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Providence Bicycle and Pedestrian Advisory Commission

Jorge O. Elorza, Mayor

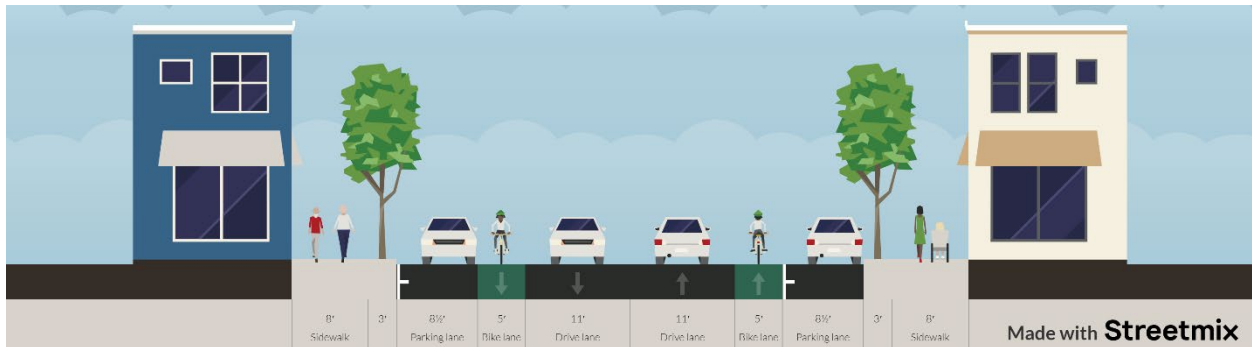
Staff Report: Broadway Improvements – Federal Hill, Downtown – Wards 13, 1 (For Action)

Presented at April 21, 2021 BPAC meeting

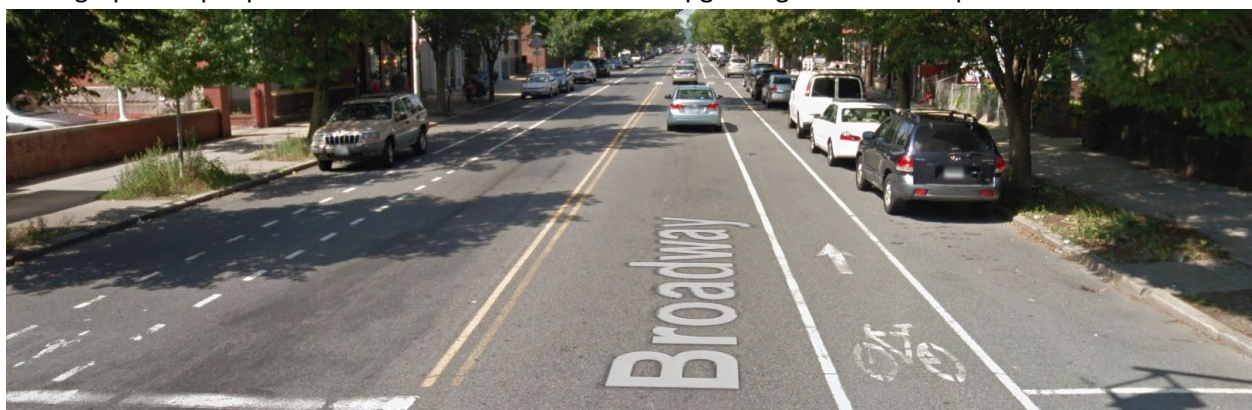
Project Background

The City of Providence Department of Planning and Development seeks comments from the BPAC regarding design plans for a two-way urban trail to replace the existing conventional striped bike lanes on Broadway from Greene Street to Valley Street. This will be a design level review of the project and will be the second of two reviews before the Commission.

Bike lanes were installed on Broadway in 2011. It is a significant transit, pedestrian, and commercial corridor. The bike lanes on both sides of the street are currently in between the vehicular travel lanes and parking lanes, and frequently are subject to vehicles stopped in them or crossing them (including for turning movements at, for example, Dean Street), creating a hazard for bike lane users.



On a street with Broadway's traffic volume, unprotected bike lanes are not appropriate for a wide demographic of people. The Great Streets Plan calls for upgrading this street to protected bike lanes.



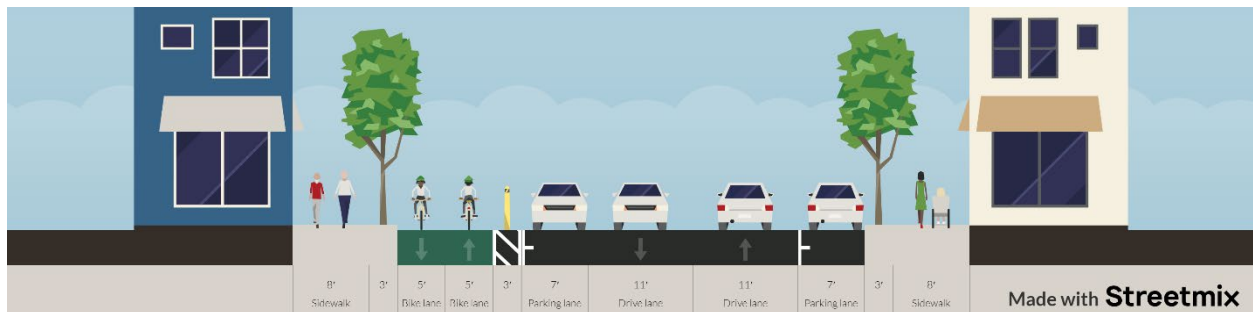


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Description of Concept

The concept involves consolidating the bike lanes onto one side of the street and adding physical separation to create a two-way urban trail. Both sides of the street would retain on-street parking, with the south side's parking floated off the curb. Additional proposed improvements include floating bus islands between the urban trail and the vehicular travel lanes, and pedestrian refuge islands at crosswalks in a similar location.



At the Downtown end of Broadway, the urban trail is proposed to connect to a new contraflow bike lane on Greene Street, and then to an extended two-way urban trail on Fountain Street between Greene Street and Empire Street. At the Olneyville end of Broadway, due to the 6-10 construction, the urban trail will terminate at the Barton Street traffic signal, with plans to ultimately continue across the highway to connect with the recently-completed San Souci Greenway.

BPAC Review

The Commission reviewed conceptual plans for Broadway in January 2020, and made the following recommendations:

- The City should study driveway conflicts and the gas station at Vinton.
- The City should work with RIDOT to maintain the highest quality possible bike connections across the 6-10 Corridor.
- The City should work with RIDOT in their ongoing work on the Broadway bridge to expand the southern sidewalk to facilitate non-vehicular travel.
- The City should work with RIPTA on plans for location of bus stops and the design of floating bus stops and perhaps RIPTA could take the opportunity to consolidate some bus stops on Broadway.
- Throughout the corridor bike signals should be considered where feasible and where needed, or some way of having bikes use a leading interval automatic walk light as a facility to cross intersections.
- The City should remove the slip lanes from either side of Broadway as it intersects with Dave Gavitt Way to facilitate pedestrian and bicycle movement through and across Dave Gavitt Way.



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Additional Outreach to-date

On February 11, 2020, a public meeting was held at West Broadway Elementary School where community members provided comments on the conceptual plans. Comments included:

- Around I-95, Gavitt, and Partington
 - Remove slip lanes around I-95
 - Increase enforcement against blocking the box, especially at Gavitt & Partington
 - Add exclusive bike/ped signal phase at Gavitt & Partington
 - Remove car lanes on and around I-95 bridge
 - School buses double-park between Dean & Partington
 - Improve lighting at Partington crosswalks
- At Tobey
 - Prune trees at Tobey to improve visibility of signal (on SW corner, maybe elsewhere)
 - Remove eastbound left turn lane onto Tobey
 - Make Tobey St north of Broadway two-way
 - Extend curb at northeast corner of Tobey intersection
- Throughout
 - Make buffer curbed & landscaped, especially at Knight
 - Revise signal operations throughout corridor to prioritize pedestrians
 - Add trash cans
 - “Look both ways” signage
 - Remove beg buttons
 - Add bus bump-outs in westbound direction
 - Add accessible van parking spots
 - Clarify how bikes turn across traffic onto side streets
 - Delineate individual parking spaces in parking lane
 - Add green ladder crossings at driveways
- Requests at other specific locations
 - Extend to Olneyville
 - Prohibit left turns from Broadway eastbound onto Atwells and Bradford onto Broadway
 - Add stop sign on Greene at Fountain or traffic calming
 - Right-turning traffic from eastbound Broadway onto Vinton is too fast
 - Add stop bar on Almy

Updates since January 2020

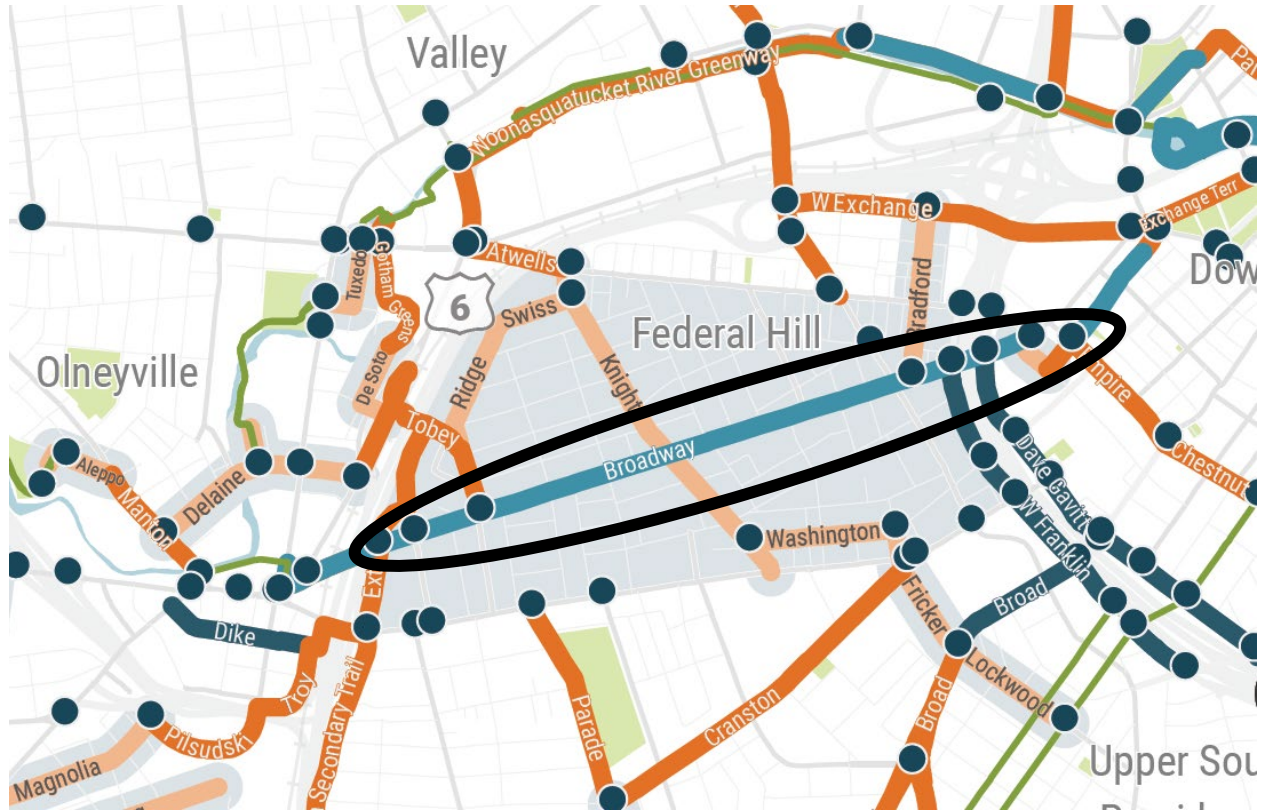
- Due to funding constraints, construction delayed from 2021 to 2022
- RIDOT refused to accommodate on either end, resulting in:
 - The western project terminus pulled back to Barton St
 - A network gap introduced around I-95
- Minor adjustments to bus islands & other buffer elements at Vinton, Courtland, and Bradford

Page 3 of 4

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Providence Bicycle and Pedestrian Advisory Commission
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Project Map

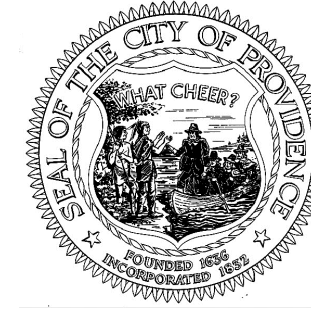


Respectfully submitted by Alex Ellis.

INDEX

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES & LEGEND
3	TYPICAL SECTIONS
4-10	CONSTRUCTION DETAILS
11	CONSTRUCTION & GRADING KEY PLAN
12-16	CONSTRUCTION & GRADING PLANS
17	SIGNING, STRIPING, & SIGNAL KEY PLAN
18-27	SIGNING & STRIPING PLANS
28-37	SIGNAL PLANS
38	TRAFFIC MANAGEMENT PLAN

CITY OF PROVIDENCE

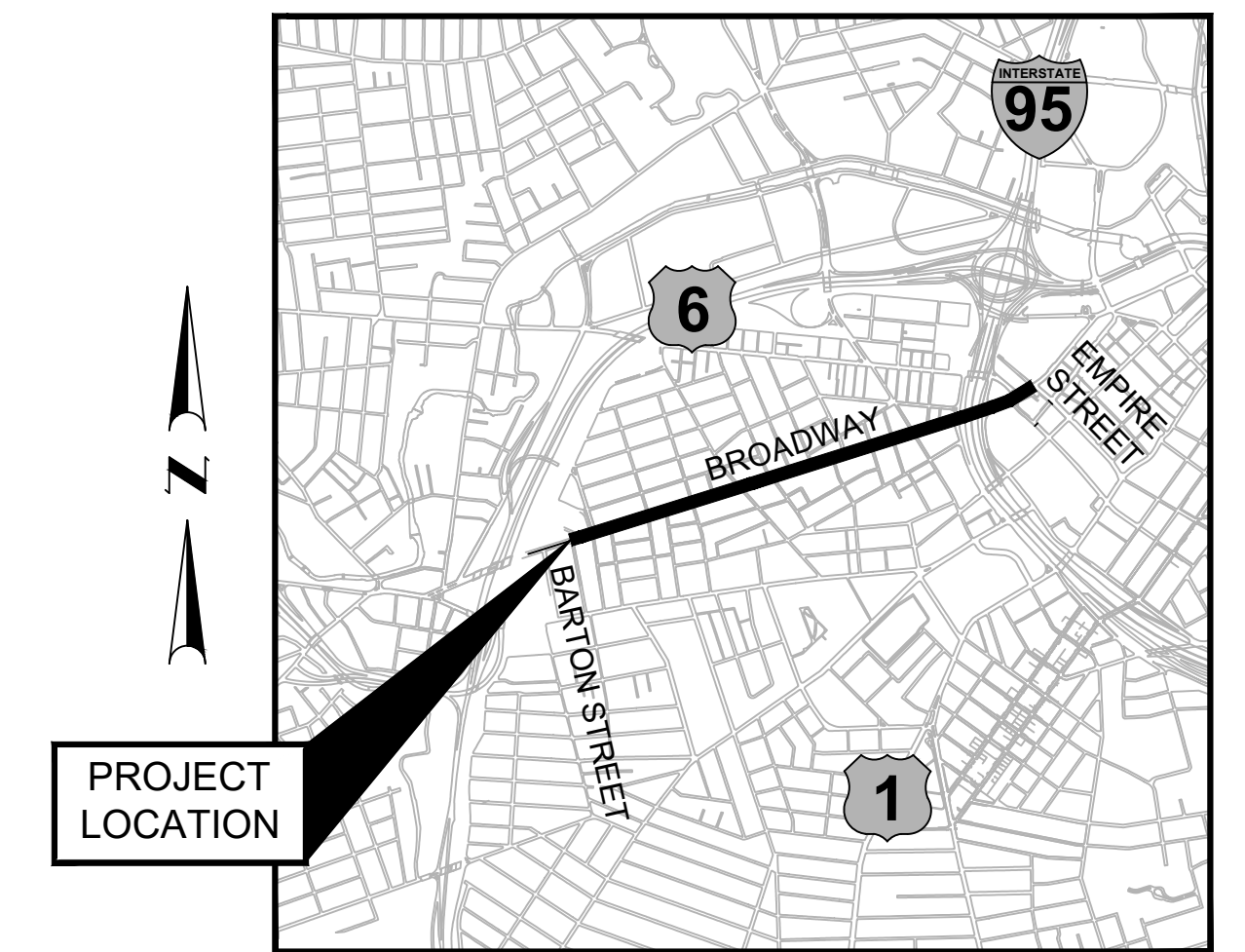


DEPARTMENT OF PUBLIC WORKS

PLAN OF PROPOSED
CITY ROADWAY

BROADWAY BICYCLE & PEDESTRIAN IMPROVEMENTS

BROADWAY (BARTON STREET - EMPIRE STREET)

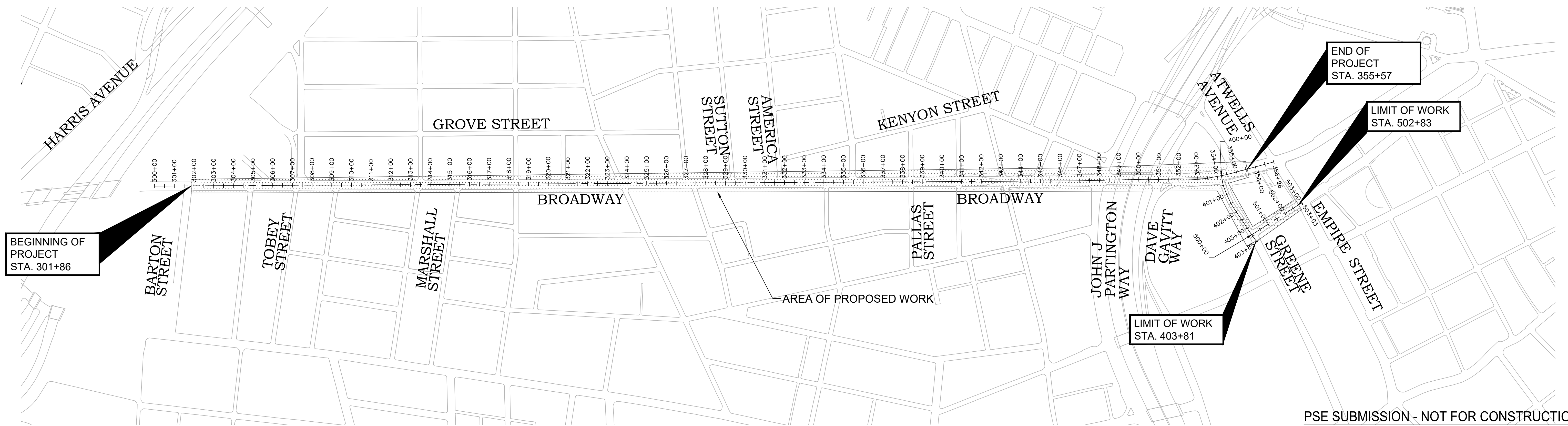


PROJECT LOCATION

LOCATION MAP
SCALE: 1" = 2000'

CITY OF PROVIDENCE
COUNTY OF PROVIDENCE

1.05 MILES - BROADWAY



BEGINNING OF PROJECT
STA. 301+86

END OF PROJECT
STA. 355+57

LIMIT OF WORK
STA. 502+83

LIMIT OF WORK
STA. 403+81

LAYOUT PLAN

SCALE: 1" = 250'

SCALES OF DRAWINGS
Construction and Grading Plans 1 inch = 20 feet
Signing and Striping Plan 1 inch = 20 feet

PSE SUBMISSION - NOT FOR CONSTRUCTION

REVISIONS		
NO.	DATE	BY

CITY OF PROVIDENCE

BROADWAY
BICYCLE & PEDESTRIAN IMPROVEMENTS

PROVIDENCE RHODE ISLAND

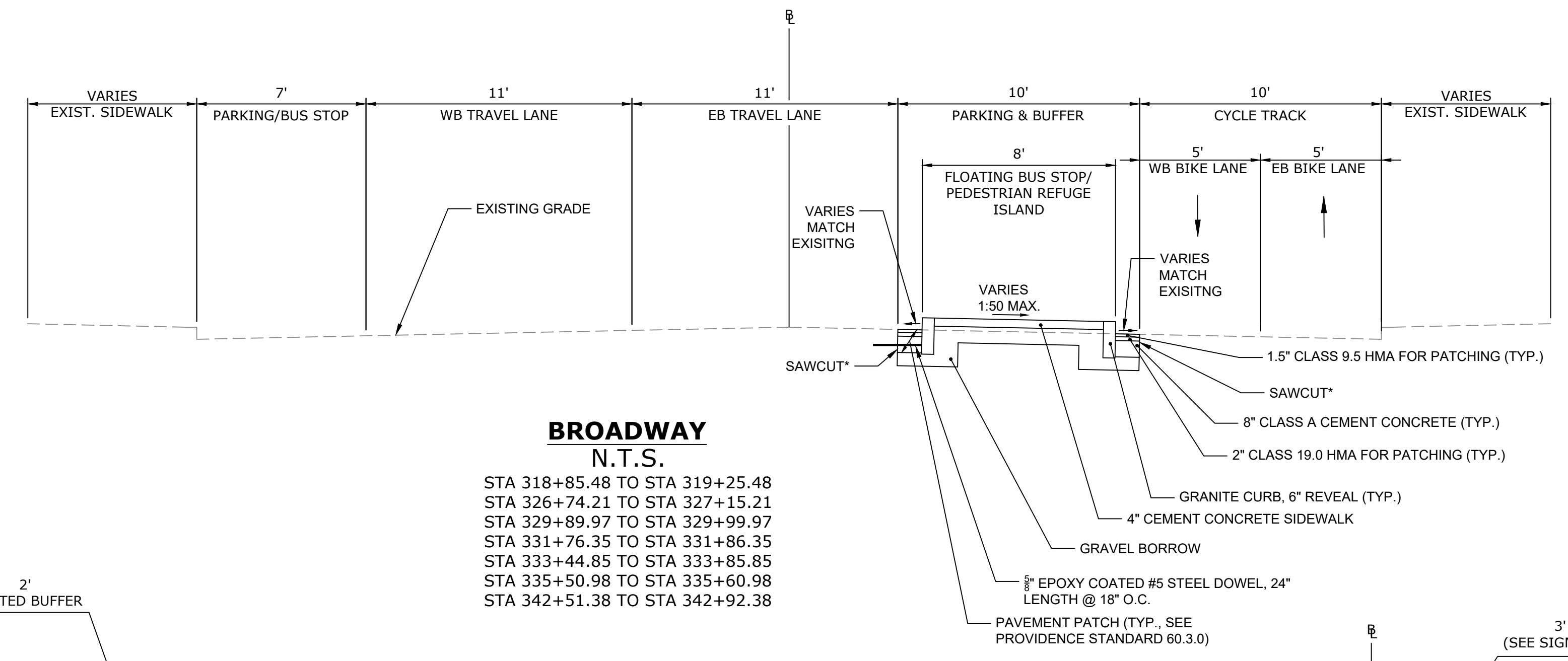
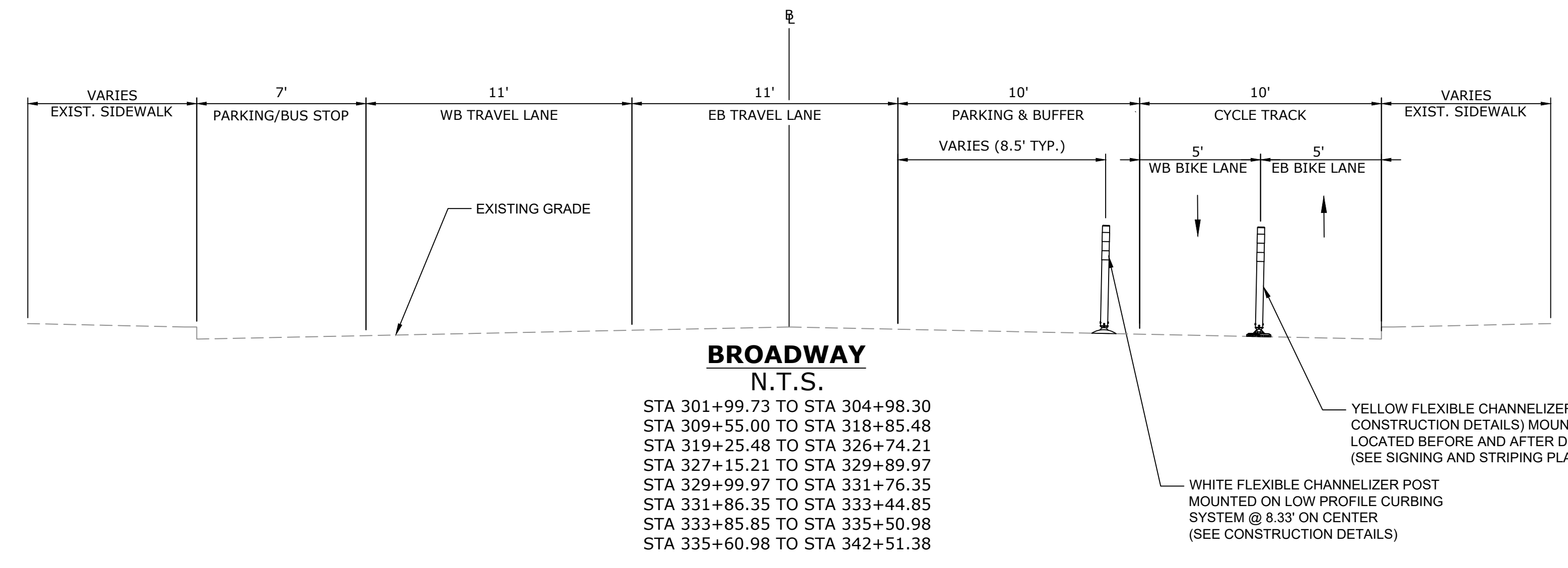
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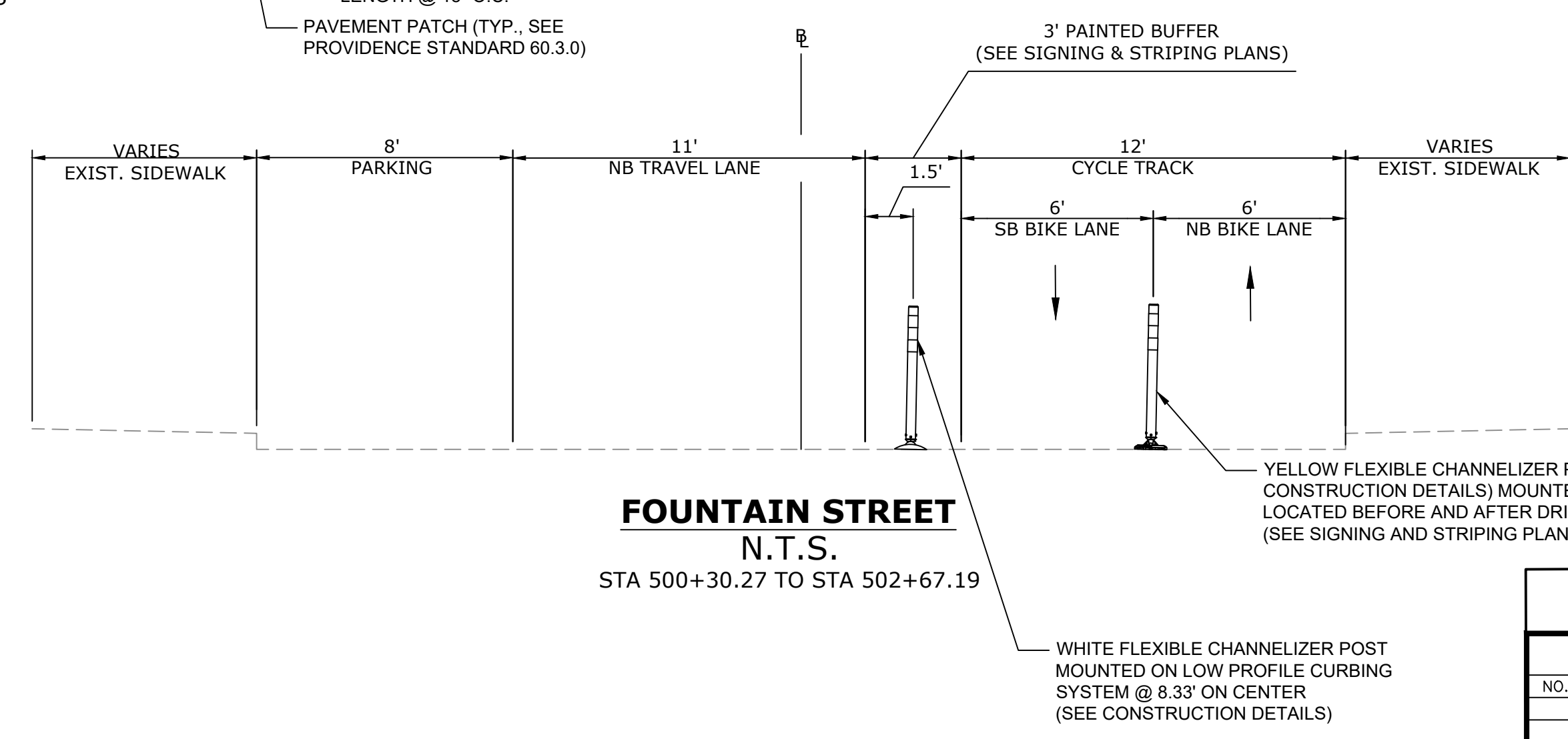
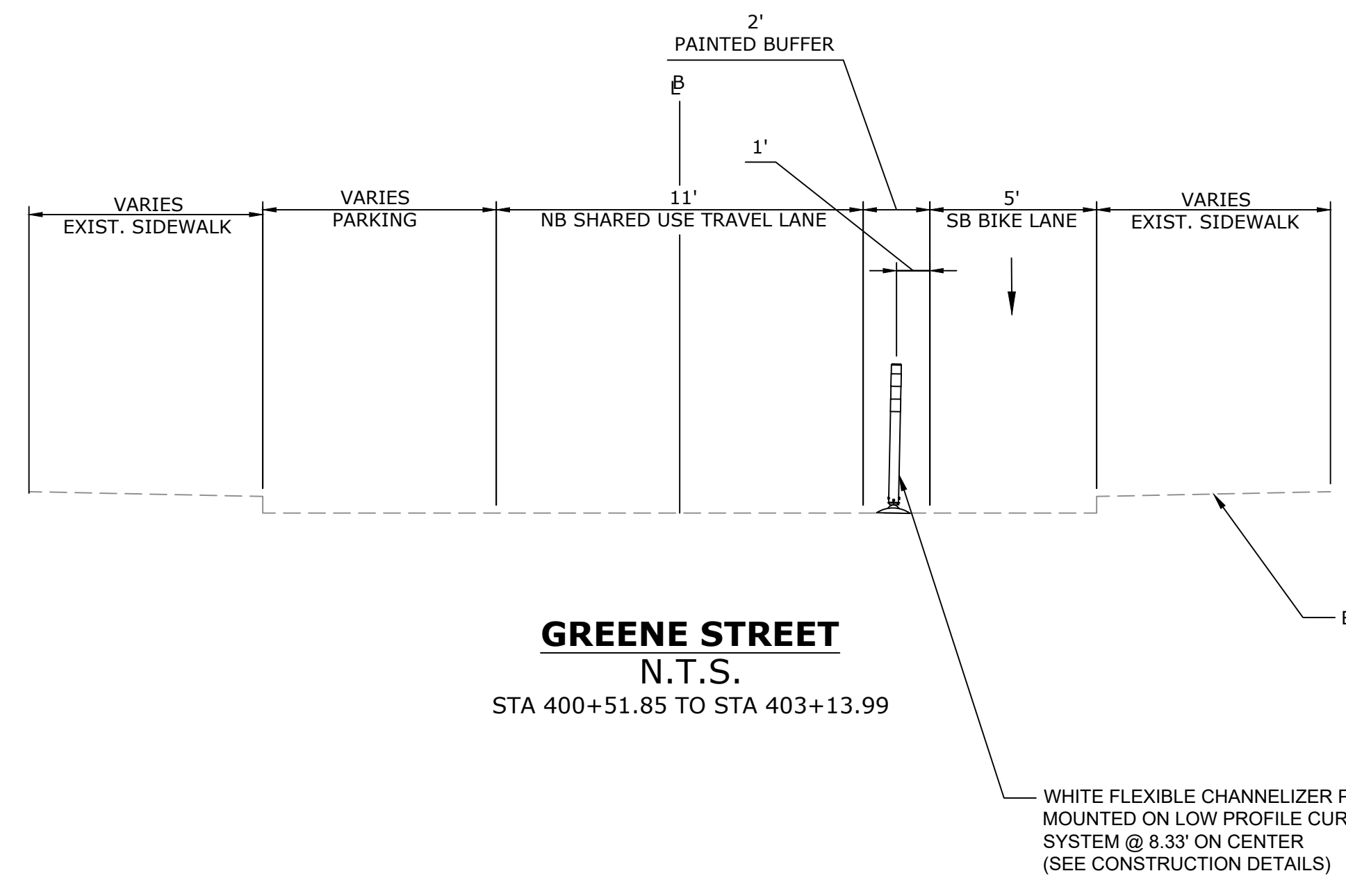
PAVEMENT NOTES

PAVEMENT PATCHING - BROADWAY
 SURFACE: 1-1/2" CLASS 9.5 HMA FOR PATCHING
 INTERMEDIATE: 2" CLASS 19.0 HMA FOR PATCHING
 BASE: 8" CLASS A CEMENT CONCRETE
 SUBBASE: 6-1/2" GRAVEL BORROW

CEMENT CONCRETE SIDEWALK OR FLOATING BUS STOP OR PEDESTRIAN REFUGE ISLAND
 SURFACE: 4" CEMENT CONCRETE
 SUBBASE: 8" GRAVEL BORROW



*SAWCUT TO BE PAID FOR UNDER ITEM 932.0210 FULL-DEPTH SAWCUT OF BITUMINOUS PAVEMENT AND RIGID BASE



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BICYCLE & PEDESTRIAN IMPROVEMENTS

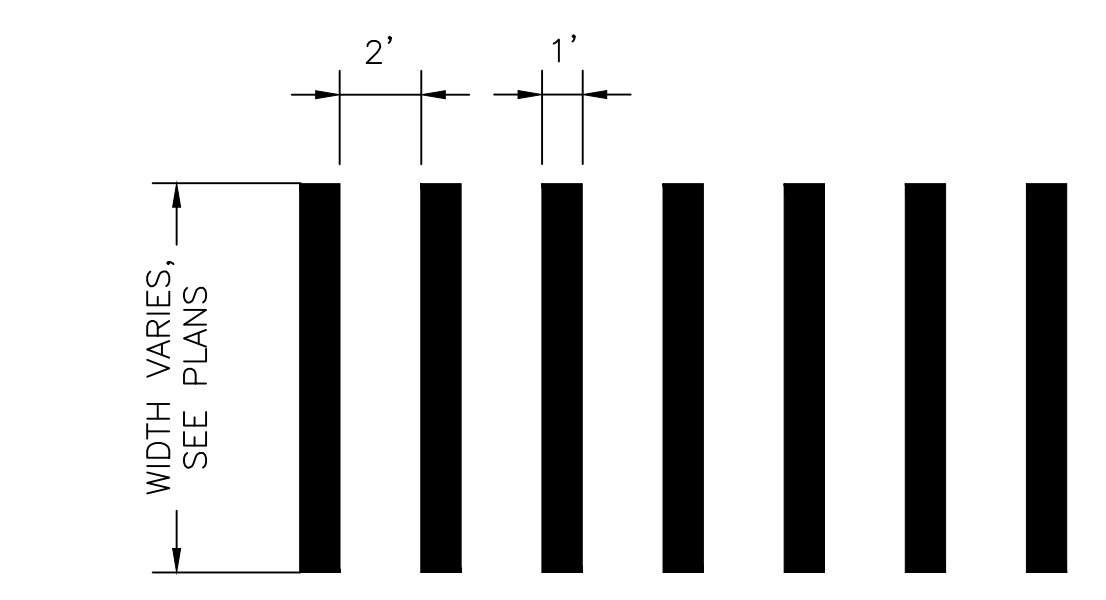
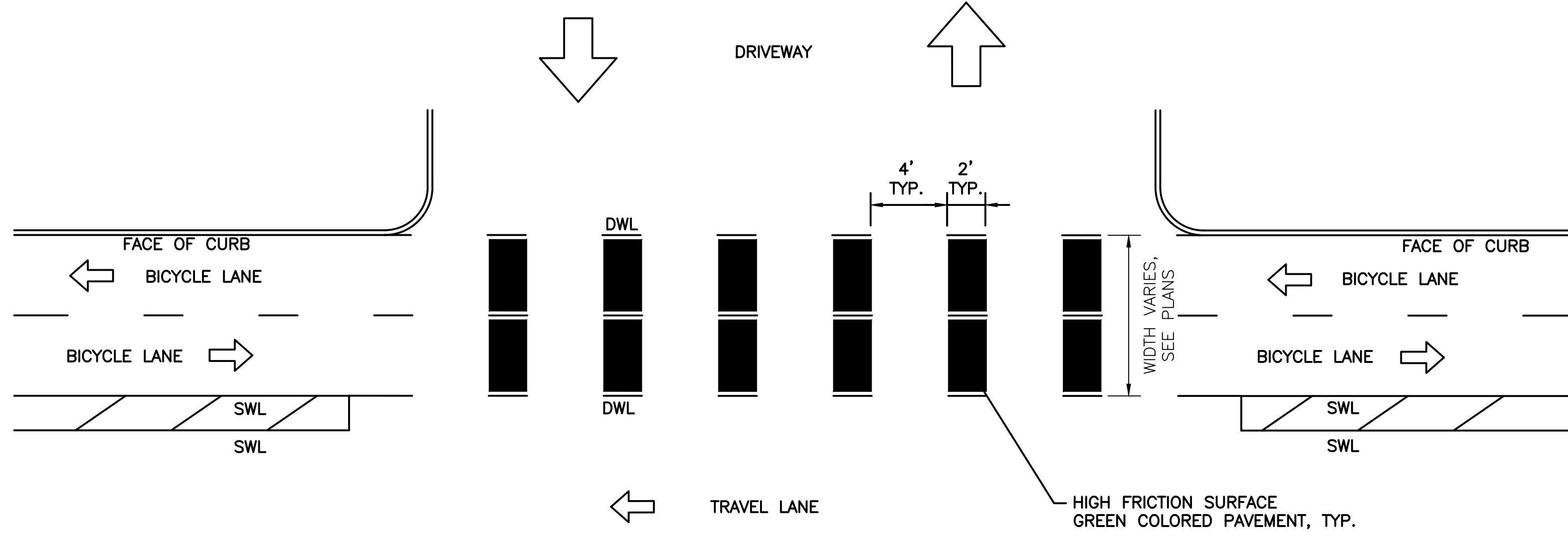
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TYPICAL SECTIONS

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE:

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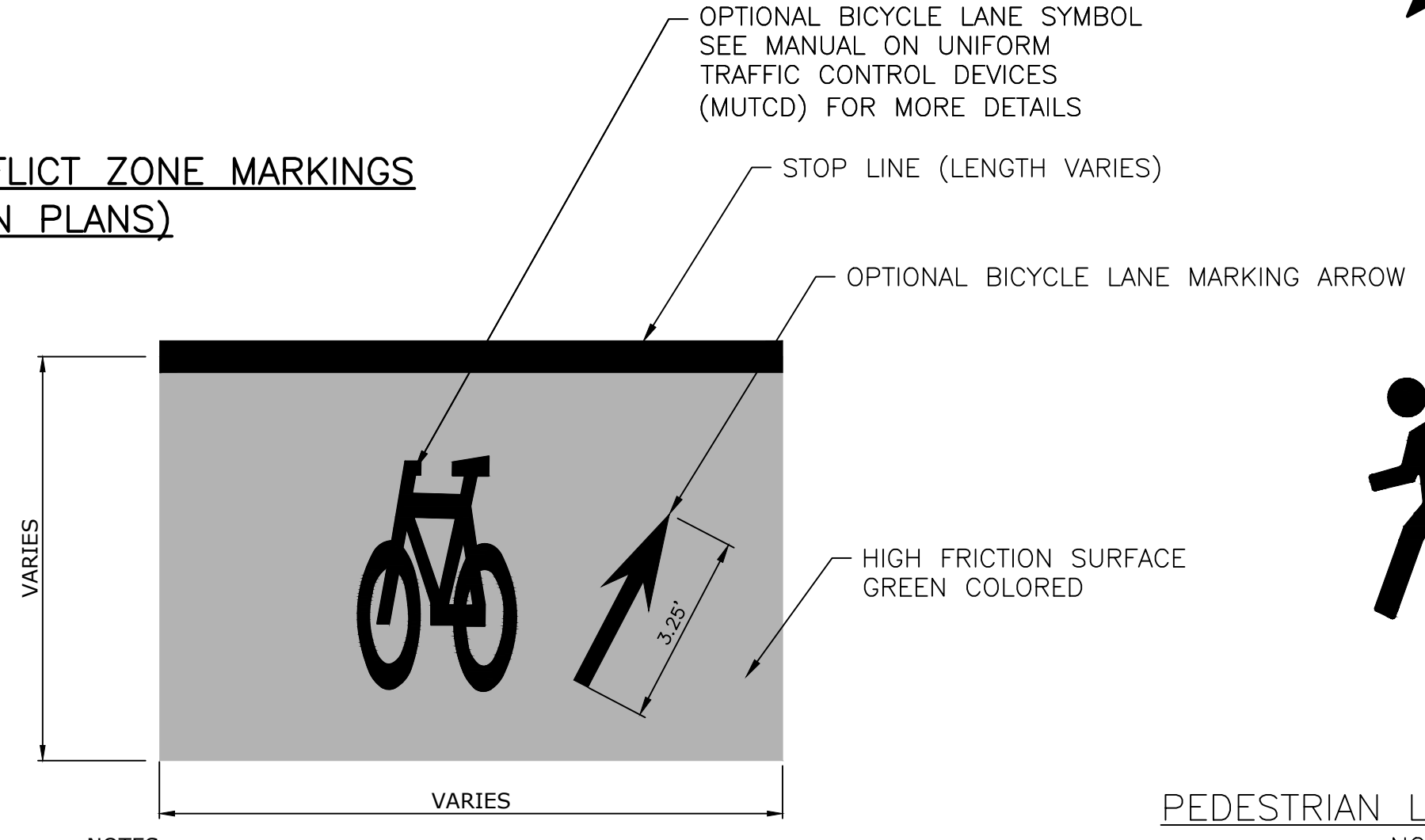
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- CROSSWALK NOTES:
1. ALL CROSSWALKS TO ALIGN WITH EXISTING AND PROPOSED CURB RAMP.
 2. ALL CROSSWALK MARKINGS TO BE PARALLEL WITH VEHICLE TRAVEL DIRECTION.
 3. WHERE POSSIBLE, ALIGN CROSSWALK STRIPES SUCH THAT THE TYPICAL VEHICLE TIRE PATH PASSES BETWEEN MARKINGS.

