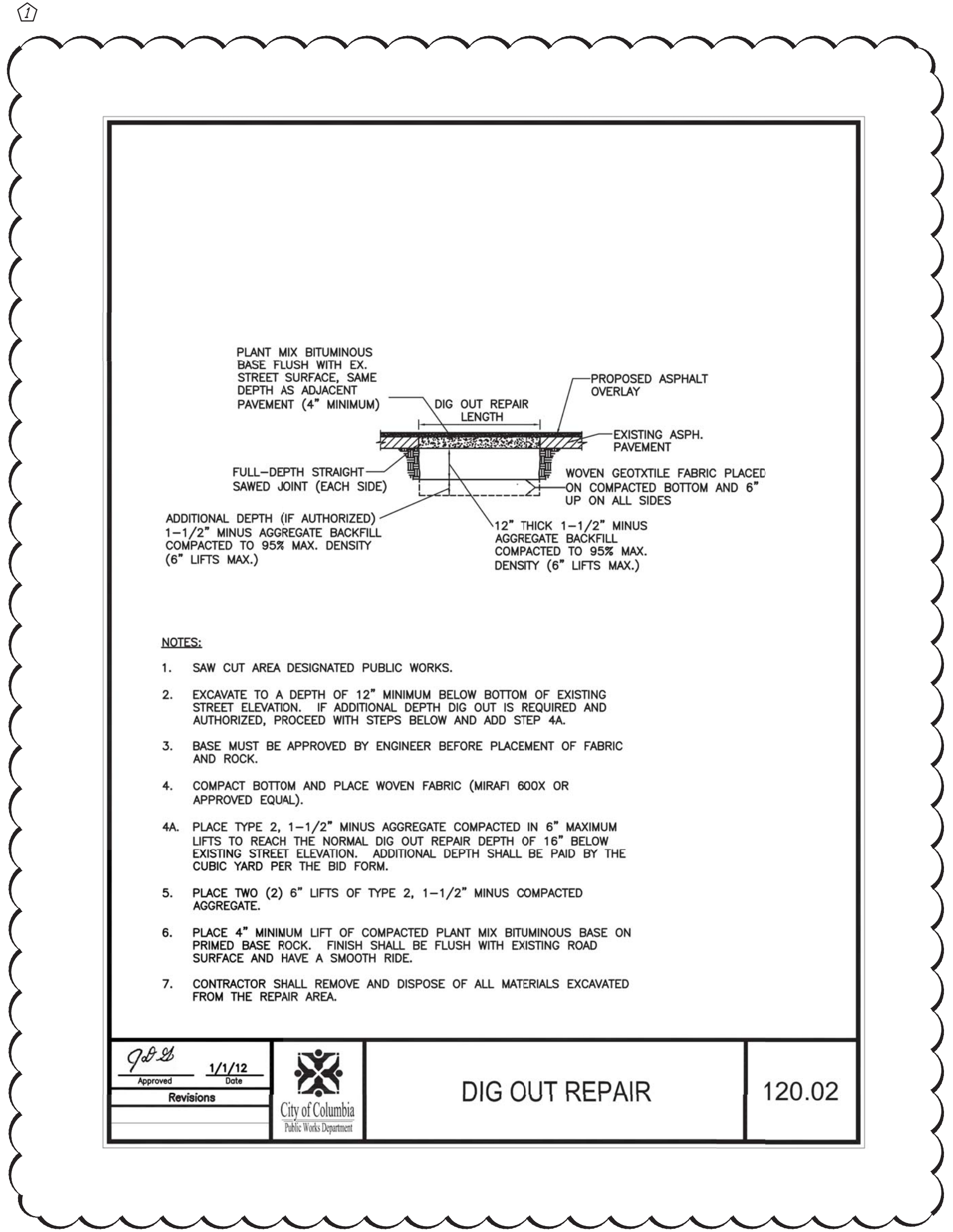
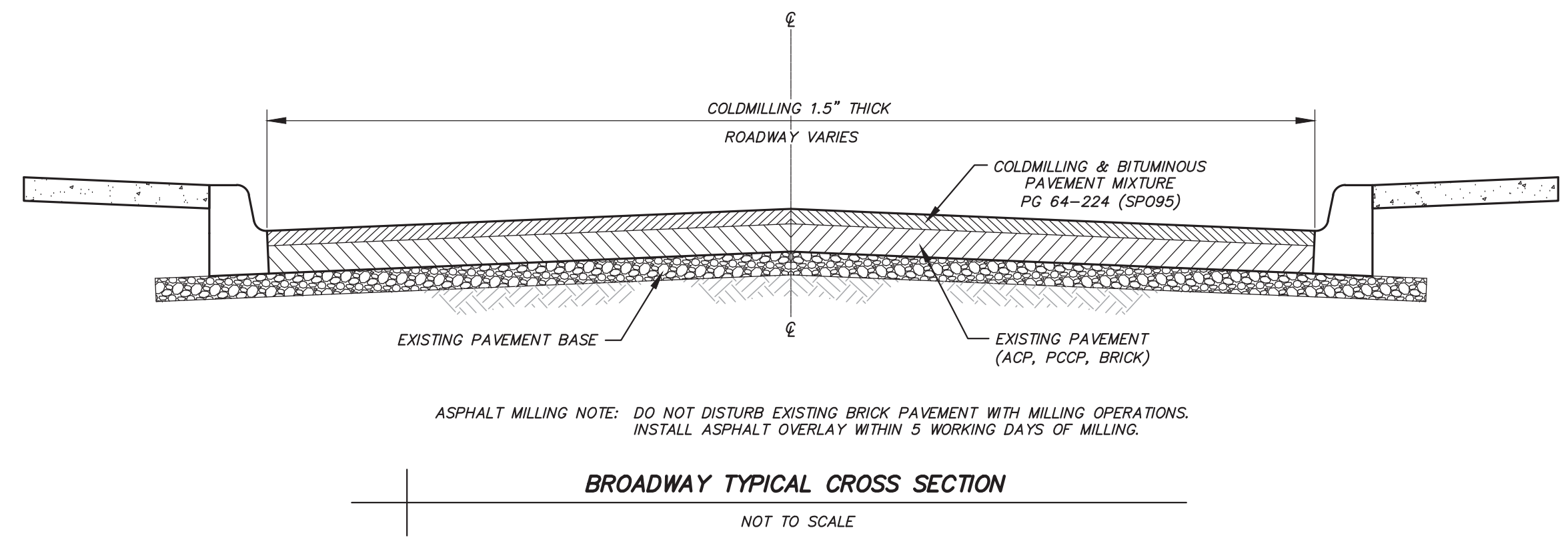


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REVISION NOTE: QUANTITIES THAT HAVE BEEN UPDATED DUE TO REVISION 1 HAVE REVISION 1 SYMBOL IN CELL

CURB RAMP ALTERATION ITEMS														
No.	Cross Street-Ramp Corner	Removal of Pavement	Downtown 4" Thick Reinforced PCC	6" Thick Reinforced PCC	Concrete Curb Type-S Variable Height	Cast-in-Place Detectable Warning	Surface-Applied Detectable Warning	Gutter Buddy	Adjust Valve Box	Adjust Pull Boxes	Grinding Trip Hazard	Remove and Replace Brick	Detectable Warning Pavers	Concrete Ribbon
		SF	SF	SF	LF	SF	SF	EA	EA	EA	LF	SF	SF	SF
1	Fourth - NW	232.4	232.4			9.6		1						
2	Fourth - SW	286	286			24.9		1	1	1				
3	Fourth - NE	231.4	231.4			10.4		2						
4	Fourth - SE	431.9	431.9			15.5		1		1				
5	Fifth - NW	185.4	185.4	29.3		11.9		1		1				
6	Fifth - SW	161.4	161.4			15.1								
7	Fifth - NE	182.1	182.1			19		1			16.5			
8	Fifth - SE	284.7	284.7			17.3								
9	Sixth - NW	176.2	176.2			20.3		1		1				
10	Sixth - SW						17.8							
11	Sixth - NE	274.7	274.7			17.3		2						
12	Sixth - SE													
13	Seventh - NW	328.2	328.2			25.1		2		1				
14	Seventh - SE													
15	Eighth - NW				21			1				100.9		8
16	Ninth - NW				10.3			2		1		315.7	60.7	23
17	Ninth - SW				6.3								67.8	24.7
18	Ninth - NE				12.9			2				215.3	59.3	22.3
19	Ninth - SE				6.2			1				176.3	63.9	23.7
20	Tenth - NW	NIC	NIC	NIC		NIC	NIC	NIC	NIC	NIC	NIC	NIC	NIC	NIC
21	Tenth - SW	248	248			20.3								
22	Tenth - NE	NIC	NIC	NIC		NIC	NIC	NIC	NIC	NIC	NIC	NIC	NIC	NIC
23	Tenth - SE	272	272			23.1		1		1				
24	Hitt - NW						11.6							
25	Hitt - SW	177.5	177.5			19.9				1				
26	Hitt - NE	138.5	138.5			11.9		1			7.5			
27	Hitt - SE						27.8							
Project Totals:		3610.4	3610.4	29.3	56.7	261.6	57.2	20	1	8	24	808.2	251.7	101.7



No.	1	Date	7/27/15	By	DPS	Revision	
BROADWAY PAVEMENT IMPROVEMENTS							
STP-2104(505)							
QUANTITIES							
City of Columbia, Missouri				Department of Public Works			
Engineering Surveys and Services				Landworks Studio			
1113 Fay Street, Columbia, Missouri 65201 573-449-2646 - www.ESS-Inc.com				103 S. Chesnut, Olathe, Kansas 66061 913-782-0707			
MISSOURI ENGINEERING CORPORATION # 204005018							
CITY OF COLUMBIA PUBLIC WORKS DEPARTMENT							
7/29/2015							
STATE OF MISSOURI BENJAMIN A. ROSS REGISTERED PROFESSIONAL ENGINEER NUMBER E-30054							
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ES&S PROJECT NO. 12847							

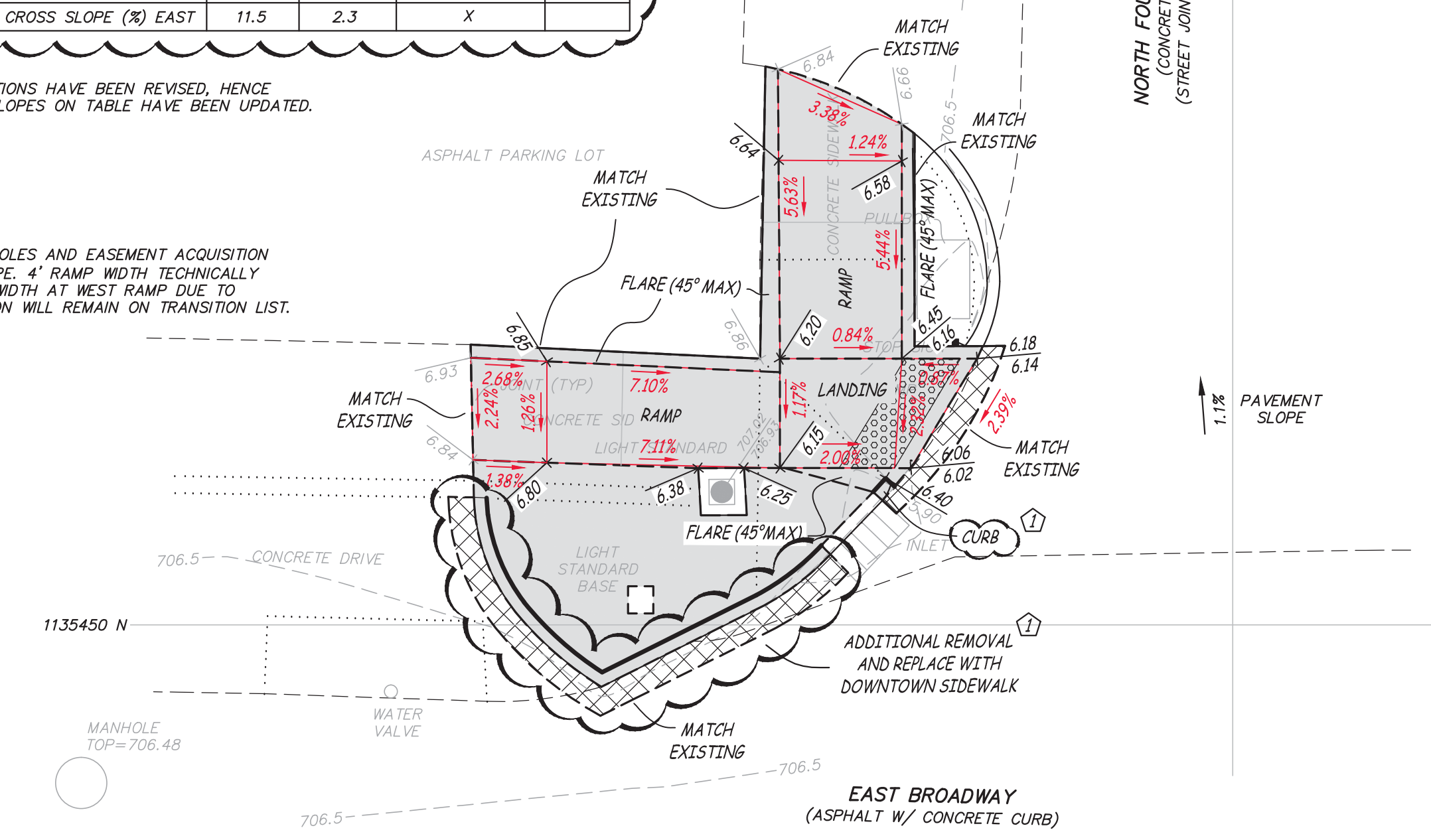


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	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	2.4	2.4	X	
RAMP RUNNING SLOPE (%) SOUTH	2.8	5.6		
RAMP RUNNING SLOPE (%) EAST	0.7	7.1		
RAMP CROSS SLOPE (%) SOUTH	3.3	1.2		
RAMP CROSS SLOPE (%) EAST	11.5	1.3		
RAMP WIDTH (FT) SOUTH	6.2	4.8		
RAMP WIDTH (FT) EAST	4.3	3.8		
LANDING CROSS SLOPE (%) SOUTH	3.3	2.3	X	
LANDING CROSS SLOPE (%) EAST	11.5	2.3	X	

