

# TRANSPORTATION IMPROVEMENT PROJECT

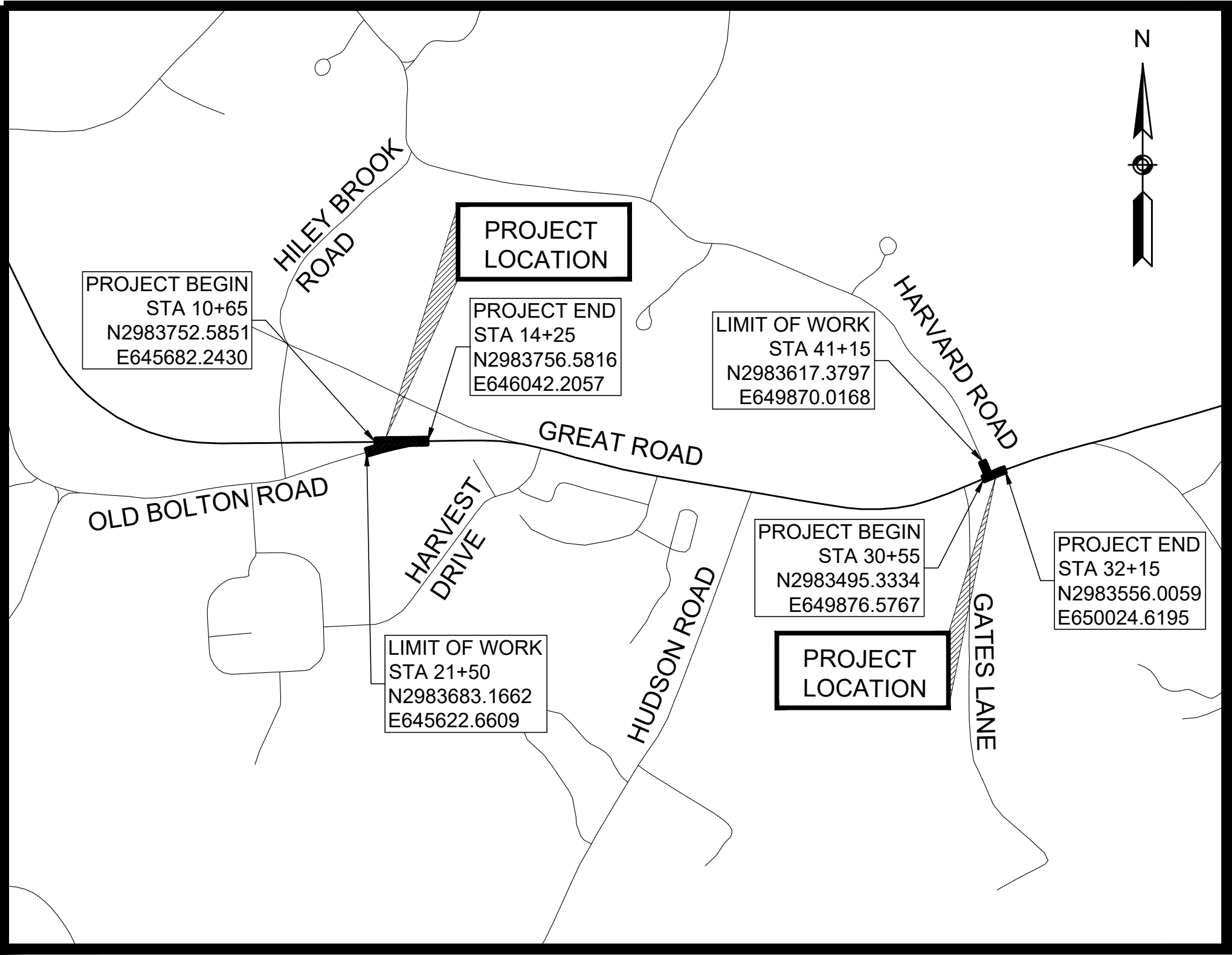
PLAN AND PROFILE OF  
GREAT ROAD / OLD BOLTON ROAD  
GREAT ROAD / HARVARD ROAD  
IN THE TOWN OF  
STOW  
MIDDLESEX COUNTY

STOW  
COMPLETE STREETS  
TITLE SHEET & INDEX  
SHEET 1 OF 19

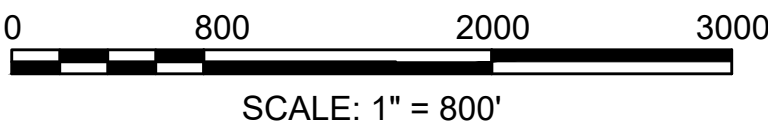
THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED APRIL 1, 2019, THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

## 100% SUBMITTAL

| INDEX     |                                  |
|-----------|----------------------------------|
| SHEET NO. | DESCRIPTION                      |
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| DESIGN DESIGNATION        |                          |                 |                 |
|---------------------------|--------------------------|-----------------|-----------------|
| DESIGN SPEED              | GREAT ROAD               | OLD BOLTON ROAD | HARVARD ROAD    |
|                           | 40 MPH                   | 30 MPH          | 30 MPH          |
| FUNCTIONAL CLASSIFICATION | URBAN PRINCIPAL ARTERIAL | URBAN COLLECTOR | URBAN COLLECTOR |



|   |  |
|---|--|
| LENGTH OF PROJECT                           |  |
| <u>GREAT ROAD / OLD BOLTON ROAD</u>         |  |
| GREAT ROAD = 360.00 FEET = 0.068 MILES      |  |
| OLD BOLTON ROAD = 150.00 FEET = 0.028 MILES |  |
| <u>GREAT ROAD / HARVARD ROAD</u>            |  |
| GREAT ROAD = 160.00 FEET = 0.030 MILES      |  |
| HARVARD ROAD = 115.00 FEET = 0.022 MILES    |  |

|            |                |   |
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|            |                |   |
|            |                |   |
| 11/01/2019 | 100% SUBMITTAL | - |
| DATE       | DESCRIPTION    |   |

146 Dascomb Road  
Andover, MA 01810  
978-794-1792

311 Main Street  
2nd Floor  
Worcester, MA 01608  
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Hampton, NH 03842  
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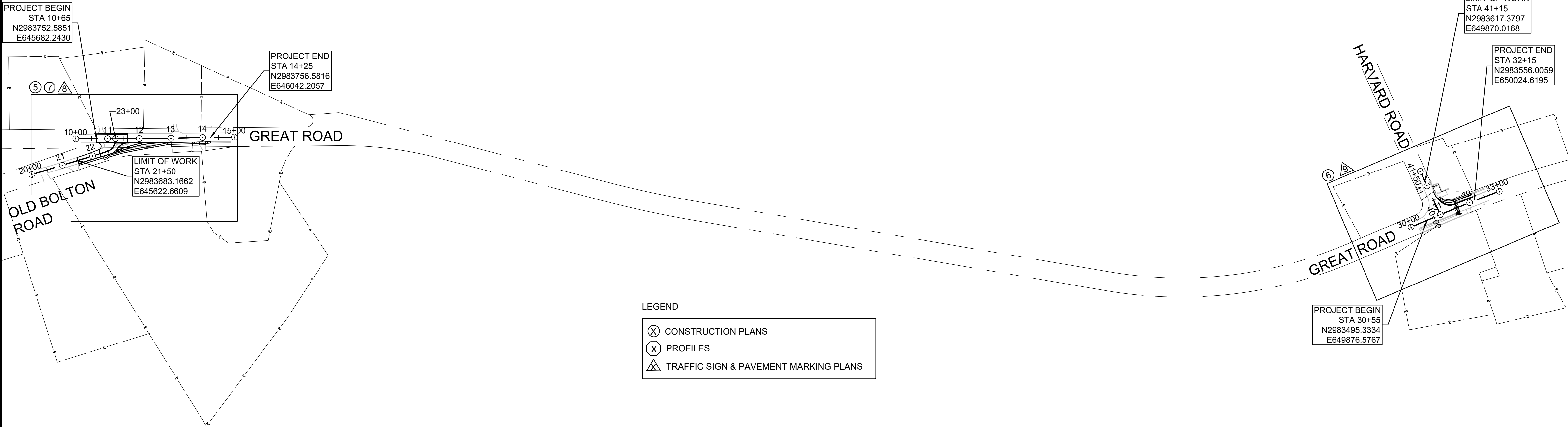
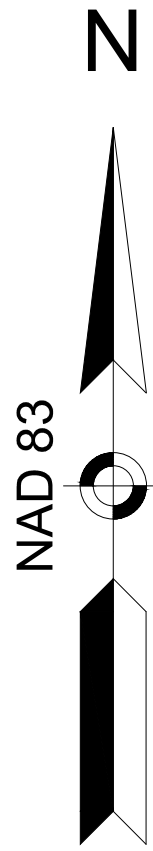
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|                    |                    |                      |
|--------------------|--------------------|----------------------|
| DESIGNED BY<br>RLC | CHECKED BY<br>LSA  | DATE<br>10/25/2019   |
| DRAWN BY<br>RLC    | APPROVED BY<br>JAR | PROJECT NO.<br>T0867 |



| GENERAL SYMBOLS |          |   | TRAFFIC SYMBOLS |          |   | ABBREVIATIONS |                                      | STOW<br>COMPLETE STREETS<br>LEGEND & ABBREVIATIONS<br>SHEET 2 OF 19 |                                   |
|-----------------|----------|---|-----------------|----------|---|---------------|--------------------------------------|---|-----------------------------------|
| EXISTING        | PROPOSED | DESCRIPTION   | EXISTING        | PROPOSED | DESCRIPTION   | GENERAL       |                                      |   |                                   |
|                 |          | JERSEY BARRIER  |                 |          | CONTROLLER CABINET, FOUNDATION                            | AADT          | ANNUAL AVERAGE DAILY TRAFFIC         |   |                                   |
|                 |          | CATCH BASIN OR GUTTER INLET                               |                 |          | CONTROLLER CABINET, FOUNDATION, CONC. PAD                 | ABAN          | ABANDON                              |   |                                   |
|                 |          | CATCH BASIN OR GUTTER INLET W/ CURB INLET                 |                 |          | MAST ARM FOUNDATION (SCALE OF BLOCK = DIAMETER IN INCHES) | ADJ           | ADJUST                               |   |                                   |
|                 |          | FLAG POLE   |                 |          | MAST ARM (LENGTH NOTED)                                   | APPROX.       | APPROXIMATE                          |   |                                   |
|                 |          | GAS PUMP  |                 |          | EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT            | A.C.          | ASPHALT CONCRETE                     |   |                                   |
|                 |          | MAIL BOX  |                 |          | VEHICULAR SIGNAL HEAD                                     | ACCM PIPE     | ASPHALT COATED CORRUGATED METAL PIPE |   |                                   |
|                 |          | POST SQUARE   |                 |          | PEDESTRIAN SIGNAL HEAD                                    | BIT.          | BITUMINOUS                           |   |                                   |
|                 |          | POST CIRCULAR   |                 |          | MAST ARM OR TS POLE MOUNTED SIGN                          | BC            | BOTTOM OF CURB                       |   |                                   |
|                 |          | WELL  |                 |          | EMERGENCY PRE-EMPTION RECEIVER                            | BD.           | BOUND                                |   |                                   |
|                 |          | ELECTRIC HANDHOLE   |                 |          | EMERGENCY PRE-EMPTION CONFIRMATION STROBE                 | BL            | BASELINE                             |   |                                   |
|                 |          | FENCE GATE POST   |                 |          | PEDESTRIAN PUSH BUTTON                                    | BLDG          | BUILDING                             |   |                                   |
|                 |          | GAS GATE  |                 |          | YAGI ANTENNA  | BM            | BENCHMARK                            |   |                                   |
|                 |          | BORING HOLE   |                 |          | BROKEN WHITE LINE   | BO            | BY OTHERS                            | PVT   | POINT OF VERTICAL TANGENCY        |
|                 |          | MONITORING WELL   |                 |          | DOTTED WHITE LINE   | BOS           | BOTTOM OF SLOPE                      | PVMT  | PAVEMENT                          |
|                 |          | TEST PIT  |                 |          | DOTTED YELLOW LINE EXTENSION                              | BR.           | BRIDGE                               | PWW   | PAVED WATERWAY                    |
|                 |          | HYDRANT   |                 |          | DOUBLE WHITE LINE   | CB            | CATCH BASIN                          | R   | RADIUS OF CURVATURE               |
|                 |          | LIGHT POLE  |                 |          | DOUBLE YELLOW LINE  | CBCI          | CATCH BASIN WITH CURB INLET          | R&D   | REMOVE AND DISPOSE                |
|                 |          | COUNTY BOUND  |                 |          | DOTTED WHITE LINE   | CC            | CEMENT CONCRETE                      | RCP   | REINFORCED CONCRETE PIPE          |
|                 |          | GPS POINT   |                 |          | DOTTED YELLOW LINE EXTENSION                              | CCM           | CEMENT CONCRETE MASONRY              | RD  | ROAD                              |
|                 |          | CABLE MANHOLE   |                 |          | DOUBLE WHITE LINE   | CEM           | CEMENT                               | RDWY  | ROADWAY                           |
|                 |          | DRAINAGE MANHOLE  |                 |          | DOUBLE YELLOW LINE  | CI            | CURB INLET                           | REM   | REMOVE                            |
|                 |          | ELECTRIC MANHOLE  |                 |          | DOTTED WHITE LINE   | CIP           | CAST IRON PIPE                       | RET   | RETAIN                            |
|                 |          | GAS MANHOLE   |                 |          | DOTTED YELLOW LINE EXTENSION                              | CLF           | CHAIN LINK FENCE                     | RET WALL  | RETAINING WALL                    |
|                 |          | MISC MANHOLE  |                 |          | DOUBLE WHITE LINE   | CL            | CENTERLINE                           | ROW   | RIGHT OF WAY                      |
|                 |          | SEWER MANHOLE   |                 |          | DOUBLE YELLOW LINE  | CMP           | CORRUGATED METAL PIPE                | RR  | RAILROAD                          |
|                 |          | TELEPHONE MANHOLE   |                 |          | DOTTED WHITE LINE   | CSP           | CORRUGATED STEEL PIPE                | RRFB  | RECTANGULAR RAPID FLASHING BEACON |
|                 |          | WATER MANHOLE   |                 |          | DOTTED YELLOW LINE EXTENSION                              | CO.           | COUNTY                               | R&R   | REMOVE AND RESET                  |
|                 |          | MASSACHUSETTS HIGHWAY BOUND                               |                 |          | DOUBLE WHITE LINE   | CONC          | CONCRETE                             | R&S   | REMOVE AND STACK                  |
|                 |          | MONUMENT  |                 |          | DOUBLE YELLOW LINE  | CONT          | CONTINUOUS                           | RT  | RIGHT                             |
|                 |          | STONE BOUND   |                 |          | DOTTED WHITE LINE   | CONST         | CONSTRUCTION                         | SB  | STONE BOUND                       |
|                 |          | TOWN OR CITY BOUND  |                 |          | DOTTED YELLOW LINE EXTENSION                              | CR GR         | CROWN GRADE                          | SHLD  | SHOULDER                          |
|                 |          | TRAVERSE OR TRIANGULATION STATION                         |                 |          | DOUBLE WHITE LINE   | DHV           | DESIGN HOURLY VOLUME                 | SMH   | SEWER MANHOLE                     |
|                 |          | TROLLEY POLE OR GUY POLE                                  |                 |          | DOUBLE YELLOW LINE  | DI            | DROP INLET                           | ST  | STREET                            |
|                 |          | TRANSMISSION POLE   |                 |          | DOTTED WHITE LINE   | DIA           | DIAMETER                             | STA   | STATION                           |
|                 |          | UTILITY POLE W/ FIREBOX                                   |                 |          | DOTTED YELLOW LINE EXTENSION                              | DIP           | DUCTILE IRON PIPE                    | SSD   | STOPPING SIGHT DISTANCE           |
|                 |          | UTILITY POLE WITH DOUBLE LIGHT                            |                 |          | DOUBLE WHITE LINE   | DW            | STEADY DON'T WALK - PORTLAND ORANGE  | SHLO  | STATE HIGHWAY LAYOUT LINE         |
|                 |          | UTILITY POLE W / 1 LIGHT                                  |                 |          | DOUBLE YELLOW LINE  | DWY           | DRIVEWAY                             | SW  | SIDEWALK                          |
|                 |          | UTILITY POLE  |                 |          | DOTTED WHITE LINE   | ELEV (or EL.) | ELEVATION                            | T   | TANGENT DISTANCE OF CURVE/TRUCK % |
|                 |          | BUSH  |                 |          | DOTTED YELLOW LINE EXTENSION                              | EMB           | EMBANKMENT                           | TAN   | TANGENT                           |
|                 |          | TREE  |                 |          | DOUBLE WHITE LINE   | EOP           | EDGE OF PAVEMENT                     | TEMP  | TEMPORARY                         |
|                 |          | STUMP   |                 |          | DOUBLE YELLOW LINE  | EXIST (or EX) | EXISTING                             | TC  | TOP OF CURB                       |
|                 |          | SWAMP / MARSH   |                 |          | DOTTED WHITE LINE   | EXC           | EXCAVATION                           | TOS   | TOP OF SLOPE                      |
|                 |          | WATER GATE  |                 |          | DOTTED YELLOW LINE EXTENSION                              | F&C           | FRAME AND COVER                      | TYP   | TYPICAL                           |
|                 |          | WATER SHUTOFF/CURB STOP                                   |                 |          | DOUBLE WHITE LINE   | F&G           | FRAME AND GRATE                      | UP  | UTILITY POLE                      |
|                 |          | PARKING METER   |                 |          | DOUBLE YELLOW LINE  | FDN.          | FOUNDATION                           | VAR   | VARIES                            |
|                 |          | OVERHEAD CABLE/WIRE                                       |                 |          | DOTTED WHITE LINE   | FLDSTN        | FIELDSTONE                           | VERT  | VERTICAL                          |
|                 |          | CURBING   |                 |          | DOTTED YELLOW LINE EXTENSION                              | GAR           | GARAGE                               | VC  | VERTICAL CURVE                    |
|                 |          | CONTOURS (ON-THE-GROUND SURVEY DATA)                      |                 |          | DOUBLE WHITE LINE   | GC            | GRANITE CURB                         | WCR   | WHEEL CHAIR RAMP                  |
|                 |          | CONTOURS (PHOTOGRAMMETRIC DATA)                           |                 |          | DOUBLE YELLOW LINE  | GD            | GROUND                               | WG  | WATER GATE                        |
|                 |          | UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)     |                 |          | DOTTED YELLOW LINE EXTENSION                              | GG            | GAS GATE                             | WIP   | WROUGHT IRON PIPE                 |
|                 |          | UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)  |                 |          | DOUBLE WHITE LINE   | GI            | GUTTER INLET                         | WM  | WATER METER/WATER MAIN            |
|                 |          | UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)       |                 |          | DOUBLE YELLOW LINE  | GIP           | GALVANIZED IRON PIPE                 | X-SECT  | CROSS SECTION                     |
|                 |          | UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)     |                 |          | DOTTED WHITE LINE   | GRAN          | GRANITE                              |   |                                   |
|                 |          | UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER) |                 |          | DOTTED YELLOW LINE EXTENSION                              | GRAV          | GRAVEL                               |   |                                   |
|                 |          | UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)     |                 |          | DOUBLE WHITE LINE   | GRD           | GUARD                                |   |                                   |
|                 |          | BALANCED STONE WALL                                       |                 |          | DOTTED WHITE LINE   | HDW           | HEADWALL                             |   |                                   |
|                 |          | GUARD RAIL - STEEL POSTS                                  |                 |          | DOTTED YELLOW LINE EXTENSION                              | HMA           | HOT MIX ASPHALT                      |   |                                   |
|                 |          | GUARD RAIL - WOOD POSTS                                   |                 |          | DOUBLE WHITE LINE   | HOR           | HORIZONTAL                           |   |                                   |
|                 |          | CHAIN LINK OR METAL FENCE                                 |                 |          | DOUBLE YELLOW LINE  | HYD           | HYDRANT                              |   |                                   |
|                 |          | WOOD FENCE  |                 |          | DOTTED WHITE LINE   | INV           | INVERT                               |   |                                   |
|                 |          | SEDIMENT CONTROL BARRIER                                  |                 |          | DOTTED YELLOW LINE EXTENSION                              | JCT           | JUNCTION                             |   |                                   |
|                 |          | TREE LINE   |                 |          | DOUBLE WHITE LINE   | L             | LENGTH OF CURVE                      |   |                                   |
|                 |          | EDGE OF PAVEMENT  |                 |          | DOUBLE YELLOW LINE  | LB            | LEACH BASIN                          |   |                                   |
|                 |          | SAWCUT LINE   |                 |          | DOTTED WHITE LINE   | LOG           | LIMIT OF GRADING                     |   |                                   |
|                 |          | TOP OR BOTTOM OF SLOPE                                    |                 |          | DOTTED YELLOW LINE EXTENSION                              | LP            | LIGHT POLE                           |   |                                   |
|                 |          | LIMIT OF EDGE OF MICROMILLING AND OVERLAY                 |                 |          | DOUBLE WHITE LINE   | L&S           | LOAM AND SEED                        |   |                                   |
|                 |          | BANK OF RIVER OR STREAM                                   |                 |          | DOUBLE YELLOW LINE  | LT            | LEFT                                 |   |                                   |
|                 |          | BORDER OF WETLAND   |                 |          | DOTTED WHITE LINE   | MAX           | MAXIMUM                              |   |                                   |
|                 |          | 100 FT WETLAND BUFFER                                     |                 |          | DOTTED YELLOW LINE EXTENSION                              | MB            | MAILBOX                              |   |                                   |
|                 |          | 200 FT RIVERFRONT BUFFER                                  |                 |          | DOUBLE WHITE LINE   | MH            | MANHOLE                              |   |                                   |
|                 |          | STATE HIGHWAY LAYOUT                                      |                 |          | DOUBLE YELLOW LINE  | MHB           | MASSACHUSETTS HIGHWAY BOUND          |   |                                   |





