Document Number

Amended and Restated Storm Water Management Practice Maintenance

Woodland Hills Development by Belman, Inc., as "Owner" of the property described below (the "Property") , in accordance with Chapter 32 City of Waukesha Storm Water Management and Erosion Control, has installed and agrees to maintain storm water management practice(s) on the subject Property in accordance with approved plans and Storm Water Management Plan conditions.

On July 26, 2006, the Owner, incorrectly designated as "Don Belman Homes, Inc." executed and delivered to the City of Waukesha a Storm Water Management Practice Maintenance Agreement (the "Original Agreement") which was recorded in the office of the Register of Deeds for Waukesha County on September 12, 2006, as document number 3419214

Owner agrees to the terms stated in this document to ensure that the storm water management practice(s) continues serving the intended functions in perpetuity. This Agreement includes the following exhibits:

Exhibit A: Legal Description of the real estate for which this Agreement applies ("Property").
Exhibit B: Location Map(s) – shows an accurate location of each storm water management practice affected by this Agreement.
Exhibit C: Maintenance Plan – prescribes those activities that must be carried out to maintain compliance with this Agreement.

Name and Return Address

City of Waukesha
130 Delafield Street
Waukesha, WI 53188

See Exhibit H
Parcel Identification Number(s) – (PIN)

Note: Addendum 1 attached hereto and incorporated here shows design and construction details for Basins #1 through #4. Addendum 1 contains several additional exhibits, including certification by City of Waukesha of Storm Water and Erosion Control Permit termination,. After construction verification for Basins #5 and #6 have been accepted by the City of Waukesha, for all planned storm water management practices for Basins #5 and #6, an addendum(s) to this Agreement shall be recorded by the Owner showing design and construction details. The addendum(s) may contain several additional exhibits, including certification by City of Waukesha of Storm Water and Erosion Control Permit termination.

Through this Agreement, the Owner hereby amends and restates all of the covenants, conditions and restrictions set for in the Original Agreement as follows:

1. The current Owner(s) shall be solely responsible for maintenance and repair of the storm water management practices and drainage easements in accordance with the maintenance plan contained in Exhibit C.
2. The Owner(s) shall, at their own cost, complete inspections of the storm water management practices at the time intervals listed in Exhibit C, and conduct the inspections by a qualified professional, file the reports with the City of Waukesha after each inspection and complete any maintenance or repair work recommended in the report. The Owner(s) shall be liable for the failure to undertake any maintenance or repairs. After the recommended work is completed by the Contractor, the qualified professional shall verify that the work was properly completed and submit the follow-up report to the City within 30 days.
3. In addition, and independent of the requirements under paragraph 2 above, the City of Waukesha, or its designee, is authorized to access the property as necessary to conduct inspections of the storm water management practices or drainage easements to ascertain compliance with the intent of this Agreement and the activities prescribed in Exhibit C. The City of Waukesha may require work to be done which differs from the report described in paragraph 2 above, if the City of Waukesha reasonably concludes that such work is necessary and consistent with the intent of this Agreement. Upon notification by the City of Waukesha of required maintenance or repairs, the

Owner(s) shall complete the specified maintenance or repairs within a reasonable time frame determined by the City of Waukesha.

4. If the Owner(s) do not complete an inspection under 2. above or required maintenance or repairs under 3. above within the specified time period, the City of Waukesha is authorized, but not required, to perform the specified inspections, maintenance or repairs. In the case of an emergency situation, as determined by the City of Waukesha, no notice shall be required prior to the City of Waukesha performing emergency maintenance or repairs. The City of Waukesha may levy the costs and expenses of such inspections, maintenance or repair related actions as a special charge against the affected portions of the Property and collected as such in accordance with the procedures under s. 66.0627 Wis. Stats. or subch. VII of ch. 66 Wis. Stats.
5. This Agreement shall run with the Property and be binding upon all heirs, successors and assigns. The City of Waukesha shall have the sole authority to modify this Agreement upon a 30-day notice to the current Owner(s).
6. This Agreement contains the entire agreement between the parties hereto with respect to the transactions contemplated herein. This Agreement replaces and supersedes all prior agreements between the parties concerning the subject matter hereof, including the Original Agreement.

Dated this ___ day of _____, 2017.

Woodland Hills Development by Belman, Inc. Owner:

_____

By: Don Belman, President

Acknowledgements

State of Wisconsin:
County of Waukesha

Personally came before me this ____ day of _____, 2017, the above named Don Belman to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____.
[Name]
Notary Public, Waukesha County, WI
My commission expires:_____.

This document was drafted by:

Brian T. Pehl, PE
SEH
501 Maple Ave.,
Delafield, WI 53018

For Certification Stamp

City of Waukesha Common Council Approval

Dated this ___ day of _____, 201_.

_____
Shawn N. Reilly, Mayor

_____
Gina Kozlik, City Clerk

Acknowledgements

State of Wisconsin:
County of Waukesha

Personally came before me this ____ day of _____, 2017, the above named Shawn N. Reilly and Gina Kozlik to me known to be the persons who executed the foregoing instrument and acknowledged the same.

_____.
[Name]
Notary Public, Waukesha County, WI
My commission expires:_____.

Exhibit A – Legal Description

The following description and reduced copy map identifies the land parcel(s) affected by this Agreement. For a larger scale view of the referenced document, contact the Waukesha County Register of Deeds office.

Project Identifier: **Woodland Hills** Acres**: 81**
Date of Recording: **See page 1**
Map Produced By: **SEH, 501 Maple Ave., Delafield, WI 53018 (Formerly Yaggy Colby Associates, P.O. Box 180500, Delafield, WI 53018)**
Legal Description**: Being a part of Lots 1, 2, 3, 4, 5 and Lot 6 of Woodland Hills Subdivision, Located in the SW 1/4 of the NE 1/4 of Section 31, and part of the NW 1/4 of the SE 1/4 of Section 31, and part of the NE 1/4 of the SW 1/4 of Section 31, T.7N., R.19E., City of Waukesha, Waukesha County, Wisconsin.**

Woodland Hills Subdivision

Drainage Easement Restrictions: Shaded area on map indicates a drainage easement for storm water collection, conveyance and treatment. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt storm water flows in any way. See Exhibit C for specific maintenance requirements for storm water management practices within this area. See subdivision plat for details on location.

N

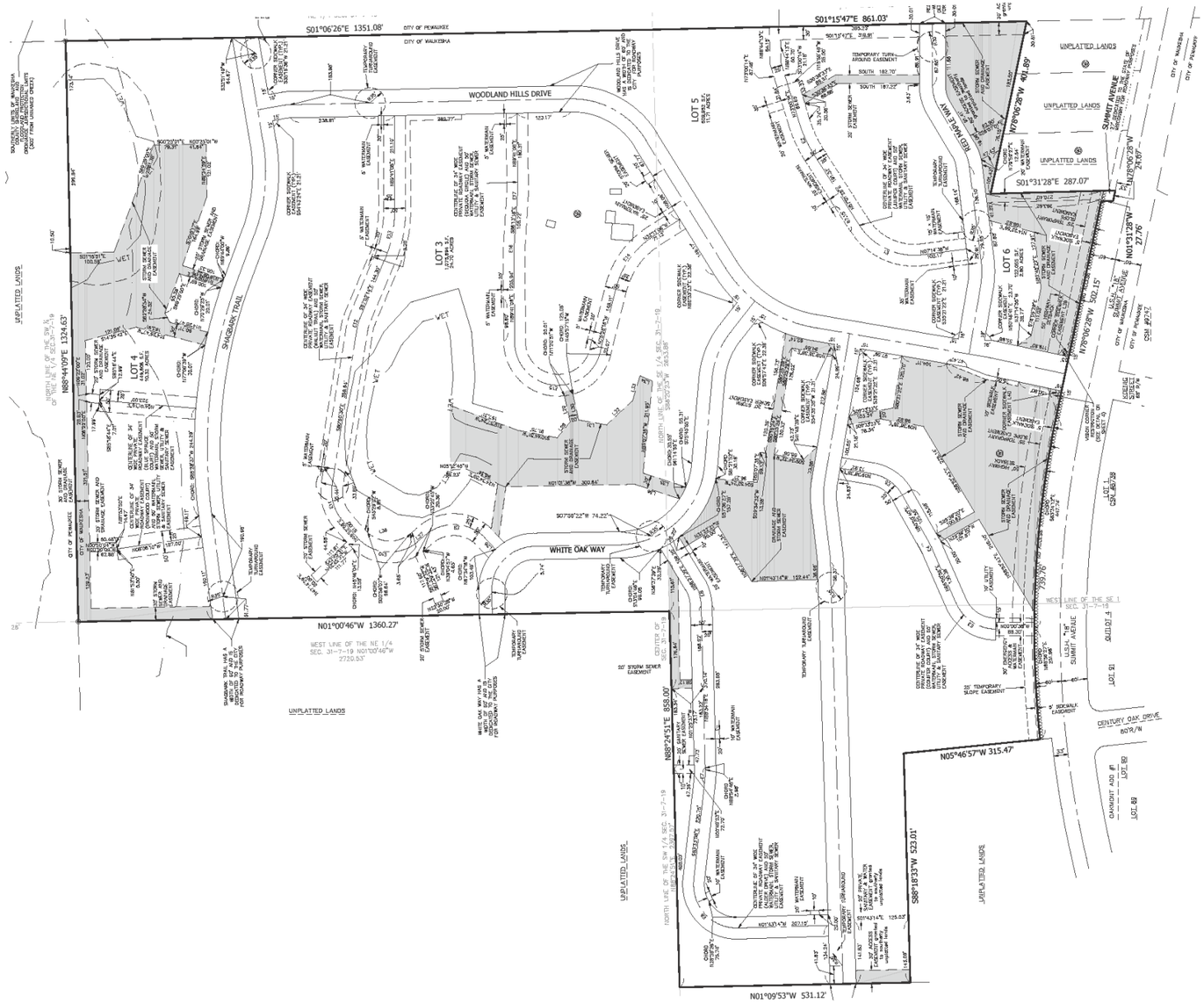


Exhibit B (1) - Location Map for Basin #1
Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of the construction plans, as shown below. The practices include one wet detention basin, two forebays, one grass swale (conveying storm water to the forebays) and all associated pipes, earthen berms and other components of these practices. All of the noted storm water management practices are located within a drainage easement, as noted in Exhibit A.

Subdivision Name: **Woodland Hills**
Storm water Practices: **Wet Detention Basin #1, Forebays (2)**
Location of Practices: **See Final Plat for easement location & description**
Owners of Basin #1: Unit Owners of **Woodland Hills Condominium**

Figure 1-1
Wet Detention Basin #1: Plan View of Storm Water Practices
Note: All drainage easement locations have been conveyed by the Final Plat for Woodland Hills, recorded on June 6th, 2006.

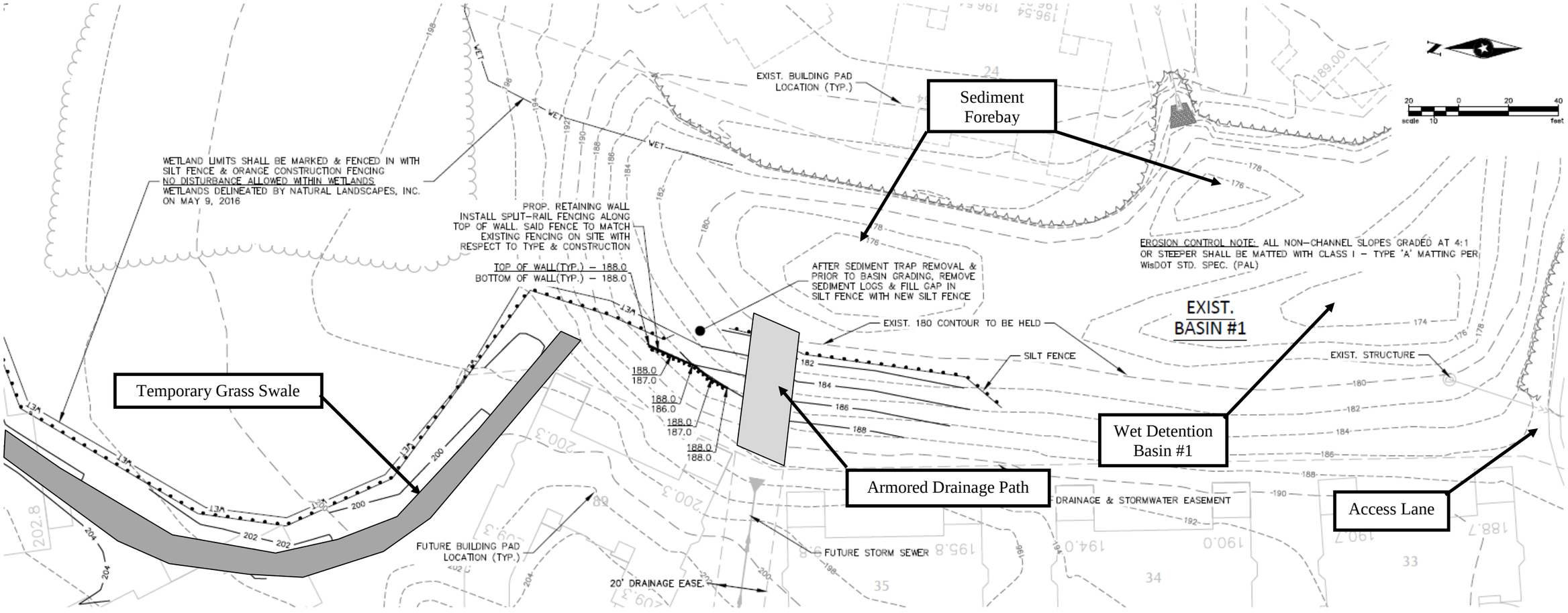


Exhibit C (1)
Storm Water Practice Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the minimum maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Owner(s) to enforcement of the provisions listed on page 1 of this Agreement by the City of Waukesha.

System Description:
The wet detention basin is designed to trap at least 80% of sediment in runoff and maintain pre-development downstream peak flows. The basin has two forebays (smaller ponds). A storm outlet pipe drains to a grassed swale on the west side of the basin, this swale conveys storm water to the first of the two forebays. The second forebay is on the downstream end of a storm sewer outlet pipe. The forebays are each 4 feet deep. They are connected to the main pool by 10-foot wide earthen weirs (elevation 0.5 foot below the permanent water surface elevation) that allow the storm water to spill into the main pool. The forebays will trap coarse sediments in runoff, such as road sands, thus reducing maintenance of the main basin. The main pool will trap the finer suspended sediment. To do this, the pond size, water level and outlet structures must be maintained as specified in this Agreement (see Figures 1-1, 2–1 & 3-1).

The main basin receives runoff from a 31.9 acre drainage area (12.5 acres within the subdivision and 19.4 acres off-site drainage coming from the west). The water level and flows are controlled by the outlet structure. The 24" concrete outlet pipe is directly connected to Basin #2. This pipe is attached to a 48" RCP riser that has multiple orifices that controls the water elevation for varying storm events (see Figures 1-1 and 3-1). The riser also acts as a weir if overtopped. The basin has an emergency spillway in case multiple large storms occur or an outlet structure failure. All elevations in the figures below represent planned values and are presented in feet using the City of Waukesha datum. "As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after City of Waukesha accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:
To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed:

1. All outlet pipes must be checked monthly to ensure there is no blockage from floating debris or ice, especially the washed stone in front of the 3-inch orifice and the trash rack on the riser in the main basin. Any blockage must be removed immediately. The washed stone must be replaced when it becomes clogged.
2. Grass swales shall be preserved to allow free flowing of surface runoff in accordance with approved grading plans. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt flows in any way.
3. Grass swales, inlets and outlets must be checked after heavy rains (minimum of annually) for signs of erosion. Any eroding areas must be repaired immediately to prevent premature sediment build-up in the downstream forebays or basin. Erosion matting is recommended for repairing grassed areas.
4. NO trees are to be planted or allowed to grow on the earthen berms. Tree root systems can reduce soil compaction and cause berm failure. The berms must be inspected annually and any woody vegetation removed.
5. Invasive plant and animal species shall be managed in compliance with Wisconsin Administrative Code Chapter NR 40. This may require eradication of invasive species in some cases.
6. If the permanent pool falls below the safety shelf, a review shall be performed to determine whether the cause is liner leakage or an insufficient water budget. If the cause is leakage, the liner shall be repaired. Leakage due to muskrat burrows may require removal of the animals. If the permanent pool cannot be sustained at the design elevation, benching of the safety shelf may be necessary.
7. If floating algae or weed growth becomes a nuisance (decay odors, etc.), it must be removed from the basin or the forebay and deposited where it cannot drain back into the basin. Removal of the vegetation from the water reduces regrowth the following season (by harvesting the nutrients). Wetland vegetation must be maintained along the water's edge for safety and pollutant removal purposes.
8. When sediment in the forebays or the basin has accumulated to an elevation of three feet below the outlet elevation, it must be removed (see Exhibit D). All removed sediment must be placed in an appropriate upland

disposal site and stabilized (grass cover) to prevent sediment from washing back into the basin. The forebays will likely need sediment removal first. Failure to remove sediment from the forebays will cause resuspension of previously trapped sediments and increase downstream deposition.

9. No grading or filling of the basin or berm other than for sediment removal is allowed, unless otherwise approved by the City of Waukesha.
10. Periodic mowing of the grass swales will encourage vigorous grass cover and allow better inspections for erosion. Waiting until after August 1 will avoid disturbing nesting wildlife. Mowing around the basin or the forebays may attract nuisance populations of geese to the property and is not necessary or recommended.
11. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City of Waukesha under the provisions listed on page 1 of this Agreement.
12. The owners of Basin #1, their successors and assigns, or their designee must document all inspections as specified above. Documentation shall include as a minimum: (a) Inspectors Name, Address and Telephone Number, (b) Date of Inspections, (c) Condition Report of the Storm Water Management Practice, (d) Corrective Actions to be Taken and Time Frame for Completion, (e) Follow-up Documentation after Completion of the Maintenance Activities. All documentation is to be delivered to the attention of the City Engineer at the City of Waukesha Engineering Department on January 10th and July 10th each year.