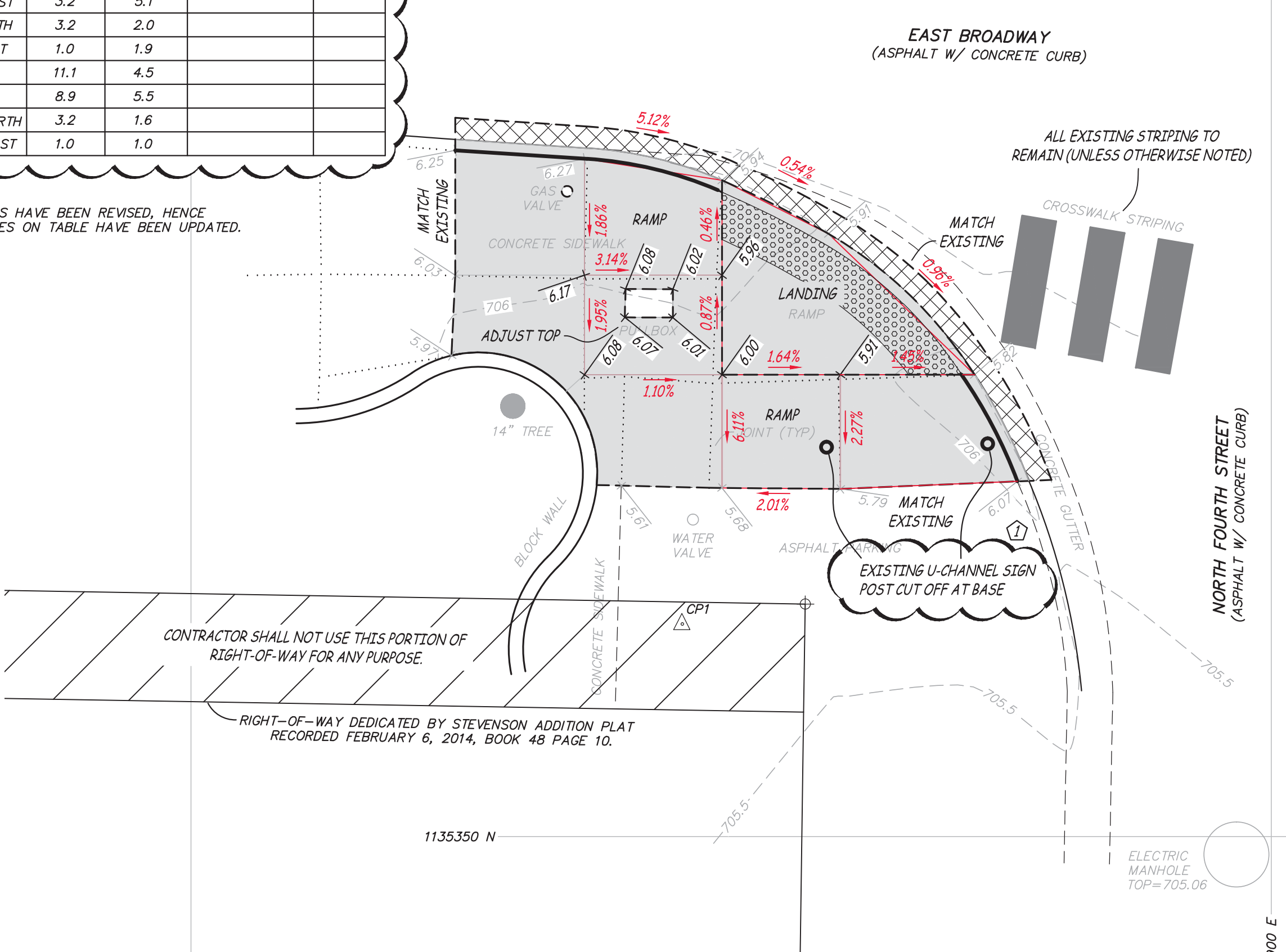
REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

NOTE: RELOCATING SIGNAL POLES AND EASEMENT ACQUISITION NOT IN PROJECT SCOPE. 4' RAMP WIDTH TECHNICALLY INFEASIBLE - MATCH WIDTH AT WEST RAMP DUE TO SIGNAL POLE. LOCATION WILL REMAIN ON TRANSITION LIST.



	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	0.96	0.96		
RAMP RUNNING SLOPE (%) NORTH	1.0	6.1		
RAMP RUNNING SLOPE (%) EAST	3.2	5.1		
RAMP CROSS SLOPE (%) NORTH	3.2	2.0		
RAMP CROSS SLOPE (%) EAST	1.0	1.9		
RAMP WIDTH (FT) NORTH	11.1	4.5		
RAMP WIDTH (FT) EAST	8.9	5.5		
LANDING CROSS SLOPE (%) NORTH	3.2	1.6		
LANDING CROSS SLOPE (%) EAST	1.0	1.0		

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

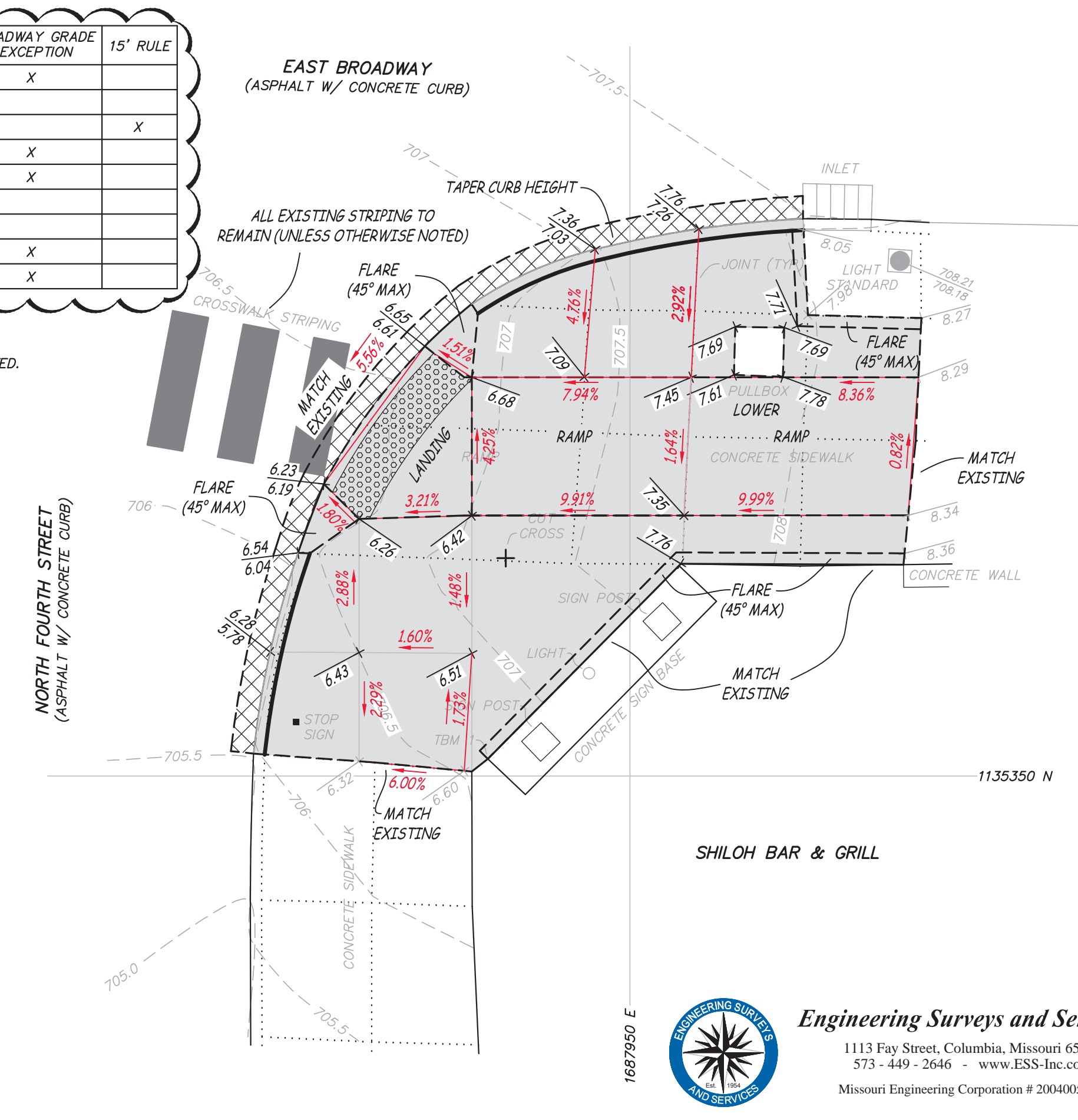


	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	4.3	4.3	X	
RAMP RUNNING SLOPE (%) SOUTH	6.6	2.3		
RAMP RUNNING SLOPE (%) WEST	7.1	8.4		X
RAMP CROSS SLOPE (%) SOUTH	5.3	1.4		
RAMP CROSS SLOPE (%) WEST	5.3	1.6		
RAMP WIDTH (FT) SOUTH	6	6		
RAMP WIDTH (FT) WEST	4	4		
LANDING CROSS SLOPE (%) SOUTH	5.3	3.5	X	
LANDING CROSS SLOPE (%) WEST	5.3	3.5	X	

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	5.6	5.6	X	
RAMP RUNNING SLOPE (%) NORTH	2.1	2.9		
RAMP RUNNING SLOPE (%) WEST	15.2	10.0		X
RAMP CROSS SLOPE (%) NORTH	15.2	3.2	X	
RAMP CROSS SLOPE (%) WEST	2.1	4.3	X	
RAMP WIDTH (FT) NORTH	7.1	5.0		
RAMP WIDTH (FT) WEST	10.1	6.1		
LANDING CROSS SLOPE (%) NORTH	15.2	3.2	X	
LANDING CROSS SLOPE (%) WEST	2.1	4.3	X	

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.