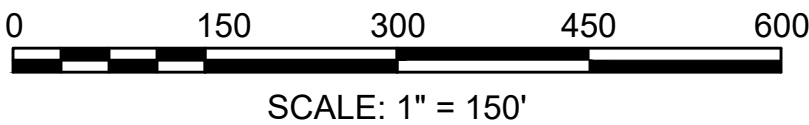
LEGEND

- ⊗ CONSTRUCTION PLANS
- ⊗ PROFILES
- ⚠ TRAFFIC SIGN & PAVEMENT MARKING PLANS

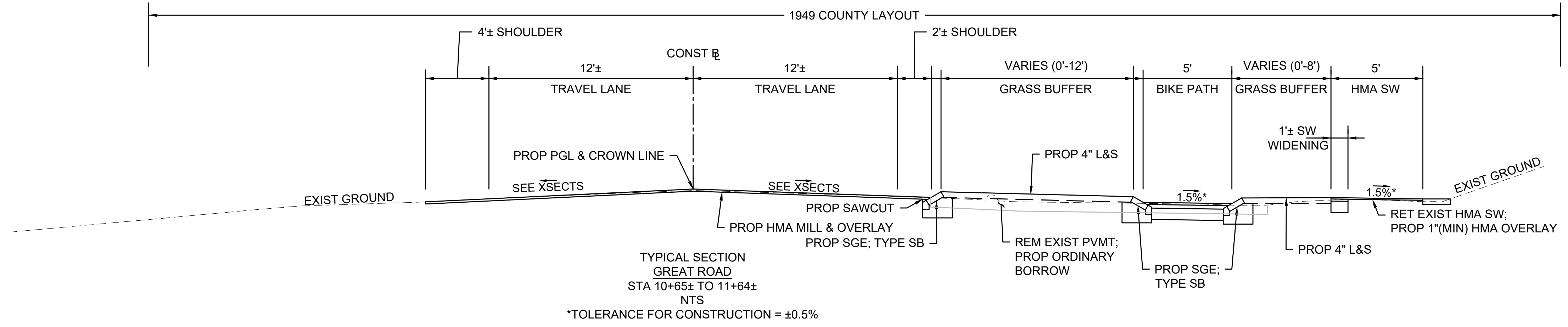
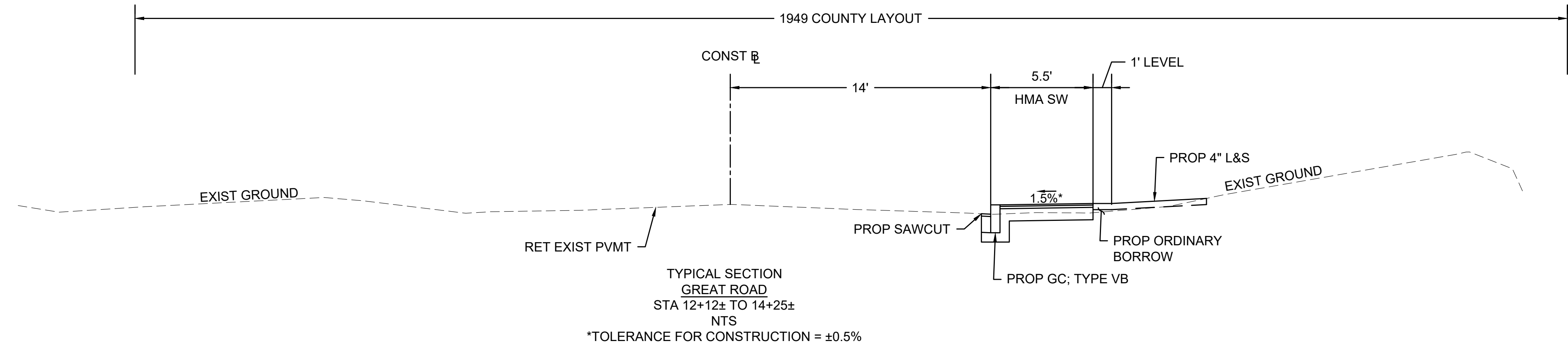
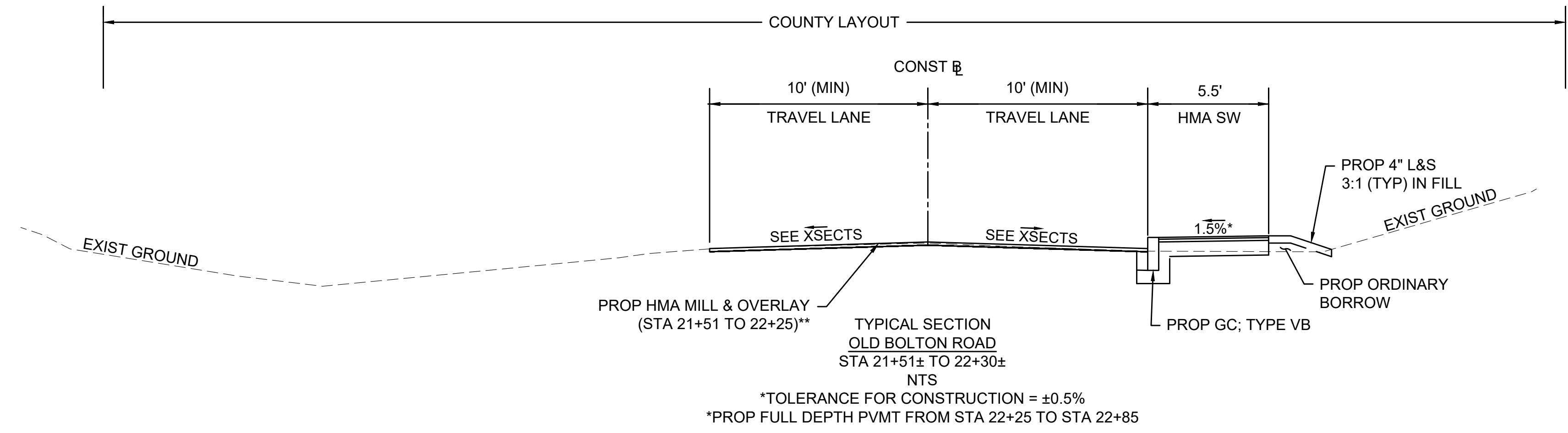
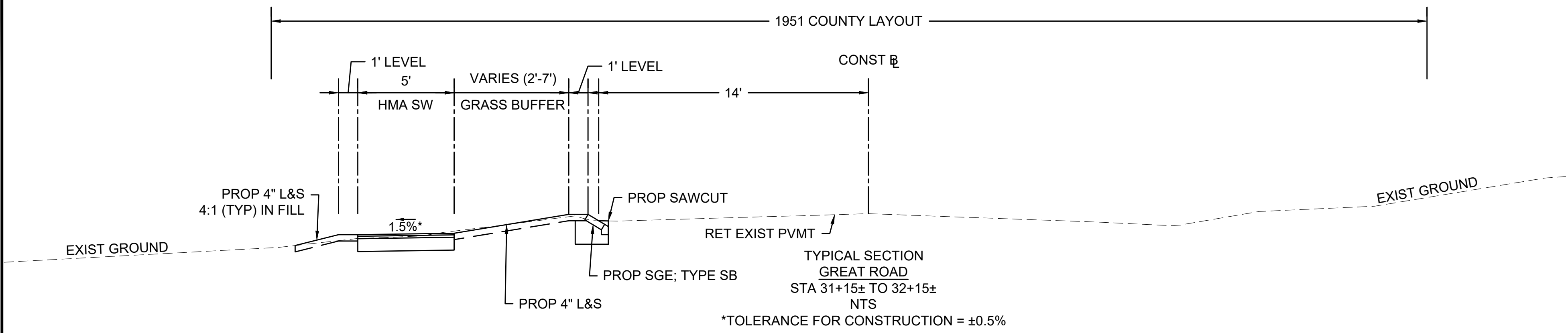
CONSTRUCTION NOTES:

- EXISTING CONDITIONS INFORMATION COMPILED FROM SURVEY BY TEC, INC, ANDOVER, MA PERFORMED IN FEBRUARY 2019 AND APRIL 2019.  
  
HORIZONTAL DATUM = NAD83 (MASSACHUSETTS STATE PLANE COORDINATES)  
VERTICAL DATUM = NAVD88
- ALL EXISTING STATE, COUNTY, AND TOWN LOCATION LINES HAVE BEEN ESTABLISHED FROM AN ACTUAL ON-THE-GROUND SURVEY. ALL PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIGSAFE) A MINIMUM OF 72 HOURS PRIOR TO ANY CONSTRUCTION TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
- ALL MUNICIPALLY OWNED UTILITY STRUCTURES (CATCH BASINS, DRAIN MANHOLES, WATER GATES, ETC.) SHALL BE ADJUSTED BY THE CONTRACTOR TO FINISHED GRADE UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE WITH THE STOW DEPARTMENT OF PUBLIC WORKS (SDPW) TO ALLOW FOR THE REPLACEMENT OF EXISTING UTILITY STRUCTURES IN POOR CONDITION.
- ALL PRIVATELY OWNED UTILITY STRUCTURES (GAS GATES, ELECTRIC /TELEPHONE MANHOLES, ETC.) SHALL BE ADJUSTED TO FINISHED GRADE BY THE PRIVATE UTILITY COMPANY, UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE ALTERATION AND ADJUSTMENT, AS NECESSARY.
- PROPOSED LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 1.0% (MINIMUM) UNLESS OTHERWISE NOTED.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTORS EXPENSE.
- ALL DISTURBED AREAS OUTSIDE THE CURBLINE SHALL BE STABILIZED WITH 4" LOAM AND SEED, UNLESS OTHERWISE NOTED.
- THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R), AS APPROVED BY THE ENGINEER.
- THE TERM "MEET EXIST" MEANS TO MEET BOTH THE EXISTING ALIGNMENT AND ELEVATION.
- ALL EXISTING TREES WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS. ALL PROVIDED DIMENSIONS REFER TO THE DIAMETER AT BREAST HEIGHT.
- AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 3'-0" (EXCLUDING THE WIDTH OF CURB) SHALL BE MAINTAINED PAST ALL VERTICAL OBSTRUCTIONS (UTILITY POLES, LIGHT POLES, SIGNS, MAILBOXES, ETC.)
- DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED WHEELCHAIR RAMPS AND SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTIONS STANDARDS. DETECTABLE WARNING PANELS SHALL BE YELLOW IN COLOR AS APPROVED BY THE STOW DPW.
- ALL EXISTING GRANITE CURB/EDGING THAT MEETS SPECIFICATIONS SHALL BE RE-USED WITHIN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN THAT PROPOSED.







PAVEMENT NOTES

PROPOSED HMA MILL & OVERLAY

SURFACE: 1½" SURFACE COURSE - MODIFIED TOP OVER  
VARIABLE DEPTH LEVELING INTERMEDIATE COURSE - BINDER  
(AS REQUIRED TO MEET PROPOSED GRADES SHOWN ON CROSS SECTIONS) OVER  
VARIABLE DEPTH PAVEMENT MICROMILLING (SEE GENERAL PAVEMENT NOTE 5)

PROPOSED FULL DEPTH PAVEMENT

SURFACE: 1½" SURFACE COURSE - MODIFIED TOP OVER  
1¾" INTERMEDIATE COURSE - BINDER OVER

BASE: 3¾" HMA BASE COURSE OVER

SUBBASE: 12" GRAVEL BORROW, TYPE b (COMPACTED)

PROPOSED HMA DRIVEWAY

SURFACE: 1½" HMA SURFACE COURSE OVER  
2" HMA INTERMEDIATE COURSE OVER

BASE: 8" SUITABLE EXISTING GRAVEL (COMPACTED);  
ADD GRAVEL BORROW, TYPE b AS REQUIRED

PROPOSED HMA SIDEWALK / HMA SIDEWALK WIDENING

SURFACE: 1" (MIN) HMA SURFACE COURSE OVER  
1½" HMA INTERMEDIATE COURSE OVER

BASE: 8" GRAVEL BORROW, TYPE b (COMPACTED)

PROPOSED HMA SIDEWALK OVERLAY

SURFACE: VARIABLE DEPTH HMA SURFACE COURSE (AS REQUIRED TO MEET PROPOSED  
GRADES ) (1" MIN) OVER  
EXISTING HMA SIDEWALK

PROPOSED HMA BIKE PATH

SURFACE: 1½" HMA SURFACE COURSE OVER  
2½" HMA INTERMEDIATE COURSE OVER

BASE: 4-8" GRAVEL BORROW, TYPE b (COMPACTED) (SEE NOTE 5)

PROPOSED CEMENT CONCRETE WHEELCHAIR RAMPS

SURFACE: 4" CEMENT CONCRETE (AIR ENTRAINED, 4000 PSI, ¾", 610)

BASE: 8" GRAVEL BORROW, TYPE b (COMPACTED)

