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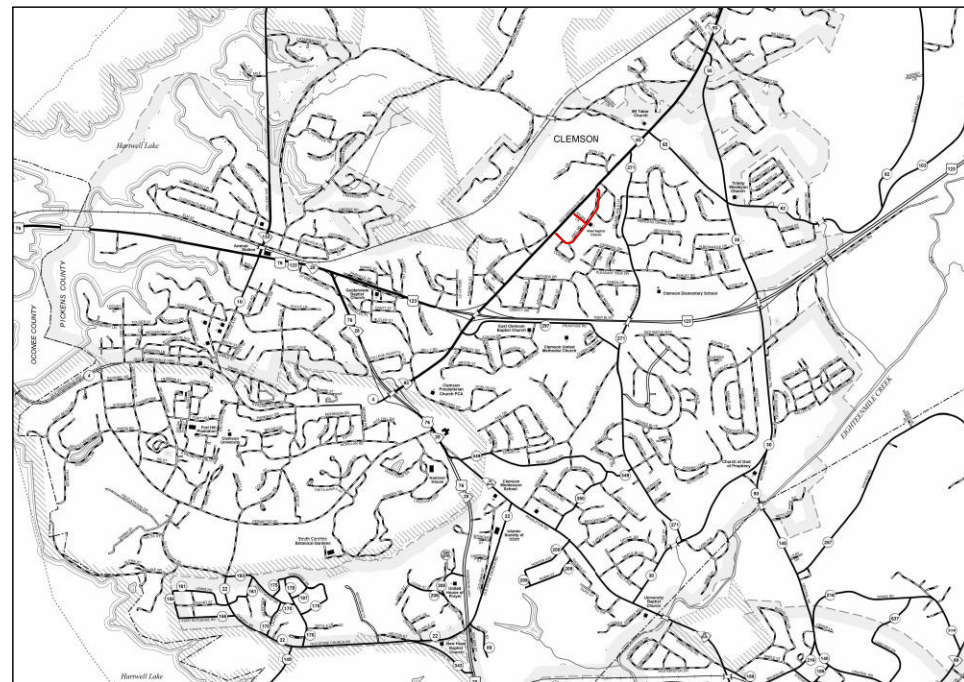
PLAN PREPARER CERTIFICATION

"I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000."

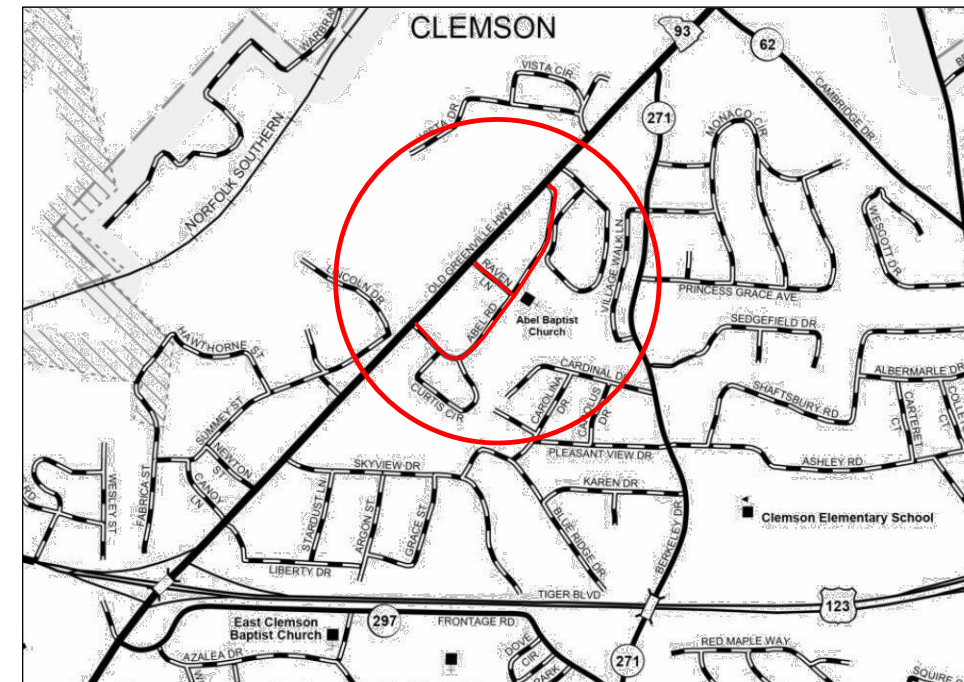


NAME: Nathan Hinkle
 TITLE: City Engineer
 DATE: 12.26.2024

ABEL Neighborhood Sidewalk Project



**CITY OF CLEMSON MAP
NTS**



**PROJECT LOCATION
NTS**

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA

CALL 811

SOUTH CAROLINA 811 (SC811)
 WWW.SC811.COM
 ALL UTILITIES MAY NOT BE A MEMBER OF SC811

PROJECT DESCRIPTION:

THIS PROJECT CONSISTS OF X, Y, Z.

THIS PROJECT INCLUDES REMOVAL OF A SELECT NUMBER OF TREES, MINOR GRADING, AND MINOR UTILITY RELOCATION/ADJUSTMENTS.

PROJECT INFORMATION:

ADDRESS:: ABEL RD. & RAVEN LN.

SITE AREA: N/A
 DISTURBED AREA: N/A

CUT/FILL CALCULATIONS: N/A

OWNER/DEVELOPER:

CITY OF CLEMSON ENGINEERING DEPT
 1250 TIGER BLVD. SUITE 5
 CLEMSON SC, 29631
 (864) 624 - 1127

INTERNAL FUNDING INFORMATION

FISCAL YEAR: 2023

GENERAL FUND ACCOUNT: N/A

PROJECT NUMBER: N/A

DESIGNED FOR: City of Clemson

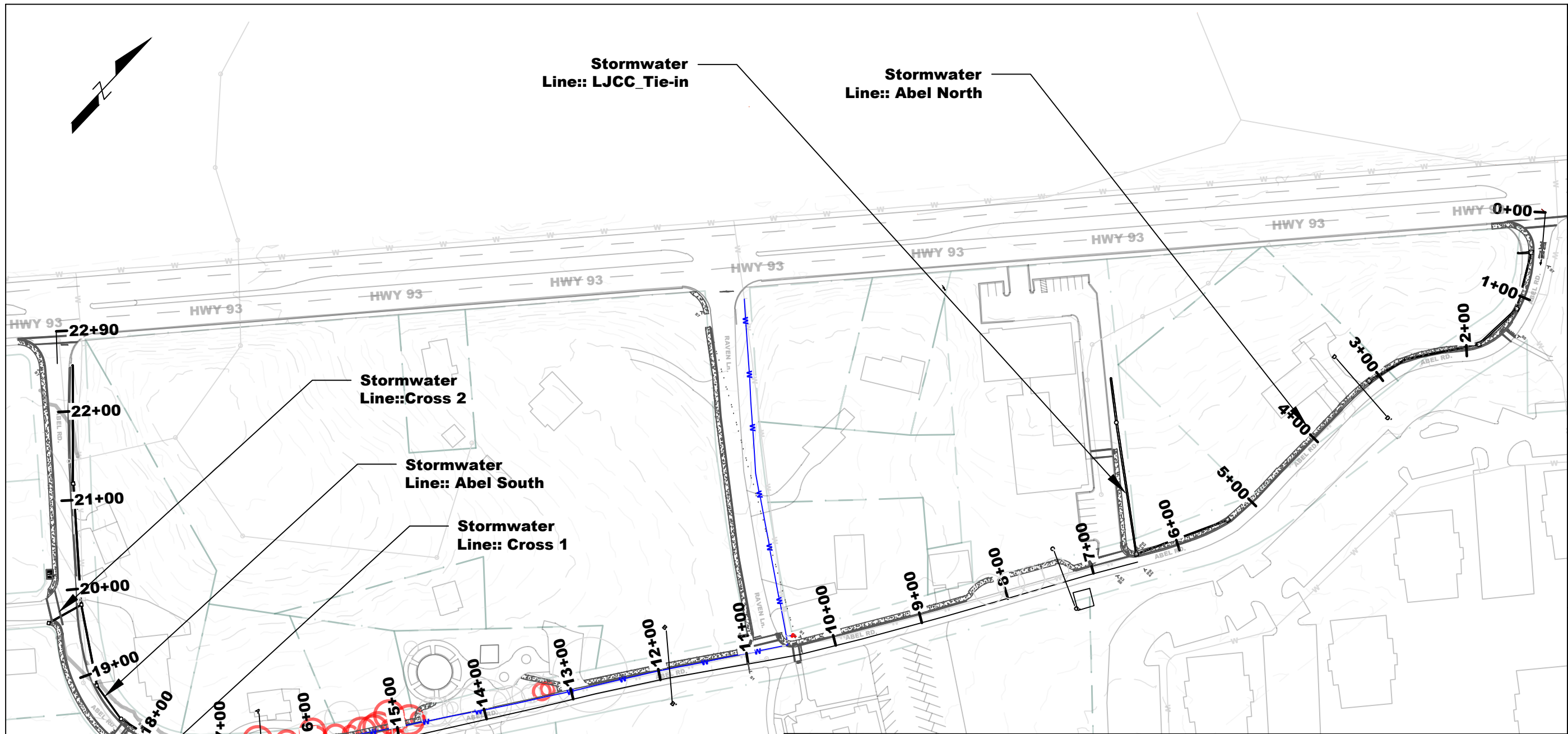


Abel Neighborhood Sidewalk Project

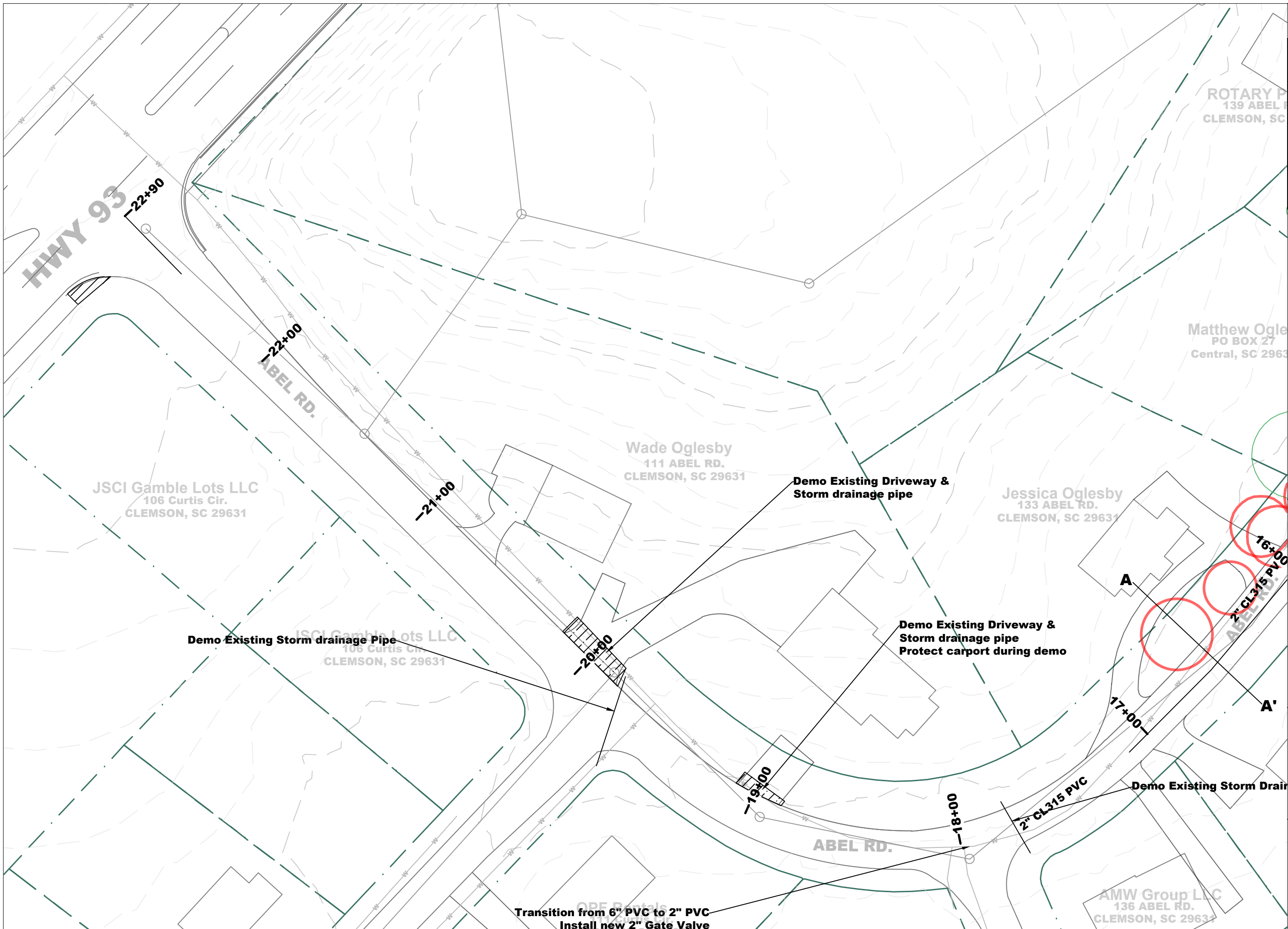
Overview



VERSION: 2.1	DESIGNED BY: NWH	DRAWN BY: NWH
DATE	N.T.S.	
PLOT DATE: 12/26/2020		



	Road Edge		Tree Protect
	Sewer Line		Tree Remove
	New Meter		Curb & Gutter
	New Service Line		Alignment
	Water Line		Stormwater Junction Box
	Sidewalk		Stormwater Catch Basin
	Demo Area		Stormwater Pipe
	Existing Grade		New Sign
	Building Foot Print		Hydrant (new)
	Driveway		Gate Valve
	Pavement Marking		Sheet Match Line



EX #1



ROTARY P
139 ABEL RD
CLEMSON, SC

Matthew Oglesby
PO BOX 27
Central, SC 29631

Wade Oglesby
111 ABEL RD.
CLEMSON, SC 29631

Jessica Oglesby
133 ABEL RD.
CLEMSON, SC 29631

JSCI Gamble Lots LLC
106 Curtis Cir.
CLEMSON, SC 29631

JSCI Gamble Lots LLC
106 Curtis Cir.
CLEMSON, SC 29631



VERSION: 2.1

DESIGNED BY: NWH

7/17/2024

1" = 3.333'

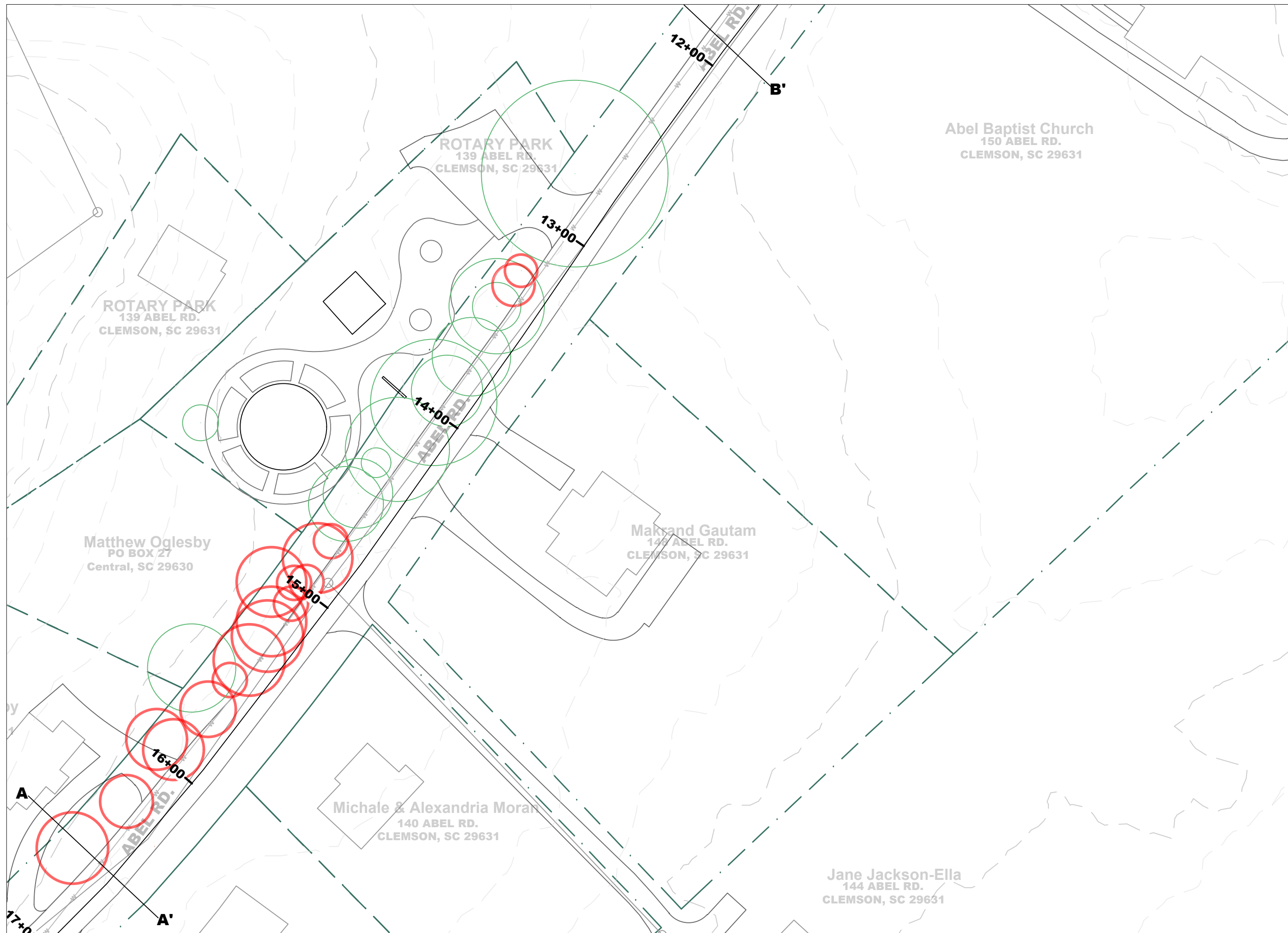
PLOT DATE: 12/26/2024 DRAWN BY: NWH

Abel Neighborhood Sidewalk Project

Existing & Demo

Transition from 6" PVC to 2" PVC
Install new 2" Gate Valve

AMW Group LLC
136 ABEL RD.
CLEMSON, SC 29631



EX #2

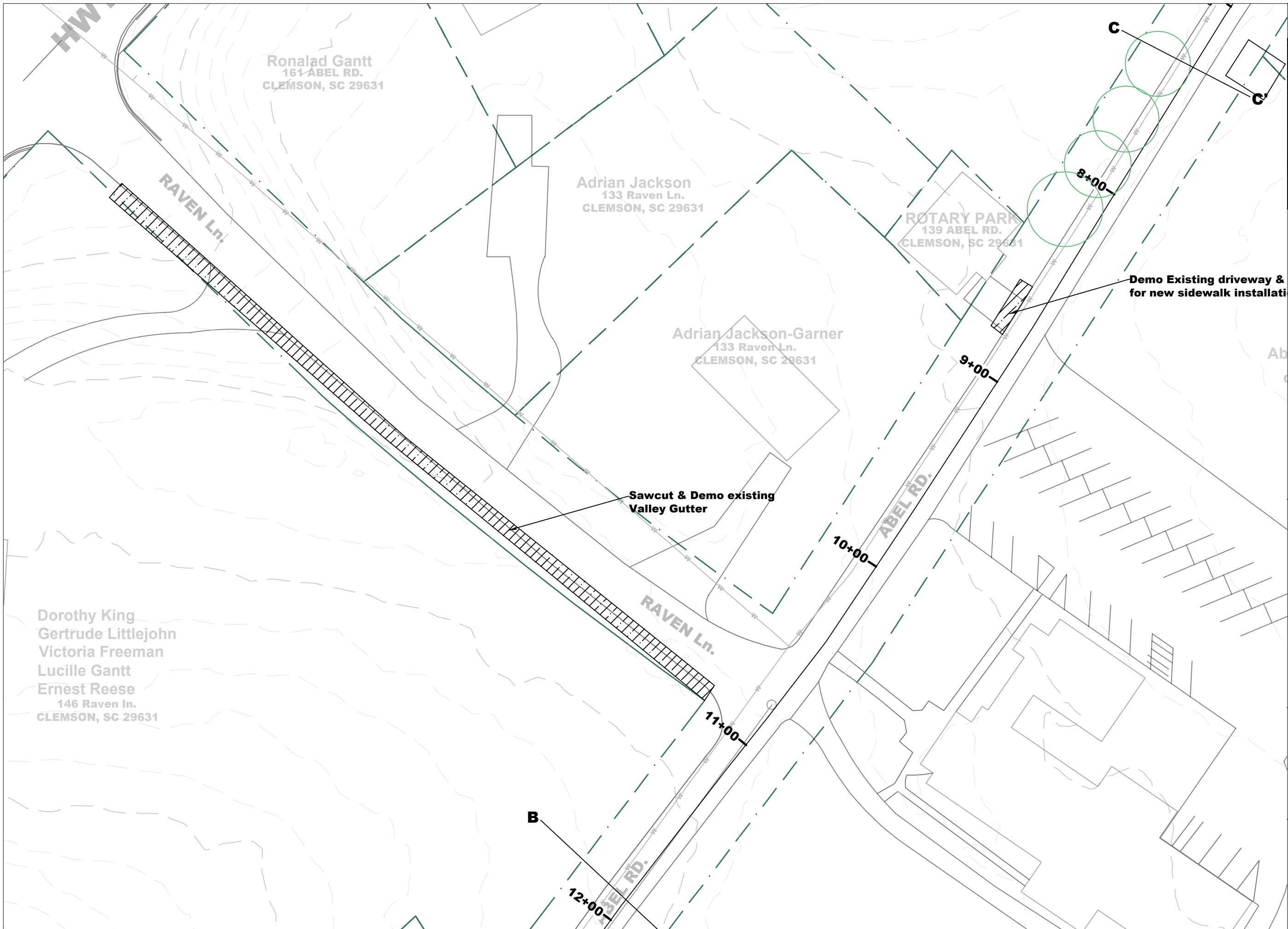


Abel Neighborhood Sidewalk Project

Existing & Demo



7/17/2024	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH



EX #3



Abel Neighborhood Sidewalk Project

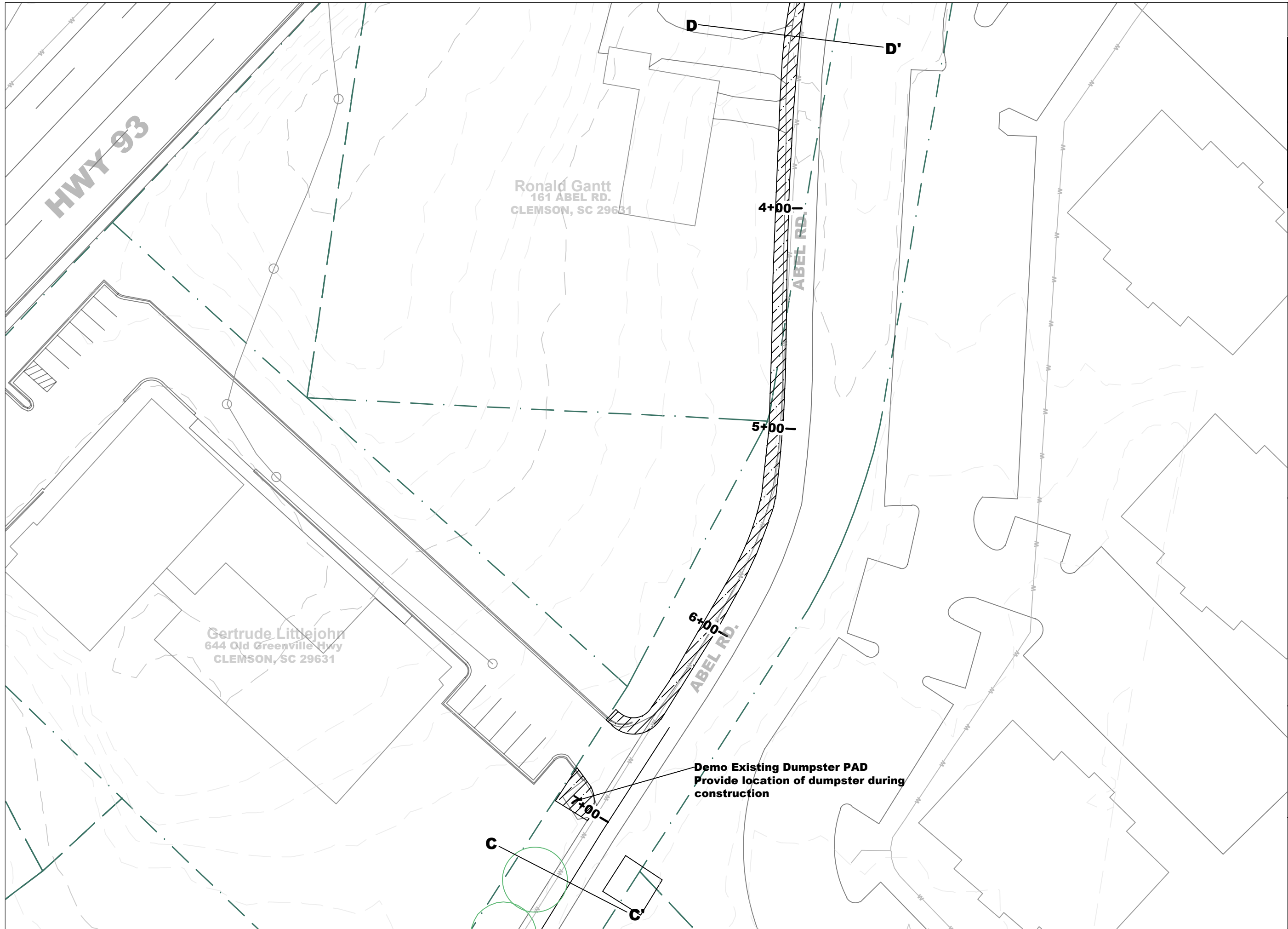
Existing & Demo



VERSION: 2.1
 DESIGNED BY: NWH

7/17/2024
 1" = 3.333'
 PLOT DATE: 12/26/2024

DRAWN BY: NWH



EX #4



Abel Neighborhood Sidewalk Project

Existing & Demo



VERSION: 2.1

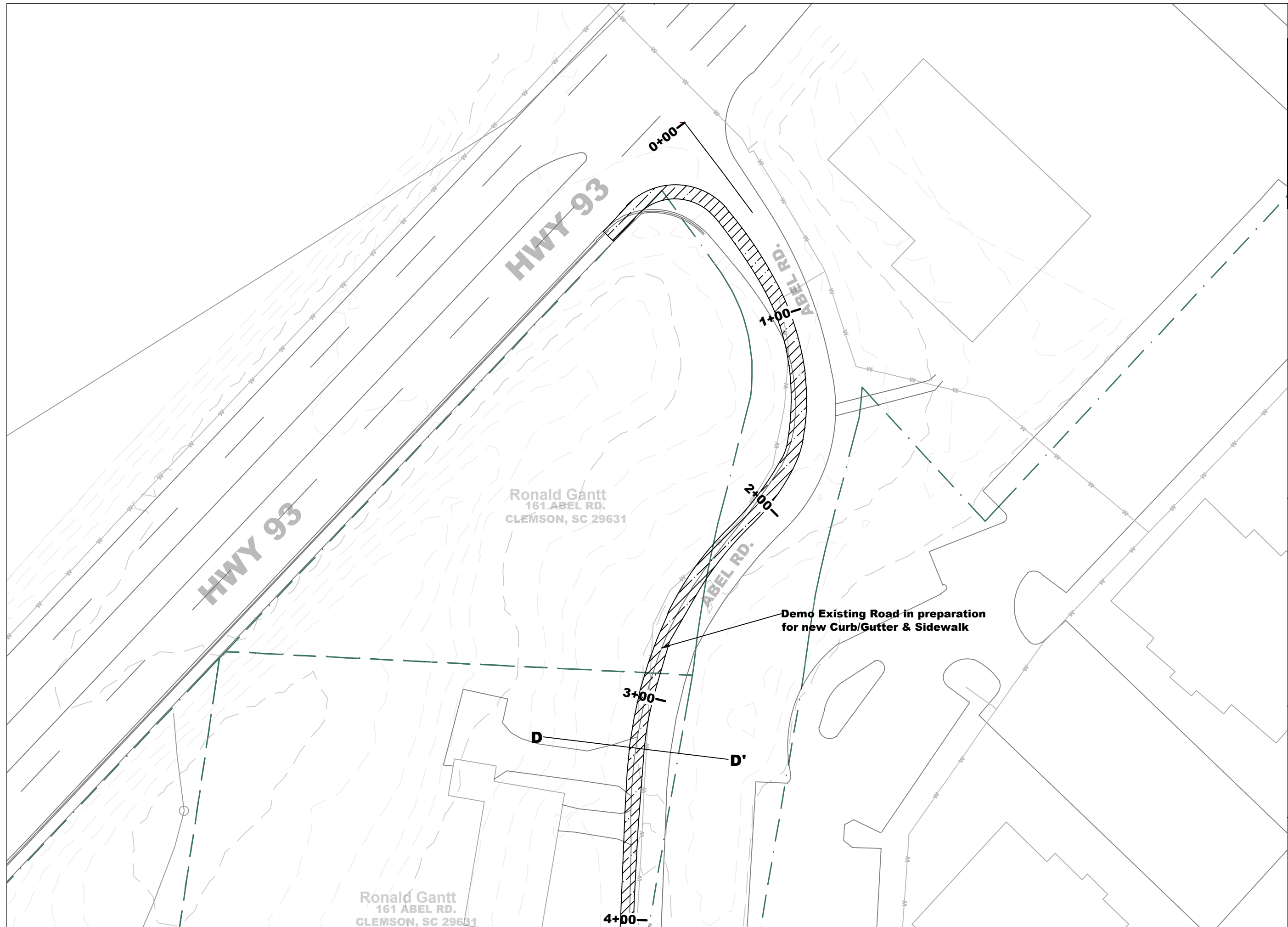
DESIGNED BY: NWH

DRAWN BY: NWH

7/17/2024

1" = 3.333'

PLOT DATE: 12/26/2024



EX #5



Abel Neighborhood Sidewalk Project

Existing & Demo

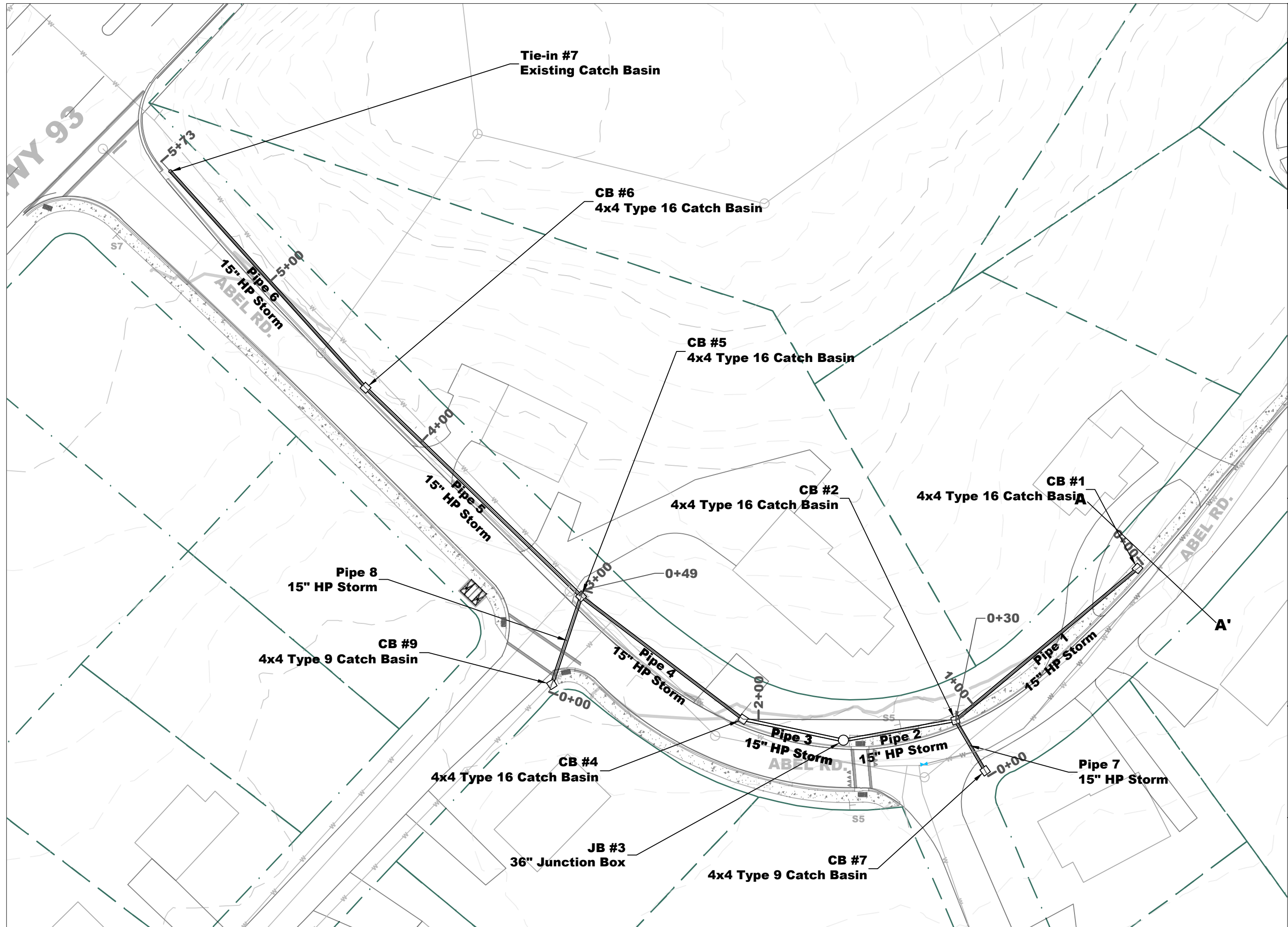


7/17/2024	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH

Ronald Gantt
161 ABEL RD.
CLEMSON, SC 29631

Ronald Gantt
161 ABEL RD.
CLEMSON, SC 29631

Demo Existing Road in preparation
for new Curb/Gutter & Sidewalk



SW #1

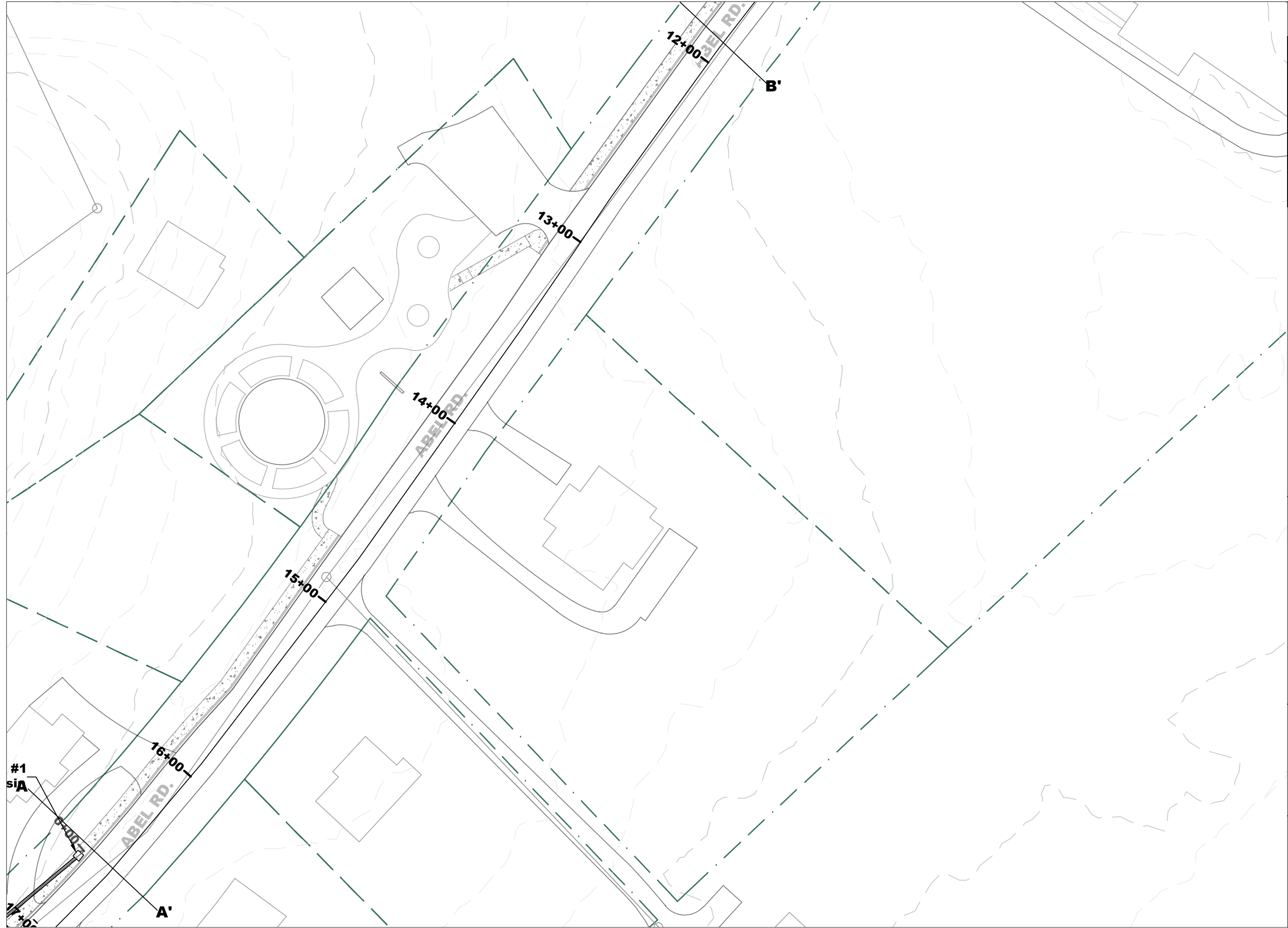


Abel Neighborhood Sidewalk Project

Stormwater



VERSION: 2.1	DESIGNED BY: NWH	DATE
	DRAWN BY: NWH	1" = 3.333'
		PLOT DATE: 12/26/2020



SW #2



Abel Neighborhood Sidewalk Project

Stormwater



7/17/2024	VERSION: 2.1
1" = 3.3333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH



