Young Environmental Consulting Group, LLC

Technical Memorandum

To: Linda Loomis, Administrator

From: Della Schall Young, CPESC, PMP

Date: February 15, 2018

Re: Fort Snelling – Bloomington Road Project Update

During the fourth quarter of 2017, the Lower Minnesota River Watershed District (District) managers authorized staff to investigate ways to support Hennepin County Projects in Fort Snelling State Park area (see attached October 2016 memo).

District staff met with Hennepin County staff and Stonebrook Engineering (their consultant) in February 2017 to discuss opportunities for including best management practices (BMPs) to the project to manage stormwater and control erosion. Staff learned about surface BMPs, such as ponds and ditches, and evaluated Hennepin County and regulatory constraints (specifically, State Historic Preservation Office [SHPO] and Metropolitan Airport Commissions [MAC] requirements) that prohibited their uses. We concluded the discussion by asking Hennepin County to investigate the use of underground chambers or other grit removal devices to minimize sediment transport to the Minnesota River.

We are pleased to announce that Hennepin County has included a St. Anthony Falls Laboratory (SAFL) Baffle to their final project plans (see attachment). The SAFL Baffle, which will be fully funded by Hennepin County, will remove approximately 45 percent of the total suspended solids (TSS) transported in stormwater.

cc: Jeffrey Thuma, Burns & McDonnell

Memorandum

BURNS McDONNELL

Date: October 11, 2016 *(Email transmittal)*

To: Linda Loomis, Administrator

From: Della Schall Young, PMP, CPESC (Contractor)

Subject: Fort Snelling Projects – Hennepin County and Minneapolis Park and Recreation Board

Two projects are being designed on Fort Snelling by Stonebrooke Engineering, Inc. (Stonebrooke). The first project will reconstruct County State Aid Highway (CSAH) 204 and upgrade its drainage system, and the second project will widen Minneapolis Parks and Recreation Board (MPRB) trails. As requested on September 23, 2016, Eric Watruba, Senior Environmental Engineer, attended a coordination meeting for the projects. The following is information gleaned from the meeting.

Impervious Areas:

- CSAH 204 reconstruction, sponsored by Hennepin County, will result in a net decrease in impervious area of 0.03 acre.
- The trail improvement project, sponsored by the MPRB, will result in a net increase in impervious area of 0.51 acre. The new impervious area will include 4 feet of additional width (from 8-foot sections to 12-foot sections), the addition of 400 feet north of Bloomington Road, and the use of bituminous asphalt.

Storm Water Treatment:

- No storm water treatment is currently planned for the project. SAFL baffles were mentioned as an option, but no decisions by Hennepin County or MPRB were made to implement them into the design.

Project Schedule:

- The project team hosted a discussion with the Minnesota Department of Transportation on the CSAH 204 project.
- The next submittal will be for 60 percent design, which will be send to the State Historic Preservation Office (SHPO)and National Parks Service.
- Construction is scheduled for 2017.

Following the meeting, Stonebrooke sent the Lower Minnesota River Watershed District (District) pipe computations, existing and proposed drainage area maps, and HydroCad reports associated with 30-percent drainage designs for the CSAH 204 project. Below is the review summary of our findings.

- The CSAH 204 project disturbs an acre or more of land and must comply with the District's Construction Erosion Control Standard and the Minnesota Pollution Control

Agency's General Permit Authorization to Discharge Stormwater Associated with Construction Activity under the National Pollutant Discharge Elimination System/State Disposal Permit – MN R100001.

- The project has an anticipated increase in impervious surface of 0.51 acre. The new impervious surface is well below the threshold requiring compliance with the District's Stormwater Management Standard.

Conclusion

These projects present an opportunity for the District to contribute funds dedicated to the inclusion of storm water best management practices (BMPs). We ask the managers to authorize staff to investigate ways to add costs for including BMPs to the Fort Snelling projects. BMP alternatives and costs would likely be available during the first quarter of 2017.

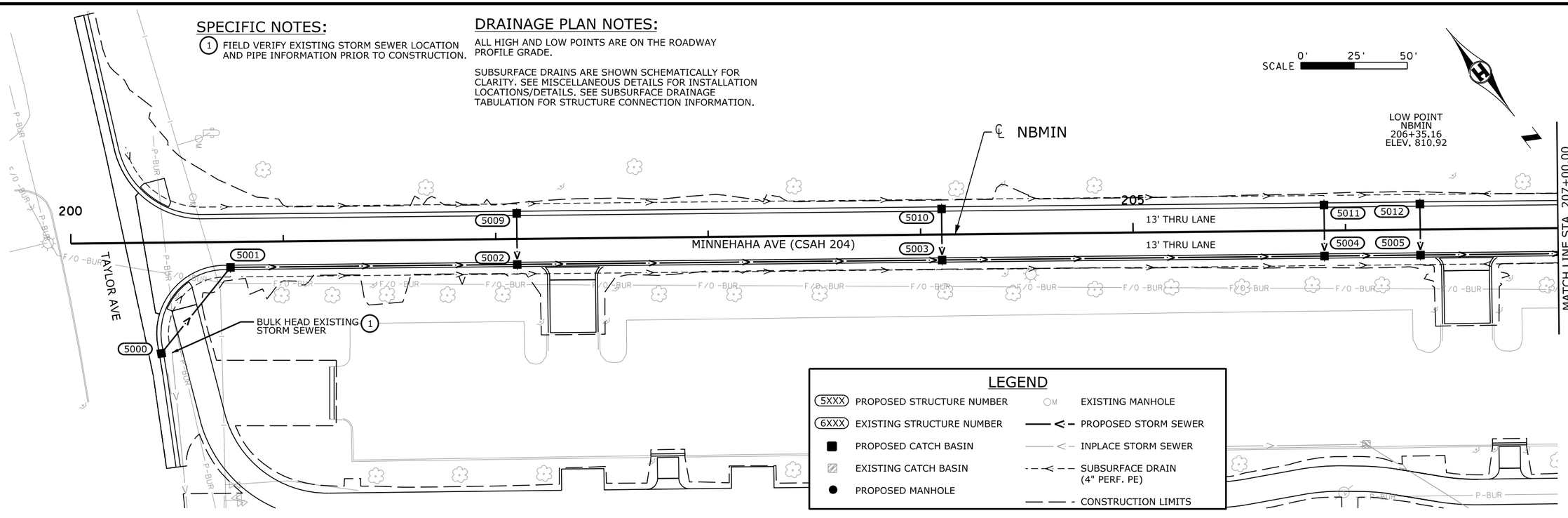
SPECIFIC NOTES:

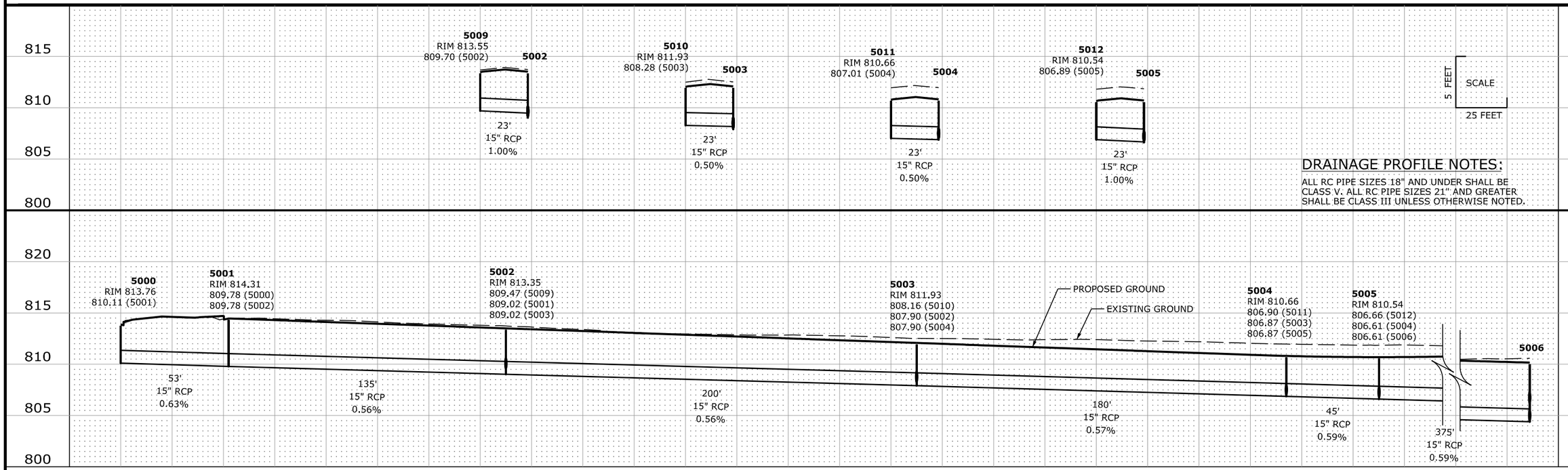
1. FIELD VERIFY EXISTING STORM SEWER LOCATION AND PIPE INFORMATION PRIOR TO CONSTRUCTION.

DRAINAGE PLAN NOTES:

ALL HIGH AND LOW POINTS ARE ON THE ROADWAY PROFILE GRADE.

SUBSURFACE DRAINS ARE SHOWN SCHEMATICALLY FOR CLARITY. SEE MISCELLANEOUS DETAILS FOR INSTALLATION LOCATIONS/DETAILS, SEE SUBSURFACE DRAINAGE TABULATION FOR STRUCTURE CONNECTION INFORMATION.





