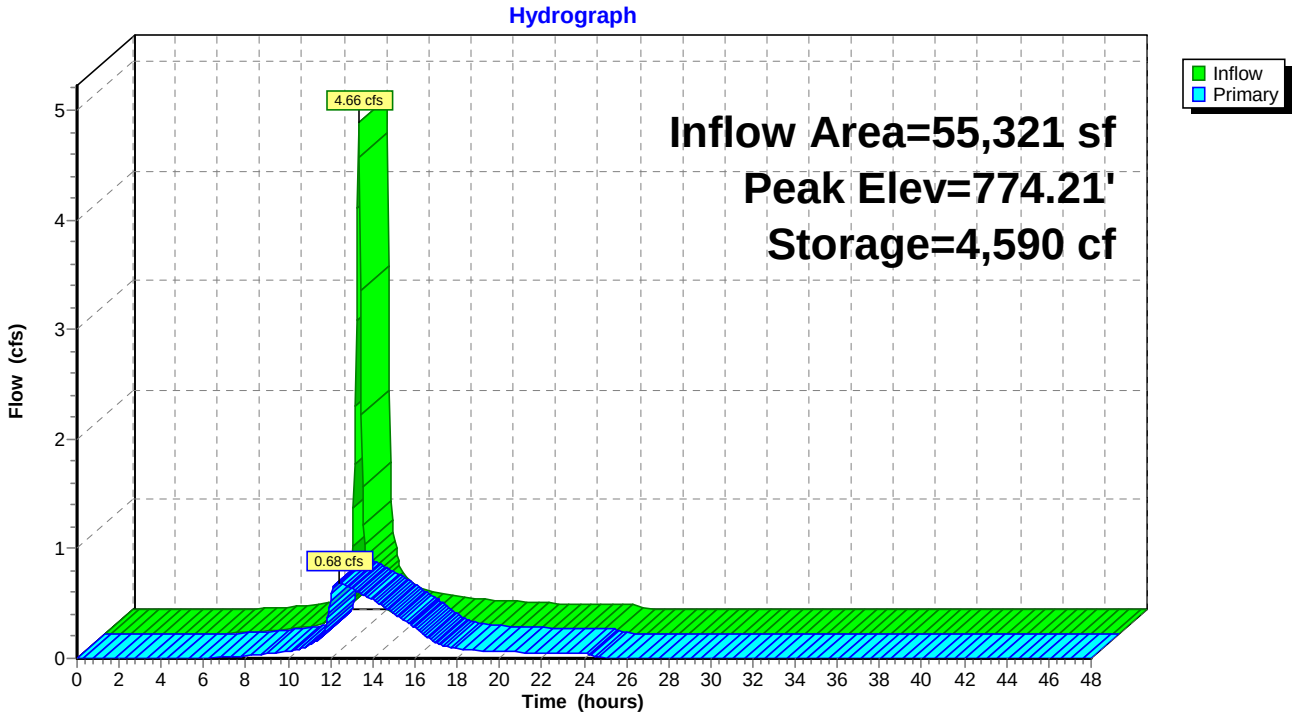
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
773.10	1	0	0
774.00	474	214	214
775.00	1,038	756	970
776.00	1,740	1,389	2,359

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
771.50	3,062	0	0
775.00	3,062	10,717	10,717

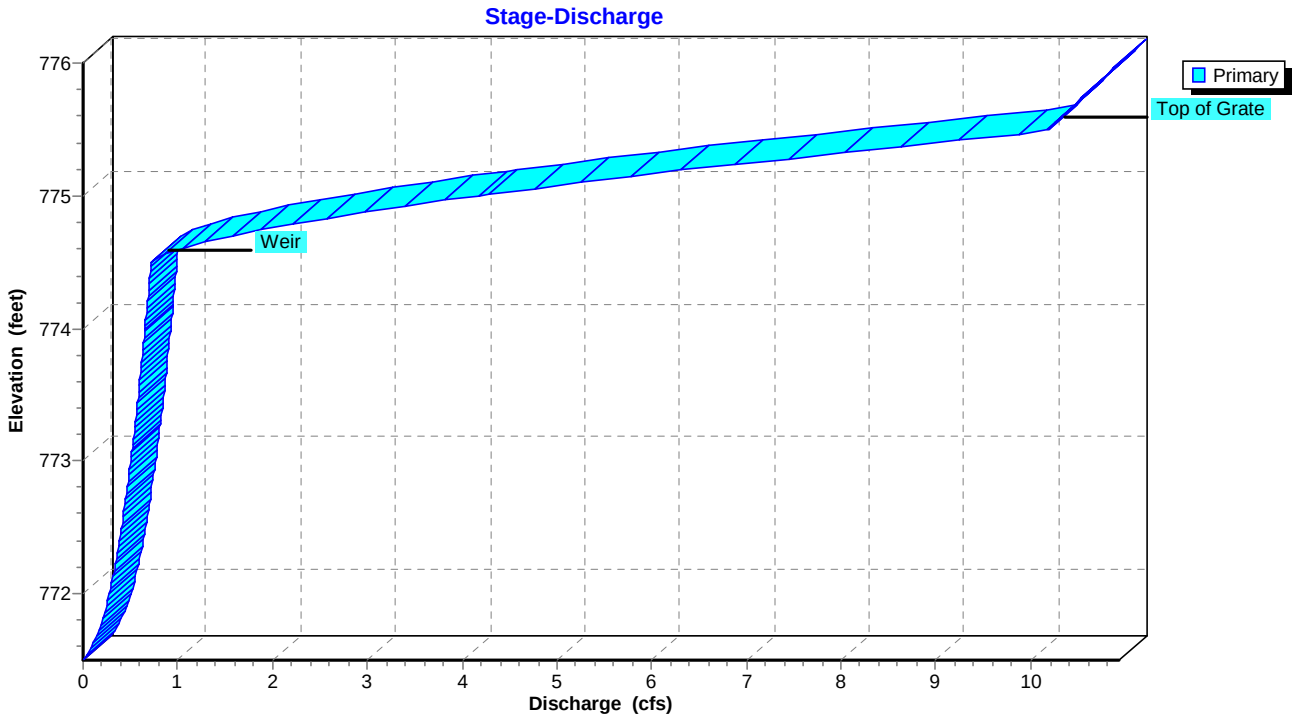
Device	Routing	Invert	Outlet Devices
#1	Primary	771.40'	**15.0" Round Culvert** L= 49.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 771.40' / 771.00' S= 0.0080 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf
#2	Device 1	771.40'	**4.0" Vert. Primary Orifice** C= 0.600
#3	Device 1	774.50'	**36.0" W x 12.0" H Vert. Weir** C= 0.600
#4	Device 1	775.50'	**1.0" x 22.0" Horiz. Top of Grate** X 12 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.68 cfs @ 12.36 hrs HW=774.21' (Free Discharge)
└**1=Culvert** (Passes 0.68 cfs of 7.90 cfs potential flow)
  ├**2=Primary Orifice** (Orifice Controls 0.68 cfs @ 7.82 fps)
  ├**3=Weir** (Controls 0.00 cfs)
  └**4=Top of Grate** (Controls 0.00 cfs)

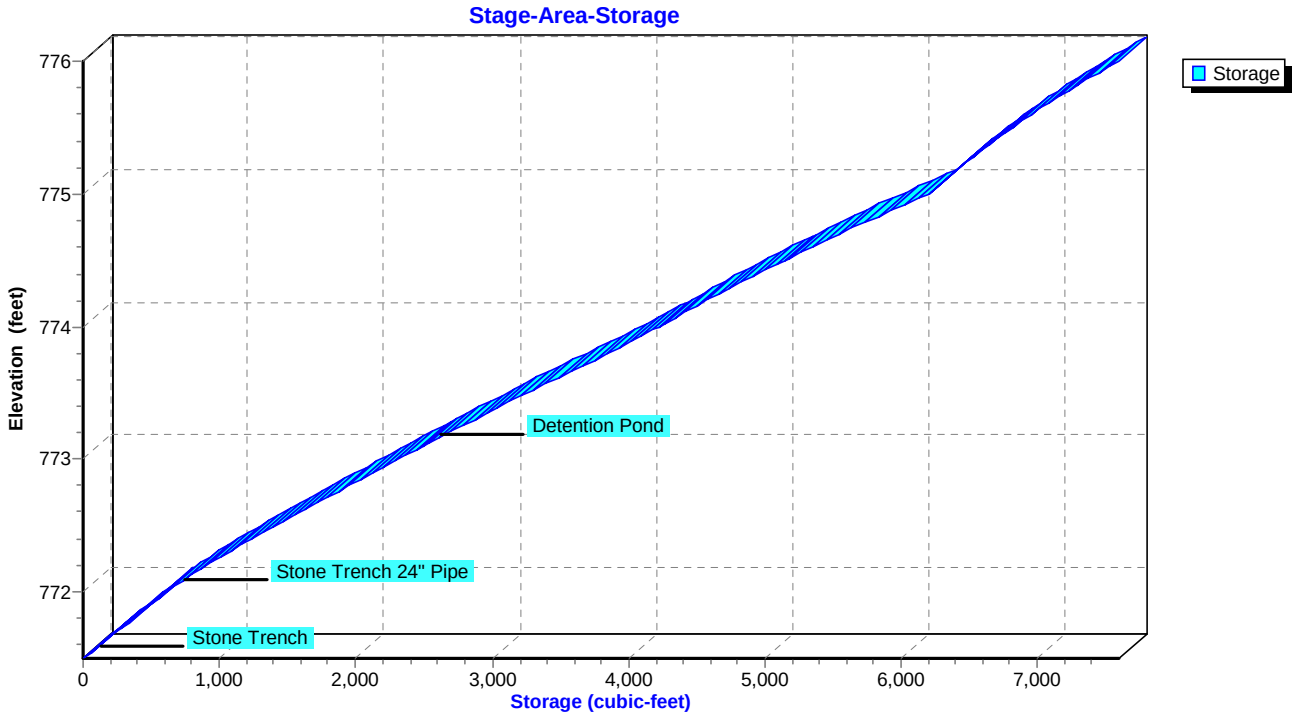
Pond 1P: Detention Pond



Pond 1P: Detention Pond



Pond 1P: Detention Pond



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-developed Drainage Runoff Area=1.270 ac 25.20% Impervious Runoff Depth=2.50"
Tc=15.0 min CN=82 Runoff=4.08 cfs 11,548 cf

Subcatchment 2S: Post-developed Runoff Area=1.270 ac 56.69% Impervious Runoff Depth=3.25"
Tc=10.0 min CN=90 Runoff=6.00 cfs 14,994 cf

Pond 1P: Detention Pond Peak Elev=774.75' Storage=5,654 cf Inflow=6.00 cfs 14,994 cf
Outflow=1.94 cfs 14,994 cf

Summary for Subcatchment 1S: Pre-developed Drainage Area

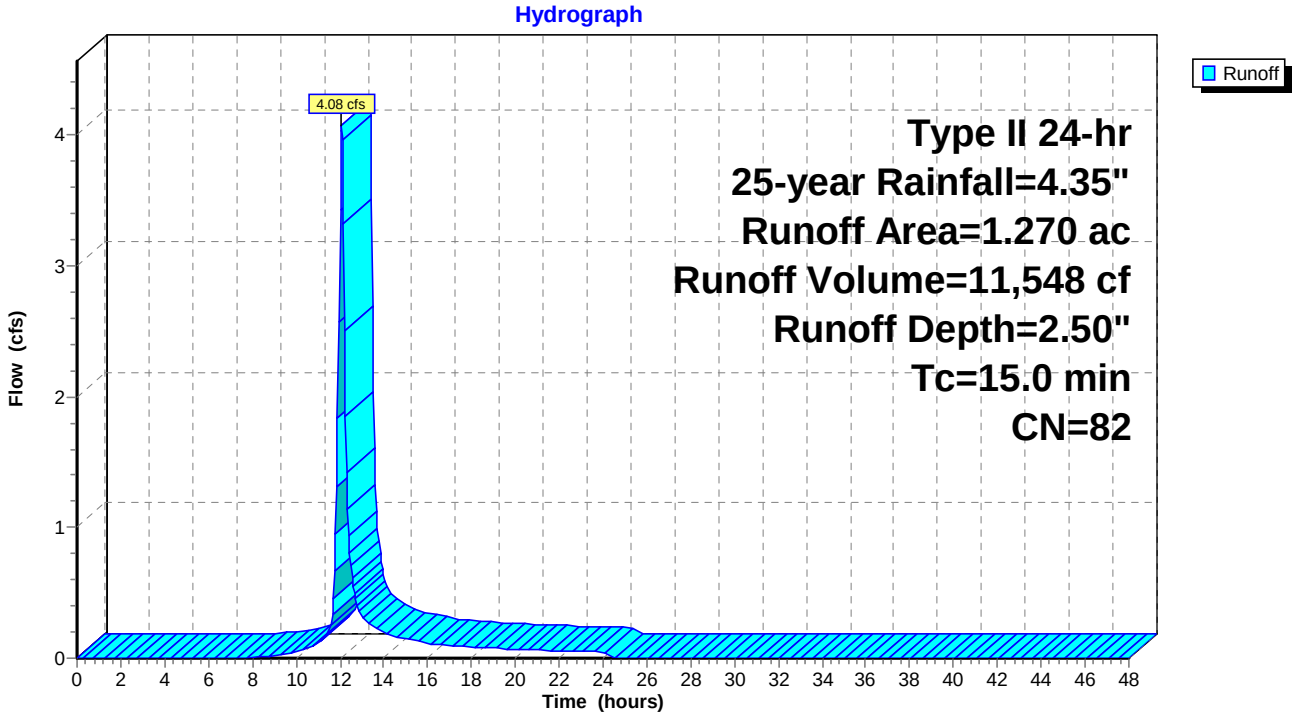
Runoff = 4.08 cfs @ 12.07 hrs, Volume= 11,548 cf, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.35"

	Area (ac)	CN	Description
*	0.320	98	Impervious Area, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.870	77	Woods, Good, HSG D
	1.270	82	Weighted Average
	0.950		74.80% Pervious Area
	0.320		25.20% Impervious Area

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

Subcatchment 1S: Pre-developed Drainage Area



Summary for Subcatchment 2S: Post-developed Drainage Area

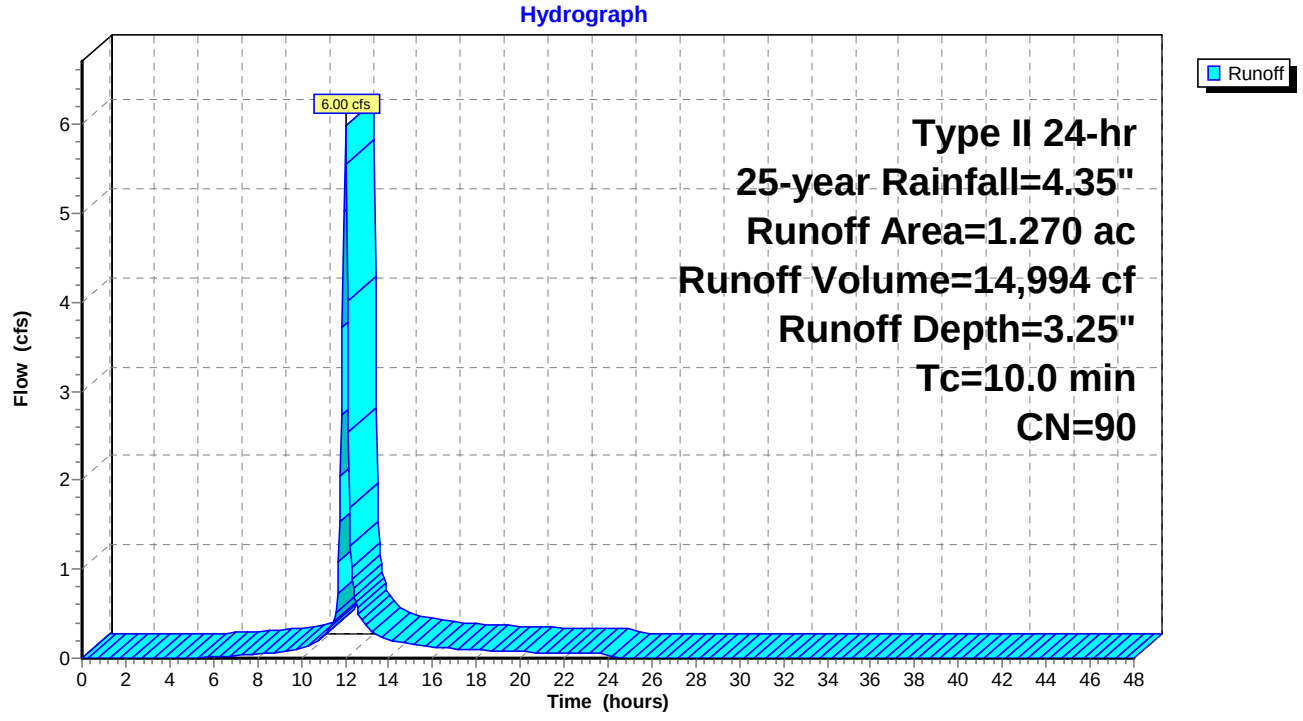
Runoff = 6.00 cfs @ 12.01 hrs, Volume= 14,994 cf, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.35"

	Area (ac)	CN	Description
*	0.720	98	Impervious Area, HSG D
	0.420	80	>75% Grass cover, Good, HSG D
	0.130	77	Woods, Good, HSG D
	1.270	90	Weighted Average
	0.550		43.31% Pervious Area
	0.720		56.69% Impervious Area

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

Subcatchment 2S: Post-developed Drainage Area



Summary for Pond 1P: Detention Pond

Inflow Area = 55,321 sf, 56.69% Impervious, Inflow Depth = 3.25" for 25-year event
Inflow = 6.00 cfs @ 12.01 hrs, Volume= 14,994 cf
Outflow = 1.94 cfs @ 12.20 hrs, Volume= 14,994 cf, Atten= 68%, Lag= 11.2 min
Primary = 1.94 cfs @ 12.20 hrs, Volume= 14,994 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 774.75' @ 12.20 hrs Surf.Area= 3,958 sf Storage= 5,654 cf

Plug-Flow detention time= 66.6 min calculated for 14,994 cf (100% of inflow)
Center-of-Mass det. time= 66.4 min (862.4 - 796.1)

Volume	Invert	Avail.Storage	Storage Description
#1	773.10'	2,359 cf	**Detention Pond (Prismatic)** Listed below (Recalc)
#2	771.50'	3,653 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 10,717 cf Overall - 1,583 cf Embedded = 9,134 cf x 40.0% Voids
#3	772.00'	1,583 cf	**24.0" Round Stone Trench 24" Pipe** Inside #2 L= 504.0'
		7,596 cf	Total Available Storage

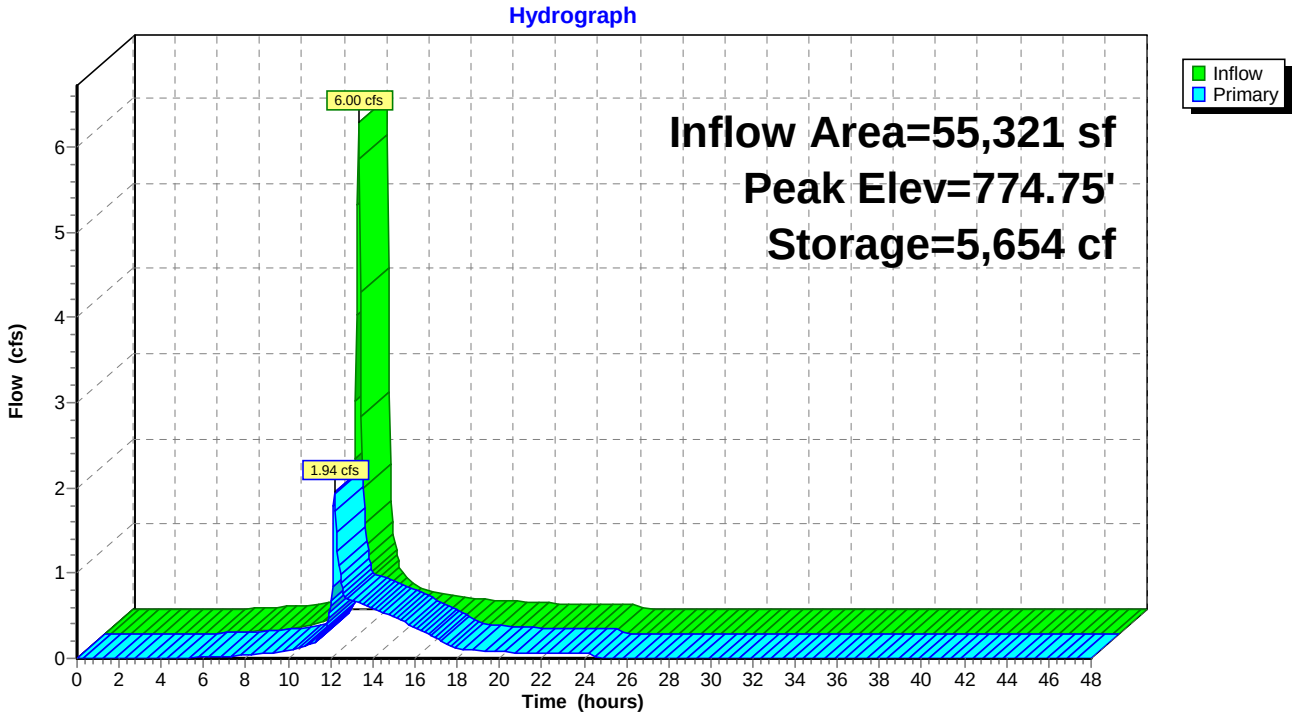
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
773.10	1	0	0
774.00	474	214	214
775.00	1,038	756	970
776.00	1,740	1,389	2,359

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
771.50	3,062	0	0
775.00	3,062	10,717	10,717

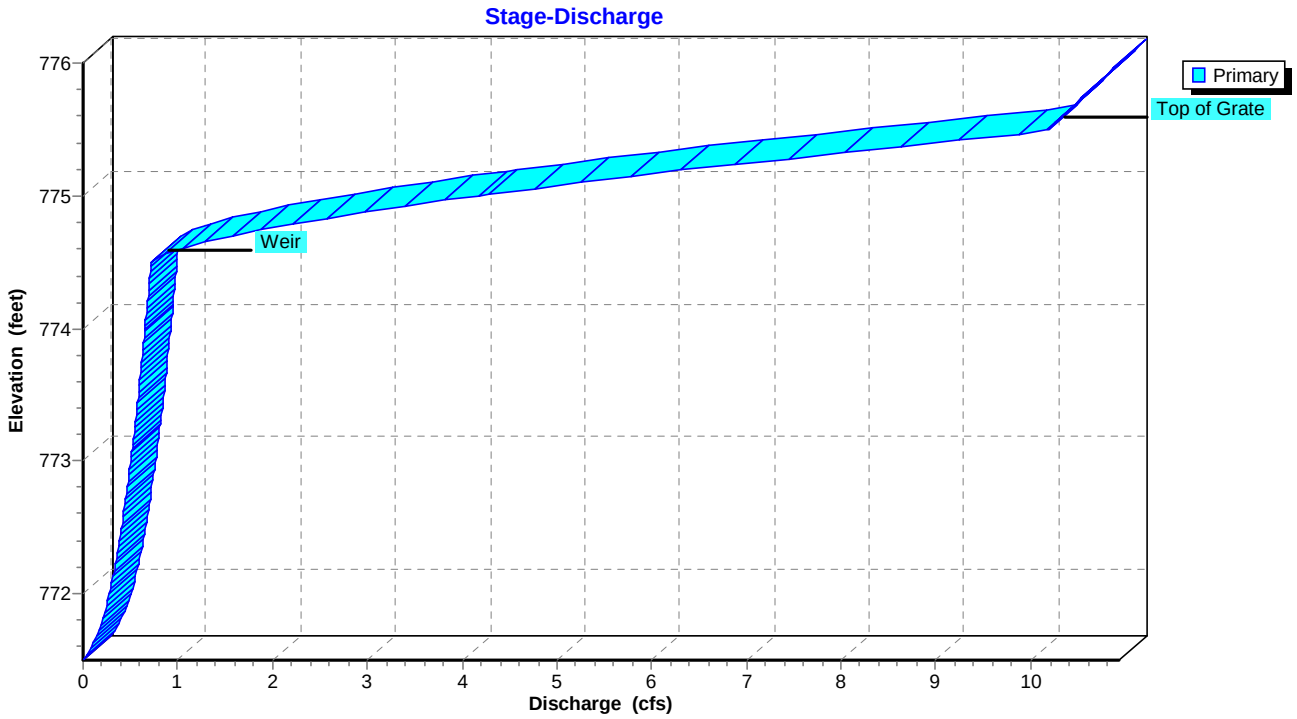
Device	Routing	Invert	Outlet Devices
#1	Primary	771.40'	**15.0" Round Culvert** L= 49.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 771.40' / 771.00' S= 0.0080 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf
#2	Device 1	771.40'	**4.0" Vert. Primary Orifice** C= 0.600
#3	Device 1	774.50'	**36.0" W x 12.0" H Vert. Weir** C= 0.600
#4	Device 1	775.50'	**1.0" x 22.0" Horiz. Top of Grate** X 12 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.93 cfs @ 12.20 hrs HW=774.75' (Free Discharge)
└**1=Culvert** (Passes 1.93 cfs of 8.92 cfs potential flow)
  ├**2=Primary Orifice** (Orifice Controls 0.75 cfs @ 8.59 fps)
  ├**3=Weir** (Orifice Controls 1.18 cfs @ 1.59 fps)
  └**4=Top of Grate** (Controls 0.00 cfs)

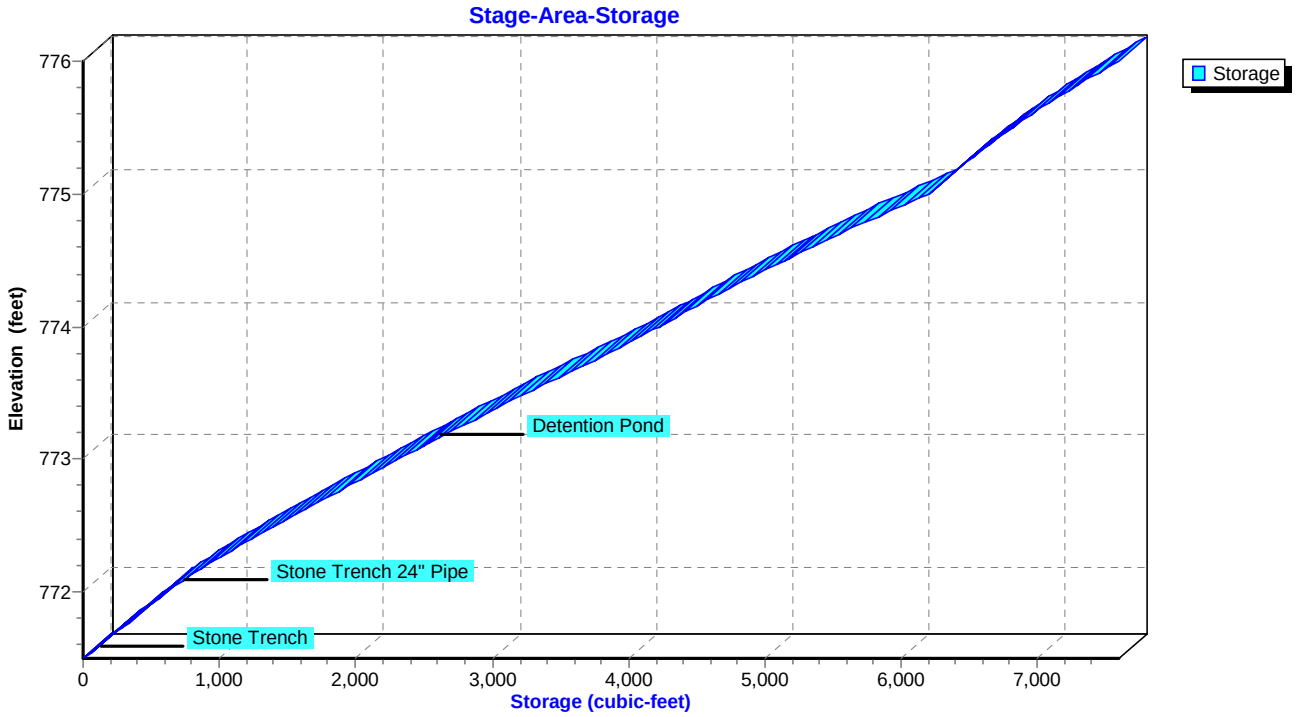
Pond 1P: Detention Pond



Pond 1P: Detention Pond



Pond 1P: Detention Pond



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-developed Drainage Runoff Area=1.270 ac 25.20% Impervious Runoff Depth=3.15"
Tc=15.0 min CN=82 Runoff=5.11 cfs 14,525 cf

Subcatchment 2S: Post-developed Runoff Area=1.270 ac 56.69% Impervious Runoff Depth=3.95"
Tc=10.0 min CN=90 Runoff=7.21 cfs 18,226 cf

Pond 1P: Detention Pond Peak Elev=774.97' Storage=6,145 cf Inflow=7.21 cfs 18,226 cf
Outflow=3.90 cfs 18,226 cf

Summary for Subcatchment 1S: Pre-developed Drainage Area

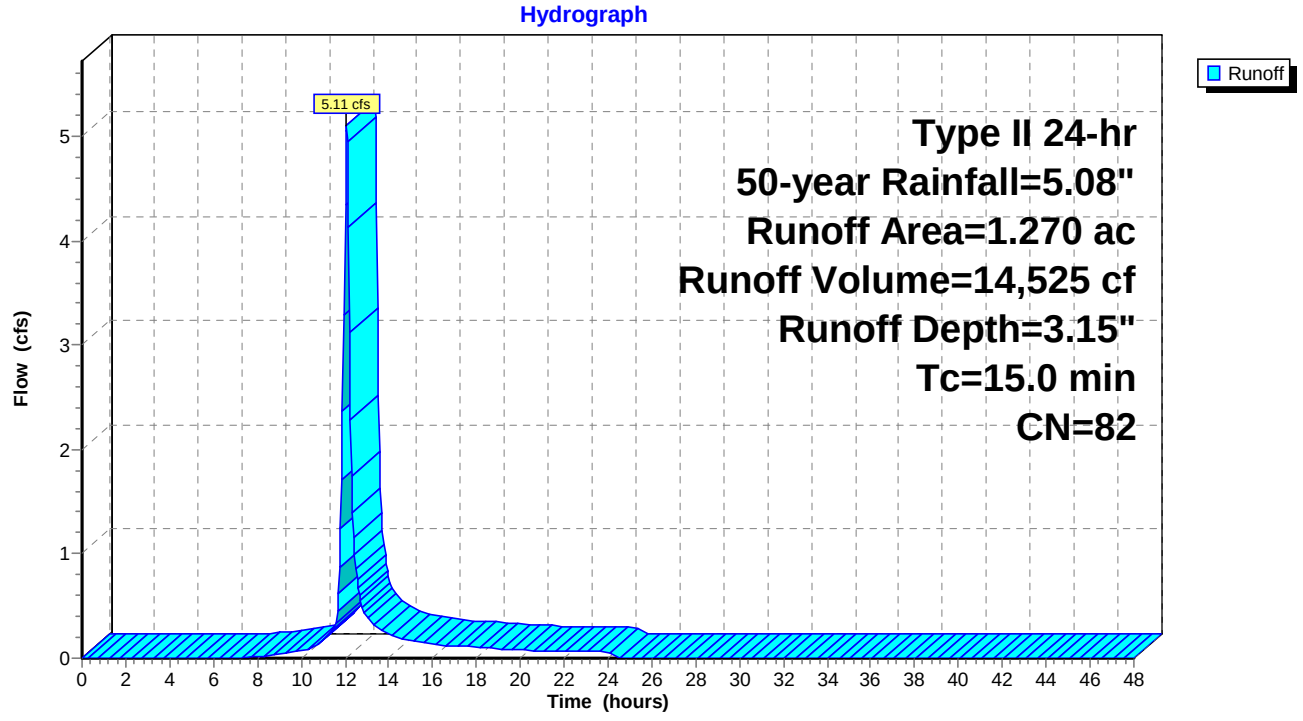
Runoff = 5.11 cfs @ 12.07 hrs, Volume= 14,525 cf, Depth= 3.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.08"

	Area (ac)	CN	Description
*	0.320	98	Impervious Area, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.870	77	Woods, Good, HSG D
	1.270	82	Weighted Average
	0.950		74.80% Pervious Area
	0.320		25.20% Impervious Area

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

Subcatchment 1S: Pre-developed Drainage Area



Summary for Subcatchment 2S: Post-developed Drainage Area

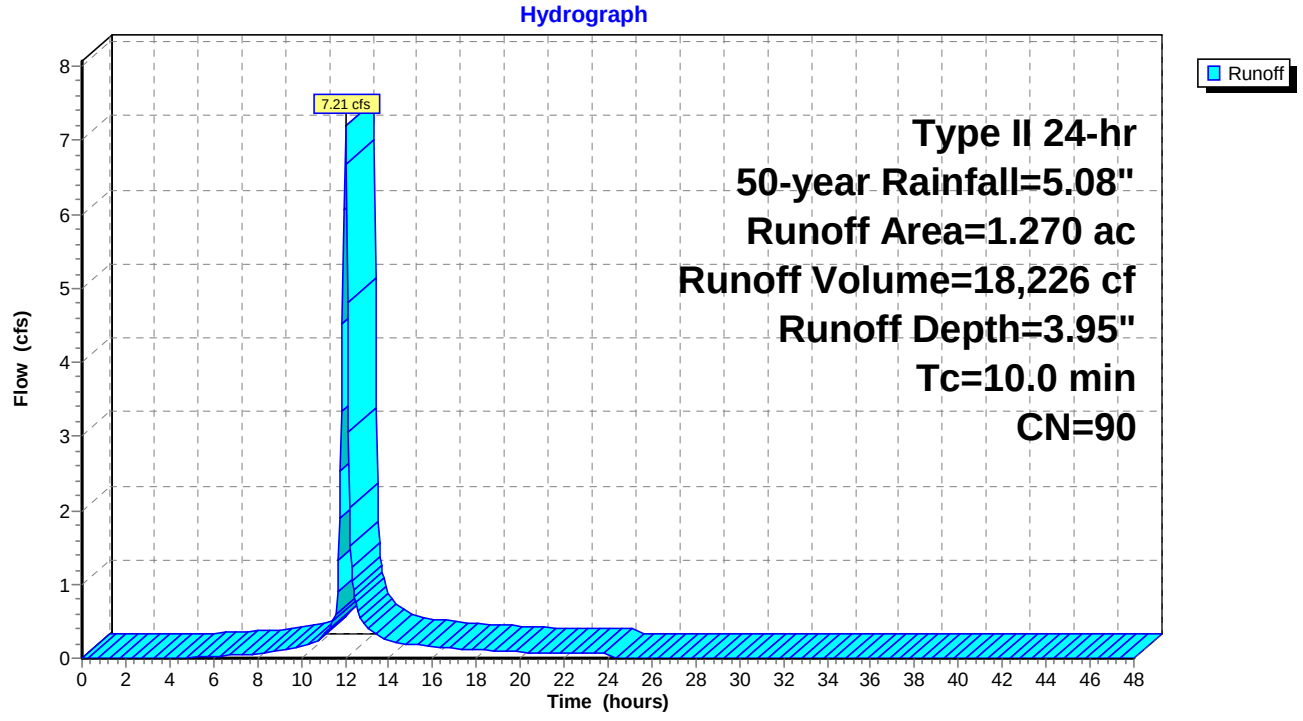
Runoff = 7.21 cfs @ 12.01 hrs, Volume= 18,226 cf, Depth= 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.08"

	Area (ac)	CN	Description
*	0.720	98	Impervious Area, HSG D
	0.420	80	>75% Grass cover, Good, HSG D
	0.130	77	Woods, Good, HSG D
	1.270	90	Weighted Average
	0.550		43.31% Pervious Area
	0.720		56.69% Impervious Area

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

Subcatchment 2S: Post-developed Drainage Area



Summary for Pond 1P: Detention Pond

Inflow Area = 55,321 sf, 56.69% Impervious, Inflow Depth = 3.95" for 50-year event
Inflow = 7.21 cfs @ 12.01 hrs, Volume= 18,226 cf
Outflow = 3.90 cfs @ 12.13 hrs, Volume= 18,226 cf, Atten= 46%, Lag= 7.3 min
Primary = 3.90 cfs @ 12.13 hrs, Volume= 18,226 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 774.97' @ 12.13 hrs Surf.Area= 4,085 sf Storage= 6,145 cf

Plug-Flow detention time= 61.3 min calculated for 18,207 cf (100% of inflow)
Center-of-Mass det. time= 61.3 min (852.0 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	773.10'	2,359 cf	**Detention Pond (Prismatic)** Listed below (Recalc)
#2	771.50'	3,653 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 10,717 cf Overall - 1,583 cf Embedded = 9,134 cf x 40.0% Voids
#3	772.00'	1,583 cf	**24.0" Round Stone Trench 24" Pipe** Inside #2 L= 504.0'
		7,596 cf	Total Available Storage

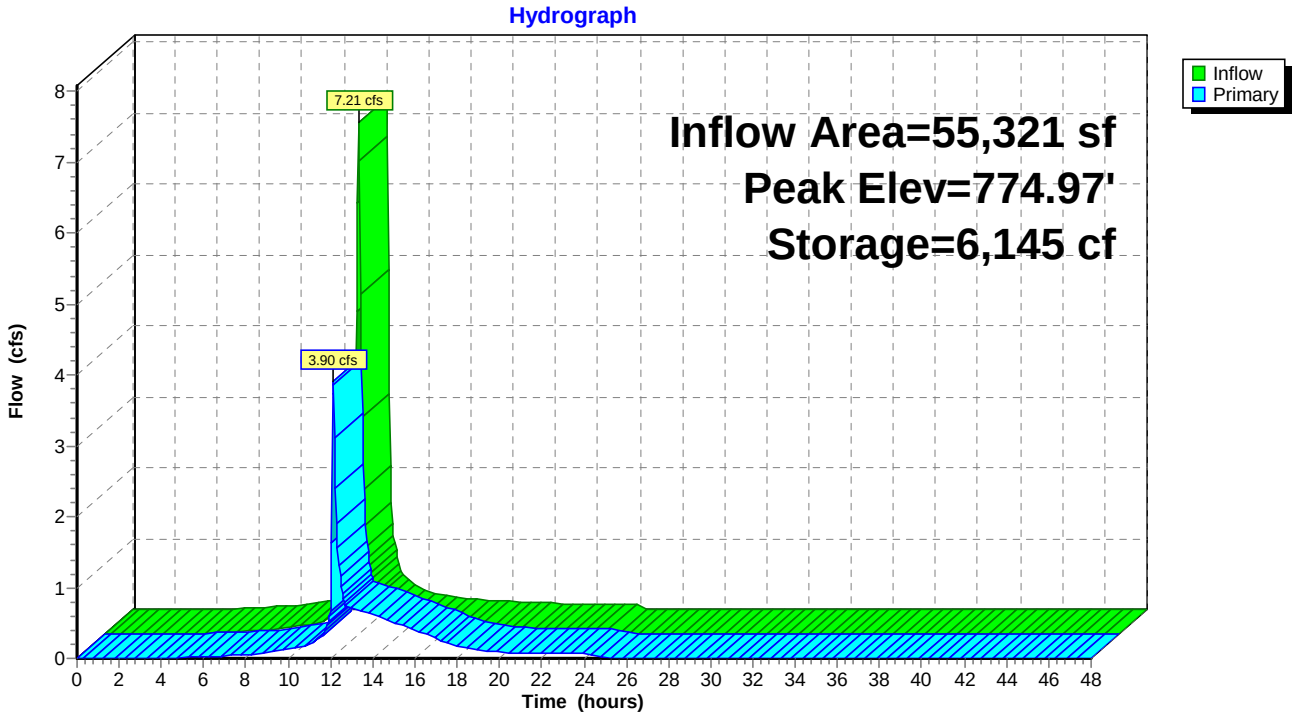
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
773.10	1	0	0
774.00	474	214	214
775.00	1,038	756	970
776.00	1,740	1,389	2,359

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
771.50	3,062	0	0
775.00	3,062	10,717	10,717

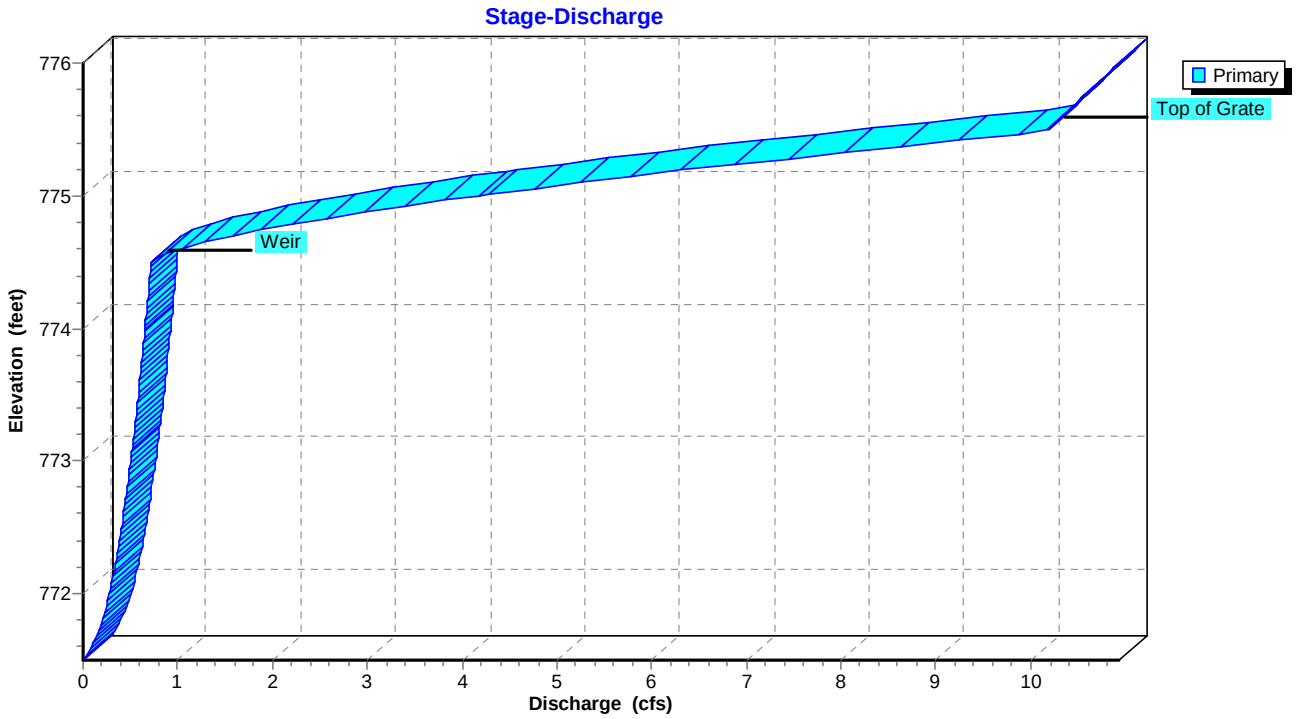
Device	Routing	Invert	Outlet Devices
#1	Primary	771.40'	**15.0" Round Culvert** L= 49.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 771.40' / 771.00' S= 0.0080 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf
#2	Device 1	771.40'	**4.0" Vert. Primary Orifice** C= 0.600
#3	Device 1	774.50'	**36.0" W x 12.0" H Vert. Weir** C= 0.600
#4	Device 1	775.50'	**1.0" x 22.0" Horiz. Top of Grate** X 12 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area) Limited to weir flow at low heads

Primary OutFlow Max=3.80 cfs @ 12.13 hrs HW=774.96' (Free Discharge)
└**1=Culvert** (Passes 3.80 cfs of 9.30 cfs potential flow)
  ├**2=Primary Orifice** (Orifice Controls 0.77 cfs @ 8.87 fps)
  ├**3=Weir** (Orifice Controls 3.03 cfs @ 2.18 fps)
  └**4=Top of Grate** (Controls 0.00 cfs)

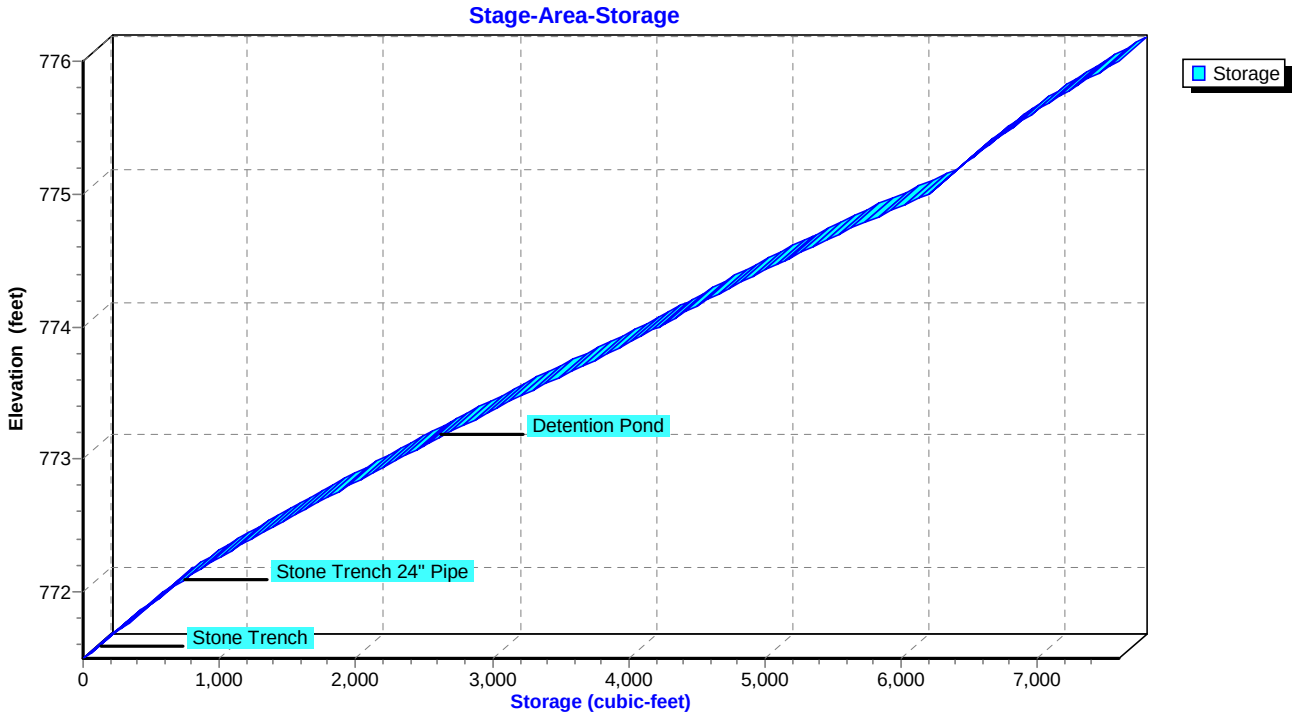
Pond 1P: Detention Pond



Pond 1P: Detention Pond



Pond 1P: Detention Pond



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-developed Drainage Runoff Area=1.270 ac 25.20% Impervious Runoff Depth=3.91"
Tc=15.0 min CN=82 Runoff=6.31 cfs 18,042 cf

Subcatchment 2S: Post-developed Runoff Area=1.270 ac 56.69% Impervious Runoff Depth=4.77"
Tc=10.0 min CN=90 Runoff=8.60 cfs 21,981 cf

Pond 1P: Detention Pond Peak Elev=775.23' Storage=6,465 cf Inflow=8.60 cfs 21,981 cf
Outflow=6.82 cfs 21,981 cf

Summary for Subcatchment 1S: Pre-developed Drainage Area

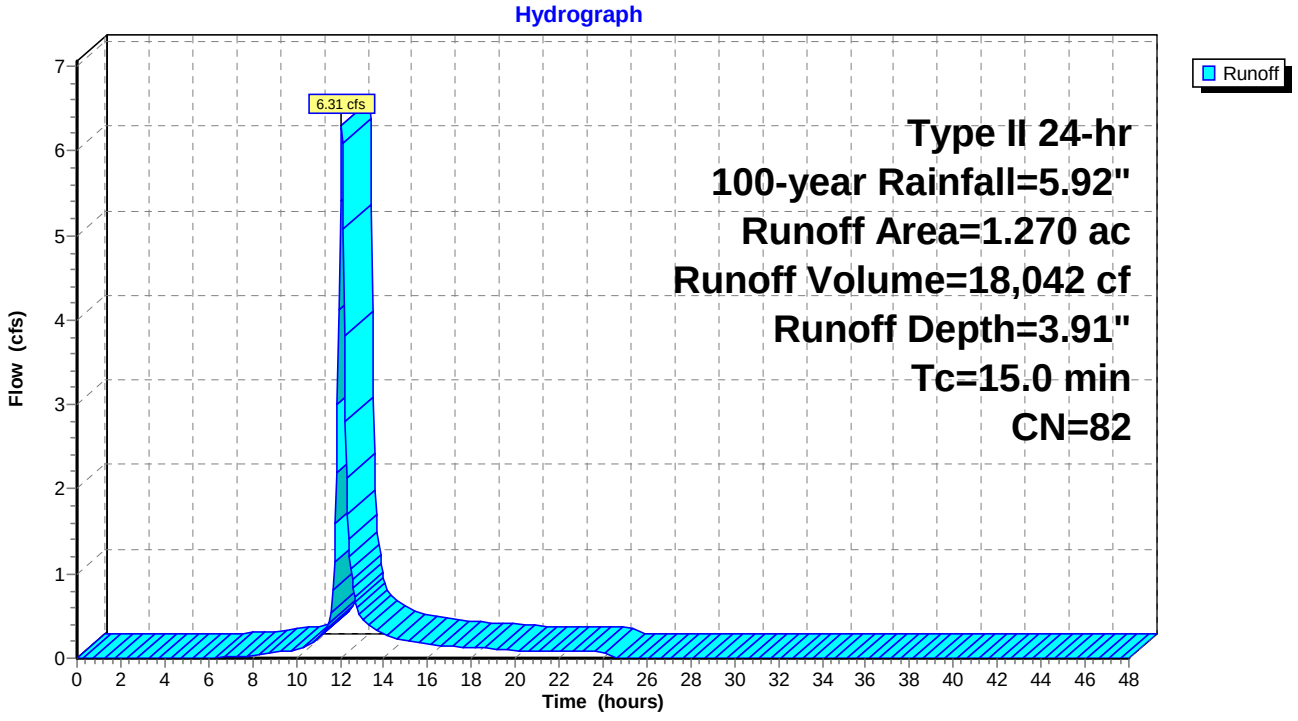
Runoff = 6.31 cfs @ 12.07 hrs, Volume= 18,042 cf, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.92"

