



Village of Menomonee Falls
W156 N8480 Pilgrim Road
Menomonee Falls, WI 53051-3140
Telephone: (262) 532-4200

STORMWATER MANAGEMENT FACILITIES OPERATION AND INSPECTION REPORT

Quarter Section: N½, SE¼, S9, T8N, R20E Name of Business/Subdivision: Menomonee Falls Elderly LLC
Property Tax ID Number: MNFV36993004 Address of Property: W180 N8220 Town Hall Road
Date: 8/9/2016 Menomonee Falls, WI 53051

Dry Pond		Location of Pond	Along South property line, southeast of eastern building
Wet Pond			
Other	X		

Pond ID: Southeast biofilter

Year Pond Constructed 2012 Year of Last Certification 2014

Compliance Verification	Design	Actual	Compliant Yes No	Comments (Condition of Structure)
Primary Outlet Pipe				Outlet Pipe Material
Opening Diameter (inches)				N/A
Upstream Invert				N/A
Downstream Invert				N/A
Length (feet)				N/A
Slope (%)				N/A
Secondary Outlet Pipe	(If Applicable)			Outlet Pipe Material
Opening Diameter (inches)				N/A
Upstream Invert				N/A
Downstream Invert				N/A
Length (feet)				N/A
Slope (%)				N/A
Riser	(If Applicable)			Riser Material
Opening Diameter (inches)	18"	18"	X	PVC N-12
Elevation	887.50	887.22	X	
Upper Discharge Control	(If Applicable)			
Opening Diameter (inches)				N/A
Elevation				N/A

Compliance Verification	Design	Actual	Compliant Yes No		Comments	
Lower Discharge Control	(If Applicable)					
Opening Diameter (inches)					N/A	
Elevation					N/A	
Other (Description)						
Opening Type and Size (inches)					N/A	
Elevation					N/A	
Emergency Spillway						
Elevation					N/A	
Length of spillway (feet)					N/A	
Embankment	Present Yes no		Comments/Maintenance Requirements			
Unauthorized Plantings, trees, or woody vegetation	X		Recommend removing weeds and some trash. Add trash grate to standpipe.			
Animal burrows or slope erosion		X				
Storm Sewer Outfalls	Type & Size		Location		Comments	
Outfall 1	18" PVC,		At bottom of standpipe		Storm sewer, connects to storm sewer.	
Outfall 2						
Outfall 3						
Storage Properties	Design	Actual	Compliant Yes No		Not Applicable	Equipment Used
Normal Water Elevation (Wet Ponds)					X	Biofilter-not wet or dry
Design High Water Elevation					X	Biofilter-not wet or dry
Area at Normal Water Elevation (Ac) (Wet Ponds)					X	Biofilter-not wet or dry
Area at Design High Water Elevation (Ac)					X	Biofilter-not wet or dry
Active Storage Available (Ac-Ft)*					X	Biofilter-not wet or dry
Lowest Elevation at Top of Embankment (If Applicable)					X	Biofilter-not wet or dry
Average Elevation at Top of Embankment (If Applicable)					X	Biofilter-not wet or dry
Maximum Bottom Elevation					X	Biofilter-not wet or dry
Average Pond Bottom Elevation					X	Biofilter-not wet or dry
Pond Bottom Area (Ac)					X	Biofilter-not wet or dry
Maximum Pond Depth					X	Biofilter-not wet or dry
Average Pond Depth					X	Biofilter-not wet or dry
Average Permanent Pool Depth (Wet Ponds)					X	Biofilter-not wet or dry

*To Determine Active Storage $V=H/3(A1+A2+(A1 \times A2)^{1/2})$

Wet Ponds Use H = Height of Section , $A1$ = area at normal water elevation, $A2$ =area at top section