I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ARASH MOIN, PROFESSIONAL ENGINEER — 52252 LICENSE NO. — 1/09/2018 DATE

DESIGN BY:	AAM
CAD BY:	AAM
CHECKED BY:	TWN
LAST REVISION:	1/09/2018

DRAINAGE PLAN & PROFILES

C.S.A.H. 204 / HENNEPIN COUNTY PROJECT 1437 / S.A.P. 027-804-001
C.R. 205 /HENNEPIN COUNTY PROJECT 1507
S.P. 2725-63 (T.H. 55 = 050)

SHEET 104 / 174

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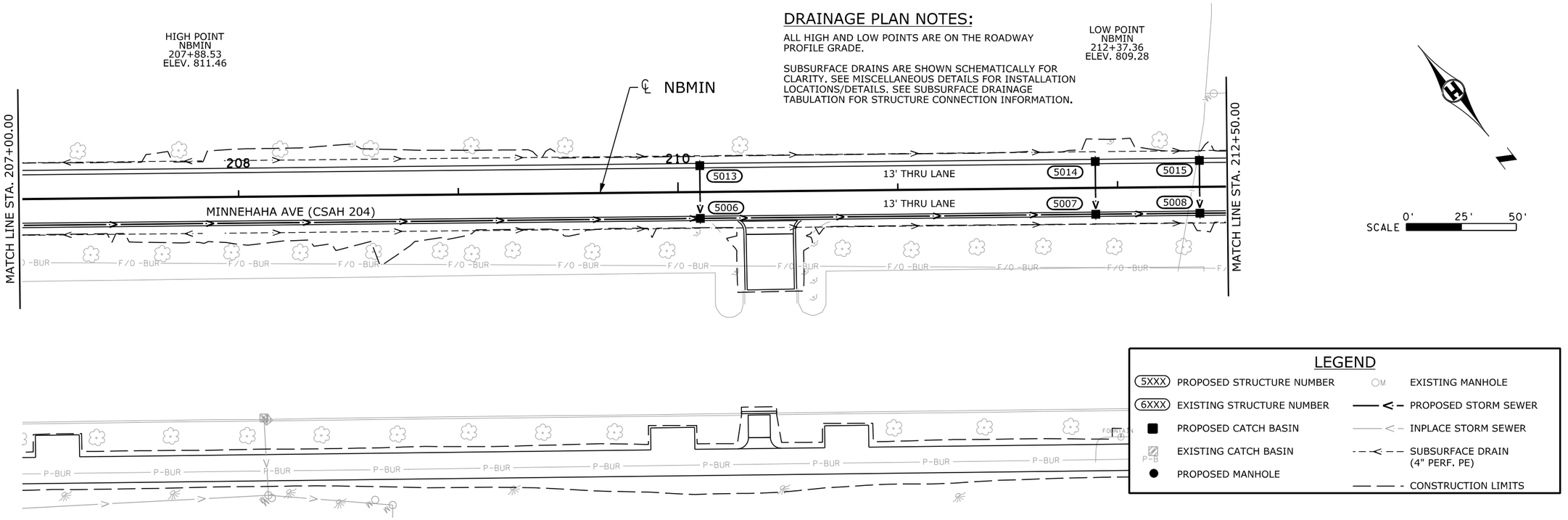
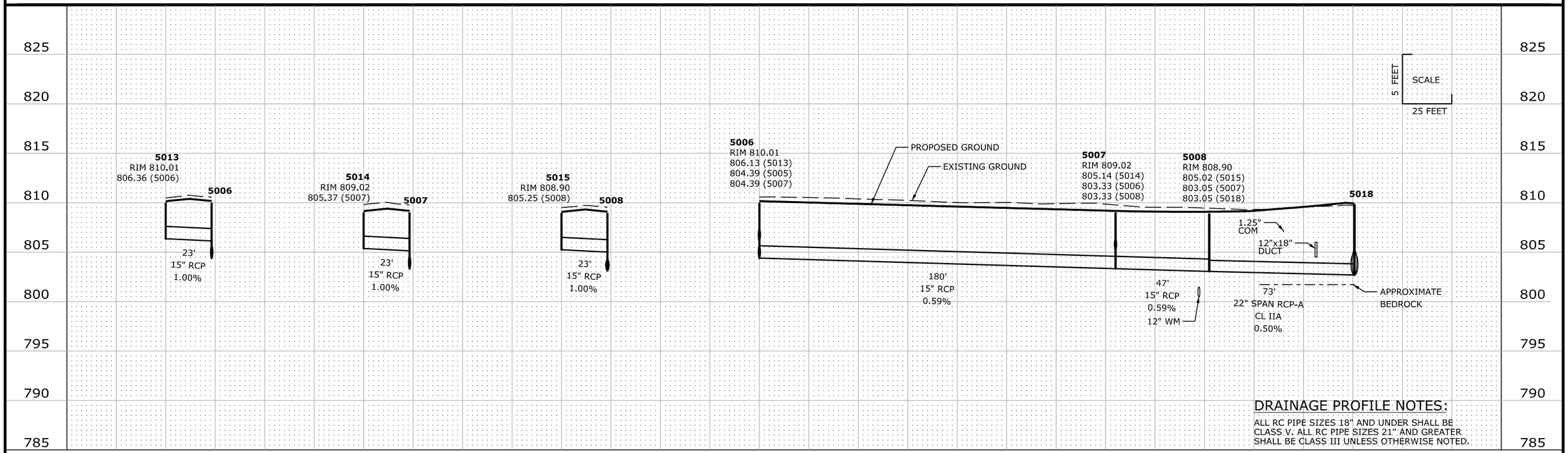


LEGEND

5XXX PROPOSED STRUCTURE NUMBER	EXISTING MANHOLE
6XXX EXISTING STRUCTURE NUMBER	PROPOSED STORM SEWER
PROPOSED CATCH BASIN	INPLACE STORM SEWER
EXISTING CATCH BASIN	SUBSURFACE DRAIN (4" PERF. PE)
PROPOSED MANHOLE	CONSTRUCTION LIMITS



DRAINAGE PROFILE NOTES:

ALL RC PIPE SIZES 18" AND UNDER SHALL BE CLASS V. ALL RC PIPE SIZES 21" AND GREATER SHALL BE CLASS III UNLESS OTHERWISE NOTED.

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SPECIFIC NOTES:

1. FIELD VERIFY EXISTING STORM SEWER LOCATION AND PIPE INFORMATION PRIOR TO CONSTRUCTION.
2. CONNECT TO EXISTING STORM SEWER.

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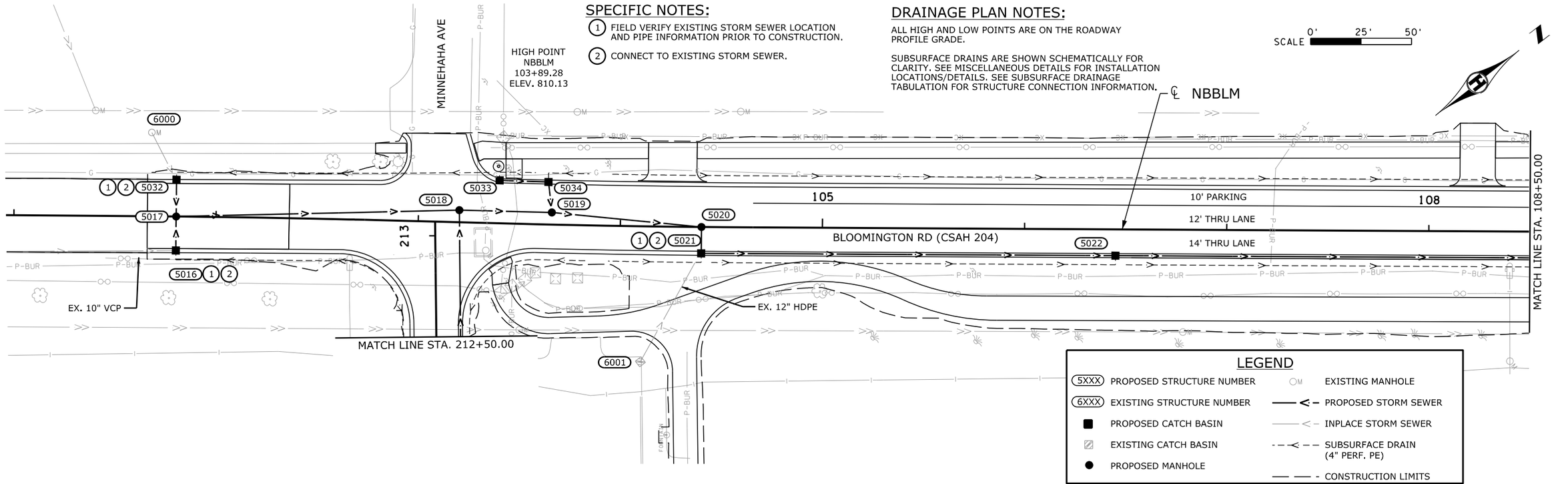
SCALE 0' 25' 50'



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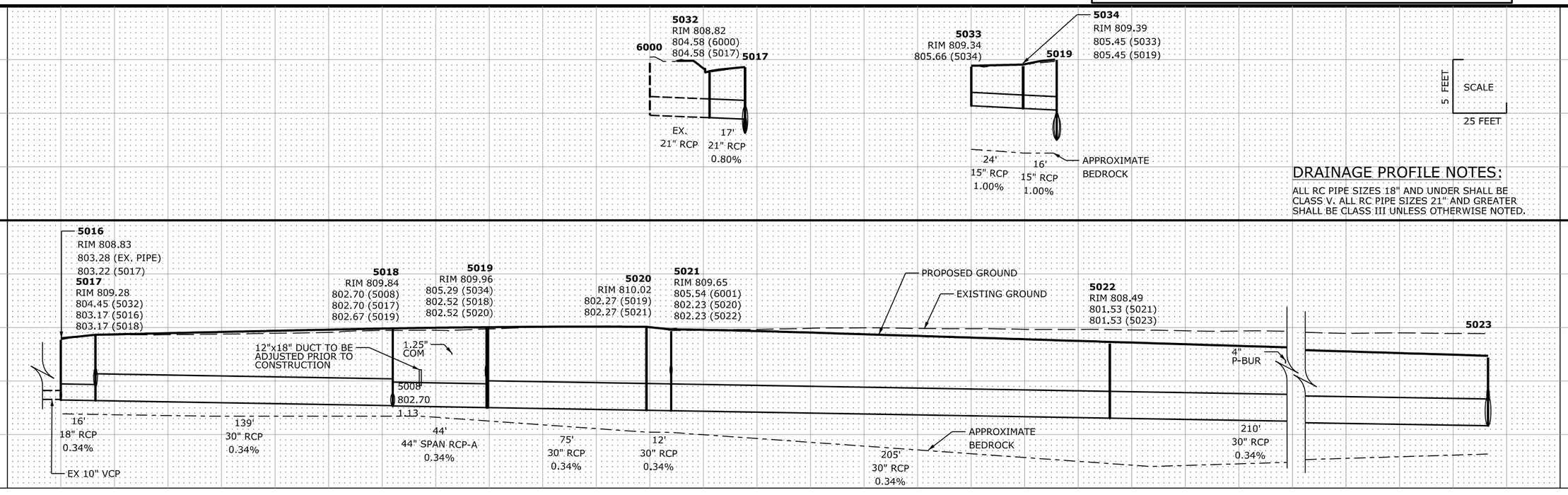

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SHEET 106 / 174

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SPECIFIC NOTES:

(3) SEE CONSTRUCTION PLANS FOR WATERMAIN RELOCATION INFORMATION.

