



DEPARTMENT OF PUBLIC WORKS

Fred Abadi, PhD, PE, Director

fabadi@ci.waukesha.wi.us



ENGINEERING COMMENTS FOR PLAN COMMISSION AGENDA Wednesday April 9, 2014

Time: 6:30 p.m.

Place: Waukesha City Hall, 201 Delafield Street, Council Chambers

- I. Call to Order
- II. Pledge of Allegiance
- III. Approval of Minutes – February 26, 2014 and March 12, 2014
- IV. Business Items
 - A. Conditional Use Permit – City of Waukesha Wastewater Treatment Plant Improvements: 600 Sentry Drive
 - 1. No comment.
 - B. Rezoning – 809 & 831 Silvernail Road: T-1 (Temporary) to M-1 (Light Manufacturing)
 - 1. No comment.
 - C. Site Plan & Architectural Review – Oberlin Filter: Preliminary Plans – 809 & 831 Silvernail Road.

General

- 1. The following items should be submitted:
 - a. Erosion Control Plan per Chapter 32.09(c).
 - b. Storm Water Management Plan per Chapter 32.10. An area of the site has been reserved for a storm water facility. Since the Plan was not submitted to verify the sizing of the facility, proposed parking areas may be eliminated in order for the development to comply with the City’s storm water management Ordinance.
 - c. Storm water facility maintenance agreement per Section Chapter 32.12
 - d. Applicable fees per Chapter 32.07(b). The Engineering Division requires any Bonds or Agreements required by the Plan Commission and Council.
 - e. A copy of the approved Wisconsin Department of Natural Resources NR 216 Notice of Intent permit should be submitted to the City for filing when received.

ENGINEERING DIVISION
 Paul G. Day, PE
 City Engineer
 130 Delafield St
 Waukesha, WI 53188
 262-524-3600
 Fax – 262-524-3898

MUNICIPAL PARKING SERVICES
 Patti Cruz
 Parking Supervisor
 241 South St
 Waukesha, WI 53188
 262-524-3622
 Fax – 262-650-2573

STREETS DIVISION
 300 Sentry Dr
 Waukesha, WI 53186
 262-524-3615
 Fax – 262-524-3612

WASTEWATER TREATMENT PLANT
 Jeff Harenda
 WWTP Manager
 600 Sentry Dr
 Waukesha, WI 53186
 262-524-3625
 Fax – 262-524-3632

WAUKESHA METRO TRANSIT
 Brian Engelking
 Transit Director
 2311 Badger Dr
 Waukesha, WI 53188
 262-524-3594
 Fax – 262-524-3646

- f. Certified Survey Map (CSM). The existing site appears to be containing 2 lots. The 2 lots should be combined by a Certified Survey Map. All existing easement locations should be verified. A title report should be obtained.
- g. Demolition Plan. A demolition should be created to list what structures will be removed, wells abandoning procedures, utility removals and abandonments.
- h. Chapter 32.07(b)(2): Once all submittal items are completed, submit all items listed in sub.(b)(1)(A)-(G) in digital form for City filing.
- i. In accordance with Wisconsin Administrative Code A-E 2.02(4): Each sheet of plans, drawings, documents, specifications and reports for architectural, landscape architectural, professional engineering, design or land surveying practice should be signed, sealed, and dated by the registrant or permit holder who prepared, or directed and controlled preparation of, the written material. The Plat of Survey should be stamped by a Professional Land Surveyor.

Site Plan

1. A note on the Plan states, "Proposed Storm Water Management Plan and additional area (if required). Actual size and configuration to be determined through development of storm water management plan". A preliminary storm water management plan should be prepared now to verify the sizing needed for the pond.
2. The plan states that the maximum elevation for the top of the building is 945 per the airport restrictions. The plans indicate the proposed building height is approximately 925.
3. The Certified Survey Map is needed to also verify the location of the lot lines. Proposed work and facilities should be verified to only be on this property.
4. The truck turning radius templates should be run around the entire site to verify that the City's fire truck can safely pass through the site.
5. Chapter 6.13 Driveways (4): The driveway width should not be greater than 35' at the curb and 30' at the sidewalk, unless the property is in a district zoned for industrial use. In a district zoned for industrial use, the driveway width cannot be greater than 50' at the curb and 45' at the property line. The total frontage of all driveways servicing the premises in any district cannot exceed 90' without approval of the Council. The middle driveway should be shown for removal.

