Document Number

Stormwater Management Practice Maintenance Agreement

The Humane Animal Welfare Society of Waukesha County, Inc., as "Owner" of the property described below, in accordance with Chapter 32 City of Waukesha Storm Water Management and Erosion Control, agrees to install and maintain storm water management practice(s) on the subject property in accordance with approved plans and Storm Water Management Plan conditions. The owner further 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.
Exhibit D: Design Summary for Stormwater Management Practices – text
Exhibit E: As-Built Surveys – shows surface elevations and locations of stormwater management basins following construction.
Exhibit F: Engineering/Construction Verification – certification by the design engineer that as-constructed improvements meet intent of design.
Exhibit G: Stormwater Management and Erosion Control Permit Termination – certification by municipal authority that all ordinance and permit requirements have been met, and that coverage under the permit has been terminated.

Name and Return Address

City of Waukesha
130 Delafield Street
Waukesha, WI 53188

Parcel Identification Number – (PIN)
WAKC0997083

Note: After construction verification has been accepted by the City of Waukesha for all planned storm water management practices, 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, as described below.

Through this Agreement, the Owner hereby subjects the Property to the following covenants, conditions and restrictions:

1. The Owner shall be responsible for the routine and extraordinary maintenance and repair of the storm water management practice(s) and drainage easements identified in Exhibit B until Storm Water and Erosion Control Permit termination by the City of Waukesha in accordance with Chapter 32 of the City Code of Ordinances.
2. After Storm Water and Erosion Control Permit termination under 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.
3. 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 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.
4. In addition, and independent of the requirements under paragraph 3 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 3 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.

5. If the Owner(s) do not complete an inspection under 3. above or required maintenance or repairs under 4. 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 Property and collected as such in accordance with the procedures under s. 66.0627 Wis. Stats. or subch. VII of ch. 66 Wis. Stats.
6. This Agreement shall run with the Property and be binding upon all heirs, successors and assigns. After the Owner records the addendum noted above, the City of Waukesha shall have the sole authority to modify this agreement upon a 30-day notice to the current Owner(s).

Dated this ___ day of _____, 201_.

Owner:

_____
Signed

_____
Printed Name, Title

Acknowledgements

State of Wisconsin:
County of Waukesha

Personally came before me this ___ day of _____, 2016, the above named _____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____.

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

This document was drafted by:

Jahnke & Jahnke Associates, Inc.
Gregory E. Mitchell, PE
711 W Moreland Blvd
Waukesha, WI 53188

For Certification Stamp

City of Waukesha Common Council Approval

Dated this ___ day of _____, 2016.

_____

Shawn N. Reilly, Mayor

_____

Gina Kozlik, City Clerk

Acknowledgements

State of Wisconsin:
County of Waukesha

Personally came before me this ____ day of _____, 2016, the above named _____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____.

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: **Waukesha HAWS Expansion** Acres**: 1.980**
Date of Recording: **March 22, 1990**
Map Produced By: **Suburban Surveys & Engineering, Inc., New Berlin, WI**
Legal Description: **Lot 1 of CSM 6111, located in all that part of the Northeast Quarter (NE ¼) of Section 34, Township 7N, Range 19E (Town of Pewaukee), City of Waukesha, Waukesha County, Wisconsin.**

CSM 6111

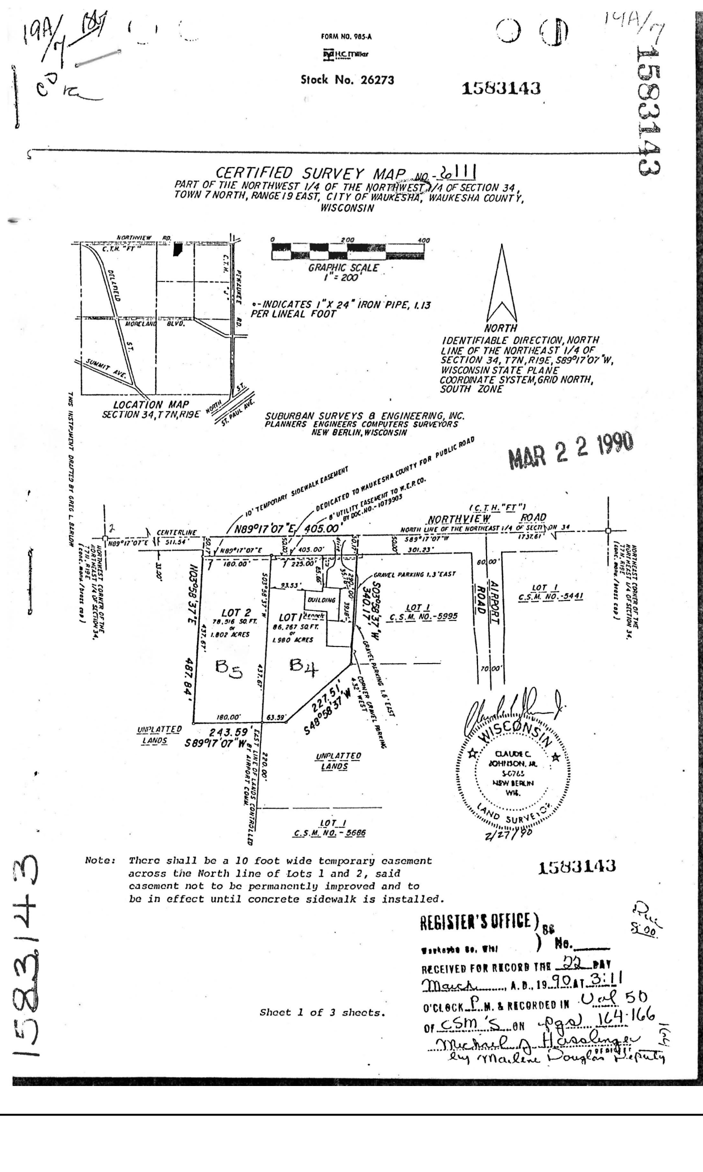


Exhibit B - Location Map
Stormwater Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of a portion of the construction plans, as shown below. The practices include one wet detention basin, one infiltration basin and all associated pipes, earthen berms, rock chutes and other components of these practices. All of the noted storm water management practices are located within drainage easements in Lot 1 of the certified survey map, as noted in Exhibit A.