DRAINAGE PLAN NOTES:

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LEGEND

- (5XXX) PROPOSED STRUCTURE NUMBER
- (6XXX) EXISTING STRUCTURE NUMBER
- PROPOSED CATCH BASIN
- EXISTING CATCH BASIN
- PROPOSED MANHOLE
- EXISTING MANHOLE
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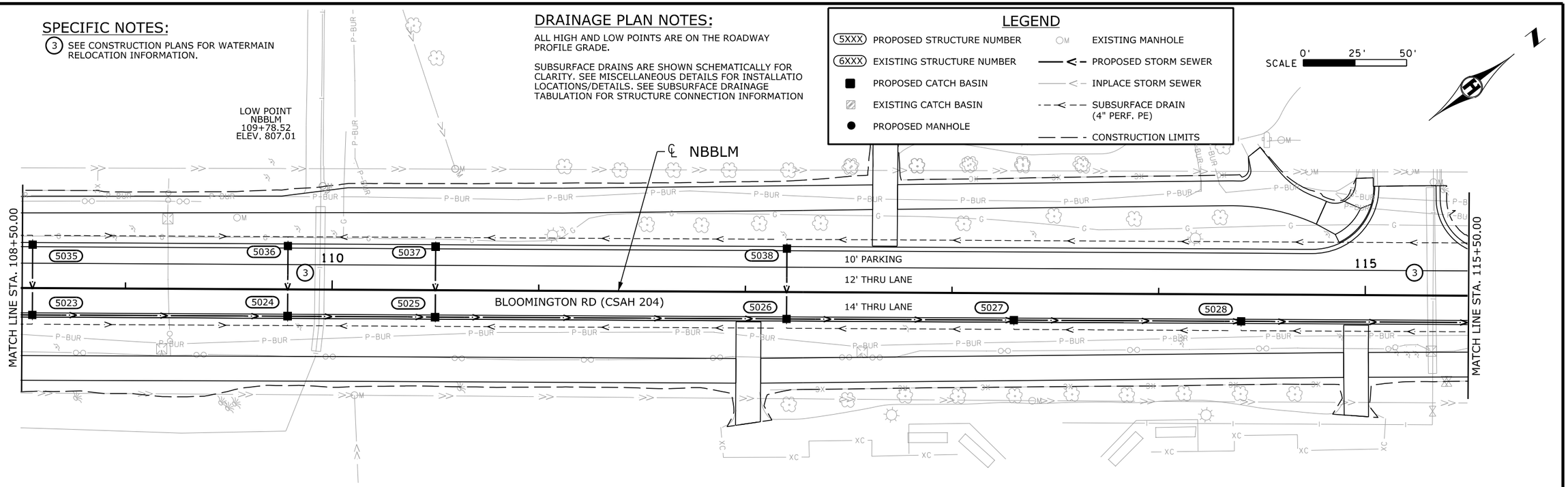
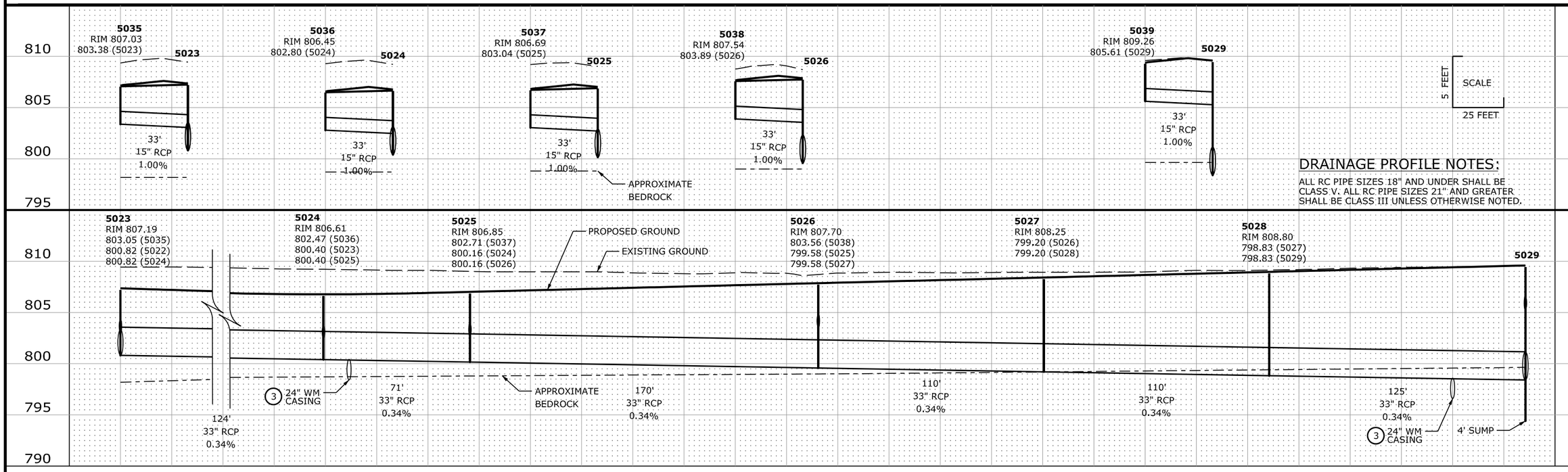
- INPLACE STORM SEWER
- SUBSURFACE DRAIN (4" PERF. PE)
- CONSTRUCTION LIMITS

SCALE 0' 25' 50'





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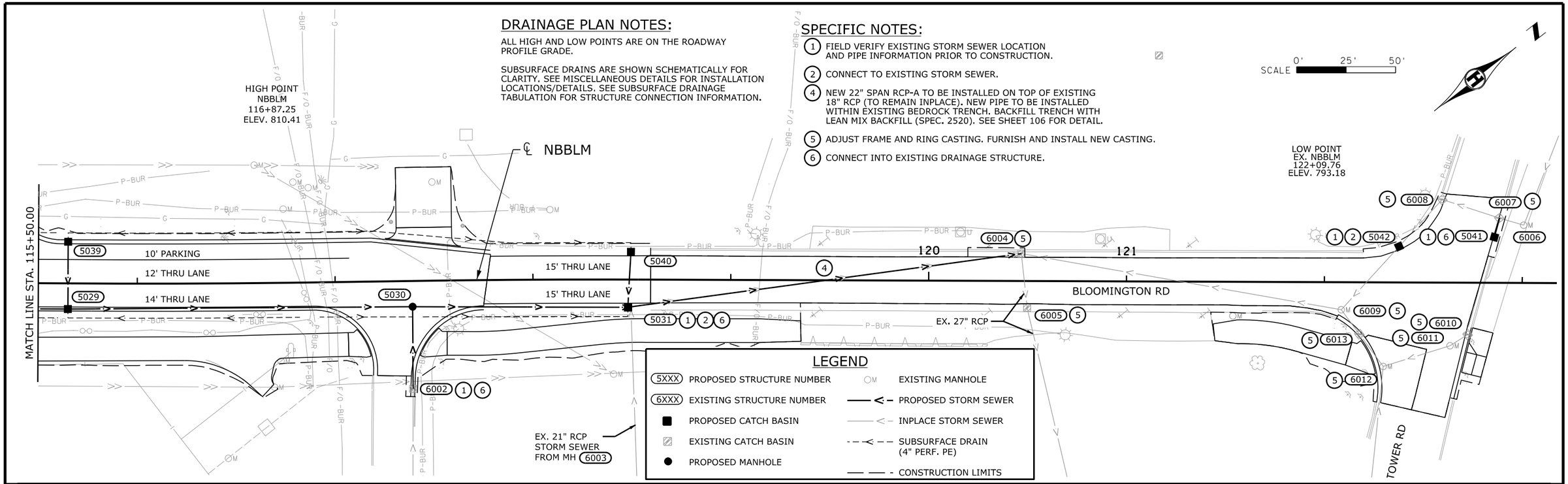
SPECIFIC NOTES:

1. FIELD VERIFY EXISTING STORM SEWER LOCATION AND PIPE INFORMATION PRIOR TO CONSTRUCTION.
2. CONNECT TO EXISTING STORM SEWER.
4. NEW 22" SPAN RCP-A TO BE INSTALLED ON TOP OF EXISTING 18" RCP (TO REMAIN INPLACE). NEW PIPE TO BE INSTALLED WITHIN EXISTING BEDROCK TRENCH. BACKFILL TRENCH WITH LEAN MIX BACKFILL (SPEC. 2520). SEE SHEET 106 FOR DETAIL.
5. ADJUST FRAME AND RING CASTING. FURNISH AND INSTALL NEW CASTING.
6. CONNECT INTO EXISTING DRAINAGE STRUCTURE.

SCALE 0' 25' 50'



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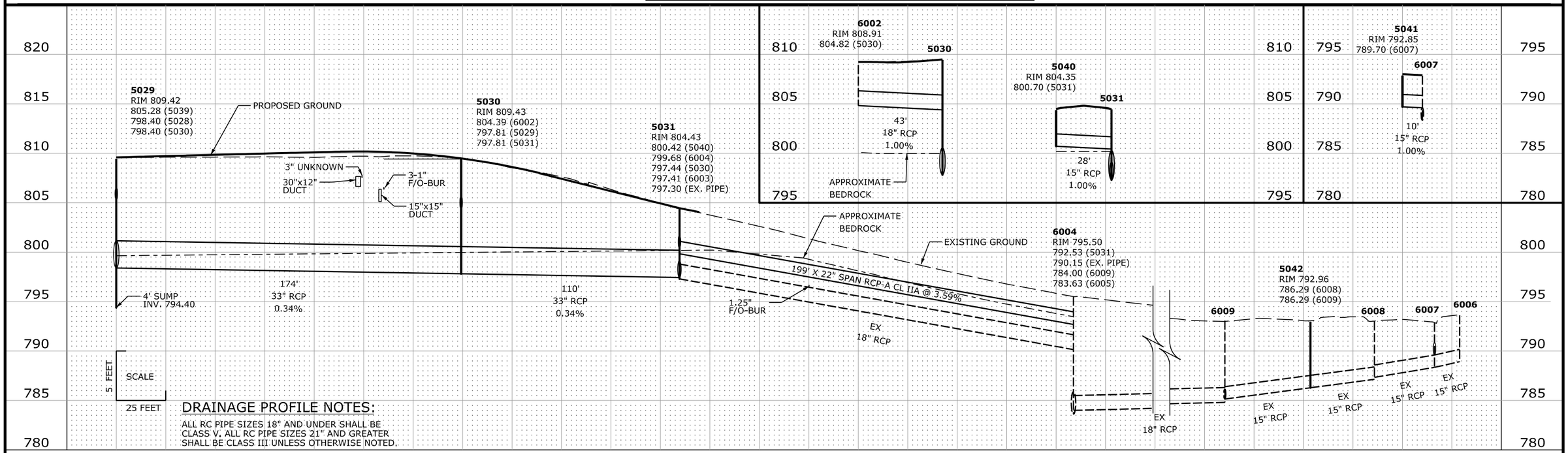

