

CIVIL | GRADING PLAN B

ZONING COMMISSION | DESIGN REVIEW

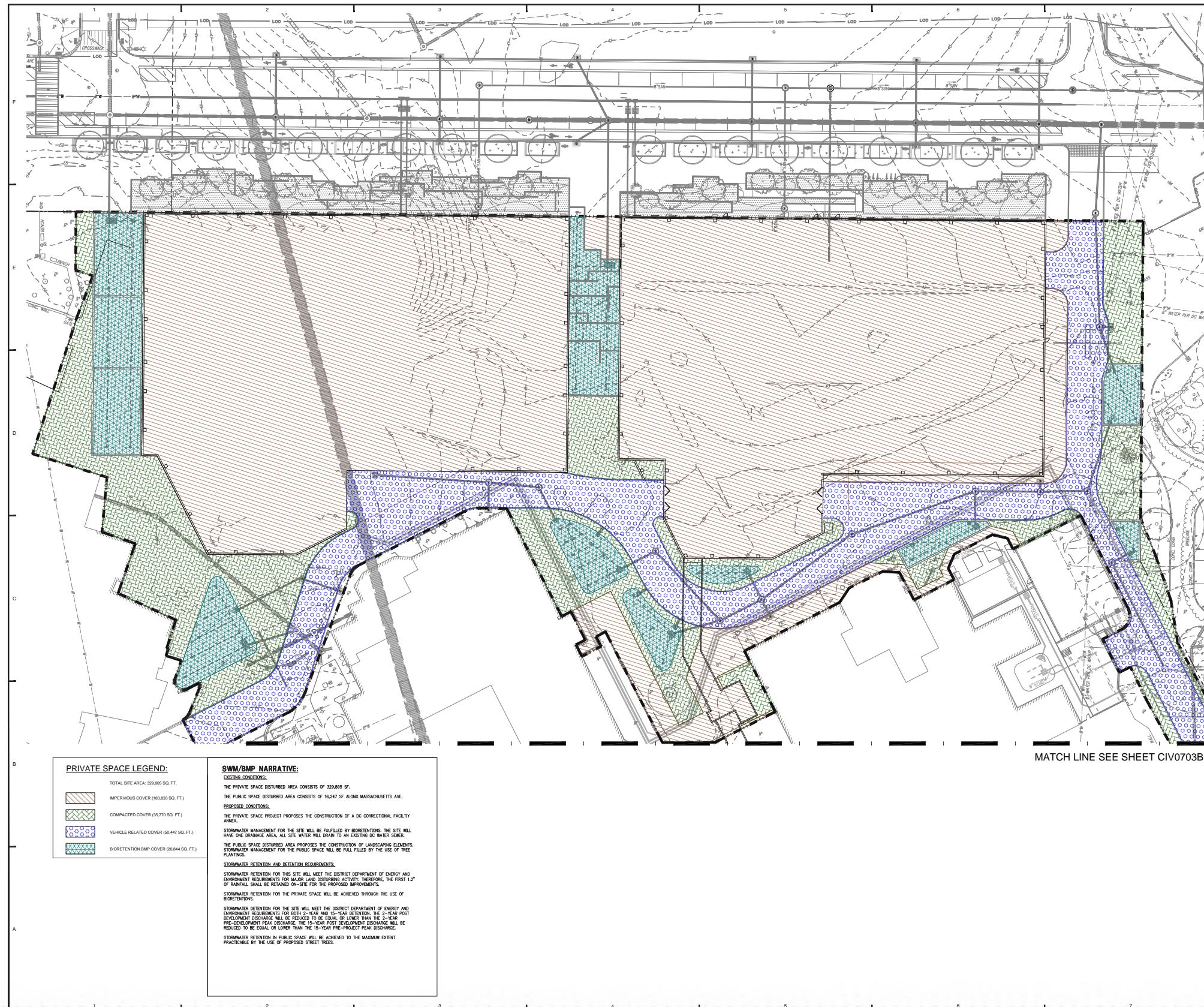
D.C. CORRECTIONAL TREATMENT FACILITY ANNEX