SW #3

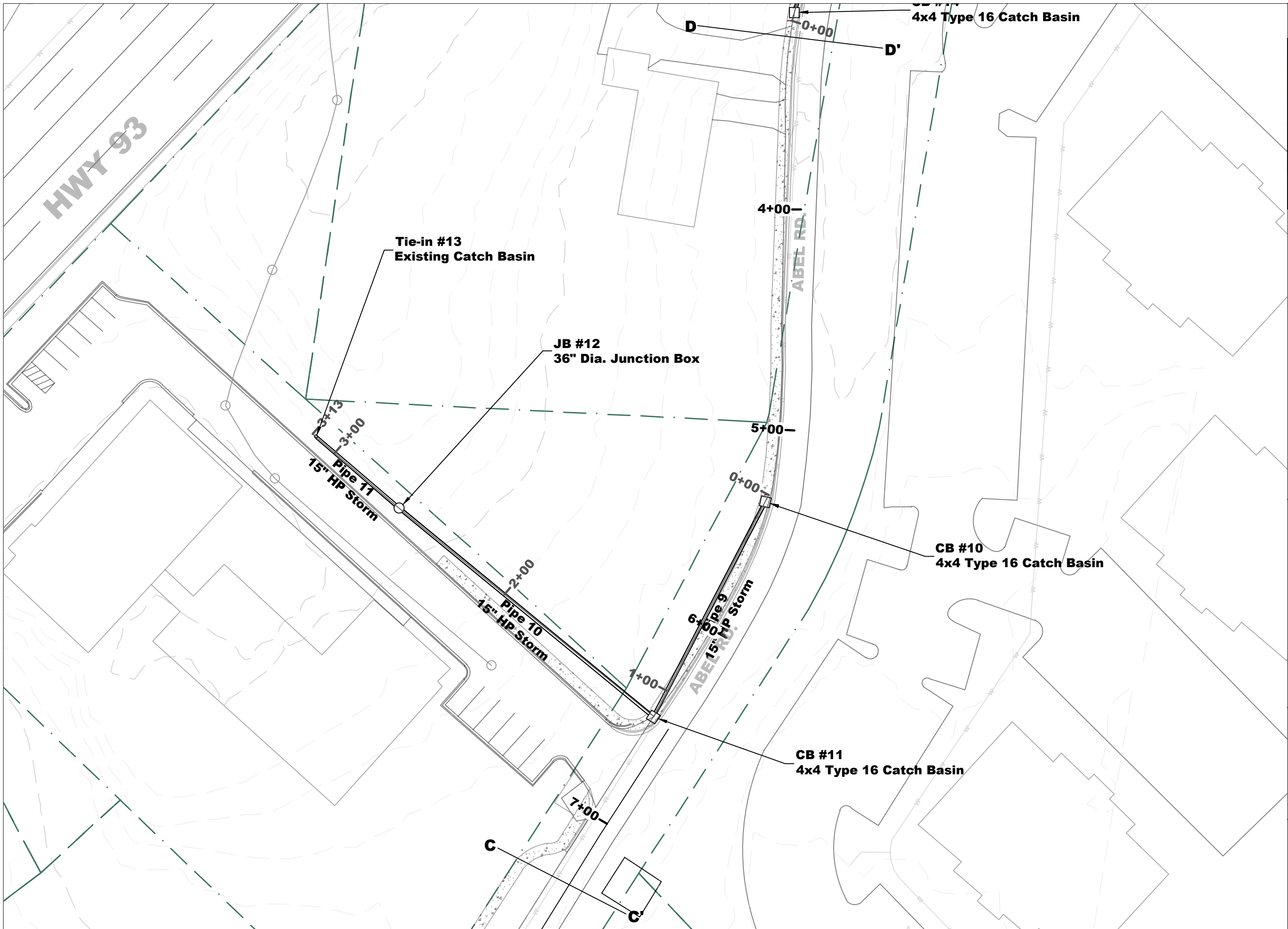


Abel Neighborhood Sidewalk Project

Stormwater



7/17/2024	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2020	DRAWN BY: NWH



SW #4

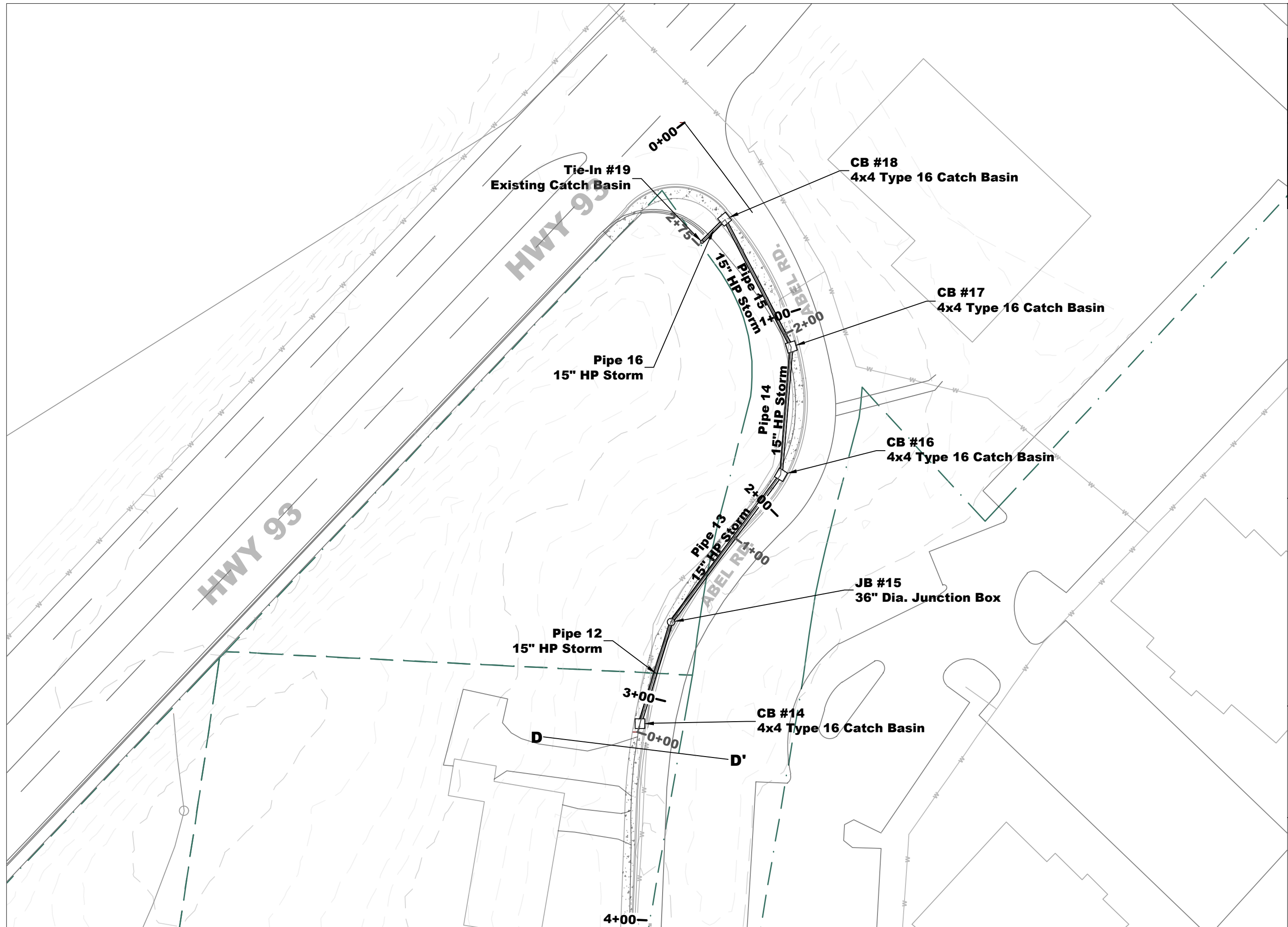


Abel Neighborhood Sidewalk Project

Stormwater



7/17/2024	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2020	DRAWN BY: NWH



SW #5



Abel Neighborhood Sidewalk Project

Stormwater



7/17/2024	VERSION: 2.1
1" = 3.3333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH



Abel Neighborhood Sidewalk Project

Stormwater



Abel - South Pipe Table			
Pipe Name	Diameter (in)	Length (FT)	Slope
Pipe 1	15" HP Storm	108	1.14%
Pipe 2	15" HP Storm	51	0.60%
Pipe 3	15" HP Storm	47	1.84%
Pipe 4	15" HP Storm	92	2.50%
Pipe 5	15" HP Storm	136	2.94%
Pipe 6	15" HP Storm	132	3.10%
Pipe 7	15" HP Storm	27	2.00%
Pipe 8	15" HP Storm	42	3.38%

Abel - LJCC Tie-in Pipe Table			
Pipe Name	Diameter (in)	Length (FT)	Slope
Pipe 9	15" HP Storm	110	0.75%
Pipe 10	15" HP Storm	149	6.60%
Pipe 11	15" HP Storm	50	1.58%

Abel - North Pipe Table			
Pipe Name	Diameter (in)	Length (FT)	Slope
Pipe 12	15" HP Storm	48	1.25%
Pipe 13	15" HP Storm	83	3.44%
Pipe 14	15" HP Storm	58	2.27%
Pipe 15	15" HP Storm	65	1.00%
Pipe 16	15" HP Storm	15	2.08%

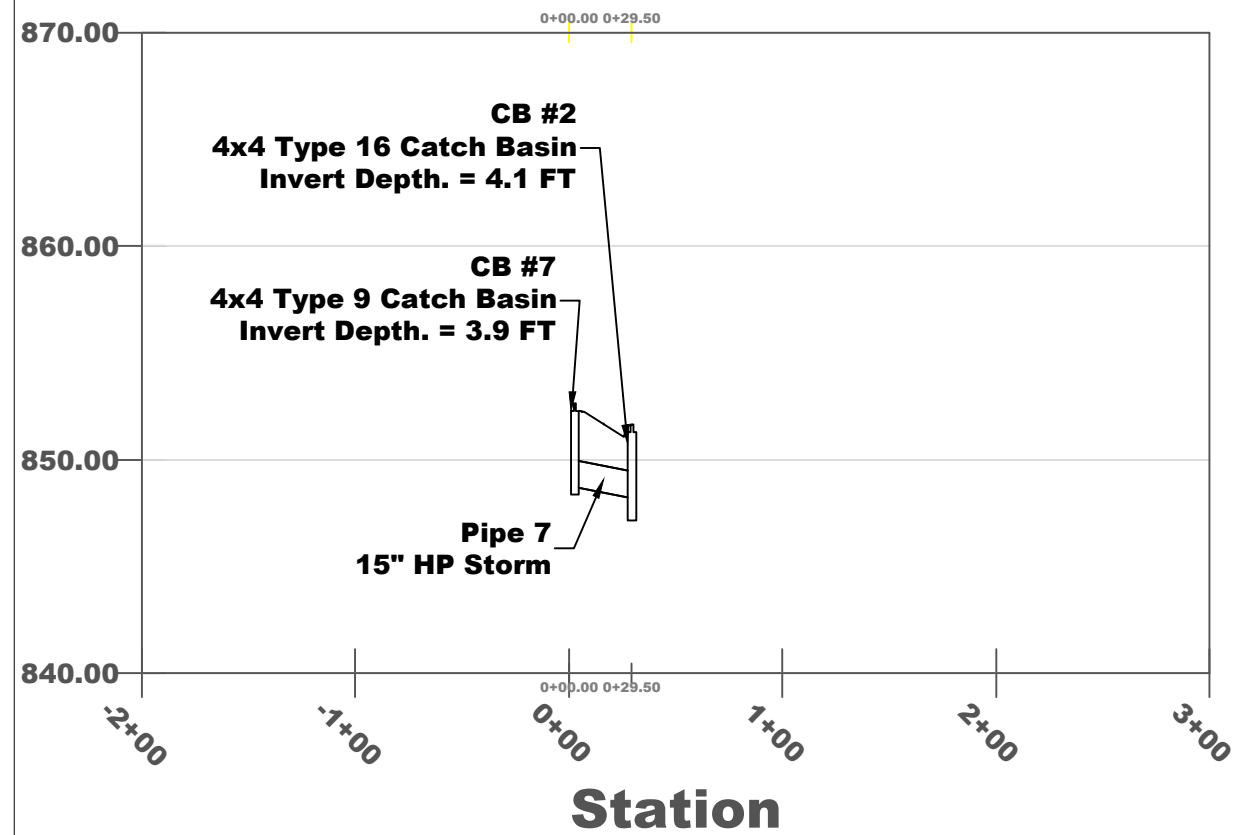
Abel - South Structure Table		
Structure Name	Structure Details	Description
CB #1	RIM = 852.1 Pipe 1 INV OUT = 848.7	4x4 Type 16 Catch Basin
CB #2	RIM = 851.6 Pipe 1 INV IN = 847.5 Pipe 7 INV IN = 848.2 Pipe 2 INV OUT = 847.5	4x4 Type 16 Catch Basin
CB #4	RIM = 851.0 Pipe 3 INV IN = 846.3 Pipe 4 INV OUT = 846.3	4x4 Type 16 Catch Basin
CB #5	RIM = 847.2 Pipe 4 INV IN = 844.0 Pipe 8 INV IN = 843.7 Pipe 5 INV OUT = 844.0	4x4 Type 16 Catch Basin
CB #6	RIM = 843.0 Pipe 5 INV IN = 840.0 Pipe 6 INV OUT = 840.0	4x4 Type 16 Catch Basin
CB #7	RIM = 852.6 Pipe 7 INV OUT = 848.7	4x4 Type 9 Catch Basin
CB #9	RIM = 849.4 Pipe 8 INV OUT = 845.1	4x4 Type 9 Catch Basin
JB #3	RIM = 851.8 Pipe 2 INV IN = 847.2 Pipe 3 INV OUT = 847.2	36" Junction Box
Tie-in #7	RIM = 837.3 Pipe 6 INV IN = 835.9	Existing Catch Basin

Abel - LJCC Tie-in Structure Table		
Structure Name	Structure Details	Description
CB #10	RIM = 858.0 Pipe 9 INV OUT = 854.7	4x4 Type 16 Catch Basin
CB #11	RIM = 858.0 Pipe 9 INV IN = 853.8 Pipe 10 INV OUT = 853.8	4x4 Type 16 Catch Basin
JB #12	RIM = 847.1 Pipe 10 INV IN = 844.0 Pipe 11 INV OUT = 844.0	36" Dia. Junction Box
Tie-in #13	RIM = 844.7 Pipe 11 INV IN = 843.2	Existing Catch Basin

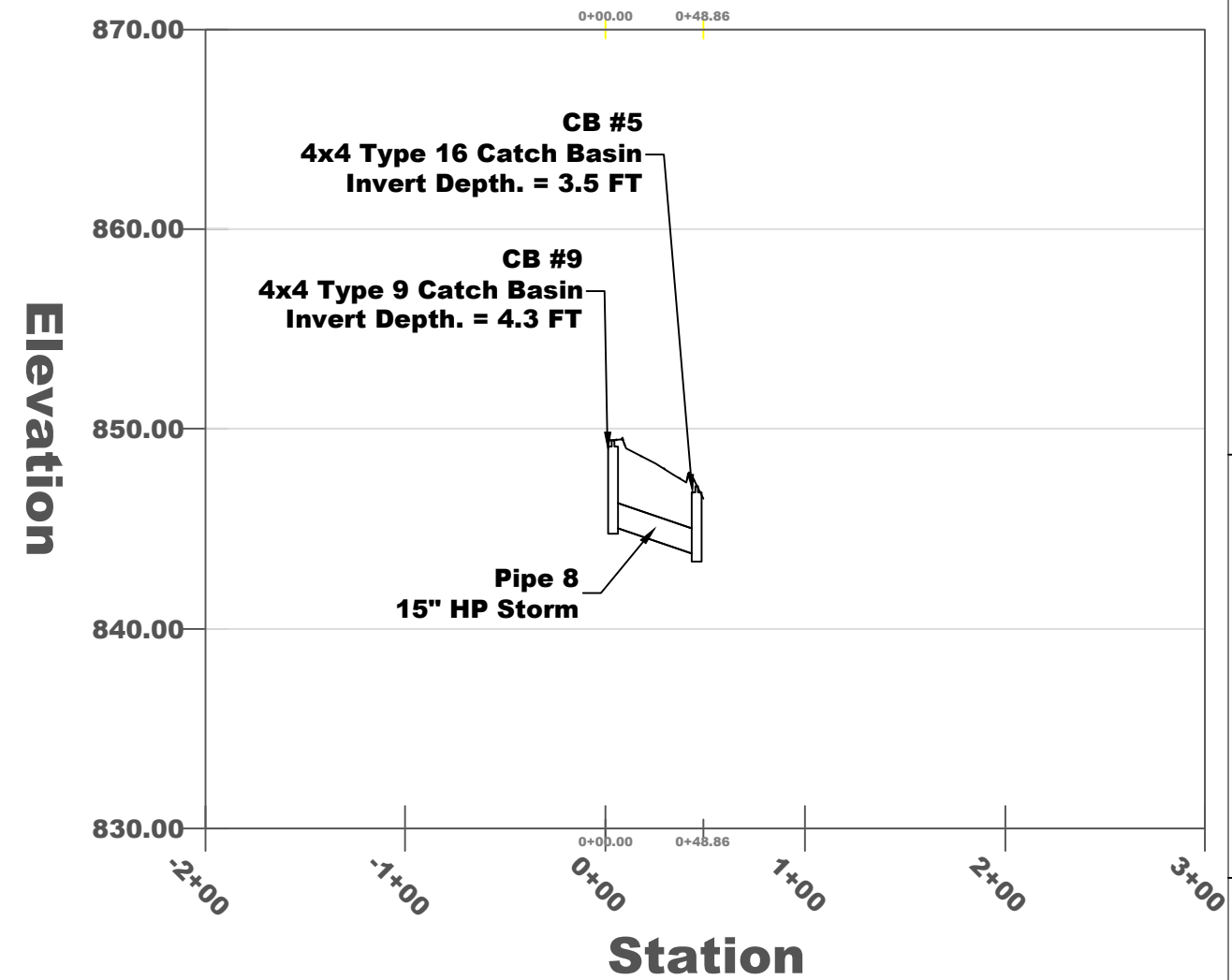
Abel - North Structure Table		
Structure Name	Structure Details	Description
CB #14	RIM = 860.7 Pipe 12 INV OUT = 857.7	4x4 Type 16 Catch Basin
CB #16	RIM = 858.2 Pipe 13 INV IN = 854.2 Pipe 14 INV OUT = 854.2	4x4 Type 16 Catch Basin
CB #17	RIM = 855.9 Pipe 14 INV IN = 852.9 Pipe 15 INV OUT = 852.8	4x4 Type 16 Catch Basin
CB #18	RIM = 855.2 Pipe 15 INV IN = 852.2 Pipe 16 INV OUT = 852.2	4x4 Type 16 Catch Basin
JB #15	RIM = 860.5 Pipe 12 INV IN = 857.1 Pipe 13 INV OUT = 857.1	36" Dia. Junction Box
Tie-In #19	RIM = 853.3 Pipe 16 INV IN = 851.8	Existing Catch Basin

7/17/2024	VERSION: 2.1
1" = .0833'	DESIGNED BY: NWH
PLOT DATE: 12/26/2020	DRAWN BY: NWH

Profile View of Rotary - Abel South (cross 1)



Profile View of Rotary - Abel South (cross 2)



SW #7



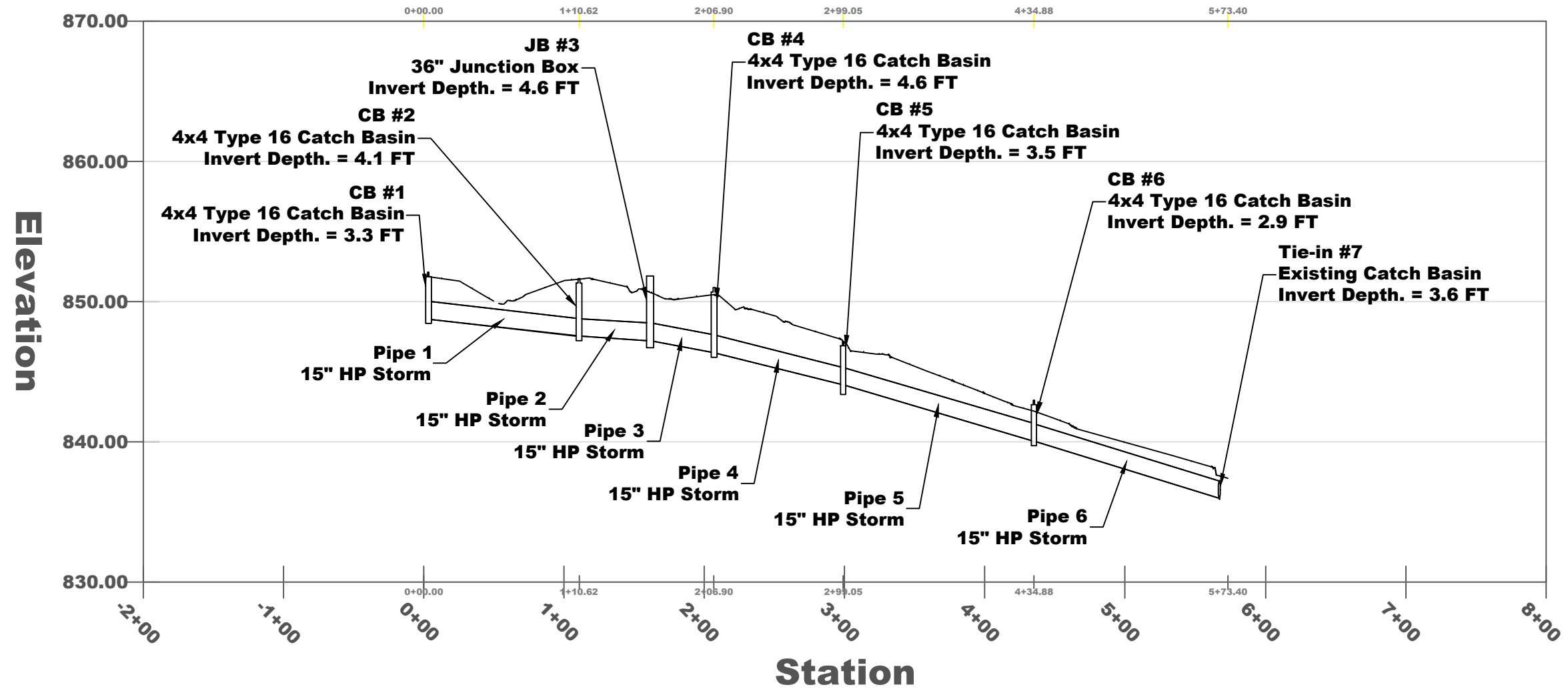
Abel Neighborhood Sidewalk Project

Stormwater



7/17/2024	VERSION: 2.1
1" = 7.4969'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH

Profile View of Rotary - Abel South



SW #8



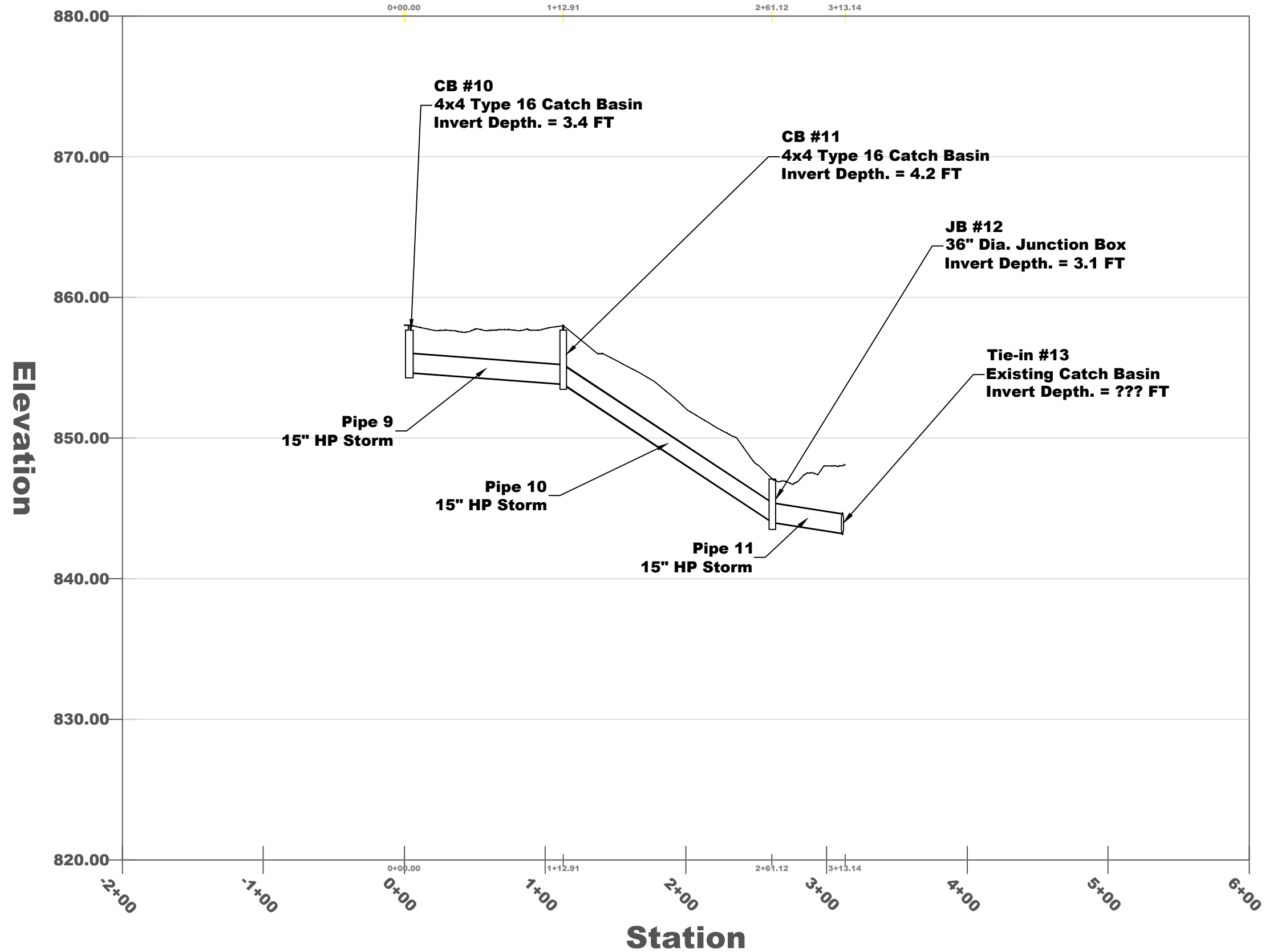
Abel Neighborhood Sidewalk Project

Stormwater



7/17/2024	VERSION: 2.1
1" = 7.6117'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH

Profile View of LJCC _ Tie-in



SW #9



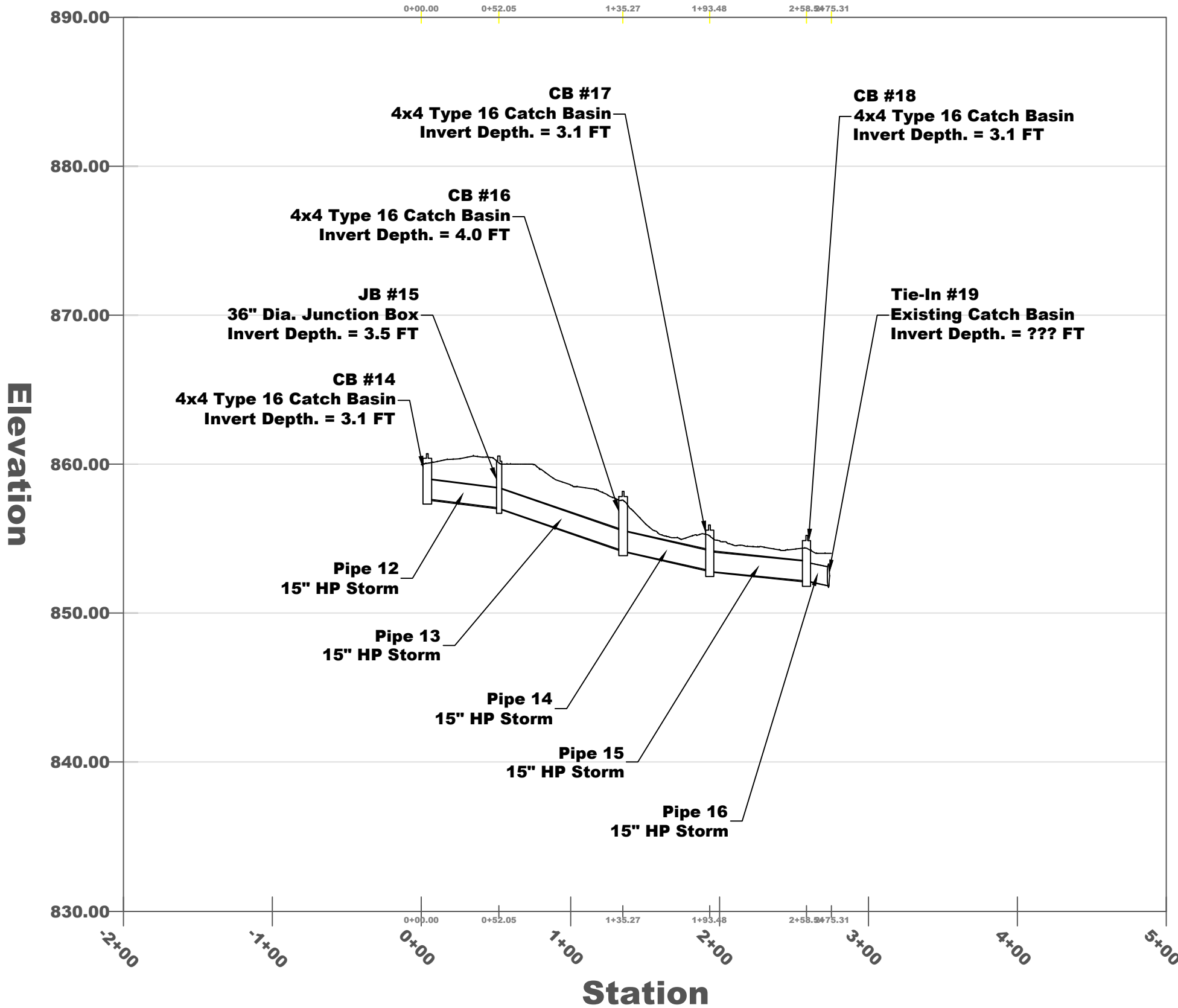
Abel Neighborhood Sidewalk Project

Stormwater



7/17/2024	VERSION: 2.1
1" = 6.4833'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH

Profile View of Abel _ North



SW #10

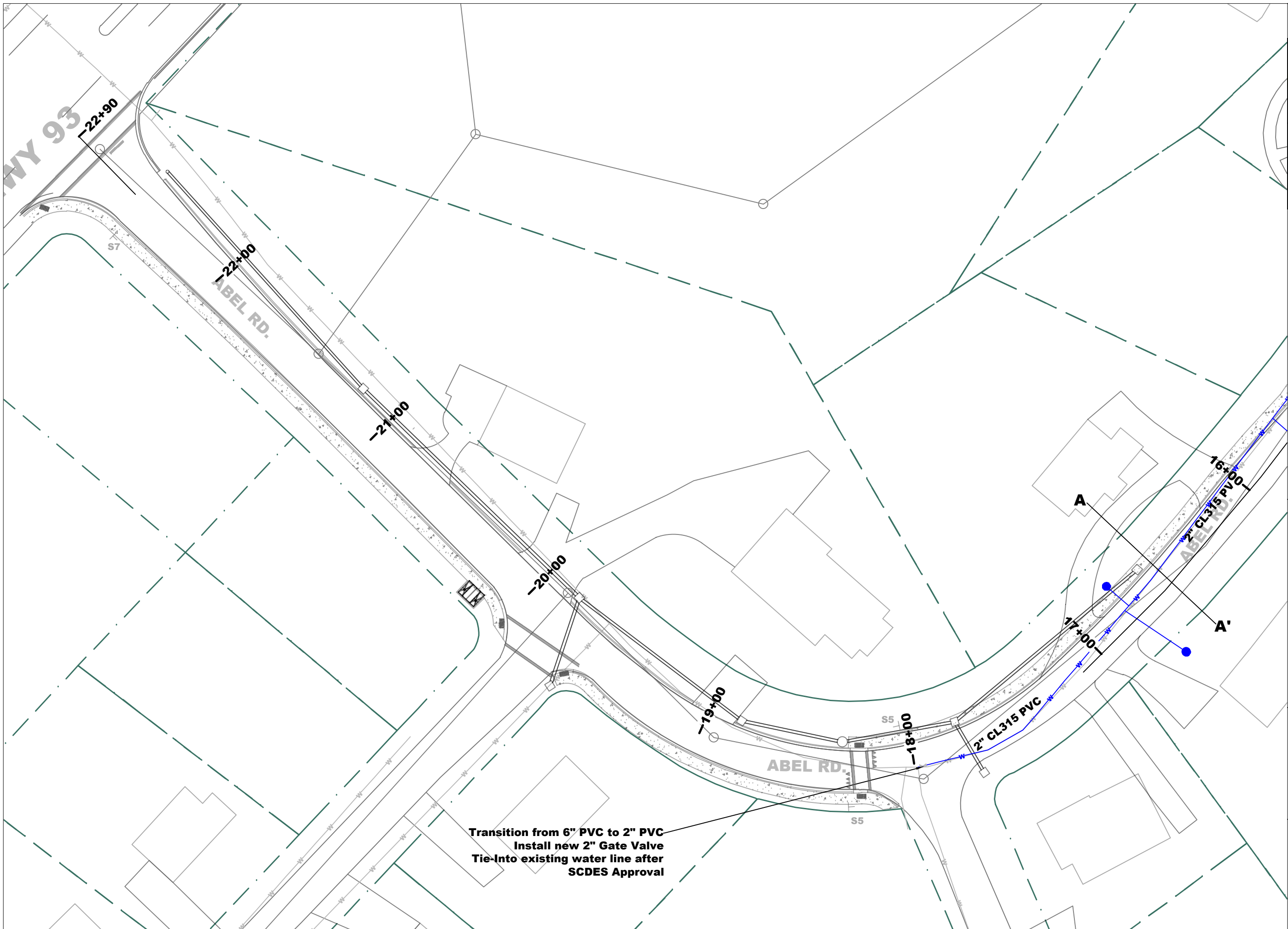


Abel Neighborhood Sidewalk Project

Stormwater



7/17/2024	VERSION: 2.1
1" = 6.4833'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH



Transition from 6" PVC to 2" PVC
 Install new 2" Gate Valve
 Tie-Into existing water line after
 SCDES Approval

W #1

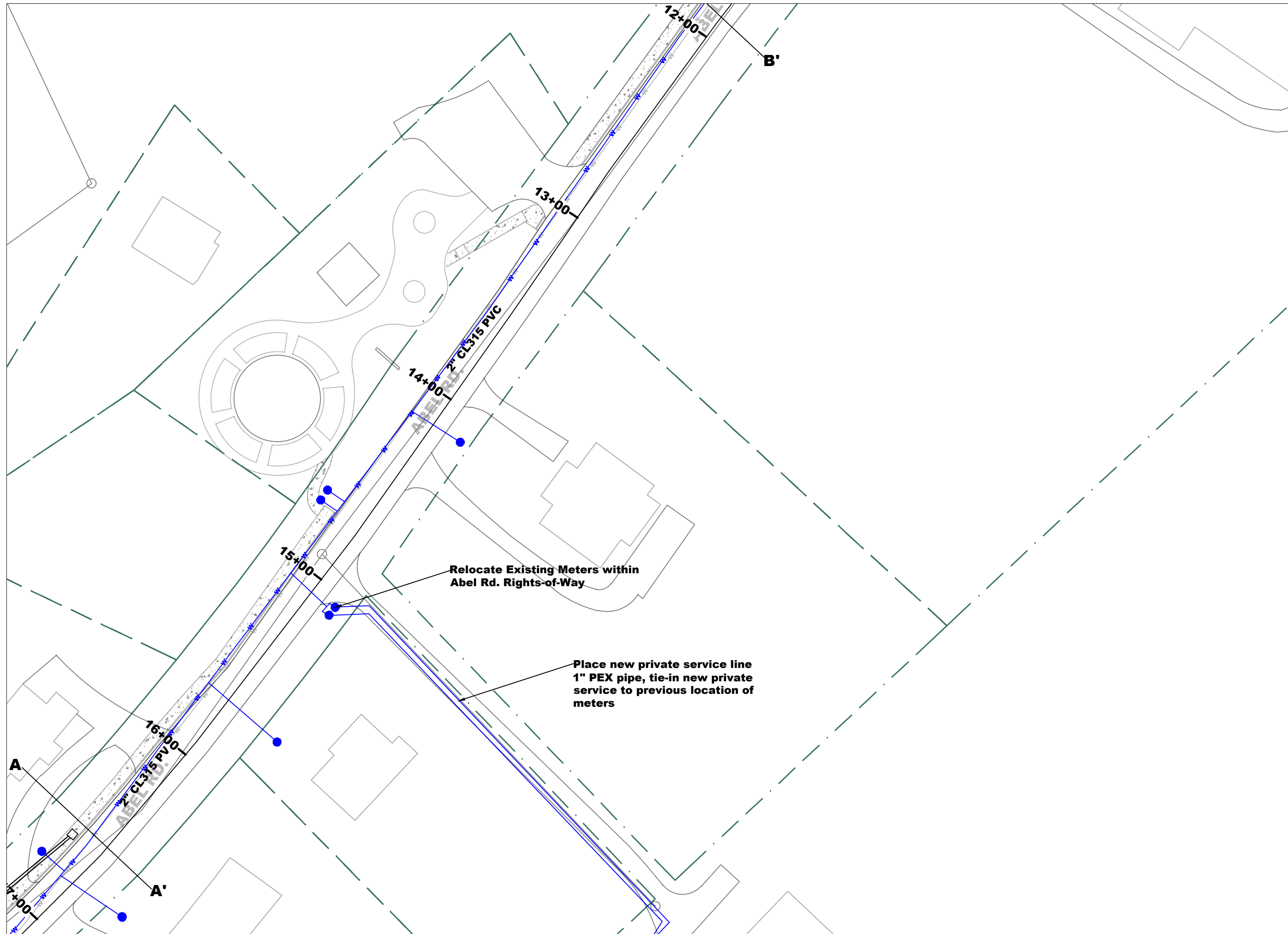


Abel Neighborhood Sidewalk Project

Drinking Water



DATE	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH



Relocate Existing Meters within Abel Rd. Rights-of-Way

Place new private service line 1" PEX pipe, tie-in new private service to previous location of meters

W #2

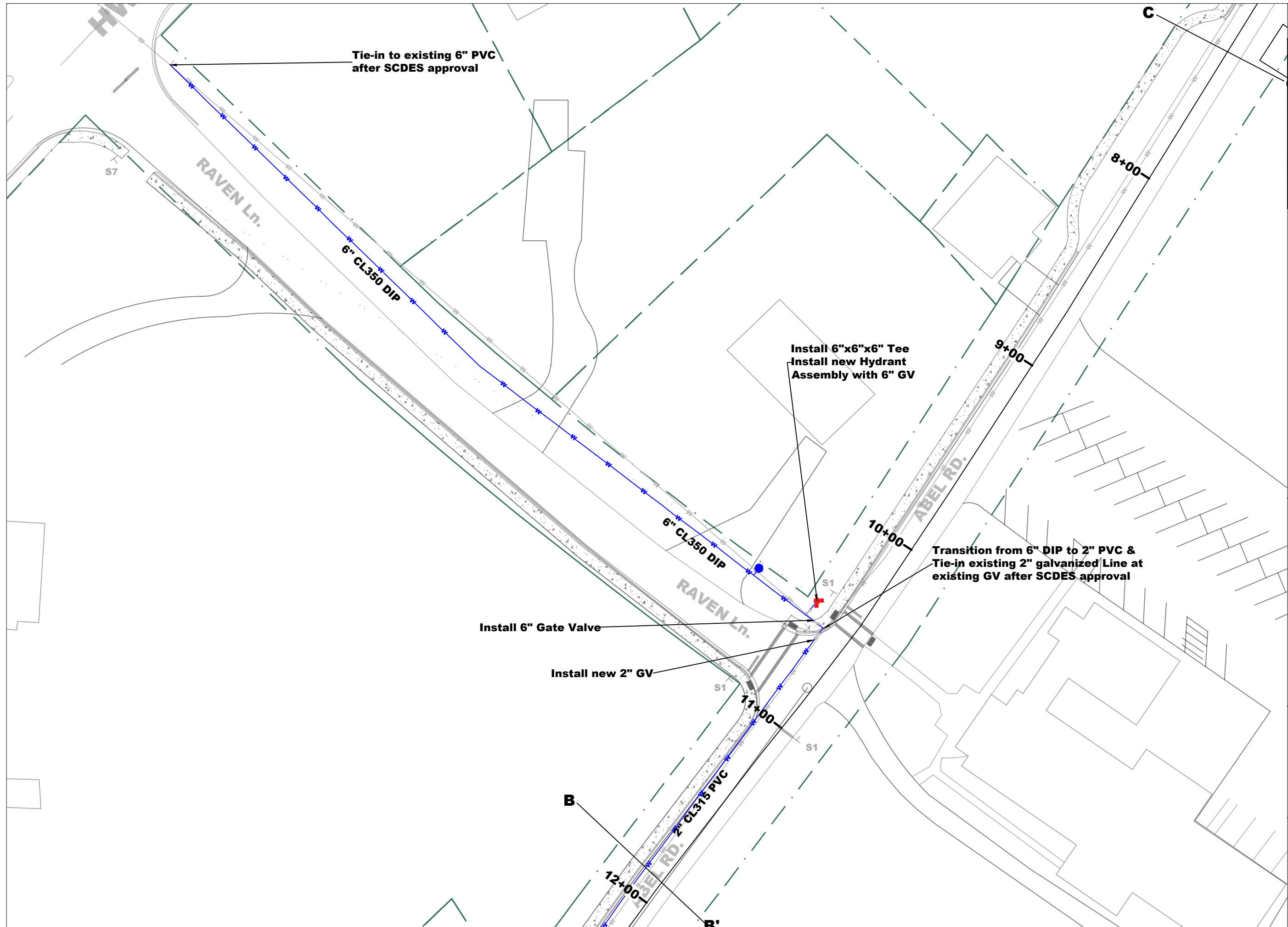


Abel Neighborhood Sidewalk Project

Drinking Water



DATE	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2022	DRAWN BY: NWH



Tie-in to existing 6" PVC after SCDES approval

Install 6"x6"x6" Tee
Install new Hydrant
Assembly with 6" GV

Transition from 6" DIP to 2" PVC &
Tie-in existing 2" galvanized Line at
existing GV after SCDES approval