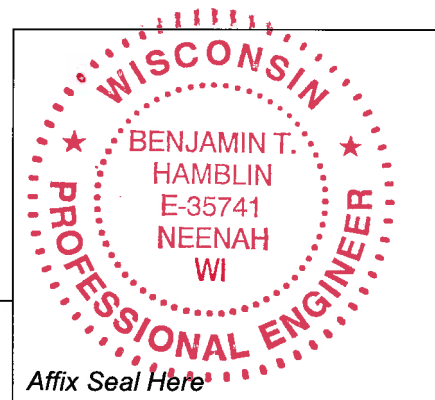
Dry Ponds Use H = Height of Section, $A1$ = pond bottom area, $A2$ =area at top section

Sketch Outlet or Attach to Document (see attached)	Place Photograph of Pond or Attach to Document (see attached)
	Place Photograph of Pond or Attach to Document (see attached)

Attach As-built Survey to the Document for the first report submission

Inspection Firm:	McMAHON	Inspector Name :	Ben Hamblin
Phone Number:	920-751-4200	Inspection Date:	8/9/16
Address:	1445 McMahan Drive Neenah, WI 54956		

Certifying Professional Name: Ben Hamblin, PE E-35741
 Phone Number: 920-751-4200



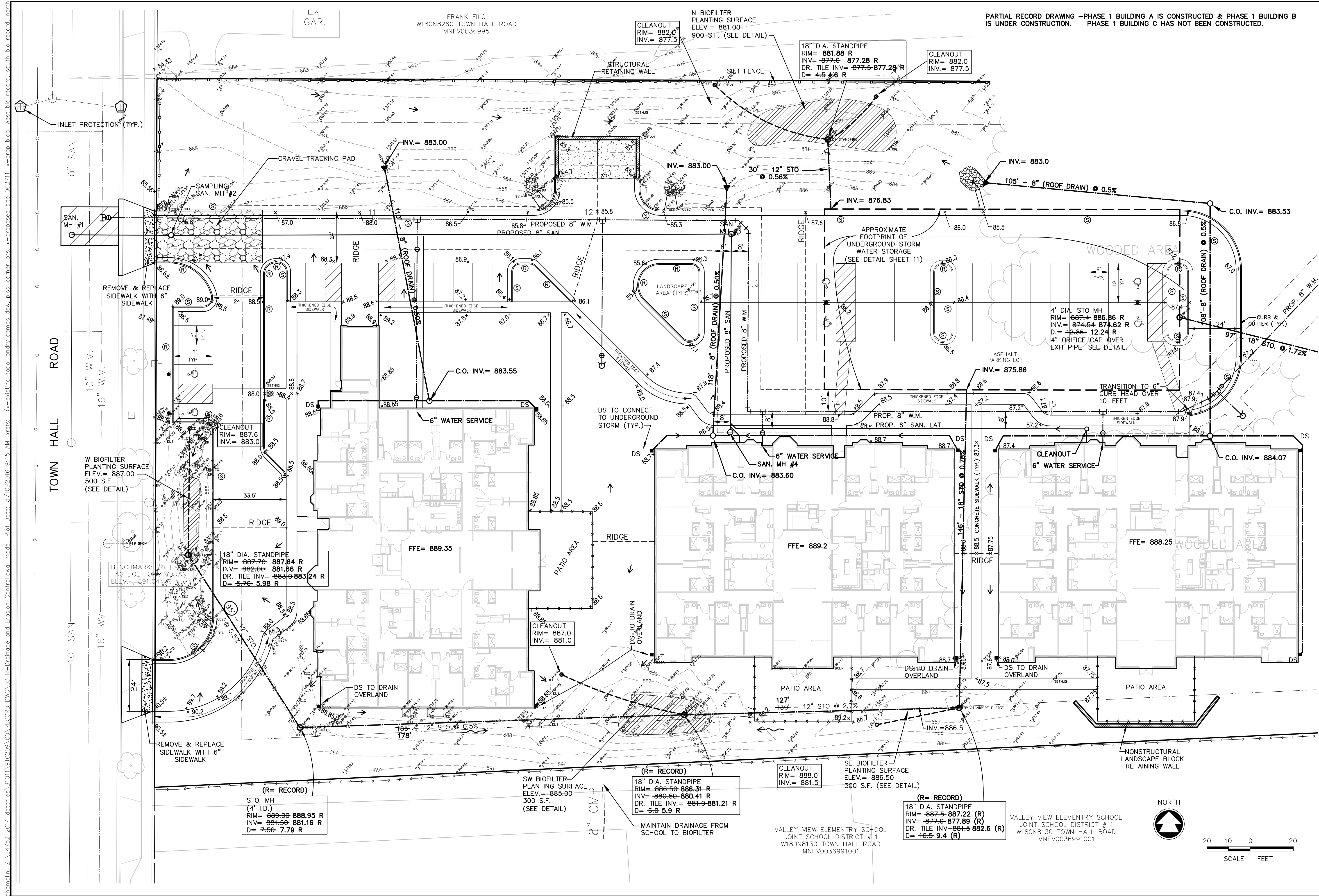
Date: 8/12/16	Signature:
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McMAHON

