



#2018-101
Crystal Lake Express Car Wash –
Preliminary/Final PUD and Rezoning upon Annexation
Project Review for Planning and Zoning Commission

<u>Meeting Date:</u>	March 6, 2019
<u>Request:</u>	1. Preliminary/Final Planned Unit Development for a car wash. 2. Rezoning upon annexation of Parcels 6/7 to B-2 PUD.
<u>Location:</u>	5720 & 5804 N. Route 31
<u>Acreage:</u>	8.35 acres
<u>Zoning:</u>	B-2 PUD – General Commercial Planned Unit Development McHenry County R1 – Single-Family Residential
<u>Requested Zoning:</u>	B-2 PUD – General Commercial Planned Unit Development
<u>Surrounding Properties:</u>	North: B-2 – General Commercial Planned Unit Development & McHenry County B-1 – Neighborhood Business South: McHenry County R-1 – Single-Family Residential East: McHenry County R-1 – Single-Family Residential West: B-2 – General Commercial & McHenry County R-1 – Single-Family Residential
<u>Staff Contact:</u>	Kathryn Cowlin (815.356.3798)

Background:

- The subject property is made up of five vacant parcels and one unincorporated residential zoning lot.
- The parcels located in the current city limits previously received zoning approval for a car dealership, which was not constructed.
- The parcels to be annexed is currently a vacant house.
- **The City Council voted on a motion to approve the request at the November 06, 2018 meeting. The motion failed due to questions regarding stormwater and noise.**
- **The City Council granted a waiver of the one-year wait period for resubmittals at the November 20, 2018 meeting to allow the petitioner to resubmit and address the stormwater and noise concerns.**

- **Following the City Council meeting, the Mayor sent the McHenry County Board Chairman a letter sharing the existing flooding concerns of the neighbors. The McHenry County Planning & Development Department’s stormwater engineer has received the information regarding the flooding concerns.**
- **A neighborhood meeting was held by the petitioner on January 14, 2019. During this meeting the neighbors expressed their top three concerns: traffic, noise and stormwater management.**
- **The proposed plans were revised to meet the setback requirements, eliminate the sign variations/EMC sign and the detention basin was adjusted to have a capacity greater than what the code requires.**

Development Analysis:

LAND USE/ZONING

Car Wash lot

- The site is currently zoned B-2 PUD General Commercial. The petitioner is requesting Planned Unit Development approval for the proposed car wash.
- The land use map shows the area as Commerce. This is an appropriate land use designation for the proposed car wash.
- Car washes are a limited use in the B-2 zoning district if all of the special criteria can be met. The proposed car wash meets the criteria and is before the Planning & Zoning Commission since the property is a Planned Unit Development.

Rezoning upon Annexation lot

- Below is a zoning map of the area, the property to be zoned upon annexation is outlined in yellow.
- The requested zoning designation for the vacant residential parcels to be rezoned upon annexation is B-2 PUD. This is consistent with the adjacent property and the Comprehensive Plan.



SITE LAYOUT

- The building has a front yard setback of 80 feet, which meets the UDO standard. The site plan was revised to meet the ordinance after the October Planning & Zoning Commission meeting.
- The rear yard setback is 317 feet and the drive-through payment canopy is located approximately 180 feet from the rear property line.
- The car wash has the appropriate amount of stacking for the drive-through car wash. The UDO requires 5 stacking stalls and the proposed car wash has 7 stacking stalls per lane.

TRAFFIC CIRCULATION

- The entrance located across from Orchard Lane is a full access. This access will be shared with future development of the lots to the south.
- A traffic study was completed and the following improvements were recommended:
 - Adding a dedicated right-turn lane on Route 31 at the proposed full access,
 - A separate left- and right-turn lane at the full access for outboard traffic, and
 - “Do Not Enter” signs where appropriate internally to discourage wrong-way traffic.
- The petitioner has also illustrated a future right-in right-out across from Strong Road. This entrance will be incorporated into future development, but was requested at this time so all the work to be completed in the Route 31 right-of-way would be done at one time.

PARKING

- The parking lot has 2 accessible, 2 employee, 2 customer and 24 vacuum parking spaces. There is no interior retail portion to the carwash so no additional parking is provided.

STORMWATER REVIEW

- The petitioner is constructing a new stormwater detention basin that is much larger for the car wash portion of the site (150% larger) than the ordinance requires. Water from the site will go into the basin and infiltrate into the ground.
- All portions of the development meet or exceed the City’s stormwater ordinance requirements.

NOISE REPORT

- The petitioner hired a sound expert to analyze the existing and future conditions of the area in relation to noise. The report concludes that for the residents to the east, the new ambient noise would be less than the existing conditions. For the residents to the west, if there is no traffic on Route 31, the new ambient noise is negligible.

LANDSCAPING

- The petitioner has provided a landscape plan illustrating trees, shrubs and decorative grasses around the development.
- The detention basins will be seeded with a native prairie seed mix and the bottom of the basin would be seeded with water tolerate plantings.
- Foundation landscaping is illustrated on the north elevation. The UDO requires foundation landscaping along all elevation except where access to a building is provided, the petitioner is requesting a PUD variation from this requirement.
- There are no landscape islands illustrated within the parking lot. All but six spaces are vacuum stalls. The UDO does not distinguish a difference between vacuum stalls and parking spaces, therefore the petitioner is requesting a PUD variation from this requirement.

ARCHITECTURE

- The proposed car wash building meets the required 6 of the 10 commercial UDO design standards.
- The proposed building material is brick with stone along the base and wrapping the columns.
- The end caps have a pitched roof with a metal roofing material while the middle section of the building is a flat roof.

SIGNAGE

- The petitioner has revised the request and the freestanding sign and wall signs meet the UDO standards.

Findings of fact:

PRELIMINARY/FINAL PLANNED UNIT DEVELOPMENT

The petitioner is requesting approval of a Preliminary and Final Planned Unit Development for a car wash. A Planned Unit Development is a Special Use and Special Uses require separate review because of its potential to impact surrounding properties and the orderly development of the City.

Section 2-400 B General Standards for all special uses in the Unified Ordinance establishes standards for all special uses in Crystal Lake. Briefly, the criteria are as follows:

1. The use is necessary or desirable, at the proposed location, to provide a service or facility which will further the public convenience and general welfare.

Meets *Does not meet*

2. The use will not be detrimental to area property values.
 Meets *Does not meet*
3. The use will comply with the zoning districts regulations.
 Meets *Does not meet*
4. The use will not negatively impact traffic circulation.
 Meets *Does not meet*
5. The use will not negatively impact public utilities or municipal service delivery systems. If required, the use will contribute financially to the upgrading of public utilities and municipal service delivery systems.
 Meets *Does not meet*
6. The use will not negatively impact the environment or be unsightly.
 Meets *Does not meet*
7. The use, where possible will preserve existing mature vegetation, and provide landscaping and architecture, which is aesthetically pleasing, compatible or complementary to surrounding properties and acceptable by community standards.
 Meets *Does not meet*
8. The use will meet requirements of all regulating governmental agencies.
 Meets *Does not meet*
9. The use will conform to any conditions approved as part of the issued Special Use Permit.
 Meets *Does not meet*
10. The use will conform to the regulations established for specific special uses, where applicable.
 Meets *Does not meet*

In addition PUDs must also meet the standards in Section 4-500 C. Development Standards and 4-500 D. 1 Additional Standards for Planned Unit Developments Commercial PUDs.

1. Implements the vision and land use policies of the Comprehensive Plan.
 Meets *Does not meet*
2. Shall not result in substantial adverse effect on adjacent property, natural resources, infrastructure, public sites or other matter of public health, safety and welfare.
 Meets *Does not meet*
3. PUDs must provide transitional uses to blend with adjacent development.
 Meets *Does not meet*

4. PUD phases must be logically sequenced.
 Meets Does not meet
5. The density and intensity of a PUD shall be in accordance with the Comprehensive Plan.
 Meets Does not meet
6. All dimensional standards shall be listed within the PUD plan if they do not meet the Ordinance minimum standards.
 Meets Does not meet
7. The responsible parties for all on-site and other required public improvements shall be established and a utility plan indicating all proposed easements shall be provided.
 Meets Does not meet
8. Any private infrastructure shall comply with the city standards.
 Meets Does not meet
9. The PUD plan shall establish the responsibility of the applicant/developer.
 Meets Does not meet
10. A bond or letter of credit shall be posted to cover required fees or public improvements.
 Meets Does not meet
11. Location: A commercial PUD can be located in the B-1 Neighborhood Commercial, B-2 General Commercial, B-4 Downtown Business and W Watershed Districts or any land proposed for annexation.
 Meets Does not meet
12. Permissible uses: A mix of retail and office with residential above street level uses is encouraged in the B-4 Downtown Business, Virginia Street Corridor Overlay District and the Watershed District.
 Meets Does not meet

Full service and automatic vehicle wash uses must comply with the following standards:

1. Drive-through criteria: The use must comply with applicable drive-through standards established in Section 203C-7.
 Meets *Does not meet*
2. Equipment: Details for all automatic car wash equipment to be installed within the building must be provided.
 Meets *Does not meet*
3. Towel drying area: An adequately large, outdoor or indoor, paved, hand-towel drying area must be provided. The hand-towel drying area must be exclusive of drive-aisles which

carry cross-traffic and parking spaces for employees or different users.

Meets

Does not meet

Planned Unit Development Variation

The purpose of Planned Unit Developments is to encourage and allow more creative and imaginative design of land developments than is possible under district zoning regulations. Planned Unit Developments are, therefore, intended to allow substantial flexibility in planning and designing a proposal. This flexibility is often in the form of relief from compliance with conventional zoning ordinance site and design requirements which may otherwise require individual requests and applications for zoning variations.

Ideally, this flexibility results in a development that is better planned, contains more amenities, and is ultimately more desirable than one that would have been produced through compliance with typical zoning ordinance and subdivision controls.

Therefore more lenient site requirements may be granted where the Planned Unit Development contains features not normally required of traditional developments. Although a formal variation request is not required to be made in conjunction with a Planned Unit Development, Staff identifies those aspects of the Planned Unit Development which effectively result in variations from UDO requirements. If the evidence is not found to justify these variations from the UDO that fact shall be reported to the City Council with a recommendation that the variations from the UDO which are proposed as part of the Planned Development be lessened or denied.

The Planned Unit Development proposed by the Petitioner includes the following variations from the UDO:

1. Article 4-400 Landscape and Screening, to allow greater than 10 parking spaces without landscape islands for the parking and vacuum stalls.
2. Article 4-400 Landscape and Screening, to allow no foundation landscaping along the east, west and south elevations.

The proposed car wash was placed on the lot to match the existing setbacks along Route 31. The parking lot has less than 10 parking stalls, but has 24 vacuum stalls without landscape islands. The UDO does not provide for a distinction between the types of stalls, therefore a variation from the landscaping standards is required. The parking and vacuum area does have perimeter landscaping to soften the impervious surface and screen the area from Route 31.

Comprehensive Land Use Plan 2030 Vision Summary Review:

The Comprehensive Plan designates the subject property as Commerce, which allows for existing and future commercial uses. The following goal is applicable to this request:

Land Use - Commerce

Goal: Maintain a dynamic and sustainable base of commercial uses that provides a solid tax base, goods, services and jobs to the city, as well as, the surrounding region through coordination in the Unified Development Ordinance, Comprehensive Land Use Plan and Economic Development Strategic Plan.

This can be accomplished with the following supporting action:

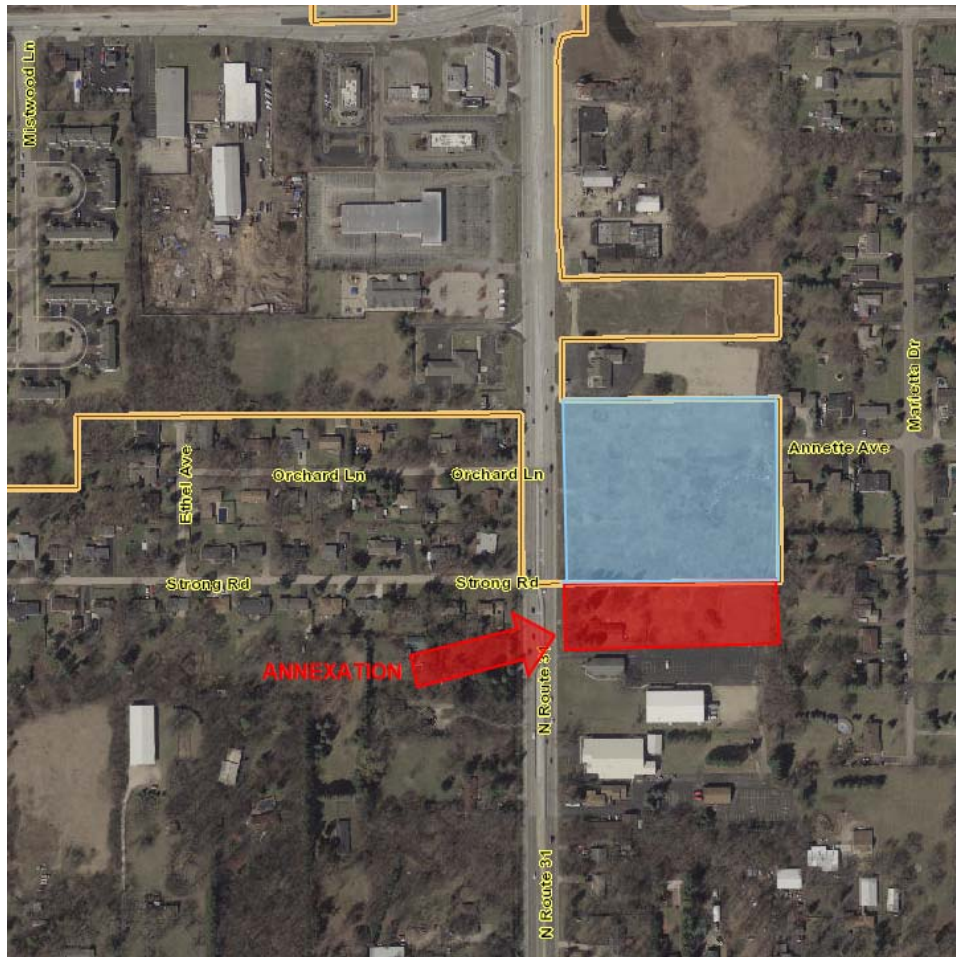
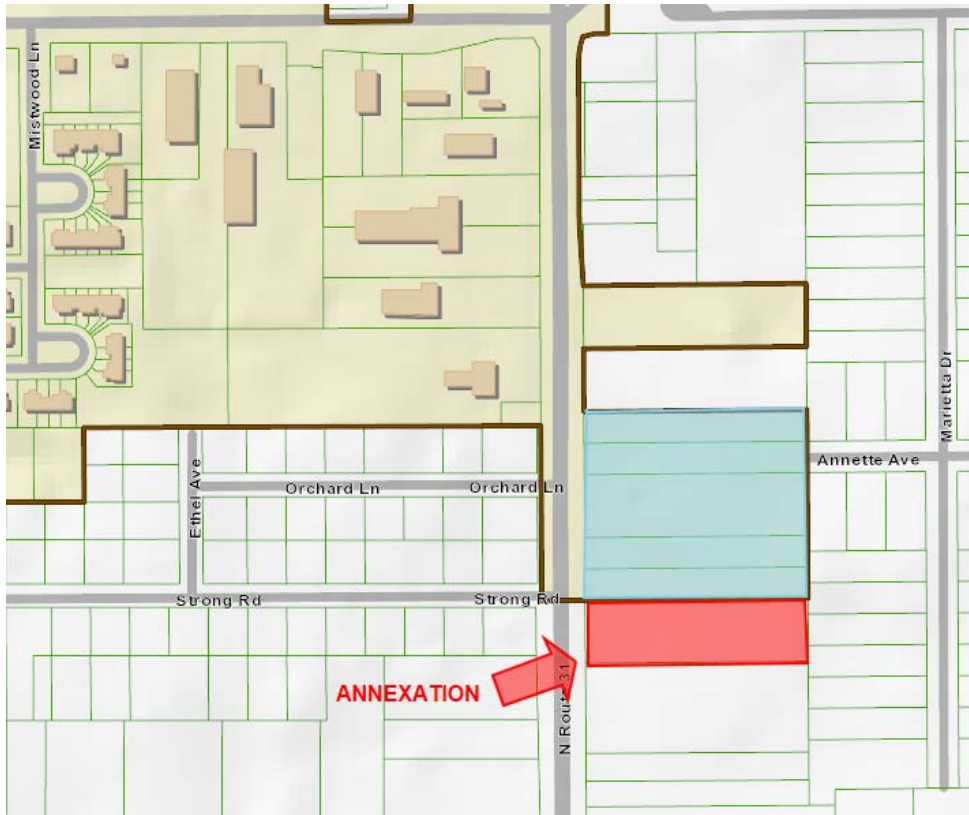
Supporting Action: Promote, retain and attract businesses that provide a diverse tax base.

Recommended Conditions:

If a motion to recommend approval of the petitioner's request is made, the following conditions are recommended:

1. Approved plans, reflecting staff and advisory board recommendations, as approved by the City Council:
 - A. Application (Spring Creek LLC, dated 02/13/19, received 02/13/19)
 - B. Plat of Survey (M. Gingerich, Gereaux & Assoc., dated 03/21/18, received 08/28/18)
 - C. Plat of Annexation (M. Gingerich, Gereaux & Assoc., dated 03/21/18, received 08/28/18)
 - D. Elevations (ARSA, dated 07/30/18, received 08/28/18)
 - E. Colored Elevations (ARSA, received 02/13/19)
 - F. Sign Elevation (Grate Signs, dated 07/17/18, received 02/13/19)
 - G. Landscape Plan (WMA, dated 02/12/19, received 02/13/19)
 - H. Site Plan (M. Gingerich, Gereaux & Assoc., dated 02/04/19, received 02/13/19)
 - I. Photometric Plan (LSI, dated 05/24/18, received 08/28/18)
 - J. Engineering Plan (M. Gingerich, Gereaux & Assoc., dated 02/28/19, received 03/01/19)
 - K. Stormwater Report (M. Gingerich, Gereaux & Assoc., dated 02/28/19, received 03/01/19)
 - L. Traffic Study (GHA, dated 08/03/18)
 - M. Sound Study (Acoustic Associates, dated 02/26/19, received 03/01/19)
2. Landscape Plan:
 - A. Add foundation plantings along the foundation of the car wash building.
 - B. Add landscape screening west of the detention basin in the rear. The landscaping screen must be a mix of spruce, pine and deciduous trees.
 - C. The area to the east of the landscape screening must be planted with a native prairie mix and maintained as conservation open space.
3. The photometric plan must comply with the UDO requirements for site lighting.
4. All mechanical equipment including roof mounted equipment must be screened per the UDO.
5. The vacuum hose arch supports shall be of a neutral color and complimentary to the building color.
6. Future development will require a Final PUD Amendment and approval. The future development must have the same or complementary building materials as the car wash.
7. The petitioner shall address all of the review comments and requirements of the Community Development, Public Works and Fire Rescue Departments, as well as the City's traffic consultant, Gewalt Hamilton Associates and the City's stormwater consultant, Christopher B. Burke Engineering.

PLN-2018-00101 CRYSTAL LAKE EXPRESS CAR WASH – EAST RT 31 ACROSS FROM ORCHARD LN.



11. 455 Coventry Lane, Suite 112 – *Approved the Planning and Zoning Commission recommendations and adopted an Ordinance granting a Special Use Permit for a Massage Establishment at 455 Coventry Lane, Suite 112.*

12. 851 W. Route 176, Crystal Lake Park District – *Approved the Planning and Zoning Commission recommendations and adopted an Ordinance granting a Special Use Permit Amendment to allow changes to the lighting standards at Lippold Park.*

14. Fairfield Inn & Suites, 900 Cog Circle – *Approved the Planning and Zoning Commission recommendations and adopted an Ordinance approving the Final Planned Unit Development Amendment and the City to upgrade the section of Cog Circle providing access to Fairfield Inn and Suites at 900 Cog Circle.*

13. 5720-5902 N. Route 31 – Annexation Public Hearing, Preliminary and Final Planned Unit Development for a Car Wash with Electronic Message Center Sign, and Rezoning upon Annexation of Parcels 6 & 7 to B-2 PUD.

Greg Barich of Spring Creek, LLC was present. Mr. Barich advised that he was in agreement with all recommendations of the Planning and Zoning Commission, and the petition complied with all requirements of the Unified Development Ordinance (UDO) including, reduced setback, signage, EMC removal, and that lighting will be turned on 1/2 hour before opening and off 1 hour after opening. He showed an aerial view of the proposed development, noting that although he had purchased the entire property, only Lots 6 and 7 were requested for annexation and rezoning at this time as the other parcels were already annexed and zoned. He stated that the 170 foot express car wash would be manned at all times, an attendant would guide customers on the conveyer; and there would also be two self-serve washes and several wash packages available. He showed the landscape plan, noting that there would be additional plantings on the north side of the buildings, and the grey areas on the plan represented water retention. He showed elevations of the completed building, and advised that his architect and civil engineer were also present to answer any questions. He stated that he had been in business for 23 years and felt that the car wash would be a good fit for the community.