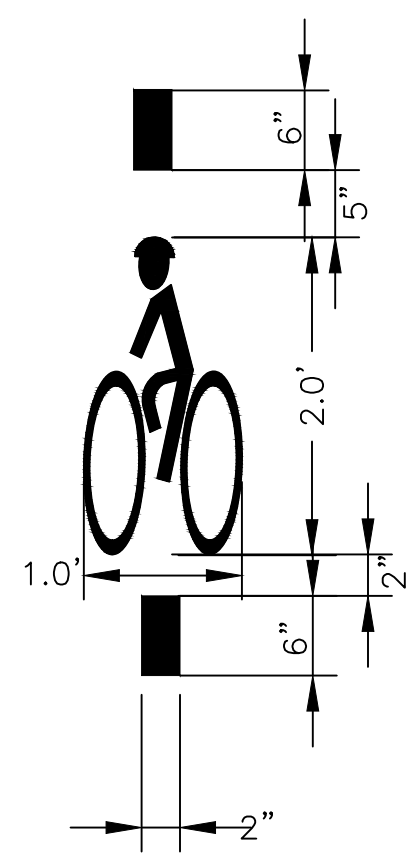
- DRIVEWAY TREATMENT NOTES:
1. HIGH FRICTION GREEN COLORED PAVEMENT MAY BE USED WHERE MOTOR VEHICLE TRAFFIC CAN TURN RIGHT ACROSS THE BICYCLE LANE. SEE PLANS FOR LOCATIONS.
 2. INSTALL HIGH FRICTION GREEN COLORED PAVEMENT BETWEEN 2' DOTTED WHITE LANE LINES AS SHOWN ON PLANS.
 3. INSTALL HIGH FRICTION GREEN COLORED PAVEMENT SO THAT CROSSWALK MARKINGS ARE NOT DISTURBED.
 4. TRAVEL LANE WIDTHS ARE AS SHOWN ON PLANS.

TYPICAL DRIVEWAY TREATMENT/GREEN CONFLICT ZONE MARKINGS
(UNLESS OTHERWISE NOTED ON PLANS)
NOT TO SCALE



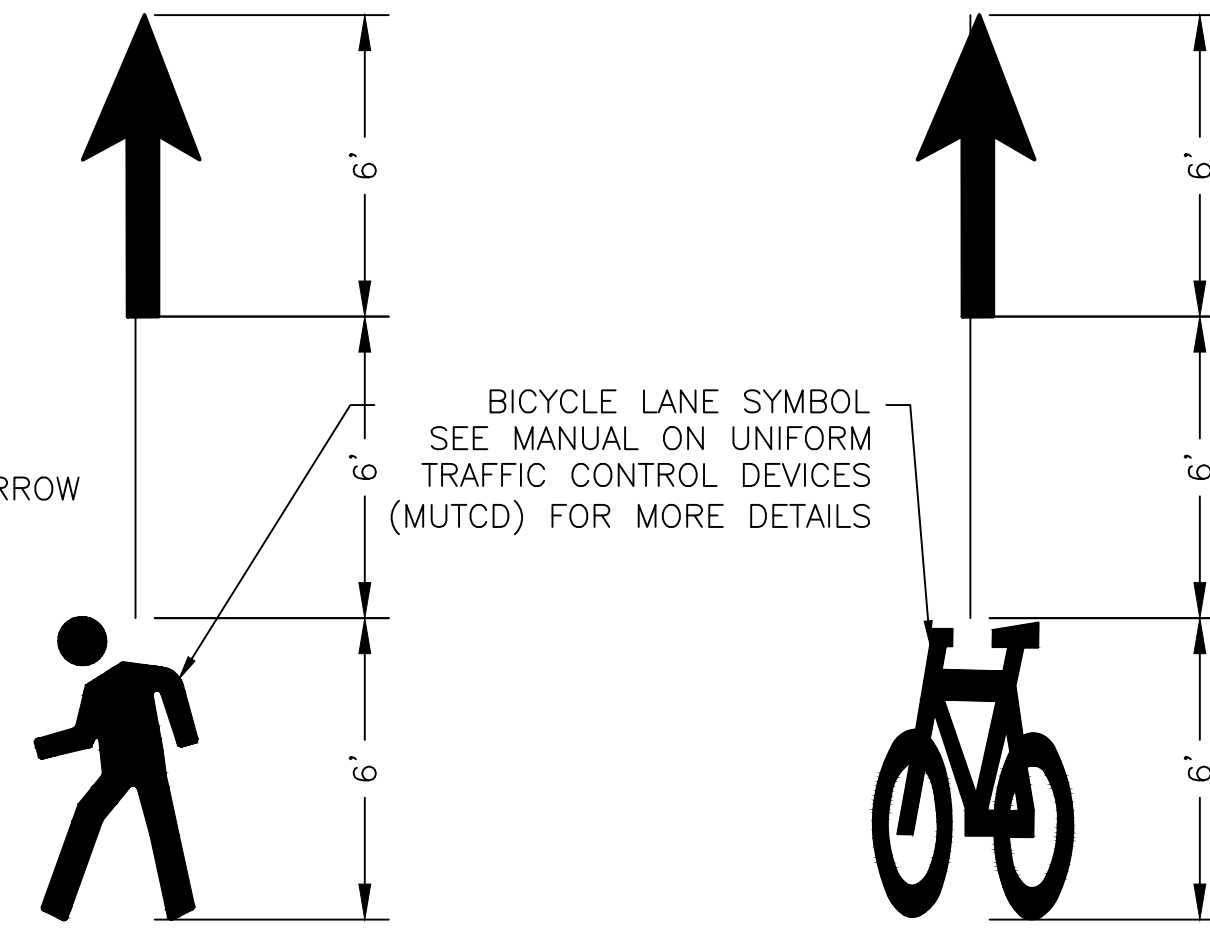
- NOTES:
1. SEE PLAN SHEETS FOR QUEUE BOX LOCATIONS AND SYMBOL LOCATIONS.
 2. DO NOT PLACE SYMBOLS ON LANE LINES, CROSSWALK LINES, OR STOP LINES.
 3. INSTALL GREEN PAVEMENT SO THAT CROSSWALK MARKINGS ARE NOT DISTURBED.

BICYCLE QUEUE BOX
NOT TO SCALE

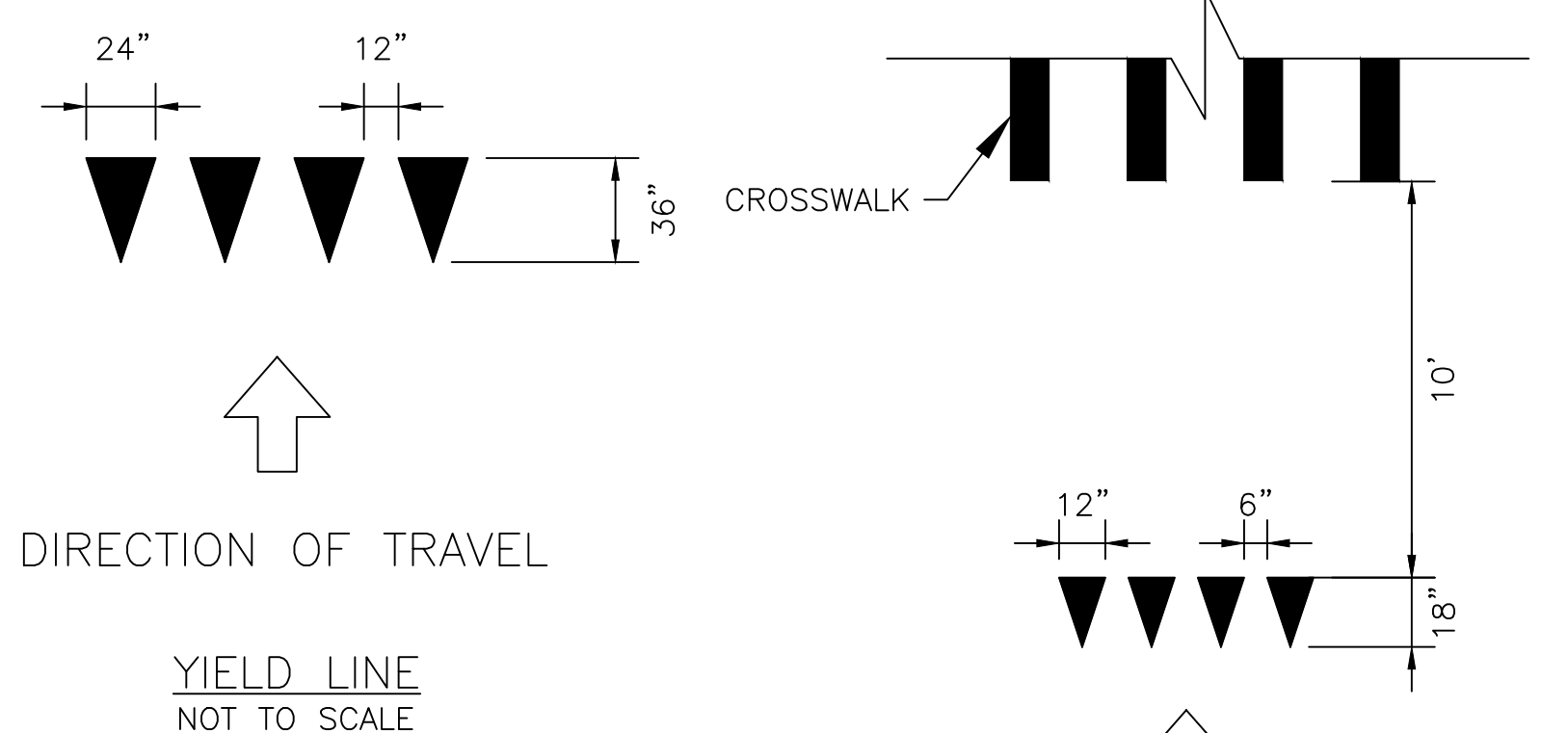


BICYCLE DETECTOR PAVEMENT MARKING
N.T.S

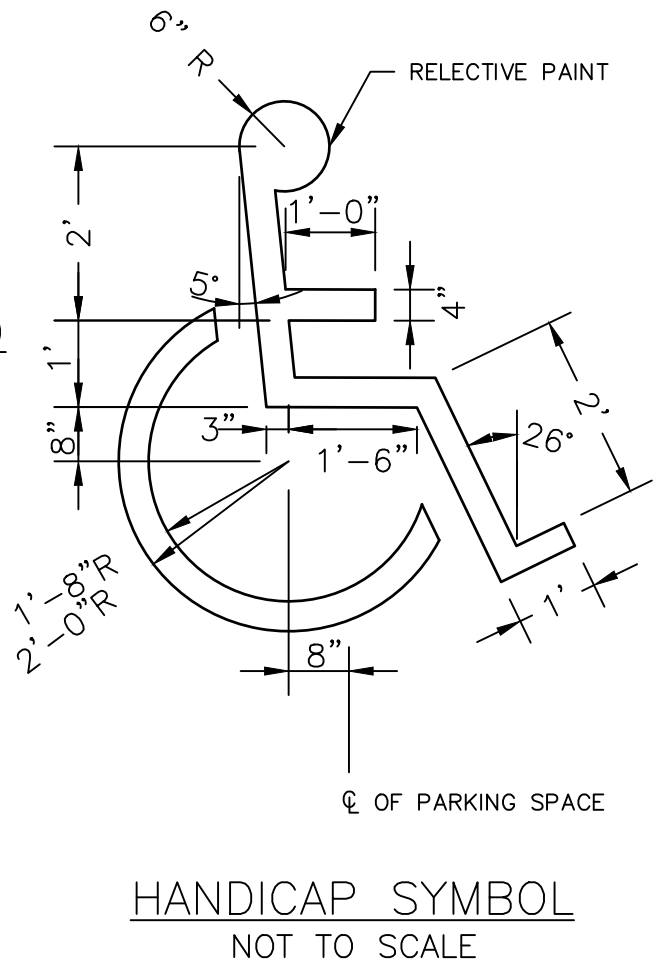
TYPICAL CROSSWALK STRIPING
NOT TO SCALE



PEDESTRIAN LANE MARKING (PLM) BICYCLE LANE MARKING (BLM)
NOT TO SCALE

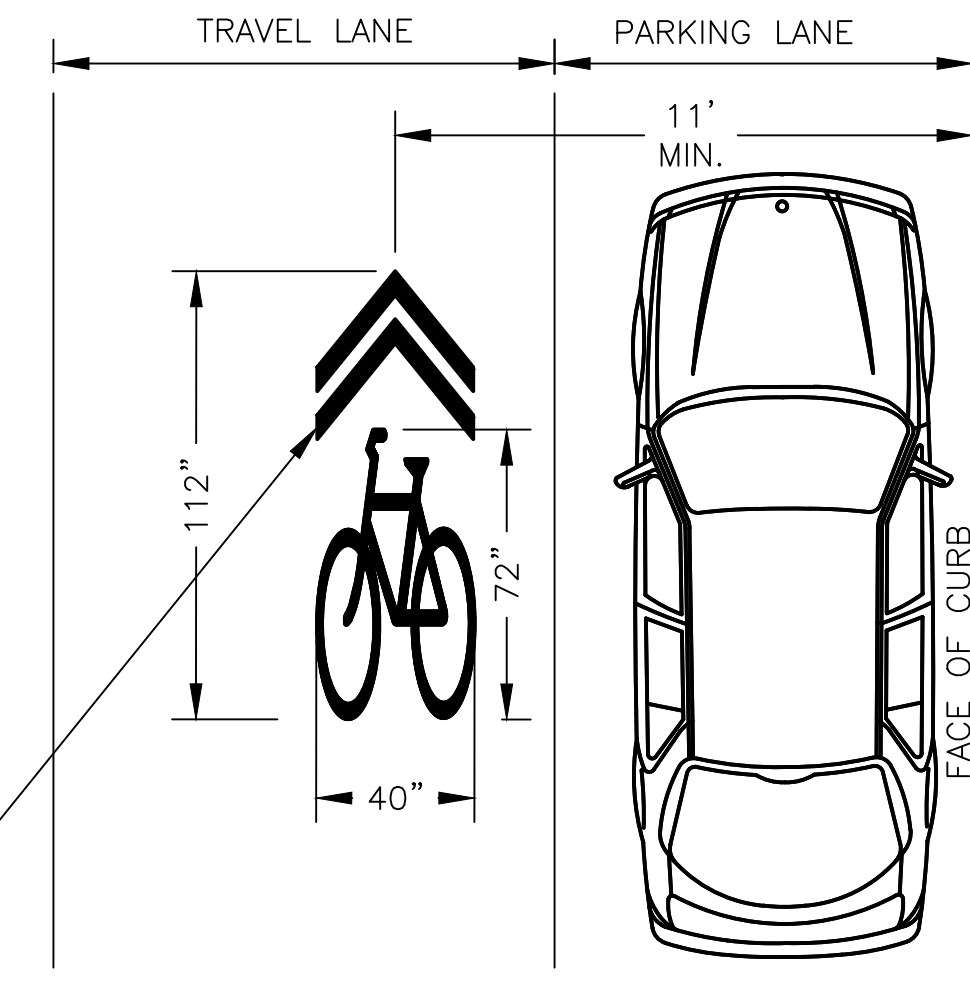


BICYCLE LANE YIELD LINE
NOT TO SCALE



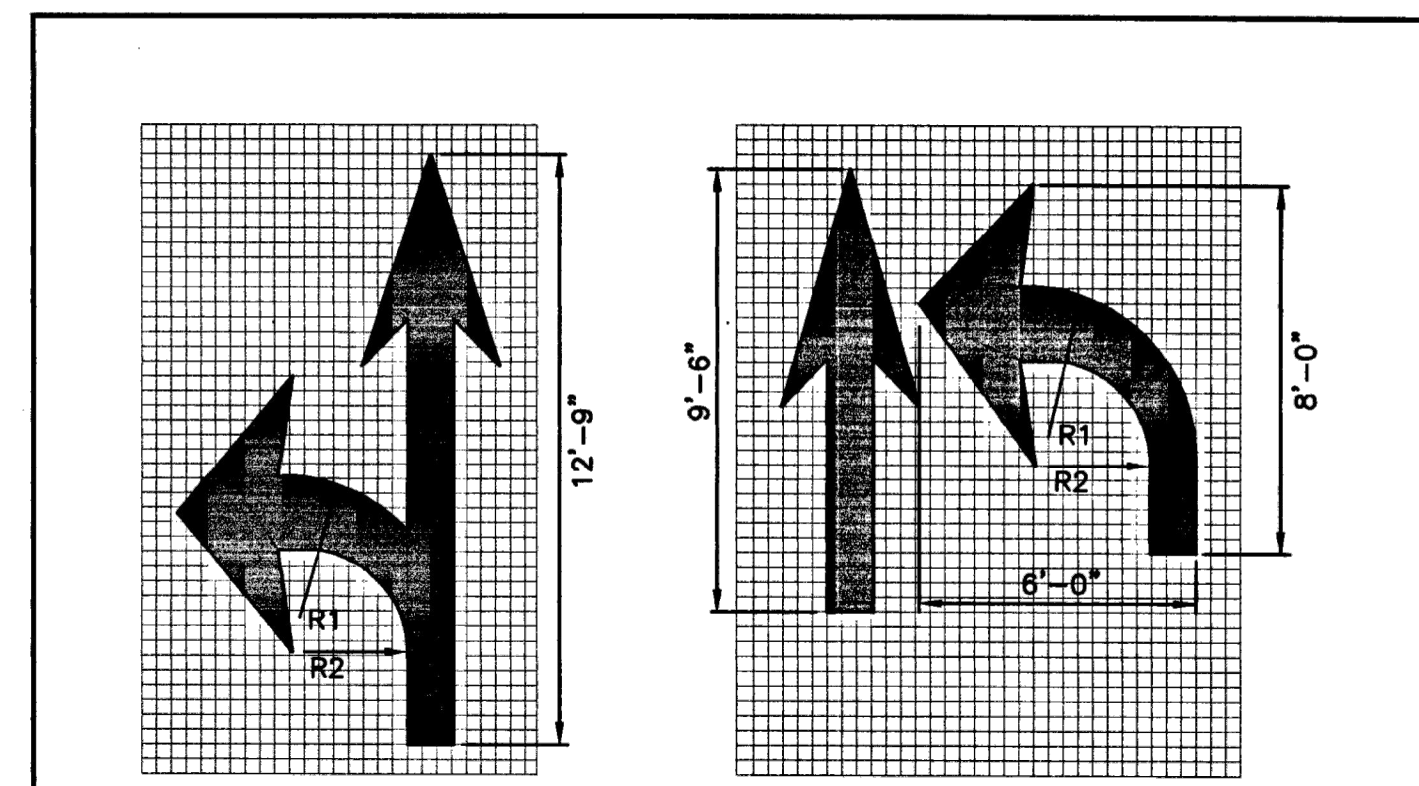
RIGHT TURN SHARED LANE MARKING SYMBOL
NOT TO SCALE

- SHARED LANE MARKING SYMBOL NOTES:
1. IN LOCATIONS WITH ON-STREET PARKING, SHARED LANE MARKING SYMBOLS SHALL BE PLACED SO THAT THEIR CENTERS ARE A MINIMUM OF 11 FEET FROM THE ADJACENT FACE OF CURB UNLESS OTHERWISE NOTED ON THE PLANS.
 2. DO NOT PLACE SYMBOLS ON LANE LINES.
 3. SEE PLANS FOR SYMBOL LOCATIONS.



SHARED LANE MARKING SYMBOL PLACEMENT ADJACENT TO PARKING
NOT TO SCALE

SHARED LANE MARKING SEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) CHAPTER 9C FOR MORE DETAILS



- NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION T.20 OF THE R.I. STANDARD SPECIFICATIONS.
 2. THE LONGITUDINAL SPACE BETWEEN WORD OR SYMBOL MESSAGES, INCLUDING ARROWS, SHOULD BE AT LEAST FOUR TIMES THE HEIGHT OF THE CHARACTER FOR LOW SPEED ROADS BUT NOT MORE THAN TEN TIMES THE HEIGHT OF THE CHARACTER UNDER ANY CONDITIONS.
 3. THE SPACING OF THE PAVEMENT MARKINGS WILL BE AS SHOWN ON THE PLAN AND AS PER THE MUTCD.
 4. SYMBOLS AND WORDS SHALL MEET THE REQUIREMENTS OF THE FHWA STANDARD ALPHABET AND SYMBOLS FOR HIGHWAY PAVEMENT MARKINGS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REVISIONS		
NO.	BY	DATE

PAVEMENT MARKINGS ARROWS AND ONLY

June 15, 1998

R.I. STANDARD 20.1.0

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REVISIONS		
NO.	DATE	BY

CITY OF PROVIDENCE

BROADWAY BICYCLE & PEDESTRIAN IMPROVEMENTS

PROVIDENCE RHODE ISLAND

CONSTRUCTION DETAILS (1 OF 7)

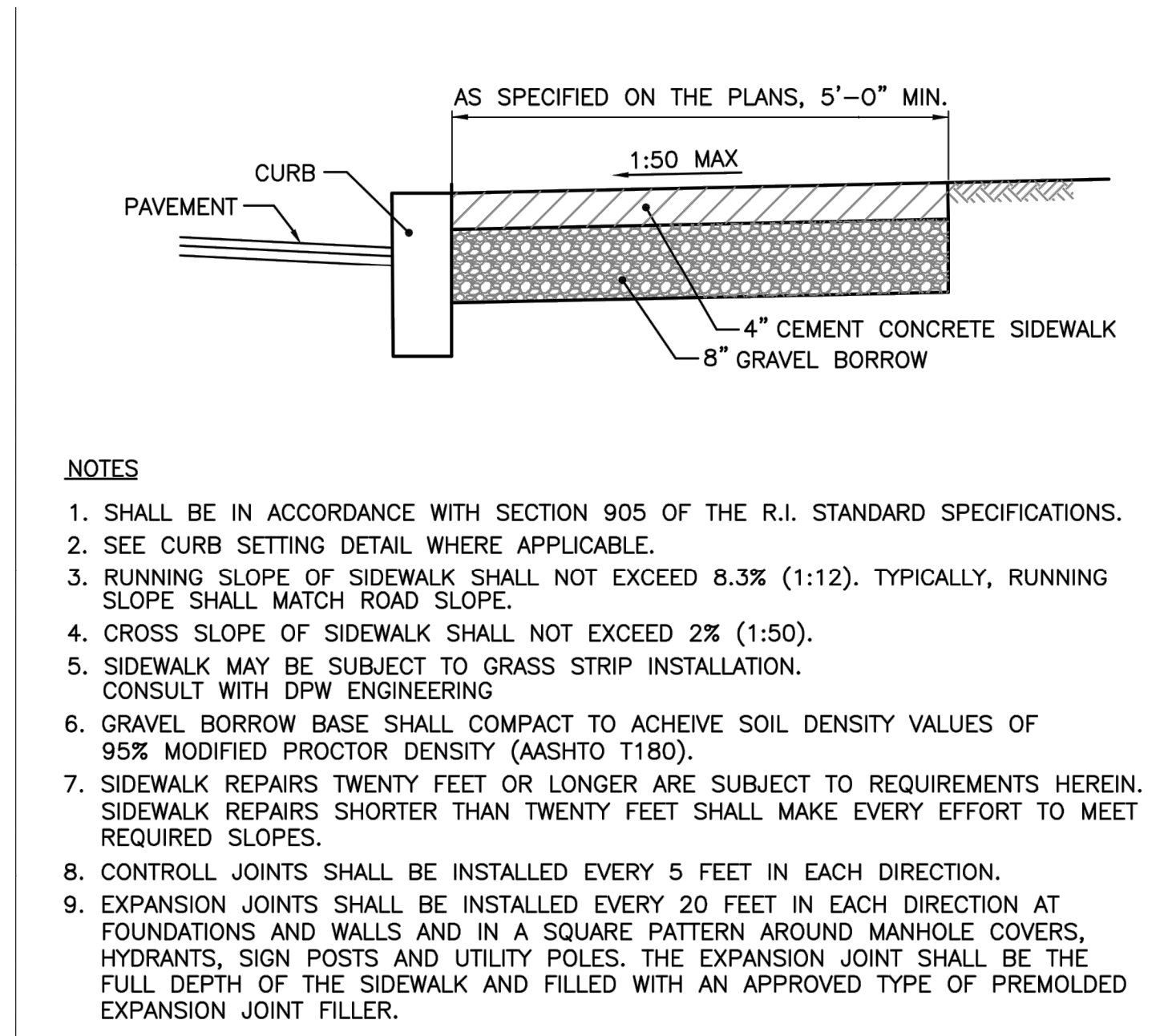
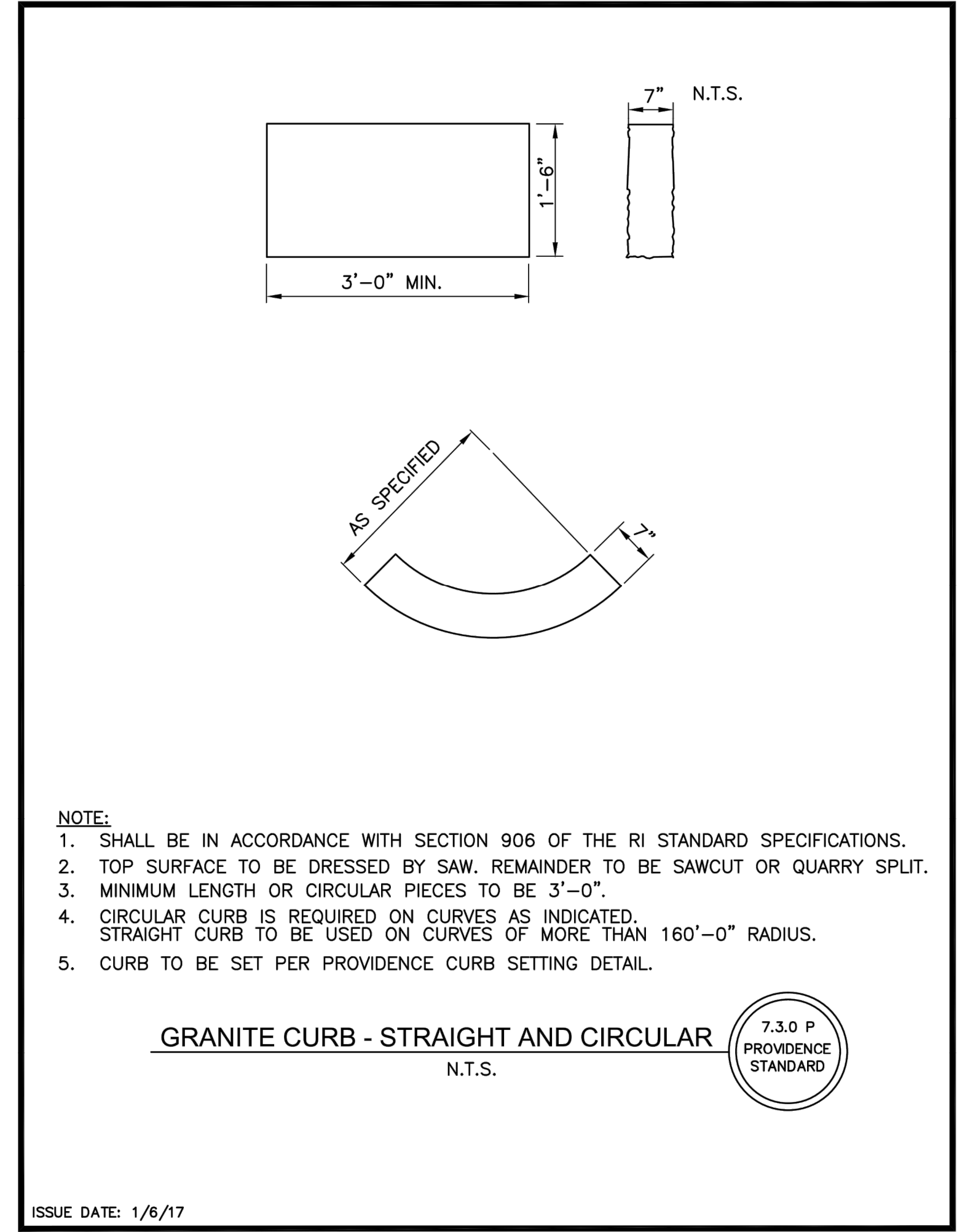
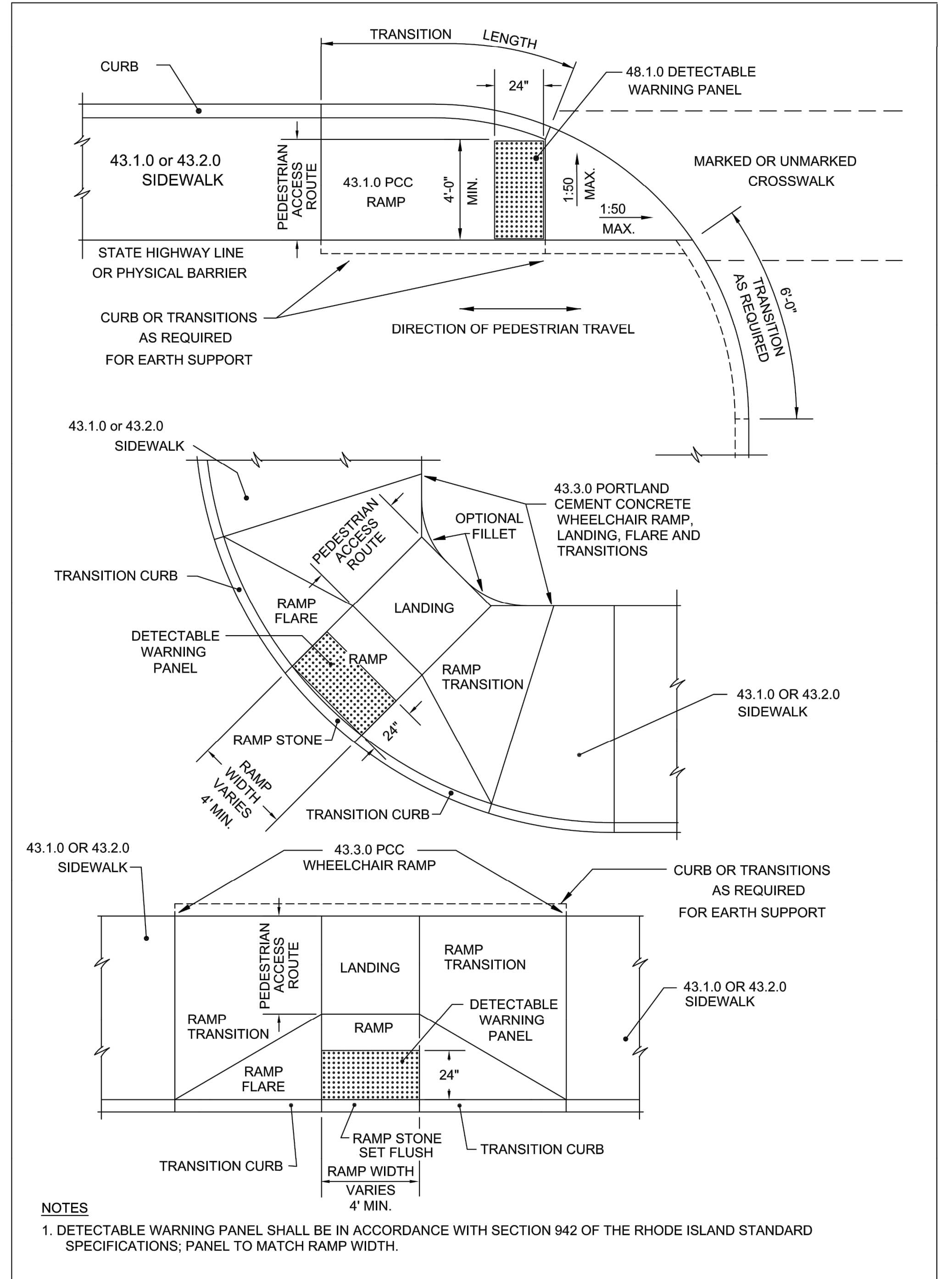
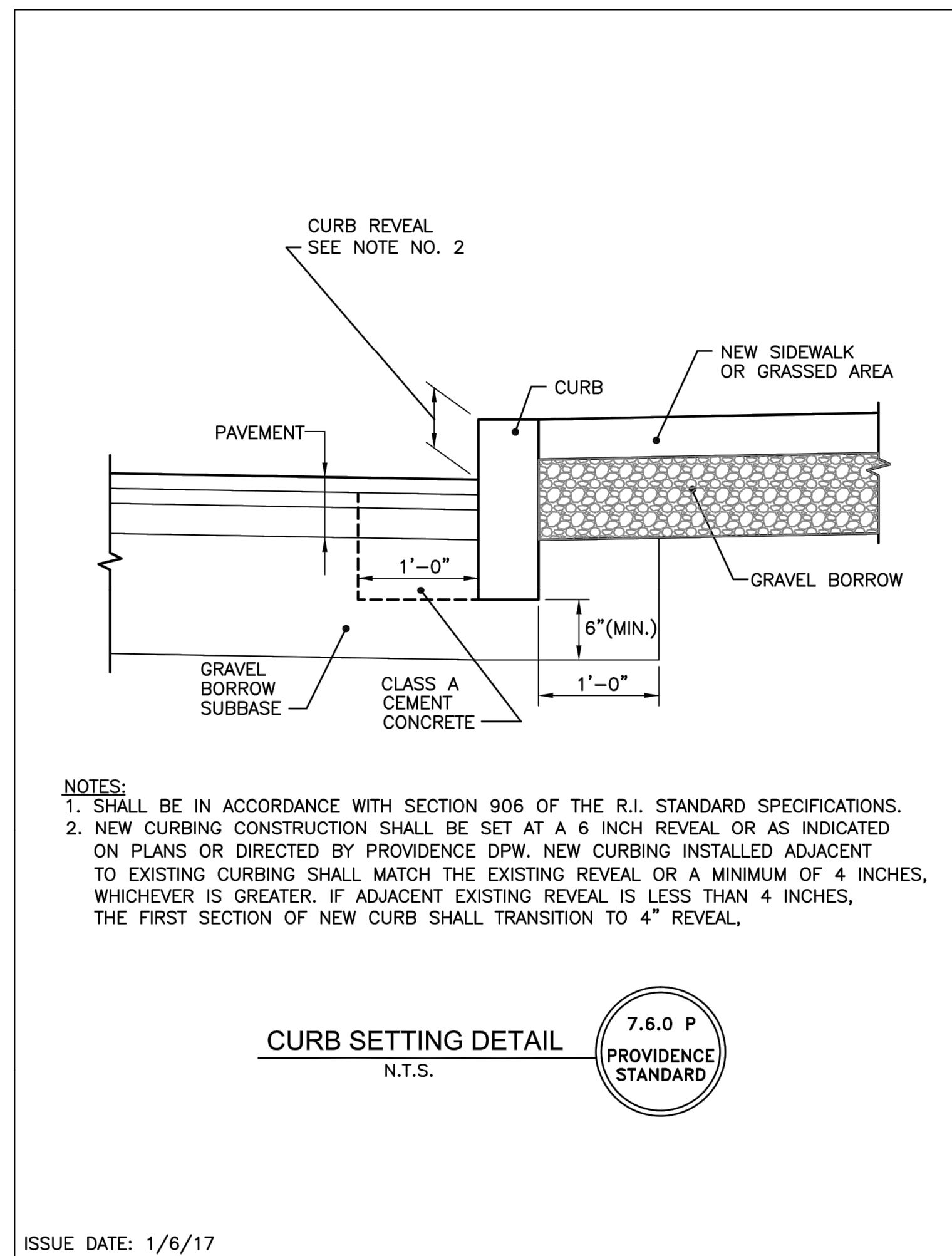
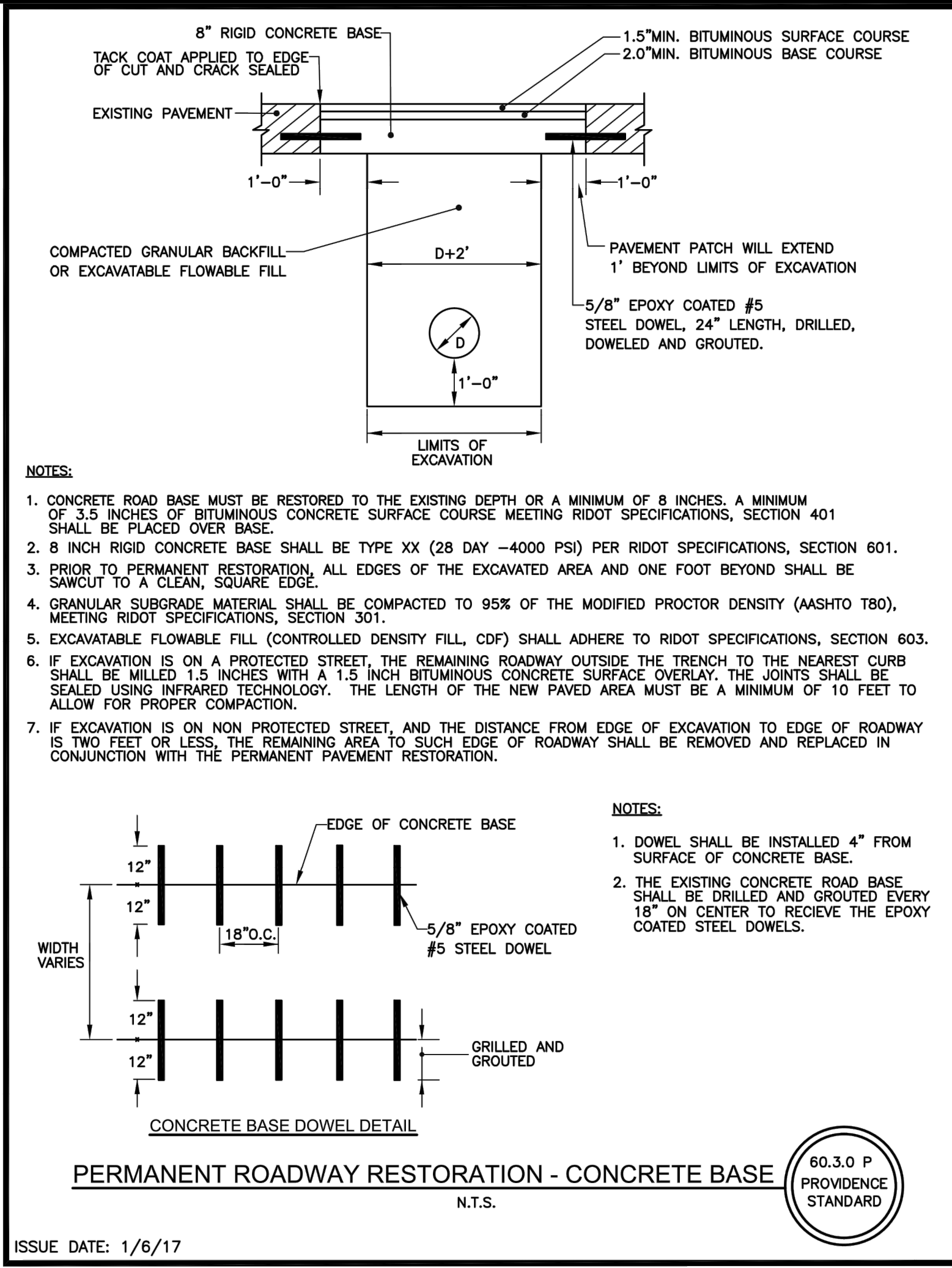
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BROADWAY
BICYCLE & PEDESTRIAN IMPROVEMENTS

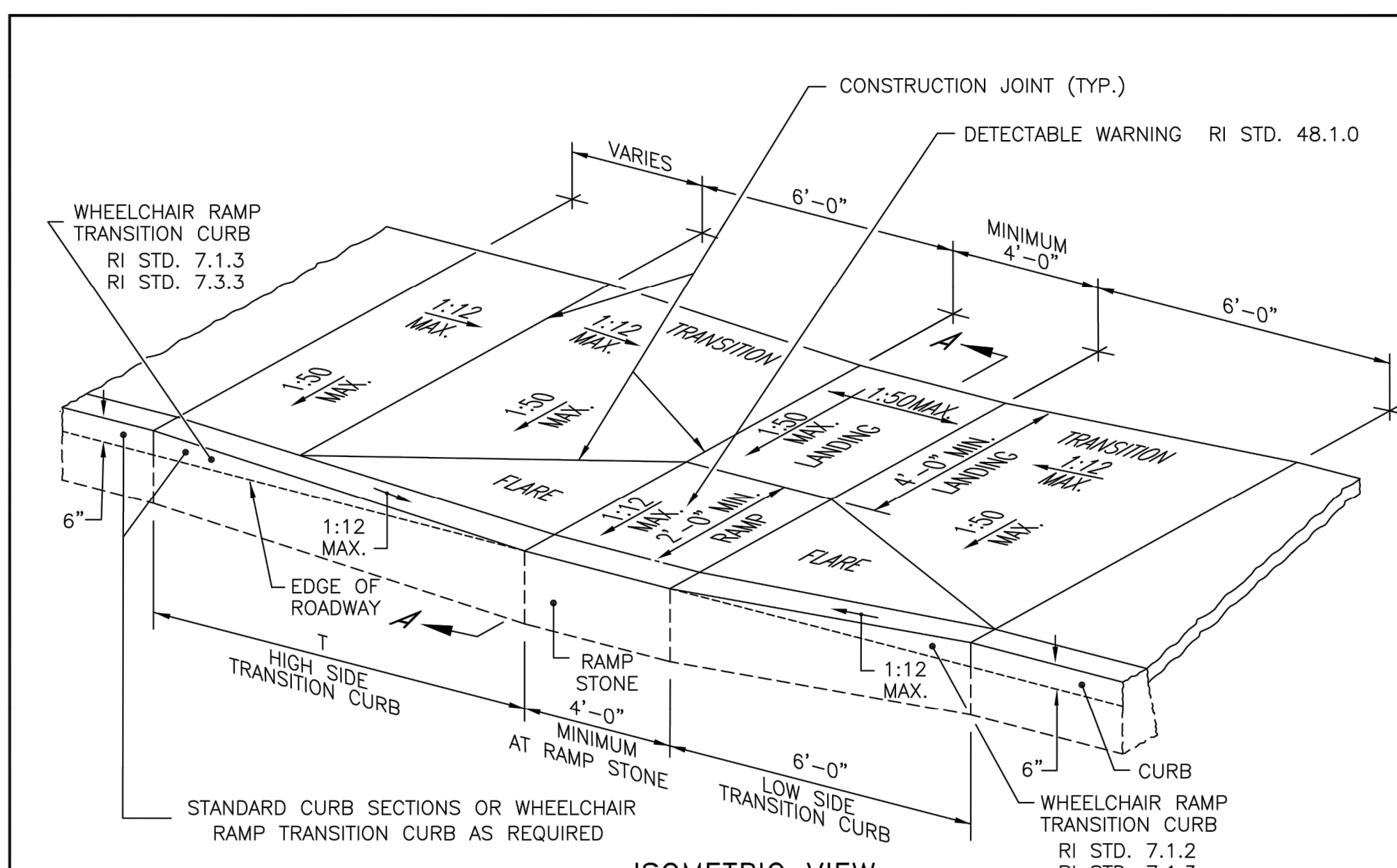
PROVIDENCE RHODE ISLAND

CONSTRUCTION DETAILS
(2 OF 7)