Install 6" Gate Valve

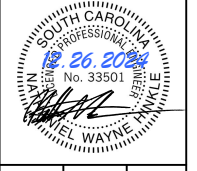
Install new 2" GV

W #3

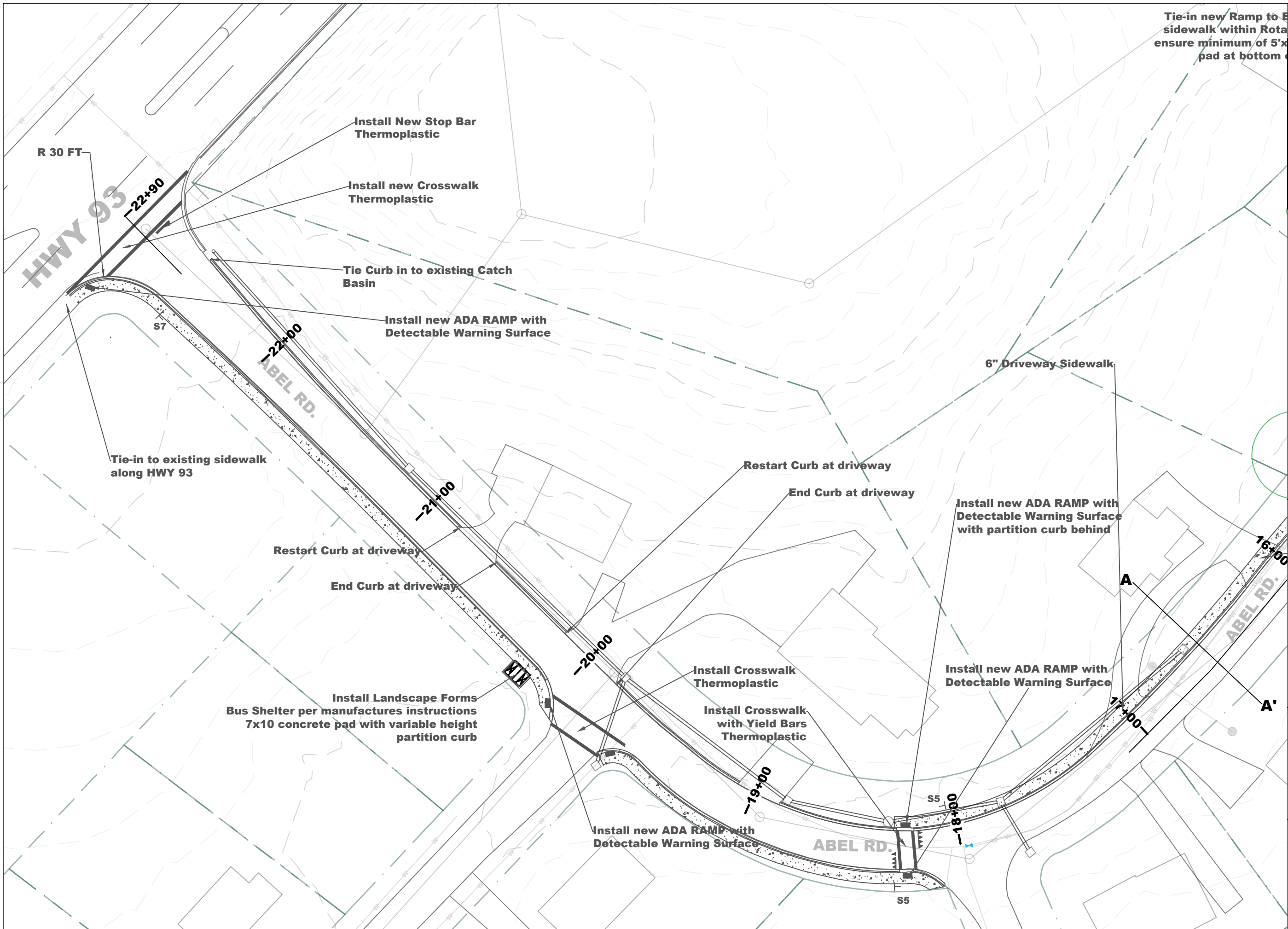



Abel Neighborhood Project

Drinking Water



DATE	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2022	DRAWN BY: NWH



Tie-in new Ramp to E sidewalk within Rota ensure minimum of 5'x pad at bottom

S #1

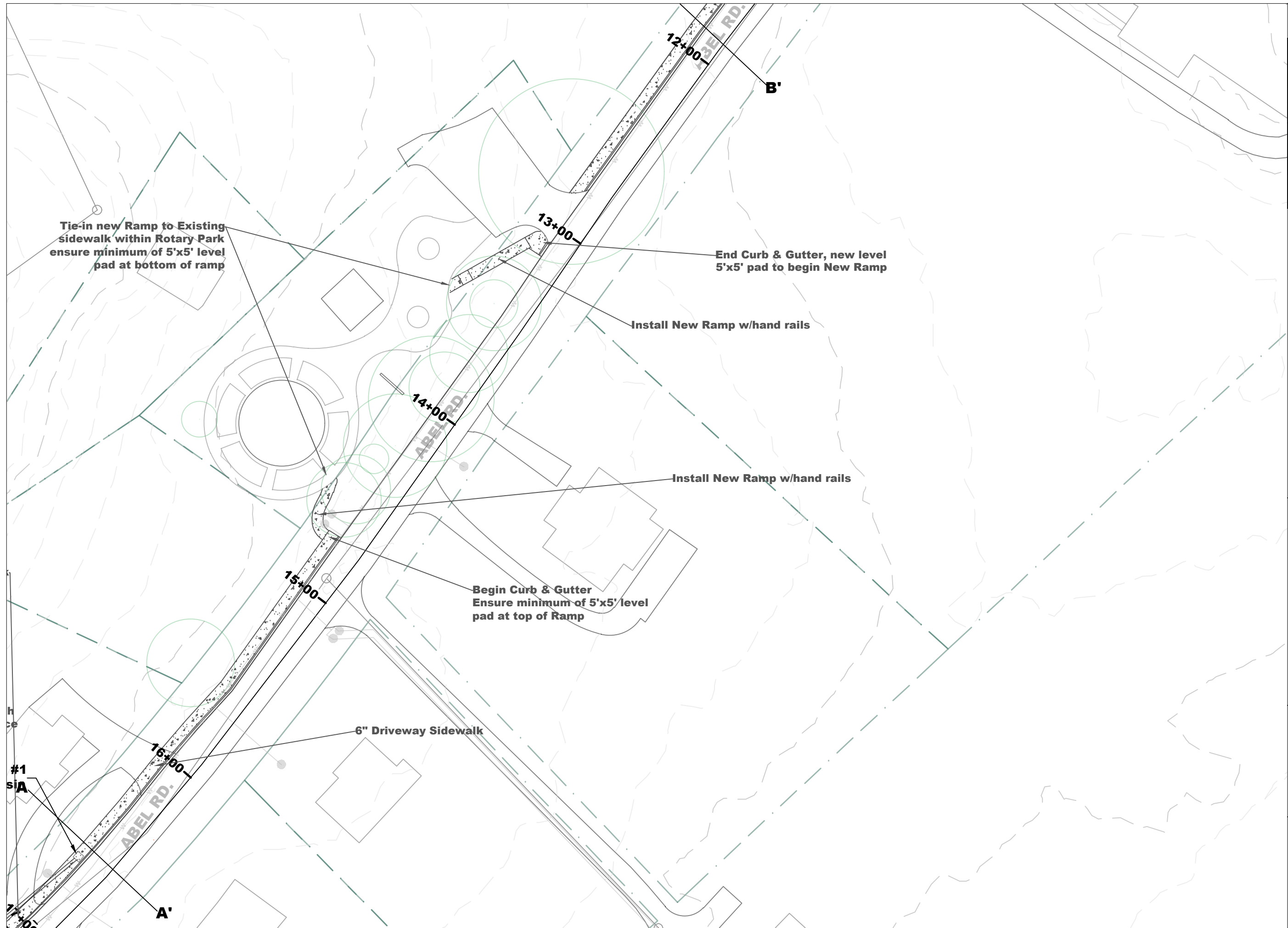


Abel Neighborhood Sidewalk Project

Site Design



7/17/2024	VERSION: 2.1	DESIGNED BY: NWH	PLOT DATE: 12/26/2020
1" = 3.333'		DRAWN BY: NWH	



S #2



Abel Neighborhood Sidewalk Project

Site Design



VERSION: 2.1

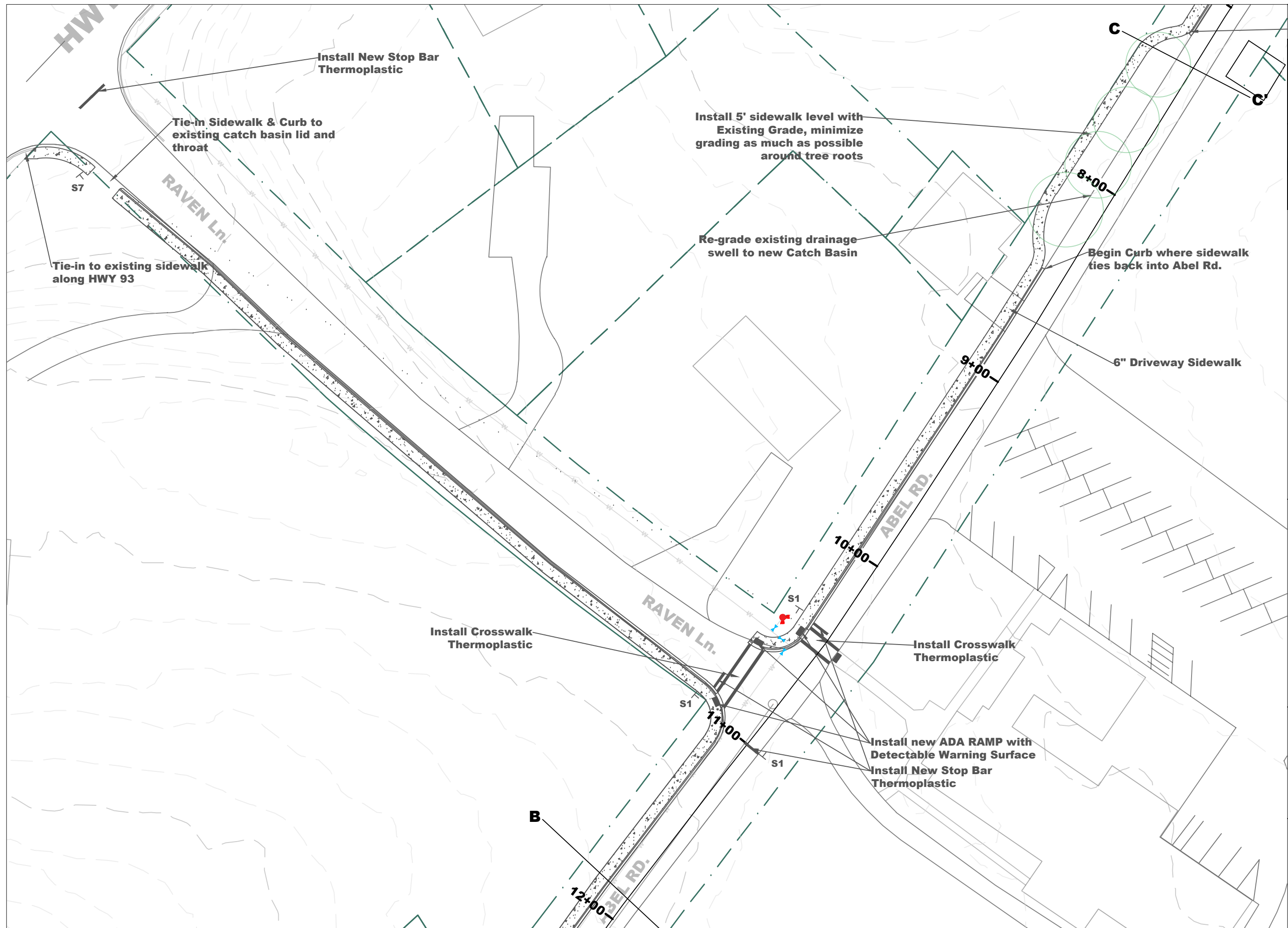
DESIGNED BY: NWH

DRAWN BY: NWH

7/17/2024

1" = 3.3333'

PLOT DATE: 12/26/2024



S #3

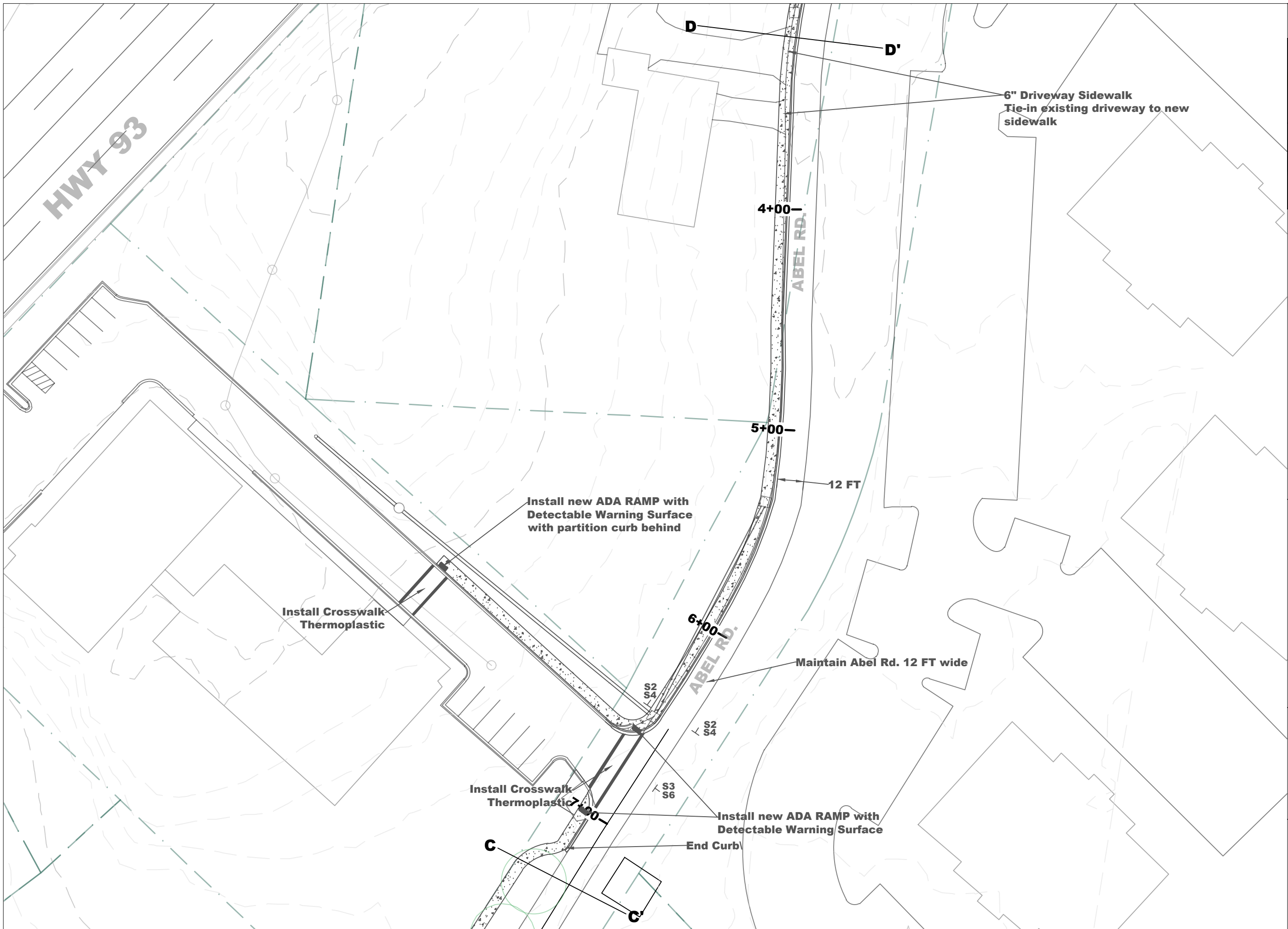


Abel Neighborhood Sidewalk Project

Site Design



7/17/2024	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024 DRAWN BY: NWH	



S #4

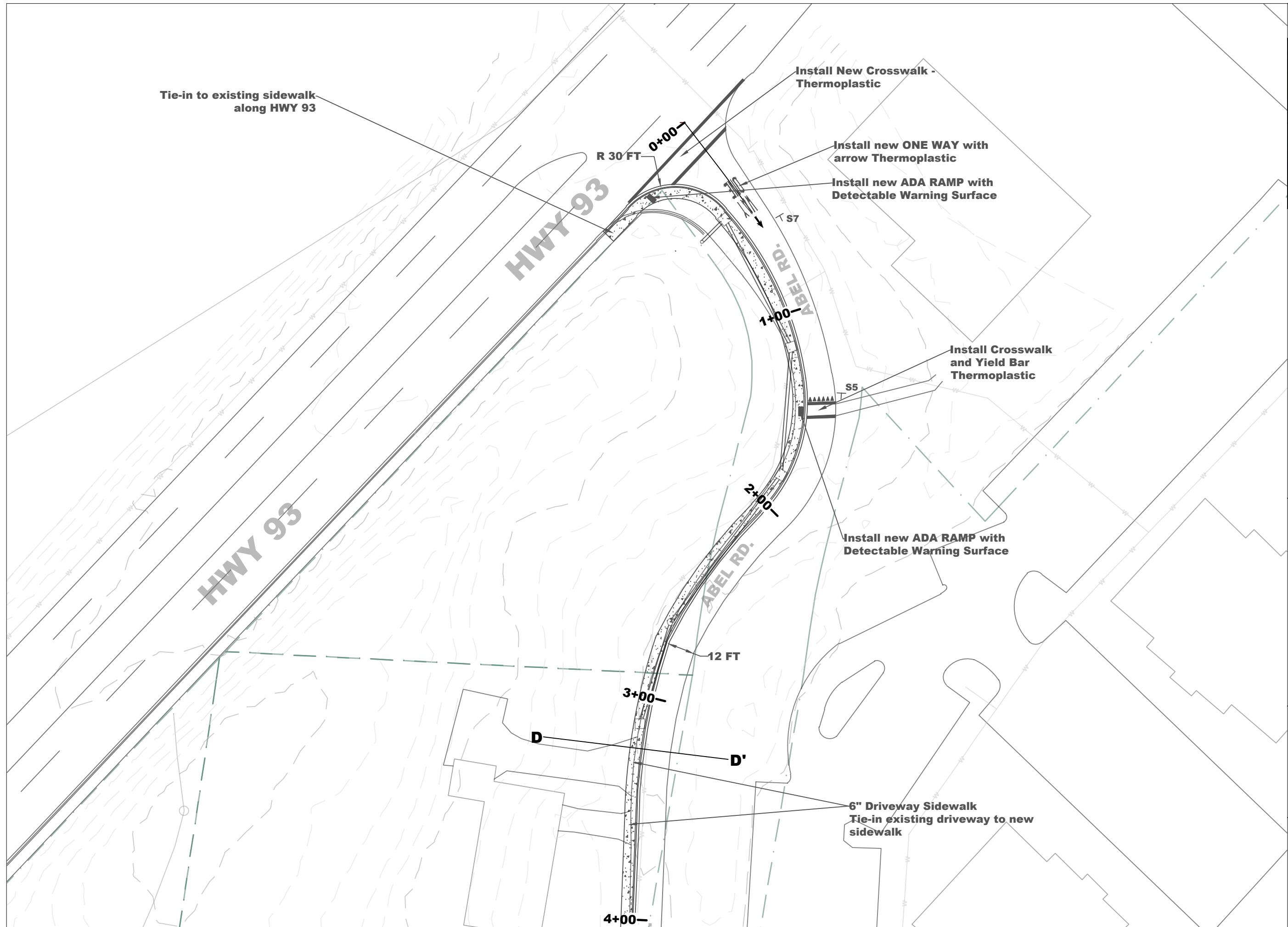


Abel Neighborhood Sidewalk Project

Site Design



7/17/2024	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2023	DRAWN BY: NWH



S #5

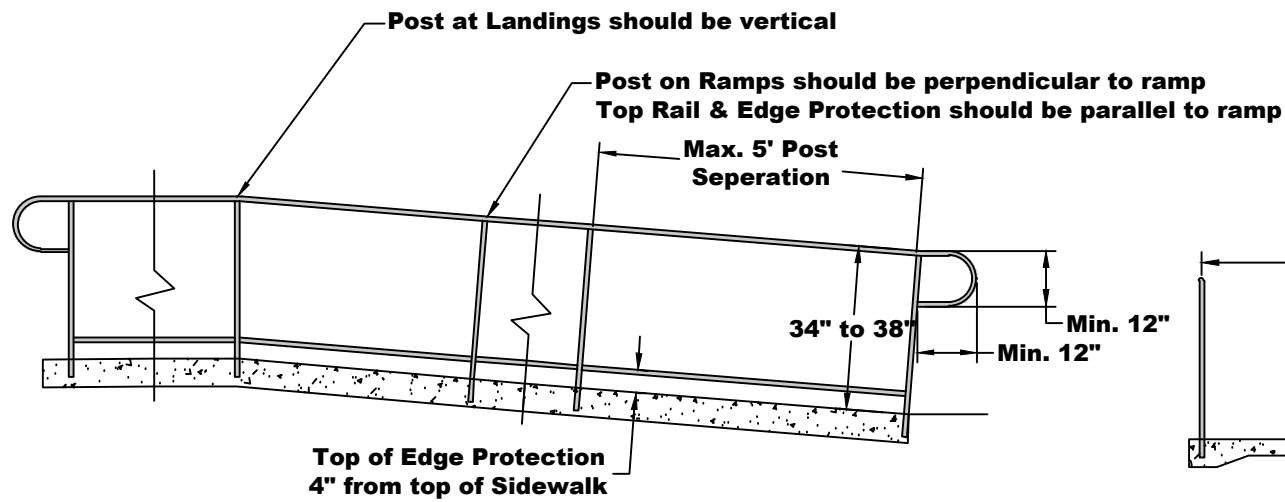


Abel Neighborhood Sidewalk Project

Site Design



7/17/2024	VERSION: 2.1
1" = 3.333'	DESIGNED BY: NWH
PLOT DATE: 12/26/2024	DRAWN BY: NWH

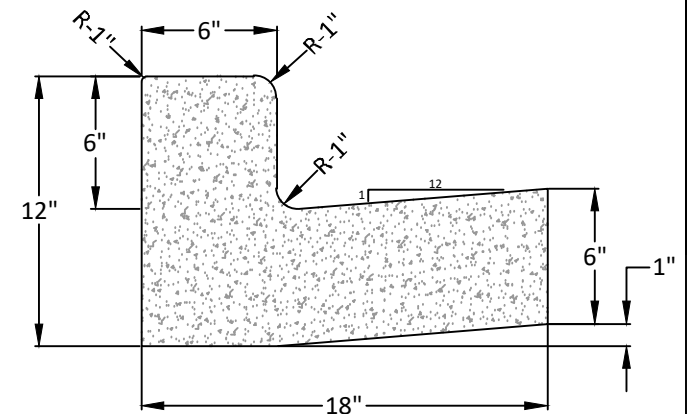
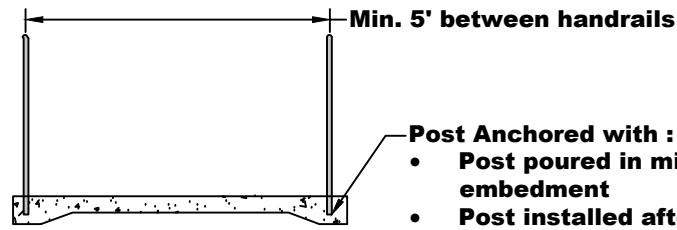


Hand Rail General:

- Handrails can be made out of 1 1/4" to 2" diameter pipe
- pipe diameter should be constant throughout the hand rail installation
- Pipe shall be galvanized or primed and painted steel
- Painted steel shall be painted color : BLACK
- Handrails shall be continuous and follow the shape and direction of the installed sidewalk
- Handrails can be fabricated on site or in shop

Ramp General Notes:

- Ramps must be at least 5' wide
- Ramp Landings must be minimum of 5' x 5', level
- Maximum slope for a ramp 1:12
- Ramps cannot exceed 30" maximum rise between landings
- ramps should have compacted backfill installed along the sides and brought to existing grade, backfill slopes should not exceed 1:2

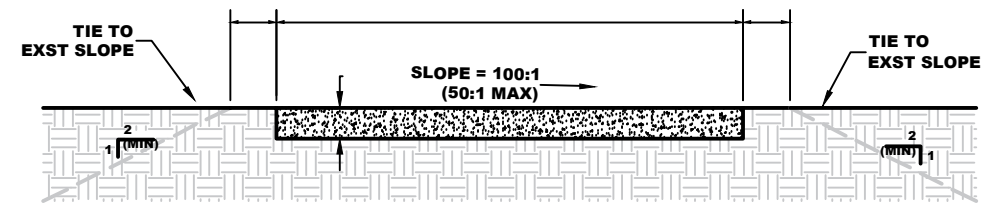


18" Standard Curb & Gutter

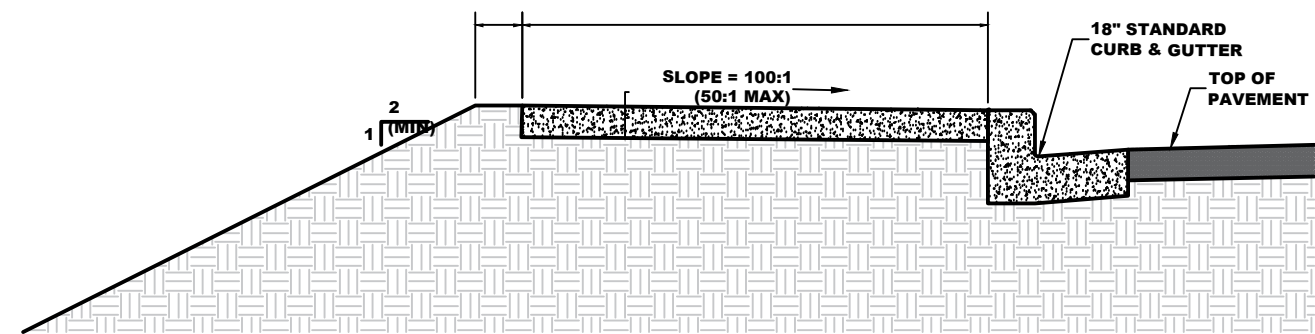
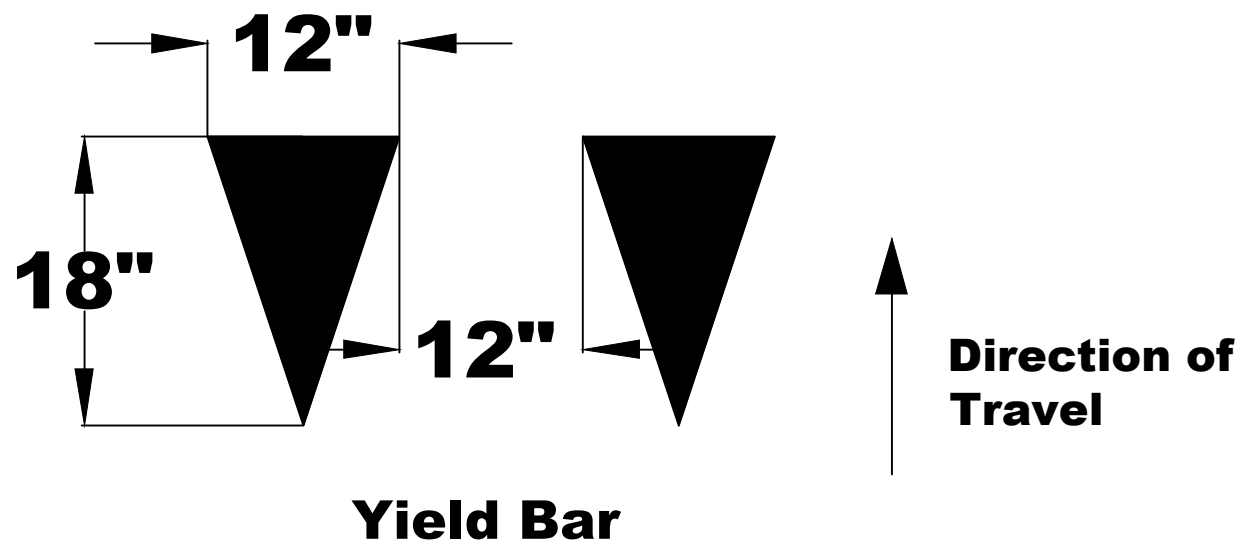
ADA Ramp and Hand Rail



Stop Bar



Sidewalk not adjacent to C&G



Sidewalk adjacent to C&G

D #1

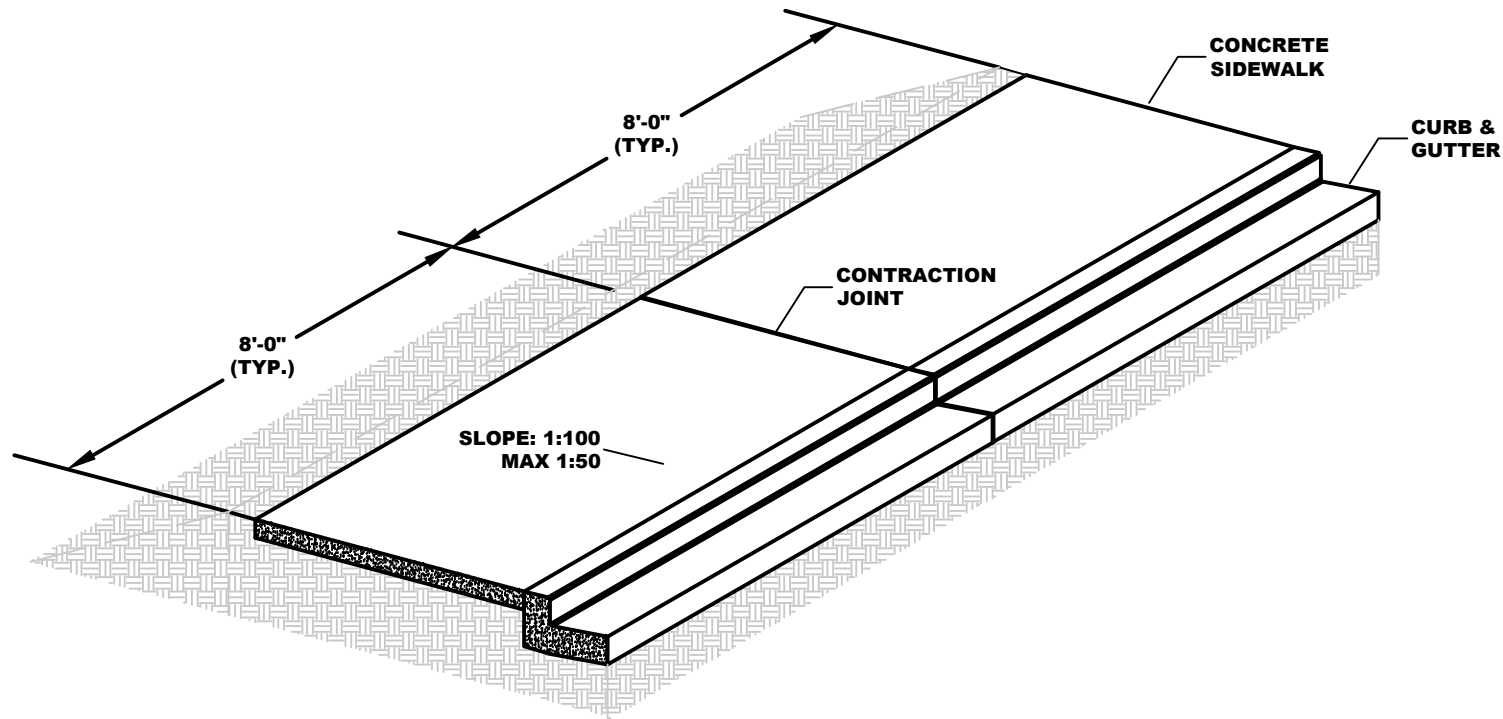


Abel Neighborhood Sidewalk Project

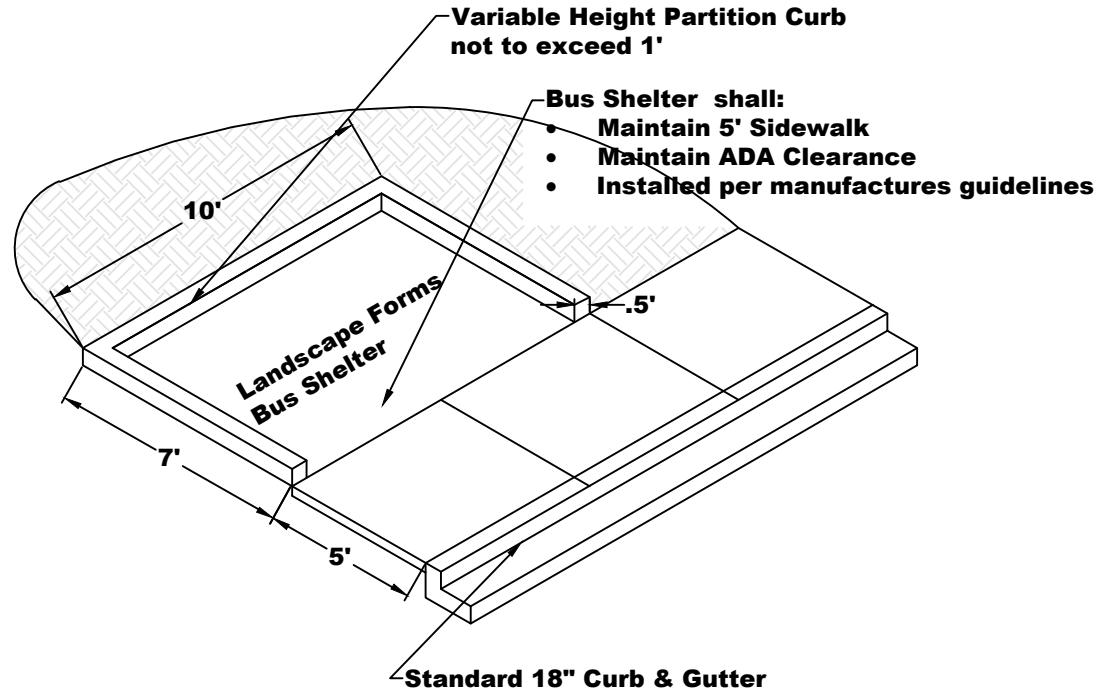
Details



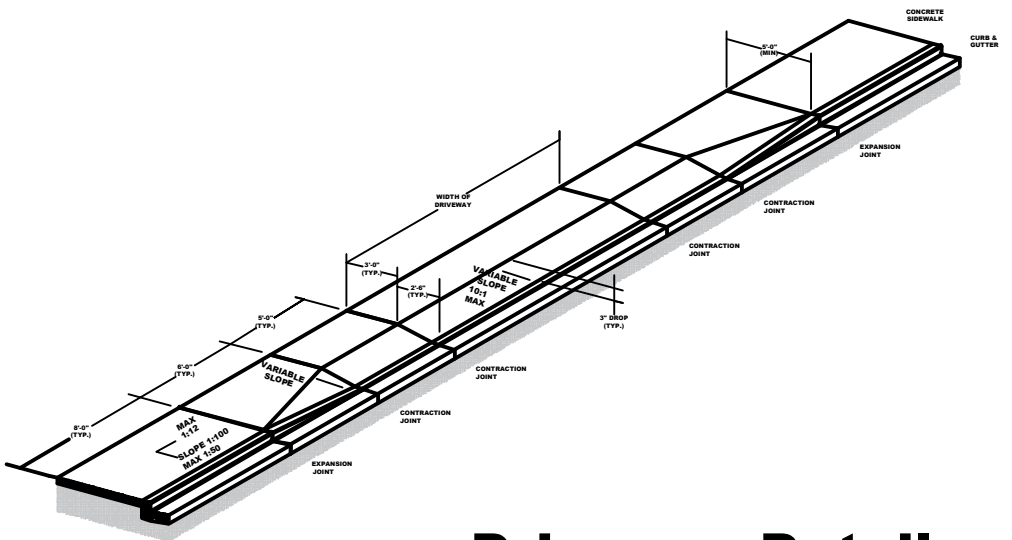
7/17/2024	VERSION: 2.1
N.T.S.	DESIGNED BY: NWH
	DRAWN BY: NWH
	PLOT DATE: 12/26/2024



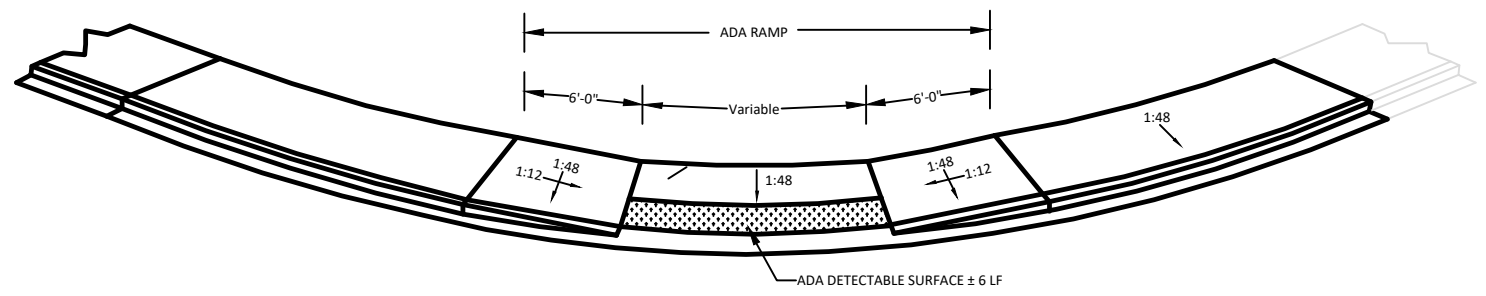
General Sidewalk Detail



Bus Shelter Pad w/ Partition Curb



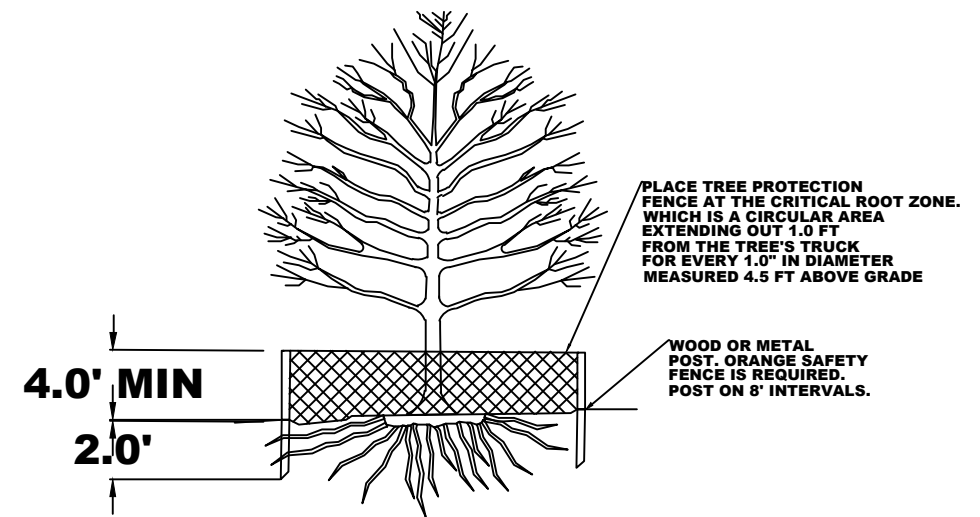
Driveway Detail



ADA Ramp in curve



Tree Protection Detail



NOTES:

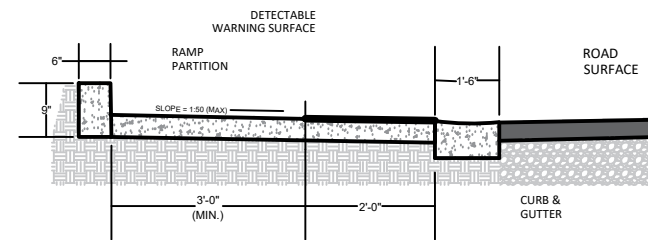
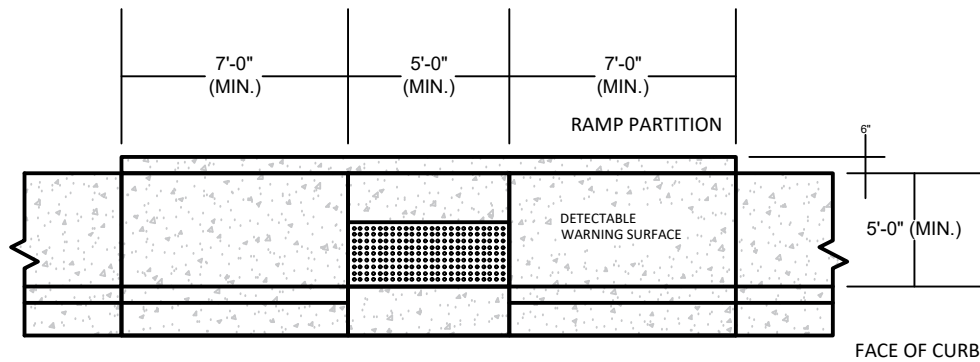
1. SEE PLANS FOR LOCATION OF ALL TREE PROTECTION FENCES.
2. ALL TREE PROTECTION DEVICES MUST BE INSTALLED PRIOR TO LAND DISTURBANCE, INCLUDING THE CUTTING OF ANY TREES. TREE PROTECTION MUST BE INSPECTED BY THE CITY HORTICULTURIST OR DESIGNEE.
3. NO GRADING, TRENCHING, FILLING, OR STORING OF MATERIALS IS TO OCCUR IN THE TREE PROTECTION AREA.
4. TREE PROTECTION FENCE MAY NOT BE REMOVED WITHOUT THE APPROVAL OF THE CITY HORTICULTURIST OR DESIGNEE.
5. THE TREE CONSERVATION AREA SHOULD BE DESIGNATED WITH "TREE CONSERVATION AREA" SIGNS POSTED VISIBLY ON THE OUTSIDE OF THE FENCED-IN AREA. SIGNS MAY NOT BE POSTED ON THE TREES. SEE EXAMPLE BELOW.