Mayor Shepley advised that although the petition had received a positive recommendation from the Planning and Zoning Commission, the annexation agreement would still require a super majority vote of the City Council to be approved.

Mayor Shepley opened the Annexation Public Hearing. He advised that he understood this was a very serious issue for the surrounding homeowners, but asked the audience to respect the process and rules of decorum, with no cat-calling and booing as had occurred at the Planning and Zoning Commission meeting, which would not be tolerated. He advised that all who wished to speak would be given an opportunity.

Mayor Shepley asked if anyone in the audience wished to speak on the matter.

Public Comments:

Chris Kachiroubas, 5803 Ethel Avenue, stated that his concerns related to having a full access intersection at Orchard Lane and Route 31, and he would prefer a right in/right out intersection. He described safety issues, especially in wintertime, with visibility. He stated that he was also concerned about noise from the car wash blower motors, particularly in the summer when his windows would be open.

Anne Blohm, 4703 Strong Road, stated that she lives in the Orchard Acres subdivision and had recently canvassed surrounding communities and had obtained 48 signatures in opposition to the car wash. She read a lengthy prepared statement with information regarding provisions of the McHenry County Noise

Ordinance concerning public nuisance noise which can be heard 100 feet or more from the lot line, which she said would specifically pertain to the forced air dryers. She also noted provisions pertaining to proximity to sleeping facilities, time of day, duration, and if the noise is recurrent or constant. She listed the standards of the ordinance and stated that this proposal did not meet those standards, including not contributing to the general welfare, detrimental to area homes, and negative impact on the environment. She stated that the proposed development did not meet 5 of the 10 standards in the ordinance. She stated that the Planning and Zoning Commission had discussed decibels, but decibels were not a factor in the noise ordinance provisions. She also requested an additional traffic study because the traffic study had been conducted in the summer and the majority of car wash business would be in the winter. She cited heavy traffic counts in the area, and noted that IDOT has no plans for an intersection at Orchard Lane. She stated that the car wash would have negative impacts on the community from noise, traffic and unsightly views, and that the Council should also consider water runoff from Route 31. She stated that there are plenty of car washes in Crystal Lake, including one farther south on Route 31 in the Wal-Mart outlot. She said that the City has an obligation to be strong and courageous. Regarding possible other developments on the property, she stated that there was a large assortment which would be preferable and a better fit.

Gary Kirchoff, 5609 Marietta Drive, stated that Marietta Drive property owners believe that water runoff from this development will have a negative impact on their neighborhood. He provided information about the Route 31 stormwater systems and underground pipes which he stated do not go to the retention basin, most likely because it is higher than the ditch line. He stated that runoff will combine with stormwater from other areas and empty into the open ditch line, which has already been flooding areas at Marietta Drive/Terra Cotta and Smith Road/Terra Cotta for many years. He quoted McHenry County Stormwater Management Ordinance Articles 4 and 5 and asked the Council to review the document and request a review by the McHenry County Stormwater Management Commission or by Crystal Lake if there is a similar Commission. He stated that additional stormwater in an open ditch line would equate to more groundwater pushing up through basement floors and requested that a full study be done before any approval.

Lisa Riska, 5907 Marietta Drive, stated that she is a neighbor of Mr. Kirchoff and since the reconfiguration of Routes 176 and 31, water now cascades onto her property. She stated that although she supports entrepreneurial efforts, she was concerned about the water since she never had a drop of runoff in the past.

Mayor Shepley asked if anyone else in the audience wished to speak. No one wished to speak. Mayor Shepley closed the Annexation Public Hearing.

City Council Discussion:

Councilman Dawson asked about stormwater management for the area. City Engineer Abby Wilgreen advised that the developer will have to adhere to all stormwater requirements or a building permit will not be issued. In response to Councilman Dawson's further question, Ms. Wilgreen advised that this was the first she had been informed about problems with the IDOT Route 176/31 project, and she would be happy to reach out to IDOT and try to help. Councilwoman Brady asked if IDOT has approved access at Orchard Lane yet and Ms. Wilgreen replied that any work in the Route 31 right of way would require IDOT approval. The traffic study had been submitted to IDOT for their review and approval.

Regarding traffic, Councilwoman Ferguson stated that at certain times of the day, traffic moves very quickly at a high volume and she was concerned about people taking risks and pulling out onto Route 31 when they see a small opening. She also expressed concern about water on the pavement from dripping cars. Ms. Rentzsch advised that the City's Traffic Consultant was present to address any questions the Council may have, but advised that she had measured the wet pavement distance at Matt's Car Wash,

which had been 100 feet, and this proposal would meet the 80 foot setback requirements plus 20 feet until Route 31 pavement, so the drip area should not be an issue.

Lynn Means, Traffic Engineer with Gewalt Hamilton, the City's Traffic Consultant, advised that the traffic study had been performed for peak hour counts in the a.m. and p.m., in July, which represented average conditions. She spoke about the methods used in the study including 2040 traffic volume predictions and how possible mixed-use development of other area parcels had been taken into consideration. She advised that the industry standard for a car wash had been used, and peak data from Mr. Barich's similar operations had been compared to industry standards and seasonal highs. She stated that the traffic study had been based on higher anticipated peak demands, and provided specific information about the levels of service. She stated that traffic queues can be adequately handled onsite, but the report does recommend a right turn lane into the site at the proposed full access for the car wash and the future right-in/right-out to the south.

Mayor Shepley confirmed that Ms. Means works for the City, not the developer. He asked if a right-in/right-out intersection would be warranted at Orchard Lane, and she answered that there were acceptable gaps for a full intersection, but it is anticipated that there would be a predominance of right-in/right-out turns and there would be adequate gaps for left turns coming out onto Route 31.

Councilman Haleblian asked if a u-turn would be legal for a vehicle pulling out heading north on Route 31 to Route 176, and Ms. Means stated she thought this was a legal movement at that intersection.

Councilman Hopkins said that he thought the building looked fantastic and he had no issues with the layout. He said that he did have concerns about the amount of noise, and asked if the sound would be mitigated. Mr. Barich said that the wind door inside the building, which is used after every car, would keep the sound in the building. Councilman Hopkins asked if Mr. Barich's other car wash was near a residential area and Mr. Barich answered that it was near a church and a residential area. Councilman Hopkins thanked the neighbors for expressing their concerns, but said this was the first the Council had heard about the water issues and he would be nervous about making any changes to the area until the cause of the problem had been determined, noting that if it were due to something done by IDOT, the City needed to know that. Ms. Wilgreen advised that the petitioner would be required to have detention basins on the site per the City ordinance requirements.

Mayor Shepley asked if there was any information about the water table in the area, and observed that if the water table is high, detention basins would not do any good. Ms. Wilgreen advised that soil borings would be required to be done on the property. Mayor Shepley said that those should be done before the Council considers going ahead. Ms. Rentzsch advised that a full impervious surface coverage study had been done for the entire site when a car dealership had been proposed for the property in the past and there had been no issues. Mayor Shepley said that had been before the IDOT improvements.

Mr. Barich's engineer, Brian Hertz, said that soil borings had been done and groundwater was not an issue. Mayor Shepley asked what the level of groundwater was, and Mr. Hertz said that he did not have the exact measurement, but it had not been within a couple feet of the surface, which would have required the detention area to be much larger.

Councilman Hubbard said that he had the same concerns as Councilman Hopkins and Mayor Shepley regarding the water issues and he was also concerned with traffic issues in the future with vehicles lining up for Orchard Lane and the potential for traffic trying to cross Route 31. He said he did not want to see a future traffic signal there and wanted assurance one would not be installed. Mayor Shepley said that he doubted one would ever be placed there, noting how many years IDOT would not allow a signal at Main Street and Route 176 because traffic volumes had been too low on Main Street. Ms. Wilgreen agreed. Councilman Hubbard asked what the speed limit is on Route 31 in that area and was advised that it is 40

mph. Councilman Hubbard said that he would like to see the car wash entrance at a different location and a right-in/right-out intersection at Orchard Lane. Councilwoman Ferguson asked if Orchard Lane connected to other streets, and Ms. Wilgreen advised that it connects to Strong Road to the south, but nothing to the west.

Councilman Haleblan said that he had spent a lot of time studying this petition, even having his car washed ten times at the car wash near Wal-Mart. He said that he parked 100 yards from the dryers and then moved back to 300 yards, and when the door is down, there is no noise, but when the door is up, the sound is like a jet taking off. He said that some of the traffic on Route 31 could drown out the noise, but having two or three pickups going through the car wash would mean the door would be down for a very brief period of time, and noise was his main issue.

Referring to Ms. Blohm's comments, Mayor Shepley asked how the McHenry County noise ordinance compared to the City's. Ms. Rentzsch advised that the City's ordinance is similar and prohibits having unreasonable and raucous noise adjacent to a residential area. Regarding Ms. Blohm's comment about the Planning and Zoning Commission discussing decibels, he explained that decibels were basically used to get a baseline to measure the likely impact of the noise.

Regarding the water concerns, Mayor Shepley stated that the City has spent a great deal of time over the past couple of years focusing on water issues, and that "once you go forward, you can't go backward". He recalled residents whose homes had been built in the 1950s saying that those homes should have never been allowed to be built, and he shared the concerns of his fellow Councilmembers regarding water issues. Regarding traffic, he said that if the Traffic Study determined there should be sufficient gaps, he was generally of the view that nothing about making additional curb cuts on Route 31 would make it better, as seen on Randall Road.

In response to Councilman Dawson's question, Ms. Rentzsch stated that Mr. Barich's property consists of 7 parcels. Councilman Dawson stated that everyone has a right to ingress/egress to Route 31, and asked if he would need to build a detention area if he were to build a home on the property. Ms. Wilgreen advised that impervious surface more than 20,000 square feet requires a detention basin. Councilman Dawson said that Mayor Shepley had brought up a good point about the water issues with past developments, but when those developments were approved many years ago, the City did not have the professional consultants it has now, and noted that there had been issues in his Crystal Ridge neighborhood and the homeowners association had been required to fix them. He said that he believed the planned detention is adequate, and 5 or 7 other businesses could be built on the property and cause more congestion. He said that he did not support some of the arguments against approval of the petition.

Councilwoman Brady asked if the dryers could be flipped to the other side of the property, but it was noted that there were residences in that area as well.

Motions and further discussion

Councilwoman Brady moved to adopt an Ordinance authorizing execution of the annexation agreement. Councilwoman Ferguson seconded the motion. On roll call, Councilmembers Brady, Dawson, Ferguson, Haleblan and Hubbard voted yes. Councilman Hopkins and Mayor Shepley voted no. Motion passed with a super majority vote of the City Council.

Councilwoman Brady moved to adopt the Annexation Ordinance and approve the Planning and Zoning Commission recommendations and adopt an Ordinance for rezoning upon annexation and Preliminary and Final PUD for a car wash at 5720-5902 N. Route 31. Councilwoman Ferguson seconded the motion. Councilwoman Ferguson confirmed that the motion included that the City required final verification that all conditions would be met. Mayor Shepley said that if there are any items in question, the Council

should not vote. Councilwoman Brady said that the Council had previously considered a full service car dealership and they were going to use five of the lots, whereas this petition would only use two lots, but if they have to meet the Stormwater Ordinance by using the other five lots, then they will have to do that.

On roll call, Councilmembers Brady, Dawson and Ferguson voted yes. Councilmembers Haleblan, Hopkins, Hubbard and Mayor Shepley voted no. Motion failed.

Councilwoman Brady asked what the concern was if the City has all of the stormwater engineering up front. Mayor Shepley suggested sending the matter back to the Planning and Zoning Commission for further presentation of information regarding the stormwater management plan, but that may not be the best course of action as the Planning and Zoning Commission had already recommended approval without that information, and he asked for Council comments. Councilman Hopkins said a portion of his vote was related to sound and a portion to stormwater. Mr. Barich noted that Matt's Car Wash is 140 ft. long and his would be 170 ft, so the noise would be less.

Mayor Shepley stated that although the Annexation Agreement had been approved, the project had not been approved, and therefore Mr. Barich was under no obligation to move forward, but if he wished, he could go "back to the drawing board" and work with City staff.

Regarding the stormwater concerns, Councilwoman Ferguson said that the City needs to know if IDOT caused the problem. Councilman Dawson said that the City hires professionals to study and review proposals, but the Council was challenging that and inferring the neighbors know more than the professional engineers, and the City Councilmembers were not experts on stormwater. Mayor Shepley said that everyone needs to vote their conscience and there had been a fair disagreement with nothing further to discuss because the motion had failed. He suggested that Mr. Barich may wish to regroup with City staff for further guidance.

15. Discussion Only – Capital Improvement Project – Crystal Creek Culverts.

City Engineer Abby Wilgreen presented information to the Council regarding traffic control and detour routes for the Crystal Creek Culvert project.

Highlights of the presentation included the location, scope, Stormwater Initiatives steps and construction plan:

The Culvert Project includes five locations along Crystal Creek at Dartmoor Drive, McHenry Avenue, Barlina Avenue, Country Club Road and Broadway Avenue. The culverts are over 75 years old and in need of replacement with new, larger culverts to accommodate the 100-year flooding level of protection for stormwater flows. This would be the first step toward improving the flooding along the creek and the surrounding area as part of the City's Stormwater Solutions Initiative. Step 1 would be to upsize the culverts in 2019; Step 2 would be to open up the creek near Lundahl and South Schools, which was anticipated at 5+ years; and Step 3 would be to install new storm sewer (where feasible) in the Country Club area, anticipated in 8+ years.

Construction of each culvert will take three to six weeks to complete with full closure of the roadway and will be done to accommodate the school summer break period and to not impede the Lakeside Festival.

Traffic control options were presented, with a recommendation to do full street closures in the areas of culvert work because of the need to provide a safe work zone for the contractor and because allowing traffic would cause the projects to take three times longer to complete. Ms. Wilgreen presented depictions of the traffic closures and proposed detour routes.



CITY OF
Crystal Lake
ILLINOIS

October 18, 2018

The Honorable Mayor
and City Council

REPORT OF THE PLANNING AND ZONING COMMISSION
Case #PLN-2018-00101 Crystal Lake Express Car Wash

Council Members:

The Planning and Zoning Commission considered the above referenced petition at their October 17, 2018 meeting at which a quorum consisting of members Esposito, Goss, Greenman, Jouron, Philpot, Skluzacek, and Hayden were present.

Mr. Greenman moved to approve the Rezoning upon Annexation of Parcel 6/7 to "B-2 PUD"; Preliminary/Final Planned Unit Development for a car wash ~~with an electronic message center sign~~ for Crystal Lake Express Car Wash located east of Route 31 across from Orchard with the following conditions:

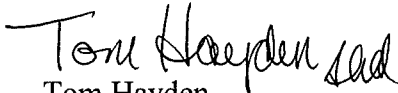
1. Approved plans, reflecting staff and advisory board recommendations, as approved by the City Council:
 - A. Application (Spring Creek LLC, dated 08/27/18, received 08/28/18)
 - B. Plat of Survey (M. Gingerich, Gereaux & Assoc., dated 03/21/18, received 08/28/18)
 - C. Plat of Annexation (M. Gingerich, Gereaux & Assoc., dated 03/21/18, received 08/28/18)
 - D. Elevations (ARSA, dated 07/30/18, received 08/28/18)
 - E. Colored Elevations (ARSA, received 08/28/18)
 - F. Sign Elevation (Grate Signs, dated 06/22/18 & 06/21/18, received 08/28/18 & 10/12/18)
 - G. Landscape Plan (WMA, dated 07/13/18, received 08/28/18)
 - H. Site Plan (M. Gingerich, Gereaux & Assoc., dated 08/22/18, received 08/28/18)
 - I. Photometric Plan (LSI, dated 05/24/18, received 08/28/18)
 - J. Engineering Plan (M. Gingerich, Gereaux & Assoc., dated 08/22/18, received 08/28/18)
 - K. Traffic Study (GHA, dated 08/03/18)
2. Landscape Plan:
 - A. Add foundation plantings along the foundation of the car wash building.
 - B. The area to the east of the landscape screening must be planted with a native prairie mix and maintained as conservation open space.
 - C. **Allow for a variation from Article 4-400 Landscape and Screening, to allow greater than 10 parking spaces without landscape islands for the parking and vacuum stalls.**
3. The photometric plan must comply with the UDO requirements for site lighting. **The outdoor lighting, except for security lighting, must be turned off one (1) hour after closing and no**

sooner than one-half (1/2) hour prior to opening.

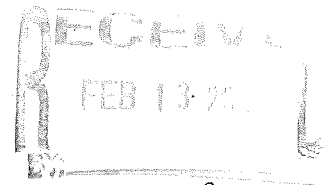
4. All wall signage and directional signage must comply with the UDO requirements.
5. ~~The EMC must be a single amber or white LED and cannot have various shades of amber or white.~~
The monument sign cannot contain and EMC sign.
6. All mechanical equipment including roof mounted equipment must be screened per the UDO.
7. Future development will require a Final PUD Amendment and approval. The future development must have the same or complementary building materials as the car wash.
8. The petitioner shall address all of the review comments and requirements of the Community Development, Public Works and Fire Rescue Departments, as well as the City's traffic consultant, Gewalt Hamilton Associates.
9. **The front yard setback is to be met.**
10. **The vacuum hose arch supports shall be of a neutral color and complimentary to the building color.**

Mr. Goss seconded the motion. On roll call, all members voted aye. Motion passed.

CRYSTAL LAKE PLANNING AND ZONING COMMISSION


Tom Hayden
Chairman

TH/shd



PLN-2018-00101

City of Crystal Lake Development Application

Office Use Only
File # _____

Project Title: Crystal Lake Express Car Wash

Action Requested

- | | |
|---|--|
| <input checked="" type="checkbox"/> Annexation | <input checked="" type="checkbox"/> Preliminary PUD |
| <input type="checkbox"/> Comprehensive Plan Amendment | <input type="checkbox"/> Preliminary Plat of Subdivision |
| <input type="checkbox"/> Conceptual PUD Review | <input type="checkbox"/> Rezoning |
| <input checked="" type="checkbox"/> Final PUD | <input checked="" type="checkbox"/> Special Use Permit |
| <input type="checkbox"/> Final PUD Amendment | <input type="checkbox"/> Variation |
| <input type="checkbox"/> Final Plat of Subdivision | <input type="checkbox"/> Other |

Petitioner Information

Owner Information (if different)

Name: Greg Barich / Spring Creek LLC

Address: 5N755 Denker Road, St. Charles, Illinois 60175

Phone: 630-632-7545

Fax: _____

E-mail: Greg.Barich@yahoo.com

Name: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

Property Information

Project Description: Car wash and annexation of additional land.

Project Address/Location: 8.35 acres, east side of Illinois Route 31

South of Crystal Cove Plaza 5714-16-18 South Route 31

North of Calvary Church 5906 South Route 31

14-34-401-012, 14-34-401-013, 14-34-451-004, 14-34-451-005,

PIN Number(s): 14-34-451-003, 14-34-451-037

Development Team

Please include address, phone, fax and e-mail

Developer: _____

Architect: ARSA Associates/Scott Pritchett / 847-698-4438 O / 847-698-9889 F/ arsa@enteract.com
1411 W. Peterson Avenue, Suite 203, Park Ridge, Illinois 60068

Attorney: Mark S. Saladin
Zanck, Coen, Wright & Saladin, P.C., 40 Brink St., Crystal Lake, IL 60014 (815) 459-8800
msaladin@zcvlaw.com

Engineer: MG2A / Brian Hertz / 815-478-9680 O / 815-478-9685 Fax / BHertz@mg2a.com
25620 S. Gougar Road, Manhattan, Illinois 60442

Landscape Architect: _____

Planner: _____

Surveyor: MG2A / Bob Sluis / 815-478-9680 O / 815-478-9685 Fax / RSluis@mg2a.com
25620 S. Gougar Road, Manhattan, Illinois 60442

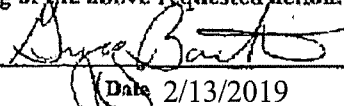
Other: _____

Signatures

PETITIONER: Print and Sign name (if different from owner)

Date

As owner of the property in question, I hereby authorize the seeking of the above requested action.

GREGORY BARICH / Spring Creek LLC 

OWNER: Print and Sign name

Date 2/13/2019

NOTE: If the property is held in trust, the trust officer must sign this petition as owner. In addition, the trust officer must provide a letter that names all beneficiaries of the trust.

Noise Evaluation of the Proposed Car Wash in Crystal Lake

February 26, 2019

Acoustic Associates conducted an analysis to examine the impact of noise from the proposed car wash on Route 31 in Crystal Lake. To accomplish this, we obtained noise data from the car wash that the petitioner operates in Sycamore. To accurately predict the sound levels at various locations surrounding the new car wash, we made measurements near the exit, the entrance, and at different angles from the openings. In addition, we examined the topography of the Crystal Lake site and conducted ambient noise monitoring. This was done to document the current background noise levels near the adjacent residential property.

Based on the blower noise we measured in Sycamore, we projected the noise level to the closest residents east and west of the proposed car wash. In our analysis, we allowed for the reduction in noise due to distance. Based on this analysis, we conclude that the noise from the car wash will meet the Crystal Lake noise code, specifically that the car wash not be “unreasonably loud.”