Existing Conditions Plan, Sheet SV 1.0

1. The Plan shows lot line bearings and dimensions. A Certified Survey Map should be prepared to confirm the labeled lot line dimensions and combine the two existing lots.
2. A note on the parcel with tax key 0970989001 states, "Unplatted lands publicly owned tax parcel 0970989001". Please clarify the ownership of this parcel.
3. The existing security fence appears to be intended to secure the airport property. Please confirm the ownership of the fence. The existing fence crosses this proposed development. Please contact the airport to confirm if additional fencing or changes to the fence locations are needed for airport security.
4. This plan states that this development adjoins CTH "TJ" Silvernail Road. Please confirm with Waukesha County that a driveway permit, erosion control permit and miscellaneous structure permit are needed. Also, confirm if additional right-of-way dedications are needed.
5. The existing poles are shown on private property along CTH TJ. Verify if existing utility easements are present. If no easements are present, proposed easements should be obtained. Verify if the poles need to be relocated.

Preliminary Site Grading and Utility Plan, Sheet C1.0

1. Chapter 32.10(c)(1): The graphic scale is not correct. A north arrow should be added to the plans.
2. Indicate referenced benchmarks for vertical datum.
3. Chapter 32.10(b)(A): The City's guiding principles for storm water management include reserving adequately sized areas for infiltration and treatment early in the planning process, distributing storm water bio-retention and infiltration BMP's through out the site plan.
4. Chapter 32.10(c)(15): Locations of all available soil borings or soil profile evaluations with unique references to supplemental data report forms should be shown.
5. Chapter 32.10(c)(21): Locations of existing and proposed easements or other known site restrictions should be shown.
6. Chapter 32.10(d)(6)(A) as referenced by Chapter 32.09(c)(17): Perpetual drainage easements or other deed restrictions should be recorded to preserve major storm water flow paths and permanent storm water BMPs. The City has a storm water maintenance agreement template that will be sent to the design Engineer.
7. Chapter 32.10(d)(6)(F) as referenced by Chapter 32.09(c)(17): Side slopes shall be no steeper than 3h:1v unless otherwise approved by the Authority for unique site conditions.
8. Adequate snow storage areas should be provided.
9. Concrete curb and gutter should be added to the parking lot areas.
10. The culvert located to the west of this property should be shown by location, diameter and invert elevation.
11. Specification for connecting to the City's sanitary sewer will need to be added to the Drawings. The existing lateral should be shown and specification added for abandonment.
12. The proposed pond appears to be intended to be a wet pond. Typically, wet ponds are not designed near airports to reduce the number of geese around the airports. An infiltration pond system should be explored in lieu of the wet pond design. Computations should be provided to verify that the area reserved for the pond is adequately sized.
13. An existing 20 inch storm sewer is shown under the proposed building. Please provide a copy of the easement for this pipe for City review and filing. Identify who owns the pipe and purpose of pipe. A new storm sewer easements will need to be prepared and recorded for the relocated pipe.
14. Chapter 32.10(d)(6): Site grading should minimize adverse impacts on adjacent properties. Runoff collected along the south lot line is proposed to be redirected to the west towards lot to the west. Calculations should be provided showing that a drainage problem will not be created on the adjacent lot. Typically, this runoff should be routed to the north lot line area unless it can be proved that this runoff previously drained into the 20 inch storm sewer pipe. Calculations should be provided showing the 20 inch pipe is properly sized.

Site Utility Plan, Sheet C2.0

1. Update vertical datum and add note referencing elevations to the City datum and referenced benchmarks.
2. Chapter 32.10(c)(21): Show any existing easements, if applicable. Please verify if a Title Report was obtained for the property.
3. A building mounted hydrant is shown. Please verify.
4. The existing sanitary sewer lateral location should be shown. Please provide a sewer lateral video to City for review and approval. If lateral maintenance is needed, then the lateral improvements may need to be included as part of this project. The lateral pipe and

connection to the main may need to be lined to reduce infiltration into the City's sanitary sewer system.