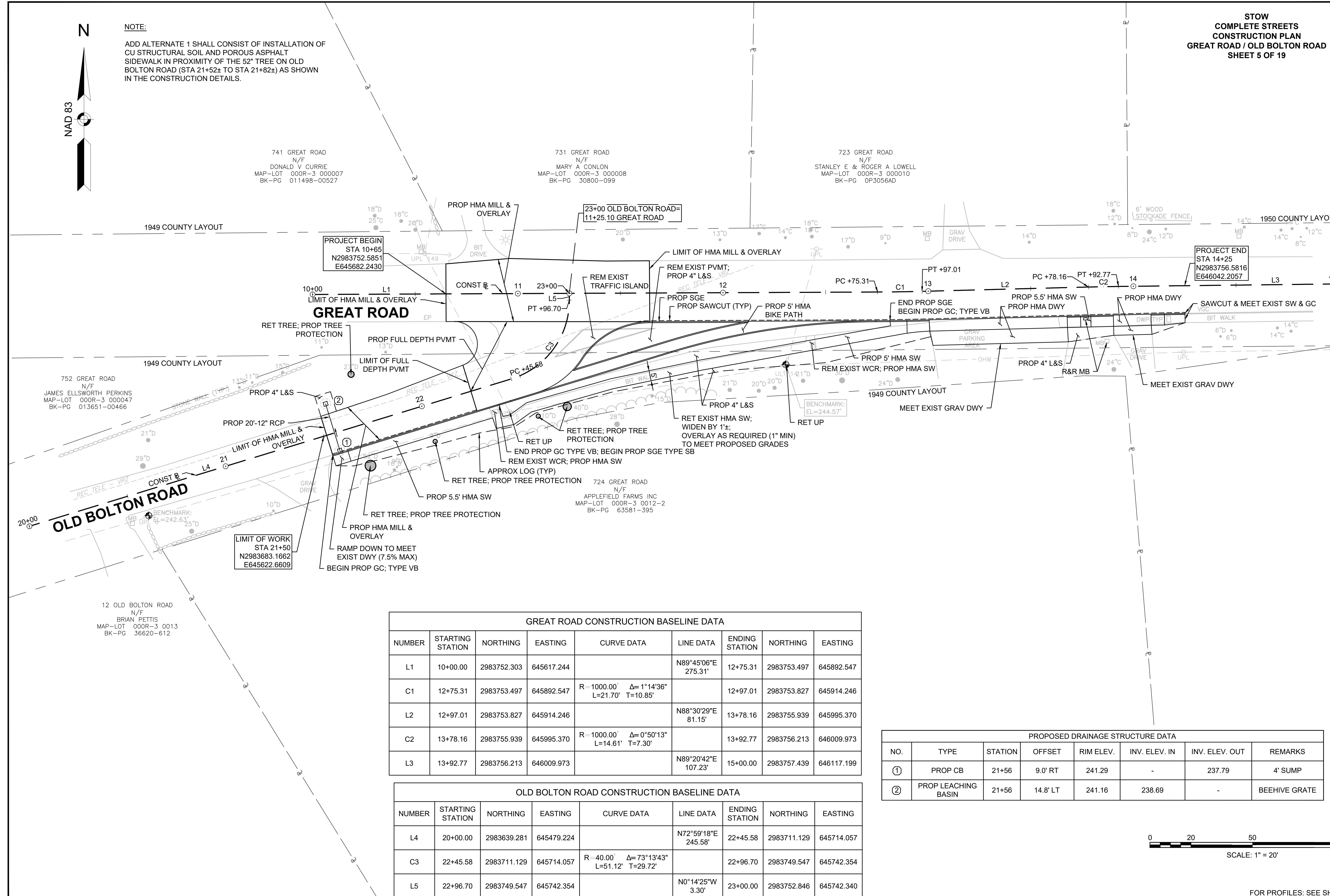
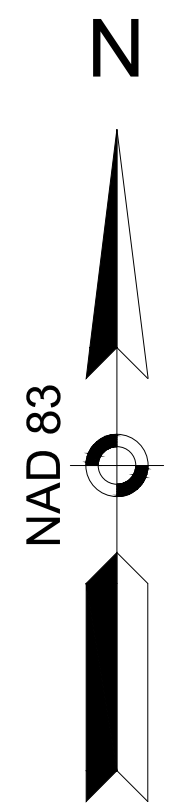
GENERAL PAVEMENT NOTES:

1. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED BETWEEN ALL ASPHALT SURFACES AND SAWCUT JOINTS BEFORE PAVING. HMA JOINT SEALANT SHALL BE APPLIED TO ALL COLD JOINTS (LONGITUDINAL AND TRANSVERSE) BEFORE PAVING SURFACE COURSE. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED AT A RATE OF 0.05 GAL/SY, EXCEPT OVER MILLED AND CEMENT CONCRETE SURFACES, WHERE THE APPLICATION RATE SHALL BE 0.07 GAL/SY. ALL SURFACES SHALL BE CLEAN OF ALL ORGANICS, DEBRIS, AND SAND PRIOR TO PAVING.
2. ALL HMA SHALL BE IN ACCORDANCE WITH SECTION 450.
3. ASPHALT EMULSION FOR TACK COAT SHALL BE RS-1H TO RESIST TRACKING OF TACK BY HAUL VEHICLES.
4. HMA FOR WALKS AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH SECTION 700.
5. ALL GRAVEL BORROW MEETING SPECIFICATION SHALL BE RETAINED IN PLACE, COMPACTED, AND LEVELED AS REQUIRED.
6. VARIABLE DEPTH MILLING AS REQUIRED TO MEET PROPOSED LINES AND GRADES WITH RESURFACING OVERLAY.



STOW  
COMPLETE STREETS  
CONSTRUCTION PLAN  
GREAT ROAD / OLD BOLTON ROAD  
SHEET 5 OF 19

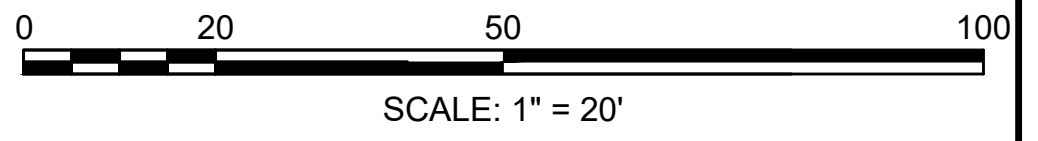
NOTE:  
ADD ALTERNATE 1 SHALL CONSIST OF INSTALLATION OF  
CU STRUCTURAL SOIL AND POROUS ASPHALT  
SIDEWALK IN PROXIMITY OF THE 52" TREE ON OLD  
BOLTON ROAD (STA 21+52± TO STA 21+82±) AS SHOWN  
IN THE CONSTRUCTION DETAILS.



| GREAT ROAD CONSTRUCTION BASELINE DATA |                  |             |            |  |                        |                |             |            |
|---------------------------------------|------------------|-------------|------------|--|------------------------|----------------|-------------|------------|
| NUMBER                                | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                 | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |
| L1                                    | 10+00.00         | 2983752.303 | 645617.244 |  | N89°45'06"E<br>275.31' | 12+75.31       | 2983753.497 | 645892.547 |
| C1                                    | 12+75.31         | 2983753.497 | 645892.547 | R=1000.00' Δ=1°14'36"<br>L=21.70' T=10.85' |                        | 12+97.01       | 2983753.827 | 645914.246 |
| L2                                    | 12+97.01         | 2983753.827 | 645914.246 |  | N88°30'29"E<br>81.15'  | 13+78.16       | 2983755.939 | 645995.370 |
| C2                                    | 13+78.16         | 2983755.939 | 645995.370 | R=1000.00' Δ=0°50'13"<br>L=14.61' T=7.30'  |                        | 13+92.77       | 2983756.213 | 646009.973 |
| L3                                    | 13+92.77         | 2983756.213 | 646009.973 |  | N89°20'42"E<br>107.23' | 15+00.00       | 2983757.439 | 646117.199 |

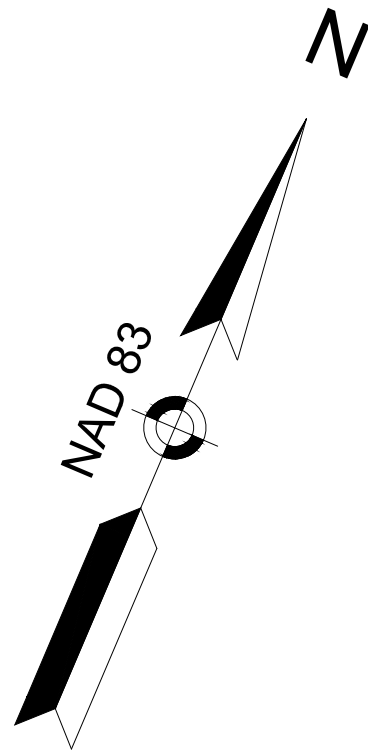
| OLD BOLTON ROAD CONSTRUCTION BASELINE DATA |                  |             |            |   |                        |                |             |            |
|--|------------------|-------------|------------|---|------------------------|----------------|-------------|------------|
| NUMBER                                     | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |
| L4   | 20+00.00         | 2983639.281 | 645479.224 |   | N72°59'18"E<br>245.58' | 22+45.58       | 2983711.129 | 645714.057 |
| C3   | 22+45.58         | 2983711.129 | 645714.057 | R=40.00' Δ=73°13'43"<br>L=51.12' T=29.72' |                        | 22+96.70       | 2983749.547 | 645742.354 |
| L5   | 22+96.70         | 2983749.547 | 645742.354 |   | N0°14'25"W<br>3.30'    | 23+00.00       | 2983752.846 | 645742.340 |

| PROPOSED DRAINAGE STRUCTURE DATA |                     |         |          |           |               |                |               |
|----------------------------------|---------------------|---------|----------|-----------|---------------|----------------|---------------|
| NO.                              | TYPE                | STATION | OFFSET   | RIM ELEV. | INV. ELEV. IN | INV. ELEV. OUT | REMARKS       |
| ①                                | PROP CB             | 21+56   | 9.0' RT  | 241.29    | -             | 237.79         | 4' SUMP       |
| ②                                | PROP LEACHING BASIN | 21+56   | 14.8' LT | 241.16    | 238.69        | -              | BEEHIVE GRATE |



FOR PROFILES: SEE SHEET 7





LIMIT OF WORK  
STA 41+15  
N2983617.3797  
E649870.0168

567 GREAT ROAD  
N/F  
PHILIP BARTLEY  
MAP-LOT 000R-9 000005  
BK-PG 48309-128

31+00 GREAT ROAD=  
40+00.00 HARVARD ROAD

PROJECT BEGIN  
STA 30+55  
N2983495.3334  
E649876.5767

GREAT ROAD

570 GREAT ROAD  
N/F  
JOHN R DUNNING  
MAP-LOT 00R-10 000010  
BK-PG 58991-538

HARVARD ROAD

1951 COUNTY LAYOUT

561 GREAT ROAD  
N/F  
ANITA F TR C/O  
BRENDA WALDRON  
DOLAN  
MAP-LOT 000R-9 000085  
BK-PG 33177-552

549 GREAT ROAD  
N/F  
JOHN C PEACOCK  
MAP-LOT 000R-9 000087  
BK-PG 012272-00223

PROJECT END  
STA 32+15  
N2983556.0059  
E650024.6195

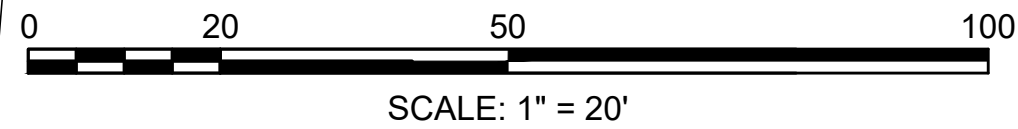
558 GREAT ROAD  
N/F  
MICHAEL NUTTING  
MAP-LOT 00R-10 000008  
BK-PG 44882-155

BENCHMARK:  
EL=241.69'

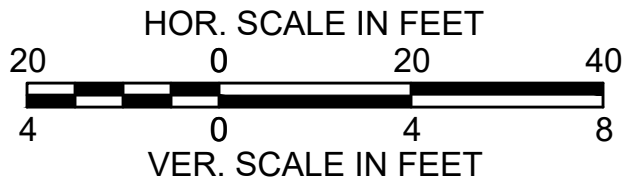
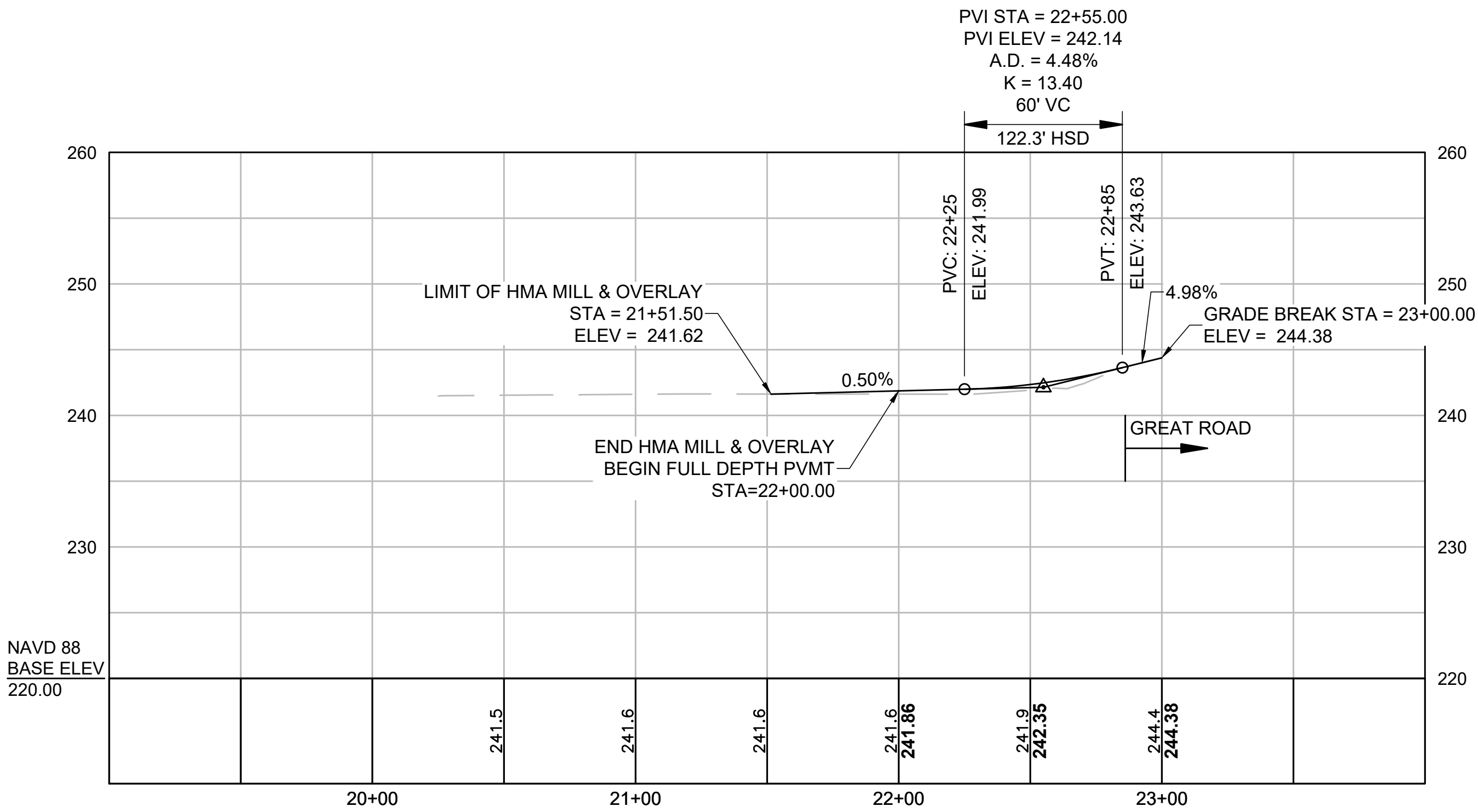
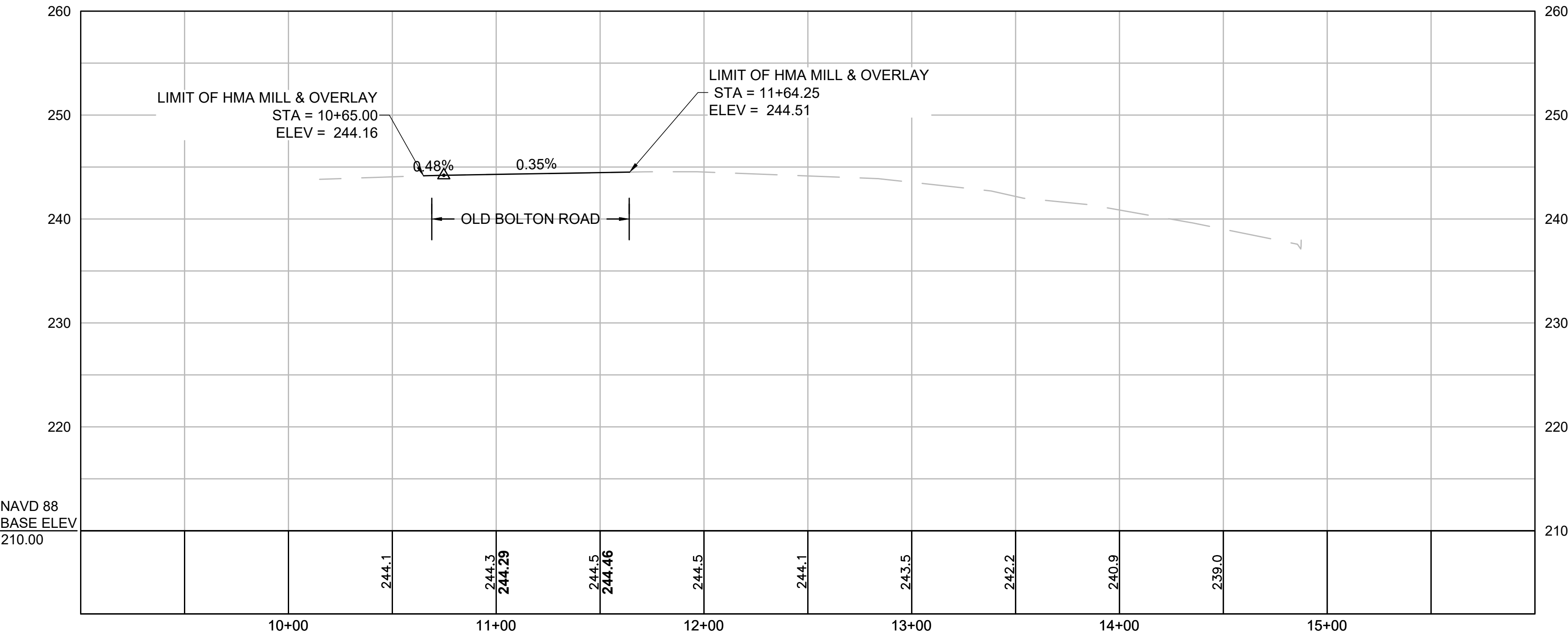
BENCHMARK:  
EL=244.27'

| GREAT ROAD CONSTRUCTION BASELINE DATA |                  |             |            |   |                       |                |             |            |
|---------------------------------------|------------------|-------------|------------|---|-----------------------|----------------|-------------|------------|
| NUMBER                                | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                    | LINE DATA             | ENDING STATION | NORTHING    | EASTING    |
| L6                                    | 30+00.00         | 2983473.476 | 649826.106 |   | N66°31'28"E<br>31.13' | 30+31.13       | 2983485.878 | 649854.663 |
| C4                                    | 30+31.13         | 2983485.878 | 649854.663 | R= 5000.00 Δ= 2°26'14"<br>L=212.69' T=106.36' |                       | 32+43.82       | 2983566.429 | 650051.488 |
| L7                                    | 32+43.82         | 2983566.429 | 650051.488 |   | N68°57'42"E<br>56.18' | 33+00.00       | 2983586.598 | 650103.923 |

| HARVARD ROAD CONSTRUCTION BASELINE DATA |                  |             |            |            |                        |                |             |            |
|---|------------------|-------------|------------|------------|------------------------|----------------|-------------|------------|
| NUMBER                                  | STARTING STATION | NORTHING    | EASTING    | CURVE DATA | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |
| L8                                      | 40+00.00         | 2983512.875 | 649918.015 |            | N24°40'09"W<br>150.00' | 41+50.00       | 2983649.185 | 649855.409 |















NOTES:

1. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
2. ALL PAVEMENT MARKINGS WITHIN THE LIMITS OF WORK SHALL BE THERMOPLASTIC UNLESS OTHERWISE INDICATED.
3. A MINIMUM OF 3'-0" PEDESTRIAN PATH OF TRAVEL CLEARANCE, EXCLUDING CURB, IS REQUIRED WHEN PLACING SIGNS
4. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR SIDEWALK SHALL BE 7 FEET.

