Storm Water Management Practice Maintenance Agreement

Document Number

Boucher Holdings LLC, 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: <u>Legal Description</u> of the real estate for which this Agreement applies ("Property").

Exhibit B: <u>Location Map(s)</u> – shows an accurate location of each storm water management practice affected by this Agreement.

Exhibit C: <u>Maintenance Plan</u> – prescribes those activities that must be carried out to maintain compliance with this Agreement.

<u>Note</u>: After construction verification has been accepted by the City of Waukesha, for all planned storm water management practices, an <u>addendum(s)</u> 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.

Name and Return Address

City of Waukesha 201 Delafield Street Waukesha, WI 53188

Parcel Identification Number(s) – (PIN) WAKC1007054

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 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.

Dated this day of, 202	
•	
Owner:	
(Owners Signature)	_
Daniel G. Nienhuis, General Counsel, Boucher Hold	ings, LLC.
(Owners Typed Name)	_
A	Acknowledgements
State of Wisconsin: County of Waukesha	
Personally came before me this day of _ known to be the person who executed the fore	, 202_, the above named _Daniel G. Nienhuis_ to me egoing instrument and acknowledged the same.
	[Name]
	Notary Public, Waukesha County, WI My commission expires:
This document was drafted by:	
Jeremy Jeffery, P.E.	
16745 W Bluemound Road, Brookfield, WI 53005	
[Name and address of drafter]	
9-15-13– City of Waukesha	
	For Certification Stamp

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).

City of Waukesha Common Council Approval	
Dated this day of, 202	
Shawn N. Reilly, Mayor	
Gina Kozlik, City Clerk	
Ack	nowledgements
State of Wisconsin: County of Waukesha	
Personally came before me this day of known to be the person who executed the foregoin	, 202_, the above named _ Daniel G. Nienhuis to me ng 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: Waukesha Nissan Acres: 8.84

Date of Recording: January 11, 2023

Map Produced By: raSmith, Brookfield, WI

Legal Description: Recorded as Plat of Survey w/ Utilities & Topographic Data, dated 1/11/2023

Lot 1 of certified survey map no. 11016. Being part of the NE ¼ of the SE ¼ of section 35, Town 7 N. Range

19 E, in the city of Waukesha, Waukesha County, Wisconsin

Waukesha Nissan

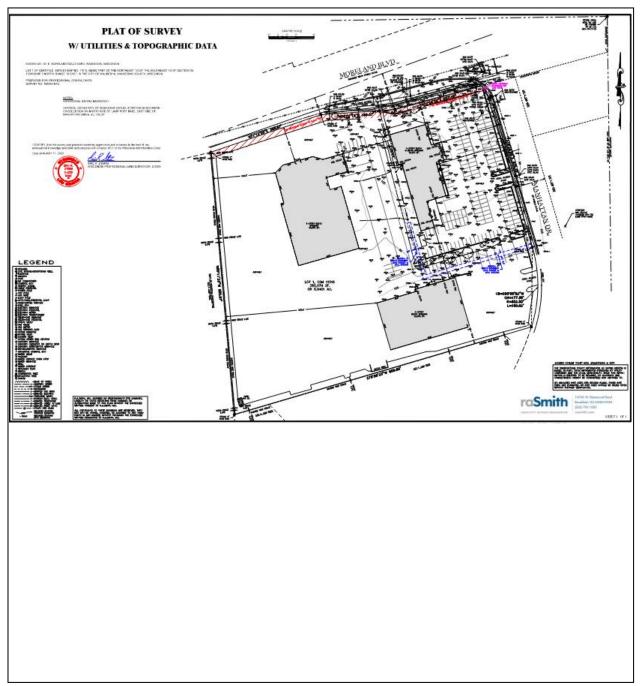


Exhibit B - Location Map Storm Water Management Practices Covered by this Agreement

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 two independent underground detention tanks.

Project Name: Waukesha Nissan

Storm water Practices: Underground Detention Tank

Location of Practices: Under parking lot

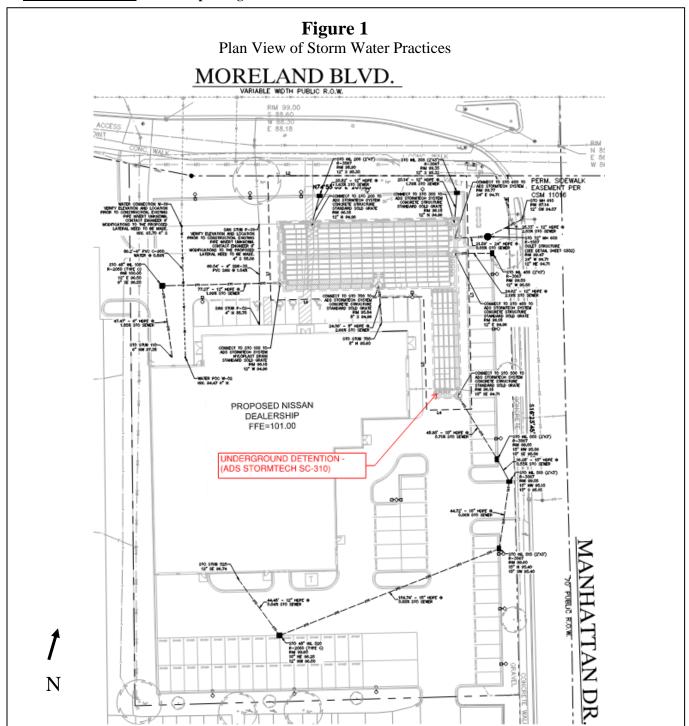


Exhibit C Storm Water Practice Maintenance Plan

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. 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. Any repair, maintenance, or 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.