	Area (ac)	CN	Description
*	0.320	98	Impervious Area, HSG D
	0.080	80	>75% Grass cover, Good, HSG D
	0.870	77	Woods, Good, HSG D
	1.270	82	Weighted Average
	0.950		74.80% Pervious Area
	0.320		25.20% Impervious Area

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

Subcatchment 1S: Pre-developed Drainage Area



Summary for Subcatchment 2S: Post-developed Drainage Area

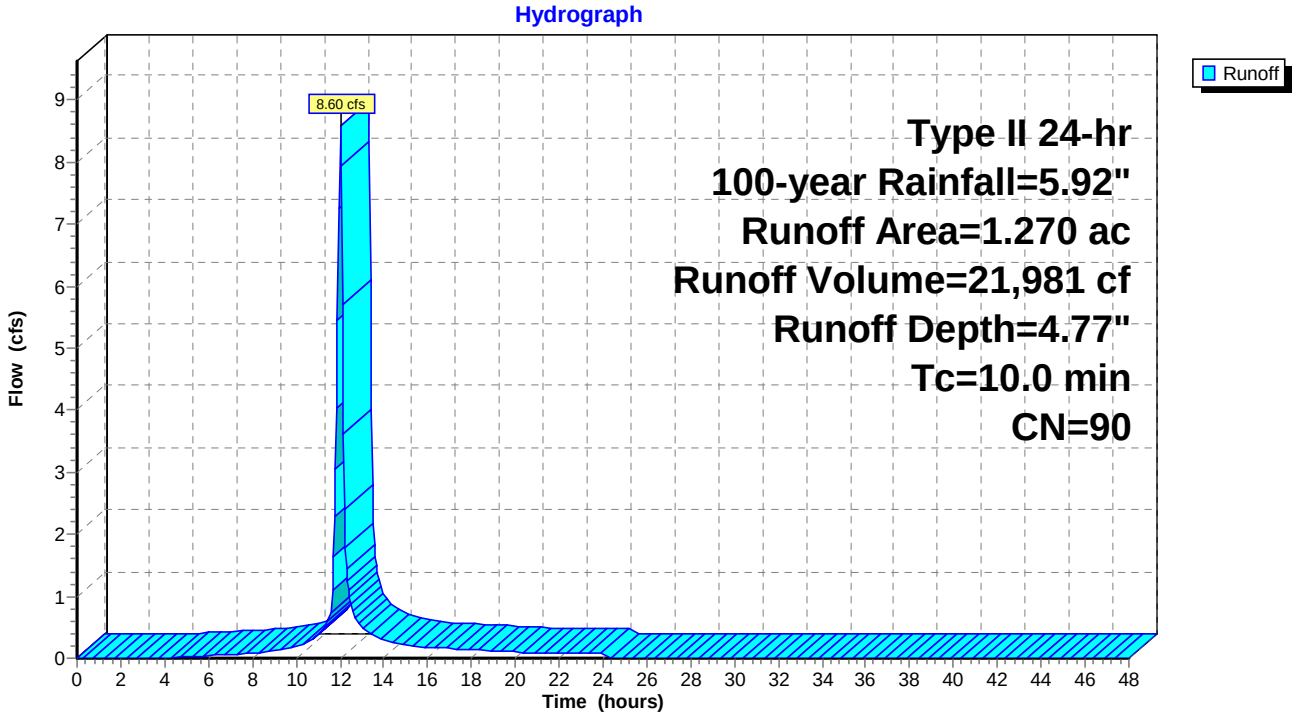
Runoff = 8.60 cfs @ 12.01 hrs, Volume= 21,981 cf, Depth= 4.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.92"

	Area (ac)	CN	Description
*	0.720	98	Impervious Area, HSG D
	0.420	80	>75% Grass cover, Good, HSG D
	0.130	77	Woods, Good, HSG D
	1.270	90	Weighted Average
	0.550		43.31% Pervious Area
	0.720		56.69% Impervious Area

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

Subcatchment 2S: Post-developed Drainage Area



Summary for Pond 1P: Detention Pond

Inflow Area = 55,321 sf, 56.69% Impervious, Inflow Depth = 4.77" for 100-year event
Inflow = 8.60 cfs @ 12.01 hrs, Volume= 21,981 cf
Outflow = 6.82 cfs @ 12.09 hrs, Volume= 21,981 cf, Atten= 21%, Lag= 5.0 min
Primary = 6.82 cfs @ 12.09 hrs, Volume= 21,981 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 775.23' @ 12.09 hrs Surf.Area= 4,262 sf Storage= 6,465 cf

Plug-Flow detention time= 57.1 min calculated for 21,958 cf (100% of inflow)
Center-of-Mass det. time= 57.1 min (842.7 - 785.5)

Volume	Invert	Avail.Storage	Storage Description
#1	773.10'	2,359 cf	**Detention Pond (Prismatic)** Listed below (Recalc)
#2	771.50'	3,653 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 10,717 cf Overall - 1,583 cf Embedded = 9,134 cf x 40.0% Voids
#3	772.00'	1,583 cf	**24.0" Round Stone Trench 24" Pipe** Inside #2 L= 504.0'
		7,596 cf	Total Available Storage

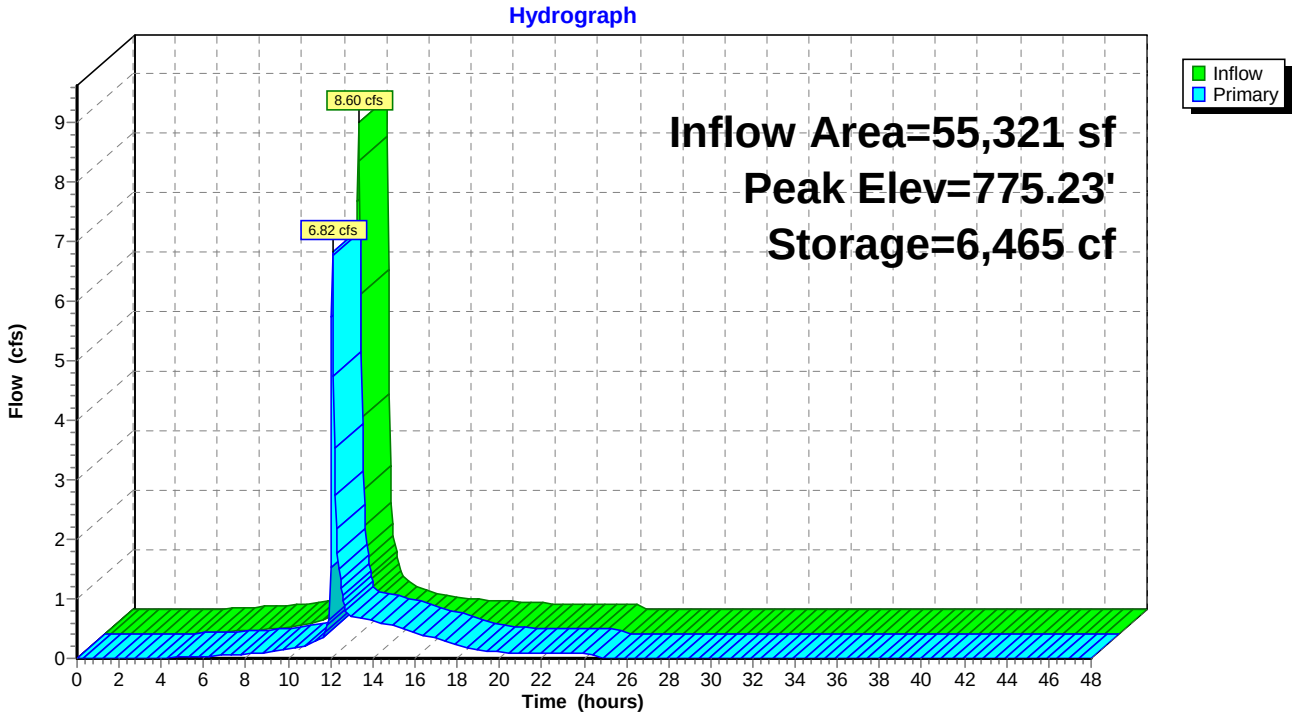
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
773.10	1	0	0
774.00	474	214	214
775.00	1,038	756	970
776.00	1,740	1,389	2,359

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
771.50	3,062	0	0
775.00	3,062	10,717	10,717

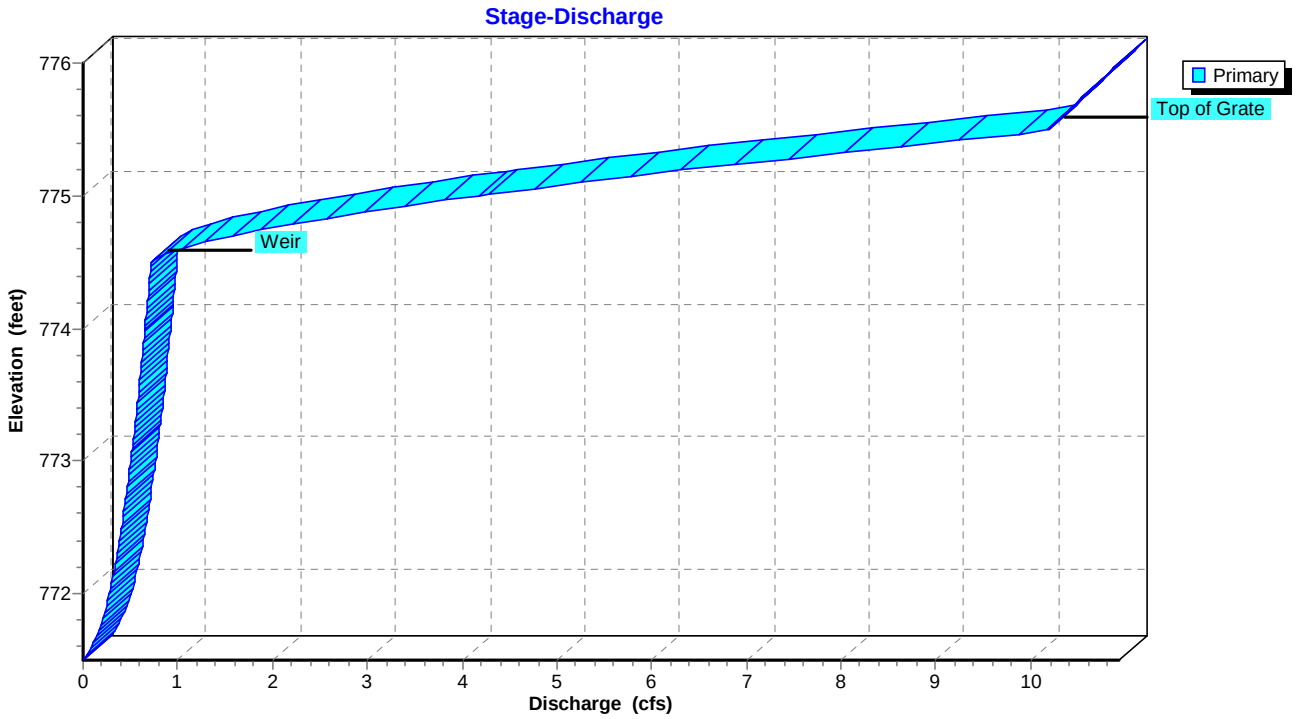
Device	Routing	Invert	Outlet Devices
#1	Primary	771.40'	**15.0" Round Culvert** L= 49.7' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 771.40' / 771.00' S= 0.0080 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf
#2	Device 1	771.40'	**4.0" Vert. Primary Orifice** C= 0.600
#3	Device 1	774.50'	**36.0" W x 12.0" H Vert. Weir** C= 0.600
#4	Device 1	775.50'	**1.0" x 22.0" Horiz. Top of Grate** X 12 rows C= 0.600 in 24.0" x 24.0" Grate (46% open area) Limited to weir flow at low heads

Primary OutFlow Max=6.61 cfs @ 12.09 hrs HW=775.21' (Free Discharge)
- **1=Culvert** (Passes 6.61 cfs of 9.72 cfs potential flow)
  - **2=Primary Orifice** (Orifice Controls 0.80 cfs @ 9.20 fps)
  - **3=Weir** (Orifice Controls 5.81 cfs @ 2.71 fps)
  - **4=Top of Grate** (Controls 0.00 cfs)

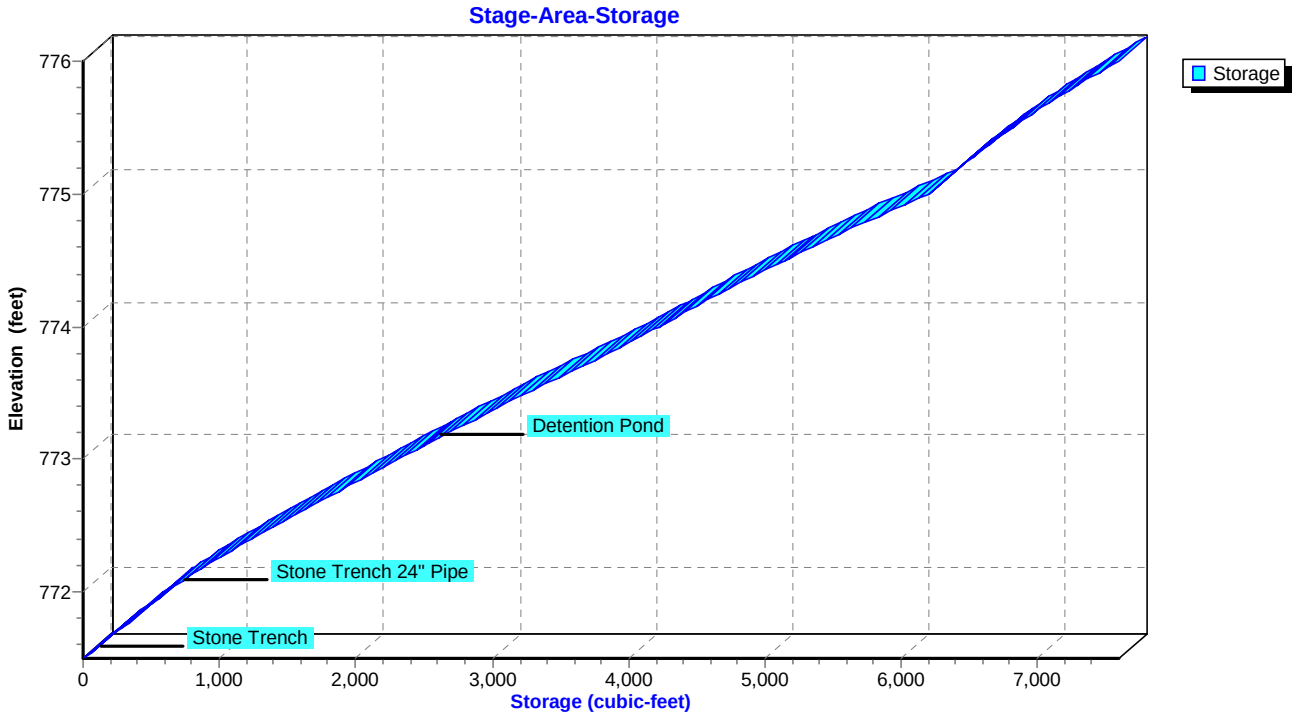
Pond 1P: Detention Pond



Pond 1P: Detention Pond



Pond 1P: Detention Pond



Post-Construction Operations & Maintenance Plan

For

SGT. CLEAN CAR WASH

32441 Lorain Road
North Ridgeville, Ohio 44039

Prepared For

Always Stay Unlimited LLC.
3673 Massillon Road
Uniontown, OH 44685

Design Engineer

2555 Hartville Road, Suite B
Rootstown, OH 44272
Phone: 330-329-2037
www.weberengineeringservices.com

WES Job No.: 2022-298 **Date: 11-14-2022**

Post-Construction Storm Water Operation and Maintenance Responsibilities

(a) Storm Water Quality Basin Maintenance. To be completed MONTHLY.

(1) Clean trash and debris from outlet structure.

(2) Remove trash and/or accumulated sediment.

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
(1)												
(2)												

(b) Storm Water Basin Maintenance. To be completed ANNUALLY.

(1) Inspect embankment and outlet structure for damage and proper flow.

(2) Remove woody vegetation within flow path and side slopes.

(3) Fix any eroded areas.

(4) Monitor sediment accumulation in main pool and underground system.

(5) Vacuum structure sump and remove sediment.

	(1)	(2)	(3)	(4)	(5)	Notes:
2023						
2024						
2025						

(c) Storm Water Basin Maintenance. To be completed SEMI-ANNUALLY.

(1) Inspect pond for invasive plants

	(1)	Notes:
2023 (1/2)		
2023 (2/2)		
2024 (1/2)		
2024 (2/2)		

(d) Storm Water Basin Maintenance. To be completed EVERY 15-20 YEARS.

(1) Monitor sediment accumulations in the pond main pool bottom and clean as pond becomes eutrophic or storage volume is reduced significantly.

	(1)	Notes:
2038		

Storm Water Management Inspection Responsibilities

1. The following agreement pertains to the stormwater management system located at Parcel No. 07-00-003-102-065.

2. The Owner shall submit Inspection Reports in writing to the Community engineer within 30 days after each inspection.

3. The Owner grants permission to the Community to enter the Property and to inspect all aspects of the storm water management practices and related damage whenever the Community deems necessary. The Community shall provide the Owner copies of the inspection findings and a directive to commence with the repairs if necessary.

4. The Owner shall maintain the best management practice(s) in perpetuity and make all repairs within forty-five (45) days of their discovery through Owner inspections or through a request from the Community. If repairs will not occur within this forty-five (45) day period, the Owner must receive written approval from the Community engineer for a repair schedule.

5. In the event of any default or failure by the Owner in the performance of any of the covenants and warranties pertaining to the maintenance of the storm water management practices, or the Owner fails to maintain the storm water management practices in accordance with the approved design standards and Maintenance Plan, or, in the event of an emergency as determine by the Community, it is the sole discretion the Community, after providing reasonable notice to the Owner, to enter the property and take whatever steps necessary to correct deficiencies and to charge the cost of such repairs to the Owner. The Owner shall reimburse the Community upon demand, within thirty (30) days of receipt thereof for all actual cost incurred by the Community. All costs expended by the Community in performing such necessary maintenance or repairs shall constitute a lien against the properties of the Owner. Nothing herein shall obligate the Community to maintain the storm water management practices.

Owner/Operator Signature

Owner/Operator agrees to perform the maintenance responsibilities as outlined above.

Always Stay Unlimited LLC.

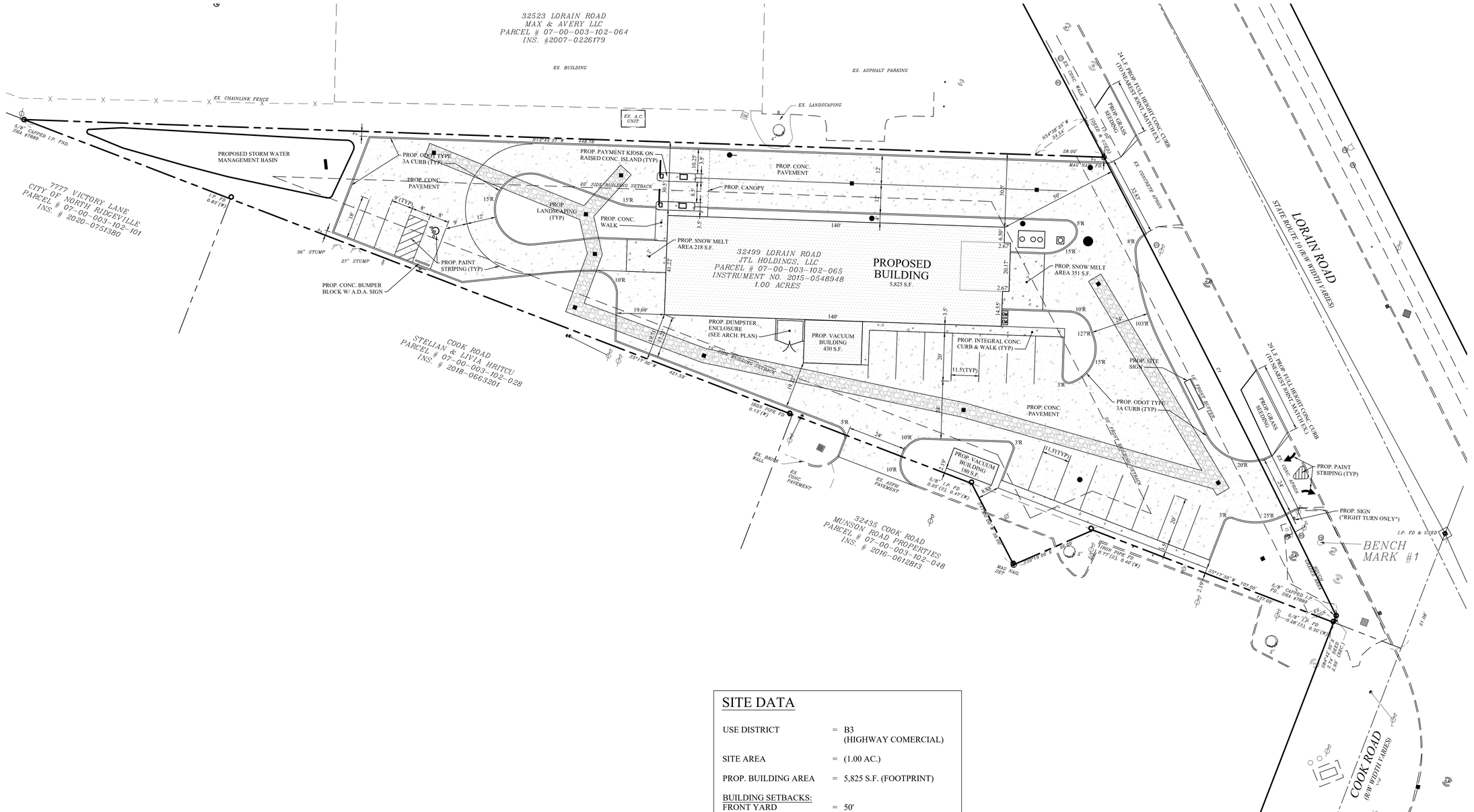
_____

Printed Name

_____

Signature Date

REFERENCE EXHIBITS



CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'54" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

SITE DATA

USE DISTRICT	=	B3 (HIGHWAY COMERCIAL)
SITE AREA	=	(1.00 AC.)
PROP. BUILDING AREA	=	5,825 S.F. (FOOTPRINT)
BUILDING SETBACKS:		
FRONT YARD	=	50'
SIDE YARD	=	35' TOTAL FOR 2 SIDES, NOT LESS THAN 15' ONE SIDE
REAR YARD	=	40'
NUMBER OF PARKING SPACES:		
REGULAR PARKING SPACES	=	3
HANDICAP PARKING SPACES	=	1
TOTAL PARKING SPACES	=	4

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39093C 0163 D
COMMUNITY PANEL NUMBER 39093 0163 D
EFFECTIVE DATE AUGUST 19, 2008

LEGEND

CONCRETE PAVING

ITALICS TEXT REPRESENTS EXISTING CONDITION
NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

OHIO811.org Before You Dig

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330-329-2037
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STATE OF OHIO
MATTHEW L. WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

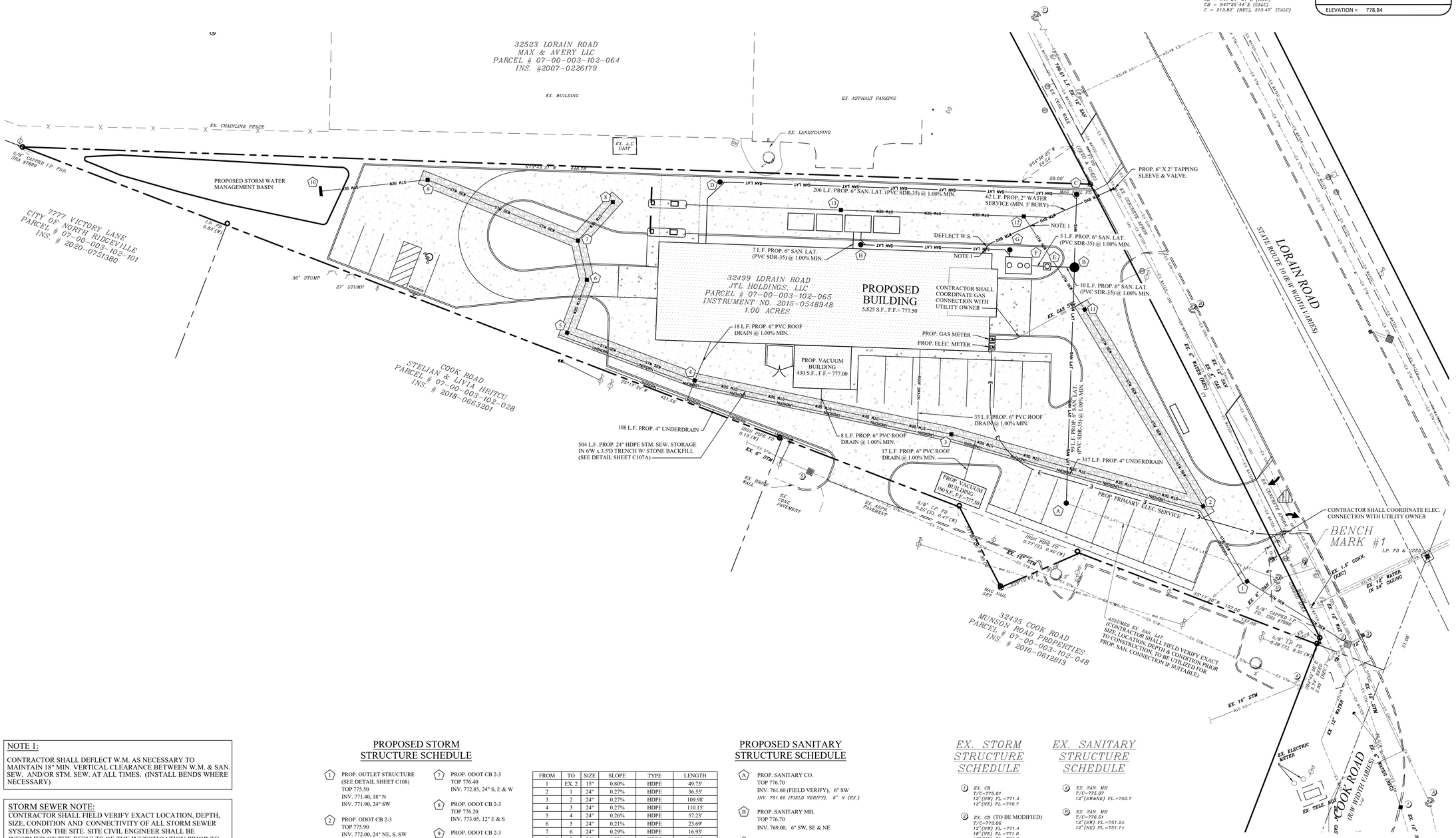
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

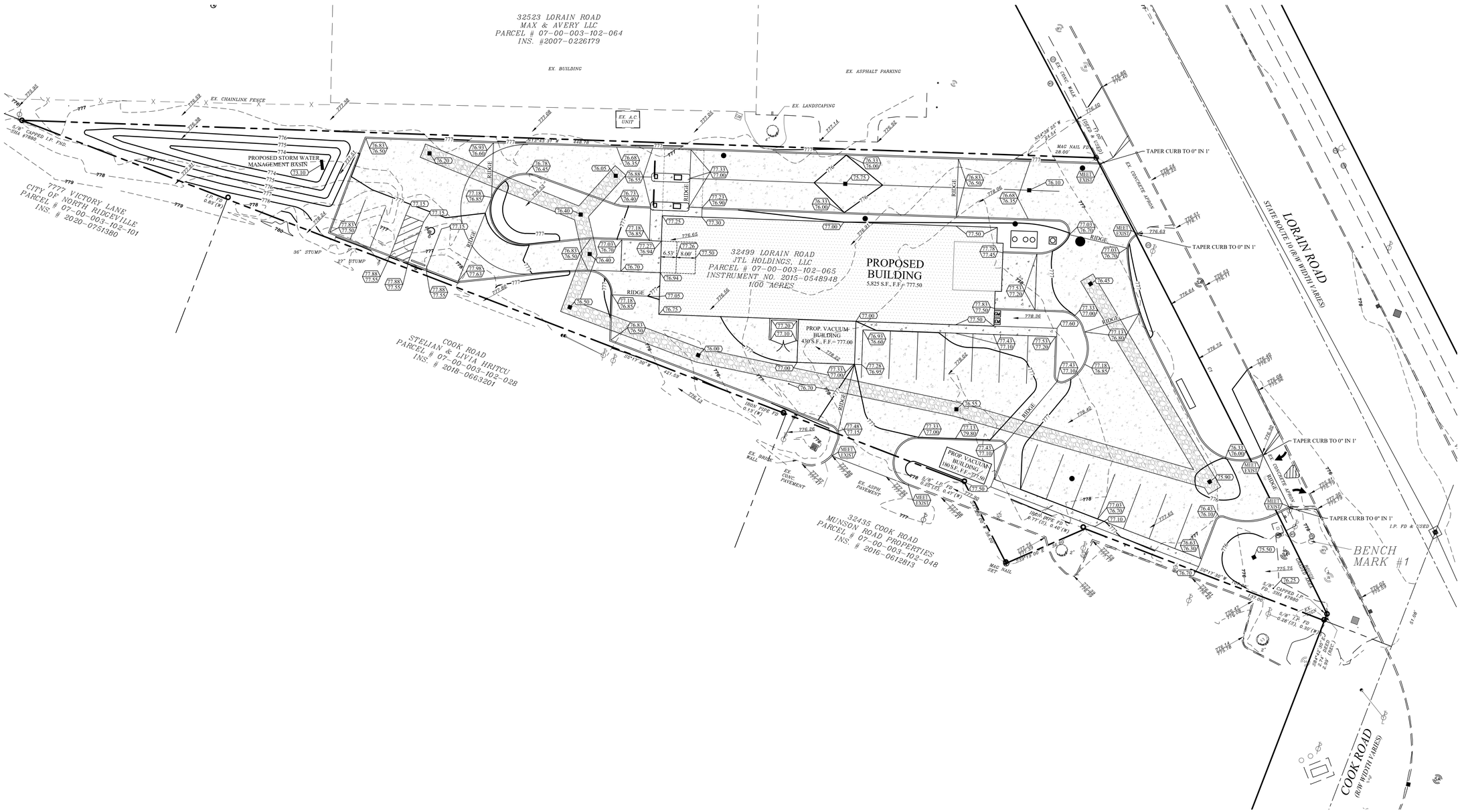
Issue Date
10-26-2022
11-14-2022

SITE PLAN

C102
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022-298 Sgt. Clean North Ridgeville\2022-298.Dwg\2022-298 Site01B - 11-14-2022\2022-298 Site01B.DWG 11/12/2022 1:05:00 PM


CURVE C1
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CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)
SITE BENCH MARK
BENCH MARK #1
TOP NUT OF HYDRANT
ELEVATION = 778.84
32523 LORAIN ROAD
MAX & AVERY LLC
PARCEL # 07-00-003-102-064
INS. #2007-0226179
EX. BUILDING
EX. ASPHALT PARKING
EX. CHAINLINK FENCE
EX. LANDSCAPING
EX. A.C. UNIT
5/8" CAPPED I.P. FND. SHA #7865
PROPOSED STORM WATER MANAGEMENT BASIN
CITY OF NORTH RIDGEVILLE
PARCEL # 07-00-003-102-101
INS. # 2020-0751380
I.P. FD 0.85'(W)
36" STUMP
27" STUMP
32499 LORAIN ROAD
JTL HOLDINGS, LLC
PARCEL # 07-00-003-102-065
INSTRUMENT NO. 2015-0548948
1.00 ACRES
PROPOSED BUILDING
5,825 S.F., F.F.= 777.50
CONTRACTOR SHALL COORDINATE GAS CONNECTION WITH UTILITY OWNER
PROP. VACUUM BUILDING 430 S.F., F.F.= 777.00
PROP. VACUUM BUILDING 180 S.F., F.F.=777.50
PROP. GAS METER
PROP. ELEC. METER
206 L.F. PROP. 6" SAN. LAT. (PVC SDR-35) @ 1.00% MIN.
62 L.F. PROP. 2" WATER SERVICE (MIN. 5' BURY)
7 L.F. PROP. 6" SAN. LAT. (PVC SDR-35) @ 1.00% MIN.
DEFLECT W.S.
NOTE 1
5 L.F. PROP. 6" SAN. LAT. (PVC SDR-35) @ 1.00% MIN.
10 L.F. PROP. 6" SAN. LAT. (PVC SDR-35) @ 1.00% MIN.
99 L.F. PROP. 6" SAN. LAT. (PVC SDR-35) @ 1.00% MIN.
18 L.F. PROP. 6" PVC ROOF DRAIN @ 1.00% MIN.
33 L.F. PROP. 6" PVC ROOF DRAIN @ 1.00% MIN.
8 L.F. PROP. 6" PVC ROOF DRAIN @ 1.00% MIN.
17 L.F. PROP. 6" PVC ROOF DRAIN @ 1.00% MIN.
108 L.F. PROP. 4" UNDERDRAIN
317 L.F. PROP. 4" UNDERDRAIN
504 L.F. PROP. 24" HDPE STM. SEW. STORAGE IN 6'W x 3.5'D TRENCH W/ STONE BACKFILL (SEE DETAIL SHEET C107A)
PROP. PRIMARY ELEC. SERVICE
PROP. 6" X 2" TAPPING SLEEVE & VALVE.
CONTRACTOR SHALL COORDINATE ELEC. CONNECTION WITH UTILITY OWNER
BENCH MARK #1
I.P. FD & CSED
LORAIN ROAD
STATE ROUTE 10 (ROW WIDTH VARIES)
COOK ROAD
(ROW WIDTH VARIES)
STELIAN & LIVIA HRITCU
PARCEL # 07-00-003-102-028
INS: # 2018-0663201
32435 COOK ROAD
MUNSON ROAD PROPERTIES
PARCEL # 07-00-003-102-048
INS: # 2016-0612813
BAG NAIL SET
IRON PIPE FD 0.77'(S), 0.40'(W)
5/8" I.P. FD 0.25'(S), 0.47'(W)
5/8" CAPPED I.P. SHA #7865
6" CSED 0.26'(S), 0.36'(W)
EX. 15" STM
EX. 12" STM
EX. 12" WATER
EX. 12" WATER IN 24" CASING
EX. 1.5" CONN. (REC)
EX. ELECTRIC METER
EX. TELE BOX
ASSUMED EX. SAN. LAT. (CONTRACTOR SHALL FIELD VERIFY EXACT SIZE, LOCATION, DEPTH & CONDITION PRIOR TO CONSTRUCTION. TO BE UTILIZED FOR PROP. SAN. CONNECTION IF SUITABLE)
EX. 6" WATER (USED) C1
EX. 6" GAS
EX. 15" SAN
EX. 6" STM
EX. CONCRETE APRON
EX. CONC. WALK
EX. CONC. PAVEMENT
EX. ASPHALT PAVEMENT
EX. BRICK WALL
EX. LAT.
EX. UTILITY POLE
EX. GAS LINE
EX. 12" WATER
EX. 8" WATER (USED)
EX. 6" SAN
EX. 6" GAS
EX. 15" STM
EX. 12" STM
EX. 6" STM
EX. 6" WATER (USED) C1
EX. 12" WATER
EX. 12" STM
EX. 12" SAN
EX. 6" SAN
EX. 6" GAS
EX. 15" STM
EX. 12" STM
EX. 12" WATER
EX. 12" STM
EX. 12" WATER (USED)
EX. 12" STM
EX. 12" STM
EX. 12" STM



CURVE C1

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SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

LEGEND

ITALICS TEXT REPRESENTS EXISTING CONDITION

NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

00.00 PROPOSED SPOT GRADE

00.00 / 00.00 PROPOSED GRADE AT CURB

00.00 / 00.00 EXISTING SPOT GRADE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

OHIO811.org Before You Dig

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matt@webercivil.com

STATE OF OHIO
MATTHEW L WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

Issue Date
10-26-2022
11-14-2022

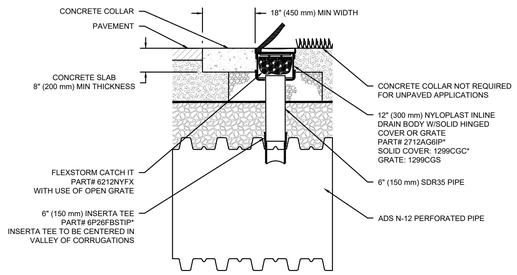
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

GRADING PLAN

C104

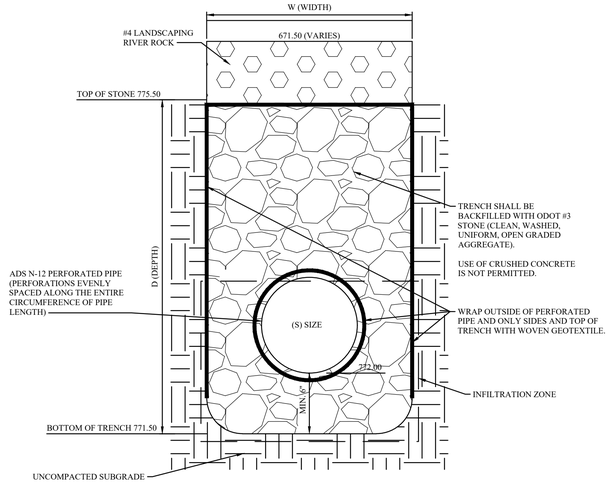
Project No. 2022-298

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6" INSPECTION PORT DETAIL

REFERENCE ONLY NOT TO SCALE



STONE TRENCH DETAIL

REFERENCE ONLY NOT TO SCALE

(SEE TABLE BELOW)

UNDERGROUND STORAGE	WIDTH	DEPTH	SIZE
	6.00'	4.00'	24"

WATER-TIGHT CONNECTIONS SHALL BE PROVIDED WHERE INLET AND OUTLET PIPES PENETRATE THE OUTLET STRUCTURES OF PROPOSED TRENCHES. ALL WALL JOINTS AND WALL-TO-STRUCTURE JOINTS SHALL BE WATERTIGHT.

STORM SEWER CALCULATIONS (100-YR)

Storm Sewer Tabulation

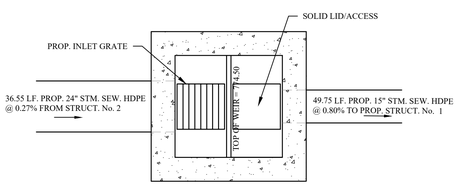
Page 1

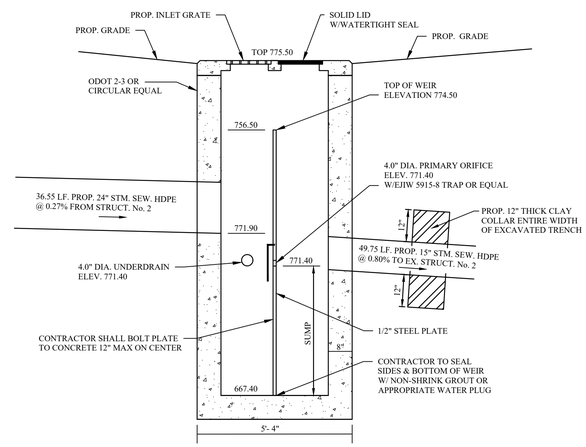
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
1	End	49.750	0.03	1.27	0.50	0.02	0.92	10.0	21.6	5.1	4.69	10.20	2.96	18	0.80	771.00	771.40	772.50	772.53	775.06	775.50	1 To EX. 2
2	1	36.550	0.17	1.24	0.90	0.15	0.91	10.0	21.3	5.1	4.66	12.81	3.76	24	0.27	771.90	772.00	772.73	772.83	775.50	775.90	2 To 1
3	2	109.980	0.13	0.87	0.85	0.11	0.59	10.0	20.0	5.3	3.16	12.80	2.49	24	0.27	772.00	772.30	772.98	773.05	775.90	776.55	3 To 2
4	3	110.150	0.22	0.74	0.86	0.19	0.48	10.0	18.3	5.6	2.71	12.79	2.81	24	0.27	772.30	772.60	773.08	773.22	776.55	776.00	4 To 3
5	4	57.228	0.04	0.52	0.50	0.02	0.29	10.0	16.9	5.8	1.72	12.55	2.23	24	0.26	772.60	772.75	773.25	773.29	776.00	776.50	5 To 4
6	5	23.690	0.03	0.48	0.90	0.03	0.27	10.0	16.3	6.0	1.64	11.26	1.97	24	0.21	772.75	772.80	773.39	773.41	776.50	776.40	6 To 5
7	6	16.930	0.03	0.45	0.50	0.02	0.25	10.0	15.8	6.1	1.50	13.29	1.87	24	0.29	772.80	772.85	773.43	773.43	776.40	776.40	7 To 6
8	7	68.098	0.10	0.35	0.80	0.08	0.18	10.0	13.2	6.7	1.20	11.50	1.62	24	0.22	772.85	773.00	773.49	773.52	776.40	776.20	9 To 7
9	8	45.640	0.25	0.25	0.40	0.10	0.10	10.0	10.0	7.6	0.76	11.47	1.24	24	0.22	773.00	773.10	773.55	773.56	776.20	776.10	10 To 9
10	2	96.450	0.04	0.20	0.85	0.03	0.16	10.0	12.3	6.9	1.12	13.67	0.94	24	0.31	772.00	772.30	772.98	772.99	775.90	776.45	11 To 2
11	10	46.710	0.06	0.16	0.80	0.05	0.13	10.0	11.7	7.1	0.90	1.79	1.65	12	0.21	772.30	772.40	772.99	773.03	776.45	776.10	12 To 11
12	11	76.850	0.10	0.10	0.80	0.08	0.08	10.0	10.0	7.6	0.61	2.60	1.64	12	0.46	772.40	772.75	773.07	773.13	776.10	775.75	13 To 12
13	7	21.795	0.07	0.07	0.75	0.05	0.05	10.0	10.0	7.6	0.40	11.74	0.22	24	0.23	772.35	772.40	773.49	773.49	776.40	776.20	8 To 7

Project File: 2022-298 Storm 01A.stm | Number of lines: 13 | Run Date: 11/12/2022

NOTES:Intensity = 105.39 / (Inlet time + 10.20) ^ 0.88; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewers v2020.00





OUTLET STRUCTURE No. 1 DETAIL

REFERENCE ONLY NOT TO SCALE

WEBER ENGINEERING SERVICES

Where Strong Relationships & Superior Service Guide Your Project

2555 Hartville Rd., Suite B
Rootstown, OH 44272
www.WeberEngineeringServices.com
330-329-2037
matt@webercivil.com

STATE OF OHIO
MATTHEW L. WEBER
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REGISTERED
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Reg. No.: 61709

CLIENT:

OWNER:

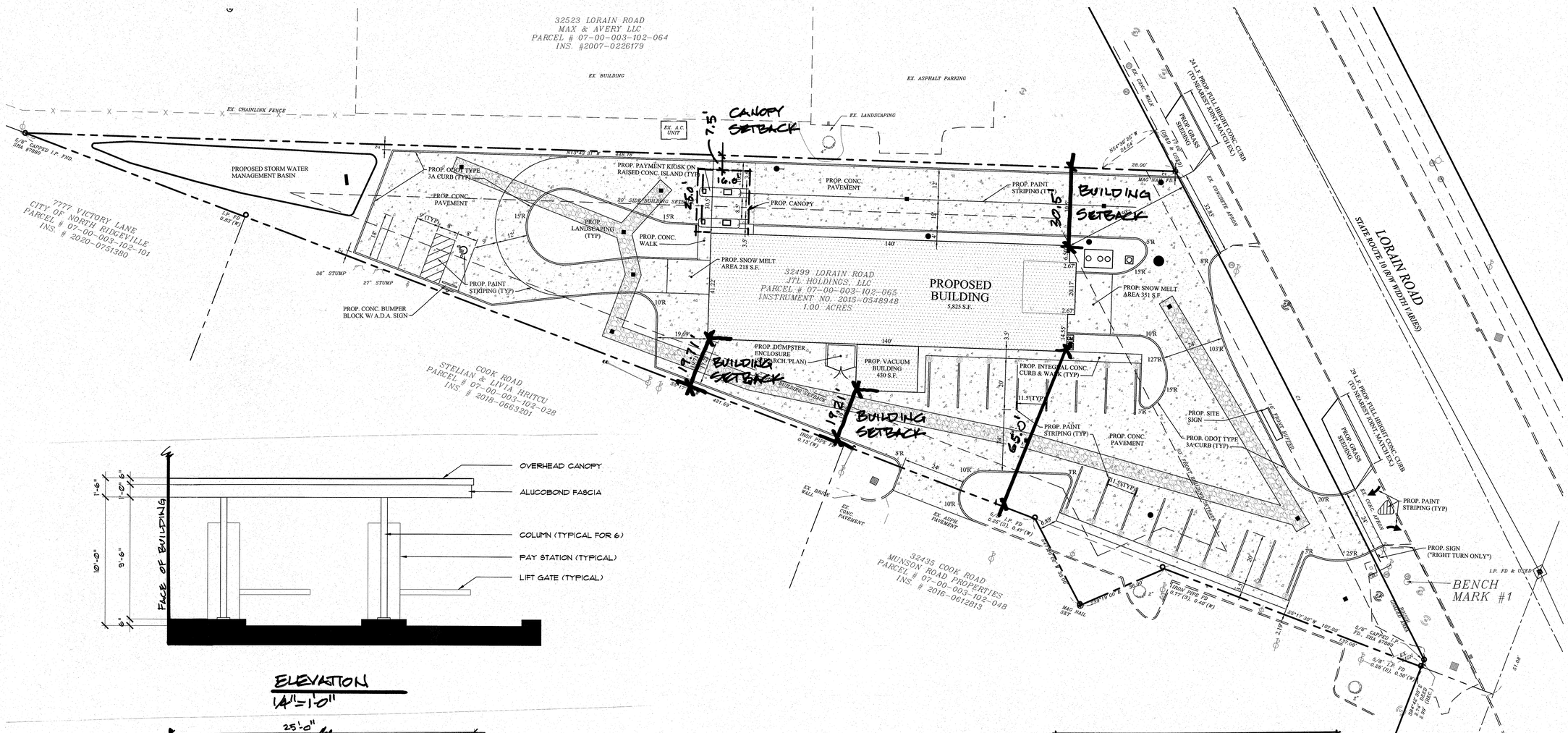
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

ABBREVIATED SWP3 DETAILS

C108
Project No. 2022-298

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SITE DATA

USE DISTRICT	=	B3 (HIGHWAY COMERCIAL)
SITE AREA	=	(1.00 AC.)
PROP. BUILDING AREA	=	5,825 S.F. (FOOTPRINT)
BUILDING SETBACKS:		
FRONT YARD	=	50'
SIDE YARD	=	35' TOTAL FOR 2 SIDES, NOT LESS THAN 15' ONE SIDE
REAR YARD	=	40'
NUMBER OF PARKING SPACES:		
REGULAR PARKING SPACES	=	3
HANDICAP PARKING SPACES	=	1
TOTAL PARKING SPACES	=	4

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39093C 0163 D
COMMUNITY PANEL NUMBER 39093 0163 D
EFFECTIVE DATE AUGUST 19, 2008

SIDE YARD SETBACK SUMMARY

EAST = 19.21' (MINIMUM)
WEST
@ BUILDING = 30.50'
@ CANOPY = 7.50' *
TOTALS
@ BUILDING = 49.71'
@ CANOPY = 26.71'
* WILL REQUIRE A VARIANCE

LEGEND

CONCRETE PAVING

ITALICS TEXT REPRESENTS EXISTING CONDITION
NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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Reg. No.: 61709

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OWNER:

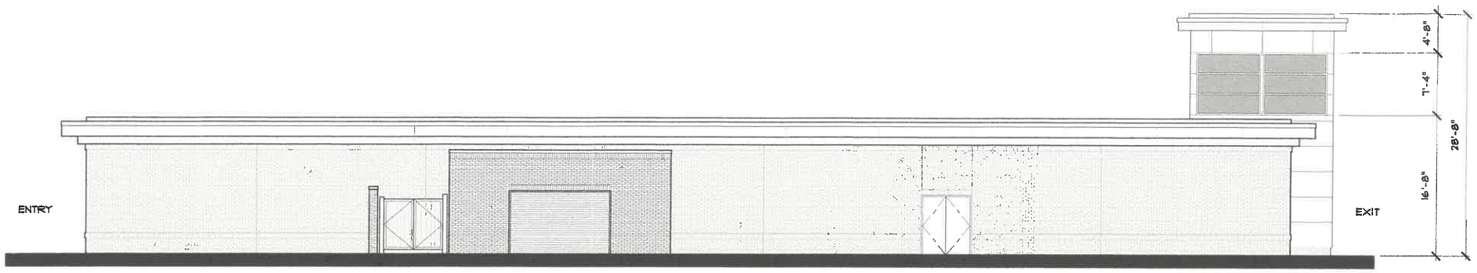
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32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
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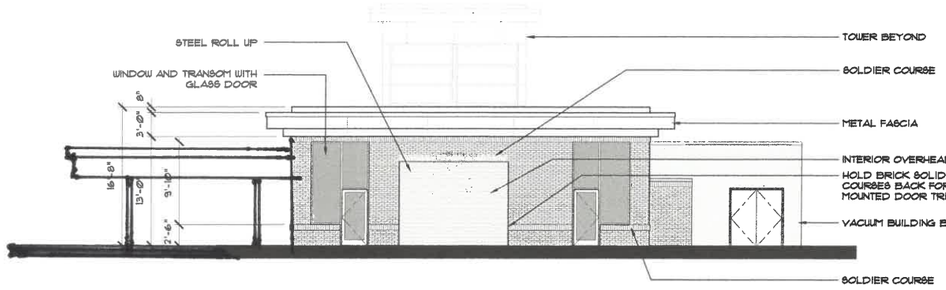
SITE PLAN
CANOPY & SETBACKS

C102B
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folders\2022\2022-298 Sgt. Clean North Ridgeville\2022-298 Dwg\2022-298 SitesIFB - 11-14-22\2022-298 SitesIFB - 11-14-22.dwg, 11/15/2022 10:13:18 AM



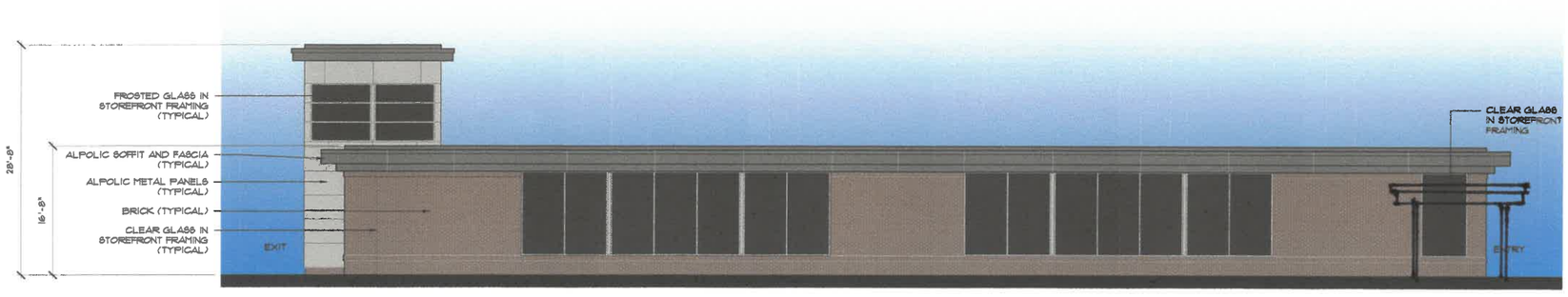
EAST Side Elevation
1/8" = 1'-0"



Entry (SOUTH) Elevation
1/8" = 1'-0"



Exit (NORTH) Elevation
1/8" = 1'-0"



WEST Side Elevation
1/8" = 1'-0"

EXTERIOR COLOR SCHEDULE -VERIFY WITH CLIENT	
TOWER METAL PANEL	ALPOLIC METAL COMPOSITE ALUMINUM PANEL COLOR- TBX SILVER
FASCIA AND SOFFIT METAL PANEL	ALPOLIC METAL COMPOSITE ALUMINUM PANEL COLOR- PEX PEWTER
METAL COPING	VINTAGE COLOR BY SHEFFIELD METALS INTERNATIONAL
BRICK	BELDEN MODULAR BRICK- COLOR- BRANDYWINE VELOUR A MORTAR- DARK CHOCOLATE 38-E BY MIAMI MASONRY CEMENT
STOREFRONT SYSTEM WITH DOORS	KAWNEER CLEAR ANODIZED STOREFRONT SYSTEM ALUMINUM MILL FINISH #4

Blatchford Architects 12429 Cedar Rd. Cleveland Heights Ohio 44106 216/421-2050 fax 216/421-5915 email baastudio-10.com

©Blatchford Architects 17 NOV 2022

Sgt Clean Car Wash 32499 Lorain Rd North Ridgeville, OH 44039

Planning Commission Application

CITY OF NORTH Ridgeville EST 1810

SUBMITTAL INSTRUCTIONS AND PROCEDURES

Plan reviews will be carried out according to the process described in Chapter 1243 of the City's Zoning Code.