PROJECT BEGIN  
STA 10+65  
N2983752.5851  
E645682.2430

PROJECT END  
STA 14+25  
N2983756.5816  
E646042.2057

LIMIT OF WORK  
STA 21+50  
N2983683.1662  
E645622.6609

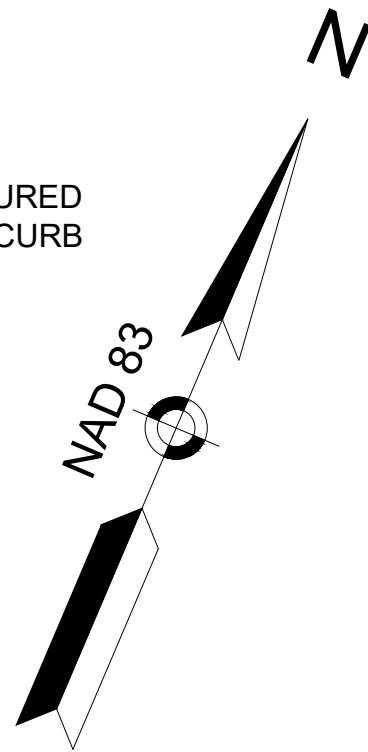
| TRAFFIC SIGN SUMMARY  |                   |        |   |                      |               |                  |                          |                |             |        |                                   |                      |                 |
|-----------------------|-------------------|--------|---|----------------------|---------------|------------------|--------------------------|----------------|-------------|--------|-----------------------------------|----------------------|-----------------|
| IDENTIFICATION NUMBER | SIZE OF SIGN (in) |        |   | TEXT DIMENSIONS (in) |               |                  | NUMBER OF SIGNS REQUIRED | COLOR          |             |        | SIZE AND NUMBER OF POSTS REQUIRED | UNIT AREA (SF)       | TOTAL AREA (SF) |
|                       | WIDTH             | HEIGHT |   | LEGEND               | LETTER HEIGHT | VERTICAL SPACING |                          | ARROW RTE. MKR | BACK-GROUND | LEGEND |                                   |                      |                 |
| MA-D3-1a              | 33                | 12     |  | 6C / 4C              | 3<br>3        | -                | 2                        | GREEN          | WHITE       | WHITE  | P5<br>1                           | PAID UNDER ITEM 874. |                 |
| MA-D3-1b              | 48                | 12     |  | 6C / 4C              | 3<br>3        | -                | 2                        | GREEN          | WHITE       | WHITE  | MOUNT W/<br>MA-D3-1a              | PAID UNDER ITEM 874. |                 |
| D11-1                 | 24                | 18     |  | SEE 2009 MUTCD       |               |                  | 1                        | GREEN          | WHITE       | WHITE  | P5<br>1                           | 3.00                 | 3.00            |
| M6-2                  | 12                | 9      |  | SEE 2009 MUTCD       |               |                  | 1                        | GREEN          | WHITE       | WHITE  | P5<br>1                           | 0.75                 | 0.75            |
| R1-1                  | 30                | 30     |  | SEE 2009 MUTCD       |               |                  | 1                        | RED            | WHITE       | WHITE  | MOUNT W/<br>MA-D3-1a              | 6.25                 | 6.25            |
| R1-1a                 | 18                | 18     |  | SEE 2009 MUTCD       |               |                  | 1                        | RED            | WHITE       | WHITE  | P5<br>1                           | 2.25                 | 2.25            |

0 20 50 100  
SCALE: 1" = 20'



NOTES:

1. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
2. ALL PAVEMENT MARKINGS WITHIN THE LIMITS OF WORK SHALL BE THERMOPLASTIC UNLESS OTHERWISE INDICATED.
3. A MINIMUM OF 3'-0" PEDESTRIAN PATH OF TRAVEL CLEARANCE, EXCLUDING CURB, IS REQUIRED WHEN PLACING SIGNS
4. THE MINIMUM MOUNTING HEIGHT OF POST MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF THE CURB OR SIDEWALK SHALL BE 7 FEET.



GREAT ROAD

HARVARD ROAD

STOW  
COMPLETE STREETS  
TRAFFIC SIGN & PAVEMENT MARKING PLAN  
GREAT ROAD / HARVARD ROAD  
SHEET 9 OF 19

567 GREAT ROAD  
N/F  
PHILIP BARTLEY  
MAP-LOT 000R-9 000005  
BK-PG 48309-128

561 GREAT ROAD  
N/F  
ANITA F TR C/O  
BRENDA WALDRON  
DOLAN  
MAP-LOT 000R-9 000085  
BK-PG 33177-552

549 GREAT ROAD  
N/F  
JOHN C PEACOCK  
MAP-LOT 000R-9 000087  
BK-PG 012272-00223

"WEST SCHOOL"  
(STONE)  
"HARVARD M'S  
1842" (STONE)  
R&S "HARVARD RD" (TYP.)  
STONE WALL

MA-D3-1a  
MA-D3-1c

MEET EXIST PVMT MARKINGS  
+76.41

PROP SOLAR POWERED RRFB  
W/ PROP PED PBN & R10-25  
W/ PROP RADIO ANTENNA  
W/ W11-2 (2)  
W/ W16-7pL  
W/ W16-7pR

W11-2  
W16-7pL R&S

BIT WALK

R1-5 R&R

MEET EXIST PVMT MARKINGS  
+15.00

PT +43.82

PROJECT END  
STA 32+15  
N2983556.0059  
E650024.6195

W11-2  
W16-7pL R&S

"EAST"  
"117"

1951 COUNTY LAYOUT

558 GREAT ROAD  
N/F  
MICHAEL NUTTING  
MAP-LOT 00R-10 000008  
BK-PG 44882-155





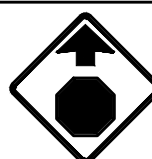

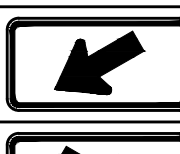

570 GREAT ROAD  
N/F  
JOHN R DUNNING  
MAP-LOT 00R-10 000010  
BK-PG 58991-538

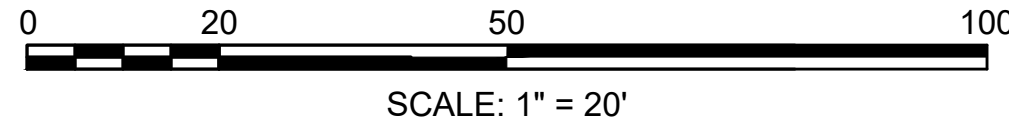
PROP SOLAR POWERED RRFB  
W/ PROP PED PBN & R10-25  
W/ PROP RADIO ANTENNA  
W/ W11-2 (2)  
W/ W16-7pL  
W/ W16-7pR

W11-2  
"200 FT"

W11-2  
"200 FT"

TRAFFIC SIGN SUMMARY

| TRAFFIC SIGN SUMMARY  |                   |        |   |                      |               |                  |                          |                |                 |        |                                   |                        |                 |
|-----------------------|-------------------|--------|---|----------------------|---------------|------------------|--------------------------|----------------|-----------------|--------|-----------------------------------|------------------------|-----------------|
| IDENTIFICATION NUMBER | SIZE OF SIGN (in) |        |   | TEXT DIMENSIONS (in) |               |                  | NUMBER OF SIGNS REQUIRED | COLOR          |                 |        | SIZE AND NUMBER OF POSTS REQUIRED | UNIT AREA (SF)         | TOTAL AREA (SF) |
|                       | WIDTH             | HEIGHT |   | LEGEND               | LETTER HEIGHT | VERTICAL SPACING |                          | ARROW RTE. MKR | BACK-GROUND     | LEGEND |                                   |                        |                 |
| MA-D3-1a              | 33                | 12     |  | 6C / 4C              | 3<br>3        | -                | 2                        | GREEN          | WHITE           | WHITE  | P5<br>1                           | PAID UNDER ITEM 874.   |                 |
| MA-D3-1c              | 39                | 12     |  | 6C / 4C              | 3<br>3        | -                | 2                        | GREEN          | WHITE           | WHITE  | MOUNT W/<br>MA-D3-1a              | PAID UNDER ITEM 874.   |                 |
| R1-5                  | 36                | 36     |  | SEE 2009 MUTCD       |               |                  | 1                        | WHITE          | BLACK/<br>RED   | BLACK  | P5<br>1                           | 9.00                   | 9.00            |
| R10-25                | 9                 | 12     |  | SEE 2009 MUTCD       |               |                  | 1                        | WHITE          | BLACK           | BLACK  | MOUNT ON<br>RRFB                  | PAID UNDER ITEM 824.21 |                 |
| W3-1                  | 30                | 30     |  | SEE 2009 MUTCD       |               |                  | 1                        | YELLOW         | BLACK/<br>RED   | BLACK  | P5<br>1                           | 6.25                   | 6.25            |
| W11-2                 | 30                | 30     |  | SEE 2009 MUTCD       |               |                  | 4                        | YELLOW         | BLACK           | BLACK  | MOUNT ON<br>RRFB                  | PAID UNDER ITEM 824.21 |                 |
| W16-7pL               | 24                | 12     |  | SEE 2009 MUTCD       |               |                  | 2                        | YELLOW         | BLACK           | BLACK  | MOUNT ON<br>RRFB                  | PAID UNDER ITEM 824.21 |                 |
| W16-7pR               | 24                | 18     |  | SEE 2009 MUTCD       |               |                  | 2                        | YELLOW         | WHITE/<br>BLACK | BLACK  | MOUNT ON<br>RRFB                  | PAID UNDER ITEM 824.21 |                 |





NOTES:

1.

ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
2.

ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3.

TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4.

TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5.

SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6.

CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
7.

THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A SEQUENTIAL WARNING LIGHTS.
8.

THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9.

DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
10.

MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
11.

MINIMUM LANE WIDTH IS TO BE 11 FEET (3.3m) UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
12.

ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- ▨

WORK ZONE
- WORK VEHICLE
- P/F

POLICE/FLAGGER DETAIL
- ➡

DIRECTION OF TRAFFIC
- TRUCK MOUNTED ATTENUATOR
- ▨

TYPE III BARRICADE
- IMPACT ATTENUATOR
- ➡●

TRAFFIC OR PEDESTRIAN SIGNAL
- CHANGEABLE MESSAGE SIGN
- MEDIAN BARRIER
- SIGN
- ARROW BOARD
- MEDIAN BARRIER WITH WARNING LIGHTS

SUGGESTED WORK ZONE WARNING SIGN SPACING

| ROAD TYPE                     | DISTANCE BETWEEN SIGNS ** |       |       |
|-------------------------------|---------------------------|-------|-------|
|                               | A                         | B     | C     |
| LOCAL OR LOW VOLUME ROADWAYS* | 350                       | 350   | 350   |
| MOST OTHER ROADWAYS*          | 500                       | 500   | 500   |
| FREEWAYS AND EXPRESSWAYS*     | 1,000                     | 1,500 | 2,640 |

\* ROAD TYPE TO BE DETERMINED BY MASSDOT OFFICE OF TRANSPORTATION PLANNING.

\*\* DISTANCES ARE SHOWN IN FEET. THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/ TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTCP SETUPS. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.

R2-10a, R2-10e, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 MUTCD LATEST EDITION

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

| TYPE OF TAPER                   | TAPER LENGTH (L)                |
|---------------------------------|---------------------------------|
| MERGING TAPER                   | AT LEAST L                      |
| SHIFTING TAPER                  | AT LEAST 0.5L                   |
| SHOULDER TAPER                  | AT LEAST 0.33L                  |
| ONE-LANE, TWO-WAY TRAFFIC TAPER | 50 FT MIN. 100 FT MAX.          |
| DOWNSTREAM TAPER                | 50 FT MIN. 100 FT MAX. PER LANE |

Source: Table 6C-3 MUTCD LATEST EDITION

FORMULAS FOR DETERMINING TAPER LENGTHS

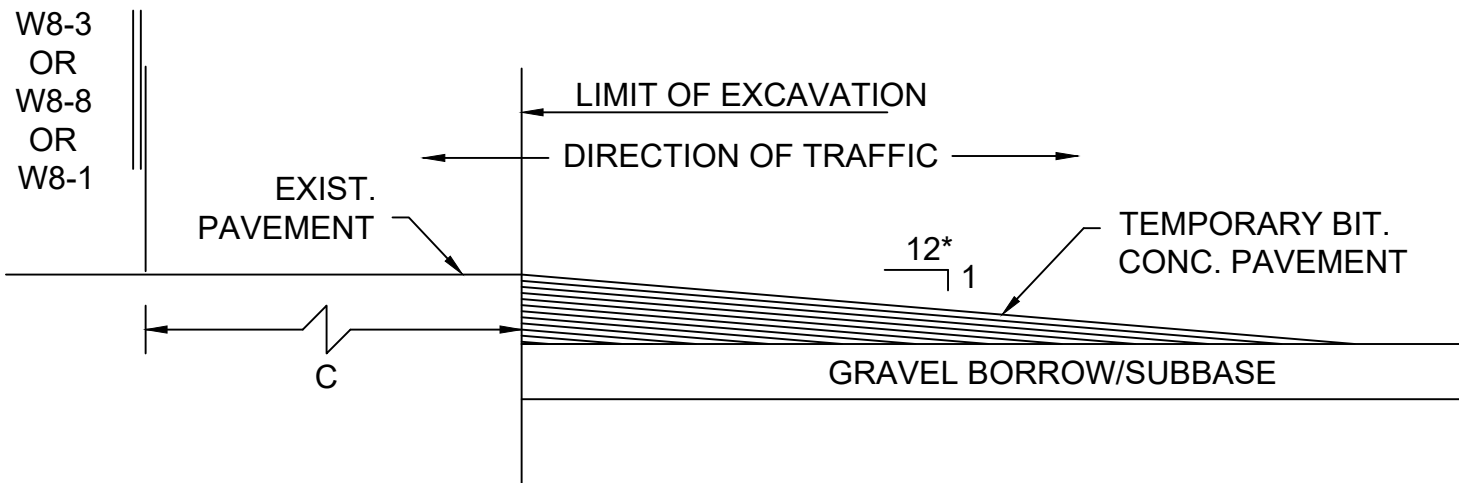
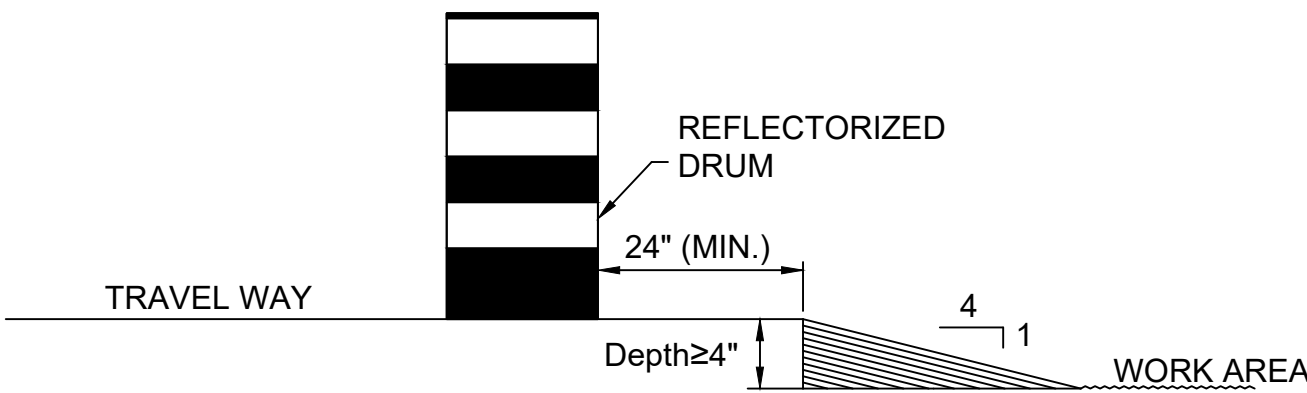
| SPEED LIMIT (S) | TAPER LENGTH (L) FEET |
|-----------------|-----------------------|
| 40 MPH OR LESS  | $L = \frac{WS^2}{60}$ |
| 45 MPH OR MORE  | $L = WS$              |