Subdivision Name**:** **CSM 6111**
Stormwater Practices**:** **Infiltration Basin**
Location of Practices**:** **Part of Lot 1 of CSM 6111:**
Easement boundary: **All that part of Lot 1, Certified Survey Map No. 6111 recorded on March 22, 1990 as Document No. 1583143 in the Northwest Quarter of the Northeast Quarter of Section 34, Town 7 North, Range 19 East, City of Waukesha, Waukesha County, Wisconsin bounded and described as follows: Commencing at the northwest corner of the Northeast Quarter of said Section 34; thence North 89°17'07" East along the north line of the Northeast Quarter of said Section 34, 511.54 feet; thence South 03°58'37" West, 50.17 feet to the northwest corner of Lot 2 of said Certified Survey Map No. 6111; thence North 89°17'07" East along the north line of said Lot 2, also being the south right-of-way line of Northview Road (C.T.H. FT), 180.00 feet to the northwest corner of Lot 1 Certified Survey Map No. 6111; thence continuing North 89°17'07" East along the north line of said Lot 1, 14.00 feet to the point of beginning of the land hereinafter to be described; thence continuing North 89°17'07" East, 59.50 feet; thence South 00°42'53" East, 25.20 feet; thence South 80°34'29" West, 26.45 feet; thence North 87°07'36" West, 16.25 feet; thence North 03°58'37" East, 57.00 feet to the point of beginning, containing 2,379 square feet (0.05 acres) of land.**

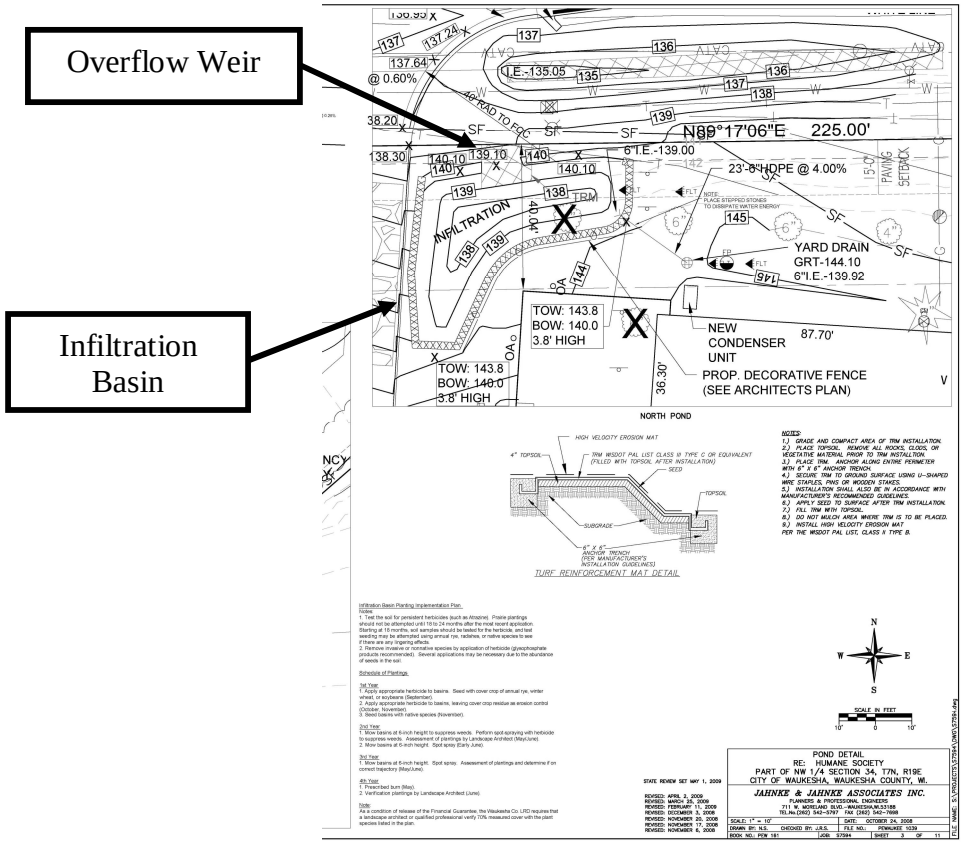


Figure 1
Plan View of Storm Water Practices

Exhibit B - Location Map (cont'd)
Stormwater Management Practices Covered by this Agreement

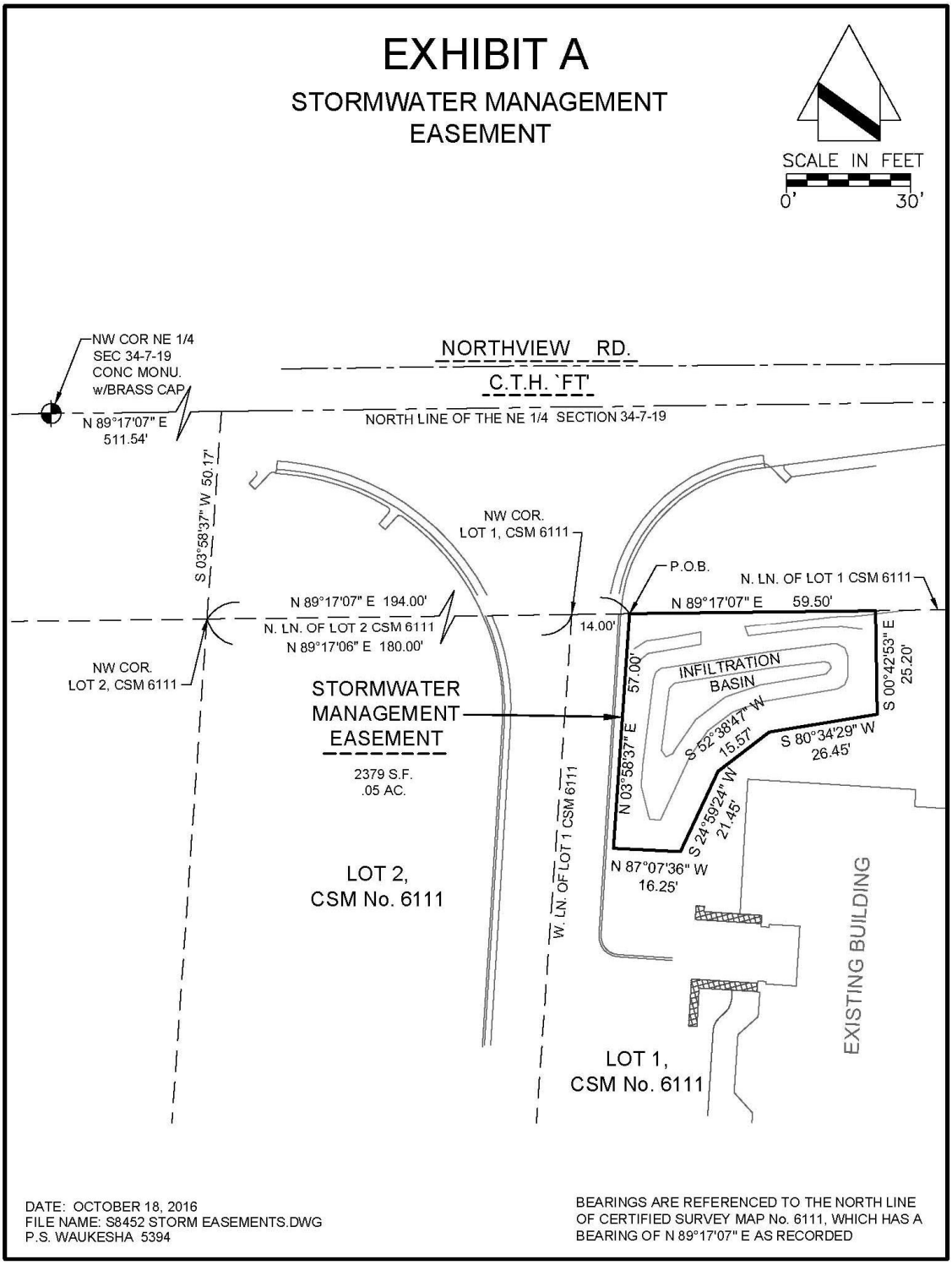


Figure 2
Easement for Stormwater Management Practices

Exhibit B - Location Map (cont'd)
Stormwater Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of a portion of the construction plans, as shown below. The practices include one wet detention basin, one infiltration basin and all associated pipes, earthen berms, rock chutes and other components of these practices. All of the noted storm water management practices are located within drainage easements in Lot 1 of the certified survey map, as noted in Exhibit A.