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DRAINAGE TABULATION

UPSTREAM STRUCTURE LOCATION					CASTING ASSEMBLY		PAY HEIGHT							TOP OF CASTING ELEV.	OUTLET ELEV.	PIPE SEWER							DRAINS TO			CONNECT TO EXISTING STORM SEWER	CONNECT INTO EXISTING DRAINAGE STRUCTURE	ADJUST FRAME & RING CASTING	NOTES
APRON OR STRUCT. NO.	STRUCT. TYPE	ALIGN.	STATION	OFFSET			DESIGN H	48-4020	54-4020	60-4020	66-4020	72-4020	SPECIAL			15" RC DES 3006 CL V	18" RC DES 3006 CL V	21" RC DES 3006 CL V	30" RC DES 3006 CL III	33" RC DES 3006 CL III	22" SPAN RC-A	44" SPAN RC-A	APRON OR STRUCT. NO.	SLOPE OF PIPE %	INLET ELEV.				
					TYPE	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH			LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	CL IIA LIN FT	CL IIA LIN FT				EACH	EACH	EACH	
5000	CB	NBMIN	200+42.05	52.1' RT	V - 5	1	3.6							813.76	810.11	53							5001	0.63	809.78				
5001	CB	NBMIN	200+75.00	12.0' RT	V - 9	1		4.5						814.31	809.78	135							5002	0.56	809.02				
5002	CB	NBMIN	202+10.00	12.0' RT	V - 9	1		4.2						813.35	809.02	200							5003	0.56	807.90				
5003	CB	NBMIN	204+10.00	12.0' RT	V - 9	1		3.9						811.93	807.90	180							5004	0.57	806.87				
5004	CB	NBMIN	205+90.00	12.0' RT	V - 9	1		3.7						810.66	806.87	45							5005	0.59	806.61				
5005	CB	NBMIN	206+35.16	12.0' RT	V - 5	1		3.9						810.54	806.61	375							5006	0.59	804.39				
5006	CB	NBMIN	210+10.00	12.0' RT	V - 9	1		5.5						810.01	804.39	180							5007	0.59	803.33				
5007	CB	NBMIN	211+90.00	12.0' RT	V - 9	1		5.6						809.02	803.33	47							5008	0.59	803.05				
5008	CB	NBMIN	212+37.36	12.0' RT	V - 5	1		5.8						808.90	803.05						73		5018	0.50	802.70				
5009	CB	NBMIN	202+10.00	12.0' LT	V - 9	1	3.6							813.35	809.70	23							5002	1.00	809.47				
5010	CB	NBMIN	204+10.00	12.0' LT	V - 9	1	3.6							811.93	808.28	23							5003	0.50	808.16				
5011	CB	NBMIN	205+90.00	12.0' LT	V - 9	1	3.6							810.66	807.01	23							5004	0.50	806.90				
5012	CB	NBMIN	206+35.16	12.0' LT	V - 9	1	3.6							810.54	806.89	23							5005	1.00	806.66				
5013	CB	NBMIN	210+10.00	12.0' LT	V - 9	1	3.6							810.01	806.36	23							5006	1.00	806.13				
5014	CB	NBMIN	211+90.00	12.0' LT	V - 9	1	3.6							809.02	805.37	23							5007	1.00	805.14				
5015	CB	NBMIN	212+37.36	12.0' LT	V - 5	1	3.6							808.90	805.25	23							5008	1.00	805.02				
5016	CB	NBBLM	101+80.25	16.9' RT	V - 9	1		5.5						808.83	803.22		16						5017	0.34	803.17	1			(1)
5017	MH	NBBLM	101+80.25	0.0' LT	A - 7D	1				6.2				809.28	803.17				139				5018	0.34	802.70				
5017		NBBLM	101+81.54	0.0' LT																									(2)
5018	MH	NBBLM	103+20.22	6.0 LT	A - 7D	1						7.3		809.84	802.67							44	5019	0.34	802.52				
5019	MH	NBBLM	103+64.00	6.0 LT	A - 7D	1					7.6			809.96	802.52				75				5020	0.34	802.27				
5020	MH	NBBLM	104+40.15	0.0' LT	A - 7D	1					7.9			810.02	802.27				12				5021	0.34	802.23				
5020		NBBLM	104+38.57	LT																			5021						(2)
5021	CB	NBBLM	104+40.15	13.0' RT	V - 9	1			7.3					809.65	802.23				205				5022	0.34	801.53	1			(1)
5022	CB	NBBLM	106+45.00	13.0' RT	V - 9	1			6.9					808.49	801.53				210				5023	0.34	800.82				
5023	CB	NBBLM	108+55.00	13.0' RT	V - 9	1			6.3					807.19	800.82					124			5024	0.34	800.40				
5024	CB	NBBLM	109+78.52	13.0' RT	V - 5	1			6.1					806.61	800.40					71			5025	0.34	800.16				
5025	CB	NBBLM	110+50.00	13.0' RT	V - 9	1			6.6					806.85	800.16					170			5026	0.34	799.58				
5026	CB	NBBLM	112+20.00	13.0' RT	V - 9	1			8.0					807.70	799.58					110			5027	0.34	799.20				
5027	CB	NBBLM	113+30.00	13.0' RT	V - 9	1			9.0					808.25	799.20					110			5028	0.34	798.83				
5028	CB	NBBLM	114+40.00	13.0' RT	V - 9	1			9.9					808.80	798.83					125			5029	0.34	798.40				
5029	CB	NBBLM	115+65.00	13.0' RT	V - 9	1							1	809.42	798.40					174			5030	0.34	797.81				(4)
5030	MH	NBBLM	117+39.00	13.0' RT	A - 7D	1			11.7					809.43	797.81					110			5031	0.34	797.44				
5031	CB	NBBLM	118+48.00	14.0' RT	V - 9	1					7.0			804.43	799.68						199		6004	3.59	792.53	2	1		(1)(3)
5031		NBBLM	118+49.59	14.0' RT																									(2)
5032	CB	NBBLM	101+80.25	17.4' LT	V - 9	1		4.2						808.82	804.58			17					5017	0.80	804.45	1			(1)
5033	CB	NBBLM	103+39.77	21.2' LT	V - 9	1	3.6							809.34	805.69	24							5034	1.00	805.45				
5034	CB	NBBLM	103+64.00	21.0' LT	V - 9	1		3.9						809.39	805.45	16							5019	1.00	805.29				
5035	CB	NBBLM	108+55.00	21.0' LT	V - 9	1	3.6							807.03	803.38	33							5023	1.00	803.05				
5036	CB	NBBLM	109+78.52	21.0' LT	V - 5	1	3.6							806.45	802.80	33							5024	1.00	802.47				
5037	CB	NBBLM	110+50.00	21.0' LT	V - 9	1	3.6							806.69	803.04	33							5025	1.00	802.71				
5038	CB	NBBLM	112+20.00	21.0' LT	V - 9	1	3.6							807.54	803.89	33							5026	1.00	803.56				
5039	CB	NBBLM	115+65.00	21.0' LT	V - 9	1	3.6							809.26	805.61	33							5029	1.00	805.28				
5040	CB	NBBLM	118+49.50	14.0' LT	V - 9	1	3.6							804.35	800.70	28							5031	1.00	800.42				
5041	CB	NBBLM	122+85.84	23.1' LT	B - 5	1	3.1							792.85	789.70	10							6007	1.00	789.60		1		
5042	CB	NBBLM	122+37.69	18.2' LT	B - 5	1		6.6						792.96	786.29								6009			2			(1)
6002	CB	NBBLM	117+38.62	54.5' RT										808.91	804.82		43						5030	1.00	804.39		1		(1)
6004	CB	NBBLM	120+46.79	13.9' LT	B - 5	1								795.50	783.63								6005	1.00	783.35			1	
6005	CB	NBBLM	120+49.82	13.5' RT	B - 5	1								795.37									EX. PIPE					1	
6007	CB	NBBLM	122+88.49	32.8' LT	B - 5	1								792.85									6008					1	
6008	CB	NBBLM	122+59.52	42.0' LT	B - 5	1								792.99									5042					1	
6009	MH	NBBLM	122+08.60	13.9' RT	A - 7D	1								793.07									6004					1	
6010	CB	NBBLM	122+72.49	26.2' RT	B - 5	1								793.06									6011					1	
6011	MH	NBBLM	122+63.66	31.9' RT	A - 7D	1								793.47									6012					1	
6012	MH	NBBLM	122+29.92	42.5' RT	A - 7D	1								793.53									6013					1	
6013	CB	NBBLM	122+17.92	26.2' RT	B - 5	1								792.82									6009					1	
TOTAL						**52**	**57.1**	**57.3**	**71.8**	**6.2**	**22.5**	**7.3**	**1**			**1619**	**59**	**17**	**641**	**994**	**272**	**44**				**7**	**3**	**9**	

NOTES:

-STATION, OFFSET, AND TOP OF CASTING ELEVATIONS ARE GIVEN AT CENTER OF GRATE OR COVER CASTING. STATION AND OFFSET ARE GIVEN AT END OF APRON FOR APRON STRUCTURES.

-INVERT ELEVATIONS ARE GIVEN AT CENTER OF STRUCTURE OR APRON END.

-PIPE LENGTHS GIVEN ARE TO END OF BARREL (DOES NOT INCLUDE APRON LENGTH).

-ROTATE ALL STRUCTURES BEHIND TOWARD ALIGNMENT UNLESS OTHERWISE NOTED.

-SEE SUBSURFACE DRAINAGE TABULATON FOR SUBDRAIN STRUCTURE CONNECTION ELEVATIONS.

-CLASS C BEDDING SHALL BE USED FOR ALL R.C. PIPE

(1) FIELD VERIFY EXISTING STORM SEWER INFORMATION PRIOR TO CONSTRUCTION.

(2) ADDITIONAL STATION AND OFFSET GIVEN FOR CENTER OF STRUCTURE

(3) INVERTS GIVEN ARE FOR PROPOSED 22' SPAN RC-A. SEE PROFILES FOR ADDITONAL STRUCTURE INVERTS.

(4) 54" DIA. STRUCTURE TO BE CONSTRUCTED WITH 4' SUMP AND BAFFLE. SUMP INCLUDED IN PAY HEIGHT. BAFFLE TO BE INSTALLED CONCURRENT WITH DRAINAGE STRUCTURE. SEE SHEET 106 FOR DETAIL.