WHERE: L = TAPER LENGTH IN FEET

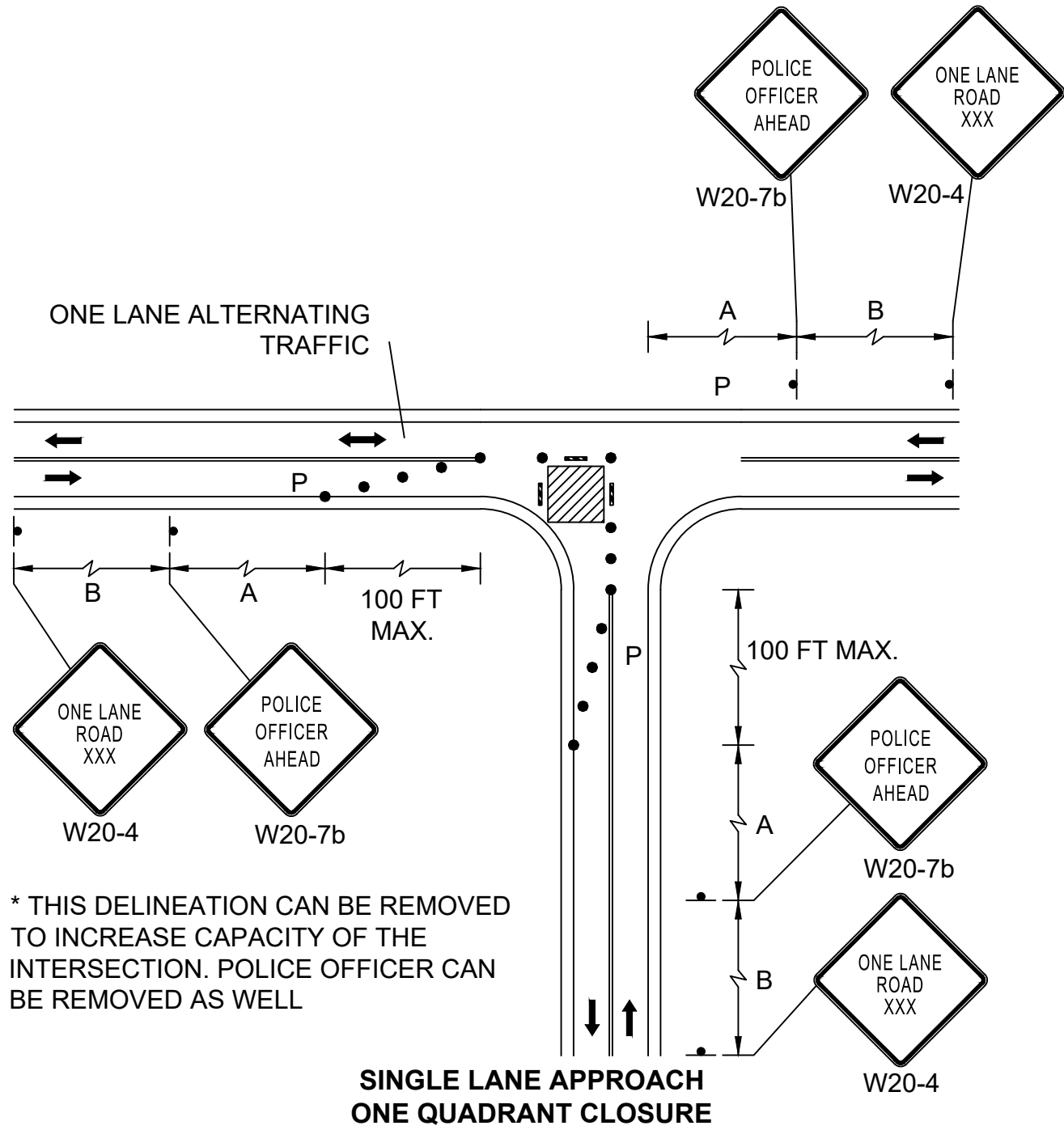
W = WIDTH OF OFFSET IN FEET

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

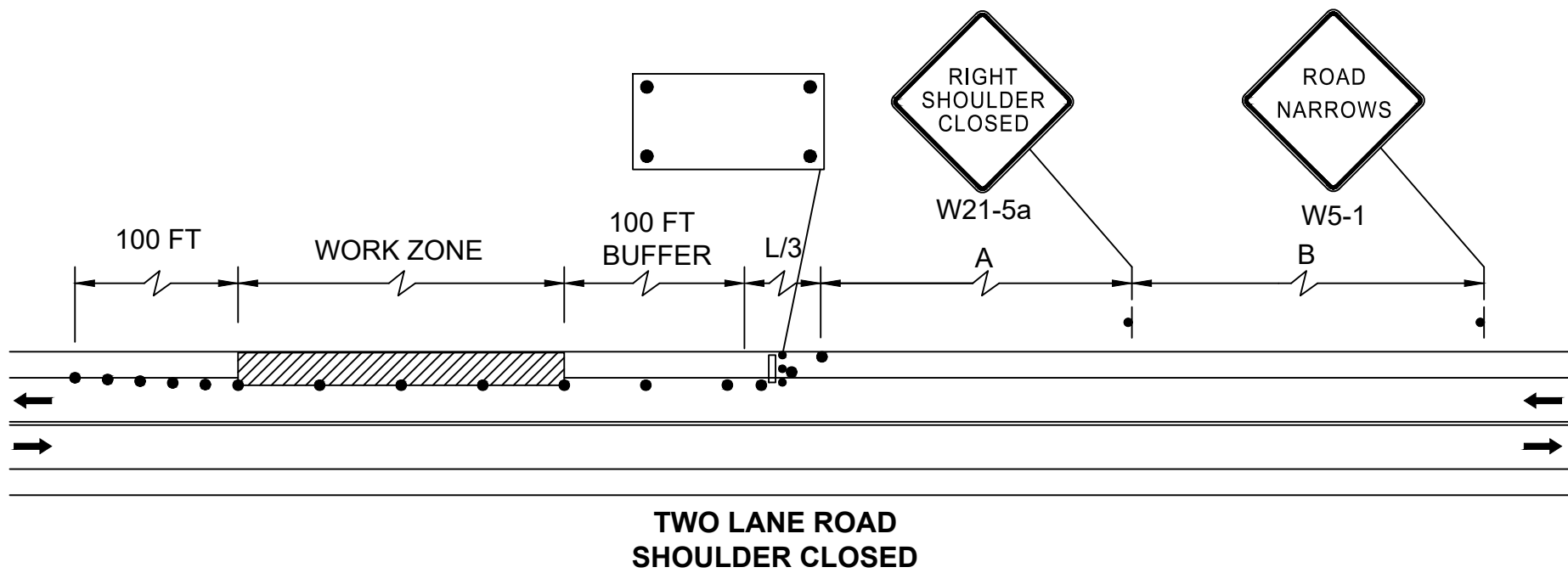
Source: Table 6C-4 MUTCD LATEST EDITION



\* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS



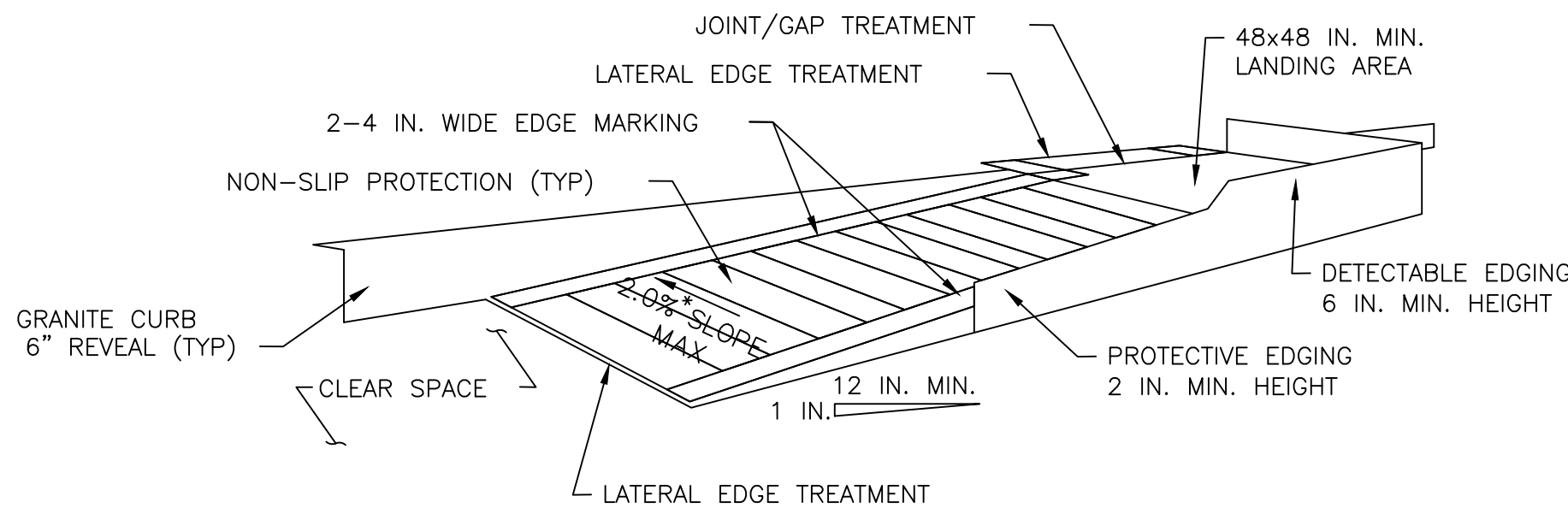
\* THIS DELINEATION CAN BE REMOVED TO INCREASE CAPACITY OF THE INTERSECTION. POLICE OFFICER CAN BE REMOVED AS WELL



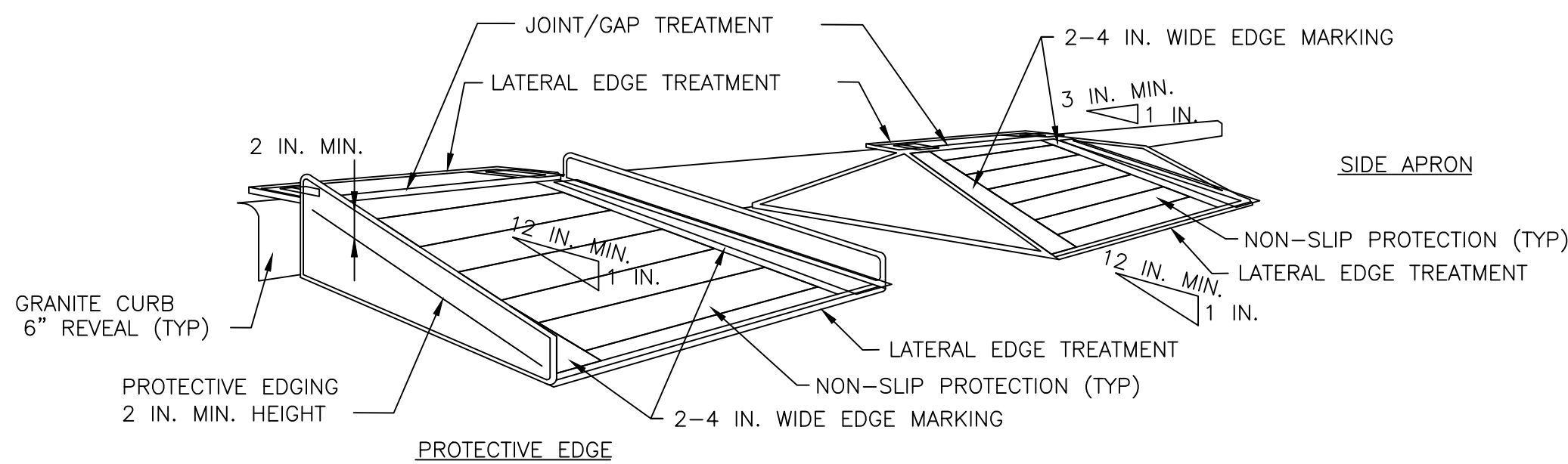


NOTES:

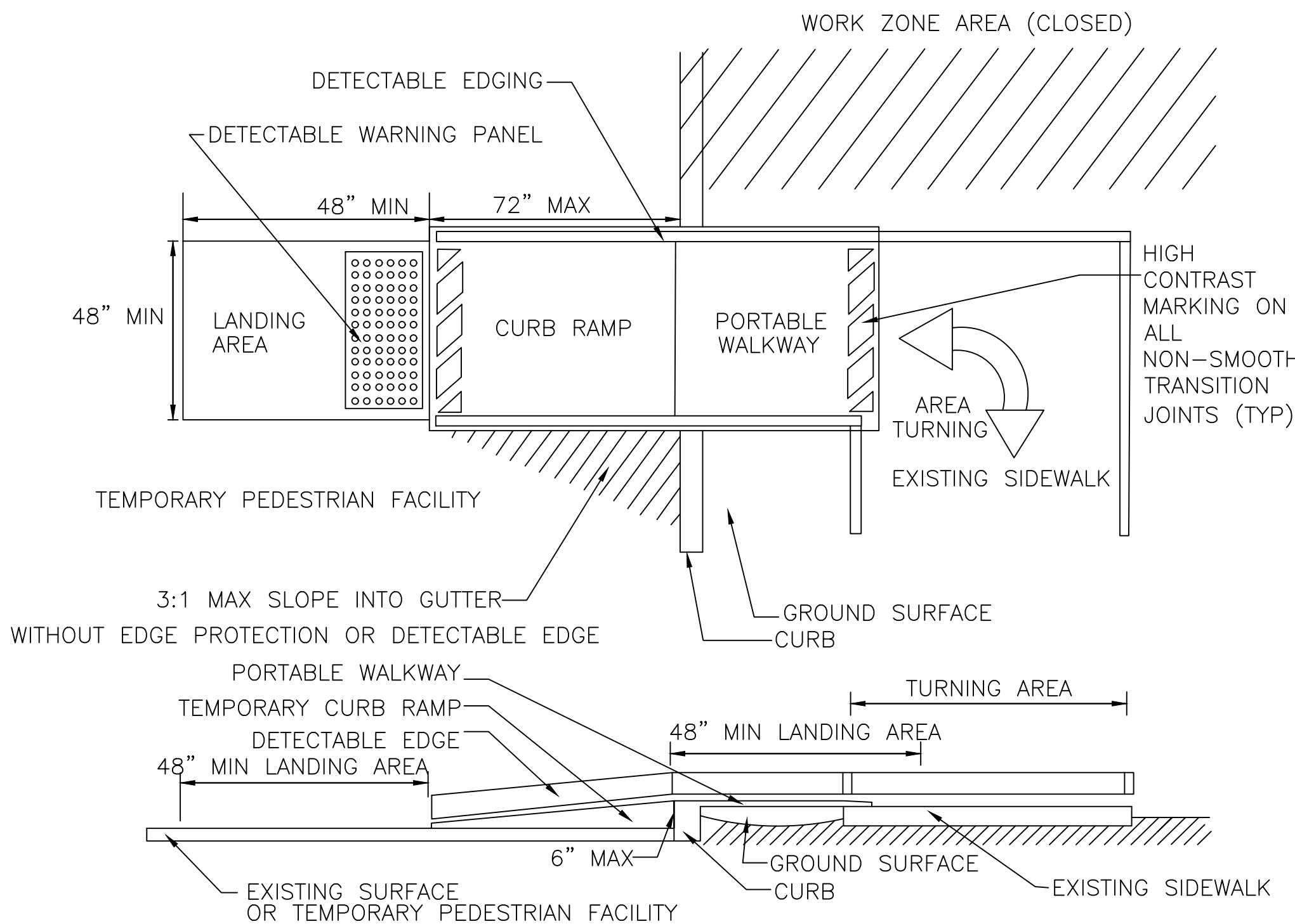
1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
3. DETECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
5. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
6. THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A CONTRASTING COLOR 2 TO 4 IN. WIDE MARKING. THE MARKING IS OPTIONAL WHERE COLOR CONTRASTING EDGING IS USED.
7. WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
9. CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.