Subdivision Name: **CSM 6111**
Stormwater Practices: **Wet Detention Basin, Storm Sewer Outfall**
Location of Practices: **Part of Lot 1 of CSM 6111:**
Easement boundary: **All that part of Lot 1, Certified Survey Map No. 6111 recorded on March 22, 1990 as Document No. 1583143 in the Northwest Quarter of the Northeast Quarter of Section 34, Town 7 North, Range 19 East, City of Waukesha, Waukesha County, Wisconsin bounded and described as follows: Commencing at the northwest corner of the Northeast Quarter of said Section 34; thence North 89°17'07" East along the north line of the Northeast Quarter of said Section 34, 511.54 feet; thence South 03°58'37" West, 50.17 feet to the northwest corner of Lot 2 of said Certified Survey Map No. 6111; thence North 89°17'07" East along the north line of said Lot 2, also being the south right-of-way line of Northview Road (C.T.H. FT), 180.00 feet to the northwest corner of Lot 1 Certified Survey Map No. 6111; thence South 03°58'37" West along the west line of said Lot 1, 411.97 feet to the point of beginning of the land hereinafter described; thence North 42°20'27" East, 76.52 feet; thence North 03°11'19" West, 63.00 feet; thence South 86°43'34" East, 140.50 feet; thence South 03°16'26" West, 6.50 feet; thence South 77°50'57" West, 43.77 feet; thence South 63°43'00" West, 90.00 feet; thence South 42°20'27" West, 97.35 feet to the west line of said Lot 1; thence along said west line, North 03°58'37" West, 16.11 feet to the point of beginning, containing 5,578 square feet (0.13 acres) of land.**

Figure 3
Plan View of Storm Water Practices

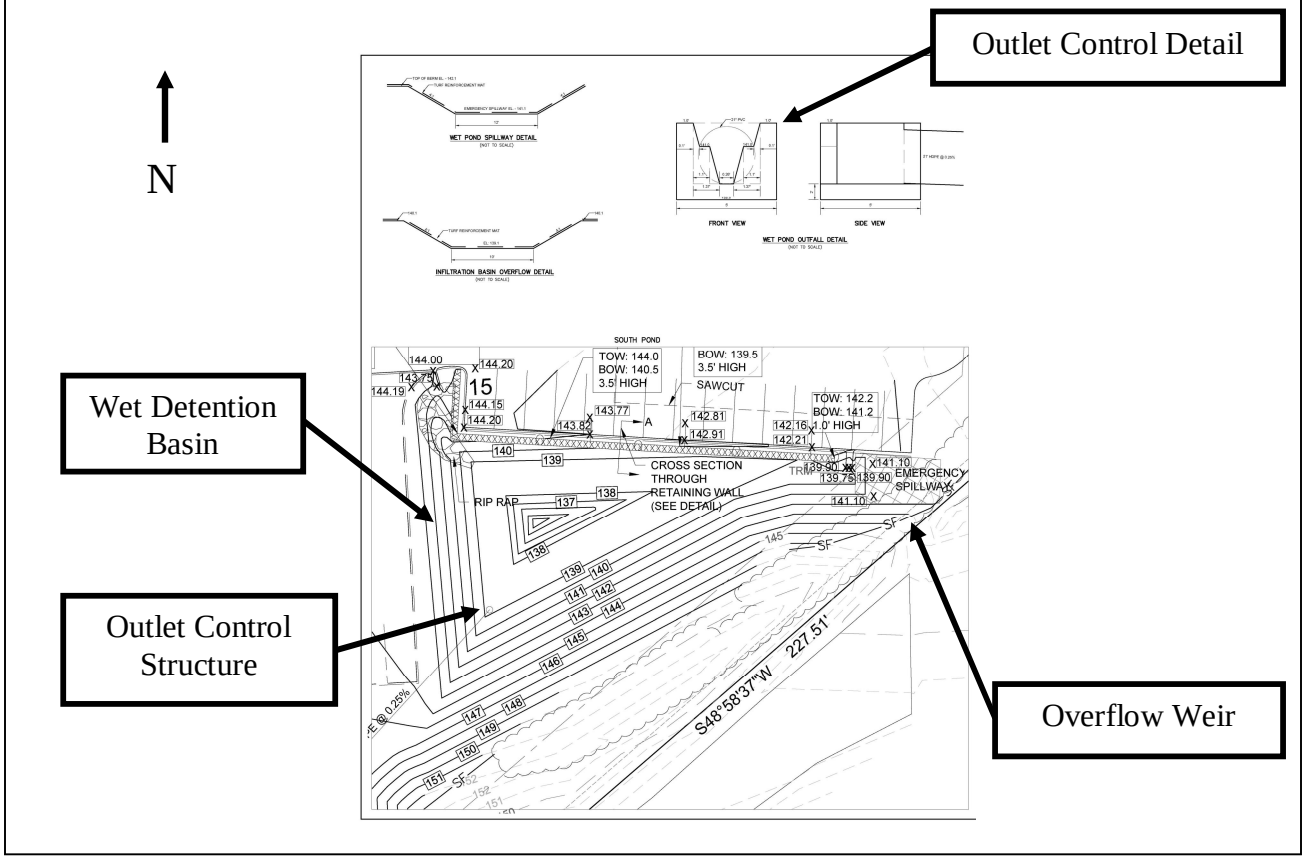


Exhibit B - Location Map (cont'd)
Stormwater Management Practices Covered by this Agreement