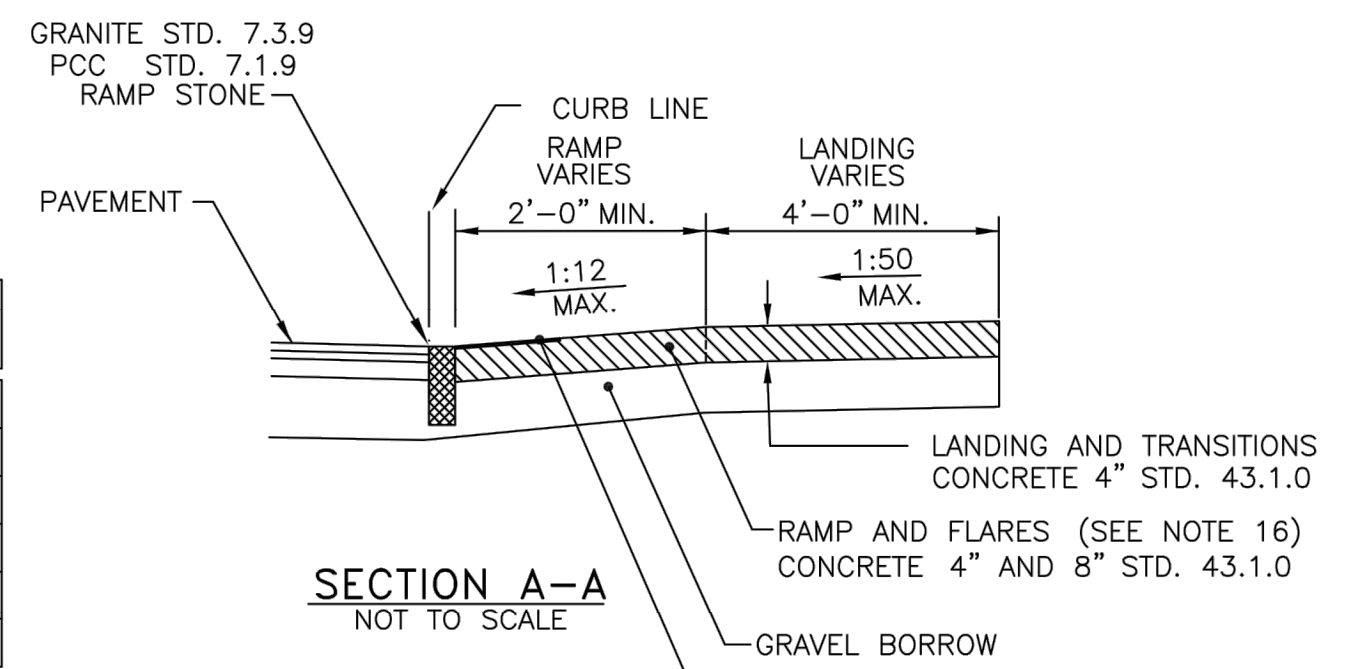
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ISOMETRIC VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE

ROADWAY PROFILE GRADE	T (FT.)
0.00	6.0
0.01	7.0
0.02	8.0
0.03	9.5
0.04	11.5
0.05	15.0

- NOTES:**
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
 2. WHEN ANY OBSTRUCTION LOCATED IN THE SIDEWALK FALLS WITHIN A CROSSWALK AREA, THE WHEELCHAIR RAMP SHALL BE PLACED SUCH THAT THE OBSTRUCTION FALLS OUTSIDE OF THE RAMP.
 3. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED OUTSIDE OF THE CROSSWALK, AND IT IS TO BE CENTERED WHENEVER POSSIBLE.
 4. DRAINAGE FACILITIES ARE TO BE LOCATED UP-GRADE OF ALL WHEELCHAIR RAMP.
 5. LOCATION OF WHEELCHAIR RAMP IS AS SHOWN ON CONTRACT DRAWINGS.
 6. IN NO INSTANCE SHALL THE SIDEWALK CROSS SLOPE EXCEED 1:50 EXCEPT WITHIN THE RAMP AREA.
 7. AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 4'-0" SHALL BE MAINTAINED.
 8. THE WHEELCHAIR RAMP SLOPE AND SIDE SLOPES (TRANSITIONS), MUST NOT BE STEEPER THAN 1:12. HOWEVER, THESE SLOPES MAY BE FLATTER THAN 1:12 WHEN WARRANTED BY SURROUNDING CONDITIONS.
 9. WHERE THE ROAD PROFILE EXCEEDS 5% THE HIGH SIDE TRANSITION LENGTH (T) SHALL BE EIGHTEEN FEET (18'-0").
 10. IN NO CASE, WHERE A STOP LINE IS WARRANTED, SHALL A RAMP BE PLACED BEHIND THE STOP LINE.
 11. THE ENTRANCE OF THE WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.
 12. THE WHEELCHAIR RAMP SHALL BE CENTERED RADIALLY, OPPOSITE THE RADIUS POINT WHEN POSSIBLE.
 13. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).
 14. ALL REQUIRED CUTTING OF CURB PIECES TO BE PAID FOR UNDER COST OF CURB.
 15. DETECTABLE WARNINGS TO BE PAID FOR UNDER SECTION 942 OF THE RI STANDARD SPECIFICATIONS.
 16. 8" CONCRETE DEPTH FOR RADIUS WHEELCHAIR RAMP ONLY. USE 4" DEPTH FOR TANGENT (MID-BLOCK) LOCATIONS.

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

WHEELCHAIR RAMP

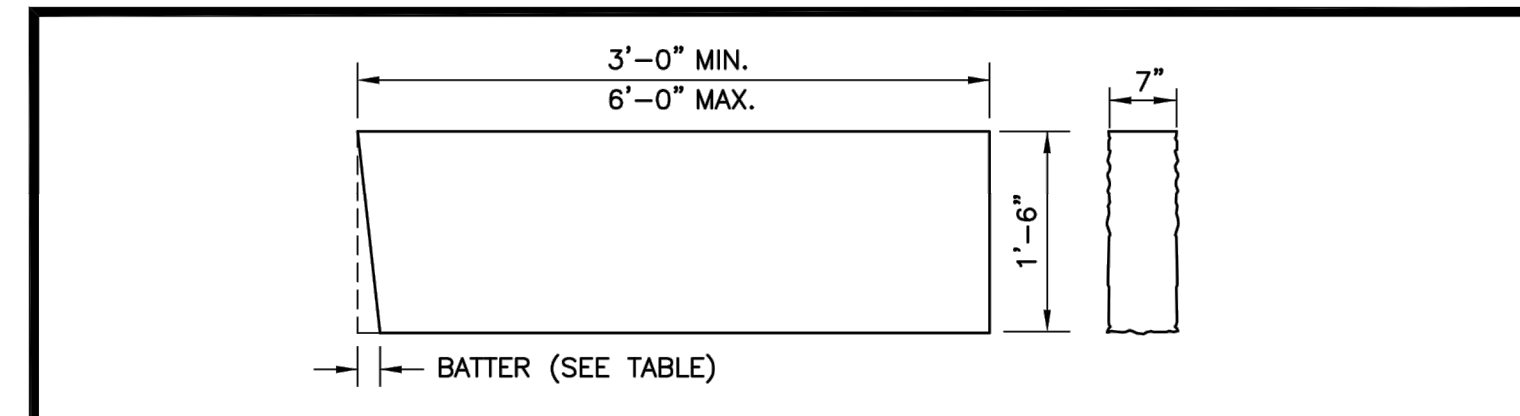
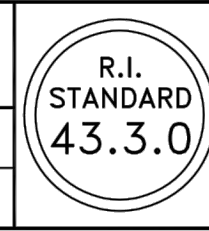
REVISIONS

NO.	BY	DATE
1	MLP	Oct. 2005
2	MLP	Jun. 2008
3	MLP	Sep. 2012

James P. Caputo
CHIEF ENGINEER
TRANSPORTATION

CHIEF DESIGN ENGINEER
TRANSPORTATION

JUNE 15, 1998
ISSUE DATE



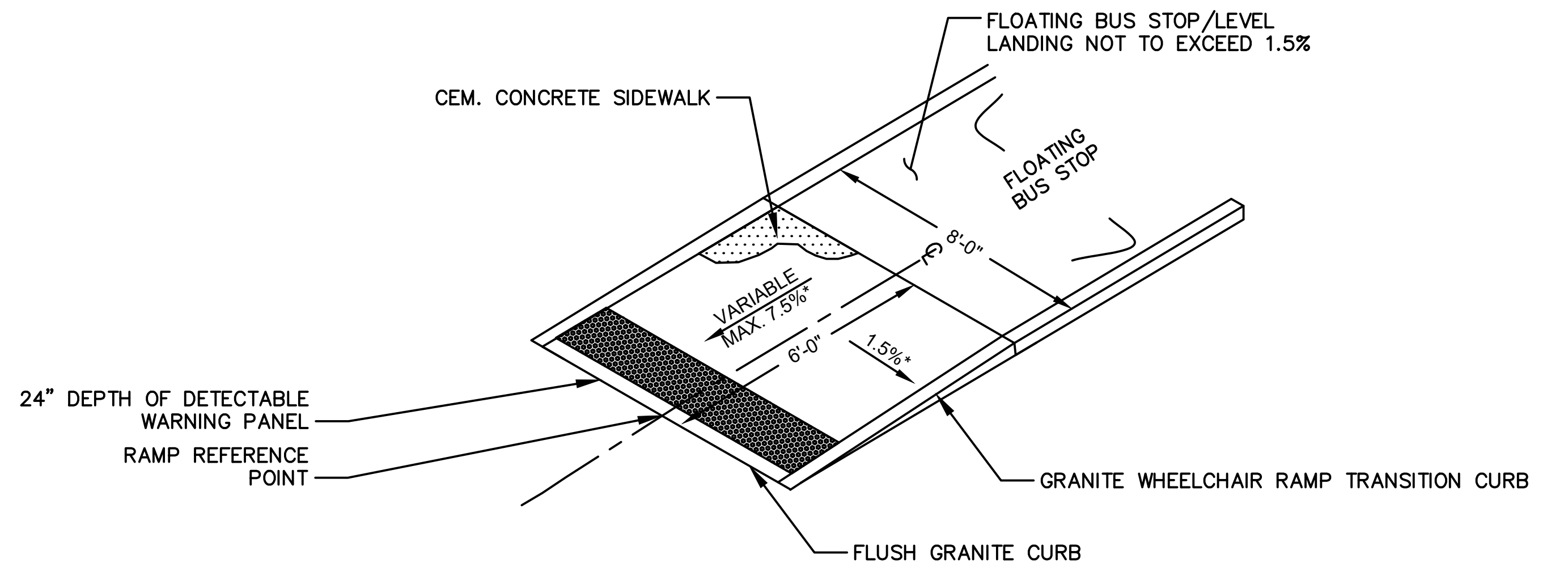
TRANSITION LENGTH (FT.)	BATTER (IN.)
6.0	1.5
7.0	1.3
8.0	1.2
9.5	1.0
11.5	0.8
15.0	0.6
18.0	0.5

- NOTES:**
1. SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE RI. STANDARD SPECIFICATIONS.
 2. THE CONTRACTOR MAY CUT EXISTING CURB SECTIONS AS REQUIRED TO MEET THIS DETAIL AND THE R.I. STANDARD SPECIFICATIONS, WHERE OLD CURBING IS BEING REUSED.
 3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR CURB FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).
 4. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE SAWCUT OR QUARRY SPLIT.
 5. CURB TO BE SET PER PROVIDENCE CURB SETTING DETAIL.

GRANITE WHEELCHAIR RAMP TRANSITION CURB
N.T.S.



ISSUE DATE: 1/6/17

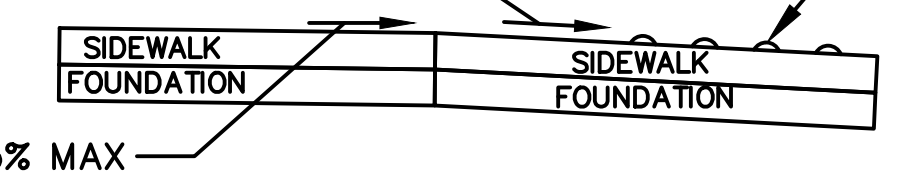


NOTES:

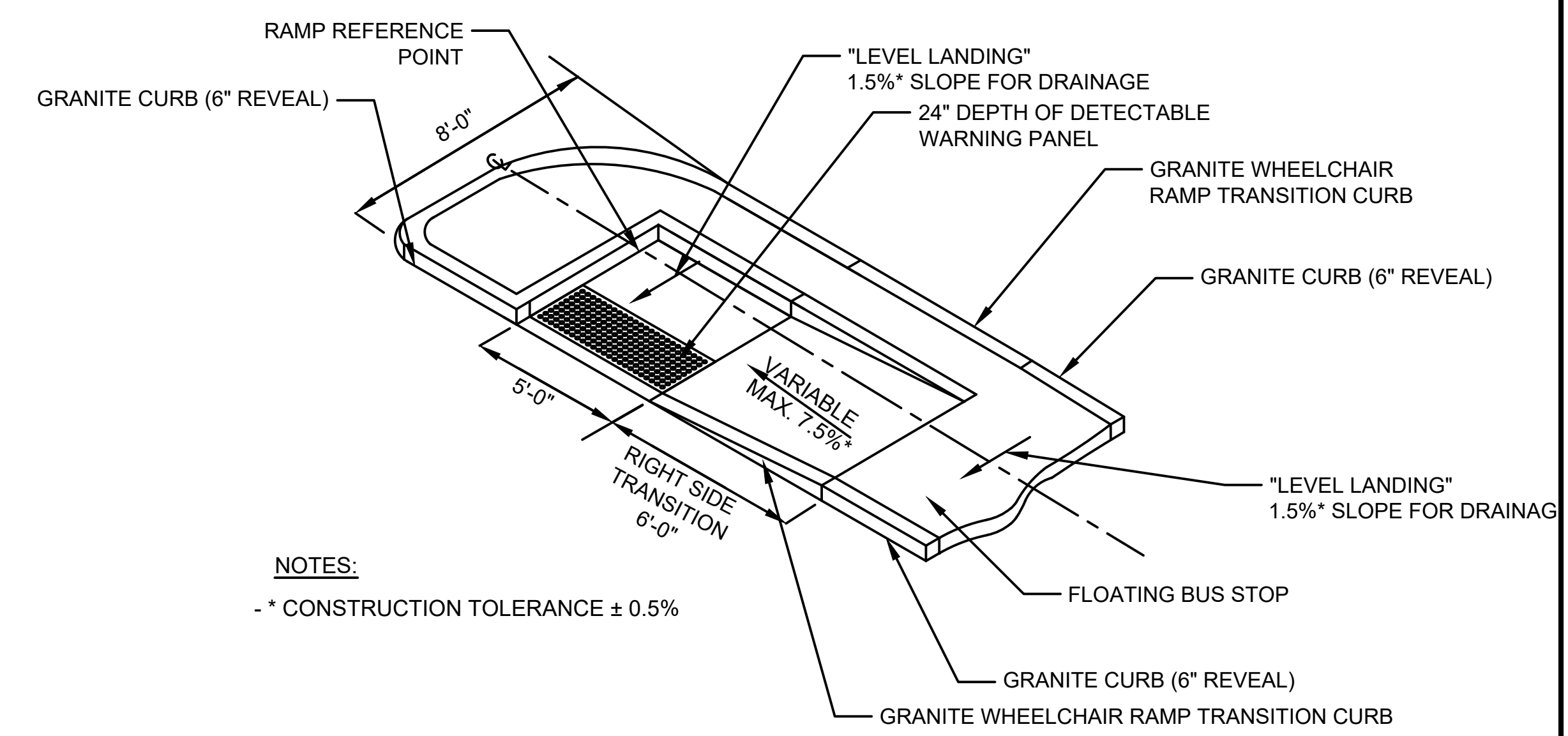
- * CONSTRUCTION TOLERANCE ± 0.5%

VARIES (7.5% MAX)

DETECTABLE WARNING PANEL (SEE R.I. STANDARD 48.1.0)



CEMENT CONCRETE WHEELCHAIR RAMP
NOT TO SCALE

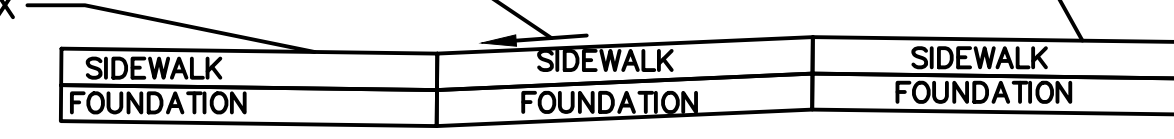


NOTES:

- * CONSTRUCTION TOLERANCE ± 0.5%

VARIES (7.5% MAX)

1.5% MAX



CEMENT CONCRETE WHEELCHAIR RAMP
NOT TO SCALE

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BROADWAY
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CONSTRUCTION DETAILS
(3 OF 7)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE:

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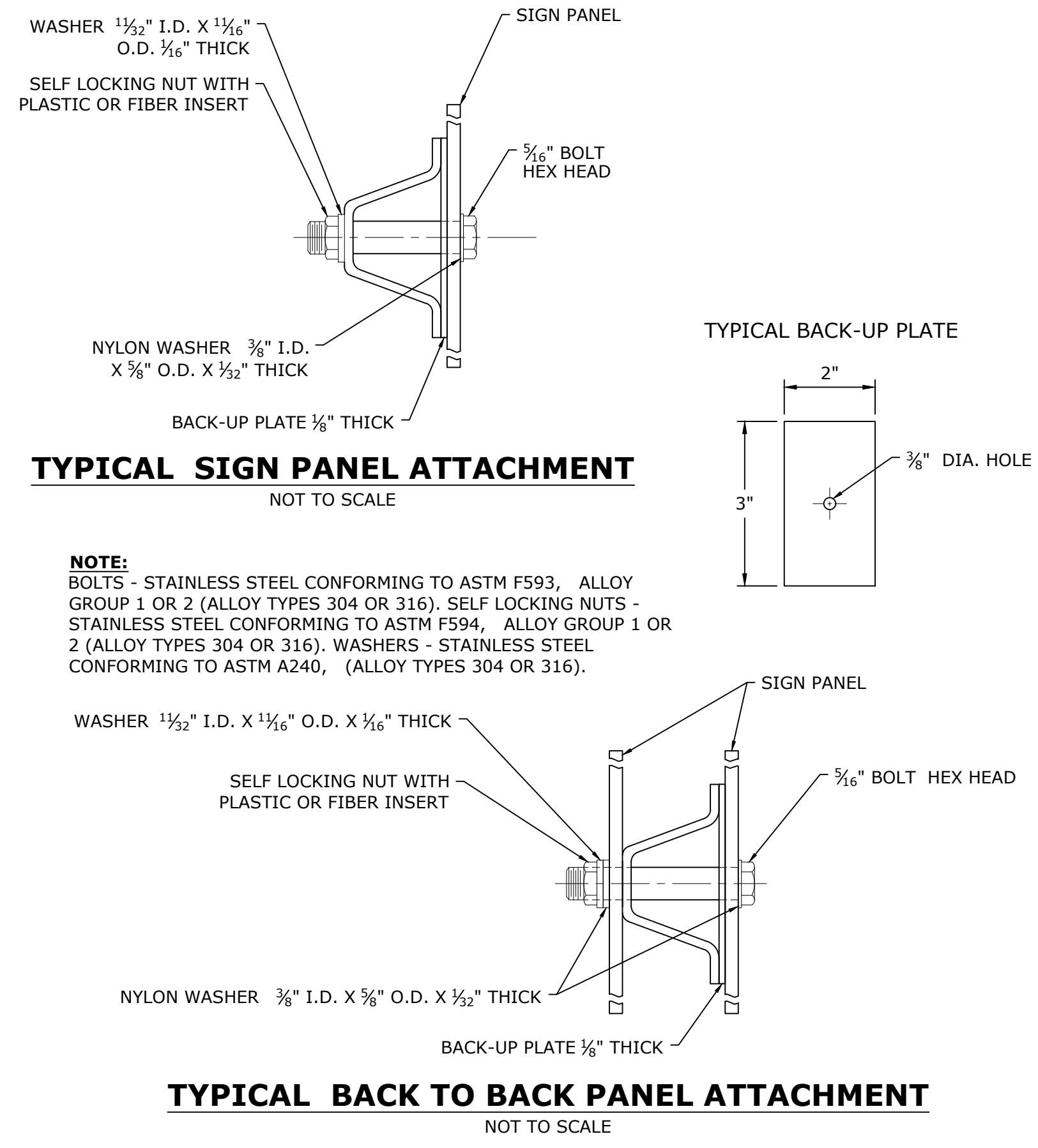
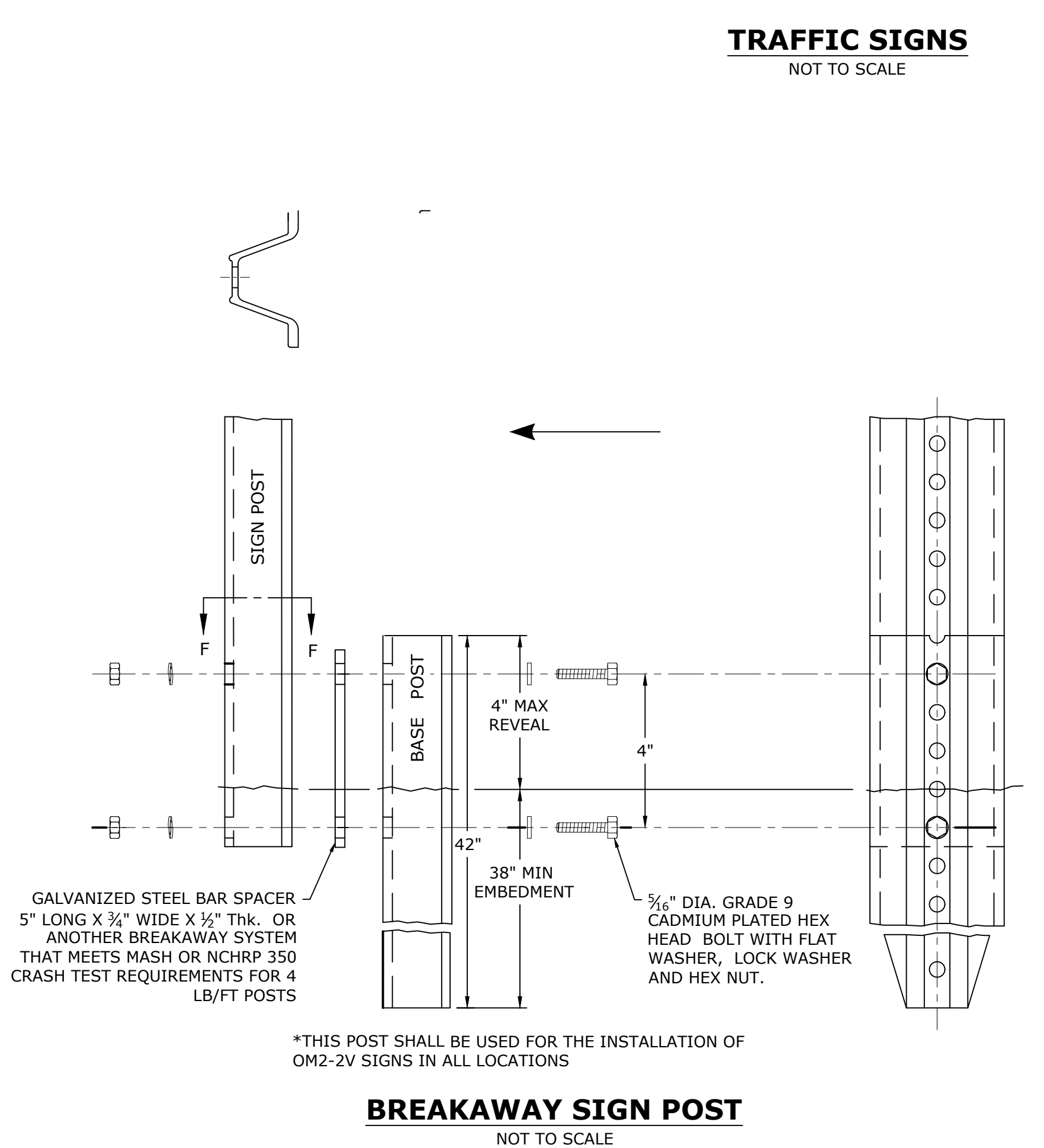
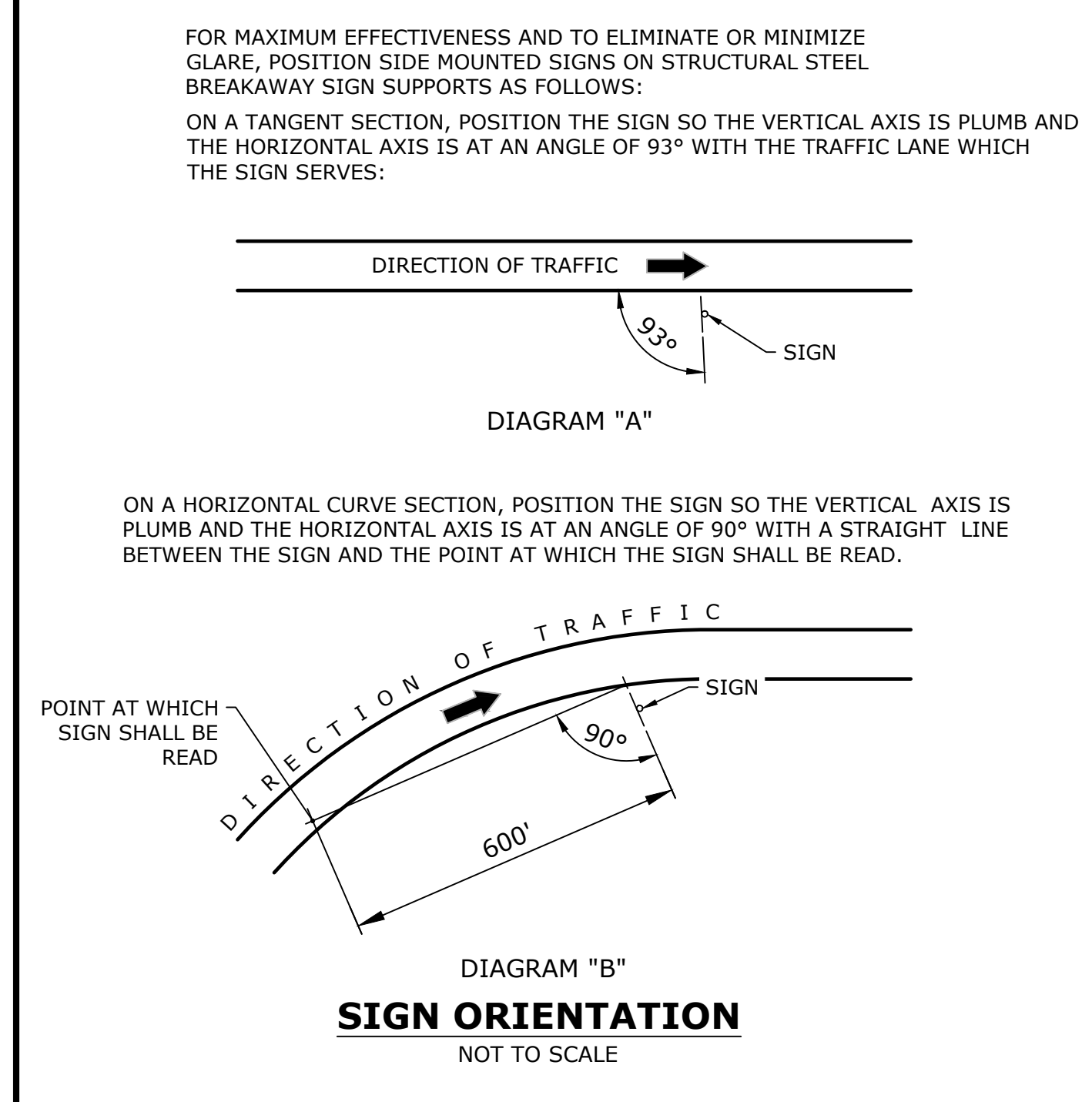
	R1-1 (MUTCD)	LEGEND - WHITE BACKGROUND - RED	AREA (SQ. FT): 6.25	SIZE (INCHES): 30X30	POSTS: 1	ALUM. THK.: 0.08
	R1-5 (MUTCD)	LEGEND - BLACK BACKGROUND - WHITE YIELD SYMBOL - RED	AREA (SQ. FT): 2.25	SIZE (INCHES): 18X18	POSTS: 1	ALUM. THK.: 0.08
	R3-7 (MUTCD)	LEGEND - BLACK BACKGROUND - WHITE	AREA (SQ. FT): 6.25	SIZE (INCHES): 30X30	POSTS: 1	ALUM. THK.: 0.08
	R3-7 (MUTCD)	LEGEND - BLACK BACKGROUND - WHITE	AREA (SQ. FT): 6.25	SIZE (INCHES): 30X30	POSTS: 1	ALUM. THK.: 0.08
	R3-17 (MUTCD)	LEGEND - BLACK BACKGROUND - WHITE	AREA (SQ. FT): 5.00	SIZE (INCHES): 30X24	POSTS: 1	ALUM. THK.: 0.08
	R3-17a (MUTCD)	LEGEND - BLACK BACKGROUND - WHITE	AREA (SQ. FT): 2.50	SIZE (INCHES): 30X12	POSTS: 1	ALUM. THK.: 0.08
	R3-17b (MUTCD)	LEGEND - BLACK BACKGROUND - WHITE	AREA (SQ. FT): 2.50	SIZE (INCHES): 30X12	POSTS: 1	ALUM. THK.: 0.08
	R9-5 (MUTCD)	LEGEND - BLACK BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	R7-1, R7-1D, R7-1R, R7-1L (MUTCD)	LEGEND - RED BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	R7-4D (MUTCD)	LEGEND - RED BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	R7-6L (MUTCD)	LEGEND - RED BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	R7-8 (MUTCD)	LEGEND - GREEN, WHITE SYMBOL ON BLUE BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	R7-108D (MUTCD)	LEGEND - GREEN BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	R10-11 (MUTCD)	LEGEND - BLACK SYMBOL - RED BACKGROUND - WHITE	AREA (SQ. FT): 5.00	SIZE (INCHES): 24X30	POSTS: 1	ALUM. THK.: 0.08
	R10-15mod (MUTCD)	UPPER SECTION LEGEND - BLACK BACKGROUND - YELLOW LOWER SECTION LEGEND - BLACK SYMBOL - RED BACKGROUND - WHITE	AREA (SQ. FT): 6.25	SIZE (INCHES): 30X30	POSTS: 1	ALUM. THK.: 0.08
	W11-2 (MUTCD)	LEGEND - BLACK BACKGROUND - YELLOW	AREA (SQ. FT): 6.25	SIZE (INCHES): 30X30	POSTS: 1	ALUM. THK.: 0.08
	W11-15 (MUTCD)	LEGEND - BLACK BACKGROUND - YELLOW	AREA (SQ. FT): 6.25	SIZE (INCHES): 30X30	POSTS: 1	ALUM. THK.: 0.08
	W16-7pL (MUTCD)	LEGEND - BLACK BACKGROUND - FLUORESCENT YELLOW	AREA (SQ. FT): 2.00	SIZE (INCHES): 24X12	POSTS: 1	ALUM. THK.: 0.08
	W16-7pR (MUTCD)	LEGEND - BLACK BACKGROUND - FLUORESCENT YELLOW	AREA (SQ. FT): 2.00	SIZE (INCHES): 24X12	POSTS: 1	ALUM. THK.: 0.08
	W16-7pR (MUTCD)	LEGEND - BLUE BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	W21-5 (MUTCD)	LEGEND - RED BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	W21-5a (MUTCD)	LEGEND - RED BACKGROUND - WHITE	AREA (SQ. FT): 1.50	SIZE (INCHES): 12X18	POSTS: 1	ALUM. THK.: 0.08
	D11-1 (MUTCD)	LEGEND - WHITE BACKGROUND - GREEN	AREA (SQ. FT): 3.00	SIZE (INCHES): 24X18	POSTS: 1	ALUM. THK.: 0.08
	M6-1R (MUTCD)	LEGEND - WHITE BACKGROUND - GREEN	AREA (SQ. FT): 0.75	SIZE (INCHES): 12X9	POSTS: 1	ALUM. THK.: 0.08

- TRAFFIC SIGN NOTES:**
- POSTS - SEE DETAIL "BREAKAWAY SIGN POST DETAIL" THIS SHEET
 - ALL TRAFFIC SIGN POSTS ARE FOR LONG TERM INSTALLATION UNLESS SIGN IS FOR CONSTRUCTION. CONSTRUCTION SIGNS TO BE MOUNTED ON PORTABLE TEMPORARY SUPPORTS.
 - SIGNS TO BE PAID FOR UNDER "SIGN FACE - SHEET ALUMINUM - BRIGHT WIDE ANGLE RETRO- REFLECTIVE SHEETING" ITEM IN THE CONTRACT.
 - MATERIALS & COLORS SHALL CONFORM TO STATE SPECIFICATIONS.
- MATERIALS:**
- SIGNS AND THEIR PORTABLE SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3).
 - ALUMINUM THICKNESS FOR POST MOUNTED SIGNS SHALL BE 0.08
 - ALL COLORS TO BE RETROREFLECTIVE WITH THE EXCEPTION OF BLACK WHICH SHALL BE OPAQUE.
- COLORS:**
- SIGN COLORS: LEGEND - (AS SPECIFIED) BACKGROUND - (AS SPECIFIED)
- ALL SIGNS TO USE TYPE IV RETROREFLECTIVE SHEETING EXCEPT AS NOTED BY *.
* SIGNS TO USE TYPE IX RETROREFLECTIVE SHEETING

SIGNS BELOW THIS POINT ARE CONSTRUCTION SIGNS

	W20-1 (MUTCD)	LEGEND - BLACK BACKGROUND - ORANGE	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08
	W20-1 (MUTCD)	LEGEND - BLACK BACKGROUND - ORANGE	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08
	W20-4 (MUTCD)	LEGEND - BLACK BACKGROUND - ORANGE	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08
	W20-5 (MUTCD)	LEGEND - BLACK BACKGROUND - ORANGE	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08
	W21-5 (MUTCD)	LEGEND - BLACK BACKGROUND - ORANGE	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08
	W21-5a (MUTCD)	LEGEND - BLACK BACKGROUND - ORANGE	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08
	W24-1L (MUTCD)	LEGEND - BLACK BACKGROUND - ORANGE	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08
	W24-1R (MUTCD)	LEGEND - BLACK BACKGROUND - ORANGE	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08

	W4-2R (MUTCD)	LEGEND - BLACK BACKGROUND - YELLOW	AREA (SQ. FT): 9.0	SIZE (INCHES): 36X36	POSTS: 1	ALUM. THK.: 0.08
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- SIGN POST NOTES:**
- STEEL FOR DELINEATOR POSTS SHALL BE ASTM A36 STEEL. STEEL FOR ALL OTHER POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499 GRADE 80 AND TO THE CHEMICAL REQUIREMENTS OF ASTM A1 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT (MASS) OF 91 LBS. OR GREATER PER LINEAR YARD.
 - AFTER FABRICATION, ALL STEEL POSTS, STRAPS AND PLATES SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123.
 - WASHERS FOR BREAKAWAY INSTALLATIONS SHALL MEET ASTM F436, TYPE 1.
 - SPACER BAR FOR BREAKAWAY INSTALLATION SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A36.
 - ALL BOLTS, NUTS, AND WASHERS FOR BREAKAWAY INSTALLATIONS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A153.
 - ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS." THE BREAKAWAY FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
 - SIGN POSTS SHALL BE 4 LBS./FT.

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CONSTRUCTION DETAILS
(4 OF 7)

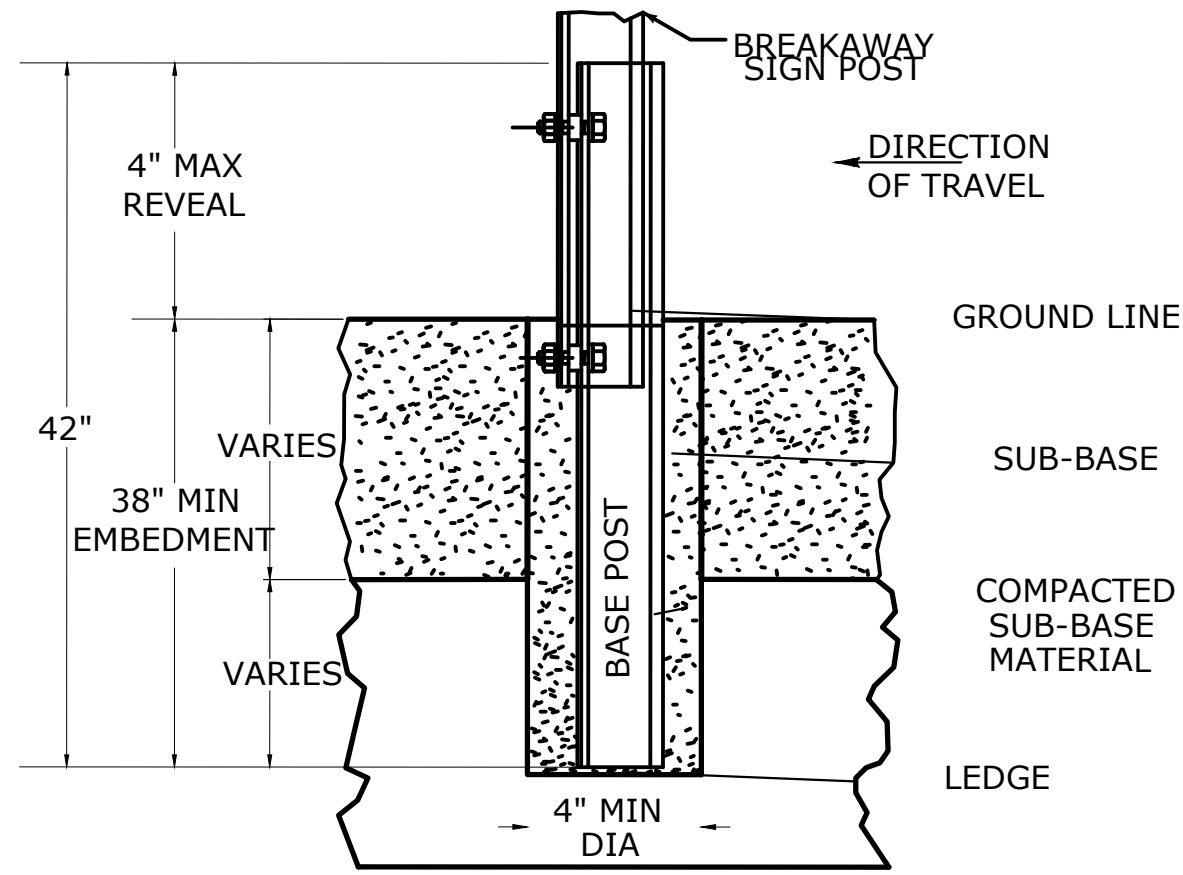
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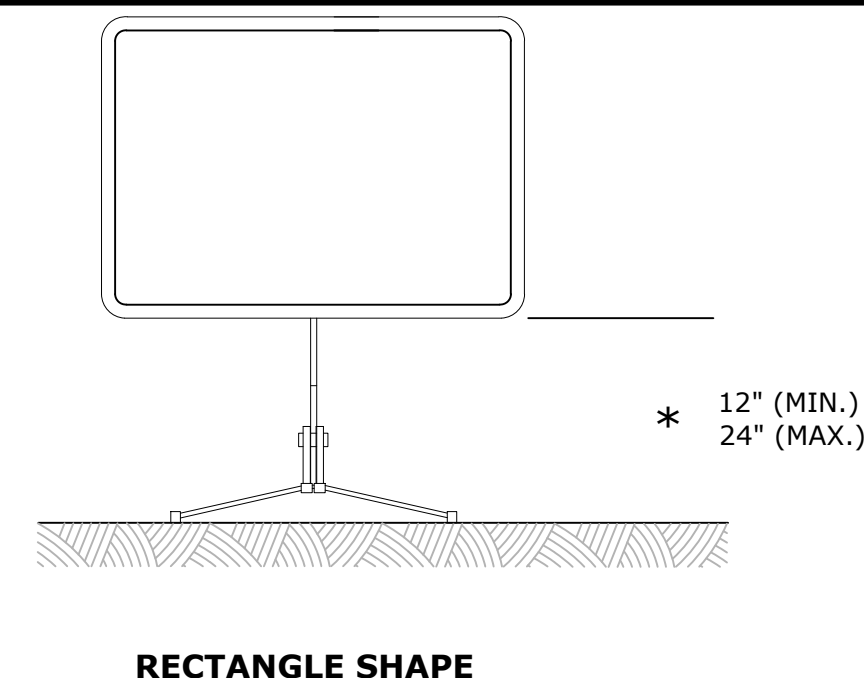
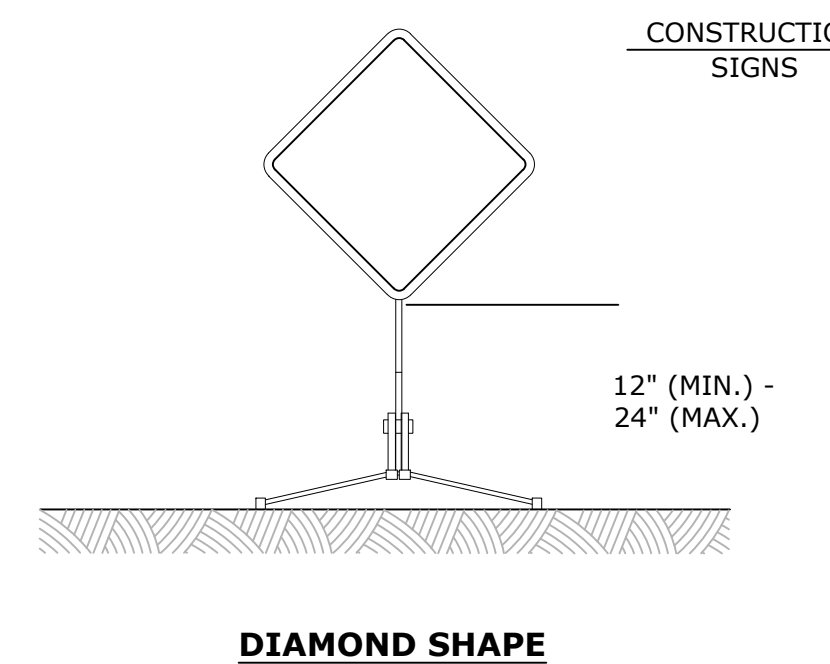
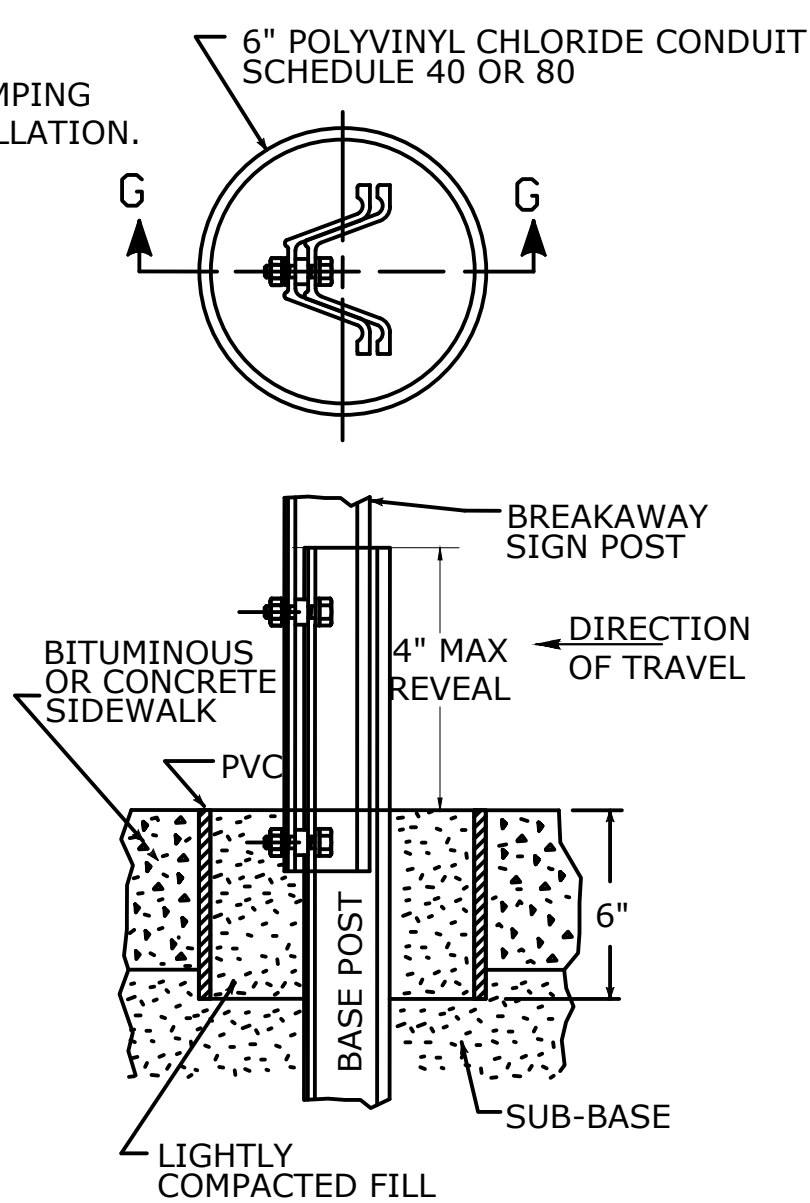
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TYPICAL SIGN POST INSTALLATION IN LEDGE
NOT TO SCALE

LEDGE SHALL BE REMOVED TO DRIVE THE BASE POST TO A DEPTH OF 38". HOLE SHALL BE FILLED WITH SUB-BASE MATERIAL AND COMPACTED WITH A TAMPING BAR, OR TECHNIQUE APPROVED BY THE ENGINEER, PRIOR TO BASE POST INSTALLATION.