- Pre-Application. Prior to making application, applicants are recommended to contact the city to discuss their development project. City staff will outline the review process and provide a checklist of required submittals.
- Application Submittal. Following the pre-application meeting, the applicant shall submit this completed application, fee and ten (10) sets of all required exhibits. All submissions shall be made in hard copy to the Building Department. Plans shall be collated, folded and easily legible but no larger than 24" x 36".
- Staff Review. The applicant shall attend a staff review meeting and may be required to submit revised plans based on staff input.
- Variances. Where zoning variances are sought by the applicant, review by the Board of Zoning and Building Appeals will be necessary prior to consideration by the Planning Commission, requiring a separate application.
- Decision or Referral. Following staff review, complete submittals for Administrative Review projects may be considered for approval. For Council Review projects, complete submittals shall be referred to the next available Planning Commission meeting, which are held the second Tuesday of each month.

PROJECT INFORMATION

32499 LORAIN ROAD, NORTH RIDGEVILLE, OHIO
Location address

07-00-003-102-065
Parcel number

B-3 HIGHWAY COMMERCIAL
Current zoning

NEW CAR WASH FACILITY
Proposed project

APPLICANT/AGENT INFORMATION

ALWAYS STAY UNLIMITED, LLC DBA SGT CLEAN CAR WASH
Name/Company

3673 MASSILLON RD. UNIONTOWN, OHIO 44685
Applicant address

440-281-7999
Applicant phone

gregseifert@SGTCLEAN.com
Applicant email

440-225-1093
brienkrusz@SGTCLEAN.com

PROPERTY OWNER INFORMATION

32499 NORTH RIDGE, LLC
Name/Company

7670 TYLER BLVD. MENTOR, OHIO 44060
Property owner address

(440) 951-2977
Property owner phone

lance@osbornecapital.com
Property owner email

AUTHORIZATION AND ACKNOWLEDGEMENT

Applicant signature

Property owner signature

I hereby authorize the City of North Ridgeville, including Planning Commission members, to view the premises and consent to their entry onto the property for the purpose of observing site conditions related to review of my application.

Staff Use Only	PPZ No.	Date Received	Amount Paid	Payment Type

Planning Review

December 1, 2022

Project:	Sgt. Clean Car Wash
Location:	32499 Lorain Road
PPN:	07-00-003-102-065
District:	B-3 Highway Commercial District

Project Summary:

The proposal consists of redeveloping the 1-acre site of a former Marathon gas station for a new full-service car wash. The property is zoned B-3 Highway Commercial District, as is the property to the east and west. Property across Lorain Road is zoned B-4 Commercial Parkway District and the point of the pie shaped lot abuts land zoned I-2 Light Industrial District. A car wash is a permitted use in the B-3 District.

The 5,825 square foot building, exclusive of the canopy over the payment kiosk, meets all required setbacks. However, the canopy must also meet building setbacks (minimum single side setback of 15 feet, minimum sum of side setbacks 35 feet), which it does not. The west setback is 7.5 feet and the sum of side setbacks is 26.71 feet; therefore, BZBA approval for building setback will be required.

The building is primarily comprised of brick with metal panels on the tower element with clear glass windows in storefront framing. Both a brick vacuum building and dumpster enclosure are attached to the east side of the building. It does not appear a detailed landscaping plan has been submitted at the time of this report.

The single tunnel car wash will be served by two traffic lanes approaching the payment kiosk. In total, the applicant shows 27 cars can be accommodated in the queue. An escape lane is provided immediately before the entrance to the wash around the east side of the building. The site will be served by two curb cuts. The western curb cut will be full access and the easter curb cut will be right in, right out only. Cross access will be provided between Starbucks and the car wash, providing additional access onto Cook Road. The applicant provided a traffic impact study which indicated that the new car wash would have insignificant impact on the adjacent roadway and that no off-site traffic improvements are warranted. The study recommended the driveway configuration shown in the plans submitted.

Both parking lot lighting and building lighting are proposed. Lighting appears code compliant. Sufficient parking is proposed for employees. Two additional banks of parking are provided for patrons to access vacuums. The spaces along the eastern property line come very close to the Lorain Road curb cut. Vehicles entering the site have the potential to conflict with those backing out of the vacuum stalls. Likewise, vehicles in the vacuum stalls closest to the road may be trapped by the line of vehicles waiting to exit the site.

Recommendations:

- Provide a detailed landscaping plan.
- Provide evidence of the cross-access easement between the car wash and Starbucks properties.
- Remove parking spaces closest to eastern curb cut to improve vehicular safety and circulation.
- Ensure driveways and aisles can accommodate the turning radii of emergency vehicles traversing the site.

Planning Commission Comment Sheet

CITY OF NORTH Ridgeville EST 1810

PROJECT INFORMATION

Sgt. Clean Car Wash

Proposed project

32499 Lorain Rd, North Ridgeville, OH 44039	07-00-003-102-065
Location	Parcel number
12.13.2022	12.1.2022
Meeting date	Comments due

RECOMMENDATIONS

Type comments here. Attach additional sheets as necessary.

1. 1268.04 (b)(3) B-3 zoning requires the sum of side yards shall not be less than 35 feet and each side yard shall not be less than 15 feet. Applicant proposing sum of side yards to be 26.71 feet requiring a 8.29 feet variance. Applicant proposing west side yard to be 7.5 feet requiring a 7.5 feet variance.
2. Sign package information was not provided.
3. All else appears code compliant.

SUBMITTED BY

Guy M. Fursdon	Chief Building Official
Administrative officer signature	Title

Planning Commission Bylaws Article V Section 2 – Administrative Review. All applications including those plans and maps submitted to the Commission shall be referred to Administrative Officers. Comments and recommendations by Administrative Officers, if any, shall be forwarded to the Secretary not later than ten (10) calendar days after receipt. Administrative Officers who have not acted within the allotted time shall be deemed to have concurred with plans as submitted.

Planning Commission Comment Sheet

CITY OF NORTH Ridgeville EST 1810

PROJECT INFORMATION

Sgt. Clean Car Wash
Proposed project

32499 Lorain Rd, North Ridgeville, OH 44039
Location

07-00-003-102-065
Parcel number

12.13.2022
Meeting date

12.1.2022
Comments due

RECOMMENDATIONS

Please contact Asst. Chief Mike Uhnak of the North Ridgeville Fire Department to discuss the following code requirements of the Ohio Fire Code and Ch. 16 Fire Prevention of the Codified Ordinance of North Ridgeville.
North Ridgeville Fire Department
Fire Prevention
(440)653-6362

1- OFC Rule 5 Fire Service Features- Section 506: Fire Department Lock Box. Section 503: Fire Access Roads.
2- OFC Rule 33 Fire Safety During Construction
3- NFPA 241 Standards for Safeguarding Construction Operations.
4- Chapter 16 Fire Prevention NR Ordinance.

Respectfully

Asst. Chief Mike Uhank

SUBMITTED BY

Administrative officer signature

Assistant Fire Chief
Title

Planning Commission Bylaws Article V Section 2 – Administrative Review. All applications including those plans and maps submitted to the Commission shall be referred to Administrative Officers. Comments and recommendations by Administrative Officers, if any, shall be forwarded to the Secretary not later than ten (10) calendar days after receipt. Administrative Officers who have not acted within the allotted time shall be deemed to have concurred with plans as submitted.

Staff Meeting Bulletin

Meeting Date:	November 29, 2022
Project:	Sgt. Clean Car Wash, 32499 Lorain Rd
Applicant:	Always Stay Unlimited LLC, dba Sgt. Clean Car Wash, 3673 Massillon Rd, Uniontown, OH 44685
Zoning:	B-3 Highway Commercial District
In Attendance:	Mayor Kevin Corcoran Jeff Armbruster, Safety Service Director Guy Fursdon, Chief Building Official Kim Lieber, Planning and Economic Development Director Tina Wieber, Deputy Clerk of Council Greg Seifert, Architect Brian Cruz, Sgt. Clean Car Wash

Project Introduction

- Greg explained that the proposed car wash would go into the lot on the corner of Lorain Road and Cook Rd next to Starbucks. He stated that the lot was very narrow and triangular in shape. He discussed that the car wash would be a 5,000 square foot tunnel with double lane queueing on the west side where they would go through a pay station under a canopy to help keep people out of the weather. He stated that the canopy would also be a signal showing people where to go and would help to slow down the flow of traffic. Guy asked how many cars could they stack in the queue line. Greg said at least 20. Brian added that they had never had traffic issues and that there would be an express lane for fast pass members that would pass right through. He stated that they wanted short lines and that there were only four choices for the car washes. He mentioned that upon exiting the tunnel there was a 10-15 second pause prior to exiting before the next car. He stated that the east side had a drive that connected with Starbucks. He explained that on the west side free vacuums would be located. He discussed that the building would be brick with metal detailing and would be a Class A new car wash facility. He stated that there would be a manager station at the pay point to solve any issues that occurred. He mentioned that the average time in and out for customers was 3.15 to 3.30 minutes. He added that they had provided the storm water calculations.

Staff Comments

- Guy asked about their setbacks and Greg stated that they would have to ask for a variance for the canopy. Guy asked if they were purchasing the lot and if so, did they have an easement agreement with the owner. Brian stated that they would be purchasing the parcel and would have shared access. He stated that customers could enter via Lorain Road or Cook Road. He reviewed the traffic study and stated that if for some reason someone needed to leave without getting a car wash there was an escape lane to go around the east side of the building to exit. Guy said there needed to be a fire hydrant 300 feet from all points of the building but that sometimes the fire department could extend it to 350 feet. He asked if they were submitting a sign package. Greg mentioned that they excluded the sign package would come in for it separately but that they would have a monument sign out of the right-of-way. Guy asked if they had down type lighting. Greg stated that they did. Guy asked what their busiest time of year was. Greg stated it was from December to April. Kim asked what percentage of their clients were members versus single pay. Greg stated around 60 to 70%.
- Kim asked regarding the curb cut, if an emergency vehicle would be able to get in and out of the site. Greg stated that they believed they could. She stated that she had concerns with their parking spaces. She discussed that Lorain Road was very busy with local and highway traffic. She stated that not all of the traffic on Lorain Road was familiar with the area and someone backing out of a space

closest to the curb cut could come in conflict with those turning in or those stacking to exit. Greg stated they would take that concern to their Civil and Traffic Engineers and have them review it. He mentioned that they could eliminate the last two spaces into open paved area. Kim mentioned four being a good number. Brian stated that the problem would then be limiting the number of vacuums available and people driving around to find an available vacuum. Kim mentioned that they could improve the green space and make more room for the monument sign, which is currently shown parallel to the road which doesn't create good visibility. Brian stated that they could possibly angle the sign in the area of the lost spots.

- Mayor asked why the traffic study called for a stop sign for the right turn only lane and no stop sign for the lane that turned both ways. Greg stated that they would look into that. Mayor stated the he agreed with Kim in removing some spots because he could see accidents happening there. Brian said they would look into the capacity of the vacuum, which was centralized and everything from the size of the building to the number of vacuums and number of spots went into the calculations for the horsepower load on the unit.
- Jeff stated that they needed to increase the radius of the exit drive out to allow more room for trucks to maneuver or people would drive over the treelawn. Jeff asked where the employees would park. Brian explained they would park in the rear and exit through the escape lane.

Next Steps

- The applicant will submit any updated plans by December 6, prior to be distributed to Planning Commission members for the December 13 meeting.

Project Narrative
Sgt. Clean Car Wash
32499 Lorain Road
North Ridgeville, Ohio

This narrative explains our reasoning why a new Sgt Clean car wash can meet and even exceed the City's Zoning Ordinances requirements at the above site location and will be a positive long-term business citizen in North Ridgeville.

The project consists of a new full-service car wash to be built on the existing site of the now-closed Marathon gas station west of the intersection of Lorain Road and Lear-Nagle Road. All of the previous building and infrastructure on the site will be removed with the exception of the two existing driveway aprons. The new car wash building will align with Lorain Road, set back fifty feet per the required front yard building setback. Vehicle access to and from the site will be from the two curb-cuts on Lorain Road. The existing east drive entrance will be a right-in, right out only per the recommendations of the Traffic Study. In addition, there is a cross-easement and shared driveway to the Starbucks building to the east. There will be two rows of vacuum stations located to the east of the building, for use by persons visiting the site.

We would like to state some of features of this proposed project that make Sgt Clean a destination location for the citizens of North Ridgeville.

Hours of Operation: The washes anticipated hours of operation are from 7am to 8pm, 7 days a week. Sgt Clean personnel are always on-site during business hours. After-hours access to the site is not permitted.

Site Lighting/loudspeakers: Sgt. Clean car wash site have lighting designed to meet the requirements of the City Zoning Ordinances. No light will trespass over the property boundaries and there will be no glaring light sources visible from the adjacent sites.

Overall site layout and design. The property is 1.0 acre in size and Sgt. Clean will landscape the non-pervious areas of the site. One of the goals of Sgt. Clean is to create a pleasing experience for our customers, and extensive green spaces and landscaping where the closed gas station currently exists will greatly enhance the development and the perception of this area of the City.

One of the main concerns that municipalities have of a car wash is traffic. Traffic back-ups onto streets during peak usage times is commonly perceived as a negative to a car wash. Sgt. Clean has designed the site to allow for no on-street back up even during peak times. The two queuing lanes can handle 28 vehicles at a time, and they are located toward the west of the property with significant additional driveway area for car circulation. One of the main features of a Sgt Clean car wash is that the tunnel moves at a faster rate, which means less time in the wash and less time waiting to enter the wash. This faster elapsed time is a benefit to both the customer and the wash operation. We are confident that our state-of-the art wash systems will not result in traffic issues at this location. Enclosed with this narrative are letter of support by City Officials where we have current locations, testifying to our successful operations.

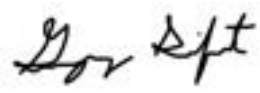
Many car washes rely on bright colors and many site gimmicks (flags, banners etc…) to attract people. Sgt. Clean does not. The proposed building will be built of brick, with muted colors as accents. There will be a narrow red band as a part of the design, in order to catch the eye. The remainder of the site elements, specifically the vacuum masts, will not have bright colors. Signage will be submitted as separate approval package. The only other site element will be a flagpole, flying the American flag proudly.

For additional consideration the following items are standard features of a Sgt Clean car wash that would not be considered standard for other car washes:

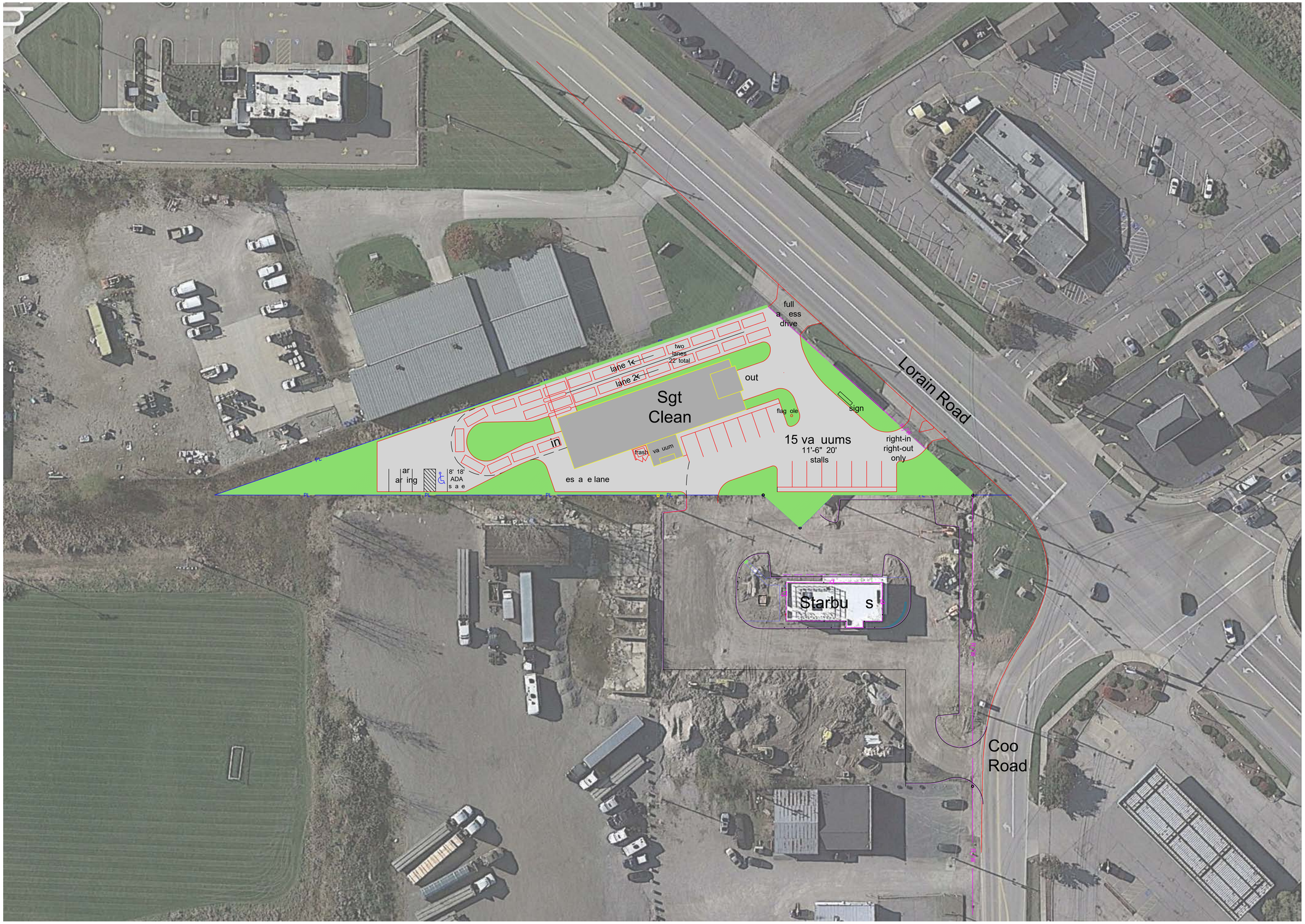
1. Rapid speed open/close doors at the tunnel exit to greatly reduce sound transmission.
2. Mufflers installed on the dryer equipment to reduce sound transmission.
3. An escape lane to allow for non-conforming vehicles to exit safely as needed.
4. Advanced tunnel movement technology which keeps vehicles flowing smoothly with an automatic stop activation if necessary
5. The vacuum system utilizes a central vacuum unit which is enclosed in a structure to contain sound from the unit.
6. Extensive employee training in the multiple-step procedures to prevents car movement slowdown or stoppages.

We look forward to your review and a successful beginning of a new relationship.

Sincerely,



Greg Seifert, Architect Sgt. Clean Car Wash



VICINITY MAP

NOT TO SCALE

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

DRAWING DATES

18 November 2022
PC Submission

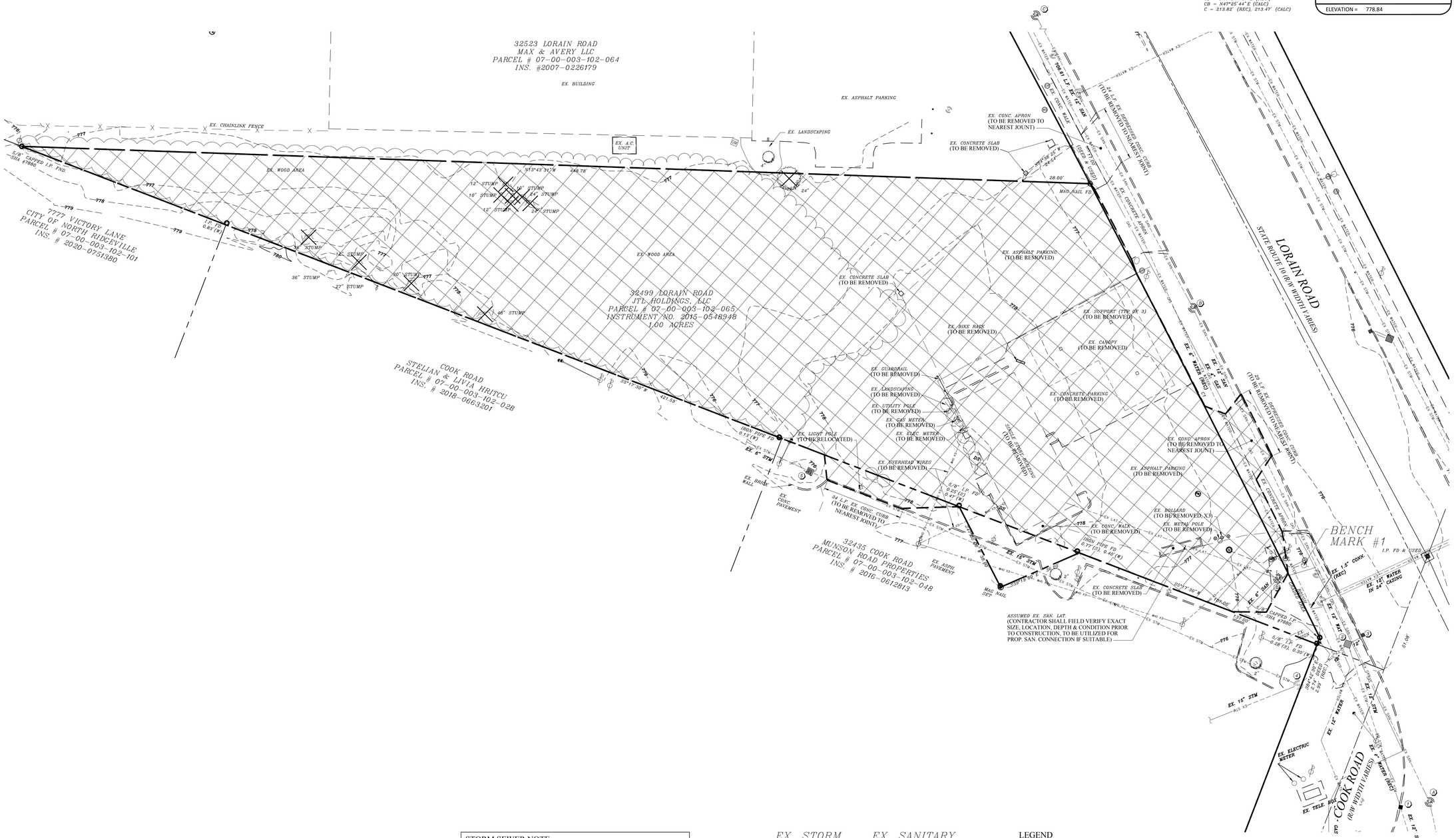
PROJECT NUMBER:
1020-005-22

Sgt. Clean Car Wash
Vi inity Ma -North Ridgeville Site
City of North Ridgeville, Ohio
Lorain County Ohio

REFERENCE
NORTH

TITLE SHEET

A.1



OHIO811.org Before You Dig

C:\Users\Owner\Desktop\Working Folder\2022-298 Sgt. Clean North Ridgeville\2022-298 Dwg\2022-298 Site01B - 11-14-2022\2022-298 Site01B.DWG 11/15/2022 10:13:09 AM

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www.WeberEngineeringServices.com
330-329-2037
matt@webercivil.com

STATE OF OHIO
MATTHEW L WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

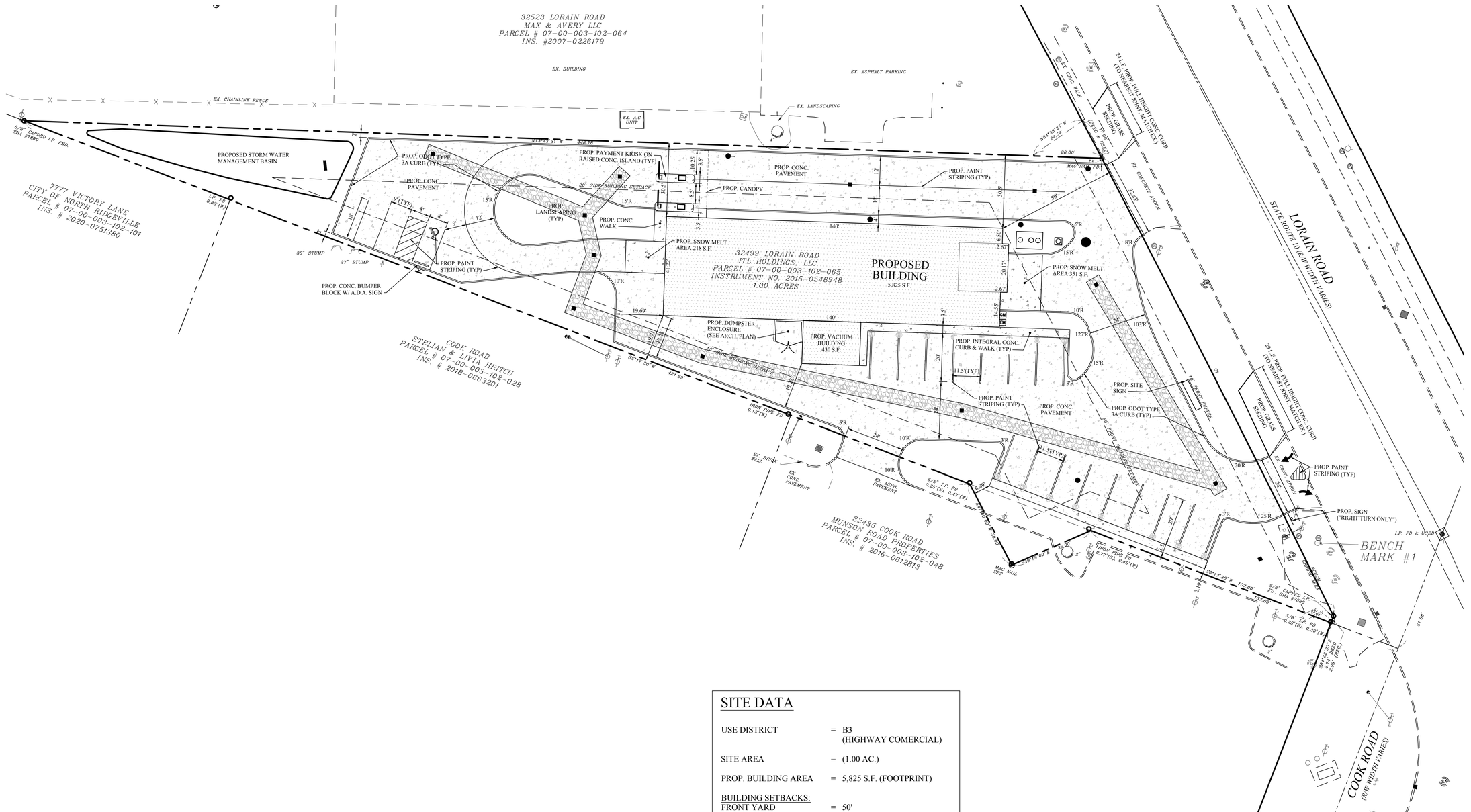
OWNER:

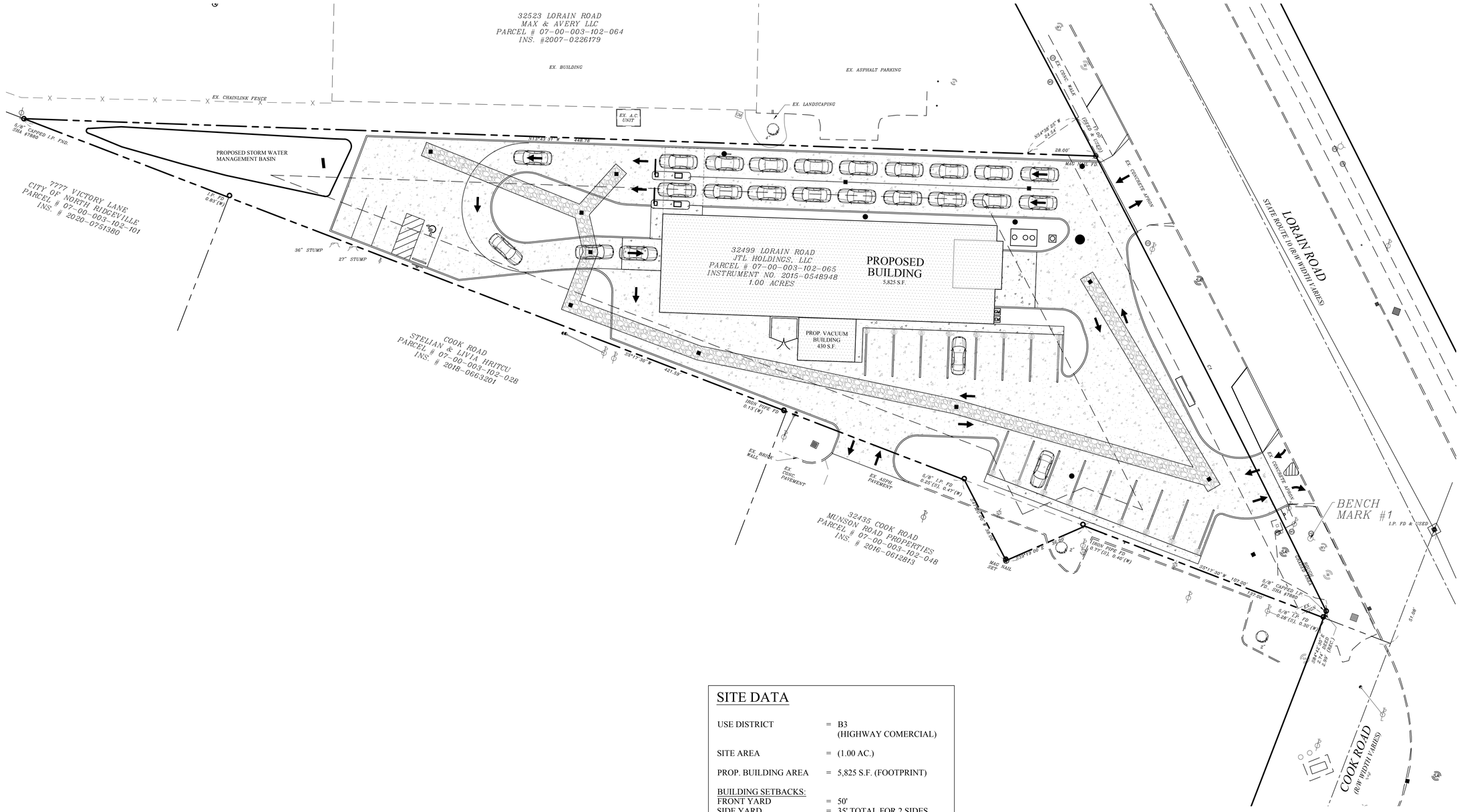
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

DEMOLITION PLAN

C101
Project No. 2022-298


32523 LORAIN ROAD
MAX & AVERY LLC
PARCEL # 07-00-003-102-064
INS. #2007-0226179
EX. BUILDING
EX. ASPHALT PARKING
EX. CHAINLINK FENCE
EX. LANDSCAPING
EX. A.C. UNIT
5/8" CAPPED I.P. FND. SHA #7880
I.P. FD 0.83 (M)
PROPOSED STORM WATER MANAGEMENT BASIN
7777 VICTORY LANE
CITY OF NORTH RIDGEVILLE
PARCEL # 07-00-003-102-101
INS. # 2020-0751380
PROP. ODOT TYPE 3A CURB (TYP)
PROP. CONC. PAVEMENT
PROP. PAYMENT KIOSK ON RAISED CONC. ISLAND (TYP)
PROP. CANOPY
PROP. PAINT STRIPING (TYP)
20' SIDE/BUILDING SETBACK
PROP. LANDSCAPING (TYP)
PROP. CONC. WALK
PROP. SNOW MELT AREA 218 S.F.
32499 LORAIN ROAD
JTL HOLDINGS, LLC
PARCEL # 07-00-003-102-065
INSTRUMENT NO. 2015-0548948
1.00 ACRES
PROPOSED BUILDING
5,825 S.F.
PROP. CONC. BUMPER BLOCK W/ A.D.A. SIGN
36" STUMP
27" STUMP
PROP. DUMPSTER ENCLOSURE (SEE ARCH. PLAN)
PROP. VACUUM BUILDING 430 S.F.
PROP. INTEGRAL CONC. CURB & WALK (TYP)
PROP. CONC. PAVEMENT
PROP. ODOT TYPE 3A CURB (TYP)
PROP. SITE SIGN
PROP. SNOW MELT AREA 351 S.F.
24 LF PROP FULL HEIGHT CONC. CURB (TO NEAREST JOINT MATCH EX.)
PROP. GRASS SHLDG
EX. CONCRETE APRON
LORAIN ROAD
STATE ROUTE 10 (ROW WIDTH VARIES)
PROP. PAINT STRIPING (TYP)
PROP. SIGN ("RIGHT TURN ONLY")
BENCH MARK #1
I.P. FD & USED
5/8" CAPPED I.P. FD SHA #7880
5/8" I.P. FD 0.55'(S), 0.40'(W)
IRON PIPE FD 0.77'(S), 0.40'(W)
MAG NAIL SET
CONC. WALK
EX. BRICK WALL
EX. CONC. PAVEMENT
EX. ASPH. PAVEMENT
STELIAN & LIVIA HRITCU
PARCEL # 07-00-003-102-028
INS. # 2018-0663201
COOK ROAD
32435 COOK ROAD
MUNSON ROAD PROPERTIES
PARCEL # 07-00-003-102-048
INS. # 2016-0612813
COOK ROAD
(R/W WIDTH VARIES)
N13°43'37" W 448.78'
N54°38'25" E 54.54'
28.00'
S39°19'60" E
S50°17'30" E 107.00'
S39°42'30" E 2.89'
S39°42'30" E 0.89' (MEAS.) 0.89' (REC.)
S39°19'60" E 2.89'



CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'54" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

SITE DATA

USE DISTRICT	=	B3 (HIGHWAY COMERCIAL)
SITE AREA	=	(1.00 AC.)
PROP. BUILDING AREA	=	5,825 S.F. (FOOTPRINT)
BUILDING SETBACKS:		
FRONT YARD	=	50'
SIDE YARD	=	35' TOTAL FOR 2 SIDES, NOT LESS THAN 15' ONE SIDE
REAR YARD	=	40'
NUMBER OF PARKING SPACES:		
REGULAR PARKING SPACES	=	3
HANDICAP PARKING SPACES	=	1
TOTAL PARKING SPACES	=	4

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39093C 0163 D
COMMUNITY PANEL NUMBER 39093 0163 D
EFFECTIVE DATE AUGUST 19, 2008

LEGEND

CONCRETE PAVING

ITALICS TEXT REPRESENTS EXISTING CONDITION

NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE

20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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www.WeberEngineeringServices.com
330-329-2037
matt@webercivil.com

STATE OF OHIO
MATTHEW L WEBER
61709
REGISTERED
PROFESSIONAL ENGINEER

Reg. No.: 61709

CLIENT:

OWNER:

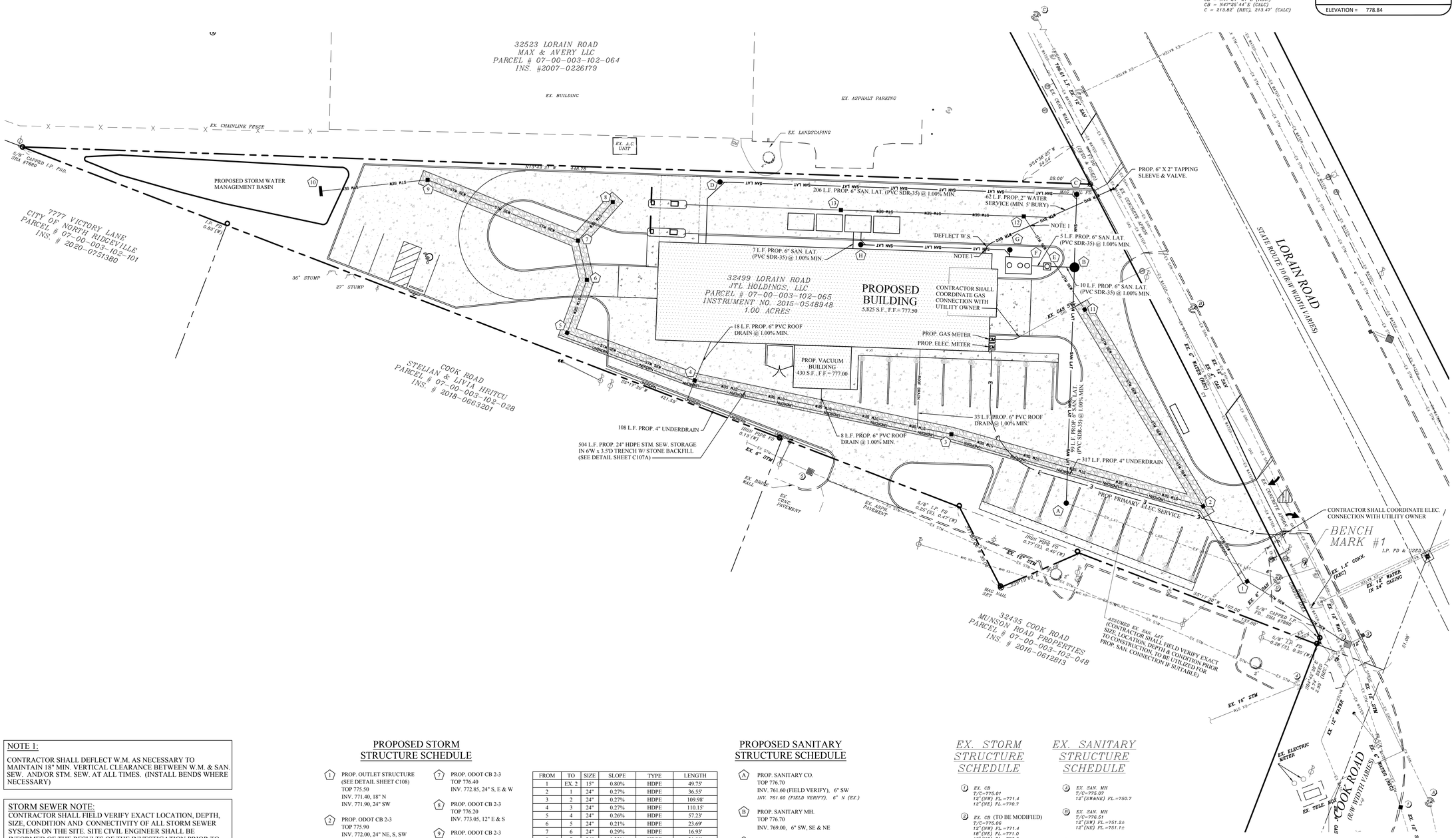
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

VEHILCE CIRCULATION PLAN

C102A
Project No. 2022-298

C:\Users\Owner\Desktop\Working Folder\2022-2022-298 Sgt. Clean North Ridgeville\2022-298 Dwg\2022-298 Site01B - 11-14-2022\2022-298 Site01B.DWG 11/15/2022 10:13:28 AM



NOTE 1:

CONTRACTOR SHALL DEFLECT W.M. AS NECESSARY TO MAINTAIN 18" MIN. VERTICAL CLEARANCE BETWEEN W.M. & SAN. SEW. AND/OR STM. SEW. AT ALL TIMES. (INSTALL BENDS WHERE NECESSARY)

STORM SEWER NOTE:

CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION, DEPTH, SIZE, CONDITION AND CONNECTIVITY OF ALL STORM SEWER SYSTEMS ON THE SITE. SITE CIVIL ENGINEER SHALL BE INFORMED OF THE RESULTS OF THE INVESTIGATION PRIOR TO CONSTRUCTION.

OHIO811.org Before You Dig

PROPOSED STORM STRUCTURE SCHEDULE

1. PROP. OUTLET STRUCTURE (SEE DETAIL SHEET C108) TOP 775.50 INV. 771.40, 18" N INV. 771.90, 24" SW
2. PROP. ODOT CB 2-3 TOP 775.90 INV. 772.00, 24" NE, S, SW
3. PROP. ODOT CB 2-3 TOP 776.55 INV. 772.30, 24" N & S
4. PROP. ODOT CB 2-3 TOP 776.00 INV. 772.60, 24" N & S INV. 772.60, 6" W INV. 772.60, 4" E
5. PROP. ODOT CB 2-3 TOP 776.50 INV. 772.75, 24" N & W
6. PROP. ODOT CB 2-3 TOP 776.40 INV. 772.80, 24" E & W
7. PROP. ODOT CB 2-3 TOP 776.40 INV. 772.85, 24" S, E & W
8. PROP. ODOT CB 2-3 TOP 776.20 INV. 773.05, 12" E & S
9. PROP. ODOT CB 2-3 TOP 776.20 INV. 773.00, 24" N & S
10. PROP. ODOT HW. 2.1 INV. 773.10, 24" N
11. PROP. ODOT CB 2-3 TOP 776.45 INV. 772.30, 24" NE & SW
12. PROP. ODOT CB 2-3 TOP 776.10 INV. 772.40, 24" NE INV. 772.40, 12" S
13. PROP. ODOT CB 2-2C TOP 775.75 INV. 772.75, 12" N

FROM	TO	SIZE	SLOPE	TYPE	LENGTH
1	EX. 2	15"	0.80%	HDPE	49.75'
2	1	24"	0.27%	HDPE	36.55'
3	2	24"	0.27%	HDPE	109.98'
4	3	24"	0.27%	HDPE	110.15'
5	4	24"	0.26%	HDPE	57.23'
6	5	24"	0.21%	HDPE	23.69'
7	6	24"	0.29%	HDPE	16.93'
8	7	24"	0.23%	HDPE	21.80'
9	7	24"	0.22%	HDPE	68.10'
10	9	24"	0.22%	HDPE	45.64'
11	2	24"	0.31%	HDPE	96.45'
12	11	12"	0.21%	HDPE	46.71'
13	12	12"	0.46%	HDPE	76.85'

PROPOSED SANITARY STRUCTURE SCHEDULE

A. PROP. SANITARY CO. TOP 776.70 INV. 761.60 (FIELD VERIFY), 6" SW *INV. 761.60 (FIELD VERIFY), 6" N (EX.)*

B. PROP. SANITARY MH. TOP 776.70 INV. 769.00, 6" SW, SE & NE

C. PROP. SANITARY CO. TOP 776.65 INV. 769.40, 6" SE & NE

D. PROP. SANITARY CO. TOP 776.75 INV. 771.00, 6" SE & NE

E. PROP. INSPECTION WELL TOP 777.50 INV. 769.15, 6" SE & NW

F. PROP. 1,500 GAL. GREASE TRAP TOP 777.50 INV. 769.25, 6" SW & NW

G. PROP. SANITARY CO. TOP 777.00 INV. 769.40, 6" SE & NE

H. PROP. SANITARY CO. TOP 776.50 INV. 770.15, 6" SW & NW

EX. STORM STRUCTURE SCHEDULE

1. EX. CB T/C=775.01 12"(NW) FL=771.4 12"(NE) FL=770.7
2. EX. CB (TO BE MODIFIED) T/C=775.06 12"(NW) FL=771.4 18"(NE) FL=771.0 12"(SE) FL=770.8 15"(S) FL.= 771.00 (PROP.)
3. EX. CB T/C=775.36 12"(SE) FL=771.5
4. EX. STM MH T/C=774.74 15"(SE) FL=770.6 15"(SW) FL=770.6 18"(NW) FL=770.6
5. EX. CB T/C=776.02 6"(SW) FL=774.1 15"(NE) FL=774.0

EX. SANITARY STRUCTURE SCHEDULE

1. EX. SAN. MH T/C=776.07 12"(SW&NE) FL=750.7
2. EX. SAN. MH T/C=776.51 12"(SW) FL=751.2± 12"(NE) FL=751.1±
3. EX. SAN. MH T/C=776.51 12"(SW) FL=751.2± 12"(NE) FL=751.1±
4. EX. SAN. MH T/C=776.03 6"(SE) FL=760.6 6"(S) FL=760.6 6"(NW) FL=760.5

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Reg. No.: 61709

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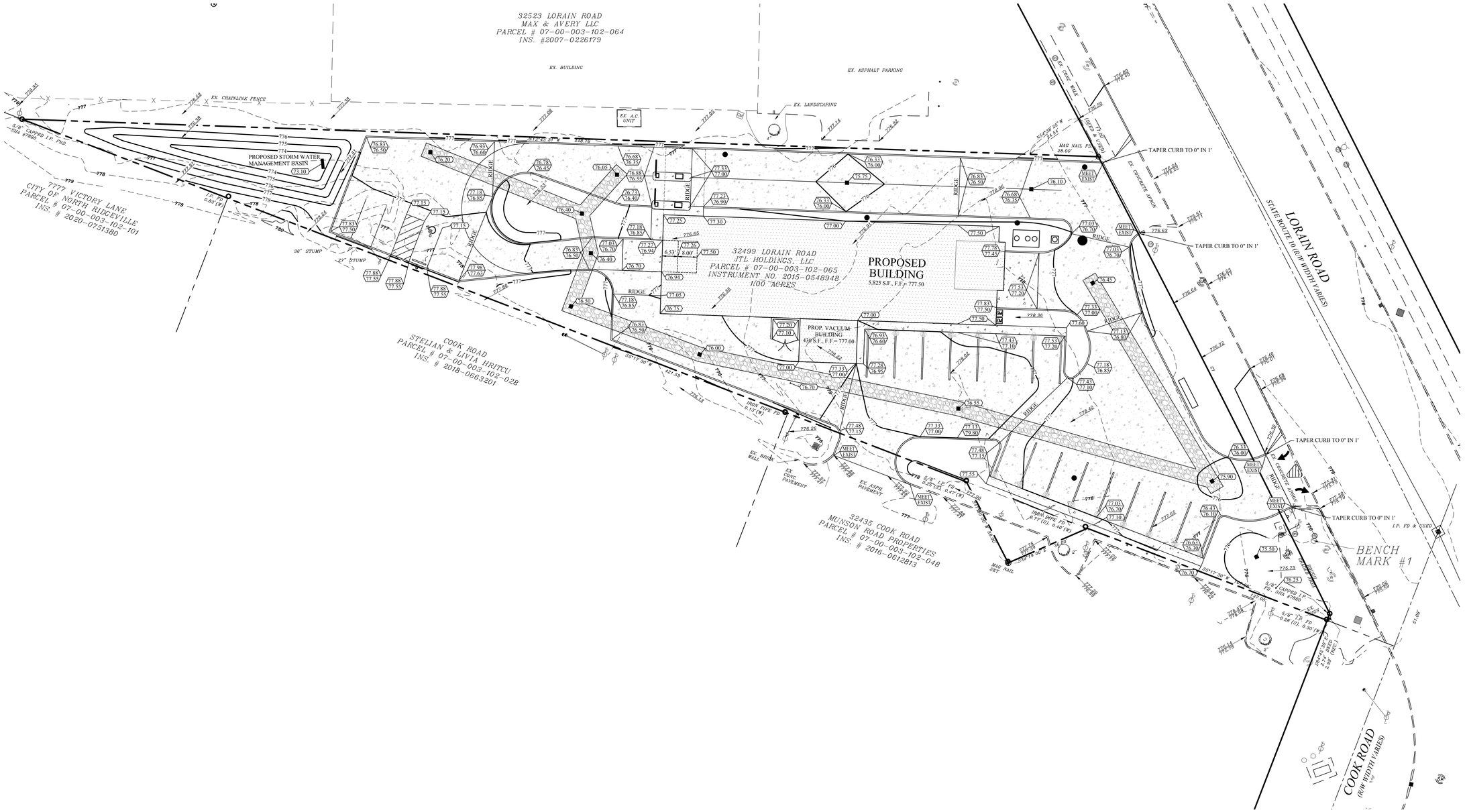
SGT. CLEAN CAR WASH
SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

UTILITY PLAN

C103
Project No. 2022-298

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CURVE C1

R = 8544.00' (DEED), 8544.37' (REC.)
A = 213.82' (REC), 213.48' (CALC)
T = 106.92' (REC), 106.75' (CALC)
D = 1°26'02" (REC), 1°25'64" (CALC)
CB = N47°24' 21"E (REC.)
CB = N47°25'44"E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