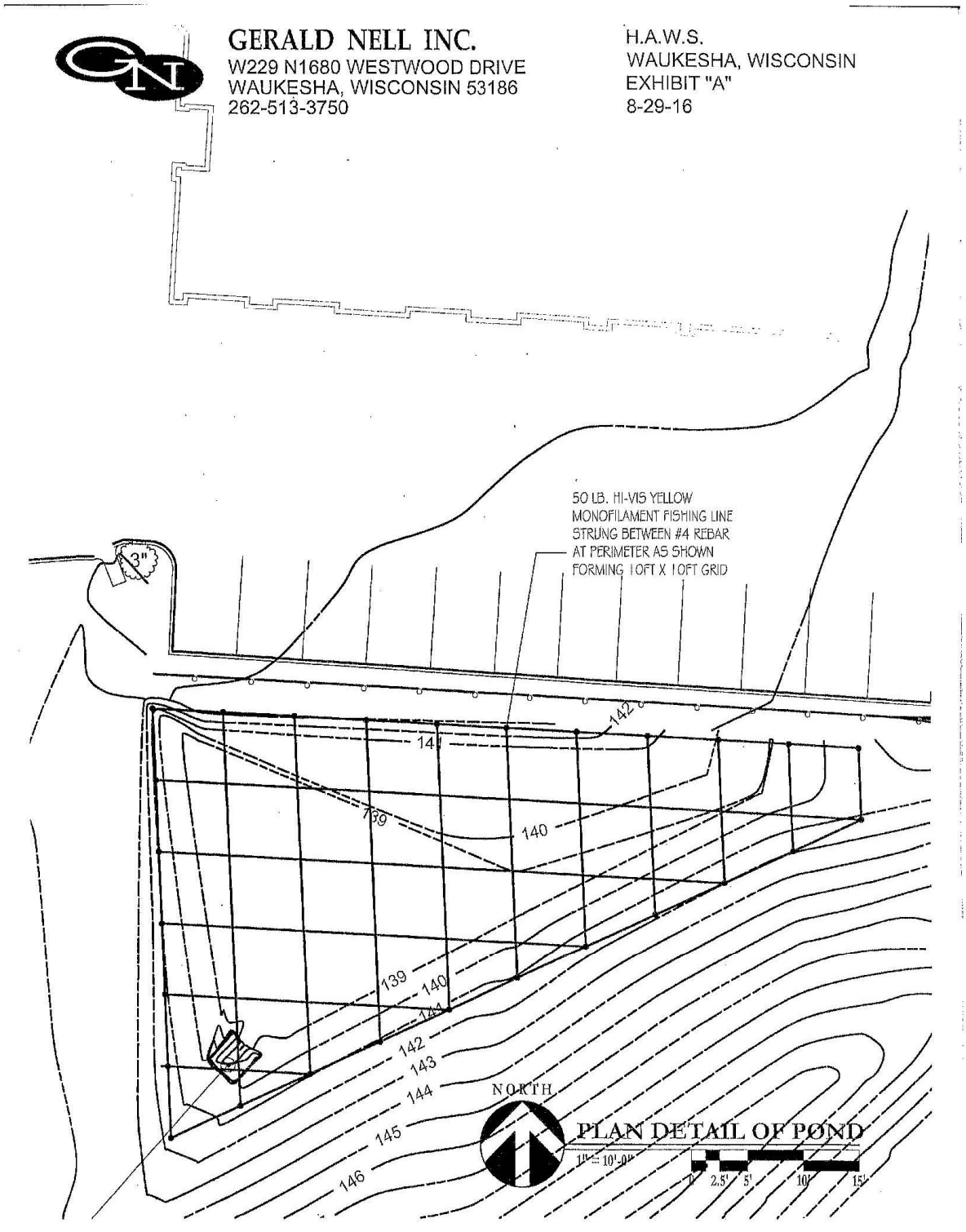


Figure 4
Plan View of Storm Water Practices

Exhibit B - Location Map (cont'd)
Stormwater Management Practices Covered by this Agreement

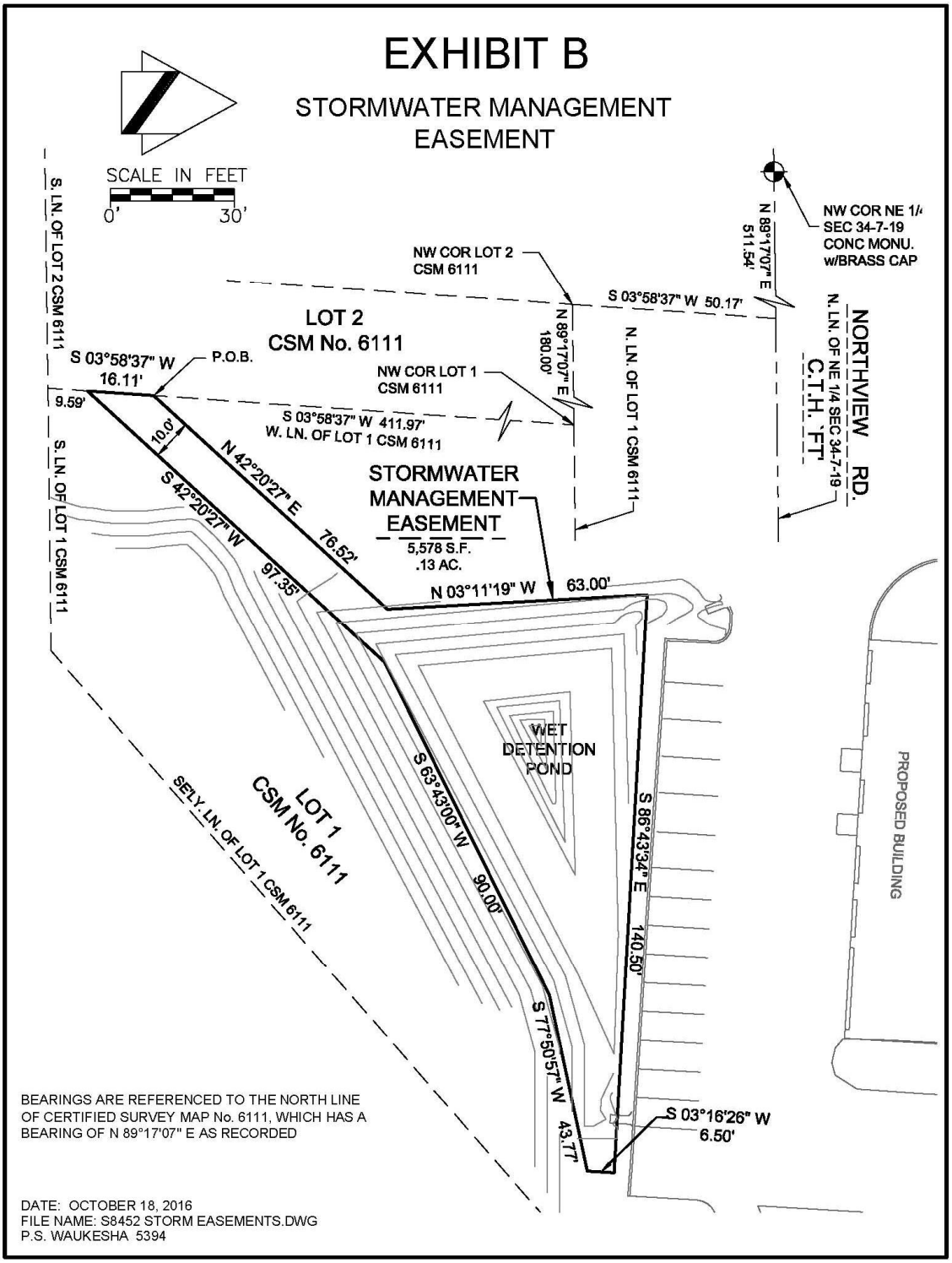


Figure 5
Easement for Stormwater Management Practices

Exhibit C
Stormwater Practice Maintenance Plan

This exhibit explains the basic function of each of the stormwater 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 stormwater 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 infiltration basin is designed to maximize post-development infiltration for the 2-year 24-hour design storm. The infiltration basin receives runoff from the northwest portion of the building and surrounding lawn. The basin is planted with native species selected to maximize infiltration. A permanent turf reinforcing mat is installed at the overflow, where excess runoff is discharged to the adjacent roadside ditch.