I. ROUTINE MAINTENANCE

- A. Inspections (A competent inspector or inspection service qualified to reviewdrainage systems shall be chosen and hired by the Owner.)
 - 1. Inspection priorities include visual observation and documentation of:
 - a. Accumulation of sediment and debris in the storm sewer inlets, wet underground detention systems, and outlet control structures.
 - b. Any modification to the contributory watershed. Confirm and document any modifications.
 - c. Inspect underground detention systems for settling, cracking, erosion, leakage, and structural condition of outlet control structure. Make repairs as necessary.
 - d. Inspect site for areas of erosion. If present, eroded areas shall be repaired using low-impact earth moving techniques commensurate with the scale of the repair task. Any bare soil areas shall be revegetated according to the original design specifications.
 - 2. Inspect all storm sewer structures, underground detention system basins, and outlet control structures after significant rainfall events and at least twice annually, once in the Spring and once in the Fall. Conduct inspections during wet weather conditions to determine if the storm sewer system is functioning properly.

B. Debris and Litter Removal.

- 1. Remove debris and litter from the area, including the storm sewer system, underground detention systems, and outlet control structures.
- 2. Remove debris and litter from the grates and inverts of all the storm sewer inlets, catch basins, and manholes.
- 3. Remove accumulated sediment from all storm sewer inlets, catch basins, and manholes.

II. NON-ROUTINEMAINTENANCE

- A. Post Construction Monitoring
 - 1. For the first 12 months following installation of the underground detention systems and storm sewers, the system is to be inspected on a quarterly basis to verify the integrity of the conveyance system. Following the initial 12 months, the system is to be inspected at least every 6 months or more frequently as determined by the initial 12-month monitoring period.
- B. Structural Repairs and Replacement.
 - 1. Conduct routine inspection and maintenance of all storm sewer structures to promote longevity.

III. DOCUMENTATION OF MAINTENANCE

A. Complete attached "Inspection Form for Storm Water Management Systems" The Owner will maintain the records.

1. Document Number

Addendum 1 Storm Water Management Practice Maintenance Agreement

Document number

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) located at Waukesha Nissan, Lot 1 of certified survey map no. 11016, being part of the Northeast ¼ of the Southeast ¼ of Section 35, Township 7 North, Range 19 East, in the City of Waukesha, Waukesha County, Wisconsin. This document shall serve as an addendum to document #	
Exhibit D: Design Summary – contains a summary of key engineering calculations and other data used to design the wet detention basin. Exhibit E: As-built Survey – shows detailed "as-built" cross-section and plan view of the wet detention basin.	
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.	Name and Return Address
Dated this day of, 202 Owner: [Owners Signature – per the Maintenance Agreement]	Parcel Identification Number(s) – (PIN)
[Owners Typed Name]	
Acknowledgements State of Wisconsin County of Waukesha Personally came before me this day of, 202_, the above named _ known to be the person who executed the foregoing instrument and acknowledged to	
[Name] Notary Public, Waukesha County, WI My commission expires: This document was drafted by:	
Jeremy Jeffery, P.E. 16745 W Bluemound Road, Brookfield, WI 53005 [Name and address of drafter]	

Exhibit D Design Summaries for Underground Detention Tank - North

Project Identifier:	Waukesha Nissan	Project Size: 1.98 Acres	No. of Lots: <u>N/A</u>
Number of Runoff	Discharge Points:	1 Watershed (ultimate	discharge): Fox River
Watershed Area (in	ncluding off-site run	off traveling through project are	ea): 1.99 acres

<u>Watershed Data Summary</u>. The following table summarizes the watershed data used to determine peak flows and runoff volumes required to design Underground Detention Tank

Cummony Data Flamonta	Existing and Proposed		
Summary Data Elements	Pre-develop	Post-develop	
Watershed Areas (in acres) (see attached map)	1.98	1.99	
Average Watershed Slopes (%)	2-4%	2-4%	
Land Uses (% of each) (see attached map)	0.17ac Grass 1.37ac Pavement 0.09ac Sidewalk 0.35ac Roof	0.332ac Grass 1.11ac Pavement 0.04ac Sidewalk 0.49ac Roof	
Runoff Curve Numbers	RCN = 93	RCN = 88	
Conveyance Systems Types	50% overland 50% storm sewer	50% overland 50% storm sewer	
Time of Concentration (Tc) (see attached map & worksheets)	6 min.	6 min.	
1-year/24 hour Runoff Volume	6.08 cfs	5.68 cfs	
2-yr./24 hour Peak Flow (see attached hydrographs)	6.96 cfs	6.48 cfs	
10-yr./24 hour Peak Flow	10.24 cfs	9.38 cfs	
100-yr./24 hour Peak Flow	17.18 cfs	15.70 cfs	

Practice Design Summary. The following table summarizes the data used to design Underground Detention Tank