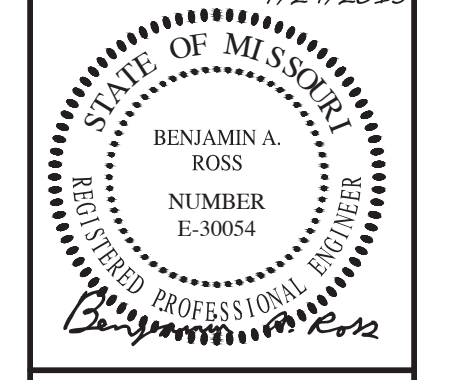
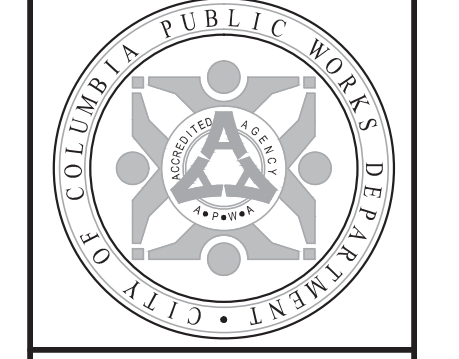
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1	7/27/15	DPS	

BROADWAY PAVEMENT IMPROVEMENTS STP-2104(505) SITE PLAN

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Department of Public Works

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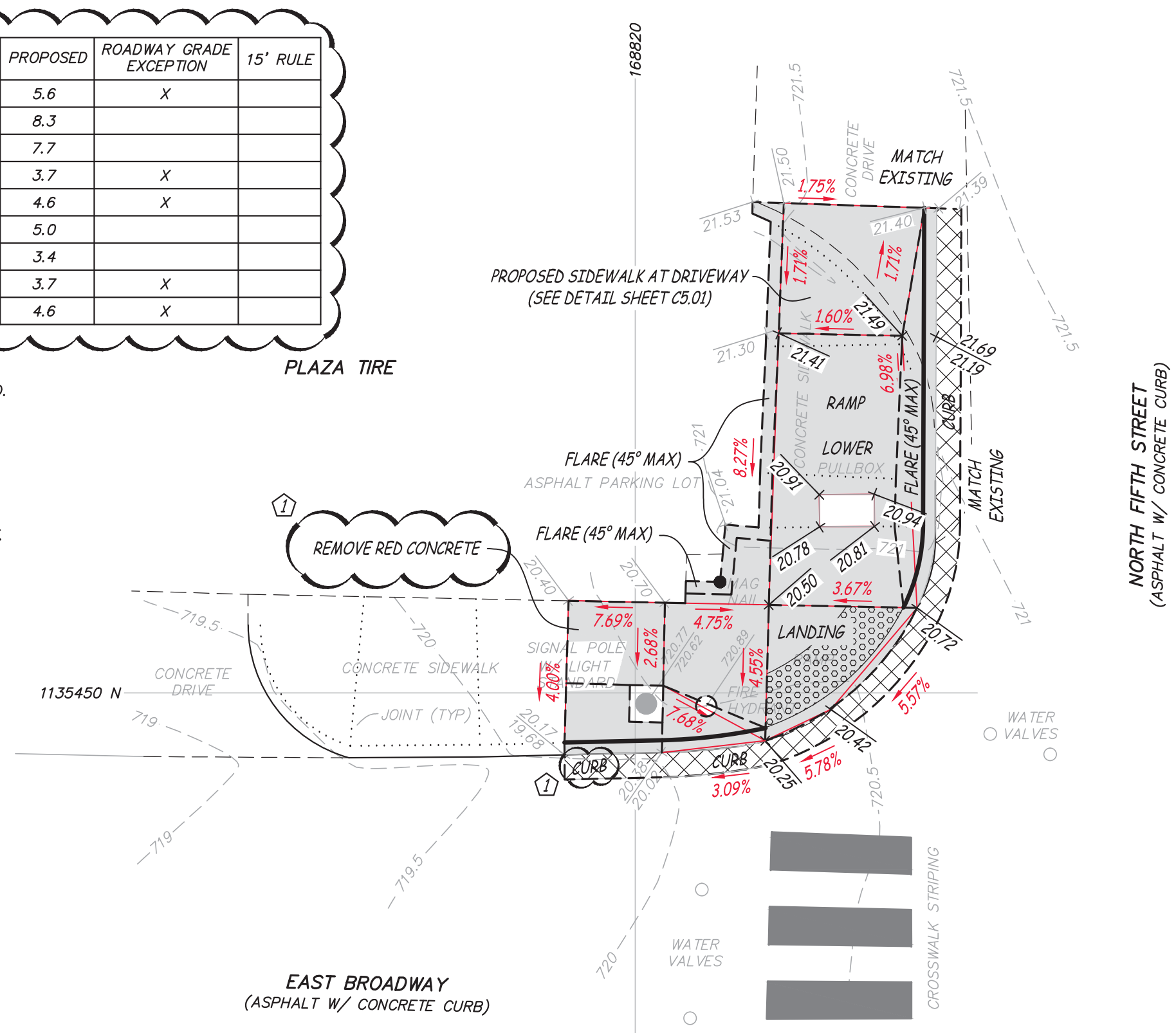
ES&S PROJECT NO. 12847

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	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	5.6	5.6	X	
RAMP RUNNING SLOPE (%) SOUTH	9.6	8.3		
RAMP RUNNING SLOPE (%) EAST	0.1	7.7		
RAMP CROSS SLOPE (%) SOUTH	0.1	3.7	X	
RAMP CROSS SLOPE (%) EAST	9.6	4.6	X	
RAMP WIDTH (FT) SOUTH	6.5	5.0		
RAMP WIDTH (FT) EAST	3.4	3.4		
LANDING CROSS SLOPE (%) SOUTH	0.1	3.7	X	
LANDING CROSS SLOPE (%) EAST	9.6	4.6	X	

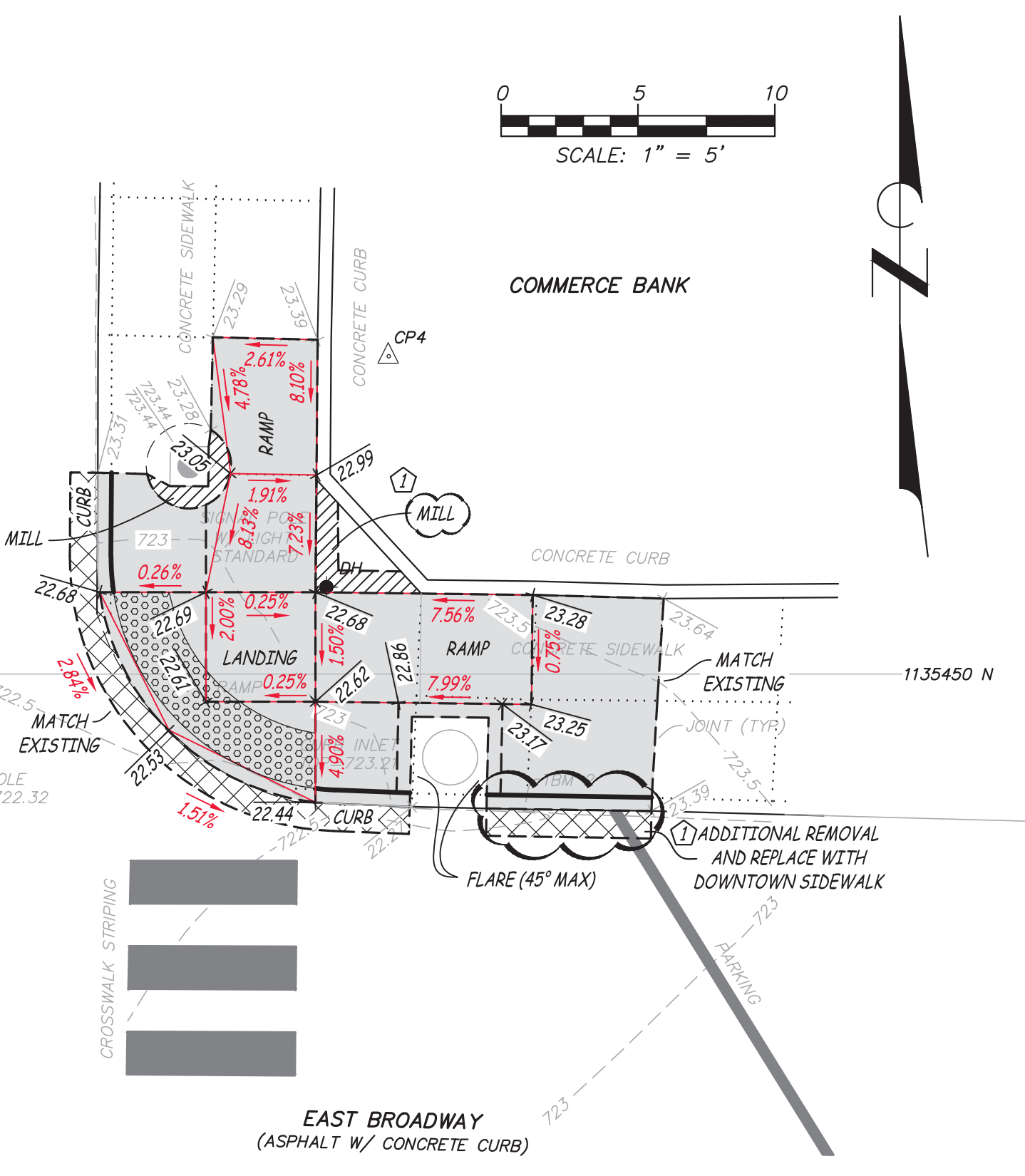
REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

NOTE: RELOCATING SIGNAL POLES AND EASEMENT ACQUISITION NOT IN PROJECT SCOPE. 4' RAMP WIDTH TECHNICALLY INFEASIBLE. MATCH WIDTH AT WEST RAMP DUE TO SIGNAL POLE. LOCATION WILL REMAIN ON TRANSITION LIST.



REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	2.8	2.8	X	
RAMP RUNNING SLOPE (%) SOUTH	8.4	8.1		
RAMP RUNNING SLOPE (%) WEST	5.9	8.0		
RAMP CROSS SLOPE (%) SOUTH	5.9	1.9		
RAMP CROSS SLOPE (%) WEST	8.4	1.5		
RAMP WIDTH (FT) SOUTH	4.0	3.1	X	
RAMP WIDTH (FT) WEST	7.8	4.0		
LANDING CROSS SLOPE (%) SOUTH	5.9	0.3		
LANDING CROSS SLOPE (%) WEST	8.4	2.0		



REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	2.8	2.7	X	
RAMP RUNNING SLOPE (%) NORTH	1.4	7.3		
RAMP RUNNING SLOPE (%) WEST	6.3	8.3		
RAMP CROSS SLOPE (%) NORTH	6.3	2.6	X	
RAMP CROSS SLOPE (%) WEST	1.4	1.8		
RAMP WIDTH (FT) NORTH	7.4	6.5		
RAMP WIDTH (FT) WEST	9.4	8.2		
LANDING CROSS SLOPE (%) NORTH	6.3	2.6	X	
LANDING CROSS SLOPE (%) WEST	1.4	1.8		