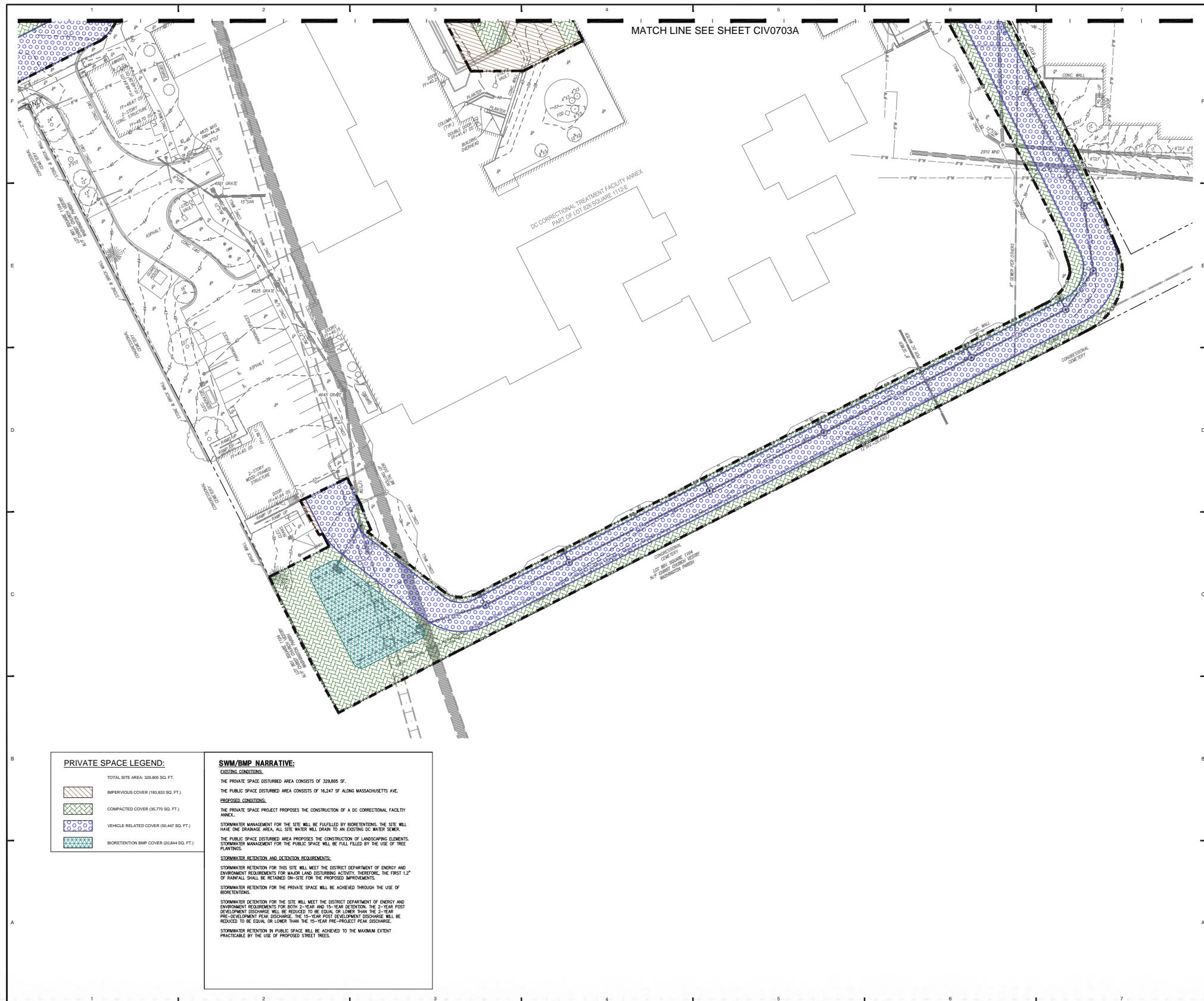
D.C. Department of Corrections | of General Services