Hennepin

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ARASH MOIN, PROFESSIONAL ENGINEER — 52252 LICENSE NO. — 1/09/2018 DATE

DESIGN BY:	AAM
CAD BY:	AAM
CHECKED BY:	TWN
LAST REVISION:	1/09/2018

DRAINAGE TABULATIONS

C.S.A.H. 204 / HENNEPIN COUNTY PROJECT 1437 / S.A.P. 027-804-001
C.R. 205 /HENNEPIN COUNTY PROJECT 1507
S.P. 2725-63 (T.H. 55 = 050)

SHEET 109 / 174

SUBSURFACE DRAINAGE TABULATION

STRUCTURE NO.	ALIGN.	STATION	OFFSET		4" PERF. PE PIPE DRAIN LIN FT	4" NON-PERF TP PIPE DRAIN LIN FT	ELEV. INTO STRUCTURE	NOTES
5001	NBMIN	200+75.00	12.0'	RT	48	5	811.56	
5002	NBMIN	202+10.00	12.0'	RT	130	5	810.60	
5003	NBMIN	204+10.00	12.0'	RT	195	5	809.18	
5004	NBMIN	205+90.00	12.0'	RT	175	5	807.91	
5005	NBMIN	206+35.16	12.0'	RT	188	5	807.79	(1)
5006	NBMIN	210+10.00	12.0'	RT	216	5	807.26	
5007	NBMIN	211+90.00	12.0'	RT	175	5	806.27	
5008	NBMIN	212+37.36	12.0'	RT	138	5	806.15	(1)
5009	NBMIN	202+10.00	12.0'	LT	197	5	810.60	
5010	NBMIN	204+10.00	12.0'	LT	195	5	809.18	
5011	NBMIN	205+90.00	12.0'	LT	175	5	807.91	
5012	NBMIN	206+35.16	12.0'	LT	188	5	807.79	(1)
5013	NBMIN	210+10.00	12.0'	LT	216	5	807.26	
5014	NBMIN	211+90.00	12.0'	LT	175	5	806.27	
5015	NBMIN	212+37.36	12.0'	LT	81	5	806.15	(1)
5016	NBBLM	101+80.25	16.9'	RT	100	5	806.08	
5021	NBBLM	104+40.15	13.0'	RT	46	5	806.90	
5022	NBBLM	106+45.00	13.0'	RT	199	5	805.74	
5023	NBBLM	108+55.00	13.0'	RT	205	5	804.44	
5024	NBBLM	109+78.52	13.0'	RT	185	5	803.86	(1)
5025	NBBLM	110+50.00	13.0'	RT	165	5	804.10	
5026	NBBLM	112+20.00	13.0'	RT	105	5	804.95	
5027	NBBLM	113+30.00	13.0'	RT	105	5	805.50	
5028	NBBLM	114+40.00	13.0'	RT	120	5	806.05	
5029	NBBLM	115+65.00	13.0'	RT	117	5	806.67	
5030	NBBLM	117+39.00	13.0'	RT	47	5	806.68	
5031	NBBLM	118+48.00	14.0'	RT	103	5	801.68	
5032	NBBLM	101+80.25	17.4'	LT	154	5	806.07	
5033	NBBLM	103+39.77	21.2'	LT	17	5	806.59	
5034	NBBLM	103+64.00	21.0'	LT	20	5	806.64	
5035	NBBLM	108+55.00	21.0'	LT	460	5	804.28	
5036	NBBLM	109+78.52	21.0'	LT	185	5	803.70	(1)
5037	NBBLM	110+50.00	21.0'	LT	165	5	803.94	
5038	NBBLM	112+20.00	21.0'	LT	340	5	804.79	
5039	NBBLM	115+65.00	21.0'	LT	117	5	806.51	
5040	NBBLM	118+49.50	14.0'	LT	157	5	801.60	
TOTAL					**5595**	**180**		

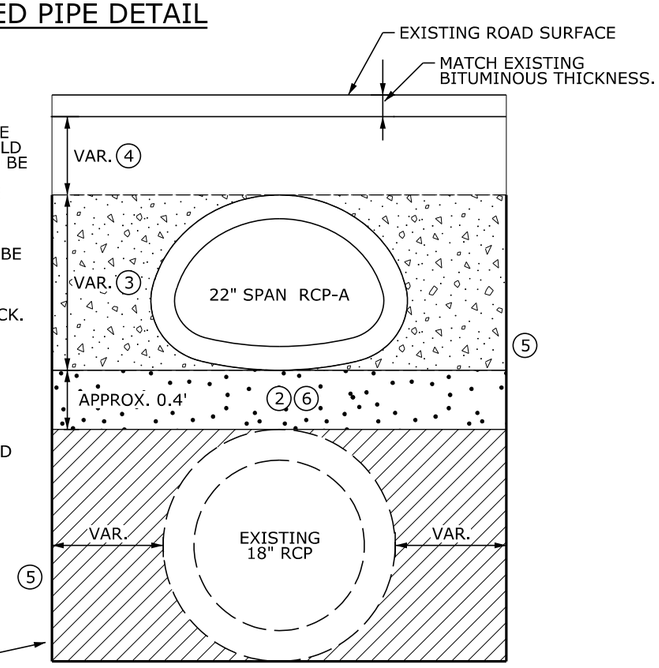
NOTES:

-SUBDRAIN LENGTHS GIVEN FROM DOWNSTREAM STRUCTURE.
-SEE TYPICAL SECTIONS, MISCELLANEOUS DETAILS AND DRAINAGE PLANS FOR SUBDRAIN LOCATIONS.
-SEE DRAINAGE PLANS, PROFILES, AND TABULATION FOR ADDITIONAL STORM SEWER INFORMATION.
-STATION AND OFFSET ARE GIVEN AT CENTER OF GRATE FOR DRAINAGE STRUCTURES.
(1) LOW POINT STRUCTURE. SUBDRAIN LENGTH GIVEN IS TOTAL COMBINED LENGTH FROM EACH DIRECTION.

STACKED PIPE DETAIL

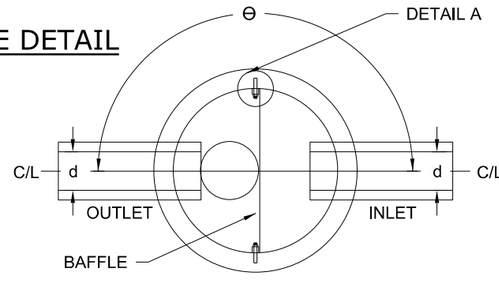
SPECIFIC NOTES

1. REMOVE AND DISPOSE OF IN PLACE MATERIAL ABOVE EXISTING PIPE IN PIPE TRENCH. CONTRACTOR SHOULD EXPECT LOOSE ROCK AND COBBLES IN MATERIAL TO BE REMOVED. DO NOT EXCAVATE IN PLACE ROCK FORMATIONS. BRIDGE FOOTINGS REST ON IN PLACE ROCK. IN PLACE ROCK MUST REMAIN IN PLACE AND UNDISTURBED.
2. GRANULAR BEDDING (SPEC. 2451) MATERIAL SHALL BE USED FROM TOP OF EXISTING PIPE TO BOTTOM OF PROPOSED PIPE. (INCIDENTAL).
3. LEAN MIX BACKFILL (SPEC. 2520) TO TOP OF BEDROCK. CONSULT WITH ENGINEER IN FIELD.
4. AGGREGATE BASE CLASS V WILL BE USED BETWEEN TOP OF LEAN MIX BACKFILL AND BOTTOM OF BITUMINOUS SECTION.
5. APPROXIMATE EDGE OF IN PLACE BEDROCK.
6. 1.25" FIBER WILL BE LOCATED BETWEEN 18" RCP AND 22" SPAN RCP AT APPROXIMATE STATION 119+15.

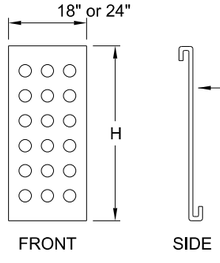


BAFFLE STRUCTURE DETAIL

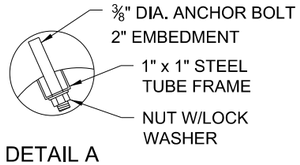
d (IN.)	H (IN.)	Θ (DEG.) MIN.	Θ (DEG.) MAX.	y (IN.)	Ys	D
12	34	130	230	12	MIN. 4 FT.	VARIES
15	34	130	230	12		
18	34	130	230	12		
21	44	140	220	12		
24	44	140	220	12		
27	44	140	220	12		
30	54	150	210	12		
33	54	150	210	12		
36	54	150	210	12		



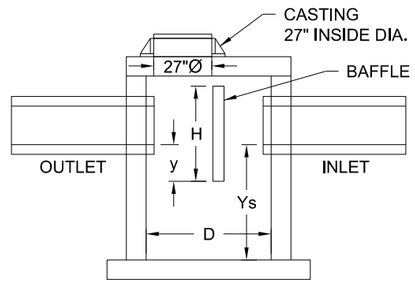
TOP VIEW OF SUMP



BAFFLE PANEL



DETAIL A



SIDE VIEW OF SUMP

NOTES

BAFFLE & HARDWARE MUST BE 100% STAINLESS STEEL.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ARASH MOIN, PROFESSIONAL ENGINEER — 52252 LICENSE NO. — 1/09/2018 DATE

DESIGN BY:	AAM
CAD BY:	AAM
CHECKED BY:	TWN
LAST REVISION:	1/09/2018

SUBDRAIN TABULATIONS/DRAINAGE DETAILS

C.S.A.H. 204 / HENNEPIN COUNTY PROJECT 1437 / S.A.P. 027-804-001
C.R. 205 /HENNEPIN COUNTY PROJECT 1507
S.P. 2725-63 (T.H. 55 = 050)

SHEET 110 / 174

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

PROJECT DESCRIPTION/LOCATION:

THIS PROJECT, S.A.P. 027-804-001, IS LOCATED ON MINNEHAHA AVE FROM TAYLOR AVE TO BLOOMINGTON ROAD AND ON BLOOMINGTON ROAD FROM 130' SOUTH OF MINNEHAHA AVE TO TOWER AVE IN HENNEPIN COUNTY.
THE PLANNED SCOPE OF THE PROJECT INCLUDES:
GRADING, CONCRETE AND BITUMINOUS SURFACING, ADA IMPROVEMENTS, AND STORM SEWER.

SPECIAL AND IMPAIRED WATERS:

THESE SPECIAL AND IMPAIRED WATERS ARE LOCATED WITHIN ONE MILE (AERIAL RADIUS) OF THE PROJECT LIMITS AND RECEIVE RUNOFF FROM THE PROJECT SITE. DUE TO THE PROXIMITY OF THESE SPECIAL AND IMPAIRED WATERS. THE BMPS DESCRIBED IN APPENDIX A OF THE NPDES PERMIT WILL APPLY TO ALL AREAS OF THE SITE.
-MINNESOTA RIVER (MERCURY IN FISH TISSUE; MERCURY IN WATER COLUMN; OXYGEN, DISOLVED; PCB IN FISH TISSUE; TURBIDITY).
-MISSISSIPPI RIVER (MERCURY IN FISH TISSUE; PCB IN FISH TISSUE; PFOS FISH TISSUE). IMPAIRMENTS NOT CONSIDERED CONSTRUCTION RELATED AND DO NOT REQUIRE ANY ADDITONAL BMP'S.

AREAS OF ENVIRONMENTAL SENSITIVITY (AES) AND INFESTED WATERS:

IN ADDITION TO THE LIST OF SPECIAL AND IMPAIRED WATERS THE CONTRACTOR SHALL BE AWARE THAT THERE ARE WETLANDS AND EXISTING STORMWATER FACILITIES WITHIN AND NEAR THE PROJECT BOUNDARY.
-MULTIPLE WETLANDS ARE LOCATED WITHIN 1 MILE OF THE PROJECT SITE BUT DO NOT RECIEVE DIRECT DISCHARGE FROM THE PROJECT.

SWPPP IMPLEMENTATION/MAINTENANCE:

THE COUNTY PROJECT MANAGER AND CONTRACTOR ARE RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE AND DURING CONSTRUCTION UNTIL THE NOTICE OF TERMINATION HAS BEEN FILED. THE CONTRACTOR WILL HAVE AN EROSION CONTROL SUPERVISOR WHO IS RESPONSIBLE FOR COORDINATING THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS. HENNEPIN COUNTY STAFF ARE ALSO AVAILABLE FOR ASSISTANCE. HENNEPIN COUNTY IS RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORM WATER MANAGEMENT SYSTEM.