Figure 2-1

Wet Detention Basin #1: Outlet Structure Detail

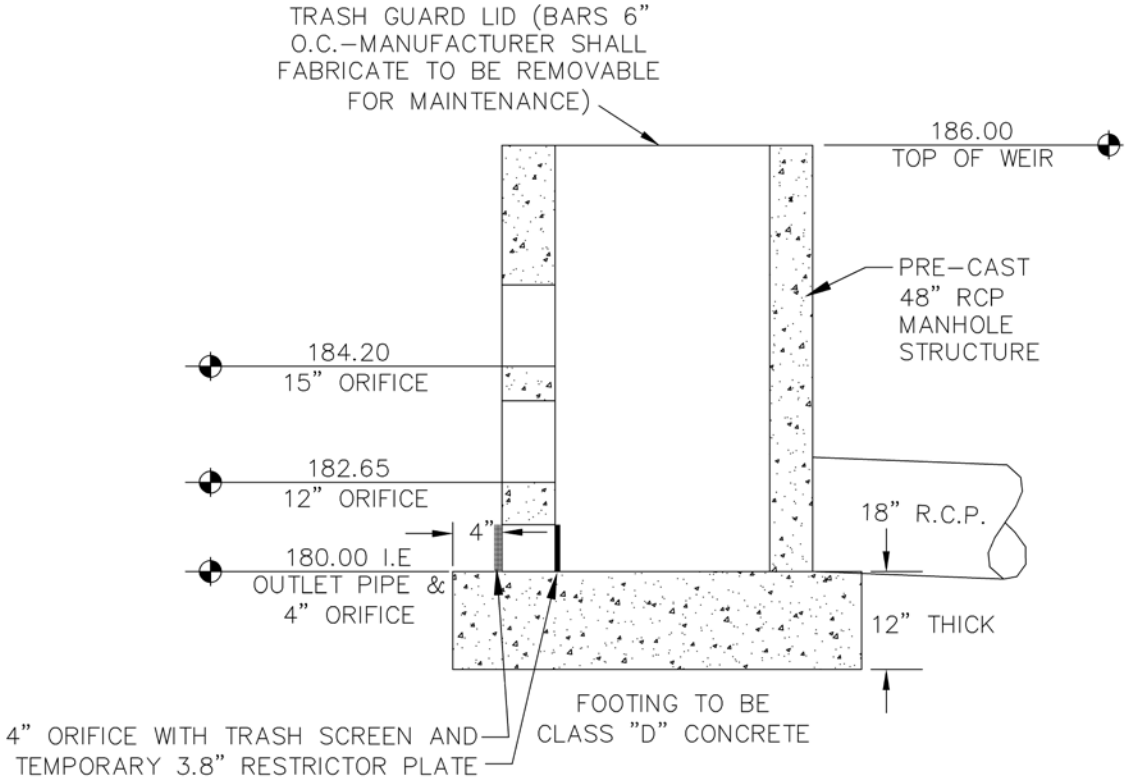


Figure 3-1
Wet Detention Basin #1: Cross-Section

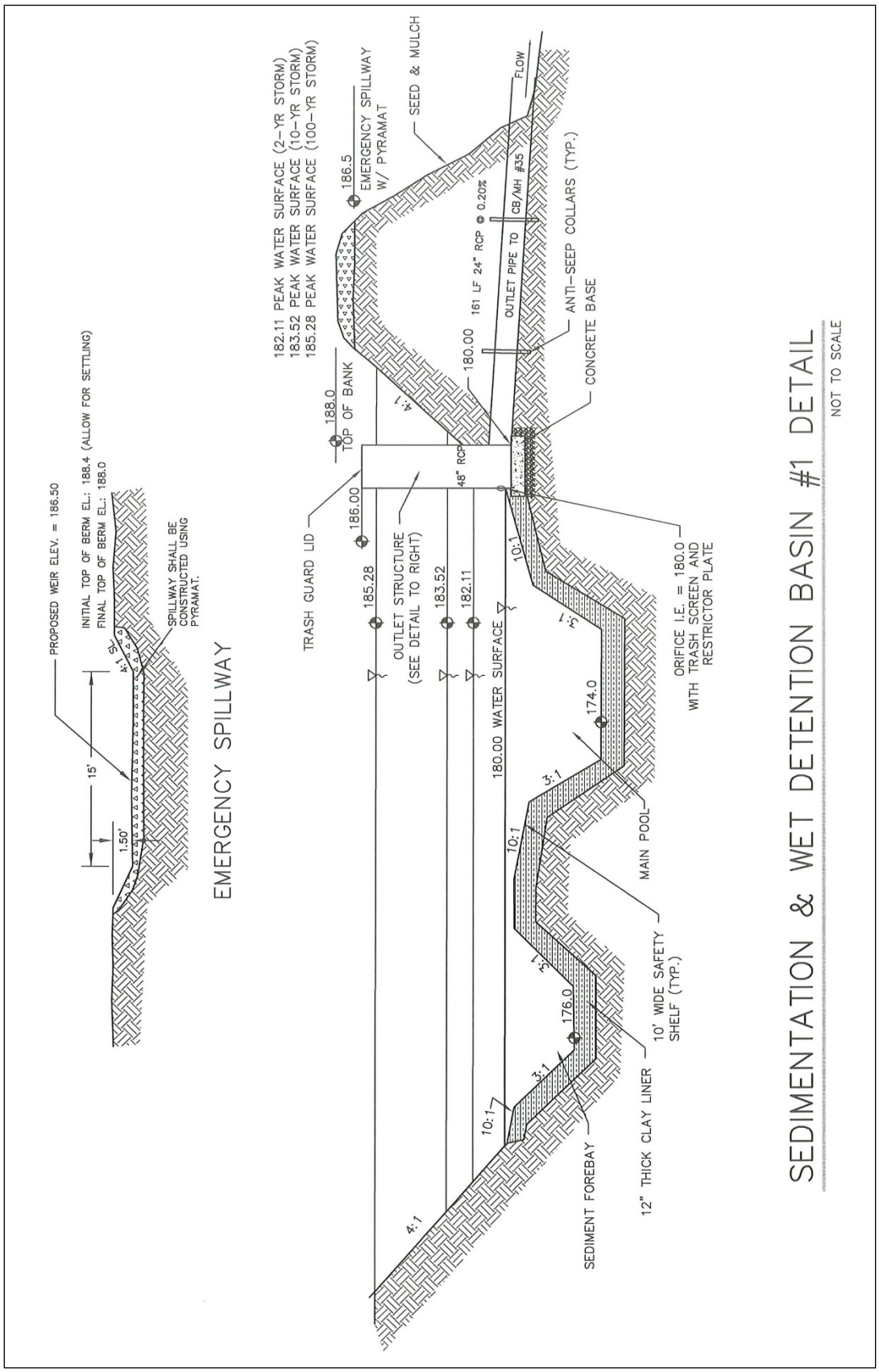


Exhibit B (2) - Location Map for Basin #2
Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of the construction plans, as shown below. The practices include one wet detention basin, two forebays, one grass swale (conveying storm water to the forebay) and all associated pipes, earthen berms and other components of these practices. All of the noted storm water management practices are located within a drainage easement, as noted in Exhibit A.

Subdivision Name**:** **Woodland Hills**
Storm water Practices**:** **Wet Detention Basin #2, Forebays (2), Grass Swale (1)**
Location of Practices**:** **See Final Plat for easement location & description**
Owners of Basin #2: The Unit Owners of **Woodland Hills II Condominium**

Figure 1-2

Wet Detention Basin #2: Plan View of Storm Water Practices
Note: All drainage easement locations have been conveyed by the Final Plat for Woodland Hills, recorded on June 6th, 2006

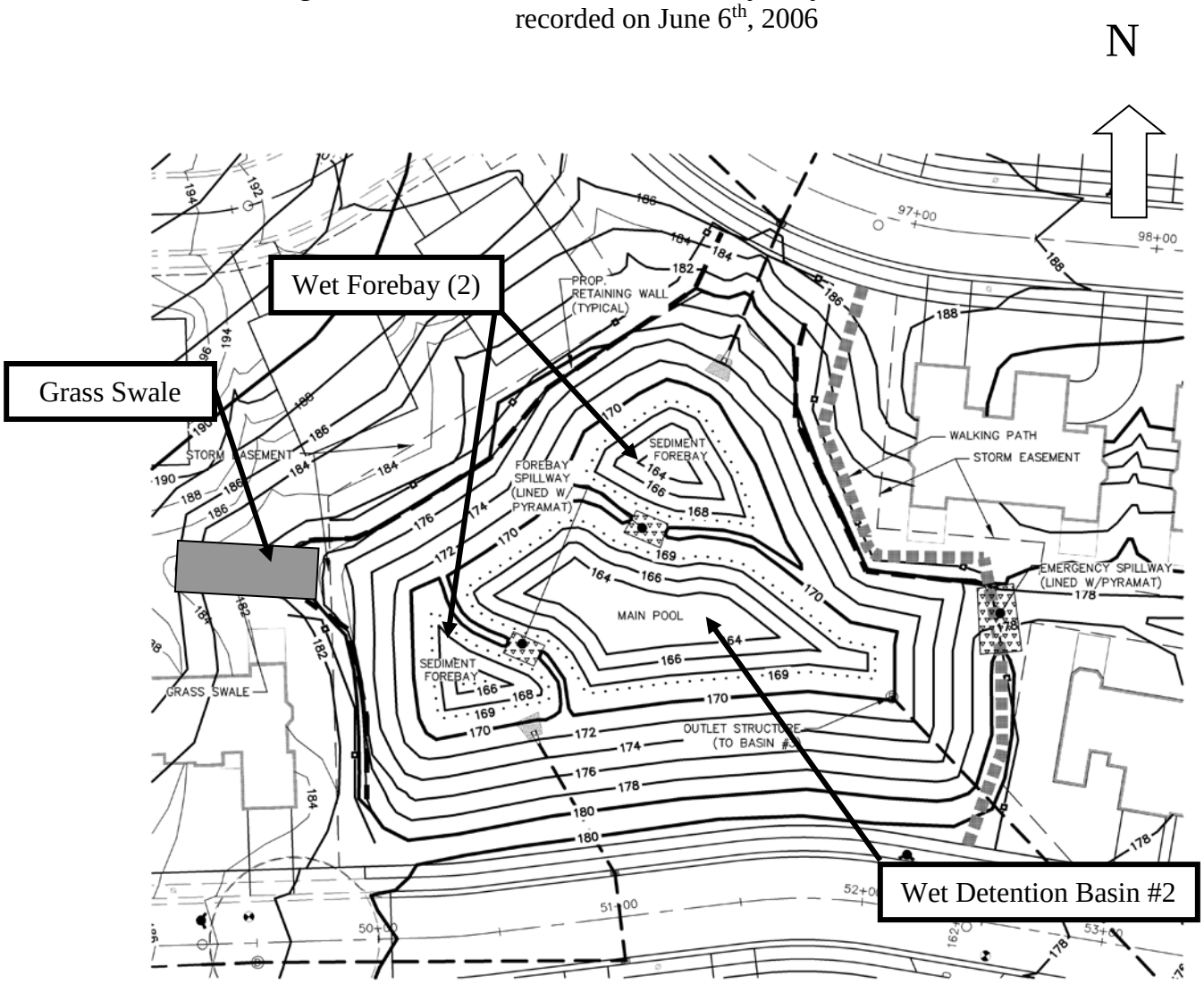


Exhibit C (2)
Storm Water Practice Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the minimum maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Owner(s) to enforcement of the provisions listed on page 1 of this Agreement by the City of Waukesha.

System Description:
Wet Detention Basin #2 is designed to trap at least 80% of sediment in runoff and maintain pre-development downstream peak flows. The basin has two forebays (smaller ponds). There are two separate locations that storm sewer pipes outlet into this basin, at each location a forebay is located. The forebays are each 4 feet deep. They are connected to the main pool by 10-foot wide earthen weirs (elevation 0.5 foot below permanent water surface elevation) that allow the storm water to spill into the main pool. The forebays will trap coarse sediments in runoff, such as road sands, thus reducing maintenance of the main basin. The main pool will trap the finer suspended sediment. To do this, the pond size, water level and outlet structures must be maintained as specified in this Agreement (see Figures 1-2, 2-2 & 3-2).

The main basin receives runoff from a 26.1 acres drainage area (21.1 acres within the subdivision and 5.0 acres off-site drainage coming from the west), as well as the detained storm water from Basin #1. The water level and flows are controlled by the outlet structure. The 24" concrete outlet pipe is directly connected to Basin #3. This pipe is attached to a 48" RCP riser that has multiple orifices that controls the water elevation for varying storm events (see Figures 1-2 and 3-2). All elevations in the figures below represent planned values and are presented in feet using the City of Waukesha datum. "As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after City of Waukesha accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:
To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed:

1. All outlet pipes must be checked monthly to ensure there is no blockage from floating debris or ice, especially the washed stone in front of the 3-inch orifice and the trash rack on the riser in the main basin. Any blockage must be removed immediately. The washed stone must be replaced when it becomes clogged.
2. Grass swales shall be preserved to allow free flowing of surface runoff in accordance with approved grading plans. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt flows in any way.
3. Grass swales, inlets and outlets must be checked after heavy rains (minimum of annually) for signs of erosion. Any eroding areas must be repaired immediately to prevent premature sediment build-up in the downstream forebays or basin. Erosion matting is recommended for repairing grassed areas.
4. NO trees are to be planted or allowed to grow on the earthen berms. Tree root systems can reduce soil compaction and cause berm failure. The berms must be inspected annually and any woody vegetation removed.
5. Invasive plant and animal species shall be managed in compliance with Wisconsin Administrative Code Chapter NR 40. This may require eradication of invasive species in some cases.
6. If the permanent pool falls below the safety shelf, a review shall be performed to determine whether the cause is liner leakage or an insufficient water budget. If the cause is leakage, the liner shall be repaired. Leakage due to muskrat burrows may require removal of the animals. If the permanent pool cannot be sustained at the design elevation, benching of the safety shelf may be necessary.
7. If floating algae or weed growth becomes a nuisance (decay odors, etc.), it must be removed from the basin or the forebay and deposited where it cannot drain back into the basin. Removal of the vegetation from the water reduces regrowth the following season (by harvesting the nutrients). Wetland vegetation must be maintained along the water's edge for safety and pollutant removal purposes.
8. When sediment in the forebays or the basin has accumulated to an elevation of three feet below the outlet elevation, it must be removed (see Exhibit D). All removed sediment must be placed in an appropriate upland disposal site and stabilized (grass cover) to prevent sediment from washing back into the basin. The forebays

will likely need sediment removal first. Failure to remove sediment from the forebays will cause resuspension of previously trapped sediments and increase downstream deposition.

9. No grading or filling of the basin or berm other than for sediment removal is allowed, unless otherwise approved by the City of Waukesha.
10. Periodic mowing of the grass swales will encourage vigorous grass cover and allow better inspections for erosion. Waiting until after August 1 will avoid disturbing nesting wildlife. Mowing around the basin or the forebays may attract nuisance populations of geese to the property and is not necessary or recommended.
11. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City of Waukesha under the provisions listed on page 1 of this Agreement.
12. The owners of Basin 2, their successors and assigns, or their designee must document all inspections as specified above. Documentation shall include as a minimum: (a) Inspectors Name, Address and Telephone Number, (b) Date of Inspections, (c) Condition Report of the Storm Water Management Practice, (d) Corrective Actions to be Taken and Time Frame for Completion, (e) Follow-up Documentation after Completion of the Maintenance Activities. All documentation is to be delivered to the attention of the City Engineer at the City of Waukesha Engineering Department on January 10th and July 10th each year.

Figure 2-2

Wet Detention Basin #2: Outlet Structure Detail

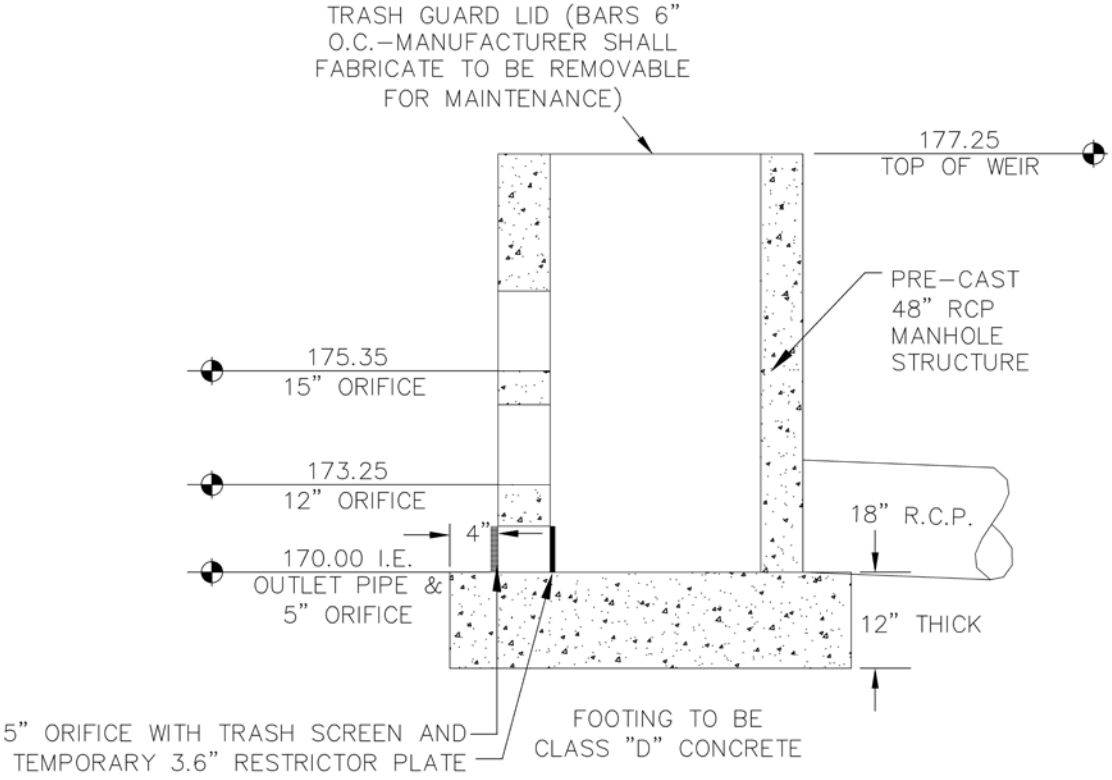


Figure 3-2
Wet Detention Basin #2: Cross-Section

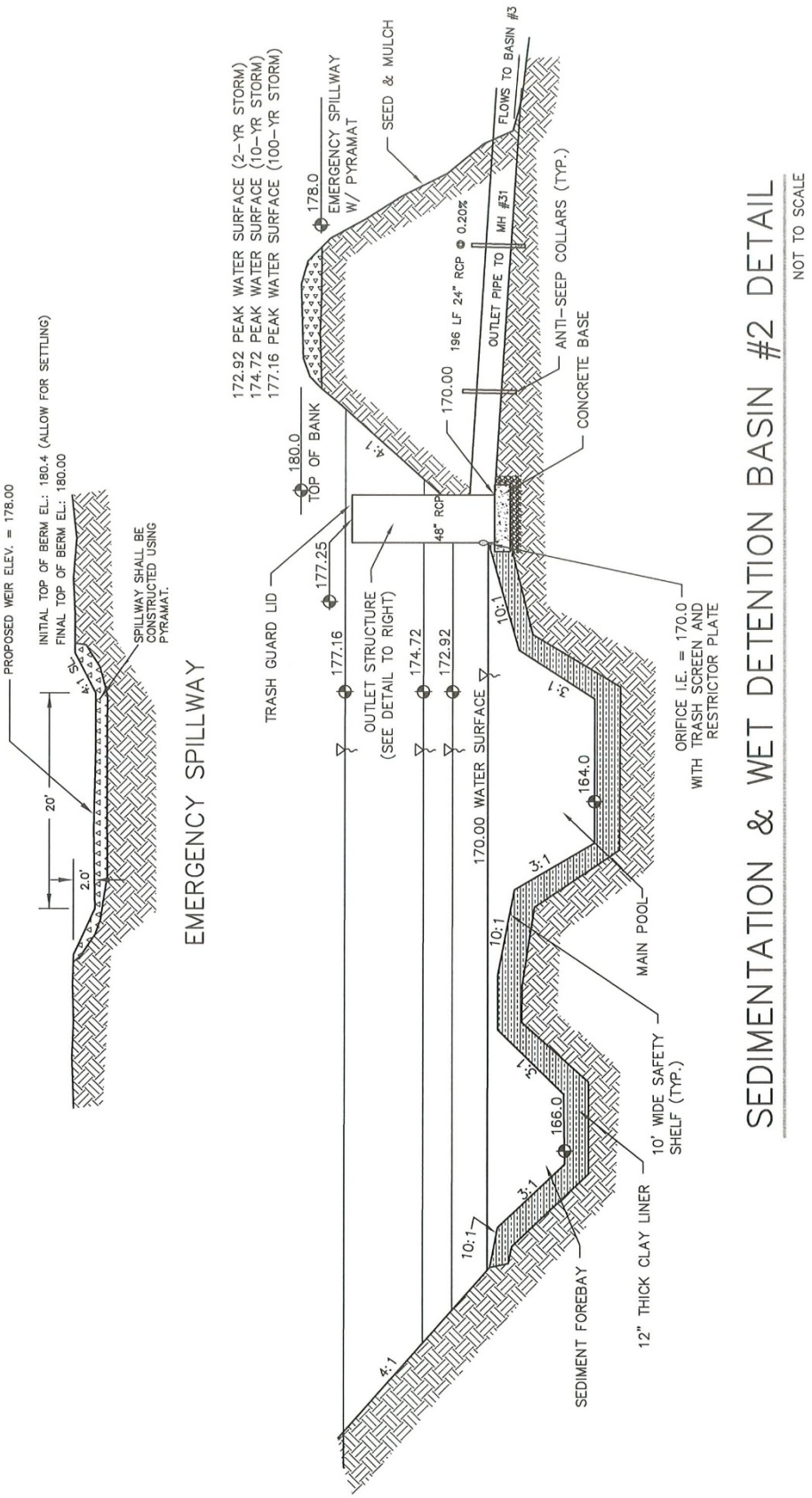


Exhibit B (3) - Location Map for Basin #3
Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of the construction plans, as shown below. The practices include one wet detention basin, two forebays, one grass swale (conveying storm water to the forebays) and all associated pipes, earthen berms and other components of these practices. All of the noted storm water management practices are located within a drainage easement, as noted in Exhibit A.