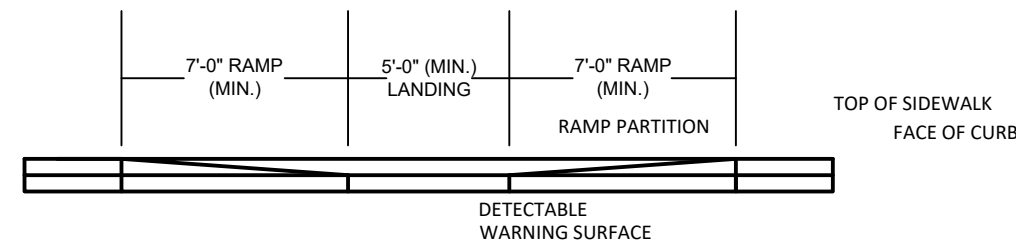
EXAMPLE SIGN

16" X 12" SIGN
 1" BLOCK LETTERS
 BLACK LETTERS ON WHITE BACKGROUND
 1/4" BLACK BORDER
 ALL WEATHER MEDIA
 100' SUGGESTED SPACING BETWEEN SIGNS

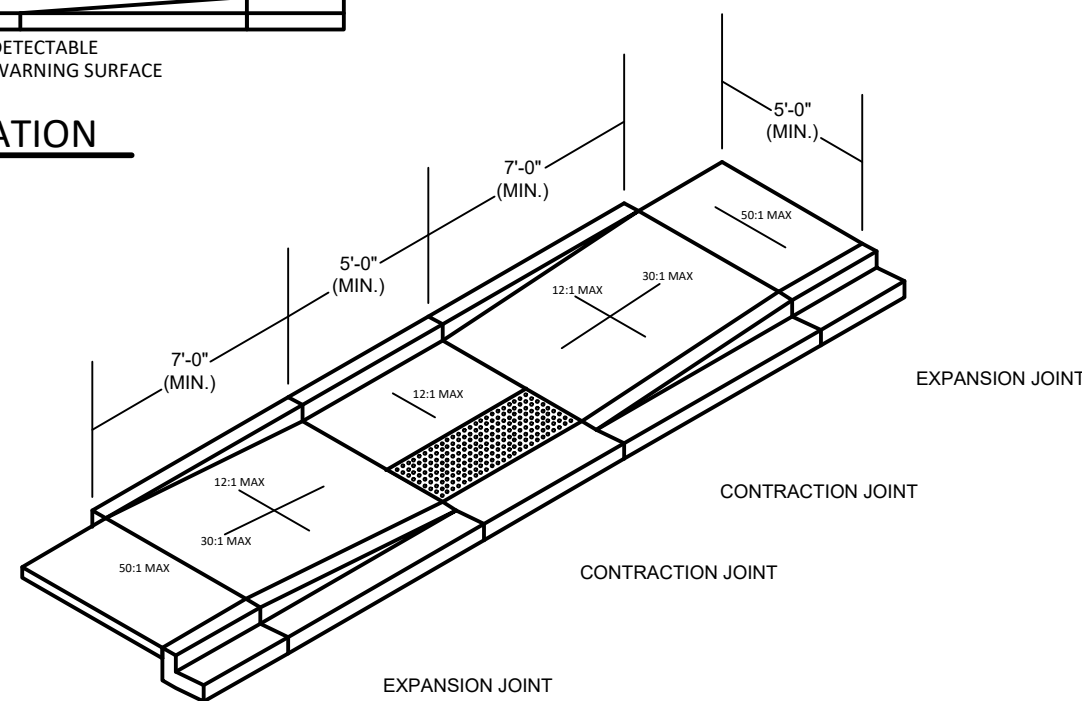
PLAN VIEW



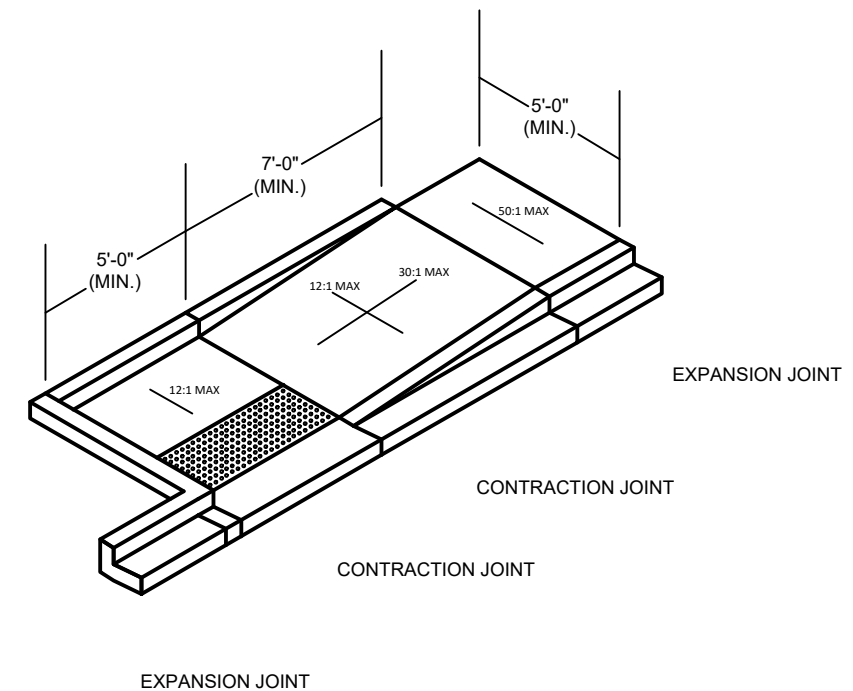
CROSS SECTION VIEW



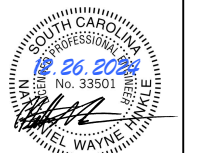
FRONT ELEVATION



ADA Ramp in line Sidewalk



ADA Ramp ending in Partition Curb



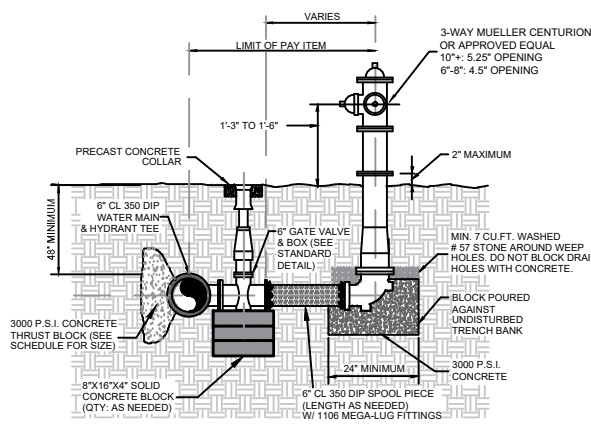
VERSION: 2.1	DESIGNED BY: NWH
7/17/2024	N.T.S.
	PLOT DATE: 12/26/2024

7/17/2024	N.T.S.	PLOT DATE: 12/26/2024
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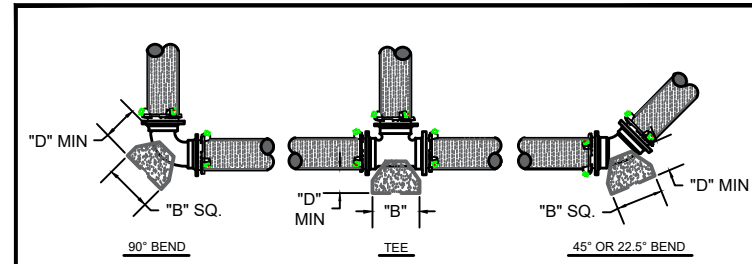
City of Clemson - Water Distribution Specifications (Condensed)

- 1) A pre-construction conference to include the owner, contractor, City Utilities Department personnel prior to any water line construction will be required.
- 2) All newly constructed water lines greater than 2 inches in diameter shall be Class 350 Ductile Iron Pipe. Each joint shall be clearly and legibly marked with the manufacturer's name or identifying symbol. Special circumstances may require different pipe material as specified or approved by the City of Clemson Utilities Director or City Engineer.
- 3) The contractor shall notify the City of Clemson Utilities Department a minimum of 72 hours prior the tapping of any existing water line.
- 4) All newly constructed water lines requiring a bore under City, County or State roads shall be steel cased per the details to center the carrier pipe and distribute weight.
- 5) All mechanical joints (tees, bends, connections, etc.) shall be Mega-Lugged with appropriate thrust blocking per the standard details. (See standard thrust block schedule detail)
- 6) All above ground swale or creek crossings will be made with ductile iron pipe per standard details.
- 7) All newly constructed water lines shall have a minimum of 3 feet of cover, unless otherwise approved by the Utilities Director or City Engineer.
- 8) No trees or shrubs shall be planted within 10 feet of water main or fire hydrant.
- 9) All newly constructed water lines water line trenches shall be compacted with select, clean backfill in 1 foot lifts or layers to a compaction level that meets or exceeds the 95% SPT within a roadway and 90% SPT when outside of a roadway.
- 10) All gate valves shall be AWWA approved, non-rising stem, mechanical joint, epoxy coated, cast-iron by Mueller or approved equal
- 11) All valve boxes shall be screw type, cast iron with cast iron cover, traffic-duty rated and the text "WATER" cast into lid. Valves shall be placed as close to the main as practicable & clustered with other valves for ease of system operation
- 12) Valve boxes outside of the roadway shall have a concrete collar.
- 13) All fire hydrant barrels shall be painted red and the hydrant dome or top shall be painted a reflective white.
- 14) All fire hydrants shall be Mueller Three-Way, Centurion or approved equal. Fire Hydrants connected water mains with diameters greater than 10 inches shall have a 5 1/4" opening and hydrants connected to water mains from 6 to 8 inches shall have a 4 1/2" opening.
- 15) The City of Clemson shall be granted a minimum 20' wide utility service and maintenance easement prior to the acceptance or transfer of ownership of any water lines.
- 16) All newly constructed water lines shall maintain a minimum 10 foot horizontal and 2 foot vertical clearance between sanitary sewer lines.
- 17) All 'blow-offs' for 6 inch diameter water lines shall be at least 2 inches in diameter, larger diameter water lines may require larger 'blow-offs' to be determined by the design engineer and verified by City of Clemson Utilities plan review personnel.
- 18) All service lines shall be Type 'K' Copper as specified in the standard details. Service lines shall be sleeved with a PVC conduit under roadways and areas where damage to the service line is above normal potential, to be determined by the Utilities Inspector
- 19) After construction, all water lines shall be positive pressure tested to 200 PSI for a duration of two hours, with no loss of water being acceptable. After a passing pressure test, two DHEC certified bacterial samples, each separated by 24 hours, shall be taken to verify the newly constructed water lines are safe for consumption, per SC DHEC regulations and specifications.
- 20) All water lines shall be inspected, approved and certified by the City of Clemson Utilities inspection staff, design engineer and SC DHEC staff prior to issuance of permit to operate and any acceptance by the City of Clemson.
- 21) Prior to the acceptance of any newly constructed water lines 'as-built' drawings must be certified and submitted by the design engineer to the City Engineer.
- 22) All newly constructed water lines and associated infrastructure shall include a minimum of one calendar year warranty. The City of Clemson reserves the right to prescribe a greater warranty period if deemed necessary prior to the acceptance of any water line system maintenance.
- 23) The City of Clemson reserves the right to charge any contractor for extensive or excessive use of water during the construction and testing process. All use of water shall be estimated and reported to the Utilities Inspector as soon as practicable.

FIRE HYDRANT ASSEMBLY DETAIL

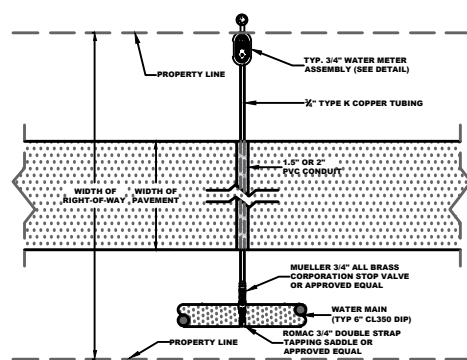


THRUST BLOCK SCHEDULE DETAIL

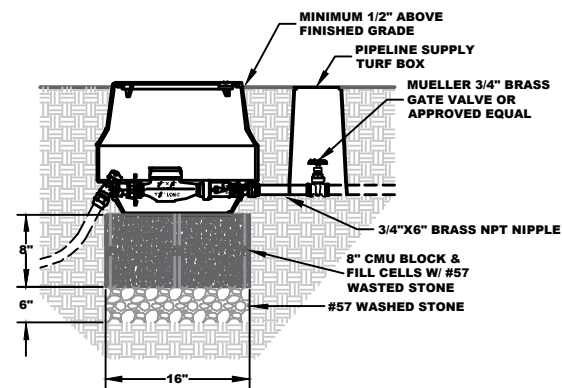


PIPE SIZE (IN.)	THRUST BLOCKS (MIN. DIMENSIONS IN FEET)											
	90° BENDS			45° BENDS			22 1/2° BENDS			TEE		
	B	D	REINF. (EA. WAY)	B	D	REINF. (EA. WAY)	B	D	REINF. (EA. WAY)	B	D	REINF. (EA. WAY)
2	1.0	0.7	-	1.0	0.7	-	1.0	0.7	-	1.0	0.7	-
3	1.0	0.7	-	1.0	0.7	-	1.0	0.7	-	1.0	0.7	-
4	1.0	0.7	-	1.0	0.7	-	1.0	0.7	-	1.2	0.7	-
6	1.4	0.7	-	1.0	0.7	-	1.0	0.7	-	1.6	0.7	-
8	1.8	0.8	-	1.4	0.7	-	1.0	0.7	-	2.2	1.0	-
10	2.3	1.0	-	1.7	0.8	-	1.2	0.7	-	2.7	1.0	-
12	2.7	1.0	-	2.0	0.8	-	1.4	0.7	-	3.2	1.0	-
14	3.2	1.0	4-#5'S	2.4	1.0	3-#5'S	1.7	0.7	-	3.8	1.0	5-#5'S
16	3.6	1.0	5-#5'S	2.7	1.0	3-#5'S	1.9	0.8	2-#5'S	4.3	1.2	5-#5'S
18	4.1	1.2	5-#5'S	3.0	1.0	4-#5'S	2.2	1.0	3-#5'S	4.9	1.2	6-#5'S
20	4.5	1.2	5-#5'S	3.4	1.0	4-#5'S	2.4	1.0	3-#5'S	5.4	1.2	6-#5'S
24	5.5	1.2	6-#5'S	4.0	1.0	5-#5'S	2.9	1.0	3-#5'S	6.5	1.5	8-#5'S
30	6.8	1.5	8-#5'S	5.0	1.2	6-#5'S	3.6	1.0	5-#5'S	8.1	1.7	9-#5'S
36	8.2	1.7	9-#5'S	6.0	1.3	7-#5'S	4.3	1.2	5-#5'S	9.7	1.8	10-#5'S
42	9.6	1.8	10-#5'S	7.0	1.5	8-#5'S	5.0	1.2	6-#5'S	11.3	2.0	12-#5'S

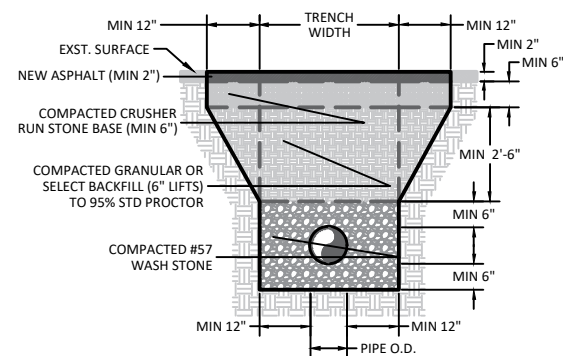
SINGLE METER DETAIL



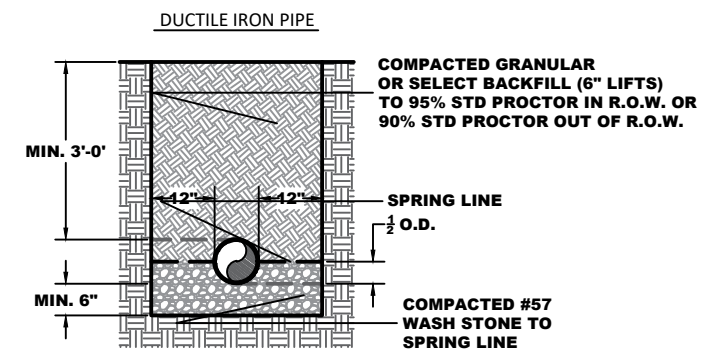
METER BOX DETAIL



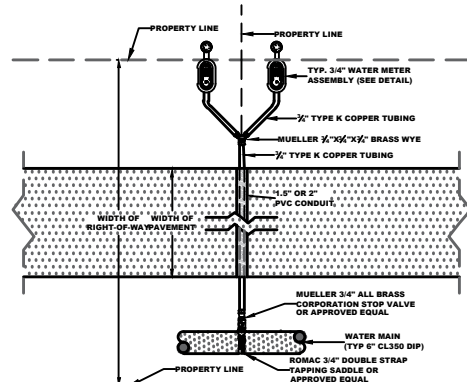
SECONDARY & COUNTY ROAD ASPHALT REPLACEMENT



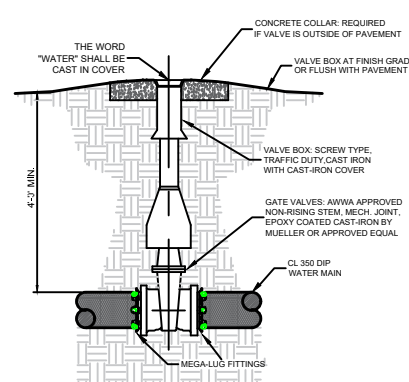
PIPE EMBEDMENT DETAIL



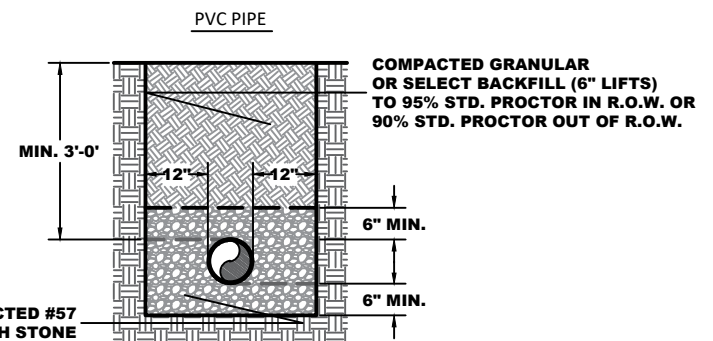
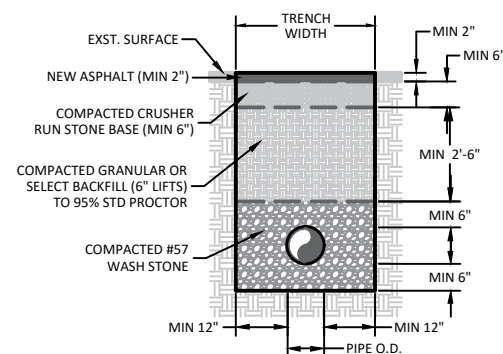
DUAL METER DETAIL



GATE VALVE DETAIL



MUNICIPAL ROAD ASPHALT REPLACEMENT



D #4



Abel Neighborhood Sidewalk Project

Details - Water



VERSION: 2.1
 DESIGNED BY: NWH
 7/17/2024
 N.T.S.
 PLOT DATE: 12/26/2024
 DRAWN BY: NWH



Abel Neighborhood Sidewalk Project

Details - Signs



7/17/2024	VERSION: 2.1
N.T.S.	DESIGNED BY: NWH
PLOT DATE: 7/25/2024	DRAWN BY: NWH

S1



R1-1

S2



R5-1

S3



R6-2

S4



R5-1b



R9-3cP

S5



R1-5a

S6



R3-2

S7



R4-11

REFERENCES

NATIONAL DOCUMENTS
 AASHTO M 278
 AASHTO GEOMETRIC DESIGN
 AASHTO ROADSIDE DESIGN GUIDE

SCDOT DOCUMENTS

RELATED DRAWINGS & KEYWORDS
 720-105-00

PRECONSTRUCTION SUPPORT ENGINEER

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
 NO. 8858
 SYLVESTER EARGLE, II

E. S. Eargle
 SIGNATURE

MARCH 3, 2008
 DATE

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0	3/2008	DSO GENERAL REVISIONS
#	DATE	CHK DESCRIPTION

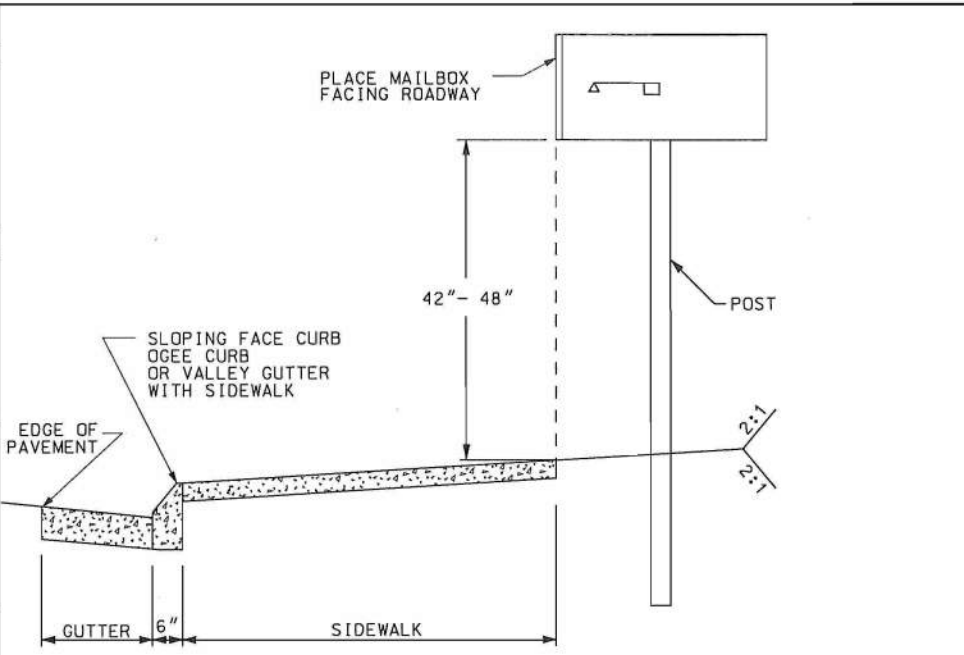
SCDOT
 SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DESIGN STANDARDS OFFICE
 955 PARK STREET
 ROOM 405
 COLUMBIA, SC 29201

STANDARD DRAWING

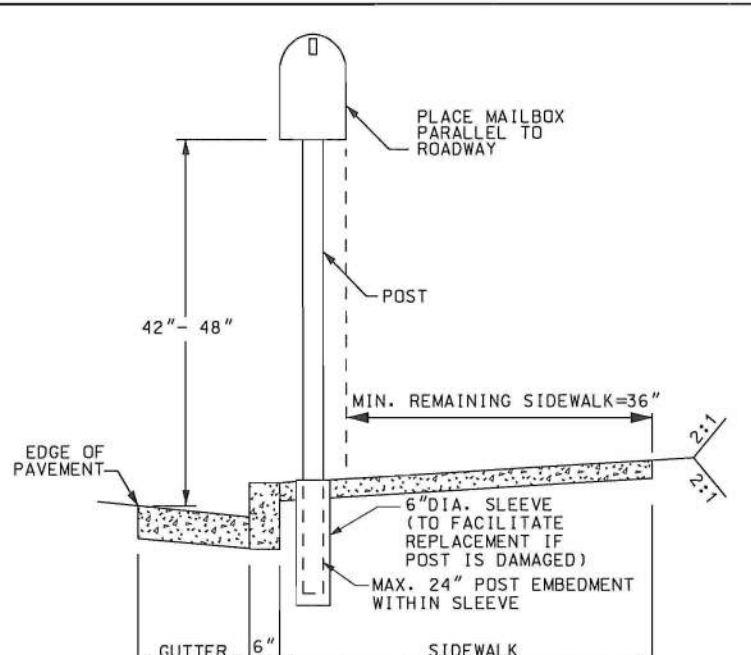
EXCAVATION ASSOCIATED WORK (MAILBOX PLACEMENT)

203-905-00

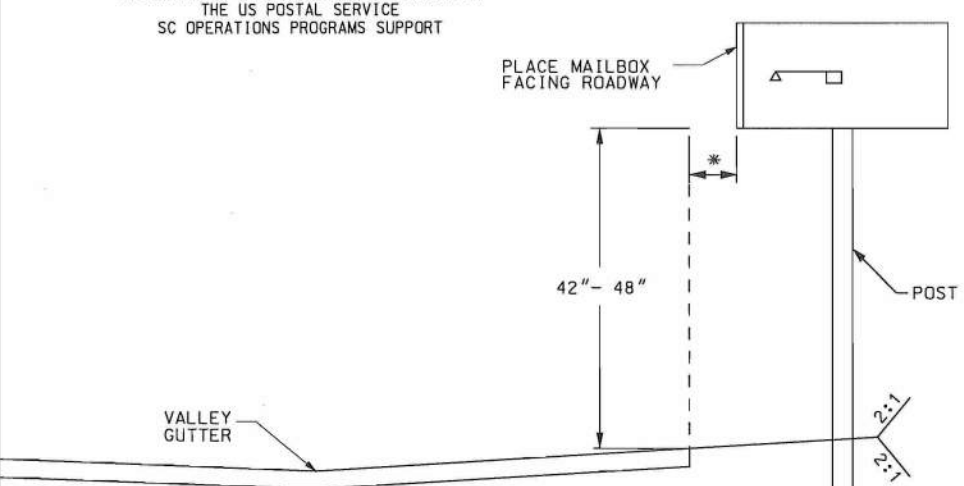
EFFECTIVE LETTING DATE: MAY 2008 THIS DRAWING IS NOT TO SCALE



PREFERRED INSTALLATION ON SECTION WITH SIDEWALK
 INSTALLATION PREFERENCE AS INDICATED BY THE US POSTAL SERVICE
 SC OPERATIONS PROGRAMS SUPPORT



ALTERNATE INSTALLATION ON VERTICAL FACE CURB SECTION
 WHEN SLOPING FACE/OGEE CURB CANNOT BE USED
 INSTALL MAILBOX AS SHOWN FOR VERTICAL FACE CURBS



PREFERRED INSTALLATION ON VALLEY GUTTER SECTION
 INSTALLATION PREFERENCE AS INDICATED BY THE US POSTAL SERVICE
 SC OPERATIONS PROGRAMS SUPPORT

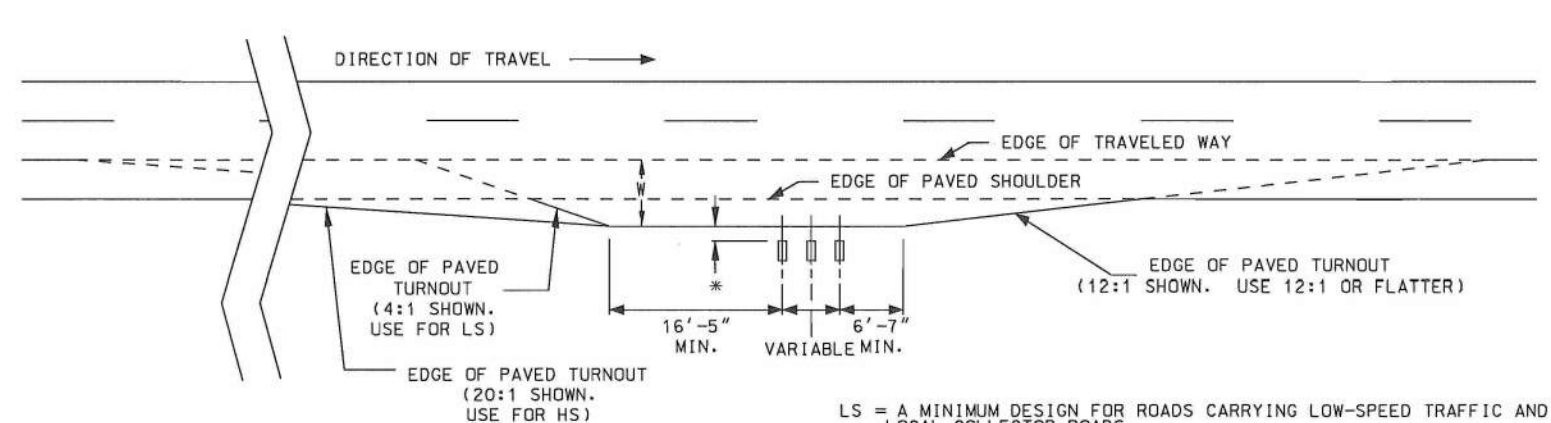
TABLE 203-905A GUIDELINES FOR LATERAL PLACEMENT OF MAILBOXES
 TAKEN FROM TABLE 11.1 - AASHTO ROADSIDE DESIGN GUIDE (LATEST EDITION)

HIGHWAY TYPE AND ADT (VPD)	W (FT)		* (IN)	
	PREFERRED	MINIMUM	PREFERRED	MINIMUM
RURAL HIGHWAY OVER 10,000	12	8		
RURAL HIGHWAY 1,500 TO 10,000	12	8	8 TO 12	0
RURAL HIGHWAY 400 TO 1,500	10	8		
RURAL ROAD UNDER 400	8	6		
RESIDENTIAL STREET WITHOUT CURB OR ALL-WEATHER SHOULDER	6	0	10 TO 12	10
CURBED RESIDENTIAL STREET	NOT APPLICABLE		8 TO 12	6

- NOTES:**
- MAILBOXES SHOULD MEET THE US POSTAL SERVICE REQUIREMENTS OF 39 CFR PART 111 (STANDARDS GOVERNING THE DESIGN OF CURBSIDE MAILBOXES). EXISTING MAILBOXES, MEETING THE US POSTAL SERVICE REQUIREMENTS, ARE TO BE RESET IN ACCORDANCE WITH AASHTO ROADSIDE DESIGN GUIDE (LATEST EDITION) AND THIS STANDARD DRAWING. IF EXISTING BOX DOES NOT MEET THESE REQUIREMENTS, THE PROPERTY OWNER SHOULD BE GIVEN THE OPPORTUNITY TO PURCHASE ANOTHER BOX OF THEIR CHOOSING, MEETING USPS REQUIREMENTS, PRIOR TO INSTALLATION.
 - IN GENERAL, THE PROPERTY OWNER IS RESPONSIBLE FOR ENSURING THAT THEIR MAILBOX IS IN COMPLIANCE WITH USPS REQUIREMENTS. ALL EXISTING MAILBOXES WILL BE RESET AS SHOWN EXCEPT IN THE MOST OBVIOUS NON-COMPLIANT CASES.
 - IN ACCORDANCE WITH SECTION 203 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, MAILBOXES ARE TO BE RESET BY THE CONTRACTOR AS REQUIRED BY CONSTRUCTION ACTIVITIES IN ORDER TO MAINTAIN CURRENT MAIL DELIVERY.
 - MAILBOXES WILL BE LOCATED ON THE RIGHT SIDE OF THE ROADWAY IN THE DIRECTION OF THE DELIVERY ROUTE EXCEPT ON ONE-WAY STREETS WHERE THEY MAY BE PLACED ON THE LEFT SIDE.
 - MAILBOXES SHOULD BE INSTALLED ON THE TRAILING SIDE OF THE DRIVEWAY A MINIMUM OF 20' FROM THE DRIVE. IF MAILBOXES CANNOT BE INSTALLED ON THE TRAILING SIDE OF THE DRIVEWAY, INSTALL ON THE LEADING SIDE OF THE DRIVEWAY, A MINIMUM OF 16' FROM THE DRIVE.
 - IF MORE THAN ONE MAILBOX IS TO BE INSTALLED AT A DRIVEWAY, DISTANCE BETWEEN POSTS SHALL BE EQUAL TO THE HEIGHT OF THE MAILBOX.
 - THE BOTTOM OF THE BOX SHALL BE SET AT AN ELEVATION BETWEEN 3.5' AND 4.0' ABOVE THE ROADWAY SURFACE.
 - WHEN MAILBOX IS PLACED IN A SIDEWALK, THE ORIENTATION OF THE MAILBOX WILL BE PARALLEL TO CENTERLINE OF THE ROADWAY TO ENABLE ACCESS TO THE BOX. THE BOX SHALL OPEN ON THE APPROACH SIDE AND THE SIDE OF THE BOX WILL EQUAL TO THE BACK OF CURB OR BACK OF VALLEY GUTTER.
 - WHEN A GRASS AREA IS BETWEEN THE BACK OF CURB OR VALLEY GUTTER AND THE SIDEWALK, THE MAILBOX WILL BE INSTALLED PERPENDICULAR TO THE ROADWAY, AS LONG AS THE MAILBOX DOES NOT OVER-HANG THE SIDEWALK. ALSO WHEN NO SIDEWALK IS PRESENT THE MAILBOX SHALL BE PLACED PERPENDICULAR TO THE ROADWAY.
 - A 6" SOIL TUBE MEETING SCHEDULE 40 AND THE REQUIREMENTS OF AASHTO M 278 SHALL BE USED. THE INSTALLATION OF THE SOIL TUBE SHALL BE FROM THE TOP OF THE SIDEWALK TO THE BOTTOM OF THE POST. BACK FILL VOID BETWEEN SOIL TUBE AND MAILBOX POST WITH SAND WITHIN 2" OF FINISHED GRADE AND SEAL WITH SILICONE CAULK.
 - WOOD POST SHOULD NOT BE SMALLER OR LARGER THAN RECOMMENDED. MAILBOX TO POST ATTACHMENT SHALL MEET THE REQUIREMENTS OF THE U.S. POSTAL SERVICE. NEWSPAPER RECEPTACLES ARE ALLOWED ON POST AS LONG AS NO INTERFERENCE IS ENCOUNTERED AND WILL BE INSTALLED PARALLEL TO THE MAILBOX ON THE FAR SIDE OF THE POST.
 - THERE ARE NO SEPARATE PAY ITEMS TO RESET MAILBOXES. COST IS INCLUDED IN THE COST OF OTHER WORK WITHOUT ADDITIONAL COMPENSATION.

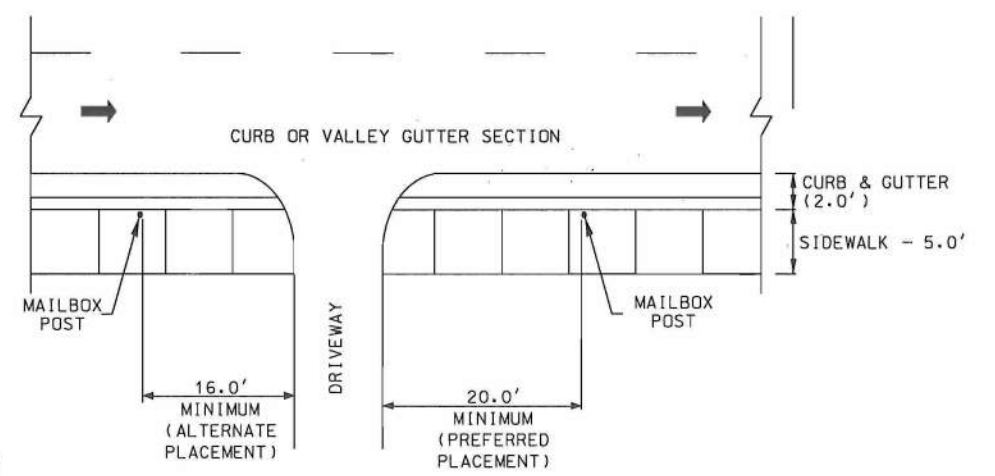
MAILBOX POST MATERIALS:

WOOD:	4" x 4" DR 4" DIA. NOMINAL DIMENSIONS
ALUMINUM:	1.5"-2.0" DIA.
GALVANIZED STEEL:	1.5"-2.0" DIA. (SCHEDULE 40 MAX.)



RECOMMENDED MAILBOX TURNOUT NO CURB OR SIDEWALK

LS = A MINIMUM DESIGN FOR ROADS CARRYING LOW-SPEED TRAFFIC AND FOR LOCAL COLLECTOR ROADS.
 HS = FOR ROADS CARRYING HIGH-SPEED TRAFFIC.
 W = SEE TABLE (GUIDELINES FOR LATERAL PLACEMENT OF MAILBOXES).
 * = SEE TABLE (GUIDELINES FOR LATERAL PLACEMENT OF MAILBOXES).