Landscape Plan L1.0 and L1.1

1. In accordance with Wisconsin Administrative Code A-E 2.02(4): Each sheet of plans, drawings, documents, specifications and reports for architectural, landscape architectural, professional engineering, design or land surveying practice should be signed, sealed, and dated by the registrant or permit holder who prepared, or directed and controlled preparation of, the written material. The Plan should be stamped by a Professional Landscape Architect.
 2. Planting of trees near the edges of the pond should be avoided.
- D. Architectural Review – Jackson's of Waukesha: 225 South Street, Window Replacement
1. No comment.
- E. Site Plan & Architectural Review – Catholic Memorial High School Addition: 601 E. College Avenue

General

1. The following items should be submitted:
 - a. Erosion Control Plan per Chapter 32.09(c), if over 3,000 square feet of land disturbance is proposed. 7,800 square feet of disturbance is proposed.
 - b. Chapter 32.07(b)(2): Once all submittal items are completed, submit all items listed in sub.(b)(1)(A)-(G) in digital form for City filing.
- F. Rezoning – Rivers Crossing Addition 4: T-1 (Temporary) to Rs-3 (Single Family Residential) – East of Saylesville Road
1. No comment.
- G. Subdivision Plat – Rivers Crossing Addition 4: Preliminary Plat – 52 Single Family Lots

General

1. The following items should be submitted:
 - a. Applicable fees per Chapter 32.07(b). The Engineering Division requires any Bonds or Agreements required by the Plan Commission and Council or Chapter 32.08(c). Development fees will be owed to the City for this project.
 - b. Chapter 32.07(b)(2): Once all submittal items are completed, submit all items listed in sub.(b)(1)(A)-(G) in digital form for City filing.
 - c. Permits will be needed for the project. Provide copies of approved project permits to the City for filing. Permits that are needed include but are not limited to:
 - i. Wisconsin Department of Natural Resources NR 216 N.O.I. Permit
 - ii. City of Waukesha Storm Water Permit
 - d. Recorded copy of storm water maintenance agreement. A copy of an unrecorded storm water facility maintenance agreement has been submitted for the subdivision from the previous phases. The agreement has already been signed but must be recorded. The addendums to the agreement must also be recorded. A template of the City's storm water agreement can be sent to the Design Engineer for completion.
 - e. Intersection approval from Waukesha County. A street intersection of Saylesville Road CTH "X" and Engler Drive is proposed as part of the Plat. A permit to construct the intersection has not been approved by Waukesha County at this time. Written documentation from Waukesha County should be provided for approval of

the location for construction of the intersection at Saylesville Road CTH “X” prior to City approval of the Preliminary Plat.

Construction drawing review comments from Waukesha County have been received but the ultimate intersection location approval has not been submitted to the City. If the County does not approve the intersection location as shown on the Plat, the City approval process will need to start over from the beginning.

The City has been in contact with the County regarding traffic impacts to CTH “X”. The County is concerned about the incremental development that has been occurring east of CTH “X” and south of CTH “H” and will be in contact with the developer to discuss having an additional comprehensive traffic impact study completed in order to better assess and plan for access improvements on CTH “X”. DPW staff supports this approach to have a new traffic study completed.