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

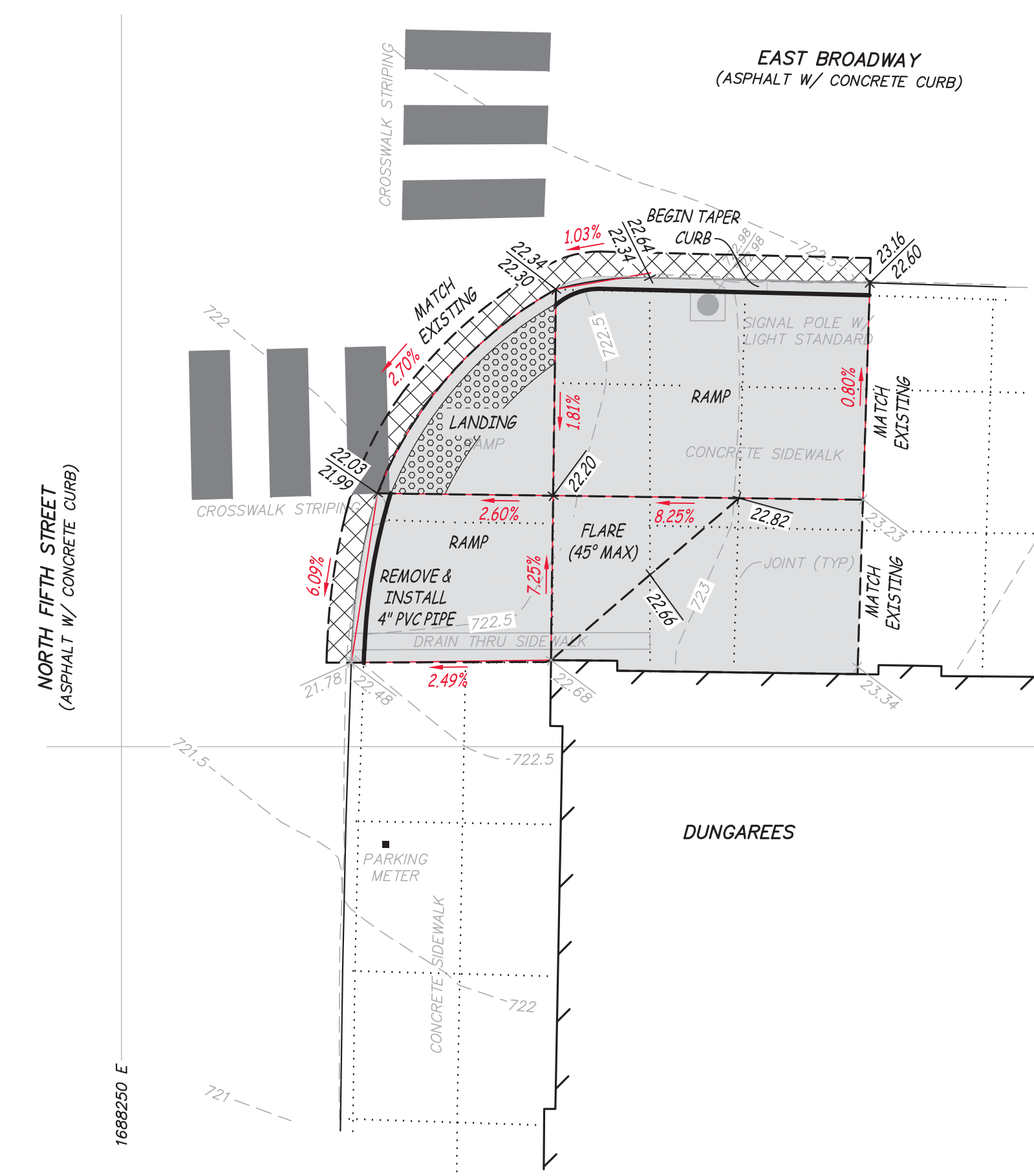
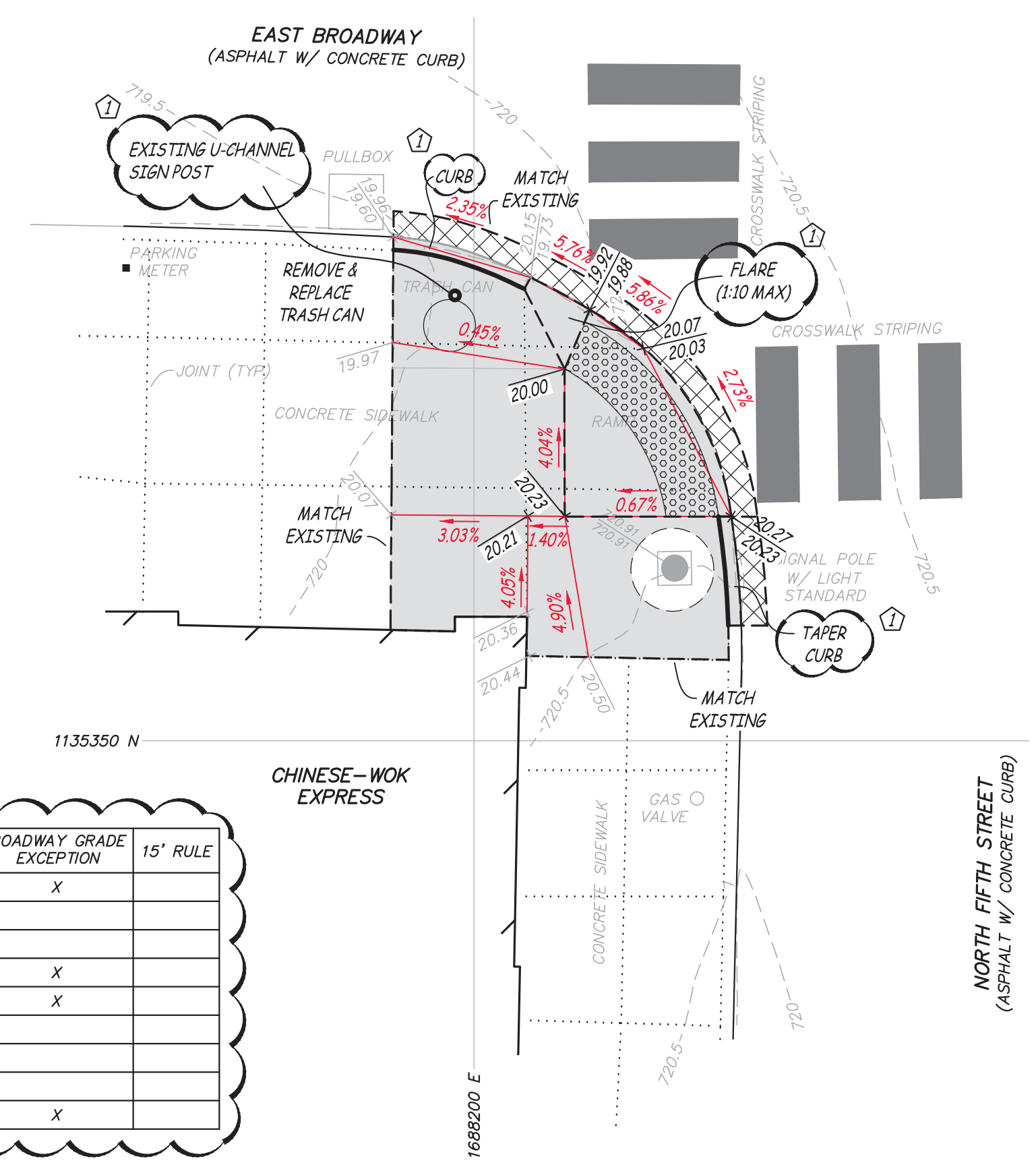
	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	2.8	2.7	X	
RAMP RUNNING SLOPE (%) NORTH	1.4	7.3		
RAMP RUNNING SLOPE (%) WEST	6.3	8.3		
RAMP CROSS SLOPE (%) NORTH	6.3	2.6	X	
RAMP CROSS SLOPE (%) WEST	1.4	1.8		
RAMP WIDTH (FT) NORTH	7.4	6.5		
RAMP WIDTH (FT) WEST	9.4	8.2		
LANDING CROSS SLOPE (%) NORTH	6.3	2.6	X	
LANDING CROSS SLOPE (%) WEST	1.4	1.8		

NOTE: RELOCATING SIGNAL POLES AND EASEMENT ACQUISITION NOT IN PROJECT SCOPE. 4' RAMP WIDTH TECHNICALLY INFEASIBLE. MATCH WIDTH AT SOUTH RAMP DUE TO SIGNAL POLE. LOCATION WILL REMAIN ON TRANSITION LIST.

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	5.9	5.9	X	
RAMP RUNNING SLOPE (%) NORTH	5.1	4.9		
RAMP RUNNING SLOPE (%) EAST	3.8	2.4		
RAMP CROSS SLOPE (%) NORTH	3.0	1.4	X	
RAMP CROSS SLOPE (%) EAST	2.7	4.0	X	
RAMP WIDTH (FT) NORTH	4	4		
RAMP WIDTH (FT) EAST	5.5	5.7		
LANDING CROSS SLOPE (%) NORTH	3.0	0.7		
LANDING CROSS SLOPE (%) EAST	2.7	4.0	X	

NOTE: SIDEWALK SLOPES < 5% NO RAMP.

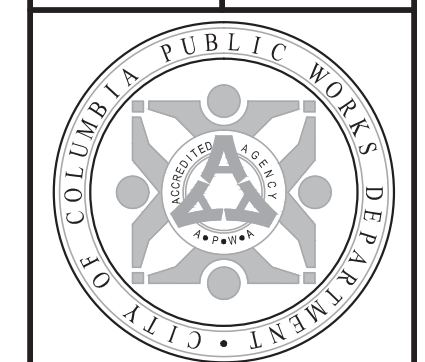


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BROADWAY PAVEMENT IMPROVEMENTS STP-2104(505) SITE PLAN

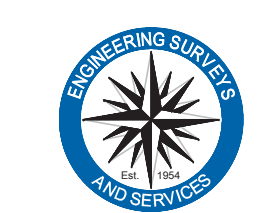
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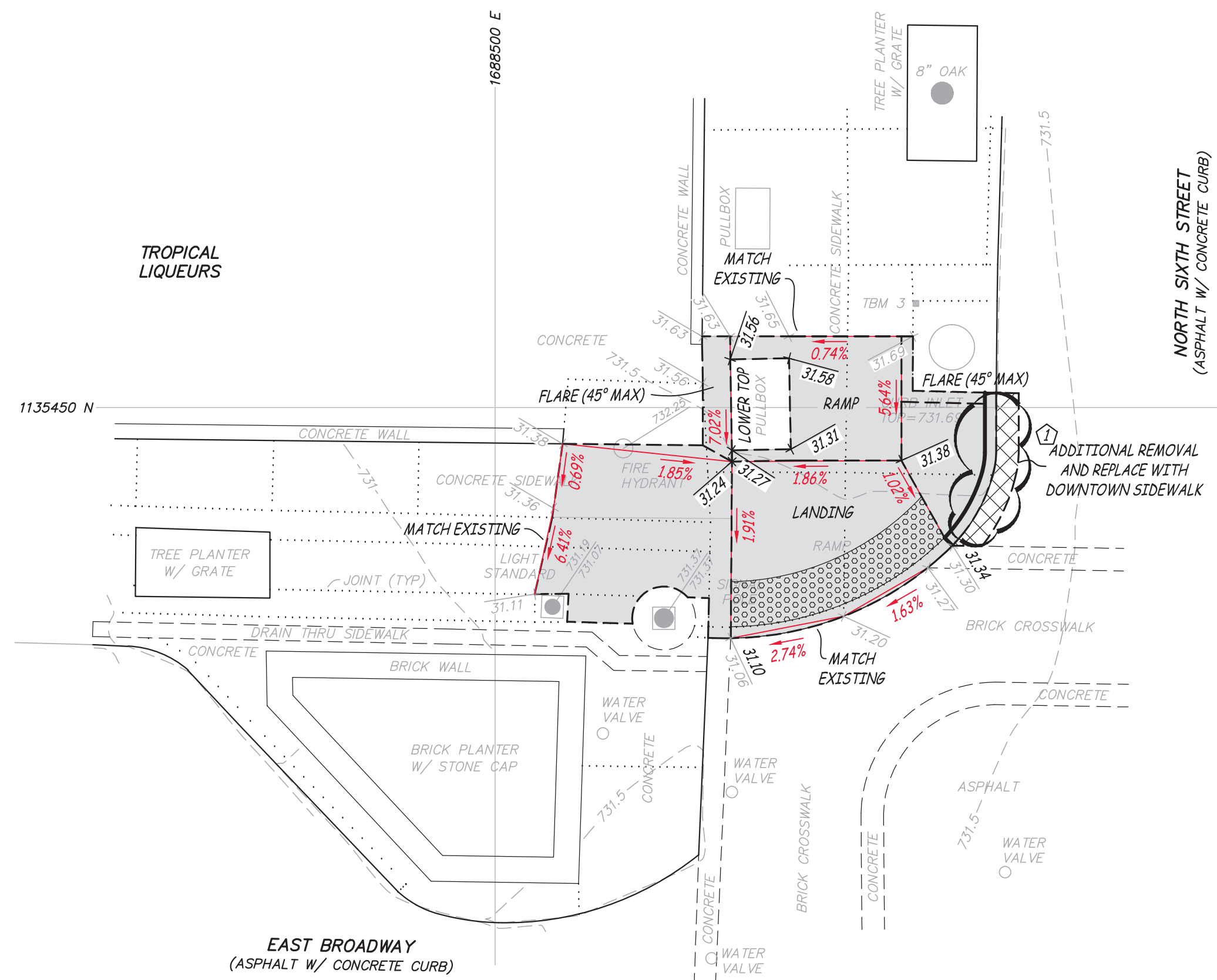
5/29/2015
STATE OF MISSOURI
BENJAMIN A. ROSS
REGISTERED PROFESSIONAL ENGINEER E-30054
Benjamin A. Ross