ENGINEERS ARCHITECTS

1445 McMAHON DRIVE NEENAH, WI 54956
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DESIGNED
JLS

DRAWN

PROJECT NO.
B1011-910209

DATE
APRIL, 2011

SHEET NO.
3

REVISION

NO.	DATE	DESCRIPTION
1	8/12/11	ADDED VALVE
2	8/24/11	FOOTPRINT WESTERN UNDERGROUND STORAGE
3	8/30/11	STORM SEWER REVISIONS
4	9/2/11	STORM SEWER REVISIONS
5	9/16/11	CONTOURS & BLDG LOCATIONS
6	9/28/11	CONTOURS & UTILITY CHANGES

MEMORONEE FALLS ASSISTED LIVING
VILLAGE OF MEMORONEE FALLS
DRAINAGE & EROSION CONTROL PLAN

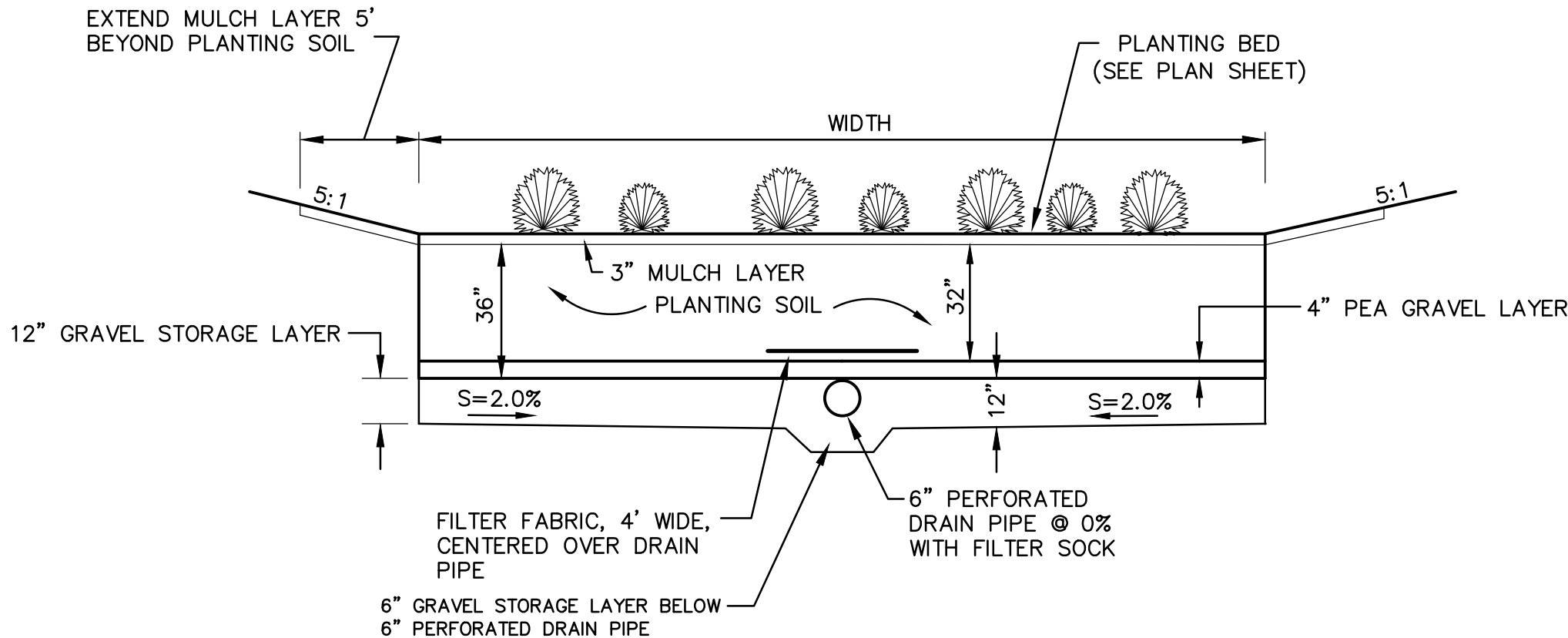
Z:\EAF\2014 details\B1011020209\004-DET BIOFILTER.dwg, Model, 8/15/2016 8:34:23 AM, lbarabini, 1:1