Design Element	Design Data			
Site assessment data: (see attached maps)				
Contributing drainage area to basin	1.70 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 2-3%			
Any buried or overhead utilities in the area?	Yes			
Proposed outfall conveyance system/discharge (w/ distances)	25.33' – 12 HDPE pipe into back of existing Inlet along Manhattan			
Any downstream roads or other structures? (describe)	Inlet on Manhattan connects to storm sewer at the intersection of Moreland/Manhattan			
Floodplain, shoreland or wetlands?	No			
General basin design data (see attached detailed drawings):	General basin design data (see attached detailed drawings):			
Top of Stone	96.46			
Top of Chamber	95.96			
Chamber Invert	94.63			
Bottom of Stone	94.13			

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.	2.50	95.07	0.076 af	#1 & #3	
2-yr./24 hr.	2.84	95.17	0.087 af	#1 & #3	
10-yr./24 hr.	5.39	95.51	0.120 af	#1, #2 and #3	
100-yr./24 hr.	14.03	95.92	0.150 af	#1, #2 and #3	

^{*#1 = 6} inch orifice in water level control weir plate – flow line elev. @ 94.13' #2 = 6 foot wide rectangular weir – flow line elev. @ 95.30'

^{#3 = 12} inch diameter rcp pipe – flow line elev. @ 95.30'

Exhibit D (continued)

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

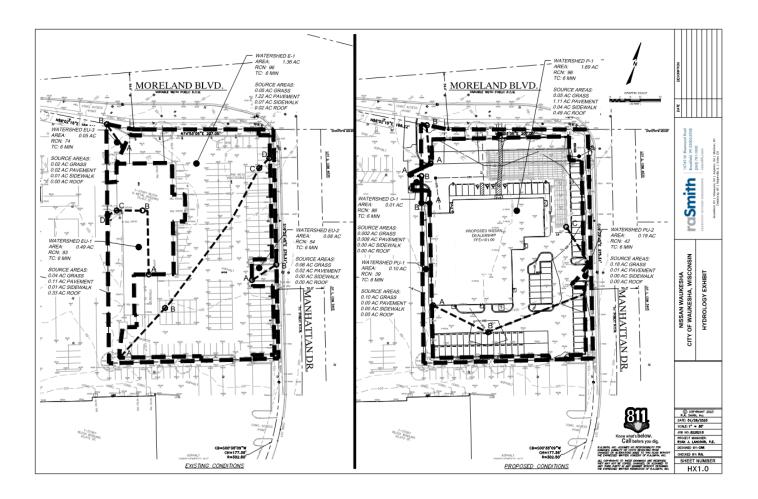


Exhibit E As-built Survey for Underground Detention Tank

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

Project Identifier: Waukesha Nissan

Storm water Practice: Underground Detention Tanks

Location of Practice: Under parking lot

Cross-Section A - A'

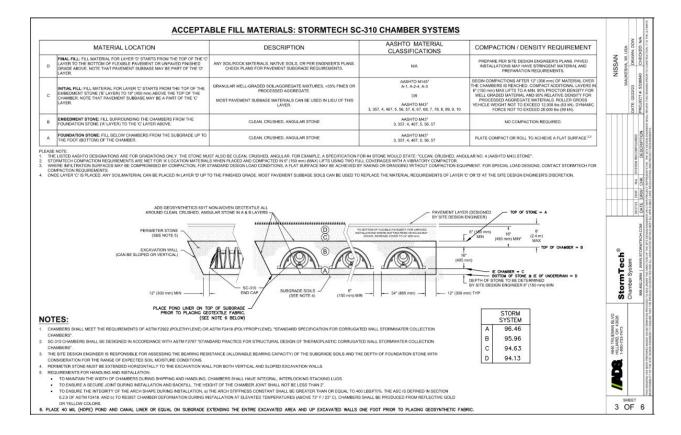


Exhibit "F" Engineering/Construction Verification

DATE:	
TO:	City of Waukesha
FROM:	[Project Engineer's Name/Company]
RE:	Engineering/Construction Verification for the following project: Project Name:

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 "asbuilt" 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.

[Must include one of the following two statements:]

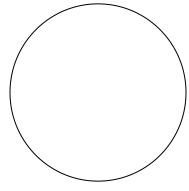
1. Any variations from the originally approved construction plans are noted in Exhibit E. These variations are considered to be within the tolerances of standard construction techniques and do not affect the original design as presented in Exhibit D in any way.

[Note: The City may request additional documentation to support this statement depending on the extent of deviations from the approved plans.]

<u>Or</u>

2. Any design or construction changes from the originally approved construction plans are documented in Exhibits D and E and have been approved by the City of Waukesha.

[Note: If warm season and wetland planting verification is required, it may be included in this exhibit.]