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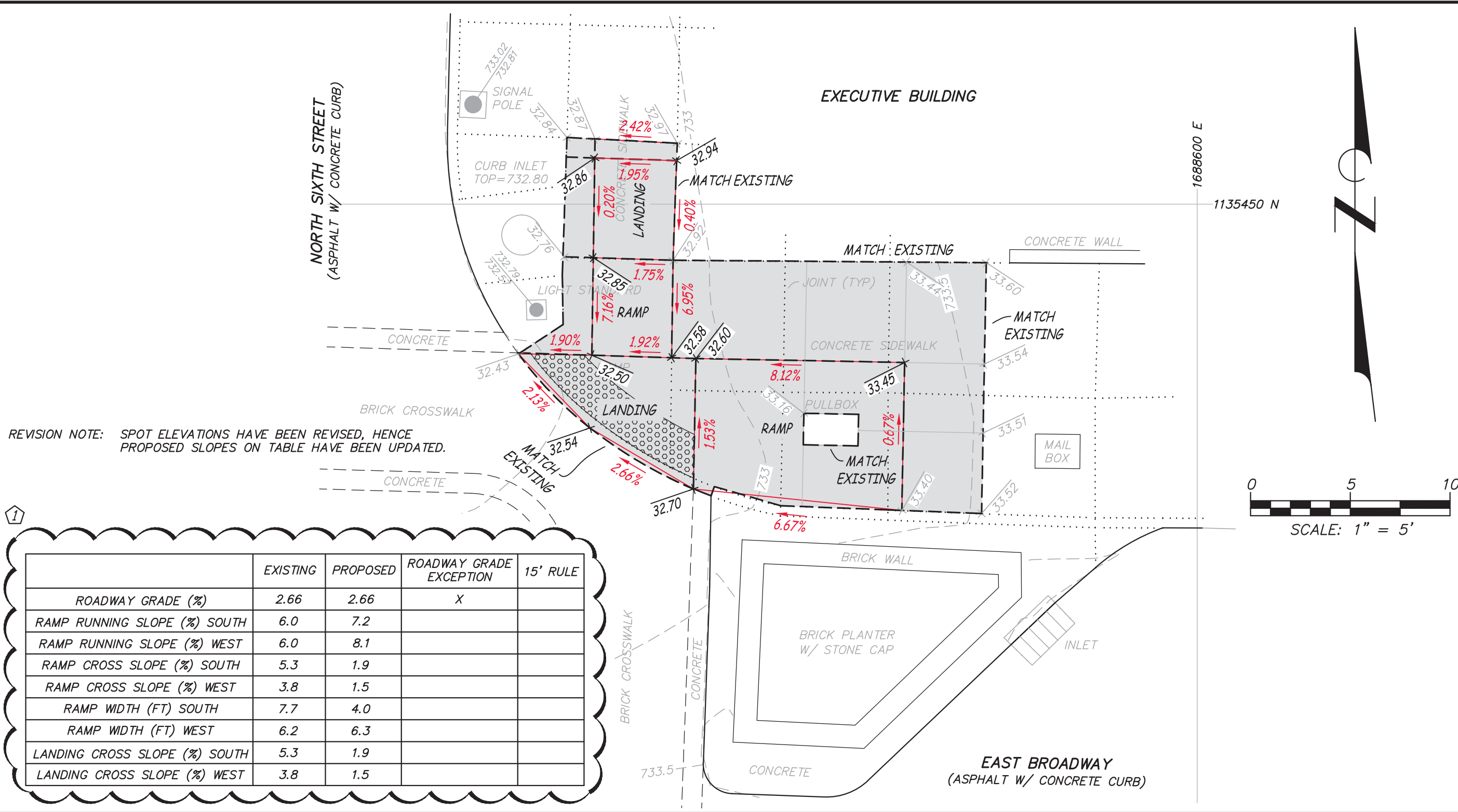
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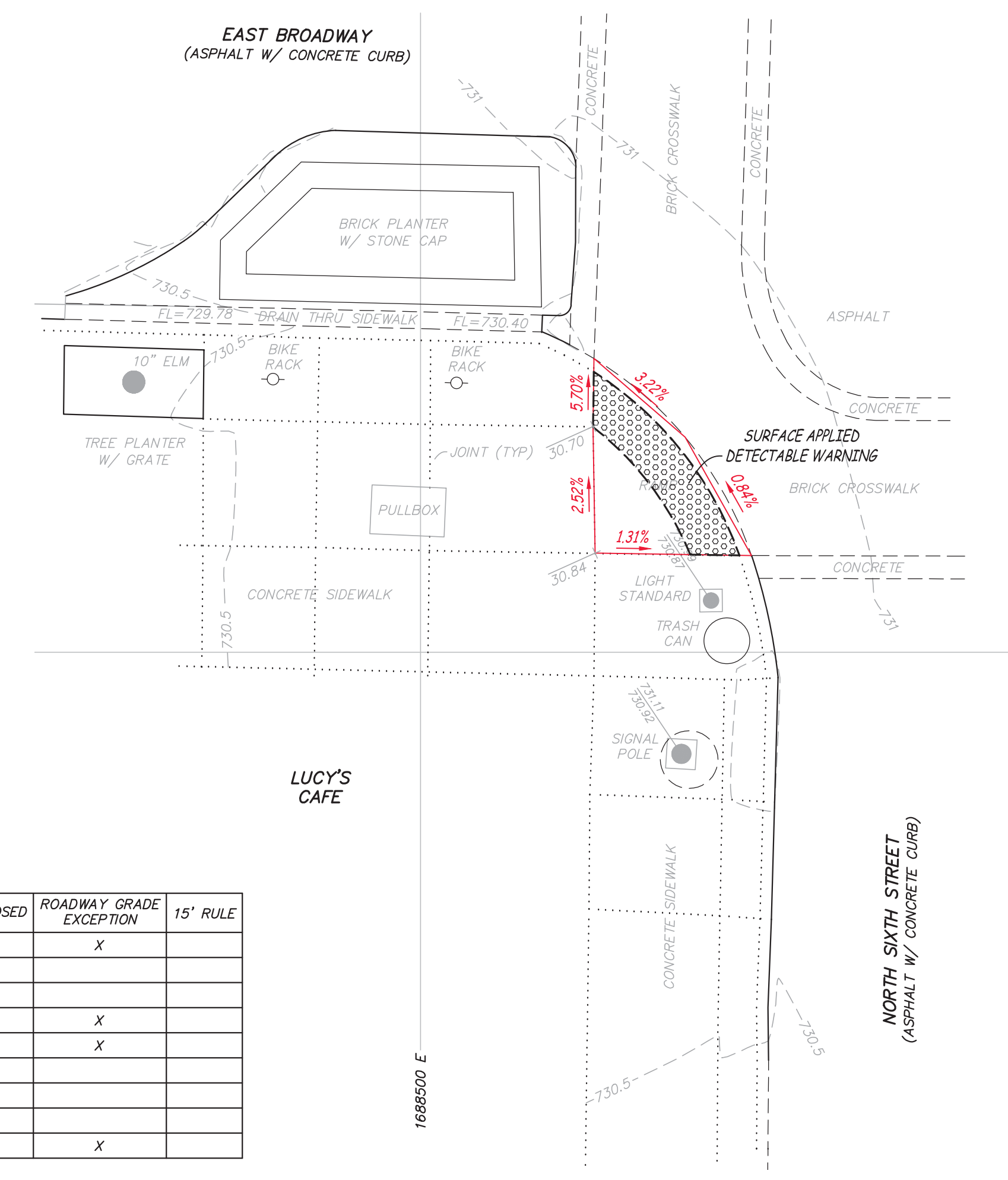
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ROADWAY GRADE (%)	2.7	2.7	X	
RAMP RUNNING SLOPE (%) SOUTH	5.7	7.0		
RAMP RUNNING SLOPE (%) EAST	0.2	1.9		
RAMP CROSS SLOPE (%) SOUTH	0.2	1.9		
RAMP CROSS SLOPE (%) EAST	5.7	1.9		
RAMP WIDTH (FT) SOUTH	5.0	4.9		
RAMP WIDTH (FT) EAST	5.0	5.8		
LANDING CROSS SLOPE (%) SOUTH	0.2	1.9		
LANDING CROSS SLOPE (%) EAST	5.7	1.9		

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

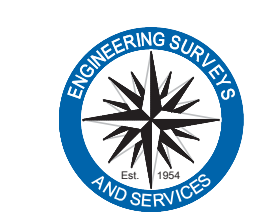


REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	2.66	2.66	X	
RAMP RUNNING SLOPE (%) SOUTH	6.0	7.2		
RAMP RUNNING SLOPE (%) WEST	6.0	8.1		
RAMP CROSS SLOPE (%) SOUTH	5.3	1.9		
RAMP CROSS SLOPE (%) WEST	3.8	1.5		
RAMP WIDTH (FT) SOUTH	7.7	4.0		
RAMP WIDTH (FT) WEST	6.2	6.3		
LANDING CROSS SLOPE (%) SOUTH	5.3	1.9		
LANDING CROSS SLOPE (%) WEST	3.8	1.5		



	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	3.2	3.2	X	
RAMP RUNNING SLOPE (%) NORTH	1.3	5.7		
RAMP RUNNING SLOPE (%) EAST	2.5	1.3		
RAMP CROSS SLOPE (%) NORTH	1.3	3.2	X	
RAMP CROSS SLOPE (%) EAST	2.5	2.5	X	
RAMP WIDTH (FT) NORTH	6.0	6.0		
RAMP WIDTH (FT) EAST	8.0	8.0		
LANDING CROSS SLOPE (%) NORTH	1.3	1.3		
LANDING CROSS SLOPE (%) EAST	2.5	2.5	X	



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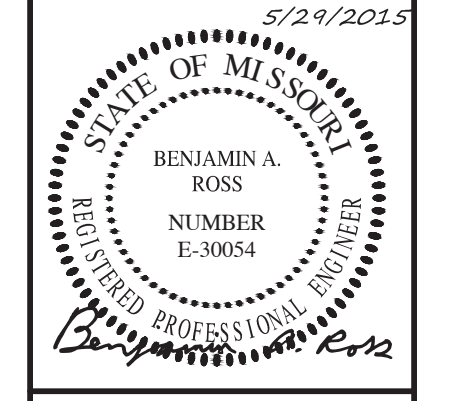
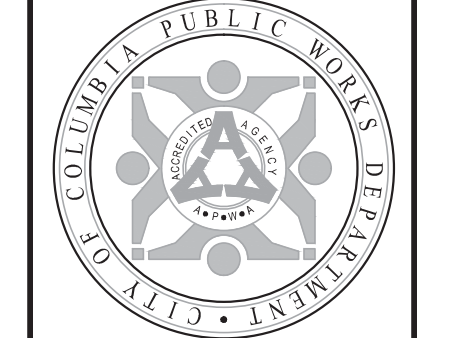
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BROADWAY PAVEMENT IMPROVEMENTS
STP-2104(505)
 SITE PLAN

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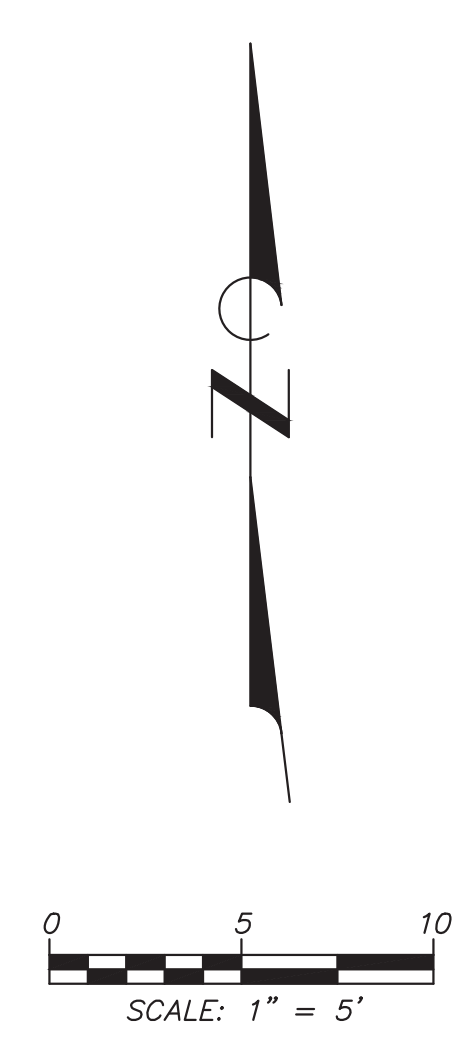
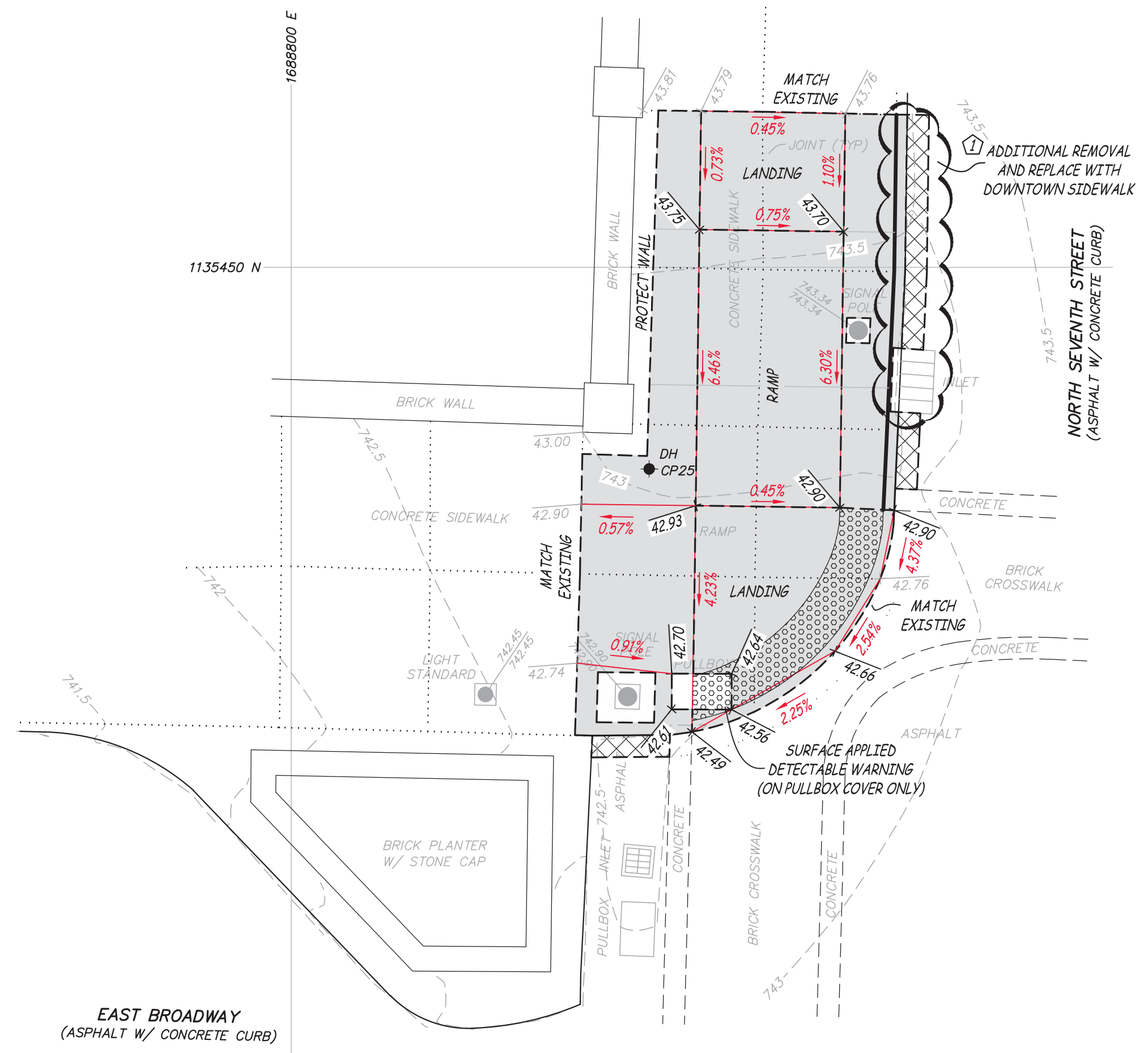
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 REGISTERED PROFESSIONAL ENGINEER E-30054