The wet detention basin is designed to trap 40% of sediment in runoff and maintain pre-development downstream peak flows. A permanent pool of water 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 Figure 2). To prevent the congregation of nuisance waterfowl at this location, wires will be strung over the permanent pool.

The infiltration basin receives runoff from a 0.3 acre drainage area, consisting of rooftop (2009 addition) and a portion of the front yard. During rainfall or snow melt events, the water level will temporarily rise and slowly drain down to the bottom of the basin. High flows (in excess of the 2-year 24-hour event) will overtop the reinforced turf weir and discharge to the roadside ditch.

The wet detention basin received runoff from a 1.3 acre drainage area, consisting of parking lot and the southern portion of the building. The water level is controlled by a concrete weir discharging to a 24-inch PVC pipe extending through the berm in the southwest corner of the basin (see Figure 2). High flows may flow over the mat-lined emergency spillway.

"As-built" construction drawings of the basin, showing actual dimensions, elevations, outlet structures, etc. are included as part of this Agreement in Exhibit E.

Wet-Bottom Pond: 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. Any blockage must be removed immediately.
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 waters 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.
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 titleholder(s) 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.

Infiltration Basin: Minimum Maintenance Requirements:

To ensure the proper function of storm water infiltration basin, the following list of maintenance activities are recommended:

1. A minimum of 70% soil cover made up of native grasses must be maintained on the basin bottom to ensure infiltration rates. Periodic burning or mowing is recommended to enhance establishment of the prairie grasses (which may take 2-3 years) and maintain the minimum native cover. To reduce competition from cool season grasses (bluegrass, fescues, quack, etc.) and other weeds:
    - For the first year, cut to a 6" height three times – once each in June, July and early August. To prevent damage to the native grasses, do not mow below a 6" height. Remove excessive accumulation of clippings to avoid smothering next year's seedlings.
    - After the first year, mowing may only be needed in early June each year to help control the spread of cool season plants. The mowing should also be raised to 10-12" to avoid damage to the warm season plants.
    - Burning may also be used to manage weeds in 2-5 years intervals. Late spring burns (mid-late May) provide maximum stimulus to warm season grasses and work well to control cool season grasses. Burn when the cool season grasses are growing and the warm season plants are just barely starting to grow to get maximum control of cool season species.
    - Any major bare areas or areas taken over by nonnative species must be reseeded. To clear area of weeds and cool season grasses, treat with an herbicide that contains glysophosphate in accordance with manufacturer's instructions. Ensure a firm seedbed is prepared to a depth of 3 inches (a roller is recommended). Seeding should occur in early-mid June. Seed with Big Bluestem, Indian Grass, Little Blue Stem or Switchgrass (preferably an equal mix of all four types). A companion crop of oats is recommended. Seed must be placed at a depth of 1/4 – 1/2" and a minimum rate of 1/4 pound per 100 square feet. If broadcast seeding by hand, drag leaf rake over soil surface after seeding. Then roll it again and cover with a light layer of mulch and staked erosion control netting to hold it in place until germination. For other planting details, see NRCS standard 342 (Critical Area Planting).
2. 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.
3. The basin and all components (grass swales, forebay, inlets, outlets, etc.) should be inspected after each heavy rain, but at a minimum of once per year. If the basin is not draining properly (within 72 hours), further inspection may be required by persons with expertise in storm water management and/or soils.
    - If soil testing shows that the soil surface has become crusted, sealed or compacted, some deep tillage should be performed. Deep tillage will cut through the underlying soils at a 2-3 foot depth, loosening the soil and improving infiltration rates, with minimal disturbance of the surface vegetation. Types of tillage equipment that can be used include a subsoiler or straight, narrow-shanked chisel plow.
    - If sedimentation is determined to be causing the failure, the accumulated sediment must be removed and the area reseeded in accordance with the notes above.

4. All outlet pipes, stone trenches and other flow control devices must be kept free of debris. Any blockage must be removed immediately.
5. Any eroding areas must be repaired immediately to prevent premature sediment build-up in the system. Erosion matting is recommended for repairing grassed areas.
6. Heavy equipment and vehicles must be kept off of the bottom and side slopes of infiltration basins to prevent soil compaction. Soil compaction will reduce infiltration rates and may cause failure of the basin, resulting in ponding and possible growth of wetland plants.

Waterfowl Deterrent Netting: Minimum Maintenance Requirements:

In response to FAA efforts to mitigate the hazards to human flight posed by wildlife, construction plans include placement of netting over the wet-bottom detention pond to make the facility less attractive to waterfowl. To maintain its function, the following activities must be completed:

1. Inspect net monthly for first year, reduce inspection frequency to quarterly thereafter. Replace or re-tension strands as needed. Remove and discard broken strands in appropriate waste containers.
2. Inspect rebar posts monthly for first year; reduce inspection frequency to quarterly thereafter. Ensure that posts remain upright and firmly embedded in the soil. Reinstall or replace as needed in order to maintain necessary tension on netting.
3. Temporarily remove strands as needed to perform other required maintenance activities (e.g. mowing, burning, outfall cleaning), and reinstall immediately upon completion of maintenance.
4. Waukesha County Airport staff will monitor maintenance and effectiveness of netting; comply with their maintenance requests in a timely manner; see airport approval letter below:

WAUKESHA COUNTY AIRPORT CRITES FIELD

August 20, 2016

Jeff Fortin
Community Development Specialist
City of Waukesha
201 Delafield St
Waukesha, WI 53188

Dear Mr. Fortin,

I am writing to address the Proposed Site Plan concerns outlined in your letter to Michael Nell on June 22, 2016 regarding Final Site & Architectural Approval for H.A.W.S.

We have been working closely with Mr. Nell to ensure the storm water management structures are in accordance with FAA Advisory Circular 150/5200-33B. He has provided us with the attached plan to modify the wet pond that exists on site to deter waterfowl and other wildlife from congregating which we believe will be sufficient. However, we will monitor the pond and if we find that either the method is insufficient or not maintained, we reserve the right to request additional improvements and/or maintenance.

I am happy to answer any questions or provide additional information as necessary.