Preliminary Plat

1. Chapter 23.04(4)(g): Existing sewers and water mains within the tract and immediately adjacent thereto with pipe sizes and grades indicated should be shown on the Plat.
2. Chapter 23.06(2)(a)(2): Proposed streets should be extended to the boundary lines of the tract to be subdivided, unless prevented by topography or other physical conditions or unless, in the opinion of the Commission, such extension is not necessary or desirable for the coordination of the layout or the most advantageous future development of adjacent tracts.
 - a. Crystal Lane should be extended to the northeast lot line. The Plat boundary should include the lands proposed as a remnant parcel and listed as owned by Gerald Engler.
3. Chapter 23.06(2)(b): The number of intersecting streets along highways, thoroughfares and parkways shall be held to a minimum. Wherever practicable, blocks along such traffic ways shall not be less than 1,000 feet in length.
 - a. It is noted that the proposed distance from this intersection to the intersection at Country Lane located to the northeast is 720 feet. Based on this distance, the intersection should be moved approximately 280 feet to the southwest. Please review this issue with Waukesha County.
4. Chapter 23.06(3)(g): Easements across lots or centered on rear or side lot lines should be provided for utilities where necessary and should be at least 10 feet wide.
5. A note on the Plat states, “There are one or more separate documents recorded on the property title through the Waukesha County Register of Deeds entitled “Storm Water Management Practice Maintenance Agreement”. The maintenance agreement subjects this subdivision plat, and all lot owners therein, to covenants, conditions and restrictions necessary to ensure the long term maintenance of the storm water management practice.”
 - a. The Agreement was supposed to have been recorded several years ago. A copy of an unrecorded storm water facility maintenance agreement has been submitted by the Developer for the subdivision from the previous phases. The agreement has already been signed but has not been recorded. The addendums to the agreement must also be recorded. A template of the City’s storm water agreement can be sent to the Design Engineer for completion.

6. A note on the Plat states, “In accordance with Chapter 14-Article VII of the Waukesha County Code of Ordinances (“Storm Water Ordinance”), the storm water permit holder is responsible for constructing the storm water management practices following plans approved by Waukesha County or the City of Waukesha and is responsible for maintaining the storm water practices until permit termination by Waukesha County or the City of Waukesha. Upon termination of the storm water permit, the owners of Lots 452 thru 502 shall be responsible for maintenance of the storm water management practices in accordance with the maintenance agreement.
 - a. This Plat approval is only under the regulatory approval of the City of Waukesha so the references to Waukesha County should be removed.
 - b. This note is not clear which outlots and storm water facilities are being referenced. The note should be updated.
 - c. The note lists Lots 452 to 502. The Plat includes lots 452 to 503. The note should be updated.
 - d. The storm water ponds serve lots other than Lots 452 to 503 so said lot owners should not be the only lots responsible for maintenance and retain undividable fractional ownership. The note should be updated to specifically state the lot numbers responsible for ownership and maintenance.
7. A note on the Plat states, “Lowest floor elevation for each lot shall be established by the City of Waukesha Engineering Department prior to issuance of building permits based on estimated ground water conditions. Additional information obtained during sanitary sewer construction will be used to establish lowest floor elevations. First floor elevations may be restricted on several lots in this subdivision due to high groundwater. Buildings which have lowest elevation below 7.82’ (City datum) must have hung plumbing.”
 - a. This note should be revised because these elevations are better determined by the Design Engineer during the design period based on soil borings taken on each lot. The Design Engineer should prepare a table to be included in the construction drawings listing the ground water table elevation at each lot. The minimum basement floor elevation should also be listed at least 2 feet or more above the existing ground water elevation. Suggested first floor and yard elevations should also be listed on the construction drawings.
8. Under the Easements section, two notes on the Plat state, “The City of Waukesha, Waukesha County or their designee are authorized access in these areas for purposes of inspecting the storm water management practices or enforcing the terms of the maintenance agreement.” The reference to Waukesha County should be removed on the note.
9. The proposed vision corner easement should be removed at the portion of land not included in this Plat.
10. Chapter 32.10(b)(F): An 18-inch culvert crosses CTH X that conveys runoff from 7.5 acres located north CTH X. Provisions will be needed to adequately convey this runoff through the site. The runoff should be conveyed through an open channel swale. The lot configurations or additions of drainage easements may be needed on the Final Plat.
11. Note # 13 should be updated to list Lots 501-503 instead of Lots 500-502.
12. Note #16 states, “By approving this Plat, the City of Waukesha hereby temporarily waives placing the interior monuments per Wisconsin State Statute 236.15(1)(H).”
 - a. In accordance with the State Statute, the subdivider shall provide a timeline for installation of the monuments and execute a surety bond to ensure that he or she will place the monuments within the time required.