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	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	4.4	4.4	X	
RAMP RUNNING SLOPE (%) SOUTH	3.7	6.5		
RAMP RUNNING SLOPE (%) EAST	0.1	0.9		
RAMP CROSS SLOPE (%) SOUTH	0.1	0.8		
RAMP CROSS SLOPE (%) EAST	3.4	4.2	X	
RAMP WIDTH (FT) SOUTH	--	6.6		
RAMP WIDTH (FT) EAST	--	--		
LANDING CROSS SLOPE (%) SOUTH	0.1	0.5		
LANDING CROSS SLOPE (%) EAST	3.4	4.2	X	

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

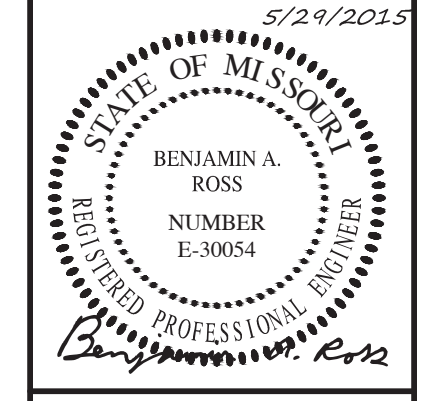
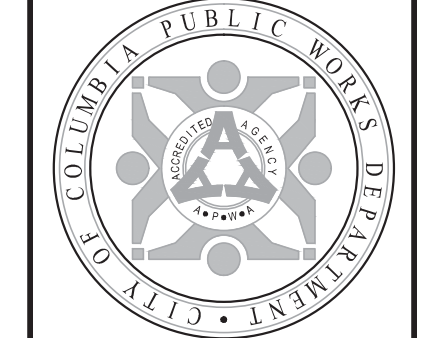
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BROADWAY PAVEMENT IMPROVEMENTS
STP-2104(505)
SITE PLAN

City of Columbia, Missouri
 Department of Public Works

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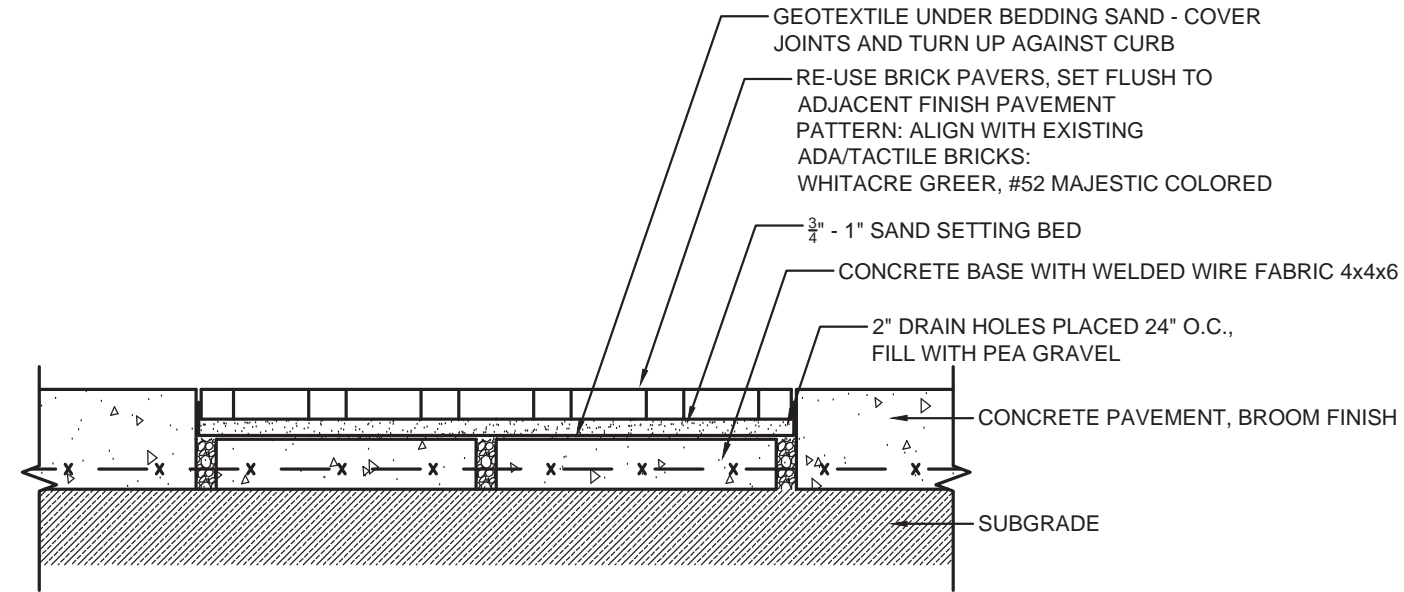
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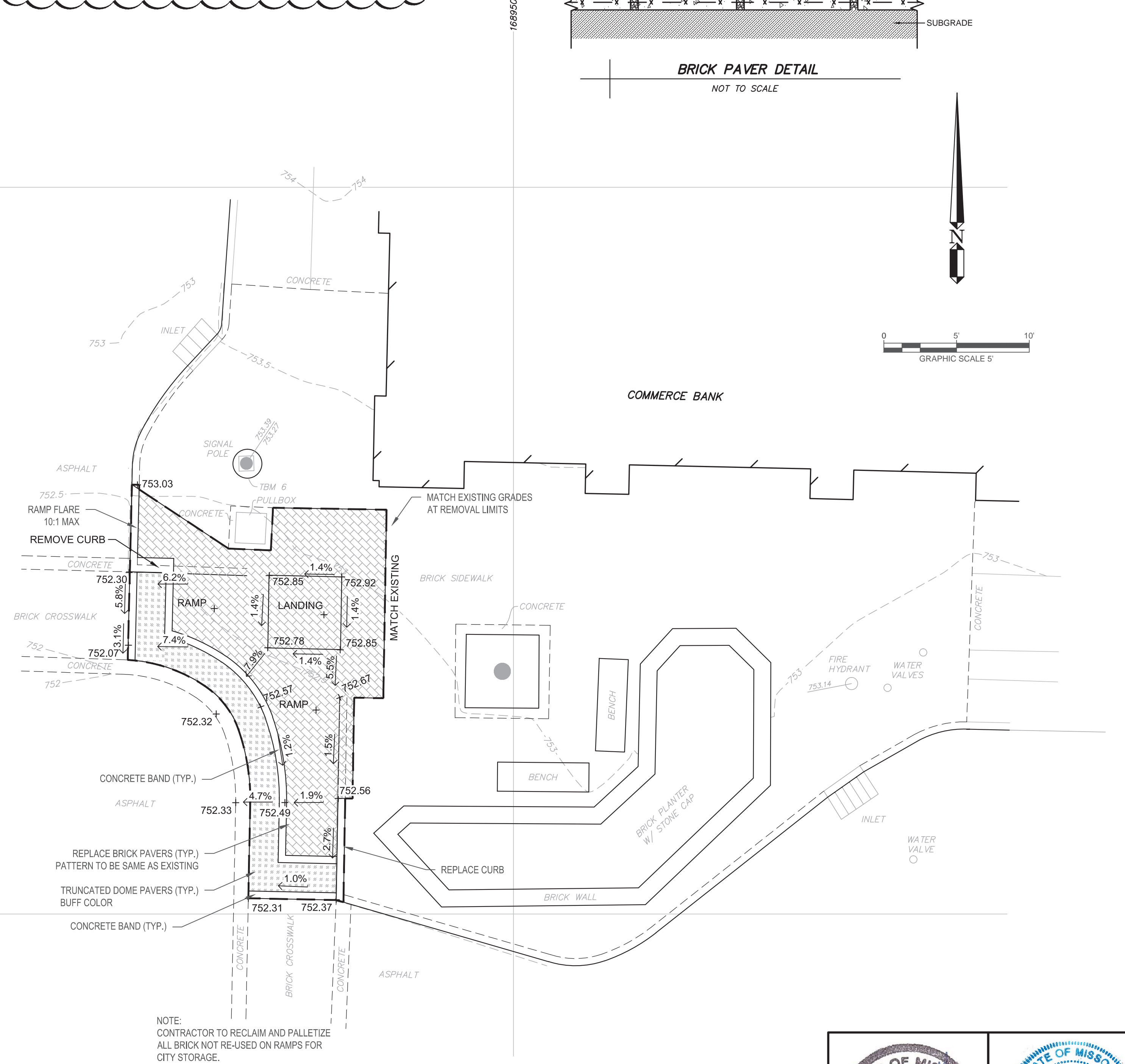
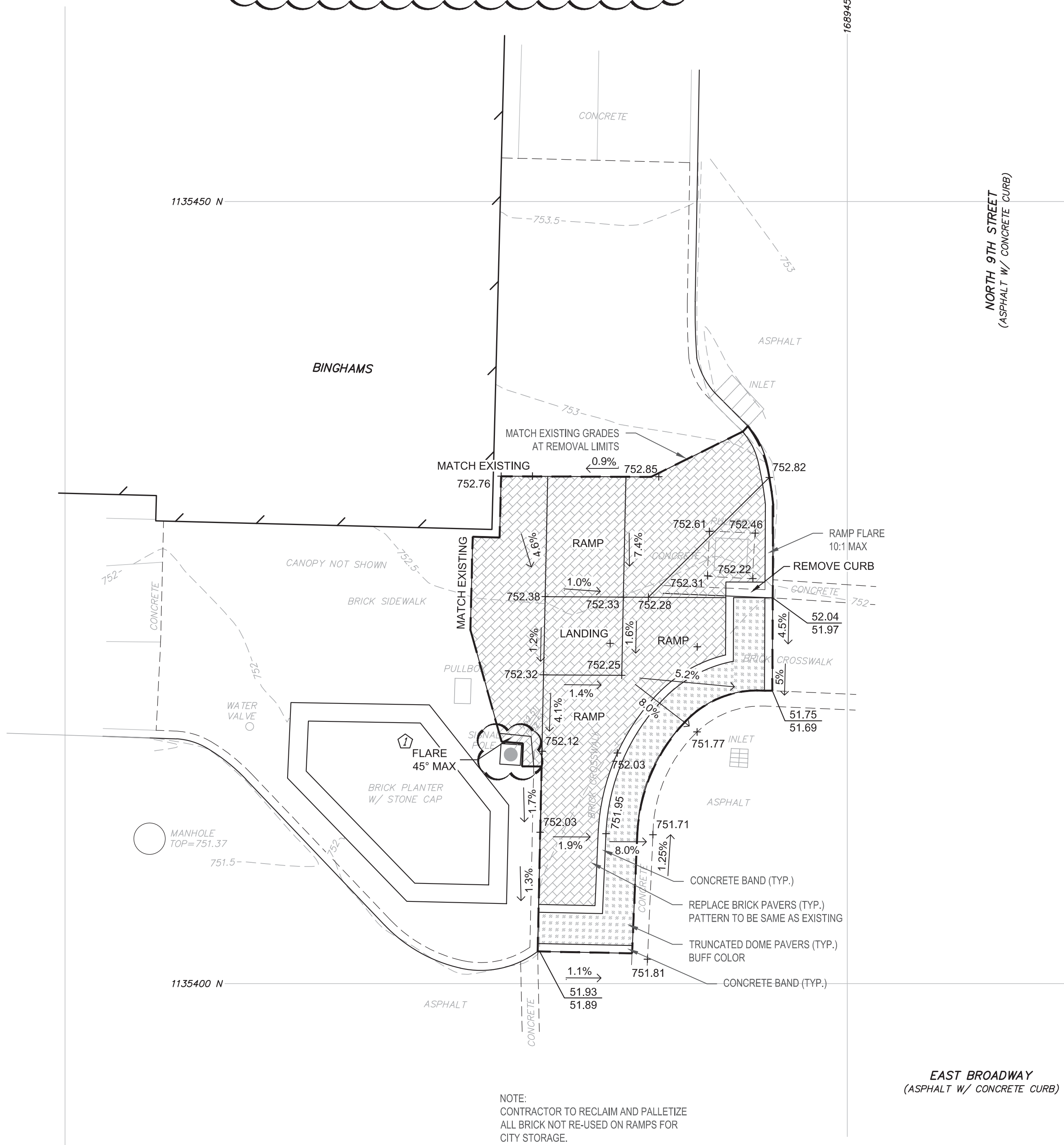
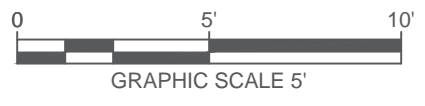
	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	5.0	5.0	X	
RAMP RUNNING SLOPE (%) SOUTH	3.6	8.0		
RAMP RUNNING SLOPE (%) EAST	4.9	8.0		
RAMP CROSS SLOPE (%) SOUTH	3.3	2.0		
RAMP CROSS SLOPE (%) EAST	4.9	4.5	X	
RAMP WIDTH (FT) SOUTH	7.0	4.0		
RAMP WIDTH (FT) EAST	6.0	4.0		
LANDING CROSS SLOPE (%) SOUTH	3.3	1.4		
LANDING CROSS SLOPE (%) EAST	4.9	1.6		