Current Ambient Noise Levels

To assess if the car wash is “unreasonable loud,” the current **ambient noise** was assessed at the site. To do this, we set up professional grade audio equipment to record the noise from about 10:00 AM on January 9, 2019, to 9:00 AM on the next day. We located this equipment near the residential property to the east of the site because this is the adjacent residential lot that is the farthest from Route 31 – and therefore the lowest ambient noise. The exact location is marked as Location “A” on the aerial photo in **Figure 1** and is about 600 feet from Route 31, a heavily travelled, 4-lane highway.

The recording obtained in the field was analyzed to determine the **A-weighted sound level** at 1-second intervals. These levels are shown by the thin, blue line in **Figure 2**. The high peaks in the curve were typically from motorcycles, trucks, and poorly muffled cars.

The thick, red line shows the hourly, time-averaged sound level. The hourly level is the highest in the late afternoon hours, i.e., 59 dB. After the evening rush hour, the ambient noise tapers off to 45 dB at around 2 AM. After this time, the ambient noise quickly increases reaching regular daytime levels by 6:00 AM.



Figure 1 - Aerial view showing the location used to monitor ambient noise near the adjacent residential community.

Projected Noise Levels

The data obtained at the Sycamore car wash revealed a sound level of **72 dB at 50 feet from the entrance**. The residential property to the east (marked as Location A in **Figure 1**) is about 300 feet from the car wash entrance. Based on this distance, the entrance sound level would drop by 16 dB. The blowers are on ½ of the time during a single car wash. This reduces the time-averaged level by 3 dB. Hence, the time-averaged level of a car wash at the east residential property would be $72 - 16 - 3 = 53$ **dB**. As seen in **Figure 1**, this time-averaged level is below the existing hourly ambient noise from about 5:00 AM until 9:00 PM. Therefore, there would be no impact if the car wash was operated within this time frame.

Ambient noise refers to the existing, all-encompassing sound at a given place in a community. It is a composite of sounds from many sources near and far.

The data obtained at the Sycamore car wash revealed a sound level of **86 dB at 50 feet from the exit**. When the doors were closed, the level dropped to **74 dB**, a level half as loud. The residential property to the west (marked as location B in **Figure 1**) is about 250 feet from the car wash exit. Based on this distance, the sound level would drop by 14 dB. As discussed above, the blowers are on ½ of the time during a single car wash. This reduces the time-averaged level by 3 dB. In addition, there are doors on the exit that substantially lower the noise. If they are closed ½ the time during the blower cycle, this reduces the time-average level by another 3 dB. Hence, the time-averaged level of single typical car wash at the west residential property would be $86 - 14 - 6 = 66$ **dB**.

The **A-weighted sound level** is the metric used to measure sound and is expressed in decibels (dB). Essentially, it is a filter that mimics the human perception of sound by diminishing low frequency sounds.

Since this property is immediately adjacent to Route 31, the ambient noise at this location would be significantly higher than at Location A. Based on the shorter distance and on the ambient noise data at Location A, we estimate an hourly ambient noise level at 9:00 PM (the quietest part of the day) on the west property of 66 dB. Since the predicted time-average level does not exceed the estimated time-averaged level of the ambient noise, there would be negligible impact as long as the wash does not operate past 9:00 PM.

Conclusion

The Crystal Lake noise code prohibits “unreasonably loud and raucous noise.” This translates to limiting the time-average noise to a level not exceeding 5 dB above the ambient noise. Based on our analysis, the car wash would meet this criterion if its hours of operation were limited to 5:00 AM to 9:00 PM. For those residents to the west, there would be times when the car wash is audible. This would occur at times when the blowers are on, the doors are open, and there is a lull in the traffic along Route 31. But moments of audibility does not equate to long-term annoyance. To evaluate a noise source’s potential annoyance, the time-averaged level of the car wash noise must be compared with the time-average level of the existing ambient noise. This is the approach taken in this study.

We did not extend our analysis to residential properties further from the car wash than Locations A or B. This is because these properties would experience lower sound levels than predicted because of the extra distance and because of extra angle to the car wash openings.

Submitted by,



Thomas Thunder, AuD, FAAA, INCE Bd. Cert.
Principal Audiologist and Acoustical Specialist
Adjunct Faculty – Northern Illinois University, Rush University, Salus University

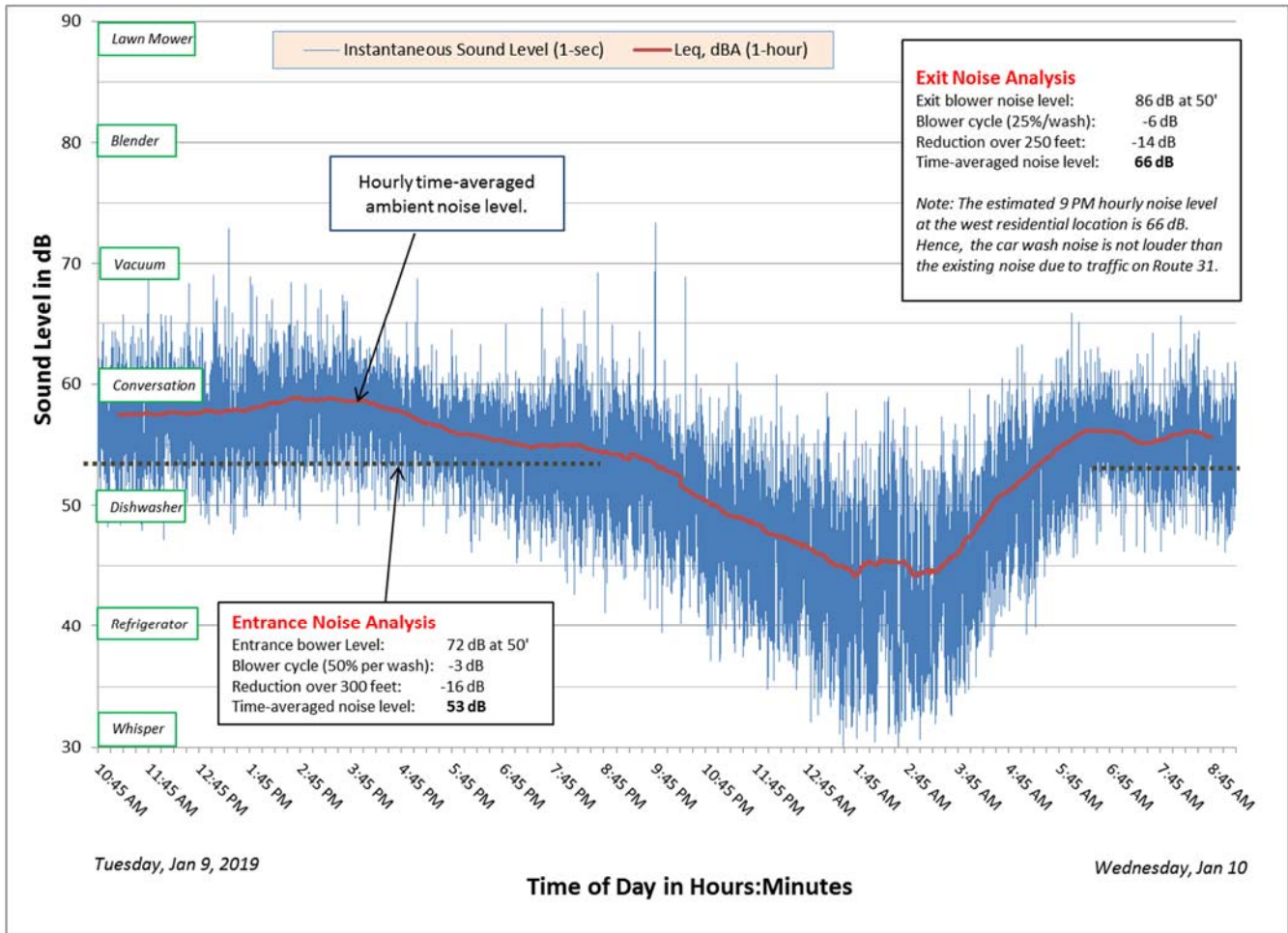


Figure 2 – Plot showing the ambient noise levels measured near the east residential property (Loc A). The projected time-averaged sound level of the car wash at this location is shown as the dotted line. The analysis of both the entrance and exit sound levels is shown in the chart.

PUBLIC NOTICE
BEFORE THE PLANNING AND
ZONING COMMISSION OF THE
CITY OF CRYSTAL LAKE,
MCHENRY COUNTY, ILLINOIS
IN THE MATTER OF THE
APPLICATION OF SPRING CREEK
LLC and FORDHAM CREEK, LLC

LEGAL NOTICE

Notice is hereby given in compliance with the Unified Development Ordinance (UDO) of the City of Crystal Lake, Illinois, that a public hearing will be held before the Planning and Zoning Commission upon the application

of Spring Creek LLC, seeking a Preliminary/Final Planned Unit Development, Rezoning and Variations located at 151, 161 & 5902 N Route 31, Crystal Lake, Illinois. PIN 14-34-401-012, 14-34-401-013, 14-34-451-003, 14-34-451-004, 14-34-451-005 & 14-34-451-037.

This application is filed for the purpose of seeking a Preliminary/Final Planned Unit Development and Variations for a car wash pursuant to Article 4-500 and Article 9-200, with Variations from Article 4-400 Landscape and Screening to allow greater than 10 parking spaces without an island and no foundation landscaping around the west, south and east elevations of the building; as well as any other Variations as necessary to complete the project as proposed. The project also includes rezoning upon annexation of parcel 14-34-451-037 which is owned by Fordham Creek, LLC to B-2 (General Commercial) Planned Unit Development pursuant Article 9-200(B). Plans for this project can be viewed at the Crystal Lake Community Development Department at City Hall.

A public hearing before the Planning and Zoning Commission for this request will be held at 7:30 p.m. on Wednesday, March 6, 2019, at the Crystal Lake City Hall, 100 West Woodstock Street, Crystal Lake, Illinois, at which time and place any person desiring to be heard may be present.

Tom Hayden, Chairperson
Planning and Zoning Commission
City of Crystal Lake

(Published in the Northwest Herald
February 16, 2019) 1632878



WEBSTER, MCGRATH & AHLBERG, LTD.

LAND SURVEYING – CIVIL ENGINEERING – LANDSCAPE ARCHITECTURE

207 S NAPERVILLE ROAD, WHEATON, IL 60187

PH: 630-668-7603 FAX: 630-682-1760 WEB: WWW.WMALTD.COM

received 8-28-18

Date: July 16, 2018

To: Greg Barich
PO Box 442
Wasco, IL 60183
Email: greg.barich@yahoo.com

From: Benedict Bussman, Vice President, PLA

Re: Proposed Crystal Lake Car Wash
Existing Tree Conditions

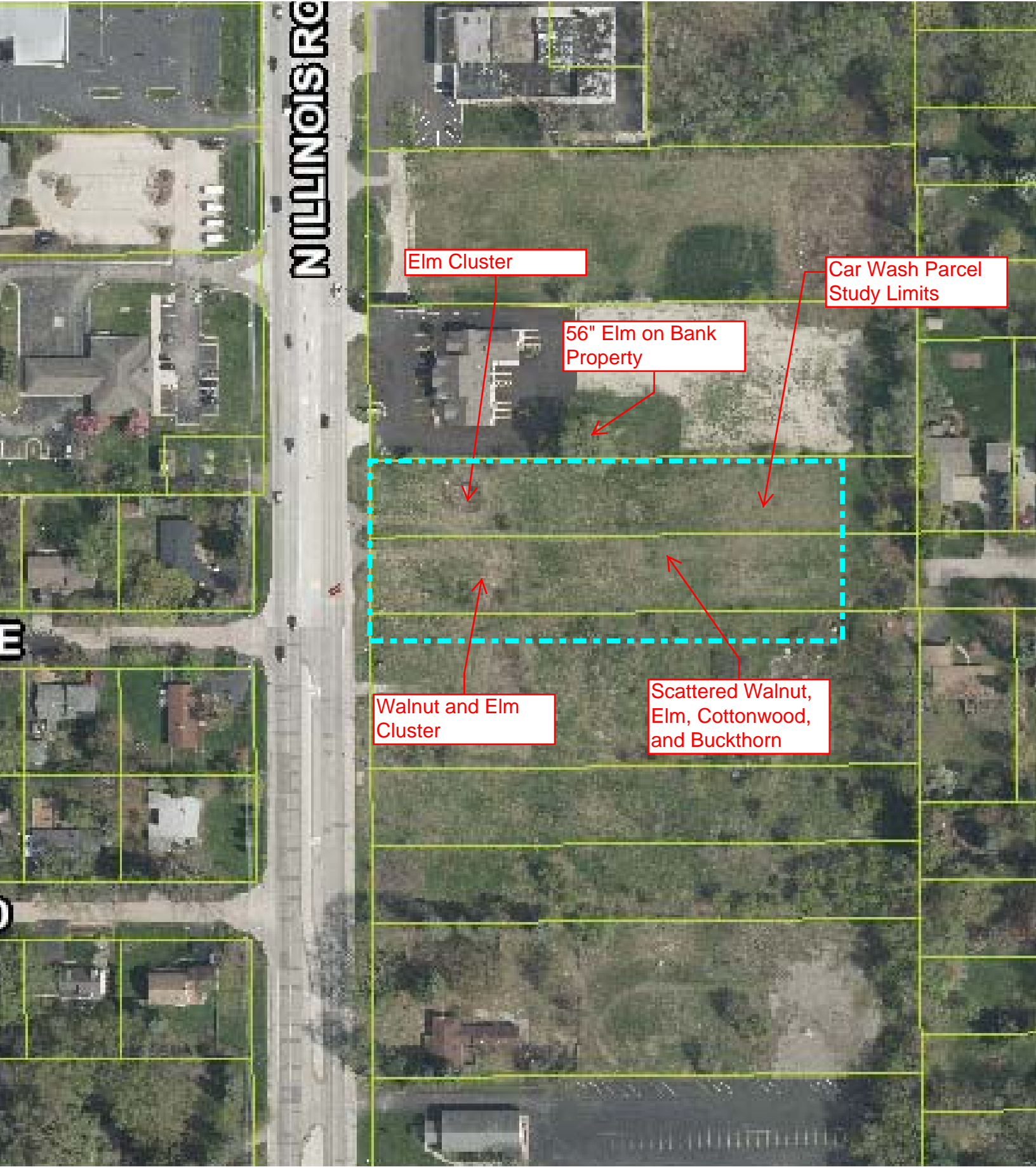
A site visit to determine the size and species of the existing trees on the proposed car wash site west of Route 31, east of Orchard Lane in Crystal Lake was completed July 15, 2018. The trees within the car wash development property include Walnut, Siberian Elm, Box Elder, Cottonwood, and Buckthorn.

All trees found on the car wash parcel are less than 6" DBH and are listed as species C or D within the City of Crystal Lake Unified Development Ordinance. Trees less than 6" DBH in categories C and D would not require replacement per the Ordinance.

The trees are primarily growing as multi stem trees as though the trees we cut several years ago and have since developed multiple trunks.

The large 56" diameter tree on the Wells Fargo parcel is an Elm tree.

See attached Exhibit of our findings.



ILLINOIS RD

Elm Cluster

Car Wash Parcel Study Limits

56" Elm on Bank Property

Walnut and Elm Cluster

Scattered Walnut, Elm, Cottonwood, and Buckthorn

RECEIVED
FEB 13 2019

PLN-2018-00101

Dec 14, 2018

Crystal Lake
\$3 EXPRESS
CAR WASH

Rt81, Crystal Lake, IL



Plate 1

1411 W. Peterson Avenue, Suite 203
Park Ridge, IL 60126 • tel 847-698-4438 / fax 847-698-9889

arsa
associaes
schneider architects

Crystal Lake
\$3 EXPRESS
CAR WASH

Rt81, Crystal Lake, IL

July 10, 2018



Plate 2

1411 W. Peterson Avenue, Suite 203
Park Ridge, IL 60126 • tel 847-698-4438 / fax 847-698-9889

arsa
associaes
schneider architects

Crystal Lake
\$3 EXPRESS
CAR WASH

Rt31, Crystal Lake, IL

July 10, 2018



Plate 3

1411 W. Peterson Avenue, Suite 203
Park Ridge, IL 60126 • tel 847-698-4438 / fax 847-698-9889

arsa
associates
schneider architects

Crystal Lake
\$3 EXPRESS
CAR WASH

Rt31, Crystal Lake, IL

Dec 12, 2018



Plate 4

1411 W. Peterson Avenue, Suite 203
Park Ridge, IL 60126 • tel 847-698-4438 / fax 847-698-9889

arsa
associaes
schneider architects

Crystal Lake
\$3 EXPRESS
CAR WASH

Rt31, Crystal Lake, IL

Dec 14, 2018



Plate 5

1411 W. Peterson Avenue, Suite 203
Park Ridge, IL 60126 • tel 847-698-4438 / fax 847-698-9889

arsa
associates
schneider architects

Crystal Lake
\$3 EXPRESS
CAR WASH

Rt31, Crystal Lake, IL

Dec 14, 2018



Plate 6

1411 W. Peterson Avenue, Suite 203
Park Ridge, IL 60126 • tel 847-698-4438 / fax 847-698-9889

arsa
associaes
schneider architects

ALTA/NSPS LAND TITLE SURVEY

Items Corresponding to Schedule B

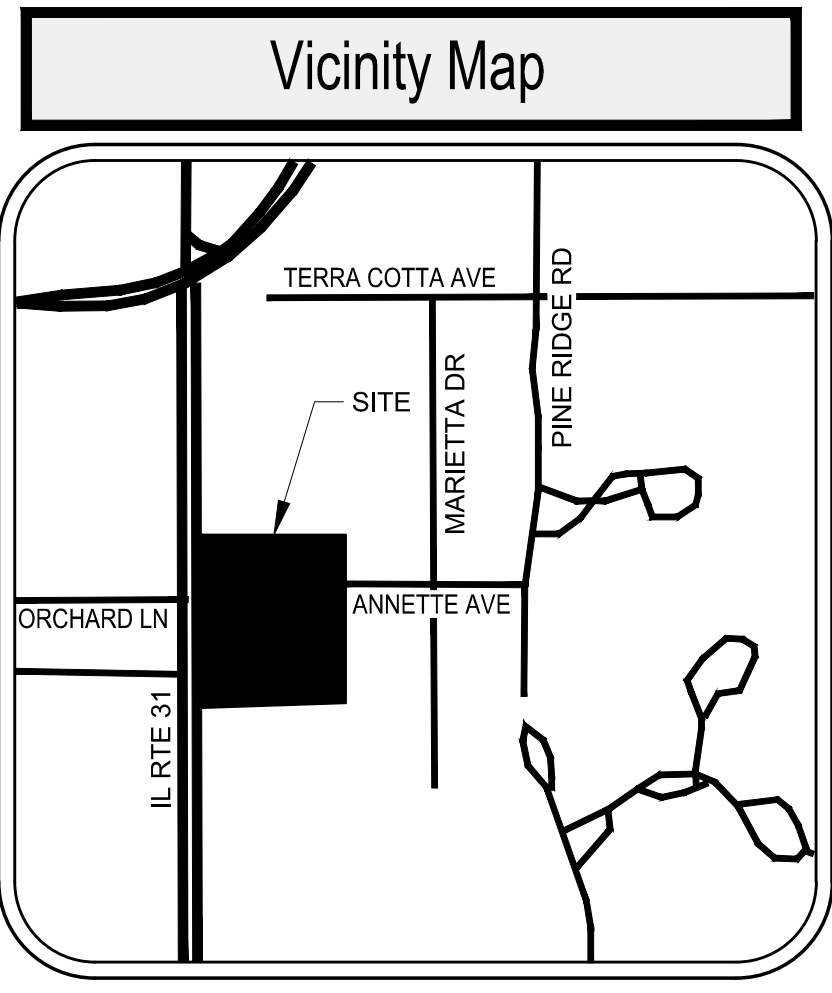
THERE ARE NO SURVEY RELATED ITEMS IN SCHEDULE B IN CHICAGO TITLE INSURANCE COMPANY TITLE COMMITMENT NO. 18ST0065CL WITH AN EFFECTIVE DATE OF MARCH 8, 2018

Miscellaneous Notes

- MN1** DIMENSIONS ON THIS PLAT ARE EXPRESSED IN FEET AND DECIMAL PARTS THEREOF UNLESS OTHERWISE NOTED.
- MN2** AREA = 363,704 SQ. FT. 8.35 ACRES
- MN3** PINS-14-34-401-012, 14-34-401-013, 14-34-451-004, 14-34-451-005, 14-34-451-003 & 14-34-451-037
- MN4** BEARING BASIS IS ASSUMED