Subdivision Name**:** **Woodland Hills**
Storm water Practices**:** **Wet Detention Basin #3 – Main Pool & Secondary Pool, Forebays (3), Grass swales (3)**
Location of Practices**:** **See Final Plat for easement location & description**
Owners of Basin #3: Unit Owners of **Woodland Hills II Condominium**

Figure 1-3

Wet Detention Basin #3: Plan View of Storm Water Practices

Note: All drainage easement locations have been conveyed by the Final Plat for Woodland Hills, recorded on June 6th, 2006

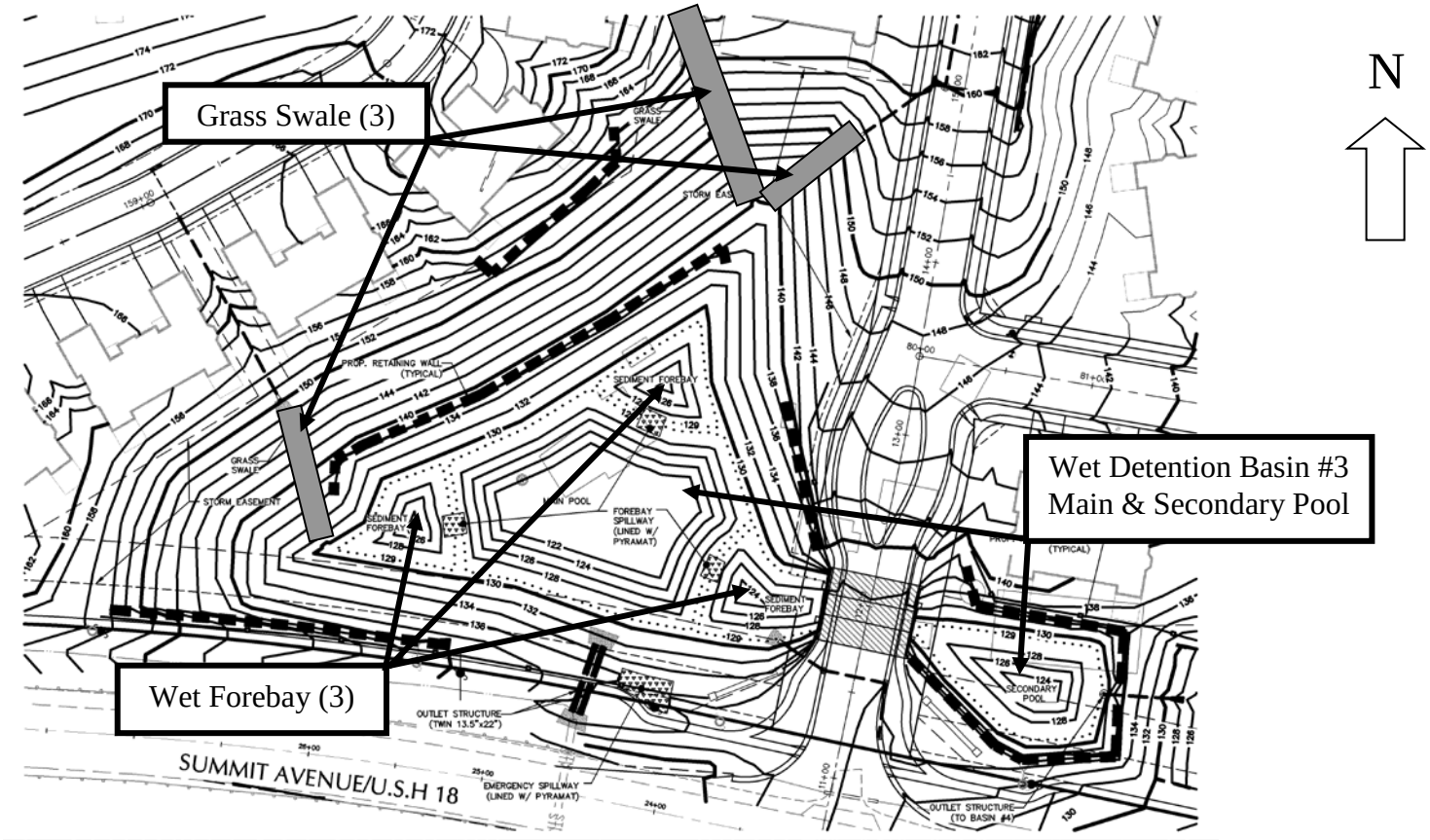


Exhibit C (3)
Storm Water Practice Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the minimum maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Owner(s) to enforcement of the provisions listed on page 1 of this Agreement by the City of Waukesha.

System Description:
Wet detention basin #3 is designed to trap at least 80% of sediment in runoff and maintain pre-development downstream peak flows. The basin has three forebays (smaller ponds). Three separate storm sewer runs outlet into Basin #3. Two of the storm sewer runs outlet on the north half of the basin, each to a grassed swale. The two separate grass swales merge together near the northernmost forebay. The westernmost forebay is also located at the downstream end of a grass swale that receives storm water from a storm sewer outlet. The third forebay receives storm water directly from the storm sewer outlet pipe. The forebays are each 5 feet deep. They are connected to the main pool by 10-foot wide earthen weirs (elevation 0.5 foot below permanent water surface elevation) that allow the storm water to spill into the main pool. The forebays will trap coarse sediments in runoff, such as road sands, thus reducing maintenance of the main basin. The main pool will trap the finer suspended sediment. To do this, the pond size, water level and outlet structures must be maintained as specified in this Agreement (see Figures 1-3, 2-3 & 3-3).

The main basin receives runoff from a 19.0 acres drainage area, as well as the detained storm water from Basin #2. The water level and flows are controlled by the outlet structures. Basin #3 has the appearance of two separate ponds however the bridge that spans it allows the water to flow freely and therefore function as one. There are two separate outlet structures for this basin. The first, located on the east side of the basin, is a 12" concrete pipe with a 36" RCP riser pipe. This outlet structure controls the water level and flows for the smaller storms entirely. The second outlet structure is located on the southwest side of the basin, it has two 13 ½" x 22" arched concrete pipes. Storm water begins to flow from these pipes during larger storm events. The two arched pipes drain to an existing culvert that carries water under USH 18/Summit Avenue. (see Figures 1-3 and 3-3) All elevations in the figures below represent planned values and are presented in feet using the City of Waukesha datum. "As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after City of Waukesha accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:
To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed:

1. All outlet pipes must be checked monthly to ensure there is no blockage from floating debris or ice, especially the washed stone in front of the 3-inch orifice and the trash rack on the riser in the main basin. Any blockage must be removed immediately. The washed stone must be replaced when it becomes clogged.
2. Grass swales shall be preserved to allow free flowing of surface runoff in accordance with approved grading plans. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt flows in any way.
3. Grass swales, inlets and outlets must be checked after heavy rains (minimum of annually) for signs of erosion. Any eroding areas must be repaired immediately to prevent premature sediment build-up in the downstream forebays or basin. Erosion matting is recommended for repairing grassed areas.
4. NO trees are to be planted or allowed to grow on the earthen berms. Tree root systems can reduce soil compaction and cause berm failure. The berms must be inspected annually and any woody vegetation removed.
5. Invasive plant and animal species shall be managed in compliance with Wisconsin Administrative Code Chapter NR 40. This may require eradication of invasive species in some cases.
6. If the permanent pool falls below the safety shelf, a review shall be performed to determine whether the cause is liner leakage or an insufficient water budget. If the cause is leakage, the liner shall be repaired. Leakage due to muskrat burrows may require removal of the animals. If the permanent pool cannot be sustained at the design elevation, benching of the safety shelf may be necessary.
7. If floating algae or weed growth becomes a nuisance (decay odors, etc.), it must be removed from the basin or the forebay and deposited where it cannot drain back into the basin. Removal of the vegetation from the

water reduces regrowth the following season (by harvesting the nutrients). Wetland vegetation must be maintained along the water's edge for safety and pollutant removal purposes.

8. When sediment in the forebays or the basin has accumulated to an elevation of three feet below the outlet elevation, it must be removed (see Exhibit D). All removed sediment must be placed in an appropriate upland disposal site and stabilized (grass cover) to prevent sediment from washing back into the basin. The forebays will likely need sediment removal first. Failure to remove sediment from the forebays will cause resuspension of previously trapped sediments and increase downstream deposition.
9. No grading or filling of the basin or berm other than for sediment removal is allowed, unless otherwise approved by the City of Waukesha.
10. Periodic mowing of the grass swales will encourage vigorous grass cover and allow better inspections for erosion. Waiting until after August 1 will avoid disturbing nesting wildlife. Mowing around the basin or the forebays may attract nuisance populations of geese to the property and is not necessary or recommended.
11. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City of Waukesha under the provisions listed on page 1 of this Agreement.
12. The owners of Basin #3, their successors and assigns, or their designee must document all inspections as specified above. Documentation shall include as a minimum: (a) Inspectors Name, Address and Telephone Number, (b) Date of Inspections, (c) Condition Report of the Storm Water Management Practice, (d) Corrective Actions to be Taken and Time Frame for Completion, (e) Follow-up Documentation after Completion of the Maintenance Activities. All documentation is to be delivered to the attention of the City Engineer at the City of Waukesha Engineering Department on January 10th and July 10th each year.

Figure 2-3

Wet Detention Basin #3: Outlet Structure Detail

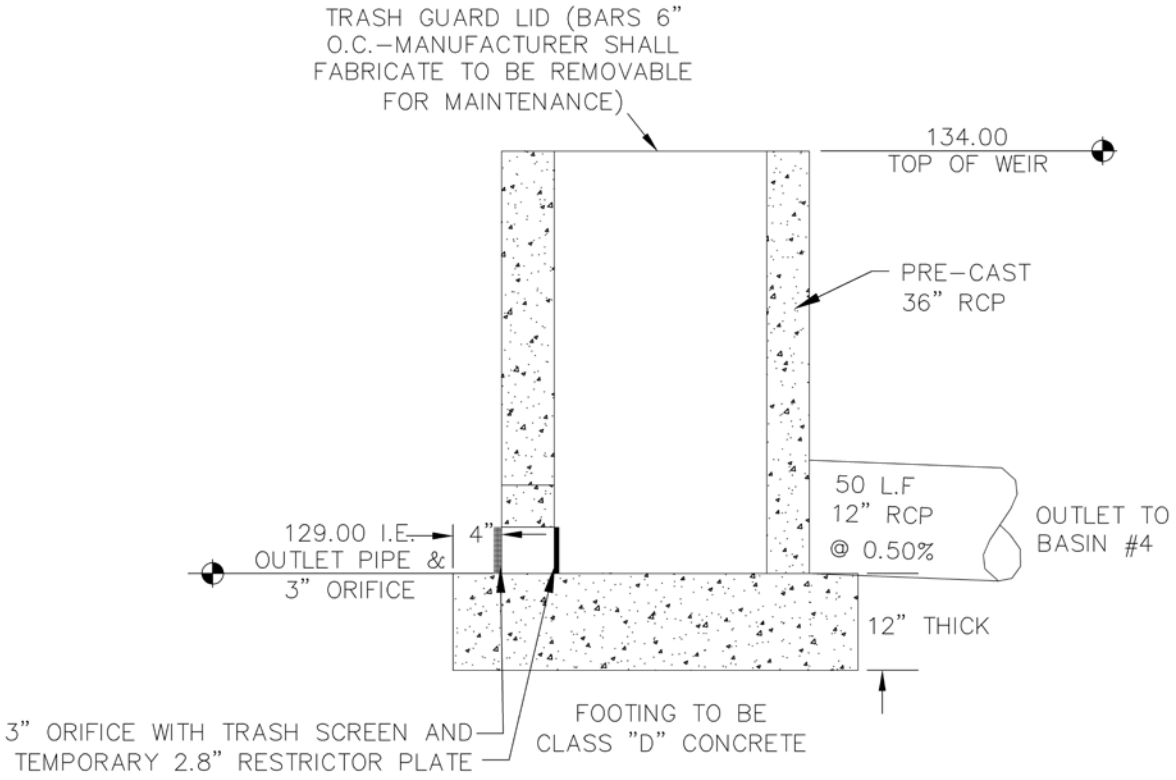


Figure 3-3
Wet Detention Basin #3: Cross-Section

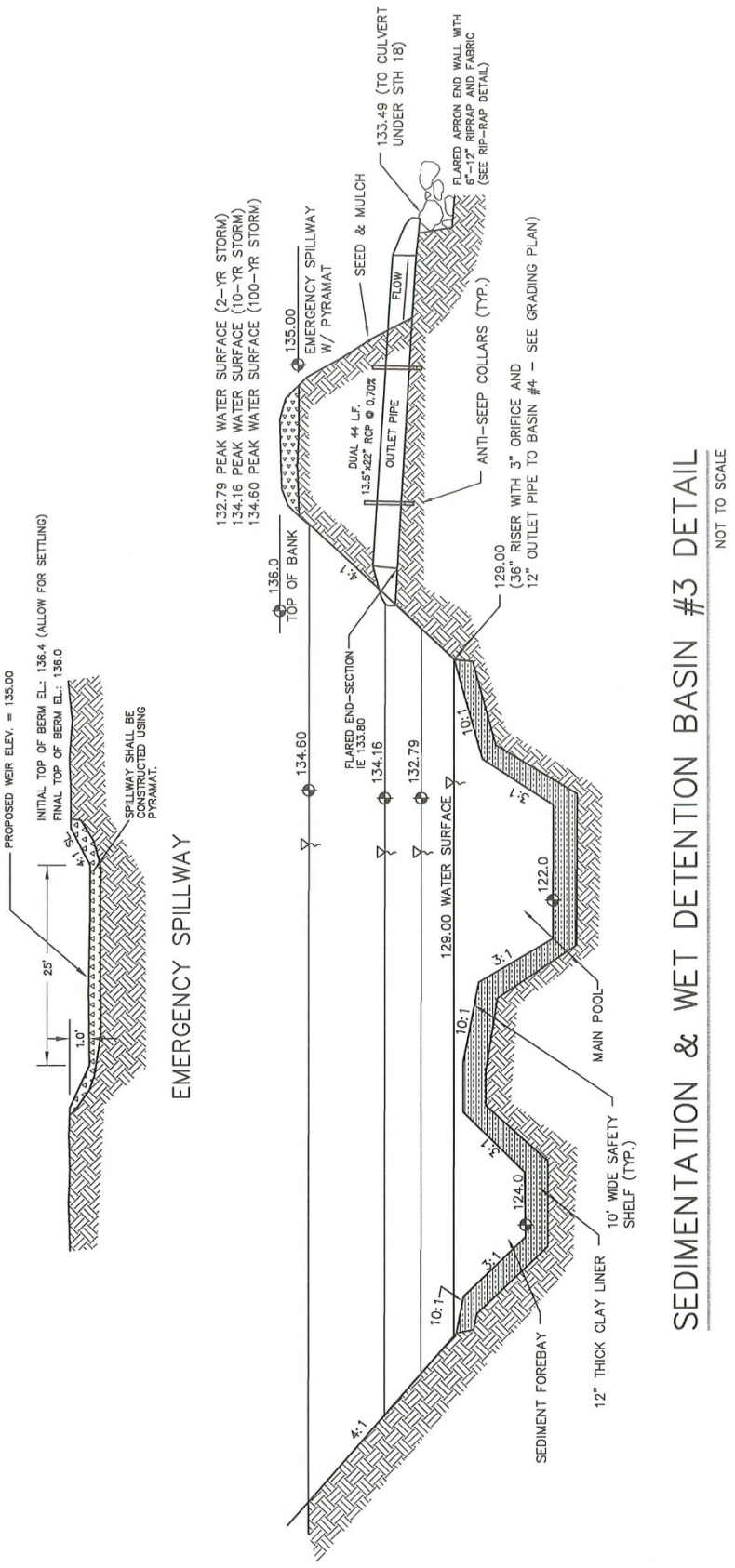


Exhibit B (4) - Location Map for Basin #4
Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of the construction plans, as shown below. The practices include one infiltration basin, one forebay, one rock-lined spillway (conveying storm water from Basin No. 3 to Basin No. 4) and all associated pipes, earthen berms and other components of these practices. All of the noted storm water management practices are located within a drainage easement, as noted in Exhibit A.