(Signed P.E. stamp must be included)

Exhibit G Storm Water Management and Erosion Control Permit Termination

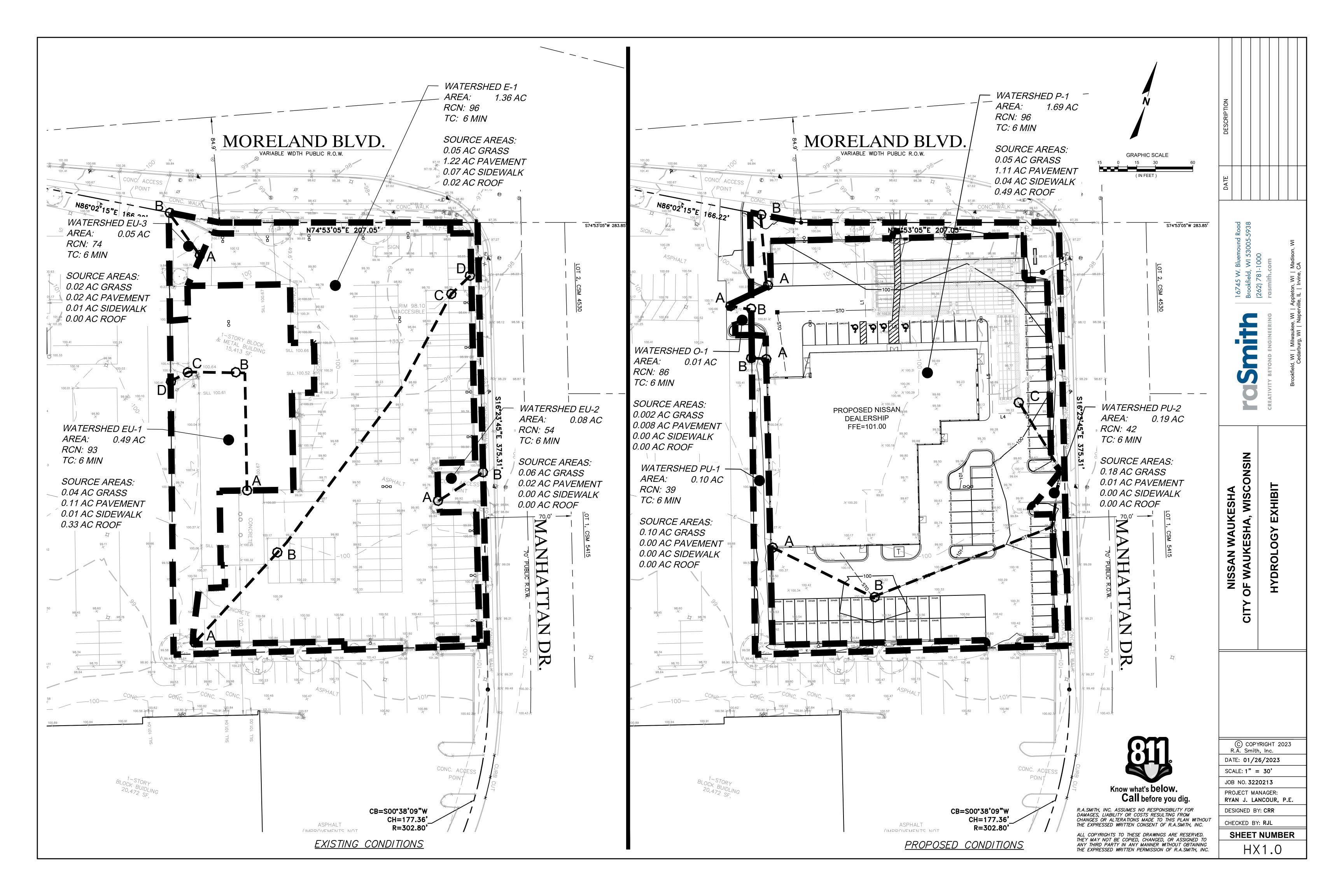
Project Identifier: Waukesha Nissan				
Location: Recorded as Plat of Survey w/ Utilities & Topographic Data, dated 1/11/2023 Lot 1 of certified survey map no. 11016. Being part of the NE ¼ of the SE ¼ of section 35, Town 7 N. Range 19 E, in the city of Waukesha, Waukesha County, Wisconsin				
Storm Water Management and Erosion Control Permit Holder's Name:				
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 [or CSM] 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, 202				
City of Waukesha representative:				
(Signature)				
(Typed Name and Title)				