K:\egner, W:\PROJECTS\B1011\910209\004-DET BIOFILTER-4.dwg, 07/01/11 11:09 AM

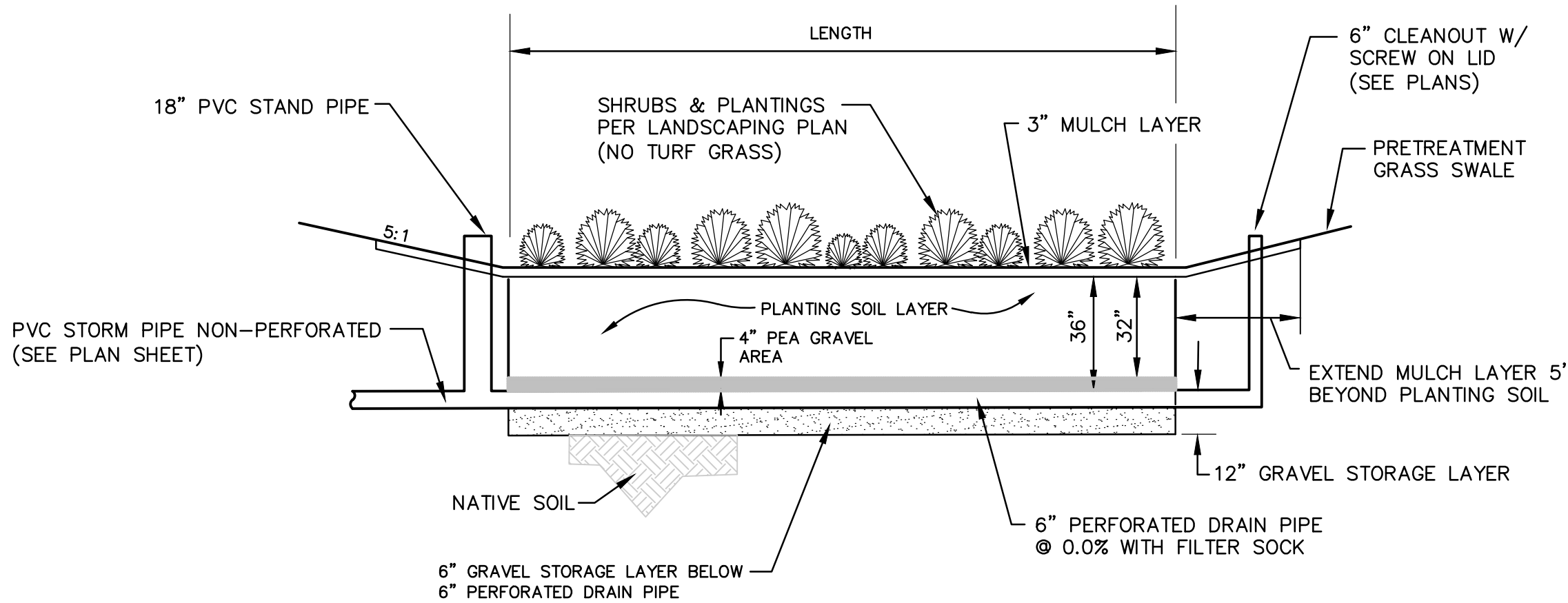
LATIN NAME	COMMON NAME	SYMBOL
ANDROPOGON GERARDIA	BIG BLUESTEM	AG
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	AN
CAREX VULPINOIDEA	FOX SEDGE	CV
CHELONE GLABRA	WHITE TURTLEHEAD	CG
GENTIANA ANDREWSII	BOTTLE GENTIAN	GA
IRIS VERSICOLOR	BLUE FLAG IRIS	IV
LIATRIS SPICATA	MARSH BLAZINGSTAR	LS
LOBELIA SIPHILITCA	GREAT BLUE LOBELIA	LSI
RUDBECKIA SUBTOMENTOSA	SWEET BLACK-EYED SUSAN	RS
VERNONIA AUREA	IRONWEED	VF
ZIZIA AUREA	GOLDEN ALEXANDERS	ZA