PROJECT ENGINEER:

THE HENNEPIN COUNTY PROJECT MANAGER:
JASON STAEBELL
1600 PRAIRIE DR
MEDINA, MN 55340
(612) 596-0371

PROJECT CONTACTS:

AGENCY	PERMIT	CONTACT NAME	PHONE NUMBER
WATER RESOURCES DESIGNER - STONEBROOKE ENGINEERING		ARASH MOIN	952-540-4855
MINNESOTA POLLUTION CONTROL AGENCY (MPCA)	YES	AMY DALBECQ	651-757-2446
MN DEPARTMENT OF NATURAL RESOURCES	NO	KATE DREWRY	651-259-5753
ARMY CORPS OF ENGINEERS	NO		651-290-5286
LOWER MINNESOTA RIVER WATSHED DISTRICT	NO	LINDA LOOMIS	763-545-4659

MPCA 24 HOUR EMERGENCY NOTIFICATION: 651-649-5451 OR 800-422-0798

TRAINING DOCUMENTATION:

THIS SWPPP WAS PREPARED BY PERSONNEL THAT ARE CERTIFIED IN THE DESIGN OF CONSTRUCTION SWPPPS. COPIES OF THE CERTIFICATIONS ARE ON FILE WITH STONEBROOKE ENGINEERING AND ARE AVAILABLE UPON REQUEST.

PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE A CERTIFIED EROSION CONTROL SUPERVISOR WHO IS KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES. THE EROSION CONTROL SUPERVISOR WILL WORK WITH THE PROJECT ENGINEER TO OVERSEE THE IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS BEFORE, DURING AND AFTER CONSTRUCTION UNTIL THE NOTICE OF TERMINATION (NOT) HAS BEEN FILED WITH THE MPCA. WORK WILL NOT BE ALLOWED TO COMMENCE UNTIL PROOF OF CERTIFICATION HAS BEEN PROVIDED TO THE PROJECT ENGINEER.

THE CONTRACTOR SHALL ENSURE INDIVIDUALS DOCUMENTATION INCLUDE:

1.NAMES OF PERSONNEL ASSOCIATED WITH THIS PROJECT WHICH HAVE BEEN ADEQUATELY TRAINED IN ACCORDANCE WITH THE NPDES PERMIT REQUIREMENTS.
2.DATES OF TRAINING AND NAME OF INSTRUCTOR(S) AND ENTITY PROVIDING TRAINING.
3.CONTENT OF TRAINING COURSE OR WORKSHOP INCLUDING NUMBER OF HOURS OF TRAINING.

ENVIRONMENTAL REVIEW:

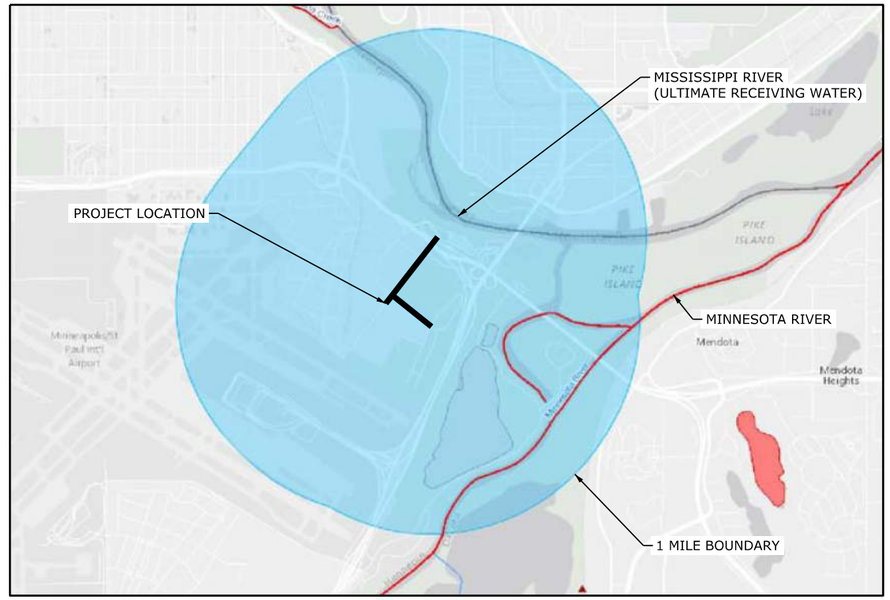
THERE ARE NO STORMWATER MITIGATION MEASURES REQUIRED AS A RESULT OF AN ENVIRONMENTAL, ARCHEOLOGICAL OR AGENCY REVIEW. ALL MITIGATION MEASURES HAVE BEEN ADDRESSED IN THIS PLAN SET OR THE SPECIAL PROVISIONS.

THIS PROJECT IS NOT LOCATED IN A WELL HEAD PROTECTION AREA.

THIS IS NOT LOCATED IN A DRINKING WATER SUPPLY MANAGEMENT AREA (DWSMA).

KARST AREA PROTECTION:

THIS PROJECT IS LOCATED IN THE KARST AREA OF MINNESOTA. NO KNOWN SINK HOLES EXIST IN OR NEAR THE PROJECT.
IF POTENTIAL SINK HOLES ARE ENCOUNTERED DURING CONSTRUCTION, CONTACT THE DISTRICT SOILS ENGINEER FOR RECOMMENDATIONS.



LAND FEATURE CHANGES:

DISTURBED AREA: 6.82 ACRES
TOTAL EXISTING IMPERVIOUS AREA = 4.82 ACRES
TOTAL PROPOSED IMPERVIOUS AREA = 5.19 ACRES
TOTAL NET INCREASE IN IMPERVIOUS SURFACE = 0.34 ACRES

WATER QUALITY VOLUME REQUIRED = N/A

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN:

THE REQUIRED SWPPP ELEMENTS MAY BE LOCATED IN MANY PLACES WITHIN THE PLAN SET AS WELL AS IN THE SPECIAL PROVISIONS, MNDOT SPEC BOOK (2016 EDITION), OR ON FILE WITH THE PROJECT ENGINEER. THE NOTES AND TABLE BELOW ARE INTENDED TO BE A QUICK REFERENCE FOR THE CONTRACTOR TO USE IN THE FIELD. THERE MAY BE ADDITIONAL REQUIRED SWPPP ELEMENTS INCLUDED ON THE PROJECT THAT ARE NOT LISTED ON THIS SHEET.

DESCRIPTION	SHEETS
TEMPORARY & PERMANENT EROSION CONTROL MEASURES	79-83
DIRECTION OF FLOW	104-108
FINAL STABILIZATION	79-83
SOILS AND CONSTRUCTION NOTES	10
DRAINAGE STRUCTURES & PROFILES	104-108
DRAINAGE TABULATION	109-110
EROSION AND SEDIMENT CONTROL DETAILS	22-44
EROSION CONTROL & TURF ESTABLISHMENT TABULATION	4-6
SOILS MAP	113

BMP DESIGN FACTORS:

1.EXPECTED AMOUNT, FREQUENCY, INTENSITY, AND DURATION OF PRECIPITATION.
2.NATURE OF STORMWATER RUNOFF AND RUN-ON AT THE SITE, INCLUDING FACTORS SUCH AS EXPECTED FLOW FROM IMPERVIOUS SURFACES, SLOPES, AND SITE DRAINAGE FEATURES.
3.IF ANY STORMWATER FLOW WILL BE CHANNELIZED AT THE SITE BMPs MUST CONTROL BOTH PEAK FLOW RATES AND COATTAIL STORMWATER VOLUME TO MINIMIZE EROSION AT OUTLETS AND TO MINIMIZE DOWNSTREAM CHANNEL AND STREAM BANK EROSION.
4.RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT ON THE SITE.

TMDL IMPLEMENTATION PLANS:

MINNESOTA RIVER (ASSASSMENT UNIT 07020012-505) HAS AN EPA-APPROVED IMPAIRMENT MERCURY IN FISH TISSUE; MERCURY IN WATER COLUMN; OXYGEN, DISOLVED; PCB IN FISH TISSUE; TURBIDITY. THESE IMPAIRMENTS AFFECT AQUATIC RECREATION, LIFE, AND CONSUMPTION. THESE IMPAIRMENTS REQUIRE THE ADDITIONAL BEST MANAGEMENT PRACTICES (BMPS) C.1 & C.2 FOUND IN APPENDIX A OF THE PERMIT FOR ALL PORTIONS OF THE PROJECT THAT DRAIN TO THE DISCHARGE POINT.

Hennepin

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ARASH MOIN, PROFESSIONAL ENGINEER | 52252 LICENSE NO. | 1/09/2018 DATE

DESIGN BY:	AAM
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LAST REVISION:	1/09/2018

STORM WATER POLLUTION AND PREVENTION PLAN (SWPPP)

C.S.A.H. 204 / HENNEPIN COUNTY PROJECT 1437 / S.A.P. 027-804-001
C.R. 205 /HENNEPIN COUNTY PROJECT 1507
S.P. 2725-63 (T.H. 55 = 050)

SHEET 111 / 174

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STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

SITE INSPECTION AND MAINTENANCE:

INSPECT THE ENTIRE CONSTRUCTION SITE A MINIMUM OF ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. INSPECT ALL TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT, EROSION PREVENTION AND SEDIMENT CONTROL BMPS UNTIL THE SITE HAS UNDERGONE FINAL STABILIZATION AND THE NOT HAS BEEN SUBMITTED. INSPECT SURFACE WATER INCLUDING DRAINAGE DITCHES FOR SIGNS OF EROSION AND SEDIMENT DEPOSITION. INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS FOR EVIDENCE OF TRACKING ONTO PAVED SURFACES. INSPECT SURROUNDING PROPERTIES FOR EVIDENCE OF OFF SITE SEDIMENT ACCUMULATION. INSPECT INFILTRATION AREAS FOR SIGNS OF SEDIMENT DEPOSITION AND COMPACTION (TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE AREA).

RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES IN WRITING WITHIN 24 HOURS. SUBMIT INSPECTION REPORTS IN A FORMAT THAT IS ACCEPTABLE TO THE PROJECT ENGINEER. INCLUDE THE FOLLOWING IN THE RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY:

- O DATE AND TIME OF INSPECTIONS.
- O NAME OF PERSON(S) CONDUCTING INSPECTIONS.
- O FINDINGS OF INSPECTIONS, INCLUDING THE SPECIFIC LOCATION WHERE CORRECTIVE ACTIONS ARE NEEDED.
- O CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES).
- O DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 1/2 INCH (0.5 INCHES) IN 24 HOURS. RAINFALL AMOUNTS MUST BE OBTAINED BY A PROPERLY MAINTAINED RAIN GAUGE INSTALLED ON SITE, A WEATHER STATION THAT IS WITHIN 1 MILE OF YOUR LOCATION OR A WEATHER REPORTING SYSTEM THAT PROVIDES SITE SPECIFIC RAINFALL DATA FROM RADAR SUMMARIES.
- O IF ANY DISCHARGE IS OBSERVED TO BE OCCURRING DURING THE INSPECTION, A RECORD OF ALL POINTS OF THE PROPERTY FROM WHICH THERE IS A DISCHARGE MUST BE MADE, AND THE DISCHARGE SHOULD BE DESCRIBED (I.E., COLOR, ODOR, FLOATING, SETTLED, OR SUSPENDED SOLIDS, FOAM, OIL SHEEN, AND OTHER OBVIOUS INDICATORS OF POLLUTANTS) AND PHOTOGRAPHED.
- O ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION MUST BE DOCUMENTED AS REQUIRED WITHIN SEVEN (7) CALENDAR DAYS.