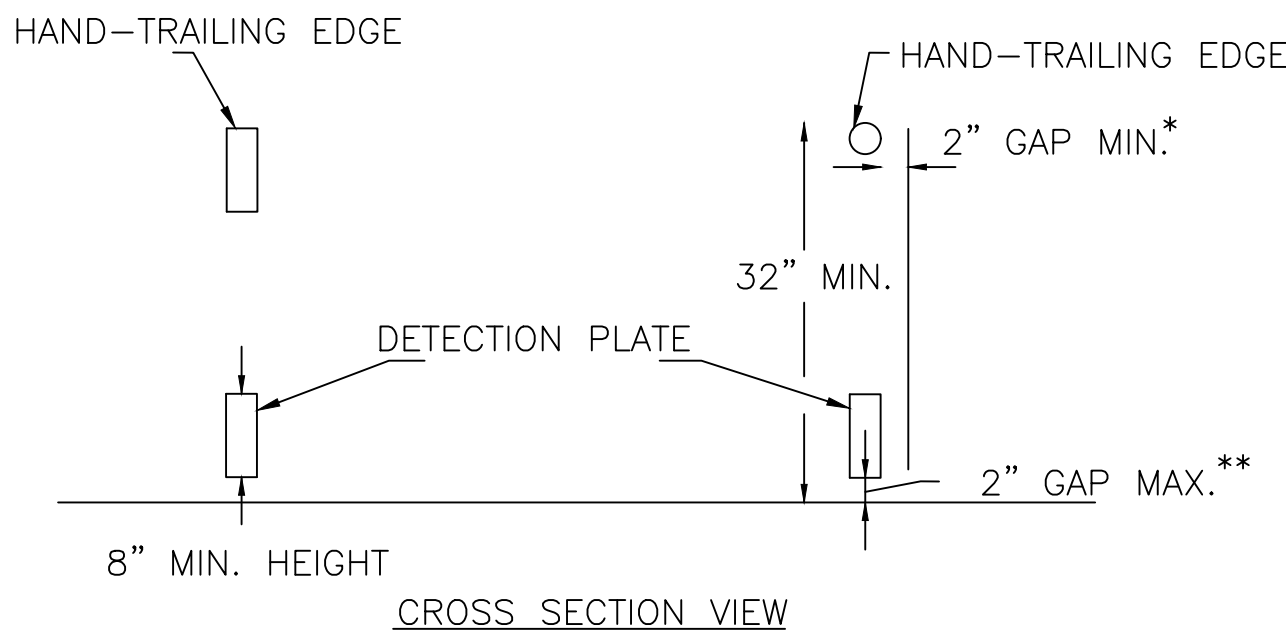
TEMPORARY CURB RAMP-PARALLEL TO CURB



TEMPORARY CURB RAMP-PERPENDICULAR TO CURB



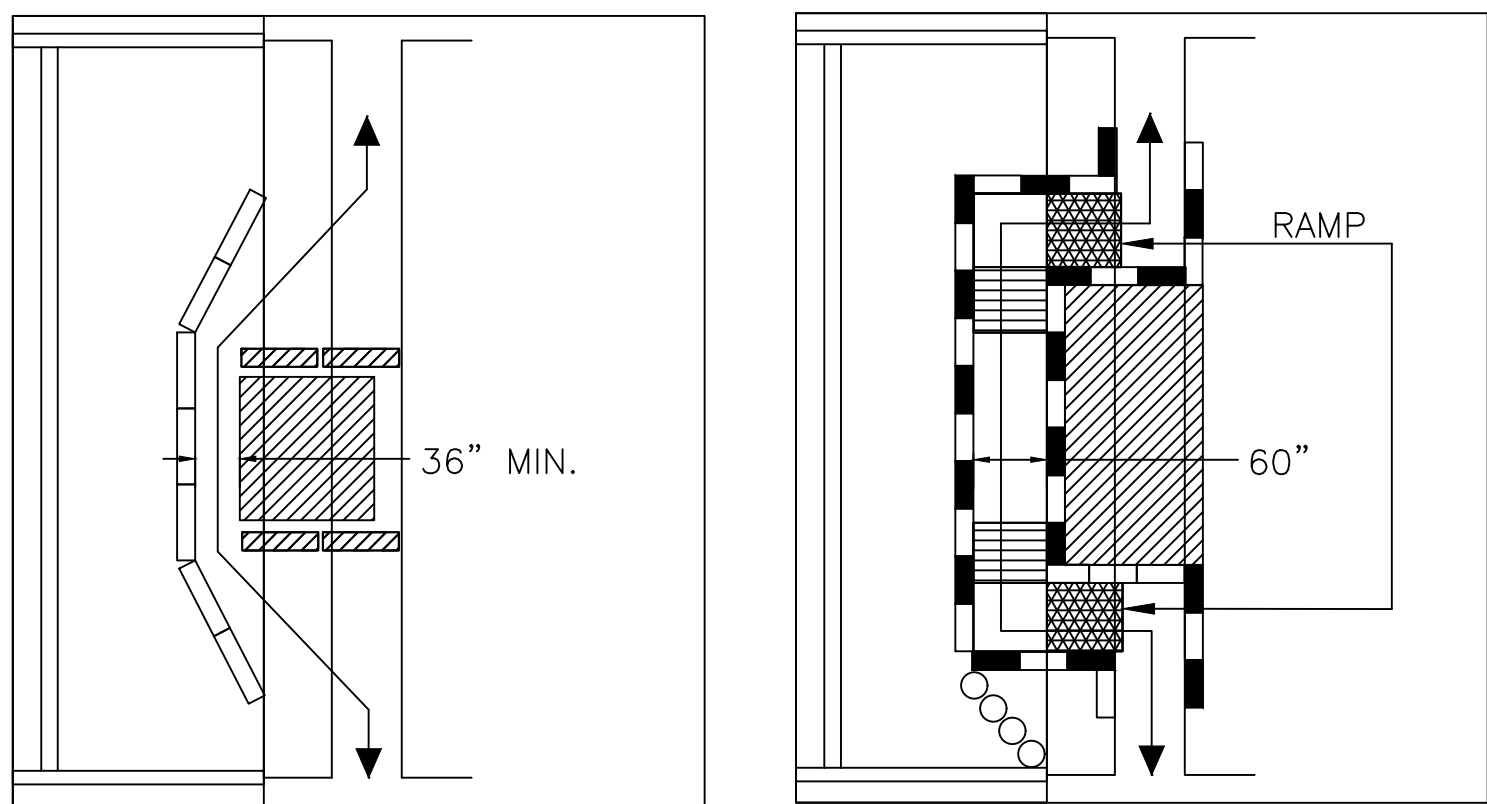
TEMPORARY CURB RAMP-TYPE 2



PEDESTRIAN CHANNELIZING DEVICE

NOTES:

- \* THERE SHALL BE A 2 INCH GAP BETWEEN THE HAND-TRAILING EDGE AND ITS SUPPORT.
- \*\* A MAXIMUM 2 INCH GAP BETWEEN THE BOTTOM OF THE BOTTOM RAIL AND THE SURFACE MAY BE USED TO PROVIDE DRAINAGE.


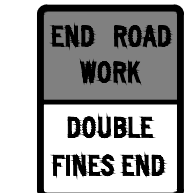










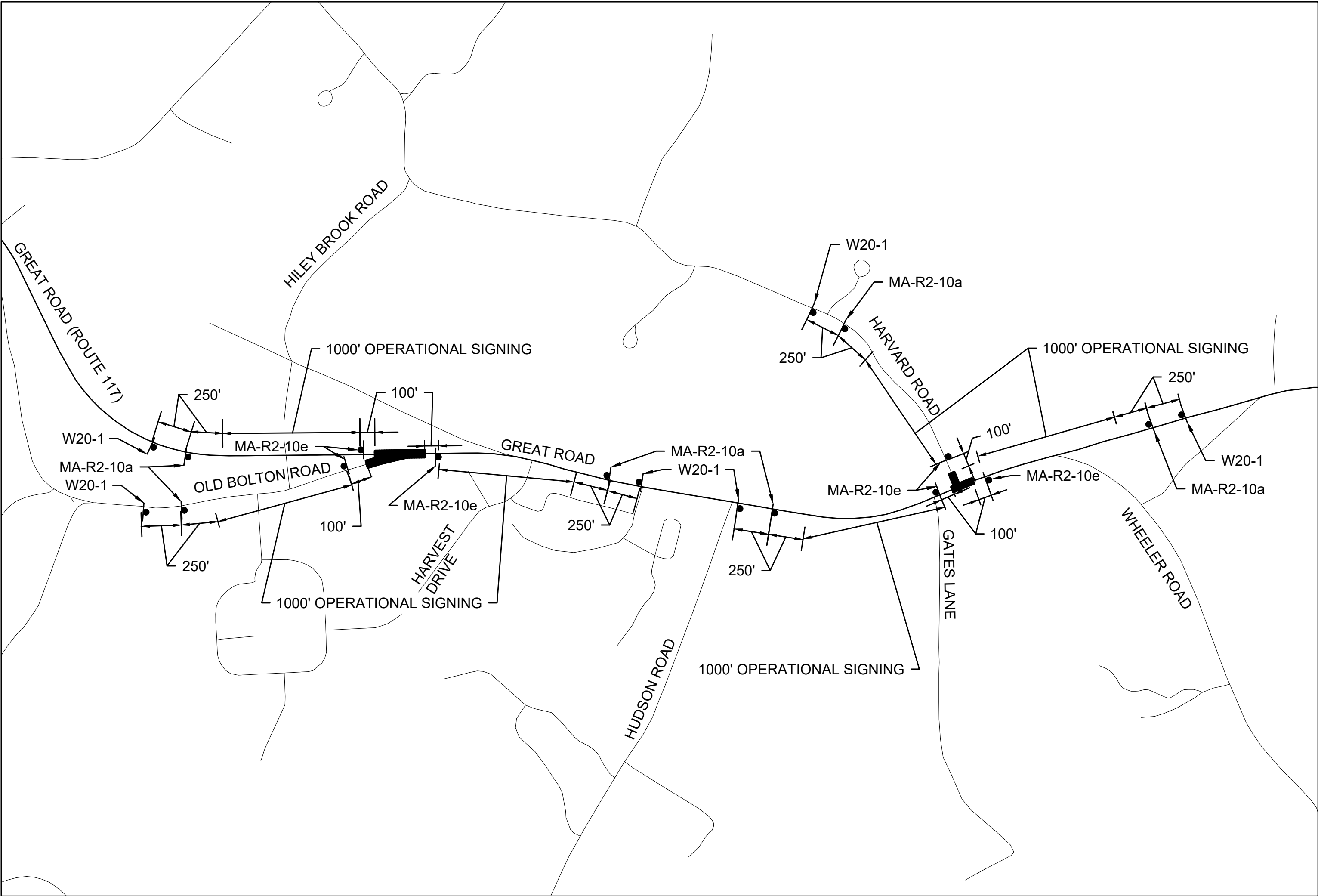
- WHEN EXISTING PEDESTRIAN FACILITIES ARE DISRUPTED, CLOSED, OR RELOCATED IN A TTC ZONE, TEMPORARY FACILITIES SHALL BE PROVIDED AND THEY SHALL BE DETECTABLE AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITY.
- A PEDESTRIAN CHANNELIZING DEVICE THAT IS DETECTABLE BY A PERSON WITH A VISUAL DISABILITY TRAVELING WITH THE AID OF A LONG CANE SHALL BE PLACED ACROSS THE FULL WIDTH OF THE CLOSED SIDEWALK.
- WHEN USED, TEMPORARY RAMPS SHALL COMPLY WITH AMERICANS WITH DISABILITIES ACT (SEE FIGURES PED-1 & PED-2).
- THE ALTERNATE PATHWAY SHOULD HAVE A SMOOTH CONTINUOUS HARD SURFACE FOR THE ENTIRE LENGTH OF THE TEMPORARY PEDESTRIAN FACILITY.
- THE PROTECTIVE REQUIREMENTS OF A TTC SITUATION HAVE PRIORITY IN DETERMINING THE NEED FOR TEMPORARY TRAFFIC BARRIERS AND THEIR USE IN THIS SITUATION SHOULD BE BASED ON ENGINEERING JUDGMENT.
- AUDIBLE INFORMATION DEVICES SHOULD BE CONSIDERED WHERE MIDBLOCK CLOSINGS AND CHANGED CROSSWALK AREAS CAUSE INADEQUATE COMMUNICATION TO BE PROVIDED TO PEDESTRIANS WHO HAVE VISUAL DISABILITIES.

AUDIBLE DEVICES

FOR LONG TERM SIDEWALK CLOSURES (AT A MINIMUM OVERNIGHT) A FORM OF SPEECH MESSAGING FOR PEDESTRIANS WITH VISUAL DISABILITIES SHALL BE PROVIDED. AUDIBLE INFORMATION DEVICES SUCH AS DETECTABLE BARRIERS OR BARRICADES AND OTHER PASSIVE PEDESTRIAN ACTIVATION (MOTION ACTIVATED) DEVICES SHOULD BE CONSIDERED FOR THESE CASES. THESE AUDIBLE DEVICES CAN BE MOUNTABLE OR STAND ALONE.

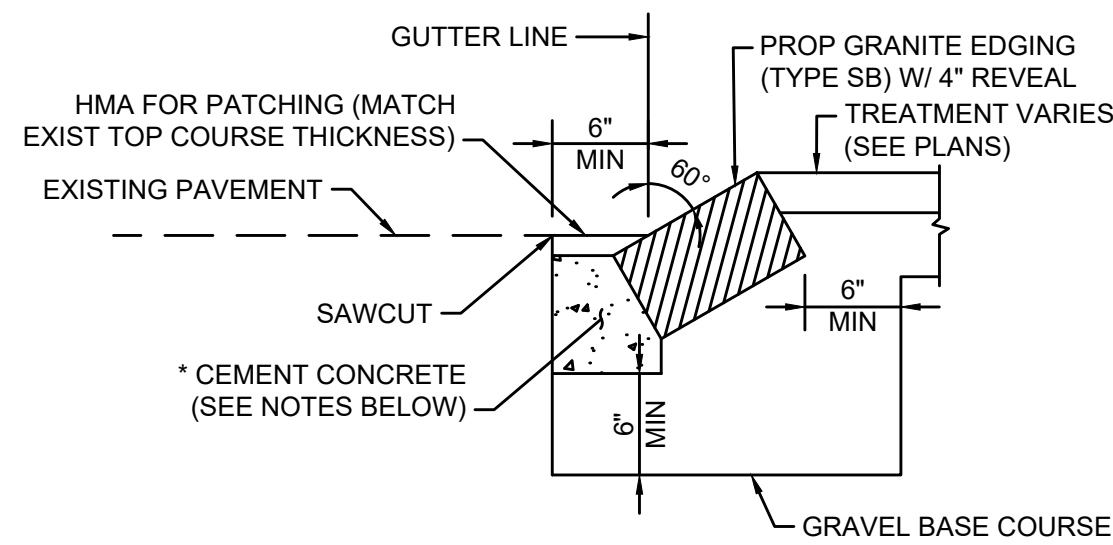
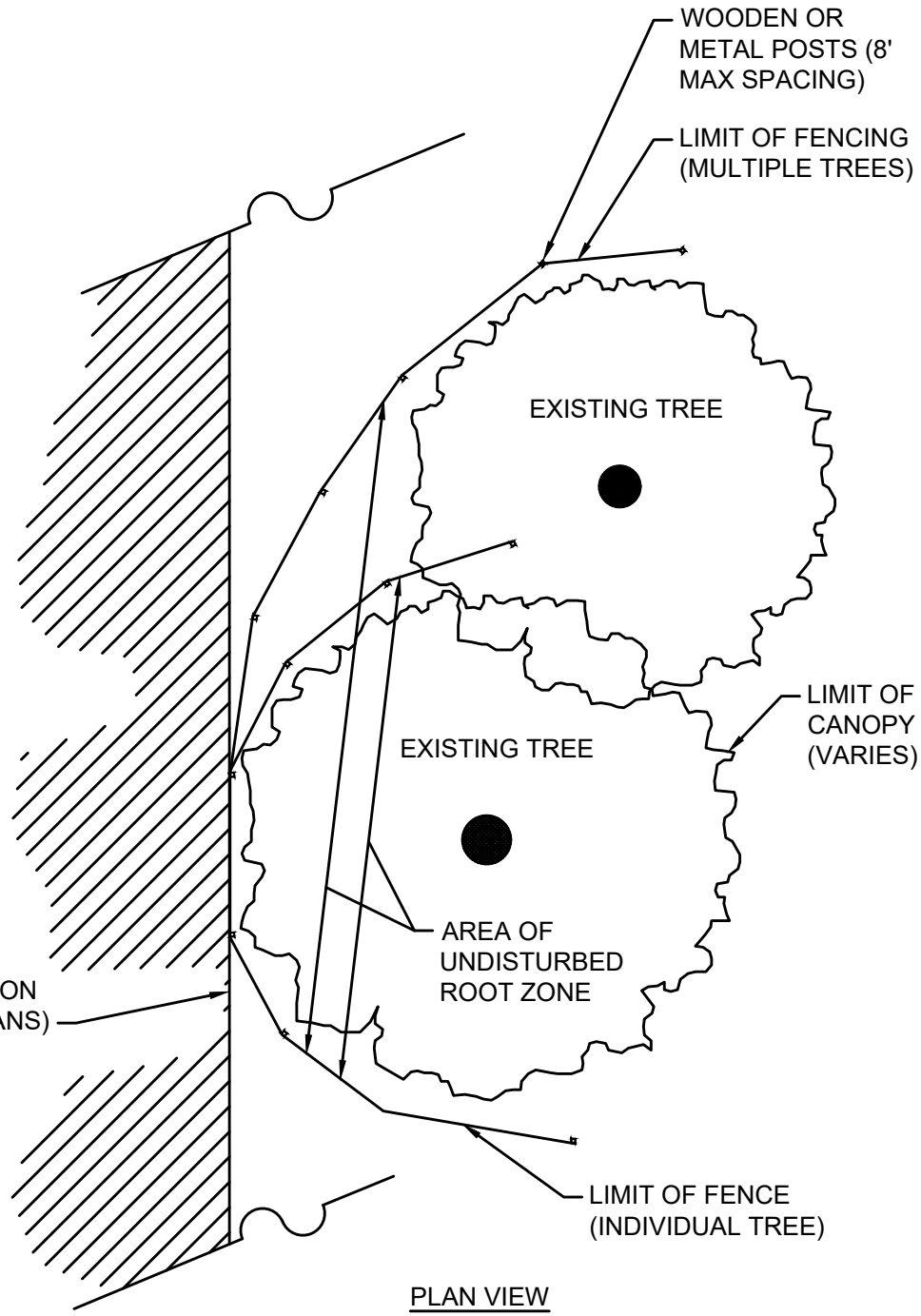
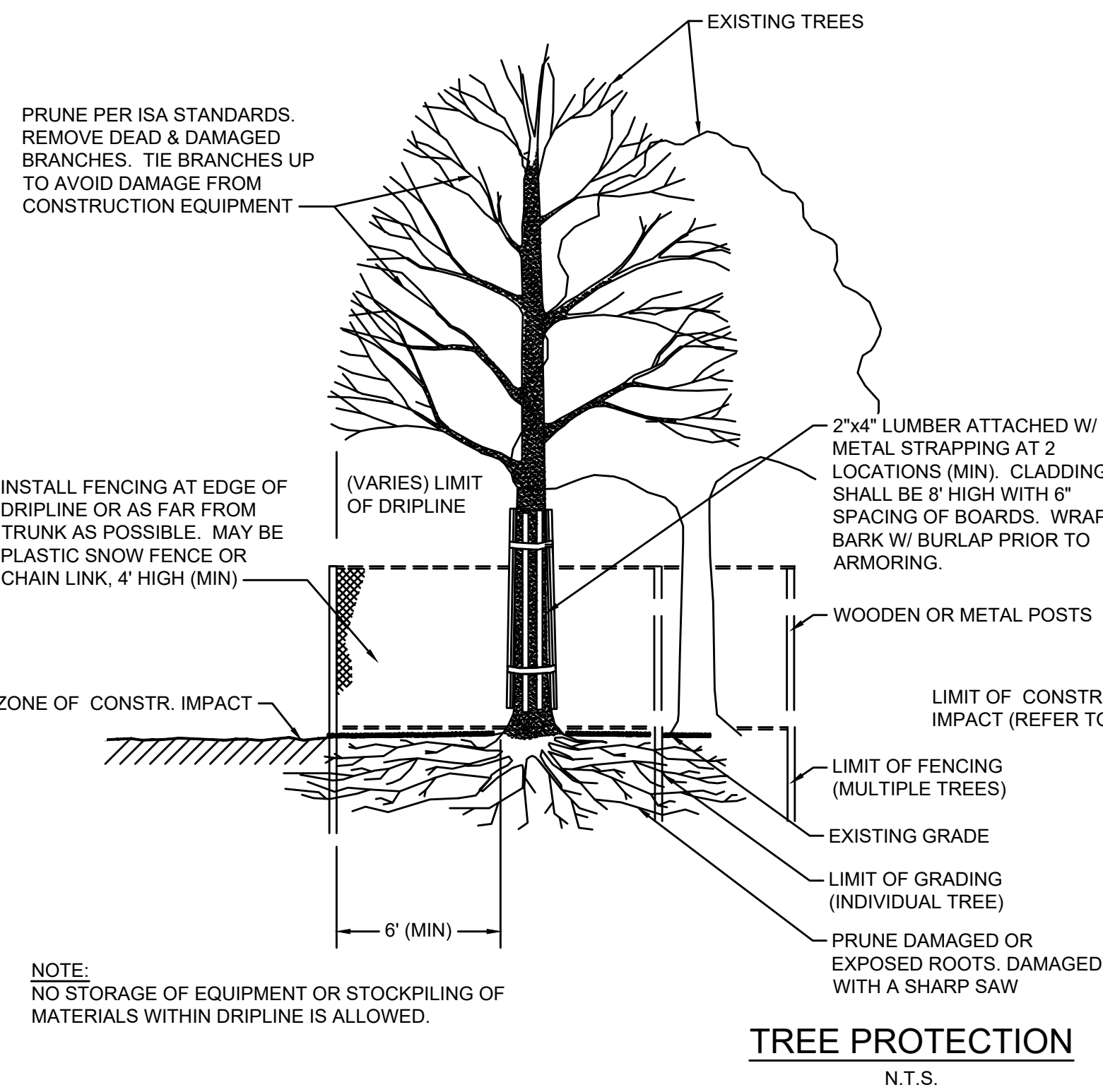