Subdivision Name**:** **Woodland Hills**
Storm water Practices**:** **Infiltration Basin #4, Forebay (1), Rock lined spillway from Basin #3**
Location of Practices**:** **See Final Plat for easement location & description**
Owners of Basin #4: Unit Owners of **Woodland Hills Condominium**

Figure 1-4

Wet Detention Basin #4: Plan View of Storm Water Practices
Note: All drainage easement locations have been conveyed by the Final Plat for Woodland Hills, recorded on June 6th, 2006

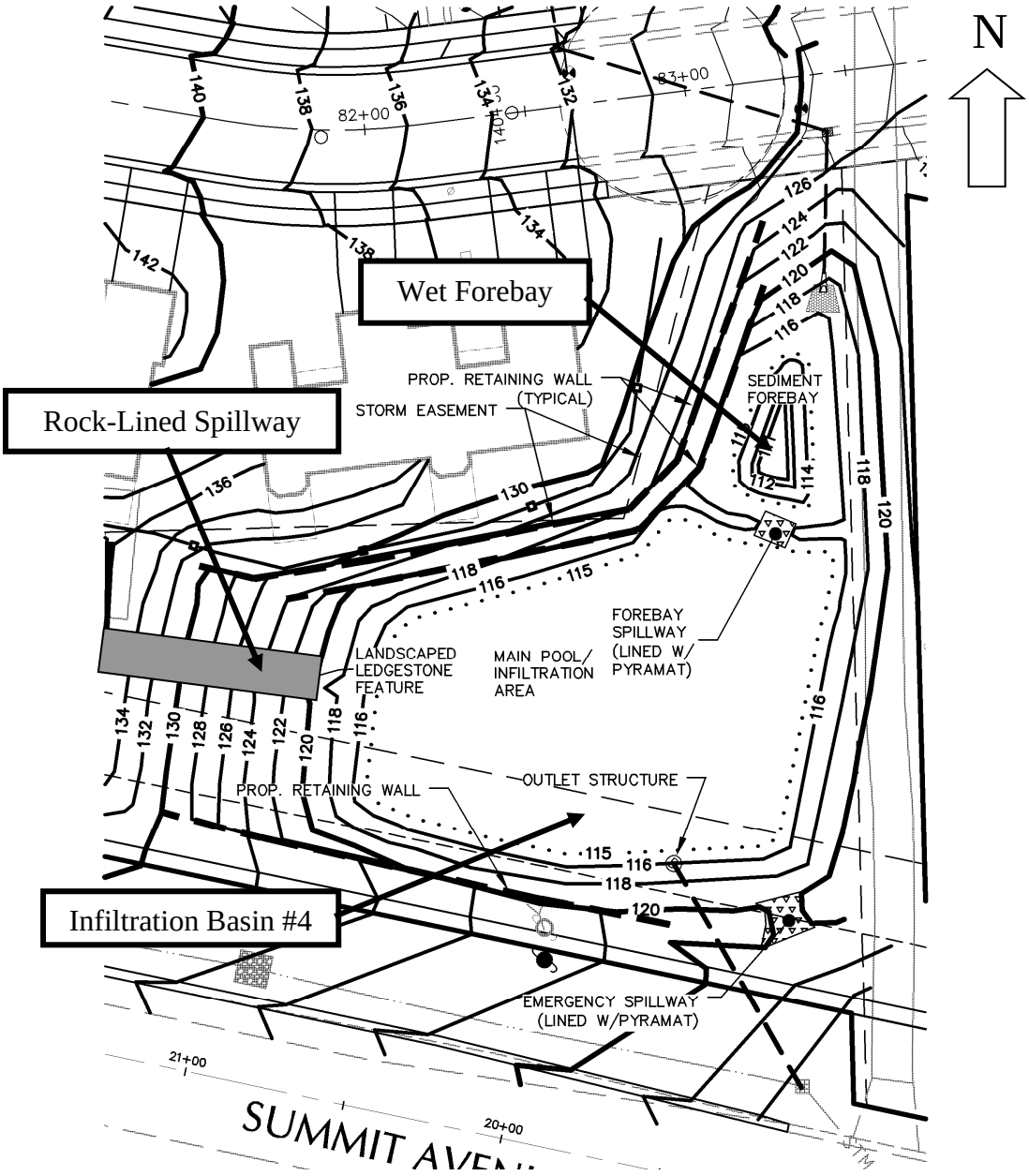


Exhibit C (4)
Storm Water Practice Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the minimum maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Owner(s) to enforcement of the provisions listed on page 1 of this Agreement by the City of Waukesha.

System Description:

Infiltration basin #4 is designed to reduce runoff volumes from the site after development by intercepting the runoff and allowing it to slowly seep (infiltrate) into the underlying soil and groundwater. One storm sewer run flows directly to the wet forebay where sediment shall settle out prior to entering the main infiltration basin, as well as the flows from Basin #3. The main pool will trap the finer suspended sediment. To do this, the pond size, water level and outlet structures must be maintained as specified in this Agreement (see Figures 1-4, 2-4 & 3-4).

The main basin receives runoff from a 3.6 acres drainage area, as well as the flows from Basin #3. The water level and flows are controlled by both infiltration, for the smaller storm events and an outlet structure. The outlet structure controls the water level and flows for the storms that cause the water surface to rise above the six inches of infiltration storage. A 12" concrete pipe is connected to an existing field inlet within the USH 18 right-of-way. A 48" RCP riser is connected to this pipe and it contains four orifices that controls the water levels and flows for the various storm events (see Figures 1-4 and 3-4). All elevations in the figures below represent planned values and are presented in feet using the City of Waukesha datum. "As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after City of Waukesha accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:

To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed:

1. All outlet pipes must be checked monthly to ensure there is no blockage from floating debris or ice, especially the washed stone in front of the 3-inch orifice and the trash rack on the riser in the main basin. Any blockage must be removed immediately. The washed stone must be replaced when it becomes clogged.
2. Grass swales shall be preserved to allow free flowing of surface runoff in accordance with approved grading plans. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt flows in any way.
3. Grass swales, inlets and outlets must be checked after heavy rains (minimum of annually) for signs of erosion. Any eroding areas must be repaired immediately to prevent premature sediment build-up in the downstream forebays or basin. Erosion matting is recommended for repairing grassed areas.
4. NO trees are to be planted or allowed to grow on the earthen berms. Tree root systems can reduce soil compaction and cause berm failure. The berms must be inspected annually and any woody vegetation removed.
5. Invasive plant and animal species shall be managed in compliance with Wisconsin Administrative Code Chapter NR 40. This may require eradication of invasive species in some cases.
6. If the permanent pool falls below the safety shelf, a review shall be performed to determine whether the cause is liner leakage or an insufficient water budget. If the cause is leakage, the liner shall be repaired. Leakage due to muskrat burrows may require removal of the animals. If the permanent pool cannot be sustained at the design elevation, benching of the safety shelf may be necessary.
7. If floating algae or weed growth becomes a nuisance (decay odors, etc.), it must be removed from the basin or the forebay and deposited where it cannot drain back into the basin. Removal of the vegetation from the water reduces regrowth the following season (by harvesting the nutrients). Wetland vegetation must be maintained along the water's edge for safety and pollutant removal purposes.
8. When sediment in the forebays or the basin has accumulated to an elevation of three feet below the outlet elevation, it must be removed (see Exhibit D). All removed sediment must be placed in an appropriate upland disposal site and stabilized (grass cover) to prevent sediment from washing back into the basin. The forebays

will likely need sediment removal first. Failure to remove sediment from the forebays will cause resuspension of previously trapped sediments and increase downstream deposition.

9. No grading or filling of the basin or berm other than for sediment removal is allowed, unless otherwise approved by the City of Waukesha.
10. Periodic mowing of the grass swales will encourage vigorous grass cover and allow better inspections for erosion. Waiting until after August 1 will avoid disturbing nesting wildlife. Mowing around the basin or the forebays may attract nuisance populations of geese to the property and is not necessary or recommended.
11. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City of Waukesha under the provisions listed on page 1 of this Agreement.
12. The owners of Basin #4, their successors and assigns, or their designee must document all inspections as specified above. Documentation shall include as a minimum: (a) Inspectors Name, Address and Telephone Number, (b) Date of Inspections, (c) Condition Report of the Storm Water Management Practice, (d) Corrective Actions to be Taken and Time Frame for Completion, (e) Follow-up Documentation after Completion of the Maintenance Activities. All documentation is to be delivered to the attention of the City Engineer at the City of Waukesha Engineering Department on January 10th and July 10th each year.

Figure 2-4

Infiltration Basin #4: Outlet Structure Detail

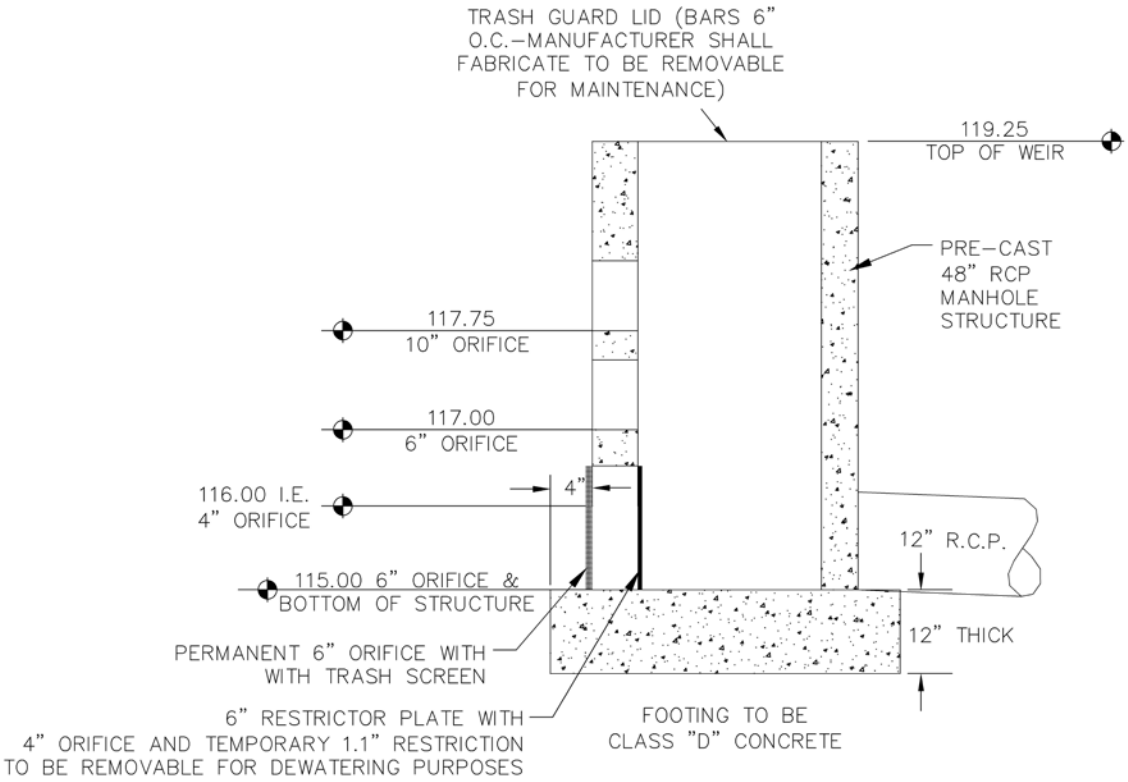


Figure 3-4
Infiltration Basin #4: Cross-Section

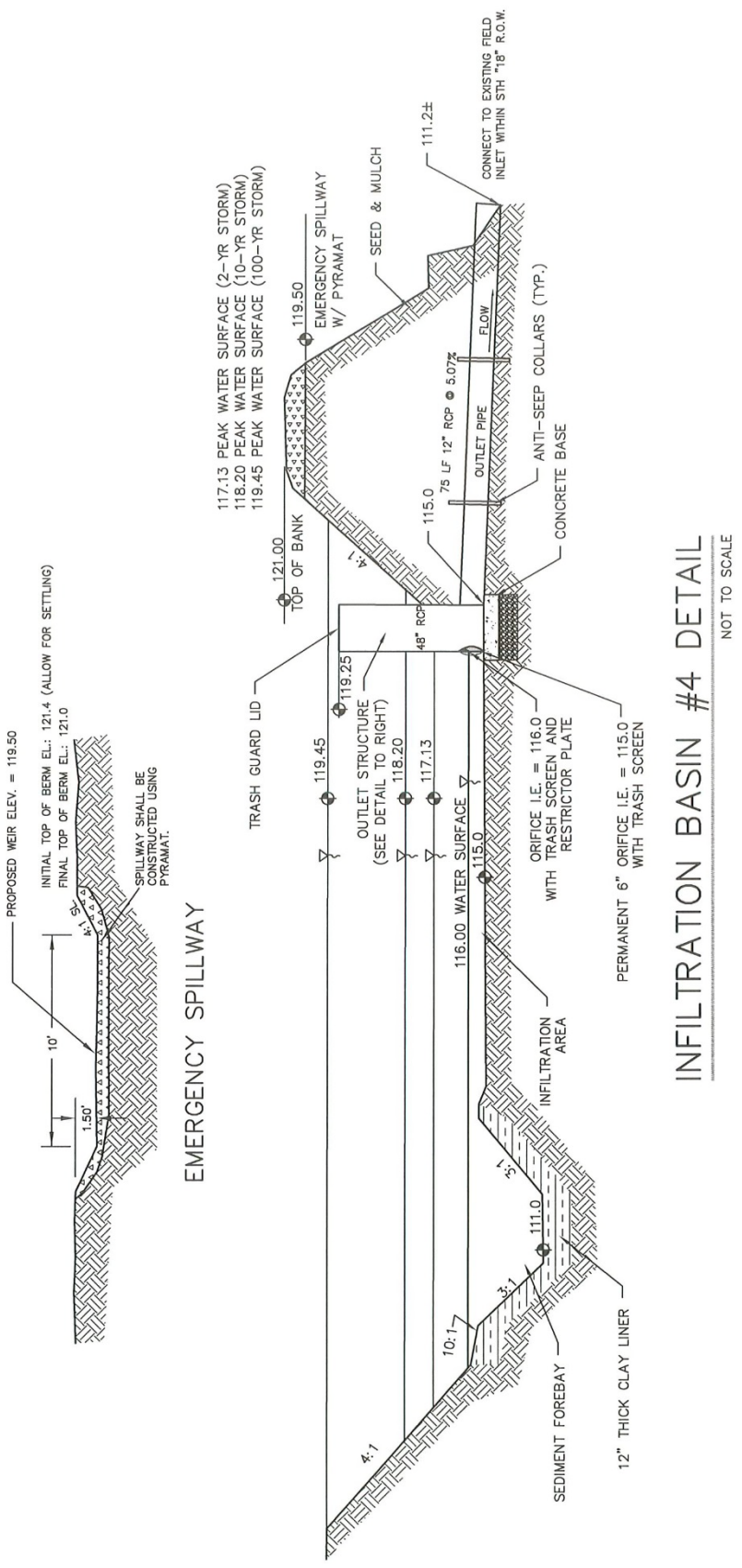


Exhibit B (5) - Location Map for Basin #5
Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of the construction plans, as shown below. The practices include one infiltration basin, one forebay, and all associated pipes, earthen berms and other components of these practices. All of the noted storm water management practices are located within a drainage easement, as noted in Exhibit A.

Subdivision Name**:** **Woodland Hills**
Storm water Practices**:** **Infiltration Basin #5 & Forebay (1)**
Location of Practices**:** **See Final Plat for easement location & description**
Owners of Basin #5: **Woodland Hills Development by Belman, Inc.**

Figure 1-5

Infiltration Basin #5: Plan View of Storm Water Practices
Note: All drainage easement locations have been conveyed by the Final Plat for Woodland Hills, recorded on June 6th, 2006

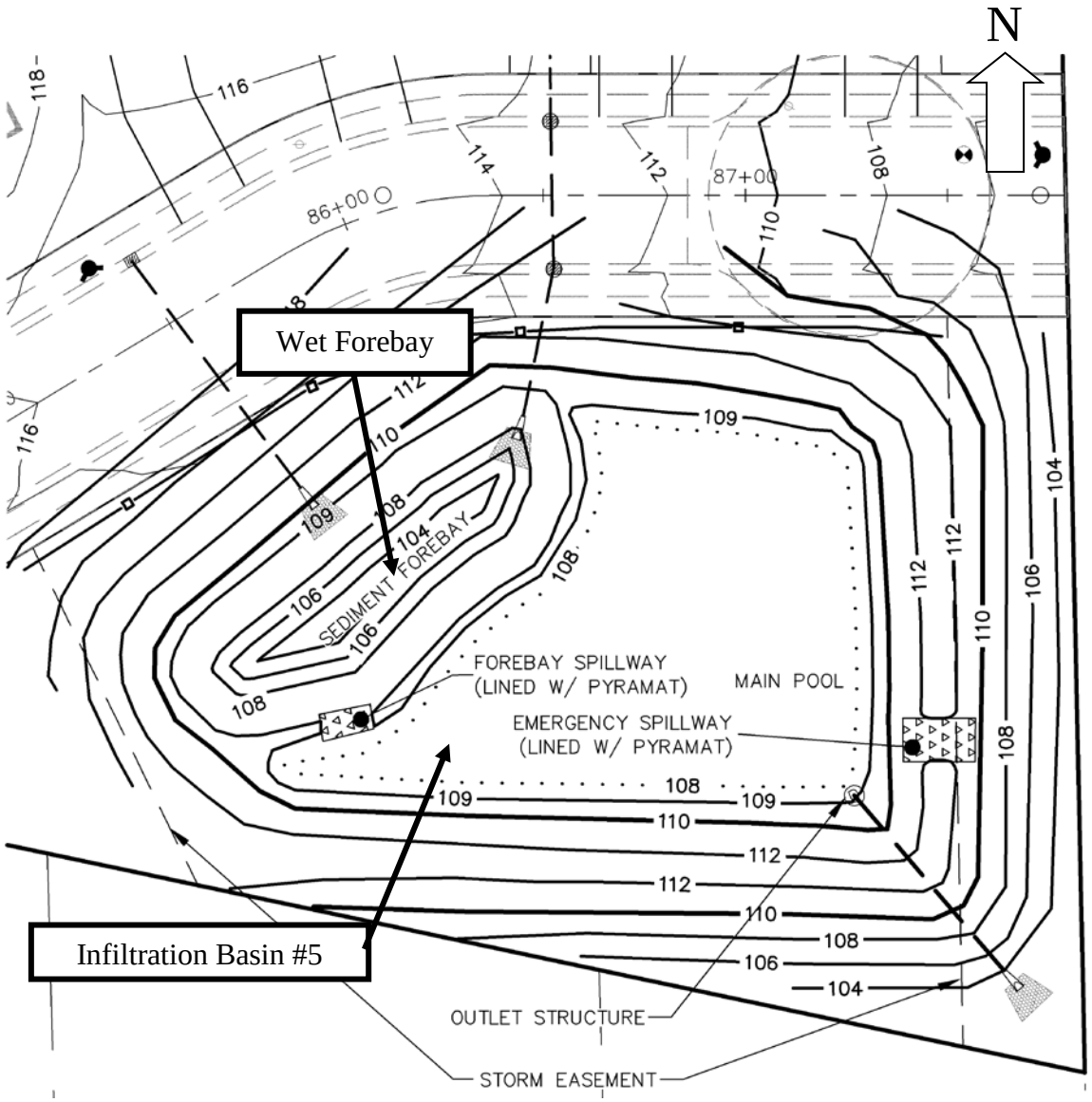


Exhibit C (5)
Storm Water Practice Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the minimum maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Owner(s) to enforcement of the provisions listed on page 1 of this Agreement by the City of Waukesha.

System Description:
Infiltration basin #5 is designed to reduce runoff volume from the site after development by intercepting the runoff and allowing it to slowly seep (infiltrate) into the underlying soil and groundwater. One storm sewer run flows directly to the basin. The storm sewer outlets into a forebay (small wet pond) located on the northwest end of the basin, it collects and settles out sediment prior to entering the main infiltration area. The main pool will trap the finer suspended sediment. To do this, the pond size, water level and outlet structures must be maintained as specified in this Agreement (see Figures 1-5, 2-5 & 3-5).

The main basin receives runoff from a 5.4 acres drainage area. The water level and flows are controlled by both infiltration, for the smaller storm events and an outlet structure. The outlet structure controls the water level and flows for the storms that cause the water surface to rise above the one foot of infiltration storage. A 12" concrete pipe outlets to the southeast, the existing flow of the run-off prior to developing. A 48" RCP riser is connected to this pipe and it contains three orifices that controls the water levels and flows for the various storm events (see Figures 1-5 and 3-5). All elevations in the figures below represent planned values and are presented in feet using the City of Waukesha datum. "As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after City of Waukesha accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:
To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed:

1. All outlet pipes must be checked monthly to ensure there is no blockage from floating debris or ice, especially the washed stone in front of the 3-inch orifice and the trash rack on the riser in the main basin. Any blockage must be removed immediately. The washed stone must be replaced when it becomes clogged.
2. Grass swales shall be preserved to allow free flowing of surface runoff in accordance with approved grading plans. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt flows in any way.
3. Grass swales, inlets and outlets must be checked after heavy rains (minimum of annually) for signs of erosion. Any eroding areas must be repaired immediately to prevent premature sediment build-up in the downstream forebays or basin. Erosion matting is recommended for repairing grassed areas.
4. NO trees are to be planted or allowed to grow on the earthen berms. Tree root systems can reduce soil compaction and cause berm failure. The berms must be inspected annually and any woody vegetation removed.
5. Invasive plant and animal species shall be managed in compliance with Wisconsin Administrative Code Chapter NR 40. This may require eradication of invasive species in some cases.
6. If the permanent pool falls below the safety shelf, a review shall be performed to determine whether the cause is liner leakage or an insufficient water budget. If the cause is leakage, the liner shall be repaired. Leakage due to muskrat burrows may require removal of the animals. If the permanent pool cannot be sustained at the design elevation, benching of the safety shelf may be necessary.
7. If floating algae or weed growth becomes a nuisance (decay odors, etc.), it must be removed from the basin or the forebay and deposited where it cannot drain back into the basin. Removal of the vegetation from the water reduces regrowth the following season (by harvesting the nutrients). Wetland vegetation must be maintained along the water's edge for safety and pollutant removal purposes.
8. When sediment in the forebays or the basin has accumulated to an elevation of three feet below the outlet elevation, it must be removed (see Exhibit D). All removed sediment must be placed in an appropriate upland

disposal site and stabilized (grass cover) to prevent sediment from washing back into the basin. The forebays will likely need sediment removal first. Failure to remove sediment from the forebays will cause resuspension of previously trapped sediments and increase downstream deposition.