LEGEND

ITALICS TEXT REPRESENTS EXISTING CONDITION

NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

00.00 PROPOSED SPOT GRADE

00.00 00.00 PROPOSED GRADE AT CURB

00.00 EXISTING SPOT GRADE

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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OWNER:

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11-14-2022

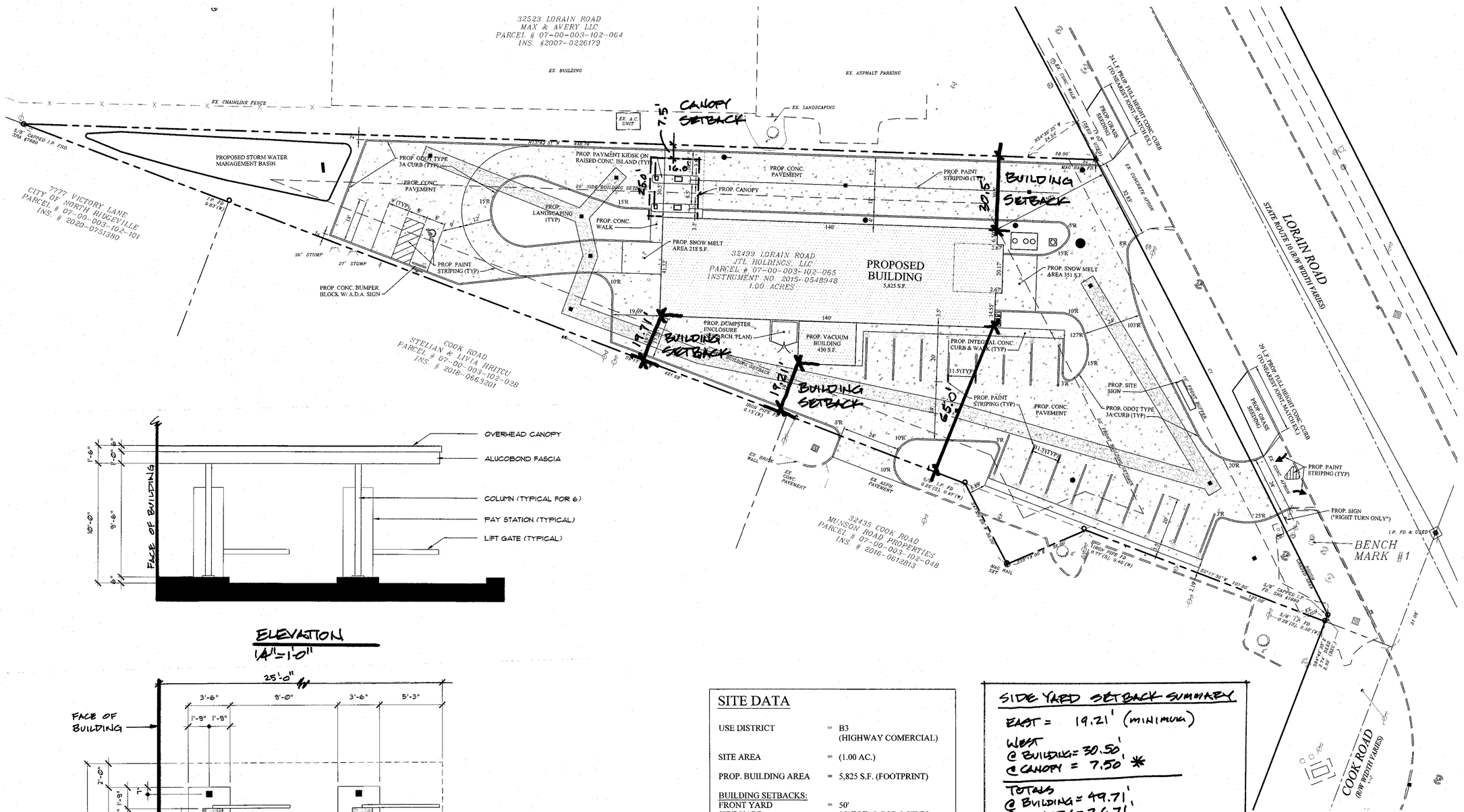
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SITE IMPROVEMENTS
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GRADING PLAN

C104

Project No. 2022-298

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CB = N47°24' 21" E (REC.)
CB = N47°26' 44" E (CALC)
C = 213.82' (REC), 213.47' (CALC)

SITE BENCH MARK

BENCH MARK #1
TOP NUT OF HYDRANT

ELEVATION = 778.84

SITE DATA

USE DISTRICT	=	B3 (HIGHWAY COMERCIAL)
SITE AREA	=	(1.00 AC.)
PROP. BUILDING AREA	=	5,825 S.F. (FOOTPRINT)
BUILDING SETBACKS:		
FRONT YARD	=	50'
SIDE YARD	=	35' TOTAL FOR 2 SIDES, NOT LESS THAN 15' ONE SIDE
REAR YARD	=	40'
NUMBER OF PARKING SPACES:		
REGULAR PARKING SPACES	=	3
HANDICAP PARKING SPACES	=	1
TOTAL PARKING SPACES	=	4

FLOOD ZONE

FLOOD ZONE "X" PER FLOOD INSURANCE
RATE MAP NUMBER 39093C 0163 D
COMMUNITY PANEL NUMBER 39093 0163 D
EFFECTIVE DATE AUGUST 19, 2008

SIDE YARD SETBACK SUMMARY

EAST = 19.21' (MINIMUM)

WEST
@ BUILDING = 30.50'
@ CANOPY = 7.50' *

TOTALS
@ BUILDING = 49.71'
@ CANOPY = 26.71'
* WILL REQUIRE A VARIANCE

LEGEND

CONCRETE PAVING

ITALICS TEXT REPRESENTS EXISTING CONDITION
NON-ITALICS TEXT REPRESENTS PROPOSED CONDITION

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

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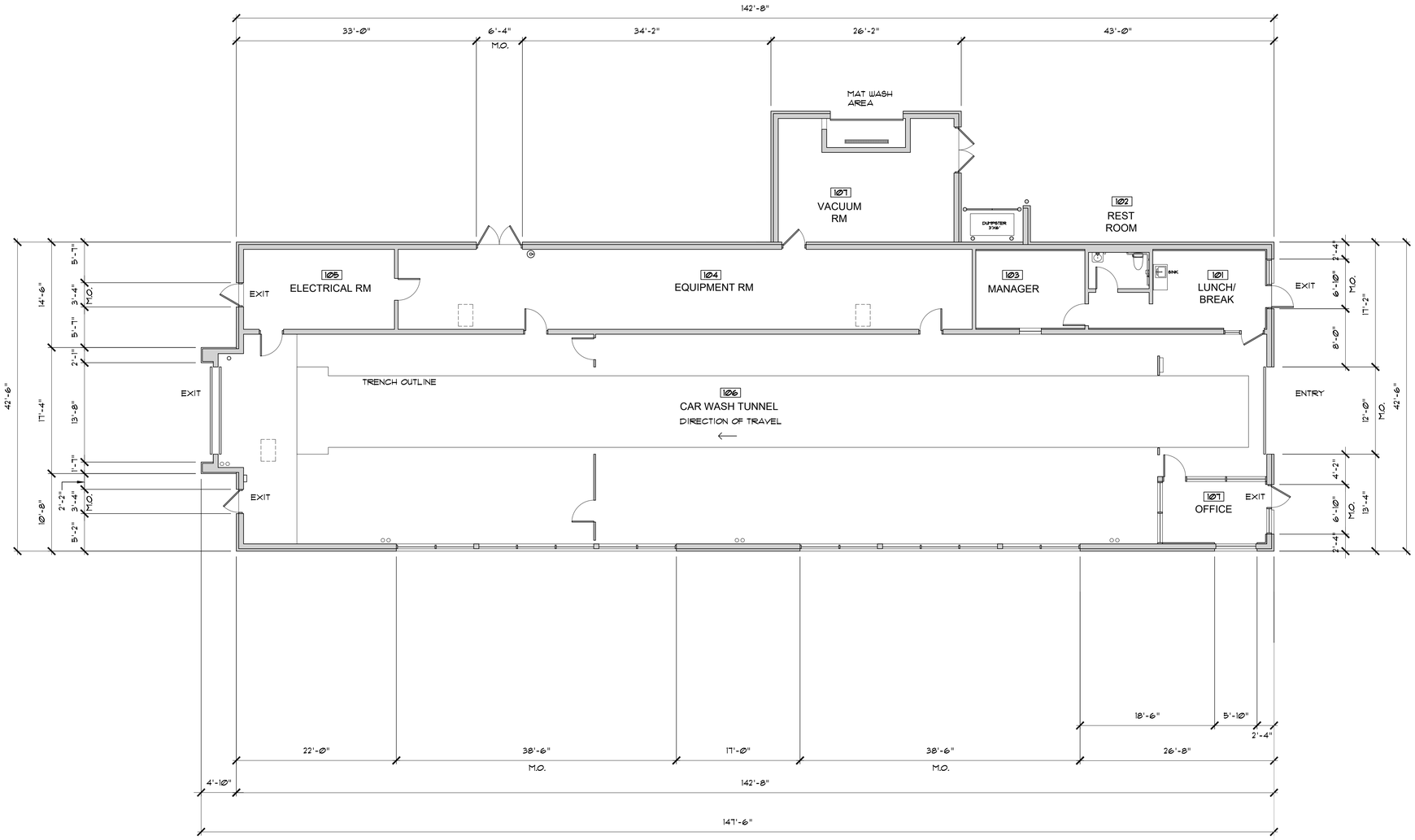
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SITE IMPROVEMENTS
32441 LORAIN ROAD NORTH RIDGEVILLE, OH

Issue Date
10-26-2022
11-14-2022

SITE PLAN
CANOPY & SETBACKS

C102B
Project No. 2022-298

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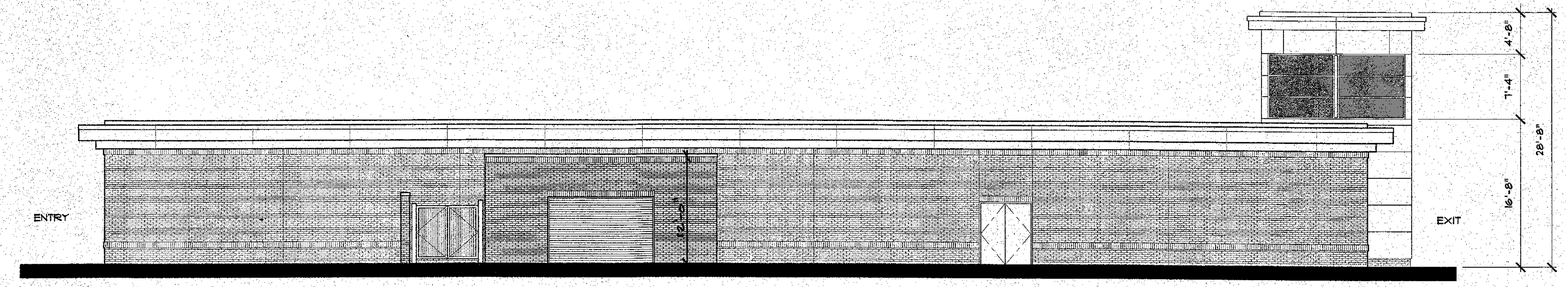
Proposed Floor Plan
1/8" = 1'-0"

A2

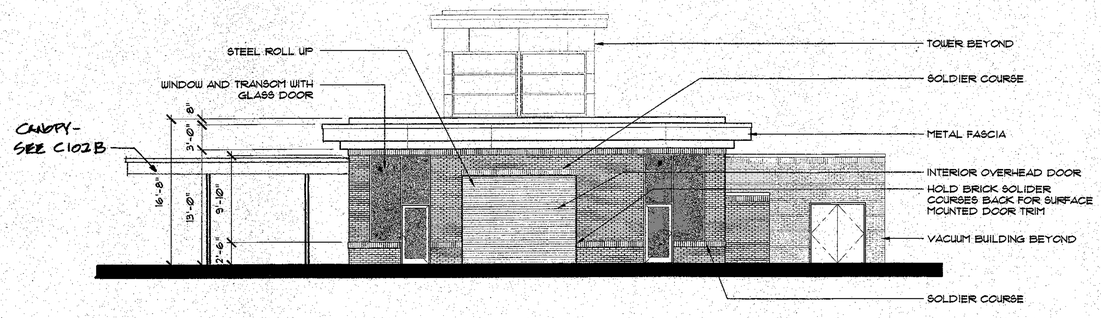
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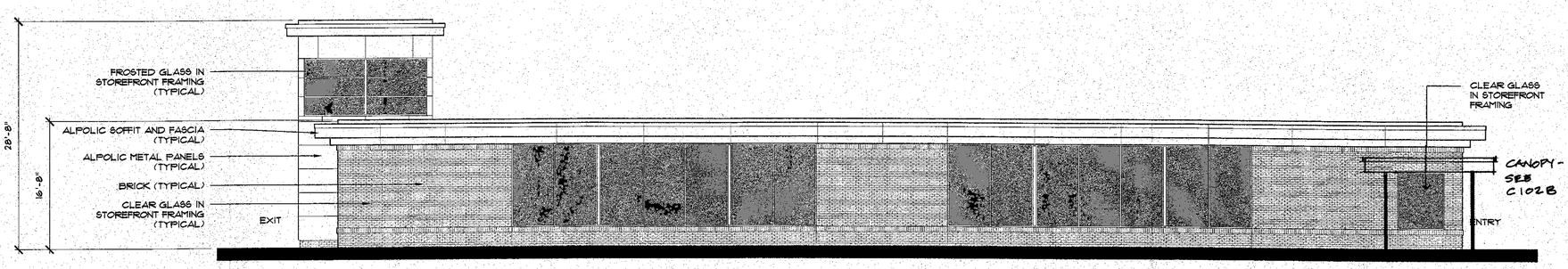
East Side Elevation
1/8"= 1'-0"



Entry (South) Elevation
1/8"= 1'-0"



Exit (North) Elevation
1/8"= 1'-0"



West Side Elevation
1/8"= 1'-0"

EXTERIOR COLOR SCHEDULE -VERIFY WITH CLIENT	
TOWER METAL PANEL	ALPOLIC METAL COMPOSITE ALUMINUM PANEL COLOR- TBX SILVER
FASCIA AND SOFFIT METAL PANEL	ALPOLIC METAL COMPOSITE ALUMINUM PANEL COLOR- PEX PEWTER
METAL COPING	VINTAGE COLOR BY SHEFFIELD METALS INTERNATIONAL
BRICK	BELDEN MODULAR BRICK- COLOR- BRANDYWINE VELOUR A MORTAR- DARK CHOCOLATE 38-E BY MIAMI MASONRY CEMENT
STOREFRONT SYSTEM WITH DOORS	KAWNEER CLEAR ANODIZED STOREFRONT SYSTEM ALUMINUM MILL FINISH #4

A3

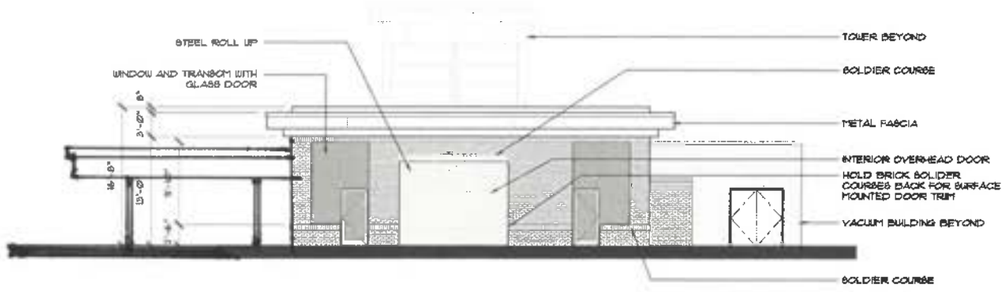
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EAST Side Elevation
1/8"= 1'-0"



Entry (South) Elevation
1/8"= 1'-0"



Exit (North) Elevation
1/8"= 1'-0"



WEST Side Elevation
1/8"= 1'-0"

EXTERIOR COLOR SCHEDULE -VERIFY WITH CLIENT	
TOWER METAL PANEL	ALPOLIC METAL COMPOSITE ALUMINUM PANEL COLOR- TBX SILVER
FASCIA AND SOFFIT METAL PANEL	ALPOLIC METAL COMPOSITE ALUMINUM PANEL COLOR- PEX PEWTER
METAL COPING	VINTAGE COLOR BY SHERFIELD METALS INTERNATIONAL
BRICK	BELDEN MODULAR BRICK- COLOR- BRANDYWINE VELOUR A MORTAR- DARK CHOCOLATE 38-E BY MIAMI MASONRY CEMENT
STOREFRONT SYSTEM WITH DOORS	KAWNEER CLEAR ANODIZED STOREFRONT SYSTEM ALUMINUM MILL FINISH #4

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FROSTED GLASS FOR TOWER

BUILDING MATERIALS

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Sgt Clean Car Wash



1 CUSTOMER VACUUMS
EXAMPLE PHOTO



2 TRAFFIC CONTROL GATE
EXAMPLE PHOTO



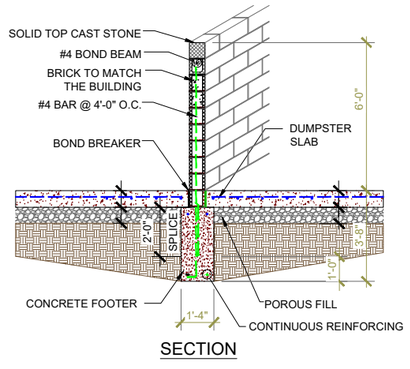
3 VACUUM ENCLOSURE
EXAMPLE PHOTO



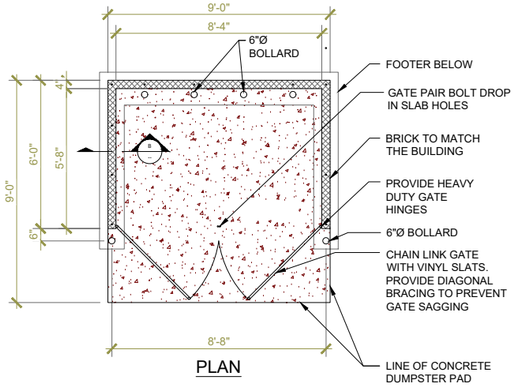
4 XPT CUSTOMER INTERFACE
EXAMPLE PHOTO



5 OVERHEAD CANOPY
EXAMPLE PHOTO

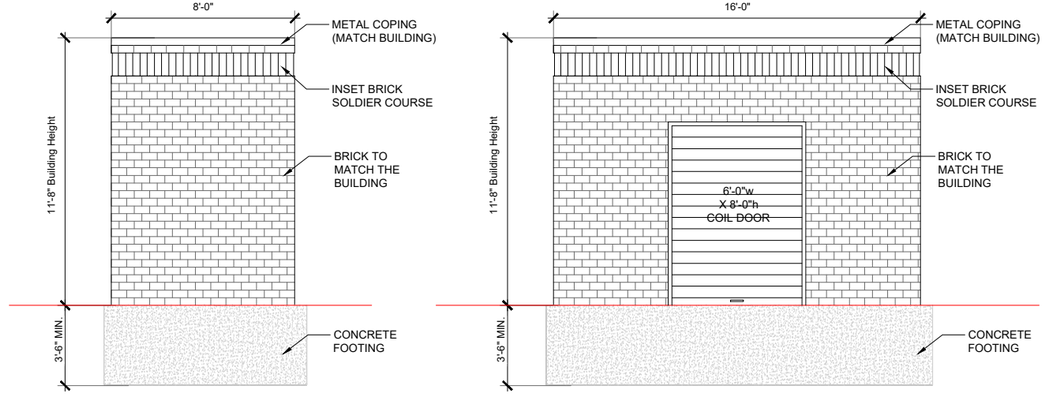


SECTION



PLAN

6 TRASH ENCLOSURE
DETAILS



7 VACUUM ENCLOSURE
CONSTRUCTION DETAILS

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

DRAWING DATES

18 November 2022
PC submission

PROJECT NUMBER:
1020-011-22

Sgt. Clean Car Wash
Site Elements-32499 Lorain Road Site
City of North Ridgeville, Ohio
Lorain County Ohio

SITE ELEMENT DETAILS

A.1 E

TMS Engineers, Inc



Traffic Impact Study

Sgt Clean Car Wash
North Ridgeville, Ohio

September 13, 2022

Prepared for:

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

TRAFFIC IMPACT STUDY

Sgt Clean Car Wash

North Ridgeville, Ohio

September 13, 2022

Prepared For:

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

Prepared By:

TMS Engineers, Inc.
2112 Case Parkway South
Unit #7
Twinsburg, Ohio 44087



REGISTERED ENGINEER NO. E56982
CERTIFICATION NO. 2234

"This document was prepared consistent with local agency requirements and/or applicable guidelines contained in this report."



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Executive Summary

This Traffic Impact Study (TIS) has been prepared at the request of Sgt. Clean Car Wash for a proposed Car Wash. The car wash will be located on the east side of Lorain Road (SR 10) and south of Cook Road in the City of North Ridgeville, Lorain County, Ohio. **Figure 1.1, Page 2** shows the proposed location of the development.

The development is expected to consist of the following land use:

- **Single Tunnel Automated Car Wash**

The development is proposed to have two full access driveways. The primary site driveway will be located on Lorain Road at the southern edge of the proposed development. The secondary site driveway will be located on Lorain Road approximately 100 feet north of the main site driveway. **Figure 1.2, Page 3** shows the proposed site plan for the development including the location of the proposed site access driveways. There is a cross access driveway proposed with the adjoining Starbucks but this driveway was not included in this study. It is assumed there will be an insignificant internal circulation between the two sites.

Based on the collected traffic data, the weekday AM peak hour of traffic was determined to be 7:30 AM to 8:30 AM. The weekday PM peak hour of traffic was found to be 4:45 PM to 5:45 PM. These periods will be used to forecast expected and future traffic volumes since they reflect the period of the highest volume of vehicular traffic flow for the study area roadways. The proposed development is expected to generate the following average hourly traffic during the AM and PM peak periods:

ITE TRIP GENERATION			TRIP ENDS			
ITE CODE	DESCRIPTION	Tunnels	Weekday AM Peak Hour (Enter/Exit)		Weekday PM Peak Hour (Enter/Exit)	
948	Automated Car Wash	1	39	39	39	39
TOTAL NEW TRIPS			**78**		**78**	

The ODOT **State Highway Access Management Manual** requires that ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is below 500 in the peak hour. The proposed development is expected to generate a total of 78 driveway trips in the AM and PM peak hour. The year 2033 was therefore analyzed for the ten year design hour conditions.

Recommended Improvements to Serve Future Conditions without and with the Development

The Lorain Road / Lear Nagle Road / Cook Road intersection is anticipated to operate at LOS F on several approaches and various movements in the PM peak hour under the Year 2023 and Year 2033 No-Build conditions. Several mitigation alternatives were analyzed and it would require several improvements such as a third eastbound left-turn lane and an exclusive right-turn lane on Lear Nagle Road and dual northbound left-turn lanes on Lorain Road. The City should consider these options in a future construction project.

The Year 2023 and Year 2033AM and PM peak hour comparison for the intersection of Lorain Road / Lear Nagle Road / Cook Road indicate that the approach delays are not adversely impacted with the addition of the development generated traffic under the forecasted 2023 AM and PM peak hour conditions. The additional car wash traffic is anticipated to increase delay at the intersection by less then a second in the AM Peak hour and by approximately 2.8 seconds in the AM or PM Peak hours. The general public should not notice such a small increase in overall delay at the intersection. No geometric or traffic control improvements are recommended for the Lorain Road / Lear Nagle Road / Cook Road intersection under the 2023 and 2033 Build conditions.

The following lane use and traffic control is recommended at the driveway intersections on Lorain Road where access to the development site is proposed under the 2023 and 2033 peak hour Build conditions.

Lorain Road & Site Driveway #1

- A stop sign should be installed on the westbound approach (site driveway)
- The proposed driveway should be constructed with one egress lane and one ingress lane.

Lorain Road & Site Driveway #2

- The proposed Access Driveway #2 will be restricted to right-in / right-out access only for the safety of motorists turning at this driveway. The necessary signage and raised pavement should be installed at the driveway to prevent left-turn movements.
- The proposed driveway should be constructed with one egress lane and one ingress lane.

Conclusions

Based upon the results of the analysis in this study and the corresponding recommendations, it can be seen that the development traffic can be accommodated without adversely impacting the area roadway network.

Chapter 1
Introduction

1.1 Purpose of Report

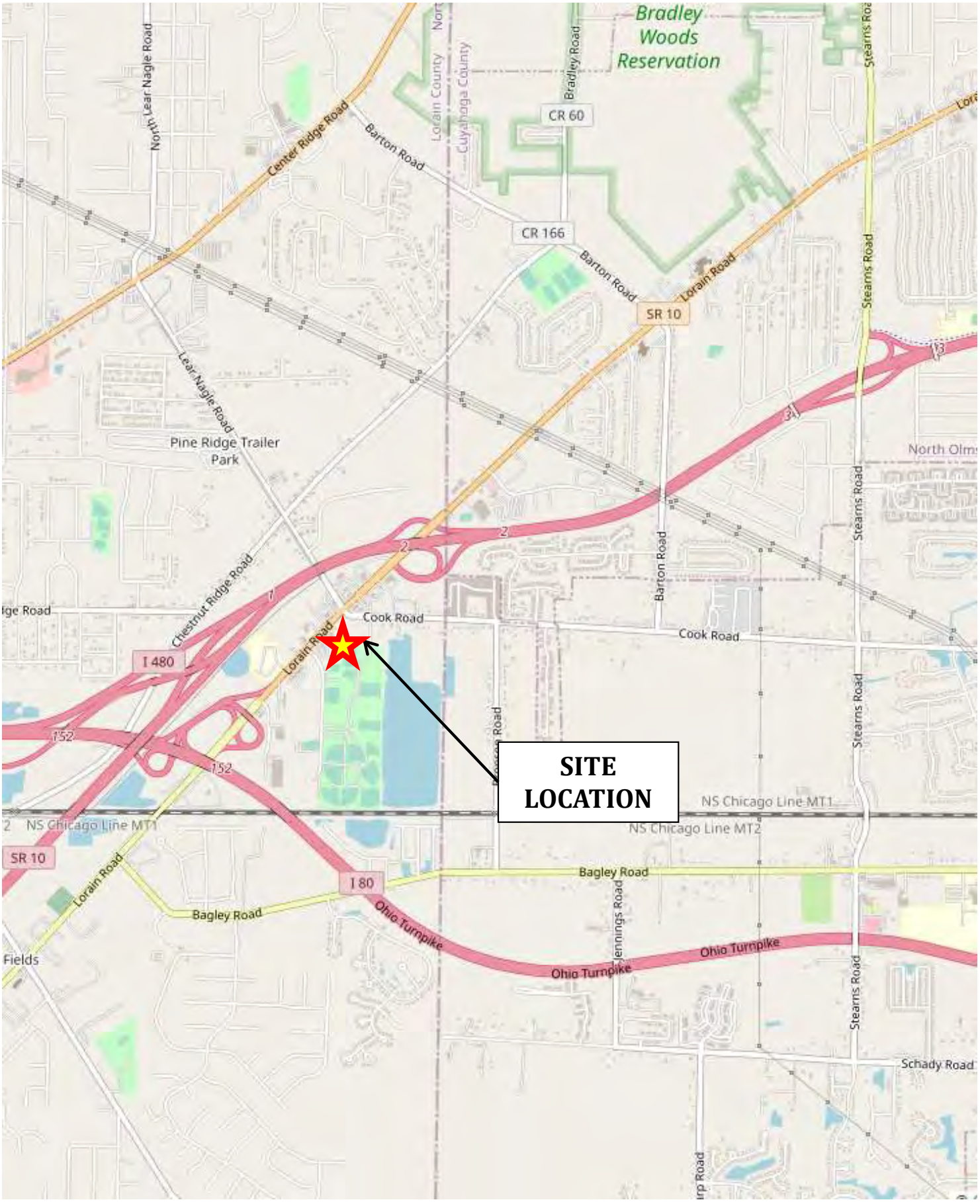
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The future design year for the project will be based on the expected volume of site generated traffic under the full build conditions. The full development is anticipated to have an opening day in 2023.



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	**Sgt Clean Car Wash** **North Ridgeville, Ohio** **Traffic Impact Study**	**Location Map**	**NORTH** NOT TO SCALE	**Figure 1.1** **Page 2**



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	**Sgt Clean Car Wash** **North Ridgeville, Ohio** **Traffic Impact Study**	**Site Plan**	**NORTH** NOT TO SCALE	**Figure 1.2** **Page 3**

1.2 Study Objectives

This study is structured for the following purposes;

- to identify the level of service of off-site access and traffic;
- to adequately assess the operation of the development access and;
- to adequately assess the need for auxiliary turn lanes associated with the proposed car wash.

This study documents the methodologies, findings and conclusions of the analysis, including the basis for all assumptions, traffic parameters utilized and conclusions reached.

The development access operation will be evaluated based upon the expected traffic after the development is completed. Levels-of-service for the access roadway intersections will be calculated using the computerized version of the Transportation Research Board's **Highway Capacity Manual 7TH Edition(1), (HCS 2022, Release 8.1)**.

Intersection design guidelines will be based upon the information and procedures found in the Ohio Department of Transportation's **Location & Design Manual, Volume 1(3)**. Warrants discussed in Section 401-6 will be used, in addition to the capacity analyses, to determine the need for deceleration and exclusive turn lanes at unsignalized site access locations.

1.3 Intersection Capacity & Levels-of-Service

Intersection capacity analyses will be performed at the existing study intersection and the development access intersections using the procedures outlined in the computerized version of the Transportation Research Board's **Highway Capacity Manual 7TH Edition**[(1)].

The **HCM**[(1)] is the most widely used document in the transportation industry. It contains a set of methodologies and application procedures for evaluating the capacity and quality of service of various transportation facilities. The **HCM**[(1)] is built from more than 60 years or research work and represents a body of expert transportation consensus.

The capacity analysis procedures provide a calculated "average vehicle delay", which is based on traffic volumes, number of lanes, type of traffic control, channelization, grade, and percentage of large vehicles in the traffic stream at each intersection. The average delay calculated at an intersection is then assigned a "grade" or level of service (LOS) ranging from LOS A, the best, to LOS F, the worst based upon driver expectation. The intersection LOS "grades" as defined by the Transportation Research Board are as follows:

Table 1.1 Intersection Levels-of-Service

LOS	UNSIGNALIZED * AVERAGE DELAY PER VEHICLE (sec)	SIGNALIZED AVERAGE DELAY PER VEHICLE (sec)
A	≤ 10.0	≤ 10.0
B	10.1 to 15.0	10.1 to 20.0
C	15.1 to 25.0	20.1 to 35.0
D	25.1 to 35.0	35.1 to 55.0
E	35.1 to 50.0	55.1 to 80.0
F	> 50	> 80

* - Unsignalized intersections include 2-way stop, all-way stop and roundabouts

Intersection capacity analyses will be performed in order to estimate the maximum amount of traffic that can be accommodated by the intersection while maintaining recommended operational qualities. No-Build and Build peak hour traffic volumes will be analyzed to determine the level-of-service (LOS) at the study area intersections.

The selection of the design level-of-service is most frequently chosen from Section 5.9 of the Ohio Department of Transportation's **OATS Manual** [6]. In most cases, a level-of-service E is considered the maximum delay threshold after which improvements should be investigated to determine if the delay can be reduced to a level of E or better. The following table from Section 5.9 details the operation goals for intersection analyses (All-Way Stop Control, Two-Way Stop Control, Signalized, & Roundabout).

Table 1.2 Intersection Operational Goals

RESULT	INSIDE AN MPO	OUTSIDE AN MPO
Intersection LOS	D or BETTER	C or BETTER
Approach LOS	E or BETTER	
v/c	All movements < 1.0 (<= 0.93 preferred)	
QSR	All movements <1.0 from HCS analysis, TransModeler may be needed to determine if queuing impacts upstream intersetions.	

MPO = Metropolitan Planning Organization
v/c = Volume to Capacity Ratio
QSR = Queue Storage Ratio

An evaluation of capacity analyses will determine if there are any locations, approaches or movements in which the delay, V/C and QSR exceeds the operational goals shown in **Table 1.2.**

It should be noted that any values for queue length, shown in the HCS analysis summary sheets that are displayed in red, indicate that the movement is expected to experience a "spillback" condition where the queue may exceed the existing length of the turn lane and extend into the adjacent through lane. These instances, if they occur, will be investigated for mitigation.

1.4 Intersection Turn Lanes

Turn Lane Warrants

The ODOT **Location and Design Manual, Volume 1**[3] and the **State Highway Access Management Manual**[7] describes the need for auxiliary turn lanes at unsignalized intersections. The Auxiliary Lane Graphs found in Section 401-6 of the **Location and Design Manual, Volume 1**[3] are used in the determination. This applies to the free-flow approaches at unsignalized intersections. Section 401.6.3 of the ODOT **Location and Design Manual**[3] states that:

"To determine the number and use of left (right) turn lanes, intersection capacity analysis procedures of the current edition of the Highway Capacity Manual should be used. For unsignalized intersections, left (right) turn lanes may also be needed if they meet warrants provided in Figures 401-5(6)a, b, c and d. The warrants apply only to the free-flow approach of the unsignalized intersection."

It is the intent of this report to evaluate the need for exclusive deceleration and turn lanes at the proposed site access driveways on Lorain Road using the auxiliary lane graphs.

Turn Lane Length

Proposed turn lanes and existing turn lanes determined deficient in length will be analyzed to determine the necessary turn lane storage length in accordance with the procedure found in the Ohio Department of Transportation's **Location and Design Manual, Volume 1**[3], Section 401. The ODOT criteria and procedures are furnished in **Appendix B**.

It should be noted that the recommended maximum length is 800 feet for a right turn lane and 600 feet for a left turn lane, however if the calculated turn lane length is lower than these values, the maximum length will not be applicable.

Design Speed

The procedure for determining the necessary turn lane storage length with the procedures found in the Ohio Department of Transportation's **Location and Design Manual, Volume 1** [3], *Section 401* is in part based on the design speed of the roadway. The AASHTO publication, **A Policy on Geometric Design of Highway Streets (Green Book)**[10]**,** defines design speed as a selected speed used to determine the various geometric design features of the roadway. The assumed design speed should be a logical one with respect to the topography, anticipated operating speed, the adjacent land use and the functional classification of highway.

The ODOT **Location and Design Manual, Volume 1** [3] provides guidance for determining the design speed of a roadway. *Section 104.2* of the ODOT **Location and Design Manual** [3] states that:

"The design speed should match the legal speed for facilities with a legal speed of 35 mph or less. For facilities with a legal speed of 40 or 45 mph the design speed should either match the legal speed, or be 5 mph greater than the legal speed, depending on the context of the area. For facilities with a legal speed 50 mph or greater, the design speed should be 5 mph greater than the legal speed."

1.5 References

The following list of references will be utilized for this report and the analysis contained within it:

1. *Highway Capacity Manual,* 7th Edition. Transportation Research Board of the National Academies, Washington, D.C.

2. *Ohio Manual of Uniform Traffic Control Devices for Streets and Highways,* 2012 Edition. Ohio Department of Transportation, Office of Traffic Engineering, Columbus, Ohio.

3. *Location and Design Manual,* Volume 1, Roadway Design. Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.

4. *Ohio Traffic Forecasting Manual,* Volume 1, Traffic Forecasting Background. Ohio Department of Transportation, Office of Statewide Planning & Research, Columbus, Ohio.

5. *Ohio Traffic Forecasting Manual,* Volume 2, Traffic Forecasting Methodologies. Ohio Department of Transportation, Office of Statewide Planning & Research, Columbus, Ohio.

6. *ODOT Analysis and Traffic Simulation Manual (OATS),* Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.

7. *State Highway Access Management Manual,* Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.

8. *Trip Generation Manual,* 11th Edition, September 2021, Institute of Transportation Engineers, (ITE), Washington, D.C.

9. *Trip Generation Handbook,* 3rd Edition, September 2017, Institute of Transportation Engineers, (ITE), Washington, D.C.

10. A policy on Geometric Design of High way Streets (Green Book), American Associates of State Highway and Transportation Officials, 7th Edition, 2018.

Chapter 2
Area Conditions

2.1 Transportation Network Study Area

The study area for the proposed development includes the previously discussed development access driveways on Lorain Road as shown in **Figure 1.2** and the Lorain Road / Lear Nagle Road / Cook Road intersection.

Functional Classification

The Ohio Department of Transportation functionally classifies roadways to help define a roadway's characteristics as well as identify roadways that are eligible for federal funds. Functional classification is the grouping of roads, streets, and highways in a hierarchy based on the type of highway service they provide. Generally, streets and highways perform two types of service. They provide either traffic mobility or land access and can be ranked in terms of the proportion of service they provide.

The functional classification as determined by ODOT will be used in this report to apply growth and design hour factors to the study area roadways for use in forecasting the future traffic volumes in the study area. These factors are determined using data, guidelines, and methodology supplied by ODOT. These methods and the corresponding data are based on the roadways assigned functional classification. The ODOT methods for forecasting future traffic volumes are a recognized traffic engineering standard in the State of Ohio.

Roadways that are not listed as having a functional classification can be assigned into one of two categories. The first category is a local roadway and the second category is that of an access drive.

The ODOT functional classification of the roadways in the study area can currently be found using the ODOT Transportation Information Mapping System (TIMS). TIMS is ODOT's web-mapping portal where information about Ohio's transportation system can be found. TIMS can currently be found at the following web address:

https://gis.dot.state.oh.us/tims/

The following table lists the study area roadways that have an assigned functional classification as determined by ODOT and local government entities.

Table 2.1 Functional Classification

ROADWAY	AREA	FC #	CLASSIFICATION
Lorain Road	Urban	4	Minor Arterial
Lear Nagle Road	Urban	5	Major Collector
Cook Road	Urban	5	Major Collector

Figure 2.1, Page 11 illustrates the section of the functional classification map for the study area.

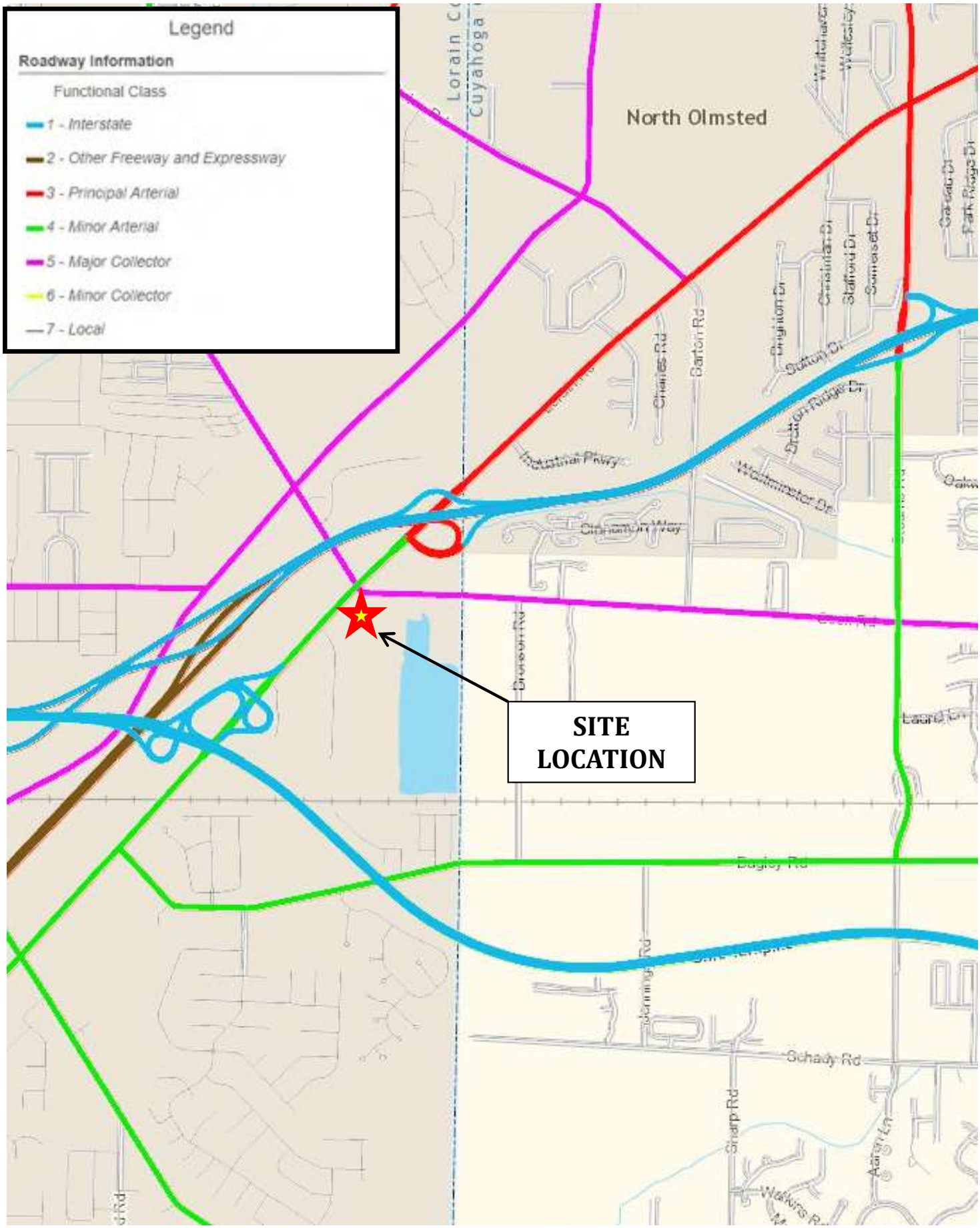
Roadway & Intersection Characteristics

The following table details the primary characteristics of the study area roadways:

Table 2.2 Roadway Characteristics

ROADWAY	# OF LANES	ADT	ORIENTATION	SPEED LIMIT (MPH)
Lorain Road	5	18,300	North - South*	35
Lear Nagle Road	2	21,300	East - West	35
Cook Road	2	7,000	East - West	35

* - Lorain Road is considered in this study to have a north - south orientation to avoid confusion since Cook Road is an east - west roadway.



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	**Sgt Clean Car Wash** **North Ridgeville, Ohio** **Traffic Impact Study**	**Functional Classification**	**NORTH** NOT TO SCALE	**Figure 2.1** **Page 11**

The following section details the lane use and traffic control for the existing intersection under study for this report.

Lorain Road / Lear Nagle Road / Cook Road

Lear Nagle Road West Approach
- 2 Exclusive Left Turn Lane
- 1 Shared Through & Right Lane

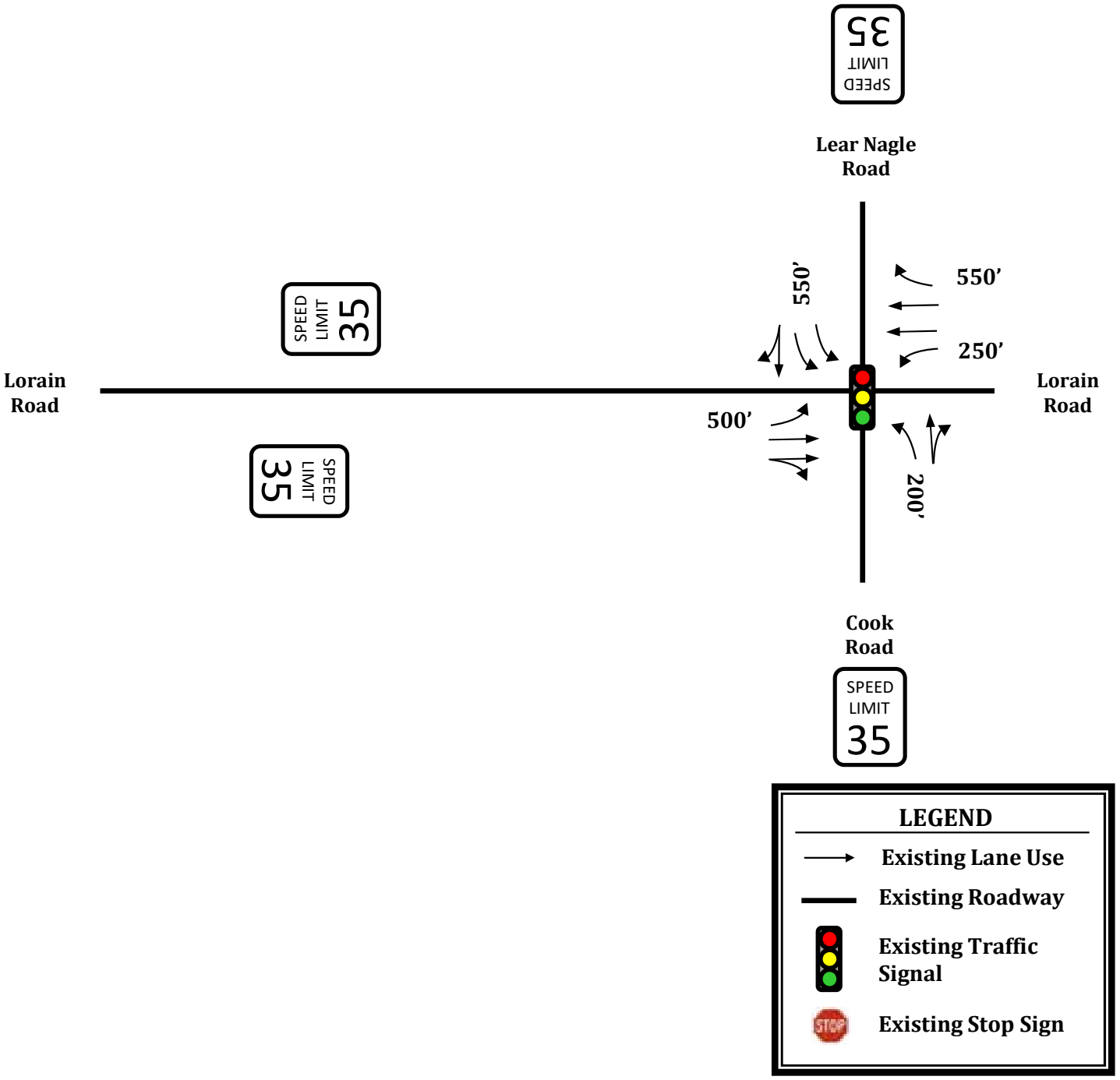
Cook Road East Approach
- 1 Exclusive Left Lane
- 1 Shared Through & Right Turn Lane

Lorain Road North Approach
- 1 Exclusive Left Turn Lane
- 2 Exclusive Through Lane
- 1 Exclusive Right Turn Lane

Lorain Road South Approach
- 1 Exclusive Left Turn Lane
- 1 Exclusive Through Lanes
- 1 Shared Through / Right Lane

The intersection is controlled by a traffic signal. The signal is operating as a standard eight phase signal. The first two phases is all northbound and southbound movements with the left turn movement made during the green arrow indication (protected movement). The second two phases are all northound and southbound movements where the left turn movements are made during a green ball indication when there is a gap in the opposing through traffic movements (permissive movement). The next two phases is all eastbound and westbound movements with the left turn movement made during the green arrow indication (protected movement). The last two phases are all eastbound and westbound movements where the westbound left turn movements are made during a green ball indication when there is a gap in the opposing through traffic movements (permissive movement). The eastbound left-turn phase will be a protected only left-turn phase since this movement has two left-turn lanes.

Figure 2.2, Page 13 shows the existing lane use and traffic control conditions in the study area. These will be considered the existing base conditions for this report.



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	**Sgt Clean Car Wash** **North Ridgeville, Ohio** **Traffic Impact Study**	**Existing Lane Use & Traffic Control**	**NORTH** NOT TO SCALE	**Figure 2.2** **Page 13**

2.2 Traffic

Weekday turning movement counts were performed at the following location:

1. Lorain Road & Lear Nagle Road / Cook Road

The traffic counts were performed on Tuesday, August 9, 2022.

The weekday traffic count was conducted in fifteen (15) minute intervals between the hours of 7 AM - 10 AM, 11 AM - 2 PM, and 3 PM - 6 PM, then hourly totals were calculated. A copy of the intersection turn movement counts are included in **Appendix C**. Average daily traffic was calculated for the roadways using expansion factors to account for daily and seasonal variations according to the recommendations and latest data from the Ohio Department of Transportation.

Based on the collected traffic data, the weekday AM peak hour of traffic was determined to be 7:30 AM to 8:30 AM. The weekday PM peak hour of traffic was found to be 4:45 PM to 5:45 PM. These periods will be used to forecast expected and future traffic volumes since they reflect the period of the highest volume of vehicular traffic flow for the study area roadways.

The existing AM and PM peak hour traffic volumes are shown in **Figure A-1, Appendix A.** It should be noted that it may be necessary to adjust these volumes due to the effects of the COVID-19 pandemic per ODOT guidance and procedures.

Chapter 3
Projected Traffic Conditions

3.1 Adjusted Traffic

The collected peak hour traffic volumes should be reviewed to determine if they have been impacted due to the COVID-19 pandemic. The traffic volumes as they were collected may not be representative of a typical weekday under normal travel patterns and show less volume. The ODOT Modeling and Forecasting Section of the Office of Statewide Planning and Research has developed a process to calibrate counts that are artificially low due to the COVID-19 situation. An overview of the ODOT guidance and process can be seen in **Appendix D**. The development of calibration factors for the study area roadways is described in the following paragraphs.

The ODOT Traffic Monitoring Management System (TMMS) was first consulted to determine available Peak Hour and Average Daily Traffic along the study roadways. Data from the following location on SR 10 were used to forecast the traffic volumes prior to COVID for the study area intersection on a typical weekday.

1. SR 10 SW of I-480 (Location ID 7247)

A manual count of SR 10 south of the I-480 interchange was performed by ODOT in 2017. This count is a good representation of the traffic volumes on SR 10 prior to the COVID pandemic. A copy of the 2017 traffic counts are shown in **Appendix E**. The 2017 traffic count indicates there were 24,639 vehicles per day on SR 10 near the count location prior to COVID A traffic count taken in this study shows that there is 23,513 vehicles per day on SR 10 south of the I-480 interchange during the pandemic. There has been a 4.7% decrease in traffic volumes on Lorain Road after the pandemic. The ODOT procedure only requires COVID factpring when the difference is greater then 15%. No factoring will be applied to the 2022 manual traffic counts due to the COVID situation.