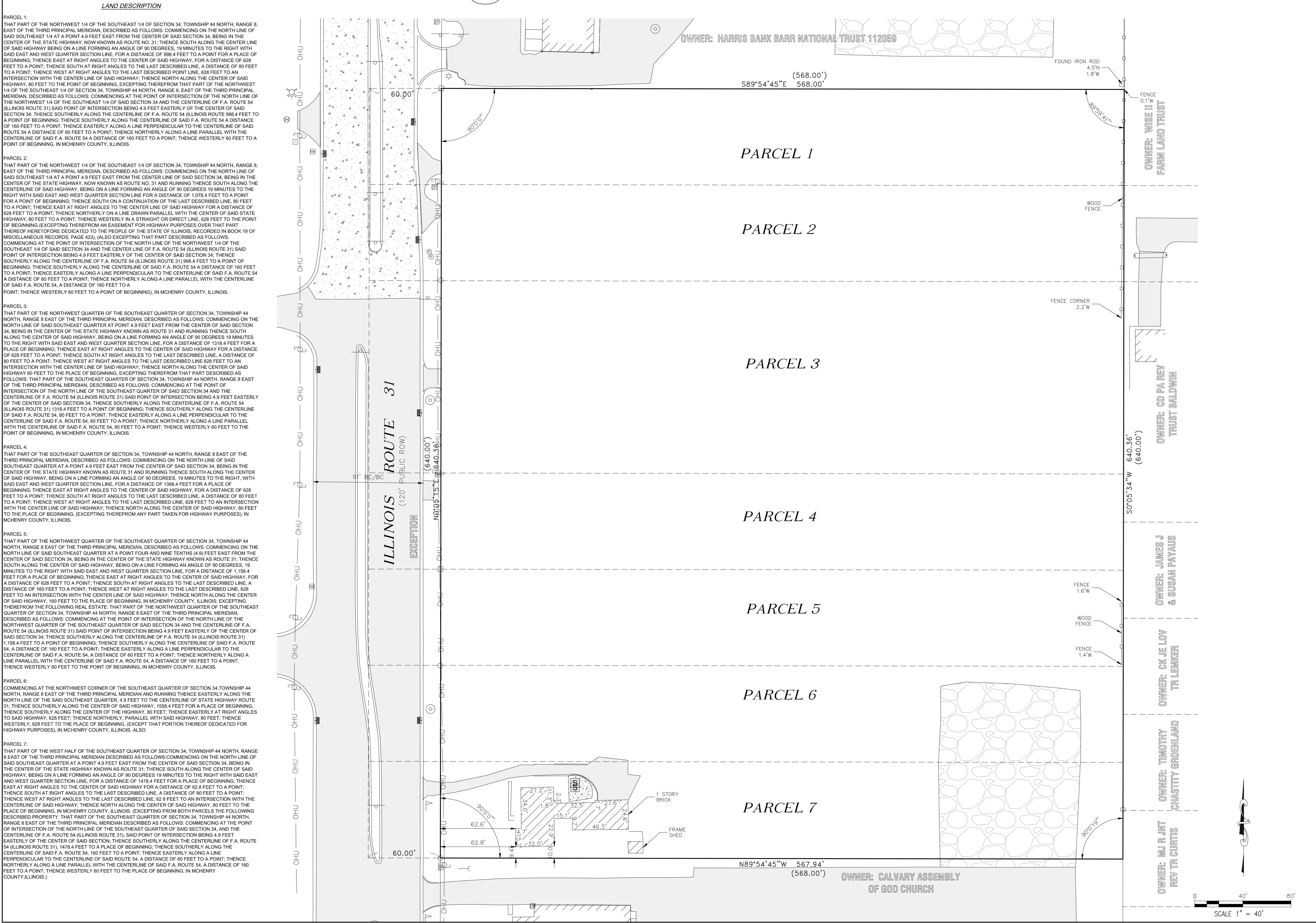
Utility Notes

- UN1** THE LOCATION OF UTILITIES SHOWN HEREON ARE FROM OBSERVED EVIDENCE OF ABOVE GROUND APPURTENANCES ONLY. THE SURVEYOR WAS NOT PROVIDED WITH UNDERGROUND PLANS OR SURFACE GROUND MARKINGS TO DETERMINE THE LOCATION OF ANY SUBTERRANEAN USES.
- UN2** CALL "J.U.L.L.E." FOR FIELD LOCATIONS OF UNDERGROUND UTILITY LINES 1-800-892-0123



Legend of Symbols & Abbreviations

- FOUND IRON PIPE
 - SET IRON ROD
 - FOUND IRON ROD
 - FOUND CUT CROSS
 - SET CUT CROSS
 - FOUND MAG NAIL
 - SET MAG NAIL
 - MEASURED DATA
 - RECORDED DATA
 - P.U.E. PUBLIC UTILITY EASEMENT
 - D.E. DRAINAGE EASEMENT
 - B.S.L. BUILDING SETBACK LINE
- STORM SEWER MANHOLE
 - CURB BLET
 - FLARED END SECTION
 - FOUND CUT CROSS
 - SET CUT CROSS
 - SANITARY SEWER MANHOLE
 - FIRE HYDRANT
 - WATER VALVE
 - WATER VALVE VAULT
 - WELL
 - PELPELNE MARKER
 - LIGHT POLE
 - FLAP/POLE/MAILBOX
 - POWER POLE
 - GUY WIRE
 - SKIN
 - UNKNOWN MANHOLE
- ELECTRIC PEDESTAL TRANSFORMER
 - TELEPHONE PEDESTAL
 - CABLE PEDESTAL
 - WATER METER
 - BUFFALO BOX
 - SEPTIC TANK
 - OVERHEAD UTILITY LINE
 - ASPHALT SURFACE
 - AGGREGATE SURFACE
 - BRICK PAVERS
 - CONCRETE SURFACE



TO: CHICAGO TITLE INSURANCE COMPANY; FORDHAM CREEK LLC, AN ILLINOIS LIMITED LIABILITY COMPANY (PARCELS 3 - 7); SPRING CREEK LLC, AN ILLINOIS LIMITED LIABILITY COMPANY (PARCELS 1 & 2)

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS (-) OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON MARCH 13, 2018.

DATED: 03/13/2018

Robert F. Sluis

ROBERT F. SLUIS
ILLINOIS PROFESSIONAL LAND SURVEYOR #35-3556
LICENSE EXPIRES NOVEMBER 30, 2018



Received 8-28-18

REVISIONS		
BY	DESCRIPTION	DATE
RFS	ISSUED TO CLIENT	3/21/18

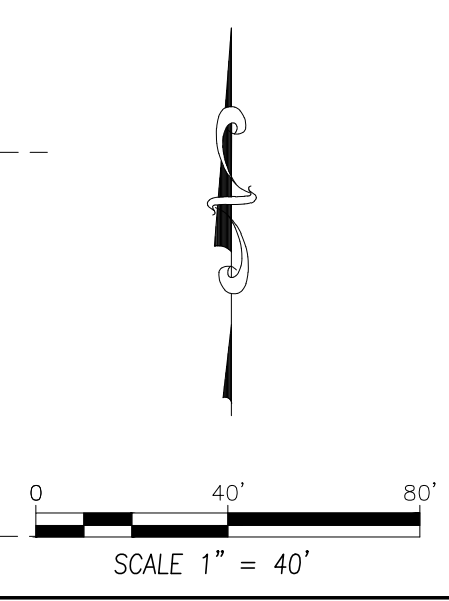
M. GINGERICH, GEREAX
& ASSOCIATES
ENGINEERING * PLANNING * SURVEYING

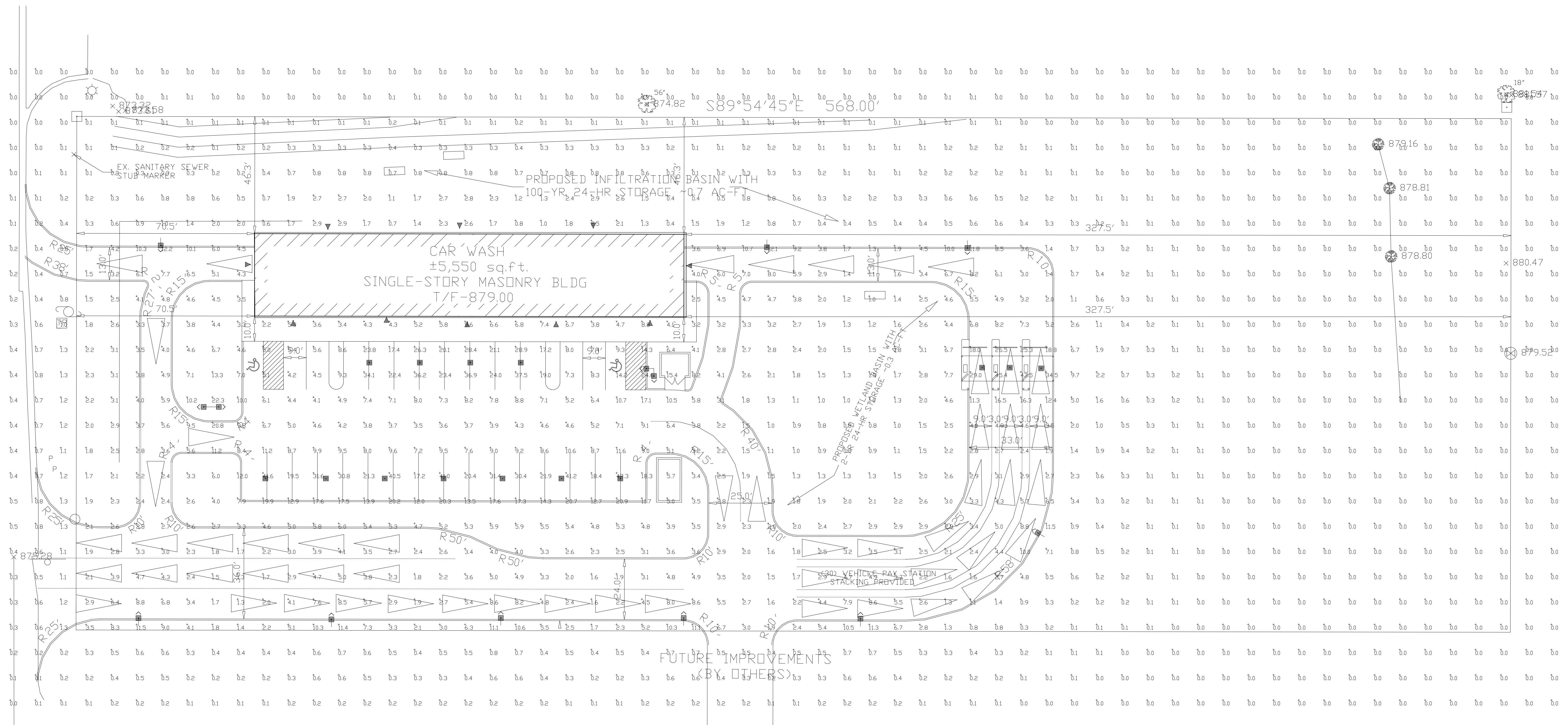
Manhattan Office
25620 S. Gougar Rd
Manhattan, Illinois 60442
PH: 815-478-9689
FX: 815-478-9685
www.mgaa.com Professional Design FIRM #184.005003

ORDERED BY: **GREG BARICH**

DATE ISSUED: 3-21-2018 DR. BY: NB CK. BY: RFS FILE:

JOB NO.: 18-143 PG: 1 of 1





SCV



XLCS



XWM

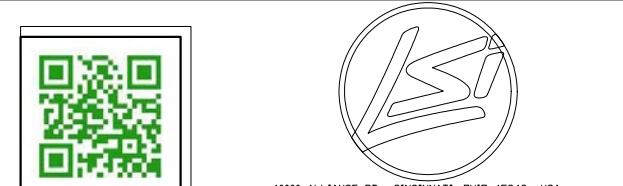
Click image to open Product Page

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ALL CALC POINTS AT GRADE	Illuminance	Fc	2.57	45.4	0.0	N.A.	N.A.
PARKING AND LOT SUMMARY	Illuminance	Fc	5.48	45.4	1.1	4.98	41.27
PAY CANDOPY	Illuminance	Fc	30.13	45.4	18.0	1.67	2.52
VACUUM SUMMARY	Illuminance	Fc	23.91	42.3	11.7	2.04	3.62

Received 8-28-18

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Description	LLF	Arr. Lum. Lumens	Arr. Watts
[Symbol]	9	A	SINGLE	XLCS-FT-LED-HO-CW-SINGLE DN 20' POLE + 2' BASE	1.000	15535	138.6
[Symbol]	3	B	SINGLE	SCV-LED-13L-SC-50 - 12' MH	1.000	12933	84.3
[Symbol]	11	B1	SINGLE	SCV-LED-13L-SC-50 - 10' MH	1.000	12933	84.3
[Symbol]	10	C	SINGLE	XWM-FT-LED-03-50 - 10' MH	1.000	3461	28.2
[Symbol]	1	D	D180°	XLCS-FT-LED-HO-CW-D180 DN 20' POLE + 2' BASE	1.000	31070	277.2
[Symbol]	1	E	2 @ 90 DEGREES	XLCS-FT-LED-HO-CW-D90 DN 20' POLE + 2' BASE	1.000	31070	277.2

Total Project Watts
Total Watts = 3264



LIGHTING PROPOSAL
LO-142902
BARICH RTE 41 CARWASH
CRYSTAL LAKE, IL

SCALE: 1"=20'
SHEET 1 OF 1

Based on the information provided, all dimensions and luminaire locations shown represent recommended positions. The engineer and/or architect must determine the applicability of the layout to existing or future field conditions. This lighting plan represents illumination levels calculated from laboratory data taken under controlled conditions in accordance with the Illuminating Engineering Society (IES) approved methods. Actual performance of any manufacturer's luminaires may vary due to changes in electrical voltage, tolerance in lamps/LEDs and other variable field conditions. Calculations do not include obstructions such as buildings, curbs, landscaping, or any other architectural elements unless noted. Fixture nomenclature noted does not include mounting hardware or poles. This drawing is for photometric evaluation purposes only and should not be used as a construction document or as a final document for ordering product.

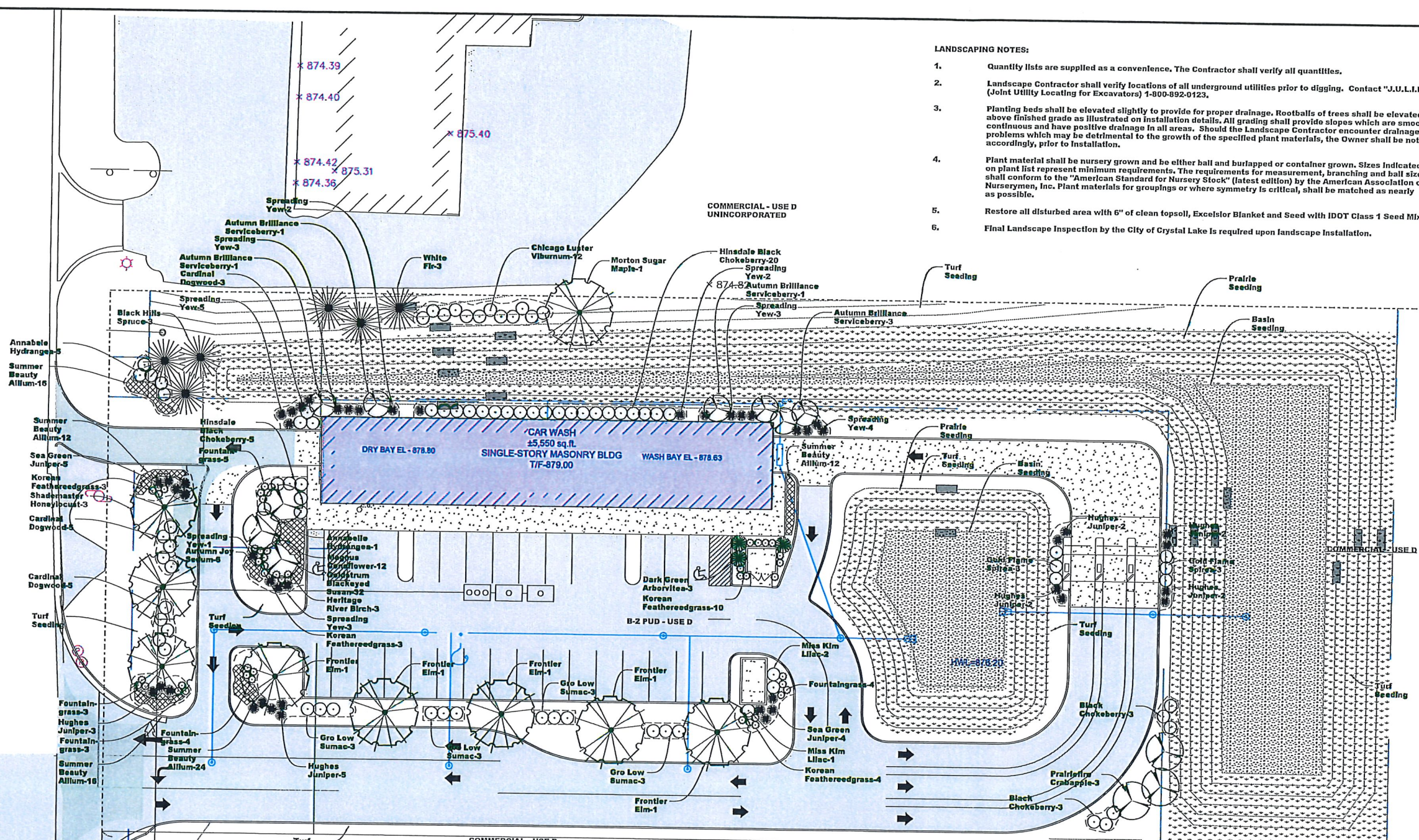
ROUTE 31

COMMERCIAL - USE D

RESIDENTIAL - USE A UNINCORPORATED

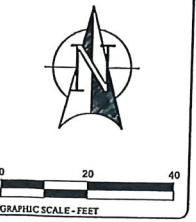
ORCHARD LANE

ROUTE 31



LANDSCAPING NOTES:

- Quantity lists are supplied as a convenience. The Contractor shall verify all quantities.
- Landscape Contractor shall verify locations of all underground utilities prior to digging. Contact "J.U.L.I.E" (Joint Utility Locating for Excavators) 1-800-892-0123.
- Planting beds shall be elevated slightly to provide for proper drainage. Rootballs of trees shall be elevated above finished grade as illustrated on installation details. All grading shall provide slopes which are smooth, continuous and have positive drainage in all areas. Should the Landscape Contractor encounter drainage problems which may be detrimental to the growth of the specified plant materials, the Owner shall be notified accordingly, prior to installation.
- Plant material shall be nursery grown and be either ball and burlapped or container grown. Sizes indicated on plant list represent minimum requirements. The requirements for measurement, branching and ball size shall conform to the "American Standard for Nursery Stock" (latest edition) by the American Association of Nurserymen, Inc. Plant materials for groupings or where symmetry is critical, shall be matched as nearly as possible.
- Restore all disturbed area with 6" of clean topsoil, Excelsior Blanket and Seed with IDOT Class 1 Seed Mix.
- Final Landscape Inspection by the City of Crystal Lake is required upon landscape installation.



CRISTAL LAKE CAR WASH

WMA RECEIVED
 FEB 13 2019
 Prepared For: Greg Barich
 PO Box 442
 Crystal Lake, IL 60014
 Phone: 815-232-2745

PLN-2018-00101

WEBSTER, MCGRATH & AHLBERG, LTD.
 Landscape Architects
 Over 100 Years of Service to Clients
 2075 South Lincoln Road, Winnetka, Illinois 60097
 Phone: 847-441-1100
 Fax: 847-441-1101
 License No. 134-003101

Plant List

Plant Name	QTY./Root Form/Size
White Fir	3/b&b/6'
Ables concolor	
Morton Sugar Maple	1/b&b/2.5"
Acer saccharum 'Morton'	
Shademaster Honeylocust	3/b&b/2.5"
Gleditsia tricanthis 'Inermis'	
Black Hills Spruce	3/b&b/6'
Picea glauca densata	
Frontier Elm	5/b&b/2.5"
Ulmus 'Frontier'	
Ornamental Trees	
Autumn Brilliance Serviceberry	6/b&b/6' single stem
Amelanchier grandiflora 'Autumn Brilliance'	
Heritage River Birch	3/b&b/8' Clump
Betula nigra 'Heritage'	
Prairie Fire Crabapple	3/b&b/2.5"
Malus 'Prairie Fire'	

FUTURE IMPROVEMENTS (BY OTHERS)

COMMERCIAL - USE D

Shrubs

Shrub Name	QTY./Root Form/Size
Hinsdale Black Chokeberry	31/b&b/30"
Aronia melanocarpa 'Hinsdale'	
Cardinal Dogwood	8/b&b/30"
Cornus sericea 'Cardinal'	
Annabelle Hydrangea	6/b&b/30"
Hydrangea arborescens 'Annabelle'	
Sea Green Juniper	9/b&b/30"
Juniperus chinensis 'Sea Green'	
Hughes Juniper	11/b&b/30"
Juniperus horizontalis 'Hughes'	
Gro Low Sumac	12/b&b/30"
Rhus aromatica 'Gro Low'	
Goldflame Spirea	6/b&b/30"
Spiraea bumalda 'Goldflame'	
Miss Kim Lilac	3/b&b/30"
Syringa patula 'Miss Kim'	
Spreading Yew	19/b&b/30"
Taxus media 'Dark Green Spreader'	
Dark Green Arborvitae	3/b&b/6'
Thuja occidentalis 'Nigra'	
Chicago Luster Viburnum	12/b&b/6'
Viburnum dentatum 'Chicago Luster'	

Perennials

Perennial Name	QTY./Root Form/Size
Summer Beauty Allium	80/pot/1 gal.
Allium tanguticum 'Summer Beauty'	
Magnus Coneflower	12/pot/1 gal.
Echinacea purpurea 'Magnus'	
Korean Featheredgrass	20/b&b/1 gal.
Calamagrostis brachytricha	
Fountaingrass	19/pot/1 gal.
Pennisetum alopecuroides	
Blackeyed Susan	32/pot/1 gal.
Rudbeckia fulgida 'Goldstrum'	
Autumn Joy Sedum	6/pot/1 gal.
Sedum 'Autumn Joy'	

Base Seeding and Planting

Plant Name	Seed/Ac.	Flags/Ac.
Andropogon gerardii	10.0	400
Callispora canadensis	2.0	400
Carex bobbsii	2.0	400
Carex comosa	2.0	400
Carex cristata	2.0	400
Carex stipata	2.0	400
Carex tribuloides	2.0	400
Carex vulpinoidea	2.0	400
Elymus virginicus	2.0	400
Glyceria striata	2.0	400
Luzula sylvatica	2.0	400
Panicum virgatum	2.0	400
Scirpus atrovirens	2.0	400
Scirpus cyperinus	2.0	400
Scirpus validus	2.0	400
Spartina pectinata	2.0	400
Total Plantings	198 #/sq.	3700 Flags/Ac.