9. No grading or filling of the basin or berm other than for sediment removal is allowed, unless otherwise approved by the City of Waukesha.
10. Periodic mowing of the grass swales will encourage vigorous grass cover and allow better inspections for erosion. Waiting until after August 1 will avoid disturbing nesting wildlife. Mowing around the basin or the forebays may attract nuisance populations of geese to the property and is not necessary or recommended.
11. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City of Waukesha under the provisions listed on page 1 of this Agreement.
12. The owner of Basin #5, its successors and assigns, or their designee must document all inspections as specified above. Documentation shall include as a minimum: (a) Inspectors Name, Address and Telephone Number, (b) Date of Inspections, (c) Condition Report of the Storm Water Management Practice, (d) Corrective Actions to be Taken and Time Frame for Completion, (e) Follow-up Documentation after Completion of the Maintenance Activities. All documentation is to be delivered to the attention of the City Engineer at the City of Waukesha Engineering Department on January 10th and July 10th each year.

Figure 2-5

Infiltration Basin #5: Outlet Structure Detail

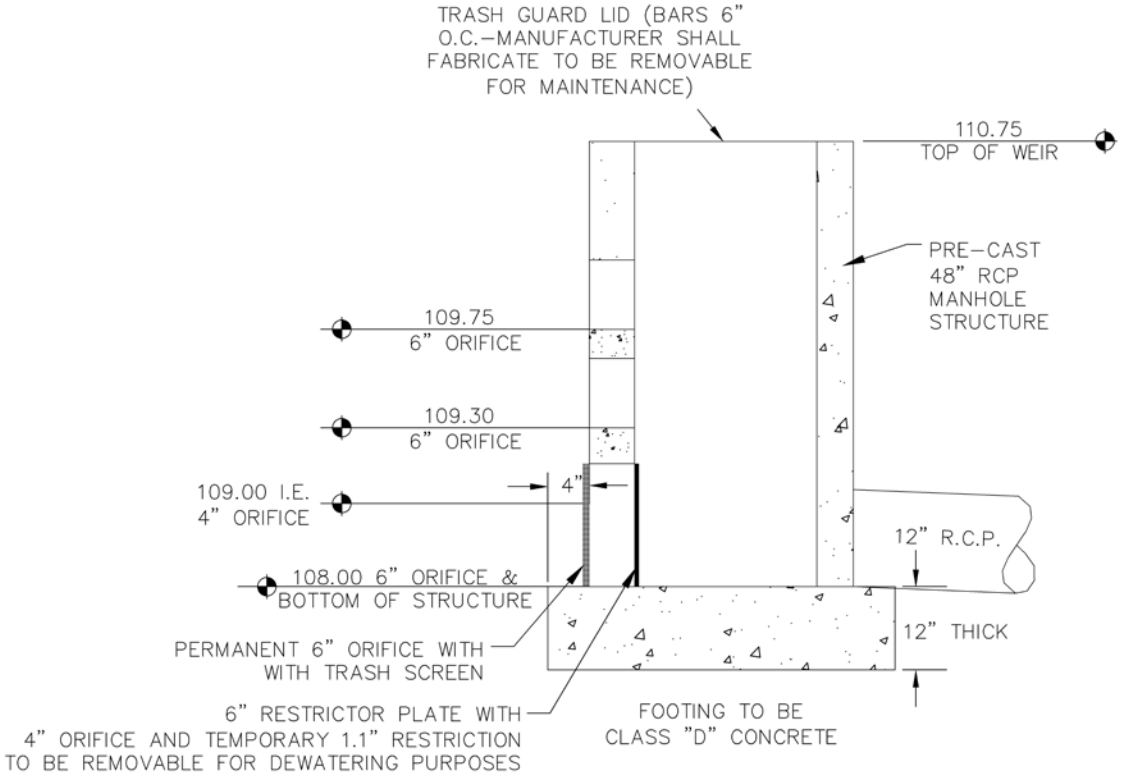


Figure 3-5
Infiltration Basin #5: Cross-Section

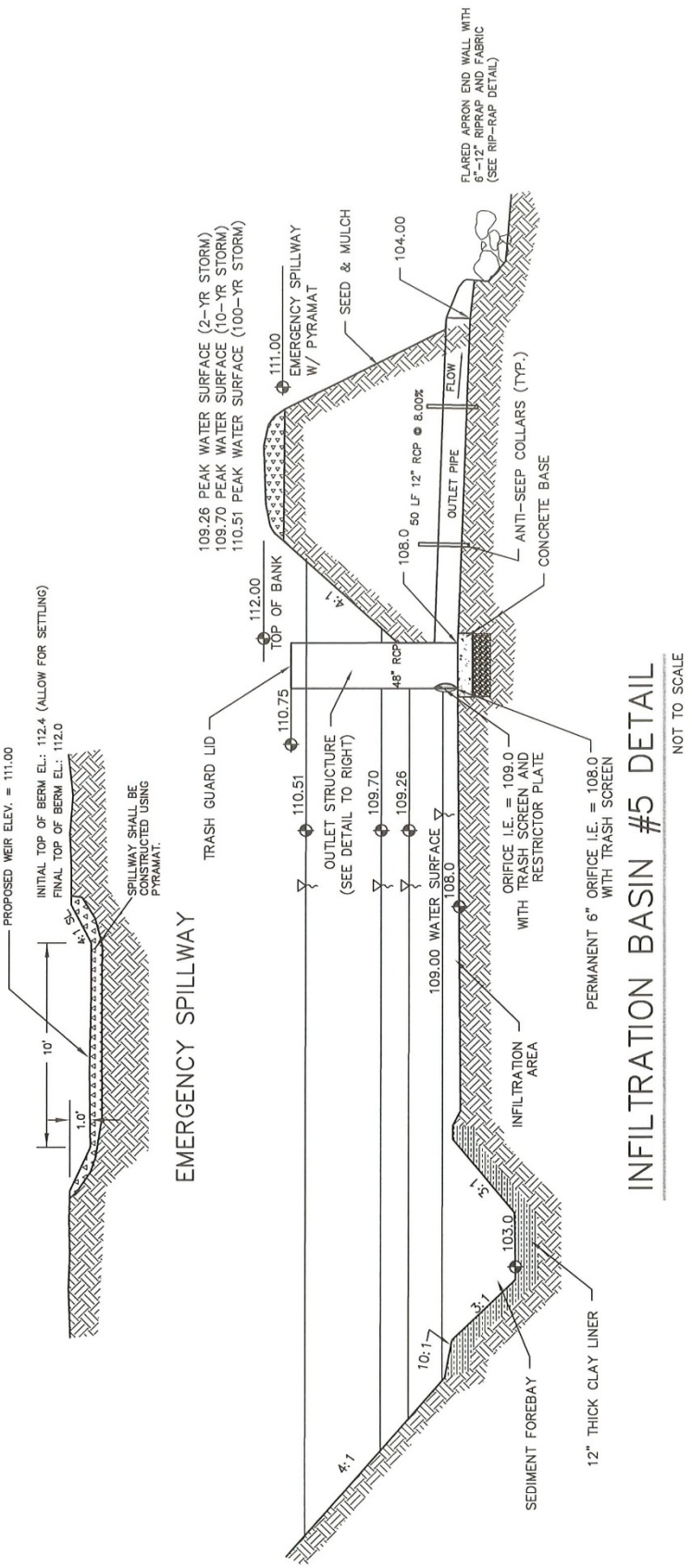


Exhibit B (6) - Location Map for Basin #6
Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of the construction plans, as shown below. The practices include one wet detention basin, two forebays, one grass swale (conveying storm water to the forebay) and all associated pipes, earthen berms and other components of these practices. All of the noted storm water management practices are located within a drainage easement, as noted in Exhibit A.

Subdivision Name: **Woodland Hills**
Storm water Practices: **Wet Detention Basin #6, Forebays (2), Grass swales (1)**
Location of Practices: **See Final Plat for easement location & description**
Owners of Basin #6: **Woodland Hills Development by Belman, Inc**

.Figure 1-6

Wet Detention Basin #6: Plan View of Storm Water Practices

Note: All drainage easement locations have been conveyed by the Final Plat for Woodland Hills, recorded on June 6th, 2006

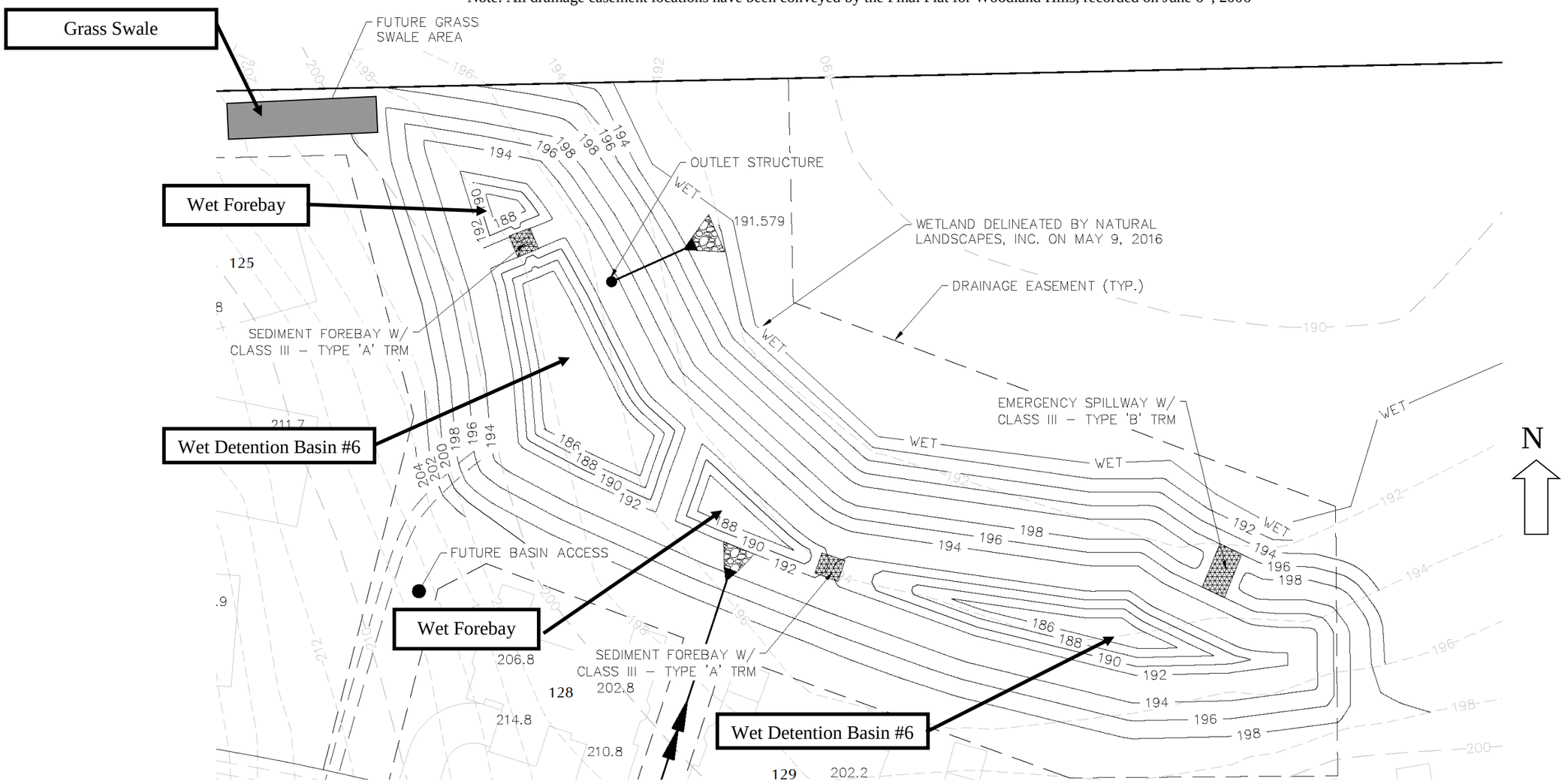


Exhibit C (6)
Storm Water Practice Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the minimum maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the stormwater practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Owner(s) to enforcement of the provisions listed on page 1 of this Agreement by the City of Waukesha.

System Description:
Wet detention basin #6 is designed to trap at least 80% of sediment in runoff and maintain pre-development downstream peak flows. The basin has two forebays (smaller ponds). A grass swale located along the north edge of the property drains storm water to the first, of the two, forebays. The second forebay collects the flows from a storm sewer pipe directly. The forebays are each 4 feet deep. They are connected to the main pool by 10-foot wide earthen berms that allow the storm water to spill into the main pool. The forebays will trap coarse sediments in runoff, such as road sands, thus reducing maintenance of the main basin. The main pool will trap the finer suspended sediment. To do this, the pond size, water level and outlet structures must be maintained as specified in this Agreement (see Figures 1-6, 2-6 and 3-6).

The main basin receives runoff from a 12.7 acres drainage area. The water level and flows are controlled by an outlet structure. The 12" concrete pipe directs the flow from the basin towards an existing wetland (see Figures 1-6 and 3-6). This pipe is attached to a 48" RCP riser that has multiple orifices that controls the water elevation for varying storm events. All elevations in the figures below represent planned values and are presented in feet using the City of Waukesha datum. "As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. will be recorded as an addendum(s) to this agreement within 60 days after City of Waukesha accepts verification of construction from the project engineer.

Minimum Maintenance Requirements:
To ensure the proper long-term function of the storm water management practices described above, the following activities must be completed:

1. All outlet pipes must be checked monthly to ensure there is no blockage from floating debris or ice, especially the washed stone in front of the 3-inch orifice and the trash rack on the riser in the main basin. Any blockage must be removed immediately. The washed stone must be replaced when it becomes clogged.
2. Grass swales shall be preserved to allow free flowing of surface runoff in accordance with approved grading plans. No buildings or other structures are allowed in these areas. No grading or filling is allowed that may interrupt flows in any way.
3. Grass swales, inlets and outlets must be checked after heavy rains (minimum of annually) for signs of erosion. Any eroding areas must be repaired immediately to prevent premature sediment build-up in the downstream forebays or basin. Erosion matting is recommended for repairing grassed areas.
4. NO trees are to be planted or allowed to grow on the earthen berms. Tree root systems can reduce soil compaction and cause berm failure. The berms must be inspected annually and any woody vegetation removed.
5. Invasive plant and animal species shall be managed in compliance with Wisconsin Administrative Code Chapter NR 40. This may require eradication of invasive species in some cases.
6. If the permanent pool falls below the safety shelf, a review shall be performed to determine whether the cause is liner leakage or an insufficient water budget. If the cause is leakage, the liner shall be repaired. Leakage due to muskrat burrows may require removal of the animals. If the permanent pool cannot be sustained at the design elevation, benching of the safety shelf may be necessary.
7. If floating algae or weed growth becomes a nuisance (decay odors, etc.), it must be removed from the basin or the forebay and deposited where it cannot drain back into the basin. Removal of the vegetation from the water reduces regrowth the following season (by harvesting the nutrients). Wetland vegetation must be maintained along the water's edge for safety and pollutant removal purposes.

8. When sediment in the forebays or the basin has accumulated to an elevation of three feet below the outlet elevation, it must be removed (see Exhibit D). All removed sediment must be placed in an appropriate upland disposal site and stabilized (grass cover) to prevent sediment from washing back into the basin. The forebays will likely need sediment removal first. Failure to remove sediment from the forebays will cause resuspension of previously trapped sediments and increase downstream deposition.
9. No grading or filling of the basin or berm other than for sediment removal is allowed, unless otherwise approved by the City of Waukesha.
10. Periodic mowing of the grass swales will encourage vigorous grass cover and allow better inspections for erosion. Waiting until after August 1 will avoid disturbing nesting wildlife. Mowing around the basin or the forebays may attract nuisance populations of geese to the property and is not necessary or recommended.
11. Any other repair or maintenance needed to ensure the continued function of the storm water practices or as ordered by the City of Waukesha under the provisions listed on page 1 of this Agreement.
12. The owner of Basin #6, its successors and assigns, or their designee must document all inspections as specified above. Documentation shall include as a minimum: (a) Inspectors Name, Address and Telephone Number, (b) Date of Inspections, (c) Condition Report of the Storm Water Management Practice, (d) Corrective Actions to be Taken and Time Frame for Completion, (e) Follow-up Documentation after Completion of the Maintenance Activities. All documentation is to be delivered to the attention of the City Engineer at the City of Waukesha Engineering Department on January 10th and July 10th each year.