TYPICAL SLEEVE FOR PAVED AREAS
NOT TO SCALE



CONSTRUCTION SIGN NOTES:

- R1-SERIES SIGN THE LEGEND "O.S.T.A." SHALL APPEAR.
- POSTS - SEE STANDARD SHEET TR-1208_02 - "METAL SIGN POSTS AND SIGN MOUNTING DETAILS".
- POSTS - TYPE A (EXCEPT WHERE NOTED WITH A "B" FOR TYPE B)
- ALL POSTS NOTED ARE FOR LONG TERM INSTALLATION. SEE STANDARD SHEET TR-1208_02.
- FOR TEMPORARY SUPPORTS SEE STANDARD SHEET TR-1220_02 - "CONSTRUCTION SIGN SUPPORTS AND CHANNELIZING DEVICES".
- FOR SPECIFIC SIGN DESIGN, CONTACT CONN. D.O.T., DIVISION OF TRAFFIC ENGINEERING. FOR BOLT HOLE PATTERN REFER TO FHWA PUBLICATION "STANDARD HIGHWAY SIGNS". SIGNS OF DIFFERENT DIMENSIONS TO BE ERRECTED ON THE SAME POSTS, OR SPAN/MAST ARM MOUNTED, MAY REQUIRE SPECIAL BOLT HOLE PATTERNS.
- ALL CONSTRUCTION SIGNS TO BE PAID FOR UNDER THE CONSTRUCTION SIGNS ITEM IN THE CONTRACT.
- MATERIALS & COLORS SHALL CONFORM TO STATE SPECIFICATIONS.

MATERIALS:
 • SIGNS AND THEIR PORTABLE SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 2 DEVICES.
 • ALUMINUM THICKNESS FOR POST MOUNTED SIGNS SHALL BE .100" EXCEPT SIGN #s. 80-9815, 80-9728, 80-9519, & 51-6147 (L OR R) WHICH SHALL BE .125". PLYWOOD THICKNESS FOR POST MOUNTED SIGNS SHALL BE 1/2" EXTERIOR GRADE A-C OR BETTER.
 • SIGN BLANKS SHALL HAVE ONE COAT OF PRIMER PAINT PRIOR TO APPLICATION OF RETROREFLECTIVE SHEETING & COPY.

COLORS:
 • BACKGROUND - FLUORESCENT ORANGE - EXCEPT AS NOTED.
 • LEGEND - BLACK - EXCEPT AS NOTED.
 • ALL SIGNS WITH FLUORESCENT ORANGE BACKGROUND TO USE TYPE VIII RETROREFLECTIVE SHEETING.
 • ALL OTHER SIGNS TO USE TYPE IV RETROREFLECTIVE SHEETING EXCEPT AS NOTED BY *.
 * SIGNS TO USE TYPE IX RETROREFLECTIVE SHEETING.

NOTES FOR PORTABLE SIGN SUPPORTS:

- SIGNS AND THEIR PORTABLE SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 2 DEVICES AND THE LATEST EDITION OF THE MUTCD.
- MOUNTING HEIGHT OF SIGNS SHALL BE A MINIMUM OF 12" AND A MAXIMUM OF 24". SIGNS SHALL BE MOUNTED HIGHER AS NEEDED TO MEET FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
- THE ENGINEER RESERVES THE RIGHT TO REJECT ANY SUPPORT DEEMED UNSUITABLE FOR THE PURPOSE INTENDED.
- PORTABLE SIGN SUPPORTS SHALL BE STABILIZED IN A MANNER THAT WILL NOT AFFECT THEIR COMPLIANCE WITH NCHRP REPORT 350 (TL-3) OR THE AASHTO MASH FOR CATEGORY 2 DEVICES.
- PORTABLE CONSTRUCTION SIGN SUPPORTS SHOULD NOT BE USED FOR DURATION OF MORE THAN 3 DAYS EXCEPT FOR R9-8 THROUGH R9-11a SERIES, R11 SERIES, W1-6 THROUGH W1-8 SERIES, M4-10, AND E5-1. SEE STANDARD SHEET TR-1220_01 - "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" FOR SIGN DETAILS.

* FOR E5-1 (EXIT SIGNS) USE MIN 48".

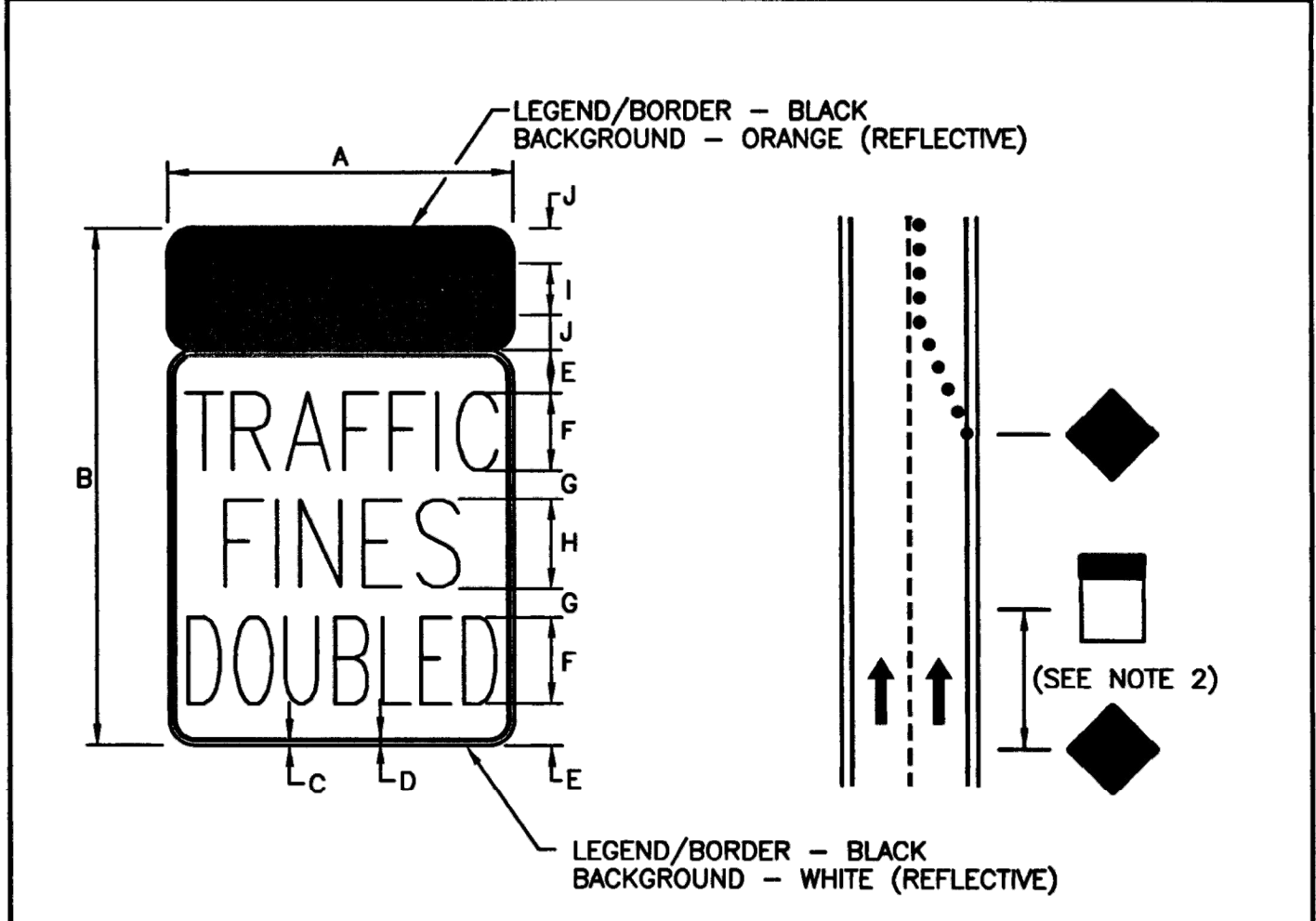
CONSTRUCTION SIGNS
NOT TO SCALE

SIGN NUMBER	* W21-4	W20-2	W20-3	W20-4
LEGEND				
COLOR	BACKGROUND: ORANGE COPY: BLACK	BACKGROUND: ORANGE COPY: BLACK	BACKGROUND: ORANGE COPY: BLACK	BACKGROUND: ORANGE COPY: BLACK
DIMENSION	WIDTH: 30", 36", 48", 96" HEIGHT: 30", 36", 48", 96"	WIDTH: 30", 36", 48", 96" HEIGHT: 30", 36", 48", 96"	WIDTH: 30", 36", 48", 96" HEIGHT: 30", 36", 48", 96"	WIDTH: 30", 36", 48", 96" HEIGHT: 30", 36", 48", 96"

SIGN NUMBER	W20-5 (R OR L)	W20-7	W20-7a	* G20-1
LEGEND				
COLOR	BACKGROUND: ORANGE COPY: BLACK	BACKGROUND: ORANGE COPY: BLACK	BACKGROUND: ORANGE COPY: BLACK	BACKGROUND: ORANGE COPY: BLACK
DIMENSION	WIDTH: 30", 36", 48", 96" HEIGHT: 30", 36", 48", 96"	WIDTH: 30", 36", 48", 96" HEIGHT: 30", 36", 48", 96"	WIDTH: 30", 36", 48", 96" HEIGHT: 30", 36", 48", 96"	WIDTH: 60" HEIGHT: 24"

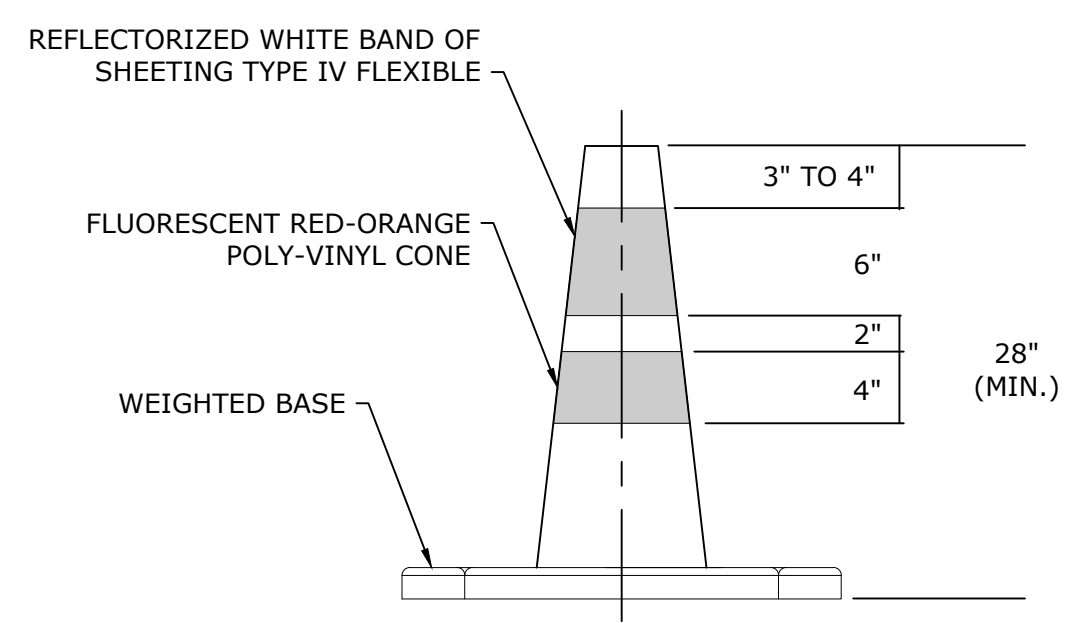
SIGN NUMBER	* G20-2A
LEGEND	
COLOR	BACKGROUND: ORANGE COPY: BLACK
DIMENSION	WIDTH: 48" HEIGHT: 24"

- NOTES:**
- SHALL BE IN ACCORDANCE WITH SECTION 922 OF THE R.I. STANDARD SPECIFICATIONS.
 - LEGEND ON W20-SERIES SHALL INDICATE DISTANCE AS FOLLOWS: 1500 FT 1/2 MILE, 1000 FT 1 MILE, 500 FT AHEAD
 - EXAMPLE: W20-2a = DETOUR 1500 FT
 - * DENOTES TYPE V GRADE SHEETING.
 - CONSTRUCTION SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH STD. 24.1.0, 24.2.0 OR 24.3.0.
 - FOR ADDITIONAL SIGNS SEE THE MUTCD.



SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	I	J
STANDARD	24	36	3/8	5/8	3 1/2	6B	2 1/2	6C	4C	2
RURAL	36	54	5/8	7/8	5	8B	4	8C	6C	3
EXPRESSWAY	48	72	3/4	1 1/4	7	10B	5	10C	8C	5

- NOTES:**
- SHALL BE IN ACCORDANCE WITH SECTION T.15 OF THE R.I. STANDARD SPECIFICATIONS.
 - STANDARD: > 50'-0" < 200'-0"
RURAL: > 200'-0" < 400'-0"
EXPRESSWAY: > 400'-0" < 800'-0"
 - WHEN INSTALLING ON JERSEY BARRIERS LESS THAN 48" WIDE, A 36"x54" SIGN DIMENSION MAY BE USED.



- TRAFFIC CONE NOTES:**
- SHALL BE IN ACCORDANCE WITH SECTION 923 OF THE R.I. STANDARD SPECIFICATIONS FOR ITEM 923.0200.
 - DIMENSIONS MAY VARY WITH MANUFACTURER'S RECOMMENDATIONS.

TRAFFIC CONE
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NO. BY DATE REVISIONS

CHIEF ENGINEER TRANSPORTATION
 CHIEF DESIGN ENGINEER TRANSPORTATION
 DATE: JUNE 15, 1998

RHODE ISLAND DEPARTMENT OF TRANSPORTATION
CONSTRUCTION SIGNS

R.I. STANDARD 29.1.0

f FUSS & O'NEILL
 317 IRON HORSE WAY, SUITE 204
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 www.fandoo.com

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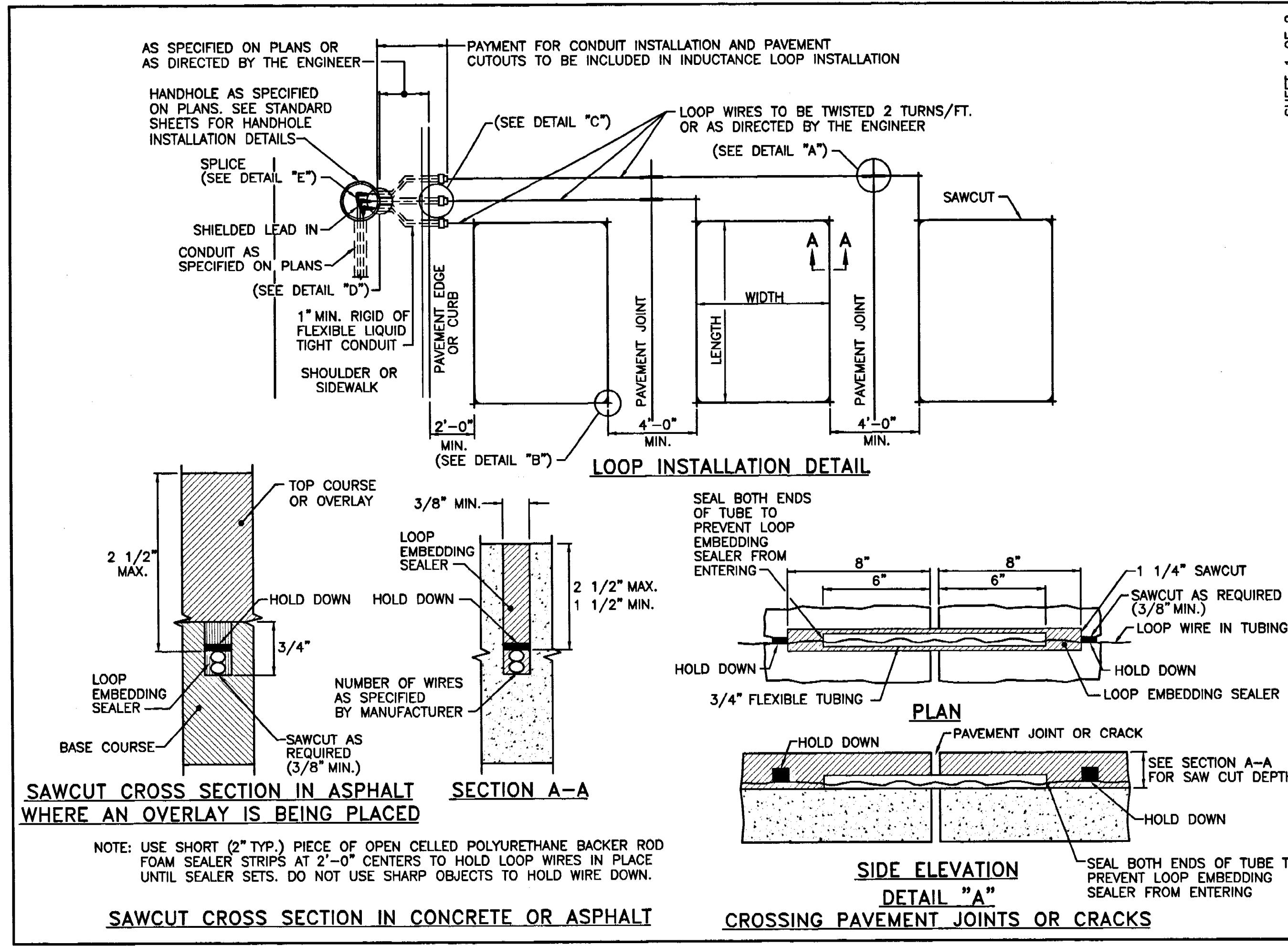
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CONSTRUCTION DETAILS (5 OF 7)

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SHEET 1 OF 2

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

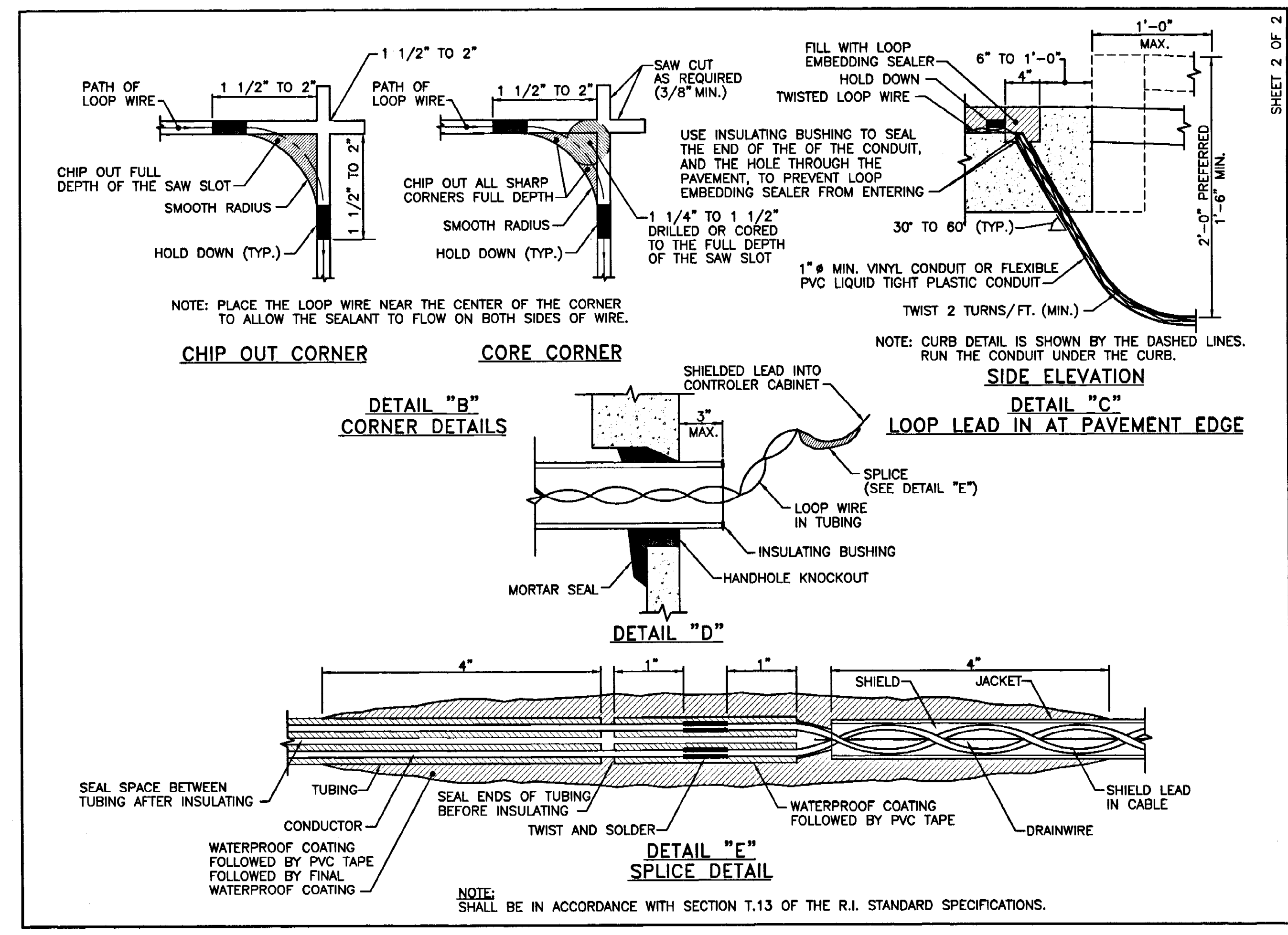
INDUCTANCE LOOP VEHICLE DETECTOR INSTALLATION DETAILS

R.I. STANDARD 19.6.0A

JUNE 15, 1998

DATE

NO. BY DATE



SHEET 2 OF 2

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

INDUCTANCE LOOP VEHICLE DETECTOR INSTALLATION DETAILS

R.I. STANDARD 19.6.0B

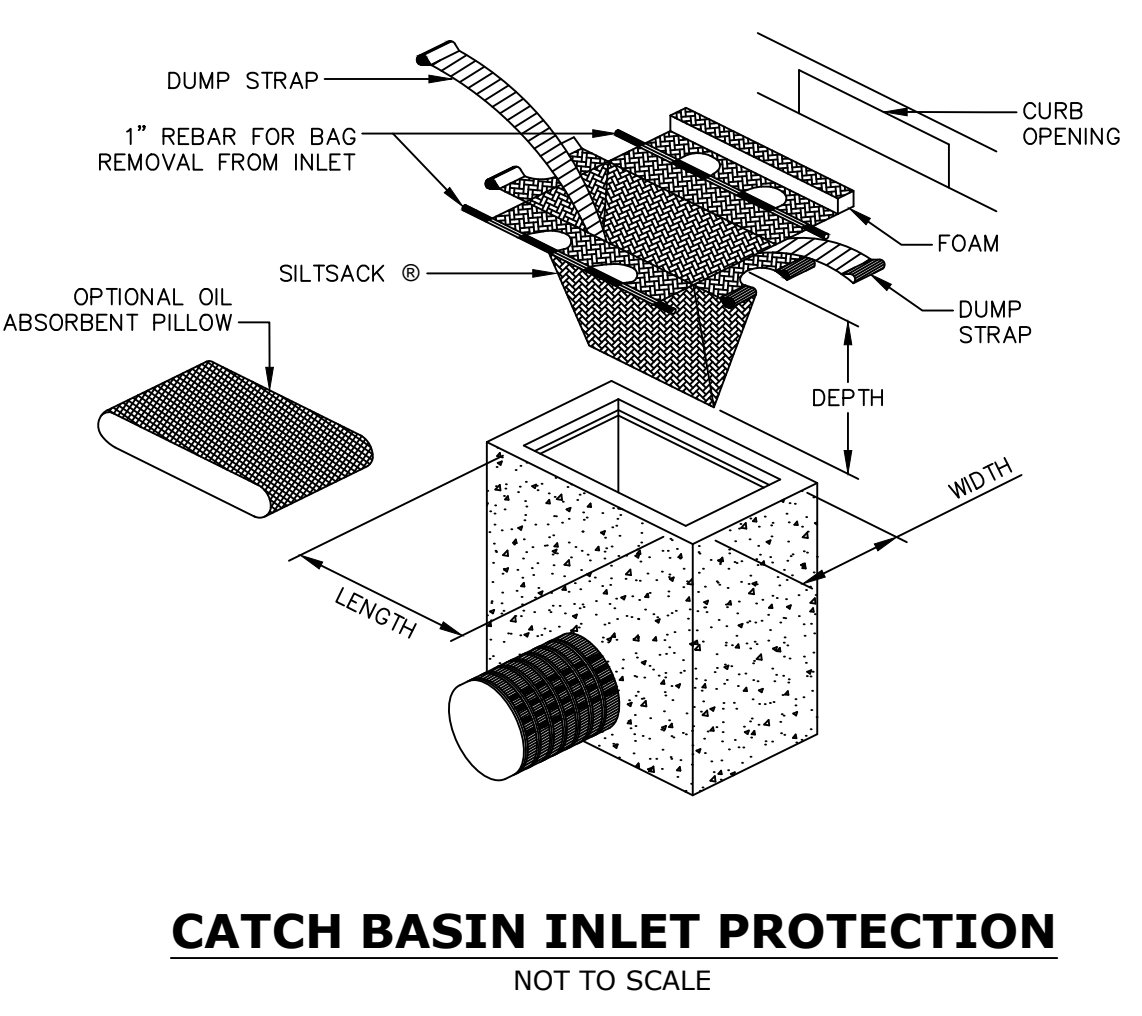
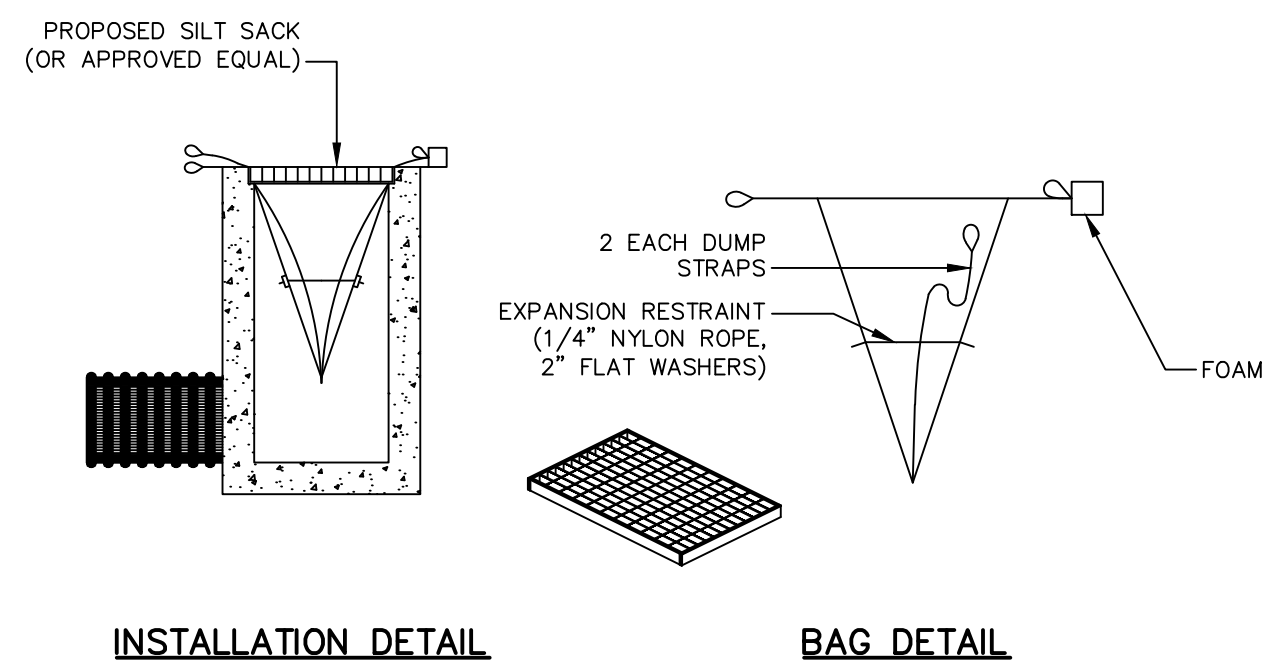
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LOOP DETECTOR NOTES:

1. ALL PROPOSED LOOP DETECTORS SHALL BE CUT TO EXISTING PULL BOXES AND SPLICED WITH NEW KITS. WORK INCLUDES PROPOSED COMMUNICATION CABLE RUNS FROM PULLBOX TO EXISTING HARDWARE IN THE TRAFFIC SIGNAL CABINET THROUGH EXISTING CONDUIT.
2. ALL NEW LOOPS, CABLES, SPLICES AND HARDWARE CONNECTIONS SHALL BE TESTED BY THE CONTRACTOR, WITNESSED AND APPROVED BY THE OWNER. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATE OF ANY OBSTRUCTIONS IN EXISTING CABINET, PULL BOXES OR CONDUIT.



CATCH BASIN INLET PROTECTION
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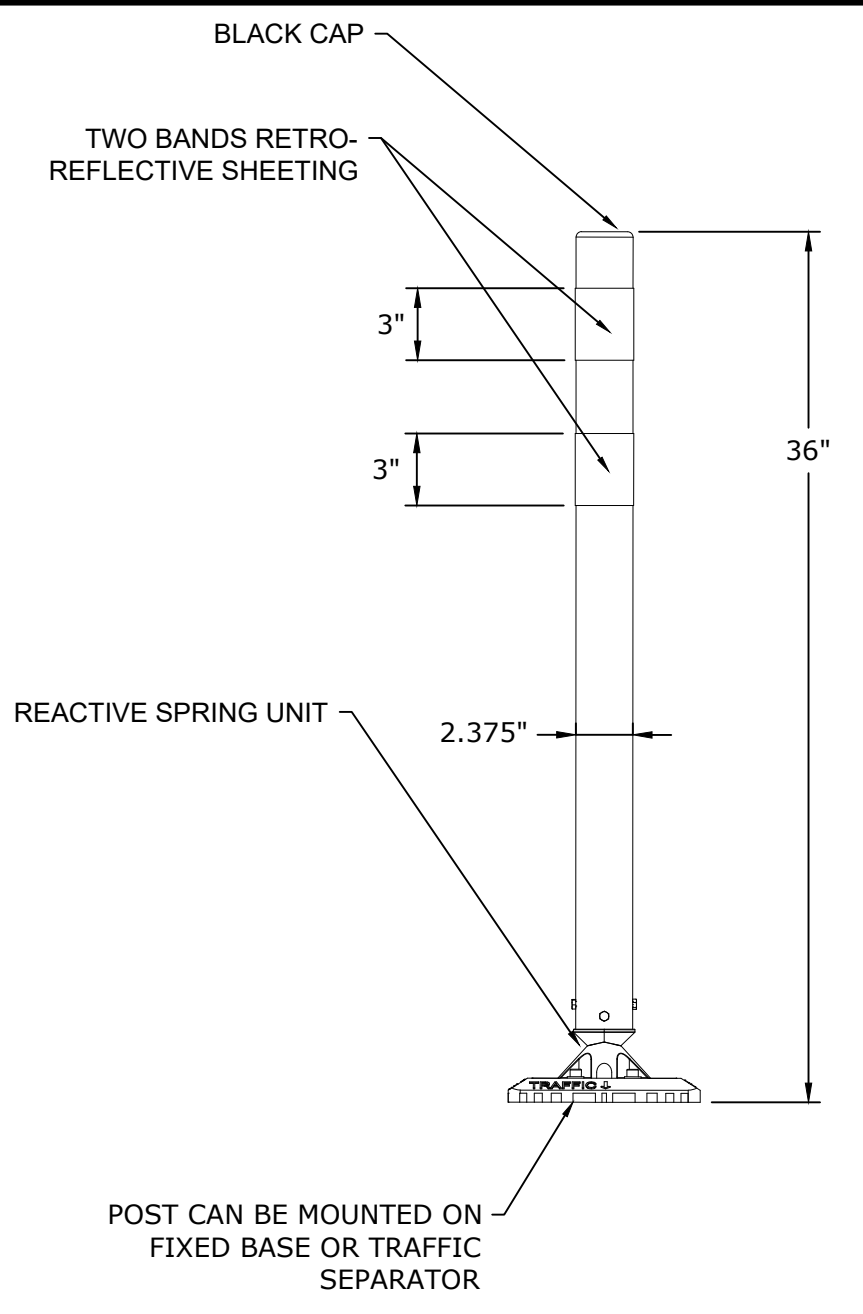
CONSTRUCTION DETAILS
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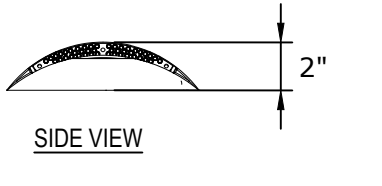
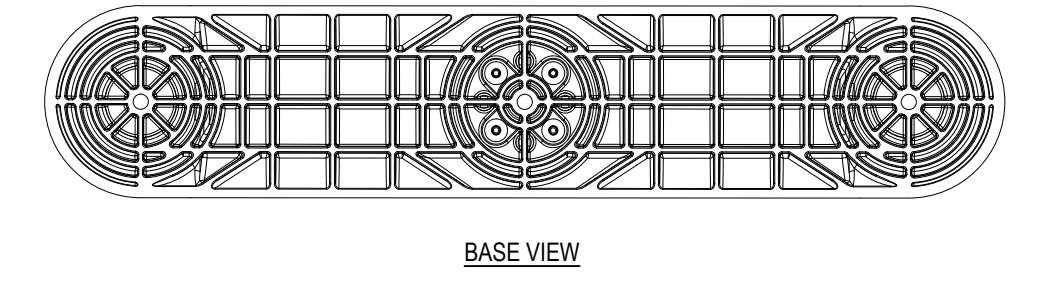
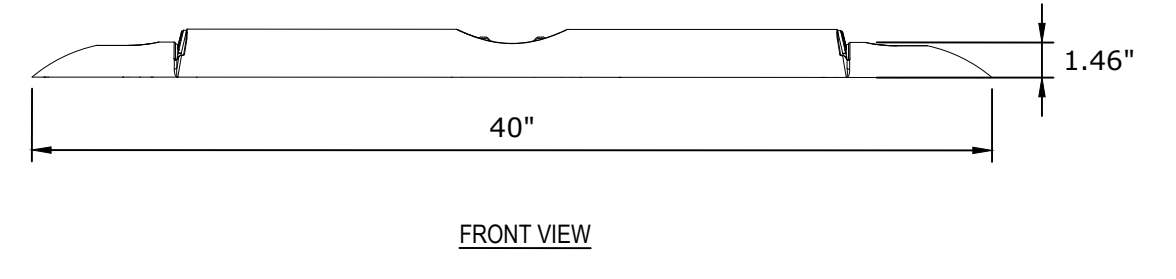
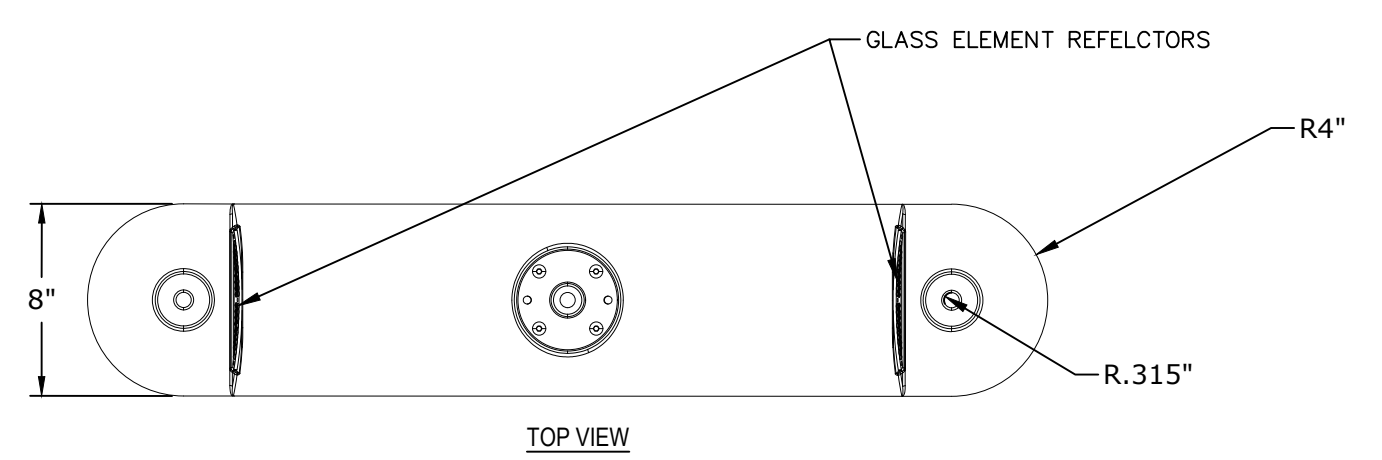
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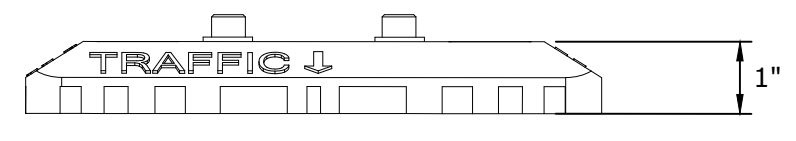
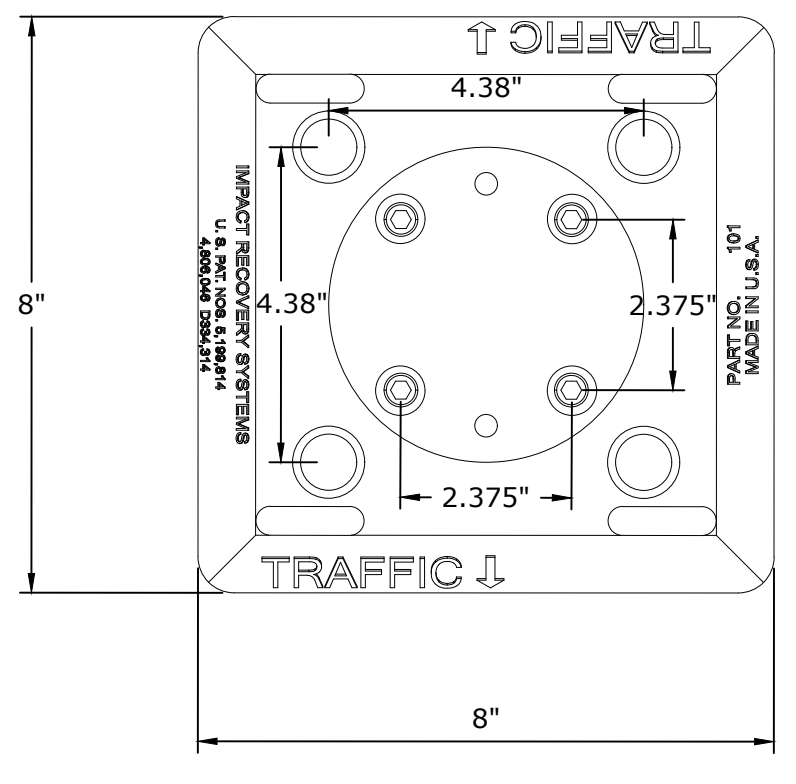
MP FLEX POST - 2.375" HIGH PERFORMANCE FLEXIBLE CHANNELIZER
NOT TO SCALE

- CHANNELIZER POST NOTES:**
- INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 - COLOR OF POST SHALL MATCH COLOR OF APPLICABLE EDGE LINE.
 - PRODUCT IS MANUFACTURED BY IMPACT RECOVERY SYSTEMS, INC.
- MANUFACTURER NOTES:**
- POST AND PANEL IS CONSTRUCTED OF FLEXIBLE POLYETHYLENE PLASTIC THAT IS RESISTANT TO ULTRAVIOLET LIGHT, OZONE, AND HYDROCARBONS.
 - UNIT HAS A REACTIVE SPRING ASSEMBLY TESTED TO 145 LBS. TENSION WITH STAINLESS STEEL CABLE.
 - IDEAL FOR USE IN PARKING GARAGES, PARKING LOTS, AND FOR INDICATION ALIGNMENT IN ROADWAY.
 - MEETS M.U.T.C.D. SPECIFICATIONS.