Storm Water Management Plan

1. The storm water management plan for this development was approved as part of the River's Crossing Addition #3 project dated as revised October 2006.
2. The City has received reports that sump pumps have been running for extended periods on lots near this proposed Preliminary Plat.
3. The storm water facilities were constructed in 2006. The owner(s) should arrange for an inspection of the storm water facilities to confirm that all components are performing as designed. If any maintenance is needed, the work should be completed.
4. Chapter 32.10(d)(6)(B) as referenced by Chapter 32.09(c)(17): Site grading should minimize adverse impacts on adjacent properties. The open channel 100-year high water elevation should be provided along the northeast lot line to verify the 30 foot drainage easement width is appropriate.
5. Chapter 32.10(d)(3)(A)(i) Infiltration: Infiltrate sufficient runoff volume so that the post-development infiltration volume should be at least 90% of the pre development volume. However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.
 - a. Effective infiltration areas are located at the basin bottom areas. Infiltration facilities should be added to the subdivision storm water design.
 - b. Depending on the final design of the storm water facilities, lot reduction(s) may be needed to provide appropriate infiltration areas in accordance with the City Ordinance.
6. Chapter 32.10(d)(6)(H)(i): Flows generated by the 100-year, 24-hour design storm under planned land use conditions may exceed the design capacity of conveyance systems, but should not come in contact with any buildings. The lowest elevation of the structure that is exposed to the ground surface should be a minimum of two (2) feet above the maximum water elevation produced by the 100-year, 24 hour design storm.
 - a. Tailwater elevations were not used for the design of Basin 1. The appropriate tailwater elevations should be used in the storm water modeling.
7. Chapter 32.10(b)(H): Show the emergency overland flow route through the site.
8. Chapter 32.10(e)(6): Location and dimensions of proposed drainage easements should be shown.
 - a. Storm water management facilities will need to be located in a storm water management easement. The storm water agreement should comply with Section 32.12. A copy of the City template can be sent to the Designer for use.
9. The flow rates shown in the Plan do not match the exhibit maps.
10. The existing drain tile discussed in the storm water plan should be shown on the Plat. Per State Statute, the drain tile drainage must be maintained.
11. The soil boring report is included in the storm water plan. The soil boring location map and soil boring logs should be included.

H. Site Plan & Architectural PUD Review – Clearwater Apartments: Preliminary Plans – Clearwater Lane

General

1. The following items should be submitted:
 - a. Storm water facility maintenance agreement per Section Chapter 32.12
 - b. Erosion Control Plan per Chapter 32.09(c)
 - c. Applicable fees per Chapter 32.07(b). The Engineering Division requires any Bonds or Agreements required by the Plan Commission and Council or Chapter 32.08(c). Development fees will be owed to the City for this project.

- d. Once all submittal items are completed, submit all items listed in sub.(b)(1)(A)-(G) in digital form for City filing.
2. Permits will be needed for the project. Provide copies of approved project permits to the City for filing. Permits that are needed include but are not limited to:
 - a. Wisconsin Department of Natural Resources NR 216 N.O.I. Permit
 - b. City of Waukesha Construction Permit
 - c. City of Waukesha Erosion Control Permit
 - d. City of Waukesha Street Opening Permit

Plat of Survey C-1

1. No comments.

Site Plan C-2

1. Chapter 6.13 Driveways (4): The driveway width should not be greater than 35' at the curb and 30' at the sidewalk, unless the property is in a district zoned for industrial use. In a district zoned for industrial use, the driveway width cannot be greater than 50' at the curb and 45' at the property line. The total frontage of all driveways servicing the premises in any district cannot exceed 90' without approval of the Council. All driveway widths should be labeled.
2. As proposed, this development includes two lots. The large storm water pond is on the south lot. A deed restriction will be needed so that the south lot with the storm water pond is not sold off to another party as a later date. In lieu of this condition, a Certified Survey Map should be prepared to combine the two lots into one lot.
3. Proposed buildings shown on Sheet C-2 are shown near the lot line between Lot 1, CSM 8781 and Lot 2, CSM 8945 on this sheet. Verify that the locations of the proposed buildings are outside the existing setbacks. If lot line adjustments are needed, the adjustments will need to be completed simultaneous with approval of the other development submittal items.
4. Proposed sidewalk will be needed along all street frontages and new ramps will be needed at the intersection. A City Construction permit will be needed for installation. The City of Waukesha typical driveway detail can be sent for use. Spot grades should be added for along all proposed sidewalk and at the driveway entrances. The cross-slope of all new sidewalk should be 1.5%.
5. Vehicle turning templates have been run through the site plan driveway areas to verify a fire truck can safely drive through the site.
6. The number and dimensions of parking stalls and ADA parking stalls needed for the site are listed.
7. The wetland delineation terminates midway along the west lot line of the property. A current wetland delineation is needed to verify the locations of wetlands along the entire west lot line of Lot 1, CSM 8781.
8. Verify Wisconsin DNR wetland setbacks.