PLAN VIEW WITH CURB OR VALLEY GUTTER SECTION (CURB SECTION SHOWN)

REFERENCES

NATIONAL DOCUMENTS
AASHTO M235

SCDOT DOCUMENTS
QUALIFIED PRODUCT LIST 14

RELATED DRAWINGS & KEYWORDS
719-310-00, 719-305-00, 719-009-01 TO 719-009-05

PRECONSTRUCTION SUPPORT ENGINEER

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
NO. 8858
N. M. EDMONDSON
SYLVESTER EARLE, II

E. S. [Signature]
SIGNATURE

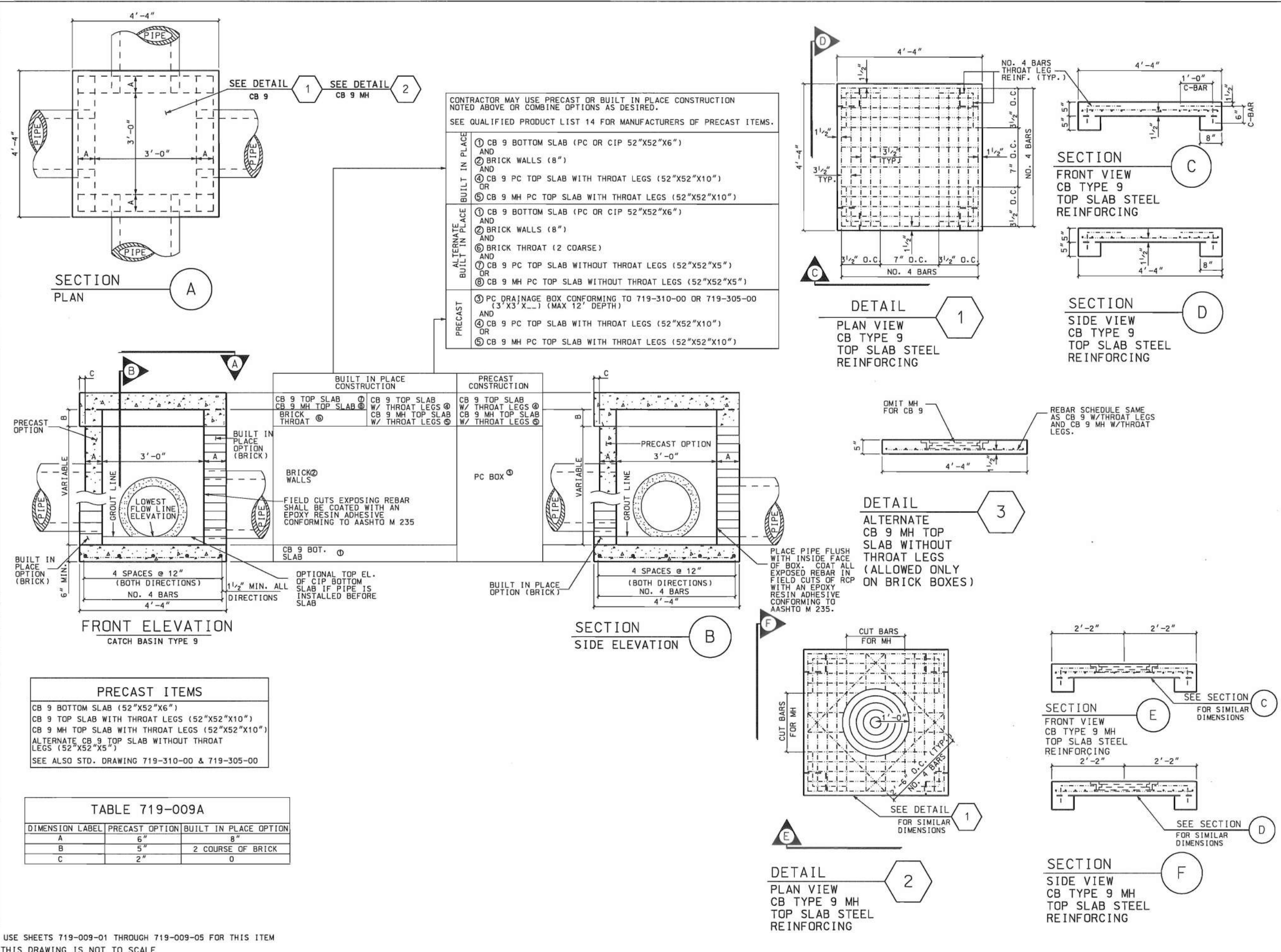
MARCH 3, 2008
DATE

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0	3/2008	DSO	GENERAL REVISIONS
#	DATE	CHK	DESCRIPTION

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING
CATCH BASIN TYPE 9 & 9MH
DETAILS

719-009-01



USE SHEETS 719-009-01 THROUGH 719-009-05 FOR THIS ITEM
THIS DRAWING IS NOT TO SCALE

REFERENCES

NATIONAL DOCUMENTS
AASHTO M235

SCDOT DOCUMENTS
QUALIFIED PRODUCT LIST 14

RELATED DRAWINGS & KEYWORD
719-305-00, 719-310-00, 719-016-02

PRECONSTRUCTION SUPPORT ENGINEER



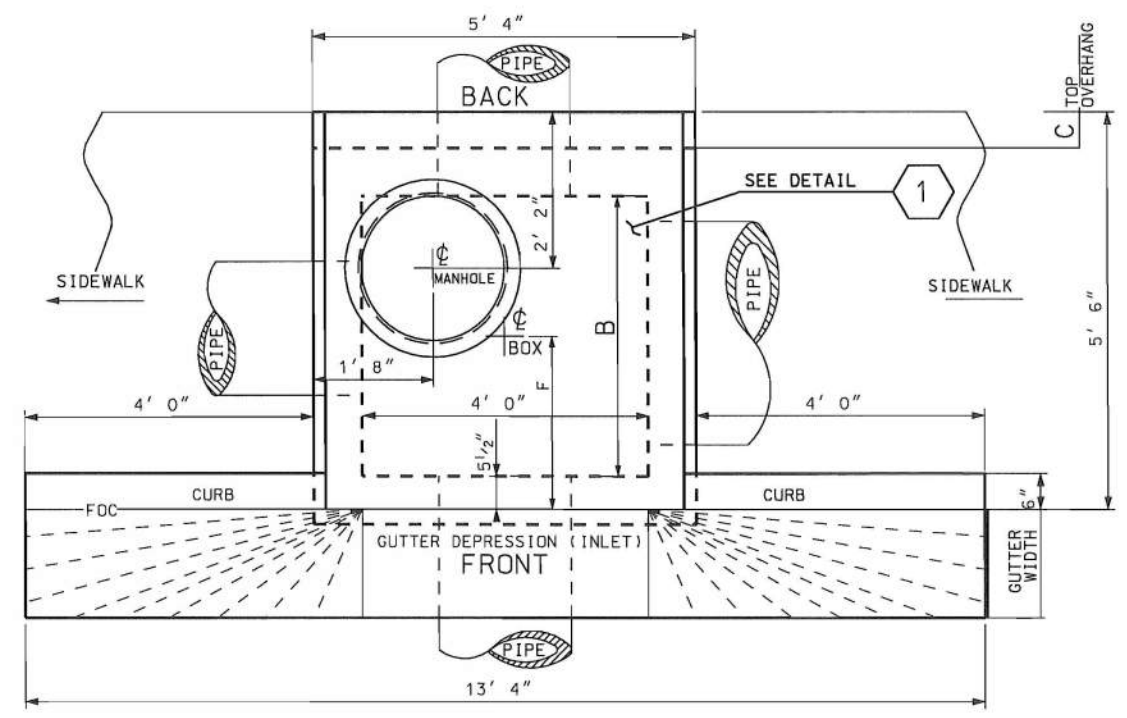
E. Eargle
SIGNATURE
MARCH 2, 2009
DATE

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1	3/2009	SDM	TEMP OPENING NOTE
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#	DATE	CHK	DESCRIPTION

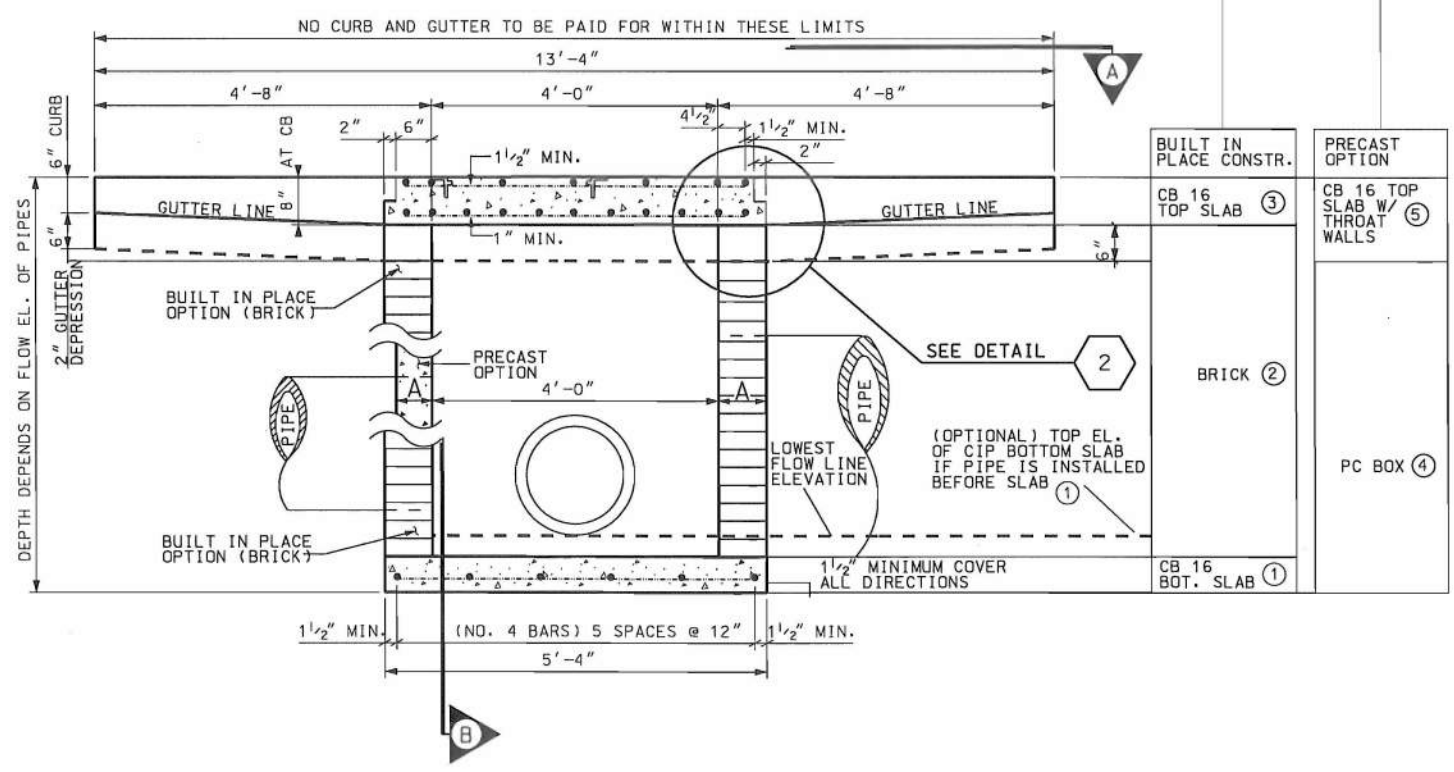
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DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

**STANDARD DRAWING
CATCH BASIN
TYPE 16**

719-016-01
EFFECTIVE LETTING DATE MARCH, 2009



SECTION A
SCALE 3/8" = 1'
PLAN



SECTION B
SCALE 3/8" = 1'
FRONT ELEVATION
CATCH BASIN TYPE 17

TABLE 719-016A

DIMENSION LABEL	BUILT IN PLACE CONSTRUCTION	PRECAST CONSTRUCTION
A	8"	6"
B	3'-10 1/2"	4'-0"
C	6"	6 1/2"
D	1'-0"	1'-1 1/2"
E	3/4"	SEE 4x4 PC BOX
F	2'-4 3/4"	2'-5 1/2"

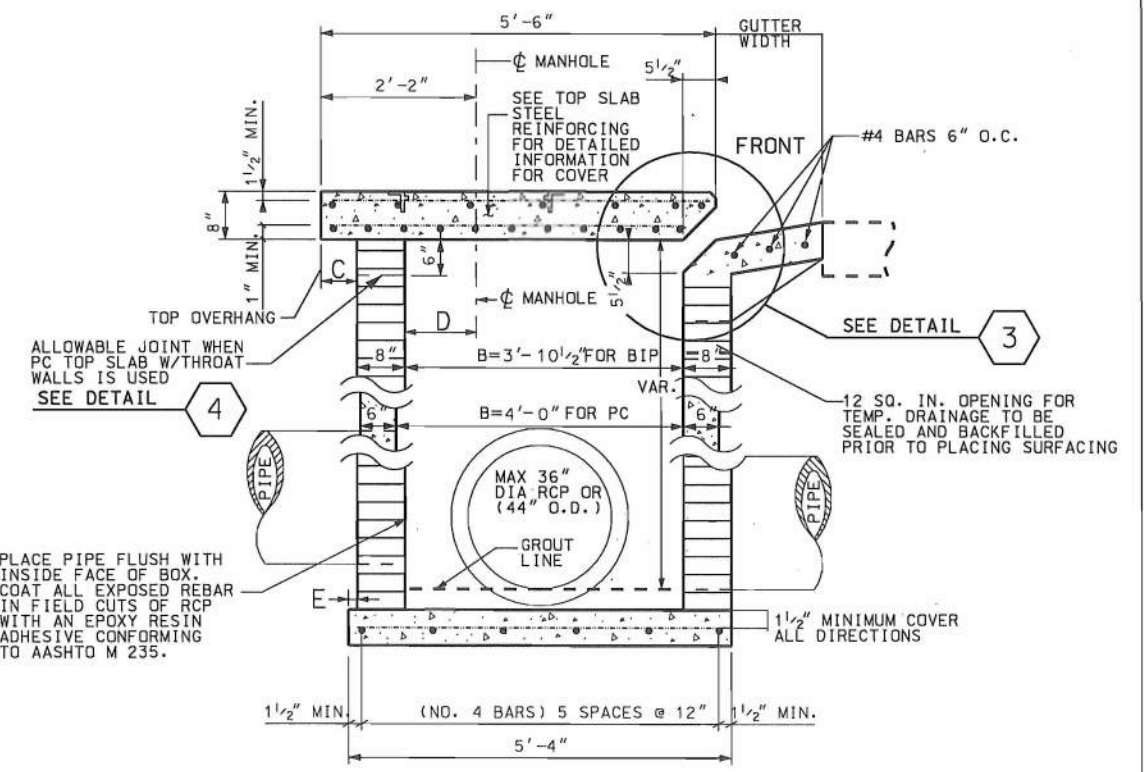
SEE SHEET 719-016-02 FOR DETAILS AND NOTES

DESCRIPTION	ADA	NON ADA BICYCLE	VEHICLE
CB TYPE 16	YES	YES	YES-GUTTER LINE

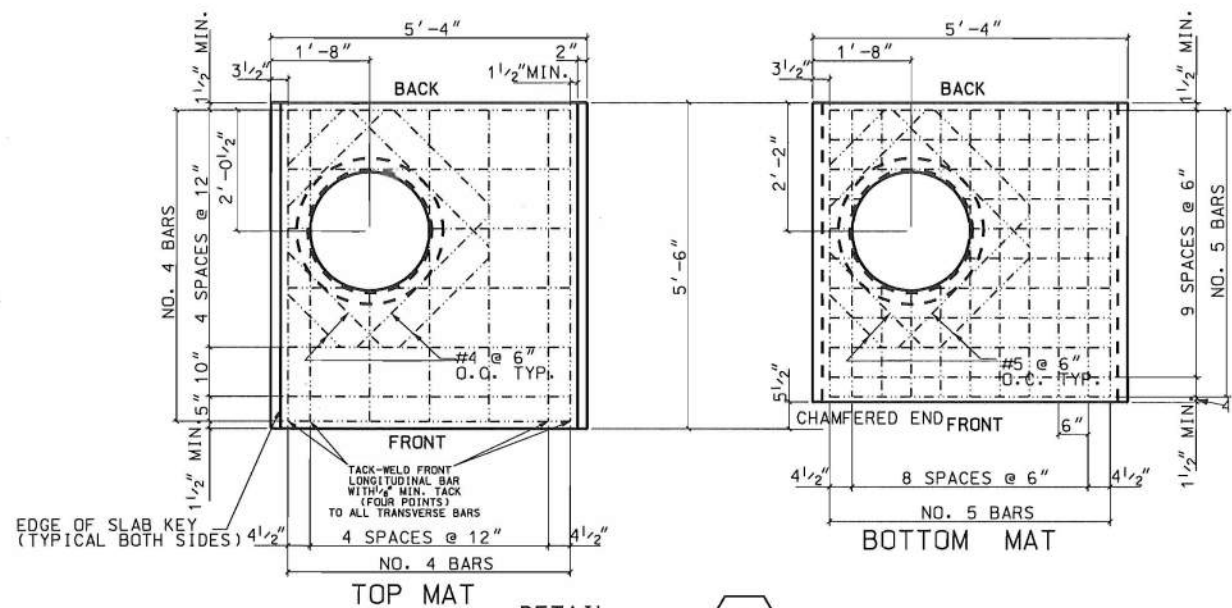
USE WITH SIDEWALK/CURB & GUTTER

CONTRACTOR MAY USE A COMBINATION OF BUILT IN PLACE AND PRECAST COMPONENTS AS APPROVED BY THE RESIDENT

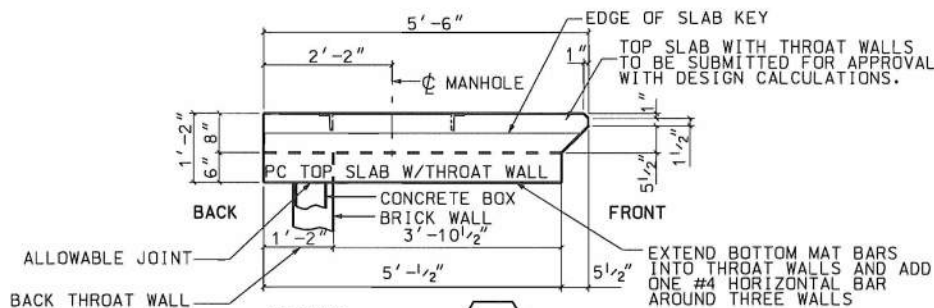
- SEE QUALIFIED PRODUCT LIST 14 FOR MANUFACTURERS OF PRECAST ITEMS.
- | PRECAST BUILT IN PLACE | PRECAST OPTION |
|--|--|
| 1 CB 16 BOTTOM SLAB (PC OR CIP CONCRETE 64"X64"X6") AND | 1 CB 16 TOP SLAB (66"X64"X8") |
| 2 BRICK WALLS (8") (MAXIMUM 12' DEPTH) AND | 2 CB 16 TOP SLAB W/ THROAT WALLS |
| 3 PC CB 16 TOP SLAB (66"X64"X8") | 3 PC BOX 4 |
| 4 PC DRAINAGE BOX CONFORMING TO 719-305-00 OR 719-310-00 (4'X4'X...) (MAX 12' DEPTH) AND | 4 CB 16 TOP SLAB WITH THROAT WALLS (66"X64"X14") |
| 5 CB 16 TOP SLAB WITH THROAT WALLS (66"X64"X14") | |



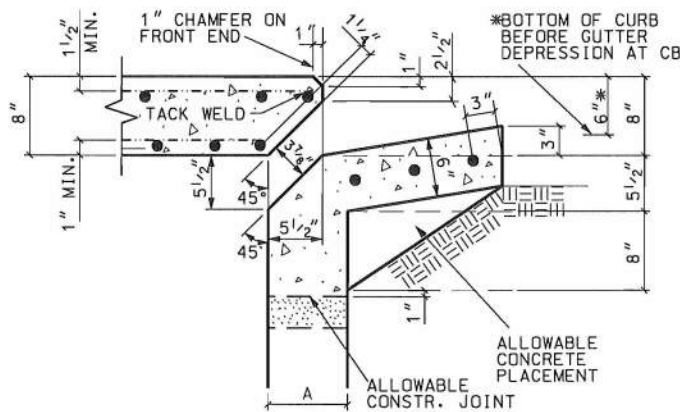
SECTION C
SCALE 3/8" = 1'
SIDE ELEV.



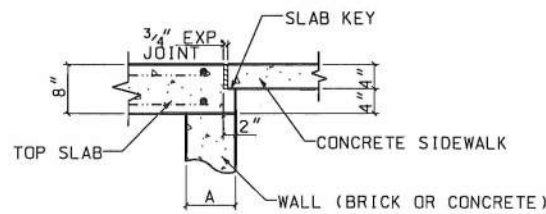
DETAIL 1
TOP SLAB STEEL REINFORCING



DETAIL 4
PC TOP SLAB W/ THROAT WALLS



DETAIL 3
CB INLET



DETAIL 2
SLAB KEY

USE SHEETS 719-016-01 THROUGH 719-016-02 FOR THIS ITEM.

GENERAL NOTES:

- FOR BUILT IN PLACE CONSTRUCTION OF THE CATCH BASIN, EITHER BRICK MASONRY (WALLS ONLY) OR CP CLASS 3000 CONCRETE MAY BE USED. FOR PRECAST CONSTRUCTION, A MINIMUM OF CLASS 4000P CONCRETE SHALL BE USED.
- CONCRETE WALLS ARE TO BE 6" THICK WITH A MINIMUM REINFORCING STEEL AREA OF 0.20 SQUARE INCHES PER FOOT UNLESS NOTED. FOR BRICK, THE WALLS ARE TO BE 8" THICK. CONCRETE BRICK AND SIMILAR SOLID UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 55, GRADE S-11. THE INTERIOR DIMENSIONS ARE TO REMAIN AS SHOWN FOR EITHER TYPE OF CONSTRUCTION.
- THE BOTTOM SLAB OF THE BOX SHALL BE A MINIMUM OF 6" THICK REINFORCED CONCRETE (CLASS 3000 OR 4000P) WITH A REINFORCING STEEL AREA OF 0.20 SQUARE INCHES PER FOOT. WIRE MESH MAY BE USED IN LIEU OF STEEL BARS PROVIDED A MINIMUM OF 0.20 SQUARE INCHES PER FOOT IS MET.
- MORTAR SHALL BE TYPE S OR M.
- REINFORCING STEEL SHALL BE ASTM A-706, LOW-ALLOY STEEL DEFORMED BARS FOR CONCRETE REINFORCEMENT, GRADE 60. WIRE MESH SHALL CONFORM TO AASHTO M 55 AND M 221.
- SEE STANDARD DRAWING 719-550-00 FOR STEPS, WHICH ARE REQUIRED WHEN STRUCTURE DEPTH EXCEEDS 4'-6".
- SEE STANDARD DRAWINGS 719-420-00 AND 719-425-00 FOR DEPTHS GREATER THAN 12'. PRECAST CONCRETE CIRCULAR DRAINAGE STRUCTURES ARE REQUIRED WHEN THE DEPTH FROM THE TOP OF THE DRAINAGE BOX BOTTOM SLAB TO THE TOP OF THE GROUND EXCEEDS 12'-0".
- SEE STANDARD DRAWING 719-510-00 FOR DETAIL OF MANHOLE CASTING AND COVER. MANHOLE SHALL BE LINED UP WITH THE INTERIOR OF THE BOX AS SHOWN.
- LOCATION AND SIZE OF PIPES ARE SITE SPECIFIC, (SEE DRAINAGE PLANS). THE BOTTOM OF THE CATCH BASIN IS TO BE GROUTED TO THE LOWEST FLOW LINE ELEVATION OF ALL PIPES. IF BOTTOM SLAB IS CAST IN PLACE WITH PIPES INSTALLED, BOTTOM SLAB THICKNESS MUST BE ACHIEVED BEYOND PIPE OUTSIDE DIAMETER.
- THE CONTRACT UNIT PRICE FOR CATCH BASINS SHALL INCLUDE THE COST OF FURNISHING ALL MATERIALS, (BUILT IN PLACE OR PRECAST), AND WORK INCIDENTAL TO THE CONSTRUCTION OF THE STRUCTURE COMPLETE IN PLACE AS SHOWN, INCLUDING THE CURB AND GUTTER, IN ACCORDANCE WITH THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).
- SPECIAL ATTENTION SHOULD BE GIVEN TO THE COMPACTION OF THE SOIL UNDER THE 6" OR 6 1/2" COVER OVERHANG ON THE BACK OF THE CATCH BASIN, AND UNDER ANY OPTIONAL PRECAST ITEMS USED.
- THE SLOPE ON TOP OF CATCH BASIN IS TO MATCH ADJACENT SIDEWALK OR 50:1 TOWARD ROADWAY WHERE NO SIDEWALK IS PRESENT.
- WHEN IT IS NECESSARY TO PLACE A CATCH BASIN IN A RADIUS, THE FACE OF THE CATCH BASIN TOP SHALL CONFORM TO THE HORIZONTAL CURVATURE OF THE ADJACENT CURB WHEN THE RADIUS IS 100 FEET OR LESS. OTHERWISE, THE TOP SHALL BE RECTANGULAR WITH SQUARE CORNERS. IN ALL CASES, THE BACK OF THE CATCH BASIN TOP SHOULD FOLLOW THE SAME ALIGNMENT AS ITS FACE.
- SEE STANDARD DRAWING 719-310-00 OR 719-305-00 FOR MAXIMUM PIPE DIAMETERS. THE PIPE SIZES SHOWN ARE MAXIMUM FOR BRICK AND PRECAST BOXES WHEN PIPE ENTERS PERPENDICULAR AND AT THE CENTER OF THE BOX WALL. CONTRACTOR SHOULD CONFIRM THAT PIPE USED FITS APPROPRIATELY INTO BOX.

PRECAST NOTES:

- SUPPLY PRECAST CONCRETE COMPONENTS FOR DRAINAGE ITEMS AT EACH LOCATION FROM A SINGLE SOURCE PRECAST MANUFACTURER THAT HAS BEEN INSPECTED AND APPROVED BY THE MATERIALS AND RESEARCH ENGINEER. SUPPLY ALL INTERCHANGEABLE PRECAST PARTS ON ENTIRE PROJECT FROM A SINGLE SOURCE MANUFACTURER LISTED ON QUALIFIED PRODUCT LIST 14 UNLESS APPROVED BY RCE. ITEMS FROM MULTIPLE MANUFACTURERS SHOULD NOT BE INSTALLED IN INDIVIDUAL LOCATIONS.
- THE USE OF PRECAST UNITS WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF OBTAINING SATISFACTORY INSTALLATIONS. SEE STANDARD DRAWINGS FOR PRECAST CONCRETE DRAINAGE BOX OR STRUCTURE FOR ADDITIONAL DETAILS AND SPECIFICATIONS.
- LIFT HOLES AND/OR DEVICES MAY BE PLACED AS NECESSARY. ALL LIFT HOLES SHALL BE GROUTED SHUT PRIOR TO COMPLETION OF THE INSTALLATION. ALL LIFTING METHODS MUST MEET OSHA REGULATIONS.
- PRECAST TOP SLAB TO BE MANUFACTURED WITH 1" CHAMFER OR RADIUS ON TOP OF FRONT END IN ORDER TO MORE CLOSELY MATCH TOP OF CURB RADIUS.
- IF PRECAST THROAT IS USED, THE THROAT OPENING SHALL NOT OBSTRUCT THE MANHOLE OPENING.
- THE CONTRACTOR SHALL USE A SINGLE SOURCE MANUFACTURER CHOSEN FROM THE LIST ON QUALIFIED PRODUCT LIST 14 FOR PRECAST ITEMS ON THIS DRAWING.
- PRECAST MANUFACTURER SHALL FOLLOW QUALIFIED PRODUCT POLICY 14 BEFORE SUPPLYING THIS ITEM ON SCDOT PROJECTS.
- CONTRACTOR MAY SUBMIT DESIGN DRAWINGS AND CALCULATIONS FOR MODIFICATIONS TO THIS ITEM ON A PROJECT BY PROJECT BASIS. MODIFICATIONS TO THESE ITEMS WILL NOT BE LISTED ON ANY QUALIFIED PRODUCT LIST. SUBMIT ALL PROPOSALS FOR PROJECT SPECIFIC MODIFICATIONS TO THE RESIDENT ENGINEER FOR REVIEW BY THE ENGINEER OF RECORD.
- JOINTS BETWEEN INSTALLED PIECES AND PRECAST ITEMS TO BE PLACED SHALL BE SEALED WITH A 1/2" GROUT LIFT OR AN APPROPRIATE PLASTIC PREFORMED GASKET (FROM QUALIFIED PRODUCT LIST 14.)
- TOP SLAB MUST BE IN LINE WITH BOTH THE ROAD SLOPE (SHOW ON ROAD PLANS) AND THE SIDEWALK SLOPE (TYPICALLY 50:1).
- PRECAST CONCRETE CIRCULAR STRUCTURES (AS SHOWN ON 719-420-00) ARE REQUIRED FOR THE FOLLOWING APPLICATIONS UNLESS PROHIBITED BY THE PLANS OR SPECIAL PROVISIONS.
 - ON DRAINAGE STRUCTURES WITH A DEPTH EQUAL TO OR GREATER THAN 12 FEET.
 - ON DRAINAGE STRUCTURES WHERE THE FLOW LINE ELEVATION OF THE INLET PIPE IS EQUAL TO OR HIGHER THAN THE INSIDE TOP (SOFFIT) OF THE OUTLET PIPE.
 - AS REQUIRED BY THE PROJECT PLANS.

TABLE 719-016B	
STANDARD PC ITEMS CB 16	
CB 16 BOTTOM SLAB (64" X 64" X 6")	
CB 16 TOP SLAB (66" X 64" X 8")	
CB 16 TOP SLAB WITH THROAT WALLS (66" X 64" X 14")	
SEE ALSO 719-305-00 AND 719-310-00	

REFERENCES

- NATIONAL DOCUMENTS
ASTM C55, ASTM A706, AASHTO M55, AASHTO M221
- SCDOT DOCUMENTS
QUALIFIED PRODUCT LIST 14
- RELATED DRAWINGS & KEYWORDS
719-016-01 TO 719-016-02, 719-550-00, 719-420-00, 719-425-00, 719-510-00, 719-310-00, 719-305-00

PRECONSTRUCTION SUPPORT ENGINEER



E. Earle
SIGNATURE

MARCH 3, 2008
DATE

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5			
4			
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0	3/2008	DSO	GENERAL REVISIONS
#	DATE	CHK	DESCRIPTION



SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

CATCH BASIN
TYPE 16

719-016-02
EFFECTIVE LETTING DATE MAY 2008

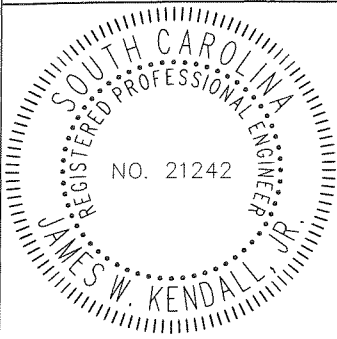
REFERENCES

NATIONAL DOCUMENTS

SCDOT DOCUMENTS

RELATED DRAWINGS & KEYWORDS

THIS DRAWING IS ONLY VALID FOR CONSTRUCTION WHEN SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA. CHECK WWW.SCDOT.ORG FOR LATEST UPDATE.



James W. Kendall, Jr.
SIGNATURE

10/30/2015
DATE

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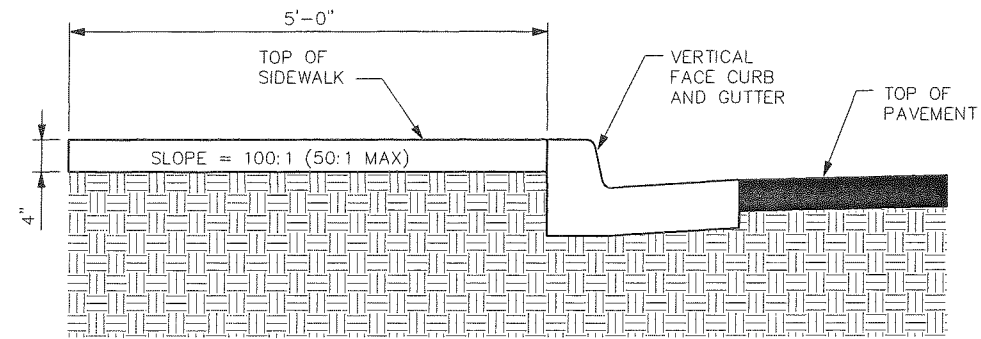


STANDARD DRAWING

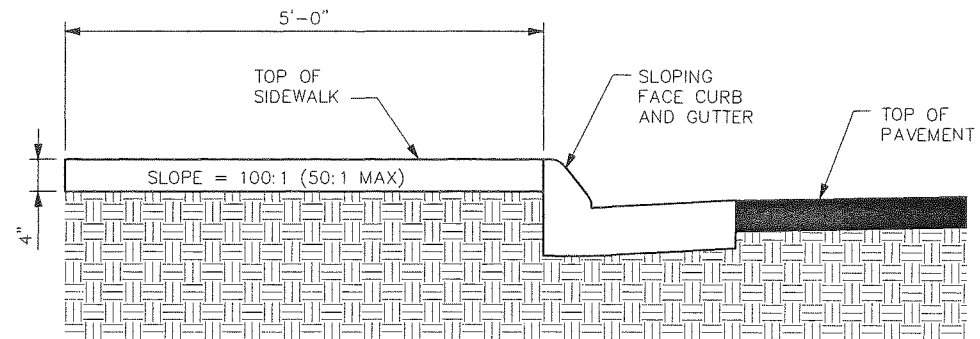
SIDEWALK ADJACENT TO CURB

720-150-00
EFFECTIVE LETTING DATE JAN., 2016

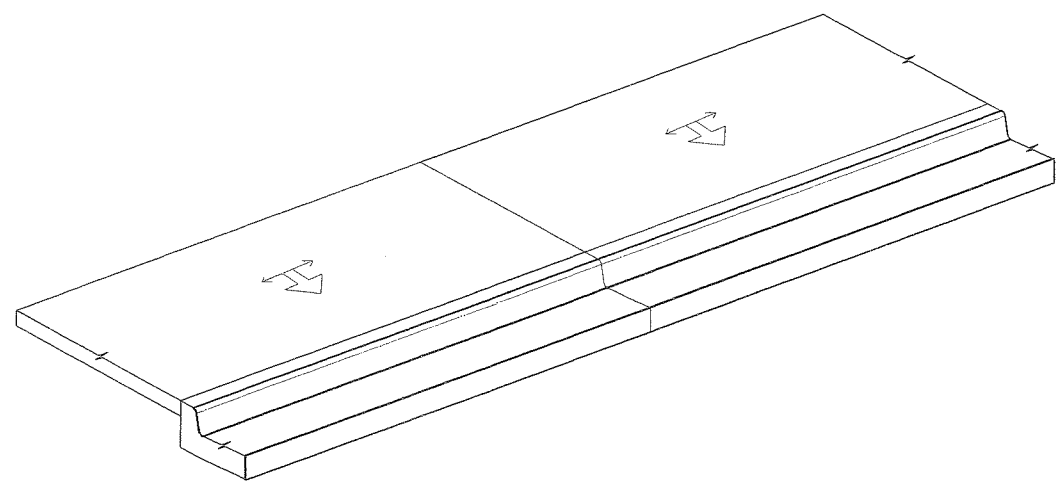
- NOTES:
- 1 SEE DRAWING 720-105-01 FOR STANDARD CURB AND CUTTER DETAILS.
 - 2 SEE DRAWING 720-901-03 FOR SYMBOLS AND CONSTRUCTION TOLERANCE.
 - 3 PLACE TRANSVERSE EXPANSION JOINTS (FULL DEPTH ACROSS THE ENTIRE SIDEWALK WIDTH) WHEN NEAR TURNS IN THE SIDEWALK, AND IN LONG CONTINUOUS RUNS OF SIDEWALK AS DIRECTED IN THE STANDARD SPECIFICATIONS.
 - 4 PLACE EXPANSION JOINTS BETWEEN THE SIDEWALK EDGE AND THE BACK OF CURB WHEN ALONG A RADIUS LESS THAN 100'.
 - 5 PLACE EXPANSION JOINTS BETWEEN THE SIDEWALK EDGE AND ANY ADJACENT STRUCTURE (RETAINING WALLS, BUILDINGS, ETC.)
 - 6 PLACE CONTRACTION JOINTS AT REGULAR INTERVALS BETWEEN EXPANSION JOINTS NOT TO EXCEED STANDARD SPECIFICATION SPACING.
 - 7 MEASURE SIDEWALK IN SQUARE YARDS BY THE ACTUAL PLACED AREA OF CONCRETE UP TO THE ADJACENT PAY ITEM LIMITS (CURBS, PEDESTRIAN RAMPS, DRIVEWAYS, ETC.).



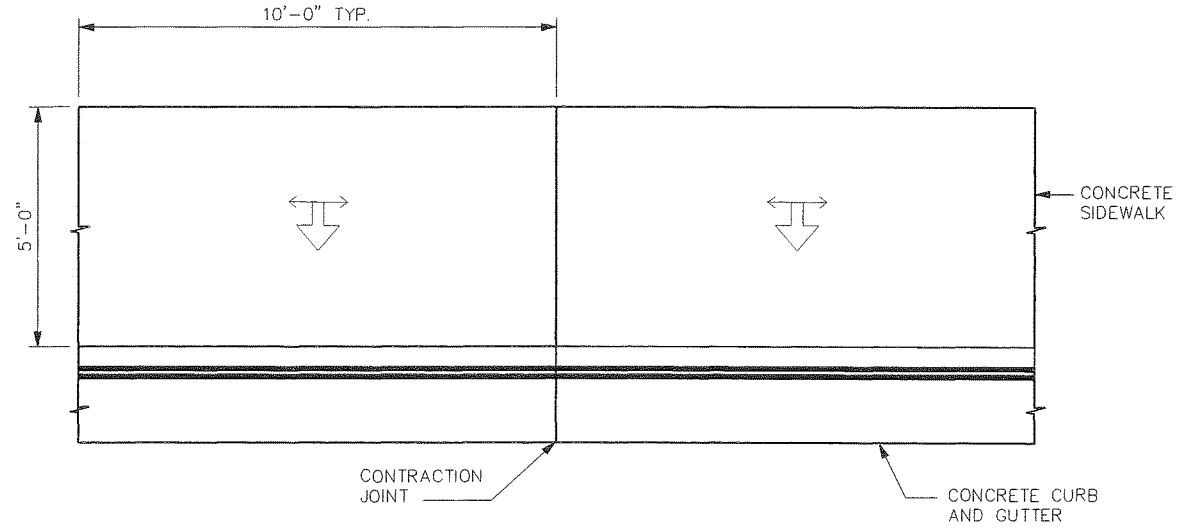
DETAIL 1
1/2" = 1'-0"
SIDE ELEVATIONS



DETAIL 2
1/2" = 1'-0"
SIDE ELEVATIONS



DETAIL 4
ISOMETRIC VIEW



DETAIL 3
SCALE: 1/4" = 1'-0"
PLAN VIEW

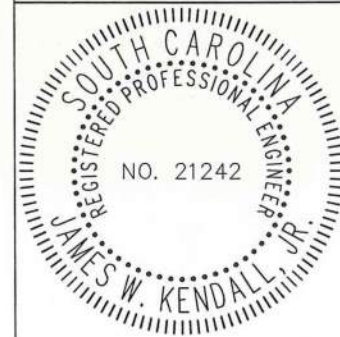
REFERENCES

NATIONAL DOCUMENTS
 REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY NOVEMBER, 2005
 MUTCD 2009

SCDOT DOCUMENTS
 SCDOT TRANSITION PLAN
 QPL 61

RELATED DRAWINGS & KEYWORDS
 625-305-00

THIS DRAWING IS ONLY VALID FOR CONSTRUCTION WHEN SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA. CHECK WWW.SCDOT.ORG FOR LATEST UPDATE.