- TRAFFIC SEPARATOR NOTES:**
- INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 - COLOR OF TRAFFIC SEPARATOR SHALL MATCH COLOR OF APPLICABLE EDGE LINE.
 - PRODUCT IS MANUFACTURED BY IMPACT RECOVERY SYSTEMS, INC.
- MANUFACTURER NOTES:**
- INJECTION MOLDED.
 - UV STABILIZED HDPE.
 - FOR USE AS A TEMPORARY OR PERMANENT LONGITUDINAL CHANNELIZING CURBING SYSTEM ON ROADS, HIGHWAYS, AND PARKING LOTS.
 - CRASHWORTHINESS TESTED TO 2009 M.A.S.H. STANDARDS.
 - INSTALL USING 1/2" - 5/8" CONCRETE LAG ANCHORS OR STANDARD ROAD EPOXY PRODUCTS.

TUFF CURB® XLP - EXTREME LOW PROFILE CURBING SYSTEM
NOT TO SCALE



SURFACE MOUNT FIXED BASE
NOT TO SCALE

- FIXED BASE NOTES:**
- INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 - PRODUCT IS MANUFACTURED BY IMPACT RECOVERY SYSTEMS, INC.
 - EACH BASE SHALL BE INSTALLED USING ONE IM-ANCHOR-KIT CONSISTING OF FOUR 16MM X 3" PLASTIC SLEEVES, FOUR 1/2" X 4" LAG SCREWS, AND FOUR 1-1/4" METAL WASHERS.
- MANUFACTURER NOTES:**
- DIMENSIONS AT BASE: 8" X 8" X 1"
 - MATERIAL: HDPE (HIGH DENSITY POLYETHYLENE)
 - HARDWARE: ZINC PLATED SOCKET CAP SCREWS & T-NUT
 - MEASUREMENT US STANDARD.

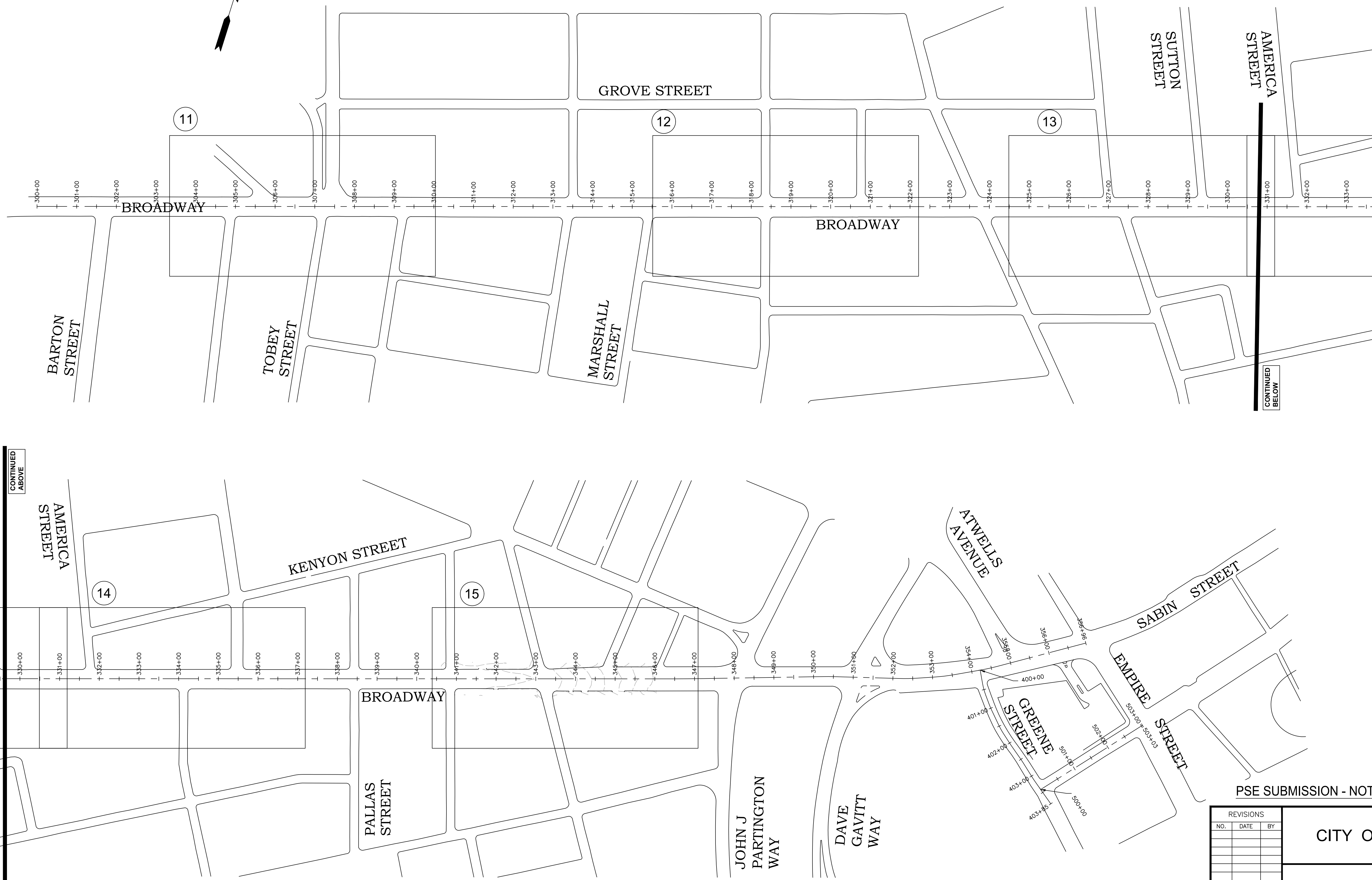
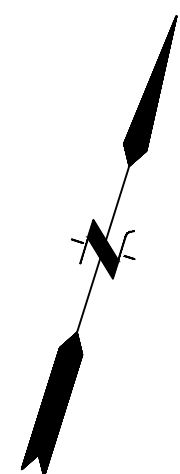
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NO.	DATE	BY

CITY OF PROVIDENCE	
BROADWAY BICYCLE & PEDESTRIAN IMPROVEMENTS	
PROVIDENCE	RHODE ISLAND
CONSTRUCTION DETAILS (7 OF 7)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE:	

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(11)

(12)

(13)

(14)

(15)

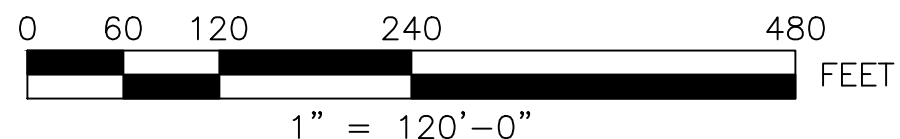
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PSE SUBMISSION - NOT FOR CONSTRUCTION

KEY:

XX CONSTRUCTION AND GRADING PLAN SHEET NUMBER



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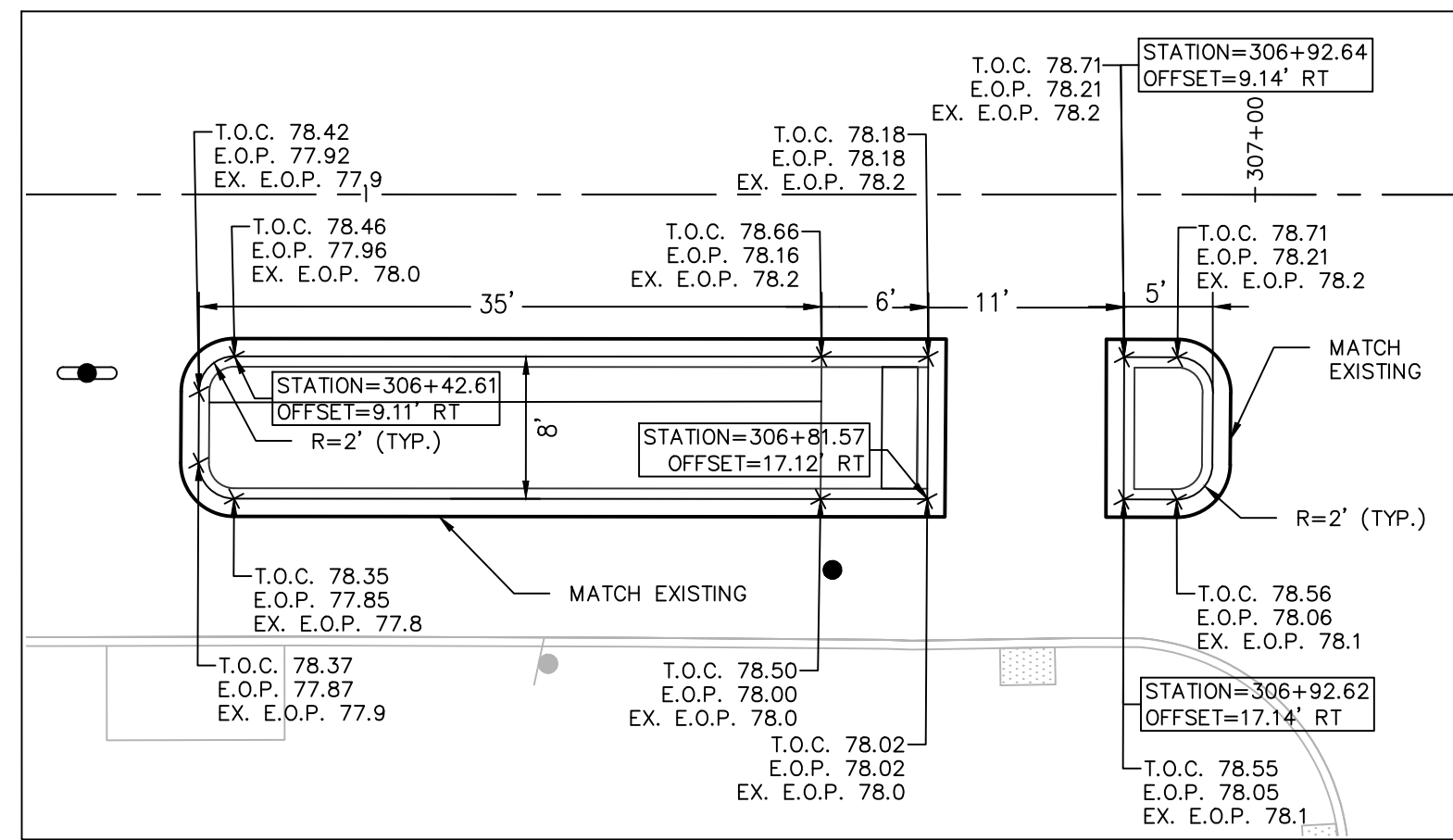
REVISIONS		
NO.	DATE	BY

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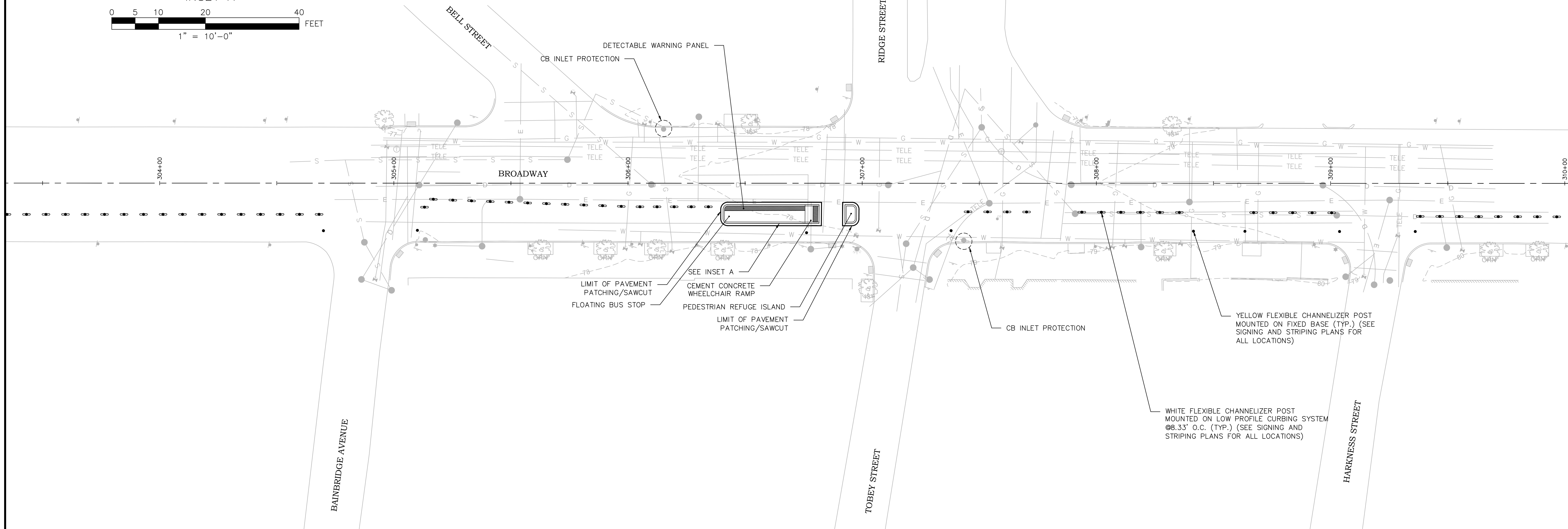
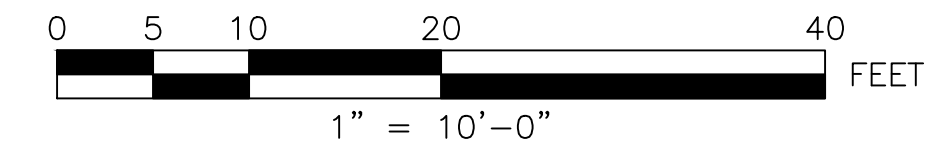
BROADWAY
 BICYCLE & PEDESTRIAN IMPROVEMENTS
 PROVIDENCE RHODE ISLAND

**KEY PLAN FOR
 CONSTRUCTION PLANS**

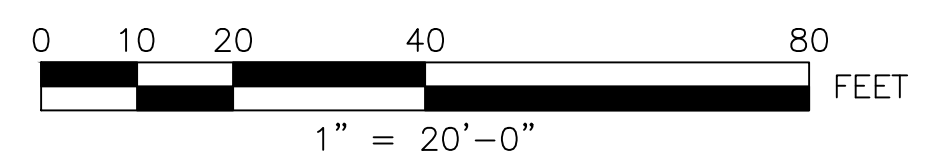
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE:



INSET A



GRADING LEGEND	
T.O.C.	PROPOSED ELEVATION AT TOP OF CURB
E.O.P.	PROPOSED ELEVATION AT EDGE OF PAVEMENT
SW.	PROPOSED ELEVATION AT TOP OF SIDEWALK
EX. E.O.P.	EXISTING ELEVATION AT EDGE OF PAVEMENT



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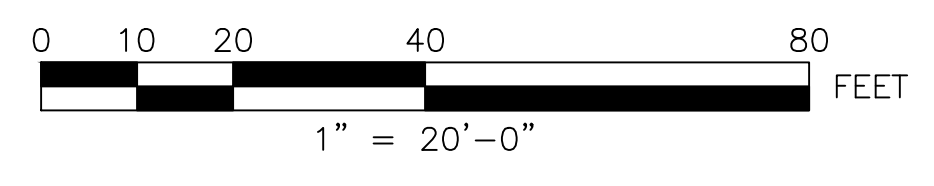
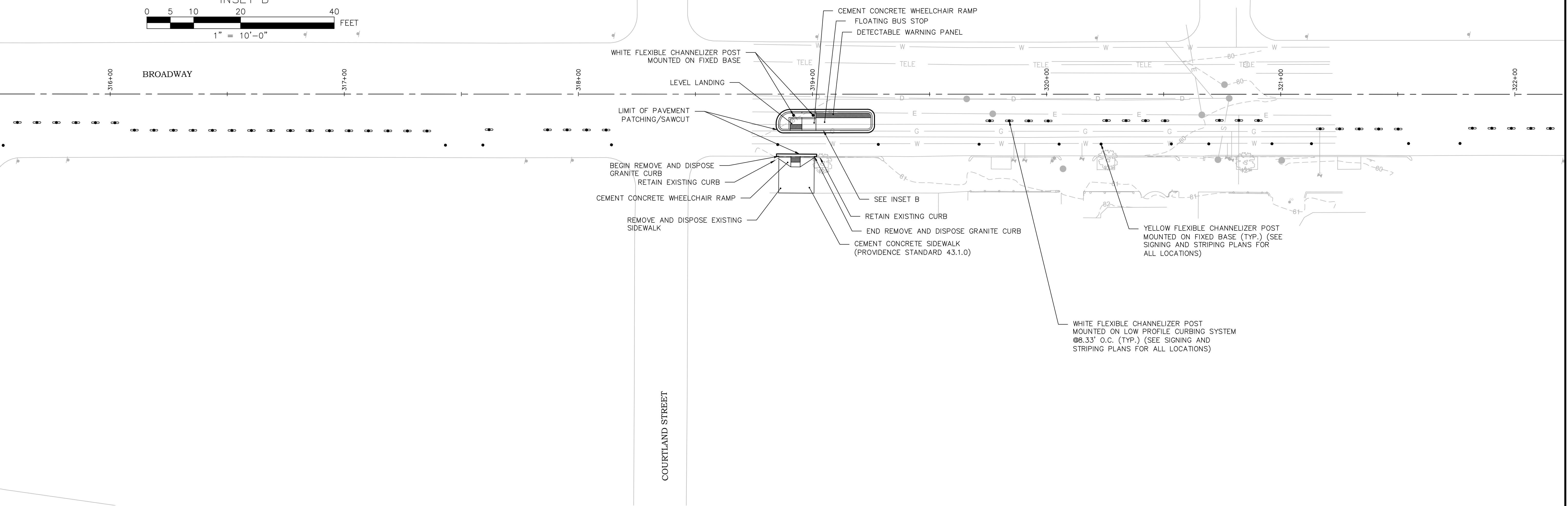
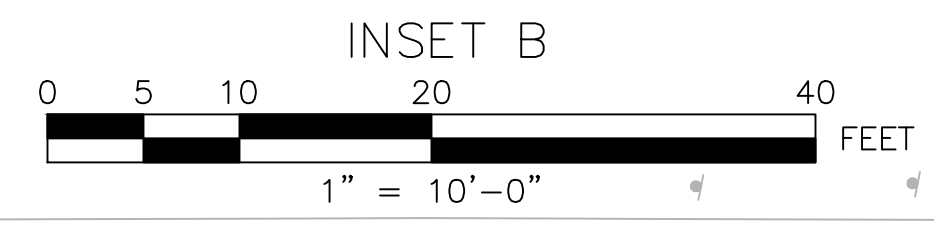
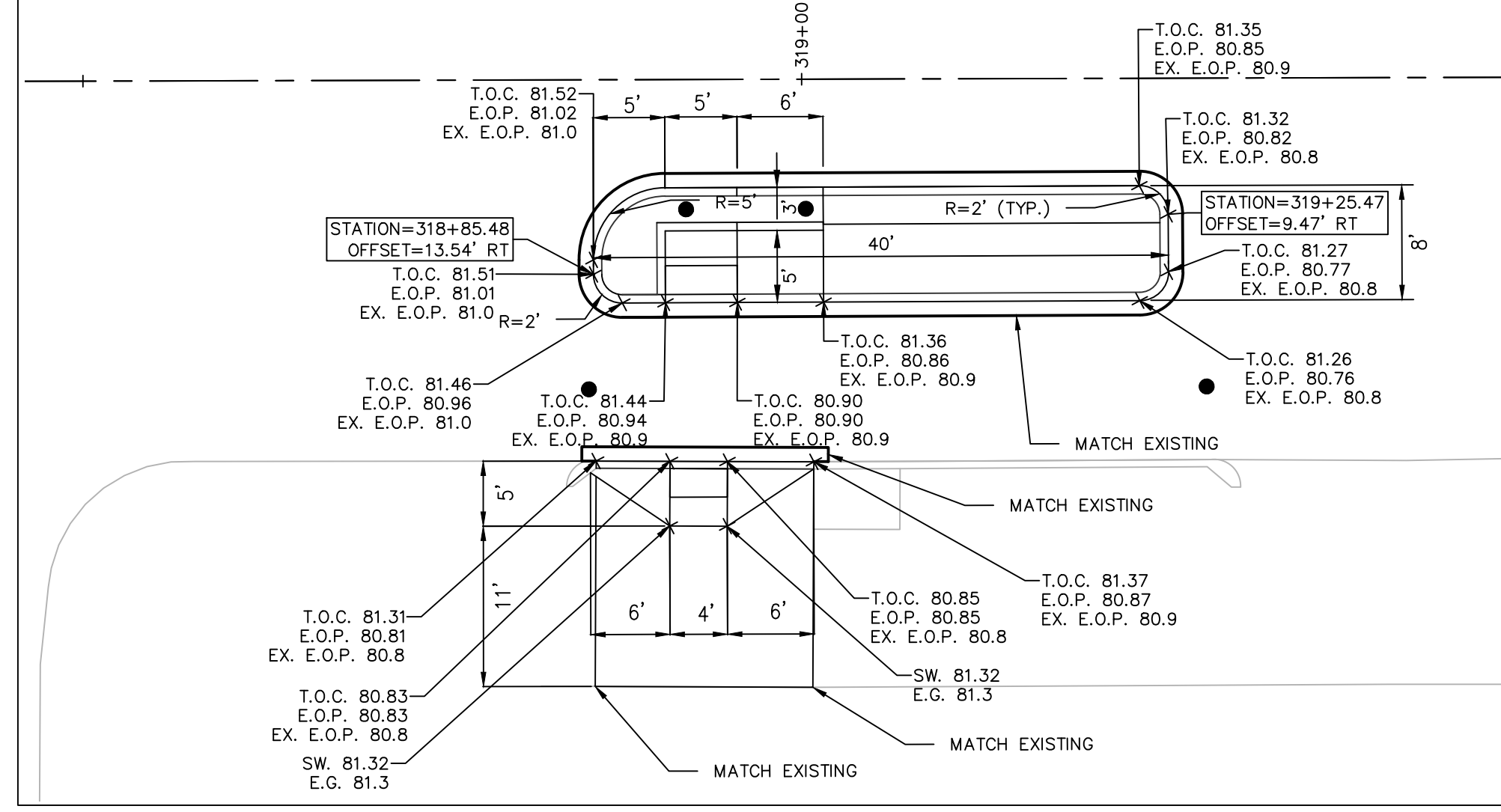
PROVIDENCE RHODE ISLAND

CONSTRUCTION & GRADING PLAN (1 OF 5)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'

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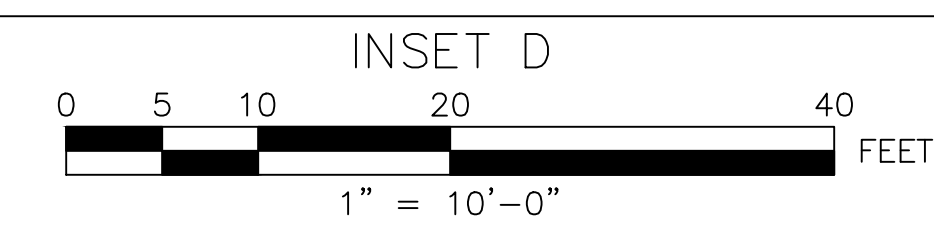
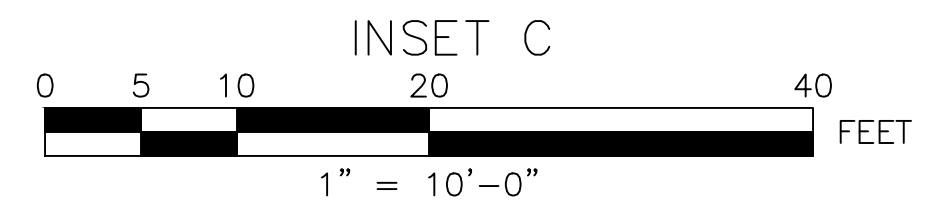
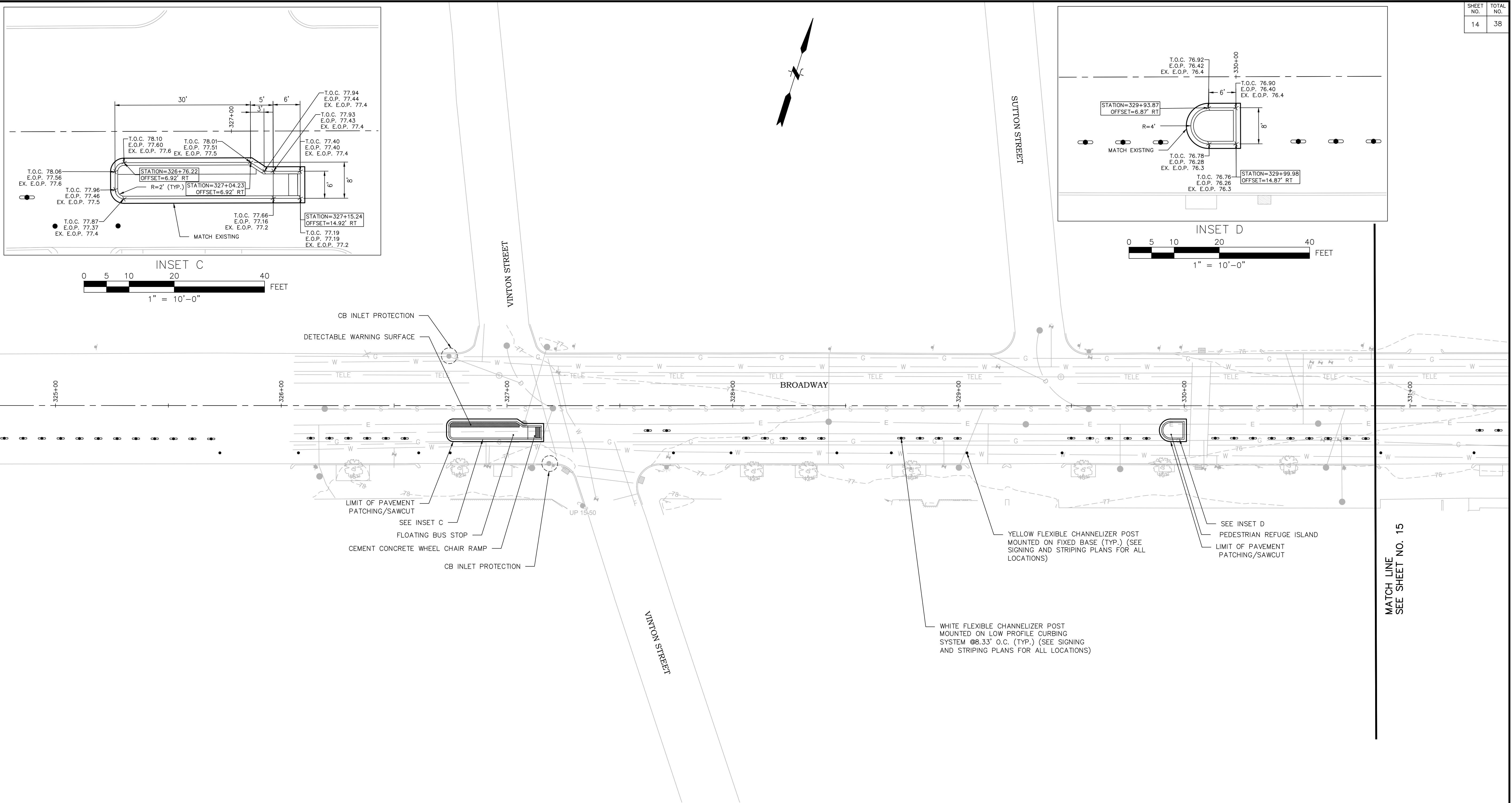
PSE SUBMISSION - NOT FOR CONSTRUCTION

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NO.	DATE	BY

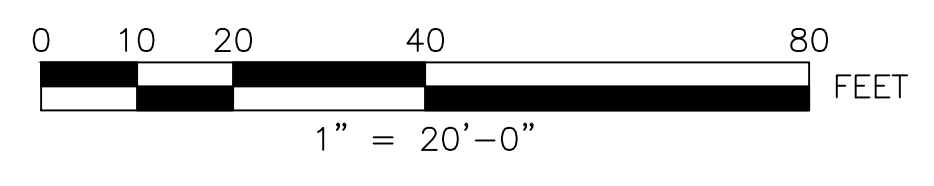
CITY OF PROVIDENCE	
BROADWAY BICYCLE & PEDESTRIAN IMPROVEMENTS	
PROVIDENCE	RHODE ISLAND
CONSTRUCTION & GRADING PLAN (2 OF 5)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	

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CB INLET PROTECTION
 DETECTABLE WARNING SURFACE
 TELE
 W
 G
 E
 LIMIT OF PAVEMENT PATCHING/SAWCUT
 SEE INSET C
 FLOATING BUS STOP
 CEMENT CONCRETE WHEEL CHAIR RAMP
 CB INLET PROTECTION
 UP 15.50
 VINTON STREET
 BROADWAY
 SUTTON STREET
 YELLOW FLEXIBLE CHANNELIZER POST MOUNTED ON FIXED BASE (TYP.) (SEE SIGNING AND STRIPING PLANS FOR ALL LOCATIONS)
 WHITE FLEXIBLE CHANNELIZER POST MOUNTED ON LOW PROFILE CURBING SYSTEM Ø8.33' O.C. (TYP.) (SEE SIGNING AND STRIPING PLANS FOR ALL LOCATIONS)
 SEE INSET D
 PEDESTRIAN REFUGE ISLAND
 LIMIT OF PAVEMENT PATCHING/SAWCUT
 MATCH LINE SEE SHEET NO. 15



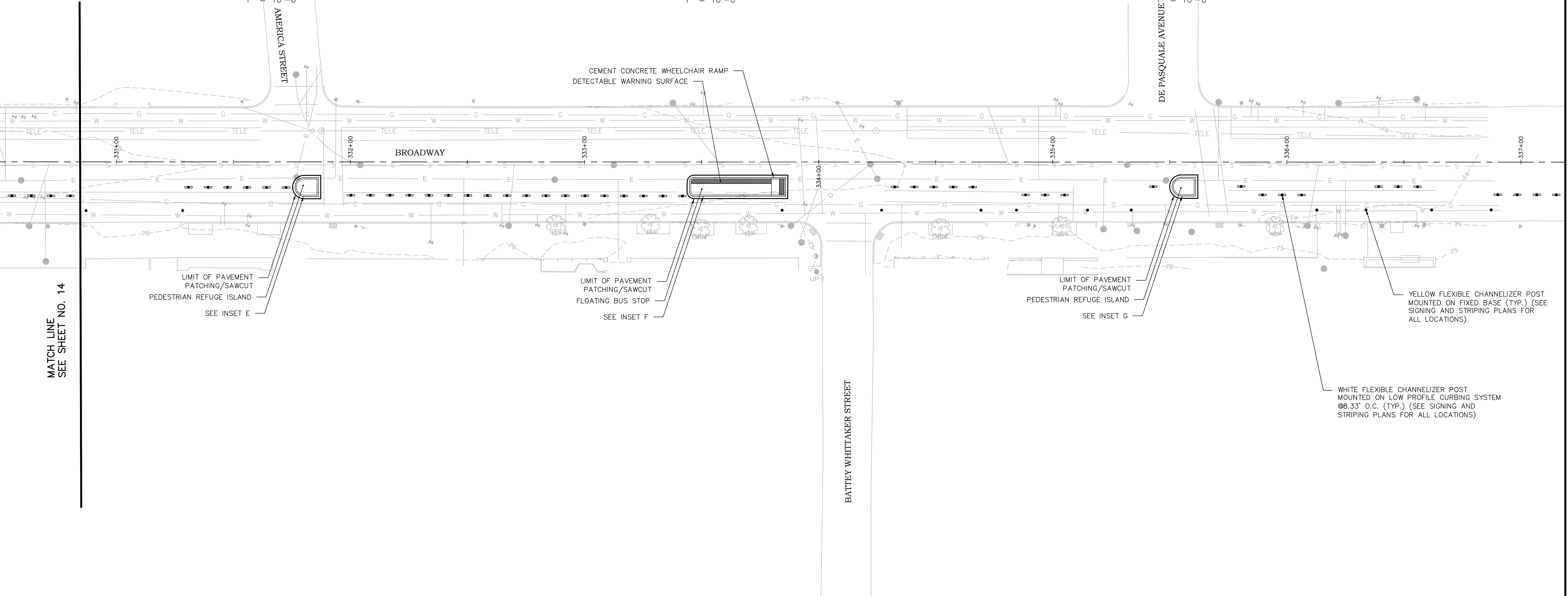
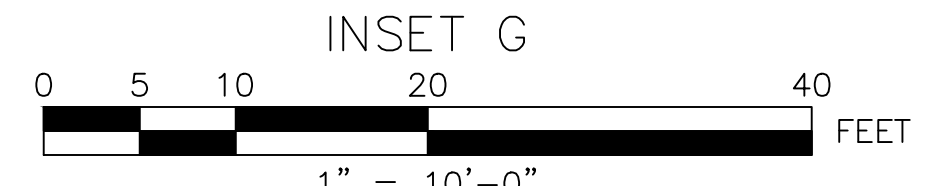
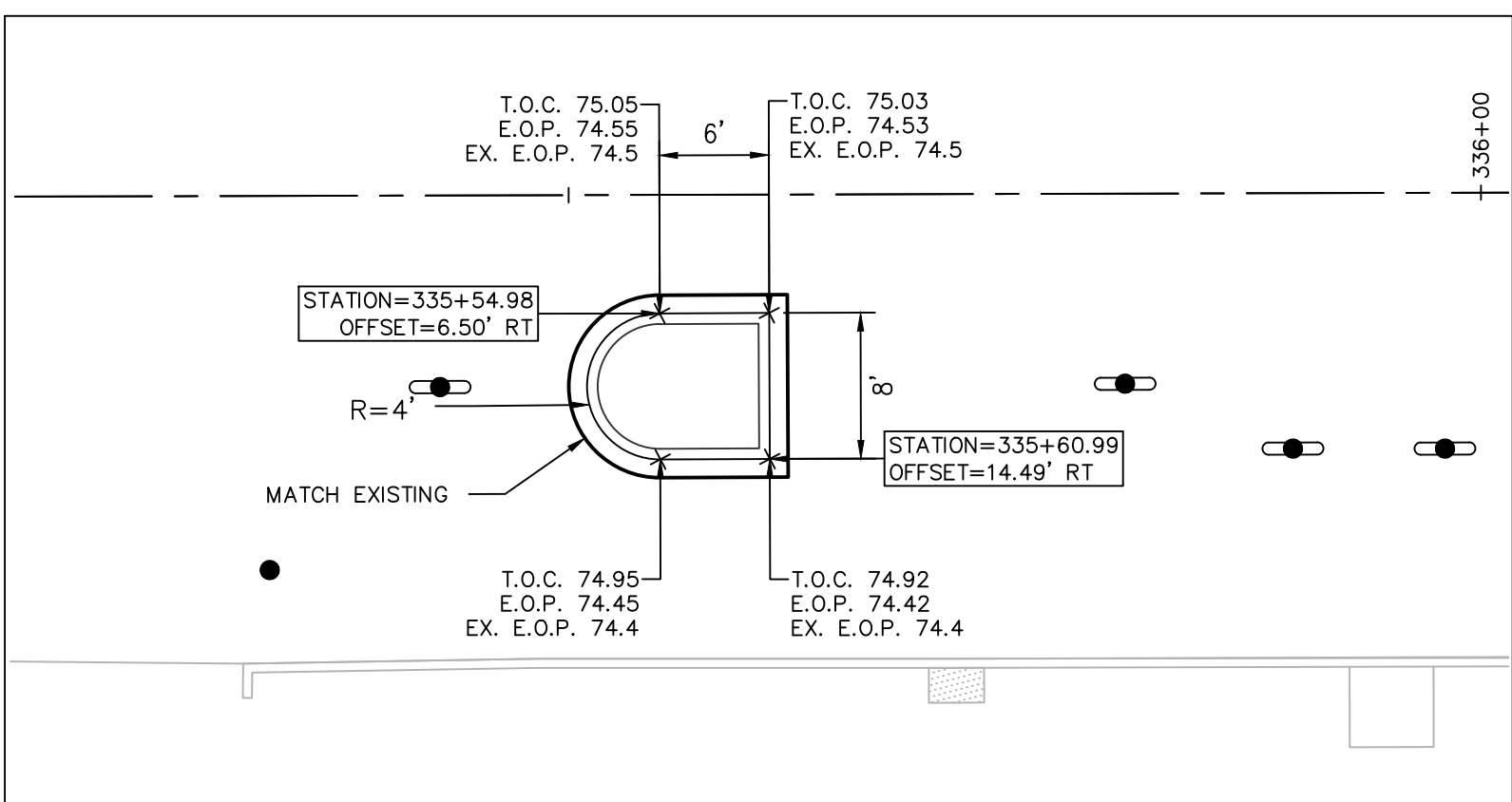
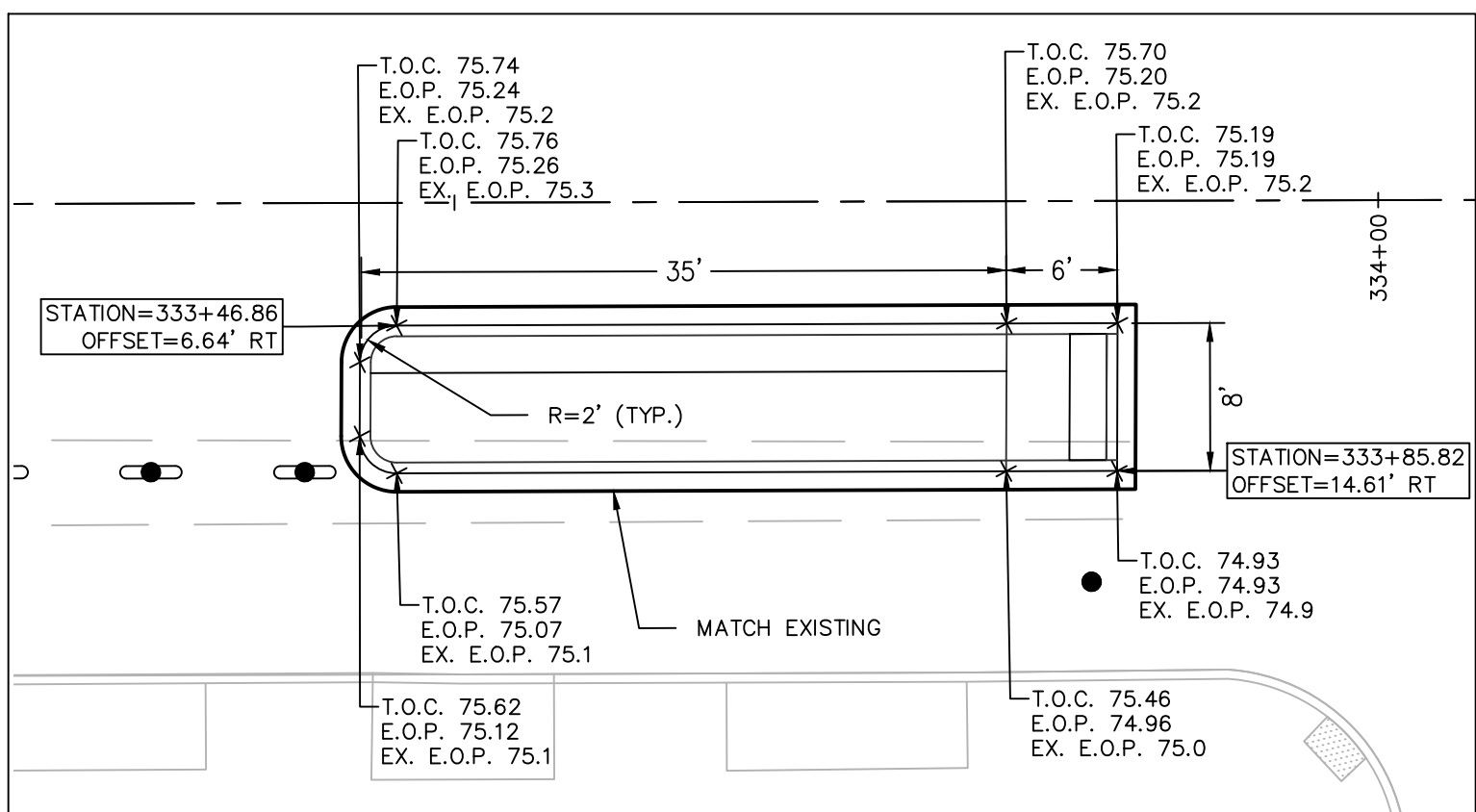
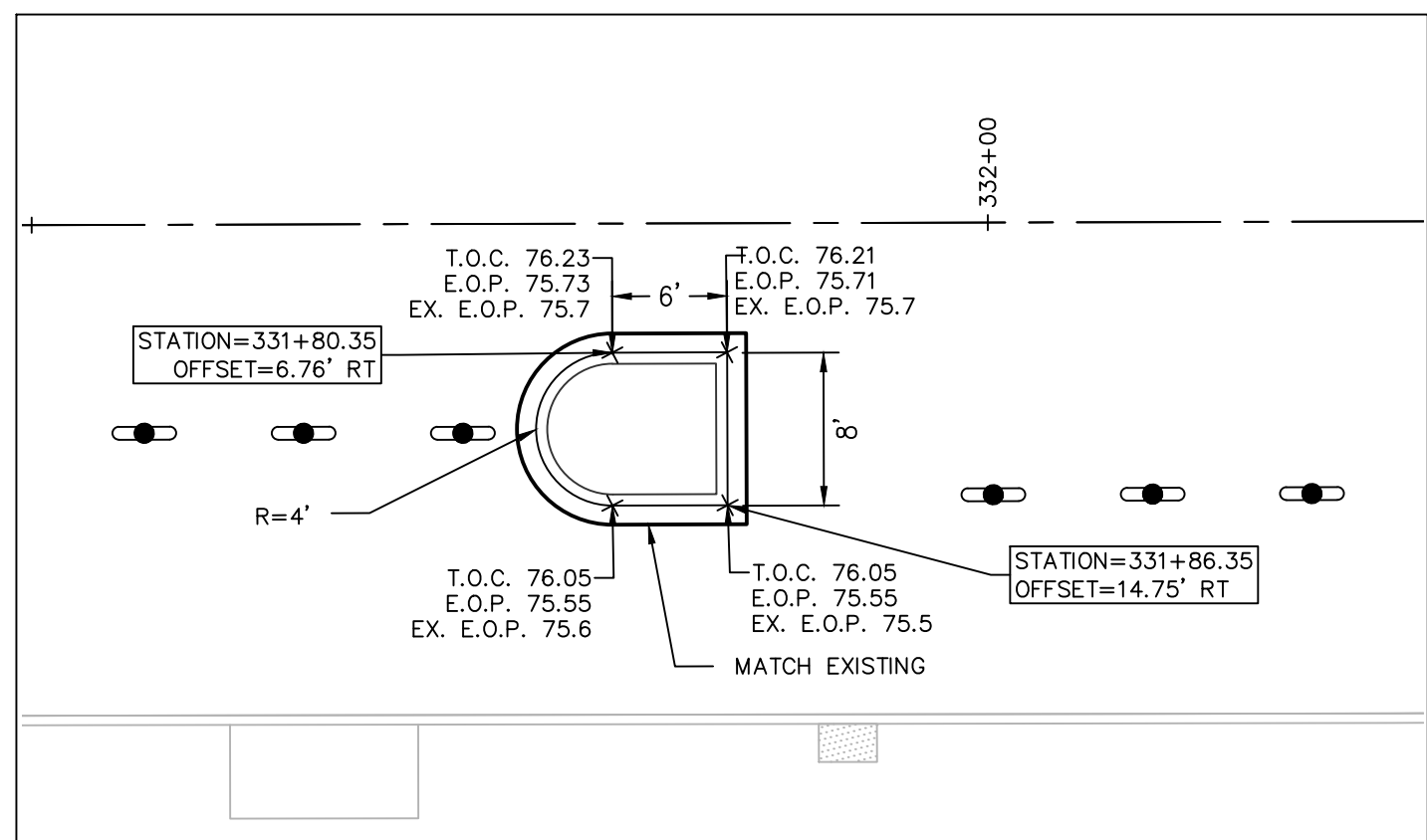
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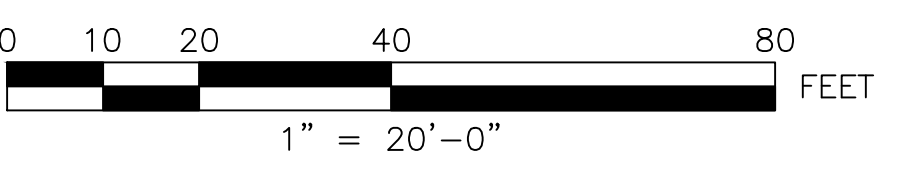
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REVISIONS		
NO.	DATE	BY