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	5.8	5.8	X	
RAMP RUNNING SLOPE (%) SOUTH	5.6	7.9		
RAMP RUNNING SLOPE (%) WEST	5.6	7.4		
RAMP CROSS SLOPE (%) SOUTH	5.6	2.0		
RAMP CROSS SLOPE (%) WEST	7.2	5.8	X	
RAMP WIDTH (FT) SOUTH	6.0	6.0		
RAMP WIDTH (FT) WEST	6.0	6.0		
LANDING CROSS SLOPE (%) SOUTH	5.6	1.4		
LANDING CROSS SLOPE (%) WEST	7.2	1.4		



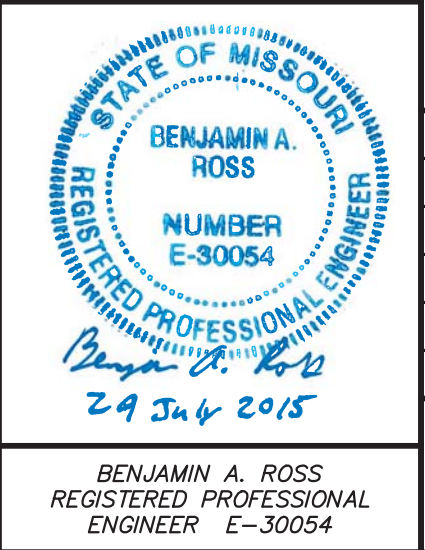
BRICK PAVER DETAIL
NOT TO SCALE



01 9TH AND BROADWAY - NORTHWEST CORNER
SCALE: 1" = 5' - 0"

02 9TH AND BROADWAY - NORTHEAST CORNER
SCALE: 1" = 5' - 0"

NOTE: VERTICAL & HORIZONTAL RAMP DESIGN BY ENGINEERING SURVEYS & SERVICES. PAVEMENT COLORS AND TEXTURE BY LANDWORKS STUDIOS.

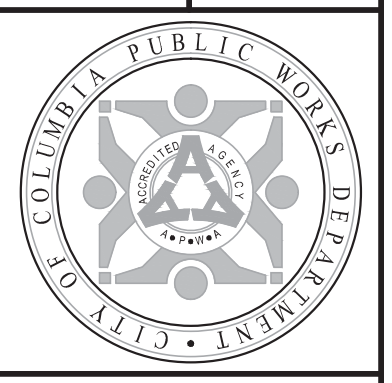


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City of Columbia, Missouri
Department of Public Works

Landworks Studio
103 S. Chestnut, Olathe, Kansas 66001
913-782-0707

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BROADWAY PAVEMENT IMPROVEMENTS
STP-2104(505)
SITE PLAN

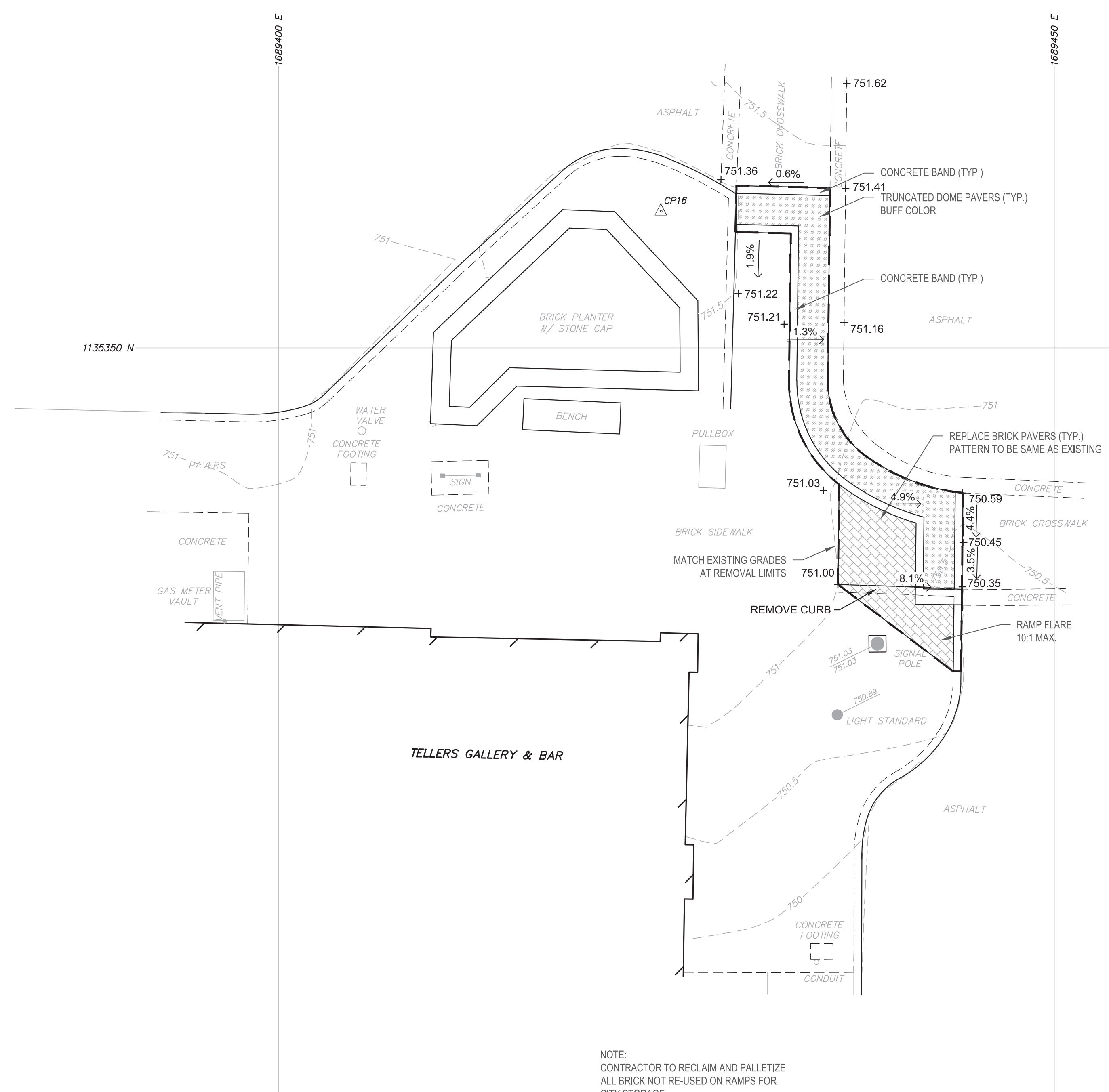
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	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	4.3	4.3	X	
RAMP RUNNING SLOPE (%) NORTH	0.6	1.9		
RAMP RUNNING SLOPE (%) EAST	5.3	8.1		
RAMP CROSS SLOPE (%) NORTH	0.9	1.3		
RAMP CROSS SLOPE (%) EAST	0.5	4.4	X	
RAMP WIDTH (FT) NORTH	6.0	6.0		
RAMP WIDTH (FT) EAST	6.0	6.0		

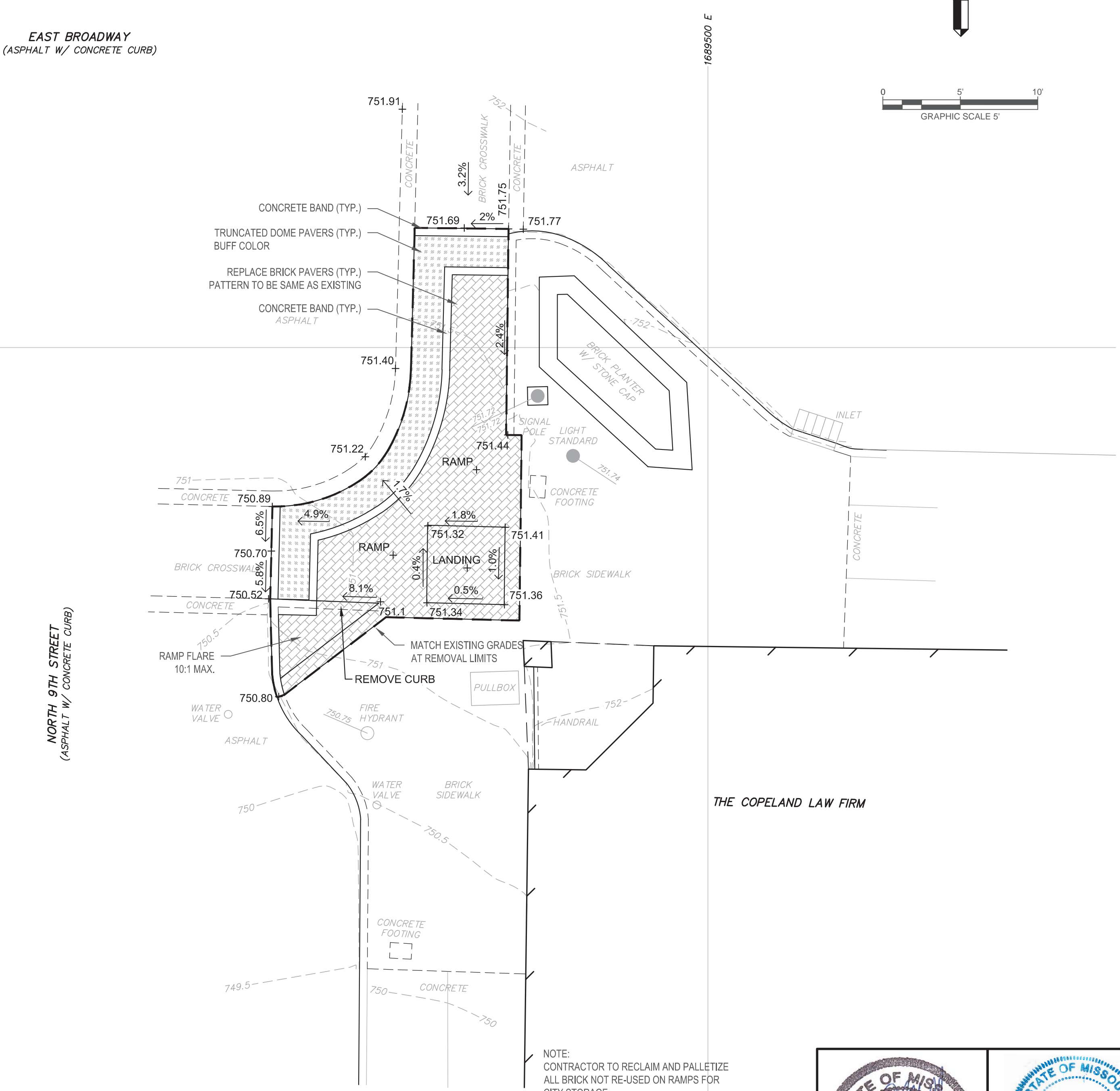
REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.