James W. Kendall, Jr.
 SIGNATURE
 12/10/2014
 DATE

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0	8/12	DSO	NEW DRAWING
#	DATE	CHK	DESCRIPTION



STANDARD DRAWING
 PEDESTRIAN RAMPS
 GENERAL NOTES
 &
 DEFINITIONS

720-901-01

EFFECTIVE LETTING DATE FEBRUARY, 2015

1.00 GENERAL

- 1.01 CONSTRUCT PEDESTRIAN RAMPS CONFORMING TO THESE STANDARD DRAWINGS. SUBMIT RAMP DESIGN DRAWINGS TO THE ENGINEER FOR REVIEW WHEN NON STANDARD RAMPS ARE USED.
- 1.02 USE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION), SCDOT QUALIFIED PRODUCT LIST 61 AND DETECTABLE WARNING MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 1.03 PROVIDE A SKID-RESISTANT BROOM FINISH ON CONCRETE WITHIN THE DESIGNATED PEDESTRIAN ACCESS ROUTE. CONSTRUCT DESIGNATED PEDESTRIAN ACCESS ROUTES LOCATED ON ASPHALT PAVEMENTS AS LEVEL AS PRACTICAL AND REMOVE LOOSE OR UNCOMPACTED ASPHALT THROUGH THE ENTIRE ACCESS ROUTE.
- 1.04 COORDINATE THE RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO THAT DETECTABLE WARNINGS FOR RAMPS AND REFUGE ISLANDS ARE ENTIRELY WITHIN PEDESTRIAN CROSSWALK MARKINGS.
- 1.05 SEE STANDARD DRAWING 626-305-00 FOR CROSSWALK MARKING STYLES.
- 1.06 CONSTRUCT SIDEWALK, PARALLEL RAMP, AND LANDING CROSS SLOPES AT 100H:1V [NO STEEPER THAN 50H:1V] TOWARD THE ROADWAY. CONSTRUCT CROSS SLOPE OF PERPENDICULAR RAMPS TO MATCH ROADWAY GRADE.
- 1.07 CONSTRUCT RUNNING SLOPE OF NEW CURB RAMPS AT A 12H:1V OR 8.33% OR FLATTER WHEN MEASURED ALONG THE DIRECTION OF PEDESTRIAN TRAVEL UP THE RAMP AND RELATIVE TO A LEVEL GRADE UNLESS FIELD CONDITIONS REQUIRE A RAMP GREATER THAN 15' LONG.
- 1.08 USE AT LEAST 18" CURB RADIUS AT ALL EDGES OF NEW CONCRETE ISLANDS AND AT LEAST 6" CURB RADIUS AT ALL CURB RETURNS. DO NOT SAW CUT EDGES THROUGH ISLANDS OR AT RAMPS FOR NEW CONSTRUCTION.
- 1.09 DO NOT CONSTRUCT STANDARD RAMP PARTITIONS OR CURB RETURNS TALLER THAN 12". IN LOCATIONS WHERE GRADE SEPARATION BETWEEN SIDEWALK AND ADJACENT PROPERTY EXCEEDS 12", SLOPE ADJACENT GRADE AS DIRECTED BY THE ENGINEER OR PROPERTY OWNER (2:1 OR FLATTER). WHERE REGRADING OF ADJACENT PROPERTY IS NOT PRACTICAL, PROVIDE A RETAINING WALL AS SHOWN IN THE PLANS, SPECIAL PROVISIONS, OR AS DIRECTED BY THE ENGINEER.
- 1.10 REMOVE AND DISPOSE OF ALL WASTE AND EXCESS MATERIAL FROM COMPLETED RAMP.
- 1.11 IN LOCATIONS WHERE ARCHITECTURAL TREATMENTS (IMPRINTED ASPHALT, ARCHITECTURAL PAVERS, STAMPED CONCRETE, ETC.) ARE INCLUDED IN THE PLANS, DO NOT PLACE THE ARCHITECTURAL TREATMENTS WITHIN THE PEDESTRIAN RAMP OR LANDING. HOWEVER, DYED OR STAINED CONCRETE MAY BE USED IN THESE AREAS IF INDICATED IN THE PLANS OR SPECIAL PROVISIONS.
- 1.12 WHERE PRACTICAL, LOCATE ARCHITECTURAL TREATMENTS ALONG THE BOUNDARY OF THE PEDESTRIAN ACCESS ROUTE RATHER THAN DIRECTLY WITHIN THE PEDESTRIAN ACCESS ROUTE.

5.00 REFUGE ISLANDS/RAISED MEDIANS

- 5.01 IN REFUGE ISLANDS, PROVIDE A MINIMUM OF 2' -0" SEPARATION BETWEEN DETECTABLE WARNINGS ON EITHER SIDE OF THE REFUGE TO DELINEATE WHERE ISLAND BEGINS AND ENDS.
- 5.02 USE DETECTABLE WARNINGS IN RAISED ISLANDS 6' -0" WIDE OR WIDER IN GENERAL DIRECTION OF PEDESTRIAN TRAVEL THROUGH THE RAMP.
- 5.03 USE ISLAND STRAIGHT CROSSING ADJACENT TO INTERSECTIONS THROUGH ANY ISLAND LESS THAN 12' WIDE.
- 5.04 WHEN A MID-BLOCK CROSSING IS REQUIRED, CONSIDER MID-BLOCK STAGGERED CROSSING (720-055-41) TO ENCOURAGE EYE CONTACT BETWEEN THE PEDESTRIAN AND THE ONCOMING TRAFFIC. ALWAYS ANGLE THE STAGGER SO THE PEDESTRIAN TRAVELS THROUGH THE REFUGE FACING THE ONCOMING TRAFFIC.

15.00 DRAINAGE

- 15.01 WHERE PRACTICAL, LOCATE DRAINAGE STRUCTURES OUTSIDE AND UPHILL OF DESIGNATED PEDESTRIAN ACCESS ROUTES.
- 15.02 WHEN DRAINAGE STRUCTURE MUST BE LOCATED INSIDE OF A PEDESTRIAN ACCESS ROUTE, USE ONLY ADA COMPLIANT DRAINAGE STRUCTURES. USE ADA RATED GRATE AND COVERS WHEN INSIDE PEDESTRIAN ACCESS ROUTES INCLUDING SIDEWALKS, RAMPS, LANDINGS, CROSSWALKS, AND ISLANDS. SEE STANDARD DRAWINGS FOR CATCH BASINS (719-0XX-XX), DROP INLETS (719-1XX-XX), AND TRENCH DRAINS (719-2XX-XX) FOR AVAILABLE OPTIONS.
- 15.03 DO NOT ELIMINATE DRAINAGE STRUCTURE WITHOUT THE CONSENT OF THE HYDRAULIC ENGINEER.
- 15.04 PROVIDE RAMP PARTITIONS AS NEEDED TO CONTAIN ROADWAY DRAINAGE OR IF NEEDED TO MAINTAIN GRADING ON ADJACENT PROPERTY. WHEN RAMP PARTITION IS USED, GRADE ADJACENT SOIL WITHIN 1/2" OF THE TOP OF THE RAMP PARTITION AND FLAT FOR AT LEAST 1' BEHIND THE RAMP PARTITION

20.00 DETECTABLE WARNINGS

- 20.01 FOR STANDARD INSTALLATIONS, USE AT LEAST A 2' -0" X 5' -0" DETECTABLE WARNING AT ALL INTERFACES BETWEEN PEDESTRIAN ACCESS ROUTE OR REFUGE ISLAND AND ADJACENT TRAFFIC. ALWAYS SUPPLY ENOUGH DETECTABLE WARNING MATERIAL TO COVER LANDING OR REFUGE BOUNDARY AS SPECIFIED IN THESE STANDARD DRAWINGS. RETROFIT RAMPS THAT DO NOT HAVE SUFFICIENT ROOM TO ACCOMMODATE STANDARD RAMPS MAY USE SMALLER DETECTABLE WARNINGS IF SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS.
- 20.02 UNLESS SPECIFIED OTHERWISE IN THE PLANS OR SPECIAL PROVISIONS, INSTALL SAFETY YELLOW FEDERAL NUMBER 33530 DETECTABLE WARNINGS. SEE QUALIFIED PRODUCT LIST 61 FOR AVAILABLE COLORS AND USE ONLY COLORS THAT PROVIDE CONTRAST BETWEEN THE ADJACENT MATERIALS.
- 20.03 FOLLOW DETECTABLE WARNING MANUFACTURER'S INSTALLATION PROCEDURES AND USE ONLY MATERIALS (PRIMER, GROUT, ADHESIVES, ETC.) AND METHODS (CONTACT PREPARATION, PLACEMENT, FIELD CUTS, ETC.), THAT ARE SPECIFIED BY THE DETECTABLE WARNING MANUFACTURER AS COMPATIBLE WITH THE SELECTED WARNING PRODUCT.

20.04 SELECT DETECTABLE WARNING PRODUCT BASED ON THE FOLLOWING CONDITIONS:

- | | |
|--|--|
| a. WET INSET WITH FASTENERS OR REPLACEABLE | ANY NEW LOCATION WITH NEW CONCRETE |
| b. WET INSET WITHOUT FASTENERS | ANY NEW LOCATION WITH NEW CONCRETE |
| c. PAVER | ONLY WHEN SPECIFIED IN PLANS OR SPECIAL PROVISIONS |
| d. ASPHALT APPLIED | ONLY ON ASPHALT SURFACES |
| e. DRY BONDED | ONLY WHEN NEW CONCRETE WILL NOT BE PLACED IN RAMP |

- 20.05 FOR RADIUS INSTALLATIONS, FIELD CUT DETECTABLE WARNING MATERIAL TO FIT BACK OF CURB RADIUS AS SHOWN OR ORDER CUSTOM FABRICATED PIECES TO MATCH CURB RADIUS. EDGE OF DETECTABLE WARNING MUST BE WITHIN 3" OF BACK OF CURB AT ANY MEASURED LOCATION FOR CURVED INSTALLATIONS. COVER ENTIRE BACK OF CURB RADIUS BOUNDARY TO WITHIN 2 INCHES OF BOTH SIDES OF THE LOWER LANDING. WHERE PRACTICAL, MINIMIZE THE NUMBER OF FIELD CUT PIECES IN RADIUS INSTALLATIONS.
- 20.06 DO NOT INSTALL DETECTABLE WARNINGS IN AT-GRADE MEDIANS OR IN MEDIAN LOCATIONS WHERE A RAISED MEDIAN TERMINATES ON ONE SIDE OF A CROSSWALK. NO REFUGE ISLAND IS AVAILABLE IN THESE CASES, SO PEDESTRIAN CROSSWALK SIGNAL SHOULD BE TIMED TO ALLOW THE PEDESTRIAN TO CROSS TO THE NEXT AVAILABLE REFUGE LOCATION.
- 20.07 PLACE ALL STYLE DETECTABLE WARNING MATERIALS FLUSH WITH TOP OF SIDEWALK (FLUSH +/- 1/8").
- 20.08 LOCATE ENTIRE WARNING BEHIND CURB LINE TO MINIMIZE VEHICLES RIDING OVER THIS FEATURE. LOCATE ONE EDGE OF DETECTABLE WARNING WITHIN 3 INCHES OF THE FACE OF CURB ON MEDIAN ISLANDS AND 0 TO 2 INCHES BEHIND BACK OF CURB AND GUTTER.
- 20.09 ALIGN TRUNCATED DOME PATTERN IN LINE WITH DIRECTION PEDESTRIAN TRAVEL ACROSS THE DETECTABLE WARNING.
- 20.10 GROOVE A 1/4" X 1/4" JOINT IN THE CONCRETE PAD DIRECTLY AROUND THE PERIMETER OF THE DETECTABLE WARNING MATERIAL FOR ALL WET INSET AND GROUTED PAVER STYLES.
- 20.11 APPLY SEALANT AROUND THE PERIMETER AND ALL JOINTS OF THE DETECTABLE WARNING FOR ALL GROUTED PAVER, ASPHALT APPLIED, AND DRY BONDED SURFACE APPLIED STYLE DETECTABLE WARNINGS.

25.00 RETROFIT INSTALLATIONS

- 25.01 WHEN RETROFITTING PEDESTRIAN RAMPS ON SIDEWALKS, RETROFIT EXISTING CONCRETE ISLANDS AT THE SAME TIME.
- 25.02 FOR RETROFIT RAMPS, REGARDLESS OF EXISTING SIDEWALK WIDTH; CONSTRUCT FULL SIZE RAMPS AS SHOWN IN THESE STANDARD DRAWINGS, UNLESS RIGHT OF WAY LIMITS DO NOT ACCOMMODATE STANDARD RAMPS OR SHOWN OTHERWISE IN THE PLANS OR SPECIAL PROVISIONS.
- 25.03 USE DRY BONDED SURFACE APPLIED DETECTABLE WARNINGS ONLY IN LOCATIONS WHERE EXISTING GEOMETRY CONFORMS TO REQUIREMENTS FOR A RETROFIT RAMP AND NO NEW CONCRETE WILL BE PLACED IN THE RAMP OR LANDING. PROVIDE A COPY OF THE LATEST VERSION OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS TO THE RESIDENT ENGINEER BEFORE INSTALLATION OF SURFACE APPLIED DETECTABLE WARNINGS.
- 25.04 FOR RETROFIT RAMPS, IF NEW CONCRETE IS PLACED IN THE RAMP, USE ONLY WET INSET OR PAVER STYLE DETECTABLE WARNING SYSTEMS.
- 25.05 FOR ISLAND RETROFITS, SAW CUT EDGES ARE ACCEPTABLE ON AT GRADE PASS THROUGHES. IF RAMPS ARE CONSTRUCTED TO DIRECT PEDESTRIANS TO THE TOP OF THE RAISED ISLAND, PROVIDE SIDE FLARE EDGES ON THE RAMP TO MINIMIZE TRIP HAZARD. DO NOT USE SAW CUT OR VERTICAL EDGES ON RETROFIT RAMPS IN SIDEWALK.
- 25.06 PLACE FACTORY EDGES OF THE DRY BONDED SURFACE APPLIED DETECTABLE WARNING TRANSVERSE TO THE DIRECTION OF PEDESTRIAN TRAVEL ACROSS THE DETECTABLE WARNING. FIELD CUT EDGES MAY ONLY BE PLACED AGAINST CURBS, RAMP EDGES, AND ADJACENT DETECTABLE WARNINGS. SEAL PERIMETER AND ALL EDGES OF DRY BONDED SURFACE APPLIED DETECTABLE WARNINGS.

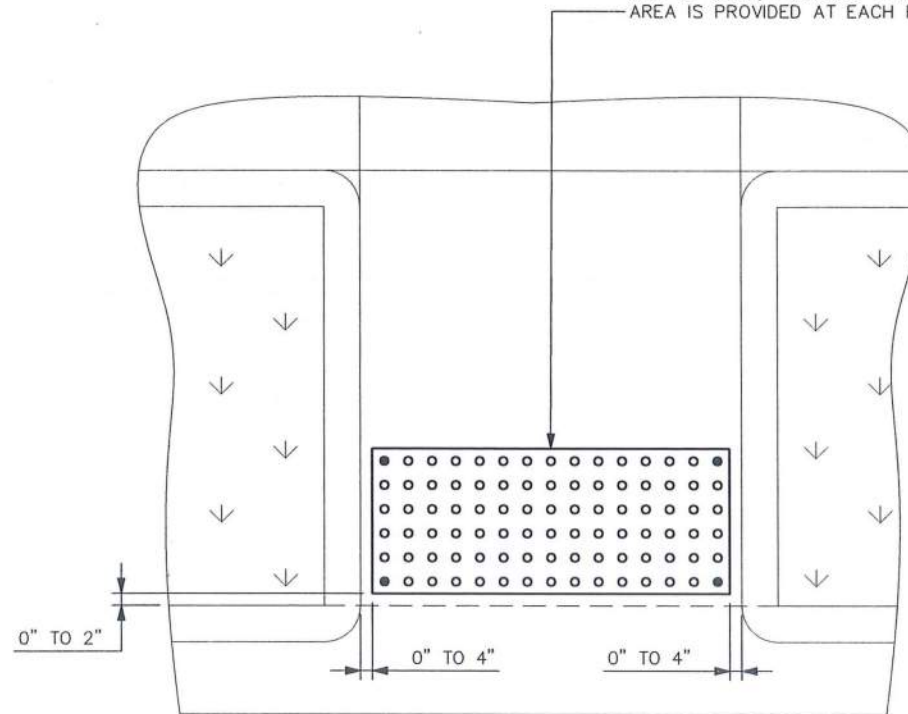
30.00 MEASUREMENT

- 30.01 FOR CURB RAMPS, MEASURE PEDESTRIAN RAMP CONSTRUCTION 7209000 IN SQUARE YARDS BASED ON THE ACTUAL AREA OF RAMPS, TAPERED AND DROPPED CURBS, RAMP PARTITIONS, CURB RETURNS, FLARES, AND GUTTERS SHOWN SHADED IN THESE STANDARD DRAWINGS.
- 30.01A MEASURE DETECTABLE WARNING MATERIAL 7204900 ON NEW PEDESTRIAN RAMPS IN SQUARE FEET BASED ON THE ACTUAL INSTALLED AREA OF THE DETECTABLE WARNING USED.
- 30.02 FOR LOCATIONS IN RAISED MEDIANS WHERE AT-GRADE PASS-THROUGH IS CONSTRUCTED, MEASURE CONCRETE MEDIAN 7206000, IN SQUARE YARDS, BY THE AREA INSIDE THE PERIMETER OF THE RAISED MEDIAN IF THE PASS-THROUGH WAS NOT PRESENT.
- 30.03 FOR LOCATIONS IN RAISED MEDIANS AND ON EXISTING RAMPS WHERE ONLY THE APPLICATION OF SURFACE APPLIED DETECTABLE WARNING IS REQUIRED, MEASURE SURFACE APPLIED DETECTABLE WARNING 7209100 IN SQUARE FEET BASED ON THE ACTUAL APPLIED AREA OF DETECTABLE WARNING.
- 30.04 FOR LOCATIONS WHERE EXISTING SIDEWALK IS TO BE REMOVED, MEASURE REMOVAL AND DISPOSAL OF EXISTING PAVEMENT 2023000, IN SQUARE YARDS, BY THE AREA OF SIDEWALK, CURB, AND GUTTER REMOVED FROM THE EXISTING INFRASTRUCTURE.

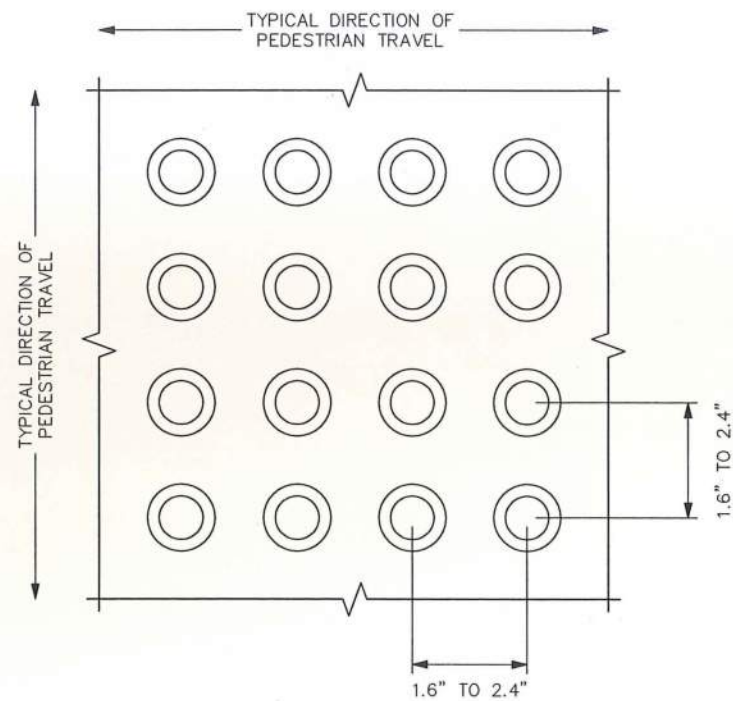
40.00 PAYMENT

- 40.01 PAY FOR PEDESTRIAN RAMP CONSTRUCTION 7209000 IN SQUARE YARDS AS SHOWN IN THESE DRAWINGS. PAYMENT INCLUDES ALL MATERIALS AND LABOR TO CONSTRUCT PEDESTRIAN RAMP AS SHOWN. NO ADDITIONAL PAYMENT WILL BE MADE FOR COMPONENTS USED TO COMPLETE THE RAMP CONSTRUCTION.
- 40.02 PAY FOR CONCRETE MEDIAN 7206000 IN SQUARE YARDS AS SHOWN ON STANDARD DRAWINGS 720-105-XX. PAYMENT INCLUDES ALL MATERIALS AND LABOR TO CONSTRUCT PEDESTRIAN PASS THROUGH ACROSS MEDIAN ISLANDS.
- 40.02A PAY FOR DETECTABLE WARNING MATERIAL 7204900 IN SQUARE FEET AS SHOWN IN THESE DRAWINGS WHEN NEW CONCRETE IS PLACED. INCLUDE IN THIS QUANTITY THE MATERIALS AND LABOR TO INSTALL THE WARNING MATERIAL OF THE COLOR AND STYLE SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS, OR PROVIDE A SAFETY YELLOW WET INSET STYLE PRODUCT WHEN THE STYLE IS NOT SPECIFIED.
- 40.03 PAY FOR SURFACE APPLIED DETECTABLE WARNING 7209100 IN SQUARE FEET AS SHOWN IN THESE DRAWINGS. WHEN INSTALLING SURFACE APPLIED DETECTABLE WARNINGS ON ASPHALT OR WHEN RETROFITTING EXISTING RAMPS. PAYMENT INCLUDES ALL MATERIALS AND LABOR TO INSTALL THE SURFACE APPLIED DETECTABLE WARNING AS SHOWN.
- 40.04 PAY FOR REMOVAL AND DISPOSAL OF EXISTING PAVEMENT 2023000 IN SQUARE YARDS.

INSTALL A MINIMUM 2'-0" X 5'-0" DETECTABLE WARNING MATERIAL AT THE BOUNDARY BETWEEN A DESIGNATED PEDESTRIAN PATH AND A VEHICULAR PATH. FOR RETROFIT APPLICATIONS AND IN LOCATIONS WHERE CONFLICTS WITH UTILITIES OR RIGHT-OF-WAY EXIST, A 4'-0" WIDE RAMP (2'-0" X 4'-0" DETECTABLE WARNING) MAY BE USED, PROVIDED THAT A MINIMUM 5'-0" X 5'-0" AREA IS PROVIDED AT EACH REFUGE ISLAND.

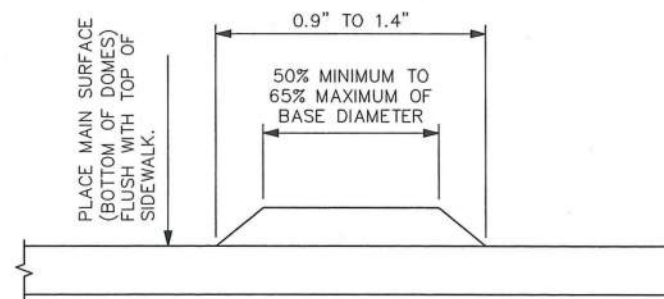


LOCATE DETECTABLE WARNING MATERIAL BETWEEN 0" TO 4" FROM CURB FACES AND 0" TO 2" FROM FLARES AND FLAT AREAS.



DETAIL 1
SCALE: 3" = 1'-0"
DOME SPACING

DETAIL 2
SCALE: 3/8" = 1'-0"
PLAN DETECTABLE WARNING PLACEMENT

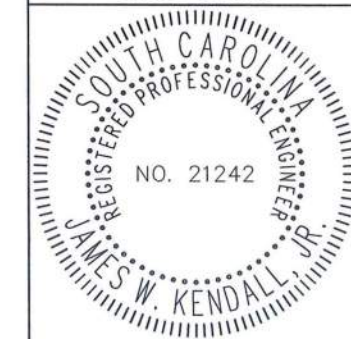


DETAIL 3
SCALE: 1" = 1"
ELEVATION

REFERENCES

- NATIONAL DOCUMENTS**
- REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY NOVEMBER, 2005
- MUTCD 2009
- SCDOT DOCUMENTS**
- SCDOT TRANSITION PLAN
- QPL 61
- RELATED DRAWINGS & KEYWORDS**
- 625-305-00

THIS DRAWING IS ONLY VALID FOR CONSTRUCTION WHEN SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA. CHECK WWW.SCDOT.ORG FOR LATEST UPDATE.



James W. Kendall, Jr.
SIGNATURE

12/10/2014
DATE

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1	11/14	DSO	DETAIL 2 NOTE, CHANGE UNDERLINED
0	8/12	DSO	NEW DRAWING
#	DATE	CHK	DESCRIPTION

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING
PEDESTRIAN RAMPS
GENERAL NOTES
&
DEFINITIONS

720-901-02
EFFECTIVE LETTING DATE | FEBRUARY, 2015

REFERENCES

NATIONAL DOCUMENTS
 REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY NOVEMBER, 2005
 MUTCD 2009

SCDOT DOCUMENTS
 SCDOT TRANSITION PLAN
 QPL 61

RELATED DRAWINGS & KEYWORDS

THIS DRAWING IS ONLY VALID FOR CONSTRUCTION WHEN SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA. CHECK WWW.SCDOT.ORG FOR LATEST UPDATE.

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
 NO. 21242
 JAMES W. KENDALL, JR.
 SIGNATURE
 12/10/2014
 DATE

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SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
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 COLUMBIA, SC 29201

STANDARD DRAWING
 PEDESTRIAN RAMPS
 GENERAL NOTES
 &
 DEFINITIONS

720-901-03
 EFFECTIVE LETTING DATE FEBRUARY, 2015

99.00 DEFINITIONS

CHANNELIZING ISLAND - RAISED CONCRETE OR PLANTED ISLAND USED TO SEPARATE THROUGH TRAVEL LANES AT AN INTERSECTION FROM THE UNSIGNALIZED CHANNELIZED RIGHT TURN.

CURB - STANDARD 6" HIGH CONCRETE ELEMENT THAT SEPARATES SIDEWALK FROM GUTTER.

CURB RADIUS - CIRCULAR PATH OF A CURB AROUND A CORNER. CURB RADIUS IS MEASURED FROM THE FACE OF CURB TO THE CENTER OF THE CIRCLE CONSTRUCTED.

CURB RAMP - SEE "PEDESTRIAN RAMP".

CURB RETURN - A PORTION OF CURB WRAPPED ADJACENT TO A RAMP OR LANDING TO ACCOUNT FOR GRADE DIFFERENCES. CONSTRUCT CURB RETURNS ADJACENT TO GRASS OR PLANTED AREAS. ALTERNATE TO FLARE.

DETECTABLE WARNING - A SURFACE FEATURE OF TRUNCATED DOME MATERIAL BUILT IN OR APPLIED TO THE WALKING SURFACE TO ADVISE OF AN UPCOMING CHANGE FROM PEDESTRIAN TO VEHICULAR WAY.

DRIVEWAY APPROACH - A PORTION OF SIDEWALK THAT PROVIDES VEHICLE ACCESS ONTO ADJACENT PROPERTY. DRIVEWAY APPROACH MUST CONTAIN AT LEAST A 3' WIDE DRIVEWAY PEDESTRIAN PATH. NOTE THAT PORTIONS OF THE DRIVEWAY APPROACH OUTSIDE OF THE DRIVEWAY PEDESTRIAN PATH MAY BE CONSTRUCTED AS NEEDED TO FIT SITE CONDITIONS AND TO ACCOMMODATE THE VEHICLE TYPE USING THE DRIVEWAY, AND THEREFORE, MAY NOT CONFORM TO RULES FOR PEDESTRIAN ACCESSIBILITY.

DRIVEWAY PEDESTRIAN PATH - THE PORTION OF A DRIVEWAY APPROACH THAT PROVIDES A PEDESTRIAN ACCESS ROUTE.

EXISTING COMPLIANT RAMP - A RAMP THAT MEETS THE GEOMETRY REQUIREMENTS FOR NEW RAMP CONSTRUCTION. DRY BONDED DETECTABLE WARNINGS MAY BE APPLIED TO EXISTING COMPLIANT RAMP WHERE NEEDED TO PROVIDE DELINEATION BETWEEN PEDESTRIAN PATH AND VEHICULAR PATH.

FLARE - A VARIABLE TRANSITION SLOPE (NOT TO EXCEED 10H:1V) THAT ACCOUNTS FOR GRADE DIFFERENCES BETWEEN A RAMP AND ADJACENT SURFACES. ALTERNATE TO CURB RETURNS.

GUTTER - A CONCRETE EDGE TREATMENT ON THE SIDE OF A ROADWAY TO CONVEY WATER.

HANDRAIL - A HORIZONTAL OR SLOPING RAIL INTENDED FOR GRASPING BY THE HAND FOR GUIDANCE AND SUPPORT.

LANDING - MINIMUM 4' X 4' AREA AT THE TOP OR BOTTOM OF A RAMP. CONSTRUCT ALL LANDINGS SUCH THAT EITHER CROSS SLOPE OR RUNNING SLOPE IS AT 100:1 NOMINAL (NOT TO EXCEED 50H:1V).

MEDIAN - THE AREA BETWEEN TWO ROADWAYS OF A DIVIDED HIGHWAY MEASURED FROM EDGE OF TRAVELED WAY TO EDGE OF TRAVELED WAY. THE MEDIAN EXCLUDES TURN LANES. THE MEDIAN WIDTH MIGHT BE DIFFERENT BETWEEN INTERSECTIONS, INTERCHANGES, AND AT OPPOSITE APPROACHES OF THE SAME INTERSECTION.

PARALLEL RAMP - A RAMP THAT EXTENDS IN THE SAME DIRECTION AS THE FLOW OF PEDESTRIAN TRAVEL ALONG THE LENGTH OF SIDEWALK.

PEDESTRIAN - A PERSON ON FOOT, IN A WHEELCHAIR, ON SKATES, OR ON A SKATEBOARD.

PEDESTRIAN ACCESS ROUTE - A CONTINUOUS AND UNOBSTRUCTED WALKWAY WITHIN A PEDESTRIAN CIRCULATION PATH THAT PROVIDES ACCESSIBILITY.

PEDESTRIAN BYPASS - PORTION OF SIDEWALK AVAILABLE FOR NAVIGATION AROUND A PERPENDICULAR RAMP. CONSTRUCT PEDESTRIAN BYPASS AT LEAST 5' WIDE.

PEDESTRIAN CIRCULATION PATH - A PREPARED EXTERIOR OR INTERIOR WAY OF PASSAGE PROVIDED FOR PEDESTRIAN TRAVEL.

PEDESTRIAN GUARD - A BOUNDARY STRUCTURE OF SPECIFIED GEOMETRY AND STRENGTH THAT IS LOCATED BETWEEN THE PEDESTRIAN ACCESS ROUTE AND A FIXED HAZARD SUCH AS A DROP OFF.

PEDESTRIAN PASS THROUGH - PATH WITHIN A RAISED MEDIAN THAT IS AT GRADE WITH ADJACENT ROADWAY. CONSTRUCT PEDESTRIAN PASS THROUGH AT LEAST 5' WIDE.

PEDESTRIAN RAMP - A COLLECTIVE TERM USED BY SCDOT TO INCLUDE CURB RAMPS AND BLENDED TRANSITIONS AS DEFINED BY THE U.S. ACCESS BOARD, AND IS INCLUSIVE OF ALL LANDINGS, PADS, AND PUSH BUTTON ACCESS PADS. PREFERRED 5' (MINIMUM 4') WIDE TRANSITION FROM AN UPPER LANDING TO A LOWER LANDING. CONSTRUCT RAMPS WITH A NOMINAL 13H:1V RUNNING SLOPE (NO STEEPER THAN 12H:1V) AND A 100H:1V CROSS SLOPE (NO STEEPER THAN 50H:1V) UNLESS SITE CONDITIONS INDICATE THE USE OF A 15' LONG RAMP. ON STEEP GRADE SECTIONS, THE "UPHILL" RAMP SHOULD BE LENGTHENED TO MAINTAIN A 12H:1V OR FLATTER RUNNING SLOPE. THE RAMP SLOPE MAY EXCEED 12H:1V ONLY IF THE REQUIRED RAMP LENGTH IS 15' OR LONGER. CONSTRUCT "DOWNHILL" RAMPS USING THE MINIMUM LENGTH SHOWN.

PERPENDICULAR RAMP - A RAMP THAT EXTENDS 90 DEGREES FROM THE FLOW OF PEDESTRIAN TRAVEL ALONG THE LENGTH OF SIDEWALK.

PROWAG - REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY NOVEMBER 2005

PROWAAC - PUBLIC RIGHTS-OF-WAY ACCESS ADVISORY COMMITTEE

RAILROAD CONSTRUCTION ZONE - PORTION OF ROADWAY AND SIDEWALK THAT ARE CONSTRUCTED BY RAILROAD CONTRACTORS. USE MATERIALS AND METHODS SPECIFIED BY THE PROPERTY OWNER.

RAILROAD FLANGE WAY FILLER - PREFABRICATED PRODUCT USED TO MINIMIZE PHYSICAL GAPS AROUND RAILS. ANY RAILROAD FLANGE WAY FILLER USED MUST ALSO BE APPROVED BY THE OWNER OF THE RAILROAD REGARDLESS OF THE PROPERTY OWNER AT THE CROSSING.

RAILROAD SIDEWALK CONNECTION ZONE - SIDEWALK INTERFACE BETWEEN TYPICAL SIDEWALK OR RAMP AND THE RAILROAD CONSTRUCTION ZONE. THIS INTERFACE IS GENERALLY CONSTRUCTED AFTER WORK IN THE RAILROAD CONSTRUCTION ZONE IS COMPLETE. USE MATERIALS AND METHODS SPECIFIED BY THE PROPERTY OWNER.

RAMP PARTITION - A PORTION OF CURB BEHIND THE SIDEWALK THAT SEPARATES LANDING FROM ADJACENT PROPERTY. CONSTRUCT RAMP PARTITION AT ALL LOCATIONS WHERE ROADWAY DRAINAGE COULD DISCHARGE ONTO ADJACENT PROPERTY. CONSTRUCT RAMP PARTITION IF NEEDED TO RETAIN EXISTING GROUND ELEVATION ON ADJACENT PROPERTY.

REFUGE ISLAND - A RAISED CONCRETE MEDIAN OR RAISED PLANTED MEDIAN THAT IS AT LEAST 6'-0" WIDE. RAISED MEDIAN ISLANDS MUST BE PRESENT ON BOTH SIDES OF THE PEDESTRIAN PATH TO BE CONSIDERED A REFUGE.

RETROFIT RAMP - RECONSTRUCTION OF A PORTION OF EXISTING SIDEWALK TO PROVIDE MOST ACCESSIBLE PATH PRACTICAL WITHOUT IMPACTING ADJACENT PROPERTY. WHERE PRACTICAL; RECONSTRUCT RETROFIT RAMP SLOPES TO MEET CURRENT CONSTRUCTION STANDARDS.

ROUNDABOUT - A CIRCULAR INTERSECTION WITH YIELD CONTROL ENTRY, WHICH PERMITS A VEHICLE ON THE CIRCULATORY ROADWAY TO PROCEED, AND WITH DEFLECTION OF THE APPROACHING VEHICLE COUNTER-CLOCKWISE AROUND A CENTER ISLAND.

RUNNING SLOPE - THE GRADE THAT IS PARALLEL TO THE DIRECTION OF TRAVEL, EXPRESSED AS A RATIO OF RISE TO RUN OR AS A PERCENT.

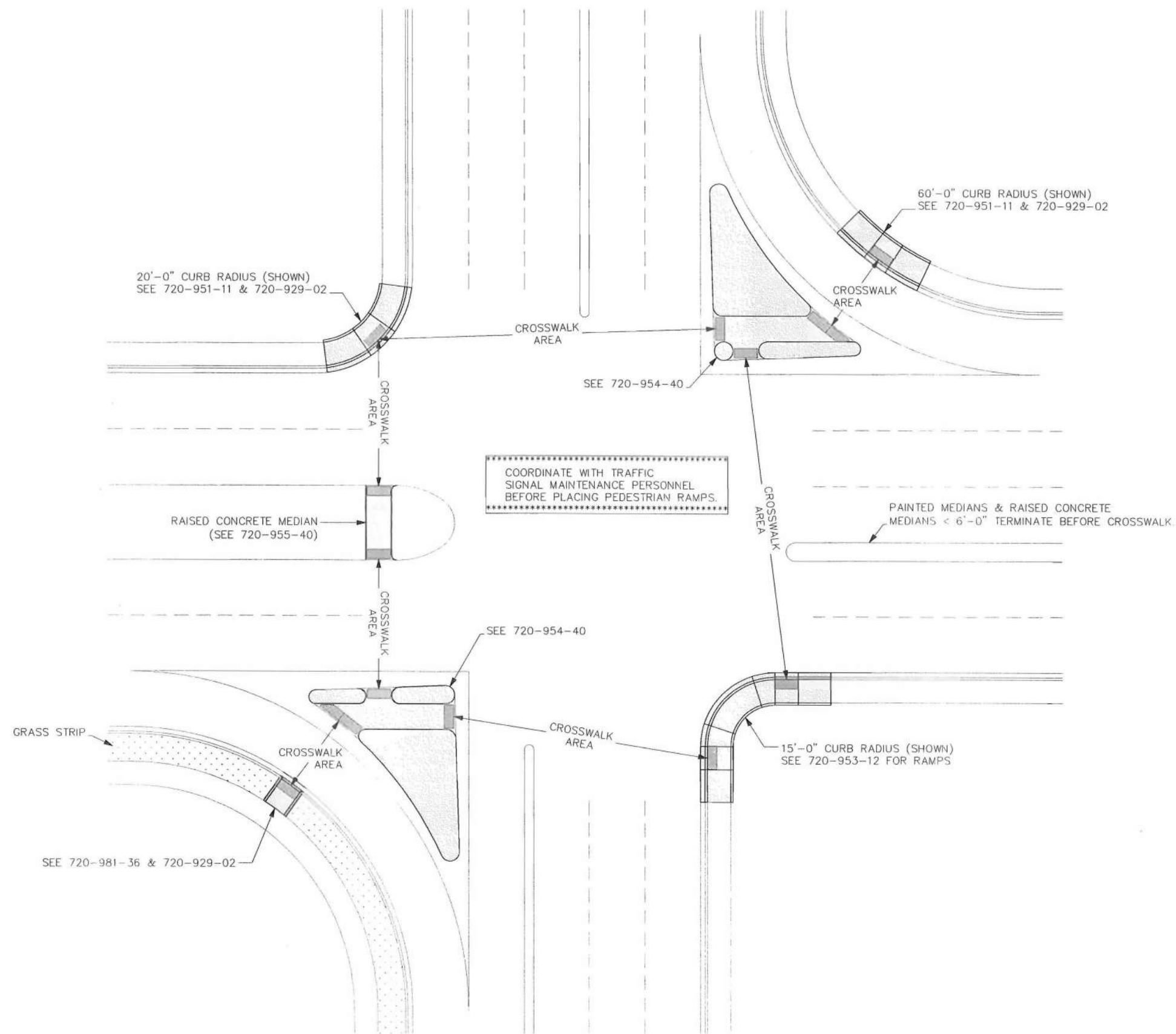
SIDEWALK - THAT PORTION OF A STREET BETWEEN THE CURB LINE, OR THE LATERAL LINE OF A ROADWAY, AND THE ADJACENT PROPERTY LINE OR ON EASEMENTS OF PRIVATE PROPERTY THAT IS PAVED OR IMPROVED AND INTENDED FOR USE BY PEDESTRIANS. CONSTRUCT SIDEWALK WITH A NOMINAL 100H:1V CROSS SLOPE (NOT TO EXCEED 50H:1V) TOWARDS THE ROADWAY. WHEN CONNECTED TO THE ROADWAY BY CURB AND GUTTER, SIDEWALK SHOULD FOLLOW ROADWAY GRADE UNLESS NOTED OTHERWISE IN THE PLANS OR SPECIAL PROVISIONS.

SPLITTER ISLAND - RAISED CONCRETE OR PLANTED ISLAND AT THE APPROACHES TO ROUNDABOUTS USED TO SEPARATE TRAFFIC ENTERING THE ROUNDABOUT FROM TRAFFIC EXITING THE ROUNDABOUT.

TAPERED CURB - A PORTION OF CURB THAT TRANSITION FROM A STANDARD 6" HIGH CURB TO GUTTER ELEVATION.

WALKWAY - THE CONTINUOUS PORTION OF THE PEDESTRIAN ACCESS ROUTE THAT IS CONNECTED TO STREET CROSSINGS BY CURB RAMPS OR BLENDED TRANSITIONS.