CITY OF PROVIDENCE	
BROADWAY BICYCLE & PEDESTRIAN IMPROVEMENTS	
PROVIDENCE	RHODE ISLAND
CONSTRUCTION & GRADING PLAN (3 OF 5)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	



MATCH LINE SEE SHEET NO. 14



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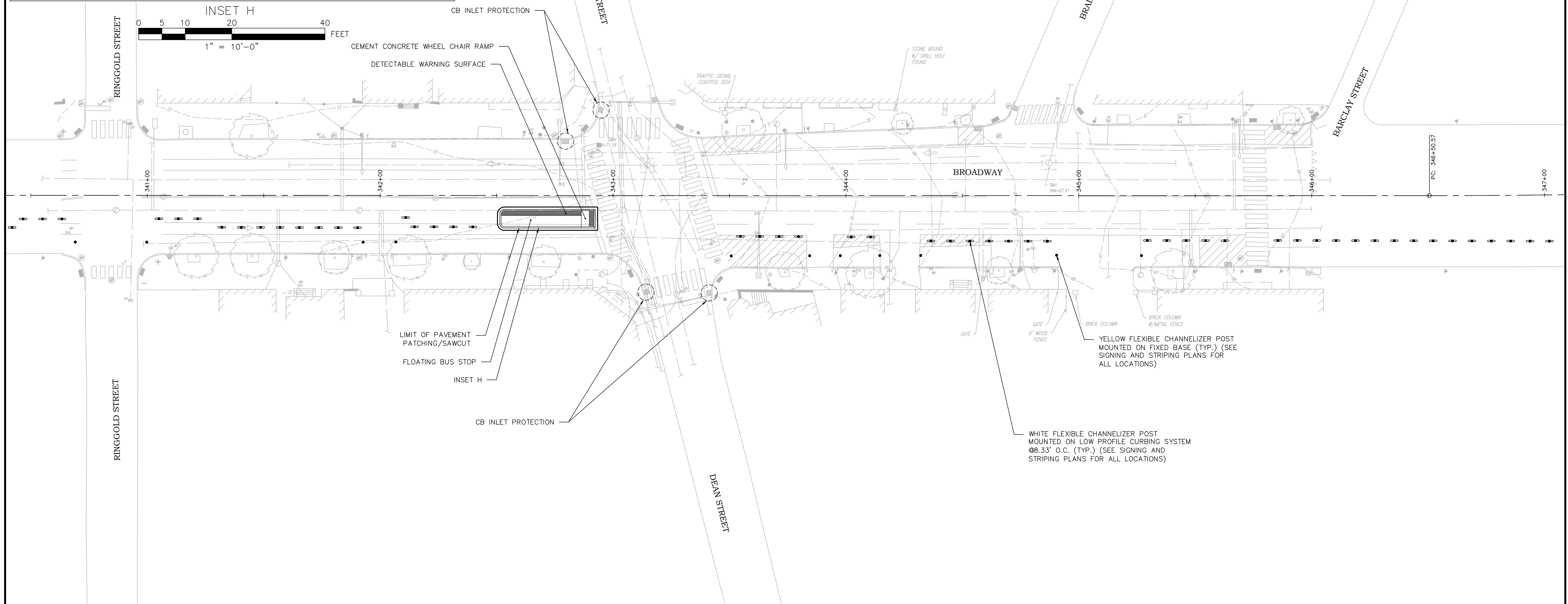
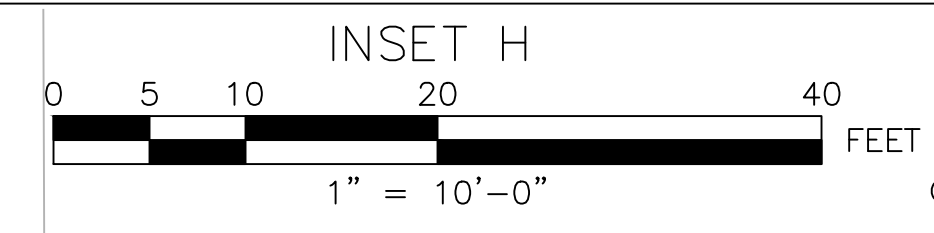
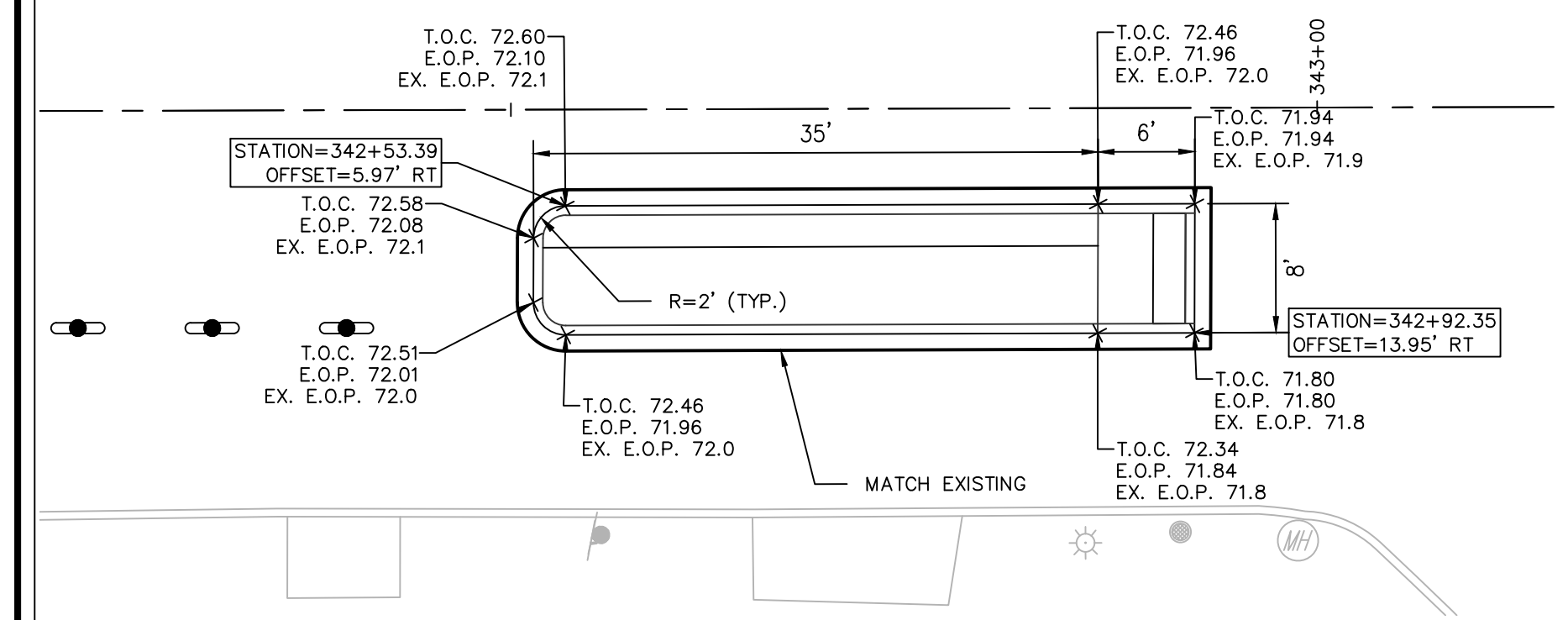
CITY OF PROVIDENCE

BROADWAY
 BICYCLE & PEDESTRIAN IMPROVEMENTS

PROVIDENCE RHODE ISLAND

CONSTRUCTION & GRADING PLAN
 (4 OF 5)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'



CB INLET PROTECTION

CEMENT CONCRETE WHEEL CHAIR RAMP

DETECTABLE WARNING SURFACE

TRAFFIC SIGNAL CONTROL BOX

STONE BOUND W/ DRILL HOLE FOUND

BROADWAY

LIMIT OF PAVEMENT PATCHING/SAWCUT

FLOATING BUS STOP

INSET H

CB INLET PROTECTION

GATE

6' WOOD FENCE

BRICK COLUMN

BRICK COLUMN W/METAL FENCE

YELLOW FLEXIBLE CHANNELIZER POST MOUNTED ON FIXED BASE (TYP.) (SEE SIGNING AND STRIPING PLANS FOR ALL LOCATIONS)

WHITE FLEXIBLE CHANNELIZER POST MOUNTED ON LOW PROFILE CURBING SYSTEM @8.33' O.C. (TYP.) (SEE SIGNING AND STRIPING PLANS FOR ALL LOCATIONS)

RINGGOLD STREET

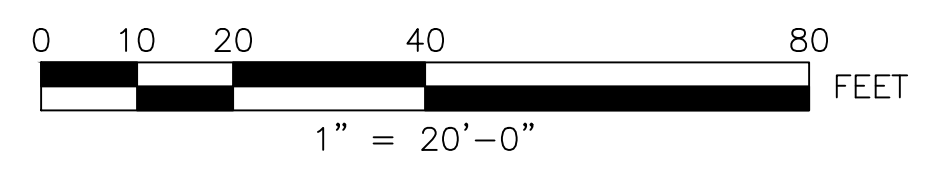
RINGGOLD STREET

DEAN STREET

BRADFORD STREET

BARCLAY STREET

DEAN STREET



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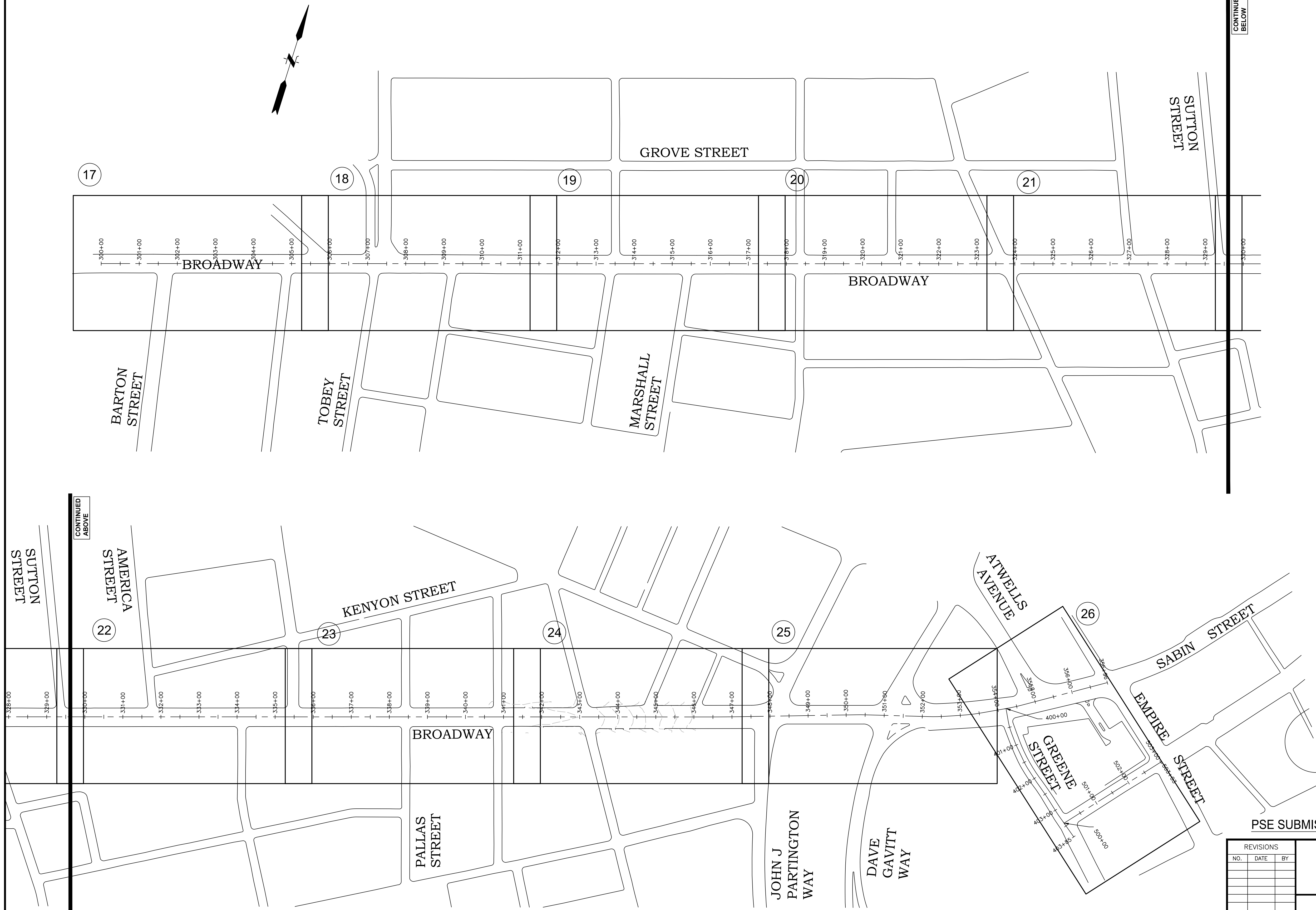
CITY OF PROVIDENCE
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CITY OF PROVIDENCE	
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PROVIDENCE	RHODE ISLAND
CONSTRUCTION & GRADING PLAN (5 OF 5)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	

CONTINUED BELOW



17

18

19

20

21

22

23

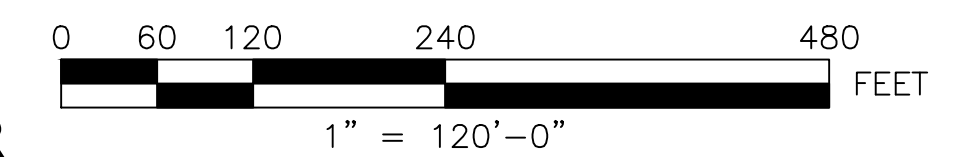
24

25

26

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KEY:
XX SIGNING AND STRIPING PLAN SHEET NUMBER



REVISIONS		
NO.	DATE	BY

CITY OF PROVIDENCE
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 PROVIDENCE RHODE ISLAND

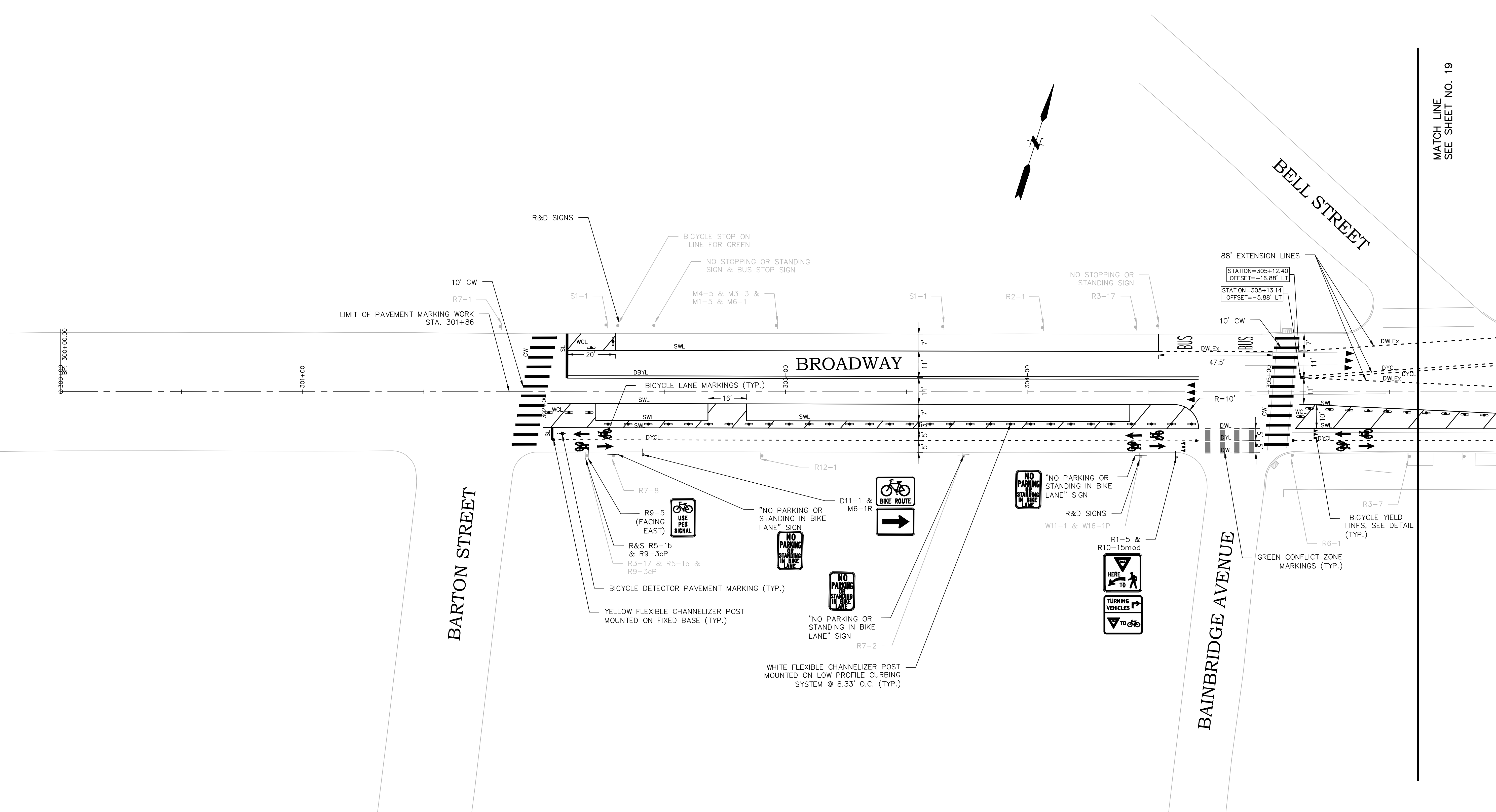
KEY PLAN FOR SIGNING AND STRIPING PLANS

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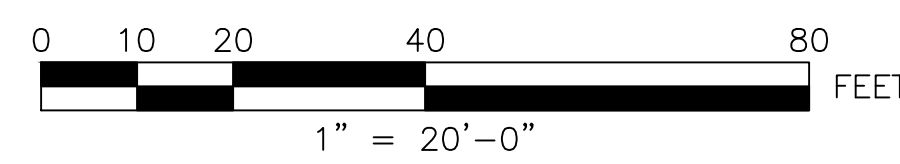
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MATCH LINE
SEE SHEET NO. 19



MARKING LEGEND	
⊠	SIGN
⊡	EXISTING SIGN
R&S	REMOVE & STOCKPILE
R&R	REMOVE & RELOCATE
R&D	REMOVE & DISPOSE
SL	12" WHITE STOP LINE
CW	12" WHITE CROSSWALK
SWL	4" SINGLE WHITE LINE
DBYL	4" DOUBLE YELLOW LINE
DWLEx	4" DOTTED WHITE LANE EXTENSION LINE (1' MARK - 2' SKIP)
DYCL	4" DOTTED YELLOW CENTER LINE (1' MARK - 2' SKIP)
DWL	4" DASHED WHITE LINE (2' MARK - 4' SKIP)
DYL	4" DASHED YELLOW LINE (2' MARK - 4' SKIP)
BWL	4" BROKEN WHITE LINE (10' MARK - 20' SKIP)
WCL	4" WHITE CHANNELIZING LINES

- NOTES:**
1. ALL EXISTING SIGNS TO REMAIN UNLESS OTHERWISE NOTED ON PLANS
 2. ALL EXISTING PAVEMENT MARKINGS TO BE REMOVED
 3. ALL PAVEMENT MARKING LINES ON ROADWAYS SHALL BE EPOXY RESIN. ALL MARKINGS SHALL BE 4" WIDE, EXCEPT CROSSWALKS AND STOP BARS WHICH SHALL BE 12" WIDE.
 4. SEE CONSTRUCTION DETAILS (SHEET 4 OF 7) FOR SIGN DETAILS



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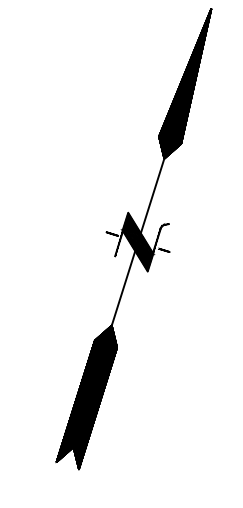
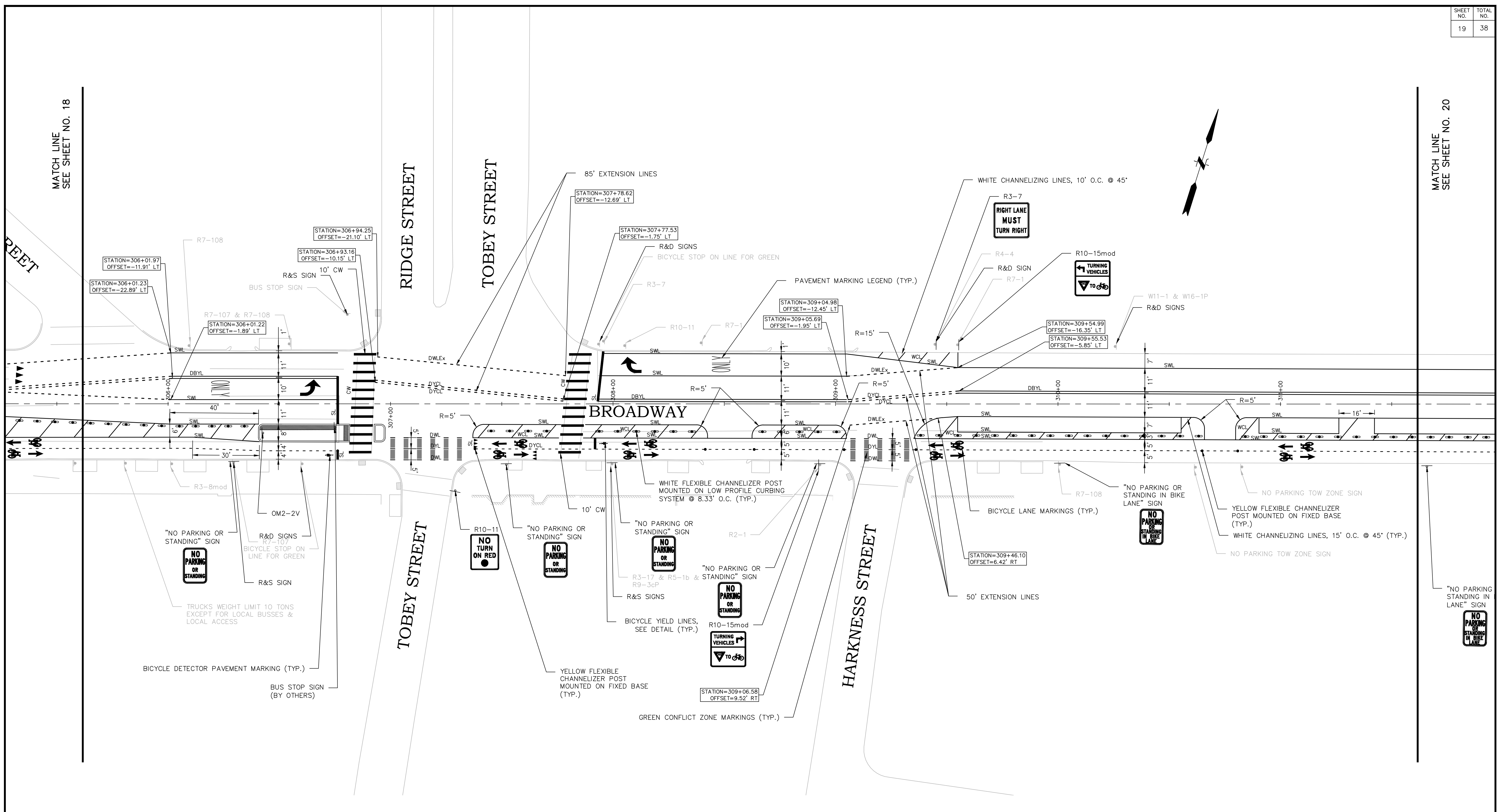
SIGNING AND STRIPING PLANS
(1 OF 10)

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MATCH LINE
SEE SHEET NO. 18

MATCH LINE
SEE SHEET NO. 20



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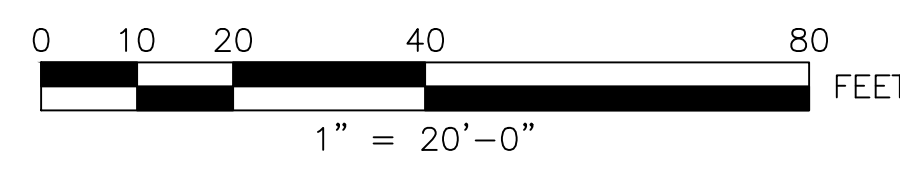
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SIGNING AND STRIPING PLANS
(2 OF 10)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'

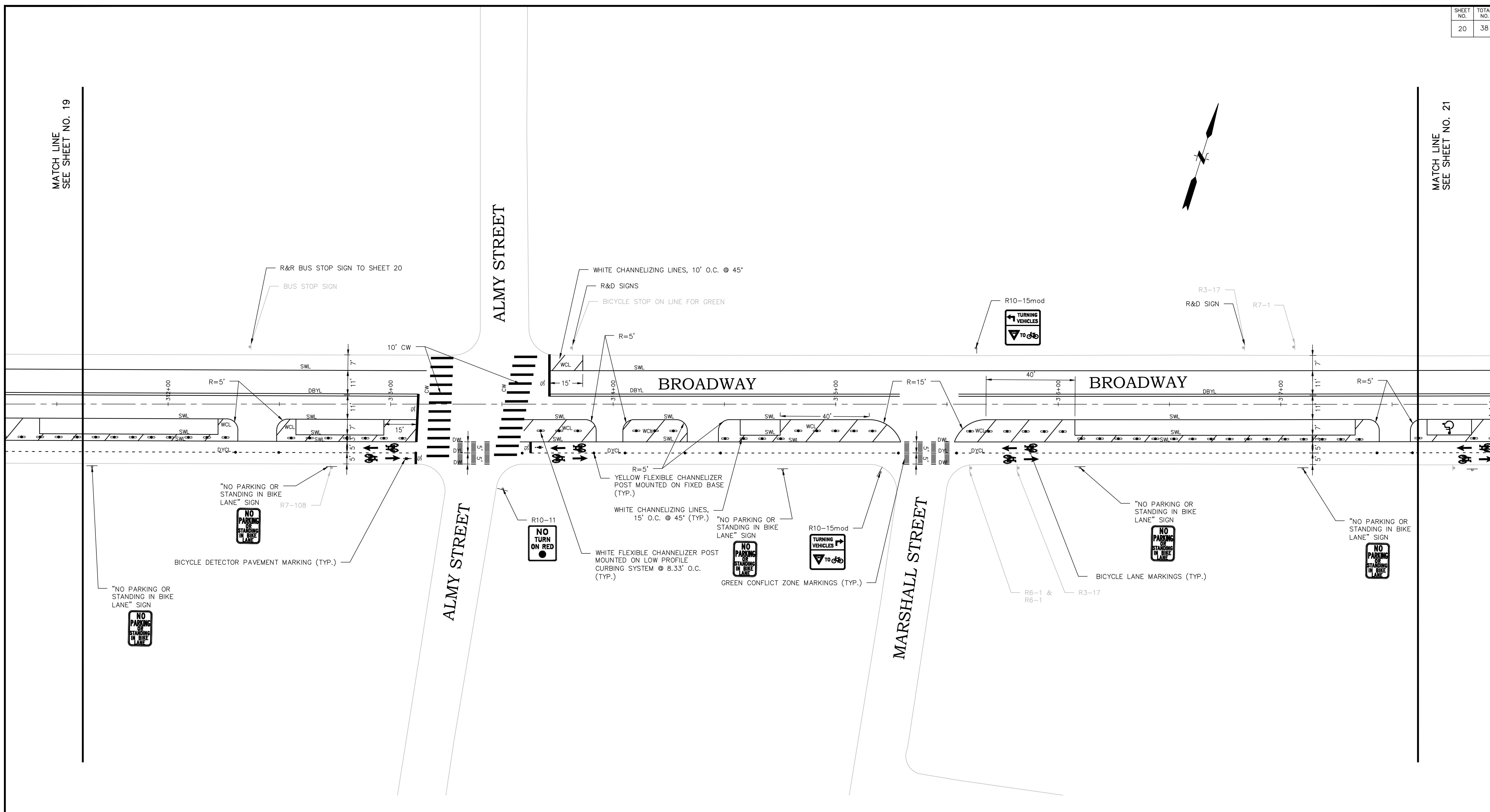


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MATCH LINE
SEE SHEET NO. 19

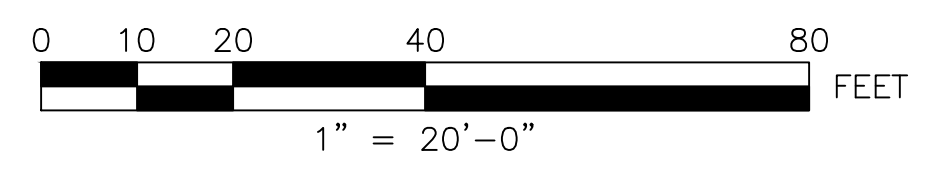
MATCH LINE
SEE SHEET NO. 21



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SIGNING AND STRIPING PLANS (3 OF 10)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	



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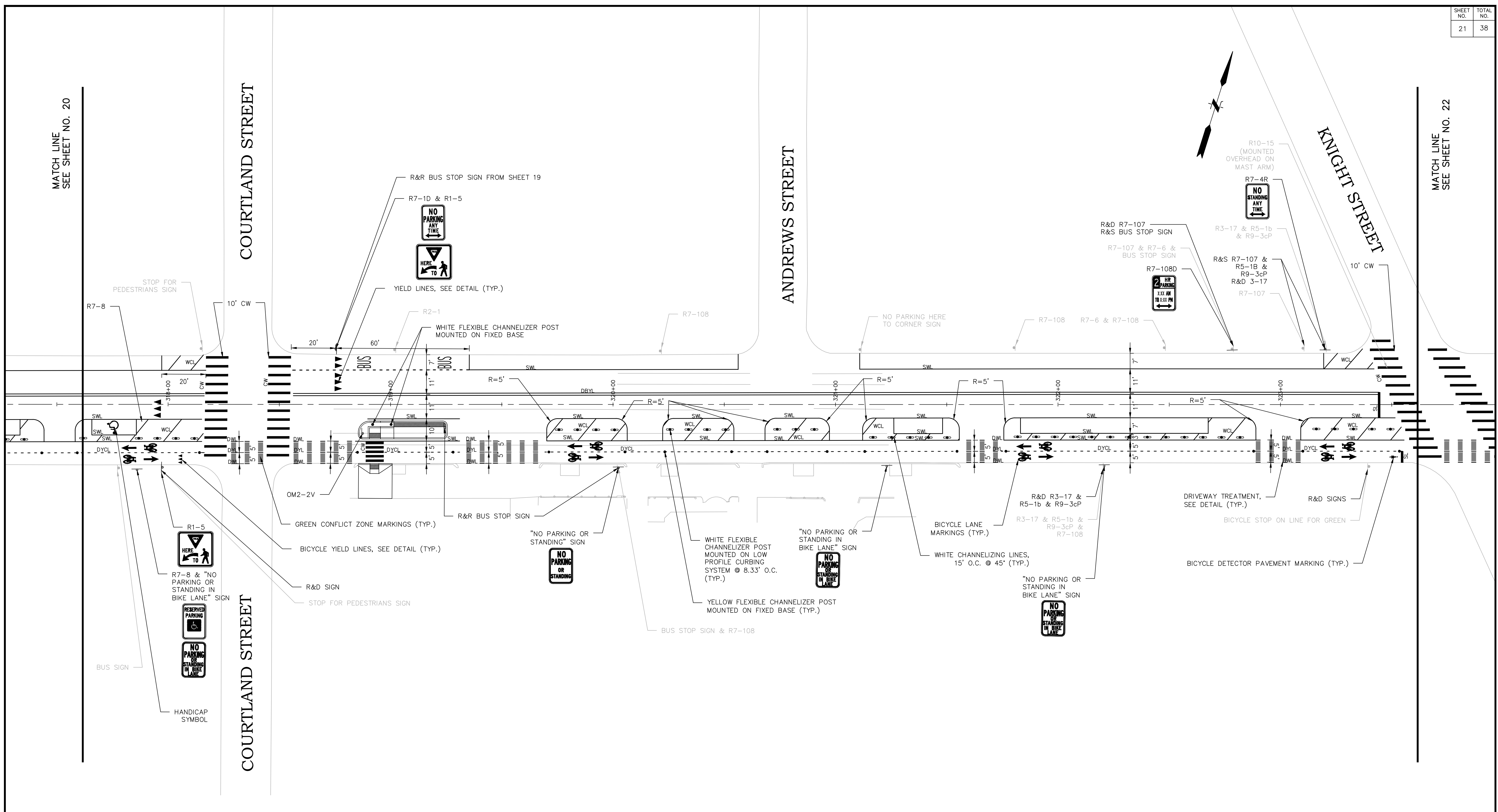
MATCH LINE
SEE SHEET NO. 20

COURTLAND STREET

ANDREWS STREET

KNIGHT STREET

MATCH LINE
SEE SHEET NO. 22



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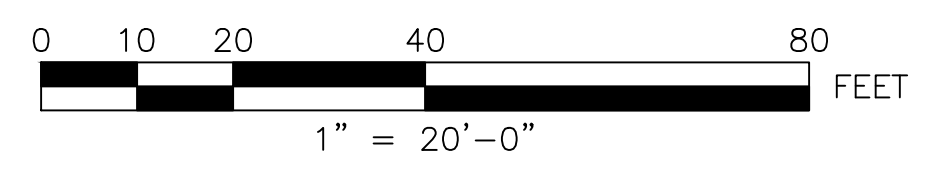
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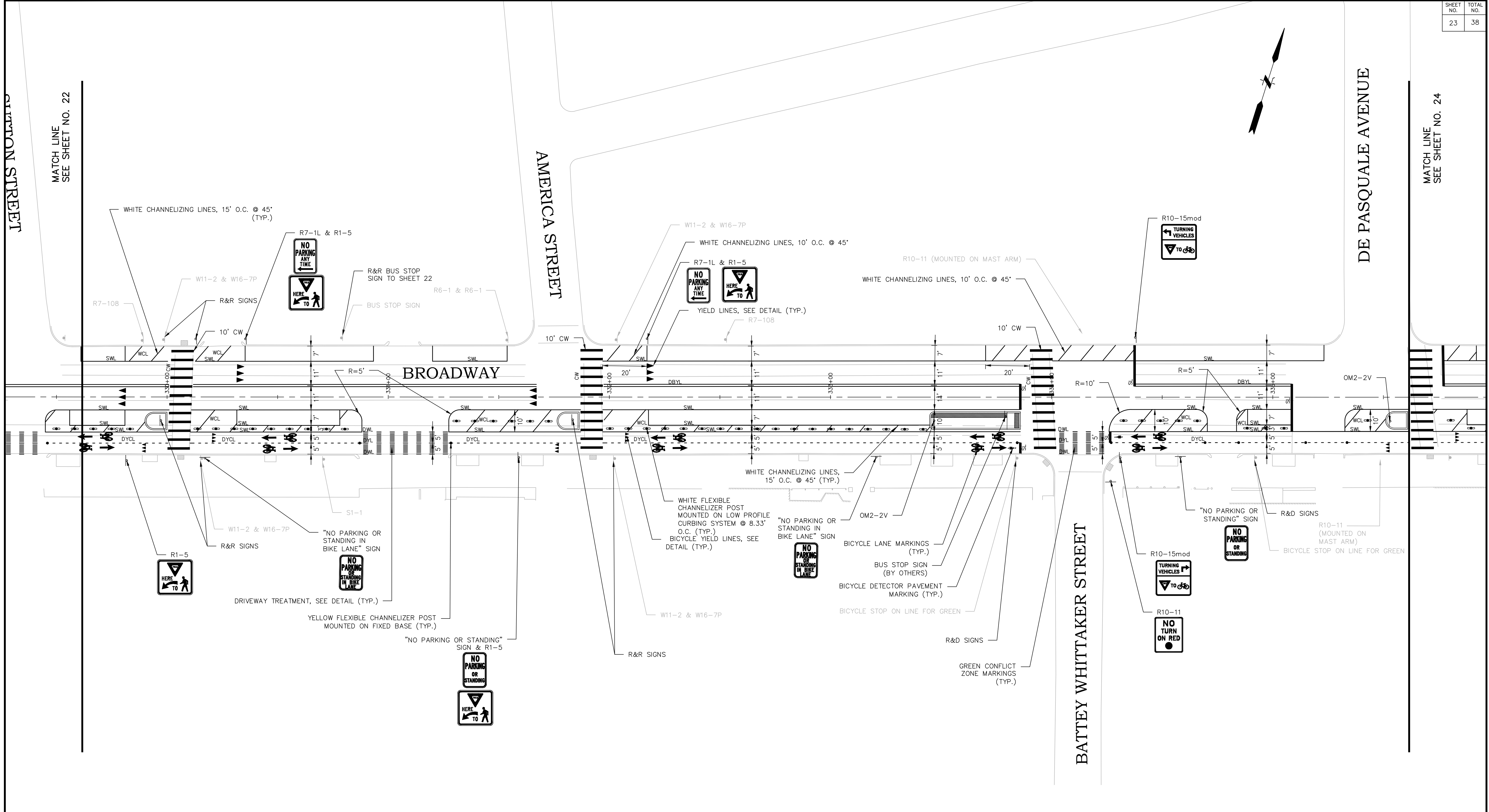
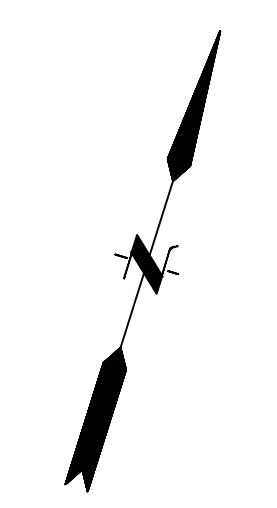
SIGNING AND STRIPING PLANS
(4 OF 10)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'



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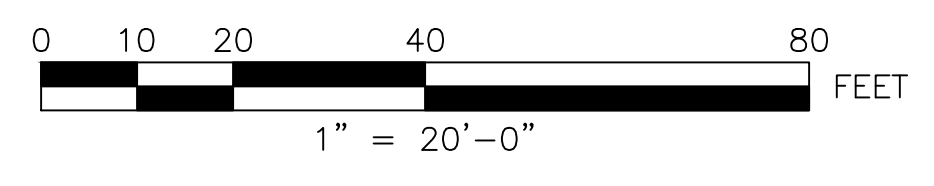
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SIGNING AND STRIPING PLANS
(6 OF 10)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'



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DE PASQUALE AVENUE
MATCH LINE
SEE SHEET NO. 23

MATCH LINE
SEE SHEET NO. 25

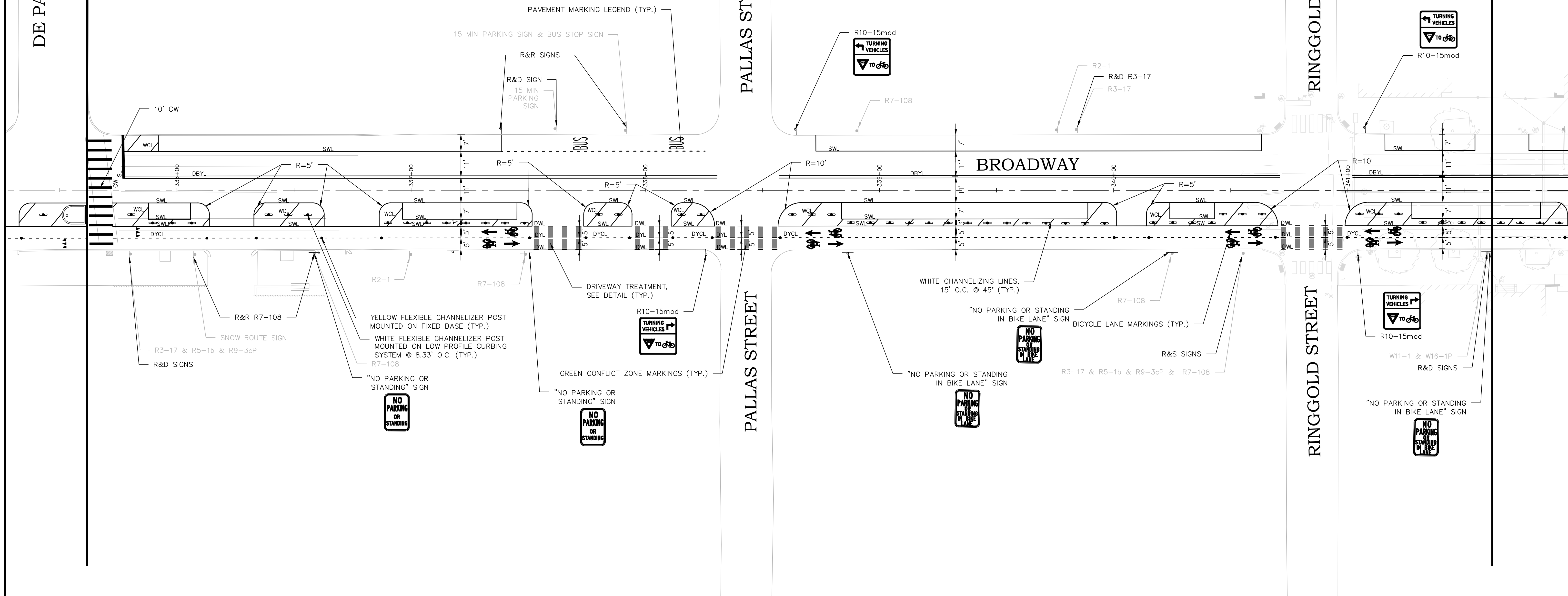
PALLAS STREET

PALLAS STREET

RINGGOLD STREET

RINGGOLD STREET

BROADWAY



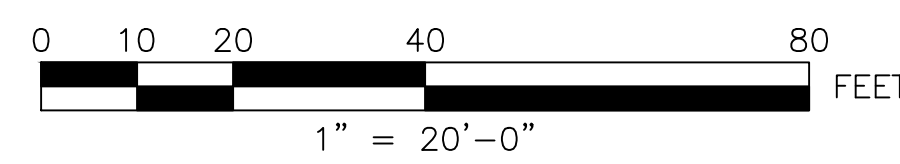
PAVEMENT MARKING LEGEND (TYP.)