LANDSCAPE PLAN

L1

DATE: 2/13/2019
 USER: BMB
 MODEL: L1

REVISION DESCRIPTION

NO.	DATE	DESCRIPTION
01	01/09/19	Add Foundation Landscaping
02	02/12/19	Revised Plan

Scale: 1"=20'
 Date: 07-18-18



RECEIVED
 FEB 13 2019
 BY: _____
 PLN-2018-00101

75 SQ FT EACH

Two (2) Sets Illuminated Flush-Mounted Channel Letters

White acrylic faces with 018 Olympic Blue vinyl overlay
 Blue trimcaps and Black returns

NORTH ELEVATION

SOUTH ELEVATION



elevation not to scale

Client: Crystal Lake Express Car Wash

Approved:

Sales: Dan

Scale: 1/4"=1'

Drawn by: JTG

Drwng #18-0324-C

Date: 6-29-18

Rev Date:

All sign designs and concepts shown here are confidential and are the property of Grate Signs, Inc. They are not to be distributed, exhibited, copied, or otherwise used without our written permission.

COMPUTER GENERATED COLORS ARE NOT A TRUE MATCH TO ANY PMS, VINYL, OR PAINT.



© Grate Signs, Inc. 2018

RECEIVED
 FEB 13 2019
 BY: [Signature]
 PLN-2018-00101



4 SQ FT TOTAL

**Two (2) New Single Face
 Illuminated Directional Signs**

White Lexan Faces with 2500-018 Olympic Blue Vinyl Background, Black Vinyl Arrow, & White Weed Out Copy

Cabinet, Retainer, Reveal and Pylon Painted Black

Client: Crystal Lake Express		Drawing #: 18-0344-B	
Approved:		Drawn By: SJV	Date: 7-17-18
Scale: 3/4"=1'	Sales: Dan Olson	Rev By: JTG	Rev Date:

All sign designs and concepts shown here are confidential and are the property of Grate Signs, Inc. They are not to be distributed, exhibited, copied, or otherwise used without our written permission.

COMPUTER GENERATED COLORS ARE NOT A TRUE MATCH TO ANY PMS, VINYL, OR PAINT.



SIDE VIEW



One (1) Double-Face Internally-Illuminated Pylon Sign

RECEIVED
FEB 13 2018
PLN-2018-00101

Client: Crystal Lake Express Car Wash

Approved:

Sales: Dan

Scale: 1/4"=1'

Drawn by: JTG

Drwg # 18-0309-D

Date: 6-21-18

Rev Date:

All sign designs and concepts shown here are confidential and are the property of Grate Signs, Inc. They are not to be distributed, exhibited, copied, or otherwise used without our written permission.

COMPUTER GENERATED COLORS ARE NOT A TRUE MATCH TO ANY PMS, VINYL, OR PAINT.

GRATE SIGNS INC.

© Grate Signs, Inc. 2010



M. GINGERICH GEREUX & ASSOCIATES

MG2A.COM

25620 S GOUGAR RD, MANHATTAN, IL 60442

815.478.9680

STORMWATER REPORT

Barich Route 31 Car Wash

**East side of Route 31 at Orchard Lane
Crystal Lake, IL 60014**

Client: Greg Barich

**November 14, 2018
Revised February 28, 2019**

**Prepared by: M. Gingerich, Gereaux & Associates
MG2A Project No.: 18-143**



**M. GINGERICH, GEREUX
& ASSOCIATES**

ENGINEERING



SURVEYING



TABLE OF CONTENTS

- 1 Stormwater Narrative

 - 2 Drainage Exhibits
 - a. Hydrologic Atlas Map
 - b. FIRM
 - c. Soils Map

 - 3 Existing Conditions
 - a. Existing Drainage Plan
 - b. McHenry County Topo
 - c. Pondpack Existing Conditions Calculations
 - i. On-Site
 - ii. Off-site Area #1
 - iii. Off-site Area #2
 - iv. Off-site Area #3

 - 4 Proposed Conditions
 - a. Proposed Drainage Plan
 - b. Detention Volume vs. Percent Impervious Chart for Car Wash
 - c. Detention Volume vs. Percent Impervious Chart for Full Build-out
 - d. Detention Storage Summary
 - e. Weir – Sizing Calculations (Full Build-out)
 - f. City Drywell Detail
 - g. Off-site Area #1 Bypass Swale Calculation
 - h. Off-site Areas #2 & #3 Bypass Swale Calculation
 - i. Off-site Areas #2 & #3 Culvert Calculation

 - 5 Appendix
 - a. Soil Sampling Report by Ekkert Environmental Services
 - b. Infiltration Report by Ekkert Environmental Services
-



SECTION 1



Stormwater Narrative

Introduction

The Proposed Barich Route 31 Car Wash site is located on the east side of Route 31 across from Orchard Lane and contains the first 2.65 acres of a planned 8.35 acre commercial development. The proposed improvements will include a new car wash building, vacuum stations, new entrance from Route 31 aligned with Orchard Lane, parking, drives, stormwater pre-treatment basin, infiltration/detention basin, erosion control and related improvements.

Existing Condition Drainage

The 2.65 acre carwash site will be located at the northwest corner of the 8.35-acre commercial development site. There is a 0.27-acre subarea at the southeast corner of the site that drains to the southeast in the existing condition. The remaining 8.08 acres drain from east to west toward the Route 31 right of way and then north toward the northwest corner of the site. There is an IDOT storm sewer located on the east side of Route 31 immediately adjacent to the site. The IDOT storm sewer has an outlet discharging to the east, just north of Crystal Court Plaza, where it appears to drain to a natural water course flowing to the northeast. Some drainage from the northwest corner of the site may discharge overland into the front parking lot of Crystal Court Plaza. The Crystal Court Plaza parking lot appears to discharge to the north.

Our review of the FEMA Flood Insurance Rate Map (FIRM) found no Special Flood Hazard Areas within the 8.35 overall project site.

The site is located outside the limits of the Crystal Lake Watershed, so City Crystal Lake Watershed requirements do not apply. The site is located in the Upper Fox River Watershed as designated by McHenry County. Review of the McHenry County Sensitive Aquifer Recharge Areas Map indicates the site is located in Sensitive Recharge Area A.

Review of available soil information indicates the majority of the site is composed of hydrologic type B soils, and will likely be suitable for infiltration basin design. Site soils were evaluated for infiltration rates, as provided in the Infiltration Report prepared by Ekkert Environmental Services.

The existing condition peak discharge from the 8.08-acre (NW subarea) of the development for the 2-year/24 hour and 100-year/ 1 hour thru 24 hour storm events was calculated using Pondpack and the Hydrograph Method, Huff Rainfall Distribution for under 10 square mile basins and utilized Illinois State Water Survey Bulletin 70 Northeast Illinois Sectional rainfall depths.



Existing Conditions Peak Flows are as follows:

<u>Event/Duration</u>	<u>Rainfall Depth</u>	<u>Peak Flow</u>
100-year 0.5 hour	2.39 in.	6.50 cfs
100-year 1 hour	3.56 in.	11.18 cfs
100-year 2 hour	4.47 in.	11.53 cfs
100-year 3 hour	4.85 in.	10.09 cfs
100-year 6 hour	5.68 in.	7.51 cfs
100-year 24 hour	7.58 in.	5.13 cfs
2-year 24 hour	3.04 in.	1.13 cfs

Off-site Drainage Areas – in our review of County topography, three off-site tributary areas were identified.

Off-site Drainage Area #1 – is located east of the site and contains 2.80 acres. The area is developed with single family homes and contains hydrologic soil group B soils. The area is tributary to the east property line of the site. Off-site Drainage Area #1 includes about 0.60 acres of impervious surface, resulting in a CN = 69.

The existing condition peak discharge from Off-site Area #1 for the 2-year/24 hour and 100-year/ 1 hour thru 24 hour storm events was calculated using Pondpack and the Hydrograph Method, Huff Rainfall Distribution for under 10 square mile basins and utilized Illinois State Water Survey Bulletin 70 Northeast Illinois Sectional rainfall depths. Results are summarized as follows:

<u>Event/Duration</u>	<u>Rainfall Depth</u>	<u>Peak Flow</u>
100-year 1 hour	3.56 in.	4.51 cfs
100-year 2 hour	4.47 in.	4.29 cfs
100-year 3 hour	4.85 in.	3.51 cfs
100-year 6 hour	5.68 in.	2.41 cfs
100-year 12 hour	6.59 in.	2.18 cfs
100-year 18 hour	6.97 in.	2.01 cfs
100-year 24 hour	7.58 in.	1.71 cfs
2-year 24 hour	3.04 in.	0.35 cfs



Off-site Drainage Area #2 – is located south of the site and contains 3.39 acres. The area is developed with single family homes and commercial properties and contains hydrologic soil group B soils. The area is tributary to the south property line of the site. Off-site Drainage Area #2 includes about 1.80 acres of impervious surface, resulting in CN = 81.

The existing condition peak discharge from Off-site Area #2 for the 2-year/24 hour and 100-year/ 1 hour thru 24 hour storm events was calculated using Pondpack and the Hydrograph Method, Huff Rainfall Distribution for under 10 square mile basins and utilized Illinois State Water Survey Bulletin 70 Northeast Illinois Sectional rainfall depths. Results are summarized as follows:

<u>Event/Duration</u>	<u>Rainfall Depth</u>	<u>Peak Flow</u>
100-year 1 hour	3.56 in.	9.77 cfs
100-year 2 hour	4.47 in.	8.52 cfs
100-year 3 hour	4.85 in.	6.74 cfs
100-year 6 hour	5.68 in.	5.15 cfs
100-year 12 hour	6.59 in.	3.51 cfs
100-year 18 hour	6.97 in.	3.00 cfs
100-year 24 hour	7.58 in.	2.49 cfs
2-year 24 hour	3.04 in.	0.73 cfs

Off-site Drainage Area #3 – is located southeast of the site and contains 23.64 acres. The area is developed with mostly single family homes and a few commercial properties and contains hydrologic soil group B soils. The area is tributary to a depressional area southeast of the site. This depressional area appears to have an overland flow release to the northwest into the southeast corner of the site. Off-site Drainage Area #3 includes about 5.1 acres of impervious surface, resulting in a CN = 69.

The existing condition peak discharge from Off-site Area #3 for the 2-year/24 hour and 100-year/ 1 hour thru 24 hour storm events was calculated using Pondpack reservoir routing calculation and the Hydrograph Method, Huff Rainfall Distribution for under 10 square mile basins and utilized Illinois State Water Survey Bulletin 70 Northeast Illinois Sectional rainfall depths. Depressional storage areas were estimated using McHenry County topography in conjunction with on-site topography. The area appears to have a low elevation of 876.0+/- compared to a minimum overland flow elevation of 879.17, therefore, must experience about a 3.2-foot depth of water before overland flow occurs. Results are summarized as follows:





<u>Event/Duration</u>	<u>Rainfall Depth</u>	<u>Peak Flow</u>	<u>HWL</u>	<u>Volume</u>
100-year 1 hour	3.56 in.	0.00 cfs	878.18	1.949 ac-ft
100-year 2 hour	4.47 in.	0.00 cfs	878.73	3.115 ac-ft
100-year 3 hour	4.85 in.	0.00 cfs	878.96	3.642 ac-ft
100-year 6 hour	5.68 in.	3.99 cfs	879.31	4.541 ac-ft
100-year 12 hour	6.59 in.	5.99 cfs	879.34	4.611 ac-ft
100-year 18 hour	6.97 in.	7.75 cfs	879.36	4.673 ac-ft
100-year 24 hour	7.58 in.	9.12 cfs	879.38	4.723 ac-ft
2-year 24 hour	3.04 in.	0.00 cfs	877.85	1.360 ac-ft

We believe these flows should be considered conservative (larger than anticipated), and actual flows may be reduced by infiltration into granular soils. However, to quantify a reduction would require off-site soil borings and infiltration reports that are not available.

Summary of Off-Site Drainage Area Peak Flows

<u>Event/ Duration</u>	<u>Off-site Area #1</u>	<u>O/S Area #2</u>	<u>O/S Area #3</u>	<u>Area #2+#3 Flow</u>
100y 1hr	4.51 cfs	9.77 cfs	0.00 cfs	9.77 cfs
100y 2 hr	4.29 cfs	8.52 cfs	0.00 cfs	8.52 cfs
100y 3hr	3.51 cfs	6.74 cfs	0.00 cfs	6.74 cfs
100y 6hr	2.41 cfs	5.15 cfs	3.99 cfs	9.14 cfs
100y 12hr	2.18 cfs	3.51 cfs	5.99 cfs	9.50 cfs
100y 18hr	2.01 cfs	3.00 cfs	7.75 cfs	10.75 cfs
100y 24hr	1.71 cfs	2.49 cfs	9.12 cfs	11.61 cfs
2y 24 hr	0.35 cfs	0.73 cfs	0.00 cfs	0.73 cfs

Proposed Condition Drainage & Detention

The proposed car wash development will be located at the northern 2.65 acres of the 8.35-acre planned commercial development. The proposed stormwater detention system includes a bio-retention pre-treatment facility sized for the required detention volume for the 2-year/24 hour storm event, based on the NIPC Chart for detention vs. impervious area and allowable release rate of 0.04 cfs per acre. This pre-treatment facility will discharge to a detention basin sized for the required detention volume for the 100-year/24



hour storm event, based on the NIPC Chart and allowable release rate of 0.15 cfs per acre. Infiltration testing confirms that the site is suitable for design of an infiltration basin. Based on drainage concerns raised by area residents, the proposed detention basin will be “over-designed” to provide 150% of the detention volume required by code, and will use no gravity outlet, but instead will infiltrate 100% of the rainfall for all rainfall events up to and including the 100-year 24-hour event.

Infiltration testing was performed at two locations on the site (see attached Infiltration Report by Ekkert Environmental Services). The underlying granular layer provided an infiltration rate of 2 inches/hour, at elevation 870+/- . Since this is below the proposed bottom of pond elevation, the proposed excavation must extend down to the granular layer. The new soils between the bottom of pond and top of granular layer must be permeable and have an infiltration rate of 2 inches per hour minimum. The design release rates per square foot of infiltration area can be calculated as follows:

$$1 \text{ sq. ft.} \times 2 \text{ inch/hour} \times (1 \text{ ft} / 12 \text{ in.}) \times (1 \text{ hr} / 60 \text{ min}) \times (1 \text{ min} / 60 \text{ sec}) = 0.0000463 \text{ cfs/sq.ft.}$$

Review of City records of private and municipal well locations found no separation issues. The preferred design approach is to use infiltration only for release rate.

Proposed Detention Basin Summary

Method of Analysis

Proposed Car Wash required Storm water detention storage was determined for the 24 hour duration 100-year and 2-year storm events using the NIPC Chart required acre-feet per acre based on the proposed percent impervious. For the proposed 2.65 acre car wash development the computation is as follows:

$$\text{2-Year Allowable release rate} = 2.65 \text{ ac} \times 0.04 \text{ cfs/ac} = \mathbf{0.11 \text{ cfs}}$$

$$\text{100-Year Allowable release rate} = 2.65 \text{ ac} \times 0.15 \text{ cfs/ac} = \mathbf{0.40 \text{ cfs}}$$

Site Area 2.65 acres

Proposed impervious 0.96 acres

Percent Impervious 0.96/2.65 = 36%

Required 2-year volume = 0.07 acre-feet/acre * 2.65 acres = 0.19 ac-ft

Required 100-year volume = 0.23 acre-feet/acre * 2.65 acres = 0.61 ac-ft

Design Detention Volume = 150% of required = 150% * 0.61 = 0.93 ac-ft

Proposed Phase 1 Detention Volume at HWL 876.00 = 0.963 ac-ft



Infiltration area needed to achieve 0.40 cfs release rate:

$$0.40 \text{ cfs} / 0.0000463 \text{ cfs} / \text{sq. ft.} = 8,639 \text{ square feet}$$

Phase 1 Recommendation: Pond area reaches required area of 8,639 square feet at elevation 873.6, well below the HWL of 876.00. Install permeable soils below pond to gravel stratum. Also, provide one drywell in an 11' diameter area of 1" to 3" washed stone, and extending a minimum of 24" below the gravel stratum for proposed storm sewer connection.

Full Build-out required Storm water detention storage was determined for the 24 hour duration 100-year and 2-year storm events using the NIPC Chart required acre-feet per acre based on the maximum allowable percent impervious. For the proposed 8.08 acre commercial development the computation is as follows:

$$2\text{-Year Allowable release rate} = 8.08 \text{ ac} \times 0.04 \text{ cfs/ac} = \mathbf{0.32 \text{ cfs}}$$

$$100\text{-Year Allowable release rate} = 8.08 \text{ ac} \times 0.15 \text{ cfs/ac} = \mathbf{1.21 \text{ cfs}}$$

Site Area 8.08 acres

Proposed impervious 0.96 acres

Percent Impervious Maximum permitted = 65%

$$\text{Required 2-year volume} = 0.13 \text{ acre-feet/acre} * 8.08 \text{ acres} = 1.05 \text{ ac-ft}$$

$$\text{Required 100-year volume} = 0.36 \text{ acre-feet/acre} * 8.08 \text{ acres} = 2.91 \text{ ac-ft}$$

$$\mathbf{\text{Design Detention Volume} = 150\% \text{ of required} = 150\% * 2.91 = 4.37 \text{ ac-ft}}$$

$$\mathbf{\text{Proposed Full Build-out Detention Volume at HWL 876.00} = 4.434 \text{ ac-ft}}$$

Infiltration area needed to achieve 1.21 cfs release rate:

$$1.21 \text{ cfs} / 0.0000463 \text{ cfs} / \text{sq. ft.} = 26,134 \text{ square feet}$$

Recommendation: Bottom of Pond (Elevation 672.00) area for full buildout is 38,714 square feet. This is greater than the 26,134 square feet needed to reach a discharge rate of 1.21 cfs. Install permeable soils below pond to gravel stratum. Also, provide two drywells, each in an 11' diameter area of 1" to 3" washed stone, and extending a minimum of 24" below the gravel stratum for proposed storm sewer connections.





Detention Basin Weir Sizing

The proposed detention basin weir will be sized to handle the proposed condition runoff from the 8.08 acre full developed site. The proposed method of calculation is to assume the detention basin is completely full to the bottom of the weir which is the design high water elevation of 876.00, and then route the 100-year event through the weir. The calculation assumes zero infiltration. The proposed conditions results for a 20-foot wide overflow weir at elevation 876.00 are summarized below.

Summary of On-Site Proposed Condition Peak Weir Flows

Event/ Duration	Inflow Peak Q	Outflow Peak Q	Weir W.L
100y 1hr	32.62 cfs	18.94 cfs	876.48
100y 2 hr	27.89 cfs	19.02 cfs	876.48
100y 3hr	23.05 cfs	16.87 cfs	876.44
100y 6hr	17.89 cfs	12.99 cfs	876.37
100y 12hr	9.82 cfs	9.30 cfs	876.30
100y 18hr	7.86 cfs	7.68 cfs	876.26
100y 24hr	6.45 cfs	6.38 cfs	876.23

The detention basin will have a 20-foot wide overflow spillway at NW corner of the site, with a capacity of 20.29 cfs at a depth of 0.50 ft. This is sufficient to accommodate proposed condition on-site drainage, should the basin fill completely, and a second 100-year event occur (assumes no infiltration).

Upstream Tributary Area Bypass Flows

Offsite Tributary Area #1 contains 2.80 acres and the 100-year peak flow was calculated at 4.51 cfs. This area will be collected in a swale along the east property line of the site and drain to a storm structure at the NE corner of the site. A 15" storm sewer at 0.7% slope has a capacity of 5.41 cfs, adequate for the 100-year peak flow. Given neighbors' concerns with stormwater discharge, we recommend the 15" pipe be perforated and outlet to a drywell at the NW corner of the site. We recommend the drywell have an open lid adequate to convey 4.51 cfs, when needed. We believe this will help maximize infiltration and minimize discharge to downstream neighbors.