3.2 Site Traffic

Trip Generation

Calculating future total driveway trips requires an estimate of the traffic generated by the proposed development. The most widely accepted method of determining the amount of traffic that the proposed development will generate is to compare the proposed land use with existing facilities of the same use. The Institute of Transportation Engineers (ITE) has prepared a manual titled "**Trip Generation Manual**"[8], which is a compilation of similar traffic generation studies to aide in making such a comparison. The most recent update of this manual is the 11TH edition and was utilized for this study.

The development is expected to consist of the following land use:

- **One Tunnel Automated Car Wash**

The following table details the development land use from the site plan (**Figure 1.2**) and the corresponding ITE land use that will be used to forecast the site generated traffic volumes for the Build conditions:

Table 3.1 ITE Land Use Code

SITE PLAN DESCRIPTION	Units	ITE CODE	ITE DESCRIPTION
Sgt Clean Car Wash	1 Tunnel	948	Automated Car Wash

The following table summarizes generated traffic volumes for the proposed development based on the methods outlined in the (ITE) **Trip Generation Handbook**[9]. Copies of the trip generation worksheets can be seen in **Appendix F**.

Table 3.2 Trip Generation

ITE TRIP GENERATION			TRIP ENDS			
ITE CODE	DESCRIPTION	Tunnels	Weekday AM Peak Hour (Enter/Exit)		Weekday PM Peak Hour (Enter/Exit)	
948	Automated Car Wash	1	39	39	39	39
TOTAL NEW TRIPS			78		78	

The ITE Manual does not provide trip generation data for the AM Peak hour of an automated car wash. The same number of trips were assumed to be generated by the site in the AM Peak hour as the PM Peak hour in order to perform a conservative analyses.

The ODOT **State Highway Access Management Manual**[2] requires that ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is below 500 in the peak hour and twenty year design hour traffic volumes when the number of generated trips is greater than 500 in the peak hour. The proposed development, under the forecasted build conditions, is expected to generate a total of 78 driveway trips in the AM and PM peak hour. The year 2033 will therefore be analyzed for the ten year design hour conditions.

Distribution of Generated Traffic

The directional distribution for the new generated traffic is a function of the prevailing operating conditions on the existing roadways. The distribution pattern that was assumed is shown in the table below. These are based upon the existing traffic volumes traveling at the Lorain Road / Lear Nagle Road / Cook Road intersection during the AM and PM peak hours shown in **Figure A-1, Appendix A.**

The following tables detail the distribution of the new generated trips for the proposed development.

Table 3.3 AM New Trip Origins and Destinations

ORIGIN/ DESTINATION	ROUTE	FROM (ENTER)	% TOTAL	TO (EXIT)	% TOTAL
NORTH	LORAIN ROAD	613	21%	1481	50%
SOUTH	LORAIN ROAD	725	25%	610	21%
EAST	COOK ROAD	317	11%	245	8%
WEST	LEAR NAGLE ROAD	1282	43%	601	21%
	TOTALS	**2937**	**100%**	**2937**	**100%**

Table 3.3 PM New Trip Origins and Destinations

ORIGIN/ DESTINATION	ROUTE	FROM (ENTER)	% TOTAL	TO (EXIT)	% TOTAL
NORTH	LORAIN ROAD	1291	32%	1562	39%
SOUTH	LORAIN ROAD	987	25%	843	21%
EAST	COOK ROAD	367	9%	380	9%
WEST	LEAR NAGLE ROAD	1377	34%	1237	31%
	TOTALS	**4022**	**100%**	**4022**	**100%**

Directional Distribution of Site Generated Traffic

The directional distribution for the new AM and PM peak hour generated traffic is shown graphically in **Figure A-2, Appendix A**.

Assignment of Site Generated Traffic

Based upon the distribution patterns shown in **Figure A-2** , the new AM and PM peak site generated traffic was assigned to the study intersection.

The assignment of the estimated new site generated traffic for the proposed development under the design year conditions is shown graphically in **Figure A-3, Appendix A**.

3.3 Non-Site Traffic

Background Traffic Growth

Design of new roadways or improvements to existing roadways should not usually be based on current traffic volumes alone, but should consider future traffic volumes expected to make use of the facilities. Roadways should be designed to accommodate the traffic volume that is likely to occur within the design life of the facility. In a practical sense, this design volume should be a value that can be estimated with reasonable accuracy. It is believed that the maximum design period is in the range of 15 to 24 years. Therefore, a period of twenty years is widely used as a basis for design for large projects. A period of ten years is currently specified by the Ohio Department of Transportation for smaller projects. Traffic cannot usually be forecasted accurately beyond this period on a specific facility because of probable changes in the general regional economy, population, and land development along the roadway.

The ODOT **State Highway Access Management Manual** [7] requires that opening year and ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is less than 500 in the peak hour.

The year 2023 (Opening Year) and year 2033 (Design Year) will be analyzed for the proposed development as the peak hour site generated traffic volumes are less than 500 trips. Therefore, it is necessary to estimate historical growth rates in order to establish the future traffic on the study area roadways due to non-site related conditions.

Roadways, like Lorain Road and Lear Nagle Road carry a significant amount of through traffic due to their functional characteristics. This through traffic component generally increases as regional growth occurs. Therefore, it is anticipated that existing traffic on these roadways will increase in future years.

The TMMS provided data at the following location that was used to determine the study area growth rate:

1. **SR 10 (SW of I-480) - Location ID 7247**

A linear regression equation was developed for the location based on the available historical data. The growth rate was then developed based on the procedure detailed in Section 4.2 of the **Ohio Traffic Forecasting Manual, Volume 2** [5].

SR 10 was determined to have a negative historical growth rate of 0.3011%. This study will assume a positive growth in background traffic of 0.25% per year in order to provide a conservative analyses. A copy of the ODOT historical traffic data analysis and the growth rate calculations can be seen in **Appendix G**.

The growth rate and factors for the study area roadways of SR 10 can be seen in the following table:

Table 3.5 - Growth Rates & Factors

ROADWAY	GROWTH RATE (Annual Growth)	2023 GROWTH FACTOR	2033 GROWTH FACTOR
SR 10	0.25%	1.0025	1.0275

Design Hour Traffic

The traffic patterns on any roadway typically show considerable variation in the traffic volumes experienced during the various hours of the day and in the hourly volumes experienced throughout the year. A key decision in the design process involves determining which of these hourly traffic volumes should be used as the basis for the design.

It would be wasteful to predicate a design on the maximum peak hour traffic that occurs during the year and the use of the average hourly traffic would result in an inadequate design. The hourly traffic volumes used in a design should not be exceeded very often or by very much. However, the hourly traffic volumes should not be so high that traffic would rarely be sufficient to make full use of the designed facility.

Normal design policy in the State of Ohio is based upon a review of curves that depict the variation in hourly traffic volumes during the year. The Ohio Department of Transportation recommends using the 30^{TH} highest hour as a design control for urban streets. There is typically very little difference between the volumes in this range. The Ohio Department of Transportation provides factors or a methodology to determine factors that are applied to counted daily traffic volumes to determine appropriate design hour traffic volumes.

Following guidelines set forth in the **ODOT State Highway Access Management Manual**[(2)], all analyses are required to examine the design hour volume for the adjacent roadway and peak hour traffic volume of the proposed development. The **Ohio Traffic Forecasting Manual**[(4 & 5)] will be used to determined peak hour factors for the study area roadways.

The design hour volumes are determined by multiplying the AM and PM peak hour volumes by the appropriate factors from the ODOT Peak Hour to Design Hour Factor Report based on the functional classification of the roadway, the day of the week and the month that the traffic data was collected. A copy of the ODOT's Peak Hour to Design Hour Factor Report can be seen in **Appendix H**. The following table details the peak hour to design hour factors for the study area roadways.

Table 3.6 - Peak Hour to Design Hour Factors

ROADWAY	AREA	FUNCTIONAL CLASSIFICATION	MONTH	DAY	DHV FACTOR
SR 10	Urban	Minor Arterial	August	Tuesday	1.14
All Other Roadways	Urban	Major Collector	August	Tuesday	1.14

Peak Hour Factors

The intersection peak hour factor (PHF) is used to convert the hourly traffic volume into the flow rate that represents the busiest 15 minutes of the peak hour. The PHF is the sum of the traffic entering the intersection during the peak hour divided by four times the highest 15 minute volume during the peak hour. A PHF of 1 indicates that the traffic volume in each 15 minute volume is the same and therefore traffic flow is consistent throughout the hour. A lower PHF indicates a more variable traffic flow and that traffic volume has a spike during the peak 15 minute interval. PHF's under 0.80 occur in locations with highly peaked demand, such as at schools and factories during shift changes.

The ODOT **Analysis and Traffic Simulation Manual, (OATS)**[6] provides guidance to use the existing year PHF for all intersections from traffic counts collected for the project. The PHF is calculated for the intersection as a whole and not individual approaches or movements. A minimum of 0.80 for the PHF is required to be utilized unless justified by highly peaked demands such as for schools and factories noted above. If project specific counts are not available, a default value of 0.92 is to be utilized.

It is assumed for the report that the PHF for the opening and design years are the same as the calculated PHF from the collected existing year traffic counts. The intersection PHFs are included in **Appendix C**.

The following table shows the PHF's calculated for the study area intersections during the AM and PM peak hours:

Table 3.7 - Intersection Peak Hour Factors

ROADWAY/INTERSECTION	AM PEAK HOUR FACTOR	PM PEAK HOUR FACTOR
SR 10 & Lear Nagle Road & Cook Road	0.928	0.928

The peak hour factors detailed in Table 3.7 will be used in the forthcoming intersection capacity calculations in Chapter 4 of this report.

3.4 Future Traffic

No-Build Condition

The previously discussed calculation of the design hour factors and a growth rate for each movement were applied to the 2022 traffic volumes shown in **Figure A-1** in order to estimate the future traffic considering non-project traffic conditions.

The estimated 2023 No-Build traffic volumes for the study area are shown graphically in **Figure A-4, Appendix A**. The estimated 2033 No-Build traffic volumes for the study area are shown graphically in **Figure A-5, Appendix A**. This traffic is the expected traffic if the proposed development **is not** constructed, the **"No-Build"** condition.

The No-Build traffic volumes have been rounded to the nearest 10 in order to adhere to preferred ODOT practices.

Build Condition

The sum of the 2023 and 2033 No-Build volumes, shown in **Figures A-4 and A-5**, were added to the new generated traffic (**Figure A-2**) to equal the future Build peak hour volumes in order to estimate the future traffic considering project traffic conditions.

The estimated 2023 Build traffic volumes for the study area are shown graphically in **Figure A-6, Appendix A** for the proposed development. The estimated 2033 Build traffic volumes for the study area are shown graphically in **Figure A-7, Appendix A** for the proposed development. These traffic volumes are the expected volumes if the proposed development **is** constructed, or the **"Build"** condition.

Chapter 4
Traffic Analysis

4.1 Capacity & LOS at Study Area Intersection

2023 Traffic Analysis - No-Build & Build Conditions

Traffic analyses were performed for the projected 2023 conditions under the No-Build and Build scenarios so:

1. any existing roadway/intersection deficiencies can be identified in the No-Build scenario which would not be attributable to the development, and;

2. a comparison can be made to determine the changes in the traffic operations which may be attributed to the development.

The traffic volumes used in the No-Build analyses can be seen in **Figure A-4, Appendix A**. Copies of the capacity worksheets for the No-Build analyses are included in **Appendix I.**

The traffic volumes used in the Build analyses can be seen in **Figure A-6, Appendix A**. Copies of the capacity worksheets for the Build analyses are included in **Appendix J.**

Lorain Road & Lear Nagle Road & Cook Road

Comparison of the 2023 No-Build versus Build traffic analyses for the signalized intersection of SR 10 & Lear Nagle Road & Cook Road are shown in the following tables:

Table 4.1 - 2023 Levels-of-Service - AM Peak
(No-Build vs Build Comparison)

	2023 AM No-Build						2023 AM Build				
	LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)		LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)
EBL	E	60.1	0.983	0.00	0	EBL	E	60.1	0.983	0.00	0
EBT	C	25.0	0.549	0.00	0	EBT	C	25.6	0.575	0.00	0
EB Approach	D	51.0	-	-	-	EB Approach	D	50.9	-	-	-
WBL	D	36.4	0.412	0.00	0	WBL	D	36.5	0.427	0.00	0
WBT	E	64.1	0.834	0.00	0	WBT	E	64.1	0.834	0.00	0
WB Approach	D	53.6	-	-	-	WB Approach	D	53.5	-	-	-
NBL	E	59.7	0.854	0.00	0	NBL	E	66.5	0.891	0.00	0
NBT	D	42.4	0.679	0.00	0	NBT	D	43.6	0.706	0.00	0
NBR	D	42.7	0.682	0.00	0	NBR	D	43.9	0.709	0.00	0
NB Approach	D	47.7	-	-	-	NB Approach	D	50.6	-	-	-
SBL	C	30.4	0.237	0.00	0	SBL	C	30.5	0.245	0.00	0
SBT	D	36.3	0.417	0.00	0	SBT	D	36.4	0.427	0.00	0
SBR	B	12.2	0.366	0.00		SBR	B	12.2	0.366	0.00	0
SB Approach	C	25.2	-	-	-	SB Approach	C	25.4	-	-	-
Intersection	**D**	**45.1**	-	-	-	**Intersection**	**D**	**45.8**	-	-	-

Table 4.2 - 2023 Levels-of-Service - PM Peak
(No-Build vs Build Comparison)

	2023 PM No-Build						2023 PM Build				
	LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)		LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)
EBL	F	144.9	1.204	0.00	0	EBL	F	144.9	1.204	0.00	0
EBT	D	38.3	0.767	0.00	0	EBT	D	39.8	0.790	0.00	0
EB Approach	F	113.9	-	-	-	EB Approach	F	113.7	-	-	-
WBL	D	39.2	0.487	0.00	0	WBL	D	39.7	0.522	0.00	0
WBT	F	114.5	1.042	0.00	0	WBT	F	114.5	1.042	0.00	0
WB Approach	F	91.2	-	-	-	WB Approach	F	90.8	-	-	-
NBL	F	144.0	1.189	0.00	0	NBL	F	163.8	1.240	0.00	0
NBT	E	66.4	0.909	0.00	0	NBT	E	71.2	0.933	0.00	0
NBR	E	67.6	0.911	0.00	0	NBR	E	72.4	0.934	0.00	0
NB Approach	F	93.6	-	-	-	NB Approach	F	103.6	-	-	-
SBL	C	29.2	0.458	0.00	0	SBL	C	29.2	0.465	0.00	0
SBT	D	45.1	0.729	0.00	0	SBT	D	45.7	0.744	0.00	0
SBR	F	65.5	1.021	0.00		SBR	F	65.5	1.021	0.00	0
SB Approach	D	54.4	-	-	-	SB Approach	D	54.5	-	-	-
Intersection	**F**	**87.8**	-	-	-	**Intersection**	**F**	**90.3**	-	-	-

Conditions at the signalized Lorain Road and Lear Nagle Road / Cook Road intersection during the AM peak hour were determined to operate with level-of-service E or better under the forecasted 2023 No-Build conditions. The intersection is anticipated to operate at LOS F on several approaches and various movements in the PM peak hour under the Year 2023 No-Build conditions. Several improvement alternatives were analyzed to determine mitigation to improve LOS. It would require several improvements such as a third eastbound left-turn lane and an exclusive right-turn lane on Lear Nagle Road and dual northbound left-turn lanes on Lorain Road. The City should consider these in a future construction project.

The 2023 AM and PM peak hour comparison tables for the intersection of Lorain Road / Lear Nagle Road / Cook Road indicate that the approach delays are not adversely impacted with the addition of the development generated traffic under the forecasted 2023 AM and PM peak hour conditions. The additional car wash traffic is anticipated to increase delay at the intersection by less then a second in the AM Peak hour and by 2.5 seconds in the PM Peak hour. The general public should not notice such a small increase in overall delay at the intersection. No geometric or traffic control improvements are recommended for the study intersection under the 2023 Build conditions.

2033 Traffic Analysis - No-Build & Build Conditions

Traffic analyses were performed for the projected 2033 conditions under the No-Build and Build scenarios.

The traffic volumes used in the No-Build analyses can be seen in **Figure A-5, Appendix A**. Copies of the capacity worksheets for the No-Build analyses are included in **Appendix K.**

The traffic volumes used in the Build analyses can be seen in **Figure A-7, Appendix A**. Copies of the capacity worksheets for the Build analyses are included in **Appendix L.**

Lorain Road & Lear Nagle Road & Cook Road

Comparison of the 2033 No-Build versus Build traffic analyses for the signalized intersection of Lorain Road & Lear Nagle Road & Cook Road are shown in the following tables:

Table 4.3 - 2033 Levels-of-Service - AM Peak
(No-Build vs Build Comparison)

	2033 AM No-Build						2033 AM Build				
	LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)		LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)
EBL	E	60.1	0.983	0.00	0	EBL	E	63.4	0.999	0.00	0
EBT	C	25.0	0.549	0.00	0	EBT	C	25.4	0.581	0.00	0
EB Approach	D	51.0	-	-	-	EB Approach	D	53.4	-	-	-
WBL	D	36.4	0.412	0.00	0	WBL	D	35.9	0.425	0.00	0
WBT	E	64.1	0.834	0.00	0	WBT	E	65.8	0.849	0.00	0
WB Approach	D	53.6	-	-	-	WB Approach	D	54.3	-	-	-
NBL	E	59.7	0.854	0.00	0	NBL	E	71.2	0.922	0.00	0
NBT	D	42.4	0.679	0.00	0	NBT	D	46.2	0.752	0.00	0
NBR	D	42.7	0.682	0.00	0	NBR	D	46.7	0.755	0.00	0
NB Approach	D	47.7	-	-	-	NB Approach	D	54.0	-	-	-
SBL	C	30.4	0.237	0.00	0	SBL	C	30.4	0.288	0.00	0
SBT	D	36.3	0.417	0.00	0	SBT	D	36.9	0.460	0.00	0
SBR	B	12.2	0.366	0.00		SBR	B	12.6	0.373	0.00	0
SB Approach	C	25.2	-	-	-	SB Approach	C	26.0	-	-	-
Intersection	**D**	**45.1**	-	-	-	**Intersection**	**D**	**47.9**	-	-	-

Table 4.4 - 2033 Levels-of-Service - PM Peak
(No-Build vs Build Comparison)

	2033 PM No-Build						2033 PM Build				
	LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)		LOS	Delay (sec/veh)	v/c	QSR	95th %tile Queue (ft)
EBL	F	153.9	1.225	0.00	0	EBL	F	153.9	1.225	0.00	0
EBT	D	39.4	0.785	0.00	0	EBT	D	41.1	0.808	0.00	0
EB Approach	F	120.5	-	-	-	EB Approach	F	120.4	-	-	-
WBL	D	39.3	0.501	0.00	0	WBL	D	40.2	0.538	0.00	0
WBT	F	114.5	1.042	0.00	0	WBT	F	114.5	1.042	0.00	0
WB Approach	F	91.2	-	-	-	WB Approach	F	91.0	-	-	-
NBL	F	165.0	1.243	0.00	0	NBL	F	186.0	1.294	0.00	0
NBT	E	68.8	0.921	0.00	0	NBT	E	73.8	0.945	0.00	0
NBR	E	69.9	0.922	0.00	0	NBR	E	75.1	0.946	0.00	0
NB Approach	F	102.6	-	-	-	NB Approach	F	113.3	-	-	-
SBL	C	29.2	0.462	0.00	0	SBL	C	29.2	0.469	0.00	0
SBT	D	46.1	0.754	0.00	0	SBT	D	46.8	0.770	0.00	0
SBR	F	73.2	1.047	0.00		SBR	F	73.2	1.047	0.00	0
SB Approach	E	58.8	-	-	-	SB Approach	E	59.0	-	-	-
Intersection	**F**	**93.6**	-	-	-	**Intersection**	**F**	**96.3**	-	-	-

Conditions at the signalized Lorain Road and Lear Nagle Road / Cook Road intersection during the AM peak hour were determined to operate with level-of-service E or better under the forecasted 2033 No-Build conditions. The intersection is anticipated to operate at LOS F on several approaches and various movements in the PM peak hour under the Year 2033 No-Build conditions. Several improvement alternatives were analyzed to determine mitigation to improve LOS. It would require several improvements such as a third eastbound left-turn lane and an exclusive right-turn lane on Lear Nagle Road and dual northbound left-turn lanes on Lorain Road. The City should consider these in a future construction project.

The 2033 AM and PM peak hour comparison tables for the intersection of Lorain Road / Lear Nagle Road / Cook Road indicate that the approach delays are not adversely impacted with the addition of the development generated traffic under the forecasted 2033 AM and PM peak hour conditions. The additional car wash traffic is anticipated to increase delay at the intersection by less then a second in the AM Peak hour and by 2.8 seconds in the PM Peak hour. The general public should not notice such a small increase in overall delay at the intersection. No geometric or traffic control improvements are recommended for the study intersection under the 2033 Build conditions.

4.2 Capacity & LOS at Development Access Intersection

Capacity analyses were performed for the proposed site access driveways on Lorain Road using the procedures outlined in the computerized version of the Transportation Research Board's **Highway Capacity Manual 7TH Edition, 2022 (HCS version 8.1)**.

Build Condition - 2023 Capacity Analysis

Analyses were performed for the projected 2023 opening year conditions under the Build scenario to determine the future levels-of-service and delay at the proposed site access driveways. The traffic volumes used in this analysis can be seen in **Figures A-4 & A-6, Appendix A**. The results of the 2023 Build analyses are shown in the following tables. Copies of the capacity worksheets are included in **Appendix M**.

Table 4.5 - 2023 Access Levels-of-Service
(SR 10 & Proposed Access Drive #1)

	2023 Build AM	One-Way Stop				2023 Build PM	One-Way Stop		
	LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)		LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)
WB Approach	C	18.5	0.08	0.20	WB Approach	D	30.9	0.14	0.50
SB L	B	10.0	0.04	0.10	SB L	B	11.8	0.05	0.20
SB Approach	A	0.8	--	--	SB Approach	A	1.0	--	--

Table 4.6 - 2023 Levels-of-Service
(SR 10 & Proposed Access Drive #2)

	2023 Build AM	One-Way Stop				2023 Build PM	One-Way Stop		
	LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)		LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)
WB Approach	B	11.8	0.03	0.10	WB Approach	B	13.8	0.04	0.10

The capacity of the approaches and critical movements at the proposed access intersections on Lorain Road are expected to be at a level-of-service D or better during the AM and PM peak hours. The traffic generated by the proposed car wash is anticipated to be able to find an acceptable amount of gap in traffic to turn from the proposed driveway.

Build Condition - 2033 Capacity Analysis

Analyses were performed for the projected 2033 design year conditions under the Build scenario to determine the future levels-of-service and delay at the proposed site access driveways. The traffic volumes used in this analysis can be seen in **Figures A-5 & A-7, Appendix A**. The results of the 2033 Build analyses are shown in the following tables. Copies of the capacity worksheets are included in **Appendix M**.

Table 4.7 - 2033 Access Levels-of-Service
(SR 10 & Proposed Access Drive #1)

	2033 Build AM		One-Way Stop			2033 Build PM		One-Way Stop	
	LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)		LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)
WB Approach	C	19.0	0.08	0.30	WB Approach	D	32.9	0.14	0.50
SB L	B	10.1	0.04	0.10	SB L	B	12.0	0.05	0.20
SB Approach	A	0.8	--	--	SB Approach	A	1.1	--	--

Table 4.8 - 2033 Access Levels-of-Service
(SR 10 & Proposed Access Drive #2)

	2033 Build AM		One-Way Stop			2033 Build PM		One-Way Stop	
	LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)		LOS	Delay (sec/veh)	v/c	95th %tile Queue (Vehicles)
WB Approach	B	11.9	0.03	0.10	WB Approach	B	14.0	0.04	0.10

The capacity of the approaches and critical movements at the proposed access intersections on Lorain Road are expected to continue to be at a level-of-service D or better during the AM and PM peak hours. The traffic generated by the proposed car wash is anticipated to be able to find an acceptable amount of gap in traffic to quickly turn from the proposed driveway.

4.3 Auxiliary Turning Lane Warrant Analysis

It is the intent of this section of the report is to evaluate the need for exclusive deceleration and turning lanes at the proposed site access driveways on Lorain Road. The turn lane warrants will be evaluated based on the following conditions:

Proposed Site Access Driveways (Lorain Road)

- Four-lane roadway
- Posted speed limit of 35 miles per hour

The following tables show the results of the analysis of the need for exclusive deceleration and turn lanes on Lorain Road at the proposed site access driveways. Copies of the ODOT turn lane warrant graphs can be seen in **Appendix O**.

Table 4.9 Turning Lane Warrants

TURN LANE & LOCATION	2023		2033	
	AM PEAK	PM PEAK	AM PEAK	PM PEAK
SB Left Turn Lane @ SR 10 Site Driveway #1	**YES**	**YES**	**YES**	**YES**
NB Right Turn Lane @ SR 10 Site Driveway #1	NO	NO	NO	NO

The results of the turn lane warrant analyses indicate that an exclusive southbound left-turn lane is warranted on SR 10 at the proposed site access driveway #1 under the expected 2023 and 2033 Build conditions. It is not recommended that the exclusive turn lane be constructed at the proposed driveway. There is not sufficient distance to install the turning lane due to the Lear Nagle intersection and the several site driveways along Lorain Road which generate significantly more vehicles then the proposed car wash and these driveways do not have an exclusive left turn lane on Lorain Road. An exclusive left-turn lane can be considered at this location if the roadway widening project is developed for this corridor. It was determined from the turn lane warrant analyses that a northbound right-turn lane is not warranted on Lorain Road at the site driveway #1.

Turn lane warrants were not performed for the site access drive #2 since there was no northbound right-turning vehicles estimated to turn at this driveway.

4.4 Improvements to Accommodate Study Area Traffic

The following lane use and traffic control is recommended at the driveway intersections on Lorain Road and where access to the development site is proposed under the 2023 and 2033 peak hour Build conditions.

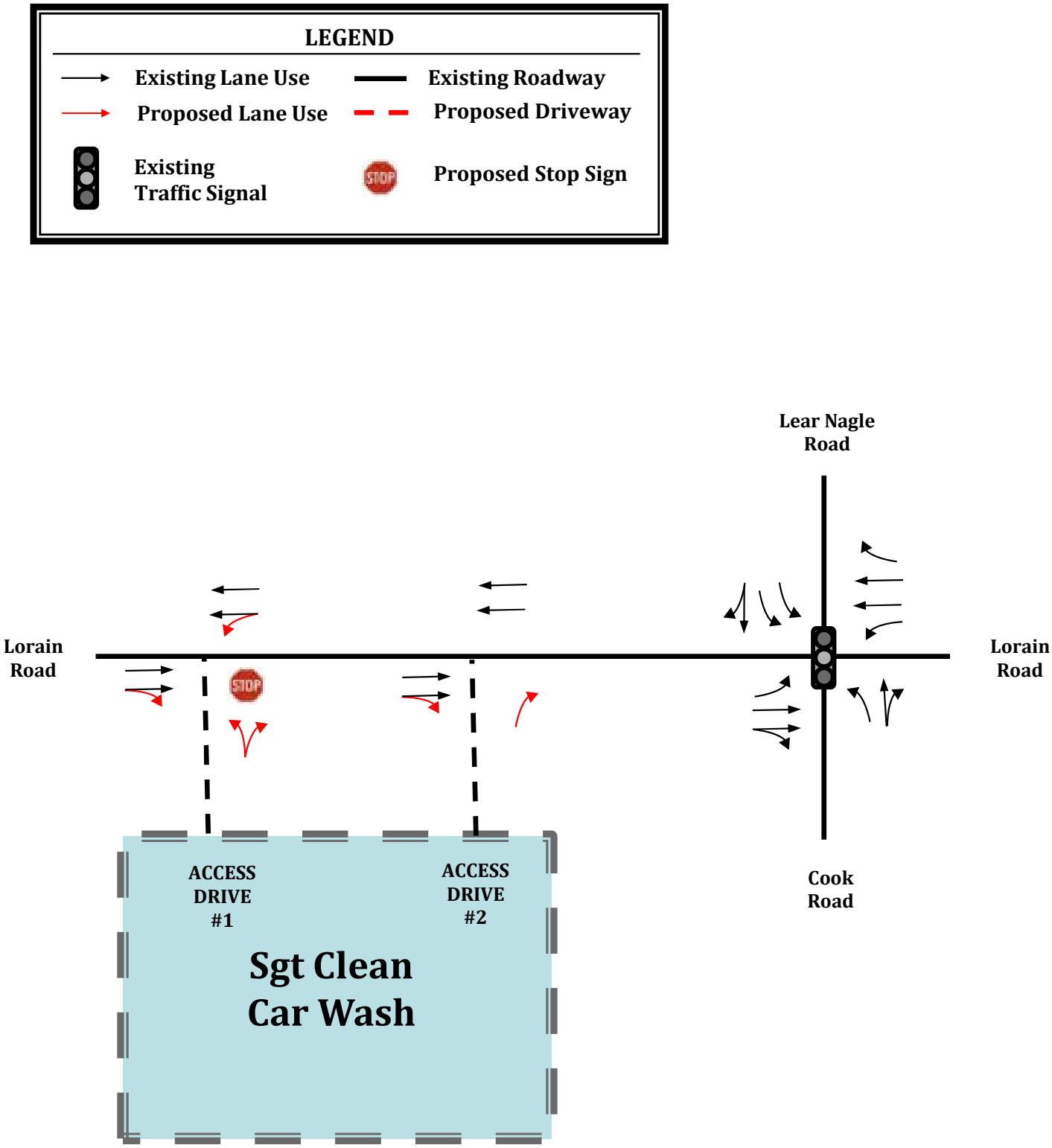
Lorain Road & Site Driveway #1

- A stop sign should be installed on the westbound approach (site driveway)
- The proposed driveway should be constructed with one egress lane and one ingress lane.

Lorain Road & Site Driveway #2

- The proposed Access Driveway #2 will be restricted to right-in / right-out access only for the safety of motorists turning at this driveway. The necessary signage and raised pavement should be installed at the driveway to prevent the left-turn movements.
- The proposed driveway should be constructed with one egress lane and one ingress lane.

The recommended lane use and traffic control for the study area to accommodate expected traffic volumes can be seen in **Figure 4.1, Page 35**.



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	Recommended Lane Use and Traffic Control	NORTH NOT TO SCALE	Figure 4.1 Page 35

Chapter 5
Conclusions

Based on the results of the analyses, we offer the following conclusions and recommendations:

5.1 This Traffic Impact Study (TIS) has been prepared at the request of Sgt. Clean Car Wash for a proposed Car Wash. The car wash will be located on the east side of Lorain Road (SR 10) and south of Cook Road in the City of North Ridgeville, Lorain County, Ohio. **Figure 1.1, Page 2** shows the proposed location of the development.

5.2 The development is expected to consist of the following land use:

- **Single Tunnel Automated Car Wash**

5.3 The development is proposed to have two full access driveways. The primary site driveway will be located on Lorain Road at the southern edge of the proposed development. The secondary site driveway will be located on Lorain Road approximately 100 feet north of the main site driveway. **Figure 1.2, Page 3** shows the proposed site plan for the development including the location of the proposed site access driveways. There is a cross access driveway proposed with the adjoining Starbucks but this driveway was not included in this study. Internal capture trips between the two sites were not assumed to provide a more conservative analysis.

5.4 Based on the collected traffic data, the weekday AM peak hour of traffic was determined to be 7:30 AM to 8:30 AM. The weekday PM peak hour of traffic was found to be 4:45 PM to 5:45 PM. These periods will be used to forecast expected and future traffic volumes since they reflect the period of the highest volume of vehicular traffic flow for the study area roadways

5.5 The proposed development is expected to generate the following average hourly traffic during the PM peak period:

ITE TRIP GENERATION			TRIP ENDS			
ITE CODE	DESCRIPTION	Tunnels	Weekday AM Peak Hour (Enter/Exit)		Weekday PM Peak Hour (Enter/Exit)	
948	Automated Car Wash	1	39	39	39	39
TOTAL NEW TRIPS			78		78	

5.6 The ODOT **State Highway Access Management Manual** requires that ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is below 500 in the peak hour. The proposed development is expected to generate a total of 78 driveway trips in the AM and PM peak hour. The year 2033 was therefore analyzed for the ten year design hour conditions.

5.7 The Lorain Road and Lear Nagle Road / Cook Road intersection is anticipated to operate at LOS F on several approaches and various movements in the PM peak hour under the Year 2023 and Year 2033 No-Build conditions. Several mitigation alternatives were analyzed and it would require several improvements such as a third eastbound left-turn lane and an exclusive right-turn lane on Lear Nagle Road and dual northbound left-turn lanes on Lorain Road. The City should consider these options in future construction project.

The Year 2023 and Year 2033AM and PM peak hour comparison for the intersection of Lorain Road and Lear Nagle Road / Cook Road indicate that the approach delays are not adversely impacted with the addition of the development generated traffic under the forecasted 2023 and 2033 AM and PM peak hour conditions. The additional car wash traffic is anticipated to increase delay at the intersection by less then a second in the AM Peak hour and by approximately 2.8 seconds in the AM or PM Peak hours. The general public should not notice such a small increase in overall delay at the intersection. No geometric or traffic control improvements are recommended for the Lorain Road and Lear Nagle Road / Cook Road intersection as part of this study under the 2023 and 2033 Build conditions.

5.8 The following lane use and traffic control is recommended at the driveway intersections on Lorain Road where access to the development site is proposed under the 2023 and 2033 peak hour Build conditions.

Lorain Road & Site Driveway #1

- A stop sign should be installed on the westbound approach (site driveway)
- The proposed driveway should be constructed with one egress lane and one ingress lane.

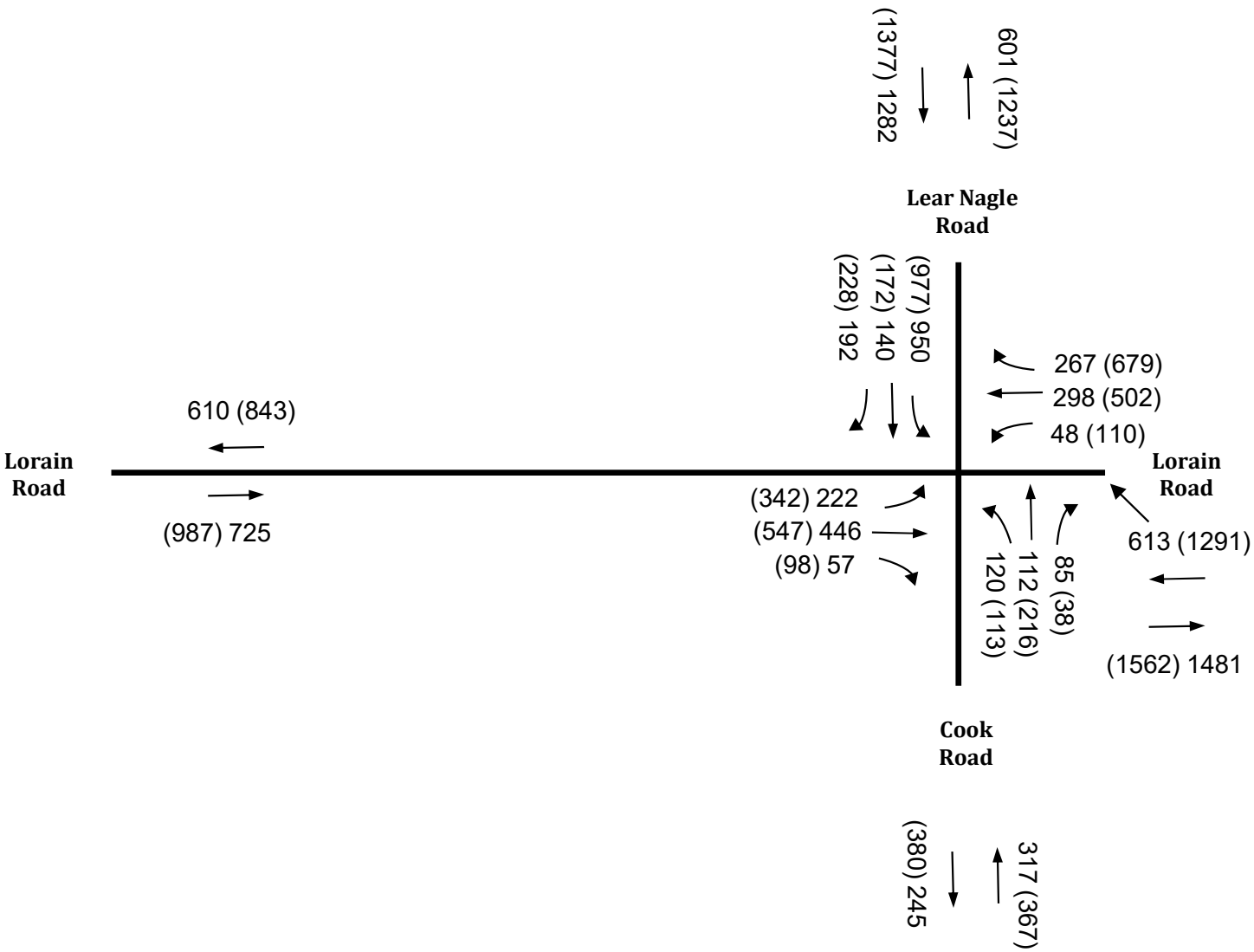
Lorain Road & Site Driveway #2

- The proposed Access Driveway #2 will be restricted to right-in / right-out access only for the safety of motorists turning at this driveway. The necessary signage and raised pavement should be installed at the driveway to prevent the left-turn movements.
- The proposed driveway should be constructed with one egress lane and one ingress lane.

5.9 Based upon the results of the analysis in this study and the corresponding recommendations, it can be seen that the development traffic can be accommodated without adversely impacting the area roadway network.

Appendix A
Figures

Counts collected during the COVID19 Pandemic.

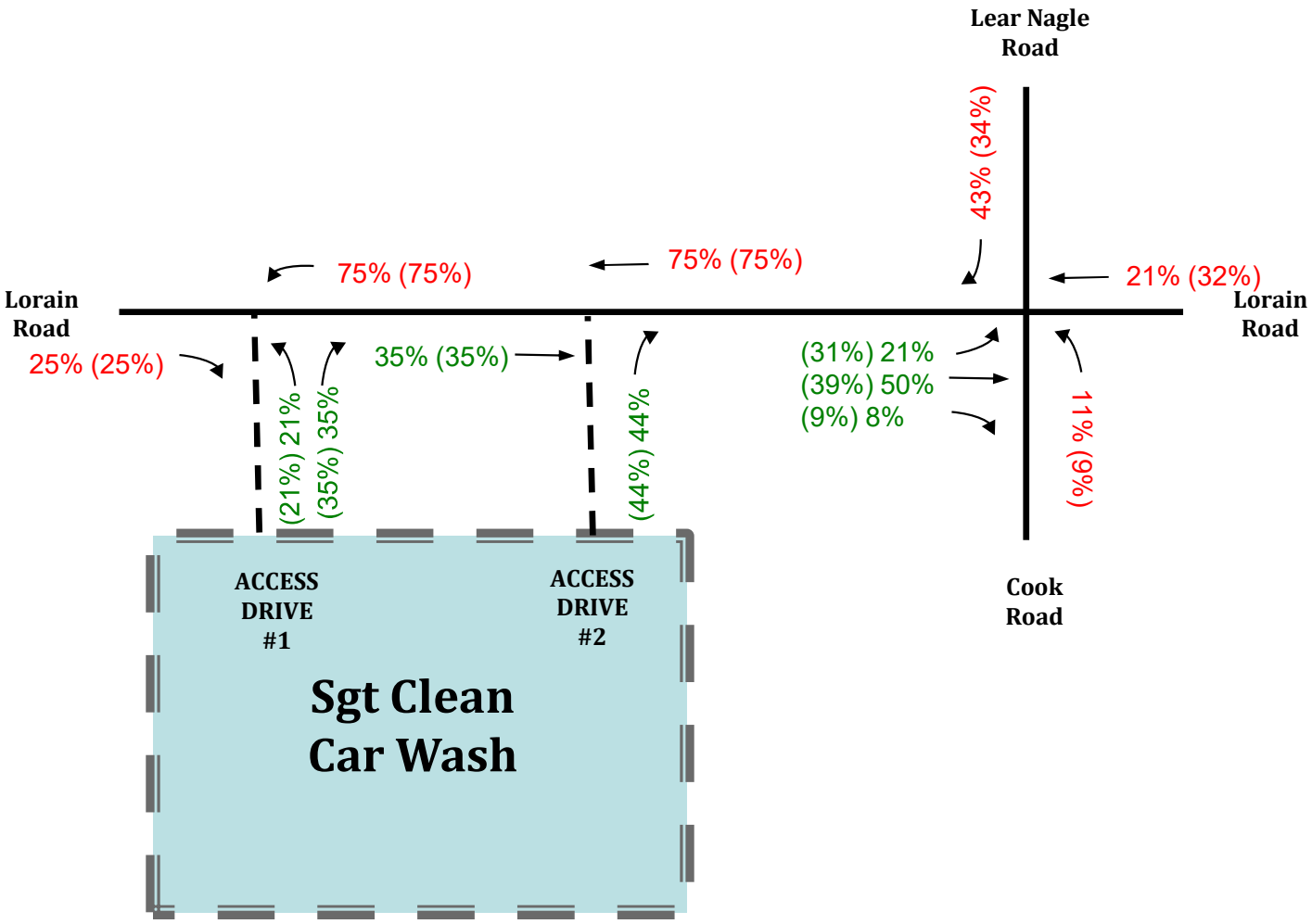


LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic

TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	Collected Existing 2022 Weekday Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-1 Appendix A

LEGEND	
XX	AM Peak Hour Distribution
(XX)	PM Peak Hour Distribution

RED = Entering Volumes
GREEN = Exiting Volumes

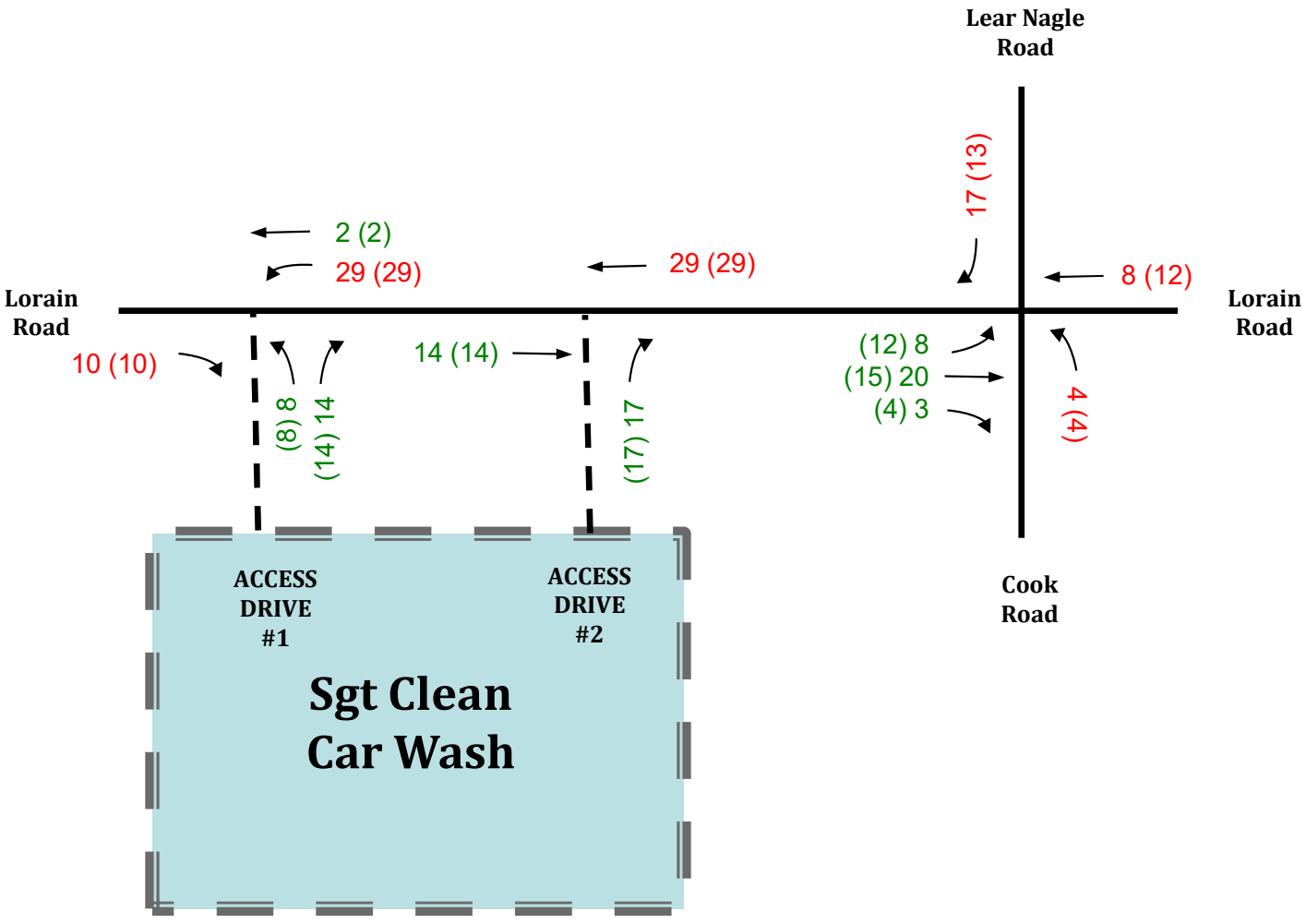


TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	New Generated Traffic Distribution	NORTH NOT TO SCALE	Figure A-2 Appendix A

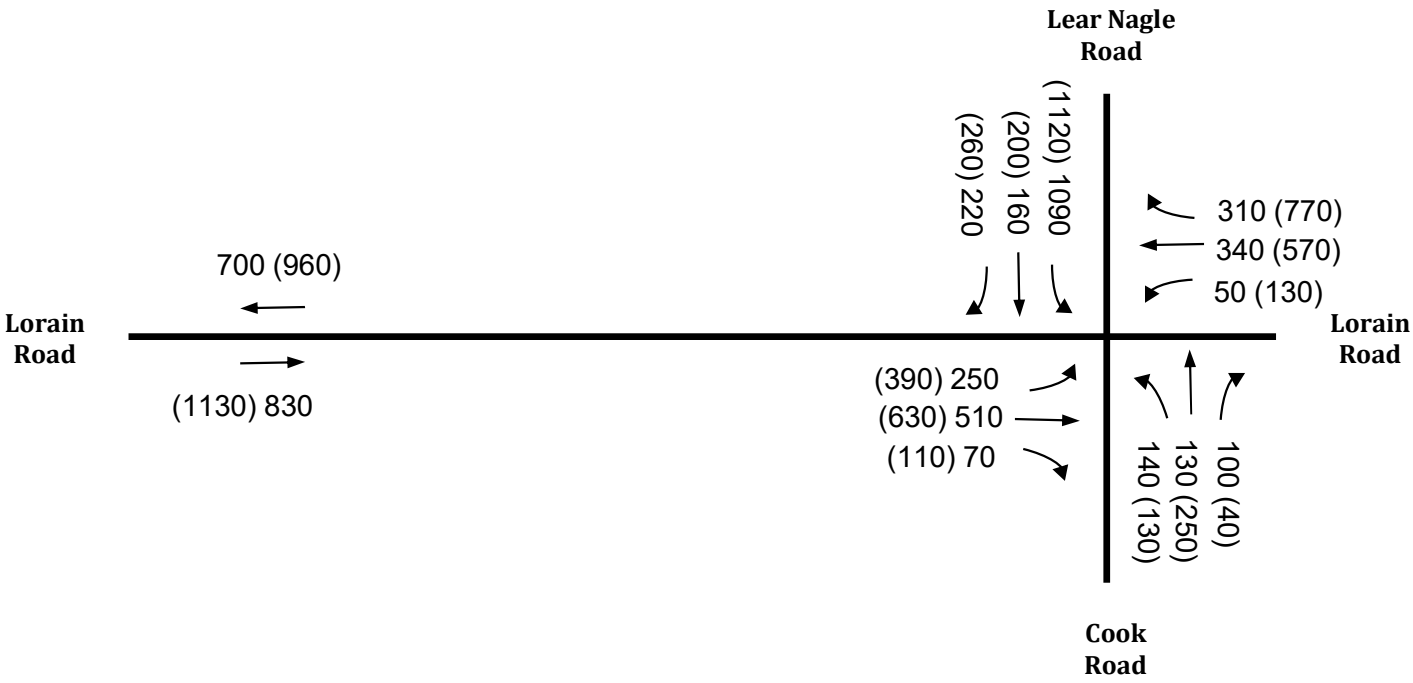
LEGEND	
XX	AM Peak Hour Trips
(XX)	PM Peak Hour Trips

RED = Entering Volumes
GREEN = Exiting Volumes

NEW GENERATED TRAFFIC	AM	PM
TOTAL TRIPS	78	78
ENTER	39	39
EXIT	39	39

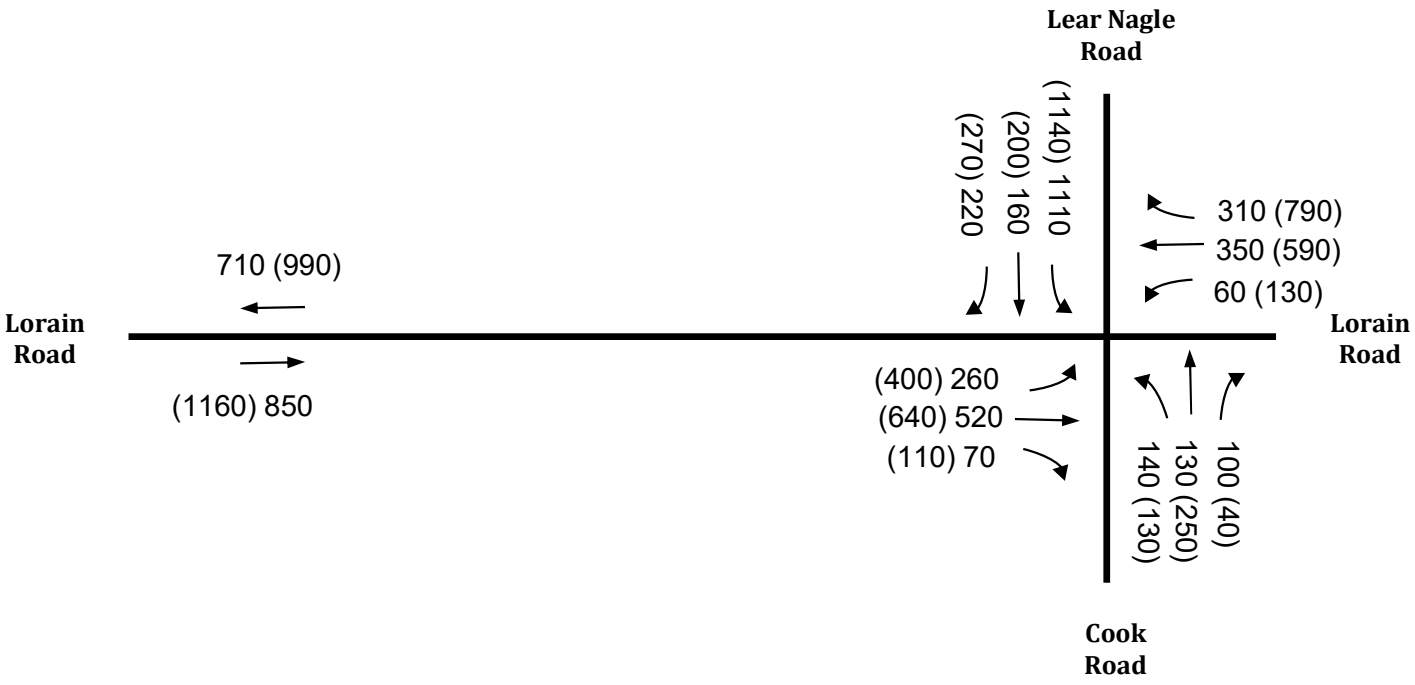


TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	New Generated Traffic	NORTH NOT TO SCALE	Figure A-3 Appendix A



LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic

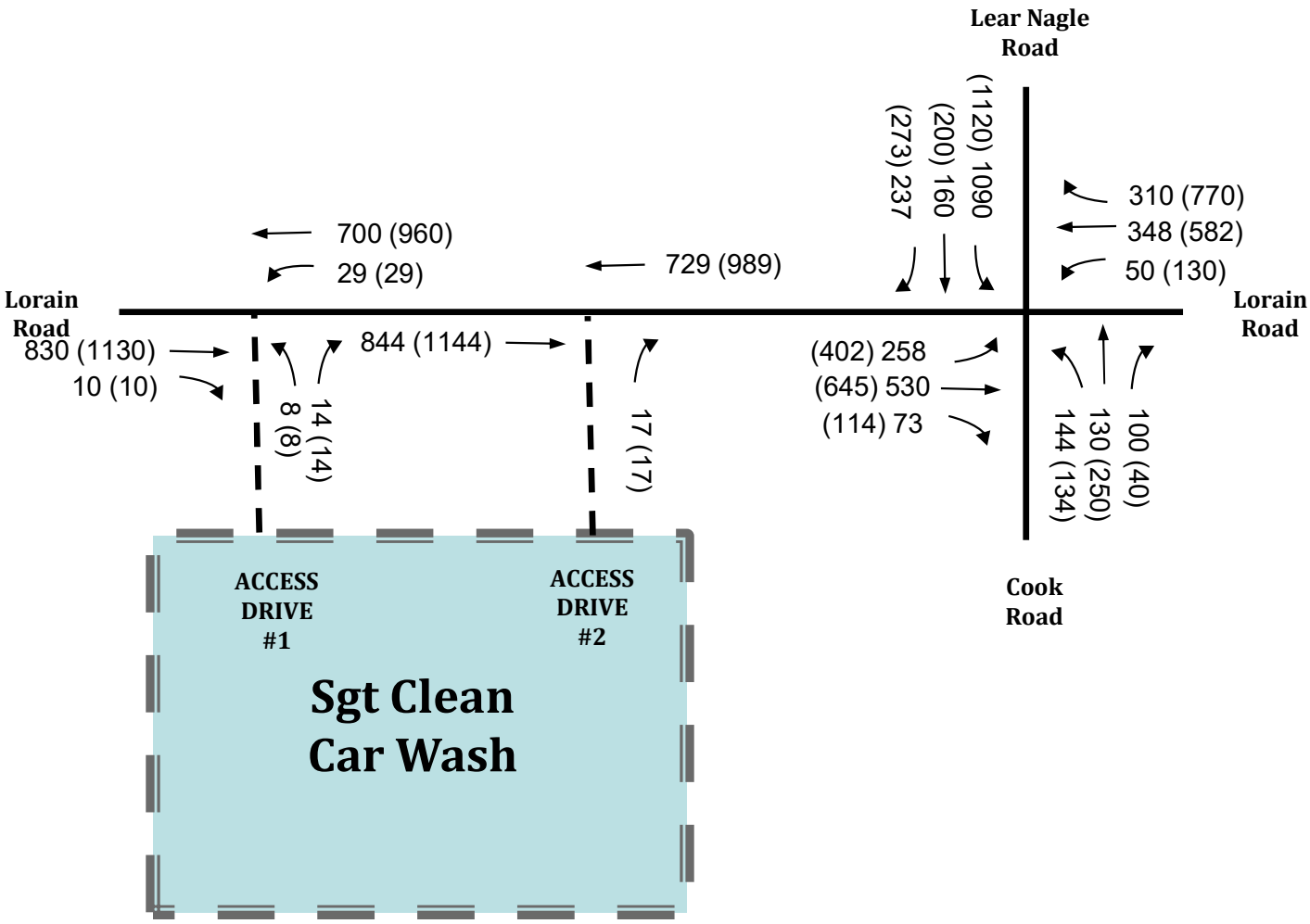
TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	2023 No-Build Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-4 Appendix A



LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic

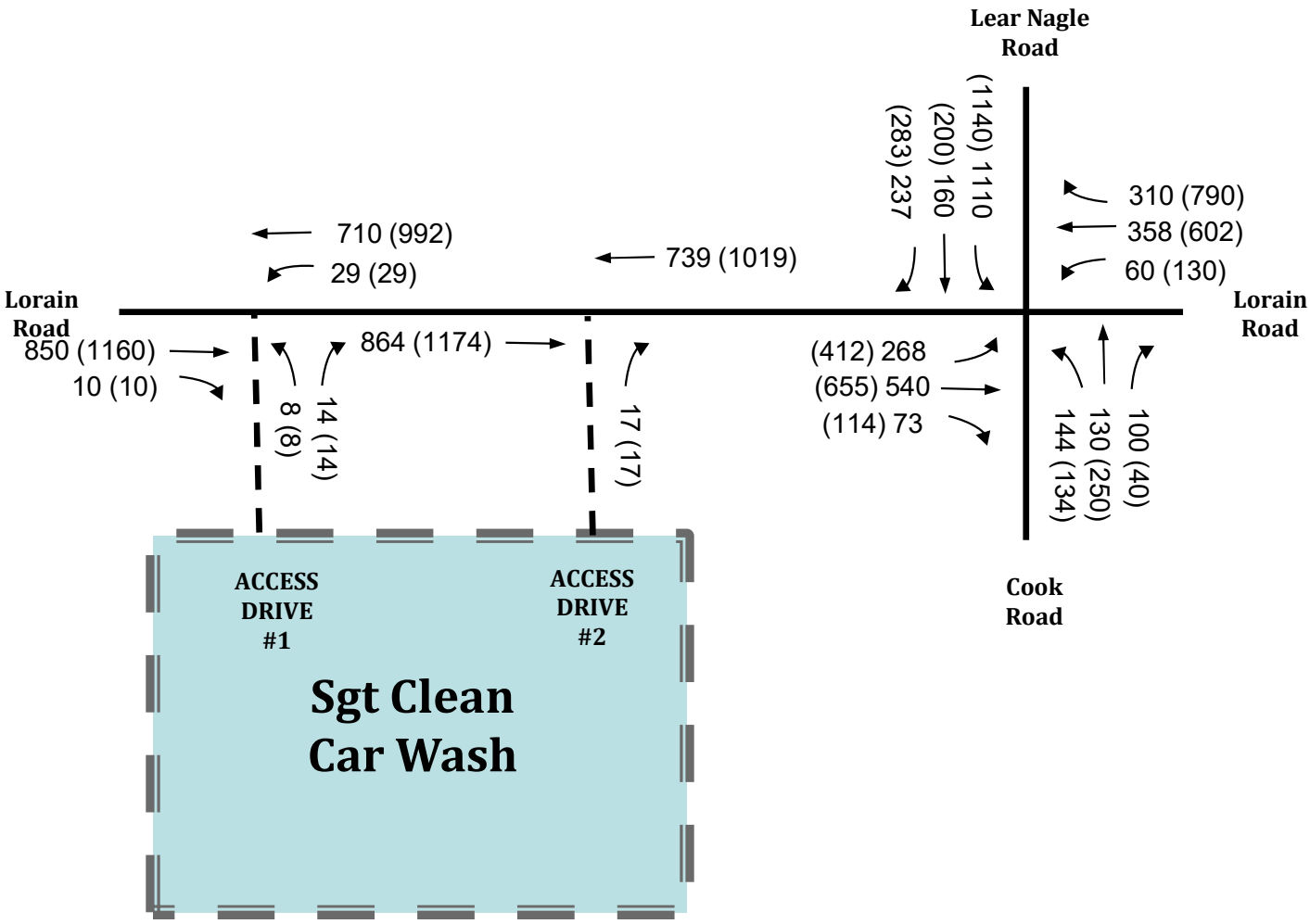
TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	2033 No-Build Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-5 Appendix A

LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	2023 Build Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-6 Appendix A

LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic



TMS Engineers, Inc. 2112 Case Parkway S., Unit 7, Twinsburg, Ohio 44087 www.TMSEngineers.com	Sgt Clean Car Wash North Ridgeville, Ohio Traffic Impact Study	2033 Build Peak Hour Traffic Volumes	NORTH NOT TO SCALE	Figure A-7 Appendix A

Appendix B
ODOT Turn Lane Design Criteria

BASIS FOR COMPUTING LENGTH OF TURN LANES

401-9E

REFERENCE SECTIONS 401.6.1, 401.6.3

Type of Traffic Control	Design Speed		
	30-35	40-65	
	Turn Demand Volume		
	All	Low*	High
Signalized	A	** B or C	** B or C
Unsignalized Stopped Crossroad	A	A	A
Unsignalized Through Road	A	B	** B or C

*Low is considered 10% or less of approach traffic volume
**Whichever is greater

CONDITION A	STORAGE ONLY
Length = 50' (diverging taper) + Storage Length (Figure 401-10)	

CONDITION B	HIGH SPEED DECELERATION ONLY
Design Speed	Length (including 50' Diverging Taper)
40	125
45	175
50	225
55	285
60	345
65	405

CONDITION C	MODERATE SPEED DECELERATION AND STORAGE
Design Speed	Length (including 50' Diverging Taper)
40	115 + Storage Length (Figure 401-10)
45	125 "
50	145 "
55	165 "
60	185 "
65	205 "

For explanation, see Turn Lane Design Example

STORAGE LENGTH AT INTERSECTIONS

401-10E

REFERENCE SECTIONS 401.6.1, 401.6.3

* AVERAGE NO. OF VEHICLES/CYCLE	REQUIRED LENGTH (FT.)	* AVERAGE NO. OF VEHICLES/CYCLE	REQUIRED LENGTH (FT.)
1	50	17	600
2	100	18	625
3	150	19	650
4	175	20	675
5	200	21	725
6	250	22	750
7	275	23	775
8	325	24	800
9	350	25	825
10	375	30	975
11	400	35	1125
12	450	40	1250
13	475	45	1400
14	500	50	1550
15	525	55	1700
16	550	60	1850

$$\text{* AVERAGE VEHICLES PER CYCLE} = \frac{\text{DHV (TURNING LANE)}}{\text{CYCLES/HOUR}}$$

IF CYCLES ARE UNKNOWN ASSUME:

UNSIGNALIZED OR 2 PHASE = 60 CYCLES/HOUR

3 PHASE = 40 CYCLES/HOUR

4 PHASE = 30 CYCLES/HOUR

Appendix C
Traffic Count Data

VEHICULAR TRAFFIC COUNT SUMMARY

Municipality: North Ridgeville **At Intersection of:** Lorain Road **and** Lear Nagle Road / Cook Road

Date: 8/9/2022 **Day:** Tue. **Comments:** **Project:** 22-107

Weather: Clear **Recorder(s):** SLC & JMC **Data entry by:** JJO **Date entered:** Aug. 10, 2022 orain Rd & Lear Nagle + Cook Rd 08092

TIME BEGINS	Lorain Rd. FROM NORTH						Lorain Rd. FROM SOUTH						TOTAL NORTH SOUTH	Cook Rd. FROM EAST						Lear Nagle Rd. FROM WEST						TOTAL EAST WEST	TOTAL ALL DIREC.	PEAK HOUR FACTOR			
	Left	Thru	Right	Total	Trk	Bus	Left	Thru	Right	Total	Trk	Bus		Left	Thru	Right	Total	Trk	Bus	Left	Thru	Right	Total	Trk	Bus			North	South	East	West
06:00																														
07:00	54	302	214	570	30	0	179	452	48	679	25	0	1249	112	106	73	291	7	0	923	125	165	1213	5	0	1504	2753	0.824	0.828	0.909	0.887
08:00	56	259	274	589	35	2	190	378	61	629	42	0	1218	111	119	78	308	9	0	762	120	183	1065	19	0	1373	2591	0.887	0.794	0.928	0.853
09:00	59	245	265	569	26	0	169	368	55	592	29	0	1161	60	125	57	242	10	0	581	115	125	821	16	0	1063	2224	0.895	0.897	0.890	0.828
10:00																														
11:00	48	308	270	626	30	1	186	247	40	473	29	0	1099	86	121	33	240	5	0	499	130	116	745	19	1	985	2084	0.921	0.833	0.706	0.931
12:00	88	304	292	684	35	1	172	364	53	589	38	0	1273	106	164	47	317	3	0	538	94	146	778	14	1	1095	2368	0.961	0.837	0.881	0.842
1:00	78	316	307	701	30	0	202	305	44	551	25	0	1252	92	149	62	303	6	0	533	121	110	764	10	0	1067	2319	0.918	0.894	0.913	0.927
2:00																														
3:00	79	391	473	943	31	0	234	302	55	591	21	0	1534	94	165	36	295	2	0	593	134	188	915	18	1	1210	2744	0.928	0.929	0.970	0.883
4:00	99	532	591	1222	19	0	350	439	70	859	15	0	2081	93	188	43	324	3	0	539	203	204	946	6	0	1270	3351	0.946	0.862	0.880	0.848
5:00	92	516	670	1278	16	1	374	511	90	975	11	0	2253	108	214	36	358	2	0	949	181	210	1340	12	0	1698	3951	0.878	0.880	0.886	0.829
6:00																														
7:00																														
8:00																														
9:00																														
TOTALS	653	3173	3356	7182	252	5	2056	3366	516	5938	235	0	13120	862	1351	465	2678	47	0	5917	1223	1447	8587	119	3	11265	24385				
ADT	909	4417	4672	9998	3.6%		2862	4686	718	8266	4.0%		18265	1193	1869	643	3705	1.8%		8186	1692	2002	11879	1.4%		15584	33849				

N Leg Hourly Factor:	1.57	E Leg Hourly Factor:	1.56
S Leg Hourly Factor:	1.57	W leg Hourly Factor:	1.56
N Leg Monthly Factor:	0.88	E Leg Monthly Factor:	0.88
S Leg Monthly Factor:	0.88	W Leg Monthly Factor:	0.88

N Leg Combined Factor:	1.39	E Leg Combined Factor:	1.38
S Leg Combined Factor:	1.39	W Leg Combined Factor:	1.38

TMS ENGINEERS, INC.

2112 Case Parkway South #7

Twinsburg, Ohio 44087

(330) 686-6402 FAX: (330) 686-6417

Figure #:

Page #:

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087
Transportation Management Services

City: North Ridgeville
Intersection: Lorain Rd & Lear Nagle + Cook Rd
Counter: SLC & JMC
Day of the Week: Tuesday

File Name : Lorain Rd & Lear Nagle + Cook Rd 080922
Site Code : 00000000
Start Date : 8/9/2022

Groups Printed- Cars - Trucks - Buses

	LORAIN ROAD From North					COOK ROAD From East					LORAIN ROAD From South					LEAR NAGLE ROAD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	30	65	17	0	112	19	23	20	0	62	7	94	22	0	123	35	21	165	0	221	518
07:15 AM	53	64	8	0	125	15	33	23	0	71	10	128	29	0	167	44	31	254	0	329	692
07:30 AM	69	73	18	0	160	22	22	36	0	80	19	124	62	0	205	48	32	262	6	348	793
07:45 AM	62	100	11	0	173	17	28	33	0	78	12	106	66	0	184	38	41	242	0	321	756
Total	214	302	54	0	570	73	106	112	0	291	48	452	179	0	679	165	125	923	6	1219	2759
08:00 AM	69	66	13	0	148	23	38	20	0	81	10	85	43	0	138	53	25	229	0	307	674
08:15 AM	67	59	6	0	132	23	24	31	0	78	16	131	51	0	198	53	42	217	1	313	721
08:30 AM	58	70	15	0	143	21	31	31	0	83	17	85	51	0	153	37	34	164	0	235	614
08:45 AM	80	64	22	0	166	11	26	29	1	67	18	77	45	0	140	40	19	152	0	211	584
Total	274	259	56	0	589	78	119	111	1	309	61	378	190	0	629	183	120	762	1	1066	2593
09:00 AM	62	70	16	0	148	13	25	17	0	55	11	103	37	0	151	43	12	193	0	248	602
09:15 AM	55	54	12	0	121	10	32	12	0	54	16	76	55	0	147	26	25	110	0	161	483
09:30 AM	66	60	15	0	141	20	32	16	0	68	18	102	45	0	165	21	36	124	0	181	555
09:45 AM	82	61	16	0	159	14	36	15	0	65	10	87	32	0	129	35	42	154	0	231	584
Total	265	245	59	0	569	57	125	60	0	242	55	368	169	0	592	125	115	581	0	821	2224
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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2112 Case Parkway South #7
Twinsburg, Ohio 44087
Transportation Management Services

File Name : Lorain Rd & Lear Nagle + Cook Rd 080922
Site Code : 00000000
Start Date : 8/9/2022
Page No : 2

Groups Printed- Cars - Trucks - Buses

	LORAIN ROAD From North					COOK ROAD From East					LORAIN ROAD From South					LEAR NAGLE ROAD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
10:45 AM	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
11:00 AM	65	81	12	0	158	1	26	19	0	46	7	78	57	0	142	39	25	128	0	192	538
11:15 AM	72	61	10	0	143	16	39	30	0	85	6	72	28	0	106	25	36	139	0	200	534
11:30 AM	63	79	13	0	155	6	22	11	0	39	12	42	45	0	99	21	34	133	0	188	481
11:45 AM	70	87	13	0	170	10	34	26	0	70	15	55	56	0	126	31	35	99	0	165	531
Total	270	308	48	0	626	33	121	86	0	240	40	247	186	0	473	116	130	499	0	745	2084
12:00 PM	63	85	17	0	165	7	34	32	1	74	18	75	43	0	136	30	24	109	0	163	538
12:15 PM	71	63	30	0	164	16	38	25	0	79	12	120	44	0	176	33	29	121	0	183	602
12:30 PM	80	82	16	0	178	14	50	26	0	90	16	82	37	0	135	28	17	156	0	201	604
12:45 PM	78	74	25	0	177	10	42	23	0	75	7	87	48	0	142	55	24	152	0	231	625
Total	292	304	88	0	684	47	164	106	1	318	53	364	172	0	589	146	94	538	0	778	2369
01:00 PM	73	77	13	0	163	17	31	17	0	65	10	88	55	0	153	21	19	130	0	170	551
01:15 PM	82	88	21	0	191	15	36	27	1	79	7	103	27	0	137	26	48	132	0	206	613
01:30 PM	60	78	23	0	161	17	35	31	0	83	14	52	88	0	154	25	29	147	0	201	599
01:45 PM	92	73	21	0	186	13	47	17	0	77	13	62	32	0	107	38	25	124	0	187	557
Total	307	316	78	0	701	62	149	92	1	304	44	305	202	0	551	110	121	533	0	764	2320
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087
Transportation Management Services

File Name : Lorain Rd & Lear Nagle + Cook Rd 080922
Site Code : 00000000
Start Date : 8/9/2022
Page No : 3

Groups Printed- Cars - Trucks - Buses

	LORAIN ROAD From North					COOK ROAD From East					LORAIN ROAD From South					LEAR NAGLE ROAD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
02:45 PM	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
03:00 PM	113	95	14	0	222	17	33	25	0	75	9	80	64	0	153	28	34	121	0	183	633
03:15 PM	113	114	15	0	242	2	47	24	0	73	14	88	38	0	140	55	34	170	0	259	714
03:30 PM	116	98	11	0	225	11	39	26	0	76	15	59	65	0	139	56	34	165	0	255	695
03:45 PM	131	84	39	0	254	6	46	19	1	72	17	75	67	0	159	49	32	137	0	218	703
Total	473	391	79	0	943	36	165	94	1	296	55	302	234	0	591	188	134	593	0	915	2745
04:00 PM	149	124	30	0	303	11	48	22	0	81	18	97	94	0	209	47	32	104	0	183	776
04:15 PM	143	139	18	0	300	12	40	22	1	75	13	61	80	0	154	52	56	150	0	258	787
04:30 PM	147	158	18	0	323	12	47	18	1	78	15	128	104	0	247	43	73	110	0	226	874
04:45 PM	152	111	33	0	296	8	53	31	0	92	24	153	72	0	249	62	42	175	0	279	916
Total	591	532	99	0	1222	43	188	93	2	326	70	439	350	0	859	204	203	539	0	946	3353
05:00 PM	172	121	31	0	324	9	46	20	1	76	28	112	63	0	203	54	28	289	0	371	974
05:15 PM	191	147	26	2	366	9	53	39	0	101	22	152	84	0	258	54	46	223	9	332	1057
05:30 PM	164	123	20	0	307	12	64	23	0	99	24	130	123	0	277	58	56	290	0	404	1087
05:45 PM	143	125	15	0	283	6	51	26	0	83	16	117	104	0	237	44	51	147	0	242	845
Total	670	516	92	2	1280	36	214	108	1	359	90	511	374	0	975	210	181	949	9	1349	3963
Grand Total	3356	3173	653	2	7184	465	1351	862	7	2685	516	3366	2056	0	5938	1447	1223	5917	16	8603	24410
Apprch %	46.7	44.2	9.1	0		17.3	50.3	32.1	0.3		8.7	56.7	34.6	0		16.8	14.2	68.8	0.2		
Total %	13.7	13	2.7	0	29.4	1.9	5.5	3.5	0	11	2.1	13.8	8.4	0	24.3	5.9	5	24.2	0.1	35.2	
Cars	3285	3008	632	2	6927	454	1327	850	5	2636	508	3208	1987	0	5703	1404	1216	5845	16	8481	23747
% Cars	97.9	94.8	96.8	100	96.4	97.6	98.2	98.6	71.4	98.2	98.4	95.3	96.6	0	96	97	99.4	98.8	100	98.6	97.3
Trucks	67	164	21	0	252	11	24	12	2	49	8	158	69	0	235	43	7	69	0	119	655
% Trucks	2	5.2	3.2	0	3.5	2.4	1.8	1.4	28.6	1.8	1.6	4.7	3.4	0	4	3	0.6	1.2	0	1.4	2.7
Buses	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	8

TMS Engineers, Inc.

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% Buses	0.1	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0

	LORAIN ROAD From North					COOK ROAD From East					LORAIN ROAD From South					LEAR NAGLE ROAD From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**69**	73	**18**	0	160	22	22	**36**	0	80	**19**	124	62	0	**205**	48	32	**262**	**6**	**348**	**793**
07:45 AM	62	**100**	11	0	**173**	17	28	33	0	78	12	106	**66**	0	184	38	41	242	0	321	756
08:00 AM	69	66	13	0	148	**23**	**38**	20	0	**81**	10	85	43	0	138	**53**	25	229	0	307	674
08:15 AM	67	59	6	0	132	23	24	31	0	78	16	**131**	51	0	198	53	**42**	217	1	313	721
Total Volume	267	298	48	0	613	85	112	120	0	317	57	446	222	0	725	192	140	950	7	1289	2944
% App. Total	43.6	48.6	7.8	0		26.8	35.3	37.9	0		7.9	61.5	30.6	0		14.9	10.9	73.7	0.5		
PHF	.967	.745	.667	.000	.886	.924	.737	.833	.000	.978	.750	.851	.841	.000	.884	.906	.833	.906	.292	.926	.928
Cars	254	272	48	0	574	82	110	120	0	312	57	427	205	0	689	186	140	946	7	1279	2854
% Cars	95.1	91.3	100	0	93.6	96.5	98.2	100	0	98.4	100	95.7	92.3	0	95.0	96.9	100	99.6	100	99.2	96.9
Trucks	11	26	0	0	37	3	2	0	0	5	0	19	17	0	36	6	0	4	0	10	88
% Trucks	4.1	8.7	0	0	6.0	3.5	1.8	0	0	1.6	0	4.3	7.7	0	5.0	3.1	0	0.4	0	0.8	3.0
Buses	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0.7	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	152	111	**33**	0	296	8	53	31	0	92	24	**153**	72	0	249	**62**	42	175	0	279	916
05:00 PM	172	121	31	0	324	9	46	20	**1**	76	**28**	112	63	0	203	54	28	289	0	371	974
05:15 PM	**191**	**147**	26	**2**	**366**	9	53	**39**	0	**101**	22	152	84	0	258	54	46	223	**9**	332	1057
05:30 PM	164	123	20	0	307	**12**	**64**	23	0	99	24	130	**123**	0	**277**	58	**56**	**290**	0	**404**	**1087**
Total Volume	679	502	110	2	1293	38	216	113	1	368	98	547	342	0	987	228	172	977	9	1386	4034
% App. Total	52.5	38.8	8.5	0.2		10.3	58.7	30.7	0.3		9.9	55.4	34.7	0		16.5	12.4	70.5	0.6		
PHF	.889	.854	.833	.250	.883	.792	.844	.724	.250	.911	.875	.894	.695	.000	.891	.919	.768	.842	.250	.858	.928
Cars	675	485	108	2	1270	37	216	113	1	367	98	539	341	0	978	226	171	971	9	1377	3992
% Cars	99.4	96.6	98.2	100	98.2	97.4	100	100	100	99.7	100	98.5	99.7	0	99.1	99.1	99.4	99.4	100	99.4	99.0
Trucks	4	16	2	0	22	1	0	0	0	1	0	8	1	0	9	2	1	6	0	9	41
% Trucks	0.6	3.2	1.8	0	1.7	2.6	0	0	0	0.3	0	1.5	0.3	0	0.9	0.9	0.6	0.6	0	0.6	1.0
Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Buses	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0

Appendix D
COVID Factoring Document

Decreased traffic as a result of the COVID19 pandemic requires additional consideration in the collection and processing of traffic counts for design traffic forecasts. The Office of Technical Services is continuously reporting the statewide decrease in traffic as registered by our permanent traffic recorders at:

https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/technical-services/resources/regional-traffic-analysis

Currently about a 15% decrease in traffic is occurring. While this is similar to the decrease experienced from May to August, September and early October decreases were closer to 10%. It's too early to tell whether this represents a new trend due to increasing COVID19 trends or additional suppression related to pre-holiday travel, however regardless, the values reported here are averages based solely on the location of the permanent traffic recorders which are heavily biased towards freeways and therefore may not represent local conditions.

For establishing base line traffic conditions for forecasting projects, the following procedure is therefore provided. **Note, this method is an expedient to keep projects moving, if possible the project sponsor might want to defer collecting new traffic counts for projects until traffic conditions return to normal (at a minimum normal is defined as within 15% of pre-pandemic values, even better would be to wait until post-pandemic volumes can be measured). Additionally, any projects whose forecasts are based upon counts collected during the pandemic will require new traffic counts if they are subsequently resubmitted for certification once ODOT determines traffic levels have returned to normal, note this does not necessarily mean the forecasts must be redone as long as the new counts are in reasonable agreement (usually within 15%) with the counts used for the forecasts.** Since some locations may currently be close to normal, the factoring procedure is optional. However, any forecast submitted for certification must follow Steps 1 and 2 and:

A. Contain count plates showing the prior existing counts and original raw project counts and if the factoring procedure is used the factored values with factor stations and the new counts to which they applied clearly indicated.
B. Forecast plates must contain the following additional uncertainty note (the italicized part only included if factoring is conducted): "Counts collected during COVID19 Pandemic *and factored per ODOT Modeling and Forecasting guidance*".

Step 1 Get Existing Counts

Utilize the ODOT Traffic Monitoring Management System at:

https://odot.ms2soft.com/tcds/tsearch.asp?loc=odot

to obtain as many prior existing counts as possible. ODOT coverage counts are conducted every 3 years, the latest count that is no more than 3 years old should be used, however, only counts conducted prior to March 15, 2020 should be included. Efforts should be made to include counts on the primary project routes even if those counts are outside of the project study area.

Step 2 Conduct New Counts

Conduct new counts as normal, both machine and turning movement. New machine counts must also be conducted at the locations obtained in step 1 to establish "factor stations". Counts should be conducted following all previously published guidance:

https://www.transportation.ohio.gov/static/Programs/StatewidePlanning/Modeling-Forecasting/GuidelinesTCTFRoadwayDesign.pdf

Step 3 Create Project Specific Factors

In lieu of the normal seasonal adjustment factor process to develop AADT, the counts collected at the factor stations will be compared to the counts from step 1 to develop factors. Both daily (AADT) and peak hour factors will be calculated separately as it is anticipated that time of day patterns have been changed drastically (and thus the peak hour selected for analysis should be determined by the existing counts from step 1). Note, at the daily level the raw new count is compared to the seasonally adjusted prior count, thus the factor developed is a replacement for the seasonal adjustment factoring process. If other project counts are conducted on different days from the factor stations, additional seasonal factors could be applied to reconcile to the factor day, however, so long as all project counts are conducted on Monday-Thursday within a month of one another this should be unnecessary. This does not replace or change other processes such as the application of design hour volume factors.

Step 4 Apply Factors

The factors from Step 3 will be applied to the other counts collected in Step 2. The analyst needs to determine which factors to apply to each count. Generally, factors should be selected from the same road as close to the subject count as possible. If this isn't possible, a factor station with similar characteristics (functional class, development density, lanes, speed limit, access type etc.) and geographic proximity should be chosen. Average factors from multiple locations might also be used.

Step 5 Additional Turn Movement Count Considerations

As ODOT's Traffic Monitoring Management System does not contain extensive turning movement counts and turning movement counts aren't conducted for an entire day there are additional considerations. If a count does exist in TMC (the turning movement portion of TMMS) and it is within 3 years old it can be used in lieu of a new count. A new count could also be conducted for the purpose of creating factors from this count in Step 2, however, since TM counts are not done for the full day, this would only result in peak hour factors which would thus require alternate factor station locations for developing the AADT factors. Therefore, in general, factor station locations are recommended for machine count locations only.

In addition, it is possible that the turning movement proportions have been skewed as a result of the traffic decrease. Therefore, for important intersections, it is recommended that StreetLight Data be queried at the intersection using average week day for one full month of weekdays. Both a pre and post COVID19 month should be queried. The pre-C month should either be February 2020 or the month in 2019 matching the post-C month selected below. The former should be used if the analyst believes changing development patterns are most important while the latter is used if the analyst believes seasonal effects are most important. The post-C month will be the latest month available in StreetLight. The comparisons should be made in terms of the turning movement percentages, not absolute volume. If the StreetLight comparisons indicate the turn movement percentages have changed by more than 10 percentage points, the turn movement count percentages can be adjusted to reflect this. Any such adjustment must be clearly indicated with the submitted count information.

Note: Check back to the web site for any updates.

Simple Corridor Project Factor Example *(Blue Dots are TMMS- MS2 Count Locations)*



Step 1: Get the most recent hourly, 24-hour count.

Use TMMS (https://odot.ms2soft.com/tcds/tsearch.asp?loc=Odot&mod=) to obtain "Old" pre-COVID date count.

Use the most recent 24 hour-hourly count for AADT, AM.PM

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2019	5,106[3]		8	53	3,842 (75%)	1,264 (25%)	Grown from 2018
2018	5,050	407	8	53	3,800 (75%)	1,250 (25%)	
2017	6,234[3]		9	52	4,706 (75%)	1,530 (25%)	Grown from 2016
2016	6,029[3]		9	52	4,551 (75%)	1,477 (24%)	Grown from 2015

Note:
We cannot use 2019 AADT because it is estimated from 2018. There is no hourly data.

Most Recent Hourly Count Summary from MS2-TMMS

21:00-22:00	24	26	29	21	100
22:00-23:00	19	20	20	19	78
23:00-24:00	15	14	20	9	68
Total					5,716
AADT					5,050
AM Peak					07:00-08:00 407
PM Peak					15:15-16:15 416

Note:
This example assumed the entire corridor peaks at 3:15-4:15 PM. This may not be the case. Look at all the counts in the corridor to establish the peak that will be used.

Step 2: Get the new count

Note: The new count is taken at the same location as Location ID: 472 as a 24-hour count. (probably tube count)

NEW Raw Count 4/15/2020 (COVID Best)			
	EB	WB	Tot
7-8 AM	101	91	192
3:15-4 :15 PM	106	144	250
24 Hrs			2190

Step 3: Calculate factors: (Pre-COVID count) / (new count)

5050 / 2190 =	2.306	AADT COVID FACTOR
407 / 192 =	2.120	AM COVID FACTOR
416 / 250 =	1.664	PM COVID FACTOR

Repeat this calculation for as many MS2 counts are in the project area within the same year and average them. In this example, the two on US 6 shown may be enough.

Appendix E
2017 ODOT Traffic Count

OHIO DEPARTMENT OF TRANSPORTATION

MS2
Transportation Data Management System

Volume Count Report

LOCATION INFO	
Location ID	7247
Type	SPOT
Fnct'l Class	4
Located On	LORAIN RD
Direction	2-WAY
County	LORAIN
Community	N RIDGEVILLE
MPO ID	
HPMS ID	
Agency	ODOT

COUNT DATA INFO	
Count Status	Accepted
Holiday	No
Start Date	Tue 11/14/2017
End Date	Wed 11/15/2017
Start Time	12:00:00 PM
End Time	12:00:00 PM
Direction	
Notes	odot
Station	000072473272
Study	
Speed Limit	
Description	
Sensor Type	Axle/Tube
Source	TCDS_COUNT_IMPORT_COMBINE
Latitude,Longitude	

INTERVAL:15-MIN

Time	15-min Interval 1st	2nd	3rd	4th	Hourly Count
0:00-1:00	65	46	46	41	198
1:00-2:00	39	26	23	37	125
2:00-3:00	21	31	30	13	95
3:00-4:00	21	28	37	33	119
4:00-5:00	49	61	72	84	266
5:00-6:00	123	185	219	238	765
6:00-7:00	334	428	448	485	1,695
7:00-8:00	561	577	663	642	2,443
8:00-9:00	501	421	418	409	1,749
9:00-10:00	315	350	329	344	1,338
10:00-11:00	296	296	327	317	1,236
11:00-12:00	295	326	347	328	1,296
12:00-13:00	327	318	343	324	1,312
13:00-14:00	327	317	282	315	1,241
14:00-15:00	333	346	334	381	1,394
15:00-16:00	397	475	484	511	1,867
16:00-17:00	484	560	539	560	2,143
17:00-18:00	594	647	580	551	2,372
18:00-19:00	506	477	336	390	1,709
19:00-20:00	300	268	260	205	1,033
20:00-21:00	252	282	260	230	1,024
21:00-22:00	228	193	168	154	743
22:00-23:00	129	94	122	113	458
23:00-24:00	82	91	70	69	312
Total					26,933
AADT					24,639
AM Peak					07:00-08:00 2,443
PM Peak					16:45-17:45 2,381

Appendix F
Trip Generation Data

AUTOMATED CAR WASH

ITE CODE = 948

Date: **9/7/2022**

Trip Generation based on: Size of Analysis Area: **1.00** **Tunnels**

Car Wash Tunnels	Average Rate	Standard Deviation	Adjustment factor	Driveway Volume
WEEKDAY				
Average Weekday 2-way Volume	--	--	--	--
Weekday Peak Hour of Adjacent Street Traffic				
7-9 AM Peak Hour Enter	--	--	--	--
7-9 AM Peak Hour Exit	--	--	--	--
7-9 AM Peak Hour Total	--	--	--	--
4-6 PM Peak Hour Enter	38.75	0.00	1.00	39
4-6 PM Peak Hour Exit	38.75	0.00	1.00	39
4-6 PM Peak Hour Total	77.50	**	1.00	78

***The above rates were based upon those found in the ITE Trip Generation Manual, 11TH Edition.**

		% ENTER	**% EXIT**
WEEKDAY			
Average Weekday 2-way Volume	*No Data Available*		
Weekday Peak Hour of Adjacent Street Traffic			
7-9 AM Peak Hour Total	*No Data Available*		
4-6 PM Peak Hour Total	*Not Given – Use ITE Rates*	50%	50%

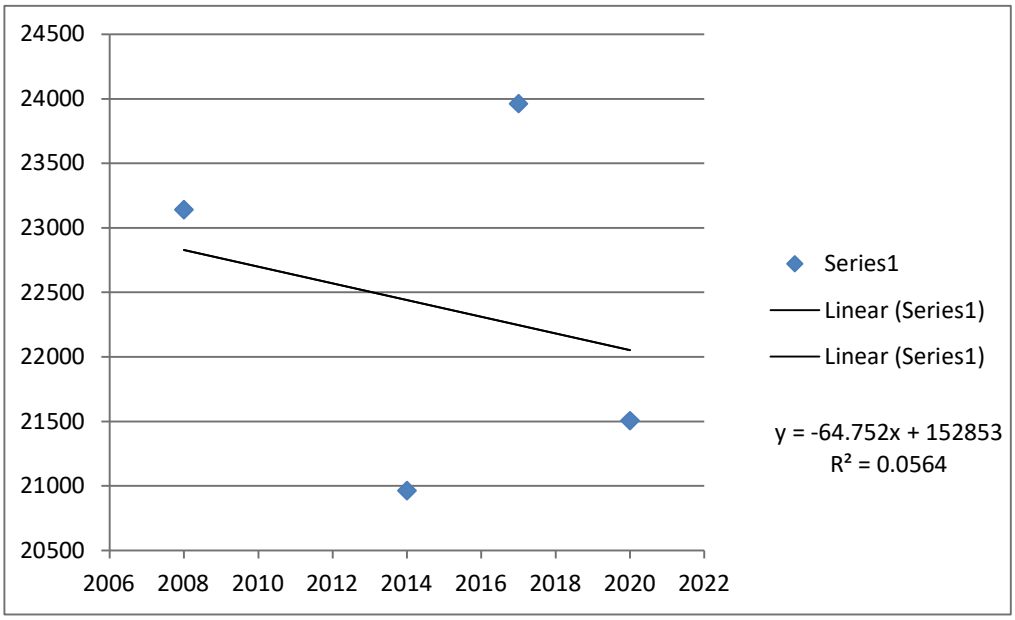
Source: **Institute of Transportation Engineers**
Trip Generation Manual, 11TH Edition, September 2021

Appendix G
Background Growth Rate Calculations

SR 10 SW of I-480 (ID 7247) - COUNT DATA FROM ODOT WEBSITE

Year	*Volume*
2020	21505
2017	23963
2014	20963
2008	23140

Fitted Curve Growth: ***-0.28%***



Coefficient (b) of Regression Equation:				**-64.752**
Growth Rate =	b / Most Recent Count x 100%			
Growth Rate =	-64.752	/	21505	X 100%
Growth Rate =	**-0.3011%**			

Appendix H
Peak Hour to Design Hour Calculations

PEAK HOUR to DESIGN HOUR FACTORS

FUNCTIONAL CLASSIFICATION = 03, 04, 05u

(Urban Principal Arterial, Urban Minor Arterial, & Urban Minor Collector)

Day / Month	Monthly Average by Day-of-Week							
	WEEKDAY MON-THUR	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January	1.20	1.72	1.22	1.21	1.20	1.17	1.15	1.56
February	1.17	1.63	1.19	1.16	1.17	1.16	1.11	1.48
March	1.15	1.57	1.16	1.16	1.16	1.13	1.11	1.45
April	1.11	1.52	1.13	1.12	1.09	1.09	1.06	1.41
May	1.08	1.44	1.10	1.09	1.08	1.06	1.04	1.35
June	1.14	1.51	1.16	1.15	1.14	1.11	1.09	1.39
July	1.16	1.54	1.19	1.17	1.15	1.15	1.13	1.44
August	1.13	1.51	1.15	1.14	1.13	1.11	1.08	1.40
September	1.12	1.53	1.15	1.11	1.12	1.09	1.04	1.40
October	1.10	1.53	1.13	1.10	1.10	1.08	1.05	1.40
November	1.13	1.56	1.16	1.12	1.13	1.11	1.06	1.48
December	1.13	1.58	1.14	1.13	1.12	1.12	1.09	1.44

peak hour volume * factor = design hour volume

source: year 2016, 2017, & 2018 Automatic Traffic Recorders (ATR) Data

ATR Stations:
2018: 21, 28, 123, 131, 134, 166, 169, 517, 523, 543, 544, 550, 565, 605, 765
2017: 21, 123, 523, 538, 543, 544, 550, 565, 605, 725, 765, 28, 134, 169, 517, 131, 166

Ohio Department of Transportation
Modeling & Forecasting Section
June 2019

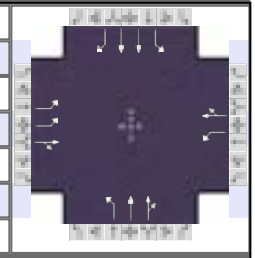
NOTE: These are NOT seasonal adjustment factors!!!

Note: Insufficient data exists to produce factors for functional classes 06 and 07 Urban.

Appendix I
Capacity Analysis Worksheets - No-Build - 2023

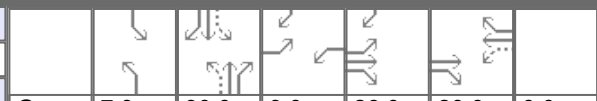
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	AM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2023	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2023 No-Build AM Peak.xus		
Project Description	Year 2023 - No-Build				

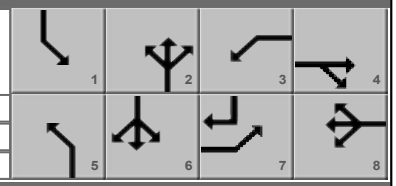


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1090	160	220	140	130	100	250	510	70	50	340	310

Signal Information			
Cycle, s	117.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	30.0	9.0	26.0	20.0	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	1.0	1.0	1.0	1.0	1.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	45.0	56.0	14.0	25.0	12.0	35.0	12.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	41.0	22.8	10.1	18.1	9.0	20.5	4.6	15.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.4	0.0	2.4	0.0	2.7
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.19	1.00	0.05

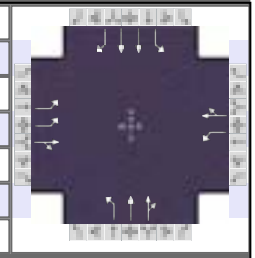
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1172	409		151	247		269	318	306	54	366	333
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1707		1781	1735		1739	1826	1748	1711	1710	1522
Queue Service Time (g_s), s	39.0	20.8		8.1	16.1		7.0	18.3	18.5	2.6	10.4	13.2
Cycle Queue Clearance Time (g_c), s	39.0	20.8		8.1	16.1		7.0	18.3	18.5	2.6	10.4	13.2
Green Ratio (*g/C*)	0.56	0.44		0.25	0.17		0.32	0.26	0.26	0.32	0.26	0.60
Capacity (*c*), veh/h	1192	744		365	297		315	468	448	227	877	911
Volume-to-Capacity Ratio (*X*)	0.983	0.549		0.412	0.834		0.854	0.679	0.682	0.237	0.417	0.366
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	27.1	13.0		6.4	13.0		10.1	13.3	12.9	1.9	7.7	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.2	24.5		36.1	46.9		40.7	39.2	39.2	30.2	36.2	12.1
Incremental Delay (d_2), s/veh	22.0	0.5		0.3	17.2		19.0	3.2	3.5	0.2	0.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	60.1	25.0		36.4	64.1		59.7	42.4	42.7	30.4	36.3	12.2
Level of Service (LOS)	E	C		D	E		E	D	D	C	D	B
Approach Delay, s/veh / LOS	51.0	D		53.6	D		47.7	D		25.2	C	
Intersection Delay, s/veh / LOS	45.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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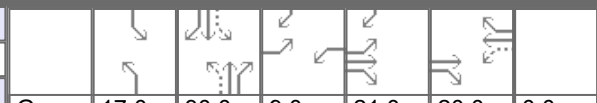
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	PM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2023	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2023 No-Build PM Peak.xus		
Project Description	Year 2023 - No-Build				

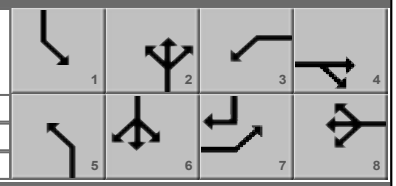


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1120	200	260	130	250	40	390	630	110	130	570	770

Signal Information			
Cycle, s	122.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	17.0	30.0	9.0	21.0	20.0	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	1.0	1.0	1.0	1.0	1.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	40.0	51.0	14.0	25.0	22.0	35.0	22.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	37.0	32.9	9.9	22.0	19.0	28.5	8.7	32.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	1.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1204	495		140	312		419	408	388	140	613	828
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1711		1781	1825		1739	1826	1731	1711	1710	1522
Queue Service Time (g_s), s	35.0	30.9		7.9	20.0		17.0	26.5	26.5	6.7	20.1	30.0
Cycle Queue Clearance Time (g_c), s	35.0	30.9		7.9	20.0		17.0	26.5	26.5	6.7	20.1	30.0
Green Ratio (*g/C*)	0.49	0.38		0.24	0.16		0.39	0.25	0.25	0.39	0.25	0.53
Capacity (*c*), veh/h	1000	645		287	299		353	449	426	305	841	811
Volume-to-Capacity Ratio (*X*)	1.204	0.767		0.487	1.042		1.189	0.909	0.911	0.458	0.729	1.021
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	42.0	19.4		6.3	20.9		27.8	20.8	20.0	4.9	13.5	40.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.5	33.3		38.7	51.0		34.0	44.7	44.7	28.8	42.3	28.5
Incremental Delay (d_2), s/veh	101.4	5.0		0.5	63.5		110.1	21.8	22.9	0.4	2.8	37.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	144.9	38.3		39.2	114.5		144.0	66.4	67.6	29.2	45.1	65.5
Level of Service (LOS)	F	D		D	F		F	E	E	C	D	F
Approach Delay, s/veh / LOS	113.9	F		91.2	F		93.6	F		54.4	D	
Intersection Delay, s/veh / LOS	87.8						F					

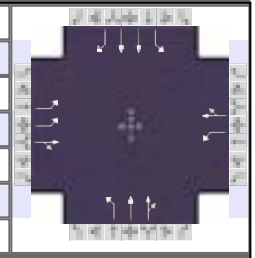
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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Appendix J
Capacity Analysis Worksheets - No-Build - 2033

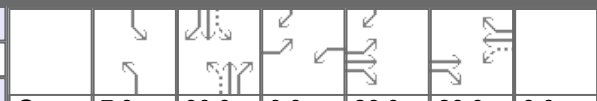
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	AM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2033	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2033 No-Build AM Peak.xus		
Project Description	Year 2033 - No-Build				

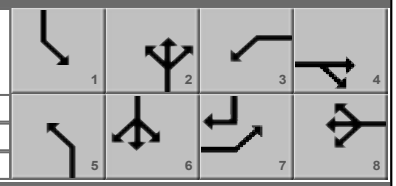


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1110	160	220	140	130	100	260	520	70	60	350	310

Signal Information			
Cycle, s	117.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	30.0	9.0	26.0	20.0	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	1.0	1.0	1.0	1.0	1.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	45.0	56.0	14.0	25.0	12.0	35.0	12.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	42.0	22.8	10.1	18.1	9.0	20.8	5.1	15.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.4	0.0	2.4	0.0	2.8
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.21	1.00	0.05

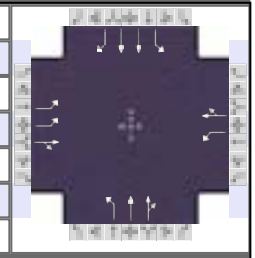
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1194	409		151	247		280	323	311	65	376	333
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1707		1781	1735		1739	1826	1750	1711	1710	1522
Queue Service Time (g_s), s	40.0	20.8		8.1	16.1		7.0	18.7	18.8	3.1	10.8	13.2
Cycle Queue Clearance Time (g_c), s	40.0	20.8		8.1	16.1		7.0	18.7	18.8	3.1	10.8	13.2
Green Ratio (*g/C*)	0.34	0.44		0.25	0.17		0.32	0.26	0.26	0.32	0.26	0.60
Capacity (*c*), veh/h	1192	744		365	297		310	468	449	224	877	911
Volume-to-Capacity Ratio (*X*)	1.001	0.549		0.412	0.834		0.901	0.690	0.694	0.289	0.429	0.366
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	28.4	13.0		6.4	13.0		11.5	13.6	13.2	2.3	7.9	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.5	24.5		36.1	46.9		41.6	39.3	39.3	30.4	36.3	12.1
Incremental Delay (d_2), s/veh	26.4	0.5		0.3	17.2		26.9	3.6	3.9	0.3	0.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	64.9	25.0		36.4	64.1		68.4	42.9	43.2	30.7	36.5	12.2
Level of Service (LOS)	F	C		D	E		E	D	D	C	D	B
Approach Delay, s/veh / LOS	54.7	D		53.6	D		50.8	D		25.5	C	
Intersection Delay, s/veh / LOS	47.5						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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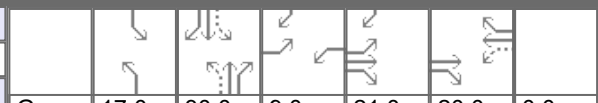
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	PM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2033	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2033 No-Build PM Peak.xus		
Project Description	Year 2033 - No-Build				

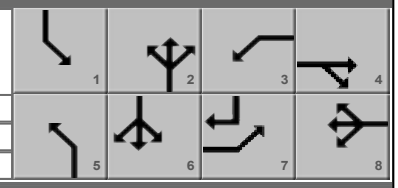


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1140	200	270	130	250	40	400	640	110	130	590	790