WHITE CHANNELIZING LINES, 15' O.C. @ 45° (TYP.)

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SIGNING AND STRIPING PLANS (7 OF 10)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	

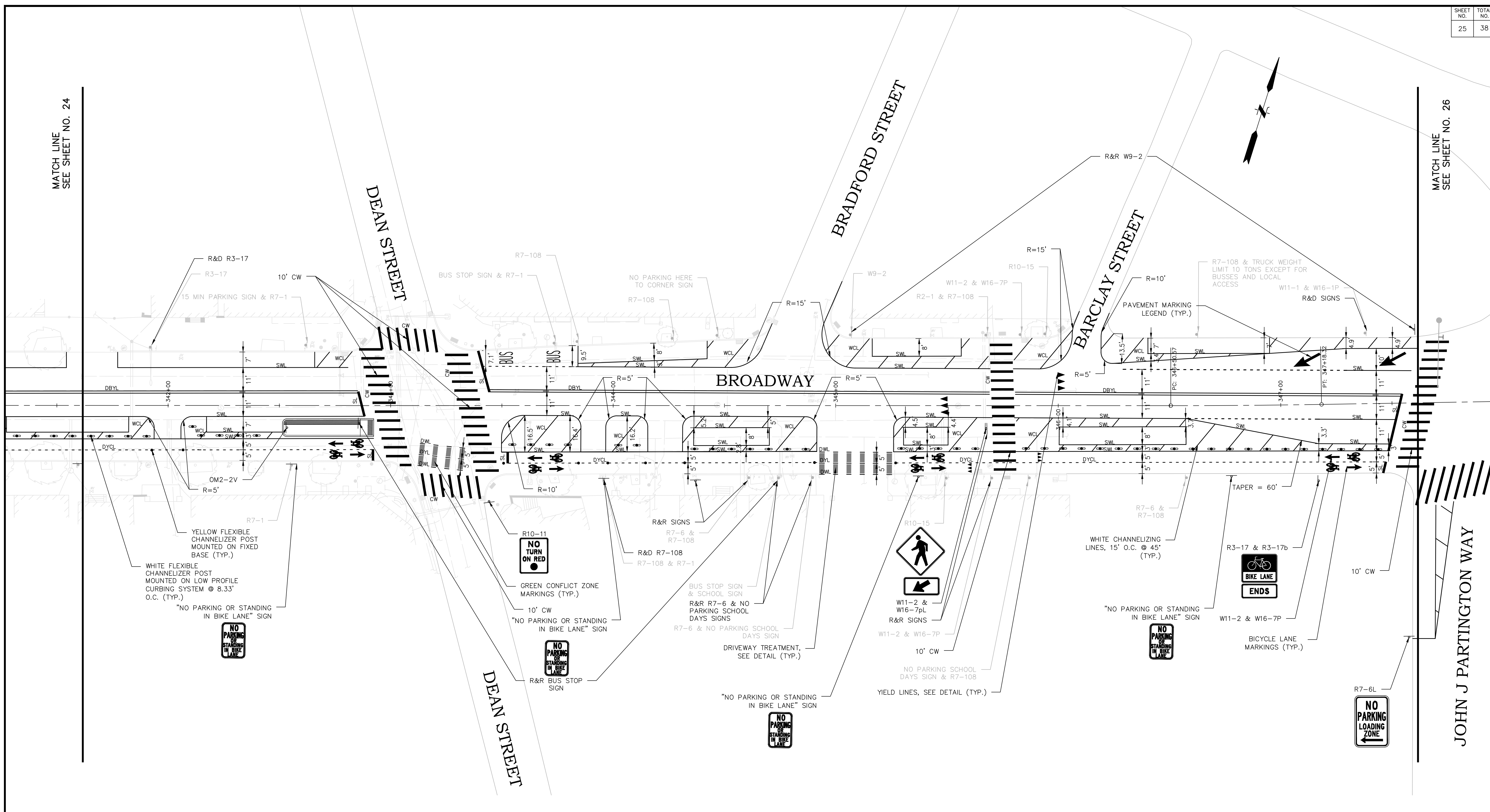


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MATCH LINE
SEE SHEET NO. 24

MATCH LINE
SEE SHEET NO. 26



YELLOW FLEXIBLE CHANNELIZER POST MOUNTED ON FIXED BASE (TYP.)

WHITE FLEXIBLE CHANNELIZER POST MOUNTED ON LOW PROFILE CURBING SYSTEM @ 8.33' O.C. (TYP.)

"NO PARKING OR STANDING IN BIKE LANE" SIGN

R10-11
NO TURN ON RED

GREEN CONFLICT ZONE MARKINGS (TYP.)

10' CW

"NO PARKING OR STANDING IN BIKE LANE" SIGN

R&R BUS STOP SIGN

"NO PARKING OR STANDING IN BIKE LANE" SIGN

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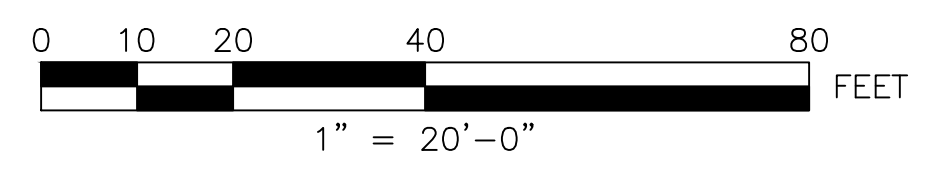
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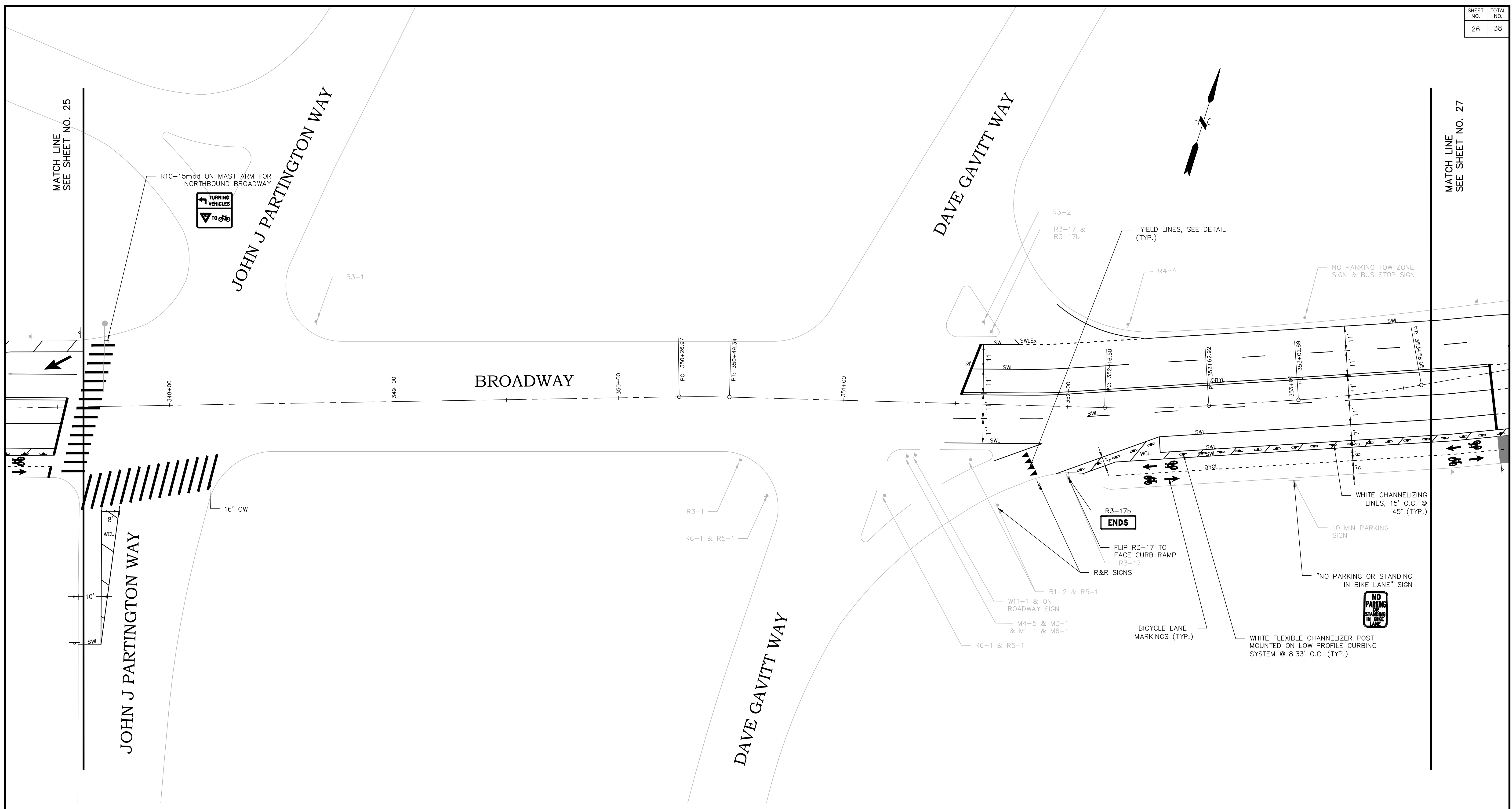
SIGNING AND STRIPING PLANS
(8 OF 10)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'



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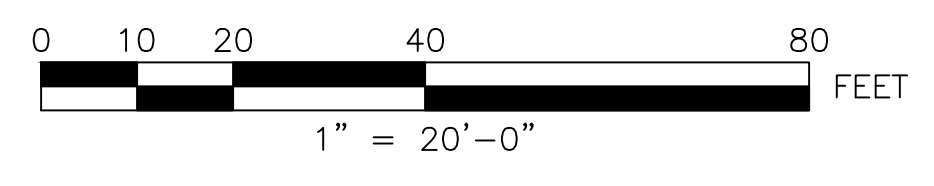
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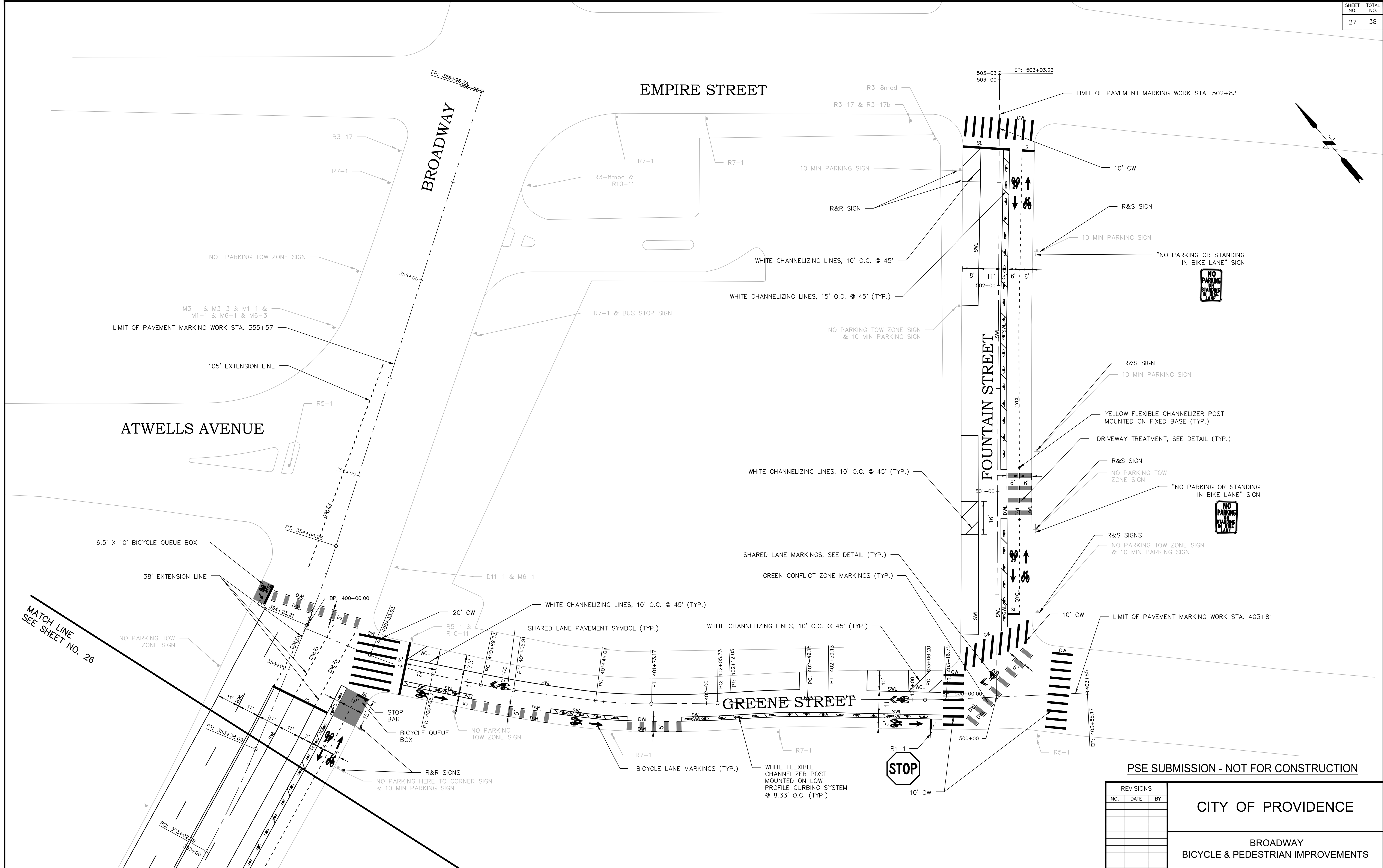
REVISIONS		
NO.	DATE	BY

CITY OF PROVIDENCE	
BROADWAY BICYCLE & PEDESTRIAN IMPROVEMENTS	
PROVIDENCE	RHODE ISLAND
SIGNING AND STRIPING PLANS (9 OF 10)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	



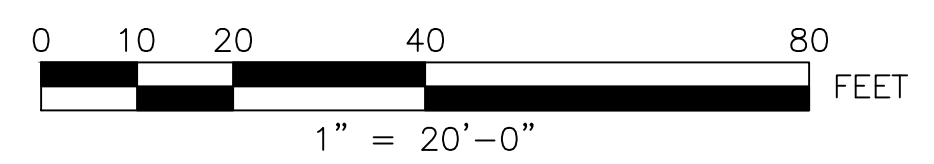
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	CITY OF PROVIDENCE
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MATCH LINE
SEE SHEET NO. 26



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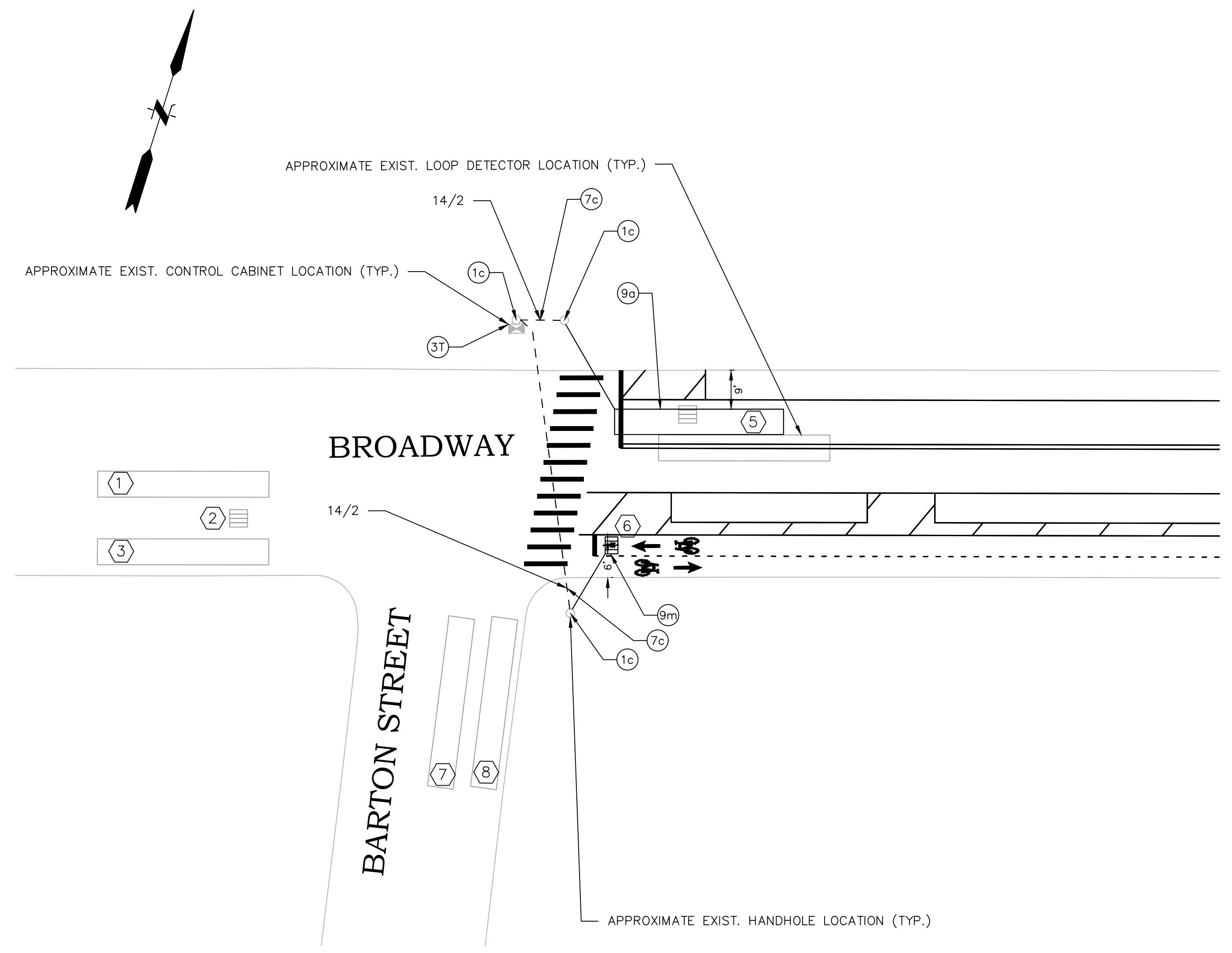
BROADWAY
BICYCLE & PEDESTRIAN IMPROVEMENTS
PROVIDENCE RHODE ISLAND

**SIGNING AND STRIPING PLANS
(10 OF 10)**

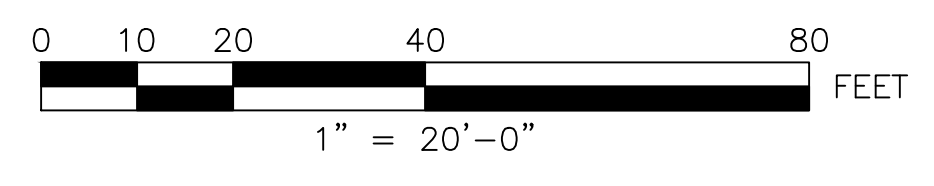
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'

TRAFFIC SIGNAL MATERIALS LIST			
ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
1c	○	T05.0400	BREAK INTO EXISTING HANDHOLE
7c		T04.5302	14 AWG 2 CONDUCTOR TWISTED SHIELDED CABLE
9a	▬	T13.1000	TRAFFIC DETECTOR - LOOP STANDARD 19.6.0
9m	▬▬▬	T13.9910	BICYCLE DETECTOR - TYPE D-Q DETECTOR (DOUBLE QUADRAPOLE)
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET
PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.			

LOOP DETECTORS					
LOOP NUMBER	SIZE	RELAY	SLOT	PHASE	DELAY SETTINGS (SECONDS)
1	6'X40'	1	2	Ø1	3
2	4'X3'	1	2	Ø1	10
3	6'X40'	2	1	Ø1	3
5	6'X40'	3	4	Ø2	3
6	4'X3'	3	4	Ø2	10
7	6'X40'	4	3	Ø2	5
8	6'X40'	4	3	Ø2	5



SEE BROADWAY @ BARTON ST.
SIGNAL PLAN 2 FOR PHASE,
TIMING AND COORDINATION DATA



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BROADWAY
BICYCLE & PEDESTRIAN IMPROVEMENTS

PROVIDENCE RHODE ISLAND

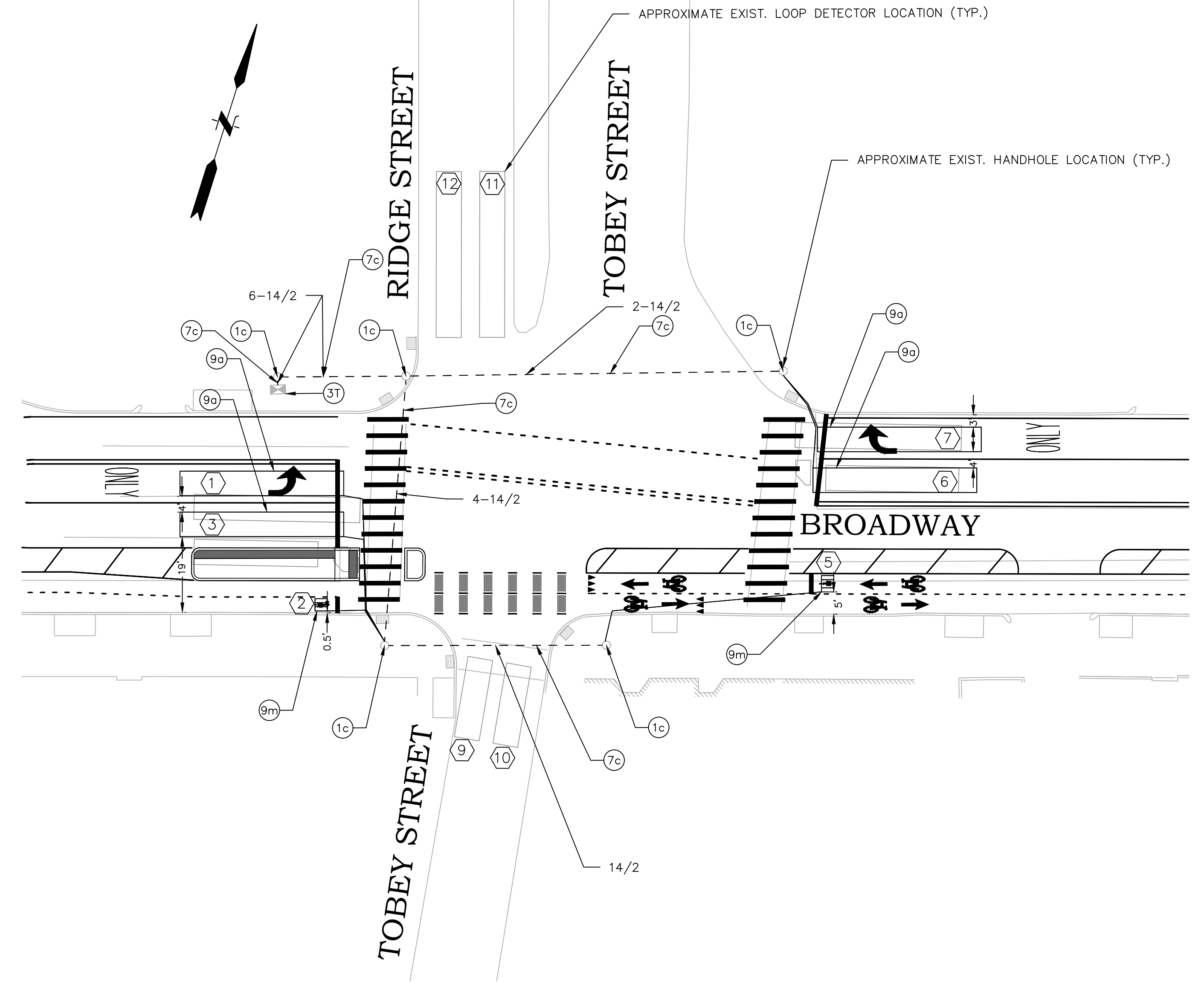
SIGNAL PLAN
(1 OF 10)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'

TRAFFIC SIGNAL MATERIALS LIST			
ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
1c		T05.0400	BREAK INTO EXISTING HANDHOLE
7c		T04.5302	14 AWG 2 CONDUCTOR TWISTED SHIELDED CABLE
9a		T13.1000	TRAFFIC DETECTOR - LOOP STANDARD 19.6.0
9m		T13.9910	BICYCLE DETECTOR - TYPE D-Q DETECTOR (DOUBLE QUADRAPOLE)
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET

PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

LOOP DETECTORS					
LOOP NUMBER	SIZE	RELAY	SLOT	PHASE	DELAY SETTINGS (SECONDS)
1	6'X40'	1	2	Ø1	3
2	3'X3'	1	2	Ø1	10
3	6'X30'	2	1	Ø1	3
5	4'X3'	3	4	Ø1	10
6	6'X30'	3	4	Ø1	3
7	6'X40'	4	3	Ø1	3
9	6'X20'	5	6	Ø2	5
10	6'X20'	5	6	Ø2	8
11	6'X40'	6	5	Ø2	5
12	6'X40'	6	5	Ø2	8

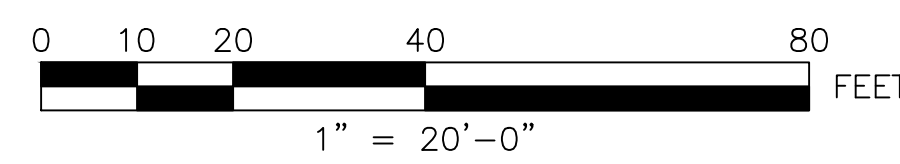


SEE BROADWAY @ TOBEY ST.
SIGNAL PLAN 3 FOR PHASE,
TIMING AND COORDINATION DATA

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BROADWAY BICYCLE & PEDESTRIAN IMPROVEMENTS	
PROVIDENCE	RHODE ISLAND
SIGNAL PLAN (2 OF 10)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	

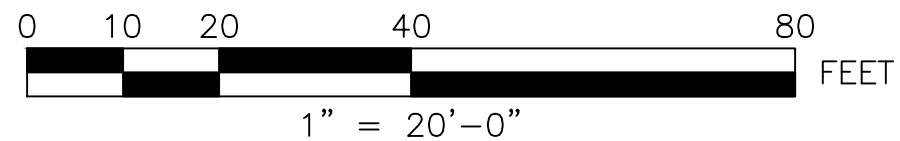
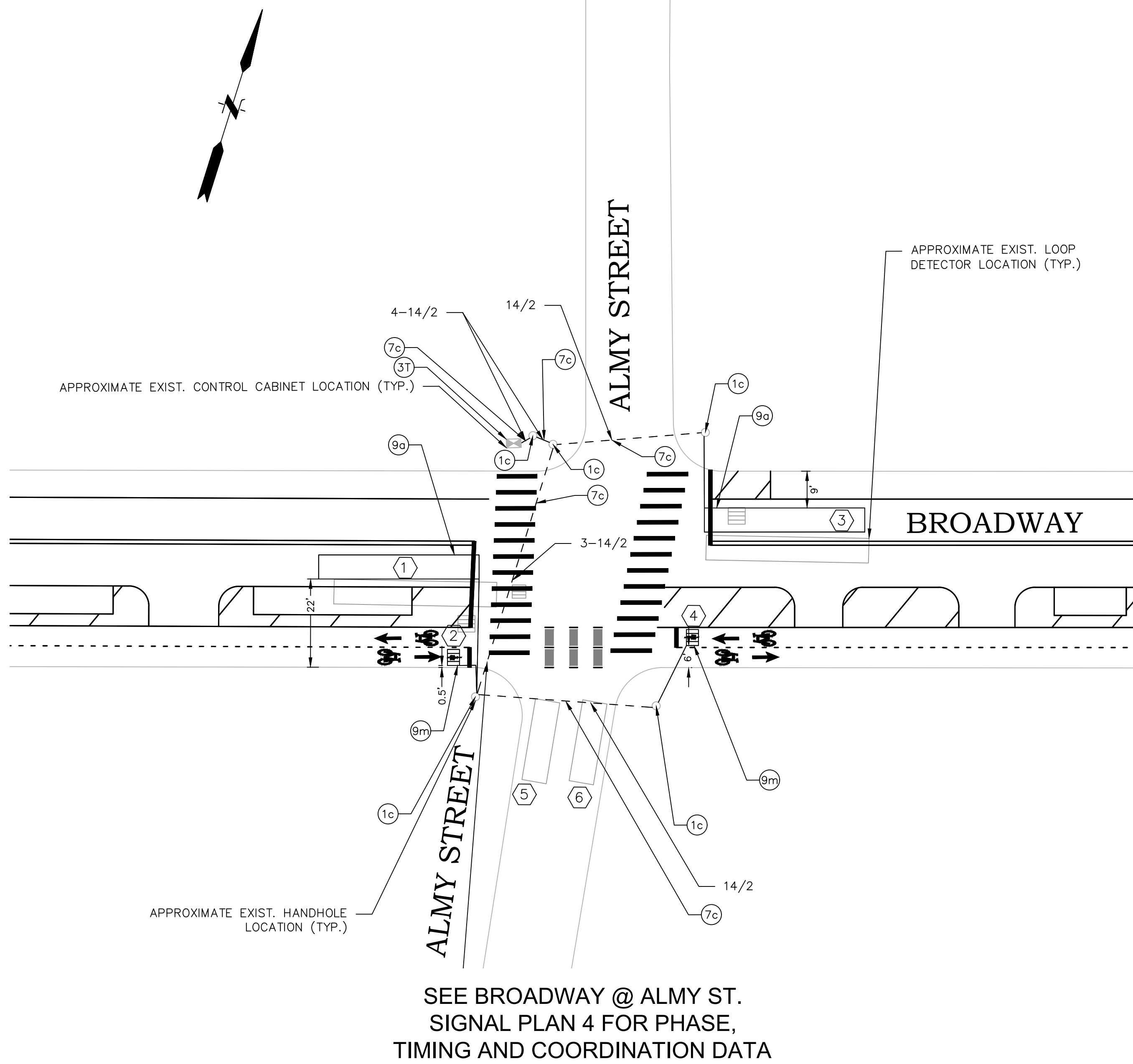


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TRAFFIC SIGNAL MATERIALS LIST			
ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
1c		T05.0400	BREAK INTO EXISTING HANDHOLE
7c		T04.5302	14 AWG 2 CONDUCTOR TWISTED SHIELDED CABLE
9a		T13.1000	TRAFFIC DETECTOR - LOOP STANDARD 19.6.0
9m		T13.9910	BICYCLE DETECTOR - TYPE D-Q DETECTOR (DOUBLE QUADRAPOLE)
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET
PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.			

LOOP DETECTORS					
LOOP NUMBER	SIZE	RELAY	SLOT	PHASE	DELAY SETTINGS (SECONDS)
1	6'X40'	1	2	Ø1	3
2	4'X3'	1	2	Ø1	10
3	6'X40'	2	1	Ø1	3
4	4'X3'	2	1	Ø1	10
5	6'X20'	3	4	Ø2	3
6	6'X20'	3	4	Ø2	5



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BROADWAY
BICYCLE & PEDESTRIAN IMPROVEMENTS

PROVIDENCE RHODE ISLAND

SIGNAL PLAN
(3 OF 10)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'

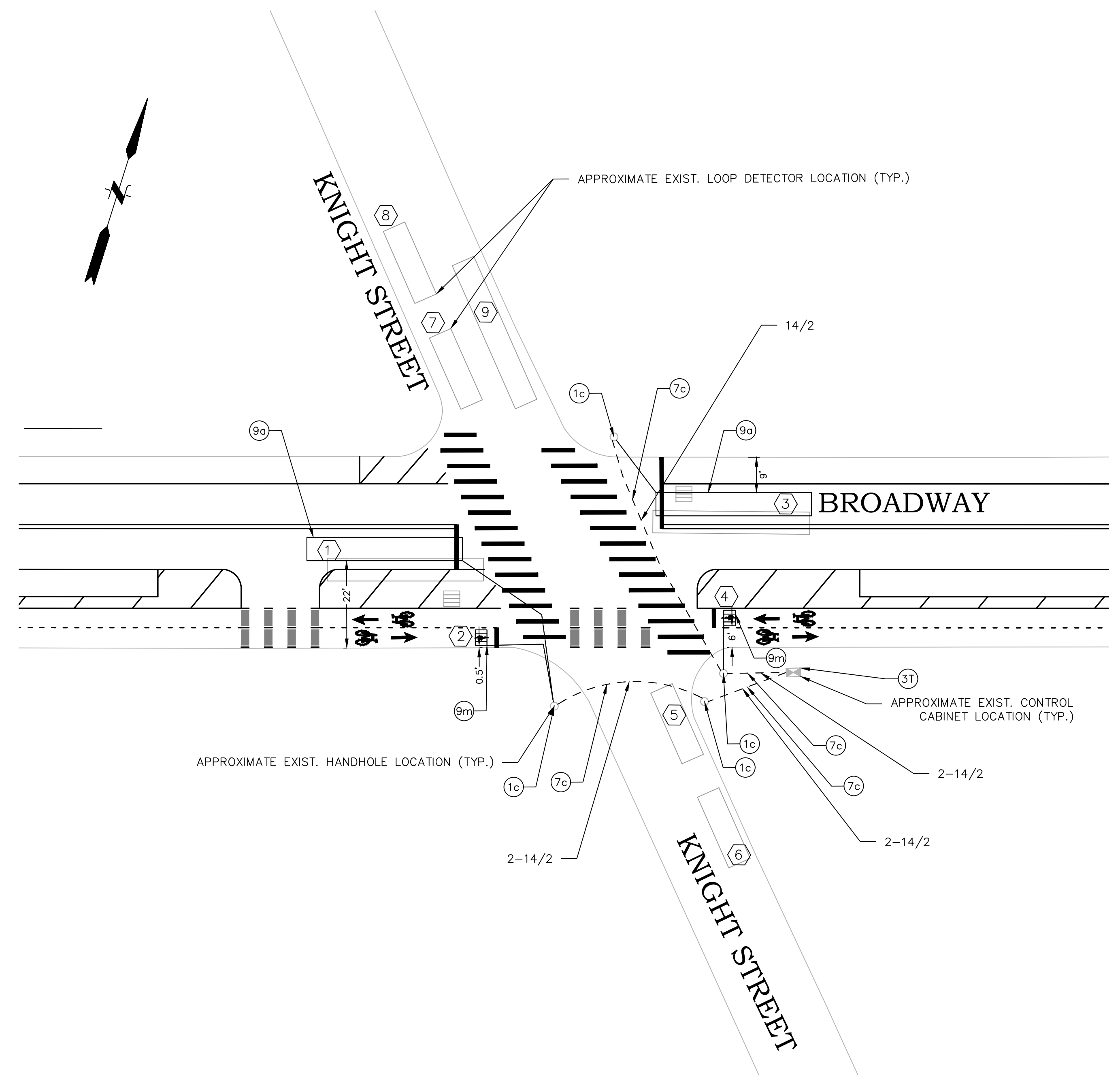
TRAFFIC SIGNAL MATERIALS LIST

ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
1c	○	T05.0400	BREAK INTO EXISTING HANDHOLE
7c		T04.5302	14 AWG 2 CONDUCTOR TWISTED SHIELDED CABLE
9a	▬	T13.1000	TRAFFIC DETECTOR - LOOP STANDARD 19.6.0
9m	▬▬	T13.9910	BICYCLE DETECTOR - TYPE D-Q DETECTOR (DOUBLE QUADRAPOLE)
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET

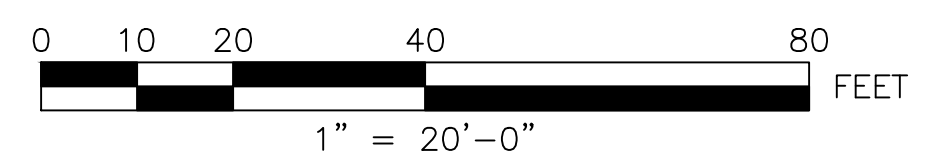
PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

LOOP DETECTORS

LOOP NUMBER	SIZE	RELAY	SLOT	PHASE	DELAY SETTINGS (SECONDS)
1	6'X40'	1	2	Ø1	3
2	4'X3'	1	2	Ø1	10
3	6'X40'	2	1	Ø1	3
4	4'X3'	2	1	Ø1	10
5	6'X20'	3	4	Ø2	8
6	6'X20'	3	4	Ø2	8
7	6'X20'	4	3	Ø2	8
8	6'X20'	4	3	Ø2	8
9	6'X40'	5	6	Ø2	5



SEE BROADWAY @ KNIGHT ST.
SIGNAL PLAN 5 FOR PHASE,
TIMING AND COORDINATION DATA



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BROADWAY
BICYCLE & PEDESTRIAN IMPROVEMENTS
PROVIDENCE RHODE ISLAND
SIGNAL PLAN
(4 OF 10)
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'