BIO-FILTRATION PLANTING SCHEDULE

SPECIES AND QUANTITY CAN BE VARIED BY OWNER / LANDSCAPER THAT IS FAMILIAR WITH RAIN GARDENS, AS LONG AS NATIVE SPECIES ARE USED AND THE PLANTING DENSITY IS MAINTAINED AT 1 PLANT PER 2 SQUARE FEET.



BIO-FILTRATION DETAIL A-A



BIO-FILTRATION DETAIL B-B

BIOFILTRATION SPECIFICATIONS

MULCH LAYER
SHREDDED HARDWOOD MULCH OR CHIPS SHALL BE PLACED ON THE SURFACE OF THE PLANTING SOIL TO A DEPTH OF 2 TO 3-INCHES. MULCH SHALL BE FREE OF FOREIGN MATERIAL, INCLUDING OTHER PLANT MATERIAL. MULCH SHALL BE AGED A MINIMUM OF 12 MONTHS.

PLANTING SOIL LAYER
PLANTING SOIL SHALL BE FREE OF ROCKS, STUMPS, ROOTS, BRUSH, OR OTHER MATERIAL OVER 1-INCH IN DIAMETER. NO OTHER MATERIAL SHALL BE MIXED WITH THE PLANTING SOIL THAT MAY BE HARMFUL TO PLANT GROWTH, INFILTRATION RATES, OR PROVE A HINDRANCE TO PLANTING AND MAINTENANCE. PLANTING SOIL SHALL HAVE ADEQUATE NUTRIENTS TO MEET PLANT GROWTH REQUIREMENTS. PLANTING SOIL SHALL HAVE A pH BETWEEN 5.5 AND 6.5. PLANTING SOIL SHALL BE UNIFORMLY MIXED AND CONSIST OF 70-85% SILICA SAND (QUARTZ SAND), AND 15-30% COMPOST.