Signal Information			
Cycle, s	122.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	17.0	30.0	9.0	21.0	20.0	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	1.0	1.0	1.0	1.0	1.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	40.0	51.0	14.0	25.0	22.0	35.0	22.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	37.0	33.9	9.9	22.0	19.0	29.0	8.7	32.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1226	505		140	312		430	414	393	140	634	849
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1709		1781	1825		1739	1826	1732	1711	1710	1522
Queue Service Time (g_s), s	35.0	31.9		7.9	20.0		17.0	26.9	27.0	6.7	21.0	30.0
Cycle Queue Clearance Time (g_c), s	35.0	31.9		7.9	20.0		17.0	26.9	27.0	6.7	21.0	30.0
Green Ratio (*g/C*)	0.29	0.38		0.24	0.16		0.39	0.25	0.25	0.39	0.25	0.53
Capacity (*c*), veh/h	1000	644		279	299		346	449	426	303	841	811
Volume-to-Capacity Ratio (*X*)	1.225	0.785		0.501	1.042		1.243	0.921	0.922	0.462	0.754	1.047
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	44.0	20.1		6.3	20.9		30.4	21.3	20.6	4.9	14.1	42.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.5	33.6		38.8	51.0		33.6	44.8	44.9	28.8	42.6	28.5
Incremental Delay (d_2), s/veh	110.4	5.8		0.5	63.5		131.4	23.9	25.1	0.4	3.5	44.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	153.9	39.4		39.3	114.5		165.0	68.8	69.9	29.2	46.1	73.2
Level of Service (LOS)	F	D		D	F		F	E	E	C	D	F
Approach Delay, s/veh / LOS	120.5	F		91.2	F		102.6	F		58.8	E	
Intersection Delay, s/veh / LOS	93.6						F					

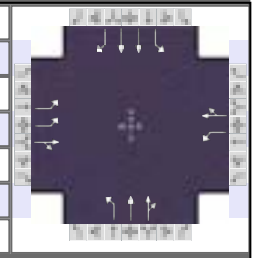
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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Appendix K
Capacity Analysis Worksheets - Build - 2023

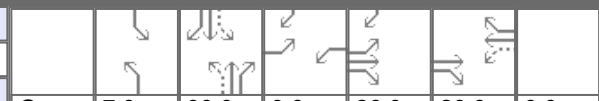
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	AM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2023	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2023 Build AM Peak.xus		
Project Description	Year 2023 - Build				

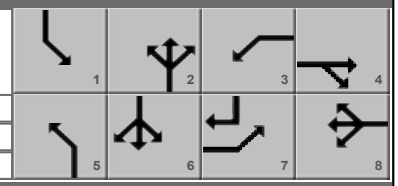


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1090	160	237	144	130	100	258	530	73	50	348	310

Signal Information			
Cycle, s	117.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	30.0	9.0	26.0	20.0	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	1.0	1.0	1.0	1.0	1.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	45.0	56.0	14.0	25.0	12.0	35.0	12.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	41.0	24.1	10.4	18.1	9.0	21.3	4.6	15.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.4	0.0	2.3	0.0	2.8
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.25	1.00	0.05

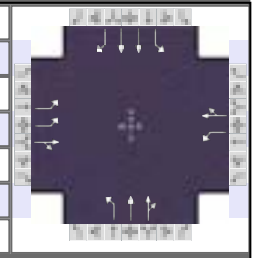
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1172	427		155	247		277	330	318	54	374	333
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1702		1781	1735		1739	1826	1748	1711	1710	1522
Queue Service Time (g_s), s	39.0	22.1		8.4	16.1		7.0	19.2	19.3	2.6	10.7	13.2
Cycle Queue Clearance Time (g_c), s	39.0	22.1		8.4	16.1		7.0	19.2	19.3	2.6	10.7	13.2
Green Ratio (*g/C*)	0.34	0.44		0.25	0.17		0.32	0.26	0.26	0.32	0.26	0.60
Capacity (*c*), veh/h	1192	742		363	297		311	468	448	220	877	911
Volume-to-Capacity Ratio (*X*)	0.983	0.575		0.427	0.834		0.891	0.706	0.709	0.245	0.427	0.366
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	27.1	13.7		6.6	13.0		11.3	14.0	13.6	1.9	7.9	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	38.2	24.8		36.2	46.9		41.4	39.5	39.5	30.3	36.3	12.1
Incremental Delay (d_2), s/veh	22.0	0.7		0.3	17.2		25.1	4.1	4.4	0.2	0.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	60.1	25.6		36.5	64.1		66.5	43.6	43.9	30.5	36.4	12.2
Level of Service (LOS)	E	C		D	E		E	D	D	C	D	B
Approach Delay, s/veh / LOS	50.9	D		53.5	D		50.6	D		25.4	C	
Intersection Delay, s/veh / LOS	45.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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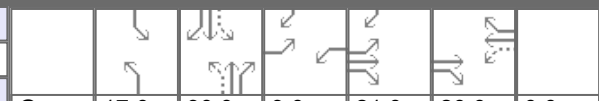
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	PM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2023	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2023 Build PM Peak.xus		
Project Description	Year 2023 - Build				

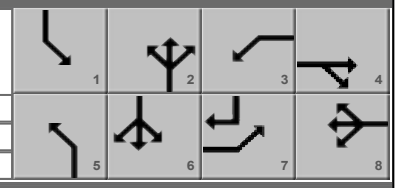


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1120	200	273	134	250	40	402	645	114	130	582	770

Signal Information			
Cycle, s	122.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	17.0	30.0	9.0	21.0	20.0	0.0						
Yellow	4.0	4.0	4.0	4.0	4.0	0.0						
Red	1.0	1.0	1.0	1.0	1.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	40.0	51.0	14.0	25.0	22.0	35.0	22.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	37.0	34.2	10.2	22.0	19.0	29.4	8.7	32.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1204	509		144	312		432	419	397	140	626	828
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1708		1781	1825		1739	1826	1730	1711	1710	1522
Queue Service Time (g_s), s	35.0	32.2		8.2	20.0		17.0	27.4	27.4	6.7	20.6	30.0
Cycle Queue Clearance Time (g_c), s	35.0	32.2		8.2	20.0		17.0	27.4	27.4	6.7	20.6	30.0
Green Ratio (*g/C*)	0.29	0.38		0.24	0.16		0.39	0.25	0.25	0.39	0.25	0.53
Capacity (*c*), veh/h	1000	644		276	299		349	449	425	300	841	811
Volume-to-Capacity Ratio (*X*)	1.204	0.790		0.522	1.042		1.240	0.933	0.934	0.465	0.744	1.021
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	42.0	20.3		6.5	20.9		30.5	21.9	21.1	4.9	13.9	40.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.5	33.7		38.9	51.0		33.7	45.0	45.0	28.8	42.5	28.5
Incremental Delay (d_2), s/veh	101.4	6.1		0.8	63.5		130.1	26.1	27.4	0.4	3.2	37.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	144.9	39.8		39.7	114.5		163.8	71.2	72.4	29.2	45.7	65.5
Level of Service (LOS)	F	D		D	F		F	E	E	C	D	F
Approach Delay, s/veh / LOS	113.7	F		90.8	F		103.6	F		54.5	D	
Intersection Delay, s/veh / LOS	90.3						F					

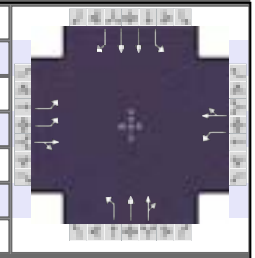
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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Appendix L
Capacity Analysis Worksheets - Build - 2033

HCS Signalized Intersection Results Summary

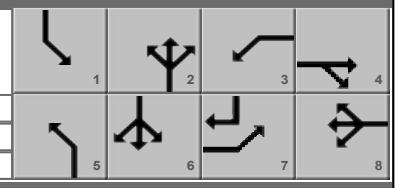
General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	AM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2033	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2033 Build AM Peak.xus		
Project Description	Year 2033 - Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1110	160	237	144	130	100	268	540	73	60	358	310

Signal Information			
Cycle, s	114.4	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.0	28.0	9.0	25.2	19.2	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	1.0	1.0	1.0	1.0	1.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	44.2	54.4	14.0	24.2	13.0	33.0	13.0	33.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	41.1	23.8	10.2	17.8	10.0	21.6	5.1	15.2
Green Extension Time (g_e), s	0.0	0.0	0.0	0.3	0.0	2.0	0.0	2.7
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	0.44	1.00	0.09

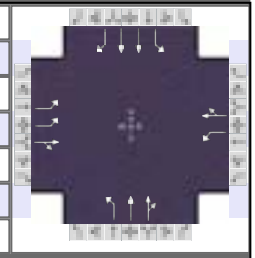
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1194	427		155	247		288	336	323	65	385	333
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1702		1781	1735		1739	1826	1749	1711	1710	1522
Queue Service Time (g_s), s	39.1	21.8		8.2	15.8		8.0	19.5	19.6	3.1	11.0	13.2
Cycle Queue Clearance Time (g_c), s	39.1	21.8		8.2	15.8		8.0	19.5	19.6	3.1	11.0	13.2
Green Ratio (*g/C*)	0.34	0.43		0.25	0.17		0.31	0.24	0.24	0.31	0.24	0.59
Capacity (*c*), veh/h	1195	735		364	291		313	447	428	224	837	894
Volume-to-Capacity Ratio (*X*)	0.999	0.581		0.425	0.849		0.922	0.752	0.755	0.288	0.460	0.373
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	27.8	13.5		6.4	13.0		11.4	14.4	14.0	2.3	8.0	7.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	37.6	24.6		35.6	46.2		40.4	40.0	40.0	30.1	36.8	12.5
Incremental Delay (d_2), s/veh	25.8	0.8		0.3	19.6		30.9	6.3	6.7	0.3	0.1	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	63.4	25.4		35.9	65.8		71.2	46.2	46.7	30.4	36.9	12.6
Level of Service (LOS)	E	C		D	E		E	D	D	C	D	B
Approach Delay, s/veh / LOS	53.4	D		54.3	D		54.0	D		26.0	C	
Intersection Delay, s/veh / LOS	47.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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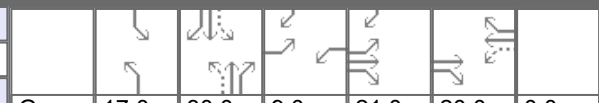
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	TMS Engineers, Inc.			Duration, h	0.250
Analyst	AJP	Analysis Date	9/9/2022	Area Type	Other
Jurisdiction	North Ridgeville	Time Period	PM Peak	PHF	0.93
Urban Street	Lorain Road	Analysis Year	2033	Analysis Period	1> 7:00
Intersection	Lorain & Lear Nagle & C…	File Name	2033 Build PM Peak.xus		
Project Description	Year 2033 - Build				

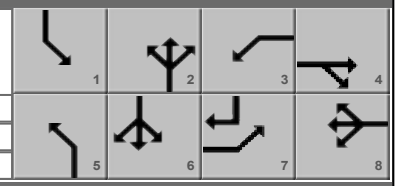


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1140	200	283	134	250	40	412	655	114	130	602	790

Signal Information			
Cycle, s	122.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	17.0	30.0	9.0	21.0	20.0	0.0
Yellow	4.0	4.0	4.0	4.0	4.0	0.0
Red	1.0	1.0	1.0	1.0	1.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	2.0	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	40.0	51.0	14.0	25.0	22.0	35.0	22.0	35.0
Change Period, ($Y+R_c$), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	37.0	35.3	10.2	22.0	19.0	29.9	8.7	32.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	1226	519		144	312		443	424	403	140	647	849
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1743	1705		1781	1825		1739	1826	1731	1711	1710	1522
Queue Service Time (g_s), s	35.0	33.3		8.2	20.0		17.0	27.8	27.9	6.7	21.5	30.0
Cycle Queue Clearance Time (g_c), s	35.0	33.3		8.2	20.0		17.0	27.8	27.9	6.7	21.5	30.0
Green Ratio (*g/C*)	0.29	0.38		0.24	0.16		0.39	0.25	0.25	0.39	0.25	0.53
Capacity (*c*), veh/h	1000	643		268	299		342	449	426	298	841	811
Volume-to-Capacity Ratio (*X*)	1.225	0.808		0.538	1.042		1.294	0.945	0.946	0.469	0.770	1.047
Back of Queue (*Q*), ft/ln (95 th percentile)												
Back of Queue (*Q*), veh/ln (95 th percentile)	44.0	21.0		6.6	20.9		33.2	22.5	21.7	4.9	14.5	42.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	43.5	34.0		39.0	51.0		33.4	45.2	45.2	28.8	42.8	28.5
Incremental Delay (d_2), s/veh	110.4	7.0		1.2	63.5		152.6	28.6	29.9	0.4	4.0	44.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	153.9	41.1		40.2	114.5		186.0	73.8	75.1	29.2	46.8	73.2
Level of Service (LOS)	F	D		D	F		F	E	E	C	D	F
Approach Delay, s/veh / LOS	120.4	F		91.0	F		113.3	F		59.0	E	
Intersection Delay, s/veh / LOS	96.3						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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Appendix M
Access Capacity Analysis Worksheets - Build - 2023

HCS Two-Way Stop-Control Report

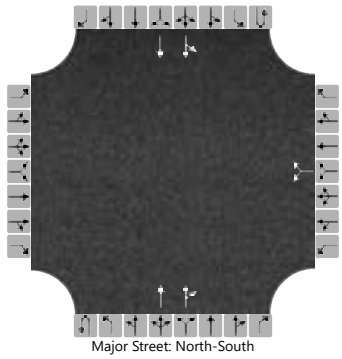
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2023
Time Analyzed	AM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #1
Jurisdiction	North Ridgeville
East/West Street	Drive #1
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						6		14			830	10		25	702	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						6.84		6.94						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							22							27		
Capacity, c (veh/h)							288							742		
v/c Ratio							0.08							0.04		
95% Queue Length, Q_{95} (veh)							0.2							0.1		
Control Delay (s/veh)							18.5							10.0	0.4	
Level of Service (LOS)							C							B	A	
Approach Delay (s/veh)					18.5								0.8			
Approach LOS					C								A			

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HCS Two-Way Stop-Control Report

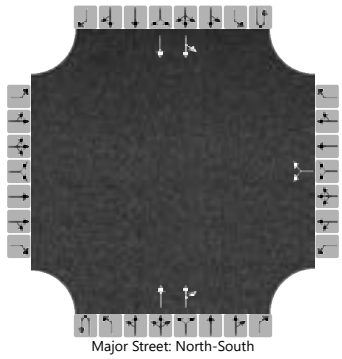
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2023
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #1
Jurisdiction	North Ridgeville
East/West Street	Drive #1
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						6		14			1130	10		25	962	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						6.84		6.94						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							22							27		
Capacity, c (veh/h)							161							558		
v/c Ratio							0.14							0.05		
95% Queue Length, Q_{95} (veh)							0.5							0.2		
Control Delay (s/veh)							30.9							11.8	0.8	
Level of Service (LOS)							D							B	A	
Approach Delay (s/veh)						30.9								1.0		
Approach LOS						D								A		

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HCS Two-Way Stop-Control Report

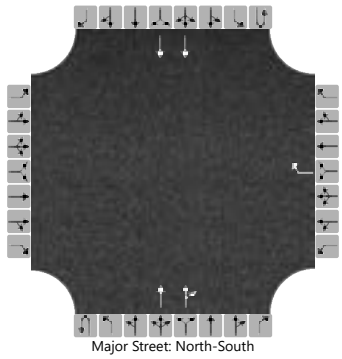
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2023
Time Analyzed	AM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #2
Jurisdiction	North Ridgeville
East/West Street	Drive #2
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0
Configuration								R			T	TR			T	
Volume (veh/h)								17			844	0			729	
Percent Heavy Vehicles (%)								2								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.94								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.32								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18								
Capacity, c (veh/h)								549								
v/c Ratio								0.03								
95% Queue Length, Q_{95} (veh)								0.1								
Control Delay (s/veh)								11.8								
Level of Service (LOS)								B								
Approach Delay (s/veh)						11.8										
Approach LOS						B										

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HCS Two-Way Stop-Control Report

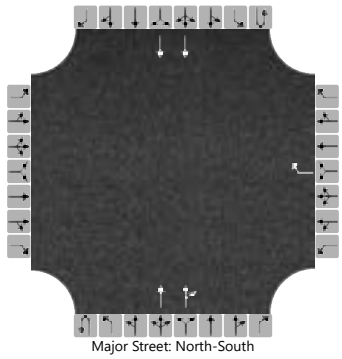
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2023
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #2
Jurisdiction	North Ridgeville
East/West Street	Drive #2
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0
Configuration								R			T	TR			T	
Volume (veh/h)								17			1144	0			989	
Percent Heavy Vehicles (%)								2								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.94								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.32								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18								
Capacity, c (veh/h)								430								
v/c Ratio								0.04								
95% Queue Length, Q_{95} (veh)								0.1								
Control Delay (s/veh)								13.8								
Level of Service (LOS)								B								
Approach Delay (s/veh)						13.8										
Approach LOS						B										

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Appendix N
Access Capacity Analysis Worksheets - Build - 2033

HCS Two-Way Stop-Control Report

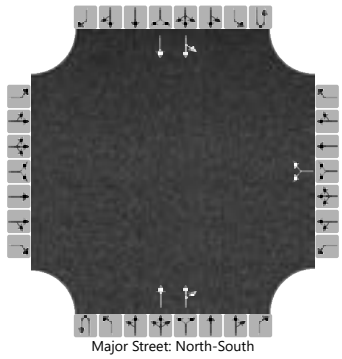
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2033
Time Analyzed	AM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #1
Jurisdiction	North Ridgeville
East/West Street	Drive #1
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						6		14			850	10		25	712	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						6.84		6.94						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							22							27		
Capacity, c (veh/h)							279							728		
v/c Ratio							0.08							0.04		
95% Queue Length, Q_{95} (veh)							0.3							0.1		
Control Delay (s/veh)							19.0							10.1	0.5	
Level of Service (LOS)							C							B	A	
Approach Delay (s/veh)						19.0								0.8		
Approach LOS						C								A		

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HCS Two-Way Stop-Control Report

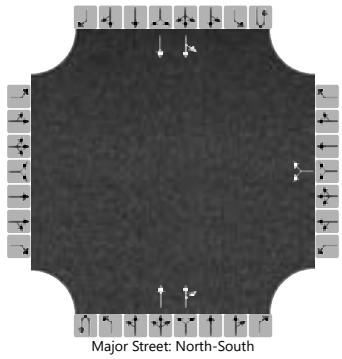
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2033
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #1
Jurisdiction	North Ridgeville
East/West Street	Drive #1
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	2	0	0	0	2	0
Configuration							LR				T	TR		LT	T	
Volume (veh/h)						6		14			1160	10		25	992	
Percent Heavy Vehicles (%)						2		2						2		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5		6.9						4.1		
Critical Headway (sec)						6.84		6.94						4.14		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.52		3.32						2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							22							27		
Capacity, c (veh/h)							150							542		
v/c Ratio							0.14							0.05		
95% Queue Length, Q_{95} (veh)							0.5							0.2		
Control Delay (s/veh)							32.9							12.0	0.8	
Level of Service (LOS)							D							B	A	
Approach Delay (s/veh)						32.9								1.1		
Approach LOS						D								A		

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HCS Two-Way Stop-Control Report

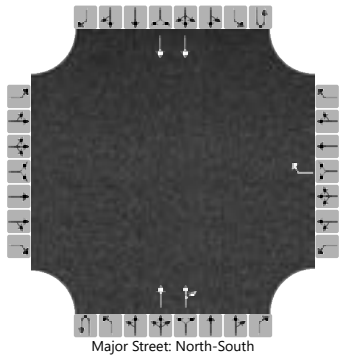
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2033
Time Analyzed	AM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #2
Jurisdiction	North Ridgeville
East/West Street	Drive #2
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0
Configuration								R			T	TR			T	
Volume (veh/h)								17			864	0			739	
Percent Heavy Vehicles (%)								2								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.94								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.32								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18								
Capacity, c (veh/h)								540								
v/c Ratio								0.03								
95% Queue Length, Q_{95} (veh)								0.1								
Control Delay (s/veh)								11.9								
Level of Service (LOS)								B								
Approach Delay (s/veh)						11.9										
Approach LOS						B										

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HCS Two-Way Stop-Control Report

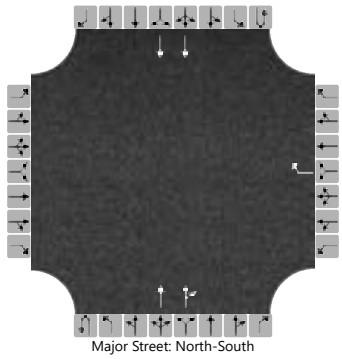
General Information

Analyst	AJP
Agency/Co.	TMS Engineers, Inc.
Date Performed	9/9/2022
Analysis Year	2033
Time Analyzed	PM Peak
Intersection Orientation	North-South
Project Description	Build

Site Information

Intersection	Lorain & Drive #2
Jurisdiction	North Ridgeville
East/West Street	Drive #2
North/South Street	Lorain Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	2	0
Configuration								R			T	TR			T	
Volume (veh/h)								17			1174	0			1019	
Percent Heavy Vehicles (%)								2								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.94								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.32								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								18								
Capacity, c (veh/h)								419								
v/c Ratio								0.04								
95% Queue Length, Q_{95} (veh)								0.1								
Control Delay (s/veh)								14.0								
Level of Service (LOS)								B								
Approach Delay (s/veh)						14.0										
Approach LOS						B										

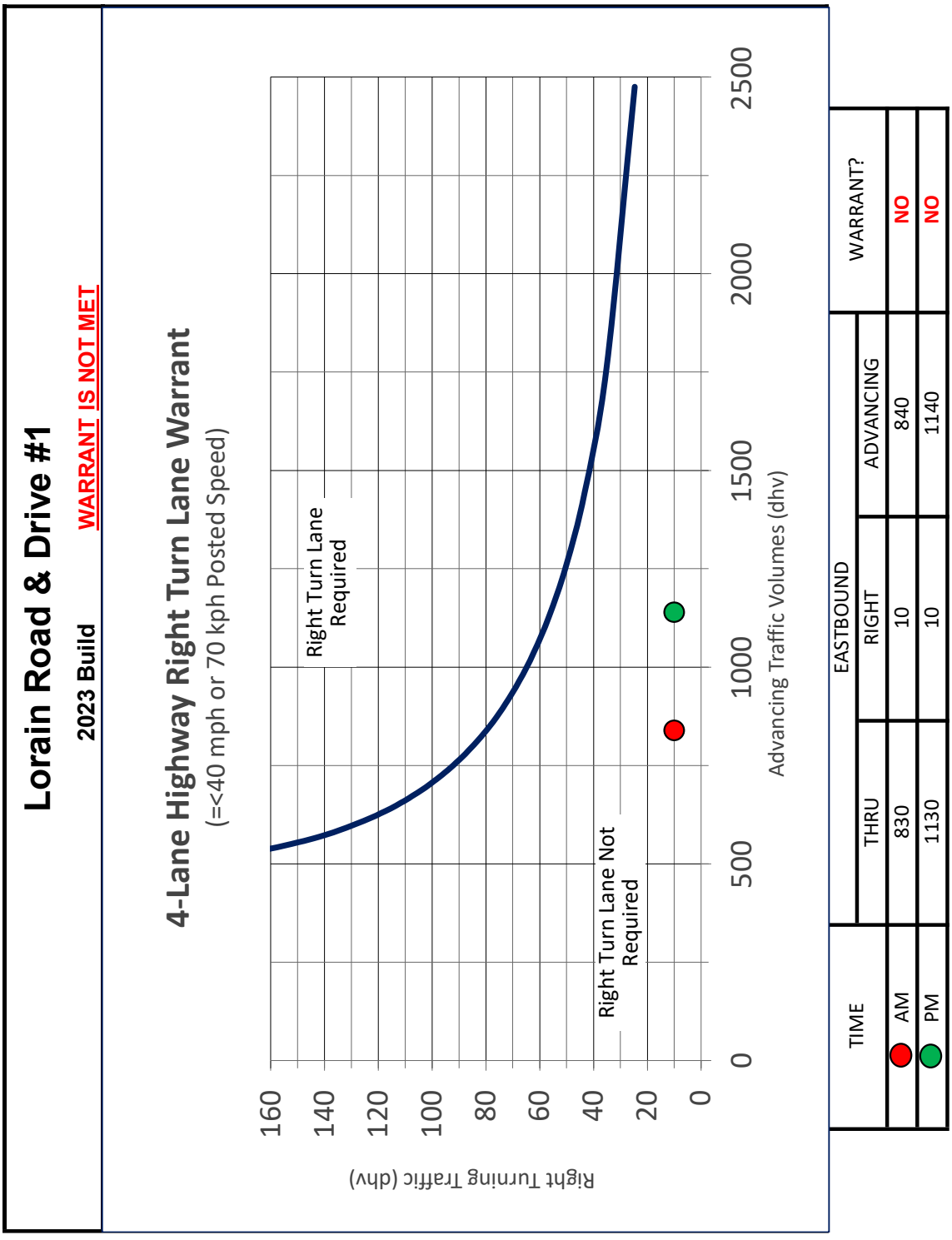
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Appendix O
ODOT Turn Lane Warrant Graphs

4-LANE RIGHT TURN LANE WARRANT (LOW SPEED)

401-6cM

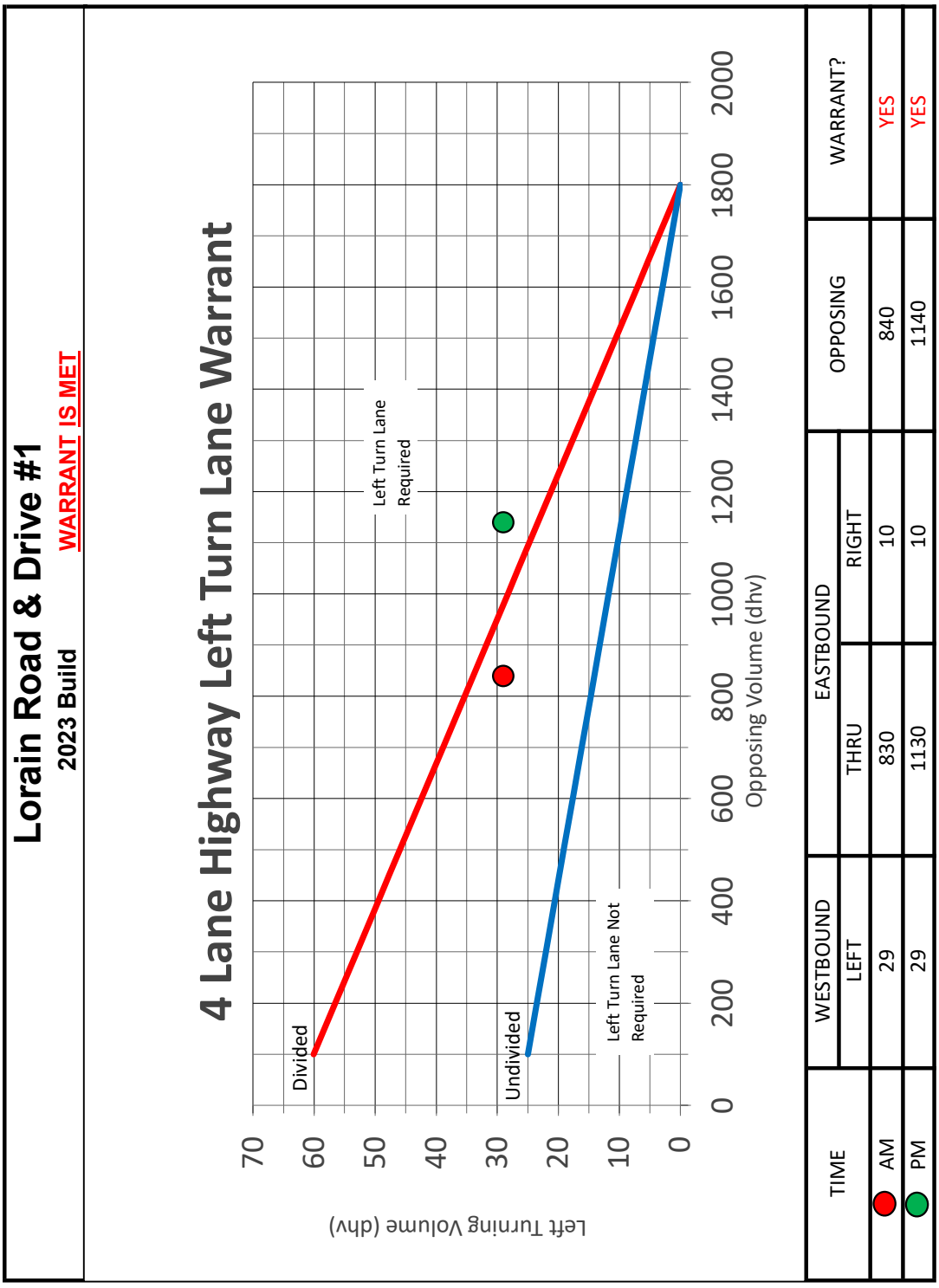
REFERENCE SECTION 401.6.3



4-LANE LEFT TURN LANE WARRANT

401-5cM

REFERENCE SECTION 401.6.1

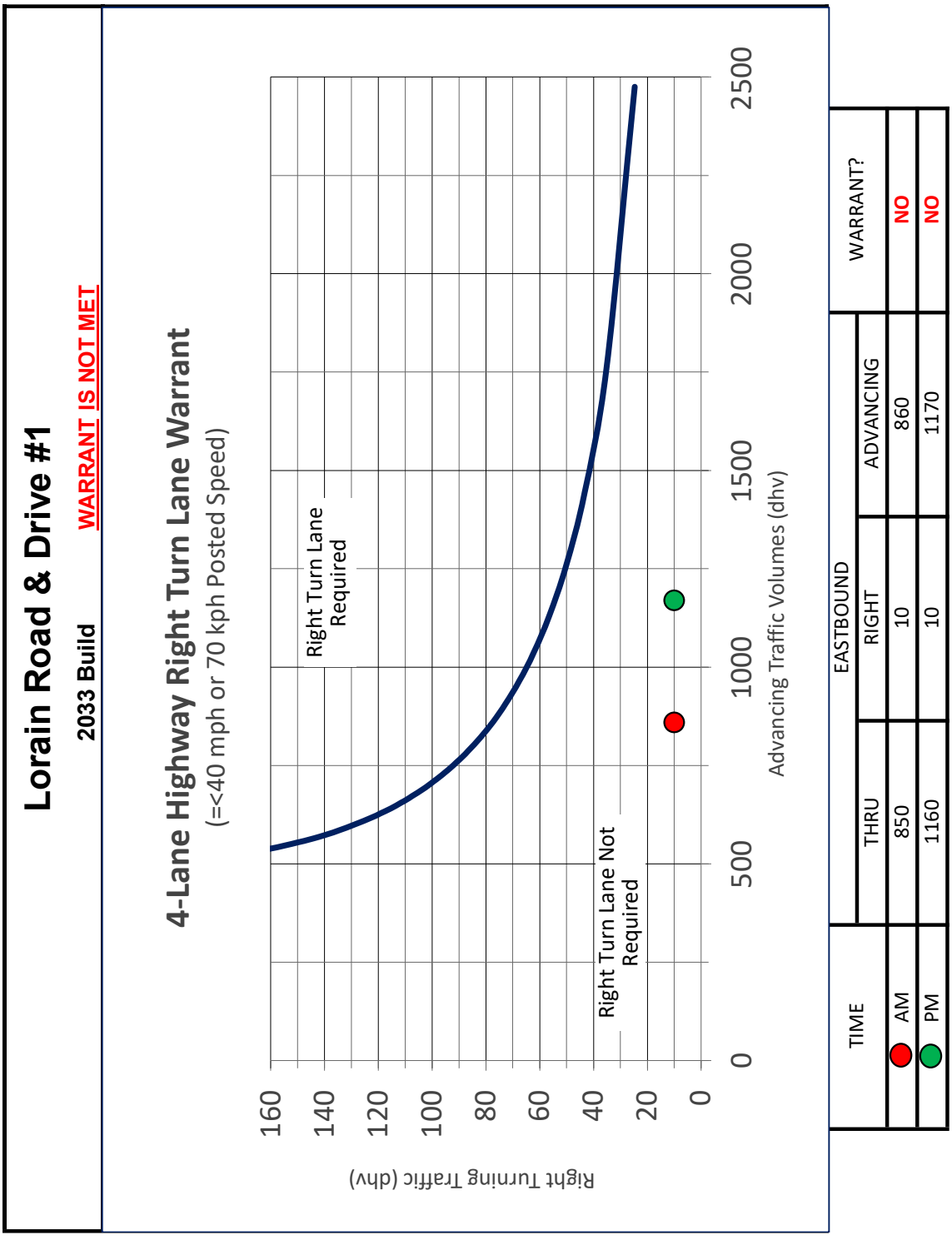


TIME	WESTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	OPPOSING	WARRANT?
AM	29	830	10	840	YES
PM	29	1130	10	1140	YES

4-LANE RIGHT TURN LANE WARRANT (LOW SPEED)

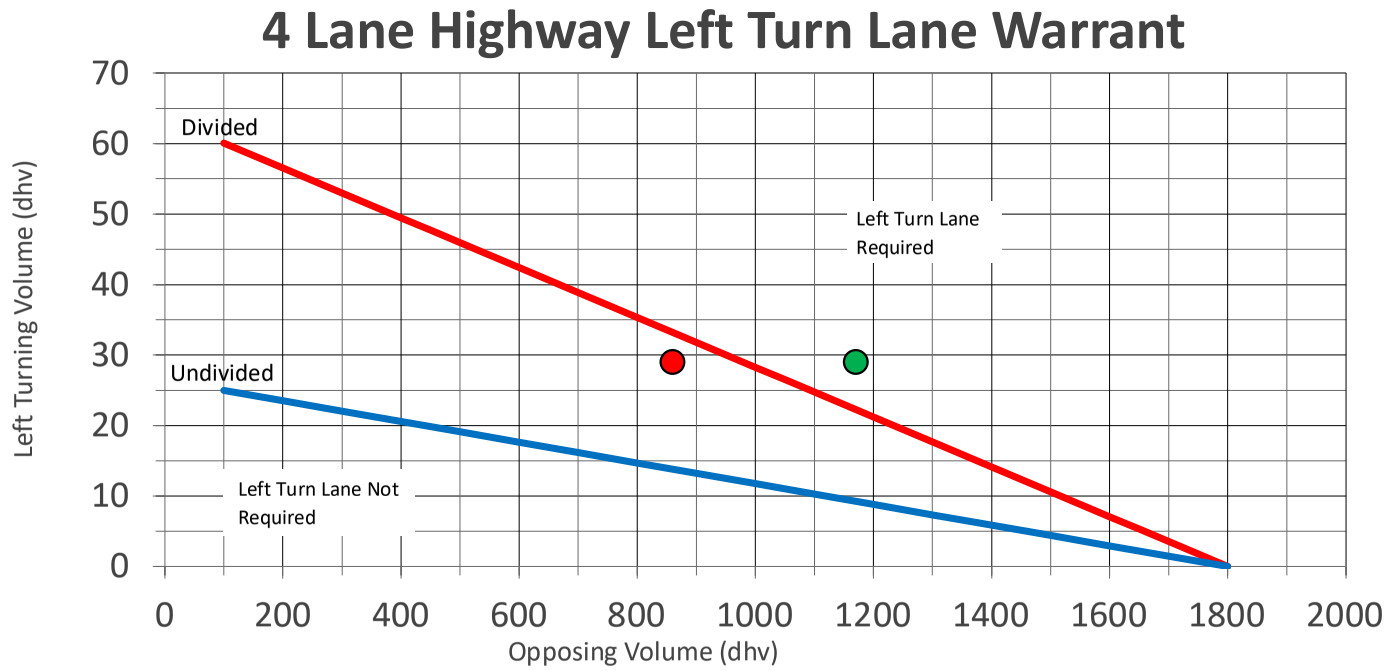
401-6cM

REFERENCE SECTION
401.6.3



Lorain Road & Drive #1

2033 Build **WARRANT IS MET**



TIME	WESTBOUND	EASTBOUND		OPPOSING	WARRANT?
	LEFT	THRU	RIGHT		
AM	29	850	10	860	YES
PM	29	1160	10	1170	YES

4-LANE LEFT TURN LANE WARRANT

401-5cM

REFERENCE SECTION 401.6.1

PHASE I ENVIRONMENTAL SITE ASSESSMENT

32499 LORAIN ROAD
NORTH RIDGEVILLE, LORAIN COUNTY, OHIO

August 29, 2022

Prepared for:

Sgt. Clean Car Wash
3673 Massillon Road
Uniontown, Ohio 44685

Prepared by:

HZW Environmental Consultants

6105 Heisley Road ♦ Mentor, Ohio 44060
440-357-1260 ♦ Fax 440-357-1510

H22128-07

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R. CONCLUSIONS

The findings of this assessment are as follows:

RP Environmental, LLC has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 of 32499 Lorain Road, North Ridgeville, Ohio 44039, the subject property. Any exceptions to, or deletions from, this practice are described in Section “B” of this report.

This assessment has revealed no evidence of controlled recognized environmental conditions (RECs) in connection with the subject property. One current REC and one historic REC were identified as follows:

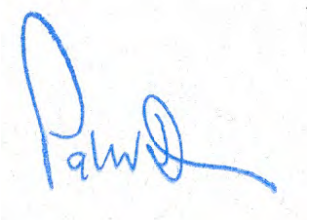
Current REC #1: In-ground hydraulic lifts on the subject property

Historic REC#1: Former underground storage tanks with No Further Action (NFA) status with the State of Ohio Bureau of Underground Storage Tank Regulations (BUSTR)

Information regarding these RECs is detailed in the Polychlorinated Biphenyls and Underground and Aboveground Storage Tanks section of this report.

I declare that to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in section 312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Sincerely,



Patrick Duncan, CPG
Geologist

PHASE II ENVIRONMENTAL ASSESSMENT REPORT

32499 LORAIN ROAD
NORTH RIDGEVILLE, LORAIN COUNTY, OHIO

Finalized: October 10, 2022

Prepared for:

Sgt. Clean Land Holdings LLC
3673 Massillon Road
Uniontown, Ohio 44685

Prepared by:

HZW Environmental Consultants

6105 Heisley Road ♦ Mentor, Ohio 44060
440-357-1260 ♦ Fax 440-357-1510

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Table 1: Summary of Sub-Slab Soil Gas Analytical Results
Table 2: Summary of Soil Analytical Results

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Appendix A: Laboratory Analytical Report from Alpha for Soil Gas Samples and HZW's Soil Gas Field Forms
Appendix B: VISL Calculator Output Report
Appendix C: HZW's Soil Boring Logs
Appendix D: Laboratory Analytical Report from Summit for Soil Samples

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EXECUTIVE SUMMARY

HZW Environmental Consultants, LLC (HZW) conducted a Phase II Environmental Site Assessment (ESA) of 32499 Lorain Road, North Ridgeville, Lorain County, Ohio (herein referred to as the "Property"). This study was conducted in accordance with HZW's proposal dated and authorized on September 6, 2022, by Mr. Brian Krusz, representative of Sgt. Clean Land Holdings LLC (the "Client"). This Phase II ESA report was prepared for the exclusive use of the Client. The purpose of this Phase II ESA was to evaluate the "recognized environmental condition" (REC) identified at the Property in HZW's Phase I ESA dated August 29, 2022.

According to HZW's Phase I ESA, the northern portion of the Property has been developed with a service station building (currently vacant), a fuel island canopy and a paved parking area since at least 1968. The southern portion of the Property consists of undeveloped land. Previous environmental reports prepared for the Property by others indicate that one (1) used oil underground storage tank (UST) was removed from the Property in 1998 and three (3) gasoline USTs were removed from the Property in 2008; both UST removal incidents have been awarded a "No Further Action" status from the Bureau of Underground Storage Tank Regulations. A 2020 geophysical survey performed at the Property did not identify any anomalies suggesting the presence of any other USTs at the Property. HZW observed evidence of three (3) in-ground hydraulic lifts in the garage portion of the former service station building on the Property during the site reconnaissance, and concluded that the potential for contamination associated with three (3) former in-ground hydraulic lifts constitutes a REC associated with the Property.

Phase II ESA activities were conducted on September 12, 2022, and included the collection of three (3) soil samples to evaluate subsurface conditions related to the three (3) former in-ground hydraulic lifts. Additionally, the Client has indicated the former service station building and canopy will be razed, and the Property will be redeveloped in the western portion with a future car wash building. Therefore, three (3) soil gas samples were collected to evaluate the vapor intrusion pathway at the Property as it relates to the former USTs relative to the proposed future car wash building. The conclusions of the Phase II ESA are summarized below.

- Concentrations of several volatile organic compounds (VOCs) were detected in the soil gas samples collected between the former UST locations and the proposed car wash building. Evaluation of the sub-slab soil gas analytical results using the United States Environmental Protection Agency (EPA) Vapor Intrusion Screening Level (VISL) calculator indicates that the Property meets acceptable Ohio EPA risk levels for vapor intrusion under a commercial exposure scenario.

- Concentrations of several VOCs, one (1) polynuclear aromatic hydrocarbon (PAH) (naphthalene) and/or total petroleum hydrocarbons (TPH) diesel and/or oil range organics (DRO and ORO, respectively) were detected in two (2) soil samples collected adjacent to the in-ground hydraulic lifts in the former service station building. None of the detected concentrations of VOCs, naphthalene, or TPH DRO/ORO exceed VAP single-chemical GDCSS or TPH Soil Saturation Values for commercial/industrial land use or construction activities.

Given the findings of this Phase II ESA, no further assessment or remedial activities is warranted.

PHASE II ENVIRONMENTAL SITE ASSESSMENT
32499 Lorain Road
North Ridgeville, Lorain County, Ohio
(H22128-09)

1.0 INTRODUCTION

HZW Environmental Consultants, LLC (HZW) conducted a Phase II Environmental Site Assessment (ESA) of 32499 Lorain Road, North Ridgeville, Lorain County, Ohio (herein referred to as the "Property"). **Figure 1** presents the regional location of the Property. This study was conducted in accordance with HZW's proposal dated and authorized on September 6, 2022, by Mr. Brian Krusz, representative of Sgt. Clean Land Holdings LLC (the "Client"). This Phase II ESA report was prepared for the exclusive use of the Client. The purpose of this Phase II ESA was to evaluate the "recognized environmental condition" (REC) identified at the Property in HZW's Phase I ESA, dated August 29, 2022.

According to the current tax map available from the Lorain County GIS website (http://www.loraincountyauditor.com/gis/), the Property consists of Permanent Parcel Number (PPN) 0700003102065 and is one (1) acre in size. The northern portion of the Property is currently developed with a vacant 1,708-square-foot service station building, an approximately 1,600-square-foot fuel island canopy and a paved parking area. The southern portion of the Property is undeveloped consisting of overgrown vegetation. Land use surrounding the Property consists of a public thoroughfare to the north (Lorain Road) and a McDonald's restaurant and Hurricane Laser Wash car wash further north; a Starbucks café, a storage building and a park to the east; and Petro-Com Corp. to the southwest.

2.0 BACKGROUND

2.1 Physical Settings

The United States Geological Survey (USGS) 7.5-minute series, North Olmsted, Ohio, quadrangle topographic map indicates that the Property is nearly level at an elevation between 770 and 780 feet above National Geodetic Vertical Datum (NGVD). The topography in the vicinity of the Property slopes north. According to the *Surficial Geology of the Cleveland South 30 x 60 Minute Quadrangle* map published by the Ohio Department of Natural Resources (ODNR), the stratigraphy beneath the Property consists of approximately 20 feet of Wisconsinan age till (an unsorted mix of clay, silt, sand, gravel and boulders that may contain silt, sand and gravel lenses) overlying Mississippian-age Berea Sandstone bedrock.

The *Ground Water Resources of Lorain County* map indicates that groundwater beneath the Property is obtained from the Berea sandstone. The Berea sandstone aquifer may yield three (3) to ten (10) gallons of groundwater per minute; however, this formation's thickness and recharge potential limit productivity to isolated areas.

According to the *Bedrock Topography of the North Olmsted, Ohio, quadrangle* map published by the ODNR, bedrock beneath the Property is located at approximately 750 feet above NGVD (20 to 30 feet below ground surface, which correlates with the *Surficial Geology* map). Bedrock topography in the vicinity of the Property slopes northwest.

2.2 Previous Assessments

During July and August 2022, HZW conducted a Phase I ESA of the Property in accordance with ASTM Designation E1527-13. According to HZW's Phase I ESA, the northern portion of the Property has been developed with a service station building (currently vacant), a fuel island canopy and a paved parking area since at least 1968. The southern portion of the Property currently and historically has consisted of undeveloped land.

Previous environmental reports prepared for the Property by others indicate that one (1) used oil underground storage tank (UST) was removed from the Property in 1998 and three (3) gasoline USTs were removed from the Property in 2008; both UST removal incidents have been awarded a "No Further Action" status from the Bureau of Underground Storage Tank Regulations. A 2020 geophysical survey performed at the Property did not identify any anomalies suggesting the presence of any other USTs at the Property. Additionally, HZW observed evidence of three (3) in-ground hydraulic lifts in the garage portion of the former service station building on the Property during the site reconnaissance. HZW was not provided with any reports indicating that the former lifts have been assessed.

HZW concluded that the potential for contamination associated with three (3) former in-ground hydraulic lifts located in the vacant service station building on the Property constitutes a REC associated with the Property.

3.0 METHODS OF INVESTIGATION

Phase II ESA activities were conducted on September 12, 2022, and included the collection of three (3) soil samples to evaluate subsurface conditions related to the three (3) former in-ground hydraulic lifts. Additionally, the Client has indicated the former service station building and canopy will be razed, and the Property will be redeveloped in the western portion with a future car wash building. Therefore, three (3) soil gas samples were collected to evaluate the vapor intrusion pathway at the Property as it relates to the former USTs relative to the proposed future car wash building. Further discussion of the Phase II ESA methodologies is presented below.

3.1 Soil Gas Sampling Methodologies

Three (3) soil gas sample points (designated "SG-01" through "SG-03") were installed between the former USTs and the proposed car wash building to evaluate the vapor intrusion pathway. **Figure 2** presents the soil gas sample locations on the Property. The soil gas sample points were installed using a hydraulic Geoprobe® direct-push drilling unit equipped with a post-run tubing ("PRT") system. On the PRT system, an expendable point holder and expendable drive point were driven six (6) feet into the subsurface. Once at terminal depth, a PRT system adapter was installed into the end of

Teflon® tubing and manually threaded into the PRT system expendable point holder. Upon properly threading the PRT adapter into the expendable point holder, the probe rods were retracted 12 inches to create a void to sample soil gas. A 3-way stopcock was inserted into the open end of the Teflon® tubing. Once installed, oxygen levels were monitored in each PRT sample point using a Q-RAE multi-gas meter to verify a decrease in oxygen levels (i.e., indicating that the PRT system was adequately sealed). In locations where a sufficient volume of soil gas was not present, the probe rods were retracted to depths as shallow as three (3) feet below grade in order to collect a soil gas sample. Additional field parameters monitored with the multi-gas meter included lower explosive limit ("LEL", relative to methane), carbon monoxide and hydrogen sulfide. A soil gas sample was collected after a 15-minute equilibrium period from the time of installation and purging of air from the PRT system and sample tubing.

Prior to initiating soil gas sampling activities, the sample trains (a 200 milliliter per minute flow regulator and a vacuum gauge) were assembled onto the 2.7-Liter, batch-certified clean Summa canisters and a shut-in test performed to verify that no leaks were occurring in the Summa canister and sample train connections prior to sample collection. Each PRT sample point was purged of three (3) volumes of air in the PRT system using the multi-gas meter before commencing with sample collection.

A minimum vacuum of approximately -5 inches of mercury remained on each Summa canister at the completion of sampling activities. The Summa canisters were submitted to Alpha Analytical (Alpha) of Mansfield, Massachusetts for analysis of select VOCs by EPA Method TO-15. Following completion of the soil gas sampling, all soil gas sample points were removed and the open holes were filled with bentonite and hydrated and, as applicable, finished to match surrounding surfaces.

3.2 Soil Boring Installation and Sampling Activities

Three (3) soil borings (designated "HB-01" through "HB-03") were installed adjacent to each in-ground hydraulic lift within the former service station building on the Property. The location of each boring installed at the Property is depicted on **Figure 2**. Soil borings were installed by HZW using hydraulic direct-push drilling and sampling methodologies with a track-mounted Geoprobe® 54LT unit. Soil samples were collected continuously in a four (4)-foot long sampling device lined with a clean, disposable acetate (plastic) liner, and driven into the subsurface to obtain a core sample of the subsurface material. Upon extraction from the soil, the plastic liner, with core intact, was removed from the sample tube. The soil samples were examined in two-foot intervals or modified in the field as necessary based on sample recovery and terminal depth of boring installation. One portion of each sample interval was transferred to clean, labeled, laboratory-supplied sample containers and placed in an iced cooler for preservation in the field. The second portion of each sample interval was transferred to a resealable polyethylene bag for field screening purposes. The soil sample interval from each soil boring that exhibited the highest concentration of organic vapors (as measured on the photoionization detector during field screening activities) or based on visual and/or olfactory observations or a combination of both, was selected for laboratory analysis. The selected soil samples were submitted to Summit Environmental Technologies, Inc. (Summit) for the analysis of volatile organic compounds (VOCs) by EPA Method 8260, polynuclear aromatic hydrocarbons (PAHs) by EPA

Method 8270, polychlorinated biphenyls (PCBs) by EPA Method 8082 and total petroleum hydrocarbons (TPH) diesel and oil range organic compounds (DRO and ORO, respectively).

A qualified HZW environmental technician characterized each sample interval. Observations noted by the technician included the sample location and number, sample depth, formation material, color, moisture content, odor, and presence or absence of contamination based on visual/olfactory observation. The observations were recorded on a separate boring log completed for each bore installed. All equipment used during field sampling activities was decontaminated with a Liqui-Nox® and distilled water solution and triple-rinsed with distilled water after each use to limit the potential for cross contamination. In addition, disposable nitrile gloves were worn by the environmental technician and changed between sample intervals to prevent cross-contamination. Following completion of sampling activities, the borings were filled with granular bentonite and hydrated, and finished to match the surrounding surface.

4.0 FINDINGS

4.1 Soil Gas Analytical Results

Table 1 presents a summary of the VOCs detected in the soil gas samples collected at the Property. A copy of the laboratory analytical report from Alpha for the soil gas samples and copies of HZW's soil gas field forms are included in **Appendix A**.

The Client has indicated that the Property will be redeveloped for commercial purposes. Therefore, soil gas analytical results were evaluated for vapor intrusion risk for a commercial exposure scenario and the entire Property was considered a single exposure unit. Soil gas analytical results were evaluated through use of the United States Environmental Protection Agency ("EPA") Vapor Intrusion Screening Level ("VISL") calculator. The VISL calculator is a screening tool which utilizes conservative assumptions in evaluating vapor intrusion risk. The Ohio EPA requires the use of the VISL calculator to evaluate vapor intrusion risk with an emphasis on further sampling if risk levels exceed the screening levels. An exceedance of the VISL calculator screening value does not mean an unacceptable risk exposure has been identified. The target risk for carcinogens is 1.0E-05 and a target hazard quotient for non-carcinogens is 1, as outlined in the Ohio EPA March 2020 *Sample Collection and Evaluation of Vapor Intrusion to Indoor Air* Guidance Document. The highest concentration of each compound detected in soil gas was evaluated in the VISL calculator.