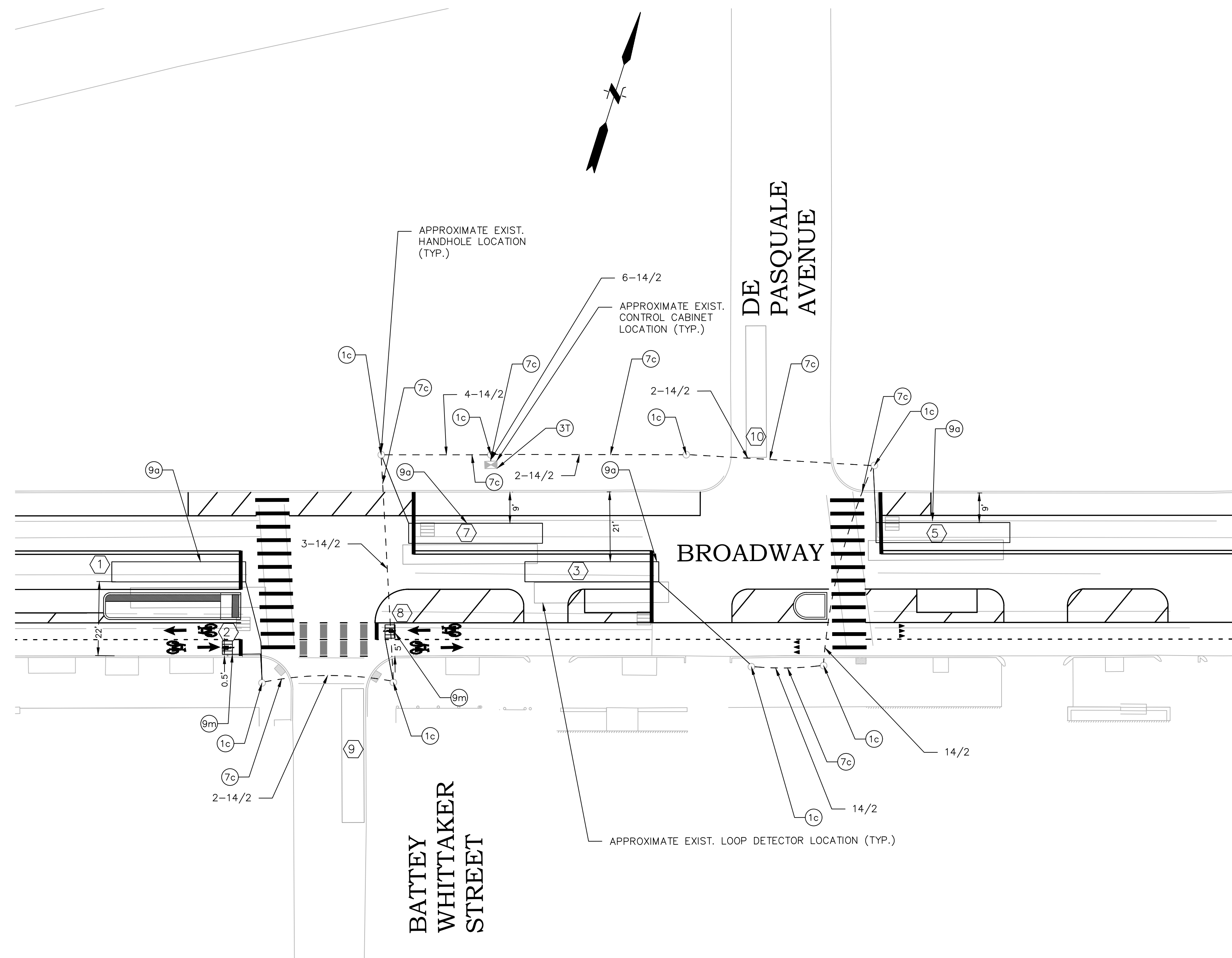
TRAFFIC SIGNAL MATERIALS LIST

ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
1c	○	T05.0400	BREAK INTO EXISTING HANDHOLE
7c		T04.5302	14 AWG 2 CONDUCTOR TWISTED SHIELDED CABLE
9a	▬	T13.1000	TRAFFIC DETECTOR - LOOP STANDARD 19.6.0
9m	▬	T13.9910	BICYCLE DETECTOR - TYPE D-Q DETECTOR (DOUBLE QUADRAPOLE)
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET

PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

LOOP DETECTORS

LOOP NUMBER	SIZE	RELAY	SLOT	PHASE	DELAY SETTINGS (SECONDS)
1	6'X40'	1	2	Ø1	3
2	4'X3'	1	2	Ø1	10
3	6'X40'	2	1	Ø1,Ø3	3
5	6'X40'	3	4	Ø1	3
7	6'X40'	4	3	Ø1,Ø2	3
8	4'X3'	4	3	Ø1,Ø2	10
9	6'X40'	5	6	Ø3	8
10	6'X40'	5	6	Ø2	8



SEE BROADWAY @ BATTEY WHITTAKER ST. & BROADWAY @ DEPASQUALE AVE. SIGNAL PLAN 6 FOR PHASE, TIMING AND COORDINATION DATA

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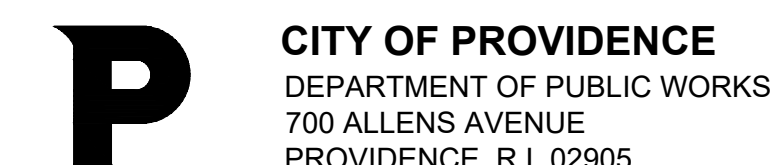
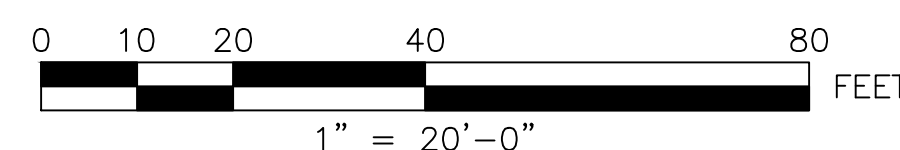
CITY OF PROVIDENCE

BROADWAY
BICYCLE & PEDESTRIAN IMPROVEMENTS

PROVIDENCE RHODE ISLAND

SIGNAL PLAN
(6 OF 10)

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'

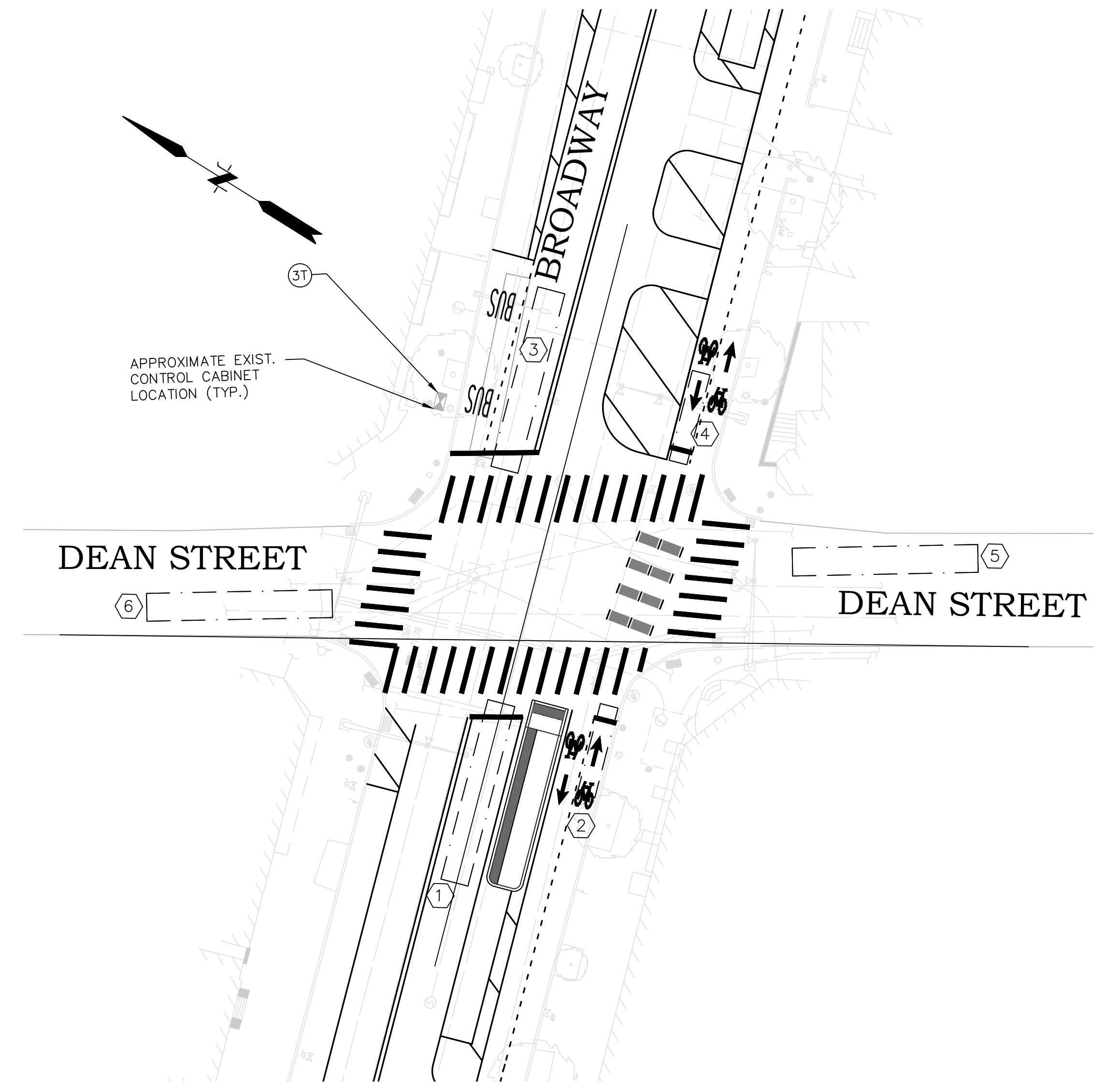


VIDEO DETECTOR DATA

DETECTOR ZONE NO.	CAMERA NUMBER	APPROX. SIZE DET. ZONE	DELAY	CALL PHASE	REMARKS
1	1	6'X40'	3	Ø1	PROPOSED
2	1	4'X20'	3	Ø1	PROPOSED
3	2	6'X40'	3	Ø1	PROPOSED
4	1	4'X20'	3	Ø1	PROPOSED
5	3	6'X40'	5	Ø2	EXISTING
6	4	6'X40'	5	Ø2	EXISTING

TRAFFIC SIGNAL MATERIALS LIST

ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET
PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.			

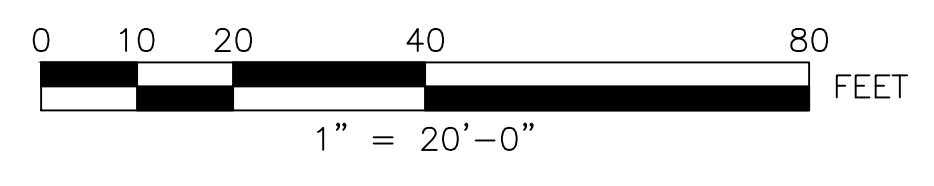


SEE TRAFFIC SIGNAL PLAN NO. 3
DEAN ST. @ BROADWAY FOR
PHASE, TIMING AND
COORDINATION DATA

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NO.	DATE	BY

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PROVIDENCE	RHODE ISLAND
SIGNAL PLAN (6 OF 10)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	

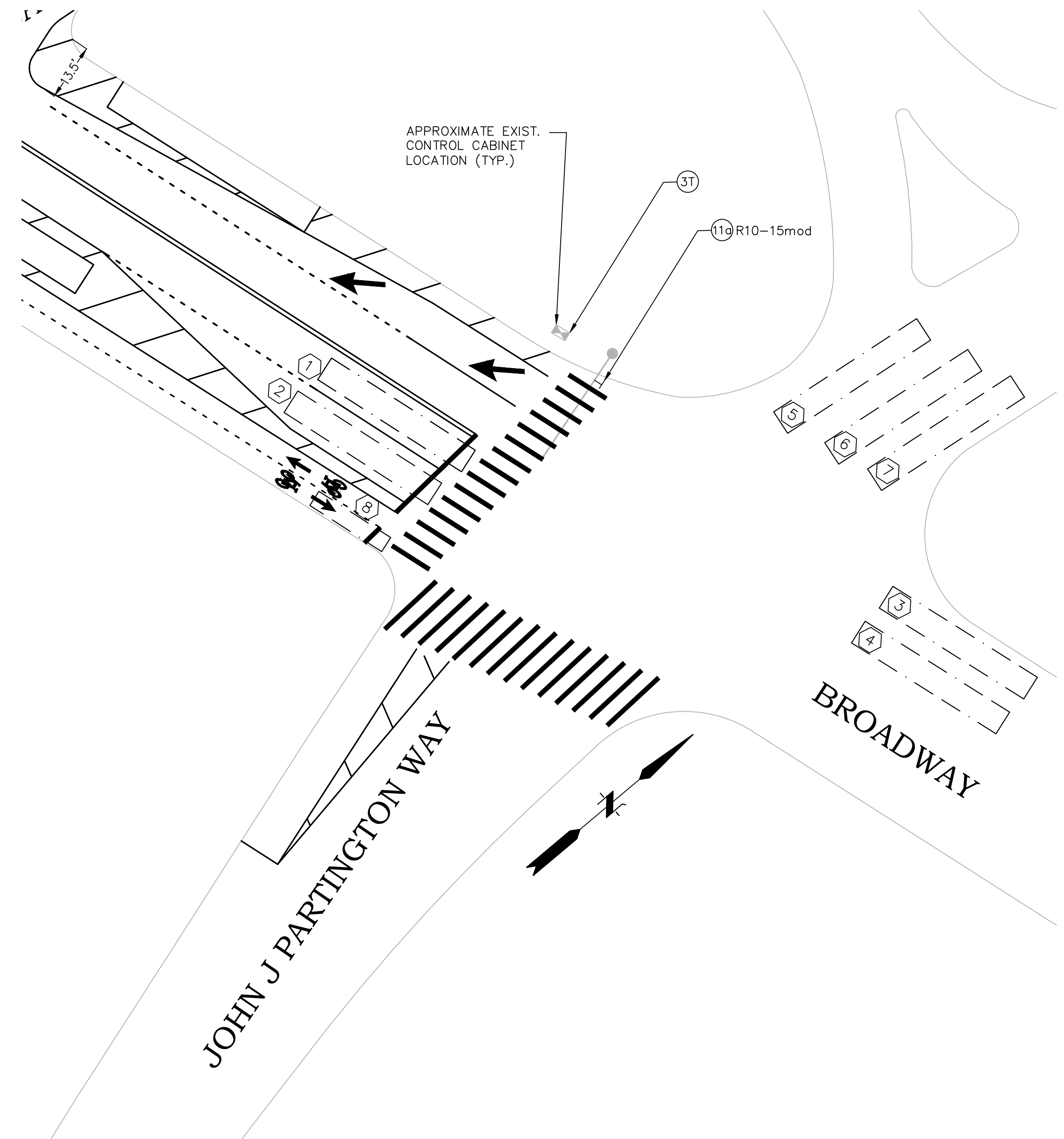


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TRAFFIC SIGNAL MATERIALS LIST			
ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
11a		T15.0100	DIRECTIONAL, REGULATORY AND WARNING SIGNS
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET
PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.			

VIDEO DETECTOR DATA			
DETECTOR ZONE NO.	APPROX. SIZE DET. ZONE	CALL PHASE	REMARKS
1	6'X40'	Ø3	PROPOSED
2	6'X40'	Ø3	PROPOSED
3	6'X40'	Ø2,Ø3	EXISTING
4	6'X40'	Ø2,Ø3	EXISTING
5	6'X40'	Ø1	EXISTING
6	6'X40'	Ø1	EXISTING
7	6'X40'	Ø1	EXISTING
8	4'X20'	Ø3	PROPOSED

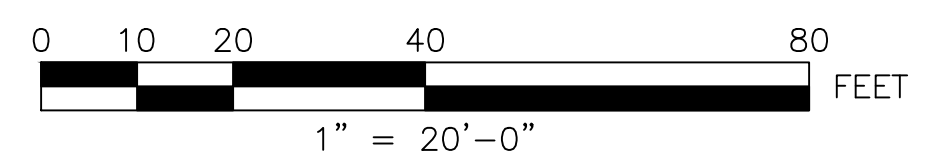


SEE TRAFFIC SIGNAL PLAN NO. 13
SERVICE ROAD 7 AT BROADWAY
FOR PHASE, TIMING AND
COORDINATION DATA

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REVISIONS		
NO.	DATE	BY

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PROVIDENCE	RHODE ISLAND
SIGNAL PLAN (7 OF 10)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	

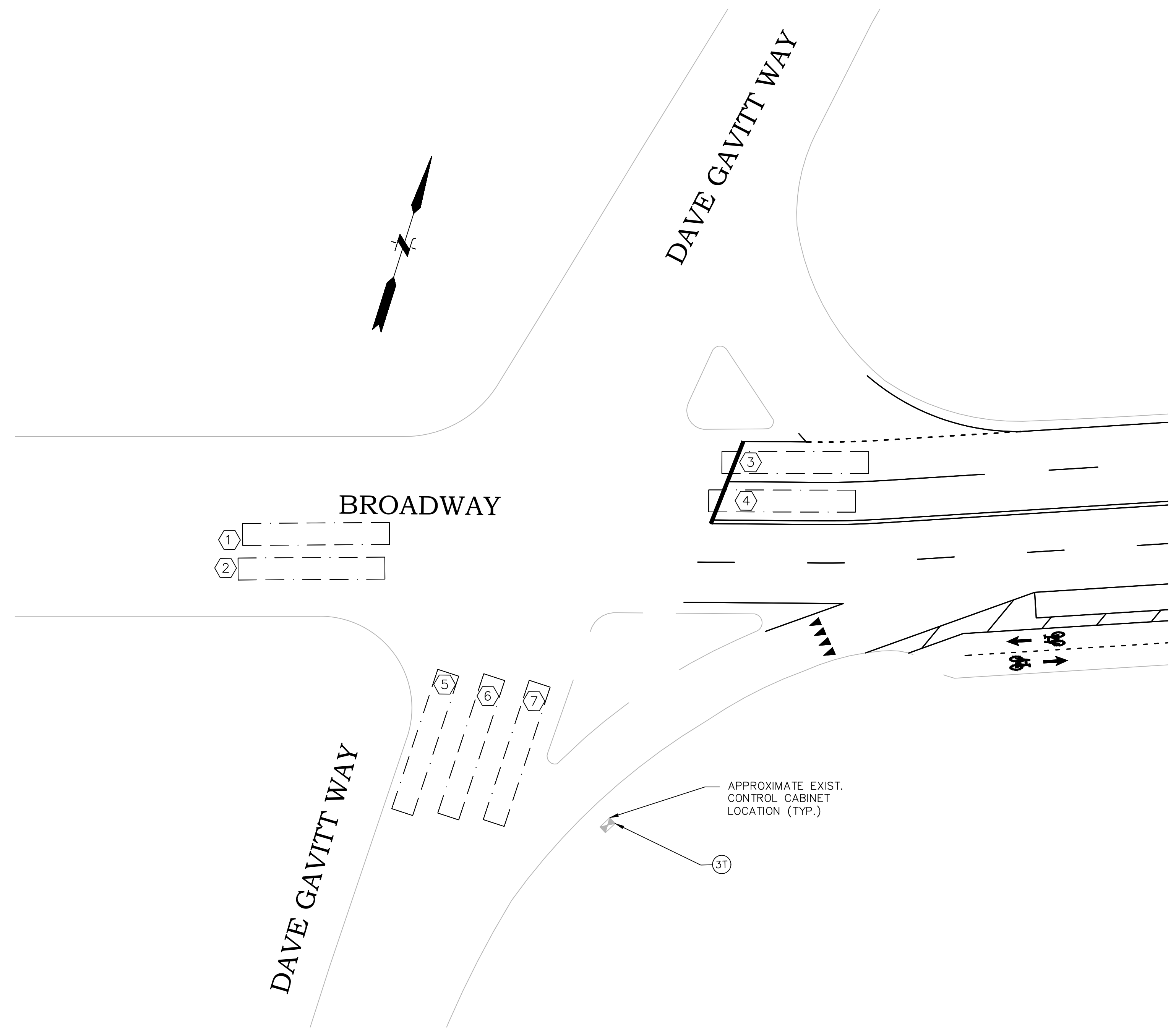


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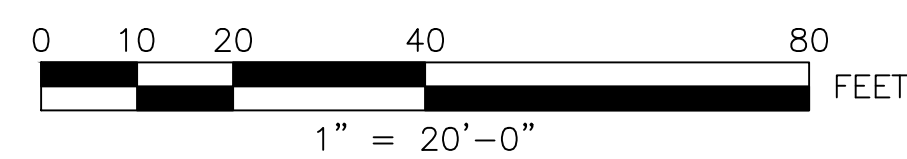
CITY OF PROVIDENCE
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TRAFFIC SIGNAL MATERIALS LIST			
ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET
PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.			

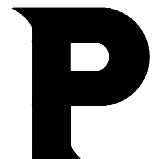
VIDEO DETECTOR DATA			
DETECTOR ZONE NO.	APPROX. SIZE DET. ZONE	CALL PHASE	REMARKS
1	6'X40'	Ø2	PROPOSED
2	6'X40'	Ø2	PROPOSED
3	6'X40'	Ø2	PROPOSED
4	6'X40'	Ø2	PROPOSED
5	6'X40'	Ø1	PROPOSED
6	6'X40'	Ø1	PROPOSED
7	6'X40'	Ø1	PROPOSED



SEE TRAFFIC SIGNAL PLAN NO. 19
SERVICE ROAD 8 AT BROADWAY FOR
PHASE, TIMING AND COORDINATION
DATA



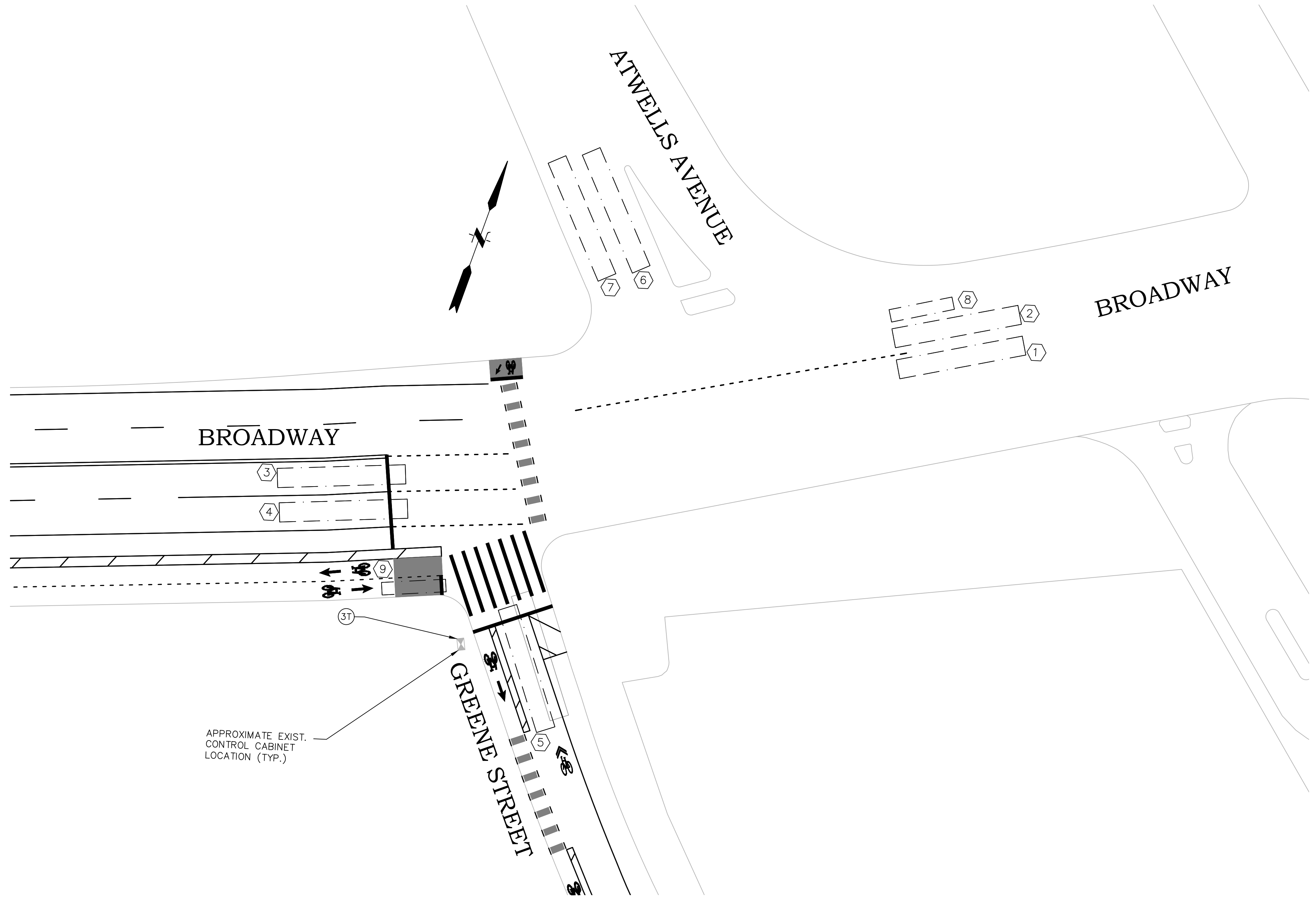

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PROVIDENCE RHODE ISLAND		
SIGNAL PLAN (8 OF 10)		
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'		

TRAFFIC SIGNAL MATERIALS LIST			
ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET
PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.			

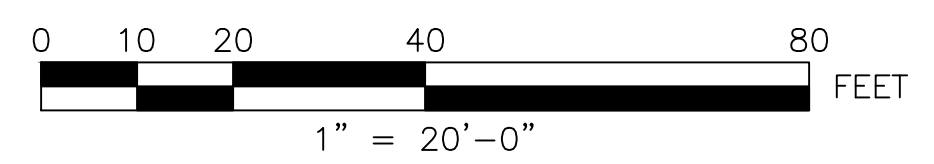
VIDEO DETECTOR DATA					
DETECTOR ZONE NO.	CAMERA NUMBER	APPROX. SIZE DET. ZONE	DELAY	CALL PHASE	REMARKS
1	1	6'X40'	3	Ø1	EXISTING
2	1	6'X20'	3	Ø1	EXISTING
3	2	6'X40'	3	Ø1	PROPOSED
4	2	6'X40'	3	Ø1	PROPOSED
5	3	6'X40'	3	Ø3	PROPOSED
6	4	6'X40'	5	Ø2	EXISTING
7	4	6'X40'	3	Ø2	EXISTING
8	1	4'X20'	10	Ø1	EXISTING
9	2	4'X20'	10	Ø1	PROPOSED



APPROXIMATE EXIST. CONTROL CABINET LOCATION (TYP.)

SEE TRAFFIC SIGNAL PLAN NO. 1 BROADWAY AT ATWELLS AVE. FOR PHASE, TIMING AND COORDINATION DATA

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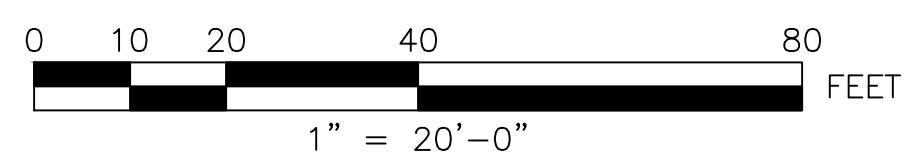
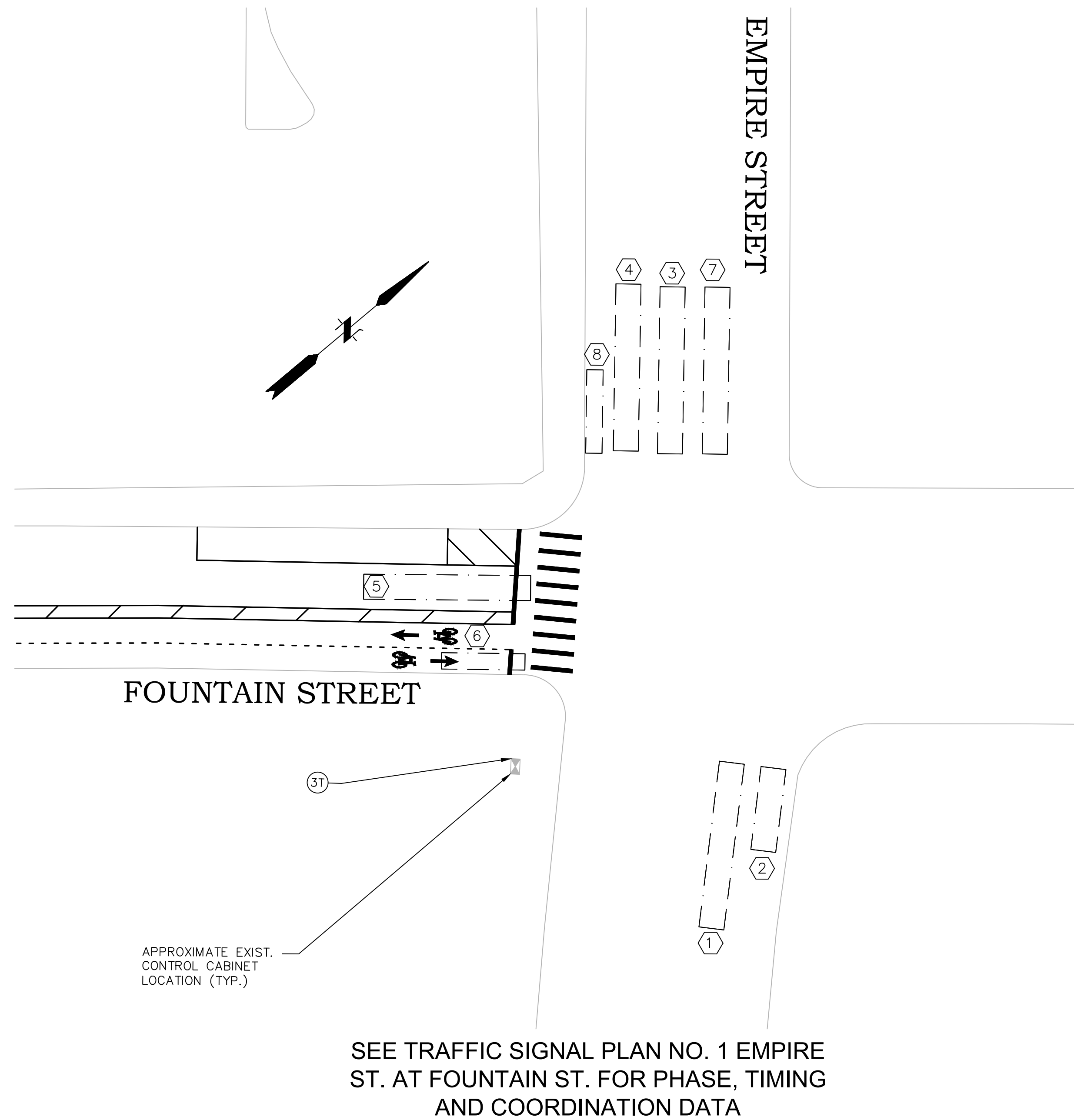
PROVIDENCE RHODE ISLAND

**SIGNAL PLAN
 (9 OF 10)**

DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'

VIDEO DETECTOR DATA					
DETECTOR ZONE NO.	CAMERA NUMBER	APPROX. SIZE DET. ZONE	DELAY	CALL PHASE	REMARKS
1	1	6'X40'	3	Ø1	EXISTING
2	1	6'X20'	3	Ø1	EXISTING
3	2	6'X40'	3	Ø1	EXISTING
4	2	6'X40'	3	Ø1	EXISTING
5	3	6'X40'	3	Ø2	PROPOSED
6	3	4'X20'	10	Ø2	PROPOSED
7	2	6'X40'	3	Ø1	EXISTING
8	2	4'X20'	10	Ø1	PROPOSED

TRAFFIC SIGNAL MATERIALS LIST			
ITEM NO.	LEGEND	ITEM CODE	ITEM DESCRIPTION
3T		T12.9906	MODIFY EXISTING TRAFFIC SYSTEM CONTROLLER CABINET
PLUS ALL NECESSARY DUCT, CABLE, CABINET MODIFICATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.			



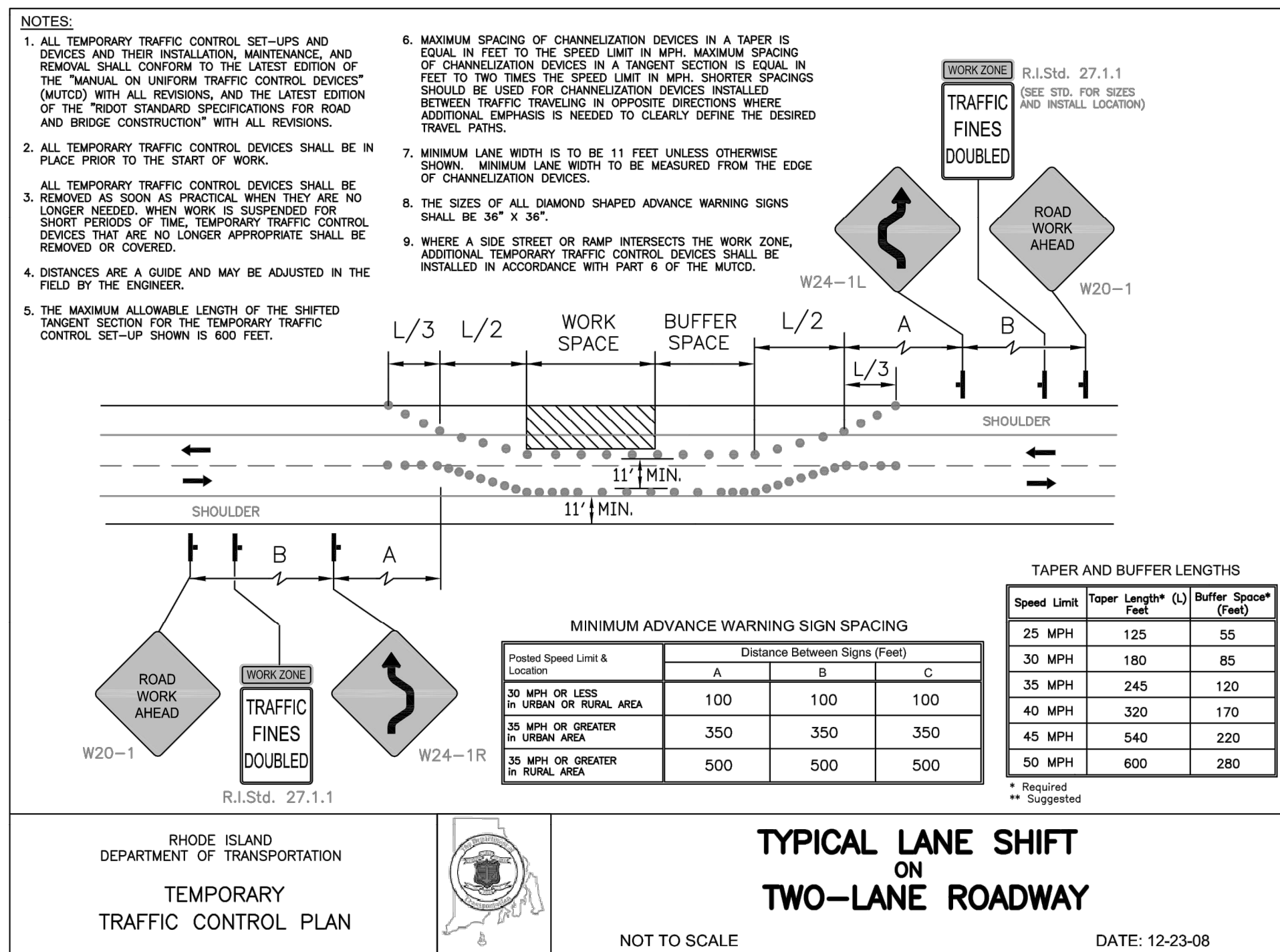
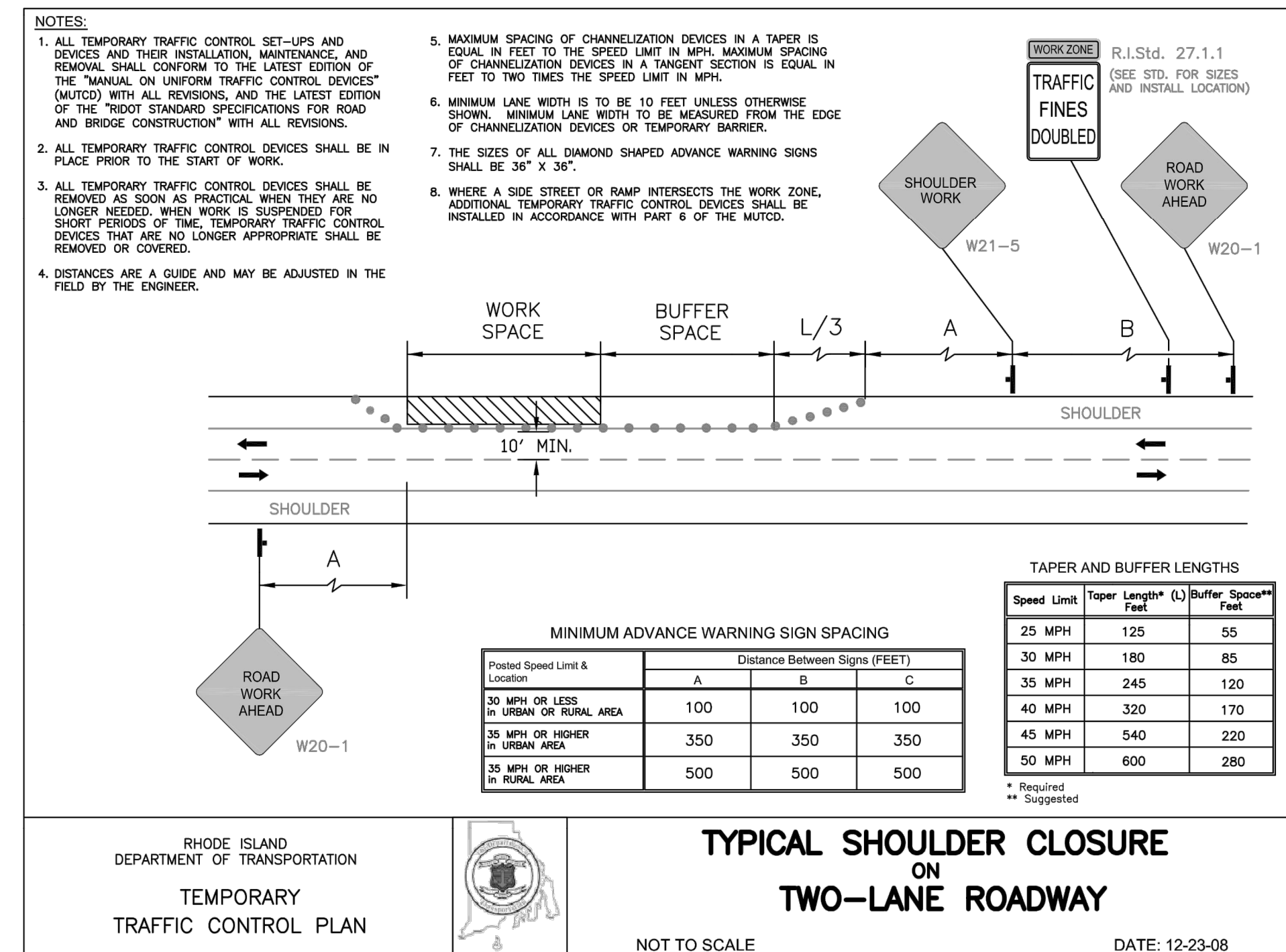
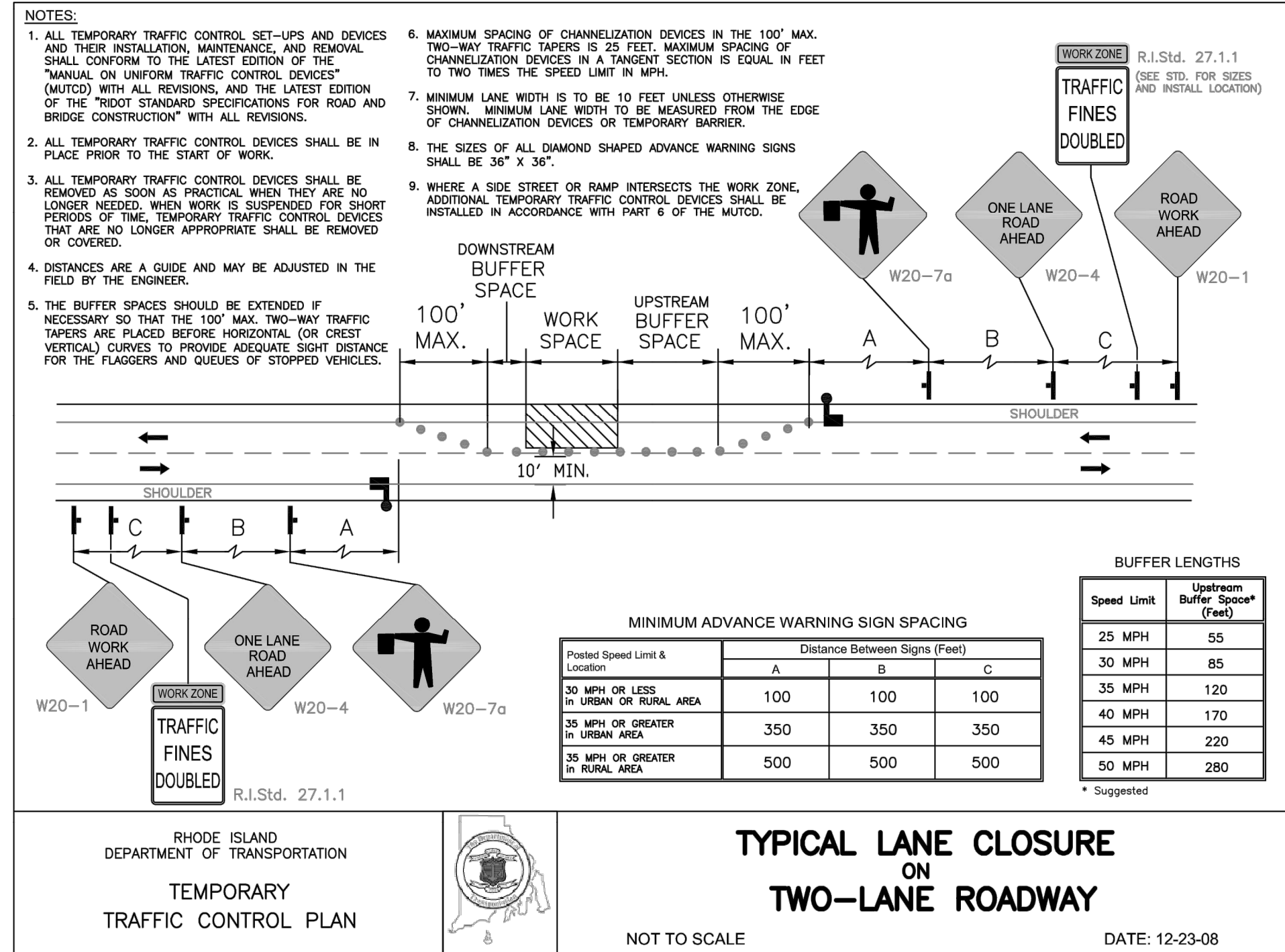
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 PROVIDENCE, RI 02908
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 DEPARTMENT OF PUBLIC WORKS
 700 ALLENS AVENUE
 PROVIDENCE, R.I. 02905

PSE SUBMISSION - NOT FOR CONSTRUCTION

REVISIONS		
NO.	DATE	BY

CITY OF PROVIDENCE	
BROADWAY BICYCLE & PEDESTRIAN IMPROVEMENTS	
PROVIDENCE	RHODE ISLAND
SIGNAL PLAN (10 OF 10)	
DWN: CMA CHECKED: NCF DATE: 03/09/2021 SCALE: 1"=20'	



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