REPLACE, REPAIR OR SUPPLEMENT ALL NONFUNCTIONAL BMPS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY UNLESS LISTED DIFFERENTLY BELOW:

A. REPAIR, REPLACE, OR SUPPLEMENT PERIMETER CONTROL DEVICES WHEN IT BECOMES NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE. COMPLETE REPAIRS BY THE END OF THE NEXT BUSINESS DAY FOLLOWING DISCOVERY.
B. REPAIR OR REPLACE INLET PROTECTION DEVICES WHEN THEY BECOME NONFUNCTIONAL OR SEDIMENT REACHES 1/2 THE HEIGHT AND/OR DEPTH OF THE DEVICE.
C. DRAIN AND REMOVE SEDIMENT FROM TEMPORARY AND PERMANENT SEDIMENT BASINS ONCE THE SEDIMENT HAS REACHED 1/2 THE STORAGE VOLUME. COMPLETE WORK WITHIN 72 HOURS OF DISCOVERY.
D. REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS. RESTABILIZE ANY AREAS THAT ARE DISTURBED BY SEDIMENT REMOVAL OPERATIONS. SEDIMENT REMOVAL AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF DISCOVERY. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR WORKING IN SURFACE WATERS. CONTACT ALL APPROPRIATE AUTHORITIES PRIOR TO WORKING IN SURFACE WATERS.
E. REMOVE TRACKED SEDIMENT FROM PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY. STREET SWEEPING MAY HAVE TO OCCUR MORE OFTEN TO MINIMIZE OFF SITE IMPACTS. LIGHTLY WET THE PAVEMENT PRIOR TO SWEEPING.
F. MAINTAIN ALL BMPS UNTIL WORK HAS BEEN COMPLETED, SITE HAS GONE UNDER FINAL STABILIZATION, AND THE NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.

STABILIZATION TIME FRAMES:

AREA	TIME FRAME	NOTES
EXPOSED SOILS AND STOCKPILES	7 DAYS	1
WITHIN 200 FEET OF A PUBLIC WATER	24 HOURS	4

1. INITIATE STABILIZATION IMMEDIATELY WHEN CONSTRUCTION HAS TEMPORARILY OR PERMANENTLY CEASED ON ANY PORTION OF THE SITE. COMPLETE STABILIZATION WITHIN THE TIME FRAME LISTED. IN MANY INSTANCES THIS WILL REQUIRE STABILIZATION TO OCCUR MORE THAN ONCE DURING THE COURSE OF THE PROJECT. TEMPORARY SOIL STOCKPILES WITHOUT SIGNIFICANT CLAY OR SILT AND STOCKPILED AND CONSTRUCTED ROAD BASE ARE EXEMPT FROM THE STABILIZATION REQUIREMENT.
2. STABILIZE ALL AREAS OF THE SITE PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, AND BLANKETED WITHIN THE TIME FRAMES IN THE NPDES PERMIT.
3. KEEP DITCHES AND EXPOSED SOILS IN AN EVEN ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES, HYDROMULCHES AND BLANKETS.
4. THE FOLLOWING TYPES OF WATERS HAVE WORK IN WATER EXCLUSIONS. NO WORK IN THE WATER IS ALLOWED DURING THE EXCLUSION DATES. TWENTY FOUR HOUR STABILIZATION REQUIREMENT ONLY APPLIES DURING THE EXCLUSION DATES. SEE DNR PERMIT FOR WHICH WATER BODIES THIS APPLIES TO.

WATER BODY	EXCLUSION DATES
LAKES	APRIL 1 - JUNE 30
NON-TROUT STREAMS	MARCH 15 - JUNE 15
TROUT STREAMS	SEPTEMBER 1 - APRIL 1

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY:

1. AMEND THE SWPPP AND DOCUMENT ANY AND ALL CHANGES TO THE SWPPP AND ASSOCIATED PLAN SHEETS IN A TIMELY MANNER. STORE THE SWPPP AND ALL AMENDMENTS ON SITE AT ALL TIMES.
2. IT IS THE DESIGNER'S INTENT THAT THE CONTRACTOR BUILD PONDS AND PLACE EROSION CONTROL BMPS BEFORE PUTTING THEM INTO ACTIVE SERVICE TO THE MAXIMUM EXTENT PRACTICABLE.
3. BURNING OF ANY MATERIAL IS NOT ALLOWED WITHIN PROJECT BOUNDARY.
4. DO NOT DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. DELINEATE AREAS NOT TO BE DISTURBED PRIOR TO STARTING GROUND DISTURBING ACTIVITIES. IF IT BECOMES NECESSARY TO DISTURB AREAS OUTSIDE OF THE CONSTRUCTION LIMITS OBTAIN WRITTEN PERMISSION FROM THE PROJECT ENGINEER PRIOR TO PROCEEDING. PRESERVE ALL NATURAL BUFFERS SHOWN ON THE PLANS.
5. ROUTE STORMWATER AROUND UNSTABILIZED AREAS OF THE SITE WHENEVER FEASIBLE. PROVIDE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES AS NEEDED TO KEEP CHANNELS FROM ERODING AND TO PREVENT NUISANCE CONDITIONS AT THE OUTLET.
6. DIRECT DISCHARGES FROM BMPS TO VEGETATED AREAS WHENEVER FEASIBLE. PROVIDE VELOCITY DISSIPATION DEVICES AS NEEDED TO PREVENT EROSION.
7. THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE PLACED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND TO CAPTURE SEDIMENT ON SITE. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF ANY REMOVAL WORK AND/OR GROUND DISTURBING ACTIVITIES COMMENCE.
8. ESTABLISH SEDIMENT CONTROL DEVICES ON ALL DOWN GRADIENT PERIMETERS AND UPGRADIENT OF ANY BUFFER ZONES BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. MAINTAIN SEDIMENT CONTROL DEVICES UNTIL CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

GENERAL SWPPP NOTES FOR CONSTRUCTION ACTIVITY(CONTINUED):

9. LOCATE PERIMETER CONTROL ON THE CONTOUR TO CAPTURE OVERLAND, LOW- VELOCITY SHEET FLOWS DOWN GRADIENT OF ALL EXPOSED SOILS AND PRIOR TO DISCHARGING TO SURFACE WATERS. PLACE J-HOOKS AT A MAXIMUM OF 100 FOOT INTERVALS.
10. PROVIDE PERIMETER CONTROL AROUND ALL STOCKPILES. PLACE BMP A MINIMUM 5 FEET FROM THE TOE OF SLOPE WHERE FEASIBLE. DO NOT PLACE STOCKPILES IN NATURAL BUFFER AREAS, SURFACE WATERS OR STORMWATER CONVEYANCES
11. FLOATING SILT CURTAIN IS ALLOWED AS PERIMETER CONTROL FOR IN WATER WORK ONLY. PLACE THE FLOATING SILT CURTAIN AS CLOSE TO SHORE AS POSSIBLE. PLACE PERIMETER CONTROL BMP ON LAND IMMEDIATELY AFTER THE IN WATER WORK IS COMPLETED.
12. DITCH CHECKS WILL BE PLACED AS INDICATED ON THE PLANS DURING ALL PHASES OF CONSTRUCTION.
13. PROTECT STORM SEWER INLETS AT ALL TIMES WITH THE APPROPRIATE INLET PROTECTION FOR EACH SPECIFIC PHASE OF CONSTRUCTION. PROVIDE INLET PROTECTION DEVICES WITH EMERGENCY OVERFLOW CAPABILITIES. SILT FENCE PLACED IN THE INLET GRATE IS NOT AN ACCEPTABLE INLET PROTECTION BMP FOR GRADING OPERATIONS. SILT FENCE PLACED IN THE GRATE IS ONLY ALLOWED FOR SHORT INTERVALS DURING MILLING OR PAVING OPERATIONS. INLET PROTECTION DEVICES MAY NEED TO BE PLACED MULTIPLE TIMES IN THE SAME LOCATION OVER THE LIFE OF THE CONTRACT. INLET PROTECTION DEVICES WILL BE PAID FOR ONCE PER INLET REGARDLESS OF THE NUMBER OF TIMES THE BMP IS PLACED. KEEP ALL STORM SEWER INLET PROTECTION DEVICES IN GOOD FUNCTIONAL CONDITION AT ALL TIMES. REPLACE INLET PROTECTION DEVICE WITH A SUITABLE ALTERNATIVE IF THE PROJECT ENGINEER DEEMS AN INLET PROTECTION DEVICE TO BE NONFUNCTIONAL, IN POOR CONDITION, INEFFECTIVE, OR NOT APPROPRIATE FOR THE CURRENT CONSTRUCTION ACTIVITIES.
14. PLACE CONSTRUCTION EXITS, AS NECESSARY, TO PREVENT TRACKING OF SEDIMENT ONTO PAVED SURFACES BOTH ON AND OFF THE PROJECT SITE. PROVIDE CONSTRUCTION EXITS OF SUFFICIENT SIZE TO PREVENT TRACK OUT. MAINTAIN CONSTRUCTION EXITS WHEN EVIDENCE OF TRACKING IS DISCOVERED. REGULAR STREET SWEEPING IS NOT AN ACCEPTABLE ALTERNATIVE TO PROPER CONSTRUCTION EXIT INSTALLATION AND MAINTENANCE.
15. REMOVE SEDIMENT FROM STORMWATER SYSTEM AT THE END OF PROJECT.
16. PRESERVE A 50 FOOT NATURAL BUFFER OR (IF BUFFER IS INFEASIBLE) PROVIDE REDUNDANT SEDIMENT CONTROLS WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF LAND DISTURBANCE AND STORMWATER FLOWS TO THE SURFACE WATER.
17. PREPARE AND SUBMIT A SITE MANAGEMENT PLAN FOR THE ENGINEER'S ACCEPTANCE FOR CONCRETE MANAGEMENT, CONCRETE SLURRY APPLICATION AREAS, WORK IN AND NEAR AREAS OF ENVIRONMENTAL SENSITIVITY, AREAS IDENTIFIED IN THE PLANS AS "SITE MANAGEMENT PLAN AREA", ANY WORK THAT WILL REQUIRE DEWATERING, AND AS REQUESTED BY THE ENGINEER. SUBMIT ALL SITE MANAGEMENT PLANS TO THE ENGINEER IN WRITING. ALLOW A MINIMUM OF 7 DAYS FOR MNDOT TO REVIEW AND ACCEPT SITE MANAGEMENT PLAN SUBMITTALS. WORK WILL NOT BE ALLOWED TO COMMENCE IF A SITE MANAGEMENT PLAN IS REQUIRED UNTIL ACCEPTANCE HAS BEEN GRANTED BY THE ENGINEER. THERE WILL BE NO EXTRA TIME ADDED TO THE CONTRACT DUE TO THE UNTIMELY SUBMITTAL.
18. ALL SUMP BAFFLE STRUCTURES TO BE INSPECTED AS PART OF ROUTINE SITE INSPECTION AND MAINTANCE AS NOTED IN THE SWPPP. SUMP BAFFLE STRUCTURES TO BE CLEANED WHEN SEDIMENT REACHES 1/2 THE SUMP HEIGHT OR BECOMES NOT FUNCTIONAL.
19. ALL SUMPS ARE REQUIRED TO BE CLEANED PRIOR TO SUBMITTING THE NOTICE OF TERMINATION (NOT).
20. VAC TRUCK IS TO BE USED FOR REMOVAL OF SEDIMENT IN ALL SUMP STUCTURES