CGL Companies | CORE architecture + design

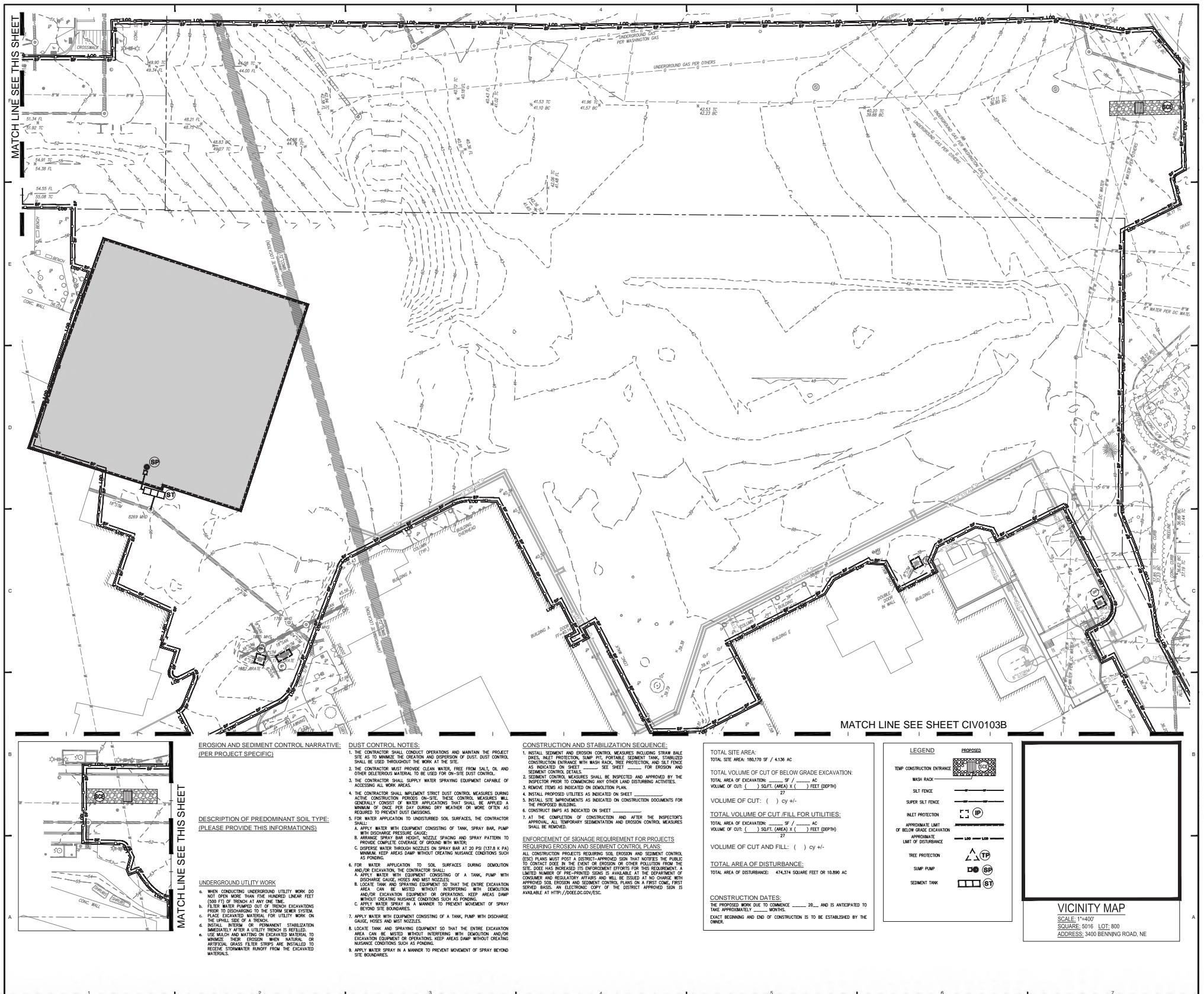
Cozen O' Connor | Wiles Mensch | Gorove Slade