TABLE: 720-901A		
RAMP SYMBOL	USAGE	
	NOMINAL SLOPE	MAXIMUM SLOPE
	ROAD GRADE (SITE SPECIFIC GRADE)	ROAD GRADE (SITE SPECIFIC GRADE)
	CROSS SLOPE 100:1 (1%) (OR FLATTER)	CROSS SLOPE 50:1 (2%) (OR FLATTER)
	RAMP 14:1 (7.1%)	RAMP 12:1 (8.3%) (OR FLATTER) SEE NOTE 4
	FLARE 11:1 (9.1%) [ADDITIONAL RETROFIT USE]	FLARE 10:1 (10%) (OR FLATTER) [ADDITIONAL RETROFIT USE]
	PARALLEL RAMP (RAMP & CROSS SLOPE)	
	LANDING/SIDEWALK (CROSS SLOPE & ROAD GRADE)	
	PERPENDICULAR RAMP (RAMP & ROAD GRADE)	
1. RAMP SYMBOLS SHOWN IN TABLE 720-901A INDICATE THE NOMINAL SLOPE AND MAXIMUM ALLOWABLE SLOPE FOR PEDESTRIAN RAMP COMPONENTS. DO NOT EXCEED THE VALUES LISTED FOR MAXIMUM ALLOWABLE SLOPE UNLESS DIRECTED BY THE ENGINEER. 2. SEE ISOMETRIC VIEW SHOWN ON EACH STANDARD RAMP DETAIL FOR LOCATIONS OF RAMP SYMBOLS. 3. DIRECTION ARROWS INDICATE VERTICAL ELEVATION CHANGE FROM A POINT OF HIGH ELEVATION (TAIL) TO A POINT OF LOW ELEVATION (TIP). 4. FOR CURB RAMPS ONLY, SLOPE CAN BE EXCEEDED IF CALCULATED CURB RAMP LENGTH IS > 15'.		



REFERENCES

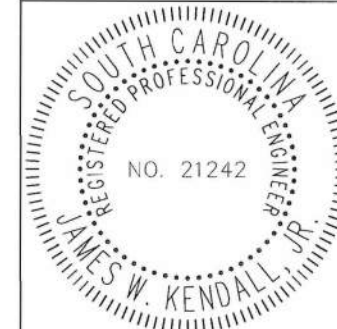
NATIONAL DOCUMENTS

SCDOT DOCUMENTS

RELATED DRAWINGS & KEYWORDS

720-929-02, 720-951-11,
720-953-12, 720-954-40,
720-955-40, 720-981-36

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James W. Kendall, Jr.
SIGNATURE

9-27-2017
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STANDARD DRAWING

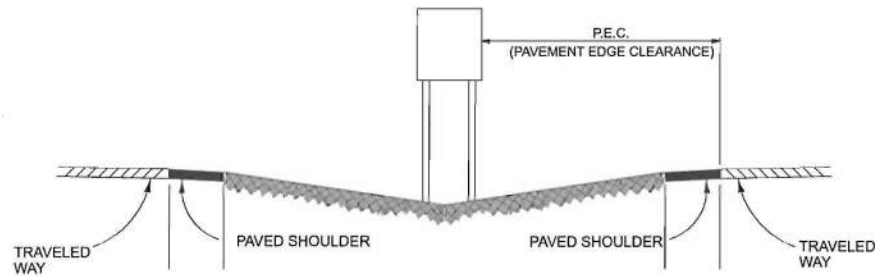
PEDESTRIAN RAMPS
INTERSECTION

720-920-05
EFFECTIVE LETTING DATE | JANUARY, 2013

TYPICAL INSTALLATION GUIDE (1)

SIGN CLEARANCES (INTERSTATE THROUGH ROADWAY)

SIGN IN MEDIAN

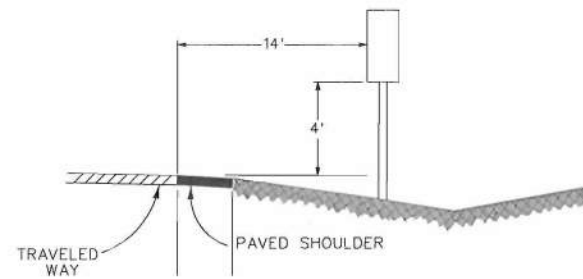


P.E.C. DISTANCE SHOULD BE THE SAME AS THAT INDICATED FOR EACH SPECIFIC SIGN ILLUSTRATION IN THE PLANS. SIGNS MAY BE DESIGNATED TO BE CENTERED IN MEDIAN.

ANY SIGN ERECTED IN THE MEDIAN ON I-BEAM SHALL HAVE OMNI-DIRECTION BREAKAWAY POST (EX: SPEED LIMIT OR TRUCK RESTRICTION)

MILEPOST MARKER

(D10-X-12)



OVERHEAD SIGNS

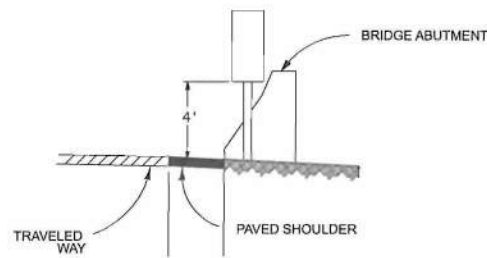
IF OVERHEAD SIGNS ARE REQUIRED A CROSS-SECTION SHEET WITH A CROSS-SECTION AT THE LOCATION OF EACH OVERHEAD STRUCTURE SHOWING REQUIRED VERTICAL CLEARANCES AND THE LATERAL PLACEMENT OF SIGNS OVER LANES.

FOUNDATION HEIGHTS FOR OVERHEAD STRUCTURES SHALL BE OF AN ELEVATION EQUAL TO THE FINISHED EARTHWORK ELEVATION ON THE HIGH SIDE OF THE SLOPE.

FOUNDATION ON LEVEL GROUND SHALL BE FLUSHED WITH THE FINISHED EARTHWORK ELEVATION, EVEN IF THE FOUNDATION IS BEHIND GUARDRAIL.

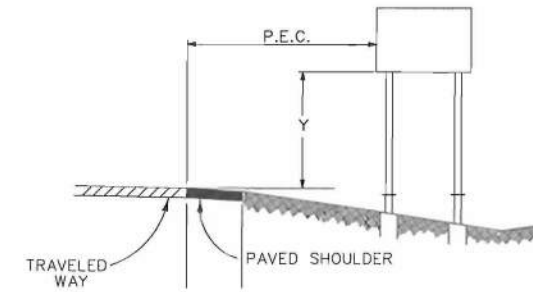
BRIDGE END MARKERS

(OM-3R-12 & OM-3L-12)



THE LEFT EDGE OF THE MARKER SHALL BE IN LINE WITH THE FACE OF THE OBSTRUCTION OR IN LINE WITH THE FACE OF THE GUARD RAIL, WHERE GUARD RAILS ARE PRESENT OR PROPOSED, AND AS NEAR TO THE END OF THE BRIDGE ABUTMENT AS POSSIBLE.

TYPICAL GROUND SIGN



1. DISTANCE P.E.C. SHALL BE AS INDICATED ON THE PLANS AT THE LOCATION OF EACH SIGN. IT MAY BE ADJUSTED BY THE ENGINEER TO AVOID PUTTING A SUPPORT IN THE DITCH.

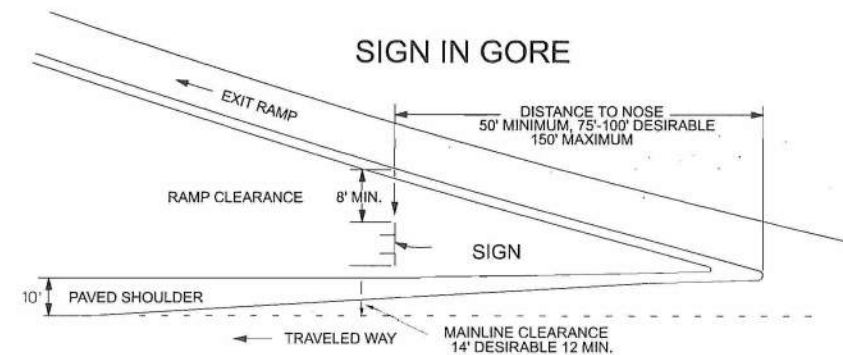
2. MOUNTING HEIGHT "Y" SHALL BE 7' EXCEPT AS FOLLOWS:

A. 5' FOR SPEED LIMIT INSTALLATION (R2-4A-4B-X/X)

B. WHERE MORE THAN ONE "Q" SIGN IS AFFIXED TO THE SAME MOUNT, SPECIAL INSTRUCTIONS WILL BE INDICATED ON THE PLAN SHEET AT THE SIGN ILLUSTRATION.

C. WHERE TRUCK WEIGH STATION SIGNS ARE USED, SPECIAL INSTRUCTIONS WILL BE INDICATED ON THE PLAN SHEET AT THE SIGN ILLUSTRATION.

SIGN IN GORE



NOTE: THE MAINLINE CLEARANCE SHOULD BE REDUCED AS THE DISTANCE TO NOSE EXCEEDS 100'.

REFERENCES

SIGNING AND MARKING ENGINEER



Mark H. Anthony
SIGNATURE

2-8-08
DATE

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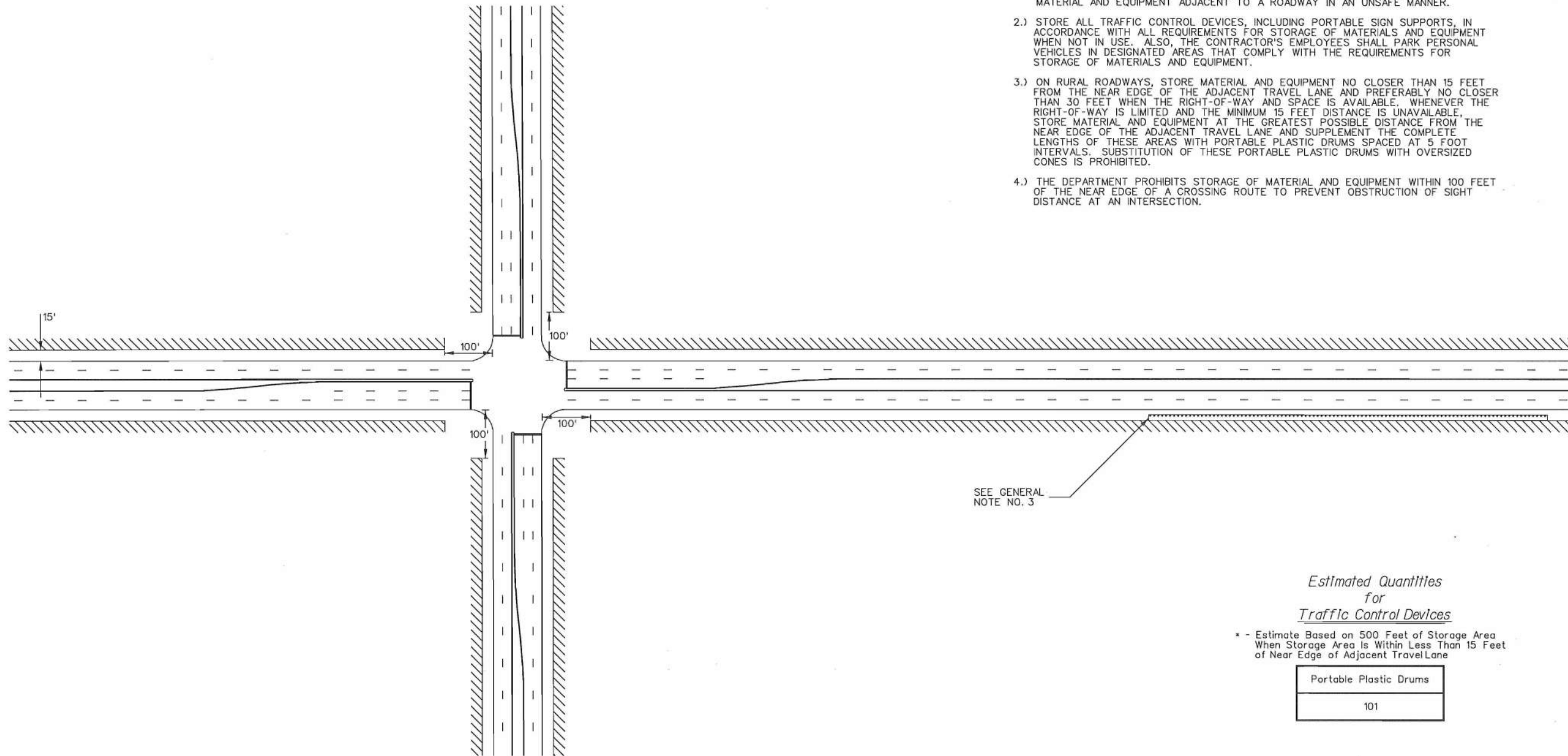
INSTALLATION GUIDE

650-110-01

EFFECTIVE LETTING DATE | MAY 2008

GENERAL NOTES

- 1.) STORE MATERIAL AND EQUIPMENT AT THE GREATEST POSSIBLE DISTANCE FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE WHEN THE RIGHT-OF-WAY AND SPACE IS AVAILABLE. UTILIZE AREAS PROTECTED BY GUARDRAIL AND TEMPORARY CONCRETE BARRIER WALL WHEN AVAILABLE. THE DEPARTMENT PROHIBITS THE STORAGE OF MATERIAL AND EQUIPMENT ADJACENT TO A ROADWAY IN AN UNSAFE MANNER.
- 2.) STORE ALL TRAFFIC CONTROL DEVICES, INCLUDING PORTABLE SIGN SUPPORTS, IN ACCORDANCE WITH ALL REQUIREMENTS FOR STORAGE OF MATERIALS AND EQUIPMENT WHEN NOT IN USE. ALSO, THE CONTRACTOR'S EMPLOYEES SHALL PARK PERSONAL VEHICLES IN DESIGNATED AREAS THAT COMPLY WITH THE REQUIREMENTS FOR STORAGE OF MATERIALS AND EQUIPMENT.
- 3.) ON RURAL ROADWAYS, STORE MATERIAL AND EQUIPMENT NO CLOSER THAN 15 FEET FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE AND PREFERABLY NO CLOSER THAN 30 FEET WHEN THE RIGHT-OF-WAY AND SPACE IS AVAILABLE. WHENEVER THE RIGHT-OF-WAY IS LIMITED AND THE MINIMUM 15 FEET DISTANCE IS UNAVAILABLE, STORE MATERIAL AND EQUIPMENT AT THE GREATEST POSSIBLE DISTANCE FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE AND SUPPLEMENT THE COMPLETE LENGTHS OF THESE AREAS WITH PORTABLE PLASTIC DRUMS SPACED AT 5 FOOT INTERVALS. SUBSTITUTION OF THESE PORTABLE PLASTIC DRUMS WITH OVERSIZED CONES IS PROHIBITED.
- 4.) THE DEPARTMENT PROHIBITS STORAGE OF MATERIAL AND EQUIPMENT WITHIN 100 FEET OF THE NEAR EDGE OF A CROSSING ROUTE TO PREVENT OBSTRUCTION OF SIGHT DISTANCE AT AN INTERSECTION.



SEE GENERAL NOTE NO. 3

Estimated Quantities for Traffic Control Devices

* - Estimate Based on 500 Feet of Storage Area When Storage Area is Within Less Than 15 Feet of Near Edge of Adjacent Travel Lane

Portable Plastic Drums
101

LEGEND

- PORTABLE PLASTIC DRUMS
- ▨ POTENTIAL STORAGE AREA

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER



W. McConnell
SIGNATURE

1-30-2008
DATE

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STANDARD DRAWING

MATERIALS STORAGE
PRIMARY
&
SECONDARY
RURAL ROADWAYS

601-110-00

EFFECTIVE LETTING DATE 1/30/08

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER



Willie E. McConnell, Jr.
SIGNATURE
8/2/12
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STANDARD DRAWING

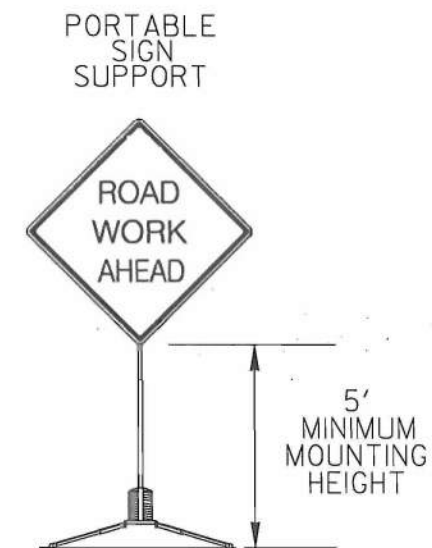
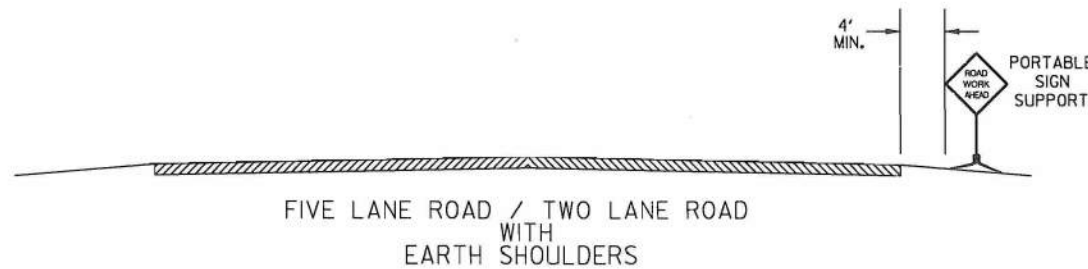
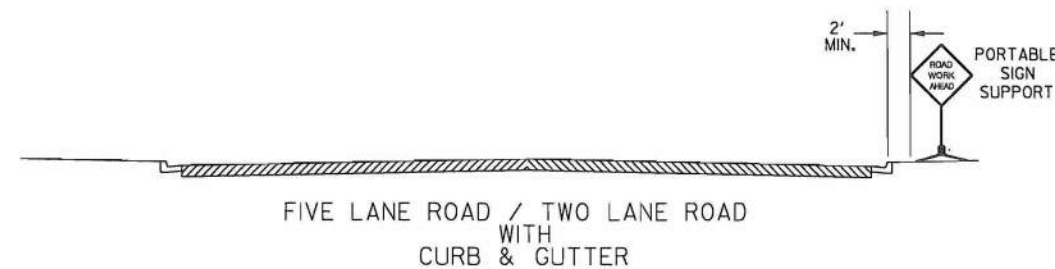
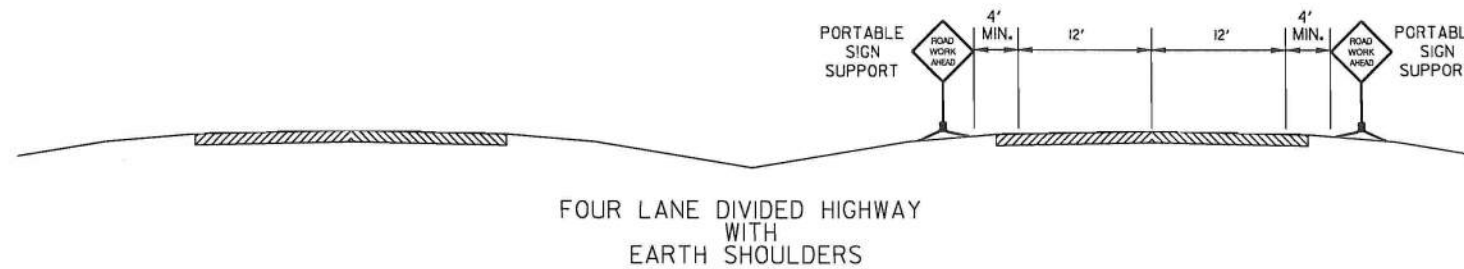
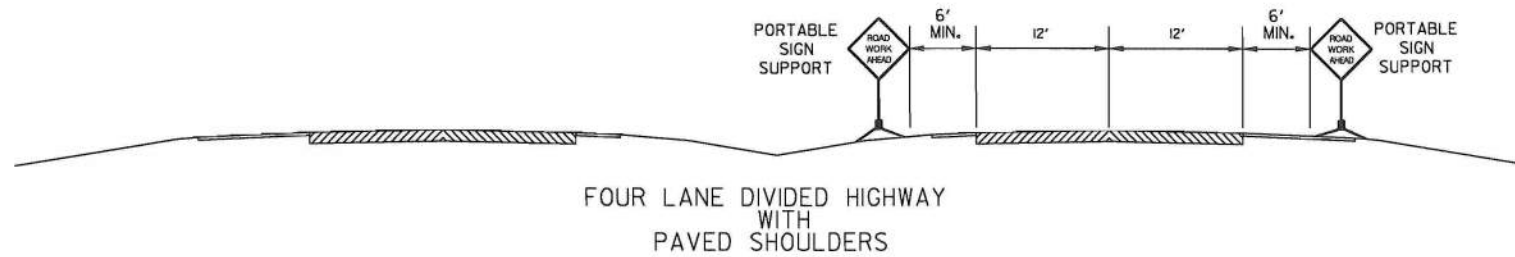
CONSTRUCTION SIGNING-TEMPORARY PORTABLE SIGN SUPPORTS INSTALLATION & PLACEMENT

602-005-00

EFFECTIVE LETTING DATE JAN., 2013 THIS DRAWING IS NOT TO SCALE

GENERAL NOTES

- ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
- INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
- ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL POSTS OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
- REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
- ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org.
- ONLY THOSE PORTABLE SIGN SUPPORTS INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL IN WORK ZONES" ARE CONSIDERED ACCEPTABLE. ALL PORTABLE SIGN SUPPORTS UTILIZED FOR CONTRACT WORK SHALL PROVIDE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN ON ALL ROADWAYS. MOUNTING HEIGHTS LESS THAN 5 FEET ARE UNACCEPTABLE FOR CONTRACT WORK.
- FABRICATE ALL SIGNS INTENDED FOR MOUNTING ON PORTABLE SIGN SUPPORTS FROM ONLY THOSE SIGN SUBSTRATUMS INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES".
- PROVIDE AND UTILIZE ANY SPECIAL SIGN MOUNTING ASSEMBLIES AND HARDWARE THAT MAY BE NECESSARY FOR INSTALLING AND MOUNTING SIGNS IN AREAS WHERE CONCRETE MEDIAN BARRIERS, BRIDGE PARAPET WALLS OR DOUBLEFACED GUARDRAIL ARE PRESENT.
- THESE ILLUSTRATIONS ARE INTENDED FOR INFORMATION ONLY. SIMILARITY BETWEEN THESE ILLUSTRATIONS AND ANY SPECIFIC DEVICE OR SYSTEM IS COINCIDENTAL AND IS NOT INTENDED AS EITHER A RECOMMENDATION OR AN ENDORSEMENT OF A SPECIFIC DEVICE OR DESIGN.
- INSTALL AND PLACE ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS AS ILLUSTRATED ON THIS TYPICAL TRAFFIC CONTROL STANDARD DRAWING.



REFERENCES

FLAGGING OPERATIONS
GENERAL NOTES

(ALL NOTES, SPECIFICATIONS AND REQUIREMENTS ON THIS STANDARD DRAWING APPLY TO ALL SUBSEQUENT STANDARD DRAWINGS REGARDING FLAGGING OPERATIONS UNLESS OTHERWISE NOTED)

FLAGGING OPERATIONS -

1. KEY FEATURES RELEVANT TO FLAGGING OPERATIONS:

- APPROACH TAPER** - THIS IS A ONE-LANE TWO-WAY TAPER PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE. THIS TAPER PRECEDES THE BUFFER SPACE AND THE WORK ACTIVITY AREA. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES EQUALLY SPACED AT 10' TO 25' INTERVALS AS NECESSARY TO CORRESPOND WITH THE LENGTH OF THE TAPER.
- DOWNSTREAM TAPER** - THIS TAPER, PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE, FOLLOWS THE WORK ACTIVITY AREA AND SERVES AS THE TERMINATION AREA FOR THE CLOSURE OF THE TRAVEL LANE. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES IN THIS TAPER.
- FLAGGER STATION** - THIS IS THE SPECIFIC LOCATION OF THE FLAGGER.
- CLOSED LANE FLAGGER** - THIS FLAGGER IS STATIONED ADJACENT TO THE FIRST TRAFFIC CONTROL DEVICE IN THE APPROACH TAPER WHO CONTROLS THE TRAFFIC THAT REQUIRES RELOCATION FROM THE TRAVEL LANE BEING CLOSED TO TRAFFIC.
- OPEN LANE FLAGGER** - THIS FLAGGER IS STATIONED 100 FEET BEYOND THE LAST TRAFFIC CONTROL DEVICE IN THE DOWNSTREAM TAPER WHO CONTROLS THE TRAFFIC OPERATING IN THE TRAVEL LANE REMAINING OPEN TO TRAFFIC.
- SIDE ROAD FLAGGER** - THIS FLAGGER IS STATIONED ON AN INTERSECTING SIDE ROAD AND CONTROLS THE SIDE ROAD TRAFFIC ENTERING INTO THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.
- BUFFER SPACE** - THIS AREA IS LOCATED BETWEEN THE DOWNSTREAM END OF THE APPROACH TAPER AND THE NEAREST LIMITS OF THE WORK ACTIVITY AREA AND MAY PROVIDE SOME RECOVERY SPACE FOR AN ERRANT VEHICLE. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE BUFFER SPACE IS PROHIBITED. HOWEVER, WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE BUFFER SPACE ARE UNAVAILABLE, A TRUCK MOUNTED ATTENUATOR MAY TEMPORARILY ENCR OACH UPON THE BUFFER SPACE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE SECTION BELOW ENTITLED, "BUFFER SPACE", WHEN APPROVED BY THE ENGINEER.

WORK ACTIVITY AREA - PERSONNEL, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. ARE PRESENT WITHIN THIS AREA TO CONDUCT THE WORK.

LIMITS of the WORK ACTIVITY AREA - THIS IS THE BOUNDARY OF THE WORK ACTIVITY AREA FIRST ENCOUNTERED, FROM EITHER DIRECTION, BY MOTORISTS PASSING BY THE WORK ACTIVITY AREA IN THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC AND CONTROLLED BY THE FLAGGERS.

APPROACH LANE - TRAFFIC APPROACHES AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.

DEPARTURE LANE - TRAFFIC DEPARTS FROM AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.

MAINLINE APPROACH - THIS IS AN APPROACH TO THE WORK ACTIVITY AREA ON THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.

SIDE ROADS - THESE ROADS INTERSECT THE ROADWAY ON WHICH THE WORK ACTIVITY AREA IS LOCATED.

LIMITS of the INTERSECTION - THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION OF STOP BARS WHEN PRESENT, WHEN STOP BARS ARE ABSENT, THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION POINTS WHERE THE CORNER RADII BETWEEN ADJACENT ROADWAY APPROACHES TIE TO THE EDGE OF PAVEMENT OR THE EDGE OF TRAVEL LANE ADJACENT TO THE EDGE OF PAVEMENT OF EACH ROADWAY.

2. INSTALL, CONDUCT AND MAINTAIN FLAGGING OPERATIONS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, THE STANDARD DRAWINGS, THE MUTCD AND THE "SOUTH CAROLINA FLAGGER'S HANDBOOK" UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. INSTALL ALL SIGNS RELATIVE TO A FLAGGING OPERATION PRIOR TO INITIATION OF THE OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION. EQUIP EACH FLAGGER WITH A 24" x 24" STOP/SLOW PADDLE MOUNTED ON A RIGID HANDLE WITH A MINIMUM LENGTH OF 7 FEET. THE DEPARTMENT PROHIBITS THE USE OF FLAGS EXCEPT DURING EMERGENCY SITUATIONS.
3. LANE CLOSURES FOR FLAGGING OPERATIONS ARE RESTRICTED TO A MAXIMUM DISTANCE OF 2 MILES UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE WORK LIMITS WILL COMPLY WITH THE CONTRACT AND SHALL REQUIRE THE ENGINEER'S APPROVAL PRIOR TO BEGINNING THE WORK.
4. INSTALL AND MAINTAIN THE PROPER ARRAY OF ADVANCE WARNING SIGNS FOR EACH "MAINLINE APPROACH" WHEN A FLAGGING OPERATION IS IN PLACE AND ACTIVE. WHEN NECESSARY TO RELOCATE THE "FLAGGER STATION" WHILE ACTIVELY MAINTAINING THE FLAGGING OPERATION, INSTALL AN ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS AT THE LOCATION RELATIVE TO THE NEW "FLAGGER STATION" AND REMOVE THE ORIGINAL ARRAY OF ADVANCE WARNING SIGNS IMMEDIATELY UPON COMPLETION OF THE RELOCATION OF THE FLAGGER TO THE NEW "FLAGGER STATION".
5. INSTALL ALL ADVANCE WARNING SIGNS IMMEDIATELY PRIOR TO INITIATING A FLAGGING OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION.
6. MAINTAIN TWO-WAY RADIO COMMUNICATIONS BETWEEN ALL FLAGGERS.

NIGHTTIME FLAGGING OPERATIONS -

1. EACH FLAGGER SHALL WEAR SAFETY APPAREL IN COMPLIANCE WITH THE REQUIREMENTS OF ANSI/ISEA 107 STANDARD PERFORMANCE FOR CLASS 3 RISK EXPOSURE, LATEST REVISION, WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
2. ILLUMINATE EACH "FLAGGER STATION" WITH ANY COMBINATION OF PORTABLE LIGHTS, STANDARD ELECTRIC LIGHTS, EXISTING STREET LIGHTS, ETC. THAT WILL PROVIDE A MINIMUM ILLUMINATION LEVEL OF 108 lx OR 10 fc WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
3. SUPPLEMENT EACH ARRAY OF ADVANCE WARNING SIGNS ON EACH "MAINLINE APPROACH" WITH A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN. THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED ON THE "SIDE ROADS" INTERSECTING THE ROADWAY WHERE THE "WORK ACTIVITY AREA" IS LOCATED. ALSO, THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED DURING DAYTIME FLAGGING OPERATIONS UNLESS OTHERWISE DIRECTED BY THE STANDARD DRAWINGS. INSTALL THE CHANGEABLE MESSAGE SIGNS IN ADVANCE OF THE ADVANCE WARNING SIGN ARRAYS. THE MESSAGES SHOULD BE "PREPARE TO STOP", "FLAGGER AHEAD". A TRUCK MOUNTED CHANGEABLE MESSAGE SIGN IS NOT AN ACCEPTABLE ALTERNATIVE TO A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN DURING NIGHTTIME FLAGGING OPERATIONS.
4. UTILIZE PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES IN PLACE OF 36" STANDARD TRAFFIC CONES DURING NIGHTTIME FLAGGING OPERATIONS.

BUFFER SPACE -

1. THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE BASED UPON THE LEGAL POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING THE WORK.

SPEED LIMIT	DISTANCES
LOW SPEED ≤ 35 MPH	200 FEET
INTERMEDIATE SPEED 40 - 50 MPH	300 FEET
HIGH SPEED 55 MPH	400 FEET

2. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE "BUFFER SPACE" IS PROHIBITED. A TRUCK MOUNTED ATTENUATOR IS THE ONLY WORK VEHICLE THAT MAY TEMPORARILY ENCR OACH UPON THE "BUFFER SPACE" IN ACCORDANCE WITH THE CONDITIONS SPECIFIED IN THE FOLLOWING NOTE WHEN APPROVED BY THE ENGINEER. SEE NOTE NO. 3.
3. WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS, IT MAY BE NECESSARY FOR A TRUCK MOUNTED ATTENUATOR TO TEMPORARILY ENCR OACH UPON THE "BUFFER SPACE" WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED ATTENUATOR IS THE ONLY VEHICLE PERMITTED TO TEMPORARILY ENCR OACH UPON THE "BUFFER SPACE" AND THIS ENCR OACHMENT IS ONLY PERMITTED WHEN ALL REASONABLE OPTIONS TO AVOID DOING SO HAVE BEEN EXHAUSTED. WHEN ENCR OACHMENT UPON THE "BUFFER SPACE" IS APPROVED BY THE ENGINEER, MINIMIZE THE TIME DURATION OF THE ENCR OACHMENT BY REMOVAL OF THE TRUCK MOUNTED ATTENUATOR FROM THE "BUFFER SPACE" AT THE FIRST OPPORTUNITY THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" BECOME AVAILABLE.

SIGNS AND TRAFFIC CONTROL DEVICES -

1. MEASURE THE ADVANCE WARNING SIGN LOCATIONS FOR EACH APPROACH FROM THE "FLAGGER STATION" LOCATED ON THAT APPROACH.
2. INSTALL THE ADVANCE WARNING SIGNS AS SPACING INTERVALS BASED UPON THE POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING ANY WORK. THE ADVANCE WARNING SIGN SPACING INTERVALS INDICATED ARE FOR NORMAL CONDITIONS. ADJUSTMENTS TO THESE DISTANCES MAY BE NECESSARY DUE TO EXISTING SIGNS, INTERSECTING ROADWAYS, HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS. SEE TABLE A.
3. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE REQUIREMENTS OF NCHRP REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org
7. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED. IN THE EVENT A DAYTIME FLAGGING OPERATION EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE III OR GREATER FLEXIBLE MICROPRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
8. DELINEATE THE TANGENT AREA OF THE LANE CLOSURE WITH THE NECESSARY TRAFFIC CONTROL DEVICES TO MINIMIZE ENCR OACHMENT BY MOTORISTS INTO THE CLOSED TRAVEL LANE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 35 MPH OR LESS, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 25 FEET. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 40 MPH OR GREATER, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 50 FEET. SEE TABLE B.

ADVANCE WARNING ARROW PANEL -

1. DURING FLAGGING OPERATIONS, AN ADVANCE WARNING ARROW PANEL SHALL OPERATE IN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS SPECIFIC TO A FLAGGING OPERATION. OPERATION OF AN ADVANCE WARNING ARROW PANEL IN AN ARROW, CHEVRON OR ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS AS SPECIFIED HEREINBEFORE IS PROHIBITED.
2. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION. THE SPECIFIC LOCATION OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS.

TRUCK MOUNTED ATTENUATOR -

1. A TRUCK MOUNTED ATTENUATOR IS OPTIONAL. UTILIZATION OF A TRUCK MOUNTED ATTENUATOR SHOULD BE CONSIDERED WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS. HOWEVER, A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL MAY BE UTILIZED IN PLACE OF A TRUCK MOUNTED ATTENUATOR DURING TRAFFIC CONTROL SETUPS FOR WORK ACTIVITIES SUCH AS ASPHALT CONCRETE PLACEMENT OPERATIONS WHEN APPROVED BY THE ENGINEER.
2. WHEN UTILIZING A TRUCK MOUNTED ATTENUATOR, ENSURE THE TRUCK HAS THE CORRECT GROSS VEHICULAR WEIGHT (GVW) REQUIRED FOR THE TYPE OF TRUCK MOUNTED ATTENUATOR BEING UTILIZED. A DIRECT TRUCK MOUNTED TRUCK MOUNTED ATTENUATOR, A UNIT MOUNTED AND ATTACHED TO BRACKETS OR SIMILAR DEVICES CONNECTED TO THE FRAME OF THE TRUCK, REQUIRES A TRUCK WITH A MINIMUM GVW OF 15,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. A TRAILER TOWED TRUCK MOUNTED ATTENUATOR, A TRAILER TYPE UNIT TOWED FROM BEHIND AND ATTACHED TO THE FRAME OF THE TRUCK VIA A PINTLE HOOK / HITCH, REQUIRES A TRUCK WITH A MINIMUM GVW OF 10,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR (4) SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE IN ITS ENTIRETY AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
3. LOCATE THE TRUCK MOUNTED ATTENUATOR APPROXIMATELY 100 FEET IN ADVANCE OF THE "WORK ACTIVITY AREA" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

GENERAL -

1. CONDUCT THE WORK IN SUCH A MANNER SO AS NOT TO ENCR OACH ONTO THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER DELINEATION OF THE WORK AREA.
2. IF WORK IS BEING CONDUCTED AT TWO DIFFERENT LOCATIONS AT THE SAME TIME, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 2 MILES FROM THE LAST TRAFFIC CONTROL DEVICE IN THE "DOWNSTREAM TAPER" OF THE FIRST LANE CLOSURE TO THE FIRST TRAFFIC CONTROL DEVICE IN THE "APPROACH TAPER" OF THE SECOND LANE CLOSURE ENCOUNTERED BY A MOTORIST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
≤ 35 MPH LOW SPEED	200
40 - 50 MPH INTERMEDIATE SPEED	350
55 MPH HIGH SPEED	500

* REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

WORK ZONE TRAFFIC
CONTROL ENGINEER



Willie E. McConnell, Jr.
SIGNATURE

6/1/2018
DATE

5			
4			
3			
2			
1	4-27-18	WEM	REVISED FLAGGING OPERATIONS NOTE 1
0	1-14-15	JCS	NEW DRAWING
#	DATE	CHK	DESCRIPTION



SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING OPERATIONS
TWO-LANE TWO-WAY
PRIMARY &
SECONDARY ROUTES

610-005-00

EFFECTIVE LETTING DATE JAN 2019

THIS DRAWING IS NOT TO SCALE

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER



Signature: *Willie E. McConnell, Jr.*
 DATE: 8/2/12

6			
5			
4			
3			
2			
1	2-15-11	JCS	GENERAL UPDATE
0	8-22-07	JCS	DRAWING NO. UPDATE
#	DATE	CHK	DESCRIPTION

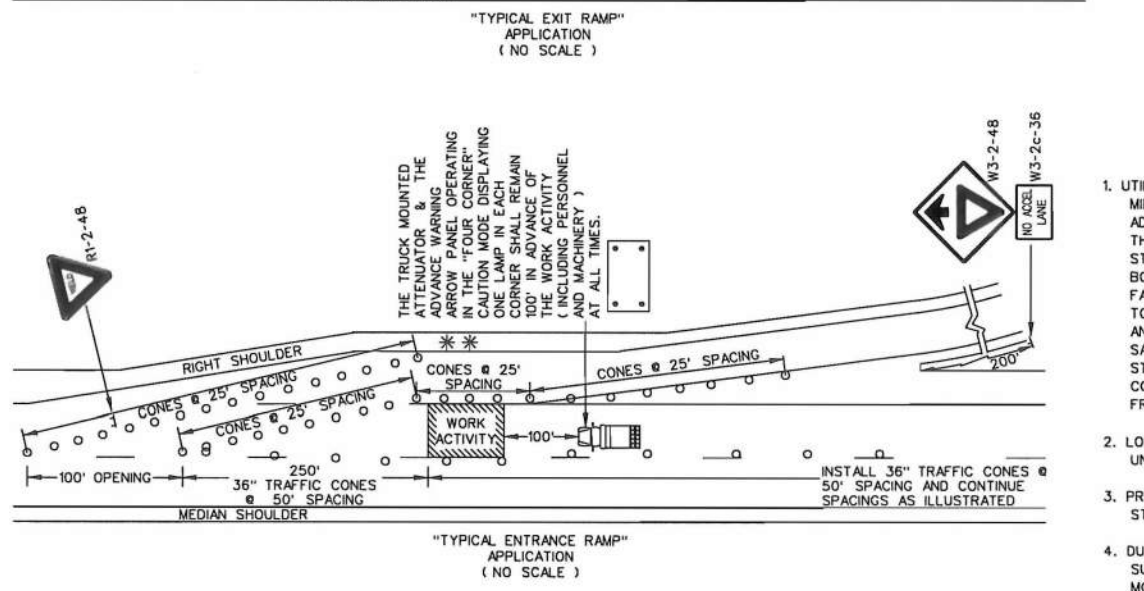
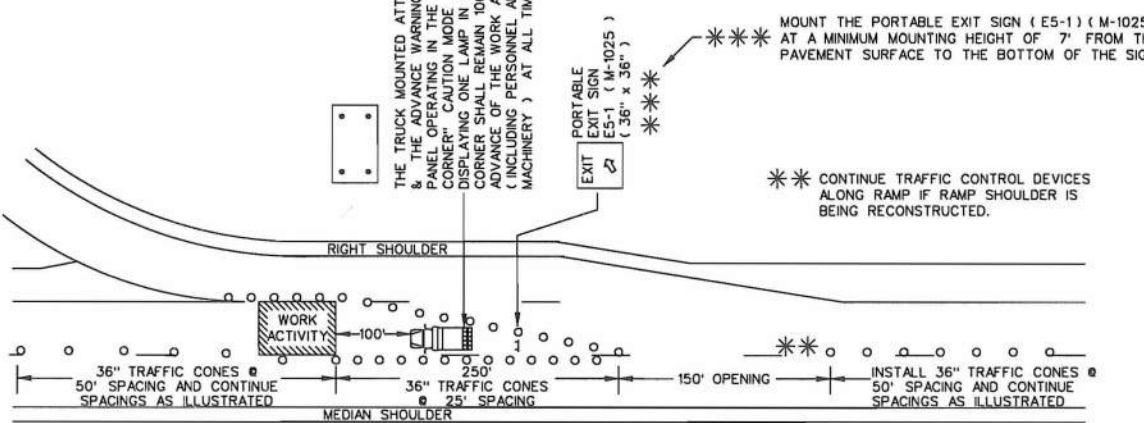
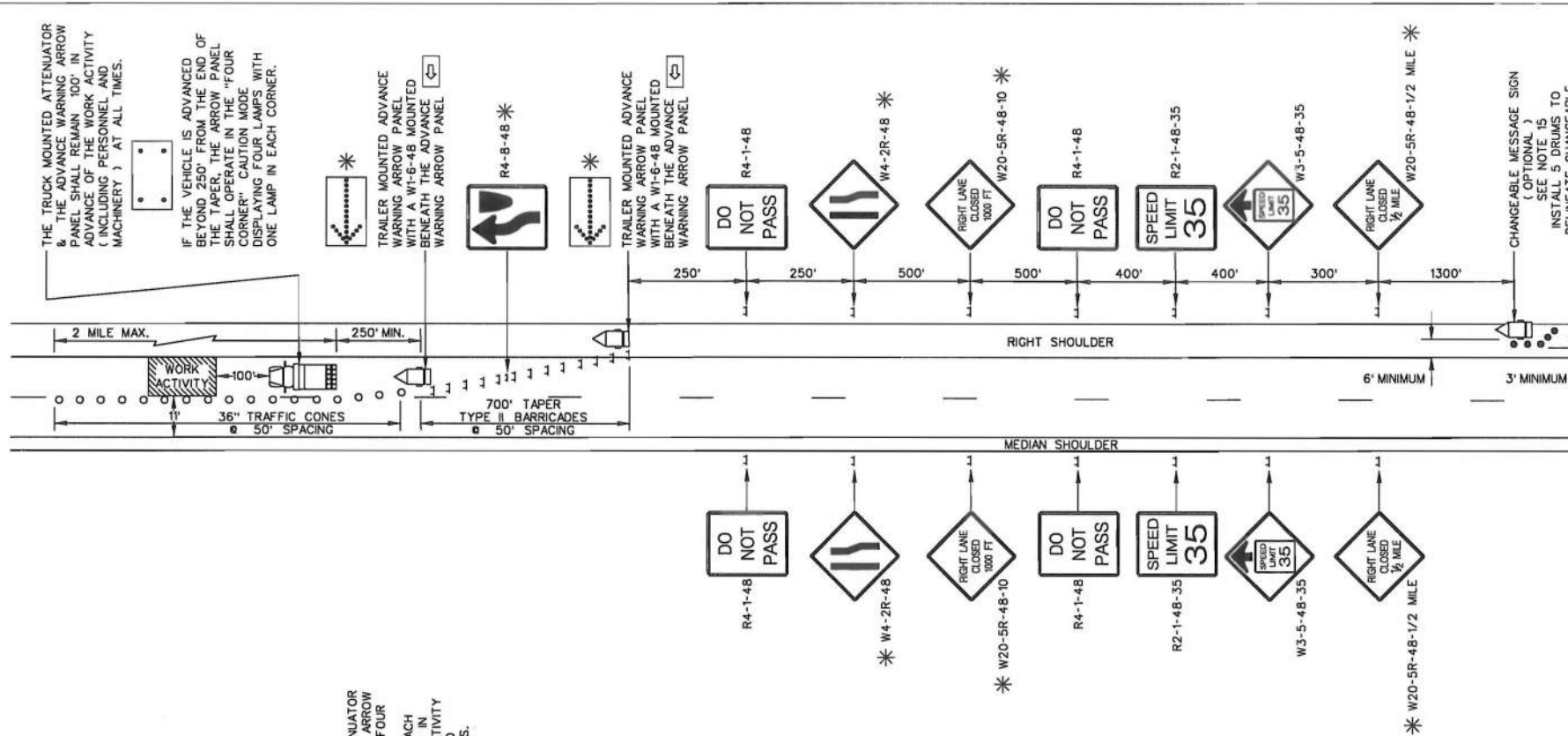
SCDOT
 SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
 DESIGN STANDARDS OFFICE
 955 PARK STREET
 ROOM 405
 COLUMBIA, SC 29201