Evaluation of the soil gas analytical results indicates that the cumulative carcinogenic risk (2.54E-07) and cumulative non-carcinogenic hazard index (4.69E-03) for vapor intrusion are below the Ohio EPA target carcinogenic risk and target non-carcinogenic hazard index for a commercial exposure scenario. **Appendix B** presents a copy of the VISL Calculator output report for the soil gas samples collected at the Property.

4.2 Geology

Soil boring HB-01 was installed to a terminal depth of ten (10) feet below ground surface, whereas soil borings HB-02 and HB-03 were installed to terminal depths of 9.5 and 8 feet, respectively,

at which probe refusal was encountered on hard sandy clay. Subsurface materials encountered during the installation of soil borings consisted primarily of brown and/or gray sandy clay with traces of gravel. Physical evidence of contamination (e.g., odors) were identified in soil borings HB-02 (2-6.5') and HB-03 (2-6'). No evidence of groundwater (e.g., saturated or wet soils) was encountered in any of the soil borings installed. The boring logs, which provide a complete description of the subsurface materials encountered during soil boring installation activities, are presented in **Appendix C**.

4.3 Soil Analytical Results

4.3.1 Comparative Standards

Given the current and anticipated land use of the Property, soil analytical results were compared against the Ohio EPA Voluntary Action Program (VAP) single-chemical Generic Direct Contact Soil Standards (GDCSS) for commercial/industrial land use and construction activities. The GDCSS values were derived by the Ohio EPA and are considered to be protective of human health based on predictive models assuming potential exposures to adults via dermal contact with soil, inhalation of dust, and incidental ingestion of soil. The point of compliance (POC) for commercial/industrial land use is typically two (2) feet below ground surface and the POC for construction activities is the maximum depth at which construction activities are reasonably anticipated (typically, 10 feet below "ground surface" under the VAP).

VAP Technical Guidance Compendium VA30008.19.001 indicates that the VAP GDCSS for TPH are the soil saturation values derived by BUSTR. Selection of the applicable comparative BUSTR TPH soil saturation values is based upon soil type. For the purposes of this report, the BUSTR TPH soil saturation values used for comparison purposes for this report are for Soil Class 1, since Soil Class I presents the most conservative values.

The regulatory standards referenced as part of this project are for comparative use only and may not be directly applicable to the Property. The standards referenced in this report apply only to sites that are participating in Ohio's VAP. However, because the Ohio EPA recognizes these standards as being protective of human health, they provide a useful tool for assessing environmental conditions at the Property.

4.3.2 Review of Soil Analytical Results to Comparative Standards

Table 2 presents a tabular summary of the laboratory analytical results for soil samples collected adjacent to each in-ground hydraulic lift within the former service station building along with the values of the comparative standards. A copy of the laboratory analytical report from Summit for the soil samples is presented as **Appendix D**.

A review of **Table 2** indicates that no concentrations of VOCs, PAHs, or TPH DRO/ORO were detected in soil sample HB-01 (4-6') and no concentrations of PCBs were detected in any of the soil samples. However, concentrations of several VOCs, one (1) PAH (naphthalene) and/or TPH DRO/ORO were detected in soil samples HB-02 (4-6') and HB-03 (6-8'). None of the detected concentrations of

VOCs, naphthalene, or TPH DRO/ORO exceed VAP single-chemical GDCSS or TPH Soil Saturation Values for commercial/industrial land use or construction activities.

5.0 CONCLUSIONS

Given the findings of the Phase II ESA, HZW concludes the following:

- Concentrations of several VOCs were detected in the soil gas samples collected between the former UST locations and the proposed car wash building. Evaluation of the sub-slab soil gas analytical results using the VISL calculator indicates that the Property meets acceptable Ohio EPA risk levels for vapor intrusion under a commercial exposure scenario.

- Concentrations of several VOCs, one (1) PAH (naphthalene) and/or TPH DRO/ORO were detected in two (2) soil samples collected adjacent to the in-ground hydraulic lifts in the former service station building. None of the detected concentrations of VOCs, naphthalene, or TPH DRO/ORO exceed VAP single-chemical GDCSS or TPH Soil Saturation Values for commercial/industrial land use or construction activities.

Given the findings of this Phase II ESA, no further assessment or remedial activities is warranted.

SIGNATURE PAGE

This Phase II ESA report for the for 32499 Lorain Road, North Ridgeville, Lorain County, Ohio, was prepared by HZW Environmental Consultants, LLC. Ms. Suzanne Eden, Phase II ESA Project Manager, was the author of the report. Mr. Douglas Wetzel, Phase II ESA Group Leader, was the reviewer of the report. The signatures for Ms. Eden and Mr. Wetzel are presented below.

_____
Suzanne J. Eden
Project Manager, Phase II ESAs

_____
Douglas Wetzel
Group Leader, Phase II ESAs

To: Planning Commission Members

From: Kim Lieber, AICP, Director of Planning & Economic Development

Date: November 10, 2022

Re: Parking, Loading, Lighting and Commercial Drives

At our November 8 Planning Commission meeting, I mentioned I have been working on amendments to our Zoning Code in relation to parking. I've attached materials I would like to discuss in a work session at your next meeting. In preparation, please review the draft new Chapter 1285 Parking, Loading and Lighting which would combine and replace the following:

(1) Current Chapter 1284 Off-Street Parking and Loading Requirements
(2) A portion of Current Chapter 1290 Commercial and Industrial Access Drives
(3) Current Section 1294.08 Lighting Laws

I've included notes below containing observations about our current code requirements (or lack thereof) and what we hope to achieve with these changes.

Parking and Loading:

- Many of our parking regulations were established in 1966. The last amendment to this chapter was over 20 years ago. This need for update is evident in our list of uses where parking counts are established. Our use categories for parking are very limited, include some outdated uses (orphanages, sanitoriums) and are missing some frequent types of more modern uses (service stations, car washes, etc.).
- I recommend an overall reduction of required parking to avoid excess impervious surfaces. Trends in planning are moving away from parking minimums to parking maximums for many reasons: environmental, economic, etc. We should more explicitly allow for shared and landbanked parking.
- We are lacking basic parking design criteria: space size, aisle width, etc.
- We need to think about parking for EVs and bicycles.
- We have no requirements for vehicle stacking for drive through uses, of which there are many in the city. Major traffic issues have been caused due to insufficient stacking.
- Our current loading space requirements seem excessive, especially as how product is delivered has changed a lot over the decades.

Access Drives:

- Driveways are linked and related to parking as both regulations deal with vehicle traffic and circulation. It is reasonable they should be located in the same chapter so design professionals can find the requirements in one area.

- Many of the requirements in Chapter 1290 don't seem zoning related as much as construction related. I've discussed with Engineering that the some of the text of this section could be replaced with a standard detail sheet.
- New non-residential driveways should only be approved as part of a development plan, so there is no need for all of the procedural sections.
- We need clarity regarding driveway width since our minimum width (15 feet) currently wouldn't allow for two-way traffic.
- Spacing between drives seems insufficient for proper access management. Also, allowing two curb cuts by right for any lot seems one too many. We should encourage more cross access over more direct access to the road network.

Lighting:

- Our current lighting ordinance doesn't include measurable standards, which could be enhanced. Suggest establishing maximum illumination levels, maximum pole heights, etc. The current code references IESNA standards, but do we use these?
- Lighting of private property typically has a direct relationship with parking lots, so including lighting regulations here makes sense.
- Planning Commission should take a greater role in reviewing lighting during development plan review as light, noise and traffic seem to be the issues that concern neighboring residents and other property owners most.

I look forward to hearing your input and suggestions regarding these code revisions. Please let me know if you have any questions.

CHAPTER 1284

Off-Street Parking and Loading Requirements

1284.01 Intent.

1284.02 General provisions and requirements in all districts.

1284.03 Loading space requirements.

CROSS REFERENCES

Parking of commercial and heavy vehicles in residential districts at night - see TRAF. 440.20

Parking generally - see TRAF. Ch. 452

Off-street parking and loading in subdivisions - see P. & Z.1226.07

Off-street parking and loading in B-5 District - see P. & Z.1272.03(h)

Parking of recreational equipment on residential property - see P. & Z. 1294.02

1284.01 INTENT.

It is the intent of the City, through the establishment of the regulations contained in this chapter, to provide reasonable requirements for off-street parking and loading, thus lessening the congestion on the streets and preserving the traffic-carrying function of the City's streets and highways.

(Ord. 335-66. Passed 7-5-66.)

1284.02 GENERAL PROVISIONS AND REQUIREMENTS IN ALL DISTRICTS.

In all zoning districts, off-street parking facilities for the storage or parking of self-propelled motor vehicles for use of occupants, employees and patrons of the buildings hereafter erected, altered or extended after the effective date of this Zoning Code (Ordinance 335-66, passed July 5, 1966), shall be provided and maintained as herein prescribed.

(a) In determining the number of parking spaces required, if such spaces result in fractional parts thereof, the number of spaces required shall be construed to be the nearest whole number.

(b) Whenever a use requiring off-street parking is increased in floor area, additional parking space shall be provided in the amounts hereafter specified for that use, if the total parking space is inadequate to serve the increased floor area.

(c) For purposes of this Zoning Code, "floor area," in the case of offices, merchandising or service- types of uses, means the gross floor area of the structure.

(d) Off-street parking facilities for one and two-family dwellings shall be located on the same lot or plot of ground as the building served. Off-street parking facilities for other than one and two-family dwellings shall be within 300 feet of the building intended to be served. An industry which employs 500 or more employees may supply off-street parking at a distance greater than 300 feet from such industry upon approval of the Planning Commission.

(e) The off-street parking requirements for uses not specifically mentioned herein shall be the same as those required for uses of a similar nature.

(f) Collective off-street parking facilities may be provided. However, such facilities shall be no less than the sum of such facilities as would otherwise be individually required.

(g) The amount of off-street parking space required for uses, buildings or additions thereto shall be determined according to the following requirements, and the space, so required, shall be stated in the application for a building permit and shall be reserved for such use.

Use	Required Parking Space
(1) One and two-family dwelling or mixed occupancy.	One parking space for each family unit.
(2) Multiple dwellings.	One parking space for each dwelling unit.
(3) Tourist homes, cabins or motels or motor hotels.	One parking space for each sleeping room or suite, including that of the owner or manager if resident on the premises.
(4) Hospitals, sanitoriums, convalescent homes, homes for the aged or similar uses.	One parking space for each three patients, plus one space for each two

employees and staff members.

(5) Orphanages or similar uses. One parking space for each ten beds.

(6) Hotels. One parking space for each three guest sleeping rooms.

(7) Private clubs, fraternities and boarding and lodging houses. One parking space for each two guest sleeping rooms.

(8) Community centers, libraries, museums, post offices, civic clubs, etc. One parking space for each 100 square feet of floor area.

(9) Theaters and auditoriums (other than incidental to schools). One parking space for each four seats, plus one additional space for each two employees.

(10) Churches and schools. One parking space for each six seats in a principal auditorium or one space for each seventeen classroom seats, whichever is greater.

(11) Dance halls, pool and billiard halls and exhibition halls without fixed seats. One parking space for each 100 square feet of floor area used for dancing or assembly.

(12) Stadiums and sports arenas. One parking space for each four seats.

(13) Bowling alleys. Five parking spaces for each alley.

(14) Mortuaries or funeral homes. One parking space for each fifty square feet of floor space in the slumber rooms, parlors or individual funeral service rooms.

(15) Establishments for the sale and consumption on the premises of alcoholic beverages, food or refreshments. One parking space for each 100 square feet of floor area, plus one parking space for each four employees.

(16) Medical or dental clinics, banks and business or professional offices. One parking space for each 200 square feet of floor area, plus one parking space for each employee.

(17) Beauty parlors and barber shops. Three parking spaces for each barber and/or beauty shop operator.

(18) All retail stores, except as otherwise specified herein. One parking space for each 200 square feet of store area.

(19) Industrial establishments, including manufacturing, research and testing laboratories, creameries, bottling works, printing and engraving shops. One parking space for each two employees on the maximum working shifts, plus space to accommodate all trucks and vehicles used in connection therewith.

(20) Warehouses and storage buildings. Sufficient parking space to accommodate employees and the loading and unloading of materials.

(h) Parking lots or areas adjacent to public streets shall have driveways or openings not to exceed twenty-five feet in width at the curb line. All such lots or areas shall have a protective wall or bumper block at least five feet from any sidewalk line, and such lots shall be so designed that all vehicles leaving the facilities will be traveling forward to approaching traffic.

(i) Entrances, exits or driveways shall not be computed as any part of a required parking lot or area.

(j) Additional off-street parking and loading regulations for commercial and industrial districts and residential district

parking lots of a commercial type are as follows:

(1) Any vehicle parking space in a commercial or manufacturing district shall be used for parking only. Any other use of such space, including repair work or servicing of any kind, other than in an emergency, or the requirement of any payment for the use of such space, shall be deemed to constitute a separate commercial use in violation of the provisions of this Zoning Code.

(2) No building or structure of any kind shall be erected in any off-street parking space, except for a parking garage containing parking space equal to the requirements of this section.

(3) No signs shall be displayed in any such vehicle standing space, except for signs to direct the orderly use of such space.

(4) The design of all off-street parking facilities and means of access thereto shall be subject to the approval of the Planning Commission.

(5) The vehicle parking space on any lot, as set forth and designated in this Zoning Code, shall be deemed to be required open space on such lot, in addition to any yard space required by the provisions of this Zoning Code, and shall not be reduced or encroached upon in any manner.

(6) All parking spaces, drives and aisles shall be surfaced with a bituminous or other dust-free surface.

(7) In all commercial districts, a minimum area of 300 square feet per car shall be allowed in computing the total area to be devoted to parking.

(Ord. 335-66. Passed 7-5-66; Ord. 3649-01. Passed 2-5-01; Ord. 3827-02. Passed 7-15-02.)

1284.03 LOADING SPACE REQUIREMENTS.

On the same premises with every building, structure or part thereof erected and occupied for manufacturing, storage, warehouse goods display, department store, wholesale store, market, hotel, hospital, mortuary, laundry, dry cleaning or other uses similarly involving the receipt or distribution of vehicles or materials or merchandise, there shall be provided and maintained on the lot adequate space for standing, loading and unloading services in order to avoid undue interference with the public use of streets or alleys. Such space, unless otherwise adequately provided for, shall include a ten foot by twenty-five foot loading space with a fourteen foot height clearance for every 10,000 square feet, or fraction thereof, in excess of 3,000 square feet of building floor use or land for the above-mentioned purposes.

(Ord. 335-66. Passed 7-5-66.)

CHAPTER 1290

Commercial and Industrial Access Drives

1290.01 Definitions.

1290.02 Permit required.

1290.03 Permit application; fee.

1290.04 Plans.

1290.05 Permit approval; construction requirements.

1290.06 Exceptions to construction requirements.

1290.07 Location requirements.

1290.08 Permit denials; appeals.

1290.09 Culverts.

1290.10 Traffic flow.

CROSS REFERENCES

Right of way at private drives - see TRAF.432.20

Stop signs on private driveways - see TRAF.432.205

Speed limits on private driveways - see TRAF.434.035

Driveway culverts - see S.U. & P.S. Ch.1026

Accessways in the I-1 District - see P. & Z.1274.06(a)(2)

Permit fees for driveways - see B. & H.1444.12(g)

1290.01 DEFINITIONS.

As used in this chapter:

(a) "Access drive" means a private drive intended to provide ingress or egress to a parcel of land.

(b) "Arterial street" means a street, road or highway indicated on the Official Thoroughfare Plan as either a major arterial street or a minor arterial street.

(c) "Collector street" means a street, road or highway indicated on the Official Thoroughfare Plan as either a major collector street or a minor collector street.

(d) "Local streets" means all other streets, including frontage roads, except limited access highways and alleys.

(e) "Service drive" means an access drive primarily used by vehicles servicing one or more parcels of land.

(f) "Tree lawn" means the unpaved public strip of land located between a public street and its right- of-way line.

(Ord. 1906-84. Passed 5-21-84.)

1290.02 PERMIT REQUIRED.

Owners of private property are responsible for the construction and maintenance of access driveways that serve such property, including the portion of the access driveways located within the public street right of way. No person shall construct, build, establish or alter any access drives over, across or upon any public sidewalks or tree lawns in any business, commercial or industrial district without first obtaining a permit to do so from the Building Department, in accordance with the provisions of this chapter.

(Ord. 1906-84. Passed 5-21-84.)

1290.03 PERMIT APPLICATION; FEE.

(a) An application for a driveway permit shall be made by the property owner or his or her agent on a permit form furnished by the Building Department. The applicant is responsible for the preparation of a detailed plan of the proposed driveway. The plan submitted shall become a part of the permit record and shall contain information sufficient for:

(1) A review of the application.

(2) A contractor to construct the proposed driveway in accordance with the terms of the permit.

(3) Serving as a record of the work authorized by the Building Department.

(b) A nonrefundable permit fee of thirty dollars ($30.00) for each curb cut shall be paid at the time of issuance of the

permit. A separate permit shall be obtained to construct, build, establish or alter any access drive over, across or upon any public sidewalk or tree lawn.

(Ord. 1906-84. Passed 5-21-84.)

1290.04 PLANS.

Three copies of a detailed plan shall be filed for examination and subsequent approval or disapproval. The detailed plan shall be drawn to a scale of one inch equals forty feet or less. The Building Department shall retain two copies of the detailed plan and shall return one copy to the petitioner upon approval or disapproval thereof. The detailed plan shall contain the following information:

(a) In General. The north point, scale and date.

(b) Property Description. The property boundary lines and dimensions thereof, and the source of the same, for which the access drive approval is requested, including existing easements and right of way lines, and adjacent properties on the same frontage and adjacent properties on the opposite frontage, indicating the location of existing and/or known proposed ingress and egress to such properties.

(c) Topography. Topographical data, including the existing street width and the location of edges, curbs, islands, sidewalks, catch basins, inlets, fireplugs, culverts, drainage ditches, watercourses and other items located in the street right of way along the frontage of the property being served by the proposed access drive; the exact location and dimensions of existing curb cuts, if any; and the existing directions of traffic flow on the subject property and into and from public ways.

(d) Ingress and Egress; Curb Cuts; Traffic Flow. The exact location, dimensions and type of construction of proposed facilities of ingress and egress to the subject property, proposed curb cuts, if any, and the proposed direction of traffic flow on the subject property and into and from public ways. The detailed plan of the driveway shall be accompanied by a detailed site plan, if needed, to show all information both on and off the street right of way that will affect traffic movements, such as curbs, parking areas, buildings, pump islands and loading dock locations.

(e) Drainage. The method of surface water (storm water) runoff control that assures that concentrated flows will not be directed by the proposed driveway across sidewalks, public street pavements or curbs, and the location and description of proposed drainage structures within the public right of way, if any.

(f) Identify of Applicant. The name and address of the person seeking approval of the proposed access drive.

(g) Building Department Approval. Provision on the face of the site plan for the approval of the Building Department.

(Ord. 1906-84. Passed 5-21-84.)

1290.05 PERMIT APPROVAL; CONSTRUCTION REQUIREMENTS.

(a) Approval of a driveway permit shall be considered approval of proposed work within a public street right of way only. The location and design of all items related to traffic movements upon the private property, such as curbs, parking areas, parking aisles and pump islands, shall be subject to the review and approval of the Building Department.

(b) The Building Department shall determine whether the proposed access drive conforms to the following requirements:

(Ord. 1906-84. Passed 5-21-84.)

(1) Driveway width. The minimum width of a commercial driveway shall be fifteen feet and the minimum width of an industrial driveway shall be twenty feet. The maximum width of a driveway shall be thirty-five feet, unless otherwise approved by the City Engineer. The width of a driveway shall be measured along a line parallel to the centerline of the street located near the street right-of-way line.

(Ord. 4776-2010. Passed 9-7-10.)

(2) Driveway alignment. The intersection angle of the centerline of the driveway and the street shall be between seventy degrees and ninety degrees, except for gasoline stations, which shall be between forty-five degrees and ninety degrees.

(3) Curb requirements for curbed streets. Driveways abutting curbed streets may be either curbed or uncurbed. Where a driveway abuts a street with a rolled-type curb with a maximum width of four inches, the owner may either install a depressed curb two inches high or construct the driveway flush with the top of the curb. Where a proposed driveway abuts a street with a vertical-type curb, the owner shall install a depressed curb no higher than two inches above the original gutter line of the street.

(4) Curb requirements for uncurbed streets. Driveways abutting uncurbed streets may be either curbed or uncurbed; however, the driveway curb shall not be closer to the through pavement edge than eight feet.

(5) Sidewalk ramps. Where a driveway curb is extended past a sidewalk, a sidewalk ramp shall be installed.

(6) Driveway edge turning radii. When the driveway apron is constructed with a radius edge, the minimum radius shall be twenty feet for uncurbed street locations and fifteen feet for curbed street locations. When the driveway apron is constructed with straight edges, the paved surface area shall provide for turning movements that can be made on a radius driveway with the minimum radius specified herein. For determination of acceptable straight edge design, the turning radius may be considered as being tangent to a line two feet from the street side of the back of the street curb, and tangent to a line

one foot from the driveway side of the edge of driveway.

(7) Length of dropped curbs. The maximum length of a dropped curb or the maximum length of driveway apron meeting the back of a rolled curb shall be eighty feet.

(8) Material requirements. Driveway aprons constructed on curbed streets shall be constructed with Portland cement concrete. The minimum thickness shall be six inches for driveways to be used by passenger cars and light trucks and eight inches for driveways to be used by heavy trucks. Driveway aprons constructed on uncurbed streets may be constructed with either Portland cement concrete or asphalt concrete. The concrete thickness shall be as noted above. The minimum thickness of an asphalt commercial and industrial driveway shall be either two and one-half inches of asphalt concrete over eight inches of aggregate base or one inch of asphalt concrete over five inches of bituminous aggregate. The owner may use additional thicknesses of material for locations where heavy trucks will use the driveway. On concrete driveway aprons, expansion joint material shall be provided between the curb and apron and between the apron and the sidewalk. Where an apron crosses an existing sidewalk of less thickness than the required concrete, the sidewalk shall be removed and reconstructed. The sidewalk area through an asphalt driveway shall be constructed with concrete.

(9) Location. All driveways shall be located to minimize the offset distance from a commercial or industrial driveway or a street intersection on the far side of the street.

(10) Spacing between curb cuts. The minimum spacing between curb cuts serving the same property shall be eighty feet along arterial streets, sixty feet along collector streets and twenty feet on local streets.

(11) Sight distances. A driveway to be located along a property frontage that has less sight distance available than the minimum sight distance required for making all turning movements safely shall be located to provide the maximum sight distance available for right turns for ingress and egress and shall be restricted in use to right turns only.

(12) Number of curb cuts. The maximum number of curb cuts to be allowed for one property along one frontage on both arterial and collector streets shall be two. Any number of curb cuts meeting the length and spacing requirements provided in this section may be installed along local streets.

For the purpose of this section, a property shall be defined as:

A. A plotted lot under single ownership which is of record at the time of passage of this section;

B. Two or more platted lots or combinations of lots with continuous frontage under single ownership which are of record at the time of passage of this section; or

C. An unplatted parcel of land with continuous frontage under single ownership, except that for land where a final plat is approved by the Planning Commission after the passage of this section, each new parcel shall be considered as one property.

(13) Minimum spacing between curb cuts and street intersections. The minimum spacing from the end of a curb cut for a driveway to a public street intersection shall be ten feet plus the radius of the intersection curb or edge of pavement, but not less than thirty-five feet as measured from the curb line or edge of the pavement projected from the cross street to the curb cut along the street curb line.

(14) Proximity to intersections for major traffic generators. Access drives for major traffic generators, such as commercial or industrial developments with over 100 parking spaces, shall be located not less than 200 feet on arterial streets and collector streets, and not less than 100 feet on local streets, from a street intersection, as measured from the near curb line or edge of the pavement projected from the cross street to the centerline of the driveway.

(15) City utility adjustments. If a driveway requires any changes in any City-owned items, the owners shall be responsible for the expense of the adjustments as required for the following items:

A. Pole relocation.

B. Manhole cover adjusted to grade.

C. Relocation or adjustment to grade of a water-valve box.

D. Relocation or change of a street inlet.

E. Moving a fire hydrant to provide not less than six feet of clearance from the edge of the apron and centerline of the hydrant.

(16) Joint use driveways. A permit may be issued for a joint use driveway, provided the owners of both properties file a joint application for the driveway.

(17) Median openings. No new median openings shall be permitted on divided streets for driveways.

(18) Proximity of parking aisles and access drives to parallel public streets. No on-site vehicular parking aisle or on-site access drive shall be located less than thirty feet from any parallel public street, measured from the nearest curb line of the aisle or access drive to the nearest right-of-way line of the parallel public street.

Commercial driveways serving parking areas with 100 or more parking spaces, constructed along any classification of street, shall be designed to prevent cross movement of internal traffic on the property for a distance of 100 feet from the

street right-of-way line. This may be accomplished by the use of a raised divider or by the use of curbing.

Industrial driveways serving parking areas with 100 or more parking spaces constructed along an arterial street shall be designed to prevent cross movement of internal traffic on the property side of the street right-of-way line for a distance of 100 feet from the street right-of-way line.

(19) Driveway and sidewalk grades. Where possible, the driveway crossing of the sidewalk shall be made with no change in the sidewalk grade. Where conditions preclude meeting this objective, the sidewalk shall be warped to meet the driveway grade. Sidewalk step-down sections shall not be used. Within the right-of-way limits, the driveway grade shall be limited to a maximum of six percent. Where possible, the profile of a commercial and industrial driveway shall have a relatively flat area thirty feet long from the edge of the through pavement to permit vehicles to turn off a roadway without immediately climbing or descending. The driveway shall have small sag or crest rounding as may be required in the vertical profile, at a grade change point, to provide vehicle clearance.

(Ord. 1906-84. Passed 5-21-84.)

1290.06 EXCEPTIONS TO CONSTRUCTION REQUIREMENTS.

(a) Gasoline Service Stations. The following exceptions to the above provisions shall be made for gasoline service stations. At street intersections, a minimum distance of ten feet shall be provided between the terminus of the public street curb radius and the intersection of the curb lines extended of the public street and the edge of the access drive, but in no case shall the distance between the intersection of the curb lines extended of the public street and the access drive, and the intersection of the nearest curb lines extended of the nearest intersecting public street, be less than thirty feet. A distance of not less than twenty-five feet shall be provided between access drives, measured from the nearest curb lines thereof, and not more than two access drives per street frontage shall be allowed.

(b) Drive-In Businesses. A specific land parcel to be developed with such uses as a drive-in restaurant, drive-in bank, drive-in car wash stall, drive-in beer or liquor store, or similar use requiring a continuous flow of one-way traffic onto and off of the particular parcel, and which has a frontage of less than 210 feet, shall be permitted two access drives per frontage, provided that one access drive is for entrance only and one access drive is for exit only.

(c) Abandoned Driveways. If an existing driveway is to be abandoned with the redevelopment of a property, the owner shall remove the unused driveway apron at his or her expense. The owner shall also replace any dropped curb section along the street at an abandoned driveway with a new curb of a design approved by the City Engineer.

(d) Access Required. If any lot, by reason of location or size, cannot be developed in accordance with the requirements of this chapter, access shall be provided at locations which most closely comply with this chapter. Under no circumstances shall access be denied to any property.

(Ord. 1906-84. Passed 5-21-84.)

1290.07 LOCATION REQUIREMENTS.

The proposed location of an access drive shall make provision for:

(a) Automotive and pedestrian safety.

(b) Traffic flow and control.

(c) Accessibility for emergency vehicles.

(d) The economic, noise, glare or odor effects of the proposed access drives, loading areas and parking areas on adjoining properties.

(Ord. 1906-84. Passed 5-21-84.)

1290.08 PERMIT DENIALS; APPEALS.

(a) Within ten days after receiving the site plan, the Building Department shall approve or disapprove the location of the proposed access drive. If the decision is negative, the Building Department shall state the reasons in writing.

(b) Appeals from the decision of the Building Department shall be filed with the Secretary of the Board of Zoning and Building Appeals within thirty days of such decision.

(Ord. 1906-84. Passed 5-21-84.)

1290.09 CULVERTS.

Driveway culverts shall be installed at the property owner's expense and in accordance with specifications of the City Engineer.

(Ord. 1906-84. Passed 5-21-84.)

1290.10 TRAFFIC FLOW.

The issuance of a permit for any driveway shall not obligate the City to allow and/or provide for specific traffic turning movements that may be shown on such application if, at any time, in the opinion of the proper City officials, the traffic flow conditions on the adjacent street would become congested and/or hazardous due to the turning movements, which may be prohibited by installation of traffic control devices and/or barrier curbs.

(Ord. 1906-84. Passed 5-21-84.)

1294.08 LIGHTING LAWS.

(a) All exterior lights and illuminated signs shall be designed, located, installed and directed in such a manner as to prevent objectionable light at the property lines and disability glare at any location on or off the property. The "maintained horizontal illuminance recommendations" set by the Illuminating Engineering Society of North America (IESNA) shall be observed.

(b) All parking area lighting will be full cut-off type fixtures.

(c) Uplighting is prohibited. Externally lit signs, display, building and aesthetic lighting must be lit from the top and shine downward. The lighting must be shielded to prevent direct glare and/or light trespass. The lighting must also be, as much as physically possible, contained to the target area.

(d) All building lighting for security or aesthetics will be full cut-off or a shielded type, not allowing any upward distribution of light. Floodlighting is discouraged, and if used, must be shielded to prevent:

(1) Disability glare for drivers or pedestrians;

(2) Light trespass beyond the property line; and

(3) Light above a 90 degree, horizontal plane. Wallpack type fixtures are not acceptable.

(e) Adjacent to residential property, no direct light source will be visible at the property line at ground level or above.

(f) All non-essential lighting will be required to be turned off after business hours, leaving only the necessary lighting for site security. "Non-essential" can apply to display, aesthetic, parking and sign lighting.

(Ord. 3989-2004. Passed 1-20-04.)

CHAPTER 1285
Parking, Loading and Lighting

1285.01 Purpose.
1285.02 General Requirements.
1285.03 Required Parking Spaces.
1285.04 Parking Design.
1285.05 Loading.
1285.06 Driveways.
1285.07 Sidewalks.
1285.08 Illumination of Parking Areas.

1285.01 PURPOSE.
The purpose of this chapter is to prescribe regulations for off-street parking in all zoning districts; to ensure that adequate parking, access and connectivity are provided in a safe and convenient manner; and to afford reasonable protection to adjacent land uses from light, noise, water runoff and other effects of parking lot proximity.

1285.02 GENERAL REQUIREMENTS.
(a) Applicability. For all new buildings and uses, accessory off-street parking shall be provided as required by this chapter. In addition, the following shall also apply:
   (1) Whenever the use of a building or lot is changed to another classification of use, off-street parking facilities shall be provided for that use.
   (2) If the parking demand of any use is increased through the addition of floor area, increase in seating capacity or by other means, additional off-street parking shall be provided.
   (3) Existing off-street parking facilities shall not be reduced below the requirements of this chapter, nor shall existing nonconforming parking facilities be further reduced or made more nonconforming.
   (4) An area designated as required off-street parking including areas reserved for landbanked parking shall not be changed to another use unless sufficient parking is provided elsewhere in accordance with the provisions of this chapter.

(b) Location.
   (1) Off-street parking facilities for one and two-family dwellings shall be located on the same lot as the building(s) they are intended to serve.
   (2) Off-street parking facilities for all other uses shall be located on the lot where the parking is required, except as provided in *Section 1225.02(c)*. In the event that required parking is proposed on a lot in common ownership or leasehold with the lot where the parking is required, the applicant must present and record a permanent easement and parking agreement for access and parking.

(c) Shared Parking.
   (1) Two or more buildings or uses may share parking facilities, provided the number of parking spaces available equals the required number of spaces for all the uses computed separately. Total required parking may be reduced by the Planning Commission where it can be determined that one or more of the factors listed in *Section 1285.02(d)* applies.
   (2) Parking facilities for a place of worship or similar sporadically used facility may be used to meet up to 50% of the off-street parking for theaters, stadiums and other places of public assembly, stores, offices and industrial buildings within 300 feet of the facility, as measured from the nearest edge of the parking area to the nearest public entry point of the building or use provided that the facility makes the spaces available and there is no conflict between peak times when the

uses are in need of the parking facilities.

(3) A shared parking plan shall be enforced through written agreement among all owners of record and shall be included in the development plan filed with the City. The owner of the shared parking area shall enter into a written agreement including access and parking easements, with authorization for enforcement by the City.

(d) Modification of Parking Requirements. The Planning Commission may reduce the parking space requirements of this chapter for any use, based upon finding that one or more of the following conditions exist:

(1) Other forms of travel (such as transit, bicycle or pedestrian) are available and likely to be used and, in particular, the site design will incorporate bicycle parking facilities and pedestrian connections.

(2) Shared parking is available to multiple uses where there will be a high proportion of multipurpose visits or where uses have peak parking demands during differing times of the day or days of the week and a shared parking agreement is in place.

(3) The applicant has provided a parking study, conducted by a qualified transportation engineer, demonstrating that another standard would be more appropriate based on actual number of employees, expected level of customer traffic or actual counts at a similar establishment.

(e) Landbanked Parking. Where an applicant demonstrates that the parking requirements for a proposed use would be excessive, the Planning Commission may defer the construction of a portion of the required parking. The development plan shall designate areas of the site for future construction of the required parking spaces, meeting the design and dimensional requirements of this chapter. Any area so designated shall be maintained in a landscaped appearance and not occupy required open space or buffer strips or be used for any other purpose. Construction of the additional parking spaces within the landbanked parking area may be initiated by the owner or required by the City, based on parking needs or observation, and shall require approval of an amended development plan which may be approved administratively.

1285.03 REQUIRED PARKING SPACES.

(a) Minimum Required Parking. The minimum number of required off-street parking spaces shall be provided and maintained in accordance with *Table 1285.03-1*.

(1) When units or measurements determining the number of required parking spaces result in a fraction, the number of spaces required shall be the nearest whole number.

(2) Each 24 inches of bench, pew or similar seating facilities shall be counted as one (1) seat.

(3) Where parking requirements are based upon maximum seating or occupancy capacity, the capacity shall be as determined by the building code and fire code.

(4) In the case of a use not specifically listed, the requirement for off-street parking for a specified use which is most similar shall apply.

(5) Unless otherwise indicated, floor area shall be gross floor area of the structure.

(6) All required parking spaces per employee shall be calculated based on the maximum on duty at any given time, not the total employed by the organization.

TABLE 1285.03-1, PARKING REQUIREMENTS BY USE

USE	NUMBER OF PARKING SPACES
Residential Uses	
One and two family dwellings	1 per dwelling unit
Multiple family dwellings	1 per dwelling unit
Assisted living and nursing homes	1 per 4 beds plus 1 per employee
Bed and breakfast inns	1 per guest room
Group homes	1 per 4 occupants

TABLE 1285.03-1, PARKING REQUIREMENTS BY USE	
USE	NUMBER OF PARKING SPACES
Public/Institutional Uses	
Hospitals	1 per 4 beds plus 1 per employee
Libraries, museums and cultural institutions	1 per 400 square feetsquare feet
Places of worship	1 per 4 seats
Schools	1 per employee plus spaces required for areas of assembly
Commercial Uses	
Auto repair establishments	3 per service bay
Auto service stations	1 per employee plus spaces required for other uses such as restaurant, auto repair, auto wash if provided
Auto wash establishments	1 per employee
Banks and financial institutions	1 per 400 square feet
Banquet halls	1 per 3 persons at maximum occupancy
Bars and taverns	1 per 75 square feet or 1 per 3 seats, whichever is greater
Bowling alleys	4 per alley
Dance halls, pool halls and private clubs	1 per 100 square feet of assembly area
Day care establishments	1 per 500 square feet plus 1 per employee
Funeral homes	1 per 75 square feet of assembly rooms
Health and fitness clubs	1 per 200 square feet
Hotels and motels	1 per guest room
Indoor recreation establishments	1 per 3 persons at maximum occupancy
Offices, medical and dental	1 per 200 square feet
Offices, professional	1 per 400 square feet
Restaurants	1 per 100 square feet or 1 per 3 seats, whichever is greater
Retail stores, furniture and appliance	1 per 800 square feet
Retail stores, general	1 per 300 square feet
Retail stores, grocery	1 per 200 square feet
Salons, spas and barber shops	2 per chair
Stadiums, theaters and sports arenas	1 per 4 seats
Industrial Uses	
Industrial establishments	0.75 per employee plus spaces for business vehicles
Warehouse and storage establishments	0.5 per employee plus spaces for business vehicles
Self-storage facilities	1 per employee

(b) Electric Vehicle Parking. Parking spaces that are dedicated to and provided with equipment solely for the purpose of charging electric vehicles shall count toward the total number of required off-street parking spaces on a space for space basis.

(c) Bicycle Parking. All public/institutional and commercial uses shall provide bicycle racks or other facilities for the temporary storage of bicycles within reasonable proximity to a pedestrian entrance into the building. The Planning Commission may waive this requirement if the applicant can provide justification as to why this standard is not appropriate for the use or development.

1285.04 PARKING DESIGN

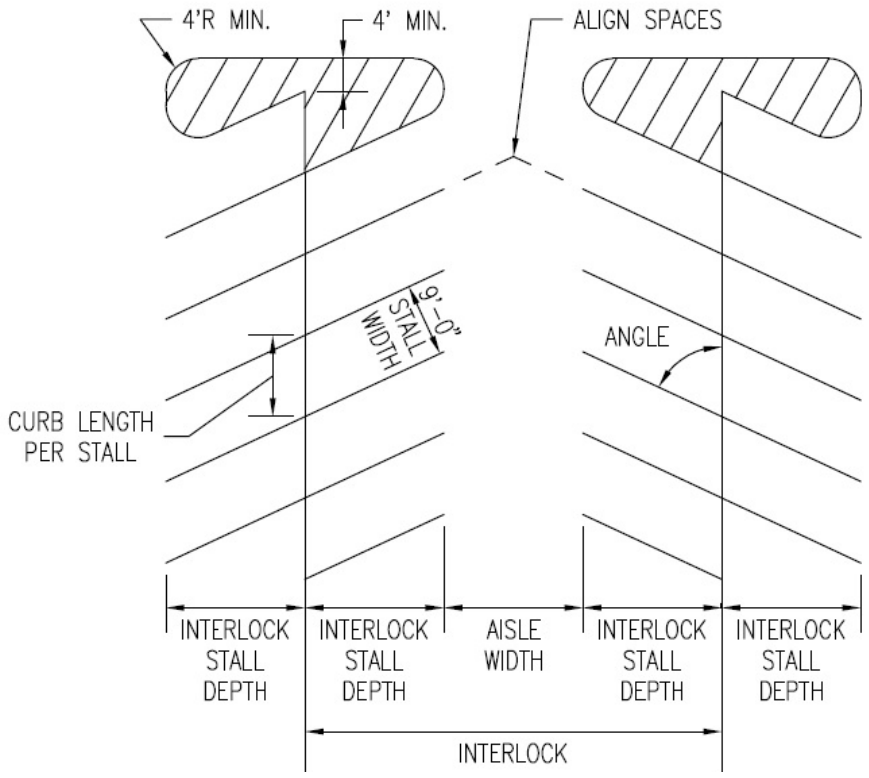
(a) Materials. All parking lots and vehicle and equipment storage areas shall be paved with asphalt or concrete, and shall be graded and drained to remove surface water which might accumulate. The Planning Commission may approve alternative paving materials, such as permeable pavement, for all or a portion of the parking areas, based upon credible evidence of the durability and appearance of the proposed materials.

(b) Dimensions. Parking space and aisle dimensions shall meet the following requirements and as specified in *Table 1285.04-1*.

TABLE 1285.04-1, MINIMUM DIMENSIONAL REQUIREMENTS

Angle	45°	60°	90°
Interlock (ft.)	46	52	60
Aisle Width (ft.)	16	18	24
Interlock Stall Depth (ft.)	15	17	18
Curb Length Per Stall (ft.)	12.7	10.4	9.0

FIGURE 1285.04-2, OFFSTREET PARKING DIMENSIONS AND LAYOUT



(c) Stacking Spaces. In addition to required off-street parking, stacking spaces for drive-through uses shall be provided in accordance with *Table 1285.04-2*, unless the Planning Commission determines that use-specific factors justify a different requirement. Stacking spaces shall be at least 20 feet long

and nine (9) feet wide and shall not block required parking spaces. Where the drive-through waiting lane consists of a single lane for five (5) or more vehicles, site layout shall be designed to allow vehicles to exit the waiting lane. No stacking is permitted within any public right-of-way.

TABLE 1285.04-2, VEHICLE STACKING REQUIREMENTS

Use	Stacking Spaces
Automatic car wash	8 per tunnel
Self-serve car wash or oil change establishment	2 per bay
Bank, ATM, pharmacy, beverage store	5 per window, bay or unit
Drive-through restaurant	10 per pick up window

(d) Ingress and Egress. Vehicular ingress and egress to the parking area shall be provided by means of clearly limited and defined drives. All parking lots shall provide interior access and circulation aisles for all parking spaces. The use of public streets for maneuvering into or out of parking spaces shall be prohibited. Ingress and egress to a parking lot in a non-residential zoning district shall not be through a residential district.

(e) Curbing. A six (6) inch cast-in-place, continuous concrete curb or alternative, as determined by the City Engineer, shall be provided around all sides of any parking lot to protect landscaped areas, sidewalks, buildings or adjacent property from vehicles that might otherwise extend beyond the edge of the parking lot. Curb openings are allowed for storm water drainage.

(f) Fire Lanes. Fire lanes shall be designated on the site and posted with signage prior to occupancy. Vehicle circulation shall meet turning radius requirements established by the Fire Department.

(g) Crosswalks. Pedestrian pathways and crosswalks in parking areas shall be distinguished from driving surfaces through the use of striping or durable, low-maintenance, surface materials such as pavers, bricks, or scored, stamped or colored concrete.

(h) Accessible Parking. Within each parking lot, signed and marked barrier free spaces shall be provided in accordance with the applicable requirements of federal, state and local codes.

1285.05 LOADING

(a) Uses Requiring Loading Area. On the same premises with every building used for manufacturing, storage, warehouse, retails sales, consumer services or other uses similarly involving the receipt or distribution of vehicles, materials or merchandise, there shall be provided and maintained on the lot adequate space for standing, loading and unloading in order to avoid undue interference with public use of the streets and parking spaces.

(b) Loading Area Requirements. Loading and unloading spaces shall be paved and, unless otherwise adequately provided for, shall be 12 feet by 50 feet, with 15 foot height clearance. One loading space shall be provided for every 40,000 square feet of floor area or fraction thereof. This requirement shall not apply to retail sales and consumer service uses of less than 10,000 square feet.

(c) Orientation of Overhead Doors. Access and loading bays facing any street, adjacent residential use or residential zoning district, shall have the doors closed at all times, except during the movement of products into and out of the building.

1285.06 DRIVEWAYS

(a) Functional Classification. The roadways listed in *Table 1285.6-1* have been designated by the Northeast Ohio Areawide Coordinating Agency (NOACA) as having a functional classification of

principal arterial, minor arterial or major collector. NOACA's most current list of roadway functional classifications shall govern the regulations of this Zoning Code.

TABLE 1285.06-1, FUNCTIONAL CLASSIFICATION (NOACA)		
FC=3, Principal Arterial:	**FC=4, Minor Arterial:**	**FC=5, Major Collector:**
• Center Ridge Road	• Avon Belden Road • Lear Nagle Road • Lorain Road • Root Road • Sugar Ridge Road	• Bainbridge Road • Chestnut Ridge Road • Cook Road • Mills Road • Stoney Ridge Road

(b) Number of Curb Cuts. The number of driveways serving a property in any non-residential zoning district shall be the minimum number necessary to provide reasonable access while preserving traffic operations and safety along the public street. Adjacent parcels in common ownership fronting on the same street shall be considered as one parcel when determining permitted driveways.
(1) Driveways shall be limited to one (1) per lot or parcel of land per road frontage.
(2) One (1) additional driveway may be allowed for properties with a continuous frontage greater than 400 feet or if the Planning Commission determines additional access is justified without compromising traffic operations along the public street.

(c) Driveway Spacing Standards. The following minimum spacing requirements shall apply to all curb cuts and driveways within any non-residential zoning district.

TABLE 1285.06-2, DRIVEWAY SPACING STANDARDS	
Roadway Type	**Minimum Distance**
Arterial	160 ft.
Collector	120 ft.
Local	40 ft.

(1) These driveway spacing standards are guidelines and will be required if such distances can be achieved given the property limits and site layout. However, in some cases these distances may not be feasible given the existing lot configuration. In these instances, the Planning Commission will make a determination as to what spacing will be required, and whether or not a driveway will be required to be directionally restricted in lieu of not meeting the required spacing.
(2) Spacing between a proposed driveway and a street intersection shall not be less than the distances in *Table 1285.06-2.* Measurements are from the near edge of the proposed driveway, measured at the throat perpendicular to the street to the near lane curb or pavement edge of the intersecting street.

(d) Driveway Width. For any driveway serving a non-residential zoning district, the minimum width of a one-way driveway shall be 15 feet and the minimum width of a two-way driveway shall be 24 feet. The maximum width of any non-residential driveway shall be 35 feet. Width shall be measured along a line parallel to the centerline of the street at the street right-of-way line. The City Engineer may alter width requirements based on the type of vehicle traffic the use is expected to generate.

(e) Cross Access Encouraged. Cross access between adjacent non-residential properties is encouraged for convenience, safety and efficient circulation of vehicles. A mutual access agreement shall be executed where cross-access is provided.

(f) Construction Requirements. All driveways shall be constructed in accordance with the requirements

established by the City Engineer.

1285.07 SIDEWALKS

Sidewalks shall be constructed as required in *Chapter 1024*. Where sidewalks are not located within the right-of-way, but proposed to be located on private property, a public access easement shall be provided to the City and recorded as a condition of development plan approval.

1285.08 ILLUMINATION OF PARKING AREAS

(a) Applicability. The Planning Commission shall review plans for illumination of parking areas for any development plan subject to its review under *Chapter 1243* involving new lighting or changes to existing lighting as provided in this Section.

(b) Exterior Lighting Plan Required. A lighting plan shall include the following elements:
   (1) A site plan to scale showing location of all exterior light fixtures. Include property boundaries, building location(s), parking lot layout, pedestrian paths, adjacent rights-of-way, north arrow and scale.
   (2) Specifications, cut sheets and/or drawings for all exterior light fixtures and poles, along with a description of any dimming systems or other proposed lighting controls.
   (3) A photometric plan defining the limits of each lighting calculation area where illumination is proposed plotting the light levels in footcandles on the ground. The limits of each lighting calculation area shall be clearly indicated. Maximum illuminance levels should be expressed in footcandle measurements to the nearest 0.1 footcandle on a grid of the site showing footcandle readings at no greater than a 10-foot square. The grid shall include light contributions from all sources on the site and show footcandle readings five (5) feet beyond the property lines.
   (4) A calculation summary indicating footcandle levels on the photometric plan, noting the minimum, maximum and average footcandles, light loss factor and uniformity ratios for each lighting calculation area. Include in the summary lamp wattages of all proposed luminaires and mounting heights of fixtures.

(c) Fixtures. Exterior lighting fixtures shall be installed in a manner to prevent light pollution in the forms of light trespass and glare and to preserve, protect and enhance the character of the City.
   (1) Full Cut-off Required. All exterior pole lighting fixtures used to illuminate off-street parking areas shall be full cut-off and shall be arranged to deflect the light away from adjoining properties and adjacent streets. Exterior building lighting fixtures used to illuminate sidewalks, entrances and service areas shall also be full-cut off fixtures.
   (2) Canopy Lighting. Light fixtures mounted under canopies shall be recessed with flat lenses so that the lens cover is flush with the bottom surface of the canopy. Alternately, indirect lighting may be used where light is reflected down from the bottom of the canopy.
   (3) Nonessential Lighting. Nonessential lighting for other areas may be installed upon approval of the Planning Commission. This shall include landscape lighting, accent lighting of the structure, decorative lighting and lighting for similar purposes. Light fixtures used to illuminate flags, statues or any other objects mounted on a pole, pedestal or platform shall use a light that will not extend beyond the illuminated object. For upward architectural, landscape and decorative lighting, direct light emission shall not be visible above the building roof line.
   (4) Prohibited Lighting. No flickering or flashing light shall be permitted, except for temporary holiday decorations. The installation of any light fixture not specifically approved as part of a development plan is prohibited.

(d) Luminaire Height. The height of any parking lot light fixture shall not exceed 30 feet above grade. When located within 25 feet of a residential zoning district, the height of a parking lot light fixture shall not exceed 16 feet above grade. The Planning Commission may require lower mounting heights if the adjoining grade is lower than developed grade.

(e) Illumination Levels. The average and maximum illumination levels shall not exceed that permitted for each lighting calculation area type. A lighting calculation area shall be defined as any area where the illumination level equals or exceeds 0.2 footcandle.

(1) Light Trespass. Lighting intensity shall not exceed zero (0) foot candles at the property line when abutting residential zoning districts. All on-site lighting of buildings, lawns and parking areas shall be designed so that no light source will be visible at the ground level of any adjacent residential property or building. No on-site lighting may cause glare onto any public street or vehicle thereon.

(2) Required Illumination Levels. Lighting shall be designed to provide even distribution of illumination and to avoid creating hot spots. Maximum average illumination levels are provided in *Table 1285.08-1*:

TABLE 1285.08-1, ILLUMINATION LEVELS

Lighting Calculation Area Type	Maximum Average Illumination	Maximum Illumination at Any Point
Open parking lots	2.0 fc	5.0 fc
Sidewalks, entrances, pedestrian areas	5.0 fc	12.5 fc
Under service station canopy	15.0 fc	20.0 fc

(3) Exemptions. Because of their unique requirements for providing greater night-time visibility, their need to ensure public safety, and their limited hours of operation, stadiums (which include ball diamonds, playing fields and tennis courts), ampitheaters and similar uses are exempted from the exterior lighting standards as specified above. A lighting plan for these uses shall be established at the time that the request for exterior lighting is made and shall be subject to Planning Commission approval.

(f) Lighting Essential to Safety. Lighting not essential to safety of the public and employees shall be terminated when the site is not occupied. For facilities that are occupied overnight, the lighting shall be reduced to the minimum level necessary.