| TEMPORARY TRAFFIC CONTROL SIGN SUMMARY |                   |        |   |                                  |   |                   |                                |                 |                |                |                   |                    |
|--|-------------------|--------|---|----------------------------------|---|-------------------|--------------------------------|-----------------|----------------|----------------|-------------------|--------------------|
| IDENTIFICATION<br>NUMBER               | SIZE OF SIGN (in) |        | LEGEND  | TEXT DIMENSIONS (in)             |   |                   | NUMBER<br>OF SIGNS<br>REQUIRED | COLOR           |                |                | UNIT AREA<br>(SF) | TOTAL AREA<br>(SF) |
|  | WIDTH             | HEIGHT |   | LETTER<br>HEIGHT                 | VERTICAL<br>SPACING   | ARROW<br>RTE. MKR |                                | BACK-<br>GROUND | LEGEND         | BORDER         |                   |                    |
| MA-R2-10a                              | 48                | 36     |    | MASSDOT STANDARD SIGN            |   |                   | 6                              | ORANGE<br>WHITE | BLACK<br>BLACK | BLACK<br>BLACK | 12.00             | 72.00              |
| MA-R2-10e                              | 36                | 48     |    | MASSDOT STANDARD SIGN            |   |                   | 6                              | ORANGE<br>WHITE | BLACK<br>BLACK | BLACK<br>BLACK | 12.00             | 72.00              |
| W5-1                                   | 36                | 36     |    | SEE 2009 MUTCD FOR<br>DIMENSIONS |   |                   | 2                              | ORANGE          | BLACK          | BLACK          | 9.00              | 18.00              |
| W8-1                                   | 36                | 36     |    |                                  |   |                   | 3                              | ORANGE          | BLACK          | BLACK          | 9.00              | 27.00              |
| W8-15                                  | 36                | 36     |   |                                  |   |                   | 3                              | ORANGE          | BLACK          | BLACK          | 9.00              | 27.00              |
| W20-1                                  | 36                | 36     |  |                                  |   |                   | 6                              | ORANGE          | BLACK          | BLACK          | 9.00              | 54.00              |
| W20-4                                  | 36                | 36     |  |                                  |   |                   | 3                              | ORANGE          | BLACK          | BLACK          | 9.00              | 27.00              |
| W20-7b                                 | 36                | 36     |  |                                  |   |                   | 3                              | ORANGE          | BLACK          | BLACK          | 9.00              | 27.00              |
| W21-5a                                 | 36                | 36     |  |                                  |  |                   | 2                              | ORANGE          | BLACK          | BLACK          | 9.00              | 18.00              |



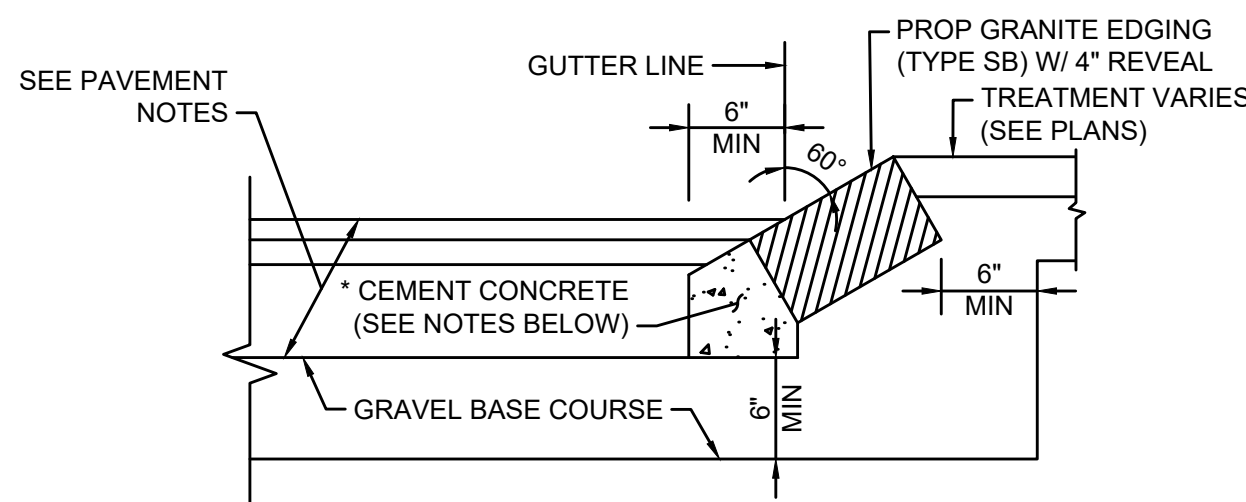
ADVANCED WARNING SCHEMATIC  
N.T.S.





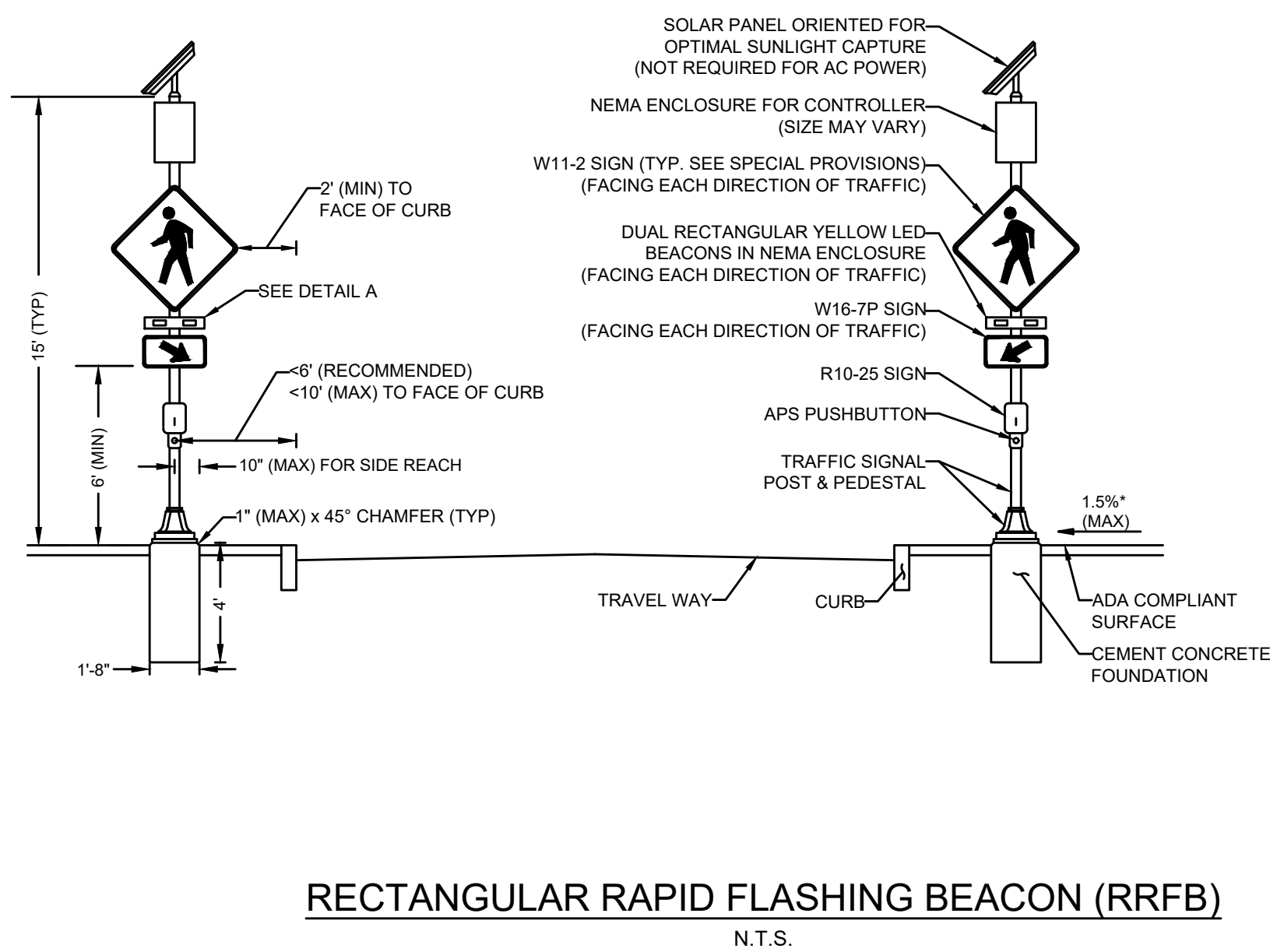
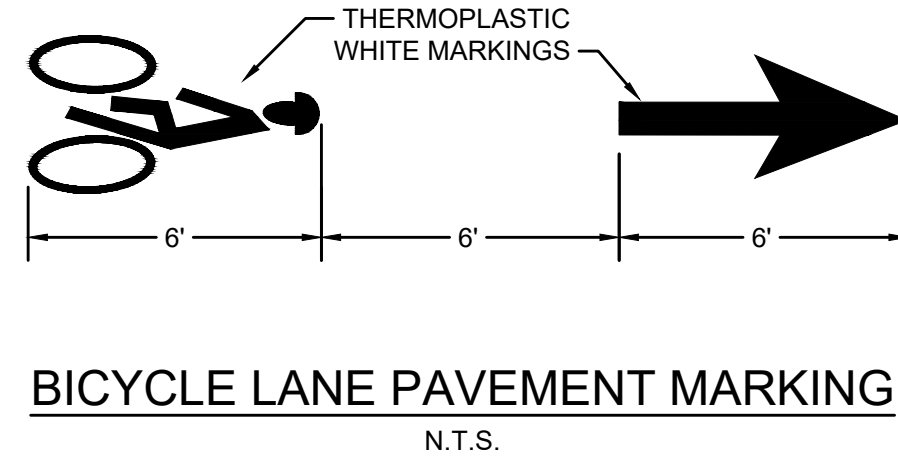
1. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR VARIOUS GRANITE EDGING ITEMS FOR 6" OFFSET FROM FACE OF CURB.
2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE MASSDOT STANDARD SPECIFICATIONS MAY BE USED; ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.
3. FOR ALL OTHER DIMENSIONS, SEE MASSDOT CONSTRUCTION STANDARD E106.5.0

**GRANITE EDGING IN EXISTING PAVEMENT**  
N.T.S.



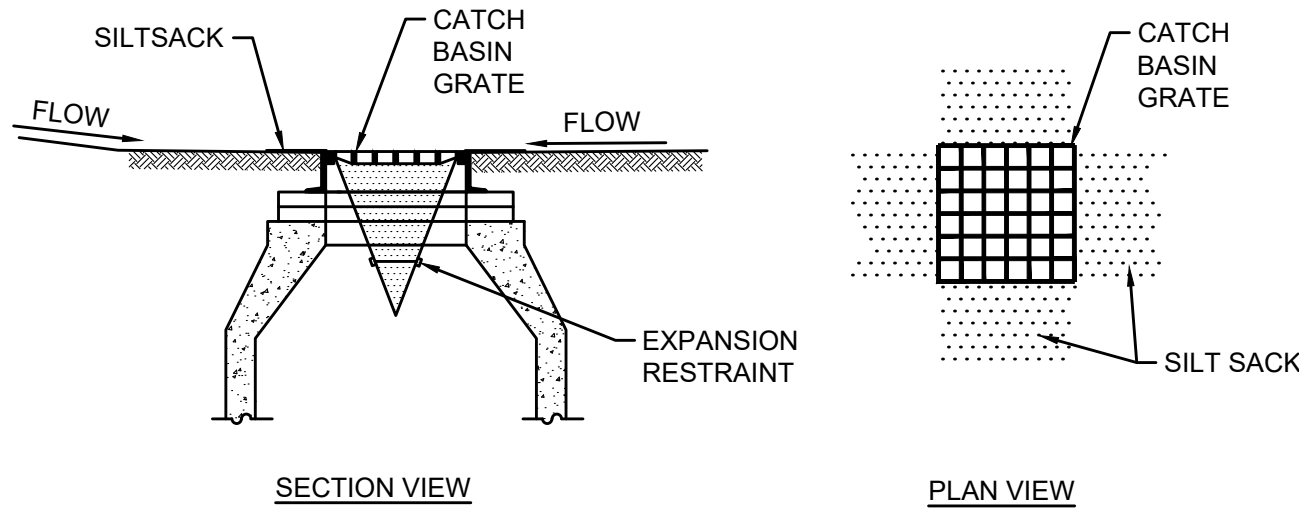
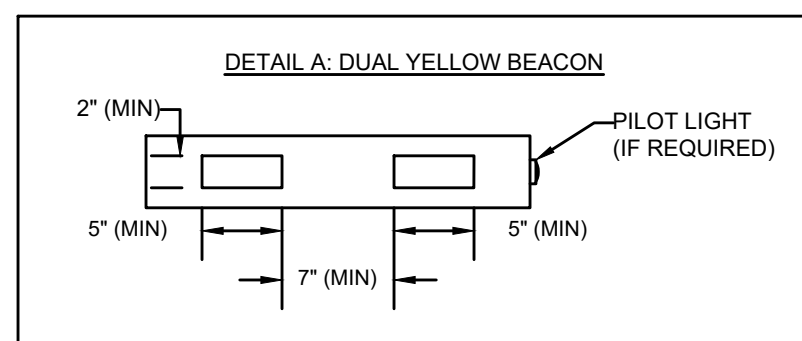
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**GRANITE EDGING IN FULL DEPTH PAVEMENT**  
N.T.S.



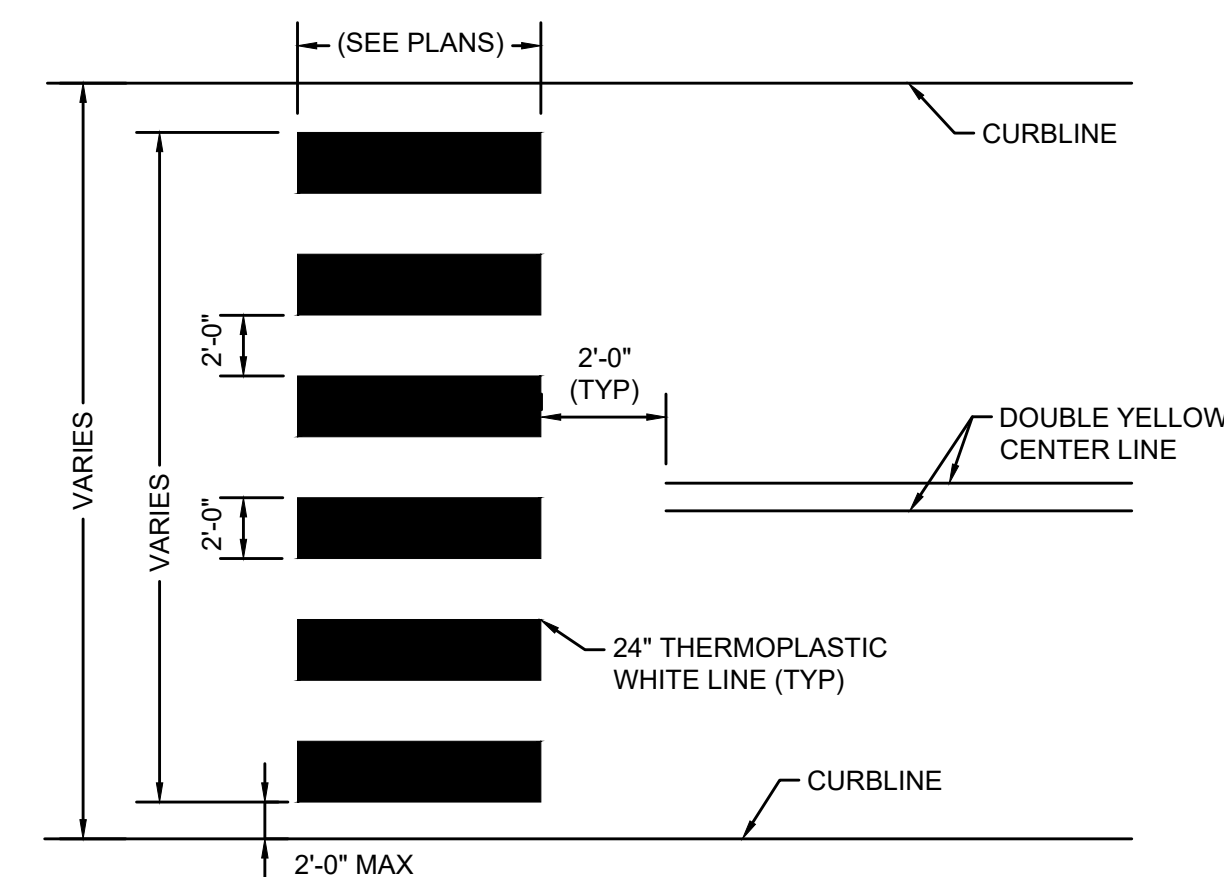
- NOTES:
1. CROSSWALK AND ADA-COMPLIANT RAMPS NOT SHOWN. SEE PLANS FOR LOCATIONS.
  2. REFER TO THE SPECIAL PROVISIONS FOR SIGN DIMENSIONS.
  3. ALL CONDUIT, PULL BOXES, SERVICE CONNECTIONS, AND EQUIPMENT GROUNDING REQUIRED FOR AC POWER IS NOT SHOWN IN THIS DETAIL AND SHALL BE PAID FOR SEPARATELY UNDER THEIR RESPECTIVE PAY ITEMS.
  4. ACCESS TO ALL PEDESTRIAN ACTUATED CONTROLS SHALL BE ADA/AAB COMPLIANT.
  5. \*0.5% CONSTRUCTION TOLERANCE FOR CROSS-SLOPE

- MAJOR ITEMS LIST
- 2 CEMENT CONCRETE FOUNDATIONS PER 812.30.1
  - 2 15' TRAFFIC SIGNAL POSTS & PEDESTALS
  - 2 APS PUSHBUTTON SYSTEMS
  - 2 DUAL RECTANGULAR YELLOW LED BEACONS IN NEMA ENCLOSURES
  - 2 R10-25 SIGNS
  - 4 W11-2 SIGNS
  - 2 W16-7pL SIGNS
  - 2 W16-7pR SIGNS
  - 2 SOLAR PANEL SYSTEMS (NOT REQUIRED FOR AC POWER)
  - 2 NEMA ENCLOSURES FOR ALL COMPONENTS NEEDED TO MEET FUNCTIONAL REQUIREMENTS PER SPECIAL PROVISIONS
  - 2 BATTERY SYSTEMS (NOT REQUIRED FOR AC POWER)
- PLUS ALL MOUNTING AND SUPPORTING HARDWARE AND WIRING NECESSARY TO COMPLETE A WORKING SYSTEM.