Preliminary Grading Plan C-3

1. The site runoff from the site is proposed to discharge to a new pipe crossing Stillwater Circle. The pipe in Stillwater Circle is proposed to discharge south into a pond owned by the City of Waukesha located south of Stillwater Circle. The west end of Stillwater Circle should be restored as a cul-de-sac in accordance with the City's design requirements.
2. The connection and restoration to the South City Pond should be more clearly shown.

3. Chapter 32.10(d)(6)(B) as referenced by Chapter 32.09(c)(17): Site grading should minimize adverse impacts on adjacent properties.
4. Verify that adequate locations for snow storage are provided.
5. Chapter 32.10(d)(6)(H)(i): Flows generated by the 100-year, 24-hour design storm under planned land use conditions may exceed the design capacity of conveyance systems, but should not come in contact with any buildings. The lowest elevation of the structure that is exposed to the ground surface should be a minimum of two (2) feet above the maximum water elevation produced by the 100-year, 24 hour design storm. Verify flow elevations near the drainage swale located west of Lot 1, CSM 8781.
6. Two soil borings are needed in each storm water facility per DNR Technical Standards. If some areas of the site prove to not be feasible for siting a storm water facility, then other areas of the site will need to be explored. The location of the buildings may need to be adjusted after the soil borings are obtained.

Preliminary Utility Plan C-4

1. Chapter 32.10(c)(18): Location and descriptive notes for existing and proposed structures, including sanitary sewer, storm sewer pipes, culverts and existing utilities should be shown. Elevations and pipe sizes should be listed.
 - a. All existing pipe sizes and inverts for the South City Pond should be provided because this design information will be needed as part of the storm water management plan.
2. Chapter 32.10(d)(6)(G) as referenced by Chapter 32.09(c)(17): All storm sewers should be designed in accordance with the City of Waukesha's technical standards.
 - a. Existing storm sewer in Clear water Lane: A portion of the storm sewer runoff from the site was proposed to discharge directly into a catch basin in Clearwater Lane. The storm sewer sizing should be reviewed.
3. Trenching in Clearwater Lane for laterals should be minimized.

Phasing Plan C-5

1. The proposed sidewalk in Clearwater Lane should be included in the phasing plan.

Landscape Plan L 1.0

1. Trees and bushes are proposed to be located in the middle of several drainage swales. The trees and bushes should be relocated outside of the swales.
2. Drainage easements should be shown on the Landscape Plan. Tree and bushes should not typically be planted in storm water pond berms if the plantings would be within the storm water facility drainage easement. Plantings in the drainage easement are typically cleared out as part of routine maintenance.

Storm Water Management Plan

1. City Pond South of Site:
 - a. The site runoff from the site is proposed to discharge to a new pipe crossing Stillwater Circle. The pipe in Stillwater Circle is proposed to discharge south into a pond owned by the City of Waukesha located south of Stillwater Circle. The lot for the City's pond was created as part of the River's Crossing Subdivision. The Surveyor from Yaggy Colby sent the City copies of original storm sewer basin maps showing that this site proposed to be developed was included in the tributary area for the pond design. A Preliminary storm management plan analysis was completed. The analysis will need to show that the City's pond is designed to handle the flows from the existing River's Crossing tributary development and this development in accordance with the City's storm water standards.