RECORD RETENTION:

THE SWPPP INCLUDING, ALL CHANGES TO IT AND INSPECTIONS AND MAINTENANCE RECORDS MUST BE KEPT AT THE SITE DURING CONSTRUCTION BY THE THE CONTRACTOR WHO HAS/HAVE OPERATIONAL CONTROL OF THAT PORTION OF THE SITE. THE SWPPP CAN BE KEPT IN EITHER THE FIELD OFFICE OR IN AN ON-SITE VEHICLE DURING NORMAL WORKING HOURS.

ALL OWNERS MUST KEEP THE FOLLOWING RECORDS ON FILE FOR 3 YEARS AFTER SUBMITTAL OF THE NOT.

1. THE FINAL SWPPP.
2. ANY OTHER STORMWATER RELATED PERMITS REQUIRED FOR THE PROJECT.
3. RECORDS OF ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION.
4. ALL PERMANENT OPERATION AND MAINTENANCE AGREEMENTS THAT HAVE BEEN IMPLEMENTED INCLUDING ALL RIGHT-OF-WAY, CONTRACTS, COVENANTS AND OTHER BINDING REQUIREMENTS REGARDING PERPETUAL MAINTENANCE.

POLLUTION PREVENTION MANAGEMENT:

1. SOLID WASTE: COLLECTED SEDIMENT, ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTES MUST BE DISPOSED OF PROPERLY IN COMPLIANCE WITH MINN. R. CH. 7035.
2. HAZARDOUS MATERIALS, TOXIC WASTE, (INCLUDING OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT SOLVENTS, PETROLEUM-BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) MUST BE PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE OR HAZARDOUS MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045 INCLUDING SECONDARY CONTAINMENT AS APPLICABLE.
3. PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS MUST BE UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.
4. PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH MINN. R. CH. 7041.
5. FUELING AND MAINTENANCE OF EQUIPMENT OR VEHICLES; SPILL PREVENTION AND RESPONSE: THE REASONABLE STEPS SHALL BE TAKEN TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED INCLUDING THE USE OF DRIP PANS OR ABSORBENTS UNLESS INFEASIBLE. FUELING MUST BE CONDUCTED IN A CONTAINED AREA UNLESS INFEASIBLE. ADEQUATE SUPPLIES MUST BE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND THAT AN APPROPRIATE DISPOSAL METHOD IS AVAILABLE FOR RECOVERED SPILLED MATERIALS. ALL CLEAN UP SPILL MUST BE REPORTED IMMEDIATELY AS REQUIRED BY MINN. STAT. § 115.061, USING DRY CLEAN UP MEASURES WHERE POSSIBLE.
6. VEHICLE AND EQUIPMENT WASHING: IF THE EXTERIOR OF VEHICLES OR EQUIPMENT IS WASHED ON THE PROJECT SITE, WASHING MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF FROM THE WASHING AREA MUST BE CONTAINED IN A SEDIMENT BASIN OR OTHER SIMILARLY EFFECTIVE CONTROLS AND WASTE FROM THE WASHING ACTIVITY MUST BE PROPERLY DISPOSED OF. SOAPS, DETERGENTS, OR SOLVENTS MUST BE PROPERLY USED AND STORED. NO ENGINE DEGREASING IS ALLOWED ON SITE.
7. CONCRETE AND OTHER WASHOUTS WASTE: EFFECTIVE CONTAINMENT MUST BE PROVIDED FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS (CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS) RELATED TO THE CONSTRUCTION ACTIVITY. THE LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND, AND THE CONTAINMENT MUST BE DESIGNED SO THAT IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR AREAS. LIQUID AND SOLID WASTES MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH MPCA RULES. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY THAT REQUIRES SITE PERSONNEL TO UTILIZE THE PROPER FACILITIES FOR DISPOSAL OF CONCRETE AND OTHER WASHOUT WASTES.
8. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT CONCRETE DUST, PARTICLES, CONCRETE WASH OUT, AND OTHER CONCRETE WASTES FROM LEAVING MNDOT RIGHT OF WAY, DEPOSITING IN EXISTING OR FUTURE VEGETATED AREAS, AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS, INCLUDING INLETS, DITCHES AND CURB FLOW LINES. USE METHODS AND OPERATIONAL PROCEDURES THAT PREVENT SAW CUT SLURRY AND PLANING WASTE FROM LEAVING MNDOT RIGHT OF WAY AND FROM ENTERING STORMWATER CONVEYANCE SYSTEMS INCLUDING DITCHES AND CULVERTS.

Hennepin

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ARASH MOIN, PROFESSIONAL ENGINEER — 52252 LICENSE NO. — 1/09/2018 DATE

DESIGN BY:	AAM
CAD BY:	AAM
CHECKED BY:	TWN
LAST REVISION:	1/09/2018

STORM WATER POLLUTION AND PREVENTION PLAN (SWPPP)

C.S.A.H. 204 / HENNEPIN COUNTY PROJECT 1437 / S.A.P. 027-804-001
C.R. 205 /HENNEPIN COUNTY PROJECT 1507
S.P. 2725-63 (T.H. 55 = 050)

SHEET 112 / 174

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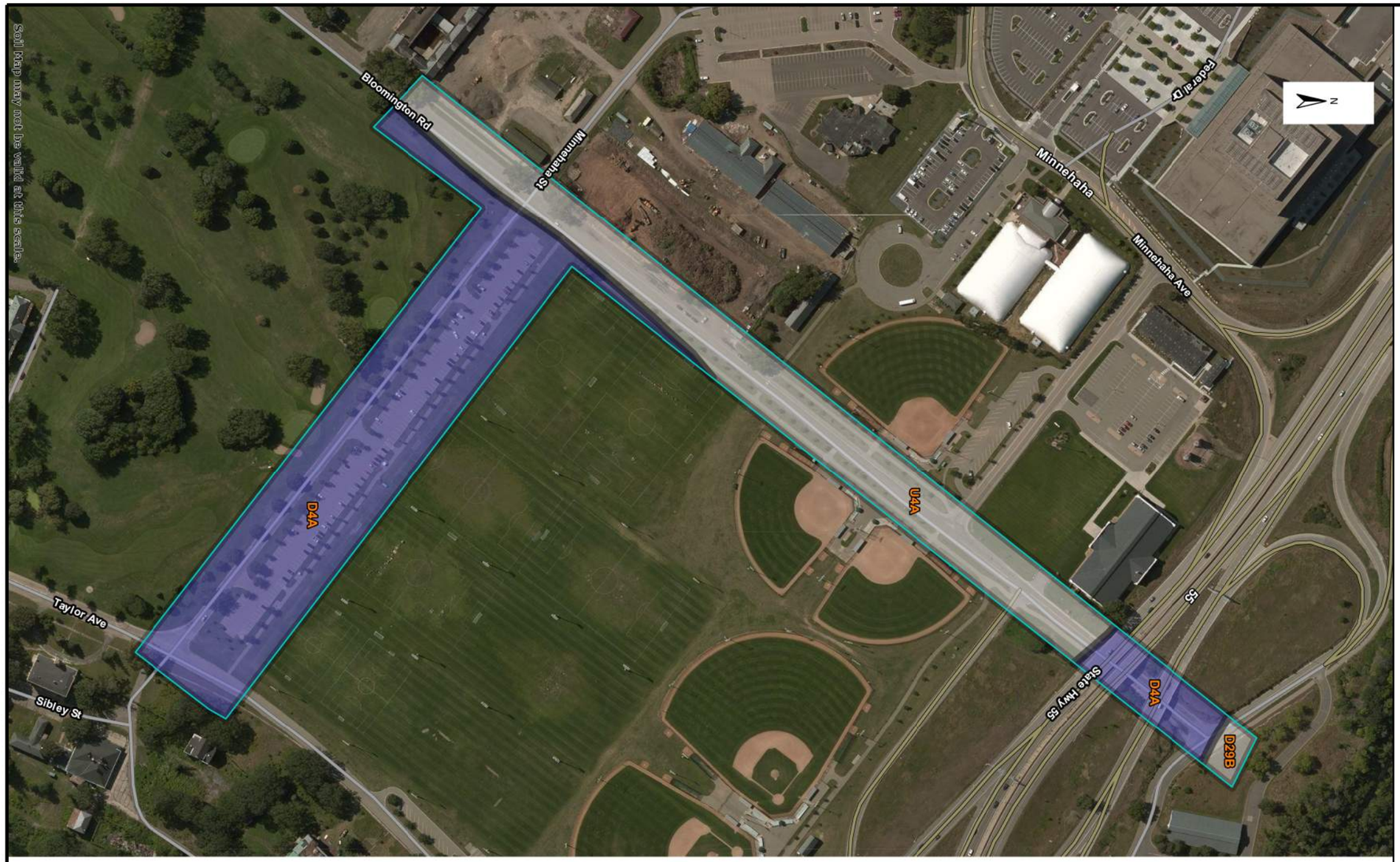

Map Scale: 1:2,670 if printed on B portrait (11" x 17") sheet.

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hennepin County, Minnesota
Survey Area Data: Version 12, Sep 19, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 26, 2014—Sep 7, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

SOIL TYPE SUMMARY

MAP UNIT SYMBOL	SOIL NAME	HYDRAULIC SOIL GROUP
D4A	DORSET SANDY LOAM	B
D29B	URBAN LAND-HUBBARD (BEDROCK SUBSTRATUM)	
U4A	URBAN LAND (UDIPSAMMENTS)	

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ARASH MOIN, PROFESSIONAL ENGINEER — 52252 LICENSE NO. — 1/09/2018 DATE

DESIGN BY:	AAM
CAD BY:	AAM
CHECKED BY:	TWN
LAST REVISION:	1/09/2018

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SHEET 113 / 174

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