Figure 2-6

Wet Detention Basin #6: Outlet Structure Detail

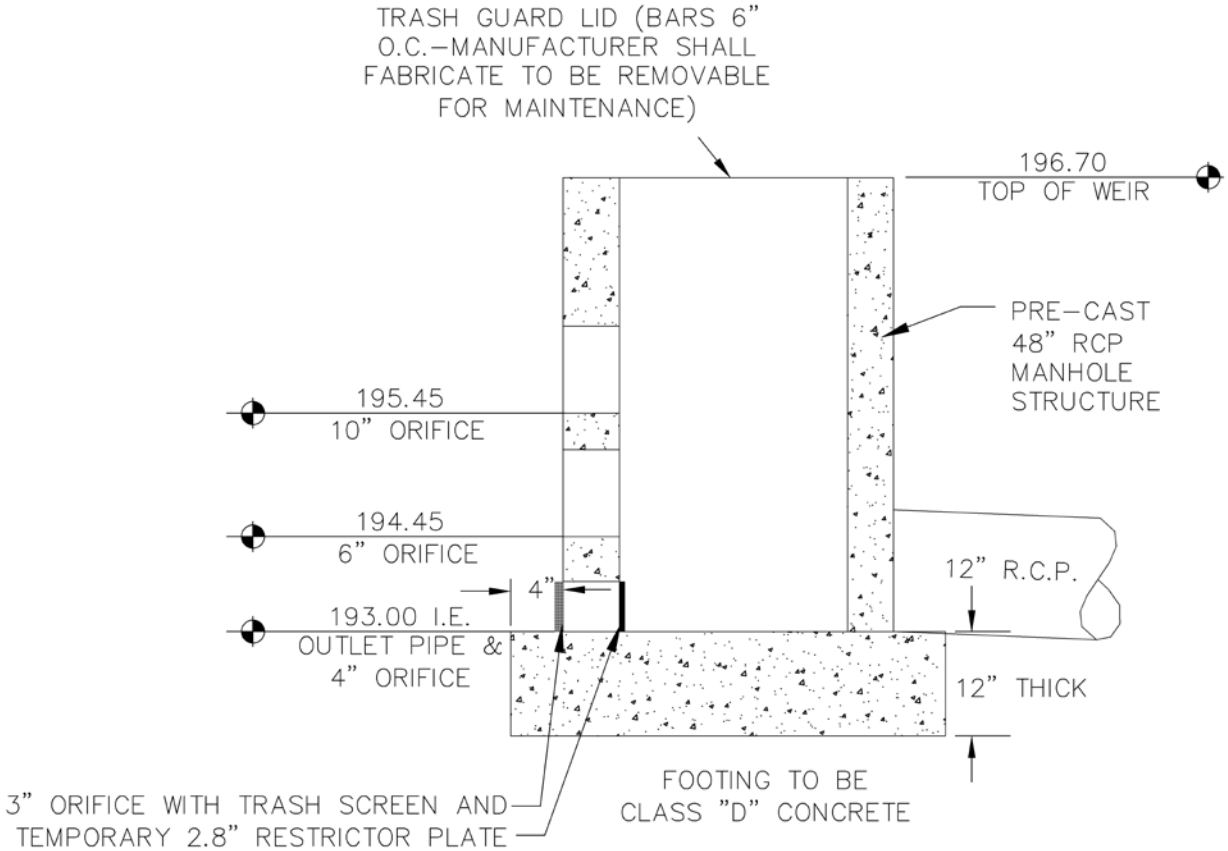
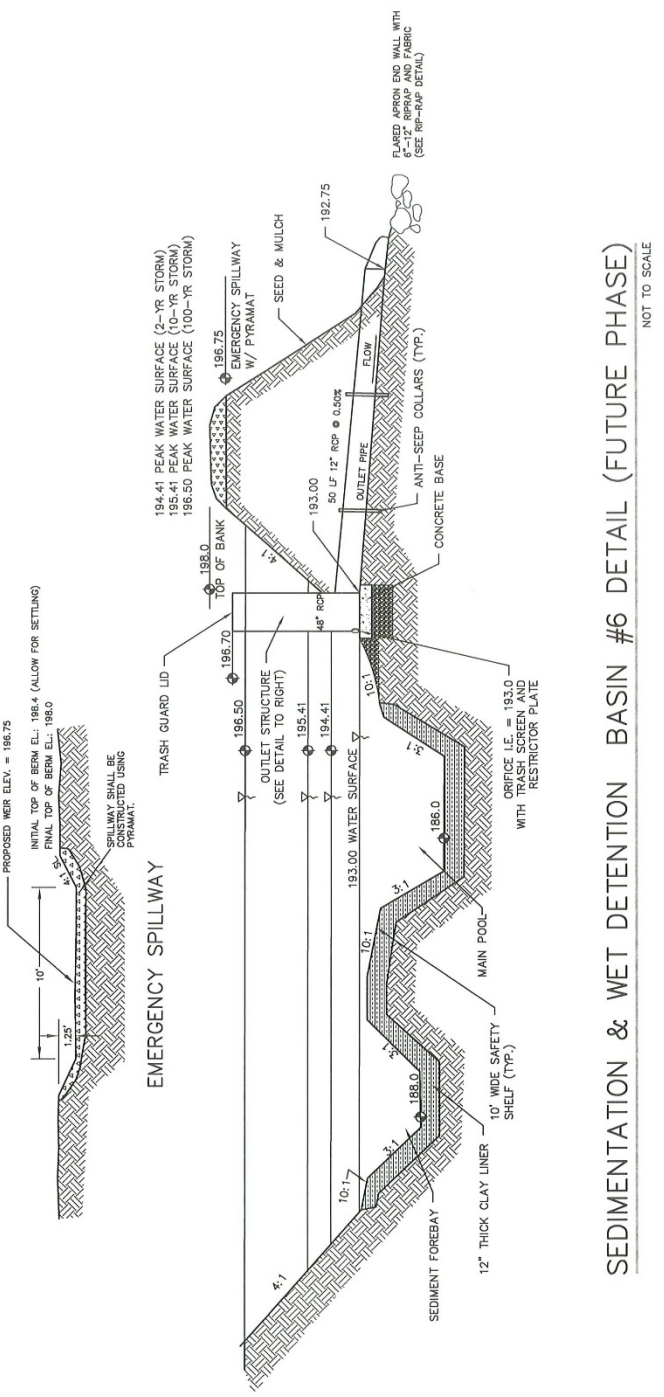


Figure 3-6
Wet Detention Basin #6: Cross-Section



Document number

Addendum 1
Storm Water Management Practice Maintenance Agreement

The purpose of this addendum is to record verified "as-built" construction details, supporting design data and permit termination documentation for the storm water management practice(s) within Woodland Hills Subdivision, described as being a part of lot 1, 2, 3, 4, 5 and Lot 6 of Woodland Hills Subdivision, located in the SW ¼ of the NE ¼ of Section 31, and part of the NW ¼ of the SE ¼ of Section 31, and part of the NE ¼ of the SW ¼ of section 31, T. 7 N., R. 19 E., City of Waukesha, Waukesha County, Wisconsin. This document shall serve as an addendum to the Amended and Restated Storm Water Management Practice Maintenance Agreement to which it is attached _____, herein referred to as the "Agreement".

This addendum includes all of the following exhibits:

Exhibit D: Design & As-Built Summary – contains a summary of key engineering calculations and other data used to design & as-built the storm water basins.

Exhibit E: As-built Survey – shows detailed "as-built" cross-section and plan view of the wet detention basin(s).

Exhibit F: Engineering/Construction Verification – provides verification from the project engineer that the design and construction of the wet detention basin complies with all applicable technical standards and Waukesha County ordinance requirements.

Exhibit G: Storm Water Management & Erosion Control Permit Termination– provides certification by the City of Waukesha that the Storm Water and Erosion Control Permit for the above noted site has been terminated.

Exhibit H: Parcel Identification Numbers – A list of the PIN numbers for the associated properties for the Woodland Hills Amended and Restated Storm Water Management Practice Maintenance and the associated Addendum 1

Name and Return Address

City of Waukesha
130 Delafield Street
Waukesha, WI 53188

See Exhibit H
Parcel Identification Number(s) – (PIN)

Dated this ___ day of _____, 2017.

Woodland Hills Development by Belman, Inc., Owner:

_____
By: Don Belman, President

Acknowledgements

State of Wisconsin County of Waukesha

Personally came before me this ____ day of _____, 2017, the above named Don Belman to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____.
[Name]
Notary Public, Waukesha County, WI
My commission expires:_____.

This document was drafted by:

Brian T. Pehl, PE
SEH
501 Maple Ave.,
Delafield, WI 53018

Exhibit D
Design Summaries for As-Built Wet Storm Water Basins

Project Identifier: Woodland Hills Subdivision **Project Size:** 81 Acres **No. of Lots:** 6 with up to 261 Condominium Units upon completion of development
Number of Runoff Discharge Points: 3 **Watershed (ultimate discharge)**: Pebble Creek
Watershed Area (including off-site runoff traveling through project area): 118.4 acres (37.4 off-site)

Watershed Data Summary. The following table summarizes the watershed data used to determine peak flows and runoff volumes required to design Wet Detention Basin #1, #2 & #3 (all 3 Basins are built) for the Southern Drainage Area.

Summary Data Elements		Drainage to South			
	Pre-developed	Post - to Basin #1 (Built)	Post - to Basin #2 (Built)	Post - to Basin #3 (Built)	Post - to Culvert directly
Watershed Area (acres)	82.2 acres	31.9 acres	26.1 acres	19.0 acres	12.7 acres
Average Watershed Slopes (%)	3-20%	0.5 - 25%	0.5 - 25%	1.0% - 25%	1.0% - 25%
Land Uses (%)	82% Crops 18% Woods	55% Crops 44% Resid. 1% Woods	63% Resid. 33% Crops 4% Woods	95% Resid. 5% Woods	80% Resid. 20% Woods
Runoff Curve Numbers	68.5 x 70 13.7 x 55 RCN = 68	17.4 x 70 14.0 x 80 0.5 x 55 RCN = 74	16.6 x 80 8.5 x 70 1.0 x 55 RCN = 76	18.0 x 80 1.0 x 55 RCN = 79	10.2 x 70 2.5 x 55 RCN = 67
Conveyance Systems	Sheet Flow & Roadside Swale	Sheet Flow & Storm Sewer	Sheet Flow & Storm Sewer	Sheet Flow & Storm Sewer	Sheet Flow & Roadside Swale
Time of Concentration (Tc)	46.0 minutes	31.9 minutes	35.8 minutes	28.7 minutes	29.2 minutes
1 yr/24 hr. Runoff Volume	2.03 ac-ft	1.37 ac-ft	1.29 ac-ft	1.12 ac-ft	0.29 ac-ft
2 yr/24 hr. Peak Flow	18.28 cfs	15.31 cfs	14.69 cfs	15.84 cfs	3.65 cfs
10 yr/24 hr. Peak Flow	57.18 cfs	36.95 cfs	33.28 cfs	32.85 cfs	11.90 cfs
100 yr/24 hr. Peak Flow	117.10 cfs	67.54 cfs	59.00 cfs	56.46 cfs	24.57 cfs

Exhibit D (continued)

Watershed Data Summary. The following table summarizes the watershed data used to determine peak flows and runoff volumes required for design Storm Water Basins #4 & #5 for the Southeastern Drainage Area.

Summary Data Elements		Drainage to Southeast		
	Pre-developed	Post - to Basin #4 (Built)	Post - to Basin #5 (Not-Built)	Post - Undetained
Watershed Area (acres)	27.0 acres	3.6 acres	5.4 acres	3.6 acres
Average Watershed Slopes (%)	1.0% - 25%	5.0 - 25%	1.0% - 25%	1.0% - 25%
Land Uses (%)	81% Crops 19% Woods	100% Resid.	100% Resid.	100% Resid.
Runoff Curve Numbers	22.0 x 70 5.0 x 55 RCN = 67	CN = 80	CN = 80	CN = 80
Conveyance Systems	Sheet Flow & Roadside Swale	Sheet Flow & Storm Sewer	Sheet Flow & Storm Sewer	Sheet Flow
Time of Concentration (Tc)	18.9 minutes	15.3 minutes	15.9 minutes	10.0 minutes
1 yr/24 hr. Runoff Volume	0.58 ac-ft	0.21 ac-ft	0.32 ac-ft	0.21 ac-ft
2 yr/24 hr. Peak Flow	10.16 cfs	3.92 cfs	5.88 cfs	3.92 cfs
10 yr/24 hr. Peak Flow	31.23 cfs	8.09 cfs	12.13 cfs	8.09 cfs
100 yr/24 hr. Peak Flow	64.26 cfs	13.65 cfs	20.47 cfs	13.65 cfs

Exhibit D (continued)

Watershed Data Summary. The following table summarizes the watershed data used to determine peak flows and runoff volumes required to design Wet Detention Basin #6 for the Northern Drainage Area.

Summary Data Elements		Drainage to North	
	Pre-developed	**Post - to Basin #6**	**Post - undetained**
Watershed Area (acres)	14.3 acres	12.7 acres	3.4 acres
Average Watershed Slopes (%)	3-20%	0.5 - 25%	1.0 - 15%
Land Uses (%)	80% Crops 14% Woods 6% Wetland	100% Resid.	53% Open/Park 26% Wetland 21% Resid.
Runoff Curve Numbers	11.4 x 70 2.0 x 55 0.9 x 80 RCN = 69	CN = 80	1.8 x 61 0.9 x 80 0.7 x 80 RCN = 70
Conveyance Systems	Sheet Flow	Sheet Flow, Storm Sewer & Swale	Sheet Flow
Time of Concentration (Tc)	26.8 minutes	33.8 minutes	26.9 minutes
1 yr/24 hr. Runoff Volume	0.40 ac-ft	0.82 ac-ft	0.10 ac-ft
2 yr/24 hr. Peak Flow	5.19 cfs	9.43 cfs	1.37 cfs
10 yr/24 hr. Peak Flow	15.16 cfs	19.26 cfs	3.82 cfs
100 yr/24 hr. Peak Flow	30.00 cfs	32.36 cfs	7.41 cfs

Exhibit D (continued)

Practice As-Built Summary. The following table summarizes the as-built data used to model Wet Detention Basin #1.

Design Element	Design & As-Built Data
Site assessment data: (see attached maps)	
Contributing drainage area to basin (subwatershed 1)	31.9 acres
Distance to nearest private well (including off-site wells)	> 100 feet
Distance to municipal well (including off-site wells)	> 1200 feet
Wellhead protection area involved?	No
Ground slope at site of proposed basin	average 25%
Any buried or overhead utilities in the area?	No
Proposed outfall conveyance system/discharge (w/ distances)	161 ft. 24" Storm Sewer
Any downstream roads or other structures? (describe)	Outlet to Basin #2
Floodplain, shoreland or wetlands?	Adjacent to Wetland
Soil investigation data (see attached map & soil logs):	
Number of soil investigations completed	2 Borings Within Basin
Do elevations of test holes extend 3 ft. below proposed bottom?	Yes
Average soil texture at pond bottom elevation (USDA)	Silty Clay loam
Distance from pond bottom to bedrock	N/A
Distance from pond bottom to seasonal water table	4 ft. +/-
General basin As-Built data (see attached detailed drawings):	
Permanent pool surface area	25,172 SF
As-Built permanent pool water surface elevation	Elev. 180.1
Top of berm elevation (after settling) and width	elev. 905.0 / 10 feet wide
Length/width (dimensions/ratio)	5:1 +/-
Safety shelf design (length, grade, max. depth)	8' – 10' wide, 10:1, 1 ft. deep
Ave. water depth (minus safety shelf/sediment)	5 ft.
Sediment forebay size & depth	7,300 SF (5' deep) & 3,900 SF (4' deep)
Sediment storage depth & design maintenance	(175.0-177.0) & (176.0-178.0)

As-Built Basin Inflow, Outflow & Storage Data
(see attached hydrographs and detail drawings)

Inflow Peak/Volume	Maximum Outflow Rate	Max. Water Elevation	Storage Volume at Max. Elev. (above perm. pool)	Outflow Control Structures
1.37 Ac-Ft (1-yr./24 hr. volume)	0.47 cfs	181.52	0.93 Ac-Ft	4" Orifice
15.31 cfs (Post 2-yr./24 hr. peak)	0.58 cfs	182.21	1.43 Ac-Ft	4"& 12" Orifices
36.95 cfs (Post 10-yr./24 hr. peak)	3.88 cfs	183.42	2.41 Ac-Ft	4" & 12" Orifices
67.54 cfs (Post 100-yr./24 hr. peak)	11.84 cfs	185.28	4.08 Ac-Ft	4", 12" & 15" Orifices

As-Built Basin #1 control elements summary:

1) 4" Orifice (180.1) 12" Orifice (182.2), 15" Orifice (183.9), 48" Riser (186.00)
2) 15' wide emergency overflow spillway (186.7)

Exhibit D (continued)

Practice As-Built Summary. The following table summarizes the as-built data used to model Wet Detention Basin #2.

Design Element	Design & As-Built Data
Site assessment data: (see attached maps)	
Contributing drainage area to basin (subwatershed 2)	26.1 acres & Basin #1 Outflow
Distance to nearest private well (including off-site wells)	> 100 feet
Distance to municipal well (including off-site wells)	> 1200 feet
Wellhead protection area involved?	No
Ground slope at site of proposed basin	average 25%
Any buried or overhead utilities in the area?	No
Proposed outfall conveyance system/discharge (w/ distances)	196 lf. 24" Storm Sewer
Any downstream roads or other structures? (describe)	Outlet to Basin #3
Floodplain, shoreland or wetlands?	No
Soil investigation data (see attached map & soil logs):	
Number of soil investigations completed	2 Borings Within Basin
Do elevations of test holes extend 3 ft. below proposed bottom?	Yes
Average soil texture at pond bottom elevation (USDA)	Sandy Loam/Sandy Clay loam
Distance from pond bottom to bedrock	N/A
Distance from pond bottom to seasonal water table	7.4 ft. +/-
General basin As-Built data (see attached detailed drawings):	
Permanent pool surface area	13,684 SF
As-Built permanent pool water surface elevation	Elev. 170.1
Top of berm elevation (after settling) and width	elev. 180.0 / 10 feet wide
Length/width (dimensions/ratio)	1:1+/-
Safety shelf design (length, grade, max. depth)	10' wide, 10:1, 1 ft. deep
Ave. water depth (minus safety shelf/sediment)	5 ft.
Sediment forebay size & depth	3,800 SF (5' deep) & 2,350 SF (5' deep)
Sediment storage depth & design maintenance	(163.0-165.0) & (163.0-165.0)

As-Built Basin Inflow, Outflow & Storage Data
(see attached hydrographs and detail drawings)

Inflow Peak/Volume	Maximum Outflow Rate	Max. Water Elevation	Storage Volume at Max. Elev. (above perm. pool)	Outflow Control Structures
2.66 Ac-Ft (1-yr./24 hr. volume)	0.89 cfs	172.27	0.88 Ac-Ft	5" & 12" Orifices
14.96 cfs (Post 2-yr./24 hr. peak)	1.08 cfs	173.17	1.35 Ac-Ft	5" &12" Orifices
33.78 cfs (Post 10-yr./24 hr. peak)	5.86 cfs	175.15	2.49 Ac-Ft	5" & 12" Orifices
62.58 cfs (Post 100-yr./24 hr. peak)	17.85 cfs	177.38	4.05 Ac-Ft	5", 12", 15" Orifices & Riser

Basin #2 control elements summary:

1) 5" Orifice (170.1) 12" Orifice (173.2), 15" Orifice (175.2), 48" Riser (177.3)
2) 20' wide emergency overflow spillway (178.0)

Exhibit D (continued)

Practice As-Built Summary. The following table summarizes the as-built data used to model Wet Detention Basin #3.

Design Element	Design & As-Built Data
Site assessment data: (see attached maps)	
Contributing drainage area to basin (subwatershed 3)	19.0 acres & Basin #2 Outflow
Distance to nearest private well (including off-site wells)	> 100 feet
Distance to municipal well (including off-site wells)	> 1200 feet
Wellhead protection area involved?	No
Ground slope at site of proposed basin	average 25%
Any buried or overhead utilities in the area?	Ex. Power Lines Along CTH 18
Proposed outfall conveyance system/discharge (w/ distances)	20 lf. 13.5" x 22" Storm Sewer
Any downstream roads or other structures? (describe)	Outlet to Basin #4 & Ex. Culvert
Floodplain, shoreland or wetlands?	No
Soil investigation data (see attached map & soil logs):	
Number of soil investigations completed	2 Borings Within Basin
Do elevations of test holes extend 3 ft. below proposed bottom?	Yes
Average soil texture at pond bottom elevation (USDA)	Sandy Loam/Sandy Clay loam
Distance from pond bottom to bedrock	N/A
Distance from pond bottom to seasonal water table	7.4 ft. +/-
General basin As-Built data (see attached detailed drawings):	
Permanent pool surface area	29,328SF
As-Built permanent pool water surface elevation	Elev. 129.3
Top of berm elevation (after settling) and width	elev. 135.0 / 10 feet wide
Length/width (dimensions/ratio)	1:1+/-
Safety shelf design (length, grade, max. depth)	10' wide, 10:1, 1 ft. deep
Ave. water depth (minus safety shelf/sediment)	6 ft.
Sediment forebay size & depth	1,655, 1800 & 1970 SF (5' deep)
Sediment storage depth & design maintenance	(126.0-124.0)

As-Built Basin Inflow, Outflow & Storage Data
(see attached hydrographs and detail drawings)

Inflow Peak/Volume	Maximum Outflow Rate	Max. Water Elevation	Storage Volume at Max. Elev. (above perm. pool)	Outflow Control Structures
3.78 Ac-Ft (1-yr./24 hr. volume)	0.39 cfs	132.10	2.28 Ac-Ft	3" Orifice
16.28 cfs (Post 2-yr./24 hr. peak)	0.45 cfs	133.12	3.27 Ac-Ft	3" Orifice
33.65 cfs (Post 10-yr./24 hr. peak)	6.59 cfs	134.26	4.46 Ac-Ft	3" Orifice, Riser, Dual Outlet Pipes
57.61 cfs (Post 100-yr./24 hr. peak)	18.55 cfs	135.04	5.33 Ac-Ft	All

As-Built Basin #3 control elements summary:

1) 3" Orifice (129.3) & 48" Riser (134.0)
2) Twin 13.5" x 22" CMP Outlet Pipes (134.1)
3) 25' wide emergency overflow spillway (135.0)

Exhibit D (continued)

Practice Design Summary. The following table summarizes the as-built data used to model Storm Water Basin #4.