- NOTES:
1. INSTALL SILT SACK IN EXISTING CATCH BASINS BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
  2. GRATE TO BE PLACED OVER SILT SACK.
  3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

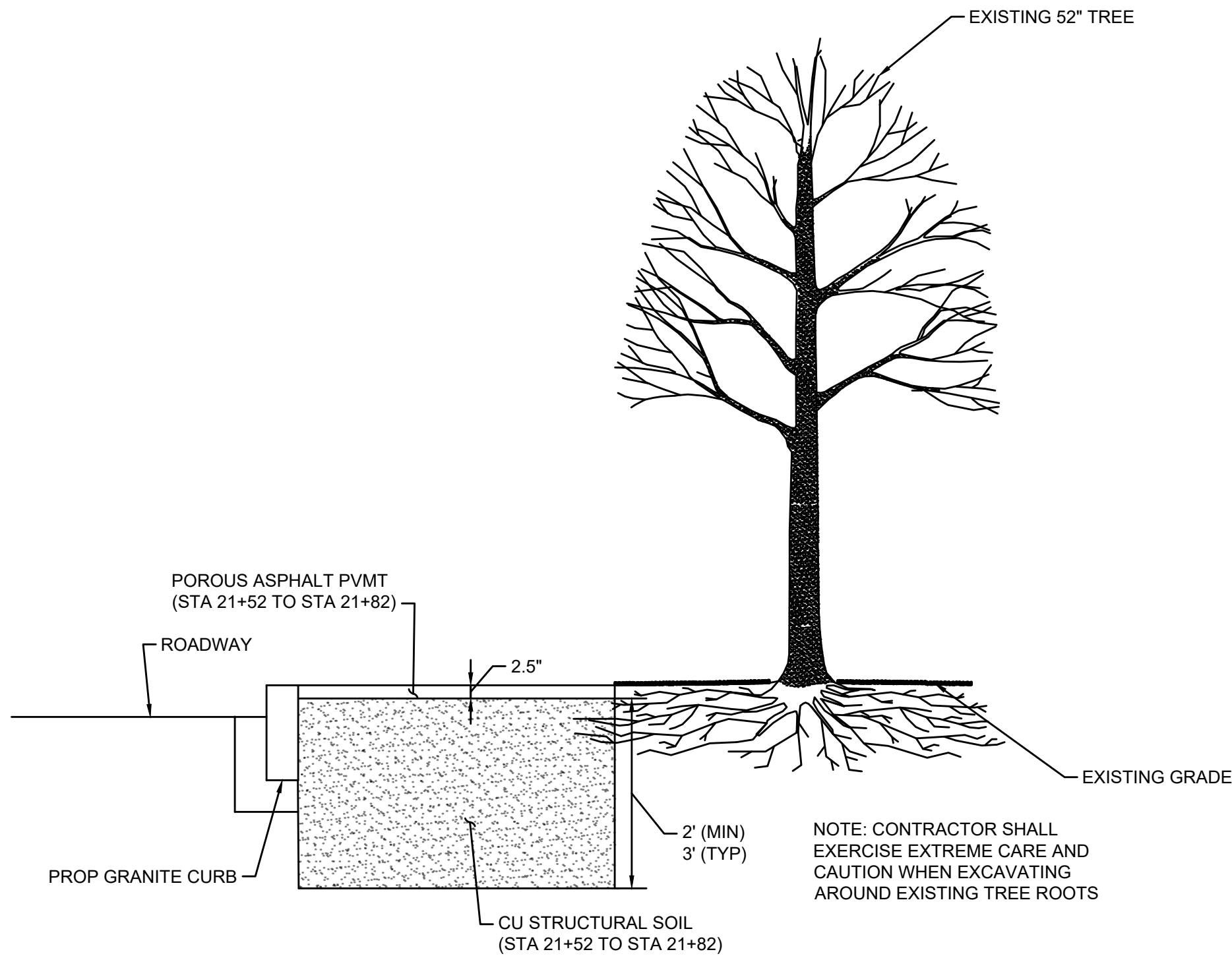
**INLET PROTECTION SILT SACK IN CATCH BASIN**  
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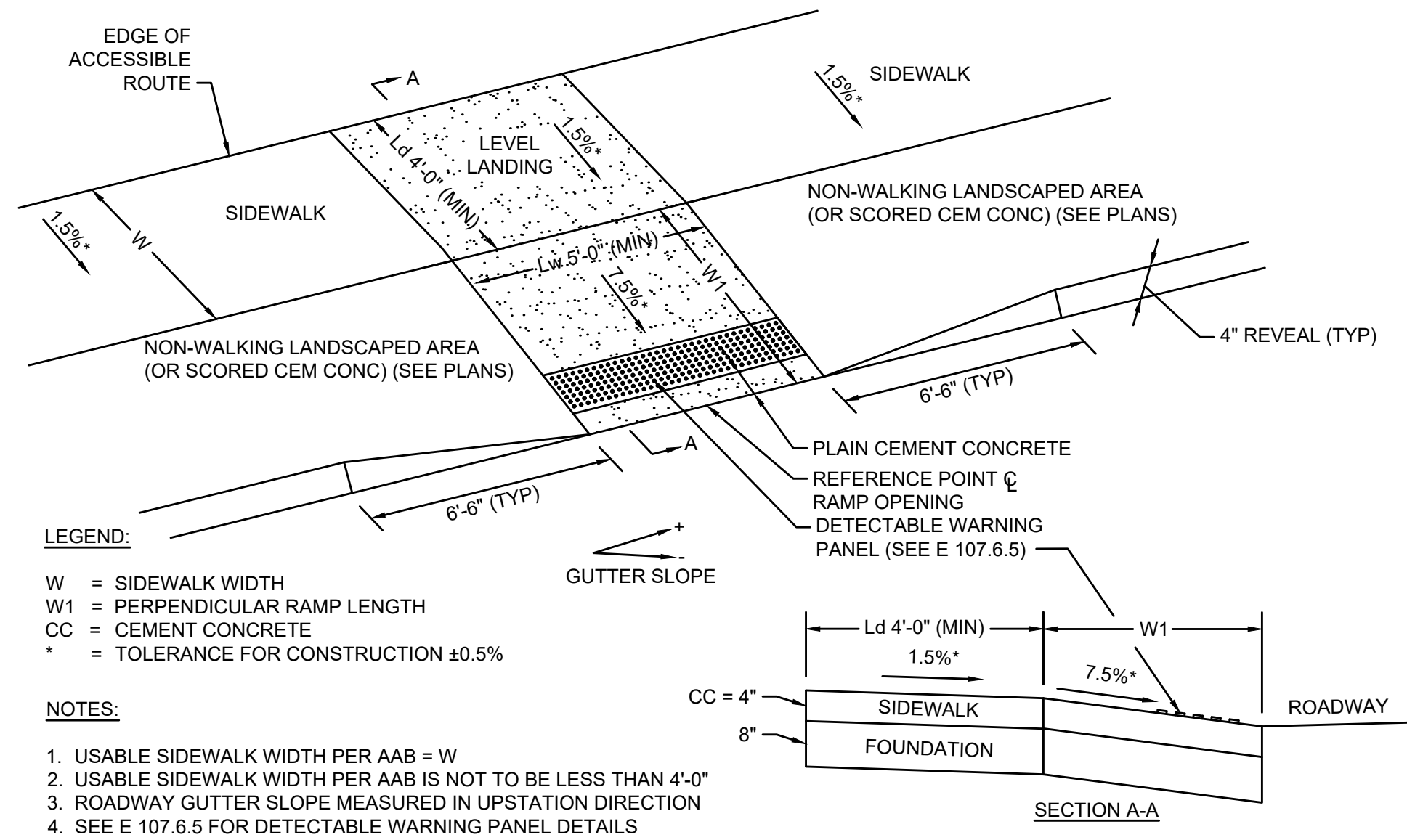
- NOTES:
1. ALL 12" LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED. ALL 24" LINES MAY BE EITHER ONE 24" LINE OR A COMBINATION OF TWO - 12" LINES.
  2. LAYOUT OF CROSSWALKS SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION.
  3. CROSSWALK BARS SHALL BE PLACED OUTSIDE THE VEHICULAR WHEEL PATH WHEREVER POSSIBLE.

**CROSSWALK PAVEMENT MARKING**  
N.T.S.

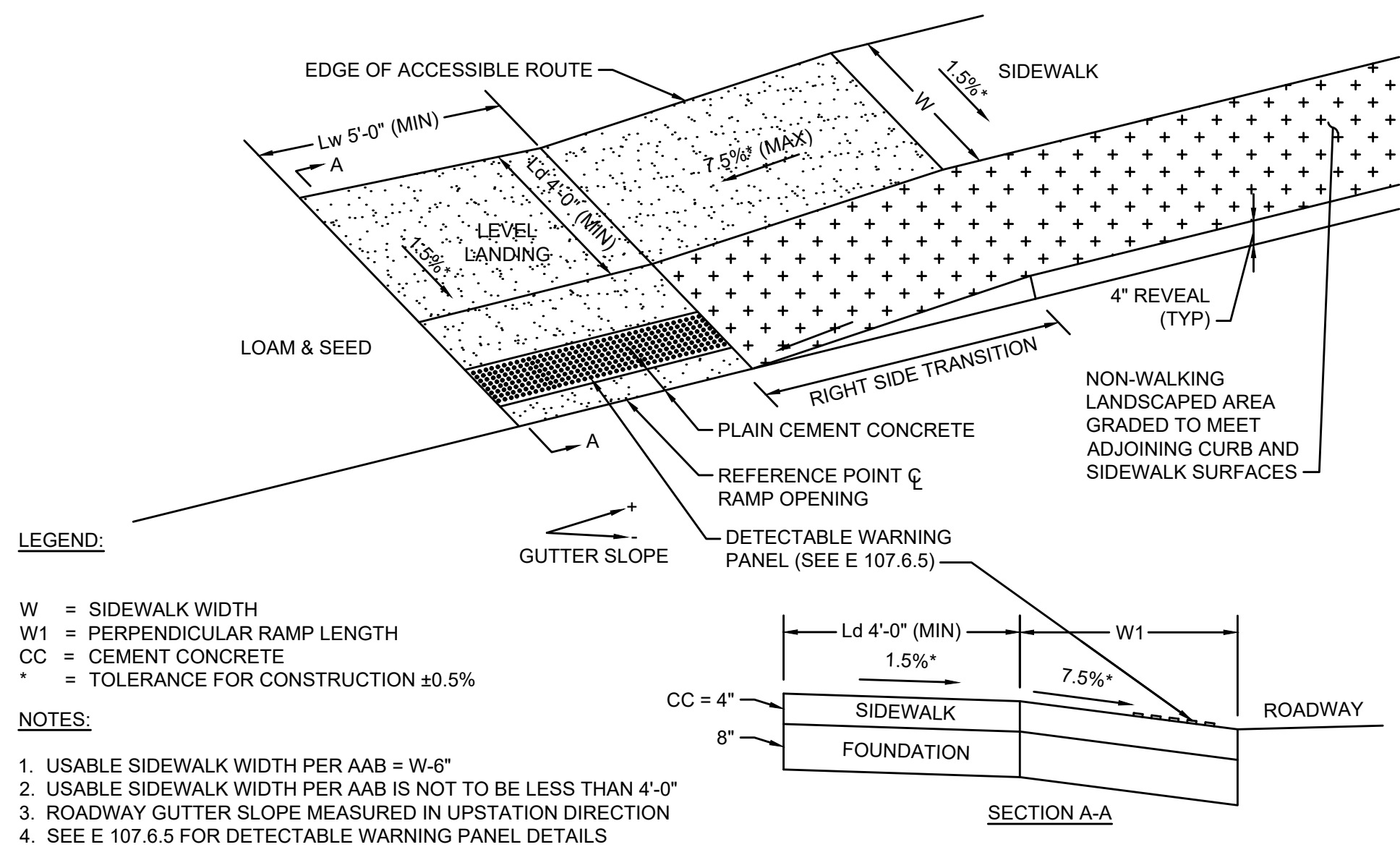




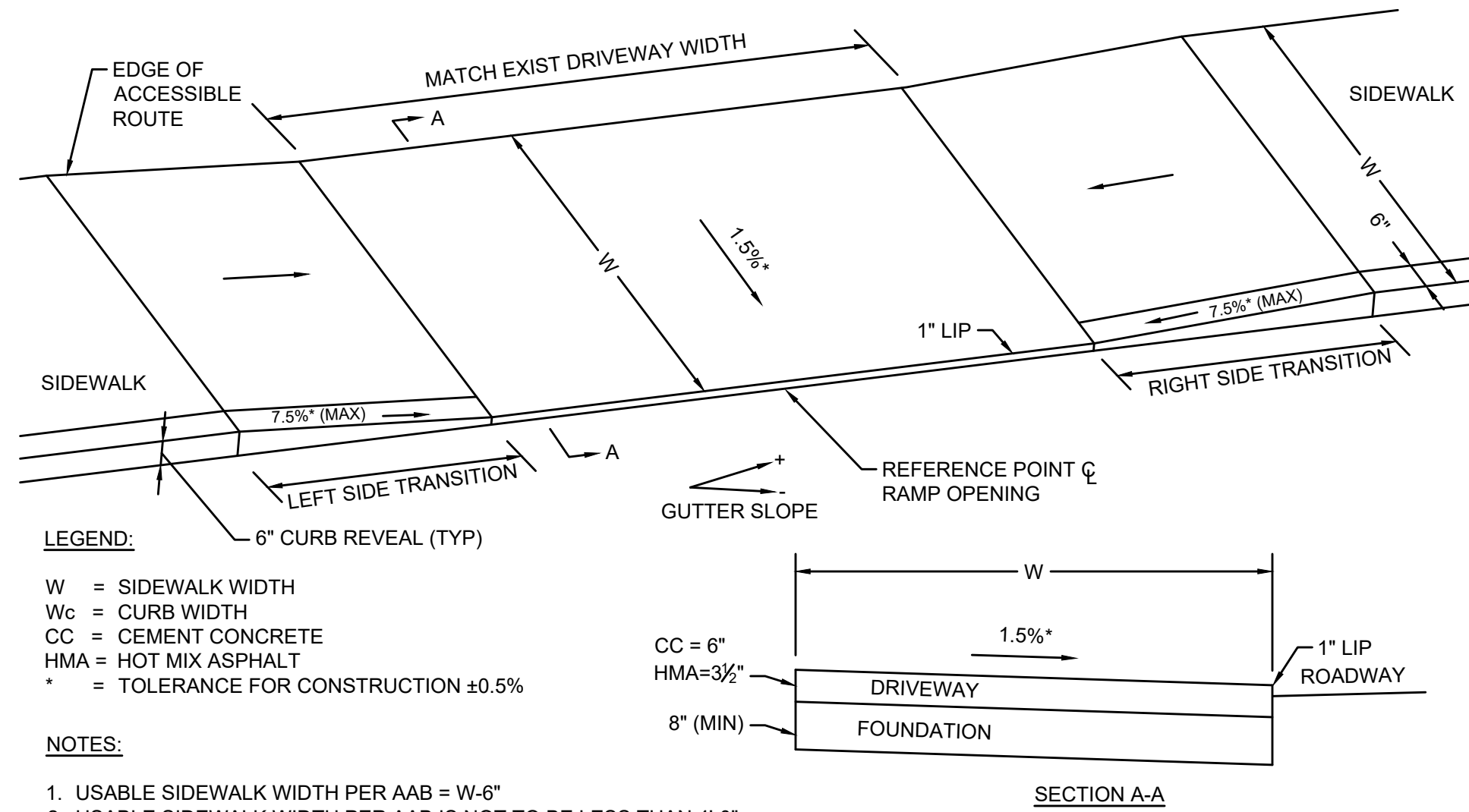
ADD ALT 1 - CU STRUCTURAL SOIL W/ POROUS PVMT  
N.T.S.



WHEELCHAIR RAMP TYPE A  
N.T.S.



WHEELCHAIR RAMP TYPE B  
N.T.S.



SIDEWALK THROUGH DRIVEWAY TYPE A  
N.T.S.