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Pre Construction Land Cover										Post Construction Land Cover										Post Construction Summary																																																																					
Major Land Disturbing on Public Right of Way				Major Substantial Improvement						Major Land Disturbing or Public Right of Way				Major Substantial Improvement						Target Volumes				Runoff from Vehicular Surface Water				Treatment Remaining to Meet Requirements																																																													
Natural Cover Area	Compacted Cover Area	Impervious Cover Area	BMP Cover Area	Drainage Area Total	Natural Cover Area	Compacted Cover Area	Impervious Cover Area	BMP Cover Area	Drainage Area Total	Natural Cover Area	Compacted Cover Area	Impervious Cover Area	BMP Cover Area	Drainage Area Total	Site No.	Natural Cover Area	Compacted Cover Area	Impervious Cover Area	BMP Cover Area	Drainage Area Total	Site No.	Drainage Retention Volume, M3ft	Water Quality Treatment Volume, M3ft	Vehicle Access Area Stored On Site	Volume Retained On Site	Retention Volume Remaining On Site	At least 50% of Access Areas Sufficiently Detained or Treated	Runoff Remaining to Meet Requirements	Treatment Met for Target M2P2	Volume of Downstream BMP	Minimum Requirements for Downstream Area Met																																																										
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Yes	Yes	N/A	Yes	N/A																																																											
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Yes	Yes	N/A	Yes	N/A																																																											
Contributing Drainage Area Inside LOD										Contributing Drainage Area Inside LOD										Contributing Drainage Area Inside LOD																																																																					
BMP ID Number	Site Drainage Area Number	BMP Number	BMP Name (optional)	BMP Group	Disconnection Area (Only for Impervious Disconnection BMPs)	Surge Storage Volume (Only for Permeable Pavement -Enhanced w/Underdrain)	Number of trees (Only for Tree Planting and Preservation)	Natural Cover Area	Compacted Cover Area	Impervious Cover Area	BMP Cover Area	Vehicular Access Area (Include in Impervious cover area M2P Only)	Minimum Vehicular Access Volume	Maximum Retention Volume Received by BMP (without other BMP contributions)	Maximum Retention Volume Received by Upstream BMPs in Drainage Area	Total Maximum Retention Volume To BMP	Storage Volume Provided by BMP	Retention Volume	Potential Retention Volume Remaining	Additional Treatment Volume	Total Volume Retained and Treated	Downstream BMP	Vehicular Access Volume Addressed?																																																																		
Auto-generated	Select from drop down list	Enter Integer	Text Entry	Select from drop down list	square feet	cubic feet	Enter Integer	square feet	square feet	square feet	square feet	square feet	cubic feet	cubic feet	cubic feet	cubic feet	cubic feet	cubic feet	cubic feet	cubic feet	cubic feet	cubic feet	cubic feet	cubic feet	drop down list of BMPs entered	yes/no	user selection	calculated																																																													
1-1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																																																													
Major Land Disturbing and BMP Storage Volume in Each SDA										Pre-Development Land Cover										Post-Development Land Cover																																																																					
Major Land Disturbing				Storage Volume						Natural Cover Area				Compacted Cover Area				Impervious Cover Area				BMP Cover Area				Weighted CN				Natural Cover Area				Compacted Cover Area				Impervious Cover Area				BMP Cover Area				Weighted CN				Runoff with no BMPs				Runoff with BMPs																																			