- 1) SILICA SAND (QUARTZ SAND) COMPONENT SHALL BE USDA CLASSIFIED COARSE SAND TEXTURE WITH 0.02 TO 0.04 INCH DIAMETER. SAND COMPONENT SHALL BE PRE-WASHED TO REMOVE CLAY AND SILT PARTICLES AND THEN WELL-DRAINED OR DRIED PRIOR TO MIXING. CALCIUM CARBONATED, DOLOMITIC SAND, AND OTHER SUBSTITUTIONS ARE NOT ALLOWED.
- 2) TOPSOIL COMPONENT SHALL BE USDA CLASSIFIED LOAM TEXTURE. TEXTURE CLASS SHALL BE VERIFIED BY LABORATORY ANALYSIS OR LICENSED PROFESSIONAL.
- 3) COMPOST COMPONENT SHALL CONTAIN LESS THAN 1% COMBINED GLASS, METAL, AND PLASTIC. COMPOST SHALL BE RESISTANT TO FURTHER DECOMPOSITION AND FREE OF COMPOUNDS IN CONCENTRATIONS TOXIC TO PLANT GROWTH. COMPOST SHALL COMPLY WITH US EPA 503 REGULATIONS FOR CLASS A BIOSOLIDS AND CONTAIN NEGLIGIBLE CONCENTRATIONS OF BOTH HEAVY METALS AND OTHER CHEMICAL CONTAMINANTS. COMPOST SHALL ALSO SATISFY THE FOLLOWING SPECIFICATIONS:

Particle size	98% pass 0.75 inch screen
Organic matter	40% minimum
Ash content	60% maximum
Carbon to Nitrogen (C:N) Ratio	10-20:1
pH range	6.0 - 8.0
Soluble salts	10 dS m-1 electrical conductivity maximum
Moisture content	35% - 50% by weight
Compost Maturity Index	6-8
Seedling germination test	88% minimum
Pathogens and noxious seeds	minimized

GRAVEL STORAGE LAYER
GRAVEL SHALL MEET COURSE AGGREGATE # 2 AND OTHER SPECIFICATIONS OF WISCONSIN STANDARDS AND SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, SECTION 601.2.5, 2003 EDITION OR EQUIVALENT AS APPROVED BY ADMINISTERING AUTHORITY. GRAVEL SHALL BE DOUBLE WASHED.
NOTE: INADEQUATE WASHING WILL RESULT IN CLOGGING THE DEVICE.

PERFORATED UNDERDRAIN
UNDERDRAIN SHALL BE A 6-INCH DIAMETER CORRUGATED POLYETHYLENE PIPE WITH CIRCULAR OR SLOTTED PERFORATIONS. AT A MINIMUM, 4 TO 10 INCH DIAMETER PIPES SHALL HAVE 1.0 SQUARE INCH OF PERFORATED OPEN AREA PER LINEAR FOOT OF PIPE LENGTH. 12 TO 18 INCH DIAMETER PIPES SHALL HAVE 1.5 SQUARE INCHES OF PERFORATED OPEN AREA PER LINEAR FOOT OF PIPE LENGTH. AND 18 INCH DIAMETER OR LARGER PIPES SHALL HAVE 2.0 SQUARE INCHES OF PERFORATED OPEN AREA PER LINEAR FOOT OF PIPE LENGTH. CIRCULAR PERFORATIONS SHALL NOT EXCEED 0.19 INCHES FOR 4 TO 10 INCH DIAMETER PIPES OR 0.38 INCHES FOR PIPES GREATER THAN 10 INCH DIAMETER. THE WIDTH OF SLOT PERFORATIONS SHALL NOT EXCEED 0.13 INCHES. THE UNDERDRAIN PIPE SHALL SATISFY SECTION 612.2.5, STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, 2003 EDITION.

FILTER FABRIC SHALL NOT EXTEND Laterally FROM EITHER SIDE OF UNDERDRAIN PIPE FOR MORE THAN 2 FEET. FILTER FABRIC SHALL SATISFY SECTION 645.2.4, SCHEDULE TEST B, STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, 2003 EDITION.