Design Element	Design & As-Built Data
Site assessment data: (see attached maps)	
Contributing drainage area to basin (subwatershed 5)	3.6 acres & Basin #3 Riser Outflow
Distance to nearest private well (including off-site wells)	> 100 feet
Distance to municipal well (including off-site wells)	> 1200 feet
Wellhead protection area involved?	No
Ground slope at site of proposed basin	average 25%
Any buried or overhead utilities in the area?	Ex. Power Lines Along CTH 18
Proposed outfall conveyance system/discharge (w/ distances)	75 lf. 15" Storm Sewer
Any downstream roads or other structures? (describe)	Outlet to Ex. Field Inlet
Floodplain, shoreland or wetlands?	No
Soil investigation data (see attached map & soil logs):	
Number of soil investigations completed	2 Borings Within Basin
Do elevations of test holes extend 3 ft. below proposed bottom?	Yes
Average soil texture at pond bottom elevation (USDA)	Sandy Loam
Distance from pond bottom to bedrock	N/A
Distance from pond bottom to seasonal water table	N/A
General basin As-Built data (see attached detailed drawings):	
Permanent pool surface area	7,975 SF
As-Built permanent pool water surface elevation	Elev. 115.1
Top of berm elevation (after settling) and width	elev. 122.0 / 8 feet wide
Length/width (dimensions/ratio)	2:1+/-
Safety shelf design (length, grade, max. depth)	N/A (Infiltration Basin)
Ave. water depth (minus safety shelf/sediment)	N/A (Infiltration Basin)
Sediment forebay size & depth	2,170 SF (6' deep)
Sediment storage depth & design maintenance Note: Infiltration with granular soils and wetland vegetation, following pre-treatment from forebay	111.0-113.0

As-Built Basin Inflow, Outflow & Storage Data
(see attached hydrographs and detail drawings)

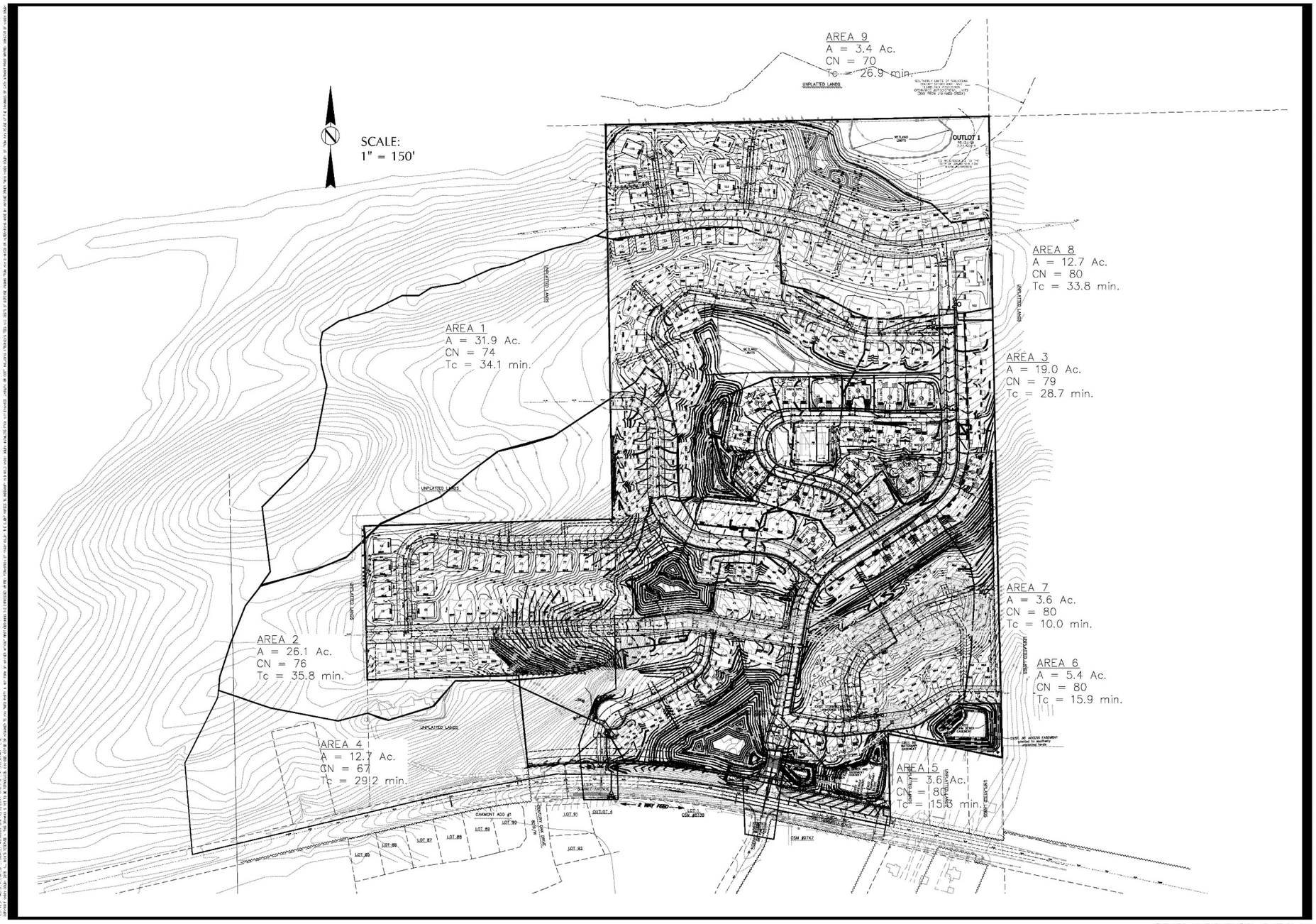
Inflow Peak/Volume	Maximum Outflow Rate	Max. Water Elevation	Storage Volume at Max. Elev. (above perm. pool)	Outflow Control Structures
3.66 Ac-Ft (1-yr./24 hr. volume)	0.35 cfs	116.97	0.66 Ac-Ft	6" Orifice
3.99 cfs (Post 2-yr./24 hr. peak)	0.47 cfs	117.13	0.72 Ac-Ft	6" Orifice
8.25 cfs (Post 10-yr./24 hr. peak)	3.12 cfs	118.11	1.13 Ac-Ft	10" Orifice
13.91 cfs (Post 100-yr./24 hr. peak)	9.03 cfs	119.47	1.77 Ac-Ft	48" Orifice

Basin #4 control elements summary:

1) 6" Orifice (115.1), 4" Orifice (116.0), 6" Orifice (117.1), 10" Orifice (117.7), 48" Riser (119.3)
2) 10' wide emergency overflow spillway (120.2)
3) Infiltration Cell @ 115.1 (Utilized infiltration rate of 0.24 in/hr for least permeable layer within 5 feet of basin bottom)

Exhibit D (continued)

Watershed Map. The watershed map shown below was used to determine the post-development data contained in this exhibit.



YAGGY COLBY ASSOCIATES

ENGINEERS • ARCHITECTS
SURVEYORS • PLANNERS
LANDSCAPE ARCHITECT
P.O. BOX 180300
DELAFIELD, WISCONSIN 53018
262-646-6855
FAX 262-646-6864
EMAIL: INFO@YAGGY.COM

DON BELMAN HOMES, INC.
WOODLAND HILLS
CITY OF WAUKESHA, WISCONSIN

DRAINAGE - PROPOSED CONDITIONS

PROJECT NUMBER: 14026
COMPUTER FILE: 14026_eng.dwg
DATE: 02/15/05
DRAWN BY: B. PEHL
DESIGNED BY: B. PEHL
CHECKED BY:
REVISIONS: 08/29/05, 11/18/05
SHEET NUMBER: 2
OF SHEETS

Exhibit E
As-built Survey for Wet Detention Basin #1

The wet detention basin & basin details depicted in Figure 1 & 2 are reduced copies of the as-built plans for Basin 1.

Project Identifier: **Woodland Hills Subdivision**
Storm water Practice: **Wet Detention Basin #1**
Location of Practice: **See Final Plat for easement location & description**
Owners of Basin#1: Unit Owners of **Woodland Hills Condominium**

Figure 1

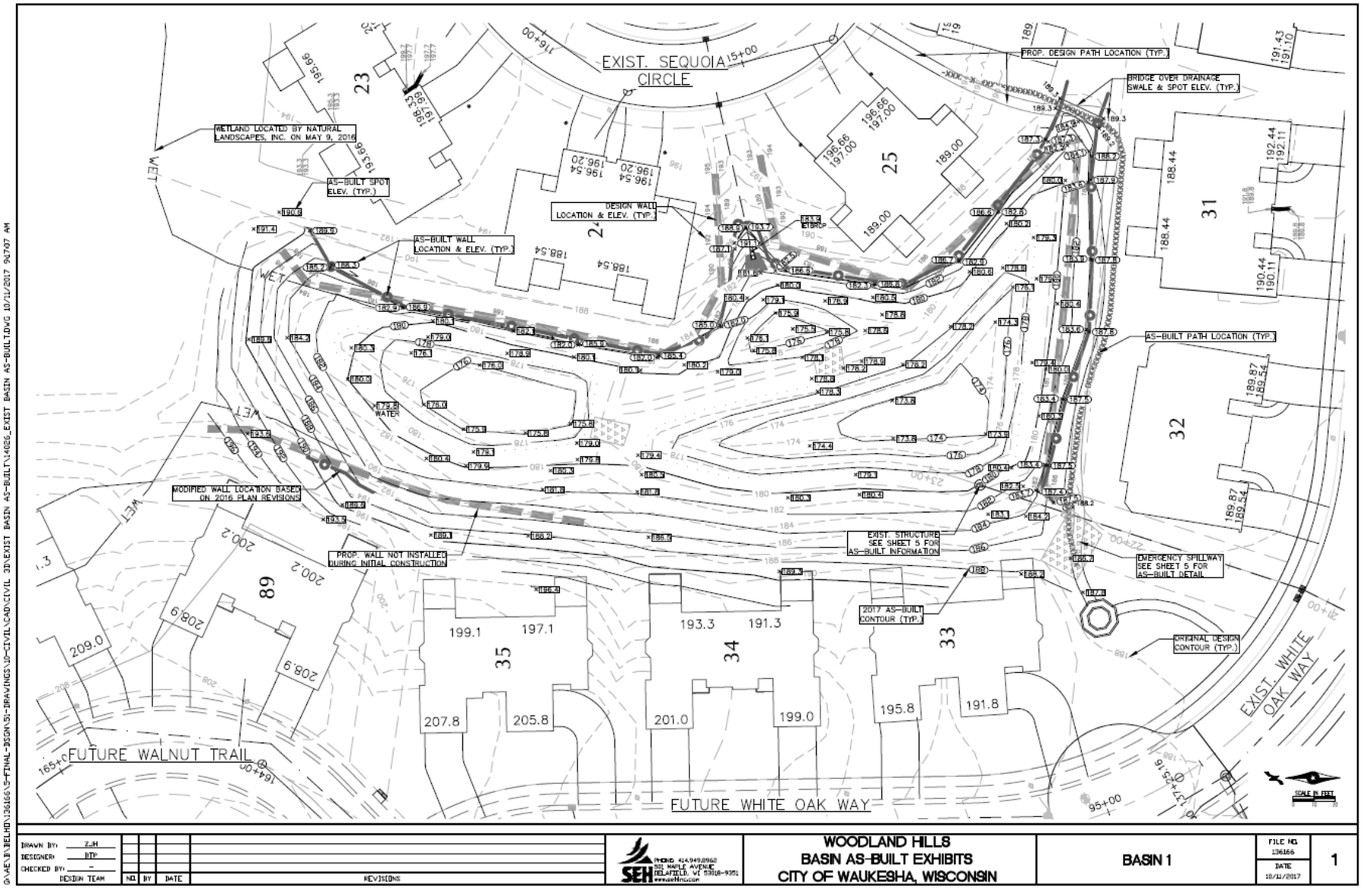


Exhibit E (Continued)

Figure 2

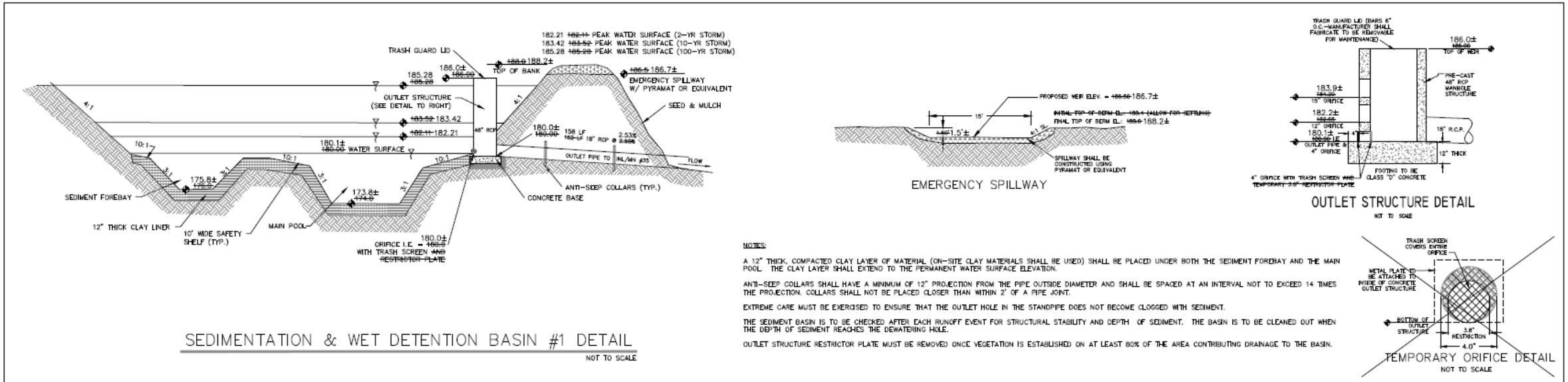


Exhibit E (Continued)
As-built Survey for Wet Detention Basin #2

The wet detention basin & basin details depicted in Figure 3 & 4 are reduced copies of the as-built plans for Basin 2.

Project Identifier: **Woodland Hills Subdivision**
Storm water Practice: **Wet Detention Basin #2**
Location of Practice: **See Final Plat for easement location & description**
Owners of Basin #2: Unit Owners of **Woodland Hills II Condominium**

Figure 3

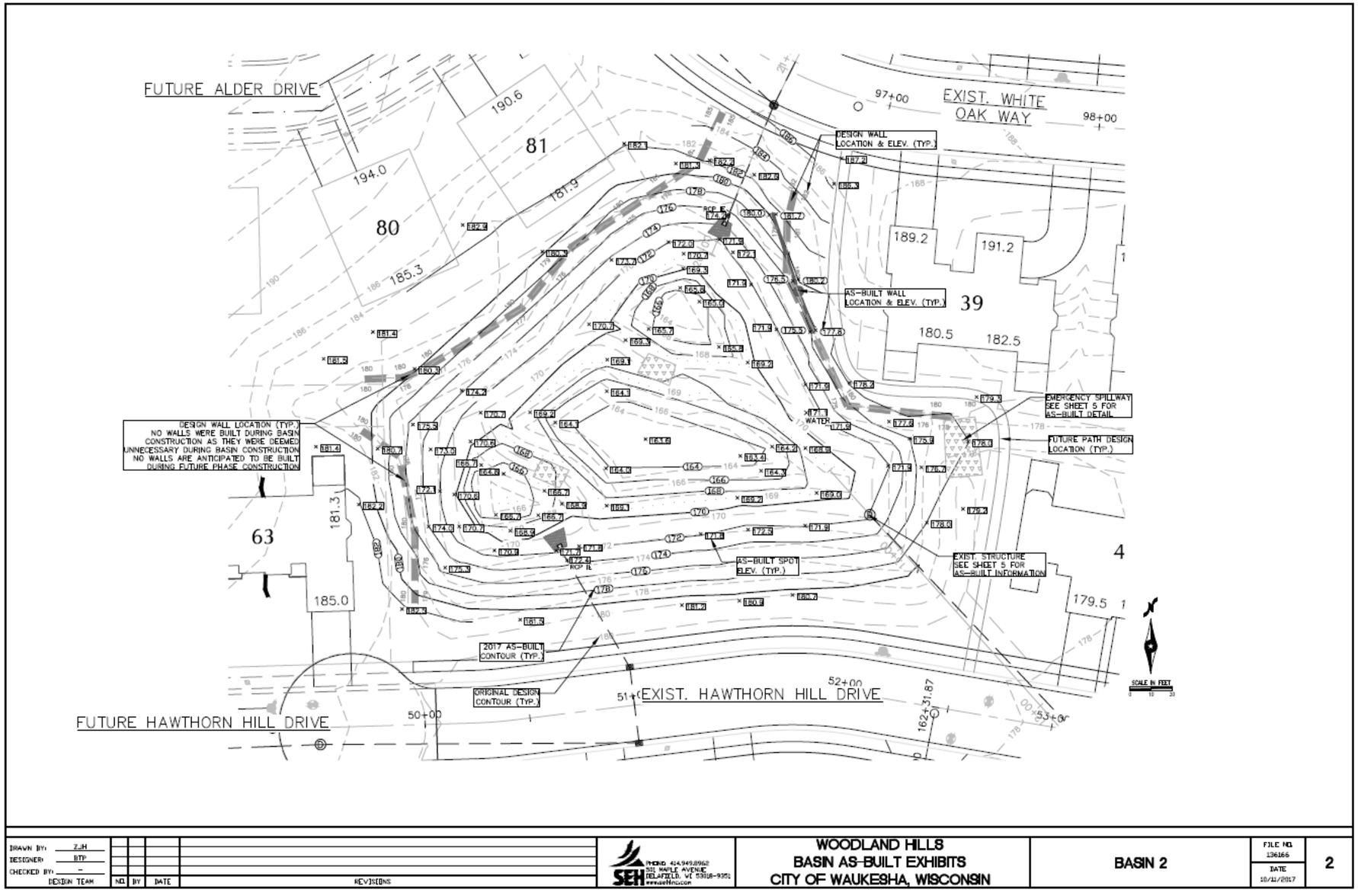
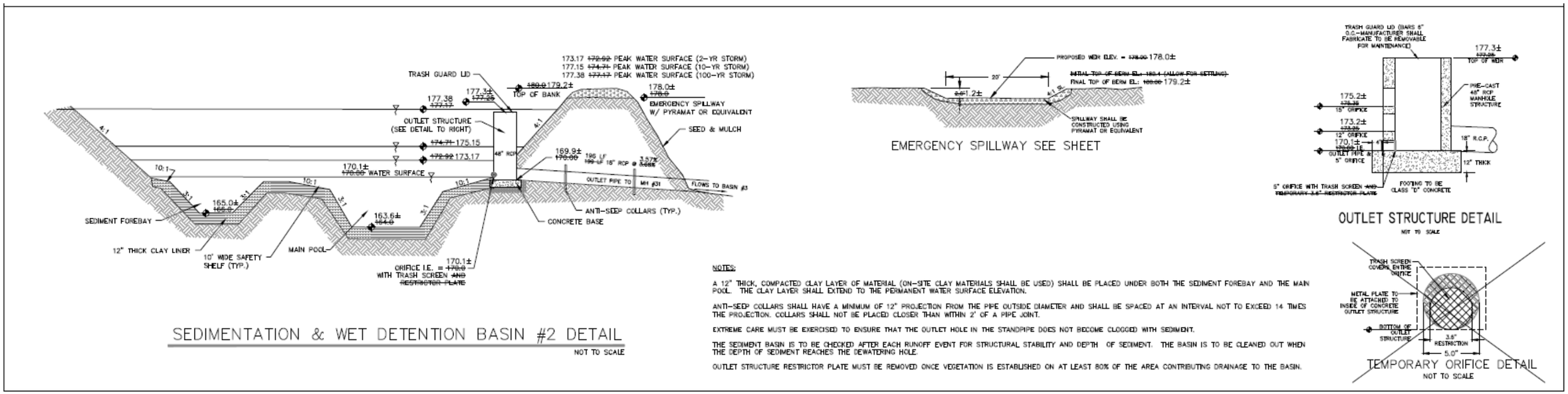


Exhibit E (Continued)

Figure 4



SEDIMENTATION & WET DETENTION BASIN #2 DETAIL

NOT TO SCALE

EMERGENCY SPILLWAY SEE SHEET

OUTLET STRUCTURE DETAIL

NOT TO SCALE

NOTES:

A 12" THICK, COMPACTED CLAY LAYER OF MATERIAL (ON-SITE CLAY MATERIALS SHALL BE USED) SHALL BE PLACED UNDER BOTH THE SEDIMENT FOREBAY AND THE MAIN POOL. THE CLAY LAYER SHALL EXTEND TO THE PERMANENT WATER SURFACE ELEVATION.