STANDARD DRAWING

LANE CLOSURE
 DAYTIME
 MULTILANE
 PRIMARY ROUTES

610-025-00

EFFECTIVE LETTING DATE: JAN, 2013 THIS DRAWING IS NOT TO SCALE



GENERAL NOTES

- ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
- INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
- SPACINGS INDICATED ARE FOR NORMAL CONDITIONS; ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.
- ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL POSTS OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
- REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
- ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org
- THE CONTRACTOR SHALL PROVIDE AND UTILIZE ANY SPECIAL SIGN MOUNTING ASSEMBLIES AND HARDWARE THAT MAY BE NECESSARY FOR INSTALLING AND MOUNTING SIGNS IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS OR DOUBLEFACED GUARDRAIL.
- REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
- REFLECTORIZE ALL BARRICADES WITH A TYPE VIII OR IX PRISMATIC RETROREFLECTIVE SHEETING ON ALL PROJECTS LET TO CONTRACT AFTER MAY 1, 2012 UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
- TYPE II BARRICADES SHALL HAVE A MINIMUM WIDTH OF 3 FEET UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
- CONDUCT THE WORK IN SUCH A MANNER THAT WILL MINIMIZE ENCROACHMENT OF TRAFFIC CONTROL DEVICES, EQUIPMENT, PERSONNEL, MATERIALS OR ANY WORK RELATED VEHICLES ONTO AN ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER DELINEATION OF THE WORK AREA.
- LANE CLOSURES ARE RESTRICTED TO MAXIMUM LENGTHS OF 2 MILES UNLESS OTHERWISE DIRECTED BY THE SPECIAL PROVISIONS AND/OR THE DEPARTMENT.
- IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS WITHIN THE SAME TRAVEL LANE UNDER TWO SEPARATE LANE CLOSURES ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER, SEPARATE THE TWO LANE CLOSURES BY NO LESS THAN 2 MILES FROM THE END OF THE FIRST CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CLOSURE.
- IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS IN THE SAME DIRECTION BUT WITHIN DIFFERENT TRAVEL LANES UNDER TWO SEPARATE LANE CLOSURES ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER, SEPARATE THE TWO LANE CLOSURES BY NO LESS THAN 4 MILES FROM THE END OF THE FIRST CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CLOSURE.
- UTILIZATION OF A CHANGEABLE MESSAGE SIGN IS OPTIONAL WITH THIS TRAFFIC CONTROL SETUP. HOWEVER, WHEN A CHANGEABLE MESSAGE SIGN IS UTILIZED, INSTALL THE SIGN AS ILLUSTRATED ON THIS STANDARD DRAWING UNLESS OTHERWISE DIRECTED BY THE SPECIAL PROVISIONS, THE PLANS AND/OR THE ENGINEER. INSTALL THE CHANGEABLE MESSAGE SIGN NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE AND SUPPLEMENT THE SIGN LOCATION WITH NO LESS THAN 5 PORTABLE PLASTIC DRUMS FOR DELINEATION AS ILLUSTRATED. 36" STANDARD TRAFFIC CONES OR 42" OVERSIZED TRAFFIC CONES ARE PROHIBITED AS SUBSTITUTES FOR THE PORTABLE PLASTIC DRUMS IN THIS APPLICATION. DURING A RIGHT LANE CLOSURE, THE SIGN SHOULD FLASH ALTERNATELY TO READ "RIGHT LANE CLOSED", "MERGE LEFT" AT A RATE THAT WILL PERMIT MOTORISTS TO READ BOTH MESSAGES AT LEAST ONCE.
- THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.
- THIS TYPICAL TRAFFIC CONTROL SETUP APPLIES TO THE INSTALLATION OF A LANE CLOSURE ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER.

LEFT LANE CLOSURE

- SIGNS ILLUSTRATED ARE FOR A RIGHT LANE CLOSURE.
- WHEN CLOSING THE LEFT TRAVEL LANE, USE THE FOLLOWING:
 2 - W20-5L-48-10 2 - W20-5L-48-1/2 MILE
 2 - W4-2L-48 1 - R4-7-48
- THE STRIPES ON THE BARRICADES TO THE LEFT OF TRAFFIC SHALL SLOPE DOWNWARD FROM THE UPPER LEFT TO THE LOWER RIGHT.
- THE FLASHING ARROW AND THE "LARGE ARROW" SIGN (W1-6-48) SHALL POINT TO THE RIGHT.
- THE CHANGEABLE MESSAGE SIGN SHALL FLASH ALTERNATELY TO READ "LEFT LANE CLOSED", "MERGE RIGHT".

PORTABLE TRUCK MOUNTED ATTENUATOR

- UTILIZE A TRUCK MOUNTED ATTENUATOR ATTACHED TO THE REAR OF A TRUCK WITH A MINIMUM GROSS VEHICULAR WEIGHT (GVW) OF 15,000 POUNDS (ACTUAL WEIGHT). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE ATTACHED TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
- LOCATE THE TRUCK MOUNTED ATTENUATOR 100 FEET IN ADVANCE OF THE WORK AREA UNLESS OTHERWISE SPECIFIED.
- PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
- DUE TO THE WEIGHT OF A TRUCK MOUNTED ATTENUATOR, THE TRUCK MOUNTED ATTENUATOR SUPPLEMENTED WITH AN ADVANCE WARNING ARROW PANEL MAY BE REPLACED WITH A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL WHEN THIS TRAFFIC CONTROL SETUP IS UTILIZED FOR ASPHALT CONCRETE PAVEMENT OPERATIONS. REPLACEMENT WITH A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL SHALL REQUIRE THE ENGINEER'S APPROVAL.

ADVANCE WARNING ARROW PANEL

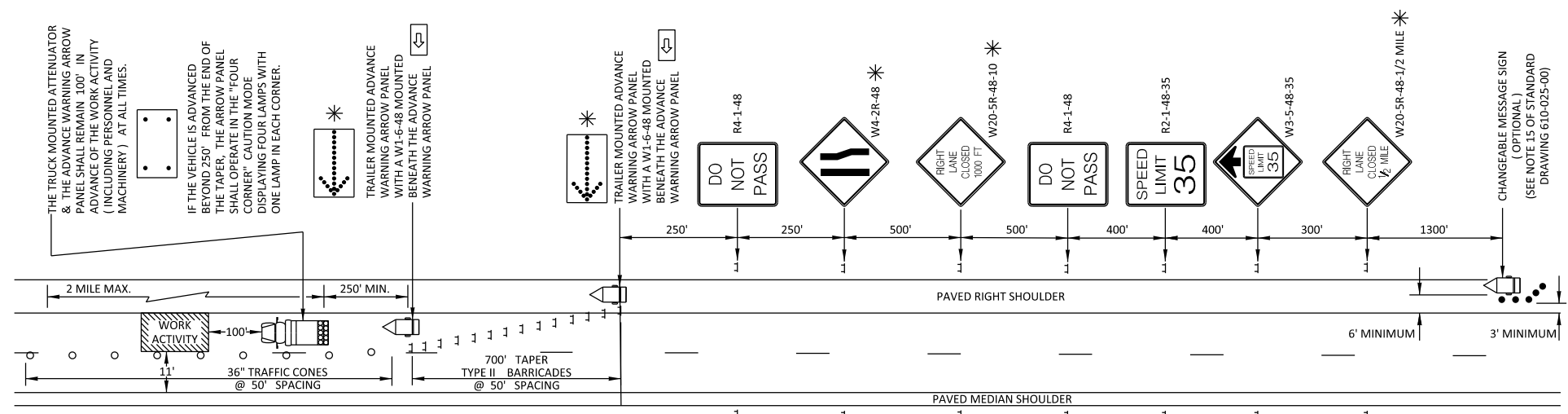
ALL ADVANCE WARNING ARROW PANELS SHALL BE 48" x 96" WITH A MINIMUM LEGIBILITY DISTANCE OF 1 MILE. PLACEMENT OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS. THE PANEL FACE SHALL BE NONREFLECTIVE BLACK. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

WHEN AN ADVANCE WARNING ARROW PANEL IS REQUIRED TO OPERATE IN THE CAUTION MODE, THE ADVANCE WARNING ARROW PANEL SHALL DISPLAY THE "FOUR CORNERS" CAUTION MODE, WITH ONE LAMP IN EACH CORNER. DISPLAY OF ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE SUCH AS THE "FLASHING BARS" OR THE "ALTERNATING DIAMOND" CAUTION MODES ARE UNACCEPTABLE AND PROHIBITED.

LEGEND

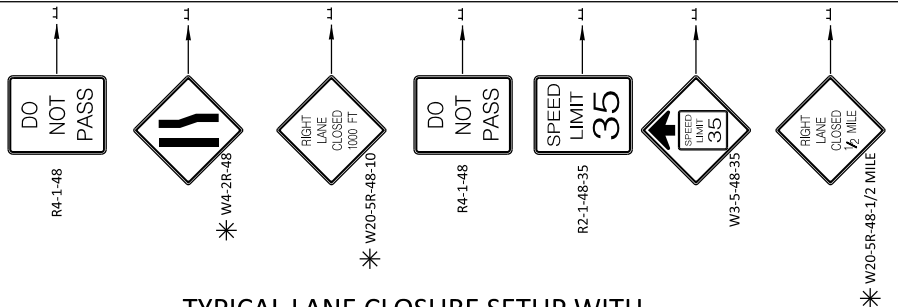
○ 36" TRAFFIC CONES

REFERENCES



36" TRAFFIC CONES

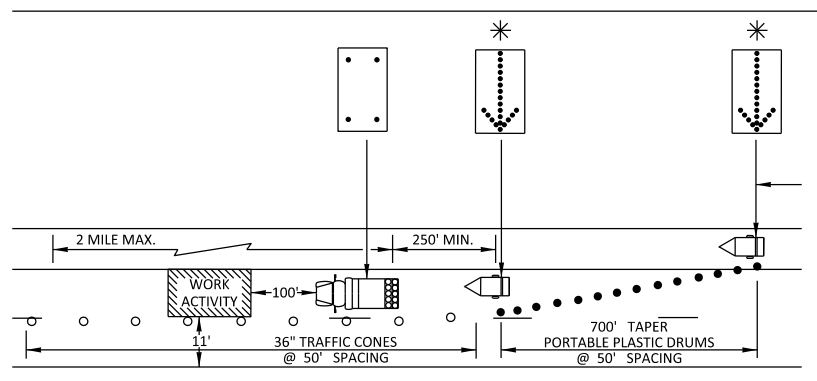
1. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES.



TYPICAL LANE CLOSURE SETUP WITH TYPE II BARRICADES

* LEFT LANE CLOSURE

1. SIGNS ILLUSTRATED ARE FOR A RIGHT LANE CLOSURE.
2. WHEN CLOSING THE LEFT TRAVEL LANE, USE THE FOLLOWING:
2 - W20-5L-48-10 2 - W20-5L-48-1/2 MILE
2 - W4-2L-48
3. THE STRIPES ON THE BARRICADES TO THE LEFT OF TRAFFIC SHALL SLOPE DOWNWARD FROM THE UPPER LEFT TO THE LOWER RIGHT.
4. THE FLASHING ARROW AND THE "LARGE ARROW" SIGN (W1-6-48) SHALL POINT TO THE RIGHT.
5. THE CHANGEABLE MESSAGE SIGN SHALL FLASH ALTERNATELY TO READ "LEFT LANE CLOSED", "MERGE RIGHT".

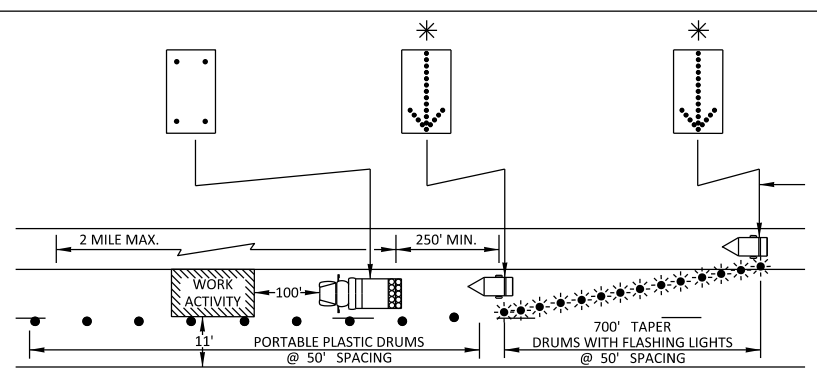


ALTERNATE TAPER OPTION

PORTABLE PLASTIC DRUMS

36" TRAFFIC CONES

1. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES.



ALTERNATE TAPER OPTION

PORTABLE PLASTIC DRUMS WITH SEQUENTIAL FLASHING LIGHTS

SEQUENTIAL FLASHING LIGHTS

1. SEQUENTIAL FLASHING WARNING LIGHTS ARE AVAILABLE FOR NIGHT TIME LANE CLOSURES ONLY.
2. THESE LIGHTS SHALL FLASH SEQUENTIALLY BEGINNING WITH THE FIRST LIGHT AND CONTINUING UNTIL THE FINAL LIGHT.
3. THE SEQUENTIAL FLASHING WARNING LIGHTS SHALL AUTOMATICALLY FLASH IN SEQUENCE WHEN PLACED ON THE DRUMS THAT FORM THE MERGING TAPER.
4. THE NUMBER OF LIGHTS USED IN THE DRUM TAPER SHALL EQUAL THE NUMBER OF DRUMS USED IN THE TAPER.
5. DRUMS ARE THE ONLY CHANNELIZING DEVICE ALLOWED TO MOUNT SEQUENTIAL FLASHING WARNING LIGHTS.
6. THE SEQUENTIAL FLASHING WARNING LIGHTS SHALL BE WEATHER INDEPENDENT AND VISUAL OBSTRUCTIONS SHALL NOT INTERFERE WITH THE OPERATION OF THE LIGHTS.
7. THE SEQUENTIAL FLASHING WARNING LIGHTS SHALL AUTOMATICALLY SEQUENCE WHEN PLACED IN LINE IN AN OPEN AREA WITH A DISTANCE BETWEEN LIGHTS OF 10 TO 100 FEET. A 10 FOOT STAGGER IN THE LINE OF LIGHTS SHALL HAVE NO ADVERSE EFFECT ON THE OPERATION OF THE LIGHTS.
8. IF ONE LIGHT FAILS, THE FLASHING SEQUENCE SHALL CONTINUE. IF MORE THAN 1 LIGHT FAILS, ALL OF THE LIGHTS ARE TO BE AUTOMATICALLY TURNED TO THE "OFF" MODE. NON-SEQUENTIAL FLASHING IS PROHIBITED.

SEE STANDARD DRAWING NO. 610-025-00 FOR "GENERAL NOTES", "PORTABLE TRUCK MOUNTED ATTENUATOR" NOTES AND "ADVANCE WARNING ARROW PANEL" NOTES.

LEGEND

- 36" TRAFFIC CONES
- PORTABLE PLASTIC DRUMS
- ☼ PORTABLE PLASTIC DRUMS WITH SEQUENTIAL FLASHING LIGHTS

WORK ZONE TRAFFIC CONTROL ENGINEER



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0	8-26-22	TED	NEW DRAWING
#	DATE	CHK	DESCRIPTION

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

LANE CLOSURE TAPER OPTIONS
MAINLINE COMPONENTS
PRIMARY & SECONDARY ROUTES

610-050-00

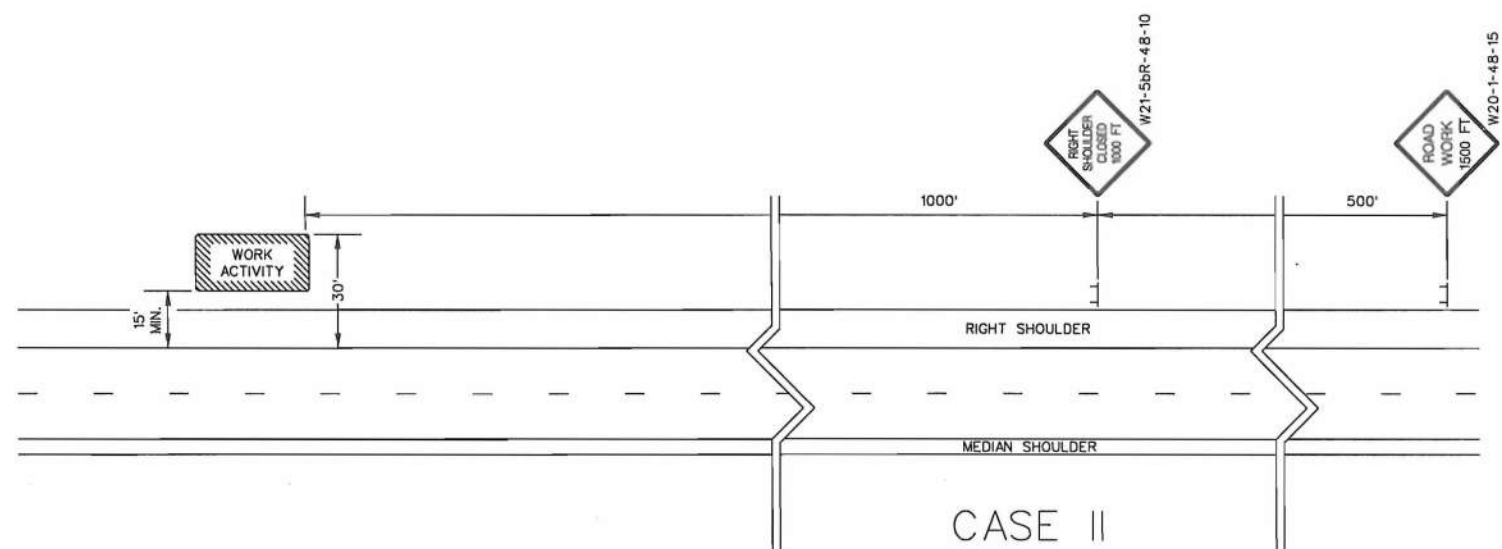
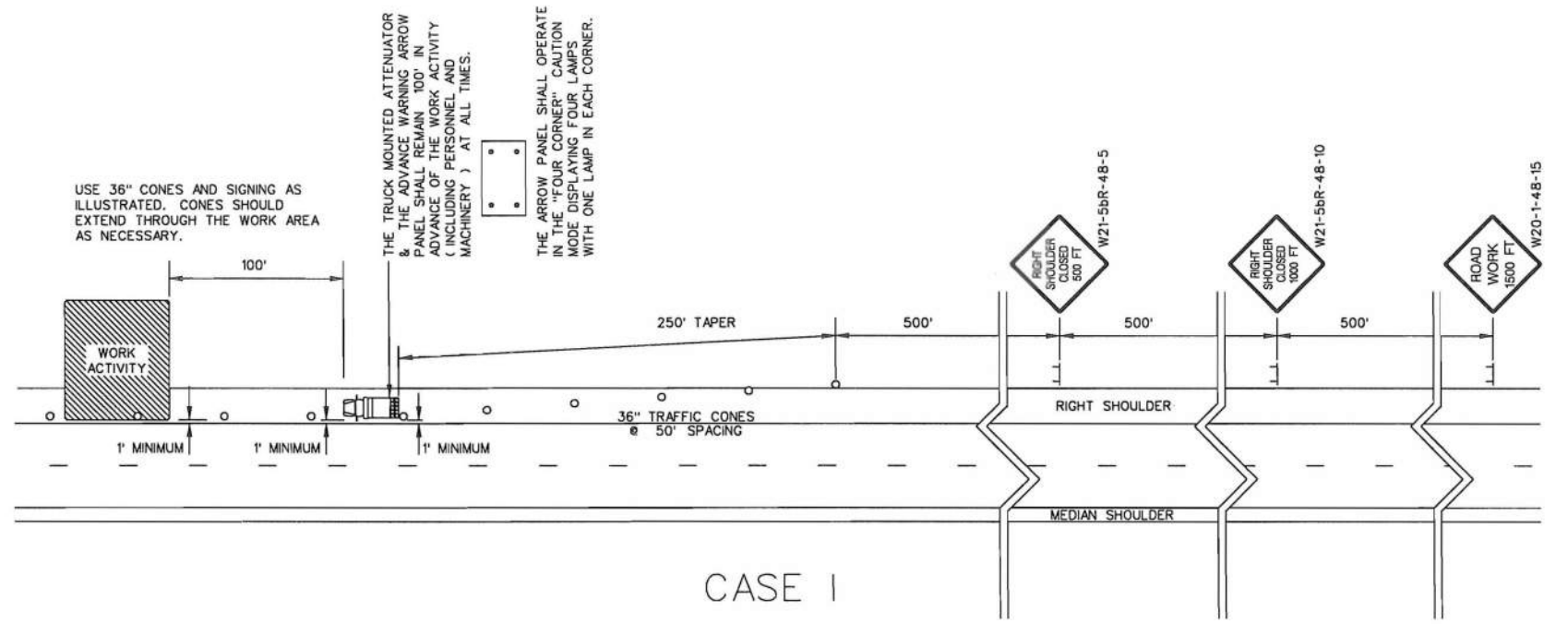
EFFECTIVE LETTING DATE | JAN 2023

THIS DRAWING IS NOT TO SCALE

REFERENCES

GENERAL NOTES

- ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
 - INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
 - SPACINGS INDICATED ARE FOR NORMAL CONDITIONS; ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.
 - ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL POSTS OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
 - REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
 - ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org.
 - THE CONTRACTOR SHALL PROVIDE AND UTILIZE ANY SPECIAL SIGN MOUNTING ASSEMBLIES AND HARDWARE THAT MAY BE NECESSARY FOR INSTALLING AND MOUNTING SIGNS IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS OR DOUBLEFACED GUARDRAIL.
 - THE PRIMARY TRAFFIC CONTROL DEVICES UTILIZED FOR DAYTIME SHOULDER CLOSURES ARE 36" CONES. THE PRIMARY TRAFFIC CONTROL DEVICES UTILIZED FOR NIGHTTIME SHOULDER CLOSURES ARE PORTABLE PLASTIC DRUMS. DURING DAYTIME SHOULDER CLOSURES, 42" OVERSIZED CONES MAY BE SUBSTITUTED FOR 36" CONES. DURING NIGHTTIME SHOULDER CLOSURES, 42" OVERSIZED CONES ARE PROHIBITED FOR USE. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE HOURS OF DARKNESS, REPLACE ALL CONES, 36" OR 42" OVERSIZED, WITH PORTABLE PLASTIC DRUMS.
 - THE 36" CONES UTILIZED DURING DAYLIGHT HOURS ARE NOT REQUIRED TO BE REFLECTORIZED. REFLECTORIZE ALL 42" OVERSIZED CONES UTILIZED DURING DAYTIME SHOULDER CLOSURES WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
 - THE DEPARTMENT PROHIBITS CONDUCTING WORK ON PRIMARY AND SECONDARY ROUTES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE UNDER A SHOULDER CLOSURE. ALL WORK THAT MAY REQUIRE THE PRESENCE OF EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE SHALL BE CONDUCTED UNDER A LANE CLOSURE.
- CASE I: WHENEVER ANY PORTION OF THE SHOULDER AREA WITHIN 15' BUT NOT CLOSER THAN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE MUST BE OCCUPIED BY EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES TO CONDUCT THE WORK, INSTALL AND MAINTAIN THE SIGNING AND TRAFFIC CONTROL DEVICES AS ILLUSTRATED.
- CASE II: WHENEVER THE WORK IS CONDUCTED BEYOND 15' BUT WITHIN 30' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE, INCLUDING THE PRESENCE OF EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES, INSTALL AND MAINTAIN THE SIGNING AND TRAFFIC CONTROL AS ILLUSTRATED.
- CONDUCT THE WORK IN SUCH A MANNER THAT WILL NOT REQUIRE ENCROACHMENT OF TRAFFIC CONTROL DEVICES, EQUIPMENT, PERSONNEL, MATERIALS OR ANY WORK RELATED VEHICLES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
 - PLACE THE TRUCK MOUNTED ATTENUATOR AT A LOCATION 100' IN ADVANCE OF THE WORK ACTIVITY AND NO CLOSER THAN 1' FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
 - FOR A CASE I SCENARIO IN THE RIGHT SHOULDER AREA, ADJUST THE TAPER AS NECESSARY TO FIT THE WIDTH OF THE SHOULDER WHILE MAINTAINING THE REQUIRED 250' TAPER LENGTH.
 - IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS AT THE SAME TIME UNDER CASE I SHOULDER CLOSURES, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 1 MILE FROM THE END OF THE FIRST CASE I CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CASE I CLOSURE. A MINIMUM SEPARATION DISTANCE OF ONE-HALF MILE IS RECOMMENDED BETWEEN SHOULDER CLOSURES WHEN ONE OR BOTH SHOULDER CLOSURES IS A CASE II CLOSURE.
 - THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.
 - THIS TYPICAL TRAFFIC CONTROL SETUP APPLIES TO THE INSTALLATION OF SHOULDER CLOSURES IN THE RIGHT SHOULDER AREAS OF PRIMARY AND SECONDARY ROADWAYS.



PORTABLE TRUCK MOUNTED ATTENUATOR

- UTILIZE A TRUCK MOUNTED ATTENUATOR ATTACHED TO THE REAR OF A TRUCK WITH A MINIMUM GROSS VEHICULAR WEIGHT (GVW) OF 15,000 POUNDS (ACTUAL WEIGHT). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE ATTACHED TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
- LOCATE THE TRUCK MOUNTED ATTENUATOR 100 FEET IN ADVANCE OF THE WORK AREA UNLESS OTHERWISE SPECIFIED.
- PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

ADVANCE WARNING ARROW PANEL

ALL ADVANCE WARNING ARROW PANELS SHALL BE 48" x 96" WITH A MINIMUM LEGIBILITY DISTANCE OF 1 MILE. PLACEMENT OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS. THE PANEL FACE SHALL BE NONREFLECTIVE BLACK. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

WHEN AN ADVANCE WARNING ARROW PANEL IS REQUIRED TO OPERATE IN THE CAUTION MODE, THE ADVANCE WARNING ARROW PANEL SHALL DISPLAY THE "FOUR CORNERS" CAUTION MODE, WITH ONE LAMP IN EACH CORNER. DISPLAY OF ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE SUCH AS THE "FLASHING BAR" OR THE "ALTERNATING DIAMOND" CAUTION MODES ARE UNACCEPTABLE AND PROHIBITED.

LEGEND

○ 36" TRAFFIC CONES

WORK ZONE TRAFFIC CONTROL ENGINEER



W. McConnell
SIGNATURE

8/2/12
DATE

6			
5			
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1	8-12-11	JCS	GENERAL UPDATE
0	8-23-07	JCS	DRAWING NO. UPDATE
#	DATE	CHK	DESCRIPTION



SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

RIGHT SHOULDER CLOSURE (CASE I / CASE II) PRIMARY ROUTES

610-205-00

EFFECTIVE LETTING DATE: Jan, 2013 THIS DRAWING IS NOT TO SCALE

Kaleidoscope OS

landscapeforms®

Product Data Sheet



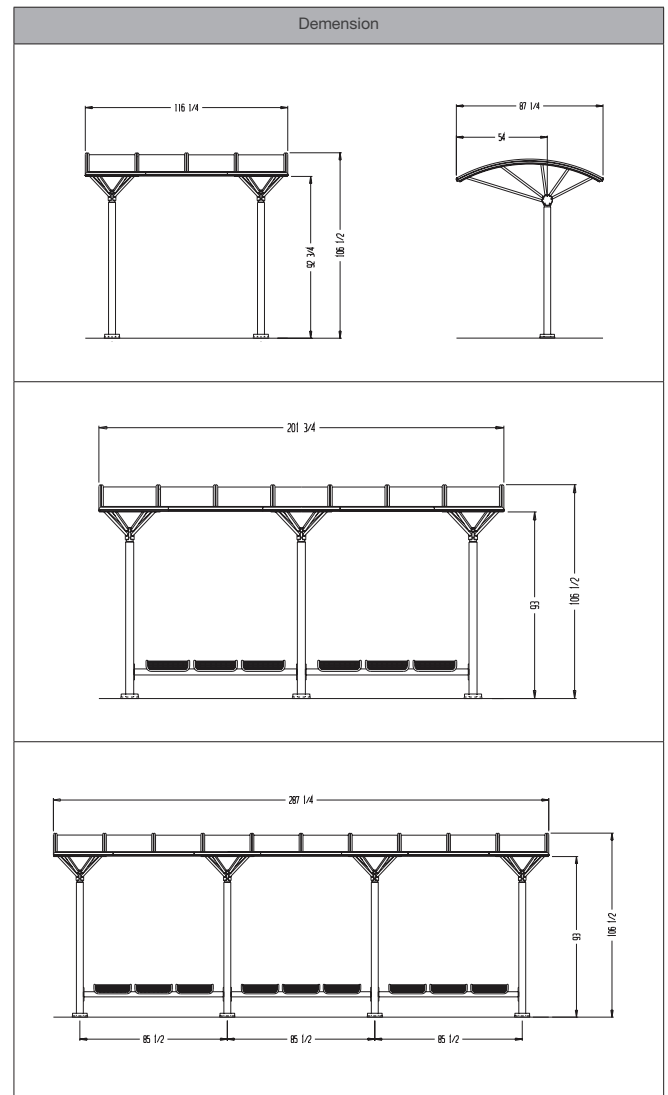
Kaleidoscope OS (Open Structure) creates outdoor structures of exceptional utility, stability and style. A foot lower in height than its predecessor, Kaleidoscope OS has improved pedestrian scale; is open on all sides, withstands wind loads up to 146 mph; and can be mounted below grade or surface mounted for ease of installation and retrofit. Optional solar-powered LED lighting turns on at dusk, off at dawn.

Kaleidoscope

- Kaleidoscope standard elements have been engineered to meet building codes across the U.S. Stringent load tests were performed by Landscape Forms.
- Based on this data, structural engineers calculated snow and wind load ratings for all standard elements. Kaleidoscope meets:
 - Wind load of 146 mph, exposure C (IBC)
 - Snow load of 40 lbs. per square foot @ 90 mph, exposure B

~~Low Voltage Lighting~~

- ~~Low voltage lighting (12 volts) is available.~~
- ~~Lighting package consists of light housing and transformer and may be ordered through Landscape Forms.~~
- ~~Accepts low voltage MR16 lamp.~~
- ~~Bulb and wiring are not included. Standard light housing is a bronze color.~~
- ~~Additional colors available for an upcharge.~~
- ~~All lighting components are UL listed.~~
- ~~Landscape Forms recommends a licensed contractor install lighting.~~
- ~~Landscape Forms is not responsible for verifying that lighting meets local codes.~~



Kaleidoscope OS

landscapeforms®

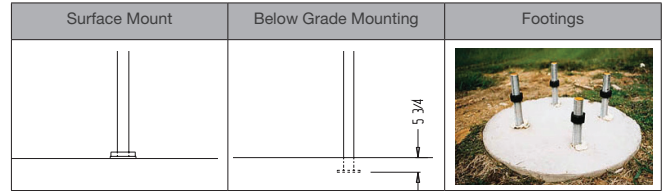
Product Data Sheet

Footings

- Kaleidoscope can be ordered for surface mounting at grade with cover plates or below grade mounting.
- Anchor bolts with nuts are used to level canopy posts for both mounting styles (not included).
- Ground and footing preparation is necessary.
- Kaleidoscope posts must be mounted on concrete footings.
- Caisson, spread, and pad style footings are all possible and custom designed for different building code conditions.

Fit and Finish

- Kaleidoscope is precisely engineered to look and wear beautifully in the public eye.
- Our exclusive, proven Pangard II® powdercoat process protects each unit with a hard yet flexible skin that resists rusting, chipping, peeling and fading.



~~Seating~~

- ~~• Integrated seating is available.~~
- ~~• Specify Plexus or Presidio bench, backed or backless, with or without intermediate arms. Please note, only the straight three-unit Plexus and Presidio bench configurations are available with Kaleidoscope.~~

To Specify

- Shelter
 - Specify ~~two, three, or four~~ posts to create one, two or three bays. **Color: Stormcloud**
 - Specify ~~surface mount~~ or below grade mounting.
- ~~Seating (Optional)~~
 - ~~- Specify Plexus or Presidio bench, backed or backless, and with or without intermediate arms.~~
 - ~~- Specify number of benches and in which bays the benches should be placed.~~
- ~~Lighting (Optional)~~
 - ~~- Specify hard-wired lighting or solar lighting. Please note, solar lighting only available for 3 post units.~~

Designed by Robert Chipman, ASLA; Brian Kane, IDSA; and Arno Yurk, AIA, IDSA

Kaleidoscope design is protected by U.S. Patent Nos. D432.665; D420.812; D421.132; D429.000; D412.993; D413.314.

Visit our landscapeforms.com for more information. Specifications are subject to change without notice. Landscape Forms supports the Landscape Architecture Foundation at the Second Century level.
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Kaleidoscope OS

Product Drawing

landscapeforms®

Shelter, Two Post, Offset Canopy, Solid panels, Above Grade Mount

www.landscapeforms.com Ph: 800.521.2546

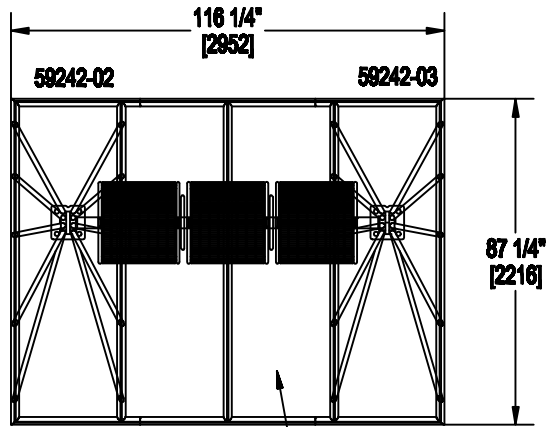
ATTACHED PLEXUS-II BACKLESS SEATING, WITH ARMS

NOTE:
SEE KALEIDOSCOPE INSTALLATION
GUIDE FOR FOOTING DETAILS.

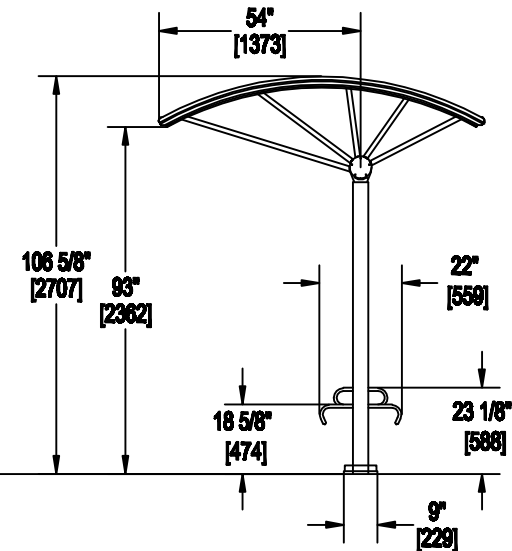
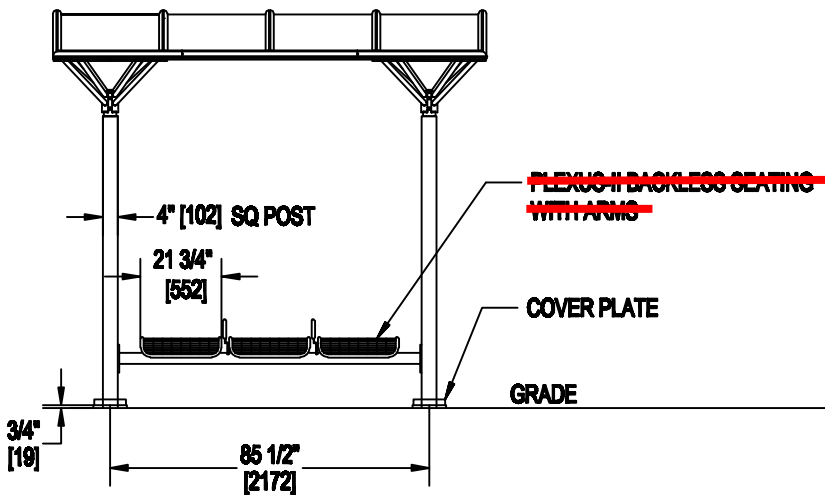
____ APPROVED
____ REVISE AND RESUBMIT
____ REJECTED

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BY: _____ DATE: _____



SOLID
CANOPY PANELS



Drawing: KA538-04

Date: 05/20/2011

Dimensions are in Inches[mm]

U.S. Patent Nos. D420,812; D421,132; D412,993; D413,314

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