	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	6.5	6.5	X	
RAMP RUNNING SLOPE (%) NORTH	2.3	2.4		
RAMP RUNNING SLOPE (%) WEST	5.6	8.1		
RAMP CROSS SLOPE (%) NORTH	3.2	2.0		
RAMP CROSS SLOPE (%) WEST	0.8	6.5	X	
RAMP WIDTH (FT) NORTH	6.0	6.0		
RAMP WIDTH (FT) WEST	6.0	6.0		
LANDING CROSS SLOPE (%) NORTH	3.2	1.8		
LANDING CROSS SLOPE (%) WEST	0.8	1.0		



NOTE: CONTRACTOR TO RECLAIM AND PALLETIZE ALL BRICK NOT RE-USED ON RAMPS FOR CITY STORAGE.

01 9TH AND BROADWAY - SOUTHWEST CORNER
SCALE: 1" = 5' - 0"



NOTE: CONTRACTOR TO RECLAIM AND PALLETIZE ALL BRICK NOT RE-USED ON RAMPS FOR CITY STORAGE.

02 9TH AND BROADWAY - SOUTHEAST CORNER
SCALE: 1" = 5' - 0"

NOTE: VERTICAL & HORIZONTAL RAMP DESIGN BY ENGINEERING SURVEYS & SERVICES. PAVEMENT COLORS AND TEXTURE BY LANDWORKS STUDIOS.



CARISA L. MCMULLEN
LANDSCAPE ARCHITECT
LA-1999137914

BENJAMIN A. ROSS
REGISTERED PROFESSIONAL ENGINEER
E-30064

File No.	STP-2104(505)
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BROADWAY PAVEMENT IMPROVEMENTS
STP-2104(505)
SITE PLAN

City of Columbia, Missouri
Department of Public Works

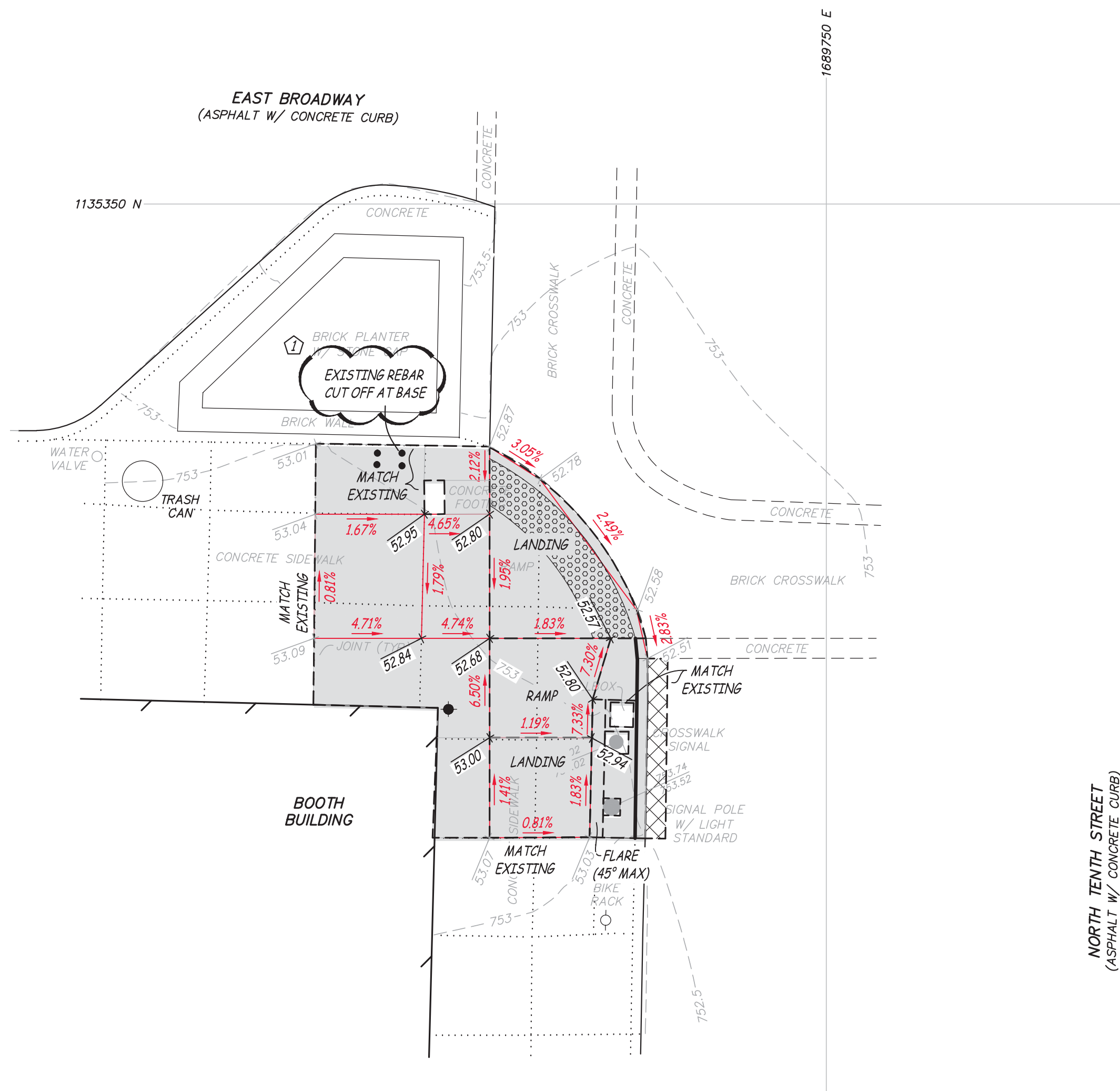
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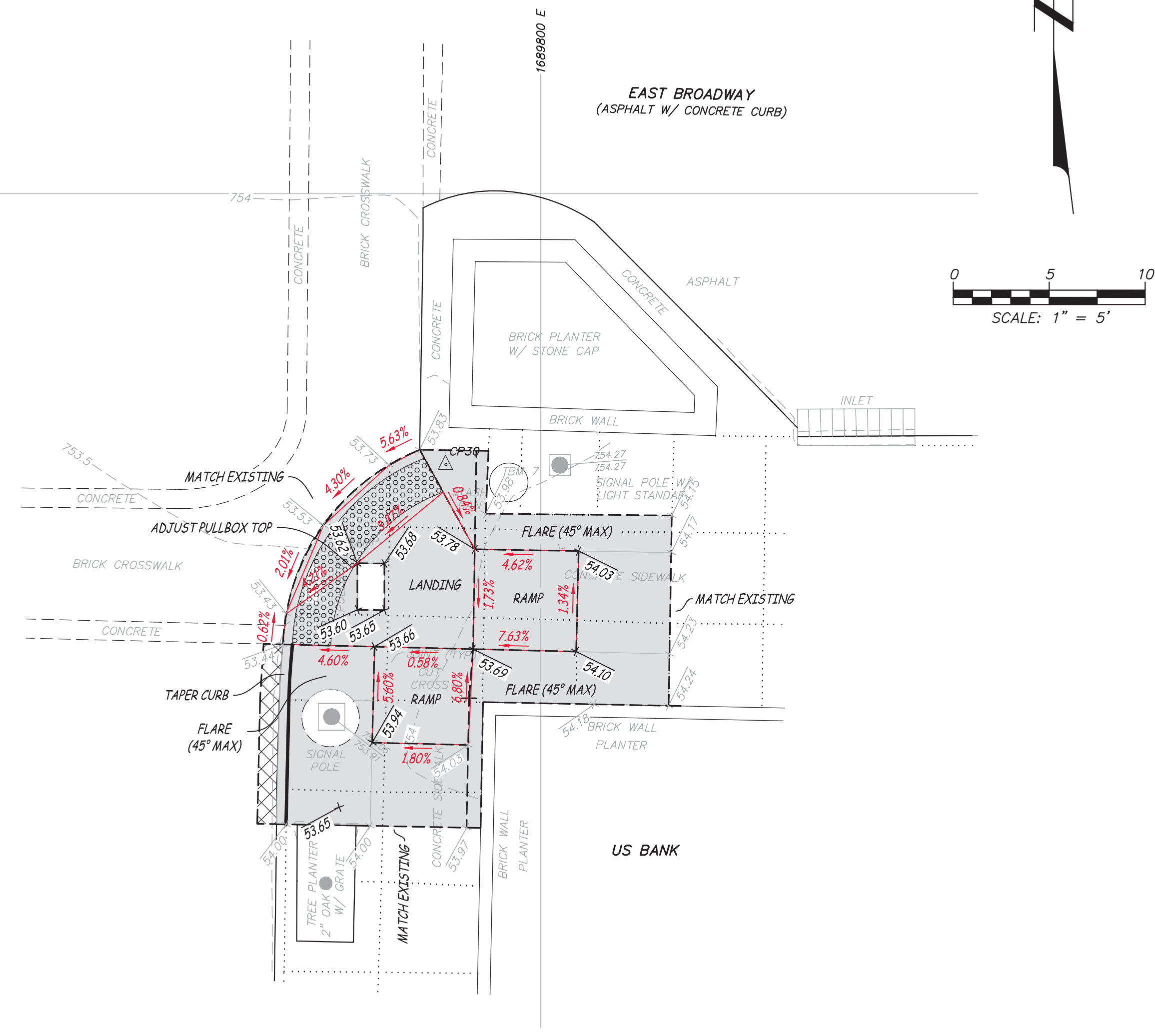
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	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	3.1	3.1		X
RAMP RUNNING SLOPE (%) NORTH	2.3	7.3		
RAMP RUNNING SLOPE (%) EAST	4.2	4.7		
RAMP CROSS SLOPE (%) NORTH	4.2	1.8		
RAMP CROSS SLOPE (%) EAST	2.3	2.0		
RAMP WIDTH (FT) NORTH	7.6	5.0		
RAMP WIDTH (FT) EAST	9.5	6.2		
LANDING CROSS SLOPE (%) NORTH	4.2	1.8		
LANDING CROSS SLOPE (%) EAST	2.3	2.0		

REVISION NOTE: SPOT ELEVATIONS HAVE BEEN REVISED, HENCE PROPOSED SLOPES ON TABLE HAVE BEEN UPDATED.



	EXISTING	PROPOSED	ROADWAY GRADE EXCEPTION	15' RULE
ROADWAY GRADE (%)	3.6	4.3		X
RAMP RUNNING SLOPE (%) NORTH	0.7	6.8		
RAMP RUNNING SLOPE (%) WEST	6.6	7.6		
RAMP CROSS SLOPE (%) NORTH	6.6	1.8		
RAMP CROSS SLOPE (%) WEST	0.7	1.7		
RAMP WIDTH (FT) NORTH	7	5		
RAMP WIDTH (FT) WEST	9	5		
LANDING CROSS SLOPE (%) NORTH	6.6	3.3		X
LANDING CROSS SLOPE (%) WEST	0.7	4.2		X

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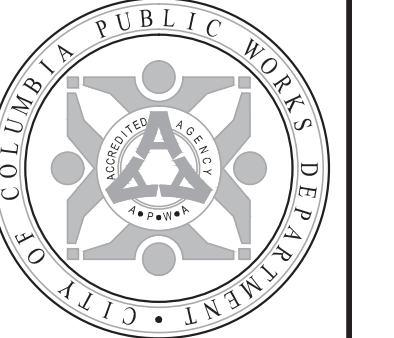
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BROADWAY PAVEMENT IMPROVEMENTS STP-2104(505) SITE PLAN

City of Columbia, Missouri
 Department of Public Works

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5/29/2015

STATE OF MISSOURI
 BENJAMIN A. ROSS
 REGISTERED PROFESSIONAL ENGINEER
 NUMBER E-30054

BENJAMIN A. ROSS
 REGISTERED PROFESSIONAL ENGINEER E-30054

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