ANTI-SEEP COLLARS SHALL HAVE A MINIMUM OF 12" PROJECTION FROM THE PIPE OUTSIDE DIAMETER AND SHALL BE SPACED AT AN INTERVAL NOT TO EXCEED 14 TIMES THE PROJECTION. COLLARS SHALL NOT BE PLACED CLOSER THAN WITHIN 2' OF A PIPE JOINT.

EXTREME CARE MUST BE EXERCISED TO ENSURE THAT THE OUTLET HOLE IN THE STANDPIPE DOES NOT BECOME CLOGGED WITH SEDIMENT.

THE SEDIMENT BASIN IS TO BE CHECKED AFTER EACH RUNOFF EVENT FOR STRUCTURAL STABILITY AND DEPTH OF SEDIMENT. THE BASIN IS TO BE CLEANED OUT WHEN THE DEPTH OF SEDIMENT REACHES THE DEWATERING HOLE.

OUTLET STRUCTURE RESTRICTOR PLATE MUST BE REMOVED ONCE VEGETATION IS ESTABLISHED ON AT LEAST 80% OF THE AREA CONTRIBUTING DRAINAGE TO THE BASIN.

TEMPORARY ORIFICE DETAIL

NOT TO SCALE

Exhibit E (Continued)
As-built Survey for Wet Detention Basin #3

The wet detention basin & basin details depicted in Figure 5 & 6 are reduced copies of the as-built plans for Basin 3.

Project Identifier: **Woodland Hills Subdivision**
Storm water Practice: **Wet Detention Basin #3**
Location of Practice: **See Final Plat for easement location & description**
Owners of Basin #3: Unit Owners of **Woodland Hills II Condominiums**

Figure 5

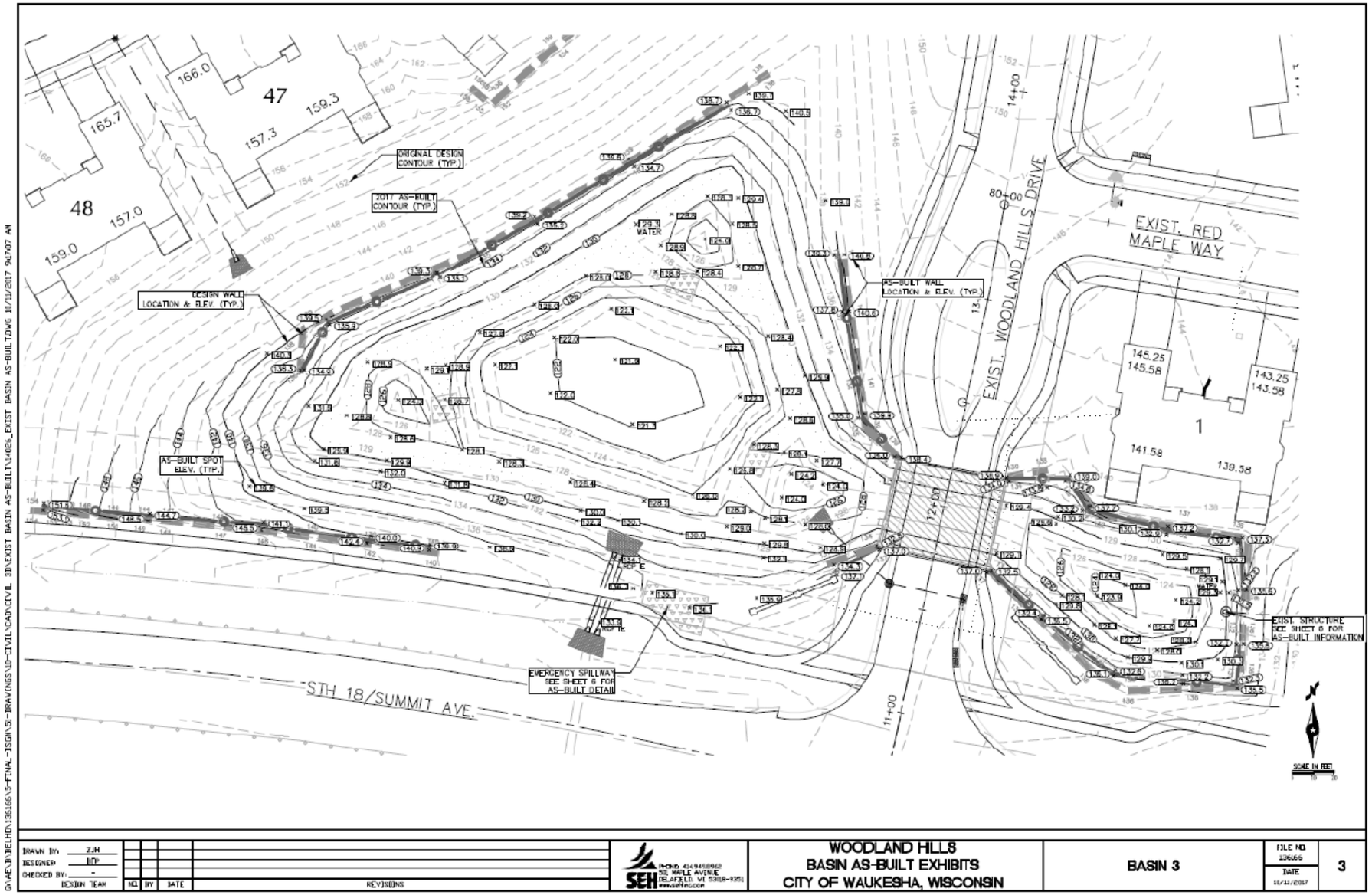


Exhibit E (Continued)

Figure 6

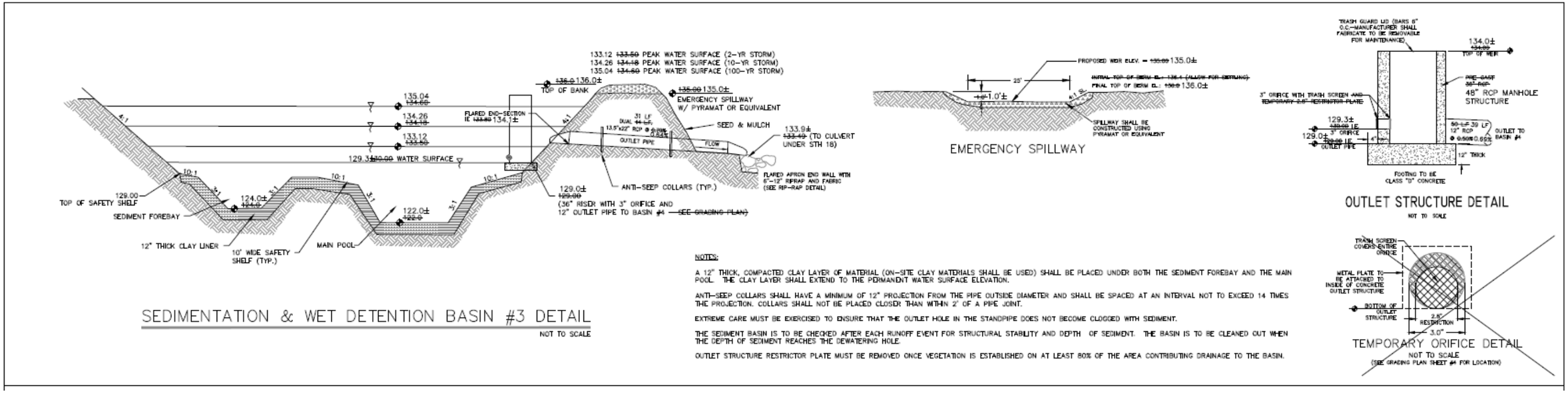


Exhibit E (Continued)
As-built Survey for Infiltration Basin #4

The wet detention basin & basin details depicted in Figure 7 & 8 are reduced copies of the as-built plans for Basin 4.

Project Identifier: **Woodland Hills Subdivision**
Storm water Practice: **Infiltration Basin #4**
Location of Practice: **See Final Plat for easement location & description**
Owners of Basin #4: Unit Owners of **Woodland Hills Condominiums**

Figure 7

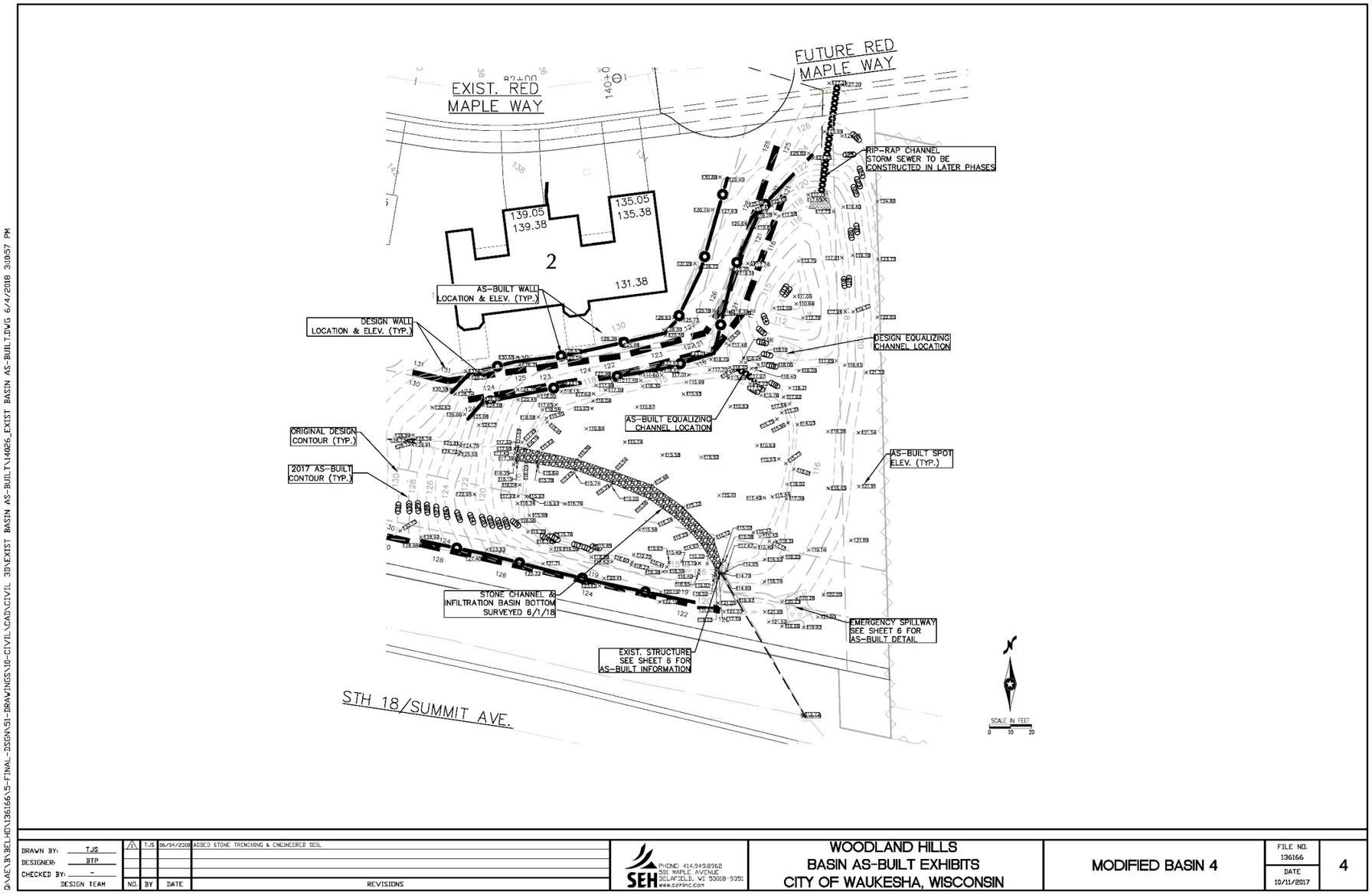


Exhibit E (Continued)

Figure 8

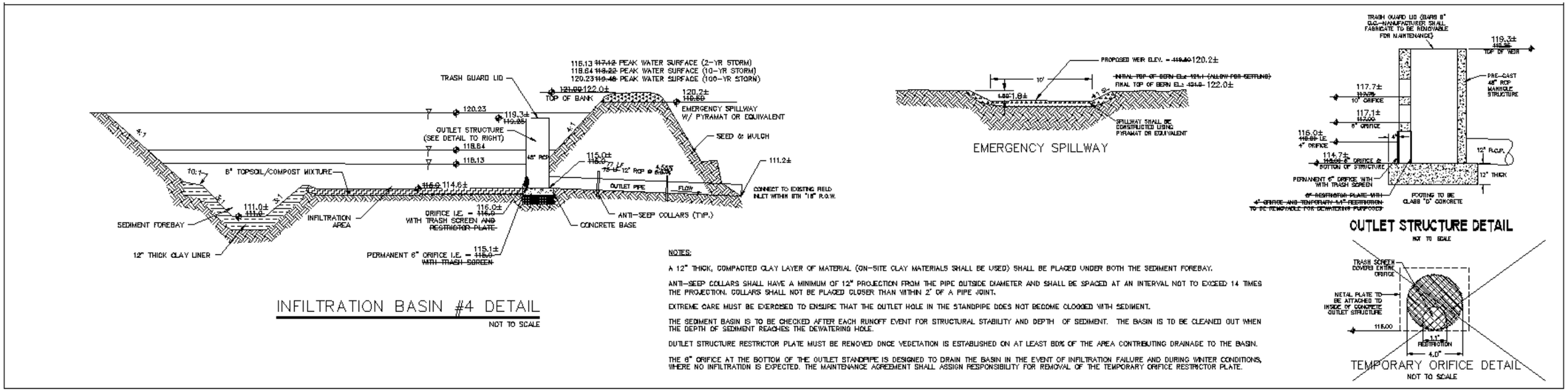


Exhibit "F"
Engineering/Construction Verification

DATE: October 12, 2017

TO: City of Waukesha

FROM: Brian Pehl, P.E. - SEH

RE: Engineering/Construction Verification for the following project: Project Name: Woodland Hills Subdivision

Section 31, City of Waukesha

Storm Water Management & Erosion Control Permit # _____

Storm Water Management Practices: 3 Wet Detention Basins, 1 Infiltration Basin

For the above-referenced project and storm water management practices, this correspondence shall serve as verification that: 1) all site inspections outlined in approved inspection plans have been successfully completed; and 2) the storm water management practice design data presented in Exhibit D, and the "as- built" construction documentation presented in Exhibit E comply with all applicable state and local technical standards, in accordance with the City of Waukesha Storm Water Management and Erosion Control Ordinance.

Any variations from the originally approved construction plans are noted in Exhibit E. These variations are considered to be within the tolerances of standard construction techniques and do not affect the original design as presented in Exhibit D in any way.

Exhibit G
Storm Water Management and Erosion Control Permit Termination

Project Identifier: Woodland Hills Subdivision

Location: Being a part of Lot 1, 2, 3, 4, 5 and Lot 6 of Woodland Hills Subdivision, Located in the SW 1/4 of the NE 1/4 of Section 31, and part of the NW 1/4 of the SE 1/4 of Section 31, and part of the NE 1/4 of the SW 1/4 of Section 31, T.7N., R.19E. (City of Waukesha)

Storm Water Management and Erosion Control Permit Holder's Name:

Don Belman_____

Storm Water Management & Erosion Control Permit #: _____

Chapter 32 – City of Waukesha Storm Water Management and Erosion Control requires that all newly constructed storm water management practices be maintained by the Storm Water and Erosion Control Permit Holder until permit termination, after which maintenance responsibilities shall be transferred to the responsible party identified on the subdivision plat and referenced in this Maintenance Agreement.

Upon execution below, this exhibit shall serve to certify that the Storm Water Permit Holder has satisfied all requirements of the Storm Water Management and Erosion Control Ordinance and that the City of Waukesha has terminated the Storm Water Management and Erosion Control Permit for the property covered by this Maintenance Agreement.

Dated this ___ day of _____, 2017.

City of Waukesha representative:

_____
(Signature)

_____
(Typed Name and Title)

Acknowledgements

State of Wisconsin
County of Waukesha

Personally came before me this ____ day of _____, 2017, the above named _____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____.
[Name]
Notary Public, Waukesha County, WI
My commission expires: _____

Exhibit H
Parcel Identification Numbers

WAKC 0985.001	WAKC 0985.0016	WAKC 0985.0031	WAKC 0985.0046	WAKC 0985.0061
WAKC 0985.002	WAKC 0985.0017	WAKC 0985.0032	WAKC 0985.0047	WAKC 0985.0062
WAKC 0985.003	WAKC 0985.0018	WAKC 0985.0033	WAKC 0985.0048	WAKC 0985.0063
WAKC 0985.004	WAKC 0985.0019	WAKC 0985.0034	WAKC 0985.0049	WAKC 0985.0064
WAKC 0985.005	WAKC 0985.0020	WAKC 0985.0035	WAKC 0985.0050	WAKC 0985.0065
WAKC 0985.006	WAKC 0985.0021	WAKC 0985.0036	WAKC 0985.0051	WAKC 0985.0066
WAKC 0985.007	WAKC 0985.0022	WAKC 0985.0037	WAKC 0985.0052	WAKC 0985.0067
WAKC 0985.008	WAKC 0985.0023	WAKC 0985.0038	WAKC 0985.0053	WAKC 0985.0068
WAKC 0985.009	WAKC 0985.0024	WAKC 0985.0039	WAKC 0985.0054	
WAKC 0985.010	WAKC 0985.0025	WAKC 0985.0040	WAKC 0985.0055	
WAKC 0985.011	WAKC 0985.0026	WAKC 0985.0041	WAKC 0985.0056	
WAKC 0985.012	WAKC 0985.0027	WAKC 0985.0042	WAKC 0985.0057	
WAKC 0985.013	WAKC 0985.0028	WAKC 0985.0043	WAKC 0985.0058	
WAKC 0985.014	WAKC 0985.0029	WAKC 0985.0044	WAKC 0985.0059	
WAKC 0985.015	WAKC 0985.0030	WAKC 0985.0045	WAKC 0985.0060	