Sincerely,

Kurt Stanich
Director

2525 Aviation Drive • Waukesha, WI 53188 • (262) 521-5249 • (262) 521-5290 FAX
Control Tower Frequency: 1237 • Ground Frequency: 1216
airport.waukeshacounty.gov

Airport approval letter – waterfowl deterrent netting

Exhibit D
Design Summaries for Stormwater Management Practices

Project Identifier: Humane Animal Welfare Society **Project Size:** 2.73 Acres **No. of Lots:** 2
Number of Runoff Discharge Points: 2 **Watershed (ultimate discharge)**: Fox River
Watershed Area (including off-site runoff traveling through project area): 3.30 acres (0.50 acres 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.

Summary Data Elements	Out South (wet pond)		Out North (infiltration)	
	Pre-develop	**Post-develop**	**Pre-develop**	**Post-develop**
Watershed Areas *(in acres) (see attached map)*	1.77 acres	2.18 acres	1.47	1.06
Average Watershed Slopes (%)	5-10%	5-10%	5-10%	5-10%
Land Uses *(% of each) (see attached map)*	1.15 ac Open, B 0.43 ac Paving 0.19 ac Building	0.94 ac Open, B 0.92 ac Paving 0.27 ac Building 0.05 ac Pond	1.00 ac Open, B 0.32 ac Paving 0.15 ac Building	0.63 ac Open, B 0.23 ac Paving 0.20 ac Building
Runoff Curve Numbers	61 x 1.15ac= 70 98 x 0.62ac= 61 *Net 131\1.77 ac.* RCN = 74	61 x 0.94ac= 57 98 x 1.24ac= 122 *Net 179\2.18 ac.* RCN = 82	61 x 1.00ac= 61 98 x 0.47ac= 46 *Net 107\1.47 ac.* RCN = 73	61 x 0.63ac= 38 98 x 0.43ac= 42 *Net 80\1.06 ac.* RCN = 76
Conveyance Systems Types	Grass slope / waterway	Pavement / rip rap Storm sewer outfall	Grass slope / waterway	Turf weir
Summary of Average Conveyance System Data	Sheet flow, 2.57"/hr, ~2%	Sheet flow, 2.57"/hr, 2-5% slopes	Sheet flow, 2.57"/hr, 1-6% slopes	Sheet flow, 2.57"/hr, 0.6%
Time of Concentration *(Tc) (see attached map & worksheets)*	0.4 hrs.	0.3 hrs.	0.5 hrs.	0.5 hrs.
25% of 2-yr 24-hr post-dev runoff volume	N/A	0.054 ac. ft.	N/A	0.019 ac. ft.
1-year/24 hour Runoff Volume	N/A	0.176 ac. ft.	N/A	0.055 ac. ft.
2-yr./24 hour Peak Flow *(see attached hydrographs)*	1.26 cfs	0.92 cfs	1.02 cfs	0.70 cfs
10-yr./24 hour Peak Flow	2.63 cfs	1.81 cfs	2.16 cfs	1.84 cfs
100-yr./24 hour Peak Flow	6.14 cfs	4.16 cfs	5.11 cfs	4.73 cfs

Exhibit D (cont'd)

Practice Design Summary. The following table summarizes the data used to design wet detention basin.

Design Element	Design Data
Site assessment data: (see attached maps)	
Contributing drainage area to basin (subwatershed A & B)	1.27 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 4%
Any buried or overhead utilities in the area?	No
Proposed outfall conveyance system/discharge (w/ distances)	95 ft. PVC pipe to ditch
Any downstream roads or other structures? (describe)	No
Floodplain, shoreland or wetlands?	No
Soil investigation data (see attached map & soil logs):	
Number of soil investigations completed	2
Do elevations of test holes extend 3 ft. below proposed bottom?	Yes
Average soil texture at pond bottom elevation (USDA)	(Fill) Silty Clay Loam
Distance from pond bottom to bedrock	> 5 feet
Distance from pond bottom to seasonal water table	> 5 feet
General basin design data (see attached detailed drawings):	
Permanent pool surface area	0.052 acres
Design permanent pool water surface elevation	elev. 139.0
Top of berm elevation (after settling) and width	N/A
Length/width (dimensions/ratio)	95 ft. (L) x 45 ft. (W) = 2.1:1
Safety shelf design (length, grade, max. depth)	10 ft. @ 10% slope/1.0' deepest
Ave. water depth (minus safety shelf/sediment)	5 ft. (in center)
Sediment forebay size & depth	None
Sediment storage depth & design maintenance	2 ft. depth for pool 15 year maintenance schedule

Design 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-yr./24 hr.) 1.37 cfs / 0.140 ac-ft	0.59 cfs	139.82 ft	0.048 ac-ft	#1
(2-yr./24 hr. peak) 1.64 cfs / 0.167 ac-ft	0.76 cfs	139.94 ft.	0.056 ac-ft	#1
(10-yr./24 hr. peak) 2.76 cfs / 0.279 ac-ft	1.48 cfs	140.35 ft.	0.085 ac-ft	#1
(100-yr./24 hr. peak) 5.34 cfs / 0.542 ac-ft	3.37 cfs	141.05 ft.	0.144 ac-ft	#1

* #1 = small concrete weir into 24" PVC; Inv. = 139.0
#2 = 5' Earthen weir; Elev. = 141.1

Exhibit D (cont'd)

Practice Design Summary. The following table summarizes the data used to design the infiltration basin.

Design Element	Design Data
Site assessment data: (see attached maps)	
Contributing drainage area to basin (subwatershed A & B)	0.292 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 5%
Any buried or overhead utilities in the area?	Yes
Proposed outfall conveyance system/discharge (w/ distances)	Earthen weir
Any downstream roads or other structures? (describe)	Northview Rd
Floodplain, shoreland or wetlands?	No
Soil investigation data (see attached map & soil logs):	
Number of soil investigations completed	2
Do elevations of test holes extend 3 ft. below proposed bottom?	Yes
Average soil texture at pond bottom elevation (USDA)	Loamy Sand
Infiltration rate at basin bottom and method of analysis	1.63 in/hr
Distance from pond bottom to bedrock	> 5 feet
Distance from pond bottom to seasonal water table	> 3 feet
General basin design data (see attached detailed drawings):	
Basin bottom area	0.014 acres
Effective infiltration area	0.016 acres
1% of developed area (2.70 acres)	0.027 acres
Infiltration area elevation	138.0 to 139.1
Top of berm elevation	141.1 / 10 feet wide
Infiltration pond storage below outlet	0.014 acre-feet
25% of 2-yr 24-hr post development runoff volume target	0.068 acre-feet
2-yr 24-hr post development infiltration volume achieved	0.024 acre-feet
Time to completely infiltrate stored water; 100-yr storm	25.1 hours
Sediment forebay size and depth	None
Additional design features	

Design 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-yr./24 hr. peak 0.43 cfs / 0.024 ac-ft	0.00 cfs	138.99 ft	0.012 ac-ft	#1
10-yr 24 hr peak 0.79 cfs / 0.044 ac-ft	0.66 cfs	139.17 ft	0.014 ac-ft	#1
100-yr 24 hr peak 1.63 cfs / 0.092 ac-ft	1.63 cfs	139.25 ft	0.015 ac-ft	#1

* #1 = Earthen weir – flow line @ 139.1

Exhibit D (cont'd)

Watershed Maps. The watershed maps shown below were used to determine the pre- and post-development data contained in this exhibit. The total post-developed watershed area is the same as the pre-development watershed area for this project.