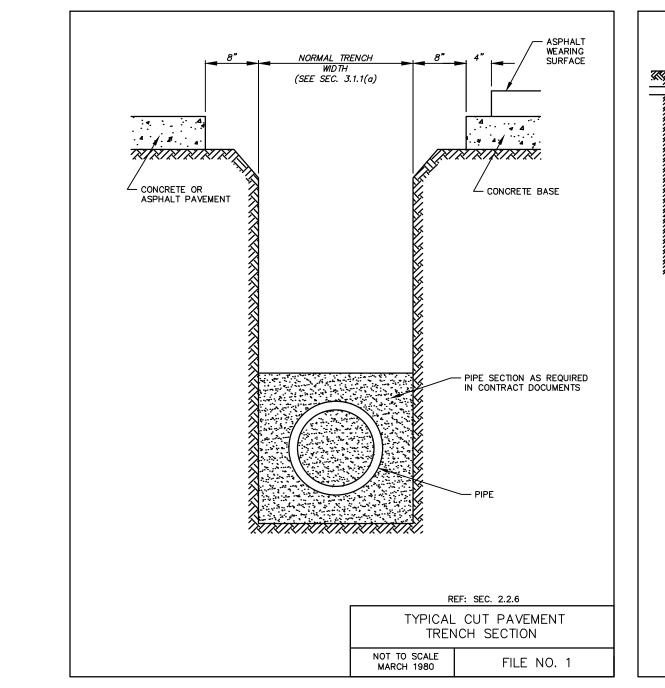
Acknowledgements

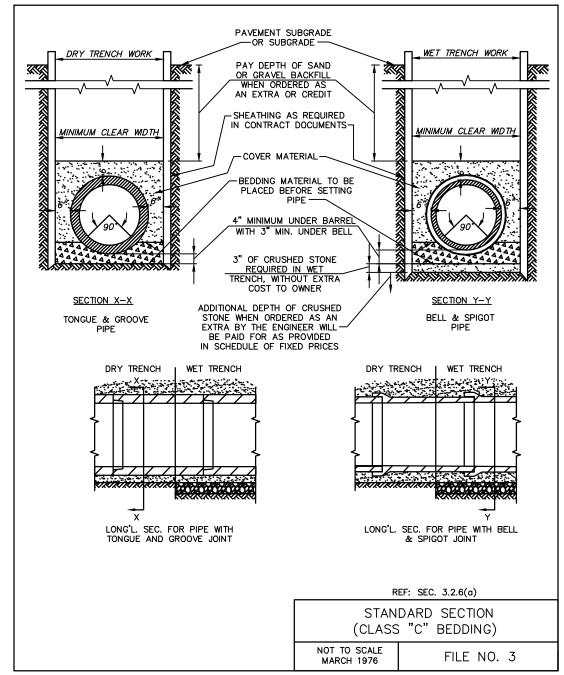
State of Wisconsin County of Waukesha

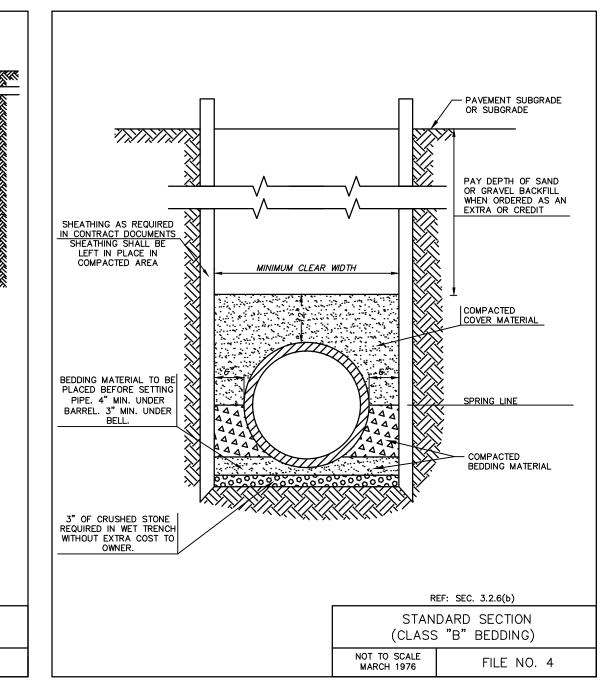
Personally came before me this day of	f, 202_, the above named	to m
known to be the person who executed the	foregoing instrument and acknowledged the same.	
	[Name]	
	Notary Public, Waukesha County, WI	
	My commission expires:	

APPENDIX G Hydrology Exhibit











Bluemouna WI 53005--1000

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I WAUKESHA KESHA, WISCO

NISSAN

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DATE: 5/22/2023

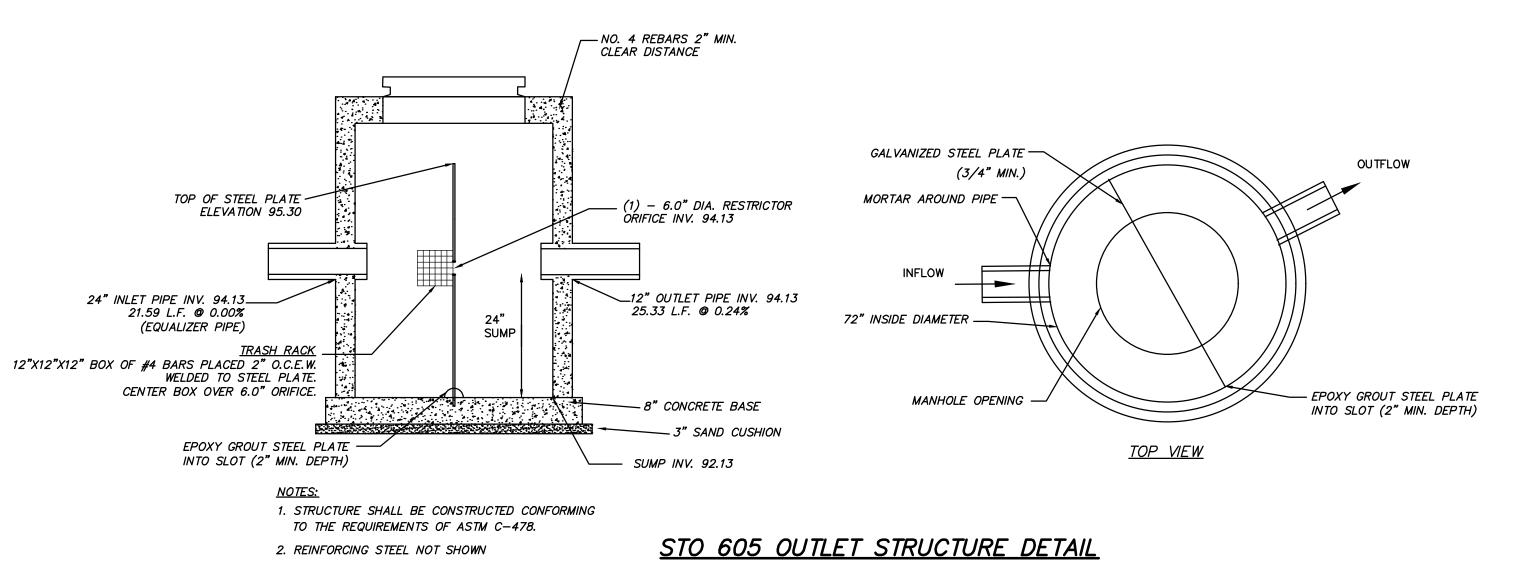
SCALE: N.T.S.