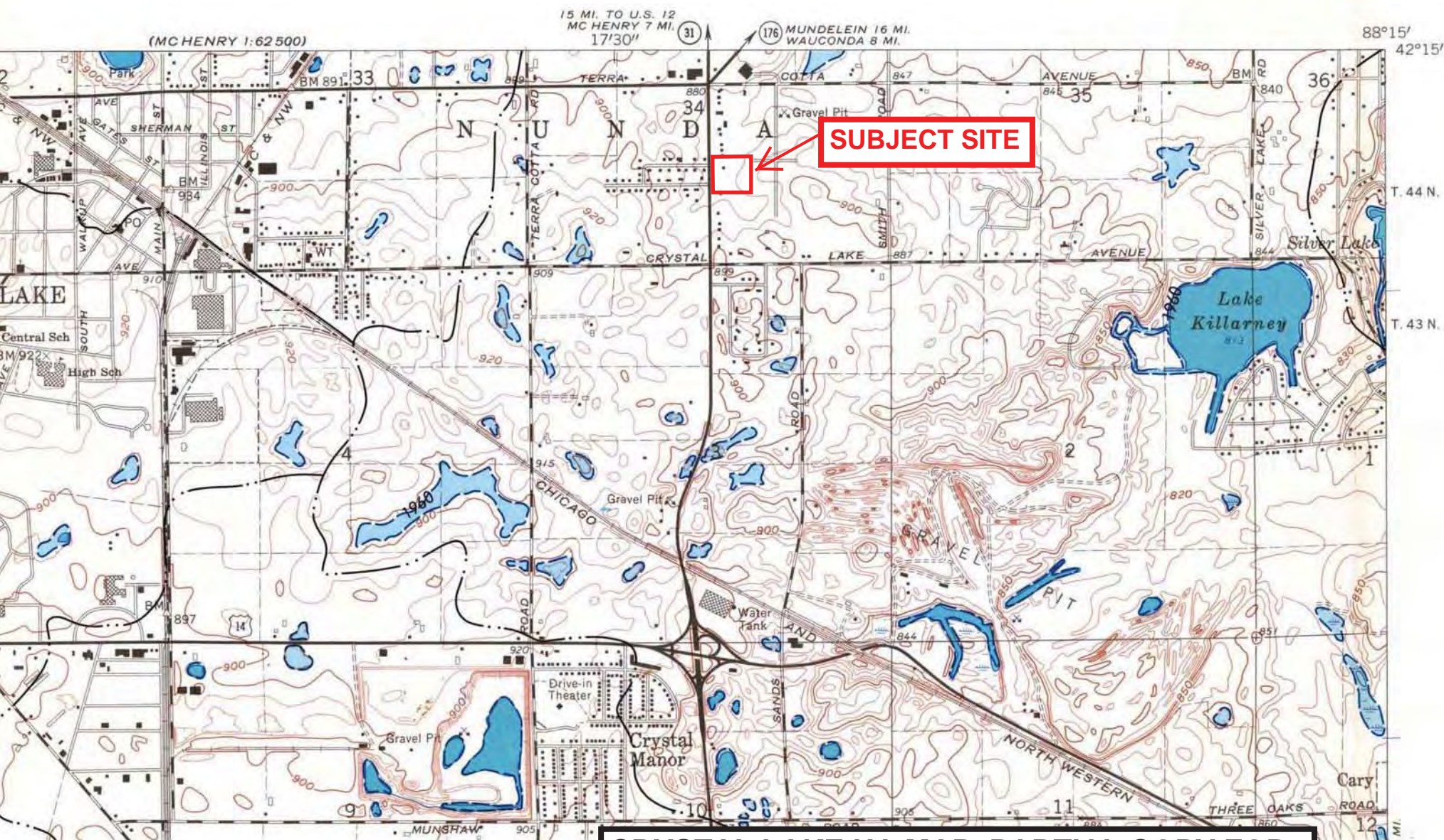
Offsite areas #2 & #3 contain a total of $3.39+23.64 = 27.03$ acres and the combined 100-year peak flow was calculated at 11.61 cfs. City ordinance requires off-site tributary area bypass flows to be accommodated for no less than 1 cfs per acre, therefore the required bypass capacity is 27.03 cfs. A swale and culvert system will be provided along Route 31 to accommodate the required bypass flow and direct it to the NW corner of the site.





SECTION 2





**CRYSTAL LAKE HA MAP, PARTIAL COPY FOR:
BARICH ROUTE 31 CAR WASH PROJECT**

National Flood Hazard Layer FIRMette



42°14'56.78"N



88°17'31.18"W

Legend

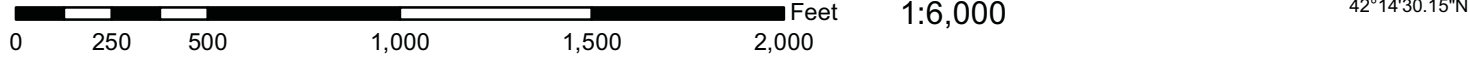
SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth
		Regulatory Floodway Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

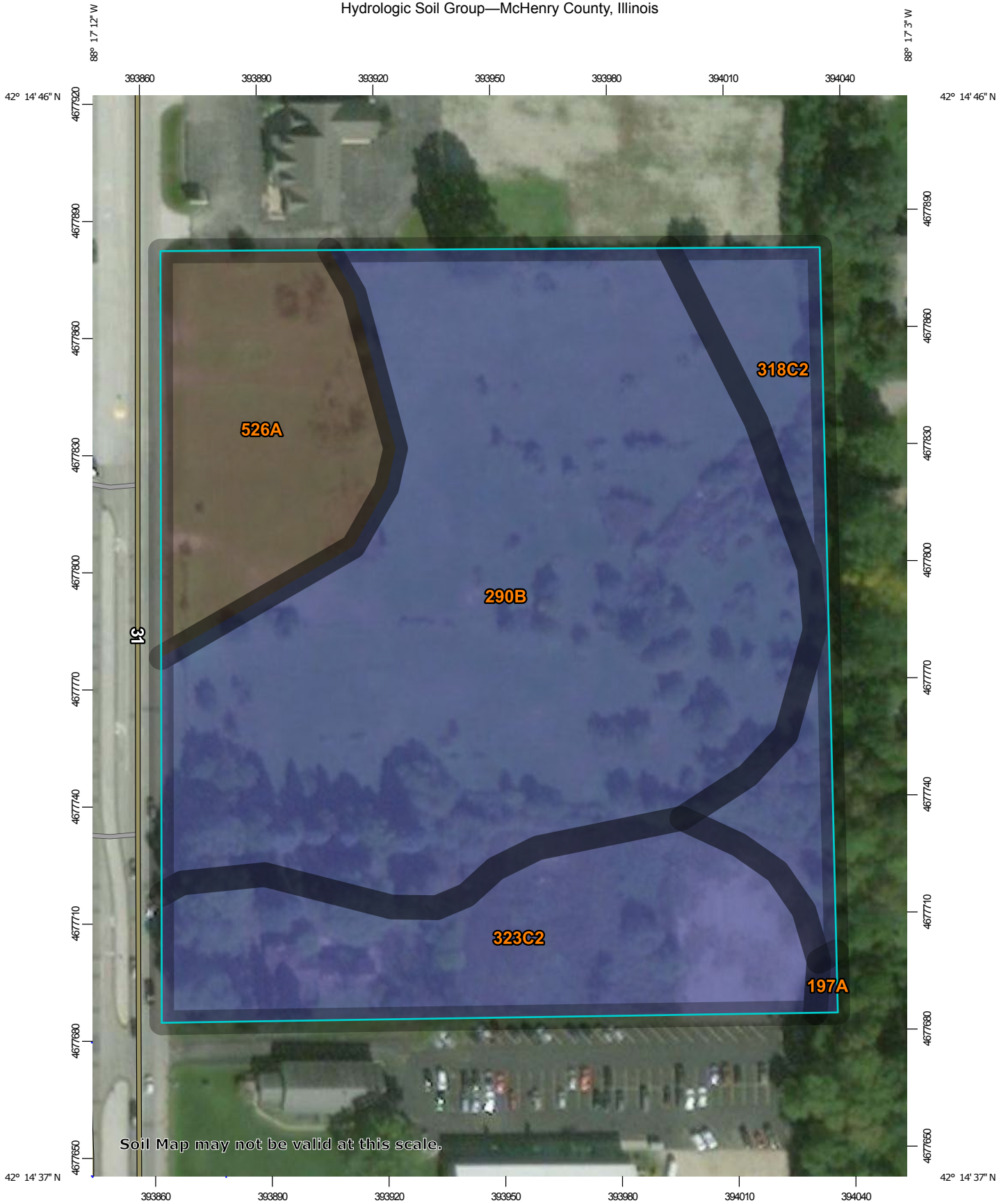
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **4/7/2018 at 1:07:30 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

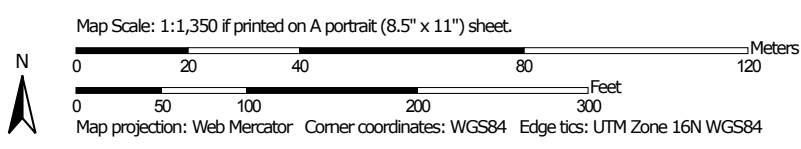


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Hydrologic Soil Group—McHenry County, Illinois




Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

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

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

Soil Survey Area: McHenry County, Illinois
 Survey Area Data: Version 13, Sep 23, 2017

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

Date(s) aerial images were photographed: Jul 3, 2011—Oct 22, 2016

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
197A	Troxel silt loam, 0 to 2 percent slopes	B	0.0	0.2%
290B	Warsaw loam, 2 to 4 percent slopes	B	4.8	57.8%
318C2	Lorenzo loam, 4 to 6 percent slopes, eroded	B	0.7	8.8%
323C2	Casco loam, 4 to 6 percent slopes, eroded	B	1.6	18.9%
526A	Grundelein silt loam, 0 to 2 percent slopes	B/D	1.2	14.2%
Totals for Area of Interest			8.4	100.0%

Description

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

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

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

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

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

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

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

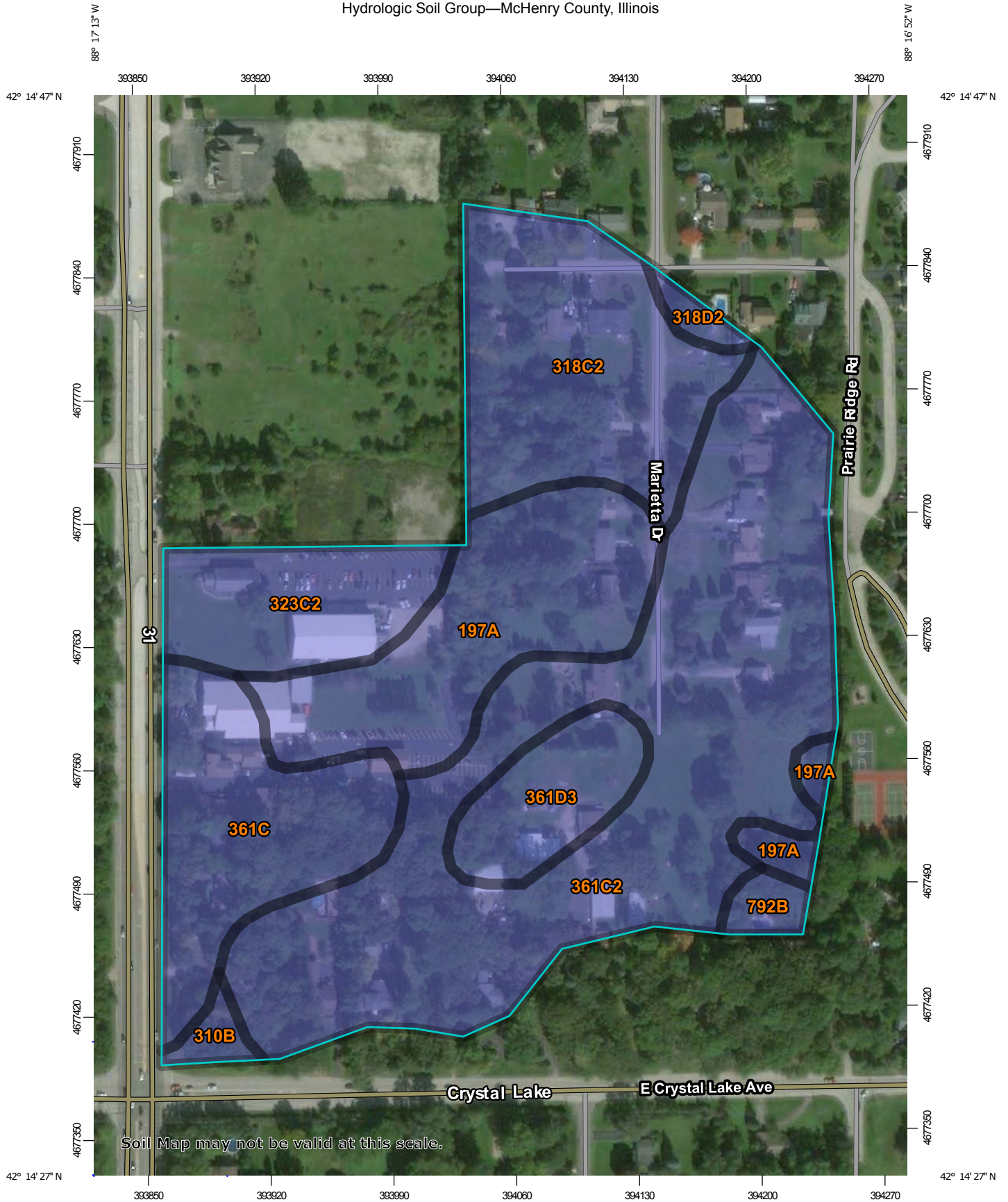
Rating Options

Aggregation Method: Dominant Condition

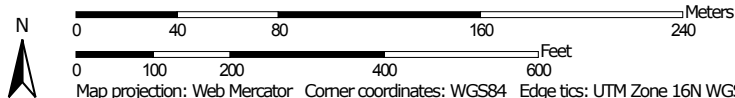
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Hydrologic Soil Group—McHenry County, Illinois



Map Scale: 1:2,990 if printed on A portrait (8.5" x 11") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points





 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

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

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

Soil Survey Area: McHenry County, Illinois
 Survey Area Data: Version 14, Sep 12, 2018

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

Date(s) aerial images were photographed: Jul 3, 2011—Oct 22, 2016

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
197A	Troxel silt loam, 0 to 2 percent slopes	B	5.0	15.8%
310B	McHenry silt loam, 2 to 4 percent slopes	B	0.3	1.0%
318C2	Lorenzo loam, 4 to 6 percent slopes, eroded	B	4.9	15.5%
318D2	Lorenzo loam, 6 to 12 percent slopes, eroded	B	0.3	0.8%
323C2	Casco loam, 4 to 6 percent slopes, eroded	B	2.5	8.0%
361C	Kidder loam, 4 to 6 percent slopes	B	3.9	12.1%
361C2	Kidder loam, 4 to 6 percent slopes, eroded	B	12.8	40.2%
361D3	Kidder clay loam, 6 to 12 percent slopes, severely eroded	B	1.7	5.4%
792B	Bowes silt loam, 2 to 4 percent slopes	B	0.4	1.2%
Totals for Area of Interest			31.8	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

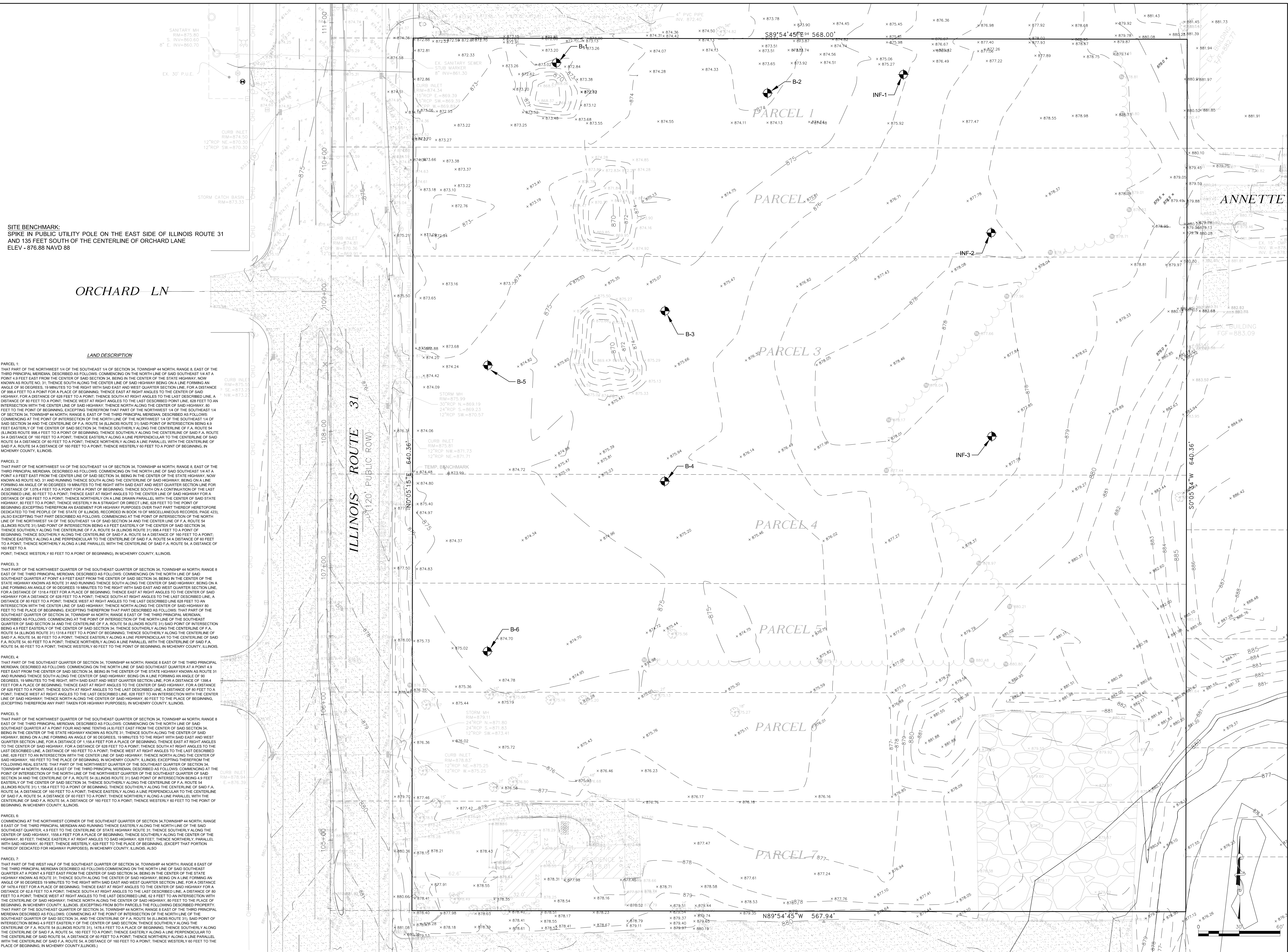
Component Percent Cutoff: None Specified

Tie-break Rule: Higher



SECTION 3





SITE BENCHMARK:
SPIKE IN PUBLIC UTILITY POLE ON THE EAST SIDE OF ILLINOIS ROUTE 31
AND 135 FEET SOUTH OF THE CENTERLINE OF ORCHARD LANE
ELEV - 876.88 NAVD 88

LAND DESCRIPTION

PARCEL 1
THAT PART OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING ON THE NORTH LINE OF SAID SOUTHEAST 1/4 AT A POINT 4.9 FEET EAST FROM THE CENTER OF SAID SECTION 34, BEING IN THE CENTER OF THE STATE HIGHWAY, NOW KNOWN AS ROUTE NO. 31; THENCE SOUTH ALONG THE CENTERLINE OF SAID HIGHWAY BEING ON A LINE FORMING AN ANGLE OF 90 DEGREES, 19 MINUTES TO THE RIGHT WITH SAID EAST AND WEST QUARTER SECTION LINE, FOR A DISTANCE OF 98.4 FEET TO A POINT FOR A PLACE OF BEGINNING; THENCE EAST AT RIGHT ANGLES TO THE CENTER OF SAID HIGHWAY FOR A DISTANCE OF 628 FEET TO A POINT; THENCE SOUTH AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, A DISTANCE OF 80 FEET TO A POINT; THENCE WEST AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, 628 FEET TO AN INTERSECTION WITH THE CENTERLINE OF SAID HIGHWAY; THENCE NORTH ALONG THE CENTER OF SAID HIGHWAY, 80 FEET TO THE POINT OF BEGINNING, EXCEPTING THEREFROM THAT PART OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE POINT OF INTERSECTION OF THE NORTH LINE OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SAID SECTION 34 AND THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY ALONG A LINE PARALLEL WITH THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY 60 FEET TO A POINT OF BEGINNING, IN MCHEMERY COUNTY, ILLINOIS.