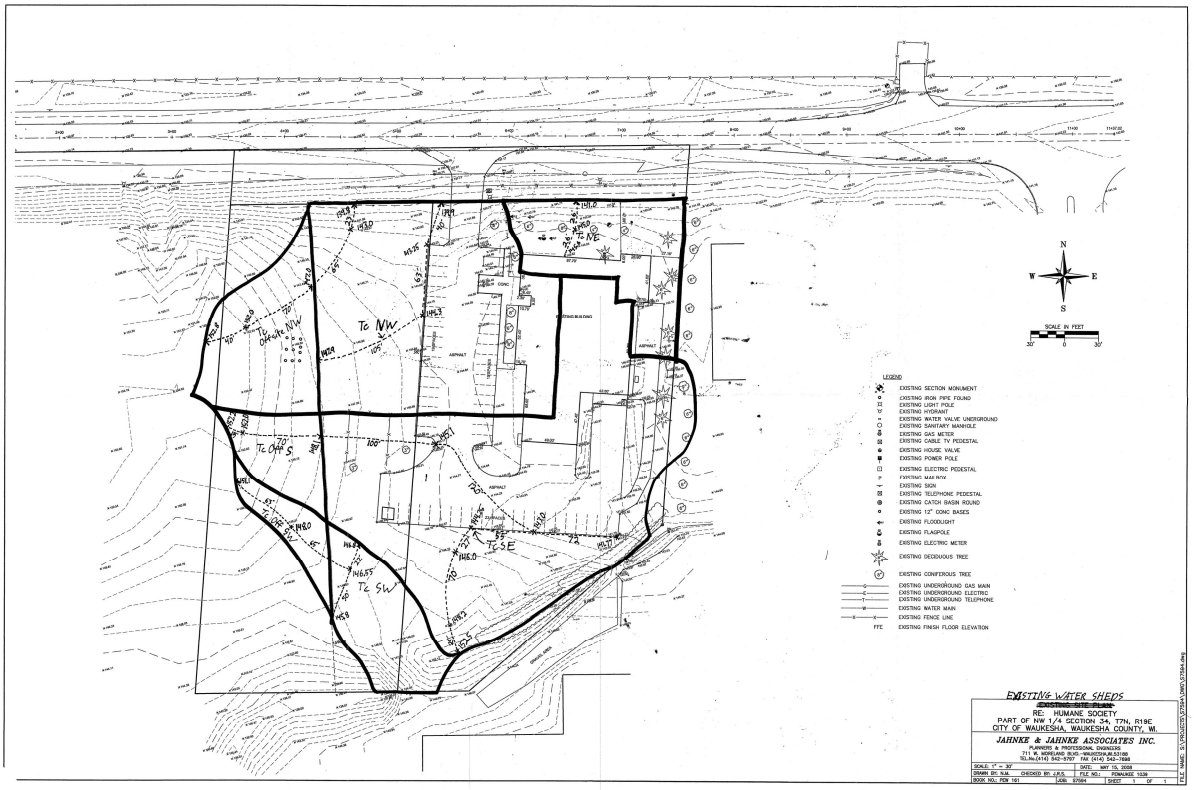


Exhibit E
As-built Survey for Wet Detention Basin

The wet detention basin depicted in Figure 1 is a reduced copy of the as-built plan.

Project Identifier**:** **Humane Animal Welfare Society**
Storm water Practice**:** **Wet Detention Basin**
Location of Practice**:** **Southwest corner of Lot 1, CSM 6111**
Owners of Outlot 1: **Humane Animal Welfare Society of Waukesha County, Inc.**