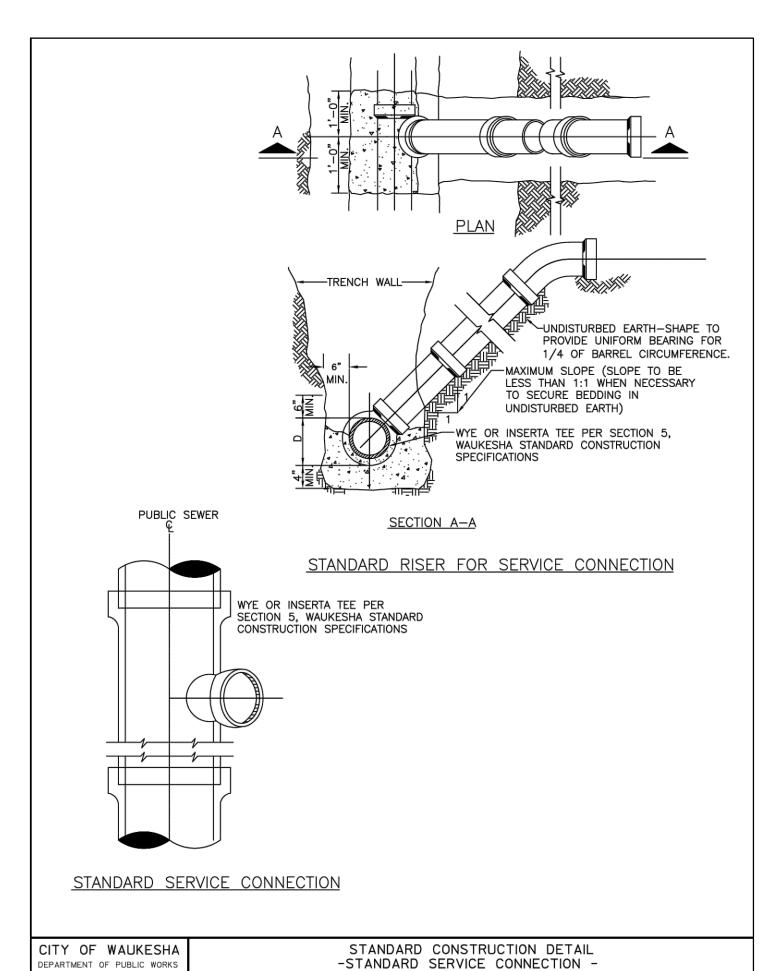
JOB NO. **3220213**

PROJECT MANAGER: RYAN J. LANCOUR, P.E. DESIGNED BY: CRR

CHECKED BY: RJL

SHEET NUMBER C502

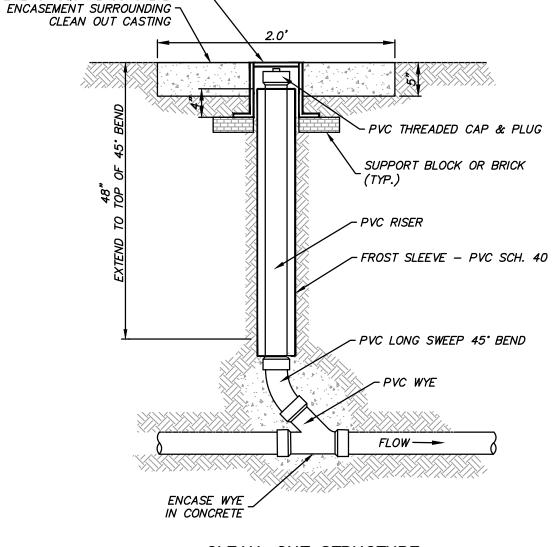




DRAWN BY: JWEIL DATE: 12/13/18 PLOT SCALE 1"=1"

APPROVED: ALEX DAMIEN DATE: ____

TAIL NUMBER: **05-0156**



CLEAN-OUT CASTING

2'x2'x5" SQUARE CONCRETE

NEENAH R-1977 OR

APPROVED EQUAL

CLEAN-OUT STRUCTURE SECTION VIEW



Call before you dig. R.A.SMITH, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES, LIABILITY OR COSTS RESULTING FROM CHANGES OR ALTERATIONS MADE TO THIS PLAN WITHOUT THE EXPRESSED WRITTEN CONSENT OF R.A.SMITH, INC.