In PROW				Storage Volume						Natural Cover Area				Compacted Cover Area				Impervious Cover Area				BMP Cover Area				Weighted CN				Natural Cover Area				Compacted Cover Area				Impervious Cover Area				BMP Cover Area				Weighted CN				Runoff with no BMPs				Runoff with BMPs																																			
sq feet				cu ft						sq feet				sq feet				sq feet				sq feet				sq feet				sq feet				sq feet				sq feet				sq feet				sq feet				sq feet				sq feet																																			
Site	Total Site	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated	Calculated																																																			
Total Site	N/A	240,447	51,662	0	70	69,377	74	173,070	98	0	98	95	98	0	70	42,880	78	278,072	98	25,490	98	98	0,47	3,14	2,46	-0,12	0	No	5,23	4,50	1,93	67	No	8,34	7,59	5,01	72																																																				
Total Site	100	240,447	51,662	0	70	69,377	74	173,070	98	0	98	95	98	0	70	42,880	78	278,072	98	25,490	98	98	0,47	3,14	2,46	-0,12	0	Yes	8,34	7,59	5,01	72																																																									
3.6 BIORETENTION										Requirements Summary										Site Total										Detention																																																											
Design Targets										ROW Widths										Total Volume Retained										Pre-Project Curve Number																																																											
Enhanced: Practices that can infiltrate the design storm volume within 72 hours.										Storage Volume										Total Volume Retained in PROW										2-year Post-Development Curve Number																																																											
Enhanced with Underdrain: Practices with underdrains that contain at least 2 inches of filter media depth and an infiltration sump/storage layer										cu ft										cu ft										cu ft																																																											
Standard: with a standard underdrain design and at least 18 inches of filter media depth.										cu ft										cu ft										cu ft																																																											
Bioretention Storage Volume										cu ft										cu ft										cu ft										cu ft																																																	
where:										SA _{bioretention} = SA _{bioretention} x [(d _{media} x f _{media}) + (d _{gravel} x f _{gravel})] + (SA _{average} x d _{ponding})										SA _{average} = $\frac{SA_{bioretention} + SA_{ponding}}{2}$										SA _{ponding} = top surface area of bioretention (ft ²)																																																											
Enhanced with Underdrain Bioretention Infiltration Sump Depth										d _{ponding} = $\frac{(K_{sat} \times t_d)}{t_d}$										where:										Detention																																																											
where:										K _{sat} = depth of the infiltration sum (ft)										Is SDA in Public Right of Way? Yes/No										Pre-Development Curve Number (0)																																																											
K _{sat} = field-verified saturated hydraulic conductivity for the native soils (ft/day)										t _d = drawdown time										Total Volume Retained in PROW										2-year Post-Development Curve Number																																																											
t _d = available porosity of the stone reservoir										n/a										cu ft										cu ft																																																											