PARCEL 2
THAT PART OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING ON THE NORTH LINE OF SAID SOUTHEAST 1/4 AT A POINT 4.9 FEET EAST FROM THE CENTER OF SAID SECTION 34, BEING IN THE CENTER OF THE STATE HIGHWAY, NOW KNOWN AS ROUTE NO. 31 AND RUNNING THENCE SOUTH ALONG THE CENTERLINE OF SAID HIGHWAY, BEING ON A LINE FORMING AN ANGLE OF 90 DEGREES, 19 MINUTES TO THE RIGHT WITH SAID EAST AND WEST QUARTER SECTION LINE, FOR A DISTANCE OF 1078.4 FEET TO A POINT FOR A PLACE OF BEGINNING; THENCE SOUTH AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, 80 FEET TO A POINT; THENCE EAST AT RIGHT ANGLES TO THE CENTERLINE OF SAID HIGHWAY FOR A DISTANCE OF 628 FEET TO A POINT; THENCE WESTERLY IN A STRAIGHT OR DIRECT LINE, 628 FEET TO THE POINT OF BEGINNING EXCEPTING THEREFROM AN EASEMENT FOR HIGHWAY PURPOSES OVER THAT PART THEREOF HERETOFORE DEDICATED TO THE PEOPLE OF THE STATE OF ILLINOIS, RECORDED IN BOOK 19 OF MISCELLANEOUS RECORDS, PAGE 423, ALSO EXCEPTING THAT PART DESCRIBED AS FOLLOWS: COMMENCING AT THE POINT OF INTERSECTION OF THE NORTH LINE OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SAID SECTION 34 AND THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT OF BEGINNING; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY ALONG A LINE PARALLEL WITH THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY 60 FEET TO A POINT OF BEGINNING, IN MCHEMERY COUNTY, ILLINOIS.

PARCEL 3
THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING ON THE NORTH LINE OF SAID SOUTHEAST QUARTER AT A POINT 4.9 FEET EAST FROM THE CENTER OF SAID SECTION 34, BEING IN THE CENTER OF THE STATE HIGHWAY, NOW KNOWN AS ROUTE NO. 31 AND RUNNING THENCE SOUTH ALONG THE CENTERLINE OF SAID HIGHWAY, BEING ON A LINE FORMING AN ANGLE OF 90 DEGREES, 19 MINUTES TO THE RIGHT WITH SAID EAST AND WEST QUARTER SECTION LINE, FOR A DISTANCE OF 1318.4 FEET FOR A PLACE OF BEGINNING; THENCE EAST AT RIGHT ANGLES TO THE CENTER OF SAID HIGHWAY FOR A DISTANCE OF 628 FEET TO A POINT; THENCE SOUTH AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, A DISTANCE OF 80 FEET TO A POINT; THENCE WEST AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, 628 FEET TO AN INTERSECTION WITH THE CENTERLINE OF SAID HIGHWAY; THENCE NORTH ALONG THE CENTER OF SAID HIGHWAY, 80 FEET TO THE PLACE OF BEGINNING, EXCEPTING THEREFROM THAT PART DESCRIBED AS FOLLOWS: THAT PART OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE POINT OF INTERSECTION OF THE NORTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 34 AND THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT OF BEGINNING; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY ALONG A LINE PARALLEL WITH THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY 60 FEET TO A POINT OF BEGINNING, IN MCHEMERY COUNTY, ILLINOIS.

PARCEL 4
THAT PART OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING ON THE NORTH LINE OF SAID SOUTHEAST QUARTER AT A POINT 4.9 FEET EAST FROM THE CENTER OF SAID SECTION 34, BEING IN THE CENTER OF THE STATE HIGHWAY, NOW KNOWN AS ROUTE NO. 31 AND RUNNING THENCE SOUTH ALONG THE CENTER OF SAID HIGHWAY, BEING ON A LINE FORMING AN ANGLE OF 90 DEGREES, 19 MINUTES TO THE RIGHT, WITH SAID EAST AND WEST QUARTER SECTION LINE, FOR A DISTANCE OF 1398.4 FEET FOR A PLACE OF BEGINNING; THENCE EAST AT RIGHT ANGLES TO THE CENTER OF SAID HIGHWAY, FOR A DISTANCE OF 628 FEET TO A POINT; THENCE SOUTH AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, A DISTANCE OF 80 FEET TO A POINT; THENCE WEST AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, 628 FEET TO AN INTERSECTION WITH THE CENTERLINE OF SAID HIGHWAY; THENCE NORTH ALONG THE CENTER OF SAID HIGHWAY, 80 FEET TO THE PLACE OF BEGINNING, EXCEPTING THEREFROM THE FOLLOWING REAL ESTATE: THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE POINT OF INTERSECTION OF THE NORTH LINE OF THE SOUTHEAST QUARTER OF SECTION 34 AND THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT OF BEGINNING; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY ALONG A LINE PARALLEL WITH THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY 60 FEET TO A POINT OF BEGINNING, IN MCHEMERY COUNTY, ILLINOIS.

PARCEL 5
THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING ON THE NORTH LINE OF SAID SOUTHEAST QUARTER AT A POINT 4.9 FEET EAST FROM THE CENTER OF SAID SECTION 34, BEING IN THE CENTER OF THE STATE HIGHWAY, NOW KNOWN AS ROUTE NO. 31 AND RUNNING THENCE SOUTH ALONG THE CENTER OF SAID HIGHWAY, BEING ON A LINE FORMING AN ANGLE OF 90 DEGREES, 19 MINUTES TO THE RIGHT WITH SAID EAST AND WEST QUARTER SECTION LINE, FOR A DISTANCE OF 1568.4 FEET FOR A PLACE OF BEGINNING; THENCE EAST AT RIGHT ANGLES TO THE CENTER OF SAID HIGHWAY, FOR A DISTANCE OF 628 FEET TO A POINT; THENCE SOUTH AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, A DISTANCE OF 80 FEET TO A POINT; THENCE WEST AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, 628 FEET TO AN INTERSECTION WITH THE CENTERLINE OF SAID HIGHWAY; THENCE NORTH ALONG THE CENTER OF SAID HIGHWAY, 80 FEET TO THE PLACE OF BEGINNING, EXCEPTING THEREFROM THE FOLLOWING REAL ESTATE: THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE POINT OF INTERSECTION OF THE NORTH LINE OF THE SOUTHEAST QUARTER OF SECTION 34 AND THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT OF BEGINNING; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY ALONG A LINE PARALLEL WITH THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY 60 FEET TO A POINT OF BEGINNING, IN MCHEMERY COUNTY, ILLINOIS.

PARCEL 6
COMMENCING AT THE NORTHWEST CORNER OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN AND RUNNING THENCE EASTERLY ALONG THE NORTH LINE OF SAID SOUTHEAST QUARTER, 4.9 FEET TO THE CENTERLINE OF STATE HIGHWAY ROUTE 31; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID HIGHWAY, 1058.4 FEET FOR A PLACE OF BEGINNING; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID HIGHWAY, 80 FEET; THENCE EASTERLY AT RIGHT ANGLES TO SAID HIGHWAY, 628 FEET; THENCE NORTHERLY PARALLEL WITH SAID HIGHWAY, 628 FEET; THENCE WESTERLY 60 FEET TO THE PLACE OF BEGINNING, EXCEPT THAT PORTION THEREOF DEDICATED FOR HIGHWAY PURPOSES, IN MCHEMERY COUNTY, ILLINOIS, ALSO

PARCEL 7
THAT PART OF THE WEST HALF OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING ON THE NORTH LINE OF SAID SOUTHEAST QUARTER AT A POINT 4.9 FEET EAST FROM THE CENTER OF SAID SECTION 34, BEING IN THE CENTER OF THE STATE HIGHWAY, NOW KNOWN AS ROUTE NO. 31; THENCE SOUTH ALONG THE CENTERLINE OF SAID HIGHWAY, BEING ON A LINE FORMING AN ANGLE OF 90 DEGREES, 19 MINUTES TO THE RIGHT WITH SAID EAST AND WEST QUARTER SECTION LINE, FOR A DISTANCE OF 1478.4 FEET FOR A PLACE OF BEGINNING; THENCE EAST AT RIGHT ANGLES TO THE CENTER OF SAID HIGHWAY FOR A DISTANCE OF 628 FEET TO A POINT; THENCE SOUTH AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, A DISTANCE OF 80 FEET TO A POINT; THENCE WEST AT RIGHT ANGLES TO THE LAST DESCRIBED POINT, 628 FEET TO AN INTERSECTION WITH THE CENTERLINE OF SAID HIGHWAY; THENCE NORTH ALONG THE CENTER OF SAID HIGHWAY, 80 FEET TO THE PLACE OF BEGINNING, IN MCHEMERY COUNTY, ILLINOIS; EXCEPTING THEREFROM THE FOLLOWING DESCRIBED PROPERTY: THAT PART OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE POINT OF INTERSECTION OF THE NORTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 34 AND THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31) SAID POINT OF INTERSECTION BEING 4.9 FEET EAST OF THE CENTER OF SAID SECTION 34, THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT OF BEGINNING; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY ALONG A LINE PARALLEL WITH THE CENTERLINE OF SAID F.A. ROUTE 54 A DISTANCE OF 160 FEET TO A POINT OF BEGINNING, IN MCHEMERY COUNTY, ILLINOIS.

DATE	BY	DESCRIPTION
5/1/2018	BPV	ISSUED FOR REVIEW
8/10/2018	BPV	PER TRAFFIC REPORT
8/22/2018	BPH	GENERAL REVISIONS
11/12/2018	BPH	BLOG LOCATION REVISION
2/4/2019	RPV	EXPAND DETENTION
2/25/2019	RPV	PER STORMWATER REVIEW
2/25/2019	BPH	PER STORMWATER REVIEW
2/25/2019	BPH	PER STORMWATER REVIEW

M. GINGERICH, GEREAX & ASSOCIATES

MANHATTAN OFFICE

ENGINEERING * PLANNING * SURVEYING

Manhattan Office
2520 S. Gougar Rd
Manhattan, Illinois 60442
Tel: 618-451-5271
Fax: 618-451-3680
www.mgca.com

Bradley Office
240 N. Industrial Drive
Bradley, Illinois 60415
Tel: 618-451-5271
Fax: 618-451-3680

DESIGN:	BPH
DRAWING:	MIB
CHECKED:	BPH
APPROVED:	BPH

PROFESSIONAL DESIGN
FIRM #184-050003

BARICH ROUTE 31 CAR WASH
CRYSTAL LAKE, ILLINOIS

PRELIMINARY ENGINEERING SITE PLAN

SHEET NO.
1 OF **3**

JOB NO. 18-143

© 2010 M. GINGERICH, GEREAX & ASSOCIATES



SUBJECT SITE

Off-site Drainage Area #1
2.8 Ac.

3.39 Ac.

Off-site Drainage Area #3
23.64 Ac.

Copyright County of McHenry 2018
All information is provided 'as-is' with no
guarantee of accuracy, completeness, or currency.

Copyright County of McHenry 2018
All information is provided 'as-is' with no
guarantee of accuracy, completeness, or currency.



**DEVELOPMENT
AREA = 2.65 AC**

PLAN EDITION	DATE	BY	DESCRIPTION
	04/2018	BPH	ISSUED FOR REVIEW

M. GINGERICH, GERAUX & ASSOCIATES
MANHATTAN OFFICE

ENGINEERING * PLANNING * SURVEYING

Manhattan Office
2520 S. Gauger Rd
Manhattan, Illinois 62402
Brady, Illinois 62915
FX: 815-939-9810
www.mga.com

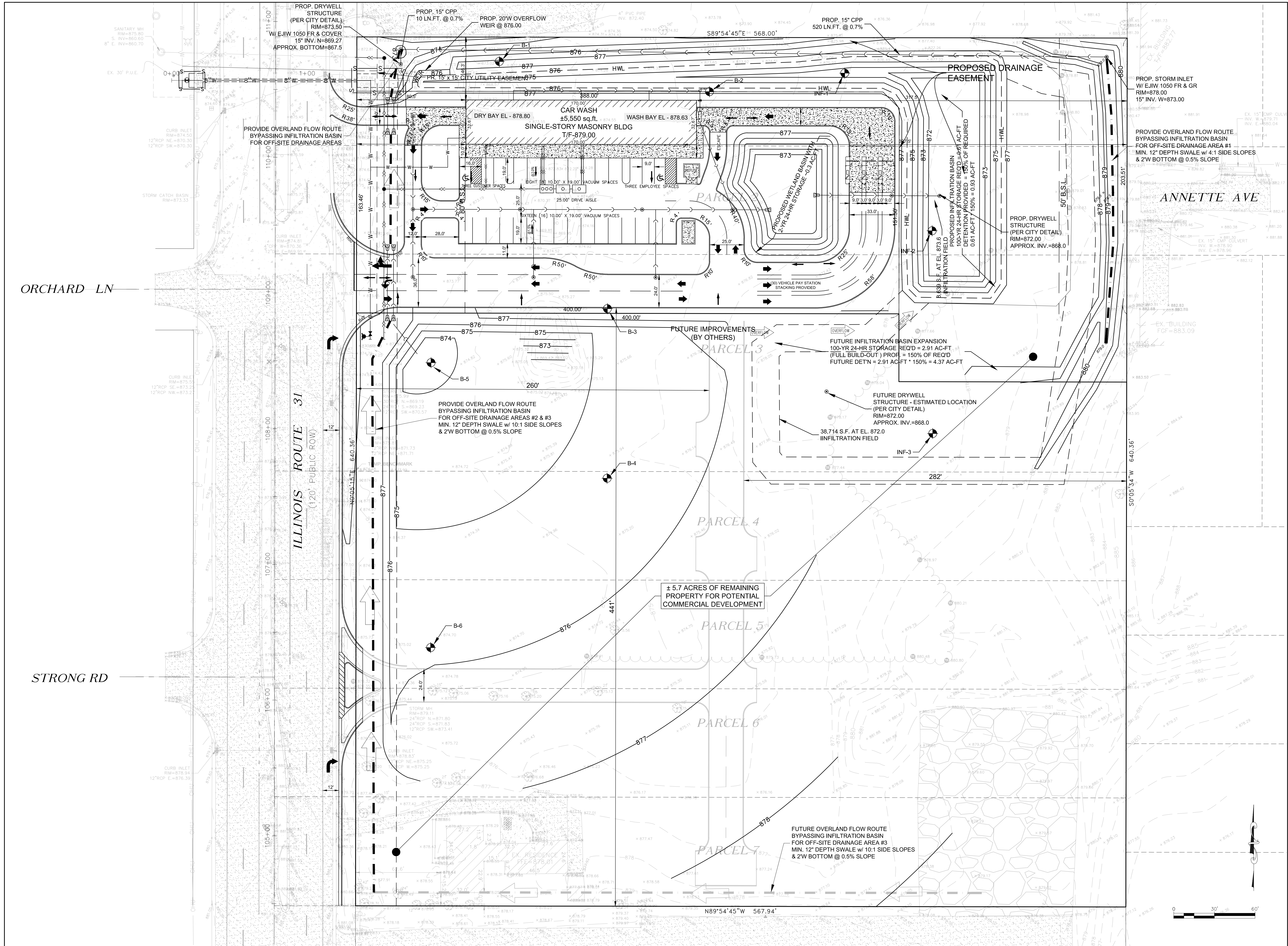
DESIGN: BPH	PROFESSIONAL DESIGN
DRAWING: MB	FIRM # 184.005003
CHECKED: BPH	
APPROVED: BPH	

BARICH ROUTE 31 CAR WASH
CRYSTAL LAKE, ILLINOIS

EXISTING DRAINAGE PLAN

SHEET NO.
1 OF **1**

JOB NO. 18-143
© 2018 M. GINGERICH, GERAUX & ASSOCIATES



DATE	BY	DESCRIPTION
5/1/2018	BPH	ISSUED FOR REVIEW
8/10/2018	RFV	PER TRAFFIC REPORT
8/22/2018	BPH	GENERAL REVISIONS
11/12/2018	BPH	BLDG. LOCATION REVISION
2/4/2019	RFV	EXPAND DETENTION
2/25/2019	BPH	PER STORMWATER REVIEW
2/25/2019	BPH	PER STORMWATER REVIEW

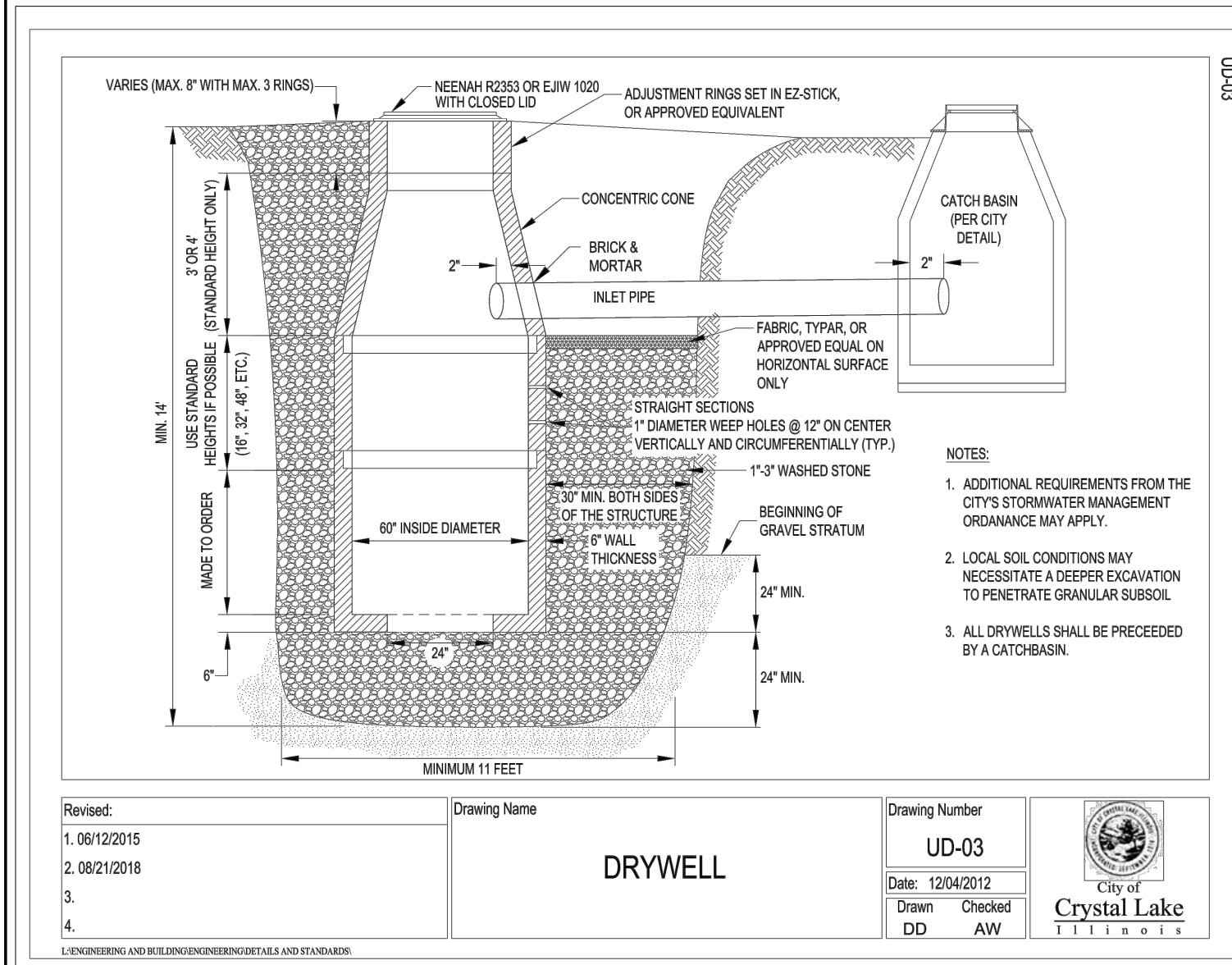
M. GINGERICH, GEREAUDY & ASSOCIATES
 MANHATTAN OFFICE
 ENGINEERING * PLANNING * SURVEYING

Manhattan Office
 25620 S. Gougar Rd
 Manhattan, Illinois 60442
 Ph: 815-475-3621
 Fax: 815-475-3680
 www.mgca.com