ALL COPYRIGHTS TO THESE DRAWINGS ARE RESERVED. THEY MAY NOT BE COPIED, CHANGED, OR ASSIGNED TO ANY THIRD PARTY IN ANY MANNER WITHOUT OBTAINING THE EXPRESSED WRITTEN PERMISSION OF R.A.SMITH, INC. CHAMBERS SHALL BE STORMTECH SC-310.





PROPOSED LAYOUT

40 % STONE VOID

6,763 SYSTEM AREA (ft²)

476 SYSTEM PERIMETER (ft)

STONE ABOVE (in)

STONE BELOW (in)

234 STORMTECH SC-310 CHAMBERS

48 STORMTECH SC-310 END CAPS

8,384 INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)

ISOLATOR ROW PLUS (SEE DETAIL/TYP 2 PLACES)

CHAMBER INLET ROWS

— BED LIMITS

PLACE MINIMUM 12.50' OF ADSPLUS125 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL

PROPOSED ELEVATIONS

95.96 TOP OF SC-310 CHAMBER

94.92 8" TOP MANIFOLD INVERT

94.63 BOTTOM OF SC-310 CHAMBER

96.46 TOP OF STONE

94.13 UNDERDRAIN

94.13 BOTTOM OF STONE

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)

→ 17.92' **→**

97.96 MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)

12" ISOLATOR ROW PLUS CONNECTION INVERT

12" BOTTOM MANIFOLD/CONNECTION INVERT

97.46 MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT) 97.46 MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)

97.46 MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)

WAUKESHA, WI, USA

SC-310 STORMTECH CHAMBER SPECIFICATIONS

- 2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE). "STANDARD

SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"

FROM REFLECTIVE GOLD OR YELLOW COLORS.

- 4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- 5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE
- THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES. CHAMBERS SHALL BE DESIGNED. TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787.
- "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPI ASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING
- TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS.
- TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED
- 8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE
- DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
- THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRED BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
- THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- 9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

- 1. STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A
- PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- 2. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE". 3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.
 - STORMTECH RECOMMENDS 3 BACKFILL METHODS: STONESHOOTER LOCATED OFF THE CHAMBER BED
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE. BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- 4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- 5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE
- MAINTAIN MINIMUM 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN
- 9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- 1. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
- NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS. NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE.
- WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE". WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- 3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD, ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

STORM

SYSTEM

96.46

95.96

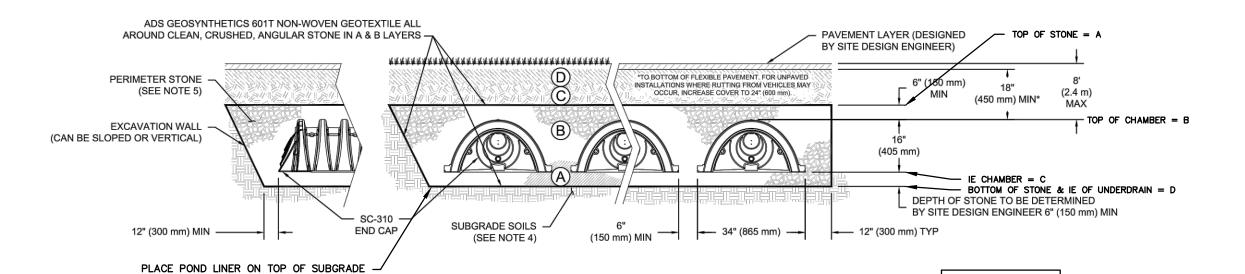
94.63

94.13



	MATERIAL LOCATION DESCRIPTION		AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
С	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145¹ A-1, A-2-4, A-3 OR AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
В	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
А	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. 2,3

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR, FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE". STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS. 4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



CHAMBERS"

- 1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION
- 2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"

(SEE NOTE 6 BELOW)

- 3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH
- CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- 5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
- TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
- TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".

PRIOR TO PLACING GEOTEXTILE FABRIC.

- TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION
- 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD
- 6. PLACE 40 MIL (HDPE) POND AND CANAL LINER OR EQUAL ON SUBGRADE EXTENDING THE ENTIRE EXCAVATED AREA AND UP EXCAVATED WALLS ONE FOOT PRIOR TO PLACING GEOSYNTHETIC FABRIC.

- INSTALL FLAMP ON 12" (300 mm) ACCESS PIPE PART#: SC31012RAMP OPTIONAL INSPECTION PORT STORMTECH HIGHLY RECOMMENDS SC-310 CHAMBER FLEXSTORM INSERTS IN ANY UPSTREAM STRUCTURES WITH OPEN GRATES SC-310 END CAP SUMP DEPTH TBD BY SITE DESIGN ENGINEER ONE LAYER OF ADSPLUS125 WOVEN GEOTEXTILE BETWEEN (24" [600 mm] MIN RECOMMENDED) FOUNDATION STONE AND CHAMBERS - 12" (300 mm) HDPE ACCESS PIPE REQUIRED 4' (1.2 m) MIN WIDE CONTINUOUS FABRIC WITHOUT SEAMS USE EZ END CAP PART #: SC310ECEZ SC-310 ISOLATOR ROW PLUS DETAIL **INSPECTION & MAINTENANCE** STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT A. INSPECTION PORTS (IF PRESENT)

PART TYPE

PREFABRICATED EZ END CAP

CONCRETE STRUCTURE

PLUS ROW)

UNDERDRAIN

A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL) A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3. B. ALL ISOLATOR PLUS ROWS B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY

IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3. CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN

) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE

C. VACUUM STRUCTURE SUMP AS REQUIRED STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

3 OF 6

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- 2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

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INVERT* MAX FLOW

0.90" 2.0 CFS OUT

2.3 CFS IN

4.1 CFS IN

5.4 CFS IN

5.3 CFS

2 OF 6

2" BOTTOM PREFABRICATED EZ END CAP, PART#: SC310ECEZ / TYP OF ALL 12" BOTTOM

CONNECTIONS AND ISOLATOR PLUS ROWS
INSTALL FLAMP ON 12" ACCESS PIPE / PART#: SC31012RA
8" x 8" TOP MANIFOLD, MOLDED FITTINGS (TYP 2 PLACES)
12" BOTTOM CONNECTION, ADS N-12 (TYP 2 PLACES)

DESIGN BY ENGINEER / PROVIDED BY OTHERS

DESIGN BY ENGINEER / PROVIDED BY OTHERS

DESIGN BY ENGINEER / PROVIDED BY OTHERS

M 12" x 12" BOTTOM MANIFOLD, ADS N-12 N 12" x 12" BOTTOM MANIFOLD, ADS N-12 (TYP 3 PLACES)

MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
 DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
 THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING.

HE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS

(DESIGN BY ENGINEER / PROVIDED BY OTHERS

12" x 12" BOTTOM MANIFOLD, ADS N-12

6" PERFORATED PIPE (SEE DETAIL)

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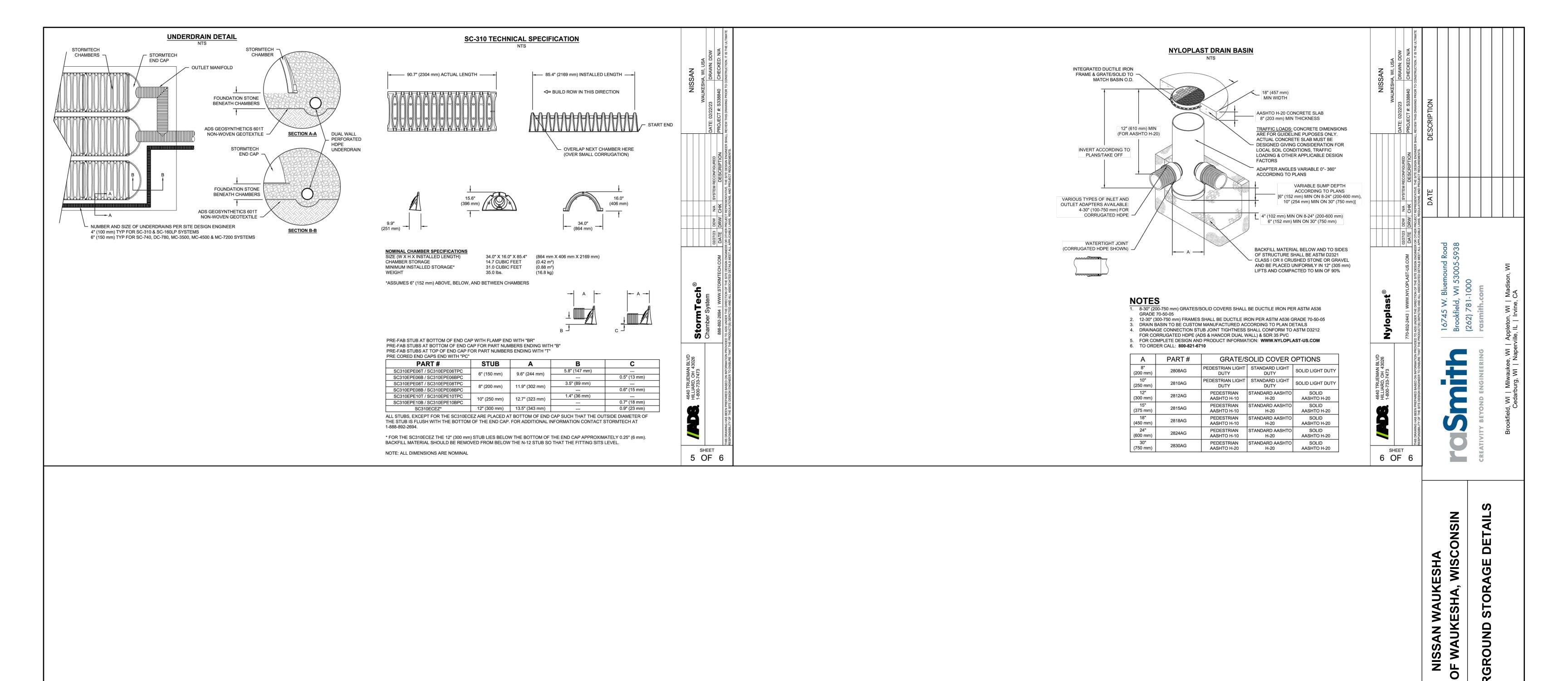
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JOB NO. **3220213**

SCALE: N.T.S.

4 OF 6

WAUK



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STORAGE

UNDERGROUND

JOB NO. **3220213**

PROJECT MANAGER: RYAN J. LANCOUR, P.E.

DESIGNED BY: CRR CHECKED BY: RJL

SHEET NUMBER C504