- b. The City retrofitted the pond in 2010 to incorporate additional water quality measures. The pond will need to continue to address water quantity and water quality measures for all existing tributary areas in accordance with the City's storm water management Ordinance for the direct connection to be approved. The proposed pond sizes may need to increase based on the final design computations.
2. Chapter 32.10(d)(3) Infiltration: For residential developments, one of the following shall be met:
 - a. Infiltrate sufficient runoff volume so that the post-development infiltration volume shall be at least 90% of the predevelopment infiltration volume, based on an average annual rainfall. However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.
 - b. Infiltrate 25% of the post-development runoff volume from the 2-year, 24-hour design storm with a type II distribution. Separate runoff curve numbers for pervious and impervious surfaces shall be used to calculate runoff volumes, not composite curve numbers, as prescribed in section 32.11. However, when designing appropriate infiltration systems to meet this requirement, no more than 1% of the project site is required as an effective infiltration area.
 3. Chapter 32.11(d): Pretreatment should be incorporated in the storm water basins before infiltrating parking lot and road runoff.
 4. Chapter 32.10(d)(2) Total Suspended Solids:
 - a. For new land development, 80% reduction in total suspended solids load should be removed.
 5. Chapter 32.10(d)(4)(H)(i): The lowest elevation of a structure must be a minimum of two (2) feet above the maximum water elevation produced by the 100-year, 24 hour storm. The buildings must be set back 40 feet horizontally from the location of this high water elevation from the ponds.
 - a. This horizontal and vertical requirement should be reviewed for the homes backing on Basin A, Basin B, and Basin C. If horizontal or vertical separation requirements for Basin A or Basin B are not currently met, the separation distances should not be reduced as part of this proposed development. First floor elevations or walk-out basement elevations of homes adjacent to the ponds will need to be field survey located to verify these requirements.
 - b. Basin A and Basin B should be surveyed to verify the as-built elevations of the pond and outlet structure.
 - c. The locations of the emergency spillways for each pond should be verified.
 - d. The location of the overland flow path from the site to be developed should be shown. A culvert may be needed under Stillwater Circle as part of the street restoration.
 6. Chapter 32.10(e)(7): Locations, dimensions and surfacing material of proposed access lanes and delineation of easements should be shown to allow future maintenance of all storm water BMPs. The minimum width for an access easement is 15 feet. An adequate designed structural ramp at 6:1 slope is listed in the Wisconsin DNR Technical Standards as the recommended design.
 7. Chapter 32.10(e)(9): Detailed construction notes explaining all necessary procedures to be followed to properly implement the plan, including planting and landscaping

specifications, timing and sequencing of construction and temporary measures to protect BMPs.

8. Chapter 32.10(e)(10): A detailed inspection plan should be included in the plans. A detailed construction inspection plan, outlining the critical elements in the plan that need to be surveyed or inspected by a representative of the project engineer and the timing and notifications involved should be prepared.
9. Chapter 32.10(b)(I): Storm water plan designs should distribute storm water bio-retention and infiltration BMP(s), if appropriate. Roof runoff should be infiltrated, if possible.
10. Chapter 32.10(e)(6): Location and dimensions of proposed drainage easements should be shown.
11. Chapter 32.10(C): Detailed cross sections and profiles of each BMP showing all critical design elements, side slopes, structures, soil profiles and applicable elevations, including seasonal high water table. The pipe material should be shown.
12. Storm water management facilities will need to be located in a storm water management easement. The storm water agreement should comply with Section 32.12. A copy of the City template can be sent to the Designer for use.
13. Depending on the final storm water design, bio-retention facilities may be needed instead of rain gardens.
14. Submit pre-development and post-development basin maps.
15. The basin D boundary can be seen on the basin map. Clearly delineate the other basin boundaries.
16. Please verify if tailwater elevations should be used in pond designs.
17. Include the hydrograph combination summary picture with the storm water report.
18. The emergency overflow should be sized to handle flows if the primary outlet structure is plugged.
19. Chapter 32.10(b)(A.) Preserve natural watershed boundaries and drainage patterns. The designer appears to be requesting that 0.4 acres of the site be redirected away from Clearwater Lane to lower the volume of runoff directed towards the storm water management system and the City pond as compared to the existing condition.
 - a. This redirection of flow appears to lower the 100-year high water elevation of the City pond (Basin B) by 0.02 feet as compared to having the 0.4 acres be tributary to the City South pond. Existing drainage patterns should be maintained.
 - b. The flow path of the flow to redirected should be shown.