DESIGN: BPH	PROFESSIONAL DESIGN FIRM #184.005003
DRAWING: NIB	
CHECKED: BPH	
APPROVED: BPH	

<p>BARICH ROUTE 31 CAR WASH CRYSTAL LAKE, ILLINOIS</p>	<p>PRELIMINARY ENGINEERING SITE PLAN</p>
--	---

<p>SHEET NO. 2 OF 3</p>
<p>JOB NO. 18-143</p>



SITE DATA

PROPOSED DEVELOPMENT AREA = 2.65 ACRES

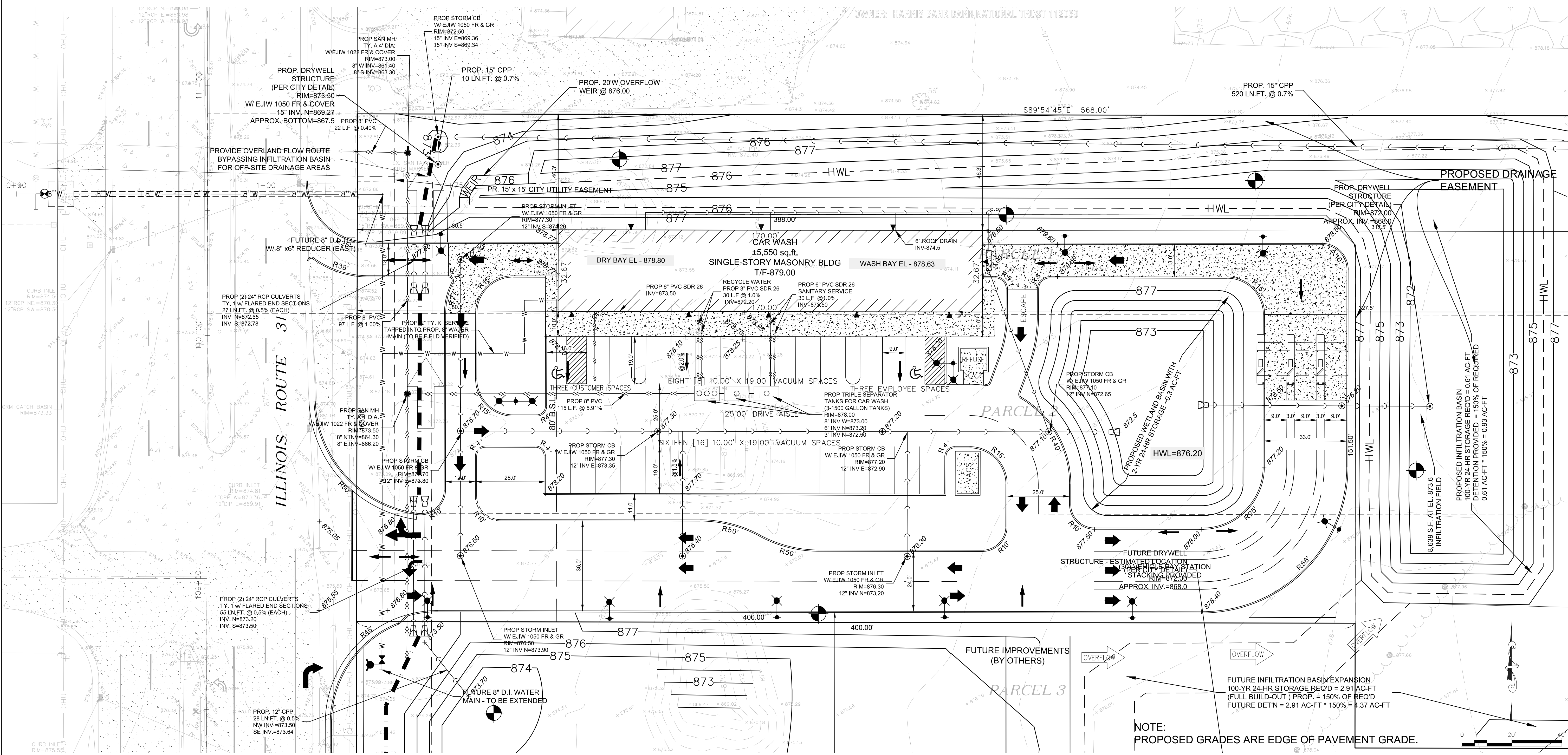
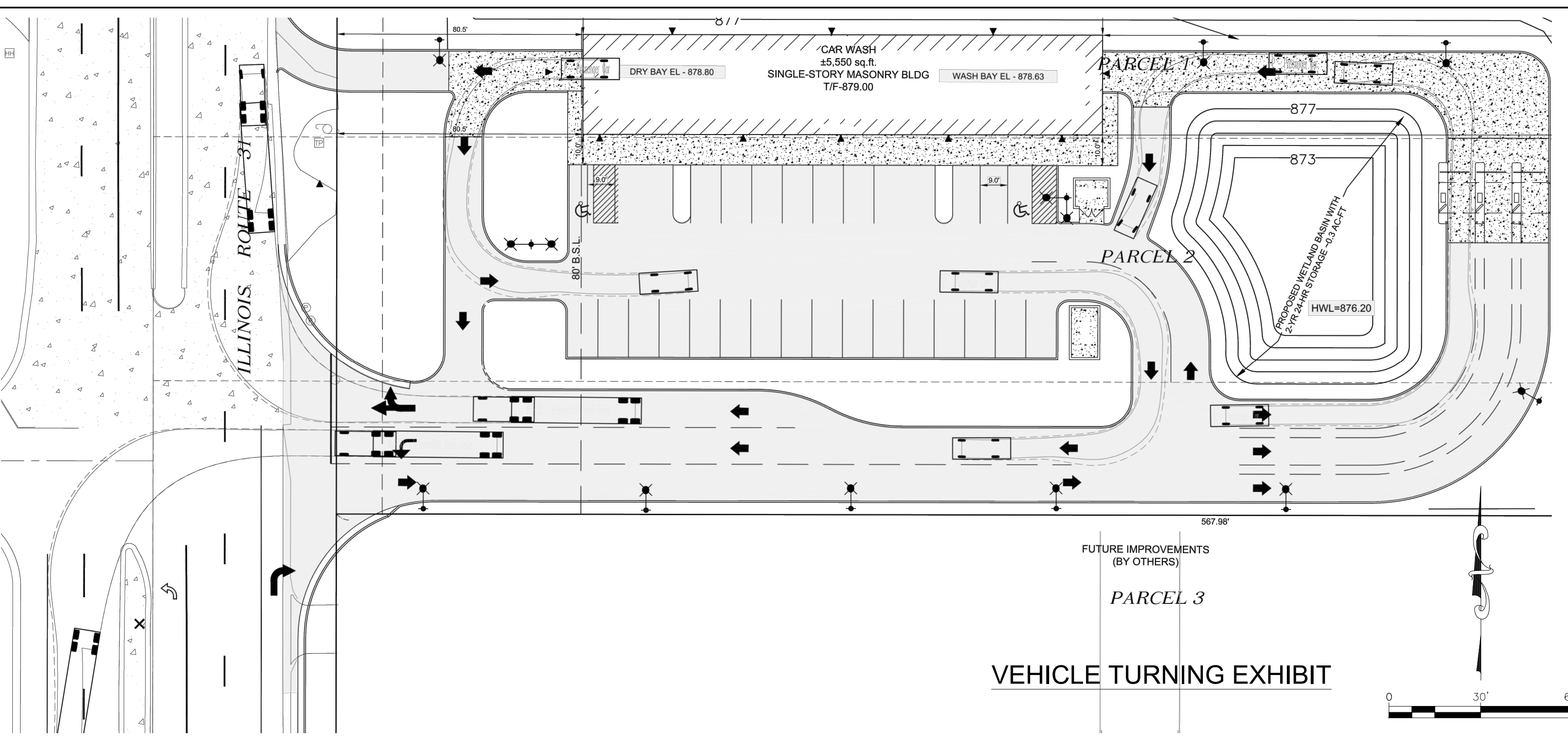
IMPERVIOUS AREA = 0.96 ACRES
 IMPERVIOUS SURFACE COVERAGE = 36%

REQUIRED DETENTION PER CHART
 2-YEAR - 2.65 AC x 0.07 AC-FT/AC = 0.19 AC-FT
 100-YEAR - 2.65 AC x 0.23 AC-FT/AC = 0.61 AC-FT

PERVIOUS AREA = 1.69 ACRES

PROPOSED DETENTION = 150% OF REQUIRED
 150% x 0.61 AC-FT = 0.93 AC-FT PROPOSED

FUTURE CAR WASH LOT = 1.5 ACRES
 IMPERVIOUS AREA = 0.96 ACRES
 IMPERVIOUS SURFACE COVERAGE = 64%



DATE	BY	DESCRIPTION
5/1/2018	BPH	ISSUED FOR REVIEW
8/10/2018	RFV	PER TRAFFIC REPORT
8/22/2018	BPH	GENERAL REVISIONS
11/12/2018	BPH	BLDG. LOCATION REVISION
2/4/2019	RFV	EXPAND DETENTION
2/20/2019	RFV	PER STORMWATER REVIEW
2/25/2019	BPH	PER STORMWATER REVIEW
2/25/2019	BPH	PER STORMWATER REVIEW

M. GINGERICH, GEREADY & ASSOCIATES MANHATTAN OFFICE

ENGINEERING * PLANNING * SURVEYING

Manhattan Office
 25620 S. Gougar Rd
 Manhattan, Illinois 60442
 Tel: 815-451-9221
 Fax: 815-451-9680
 www.mgcga.com

DESIGN:	BPH
DRAWING:	NIB
CHECKED:	BPH
APPROVED:	BPH

PROFESSIONAL DESIGN
 FIRM #184.005003

BARICH ROUTE 31 CAR WASH
 CRYSTAL LAKE, ILLINOIS

PRELIMINARY ENGINEERING SITE PLAN

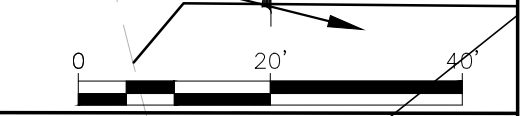
SHEET NO.
3 OF **3**

JOB NO. 18-143

© 2010 M. GINGERICH, GEREADY & ASSOCIATES

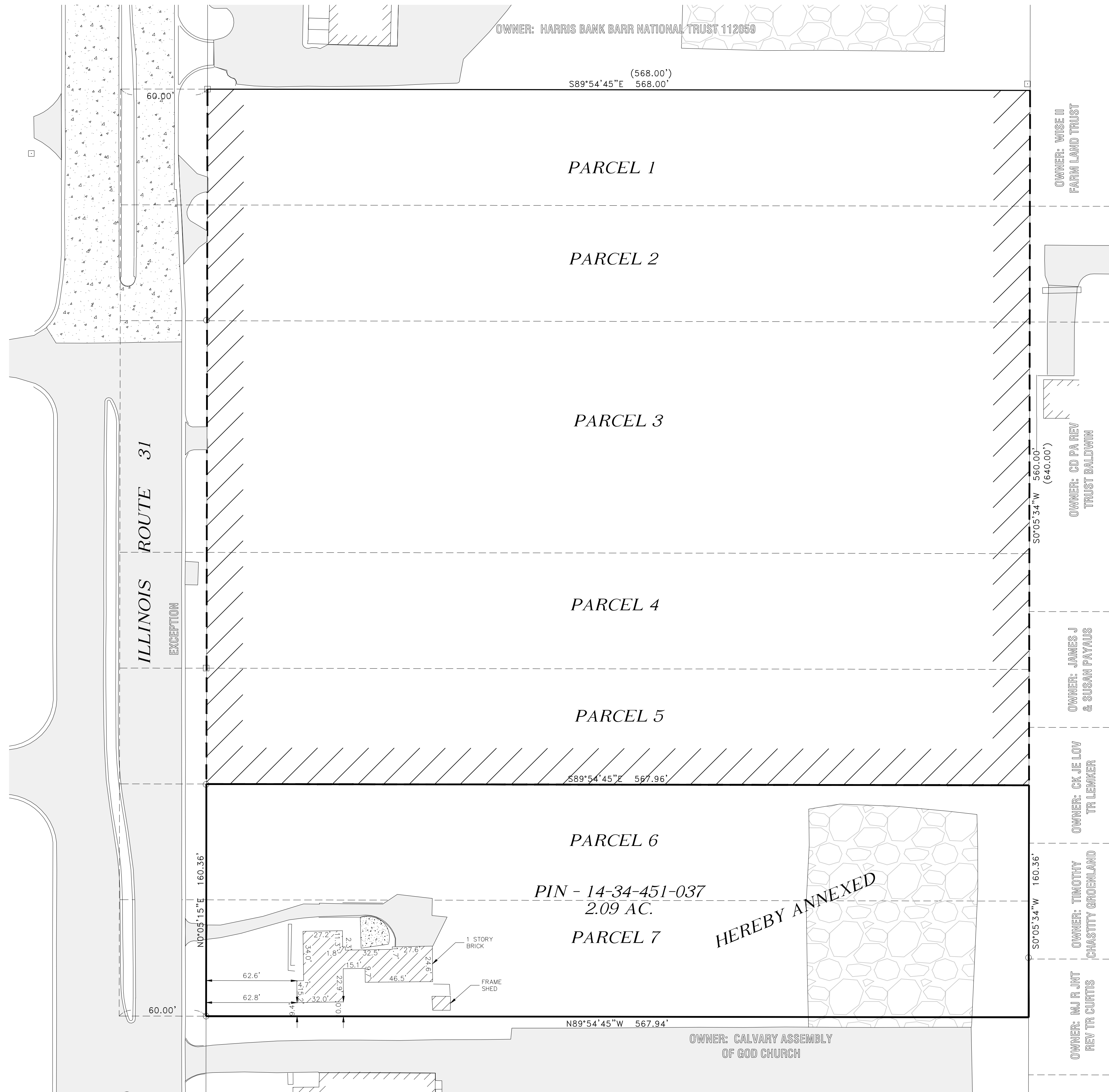
NOTE:
 PROPOSED GRADES ARE EDGE OF PAVEMENT GRADE.

FUTURE INFILTRATION BASIN EXPANSION
 100-YR 24-HR STORAGE REQ'D = 2.91 AC-FT
 (FULL BUILD-OUT) PROP. = 150% OF REQ'D
 FUTURE DETN = 2.91 AC-FT * 150% = 4.37 AC-FT



PLAT OF ANNEXATION

TO
THE CITY OF CRYSTAL LAKE, ILLINOIS



LAND DESCRIPTION

PARCEL 6:
COMMENCING AT THE NORTHWEST CORNER OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN AND RUNNING THENCE EASTERLY ALONG THE NORTH LINE OF THE SAID SOUTHEAST QUARTER, 4.9 FEET TO THE CENTERLINE OF STATE HIGHWAY ROUTE 31; THENCE SOUTHERLY ALONG THE CENTER OF SAID HIGHWAY, 1558.4 FEET FOR A PLACE OF BEGINNING; THENCE SOUTHERLY ALONG THE CENTER OF THE HIGHWAY, 80 FEET; THENCE EASTERLY AT RIGHT ANGLES TO SAID HIGHWAY, 628 FEET; THENCE NORTHERLY, PARALLEL WITH SAID HIGHWAY, 80 FEET; THENCE WESTERLY, 628 FEET TO THE PLACE OF BEGINNING, (EXCEPT THAT PORTION THEREOF DEDICATED FOR HIGHWAY PURPOSES), IN MCHENRY COUNTY, ILLINOIS. ALSO

PARCEL 7:
THAT PART OF THE WEST HALF OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING ON THE NORTH LINE OF SAID SOUTHEAST QUARTER AT A POINT 4.9 FEET EAST FROM THE CENTER OF SAID SECTION 34, BEING IN THE CENTER OF THE STATE HIGHWAY KNOWN AS ROUTE 31; THENCE SOUTH ALONG THE CENTER OF SAID HIGHWAY, BEING ON A LINE FORMING AN ANGLE OF 90 DEGREES 19 MINUTES TO THE RIGHT WITH SAID EAST AND WEST QUARTER SECTION LINE, FOR A DISTANCE OF 1478.4 FEET FOR A PLACE OF BEGINNING; THENCE EAST AT RIGHT ANGLES TO THE CENTER OF SAID HIGHWAY FOR A DISTANCE OF 62.8 FEET TO A POINT; THENCE SOUTH AT RIGHT ANGLES TO THE LAST DESCRIBED LINE, A DISTANCE OF 80 FEET TO A POINT; THENCE WEST AT RIGHT ANGLES TO THE LAST DESCRIBED LINE, 62.8 FEET TO AN INTERSECTION WITH THE CENTERLINE OF SAID HIGHWAY; THENCE NORTH ALONG THE CENTER OF SAID HIGHWAY, 80 FEET TO THE PLACE OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS. (EXCEPTING FROM BOTH PARCELS THE FOLLOWING DESCRIBED PROPERTY, THAT PART OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN DESCRIBED AS FOLLOWS: COMMENCING AT THE POINT OF INTERSECTION OF THE NORTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 34, AND THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31), SAID POINT OF INTERSECTION BEING 4.9 FEET EASTERLY OF THE CENTER OF SAID SECTION; THENCE SOUTHERLY ALONG THE CENTERLINE OF F.A. ROUTE 54 (ILLINOIS ROUTE 31), 1478.4 FEET TO A PLACE OF BEGINNING; THENCE SOUTHERLY ALONG THE CENTERLINE OF SAID F.A. ROUTE 54, 160 FEET TO A POINT; THENCE EASTERLY ALONG A LINE PERPENDICULAR TO THE CENTERLINE OF SAID ROUTE 54, A DISTANCE OF 60 FEET TO A POINT; THENCE NORTHERLY ALONG A LINE PARALLEL WITH THE CENTERLINE OF SAID F.A. ROUTE 54, A DISTANCE OF 160 FEET TO A POINT; THENCE WESTERLY 60 FEET TO THE PLACE OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS.)

CITY COUNCIL CERTIFICATE

STATE OF ILLINOIS)
COUNTY OF) SS
APPROVED AND ACCEPTED BY THE CITY OF CRYSTAL LAKE, ILLINOIS,
AT A MEETING HELD ON THIS _____ DAY OF _____, 20____.
MAYOR _____ CITY CLERK _____

OWNERSHIP CERTIFICATE

STATE OF ILLINOIS)
COUNTY OF) SS
I, _____, DO HEREBY CERTIFY THAT I AM THE OWNER OF THE PROPERTY DESCRIBED IN THE CAPTION TO THE PLAT HEREON DRAWN AND AS SUCH OWNER, SO HEREBY CONSENT TO THE ANNEXATION GRANTED BY THIS DOCUMENT.

DATED THIS _____ DAY OF _____, A.D. 20____.

OWNER _____

OWNER'S NOTARY CERTIFICATE

STATE OF ILLINOIS)
COUNTY OF) SS
I, _____, A NOTARY PUBLIC, IN AND FOR SAID COUNTY, IN THE STATE AFORESAID, DO HEREBY CERTIFY THAT THE PEOPLE WHOSE SIGNATURES APPEAR IN THE "OWNERSHIP CERTIFICATE" ARE PERSONALLY KNOWN TO ME TO BE THE SAME PERSONS WHOSE NAMES ARE SUBSCRIBED TO THE FOREGOING INSTRUMENT AS SUCH OWNERS AND THAT THEY APPEARED BEFORE ME THIS DAY IN PERSON AND ACKNOWLEDGED THAT THEY SIGNED AND DELIVERED THE EASEMENT PLAT AS THEIR OWN FREE AND VOLUNTARY ACT FOR PURPOSES THEREIN SET FORTH.

GIVEN UNDER MY HAND AND NOTARIAL SEAL IN _____ COUNTY, ILLINOIS THIS _____ DAY OF _____, A.D. 20____.

NOTARY PUBLIC _____

SURVEYOR'S CERTIFICATE

STATE OF ILLINOIS)
COUNTY OF WILL) SS
I, ROBERT F. SLUIS, AN ILLINOIS PROFESSIONAL LAND SURVEYOR, DO HEREBY CERTIFY THAT THE PLAT AS HEREON DRAWN IS A CORRECT REPRESENTATION OF THE PROPERTY DESCRIBED IN THE FOREGOING CAPTION.

FURTHERMORE, I DESIGNATE THE CITY OF CRYSTAL LAKE TO ACT AS MY AGENT FOR THE PURPOSES OF RECORDING THIS DOCUMENT.

DATED THIS _____ DAY OF _____, 2018.

BY: _____
ILLINOIS PROFESSIONAL LAND SURVEYOR

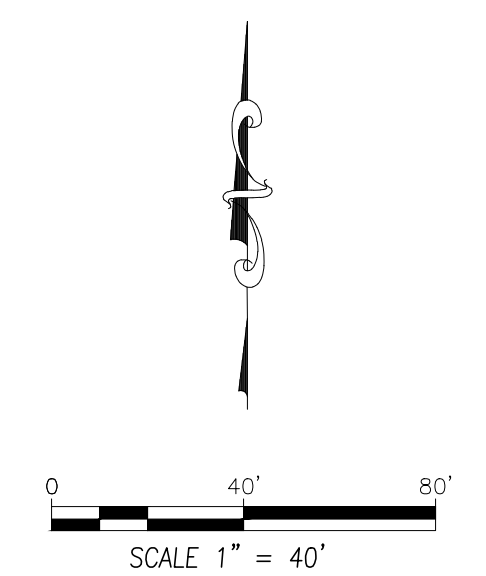
LICENSE NO. 035-003558



HEREBY ANNEXED

PIN - 14-34-451-037
2.09 AC.

Received 8-28-18



LEGEND
77.77 - MEASURED DATA
(77.77) - RECORDED DATA
[Hatched Box] - EXISTING CORPORATE LIMITS

REVISIONS		
BY	DESCRIPTION	DATE
RFS	ISSUED TO CLIENT	3/21/18

M. GINGERICH, GERAUX & ASSOCIATES ENGINEERING * PLANNING * SURVEYING	
Manhattan Office 25620 S. Gougar Rd Manhattan, Illinois 60442 PH. 815-478-9690 FX. 815-478-9685 www.mg2a.com Professional Design FIRM #184.005003	
ORDERED BY:	GREG BARICH
DATE ISSUED:	3-21-2018
DR. BY:	NB
CK. BY:	RFS
FILE:	
JOB NO.:	18-143
PG:	1 of 1