A MINIMUM 6-INCH DIAMETER VERTICAL CLEAN-OUT SHALL BE CONNECTED TO THE UPSTREAM END OF THE UNDERDRAINS. CLEAN OUT SHALL BE RIGID, NON-PERFORATED PVC PIPE WITH A REMOVABLE, WATERTIGHT CAP THAT IS FLUSH WITH THE FINISHED GROUND SURFACE.

CONSTRUCTION
CONTRACTOR SHALL SUBMIT MATERIAL CERTIFICATIONS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. CERTIFICATIONS SHALL STATE THAT MATERIALS SATISFY SPECIFICATIONS.

RUNOFF FROM ALL UPSLOPE DISTURBED/PERVIOUS AREAS SHALL BE DIVERTED AWAY FROM THE BIOFILTRATION DEVICE UNTIL A PERMANENT PERENNIAL VEGETATIVE COVER IS ESTABLISHED WITH A UNIFORM DENSITY OF AT LEAST 70%. SEDIMENT LADEN RUNOFF WILL PREMATURELY CLOG THE BIOFILTRATION DEVICE.

CONSTRUCTION SHALL BE SUSPENDED DURING PERIODS OF RAINFALL OR SNOWMELT. CONSTRUCTION SHALL REMAIN SUSPENDED IF PONDED WATER OR RESIDUAL SOIL MOISTURE CONTRIBUTES TO SOIL SMEARING, CLUMPING, OR OTHER FORMS OF COMPACTION.

COMPACTION REMEDIATION: IF COMPACTION OCCURS AT THE BOTTOM OF THE DEVICE THE SOIL SHALL BE REFRACCTURED TO A DEPTH OF AT LEAST 12". IF SMEARING OCCURS, THE SMEARED AREAS OF THE INTERFACE SHALL BE CORRECTED BY RAKING OR ROTO-TILLING.

CONSTRUCTION EQUIPMENT AND VEHICLE TRAFFIC SHALL NOT DRIVE OVER BIOFILTRATION AREA AT ANY TIME.

THE PLANTING SOIL LAYER AND SAND STORAGE LAYER SHALL BE PLACED IN 12-INCH LIFTS MAXIMUM. COMPACTION SHALL BE MINIMIZED. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO BIOFILTRATION DEVICE FAILURE. GRADE EACH LAYER WITH HAND TOOLS, EXCAVATION HOES, MARSH EQUIPMENT, WIDE-TRACK LOADERS, OR LIGHT EQUIPMENT WITH TURF-TYPE TIRES. DO NOT USE HEAVY EQUIPMENT WITH NARROW TRACKS, NARROW TIRES, RUBBER TIRES WITH LUGS, OR HIGH-PRESSURE TIRES. STEPS MAY BE TAKEN TO INDUCE MILD SETTling OF THE SAND STORAGE LAYER AND PLANTING SOIL LAYER AS NEEDED TO PREPARE A STABLE PLANTING BED. VIBRATING PLATE-STYLE COMPACTORS SHALL NOT BE USED. ENTIRE PLANTING BED SHALL BE MULCHED TO A UNIFORM DEPTH OF 2 TO 3-INCHES PRIOR TO PLANTING VEGETATION TO HELP PREVENT COMPACTION OF PLANTING SOIL LAYER DURING PLANTING PROCESS. MULCH SHALL BE PUSHED ASIDE FOR INDIVIDUAL PLANT PLACEMENT.

PLANTS SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. PLANTS SHALL BE FERTILIZED AND WATERED AS APPROPRIATE TO MAXIMIZE PLANT GROWTH AND SURVIVAL. PLANTS MUST BE WELL ESTABLISHED BEFORE THE ONSET OF COLD WEATHER. CONTRACTOR SHALL PROVIDE A 2-YEAR WARRANTY FOR ALL INSTALLED PLANTS, SHRUBS, AND TREES.

REVISION	DATE	NO.

DESIGNED JLS	DRAWN KRH
PROJECT NO. B1011-910209	
DATE APRIL, 2011	
SHEET NO. 4	