for non-underdrain design, a check must be performed to ensure that the entire S ₀ infiltrates within 72 hours, as shown below:										Total Volume Retained in Prow										Total Volume Retained and Treated										Excess Volume that May be Eligible for SRA Off																																																											
Enhanced Bioretention Infiltration Rate Check										cu ft										cu ft										cu ft										cu ft																																																	
S ₀ / Infiltrate = SA _{bioretention} (K _{sat} x t _d)										cu ft										cu ft										cu ft										cu ft																																																	
where:										S ₀ = storage volume that will infiltrate within 72 hours (ft ³)										cu ft										cu ft										cu ft																																																	
SA _{bioretention} = bottom surface area of bioretention (ft ²)										K _{sat} = field-verified saturated hydraulic conductivity for the native soils (ft/day)										cu ft										cu ft										cu ft																																																	
t _d = drawdown time										n/a										cu ft										cu ft										cu ft																																																	
If S ₀ > S ₀ , if S ₀ is less than or equal to S ₀ , then the entire S ₀ infiltrates within 72 hours. If it is not, the storage volume of the bioretention area should be reduced accordingly.										cu ft										cu ft										cu ft										cu ft																																																	
Retention Value										Standard and Enhanced with underdrain bioretention designs retain 100% of their storage volume, therefore:										cu ft										cu ft										cu ft										cu ft																																							
Enhanced and Enhanced with underdrain bioretention designs retain 100% of their storage volume, therefore:										cu ft										cu ft										cu ft										cu ft										cu ft																																							
where:										R _v = retention value (ft ³)										cu ft										cu ft										cu ft										cu ft																																							
Standard bioretention designs retain 60% of their storage volume, therefore:										cu ft										cu ft										cu ft										cu ft										cu ft																																							
R _v = 0.6 x S _v										cu ft										cu ft										cu ft										cu ft										cu ft																																							
Variables										Value										Units										Notes on use										Variables										Value										Units										Notes on use																			
Type										Select										Green Drop-Down list, select type of bioretention										Is SDA in Public Right of Way? Yes/No										Volume Retained in PROW										Volume Retained										Volume Treated in PROW										Volume Treated in Prow										Minimum Requirements for SDA Met? Yes/No									
SA _{top}										m ²										m ²										cu ft										cu ft										cu ft										cu ft										cu ft																			
SA _{bottom}										m ²										m ²										cu ft										cu ft										cu ft										cu ft										cu ft																			
SA _{average}										m ²										m ²										cu ft										cu ft										cu ft										cu ft										cu ft																			
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d _{ponding}										ft										ft										ft										ft										ft										ft										ft																			
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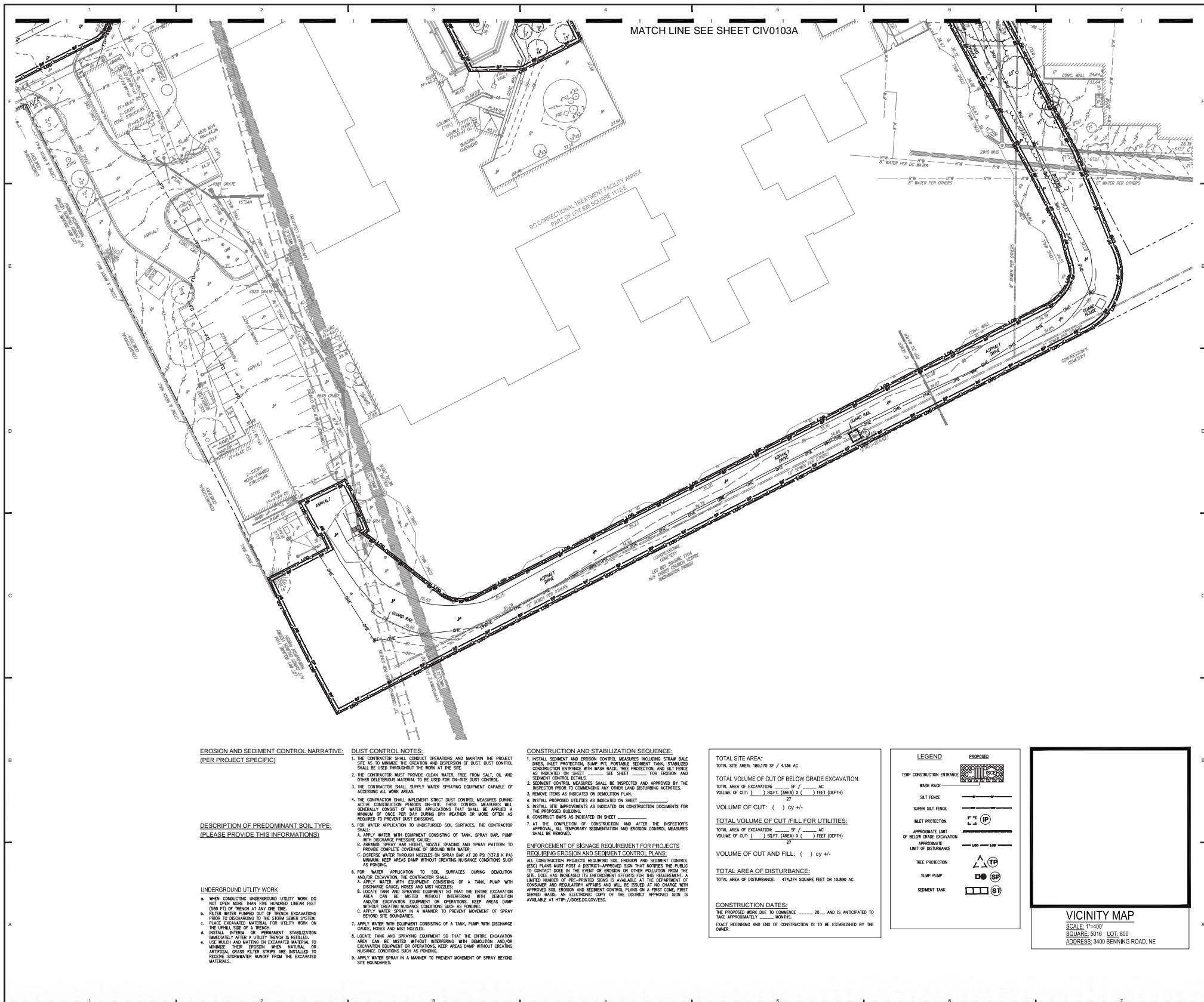


CIVIL | EROSION + SEDIMENT CONTROL PLAN A

ZONING COMMISSION | DESIGN REVIEW

D.C. CORRECTIONAL TREATMENT FACILITY ANNEX

D.C. Department of Corrections | of General Services
CGL Companies | CORE architecture + design
Cozen O' Connor | Wiles Mensch | Gorove Slade



SCALE: 1" = 80'-0"