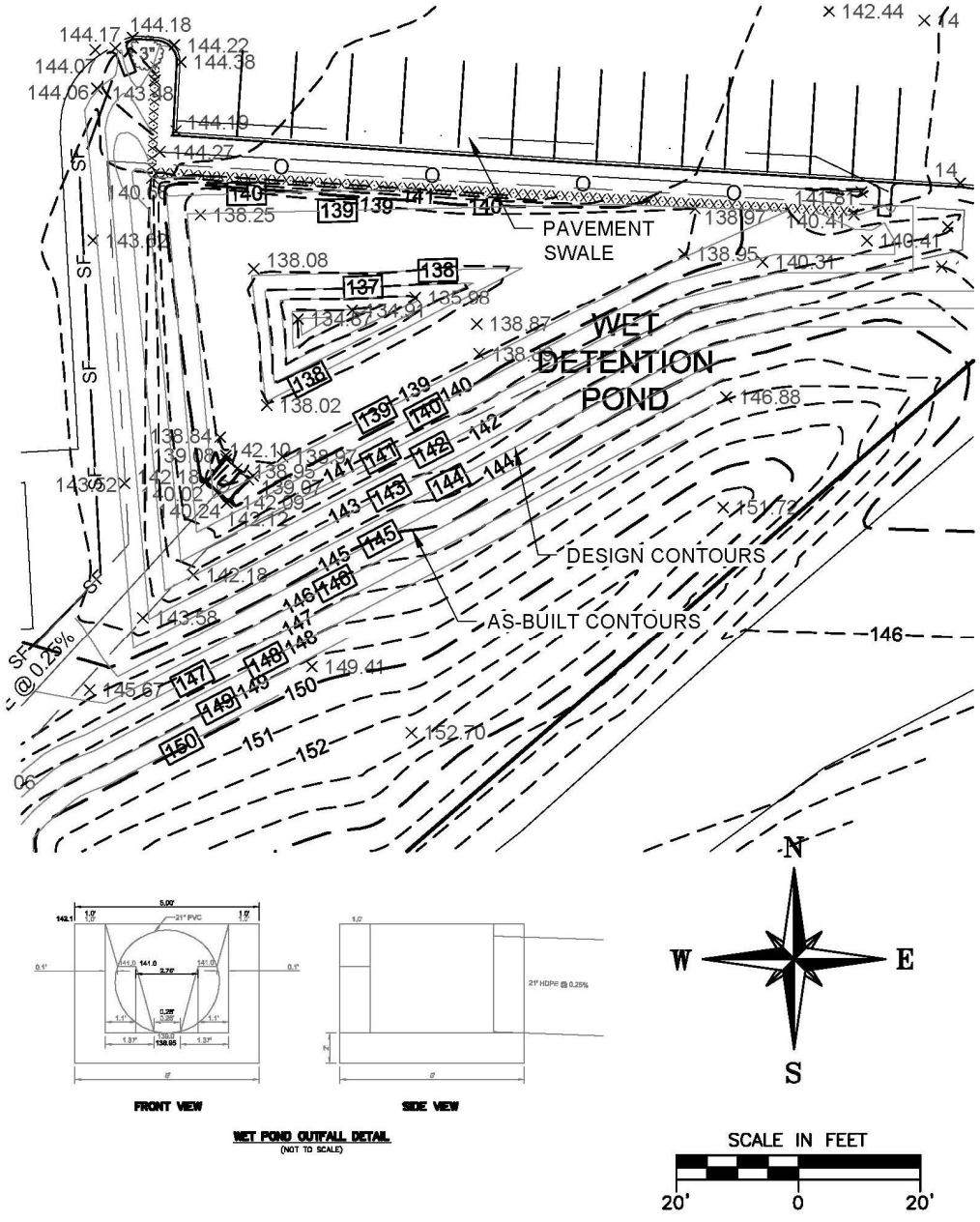


Exhibit E (cont'd)
As-built Survey for Infiltration Basin

The wet detention basin depicted in Figure 1 is a reduced copy of the as-built plan.

Project Identifier**:** **Humane Animal Welfare Society**
Storm water Practice**:** **Wet Detention Basin**
Location of Practice**:** **North end of Lot 1, CSM 6111**
Owners of Outlot 1: **Humane Animal Welfare Society of Waukesha County, Inc.**

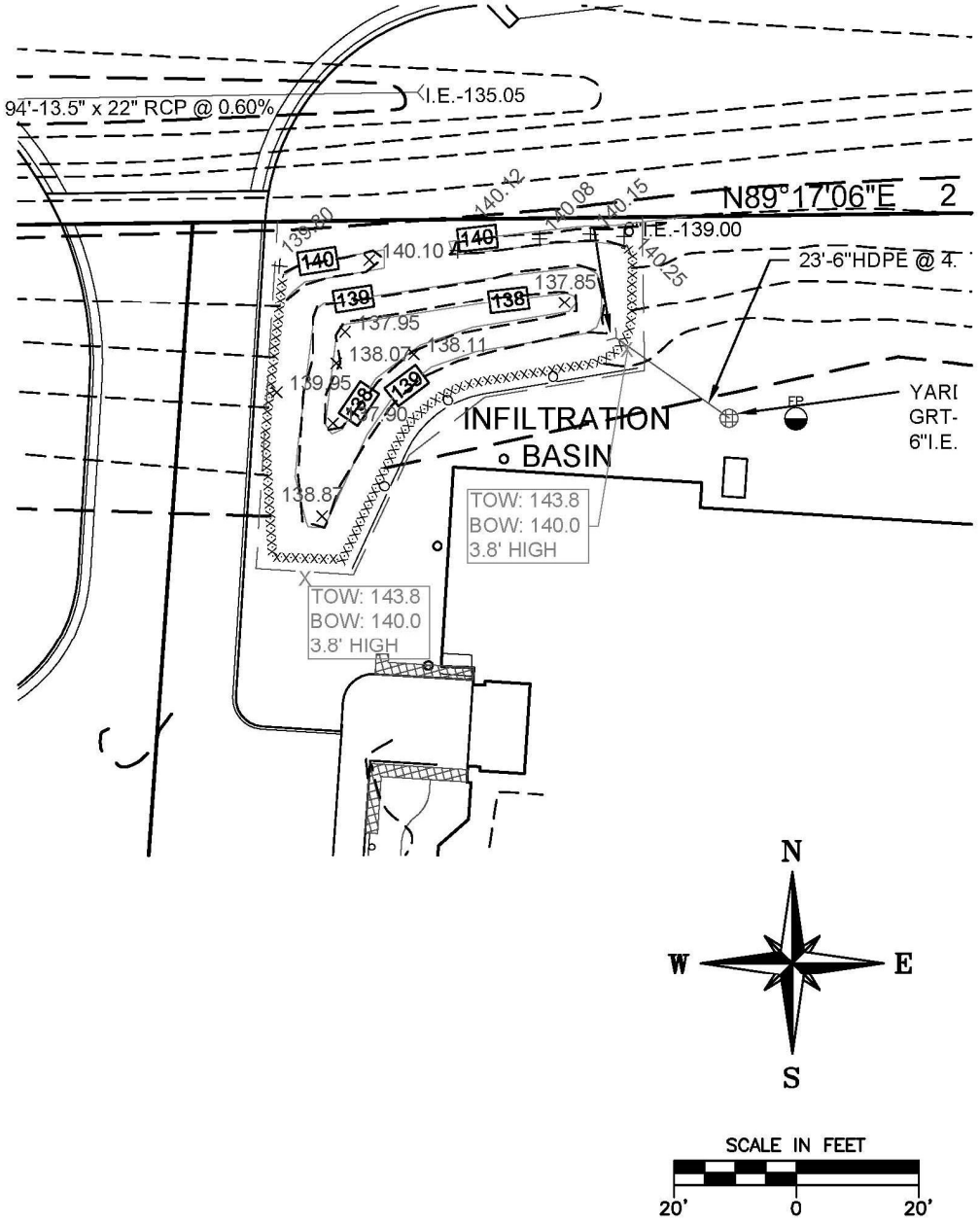


Exhibit F
Engineering/Construction Verification

DATE: September 16, 2016

TO: City of Waukesha

FROM: Gregory E. Mitchell, PE; Jahnke & Jahnke Associates, Inc.

RE: Engineering/Construction Verification for the following project:

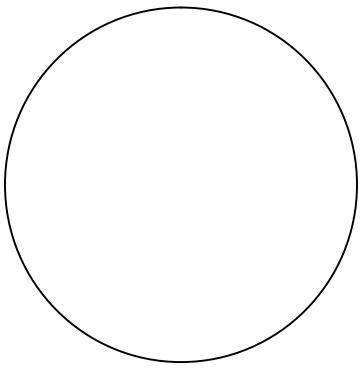
Project Name: Humane Animal Welfare Society of Waukesha

Section 34, Town of Pewaukee

Storm Water Management Practices: Infiltration Basin, Wet-bottom Pond

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.



(Signed P.E. stamp must be included)

Exhibit G
Storm Water Management and Erosion Control Permit Termination

Project Identifier: Waukesha HAWS Expansion

Location: Lot 1 of CSM 6111, located in all that part of the Northeast Quarter (NE ¼) of Section 34, Township 7N, Range 19E (Town of Pewaukee), City of Waukesha, Waukesha County, Wisconsin

Storm Water Management and Erosion Control Permit Holder's Name: Humane Animal Welfare Society of Waukesha County, Inc.

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 Owner identified above 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 _____, 201_.

City of Waukesha representative:

_____
(Signature)

_____
(Typed Name and Title)

Acknowledgements

State of Wisconsin
County of Waukesha

Personally came before me this ___ day of _____, 201_, the above named _____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

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